COUNTY OF SUFFOLK

STEVEN BELLONE
COUNTY EXECUTIVE

DEPARTMENT OF ECONOMIC DEVELOPMENT AND PLANNING
DIVISION OF PLANNING AND ENVIRONMENT

COUNCIL ON ENVIRONMENTAL QUALITY

LAWRENCE SWANSON
CHAIRPERSON
CEQ

MEMORANDUM

TO: Interested Parties/Involved Agencies

FROM: John Corral, JC Senior Planner

DATE: November 8, 2017

RE: Proposed Vector Control 2018 Annual Plan of Work

Enclosed please find the 2018 Annual Plan of Work for the Suffolk County Vector Control Pesticide Management Committee which has been submitted to the Council on Environmental Quality (CEQ) for review. Pursuant to Title 6 NYCRR Part 617 and Chapter 450 of the Suffolk County Code, the CEQ must recommend a SEQRA classification for the action and determine whether it may have a significant adverse impact on the environment which would require the preparation of a Draft Environmental Impact Statement (DEIS).

The Council would like to know your environmental concerns regarding this proposal and whether you think a DEIS or a determination of non-significance is warranted. This project will be discussed at the November 15, 2017 CEQ meeting. If you are unable to attend the meeting to present your views, please forward any recommendations or criticisms to this office prior the date of the meeting. **If the Council has not heard from you by the meeting date, they will assume that you feel that the action will not have significant adverse environmental impacts and should proceed accordingly.**

JC/cd
Enc.

cc: John Sohngen, Assoc. Public Health Engineer
Suffolk County Department of Health Services
Andrew P. Freleng, Chief Planner
Department of Economic Development and Planning
Carrie Meek-Gallagher, NYSDEC

COUNTY OF SUFFOLK

STEVEN BELLONE
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF PUBLIC WORKS

DARNELL TYSON, P.E.
DEPUTY COMMISSIONER

GILBERT ANDERSON, P.E.
COMMISSIONER

THOMAS G. VAUGHN
DEPUTY COMMISSIONER

MEMORANDUM

TO: Jason Richberg
Clerk of the Suffolk County Legislature

FROM: Gilbert Anderson, P.E.
Commissioner of Public Works

DATE: September 29, 2017

RE: **Division of Vector Control 2018 Annual Work Plan**

Pursuant to Article VIII, Section C8-4, B(2) of the Suffolk County Administrative Code, enclosed please find a copy of the 2018 Annual Plan of Work for the Division of Vector Control for distribution to all members of the Legislature. This Annual Plan is consistent with the Findings of the Vector Control and Wetlands Management Long Term Plan and GEIS as approved by the Legislature in Resolution 285-2007 on March 20, 2007 and signed by the County Executive on March 22, 2007. As such, no further compliance under SEQRA is required.

A resolution for approval of the 2018 Plan of Work will be submitted to the Legislature by the County Executive's Office.

Thank you for your cooperation.

Attachments: Plan of Work, EAF, Long Term Plan Resolution with Findings

cc: Dennis Cohen, Chief Deputy County Executive
Theresa Ward, Deputy County Executive & Commissioner, Economic Development and Planning
Darnell Tyson, Deputy Commissioner of Public Works
Thomas Vaughn, Deputy Commissioner of Public Works
Thomas Iwanejko, Vector Control Director
John Corral, CEQ

SUFFOLK COUNTY DEPARTMENT OF PUBLIC WORKS
DIVISION OF VECTOR CONTROL

2018 ANNUAL PLAN OF WORK

Introduction: The Suffolk County Department of Public Works, Division of Vector Control, is responsible under the County Charter for controlling mosquito infestations that are of public health importance. The Division's responsibility is to control mosquito infestations that significantly threaten public health, or create social or economic problems for the communities in which they occur. The Division meets its responsibilities in consultation with the Suffolk County Department of Health Services (SCDHS) and appropriate federal, state and local agencies.

Background: Suffolk County has a long history of mosquito control efforts that first began under the United States Department of Agriculture (USDA) in 1900 with experimental projects for malaria and salt marsh mosquito control. Additional control efforts were often undertaken by owners of large estates and resorts located along the coastline seeking control of salt marsh mosquitoes through private ditch construction. Demand for a structured mosquito control program grew in Suffolk as effective levels of mosquito control were seen in Nassau County, New York City and New Jersey through both wetland filling and the ditching of marshes. In 1933, countywide mosquito control began under the Suffolk County Emergency Work Relief Bureau, which provided jobs during the Great Depression. The Suffolk County Mosquito Extermination Commission was created in 1934 to unite the individual town and private control efforts under a central agency. A significant increase in mosquito control efforts was further funded under the Federal Works Project Administration (WPA) in 1937 employing over 650 workers to assist the Suffolk County Mosquito Extermination Commission. It was during the years of 1933-1938 that the majority of our 9.5 million feet of mosquito ditches were created throughout Suffolk.

In 1974, the Suffolk County Charter was amended transferring the mosquito control functions and authority from the Mosquito Control Commission to the Suffolk County Department of Health Services, Division of Public Health, Bureau of Vector Control. During 1992, due to budget deficits, the county legislature transferred Vector Control from Health Services to the Department of Public Works, Division of Vector Control.

Vector Control Annual Plan of Work:

The Suffolk County Charter and New York State law requires an annual Vector Control plan of work for the succeeding year be submitted by resolution for legislative approval each year. This Plan of Work has been prepared pursuant to and in compliance with the Vector Control and Wetlands Management Long Term Plan and Generic Environmental Impact Statement (the

Long Term Plan). The Long Term Plan was approved by the County Legislature as Resolution 285-2007 on March 20, 2007 and signed by the County Executive on March 22, 2007. The 2018 Annual Plan of Work is therefore governed by State Environmental Quality Review Act (SEQRA) Regulation 617.10(d)(1) which provides the following: "When a final generic EIS has been filed under this part (1) no further SEQR compliance is required if a subsequent proposed action will be carried out in conformance with the conditions and thresholds established for such actions in the generic EIS or its findings statement." This issue is also discussed in the Findings, appended hereto, pages 7 and 58. The 2015 Plan of Work added the use of a new active ingredient, prallethrin, which required a modification of the Long Term Plan. In accordance with the Findings, a SEQR review of prallethrin was conducted in order to allow the use of the new active ingredient. This review was completed with the issuance of a Negative Declaration as CEQ Resolution 34-2014 and the modification of the Long Term Plan approved by the Legislature as Resolution 706-2014. This Annual Plan complies with the reporting requirements in Executive Order 15-2007 (Suffolk County Vector Control Pesticide Management Committee) and Resolution 285-2007 (which adopts the Findings Statement for the Long-Term Plan). The reporting requirements of Resolution 285-2007 are satisfied within this Annual Plan, and the Pesticide Management Committee submits a report to CEQ independently to satisfy Executive Order 15-2007.

On October 17, 2013, the County approved Resolution 797-2013 requiring this Plan of Work to include a section on the "steps being taken to reduce the incidence of tick-borne diseases in Suffolk County". Accordingly, the 2018 Plan of Work includes a section on current tick surveillance, research and control activities. For 2018, these steps will continue to be limited to planning, information gathering, outreach, technical assistance, and small scale tick control trials and as such will be Type II actions under SEQRA Section 617.5 (c) (20), (21) and (27).

2017 SUMMARY OF VECTOR CONTROL ACTIVITIES

1. Service Requests: For 2017, a total of 1,281 calls were taken by office staff concerning mosquito issues.

2. Public Education: Vector Control staff have given several presentations to community associations and commercial pest control applicators on mosquito issues including Zika virus, the expanding Asian Tiger mosquito issue and mosquito surveillance and control, and on ticks. Field crews during inspections of private property will talk with the homeowners about steps residents can take around their home and leave an educational flyer on mosquito control if no one is home. In addition, Health Services staff hold informative meetings, post to social media and update the County website with information and findings on mosquito borne diseases, steps homeowners can take and updating postings for spray events.

3. Water Management: Wetland activities conform to the guidelines outlined in the Long Term Plan and GEIS Finding statement's Wetlands Best Management Practices (BMP's). The Wetlands Stewardship Program finalized the Wetlands Stewardship Strategy in 2015. Maintenance of existing structures (select ditches and culverts) will be conducted as described in BMP's 2, 3 and 4 in the Findings Statement and Long Term Plan. Water management projects beyond BMP's 2, 3, and 4 will undergo full review under SEQRA, and

would be subject to Suffolk County's Council of Environmental Quality (CEQ) review and legislative approval.

With the Wetlands Stewardship Strategy finalized, the County is undertaking several Integrated Marsh Management (IMM) projects as called for under the plan. The County has received $1.3M in Sandy funding from the National Fish and Wildlife Foundation Coastal Resiliency grant for IMM work to be done in the Towns of Islip and Brookhaven and in cooperation New York State Department of Environmental Conservation. These projects are now in the final permiting stage with work expected to begin during the upcoming winter months of 2017-18. The County has also received $560,000 from a Federal Hazard Mitigation Grant Program under FEMA for IMM work at Smith Point County Park in Shirley for costal marsh resiliency. Permits have also been applied for from the NYSDEC for this project with construction targeted for the winter of 2018-19 completion.

SC Parks has secured grant funding from the New York Department of State for wetlands restoration at the County's Beaverdam Creek Park in Brookhaven Hamlet for the re-establishment of a wetlands complex at a dredge spoil impacted marsh. This project is a cooperative undertaking between several County agencies and the Post Morrow Foundation who owns part of the site. The goal of this restoration project is to return tidal circulation to a diked marsh that is a mostly phragmites and several low areas that breed mosquitoes. A tidal creek will be created to allow for the return of salt marsh vegetation, phragmites control and a reduction in mosquitoes by allowing killifish access to the low areas of the site.

A cooperative project with the Town of East Hampton and the Nature Conservancy is underway to map mosquito breeding activity in Accabonac Harbor with the potential goals of pesticide reduction and preliminary designing for a wetlands restoration project. The project began in 2017 with Stony Brook University Student Interns seeking breeding locations of mosquitoes which are logged by GPS, compiled and characterized by location and level of activity. Using the data, aerial treatment zones will be remapped allowing for reduced pesticide use and for planning of wetland restoration actions. This pilot project will be used as a guide to invite other cooperators to develop similar programs at marsh complexes within their jurisdictions. This program will greatly benefit the County through cost savings from reduced pesticide and helicopter usage and through restoration of wetlands resulting in environmental benefits to the marsh community and those who depend on its flora and fauna.

A NYSDEC grant for the restoration of a former Terry Creek marsh at the Indian Island County Park in Riverhead is underway. Plans for the restoration are being finalized and permits will be applied for in 2018. The site is a former salt marsh that was filled with dredge material from Terry and Meetinghouse Creek. Plans for the restoration include restoring a historic tidal creek at the site, establishing tidal wetland vegetation and installing a culvert over an active park roadway.

4. Larval Control: Perform approximately 9,000 inspections of larval sites. Checked and treat as required 21,336 catch basins in communities with past history of West Nile virus positive pools or human cases. Treated approximately 15,000 acres with the biorational larvicides:

Bacillus thuringiensis israelensis (Bti), Bacillus sphaericus or methoprene depending on mosquito stage of development, weather, coastal tides and virus findings.

5. Adult Control: Conduct adult control when infestations are severe and widespread and/or necessary to respond to the presence of mosquito-borne pathogens. Due to the presence of Eastern Equine Encephalitis (EEE) in mosquitoes collected from Manorville this year, an emergency aerial adulticide application was undertake on 7,000 acres. This spraying was in response to SC Health mosquito traps testing positive with 4 samples of mosquitoes for EEE. EEE virus has a high case mortality outcome and has its greatest impacts on young children. The Suffolk Health Commissioner petitioned the NYS Health Department to declare an imminent threat to public health due to the EEE findings. The declaration allowed the County to promptly undertake the required control actions and allows greater reimbursement from the State (50%) for work undertaken and pesticides applied in response to the EEE threat.

6. Research and Surveillance: Vector Control field crews and lab staff collect and identify over 10,000 larval and adult mosquito samples each season, depending on mosquito population and viral activity levels. In addition, Health Services Arthropod-Borne Disease Laboratory (ABDL) collects and process approximately 50,000 mosquitoes for arbovirus surveillance. Vector Control responds to virus isolations in consultation with the Health Commissioner and staff and evaluates the effectiveness of treatments in cooperation with the ABDL. Vector staff perform special studies of new mosquito problem areas, monitoring for pesticide resistance, identifying the sources of unusual infestations or researching introduced vector species, including the Asian Tiger Mosquito.

Technical and Institutional Framework for Vector Control

To achieve this goal, the Division employs an integrated control program also referred to as integrated pest management or IPM. Control measures are employed in a hierarchical manner that emphasizes prevention of the concern, and are guided by a surveillance program to ensure that control measures are only directed to address a clear need. Control proceeds from the long-term, environmentally sound measures such as wetland management and biological control to the use of highly specific larvicides, and only uses chemical control by adulticiding if other measures prove to be either insufficient or not feasible. This integrated approach is recognized as the most effective and environmentally sound manner in which to conduct a mosquito control program.

Because mosquitoes are of high public health importance, the Division works closely with SCDHS Arthropod Borne Disease Laboratory (ABDL). The ABDL concentrates its efforts on surveillance for mosquito-borne pathogens, primarily the arboviruses West Nile Virus (WNV), Zika and Eastern Equine Encephalitis (EEE). The Division conducts laboratory work that concentrates on estimating populations of mosquito adults and larvae. The Division also conducts laboratory work related to special projects designed to improve the control program and to evaluate the impacts of wetlands management. The results of this surveillance are used to guide and evaluate the Division's ongoing control work. During times of a declared public health threat, the Division comes under the operational control of SCDHS. However, these declarations

are rare and are issued by the New York State Health Commissioner as was the case in 2017 for the finding of EEE in Manorville.

The New York State Department of Health (DOH) provides important support to the program by analyzing mosquito samples for pathogens, providing technical advice and guidelines and determining when a public health threat declaration is required. DOH also provides significant assistance with public education, as well as financial aid for vector surveillance and control. Because mosquito control involves work in environmentally sensitive areas and the use of pesticides, environmental compliance and protection are important components of the program. The Division is heavily regulated and subject to inspection under a series of New York State Department of Environmental Conservation (DEC) permits, as well as regulations pertaining to the use of pesticides and licensing of applicators. Close contact is maintained with DEC, United States Fish and Wildlife Services (USFWS), EPA and other agencies throughout the year to ensure that all work is conducted to a high environmental standard.

2018 PROGRAM COMPONENTS

WATER MANAGEMENT: Field personnel conduct this component from January 1 to April 30, and October 1 to December 31 (varies due to seasonal weather). Water management during the winter months is a functional way to reduce the need for pesticide applications during the summer, by keeping mosquito ditches and creeks free of blockages. The Division expects to conduct water management in each of the County's ten towns, as needed. Highest priority is assigned to larval habitats where adult mosquito infestations have the greatest potential for negative impact. In particular, areas that had virus isolations or showed unexpectedly high infestations in 2017 will have high priority over the coming winter. Water management activities will be carried out in such a manner so that the primary goal of the work will be to protect the health of the marsh, while also reducing mosquito numbers.

Water management minimizes mosquito production through maintaining or improving systems of tidal channels, ditches, culverts and other structures that drain off surface water and/or allow access to potential larval habitats by predatory fish. In some cases, the current ditch system has become an important component of the wetland as it exists today, and maintenance of the system is necessary to maintain tidal flow, fish habitat, or existing vegetative patterns. Much of this is maintenance work that may not require a permit, but is nonetheless conducted after consultation with the New York State Department of Environmental Conservation (DEC) to ensure consistency with conservation of the wetland. More extensive work to rehabilitate wetlands in a manner that restores and preserves resource values while also reducing mosquito production is now underway under the umbrella term Integrated Marsh Management (IMM). In accordance with the Long Term Plan, all water management activities will be conducted with appropriate notification to and oversight by the Council for Environmental Quality (CEQ), as outlined in the Findings Statement of the Suffolk County Legislature that was adopted by Suffolk County Resolution 285-2007.

The Wetlands Stewardship Committee completed its work in establishing standards for wetlands Best Management Practices (BMP's) and a Wetlands Stewardship Strategy was issued by Executive Order 01-2015 on July 13, 2015. With that Strategy in place, plans for 2018 will

include more extensive marsh projects. These will be projects that restore and enhance the natural resource values of the wetlands while also reducing or eliminating the need for pesticides to control mosquitoes. All work will be planned in partnership with the landowner and NYSDEC, USFWS and other natural resources agencies and undergo SEQRA review as required.

CONTROL OF MOSQUITO LARVAE: All field personnel conduct larval control during the active mosquito season. Most crews conduct ground larviciding, while a heavy equipment crew assists in helicopter larvicide applications. This component is conducted during the active mosquito season of May 1 to September 30. Larval control is required when water management has not been able to completely prevent mosquito production. It also is used when water management has not been conducted or is not appropriate. Larval control is the Division's second most important control method. Ground crews visit known larval habitats, check for the presence of larvae, obtain larval specimens for identification in the laboratory and apply larvicide if necessary. Field crews also eliminate larval habitats by unclogging pipes, removing containers or otherwise eliminating standing water. While the acreage of these sites is small, their proximity to residential areas makes them important. Ground crews also respond to complaints from the public. The Division's most intense efforts are directed to the major salt marshes and wetland complexes, which require use of the helicopter. These marshes are surveyed weekly, or after extreme flood tides. If larvae are discovered, a contract helicopter applies larvicide. For salt marshes and similar habitats, either Bti (Bacillus thuringiensis israelensis), Altosid (methoprene), or a combination of materials are applied, based on larval stage, temperature, and weather conditions. Larval control is employed if inspection of a site reveals larval production is occurring or the site has great potential to breed mosquitoes.

The larval control products to be used in 2018 and the conditions under which they are used are described as follows:

Altosid Liquid Larvicide Concentrate (methoprene, EPA 2724-446) – Aerial application to tidal and freshwater marshes.

Altosid Liquid Larvicide (methoprene, EPA 2724-392) – Ground application to tidal and freshwater marshes, as well as other temporarily flooded areas.

Altosid Pellets (methoprene, EPA 2724-448) – Ground application to intermittently or permanently flooded areas such as freshwater swamps, catch basins, drainage areas and recharge basins, provided that they are not fish habitats.

Altosid XR-G (methoprene, EPA 2724-451) – Ground or aerial application to tidal wetlands; ground application to intermittently flooded freshwater areas; aerial application in freshwater areas in response to Eastern Equine Encephalitis (EEE) or West Nile Virus (WNV) with required approval by DEC.

Altosid XR Briquets (methoprene, EPA 2724-421) – Catch basins and other drainage or artificial structures that are not fish habitats.

Aquabac 200G (Bti, EPA 62637) – Ground application to intermittently flooded freshwater and tidal areas.

Sphaeratax SPH (50G) (B. sphaericus, EPA 84268-2) - Ground application to freshwater and brackish areas that hold stagnant water such as ditches, impounded marshes, swamps, puddled areas, sewage lagoons; late season application to catch basins.

Valent BioSciences Vectobac 12 AS (Bti, EPA 73049-38) – Aerial application to tidal and freshwater marshes; ground application to intermittently flooded areas such as tidal and freshwater marshes.

Summit B.t.i. Briquets (Bti, EPA 6218-47) – Catch basins, ground depressions, artificial sites.

Fourstar Briquets 90 (Bti plus B. sphaericus, EPA 83362-3) – Catch basins, ground depressions, artificial sites

Valent VectoPrime (Bti and methoprene EPA 73049-501) Ground and aerial application to tidal and freshwater marshes, as well as other temporarily flooded areas.

Valent VectoBac WDG (Bti EPA 73049-56) Ground and aerial application to tidal and freshwater marshes, as well as other temporarily flooded areas.

The equipment to be used for larval control includes various trucks for crew transportation, samplers such as dippers and mosquito traps, truck-mounted hydraulic sprayers, backpack sprayers and granular blowers, plus specially-equipped helicopters for larvicide applications on areas too large or inaccessible for ground treatment. All pesticide applications will use EPA and DEC-registered materials and be conducted under appropriate DEC permits and in accordance with label directions and other relevant State and Federal law.

The Division has developed technical guidelines for larval surveillance and control that determine where and when larvicides are used and what materials are selected for a particular situation. These guidelines emphasize the use of bacterial products when possible and reserve methoprene for those situations where bacterial products are unlikely to be effective. As per the Findings for the Long Term Plan and Executive order 15-2007, the Pesticide Management Committee has reported on the results of its review of literature on methoprene and potential impacts, as well as on research sponsored by the County. The Committee found no significant new concerns regarding the use of methoprene. The County is committed to implementing a Pesticide Reduction Action Plan, that will seek to further accelerate pesticide reduction. As part of this Pesticide Reduction Action Plan, the County will continue to work with technical experts to further refine protocols related to larval monitoring and larvicide usage, consistent with the Long-Term Plan and GEIS. The County is not aware of any new data, studies or reports which contravene research, reports and Findings of the Long Term Plan with respect to larval treatment guidelines or thresholds. Therefore, those Findings are still valid, and control this Annual Plan.

In accordance with the Division's priorities and goals, approximately 1,500 of the 2,000 plus major larval habitats known to the Division will be surveyed and controlled as necessary throughout the active season. These known historic mosquito habitats consist primarily of

freshwater wetlands and salt marshes, as well as roadside ditches, recharge areas and other non-wetland sites. The remaining major larval habitats and the countless artificial container larval sites will be controlled on a service requested basis, as resources permit. Maps showing major larval habitats requiring control are on file at the Division's office in Yaphank.

CONTROL OF ADULT MOSQUITOES: This control method is conducted generally from May through September, but is highly weather dependent. It is carried out only when adult infestations constitute an immediate threat of mosquito-borne disease or there is a severe and widespread infestation of vector species, as determined by surveys and/or numerous public complaints. While the need for adult control can be reduced by the other program components, it is not possible to control all larval sites in Suffolk County for a variety of reasons including shifting weather patterns, disease findings and storm events. In addition, some Federal lands are restricted as Wilderness including extensive portions of Fire Island National Seashore and William Floyd Estate in Mastic Beach. It is also not appropriate to treat for adult mosquitoes in every area where residents express a concern, nor is it appropriate to treat small areas or individual properties for adult mosquitoes. Adult control is conducted only when it is clear, based on complaints, Division surveillance and/or SCDHS consultation that a substantial portion of a community is infested with vector species or there is a threat of mosquito-borne disease. Then, the entire affected area is treated so as to give relief to the greatest number of residents in an environmentally sound and cost effective manner. The guidelines for adult control in this Plan are consistent with those described in the GEIS Findings Statement.

Adult control can be deemed to be necessary under two separate operational scenarios in the GEIS. One is defined as a “Vector Control” (public health nuisance) application, the other is defined as “Health Emergency” application. Vector Control adulticide applications are made to reduce excessive numbers of human biting mosquitoes that could impact public health and quality of life by their biting activities. These high populations also represent potential vectors if a pathogen is present or appears in the area. Health Emergency applications are made when an unacceptably high risk of disease transmisson to humans is detected, based on the ongoing presence of pathogens in mosquitoes. In either case, pesticide use decisions are only made on the basis of scientifically-determined surveillance data.

The need for Health Emergency treatments is determined by the New York State Department of Health West Nile Virus Response Plan and the County’s Zika Action Plan, adapted for local conditions by staff experts at Vector and Health Services. Because of the persistent presence of WNV in the County, the County perpetually begins each year in Risk Category 2. The New York State Department of Health has determined that there is an ongoing threat to the public health from West Nile Virus, and no longer declares health threats each year. The determination of when the threat of west Nile rises to the level that requires adulticiding is made by the County Vector Control staff in consultation with the Health Commissioner and ABDL staff. As additional pathogenes including Zika virus becomes established in the US; the CDC, NYS Health and Suffolk continually reevalute the risk to County residents. Currently, only travel related Zika cases have been repoted in Suffolk, but Health ABDL continues to monitor Asian Tiger mosquitoes that have shown competence to carry Zika.

The need for adulticiding in response to WNV varies greatly from year to year. An analysis of Suffolk County's WNV history during the years 2000-2015 indicates that most years, (10 of 16) the number of human cases of WNV is low, 0-4 cases. Under such conditions, the WNV human transmisson risk level is low, even when WNV is found in the County. In these low risk years, determining exactly where and when to adulticide is nearly impossible with limited data. As a result, in low years, adulticiding is usually not warranted due to the difficulty in delinating specific areas to target. High risk years are caused largely by environmental conditions favorable to virus amplification in birds and mosquitoes, such as a warm spring and a hot dry summer weather. These conditions manifest themselves in late July and early August through higher than normal numbers of positive mosquito samples and infection rates. WNV history also demonstrates that, in years when WNV activity is higher than normal, human cases are more likely to occur in some parts of the County than others. In years with early indicators of high risk, adulticiding targeted to these high risk areas can measurably reduce the risk of human transmission and is therefore warranted. When a high risk year is identified, these WNV applications generally take place in late July and August. Responding to early indications of high risk is important, because adulticiding should occur before peak human transmisson occurs in the first 2-3 weeks of August. Waiting to see if transmission results in actual human cases is not appropriate because by the time cases are detected, transmission has been ongoing for several weeks and it may be to late to prevent further transmission.

As indicators of risk of transmisson to humans accumulate, Vector Control and Health determines when control measures are best suited to the situation and which areas should be targeted for maximum benefit. The Commissioner of the SCDHS makes the final determination of the need for adult control in reponse to pathogens. By limiting the use of adulticides for virus response to only those years and areas where a benefit is likely, the risks associated with adulticiding can be reduced while still providing a high level of public health protection. This strategy is consistent with the goal in the Findings to reduce the use of pesticides by a targeted approach.

To ensure adulticides are used only when there is a clear need and a likely benefit, the criteria for conducting an adulticide treatment will include:

1. Evidence of high numbers of mosquitoes biting residents and visitors (Vector Control):

- Service requests from public - mapped to determine extent of problem.
- Requests from community leaders, elected officials.
- New Jersey trap counts higher than generally found for area in question (at least 25 females of human-biting species per night).
- Centers for Disease Control (CDC) portable light trap counts of 100 or more.
- Confirmatory crew reports from the problem area or adjacent larval habitat, with landing rates of over one biting mosquito per minute over a five minute period.

2. Higher than normal risk of human disease transmission that can be reduced by adulticiding (Health Emergency):

- Indications of a higher than normal year for WNV activity County-wide as determined by such measures as infection rates and/or the number or proportion of positive mosquito

samples, especially by late July or early August. In a year with normal or below normal levels of WNV activity, adulticiding is generally not indicated.

- In a high risk year, adulticiding may be warranted when there are indications of higher than normal levels of WNV risk (such as the number of positive mosquito samples, infection rates, vector species populations and history of human transmission) in particular areas. Adulticiding priority will be given to those parts of the County where WNV cases have occurred in multiple years and at high densities compared to the rest of the County.
- Zika response will occur when positive mosquitoes are found in traps or local transmission by mosquitoes is suspected due to aquired cases without travel history.
- Adulticiding will be strongly considered if EEE is detected during July, August or September when human transmission is most likely.
- Adulticiding in reponse to other pathogens (such as dengue, chikungunya, malaria or other emerging pathogens) will be considered on a case-by case basis based on the vector ecology of the pathogen involved.

3. Control is technically and environmentally feasible:

- A target area can be clearly defined based on geographic features and the distribution of vector species and other risk factors.
- Weather conditions are predicted to be suitable for ULV application when mosquitoes are active. Aerial applications in response to WNV are particularly dependent on weather conditions, and near-ideal conditions of low wind combined with high temperatures and humidity are needed for truly effective results.
- The road network is adequate and appropriate when truck applications are considered.
- Legal restrictions on the treatment of wetlands, open water buffers, and no-spray list members in the treatment zone will not create untreated areas that would prevent adequate coverage to ensure treatment efficacy.
- There are no issues regarding listed or special concern species in the treatment area.
- Meeting label restrictions for selected compounds will not compromise expected treatment efficacy.

4. Likely persistence or worsening of problem without intervention:

- Considerations regarding the history of the area, such as the identification of a chronic problem area for biting mosquitoes or a history of virus transmission.
- Seasonal cycles of pathogen activity, such as whether or not the treatment is in time to prevent WNV transmission or whether it is too late and most transmission has already occurred.
- Determination if the problem will spread beyond the currently affected area absent intervention, based on the life history and habits of the species involved.
- Crew reports from adjacent larval habitats suggest adults will soon move into populated areas.
- Life history factors of mosquitoes present – i.e., if a brooded species is involved, determining if the brood is young or is naturally declining.
- Weather factors, in that cool weather generally alleviates immediate problems, but warm weather and/or the onset of peak viral seasons exacerbate concerns.

- Determining, if the decision is delayed, if later conditions will prevent treatment at that time or not. Conversely, adverse weather conditions might remove most people from harm's way.

In essence, criteria 1 and/or 2 are necessary thresholds which should be met, prior to a treatment being considered, while criteria 3 and 4 are countervailing factors that would indicate treatment may not be required. Treatment will not occur unless criteria 1 or 2 are satisfied through a combination of surveillance indicators, although not all surveillance techniques may be feasible in every setting and situation. The County is not aware of any new data, studies or reports which contravene the research, reports and Findings of the Long Term Plan with respect to adulticide treatment guidelines or thresholds. Therefore, those Findings remain valid and guide this Annual Work Plan.

Vector Control applications will normally be made by truck since that technique has been shown to be effective for the most common species involved, although aerial application remains an option for unusually widespread problems or areas with limited road networks. Health Emergency applications will be done by aerial application due to the need to treat large areas. Necessary public notices will be issued in a timely manner (normally, at least 24 hours pre-application), and appropriate precautions will be made to meet DEC restrictions on applications, and to avoid "No Spray" properties. If necessary, to protect sensitive resources, buffer areas will be provided between the sensitive area and the application equipment. A 150-foot buffer from freshwater wetlands will be provided to avoid the need for DEC Article 24 (Freshwater Wetlands) permits unless a permit or other authorization from DEC has been received.

In 2009 and previous years, an Emergency Authorization were requested from DEC if freshwater wetlands were involved to eliminate the need for an Article 24 (Freshwater Wetlands) permit. In 2011, NYSDEC issued Vector control an Article 24 permit to allow adulticide applications in freshwater wetlands or adjacent areas if necessary to protect the public health and replace the use of Emergency Authorizations. This permit controls the use of adulticides in and adjacent to freshwater wetlands during the term of that permit, 2011-2020. The permit covers Health Emergency applications throughout the County and will also allow Vector Control applications in and adjacent to some freshwater wetlands in heavily developed areas of southern Brookhaven Town. Appropriate required public notices will be issued in collaboration with Health, including CodeRed telephone alerts, website and phone hotline notices and social media updates. If an aerial application is required, the helicopter is equiped with a GPS and weather monitoring guidance technology will be used to optimize the delivery of the pesticide specifically to the targeted zone.

Efficacy measurements will be made following adulticide applications as weather conditions and staff resources allow. The Long-Term Plan also calls for the establishment of resistance testing for the more commonly used compounds. Continued testing of local mosquitoes against resmethrin (Scourge), sumithrin (Anvil) and Duet (sumithrin and prallethrin) in 2016 and 2017 revealed no local resistance to these materials in several pest species of mosquitoes tested. Species recently tested included the Asian Tiger Mosquito (potential carrier for Zika), Culex pipiens (WNV) and several salt marsh species including Aedes sollicitans (EEE and dog heartworm) and Aedes taeniorhynchus (Rift Valley and Venezelan Equine Encephalitis viruses).

The Long-Term Plan proposed a general reliance on resmethrin, a synthetic pyrethroid, as the adulticide pesticide. However, the Federal and State re-registration for resmethrin products is ending by the manufacturer and existing stocks are nearly exhausted. Sumithrin, a similar pyrethroid, was proposed by the Long Term Plan to be the primary back-up to resmethrin, and the primary pesticide for hand-held applications. Sumithrin has now become the Division's primary adulticide material. Sumithirn, like resmethrin has been found to be an effective pesticide for mosquito control, can be used for ultra-low volume applications for truck and aerial delivery, undergoes rapid decay in the environment, and, as discussed below, has few identified non-target effects when applied as proposed under the Long-Term Plan. The Division has also begun use of Duet, the Long Term Plan has been modified to include it and its active ingredients, sumithrin and prallethrin. Duet is similar to the Division's primary sumithrin product, Anvil, in that both products contain sumithrin and the synergist piperonyl butoxide (PBO). However, in addition to 5% sumithrin and 5% PBO, Duet also contains 1% prallethrin. This amount of prallethrin is not sufficient to control mosquitoes, but it does induce them to fly, a phenomenon known as "benign agitation". Benign agitation casues mosquitoes that are resting to fly so that they will encounter the aerosol droplets and be exposed to a lethal dose of sumithrin. Duet has been shown to be particularly effective against mosquitoes that tend to rest during the optimal time of the day for aerosol treatment, that is, at night. The primary use for Duet will be against the Asian Tiger mosquito (ATM), *Aedes albopictus* and may be used for control of other daytime species including salt marsh mosquitoes. The ATM is an introduced species that inhabits containers and tends to bite during the daytime, making it a significant biting pest that is difficult to control because it is less active at night. The Long-Term Plan also identifies two other pyrethroids, permethrin and natural pyrethrins, as potential adulticide compounds. Neither is preferred; however, as permethrin is a widely available product that is manufactured for many homeowner pest and farm uses that may increase mosquito resistence to the material. Natural pyrethrins are identified as a potentially useful compound because its label allows for use over agricultural areas. In addition to the pyrethroids, malathion, an organophosphate pesticide, was identified as a potential adulticide. Malathion would only be considered for use under very specialized conditions, such as Zika response if a thermal fogging application was required, daylight applications were called for, or if resistance testing indicated pyrethroid applications would be ineffective in meeting the goals for public health protection. All of these pesticides are applied at the label rates, in the best way of achieving effective mosquito control and to avoid the development of pesticide resistance. The adulticides included in this Annual Plan have been fully evaluated in the GEIS for the Long-Term Plan, and this Annnual Plan is fully consistent with the attached Findings. Vector Control continually reviews available pesticides and alternatives, including emerging materials and application techniques for the most environmentally suitable control methods.

PUBLIC EDUCATION: Mosquito problems resulting from larval habitats around homes and yards, containers, drains and the like, is generally brought to the Division's attention through residents' requests for service. Control of these "domestic" container mosquitoes is promoted through education and appeal to individual property owners to 'Dump the Water'. Given the Zika and WNV threat posed by these container mosquitoes, especially the Asian Tiger Mosquito *Aedes albopictus* and the House Mosquito *Culex pipiens*, Vector and SCDHS have taken on a leading role in public education. Sanitarians are utilized to require property owners to clean up

potential mosquito larval sites. Public education includes the distribution of pamphlets, telephone contact, site visits, media exposure and presentations to various citizens' groups and associations. In addition, the Division offers assistance to residents in eliminating sources of mosquitoes on their property, and leaves "door hangers" with educational information at properties they visit. Educational materials are also available on the County Web site. The appearance of introduced, container-breeding species *Aedes japonicus* and *Aedes albopictus* and continued Zika concerns means this component must take on increasing importance, since the public's cooperation is required to control these backyard container larval habitats.

PUBLIC NOTIFICATION AND THE "NO-SPRAY" REGISTRY: In 2000, the County passed new laws to improve required public notification for adult mosquito control. As a result, there is now an increased use of the media and extensive outreach to local officials. The Health Services and Vector Control Websites are used to post spray notices and maps. For each adulticide application, over e-mails and faxes are sent to various officials and other interested parties. Newsday and News12 often post spray schedules and maps. And Health has begun posting spraying updates to social media including Facebook and Twitter. It is important to recognize that adulticide applications are very sensitive to the weather, especially aerial applications. The need to inform the public needs to be balanced with the need to conduct operations promptly, within weather windows and before the problem spreads and more acreage needs treatment. It is usually not appropriate to provide more than 24 hours' notice in most cases, because beyond that time, weather forecasts are not very reliable. Attempts to provide more than 24-hour notice often result in aerial spray operations being announced and then cancelled. These cancellations are confusing to the public and difficult to reschedule. Despite these difficulties, the County provides 48-hour notice for aerial adulticide applications whenever possible for non-virus response.

In addition to the previous public notification procedures, the County has implemented a County law, passed in 2010, requiring the use of its "Code Red" automated calling and messaging system to provide more thorough public notice for adulticiding. This system allows automated phone calls to be placed to all landline telephones in an area designated for treatment. These messages provide basic information about the operation, such as spray hours, and refer the recipient to additional sources of information. The system ensures that nearly everyone in the area knows about the operation. Use of the Code Red system has been very successful and provides a new level of public information for the program. Residents can also register their cellphones or e-mail addresses to receive the Code red updates through FRES.

The Division also maintains a "no-spray" registry of residences where adult mosquito control is not desired. During ground applications the application unit is shut off 150 feet prior to passing such a residence and not turned on until 150 feet after. This registry represents an effort to balance the desires of those residents who want control of adult mosquitoes with those who oppose the use of pesticides. In 2017, the "no-spray" registry listed 326 properties, including those with health concerns, beekeeper hive locations and organic farms. When control is required to deal with a public health emergency, the Commissioner of SCDHS can override the list. Even then list members are contacted prior to applications in their area through the Code Red system. In addition to this legally required registry, the Division maintains on the listing beekeepers and organic farms who register. Beekeepers' properties are generally avoided and beekeepers are notified via Code Red before treatments so that they can take any additional actions they may

deem necessary to protect their hives. In addition, several steps are taken to avoid impacts to bees including timing of applications to the evening hours when bees are not foraging. Vector also uses mosquito control materials least likely to impact bees and through adjustment of spray equipment and technique using an ultra-low volume (ULV) droplet size that will impact mosquitoes, but not larger bodied insects, including bees. Certified organic farms are avoided and a buffer zone around the farm is included.

Although not required to do so by law, the County also provides public notification for aerial larviciding. An e-mail notice of the marshes to be treated by helicopter is sent each week to Legislators, local governments and other interested parties. In addition, a list of marshes to be treated is posted each week on the County Web site and the list is sent to the media, including Newsday.

SURVEILLANCE AND RESEARCH: All control operations are based on information obtained from surveillance and research. This a cooperative effort between Vector Control staff in the Department of Public Works and the Arthropod Borne Disease Laboratory in the Department of Health Services. Knowledge of mosquito populations, species composition and arbovirus activity is used to guide and evaluate control measures. Arbovirus surveillance allows the Division, in cooperation with the County and State Health Departments, to gauge the potential for disease transmission and take appropriate action.

A) Mosquito population surveillance: Approximately 12,000 larval and adult mosquito surveys are analyzed each year. These surveys are necessary for locating infestations, directing control efforts and evaluating the effectiveness of those efforts. The mosquito species that breed in various locations are determined from larval samples. Numbers of adult mosquitoes in residential areas are estimated from a network of approximately 29 New Jersey light traps in fixed locations throughout the County. New Jersey traps provide staff with ongoing population trends and are compared with service requests in a community to assist in determining the need for adult mosquito spraying. Some 50,000-100,000 mosquitoes per year from these traps are identified and counted. This work is conducted by DPW staff. In addition, Vector maintains an array of specialized Mosquito Magnet type traps to monitor seasonal cycles and long term trends in populations of the introduced exotic, container-breeding species *Aedes japonicus* and *Aedes albopictus* (The Asian Tiger Mosquito).

B) Arbovirus surveillance in mosquitoes: Viral surveillance is conducted primarily by the ABDL and will be directed primarily at the main pathogens, WNV, Zika and EEE. Surveillance will be conducted according to the latest CDC and State DOH guidelines, modified for Suffolk County's unique environment. To monitor virus activity, CDC light traps and gravid traps are placed on a weekly or rotating basis at various locations throughout the County. These sites are chosen based on their history of viral activity or the presence of viral indicators such as the finding of birds with WNV in the area. The ABDL and the Division collect and process approximately 50,000 live, adult mosquitoes annually for viral analysis. Mosquitoes collected are sorted by species, frozen, and sent to Albany for arbovirus analysis in the State DOH laboratory.

C) Human, avian and other surveillance: SCDHS, State DOH, DEC and CDC monitor other WNV and EEE indicators such as unusual bird deaths or the number of dead birds sighted in an area. The presence of WNV-positive birds is an indicator of virus activity in an area, and ABDL picks up selected dead birds for WNV testing. The County conducts a rapid RNA test (the RAMP test) to check for WNV in dead birds. There are also indications that the number of dead bird sightings in an area is a surrogate indicator of risk. SCDHS and NYS also monitor hospitals, blood banks and outreach to physicians to quickly detect human cases of Zika, WNV and other emerging vector borne illnesses.

D) Efficacy monitoring: While the Division has always monitored the effectiveness of the control program in a variety of ways, there has been an increased effort in this area, based on trial work to develop methods conducted in 2007. In particular, trapping of adult mosquitoes before and after adulticide events is conducted using carbon dioxide baited CDC light traps, NJ traps or reviewing service request logs. In addition, indicators of virus activity before and after treatment are followed to be sure the desired effect is achieved. While the number of adult mosquitoes in New Jersey traps and other traps is a key indicator of the overall success of the larval control program, additional effort will be directed toward before and after sampling of treated areas to confirm the efficacy of the treatment methods used.

E) Special surveys and field investigations: Vector's Control staff conduct special surveys to determine the source of mosquito problems when these turn up in places where they are not expected. Special surveys of problems that appear early in a season can allow larval crews to prevent further trouble through the summer. Given the somewhat unpredictable ways mosquitoes can cause problems for residents of and visitors to the County, it is important that the Division retain a flexible ability to investigate issues as they are identified.

F) Support for Wetlands Restoration/Stewardship activities: Vector Control continues to provide support for monitoring and other investigations related several wetland restoration activities. In particular, Division staff assist in the ongoing monitoring of the Integrated Marsh Management (IMM) projects at Wertheim and Seatuck National Wildlife Refuges. In addition, the Division will assist the Wetlands Stewardship Program in identifying and evaluating prospective sites for future IMM projects, particularly those that will help meet Long Term Plan goals for pesticide use reduction. With the completion of the Wetlands Stewardship Strategy and the availability of grant funding, this component of the program will continue in 2018 with several funded restoration projects.

<u>COOPERATIVE EFFORTS AND OUTREACH</u>:

Other provisions of the Work Plan notwithstanding, Vector Control may participate in research, monitoring, and demonstration projects in cooperation with other levels of government such as the State, Towns or Federal agencies such as the US Fish and Wildlife Service or Army Corps of Engineers. These activities may be subject to separate DEC permitting and SEQRA compliance, and to CEQ and Wetlands Stewardship Committee review as well.

Vector Control will also continue to work with the various local governments, including the cooperative effort with East Hampton Town to provide framework to develop, plan and construct

wetland restoration projects that will restore wetland functions, values and lead to a reduction in pesticide use, while still protecting human health and quality-of-life through reduced mosquito numbers.

TICK RESEARCH SURVEILLANCE AND CONTROL:

In 2013, the Division began work under Resolution 797-2013 to determine how the County might best be able to reduce the impact of tick-borne diseases. This was a follow-up to the Tick Management Task Force (TMTF) that was submitted to the Legislature in May of 2008 in response to Resolution 1123-2006. In addition, Resolution 132-2014 created the Tick Control Advisory Committee (TCAC) to advise Vector on tick control planning. Large scale effort to reduce the number of ticks on a countywide landscape, such as those described by the TMTF, would have the potential for adverse impacts on the environment and would need full SEQRA review. While no large scale control efforts can be undertaken without an environmental review of tick control under SEQRA and potentially an EIS of the plan, several interim actions are being undertaken. The development of a Tick Control Plan and environmental review, therefore, is a major effort that has yet to be funded. Re-establishment of the TCAC under Resolution 1668-2016 is assisting the County to develop a plan of action and identify the resources needed going forward to fully develop a County-wide environmentally sound tick control plan.

In 2018, Vector Control will continue to work on developing a County-wide tick control plan with the limited resources available. Studies are currently restricted to research activities that would not require full environmental review under SEQRA. Vector is also working to improve the technical basis for control efforts and provide practical information to the various public and private entities currently undertaking localized tick control programs. These cooperative efforts can help leverage the County's limited resources through partnership efforts.

The 2018 tick control efforts include:

1. In 2015 the County created a new position and hired an Entomologist for tick-related activities. Having this person devoted full time to tick research and control was a major step forward in understanding the tick problem in Suffolk.
2. We will continue to work with the TCAC in 2018 to explore tick control and funding options that may be available to the County. Most importantly, the TCAC will allow for the continued input and feedback from stakeholders needed to gauge what options might be feasible and acceptable for implementation at each local level. This is a significant task, since each of the available control options have their own unique local benefits and drawbacks
3. Several long-term and seasonal surveillance sites have been tracking baseline tick populations across Suffolk County since late 2015. Bi-weekly sites were expanded in 2017 to include a western sampling site, due to observed variation in species and activity. This continued surveillance effort has provided important locally based data such as species composition, abundance, seasonal cycles, and present pathogens. This information will help design and conduct control efforts by other jurisdictions and private pest control operators.

4. Vector staff will continue tick sampling for pathogen testing by NYSDOH and assist SCDOH with sample collections for future County based testing. Samples have been sent to NYSDOH for 2016 and spring of 2017.
5. Past tick collections in 2015 and 2016 with collaborations at Columbia University have produced a published study with novel pathogen testing methods and a second virome study manuscript is underway. Collaborators at The City University of New York are currently testing samples collected in collaboration with Vector Control; a fall collection is being organized. Staff will continue to assist DEC, local municipalities, government agencies and others with tick or tick pathogen related sample collections.
6. Vector Control will continue to search the literature on the subject in order to improve the Division's technical expertise in tick control and the environmental effects thereof.
7. We will continue our efforts to reach out to experts for their advice and input and attend related seminars and conferences in the field. These efforts have already proven very helpful in gaining knowledge that may not be published but is highly valuable and allow fostering of mutually beneficial collaborations and potential funding sources.
8. Vector staff will continue to provide technical advice and tick management program design to landowners, government agencies, municipalities and civic groups that are conducting tick control or are considering doing so. These activities will continue to provide further opportunities to learn what techniques local entities are interested in adopting, currently using, or which may be useful to the County and others.
9. In 2017, Vector Control and Cornell Cooperative Extension held a tick management workshop based on continued interest from 2016 efforts for private pest control operators. These workshops allow us to collect information on locally used materials in tick management, discuss application techniques and provide technical assistance to commercial tick control providers within Suffolk County.
10. Vector staff will continue to give presentations at various pest control association meetings, municipalities and civic groups as time and resources allow.
11. Vector Control, in cooperation with Cornell Cooperative Extension, will continue local field trial assessment of tick management materials and area-wide management strategies as opportunities and resources allow.
12. Vector Control and Cornell Cooperative Extension (CCE) successfully completed an awarded small grant awarded in 2016, for educational workshops and initial funding of field acaricide testing. Currently, Vector staff and CCE are preparing a proposal for potential state funding through the newly launched Northeast Regional Center for Excellence in Vector-Borne Diseases at Cornell University.

The prevention of tick-borne diseases in the County is a difficult and complex issue. It is particularly difficult because the biology of these vectors and diseases are significantly linked to deer overpopulation, expansion of range and limited management. In addition, tick control technology suitable for large scale application is not as well developed as mosquito control techniques. A proper plan with concurrent SEQRA compliance would require additional resources to undertake an EIS, beyond those currently available to Vector. However, tick-borne diseases and the adverse impacts ticks have on the ability of County residents to utilize the outdoors, and even their own property, are important issues that need continued investigation.

The Findings Statement for the Long Term Plan requires Vector Control to provide an annual report of pesticide use to the Legislature. The table below summarizes the use of pesticides by the Division in 2017.

Suffolk County Pesticide Acreage Estimates for 2017					
Product	**Active Ingredient**	**Amount Used**	**Units**	**Air/Ground Application**	**2017 Acreage**
Ground Larvicides					
Altosid Liquid Larvicide 5%	Methoprene	0	gal	Ground	0
Altosid Pellets	Methoprene	44	lbs	Ground	9
Altosid XR-G	Methoprene	15	lbs	Ground	3
Vectobac 12 AS - Ground	Bti	0	gal	Ground	0
Summit Bti Briquets	Bti	96	ea	Ground	1
Fourstar 90 Briquets	Bti/*B. sphaericus*	4656	ea	Ground	11
VectoPrime FG	Bti/Methoprene	10,160	lbs	Ground	6,340
Aquabac 200G	Bti	1,200	lbs	Ground	120
Altosid XR briquets - Basins	Methoprene	21,120	ea	Ground	49
Spheratax 50G	*B. sphaericus*	3,200	lbs	Ground	213
Ground Larvicide Acres				***Total Acres***	**6,748**
Aerial Larvicide:					
Duplex: Altosid 20% + Vectobac 12AS	Methoprene + Bti mix (Liquid)	85 ALL 20% 2,040 12AS Bti	gal	Aerial	14,506
VectoPrime FG	Bti/Methoprene (Granular)	15,200	lbs	Aerial	3,800
Aerial Larvicide Acres				***Total Acres***	**18,306**
Larvicide Ground & Air				***Total Acres***	**25,052**
Adulticides					
Scourge 18+54	Resmethrin	0	gal	Ground	0
Anvil 10+10 ULV	Sumithrin	172.5	gal	Ground/Air	36,800
Duet	Sumithrin + Prallethrin	0	gal	Ground	0
Adulticide Ground & Air				***Total Acres***	**36,800**

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Instructions: The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current available information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action/Project: Vector Control 2018 Annual Plan of Work		
Project Location (include map): Throughout the County		
Brief Description of Proposed Action (include purpose, intent and the environmental resources that may be affected): 2018 Annual Plan of Work for the County's ongoing mosquito control program, to be conducted pursuant to the Vector Control and Wetlands Management Long Term Plan and GEIS (the Long Term Plan).		
Name of Applicant/Project Sponsor: Suffolk County DPW, Division of Vector Control	Email: Tom.Iwanejko@suffolkcountyny.gov Telephone #: 631 852-4270	
Address: 335 Yaphank Ave		
City/P.O.: Yaphank	State: NY	Zip Code: 11980
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule or regulation? **If Yes**, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. **If No**, continue to question 2.		Yes ☒ No ☐
2. Does the proposed action require a permit, approval or funding from any other governmental agency? **If Yes**, list agency(s) name and permit or approval: NYSDEC Article 15 & 24 Permits are in place as is Clean Water Act NOI w DEC		Yes ☒ No ☐
3a. Total acreage of the site of the proposed action: Acres treated varies according to results of surveillance of mosquito populations and virus findings.		
3b. Total acreage to be physically disturbed: Acres treated varies according to results of surveillance of mosquito populations and virus findings.		
3c. Total acreage (project site and contiguous properties) owned or controlled by the applicant or project sponsor: Acres treated varies according to results of surveillance of mosquito populations and virus findings.		

4. Check all land uses that occur on, adjoining and near the proposed action: ☒ Urban ☒ Forest ☒ Parkland ☒ Agriculture ☒ Rural (non-agriculture) ☒ Industrial ☒ Aquatic ☒ Commercial ☒ Residential (suburban) ☐ Other:	
5a. Is the proposed action a permitted use under the zoning regulations?	Yes ☐ No ☐ N/A ☒
5b. Is the proposed action consistent with an adopted comprehensive plan?	Yes ☒ No ☐ N/A ☐
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	Yes ☐ No ☐ N/A ☒
7. Is the site of the proposed action located in, or adjoining a state listed Critical Environmental Area (CEA)? **If Yes**, identify CEA: Site varies, but adhears to NYSDEC specified permited locations and applications.	Yes ☐ No ☐
8a. Will the proposed action result in a substantial increase in traffic above present levels? 8b. Are public transportation services available at or near the site of the proposed action? 8c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	Yes ☐ No ☒ Yes ☐ No ☒ Yes ☐ No ☒
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies:	Yes ☐ No ☐ N/A ☒
10. Will the proposed action connect to an existing public/private water supply? **If Yes**, does the existing system have capacity to provide service? Yes ☐ No ☐ **If No**, describe method for providing potable water:	Yes ☐ No ☐ N/A ☒
11. Will the proposed action connect to existing wastewater utilities? **If Yes**, does the existing system have capacity to provide service? Yes ☐ No ☐ **If No**, describe method for providing wastewater treatment:	Yes ☐ No ☐ N/A ☒
12a. Does the site contain a structure that is listed on either the State or National Register of Historic Places or dedicated to the Suffolk County Historic Trust? 12b. Is the proposed action located in an archeological sensitive area?	Yes ☐ No ☒ Yes ☐ No ☒
13a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	Yes ☒ No ☐

13b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? **If Yes**, identify the wetland or waterbody and extent of alterations in square feet or acres: [ ]	Yes ☐ No ☒
14. Identify the typical habitat types that occur on, or are likely to be found on the project site (check all that apply): ☒ Shoreline ☒ Forest ☒ Agricultural/grasslands ☒ Early/mid-successional ☒ Wetland ☒ Urban ☒ Suburban	
15. Does the site of the proposed action contain any species of animal or associated habitats, listed by the State or Federal government as threatened or endangered?	Yes ☒ No ☐
16. Is the project site located in the 100 year flood plain?	Yes ☒ No ☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? **If Yes,** a. Will storm water discharges flow to adjacent properties? Yes ☐ No ☐ b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? Yes ☐ No ☐ **If Yes,** describe: [ ]	Yes ☐ No ☒
18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? **If Yes,** explain size and purpose: [ ]	Yes ☐ No ☒
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? **If Yes,** describe: [ ]	Yes ☐ No ☒
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? **If Yes,** describe: [ ]	Yes ☐ No ☒
I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE Applicant/Sponsor Name: Thomas Iwanejko Signature:	Date: 9/29/2017

SUFFOLK COUNTY
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Part 2 – Impact Assessment (To be completed by Lead Agency)

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	☒	☐
2. Will the proposed action result in a change in the use or intensity of use of land?	☒	☐
3. Will the proposed action impair the character or quality of the existing community?	☒	☐
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	☒	☐
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	☒	☐
6. Will the proposed action cause an increase in the use of energy and fail to incorporate reasonably available energy conservation or renewable energy opportunities?	☒	☐
7. Will the proposed action impact existing public/private water supplies?	☒	☐
8. Will the proposed action impact existing public/private wastewater treatment utilities?	☒	☐
9. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	☒	☐
10. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	☒	☐
11. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	☒	☐
12. Will the proposed action create a hazard to environmental resources or human health?	☒	☐

SUFFOLK COUNTY
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Part 3 – Determination of Significance

The Lead Agency is responsible for the completion of Part 3. For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts. Attach additional pages as necessary.

Coordinated review and GEIS have already been conducted for the Suffolk County Vector Control program and this Annual Plan of Work is fully consistent with the March 22, 2007 Findings for the GEIS. As such, no further SEQRA review is necessary. A copy fo the findings statement is attached to this application.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required. (Positive Declaration)

☒ Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action will not result in any significant adverse environmental impacts. (Negative Declaration)

Name of Lead Agency	Date
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT

LONG - TERM PLAN

GENERIC ENVIRONMENTAL IMPACT STATEMENT
STATEMENT OF FINDINGS

Steve Levy
Suffolk County Executive

Department of Environment and Energy
Carrie Meek Gallagher
Commissioner

Department of Public Works
Gilbert Anderson, P.E.
Commissioner

Department of Health Services
Humayun J. Chaudhry, D.O., M.S.
Commissioner

Department of Public Works, Division of Vector Control
Dominick Ninivaggi
Supervisor

PROJECT MANAGEMENT
Project Manager: Walter Dawydiak, P.E., J.D.
Chief Engineer, Division of Environmental Quality, Suffolk County Department of Health Services

Adopted March 22, 2007

SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT

LONG - TERM PLAN

GENERIC ENVIRONMENTAL IMPACT STATEMENT
STATEMENT OF FINDINGS

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LONG-TERM PLAN

Preparation/Submission Date:	February 1, 2007
Issuance Date:	As of adoption by the Suffolk County Legislature
SEQRA Classification:	Type 1
Lead Agency:	County of Suffolk Suffolk County Legislature William H. Rogers Building 725 Veterans Memorial Highway Smithtown, NY 11787
Contact Name:	Mr. James Bagg Chief Environmental Analyst Council on Environmental H. Lee Dennison Building 100 Veterans Memorial Highway Hauppauge, NY 11788 (631) 853-5203
Location:	Countywide, but excluding the Orient Point Mosquito Control District and Fire Island National Seashore

A. Introduction

The subject action is the Suffolk County Vector Control Wetlands Management and Long-Term Plan (herein the Long-Term Plan; October, 2006). This Statement of Environmental Findings has been prepared in accordance with the environmental review requirements of the State Environmental Quality Review Act (SEQRA), as set forth in 6 NYCRR Part 617 and Chapter 279 of the Suffolk County Charter. This statement of findings has been prepared to demonstrate that:

1. the procedural requirements of SEQRA have been met;
2. the proposed Long-Term Plan was selected from among the reasonable alternatives as the choice that minimized potential impacts; and
3. as required by 6 NYCRR Section 617.11(d), consistent with social, economic and other essential considerations from among the reasonable alternatives available, the action is one that avoids or minimizes adverse environmental impacts to the maximum extent practicable. Adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporating as conditions to this Statement of Findings those mitigative measures that were identified as practicable.

B. Overview

Purpose/Goals

Suffolk County has developed this Long-Term Plan to control mosquitoes (protect public health), reduce pesticide usage, and manage and protect wetlands. A major goal is to reduce larviciding by 75 percent, as measured in acres treated, over 12 years; currently, 4,000 acres of tidal wetlands are routinely larvicided. Another key goal is to continue to reduce adulticiding. In recent years, less than two percent of Suffolk County has received non-emergency adulticide treatments.

Description of Action

The Long-Term Plan enhances integrated pest management, including increased surveillance (including pre-adulticide, and post-adulticide efficacy), operational improvements (e.g., catch basin larviciding), and expanded public education/outreach. Strict numeric mosquito criteria will

be used to justify every non-Health Emergency adulticide treatment. The use of technology has also been optimized. For example, the Adapco Wingman spray technology is used to minimize pesticide usage, and geographic information systems have been improved.

Wetlands management will be critical in reducing larvicide usage. As part of the program, no new ditches will be created, and routine use of machine ditch maintenance has ceased. During the first three years, implementation of the Long-Term Plan will focus on low-impact water management without significant changes to the wetland ecology. Wetlands functions and values will be the paramount objective for all wetland management projects.

In the longer term, a Wetlands Stewardship Committee strategy will address the assessment and management needs of all 17,000 acres of tidal wetlands in Suffolk.

At a minimum, the Long-Term Plan will be updated on a triennial basis, with the first update due in 2010. The triennial report will contain detailed information on effectiveness of implementing a broad variety of recommendations related to public health, vector control, and water management (see Appendix 1 for format and examples of specific indicators). Any significant changes to the Plan may be subject to further environmental review (see section G).

Impact Analysis

A comprehensive environmental review was conducted for the potential impacts of the Long-Term Plan. As discussed in Section F, there is no data or analysis which documents that implementation of the Long-Term Plan will have any potentially significant adverse impacts (with the possible exception of adulticide impacts to non-target insects which are believed to be minor and can be mitigated, as well as Wetlands Best Management Practices 5 through 15, which would be subject to additional environmental review if proposed). Successful implementation of the Plan will, however, result in significant beneficial impacts (e.g., pesticide reduction).

Potential environmental impacts were reviewed for all aspects of the program, through exhaustive literature searches, local experiments (including collection of extensive monitoring data) and demonstration projects, and a comprehensive, quantitative risk analysis. Vector control and water management programs, and impacts, were evaluated for numerous jurisdictions.

The pesticides analysis results can be summarized as:

- Human health: negligible impacts (acute, chronic, or carcinogenic) from any larvicide or adulticide agent.
- Ecological impact: no significantly increased risks for impacts for mammalian, avian, or reptilian wildlife from any pesticide. Possible risks for aquatic impacts were associated only with the adulticides permethrin and, potentially more so, malathion. However, models indicate that the increased risk for invertebrate impacts does not propagate up the food chain, and a sophisticated ecosystem model showed recovery to be complete by the following spring.

Bees are the standard for understanding agricultural pesticide impacts to flying insects and, based on theoretical potential effects to bees, all adulticides posed a potential risk to non-target flying insects. However, vector control adulticides are generally not applied when bees are flying (day time). No study has attributed significant impacts to insect populations from vector control adulticides at the concentrations and methods in which they are applied. Also, the literature suggests that effects of transient stressors on insect populations are fleeting, with populations recovering within days. Mitigation measures contained in the Long-Term Plan are expected to minimize any potential impacts to non-target flying insects.

The water management impact assessment found that there should be no significant impacts from careful, site-specific application of the selected Best Management Practices. For the first three years of the Long-Term Plan (through early 2010), implementation of the Long-Term Plan will focus on low impact Best Management Practices (BMPs 1-4, including de minimis ditch maintenance and maintenance/repair of existing culverts). Any other BMPs (including BMPs 5-15) will automatically trigger additional environmental review.

The Long-Term Plan involves a new approach to the management of Suffolk County's coastal marshes, and there will be no new ditch construction, no routine ditch maintenance of the overall grid ditch system, and minimal, limited machine ditch maintenance (expected to be annually limited to 50,000 linear feet, affecting less than 50 acres of marsh) in conjunction with projects where it is necessary to preserve or enhance important ecological functions in tidally restricted areas.

Mitigation

Mitigation is discussed in detail in Section F. Mitigation is summarized as follows, in terms of integrated pest management, water management, and pesticide usage.

Integrated Pest Management

The Long-Term Plan mitigates potential impacts because it enhances many aspects of the current Integrated Pest Management approach, including:

- Public outreach will be bolstered. In particular, there will be targeted education efforts in areas that have a greater probability of receiving adulticide applications.
- Surveillance efforts (pre-spray and post-spray efficacy) will increase, including increasing the number of traps used and the number of set-outs made. New Jersey Light Traps will increase from 27 to 30, and CDC trap-nights are expected to increase from 80 to 105 trap nights per week, at peak). Surveillance results will be better communicated to the public as a means of justifying program decisions.
- Current efforts to reduce mosquito breeding in catch basins and other storm water systems will be increased. Catch basin monitoring will increase, with the goal of increasing from 10,000 to 40,000 inspections per year.
- Focus will be increased on reducing the number of tires that litter the County. These sites serve are key habitats for important disease vectors, and so these efforts clearly reduce the risks of disease transmission.
- Biocontrol use will be mitigated through the use of disease-free, native fish, whenever possible (although the use of disease-free fathead minnows is also a possibility), and through strict observance of restrictions to ensure fish do not escape to other water bodies and do not threaten endangered species or significant habitats.

Wetlands Management

Water management was the cause of many comments from interested parties. It is of prime importance that wetlands management be organizationally and functionally separated from vector control. To mitigate potential effects from any wetlands management project, the following measures will be instituted.

- For the first three years of the Long-Term Plan (through early 2010), implementation of the Long-Term Plan will focus on low impact Best Management Practices (BMPs 1-4, including de minimis ditch maintenance and maintenance/repair of existing culverts).
- Any other BMPs (including BMPs 5-15) will automatically trigger additional environmental review. While BMPs 1-4 will be generally classified as Type II Actions, they may be subject to further SEQRA review if deemed necessary by DEE and/or CEQ. BMPS 5-15 will be deemed Unlisted or Type 1 Actions to ensure appropriate SEQRA review.
- A Wetlands Stewardship Committee, chaired by the Suffolk County Department of Environment and Energy, will be a key part of the Long-Term Plan, and this Committee will provide recommendations on all projects using BMPs 10-15, and can review any other project its membership wishes to consider.
- In 2010, the first triennial report will include recommendations from the Wetlands Stewardship Committee strategy; at that point, any Long-Term Plan modifications may be subject to further environmental review (see section G).
- The Long-Term Plan now emphasizes marsh health and preservation in design, implementation, and assessment of all wetlands management projects.
- All necessary permits will be acquired, which will require a great deal of formal project reviews.

Pesticide usage

Pesticide impacts are mitigated in several ways, as follows.

- Implementation of the long-term plan is expected to result in decreasing need to use larvicides (an eventual 75 percent reduction is a Long-Term Plan goal).
- Precise triggers (trap counts or landing rates) are required to be met before any Vector Control adulticide applications.
- Efficacy testing will be a significant element of the Long-Term Plan, and these data should provide justification for the pesticide use that does occur.

- Use of the Adapco Wingman technology will optimize aerial adulticide applications (maximize mosquito control while minimizing pesticide usage)
- Continued consultation with New York State Department of Environmental Conservation (NYSDEC) and other resource agencies will ensure that all pesticide applications avoid impacts to endangered species and minimize impacts to settings of particular concern, whether through the use of setbacks, adjustments in application timing, or avoidance of specific areas.
- The plan report now appears to want to lessen such buffers, which right now are 100-150 feet. CEQ feels the buffers are necessary, though if more nuanced applications are proven to avoid non-target impact/drift, CEQ will be willing to consider such evidence as part of the long term strategy.

It is important to emphasize that the Long-Term Plan will be an adaptively managed Plan. The Steering Committee and the advisory committees (Citizens and Technical) are expected to continue to function, and issues can continue to be addressed, even if they arise or are realized after this iteration of the Plan has been completed.

Further Environmental Review

The triggers for further environmental review which are specified herein constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County could commence additional environmental review based on substantial new technical information.

Further environmental reviews (see Section G) are possible under at least two circumstances: adoption of the Annual Plan of Work, and in relation to wetlands management projects. Both are summarized below.

Annual Plans of Work

On an annual basis, the Council on Environmental Quality will review Annual Plans of Work and make a recommendation with respect to the State Environmental Quality Review Act to the Suffolk County Legislature. Annual Plans of Work that comply with the form and content of the Long-Term Plan generally should not require further environmental review. If an Annual Plan

of Work diverges from the Long-Term Plan, whether in terms of the scope of particular elements, or in terms of specific products or approaches to vector control, then all or part of the Annual Plan may be subject to further environmental review, at the determination of the Suffolk County Legislature and/or other involved agencies.

In general, annual plans need to focus on the use of surveillance to determine where mosquito problems exist, and to primarily employ source reduction tools to reduce the impact of mosquitoes on people. The implementation (over time) of the techniques for wetlands management developed in the Best Management Practices manual, as outlined in the Wetlands Management Plan may be a source reduction tool.

Specific triggers for additional SEQRA reviews have been detailed. These triggers include:

- failure to include public education and outreach steps to educate residents and visitors on the means that are available to avoid mosquito bites and diseases associated with mosquitoes
- inadequate mosquito population or disease surveillance
- failure to commit to respond to all mosquito complaints using personnel appropriately trained to identify and mitigate sources of mosquito problems
- failure to use the review processes outlined in the Wetlands Management Plan for wetlands management projects
- proposed use of a non-native biocontrol organism not already resident in Suffolk County natural environments
- proposed use of a larvicide other than Bacillus thuringenesis var israelensis (Bti), Bacillus sphaericus, or methoprene
- proposed use of an adulticide other than resmethrin, sumithrin, permethrin, natural pyrethrins, or malathion
- identification of a preferred adulticide agent other than resmethrin or sumithrin
- use of BMPs 5-15.

Wetlands Management

Most wetlands management projects will be subject to further environmental review. Projects utilizing Best Management Practices 1 through 4, as determined by DEE, (none to Minimal Impacts) will not, unless unusual site-specific conditions are cause for concern; all others will.

The triggers for further environmental review which are specified in the FGEIS and below in Section G constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County and/or the Council on Environmental Quality could commence additional environmental review based on substantial new technical information.

C. Procedural Requirements

Suffolk County Department of Public Works (SCDPW) prepared an Environmental Assessment Form (EAF) for the development of a Vector Control and Wetlands Management Long-Term Plan and submitted the EAF to the Council on Environmental Quality (CEQ) on May 2, 2002. On May 15, 2002, the CEQ issued a recommendation for a Positive Declaration to the Suffolk County Legislature. The Legislature issued the Positive Declaration at its meeting on August 6, 2002.

A draft Scoping document was prepared by Suffolk County Department of Health Services (SCDHS). The draft Scope was circulated for public review beginning August 7, 2002. A public Scoping hearing was held on September 10, 2002, at the Suffolk County Legislative Building in Hauppauge. This hearing was conducted by the CEQ, acting on behalf of the County Legislature, as authorized by Chapter 279 of the Suffolk County Administrative Code.

The CEQ held open the public Scoping record until September 25, 2002, in order to afford the opportunity for additional written comments regarding the scope of the DGEIS. All written comments received through that date, as well as minutes and summaries from the various meetings conducted as part of the Scoping process, were collected together and published by the County.

The Final Scope was published August 1, 2003, and was adopted by the Legislature by Resolution 1122 on December 16, 2003. The resolution was signed by County Executive Robert Gaffney on December 18, 2003.

A Draft Generic Environmental Impact Statement (DGEIS) for the Suffolk County Vector Control and Wetlands Management Long-Term Plan was submitted to CEQ on May 3, 2006. It was accepted as complete by CEQ at its May 17, 2006 meeting. At that meeting, CEQ set a 60 day comment period (through July 17, 2006) and also announced that two public hearings would be held. Public hearings were thus held, on Thursday, June 29, 2006, from 6 to 9 pm, at the Maxine S. Postal Legislative Auditorium, Riverhead, and on Thursday, July 6, 2006, from 10 am to 1 pm in the Rose A. Caracappa Legislative Auditorium, Hauppauge, before members of CEQ, with CEQ Chair Dr. R. Lawrence Swanson presiding.

At the CEQ meeting held on August 9, 2006, CEQ determined that the comments received in writing and at the hearings were substantive in nature, and forwarded a recommendation to the Legislature that it cause to have a Final Generic Environmental Impact Statement (FGEIS) prepared. The Legislature, at its meeting on October 17, 2006, passed resolution 1103-2006 authorizing the preparation of a FGEIS. The resolution was signed by County Executive Steve Levy on October 20, 2006.

The FGEIS was received by CEQ on November 9, 2006. The FGEIS Supplement was sent to the CEQ on January 4, 2006. All documents were forwarded to the Legislature for review and consideration together with comments from CEQ, and considered at the January 29, 2007 meeting of the Environmental, Planning and Agriculture Committee (EPAC) of the Suffolk County Legislature. These findings incorporate the direction from the Legislature.

To the extent that these Findings may contain measures (e.g., mitigation) which are not already explicitly in the Plan, the Plan is deemed to be amended to incorporate these Findings. If any provisions in the Findings are potentially inconsistent with the Plan, the provisions of the Findings are deemed to prevail.

D. Long-Term Plan Overview

Introduction

On August 6, 2002, the Suffolk County Legislature adopted a "Positive Declaration" on the County's proposed Vector Control and Wetlands Management Long-Term Plan. The Legislature subsequently appropriated funding to conduct the program, resulting in SCDPW (as fiscal manager) and SCDHS (as project manager) preparing and issuing a Request for Proposals (RFP) for the preparation of a Long-Term Vector Control and Wetlands Management Plan together with any associated environmental reviews.

An open and public process was undertaken to generate a Long-Term Plan and to perform the environmental impact assessment of the Long-Term Plan. Elements of public participation and input included:

- Formation of project committees such as the Technical Advisory Committee (TAC), the Citizens Advisory Committee (CAC), the Wetlands Subcommittee, and the Monitoring Subcommittee. These formally constituted committees (the TAC and CAC) and more informal groups provided venues and means for comment and review of project work products, and for feedback and input on the development of the Long-Term Plan to be made.
- Reviews of various project work products by nationally recognized technical experts (organized by the TAC).
- The Best Management Practices Manual and Wetlands Management Plan were released in draft form for public review in July 2005. The Long-Term Plan was released for public review in September 2005. On the basis of received public comments, the Long-Term Plan and the associated Wetlands Management Plan and Best Management Practices Manual were revised, and released in draft form again in December 2005. At that time, a draft version of the DGEIS was also released for public comment and review.
- Following the receipt of comments, the County once again revised the Long-Term Plan, the Wetlands Management Plan, and the Best Management Practices Manual. These documents, together with a revised DGEIS, were formally submitted to the CEQ on May 3, 2006.

- Following the public comment period on the DGEIS, the Long-Term Plan, the Wetlands Management Plan, and the Best Management Practices Manual were again revised, with the updated versions released in October 2006. On November 9, 2006, the FGEIS was delivered to CEQ, as a response to comments made on the DGEIS.

Therefore, it is clear that the Long-Term Plan and its associated environmental reviews are the product of an open and very public process, one in which several substantial revisions have been made following extensive public input to generate draft plans and analyses. The Plan was revised several times, on a voluntary basis, by the County.

In addition, Suffolk County commissioned its consultant, Cashin Associates, PC, and its team of subconsultants to conduct extensive fieldwork and local data collection, including local experimentation and environmental characterizations. These efforts included:

- Designing, permitting, constructing, and monitoring a progressive water management project at Wertheim National Wildlife Refuge, in conjunction with US Fish and Wildlife Service (USFWS) and the County.
- Designing, permitting, and conducting the Caged Fish experiment of larvicide and adulticide impacts under environmentally relevant conditions, documenting all aspects of the applications and subsequent fate and transport, and testing for biological effects, in conjunction with the County and the US Geological Survey (USGS).
- Identifying and characterizing 21 local wetlands (Primary Study Areas) to serve as a basis for determining environmental impacts associated with water management.
- Identifying and characterizing four sentinel areas of the County to allow for careful modeling of the risks to human health and the environment from proposed pesticide applications.
- Conducting an assessment of the potential for mosquito control ditches to convey land-based pollutants to the surrounding estuaries.
- Testing for changes in invertebrate communities at five pairs of salt marshes from extended exposure to mosquito control larvicide formulations.

- Determining the long-term vegetation characteristics at two south shore salt marshes, and relating changes in vegetation patterns to extrinsic environmental changes, such as ditching, changes in land use, major storms, and similar factors.
- Monitoring turtle use of upland mosquito ditches near Napeague Harbor, and surveying for their presence in three similar settings.
- Surveying additional stormwater control structures beyond those identified by preliminary County assessments for the potential to breed mosquitoes that might impact human health.
- Testing innovative mosquito control formulations and devices in County environments.
- Constructing a Geographical Information System (GIS) database of local vector control information along with other relevant County environmental data sets.
- Designing and preparing to implement a test of remote sensing capabilities to ascertain vegetation geographical patterns and temporal trends in County salt marshes.

This information was released to the public through 27 separate publications associated with the Literature Search, additional reports connected with other tasks of the project, construction and maintenance of a project website where all relevant information, publications, and presentations were posted, professional presentations at local, national, and international meetings, and through production and dissemination of a project specific newsletter.

Nuisance versus Disease

The Long-Term Plan attempted to distinguish between mosquito control conducted to control nuisance, and mosquito control conducted to prevent human health impacts. However, such a distinction proved to be impracticable. The Plan was successful, however, in describing approaches geared to "Vector Control" (control in the absence of a detected pathogen; synonymous, for purposes of the Long-Term Plan, with the term "Public Health Nuisance Control"), as differentiated from actions associated with "Emergency Response."

It is noted the Long-Term Plan approach is consistent with Public Health Law. The law reflects the position that a severe infestation of mosquitoes that results in large numbers of people receiving many bites is clearly not a "healthy" situation, even if no specific disease is transmitted. State and County Public Health Law describe a mosquito infestation as a "public health nuisance," whether or not pathogens have been detected. A public health nuisance is, by definition, a condition that can adversely affect public health.

It is not possible to distinguish specific mosquito control steps for human health protection from all other mosquito control actions. For instance, West Nile virus (WNV) occurs and reoccurs across nearly all the County in most years. Nearly all human-biting mosquitoes found in the County have the potential to transmit WNV. Source reduction, wetlands management, larval control efforts, and wetland management techniques can reduce the potential for infection by reducing the pool of mosquitoes that can transmit disease. However, since female adult mosquitoes that have fed at least once are the only mosquitoes that carry WNV, the application of these techniques that limit the production of adult mosquitoes necessarily occurs prior to the mosquitoes becoming infected.

WNV impacts in the County are believed to be much less than they might in the absence of such control measures. Modeling suggests that West Nile virus incidence rates could be an order of magnitude higher in the absence of vector control (i.e., potentially tens of deaths, and hundreds of serious illnesses, annually). It is quite probable that other factors, such as the composition of the County's mosquito population, also impacts the infection rate here. However, the control program also has a role in shaping the mosquito population, so that again it is difficult to separate out clearly the impact of the control program from other factors. The terminology used for control of adult mosquitoes may appear to support a distinction between nuisance and disease control, but that is not so. "Health Emergency" adulticide applications are made when the Commissioner of the SCDHS, acting under authority granted by the New York State Department of Health, determines that immediate risks to human health need to be reduced, by reducing adult mosquito populations in a certain area because there is a particularly high risk of transmission of disease to humans. The implication is that other applications are not made to reduce health risks. However, the Long-Term Plan has accurately designated these other kinds of adulticide applications "Vector Control" applications (i.e., control vectors with potential to adversely affect public health, prior to detection of WNV or other pathogens). The terminology is intended to

underline that all human-biting mosquitoes in the County are potential vectors of disease (most often, WNV), and that the reduction of large numbers of these mosquitoes will reduce overall disease risks. This clear connection between the reduction of large numbers of human-biting mosquitoes and decreases in disease risk is the reason that all aspects of the County control program are seen to be part of an overall disease control effort. It is true that alleviation of impacts to residents' and visitors' quality of life does follow from adulticide applications, and this is an important benefit of the program. This brief discussion focuses on West Nile virus. As discussed in the Long-Term Plan and GEIS, an integrated vector control program is credited to manage risks from other diseases and Eastern Equine Encephalitis.

Content of the Vector Control Long-Term Plan

Those aspects of the Vector Control portion of the Long-Term Plan were developed as an implementation of Integrated Pest Management. Integrated Pest Management is a means of addressing pest problems that uses a hierarchical approach where those activities that have greater impact on the organisms but potentially have fewer environmental or human health risks are assayed first, and where actions taken are commensurate with the problem.

The scope of the Long-Term Plan includes all of Suffolk County. However, Orient Point Mosquito Control District is responsible for vector control in that portion of the County. In addition, implementation of mosquito control in Fire Island National Seashore will require completing a separate permit application and environmental review process, and, due to its status in the national park system, may require some additional considerations that do not apply to the remainder of Suffolk County.

The hierarchical elements of the Vector Control component of the Long-Term Plan are:

- Public education and outreach

  Public education and outreach is central to the effectiveness of the Long-Term Plan. The Long-Term Plan will re-enforce existing efforts that allow residents and visitors to avoid being bitten by mosquitoes, and that address mosquito breeding problems determined through responses to citizen complaints. The Long-Term Plan calls for expansion of general public outreach through program presentations, brochures, and web site maintenance, and will target the areas of the County, predominantly along the south shore, where adulticide

applications have been made more frequently. Specific efforts to improve catch basin maintenance and to address tire litter are expected to provide dividends in terms of reductions of disease risks. The County will maintain its "Do Not Spray" registry and will expand its efforts to educate Suffolk County residents regarding specific elements of the vector control program.

- Scientific surveillance

A central tenet of Integrated Pest Management is that information is necessary in order to determine appropriate actions. The Vector Control Long-Term Plan surveillance program is intended to generate necessary information in sufficient quantity and in a timely manner so that the activities of the vector control program are optimized. Surveillance generally determines two parameters concerning the local mosquito population. One is number and speciation, generally called population surveillance. The second is pathogen presence, which is generically called disease monitoring.

Population surveillance looks to assess larval and adult populations. Larval populations are determined at set stations, where crews collect samples with laboratory confirmation of numbers and speciation. Crews also seek for breeding sites in response to citizen complaints. The County will maintain its existing larval population sampling efforts, and endeavor to respond to all complaints within three days. Adult populations are assessed through trapping, primarily. The fixed New Jersey trap network will be expanded by three under the Long-Term Plan, and, if adult control is proposed, special population sampling using CDC light traps will be undertaken prior to any application to ensure numerical triggers are exceeded. In addition, post application sampling will be conducted to measure efficacy. In some circumstances, landing rates will be used either in place of trapping or as an adjunct to trapping efforts.

Disease surveillance generally uses CDC gravid or CDC light traps. The initial set out of CDC traps will be expanded to 35 weekly set outs, and will be proportionately increased as the season progresses. The County will continue to send its pools of potentially infected mosquitoes to the State Department of Health for testing, although the Long-Term Plan recommends the construction of a Bio-Safety Level 3 laboratory in Suffolk County so that testing may occur more quickly and be conducted on more potential pools than is currently

possible. Dead birds will continue to be collected, tested for WNV presence locally, and tested for a larger range of pathogens at the State laboratory.

Generally, SCVC will assume responsibility for population surveillance, and the Suffolk County Department of Health Services Arthropod-Borne Disease Laboratory (ABDL) will be responsible for disease surveillance. SCVC and the ABDL will continue to work closely together and share responsibilities to ensure that the primary mission of public health protection is adequately supported.

A discussion of surveillance results will be included in Annual Plans of Work. Detailed reporting and analysis of surveillance data will be included in each Triennial Report.

- Source control

Source control means to eliminate conditions conducive to mosquito breeding. This is a focus of public outreach efforts. It is also the most effective method of mosquito control conducted in response to public complaints. The County already has a strong program to encourage residents to take steps to drain standing water from containers near houses, to ensure pools are properly maintained, and to replace water in birdbaths at frequent intervals. The County will expand these efforts by addressing issues such as used tire management and catch basin maintenance with other local governments, and will expand the storm water facility maintenance program to private concerns such as shopping centers or apartment complexes. These efforts are especially important as the house mosquito (*Culex pipiens*) is believed to be the prime vector for WNV in Suffolk County (other mosquitoes are also significant risk factors for WNV transmission, as well).

- *Wetlands Management*

The Long-Term Plan reconfirms the existing County commitment to abandon ditching as a means of wetlands management for mosquito control, and to avoid machine ditch maintenance except in the most limited of circumstances. In the longer run, the Long-Term Plan has identified the utilization of more progressive wetlands management in salt marshes (as defined in the Best Management Practices Manual) as one element in increasing effective control of mosquitoes and decreasing the potential for environmental impacts associated with vector control. Potential reductions of 75 percent in larvicide use, reductions in adulticide

use, and improvements in important salt marsh ecological functions are all thought to result from careful and considered application of the Best Management Practices in select coastal marshes in the County.

Concerns raised by interested and involved parties have resulted in much more thorough review and appraisal of wetlands management as a means of vector control. For the first three years of the Long-Term Plan, only minor and relatively no impact projects will be considered by the County (see Figure 1, Figures 2-3, and Figure 6). Any project that is usually more likely to have potentially significant impacts or major impacts (Best Management Practices 5 to 15; Figures 4-5) will be subject to additional review under SEQRA. In addition, any project involving machine maintenance of existing ditches, structures, waterways, or other features associated with wetlands will be noticed to CEQ, either through submission of a copy of the permit application for the project, or submission of a project description detailed enough to serve as a NYSDEC permit application.

- Biocontrols

Biocontrols are not a major facet of the County program. This is largely due to the potential for environmental impacts from the invasive and aggressive *Gambusia* fish which has served the County as its primary biocontrol for several decades, and so the necessity to restrict biocontrols to settings where the fish will almost certainly not impact natural water bodies. In addition, many settings where biocontrols would serve good purposes for mosquito control are ecologically sensitive, often because they are largely predator-free. The Long-Term Plan proposes to substitute fathead minnows (*Pimephales promelas*) for *Gambusia*, as the minnow as been identified as a more benign species should it escape to natural water bodies. The County will also follow developments in other jurisdictions regarding other promising organisms that are shown to consume mosquitoes, such as certain freshwater copepods (potential biocontrols for catch basins). However, the County will be very cautious in implementing biocontrol use, to ensure that sensitive environments are not disrupted through the introduction of predator species.

- Larval control

The Long-Term Plan reaffirms the County commitment to only using pesticides when scientifically-collected information supports its use, in the context of Integrated Pest

Management principles. Surveillance data regarding the species and stages of immature mosquitoes along with information on the time of year and conditions at the prospective treatment site will be used to determine if use of one of two bacterial pesticides, *Bacillus thuringiensis var israelensis* (Bti) or *Bacillus sphaericus* (Bs), or the insect growth hormone mimicker methoprene, is appropriate. At times, the County may use a "duplex" treatment of Bti and methoprene, as well. Application rates will always be at label maximums. This insures maximum effectiveness for the application, and is important to reduce the development of resistance in treated populations. For regularly sampled locations, the primary determinant of the need to larvicide will be "presence/absence" over an appropriate subset of sampling points. The Long-Term Plan also identifies the potential to develop numerical triggers through analysis of data sets as augmented by continuing sampling, through the creation of a GIS (Geographical Information System) database of historical sampling results as part of the Plan development process. The County will continue to apply larvicides by helicopter to marshes that have large expanses of breeding, although it is anticipated that implementation of the Wetlands Stewardship Strategy (to be developed by the Wetlands Stewardship Committee under the direction of SCDEE) will help to significantly reduce larviciding needs. Other larvicides will be applied by field crews in response to surveillance data generated by citizen complaints or regular surveillance of smaller breeding locations. To check *Culex pipiens* populations further, the County will expand its surveillance of catch basins to some 40,000 (or more) sites each year. Time release formulations of methoprene, or, sometimes, Bs, will be used to prevent the emergence of adult mosquitoes at these sites.

The Long-Term Plan requires the establishment of an efficacy program and also sampling to determine if resistance is being generated in treated populations.

- Adult control

Control of adult mosquitoes is the least favored means of mosquito control. Adulticide use signals the failure of all other potential treatment means, and is the last option for program managers. The County always endeavors to minimize its use of adulticide products.

Adult control can be deemed to be necessary under two separate operational scenarios. One is defined as a "Vector Control" (public health nuisance) application; the other is defined a

"Health Emergency" application. In either case, pesticide use decisions are only made on the basis of scientifically-determined surveillance data.

Vector Control adulticide applications are made to reduce large numbers of human biting mosquitoes. Criteria for conducting a Vector Control treatment include:

1. Evidence of mosquitoes biting residents (there is no problem unless people are affected):

- Service requests from public - mapped to determine extent of problem
- Requests from community leaders, elected officials

2. Verification of problem by SCVC (service requests must be confirmed by objective evidence):

- New Jersey trap counts higher than generally found for area in question (at least 25 females of human-biting species per night).
- CDC portable light trap counts of 100 or more.
- Landing rates of one per minute over a five minute period.
- Confirmatory crew reports from problem area or adjacent breeding areas.

3. Control is technically and environmentally feasible (pesticides should only be used if there will be a benefit):

- Weather conditions predicted to be suitable (no rain, winds to be less than 10 mph, temperature to be 65ºF or above).
- Road network adequate and appropriate for truck applications.
- "No- treatment" wetlands, wetlands and open water buffers, and no-spray list members will not prevent adequate coverage to ensure treatment efficacy.
- There are no issues regarding listed or special concern species in the treatment area.
- Meeting label restrictions for selected compounds (such as avoiding farmland) will not compromise expected treatment efficacy.

4. Likely persistence or worsening of problem without intervention (pesticides should not be used if the problem will resolve itself):

- Considerations regarding the history of the area, such as the identification of a chronic problem area.
- Determination if the problem will spread beyond the currently affected area absent intervention, based on the life history and habits of the species involved.
- Absent immediate intervention, no relief from the problem can be expected.
- Crew reports from adjacent breeding areas suggest adults will soon move into populated areas.
- Life history factors of mosquitoes present – i.e., if a brooded species is involved, determining if the brood is young or is naturally declining.
- Seasonal and weather factors, in that cool weather generally alleviates immediate problems, but warm weather and/or the onset of peak viral seasons exacerbate concerns.
- Determining, if the decision is delayed, if later conditions will prevent treatment at that time or not. Conversely, adverse weather conditions might remove most people from harm's way.

In essence, criteria 1 and 2 are necessary thresholds which must be met, prior to a treatment being considered. With enhanced surveillance, there will be rigorous, numeric validation of mosquito control infestation near a potentially affected population in all cases. Treatment will not occur unless criteria 1 and 2 are satisfied through a combination of surveillance indicators, although not all surveillance techniques may be feasible in every setting and situation.

Vector Control applications will normally be made by truck. Necessary public notices will be issued in a timely manner (normally, at least 24 hours pre-application), and appropriate precautions will be made to meet NYSDEC restrictions on applications, and to avoid "No Spray" properties (including all farms).

The need for Health Emergency treatments is determined by the New York State Department of Health West Nile Virus Response Plan for mosquito-borne disease. Because of the persistent presence of WNV in the County, the County perpetually begins each year in Tier II. As indicators of pathogen presence accumulate (positive dead birds, positive pools of mosquitoes), the Commissioner of the SCDHS will petition the Commissioner of the State Department of Health to declare a Health Emergency. If the petition is granted, and the risk assessments made by SCDHS indicate that risks to the residents of an area of the County are no longer tolerable, the Commissioner will declare a Health Emergency. In conjunction with NYSDEC and SCVC, SCDHS will determine the optimal treatment area to reduce risks of disease transmission to people. An application will be made to NYSDEC for NYSDEC to issue an Emergency Authorization to permit adulticide applications that might otherwise violate the State Freshwater Wetlands Regulations. Appropriate required public notices will be issued. Pre-application mosquito sampling will be conducted (for efficacy determinations). If, as is almost always the case for Health Emergency applications, an aerial application is proposed, a helicopter using the Adapco Wingman guidance system will be used to optimize the delivery of the pesticide.

Efficacy measurements will be made following every adulticide application. The Long-Term Plan also calls for the establishment of resistance testing for the more commonly used compounds.

The Long-Term Plan proposed a general reliance on resmethrin, a synthetic pyrethroid, as the adulticide pesticide. Resmethrin has been found to be an effective pesticide for mosquito control, can be used for ultra-low volume applications for truck and aerial delivery, undergoes rapid decay in the environment, and, as discussed below, has few identified non-target effects when applied as proposed under the Long-Term Plan. Sumithrin, a similar pyrethroid, is proposed to be the primary back-up to resmethrin, and the primary pesticide for any hand-held applications (the resmethrin label is currently interpreted as not permitting hand-held applications). The Long-Term Plan also identifies two other pyrethroids, permethrin and natural pyrethrins, as potential adulticide compounds. Neither is preferred; however, permethrin is a more widely available product that is manufactured by more than one company, and so may continue to be available under conditions when the patented, less-widely used pyrethroids may not be. Natural pyrethrins are identified as a potentially useful

compound because its label allows for use over agricultural areas. In addition to the pyrethroids, malathion, an organophosphate pesticide, was identified as a potential adulticide. Malathion would be used under very specialized conditions, such if thermal fogging were needed, daylight applications were called for, or if resistance testing indicated pyrethroid applications would be ineffective in meeting the goals of the application. All of these pesticides would be applied at the maximum label rate, as that is the best way of achieving effective mosquito control and is helpful in avoiding the development of pesticide resistance.

Each year, SCVC will prepare and submit to CEQ and the Legislature a report on its pesticide use in the previous calendar year. The report will document actions taken to minimize the use of pesticides. It will summarize any notable scientific findings regarding the pesticides used by the program. The report will also identify any research or product development that may lead to selections of alternatives to the compounds selected by SCVC over that time period. The report will also review the thresholds used for Vector Control application consideration, and determine if those thresholds were appropriate to achieve the goals of protecting public health and the environment.

Wetlands Management component of the Long Term Plan

The Long-Term Plan establishes a Wetlands Stewardship Committee. The Suffolk County Department of Environment and Energy (SCDEE) will chair the committee. NYSDEC permits and reviews will be required for nearly every project. No project requiring a NYSDEC permit will be allowed to proceed without explicit review and approval of SCDEE, meaning that permit applications and Wetlands Stewardship Committee considerations will not begin without SCDEE vetting of the proposed project. Any project that is usually more likely to have potential for major impacts (Best Management Practices 10-15), or any other project, using Best Management Practices 5 through 9 that the Wetlands Stewardship Committee membership determines to need review, will undergo the review and recommendations of the Wetlands Stewardship Committee of the project goals, design, and impact assessment. Any project requiring a NYSDEC permit will be noticed to CEQ. Thus, any project except for the most minor will undergo extensive scrutiny and analysis prior to any alteration of the marsh.

If the DEE adopts any of the BMPs 2-4 as part of [their] its stewardship strategy, then "Maintenance as define in BMPs 2-4 needs further clarification [classification].

a) No material alteration of marsh hydrology, tidal circulation characteristics, vegetation or animal populations shall occur as part of any maintenance activity.

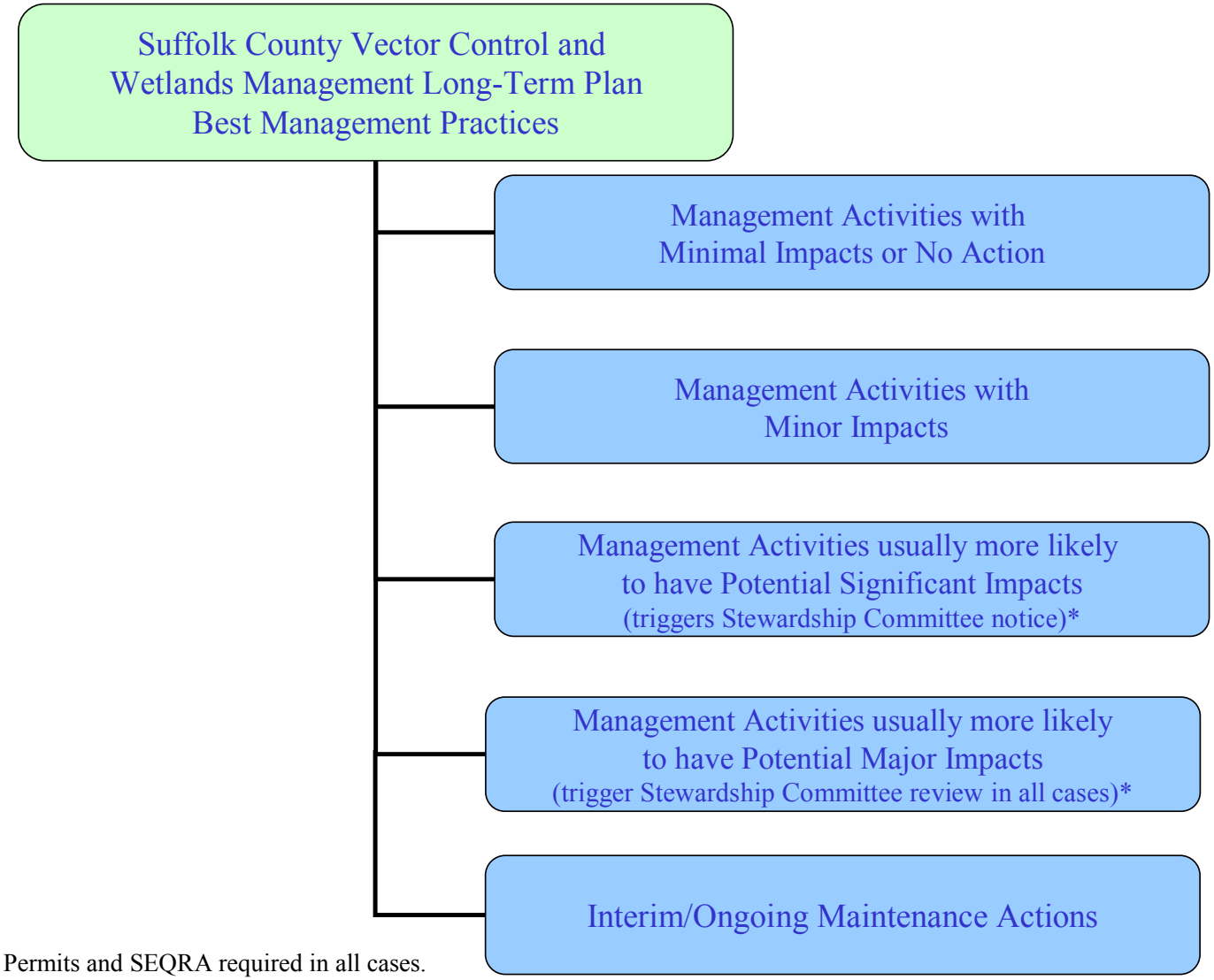
b) Maintenance should involve only existing water features in a marsh and cannot be used to expand any feature in length, width or depth.

c) Suffolk County can remove blockages/obstructions in a ditch or impairments to tidal flow in accordance with conditions identified in the FGEIS.

d) Maintenance cannot expand a ditch network.

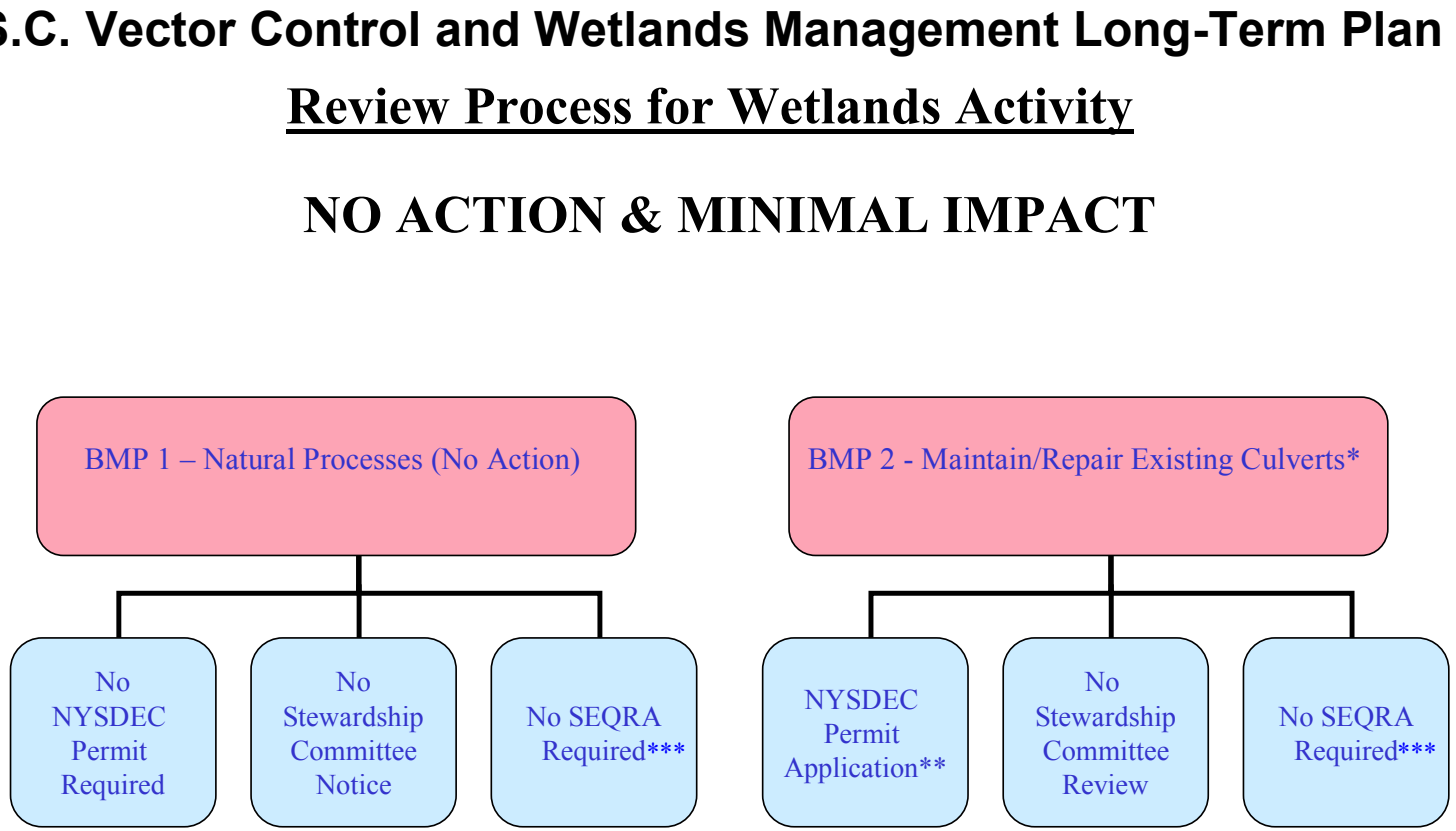
e) Maintenance shall avoid enhancement of storm water conveyance.

Figure 1. Overall Hierarchy of Proposed Best Management Practices



* DEC Permits and SEQRA required in all cases.

Figure 2. Review Process for Management Activities with No or Minimal Impacts

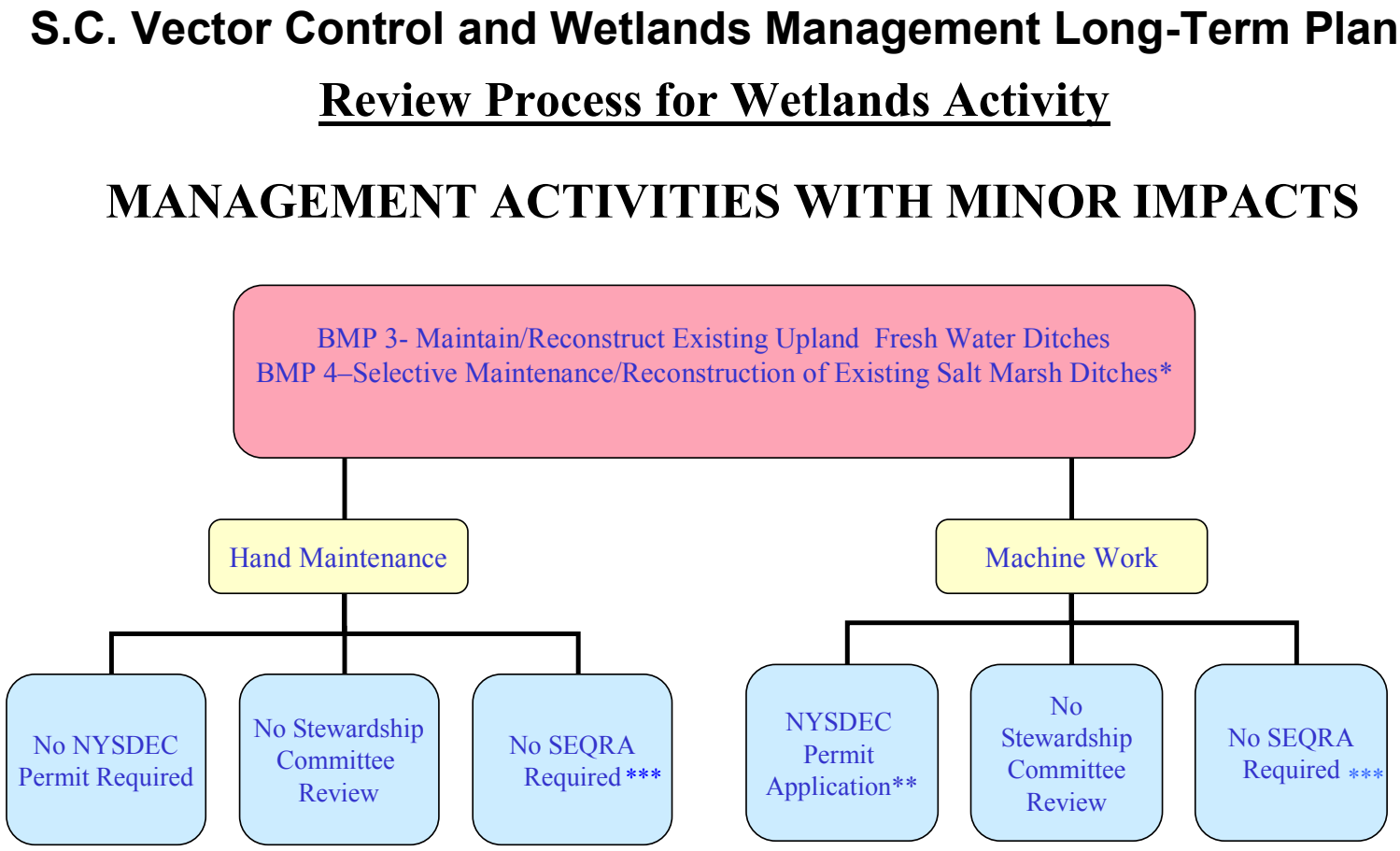


* Replacement in-kind with substantially identical culvert.

** Notice will also be sent to Town and Trustee jurisdictions.

*** BMP 1-4 may require SEQRA review if deemed appropriate by DEE/CEQ.

Figure 3. Review Process for Management Activities with Minor Impacts

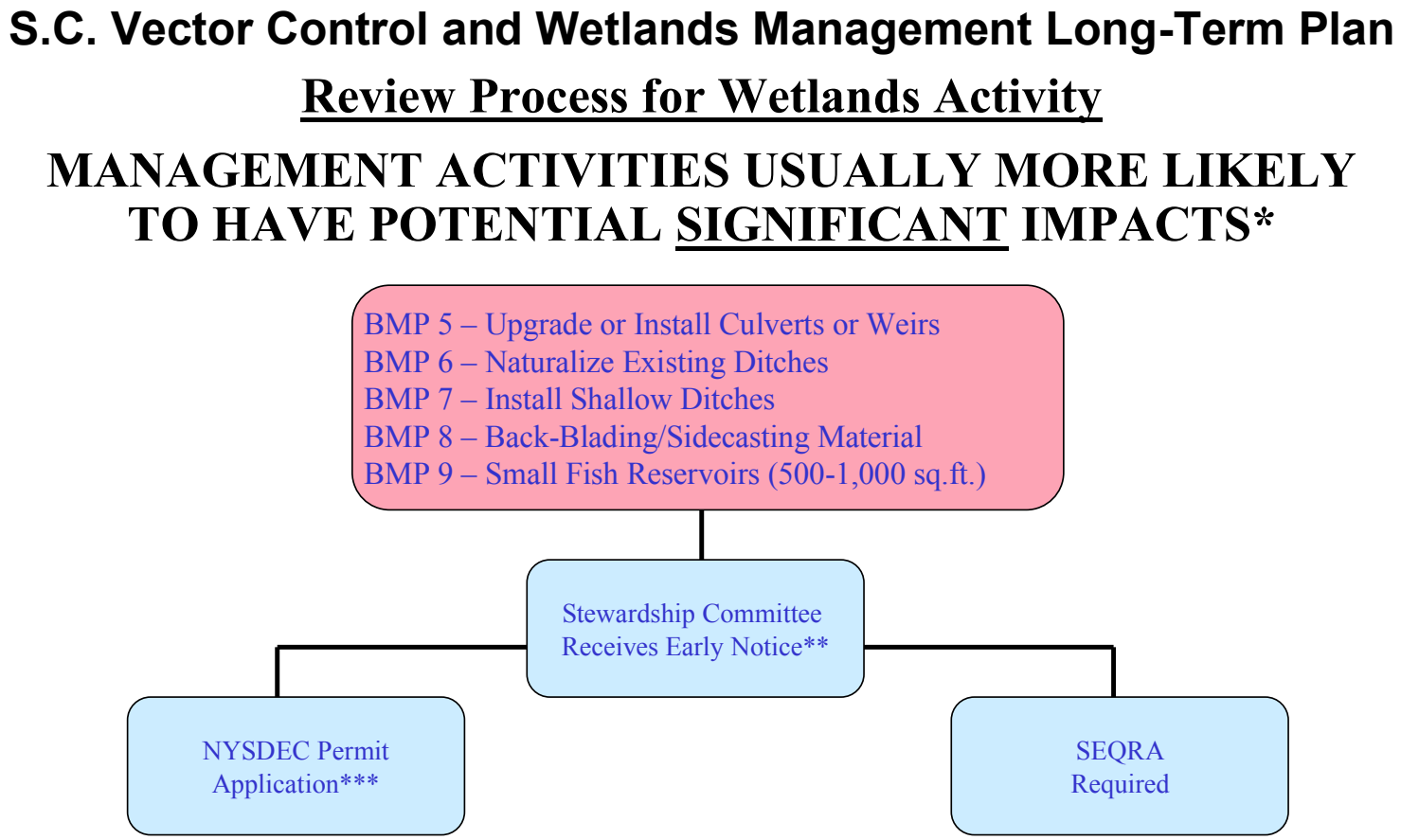


* Minimal machine maintenance when required for critical public health or ecological purpose (50,000 feet/year, 50 acres maximum, 1 acre minimum).

** Notice will also be sent to Town and Trustee jurisdictions.

*** BMP 1-4 may require SEQRA review if deemed appropriate by DEE/CEQ.

Figure 4. Review Process for Management Activities with the Potential for Significant Impacts

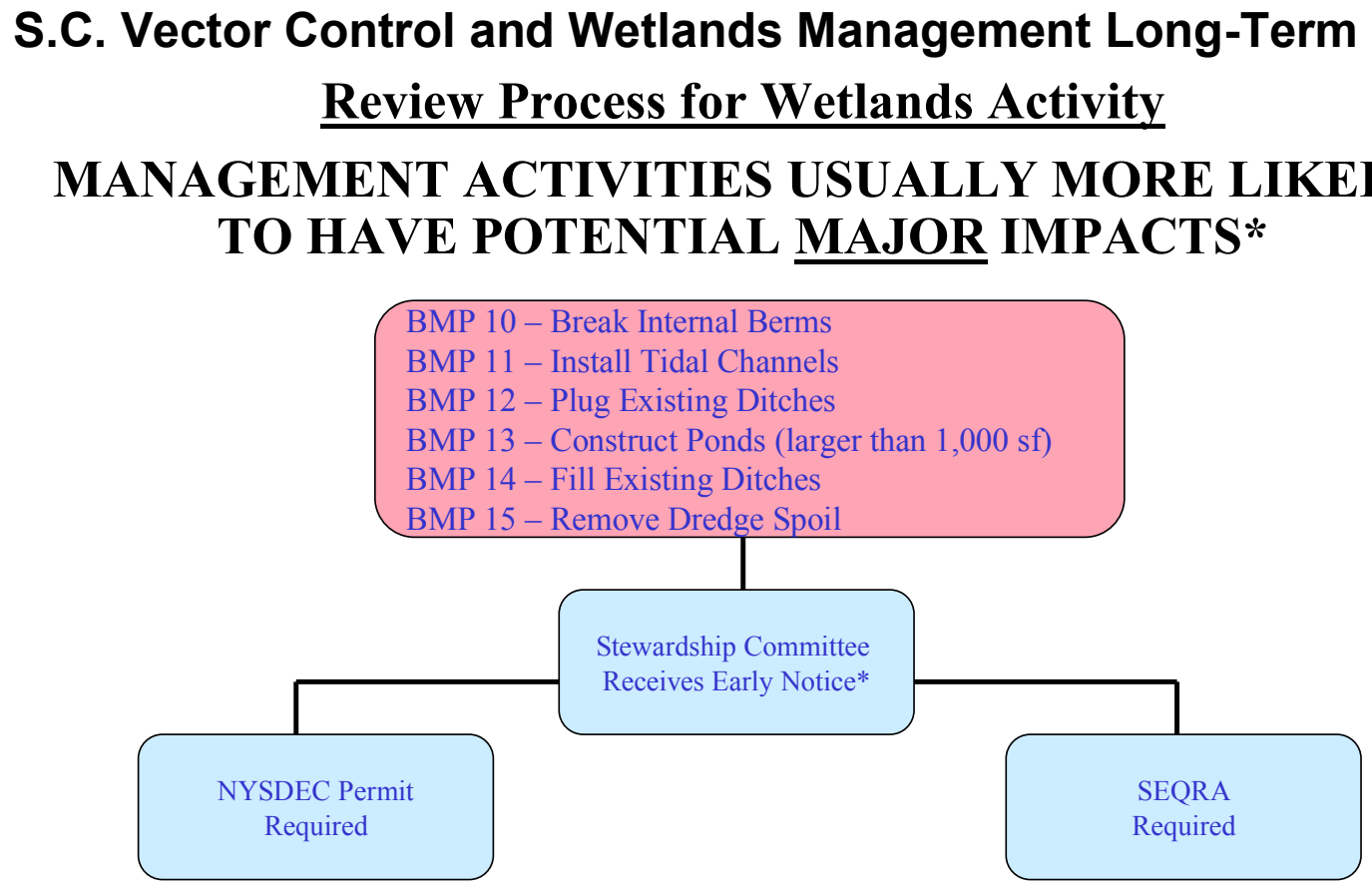


* In former plan drafts, BMP's 5-9 were designated "minor impacts" unless they affect 15 or more acres. In the current plan all are deemed usually more likely to have "potential significant impacts," irrespective of size. Impacts may be beneficial not necessarily adverse.

** Stewardship Committee can submit comments to project sponsor and/or SEQRA lead agency prior to project approval. Stewardship Committee meetings can also occur, as needed.

*** Notice will also be sent to Town and Trustee jurisdictions.

Figure 5. Review Process for Management Activities with the Potential for Major Impacts



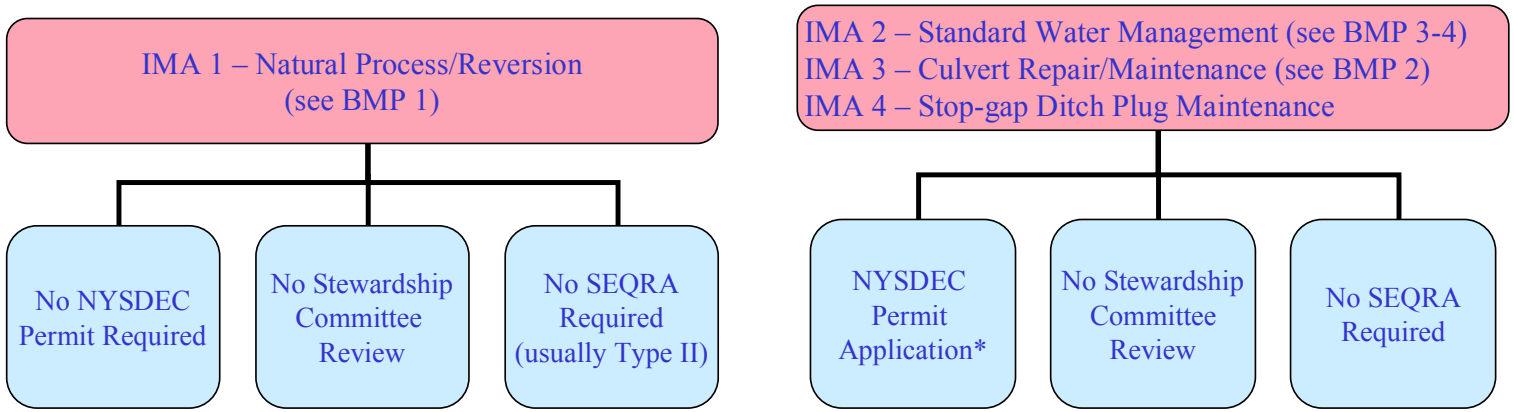
* Includes representation from local jurisdictions.

Figure 6. Review Process for Interim Management/Ongoing Maintenance Activities

S.C. Vector Control and Wetlands Management Long-Term Plan

Review Process for Wetlands Activity

INTERIM MANAGEMENT/ONGOING MAINTENANCE ACTIVITIES (IMA)



* Notice will also be sent to Town and Trustee jurisdictions.

In addition, over the first three years of the Long-Term Plan, the Stewardship Committee is charged with developing more rigorous indicators for marsh health for Suffolk County, and using them to assess marsh health and develop a strategy to manage all of the counties 17,000 acres of salt marsh (not just the 4,000 acres of vector control concern). SCDEE will oversee the development of this strategy. Marsh health (functions and values) and the preservation of marshes are to be paramount considerations in evaluating any potential project.

The Wetlands Stewardship Committee is envisioned in the Long-Term Plan to have the following composition:

Estuary programs:
- Long Island Sound Study (LISS) representative
- Peconic Estuary Program (PEP) representative
- South Shore Estuary Reserve (SSER) representative

State
- New York State Department of Environmental Conservation (NYSDEC) Region I
- NYSDEC Bureau of Marine Resources
- New York State Department of State (NYSDOS)

County
- County Legislature
- County Executive
- Suffolk County Department of Health Services (SCDHS)
- Suffolk County Department of Public Works (SCDPW)
- Suffolk County Department of Environment and Energy (SCDEE) (chair)
- Suffolk County Department of Planning
- Suffolk County Department of Parks
- Council on Environmental Quality (CEQ)

Local
- Town representative (based on project location)
- Trustee's representative (based on project location)

Non-governmental Organizations
- Two appointed by County Legislature
- Two appointed by County Executive

Any agency or entity that initiates a project that is before the committee, cannot vote on that project.

Appendix 2 more completely describes the functions of the Wetlands Stewardship Committee.

The Long-Term Plan identified priority sites for consideration of wetlands management (approximately 4,000 acres of salt marshes), and also identified other sites where no marsh

management for vector control purposes appeared to be appropriate (also approximately 4,000 acres). The Long-Term Plan, in the context of the Integrated Marsh management program developed by the Wetlands Stewardship Committee under the direction of SCDEE, proposes to assess the priority sites and the remaining 9,000 acres of other coastal marshes over the next 12 years or so to determine whether marsh management (possibly with a vector control element) is appropriate.

Other important Long-Term Plan elements

SCVC and the Arthropod Borne Disease Lab (ABDL) have redefined areas of operation under the Long-Term Plan, with SCVC focusing on population dynamics and control, and the ABDL concentrating on disease surveillance and determination of the need for adulticide treatment to reduce health risks. Each division has been slightly reorganized, and the County has committed to providing the personnel necessary for the organizations to meet their duties under the Long-Term Plan. The Long-Term Plan also emphasizes the need for continuing professional education to maintain the current top-notch standing of these organizations and to support continuing review and reporting on program elements.

The Long-Term Plan is not envisioned to be a static document. Means for continuing adaptive management are outlined in the Plan, including, obviously, incorporation of the findings of the Wetlands Stewardship Committee into the Wetlands Management element of the Plan. In addition, to meet the need for continuing evolution of the Long-Term Plan, and also to meet important public outreach goals, the production of a Triennial Report has been proposed. Its outline is attached as Appendix 1 to this Findings Statement.

E. Reasonable Alternatives Considered

In accord with the requirements of SEQRA, the environmental review of the Long-Term Plan considered reasonable alternatives to the Long-Term Plan.

- No Action (continue the existing program)

SEQRA requires that a "no action" alternative be considered. If no changes were made to the existing situation, then the existing mosquito management program would be continued.

The existing program is an Integrated Pest Management program, but the Long-Term Plan has identified ways that it could be improved. The ways that the existing program would be improved include:

- An expanded and improved education program
- An expanded surveillance program
- Potential construction of a local BioSafety Level 3 laboratory
- Improved GIS capabilities for data management
- Improved source reduction, including an emphasis on tire management and storm water facility maintenance
- Implementation of a more ecologically sound and yet more effective water management program
- Selection of a better biocontrol agent than *Gambusia* fish
- Proposed implementation of numerical triggers for larviciding
- Establishing goals for larvicide reductions through more effective water management
- Purchase and installation of the Adapco system for aerial adulticide applications
- Establishing clear and precise numerical triggers for Vector Control treatments
- Creating pesticide efficacy programs
- Establishing resistance testing

- Establishing clear distinctions for the complementary roles of SCVC and the ABDL
- Creating mechanisms by which the Long-Term Plan can be modified as needs dictate

Thus, the No Action alternative is clearly inferior to the Long-Term Plan.

- No Mosquito Control

A considered alternative was one where no mosquito control was to be conducted. This alternative was found to be insufficiently protective of human health. A model of WNV prevalence in the theoretical absence of mosquito control found that tens of deaths might occur each year, with more than one hundred additional cases requiring hospitalization. In addition, because careful implementation of progressive water management can augment important salt marsh functionalities, potential ecological benefits would be lost. Human health and environmental impacts from pesticide use (see Section F below), which would be avoided under this alternative, were not found to be of the same magnitude as the potential human health impacts from disease. The potential for ecological impacts from water management are mitigated by processes established for programmatic and project level reviews (see Section D above and Section F below).

- Alternative IPM approaches

Various permutations of the overall Long-Term Plan approach were considered. They included:

- No water management at all

  This is to adopt a marsh reversion policy for all marshes throughout the County. The environmental analysis suggested that, for certain marshes, allowing ditches to infill could increase mosquito breeding. In addition, for certain marshes, allowing the ditches to infill would reduce tidal circulation, and therefore lead to reduced functioning as a salt marsh. Therefore, having no water management at all would lead to potentially greater human health impacts because of increased mosquito breeding, and decreases in important ecological functions.

- Selective ditch maintenance

Experiences in other jurisdictions suggests that there are water management alternatives that potentially are more effective as mosquito control means, have potentially fewer environmental impacts, and should augment certain marsh functionalities such as fish production and water bird use of the marsh. This suggests that ditch maintenance is an inferior means of conducting water management.

- Ditch maintenance of all ditches

This alternative is based on the notion that structures should be maintained as they were constructed to be. However, it is clear that not all ditches are needed for mosquito control purpose. It is also likely that some ditches have had negative environmental impacts on certain marshes. Therefore, a universal policy of ditch maintenance is also an inferior means of mosquito control and of marsh management.

- Alternative larvicide compounds

Three alternatives were considered: ethoxylated fatty alcohols, Temphos, and Golden Bear Oil. Temphos clearly has the potential for greater ecological impacts to non-target aquatic invertebrates compared to Bti, Bs, and methoprene. The other two compounds are not as well studied. However, they appear to have the potential for non-target organism impacts, and do not appear to meet operational needs for SCVC. Therefore, these three compounds were evaluated to be inferior choices.

- No larvicide use in fresh water settings, with no methoprene use in salt water settings

Based on efficacy data, it is clear that mosquito breeding would be increased under this choice. The County has found that increased mosquito populations increase risks of disease transmission. Therefore, selecting this alternative would increase the risk of human disease. The analysis was not able to quantify the increase in risks, however. Selection of this alternative is based on the environmental benefits of reduced larvicide use outweighing the increase in human health risks. Although no use of pesticides is risk free, the quantitative risk analysis found that the proposed Long-Term Plan use of Bti, Bs, and methoprene should result in no changes to ecological conditions, as the modeling

suggested the exposure of organisms to these pesticides would be below thresholds where impacts were found to occur. Therefore, it is likely that no discernable environmental benefits would ensue, and so the risk increase to human health is likely to be much greater than (and incommensurate with) any potential ecological benefits. In fact, significantly increased adulticide usage could occur as a result. This makes this alternative inferior to the Long-Term Plan.

- Alternative adulticide compounds

Four alternatives were considered: naled, fenthion, chloripyrifos, and deltamethrin. Qualitative risk assessments were conducted of these compounds. Naled, fenthion, and chloripyrifos are organophosphate pesticides. US Environmental Protection Agency studies suggest they are likely to have more non-target impacts than the pyrethroids selected for the Long-Term Plan. They thus represent inferior choices to resmethrin and sumithrin (the preferred Long-Term Plan adulticides). Deltamethrin is also a synthetic pyrethroid. The qualitative analysis of deltamethrin suggested it should have ecological and human health impacts that are similar to the selected pyrethroids. Because no information surveyed suggested it would have lower impacts than the selected pyrethroids, it was not selected as an alternative that should be preferred over the Long-Term Plan choices.

- Use of Mosquito Magnets in Davis Park

Mosquito Magnets and other mosquito traps have been found to be effective in some testing. However, local tests conducted under the Long-Term Plan did not find that they deterred mosquitoes from reaching a target area. Therefore, establishing an array of such traps across the barrier beach to reduce infiltration of mosquitoes to the community was thought to be technically flawed.

- Adulticide only for Health Emergencies

Four study areas were considered for the quantitative risk assessment. Two areas (Dix Hills, with one application, and Manorville, with two applications) were evaluated under Health Emergency scenarios. Mastic-Shirley (10 applications) was evaluated for a mix of Health Emergency and Vector Control applications, and Davis Park (14 applications)

was evaluated for Vector Control applications only. Increasing the number of applications did not increase risks above impact thresholds for most of the scenarios and compounds evaluated. Potential impacts to terrestrial insects were found under all scenarios and for all pesticides (see Section F below). Potential impacts to aquatic invertebrates were found for the higher use scenarios for permethrin and malathion, but not for resmethrin and sumithrin. More sophisticated ecological modeling suggested that any permethrin impacts would be of short duration, and would not affect ecological conditions in the following season (these results were thought to be valid for malathion, as well). The only potential risk found to be greater than threshold limits for human health was found for the highest potential release of malathion in Davis Park, and this risk increase could be mitigated by washing the exposed vegetables (a "community gardener" scenario was modeled for all risk assessment areas, even though it was understood that conditions on Fire Island do not allow for extensive vegetable gardens). Thus, only under the highest use scenario with the highest potential exposure concentration was there even a suggestion that Vector Control applications might lead to greater impacts than Health Emergency applications. Thus, the risk assessment generally found the potential for increased risks associated with Health Emergencies and Vector Control applications to be similar (and negligible). Therefore, there would be only slight risk benefits to be achieved by eliminating Vector Control applications. The analysis by the County, however, finds that increased numbers of mosquitoes tends to increase risks of disease transmission. Therefore, there is a risk benefit for human health from decreased disease risks when Vector Control applications are made. Therefore, eliminating Vector Control applications would not only decrease quality of life, but it would increase human health risks, and provide only negligible risk advantages. This made it an inferior alternative.

- Adulticide only after human illness

This programmatic choice is logically flawed. For one, adulticides are used to avoid human illness. In this scenario, the illness has already occurred. Secondly, it needs to be understood that there is often a week or more lag between the time of infection and diagnoses of illness. Because mosquitoes often have high mortality rates (especially for brooded mosquitoes), the mosquitoes that may have been responsible for the illness may

already be dead when the illness is determined. Therefore, it will often be the case that treatment decisions will be made for reasons other than the targeted mosquitoes having caused illness. If so, those treatment criteria could be used prior to the onset of illness. Because the mosquitoes that caused illness are not likely to still be present, it is clear that eliminating mosquitoes that caused people to become ill is not the direct cause of the proposed adulticide application. This means other criteria must be used to determine where and when the application will be made. If other criteria are used, then these self-same criteria could have been applied prior to the onset of illness, with the effect of potentially preventing impacts to human health. In nearly all mosquito control situations with a virus like WNV that has a long lag between induction of illness and diagnosis of the disease, and where brooded mosquitoes are important to the risk of transmission, past human cases are a poor criterion on which to base mosquito control decisions, and the more important criteria that measure current risks from virus presence are not affected by incidences of disease. Therefore, disease occurrence in humans is a suboptimal trigger for treatment.

- No adulticiding

Information collected in the impact assessment suggests that adulticiding is effective at killing adult mosquitoes. If virus is circulating in these mosquitoes, their deaths will decrease risks to people from mosquito-borne disease. The analyses carried out on adulticide applications suggest that no significant increases in risks to the environment or human health result from judicious use of these pesticides. Therefore, avoiding the use of adulticides does not result in significant risk reductions. On the contrary, it could result in significant risk increases for mosquito-borne disease impacts.

F. Long-Term Plan Potential Significant Impacts and Identified Mitigation

Introduction

Suffolk County, through its consultant, Cashin Associates, and the team of subconsultants assembled by Cashin Associates, has conducted a most thorough and complete evaluation of potential impacts of the proposed Long-Term Plan. As detailed above in Section C, the overall approach to this project provided for a robust feedback system whereby initial findings were commented on and criticized, leading to revised and improved programs and analyses of the proposed programs. Not only were traditional methods of environmental analysis used (such as the literature search and modeled risk analysis), but local and unique experiments, assessments, and demonstration projects were undertaken to strengthen the development of the project and its environmental impact analysis.

Several elements are key to the findings regarding the proposed Long-Term Plan. These are:

- The 27 volume literature search
- The quantitative risk assessment of potential ecological and human health impacts of the proposed Long-Term Plan pesticides, using four exemplar areas of the County with different application scenarios, conducted by Integral Consulting.
- The Caged Fish experiment of fate and transport and potential impacts to sentinel organisms for methoprene and resmethrin under operational conditions in salt marsh ditches, under the direction of Professor Anne McElroy, Stony Brook University.
- The Wertheim National Wildlife Refuge demonstration of progressive water management practices and their potential to create environmental benefits and meet mosquito control needs, with the cooperation of USFWS.
- A model of potential human health impacts from WNV in the absence of local mosquito control, based on serological data collected in New York, Ohio, and Ontario.

Hundreds of samples of air, water, sediment, and biota were taken, with samples analyzed to the low part-per-trillion level, the lowest known detection limit ever attained. Numerous other efforts from this three-year study contributed to the conclusions reached here.

The contributions of volunteers were extremely important, and shaped the results presented here. These volunteers included citizens and government and academic professionals from outside of the project, who served on the various committees and who analyzed project output and draft and provisional documents.

Impacts and Mitigation

The following specifies potentially significant impacts that may be incurred with the adoption of the Long-Term Plan by the Suffolk County Legislature, and also identifies mitigation of these potential impacts.

- Education and Outreach

The Long-Term Plan identified the potential for impacts associated with counseling the public to use DEET to avoid mosquito bites. Although it is not clear that any health impacts result from the use of DEET, the Long-Term Plan repeats the advice of the State Department of Health and urges the public to use caution when applying DEET to skin, and to ensure label directions are followed. Any potential impacts associated with DEET use are mitigated by reductions in disease risk associated with its effective deterrence of mosquito bites.

- Source Reduction

Collection of littered tires can increase waste management requirements, and the maintenance of storm water structures can also generate somewhat problematic materials. The scope of these problems, in light of waste management as a whole County-wide, is not great. The impact of problems associated with these waste streams is mitigated by the potential for improved mosquito management, especially in the reductions of risks to human health.

- Water Management

The Long-Term Plan identifies 15 Best Management Practices and four Interim Management/Ongoing Maintenance Activities (Tables 1 through 5) that could be conducted in coastal marshes to further mosquito control purposes. The following five tables summarize the possible impacts associated with each, and also identify mitigation for each potential impact (identified in the Tables as “Potential Benefits”).

Table 1. Management Activities with No or Minimal Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 1.	Natural processes (reversion/no action)	- Default option - Land owner prefers natural processes to proceed unimpeded - Natural reversion is actively infilling ditches - No existing mosquito problem	- Return to pre-ditch hydrology - More natural appearance/processes - Requires no physical alterations	- Possible increase in mosquito breeding habitat, creation of problem - Loss of ditch natural resource values - Loss of tidal circulation - Phragmites invasion if fresh water is retained on marsh - Drowning of vegetation if excess water is held on marsh	Not applicable	NPN
BMP 2.	Maintain/repair existing culverts	- Flooding issues - Are existing culverts adequate for purpose? - Are existing culverts functioning properly?	- Maintain existing fish and wildlife habitats - Maintain tidal flow and/or prevent flooding	- Continue runoff conveyance into water bodies - Roads & other associated structures	- Hand tools (minor maintenance) - Heavy equipment for repair	GCp

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit
GCp = Generally Compatible Use- Permit Required

Table 2. Management Activities with Minor Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 3.	Maintain/ reconstruct existing upland/ fresh water* ditches	- Flooding issues - Are existing ditches supporting flood control? - Are existing ditches needed for agricultural uses?	- Maintain existing fish and wildlife habitats and hydrology - Prevent or relieve flooding - Support turtle habitat - Provide fish habitat	- Continue runoff conveyance? - Perpetuate existing degraded conditions - Excess drainage	- Hand tools (minor maintenance) - Heavy equipment for reconstruction (rare)	NPN, GCp (6 NYCRR Part 663)
BMP 4	Selective Maintenance/ Reconstruction of Existing Salt Marsh Ditches	- Local government issues and concerns resolution - SCDHS Office of Ecology review - Mosquito breeding activity - Land owners long-term expectations - Overall marsh functionality - Ditch maintenance is to be selective and minimized	- Enhance fish habitat - Maintain existing vegetation patterns - Maintain existing natural resource values - Allow salt water access to prevent/control Phragmites - Reuse pesticide usage	- Perpetuate ongoing impacts from ditching (lack of habitat diversity)	- Hand tools (minor maintenance) - Heavy equipment for reconstruction	NPN, GCp

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit
GCp = Generally Compatible Use- Permit Required

Table 3. Management Activities Usually More Likely to Have Potential Significant Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 5.	Upgrade or install culverts, weirs, bridges	- Flooding - Flow restrictions - Associated marsh impacts - Cooperation from other involved departments	- Improve tidal exchange and inundation - Improve access by marine species - Increase salinity to favor native vegetation - Improve fish habitat & access	- Negative hydrological impacts - Changes in vegetation regime	- Heavy equipment required	GCp, P, PiP
BMP 6.	Naturalize existing ditches	- Grid ditches - Mosquito breeding activity - Landowner needs - In conjunction with other activities	- Increase habitat diversity - Increase biofiltration - Improve fish habitat and access by breaching berms	- Hydrology modification - Minor loss of vegetation - Possible excess drainage	- Hand tools (minor naturalization) - Heavy equipment for major	GCp
BMP 7.	Install shallow spur ditches	- Mosquito breeding activities - Standard water management not successful (continued larviciding)	- Increase habitat diversity - Allow higher fish populations - Improve fish access to breeding sites	- Drainage of ponds and pannes - Hydraulic modification - Structure not stable	- Preferably hand tools	GCp
BMP 8.	Back-blading and/or sidecasting material into depressions	- Mosquito breeding activities - Standard water management not successful (continued larviciding)	- Improve substrate for high marsh vegetation - Compensate for sea level rise or loss of sediment input - Eliminate mosquito breeding sites	- Excessive material could encourage Phragmites or shrubby vegetation - Materials eroded so that application was futile	- Heavy equipment required	Usually NPN or GCp; could be PiP or I
BMP 9.	Create small (500-1000sq. ft) fish reservoirs in mosquito breeding areas	- Mosquito breeding activities - In conjunction with other water management - Natural resource issues	- Increase wildlife habitat diversity/natural resource values - Improve fish habitat - Eliminate mosquito breeding sites - Generate material for back-blading	- Convert vegetated area to open water with different or lower values	-Heavy equipment required	PiP

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.
NPN = Uses Not Requiring a Permit
GCp = Generally Compatible Use- Permit Required
P = Permit Required
PiP = Presumptively Incompatible Use- Permit Required
I = Incompatible Use

Table 4. Management Activities with the Potential for Major Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 10.	Break internal berms	- Water quality (poor) - Standing water (mosquito breeding) - Impacts on structural functions	- Allow access by marine species - Prevent waterlogging of soil and loss of high marsh vegetation - Improve fish access to mosquito breeding sites - Prevent stagnant water	- Changes in system hydrology - Excessive drainage of existing water bodies - Introduction of tidal water into areas not desired	- Hand tools (minor) - Heavy equipment (major)	Pip
BMP 11.	Install tidal channels	- Improve water quality - Tidal ranges and circulation - Increase salinity (invasive vegetation) - Natural resources enhancement	- Improve tidal exchange - Improve access by marine species - Increase salinity to favor native vegetation - Improve tidal inundation - Improve fish habitat	- Changes in system hydrology - Excessive drainage or flooding of uplands - Increase inputs from uplands into water body	- Heavy equipment	PiP
BMP 12.	Plug existing ditches	- Improve fish habitat - Tidal ranges and circulation - Prevent upland inputs - Natural resources enhancement	- Return to pre-ditch hydrology & vegetation - Reduce pollutant conveyance through marsh - Provide habitat for fish & wildlife using ditches - Retain water in ditch for fish habitat - Deny ovipositioning sites	- Changes in system hydrology - Reduce tidal exchange - Reduce fish diversity in ditches due to lack of access - Impoundment of freshwater could lead to freshening & Phragmites invasion - Possible drowning of marsh vegetation	- Heavy equipment	PiP or I
BMP 13.	Construct ponds greater than 1000 sq.ft.	- Landowner's needs - Water fowl habitat - Natural resources enhancement - Aesthetic improvements	- Increase habitat values for targeted species and associated wildlife - Improve habitat for fish - Eliminate mosquito breeding sites	- Changes in system hydrology - Convert vegetated areas to open water with different and possibly lower values	- Heavy equipment	PiP
BMP 14.	Fill existing ditches	- Landowner's needs - Aesthetic improvements - To restore pre-ditch hydrology - Vegetated areas	- Return to pre-ditch hydrology and vegetation - Reduced likelihood of pollutant conveyance through marsh - Create vegetated habitat to replace that lost by ditches or by other alterations - Deny mosquito breeding habitat by eliminating stagnant ditches	- Potential to create new breeding habitats if ditches are not properly filled or by making the marsh wetter - Loss of ditch habitat for fish, other marine species & wildlife using ditches - Loss of tidal circulation - Phragmites invasion if freshwater is retained on marsh - Drowning of vegetation if excessive water is held on marsh	- Heavy equipment	PiP or I
BMP 15.	Remove dredge spoils	- Increase wetland habitat	- Convert low-value upland to more valuable wetland habitats - Eliminate mosquito breeding sites	- Could result in new breeding sites if not carefully designed - Major change in local topography	- Heavy equipment	PiP

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

PiP = Presumptively Incompatible Use- Permit Required

I = Incompatible Use

Table 5. Interim Management/Ongoing Maintenance Actions

Interim Action	**Action**	**Factors to Consider**	**Potential Benefits**	**Possible Impacts**	**Equipment to be used**	**General Compatibility with Tidal Wetlands 6 NYCRR Part 661**
IMA 1.	Natural processes (No action reversion)	-Presumptive interim action	- Non-intervention in natural system	- Non-intervention in natural system	- Non-intervention in natural system	- Non-intervention in natural system
IMA 2.	Selective ditch maintenance (Standard Water Management)	- mosquito breeding activity - water quality (poor) - improve fish habitat	- Enhance fish habitat - Maintain existing vegetation pattern - Improve fish access to breeding sites - Increase fish and wildlife habitat diversity - Increase biofiltration - Improve fish habitat and access by breaching berms	- Perpetuate ongoing impacts from ditches - Hydrology modification - Minor loss of vegetation - Possible excess drainage of marsh surface	- Hand tools (Minor) - Heavy equipment (Major)	NPN, GCp
IMA 3.	Culvert repair/maintenance when tidal restrictions are apparent	- improve water quality - restore pre-restriction hydrology -mosquito breeding activities	- Maintain existing habitat - Maintain existing flows and/or prevent flooding	- Continue runoff conveyance into water bodies - Potentially inadequate water transmission	- Heavy equipment	GCp
IMA 4.	Stop-gap ditch plug maintenance	- prevent upland inputs - increase wetland habitat - sustain fish and wildlife habitat	- Return to pre-ditch hydrology & vegetation - Reduce pollutant conveyance through marsh - Provide habitat for fish & wildlife using ditches - Retain water in ditch for fish habitat - Deny ovipositioning sites	- Reduce tidal exchange - Reduce fish diversity in ditches due to lack of access - Impoundment of freshwater could lead to freshening & Phragmites invasion - Possible drowning of marsh vegetation - Impermanent approach (likely to fail within 5 years)	- Heavy equipment	GCp

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit
GCp = Generally Compatible Use- Permit Required

Extensive experience in other jurisdictions such as New Jersey and Connecticut, suggests that careful site selection and professional implementation of these Best Management Practices tends to minimize the potential for negative impacts and increase the potential for benefits to accrue.

In addition to these efforts to mitigate impacts, Suffolk County will take the following actions to ensure that projects do not result in unwanted and unexpected negative environmental impacts:

- All water management projects are to be conducted on the basis that marsh health and marsh preservation are the primary project concern.
- All projects using Best Management Practices 5 to 15 (listed in Tables 3 and 4) will be subject to initial review through SCDEE and also will be subject to further environmental review.
- All projects will receive NYSDEC permits, as required, and undergo State environmental reviews, as required. Any project requiring a NYSDEC permit will be noticed to CEQ.
- The Long-Term Plan calls for the creation of a Wetlands Stewardship Committee. The Committee will be chaired by SCDEE. This Committee, as discussed in Section D, (and further outlined in Appendix 2) will be responsible for developing a definition of marsh health, and to use that definition to develop a County-wide marsh management plan that will be the basis of an Integrated Marsh Management program. The Integrated Marsh Management program will address all County marsh management needs, including those associated with vector control. The Wetlands Stewardship Committee will also be required to review and make recommendations on all projects that use Best Management Practices 10 to 15, and Best Management Practices 5-9 that the membership of the Committee determines requires further review.
- For the first three years of the Long-Term Plan, the County will only conduct water management projects that have the potential for minimal environmental impacts.
- All wetlands management projects will be developed, reviewed, and assessed on site-specific basis.

- Projects that do not meet goals and objectives after implementation will be subject to remedial activities to mitigate any potential impacts.

- Biocontrols

The Long-Term Plan identified potential impacts of the introduction of fish into certain fresh water habitats as a potential impact associated with the use of biocontrols. This is because certain predator-deficient environments allow for the development of aquatic invertebrates, insects, and amphibians. Some of the insects that can flourish in these environments are mosquitoes. Thus, it can seem to be worthwhile, from a mosquito control standpoint, to introduce mosquito larvae predators to reduce emergent populations. This would likely have negative impacts on other species, however. Therefore, the County will mitigate this potentially negative impact by limiting fish releases generally to locations where they have been used before. In addition, any expansion of fish releases will only occur after the locations have been reviewed and determined not to provide these kinds of "vernal pool" or "coastal plain pond"-type environments, and that any connected waters that the fish might migrate to also do not constitute such environments. This will be done for natural waters, and also for the various artificial waterways (such as recharge basins) that sometimes appear to need treatment.

- Larval Control

Comments were received on the County's proposed use of methoprene and its potential for environmental impacts. The comments tended to focus on two areas:

1) The County ignored important scientific findings in making its analysis
2) The County did not correctly interpret a study conducted in Minnesota

There is no study that was evaluated as part of the Long-Term Plan which suggested that methoprene, as used in vector control applications in Suffolk County (as per NYSDEC-approved label requirements), has significant adverse ecological impacts. To the contrary, the Long-Term Plan's comprehensive risk assessment found that methoprene has no such impacts. Therefore, these findings do not recognize these comments and potential impacts as being substantiated. No commenters have refuted the specific technical materials in the

DGEIS or the FGEIS. Some commentators have recommended that, as a matter of policy, methoprene should be eliminated from the County's vector control program, without scientific documentation of adverse impacts. The commentators have made the recommendation based on speculation that, in the future, scientists may document adverse methoprene impacts in our salt marsh. This basis of speculation is clearly contrary to SEQRA.

Michael Horst has published research regarding impacts of methoprene on various crustaceans since 1999. He has found serious impacts, especially to larval stages of crabs and lobsters. The following summarizes the findings of this environmental assessment with regard to Dr. Horst's research:

- Methoprene is applied in wetland areas, not where larval crabs and lobsters used by Dr. Horst are found. Blue claw crabs hatch offshore and only arrive in estuaries when they are close to being fully developed. It is unlikely any are present in salt marshes in larval forms. Lobsters hatch offshore, develop offshore, and live offshore. A modeling exercise, made to estimate the maximum amount of pesticides that could have been in Long Island Sound when the 1999 lobster die-off occurred, found the maximum amount of methoprene that could be present in the near offshore waters of the sound was measured in the parts per quadrillion, and the lowest concentration linked to effects are in the parts per billion.
- Dr. Horst tends to overestimate the concentration of methoprene that could be present in salt marsh ponds, ditches, and streams, and in estuarine waters, according to all other researchers in the field. He also finds effects that, sometimes, others cannot duplicate.
- Dr. Horst has identified effects from methoprene that other researchers have not found, and have not looked for. This is because he is concerned about impacts from methoprene effects on endocrine systems of organisms. It is possible that pesticides (and other chemicals) that affect endocrine systems are not being correctly evaluated. However, the work in this field is preliminary, and cannot and should not be used to draw conclusions regarding any environmental impacts, based on only a few, limited laboratory studies.

To more specifically illustrate problems with the methoprene research cited by commentators, Dr. Horst's 1999 research with crab larvae used concentrations up to 500 times higher that those levels present in real-world vector control applications. Dr. Horst's more recent work in 2005 with lobster larvae suggested that there was increased mortality in Stage II lobster larvae in experiments conducted utilizing concentrations of 1 to 2 ppb methoprene continuously during a 72 hour exposure. These results were not confirmed in concurrent Stony Brook University analyses.

In any case, one ppb methoprene exposures maintained continuously for 72 hours is an extremely unrealistic exposure. The Caged Fish Study, conducted as part of the Long-Term Plan, with independent verification by USGS, clearly demonstrated that the concentrations required to cause impacts found by the Horst laboratory do not persist in the water column. Nominal concentrations of methoprene rapidly decrease to near or below detection limits of 5 ng/L (0.005 ppb); most of this reduction occurs within two hours of application. In addition, the quantitative risk assessment found, with comfortable margins of error, that risks of ecological impact do not increase to any significant level when methoprene is applied as is anticipated under the Long-Term Plan. Field sampling of salt marshes around Suffolk County also found no differences in the presence or absence of keystone marsh species with the use or not of methoprene in the marshes.

Some have placed great reliance of reports from researchers in Minnesota that appear to show impacts from methoprene use in fresh water marshes. The Hershey group's studies, published in 1997 and 1998, looked at six years of data collected from 1989 to 1994. The research indicated that methoprene use was correlated with relative reductions in insect populations and diversity (primarily in the chironomids), compared to control sites (but note that all populations actually increased in numbers and diversity over the study period; the treatment site populations grew more slowly than the control site populations did). However, sampling of the same marshes in 1997 and 1998 found the effect was gone, although insecticide use was continued. These reports are interpreted by many, including Suffolk County, as indicating that methoprene was not the primary cause of the change in the marsh insect populations.

In summary, the Hershey results do not document potential adverse impacts of methoprene, particularly in terms of Suffolk County's vector control setting. Scientifically, the Minnesota results are equivocal. The results relied on by Hershey impacts were apparently anomalous, as variations in chironomid populations occurred only in later years of the study, with no apparent causal explanation. Confounding factors such as meteorological variations may have been the root of observed impacts on chironomids. Significantly, Hershey's results were not reproduced in subsequent studies and years (i.e., no impacts, despite continuing pesticide use). Finally, it is important to emphasize that, even though the Hershey study was rigorously evaluated, it is substantially irrelevant to the Suffolk County vector control program. Hershey's work was performed exclusively in fresh water systems, while Suffolk's use of methoprene is focused predominantly on salt marshes. As such, Hershey dealt with different use patterns and ecological settings than those present in Suffolk County.

Aerial applications of larvicides appear to have the potential to cause impacts to certain bird species. Aircraft, especially when flown low over a marsh, have been observed to startle resting and nesting birds, causing them to take flight. Research on the impacts of startling such birds at one or two week intervals, as can occur due to repeated applications of larvicide across a season, is sparse, and so the impacts to any such species is based on speculation.

This potential impact is mitigated in two ways through the Long-Term Plan. One is by identifying important populations, and then altering application techniques to avoid any startling. This is already the practice of SCVC when piping plover nesting sites may be in potential flight paths. SCVC has requested that local experts work more closely with it to identify any significant populations or environments that may be impacted by its operations; although the focus of this effort is on fresh water settings, the same experts may be useful in identifying at risk populations in salt marshes, and the times when they are most sensitive to disturbance. Secondly, it is hoped that full implementation of progressive water management across the salt marshes will lead to a reduction in aerial larviciding. This has been the experience in neighboring jurisdictions where these procedures are used regularly.

Generally, the potential for impacts from the use of larvicides will be mitigated by the proposed large-scale reduction in applications, as the need for such applications is reduced.

Another overall mitigation is the benefit to human health resulting from disease risk reductions when potential vector populations are reduced.

As mentioned above, potential impacts associated with larval controls in fresh water settings are going to be further mitigated by encouraging information exchange between experts with knowledge of at risk organisms or settings, and SCVC. As each party understands habitat needs of the organisms, and proposed treatments by SCVC, it is anticipated that alterations can be made in the means SCVC uses to control mosquitoes to minimize the potential for impacts. These alterations could be shifts in the time of day that applications are made, to avoidance of treatments for certain settings at certain times, to more studied selection of treatments and times or applications to optimize mosquito control while minimizing the opportunities for impacts to occur. SCVC has, for example, worked closely with NYSDEC to avoid treating any tiger salamander habitats at times when impacts might affect breeding, or development and emergence of young. This is true although there do not appear to be any reasons to believe larvicide applications directly affect amphibians.

The quantitative risk assessment, the scientific literature in general, and local field work all found no potential impacts from the use of the biorational larvicides selected by the County under its proposed application means. Nonetheless, the County will seek to minimize its use of pesticides in the program. This is for several reasons:

- Minimizing pesticide use complies with spirit of the County pesticide phase-out law
- Minimizing pesticide use complies with Integrated Pest Management, where other means of pest control are preferred to the use of pesticides
- Reliance on pesticides for mosquito control can lead to suboptimal control. Resistance might develop, weather or other factors may impede the delivery of the pesticide, or the application may fail to impact the targeted population as expected (for a number of reasons). Thus, the pesticide may not achieve the expected efficacy.
- The potential exists for impacts due to accidents or misapplications.
- All studies, experiments, and calculations involve some uncertainties; in the case of much of the work with mosquito control pesticides, there are certainly a number of

factors and conditions that have not been completely studied and understood. Therefore, there is still a potential for impacts from the use of these products.

Therefore, the County will continue to seek to reduce its use of these compounds wherever and whenever it is feasible to do so.

- Adult Control

In the course of modeling helicopter releases of adulticides, RTP Environmental discovered there was drift of the pesticides from the release point so that at least some of the material was deposited outside of the target zone. To mitigate this potential impact, the County purchased an Adapco Wingman system. This is a coupled weather station-modeling-aircraft guidance system, where real-time meteorological data are used to model potential draft patterns of released ultra-low volume pesticides, and flight patterns are instantaneously generated to optimize the delivery of the pesticides to the target zone. This modeling system was installed on the contract helicopter used by the County in late 2005.

The quantitative risk assessment found at the point in the model grid where pesticides concentrations were greatest in Davis Park, that some elevated risks for human health for a receptor called the "community gardener" are possible (the community gardener receptor was studied in all settings, although it is not feasible for someone on Fire island to have a large, extensive vegetable garden). A community gardener is someone who eats all of their vegetables and fruit in summer from home-grown produce (15 percent of all annual produce ingestion) and works in the garden. Such an individual receives a higher dose of pesticides from residues ingested on the vegetable and from dermal contact with contaminated plants. The exposure modeled is a chronic, non-cancerous toxicity associated with malathion only. The risk can be mitigated by washing produce. It is also mitigated because malathion is not a preferred pesticide for the Long-Term Plan, and exposures associated with the pyrethroids (including resmethrin and sumithrin) do not exceed concentrations of concern. Public education efforts will help to mitigate risks associated with home-grown produce ingestion.

The quantitative risk assessment determined that there could be impacts to night-flying insects based on air dispersion model output concentrations compared to significant concentrations that could cause effects on bees (see Table 6 and Table 7).

Table 6. Bee Risk Quotients, Study Area Maximum Average Pesticide Concentrations

Pesticide	Davis Park	Dix Hills	Manorville	Mastic-Shirley (aerial)	Mastic-Shirley (truck)
Permethrin	200	8	9	20	90
Resmethrin	90	4	4	8	40
Sumithrin	100	5	6	10	60
Malathion	200	30	20	50	100

(PBO effects included)

Table 7. Bee Risk Quotients, Study Area Mean Pesticide Concentrations

Pesticide	Davis Park	Dix Hills	Manorville	Mastic-Shirley (aerial)	Mastic-Shirley (truck)
Permethrin	7	3	2	7	2
Resmethrin	3	1	1	3	1
Sumithrin	4	2	1	4	1
Malathion	20	20	9	30	8

(PBO effects included)

A number of key factors may act to mitigate and in some cases entirely remove the potential for risks to honeybees and other non-target insects:

- Actual risks would be most likely to occur when insect activity coincides with the application timing, with risks being largely mitigated for daytime insects if spraying were to occur at night.
- Additional habitat preferences, activity patterns, and behavior could result in lower risks for certain non-target insects than those predicted in this evaluation. For example, many insects are active on the ground and may be below vegetation, which may intercept applied adulticides. Many insects, such as crickets, beetles, ants, and millipedes, spend a portion of their life cycle underground. If this period does not temporally coincide with the spray season, the potential for exposure could be significantly mitigated. Some flying insects, such as certain moths and dragonflies, rest at nighttime underneath plants or other structures, and therefore would be less likely to be exposed during nighttime applications. Certain insects may actively avoid sprayed areas, and it has been shown that permethrin has a strong repellant effect on honeybees, for example.
- Verification of the air modeling data showed that under "normal" atmospheric conditions, there was typically a three to one difference between predicted PBO values and measured PBO values; with unusual atmospheric conditions, the agreement was less good (an average of 14:1). The model overpredicts the pesticide concentrations. Conservatively, it seems reasonable to assert a slight overprediction

of three to five times on the basis of the air modeling, which suggests that under most atmospheric conditions resmethrin has little potential for impact to bees, using the study area mean concentrations as a basis for understanding impacts. The same would follow for sumithrin; similar conclusions follow for at least two of the permethrin results.

- Exposures and risks are predicted based upon instantaneous conditions, precluding the incorporation of degradation of adulticides. However, adulticides are generally not persistent in terrestrial environments. Because of the difficulty in measuring resmethrin concentrations in the field, it was conservatively assumed that the resmethrin to PBO ratio would remain constant. However, deposition samples collected on solid media and aqueous samples collected within 30 minutes of the pesticide applications all found that the resmethrin had significantly decreased in concentration relative to PBO. This strongly suggests that the degradation of resmethrin may reduce the predicted concentrations enough so that the concentration of concern for bees is not achieved under most conditions.

The combination of degradation of resmethrin and overprediction by the air modeling makes it conceivable that the predicted concentrations are at least an order of magnitude greater than may actually occur. This suggests there is not likely to be a potential impact for resmethrin to flying insects under the more conservative assumptions in Table 6 for any of the aerial application scenarios. Because sumithrin has been found to behave similarly to resmethrin in laboratory experiments, it may be that it, too, degrades very quickly relative to PBO. If that were the case, then aerial applications of sumithrin would likewise be of much less concern, even under the more conservative modeling scenario.

In very broad terms, the toxicity of an insecticide dose is proportional to the size of the affected insect. The pesticides used under the Long-Term Plan are intended to be toxic to mosquitoes. Therefore, insects of similar or smaller sizes are likely to be affected if they are also exposed to the pesticide. Table 8 lists the orders of flying insects found in the New York metropolitan area that are of similar or smaller size compared to mosquitoes.

Table 8. Orders of flying insects that contain many/certain insects that are generally similar in size or are smaller than mosquitoes (0.15 inches)

Order	Notes	Order Exemplars
Diptera	Some classify this order as larger than mosquitoes (mosquitoes belong to Diptera)	True flies – black flies, midges, fruit flies, houseflies, mosquitoes
Ephemeroptera	Often attracted to lights; short-lived; Paleoptera; some classify this order as larger than mosquitoes	Mayflies
Homoptera	Important herbivores	Aphids, scale insects, leaf hoppers, cicadas
Mecoptera	Seldom common; insect predators	Scorpion flies
Proscoptera	Many wingless; effective dispersers (often first colonizers of islands)	Bark lice
Strepsiptera	Only males fly; insect parasites	
Thysanoptera	Often destructive to plants	Thrips
Zoraptera	Termite-like; rare; winged individuals may be dispersal form	

There has only been one test of pyrethroid application impacts on flying insects; in that experiment, both the control and test sites experienced declines in populations, and both recovered within a week. Another test using a different class of adulticide also found recovery of the insect population within a week. This suggests that any effects on non-target organisms are likely to be short-lived; since the mechanism for recovery is likely to be in-migration, one caveat, thus, is that the treatment area sizes should be minimized.

Acute and chronic impacts to aquatic invertebrates were predicted for malathion under many evaluated scenarios, and for permethrin in one case through the quantitative risk assessment. No elevations in risk that are likely to cause impacts were predicted for the use of resmethrin or sumithrin. A sophisticated aquatic ecosystem model developed by the US Environmental Protection Agency was used to test whether permethrin use might result in ecological impacts (permethrin, rather than malathion, was tested because pyrethroids were identified as the preferred adulticide, and so testing a pyrethroid for impacts was deemed to be of greater value in predicting any ecological impacts from implementing the Long-Term Plan). The model found short-term declines in populations for a variety of organisms following modeled exposure to permethrin. However, all but one population recovered within several months of the cessation of applications, and the slower recovery of the remaining population did not lead to any ecological changes in the modeled system.

Mitigation of these potential impacts includes:

- Measurement of effects may be based on overpredictions of deposited concentrations (see just above)
- Pyrethroids, as represented by resmethrin, appear to degrade very rapidly (testing of pesticides in association with the Caged Fish experiment was only able to detect resmethrin in the water column immediately following applications)
- Historically, applications have only been made to small portions of the County. In 2003, which had more adulticide use of any year since 1999, only six percent of the County received an adulticide application. This means that any potential impacts are extremely limited in terms of geographical extent.

More generally, the County will also seek to mitigate potential impacts to those areas that commonly receive one (or more) Vector Control adulticide application in a season. Targeted outreach will stress the importance of avoiding exposure to mosquitoes, and in taking mitigating steps if exposure cannot be avoided. The Commissioner of SCDHS will also craft an advisory detailing the means that SCDHS recommends (or suggests) to minimize risks for potential impacts from exposure to adulticides. Washing of home-grown vegetables in areas where adulticides may be used more often will be an important outreach topic.

The small area of the County impacted by adulticides in any one year is a general mitigation of impacts. In addition, the strict compliance of SCVC with defined, numerical application triggers may reduce the number of applications, and will mitigate any public perceptions that applications are made on the basis of ambiguous criteria. Finally, implementation of progressive water management steps should provide more effective larval control than has been achieved using larvicides and ditch maintenance, which may decrease the need for adulticide applications.

The use of adulticides also provides ancillary benefits. Adulticide applications reduce risks for mosquito-borne disease and also reduce impacts to quality of life. This is because efficacy data clearly shows adulticides are effective means of reducing mosquito populations, although these populations may recover within several weeks in conditions allow. The collection of efficacy data in association with adulticide applications will allow the County to

clearly justify this element of the program. If the efficacy data do not support claims of population reductions, then the County will need to reexamine its use of this control tool.

The County will mitigate the overall impacts of its use of pesticides through an annual review. Elements of this review will include documenting the use of pesticides in the previous year, analysis of any relevant scientific findings on the products in use, and considered evaluation of alternatives in light of any new information (research or product development) since the previous year's report. The report will also discuss the application thresholds used to determine if Vector Control applications should be made, and determine if adjustments need to be made in light of human health and environmental considerations.

- Adaptive management

Suffolk County has made a public commitment to adaptively managing the Long-Term Plan. This is a clear mitigation of any impact associated with the Long-Term Plan. If the above analysis did not adequately identify a potential impact, or if some potential impact was overlooked in the environmental analysis, the ability to adjust the program to meet changed circumstances allows the Long-Term Plan to be modified. The list of issues to be addressed in the Triennial Plan, attached as an appendix to this Findings Statement, makes clear Suffolk County's determination to carefully assess the effectiveness and potential impacts of the Long-Term Plan.

G. Requirements for Further Environmental Reviews

Potential further environmental reviews for actions taken under the Long-Term Plan relate to at least two types of actions:

- adoption of the Annual Plan of Work by the County Legislature
- reviews of water management projects and BMPS 5-15

The triggers for further environmental review which are specified herein constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County and/or the Council on Environmental Quality could commence additional environmental review based on substantial new technical information.

The adoption of these Findings by the Legislature (as Lead Agency) means the Legislature is satisfied that the potential impacts of the Long-Term Plan have been adequately reviewed. From this perspective, if an Annual Plan of Work complies substantively with the Long-Term Plan, then potential impacts of that annual plan will have been adequately considered, as well, and the Annual Plan of work would be deemed a Type II Action pursuant to SEQRA.

The primary criterion for determining if an Annual Plan of Work is not substantively in accord with the Long-Term Plan should be the annual plan's compliance with the overall approach of the Long-Term Plan, and, where specified, a failure to use particular actions, or a major deviation from an important specific set of actions. In general, annual plans need to focus on the use of surveillance to determine where mosquito problems exist, and to primarily employ source reduction tools to reduce the impact of mosquitoes on people. An important source reduction tool must be implementation (over time) of the techniques for water management developed in the Best Management Practices manual, as outlined in the Wetlands Management Plan. Any plan that proposes to manage mosquitoes without surveillance or to not use water management as a means of obtaining long-term control of mosquito problems will require additional environmental review.

Other criteria that would lead to additional environmental review of an annual plan would be:

- failure to include public education and outreach steps to educate residents and visitors on the means that are available to avoid mosquito bites and diseases associated with mosquitoes
- Inadequate mosquito population or disease surveillance
- failure to commit to respond to all mosquito complaints using personnel appropriately trained to identify and mitigate sources of mosquito problems
- failure to use the review processes outlined in the Wetlands Management Plan for water management projects
- proposed use of a non-native biocontrol organism not already resident in Suffolk County natural environments
- proposed use of a larvicide other than *Bacillus thuringenesis var israelensis* (Bti), *Bacillus sphaericus*, or methoprene

- proposed use of an adulticide other than resmethrin, sumithrin, permethrin, natural pyrethrins, or malathion
- identification of a preferred adulticide agent other than resmethrin or sumithrin

Environmental reviews may consist of a negative declaration if no significant environmental impacts will result (6 NYCRR §617.10(d) (3)) or a supplemental environmental impact statement if one or more significant adverse environmental impacts was not adequately addressed (6 NYCRR §617.10(d) (4)). Use of an expanded EAF may be appropriate when a negative declaration is proposed.

The adoption of these Findings by the Legislature (as Lead Agency) means the Legislature is satisfied that the potential impacts of the Long-Term Plan have been adequately reviewed. From this perspective, the classification of allowable water management actions (as described in the Best Management Practices manual) as "no to little" potential impacts, "minor" potential impacts, "usually more likely to have potentially significant" impacts, and "usually more likely to have major" potential impacts will have been accepted, and the descriptions of the potential for impacts (and the mitigation steps to avoid impacts) will have been deemed to be adequate.

Nonetheless, on a project by project basis, the following criteria need to be considered to determine if additional environmental reviews are warranted:

- the techniques to be employed have been classified as having the potential for potentially significant or major environmental impacts (BMPs 5-15)
- consultation with local authorities or review by the Wetlands Stewardship Committee finds there is a potential for environmental impacts under the proposed course of action
- review by the CEQ finds there is a potential for environmental impacts under the proposed course of action

Environmental reviews may consist of a negative declaration if no significant adverse environmental impacts will result (6 NYCRR §617.10(d) (3)) or a supplemental environmental impact statement if one or more significant environmental adverse impacts was not adequately addressed (6 NYCRR §617.10(d) (4)). In light of the extensive reviews of the techniques to be employed for water management in the GEIS and associated documents, use of an expanded

EAF to cite relevant sections of the GEIS or to report on local data collection efforts that justify the project may be appropriate if a negative declaration is proposed.

The triggers for further environmental review which are specified above constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County could commence additional environmental review based on substantial new technical information.

Appendix 1 to the Statement of Findings: Contents of the Triennial Report

The following outline is intended to provide a preliminary overview of issues which will be analyzed to form the basis of the Triennial Report. The outline includes indicators (where available) which will be used to measure success. The content and format of the Triennial Report will be contingent on Steering Committee and Wetlands Stewardship Committee input which will be sought at the early stages of report preparation.

1) Executive Summary

The Executive Summary will provide an overview of the following issues, which will be addressed in detail in subsequent report sections.

- Public health (viral surveillance, human disease)
- Vector control (pesticide usage, water management, surveillance, etc.)
- Education/outreach
- Wetlands Stewardship Program – Accomplishments and Plans
- Potential Plan Updates and Amendments

2) Public Health

- Viral surveillance results
- Human health (cases and deaths from mosquito-borne diseases)

3) Vector Control Long-Term Plan Implementation

The report will integrate results from the Department of Public Works, Division of Vector Control and Department of Health Services, Division of Public Health.

A. Public Education and Outreach

Current Program:

- Recommend avoidance of the outdoors at dawn and dusk.
- Consider use of personal repellants (DEET, Bite Blocker, Picaridin, Oil of Lemon Eucalyptus).
- Maintain home environments that do not foster mosquito breeding.
- Distribute Publications such as “Fight the Bite” and “Dump the Water.”
- Maintain County Web Site
  - Post spray events
  - Link to no spray list

Long-Term Plan Recommendations:

- Establish tire management education program to eliminate mosquito breeding habitat. Encourage other county departments and municipalities responsible for routine sanitation or maintenance activities to properly dispose of tires.
- Conduct farmer irrigation outreach-targeted education through Cornell Cooperative Extension.
- Encourage private storm water system maintenance.
- Conduct tailored outreach to municipal highway departments regarding storm water structures as mosquito habitat.

- Emphasize personal responsibility for reducing impacts from mosquitoes (avoiding mosquitoes whenever possible, wearing long-sleeves and pants, and using repellents).
- Improved efficacy reporting. Results made available to the public via the web and annual reports.
- Post efficacy reports on the SCVC website. Reports will summarize the results of mosquito control efforts measured before, during and after aerial spray event.
- Maintain the Citizens Advisory Committee.
- Create a listserv for adulticide application notifications.
- Integrate new web site into existing county site.
- Revise public notice/guidance.
- Participation in "Mosquito Awareness Week."
- Targeting specific communities (recommended in DGEIS comment period).
- Focusing on educating school-aged children (recommended in DGEIS comment period).

Indicators of Success

- Degree to which current program and Long-Term Plan recommendations are implemented. Implementation will be quantified, where possible. E.g.:
  - Partnerships established with towns for tire management plans.
  - Public education workshops which have been conducted.
  - Brochures and fact sheets disseminated to public.
  - Number of efficacy reports posted.
  - Programs targeted at specific communities and school-aged children.

B. Scientific Surveillance

Current Program:

- Presence or absence of larvae
- Collect and process 10,000-12,000 larval and adult mosquito samples
- Collect and process approximately 75,000 mosquitoes for arbovirus surveillance
- Integration of Geographic Information System (GIS) and Global Positioning System (GPS) technology for surveillance information
- 27 permanent NJ traps; 80 CDC trap-nights per week.

Long-Term Plan Recommendations*:*

- Increase surveillance capabilities.
- Increase staff for surveillance for both SCVC and the ABDL.
- Increase permanent NJ trap network to 30.
- Increase CDC trapping to 105 trap-nights per week.
- Conduct quantitative mosquito assessment prior to EVERY adulticide event.
- Conduct post-spray efficacy monitoring.

Indicators of Success

- Degree to which current program and Long-Term Plan recommendations are implemented. E.g.:
  - Number of staff-days dedicated to surveillance.
  - Number of mosquito samples processed.
  - Number of CDC light traps deployed and NJ traps maintained.
  - Number of pre-adulticide mosquito counts.
  - Annual reports on surveillance analysis, including post-spray efficacy.

C. Source Reduction/Control

Current Program:

- Public education program (above).
- Response to citizen complaints.
- Catch basin and recharge basin control efforts.

Long-Term Plan Recommendations:

- Expand surveillance of catch basins from 10,000 to 40,000 inspections.
- Augment education component (County tire collection effort, private storm water management system outreach effort, increase interaction between SCVC and highway departments)

Indicators of Success

- Catch basins inspected.
- Records on response to complaints.
- Improve waste management and county departments tire management

D. Biocontrols

Current Program:

Mosquito fish, (Gambusia spp.)

Long-Term Plan Recommendations:

- Fathead minnows; other disease free fish native to the area.
- Predacious Copepods

Indicators of Success

- Research alternatives and explore other states initiatives
- Same or increased level of biodiversity after introduction of biocontrol
- Reduced mosquito larvae counts in sampling

E. Larval control

Current Program:

- Biorational larvicides, Bacillus thuringiensis var. israelensis (Bti), Bacillus sphaericus (Bs), and methoprene
- Surveillance of the nearly 2,000 breeding points in the County

- 15,000 inspections of breeding sites and other surveillance findings (includes catch basins and sumps)
- Approximately 4,000 acres of the County's salt marshes aerial larvicided

Long-Term Plan Recommendations:

- Increased surveillance
- Surveillance of the 2,000 breeding points in the County
- 15,000 inspections of breeding sites and other surveillance findings
- Identify problem breeding sites
- Expanded catch basin and recharge basin larviciding
- Implementation of ecological controls
- Implementation of formal resistance testing and management
- Water management - 75% percent reduction goal in acreage treated

Indicators of Success

- Number of inspections/surveillance events.
- Area larvicided (frequency and extent).
- Record and analyze dip counts in relation to reduction in treatments (results).
- Annual larvicide efficacy reports (results).
- Reduced adulticide events expected after successful larvicide control in known problem areas.

F. Adult control (only if necessary)

Current Program:

- Resmethrin, sumithrin, malathion, permethrin and natural pyrethrin
- Adulticide-directed surveillance, decision-making procedures, and efficacy and resistance testing

Long-Term Plan Recommendations:

- Criteria for spraying
  - Evidence of mosquitoes biting humans – service requests mapped
  - Verification of problem-New Jersey trap counts > 25 females /night
  - CDC light trap counts > 100; Landing rates of one to five per minute
  - Control is technically feasible Weather conditions suitable (no rain, winds<10 mph, temperature 65 ° or above)
- Improved spray technology ("Adapco Wingman") to minimize pesticide application and optimize mosquito control.
- Augment the New Jersey light trap network from 27 to 30. Expand as resources allow (see surveillance).
- Increase the number of CDC light traps from 27 to 35. Expand as resources allow (see surveillance).
- Increase CDC trap-nights to 105 per week.
- Reduce adulticide usage (currently less than 2% of County in non-emergency situations).

Indicators of Success

- Reduction in adulticide usage.
- Efficacy tests post treatment indicate 90 – 99% population reduction.
- Efficacy tests posted annually on county web page and in annual reports.
- Aerial application efficacy released within a week or so of the application.
- Post Health Emergency reductions in the parity and infection rates for the target mosquito species (if staff and lab resources available).

G. Water Management:

Current Program

- Hand maintenance/machine maintenance limited to < 200,000 linear ft/yr
- Machine work limited to repair and replacement of existing structures
- No new machine ditching
- Machine maintenance limited to 50,000 ft/year (no more than 50 affected acres), and only when essential for public health or ecological reasons.
- Natural Process (No action/ reversion)
- Culvert repair/ maintenance when tidally restricted
- Stop gap ditch plug

Long-Term Plan Recommendations

- Develop a strategy for managing Suffolk County's 17,000 acres of tidal wetlands, irrespective of Vector Control concern (goal: 12-year implementation window).
- Reversion priorities, allowing natural processes to fill ditches (approx. 4,000 acres; no vector control).
- Candidates for possible restoration/water management (currently routinely larvicided; approx. 4,000 acres). Marsh health is paramount objective.
- Areas requiring more assessment (approx. 9,000 acres); low-impact best management practices are possible.
- The pre-existing policy of "no new ditching" will be continued.
- Less than four percent of the County's tidal wetlands (~ 600 acres) subject to machine ditch maintenance over the next decade.

Indicators of Success

Implementation of Plan recommendations (above).

4) Wetlands Stewardship Program – Accomplishments and Plans

Long-Term Plan Recommendations

- Develop a comprehensive assessment and management plan for the 17,000 acres of tidal wetlands within three years
- Ensure the protection and preservation of functions, values, and health
- Use Vector Control Wetlands Management Plan as foundation (Goodbred Report; primary study area results)
- Inventory/assess wetlands County-wide

- Review and evaluate major wetland restoration projects
- Implement early action demonstration projects
- Develop Long-term strategies

Indicators of Success

- Existence/adoption of strategy
- Acres/subsystems assessed
- Acres /subsystems restored
- Integrated plans implemented

5) Recommended Plan Updates and Amendments

Plan updates and amendments will be made, as needed. Updates may be recommended by involved agencies, the Citizens Advisory Committee, Technical Advisory Committee, and/or Wetlands Stewardship Committee. Updates require review/approval of the Steering Committee.

Appendix 2 to the Statement of Findings: Structure of the Wetlands Stewardship Committee

SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT LONG-TERM PLAN

Wetlands Stewardship Committee (WSC) – Overview *

Membership (Tentative)

Estuary programs

Long Island Sound Study representative
Peconic Estuary Program representative
South Shore Estuary Reserve Program representative

State

New York State Department of Environmental Conservation Region I

New York State Department of Environmental Conservation Bureau of Marine Resources
New York State Department of State

Non-governmental Organizations (NGOs)

Two appointed by County Legislature
Two appointed by County Executive

County

County Legislature – Presiding Officer
County Executive
Suffolk County Department of Environment & Energy - will serve as Chair of Committee

Council on Environmental Quality

Suffolk County Department of Health Services

Suffolk County Department of Public Works

Suffolk County Department of Planning
Suffolk County Department of Parks

Town (only when projects proposed in a Town)

1 Supervisor and 1 Trustee rep

Nature of Committee; Support from Work Group, Agencies, and Contractor

The Stewardship Committee is comprised of policymakers, high-ranking agency officials, and NGOs from agencies and organizations with responsibility for wetlands management. The Committee will meet on a quarterly basis, or as needed to vote on wetlands management projects. The Committee will be supported by professional staff at the Suffolk County Departments of Environment, Health, and Public Works. Suffolk County Capital Program 8730 (Wetlands Planning) is also expected to support the Committee and the Wetlands Stewardship Program ("WSP," see below), via a contracted workplan. A "Wetlands Management Work Group," consisting of technical experts from agencies, NGOs, and academia, will meet more frequently, and will report to the Stewardship Committee. The work group will conduct many of the functions formerly performed by the Long-Term Plan's "Wetlands Subcommittee" (i.e., will guide monitoring, assessment, and project design).

Wetlands Stewardship Committee - Charges

- Oversee and make recommendation all major aspects of the Wetlands Stewardship Program.
- Meet to review and make recommendations on all proposed wetlands projects which propose use of Best Management Practices 10 through 15 in Long-Term Plan.

- Review and make recommendations on proposed wetlands projects which propose use of Best Management Practices 5 through 9 in Long-Term Plan, at Committee's discretion.
- Provide review and recommendations on the water management component of the Triennial Long-Term Plan Update. This update shall incorporate results of the Wetlands Stewardship Program.

The WSP is a cooperative effort between the Wetlands Stewardship Committee and various Suffolk County Departments (Environment and Energy as the committee chair, Health Services as Stewardship Program project manager, Public Works as project sponsor, and Planning and Parks as key partners). The WSP is charged with developing indicators of wetlands health, assessing wetland health, establishing preservation and restoration priorities, and designing and implementing pilot projects. The WSP will also coordinate activities among estuary programs.

Within three years, the WSP will develop a Wetlands Stewardship Strategy (WSS) to address the assessment and management needs of all tidal wetlands in Suffolk County (approximately 17,000 acres), not just those wetlands of concern with respect to vector control. Marsh health will be the paramount objective. The scope of WSC activity will generally be limited to tidal wetlands. However, freshwaters and freshwater wetlands which are closely hydrologically connected, and integral to a tidal wetlands subsystem, may be considered on a case-by-case basis. Federal, state, town and village jurisdictions are encouraged to participate in the Stewardship Committee (e.g., in terms of project review), but are not required to do so.

*Working outline, subject to establishment of final membership, by-laws and procedures by Suffolk County Dept. of Environment & Energy

Appendix 3 to the Statement of Findings: Adopting Resolution 1150-2007

Intro. Res. No. 1150-2007 Laid on Table 2/6/2007
Introduced by Deputy Presiding Officer Viloria-Fisher

RESOLUTION NO. 285 -2007, ADOPTING THE SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT LONG-TERM PLAN AND A STATE ENVIRONMENTAL QUALITY REVIEW ACT FINDINGS STATEMENT FOR THE FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT

WHEREAS, it is the policy of Suffolk County to reduce or eliminate pesticide usage, to the extent practicable; and

WHEREAS, Suffolk County is committed to preserving and restoring its tidal wetlands, which have been dramatically altered by an extensive vector control grid ditch network which was substantially created in the 1930s; and

WHEREAS, the West Nile Virus threat highlighted the need to further optimize an already effective Vector Control Program, which is essential to protect public health, and also has important ancillary quality of life benefits; and

WHEREAS, in acknowledgement of the need to develop a comprehensive long-term vector control plan to protect public health and welfare, while reducing pesticide usage and enhancing wetlands which may be affected by Vector Control, in Resolution No. 688-2002, this Legislature authorized the development of a Suffolk County Vector Control and Wetlands Management Long-Term Plan (hereinafter "Long-Term Plan," dated October 2006, annexed hereto, incorporated by reference and made a part hereof), designated itself as lead agency under the State Environmental Quality Review Act (hereinafter "SEQRA", N.Y. Environmental Conservation Law Article 8) and its implementing regulations (subject to appropriate coordination), classified the action as Type I, and adopted a Positive Declaration for the Long-Term Plan, causing a Generic Environmental Impact Statement (hereinafter "GEIS") to be prepared; and

WHEREAS, this Legislature adopted the Final Scope for the Generic Environmental Impact Statement, pursuant to Resolution No. 1122-2003; and

WHEREAS, the Long-Term Plan and GEIS were prepared in a public and open process with extensive input and guidance from Citizens and Technical Advisory Committees, as well as the Council on Environmental Quality (hereinafter the "CEQ"), interested citizens of the County, and Local, State, and Federal agencies; and

WHEREAS, comments from agencies, advisory committees, the public, and the CEQ resulted in multiple voluntary iterations of the Long-Term Plan (including publications in September 2005, May 2006, and October 2006), and, as a result, the Plan has been substantially improved; and

WHEREAS, the Departments of Health Services, Public Works, and Energy and the Environment caused the preparation of a Draft GEIS in accord with the procedures and rules of SEQRA as defined in 6 NYCRR Part 617; and

WHEREAS, pursuant to Chapter 279 of the Suffolk County Charter, the Council on Environmental Quality evaluated the Draft GEIS and found it to be complete according to the standards set forth under SEQRA; and

WHEREAS, the Council on Environmental Quality then solicited public comments on the Draft GEIS, including holding two public hearings; and

WHEREAS, this Legislature, on the advice of the Council of Environmental Quality, found that comments received on the Draft GEIS were substantive in nature, requiring the preparation of Final GEIS, as per Resolution No. 1103-2006; and

WHEREAS, the Suffolk County Departments of Health Services, Public Works, and Energy and the Environment therefore caused the preparation of a Final Generic Environmental Impact Statement in accordance with the procedures and rules of SEQRA as defined in 6NYCRR Part 617; and

WHEREAS, the Final GEIS was filed with the Council on Environmental Quality and made available to the general public; and

WHEREAS, the Council on Environmental Quality forwarded the Long-Term Plan, the Final GEIS, and the Final GEIS Addendum, together with its comments and recommendations and those received from the public with this Legislature, for consideration at the January 29, 2007 meeting of the Environment, Planning and Agriculture Committee of the Suffolk County Legislature, as part of CEQ Resolution No. 08-07; and

WHEREAS, the Suffolk County Departments of Health Services, Public Works, and Energy and the Environment caused the preparation of a draft Findings Statement; now, therefore be it

1st RESOLVED, that the Legislature adopts the Long-Term Plan as an appropriate, comprehensive, long-term wet lands management and vector control plan to protect public health and welfare, while reducing pesticide usage and protecting wetlands; and be it further

2nd RESOLVED, that, pursuant to 6 NYCRR Part 617 and Chapter 279 of the Suffolk County Charter, the Legislature hereby adopts the Statement of Findings annexed hereto, incorporated by reference and made a part hereof, certifies that the requirements of SEQRA have been met, and certifies that, consistent with social, economic and other essential considerations, the proposed Long-Term Plan has been developed from among the reasonable alternatives available, as the choice that avoids or minimizes potential adverse, environmental impacts, to the maximum extent practicable; and be it further

3rd RESOLVED, that the Legislature certifies that adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporation, as conditions within the Statement of Findings, where those mitigative measures that have been identified as practicable; and be it further

4th RESOLVED, that the Legislature finds that there is a need for a strategy to address the management needs of the County's 17,000 acres of tidal wetlands, not just the 4,000 acres of tidal wetlands of greatest concern to Vector Control; and be it further

5th RESOLVED, that the Legislature supports the Wetlands Stewardship Committee concept described in the Findings Statement, as a means of coordinating and overseeing future marsh management projects, as well as overseeing development of a strategy to address the management needs of the County's 17,000 acres of tidal wetlands, consistent with applicable laws; and be it further

6th RESOLVED, that the Commissioner of the Suffolk County Department of Environment and Energy, or her designee, is hereby authorized and directed to serve as Chair of the Wetlands Stewardship Committee, and to oversee development and implementation of appropriate procedures and by-laws of that Committee, including membership and voting, which procedures and by-laws shall be consistent with applicable laws; and be it further

7th RESOLVED, that the Suffolk County Department of Environment and Energy will prepare a report on Wetlands Stewardship Committee activities to this Suffolk County Legislature within three years, with said report containing a strategy to address the management needs of the County's 17,000 acres of tidal wetlands.

DATED: March 20, 2007

APPROVED BY:

/s/ Steve Levy
County Executive of Suffolk County

Date: March 22, 2007

COUNTY OF SUFFOLK

STEVEN BELLONE
COUNTY EXECUTIVE

DEPARTMENT OF ECONOMIC DEVELOPMENT AND PLANNING
DIVISION OF PLANNING AND ENVIRONMENT

COUNCIL ON ENVIRONMENTAL QUALITY

LAWRENCE SWANSON
CHAIRPERSON
CEQ

MEMORANDUM

TO: Interested Parties/Involved Agencies

FROM: John Corral, Senior Planner JC

DATE: November 8, 2017

RE: Proposed Hubbard County Park Environmental and Historical Management Plan, Town of Southampton

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Enclosed is an Environmental Assessment Form for the above referenced County project which has been submitted to the Council on Environmental Quality (CEQ) for review. Pursuant to Title 6 NYCRR Part 617 and Chapter 450 of the Suffolk County Code, the CEQ must recommend a SEQRA classification for the action and determine whether it may have a significant adverse impact on the environment which would require the preparation of a Draft Environmental Impact Statement (DEIS).

The Council would like to know your environmental concerns regarding this proposal and whether you think a DEIS or a determination of non-significance is warranted. This project will be discussed at the November 15, 2017 CEQ meeting. If you are unable to attend the meeting to present your views, please forward any recommendations or criticisms to this office prior the date of the meeting. **If the Council has not heard from you by the meeting date, they will assume that you feel that the action will not have significant adverse environmental impacts and should proceed accordingly.**

JC/cd
Enc.

cc: John Sohngen, Assoc. Public Health Engineer
Suffolk County Department of Health Services
Andrew P. Freleng, Chief Planner
Department of Economic Development and Planning

Land Use
Ecological Services, Inc.

October 2, 2017

Suffolk County Dept. of Economic Development and Planning
100 Veterans Memorial Highway, 4th Floor
Hauppauge, NY 11788
Attn: John Corral, Senior Planner

RE: Hubbard County Park EHMP
CEQ Meeting, October 18, 2017

Dear Mr. Corral:

The Hubbard County Park Environmental and Historical Management Plan (EHMP) aims to provide a blueprint for the long-term stewardship of Hubbard County Park over a 20-year period in a manner that maintains and enhances its unique and sensitive environmental and historic resources and provides diverse opportunities for public recreation, education, and outdoor sporting.

The principal goals of the EHMP include the following:

- Document the unique character, state-wide significance, and sensitivity of the ecological, historical, and cultural resources at Hubbard County Park
- Formalize the goals and vision for the Park and the approved uses of the lands, infrastructure, and natural resources within the Park;
- Provide management, enhancement, and/or restoration goals for the Park's ecological, historical, and archeological resources;
- Identify goals for the outcomes of public users' experiences within the park;
- Identify opportunities for adaptive re-use of existing buildings to provide visitor amenities and facilities to accommodate the approved recreational, educational, and research uses in the Park.
- Provide a framework for balancing the intensity of public use with effective management and enhancement of ecological, historical, and cultural resources.

The following project information and materials related to the Hubbard County Park EHMP prepared for Suffolk County Department of Public Works and Department of Parks, Recreation, and Conservation have been provided in this submission.

- Completed Suffolk County Long Environmental Assessment Form (EAF) Part I including necessary supplemental information, maps, and concept plans (15 copies)
- CD (1 copy) containing Hubbard County Park EHMP and Appendices and Suffolk County Long EAF Part I and supplemental materials.

570 Expressway Drive South, Suite 2F • Medford, New York • 11763
631-727-2400 • Fax 631-727-2605

The EHMP provides various recommendations for management and use actions at Hubbard County Park aimed at providing diverse opportunities for public recreation, education, and outdoor sporting at Hubbard County Park consistent with the documented significance of its natural and cultural resources. Conceptual plans for many of these recommendations have been prepared as part of the EHMP development. Many recommendations will require construction plans and specifications to be developed in the future. As expected, the implementation schedule for design and construction of all or part of the recommendations will be dependent on future County priorities and availability of funding.

While the development and adoption of a management plan does not have potential environmental impacts itself, the Long EAF has been completed with the intent to allow the County to assess the potential for environmental impacts to result from implementation of the various actions recommended in the EHMP. Based on the importance and sensitivity of Hubbard County Park's environmental and historical resources, all recommendations attempt to avoid or minimize potential impacts. Further review of potential impacts by the County may be necessary as recommendations proceed through the design, permitting, and implementation phases.

If you have any questions or require additional information, please contact me at wbowman@landuse.us or (631)727-2400.

Sincerely,

William P. Bowman, PhD
Senior Scientist

enc.

cc. K Phalen (SC DPW)
N Gibbons (SC Parks)
R Martin (SC Parks)

SUFFOLK COUNTY
FULL ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 1 – Environment and Setting

Instructions: Part 1 is to be completed by the applicant or project sponsor. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information. If a question is not applicable to the proposed project indicate with "N/A".

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1 is accurate and complete.

A. Project and Sponsor Information

Name of Action/Project: Hubbard County Park Environmental and Historical Management Plan
Project Location (specify Town, Village, Hamlet and attach general location map*): Hubbard County Park (Flanders); refer to provided location map/Park Boundary Map (Page 16 of EAF attachment).
Street Address: Route 24 and Red Creek Road, Flanders NY 11901
Name of Property or Waterway: Hubbard County Park

* Maps of Property and Project: Attach relevant available maps including a location map (note: use road map, Hagstrom Atlas, USGS topography map, tax map or equivalent) and preliminary site plans showing orientation, scale, buildings, roads, landmarks, drainage systems, area to be altered by project, etc.

Type of Project: New [x] Expansion [ ]

Capital Program: Item # CP#7128 Date Adopted: June 24, 2008 Amount ($): $245,000 (Current Project)

Brief Description of Proposed Action (include purpose or need/attach relevant design reports, plans, etc.):
The Hubbard County Park Environmental and Historical Management Plan (EHMP) aims to proivde a blueprint for the long-term stewardship of the Hubbard County Park over a 20 year period in a manner that maintains and enhances the Park's unique and sensitive environmental and historical resources and provides diverse opportunities for public recreation, education, and outdoor sporting.

For a more detailed summary of the Hubbard County Park EHMP, refer to the Part I Attachment which provides the Executive Summary from the EHMP.

Project Status:

	Start	Completion
Proposal	April 24, 2014	October 21, 2014
Study EHMP Development	November 6, 2014	July 2017
Preliminary Planning		
Final Plans: Specs		
Site Acquisition		
Construction		
Other		

Departments Involved:

	Dept. Performing Design & Construction	Initiating Dept. (if different)
Name:	Suffolk County Department of Public Works	Suffolk County Dept. of Parks, Recreation, and Conservation
Street/PO:	335 Yaphank Avenue	PO Box 144
City, State:	Yaphank, NY	West Sayville, NY
Zip:	11980-9744	11796
Contact Person:	Mr. Ken Phalen, RA	Mr. Nick Gibbons
Business Phone:	(631) 852-4222	(631) 854-4600
Email:	kphalen@suffolkcountyny.gov	ngibbons@suffolkcountyny.gov

B. <u>Government Approvals, Funding or Sponsorship</u>
("Funding" includes grants, loans, tax relief and any other forms of financial assistance)

Government Entity			If "Yes": Identify Agency and Approval(s) Required	Application Date (Actual or Projected)
i. City Council, Town Board or Village Board of Trustees	Yes ☐	No ☒		
ii. City, Town or Village Planning Board or Commission	Yes ☐	No ☒		
iii. City, Town or Village Zoning Board of Appeals	Yes ☐	No ☒		
iv. Other local agencies	Yes ☒	No ☒		
v. County agencies	Yes ☒	No ☐	Suffolk County Parks, Rec, and Conservation; Suffolk County DPW; Council on Environmental Quality; SC Dept of Health Services	
vi. Regional agencies	Yes ☐	No ☒	No for EHMP development. Some recommended actions require Central Pine Barrens Commission approval.	
vii. State agencies	Yes ☐	No ☒	No for EHMP development. Some recommended actions require NYSDEC, NYSDOT approval.	
viii. Federal agencies	Yes ☐	No ☒	No for EHMP development. Some recommended actions require US Army Corps of Engineers Approval.	

ix. Coastal Resources
Is the project site within a Coastal Area or the waterfront area of a Designated Inland Waterway? Yes ☒ No ☐

If YES,

Is the project site located in a community with an approved Local Waterfront Revitalization Program?	Yes ☐ No ☒
Is the project site within a Coastal Erosion Hazard Area?	Yes ☐ No ☒

C. Planning and Zoning

C.1. Planning and Zoning Actions

Will administrative or legislative adoption or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? Yes [x] No [ ]

Regarding C.1, administrative adoption of EHMP must occur to proceed. However, as described above, various regulatory approvals/permits including County approval necessary for implementation of many EHMP recommendations.

C.2. Adopted Land Use Plans

a. Do any municipally-adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? Yes [x] No [ ]

Central Pine Barrens Commission Core Preservation Area,Town of Southampton Comprehensive Plan (1999), Town of Southampton Coastal Resources and Water Protection Plan (2016)

If Yes: Does the comprehensive plan include specific recommendations for the site where the proposed action would be located? Yes [ ] No [x]

b. Is the site of the proposed action within any local or regional special planning district (i.e. Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; et. al)? Yes [x] No [ ]

Central Pine Barrens Commission Core Preservation Area,Town of Southampton Flanders-Northampton-Riverside Revitalization Study Area, Town of Southampton Aquifer Protection Overlay District, New York State Important Bird Area,

- **If Yes**, identify the plan(s): Flanders Hamlet Heritage Area Report (2014)

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? Yes [ ] No [x]

If Yes, identify the plan(s):

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance? Yes [x] No [ ]

If Yes, what is the zoning classification(s) including any applicable overlay district?

OSC: Open Space Conservation

b. Is the use permitted or allowed by a special or conditional use permit? Existing and Recommended Uses Permitted Yes [x] No [ ]

c. Is a zoning change requested as part of the proposed action? Yes [ ] No [x]

If Yes, what is the proposed new zoning for the site?

C.4. Existing Community Services

a. In what school district is the project site located?

Riverhead Central School District

b. What police or other public protection forces serve the project site?

Southampton Town Police Department, Suffolk County Parks Police

c. Which fire protection and emergency medical services serve the project site?

Flanders Fire Department

d. What parks serve the project site?

N/A, Site is Suffolk County Parkland

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action? (if mixed, include all components)
Open Space and Natural/Historical Resource Management

Residential ☐; Industrial ☐; Commercial ☐; Recreational ☒; Other ☒:

b.	Total acreage of the site of the proposed action:	**1,840** acres
c.	Total acreage to be physically disturbed: New Hiking Trails (0.63 ac, 0.9 miles), Re-establish former trails (0.92 ac, 1.3 miles), New Roadside Parking (0.6 ac), New Birch Creek Access Road (0.85 acres)	3.0 acres
d.	Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor:	~2,700 acres

e. Is the proposed action an expansion of an existing project or use? Yes ☒ No ☐

The EHMP identify opportunities for expansion of existing recreational and educational uses in the Park.

If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet, etc.)?

New and Re-Establish Hiking Trails (15% expansion compared to existing)

New Parking/Site Access (17 existing, informal spaces for public; 68 formal parking spaces (total) recommended for public; 300 % expansion)

f. Is the proposed action a subdivision, or does it include a subdivision? Yes ☐ No ☒

If Yes:

i. Purpose or type of subdivision? (if mixed, specify types)
Residential ☐; Industrial ☐; Commercial ☐; Recreational ☐; Other ☐

ii.

Is a cluster/conservation layout proposed?	Yes ☐ No ☐
Number of lots proposed:	
Minimum and maximum proposed lot sizes:	

g. Will proposed action be constructed in multiple phases? Yes ☒ No ☐

If No, What is the anticipated period of construction?

Implementation and scheduling of some or all of EHMP recommendations has not been determined, but shall be dependent on the County priorities and the availability of funding.

If Yes:

Total number of phases anticipated: Multiple phases, implementation schedule of some or all EHMP recommendations will be dependent on availability of funding and County priorities.
Anticipated commencement date of phase I (including demolition): To be determined
Anticipated completion date of final phase: To be determined
Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: To be determined

h. Does the project include new residential uses? Refer to Part I Attachment.

EHMP emphasizes adaptive re-use of existing buildings at Hubbard County Park. Several buildings are currently used for residential uses (i.e. seasonal Park staff and full-time residents) including the Smithers Main House, Cottage 1-4 and 6, and Black Duck Lodge. Residential uses in Cottages 1-4 and 6 and Black Duck Lodge shall be maintained/improved. No new residential buildings or new residential uses in other buildings are recommended.

- **If Yes,** show number of units proposed.

	Single Family	Two Family	Three Family	Multi-Family (4+)
Initial Phase				
At Completion				

Yes ☐ No ☒

i. Does the proposed action include new non-residential construction (including expansions)?
Refer to Part I Attachment

If Yes:

Total Number of Structures:
Dimensions of largest proposed structure:
Approximate extent of building space to be heated or cooled:

Yes ☐ No ☒

j. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage?

If Yes:

Purpose of the impoundment:
If a water impoundment, the principal source of the water: Ground Water ☐; Surface Water Streams ☐; Other ☐ (specify):
If other than water, identify the type of impounded/contained liquids and their source:
Approximate size of the proposed impoundment (include units): Volume: Surface area:
Dimensions of the proposed dam or impounding structure:
Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock wood, concrete):

Yes ☐ No ☒

D.2. Project Operations

a. Does the proposed action include any excavation, mining or dredging, during construction, operations or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)

If Yes:

What is the purpose of the excavation or dredging?
How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site? Volume: Over what duration of time:
Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them:

Yes ☐ No ☒

D.2.a (cont.) – only answer following if checked "Yes" above

Will there be onsite dewatering or processing of excavated materials?
If Yes, describe:

What is the total area to be dredged or excavated?

What is the maximum area to be worked at any one time?

What would be the maximum depth of excavation or dredging?

Will the excavation require blasting?

Summarize site reclamation goals and plans:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, water body, shoreline, beach or adjacent area?

Two recommended actions under the EHMP could be considered encroachment into a wetland/waterbody based on the questions below. Proposed construction of a kayak launch dock in Hubbard Creek and management of invasive Phragmites australis using herbicides in various wetlands in HCP. For additional information, refer to Part I attachment.

Yes [x] No [ ]

- **If Yes:**

Identify the wetland or water body which would be affected (by name, water index number, wetland map number or geographic description):
Hubbard Creek for kayak launch; Various wetlands for Phragmites management (Refer to Part I attachment).

Describe how the proposed action would affect that water body or wetland, e.g. excavation, fill, placement of structures or creation of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:
Conceptual plans for kayak dock provide for area of 570 sq ft

Will proposed action cause or result in disturbance to bottom sediments?
If Yes, describe:

Will proposed action cause or result in the destruction or removal of aquatic vegetation?
Phragmites management through the selective, targeted use of herbicides is recommended to prevent further expansion of this species and loss of high diversity high marsh and sea level communities and habitat for NYS-endangered and -threatened plant species particularly 7.2 acres in the headwaters of Birch Creek; Hubbard Creek near Red Creek Road, Upper Red Creek Road, and Wild Duck Lane; and Penny Pond

If Yes:

Area of vegetation proposed to be removed:
No vegetation would be lost as Phragmites controlled via herbicides would be replaced through natural recruitment of native wetland vegetation.

Expected acreage of aquatic vegetation remaining after project completion:
No change in acreage of wetland vegetation. However, Phragmites area would decrease while native freshwater, brackish marsh, high salt marsh, salt shrub, and sea level fen communities would increase. Phragmites is currently present in 58.8 acres at HCP.

Purpose of proposed removal (e.g., beach clearing, invasive control, boat access):
Control of invasive common reed (Phragmites australis) to preserve native ecological communities and rare species habitat.

Proposed method of plant removal: Herbicide application through selective and direct application to Phragmites shoots by backpack sprayer or wick stick by personnel on foot and under low wind conditions to avoid impacts to native plants. In dense stands it would be necessary to cut and remove the herbicide-killed Phragmites shoots.

If chemical/herbicide treatment will be used, specify product(s):
Herbicide product would be selected during construction planning and permitting phase in consultation with NYS-licensed applicator.

Describe any proposed reclamation/mitigation following disturbance:
No mitigation (such as seeding or planting) would be expected to be needed after Phragmites control via herbicide application as native marsh vegetation is expected to re-colonize treatment areas. furthermore, planting/seeding native species would reduce potential for rare (NYS endangered and threatened species) plants to colonize the treatment areas.

c. Will the proposed action use or create a new demand for water?

Recommended increase in seasonal housing, providing accomodations for 1-2 full-time or long-term residents at Smithers complex, creating research and educational facilities

If Yes: in existing buildings, and increasing recreational opportunities and amenities would likely increase water demand for the property.

Total anticipated water usage/demand per day:
To be determined during construction design for adaptive re-use of buildings and or water supply improvements.

Will the proposed action obtain water from an existing public water supply?
No, water supply is from on-site wells.

If Yes:

Name of district/service area:

Does the existing public water supply have capacity to serve the proposal?
Yes ☐ No ☐

Is the project site in the existing district?
Yes ☐ No ☐

Is expansion of the district needed?
Yes ☐ No ☐

Do existing lines serve the project site?
Yes ☐ No ☐

Will line extension within an existing district be necessary to supply the project?
No, nearest water district lines are more than 3,000 feet away.

Yes ☒ No ☐

If Yes:

Describe extensions or capacity expansions proposed to serve this project:

Source(s) of supply for the district:

Is a new water supply district or service area proposed to be formed to serve the project site?
No.

If Yes:

Applicant/sponsor for new district:

Date application submitted or anticipated:

Proposed source(s) of supply for new district:

If a public water supply will not be used, describe plans to provide water supply for the project:
Improvements to existing water supply system at the Smithers complex to supply increased demand and comply with Suffolk County Health Department standards for a transient, non-community water supply system.

If water supply will be from wells (public or private), what will be the maximum pumping capacity? To be determined during construction design for adaptive re-use of buildings and or water supply improvements.

d. Will the proposed action generate liquid wastes? Additional sanitary wastewater generation would result from the provision of accomodation for a full-time resident at Smithers property, providing restrooms at Smithers Main House and Brooders House to support educational and research uses, and expansion of recreational uses at Hubbard County Park.

If Yes:

Total anticipated liquid waste generation per day:
Expected sanitary waste generation would be determined during construction design for re-use of existing buildings such as Smithers Main House, Brooders House.

Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
See above response. Wastewater treatment goals and sanitary system technology shall be determined during design phase. However, due to the proximity of the Park's buildings to sensitive tidal wetlands, the EHMP recommends that any Innovative/Alternative Onsite Wastewater Treatment Systems authorized under the Suffolk County Sanitary Code at the time of the building improvements be evaluated and, if feasible, installed.

If sanitary wastewater identify proposed disinfection technology and treatment goals for the following:

- Disinfection technology:
- Nitrogen:
- Phosphorus:
- Total Suspended Soilds (TSS):
- Biological Oxygen Demand (BOD):

Will the proposed action use any existing public wastewater treatment facilities? No.

Yes [x] No [ ]

If Yes:

Name of wastewater treatment plant to be used:

Name of district:

Does the existing wastewater treatment plant have capacity to serve the project?
Yes [ ] No [ ]

Is the project site in the existing district?
Yes [ ] No [ ]

Is expansion of the district needed?
Yes [ ] No [ ]

Do existing sewer lines serve the project site?
Yes [ ] No [ ]

Will line extension within an existing district be necessary to serve the project?

If Yes:

Describe extensions or capacity expansions proposed to serve this project:

Will a new wastewater (sewage) treatment district be formed to serve the project site?

If Yes:

Applicant/Sponsor for new district:

Date application submitted or anticipated:

What is the receiving water for the wastewater discharge?

If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

Describe any plans or designs to capture, recycle or reuse liquid waste:

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? Area of disturbance identified in Question D.1.c is 3.0 acres. However, this disturbance consists of multiple potential projects that are not likely to occur simultaneously. Recommended impervious structures (at Smithers Main Entrance and Birch Creek Road entrance) to improve safety of **If Yes:** access and egress total 0.30 acres. How much impervious surface will the project create in relation to total size of project parcel? Area of Impervious Surface: Area of Parcel: Describe types of new point sources: Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)? If to surface waters, identify receiving water bodies or wetlands: Will stormwater runoff flow to adjacent properties? Yes ☐ No ☐ Does proposed plan minimize impervious surfaces use pervious materials or collect and re-use stormwater? Yes ☐ No ☐	Yes ☐ No ☒
f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? **If Yes,** identify: Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles): Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers): Stationary sources during operations (e.g., process emissions, large boilers, electric generation):	Yes ☐ No ☒
g. Will any air emission sources named in D.2.f (above) require a NY State Air Registration, Air Facility Permit or Federal Clean Air Act Title IV or Title V Permit? **If Yes:** Is the project site located in an Air Quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) Yes ☐ No ☐ In addition to emissions as calculated in the application, the project will generate: - Tons/year (metric) of Carbon Dioxide (CO_2) - Tons/year (metric) of Nitrous Oxide (N_2O) - Tons/year (metric) of Perfluorocarbons (PFCs) - Tons/year (metric) of Sulfur Hexafluoride (SF_6) - Tons/year (metric) of Carbon Dioxide equivalent of Hydroflorocarbons (HFCS) - Tons/year (metric) of Hazardous Air Pollutants (HAPs)	Yes ☐ No ☒

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? **If Yes:** Estimate methane generation in tons/year (metric): Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring):	Yes ☐ No ☒
i. Will the proposed action result in the release of air pollutants from open-air operations or processes such as quarry or landfill operations? **If Yes,** describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):	Yes ☐ No ☒
j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? **If Yes:** When is the peak traffic expected? (check all that apply) Morning ☐; Evening ☐; Weekend ☐; Randomly ☐ between the hours of to For commercial activities only, projected number of semi-trailer truck trips/day: Parking spaces: Existing: Proposed: Net Increase/Decrease: Does the proposed action include any shared use parking? Yes ☐ No ☐ If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe: Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? Yes ☐ No ☐ Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? Yes ☐ No ☐ Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? Yes ☐ No ☐	Yes ☐ No ☒
k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? **If Yes:** Estimate annual electricity demand during operation of the proposed action: Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility or other): Will the proposed action require a new, or an upgrade to, an existing substation? Yes ☐ No ☐	Yes ☐ No ☒

l. Hours of operation (Answer all items which apply) The Park is open from dawn to dusk. Access to some portions of HCP is restricted during hunting season.

During Construction	During Operations
Monday-Friday:	Monday-Friday:
Saturday:	Saturday:
Sunday:	Sunday:
Holidays:	Holidays:

N/A ☐

m. Does the proposed action produce noise that will exceed existing ambient noise levels during construction, operation or both?

Yes ☐ No ☒

If Yes:

Provide details including sources, time of day and duration:
Will proposed action remove existing natural barriers that could act as a noise barrier or screen? Yes ☐ No ☐ Describe:

n. Will the proposed action have outdoor lighting?

Yes ☐ No ☒

If Yes:

Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:
Will proposed action remove existing natural barriers that could act as a light barrier or screen? Yes ☐ No ☐ Describe:

o. Does the proposed action have the potential to produce odors for more than one hour per day?

Yes ☐ No ☒

If Yes:

Describe possible sources, potential frequency and duration of odor emissions and proximity to nearest occupied structures:

p. Will the proposed action include any bulk storage of petroleum (over 1,100 gallons) or chemical products (over 550 gallons)?

Yes ☐ No ☒

If Yes:

Product(s) to be stored:
Volume(s): per unit time: (e.g., month, year)
Generally describe proposed storage facilities:

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation?

Yes ☒ No ☐

If Yes:

Describe proposed treatment(s): EHMP recommends use of herbicides to control invasive plants, particularly 7.2 acres of Phragmites australis, that threaten significant rare plant communities in salt marsh and sea level fen habitats. Refer to response to Question D.2.b and Part I attachment.
Will the proposed action use Integrated Pest Management Practices? In addition, control of the 2.0 stands of Japanese barberry (Berberis thunbergii) and tree of heaven (Ailanthus altissima) proximal to Black Duck Lodge and wisteria vine (Wisteria sp.) adjacent to Hubbard cemetery is recommended to avoid spread of these species into upland habitats. It is recommended that routine invasive plant control targeting a wide range of invasive plants occur at HCP with herbicide application being a component of invasive plant management to maintain the diverse and unique plant assemblages and habitats at HCP. Yes ☐ No ☒

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)?

Yes ☐ No ☒

If Yes:

Describe any solid waste(s) to be generated during construction or operation of the facility:

Construction:	tons per (unit of time)
Operation:	tons per (unit of time)

Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

Construction:
Operation:

Proposed disposal methods/facilities for solid waste generated on-site:

Construction:
Operation:

s. Does the proposed action include construction or modification of a solid waste management facility?

Yes ☐ No ☒

If Yes:

Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill or other disposal activities):

Anticipated rate of disposal/processing:

tons/month, if transfer or other non-combustion/thermal treatment, or

tons/hour, if combustion or thermal treatment

If landfill, anticipated site life: years

t. Will proposed action at the site involve the commercial generation, treatment, storage or disposal of hazardous waste?

Yes ☐ No ☒

If Yes:

Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility:

Generally describe processes or activities involving hazardous wastes or constituents:

Specify amount to be handled or generated:
tons/month

Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents:

Will any hazardous wastes be disposed at an existing offsite hazardous waste facility?
Yes ☐ No ☐

If Yes:

Provide name and location of facility:

If No:

Describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

u. Will proposed action adhere to Leadership in Energy and Environmental Design (LEED) or any other green building principals? Design of recommended adaptive re-use of existing buildings at Hubbard County Park has not been initiated. Accordingly, building standards that may be employed during construction design have not been identified. **If Yes:** Describe proposed green building methods and attempted level of certification, if any:	Yes ☐ No ☐ Not Known at this time.
v. Does the project sponsor propose the use of energy benchmarking to monitor and adjust project energy needs? **If Yes, explain:**	Yes ☐ No ☒
w. Will the proposed action use native plants for all landscaping needs? No landscaping is recommended. However, if landscaping needs should arise, only native plant species would be utilized. **Identify species to be used and method of irrigation:**	Yes ☐ No ☒
x. Does the proposed action promote local tourism? An important goal of the EHMP is to enhance public access to and recreational use of HCP, in a manner consistent with its sensitive ecological resources, including providing safer means of ingress and egress from Route 24, formalizing parking locations, establishing hiking trail loops, **If Yes, explain:** establishing a blueway trail for kayaks and paddle craft. A long-term goal for HCP included in the EHMP is the acquisition of the NYSDOT rest area on Route 24 and establishment of Suffolk County Pine Barrens Parklands Information and Visitors Center to distribute information regarding the recreational opportunities available SC Parklands in eastern Suffolk County.	Yes ☒ No ☐

E. Site and Setting of Proposed Action

E.1. Land Uses on and Surrounding the Project Site

a. Existing land uses (Check all uses the occur on, adjoining and near the project site): (include map)

Urban ☐ Industrial ☐ Commercial ☐ Residential ☒ Rural ☒
Forest ☒ Agriculture ☐ Aquatic ☒ Other ☐ Specify:

If mix of uses, generally describe:

b. Land uses and cover types on the project site:

Land Use or Cover Type	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
Roads, buildings and other paved or impervious surfaces	7.4	8.9	+1.45
Forested	1056	1054	-1.45
Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	27.3	27.3	0.0
Agricultural (includes active orchards, fields, greenhouse, etc.)			
Surface water features (lakes, ponds, streams, rivers, etc.)	270.1	270.1	0.0
Wetlands (freshwater or tidal)	453.6	453.6	0.0
Non-Vegetated (bare rock, earth or fill)			
Other Describe: Beach	25.0	25.0	0.0
TOTAL:	1,840	1,840	0.0

c. Is the project site presently used by members of the community for public recreation? Yes [X] No [ ]

If Yes, explain: Existing recreational uses at Hubbard County Park include hiking, running, bird watching, and other types of passive recreation on 12.6 miles of trails; outdoor sporting such waterfowl hunting, archery hunting for deer, shotgun hunting for deer, and raccoon hunting; freshwater fishing (at Penny Pond) and saltwater fishing; recreational boating, recreational and commercial fishing, and shellfishing via launch site at Birch Creek Road; and paddling from various informal launch sites. Ducks Unlimited offers various programs at HCP involving sportsman education, hunter certification, waterfowl identification, and youth waterfowl programs and hunts.

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers or group homes) within 1,500 feet of the project site? Yes [ ] No [X]

If Yes, identify facilities:

e. Does the project site contain an existing dam? Yes [ ] No [X]

Hubbard County Park contains two functional impoundments (at Mill Pond and Gunk Hole Pond). Neither of these impoundments is on the

If Yes: the New York State Dam Inventory.

Dimensions of the dam and impoundment:
- Dam height: feet
- Dam length: feet
- Surface area: acres
- Volume impounded: gallons or acre-feet

Dam's existing hazard classification:

Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? Yes [ ] No [X]

If Yes:

Has the facility been formally closed?
Yes [ ] No [ ]
If Yes, cite sources/documentation:

Describe the location of the project site relative to the boundaries of the solid waste management facility:

Describe any development constraints due to the prior solid waste activities:

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? Yes [ ] No [X]

If Yes:

Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Has there been a reported contamination spill at the proposed project site or have any remedial actions been conducted at or adjacent to the proposed site? Yes ☐ No ☒

The NYSDEC Spills Incidents did not report any spills for Hubbard County Park. Several small spills of transformer oil, motor oil, or diesel fuel were noted for Flanders Road/Route 24 in the vicinity of Hubbard County Parl. All record spills are closed.

If Yes:

Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? (Check all that apply)

☐ Yes – Spills Incidents database — Provide DEC ID number(s):
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s):
☒ Neither database

If site has been subject to RCRA corrective activities, describe control measures:

Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? Yes ☐ No ☒

If Yes:

DEC ID number(s):

Describe current status of site(s):

E.1.h. (cont.) – only answer following if checked "Yes" above

Is the project site subject to an institutional control limiting property uses? Yes ☐ No ☐

If Yes:

DEC site ID number(s):

Describe the type of institutional control (e.g., deed restriction or easement):

Describe any use limitations:

Describe any engineering controls:

Will the project affect the institutional or engineering controls in place? Yes ☐ No ☐
Explain:

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site:
feet Approximately 1600 feet.

b. Are there bedrock outcroppings on the project site? Yes ☐ No ☒

If Yes:

What proportion of the site is comprised of bedrock outcroppings?
%

c. Predominant soil type(s) present on project site: (include map) Soils map provided in Part I attachment.

1. Carver and Plymouth Sands	56 % of site
2. Tidal Marsh	22 % of site
3. Berryland mucky sands, Deerfield sands, Swansea muck	8 % of site
4. Water	14 % of site

d. What is the average depth to the water table on the project site?

Depth to groundwater varies from 0 to approximately 60 feet.

e. Drainage status of project site soils:

1.	[x] Well Drained	56 % of site
2.	[ ] Moderately Well Drained	% of site
3.	[x] Poorly Drained	30 % of site

f. Approximate proportion of proposed action site with slopes: (include topographic map) Refer to Part I attachment for Topo Map.

Sites of recommended actions at Hubbard County Park consist of previously disturbed sites or sites adjacent to roadways (except recommended new trails). These sites are all level (0-10%)

1.	[x] 0-10%	100 % of site
2.	[ ] 11-15%	% of site
3.	[ ] 16% or greater	% of site

g. Are there any unique geologic features on the project site? Yes [x] No [ ]

If Yes, describe:

HCP contains three freshwater stream systems from headwaters to tidal waters, extensive tidal marshes at the mouths of these streams, and estuarine beaches adjacent to Flanders Bay. The beach between Mill and Hubbard Creek contains remnants of Atlantic White Cedar stumps providing unique evidence of the geological transition of this site from forested freshwater wetland to tidal bay and marsh.

h. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? Goose Creek, Birch Creek, Mill Creek, Hubbard Creek and their associated wetlands, Penny Pond, Flanders Bay Yes [x] No [ ]

i. Do any wetlands or other waterbodies adjoin the project site? Flanders Bay Yes [x] No [ ]

If Yes to either E.2.h or E.2.i, continue. If No, skip to E.2.m

j. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? (include map) Refer to Ecological Communities Map in Part I attachment. Yes [x] No [ ]

k. For each identified wetland and waterbody on the project site, provide the following information:

Streams:	Name: Goose, Birch, Mill, and Hubbard Creeks	Classification: Mill Cr: Class B; Others: Class C
Lakes or Ponds:	Name: Penny Pond, Lily Pond, Coot Pond, Home Pond	Classification: Penny Pd: Class B; Others Class C
Wetlands:	Name: Associated with above Waterbodies	Approx. Size: 453.6 acres
Wetland No. (if regulated by DEC):	MT-9; MT-10; MT-11; MT-12; MT-13; MT-53; MT-54; MT-55; MT-56; MT-65; MT-66	

l. Are any of the above waterbodies listed in the most recent compilation of NYS water quality-impaired waterbodies? Yes [x] No [ ]

If Yes, name of impaired water body/bodies and basis for listing as impaired:

The portions of Flanders Bay where HCP's tidal creeks discharge are classified as impaired waterbody, as Flanders Bay is considered impaired as shellfishing uses are known to be precluded/impaired by pathogens from various nonpoint sources including urban and stormwater runoff.

m. Is the project site in a designated floodway? Yes [x] No [ ]

n. Is the project site in the 100 year floodplain? Yes [x] No [ ]

o. Is the project site in the 500 year floodplain? Yes [x] No [ ]

p. Is the project site located over or immediately adjoining a primary, principal or sole source aquifer? Yes [x] No [ ]

If Yes:

Name of aquifer: Long Island Aquifer

Source of information: Suffolk County Special Groundwater Protection Area/Critical Environmental Area.

Hydrologic framework of Long Island, New York: USGS Hydrologic Atlas 709 (Smolensky et al)

q. Identify the predominant wildlife species that occupy or use the project site:

Please refer to EAF Part I Attachment		

r. Does the project site contain a designated significant natural community?

Please refer to EAF Part I Attachment

If Yes:

Describe the habitat/community (composition, function and basis for designation:
Sea level fen, coastal plain Atlantic white cedar swamp, pine barrens shrub swamp, highbush blueberry bog thicket, intertidal salt marsh, high salt marsh, and salt shrub. These natural communities are considered to be of statewide significance by virtue of being of excellent or good quality, and/or or a rare community type.

Source(s) of description or evaluation:
New York Natural Heritage Program

Yes [x] No [ ]

Extent of community/habitat:

- Currently: 360 acres Reported acreage of significant natural communites represents total acreage for 7 community types.
- Following completion of project as proposed: 360 acres
- Gain or loss (indicate + or –): 0 acres No losses of habitat shall result from the EHMP recommendations. Recommended invasive plant management will likely increase habitat extent.

s. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species?

Please refer to EAF Part I Attachment

Yes [x] No [ ]

If Yes:

Species and listing (endangered or threatened): 21 species, refer to Part I Attachment

Nature of use of site by the species (e.g., resident, seasonal, transient): 19 resident, 2 seasonal

t. Does project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern?

Please refer to EAF Part I Attachment

Yes [x] No [ ]

If Yes:

Species and listing: 14 species, refer to Part I Attachment

Nature of use of site by the species (e.g., resident, seasonal, transient): 4 resident, 10 seasonal

u. Is the project site or adjoining area currently used for hunting, trapping, fishing or shellfishing?

Please refer to EAF Part I Attachment

If Yes, give a brief description of how the proposed action may affect that use:

Yes [x] No [ ]

The EHMP recommends the continuation of all existing outdoor sporting uses. Recommended access improvements and restoration/adaptive re-use of HCP buildings shall enhance sporting uses at HCP.

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304?

Yes [ ] No [x]

If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present?

Yes [ ] No [x]

If Yes:

Acreage(s) on project site:

Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to a registered National Natural Landmark? — Yes ☐ No ☒

If Yes:

Nature of the natural landmark: ☐ Biological Community; ☐ Geological Feature
Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area, including Special Groundwater Protection Areas? — Yes ☒ No ☐

If Yes:

CEA name: Peconic Bay and Environs; Central Suffolk Special Groundwater Protection Area; Sears Bellows Addition
Basis for designation: Benefit to Human Health and Protect Drinking Water
Designating agency and date: Suffolk County- 10/14/1988; 2/10/1988; 1/11/1988

e. Does the project site contain, or is it substantially contiguous to, a building, archeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on the State or National Register of Historic Places? — Yes ☒ No ☐

If Yes:

Nature of historic/archaeological resource: ☐ Archaeological Site; ☒ Historic Building or district
Name: Black Duck Lodge
Brief description of attributes on which listing is based: Refer to Phase I Attachment

In addition, the former Flanders Club property (i.e. Smithers complex) was dedicated to the Suffolk County Historical Trust in 2008.

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? — Yes ☒ No ☐

g. Have additional archaeological or historic site(s) or resources been identified on the project site? Refer to Part I Attachment — Yes ☒ No ☐

If Yes:

Describe possible resource(s): Prehistoric and Historic Resources located throughout Hubbard County Park.
Basis for identification: 1. Johanneman et al (1980) Phase II Cultural Resource Survey Report for Suffolk County Department of Parks, Recreation and ~~Conservation and the New York State Division for Historic Preservation – Park #40: Flanders County~~ Park New York. 2. Phase IA Historical Documentary Report & Archaeological Assessment of Hubbard County Park (Prepared as Part of EHMP)

h. Would the project site be visible from any officially designated and publicly assessable federal, state or local scenic or aesthetic resource? As a public park, Hubbard County Park is a scenic and aesthetic resource. — Yes ☒ No ☐

If Yes:

Identify resource: Hubbard County Park
Nature of, or basis for designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): County Park
Distance between project and resource:

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR Part 666? — Yes ☐ No ☒

If Yes:

Identify the name of the river and its designation:
Is the activity consistent with development restrictions contained in 6 NYCRR Part 666? Yes ☐ No ☐

F. Additional Information

Attach any additional information which may be needed to clarify your project.
If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name: William Bowman (Land Use) completing EAF for Suffolk County Dept of Public Works & Suffolk County Dept of Parks, Recreation, and Conservation

Date: October 1, 2017

Signature: _____

Title: Senior Scientist
Land Use Ecological Services
Contractor to Suffolk County

Name of Action: **Hubbard County Park Environmental and Historical Management Plan**

1. County Long EAF Part I (Project and Sponsor Information, Page 1)

Description of Action: The following Executive Summary for the Hubbard County Park Environmental and Historical Management Plan (EHMP) provides a brief description of the significance of the ecological, historical, and cultural resources at Hubbard County Park; the principal objectives of the EHMP; and the management and use actions recommended under the EHMP to provide diverse opportunities for public recreation, education, and outdoor sporting at Hubbard County Park consistent with the documented significance of its natural and cultural resources. A map of Hubbard County Park is provided on Page 16.

Conceptual plans for many of the management and use recommendations have been prepared as part of the EHMP development. Many recommendations will require construction plans and specifications to be developed in the future. As expected, the implementation schedule for design and construction of all or part of the recommendations will be dependent on future County priorities and availability of funding.

While the development and adoption of a management plan does not have potential environmental impacts itself, the Long EAF has been completed to allow the County to assess the potential for environmental impacts to result from implementation of the various recommended actions. Based on the importance and sensitivity of Hubbard County Park's environmental and historical resources, all recommendations attempt to avoid or minimize potential impacts. Further review of potential impacts by the County may be necessary as EHMP components proceed through the design, permitting, and implementation phases.

1.1 Introduction

Hubbard County Park is comprised of 1,840 acres of forested uplands, tidal marshes, and freshwater wetlands located in the hamlet of Flanders between State Route 24 and Flanders Bay. Four tributary creeks to Flanders Bay and their watersheds are located within Hubbard County Park along with 382 acres of tidal wetlands recognized as a natural resource of State-wide significance by the New York Natural Heritage Program. The Park's wetlands and beaches provide habitat for the New York State-endangered piping plover and other threatened bird species including bald eagle, northern harrier, least tern, American bittern, and seaside sparrow. The Park contains 1,049 acres of pine barrens forests and woodlands on sandy coastal plains and glacial hills. The Park supports at least 25 state and federally listed endangered species including saltmarsh loosestrife, Atlantic white cedar, and eastern mud turtle—New York State's rarest turtle.

Hubbard County Park is the site of the former Flanders Club, one of the oldest hunting clubs in Suffolk County, and Black Duck Lodge, the former hunting lodge of financier E.F. Hutton. Black Duck Lodge was declared eligible to the National Register of Historic Places by the New York State Historic Preservation Office and was dedicated to the Suffolk County Historical Trust in 1984. The former Flanders Club property was dedicated to the Suffolk County Historical Trust in 2008.

The large majority of the Park was acquired by Suffolk County in 1971 from R. Brinkley Smithers, the last surviving member of the Flanders Club; the widow of Sidney Allen; Esther Hubbard McElligott; John Jacob Astor; former member of the United States House of Representatives Stuyvesant Wainwright II; and Esther Sward. Suffolk County took complete ownership of the Park in 1996 and, at that time, entered into a cooperative agreement with Ducks Unlimited to assist with maintenance of the Park's natural resources and wetlands habitats, provide recreation and education programs at the Park, and preserve the historic integrity of the Park. In 2009, funding for the development of an Environmental and Historical Management Plan for

Hubbard County was provided by New York State through a Community Enhancement Facilities Assistance Program Grant sponsored by Assemblyman Steven Englebright.

1.2 Goals

The Hubbard County Park Environmental and Historical Management Plan (EHMP) aims to provide a blueprint for the long-term stewardship of Hubbard County Park over a 20-year period in a manner that maintains and enhances the Park's unique and sensitive environmental and historic resources and provides diverse opportunities for public recreation, education, and outdoor sporting.

The principal goals of the EHMP include the following:

- Formalize the goals and vision for the Park and the approved uses of the lands, infrastructure, and natural resources within the Park;
- Provide management, enhancement, and/or restoration goals for the Park's ecological, historical, and archeological resources;
- Identify goals for the outcomes of public users' experiences within the park;
- Identify opportunities for adaptive re-use of existing buildings to provide visitor amenities and facilities to accommodate the approved recreational, educational, and research uses in the Park.
- Provide a framework for balancing the intensity of public use with effective management and enhancement of ecological, historical, and cultural resources.

1.3 Hubbard County Park Buildings

The majority of twenty buildings at Hubbard County Park have been dedicated to the Suffolk County Historical Trust and Black Duck Lodge has been declared eligible to the National Register of Historic Places. Existing uses of the buildings at HCP include:

- Seasonal housing for shorebird monitors to support environmental management programs throughout the Suffolk County Park system;
- Use for education, recreation, and sportsman programs;
- Storage for Suffolk County Parks Department equipment and materials.

The structures at Hubbard County Park that are used frequently or continuously are in good condition, whereas structures that are not used are in poor condition. Accordingly, a primary goal of the Environmental and Historical Management Plan is to provide recommendations for long-term use of the park's buildings. New or expanded uses of existing buildings recommended for implementation at Hubbard County Park include:

- Providing year round residences for property caretaker or temporary visitors (such as researchers or other personnel working at County Parklands) to provide oversight and security of the property and to support research, educational, and environmental programs by the County or other organizations.
- Providing temporary residences to support the County Park's environmental monitoring and management programs, for property caretaker, or temporary visitors.
- Creating interpretive spaces for visitors to view Hubbard's historical buildings.
- Enhancing educational facilities (i.e. classrooms or conference rooms) for hosting educational programs and meetings and supporting existing recreation and sportsman programs.
- Providing administrative and storage space for Suffolk County or partner organizations.
- Building laboratory and research facilities for visiting researchers or partner organizations.

1.4 Enhancing Recreational Uses

Hubbard County Park provides visitors with a wide range of recreational and sporting opportunities in natural settings including hiking, hunting, fishing, paddling, boating, birdwatching, and nature study. Hubbard County Park has approximately 12.6 miles of existing hiking trails and several informal launches for kayaks and non-motorized vessels. However, the potential for the visitors to access these amenities and experience the Park's pine barrens forests and tidal wetlands is limited by inadequate parking and signage, limited sight distances and difficult access at Park entrances, and unappealing trail layout and limited trail connectivity within Hubbard County Park and with adjacent Sears Bellows Park. The recommendations to enhance public access to and recreational use of the Park, in a manner consistent with the Park's sensitive ecological resources, include the following:

- Provide safer means of ingress and egress at Birch Creek Road and the Smithers Main Entrance.
- Provide formal parking areas at Birch Creek Road, Smithers Main Entrance, Black Duck Lodge Entrance, and Red Creek Road.
- Re-establish and construct 2.3 miles of trails to create 6.0 miles of trail loops from roadside parking facilities allowing visitors to hike to and experience various Park features including the former Flanders Club; views of Flanders Bay and Birch, Mill, and Hubbard Creeks; Black Duck Lodge; Hubbard cemetery; the Atlantic white cedar ghost forest; and Penny Pond.
- Install eleven (11) new interpretive signs to educate visitors about the ecological and cultural resources at Hubbard County Park and ten (10) trail map signs including all recommended parking areas and trail heads.
- Establish a 3.5 mile blueway trail for kayak and non-motorized vessels by formalization and improvement of existing launch locations at Birch Creek Road and the Smithers property and creating a new launch location on Upper Red Creek Road.

1.5 Protecting Environmental Resources

Hubbard County Park's approximately 1,840 acres feature a unique assemblage of ecological communities including one of the largest and most intact coastal wetland complexes in New York State, rare coastal plain poor fen and sea level fen communities, habitat for many rare plant species, nesting habitat for Federal- and State-listed shorebirds, three freshwater stream systems, habitat for State-listed herpetiles, and extensive undeveloped pine barrens. Suffolk County should implement management actions to prevent deterioration of these significant resources resulting from the most significant ecological threats at Hubbard County Park including invasive species and southern pine beetle outbreaks.

The invasive European common reed, *Phragmites australis*, has infested 58 acres of freshwater and tidal wetlands at the Park and threatens degrading rare ecological communities and habitat for several State endangered plant species. Recommendations include control of *Phragmites* through targeted herbicide application in 7.2 acres of high priority marshes and wetlands and implementation of appropriate practices to avoid potential impacts to desirable native plant communities.

Numerous infestations of southern pine beetle (*Dendroctonus frontalis*) and pitch pine mortality in Hubbard County Park have occurred since 2014. To minimize the potential for the spread of the beetle infestations, more than 2,000 live infested and buffer pine trees were felled by sawyer crews at Hubbard County Park in 2015 following NYSDEC recommendations. Suffolk County should continue detection/monitoring and spot suppression efforts in conjunction with the NYSDEC. These management areas should be monitored to assess if invasive species become established, hazardous fuel loads accumulate, or ecologically undesirable conditions develop. A prescribed fire Master Plan for Hubbard County Park should be developed to provide guidelines for the management actions, such as mechanical thinning and/or prescribed fire, that may

be necessary to maintain pine barrens communities, decrease susceptibility to pine beetle infestations and catastrophic wildfire, and minimize potential adverse impacts of management actions to recreational uses at Hubbard County Park and historical buildings.

The water quality and ecological and physical integrity of the four stream systems in Hubbard County Park should be maintained and enhanced by implementing the following short- and long-term repairs and improvements.

- Repair existing culverts (Mill Creek) and drainage swales (Goose, Mill, and Hubbard Creeks) to avoid potential failures.
- Create a new stream channel for Birch Creek between Route 24 and tidal waters and assess the integrity of the submerged Route 24 culvert to restore function lost due to collapse of the Birch Creek Road culvert in 2000-2001.
- At Mill Creek and Hubbard Creek crossings of Route 24 replace the existing concrete box culvert (at the end of their functional lifespans) with culverts that provide greater stream continuity and ecological function.

Hubbard County Park contains one of the largest remaining populations of Eastern mud turtle (*Kinosternon subrubrum*), New York State's rarest turtle. The Suffolk County should support additional monitoring of this population in conjunction with the New York State Department of Environmental Conservation and take management actions to reduce threats to mud turtles and increase habitat quality. Potential management actions include reducing raccoon populations by elimination of garbage sources at Hubbard County Park and control of *Phragmites australis* in the freshwater ponds and creek headwaters used by mud turtles.

1.6 Protecting Cultural and Historical Resources

Hubbard County Park contains numerous highly sensitive prehistoric and historic cultural resources and that the entire Park is potentially eligible for inclusion on the National Register of Historic Places. Actions that should be implemented at Hubbard County Park to better understand, manage, and protect its cultural and historic resources include:

- Completion of a Full Phase IB Archaeological Survey.
- Apply for a full determination of significance and eligibility for the entire Park for inclusion on the National Register of Historic Places.
- Implement additional research and protection measures at the Hubbard cemetery and the unconfirmed burial grounds located north of the Black Duck Lodge entrance road.
- Install commemorative signage identifying the 2nd and 4th locations of the Red Creek Schoolhouse.
- At least two of the original sleeping cottages at the Flanders Club, as well as other buildings throughout the Park, have been lost. Field investigations and historical aerial imagery should be used to document these former structures.
- Two remains of former buildings are present to the south of Black Duck Lodge. These former structures should be preserved as a ruin or thoroughly documented and then disposed of.
- A Cultural Resource Management Plan for Hubbard County Park should be developed to ensure that cultural resources are fully documented and meet all County, State and Federal requirements.
- Suffolk County should encourage historical archaeological research at Hubbard County Park, but retain strict oversight of archaeological field research and archeological or cultural artifacts located at Hubbard County Park.

1.7 Providing Educational Opportunities

Educational uses of Hubbard County Park are consistent with the sensitive nature of its environmental and cultural resources and can 1) create a greater understanding of pine barrens and tidal wetland ecosystems, 2) enhance public awareness of the hunt club era and its contribution to the conservation of lands and natural resources on Long Island, and 3) increase the visibility of, and appreciation for, Hubbard County Park. Opportunities for public education at Hubbard County Park could be increased by the following:

- Renovation of the Brooder House to provide a multi-use space for education and field-based research uses by local universities, organizations, and grade schools.
- Coordination/collaboration with local grade schools for cultural education and science programs and development of educational curriculums or programs.
- Foster partnerships and collaborative relationships with educational and research institutions and non-profit organizations to increase the number of educational programs implemented at Hubbard County Park.
- Enhancement of existing interpretive trails by the installation of eleven (11) new interpretive signs to educate visitors about the ecological and cultural resources at Hubbard County Park.
- Developing mobile-based interpretive content to create an interactive and immersive tour experience for visitors at Hubbard County Park and appeal to a larger range of potential park visitors.
- Promoting citizen science in Hubbard County Park and creating infrastructure or programs to create and utilize data collected by citizen scientists including establishing a staff position at Hubbard County Park responsible for coordination of citizen science programs at Hubbard County Park and throughout the County Park system.

1.8 Outreach and Fostering Organization Partnerships

An important objective of the EHMP is to foster partnerships and collaboration with educational and research institutions and non-profit organizations, as well as continuing its existing partnership with Ducks Unlimited, to create an active community of users to support the additional or renovated facilities or amenities at Hubbard County Park and to contribute to the maintenance and security of the property's historical resources through increased use. Suffolk County sent letters to more than thirty environmental and educational organizations to request the opportunity to discuss 1) how access to resources and facilities at Hubbard County Park could assist potential partner organizations in accomplishing their goals and 2) opportunities for mutually beneficial collaboration between Suffolk County and potential partner organizations. The EHMP provides summaries of all meetings and correspondence resulting from these outreach efforts.

2. County Long EAF Part I (Question D.1.e, Project Details-Expansion of Existing Use)

Hubbard County Park provides visitors with a wide range of recreational and sporting opportunities in natural settings including hiking, hunting, fishing, paddling, boating, birdwatching, and nature study. Hubbard County Park has approximately 12.6 miles of existing hiking trails and several informal launches for kayaks and non-motorized vessels. The EHMP provides recommendations to enhance public access to and expand recreational use of the Park, in a manner consistent with the Park's sensitive ecological resources, including:

- Provide formal parking areas at Birch Creek Road, Smithers Main Entrance, Black Duck Lodge Entrance, and Red Creek Road.
- Re-establish and construct 2.3 miles of trails to create 6.0 miles of trail loops from roadside parking facilities allowing visitors to hike to and experience various Park features including the former

Flanders Club; views of Flanders Bay and Birch, Mill, and Hubbard Creeks; Black Duck Lodge; Hubbard cemetery; the Atlantic white cedar ghost forest; and Penny Pond.

Establishment of additional formal parking areas represents an increase from approximately 17 informal parking spaces available to the public to 68 formal parking spaces (consisting of 48 stabilized, unpaved spaces and 19 paved species) representing a 300% increase in parking area at HCP. The recommended formal parking areas (shown on conceptual plans on Pages 17-24) minimize potential environmental impacts by siting public parking areas on paved road margins (i.e. Flanders Road/Route 24 and Red Creek Road) rather than within the park to minimize traffic on HCP's unpaved roads, avoiding impacts associated with vehicle traffic to sensitive ecological and historical resources within the Park interior, using unpaved surfaces to the maximum extent possible, and confining potential environmental impacts of parking areas to currently impacted road margins. Recommended improvements at Birch Creek Road, Smithers complex, and Black Duck Lodge will provide defined parking areas for County use thereby minimizing the environmental impacts of the current unorganized parking at these sites.

Hubbard County Park has approximately 12.6 miles of existing hiking trails. However, the potential for the visitors to experience the Park's pine barrens forests and tidal wetlands is limited by unappealing trail layout and limited trail connectivity within Hubbard County Park and with adjacent Sears Bellows Park. The EHMP recommends re-establishment and/or construction of 2.3 miles of trails to create 6.0 miles of trail loops from roadside parking facilities allowing visitors to hike to and experience various Park features including the former Flanders Club; views of Flanders Bay and Birch, Mill, and Hubbard Creeks; Black Duck Lodge; Hubbard cemetery; the Atlantic white cedar ghost forest; and Penny Pond. Recommended trail locations are shown on conceptual plans on Pages 25-29. Proposed trails shall be approximately 6 feet in width. In order to minimize environmental impacts, recommended trails are located to the maximum extent possible in the vicinity of previously existing, and subsequently abandoned, trails identified from historical aerial photos and maps. Significant environmental impacts are not expected to result from the installation of recommended trails due to 1) their small size, 2) maintenance of adjacent vegetation and belowground root systems, and 3) routing trails around trees to avoid disturbance to forest canopy.

2. County Long EAF Part I (Question D.1.h and i, Project Details-New Residential and Non-Residential Uses)

A primary goal of the EHMP is to provide recommendations for long-term use of the park's buildings. In general, structures that are used frequently or continuously are in good condition, whereas structures that are not used are in poor condition. Accordingly, recommendations for the adaptive reuse of the existing buildings over the 20 year timeframe of the EHMP were developed based on multiple meetings with Suffolk County Department of Public Works and Department of Parks, Recreation, and Conservation. The EHMP provides conceptual adaptive re-use plans for each of the recommendations described briefly below. A location map of the HCP buildings referenced is provided on Page 30 of this attachment.

The Brooders House (P2603) is best suited to serve as a multi-use space to support future education and research uses at Hubbard County Park. Space in the Brooders House could also be converted into office space for Suffolk County staff or staff from other university or non-profit groups to support diverse usership.

The Smithers Property Main House (P2595) is best suited to serve as an interpretive and visitor's center for the former Flanders Club site and for HCP as a whole. Rooms on the first and second floor could also be utilized for administrative and office space for Parks Department staff to support the use as an interpretive and visitor's center. This use of the Main House should incorporate conservation of the historically intact

rooms on the first floor, such as the main living rooms along with their stained glass windows. The Main House is also the recommended location for providing educational programs currently housed at Cottage 5.

Public and accessible bathrooms should be provided at the Main House for park visitors. Restrooms should also be provided within the Brooders House; these restrooms could either 1) support educational programs solely or 2) serve the park visitors also.

Recommended uses for Black Duck Lodge (P2113) should include continue housing for a full-time resident to serve as caretaker for the lodge and its property and restoration of the main house to allow for public visitation.

Multiple meetings with Suffolk County Department of Public Works; Suffolk County Department of Parks, Recreation, and Conservation; and potential partner organizations indicated great need for permanent, seasonal, and temporary housing to 1) provide oversight and security of the property, 2) to support the County Park's environmental monitoring and management programs, and 3) to support research, educational, and environmental management programs by the County or other organizations.

The recommended use of Cottage 1 is to provide housing for a full-time resident to serve as a caretaker for the Smithers building complex. Cottage 2 should be used as a residence for seasonal County Parks employees to support environmental management programs at HCP and throughout the County Park system. It is recommended that Cottage 3 also be used to provide housing for a full-time resident or long-term visitors to HCP (such as visiting researchers Cottages 4 and 6 should continue to be used as residences for seasonal County Parks employees. Cottage 5 should continue to be used as a group gathering space and kitchen/dining facility. However, it is recommended that this Cottage provide communal and dining space for the cottages (Cottages 2, 4, and 6) serving as seasonal residences. Cottage 4 retains the most historic integrity of any of the structures onsite and is in fair condition. Because of the historic integrity of Cottage 4, this cottage may be used as a template during restoration and the cottage itself should be conserved.

The Storage Sheds (P2604 and P2605) were constructed, at the latest, in the early twentieth century and, along with Cottage 4 and the first floor of the Main House, retain the most historical integrity at the Smithers Property. The sheds are currently used by Ducks Unlimited as a workshop (P2604) and storage space (P2605) to support recreation and education programs at HCP. The sheds should continue to be used to support hunting uses of HCP and hosting of sportsman and environmental education programs. The Seven-Car Garage (P 2612) should continue to be used for storage of vehicles, equipment, and supplies to support the management and maintenance of HCP and other properties in the County Park system. It is recommended that the One-Car Garage (P2116) at Black Duck Lodge continue to be used for storage of vehicles, equipment, and supplies to support maintenance of the Black Duck Lodge property.

The Kennel (P2114) should be restored to contribute to the interpretation of the site's history as a hunting club and to be used for storage by Suffolk County Parks or partner organizations.

3. County Long EAF Part I (Question D.2.b, Project Operations- Encroachment into Wetlands, Waterbodies, Shorelines)

3.1 Hubbard Creek Water Access

The location of the Concrete Garage (SCDPW P2117) on Upper Red Creek road is used as an informal launch location for non-motorized boats. However, there is no formal parking or launch facility. Paddlers must carry NMB across the tidal wetlands to launch vessels. Recommendations for this site are shown on Page 24 and include:

- Provide parking area with pervious parking surface for car-top (10 stalls) and trailered NMB transport (2 stalls).
- Provide ADA compatible launch facilities and amenities to facilitate use of ADA compatible dock including ADA parking and stabilized mobi-mat for accessing dock.
- Install informational kiosk with maps and safety information
- Provide a raised, fixed catwalk to access water without disturbance to vegetated wetlands and kayak-friendly floating dock.

The Hubbard Creek launch should be incorporated into the establishment of a blueway kayak trail improving public access to and use of the tidal creeks and nearshore habitats of Hubbard County Park. A recommended HCP blueway trail with launch locations, proposed improvements and amenities, and points of interest along the blueway trail is shown on Page 31.

3.2 Invasive Plant Control (*Phragmites australis*)
The invasive Common reed, *Phragmites australis*, is abundant in large areas of the tidal and freshwater wetlands of Hubbard County Park, as shown on Page 32 of this Part I attachment. Field delineation of *Phragmites australis* stands in the late spring of 2015 indicate that HCP has 43.9 acres of *Phragmites* marshes and 14.9 acres of salt shrub, high salt marsh, and brackish tidal marshes where *Phragmites* is present at low- to moderate-densities. The continued expansion of Phragmites *australis* is perhaps the greatest threat to the ecological resources of HCP as it 1) has already resulted in the loss of large areas of freshwater, brackish marsh, high salt marsh, salt shrub, and sea level fen communities and 2) may continue to expand at the expense of these communities and the many New York State endangered- and threatened plant species within these communities. The marshes of HCP are considered of State-wide significance due to their excellent or good quality and/or or rarity; continued *Phragmites* encroachment would jeopardize the quality of these highly important marsh complexes.

Phragmites management through strictly regulated application of herbicides should be used to, at a minimum, prevent further *Phragmites* expansion and, ideally, restore areas of existing *Phragmites* marsh to marsh communities dominated by native vegetation. Due to the presence of nearby rare native plants, herbicide application must be 1) through direct application to *Phragmites* shoots by backpack sprayer or wick stick by personnel on foot, 2) conducted by an experienced, NYS licensed herbicide contractor with documented experience working in sensitive habitats, 3) under low wind conditions to reduce potential for impacts to native vegetation, and 4) closely supervised to avoid impacts to rare native plants.

High priority areas for *Phragmites* management include 7.2 acres in the western headwaters of Birch Creek, the sea level fens located in the headwaters of Hubbard Creek near Upper Red Creek Road, the tidal wetlands located east of the mouth of Hubbard Creek and adjacent to Red Cedar Point Road, the 200 foot reaches of Hubbard Creek located immediately upstream and downstream of Red Creek Road, and four small patches of *Phragmites* in Penny Pond. These high priority areas are also shown on Page 32.

4. County Long EAF Part I (Question E.1.b, Land Uses- Land Uses and Cover Types)
Page 33 provides an ecological communities map representing cover types at Hubbard County Park.

5. County Long EAF Part I (Question E.2.c, Natural Resources- Soils)
Page 34 provides a soils map indicating predominant soil types present at Hubbard County Park.

6. County Long EAF Part I (Question E.2.f, Natural Resources- Slopes and Topography)
Page 35 provides a topographic map for Hubbard County Park.

7. County Long EAF Part I (Question E.2.q, Natural Resources- Wildlife)

The presence of extensive undeveloped forests, three freshwater streams and associated wetlands, salt marshes, maritime beaches, tidal bays and creeks, and mudflats in Hubbard County Park provides habitat for hundreds of species of wildlife.

7.1 Birds

At least 178 species of breeding and migratory birds utilize Hubbard County Park. The wetlands of HCP are within the Peconic Bay/Flanders Bay Important Bird Area, one of 127 such areas identified in New York State by the National Audubon Society. At least 87 bird species are classified as possible, probable, or confirmed breeding species in HCP based on site observations and the New York State Breeding Bird Atlas (McGowan and Corwin, 2008). The wetlands of HCP contribute to Flanders Bay being one of the most important waterfowl wintering areas in eastern Long Island (New York State Department of State- Division of Coastal Resources, 2002) supporting American black ducks, common loon, mallard, Canada geese, bufflehead, red-breasted merganser, scaup, common goldeneye, and oldsquaw. Bird species listed as endangered, threatened, or species of special concern by the US Fish and Wildlife Service or New York State are presented in Table 1.

Table 1: Birds Listed as Endangered, Threatened, or Special Concern for Hubbard County Park

Common Name	Scientific Name	Protection Status
Piping Plover	*Charadrius melodus*	USFWS-Threatened, NYS-Endangered
Peregrine Falcon	*Falco peregrinus*	NYS-Endangered
Pied-billed Grebe	*Podilymbus podiceps*	NYS-Threatened
Bald Eagle	*Haliaeetus leucocephalus*	NYS-Threatened
Northern Harrier	*Circus cyaneus*	NYS-Threatened
Common Tern	*Sterna hirundo*	NYS-Threatened
Least Tern	*Sternula antillarum*	NYS-Threatened
Common Loon	*Gavia immer*	NYS-Special Concern
American Bittern	*Botaurus lentiginosus*	NYS-Special Concern
Osprey	*Pandion haliaetus*	NYS-Special Concern
Sharp-shinned Hawk	*Accipiter striatus*	NYS-Special Concern
Cooper's Hawk	*Accipiter cooperii*	NYS-Special Concern
Red-shouldered Hawk	*Buteo lineatus*	NYS-Special Concern
Common Nighthawk	*Chordeiles minor*	NYS-Special Concern
Whip-poor-will	*Caprimulgas vociferous*	NYS-Special Concern
Seaside Sparrow	*Ammodramus maritimus*	NYS-Special Concern

Several of these protected species are known to or may possibly breed in Hubbard County Park. Piping plover (*Charadrius melodus*), common tern (*Sterna hirundo*), and least tern (*Sternula antillarum*) have nested at Goose Creek Beach and Cow Yard Beach between Mill and Hubbard Creeks. Osprey pairs (*Pandion haliaetus*) regularly utilize two nesting platforms within Hubbard County Park. Cooper's hawk (*Accipiter cooperii*) is a probable breeder in dense deciduous, coniferous, or mixed forests in Hubbard County Park. Whip-poor-wills (*Caprimulgas vociferous*) are known to breed in nearby Sarnoff Preserve and are present and probably breed in HCP due to the presence of dry forests with sparse understory adjacent to open habitats for foraging. Common nighthawks (*Chordeiles minor*) have been observed in the park and are probable breeders in open habitats such as coastal dunes or forest clearings. Seaside sparrows (*Ammodramus maritimus*) are known to occur in the expanses of high and intertidal marshes and are probable breeders in suitable high marsh habitats adjacent to *Iva frutescens*-dominated salt shrub habitats.

7.2 Reptiles and Amphibians

The diverse wetland and upland communities of Hubbard County Park are known to provide habitat for at least twenty species of reptiles and amphibians (Table 2). In particular, the freshwater and brackish habitats at the headwaters of the creeks and channels tributary to the three main tidal creeks, especially Mill Creek, provide very high quality habitat (J. Feinberg, pers. comm). The Atlantic white-cedar swamps in HCP and adjacent Sears Bellows County Park also provide high quality habitats (J. Feinberg, pers. comm.). Perhaps most notably, HCP contains one of the largest remaining populations of Eastern mud turtle. Eastern mud turtle is New York State's rarest turtle and has a legal protection status of New York State Endangered. Other reptiles and amphibians inhabiting HCP categorized as Endangered, Threatened, or Special Concern in New York State include spadefoot toad (Special Concern), spotted turtle (Special Concern), and eastern box turtle (Special Concern).

Table 2: Reptiles and Amphibians List for Hubbard County Park[1,2]

Common Name	**Scientific Name**
Fowlers Toad	Scaphiopus holbrookii*
Spadefoot Toad (NYS Special Concern)	Bufo fowleri*
Spring Peeper	Pseudacris crucifer*
Gray Treefrog	Hyla versicolor
Green Frog	Rana clamitans melanota*
Atlantic Coast Leopard Frog	*Rana kauffeldi* or *R. sphenocephala**
Pickerel Frog	Rana palustris*
Bull Frog	Rana catesbeiana
Red-backed Salamander	Plethodon cinereus
Four-toed Salamander	Hemidactylium scutatum*
Eastern Mud Turtle (NYS-Endangered)	Kinosternon subrubrum*
Snapping Turtle	Chelydra serpentine*
Painted Turtle	Chrysemys picta*
Diamondback Terrapin	Malaclemys terrapin*
Spotted Turtle (NYS Special Concern)	Clemmys guttata*
Eastern Box Turtle (NYS Special Concern)	Terrapene carolina*
Eastern Garter Snake	Thamnophis sirtalis*
Ribbon Snake	Thamnophis sauritus
Common Water Snake	Nerodia sipedon*
Black Racer	Coluber constrictor*
Ringneck Snake	Diadophis punctatus edwardsii

[1]Sources: N. Soule (pers. comm), J. Feinberg (pers. comm.)
[2]* Indicates sp. has been observed in HCP. Other species are expected based on habitat type and species distribution from NY Herp Atlas.

7.3 Mammals

At least twenty five mammal species are expected to be found at HCP based on the diverse and high No known studies of the mammals of HCP have been conducted (Table 3).

Table 3: Expected Mammal List for Hubbard County Park[1]	
Common Name	**Scientific Name**
Opposum	Didelphis marsupialis
Masked Shrew	Sorex cinerus
Short-tailed Shrew	Blarina brevicauda
Meadow Vole	Microtus pennsylvanicus
Pine Vole	Microtus pinetorum
Eastern Mole	*Scalopus aquaticus*
Big Brown Bat	Eptesicus fuscus
Eastern Red Bat	Lasiurus borealis
Northern Bat	Myotis septentrionalis
Little Brown Bat	Myotis lucifugus
Eastern Small-Footed Bat	Myotis leibii
Hoary Bat	Lasiurus cinereus
Silver Haired Bat	Lasionycteris noctivagans
Eastern Cottontail	Syvilagus floridanus
Eastern Chipmunk	Tamias striatus
Gray Squirrel	Sciurus carolinensis
Flying Squirrel	Glaucomys
White-footed Mouse	Peromyscus leucopus
Muskrat	Ondatra zibethicus
Red Fox	Vulpes Vulpes
Domestic Cat	Felis domesticus
Raccoon	Procyon lotor
Long-tailed Weasel	Mustela freneta
Mink	Mustela vison
White-tailed Deer	Odocoileus virginianus
[1]Sources: Conner (1971), Fishman (2013), Dove et al (1973)	

8. County Long EAF Part I (Question E.2.r, Natural Resources- Significant Natural Communities)

Seventeen natural communities have been identified in Hubbard County Park, as shown on Page 33. Seven of these natural communities (totaling 360.6 acres) are classified as significant by the New York Natural Heritage Program including sea level fen, coastal plain Atlantic white cedar swamp, pine barrens shrub swamp, highbush blueberry bog thicket, intertidal salt marsh, high salt marsh, and salt shrub. These natural communities are considered to be of statewide significance by virtue of being of excellent or good quality, and/or or a rare community type.

Table 4: Significant Natural Communities at Hubbard County Park		
Community	**State/Global Occurrence Rank[1]**	**Acres**
Intertidal Salt Marsh	G4 S3/S4	114.7
High Salt Marsh	G4 S3/S4	193.7
Salt Shrub	G5 S4	29.3
Sea Level Fen	G1/G2 S1	1.1
Coastal Plain Atlantic White Cedar Swamp	G3/G4 S1	8.2
Pine Barrens Shrub Swamp	G5 S3	12.1
Highbush Blueberry Bog Thicket	G4 S3	1.5
	Total Acres	360.6
[1]*Definitions*: G1: Critically imperiled globally because of extreme rarity (5 or fewer occurrences), or very few remaining acres, or miles of stream) or especially vulnerable to extinction because of some factor of its biology. G2: Imperiled globally because of rarity (6 - 20 occurrences, or few remaining acres, or miles of stream) or very vulnerable to extinction throughout its range because of other factors. G3: Either rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some		

of its locations) in a restricted range (e.g. a physiographic region), or vulnerable to extinction throughout its range because of other factors.
G4: Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5: Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
S1: Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
S2: Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
S3: Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
S4: Apparently secure in New York State.

9. County Long EAF Part I (Question E.2.s and t, Natural Resources- Endangered, Threatened, Rare, and Special Concern Species)

HCP provides habitat for at least 34 species of plants and animals classified as endangered, threatened, special concern or rare by New York State or the US Fish and Wildlife Service based on reports from the New York Heritage Program and field observations. The protected plant and animal species known to occur in HCP are listed in Table 5 along with their Federal and/or New York State protection status and global/state rarity rank. A large proportion of the protected species (25 of 34 species) inhabit the Park's tidal, brackish, and freshwater wetlands underscoring the State-wide significance of these ecological communities by virtue of being of excellent or good quality and providing habitat for rare species.

Table 5: Endangered, Threatened, Special Concern, and Rare Species Wildlife and Plants for HCP

	Common Name	Scientific Name	Protection Status
Animals	Eastern Mud Turtle	*Kinosternon subrubrum*	NYS-Endangered
	Piping Plover	*Charadrius melodus*	USFWS-Threatened, NYS-Endangered
	Least Tern	*Sternula antillarum*	NYS Threatened
	Common Tern	*Sterna hirundo*	NYS Threatened
	Black Skimmer	*Rynchops niger*	NYS Special Concern
	Common Loon	*Gavia immer*	NYS-Special Concern
	American Bittern	*Botaurus lentiginosus*	NYS-Special Concern
	Osprey	*Pandion haliaetus*	NYS-Special Concern
	Sharp-shinned Hawk	*Accipiter striatus*	NYS-Special Concern
	Cooper's Hawk	*Accipiter cooperii*	NYS-Special Concern
	Red-shouldered Hawk	*Buteo lineatus*	NYS-Special Concern
	Common Nighthawk	*Chordeiles minor*	NYS-Special Concern
	Whip-poor-will	*Caprimulgas vociferous*	NYS-Special Concern
	Seaside Sparrow	*Ammodramus maritimus*	NYS-Special Concern
	Spotted Turtle	*Clemmys guttata*	NYS Special Concern
	Eastern Spadefoot Toad	*Scaphiopus holbrookii*	NYS Special Concern
	Eastern Box Turtle	*Terrapene Carolina*	NYS Special Concern
Plants	Saltmarsh Loosestrife	*Lythrum lineare*	NYS Endangered
	Coast Flat-sedge	*Cyperus polystachyos var. texensis*	NYS Endangered
	Mexican Seaside Goldenrod	*Solidago sempervirens var. mexicana*	NYS Endangered
	Possum Haw	*Viburnum nudum*	NYS Endangered
	Twining Screwstem	*Bartonia paniculata*	NYS Endangered
	Southern Dodder	*Cuscuta obtusiflora var. glandulosa*	NYS Endangered
	Collins Sedge	*Carex collinsii*	NYS Endangered
	Slender Blue Flag	*Iris prismatica*	NYS Threatened
	Sea-Pink	*Sabatia stellaris*	NYS Threatened
	Atlantic White Cedar	*Chamaecyparis thyoides*	NYS Threatened
	Saltmarsh Foxglove	*Agalinis maritime*	NYS Threatened
	Swamp Sunflower	*Helianthus angustifolius*	NYS Threatened

	Marsh Fimbry	*Fimbristylis castanea*	NYS Threatened
	Saltmarsh Aster	*Symphyotrichum subulatum*	NYS Threatened
	Marsh Straw Sedge	*Carex hormathodes*	NYS Threatened
	Dwarf Glasswort	*Salicornia bigelovii*	NYS Threatened
	Seaside Plantain	*Plantago maritima var. juncoides*	NYS Threatened
	Bog Aster	*Oclemena nemoralis*	NYS Rare

10. County Long EAF Part I (Question E.2.u, Natural Resources-Recreational Uses)
The Suffolk County Department of Parks, Recreation, and Conservation offers a variety of recreational opportunities at Hubbard County Park including the following:

Hunting
Hunting opportunities offered at HCP include waterfowl hunting, archery hunting for deer, shotgun hunting for deer, and raccoon hunting. Waterfowl hunting is typically offered from late November to late January on Saturdays, Sundays, and Wednesdays. Waterfowlers must register at Sears Bellows Park to participate in the drawing lottery for available blinds. Waterfowlers must check out by 3PM at Sears Bellows Park. The waterfowl program is assisted by Ducks Unlimited whose members prepare and maintain the duck hunting blinds (10 hunting locations total including 1 handicap accessible blind).

Shotgun and muzzle loading rifle hunting for deer is offered at HCP through advanced and daily lotteries on weekdays during January. HCP has eleven hunting areas for deer with three hunters allowed per hunting area. Hunters must register at Sears Bellows Park daily at 6AM. Raccoon hunting is offered to individuals and groups in February following the County restrictions.

Fishing
Freshwater fishing (at Penny Pond) and saltwater fishing following New York State regulations are offered at Hubbard County Park between dawn and dusk with parking available at designated parking areas on a first come-first serve basis. Fishing at Penny Pond requires registration at Sears Bellows Park.

Shellfishing
Shellfishing opportunities are seasonally offered in the waters of Hubbard Creek between December 1 and April 30 following New York State regulations. Shellfishing is permitted year round in the waters of Flanders Bay. Goose Creek, Birch Creek, and Mill Creek are not certified (i.e. are closed) for shellfishing. Watercraft may be launched at Birch Creek Road to access Flanders Bay and the Peconic Estuary for recreational and commercial fishing and shellfishing.

Ducks Unlimited and Special Programs
Suffolk County entered a cooperative agreement with Ducks Unlimited in 1996, when the County took complete ownership of HCP, to assist with maintenance of the park's natural resources and wetlands habitats, provide recreation and education programs at the park, and preserve the park's historic integrity.

Ducks Unlimited's programs involve sportsman education, hunter certification, waterfowl identification, and youth waterfowl programs and hunts. Duck Unlimited's Youth Waterfowl Hunter Program for youth aged 12-15 has been conducted since 1998 on two weekends annually in October-November. Typically, twenty students attend this program annually. In cooperation with the NYSDEC, Ducks Unlimited conducts Hunter Safety Programs (typical class sizes of 30 adults and youth) at HCP on two weekends annually in October-November. In cooperation with Boy Scouts of America, Ducks Unlimited conducts Shotgun Merit Badge classes during the first weekend of the months of September, October, November, March, April, and May, with typically 15-20 youths attending each class. Annually, Ducks Unlimited holds its 'Greenwings'

Family Day in June with 10-15 stations related to outdoor recreation, hands-on activities, and seminars, i.e. archery, fly fishing, waterfowl identification, for the entire family.

11. County Long EAF Part I (Question E.3.e, Designated Public Resources- State or National Register)

Black Duck Lodge was determined by the New York State Office of Parks, Recreation, and Historic Preservation to meet eligibility criteria for inclusion on the National Register (on 12/12/1994) as a relatively intact, representative example of an early-20th century hunting lodge on Long Island and is associated with events that have made a significant contribution to the broad patterns of our history namely private conservation efforts to protect the natural habitats along the shore of Long Island. The 40-acre Black Duck Lodge site contains the main lodge (original built as a farmhouse in the early to mid-19th century and then re-modeled and enlarged as a hunting lodge in the 1930s; several deteriorated outbuildings, and a 19th century family cemetery associated with the earlier history of the property.

The former Flanders Club property (i.e. Smithers complex) was dedicated to the Suffolk County Historical Trust in 2008.

12. County Long EAF Part I (Question E.3.g, Designated Public Resources- Archeological and Historical Resources)

Prehistorical and historical resources at Hubbard County Park that have been identified by Johannemann et al (1980) and/or the Phase IA assessment completed during the development of this EHMP are shown on Page 36.

12.A Archaeological Resources

Prehistoric archaeological sites are located between Goose Creek and Birch Creek, as well as between Mill Creek and Hubbard Creek (Johannemann et al.1980). These sites have been documented to contain shell middens; surficial shell, fire-cracked rock, and quartz flakes and subsurface shell fragments and quartz flakes; and marker trees. The natural environment of the HCP area was conducive to Native American activity. Its proximity to marine resources would have made it a prime location for gathering food, such as shellfish, while the adjacent pine barrens would have provided inland cover. According to NYSHPO sensitivity maps, the entire park area lies within an archaeologically sensitive zone and Johannemann et al (1980) documented several pre-contact resource areas within the property. Based on this information, HCP must be considered as having a high sensitivity for the presence of Native American pre-contact resources.

12.B Historical Resources

Hubbard County Park is the site of the former Flanders Club, one of the oldest hunting clubs in Suffolk County, and Black Duck Lodge, the former hunting lodge of financier E.F. Hutton. Black Duck Lodge was declared eligible to the National Register of Historic Places by the New York State Historic Preservation Office and was dedicated to the Suffolk County Historical Trust in 1984. The former Flanders Club property was dedicated to the Suffolk County Historical Trust in 2008.

Other historic sites are spread throughout the HCP and most commonly consist of foundation and cellar remnants in the locations of previous homesteads. Historical homesteads that have been identified at HCP include the D. Brown, C. Goodall, and E. Brown sites located to the east of Goose Creek; the S. Robinson site located to the southwest of Black Duck Lodge; the John and Barney Hubbard homestead; the former summer cottage along the bay shoreline between Mill and Hubbard Creeks; and the J. Robinson/Haines Farm site located to the east of Upper Red Creek Road (Page 36).

The westerly of the two Hubbard homesteads, that of John Hubbard and then his son, Barney Hubbard, was

located by Johannemann et al (1980) and this EHMP. Johannemann et al (1980) identified six archaeological features, including brick, fieldstone, and sandstone foundations.

The remnants of a chimney and fireplace from a summer cottage are present on a headland between Mill and Hubbard Creeks. The summer cottage was abandoned and demolished when Suffolk County acquired the property.

The J. Robinson site was found to consist of two brick foundations and brick rubble scattered within a cellar excavation by Johannemann et al (1980).

The Johannemann et al (1980) report identified several features in the vicinity of the Black Duck Lodge. These include a refuse dump located about 150-200 feet north of Black Dock Lodge and a brick-lined well located to the northwest of the 1 Car Garage (#P2116). William Sickles and Polly Weigand (pers. comm.) have reported the presence of another foundation with concrete block cellar located approximately 2,000 feet to the west of Black Duck Lodge.

The Red Creek Schoolhouse was twice located within the current boundaries of Hubbard County Park. The Southampton Historical Museum (then the Southampton Colonial Society) acquired the schoolhouse from William W. Hubbard in 1953, moved it to its present site at 17 Meetinghouse Lane in Southampton, and rehabilitated the structure (Spanburgh, 2016).

The Hubbard family cemetery is located at the west of Black Duck Lodge. The cemetery is located on a 0.11 acre parcel controlled by the Town of Southampton. A white wooden rail denotes the general perimeter. A granite family monument stone has been installed with the names, birth and death dates of eleven of those in the cemetery, it is unknown if this list constitutes all interred or just a portion. Thirteen stones were visible and some of these stones may be footstones. The granite family monument stone is in good condition with only minor biological growth. The 1971 property survey for Hubbard County Park shows an additional burial ground located to the east of the entrance road to Black Duck Lodge. A hunting dog cemetery from the early 1960s exists on the western bank of Hubbard Creek near Red Creek Road.

As Hubbard County Park has remained relatively undeveloped, there has been little opportunity for impacts to potential historic archaeological resources from initial settlement onwards. Hubbard County Park retains resources associated with two prominent and key aspects of the history of this part of eastern Long Island. In consideration of this, the HCP property has a high sensitivity for the presence of historic, potentially National Register eligible, resources.

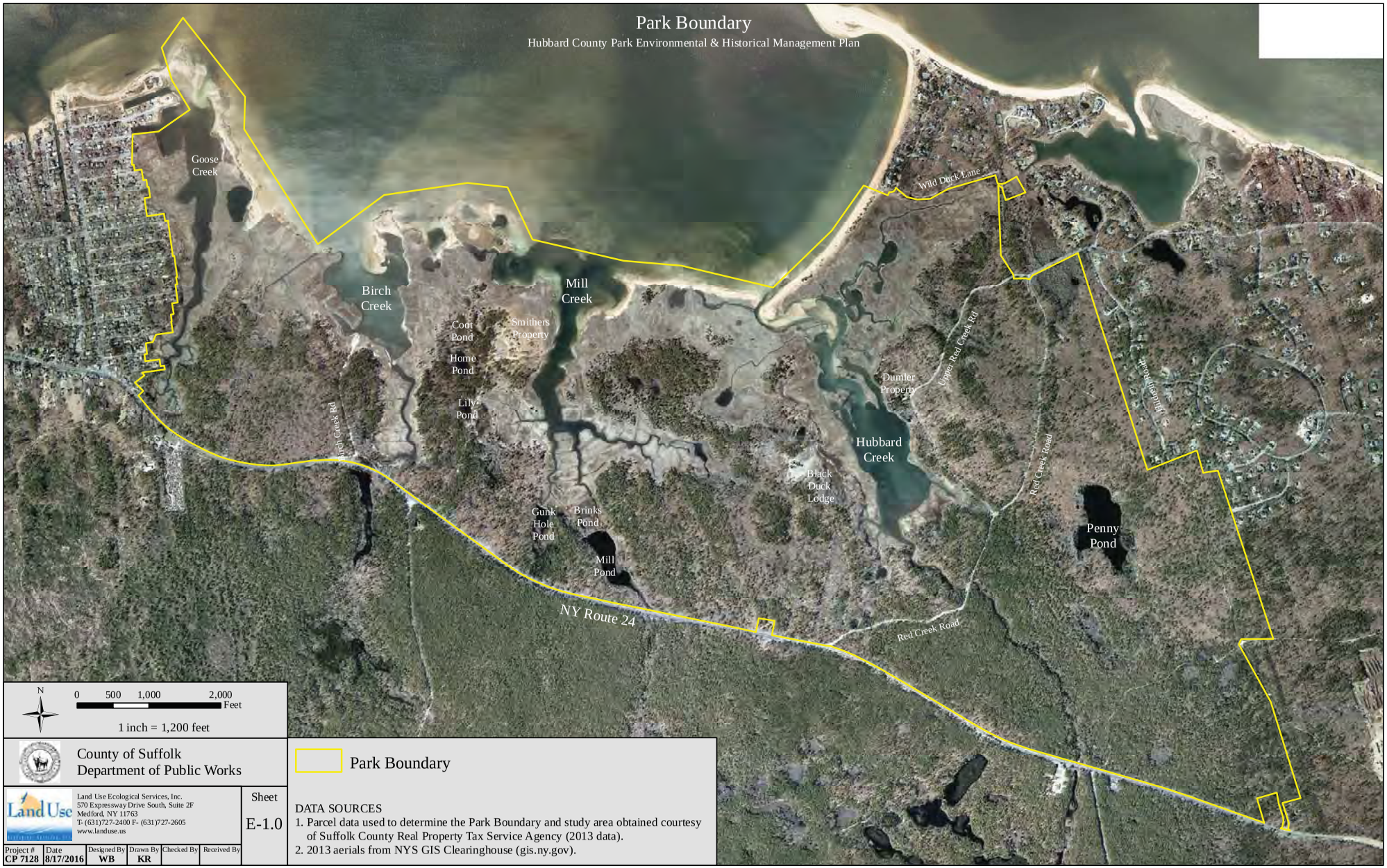
13. Literature Cited

Connor PF. 1971. The Mammals of Long Island, New York. Bulletin 416. New York State Museum and Science Service. The University of the State of New York. Albany, NY. 78 pgs.

Fishman M. 2013. The Bats of Long Island. Presentation to Long Island Natural History Conference. December 6, 2013.

Johannemann EJ, Schroeder L, and PC Weigand. 1980. Phase II Cultural Resource Survey Report for Suffolk County Department of Parks, Recreation and Conservation and the New York State Division for Historic Preservation – Park #40: Flanders County Park (aka: Hubbard County State Park), Town of Flanders, Township of Southampton, Suffolk County, New York. Report on File with Suffolk County Parks. Riverhead, New York.

Spanburgh S. 2016. The Red Creek Schoolhouse: Historic Structure Report.


Park Boundary
Hubbard County Park Environmental & Historical Management Plan
Goose Creek
Birch Creek
Mill Creek
Coot Pond
Smithers Property
Home Pond
Lily Pond
Birch Creek Rd
Wild Duck Lane
Upper Red Creek Rd
Dumler Property
Hubbard Creek
Black Duck Lodge
Red Creek Road
Gunk Hole Pond
Brinks Pond
Mill Pond
Penny Pond
NY Route 24
Red Creek Road
N
0 500 1,000 2,000 Feet
1 inch = 1,200 feet
County of Suffolk
Department of Public Works
Park Boundary
DATA SOURCES
1. Parcel data used to determine the Park Boundary and study area obtained courtesy of Suffolk County Real Property Tax Service Agency (2013 data).
2. 2013 aerials from NYS GIS Clearinghouse (gis.ny.gov).
Land Use Ecological Services, Inc.
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Medford, NY 11763
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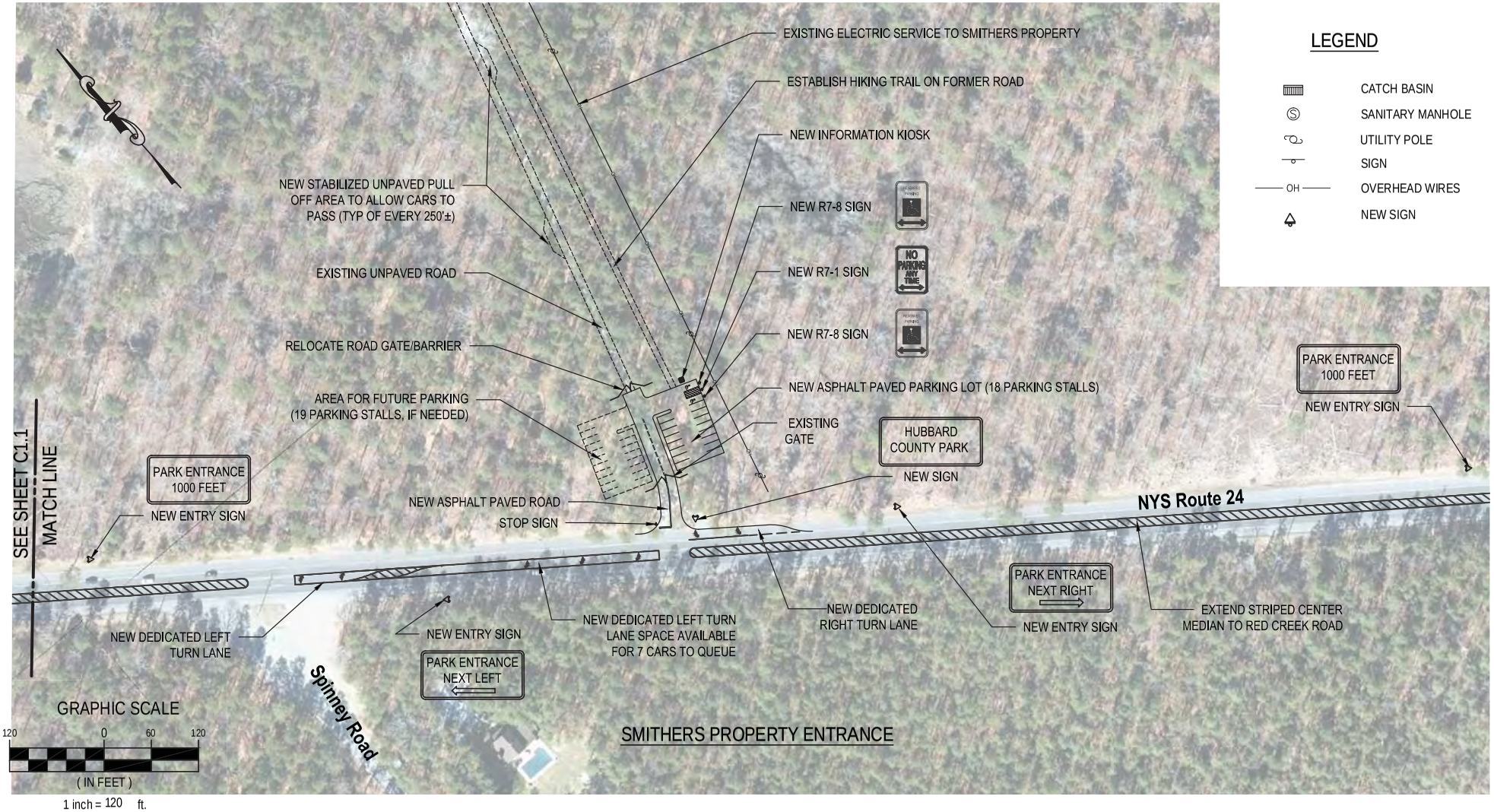
Sheet
E-1.0
Project # CP 7128
Date 8/17/2016
Designed By WB
Drawn By KR
Checked By
Received By



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Client

Suffolk County Department of Public Works

Hubbard County Park

Environmental and Historical Management Plan

Flanders NY 11901

SHEET TITLE
IMPROVEMENTS FOR SMITHERS PROPERTY ENTRANCE

DATE:	PROJECT:	SHEET #
JUNE 2016	CP 7128	C2.0

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White Plains, NY Albany, NY New City, NY
Parsippany, NJ Howell, NJ

GRAPHIC SCALE

30 0 15 30

(IN FEET)
1 inch = 30 ft.

BIRCH CREEK WATER ACCESS

Client

Suffolk County Department of Public Works
Hubbard County Park
Environmental and Historical Management Plan
Flanders NY 11901

SHEET TITLE
IMPROVEMENTS AT BIRCH CREEK WATER ACCESS

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JUNE 2016	CP 7128	C3.0

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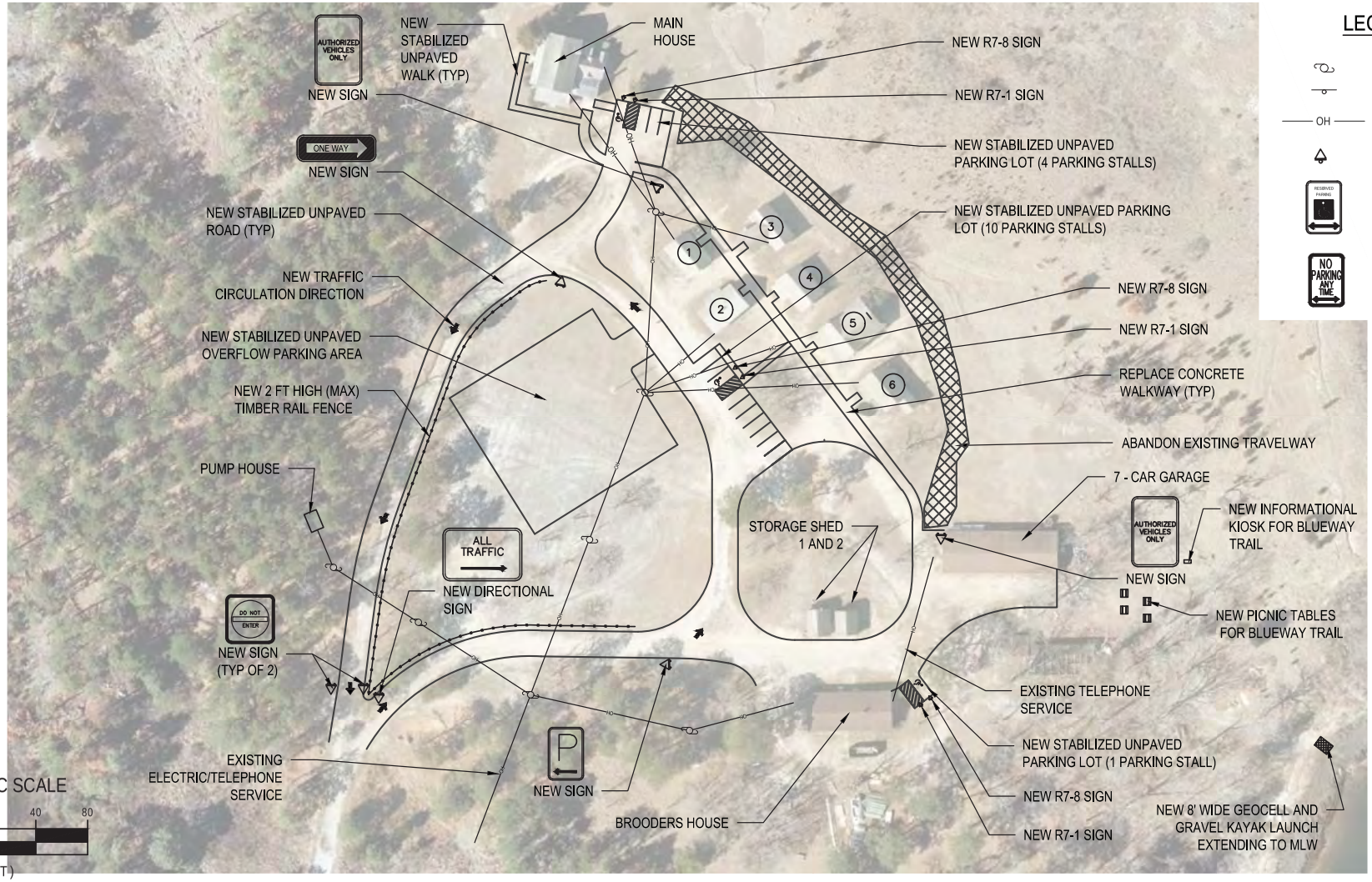

SMITHERS COMPLEX

Client

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Hubbard County Park

Environmental and Historical Management Plan

Flanders NY 11901

H2M architects + engineers

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SHEET TITLE

IMPROVEMENTS AT SMITHERS COMPLEX

DATE:	PROJECT:	SHEET #
JUNE 2016	CP 7128	C4.0

CONCEPT PLAN

N

0 15 30 60 Feet

1 inch = 30 feet

PHOTOS OF PROPOSED PARKING AREA

CONCEPT PLAN

1. Proposed Parking Area: 45' L x 20' W to accomodate 5 cars. Parking area to be pervious, RCA or gravel.
2. Timber rail fence should be installed around parking area to limit disturbance.
3. Kiosk to provide trail map and signage.

CLIENT

Suffolk County Department of Public Works

Hubbard County Park
Environmental and Historical Management Plan

Flanders, NY 11901

SHEET TITLE

Red Creek Road Parking

DATE:	PROJECT:	SHEET #
6/23/2016	CP 7128	C 5.0

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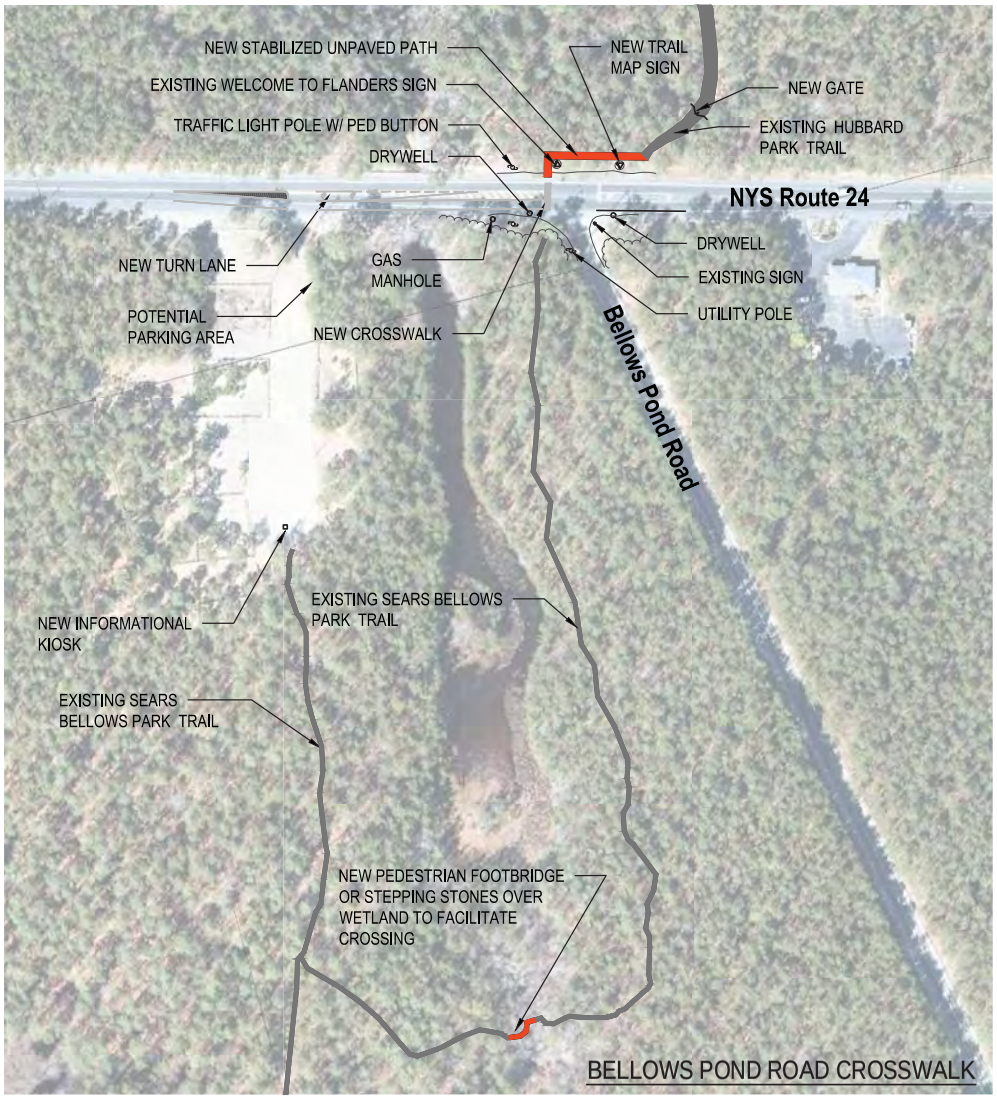

GRAPHIC SCALE

160 0 80 160

(IN FEET)

1 inch = 160 ft.

Client

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Hubbard County Park

Environmental and Historical Management Plan

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SHEET TITLE

IMPROVEMENTS AT BELLOWS POND ROAD

DATE:	PROJECT:	SHEET #
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SHEET TITLE

IMPROVEMENTS AT BLACK DUCK LODGE ENTRANCE

DATE:	PROJECT:	SHEET #
JUNE 2016	CP 7128	C7.0

LEGEND

- UTILITY POLE
- SIGN
- OH — OVERHEAD WIRES
- NEW SIGN

GRAPHIC SCALE

50 0 25 50

(IN FEET)
1 inch = 50 ft.

BLACK DUCK LODGE

Client

Suffolk County Department of Public Works

Hubbard County Park

Environmental and Historical Management Plan

Flanders NY 11901

SHEET TITLE

IMPROVEMENTS AT BLACK DUCK LODGE

DATE:	PROJECT:	SHEET #
JUNE 2016	CP 7128	C8.0

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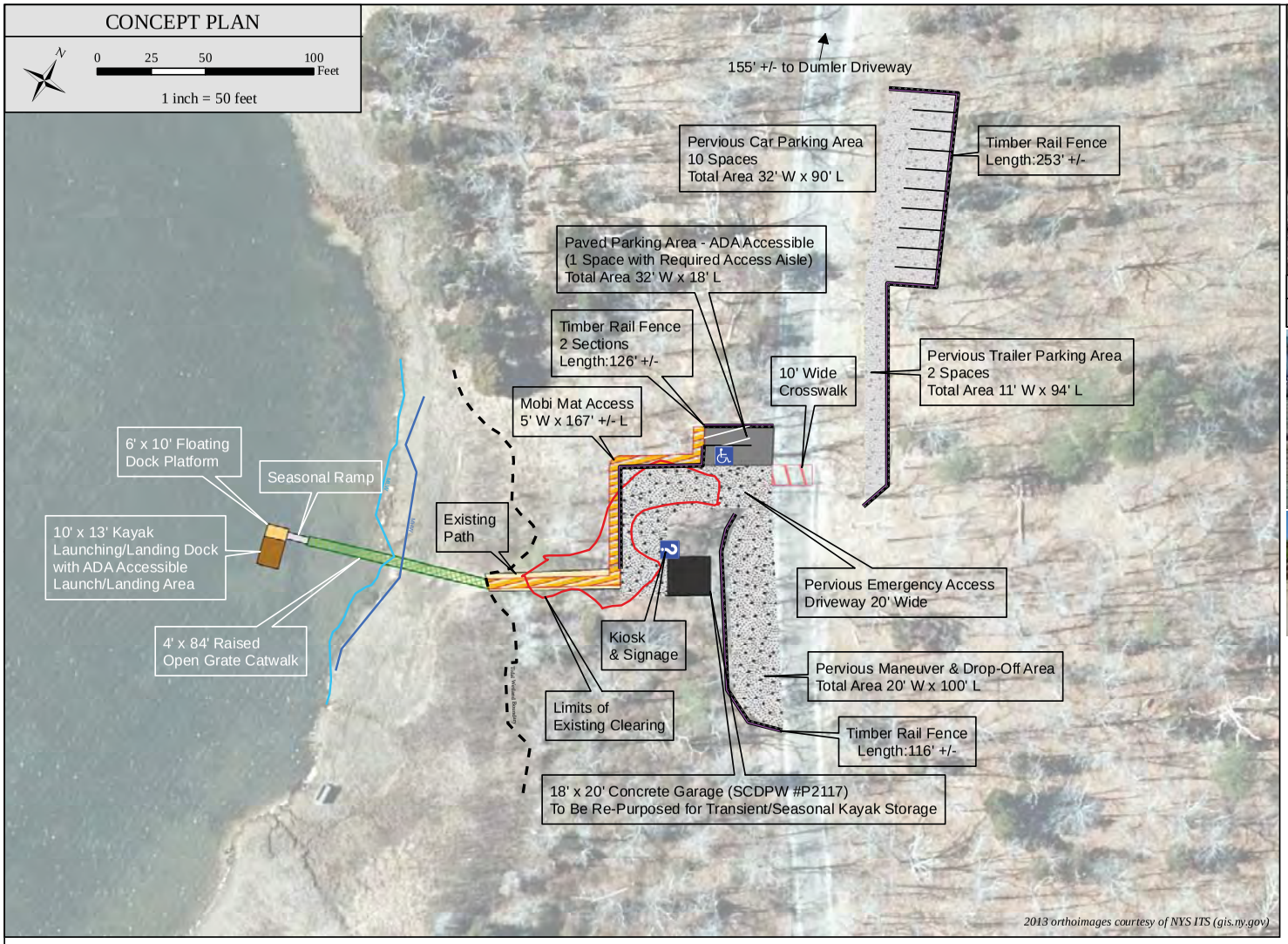
Parsippany, NJ Howell, NJ

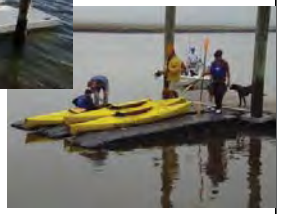
CONCEPT PLAN

0 25 50 100 Feet

1 inch = 50 feet



KAYAK LAUNCH
AND RACK



MOBI MAT

CONCEPT PLAN

1. Pervious parking and roadway areas to be RCA or gravel. Parking areas on east side of road sited at edge of road easement. No topographical issues present in this location.
2. Timber rail fence should be installed around parking and driveway areas to limit disturbance.
3. Raised catwalk allows light penetration to minimize shading impacts to wetlands.
4. Kayak landing/launching dock allows paddle on/paddle off. www.kayakdock.com
5. Provide signage for pedestrian crossing at crosswalk and warning signage 500 feet north and south on Upper Red Creek Road.
6. Permits are required from USACE, NYSDEC, NYSDOS.

CLIENT

Suffolk County Department of Public Works

Hubbard County Park
Environmental and Historical Management Plan

Flanders, NY 11901

SHEET TITLE

Hubbard Creek Water Access

DATE:	PROJECT:	SHEET #
9/30/2016	CP 7128	C 10.0

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Architects + Engineers
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4th FL East
Melville, NY 11747
T- (631)756-8000
www.h2m.com

Recommended Trail #1 - Smithers Loop

Hubbard County Park Environmental & Historical Management Plan

County of Suffolk
Department of Public Works

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Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	4/27/2017	WB	KR		

NOTES

1. Total length of existing trail is 5,720 ft (1.1 miles).
2. Total length of trail to be reestablished is 2,250 ft. (0.4 miles).
3. Numbers represent existing trail sign photo inventory ID (R-7.0 and Appendix F) and recommended interpretive signs (R-7.0 and Appendix I).

Sheet R-1.0

N

0 100 200 400 Feet

1 inch = 400 feet

DATA SOURCES

1. Trails data taken by Land Use Ecological Services, Inc. in 2015-16.
2. 2013 aerials from NYS ITS (gis.ny.gov).

Recommended Trail #2 - Black Duck Loop & Ghost Forest Trail

Hubbard County Park Environmental & Historical Management Plan

- Existing Interpretive Sign (R-7.0, Appendix F)
- Recommended Interpretive Sign (R-7.0, Appendix I)
- Recommended Trail Map (R-7.0, Appendix I)
- Recommended Kiosk & Trail Map (R-7.0, Appendix I)
- Re-establish Trail
- New Trail
- Existing Trail
- Park Boundary

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Department of Public Works

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Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	4/28/2017	WB	KR		

Sheet R-2.0

N

0 155 310 620 Feet

1 inch = 600 feet

NOTES
1. Total length of existing trail is 6,020 ft (1.15 miles).
2. Total length of trail to be reestablished is 5,545 ft. (1.05 miles).
3. Numbers represent existing trail sign photo inventory ID (R-7.0 and Appendix F) and recommended interpretive signs (R-7.0 and Appendix I).

DATA SOURCES
1. Trails data taken by Land Use Ecological Services, Inc. in 2015-16.
2. 2013 aerials from NYS ITS (gis.ny.gov).

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Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	4/28/2017	WB	KR		

1. Total length of existing North Loop trail is 5,350 ft (1.0 miles).
   Total length of existing South Loop trail is 6,470 ft (1.2 miles).
2. Total length of South Loop trail to be re-established is 2,430 ft. (0.5 mile).
3. Recommended gate locations to be sited on Suffolk County property.
4. Numbers represent existing trail sign photo inventory ID (R-7.0 and Appendix F) and recommended interpretive signs (R-7.0 and Appendix I).

Sheet R-3.0

N

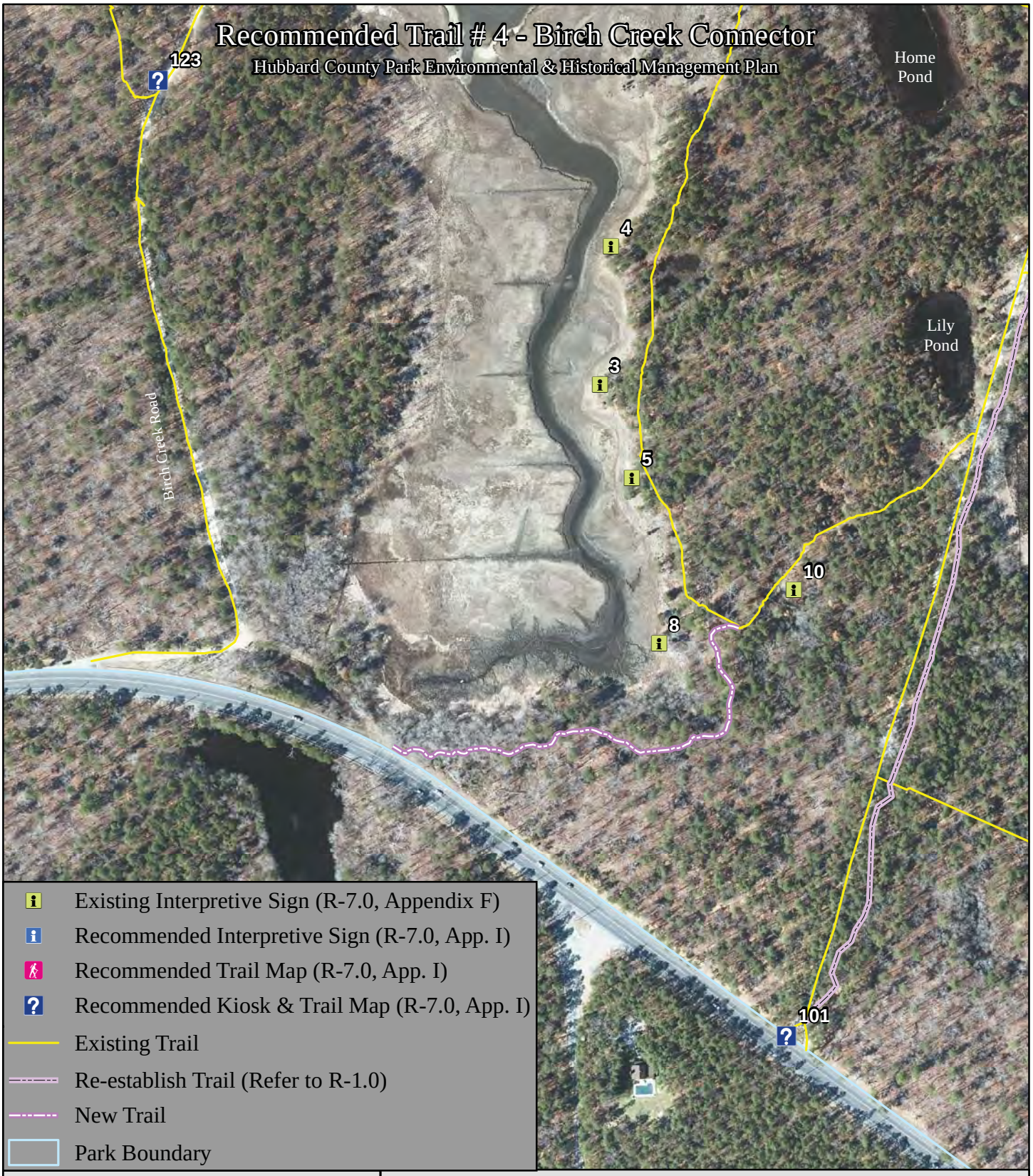
0 150 300 600 Feet

1 inch = 600 feet

DATA SOURCES
1. Existing trails and signs data taken by Land Use Ecological Services, Inc. in May/June 2015.
2. 2013 aerials from NYS ITS (gis.ny.gov).

Recommended Trail # 4 - Birch Creek Connector

Hubbard County Park Environmental & Historical Management Plan



- Existing Interpretive Sign (R-7.0, Appendix F)
- Recommended Interpretive Sign (R-7.0, App. I)
- Recommended Trail Map (R-7.0, App. I)
- Recommended Kiosk & Trail Map (R-7.0, App. I)
- Existing Trail
- Re-establish Trail (Refer to R-1.0)
- New Trail
- Park Boundary

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Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	4/28/2017	WB	KR		

NOTES
1. Total length of proposed trail is 1,105 ft (0.2 miles).
2. Numbers represent existing trail sign photo inventory ID (R-7.0 and Appendix F) and recommended interpretive signs (R-7.0 and Appendix I).

Sheet R-4.0

N

0 75 150 300 Feet

1 inch = 300 feet

DATA SOURCES
1. Existing trails and signs data taken by Land Use Ecological Services, Inc. in 2015-16.
2. 2013 aerials from NYS ITS (gis.ny.gov).

Recommended Trail #5 - Gunk Hole Pond and Mill Pond

Hubbard County Park Environmental & Historical Management Plan

New Trail (Note 1)

Existing Trail

Trail To Abandon (Note 2)

Park Boundary

County of Suffolk
Department of Public Works

NOTES

1. New trail (145 ft) to connect two existing trails north of Gunk Hole Pond. Total length of new proposed loop is 2,660 ft (0.5 miles).
2. Abandon 1,230 ft (0.2 mile) dead-end trail west of Mill Pond.

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Sheet

R-5.0

N

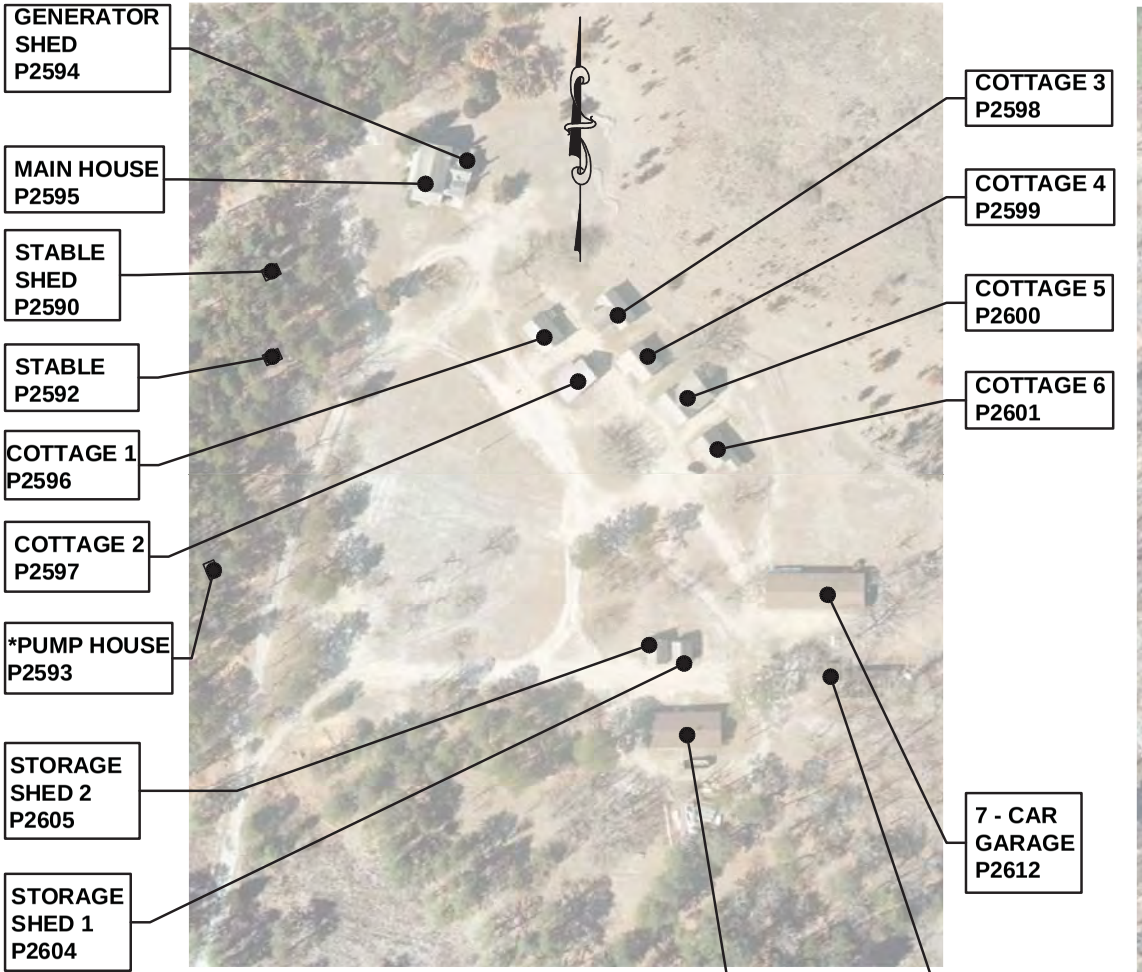
0 75 150 300 Feet

1 inch = 300 feet

DATA SOURCES

1. Trails data taken by Land Use Ecological Services, Inc. in 2015-16.
2. 2013 aerials from NYS ITS (gis.ny.gov).

Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	4/28/2017	WB	KR		



SMITHERS PROPERTY

BLACK DUCK LODGE

SCALE: (N.T.S.)

Client

Suffolk County Department of Public Works

Hubbard County Park

Environmental and Historical Management Plan

Flanders NY 11901

SHEET TITLE: BUILDING KEY PLAN

DATE:	PROJECT:	SHEET #
JUNE 2016	CP 7128	C0.1

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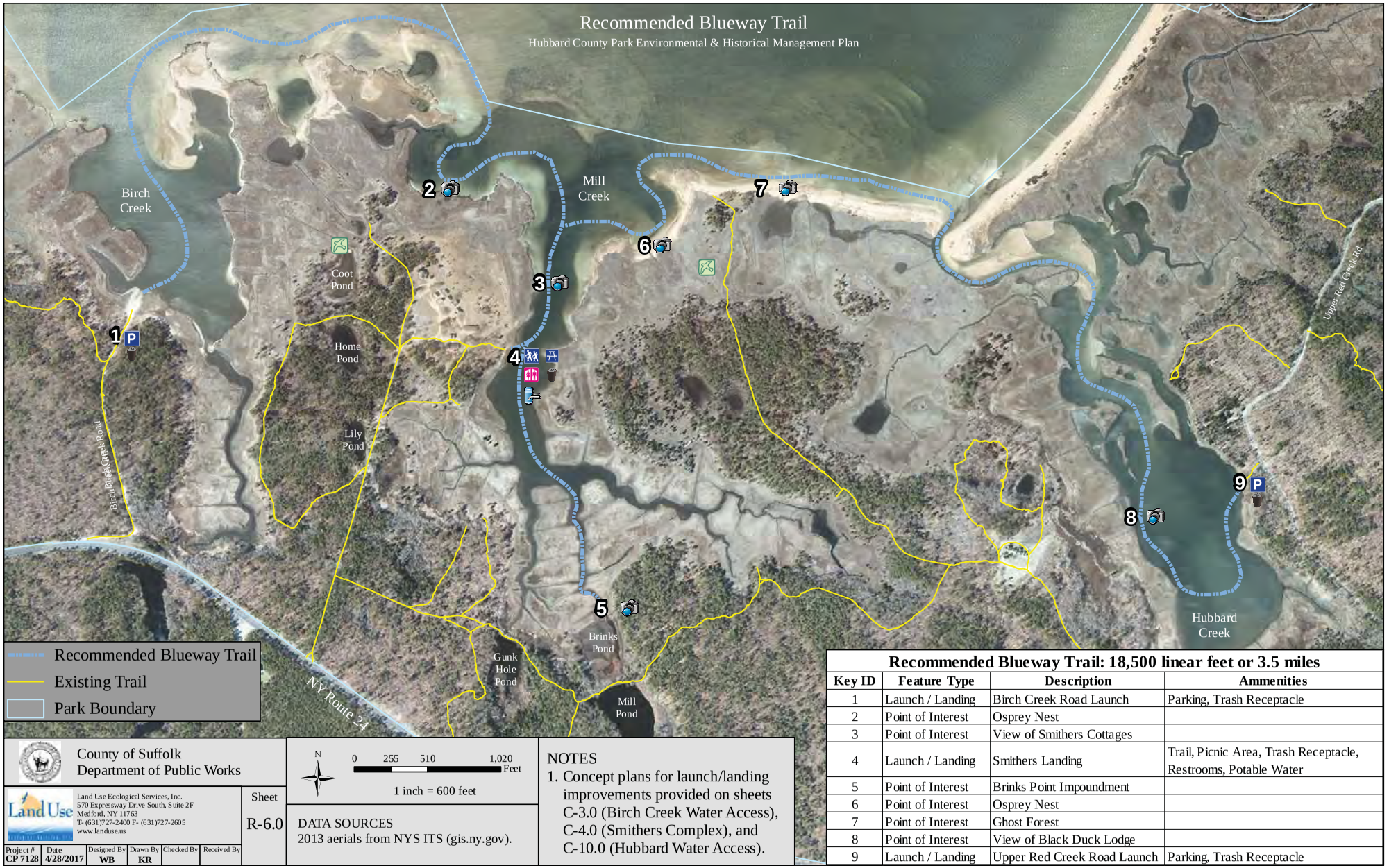
H2M architects + engineers
Melville, NY New York, NY
White Plains, NY Albany, NY New City, NY
Parsippany, NJ Howell, NJ



Recommended Blueway Trail: 18,500 linear feet or 3.5 miles			
Key ID	**Feature Type**	**Description**	**Ammenities**
1	Launch / Landing	Birch Creek Road Launch	Parking, Trash Receptacle
2	Point of Interest	Osprey Nest	
3	Point of Interest	View of Smithers Cottages	
4	Launch / Landing	Smithers Landing	Trail, Picnic Area, Trash Receptacle, Restrooms, Potable Water
5	Point of Interest	Brinks Point Impoundment	
6	Point of Interest	Osprey Nest	
7	Point of Interest	Ghost Forest	
8	Point of Interest	View of Black Duck Lodge	
9	Launch / Landing	Upper Red Creek Road Launch	Parking, Trash Receptacle

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Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	4/28/2017	WB	KR		

Sheet
R-6.0

N
0 255 510 1,020 Feet
1 inch = 600 feet

DATA SOURCES
2013 aerials from NYS ITS (gis.ny.gov).

NOTES
1. Concept plans for launch/landing improvements provided on sheets C-3.0 (Birch Creek Water Access), C-4.0 (Smithers Complex), and C-10.0 (Hubbard Water Access).


Invasive Species
Hubbard County Park Environmental & Historical Management Plan
Goose Creek
Birch Creek
Mill Creek
Coot Pond
Home Pond
Lily Pond
Birch Creek Rd
Wild Duck Lane
Upper Red Creek Rd
Hubbard Creek
Red Creek Road
Penny Pond
Gunk Hole Pond
Brinks Pond
Mill Pond
NY Route 24
Phragmites (Small Infestation)
Iris pseudacorus
Phragmites Marsh (43.9 Ac)
Phragmites Mixed w/ Native Species (14.9 Ac)
Ailanthus altissima (1.9 Ac)
Berberis thunbergii (0.8 Ac)
Area of High Priority Management for Phragmites
Park Boundary
N
0 500 1,000 2,000 Feet
1 inch = 1,100 feet
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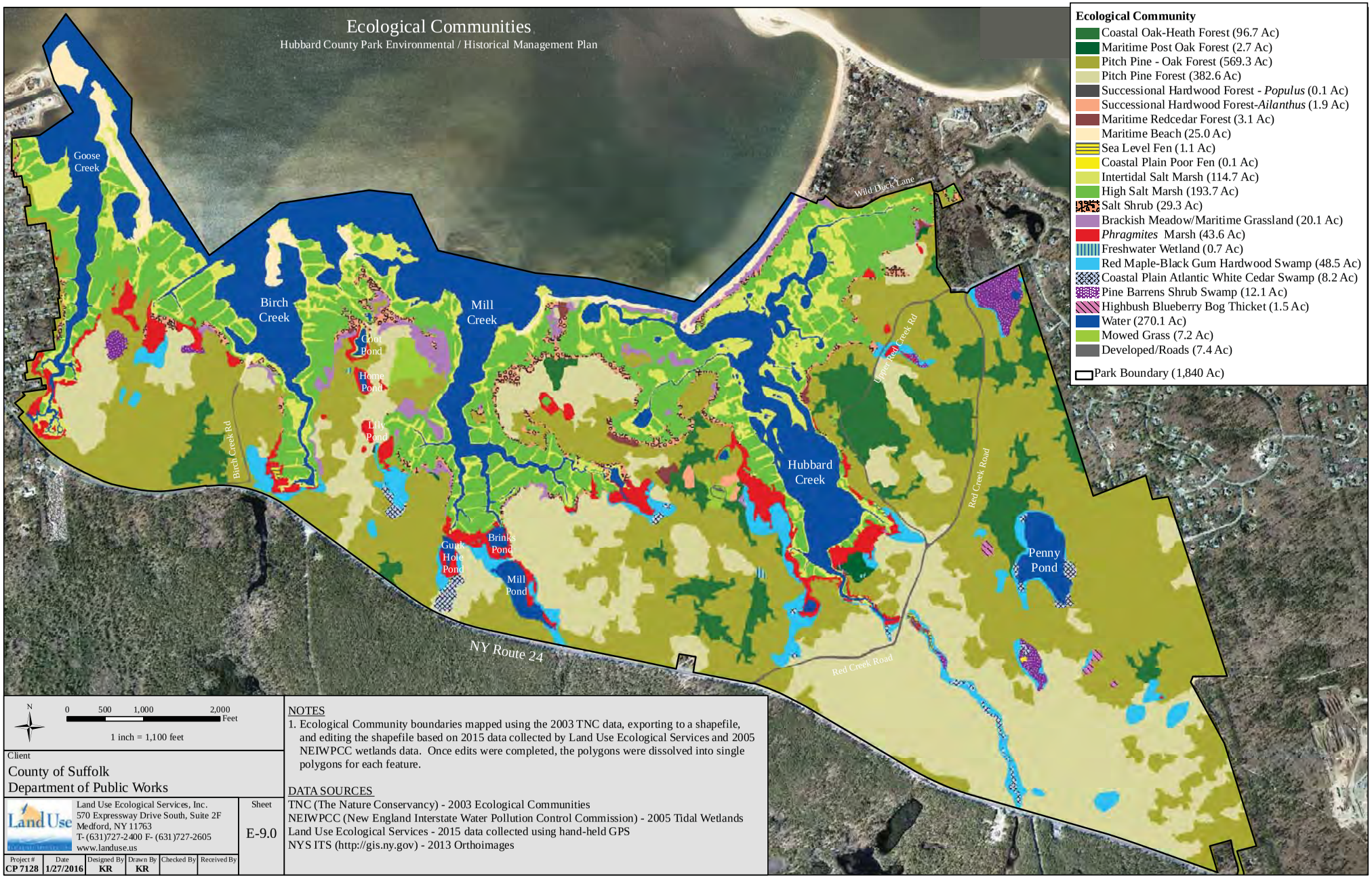
Sheet
E-10.0
Project # CP 7128
Date 8/22/2016
Designed By WB
Drawn By KR
Checked By
Received By
NOTES
1. Map depicts locations of invasive species for potential management, as mapped by Land Use Ecological Services in May - October 2015.
2. Invasive Species:
Ailanthus altissima - Tree-of-Heaven
Berberis thunbergii - Japanese barberry
Iris pseudocorus - yellow flag iris
Phragmites - common reed
DATA SOURCES
Land Use Ecological Services - 2015 data collected using hand-held GPS
NYS ITS (http://gis.ny.gov) - 2013 Orthoimages



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Sheet
E-9.0

Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	1/27/2016	KR	KR		

NOTES
1. Ecological Community boundaries mapped using the 2003 TNC data, exporting to a shapefile, and editing the shapefile based on 2015 data collected by Land Use Ecological Services and 2005 NEIWPCC wetlands data. Once edits were completed, the polygons were dissolved into single polygons for each feature.

DATA SOURCES
TNC (The Nature Conservancy) - 2003 Ecological Communities
NEIWPCC (New England Interstate Water Pollution Control Commission) - 2005 Tidal Wetlands
Land Use Ecological Services - 2015 data collected using hand-held GPS
NYS ITS (http://gis.ny.gov) - 2013 Orthoimages

Soils

Hubbard County Park Environmental & Historical Management Plan

Soil Type	%
Bc	0.62%
Bd	2.44%
CpA	25.59%
CpC	29.31%
CpE	0.27%
CuB	0.12%
De	3.75%
Fd	0.12%
Ma	0.27%
Mu	2.01%
Tm	22.14%
W	13.36%

N

0 500 1,000 2,000 Feet

1 inch = 1,200 feet

County of Suffolk
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Soils - USDA NRCS (Note 1)

- Bc - Beaches
- Bd - Berryland mucky sand
- CpA - Carver and Plymouth sands, 0-3% slopes
- CpC - Carver and Plymouth sands, 3-15% slopes
- CpE - Carver and Plymouth sands, 15-35% slopes
- CuB - Cut and fill land, gently sloping
- De - Deerfield sand
- Fd - Fill land, dredged material
- Ma - Made land
- Mu - Swansea muck, 0-1% slope
- Tm - Tidal marsh
- W - Water

DATA SOURCES

1. Soil Data courtesy of Soil Survey Staff, Natural Resources Conservation Service, USDA, Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/), accessed 12/10/2015.
2. 2013 orthoimages courtesy of NYS ITS (http://gis.ny.gov).

Park Boundary

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Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	8/22/2016	KR	KR		

Sheet E-8.0

Topography

Hubbard County Park Evironmental & Historical Management Plan

N

0 495 990 1,980 Feet

1 inch = 1,100 feet

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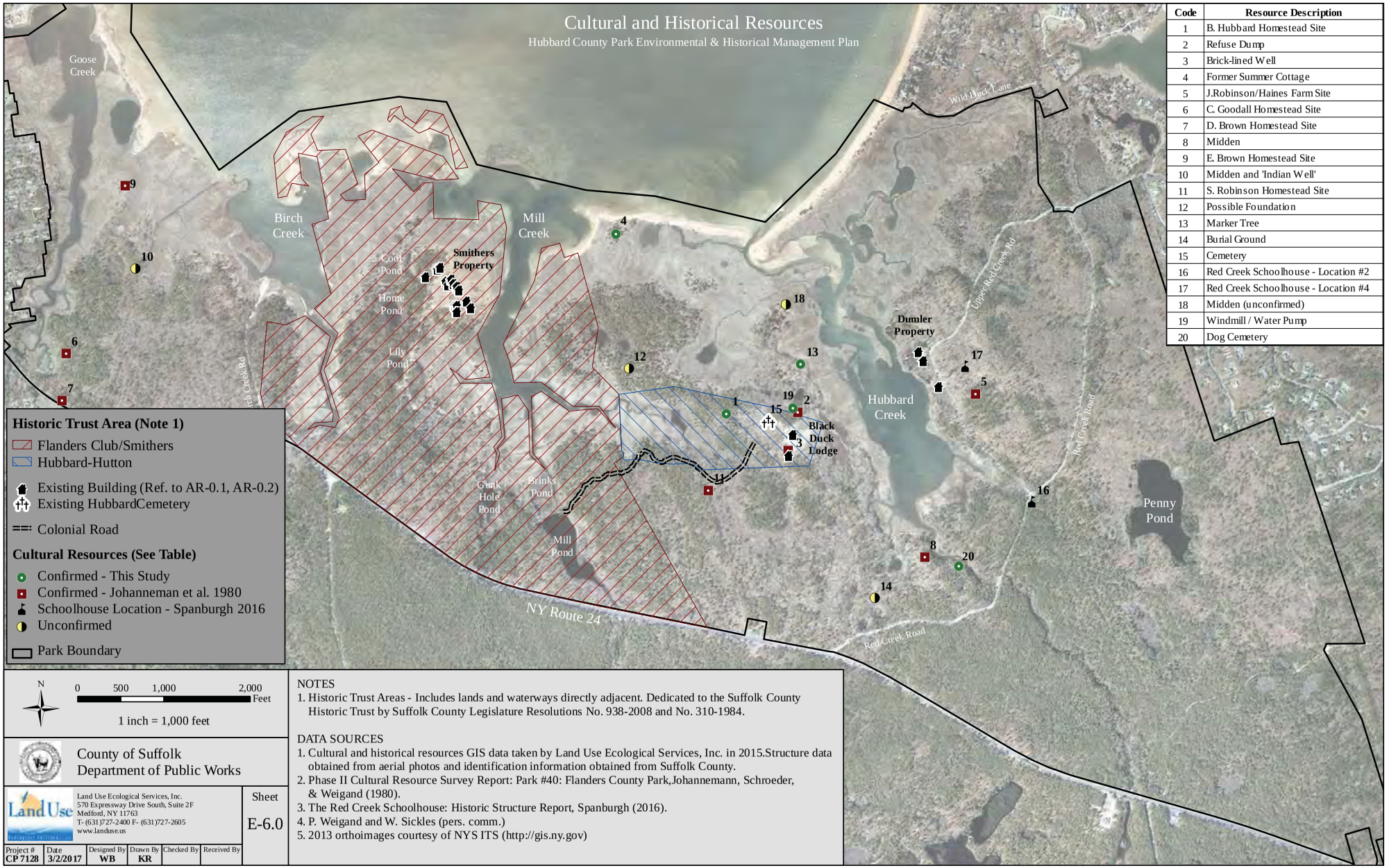
Sheet
E-7.0

Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	8/19/2016	KR	KR		

NOTES
1. 1 FT Contour: 2006 Suffolk County elevation data processed to HCP Study Area using Clip tool.
2. 10 FT Contour: 1 FT Contour lines at each 10-foot interval selected using Select by Attributes tool and exported to separate layer for display. Contours displayed are 10, 20, 30, 40, 50, 60, and 70.

DATA SOURCES
1. Topography data obtained from Suffolk County and based on 2006 LIDAR data.
2. 2013 orthoimages courtesy of NYS ITS (http://gis.ny.gov)



Code	Resource Description
1	B. Hubbard Homestead Site
2	Refuse Dump
3	Brick-lined Well
4	Former Summer Cottage
5	J.Robinson/Haines Farm Site
6	C. Goodall Homestead Site
7	D. Brown Homestead Site
8	Midden
9	E. Brown Homestead Site
10	Midden and 'Indian Well'
11	S. Robinson Homestead Site
12	Possible Foundation
13	Marker Tree
14	Burial Ground
15	Cemetery
16	Red Creek Schoolhouse - Location #2
17	Red Creek Schoolhouse - Location #4
18	Midden (unconfirmed)
19	Windmill / Water Pump
20	Dog Cemetery

NOTES
1. Historic Trust Areas - Includes lands and waterways directly adjacent. Dedicated to the Suffolk County Historic Trust by Suffolk County Legislature Resolutions No. 938-2008 and No. 310-1984.

DATA SOURCES
1. Cultural and historical resources GIS data taken by Land Use Ecological Services, Inc. in 2015.Structure data obtained from aerial photos and identification information obtained from Suffolk County.
2. Phase II Cultural Resource Survey Report: Park #40: Flanders County Park,Johannemann, Schroeder, & Weigand (1980).
3. The Red Creek Schoolhouse: Historic Structure Report, Spanburgh (2016).
4. P. Weigand and W. Sickles (pers. comm.)
5. 2013 orthoimages courtesy of NYS ITS (http://gis.ny.gov)

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Sheet E-6.0

Project #	Date	Designed By	Drawn By	Checked By	Received By
CP 7128	3/2/2017	WB	KR		

SUFFOLK COUNTY
FULL ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 2 – Identification of Potential Project Impacts

Instructions: Part 2 is to be completed by the lead agency. It is designed to help the lead agency inventory all potential resources that could be affected by a proposed project or action. We recognize that the lead agency's reviewer(s) will not necessarily be environmental professionals. So, the questions are designed to walk a reviewer through the assessment process by providing a series of questions that can be answered using the information found in Part 1. To further assist the lead agency in completing Part 2, the form identifies the most relevant questions in Part 1 that will provide the information needed to answer the Part 2 question. When Part 2 is completed, the lead agency will have identified the relevant environmental areas that may be impacted by the proposed activity.

Tips for completing Part 2:

- _____ Review all of the information provided in Part 1.
- _____ Review any application, maps, supporting materials and the Full EAF Workbook.
- _____ Answer each of the 18 questions in Part 2.
- _____ If you answer "**YES**" to a numbered question, please complete all the questions that follow in that section.
- _____ If you answer "**NO**" to a numbered question, move on to the next numbered section.
- _____ Check appropriate column to indicate the anticipated size of the impact.
- _____ Proposed projects that would exceed a numeric threshold contained in a question should result in the reviewing agency checking the box "**Moderate to large impact may occur**."
- _____ The reviewer is not expected to be an expert in environmental analysis.
- _____ If you are not sure or undecided about the size of an impact, it may help to review the sub-questions for the general question and consult the workbook.
- _____ When answering a question consider all components of the proposed activity, that is, the "whole action."
- _____ Consider the possibility for long-term and cumulative impacts as well as direct impacts.
- _____ Answer the question in a reasonable manner considering the scale and context of the project.

1. _____ **Impact on Land**
The proposed action may involve construction on, or physical alteration of the land surface of the proposed site. (See Part 1.D.1) YES ☒ NO ☐
If "YES", answer questions a-h. If "NO", move on to Section 2.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ The proposed action may involve construction on land where depth to water table is less than 3 feet.	E.2.d	☐	☒
b. _____ The proposed action may involve construction on slopes of 15% or greater.	E.2.f	☒	☐
c. _____ The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E.2.a	☒	☐
d. _____ The proposed action may involve the excavation and removal of more than 1,000 tons of natural	D.2.a	☒	☐

material.			
e. _____ The proposed action may involve construction that continues for more than one year or in multiple phases.	D.1.g	☐	☒
f. _____ The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D.2.e D.2.q	☒	☐
g. _____ The proposed action is, or may be, located within a Coastal Erosion hazard area.	B.*ix*	☒	☐
h. _____ Other impacts:		☐	☐

2. _____ Impact on Geological Features

The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1.E.2.g)

YES ☐ NO ☒

If "YES", answer questions a-c. If "NO", move on to Section 3.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. _____ Identify the specific land form(s):	E.2.g	☐	☐
b. _____ The proposed action may affect or is adjacent to a geological feature listed as a registered National Natural Landmark. Specific feature:	E.3.c	☐	☐
c. _____ Other impacts:		☐	☐

3. _____ Impact on Surface Water

The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes).
(See Part 1.D.2 & E.2.h)

YES ☒ NO ☐

If "YES", answer questions a-l. If "NO", move on to Section 4.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. _____ The proposed action may create a new water body	D.1.j D.2.b	☒	☐
b. _____ The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water.	D.2.b	☒	☐
c. _____ The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body.	D.2.a	☒	☐
d. _____ The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.	E.2.h E.2.i	☒	☐
e. _____ The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by	D.2.a D.2.h	☒	☐

disturbing bottom sediments.			
f. _____ The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water.	D.2.c	☒	☐
g. _____ The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s).	D.2.d	☒	☐
h. _____ The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies.	D.2.e	☒	☐
i._____ The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.	E.2.h – E.2.l	☒	☐
j._____ The proposed action may involve the application of pesticides or herbicides in or around any water body.	D.2.q E.2.h – E.2.l	☒	☐
k. _____ The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.	D.1.a D.2.d	☒	☐
l._____ Other impacts:		☐	☐

4. _____ **Impact on Groundwater**
The proposed action may result in new or additional use of groundwater, or may have the potential to introduce contaminants to groundwater or an aquifer. (See Part 1.D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t)
If "YES", answer questions a-h. If "NO", move on to Section 5.

YES ☒ NO ☐

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. _____ The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells.	D.2.c	☒	☐
b. _____ Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Cite Source:	D.2.c	☒	☐
c. _____ The proposed action may allow or result in residential uses in areas without water and sewer services.	D.1.a D.2.c – D.2.d	☒	☐
d. _____ The proposed action may include or require wastewater discharged to groundwater.	D.2.d E.2.p	☒	☐
e. _____ The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated.	D.2.c E.1.f – E.1.h	☒	☐
f. _____ The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer.	D.2.p E.2.p	☒	☐
g. _____ The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources.	D.2.q E.2.h – E.2.l E.2.p D.2.c	☒	☐

h. _____ Other impacts:		☐	☐

5. _____ **Impact on Flooding**

The proposed action may result in development on lands subject to flooding. (See Part 1.E.2) YES ☒ NO ☐

If "YES", answer questions a-g. If "NO", move on to Section 6.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ The proposed action may result in development in a designated floodway.	E.2.m	☒	☐
b. _____ The proposed action may result in development within a 100 year floodplain.	E.2.n	☐	☒
c. _____ The proposed action may result in development within a 500 year floodplain.	E.2.o	☒	☐
d. _____ The proposed action may result in, or require, modification of existing drainage patterns.	D.2.b D.2.e	☒	☐
e. _____ The proposed action may change flood water flows that contribute to flooding.	D.2.b E.2.m – E.2.o	☒	☐
f._____ If there is a dam located on the site of the proposed action, the dam has failed to meet one or more safety criteria on its most recent inspection.	E.1.e	☒	☐
g. _____ Other impacts:		☐	☐

6. _____ **Impact on Air**

The proposed action may include a state regulated air emission source. (See Part 1.D.2.f, D.2.h, D.2.g) YES ☐ NO ☒

If "YES", answer questions a-f. If "NO", move on to Section 7.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels:			
i. _____ More than 1000 tons/year of carbon dioxide (CO2)	D.2.g	☐	☐
ii. _____ More than 3.5 tons/year of nitrous oxide (N20)	D.2.g	☐	☐
iii. _____ More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs)	D.2.g	☐	☐
iv. _____ More than .045 tons/year of sulfur hexafluoride (SF6)	D.2.g	☐	☐
v. _____ More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflurocarbons (HCFCs) emissions	D.2.g	☐	☐
vi. 43 tons/year or more of methane	D.2.h	☐	☐
b. _____ The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous	D.2.g	☐	☐

air pollutants.			
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU=s per hour.	D.2.f D.3.g	☐	☐
d. _____ The proposed action may reach 50% of any two or more of the thresholds in "a" through "c", above.	D.1.i D.2.k	☐	☐
e. _____ The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D.2.s	☐	☐
f. _____ Other impacts:	☒	☐	☐

7. _____ Impact on Plants and Animals

The proposed action may result in a loss of flora or fauna. YES ☒ NO ☐

(See Part 1.E.2.q – E.2.u)

If "YES", answer questions a-j. If "NO", move on to Section 8.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. _____ The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E.2.s	☒	☐
b. _____ The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E.2.s	☒	☐
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E.2.t	☒	☐
d. _____ The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E.2.t	☒	☐
e. _____ The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect.	E.3.c	☒	☐
f._____ The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Source:	E.2.r	☒	☐
g. _____ The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.	E.2.q	☒	☐
h. _____ The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. Habitat type & information source:	E.1.b	☒	☐
i._____ Proposed action (commercial, industrial or recreational projects, only) involves use of	D.2.q	☒	☐

herbicides or pesticides.			
j._____ Other impacts:		☐	☐

8. _____ **Impact on Agricultural Resources**

The proposed action may impact agricultural resources. (See Part 1.E.3.a & E.3.b) YES ☐ NO ☒

If "YES", answer questions a-h. If "NO", move on to Section 9.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E.2.c E.3.b	☐	☐
b. _____ The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc.).	E.1.a E.1.b	☐	☐
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E.3.b	☐	☐
d. _____ The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District or more than 10 acres if not within an Agricultural District.	E.1.b E.3.a	☐	☐
e. _____ The proposed action may disrupt or prevent installation of an agricultural land management system.	E.1.a E.1.b	☐	☐
f._____ The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C.2.c, C.3 D.2.c, D.2.d	☐	☐
g. _____ The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C.2.c	☐	☐
h. _____ Other impacts:		☐	☐

9. _____ **Impact on Aesthetic Resources**

The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (See Part 1.E.1.a, E.1.b, E.3.h) YES ☐ NO ☒

If "YES", answer questions a-g and complete Appendix B - Visual EAF Addendum. If "NO", move on to Section 10.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E.3.h	☐	☐
b. _____ The proposed action may	C.2.b	☐	☐

result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E.3.h		
c. The proposed action may be visible from publicly accessible vantage points:			
i. Seasonally (e.g., screened by summer foliage, but visible during other seasons)	E.3.h	☐	☐
ii. Year round	E.3.h	☐	☐
d. _____ The situation or activity in which viewers are engaged while viewing the proposed action is:	E.3.h		
i. Routine travel by residents, including travel to and from work	E.2.u	☐	☐
ii. Recreational or tourism based activities	E.1.c	☐	☐
e. _____ The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E.3.h	☐	☐
f._____ There are similar projects visible within the following distance of the proposed project:	D.1.a		
0 – ½ mile	D.1.h	☐	☐
½ – 3 mile	D.1.i	☐	☐
3 – 5 mile	E.1.a	☐	☐
5+ mile		☐	☐
g. _____ Other impacts:		☐	☐

10. _____ Impact on Historic and Archeological Resources

The proposed action may occur in or adjacent to an historic or archaeological resource. (See Part 1.E.3.e, E.3.f, E.3.g) YES ☒ NO ☐

If "YES", answer questions a-e. If "NO", move on to Section 11.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. _____ The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on or has been nominated by the NYS Board of Historic Preservation for inclusion on the State or National Register of Historic Places.	E.3.e	☒	☐
b. _____ The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E.3.f	☒	☐
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source:	E.3.g	☒	☐
d. _____ Other impacts:		☐	☐
e. _____ If any of the above (a-d) are answered "Yes", continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E.3.e – E.3g	☐	☐

ii. The proposed action may result in the alteration of the property's setting or integrity.	E.1.a, E.1.b E.3.e – E.3.g	☐	☐
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	C2, C3 E.3.g, E.3.h	☐	☐

11. _____ Impact on Open Space and Recreation

The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan. (See Part 1.C.2.c, E.1.c, E.2.u)

YES ☐ NO ☒

If "YES", answer questions a-e. If "NO", move on to Section 12.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, and wildlife habitat.	D.2.e, E.1.b E.2.h – E.2.l E.2.q – E.2.t	☐	☐
b. _____ The proposed action may result in the loss of a current or future recreational resource.	C.2.a, C.2.c E.1.c, E.2.u	☐	☐
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C.2.a, C.2.c E.1.c, E.2.u	☐	☐
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C.2.c, E.1.c	☐	☐
e. _____ Other impacts:		☐	☐

12. _____ Impact on Critical Environmental Areas

The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1.E.3.d)

YES ☒ NO ☐

If "YES", answer questions a-c. If "NO", move on to Section 13.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E.3.d	☒	☐
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E.3.d	☒	☐
c. _____ Other impacts:		☐	☐

13. _____ Impact on Transportation

The proposed action may result in a change to existing transportation systems. (See Part 1.D.2.j)

YES ☒ NO ☐

If "YES", answer questions a-f. If "NO", move on to Section 14.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ Projected traffic increase	D.2.j	☒	☐

may exceed capacity of existing road network.			
b. _____ The proposed action may result in the construction of paved parking area for 500 or more vehicles.	D.2.j	☒	☐
c. _____ The proposed action will degrade existing transit access.	D.2.j	☒	☐
d. _____ The proposed action will degrade existing pedestrian or bicycle accommodations.	D.2.j	☒	☐
e. The proposed action may alter the present pattern of movement of people or goods.	D.2.j	☒	☐
f._____ Other impacts:		☐	☐

14. _____ Impact on Energy

The proposed action may cause an increase in the use of any form of energy (See Part 1.D.2.k) YES ☒ NO ☐

If "YES", answer questions a-e. If "NO", move on to Section 15.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. _____ The proposed action will require a new, or an upgrade to an existing, substation.	D.2.k	☒	☐
b. _____ The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.	D.1.h D.1.i D.2.k	☒	☐
c. _____ The proposed action may utilize more than 2,500 MWhrs per year of electricity.	D.2.k	☒	☐
d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.	D.1.i	☒	☐
e. _____ Other impacts:		☐	☐

15. _____ Impact on Noise, Odor and Light

The proposed action may result in an increase in noise, odors or outdoor lighting (See Part 1.D.2.m, D.2.n, D.2.o) YES ☒ NO ☐

If "YES", answer questions a-f. If "NO", move on to Section 16.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. _____ The proposed action may produce sound above noise levels established by local regulation.	D.2.m	☒	☐
b. _____ The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home.	D.2.m E.1.d	☒	☐
c. _____ The proposed action may result in routine odors for more than one hour per day.	D.2.o	☒	☐
d. _____ The proposed action may result in light shining onto adjoining properties.	D.2.n	☒	☐
e. The proposed action may result in lighting that creates sky-glow brighter than existing-area conditions.	D.2.n E.1.a	☒	☐

f._____ Other impacts:		☐	☐

16. _____ Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants (See Part 1.D.2.q, E.1.d, E.1.f, E.1.g, E.1.h) YES ☐ NO ☒

If "YES", answer questions a-m. If "NO", move on to Section 17.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ The proposed action is located within 1500 feet of a school, hospital, licensed day care center, group home, nursing home or retirement community.	E.1.d	☐	☐
b. _____ The site of the proposed action is currently undergoing remediation.	E.1.g, E.1.h	☐	☐
c. _____ There is a completed emergency spill remediation or a completed environmental site remediation on, or adjacent to, the site of the proposed action.	E.1.g E.1.h	☐	☐
d. _____ The site of the action is subject to an institutional control limiting the use of the property (e.g. easement, deed restriction)	E.1.g E.1.h	☐	☐
e. _____ The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health.	E.1.g E.1.h	☐	☐
f._____ The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.	D.2.t	☐	☐
g. _____ The proposed action involves construction or modification of a solid waste management facility.	D.2.q E.1.f	☐	☐
h. _____ The proposed action may result in the unearthing of solid or hazardous waste.	D.2.q E.1.f	☐	☐
i._____ The proposed action may result in an increase in the rate of disposal, or processing, of solid waste.	D.2.r D.2.s	☐	☐
j._____ The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.	E.1.f – E.1.h	☐	☐
k. _____ The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures.	E.1.f E.1.g	☐	☐
l. The proposed action may result in the release of contaminated leachate from the project site.	D.2.r, D.2.s E.1.f	☐	☐
m._____ Other impacts:		☐	☐

17. _____ Consistency with Community Plans

The proposed action is not consistent with adopted land use plans. (See Part 1.C.1, C.2, C.3) YES ☐ NO ☒

If "YES", answer questions a-h. If "NO", move on to Section 18.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ The proposed action's land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).	C.2, C.3, D.1.a, E.1.a, E.1.b	☐	☐
b. _____ The proposed action will cause the permanent population of the city, town or village in which the project is located to grow by more than 5%.	C.2	☐	☐
c. _____ The proposed action is inconsistent with local land use plans or zoning regulations.	C.2, C.3	☐	☐
d. _____ The proposed action is inconsistent with any County plans, or other regional land use plans.	C.2	☐	☐
e. The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.	C.3 D.1.e, D.1.f, D.1.h, E.1.b	☐	☐
f. The proposed action is located in an area characterized by low density development that will require new or expanded public infrastructure.	C.4, D.2.c, D.2.d, D.2.j	☐	☐
g. The proposed action may induce secondary development impacts (e.g., residential or commercial development not included in the proposed action)	C.2.a	☐	☐
h. _____ Other impacts:	☒	☐	☐

18. _____ Consistency with Community Character

The proposed action is inconsistent with the existing community character (See Part 1.C.2, C.3, D.2, E.3) YES ☐ NO ☒

If "YES", answer questions a-g. If "NO", move on to Part 3.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. _____ The proposed action may replace or eliminate existing facilities, structures, or areas of historic importance to the community.	E.3.e, E.3.f, E.3.g	☐	☐
b. _____ The proposed action may create a demand for additional community services (e.g. schools, police and fire)	C.4	☐	☐
c. _____ The proposed action may displace affordable or low-income housing in an area where there is a shortage of such housing.	C.2, C.3,D.1.h, D.1.i, E.1.a	☐	☐
d. _____ The proposed action may interfere with the use or enjoyment of officially recognized or designated public resources.	C.2, E.3	☐	☐
e. The proposed action is inconsistent with the predominant architectural scale and character.	C.2, C.3	☐	☐
f. Proposed action is inconsistent with the character of the existing natural landscape.	C.2, C.3, E.1.a, E.1.b, E.2.g – E.2.l	☐	☐
g. _____ Other impacts:	☒	☐	☐

SUFFOLK COUNTY
FULL ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 3 – Evaluation of the Magnitude and Importance of Project Impacts and Determination of Significance

Part 3 provides the reasons in support of the determination of significance. The lead agency must complete Part 3 for every question in Part 2 where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.

Based on the analysis in Part 3, the lead agency must decide whether to require an environmental impact statement to further assess the proposed action or whether available information is sufficient for the lead agency to conclude that the proposed action will not have a significant adverse environmental impact. By completing the certification on the next page, the lead agency can complete its determination of significance.

Reasons Supporting This Determination:
To complete this section:

* _____ Identify the impact based on the Part 2 responses and describe its magnitude. Magnitude considers factors such as severity, size or extent of an impact.
* _____ Assess the importance of the impact. Importance relates to the geographic scope, duration, probability of the impact occurring, number of people affected by the impact and any additional environmental consequences if the impact were to occur.
* _____ The assessment should take into consideration any design element or project changes.
* _____ Repeat this process for each Part 2 question where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.
* _____ Provide the reason(s) why the impact may, or will not, result in a significant adverse environmental impact
* _____ For Conditional Negative Declarations identify the specific condition(s) imposed that will modify the proposed action so that no significant adverse environmental impacts will result.
* _____ Attach additional sheets, as needed.

See Attached EAF Part III for Hubbard County park Environmental and Historical Management Plan

Determination of Significance
Type 1 and Unlisted Actions

SEQR Status: Type I ☐ Unlisted ☐

Identify portions of EAF completed for this project: Part 1 ☐ Part 2 ☐ Part 3 ☐

Upon review of the information recorded on this EAF, as noted, plus this additional support information

and considering both the magnitude and importance of each identified potential impact, it is the conclusion of as lead agency that:

☐ A. This project will result in no significant adverse impacts on the environment, and, therefore, an environmental impact statement need not be prepared. Accordingly, this negative declaration is issued.

☐ B. Although this project could have a significant adverse impact on the environment, that impact will be avoided or substantially mitigated because of the following conditions which will be required by the lead agency:

There will, therefore, be no significant adverse impacts from the project as conditioned, and therefore, this conditioned negative declaration is issued. A conditioned negative declaration may be used only for UNLISTED actions (see 6 NYCRR 617.7(d)).

☐ C. This Project may result in one or more significant adverse impacts on the environment, and an environmental impact statement must be prepared to further assess the impact(s) and possible mitigation and to explore alternatives to avoid or reduce those impacts. Accordingly, this positive declaration is issued.

Name of Action:

Name of Lead Agency:

Name of Responsible Officer in Lead Agency:

Title of Responsible Officer in Lead Agency:

Signature of Responsible Officer in Lead Agency: Date:

Signature of Preparer (if different from Responsible Officer) Date:

For Further Information:
Contact Person:
Address:
Telephone Number:
Email:

For Type 1 Actions and Conditioned Negative Declarations, a copy of this Notice is sent to:
Chief Executive Officer of the political subdivision in which the action will be principally located (Town/City/Village)
Other involved agencies (if any)
Applicant (if any)
Environmental Notice Bulletin: http://www.dec.ny.gov/enb/enb.html

EAF- Part III for Hubbard County Park Environmental and Historical Management Plan

Below is an analysis for the identified EAF Part II sub-questions which were found to be areas where a moderate to large impact may occur

- For EAF Part II Questions: 1.a "the proposed action may involve construction on land where depth to water table is less than 3 feet", 1.e. "the proposed action may involve construction that continues for more than one year or in multiple phases" and 5.g "The proposed action may result in development within a 100 year flood plain" the moderate to large box was checked because by definition the proposed action has the potential to exceed the numeric thresholds contained in the questions. While the adoption of the Hubbard County Park Environmental and Historical Management Plan (Plan) does not have potential impacts in and of itself, the implementation of the Plan does have the potential to have environmental impacts and are therefore considered in this Full Environmental Assessment Form (EAF). The implementation of the Plan is likely to occur over more than one year and in multiple phases and include work where the depth to the water table is less than 3 feet and may be located within a 100 year floodplain. This work may include the installation of a kayak launch dock and the management of invasive Phragmites. However, it is not expected that the project will have a significant adverse impact on the water table, the land, or the flood plain due to the nature of the Plan and the additional reviews that will be required prior for implementation actions. All of the recommendations in the Plan were designed to avoid or minimize potential impacts by evaluating and incorporating the environmental, historic and cultural resources present into the Plan's recommendations. In addition, all recommendations that do get implemented, such as a kayak launch dock or Phragmites management work, will be subject to additional review and will be conducted in accordance with all regulatory requirements and approvals. This will further insure that the Plan and its implementation will not have significant adverse impacts on the environment.

As demonstrated in Part II of the EAF and for the above reasons it is determined that the proposed action will not have a significant adverse impact on the environment.

COUNTY OF SUFFOLK

STEVEN BELLONE
COUNTY EXECUTIVE

DEPARTMENT OF ECONOMIC DEVELOPMENT AND PLANNING
DIVISION OF PLANNING AND ENVIRONMENT

COUNCIL ON ENVIRONMENTAL QUALITY

LAWRENCE SWANSON
Chairperson
CEQ

MEMORANDUM

TO: Interested Parties/Involved Agencies

FROM: John Corral, Senior Planner

DATE: October 11, 2017

RE: Proposed Indian Island Living Shoreline Project, Town of Riverhead

Enclosed is an Environmental Assessment Form for the above referenced County project which has been submitted to the Council on Environmental Quality (CEQ) for review. Pursuant to Title 6 NYCRR Part 617 and Chapter 450 of the Suffolk County Code, the CEQ must recommend a SEQRA classification for the action and determine whether it may have a significant adverse impact on the environment which would require the preparation of a Draft Environmental Impact Statement (DEIS).

The Council would like to know your environmental concerns regarding this proposal and whether you think a DEIS or a determination of non-significance is warranted. This project will be discussed at the **October 18, 2017** CEQ meeting. If you are unable to attend the meeting to present your views, please forward any recommendations or criticisms to this office prior the date of the meeting. **If the Council has not heard from you by the meeting date, they will assume that you feel that the action will not have significant adverse environmental impacts and should proceed accordingly.**

JC/cd
Enc.

cc: John Sohngen, Assoc. Public Health Engineer
Suffolk County Department of Health Services
Andrew P. Freleng, Chief Planner
Department of Economic Development and Planning
Sean Walter, Supervisor Town of Riverhead
Jefferson Murphree, Administrator, Town of Riverhead
Carrie Meek-Gallagher, Regional Director, NYSDEC
Jeffrey Zappieri, NYSDOS
Steve Ryba, United States Army Core of Engineers
RoAnn M. Destito, Commissioner NYSOGS

D&B ENGINEERS AND ARCHITECTS, P.C.

330 Crossways Park Drive, Woodbury, New York 11797

516-364-9890 • 718-460-3634 • Fax: 516-364-9045 • www.db-eng.com

October 2, 2017

Mr. Lawrence Swanson
Suffolk County Department of Planning
H. Lee Dennison Building
P.O. Box 6100
Hauppauge, NY 11788

Re: Indian Island County Park Erosion Mitigation
D&B No. 3328

Dear Mr. Swanson:

D&B Engineers and Architects, P.C. (D&B) respectfully submits on the behalf of the Suffolk County Department of Public Works and Suffolk County Parks, fifteen (15) copies of the following documents for the above referenced project.

- Project Narrative;
- Short Environmental Assessment Form (this form has been submitted to the environmental regulatory agencies as part of the permit process);
- Indian Island, NY Numerical Modeling Wave Analysis; and
- Project Presentation (if desired by the Council, D&B can present the major project components).

We would appreciate a project review to be scheduled for the October 18, 2017 meeting of the Council on Environmental Quality. Please do not hesitate to contact me at (516) 364-9890 if you have any questions or require additional information.

Very truly yours,

T. Schaefer

Tom Schaefer, P.E.
Associate

TS:t/cf
Enclosures
♦3328\TS100217LS_Ltr

PROJECT NARRATIVE

Indian Island Suffolk County Park
Proposed Living Shoreline Project
Project Narrative

Summary

The Indian Island Suffolk County Park living shoreline project is proposed as an environmentally sustainable method of providing protection, resiliency and stabilization to the coastal ecosystem (upland and wetland habitat) through the creation of natural and nature-based features (NNBF) within the Indian Island area. The Indian Island area has been experiencing chronic loss to the bluff, shoreline, and marshes. These losses are critically threatening important infrastructure (Circle Drive), navigation, and destroying productive marsh habitat.

The bluff in several key locations on Indian Island is experiencing ongoing, catastrophic and irreversible bluff loss that is resulting in a landward migration of the bluff threating the collapse of Circle Drive. Suffolk County has been forced to frequently place sand to keep the road from becoming undermined. Additionally, the marsh areas within Indian Island have been experiencing significant loss, reducing their size resulting in a loss of vital and productive tidal wetland habitat.

The project is proposed to provide increased protection to the area against flooding/erosion, stabilization of the shoreline and navigation channel, and restoration/ enhancement of the regional ecosystem, marsh and waterbody. The proposed living shoreline project contains three living segmented emergent rock sills, marsh habitat restoration/ enhancement consisting of compatible beach nourishment fill planted with wetland vegetation, and bluff stabilization consisting of an upland cantilevered PVC bulkhead covered with compatible fill and planted with beach grass.

1. **Living segmented emergent rock sills** – three living segmented emergent rock sills are proposed to be placed within the nearshore region of Flanders Bay. The "living" aspect of the sills is proposed to be accomplished by seeding them with encrusting shellfish such as oysters to increase habitat and water quality.

2. **Marsh habitat restoration/ enhancement** – existing marsh headlands within the area are proposed to be stabilized with the addition of coir logs and aquatic vegetation planting and invasive plants will be removed. Additional, marsh areas are proposed to be created landward of the living sills by the placement of approximately 1,500 CY beach compatible fill planted with aquatic vegetation.

3. **Bluff Stabilization**- A cantilevered PVC bulkhead is proposed to be installed in the existing the bluff landward of the spring high water. The bulkhead is proposed to be covered with approximately 2,000 CY beach compatible fill and planted with beach grass.

1. Living segmented emergent rock sills

The proposed segmented, emergent, living rock sills are proposed to provide increased protection to the shoreline and bluff of Indian Island against high frequency storm events containing moderate surge and wave heights. Storm energy will be dissipated as waves impact the structures. Additionally, the sills are designed to increase sand retention landward of structures resulting in an increase in the elevation of the beach that will further dissipate wave energy and limit wave interaction with the toe of the bluff.

The sills are also proposed to provide stabilization of the shoreline and existing marsh headlands in the area as well as create additional sheltered regions to facilitate the establishment of new marsh areas. The sill will also limit possible infilling of the existing navigation channel located to the north of Indian Island at the entrance of Meetinghouse and Terry Creeks by entrapping sand.

The living rock sills themselves will also provide productive rocky subaqueous marine habitat for finfish, shellfish, marine invertebrates, seaweeds, etc. Furthermore, the living rock sill areas are proposed to be seeded with shellfish such as oysters that through their filter feeding will improve water quality.

The proposed project will consist of three living segmented emergent rock sills that are approximately 15- 25 feet from the shoreline depending on their location and configuration (Please see attached plan for proposed location). These sills are the minimum size necessary to provide protection to the fringe wetlands. The sills proposed are emergent; therefore they will be above water level during high tide. The sills are proposed have a top elevation of +1.5' NAVD88. At the Indian Island site the MHW is approximately +1' NAVD88 and MLW is approximately -2' NAVD88. Therefore, at MHW the sill will be exposed by approximately half a foot and at MLW the sill will be exposed by approximately 3-1/2 feet.

The sills are proposed to have a crest width of 10 feet and will slope down on either side (seaward and landward) on a 1 to 1.5 slope where they will tie into the shoreface. The base width of the sills will vary from approximately 20-25 feet depending on the depth of water that the sill is located in.

The sills will be constructed of natural quarry stone and will be underlain by filter fabric. Filter fabric will be placed down that will then be covered with natural quarry bedding stone that is approximately 8" in diameter and two feet thick across the foot print of the sills. The core and armor stone will then be placed into the approved configuration.

2. Marsh habitat restoration/ enhancement

The proposed marsh habitat restoration and enhancement will provide increased stability and resiliency to the shoreline. The habitat restoration will enhance the existing marsh area to reduce loss, improve progression of the marsh, and sustain the vital native marsh habitat and ecosystem of the region. The habitat enhancement will create new areas of tidal wetland marsh that did not exist prior to the project that will additionally stabilize the area and will create new regions of essential marsh habitat to increase the productivity of the local ecosystem.

The marsh restoration of the area will consist of the addition of coir logs and wetland vegetation planting to stabilize the existing marsh areas of Indian Island. It will also consist of the removal of invasive plant species within the marsh. Additional, marsh areas are proposed to be created landward of the living sills by the placement of approximately 1,500 CY of beach compatible fill in the identified areas planted with wetland vegetation.

3. Bluff Stabilization

Bluff stabilization is proposed to provide protection to the bluff, upland property and the key infrastructure of Circle Drive, the access road to Indian Island. Bluff stabilization is proposed to provide protection against low frequency episodic storms with large waves and storm surges that will inundate the sills and beach allowing for direct wave action on the bluff.

As part of the bluff stabilization a cantilevered PVC bulkhead is proposed to be installed in the existing bluff face seaward of the bluff crest and landward of the bluff toe above spring high water. The bulkhead will provide protection against catastrophic bluff loss and the potential undermining of Circle Drive during these large storms.

The bulkhead is proposed to be covered with approximately 2,000 CY of beach compatible sand and is to be planted with beach grass three clums per hole 12" on center. Covering the bulkhead with sand and planting it will allow for it to be there for protection while still allowing for a natural dune to become established in the area to enhance the native ecosystem.

Bluff Loss On Property

The bluff on the subject property is experiencing ongoing, catastrophic and irreversible bluff loss. This bluff failure is resulting in a landward migration of the bluff on the subject property. The Suffolk County Parks Department has then been forced to frequently place upland sand on the bluff in several locations to provide protection to Circle Drive from undermining and collapse.

The bluff loss is a result of wave action at the toe of the bluff which leads to:

1) undercutting of the bluff toe
2) over steepening of the bluff face
3) undercutting of the bluff crest
4) the eventual collapse and slumping of the bluff crest threatening Circle Drive

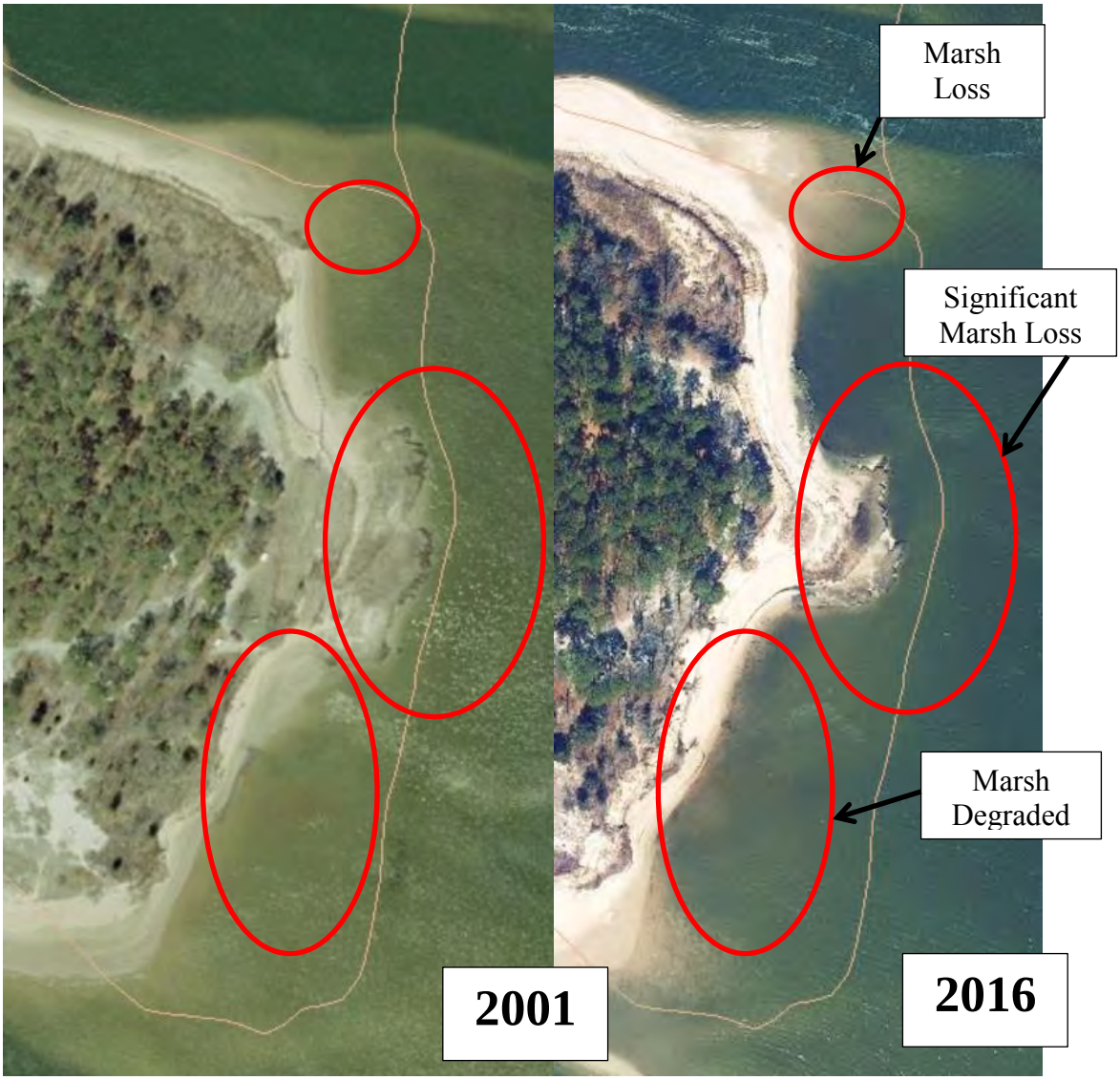
This bluff loss on the subject property is evident by:

1) the vertical scarps at the toe of the bluff caused by wave action undercutting the toe of the bluff
2) the bare soils and lack of vegetation present on the bluff face
3) the undercut/overhang present on the bluff crest
4) free floating islands of vegetation on the bluff face that have broken off and are moving downslope. In several areas of the bluff large rafts of the undercut bluff crest that have failed and slumped on to the lower portions of the bluff.

There is little to no evidence of bluff erosion due to stormwater runoff over the crest of the bluff or groundwater seepage through the bluff face. Although both of these mechanisms can destabilize the bluff, neither appear active at the site and bluff appeared mostly susceptible to damage by wave undercutting and subsequent catastrophic failure as described above.

Marsh Loss On Property

The marsh areas within Indian Island have been experiencing significant loss. The existing marsh has been degraded and is a fraction of its historic size. Wave action and ice undercutting on the marsh area is resulting in loss of the marsh headlands soils and vegetation. Without protection it is likely that some marsh areas will be completely destroyed in the near future, resulting in a loss of vital and productive habitat, as well as increased exposure of the bluff.



Increased Tidal Wetland Habitat

There are numerous scientific and scholarly reports/documents that have been released in recent years that identify the benefit of living shoreline projects on tidal wetland habitat. These documents identify that the NNBF of living shorelines result in an increase in habitat, ecological productivity and water quality for numerous species included but not limited to finish, shellfish, marine invertebrates, macro algae, migratory/wading birds and reptiles. These reports recognize that generally there is an increase in tidal wetland habitat and productivity for a living shoreline project when compared to the preexisting condition.

The NYSDEC recently released the "DRAFT Tidal Wetlands Guidance Document Living Shoreline Techniques in the Marine District of New York State, December 27, 2016" to provide guidance on the issuance of permits for living shoreline techniques and discusses the beneficial use of living shorelines. Furthermore, the USACE recently released a Nationwide Permit (54) for Living Shorelines.

Need for Sill and Retaining Wall

As part of this project modeling was undertaken, the modeling report is included under separate cover (Indian Island, NY Numerical Modeling Wave Analysis – December 2016). The modeling identifies that the proposed breakwaters are most effective in attenuating wave energy for high frequency storms containing moderate surge/ wave setup (1 in 10 year storm with 10% chance of occurrence annually). The reduced wave conditions resulting from the breakwaters will help reduce shoreline erosion and help reduce need for beach nourishment during these moderate surge/wave setup events.

Additionally, the analysis identified that when the breakwaters are submerged during large storms that their wave attenuation decreases. Therefore, in order to protect against large weather events, the proposed bulkhead landward is necessary to ensure that further bluff loss and potential endangerment of Circle Drive does not occur. Moreover, since the modeling identifies that during large scale storms with a wind direction of 90 deg the east facing shoreline is exposed to the largest wave energy, a retaining wall/bulkhead across this entire area is justified.

Therefore, this modeling demonstrates the benefits of the breakwater in reducing annual fill and the need for the sill and the retaining wall as well as the necessary length of the retaining wall/bulkhead.

Decreased frequency of fill placement

The modeling confirms that during high frequency storms containing moderate surge/ wave setup that the breakwaters significantly decrease wave energy transmission to the shoreline and bluff. Therefore, during these common events that historically lead to bluff and beach loss, the proposed addition of the breakwaters will reduce the loss to the bluff, resulting in a decrease in the frequency of placing fill.

SHORT ENVIRONMENTAL ASSESSMENT FORM

617.20
Appendix B
Short Environmental Assessment Form

Instructions for Completing

Part 1 - Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 - Project and Sponsor Information

Name of Action or Project:
Indian Island Living Shoreline

Project Location (describe, and attach a location map):
Indian Island Suffolk County Park, Riverhead, NY

Brief Description of Proposed Action:
The project consists of the construction of a living shoreline. Please see attached project narrative

Name of Applicant or Sponsor:	Telephone: 631-854-4600
Suffolk County Parks / Nicholas Gibbons	E-Mail: nicholas.gibbons@suffolkcountyny.gov

Address:
P.O. Box 144

City/PO:	State:	Zip Code:
West Sayville	NY	11796

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval: USACE, NYSDOS, NYSOGS	☐	☑

3.a. Total acreage of the site of the proposed action? 275 acres
b. Total acreage to be physically disturbed? ~2 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 275 acres

4. Check all land uses that occur on, adjoining and near the proposed action.
☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☐ Residential (suburban)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____
☑ Parkland

	NO	YES	N/A
5. Is the proposed action, a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	NO ☐	YES ☑	
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify: Peconic Bay and Environs	NO ☐	YES ☑	
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	NO ☑	YES ☐	
b. Are public transportation service(s) available at or near the site of the proposed action?	☑	☐	
c. Are any pedestrian accommodations or bicycle routes available on or near site of the proposed action?	☑	☐	
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies:	NO ☑	YES ☐	
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water:	NO ☑	YES ☐	
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment:	NO ☑	YES ☐	
12. a. Does the site contain a structure that is listed on either the State or National Register of Historic Places?	NO ☑	YES ☐	
b. Is the proposed action located in an archeological sensitive area?	☑	☐	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	NO ☐	YES ☑	
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☐	☑	
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: Flanders Bay less than 1 acre			

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☑ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☑ Wetland ☐ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100 year flood plain?	☐	☑
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes, a. Will storm water discharges flow to adjacent properties? ☐ NO ☐ YES	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: ☐ NO ☐ YES		

	NO	YES
18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? If Yes, explain purpose and size: _____	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe: _____	☑	☐
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: _____	☑	☐

I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor name: Suffolk County Parks / Nicholas Gibbons Date: 8/28/17

Signature: _____ FOR

KYLE SWARINGEN

Part 2 - Impact Assessment. The Lead Agency is responsible for the completion of Part 2. Answer all of the following questions in Part 2 using the information contained in Part 1 and other materials submitted by the project sponsor or otherwise available to the reviewer. When answering the questions the reviewer should be guided by the concept "Have my responses been reasonable considering the scale and context of the proposed action?"

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	☑	☐
2. Will the proposed action result in a change in the use or intensity of use of land?	☑	☐
3. Will the proposed action impair the character or quality of the existing community?	☑	☐
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	☑	☐
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	☑	☐
6. Will the proposed action cause an increase in the use of energy and it fails to incorporate reasonably available energy conservation or renewable energy opportunities?	☑	☐
7. Will the proposed action impact existing: a. public / private water supplies?	☑	☐
b. public / private wastewater treatment utilities?	☑	☐
8. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	☑	☐
9. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	☑	☐

	No, or small impact may occur	Moderate to large impact may occur
10. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	☑	☐
11. Will the proposed action create a hazard to environmental resources or human health?	☑	☐

Part 3 - Determination of significance. The Lead Agency is responsible for the completion of Part 3. For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required.

☑ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action will not result in any significant adverse environmental impacts.

Suffolk County Parks Department	8/28/17
Name of Lead Agency	Date
Nicholas Gibbons	Principal Environmental Analyst
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
FOR KYLE SWARINGEN	
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

PRINT

INDIAN ISLAND, NY NUMERICAL MODELING WAVE ANALYSIS

INDIAN ISLAND NY

NUMERICAL MODELING WAVE ANALYSIS

DRAFT

01 GENERAL

This is a summary of the numerical modeling analysis conducted to evaluate the wave conditions on the Eastern shoreline of Indian Island located in the Town of Riverhead, Suffolk County, NY (**Figure 1**). Various storm conditions were simulated through numerical modeling and the wave climate assessed for each case to evaluate the level of shoreline protection from the proposed project including two breakwaters (BW). The preliminary results are presented herein for your consideration. The modeling results confirm that the proposed breakwaters are most effective in attenuating waves from high frequency storm events containing moderate surge/wave setup. The reduced wave conditions will help reduce the shoreline erosion and help reduce the need for beach nourishment.

02 NUMERICAL MODEL

02.01 MODEL INPUT

The local bathymetry for the project area was provided by Gayron de Bruin Land Surveying and Engineering, PC in a recent survey and the regional bathymetry was taken from the 1955 NOAA dataset. The numerical model was set up with and without the two proposed breakwaters with crest elevation at +0.5m (+1.5ft NAVD88). **Figure 1** shows a color coded contour map for both regional and local bathymetry. Depth within the marina ranges from 8 m in the Peconic Bay to around 1m near Indian Island.

The numerical model used to conduct the analysis was CMS-Wave, a component of the Coastal Modeling System developed by the US Army Corps of Engineers Coastal and Hydraulics Laboratory. CMS-Wave is a 2-D wave spectral transformation phase averaged model suitable for coastal and inlet modeling. The model allows for nested cells which permitted the use of larger cells away from the Park (100m) and finer cells in the vicinity of the Park (1.5m) where details are more relevant to the study. The model domain and cell detail are presented in **Figure 1**. The model was set up to cover most of the Great Peconic Bay including Indian Island.

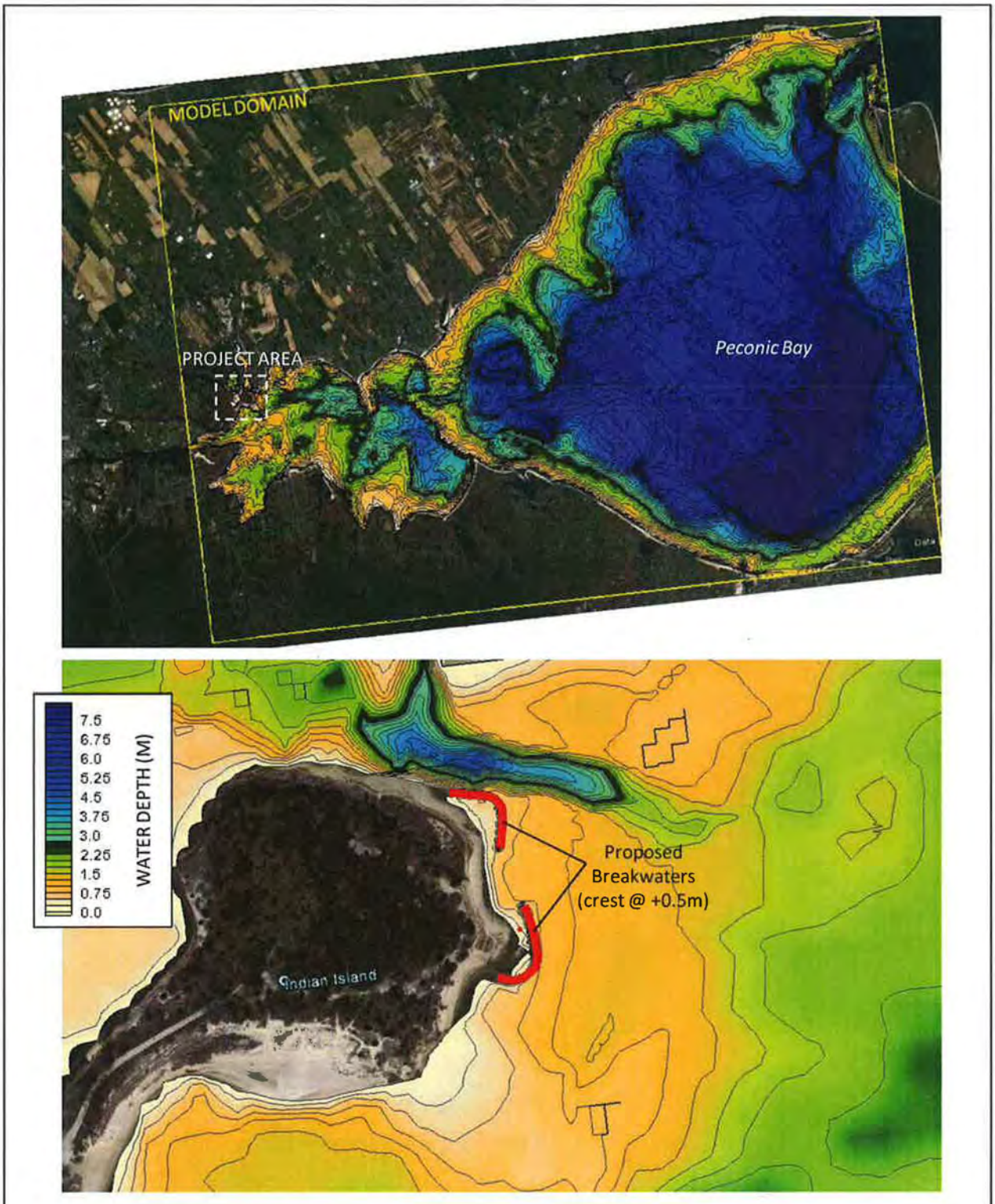


Figure 1: Project Location & Model Domain

The CMS-Wave model is able to determine the wave height from hindcast, using wind velocity and local and regional basin geometry and bathymetry as input. The model input wind speeds were derived from the Westhampton Airport 30-yr wind record. The storm surge was obtained from the FEMA Flood Insurance Study (FIS). The model input wind speed and surge extracted from the SLOSH model at the Indian Island Park location is summarized in **Table 1** below.

Table 1 – CMS-Wave Model Input

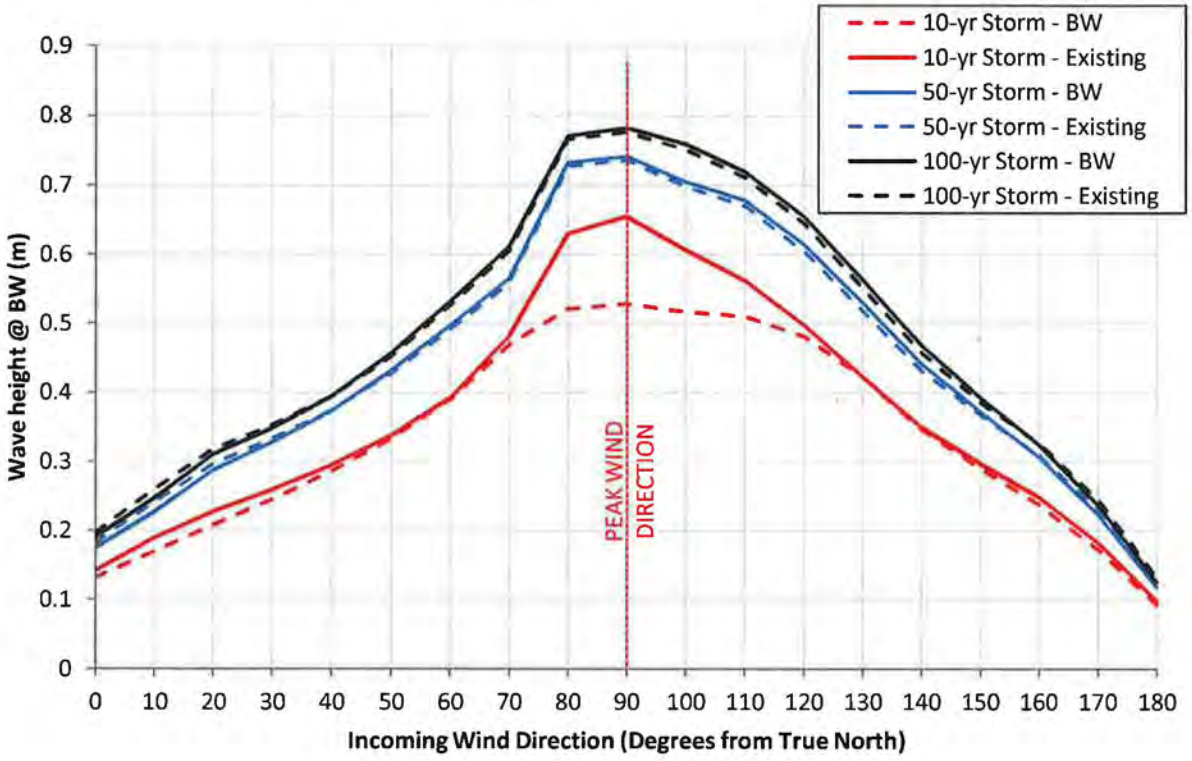
Storm	Storm Surge (m)	Wind Speed (m/s)
10% 10-yr	1.2	31
2% 50-yr	1.6	37
1% 100-yr	1.8	39

The numerical model was first set up to simulate the various storm categories for incoming wind directions ranging from 0° (North) to 180° (South) on a 10° increment. This was done to determine the direction from which the resulting wave heights are the highest. The simulation also included storm surge.

02.02 MODEL RESULTS

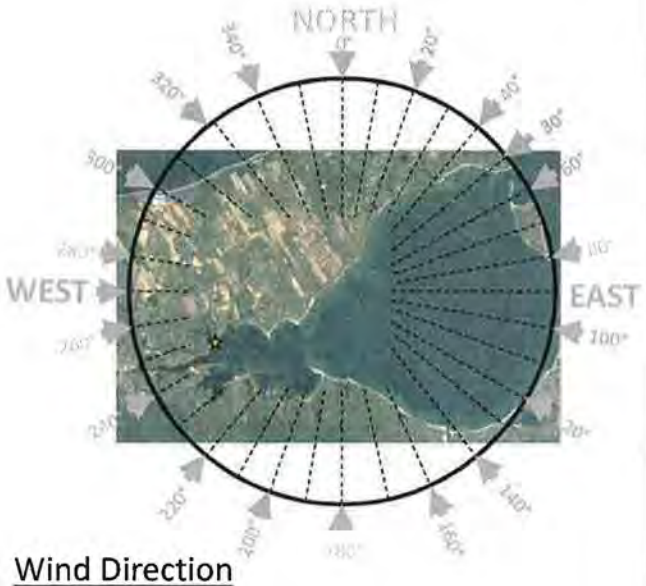
The numerical model results are summarized in **Figure 2**. In the figure, the model results are extracted at a location landward of the north breakwater and plotted over the various storms and wind directions modeled. Overall, the results show that wind from the East (90°) generates the largest waves and the storm surge significantly affects the effectiveness of the breakwaters. The graph in the figure shows that during 50 and 100 year storm conditions, wave attenuation from the structures is negligible, while waves from the 90° direction are attenuated by approximately 25% during a 10 year storm with associated storm surge. **Figures 3 through 5** show the model results for the respective 3 storm case scenarios (10%, 2% and 1% storms). In the figures, the resulting wave heights are represented in a color coded scale from blue to red with red capped at 1m, specific conditions modeled are described at the bottom.

While a storm surge was evaluated for the storm cases, the surge may only materialize when the storm generated winds are coming from the optimal direction, otherwise lower levels of storm surge may occur. Additionally, higher frequency storm events may also result in limited to no surge. In order to assess the effectiveness of structures during these more frequent conditions, another set of model runs were prepared for cases with limited surge (+0.5m). The simulations considered increasing wind speeds from the East (90°) both with and without the proposed structures. The results are summarized in **Figure 6**, they show that the proposed structures will



STORM		SURGE [1] (M)	WIND SPEED [2] (M/S)
10%	10-YR	1.2	31
2%	50-YR	1.6	37
1%	100-YR	1.8	39

Notes:
1. Surge elevations based on FEMA FIS.
2. Wind speed based on Westhampton Airport 1986-2015 record.



Wind Direction

Figure 2: CMS-Wave Model Results for Existing Conditions & Breakwater Project during 10, 50 & 100 Year Storms

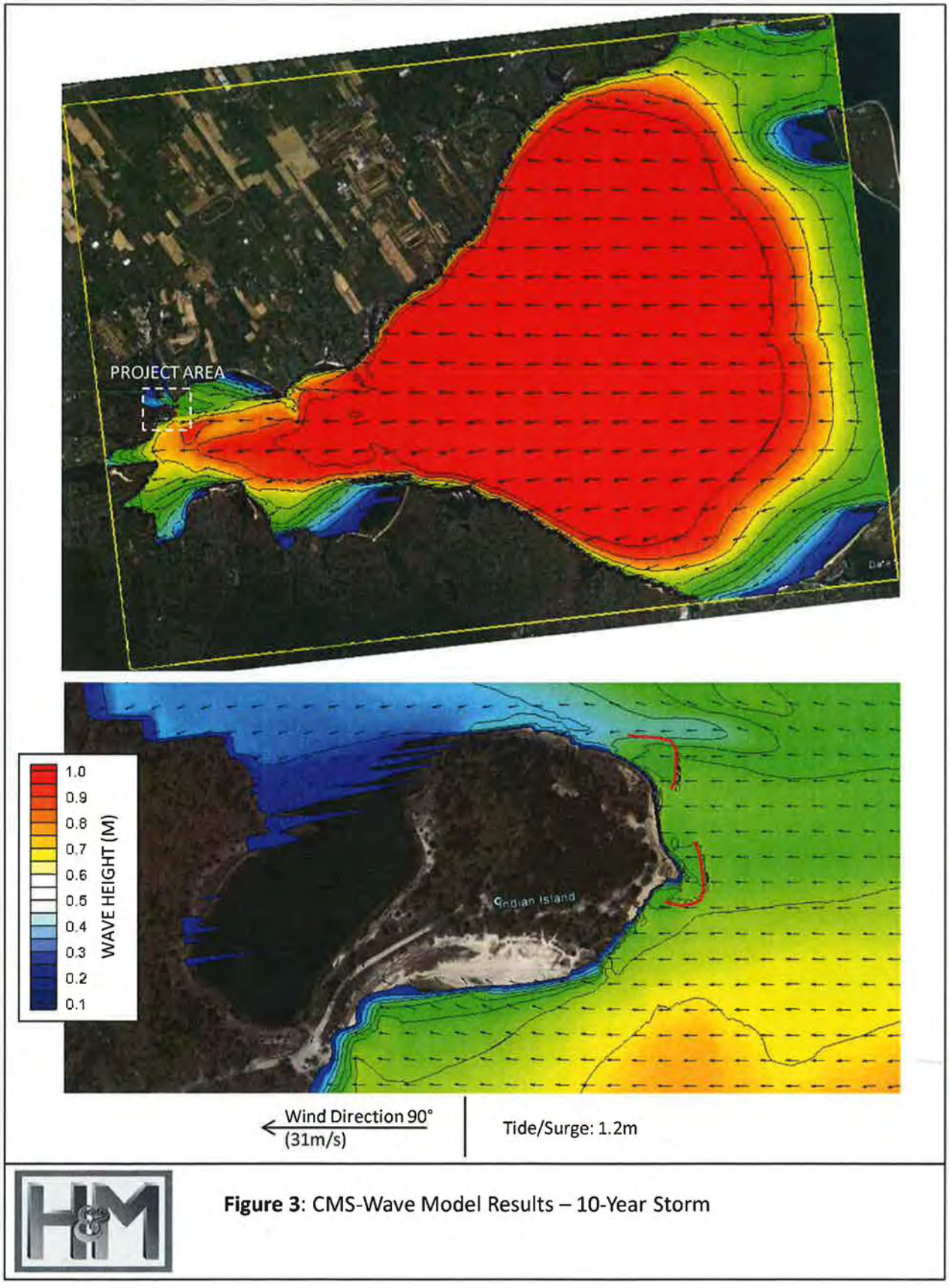


Figure 3: CMS-Wave Model Results – 10-Year Storm

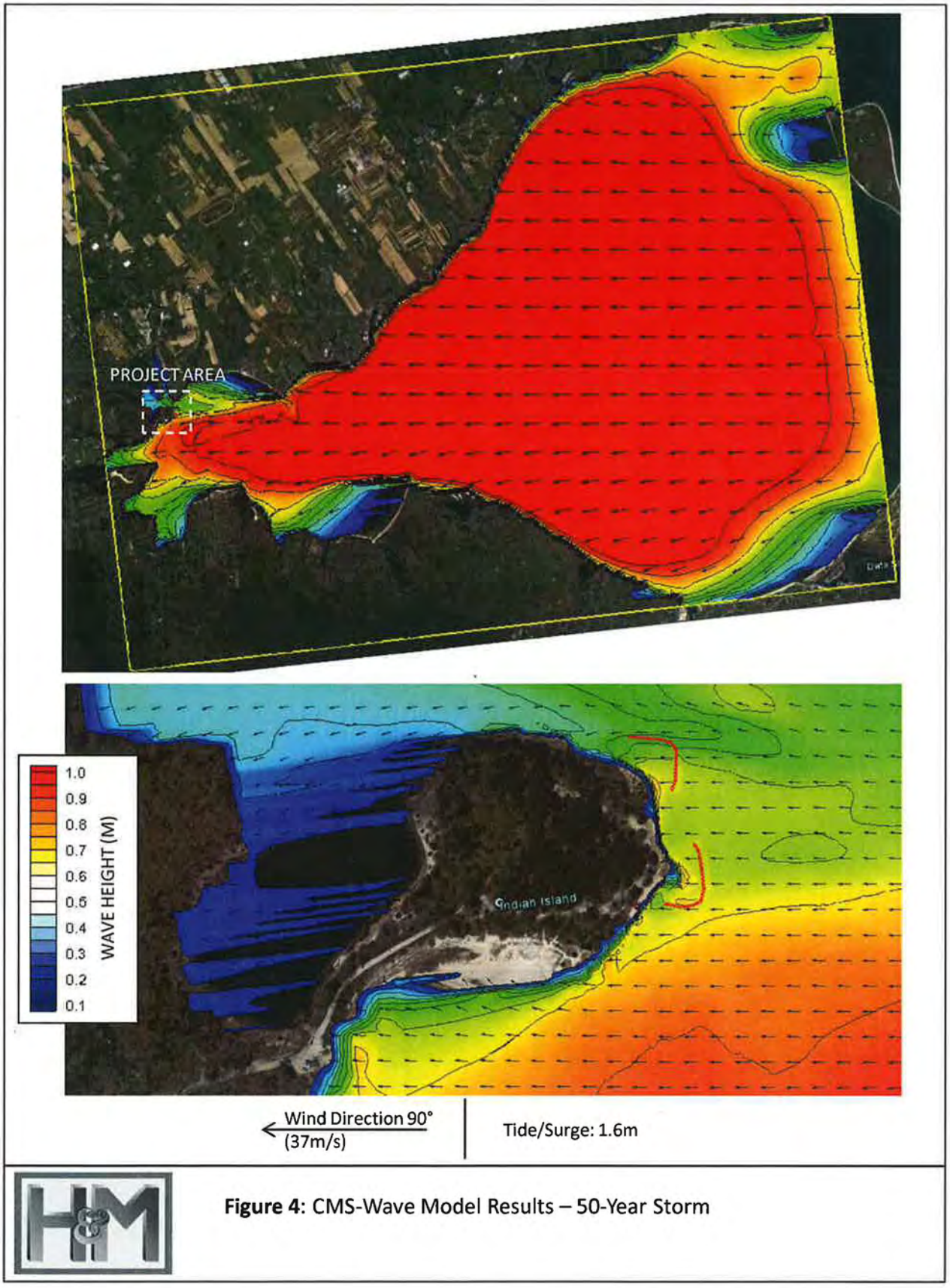


Figure 4: CMS-Wave Model Results – 50-Year Storm

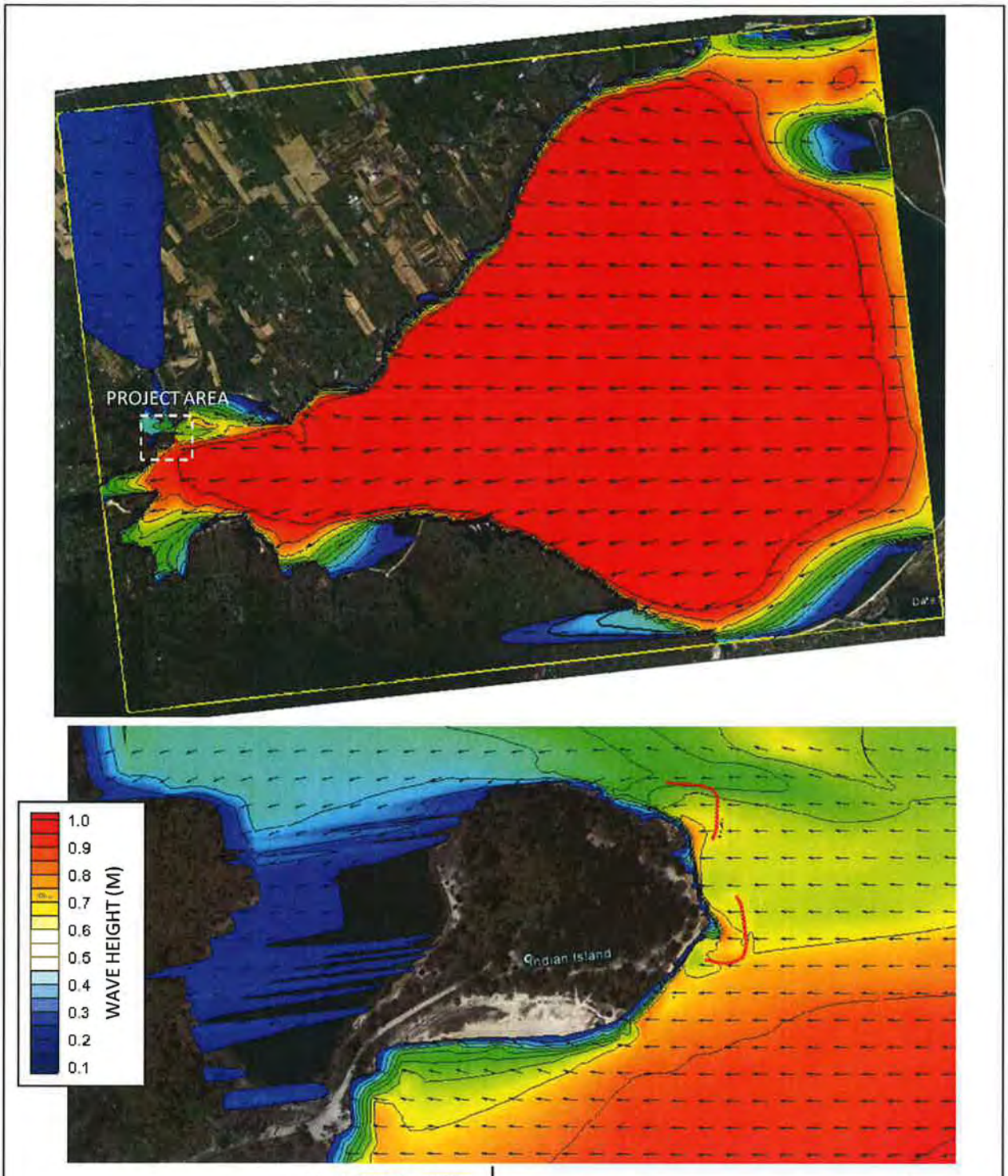
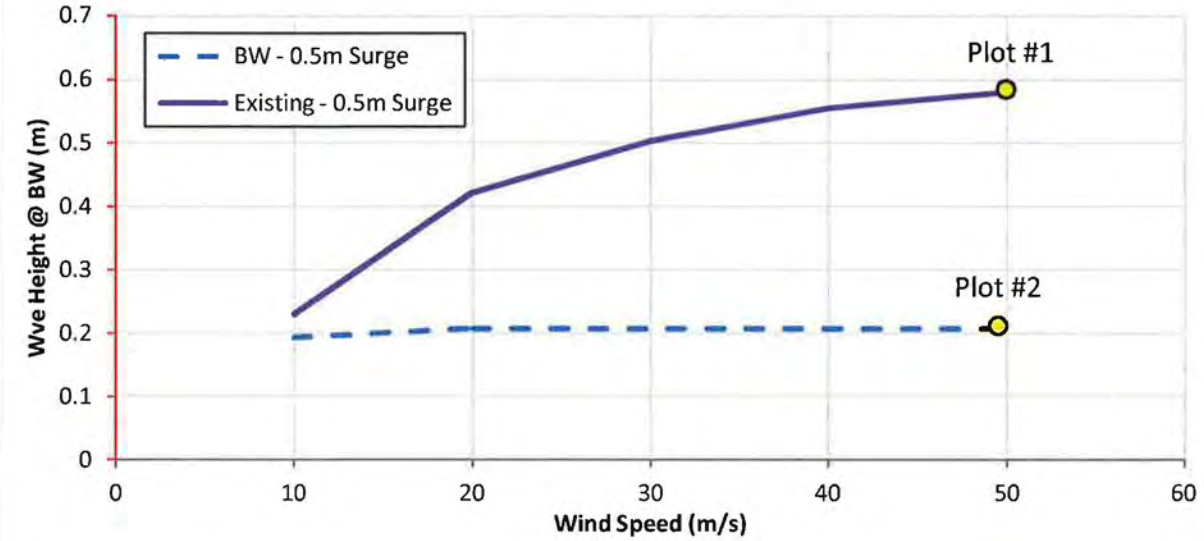


Figure 5: CMS-Wave Model Results – 100-Year Storm



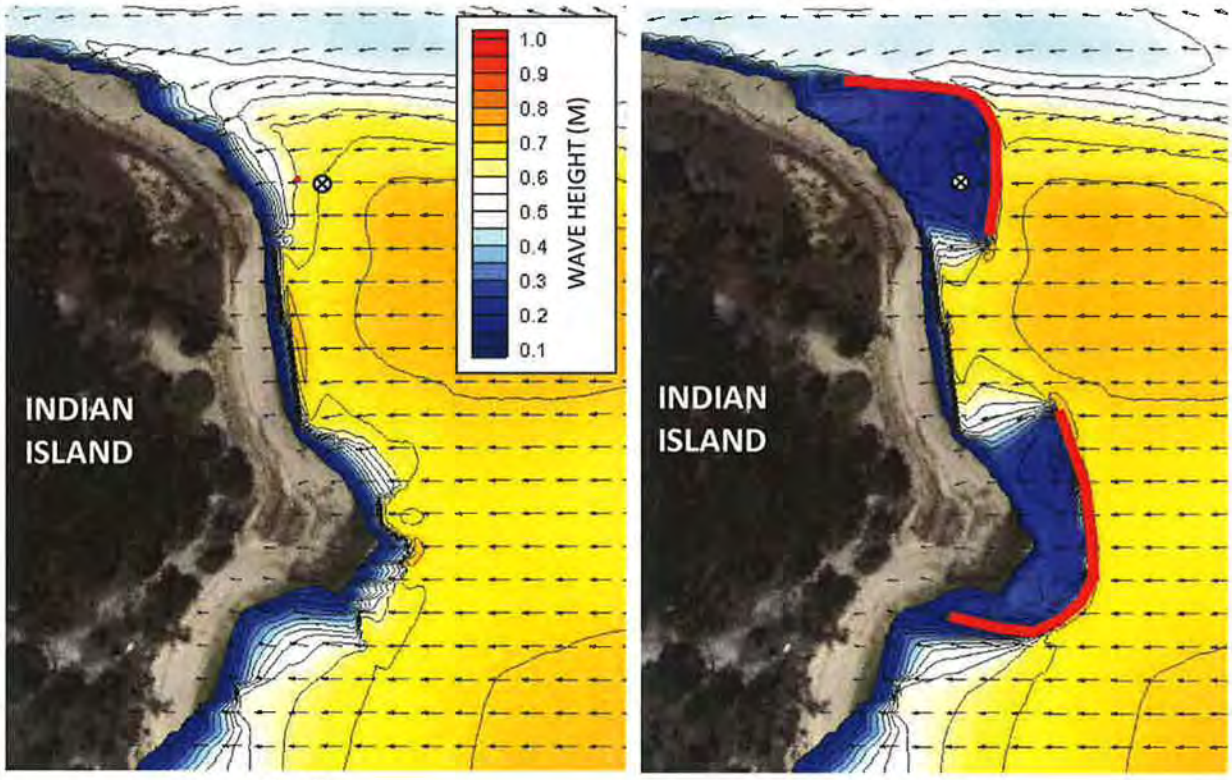


Figure 6: CMS-Wave Model Results for Existing Conditions & Breakwater Project without Storm Surge & Moderate Surge/Tide

provide wave sheltering during typical conditions and high frequency storm events. This should result in lower erosion rates and increased protection of upland sites.

An additional set of model run were prepared for the modified design using three breakwater segments. **Figure 7** shows a sample of the results with a comparison of the wave height for existing conditions, the proposed design and the modified design. The storm condition modeled in the example consists of a limited storm surge /tide of 0.5m and 30 m/s winds. In the figure, the wave field was extracted along a profile that follows the shoreline of the island and is plotted in a graph for the three design conditions. The results suggest that a more linear structure design could allow for the addition of a third structure, which would increase the wave sheltering effect on the island. This alternative is provided as a suggestion for consideration.

03 CONCLUSION/RECOMMENDATION

The report provided a review of the existing data available at the project site. The Army Corp CMS-Wave model was set up and run for various storm conditions. Based on the model results discussed above, the following observations and recommendations are provided:

- When the water level resulting from storm surge and tide combination is higher than the structure's crest, the wave attenuation function of the structures is significantly reduced.
- The proposed breakwaters will help reduce wave induced shoreline erosion in their lee during typical conditions, high frequency storms or storm conditions that do not include significant storm surge.
- The proposed design could be modified to protect a larger section of shoreline by slightly reducing the gap between structures and re-configuring the 2 proposed segments into three more linear segments with overall same cumulative length.

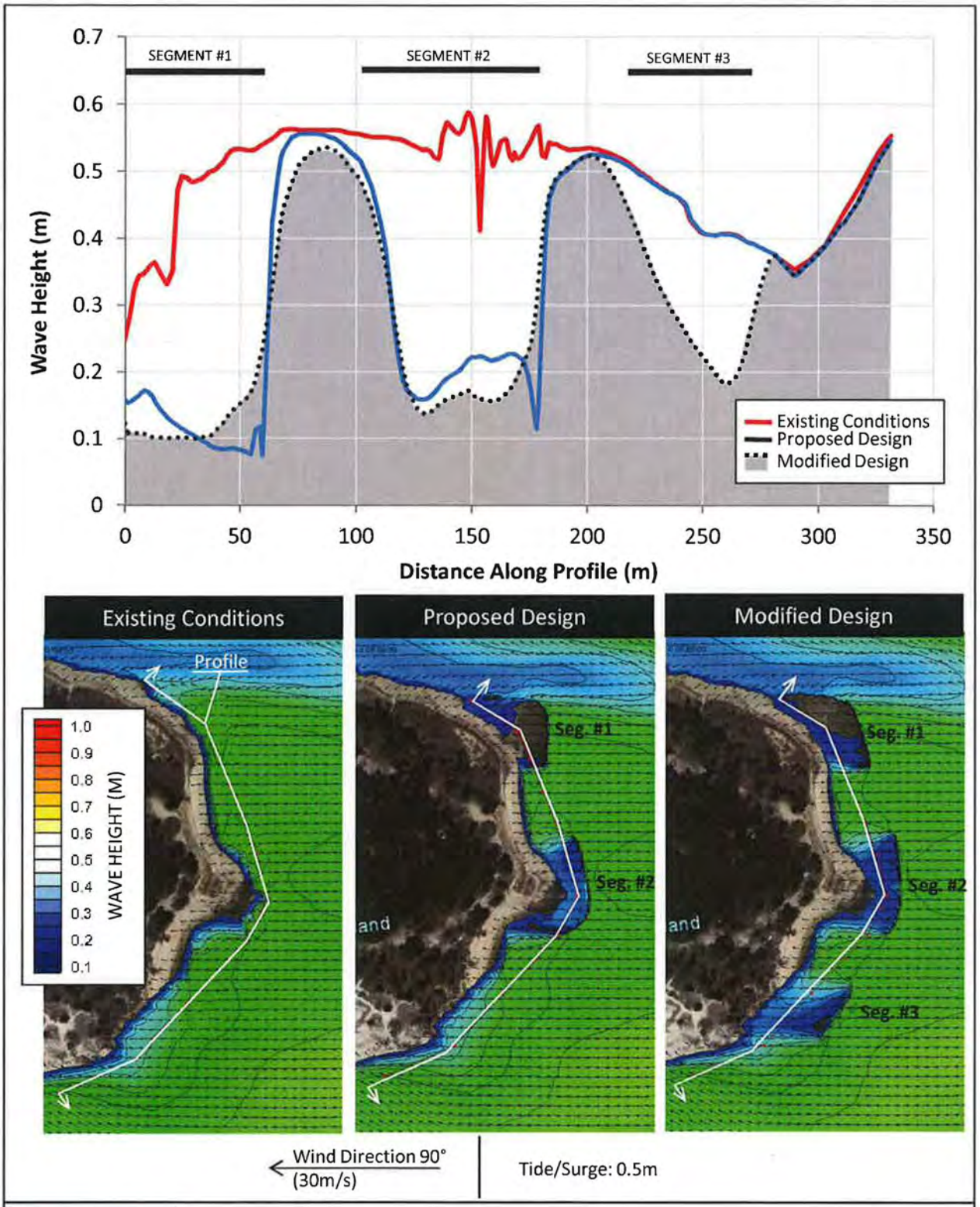


Figure 7: CMS-Wave Model Results – Modified Design

PROJECT PRESENTATION

Indian Island County Park
Living Shoreline Protection Project
CEQ Meeting: 10/18/2017

SUFFOLK COUNTY DEPARTMENT OF PUBLIC WORKS

SUFFOLK COUNTY PARKS

D&B ENGINEERS AND ARCHITECTS, P.C.

FIRST COASTAL CORPORATION

John Schreck, P.E.

Tom Schaefer, P.E.

Aram Terchunian

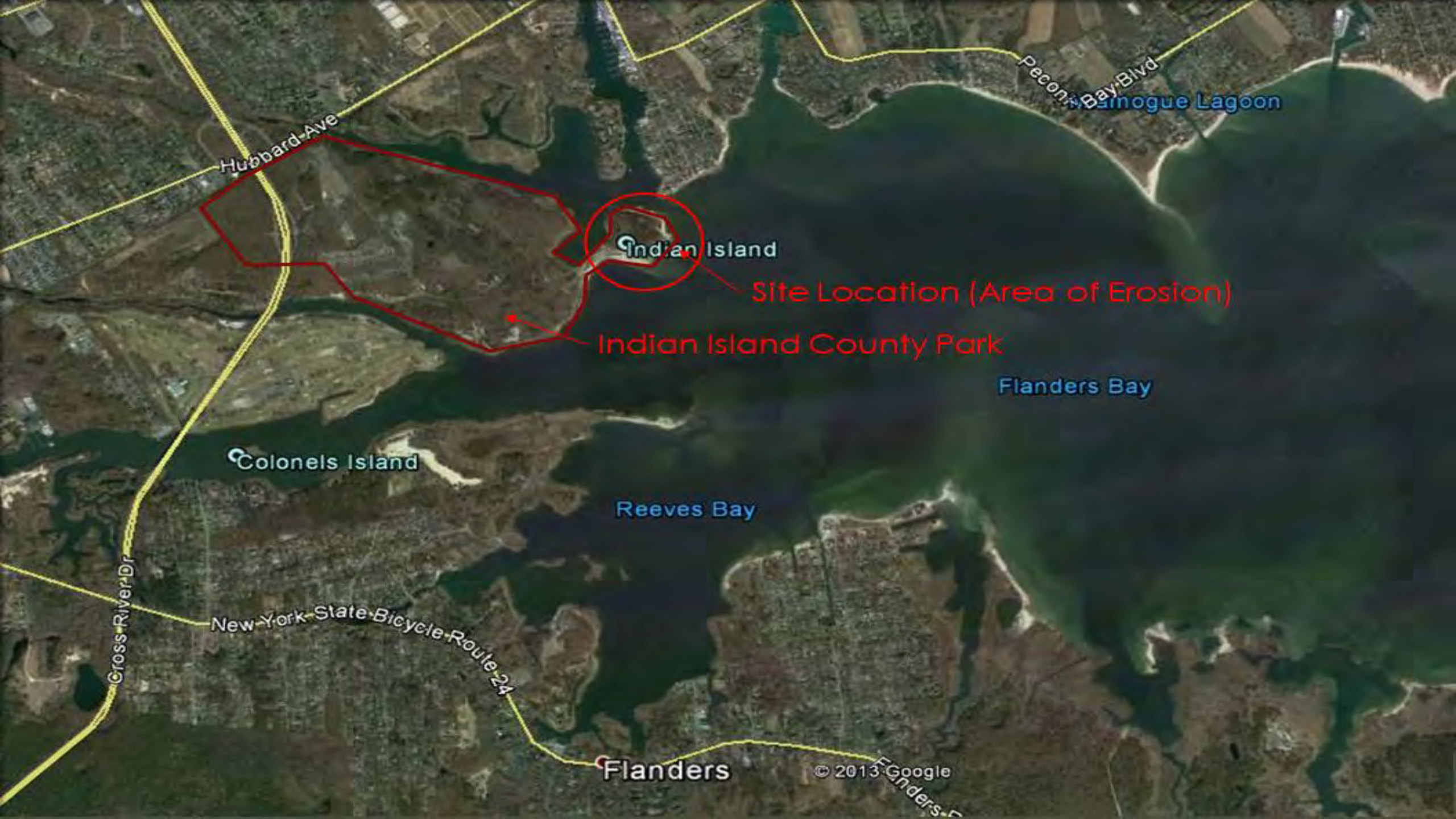
Benjamin Spratford

Project Summary

The Indian Island Suffolk County Park living shoreline project is proposed as an environmentally sustainable method of providing protection, resiliency and stabilization to the coastal ecosystem (upland and wetland habitat) through the creation of natural and nature-based features (NNBF) within the Indian Island area.

The bluff in several key locations on Indian Island is experiencing ongoing, catastrophic and irreversible bluff loss that is resulting in a landward migration of the bluff, thereby threatening the collapse of Circle Drive. Suffolk County has been forced to frequently place sand to keep the road from becoming undermined and there have been multiple FEMA-related projects to repair damage at this site. Additionally, possible Indian artifacts may be present at the site and the continual erosion will result in the loss of these artifacts. Lastly, the marsh areas within Indian Island have been experiencing significant loss, decreasing their size resulting in a reduction of vital and productive tidal wetland habitat.

The project is proposed to provide increased protection to the area against flooding/erosion, stabilization of the shoreline and navigation channel, and restoration/enhancement of the regional ecosystem, marsh and waterbody. The proposed living shoreline project contains three living segmented emergent rock sills, marsh habitat restoration/enhancement consisting of compatible beach nourishment fill planted with wetland vegetation, and bluff stabilization consisting of an upland cantilevered PVC bulkhead covered with compatible fill and planted with beach grass.


Hubbard Ave
Pecon Bay Blvd
Peconic Lagoon
Indian Island
Site Location (Area of Erosion)
Indian Island County Park
Flanders Bay
Colonels Island
Reeves Bay
Cross River Dr
New York State Bicycle Route 24
Flanders
© 2013 Google

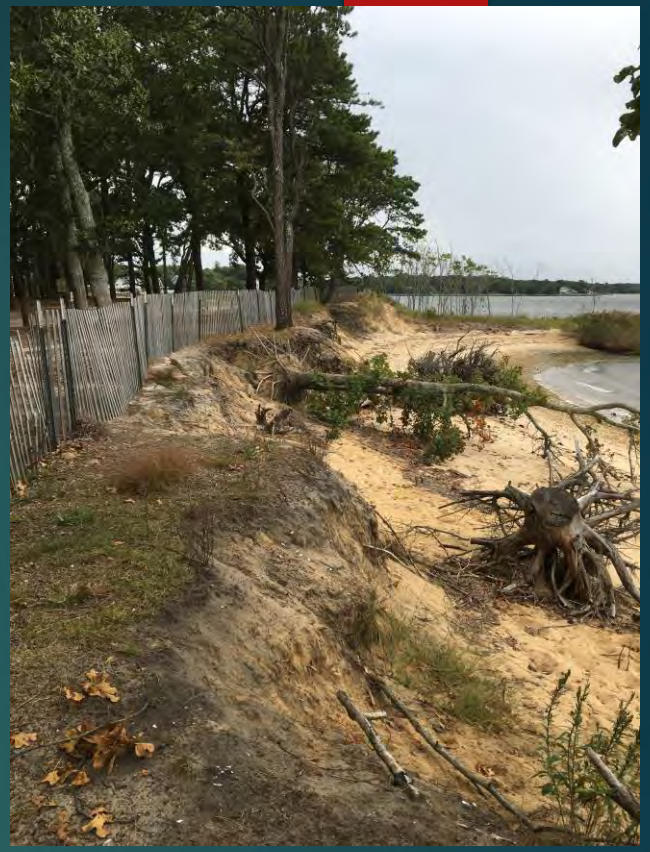
Project Location

Indian Island County Park is a 275 acre park located at the estuarine mouth of the Peconic River, where the freshwater of the Peconic River and saltwater of Flanders Bay meet, just off Cross River Drive (Route 105) in the County of Suffolk, Town of Riverhead, NY.

The site of the project is at the easternmost point of Circle Drive on Indian Island within Indian Island County Park. The project area is bounded by Flanders Bay to the east, the Peconic River to the south, and Terry Creek and Meetinghouse Creek to the north. Indian Island is connected to the main portion of Indian Island County Park via Indian Point Road, which crosses over a sandy spit or tombolo.

Existing Conditions

- The project site is a sand beach and sandy bluff shoreline fronted by a *spartina_alterniflora* marsh headland to the south along the Peconic River and small patches of *spartina alterniflora* to the north along Meetinghouse Creek. Both the beach and the bluff contain similar medium-to-fine grained sand.
- The beach is relatively narrow (less than 10 feet wide at high tide) and is moderately sloped. The partially submerged concrete block wall east of the beach is discontinuous and does not appear to be sufficiently effective at breaking wave energy to protect the beach and bluff.
- In 2005, Indian artifacts were discovered at the site after a large storm.
- The following figures present photographic evidence of ongoing erosion at the site.



Existing Conditions/Erosion at Beach and Bluff

Existing Conditions/Erosion at Marsh Headland

Evidence of Bluff Erosion

The bluff loss on the subject property is evident by:

1) the vertical scarps at the toe of the bluff caused by wave action undercutting the toe of the bluff

2) the bare soils and lack of vegetation present on the bluff face

3) the undercut/overhang present on the bluff crest

4) free floating islands of vegetation on the bluff face that have broken off and are moving downslope. In several areas of the bluff, large rafts of the undercut bluff crest have failed and have slumped onto the lower portions of the bluff.

The bluff loss is a result of wave action at the toe of the bluff which will lead to the eventual collapse and slumping of the bluff crest, thereby threatening Circle Drive.

Evidence of Significant Marsh Loss

2001 2016

The marsh headland to the south is also showing signs of erosion, including significant portions that have calved off the main body of the marsh, leaving the seaward face of the marsh a vertical escarpment. Despite this erosion, the marsh headland currently provides the only shoreline stability function along the shoreline.

The marsh areas within Indian Island have been experiencing significant loss. The existing marsh has been degraded and is a fraction of its historical size. Wave action and ice undercutting on the marsh area is resulting in loss of the marsh headlands soils and vegetation. Without protection, it is likely that some marsh areas will be completely destroyed in the near future, resulting in a loss of vital and productive habitat, as well as increased exposure of the bluff.

Aerial Photographs 1974 (Left) and 2013 (Right) Showing Evidence of Erosion

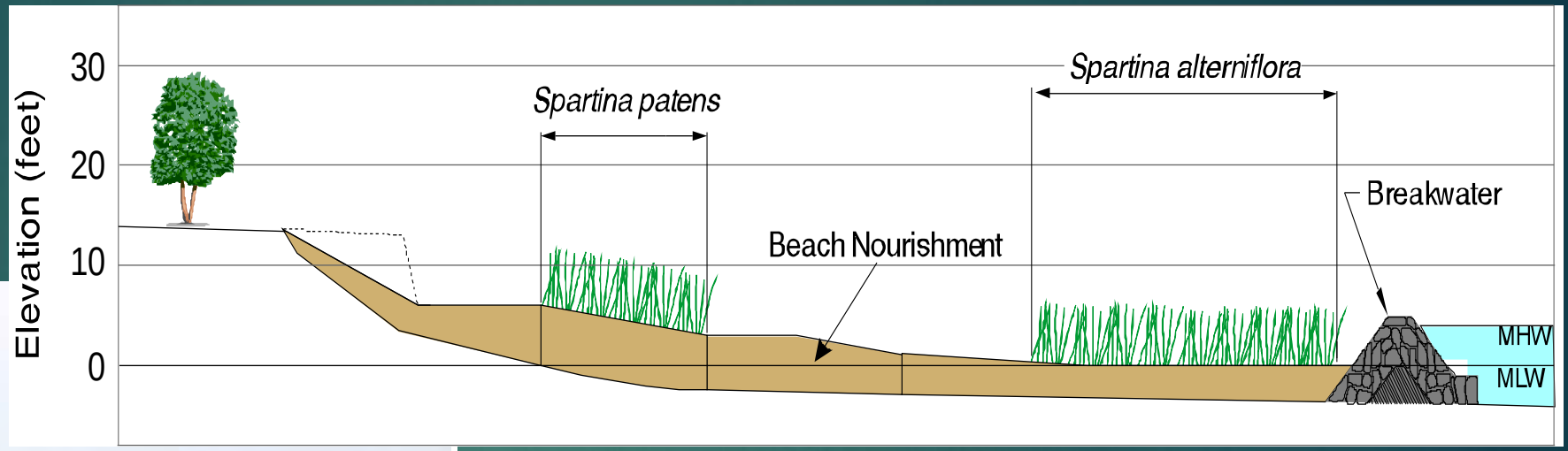
Wind/Wave Climatology and Littoral Transport

- The region of the shoreline that faces the largest fetch or open body of water typically receives the largest amount of wave energy.
- Therefore, with an open fetch facing directly east of almost 10 miles to Robins Island across Flanders Bay and Great Peconic Bay, the eastern side of Indian Island experiences the highest rates of erosion.
- The wave energy generated results in the erosion and littoral transport of sediment to the northern and southern deposition areas seen at the project site.

Proposed Project: Natural Living Shoreline with Breakwaters, Seawall with Nourishment, and Vegetation

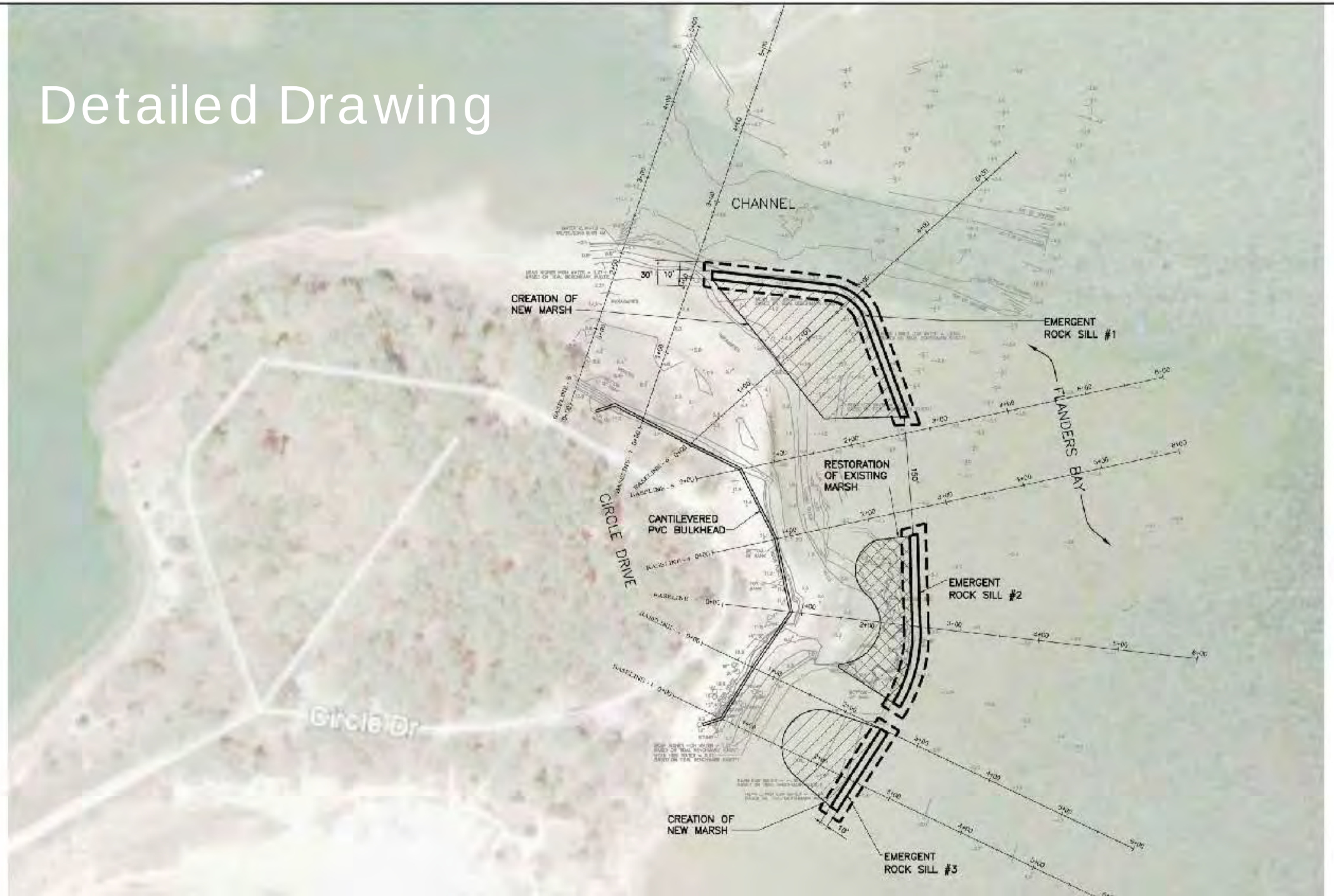
- A Living Shoreline is a method of shoreline protection and erosion control that protects, restores, or enhances natural shoreline habitat while maintaining coastal processes through the placement of plants, stone, sand fill, and other structural materials.
- Living Shorelines help preserve and sustain the native ecosystems of the area and produce new vibrant habitats for plants, fish, shellfish, birds, animals and the public to enjoy.
- The natural shoreline evolution at the project site appears to be a rock bound spartina headland that connects to the shoreline and provides shelter for the bluff and beach. Reinforcing and replicating this natural marsh headland will provide the highest degree of flood protection, erosion control, habitat creation and long-term sustainability.

Natural Living Shoreline Example



Proposed Project Schematic

Detailed Drawing



Proposed Project – Natural Living Shoreline with Breakwaters, Seawall with Nourishment, and Vegetation

- The proposed living shoreline project contains three living segmented emergent rock sills, marsh habitat restoration/enhancement consisting of compatible beach nourishment fill planted with wetland vegetation, and bluff stabilization consisting of an upland cantilevered PVC bulkhead covered with compatible fill and planted with beach grass.

- Living segmented emergent rock sills – three living segmented emergent rock sills are proposed to be placed within the nearshore region of Flanders Bay. The "living" aspect of the sills is proposed to be accomplished by seeding them with encrusting shellfish such as oysters to improve habitat and water quality.

- Marsh habitat restoration/enhancement – existing marsh headlands within the area are proposed to be stabilized with the addition of coir logs and aquatic vegetation planting and invasive plants will be removed. Additionally, marsh areas are proposed to be created landward of the living sills by the placement of approximately 1,500 CY of beach compatible fill planted with aquatic vegetation.

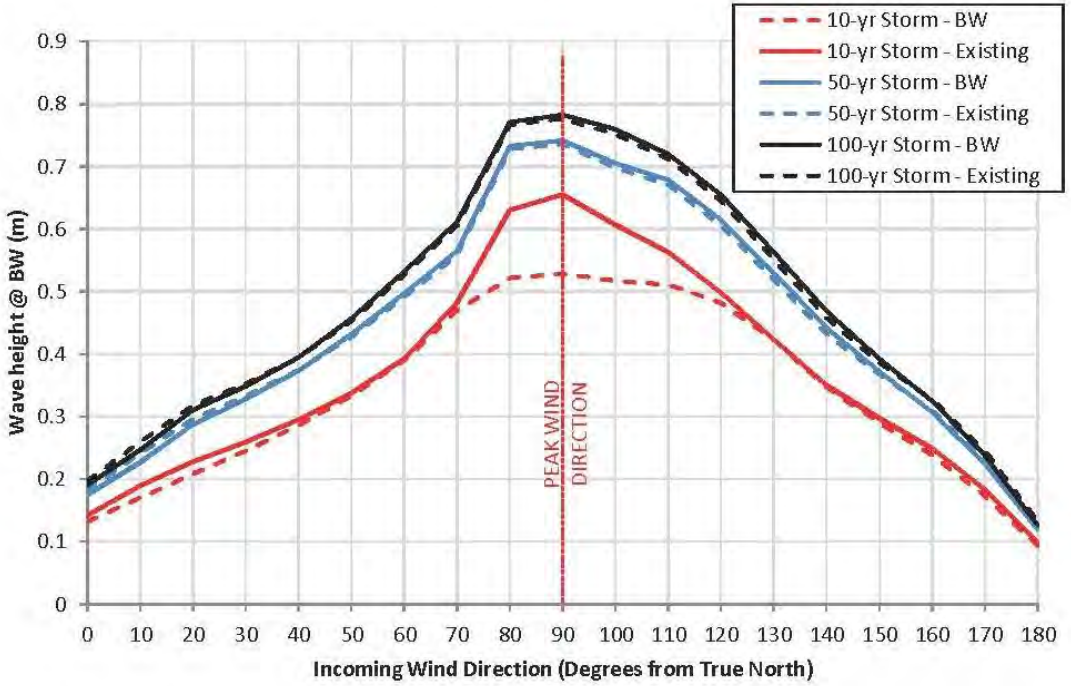
- Bluff Stabilization- A cantilevered PVC bulkhead is proposed to be installed in the existing the bluff landward of the spring high water. The bulkhead is proposed to be covered with approximately 2,000 CY of beach compatible fill and planted with beach grass.

Proposed Project – Natural Living Shoreline Emergent Rock Sill Components

- The proposed project will consist of three living segmented emergent rock sills that are approximately 15-75 feet from the shoreline depending on their actual location and configuration. These sills are the minimum size necessary to provide protection to the fringe wetlands. The sills proposed are emergent; therefore they will be above water level during high tide. The sills are proposed to have a top elevation of +1.5' NAVD88. At the Indian Island site the MHW is approximately +1' NAVD88 and MLW is approximately -2' NAVD88. Therefore, at MHW the sill will be exposed by approximately 6 inches and at MLW the sill will be exposed by approximately 3 -1/2 feet.
- The sills are proposed to have a crest width of 10 feet and will slope down on either side (seaward and landward) on a 1 to 1.5 slope where they will tie into the shoreface. The base width of the sills will vary from approximately 20-25 feet depending on the depth of water in which the sill is located.
- The living rock sills themselves will provide productive rocky subaqueous marine habitat for finfish, shellfish, marine invertebrates, seaweeds, etc. Furthermore, the living rock sill areas are proposed to be seeded with shellfish such as oysters which through their filter feeding, will improve water quality.

Proposed Project Analysis

- The CMS-Wave Model was utilized to develop wave heights to analyze the required level of protection at the project site.
- The numerical model was first set up to simulate the various storm categories for incoming wind directions ranging from 0° (North) to 180° (South) in 10° increments. This was done to determine the direction from which the resulting wave heights are the highest. The highest wave heights were obtained from a 90° (East) direction.
- The proposed project was evaluated through the model for a 10-yr, 50-yr and 100-yr storm, utilizing input wind speeds from the Westhampton Airport 30-yr wind record and storm surges obtained from the FEMA Flood Insurance Study (FIS).
- The results are summarized as follows:



STORM		SURGE [1] (M)	WIND SPEED [2] (M/S)
10%	10-YR	1.2	31
2%	50-YR	1.6	37
1%	100-YR	1.8	39

Notes:
1. Surge elevations based on FEMA FIS.
2. Wind speed based on Westhampton Airport 1986-2015 record.

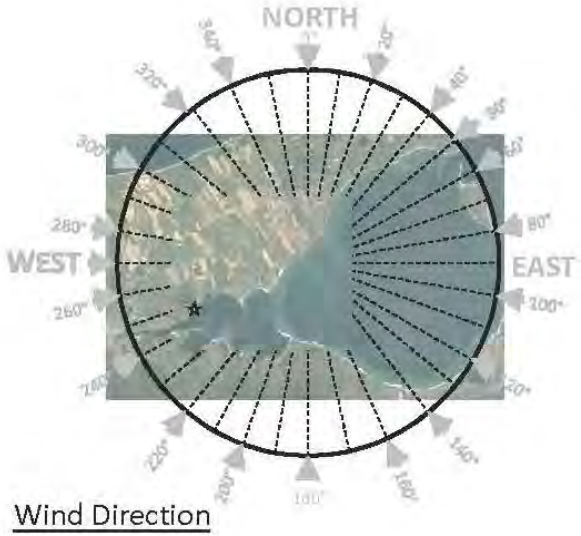


Table 1 – CMS-Wave Model Input

Storm	Storm Surge (m)	Wind Speed (m/s)
10% 10-yr	1.2	31
2% 50-yr	1.6	37
1% 100-yr	1.8	39

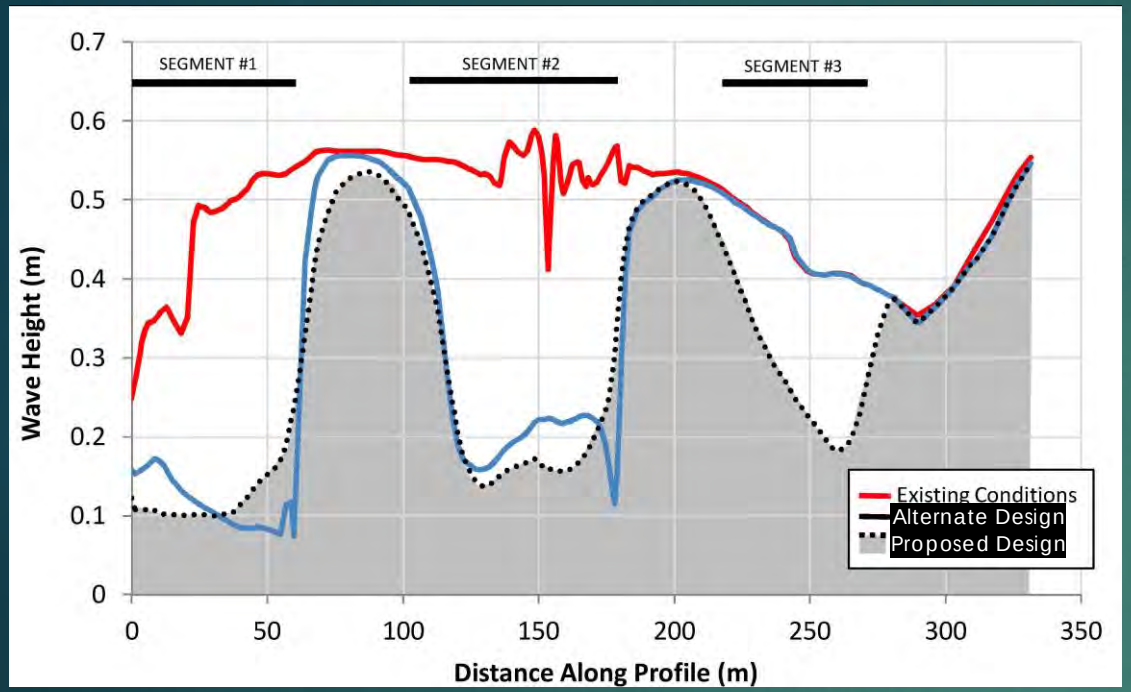
The graph in the figure on the left shows that during 50 and 100 year storm conditions, wave attenuation from the structures is negligible, while waves from the 90° direction are attenuated by approximately 25% during a 10 year storm with associated storm surge.

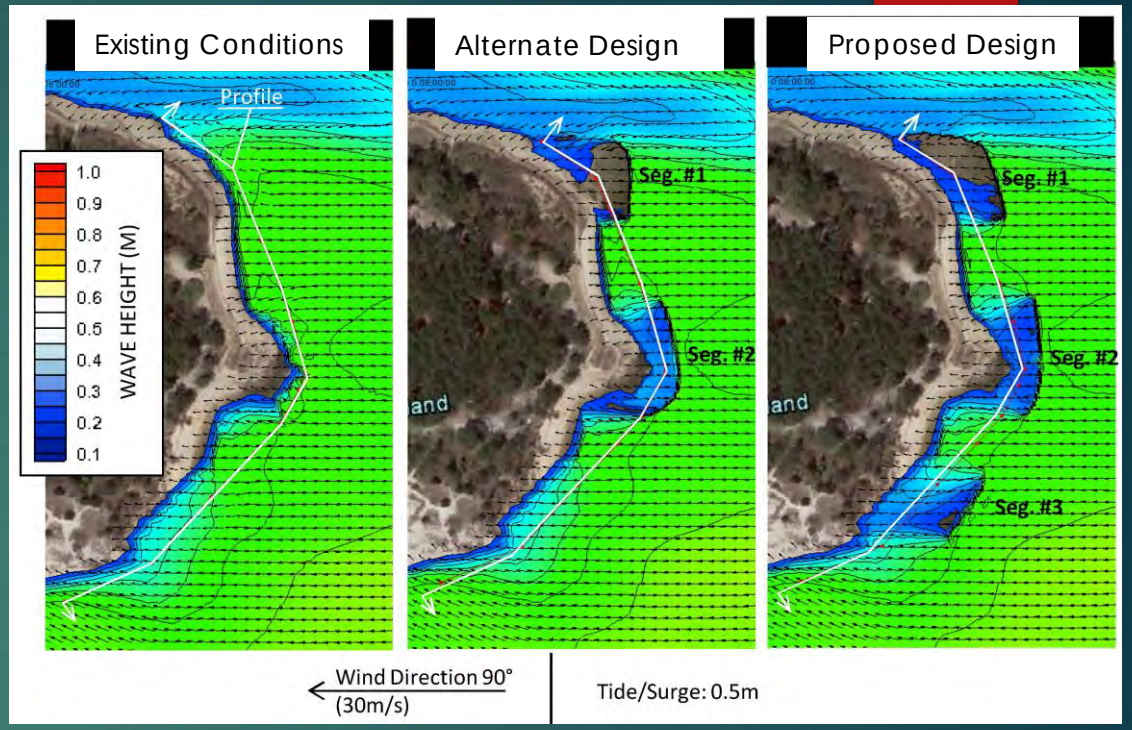
Proposed Project Analysis

While storm surges were evaluated for the storm cases (10-yr, 50-yr and 100-yr), the surge may only materialize when the storm-generated winds are coming from the optimal direction (east), otherwise lower levels of storm surge are likely occur.

Additionally, higher frequency storm events may also result in limited-to-no surge. In order to assess the effectiveness of structures during these more frequent conditions, another set of model runs were prepared for cases with limited surge (+0.5m).

The simulations considered increasing wind speeds from the East (90°) both with and without the proposed structures. The results are summarized as follows:





The results in the graph above demonstrate that the proposed structures will provide wave sheltering during typical conditions and high frequency storm events. This should result in lower erosion rates and increased protection of upland sites.

Proposed Project Analysis

Modeling performed identifies that the proposed breakwaters are most effective in attenuating wave energy for high frequency storms containing moderate surge/ wave setup (1 in 10 year storm with 10% chance of occurrence annually). The reduced wave conditions resulting from the breakwaters will help reduce shoreline erosion and help reduce need for beach nourishment during these moderate surge/wave setup events.

Since the modeling identifies that during large scale storms (storms greater than 1 in 10 year storm) with a wind direction of 90 deg., the east facing shoreline is exposed to the largest wave energy, a retaining wall/bulkhead across this entire area is justified.

Goals Accomplished

Living rock sills are proposed to provide increased protection to the shoreline and bluff of Indian Island against high frequency storm events containing moderate surge and wave heights.

- Protecting Circle Drive from eventual collapse
- Protecting the loss of additional Indian artifacts
- Reducing the need for placing beach sand fill
- Reducing the need for FEMA repair projects

Living rock sills are proposed to provide increased protection to the existing marsh headland and to facilitate the establishment of new marsh area.

- Limit possible infilling of the existing navigation channel located to the north of Indian Island at the entrance of Meetinghouse and Terry Creeks by entrapping sand.
- The living rock sills will create a rocky subaqueous marine habitat for finfish, shellfish, marine invertebrates, seaweeds, etc.
- The living rock sill areas are proposed to be seeded with shellfish such as oysters which through their filter feeding, will improve water quality.

COUNTY OF SUFFOLK

STEVEN BELLONE
COUNTY EXECUTIVE

DEPARTMENT OF ECONOMIC DEVELOPMENT AND PLANNING
DIVISION OF PLANNING AND ENVIRONMENT

COUNCIL ON ENVIRONMENTAL QUALITY

LAWRENCE SWANSON
Chairperson
CEQ

MEMORANDUM

TO: Interested Parties/Involved Agencies

FROM: John Corral, Senior Planner JC

DATE: November 8, 2017

RE: Proposed Acquisition of Land Under the New Enhanced Suffolk County Drinking Water Protection Program 2014 Referendum – Land Purchases for Open Space Preservation Purposes Known as the Dammeyer Property – Mastic/Shirley Conservation Area, Town of Brookhaven

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Enclosed is an Environmental Assessment Form for the above referenced County project which has been submitted to the Council on Environmental Quality (CEQ) for review. Pursuant to Title 6 NYCRR Part 617 and Chapter 450 of the Suffolk County Code, the CEQ must recommend a SEQRA classification for the action and determine whether it may have a significant adverse impact on the environment which would require the preparation of a Draft Environmental Impact Statement (DEIS).

The Council would like to know your environmental concerns regarding this proposal and whether you think a DEIS or a determination of non-significance is warranted. This project will be discussed at the November 15, 2017 CEQ meeting. If you are unable to attend the meeting to present your views, please forward any recommendations or criticisms to this office prior the date of the meeting. **If the Council has not heard from you by the meeting date, they will assume that you feel that the action will not have significant adverse environmental impacts and should proceed accordingly.**

JC/cd
Enc.

cc: John Sohngen, Assoc. Public Health Engineer
Suffolk County Department of Health Services
Andrew P. Freleng, Chief Planner
Department of Economic Development and Planning

COUNTY OF SUFFOLK

Steven Bellone
SUFFOLK COUNTY EXECUTIVE

Department of
Economic Development and Planning

Theresa Ward
Deputy County Executive and Commissioner

Division of Planning
and Environment

October 24, 2017

Mr. Lawrence Swanson, Chairperson
Council on Environmental Quality
H. Lee Dennison Building – 11th Floor
100 Veterans Memorial Highway
Hauppauge, New York 11788

Dear Mr. Swanson:

Attached for your review and consideration is a Short Environmental Assessment Form and an Introductory Resolution authorizing the acquisition of land for open space preservation purposes known as the Dammeyer Property – Mastic/Shirley Conservation Area in the Town of Brookhaven. Please review the proposal and forward the Council's SEQRA recommendation to the County Executive and Legislature.

If you have any questions, please do not hesitate to contact Lauretta Fischer of my staff.

Sincerely,

Sarah Lansdale, A.I.C.P.
Director, Division of
Planning and
Environment

cc: Lauretta R. Fischer, Chief Environmental Analyst
Melissa Kangas, Planning Aide
Andrew Freleng, Chief Planner
John Corral, Planner

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Instructions: The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current available information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action/Project: Authorizing the Acquisition of Land Under the New Enhanced Suffolk County Drinking Water Protection Program 2014 Referendum - Land Purchases for Open Space Preservation - For the Dammeyer Property - Mastic/Shirley Conservation Area		
Project Location (include map): The 4 parcels are located within the Mastic/Shirley Conservation Area on the Mastic/Shirley Peninsula, in the Village of Mastic Beach, Town of Brookhaven; See Attachment A for list of SCTM#s. 2 of the parcels are listed on the Suffolk County Master Lists.		
Brief Description of Proposed Action (include purpose, intent and the environmental resources that may be affected): Acquisition of land by Suffolk County under the Suffolk County Drinking Water Protection Program 2014 Referendum and its dedication to the County Parks Department in order to assure it remain in open space for passive recreational use.		
Name of Applicant/Project Sponsor: Suffolk County Division of Planning and Environment/Lauretta R. Fischer, Chief Environmental Analyst	Email: lauretta.fischer@suffolkcountyny.gov Telephone #: 631-853-6044	
Address: 100 Veterans Memorial Highway, H. Lee Dennsion Bldg. - 2nd Floor		
City/P.O.: Hauppauge	State: New York	Zip Code: 11788
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule or regulation? **If Yes**, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. **If No**, continue to question 2.		Yes ☐ No ☒
2. Does the proposed action require a permit, approval or funding from any other governmental agency? **If Yes**, list agency(s) name and permit or approval:		Yes ☐ No ☒
3a. Total acreage of the site of the proposed action: 0.67		
3b. Total acreage to be physically disturbed: 0		
3c. Total acreage (project site and contiguous properties) owned or controlled by the applicant or project sponsor: 0.67		

4. Check all land uses that occur on, adjoining and near the proposed action: ☐ Urban ☐ Forest ☒ Parkland ☐ Agriculture ☐ Rural (non-agriculture) ☐ Industrial ☒ Aquatic ☐ Commercial ☒ Residential (suburban) ☒ Other: Vacant	
5a. Is the proposed action a permitted use under the zoning regulations?	Yes ☒ No ☐ N/A ☐
5b. Is the proposed action consistent with an adopted comprehensive plan?	Yes ☒ No ☐ N/A ☐
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	Yes ☒ No ☐ N/A ☐
7. Is the site of the proposed action located in, or adjoining a state listed Critical Environmental Area (CEA)? **If Yes**, identify CEA: Coastal Zone Area South	Yes ☒ No ☐
8a. Will the proposed action result in a substantial increase in traffic above present levels?	Yes ☐ No ☒
8b. Are public transportation services available at or near the site of the proposed action?	Yes ☐ No ☒
8c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	Yes ☐ No ☒
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies:	Yes ☐ No ☐ N/A ☒
10. Will the proposed action connect to an existing public/private water supply? **If Yes**, does the existing system have capacity to provide service? Yes ☐ No ☐ **If No,** describe method for providing potable water:	Yes ☐ No ☐ N/A ☒
11. Will the proposed action connect to existing wastewater utilities? **If Yes,** does the existing system have capacity to provide service? Yes ☐ No ☐ **If No,** describe method for providing wastewater treatment:	Yes ☐ No ☐ N/A ☒
12a. Does the site contain a structure that is listed on either the State or National Register of Historic Places or dedicated to the Suffolk County Historic Trust?	Yes ☐ No ☒
12b. Is the proposed action located in an archeological sensitive area?	Yes ☐ No ☒
13a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	Yes ☒ No ☐

13b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? **If Yes**, identify the wetland or waterbody and extent of alterations in square feet or acres:	Yes ☐ No ☒

14. Identify the typical habitat types that occur on, or are likely to be found on the project site (check all that apply):

☒ Shoreline ☒ Forest ☐ Agricultural/grasslands ☒ Early/mid-successional
☒ Wetland ☐ Urban ☐ Suburban

15. Does the site of the proposed action contain any species of animal or associated habitats, listed by the State or Federal government as threatened or endangered?	Yes ☐ No ☒
16. Is the project site located in the 100 year flood plain?	Yes ☒ No ☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? **If Yes**, a. Will storm water discharges flow to adjacent properties? Yes ☐ No ☐ b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? Yes ☐ No ☐ **If Yes,** describe:	Yes ☐ No ☒
18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? **If Yes,** explain size and purpose:	Yes ☐ No ☒
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? **If Yes,** describe:	Yes ☐ No ☒
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? **If Yes,** describe:	Yes ☐ No ☒

I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/Sponsor Name: Lauretta R. Fischer Date: 10-24-2017

Signature: Lauretta R. Fischer

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 2 – Impact Assessment (To be completed by Lead Agency)

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	☒	☐
2. Will the proposed action result in a change in the use or intensity of use of land?	☒	☐
3. Will the proposed action impair the character or quality of the existing community?	☒	☐
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	☒	☐
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	☒	☐
6. Will the proposed action cause an increase in the use of energy and fail to incorporate reasonably available energy conservation or renewable energy opportunities?	☒	☐
7. Will the proposed action impact existing public/private water supplies?	☒	☐
8. Will the proposed action impact existing public/private wastewater treatment utilities?	☒	☐
9. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	☒	☐
10. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	☒	☐
11. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	☒	☐
12. Will the proposed action create a hazard to environmental resources or human health?	☒	☐

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 3 – Determination of Significance

The Lead Agency is responsible for the completion of Part 3. For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts. Attach additional pages as necessary.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required. (Positive Declaration)

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action will not result in any significant adverse environmental impacts. (Negative Declaration)

Name of Lead Agency	Date
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

Attachment A

SCTM#	Master List	Acreage
0209 03300 0200 079000	Yes	0.09
0209 03300 0600 009000	Yes	0.21
0209 02700 0600 052000	No	0.23
0209 02700 0800 017000	No	0.14
	Total Acreage	**0.67**

MASTIC/SHIRLEY CONSERVATION AREA - DAMMEYER PROPERTIES

SCRPTM#: 0209 03300 0200 079000 & 0209 03300 0600 009000

New Suffolk County Drinking Water Protection Program, As Amended By Local Law No. 24-2007 Open Space

0.30 ± acres - Village of Mastic Beach, Town of Brookhaven

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Proposed Acquisition

County of Suffolk

SC Master List

Town of Brookhaven

SCRP Tax Map Base

Proposed for EWPP-FPE Phase II

FEMA FIRM, 100-year Floodplain

NYS DEC Tidal Wetlands

HM - High Marsh

LZ - Littoral Zone

Mastic/Shirley Conservation Area Boundary

Parcels are entirely within the Mastic/Shirley Conservation Area and the FEMA FIRM, 100-year Floodplain.

N W E S

Locator

July 10, 2017 - CD-17-03

0 200 400 600 800 Feet

1 inch = 200 feet

Document Path: U:\carto5\ArcMap_Projects_2017\CD_17_03_EPA\tbr_MasticShirleyAdd_Dammeyer\DammeyerProperty_209_33_tbrMastShir_8x11_17cd003.mxd - Date Saved: 7/10/2017 8:56:32 AM - Author: MSelig

MASTIC/SHIRLEY CONSERVATION AREA - DAMMEYER PROPERTIES

SCRPTM#: 0209 02700 0600 052000 & 0209 02700 0800 017000

New Suffolk County Drinking Water Protection Program, As Amended By Local Law No. 24-2007 Open Space

0.37 ± acres - Village of Mastic Beach, Town of Brookhaven

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July 10, 2017 - CD-17-03

0 300 600 900 1,200 Feet

1 inch = 300 feet

- Proposed Acquisition
- County of Suffolk
- SC Master List
- Town of Brookhaven
- SCRP Tax Map Base
- Proposed for EWPP-FPE Phase II
- FEMA FIRM, 100-year Floodplain
- NYS Freshwater Wetlands

NYS DEC Tidal Wetlands

- HM - High Marsh
- IM - Intertidal Marsh
- LZ - Littoral Zone
- Mastic/Shirley Conservation Area Boundary

Parcels are entirely within the Mastic/Shirley Conservation Area and the FEMA FIRM, 100-year Floodplain.

N W E S

Locator

Document Path: \\plan03\gisdata\carto5\ArcMap_Projects_2017\CD_17_03_EPA\tbr_MasticShirleyAdd_DammeyerDammeyerProperty_tbrMastShir_8x11_17cd003.mxd - Date Saved: 7/10/2017 9:14:12 AM - Author: MSelig

Intro. Res. No. – 2017 Laid on Table
Introduced by Presiding Officer, on request of the County Executive

RESOLUTION NO. - 2017 AUTHORIZING THE ACQUISITION OF LAND UNDER THE NEW ENHANCED SUFFOLK COUNTY DRINKING WATER PROTECTION PROGRAM 2014 REFERENDUM – LAND PURCHASES FOR OPEN SPACE PRESERVATION (CP8732.210) - FOR THE DAMMEYER PROPERTY – MASTIC/SHIRLEY CONSERVATION AREA (TOWN OF BROOKHAVEN - SCTM#'S 0209-033.00-02.00-079.000, 0209-033.00-06.00-009.000, 0209-027.00-06.00-052.000 & 0209-027.00-08.00-017.000)

WHEREAS, Local Law No. 31-2014, a Charter Law Amending the ¼% Suffolk County Drinking Water Protection Program (DWPP) for Enhanced Water Quality Protection, Wastewater Infrastructure and General Fund Property Tax Relief for Suffolk County, created the 2014 Enhanced Suffolk County Water Quality Protection Program, codified in Suffolk County Charter Article XIIA; and

WHEREAS, in November of 2014, two-thirds of Suffolk County voters approved Proposition No. 5-2014, enacting the provisions of Resolution No. 579-2014. Local Law No. 31-2014, "A Charter Law Amending the ¼% Suffolk County Drinking Water Protection Program (DWPP) for Enhanced Water Quality Protection, Wastewater Infrastructure and General Property Fund Tax Relief for Suffolk County." This Proposition recognized the essential nature of the Drinking Water Protection Program to the well-being of the County's drinking water supply and required $29.4 million in serial bonds be issued through the Capital Program for water quality protection program projects; and

WHEREAS, THE 2016 Adopted Capital Budget contains three water quality protection 2014 Referendum capital projects totaling $29.4 million; CP 8732 for land purchases ($20.0 million), CP 8733 for water quality projects ($4.7 million), CP 8734 for sewer improvement projects ($4.7 million); and

WHEREAS, this capital project provides $20 million in serial bond funding for the acquisition by the County, by fee, lease or easement, of interests in land associated with the Suffolk County Drinking Water Protection Program; and

WHEREAS, Resolution Nos. 877-2005, 466-2016 & 103-2017, authorized planning/appraisal steps and Procedural Motion No. 16-2017 authorized acquisition of said property; and

WHEREAS, the Environmental Trust Review Board has reviewed the appraisals and the report of the Internal Appraisal Review Board and has approved the purchase price and authorized the Director of Real Estate and/or his designee to negotiate the acquisition; and

WHEREAS, based upon the Environmental Trust Review Board approved value, an offer to acquire the subject property was made to and accepted by the owner of said property; and

WHEREAS, contracts to acquire said property were prepared by the office of the County Attorney, executed by the owner of the subject property and the Director of Real Estate and/or his designee and approved as to legality form by the Office of the County Attorney; now, therefore, be it:

1st **RESOLVED**, that the County of Suffolk hereby approves the acquisition of the subject property set forth below under the New Enhanced Suffolk County Drinking Water Protection Program, effective as of June 14, 2016, Open Space component, for a total purchase price of [redacted] subject to a final survey; and hereby authorizes additional expenses, which shall include, but not be limited to, the cost of surveys, appraisals, environmental audits, title reports and insurance, and tax adjustments:

PARCEL:	SUFFOLK COUNTY TAX MAP NUMBER:		ACRES:	REPUTED OWNER AND ADDRESS:
No. 1	District	0209	0.09± acres	Frank Dammeyer, Jr.
	Section	033.00		383 Main Street
	Block	02.00		Center Moriches, NY 11934
	Lot	079.000		
No. 2	District	0209	0.21± acres	
	Section	033.00		
	Block	06.00		
	Lot	009.000		
No. 3	District	0209	0.23± acres	
	Section	027.00		
	Block	06.00		
	Lot	052.000		
No. 4	District	0209	0.14± acres	
	Section	027.00		
	Block	08.00		
	Lot	017.000		

; and, be it further

2nd **RESOLVED**, that the Director of Real Estate and/or his designee, is hereby authorized, empowered, and directed, pursuant to Section C42-3(C)(3) of the SUFFOLK COUNTY CHARTER, to acquire the parcel(s) listed herein above from the reputed owner, the funding for which shall be provided under the New Enhanced Suffolk County Drinking Water Protection Program, effective June 14, 2016, Section C12A-2(B)(1) of the SUFFOLK COUNTY CHARTER, for the County's purchase price of [redacted] subject to a final survey; and, be it further

3rd **RESOLVED**, that the County Comptroller is hereby authorized to reserve and to pay [redacted] subject to a final survey, from previously appropriated funds in capital project 525-CAP-8732.210 for the New Enhanced Suffolk County Drinking Water Protection Program, 2014 Referendum, effective as of June 14, 2016, pursuant to the new Article XIIA of the SUFFOLK COUNTY CHARTER, Section C12A-2(B)(1); and, be it further

4th **RESOLVED**, that the Director of Real Estate and/or his designee; the Division of Planning and Environment; and the County Department of Public Works are hereby authorized, empowered, and directed to take such actions and to pay such additional expenses as may be necessary and appropriate to consummate such acquisition, including, but not limited to, securing appraisals, title insurance and title reports, obtaining surveys, engineering reports and environmental audits, making tax adjustments and executing such other documents as are required to acquire such County interest in said lands; and, be it further

5th **RESOLVED**, that the acquisition of such parcel(s) meets the following criteria as required under Section C12-2(B)(1) of the SUFFOLK COUNTY CHARTER:

a.) freshwater/tidal wetlands and buffer lands for same;
d.) lands determined by the County Department of Planning to be necessary for maintaining the quality of surface and/or groundwater in Suffolk County; and, be it further

7th **RESOLVED**, that the subject parcel(s) shall be transferred to the County Department of Parks, Recreation and Conservation for passive recreational use; and, be it further

8th **RESOLVED**, that the above activity is an unlisted action pursuant to the provisions of Title 6 NYCRR, Part 617; and, be it further

9th **RESOLVED**, that the project will not have a significant effect on the environment for the following reasons:

1.) the proposed action will not exceed any of the criteria of 6 NYCRR, Section 617.7, which sets forth thresholds for determining significant effect on the environment, as demonstrated in the Environmental Assessment Form; and

2.) the proposed use of the subject parcel(s) is passive parks; and

3.) if not acquired, the property will most likely be developed for residential purposes; incurring far greater environmental impact than the proposed acquisition and preservation of the site would have; and, be it further

10th **RESOLVED**, that in accordance with Section 450-5(C)(4) of the SUFFOLK COUNTY CODE, the Suffolk County Council on Environmental Quality is hereby directed to prepare and circulate any appropriate notices or determinations in accordance with this resolution.

DATED:

APPROVED BY:

_____
County Executive of Suffolk County
Date of Approval:

COUNTY OF SUFFOLK

STEVEN BELLONE
COUNTY EXECUTIVE

DEPARTMENT OF ECONOMIC DEVELOPMENT AND PLANNING
DIVISION OF PLANNING AND ENVIRONMENT

COUNCIL ON ENVIRONMENTAL QUALITY

LAWRENCE SWANSON
Chairperson
CEQ

MEMORANDUM

TO: Interested Parties/Involved Agencies

FROM: JC
John Corral, Senior Planner

DATE: November 8, 2017

RE: Proposed Acquisition of Land for Open Space Preservation Purposes Known as the Mastic/Shirley Conservation Area Additions – 25 Properties to be Acquired with the U.S. Department of Agriculture, Natural Resources Conservation Service, Town of Brookhaven

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Enclosed is an Environmental Assessment Form for the above referenced County project which has been submitted to the Council on Environmental Quality (CEQ) for review. Pursuant to Title 6 NYCRR Part 617 and Chapter 450 of the Suffolk County Code, the CEQ must recommend a SEQRA classification for the action and determine whether it may have a significant adverse impact on the environment which would require the preparation of a Draft Environmental Impact Statement (DEIS).

The Council would like to know your environmental concerns regarding this proposal and whether you think a DEIS or a determination of non-significance is warranted. This project will be discussed at the **November 15, 2017** CEQ meeting. If you are unable to attend the meeting to present your views, please forward any recommendations or criticisms to this office prior the date of the meeting. **If the Council has not heard from you by the meeting date, they will assume that you feel that the action will not have significant adverse environmental impacts and should proceed accordingly.**

JC/cd
Enc.

cc: John Sohngen, Assoc. Public Health Engineer
Suffolk County Department of Health Services
Andrew P. Freleng, Chief Plauner
Department of Economic Development and Planning

COUNTY OF SUFFOLK

Steven Bellone
SUFFOLK COUNTY EXECUTIVE

Department of
Economic Development and Planning

Theresa Ward
Deputy County Executive and Commissioner

Division of Planning
and Environment

November 2, 2017

Mr. Lawrence Swanson, Chairperson
Council on Environmental Quality
H. Lee Dennison Building – 11th Floor
100 Veterans Memorial Highway
Hauppauge, New York 11788

Dear Mr. Swanson:

Attached for your review and consideration is a Short Environmental Assessment Form and an Introductory Resolution authorizing the acquisition of land for open space preservation purposes under the New Enhanced Suffolk County Drinking Water Protection Program for 25 properties within the Mastic/Shirley Conservation Area in partnership with the US Department of Agriculture, Natural Resources Conservation Service (NRCS) – Hurricane Sandy Emergency Watershed Protection Program – Floodplain Easements (EWPP-FPE). Please review the proposal and forward the Council's SEQRA recommendation to the County Executive and Legislature.

If you have any questions, please do not hesitate to contact Lauretta Fischer of my staff.

Sincerely,

Sarah Lansdale, A.I.C.P.
Director, Division of
Planning and
Environment

cc: Lauretta R. Fischer, Chief Environmental Analyst
Melissa Kangas, Planning Aide
Andrew Freleng, Chief Planner
John Corral, Planner

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Instructions: The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current available information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action/Project: Authorizing the Acquisition of Land by Suffolk County under the New Enhanced Suffolk County Drinking Water Protection Program for 25 properties within the Mastic/Shirley Conservation Area in partnership with the US Department of Agriculture, Natural Resources Conservation Service (NRCS) - Hurricane Sandy Emergency Watershed Protection Program - Floodplain Easements (EWPP-FPE).		
Project Location (include map): The 25 parcels are located within the Mastic/Shirley Conservation Area on the Mastic/Shirley Peninsula, in the Village of Mastic Beach, Town of Brookhaven; See Attachment A for list of SCTM#s.		
Brief Description of Proposed Action (include purpose, intent and the environmental resources that may be affected): Acquisition of land by Suffolk County in partnership with the US Department of Agriculture, Natural Resources Conservation Service (NRCS) - Hurricane Sandy Emergency Watershed Protection Program - Floodplain Easements (EWPP-FPE), to acquire flood prone properties that were inundated/damaged by Hurricane Sandy on the Mastic/Shirley peninsula, to provide coastal resiliency for future storm events. NRCS will fund the cost of and hold title to the conservation easement on the subject parcels and Suffolk County will fund the cost of and hold title to the residual fee title with funds from the New Enhanced Drinking Water Protection Program for passive recreational purposes. Of the 25 parcels, 5 parcels have existing structures which will be removed after acquisition with funds from NRCS.		
Name of Applicant/Project Sponsor: Suffolk County Division of Planning and Environment/Lauretta R. Fischer, Chief Environmental Analyst		Email: lauretta.fischer@suffolkcountyny.gov Telephone #: 631-853-6044
Address: 100 Veterans Memorial Highway, H. Lee Dennsion Bldg. - 2nd Floor		
City/P.O.: Hauppauge	State: New York	Zip Code: 11788
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule or regulation? **If Yes**, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. **If No**, continue to question 2.		Yes ☐ No ☒
2. Does the proposed action require a permit, approval or funding from any other governmental agency? **If Yes**, list agency(s) name and permit or approval: US Department of Agriculture, Natural Resources Conservation Service (NRCS)		Yes ☒ No ☐
3a. Total acreage of the site of the proposed action: 5.53		

3b. Total acreage to be physically disturbed: 0	
3c. Total acreage (project site and contiguous properties) owned or controlled by the applicant or project sponsor: 5.53	
4. Check all land uses that occur on, adjoining and near the proposed action: ☐ Urban ☐ Forest ☒ Parkland ☐ Agriculture ☐ Rural (non-agriculture) ☐ Industrial ☒ Aquatic ☐ Commercial ☒ Residential (suburban) ☒ Other: Vacant	
5a. Is the proposed action a permitted use under the zoning regulations?	Yes ☒ No ☐ N/A ☐
5b. Is the proposed action consistent with an adopted comprehensive plan?	Yes ☒ No ☐ N/A ☐
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	Yes ☒ No ☐ N/A ☐
7. Is the site of the proposed action located in, or adjoining a state listed Critical Environmental Area (CEA)? **If Yes**, identify CEA: Coastal Zone Area South	Yes ☒ No ☐
8a. Will the proposed action result in a substantial increase in traffic above present levels?	Yes ☐ No ☒
8b. Are public transportation services available at or near the site of the proposed action?	Yes ☐ No ☒
8c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	Yes ☐ No ☒
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies:	Yes ☐ No ☐ N/A ☒
10. Will the proposed action connect to an existing public/private water supply? **If Yes**, does the existing system have capacity to provide service? Yes ☐ No ☐ **If No,** describe method for providing potable water:	Yes ☐ No ☐ N/A ☒
11. Will the proposed action connect to existing wastewater utilities? **If Yes,** does the existing system have capacity to provide service? Yes ☐ No ☐ **If No,** describe method for providing wastewater treatment:	Yes ☐ No ☐ N/A ☒
12a. Does the site contain a structure that is listed on either the State or National Register of Historic Places or dedicated to the Suffolk County Historic Trust?	Yes ☐ No ☒
12b. Is the proposed action located in an archeological sensitive area?	Yes ☐ No ☒

13a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	Yes ☒ No ☐
13b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? **If Yes**, identify the wetland or waterbody and extent of alterations in square feet or acres:	Yes ☐ No ☒

14. Identify the typical habitat types that occur on, or are likely to be found on the project site (check all that apply):

☒ Shoreline ☒ Forest ☐ Agricultural/grasslands ☒ Early/mid-successional
☒ Wetland ☐ Urban ☐ Suburban

15. Does the site of the proposed action contain any species of animal or associated habitats, listed by the State or Federal government as threatened or endangered?	Yes ☐ No ☒
16. Is the project site located in the 100 year flood plain?	Yes ☒ No ☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? **If Yes**, a. Will storm water discharges flow to adjacent properties? Yes ☐ No ☐ b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? Yes ☐ No ☐ **If Yes,** describe:	Yes ☐ No ☒
18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? **If Yes,** explain size and purpose:	Yes ☐ No ☒
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? **If Yes,** describe:	Yes ☐ No ☒
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? **If Yes,** describe:	Yes ☐ No ☒

I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/Sponsor Name: Lauretta R. Fischer Date: 11-2-2017
Chief Environmental Analyst

Signature:

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 2 – Impact Assessment (To be completed by Lead Agency)

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	☒	☐
2. Will the proposed action result in a change in the use or intensity of use of land?	☒	☐
3. Will the proposed action impair the character or quality of the existing community?	☒	☐
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	☒	☐
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	☒	☐
6. Will the proposed action cause an increase in the use of energy and fail to incorporate reasonably available energy conservation or renewable energy opportunities?	☒	☐
7. Will the proposed action impact existing public/private water supplies?	☒	☐
8. Will the proposed action impact existing public/private wastewater treatment utilities?	☒	☐
9. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	☒	☐
10. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	☒	☐
11. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	☒	☐
12. Will the proposed action create a hazard to environmental resources or human health?	☒	☐

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 3 – Determination of Significance

The Lead Agency is responsible for the completion of Part 3. For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts. Attach additional pages as necessary.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required. (Positive Declaration)

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action will not result in any significant adverse environmental impacts. (Negative Declaration)

Name of Lead Agency	Date
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

Attachment A

SCTM#	Master List	Improved	Improvement Notes	Acreage
0209 02100 0500 032000	No	No		0.21
0209 02500 0700 001000	No	No		0.46
0209 02500 0700 002000	No	No		0.46
0209 02500 0700 003000	No	No		0.46
0209 02500 0700 004000	No	No		0.23
0209 02500 0700 013002	No	No		0.88
0209 02700 0700 057000	No	No		0.09
0209 02700 0700 058000	No	No		0.09
0209 03300 0700 025000	Yes	No		0.09
0209 03300 0700 026000	Yes	No		0.09
0209 03300 0800 003000	Yes	Yes	dock and bulkhead	0.17
0209 03300 0900 038000	Yes	No		0.23
0209 03300 0900 041000	Yes	No		0.23
0209 03600 0100 019000	Yes	No		0.09
0209 03600 0100 025000	Yes	No		0.23
0209 03600 0100 027000	Yes	No		0.09
0209 03600 0100 038000	Yes	No		0.22
0209 03600 0100 040000	Yes	No		0.09
0209 03600 0200 023000	No	Yes	house	0.22
0209 03600 0200 024000	No	Yes	driveway, dock and bulkhead	0.15
0209 03600 0300 002000	Yes	No		0.14
0209 03600 0300 004000	Yes	No		0.14
0209 03600 0300 041000	No	Yes	house and shed	0.15
0209 03600 0300 042000	No	Yes	house	0.09
0209 03700 0100 021000	Yes	No		0.23
			Total Acreage:	**5.53**

MASTIC/SHIRLEY CONSERVATION AREA - NRCS PROPERTIES

25 Parcels

New Enhanced Suffolk County Drinking Water Protection Program, Section C12-2 (B)(1) (a) and (d)

Open Space Preservation

6.26 ± acres - Village of Mastic Beach, Town of Brookhaven

DSBL
0209 02100 0500 032000
0209 02500 0700 001000
0209 02500 0700 002000
0209 02500 0700 003000
0209 02500 0700 004000
0209 02500 0700 013002
0209 02700 0700 057000
0209 02700 0700 058000
0209 03300 0700 025000
0209 03300 0700 026000
0209 03300 0800 003000
0209 03300 0900 038000
0209 03300 0900 041000
0209 03600 0100 019000
0209 03600 0100 025000
0209 03600 0100 027000
0209 03600 0100 038000
0209 03600 0100 040000
0209 03600 0200 023000
0209 03600 0200 024000
0209 03600 0300 002000
0209 03600 0300 004000
0209 03600 0300 041000
0209 03600 0300 042000
0209 03700 0100 021000

Proposed Acquisition

County of Suffolk

SC Master List

Town of Brookhaven

State of New York

Proposed for EWPP-FPE Phase II

FEMA FIRM, 100-year Floodplain

NYS Freshwater Wetlands

NYS DEC Tidal Wetlands

HM - High Marsh

IM - Intertidal Marsh

LZ - Littoral Zone

Mastic/Shirley Conservation Area Boundary

Parcels are entirely within the Mastic/Shirley Conservation Area and the FEMA FIRM, 100-year Floodplain.

N W E S

Locator

November 1, 2017 - CD-17-03

0 1,200 2,400 3,600 4,800 Feet

1 inch = 1,200 feet

Document Path: \\plan03\gisdata\carto5\ArcMap_Projects_2017\CD_17_03_EPA\tbr_MasticShirleyConsArea_NRCS\NRCSparcels_tbrMastShir_8x11_17cd003.mxd - Date Saved: 11/3/2017 8:33:42 AM - Author: MSelig

Intro. Res. No. – 2017 Laid on Table
Introduced by Presiding Officer, on request of the County Executive

RESOLUTION NO. - 2017 AUTHORIZING THE ACQUISITION OF LAND UNDER THE NEW ENHANCED SUFFOLK COUNTY DRINKING WATER PROTECTION PROGRAM 2014 REFERENDUM – LAND PURCHASES FOR OPEN SPACE PRESERVATION (CP8732.210) - FOR TWENTY FIVE (25) PROPERTIES WITHIN THE MASTIC/SHIRLEY CONSERVATION AREA IN PARTNERSHIP WITH THE U.S. DEPARTMENT OF AGRICLUTURE – NATURAL RESOURCES CONSERVATION SERVICE (TOWN OF BROOKHAVEN)

WHEREAS, Local Law No. 31-2014, a Charter Law Amending the ¼% Suffolk County Drinking Water Protection Program (DWPP) for Enhanced Water Quality Protection, Wastewater Infrastructure and General Fund Property Tax Relief for Suffolk County, created the 2014 Enhanced Suffolk County Water Quality Protection Program, codified in Suffolk County Charter Article XIIA; and

WHEREAS, in November of 2014, two-thirds of Suffolk County voters approved Proposition No. 5-2014, enacting the provisions of Resolution No. 579-2014. Local Law No. 31-2014, "A Charter Law Amending the ¼% Suffolk County Drinking Water Protection Program (DWPP) for Enhanced Water Quality Protection, Wastewater Infrastructure and General Property Fund Tax Relief for Suffolk County." This Proposition recognized the essential nature of the Drinking Water Protection Program to the well-being of the County's drinking water supply and required $29.4 million in serial bonds be issued through the Capital Program for water quality protection program projects; and

WHEREAS, THE 2016 Adopted Capital Budget contains three water quality protection 2014 Referendum capital projects totaling $29.4 million; CP 8732 for land purchases ($20.0 million), CP 8733 for water quality projects ($4.7 million), CP 8734 for sewer improvement projects ($4.7 million); and

WHEREAS, this capital project provides $20 million in serial bond funding for the acquisition by the County, by fee, lease or easement, of interests in land associated with the Suffolk County Drinking Water Protection Program; and

WHEREAS, Resolution No. 877-2005; Resolution No. 337-2013; Resolution No. 81-2014; Resolution No. 82-2014; Resolution No. 83-2014; Resolution No. 84-2014; Resolution No. 85-2014; Resolution No. 86-2014; Resolution No. 87-2014; and Resolution No. 696-2014 authorized planning/appraisal steps for the acquisition of said property; and

WHEREAS, Suffolk County, through the Department of Economic Development and Planning, Division of Planning and Environment, applied for funds through the Natural Resources Conservation Service (NRCS) for the Emergency Watershed Protection Program – Floodplain Easements (EWPP-FPE) (project) to aid in the acquisition of flood prone properties that were inundated/damaged by Hurricane Sandy; and

WHEREAS, as a result of Hurricane (Superstorm) Sandy, the deadliest and most destructive hurricane of the 2012 Atlantic hurricane season, many areas along the south shore of Long Island were declared disaster areas by the President of the United States; and

WHEREAS, there were numerous small parcels of wetlands and buffer areas within the low-lying, 100-year floodplain area of the Mastic/Shirley Conservation Area that sustained severe flooding damage; and

WHEREAS, the County has identified many parcels of land in the County's Comprehensive Master List Update – 2012 within the Mastic/Shirley Conservation Area for wetland and floodplain protection as well as other properties affected by Hurricane Sandy in this area; and

WHEREAS, the County has, to date, acquired many small, environmentally vulnerable properties in the Mastic/Shirley Conservation Area for preservation purposes; and

WHEREAS, the County took an opportunity to partner with NRCS, as part of their Hurricane Sandy Phase II - EWPP-FPE Program, to acquire flood-prone properties wherein NRCS would propose to acquire a conservation easement and the County would acquire the residual fee title to 25 properties identified within the Mastic/Shirley Conservation Area; and

WHEREAS, Resolution No. 764-2015, Accepted and Appropriated NRCS – Hurricane Sandy EWPP-FPE Grant Funds in connection with the acquisition of environmentally sensitive lands in the Mastic/Shirley Conservation Area to protect floodprone areas against future flooding and storm damage; and

WHEREAS, NRCS would fund the cost of and hold title to the conservation easement; and

WHEREAS, Suffolk County would fund the cost of and hold title to the residual fee title utilizing funds available from the New Drinking Water Protection Program, Article XII, Section 12-2.A.1. (a) and (d.), for open space/floodplain protection purposes; and

WHEREAS, in addition, NRCS would reimburse the County for the soft costs of the acquisition, including: appraisals, surveys, environmental site assessments, and other associated closing costs, as well as the County employee personnel costs associated with these acquisitions; and

WHEREAS, the Environmental Trust Review Board has reviewed the appraisals and the report of the Internal Appraisal Review Board and has approved the purchase price and authorized the Director of Real Estate and/or his designee to negotiate the acquisition; and

WHEREAS, based upon the Environmental Trust Review Board approved value, an offer to acquire the subject property was made to and accepted by the owner of said property; and

WHEREAS, contracts to acquire said property were prepared by the office of the County Attorney, executed by the owner of the subject property and the Director of Real Estate and/or his designee and approved as to legality form by the Office of the County Attorney; now, therefore, be it:

1st **RESOLVED**, that the County of Suffolk hereby approves the acquisition of the residual fee title of the subject 25 properties set forth below under the New Enhanced Suffolk County Drinking Water Protection Program, effective as of June 14, 2016, Open Space component, for a total purchase price of [redacted]

subject to a final survey; and hereby authorizes additional expenses, which shall include, but not be limited to, the cost of surveys, appraisals, environmental audits, title reports and insurance, and tax adjustments:

PARCEL:	SUFFOLK COUNTY TAX MAP NUMBER:	ACRES:	REPUTED OWNER AND ADDRESS:
No. 1	District Section Block Lot	**SEE EXHIBIT "A"**	

; and, be it further

2nd **RESOLVED**, that the Director of Real Estate and/or his designee, is hereby authorized, empowered, and directed, pursuant to Section C42-3(C)(3) of the SUFFOLK COUNTY CHARTER, to acquire the residual fee title of the 25 parcel(s) listed herein above from the reputed owners, the funding for which shall be provided under the New Enhanced Suffolk County Drinking Water Protection Program, effective June 14, 2016, Section C12A-2(B)(1) of the SUFFOLK COUNTY CHARTER, for the County's purchase price of [redacted] subject to a final survey; and, be it further

3rd **RESOLVED**, that the County Comptroller is hereby authorized to reserve and to pay [redacted] subject to a final survey, from previously appropriated funds in capital project 525-CAP-8732.210 for the New Enhanced Suffolk County Drinking Water Protection Program, 2014 Referendum, effective as of June 14, 2016, pursuant to the new Article XIIA of the SUFFOLK COUNTY CHARTER, Section C12A-2(B)(1); and, be it further

4th **RESOLVED**, that the Director of Real Estate and/or his designee; the Division of Planning and Environment; and the County Department of Public Works are hereby authorized, empowered, and directed to take such actions and to pay such additional expenses as may be necessary and appropriate to consummate such acquisition, including, but not limited to, securing appraisals, title insurance and title reports, obtaining surveys, engineering reports and environmental audits, making tax adjustments and executing such other documents as are required to acquire such County interest in said lands; and, be it further

5th **RESOLVED**, that the acquisition of such parcel(s) meets the following criteria as required under Section C12-2(B)(1) of the SUFFOLK COUNTY CHARTER:

a.) freshwater/tidal wetlands and buffer lands for same;

d.) lands determined by the County Department of Planning to be necessary for maintaining the quality of surface and/or groundwater in Suffolk County;

6th **RESOLVED**, that the subject parcel(s) shall be transferred to the County Department of Parks, Recreation and Conservation for passive recreational use; and, be it further

7th **RESOLVED**, that the above activity is an unlisted action (if greater than 100 acres; Type II) pursuant to the provisions of Title 6 NYCRR, Part 617; and, be it further

8th **RESOLVED**, that the project will not have a significant effect on the environment for the following reasons:

1.) the proposed action will not exceed any of the criteria of 6 NYCRR, Section 617.7, which sets forth thresholds for determining significant effect on the environment, as demonstrated in the Environmental Assessment Form; and

2.) the proposed use of the subject parcel(s) is passive recreation and floodplain protection purposes; and

3.) if not acquired, the property will most likely be developed for residential purposes; incurring far greater environmental impact than the proposed acquisition and preservation of the site would have; and, be it further

9th **RESOLVED**, that in accordance with Section 450-5(C)(4) of the SUFFOLK COUNTY CODE, the Suffolk County Council on Environmental Quality is hereby directed to prepare and circulate any appropriate notices or determinations in accordance with this resolution.

DATED:

APPROVED BY:

_____

County Executive of Suffolk County

Date of Approval:

EXHIBIT "A"

SCTM#/OWNER	ACREAGE	RESIDUAL FEE TITLE COST
1. 0209 02100 0500 032000 MERCEDES MOWDY	0.21± acres	[redacted]
2. 0209 02500 0700 001000 PAUL CALABRO	0.46± acres	[redacted]
3. 0209 02500 0700 002000 STEVEN CALABRO	0.46± acres	[redacted]
4. 0209 02500 0700 003000 PAUL CALABRO	0.46± acres	[redacted]
5. 0209 02500 0700 004000 FMC LAND CORP.	0.23± acres	[redacted]
6. 0209 02500 0700 013002 PAUL CALABRO & STEVEN CALABRO	0.88± acres	[redacted]
7. 0209 02700 0700 057000 ALBERT & JEANNETTE RIVELA	0.09± acres	[redacted]
8. 0209 02700 0700 058000 ALBERT & JEANNETTE RIVELA	0.09± acres	[redacted]
9. 0209 03300 0700 025000 SAMUEL PLETENIK	0.09± acres	[redacted]
10. 0209 03300 0700 026000 SAMUEL PLETENIK	0.09± acres	[redacted]
11. 0209 03300 0800 003000 GEORGE & JANE BLYDENBURGH	0.17± acres	[redacted]
12. 0209 03300 0900 038000 SONIA SQROI & ANGELA MANFREDINI	0.23± acres	[redacted]
13. 0209 03300 0900 041000 SONIA SQROI & ANGELA MANFREDINI	0.23± acres	[redacted]
14. 0209 03600 0100 019000 BARBARA ATTENIESE & JOAN MILLER	0.09± acres	[redacted]
15. 0209 03600 0100 025000 C. CANTIUS & M. SHILENSKY	0.23± acres	[redacted]

EXHIBIT "A"(con't)

16. 0209 03600 0100 027000 ROBERT & JOAN GEULA	0.09± acres	[redacted]
17. 0209 03600 0100 038000 C. CANTIUS & M. SHILENSKY	0.22± acres	[redacted]
18. 0209 03600 0100 040000 ESTATE OF ROMANO ALTAMURA	0.09± acres	[redacted]
19. 0209 03600 0200 023000 EDWARD BRAND	0.22± acres	[redacted]
20. 0209 03600 0200 024000 EDWARD BRAND	0.15± acres	[redacted]
21. 0209 03600 0300 002000 ESTATE OF MICHAEL GIANNETTI	0.14± acres	[redacted]
22. 0209 03600 0300 004000 CASALINO LIVING TRUST	0.14± acres	[redacted]
23. 0209 03600 0300 041000 ESTATE OF CHARLES ANNICHIARRICO	0.15± acres	[redacted]
24. 0209 03600 0300 042000 ELLEN BELLO	0.09± acres	[redacted]
25. 0209 03700 0100 021000 NINETY FOUR ASSOCIATES, INC.	0.23± acres	[redacted]
TOTAL	**5.53± acres**	[redacted]

COUNTY OF SUFFOLK

STEVEN BELLONE
COUNTY EXECUTIVE

DEPARTMENT OF ECONOMIC DEVELOPMENT AND PLANNING
DIVISION OF PLANNING AND ENVIRONMENT

COUNCIL ON ENVIRONMENTAL QUALITY

LAWRENCE SWANSON
CHAIRPERSON
CEQ

MEMORANDUM

TO: Interested Parties/Involved Agencies

FROM: John Corral, Senior Planner JC

DATE: November 8, 2017

RE: Proposed Rehabilitation of Deer Lake in the Towns of Babylon and Islip (CP 8716)

Enclosed is an Environmental Assessment Form for the above referenced County project which has been submitted to the Council on Environmental Quality (CEQ) for review. Pursuant to Title 6 NYCRR Part 617 and Chapter 450 of the Suffolk County Code, the CEQ must recommend a SEQRA classification for the action and determine whether it may have a significant adverse impact on the environment which would require the preparation of a Draft Environmental Impact Statement (DEIS).

The Council would like to know your environmental concerns regarding this proposal and whether you think a DEIS or a determination of non-significance is warranted. This project will be discussed at the November 15, 2017 CEQ meeting. If you are unable to attend the meeting to present your views, please forward any recommendations or criticisms to this office prior the date of the meeting. **If the Council has not heard from you by the meeting date, they will assume that you feel that the action will not have significant adverse environmental impacts and should proceed accordingly.**

JC/cd
Enc.

cc: John Sohngen, Assoc. Public Health Engineer
Suffolk County Department of Health Services
Andrew P. Freleng, Chief Planner
Department of Economic Development and Planning
Carrie Meek-Gallagher, NYSDEC

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 - Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 - Project and Sponsor Information

Name of Action or Project:
Rehabilitation of Deer Lake

Project Location (describe, and attach a location map):
Deer Lake, Towns of Babylon and Islip

Brief Description of Proposed Action:
The Suffolk County Department of Public Works (SCDPW) is seeking to rehabilitate Deer Lake; an artificial, privately-owned lake. Deer Lake has a documented history of low water levels during drought seasons, which impact the health and function of the lake. The intent of the project is to install a groundwater supply well and pump to raise and then maintain the lake water level. The well will be located at an upstream property owned by the County along Weeks Road. Pump operation will be controlled by a water level sensor system that will relay the water level at the south end of the lake to the pump via cellular or internet connection. The SCDPW plans to purchase an undeveloped lot at the south end of Deer Lake to provide a recreational access point for the public and will allow for funding to restore and maintain the lake. The lot is located on Kime Avenue and is planned to be developed with an ADA-accessible fishing pier, sidewalk and two (2) on-street parking spaces. The lake is to be stocked with fish following the restoration of the lake. Wetland vegetation disturbed at both properties will be restored.

Name of Applicant or Sponsor:	Telephone: 631-852-4692
Suffolk County Department of Public Works (SCDPW)	E-Mail: Paul.Clinton@suffolkcountyny.gov

Address:
335 Yaphank Avenue

City/PO:	State:	Zip Code:
Yaphank	NY	11980

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval: NYSDEC-Freshwater Wetlands Permit, Long Island Well Permit, Well Engineering Report (if required by NYSDEC). Town of Islip-Variance for onstreet parking spots.	☐	☑

3.a. Total acreage of the site of the proposed action? 21.0 acres
b. Total acreage to be physically disturbed? 0.46 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 1.50 acres

4. Check all land uses that occur on, adjoining and near the proposed action.
☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☑ Commercial ☑ Residential (suburban)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____
☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify: _____	☑	☐
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation service(s) available at or near the site of the proposed action?	☑	☐
c. Are any pedestrian accommodations or bicycle routes available on or near site of the proposed action?	☑	☐
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies: _____	☑	☐
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water: _____	☑	☐
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment: _____	☑	☐
12. a. Does the site contain a structure that is listed on either the State or National Register of Historic Places?	☑	☐
b. Is the proposed action located in an archeological sensitive area?	☐	☐
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☐	☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ The water body is known as Deer Lake. The project plans to restore the function and health of the lake by raising and then maintaining water levels with a groundwater supply well. Groundwater will be drawn upstream at the well and will be discharged at an outfall structure into Swampawams Creek. Swampawams Creek runs south and feeds into Deer Lake.	☐	☑

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional
☑ Wetland ☐ Urban ☑ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100 year flood plain?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes, a. Will storm water discharges flow to adjacent properties? ☐ NO ☐ YES	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: ☐ NO ☐ YES _____		

	NO	YES
18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? If Yes, explain purpose and size: The purpose of the project is to restore a lake with groundwater. An existing weir owned the County is located at the south end of the lake that maintains the lake's water level.	☐	☑
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe:	☑	☐
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: The Weeks Road property owned by the County (site of the proposed groundwater supply well/pump) is adjacent to a former gas-spill remediation site (NYSDEC Spill #85-03490).	☐	☑

I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor name: PAUL J CLINTON /DPW Date: 10/30/17

Signature:

PRINT FORM

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 2 – Impact Assessment (To be completed by Lead Agency)

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	☒	☐
2. Will the proposed action result in a change in the use or intensity of use of land?	☒	☐
3. Will the proposed action impair the character or quality of the existing community?	☒	☐
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	☒	☐
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	☒	☐
6. Will the proposed action cause an increase in the use of energy and fail to incorporate reasonably available energy conservation or renewable energy opportunities?	☒	☐
7. Will the proposed action impact existing public/private water supplies?	☒	☐
8. Will the proposed action impact existing public/private wastewater treatment utilities?	☒	☐
9. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	☒	☐
10. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	☒	☐
11. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	☒	☐
12. Will the proposed action create a hazard to environmental resources or human health?	☒	☐

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 3 – Determination of Significance

The Lead Agency is responsible for the completion of Part 3. For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts. Attach additional pages as necessary.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required. (Positive Declaration)

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action will not result in any significant adverse environmental impacts. (Negative Declaration)

Name of Lead Agency	Date
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

PWGC
Strategic Environmental Engineering Solutions

Planning and Design of the Rehabilitation of Deer Lake in the Towns of Babylon and Islip (CP 8716) – Draft Report

Suffolk County Department of Public Works

July 2016

P.W. GROSSER CONSULTING, INC. • P.W. GROSSER CONSULTING ENGINEER & HYDROGEOLOGIST, PC
630 Johnson Avenue, Suite 7 • Bohemia, NY 11716
Phone: 631.589.6353 • Fax: 631.589.8705 • www.pwgrosser.com
New York, NY • Syracuse, NY • Seattle, NY • Shelton, CT

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APPENDICES

ACRONYMNS

ADA	Americans with Disabilities Act of 1990
bgs	Below Ground Surface
DLHO	Deer Lake Homeowners Association
GPM	Gallons Per Minute
NEMA	National Electrical Manufacturers Association
NYSDEC	New York State Department of Environmental Conservation
PLC	Programmable Logic Controller
PWGC	P.W. Grosser Consulting, Inc.
SCDPW	Suffolk County Department of Public Works
SNMP	Simple Network Management Protocol

EXECUTIVE SUMMARY

The Suffolk County Department of Public Works (SCDPW) is seeking to rehabilitate Deer Lake, an artificial, privately-owned lake located in the Towns of Islip and Babylon. Deer Lake has a documented history of low water levels during drought seasons, which impact the health and function of the lake. PW Grosser Consulting Inc. was retained to outline the design, construction costs, permitting and obstacles anticipated for the installation of a groundwater supply well and pump to raise and then maintain the lake water level.

The SCDPW states no public funds are available to aid in fixing the lake unless there is a public benefit for the project. An undeveloped lot at the south end of Deer Lake could provide a recreational access point for the public and will allow for funding to restore and maintain the lake to a predetermined water level. The lot is located on Kime Avenue and is planned to be developed with an ADA accessible fishing pier, sidewalk and two (2) on-street parking spaces. Augmenting lake water level and developing the vacant property for public access are known to be contentious issues among the local community.

The groundwater supply well and pump will be located at the County-owned recharge basin located at the southwestern corner of Bay Shore Road and Weeks Road. The well will draw groundwater from the Upper Glacial Aquifer formation with a 250 gallon per minute submersible pump. A pitless adapter will direct the discharge effluent to Swampawams Creek, where it will flow downstream to Deer Lake. Pump operation is controlled by a water level sensor system that will relay the water level at the south end of the lake to the pump via cellular or internet connection.

Discussions with the New York State Department of Environmental Conservation (NYSDEC) yielded that the following permits will have to be submitted: freshwater wetlands permit, LI Well permit, fish stocking permit, SPDES/discharge permit (if contamination is found in groundwater) and possibly an engineering report for the well (will be determined by NYSDEC during review of well permit). Dredging and other methods used to deepen lakes were found to not be necessary for providing a year-round fish habitat.

A construction cost estimate for the work detailed in this report was included in Appendix C. The overall cost for completing the work was estimated at $434,360.

1.0 INTRODUCTION

1.1 Background

The Suffolk County Department of Public Works (SCDPW) is seeking to rehabilitate Deer Lake, an artificial, privately-owned lake located in the Towns of Islip and Babylon. The lake is managed by the Deer Lake Homeowners Association (DLHO), consisting of the local residents and homeowners. The lake has a documented history of extreme water loss during drought seasons (Pluhowski, 1970) (NYSDEC, Personal Communication), which impact the health and function of the lake.

The lake is fed primarily by groundwater, storm-water runoff and streamflow from Swampawams Creek. Lake water level is controlled by a weir structure owned by Suffolk County. Lake water is retained by a layer of fine-grained, silty sediments that forms a near-impermeable bottom surface. With permanent saturation, the lake bottom sediments expand to impede water loss from seepage. Sufficient lake water levels were maintained during a period of time when a nearby gas station had installed a well treatment system to remediate groundwater from a previous spill. The treated effluent was discharged into Swampawams Creek, north of Deer Lake, at a flow rate of 100-120 GPM. When the remediation effort finished and the treatment system was shut down, the lake was once again subject to drying out due to dry weather patterns.

Plans to rehabilitate the lake by maintaining its water level have been formulated as far back as the 1960's. These plans have included the installation of a groundwater supply well to pump groundwater into the lake during dry periods and dredging to provide deep water areas for protecting fish populations. Efforts to enact these plans have met obstacles in the form of local opposition from the DLHO and unavailable public lands in which to install the required, physical infrastructure. The SCDPW claims no public funds are available to aid in fixing the lake unless there is a public benefit for the project.

There is one remaining property, located on Kime Avenue, on the south side of Deer Lake that is undeveloped. See Appendix A, Figure 1 for a general location plan of the entire project area. The Kime Avenue property has been the subject of a recent lawsuit between the current owner and the NYSDEC. The outcome of the lawsuit ruled in favor of the NYSDEC, which declared that the owner could not develop on the lot. In light of the verdict, the SCDPW now wishes to acquire the Kime Avenue property as this lot can provide a recreational access point for the public and may now provide public funding to rehabilitate the lake.

1.2 Scope of Services

In May of 2016, The Suffolk County Department of Public Works (SCDPW) retained P.W. Grosser Consulting, Inc. (PWGC) to conduct a lake rehabilitation study. The purpose of the study is to outline the design, construction costs, permitting and obstacles anticipated for the following tasks:

- Have the Kime Avenue Property appraised by the Suffolk County Appraiser's Office
- Acquire the Kime Avenue Property
- Contract a reputable, local surveyor to perform a topographic survey of the Kime Avenue Property
- Conduct a bathymetric survey of Deer Lake to measure water levels as well as bottom sediment
- Select a location to install a groundwater supply well pump to supplement the water level of Deer Lake
- Select an instrumentation system that can monitor lake levels and automatically control the start and stop of the well pump
- Build an ADA accessible fishing pier at the Kime Avenue Property
- Improve the Kime Avenue property with on-street parking and slip-resistant walkway
- Stock Deer Lake with fish. Provide direction on whether the lake needs to be deepened to improve fish survivability.

2.0 DESCRIPTION OF EXISTING CONDITIONS

A map of the surrounding area can be found in Figure 1 in Appendix A. The SCDPW granted authorization to PWGC and its subcontractor(s) to access the DLHO properties.

2.1 Kime Avenue Property

The Kime Avenue property is located in the Town of Islip and has no known address. The property is located in between 197 Kime Avenue and 399 Kime Avenue. The Suffolk County Tax Parcels Map No. is: Section-335 Block-1 Lot-3.5. The property is currently vacant of any structures and has been deemed undevelopable by the NYSDEC.

PWGC visited the Kime Avenue property on 06/17/2016 to document the existing conditions. The property lies on the south side of Deer Lake and is bordered by a chain-link fence with an opening facing Kime Avenue. The west side of the property contains a concrete weir structure owned and maintained by the SCDPW. The level of the lake is controlled with a wood flashboard. On the day of the site visit, the lake water level was observed to be several inches vertically below the concrete base of the weir structure. The sides of the concrete weir

structure had visible water stains indicating past water levels. The wood flashboard measured 2'-2" above the base slab of the weir. The water stains on the weir walls measured 2'10" high from the base slab of the weir.

The east side of the property has a wooden bulkhead in poor condition and is overgrown with native vegetation. Except for a grass pathway, the entire site is heavily vegetated with wetland brush and trees with a height of approximately 30 feet. Photos 1 through 4 depict the current site conditions.

Photo 1: Kime Avenue Property, Entrance at Kime Avenue

Photo 2: Concrete Weir Structure at South Bank of Deer Lake

Photo 3: Concrete Weir Structure and Wooden Flashboard

Photo 4: Abandoned Wooden Bulkhead

2.2 Recharge Basin

A potential location for the installation of the well & pump is a recently constructed recharge basin. The recharge basin property is owned by Suffolk County and is located on the southeast corner of Weeks and Bay Shore Road. See Appendix A, Figure 1 for a general location map. Recent construction involved an asphalt pavement driveway, gabion block walls, a vegetated sand filter bed and a PVC underdrain system that drains into Swampawams Creek. The areas surrounding the recharge basin were heavily vegetated. The site is secured with a chain-link fence and locked gate facing Weeks Road. The chain-link fence surrounds the entire property and runs on top of an artificial berm along the southern border. The SCDPW provided PWGC an as-built drawing plan of the recent construction on 06/20/2016 (included in Appendix D).

PWGC obtained access to the recharge basin property on 06/24/2016 with the permission of the SCDPW Highways Division. According to the SCDPW, the berm on the southern portion of the site was breached and in a state of disrepair. Unauthorized access to Swampawams Creek was possible through an approximately 5' high gap underneath the chain-link fence. This gap was where the filter bed PVC piping ran to reach Swampawams Creek. The ends of the three PVC pipes were visible during the site visit and observed to have been wrapped in filter fabric and partially covered with stone riprap. Photos 5 through 9 depict the current site conditions.

Photo 5: Recharge Basin Entrance at Weeks Road

Photo 6: Recharge Basin Asphalt Driveway and Gabion Block Wall

Photo 7: Recharge Basin Filter Bed

Photo 8: Recharge Basin Berm Opening, Partially Damaged from Storm Runoff

Photo 9: Riprap Leading to Swampawams Creek from Recharge Basin Property

2.3 Swampawams Creek

Swampawams Creek is located both north and south of Deer Lake. The headwaters can be traced to roughly 6,000' north of Deer Lake (Pluhowski, 1970) and runs south past the Southern State Parkway and along C.R. 231 to Hawleys Lake in Babylon. The creek flows into the Recharge Basin property and is largely inaccessible north of Deer Lake. From aerial maps, the extents of the creek that are north of Bay Shore Road and east of an industrial park are owned by either the County Department of Parks or the Town of Babylon. None of these properties were accessible from public roads and, therefore, were eliminated as potential development areas in this study for either the well and pump or for recreational options.

3.0 BATHYMETRIC SURVEY

3.1 Bathymetry and Sediment Depth Survey

Field sampling and surveying were conducted on June 9th and 10th of 2016 in the north and south sections of Deer Lake by PWGC. Open water areas were surveyed for bathymetry and sediment depths. The number of survey points varied between the two (2) lake areas based on adequate watercraft accessibility and the shape of the water bodies.

Each survey location measured the water, soft and hard bottom. Soft bottom depths were measured by using a pole that reached the top of the lake bed surface. The pole was then pushed further down through to the hard bottom. The thickness of the nearly impervious, silty lake bed mud can be estimated from the distance between the two depth measurements. A GPS (Global Positioning System) location was marked for each survey location so that it could be mapped to the location on the lake. The bathymetric surveys can be found in Appendix B, Figures 1 and 2.

The bathymetric surveys revealed that the maximum depth of the lake water in the south and north portions were 2.08' and 2.45', respectively. This is characterized by the depth between the top of the soft sediment and the lake surface. Measurements between the soft and hard surfaces revealed that the lake bed is 0" to 8" thick in the southern portion and 3"-1'-3" in the northern portion.

3.2 Sediment Samples

A sample of both the silty lake bed (sediment located between the soft and hard bottom) and the hard bottom were taken on June 10th of 2016. The lake bed was a very fine, silty mud that was black in color and did not have a strong odor. The hard bottom was a mixture of sand

and gravel with an odor of decomposing organic material. These two (2) samples were helpful in characterizing the particle sizes of the lake bed sediment for seepage analysis.

4.0 DESIGN AND LOCATION SELECTION OF THE GROUNDWATER SUPPLY WELL

4.1 Analysis of Potential Well Locations

There are three (3) potential well locations that were evaluated for this study. These locations are: Kime Avenue property, the recharge basin owned by the County and Swampawams Creek north of Bay Shore Road. The ideal location for the well will have 3 phase power available at a nearby utility pole, be secure from vandalism and be located upstream of Deer Lake.

The Swampawams Creek locations north of Bay Shore Road are not feasible for the well location since they are inaccessible by a public right of way. An easement for power and access would have to be acquired from an existing private-lot owner.

The Kime Avenue property is south of Deer Lake and, therefore, is downstream of it. A groundwater supply well pump installed at Kime Avenue would either have to be pumped to an outfall location north of Deer Lake across several residential property lots to service the northern section of Deer Lake, or would only service the southern section of Deer Lake. Additionally, there is no access to 3 phase power along Kime Avenue.

The recharge basin north of Deer Lake is the most feasible place to install a groundwater supply well pump. The property is already owned by the County, has 208V, 3 phase power along Bay Shore Road and has direct access to Swampawams Creek upstream of Deer Lake. The property is already surrounded by a locked, chain-link fence gate which will prevent vandalism of the well and appurtenances.

4.2 Regional Geology/Hydrogeology

The geologic setting of Long Island is well documented and consists of crystalline bedrock composed of schist, granite, and gneiss overlain by layers of unconsolidated deposits. The upper surface of the bedrock is found at a depth of approximately 1,300 feet below sea level.

The crystalline bedrock has poor water-yielding potential compared to the consolidated layers that overlie the bedrock and is therefore considered an impermeable base to the aquifer system. For this reason, no public water supply wells are screened in the bedrock.

4.3 Local Geology / Hydrology

Immediately overlying the bedrock is the Raritan formation, consisting of the Lloyd Aquifer and the Raritan Clay Member. The Lloyd Aquifer is the deepest of the Aquifers and consists of discontinuous layers of gravel, sand, sandy and silty clay, and solid clay. This Aquifer lies on the bedrock surface, is approximately 275 feet thick, with a depth to the top of the aquifer of approximately 1,025 feet below sea level. The average horizontal hydraulic conductivity of this aquifer is 60 ft/day and has a horizontal to vertical anisotropy of 10:1.

Overlying the Lloyd Aquifer is the Raritan Clay Member. The clay member can be found at a depth of 825 feet below sea level, with an average thickness of 200 feet. The Raritan Clay Member is relatively impermeable, effectively hydraulically isolating the Lloyd Aquifer from overlying aquifers. The Raritan Clay is solid and silty clay with few lenses of sand and gravel. The clay is lignite and pyrite and is gray, red or white in color. The use of the Lloyd aquifer requires New York State Department of Environmental Conservation (NYSDEC) permission and currently there is a moratorium preventing wells from being screened in this formation.

Next is the Magothy formation which lies on top of the Raritan Clay formation. The approximate depth to the formation is 125 feet below grade and extends to a depth of approximately 900 feet, with a total thickness of 775 feet. The Magothy Aquifer is comprised of fine to course sand of moderate to high permeability, with lenses of silt and clay of low permeability. The average horizontal hydraulic conductivity of this aquifer is 50 ft/day and has a horizontal to vertical anisotropy of 40:1. This is the principal aquifer underlying Long Island and is the island's main source of water for public supply.

The last formation is the Upper Glacial formation, which rests on top of the Magothy Aquifer. The aquifer is comprised of fine to course sand and gravel with occasional thin lenses of fine sand and brown clay. The Upper Glacial Aquifer generally has greater water transmitting properties than the underlying Cretaceous age deposits and includes the saturated parts of the upper Pleistocene deposits. The average horizontal hydraulic conductivity of this aquifer is 270 ft/day. The aquifer yields water of marginal quality and is vulnerable to contamination from surface sources.

Refer to Table 1 below for a generalized description of the hydrogeologic units (Pluhowski and Kantrowitz, 1970).

TABLE 1
GENERALIZED DESCRIPTON OF HYDROGEOLOGIC UNITS

Hydrogeologic Unit	Geologic Unit	Description and Hydraulic Characteristics
Upper Glacial Aquifer	Upper Pleistocene Deposits	Till and outwash deposits of sand, silt, and clay and boulders. Varied permeability with an average hydraulic conductivity of 270 feet per day and an anisotropy of 10:1. Outwash has the highest hydraulic conductivity.
Magothy Aquifer	Matawan Group – Magothy Formation, undifferentiated	Fine sand with silt and interbedded clay. Gray and pale yellow quartz sand. Lignite and iron-oxide concretions common. Moderately permeable with an average horizontal hydraulic conductivity of 50 feet per day and an anisotropy of 40:1.
Raritan Confining Unit (Raritan Clay)	Unnamed clay member of the Raritan Formation	Clay. Solid with multicolors such as gray, white, red, or tan. Very poorly permeable. Confines water in underlying unit. Average hydraulic conductivity of 0.001 foot per day.
Lloyd Aquifer	Lloyd Sand Member of the Raritan Formation	Fine to coarse sand and gravel with clay lenses. Moderately permeable with an average hydraulic conductivity of 40 feet per day and an anisotropy of 10:1.
Bedrock	Hartland Formation Crystalline Bedrock	Highly weathered biotite-garnet-schist with low hydraulic conductivity. Impermeable to poorly permeable.

4.4 Well and Pump Design

The purpose of the well and pump is to provide flow augmentation to Deer Lake and maintain the desired water level. The production rate of the well will have to overcome the combined effects of water loses from evaporation and seepage. With the conditions discussed in Section 4.3, the well and pump can be designed to a sufficient level of detail. Prior to well construction, PWGC recommends drilling an exploratory boring at the well site to confirm existing ground conditions and to prepare the final design documents.

4.4.1 Evaporation

Evaporation rates were estimated from USGS Water-Supply Paper 1768 (Pluhowski and Kantrowitz, 1964). The referenced resource lists average evaporation rates for Long Island during each month. Long days and a high angle of incoming sunlight results in higher water surface temperatures. This causes an increase in the amount of evaporation in the late summer and fall months.

To design for the worst case scenario, evaporation rates for the month of July were used. Additionally, no precipitation was assumed to simulate drought conditions. According to the USGS paper, the average amount of pan evaporation in the month of July in Mineola from 1949-1960 was 7.75 inches. The conversion between pan evaporation and lake evaporation requires multiplying the pan evaporation by 0.75 to represent the non-uniform conditions that a natural body of water would experience. Therefore, the entire lake area may evaporate 0.188 inches per day.

4.4.2 Seepage

The rate of seepage through the lake bottom is dependent on the composition of the soils of the mud bed. Smaller particle sizes lead to lower seepage rates, which can be estimated from their hydraulic conductivities. As was confirmed by samples taken from PWGC's bathymetric survey, the lake bottom consists mostly of extremely fine grained, silty mud. The hydraulic conductivity for this soil will be assumed to be K = 3.28 x 10-7 ft/sec or 0.34 inches per day. (Raudkivi and Callendar, 1976).

4.4.3 Design Flow Rate Calculations

DAILY LOSSES = EVAPORATION + SEEPAGE

Evaporation/day = 7.75 in/month x 1 month/30 days x 1 day x 0.75 x 850,000 sq.ft. x 1/12 "/ft =
= 13,724 cu ft./day = 102,655 gals/day = 71.3 gals/min.

Leakage/day = 3.28 x 10 -7 ft./sec x 86,400 sec/day x 850,000 sq. ft. =

= 24,088 cu. ft. /day = 180,180 gals/day

Daily losses = 102,655 gals/day + 180,180 gals/day = 282,835 gals/day

Daily losses = 282,835 gals/day / 1,440 min./day = 196 gals/min.

Factor of safety 1.25

Recommended pumpage rate = 196 gals/min x 1.25 = 245 gals/min.

Select 250 gals/min for pump design

4.4.4 Well Design

The proposed well shall be designed to have a production rate of 250 gpm. Historical records show that the lake level was maintained in the late 1990's by effluent discharged from a gas station spill remediation well. This well was reported to have a 100-120 gpm discharge rate into Swampawams Creek downstream of the Recharge Basin. See Appendix D for a plan obtained from the gas station owner depicting the location of the groundwater wells and discharge site. The high flow rate is more beneficial in that it will be better at preventing still water conditions. Still water during extreme summer and winter weather conditions can create oxygen deficient water that can cause fishkills (Diet for a Small Lake, 2009).

Based on the hydrogeological conditions of the Upper Glacial Aquifer, the well shall be constructed with 10" diameter steel casing and extend 82' deep bgs (below grade surface). The well will have a 15' long, 4.875" diameter stainless steel screen section. A test boring will be completed prior to the permanent well construction for the purposes of logging local geologic conditions and determining the final screen setting and configuration. A test well will be installed in the borehole for water quality sampling and testing. The well will have a pitless adapter configuration to eliminate the need for an expensive, concrete vault and allow for the discharge to remain below the frost line.

Water will be discharged out of the well through a 6" diameter ductile iron pipe to an outfall structure adjacent to Swampawams Creek. The riprap of the outfall structure will dissipate the energy of the water coming out of the pipe and introduce dissolved oxygen into the water which is beneficial to aquatic life. Preliminary design details for the well and pump can be found in Appendix A, Figure 5.

4.4.5 Instrumentation and Water Level Control

The pump in the groundwater supply well is to be controlled based on the water level measured at the weir structure on the Kime Avenue property. The pump will only be operating when the system senses that the water level is below a predetermined elevation. An instrumentation system will be required that can detect the water level at the weir and be able to energize the pump which is approximately 1 mile upstream.

Several communication technologies were researched for this task, with cellular and internet/data connections selected to be the most fitting. Spread Spectrum Radio signal technology was initially considered but eliminated since it requires direct line of sight between the transmitting and receiving stations. The Kime Avenue property and the Recharge Basin have no direct line of sight at ground level. The land in between the two locations contains thick vegetation and trees over 25 feet high. To facilitate spread spectrum radio signal transmission, it may be necessary to install 35'+ high utility poles at both locations. The utility poles would have a high capital cost, introduce permitting issues found in the Town of Islip Building Code and be aesthetically unappealing to the surrounding residents.

An Aquatape AGS/20F Level Gauge can be installed at the weir structure or in the lake inside a slotted still pipe to measure the lake water level. The instrument works by correlating electrical resistance of compressed wires inside a tape with the hydrostatic pressures of the water column. The Aquatape communicates wirelessly to a Metrilink field unit that connects to Ethernet cable connection. This setup will communicate with a SNMP relay also connected via Ethernet cable at the Recharge Basin and then on to the Programmable Logic Controller (PLC) panel that controls the pump. Except for the PLC panel, the equipment mentioned previously is all manufactured by JOWA USA. The schematic design of this system can be found in Appendix A, Figure 4.

The control system will activate the pump once the Aquatape measures the water level to be below the flashboard at the weir. When this has been measured, the PLC panel will turn on the pump and have it run until the Aquatape senses the water level to be at a sufficient level. PLC controls include programming that will have a minimum runtime built into the pump operation to prevent rapid on/off cycling. Failsafe and contingency measures can be programmed into the control system logic to account for sensor failures, power outages, etc.

5.0 SITE IMPROVEMENTS

5.1 Kime Avenue Property

5.1.1 Kime Avenue-Site Improvements

The Kime Avenue property is to be developed with an ADA accessible fishing pier, ADA-compliant non-slip concrete pathway and two (2) on-street parking spaces. Site improvements and general layout are shown in Appendix A, Figure 3.

In order for development to take place, the SCDPW must first acquire the Kime Avenue property. The Kime Avenue property is located entirely within the Town of Islip. An appraisal of the value of the property was performed by the County Appraiser's Office. The appraised value range was $15,000 to $28,000. For the purpose of cost estimating, a value of $28,000 was utilized.

The ADA fishing pier will be a fixed pier with a gangway and transition plate. Handrails on the gangway and pier shall be 42" high at all points except for two (2) designated ADA accessible fishing spots with 34" high railings spanning 30" each. A pier with ADA handrails can be designed and constructed. The pier provides access for four (4) anglers, including two (2) that need ADA access. .

Site ADA accessibility will require a slip-resistant surface connecting the pier location and the roadside. A topographic survey conducted as part of this report permits the walkway to be designed that meets ADA slope requirements.

There are currently no provisions for off-street parking. Two (2) on-street parking spaces will have to be designed, with one (1) being ADA compliant. The ADA compliant parking spot will require a curb cut to widen the street and the installation of a sloped, wheelchair ramp with a detectable warning track. The existing chain-link fence opening provides access to the Kime Avenue property has a storm catch-basin embedded in the curb in front of it. The on-street parking spots and ramp will have to be located further west at the Kime Avenue property than the current access point. The chain-link fence may be relocated further from the road to allow for a walkway of ADA-compliant width to be installed from the parking spaces to the fence opening. See Appendix, Figure 3 for a plan showing improvements to be made to the Kime Avenue property.

An existing wooden bulkhead in a state of disrepair will be demolished and the area regraded. Thick, wetland vegetation has overgrown in the vicinity of the bulkhead and has

caused significant damage and rot to the structure. The bulkhead should be removed to avoid injury to members of the public that use the Kime Avenue property. The bulkhead serves no obvious purpose and would not have to be replaced.

The chain-link fence is located on the north side of the property along the banks of Deer Lake. At the proposed pier access point, the fence will be modified to provide access.

The site will have to be supplied with 110V electrical service and internet/data service for the instrumentation system components. If an internet/data service is chosen for the communication between the transmitter and sensor, additional communication cables will be run. Cellular services will not require communication cables. Utility poles run along Kime Avenue, allowing for these two services to be provided with trenching through vegetated areas. All instrumentation, electrical service components and data components will have to be protected by tamper-proof enclosures to prevent vandalism. The data connection for the instrumentation system will incur monthly charges to run the system.

5.1.2 Kime Avenue-Permitting and Regulatory Concerns

- The banks bordering Deer Lake are considered a wetland by the NYSDEC. A surveyor will have to mark the extents of the wetland as defined by the NYSDEC. A freshwater wetlands permit will have to be submitted and obtained from the NYSDEC for the bulkhead demolition and developing this property with the pier. This can be accomplished using the NY State Joint Application Form.
- Per conversation with Dan Lewis of the NYSDEC (Division of Fish and Wildlife Services): All vegetation disturbed or removed due to construction activities must be replaced. High consideration will be given to activities that are the least destructive to existing site flora.
- A 'Permission to Inspect Property' form must be submitted to the NYSDEC by the owner of the property.
- A 'Short Environmental Assessment' form must be submitted to the NYSDEC by the owner of the property or Engineer of Record.
- Town of Islip Building Code (Chapter 68: Zoning, Article XXIV, §68-420.1) defines and dictates regulations on wireless communication towers. A utility pole installed for the purposes of transmitting spread spectrum radio signals for the instrumentation system would be limited to 35' high, designed for minimal visual impact, must be located 110%

of its height back from the nearest property line and must be surrounded by a 6' high chain-link fence.

- ADA regulations and requirements apply to the pier and its components (railings, gangway, transition plate etc), the site walkway, walkway ramp and parking spaces.
- A variance will have to be granted by the Town of Islip for this project in order to allow for on-street parking in lieu of off-street parking.

5.2 Recharge Basin Property

5.2.1 Recharge Basin-Site Improvements

The Recharge Basin property is to be developed with a pitless adapter groundwater supply well and an outfall structure. The well and pump will be constructed as was described in Section 3.0 and detailed in Appendix A, Figure 5. Site improvements and general layout are shown in Appendix A, Figure 2. The Recharge Basin property is currently owned by the County and is located entirely within the Town of Babylon.

The groundwater supply well will be installed on the southwest corner of the site at the edge of the existing asphalt pavement. The well/pump assembly will require an electrical meter, power panel, motor control panel to operate the pump and a PLC control panel to interface with the JOWA USA SNMP relay. Either a communications cable or cellular connection will be required to communicate with the level sensor. The well pump requires 208 volt, 3 phase power service which can be provided from a pole mounted transformer located on the utility poles on Weeks Road/Bay Shore Road. The electrical/control panels will be provided with a grounded concrete pad and mounted on vertical Unitstrut supports. All components will be located inside tamper proof, NEMA 4x enclosures and supplied by conduit trenched underground.

The well head has the option of being installed inside a concrete box with a manhole cover to provide strong resistance to being vandalized or within a pitless adapter. An underground 6" ductile iron pipe will carry the well effluent to the outfall structure at Swampawams Creek. The discharge of the well will be controlled by a 4" control valve. Either a venturi or turbine style flow meter with logging capability will be installed in an underground valve box. The outfall structure will be designed to withstand the 3 ft/s velocity of the effluent with riprap over a bed of filter fabric.

The site is located near a former gas-spill remediation site. Before the well is constructed, water samples from the test borehole should be examined for any traces of groundwater contamination. Data should be gathered from the NYSDEC on the specific chemicals being removed as part of the previous remediation system was treating in the ground and compare it with well samples. The SCDPW should take every precaution that groundwater being added to the Swampawams Creek/Deer Lake system is not contaminated, be it from known or unknown sources.

The data connection for the instrumentation system will incur monthly charges to run the system.

5.2.2 Recharge Basin-Permitting and Regulatory Concerns

- An 'Application for Long Island Well' permit will have to be prepared and submitted to the NYSDEC. The permit will have to include usage characteristics of the well. Being required to submit an Engineering Report is contingent upon NYSDEC decision during LI well permit review. (Personal Communication, David Lengyel).
- A 'Well Discharge' (SPDES) is required depending on the water quality test results. If results come back with evidence of contamination, a permit will have to be filled out and submitted to the NYSDEC.
- Swampawams Creek is considered a wetland by the NYSDEC. The extents of the wetland as defined by the NYSDEC were called out in the SCDPW As-built drawings in Appendix D. A freshwater wetlands permit will have to be obtained for developing this property with the well and outfall structure and submitted to the NYSDEC. This can be accomplished using the NY State Joint Application Form. Include the 'Structural Archaeological Assessment Form (SAAF).
- A 'Permission to Inspect Property' form must be submitted to the NYSDEC by the owner of the property.
- A 'Short Environmental Assessment' form must be submitted to the NYSDEC by the owner of the property or Engineer of Record.

5.3 Fish Stocking

With the lake water level raised and maintained, the lake can be stocked with fish. The owners of the lake, the Deer Lake Homeowners Association (DLHO), must apply for the fish stocking permit with the NYSDEC Division of Fish and Wildlife. The fish stocking permit is free

and is valid for five (5) years. Fish purchased must include a Fish Health Inspection Report certificate from the vendor that confirms that all fish are free of disease-causing pathogens.

Inquiries to the NYSDEC Region 1 Freshwater Fisheries Manager yielded several other recommendations specific to Deer Lake (Charles Guthrie, Personal Communication). With the depth maintained at five (5) feet deep, Deer Lake has a high probability of maintaining year-round fish populations. The type of fish most suitable for surviving at Deer Lake would be bass, sunfish and bluegill. The water will most likely be too warm to support trout. With the lake level raised to the height of the flashboard at the weir, dredging will not be required to provide a deep zone for fish to survive the winter. Other Long Island lakes listed on the NYSDEC website, such as Belmont Lake in North Babylon, have fish populations that live year-round with a listed maximum depth of 4' (Belmont Lake, North Babylon-NYSDEC).

Summer fishkills and algae blooms can be avoided by providing the lake with water that is high in dissolved oxygen. The riprap at the outfall structure and water traveling through rocks and brush along Swampawams Creek will aid in entraining oxygen in the lake water. Water introduced from pumping is also helpful in that it stimulates lake circulation and prevents stagnation.

Once the Recharge Basin well is developed, the water produced should be tested for dissolved oxygen content and carbon dioxide. Instrumentation for monitoring the dissolved oxygen content and temperature of the lake water may be helpful in checking the health of the lake ecosystem. There is another location on Long Island that has successfully used groundwater for providing a habitat for fish. The Connetquot Fish Hatchery at the Connetquot River State Park uses pumped groundwater for raising trout and achieves a healthy environment by managing dissolved oxygen levels.

6.0 CONSTRUCTION BUDGET ESTIMATE

A construction budget estimate was completed covering the components of the project detailed in this report. The estimate covers efforts for permitting, property acquisition, design and construction. The costs are broken down into several phases and include estimated pricing from a combination of R.S Means and vendor quotes. The overall budget cost for the project was estimated at $383,610 with a yearly operation and maintenance cost of $15,713.

7.0 REFERENCES

Belmont Lake, North Babylon - NYS Dept. of Environmental Conservation. (n.d.). Retrieved July 6, 2016, from http://www.dec.ny.gov/outdoor/24151.html

Diet for a Small Lake: the expanded guide to New York State lake and watershed management. 2d ed. (2009). NYSFOLA in cooperation with the New York State Department of Environmental Conservation.

Personal Communication, Charles Guthrie, NYSDEC Division of Fish and Wildlife. Phone Call, 7/1/2016.

Personal Communication, Dan Lewis, NYSDEC Division of Fish and Wildlife. Phone Call, 6/30/2016.

Personal Communication, David Lengyel, NYSDEC Water Program Specialist. Phone Call, 7/6/2016.

Pluhowski, E. J. (1970). Urbanization and Its Effect on Temperature of the Streams on Long Island, New York. Geological Survey Professional Paper 627-D.

Pluhowski, E. J. and I.H. Kantrowitz (1964). Hydrology of the Babylon-Islip Area Suffolk County Long Island, New York. Geological Survey Water-Supply Paper 1768.

Raudkivi, A.J. and Callandar, R.A. (1976). Analysis of Groundwater Flow. Hodder Arnold Publications.

APPENDIX A-FIGURES

Legend

Existing	Proposed	Notes
		PROPERTY LINE
		WATER BOUNDARY

0 500 1000 2000

PWGC

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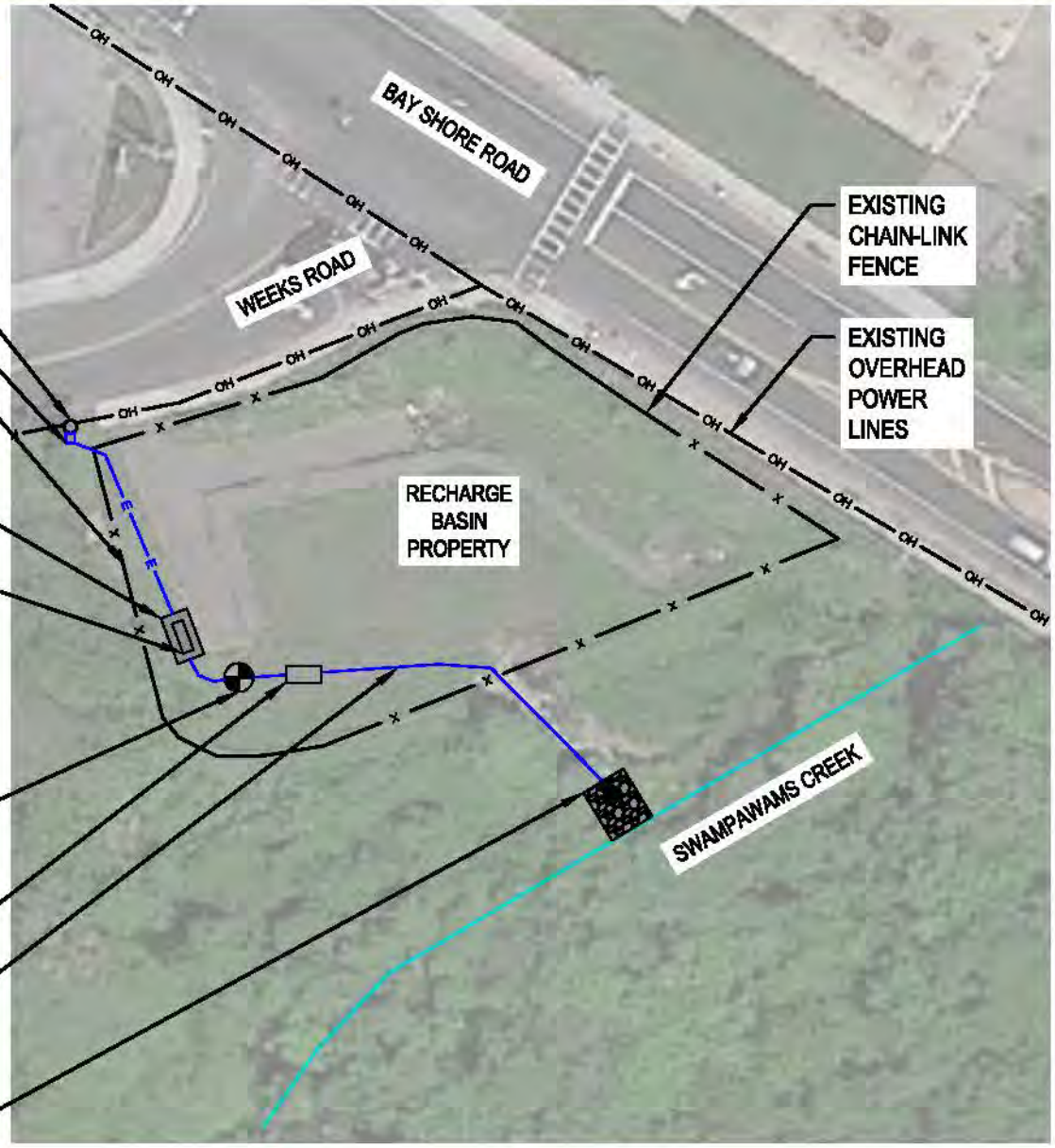
FIGURE 1: LOCATION MAP-DEER LAKE

SCALE: 1" = 1,000'

DEER LAKE REHABILITATION STUDY

Project:	DPW1601
Designed by:	BCH
Approved by:	GR
Drawn by:	BCH
Date:	6/7/16
Figure No:	A-1



Legend

Existing	Proposed	Notes
—OH—		OVERHEAD ELECTRICAL LINE
— x —		CHAINLINK FENCE
		NATURAL WATERWAY
	—E—	ELECTRICAL LINE
		GW SUPPLY WELL

NOTES:
1) SCDPW AS-BUILT DRAWING FOR RECHARGE BASIN CAN BE FOUND INCLUDED IN APPENDIX D.
2) WATER LEVEL SYSTEM EQUIPMENT PLAN CAN BE FOUND IN APPENDIX A, FIGURE 4.
3) WELL DESIGN DETAIL CAN BE FOUND IN APPENDIX A, FIGURE 5.

0 25 50 100

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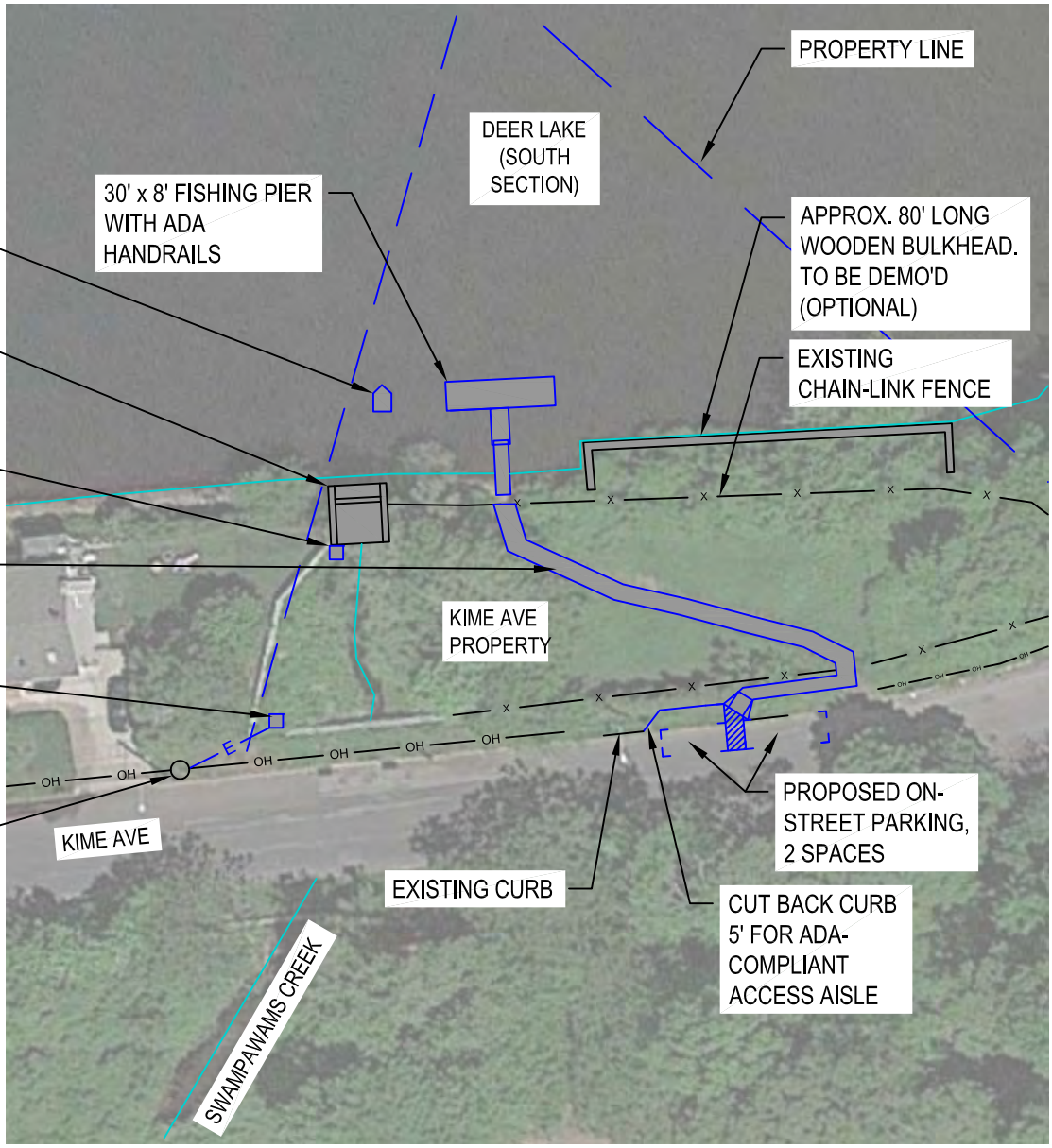
FIGURE 2: RECHARGE BASIN

SCALE: 1" = 50'

DEER LAKE REHABILITATION STUDY

Project:	DPW1681
Designed by:	BCH
Approved by:	GR
Drawn by:	BCH
Date:	6/7/16
Figure No:	A-2



Legend

Proposed	Notes
OH	OVERHEAD ELECTRICAL LINE
X	CHAINLINK FENCE
	NATURAL WATERWAY
	PROPERTY LINE
E	ELECTRICAL LINE

0 50 100 200

FIGURE 3: KIME AVENUE PROPERTY

SCALE: 1" = 100'

DEER LAKE REHABILITATION STUDY

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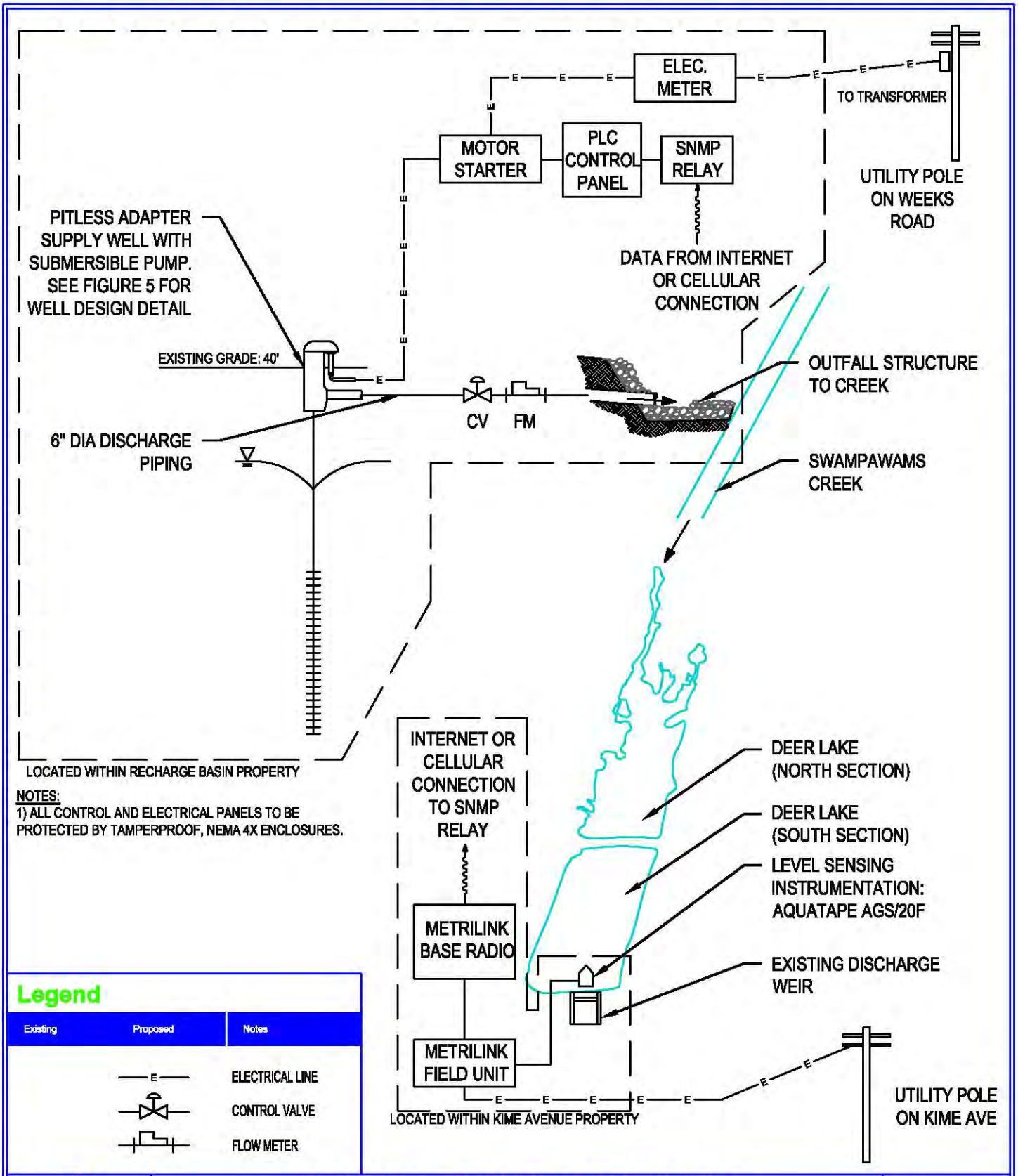
Project:	DPW1601
Designed by:	BCH
Approved by:	GR
Drawn by:	BCH
Date:	6/7/16
Figure No:	A-3



NOTES:
1) ALL CONTROL AND ELECTRICAL PANELS TO BE PROTECTED BY TAMPERPROOF, NEMA 4X ENCLOSURES.

Legend

Existing	Proposed	Notes
	E	ELECTRICAL LINE
		CONTROL VALVE
		FLOW METER

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FIGURE 4: SYSTEM SCHEMATIC

SCALE: NOT TO SCALE

DEER LAKE REHABILITATION STUDY

Project:	DPW1601
Designed by:	BCH
Approved by:	GR
Drawn by:	BCH
Date:	6/7/16
Figure No:	A-4

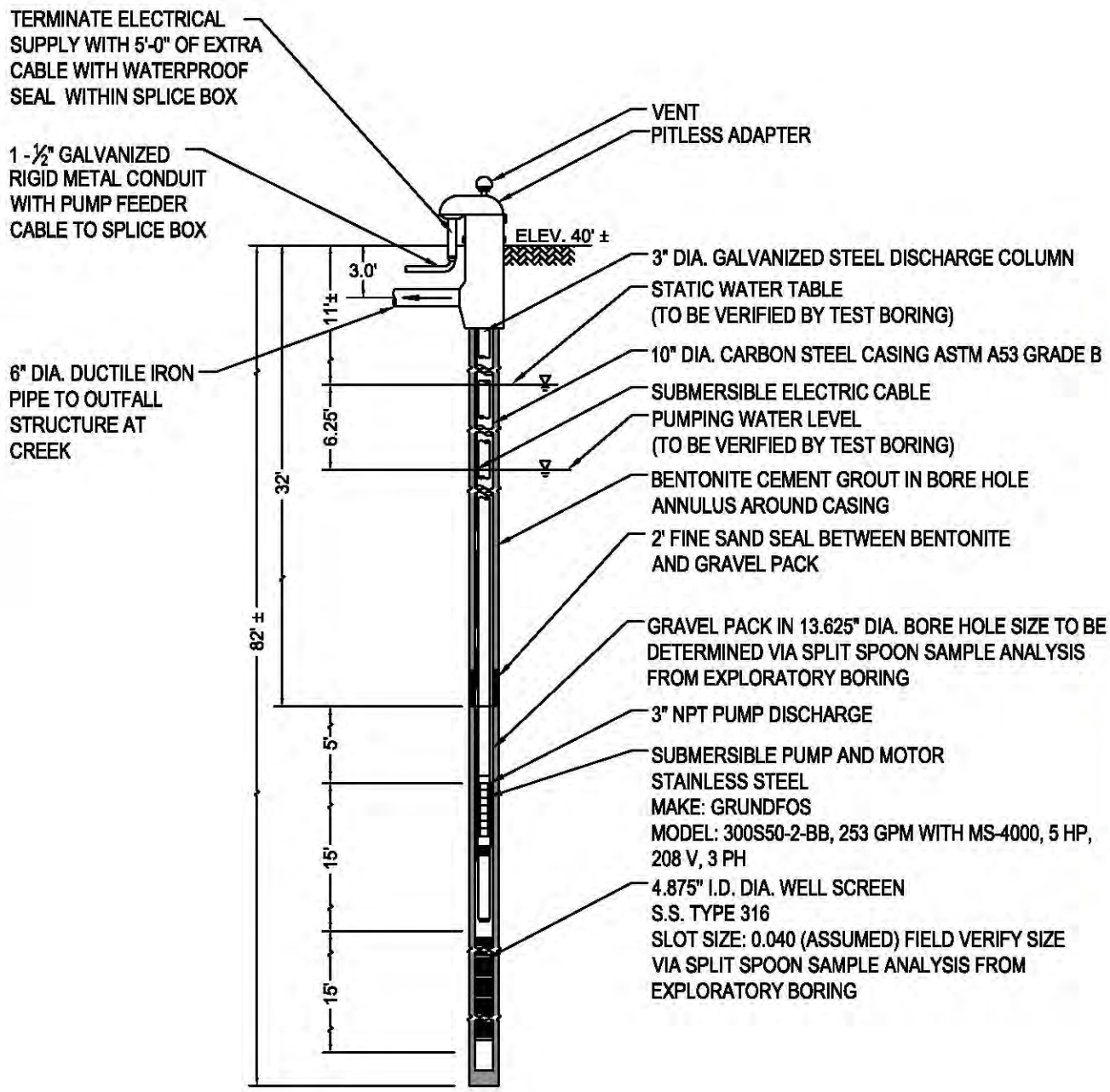

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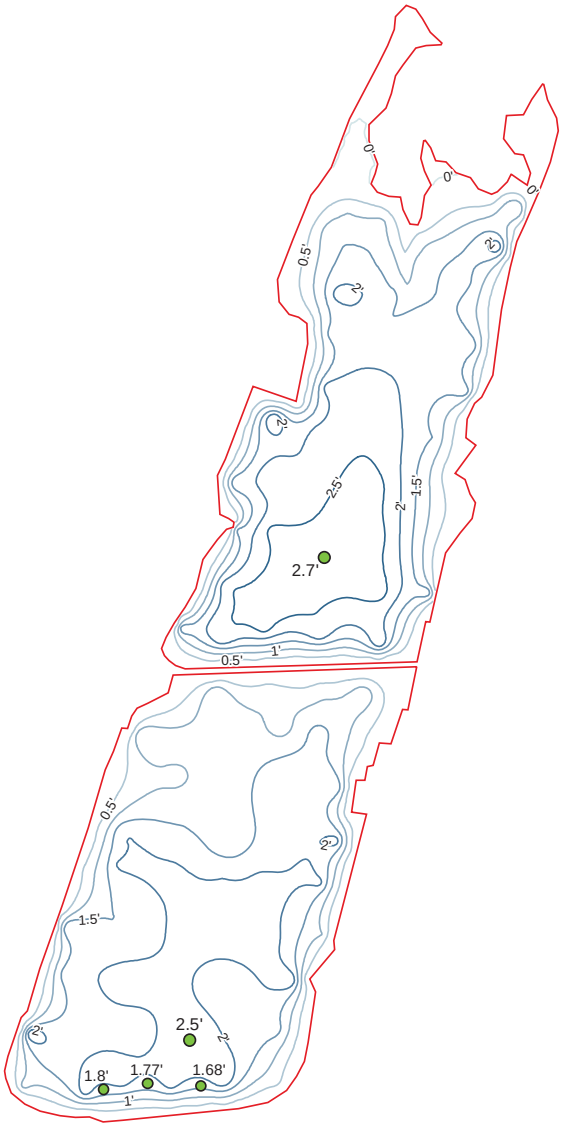
FIGURE 5: GW SUPPLY WELL DETAIL

SCALE: NOT TO SCALE

DEER LAKE REHABILITATION STUDY

Project:	DPW1601
Designed by:	BCH
Approved by:	GR
Drawn by:	BCH
Date:	6/7/16
Figure No:	A-5

APPENDIX B-BATHYMETRIC SURVEY



SCALE: 1:3,000

0 250 500 750 1,000 Feet

Document Path: G:\Projects\A-D\DPW1601\maps\ArcLake_HardSediment_Contours.mxd

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DRAWING PREPARED FOR:

REVISION	DATE	INITIAL	COMMENTS

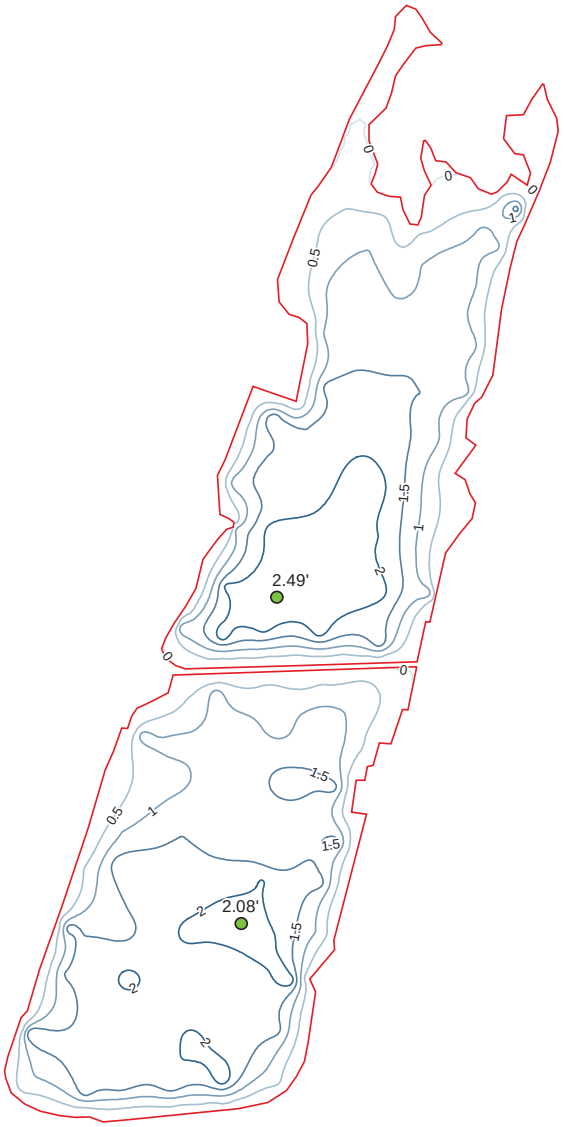
DRAWING INFORMATION:

Project:	DPW1601	Designed by:	JCG
Date:	7/1/2016	Drawn by:	JCG
Scale:	AS SHOWN	Approved by:	BH

DEPTH TO TOP OF HARD SEDIMENT

DEER LAKE

FIGURE NO:



SCALE: 1:3,000

0 250 500 750 1,000 Feet

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DRAWING PREPARED FOR:

REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

Project:	DPW1601	Designed by:	JCG
Date:	7/1/2016	Drawn by:	JCG
Scale:	AS SHOWN	Approved by:	BH

DEPTH TO TOP OF SOFT SEDIMENT

DEER LAKE

FIGURE NO:

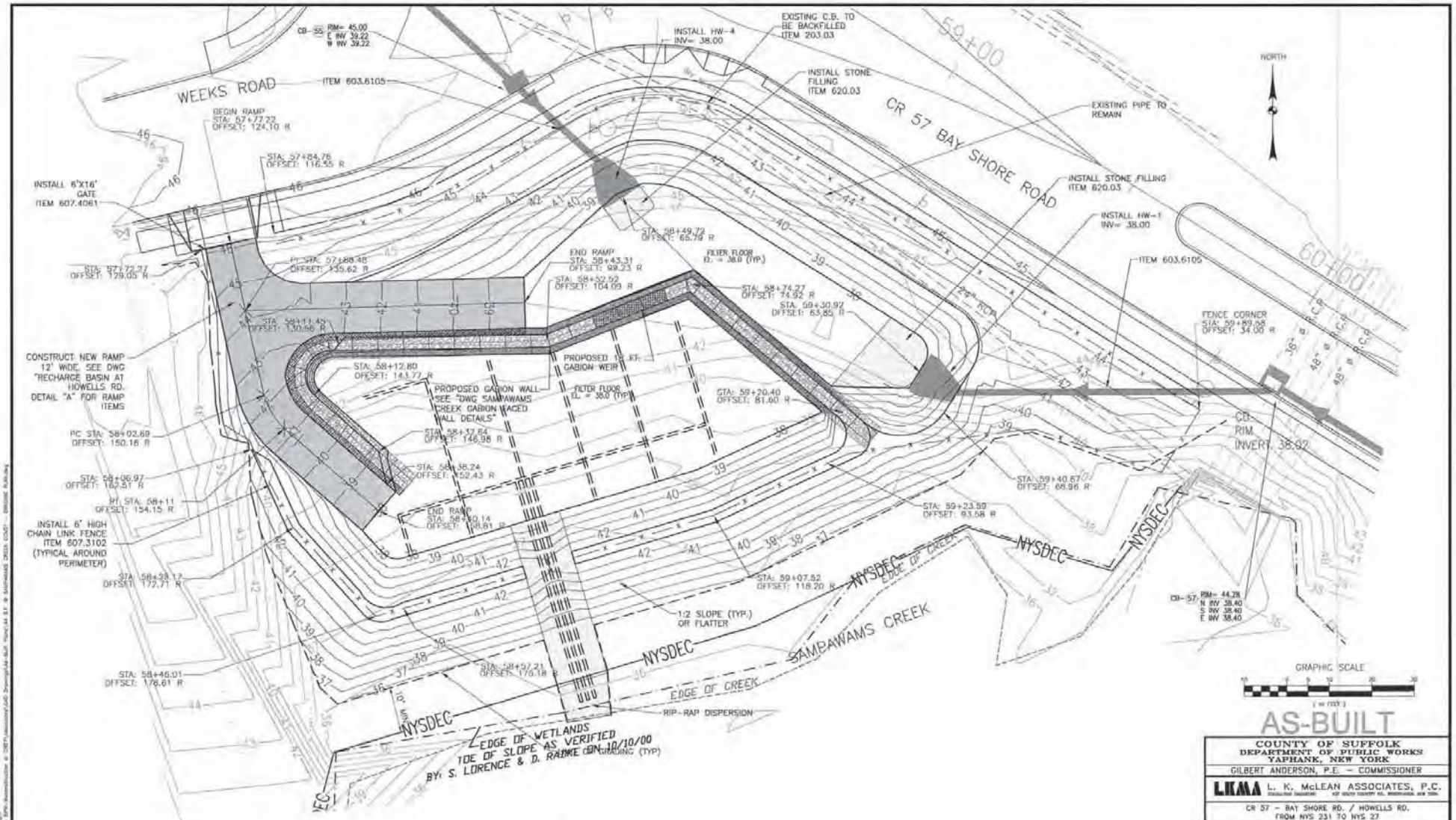
Document Path: G:\Projects\A-D\DPW1601\mapfiles\Lake_Sofsediment_Contours.mxd

APPENDIX C-COST ESTIMATE

Description	Quantity	Units	Cost			
			Unit Cost	Unit	Source	Total Cost
1) Land Acquisition						
1A-Acquire Kime Avenue Property						
Land Value and Acquisition Costs	1	L.S.	$ 28,000.00	L.S.	SC Appraiser	$ 28,000
Total Cost for 1) Land Acquisition						**$ 28,000**
2) New Supply Well at Recharge Basin						
2A-NYSDEC Well Permitting						
LI Well Permit Application Fee	1	ea	$ 200.00	ea	NYS DEC	$ 200
SPDES Discharge Permit (Contingent upon groundwater test results)		ea		ea	NYS DEC	$ -
Project Management for Permit Preparation	20	hr	$ 120.00	hr		$ 2,400
Engineering Report for Groundwater Well (Contingent upon NYSDEC)	1	L.S.	$ 18,000.00	L.S.	PWGC	$ 18,000
Subtotal Cost for 2A-NYSDEC Pemitting						$ 20,600
2B-250 GPM Pitless Adapter Well						
Exploratory Boring						
2-Man Drilling Crew, 100' Borehole, Test Well, 1 Field Engineer, 1 day	1	L.S.	$ 8,980.00	ea	Vendor Quote	$ 8,980
10-inch dia. supply well installation					Vendor Quote	$ 55,000
Mobilization, 2-Man Drilling Crew, 100' Well, 1 Field Engineer, 5 days	1	ea				$ -
Install Grundfos well pump, model 300S50-2-BB	1	ea				$ -
Install pitless adaptor	1	ea				$ -
Grouting	60	ft				$ -
Steel Casing, 10" dia	67	ft				$ -
Stainless Steel Screen, 4.875" dia, 10 ft lengths	2	ea				$ -
Stainless Steel Sump	1	ea				$ -
Miscellaneous Equipment (drillers mud, sand/gravel etc., sump)	1	L.S.				$ -
Groundwater quality analysis, (Iron Content, DO, Contaminants)	1	L.S.				$ -
Subtotal Cost for 2B-New supply well and submersible pump						$ 63,980
2C-Water Distribution System and Connections						
Land preparation/vegetation clearing for site improvements	1	L.S.	$ 2,500.00	L.S.	31.13.13 10 0100	$ 2,500
Excavate pipe trench, 8" wide, 36" deep, include backfill and compaction	120	lf	$ 7.33	lf	31.23.16 14 0750	$ 880
Provide and install 6" ductil iron disharge piping	120	lf	$ 29.00	lf	33.11.13.15 3020	$ 3,480
4-inch control valve	1	ea	$ 5,760.00	ea	22.11.19 42 5700	$ 5,760
6-inch venturi tube flow meter	1	ea	$ 2,190.00	ea	23.21.20 88 0280	$ 2,190
Underground valve box	1	ea	$ 1,000.00	ea		$ 1,000
Digital Indicator display at control panel	1	ea	$ 365.70	ea		$ 366
Outfall structure, riprap and filter fabric	1	L.S.	$ 2,500.00	ea		$ 2,500
Subtotal Cost for 2C-Distribution System and Connections						$ 18,676
2D-Recharge Basin Electrical Upgrades						
Excavate pipe trench, 8" wide, 36" deep, include backfill and compaction	80	lf	$ 7.33	lf	31.23.16 14 0750	$ 587
Rigid steel conduit, plastic coated, 40 mil thick, 1-1/2" dia	80	lf	$ 10.37	lf		$ 829
Copper Wire, THHN #12	320	lf	$ 2.27	lf		$ 726
Concrete Equipment Pad, 8" thick	1	ea	$ 390.00	ea	03.30.53 40 3560	$ 390
Electrical Equipment (power panel, motor starter, elec. meter, connections)	1	L.S.	$ 30,000.00	L.S.		$ 35,000
LIPA Load Letter	1	ea	$ 300.00	ea		$ 300
NEMA 4x Enclosures, Steel	3	ea	$ 400.00	ea		$ 1,200
Three phase,480v transformer	1	ea	$ 3,150.00	ea	26.22.13 10 3500	$ 3,150
Subtotal Cost for 2D-Existing supply well abandonment						$ 42,182

Description	Quantity	Units	Cost			
			Unit Cost	Unit	Source	Total Cost
Tamperproof Enclosed Panels	2	ea	$ 300.00	ea		$ 600
Instrumentation system installation, setup, programming and calibration	1	L.S.	$ 8,316.00	L.S.		$ 8,316
Subtotal Cost for 2E-Water Level Sensor and Controls						$ 13,971
Subtotal Cost for 2A-2E						$ 159,408
Contractor Overhead and Profit (21%)						$ 33,500
Total Cost for 2) New Supply Well						**$ 192,908**
3) Site Improvements-Kime Avenue Property						
3A-Permitting						
Freshwater Wetlands Permit-Dock, Bulkhead Demolition	1	ea	$ 200.00	ea	NYSDEC	$ 200
Project Management for Permitting	20	hr	$ 120.00	hr		$ 2,400
Fish Stocking Permit	1	ea	$ -	ea	NYSDEC	$ -
Subtotal Cost for 3A-Permitting						$ 2,600
3B-Vegetation Clearing and Replacement						
Clear Vegetation, Trees for all construction activities, 0.25 acre	1	L.S.	$ 2,500.00	L.S.	31.13.13 10 0100	$ 2,500
Demolish existing wood bulkhead, 80'x15' bulkhead	1	L.S.	$ 10,000.00	L.S.		$ 10,000
Replanting at end of initial construction, 0.25 acre	1	L.S.	$ 5,000.00	L.S.		$ 5,000
Subtotal Cost for 3B-Clear & Grub Property						$ 17,500
3C-On Street Parking and Walkway						
Curb Cut on Kime Avenue	1	ea	$ 1,000.00	ea		$ 1,000
Demo Existing Sidewalk/Curb	1	L.S.	$ 5,000.00	L.S.		$ 1,500
Repave Road for Access Aisle, Asphalt	100	sf	$ 16.80	sf		$ 1,680
Maintenance of Right-of-Way and Traffic Protection	1	L.S.	$ 2,000.00			$ 2,000
Parking Spot Line Painting, 2 spots, 1 ADA	1	ea	$ 500.00	ea		$ 500
Construct sloped sidewalk ramp, embedded warning strip	1	L.S.	$ 2,500.00	ea		$ 2,500
Modify chain-link fence	20	lf	$ 30.00	lf		$ 600
Construct 5' wide concrete walkway to dock access, broom finish	150	lf	$ 4.48	lf	32.06.10 10 0310	$ 672
Subtotal Cost for 3C-On Street Parking and Walkway						$ 10,452
3D-ADA Compliant, Fixed Fishing Pier						
Furnish and install pier, gangway, transition plates	1	L.S.	$ 47,000.00	L.S.	Vendor Quote	$ 47,000
Subtotal Cost for 3D-ADA Compliant, Fixed Fishing Pier						$ 47,000
Subtotal Cost for 3A-3D						$ 77,552
Contractor Overhead and Profit (21%)						$ 16,300
Total Cost for 3) Site Improvements-Kime Avenue Property						**$ 93,852**
Project Subtotal						**$ 314,760**
Engineering and Preparation of Contract Documents (15%)						**$ 47,200**
Project Contingency (20%)						**$ 72,400**
Total Project Cost						**$ 434,360**
Yearly Operation Costs						
Electrical Costs	1	L.S.	$ 1.00	L.S.		$ 3,500
Internet/Data Connections, Quantity 2	12	months	$ 100.00	ea		$ 2,400
Maintenance, repairs etc, 5% of Material Costs	5%					$ 9,813
Total Yearly Maintenance						**$ 15,713**

APPENDIX D-SUPPLEMENTARY DOCUMENTS AND DRAWINGS



PLAN

DESIGNED BY:	LB
CHECKED BY:	TC
DRAWN BY:	
COMPARED BY:	

SYMBOL	DESCRIPTION	APPROVED	DATE
REVISIONS			

COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

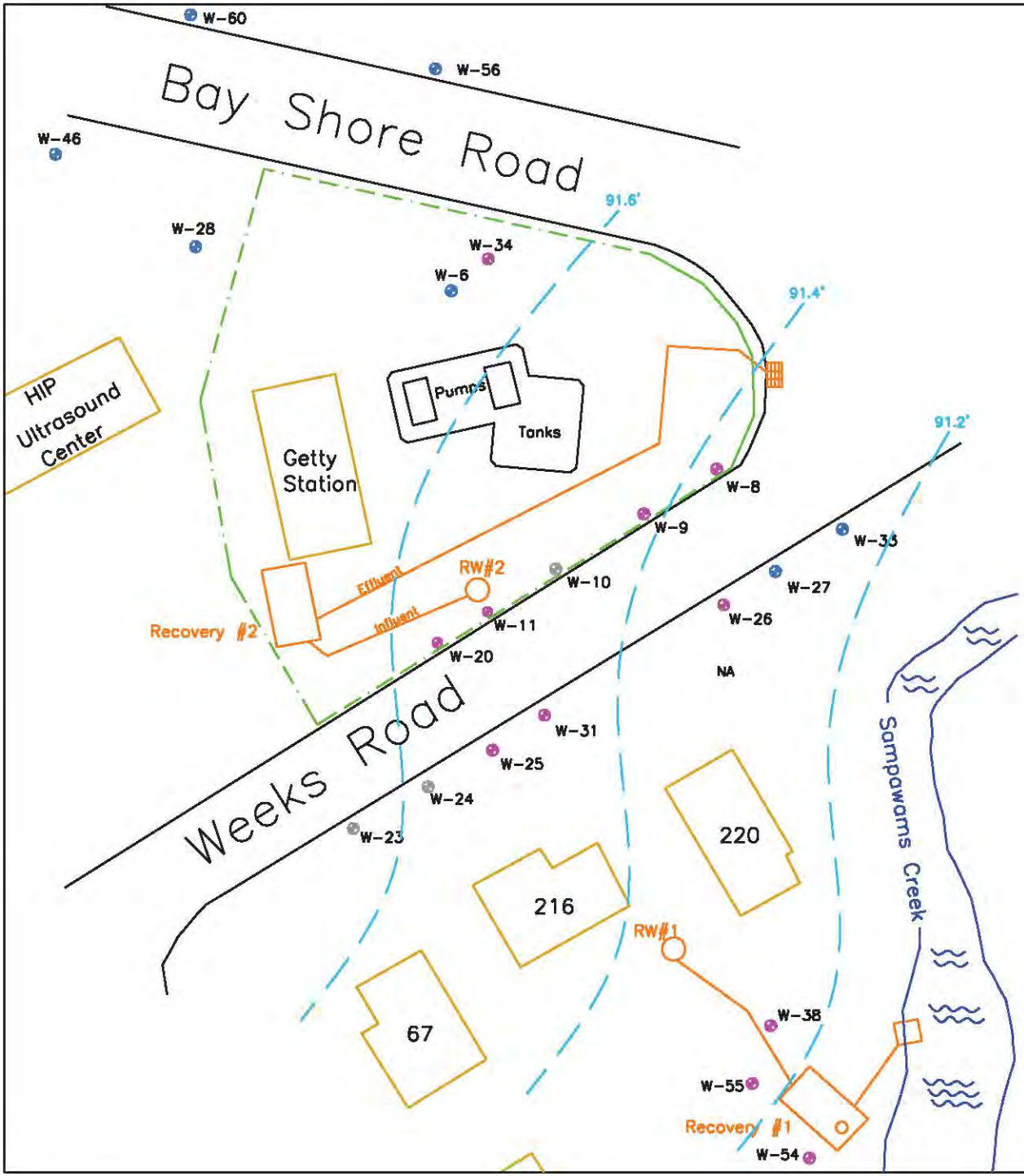
GILBERT ANDERSON, P.E. – COMMISSIONER

LKMA L. K. McLEAN ASSOCIATES, P.C.

CR 57 – BAY SHORE RD. / HOWELLS RD.
FROM NYS 231 TO NYS 27

SURFACE SAND FILTER AT SAMPAWAMS CREEK CONSTRUCTION PLAN

PROJECT NO.	DATE	SHEET NO.
CP 5523.110	8-8-08	44 OF 134



GROUNDWATER DATA AS OF 2/13/09

WELL ID	RELATIVE GW ELEVATION	BTEX (ppb)	MTBE (ppb)	LNAPL (feet)
W-8	91.24	<MDL	<MDL	---
W-9	91.94	4,970	<MDL	---
W-11	91.64	2,921	<MDL	---
W-20	91.58	NA	NA	---
W-25	92.45	4.7	<MDL	---
W-26	91.47	678	<MDL	---
W-31	91.53	5,853	<MDL	---
W-34	91.85	0.59	<MDL	---
W-38	NA	NA	NA	---
W-54	91.06	379	<MDL	---
W-55	91.18	76.9	<MDL	---

<MDL – Method Detection Limit
NA – Well Not Accessible

Legend

- Property Line
- Monitoring Well
- Destroyed Well
- Reduced Well
- Approx. GW Contours

Tyree Environmental Corp
Phone: (631) 249-3150
208 Route 109
FARMINGDALE, NY 11735
Fax: (631) 249-3281

QUARTERLY MONITORING REPORT
SITE MAP

GETTY S/S# 535
310 Bayshore Road
North Babylon, New York

DRAWN BY: R.C.
SPILL #: 85-3490
DATE: 12/15/97
SCALE: 1"=24'
CLIENT: GETTY PROP.
PLATE: QMR