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Nassau County Stormwater Management Plan

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Preface

In mid to late 2018, Nassau County Department of Public Works contracted with a third-party consulting firm for an update to the original 2009 version of their Stormwater Management Program. As a permit mandated activity, this review/update effort was conducted to review the document, and ensure that noted materials, references, exhibits, etc. were current and appropriate. This is further discussed in Section 1 “Introduction”.

The efforts undertaken by Nassau County were not to rewrite the overall plan. To the greatest extent practical, the original report was utilized and refined. As such, users of this current plan will note similarities to the previous plan and its associated procedures, protocols, goals, etc. There is a beneficial aspect to this approach in that it does not create a new program, or a drastic modification that requires significant new education and changes to policies, protocols and procedures. It is the intent of the County that this plan will become more of a “living document”, with incremental edits, additions, and modifications made as appropriate. At a minimum, as the County reports out to New York State Department of Environmental Conservation (NYSDEC) each year with their Annual Report, there is an opportunity to do a cursory check of this program.

NASSAU COUNTY STORMWATER MANAGEMENT PROGRAM

1. INTRODUCTION

The County of Nassau (the County) has developed and implemented a stormwater management program (NCSWMP) as required initially for coverage under the New York State Pollution Discharge Elimination System (SPDES) general permit GP-02-02 and now under the permit GP-0-15-003. The NCSWMP includes a listing of Best Management Practices (BMP's) that have been implemented by the County and a coalition of local municipalities to achieve the regulatory standard of reducing pollutants in the County's stormwater to the maximum extent practicable. Existing County and local municipal governments' stormwater programs and activities designed to protect the County's water quality were supplemented with new Best Management Practices (BMP's). Initial measurable goals and an implementation schedule were developed for each of the BMP's in the NCSWMP. The BMP's, measurable goals, implementation schedule and initial NCSWMP were originally developed by the County's Department of Public Works with input from Task Groups during a series of meetings held in late 2002 and early 2003. The Task Groups consisted of a combination of municipal officials, watershed protection committee members and consulting engineers. The BMP's, measurable goals and implementation schedule were selected based on their ability to meet specific permit requirements and to reduce pollutants in the County's stormwater runoff to the maximum extent practicable. They were also selected based upon a general assessment of BMP effectiveness, applicability to Nassau County, and cost associated with the implementation of the BMP's.

As noted in the Preface, the effort to update the report in 2019 was the result of an United States Environmental Protection Agency (USEPA) audit of the NCSWMP in December 2016, with a subsequent Compliance Audit Report issued in March 2017, Nassau County authorized the review and update of the NCSWMP. This effort was kicked off in a meeting with the County in October of 2018. It was agreed that the approach to the update would be addressed in three focused efforts. The first part of the effort was to conduct an "administrative" review of the document, looking to ensure that all referenced documents, links, permits, etc. in the NCSWMP were correct and current. The second effort focused on addressing the items noted in the aforementioned Compliance Audit Report, where various gaps and deficiencies were observed by USEPA, and appropriate tasks were developed to ensure that these issues were identified and corrected. Finally, an effort was made to review and understand the potential changes to the NCSWMP that would originate from the DRAFT MS4 Permit that was being developed and vetted with the municipalities in Nassau County. The intent was to add additional content to the NCSWMP which would proactively address the requirements of the DRAFT permit language. During the course of this review, the DRAFT permit, due to technical complications and several concerns raised during "listening sessions", was rescinded for further development and refinement. The County opted to halt further effort on this portion of the NCSWMP update, deferring it to a future updated once the permit language was finalized and its impacts could be better understood and articulated by the NCSWMP.

The County NCSWMP will remain a "living" document that will be reviewed at a high level annually to ensure that it is accurate and that it fully captures the commitment and efforts of the County regarding stormwater quality obligations. A subsequent and more thorough review will occur once every five years, to conduct a similar effort to the one started in 2018, to ensure that all administrative related facets of the program remain current and provide edits / additions where appropriate.

2. PROGRAM DEVELOPMENT

Nassau County (the County) has developed a Stormwater Management Program (NCSWMP) in accordance with the New York State Discharge Elimination System (SPDES) requirements for obtaining authorization for stormwater discharges and certain non-stormwater discharges. This NCSWMP has been developed in accordance with guidelines published by the New York State Department of Environmental Conservation (NYSDEC) for coverage under SPDES General Permit No. GP-0-15-003. The NCSWMP has been developed to facilitate the County's efforts in reducing stormwater pollutants from the County's Municipal Separate Storm Sewer System (MS4) to the Maximum Extent Practicable (MEP), as required by the SPDES General Permit.

The NCSWMP describes specific actions, programs, laws and procedures implemented over the next permit cycle to reduce pollutants and protect the County's surface waters. Various BMP's have been developed for each of the six Minimum Control Measures (MCM's) required by the General Permit.

3. BEST MANAGEMENT PRACTICE SELECTION

The Nassau County Department of Public Works hosted an informational workshop in November 2002 on the Phase II regulations. Representatives of 67 Cities, Towns and Villages were invited to participate in the workshop in an effort to develop a coordinated approach to a SWMP (See Figure 1 for Nassau County boundary). Facilitated by the Nassau County Department of Public Works, two Task Group meetings were then held at the end of 2002 and the beginning of 2003 to develop BMP's for each of the six MCM's. There were over 50 municipalities that participated in these meetings in order to develop a SWMP that each individual municipality could enact, whereby information is shared, and activities are coordinated to avoid the duplication of services. The Task Group meetings culminated in the development of the initial NCSWMP, submitted to the NYSDEC in March 2003.

The County of Nassau and the local municipalities have historically implemented various stormwater related BMP's intended to specifically protect the County's stormwater quality. Details of the County's and local municipalities stormwater related programs were collected, summarized and categorized into each of the six MCM's required by the General Permit. While some of the existing programs met specific permit requirements, many others had to be developed over the years.

As part of the update process and effort, consultant personnel working on the program updates spent a work day with the Stormwater Management Officer to do a field review of various BMP facilities, waterways, county facilities, etc. in order to develop a better understanding of program successes, works in progress and areas requiring future attention and efforts.

3.1 MINIMUM CONTROL MEASURES

In accordance with SPDES General Permit requirements, the NCSWMP includes an implementation plan for BMP's in each of the following six Minimum Control Measures (MCMs):

1. Public Education and Outreach
2. Public Participation and Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post Construction Runoff Control and,
6. Pollution Prevention and Good Housekeeping

As a Traditional Non-Land Use Control MS4, Nassau County must meet the requirements for the six MCM's under Part VIII of GP-0-15-003. Details of each MCM follow in later sections of this document.

3.2 PRIORITY AREAS OF CONCERN

At this time the County does not have knowledge of any geographic area, audiences, or otherwise under its jurisdiction that should be considered a priority area of concern for the Illicit Discharge Detection and Elimination (IDDE) program. As part of it's on-going IDDE program evaluation, the County

will continue to monitor and assess areas based on the likelihood of illicit connections (e.g., areas with older sanitary lines; areas with large number of auto dealerships, dry cleaners, concrete companies, and restaurants). If such areas contain substantiated illicit discharges, the County will, at its discretion, deploy such methods that can locate and refine problem areas including: public complaints; visual screening; water sampling from manholes and outfalls during dry weather; and televising a line (through the use of CCTV technology).

In conjunction with the protocol noted above, these efforts will be executed concurrent with the Outfall Reconnaissance Inventory (ORI) program which has and will continue to prioritize investigative and remediation efforts for non-mapped illicit discharges (e.g. PVC lines from pools, etc.) that could adversely impact water quality in drainage channels, waterways, creeks, etc.

3.3 NON-STORMWATER DISCHARGES

The County will consider the following non-stormwater discharges exempt from the need for SPDES permit coverage unless NYSDEC has notified the MS4 that they are substantial contributors of pollutants and considered illicit. In the event of NYSDEC notification, the County will eliminate the discharges by following the illicit discharge MCM program:

a. Water line flushing
b. Landscape irrigation
c. Diverted stream flows
d. Rising ground waters
e. Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20))
f. Discharges from potable water sources
g. Air conditioning condensate
h. Springs
i. Water from crawl space and basement sump pumps
j. Footing drains
k. Water from individual residential car washing
l. Flows from riparian habitats and wetlands
m. Dechlorinated swimming pool discharges
n. Residual street wash water
o. Discharges or flows from firefighting activities
p. Dechlorinated water reservoir discharges

4. NASSAU COUNTY MUNICIPALITY BACKGROUND

4.1 PERMIT COVERAGE AREA

Nassau County occupies an area of 453 square miles (289,920 acres) (285 square miles which is land and 169 square miles is water) that is located between New York City on the west, Suffolk County on the east, the Atlantic Ocean on the south and the Long Island Sound on the north. The population of Nassau County based upon the 2017 census was 1,369,514. There are 2 Cities, 3 Towns and 62 incorporated villages, and over 100 unincorporated villages that are located within the boundaries of Nassau County (See Figure 1).

4.2 COUNTYWIDE PROGRAM STRATEGY

The strategy that Nassau County has proposed in meeting the requirements of the Phase II Stormwater Regulations is developing a partnership with all the local municipalities to address the common requirements of the regulations.

The County obtained a Grant from New York State in 2003 to help in the initial implementation of the NCSWMP. At that time, the County agreed to share the Grant with all municipalities willing to pass an in-kind services agreement to provide for a 50% match with the State. The following sixty (60) municipalities joined Nassau County:

TABLE 1. Nassau County Stormwater Service Agreement Partner Municipalities

City of Glen Cove NYR20A100	Village of Lattingtown NYR20A
City of Long Beach NYR20A189	Village of Laurel Hollow NYR20A441
Town of Hempstead NYR20A390	Village of Lawrence NYR20A336
Town of North Hempstead NYR20A318	Village of Lynbrook NYR20A169
Town of Oyster Bay NYR20A371	Village of Malverne NYR20A450
Village of Atlantic Beach NYR20A097	Village of Manorhaven NYR20A338
Village of Baxter Estates NYR20A174	Village of Massapequa Park NYR20A063

TABLE 1. Nassau County Stormwater Service Agreement Partner Municipalities

Village of Bayville NYR20A304	Village of Matinecock NYR20A437
Village of Bellerose NYR20A388	Village of Mill Neck NYR20A449
Village of Brookville NYR20A439	Village of Mineola NYR20A111
Village of Cedarhurst NYR20A010	Village of Muttontown NYR20A448
Village of Cove Neck NYR20A440	Village of New Hyde Park NYRA20014
Village of East Rockaway NYR20A410	Village of Old Brookville NYR20A447
Village of East Rockaway NYR20A410	Village of Old Westbury NYR20A434
Village of East Hills NYR20A001	Village of Plandome NYR20A066
Village of Farmingdale NYR20A	Village of Plandome Heights NYR20A162
Village of Floral Park NYR20A347	Village of Plandome Manor NYR20A360
Village of Flower Hill NYR20A171	Village of Port Washington North NYR20A438
Village of Garden City NYR20A070	Village of Roslyn NYR20A071
Village of Great Neck NYR20A453	Village of Roslyn Estates NYR20A446
Village of Great Neck Plaza NYR20A366	Village of Roslyn Harbor NYR20A059
Village of Hewlett Bay Park NYR20A085	Village of Russell Gardens NYR20A016
Village of Hewlett Harbor NYR20A062	Village of Saddle Rock NYR20A445
Village of Hewlett Neck NYR20A090	Village of Sands Point NYR20A444
Village of Island Park NYR20A384	Village of Sea Cliff NYR20A075
Village of Kensington NYR20A452	Village of South Floral Park
Village of Kings Point NYR20A451	Village of Stewart Manor NYR20A011
Village of Lake Success NYR20A034	Village of Thomaston NYR20A443
Village of Upper Brookville NYR 20A442	Village of Valley Stream NYR20A002
Village of Westbury NYR20A408	Village of Williston Park NYR20A068
Village of Woodsburgh NYR20A107	

This Grant was used to generate a Municipal BMP Manual, develop Stormwater Pollution Prevention Plans (SWPPPs) for various municipal operations, develop and print stormwater related literature, purchase display stands, purchase catch basin medallions for installation throughout the County and develop a pollutant loading procedure for stream assessment.

The County's role at the time of the most recent update to the NCSWMP has shifted to be more focused on providing opportunities for the municipal partners and communities alike to participate in and receive credit for educational and outreach opportunities, as part of MCM #1 and MCM #2. The County will remain a steadfast partner providing collaboration and support relative to the MS4 program functions and compliance on an as-needed/ requested basis.

4.3 STORMWATER INFRASTRUCTURE

Stormwater within the County is discharged to the surface waters of the United States and to the groundwater. Historically, development within the County prior to 1940 utilized the existing topography in directing and disposing of stormwater to the natural streams and ponds. As shown in Figure 1, nearly half of the land area in the County drains to surrounding surface waters. In 1953, Ordinance Number 157 was adopted by the Nassau County Board of Supervisors, which pertained to the Regulations for the Subdivision of Land. This regulation and the Department of Public Works requirements that followed, required stormwater to remain onsite. The onsite storage of stormwater was typically achieved by the installation of drywells, recharge basins or drainage reserve areas. As shown in Figure 2, nearly half of the land area of Nassau County is serviced by recharge basins. In many cases, these facilities also included overflow structures that directed stormwater resulting from extreme rainfall events to either other recharge basins or to drainage facilities that ultimately discharged to the surface waters of the United States.

The current inventory of stormwater facilities within the County include:

- 3,720 stormwater outfalls to the waters of the United States
- 1,000 stormwater recharge basins, of which, 555 are owned by Nassau County
- Approximately 57 miles of open stream corridors maintained by Nassau County

Nassau County has, in the past, initiated Capital Improvement Projects on drainage infrastructure and facilities on an as needed basis, previously funded by a Multi-Year Spending Plan (adopted by Nassau County Legislature). Current funding strategies, among other uses of General County funds allocated for Capital Improvements Projects, include the use of the Nassau County Sewer and Storm Water Finance Authority, which was created in 2003 by the State of New York (the "State") under the Nassau County Sewer and Storm Water Finance Authority Act, codified as Title 10-D of Article 5 of the Public Authorities Law of the State (the "Act"), as a public benefit corporation. The State Legislature determined the creation of the Authority to be an effective mechanism to achieve substantial savings to the County for past and prospective sewer and storm water resources capital investments. The Authority has been established for the limited objectives of refinancing outstanding sewer and storm water resources debt issued by or on behalf of the County and financing future County sewer and storm water resources projects. The Authority may issue debt in an amount up to $350,000,000 for such purposes (exclusive of debt issued to refund or otherwise repay Authority debt).

4.4 NATURAL RESOURCES

The Nassau County Soil and Water Conservation District in cooperation with the Nassau County Planning Department completed the Nassau County Natural Resources Inventory in 2000. This document identified the various natural resources that are utilized as part of the stormwater infrastructure by all the municipalities in the County. In addition, the document identifies surface water classifications, the various preserves and open spaces in the County including their significant environmental features and habitats.

In 2012, the Nassau County Planning Department adopted a series of revisions to the Nassau County 2030 Comprehensive Plan, to include policy amendments that encourage green infrastructure, to better protect the natural resources of the County. These policies (CS.03, CS.03.01 and CS.03.02 "…seek to preserve and expand its "green infrastructure" by creating and protecting a network of waterways, wetlands, woodlands, wildlife habitats, greenways, and other natural areas which sustain clean air, water, and natural resources: provide for a sustainable economy; provide recreational opportunities and enrich the quality of life for County residents and visitors."

4.5 POLLUTANTS OF CONCERN

When a stormwater discharge enters a New York State Department of Environmental Conservation 303(d) listed water body, the municipality's stormwater program must ensure no increase of the listed pollutant of concern to the 303(d) listed water. There are 41 water bodies, see Table 2, on the 303(d) list that have the potential to receive stormwater runoff from a municipality within Nassau County.

Based upon the 303(d) list of the best management practices, this document includes the six minimum control measures that have been tailored to address the following pollutants of concern for all stormwater discharges:

- Pathogens
- Phosphorus
- Polychlorinated Biphenyls (PCBs)
- Silt and sediment
- Oxygen demand
- Nitrogen

Additional information with regards to these pollutants of concern, the impairments associated with them and the source can be found in the following two documents:

- **The 2011 Atlantic Ocean/Long Island Sound Basin Waterbody Inventory**
- **Priority Waterbodies List, Volume 2: Nassau and Suffolk County Waters, Bureau of Watershed Assessment and Research, Division of Water, NYSDEC**

In addition, any municipality that discharges stormwater to any waters of the United States that have been approved by the United States Environmental Protection Agency (USEPA) for a Total Daily Maximum Load (TMDL), must include the appropriate best management practices to meet the TMDL stormwater allocations.

Table 2 contains the list of the Impaired Stream Segments and Primary Pollutants of Concern for Nassau County. It contains both Section 303 (d) Listed Waters for which beneficial uses of the water – such as drinking, recreation, aquatic habitat, and industrial use – are impaired by pollutants as well as TMDL

waters which designate the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources to that water body. However, NYSDEC is currently tasked with developing new TMDLs for the 75 waterbodies on Long Island whose highest and best use is classified as shellfishing. This originated as Hempstead Harbor was subjected to a Shellfish Pathogen TMDL that was subsequently determined to be "flawed" and which required a reduction in pathogens by 95% in the northern part of the Harbor. Based on that, the table as provided below will be subject to further review and modifications as this effort progresses through completion.

TABLE 2. Nassau County Water Bodies With 303(d) or TMDL Classification

Impaired Waters Name (from 303(d) list and/or TMDL)	Pollutant(s) of Concern (from 303(d) list and/or TMDL	Classification	
		303 (d)	TMDL
East Bay	Phosphorus, Silt/Sediment, Pathogens	✓	✓
Camaans Pond	Phosphorus	✓	✓
South Oyster Bay	Pathogens	✓	✓
Middle Bay	Pathogens	✓	✓
Middle Bay, Eastern Channel	Pathogens	✓	✓
Beaver Lake	Phosphorus	✓	✓
Freeport Cr/East meadow Br, Lower	Pathogens	✓	✓
East Rockaway Inlet	Pathogens	✓	✓
East Rockaway Channel	Nitrogen	✓	✓
Reynolds Channel, East	Nitrogen	✓	
Reynolds Channel, West	Nitrogen	✓	
Milburn/Parsonage Creeks	Phosphorus	✓	✓
Hempstead Bay	Nitrogen, Pathogens	✓	✓
Hempstead Bay, Broad Channel	Nitrogen	✓	✓
Woodmere Channel	Nitrogen	✓	✓
Bannister Creek/Bay	Nitrogen	✓	✓
Long Island Sound, Nassau County Waters	Pathogens	✓	

TABLE 2. Nassau County Water Bodies With 303(d) or TMDL Classification

Impaired Waters Name (from 303(d) list and/or TMDL)	Pollutant(s) of Concern (from 303(d) list and/or TMDL	Classification	
		303 (d)	TMDL
Manhasset Bay	Pathogens	✓	✓
Hempstead Harbor	Pathogens	✓	✓
Dosoris Pond	Pathogens	✓	✓
Garret Lead/East Channel	Pathogens	✓	✓
Hog Island Channel	Nitrogen	✓	✓
Massapequa Cove	Pathogens	✓	✓
Massapequa Creek	Pathogens, Phosphorus	✓	✓
Massapequa Reservoir	Chlordane	✓	✓
Seafords/Seamans Creeks	Pathogens	✓	✓
Freeport Reservoir/East Meadow Pond	Chlordane	✓	✓
Hewlett Bay	Pathogens	✓	✓
Browswere Bay	Pathogens	✓	✓
Smith/Roosevelt Pond	Chlordane	✓	✓
Lofts Pond	Chlordane	✓	✓
Smith Pond	Chlordane	✓	✓
Halls Pond	Chlordane, Phosphorus	✓	✓
Grant Park Pond	Phosphorus, PCB's	✓	✓
Whitney Lake	Chlordane	✓	✓
Wantagh/Seamans Pond	Chlordane	✓	✓
Glen Cove Creek	Pathogens	✓	✓
Hempstead Lake	Phosphorous	✓	✓
East Meadow Brook	Silt/Sediment	✓	✓
Ridders Pond	Chlordane	✓	✓

Note: *This listing of water bodies is currently being reviewed and updated by outside agencies. As a new or refined version becomes available, it will be incorporated as appropriate into this document.*

5. MINIMUM CONTROL MEASURE 1: PUBLIC EDUCATION AND OUTREACH

The Public Education and Outreach control measure is directed at educating the public, specific groups (i.e., construction trades, landscapers) and municipal officials of the impact stormwater runoff has on the environment. In addition, this education initiative involves teaching targeted groups steps that can be taken to reduce certain pollutants associated with runoff. Nassau County continues to work with and fund many agencies (Nassau County Soil and Water Conservation District, Hempstead Harbor Protection Committee, Oyster Bay/Cold Spring Harbor Protection Committee, Manhasset Bay Protection Committee etc.), and their programs that educate the general public and targeted audiences.

Important components of MCM 1 include the continuation of partnerships with other government entities primarily through existing programs and resources; the utilization of educational materials to promote the program; and reaching diverse audiences such as target communities and children.

5.1 STRATEGIES

Nassau County's overall strategy for this minimum control measure is to provide guidance and act as a central clearinghouse or library of information associated with the impacts of stormwater runoff and the measures to reduce or eliminate the effects the pollutants of concern have on the environment. This centralized information can be tailored to the local watershed issues that are important to the residents and be distributed by local municipalities by a mailing, local display or signage. The distribution of material at a local level can reach the target audiences more readily and succinctly.

Nassau County Soil and Water Conservation District has created several brochures that target homeowners, small business owners and landscapers as well as a bookmark that addresses stormwater runoff in general. These materials along with available informational documents distributed by the NYSDEC and the USEPA, have become the building blocks of a clearinghouse of educational materials pertaining to stormwater that are disseminated at libraries, government buildings, community fairs, museums, etc. See Appendix A for materials related to public education.

In addition, dissemination of stormwater related material via the County's website to the municipal supervisors of the coalition partners' is and remains a high priority objective of Nassau County. Since education, training and information dissemination are key elements to several minimum control measures, the County will continue to make available public education materials, BMP information, watershed maps, etc. The website also provides the public with information related to the NCSWMP and supply links to additional websites. Nassau County will also continue to pursue grant funding opportunities in an effort to accomplish certain components of this control measure through coordination with Nassau County's Grant Office.

Part of Nassau County's strategy for public outreach is also to fund groups that participate in and organize events such as community fairs, festivals, school visits and science education events. Further, County funded informational displays were presented at the Freeport Nautical Festival, the Great Neck Street Fair, the Town of Oyster Bay Marine Education Day, the Port Washington Harbor Fest and many others.

5.2 PUBLIC EDUCATION AND OUTREACH

- Nassau County utilizes the services of the Nassau County Soil and Water Conservation District (NCSWCD) personnel to provide coverage for all public education events. The following events will be attended on a yearly basis:

  - Long Island Regional Envirothon
  - Cold Spring Harbor Fish Hatchery & Aquarium Spring Fair
  - Planting Fields Arboretum Arbor Day Festival
  - Great Neck Street Fair
  - Freeport Nautical Festival
  - Port Washington Harborfest
  - Town of Oyster Bay Marine Education Day
  - Long Island Fair at Old Bethpage Village Restoration
  - Cold Spring Harbor Fish Hatchery & Aquarium Fall Fair
  - Nassau-Suffolk Landscape Gardener's Association Annual Conference

- Both Nassau County and NCSWCD are available to make presentations to schools, civic groups, chambers of commerce, etc. by scheduled appointment.

- Nassau County DPW personnel will manage the information clearinghouse, developing and printing brochures as necessary. The County distribute educational materials with the assistance of the municipal partners, the Friends of the Bay, South Shore Estuary Reserve, Operation SPLASH, Hempstead Harbor Protection Committee, Sierra/Lions Club, Long Island Sound Study, the Meadowbrook Task Force, the Oyster Bay/Cold Spring Harbor Protection Committee and the Manhasset Bay Protection Committee.

- Display stands placed in County offices such as Consumer Affairs, Parks and Recreation Headquarters, Nassau County Department of Health, DPW Permit Office, etc. will continue to be stocked with educational materials.

- Bookmarks with stormwater related educational messages will continue to be printed and supplied as needed (See Appendix A).

- County personnel will continue to procure storm drain medallions and distribute them to the municipal partners, scout groups, environmental organizations, etc. for placement throughout the County when requested.

- County personnel will keep the Nassau County stormwater website up to date with the latest watershed reports, BMP's, programs, announcements, etc. This is also the avenue for general education on stormwater pollution and the science behind it. https://www.nassaucountyny.gov/1876/Stormwater-Management-Program.

5.3 MEASURABLE GOAL

- Nassau County will use the services of the Nassau County Soil and Water Conservation District (NCSWCD) personnel to provide coverage for all public education events.

- County personnel will keep the Nassau County stormwater website up to date with the latest watershed reports, BMP's, programs, announcements, etc. This is also the avenue for general education on stormwater pollution and the science behind it.

6. MINIMUM CONTROL MEASURE 2: PUBLIC INVOLVEMENT/PARTICIPATION

The Public Involvement/Participation MCM is directed at involving the public in the development, implementation and evaluation of the County's stormwater management program. Nassau County continues to work with many volunteer organizations, watershed groups and non-profit organizations in an effort to reach the general public and solicit input to the Nassau County Stormwater Management Program (NCSWMP).

An important component of this plan is to specifically educate audiences pertaining to stormwater management, and to reduce pollutants of concern in stormwater discharges to the maximum extent practicable.

The County will develop and operate a program to inform residents of the problems associated with impaired water quality through the distribution of literature, postings on the County website, announcements when Stormwater related events are planned, articles in the County Newsletter, postings on cable television, cable televised question and answer sessions, presentations before the general public, neighborhood groups, fraternal organizations, schools and targeted groups. Hard copies of the County Stormwater Management Program and all stormwater related information will be available at Nassau County Department of Public Works (NCDPW) offices.

6.1 STRATEGIES

Nassau County's overall strategy for the implementation of this minimum control measure is to provide guidance and act as a clearinghouse to other municipalities in Nassau County for activities associated with best management practices. This information can be utilized by the smaller municipalities through the implementation of local and/or watershed-based activities.

To accomplish the tasks associated with the requirements of this minimum control measure as it pertains to Nassau County, specific strategies include the countywide storm drain medallion program, goose management program and continuing the adopt-a-spot program where the public can be involved with cleanups of stream corridors, ponds, parks, beaches and roadways.

In addition, the continuation of working with watershed-based organizations and in some cases providing funding to such organizations is a very important component of meeting the requirements of this minimum control measure.

Finally, to allow the public easy access to documents via the internet, including annual reports and technical guidance documents, is a goal of this minimum control measure. These strategies are geared to educate and inform the public of the program, pollutants of concern in stormwater discharges and about the specific watersheds in which they live.

6.2 PUBLIC INVOLVEMENT/PARTICIPATION

- County personnel will continue to procure storm drain medallions and distribute them to the municipal partners, scout groups, environmental organizations, etc. for placement throughout the County.

- Long Island Regional Envirothon, an outdoor, hands-on, environmental/ natural resources competition for High School students is held every year and is coordinated by the Nassau County Soil and Water Conservation District (NCSWCD) along with its sister agency from Suffolk. Activities cover relevant topics including marine education, preserve clean-ups, non-point source pollution, health and safety, landscaping, and teacher education.

- Site aversion techniques (such as use of border collies to condition geese to stay away from facilities) occur during the summer months, after the molt. The County will continue working with the NCSWCD and the United States Department of Agriculture (USDA) to implement additional Goose Management initiatives. There is a law in place, Title 63-Migratory Waterfowl Law, which makes it illegal to feed waterfowl on Nassau County property during any time of the year: https://www.nassaucountyny.gov/DocumentCenter/View/1722

- Continue to sit on watershed organization committees for: Hempstead Harbor Protection Committee, Manhasset Bay Protection Committee, South Shore Estuary Reserve Council and the Long Island Sound Study. The County also will work with Friends of the Bay, in Oyster Bay and Operation Splash, in Freeport as well as the Oyster Bay/Cold Spring Harbor Protection Committee.

- Distribution of Nassau County Soil and Water Conservation District Newsletter. During the past several years the Soil and Water Conservation District increased their newsletter circulation to almost 4,000. The District will continue to distribute newsletters on a quarterly basis with the goal of increasing the mailing list by another 500.

- Nassau County Soil and Water Conservation District obtains grants to fund public participation events such as beach grass planting, wetland restorations and beach restorations.

- Adopt-A-Spot, stream and beach cleanups occur year round at various Nassau County locations. This is an ongoing program that typically occurs around Earth Day of each year.

6.3 MEASURABLE GOAL

It is the goal of the County to ensure that sufficient information is made available to the public on impairments to stormwater quality and what needs to be done in order that individuals and businesses may make informed decisions on how best to contribute to the overall Stormwater Management Program effort.

- Distribution of Nassau County Soil and Water Conservation District Newsletter will continue.

- Adopt-A-Spot, stream and beach cleanups occur year-round at various Nassau County locations. This is an ongoing program that typically occurs around Earth Day of each year.

7. MINIMUM CONTROL MEASURE 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

The illicit discharge detection and elimination is a minimum control measure used to identify and eliminate any discharge that is not composed entirely of stormwater. Discharges from MS4's often include wastes and wastewater from non-stormwater sources. Illicit discharges enter the system through either direct connection via piping or indirect connections such as infiltration from failed sanitary systems or spills on roads that are collected by catch basins. The result is untreated discharges that contribute high levels of pollutants including heavy metals, toxics, oil and grease, solvents, nutrients, viruses and bacteria to receiving waterbodies.

This minimum control measure involves both municipal staff and local citizens. Nassau County will locate illicit discharge problem areas through dry weather sampling of major streams, public complaints, Outfall Reconnaissance Inventories (ORI's) and employee training. The program works to detect and eliminate illicit discharges. As will be elaborated on in a later section, the ORI screenings will be conducted using contracted resources to conduct outfall screenings on a rotating five (5) year cycle.

7.1 STRATEGIES

The Nassau County Geographic Information System (GIS) was used to generate a map showing the location of all storm sewer outfalls and all the waters that receive stormwater discharges. Nassau County will add outfall ownership to the system map as this data becomes available from the local municipalities.

Routine sampling of the major streams throughout the County is used to identify water quality trends and detect areas for further study. Nassau County field personnel will use the sampling data during dry weather flow inspections to help pinpoint sources of illicit discharges. Personnel will then work with the local municipalities and the Nassau County Department of Health (NCDOH) to gain access to the building or property suspected of the discharge. Dye testing of all possible sources will be done to confirm the connection to the stormwater

system. Another field screening method that will be employed is closed circuit television (CCTV) video inspection of storm sewers.

The Nassau County agencies that have been trained in illicit discharge detection include Road Maintenance, Drainage Maintenance, Facilities Management and the Department of Recreation and Parks. Any illicit connections or discharges found by County personnel, private citizens or an employee of the municipal partners will be investigated by Nassau County Water/Wastewater Engineering Unit personnel. A Nassau County telephone hotline has been instituted to allow the input of citizen's complaints. The hotline is a 24-hour answering machine that is checked every County work day. If a complaint is determined to be legitimate, it will be ascertained if the concern is a County issue (on County facilities, properties, etc.) or if the complaint involves a subsequent jurisdiction. If it is the latter, the complaint will be conveyed to the appropriate community or organization for follow up / action.

A Drainage Use Ordinance has been promulgated and passed into law by the Nassau County Legislature to regulate what can legally enter the storm sewer system, which agency will enforce it, the powers of the enforcement agency and the enforcement actions to be taken if the ordinance is violated. The enforcement actions that will be taken against those properties found to be in non-compliance or that refuse to allow access to their facilities include criminal and civil penalties, including charging the owner of the property for the cost of abatement. The full Drainage Use Ordinance can be found here: https://www.nassaucountyny.gov/DocumentCenter/View/1309.

Table 3 contains a list of all the dry weather flow locations that have been sampled in the past 6 years. Not every location is sampled every time and some locations have been modified for various reasons such as stream flow, access, etc.

TABLE 3. Sampled Dry Weather Flow Locations

COMMUNITY	SITE_ NO	WATERSHED
No. Valley Stream	1	Elmont Drain
Valley Stream	2	Valley Stream Brook
Valley Stream	3	Doxey Brook (W branch)
Woodmere	4	Doxey Brook (Main branch)
Valley Stream	5	Doxey Brook (E Branch)
Baldwin	7	Parsonage Creek
Oceanside	6	Powell Creek
Baldwin	8	Parsonage Creek (W branch)
Baldwin	9	Parsonage Creek (E branch)
Baldwin	12	Milburn Creek
Baldwin	13	Milburn Creek
Baldwin	10	Parsonage Creek
Roosevelt	15	East Meadowbrook
Roosevelt	16	East Meadowbrook
Merrick	17	Newbridge Creek
Merrick	18	Newbridge Creek
Bellmore	19	Bellmore Creek
Bellmore	20	Bellmore Creek
Massapequa Park	22	Massapequa Creek
Massapequa	23	Massapequa Creek
Massapequa	24	Massapequa Creek
Massapequa	25	Massapequa Creek
Lynbrook	46	Pines Brook
Lynbrook	47	Pines Brook
Saddlerock	28	Old Mill Brook
Russell Gardens	29	Cutter Mill Drain

COMMUNITY	SITE_ No	WATERSHED
Plandome Manor	30	Stoneytown Road Drain
Port Washington	31	Port Washington Drain
Port Washington	32	Stannards Brook
Baxter Estates	33	Baxter Brook
Baxter Estates	34	Baxter Pond
Roslyn	35	Roslyn Pond
Sea Cliff	36	Scudders Pond
Old Brookville	37	Cedar Swamp Creek
Glen Cove	38	Cedar Swamp Creek
Oyster Bay	40	Mill River
Laurel Hollow	42	Cold Spring Harbor
Cove Neck	43	Tiffany Creek
Mill Neck	44	Beaver Lake
Kings Pt	45	Mitchell's Creek
Manhasset	48	Whitney Drain
Oyster Bay	49	White's Creek
East Massapequa	51	Carmans Creek
Seaford	52	Seaford Creek
Locust Grove	53	Cold Spring
Baxter Estates	50	Baxter Pond
North Merrick	14	East Meadowbrook
Wantagh	21	Seamans Creek
Nassau Shores	26	Unqua Creek
Nassau Shores	27	Unqua Creek
Lattingtown	41	Dosoris Drain
Lattingtown	39	Bailey Arboretum

- The dry weather sampling program will continue on a biannual basis by sampling in stream locations in the spring and fall of each year. The County will use this data to screen all major drainage corridors for illicit discharges.

- Procedures for sampling for the storm water program and procedures for response to sample result findings are as follows (See Figure 6 for Sampling Locations Map):

  - » Sampling at all stream sampling sites will be done two times a year, during the spring and fall seasons.
  - » Sample results will be tabulated and compared to previously recorded results.
  - » Any abnormal results will result in a resampled as soon as possible to replicate original results
  - » If abnormal results are replicated, then a field investigation may be advised. A field investigation may include dye testing, outfall reconnaissance, visual inspection of area, search of previous spills of record in NYSDEC website and any other technics deemed necessary due to nature of the contaminates under investigation.
  - » A record of all actions taken will be kept
  - » When a source of the contamination is believed to be discovered, if appropriate, enforcement agencies will be contacted for further action.

- Maintain the Illicit Discharge Hotline (516-571-7535) which is a 24-hour telephone number that is listed on the Nassau County Stormwater website. All callers remain anonymous. The website address is: https://www.nassaucountyny.gov/1877/Illicit-Discharge-Hotline.

- Maintain and keep record of the Illicit Discharge report form (See Appendix C for the form).

- Continue the current program of Outfall Reconnaissance Inventory (ORI) utilizing third party contractors to complete the required outfall screenings, on a rotating 5-year cycle (See Figure 5 for County outfall locations). These contractors, adhering to the USEPA publication entitled “Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessment” will conduct the necessary field work to locate,

investigate, map and report on all outfalls within the County. In 2019, the County will make an effort to enhance the ORI program by adding ownership of outfalls where such information is available and can be readily obtained. This will require the cooperation of the various communities where these outfalls reside. This could facilitate the County better understanding if the outfall program can be streamlined, with the delegation of some outfalls to private owners for maintenance and monitoring obligations.

- Nassau County outfalls in tidal areas will be included in the annual ORI's.
- The ORI reports will be used by County personnel to track down illicit discharges by field verification, dye tests, sampling, etc. The NCDOH and the municipal partners will be contacted when and if access is needed to private property.
- Training of County personnel will continue in the detection of illicit discharges through the viewing of a training video that also addresses BMP's and good housekeeping practices.
- All illicit discharge investigations will be electronically tracked via an in-house database.
- The mapping of the stormwater infrastructure within the County including catch basins, pipes, manholes and outfalls will be maintained using the Nassau County GIS department and supplemented with third party contractors where appropriate.
- Additional drainage infrastructure information, including new structural BMP's installed as part of the PCSM requirements of the NC MS4 Permit will be added to the NCGIS as they are installed during future construction projects. This will facilitate future inspection, reporting and maintenance efforts.

7.3 MEASURABLE GOAL

The goal of the County to inspect its stormwater system on both a scheduled and unscheduled basis and to remediate any illicit discharges detected.

- The dry weather sampling program will continue on a biannual basis by sampling in stream locations in the spring and fall of each year. The County will use this data to screen all major drainage corridors for illicit discharges.

- Maintain the Illicit Discharge Hotline (516-571-7535) which is a 24-hour telephone number that is listed on the Nassau County Stormwater website and will continue to act as a public complain line.

- Training of County personnel will continue in the detection of illicit discharges through the viewing of a training DVD that also addresses BMP's and good housekeeping practices.

8. MINIMUM CONTROL MEASURE 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Construction site stormwater runoff control is a minimum control measure designed to address the pollution of stormwater runoff generated from construction sites. Activities that are performed on construction sites typically disturb a large amount of land and generate large amounts of waste. This has been found to lead to elevated levels of sediment, phosphorous, nitrogen, pesticides, petroleum derivatives, construction chemicals, and solid wastes in receiving streams and estuarine areas. During a short period of time, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical and biological harm to the nation's waters.

8.1 STRATEGIES

The major issue in addressing this control measure is related to the limited regulatory authority that Nassau County presently wields over site developers and construction site managers to design, install and maintain sedimentation and erosion control measures on their sites. The County does not issue building permits, hence, there is no County mechanism in place to enforce compliance with any program. These responsibilities would fall directly on the many local Towns and Villages, whose building departments would have the necessary controls in place including non-monetary penalties, fines, bonding requirements, and permit denials.

Nassau County has, however, provided formalized drainage guidelines for site developers throughout the years. These drainage guidelines pertain to the handling of stormwater runoff generated at the development and the provision that certain stormwater quantities be contained within that development. Through the enactment of Section 239-F of the General Municipal Law by the New York State Legislature, the County developed requirements for site grading and drainage as they relate to the erection of buildings having frontage on, direct access to, or are otherwise directly related to any portion of the 500 miles

of County roads. These requirements are that eight (8) inches of rainfall at an appropriate runoff factor be contained in dry wells within the site (See Appendix D which contains drainage requirement guidelines documents).

With regard to larger developments, or sub-divisions, the County has developed the same requirements based on current engineering practice. These guidelines recommend that eight (8) inches of on-site storage be provided when no connection or overflow to another drainage system is possible. In those cases where connection or overflow to another drainage system is possible and allowable, then five (5) inches of on-site storage should be provided. These guidelines, whether 5 or 8 inches, insure that stormwater runoff generated at the development is contained within the site and will not be discharged to the waters of the United States, thereby providing a protective safeguard to those waters.

https://www.nassaucountyny.gov/DocumentCenter/View/1295

Only since the promulgation of the Federal Phase I regulations has sediment and erosion control been examined and included in site plan review on the County level. For example, when plans are examined for site grading and drainage, then requirements for sediment and erosion controls at the construction site are also verified. The County requires a copy of the SWPPP Acceptance Form that was filed by the local MS4 with the NYSDEC to accompany the plans under review.

8.2 SITE PLAN REVIEW

The County's site plan review process ensures compliance by construction site operators with current erosion and sediment control methods and the oversight by the local municipality. The County, having no regulatory authority in the case, will seek the assistance of each municipality that issues building permits to conduct site inspections and impose enforcement actions, if necessary

8.3 RECEIPT OF PUBLIC INQUIRIES

A final requirement under this minimum control measure is the development of a procedure for the receipt and consideration of public inquiries, concerns, and information submitted regarding local construction activities. The County, and most local municipalities already receive and respond to numerous inquiries from the public. This provision is intended to further reinforce the public participation component of the Stormwater Management Program and to recognize the crucial role that the public can play in identifying instances of noncompliance.

Information submitted by the public will only be considered and may not necessarily require a follow-up or response (See Appendix B for Complaint Form), but the County or the local municipality should demonstrate acknowledgment and consideration of the information submitted. Given the County's minimal involvement with construction oversight, on Non-County projects, the County looks to the local municipalities to oversee the collection of public inquiries.

8.4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

This minimum control measure, as detailed in the NCSWMP, is probably the most difficult to implement because the County has limited control and regulatory authority to enforce some of the management practices that are required. The County, however, has developed specific drainage requirements that pertain to new construction and existing site redevelopment that is adjacent to Nassau County roads, property or easements. These drainage requirements will serve as the template for reduced storm water runoff and improved storm water quality. A model ordinance that includes specific measures and recommendations for sediment and erosion control has been drafted and adopted by Nassau County.

The drainage regulations include sediment and erosion control guidelines such as those outlined in the NYS Guidelines for Erosion and Sediment Control, NY State Storm Water Management Design Manual.

Nassau County does not issue building permits, and therefore is not the regulatory authority on construction and post-construction runoff. Instead, that authority rests with the towns, villages, and cities that comprise Nassau County. These municipal building authorities design and enforce stormwater regulations, and it is critical that construction site operators contact their local building authority in order to avoid penalties, fines, and permit denials.

- Continue sub-division and 239-F reviews with enforce the requirements to store an eight (8) inch rainfall on-site.

- Require construction site operators working on County jobs have received erosion and sediment control training as per permit GP-0-15-003.

- Work with the Nassau County Soil and Water Conservation District to establish the erosion and sediment control training course as specified above and offer it on a routine basis for construction site operators working in Nassau County.

- To have language in the design and construction contracts that deals with erosion and sediment control on County run jobs at County owned facilities and properties.

- The following forms will be used on all County run jobs on County owned facilities or properties:

  - **Form 4-1:** Contractor Stormwater Pollution Prevention Third Party Certification

  - **Form 4-2:** Checklist for Preparation of Stormwater Pollution Prevention Plans

  - **Form 4-3:** Procedure/Checklist for Pre-Construction Site Inspection

  - **Form 4-4:** Procedure/Checklist for Site Inspection During Construction

  - **Form 4-5:** Checklist for Concrete Tank Washout Inspection

  - **Form 4-6:** Checklist for Leaking Truck Inspection

  - **Form 4-7:** Procedure/Checklist for Construction Site Inspection After Project Completion

Link to above forms can be found at: https://www.nassaucountyny.gov/DocumentCenter/View/1298 and copy of the forms can be found in Appendix F.

8.3 MEASURABLE GOAL

The goal of this section is to ensure that all projects are completed with minimal or no impact on water quality. Where the final construction product is anticipated to have an impact on water quality, ensure that BMPs have been constructed and are properly operated and maintained in perpetuity.

9. MINIMUM CONTROL MEASURE 5: POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM)

This minimum control measure focuses on implementation of controls that will try to maintain good water quality conditions after an area has been developed or after construction. An effective plan to accomplish this goal is to recommend planning and design strategies that will minimize the introduction of pollutants in post-construction stormwater discharges. The challenge of this minimum control measure is to encourage developers and consulting design engineers to take stormwater quality into account early in the development planning process. The development or modification to existing regulations, ordinances or planning strategies by municipal government that will have emphasis on stormwater quality is the linchpin of this control measure.

9.1 STRATEGIES

Nassau County is in a similar position with this Minimum Control Measure as with Minimum Control Measure 4 - Construction Site Stormwater Runoff Control. The County has limited regulatory authority at the present time to restrict site development or require the implementation of structural or non-structural controls in areas located beyond its jurisdiction, (such as incorporated villages). Incorporated areas within the County have existing planning departments, zoning boards etc., that have the regulatory authority to impose restrictions on site development/redevelopment. As detailed in the previous section on construction site stormwater runoff control, the County, through the Department of Public Works, has formalized drainage requirements for subdivisions and other developments and redevelopments. These requirements and guidelines provide a strong foundation for stormwater quality improvement at site development and redevelopment projects within the County.

9.2 PCSM BMP INVENTORY

The current version of the permit, at the time of the 2018/19 NCSWMP updates, includes a requirement for the County to maintain an inventory of PCSM BMPs. This inventory is required to collect data on each BMP location, type of practice, required maintenance efforts and records of when maintenance was last performed. The County has, in previous efforts (most recently in July 2016) utilized

the Asset Inventory Management (AIM) software/platform to track the ongoing monitoring and maintenance obligations related to both assets and BMPs.

As noted in the September 2012 version of the "Nassau County Stormwater Best Management Practices Maintenance Manual" (See Appendix G for the manual), there are 34 BMP's that are owned and operated by Nassau County. These include facilities at locations as noted on Figure 3, of this Stormwater Management Program. Further, the County will continue efforts to inspect and maintain 297 BMP sump locations where it has been field confirmed that overflow from the facility will be conveyed to a downstream facility, roadway or waterway.

At the time of this program report drafting, the County is actively reviewing these 297 facility records to ascertain if the overflow is to a surface water of the United States. This effort is noted to be ongoing. As a general note, the County has tasked field / maintenance crews to observe BMP facility locations when they are conducting other maintenance operations in the vicinity (such as mowing adjacent to BMP locations). Staff is instructed to conduct a cursory observation of conditions and report anything that would appear to require a subsequent investigation and/or maintenance effort. These efforts will be logged using the AIM program.

9.3 CAPITAL IMPROVEMENT PLAN

The County is continuously working on capital planning to improve various streams, ponds and waterways, which include installation of sedimentation basins, dredging, wetland plantings and stream bank stabilization. This plan includes finished projects at Silver Lake, Lofts Pond, Mill Pond (Wantagh), Roosevelt Pond and the Massapequa Preserve project, which includes augmenting stream flow with pumped groundwater. Nassau County is working in conjunction with many of the municipal partners, who will take on responsibilities of maintenance responsibilities of these BMP's.

Nassau County is aware that other agencies located outside the County boundary discharge into the Nassau County MS4 system. As such, the County will continue to collaborate and communicate with these agencies as appropriate to further understand the extent of their contributions to the Nassau County system.

9.4 MEASURABLE GOAL

The goal of the County is to ensure that all installed BMP(s) are properly operated and maintained in perpetuity

10. MINIMUM CONTROL MEASURE 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING

The goal of the Pollution Prevention/Good Housekeeping minimum control measure is to reduce pollutant runoff originating from Nassau County municipal operations. This plan covers Nassau County facilities only and does not incorporate the operations of the other various municipalities located within the County. The pollution prevention plans that are developed for Nassau County facilities will institute procedures that effectively address such issues as hazardous materials storage, proper handling and disposal of street sweepings, floatables and other debris, spill cleanup and vehicle storage.

- The County has studied ways to reduce the amount of sand and salt used for deicing procedures and has adopted these measures. The County communicates with the New York State Department Of Transportation (NYSDOT) to obtain real time roadbed temperature readings that determine the optimal amount of road salt deposition during winter storm events. This provides savings in the amount of salt applied to the roadways and consequently a reduction in the amount applied to the County's waterways. The following is a link to the study on sand and salt use: http://archive.nassaucountyny.gov/agencies/DPW/Docs/PDF/Nassau%20County%20Sand-Salt%20Use%20BMPs.pdf

- An Integrated Pest Management program (IPM) for County facilities was developed and distributed to the appropriate departments. The program advocates the use of non-chemical alternatives to pesticides and herbicides in County parks and buildings. The following is a link to the program: https://www.nassaucountyny.gov/DocumentCenter/View/1303

- A goose management plan has been enacted to control the large communities of non-migratory waterfowl currently populating County parks. This program will decrease the nutrient loading associated with these communities that reside in the ponds and streams of all the major tributaries of the County. The program includes egg oiling, dog running and the enacting of a local law that prohibits the feeding of waterfowl on County property.

- The County has adopted a requirement that any drainage project that includes outfalls larger than 36" must include a physical control (structural BMP) to retain sediments and floatables.

- NCDPW sweeps the 492 miles (1,969 lane miles) of County-owned roads on a biannual basis, once in the spring and once in the fall by the Highway and Bridge Maintenance Unit.

- Catch basin cleaning is routinely done on a rotating schedule, by the Highway and Bridge Maintenance Unit.

- Stormwater Pollution Prevention Plans (SWPPP's) have been developed and distributed to the NCDPW Highway and Bridge Maintenance Unit, the NCDPW Facilities Management Unit, the NCDPW Sewage Treatment Plants, the Nassau County Department of Parks, Recreation and Museums, the Nassau County Police Department and the Nassau County Sheriff's Department. The following is a link to these SWPPPs: https://www.nassaucountyny.gov/DocumentCenter/View/1302

- The training of County personnel and municipal partners, regarding pollution prevention/good housekeeping and illicit discharge detection will continue on an ongoing basis.

- The Drainage Maintenance Unit of the NCDPW is responsible for the cleaning and maintenance of the County's streams, ponds, culverts and other drainage appurtenances. Streams, ditches and culverts are cleaned based upon need.

- Trash racks throughout the County are cleaned prior to and after significant precipitation.

- The following structural BMP's are inspected and cleaned on a scheduled basis (See Figure 4 for Location of County Owned BMPs):

  - Baxter Pond Sediment Basin-biannual
  - Newbridge Creek (at Smith Street) Sediment Basin- annually
  - Newbridge Creek (at Smith Street) Floatable Collection Boom- post rain event

- Pines Brook Sediment Basin- annually
- Pines Brook Floatable Collection Boom- post rain event
- Baldwin Drain Trash Rack- post rain event
- Milburn Creek Sediment Basin-Brookside Drive- annually
- Milburn Creek Sediment Basin-Circle Drive- annually
- Milburn Pond Sediment Basin- annually
- Milburn Pond Sediment Chamber- annually
- Glen Cove Marina Stormceptor Unit- annually
- Sea Cliff Stormceptor Unit- annually
- Woodmere Country Club CDS Unit- annually
- Peninsula Blvd, N. Woodmere (2 Vortechs units) - annually
- Newbridge Creek (at Hale Place), Bellmore CDS Unit- annually
- Mineola Catch Basin Inserts (30 units in County seat) - quarterly
- Roosevelt Pond Sedimentation Basin- annually
- Roosevelt Pond Floatable Collection Boom- post rain event

10.1 STRATEGIES

A primary focus of the housekeeping measures is to keep exposed areas that are potential sources of pollutants clean and orderly. A clean work environment can reduce the potential for storm water contact with pollutants that could affect the quality of storm water runoff from the Nassau County Facilities. The Nassau County has instituted several work practices to reduce this potential.

Common problem areas include trash containers, storage areas and loading docks. Proper site maintenance minimizes off-site impacts and prevents debris and sediment from collecting in storm drains and clogging storm sewers. In addition, the Nassau County sites are periodically cleaned of debris to minimize pollutant export to storm sewer systems or directly to receiving waters.

10.2 TRAINING PROGRAM

Employee training programs are essential to teach employees about storm water management, pollution prevention and BMPs. Well-trained employees can reduce human errors that lead to accidental releases or spills. Employees should have the tools and knowledge to immediately begin cleaning up a spill if one should occur. Employee training programs instill personnel with a thorough understanding of the BMPs, processes and materials they are working with, safety hazards, practices for preventing discharges, and procedures for responding quickly and properly to toxic and hazardous material incidents.

Nassau County employees receive formalized training outlining the requirements of storm water pollution prevention and management. Additionally, employees must view a County sponsored video on environmental protection. Worker training addresses topics such as spill response, housekeeping, materials management, preventive maintenance, and inspection procedures. An example of the training certification is provided in Appendix E.

The training course outline, worker attendance lists, and dates of training are recorded and maintained. Refresher training occurs when required, based on inspections or observed deviations in procedures. Through training, employees and contractors are re-instructed not to dispose of chemical compounds and hydrocarbon products directly into storm basins. Employees and contractors are also informed of the location of spill kits and the methods to control, contain and remediate a spill. Periodically, the Nassau County highlights storm water pollution prevention by displaying informational signs on conspicuously placed bulletin boards.

Since perceptions vary, the County uses multiple training techniques to train their employees. Instruction methods also include a combination of verbal and visual aids, group discussions and practical applications. Employees are trained through:

- Posters, employee meetings, courses, workshops, conferences, webcasts, videos, bulletin boards, and email notices about storm water management, potential contaminant sources and prevention of contamination in surface water runoff; and

- Field training programs that show areas of potential storm water contamination and associated pollutants, followed by a discussion of site-specific BMPs by trained personnel.

An employee training program is a continuing, annual process to ensure that the appropriate learning goals are taught, reinforced and tested. Meetings regarding pollution prevention and good housekeeping are held at least annually, possibly in conjunction with other training programs. Periodic refresher sessions are held to correct unacceptable behavior and reinforce expectations.

10.3 FACILITY COMPLIANCE INSPECTIONS

Nassau County is planning on performing Facility Inspections once per year. The inspections will be done by qualified personnel who may be either County employees or outside consultants hired by County. The inspectors will be familiar with the County facility activities, the BMPs, the SWMP, and possess the skills to assess conditions at the County facilities that could impact storm water quality and assess the effectiveness of the BMPs that have been chosen to control the quality of the storm water discharges. The County will implement BMPs to reduce polluted stormwater runoff from municipally-owned streets, roads and public parking lots. Street sweeping, and seasonal leaf pick-up will be included in this BMPs. See Figure 3 for Nassau County DPW facility locations.

The annual Facility Inspections will include all areas of the Nassau County facilities that are exposed to storm water. Areas where spills and leaks have occurred within the past three years and areas found to be the source of storm water pollutants will be inspected. At a minimum the inspection will assess:

- Industrial materials, residue or trash on the ground that could contaminate or be washed away in storm water;
- Leaks or spills from industrial equipment, drums, barrels, tanks or similar containers;
- Unauthorized non-storm water discharges or allowable non-storm water discharges;
- Off-site tracking of industrial materials or sediment where vehicles enter or exit the site;
- Tracking of industrial materials outside of the area where it originates;

10.4 MEASURABLE GOAL

This section will be evaluated by the number of BMPs that are checked annually and found to be in good working condition and the number of annual reports received.

11. CERTIFICATION STATEMENT

Certification statement requiring permit compliance when relying on third party contractors to perform MS4 mandated program elements:

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the Nassau County's stormwater management program and agree to implement any corrective actions identified by the County or County's Consultant. I also understand that the Nassau County must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from the Municipal Separate Storm Sewer Systems ("MS4s") and that it is unlawful for any person to directly or indirectly cause or contribute to a violation of water quality standards. Further, I understand that any non-compliance by Nassau County shall not diminish, eliminate, or lessen my own liability."

Contractor Signature **Date**

_____ _____

County Representative Signature **Date**

_____ _____

FIGURES

Gannett Fleming
Engineers and Architects, P.C.
Excellence Delivered As Promised

FIGURES

FIGURE 1

NASSAU COUNTY MAP

Inland Water
Wetland

Gannett Fleming
Excellence Delivered As Promised
Suite 300
100 Crossways Park West
Woodbury, NY 11797-2012
www.gannettfleming.com

Figure 1
Nassau County

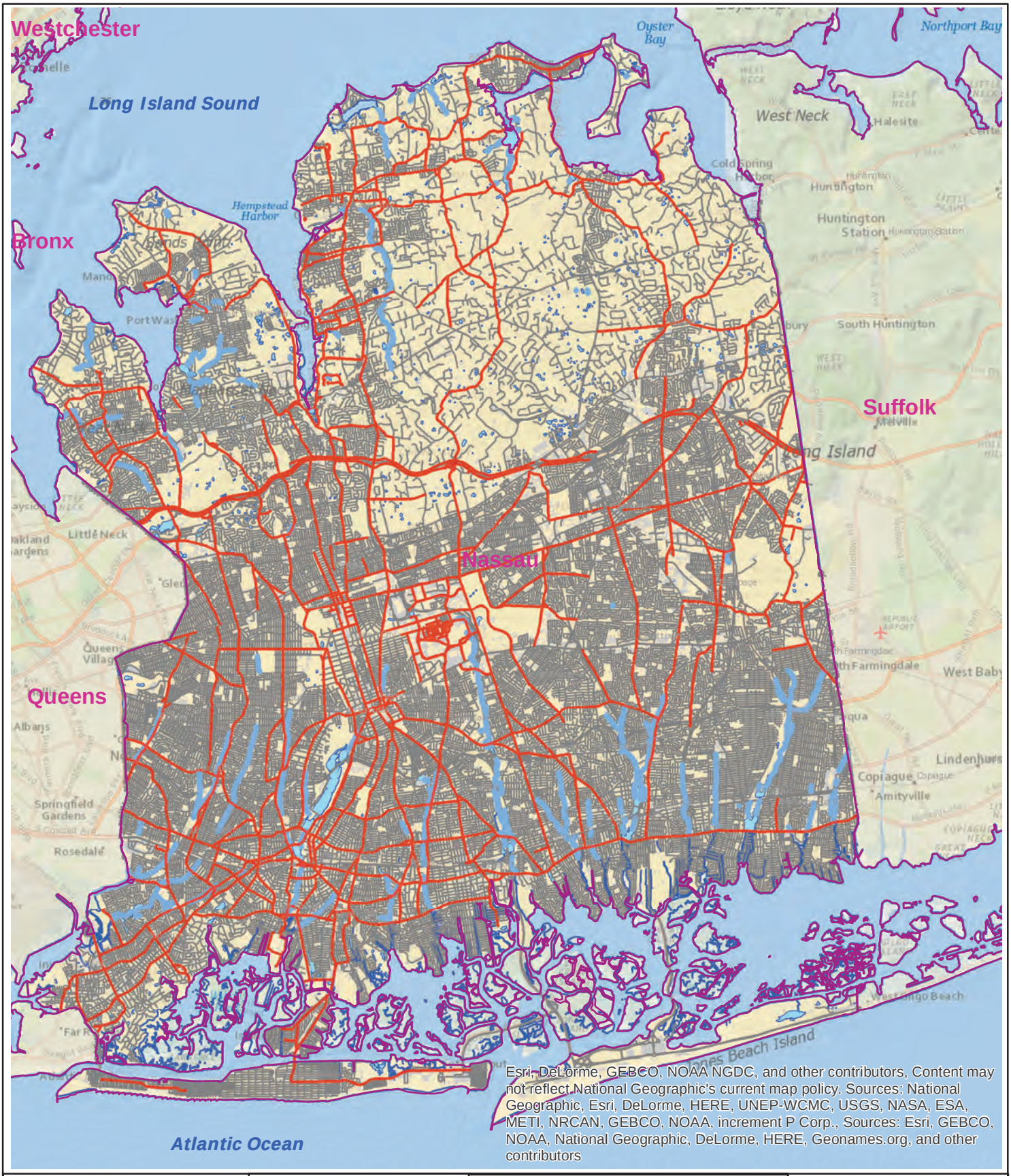
N
W E
S
1 inch equals 15,000 feet

Nassau County

County of Nassau, New York Date: 3/14/2019

FIGURE 2

NASSAU COUNTY ROADS MAP



Local Roads
County Roads

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Figure 2
Nassau County
Roads Map

N
W E
S
1 inch equals 15,000 feet

Nassau County

County of Nassau, New York Date: 6/17/2019

FIGURE 3

NASSAU COUNTY FACILITIES MAP

Local Roads
County Roads
Parking
Parks
DPW Maintenance Garages
Precincts

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Figure 3
Nassau County
Facilities Map

N
W E
S
1 inch equals 15,000 feet

Nassau County

County of Nassau, New York Date: 4/30/2019

FIGURE 4

NASSAU COUNTY LOCATION OF BMPS

▲ Stormwater BMPs

BMP location letters (e.g., "j") refer to County naming convention for more detailed BMP records

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100 Crossways Park West
Woodbury, NY 11797-2012
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Figure 4
Nassau County
Location of BMPs

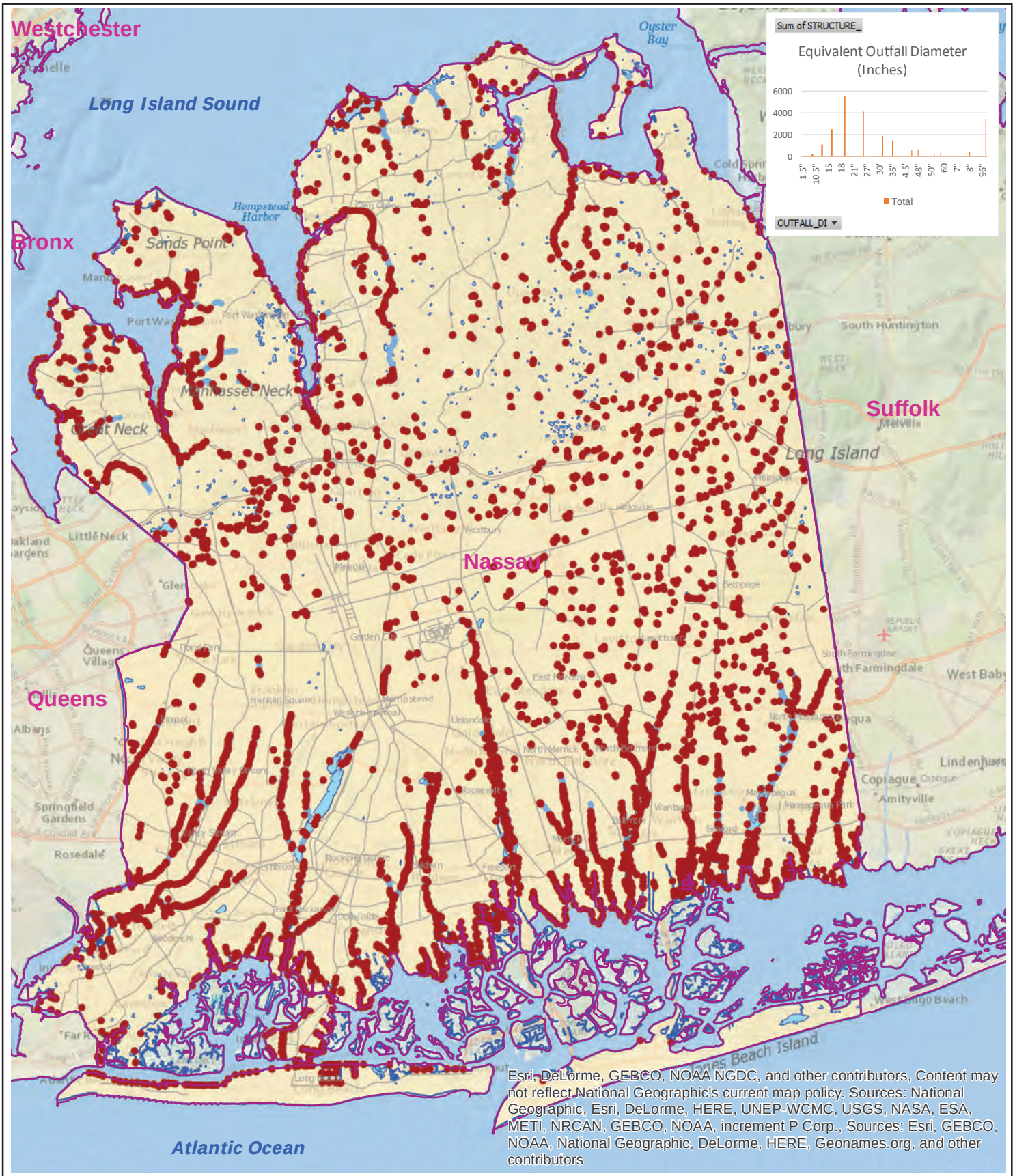
N
W E
S
1 inch equals 15,000 feet

Nassau County

County of Nassau, New York Date: 5/20/2019

FIGURE 5

NASSAU COUNTY OUTFALLS MAP



- Drainage Outfalls

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Figure 5
Nassau County
Outfall Map

N
W E
S
1 inch equals 15,000 feet

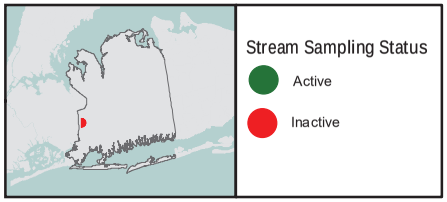
Nassau County

County of Nassau, New York Date: 3/14/2019

FIGURE 6

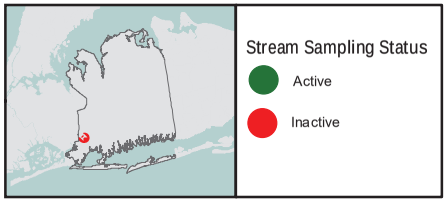
NASSAU COUNTY SURFACE WATER SAMPLING LOCATIONS

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 1
Community: No. Valley Stream
Stream Location: Dutch B'way. & Elmont Rd., SW corner

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

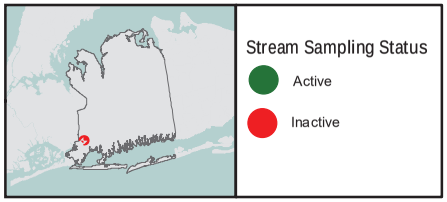


Stream Site # 2

Community: Valley Stream

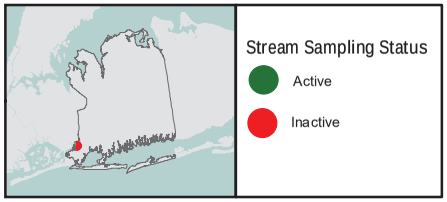
Stream Location: E side Mill Rd., at Old Central Ave., N of Roosevelt Ave.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 3
Community: Valley Stream
Stream Location: W side Mill Rd., N of South Dr., S of Birch La.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

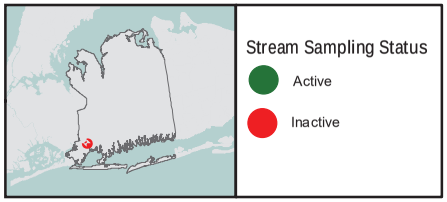


Stream Site # 4

Community: Woodmere

Stream Location: W side Branch Blvd., across street from high tension wire tower

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

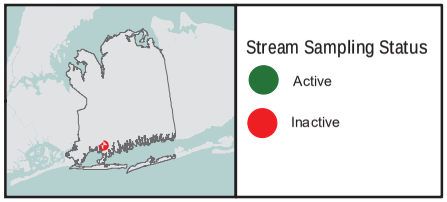


Stream Site # 5

Community: Valley Stream

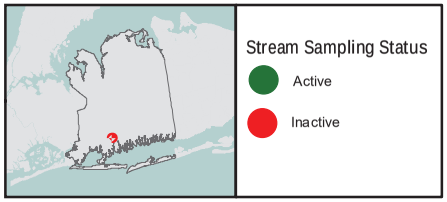
Stream Location: Center median culvert along Peninsula Blvd. between Harris Ave. and Quay Rd.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 6
Community: Oceanside
Stream Location: E side Terrell Ave., N of Atlantic Ave.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

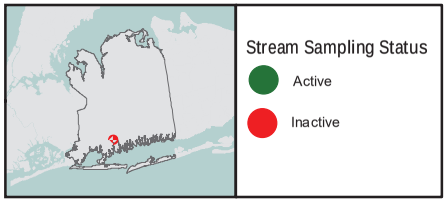


Stream Site # 7

Community: Baldwin

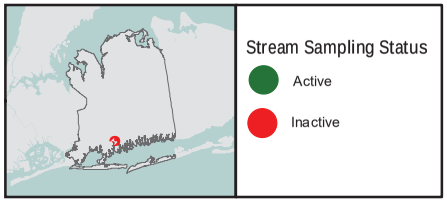
Stream Location: RCB # 500, 50' N of railroad tracks, easement W of Maple Ave.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 8
Community: Baldwin
Stream Location: S. side of Merrick Rd. opposite Coventry Dr.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

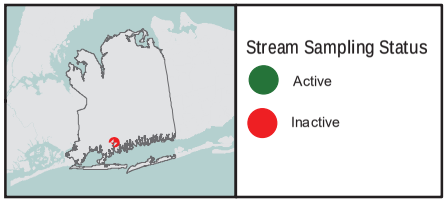


Stream Site # 9

Community: Baldwin

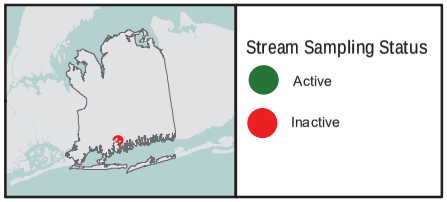
Stream Location: S side Merrick Rd between Lakeside Dr and Foxhurst Rd

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 10
Community: Baldwin
Stream Location: outfall of Silver Lake n side of Foxhurst Ave.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

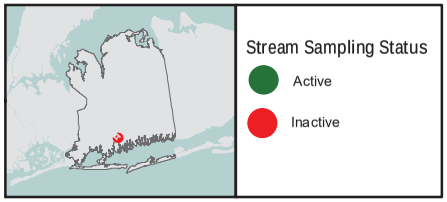


Stream Site # 12

Community: Baldwin

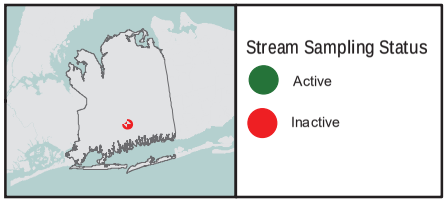
Stream Location: Milburn Pond outflow, N side Merrick Rd.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 13
Community: Baldwin
Stream Location: E. end of Janye Pl.

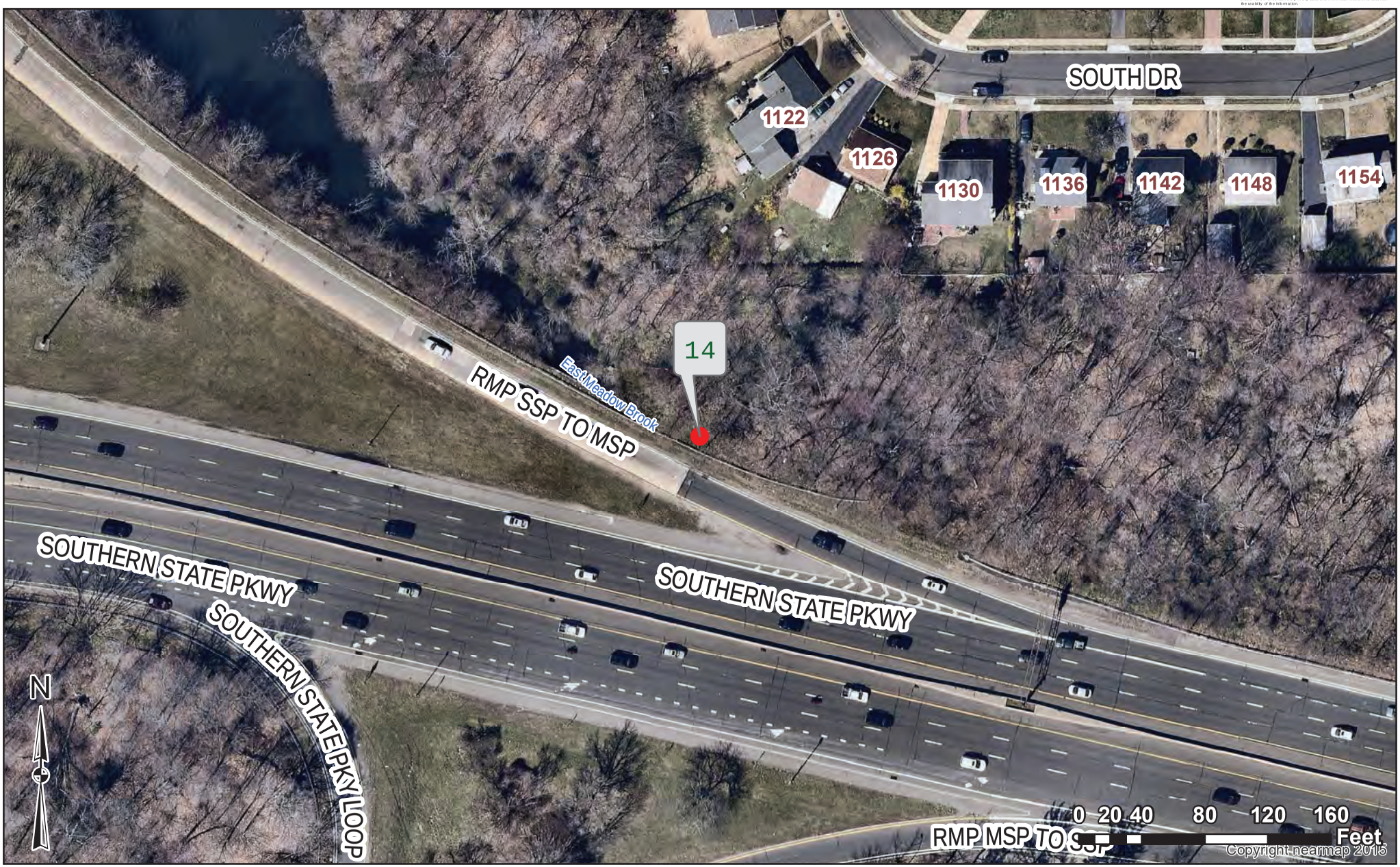
Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



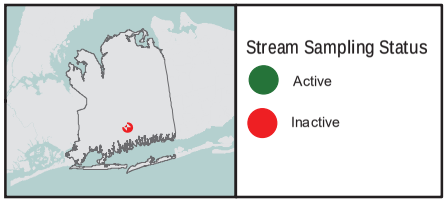
Stream Site # 14

Community: North Merrick

Stream Location: N side of exit ramp from Southern Ste parkway to the N bound Meadowbrook Parkway



Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

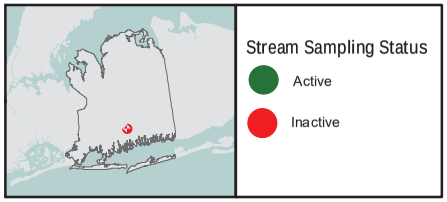


Stream Site # 15

Community: Roosevelt

Stream Location: N side of Rev. Arthur Mackey Sr. Park, Lakeside Rd., opposite Elmwood Ave

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

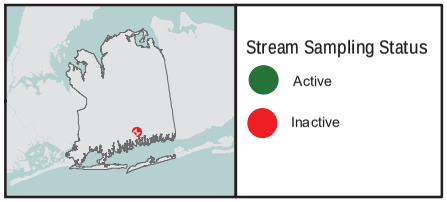


Stream Site # 16

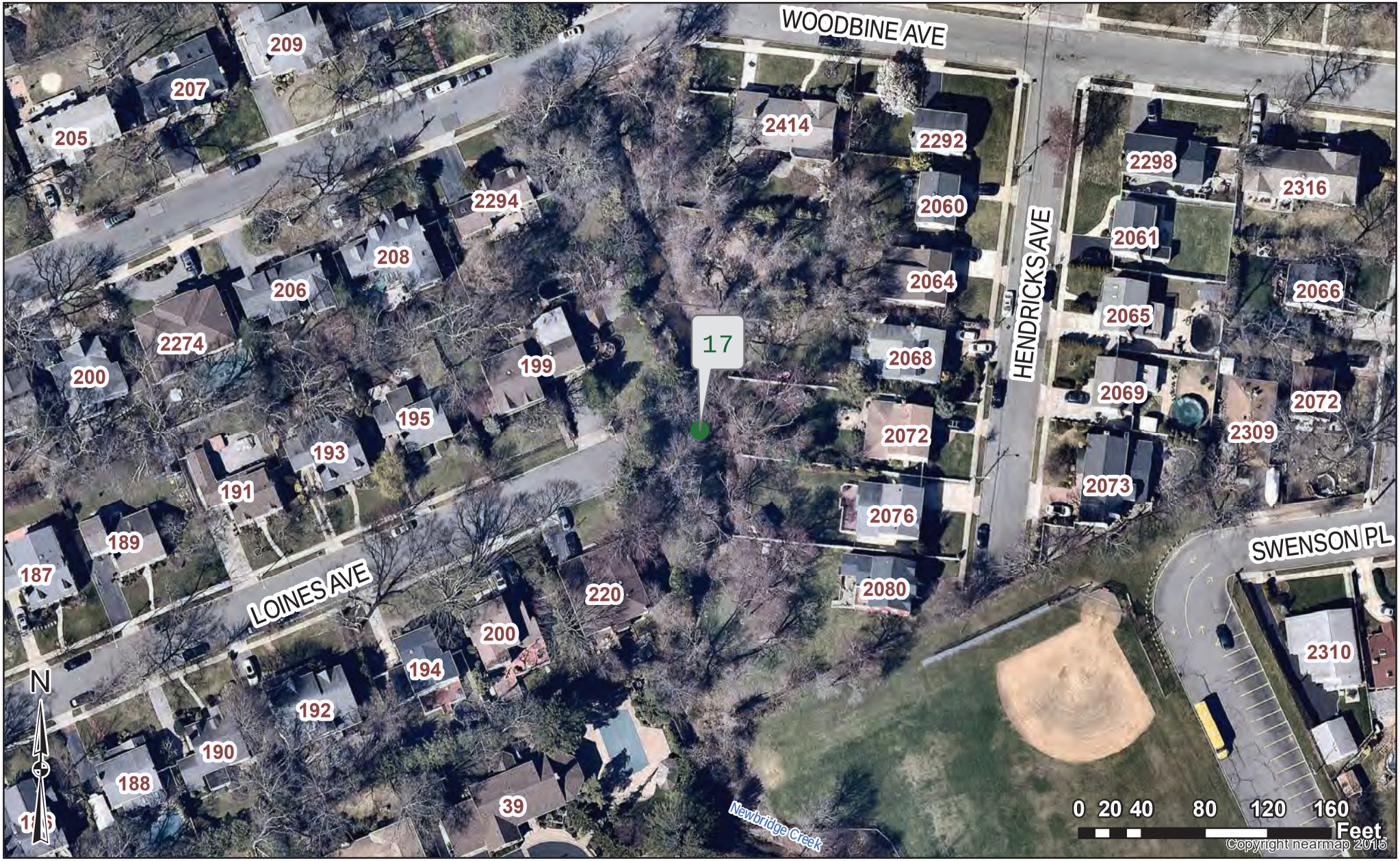
Community: Roosevelt

Stream Location: N side Washington Ave., between Lakeside Ave. & Meadowbrook Pkwy.

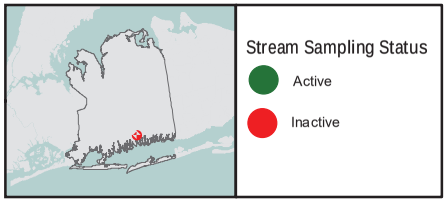
Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 17
Community: Merrick
Stream Location: E end of Loines Ave.

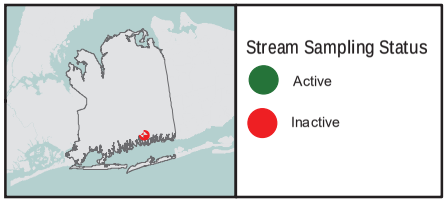


Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



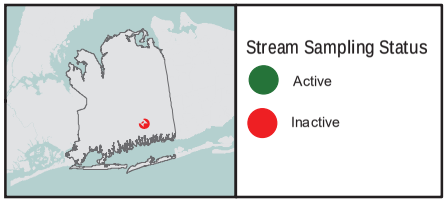
Stream Site # 18
Community: Merrick
Stream Location: S side Sunrise Hwy., just e of Henry St.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



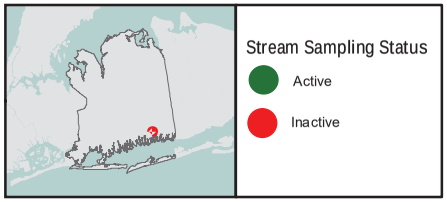
Stream Site # 19
Community: Bellmore
Stream Location: N. side Merrick Rd. across from Beverly Rd.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 20
Community: Bellmore
Stream Location: N. side Jerusalem Ave. w/o Wantagh Pkwy.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

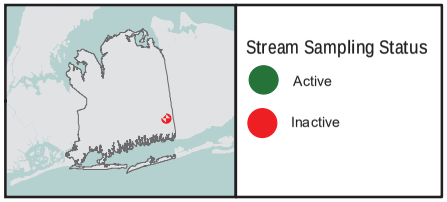


Stream Site # 21

Community: Wantagh

Stream Location: N side Alan Path between Locust Ave and Brook Ln

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

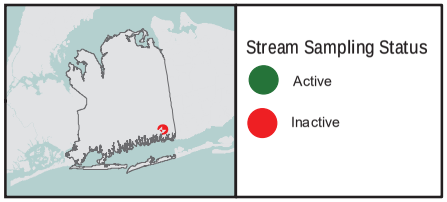


Stream Site # 22

Community: Massapequa Park

Stream Location: S. side Linden Ave.S of beginning of Bethpage Pkwy, inside Masspequa Park

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

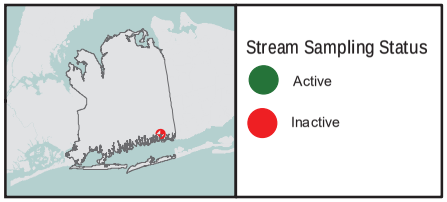


Stream Site # 23

Community: Massapequa

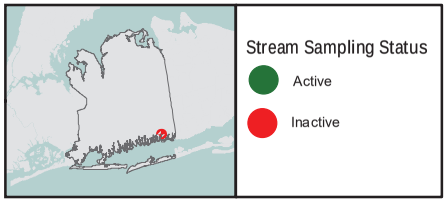
Stream Location: N/side Sunrise Hgwy. Inside Massapequa Preserve

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



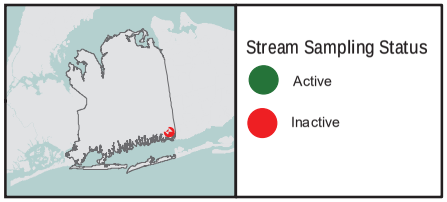
Stream Site # 24
Community: Massapequa
Stream Location: W Outflow @ N. side Merrick Rd.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 25
Community: Massapequa
Stream Location: E Outflow @ N. side Merrick Rd.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

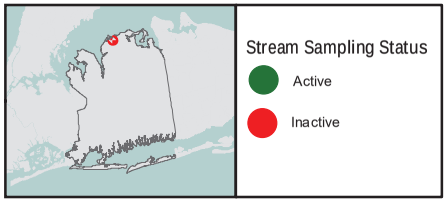


Stream Site # 26

Community: Nassau Shores

Stream Location: E end of Lee Place at N end of Majorie Post Park

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 27

Community: Lattingtown

Stream Location: N side of Merrick Rd on south outlet of pond in Marjorie Post Park

GLEN COVE MUNICIPAL PARK

E BEACH DR EAST BEACH DR

LATTINGTOWN RD

27

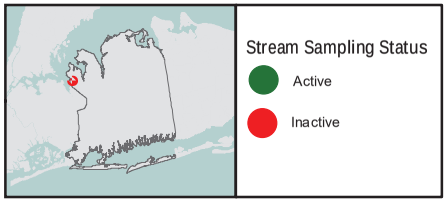
N

Dosoris Pond

Island Swamp Brook

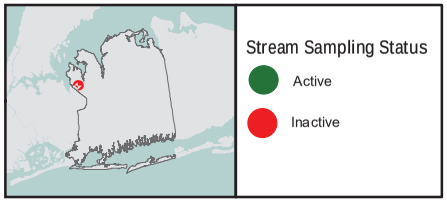
0 20 40 80 120 160 Feet

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



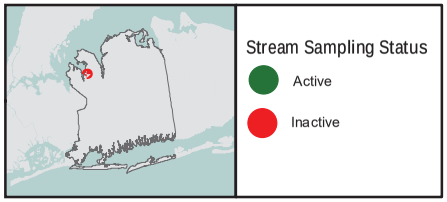
Stream Site # 28
Community: Saddlerock
Stream Location: N side of Old Mill Road E of West Shore Rd.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 29
Community: Russel Garden
Stream Location: W side of Clent Road N of Wensley Rd.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

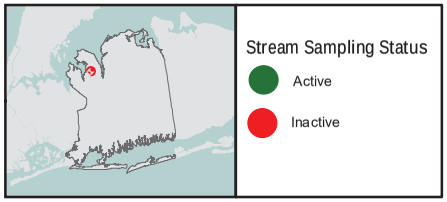


Stream Site # 30

Community: Plandome Manor

Stream Location: N/side Stonytown Road W side of Papermill Rd

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

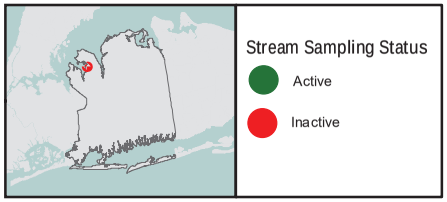


Stream Site # 31

Community: Port Washington

Stream Location: End of Marino Avenue at the Town of North Hempstead Animal Shelter

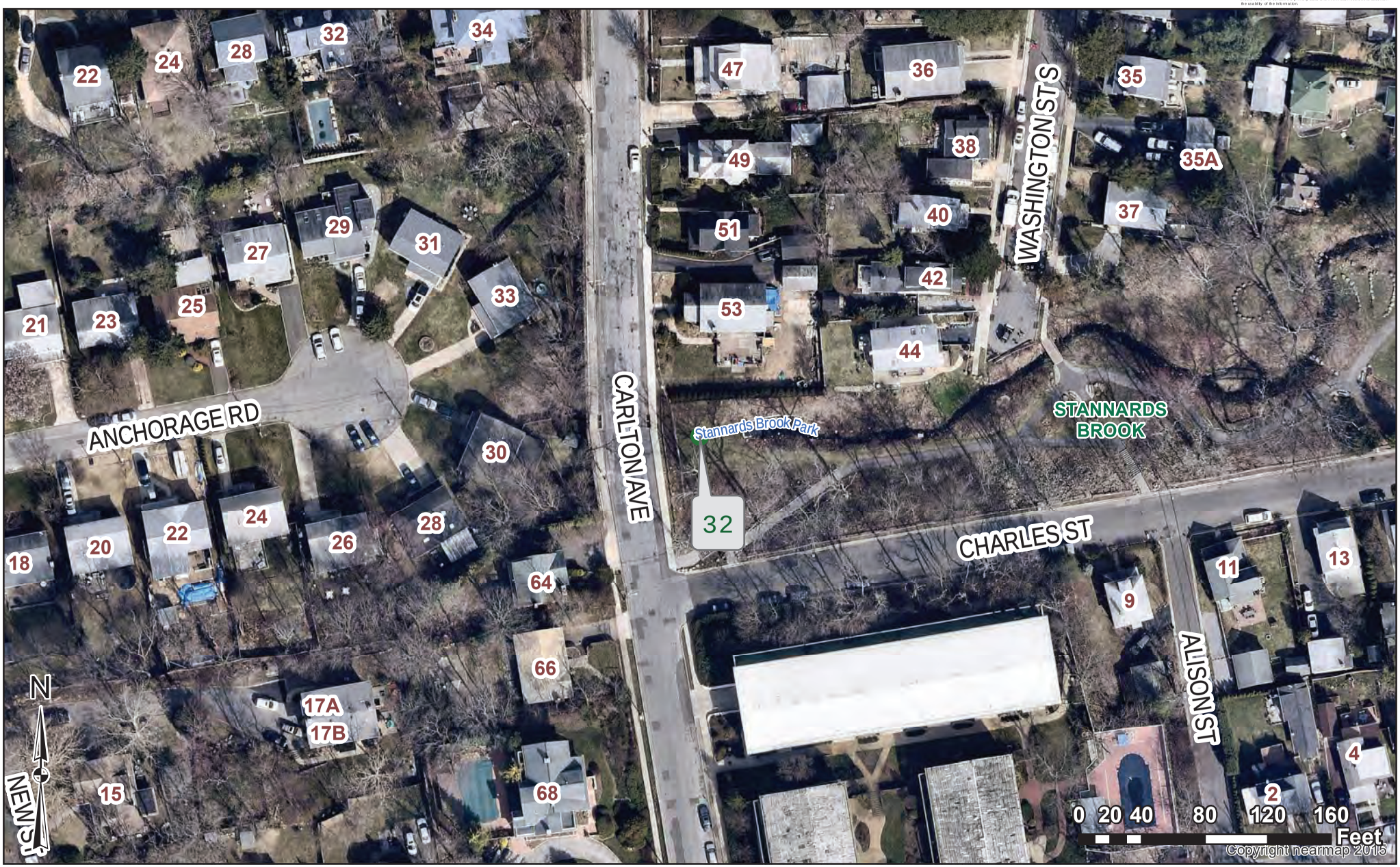
Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



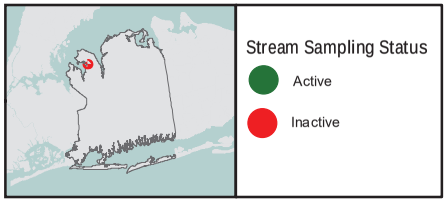
Stream Site # 32

Community: Port Washington

Stream Location: Stannards Brook Park N/side of Charles Street E/side of Carlton Avenue



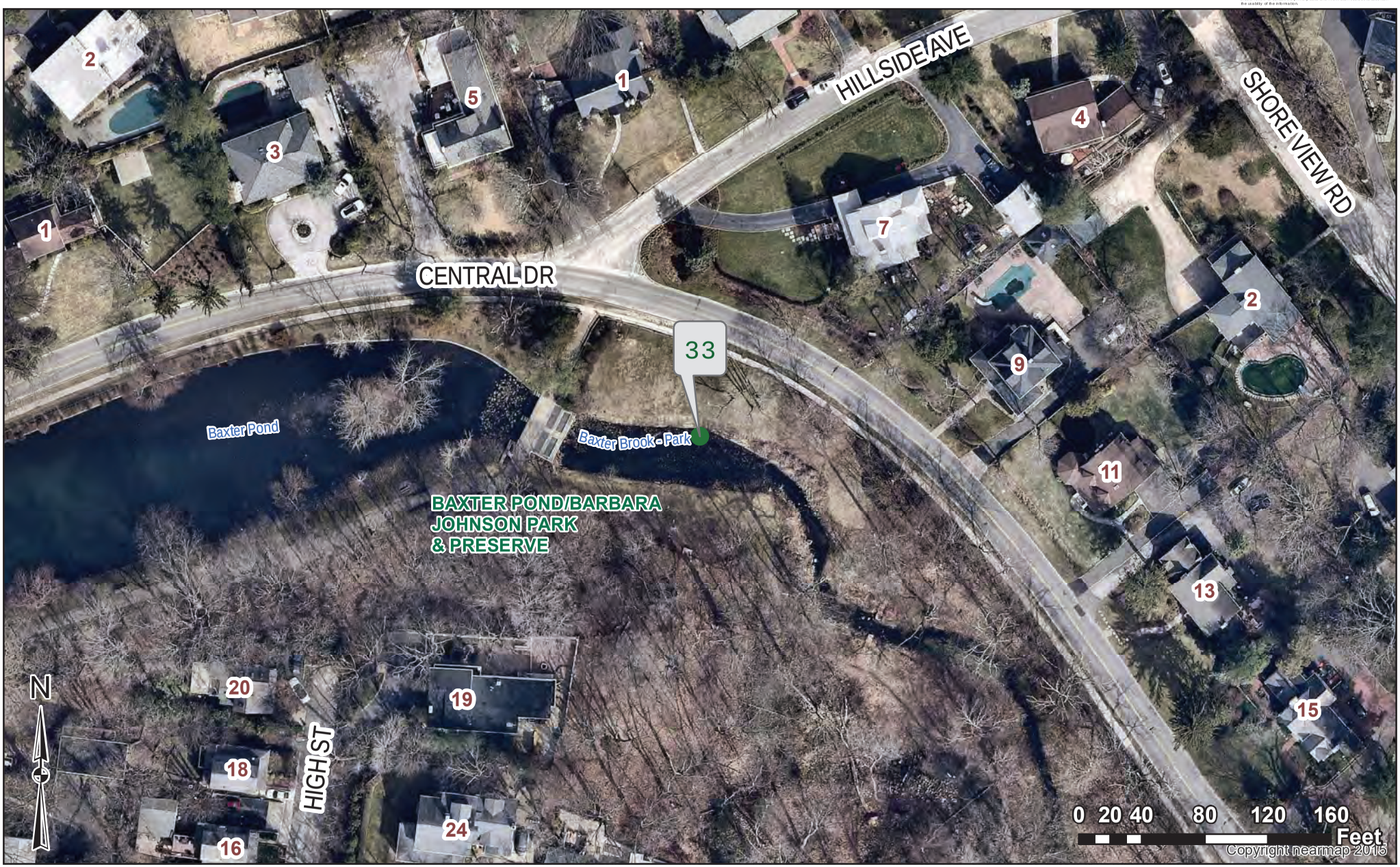
Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



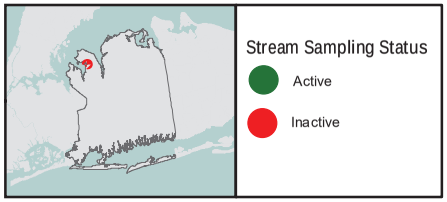
Stream Site # 33

Community: Baxter Estates

Stream Location: Baxter Pond Park E/ of Sediment Basin within the Brook

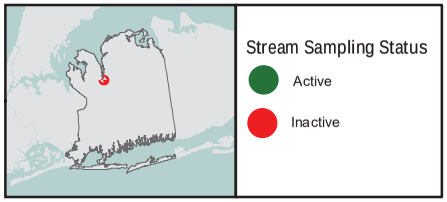


Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 34
Community: Baxter Estates
Stream Location: Baxter Pond at Fishing Pier

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

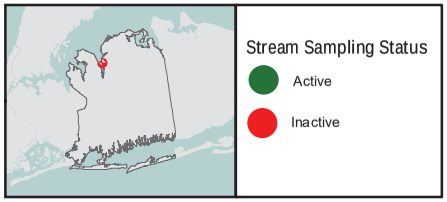


Stream Site # 35

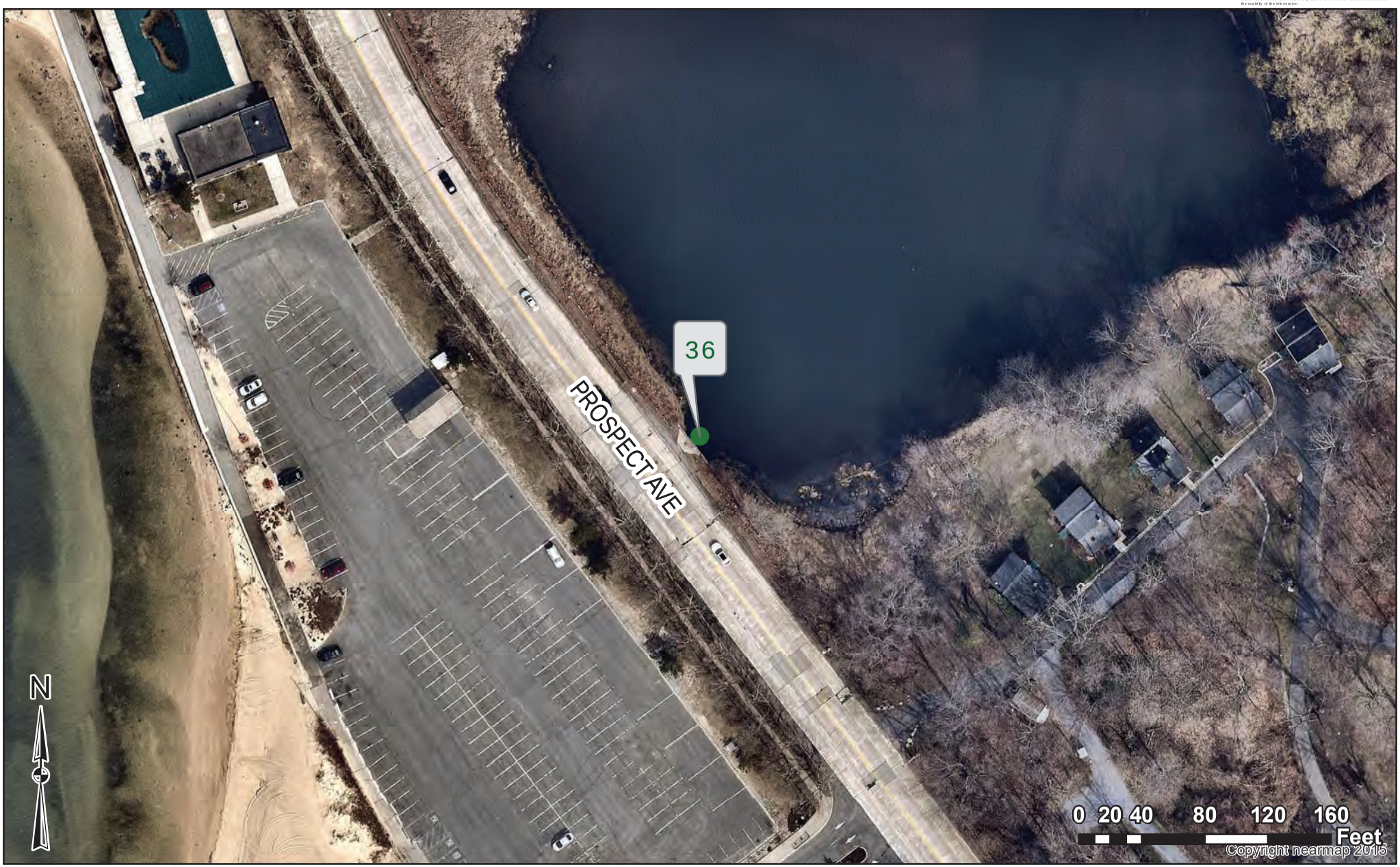
Community: Roslyn

Stream Location: Roslyn Pond Park at the Brook Between Southern Pond and Middle Pond

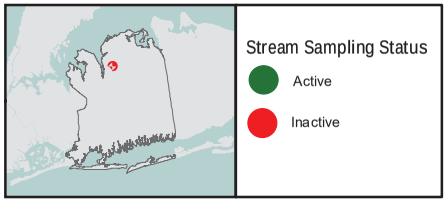
Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 36
Community: Sea Cliff
Stream Location: Scudders Pond E/side of Shore Road



Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

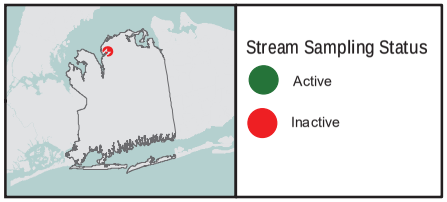


Stream Site # 37

Community: Old Brookville

Stream Location: Cedar Swamp Creek N/side of Wren Ct.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

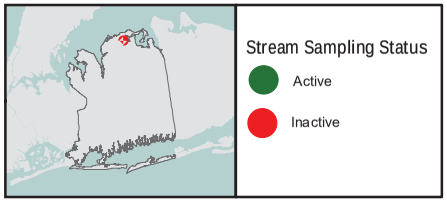


Stream Site # 38

Community: Glen Cove

Stream Location: Cedar Swamp Creek at Glen Cove Firehouse by USGS station

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

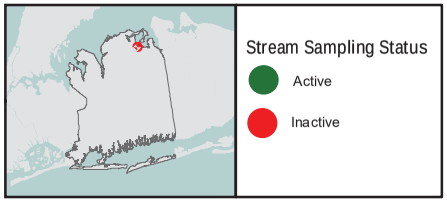


Stream Site # 39

Community: Lattingtown

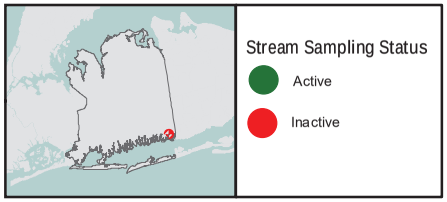
Stream Location: E side of Bayville Rd n of Feek Ln at N end of Bailey's Arboretum at ponf spillway

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 40
Community: Oyster Bay
Stream Location: Mill Pond on S/side of West Main Street Oyster Bay

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

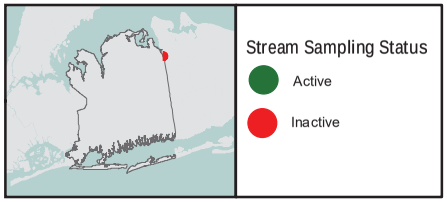


Stream Site # 41

Community: Nassau Shores

Stream Location: N side of Lattingtown Rd just W of East Beach Dr

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

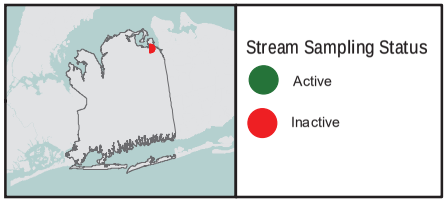


Stream Site # 42

Community: Laurel Hollow

Stream Location: W/side of Route 108 at second concrete spillway on N/side of driveway #428

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

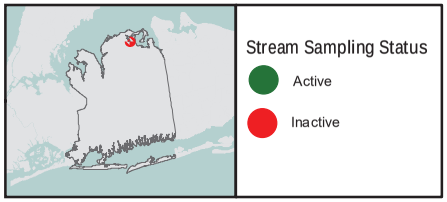


Stream Site # 43

Community: Cove Neck

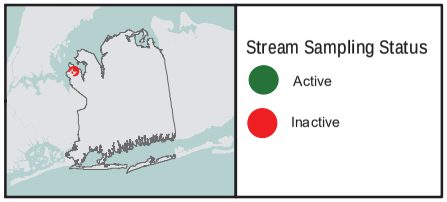
Stream Location: N/side of Laurel Cove Road by Wooden Rails

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 44
Community: Mill Neck
Stream Location: S/ side of Cleft Road by Fish Ladder

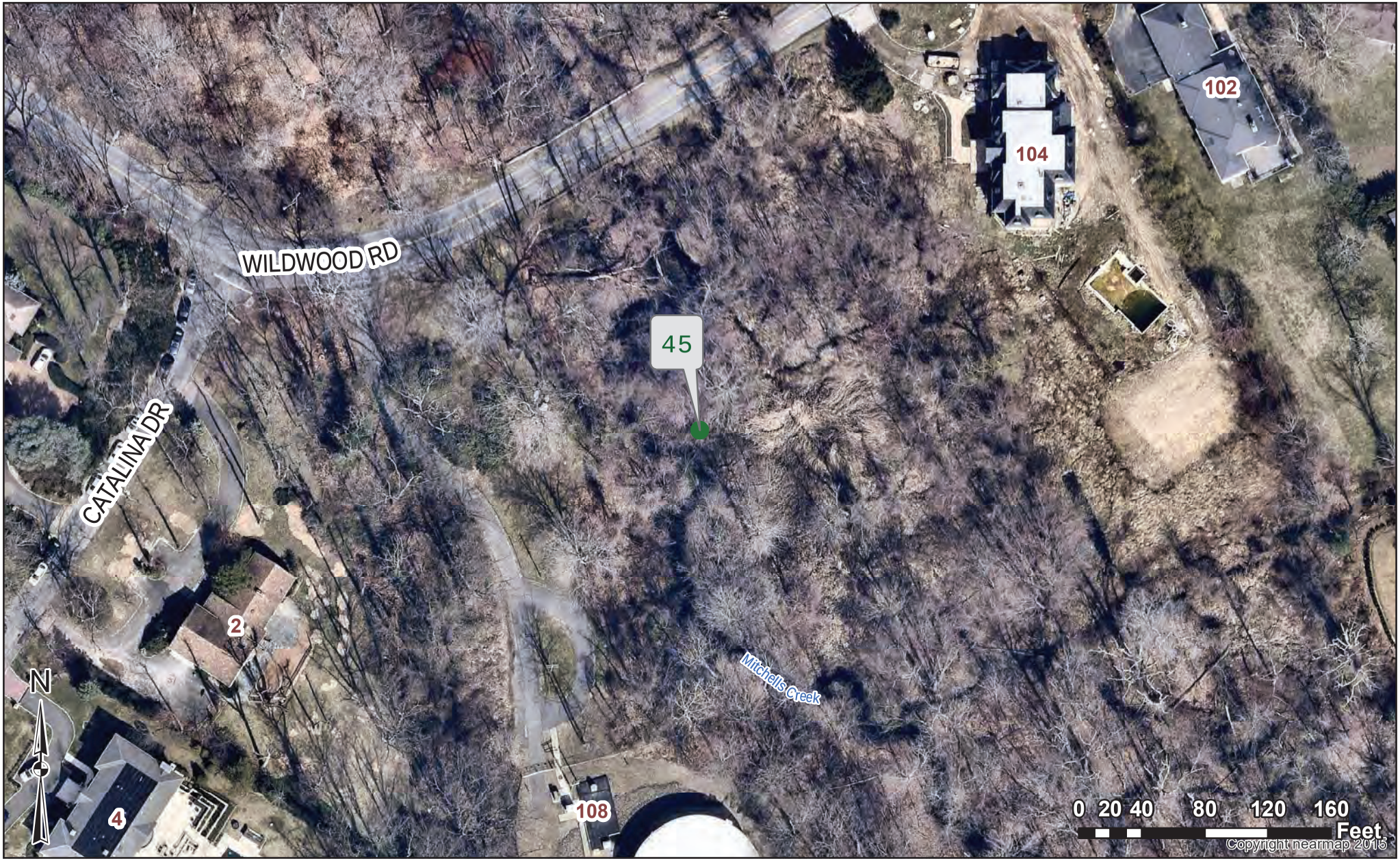
Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



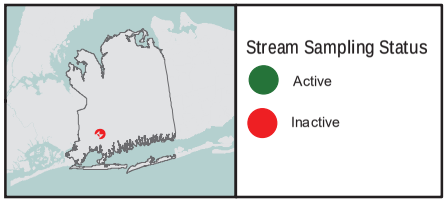
Stream Site # 45

Community: Kings Pt

Stream Location: N/side Wildwood Rd W of Beech Dr.



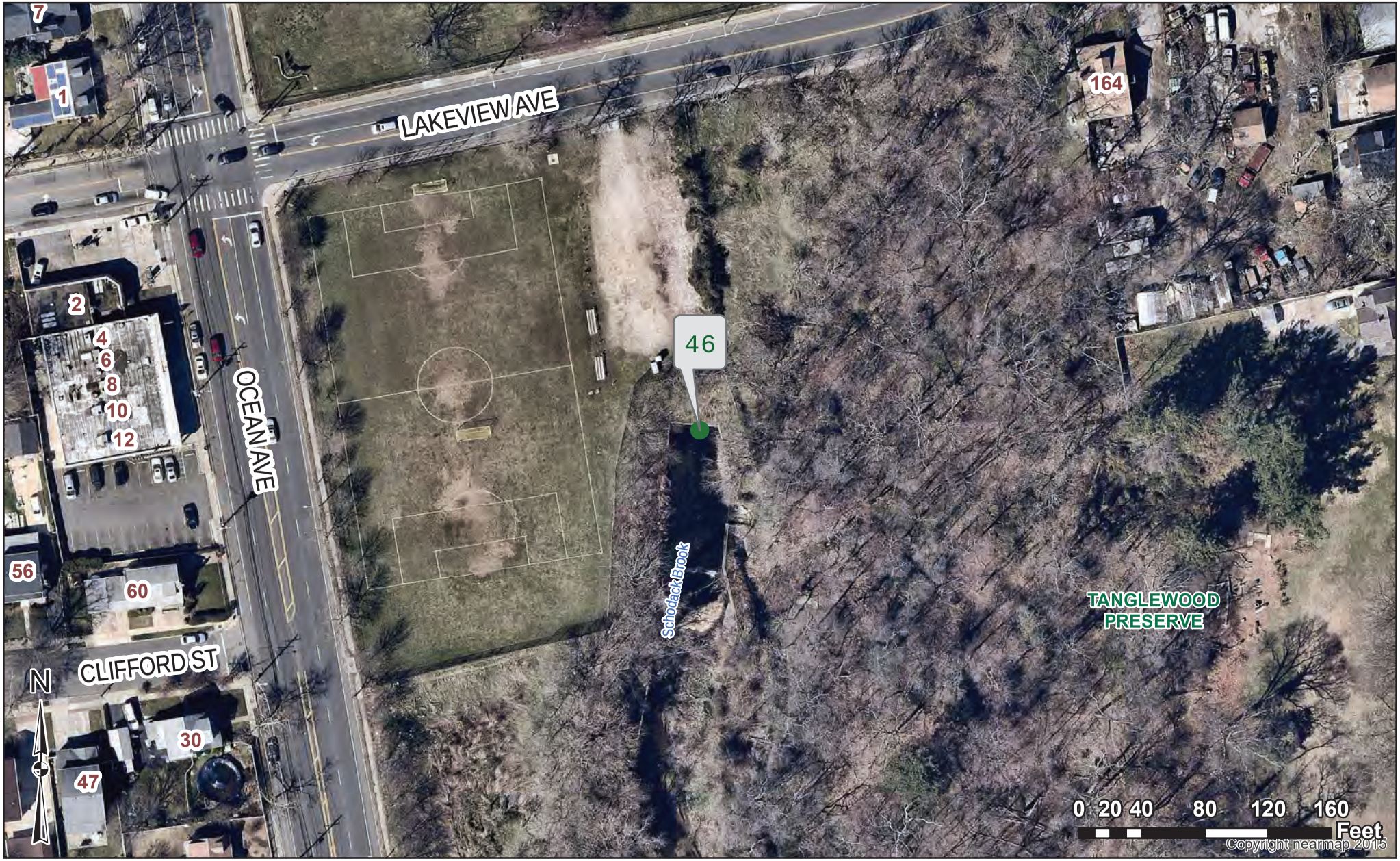
Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



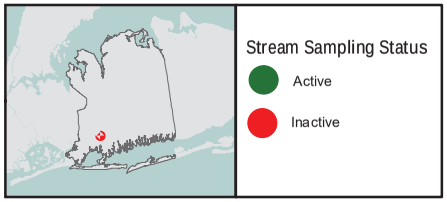
Stream Site # 46

Community: Lynbrook

Stream Location: N sideTanglewood Preserve s of Lakeview Rd.

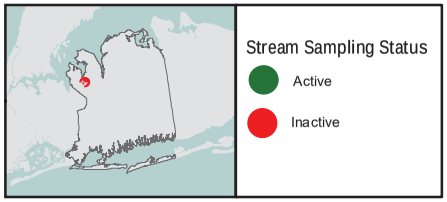


Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 47
Community: Lynbrook
Stream Location: S sideTanglewood Preserve S/side Outlet of pond

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

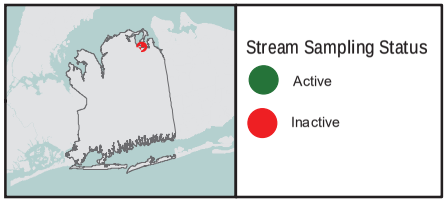


Stream Site # 48

Community: Manhasset

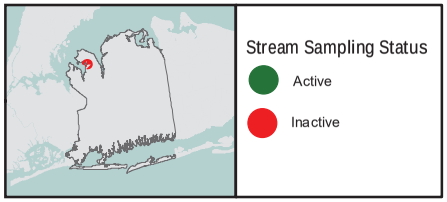
Stream Location: N/ side Northern Blvd E/side inside Manhasset Valley Park

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 49
Community: Oyster Bay
Stream Location: E/side South St at Elsie St

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY

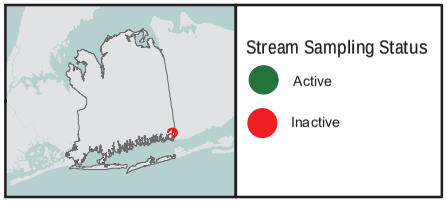


Stream Site # 50

Community: Baxter Estates

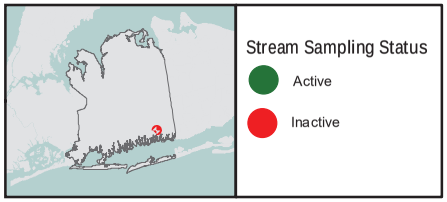
Stream Location: at outflow of Baxter Pond at w side of park on e side of Shore Rd.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 51
Community: East Massapequa
Stream Location: N/side of Merrick Road, W. of Carmans Mill Road.

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 52
Community: Seaford
Stream Location: N/side of Sunrise Highway, W. of Riverside Ave.

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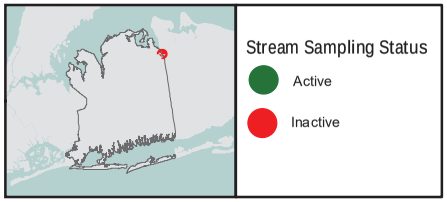
LIRR MONTAUK
LIRR MONTAUK
LIRR MONTAUK
Tackapausha Preserve
52
ROUTE 27 SUNRISE HWY
ROUTE 27
SUNRISE HWY
RIVERSIDE AVE
N
4048
TACKAPAUSHA PRESERVE SOUTH
Seaford Creek
4116
0 20 40 80 120 160
Feet

Water Resources Unit - Surface Water Sampling Locations, Nassau County, NY



Stream Site # 53

Community: Locust Grove

Stream Location: S/ side of Northern Blvd. W/side of Cold Spring Fish Hatchery.

APPENDICES

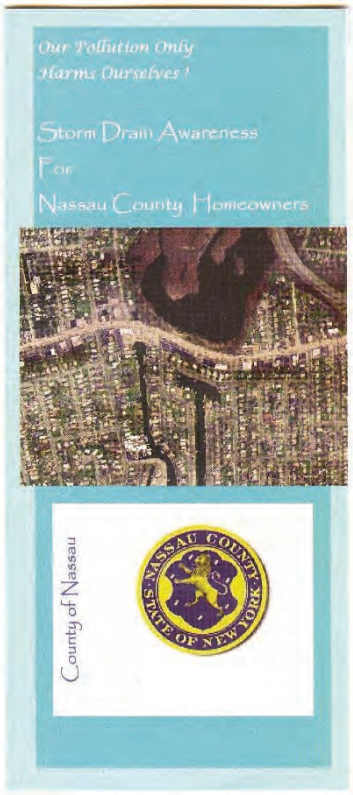
Gannett Fleming
Engineers and Architects, P.C.
Excellence Delivered As Promised

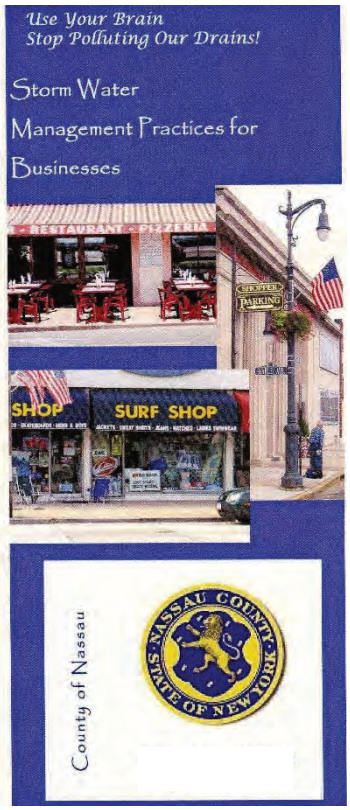
APPENDICES

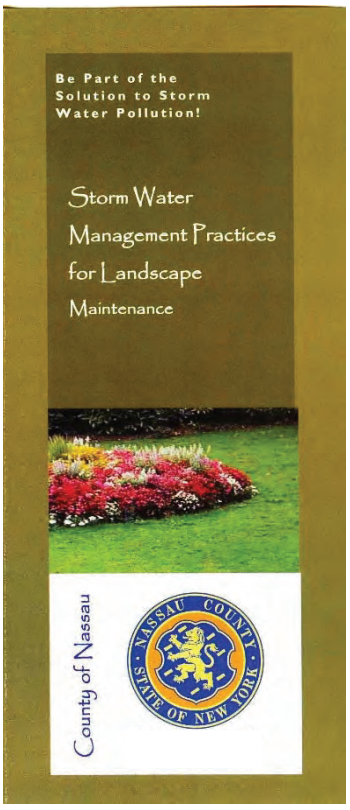
A. PUBLIC EDUCATION AND OUTREACH MATERIALS
B. CONSTRUCTION SITE COMPLAINT FORM
C. ILLLICIT DISCHARGE REPORT FORM
D. DRAINAGE REQUIREMENT DOCUMENT
E. EXAMPLE OF EMPLOYEE TRAINING CERTIFICATE
F. CONSTRUCTION SITE STORMWATER RUNOFF CONTROL FORMS FOR CONTRACTORS
G. STORMWATER BMP MAINTEANCE MANUAL
H. STORMWATER BMP ASSESSMENT REPORT
I. BLANK SELF-ASSESSMENT CHECKLIST

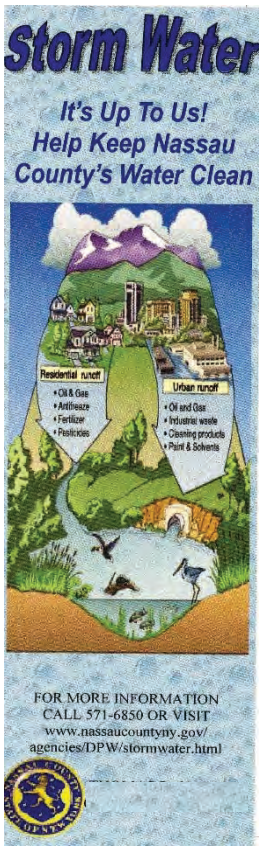
APPENDIX A

PUBLIC EDUCATION AND OUTREACH MATERIALS


Our Pollution Only
Harms Ourselves !
Storm Drain Awareness
For
Nassau County Homeowners
County of Nassau
NASSAU COUNTY
STATE OF NEW YORK


Use Your Brain
Stop Polluting Our Drains!
Storm Water
Management Practices for
Businesses
RESTAURANT · PIZZERIA
SHOP
SURF SHOP
County of Nassau
NASSAU COUNTY
STATE OF NEW YORK


Be Part of the
Solution to Storm
Water Pollution!
Storm Water
Management Practices
for Landscape
Maintenance
County of Nassau
NASSAU COUNTY
STATE OF NEW YORK


Storm Water
It's Up To Us!
Help Keep Nassau
County's Water Clean
Residential runoff
• Oil & Gas
• Antifreeze
• Fertilizer
• Pesticides
Urban runoff
• Oil and Gas
• Industrial waste
• Cleaning products
• Paint & Solvents
FOR MORE INFORMATION
CALL 571-6850 OR VISIT
www.nassaucountyny.gov/
agencies/DPW/stormwater.html

Nassau County Soil & Water Conservation District

www.NassauSWCD.org

Know Your Watershed

New York State Department of Environmental Conservation

The development of the natural landscape with impervious surfaces like concrete and asphalt (grey Infrastructure) causes excess stormwater runoff flowing over a **watershed**. **Stormwater runoff** picks up pollutants along its path and is discharged into a receiving waterbody. In Municipal Separate Storm Sewer System (MS4) communities, **stormwater runoff** is collected in storm drain inlets and conveyed through a series of underground pipes to an outfall that directly discharges into a receiving waterbody.

Stormwater runoff causes physical damage through erosion, while also transporting an array of pollutants, including:

- Pesticides
- Fertilizers
- Oil From cars
- Sediment
- Bacteria from animal Waste
- Heavy Metals (Pb, Cd, Hg)
- Debris/Litter
- Road Salt
- Leaves/Lawn debris
- Coolants/Anti-Freeze

What Can I Do to Help? - Best Management Practices (BMPs)

- Use fertilizers sparingly and only use them between April and November.
- Sweep up your driveways, sidewalks and gutters.
- Never dump anything down storm drains or in streams.
- Vegetate bare spots on your yard.
- Compost your yard waste.
- Check your car for leaks.
- Direct your downspouts away from paved surfaces.
- Consider a raingarden to capture runoff.
- Take your car to the carwash, instead of washing it in the driveway.
- Have your septic tank pumped and system inspected regularly.
- Pick up after our dog and dispose of its waste properly.

For more information visit:

Nassau County Soil & Water Conservation District – www.NassauSWCD.org

Stormwater Education and Outreach Program

Did you know that stormwater is the #1 cause of water pollution? (EPA.GOV).
The Nassau County Soil and Water Conservation District and NYSDEC has just produced a educational film on stormwater pollution in NYS. To promote the film, we're heading out into the community to teach how stormwater runoff impacts our waterways and what we can do address the problem.

The Nassau County SWCD is looking for schools, environmental groups, colleges, volunteer organizations, libraries, fairs, and civic groups to host this FREE outreach event. The 90 minute program includes a screening of the stormwater film, followed by an interactive lesson and group discussion with Nassau SWCD educators. The program will identify the sources and impacts of stormwater pollution, and address how Green Infrastructure can help mitigate the problem.

We are currently scheduling events through 2016.If your school or group is interested in hosting this Free Environmental Education Program, please contact us.

For more information: Contact Coreyn Goddard- Conservation Technician
Email: NassauSWCD2@optonline.net
Phone: (516)-364-5860

Nassau County Soil and Water Conservation District
1864 Muttontown Road Syosset NY 11791
www.Nassauswcd.org ♦ 516-364-5860 ♦ NassauSWCD@optonline.net

We work to protect, preserve, restore, and enhance natural resources through education and technical assistance.

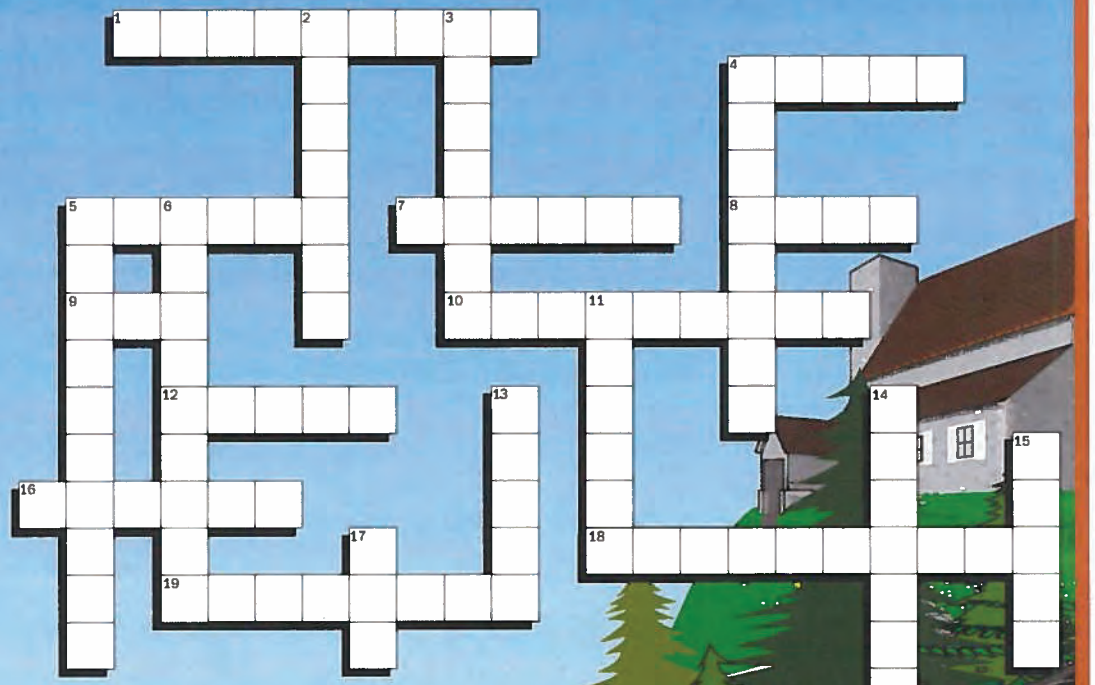
Take the Stormwater Runoff Challenge

Across:

1) The area of land that drains into an estuary, lake, stream, or groundwater is known as a _____.
4) The _____ of speeding boats can erode shorelines.
5) Maintaining your _____ tank will help to prevent bacteria and nutrients from leaking into groundwater and surface waters.
7) Wetland plants act like a natural water _____, removing harmful pollutants from stormwater runoff.
8) Leave your grass clippings on your _____ to reduce the need for commercial fertilizers.
9) A single quart of motor _____, if disposed of improperly, can pollute 2 million gallons of water.
10) Fertilizers and animal wastes contain _____ that "feed" algae and other aquatic plants harmful to water quality.
12) Polluted runoff from both rural and _____ sources has a significant impact on water quality.
16) Storm _____ don't always connect to sewage treatment plants, so runoff can flow directly to rivers, lakes, and coastal waters.
18) Follow directions carefully when applying _____ on your lawn—more isn't always better.
19) Polluted runoff (also called _____ source pollution) comes from so many places that it's hard to "pinpoint" a source.
20) Yard and vegetable food waste are suitable additions to a _____ pile.

Down:

2) Don't dump used motor oil into storm drains. _____ it!
3) _____ of soil from barren land can cloud nearby streams.
4) _____ prevent flooding, improve water quality, and provide habitat for waterfowl, fish, and wildlife.
5) Marking "Do Not Dump, Drains to Bay" on a _____ is one way to educate people about polluted runoff.
6) Excess sediment, nutrients, toxics, and pathogens are all types of runoff _____.
11) Polluted _____ is the nation's #1 water quality problem.
13) The cattail is one wetland _____ that helps purify polluted runoff.
14) Too much _____ in water can harm aquatic life.
15) Proper crop and animal management on _____ helps to control water pollution.
17) _____ impact development helps control stormwater pollution through conservation approaches and techniques.



Choices:

compost	nonpoint	sediment
drains	nutrients	septic
erosion	oil	storm drain
farms	plant	urban
fertilizer	pollution	wakes
filter	recycle	watershed
lawn	runoff	wetlands
Low		

EPA United States Environmental Protection Agency

For more information, please visit EPA's Polluted Runoff web site at www.epa.gov/nps

Printed with soy based inks on recycled paper

Make your home

The

SOLUTION TO STORMWATER POLLUTION!

A homeowner's guide to healthy habits for clean water

EPA United States Environmental Protection Agency

Make a World of Difference

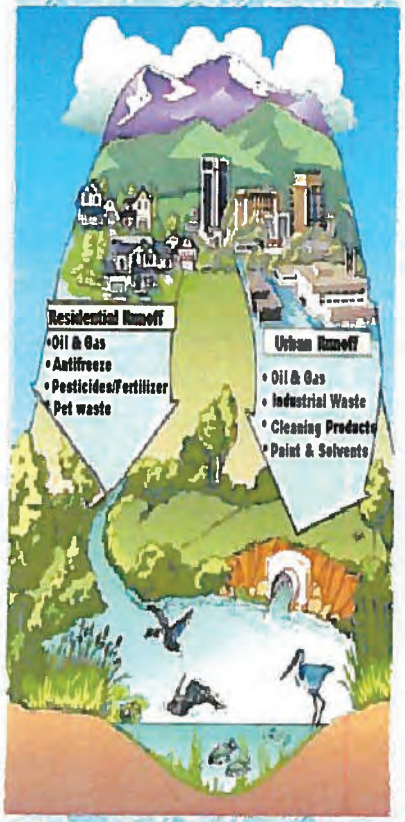
Get involved with the Soil Conservation Service

For information on careers in natural resources and environment, write:

U.S. Department of Agriculture
Soil Conservation Service
Special Examining Unit
P.O. Box 37636
Washington, DC 20013

Storm Water

It's Up To Us! Help Keep Nassau County's Water Clean



FOR MORE INFORMATION
CALL 571-6850 OR VISIT
www.nassaucountyny.gov/
agencies/DPW/stormwater.html

Benefits

Raingardens limit the amount of stormwater runoff that can reach our surface waters and add to our ground water, while supporting plant growth. Building a raingarden works to promote environmental conservation, ecology diversity, and most importantly, protects our water.

Planting

When you are ready to plant, remember to place each plant based on its individual needs

- Plants that like drier soil should be planted on the sides of the raingarden, while plants that prefer moist soil should be in the bottom
- Place taller plants at the bottom or middle of the raingarden
- Consider planting grasses on the berm to control erosion

Maintenance

Raingarden maintenance is important, especially when establishing a new garden. It is important to check on the health of the plants, remove invasive weeds, and to check the soil level of the bottom of the raingarden to avoid water from pooling on one side of the garden.

#PlantingforCleanWater

About Us

Our purpose is to protect, preserve, restore, and enhance natural resources through education and technical assistance. We provide programs and technical services to all Nassau County residents and municipalities to manage our precious natural resources.

Contact Us

www.NassauSWCD.org
(516) 364-5860
NassauSWCD@optonline.net
1864 Muttontown Road, Syosset, NY 11791

Please feel free to post any of your raingarden pictures to our Facebook page (Nassau SWCD), tag them with **#PlantingforCleanWater.**

NFWF

Nassau County Soil & Water Conservation District

Created b
Conservati
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to soak up
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r to permeate
llutants.
of lawn,

CleanWater

How to plan a Raingarden

Raingardens are best built in an area of slight depression. It is best to put them in areas that receive an abundance of stormwater, from gutters or runoff from driveways and patios.

- Raingardens are not solutions to areas of constant flooding. They shouldn't be constantly wet.
- Raingardens need good drainage that will allow for water to permeate within 24 hours after a storm.
- Raingardens should include an overflow outlet, to transport excess runoff to a secondary location.

Once you have chosen a spot, it is time to measure how large your raingarden should be.

- Check the infiltration by digging a 12"x12" hole, filling it with water, and measuring the water level every hour. Multiply the average hourly drop by 24, this number (in inches) is how much water your raingarden can handle. For example, if the water level drops at a 1/4" every hour, your raingarden should be at most, 6" deep.
- The maximum depth for a raingarden should be 12 inches.
- Next, measure the size of the area in which water will be directed into your raingarden. (ex. the size of your roof, driveway, sidewalk, etc.)
- Now, divide the total area by the depth in which you want your raingarden to be. This number will be the optimal size in square feet which your raingarden should be.
- For example, if you are directing some of the runoff from your roof, and said area of your roof measures 15ft.x20ft. (300 square feet) and you want your raingarden to be 6" deep, you would need to build a 50 square foot raingarden.

Building your Raingarden

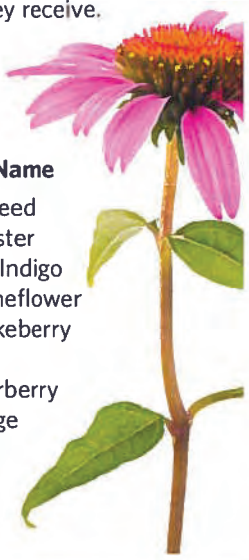
- Start by digging down from the highest point of where you want your raingarden to go.
- When digging, remember to keep the bottom of the garden as flat as possible, as this will allow the runoff to fill the garden evenly.
- Remember to dig down a couple of extra inches so you can place mulch and mix compost with the soil if it contains a lot of clay.
- After digging, you may have to build a berm around the lower perimeter of the raingarden.
- Make sure that the berm is as high as the highest point of your raingarden, this will ensure that water does not accidentally overflow, and necessary when building on a slope.

When selecting plants for a raingarden you should look for the following:

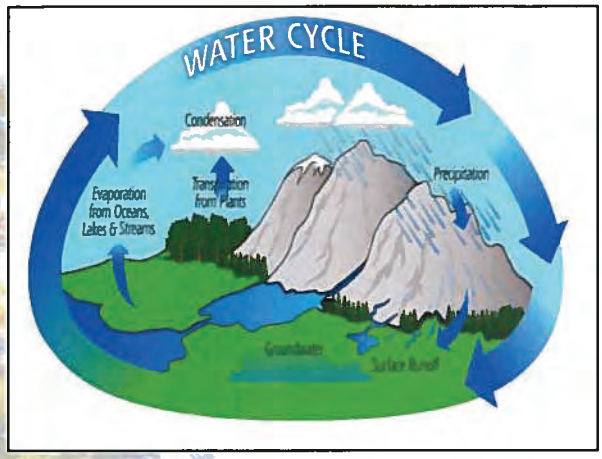
- Drought tolerant plants
- Native plants
- Plants that attract pollinators and are attractive to birds and butterflies
- Plants that are comfortable with the amount of sun or salt (if next to a road) they receive.

Plant Examples

Latin Name	Common Name
Asclepias tuberosa	Butterflyweed
Aster laevis	Smooth Aster
Baptisia australis	Blue False Indigo
Echinacea purpurea	Purple Coneflower
Aronia melanocarpa	Black Chokeberry
Ilex glabra	Inkberry
Sambucus canadensis	Black Elderberry
Carex grayi	Mace Sedge

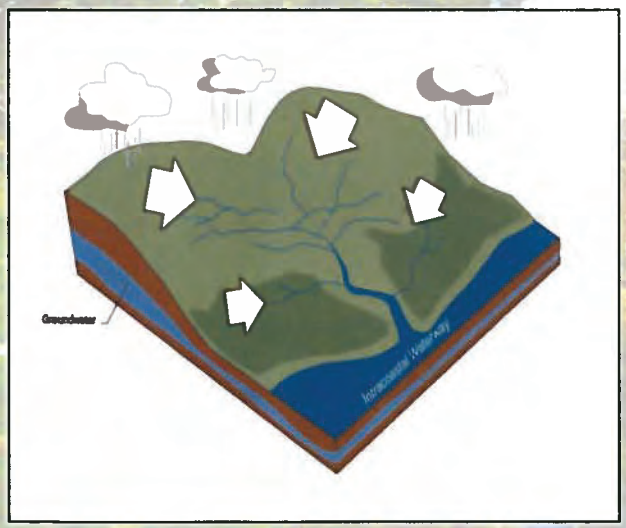


It Starts With the Hydrologic Cycle (Water Cycle)



Credit: NASA

The **hydrological cycle** describes the lifespan of stormwater. Starting as precipitation, it eventually evaporates into the atmosphere, and condenses into clouds. The land that the water flows across is called a **watershed** – an area of land that drains to a common stream lake or wetland.



A diagram of a watershed (Above) Credit: City of Wilmington Stormwater Services.

What is Stormwater?

- **Stormwater runoff** is precipitation that flows over the ground, rather than being absorbed and filtered through the soil.
- The development of the natural landscape with impervious surfaces like concrete and asphalt (grey Infrastructure) causes excess stormwater runoff flowing over a **watershed**. **Stormwater runoff** picks up pollutants along its path and is discharged into a receiving waterbody (Stream, Lake, Bay, or Harbor).
- Once Stormwater enters a receiving waterbody, the water will begin to evaporate, leaving behind all the pollutants it has transported into the receiving waterbody. This restarts the **hydrologic cycle**.
- In Municipal Separate Storm Sewer System (MS4) communities, **stormwater runoff** is collected in storm drain inlets and conveyed through a series of underground pipes to an outfall that directly discharges into a receiving waterbody.

Curb Inlet (below)

Outfall discharge to harbor (below)

Why is

- **Stormw** damage transpo includir
- Pesticide
- Fertilizer
- Oil from
- Sediment
- Bacteria

- After a directly result, v impacts
- Algal blo
- Fish die
- Harm to
- Harm to
- Bathing

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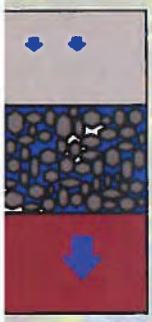


Best Management Practices (BMPs)

- Use fertilizers sparingly and only use them between April and November.
- Sweep up your driveways, sidewalks and gutters.
- Never dump anything down storm drains or in streams.
- Vegetate bare spots on your yard.
- Compost your yard waste.
- Use the least toxic pesticides you can find, and make sure to follow the instructions listed on the bag.
- Don't over-water your lawn.
- Before beginning an outdoor project, locate the nearest storm drains and protect them from debris and other materials.
- Direct your downspouts away from paved surfaces.
- Consider a raingarden to capture runoff.
- Take your car to the carwash, instead of washing it in the driveway.
- Check your car for leaks.
- Drain your swimming pool only when a test kit does not detect chlorine levels.
- Have your septic tank pumped and system inspected regularly.
- Pick up after your dog and dispose of its waste properly.

Watch our Film!

We made a feature film on stormwater runoff, pollution and green infrastructure. To view the film and download outreach materials, **visit www.NassauSWCD.org**

To learn more about what you can do to help protect, preserve, restore and enhance our natural resources, please contact the Nassau County SWCD. **Telephone: (516) 364-5860**

Stormwater Runoff
&
Green Infrastructure

A guide to stormwater runoff pollution and green infrastructure solutions

Created by

NASSAU COUNTY SOIL & WATER CONSERVATION DISTRICT

Nassau SWCD
1864 Muttontown Road,
Syosset, NY 11791

(516) 364-5860
www.NassauSWCD.org

To arrange for Special Pickups, participate in the residential S.T.O.P. program, or get additional information on recycling, contact the Sanitation Department for your Town or City.:

- Town of Hempstead 378-2220
http://www.townofhempstead.org: go to "Citizen Services" and click on the link for their S.T.O.P. program.

- Town of North Hempstead 767-4600
http://www.northhempstead.com : click on "Solid Waste" and follow the links to their S.T.O.P. Program

- Town of Oyster Bay 677-5935
http://www.oysterbaytown.com: their S.T.O.P. program is administered under their Environmental Resources Dept.

- City of Long Beach 431-1000
http://www.longbeachny.org: go to the Town of Hempstead website for S.T.O.P. information.

- City of Glen Cove 676-2000
http://www.glencove-li.com

If you would like to report someone dumping into or having an illegal connection to the storm sewer system, **Nassau County Illicit Discharge Hotline (516) 571-6863**

How Do I Spot an Illicit Discharge or Connection?

- Look for pipes or hoses that lead to a storm drain or body of water
- Watch for discolored water, stains, unusual odors and abnormal plant growth in nearby lakes and streams

Polluting Is Intruding !

2005 Storm Water Management
Logo & Slogan Contest Finalist
Megan McCune, Age 12

2006 Storm Water Management
Logo & Slogan Contest Winner
Cody Goldsmith, Age 10

Nassau County
Storm Water Management Program
Phone: 516-571-7508
Fax: 516-571-7511
Illicit Discharge Hotline: 516-571-7535
E-mail: stormwater2@nassaucountyny.gov

Visit our Website at:
www.nassaucountyny.gov/agencies/DPW/stormwater.html

Our Pollu
Harms Ou

Storm D
For
Nassau (

County of Nassau

nto the ground or
rm drains. These are
u see at street cor-
on the sides of your

a Problem?

lution can harm fish
wildlife, kill native
roy aquatic habitats,
tional areas unsafe

ased into surface
ndesirable algae and

are considered to be

intenance activities
gardens
waste and failing septic

Follow these simple steps to help reduce water pollution:

Landscape and Gardening

- Do not over-water. If water flows off your yard onto your driveway or sidewalk, your system is over watering. Periodically inspect and fix leaks and misdirected sprinklers

- Do not rake or blow leaves or clippings into the street, gutter or storm drain. Instead, dispose of waste by composting or bagging it and placing it with your household waste for pickup

- Follow directions on pesticides and fertilizers, (measure, do not estimate amounts). Do not use if rain is predicted within 48 hours

- Take unwanted pesticides to a Household Hazardous Waste Collection Center to be recycled

Rain is natural; storm water isn't. Up to 70% of the pollution in our streams and waterways is carried there by storm water, and about half of the pollution that storm water carries comes from things we do in our yards and gardens!

Pet Care

- Always pick up after your pet. Flush waste down the toilet or dispose of it in the trash. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria to wash into the storm drain and eventually into our local waterways

Pool Maintenance

- Do not pump your chlorinated pool water into the storm drain. Pool and spa water must be de-chlorinated and be free of excess acid, alkali or color to be allowed in the street, gutter or storm drain

Household Activities

- Take items such as used or excess batteries, oven cleaners, automotive fluids, painting products, TVs and computer monitors to a Household Hazardous Waste collection center

Automotive

- Take your vehicle to a commercial car wash whenever possible. If you wash your vehicle at home, choose soaps or detergents labeled non-toxic, phosphate free or biodegradable. Vegetable and citrus-based products are typically safest for the environment

- Do not allow wash water from vehicle washing into the street, gutter or storm drain. If possible, wash car on an absorbent surface like your lawn

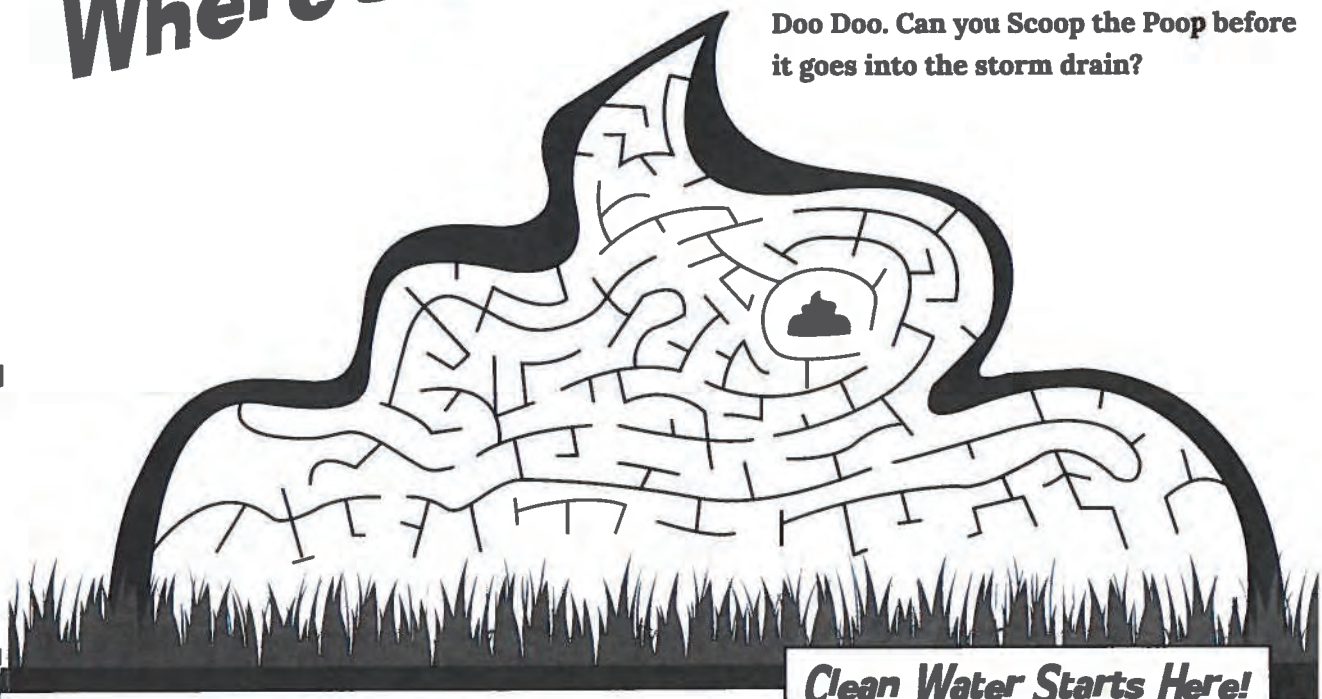
- Monitor vehicle for leaks and place a pan under leaks. Keep your vehicles well maintained to stop and prevent leaks

- Never pour oil or antifreeze in the street, gutter or storm drain. Recycle these substances at a service station, a waste oil collection center or used oil recycling center

- Do not hose down your driveway, sidewalk or patio to the street, gutter or storm drain. Sweep up debris and dispose of it in the trash

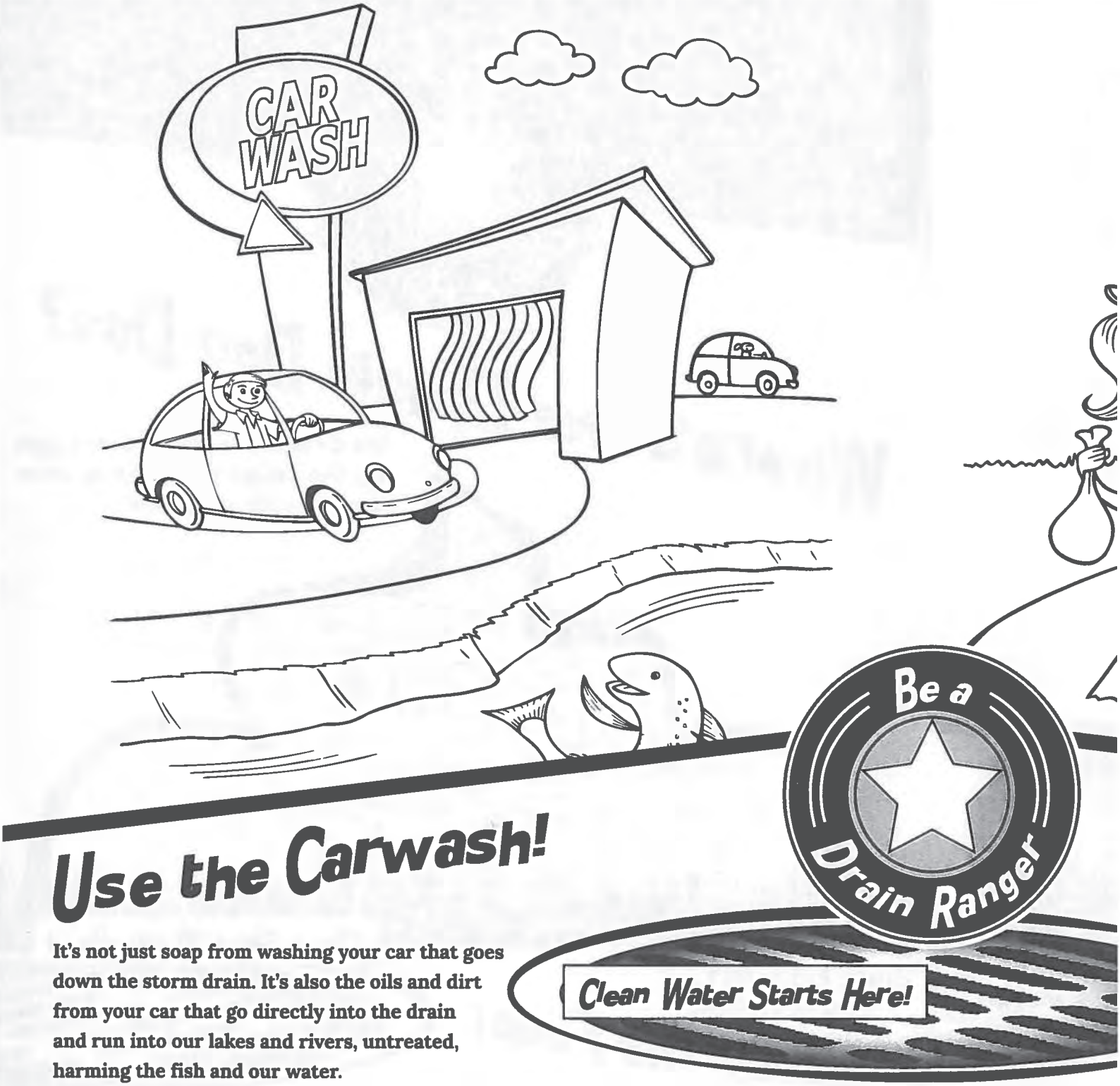
Where's the Doggie Doo Doo?

Use the maze below to locate the Doggie Doo Doo. Can you Scoop the Poop before it goes into the storm drain?



Since Fido can't...
do your part.

Scoop the Poop!



Use the Carwash!

It's not just soap from washing your car that goes down the storm drain. It's also the oils and dirt from your car that go directly into the drain and run into our lakes and rivers, untreated, harming the fish and our water.

What is a Raingarden?

Raingardens are where form meets function and gutter meets the ground. They are gardens designed to soak up rain, mainly from roofs, but also from driveways and patios. Raingardens look like regular flower gardens but they are so much more.

When it rains, a raingarden fills with a few inches of water and allows water to slowly filter into the ground rather than running off to storm drains that connect to surface water (streams and bays) and groundwater (drinking water source). Compared to a same size patch of lawn, raingardens allow about 75% more water to soak into ground! They also provide wildlife habitat and add beauty to neighborhoods!

Plan

Choosing a Spot

Raingardens can be designed to catch water from a roof or driveway. Pick a hilly spot with a slight depression; you'll have less digging to do. Raingardens:

- are **NOT** a solution to constant wet areas!
- must have good drainage so that water can soak in withi after a rainfall. This will detract mosquitos.
- should be at least 10 feet away from a building to prever into building. Use a gutter lead or build a swale to direct from roof or driveway to raingarden.
- should not be built over a septic system.
- must include an overflow outlet to transport excess rain t location (not your neighbor's lawn!)

Prepare

How Big?

Size of raingarden will depend upon 3 key factors:

1. *size of drainage area*
2. *type of soils on site*
3. *depth of raingarden*

A typical residential raingarden is about 50-100 feet. For advice on calculating dimensions of rain call phone numbers on back of this brochure.

ready planting a garden, how about
e that also helps the environment?

Plant a raingarden to:

- Add beauty & interest to any yard
- Contribute to cleaner water
- Increase groundwater recharge
- Provide habitat for butterflies & wildlife

ed in part by: Long Island Sound Futures Fund

veloped with: Cornell Cooperative Extension

signed by: Nassau County Soil & Water Conservation
Rusty Schmidt, Landscape Ecologist.

ied by: Nassau County Soil & Water Conservation District
and Native Plant Initiative

Program Partners:

u County
& Water
tion District

Town of Oyster Bay 1653 New York

Long Island Sound Study

Cold Spring Harbor
ection Committee

HHPC Hempstead Harbor Protection Committee

ds of the Bay reserve • restore

SUSTAINABLE LONG ISLAND

For more information contact:
Town of Oyster Bay at (516) 677-5943
nty Soil & Water Conservation District at (516) 364-5860

10-14

An Introduction to

Raingardens

This raingarden captures rain water runoff from adjacent driveways and rooftops which helps prevent stormwater from polluting the surrounding environment.

Nassau County
Soil & Water
Conservation District

1st raingarden built in Nassau County
is located at
Town Of Oyster Bay's Animal Shelter
150 Miller Place, Syosset, NY

What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

Why is stormwater runoff a problem?

Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.

- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.

- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

Stormwater Pollution Solutions

Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Auto care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris f...

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

NASSAU COUNTY SOIL & WATER CONSERVATION DISTRICT

2017 Newsletter

Working Together for Healthy Soils and Clean Water

Inside this issue:

The District Today
A Message from the District:

Throughout the years, the Nassau County Soil and Water Conservation District has been working to promote conservation efforts throughout Nassau County. This past year has been filled with many great projects and opportunities. We are proud to continue our work and are looking forward to an extremely productive year in 2018. We would like to thank everyone who helped us make 2017 so great.

Nassau County Soil and Water Conservation District
1864 Muttontown Road, Syosset, NY 11791
(516) 364-5860
www.nassauswcd.org

Hempstead Harbor Water Quality Monitoring

During 2017, the Hempstead Harbor Protection Committee (HHPC) expanded its water quality monitoring from bi-weekly to weekly for the 2017/ 2018 season due to assistance provided by Nassau County Soil and Water Conservation District. This monitoring program is in its 26th year and is one of the most comprehensive of its kind on Long Island Sound.

Due to funding issues, the HHPC had to cut its 2017/ 2018 program in half (biweekly instead of weekly) for the first time in 26 years. Given the seriousness of the water quality issues faced by the Long Island Sound (LIS), there was much concern as to how this may affect the LIS recovery efforts led by several different groups such as HHPC. The HHPC has been granted funding of $17,000 by NCSWCD to restore the weekly monitoring for the 2017 annual report that will be released in August 2018.

- Water quality monitoring collects crucial data for pollutants in the LIS
- This data can be compiled and given to government agencies like Nassau County Soil and Water Conservation District to improve the water quality
- The Long Island Nitrogen Action Plan and the Long Island Sound Nitrogen Reduction Strategy can greatly benefit from the data compiled from the HHPC

Black Skimmer GPS Tagging

During 2017, the Nassau County Soil & Water Conservation District partnered with the Town of Hempstead's Department of Conservation & Waterways to help fund a satellite tagging study using black skimmers. Black Skimmers are a coastal nesting water bird and are a NYS species of special concern. A 2015 Black Skimmer Conservation Management Plan issued by the NYS DEC asserts that there are only two major colonies remaining in New York State; both located in Nassau County, and as detailed in the plan, more information and further attention on this species is warranted to better manage them and to better understand the overall embayment health of the South Shore Estuary Reserve.

Locations of food resources and the distances skimmers are willing to travel to access those resources from the colony is critical to understanding their conservation and habitat needs during their breeding season. Attaching satellite transmitters to the selected black skimmers helps to provide critical data such as:

- Water quality analysis in nesting locations to better understand the importance of water quality to the black skimmer
- Determining point and non-point source pollution that occurs in the area
- Providing insight on habitat specific requirements to help prevent the habitat loss/ degradation of colonial water birds on the south shore of Long Island

Planting for Clean Water

In 2015, the Nassau County SWCD received a grant from the Long Island Sound Futures Fund to enact the Planting for Clean Water program. This grant funded the construction of three raingardens which were installed and maintained throughout 2016 and 2017 and will continue to be maintained into the future. The grant provided funding for educational signage, raingarden workshops and our new brochure "Raingardens for Residents". These raingardens will protect the Long Island Sound from pollution carried by stormwater runoff. The location of each raingarden was carefully chosen and built where it would collect the most stormwater runoff.

We would like to give a special thank you to the Cornell Cooperative Extension's Master Gardener program, the Friends of Cedarmere, the Village of Bayville, the Village of Centre Island, the Nassau County Department of Public Works, the Nassau County Parks Department, and the Long Island Sound Future's Fund for all their support.

Raingarden Locations

- Bayville Village Hall
- Centre Island
- Cedarmere Preserve

Cedarmere Invasive Removal and Native Plant Restoration

Cedarmere was the home of William Cullen Bryant, a prominent 19th century poet and currently is the location of one of Nassau County's most picturesque park preserves. On July 25th, 2017 the district worked with volunteers from The Friends of Cedarmere to remove invasive species and maintain the rain garden that was installed in 2016 with funding from the Long Island Sound Future's Fund. In addition to the removal of the invasive plants, we planted Black Tupelo, Black Walnut, and Flowering Dogwood trees that are native to the area. We returned on August 22nd, 2017 for a cleanup day and tree planting with Friends of Cedarmere. We would like to thank all our wonderful volunteers for making this event a success! Because of their help, the area was extensively cleared of invasive plants and replanted with native plants that are used to prevent erosion

Outreach

Throughout the year, the district provided various methods of outreach, at events, on social media pages and on our website. The district was present at numerous events in Nassau County, with our goal being to connect with local residents, provide informative materials, provide technical assistance, and to build a relationships with anyone who wishes to utilize our services. This year, we were able to increase our outreach numbers by **34% compared to 2016, and 97% compared to 2015**. With our increased staff size, we were able to give more presentations and organize larger volunteer days, which were extremely beneficial to our mission, and provide important information and experience to the residents of Nassau County. Additional staffing also allowed us to be more visible at events leading to a stronger view of the district in the public's eyes. These metrics have been utilized as MS4 assistance for partnering municipalities in their reporting. We are looking forward to some great events in 2018.

Here are just a few events that the district participated in:

- Harbor Fest, Port Washington
- Long Island Fair, Old Bethpage
- LISSMA, St Josephs
- Cedarmere Volunteer Day
- Raingarden presentations at various civic associations
- Long Island Native Plant Symposium

Envirothon

On April 25, 2017 the Suffolk County and Nassau County Soil and Water Conservation Districts hosted their 19th Annual Long Island Envirothon at Old Bethpage Village Restoration Plaza. The Envirothon is a nationwide environmental science competition for high school students. Schools can have up to two teams of 3-5 people compete. On Long Island, we have our own regional Environthon where one team from Nassau County and one team from Suffolk County are chosen as winners and are presented with scholarships. The Envirothon is based on five subject areas: aquatics, forestry, soils, wildlife, and the current issue—which changes annually. Each one of these subject areas are managed by a station master, who is tasked with supervising their station during the event. The current issue for 2017 was "Agricultural Soil & Water Conservation Stewardship"

The students conducted research on the topics, and were then tested in each subject area with a 25-question multiple choice test. Finally, students give an oral presentation based on a current environmental issue. The winners of the 2017 Envirothon were Great Neck South High School (Nassau) and Sachem North High School (Suffolk).

We would like to give a special thank you to Covanta and all of our other sponsors that made this event possible.

NYSDEC Endorsed 4-Hour Erosion and Sediment Control Training

During 2017, the district hosted 3 Erosion and Sediment Control Training events. The events are meant to teach trainees about the principles of stormwater runoff control. Many contractors, engineers, municipal stall and equipment operators were trained. This training is required under the NYS Department of Environmental Conservation's Stormwater Permit GP-0-15- 002, which states all developers, contractors, and subcontractors must identify at least one trained individual from their company that will be responsible for implementation of the SWPPP (Stormwater Pollution Prevention Plan), and have at least one trained individual on site on a daily basis when soil disturbance activities are being performed. In addition, developers must have a qualified inspector conduct regular site inspections in accordance with GP-0-15-002. This year's trainings were held at Old Bethpage Village Restoration.

The cost of the training was $100 per person, and included lunch, training materials, a certificate and a certificate ID card. Participants at this year's trainings were trained by Jake Wedemeyer, from Ulster County Soil and Water Conservation District and Corey Humphrey, from Suffolk County Soil & Water Conservation District.

To register for a future training, please visit our website.

Mill Pond Restoration

Mill Pond is located in the incorporated Village of Port Washington North, on the eastern side of Shore Road between Harbor Road and Mill Pond Road. The manmade pond was constructed in the latter part of the eighteenth century, over 200 years ago. It is currently owned by the Town of North Hempstead and located in the historic district of the Village of Port Washington North.

Nassau County SWCD has continued work with the Town of North Hempstead to control a stand of invasive Phragmites australis and plant native tidal wetland species located at Mill Pond. Phragmites out-competes the native plant species and is detrimental to the surrounding ecosystem by creating a less productive and diverse ecosystem. The Nassau County SWCD has taken the lead on the native plant restoration portion of the project. The native plant restoration involves Spartina plugs and other native wetland species, erecting a silt fence, and goose exclusion fencing.

This year, focus was on increasing the amount of Spartina in the pond further along the shoreline.

- Doing this, we will slow or stop the spread of any future Phragmites growth, while also removing excess nitrogen from the entire pond.
- This will work to prevent algal blooms in both the pond and any connecting waterbodies. Smaller areas are along the outer banks of Mill pond and were planted with Spartina alternaflora and Spartina patens to prevent future Phragmites growth, while also acting to stabilize the shoreline. In total, approximately 7,000 square feet of shoreline was protected or restored.
- The outcome of the project is to reinforce and add to the ecological diversity of Mill Pond; more specifically, planting of native plants at Mill Pond will increase the biological diversity, improve water quality by nutrient uptake, soften wave energy of storms and improve the overall water quality to Manhasset Bay

May Newburger Cove Restoration

Part of Hempstead Harbor, May Newburger Cove is located along West Shore Road in Port Washington, NY. The cove is located along one of the longest shoreline nature trails on Long Island, the Hempstead Harbor Trail. According to the Long Island Sound Study, Hempstead Harbor is designated as part of an Important Bird Area by Audubon New York. Depending on the season, hawks, falcons, osprey, sandpipers, plovers, herons, egrets, and waterfowl can be found around the Harbor.

Hempstead Harbor has also been designated by New York State as a Significant Coastal Fish and Wildlife Habitat Area. Nesting diamondback terrapins have been spotted in the lower harbor, and twice in recent years, pods of dolphins have visited the harbor. The harbor is also an important part of the local economy, bringing boaters, fishermen and beachgoers to the area. Because of this, it is important to maintain the local ecosystems and protect the area from invasive plants that could cause harm. One of these invasive plants is Phragmites australis. Phragmites will form a dense monoculture and slowly take over an area, outcompeting the native plants in which the local ecosystem relies.

During 2017, the District worked with the Town of North Hempstead to remove treated Phragmites, and plant Schoenoplectus robustus, Spartina alternaflora and Va frutescens in its place.

- The project will work to protect and restore approximately 1 acre of tidal wetland in Hempstead Harbor.
- The project will eventually result in a highly productive ecosystem and diverse habitat
- These plants will filter out pollutants and nutrients from stormwater runoff, that will ultimately work to improve the water quality in Hempstead Harbor.

Technical Assistance

Natural Resources Management:

- Agricultural Environmental Management (AEM)
- Stream corridor restoration
- Wetland construction and restoration
- Shoreline protection

Project Implementation:

- Grant/contract administration
- Inter-agency cooperative agreements
- Project survey & design
- BMP implementation on public/ private lands

Protecting Public Health & Safety

- Water supply protection
- Water quality monitoring

Land Use Planning

- Soil interpretations
- Soil Surveys
- Site plan reviews
- Stormwater Management
- Recreation & open space planning
- Farmland protection
- Wetlands protection
- Watershed protection plans

Public Involvement

- Public participation/stakeholder advisory groups
- Identifying key audiences
- Communication plans
- Consensus building
- Coalition building
- Networking

Nassau County Soil and Water Conservation District
1864 Muttontown Road, Syosset, NY 11791
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NASSAU COUNTY
SOIL & WATER
CONSERVATION DISTRICT

APPENDIX B

CONSTRUCTION SITE COMPLAINT FORM

Nassau County
Stormwater Complaint Form

If you see someone dumping anything onto street surfaces, into Nassau County storm drains, or into any other device built to contain rainfall or runoff, please report it immediately by calling the Nassau County Department of Public Works (NCDPW) at (516) 571-7520 or by completing this form and dropping it off at the NCDPW building or mailing it to: Nassau County Department of Public Works – C/O Dan Fucci, Cedar Creek WPCP, 3340 W. Merrick Road, Bldg. R, 3rd Floor, Wantagh, NY 11793.

Fill in the appropriate information and an appropriate party will investigate all reports received and take any and all appropriate enforcement actions necessary to rectify the discharge.

To report an Emergency, call 9-1-1. Do not use this form to report an emergency.

Complaint received via (circle one): _____ Date: _____

Phone E-mail Mail Verbal

Complaint made by: **Complaint can be made anonymously, if individual does not want to provide the following information: Name, Address, Phone number and Email Address.**

Name: _____

Address: _____

Home Phone: _____ Daytime Phone: _____

E-mail Address: _____

Date of Occurrence: _____

Location: _____

Description of problem: _____

_____

_____

_____

Was a commercial vehicle involved (circle one) Yes No

If so, what was the company name or license plate number on the vehicle: _____

_____

Stormwater Complaint Type (Choose any that applies):

Drainage _____

Construction_____

Post Construction_____

Date of last rainfall: _____

Name of Contractor or Landowner: _____

Phone number if known: _____

This section to be filled out by the Nassau County staff:

Complaint referred to: _____ Date: _____

Complaint resolution: _____

_____ Date: _____

APPENDIX C

ILLLICIT DISCHARGE REPORT FORM

NASSAU COUNTY
ILLICIT DISCHARGE REPORTING FORM

Name: _____ **Contact Phone Number:** _____

Date: _____ **Time Discharge Discovered:** _____

Reported via (Hotline, call, other agency or Dept, other: _____

Date of Last Rain Event: _____ **Estimated Quantity of Rain**:_____ **in.**

LOCATION OF DISCHARGE (indicate nearby street intersections, addresses, and/or landmarks for reference): _____

_____

_____

WHERE WAS THE DISCHARGE FOUND? OPEN DITCH STREAM PIPE OUTFALL OTHER: _____

WAS WATER FLOW OBSERVED? NO YES .

WAS FLOW SOLID OR PULSING? SOLID PULSING

WAS A PHOTO TAKEN? NO YES (Please attach a copy to this form)

ODOR: NONE MUSTY SEWAGE ROTTEN EGGS SOUR MILK OTHER: _____

COLOR: CLEAR RED YELLOW BROWN GREEN GREY OTHER: _____

CLARITY: CLEAR CLOUDY OPAQUE

WAS THERE AN:
OILY SHEEN YES NO
GARBAGE/SEWAGE YES NO
OTHER: _____

ADDITIONAL INFORMATION TO ASSIST IN THE INVESTIGATION: _____

_____

_____

Follow up Investigation (to be completed by staff)
OUTFALL NO: _____ **INSPECTOR NAME** _____ **PHONE** _____

FIELD ANALYSIS:
WATER TEMP: _____ °F / °C
pH: _____
PHENOL: _____ mg/l

WAS A LABORATORY SAMPLE COLLECTED? NO YES
(if yes attach copy of chain-of-custody record)
COMMENTS: _____

_____

_____

DATA SHEET FILLED OUT BY: (signature): _____ DATE: _____

Additional notes to file: _____

_____

_____

Follow-up with Complainant: _____

_____

_____

APPENDIX D

DRAINAGE REQUIREMENT DOCUMENT

Drainage Requirements for 239F Review
Onsite Storage of Storm Water

Residential Properties:

New construction and existing site redevelopment: Plans are to provide for eight (8) inches of storage for the site. The developer or the designer is encouraged to utilize low impact development techniques in addition to the traditional methods for onsite storage. A waiver will be required when less than the eight (8) inches of onsite storage is provided for under the design.

Additions to existing buildings: The plans shall indicate that storm water runoff from proposed improvements shall have no impact upon County roads and drainage facilities.

Commercial Properties:

New construction: Plans shall provide for eight (8) inches of onsite storm water storage for the site. A waiver of drainage requirement is to be requested when less than the eight (8) inch of storage is provided for under the design. If overflow impacts another municipality, a letter is to be forwarded from that municipality stating they are willing to accept the runoff.

Redevelopment of existing properties: For the redevelopment of site with the following degrees of work:

1. Reclassification of property – no change to any structures or to the property.
2. Curb cuts on County roads – no change to structures.
3. Aesthetic improvements to property – installation of signs and garden planting areas.
4. Modification of a site - minor changes to property
5. Additions to existing buildings or modifications to properties – size of improvement can vary, but the portions of property are unchanged.

For classifications 1–3 submittals: No onsite storm water storage improvements will be required.

For classification 4 submittals: The developer shall provide for eight (8) inches of storage for storm water runoff for that portion of the property disturbed for new construction or replacement in kind.

For classification 5 submittals: Where the redevelopment and / or disturbance for replacement in kind is equal to or greater than twenty-five (25) percent of the current developed site, the whole site will be required to meet the eight (8) inch storage requirement. Where redevelopment is less than twenty-five (25) percent of the current site, the developer shall install additional storage for eight (8) inches of runoff from the portion of the property redeveloped.

Existing Connections to Municipal Storm Water Systems: Where a 239F site plan review identifies an existing connection, either prior approved or not, between onsite drainage and a Nassau County drainage system, it is the responsibility of the developer to obtain a Drainage Connection Permit. The conditions of the permit will include best management practices to reduce and/or eliminate adverse impacts to the Nassau County drainage system from sediments, floatables, and petroleum products. If a connection is identified between the onsite drainage and another municipality's drainage system, a letter approving the connection will be required.

Waiver of Drainage Requirement: Where site development fails to meet the County's eight (8) inch storage requirement, the developer is required to submit a request for a waiver from the onsite storage requirement. The request shall include the following:

1. Justification for the failure to meet the County's requirement.
2. The anticipated storm water storage to be retained onsite.
3. The destination of the storm water overflow.

* Developers are required to include sedimentation and erosion control measures as part of the plan submission. Developers are encouraged to employ new technologies as may become available to employ "Best Management Practices" to collect and treat storm water runoff. The County for its part will be open to discussion regarding alternate methods of attaining the site storage requirement.

Revised: August 31, 2004, October 27, 2004

Nassau County
Department of Public Works

Drainage Requirements

Commissioner
Raymond A. Ribeiro, P.E.

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Introduction:

The recently enacted Phase II Storm Water Regulations requires all municipalities in Nassau County to prepare and implement a Storm Water Management Program. A major component of the County's Storm Water Management Program is the drainage requirements set by the Department of Public Works for the development of Subdivisions. This comprehensive document includes the drainage requirements for street grading and drainage and the requirements for erosion and sediment control. The office that completes this review and also manages the County's Storm Water Management Program for the Department is the Water Resources Engineering Section. Any questions concerning the process or the drainage requirements can be directed to this office at (516) 571-6985.

Background:

In 1953 New York State enacted legislation under Section 334-a of the Real Property Law, subsequently amended, which requires a Developer proposing the creation of residential housing in Nassau County to file subdivision maps in the County Clerks Office. Item 1 states "It shall be the duty of every person or corporation, excepting church cemetery corporations attached to a religious parish within the county of Nassau, who as owner or agent of real property situated in the county of Nassau, subdivides the same into lots, plots, blocks, sites, or units for sale to the public, regardless of whether they are offered or conveyed by lot, plot or block designations, unit (or shares in a cooperative corporation), or by metes and bounds, prior to such offering of such lots, plot, blocks, sites or units for sale, to file or cause to be filed in the office of the clerk of Nassau County a map or maps of such real property." Under exceptions -Subsection (a) states "where real property is subdivided into not more than four lots, plots, blocks, sites or units that apply to applicable planning and zoning regulations or ordinances of the city, town or village, as the case may be, and such subdivision does not involve the laying out of a street, the owner or agent may make a written application to the Planning Commission or Planning Authorities having justification for a waiver of the filing requirements hereunder upon forms supplied to the appropriate Planning Commission."

The 1953 New York State legislation established criteria associated with the filing subdivision maps. The Department of Public Works' review process is outlined Under Item 7 of said Real Property Law "The Planning Commission or Planning Authorities having jurisdiction shall not approve any such map until the Commissioner of Public Works of Nassau County has endorsed thereon a statement that he has approved plans for grades of the streets, avenues, roads or highways shown on such map, and the drainage thereof. The Commissioner of Public Works may require that separate and distinct plans for the grading and drainage be prepared. Such plans shall show sufficient data to enable the Commissioner of Public Works to determine the accuracy thereof. He may require any changes in grades or plans, which he deems necessary to make such grades, and plans conform with any general or comprehensive plan adopted for the County, or to serve the best interests of the County as a whole. Upon his approval of plans for the grades and drainage for the streets, avenues, roads, or highways shown on such map he shall endorse such approval on the plans submitted to him, or as they shall have been

revised, and shall file same in his office, and shall file a print thereof in the office of each Planning Authority having jurisdiction. He shall further endorse on the map submitted to the Planning Authority for approval a statement that he has approved the grades and drainage for the streets, avenues, roads, or highways shown thereon, in accordance with the detailed plans on file in his office."

As a result of the New York State legislation, the Nassau County Board of Supervisors enacted Ordinance No. 157-1953 amending Ordinance No. 48 adopted May 27, 1946 entitled "An Ordinance regulating the subdivision of land under the jurisdiction of the Nassau County Planning Commission, pursuant to the Real Property Law of Nassau County, the County Government Law of Nassau County, the Nassau County Administrative Code and amendments to said laws." Under the 1946 Ordinance, the Planning Commission established standardized requirements to be followed by Developers concerning the preparation of subdivision maps and established criteria to be incorporated into the layout of plans for construction of proposed developments within Nassau County and as amended. It is the responsibility of each Developer to adhere to the conditions set forth within the "Regulations for the Subdivision of Land" as established by the Planning Commission and approved by Ordinance by the Nassau County Board of Supervisors and it successor the Nassau County Legislature.

The Planning Commission as part of the "Regulations for the Subdivision of Land" established under Nassau County Ordinance No. 157-1953 has instituted the following:

Section III – "General Requirements for the Subdivision of Land" - Subsection A. Streets The Commissioner of Public Works is given the authority of to set requirements to be met by developers in conjunction with the preparation of plans submitted to the Department of Public Works for the approval of Street Grading, Drainage, and the protection of Nassau County's interests as may be effected as a result of the development of said property.

Section VII – "Penalties" Item 7 states " The Planning Department or Planning Authorities having jurisdiction shall not approve any such map until the Commissioner of Public Works of Nassau County has endorsed thereon a statement that he has approved the plans for grades of the streets, avenues, road, or highways shown on such map, and the drainage thereof."

The Commissioner's approval will be granted only when the Developer or the Engineer as agent for the Developer submits plans, which meet the requirements of the Department of Public Works.

Process:

Preliminary Subdivision Plans are to be forwarded to the Department of Public Works for review in the following manner. In Unincorporated areas or within three hundred (300) feet of an Unincorporated area, the Developer or an Engineer acting as agent shall submit plans to the Planning Commission for distribution to the various Units of the Department of Public Works for review. In Incorporated areas such as Cities and Villages, plans are to be delivered to the Division of Engineering's Water Resources Engineering Section. It

is the responsibility of Water Resources Engineering Section to coordinate distribution of the preliminary plans to the various units of the Division of Engineering. Four paper sets of the subdivision plans are to be forwarded for review by the Division as part of each submission.

It is the responsibility of each Unit of the Division of Engineering to review the plans included with each submission and make comment. These comments are forwarded to either the Nassau County Planning Commission or the Water Resources Engineering Section and returned to the Developer or Engineer for inclusion as part of subsequent submissions. However, it is the right of the Developer or Engineer to discuss these comments with the reviewer before modifying the plans.

When it is determined that all comments have been addressed, each unit within the Division of Engineering will advise either the Nassau County Planning Commission or the Water Resources Engineering Section. The appropriate coordinator will request one set of original mylar plans to be forwarded to them for distribution to the Department of Public Works for approval and signoff by the Commissioner. When the Department has approved the subdivision plan, they will be returned to the Planning Commission or the Water Resources Engineering Section for return to the Developer or Engineer. It is the responsibility of the Developer of Engineer to return one set of signed set mylar and one set of paper plans to the Department of Public Works for its records.

Fees for review:

Under Ordinance No. 171-1991 the Nassau County Board of Supervisors established "A fee to be charged by the Department of Public Works for the review of subdivision maps requiring the approval of street and highway grades and drainage by the Commissioner of Public Works" and as amended. In addition, under Ordinance 204-2001 "Amending Ordinance No. 76-2000 Section 7 (fees for Sub-Division Plan Review and Re-submission) a fee was established for the review of subdivision plans resubmitted by Developers or Engineers with the intent to satisfy the Department of Public Works' criteria and as may be amended.

A check in the amount of $2028.00 shall be remitted with the initial submission and a $213.00 check will be required with each resubmission including the review and approval of original Mylars submitted to the Department of Public Works. Checks are to be made payable to the Nassau County Treasure. It is the responsibility of the Developer or Engineer to submit applicable review fees at the time of submission.

General Drainage Requirements:

The Department of Public Works has enacted Drainage Criteria to protect the interests of the residents of Nassau County, which is based upon good Engineering Practice. Accordingly, the Commissioner has established requirements to be met by Developers in conjunction with the review of plans submitted to the Department of Public Works proposing the development of land for either residential housing or commercial development. The Water and Waste Water Engineering Unit of Division of Engineering is responsible for the review of the onsite drainage, roadway grading, erosion and sedimentation control plan, and general site-specific conditions proposed as part of the subdivision plans. It is the Unit's responsibility to determine if the Developer's plans have addressed the specifics of the criteria set forth by the Commissioner and to return comments to be addressed in subsequent submissions. It is responsibility of the Developer or the Engineer to address said comments or be prepared to explain why comments cannot be addressed to the satisfaction of personnel of the Water and waste Water Engineering Unit. When it has been determined the mutual interests of all parties are in compliance, the Division will advise the Commissioner that the plans for the proposed subdivision meet the drainage requirements of the Department of Public Works and will make its recommendation for approval.

SPDES General Permit (GP-02-01) Compliance:

In March of 2003 the Federal Government enacted mandates under Phase II of the Clean Water Act, Section 402 for Storm Water Discharges from Construction Sites involving the disturbance of one or more acres of land, SPDES General Permit GP-02-01, according a Notice of Intent (NOI) to be filed with the New York State Department of Environmental Conservation. It is the responsibility of Developer or Engineer to determine if the project falls within the requirements of this program. If it is determined a NOI is required, the Developer or the Engineer will be responsible for including measures required by compliance within the plan documents submitted for review by the Department of Public Works. The following note is also to be included on the plans:

> "I certify that I have read or have been advised of the permit conditions and believe I understand them. I am aware of the requirements of the SPDES General Permit No. 02-01 for Storm Water Runoff from the construction activity and will comply with the preparation of a Notice of Intent (NOI), Sedimentation and Erosion Control Plan and Storm Water Pollution and Protection Plan."

If the Engineer determines a NOI is not required for the site proposed for development, the engineer shall notify Nassau County in writing of the non-jurisdictional determination to be included in the file records.

New York State General Municipal Law:

Where a proposed subdivision abuts a Nassau County roadway, stream, property or other County maintained facility, after the issuance of Department subdivision approval and prior to the commencement of construction the Developer or Engineer shall submit a 239F Application Plan Review as required under Section 239K of the New York State General Municipal Law establishing Regulations for the Control of Development and amended to 239F. The Developer shall be responsible for meeting all of the requirements set forth under the General Municipal Law as required for the proposed subdivision as set forth under Section 239F.

Miscellaneous Permits:

Where construction includes work within Nassau County road right-of-ways or if connections to Nassau County drainage systems were approved as part of the review, the Contractor hired by the Developer will be responsible for obtaining Roadway Opening Permits or Drainage Connection Permits as may be applicable prior to the initiation of work.

Plans Submitted for review:

Plans submitted for review to the Department of Public Works for its review shall consist of a Plot Plan suitable for filing in the County Clerks Office, Grading and Drainage Plans, Erosion and Sedimentation Control Plan and Roadway Profile Plans where applicable.

Plot Plan:

The Plot Plan shall delineate the limits of the property proposed for development defined by bearing and distances. Each individual lot defined within this property shall also be delineated by bearing and distance. Where properties are proposed for development for the purpose of selling Cooperatives, Condominiums or Townhouse Units, these Cooperative, Condominium or Townhouse Units may not require delineation for individual units on the Plot Plan.

The Plot Plan shall be separate from the General Subdivision Plans. Spaces shall be provided on the Plot Plan for the approvals by the Department of Public Works, the Nassau County Health and the Planning Authority holding jurisdiction over the development for the property and any other approvals required by the Planning Authority. These approvals are required for the filing of the map in the County Clerks Office.

Grading and Drainage Plan:

The Drainage Plan shall include both existing and proposed topographic information plotted at 2' interval for the property proposed for development and immediate surrounding area. Additional information may be requested to assess if any contribution from areas outside the subdivision property contributes runoff to the site proposed for

development. The property shall not be regraded for the purpose of directing site runoff to offsite areas.

The Drainage Plan shall show all means of collecting property runoff whether by means of catch basins, area drains, swales, roof drains or other collection devices. The Drainage Plan shall also show adequate information for the analysis of the drainage system directing runoff to collection areas including location of such devices on the Comprehensive Drainage Plan. Additional information to be provided shall include the types of drainage structures to be installed on the site, inlet elevations, pipe inverts, pipe sizes and gradients. Applicable drainage details are to be shown on separate sheets of the Subdivision Plans. For any subdivision proposing the creation of a storm water basin or basins, a separate plan shall be included for each delineating the proposed configuration and is to include all details of structures or devices proposed for directing and storing runoff, location and details pertaining to plant screenings and fence details. The Storm Water Basin plan shall show the proposed high water mark utilized in determining the storage proposed for that basin. The plans shall show locations of all Drainage Reserve Areas proposed for the storage of runoff including shape elevations and contours for the assessment of storage capacity. The Drainage Plan shall also include all calculations pertaining to the assessment of the storage requirement for the subdivision on the plans. Where requested additional information may be request to justify the assumptions concerning flows from outside areas, flow capacities for specific pipe diameters and storage of runoff.

Erosion and Sedimentation Control Plan:

The Erosion and Sedimentation Control Plan shall include details to be enacted during construction to prevent or limit the migration of sediments from the site as a result of construction practices. The plan shall also include details showing the protection measures to be utilized to prevent sediment contamination of any onsite or applicable offsite drainage structures. The methods proposed shall conform to the "New York State Stormwater Management Design Manual" and the "New York Standards and Specifications for Erosion and Sedimentation Control". The institution and enactment of these measures during construction is solely the responsibility of the Developer.

Roadway Profile Plan:

The Roadway Profile Plan, for subdivisions where roads are proposed, shall include proposed stations, gradients and pertinent data necessary to define any proposed vertical curves including overall length. Drainage structures and interconnecting pipes are to be plotted corresponding to the information shown on the Drainage Plan. All information pertaining to the roadway drainage system is to be included, such as pipe sizes, gradients and inverts, surface grades for structures and applicable location associated with roadway stations. Other information may be included if it assists in the analysis.

Drainage Criteria:

Onsite Drainage Storage Requirement:

Developers are responsible for providing storage for eight (8) inches of runoff from the subdivision's tributary area, whether contributed from onsite or offsite sources, in conjunction with relevant Engineering factors. The storage can be provided through construction of Storm Water Basins, Drainage Reserve Areas, installation of Drywells, or by other storage devices deemed acceptable by the Department of Public Works. The volume storage requirement is to be determined utilizing the following formula:

$$\text{Volume} = A \times C \times 8''/12''$$

A = Tributary Area in square feet
C = Runoff Coefficient determined

The Engineer representing the Developer shall provide the following information to Nassau County for the analysis of the Storage Requirement:

1) Tributary Map including contour information
2) Tributary Area Calculations
3) Runoff Coefficients for property

Waiver of Storage Requirement:

The Department of Public Works is aware that conditions may exist which could affect the potential of providing the storage required by Nassau County's review. A waiver of the storage requirement can be requested. A letter outlining the hardship is to be forwarded to the Water Resources Engineering Unit for consideration. The letter shall include the following information:

1) Volume storm water runoff to be retained onsite.
2) Destination of storm water overflow from subdivision's property.
3) Municipality responsible for accepting the overflow.
4) Justification for the failure to meet the County's storage requirement.

Should proposed subdivision direct overflow runoff into water bodies under the jurisdictional control of the New York State Department of Environmental Conservation, the Developer will be required to forward a copy of any permits required by that agency pertaining to that overflow.

The Water Resources Engineering Section will evaluate the information submitted and will consider the request. However, Developers are responsible for providing the maximum amount of storage the site permits in an effort to attain the Department of Public Works eight (8) inch requirement.

Where the Department of Public Works concurs with the hardship and site overflow affects Nassau County facilities, the Developer will be subject for the payment of

compensation to Nassau County. For waiver where the on-site storage is less than eight (8) inches but is five (5) inches or greater, there will be no fee. However, if the volume provided under the design is less than the storage five (5) inches of runoff from the tributary area, the Developer is responsible for paying compensation to Nassau County for the difference. The fee is assessed to compensate Nassau County for the added maintenance cost to be incurred as a result of accepting responsibility for the maintenance of the site overflow associated the stricter control of runoff mandated by Federal Regulations enacted under Phase II of the Storm Water Discharge Program and as may be amended. Where sites overflow solely to facilities maintained by Municipalities other than Nassau County, the Developer shall be responsible for providing the storage of runoff, which satisfies that Municipality's requirement. A letter from the Municipality holding jurisdiction shall be forwarded to the Water and Waste Water Engineering Unit stating the Municipality is willing to accept the overflow runoff as part of it Storm Water Protection Plan prior the Department of Public Works concurrence to any reduction in the County's eight (8) inch storage requirement. The Department will not approve any waiver for less than two (2) inches of storage on site.

Drainage Plan Review Requirements:

General Requirements:

1. Plot Plan showing metes and bounds of subdivision property and individual lots to be offered for sale. The Plot Plan shall be Stamped and Signed by a Licensed Surveyor or Licensed Professional Engineer.
2. Drainage Plan containing sufficient information to determine if the Department of Public Works drainage requirements have been met. The Drainage Plan is to be Stamped and Signed by a Licensed Professional Engineer.
3. A 5"x 5"box is to be provided for the Department of Public Works approval stamp on the Plot Plan and Grading and Drainage Plan.
4. The Plot Plan and Grading and Drainage Plan shall have a Key Map showing the general location of the proposed Subdivision.
5. Minimum scale for Plot Plan and Drainage Plan shall be 1" = 100'.
6. A north arrow shall be included on Plot Plan and Grading and Drainage Plan.
7. The Plot Plan and Grading and Drainage Plan shall provide consistent information.
8. Roadway Profile Plan is to be included for Subdivisions proposing the creation of new roads both public and private. The Profile Plan is to be laid out on a scale of 1" = 40' horizontal and 1" = 4' vertical or 1" = 20' horizontal and 1" = 20' vertical.
9. Roadway Profile Plan grades shall be defined by centerline elevations, water line grades or top of curb grades. Plan(s) shall denote proper designation.
10. Drainage Plan and Roadway Profile Plan shall show locations of proposed drainage structures and proposed drainage pipe. Information shall be consistent.
11. Drainage structures, pipe diameters and inverts are to be identified on Roadway Profile Plan.

12. Elevations shall conform to Nassau County's Datum. A note is to be placed on plans.
13. Drainage Plan shall include existing and proposed contour elevations set at 2' increments.
14. Drainage Structures are to conform to Nassau County Standards as set forth in the Nassau County 1964 Standard Specifications for Construction of Highways and Bridges and the Standard Sheets for the Construction of Highways and Bridges or as has been or may be modified. A note is to be place on the plans.
15. The Plans shall contain appropriate notes designating dedication of roadways, easements, conservation areas, storm water basins, drainage reserve areas, or other applicable easements.
16. Subdivision plans proposing the development of private roads shall require a note of dedication to Homeowners Association on plans for roadways and drainage. The following note is to be included on the plans:

    "The street(s) have been 'Value Reflected' against all lots in the Subdivision so that such land is not individually taxed after filing of map."

17. Minimum Drainage Easements shall be 10' in width.
18. Location of sanitary sewers and utilities are to be shown on Plot Plan or separate Sewer Plan.
19. Test Hole(s) are required at proposed storm water storage site(s). A member of the Water and Waste Water Engineering Unit is to be on site to witness the results of test hole(s). The test hole log information is to be included on the Grading and Drainage Plan in subsequent plan submissions with location(s) labeled on plan.
20. Proposed improvements on Nassau County road shall conform to the County of Nassau Department of Public Works 1964 Standard Specifications for the Construction of Highways and Bridges and the Standard Sheets for the Construction of Highways and Bridges or as may be amended.
21. Roadways located adjacent to the subdivision property under the jurisdictional control of Nassau County are to be labeled Nassau County Road.
22. Approvals, where applicable, shall be required from New York State Department of Transportation, New York State Department of Conservation, or other other Authorities as might be required by the site. It is the responsibility of the Engineer acting agent for the Developer to determine if an approval is required from any agency having interest. Copies of approvals or permits required by these Authorities are to be forwarded to the Water and Waste Water Engineering Unit.
23. A letter is required from the Municipality holding jurisdiction or from other Municipalities within 300' of the subdivision property proposed for development stating that the plans have been reviewed and there is no objection to the project.
24. All areas regulated by the New York State Department of Environmental Conservation shall be defined on the Drainage Plan.

25. Nassau County Health Department Approval or Waiver of drainage is required.

Drainage Pipe:

1. The pipe shall be of sufficient diameter and set at an appropriate gradient to accommodate the flow determined by the requirements of the tributary area.
2. Minimum size pipe on County roads shall be 18" for collector systems. 15" pipe will be allowed for crossover from single unit catch basins. For drainage to be installed on proposed roadways, the Municipality holding jurisdiction can waive the 18" diameter requirement.
3. Minimum cover over drainage pipe is 2.0'.
4. The grade for same diameter pipe is not to be flattened after steep gradients.
5. Maximum velocity in pipes is 12 FT/Sec.
6. Minimum velocity in pipes is 2.5 Ft/Sec.
7. Maximum pipe gradient is to be 6%
8. Minimum pipe gradient is to be 0.2%
9. Inverts of pipes at catch basin are to be located at a sufficient depth to provide no conflict with the catch basin's deck.
10. A minimum spacing of 10' is required between drainage pipes and water supply lines.

Manholes:

1. Maximum distance between manholes shall be 350'.
2. Maximum height of a Type "1" manhole is 10'.
3. Manholes greater than 10' depth shall be Type "2"
4. Differential distance between inverts for drop manholes shall be no more than 2-1/2 times the diameter of the inlet pipe.

Catch basins:

1. The maximum tributary area for a Type "A or B" catch basin is 4.5 acres.
2. The maximum tributary area for a Type "C or D" catch basin is 9.0 acres.
3. Flow through catch basins are to be Type "B or D"
4. Catch basin inlet elevations are to be shown on Drainage Plan and Profile Plan.
5. Maximum depth of catch basins is 10'.
6. Catch basins located on roadways with gradients greater than 5% require the basin to be recessed. An additional basin is to be located 20' downgrade of recessed basin. A detail of recessed basin is to be included in plans.
7. Catch basins to be relocated as a result of subdivision requirements may require the existing catch basins be converted to manholes. A conversion detail is to be included on plans.
8. A detail is required showing modifications of existing catch basins.

Roadway Grades:

1. Proposed roadway gradients are to be shown on Drainage Plan and Profile Plan.
2. Maximum roadway gradient is 10%, but a 12% maximum gradient will be allowed if letter of approval is received from the Municipality accepting dedication of roadway.
3. Minimum roadway gradient is 0.5% for asphalt pavements. The gradient can be reduced to a 0.3% gradient with the installation of combined concrete curb and gutter along roadway.
4. Maximum gradient around a cul-de-sac is 3% unless requirement waived by the Municipality holding jurisdiction.
5. Maximum grade across an intersection shall be 2.5% for a distance of 50' either side of the intersection.
6. Minimum stopping sight distance is 200' on minor road.
7. Minimum stopping sight distance is 275' on collector streets.
8. Minimum length for a vertical curve shall be 40'.
9. A vertical curve is required where a transition of gradient is 0.8% or greater. Roadway Profile Plan shall include PVI and PVC stations and elevations.
10. The length of vertical curves shall be proposed so that the gradient of the road at any point shall not be less 0.5%.
11. Typical roadway section is to be shown on plans.
12. Roadway and Drainage grades are to be shown at 50' intervals or as be defined by contour delineation.
13. Any restoration work to be completed on a County road requires a Pavement Restoration Detail.
14. Grades shall be shown along water line of existing roadways where proposed subdivision runoff will impacts these facilities.

Erosion and Sedimentation Control:

Erosion and Sedimentation Control Plan:

The Developer as part the site development is responsible for the installation and maintenance of erosion and sedimentation control measures necessary to prevent the transportation of sediments to off-site areas. The subdivision plans shall include an Erosion and Sedimentation Control Plan as part of the submission for review. Actual erosion and sedimentation control measures are to be delineated to address field condition to be encountered during the various phases of construction. The Erosion and Sedimentation Control Plan shall include details showing the intended measures to be employed during construction to meet the requirements of this section. The specific methods and materials employed in the installation and maintenance of erosion control measures shall conform to the "New York State Stormwater Management Design Manual" and the "New York Standards and Specifications for Erosion and Sedimentation Control".

Erosion Control Measures shall include the following" *

1. The proposed erosion control show on the plan shall be installed prior to the start of construction. Additional erosion control may be necessary, based upon field conditions that may develop as construction progresses and as may be required by the local jurisdiction.
    a. Existing vegetation to remain shall be protected and remain undisturbed.
    b. Clearing and grading shall be scheduled so as to minimize the size of exposed areas and length of time that areas are exposed.
    c. The length and steepness of cleared slopes shall be minimized to reduce runoff velocities and quantities.
    d. Runoff shall be diverted away from clear slopes.
    e. Sediment shall be trapped on site.

    Specific methods and materials employed in the installation and maintenance of erosion control measures shall conform to the "New York State Guidelines for Urban erosion and Sedimentation Control".

2. Sedimentation barriers (silt fence, hay bales or approved equal) shall be installed prior to any grading work along the limits of disturbances and shall be maintained for the duration of the work. No sediment from the site shall be permitted to wash onto adjacent properties or roads. Where sedimentation barriers are required adjacent to streams, ponds or tidal areas, the silt fence is to be supported by a temporary metal post and chain link fence. (3)
3. Graded and stripped areas and stockpiles shall be kept stabilized through the
4. use of temporary seeding or sod as required. Seed mixtures shall be in accordance with the Soil Conservation Service recommendations.

5. Soils stockpiled on individual lot as a result of excavation for foundations shall be placed to increase the distance these soils must travel to reach the drainage system.
6. Drainage inlets installed as part of the project shall be protected from sediment buildup through the use of sedimentation barriers, sediment traps, etc., as required.
7. Proper maintenance of erosion control measures is to be performed as indicated by the periodic inspection after a rainfall event totaling 0.5 inches of rainfall or greater or during a 14-day inspection program occurring throughout the period of the construction. Maintenance measures include, but are not limited to cleaning of sediment basins or traps, cleaning and repair of berms and diversions and cleaning and repair of inlet protection.
8. Appropriate means shall be used to control dust during construction. A stabilized construction entrance shall be maintained to prevent soil and loose debris from being tracked onto local roads. In addition, a water source is to be maintained adjacent to this entrance for the purpose of washing debris from truck tires. The construction entrance shall be maintained until the site is permanently stabilized.
9. Sediment barriers and other erosion control measures shall remain in place until upland disturbed areas are permanently stabilized.
10. All 1:2 and 1:3 slope areas will be protected against erosion during construction and permanent ground cover shall be such that erosion will be prevented. Necessary measures shall include, but not be limited to, hay bales, silt fence, silt trap/basins, jute mesh, anchored straw mulch, hyrdoseeding, sod, etc. and shall be maintain for the duration of the construction as well as following the completion of construction until such time that the proposed plantings have become acclimated/established as determined by the authority holding jurisdiction. (1)

The plans shall also address the following environmental issues the developer shall be responsible for addressing during construction: *

1. Pollution prevention measures to be instituted to prevent litter, construction chemicals, and construction debris from becoming pollutant sources in storm water discharges from the site.
2. Provide a description of the method of storing waste materials on-site and a description of controls to be employed to reduce pollutants from these materials including storage practices to minimize exposure of materials to storm water with a spill prevention and response plan.
3. The installation portable sanitary system or a system established in a field office trailer is to be maintained throughout the term of the project.
4. All soils stockpiled on the site for future use shall be covered to limit Dust Pollution and run off of fines with rain.
5. Site clearing wood chips to be stockpile for mulch shall be stockpiled in an area away from proposed construction and surrounded by silt fencing.
6. The Contractor shall be responsible for keeping adjacent roadway free of debris washed from the construction site. A street sweeper shall be employed to remove all soil and debris from roadways as often may be required.

7. All construction debris shall be removed from site within the same day or kept in a manner to prevent it from leaving the site with storm runoff or blown from the site by winds.
8. All refuse shall be placed within a covered container for future disposal.
9. The Contractor shall be responsible for the disposal of all excess concrete dumped on the site. Furthermore, the Contractor shall designate a location for washing delivery trucks. This area is to be configured to insure that wash water does not runoff the site to either private property or public roadways. Subsequent to the completion of concrete activities, this area is to be excavated and material to be removed from the site. Suitable soils are to be brought to restore this area. (2)
10. The Contractor shall be responsible for installing catch basin inserts into any and all County owned catch basins connected to positive drainage systems, which are located adjacent to the project area or located within 100' of the project area. It is the responsibility of the Contractor to maintain these inserts during the period of the construction in accordance with manufacturer's recommendation. At the end of all site work including the development of individual sites, new media is to be installed and the devices are to be dedicated to Nassau County. The Units are required to have an 80% Total Suspended Solids Removal or as maybe specified in the New York State Design Manual. However, if it is determined that the catch basins lying within these limits do not connect to positive systems and function solely as leaching basis, the Contractor will be responsible for cleaning each at the conclusion of all site work. This does not prevent the County from issuing a request to clean these facilities if it has been determined that the contractor's activities have adversely affected their normal function. (3)

Storm Water Treatment Devices:

For subdivisions where overflow runoff from the property's tributary area enters directly into streams, tidal waters, or roadway drainage systems, such water shall be routed through onsite treatment devices in conformance with "The New York State Storm Water Design Manual". A note is to be included on the Drainage Plan designating maintenance responsibility for the proposed devices.

Requirements for Drainage Storage Facilities:

Drywells:

1. Excavations for drywells shall extend to a depth were a minimum of 6' of good leaching material occurs.
2. Bottoms of drywells shall be a minimum of 2' above ground water.
3. Drywells are to be installed with a 3' collar consisting of appropriate graded leaching material acceptable to the Municipality holding jurisdiction.
4. The maximum depth of drywells and/or diffusion wells is 25'. If suitable leaching material does not occur within the 25' the excavation shall extend 6' into suitable material and the hole shall be backfilled with graded material to the proposed bottom elevation of the drywell.
5. A drywell and/or diffusion well detail is required on plans.
6. The minimum spacing between drywells shall be 10' between outside walls.
7. For Condominiums, Cooperatives, and Townhouses roof drains shall be directed into drywells separate from site drainage unless downspouts are to be located on outside of building(s). If site conditions prevent the installation of separate drywells for roof drains, a note is to be placed on the Drainage Plan stating the downspouts are to be located on exterior of building(s).
8. Floor drains and Trench drains require their own drywells.
9. No storage considerations will be allowed for domed sections.
10. No storage credit is allowed for percolation.
11. Where drywells are proposed within individual lots a note is to be included on the Drainage Plans stating the property owner or Home Owners Association is responsible for the maintenance of these structures.

Drainage Reserve Areas:

1. Drainage Reserve Areas shall be dedicated either to an individual homeowner or to the Homeowners Association to be incorporate for the developed property as may be applicable. A note of dedication is to be included on the plans. Depending on site soil conditions, a drywell may be required.
2. Maximum depth of Drainage Reserve Areas is 4'. Where Drainage Reserve Areas extend beyond 30" in depth, a 5' wide Aquatic Berm is to be provided at a level 2' below the anticipate High Water Mark.
3. Overflow between Drainage Reserve Areas is to be a minimum of 1' lower than the roadway grade adjacent to it.
4. No fill is to be place on the site for the purpose of constructing a Drainage Reserve Area.

Storm Water Basins:

1. Storm Water Basins are to be constructed in conformance with the applicable sections of the “County of Nassau Department of Public Works 1964 Standard Specifications for the Construction of Highways and Bridges” as subsequently amended and the “County of Nassau Department of Public Works Standard Sheets for the Construction of Highways and Bridges.

2. Storm Water Basin's side slopes are to be graded 1 on 2.
3. Storm Water Basins shall be constructed with two levels. The lower level is to be two foot deeper for the purpose of acting as a sedimentation settling area. The transition slope between the two areas is to be graded 1 on 3 between tiers.
4. Drainage pipes connected to Storm Water Basins shall outfall into the lower sedimentation area of the basin.
5. Drainage pipes which outfall into Storm Water Basins require a headwall conforming to the detail shown in the Nassau County Standard Drawings.
6. The minimum size pipe to outfall into a Storm Water basin is 24".
7. The maximum gradient for pipes that outfall into storm water basins is 2%.
8. Sluiceways are to be constructed in conformance to the details shown (see detail).
9. Maintenance access ramps shall be 12' wide and constructed at an 8% grade from top of berm to bottom of basin. The maximum allowable ramp grade is 10% with Nassau County's approval. The ramp is to be tilted with the inside edge constructed 6" higher than the elevation of the side-slope side opposite it.
10. Where proposed, the minimum turning radius for ramps shall be 25'.
11. No topsoil is to be placed on side-slopes.
12. A 6' high chain link fence with its bottom anchored in a 2' deep curb is to be constructed around the perimeter of the basin with a 16' wide access gate located near the vicinity of the maintenance ramp both conforming to Nassau County Standards.
13. A planting screen consisting of approved evergreen trees a minimum 6' in height shall be planted along the perimeter of the Storm Water Basin. The trees shall be planted in conformance with Nassau County Standard requirements.
14. Berms (distance between fence and top of slope) shall be 10' or 13' wide and one foot higher at top of slope than at the fence to prevent erosion.
15. The fence and plant screening around the basin shall be placed in accordance with the following format:

    a. On Street fronts, the fence shall be placed 5' inside the storm water basin's property line, with an adjacent 10' berm. The 5' outside the fence is for planting.
    b. On sides abutting property of others, the fence shall be placed 2' inside the storm water basin's property line, with an adjacent 13' berm. The planting is to be located on the inside of the fence.
    c. On side abutting property of developer (builder of the storm water basin), fence shall be located 2' inside the storm water basin property with an adjacent 10' berm. A 5' planting strip shall be located outside the basin's property line with planting located at the center of the strip.

14. A planting detail is to be included on the plans showing the applicable configuration proposed for the Storm Water Basins.
15. No fill is to be placed for the purpose of creating a Storm Water Basin.
16. Elevation of anticipated high water is to be shown on Storm Water Basin Plan.

17. Access to Land Locked Storm Water Basins shall be provided through a 20' strip from the street to the basin's entrance be include as part of the basin property.

Retention Ponds:

1. Nassau County will not accept dedication ponds constructed for the purpose of storm water retention. A note is to be included on the Drainage Plan dedicating maintenance responsibility for the Retention Pond to the Home Owners Association.
2. Retention Ponds proposed for aesthetic value without a surrounding fence will require the construction of a 5' wide aquatic shelf located 1' below the pond's established water level.
3. The pond is to be designed to allow the anticipated storage to be renewed as a result of percolation between storm events.
4. Fill is not to be used for the purpose of creating storage.
5. The minimum size pipe to outfall into the pond is 24".
6. Pipes directing flow to drywells or diffusion wells for restoration of storage retention shall be back pitched away from the Retention Pond at a maximum gradient of 2%.
7. The plans shall include all details relevant to the construction of the retention pond.

Linear Leaching Chambers:

1. Nassau County is aware that manufacturers claim storage in granular bedding material installed with units as part of hard storage. The storage claimed for the proposed bedding material is to be substantiated by an approved testing laboratory. The results are to be forwarded to the Water Resources Engineering Section for consideration. The results will be reviewed before acceding to claimed storage. A note is to be added to the detail for this unit stating the tested material is required.
2. Bottom of bedding material shall be a minimum of 2' above ground water.
3. A manufacturer treatment units is to be installed to intercept contaminates before dispersing runoff into storage units.

Note: No consideration will be given to Storm Water Storage plans proposing an anticipated percolation loss as a substitute for volume storage in the drainage calculations.

The Water Resources Unit is willing to consider new technologies proposed for storage. Prior to approval of new technologies, the Developer or Engineer shall provide manufacturer information for consideration.

Drainage Related Fees:

General:

In July of 2002 the Department of Public Works requested approval from the Office of the County Executive to enact certain fees associated with relaxing storage requirements imposed upon Developers in conjunction with the construction of subdivisions. It is the Department of Public Works belief that Developers obtain a substantial benefit as a result of the relaxed "onsite storage requirement" with out providing any corresponding compensation to the County for the increased storm water loading of its drainage system.

Within the same period, the Department of Public Works also requested approval from the Office of the County Executive to enact a fee for Storm Water Basin Dedication to offset the maintenance costs incurred by the County as a result of accepting dedication of Storm Water Basins from Developers. The Department of Public Works receives no benefit from the assumption of ownership of dedicated Storm Water Basins and by accepting these properties; a burden is borne by the Department of Public Works for the resulting cost of maintaining these facilities. The Department of Public Works proposed the creation of a fee to reimburse Nassau County for the cost it incurs as a result of accepting the routine maintenance of the dedicated basins.

In July of 2002 the proposals received approval from the Office of the County Executive. These fees were subsequently put before the Nassau County Legislature as part of Ordinance 124-2002 "Fixing certain fees to be charged by the County Clerk, Civil Service Commission, Board of Elections, Fire Commission, Planning Commission, Treasurer, Police Department, Department of Public Works, and the Coordinating Agency for Spanish Americans". On October 21, 2002 the Legislature approved the Ordinance received approval.

Fee for the Waiver of Storm Water Retention Requirements:

Under Ordinance 124-2002 the Nassau County Legislature approved a fee of $10,000.00 per every 1,000 Cubic Feet of storage deferred to Nassau County. The Commissioner of Public Works has established criteria under which Developers are required to pay Compensation to Nassau County. The Commissioner has set a threshold of 5" of runoff from the tributary area as the point Developers would be responsible for payment compensation to the County for the deficiency of not reaching the Department's standard. For a waiver were the on-site storage is less than 8" but greater than 5" there is no fee. Therefore, the Developer would be responsible for providing compensation for the difference between what is provided for under the design and the 5" of storm water runoff. If the Developer chooses to pay the compensation, the following comment is to be included on the plans:

> "The Developer will pay a fee of _____, to the Nassau County Treasurer as compensation for a partial waiver of Drainage Requirements, Upon approval of this subdivision for Nassau County agreement to accept maintenance responsibility for site overflow."

Fee for Dedication of Storm Water Basins:

Under Ordinance 124-2002 the Nassau County Legislature approved a fee of $50,000.00 to be paid to the Nassau County Treasurer for acceptance of dedication of Storm Water Basins as payment in compensation for the first ten years of maintenance assumed by the Department of Public Works. The following note is to be added to the Storm Water Basin Plan:

> "The Developer agrees to pay a storm water dedication fee in conformance with the requirements on Nassau County Ordinance No. 124-2002." * (2)

The following details should be included to plans where applicable:

1. Drywell detail
2. Drainage Reserve Areas
3. Catch basin
4. Manhole
5. Area drain
6. Recessed catch basin detail
7. Swale cross-section
8. Cross-section of retaining wall at highest application
9. Conversion of catch basin to manhole detail
10. County Road Pavement Restoration
11. Fence and gate
12. Inlet structures for Storm Water Basins and Drainage Reserve Areas
13. Sluiceway detail for storm water basin
14. Storm Water Basin Planting Screen

Other applicable details required to define the drainage system are to be included.

- Note: The Subdivision Requirements will be subject to a yearly review to determine if modification of the criteria is required.

Revised: (1) February 2005; (2) February 2006; (3) January 2007

Nassau County Department of Public Works

Under Section 239-F of the General Municipal Law, the Nassau County Department of Public Works is obligated to review plans proposing the development or modification of private property adjacent to Nassau County roads, property or easements. The review is conducted to determine whether the proposed development may have an impact upon any County facility. It is the responsibility of the Water Resources Unit of the Department's Division of Sanitation and Water Supply to review the plans for proposed onsite drainage.

In accordance with Phase II of the Federal Storm Water Regulations Nassau County must implement measures to reduce the impact of storm water discharges. These measures include limiting and controlling storm water runoff from private properties where site overflow would enter the County's drainage system. To this end the Department of Public Works shall require proposed property improvements to include facilities sufficient to provide for the retention/storage of eight (8) inches of storm water runoff as determined by the site's tributary area and in conjunction with relevant engineering factors.

The County is aware that site conditions may adversely affect the property's ability to provide eight (8) inches of on-site storage. However, it is the developer's responsibility to provide the maximum amount of storage that the site permits in an effort to satisfy the County's requirement. If the eight (8) inch storage requirement cannot be met, a letter of hardship outlining the circumstances which limit on-site storage and a request "waiver of storage requirement" can be forwarded to Nassau County's Water Resources Unit as part of the 239-F submission. The Water Resources Unit will consider the request based upon the information supplied.

Where developers fail to meet the Department of Public Works storage requirement and pass to the County the burden for increased storm water management and system maintenance, the developers shall pay a one-time fee to provide compensation to Nassau County for its increased responsibilities.

For a waiver request where onsite storage is less than eight (8) inches, but equal to or greater than five (5) inches, there will be no fee. For a waiver of storage requirement, which will be less than five (5) inches, the fee will be calculated (as per Ordinance 124-2002), based upon the difference between five (5) inches of on-site storage and the proposed on-site storage design capacity. In no instance shall the proposed on-site storm water storage capacity be less than two (2) inches.

A letter requesting a of Waiver of Storage Requirement shall be included with the plan submission. The letter shall include the following information:

1. Volume of storm water to be retained on site.
2. Destination of storm water overflow from the site.
3. Municipality responsible for receiving the anticipated overflow.
4. Justification for the failure to meet Nassau County's storage requirement.

Nassau County Ordinance No. 124-2002 has established a fee of $10,000.00 for each 1,000 cubic feet of storage capacity, or as prorated, that is deferred to Nassau County in lieu of on-site storage. Should the developer's letter of hardship be acceptable, the developer shall be responsible for providing compensation to Nassau County per the terms of Ordinance 124-2004 for the increased storm water management and maintenance responsibilities. A note shall be included on the plans stating the following, "The developer shall pay a fee for a waiver of drainage requirement, in the amount of _____, to the Nassau County Treasurer, upon approval of the 239-F."

Drainage Requirements for 239F Review
Onsite Storage of Storm Water

Residential Properties:

New construction and existing site redevelopment: Plans are to provide for eight (8) inches of storage for the site. The developer or the designer is encouraged to utilize low impact development techniques in addition to the traditional methods for onsite storage. A waiver will be required when less than the eight (8) inches of onsite storage is provided for under the design.

Additions to existing buildings: The plans shall indicate that storm water runoff from proposed improvements shall have no impact upon County roads and drainage facilities.

Commercial Properties:

New construction: Plans shall provide for eight (8) inches of onsite storm water storage for the site. A waiver of drainage requirement is to be requested when less than the eight (8) inch of storage is provided for under the design. If overflow impacts another municipality, a letter is to be forwarded from that municipality stating they are willing to accept the runoff.

Redevelopment of existing properties: For the redevelopment of site with the following degrees of work:

1. Reclassification of property – no change to any structures or to the property.
2. Curb cuts on County roads – no change to structures.
3. Aesthetic improvements to property – installation of signs and garden planting areas.
4. Modification of a site - minor changes to property
5. Additions to existing buildings or modifications to properties – size of improvement can vary, but the portions of property are unchanged.

For classifications 1–3 submittals: No onsite storm water storage improvements will be required.

For classification 4 submittals: The developer shall provide for eight (8) inches of storage for storm water runoff for that portion of the property disturbed for new construction or replacement in kind.

For classification 5 submittals: Where the redevelopment and / or disturbance for replacement in kind is equal to or greater than twenty-five (25) percent of the current developed site, the whole site will be required to meet the eight (8) inch storage requirement. Where redevelopment is less than twenty-five (25) percent of the current site, the developer shall install additional storage for eight (8) inches of runoff from the portion of the property redeveloped.

Existing Connections to Municipal Storm Water Systems: Where a 239F site plan review identifies an existing connection, either prior approved or not, between onsite drainage and a Nassau County drainage system, it is the responsibility of the developer to obtain a Drainage Connection Permit. The conditions of the permit will include best management practices to reduce and/or eliminate adverse impacts to the Nassau County drainage system from sediments, floatables, and petroleum products. If a connection is identified between the onsite drainage and another municipality's drainage system, a letter approving the connection will be required.

Waiver of Drainage Requirement: Where site development fails to meet the County's eight (8) inch storage requirement, the developer is required to submit a request for a waiver from the onsite storage requirement. The request shall include the following:

1. Justification for the failure to meet the County's requirement.
2. The anticipated storm water storage to be retained onsite.
3. The destination of the storm water overflow.

* Developers are required to include sedimentation and erosion control measures as part of the plan submission. Developers are encouraged to employ new technologies as may become available to employ "Best Management Practices" to collect and treat storm water runoff. The County for its part will be open to discussion regarding alternate methods of attaining the site storage requirement.

Revised: August 31, 2004, October 27, 2004

APPENDIX E

EXAMPLE OF EMPLOYEE TRAINING CERTIFICATE

NASSAU COUNTY EMPLOYEE POLLUTION PREVENTION / GOOD HOUSEKEEPING TRAINING

THIS CERTIFIES THAT

Jeffrey Flint

HAS SUCCESSFULLY COMPLETED THE REQUIRED ONLINE TRAINING COURSE FOR THE MS4 POLLUTION PREVENTION/GOOD HOUSEKEEPING PROGRAM IN ACCORDANCE WITH PART VIII.A.6 OF THE PERMIT

CERTIFICATE OF COMPLETION

GIVEN THIS 12 DAY OF June, 2018

(valid for one year)

APPENDIX F

CONSTRUCTION SITE STORMWATER RUNOFF CONTROL FORMS FOR CONTRACTORS

FORM 4-1

NASSAU COUNTY
PHASE II STORM WATER MANAGEMENT PROGRAM
MINIMUM CONTROL MEASURE 4:
CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

CONTRACTOR STORM WATER POLLUTION PREVENTION CERTIFICATION

I certify under penalty of law that I understand and agree to comply with the terms and conditions of the Storm Water Pollution Prevention Plan ("SWPPP") for the construction site identified in such SWPPP as a condition of authorization to discharge Storm water. I also understand the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") General Permit for Storm Water Discharges from Construction Activity GP-02-01 (as updated) and it is unlawful for any person to contribute to a violation of water quality standards.

_____
Signature

Sworn to before me

this _____ day of _____, 200__

_____
Notary Public – State of New York, County of _____
My Commission Expires on _____.

This Certification will also have to be signed by your subcontractors.

COMPLETE THIS FORM USING BLACK INK ONLY

FORM 4-2

NASSAU COUNTY
PHASE II STORM WATER MANAGEMENT PROGRAM
MINIMUM CONTROL MEASURE 4: CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

CHECKLIST FOR PREPARATION OF STORM WATER POLLUTION PREVENTION PLANS

SECTION A: General Information

Type of Application: ☐ Subdivision ☐ Site Plan		Date Plan Submitted:
Permit No.:		Date Plan Reviewed:
Project Name:		Site Location:
Applicant's Name:		Applicant's Address:
Applicant's Phone No.:	Applicant's Fax No.:	Applicant's e-mail:
Engineer's Name:		Engineer's Address:
Engineer's Contact:		Engineer's Phone No.:
Application for: ☐ Development of a new site not previously developed ☐ Redevelopment of an existing site		
Size of the area to be disturbed: ☐ Greater than 5 acres ☐ Less than 5 acres but greater than 1 acre ☐ Less than 1 acre		

SECTION B: SWPPP Requirements

Criteria	NA	Yes	No	Comments
• SWPPP has been filed with the application of subdivision/site plan approval Note: A SWPPP is required if any of the following conditions apply to the project:	☐	☐	☐	
• The project involves construction activities that will result in land disturbance of equal to or greater than 1 acre.	☐	☐	☐	
• The project will disturb less than 1 acre, but is part of a larger plan of development or sale.	☐	☐	☐	
NYSDEC requires controlling such activities in the watershed where this project will be situated.	☐	☐	☐	

SECTION C: General SWPPP Contents

Criteria clearly indicated and identified on plan	NA	Yes	No	Comments
General location map pinpointing the site to be disturbed	☐	☐	☐	
Vicinity map with a scale and north arrow	☐	☐	☐	
Size of the area to be disturbed	☐	☐	☐	
Narrative description of proposed project nature and purpose	☐	☐	☐	

SECTION D: Site-Specific SWPPP Contents

Criteria clearly indicated and identified on plan	NA	Yes	No	Comments
Site plan provided for the project	☐	☐	☐	
Scale is no smaller than 1"=100'	☐	☐	☐	
Scale is:				
North arrow	☐	☐	☐	
Legend	☐	☐	☐	
Legend uses standard NYSDEC symbols	☐	☐	☐	
All existing and proposed development facilities/improvements (e.g., roads, buildings, other structures)	☐	☐	☐	
Total area of the site	☐	☐	☐	

SECTION D continued on next page

SECTION D: Site-Specific SWPPP Contents (con't)

Criteria clearly indicated and identified on plan	NA	Yes	No	Comments
Area(s) of disturbance, including the limits of clearing and grading	☐	☐	☐	
Delineation of easements	☐	☐	☐	
Property boundaries	☐	☐	☐	
Location of existing and proposed utility lines	☐	☐	☐	
Street profiles	☐	☐	☐	
Existing vegetation and identified by type (e.g., grass, shrubs, trees)	☐	☐	☐	
Boundaries of existing predominant vegetation	☐	☐	☐	
Amount of the existing vegetation that will be removed	☐	☐	☐	
Amount of existing vegetation that will be replaced	☐	☐	☐	
Type of replacement vegetation	☐	☐	☐	
Type of replacement vegetation: ☐ Same or similar ☐ Other (explained)				
Surface waters (perennial and intermittent) in the project area or close proximity	☐	☐	☐	
Location of waters: ☐ On-site ☐ Adjacent ☐ Application states none present				
Wetlands in the project area or close proximity	☐	☐	☐	
Location of wetlands: ☐ On-site ☐ Adjacent ☐ Application states none present				
All relevant setbacks (e.g., stream buffers, drinking water well setbacks, septic setbacks)	☐	☐	☐	
Existing and proposed conveyance systems (e.g., grass channels, swales and storm drains)	☐	☐	☐	
Proposed channel modifications shown (e.g., bridge or culvert crossings)	☐	☐	☐	
Drainage patterns in the project area	☐	☐	☐	
100-year flood plain and sub-areas	☐	☐	☐	
Contour lines indicating existing topography	☐	☐	☐	
Contour lines indicating post-construction topography	☐	☐	☐	
Spot elevations in critical areas	☐	☐	☐	
Pre- and post-construction topography symbols consistent with NYSDEC standards	☐	☐	☐	
Location of material, waste, borrow, equipment storage and staging areas	☐	☐	☐	
Location: ☐ On-site ☐ Off-site				
Staging areas clearly defined	☐	☐	☐	
Access points with stabilization provisions	☐	☐	☐	
Stabilized construction entrance/exit with truck wash-down facilities	☐	☐	☐	
Locations of all storm water discharges within or adjacent to the site	☐	☐	☐	
Description of the soil present on the site	☐	☐	☐	
Soil boundaries	☐	☐	☐	
Source of information: ☐ County Soil and Water Conservation District ☐ NYS Soil and Water Conservation Committee ☐ Other:				

SECTION E: Construction Phasing Plan

Criteria clearly indicated and identified on plan	NA	Yes	No	Comments
Schedule showing intended sequence of construction activities for each phase of construction provided, including:	☐	☐	☐	
• Clearing and grubbing	☐	☐	☐	
• Excavation and grading	☐	☐	☐	
• Utility installation	☐	☐	☐	
• Other infrastructure installation	☐	☐	☐	
• Other activities that will disturb soil	☐	☐	☐	
Plan limits the area to be disturbed at any one time to no more than 5 acres	☐	☐	☐	

SECTION F: SWPPP Pollution Precaution Measures

Criteria clearly indicated and identified on plan	NA	Yes	No	Comments
Measures to control litter from entering storm water	☐	☐	☐	
Measures to control construction chemicals and debris from entering storm water	☐	☐	☐	
Construction and waste materials expected to be stored on-site	☐	☐	☐	
Controls to eliminate/reduce pollutants from these materials	☐	☐	☐	
Controls include: ☐ Storage Practices ☐ Spill Prevention Procedures ☐ Procedures for rapid response to and cleanup of any spills				

SECTION G: SWPPP Erosion and Sediment Control (ESC)

Criteria clearly indicated and identified on plan/in SWPPP	NA	Yes	No	Comments
Structural and vegetative measure that will be taken at each stage of the project from initial land clearing/grubbing to project closeout	☐	☐	☐	
Purposes include: ☐ Soil Stabilization ☐ Runoff Control ☐ Sediment Control				
Measures characterized as: ☐ Temporary ☐ Permanent				
Location for each ESC practice on the site plan	☐	☐	☐	
Size for each ESC practice on the site plan	☐	☐	☐	
Length for each ESC practice on the site plan	☐	☐	☐	
Standard details and construction notes for each ESC practice on the site plan	☐	☐	☐	
Traffic crossing provisions where necessary for each ESC practice on the site plan	☐	☐	☐	
Dimensions for each ESC in the SWPPP	☐	☐	☐	
Volume for each ESC in the SWPPP	☐	☐	☐	
Material specifications for each ESC in the SWPPP	☐	☐	☐	
Installation details for each ESC in the SWPPP	☐	☐	☐	
Seeding rates and areas to be seeded	☐	☐	☐	
Soil seed bed preparation and amendments	☐	☐	☐	
Seeding dates to cover the entire year for both temporary and permanent seedings	☐	☐	☐	
Mulch materials, rates and areas to be mulched	☐	☐	☐	
Rolled erosion control practices (RECPs) that will be used, weight/tie-down mechanisms specified and areas where they will be installed	☐	☐	☐	
Maximum created slope is limited to 2' horizontal to 1' vertical with cut and fill slopes shown	☐	☐	☐	
Notes indicate sequencing and timing provisions limit the soil exposure to 14 days	☐	☐	☐	

SECTION G continued on next page

SECTION G: SWPPP Erosion and Sediment Control (ESC) (con't)

Criteria clearly indicated and identified on plan	NA	Yes	No	Comments
Contributing drainage area	☐	☐	☐	
Maintenance requirements and clean-out elevations (50% capacity)	☐	☐	☐	
Method by which storm drain inlets will be protected	☐	☐	☐	
Silt fences on contour lines with no more than ¼-acre drainage to 100' of fence	☐	☐	☐	
Siting and sizing of any temporary sediment basins	☐	☐	☐	
Temporary ESC practices to be converted to permanent control measures	☐	☐	☐	
Implementation schedule for staging temporary ESC practices	☐	☐	☐	
Schedule includes timing of initial place of the practice	☐	☐	☐	
Schedule includes duration for practice to remain in place	☐	☐	☐	
Inspection and maintenance schedule to ensure continuous and effective operation of all sediment control practices	☐	☐	☐	
Names of the waters that will ultimately receive runoff from the site	☐	☐	☐	
Responsibilities for implementing provisions of the SWPPP for each part of the site	☐	☐	☐	
Structural practices to direct flows from exposed soils	☐	☐	☐	
Structural practices to store flows	☐	☐	☐	
Structural practices to limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable	☐	☐	☐	
Structural practices to stabilize existing and proposed outlets	☐	☐	☐	
Existing data describing the storm water runoff at the site	☐	☐	☐	

SECTION H: Conditions Requiring Additional SWPPP Information

For applications meeting any of the following conditions, the information in Section I must also be addressed in the SWPPP:	NA	Yes	No	Comments
Condition "A" – Storm water runoff form the activities proposed in the application would discharge a pollutant of concern to: ☐ 303(d) list of impaired waters ☐ TMDL designated watershed	☐	☐	☐	
Condition "B" – The activities proposed in the application would disturb 5 or more acres	☐	☐	☐	
Condition "C" – The activities proposed in the application would disturb between one and 5 acres of land during the course of the project exclusive of construction of single-family residences and construction activities at agricultural properties	☐	☐	☐	

SECTION I: Additional SWPPP Information

Criteria clearly indicated and identified on plan	NA	Yes	No	Comments
Hydrologic and hydraulic analyses for all structural components of the storm water management system for the applicable design storms	☐	☐	☐	
Theses analyses show the methodologies used and supporting calculations	☐	☐	☐	
Analyses include time of concentration	☐	☐	☐	
Analyses include runoff rates	☐	☐	☐	
Analyses include volumes	☐	☐	☐	
Analyses include velocities	☐	☐	☐	
Analyses include water surface elevations	☐	☐	☐	
Analyses include routing	☐	☐	☐	

SECTION I continued on next page

SECTION I: Additional SWPPP Information (con't)

Criteria clearly indicated and identified on plan	**NA**	**Yes**	**No**	**Comments**
Comparison of post-development storm water runoff conditions with pre-development conditions	☐	☐	☐	
Description of each post-construction storm water management practice	☐	☐	☐	
Specific location of each practice	☐	☐	☐	
Dimensions/size of each practice	☐	☐	☐	
Final sizing calculations including contributing drainage area, storage and outlet configuration for each post-construction storm water management practice	☐	☐	☐	
Material specifications for each post-construction storm water management practice	☐	☐	☐	
Installation details for each post-construction storm water management practice	☐	☐	☐	
Stage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities (e.g., storm water ponds and wetlands)	☐	☐	☐	
Analysis of the potential downstream impacts/effects of the project	☐	☐	☐	
Maintenance schedule to ensure access to all storm water management practices at the site for the purpose of inspection and repair	☐	☐	☐	
Easements recorded on/in plan	☐	☐	☐	
Easements remain in effect with transfer of title to the property	☐	☐	☐	
Inspection and maintenance agreements binding on all subsequent landowners served by the on-site storm water management measures	☐	☐	☐	
For applications meeting Condition "A" above:	**NA**	**Yes**	**No**	**Comments**
SWPPP prepared by a landscape architect, certified professional (CPESC) or professional engineer	☐	☐	☐	
Plan signed and stamped by the professional who prepared it	☐	☐	☐	

SECTION J: Additional Comments/Notes

Form Completed By:

Name (print):	Signature:	Date:

FORM 4-3

NASSAU COUNTY
PHASE II STORM WATER MANAGEMENT PROGRAM
MINIMUM CONTROL MEASURE 4: CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

PROCEDURE/CHECKLIST FOR PRE-CONSTRUCTION SITE INSPECTION

INTRODUCTION: Site Inspections

Prior to inspecting a construction site, the inspector should review the SWPPP that has been filed with the site plan or subdivision plat and approved by the Planning Board. He/she should become familiar with the site plans and construction drawings and details, noting the phases in which the construction will be accomplished, the limit of disturbance, sequence of construction in each phase, number and location of BMPs, basin and trap drainage areas, perimeter controls that are to be installed, outlet points and how they will be controlled.

The inspector should endeavor to contact the project applicant's representative and the contractor that will be doing the work to set up a preconstruction meeting with these parties as well as the subcontractors that will be working on the project to ensure that all parties are on the same page as to what is required by the SWPPP and how that will be implemented.

When entering a site to perform an inspection, the inspector should first stop at the field office, identify himself, present appropriate identification and explain the purpose of the inspection. The inspector should speak with the person in charge – the site foreman or superintendent – and ask to have that person accompany them on the inspection.

The inspector should walk the perimeter of the site noting the installation (or lack of) perimeter controls and noting any problems with these controls. Inspections are best begun at the lowest point at the perimeter of the site, proceeding upgrade from that point. This may help in determining if sediment is leaving the site and identifying the source from which that sediment may be coming. If sediment is leaving the site, the inspector should go far enough downstream, if possible, to determine the extent of the damage. Stabilization measures should be in place in disturbed areas that are not currently being worked on.

Before leaving the site, the inspector should review the items noted as needing correction or modification with the person in charge and ask how they intend to correct the problem and what they estimate the time frame/deadline will be for making the correction. The Inspector shall prepare a written report summarizing the inspection results. The report should list and describe any problems found at the inspection. While he should not endorse specific products to solve these problems since the responsibility for implementing a workable solution to a compliance problem should be placed on the site owner, he might refer the person in charge to the appropriate section of the NYSDEC's "Blue Book". A copy of the inspector's report must be added to the site log book.

SECTION A: Site Information

Permit No.:		Date of Authorization:
Date of Inspection:	Time of Inspection:	Weather Conditions:
Project Name:		Site Location:
Contact at Site:		Title:
Phone No.:		e-mail:

SECTION B: Applicant's Information

Name:	e-mail:
Phone No.:	Fax No.:
Address:	

SECTION C: General Contractor's Information

Name:	e-mail:
Phone No.:	Fax No.:
Address:	

SECTION D: Engineer's Information

Name:	e-mail:
Phone No.:	Fax No.:
Address:	

SECTION E: Document Verification

Criteria	NA	Yes	No	Comments
NOI filed with NYSDEC and posted at construction site	☐	☐	☐	
SWPPP filed with NYSDEC and up-to-date SWPPP retained at construction site	☐	☐	☐	
Copy of SPDES General Permit retained at construction site	☐	☐	☐	
Copy of all signed Contractors' Certifications retained at construction site	☐	☐	☐	
Copy of all signed Subcontractors' Certifications retained at construction site	☐	☐	☐	

SECTION F: Project Phasing/Sequencing of Construction

Project Type: ☐ Single phase ☐ Multi-phase ☐ Redevelopment project

Criteria	NA	Yes	No	Comments
SWPPP specifies construction sequence to minimize disturbance an any one time	☐	☐	☐	
• Minimizes area of soil disturbance	☐	☐	☐	
• Facilitates tracking of earth moving activities	☐	☐	☐	
SWPPP specifics temporary stabilization measures	☐	☐	☐	
• Implemented early in construction	☐	☐	☐	
• Source areas stabilized	☐	☐	☐	
• Destination areas stabilized	☐	☐	☐	
• Pond construction segregated	☐	☐	☐	

SECTION G: Resource Protection

Criteria	NA	Yes	No	Comments
Construction limits clearly flagged/fenced	☐	☐	☐	
Important trees and their rooting zones flagged	☐	☐	☐	
Onsite septic system absorption fields flagged	☐	☐	☐	
Vegetated areas suitable for filter strips (especially in perimeter) flagged	☐	☐	☐	
Creek crossings installed prior to land disturbing activity	☐	☐	☐	

SECTION H: Surface Water Protection

Criteria	NA	Yes	No	Comments
Clean storm water runoff diverted from areas to be disturbed	☐	☐	☐	
Bodies of water on site or nearby identified and protected	☐	☐	☐	
Practices installed to protect on-site or downstream surface waters	☐	☐	☐	
Clearing and grading operations divided into areas less than 5 acres	☐	☐	☐	

SECTION I: Stabilized Construction Entrance

Criteria	NA	Yes	No	Comments
Temporary construction entrance installed properly: 20'x50' min.; filter fabric installed under #2 rock (4" to 8") pad or equivalent	☐	☐	☐	
Plan for stabilization of future access areas and equipment parking areas	☐	☐	☐	
Plan for regular removal of sediment tracked onto public streets	☐	☐	☐	

SECTION J: Perimeter Sediment Controls

Criteria	NA	Yes	No	Comments
Silt fences comply with standard drawings and specifications	☐	☐	☐	
• Posts are 36" min. length	☐	☐	☐	
• Posts are on downhill side of fence and 10' max. c. to c.	☐	☐	☐	
• Posts are steel or 3" square hardwood	☐	☐	☐	
• Posts are driven 16" min. into ground	☐	☐	☐	
• Fence is woven wire, 14-gauge min., 6" max. mesh spacing	☐	☐	☐	
• Fence fabric meets NYSDEC criteria Filter X, Mirafi 100X, Stabilinka T140N	☐	☐	☐	
• Height of filter fabric is 16" min.	☐	☐	☐	
• Adjoining sections of fabric overlapped by 6" and folded	☐	☐	☐	
• Filter fabric embedded 6" min. in ground, extended across trench bottom on uphill side; trench filled and tamped	☐	☐	☐	
• Filter fabric fastened to wire fence with ties at top and midsection every 24"	☐	☐	☐	
• Silt fence placed along contour levels; installed at 60' to 100' on long slopes	☐	☐	☐	
Sediment/detention basin was installed as first land disturbing activity	☐	☐	☐	
Sediment traps and barriers are installed	☐	☐	☐	

SECTION K: Pollution Prevention

Criteria	NA	Yes	No	Comments
Spill prevention and response plan in place and detailed in SWPPP	☐	☐	☐	
Spill response contact person identified	☐	☐	☐	
Spill response kit on site and accessible	☐	☐	☐	

SECTION L: Additional Comments/Notes

SECTION M: Overall Inspection Rating

☐ Satisfactory ☐ Marginal ☐ Unsatisfactory

Form Completed By:

Name (print):	Signature:	Date:

FORM 4-4

NASSAU COUNTY
PHASE II STORM WATER MANAGEMENT PROGRAM
MINIMUM CONTROL MEASURE 4: CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

PROCEDURE/CHECKLIST FOR SITE INSPECTION DURING CONSTRUCTION

INTRODUCTION: Site Inspections

Prior to inspecting a construction site, the inspector should review the latest updated copy of the SWPPP, become familiar with the site plans and construction drawings and details, note the phases in which the construction will be accomplished, the limit of disturbance, sequence of construction in each phase, number and location of BMPs, basin and trap drainage areas, perimeter controls to be installed, outlet points and how they will be controlled.

When entering a site to perform an inspection, the inspector should first stop at the field office, present appropriate identification and explain the purpose of the inspection. He/she should speak with the person in charge and ask to have that person accompany them on the inspection. The inspector should also ask to see copies of any previous inspections of the site that were conducted by the municipality or by certified inspectors engaged by the project applicant to assure that the applicant is complying with the terms of the SWPPP.

The inspector should walk the perimeter of the site noting the installation (or lack of) perimeter controls and any problems with these controls. Inspections are best begun at the lowest point at the perimeter of the site, proceeding upgrade. This may help in determining if sediment is leaving the site and the source from which that sediment may be coming. If sediment is leaving the site, inspect far enough downstream, if possible, to determine the extent of the damage. Stabilization measures should be in place in disturbed areas that are not currently being worked on. Areas where final stabilization measures are installed should not be disturbed.

The inspector should note that the BMPs that were listed/shown in the SWPPP and accompanying plans have been installed for the phases of construction that have been completed or are in progress. If any of the control practices installed in accordance with the approved SWPPP have failed, the inspector should bring this to the attention of the licensed/certified professional who prepared the plan. When an inspection shows the approved SWPPP to be ineffective in eliminating or minimizing pollutants from on-site sources or discharges that cause a substantial visible contrast to natural conditions, the inspector must inform the owner of the site or his responsible agent of their duty to amend the SWPPP. Note also any controls that appear to require maintenance.

Before leaving the site, the inspector should review the items noted as needing correction or modification with the person in charge, ask how they intend to correct the problem and what they estimate the time frame/deadline will be for making the correction. The Inspector shall prepare a written report summarizing the inspection results, and listing/describing any problems found at the inspection. While he should not endorse specific products to solve these problems since the responsibility for implementing a workable solution to a compliance problem should be placed on the site owner, he might refer the person in charge to the appropriate section of the NYSDEC's "Blue Book". A copy of the inspector's report must be added to the site log book.

SECTION A: Site Information

Permit No.:	Date of Inspection:	Time of Inspection:	Date of Last Inspection:
Project Name:	Stage of Construction:	Weather Conditions:	
Site Location:	Site Description:		
Contact at Site:	Title:		
Phone No.:	e-mail:		

SECTION B: Applicant's Information

Name:	e-mail:
Phone No.:	Fax No.:
Address:	

SECTION C: General Contractor's Information

Name:	e-mail:
Phone No.:	Fax No.:
Address:	

SECTION D: Engineer's Information

Name:	e-mail:
Phone No.:	Fax No.:
Address:	

SECTION E: Document Verification

Criteria	NA	Yes	No	Comments
NOI posted at construction site	☐	☐	☐	
SPDES General Permit retained at construction site	☐	☐	☐	
SWPPP retained at construction site	☐	☐	☐	
• Updated as site conditions change	☐	☐	☐	
• Contains monthly/quarterly written summaries of compliance status	☐	☐	☐	

SECTION F: Area of Disturbance

Criteria	NA	Yes	No	Comments
Less than 5 acres of disturbed soil	☐	☐	☐	
• If no, was there prior written approval?	☐	☐	☐	
Disturbance within limits of approved plans	☐	☐	☐	

SECTION G: Water Quality

Polluted discharges	☐ **NA**	☐ **No**	☐ **Yes**	**Comments:**	
Discharges show visible signs of:	☐ Sediment	☐ Floatables	☐ Oil/Grease	☐ Turbidity	☐ Other: _____
Receiving waters impacted:	☐ Lake	☐ Bay	☐ Stream	☐ Wetland	☐ Other: _____

SECTION H: General Site Conditions

Criteria	Condition*				Comments
	NA	S	M	U	
Litter/debris management	☐	☐	☐	☐	
Sediment and erosion control facilities	☐	☐	☐	☐	
Impact on adjacent property	☐	☐	☐	☐	
Dust control	☐	☐	☐	☐	

*** NA**=Not Applicable; **S**=Satisfactory; **M**=Marginal; **U**=Unsatisfactory

SECTION I: Temporary Stream Crossings

Criteria	Condition*				Comments
	NA	S	M	U	
Pipe size spanning creeks	☐	☐	☐	☐	
Non-woven geotextile fabric installed beneath approaches	☐	☐	☐	☐	
Aggregate fill	☐	☐	☐	☐	
Rock on approaches removes sediment from vehicles and prevents sediment from entering streams	☐	☐	☐	☐	

*** NA**=Not Applicable; **S**=Satisfactory; **M**=Marginal; **U**=Unsatisfactory

SECTION J: Runoff Control Practices

Criteria	Condition*				Comments
	NA	S	M	U	
Excavation dewatering	☐	☐	☐	☐	
• Upstream berms (one-foot min. freeboard)	☐	☐	☐	☐	
• Downstream berms	☐	☐	☐	☐	
• Clean water from upstream pool pumped to downstream pool	☐	☐	☐	☐	
• Sediment-laden water discharged to silt trapping device	☐	☐	☐	☐	
Level spreader installation (constructed on undisturbed soil)	☐	☐	☐	☐	
• Flow sheets do not erode downstream edge	☐	☐	☐	☐	
Interceptor dikes and swales installation	☐	☐	☐	☐	
• Side slopes 2:1 or flatter	☐	☐	☐	☐	
• Stabilized by geotextile fabric, seed or mulch	☐	☐	☐	☐	
• Sediment-laden runoff is directed to sediment trapping device	☐	☐	☐	☐	
Stone check dams installation	☐	☐	☐	☐	
• Stable channel	☐	☐	☐	☐	
• Lack of a permanent pool behind dam	☐	☐	☐	☐	
• Regular removal of accumulated sediment	☐	☐	☐	☐	
Rock outlet protection installation	☐	☐	☐	☐	
• Installed concurrently with pipe installation	☐	☐	☐	☐	

*** NA**=Not Applicable; **S**=Satisfactory; **M**=Marginal; **U**=Unsatisfactory

SECTION K: Soil Stabilization

Criteria	Condition*				Comments
	NA	S	M	U	
Topsoil and stockpiles	☐	☐	☐	☐	
• With vegetation	☐	☐	☐	☐	
• With mulch	☐	☐	☐	☐	
• Sediment control installed at toe of slope	☐	☐	☐	☐	
Revegetation	☐	☐	☐	☐	
• Temporary seeding and mulch applied to idle areas	☐	☐	☐	☐	
• Minimum of 4 inches topsoil applied under permanent seedings	☐	☐	☐	☐	

*** NA**=Not Applicable; **S**=Satisfactory; **M**=Marginal; **U**=Unsatisfactory

SECTION L: Sediment Control Practices

Criteria	Condition*				Comments
	NA	S	M	U	
Stabilized construction entrance installation	☐	☐	☐	☐	
• Drainage prevents ponding	☐	☐	☐	☐	
• Stone removes mud from vehicles	☐	☐	☐	☐	
• All traffic uses the entrance	☐	☐	☐	☐	

*** NA**=Not Applicable; **S**=Satisfactory; **M**=Marginal; **U**=Unsatisfactory

SECTION L continued on next page

SECTION L: Sediment Control Practices (con't)

Criteria	Condition*				Comments
	NA	S	M	U	
Silt fence installation	☐	☐	☐	☐	
• On contour and 10' from toe of slope	☐	☐	☐	☐	
• Not across conveyance channels	☐	☐	☐	☐	
• End stakes wrapped together at joints	☐	☐	☐	☐	
• Fabric is buried min. 6"	☐	☐	☐	☐	
• Posts are stable, fabric is tight and not damaged	☐	☐	☐	☐	
• Sediment accumulation (note % of design capacity in comments)	☐	☐	☐	☐	
Storm drain inlet protection	☐	☐	☐	☐	
• Drainage area is less than 1 acre	☐	☐	☐	☐	
• Sediment accumulation (note % of design capacity in comments)	☐	☐	☐	☐	
• Excavated drop inlet protection	☐	☐	☐	☐	
- 900 cu. ft. per acre of disturbed land	☐	☐	☐	☐	
- 2:1 side slopes	☐	☐	☐	☐	
• Stone and block drop inlet protection	☐	☐	☐	☐	
- Concrete blocks installed lengthwise	☐	☐	☐	☐	
- Wire screen placed between #3 crushed stone and concrete blocks	☐	☐	☐	☐	
• Filter fabric drop inlet protection	☐	☐	☐	☐	
- 2"x4" frame	☐	☐	☐	☐	
- Posts (stable; spaced max. 3' apart)	☐	☐	☐	☐	
- Fabric (undamaged; embedded 1' to 1.5' below ground; stapled to frame/posts at max. spacing of 8")	☐	☐	☐	☐	
• Curb drop inlet protection	☐	☐	☐	☐	
- 2"x4" frame	☐	☐	☐	☐	
- Continuous wire mesh across throat (30" min. width, 4' longer than throat) shaped and nailed to 2"x4" weir	☐	☐	☐	☐	
- Weir nailed to 2"x4" spacers (9" long, 6' max. apart)	☐	☐	☐	☐	
- Placed across inlet and secured by 2"x4" anchors, extending 2' across top of inlet, held in place by weights	☐	☐	☐	☐	
Temporary sediment trap installation	☐	☐	☐	☐	
• Geotextile fabric placed beneath rock fill	☐	☐	☐	☐	
• Sediment accumulation (note % of design capacity in comments)	☐	☐	☐	☐	
Temporary sediment basin installation	☐	☐	☐	☐	
• Side slopes stabilized with seed or mulch	☐	☐	☐	☐	
• Structure flushed and surface restored upon removal of facility	☐	☐	☐	☐	
• Sediment accumulation (note % of design capacity in comments)	☐	☐	☐	☐	

* **NA**=Not Applicable; **S**=Satisfactory; **M**=Marginal; **U**=Unsatisfactory

SECTION M: Self-Monitoring

Criteria	NA	Yes	No	Comments
Inspections occur at least every 7 calendar days	☐	☐	☐	
Inspections occur at within 24 hours of any storm event of 0.5" or greater	☐	☐	☐	
Effectiveness of erosion and sediment control practices is evaluated at time of inspection and documented	☐	☐	☐	
Inspection reports maintained in log book at site and are available for review	☐	☐	☐	
Sediment is removed from traps/ponds when design capacity is reduced by 50%	☐	☐	☐	
Site inspections are being performed by a qualified inspector	☐	☐	☐	
Reports are properly signed/certified	☐	☐	☐	

SECTION N: Additional Comments/Notes

SECTION O: Overall Inspection Rating

☐ Satisfactory ☐ Marginal ☐ Unsatisfactory

Form Completed By:

Name (print):	Signature:	Date:

FORM 4-5

NASSAU COUNTY
PHASE II STORM WATER MANAGEMENT PROGRAM
MINIMUM CONTROL MEASURE 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

CHECKLIST FOR CONCRETE TRUCK WASHOUT INSPECTION

Inspected By:	Date:
Site:	
Site Contact:	
Truck Identification:	
Truck Owner:	Truck Operator:

Description	Diagram
Briefly describe the concrete truck washout system and method of waste disposal:	Draw diagram of concrete truck washout area and indicate site boundaries, storm drains, streams, etc.

Inspection			
Washout performed in designated area:	☐ Satisfactory	☐ Unsatisfactory	☐ Not Applicable
Sediment prevented from entering storm drain system, streams, open ditches, or streets:	☐ Satisfactory	☐ Unsatisfactory	☐ Not Applicable
Washout area properly maintained, emptied as necessary:	☐ Satisfactory	☐ Unsatisfactory	☐ Not Applicable
Proper disposal of concrete waste:	☐ Satisfactory	☐ Unsatisfactory	☐ Not Applicable
Wet/dry concrete materials stored under cover and away from drainage:	☐ Satisfactory	☐ Unsatisfactory	☐ Not Applicable
Corrective measures needed:			
Comments/Notes:			

Form Completed By:

Name (print):	Date:
Signature:	

FORM 4-6

NASSAU COUNTY
PHASE II STORM WATER MANAGEMENT PROGRAM
MINIMUM CONTROL MEASURE 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

CHECKLIST FOR LEAKING TRUCK INSPECTION

Inspected By:	Date:	Time:
Location:		
Lane: ☐ Left ☐ Center ☐ Right	Direction: ☐ Northbound ☐ Southbound ☐ Westbound ☐ Eastbound	
Description of Truck:		
License Plate Number:	State:	
Truck Owner:	Truck Operator:	
DOT Placard Present: ☐ Yes ☐ No *If Yes, identify type*: _____	Placard ID Number:	
Driver Information (Name, address, phone):		

Description of Leak	**Diagram**
Rate: ☐ Trickle ☐ Moderate ☐ Substantial	Draw diagram of truck indicating leak and area impacted by leak including roadway, storm drains, etc.
Frequency: ☐ Intermittent ☐ Steady	
Impacted Area(s): *Check all that apply* ☐ Roadway Surface ☐ Catch Basin ☐ Stream ☐ Earthen Material ☐ Other: _____ (Grass, soil, etc.)	
Comments/Notes:	

Actions		
☐ Notified driver; truck stopped and leak attended to.		
☐ Notified driver; truck refused to stop.	Police notification made: ☐ Yes	☐ No
☐ Unable to notify driver. Yes ☐ No	Police notification made:	☐
☐ Unable to obtain truck information. ☐ No	Police notification made: ☐ Yes	
☐ No truck/source observed; only impacts of leak observed.	Police notification made: ☐ Yes	☐ No
☐ Other:		
Comments/Notes:		

Form Completed By:

Name (print):	Date:
Signature:	

FORM 4-7

NASSAU COUNTY
PHASE II STORM WATER MANAGEMENT PROGRAM
MINIMUM CONTROL MEASURE 4: CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

PROCEDURE/CHECKLIST FOR CONSTRUCTION SITE INSPECTION AFTER PROJECT COMPLETION

INTRODUCTION: Site Inspections

Prior to inspecting a construction site, the inspector should review the latest update copy of the SWPPP. He/she should become familiar with the site plans and as built construction drawings and details.

When entering a site to perform an inspection, the inspector should first identify himself, present appropriate identification and explain the purpose of the inspection (routine, response to a complaint, verification of a violation). The inspector should speak with the person in charge – the owner or manager at the site and ask to have that person accompany them on the inspection. The inspector should also ask to see copies of any previous inspections of the site that were conducted by the municipality or by certified inspectors engaged by the project applicant to assure that the applicant is complying with the terms of the SWPPP.

The inspector should walk through the site noting the installation (or lack of) permanent stabilization measures and whether any sediment is leaving the site and, if possible, identify the source from which that sediment may be coming. If sediment is leaving the site, the inspector should go far enough downstream, if possible, to determine the extent of the damage.

The inspector should note that the BMPs that were listed/shown in the SWPPP and accompanying plans have been installed. If any of the control practices that were installed in accordance with the approved SWPPP have failed, the inspector should bring this to the attention of the licensed/certified professional who prepared the plan. When an inspection shows the approved SWPPP to be ineffective in eliminating or minimizing pollutants from on-site sources or eliminating discharges that cause a substantial visible contrast to natural conditions, the inspector must inform the owner of the site or his responsible agent of their duty to amend the SWPPP. Note also any controls that appear to require maintenance.

Before leaving the site, the inspector should review the items noted as needing correction or modification with the person in charge and ask how they intend to correct the problem and what they estimate the time frame/deadline will be for making the correction. The Inspector shall prepare a written report summarizing the inspection results. The report should list and describe any problems found at the inspection. While he should not endorse specific products to solve these problems since the responsibility for implementing a workable solution to a compliance problem should be placed on the site owner, he might refer the person in charge to the appropriate section of the NYSDEC's "Blue Book". A copy of the inspector's report must be added to the site log book.

SECTION A: Site Information

Permit No.:	Date of Inspection:	Time of Inspection:
Project Name:	Weather Conditions:	
Site Location:	Date of Last Inspection:	
Contact at Site:	Title:	
Phone No.:	e-mail:	

SECTION B: Owner Information

Name:	e-mail:
Phone No.:	Fax No.:
Address:	

SECTION C: General Contractor's Information

Name:	e-mail:
Phone No.:	Fax No.:
Address:	

SECTION D: Engineer's Information

Name:	e-mail:
Phone No.:	Fax No.:
Address:	

SECTION E: Site Inspection

Observations	**NA**	**Yes**	**No**	**Comments**
Temporary construction phase erosion and sediment control measures removed	☐	☐	☐	
Records of maintenance and repair of storm water facilities available	☐	☐	☐	
Records up-to-date	☐	☐	☐	
Regular maintenance schedule for all erosion and sediment control measures	☐	☐	☐	
All BMPs installed as shown on plans submitted with SWPPP	☐	☐	☐	
Stormwater samples taken on a regular basis	☐	☐	☐	

SECTION F: Permanent Best Management Control Structures

Structures Installed and Location: (**S**atisfactory, **M**arginal, **U**nsatisfactory)	**Condition**			**Comments**
	S	**M**	**U**	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	

SECTION G: Sampling (if applicable)

Samples obtained at:	☐ Discharges ☐ Surface Waters ☐ Groundwater ☐ Drainage Control Facilities
Samples show visible signs of:	☐ Sediment ☐ Floatables ☐ Oil/Grease ☐ Turbidity ☐ Other: _____
Comments:	

SECTION H: Additional Comments/Notes

SECTION I: Overall Inspection Rating

☐ Satisfactory	☐ Marginal	☐ Unsatisfactory

Form Completed By:

Name (print):	Signature:	Date:

APPENDIX G

STORMWATER BMP MAINTEANCE MANUAL

Stormwater Best Management Practices

Maintenance Manual

Nassau County
Department of Public Works

Shila Shah-Gavnoudias, Commissioner

September, 2012

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Miles

Peninsula Boulevard Swirl Chambers

Location

Physical Location	N/s Peninsula Boulevard, 110' w/o Oxford Road, Cedarhurst, NY 11516
Municipality	Village of Cedarhurst
Latitude/Longitude	40° 37' 45.17", -73° 44' 7.54"
Section/Block/Lot	39/335/58

Construction

2 Concrete Swirl Chambers with cleanout manhole. **West Chamber**: Structure D-75 (Vortechs Model 11000). **East Chamber**: Structure D-74 (Vortechs Model PC 1421)

Access

The stormwater chambers are located on municipal property which fronts on the north side of Peninsula Boulevard (approx. 110' west of Oxford Road). Vehicles and heavy equipment can directly access the site by driving over the concrete curb along Peninsula Blvd.

Maintenance Frequency

Sediment and debris in swirl chamber to be removed on a monthly basis.

Locator Map

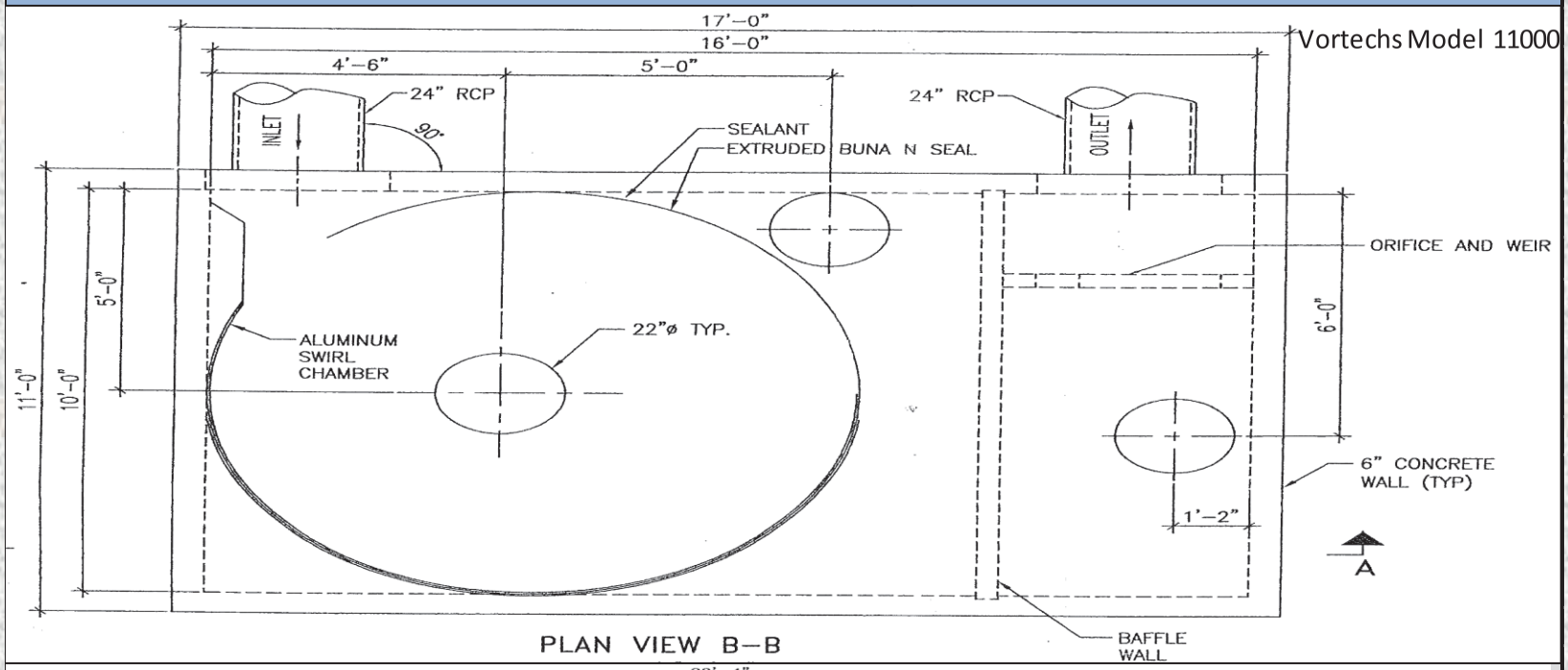
Detail

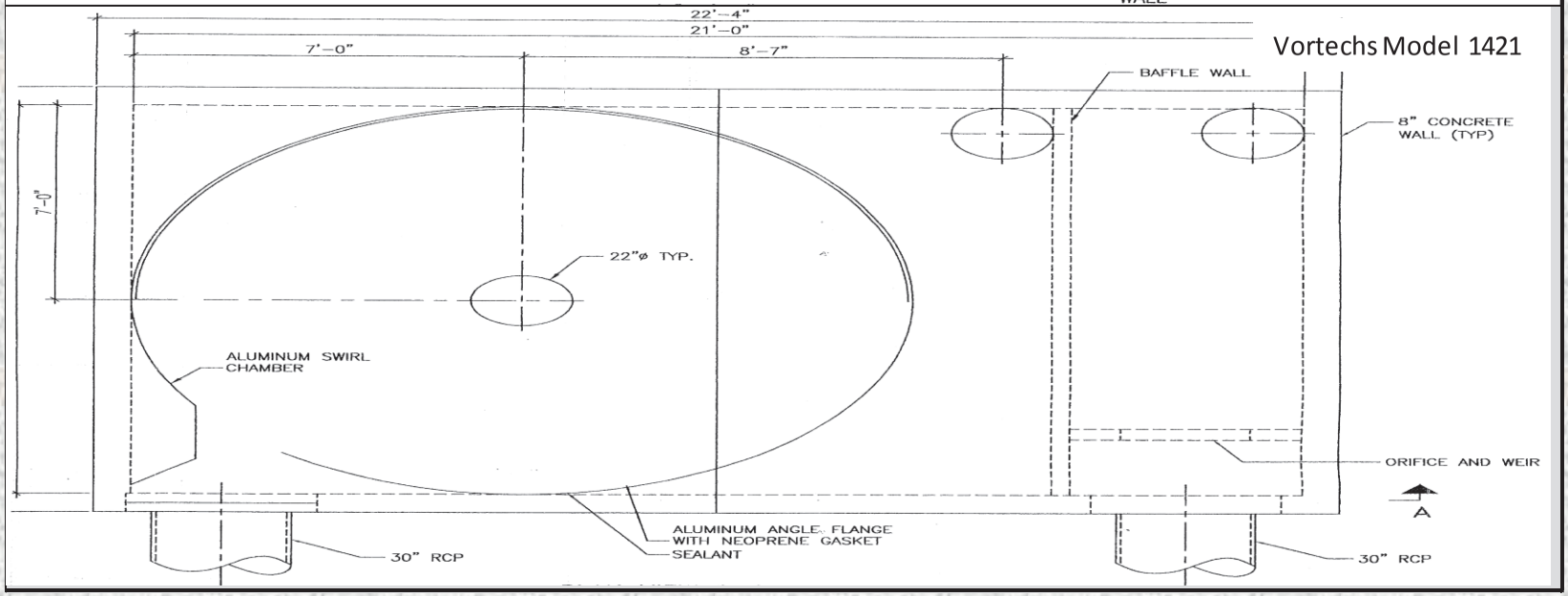
Methods

See Next Page

The piped stormwater flow is diverted to the swirl chambers before entering the Tideflex check valve and ultimately an outfall pipe into the tidal waters of the South Shore. Sediment and debris collected in the unit can be removed via a vactor truck. The cleanout manholes are flush with the grassy surface and are located to the east of the memorial walkway. All efforts should be made to block the flow prior to cleaning out the west and east chambers.

Peninsula Boulevard Swirl Chambers

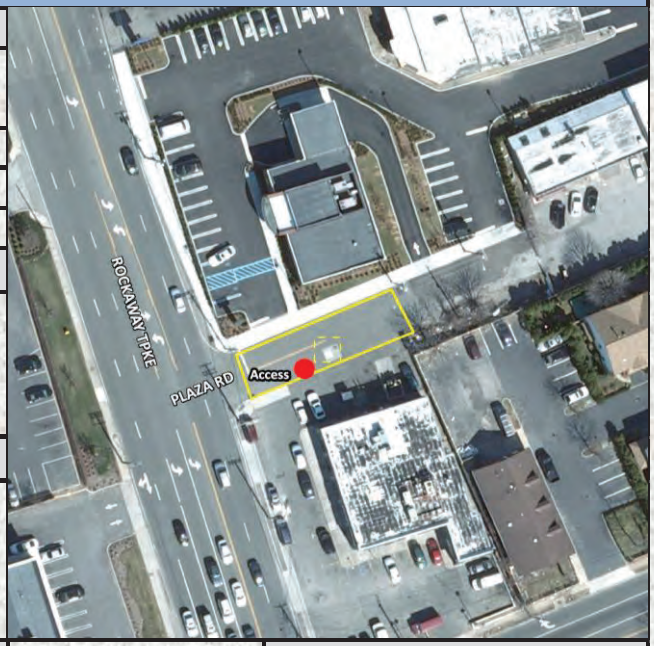




Plaza Road Swirl Chamber

Location

Physical Location	S/s Plaza Road, 55' E/o Rockaway Turnpike, Cedarhurst, NY 11516
Municipality	Village of Cedarhurst
Latitude/Longitude	40° 37' 46.08", -73° 44' 13.89"
Section/Block/Lot	Plaza Road Right-of-Way



Locator Map

Construction

Concrete Swirl Chamber with cleanout manhole. Structure D-76 (Vortechs Model 4000).

Access

The stormwater chamber is located on the south side of Plaza Road (public right-of-way), approximately 55' east of Rockaway Turnpike.

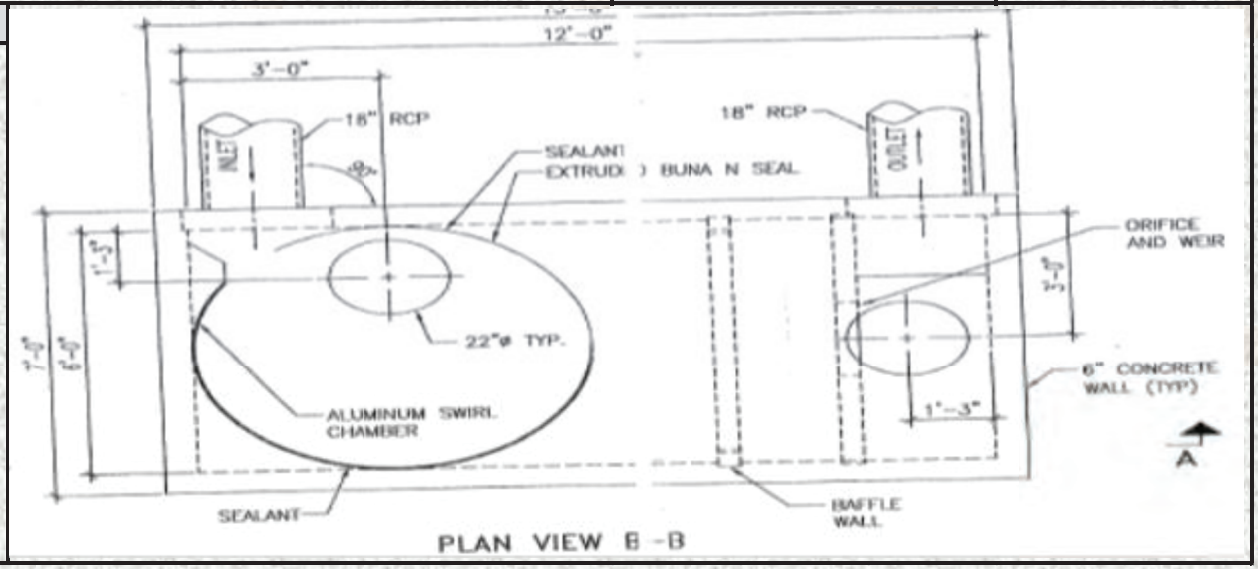
Maintenance Frequency

Sediment and debris in swirl chamber to be removed on a yearly basis.

Photo

Methods

The piped stormwater flow is diverted to the swirl chamber before entering the Tideflex check valve and ultimately an outfall pipe into the tidal waters of the South Shore. Sediment and debris collected in the unit can be removed via a vactor truck. The cleanout manhole is located in the Plaza Road right-of-way.



Halls Pond Stormwater Treatment System

Location

Physical Location	Halls Pond Park, N/E corner of Nassau Blvd. and Hempstead Avenue, West Hempstead
Municipality	Town of Hempstead
Latitude/Longitude	40°41'17.4"N 73°39'38.2"W
Section/Block/Lot	Section 35, Block J, Lot 21

Construction

The system consists of a bypass channel, baffle box with "snout" floatable separator and a sediment basin.

Access

Assess is provided through an existing paved pathway/driveway beginning on the western side of the park along Nassau Boulevard (across from Washington Street). A new paved driveway extension runs along the sediment basin just north of Halls Pond.

Locator Map

Maintenance Frequency

This BMP should be inspected monthly for trash/debris buildup. The baffle box should be cleaned with a VAC Truck every three to six months. The sediment basin should be cleaned with a Case Loader, preferably when the channel is dry.

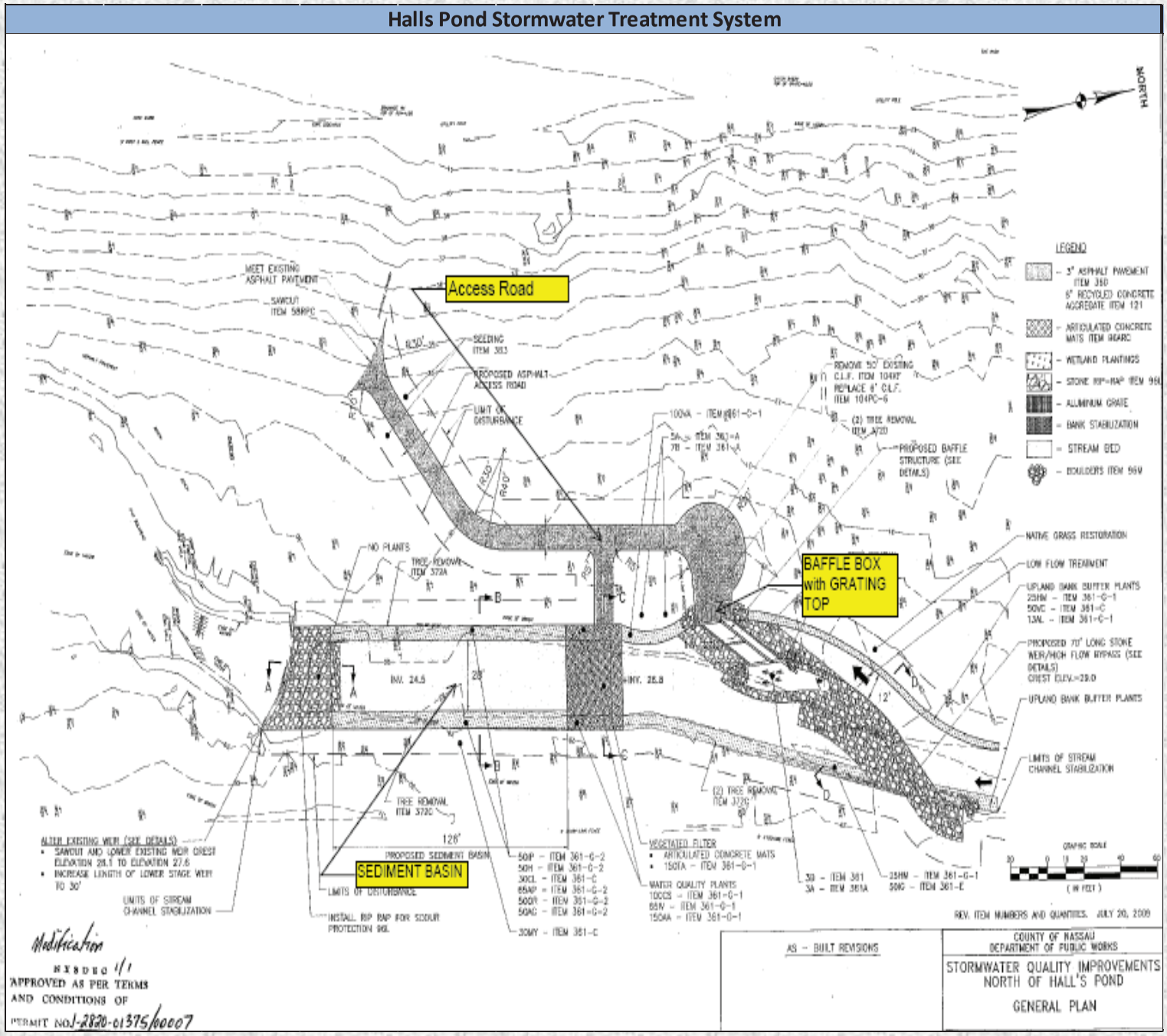
Photo

Methods

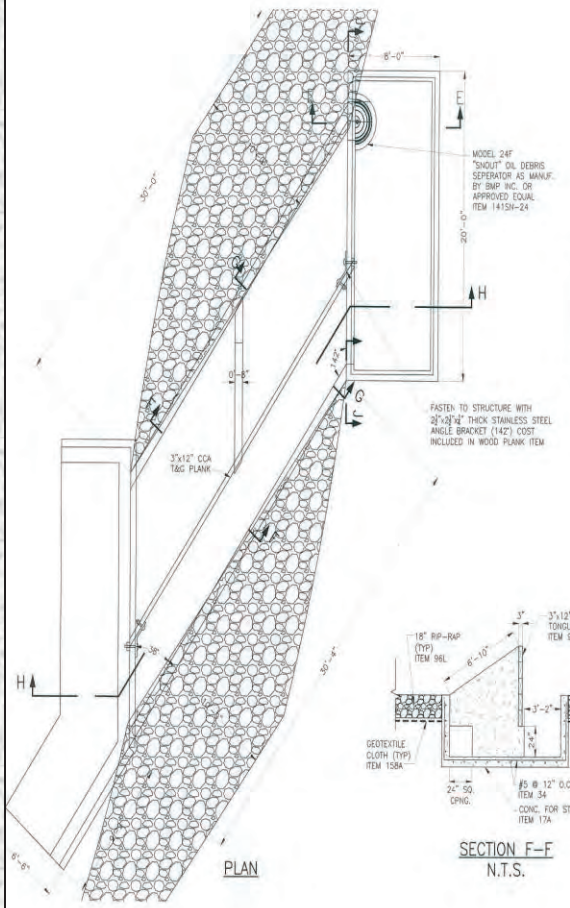
See above.

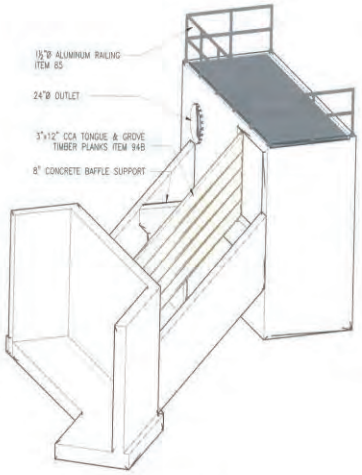
N/A

Halls Pond Stormwater Treatment System

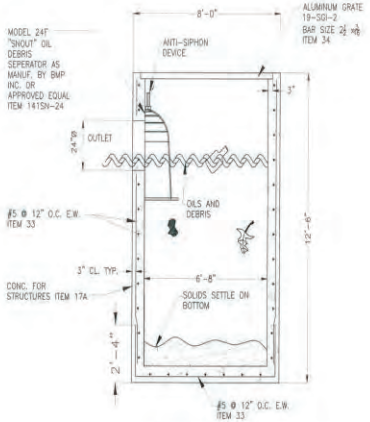


Halls Pond Stormwater Treatment System



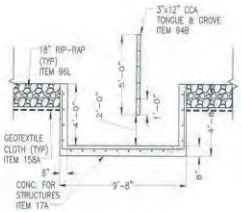


PERSPECTIVE VIEW
N.T.S.

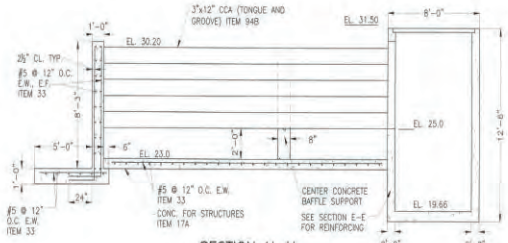


SECTION E-E
N.T.S.

SECTION F-F
N.T.S.



SECTION G-G
N.T.S.



SECTION H-H
N.T.S.

SECTION J-J
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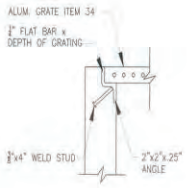


ALUMINUM GRATING MOUNTING DETAIL
N.T.S.

AS - BUILT REVISIONS

SIGNATURE DATE

COUNTY OF NASSAU
DEPARTMENT OF PUBLIC WORKS

STORMWATER QUALITY IMPROVEMENTS
NORTH OF HALL'S POND

BAFFLE SYSTEM DETAILS

DRAWING NO:	SCALE:	DATE:	SHEET
BD-1	AS NOTED	6/11/09	2 OF 8

L. K. McLEAN ASSOCIATES, P.C.
CONSULTING ENGINEERS

Willow Pond Stormwater Treatment Device

Location

Physical Location	S/E corner of Schenck Circle North and Schenck Circle, Hewlett Harbor
Municipality	Village of Hewlett Harbor
Latitude/Longitude	
Section/Block/Lot	Public ROW

Construction

Hydrodynamic Separator Unit is located on the w/s of Schenck Circle. The Unit is fed by 12" and 24" stormwater mains and discharges into a new outfall at the n/w corner of Willow Pond. the Unit collects sediment and floatables before they are able to pass through the outfall.

Access

This unit is accessible from Schenck Circle.

Locator Map

Maintenance Frequency

Sediment and debris collected in the Unit is to be removed on a yearly basis.

Photo

Methods

Floatables and sediments are removed from the stormwater treatment structure by accessing a single manhole above the structure. Sediment and debris collected in the unit can be removed via a vactor truck.

Baxter Pond Sediment Basin

Location

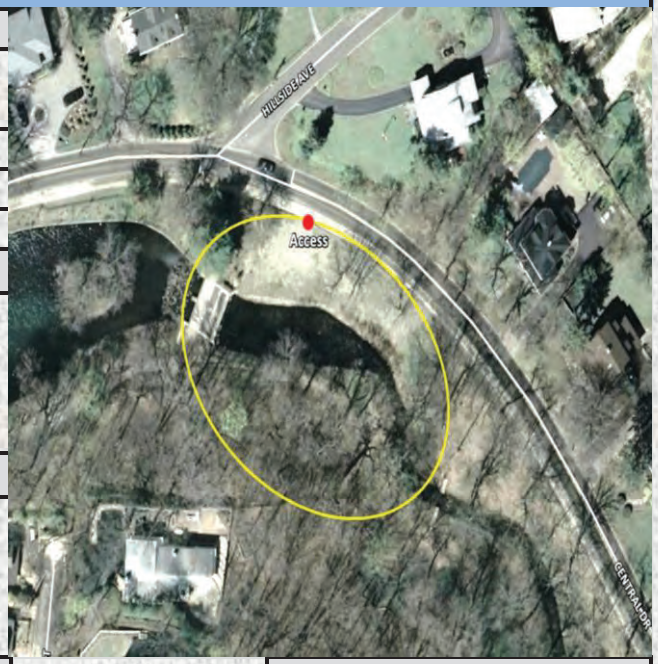
Physical Location	SW corner of Central Drive and Hillside Avenue, Port Washington, NY 11050
Municipality	Village of Baxter Estates
Latitude/Longitude	40° 50' 2.34", -73° 41' 47.91"
Section/Block/Lot	5/8/129

Construction

Interlocking Concrete Block (can support equipment load)

Access

Basin located at pedestrian bridge, east of Baxter Pond. Remove split rail fence sections on Central Drive (approximately 50ft. east of intersection) and drive down slope of basin onto interlocking concrete block.



Locator Map

Maintenance Frequency

At least once per year; periodic surveillance.

Photo

Methods

The basin collects sediment as well as a considerable amount of organic (leaf) debris. Based on the rate at which the basin fills with sediment, it needs to be cleaned at least once per year. The basin needs to be dewatered prior to removing sediment. Prior cleanouts have been performed by first pumping down the basin with two 6-inch diameter pumps, followed by sediment cleanout and removal via an excavator. This method has had limited success. Blocking stream flow further upstream and bypass pumping around the basin was successfully conducted and should be the preferred cleanout method. In addition, a vactor truck could be utilized to augment the cleanout operation.

Smith Street Sediment Basin

Location

Physical Location	NE corner of Grand Avenue and Bellewood Drive, Bellmore, NY 11710
Municipality	Town of Hempstead
Latitude/Longitude	40° 40' 14.91", -73° 32' 39.57"
Section/Block/Lot	56/U/40, 410

Construction

Two floating orange booms designed to trap floating trash as well as a sediment collection area.

Access

Existing curb-cut and driveway apron on Smith Street, approximately 60' from the intersection of Smith Street and Bellewood Drive.

Locator Map

Maintenance Frequency

Visual inspection once per week (remove trash as required); inspected before and after forecasted rainfall events.

Photo

Methods

Sediment removal can be performed using a Case Loader or the Posi-Trak feeding material attached to either an excavator or Lightning Loader. The area should be inspected at least once per week and trash/debris should be removed as needed.

Pines Brook Floatable Collection Area

Location

Physical Location	Ss Tanglewood Road, 360' E/o Ocean Avenue, Lynbrook, NY 11563
Municipality	Village of Lynbrook
Latitude/Longitude	40° 39' 47.70", -73° 39' 28.71"
Section/Block/Lot	38/C/113

Construction

Entrance to closed section of stream culvert beneath Peninsula Blvd.

Access

The area can be accessed off of Tanglewood Road from Ocean Avenue. A maintenance gate leads to an asphalt path for direct access over the culvert. The use of a Lightning Loader to remove floating debris is preferred.

Locator Map

Maintenance Frequency

Visual inspection once per week; maintenance monthly at a minimum.

Methods

This area, located at the southern end of Tanglewood Preserve, forms the entrance to a closed section of culvert in which the Pine Brook flows beneath Peninsula Boulevard south into South Pond. The water elevation of Pine Brook is controlled by the elevation of a weir structure at South Pond in the Village of Rockville Centre. The constant water elevation in Pine Brook is only inches below the top of the culvert structure. Because of this low clearance, floating material (litter) such as bottles, cans, cups, logs, and other sorts of debris becomes trapped in this area. This has the potential to slow the stream discharge leading to diversion and overflow onto adjacent sites causing deleterious effects on neighboring development, and public rights-of-way. This area must be examined at least once per week to ensure that storm water is flowing through the culvert unimpeded. Recommended maintenance methods include utilizing a lightning loader, or Vactor truck.

Photo

Pines Brook Sediment Basin

Location

Physical Location	SW corner Lakeview Avenue and Ocean Avenue, Lynbrook, NY 11563
Municipality	Town of Hempstead
Latitude/Longitude	40° 40' 0.47", -73° 39' 34.74"
Section/Block/Lot	38/G/991

Construction

Concrete Sediment basin (concrete bottom; shallow depth)

Access

Access to the sediment basin is via a curb-cut on Lakeview Avenue, approximately 260' east of the Intersection of Lakeview Avenue and Ocean Avenue. The entranceway also accesses the adjacent ball field parking lot area. The concrete basin also includes an access ramp on the east side of the basin to assist in sediment removal.

Maintenance Frequency

Once per year at a minimum

Methods

This area was modified during the construction of Tanglewood Pond and Preserve to include an access ramp to aid in the efficient removal of sediment from the basin. The concrete basin holds approximately 6" of water and can be scraped with a Case loader or Posi-track. Sediment can than easily be offloaded onto awaiting trucks.

Locator Map

Photo

Baldwin Drain Trash Rack

Location

Physical Location	S/s Stowe Avenue, 782' W/o Grand Avenue, Baldwin, NY 11510
Municipality	Town of Hempstead
Latitude/Longitude	40° 40' 2.49", -73° 36' 37.38"
Section/Block/Lot	36/409/566

Construction

Rebuilt in 2000, the 54" diameter pipe openings to an enclosed culvert are protected from vandalism and flow-blocking debris by bars and a screen.

Access

This area can be accessed via Emerson Avenue (dead end), just west of the drain.

Maintenance Frequency

Prior and following significant rainfall events

Methods

This BMP is vulnerable to blocking debris which can result in upstream flooding of surrounding properties. To remedy this occurrence, the opening to the twin 54" pipes where outfitted with a bars and screen to prevent entry of large materials and debris into the pipes. There is an overflow weir that will permit stormwater to flow unimpeded into the pipes should the screen become obstructed or clogged. Due to the high-potential for flooding in the neighboring area, it is recommended that the site be investigated prior to, and after, a forecasted rainfall event. Debris can be removed with a Lightning Loader or an excavator if there is a significant amount of debris in the channel.

Locator Map

Photo

Milburn Creek Sediment Basins [Brookside Drive]

Location

Physical Location	S/w corner North Brookside Avenue and West Greenwich Avenue, Roosevelt, NY 11575
Municipality	Town of Hempstead
Latitude/Longitude	40° 41' 1.31", -73° 35' 52.50"
Section/Block/Lot	36/522/1

Construction

Interlocking paving stone or paving stone. Basin is constructed with RCA access ramp for vehicular access.

Access

Access to the sediment basin is by from Brookside Drive. The basin has an access ramp about 200 feet north of the weir.

Maintenance Frequency

Once per year

Methods

The basin is designed and installed as part of a larger stream restoration project. The basins collect sediment and debris upstream of a gabion basket dam. The stream in this area is not perennial so sediment cleanout should not be difficult. A Posi-Trak or Case loader can be used to remove sediment from the basin floor. Care should be taken not to damage the basin structure.

Locator Map

Photo

Milburn Creek Sediment Basins [Circle Drive]

Location

Physical Location	Nw corner of Circle Drive and West Centennial Avenue, Baldwin, NY 11510
Municipality	Town of Hempstead
Latitude/Longitude	40° 40' 36.62", -73° 36' 1.11"
Section/Block/Lot	36/489/15A

Construction

Interlocking paving stone or paving stone. Basin is constructed with RCA access ramp for vehicular access.

Access

Access to the sediment basin is Circle Drive East. The basin can be accessed by an access ramp north of the weir.

Locator Map

Maintenance Frequency

Once per year

Photo

Methods

The basin is designed and installed as part of a larger stream restoration project. The basins collect sediment and debris upstream of a gabion basket dam. The stream in this area is not perennial so sediment cleanout should not be difficult. A Posi-Trak or Case loader can be used to remove sediment from the basin floor. Care should be taken not to damage the basin structure.

Milburn Pond Sediment Basin

Location

Physical Location	NE corner Milburn Avenue and Merrick Road, Baldwin, NY 11510
Municipality	Town of Hempstead
Latitude/Longitude	40° 39' 10.75", -73° 36' 10.19"
Section/Block/Lot	54/C/36

Construction

Concrete and Steel sheeting sediment basin.

Access

Access is by way of a fence gate on the west side of South Brookside Avenue, approximately 500' north of the intersection with Merrick Road. A asphalt driveway and RCA ramp provides access into the basin.

Maintenance Frequency

Visual inspection weekly; maintenance monthly, or as required.

Methods

This basin was constructed to prevent sediment, trash, and floating debris from entering the main body of Milburn Pond. Due to the nature and large size of the watershed, this basin will typically be loaded with material and debris and will need frequent inspection and trash removal. Cleaning the sediment and material that has sunk to the bottom of the basin will require a significant operation that will require pumping out the basin to lower the water level to allow cleanout suing either a vac-truck, Case loader, Posi-track, or lightning loader. This would require blocking the upstream culvert opening and pumping out standing water in the basin. Steel plates may be used to temporarily bock the culvert; however, a crane may be needed to lift them into place. The significant effort needed to maintain this particular basin is partially justified given the fact that the basin is located (and is visible) in a popular passive park.

Locator Map

Photo

Milburn Pond Sediment Chamber

Location

Physical Location	NE corner Merrick Avenue and South Brookside Avenue, Freeport, NY 11520
Municipality	Village of Freeport
Latitude/Longitude	40° 39' 8.34", -73° 36' 6.23"
Section/Block/Lot	54/C/36

Construction

Concrete sediment chamber w/ manhole.

Access

Access is by way of a pedestrian gate on South Brookside Avenue, or via the paved pathway circling the pond. Cleaning out the sediment chamber is by way of the south manhole.

Maintenance Frequency

Once per year; or after a severe rainfall event.

Methods

The sediment basin was constructed just to the east of the paved pathway around Milburn Pond. This chamber is designed to intercept storm water runoff from two 36-inch pipes that run along Brookside Avenue and terminate at Milburn Pond. Invert elevations of the pipes in the chamber cause sediment and floating debris to be trapped in this chamber before entering the pond. The chamber will therefore require routine maintenance to ensure that storm water can pass through the chamber and not back up into the South Brookside pipe network. The most effective method of cleanout is via a vactor truck.

Locator Map

Photo

Roosevelt Pond Sediment Basin

Location

Physical Location	E/s Lakeside Drive, 100' N/o Elmwood Avenue, Roosevelt, 11575
Municipality	Town of Hempstead
Latitude/Longitude	40° 40' 58.41", -73° 34' 28.42"
Section/Block/Lot	N/A (Roosevelt Preserve County Park)

Construction

Gabion-walled sediment basin with articulating concrete maintenance ramp. There is also a trash/debris boom at the southerly end of the basin.

Access

Access is through the main Roosevelt Preserve County Park entrance on the east side of Lakeside Drive. A gravel pathway (of sufficient width to accommodate heavy vehicles) connects the eastern end of the parking lot to the sediment basin and concrete maintenance ramp.

Locator Map

Maintenance Frequency

Sediment Basin: Once every two years. **Trash/Debris Boom**: Once a month; surveillance after severe rainfall events.

Photo

Methods

This basin was constructed along the Meadowbrook stream to prevent sediment, trash, and floating debris from continuing further downstream. The basin was designed to store a significant volume of sediment, thereby requiring minimal clean out. However, sediment will need to be removed every couple of years using a bobcat or similar piece of equipment. The basin relatively shallow and the articulated concrete ramp will allow for a bobcat to enter the basin completely during cleanout. Upstream blocking or diversion is not necessary. The trash/debris boom at the southerly end of the basin will require routine maintenance. The trash and debris should be removed from the boom monthly, and special attention should be given post severe rainfall events. The boom is also accessible from the gravel pathway.

Hale Place Stormwater Treatment Device

Location

Physical Location	South end (dead-end) of Hale Place, Bellmore
Municipality	Town of Hempstead
Latitude/Longitude	40° 39' 59.23", -73° 32' 26.44"
Section/Block/Lot	56/V/247

Construction

Infiltration galley vault (siphon chamber) with manhole. Diversion to Continuous Deflection System (CDS) with manhole. Floatables and sediments are trapped and captured by both the infiltration galley and the CDS, before reentering the stormwater main that terminates as an outfall at Merokee Pond (Smith Pond).

Access

The infiltration galley vault and CDS is located on County property adjacent to the dead-end of Hale Place, a town road. Access is by way of a crash gate at the terminus of Hale Place.

Maintenance Frequency

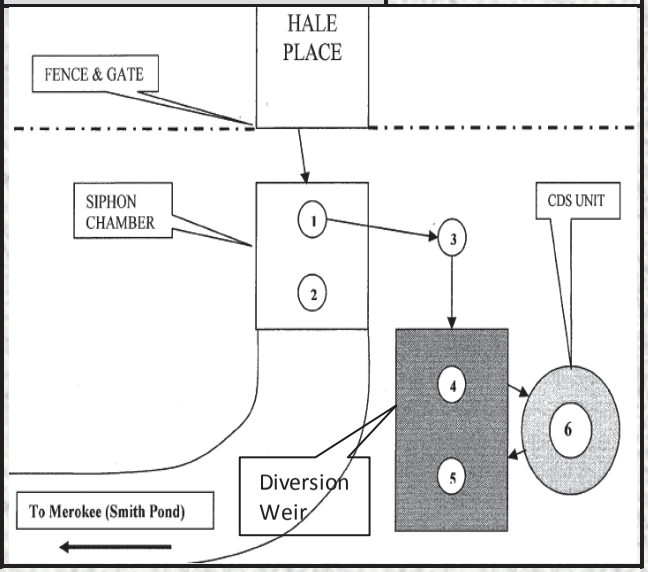
Sediment and debris collected in the infiltration galley and the CDS are to be removed on a monthly basis or after a severe rainfall event.

Methods

Maintenance and cleanout is by way of infiltration galley manhole #1 (siphon chamber), and the CDS unit manhole #6. Sediment collected in the unit must be periodically removed via a vactor truck. All efforts should be made to block flow in order to properly clean the screens within the CDS units (manhole 4 & 5)

Locator Map

Schematic



Franklin Square DPW Garage CDS Units

Location

Physical Location	NC DPW Garage, W/s Franklin Avenue, 145' S/o Gavrin Boulevard, Franklin Square
Municipality	Town of Hempstead
Latitude/Longitude	40° 41' 33.21", -73° 41' 6.78"
Section/Block/Lot	35/B/1152

Construction

Two Continuous Deflection System (CDS) Units are located on the subject property. One is on the northwest corner of the site, and one is on the southwest corner of the site. Both units collect sediments and floatables before they are able to pass through an outfall into an open stream channel.

Access

Both CDS Units are within the DPW yard and are accessible by vehicle from Franklin Avenue.

Maintenance Frequency

Visual inspection for debris in grate opening on a weekly basis and before a forecasted rainfall.

Methods

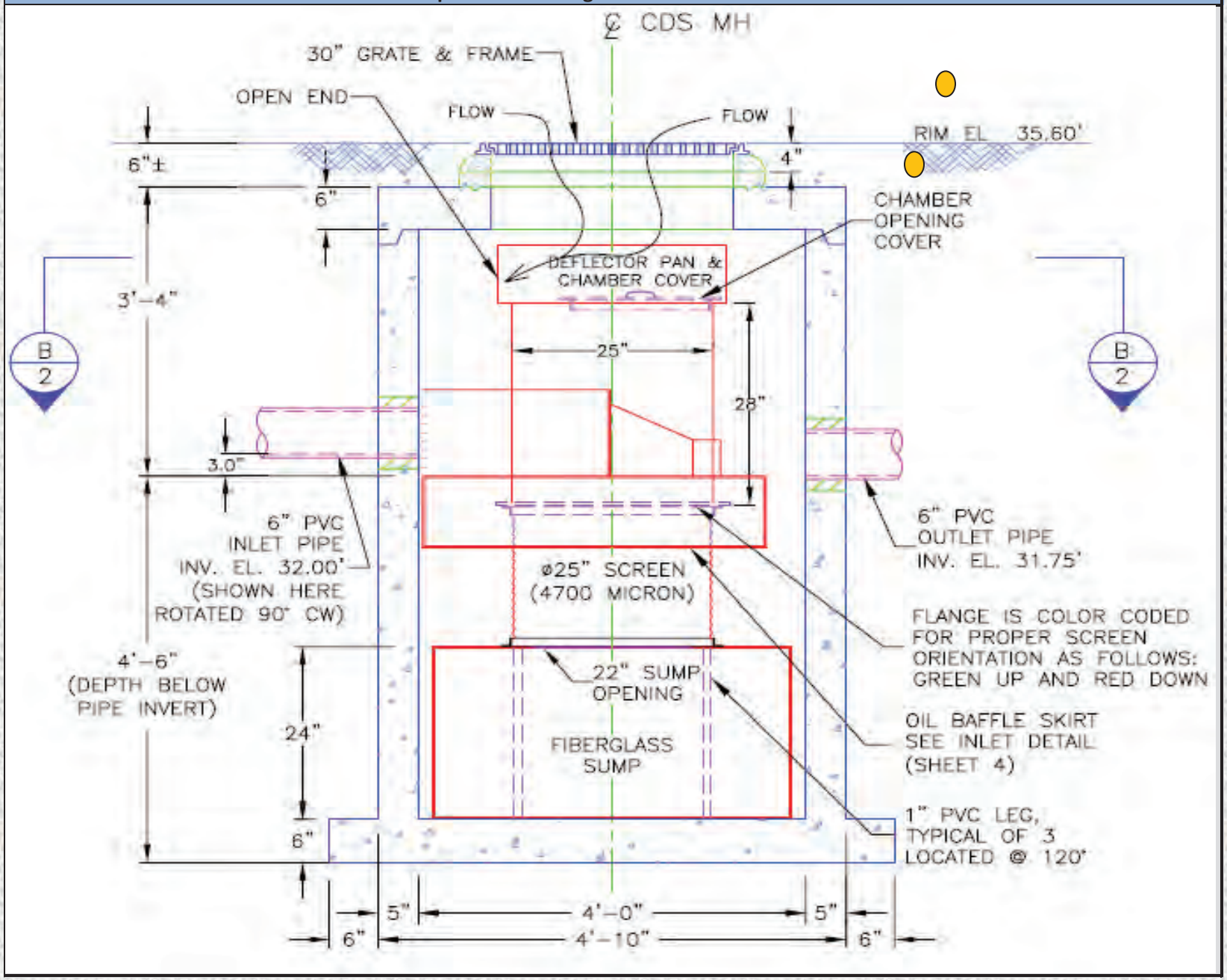
Floatables and sediments are removed from the stormwater treatment structure by accessing a manhole above the structure. Sediment and debris collected in the unit can be removed via a vactor truck.

Locator Map

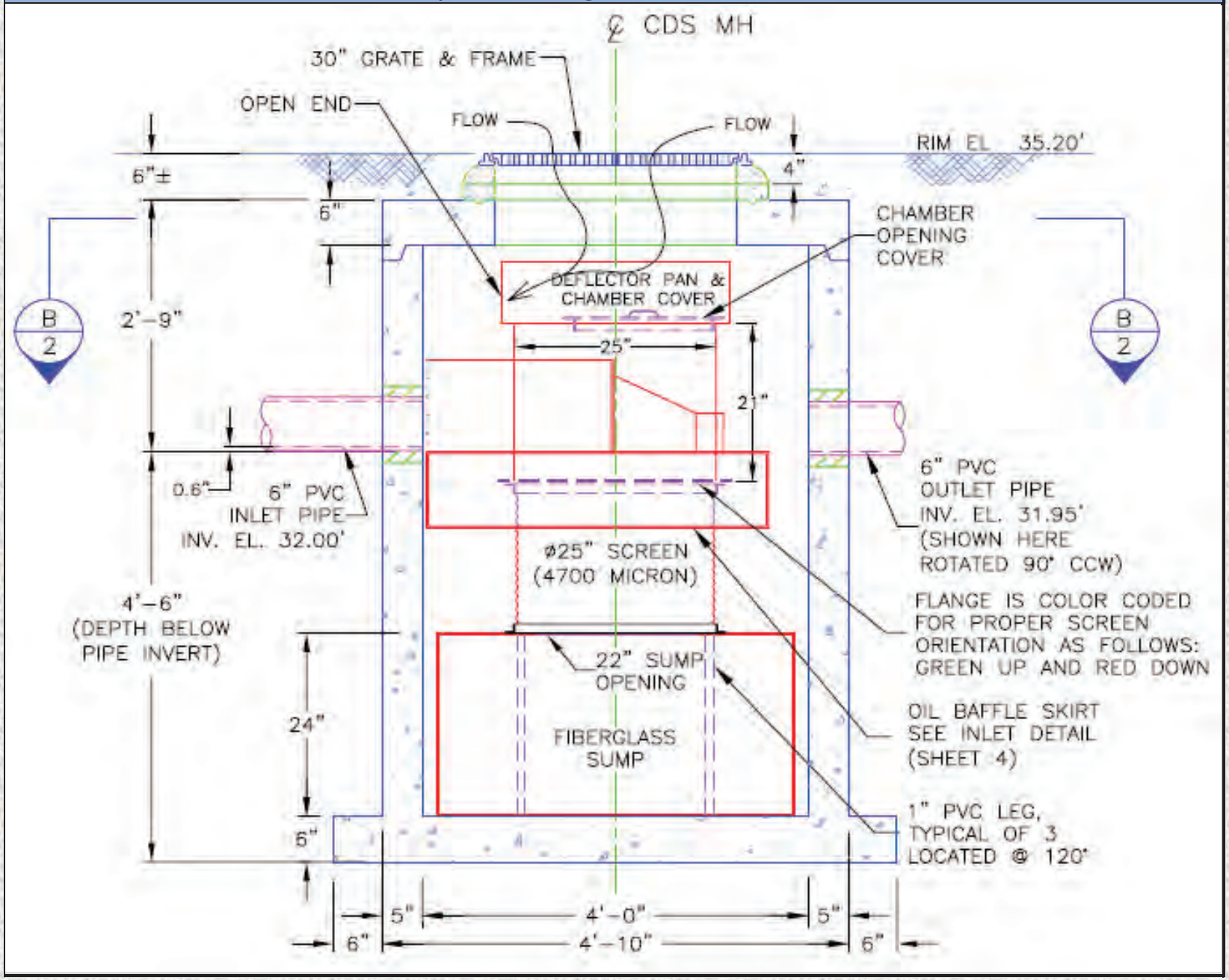
Detail

See Next Page

Franklin Square DPW Garage CDS North Unit - Cross Section



Franklin Square DPW Garage CDS South Unit - Cross Section



Massapequa Preserve Stormwater Treatment Device - Site 1

Location

Physical Location	N/E corner of Jerusalem Avenue and Parkside Boulevard, North Massapequa
Municipality	Town of Oyster Bay
Latitude/Longitude	
Section/Block/Lot	Public ROW

Construction

Two Vortechs Stormwater Treatment Units (Vortech Model 11000) are located on the E/s of Parkside Blvd. and abut the Massapequa Preserve. The Units are located on either side of two diversion chambers. Both Units, as well as the western diversion chamber collect sediment and floatables. Both Units and diversion chambers include manholes for maintenance access.

Access

The Units are accessible from Parkside Boulevard.

Locator Map

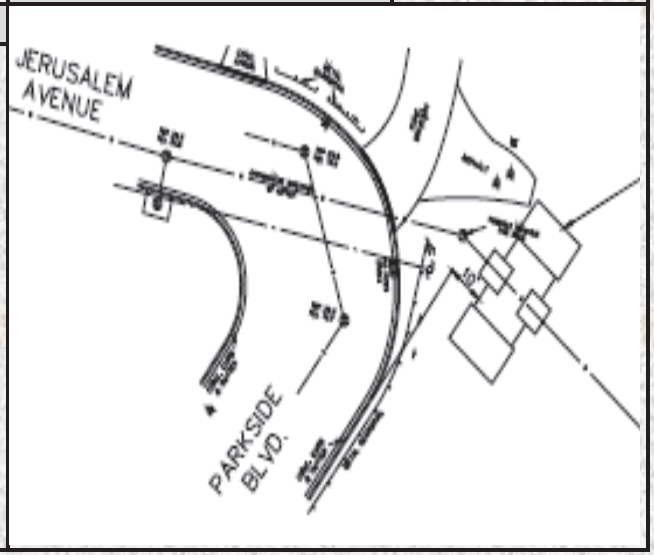
Maintenance Frequency

Sediment and debris collected in the Unit is to be removed on a yearly basis.

Detail

Methods

Floatables and sediments are removed by accessing a manhole above each treatment unit and the westernmost diversion chamber. Sediment and debris collected in the unit can be removed via a vactor truck.



Massapequa Preserve Stormwater Treatment Device - Site 2

Location

Physical Location	E/s Parkside Boulevard at Massachusetts Avenue, North Massapequa
Municipality	Town of Oyster Bay
Latitude/Longitude	
Section/Block/Lot	48/601/1

Construction

Two Vortechs Stormwater Treatment Units (Vortech Model 16000) are located on the E/s of Parkside Blvd. and abut the Massapequa Preserve. The Units are located on either side of two diversion chambers. Both Units, as well as the western diversion chamber collect sediment and floatables. Both Units and diversion chambers include manholes for maintenance access.

Access

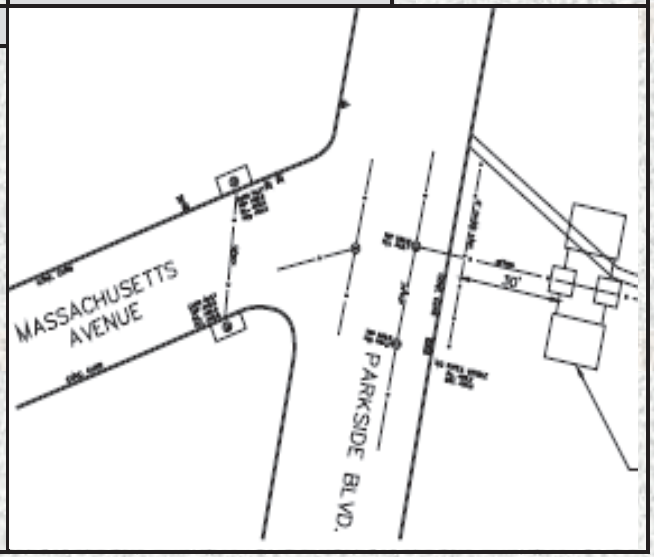
The Units are accessible from Parkside Boulevard.

Locator Map

Maintenance Frequency

Sediment and debris collected in the Unit is to be removed on a yearly basis.

Detail



Methods

Floatables and sediments are removed by accessing a manhole above each treatment unit and the westernmost diversion chamber. Sediment and debris collected in the unit can be removed via a vactor truck.

Massapequa Preserve Stormwater Treatment Device - Site 3

Location

Physical Location	E/s Parkside Boulevard at Pittsburgh Avenue, North Massapequa
Municipality	Town of Oyster Bay
Latitude/Longitude	
Section/Block/Lot	48/601/1

Construction

Two Vortechs Stormwater Treatment Units (Vortech Model 11000) are located on the E/s of Parkside Blvd. and abut the Massapequa Preserve. The Units are located on either side of two diversion chambers. Both Units, as well as the western diversion chamber collect sediment and floatables. Both Units and diversion chambers include manholes for maintenance access.

Access

The Units are accessible from Parkside Boulevard.

Locator Map

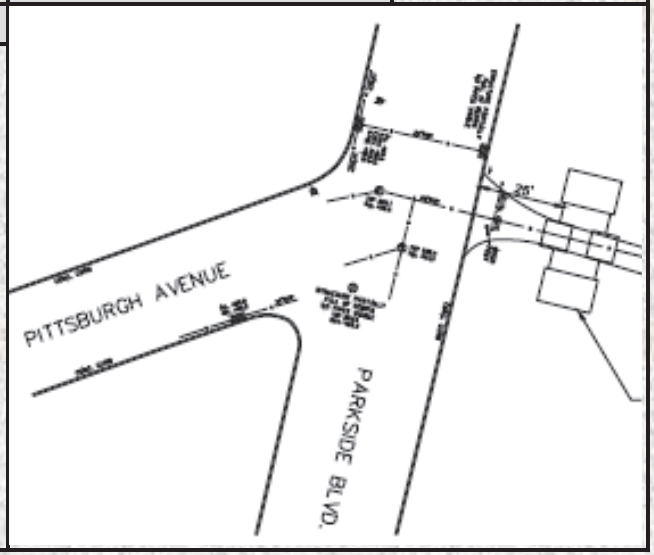
Maintenance Frequency

Sediment and debris collected in the Unit is to be removed on a yearly basis.

Detail

Methods

Floatables and sediments are removed by accessing a manhole above each treatment unit and the westernmost diversion chamber. Sediment and debris collected in the unit can be removed via a vactor truck.



Massapequa Preserve Stormwater Treatment Device - Site 4

Location

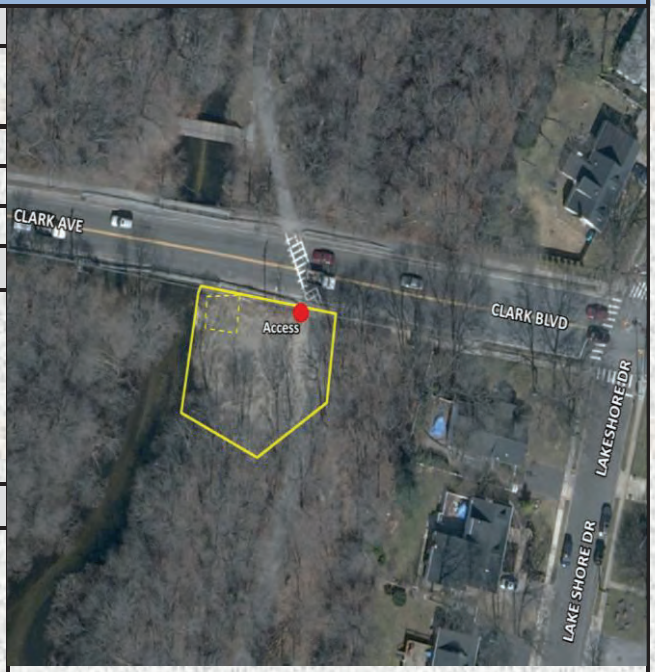
Physical Location	S/s Clark Avenue, 200' w/o Lakeshore Drive, Massapequa
Municipality	Town of Oyster Bay
Latitude/Longitude	
Section/Block/Lot	Public ROW

Construction

One Vortechs Stormwater Treatment Unit (Vortech Model 16000) is located on the S/s of Clark Avenue within the Massapequa Preserve. The Unit is located on the S/s of two diversion chambers. The Unit, as well as the northern diversion chamber collect sediment and floatables before the stormwater is released into the stream at a concrete headwall. Both the Unit and diversion chambers include manholes for maintenance access.

Access

The Units are accessible from a curb-cut on Clark Avenue.



Locator Map

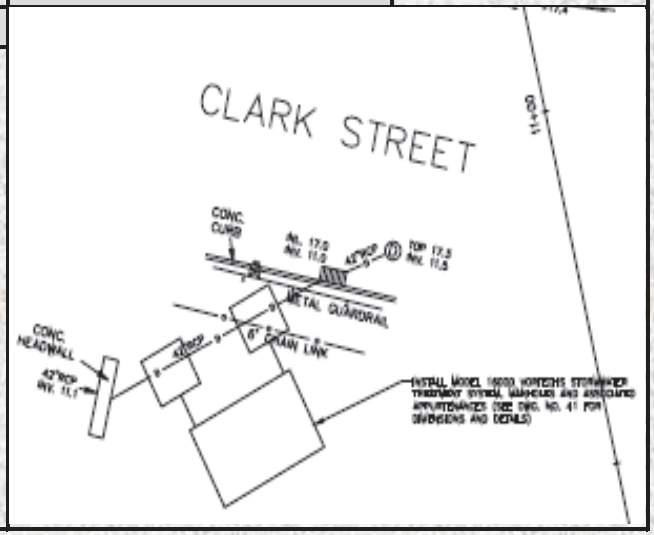
Maintenance Frequency

Sediment and debris collected in the Unit is to be removed on a yearly basis.

Detail

Methods

Floatables and sediments are removed by accessing a manhole above the treatment unit and the southernmost diversion chamber. Sediment and debris collected in the unit can be removed via a vactor truck.



Massapequa Preserve Stormwater Treatment Device - Site 5

Location

Physical Location	E/s Ocean Avenue at Prospect Place, Massapequa
Municipality	Town of Oyster Bay
Latitude/Longitude	
Section/Block/Lot	57/J/30

Construction

One Vortechs Stormwater Treatment Unit (Vortech Model 11000) is located on the E/s of Ocean Avenue within the Massapequa Preserve. The Unit is located on the S/s of two diversion chambers. The Unit, as well as the western diversion chamber collect sediment and floatables before the stormwater is released into the stream at a concrete headwall directly to the east. Both the Unit and diversion chambers include manholes for maintenance access.

Access

The Units are accessible from Ocean Avenue.

Maintenance Frequency

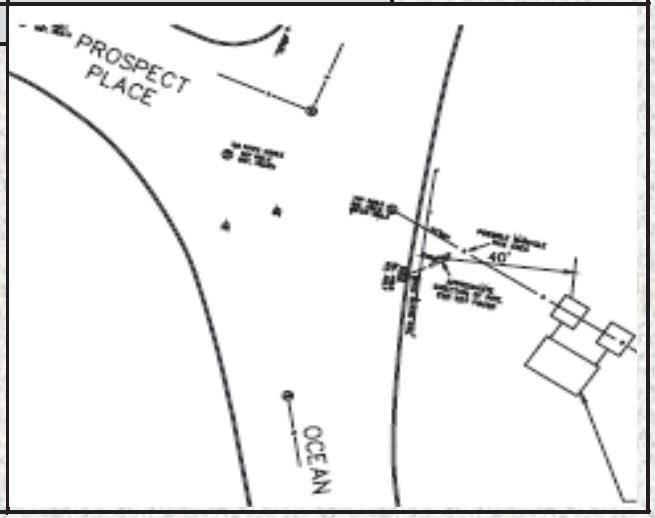
Sediment and debris collected in the Unit is to be removed on a yearly basis.

Methods

Floatables and sediments are removed by accessing a manhole above the treatment unit and the westernmost diversion chamber. Sediment and debris collected in the unit can be removed via a vactor truck.

Locator Map

Detail



Glen Cover Marina Stormceptor Unit

Location

Physical Location	N/s Shore Road, Glen Cove, NY 11542
Municipality	City of Glen Cove
Latitude/Longitude	40° 51' 21.69", -73° 38' 29.46"
Section/Block/Lot	21/A/651

Construction

Concrete sediment chamber w/ manhole.

Access

Access is on the north side of Shore Road in a concrete structure adjacent to the existing sidewalk. pathway circling the pond. Cleaning out the stormceptor unit is by way of a manhole.

Maintenance Frequency

Two times per year; or after a severe rainfall event.

Methods

The stormceptor unit traps sediment from incoming storm water pipes, preventing sediment transport into Glen Cove Creek. Sediment collected in the unit must be periodically removed via a vactor truck.

Locator Map

Photo

Sea Cliff Stormceptor Unit

Location

Physical Location	Intersection of The Boulevard and Cliff Way (S/s)
Municipality	Village of Sea Cliff
Latitude/Longitude	40.849645, -73.652177
Section/Block/Lot	within ROW

Construction

Concrete sediment chamber w/ manhole. Hydro Dynamic Separator.

Access

Access is on the south side of the intersection of The Boulevard and Cliff Way (outside of curve)Shore Road in a concrete structure adjacent to the curb and road shoulder.
Cleaning out the stormceptor unit is by way of a manhole.

Locator Map

Maintenance Frequency

Once per year; or after a severe rainfall event.

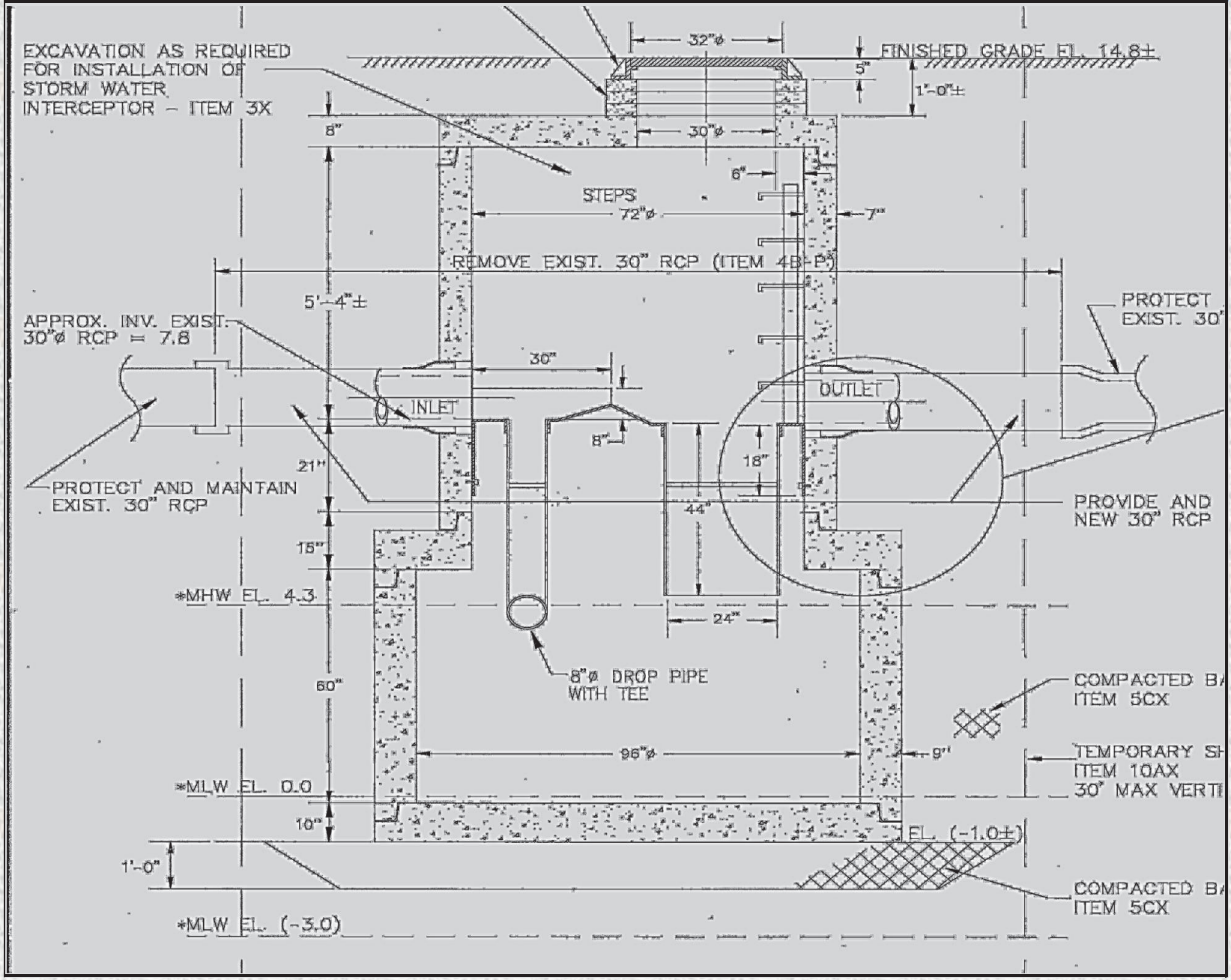
Detail

Methods

The stormceptor unit traps sediment from incoming storm water pipes, preventing the sediment transport into Hempstead Harbor. Sediment collected in the unit must be periodically removed via a vactor truck.

See Next Page

Sea Cliff Stormceptor - Detail



Twin Ponds Stormwater Treatment Device

Location

Physical Location	S/s Stonytown Road, Plandome
Municipality	Village of Plandome
Latitude/Longitude	40° 48' 31.44", -73° 41' 52.79"
Section/Block/Lot	3/F01/412, 424

Construction

Diversion pipe to Concrete Swirl Chamber (Terra Kleen Unit) with cleanout manhole. Stormwater is diverted from an open stream to the Swirl Chamber through a diversion device. Stormwater is then piped back into the open channel before entering South Pond to the west.

Access

The stormwater chamber can be accessed from a pathway leading from the Village of Plandome Maintenance Yard/Facility. The facilty is accessed from the S/s of Stonytown Road via a paved parking lot (see photo on lower right) and driveway.

Locator Map

Maintenance Frequency

Sediment and debris in swirl chamber to be removed on a yearly basis.

Photo

Methods

Floatables and sediments are removed from the stormwater treatment structure by accessing a manhole above the structure. Sediment and debris collected in the unit can be removed via a vactor truck.

Trash Rack at Stannards Brook

Location

Physical Location	N/E corner of Carlton Avenue and Charles Street, Port Washington
Municipality	Town of North Hempstead
Latitude/Longitude	
Section/Block/Lot	5/133/411

Construction

Metal grate structure at transition from open channel to culvert. Stormwater and stream flow passes through metal grate as floatables and trash are collected on top of the structure.

Access

The area can be accessed from an unpaved path along Charles Street directly across from Allison Street.

Locator Map

Maintenance Frequency

Once per week due to the high occurrence of littering immediately upstream.

Photo

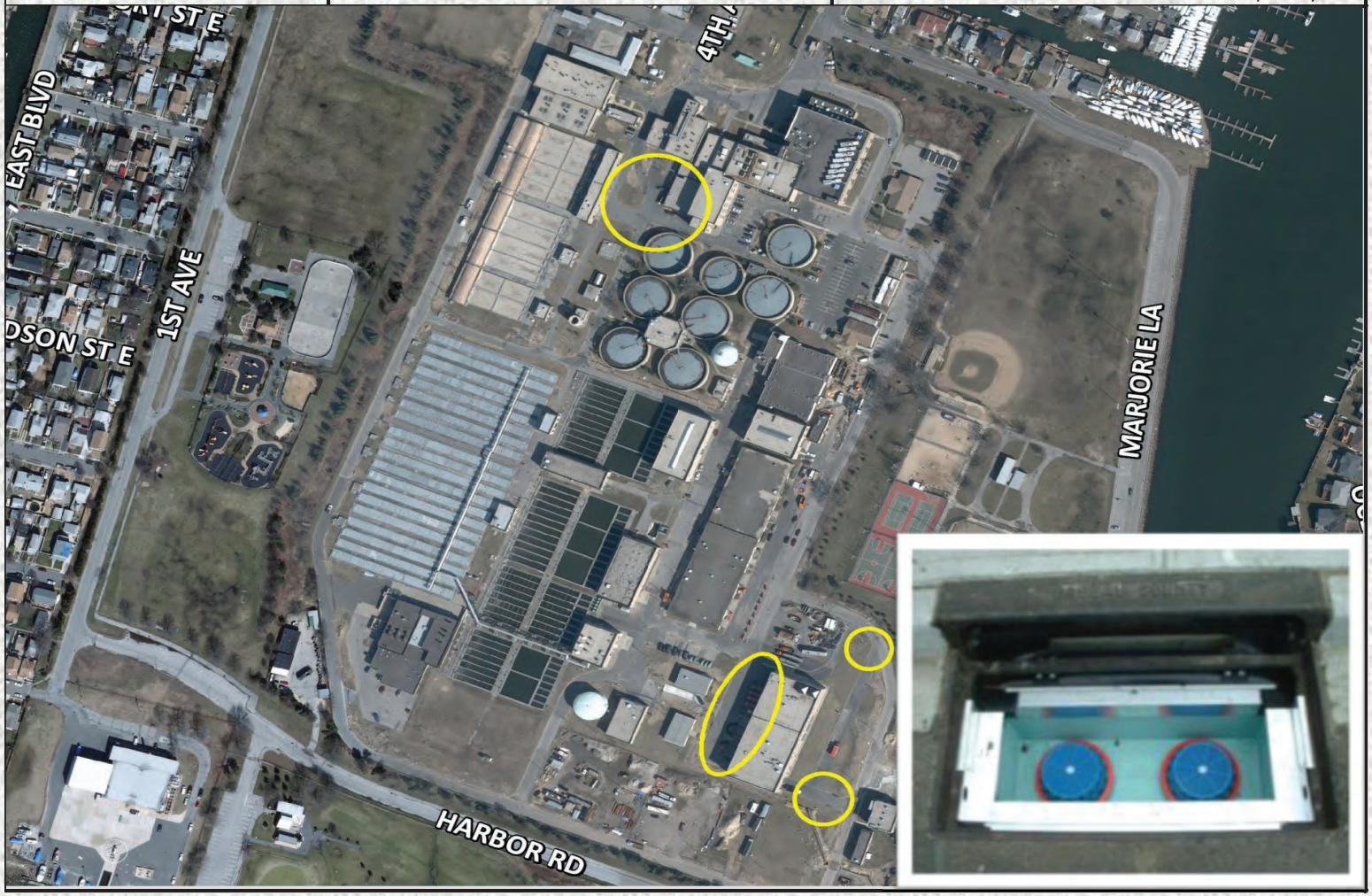
Methods

This area must be examined at least once per week to ensure that stream flow is passing through the culvert unimpeded. Recommended maintenance methods include utilizing a lightning loader, or Vactor truck to remove floatables and other debris.

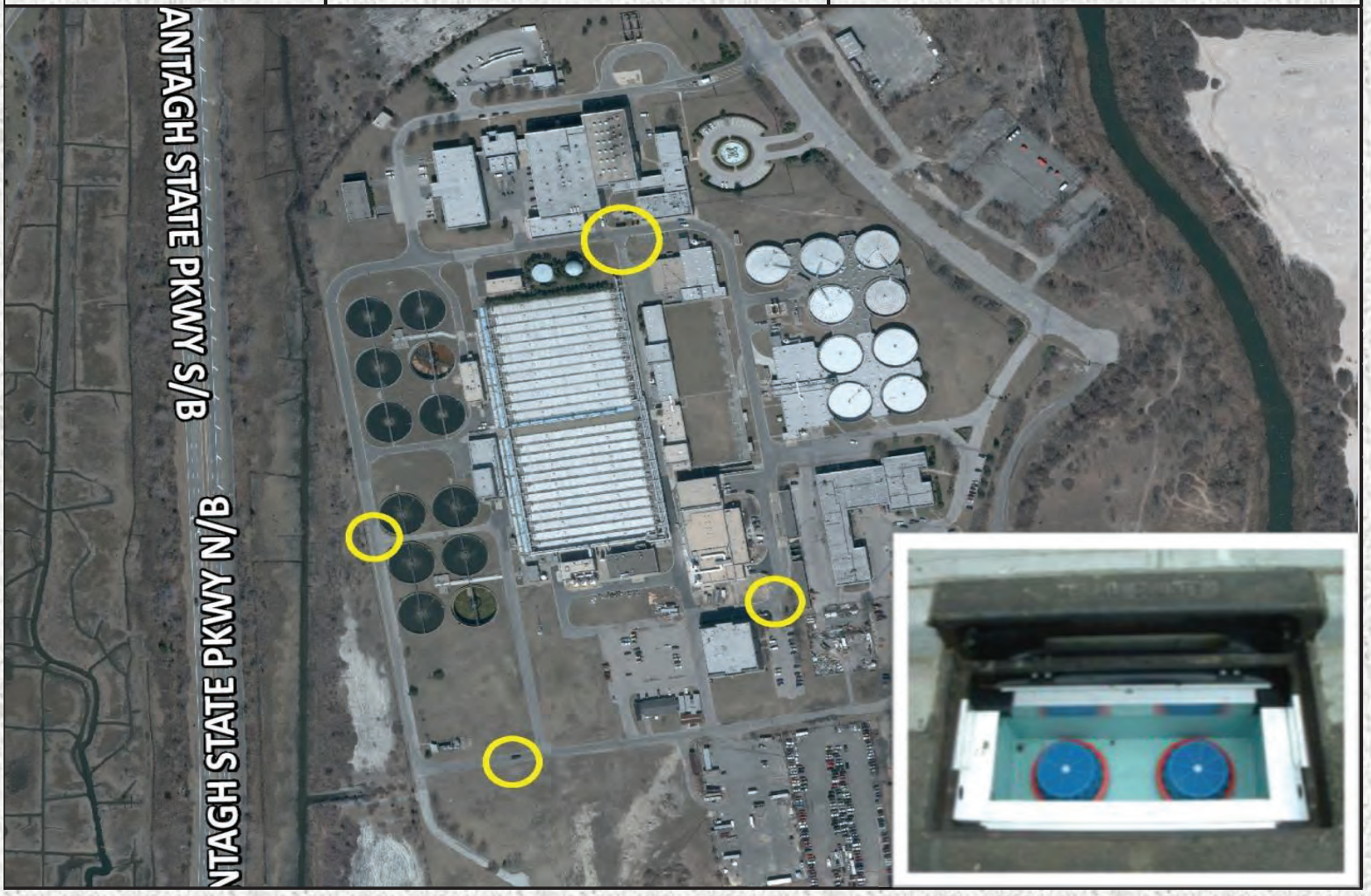
Catch Basin Inserts		
Location		**Maintenance**
Physical Location	Atlantic Avenue, Baldwin	Catch basin inserts should be cleaned at least one time per year. It is also recommended that cleaning be done before basins are half full to maintain the sump capacity. Structures that accumulate more debris may need more frequent cleaning. Fall is a good time to clean catch basins after leaves have fallen and before the first snowfall. Another good time to clean basins is in the spring to remove the buildup of leaves, dirt, and other debris that accumulated during the winter months. Areas that contribute to higher pollutant loadings or discharge to surface waters should be cleaned more frequently.
Municipality	Town of Hempstead	
Latitude/Longitude		
Section/Block/Lot		

Legend: Catch Basins | Waterbodies | Municipal Park / Open Space

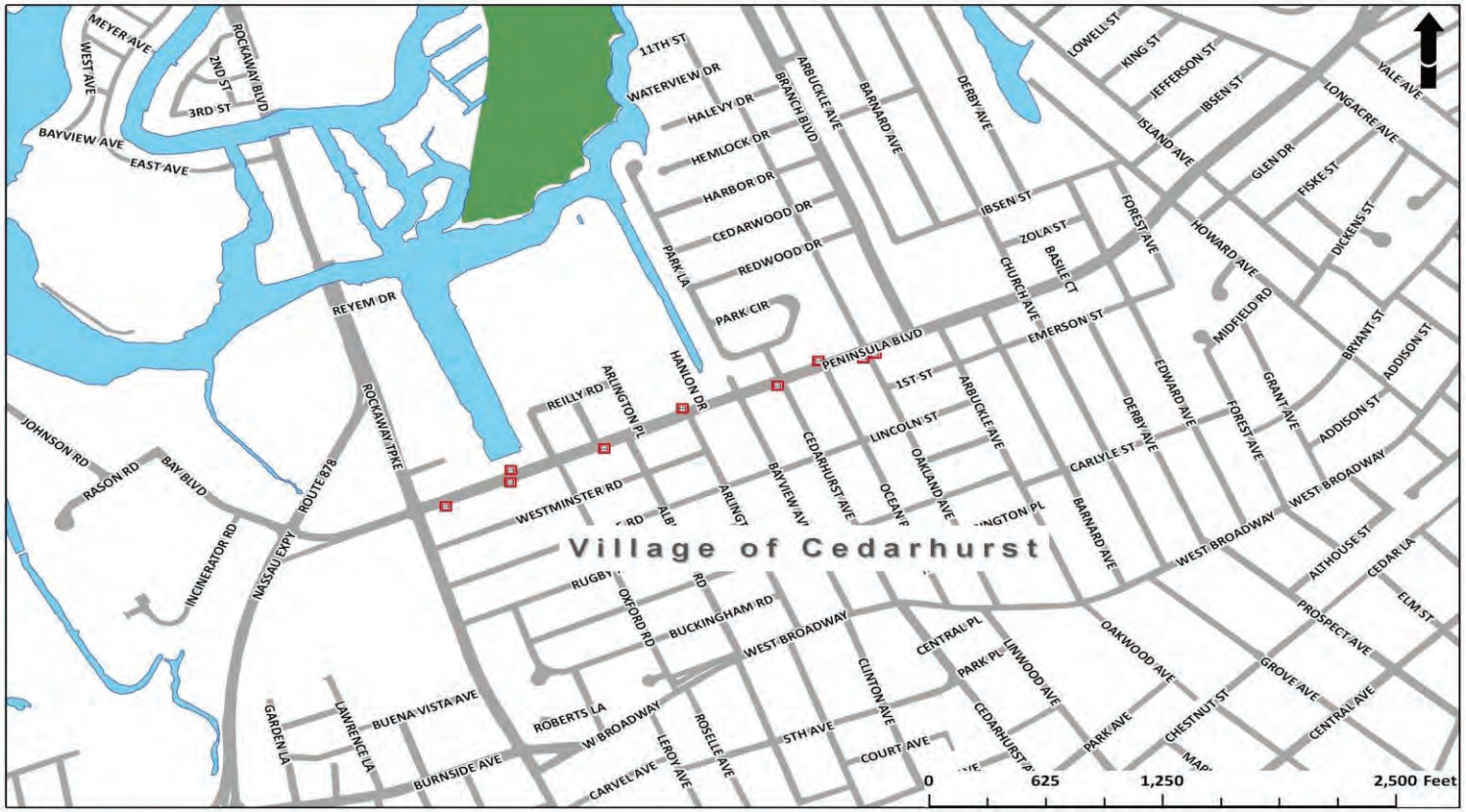
Bay Park Sewage Treatment Plant - Catch Basin Inserts		
Location		**Maintenance**
Physical Location	Bay Park STP, Bay Park (Various locations along service road - see map)	Catch basin inserts should be cleaned at least one time per year. It is also recommended that cleaning be done before basins are half full to maintain the sump capacity. Structures that accumulate more debris may need more frequent cleaning. Fall is a good time to clean catch basins after leaves have fallen and before the first snowfall. Another good time to clean basins is in the spring to remove the buildup of leaves, dirt, and other debris that accumulated during the winter months. Areas that contribute to higher pollutant loadings or discharge to surface waters should be cleaned more frequently.
Municipality	Town of Hempstead	
Latitude/Longitude		
Section/Block/Lot	42/A/50	



Cedar Creek Water Pollution Control Plant - Catch Basin Inserts		
Location		**Maintenance**
Physical Location	Cedar Creek WPCP, Wantagh (Various locations along service road - see map)	Catch basin inserts should be cleaned at least one time per year. It is also recommended that cleaning be done before basins are half full to maintain the sump capacity. Structures that accumulate more debris may need more frequent cleaning. Fall is a good time to clean catch basins after leaves have fallen and before the first snowfall. Another good time to clean basins is in the spring to remove the buildup of leaves, dirt, and other debris that accumulated during the winter months. Areas that contribute to higher pollutant loadings or discharge to surface waters should be cleaned more frequently.
Municipality	Town of Hempstead	
Latitude/Longitude		
Section/Block/Lot	63/261/765	



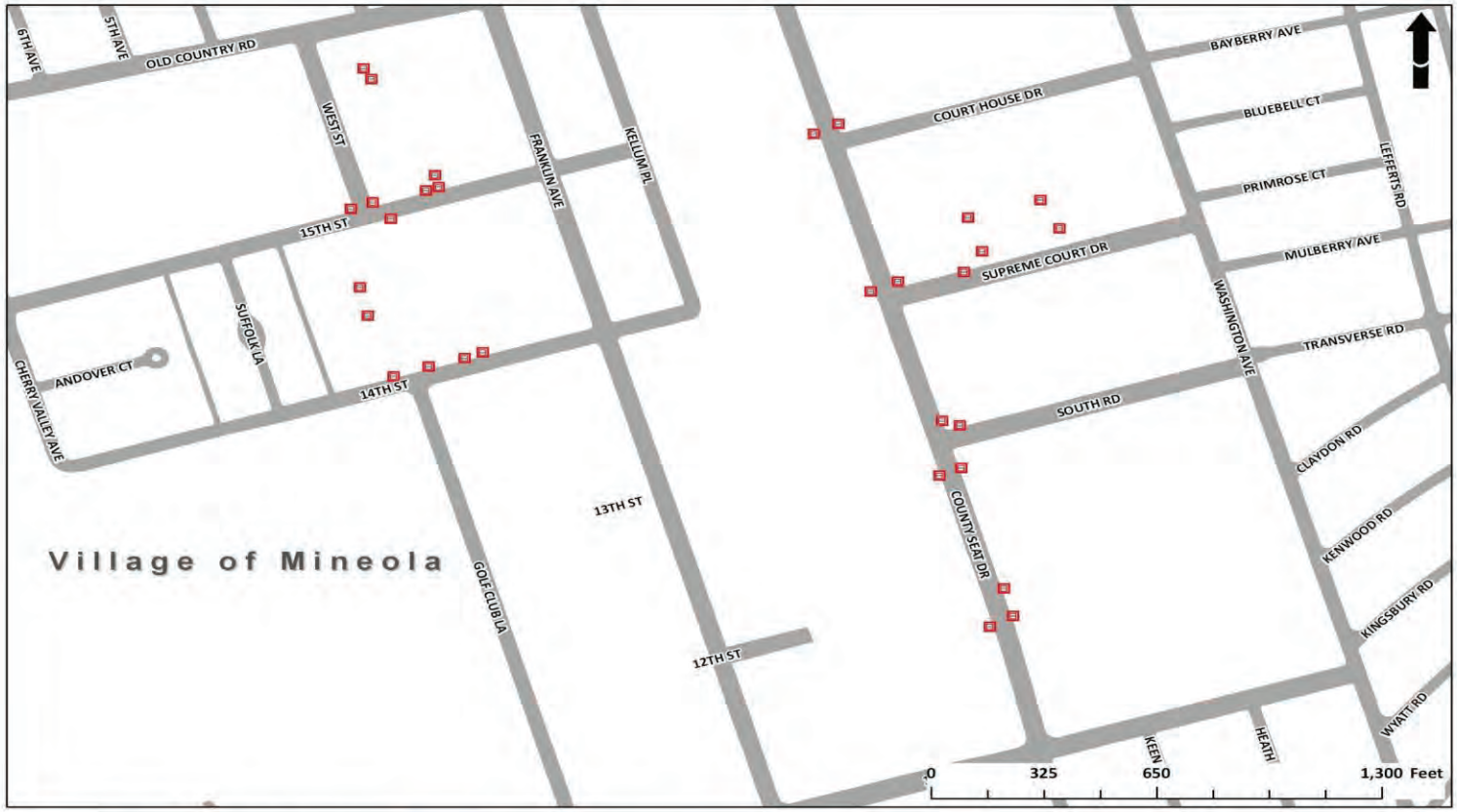
Catch Basin Inserts		
Location		**Maintenance**
Physical Location	Peninsula Blvd., Cedarhurst	Catch basin inserts should be cleaned at least one time per year. It is also recommended that cleaning be done before basins are half full to maintain the sump capacity. Structures that accumulate more debris may need more frequent cleaning. Fall is a good time to clean catch basins after leaves have fallen and before the first snowfall. Another good time to clean basins is in the spring to remove the buildup of leaves, dirt, and other debris that accumulated during the winter months. Areas that contribute to higher pollutant loadings or discharge to surface waters should be cleaned more frequently.
Municipality	Village of Cedarhurst	
Latitude/Longitude		
Section/Block/Lot		



Catch Basin Inserts		
Location		**Maintenance**
Physical Location	Dutch Broadway / Franklin Ave., Elmont	Catch basin inserts should be cleaned at least one time per year. It is also recommended that cleaning be done before basins are half full to maintain the sump capacity. Structures that accumulate more debris may need more frequent cleaning. Fall is a good time to clean catch basins after leaves have fallen and before the first snowfall. Another good time to clean basins is in the spring to remove the buildup of leaves, dirt, and other debris that accumulated during the winter months. Areas that contribute to higher pollutant loadings or discharge to surface waters should be cleaned more frequently.
Municipality	Town of Hempstead	
Latitude/Longitude		
Section/Block/Lot		

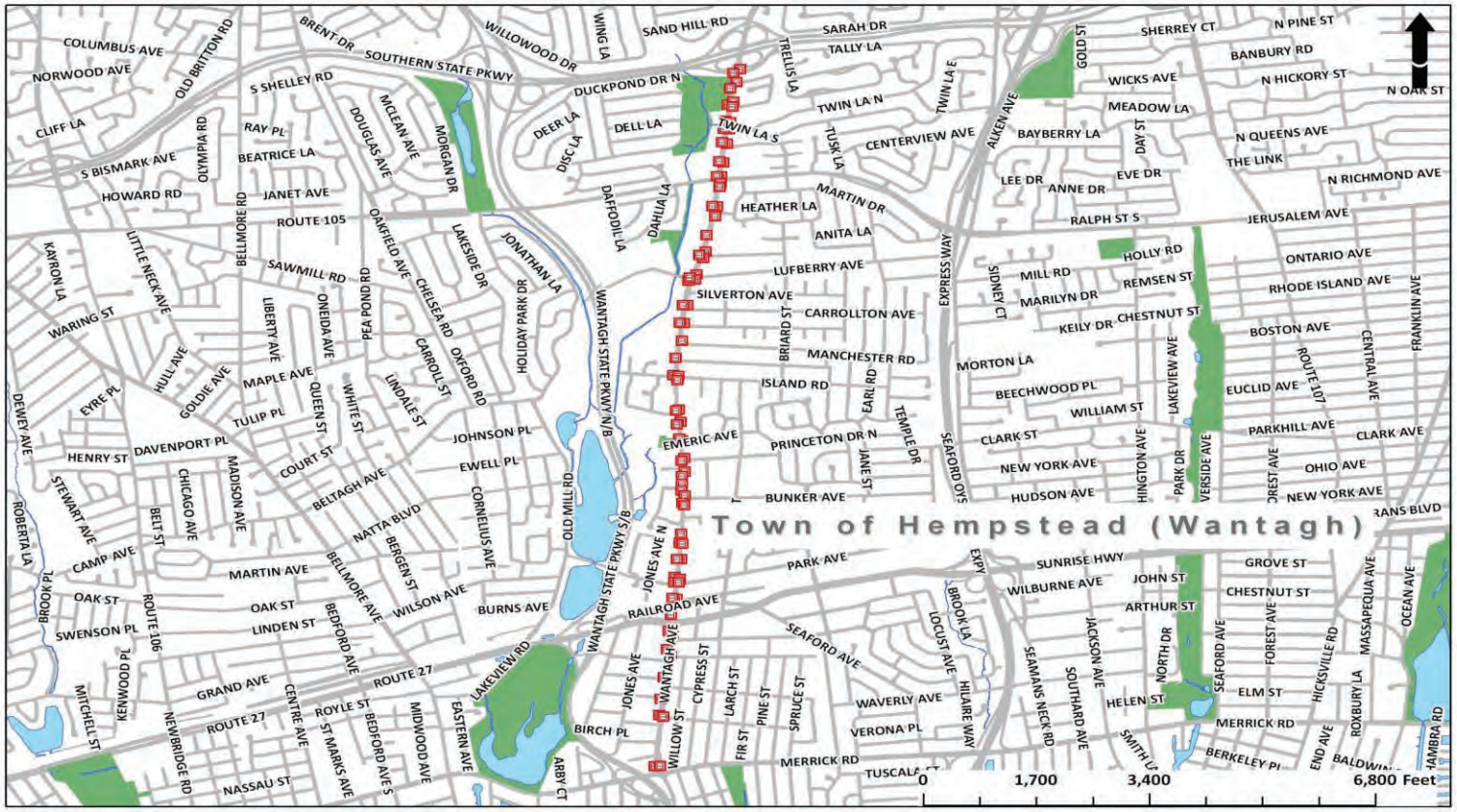
Catch Basin Inserts		
Location		Maintenance
Physical Location	Merrick Avenue / Bellmore Ave., Merrick	Catch basin inserts should be cleaned at least one time per year. It is also recommended that cleaning be done before basins are half full to maintain the sump capacity. Structures that accumulate more debris may need more frequent cleaning. Fall is a good time to clean catch basins after leaves have fallen and before the first snowfall. Another good time to clean basins is in the spring to remove the buildup of leaves, dirt, and other debris that accumulated during the winter months. Areas that contribute to higher pollutant loadings or discharge to surface waters should be cleaned more frequently.
Municipality	Town of Hempstead	
Latitude/Longitude		
Section/Block/Lot		

Catch Basin Inserts		
Location		**Maintenance**
Physical Location	14th Street, 15th Street, County Seat Drive, Supreme Court Drive	Catch basin inserts should be cleaned at least one time per year. It is also recommended that cleaning be done before basins are half full to maintain the sump capacity. Structures that accumulate more debris may need more frequent cleaning. Fall is a good time to clean catch basins after leaves have fallen and before the first snowfall. Another good time to clean basins is in the spring to remove the buildup of leaves, dirt, and other debris that accumulated during the winter months. Areas that contribute to higher pollutant loadings or discharge to surface waters should be cleaned more frequently.
Municipality	Village of Mineola	
Latitude/Longitude		
Section/Block/Lot		



Legend: Catch Basins | Waterbodies | Municipal Park / Open Space

Catch Basin Inserts		
Location		**Maintenance**
Physical Location	Wantagh Ave., Wantagh	Catch basin inserts should be cleaned at least one time per year. It is also recommended that cleaning be done before basins are half full to maintain the sump capacity. Structures that accumulate more debris may need more frequent cleaning. Fall is a good time to clean catch basins after leaves have fallen and before the first snowfall. Another good time to clean basins is in the spring to remove the buildup of leaves, dirt, and other debris that accumulated during the winter months. Areas that contribute to higher pollutant loadings or discharge to surface waters should be cleaned more frequently.
Municipality	Town of Hempstead	
Latitude/Longitude		
Section/Block/Lot		



Catch Basin Inserts		
Location		**Maintenance**
Physical Location	Hempstead Avenue between Nassau Boulevard and Woodfield Raod	Catch basin inserts should be cleaned at least one time per year. It is also recommended that cleaning be done before basins are half full to maintain the sump capacity. Structures that accumulate more debris may need more frequent cleaning. Fall is a good time to clean catch basins after leaves have fallen and before the first snowfall. Another good time to clean basins is in the spring to remove the buildup of leaves, dirt, and other debris that accumulated during the winter months. Areas that contribute to higher pollutant loadings or discharge to surface waters should be cleaned more frequently.
Municipality	West Hempstead, Town of Hempstead	
Latitude/Longitude		
Section/Block/Lot		

Appendix A:

Bay Park Sewage Treatment Plant & Cedar Creek Water Pollution Control Plant

Stormwater Management Systems Improvements – Maintenance Manual

NASSAU COUNTY
SEWAGE TREATMENT PLANTS

STORMWATER MANAGEMENT SYSTEMS IMPROVEMENTS

CONTRACT NO. S31150C/G

MAINTENANCE MANUAL

PREPARED FOR

NASSAU COUNTY
DEPARTMENT PUBLIC WORKS

PREPARED BY

CAMERON ENGINEERING & ASSOCIATES, LLP

APRIL 2012

TABLE OF CONTENTS

LIST OF FIGURES

APPENDICES

1. Introduction

Nassau County has taken the lead for the management of stormwater at a number of municipal locations and at a number of its Department of Public Works facilities. This Maintenance manual addresses the newly constructed stormwater treatment/reduction techniques at its two (2) wastewater treatment plants; the Bay Park Sewage Treatment Plant (STP) and the Cedar Creek STP.

The Maintenance instructions for the following treatments are included:

- Bioretention Area
- Catch Basin Insert
- Drainage Swale/Open-Channel (includes: Swale Guard)
- Hydrodynamic Separator
- Modular Wetland
- Porous Asphalt
- Rain Garden
- Stormwater Filter
- Stormwater Planter
- Tree Box

2. Bioretention Area

- ***Location:*** Bay Park STP (East Rockaway, NY) - Quantity: (3)

  Cedar Creek STP (Wantagh, NY) - Quantity: (1)

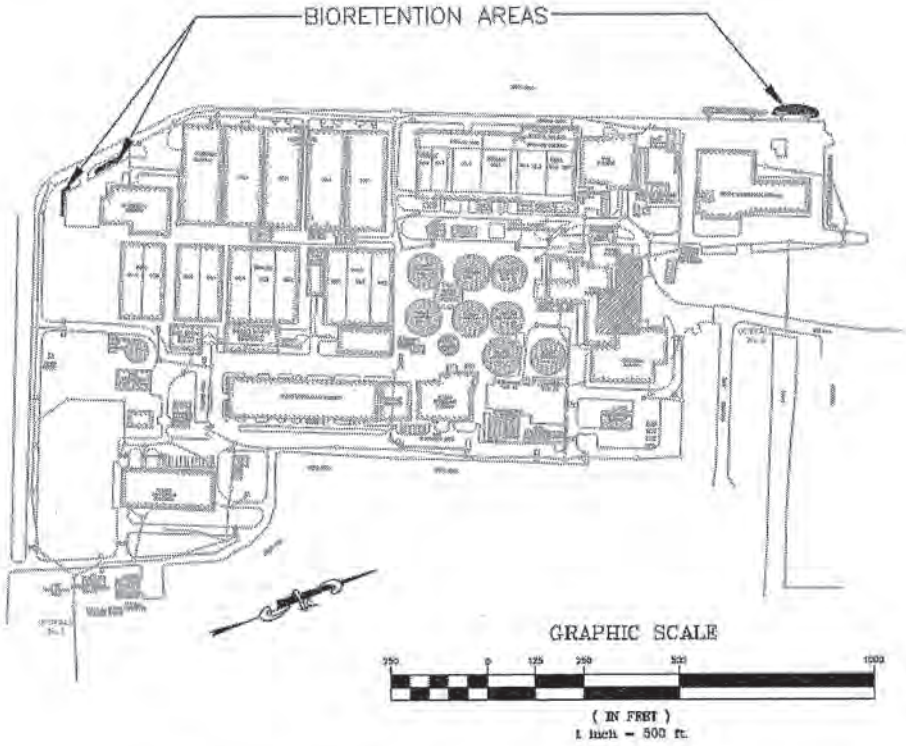


Figure 2-1 – Bay Park WPCP Bioretention Area Site Plan

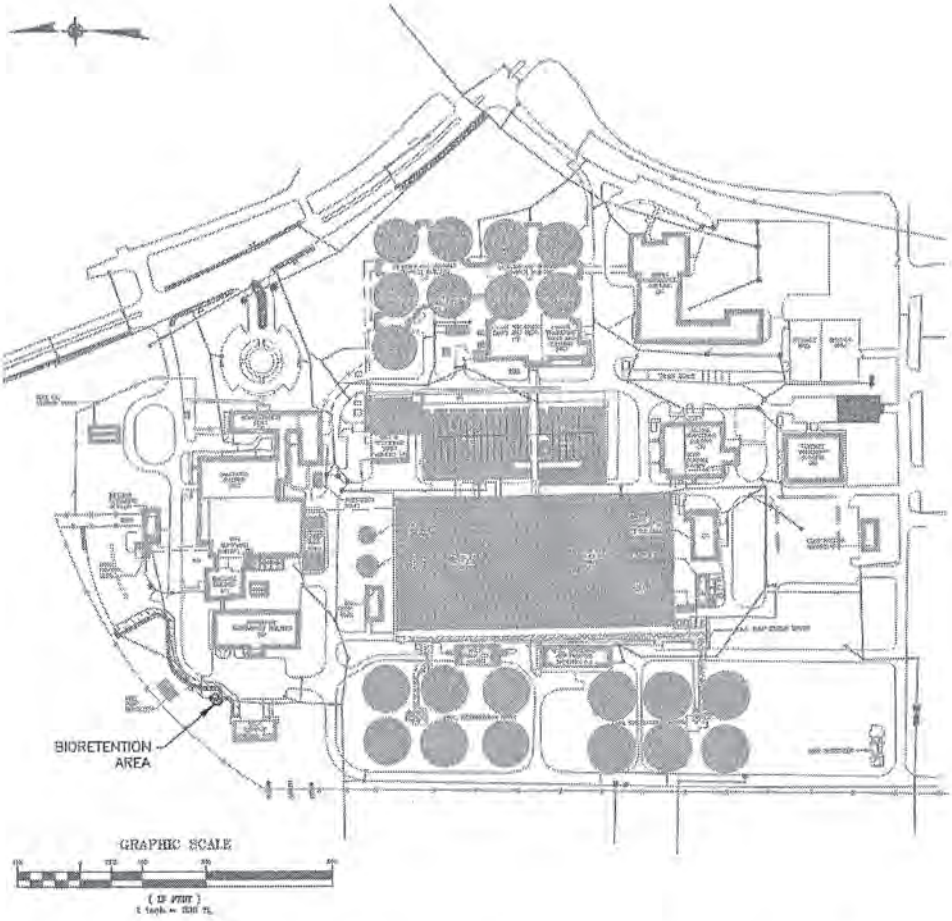


Figure 2-2 – Cedar Creek WPCP Bioretention Area Site Plan

- ***Inspection Checklist***: See Appendix A
- ***Maintenance:***

1. **Grasses** shall be **cut** once per year to a height **not less than 6 inches** at the end of the dormant season, but not later than March 15. Cuttings shall be removed. Replace any dead or dying plants during the growing season, no later than October 1 and no earlier than April 15.
2. **Plants** shall be maintained by **periodically removing dead and dying vegetation**. Plants shall be pruned once yearly to prevent crowding of adjacent plants.

- ***Monthly Inspections:***

    1. **Silt/sediment shall be removed** from the plantings/filter bed when accumulation **exceeds one inch**. The removed sediments shall be disposed in an acceptable manner (i.e. landfill).
    2. When **ponding** occurs for more than **36 hours** after precipitation has stopped, **outlet devices** shall be cleaned/repaired. Trash and debris shall be removed as necessary.
    3. When **ponding** occurs for more than **48 hours** after precipitation has stopped, the top few inches of discolored **material shall be removed** and shall be replaced with fresh material (i.e. mulch and/or topsoil).

- ***Annual Inspections:***

    1. Areas devoid of mulch shall be re-mulched on an annual basis.
    2. Dead or diseased plant material shall be replaced.

3. Catch Basin Inserts

- ***Location:*** Bay Park STP (East Rockaway, NY) - Quantity (14)

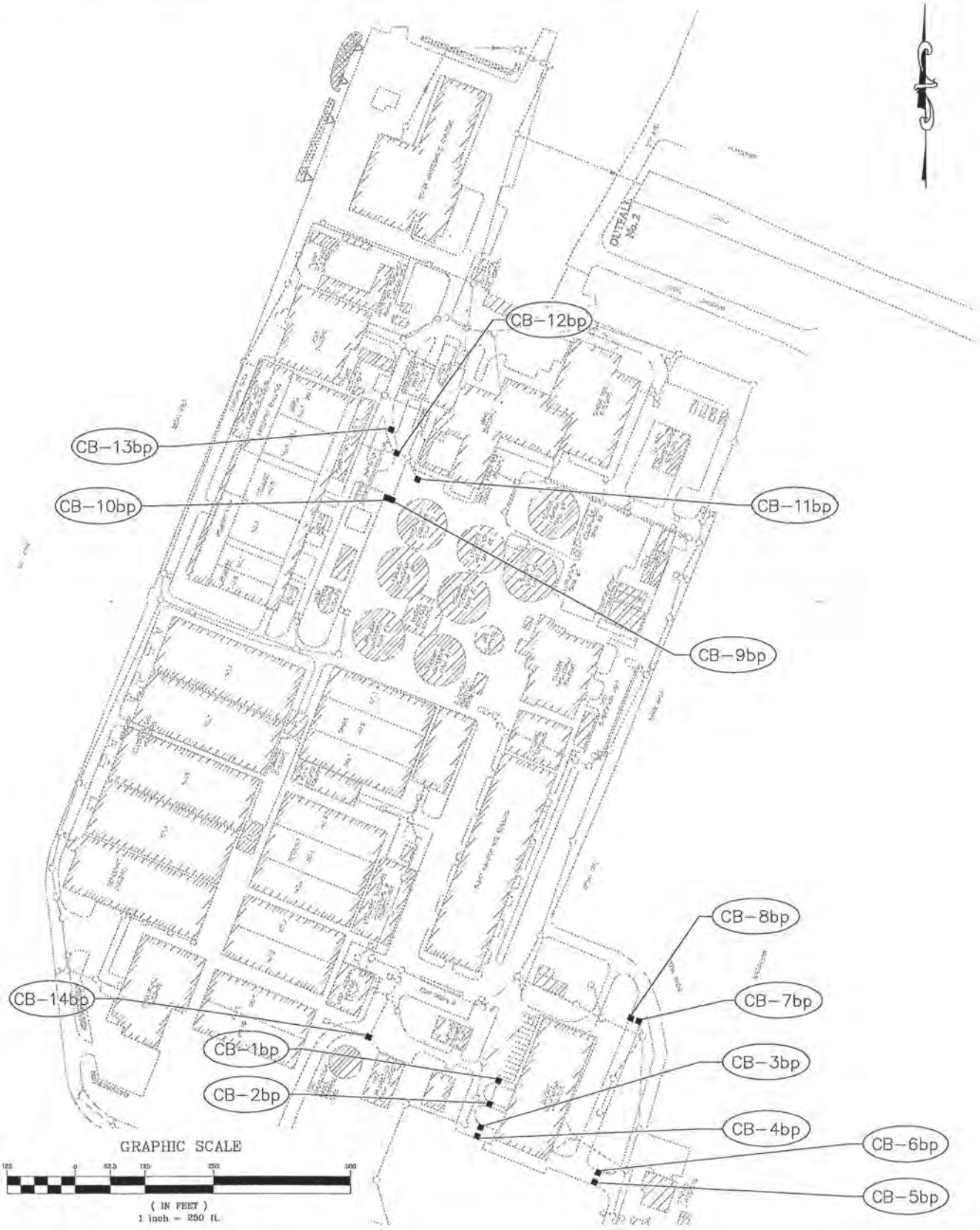
  Cedar Creek STP (Wantagh, NY) - Quantity (17)

  (Site Plans on following sheets)

- ***Manufacturer's Information***: See Appendix B

- ***Three Inspections/Clean-outs per Year:***

  1. October/November
  2. March
  3. May – Filter Change (Fabco Industries, Part No. 9718-1)



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New York, NY 10016
PH: (212) 324-4000 FX: (646) 216-2001

Figure 3-1
Bay Park WPCP
Catch Basin Insert Site Plan

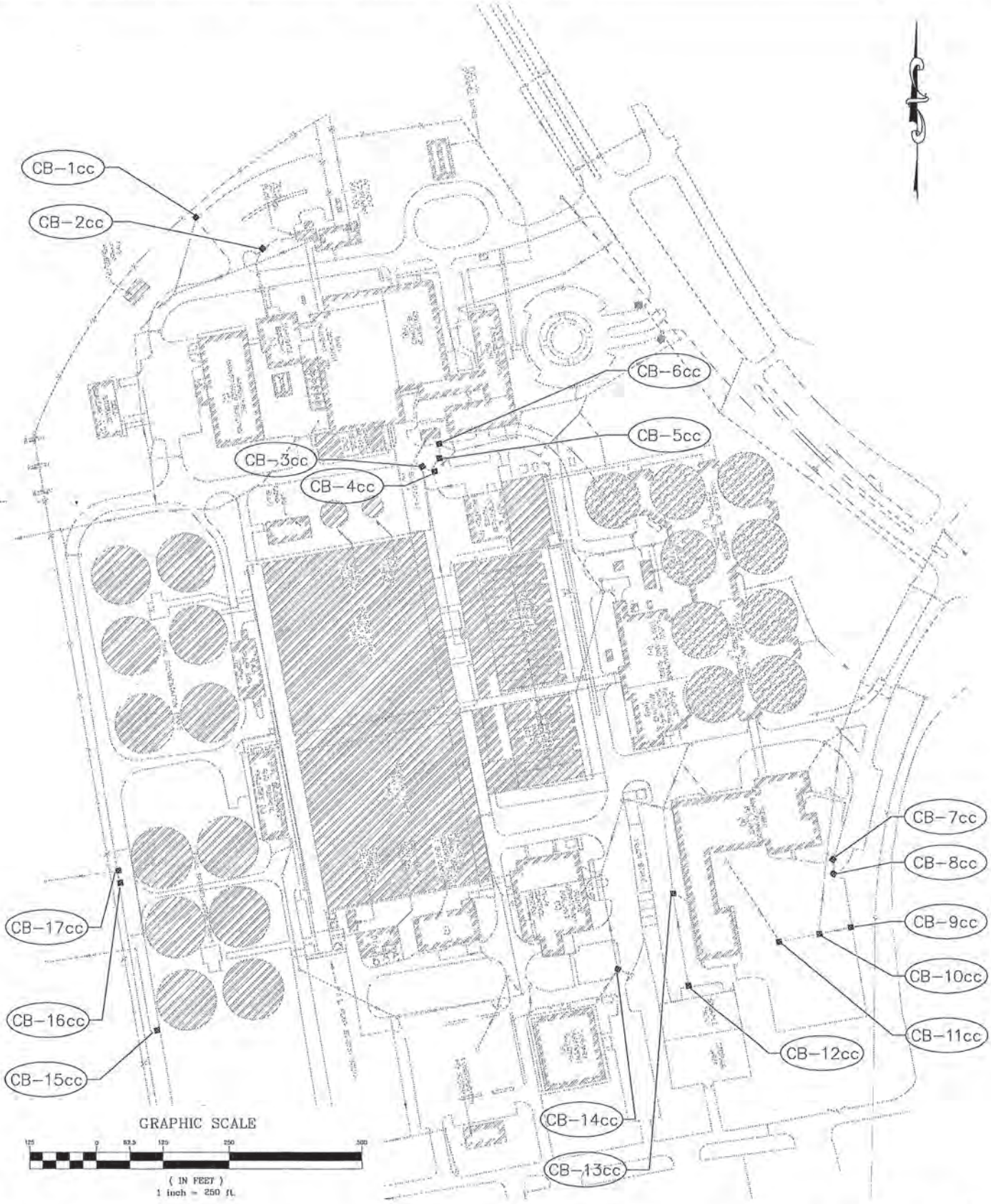

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Figure 3-2
Cedar Creek WPCP
Catch Basin Insert Site Plan

4. Drainage Swale/Open Channel (Inc. Swale Guard)

- ***Location:*** Bay Park STP (East Rockaway, NY) - Drainage Swale Quantity: (2)
  Swale Guard Quantity: (4)
  Cedar Creek STP (Wantagh, NY) - Drainage Swale Quantity: (7)
  Swale Guard Quantity (6)

  (Site Plans on following sheets)

- ***Manufacturer's Information***: See Appendix C

- ***Swale Guard- Three Inspections/Clean-outs per Year:***

  1. October/November
  2. March
  3. June – Filter Change

- ***Inspection Checklist***: See Appendix D

- ***Maintenance:***

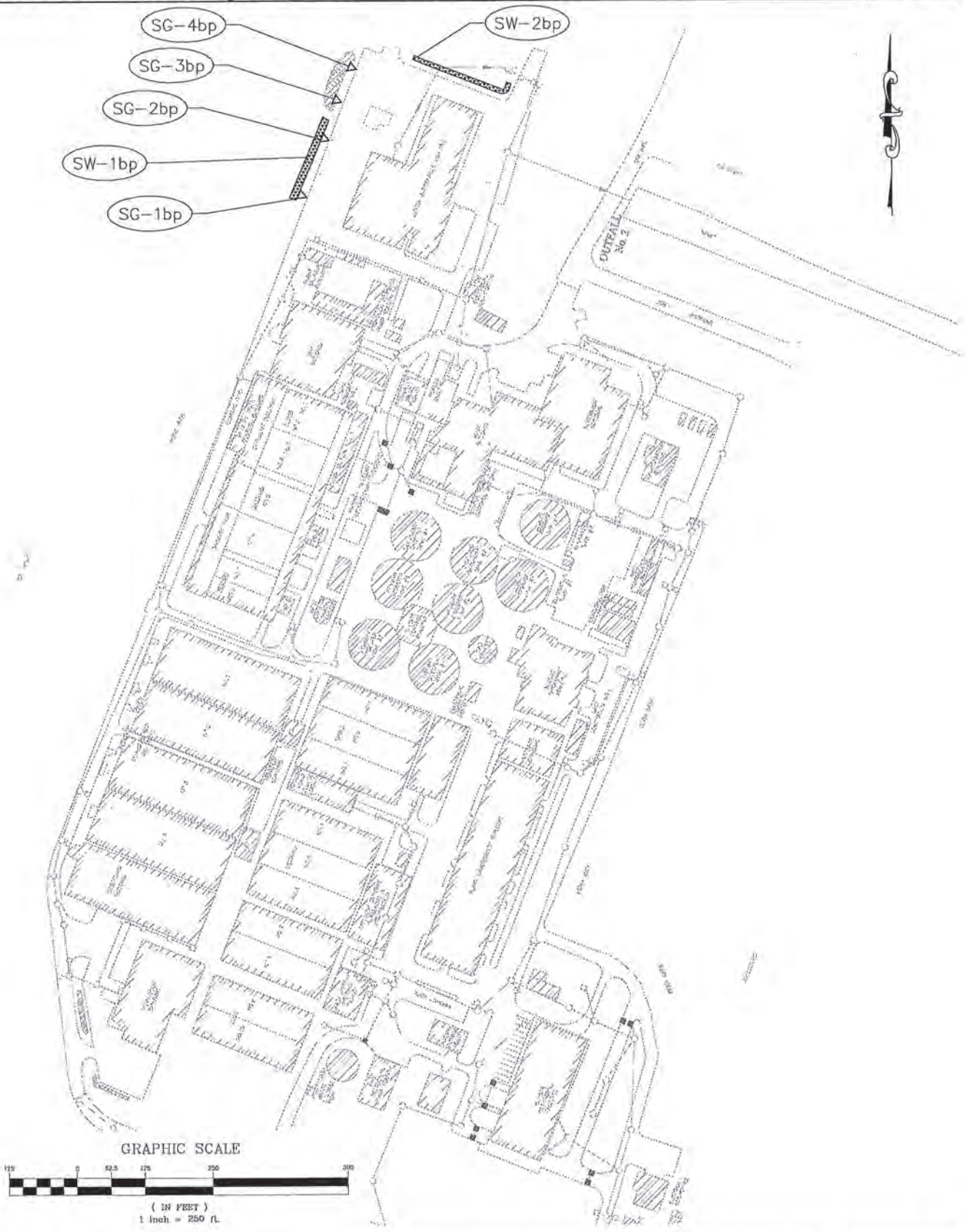
  1. Swales require an **annual cut** at the end of the growing season (autumn) to **six (6) inches** to eliminate woody plant growth. Additional mowing during the growing season for aesthetic reasons is permitted as long as a grass height of no less than six inches is maintained.

- ***Monthly Inspections:***

  1. **Inspection check dam** stability, make sure flow is not diverted around them. Remove trash and debris as necessary.

- ***Annual Inspections:***

1. **Silt/sediment shall be removed** from the swale when accumulation **exceeds three inches**. The removed sediments shall be disposed in an acceptable manner (i.e. landfill).
2. When **ponding** occurs for more than **36 hours** after precipitation has stopped, **outlet devices** shall be cleaned/repaired. Trash and debris shall be removed as necessary.



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New York, NY 10016
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Figure 4-1
Bay Park WPCP Drainage Swale and Swale Guard Site Plan

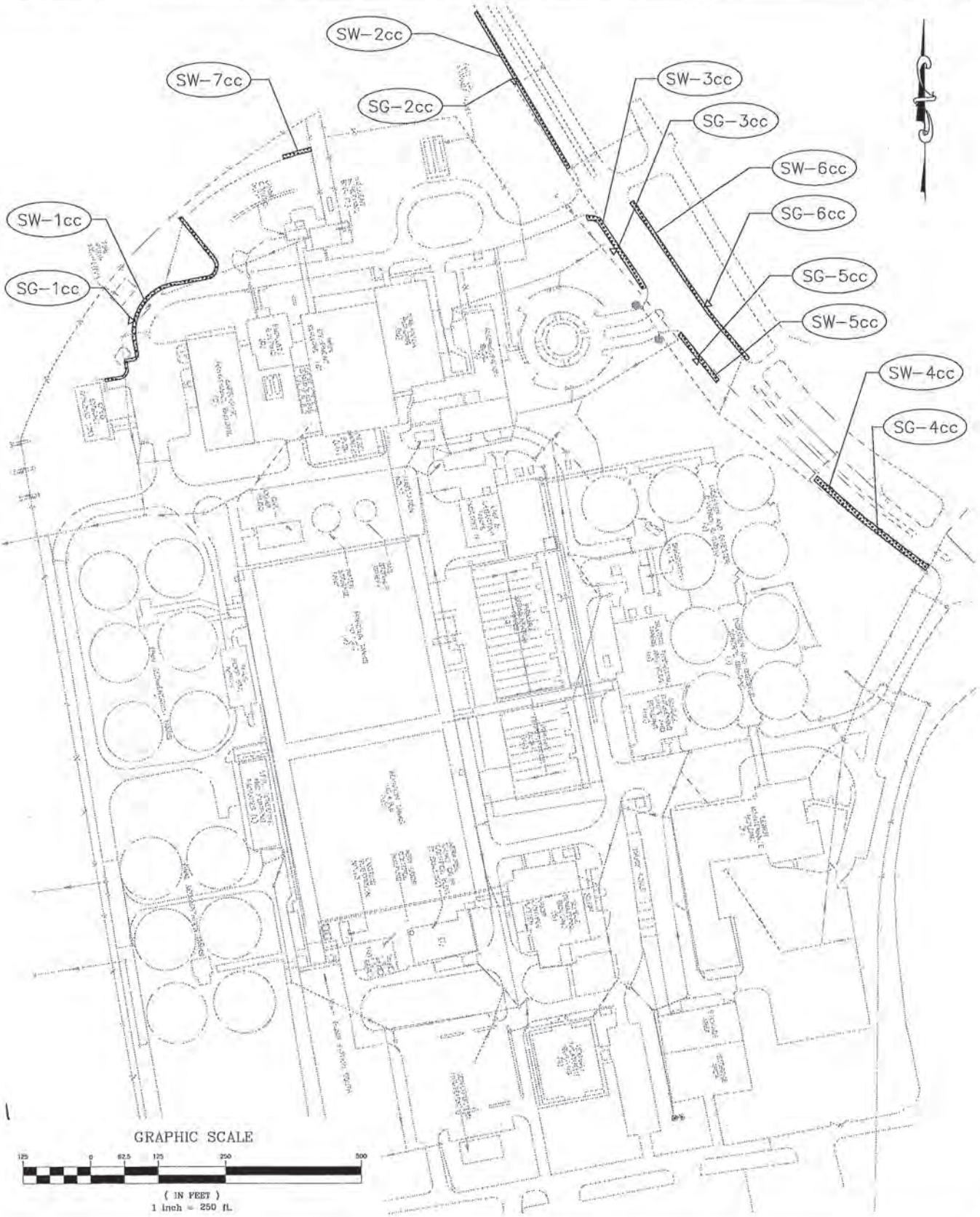

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Figure 4-2
Cedar Creek WPCP Drainage Swale and Swale Guard Site Plan

5. Hydrodynamic Separator

- ***Location:*** Cedar Creek STP (Wantagh, NY)- Quantity: (1)

(Southwest corner of property, see figure below)

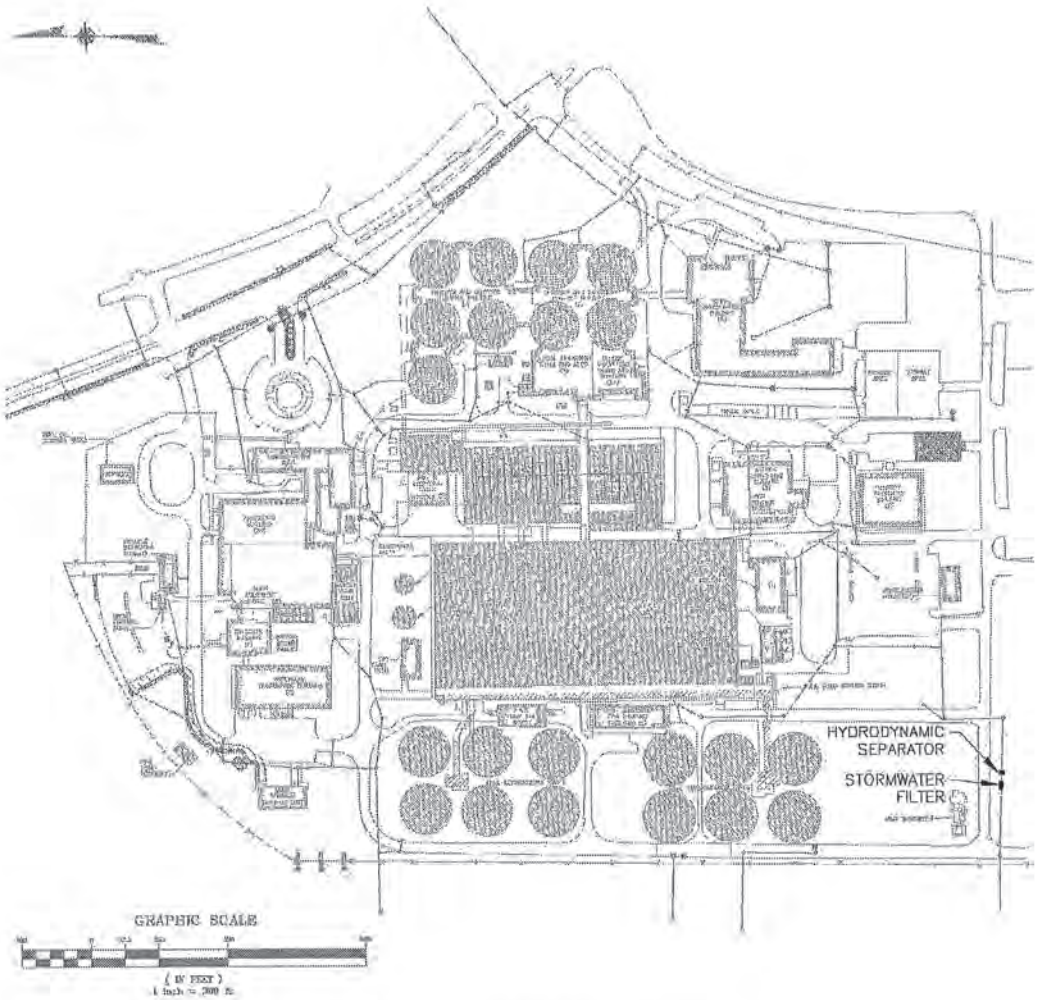


Figure 5-1 – Cedar Creek WPCP Hydrodynamic Separator Location Site Plan

- ***Manufacturer's Information***: See Appendix E

6. Modular Wetlands

- ***Location:*** Cedar Creek STP (Wantagh, NY)- Quantity: (2)

(Near Tertiary Treatment Bldg. R)

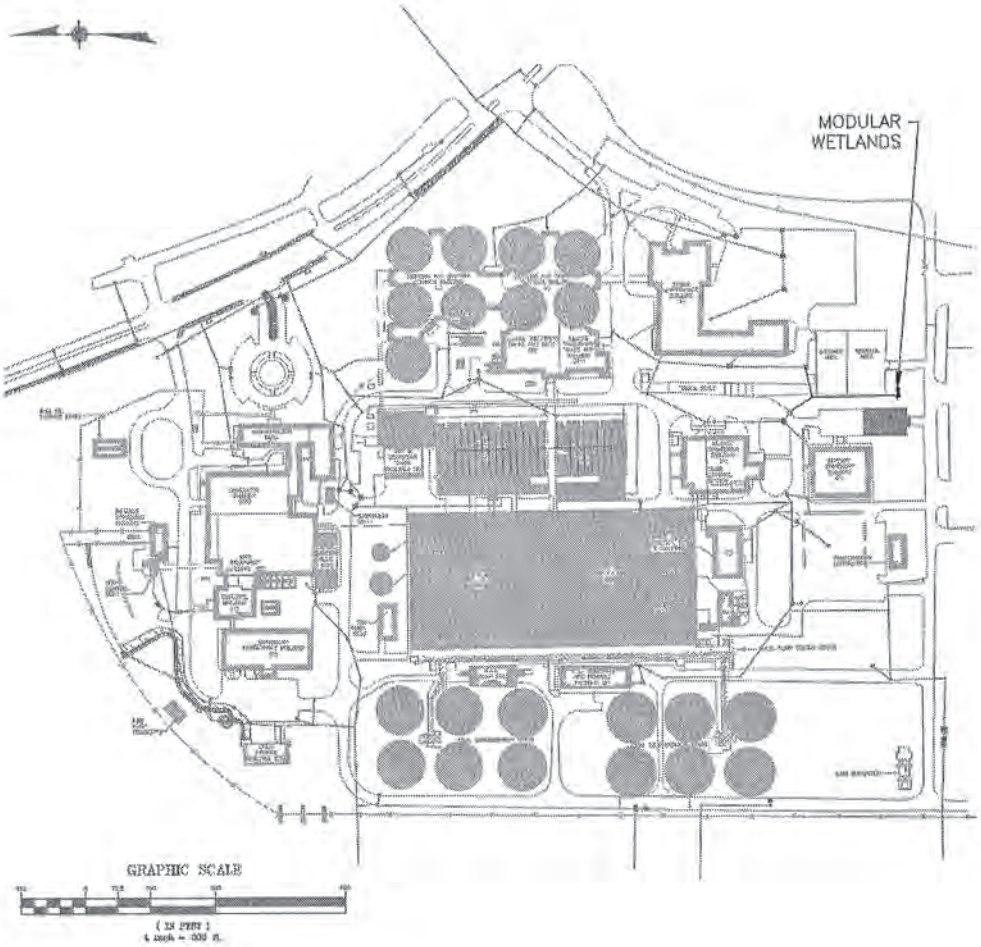


Figure 6-1 – Cedar Creek WPCP Modular Wetland Location Site Plan

- ***Monthly Inspections:***

1. **Check** the upstream catch basins for accumulated debris. Clean as required.

- ***Annual Inspections/Maintenance:***

1. **Check the discharge flow rate**: the lower outlet is designed to discharge at a rate of 0.5 gallons/minute. The discharge rate can be checked by directly measuring a timed-discharge volume if the outlet is "daylighted" or through "falling-level" measurements inside the central sedimentation chambers (the total static volume of the tank is 1,390 gallons and the height of the tank is 4 feet, therefore a 0.5 gallons/minute discharge rate can be observed as the water level in the tank falling at a rate of one inch per hour).
2. **Measure sediment depth** inside the sedimentation chamber and schedule a pump-out if depth reaches 6 inches in depth. A future pump-out date can be estimated by projecting based upon sediment accumulation rates since the last measurement or since original installation. On average, StormTreat Systems modular wetlands need to have sediment removed once every three years. This can be done using a vacuum-pumping unit.
3. **Cut grasses** to within six (6) inches of the base of the plants **before the spring** growing season and remove the cuttings. Replace any dead or dying plants during the growing season, no later than October 1 and no earlier than April 15.
4. **Observe wetland plant conditions** and height (during growing season). Wetland plants may need to be supplemented during the first three growing seasons depending upon site/weather conditions.

7. Porous Asphalt

- ***Location:*** Cedar Creek STP (Wantagh, NY)- Quantity: (1)

  (Parking lot for Tertiary Treatment Bldg. R)

- ***Maintenance:***

  1. **Mow** upland and adjacent areas, seed bare areas as needed.
  2. **Winter Considerations:** post signage to prohibit sanding. Salt may be used as a deicer. Note: Salt application may be reduced by as much as 75%, as compared non-porous asphalt.

- ***Monthly Inspections/Maintenance:***

  1. **Remove debris and sediments** on paved area.
  2. **Ensure paving dewaters** between storms.

- ***Quarterly Inspections/Maintenance:***

  1. **Vacuum sweep** and high-pressure washing (with proper disposal of removed material and washwater), per NYSDEC Stormwater Management Design Manual.

- ***Annual Inspections:***

  1. **Inspect** the surface for **deterioration** and spalling.

8. Rain Garden

- ***Location:*** Cedar Creek STP (Wantagh, NY)- Quantity: (5)

  (Facility Entrance Road and near circular parking lot by the Administration Bldg.)

- ***Maintenance:***

  1. **Plants** shall be maintained as component of the facility's overall routine landscaping. Occasional replacement of plants, mulching, weeding and thinning to maintain the desired appearance.

- ***Annual Inspections/Maintenance:***

  1. Center Medians on the Main Facility Entrance (seeded with Northeastern Roadside Native Seed Mix ERNMX-105) should be **mowed annually** to remove woody material. Mow after December 1 and before March 1 to a height of six (6) inches.
  2. For the rain garden at the circular parking lot, **cut grasses** to within six (6) inches of the base of the plants **before the spring** growing season and remove the cuttings. Replace any dead or dying plants during the growing season, no later than October 1 and no earlier than April 15. Trees shall be pruned annually in the early fall to maintain shape and eliminate dead limbs.

9. Stormwater Filter

- ***Location:*** Cedar Creek STP (Wantagh, NY)- Quantity: (1)

(Southwest corner of property- see figure below)

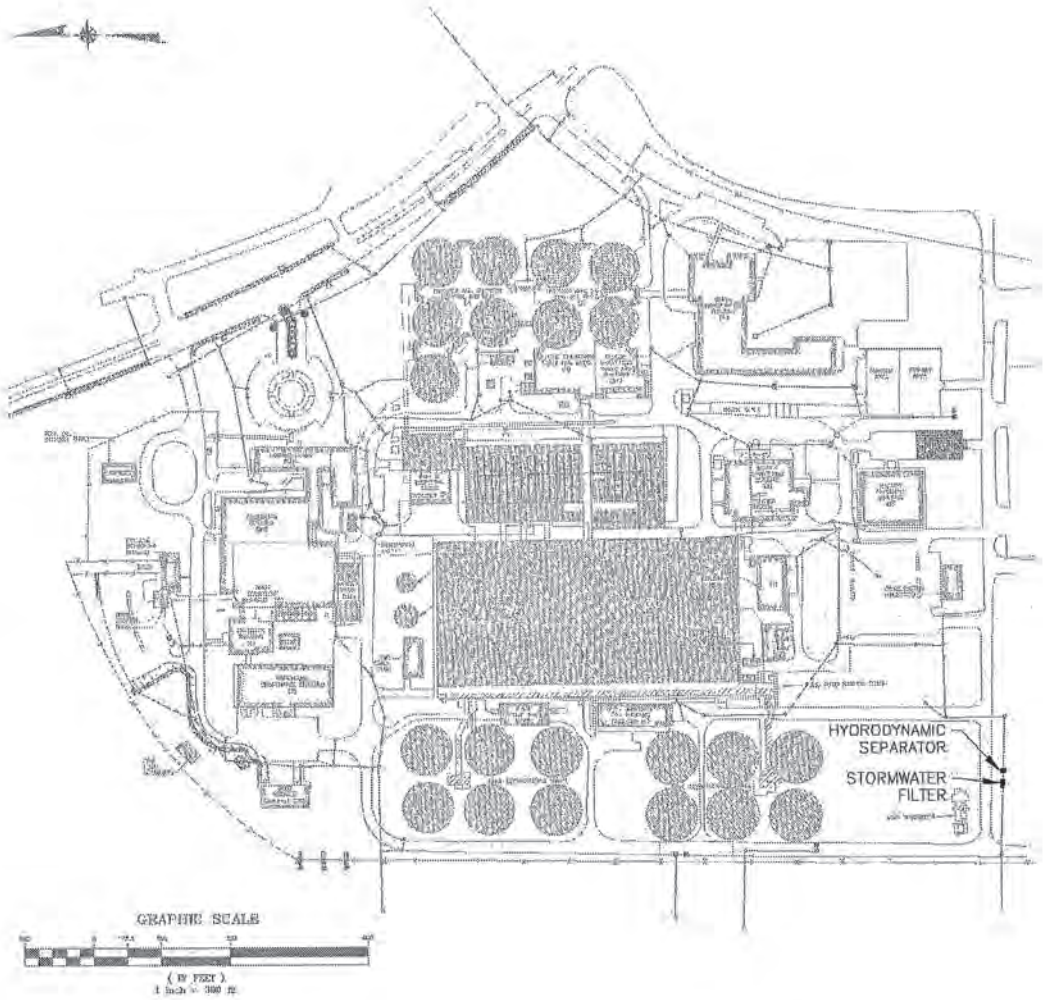


Figure 9-1 – Cedar Creek WPCP Stormwater Filter Location Site Plan

- ***Manufacturer's Information***: See Appendix F

10. Stormwater Planters

- ***Location:*** Bay Park STP (East Rockaway, NY)- Quantity: (4)

  (Adjacent to Maintenance Bldg. and Interim Storage Facility)

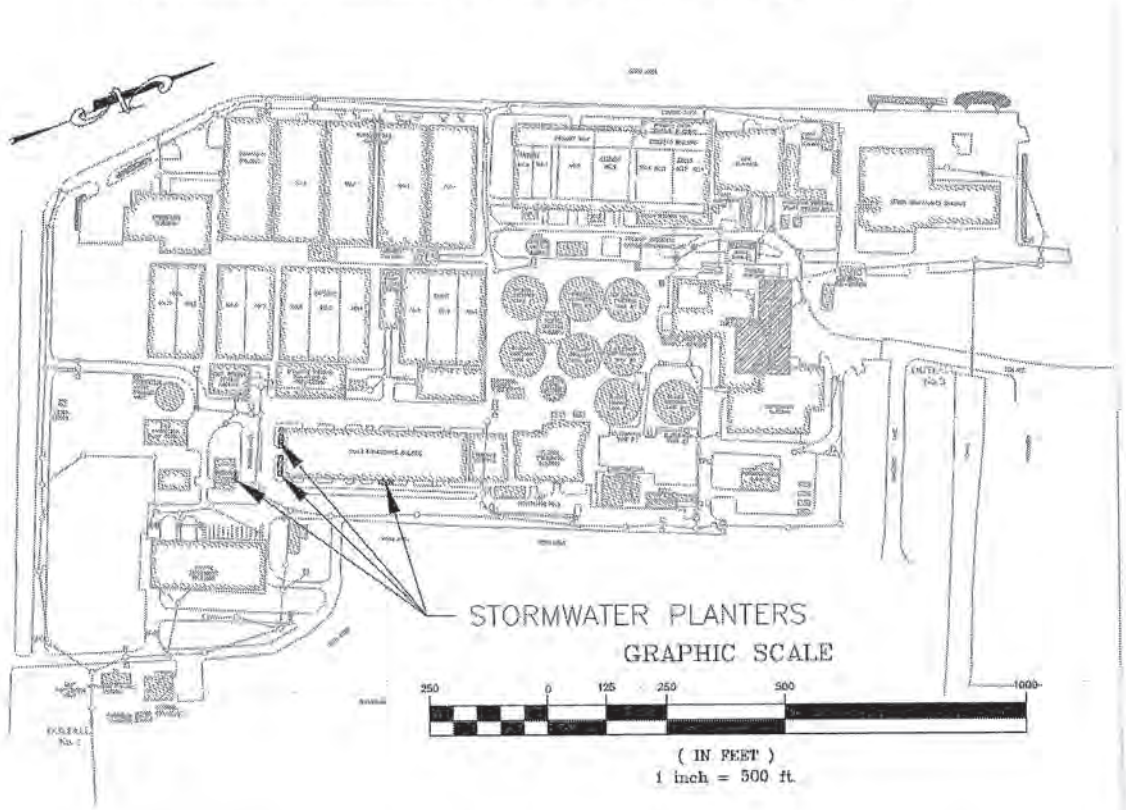


Figure 10-1 – Bay Park WPCP Stormwater Planters Location Site Plan

- ***Annual Inspections:***

1. **Cut grasses** to within six (6) inches of the base of the plants **before the spring** growing season and remove the cuttings. Replace any dead or dying plants during the growing season, no later than October 1 and no earlier than April 15.
2. **Plants** shall be maintained by **periodically removing dead and dying vegetation**. Plants shall be pruned once yearly to prevent crowding of adjacent plants.

11. Tree Box

- ***Location:*** Cedar Creek STP (Wantagh, NY)- Quantity: (2)

(Facility Entrance)

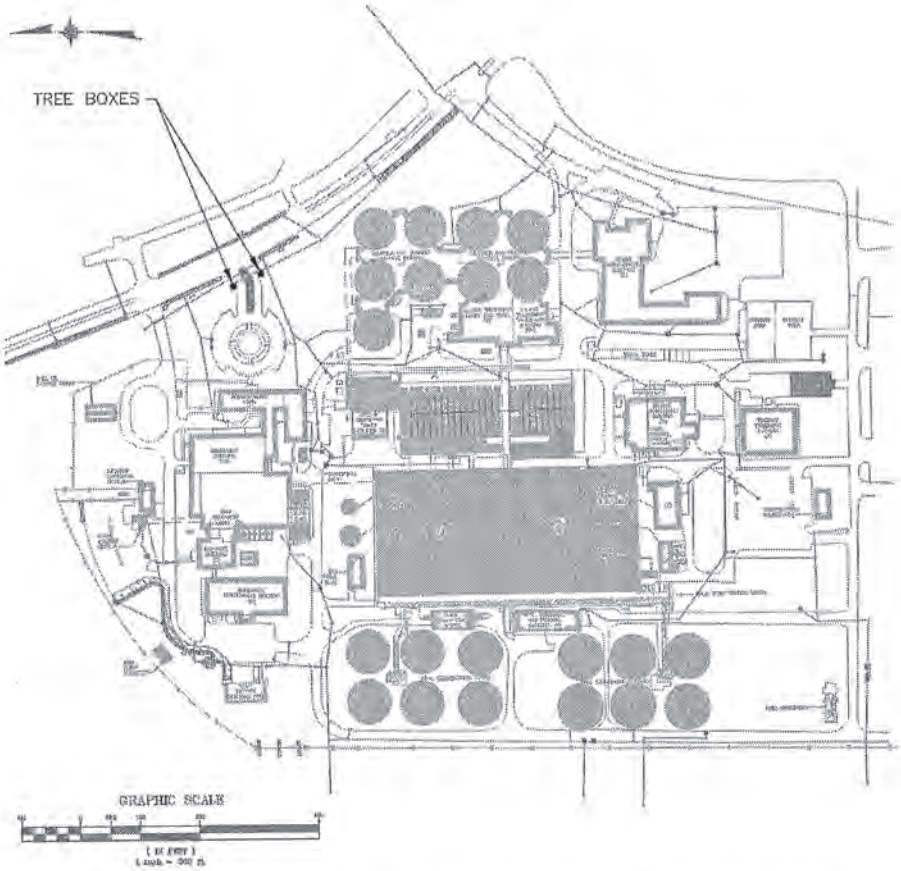


Figure 11-1 – Cedar Creek WPCP Tree Box Location Site Plan

- ***Manufacturer's Information***: See Appendix G- Filterra, the manufacturer includes 1 year maintenance agreement with purchase of each unit. This maintenance agreement begins the day the unit is activated, or becomes operational **(5/5/2011)**. Filterra also has developed a training DVD which covers all aspects of the maintenance steps that meet their specifications which is located in Appendix G.

- ***Annual Inspections/Maintenance:***

1. Remove tree grate and erosion control stones. Remove accumulated trash, debris, heavy sediments and mulch. Replace mulch (Manufacturer suggestion: hardwood mulch). Record plant height and width.

APPENDICES INFORMATION

Appendix A - Bioretention Area Inspection Checklist

Appendix B - Catch Basin Insert Maintenance Guide

Appendix C - Swale Guard Maintenance Guide

Appendix D - Drainage Swale (Open Channel) Inspection Checklist

Appendix E - Hydrodynamic Separator Maintenance Guide

Appendix F - Stormwater Filter Maintenance Guide

Appendix G - Tree Box Maintenance Guide and DVD

APPENDIX A

Bioretention Area Inspection Checklist

Bioretention Operation, Maintenance and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

Maintenance Item	Satisfactory / Unsatisfactory	Comments
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

Comments:

Actions to be Taken:

APPENDIX B

Catch Basin Insert Maintenance Guide

(Manufacturer: Fabco StormBasin)

fabco Industries Inc

StormBasin

Modular Stormwater Filtration System

Maintenance Guide

For
Nassau County Item 504A – Type "A"
Catch Basin Insert - Filter Type
Combination Inlet

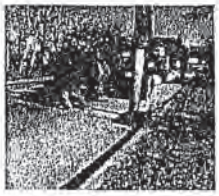
Caution
Do not step, stand, sit or in anyway use the StormBasin device to support your weight during the maintenance procedure.

Caution
StormBasin units maybe installed into street level drain inlets. The StormBasin should be maintained by trained individuals who are familiar with all Traffic safety regulations.

StormBasin™

Maintenance Guide

Pre-installation Cleaning

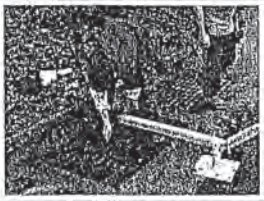
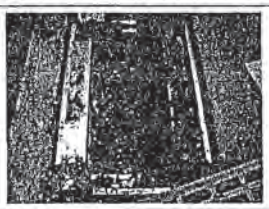
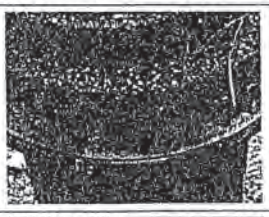
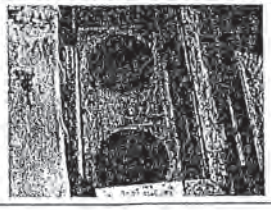


The StormBasin like any other storm water remediation device requires maintenance to remain efficient as a storm water filter. Fabco Industries highly recommends inspecting the perspective catch basin storm sewer before installing a StormBasin unit and thoroughly cleaning it if necessary.

Cleaning Frequency

After installation the StormBasin requires periodic cleaning. There are no hard and fast rules in this regard. Small units and installation sites with higher than expected sediment loads or areas with significant trees and foliage require more maintenance. In general, Fabco Industries recommends cleaning out the unit(s) a minimum twice per year by removing the debris, sand and silt.

Cleaning out the StormBasin: Combination style drain inlets

Do not lift or remove the StormBasin from the grated inlet during cleaning. Be sure to follow proper road safety rules & regulations when working in the street. Begin by removing the grate from the inlet. CAUTION: Grates are extremely heavy. Some type of lifting mechanism is highly recommended. Place it carefully on the ground away from the work area.	
With the grate removed the StormBasin is available for cleaning. Do not step, stand, sit or in anyway use the StormBasin to support your weight. Be sure to follow all Safety and Traffic protocols. Remove the sediment and debris from the basin. This can be done manually or with a vacuum device. Be sure you are wearing gloves, safety glasses and that traffic safety procedures are observed.	
With the debris and sediment removed the filter cartridge(s) will be visible at the bottom of the unit. We suggest removing the cartridge(s) from the StormBasin and removing any loose debris, sediment, trash from the blue foam pre-filter. (See Removing the filter Cartridge). Cartridge replacement is recommended annually.	
With the StormBasin and cartridges cleaned and re-installed the maintenance process is complete. Re-install the drain grate to complete the job.	

StormBasin™

Maintenance Guide

Selecting, Removing and Installing the StormBasin Cartridges

The Fabco filter cartridges used in the StormBasin product are designed primarily to capture: floating materials, sediments and suspended solids and emulsified products such as hydrocarbon compounds, dissolved heavy metals, nutrients (P&N) and pathogens (bacteria). Before ordering your cartridges make sure you select the correct type. Each cartridge type can be identified by a colored "Ring" located at the top of the cartridge.

Selecting the right cartridge(s)


Standard Filter Cartridge

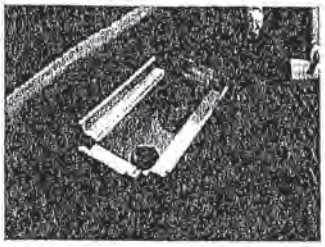
Part Number	Effectiveness	Ring color code
9718-1	**Standard Cartridge** Good All-purpose cartridge for common surface runoff that may contain a little bit of everything.	Red
9718-2	**Pathogens Cartridge** 2x's more pathogen treatment Vs. Std Cartridge. Use near sensitive water ways to keep beaches and shell fishing areas open.	Yellow
9718-3	**HV Hydrocarbon Cartridge** 25% more hydrocarbon filter media Vs Std cartridge. Excellent for vehicle or maintenance related applications.	Blue
9718-4	**HV Metals Cartridge** Uses unique FABLITE filter media for HV metals. Suggested for industrial usage where persistent HV metals have been identified in surface runoff	Grey
9718-5	**Standard short Cartridge** Reduced height version of std Cart.	Mint
9718-6	**Nutrients Cartridge** Uses proprietary FABPHOS media for nutrients. Highly effective on the critical dissolved Ortho-Phosphates. Helps reduce algae blooms keeping the water clean and healthy.	Green

StormBasin™

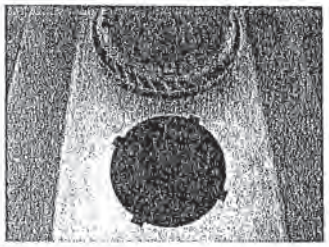
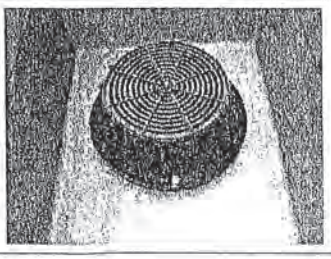
Maintenance Guide

Referring to the pollutant concentrations stated in the NYS stormwater design manual, the standard cartridge should be expected to last a minimum of 1 year. Fabco's special short cartridge should be replaced twice per year.

Removing the Filter Cartridge(s)

With all debris removed from the StormBasin the filter cartridge(s) will be exposed at the bottom. To remove the cartridge(s) reach down into the basin and firmly grasp the plastic outer rim of the cartridge body just below the foam. Twist the cartridge body Counter-Clock-wise about ¼ turn until it stops. Lift the cartridge straight up to remove.	

Installing new Filter Cartridge(s)

The StormBasin filter cartridge(s) install through a hole in the bottom of the collection basin. The hole has four (4) slots that accept 4 tabs molded into the underside of the cartridge body.	
Insert the StormBasin cartridge down through the hole in the base of the unit. The colored ring on the cartridge should be facing upwards. Push the cartridge all the way through the hole until it rests on the bottom. Slowly turn the cartridge in a Clock-wise direction until the Tabs align with the slots and the cartridge body drops about ¼' further down.	
Once the Tabs fall through the slots, continue turning firmly in a Clock-wise direction until the Tabs contact the STOPS. The Cartridge is now installed.	

APPENDIX C

Swale Guard Maintenance Guide

(Manufacturer: Kristar SwaleGard)

DWG #4 · (GC-49).

GENERAL SPECIFICATIONS FOR MAINTENANCE OF *SWALEGARD*® FILTERS

SCOPE:

Federal, State and Local Clean Water Act regulations and those of insurance carriers require that stormwater filtration systems be maintained and serviced on a recurring basis. The intent of the regulations is to ensure that the systems, on a continuing basis, efficiently remove pollutants from stormwater runoff thereby preventing pollution of the nation's water resources. These specifications apply to the SwaleGard® Filter.

RECOMMENDED FREQUENCY OF SERVICE:

Drainage Protection Systems (DPS) recommends that installed SwaleGard® Filters be serviced on a recurring basis. Ultimately, the frequency depends on the amount of runoff, pollutant loading and interference from debris (leaves, vegetation, cans, paper, etc.); however, it is recommended that each installation be serviced a minimum of three times per year, with a change of filter medium once per year. DPS technicians are available to do an on-site evaluation, upon request.

RECOMMENDED TIMING OF SERVICE:

DPS guidelines for the timing of service are as follows:

1. For areas with a definite rainy season: Prior to, during and following the rainy season.
2. For areas subject to year-round rainfall: On a recurring basis (at least three times per year).
3. For areas with winter snow and summer rain: Prior to and just after the snow season and during the summer rain season.
4. For installed devices not subject to the elements (washracks, parking garages, etc.): On a recurring basis (no less than three times per years).

SERVICE PROCEDURES:

1. Collect and remove sediment and debris (litter, leaves, papers, cans, etc.) from the exterior areas of the device. The device shall be visually inspected for defects.
2. Unlock and lift access cover.
3. Remove the perforated separator plate.
4. Using an industrial vacuum, the collected materials shall be removed from the liner. (Note: DPS uses a truck-mounted vacuum for servicing SwaleGard® filters.)
5. When all of the collected materials have been removed, the filter medium pouches shall be removed by unsnapping the tether from the D-ring and set to one side. The filter liner, gaskets, stainless steel frame and mounting brackets, etc. shall be inspected for continued serviceability. Minor damage or defects found shall be corrected on-the-spot and a notation made on the Maintenance Record. More extensive deficiencies that affect the efficiency of the filter (torn liner, etc.), if approved by the customer representative, will be corrected and an invoice submitted to the representative along with the Maintenance Record.
6. The filter medium pouches shall be inspected for defects and continued serviceability and replaced as necessary and the pouch tethers re-attached to the liner's D-ring. See below.
7. Replace the perforated separator plate, lower the access lid, and lock it in place.

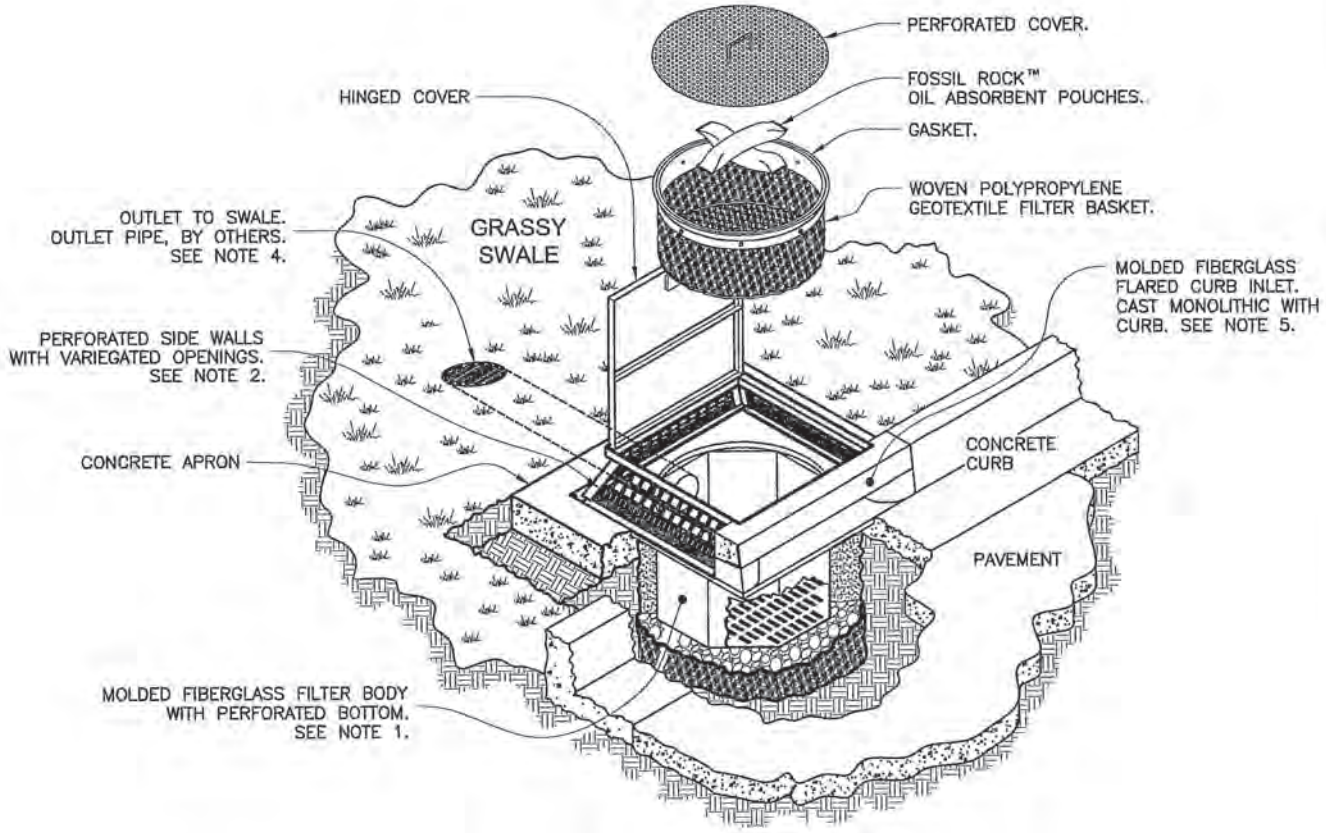
REPLACEMENT AND DISPOSAL OF EXPOSED FILTER MEDIUM AND COLLECTED DEBRIS

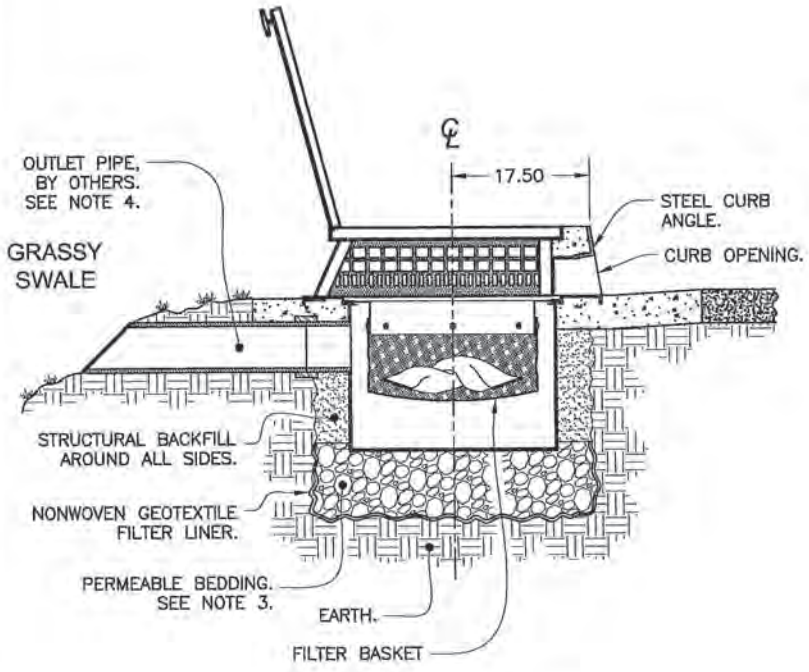
The frequency of filter medium pouch exchange will be in accordance with the existing DPS-Customer Maintenance Contract. DPS recommends that the medium be changed at least once per year. During the appropriate service, or if so determined by the service technician during a non-scheduled service, the filter medium pouches will be replaced with new pouches. Once the exposed pouches and debris have been removed, DPS has possession and must dispose of it in accordance with local, state and federal agency requirements.

Note: As the generator, the landowner is ultimately responsible for the proper disposal of the exposed filter medium and debris. Because the filter media likely contain petroleum hydrocarbons, heavy metals and other harmful pollutants, the materials must be treated as an EPA Class 2 Hazardous Waste and properly disposed of. DPS relieves the landowner of the actual disposal task, and provides certification of its completion in accordance with appropriate regulations.

DPS also has the capability of servicing all manner of catch basin inserts and catch basins without inserts, underground oil/water separators, stormwater interceptors and other such devices. All DPS personnel are highly qualified technicians and are confined space trained and certified. Call us at (888) 950-8826 for further information and assistance.

SG-0001





SECTION VIEW
(SIDE)

NOTES:

1. SwaleGard® body shall be fabricated from petroleum resistant fiberglass, per UL-MH19409.
2. Metal components shall be fabricated from either mild steel, (hot dipped galvanized per ASTM A123), or stainless steel Type 304.
3. Install SwaleGard® on permeable bedding, (drain rock or sand) and nonwoven geotextile filter cloth. Bedding shall be a minimum depth of 12 inches beneath the bottom of fiberglass body.
4. SwaleGard® pre-filter is supplied with sump outlet pipe connection stub (4 inch diameter).
   Outlet pipe assembly supplied by others .
5. SwaleGard® is available with standard 24 inch wide curb opening (as shown) or with 48 inch wide opening for higher flow areas.
6. Contact manufacturer for use within high ground water areas, or in areas with low perk rates (impervious ground conditions).

U.S. PATENT NUMBER 6,905,599

TITLE

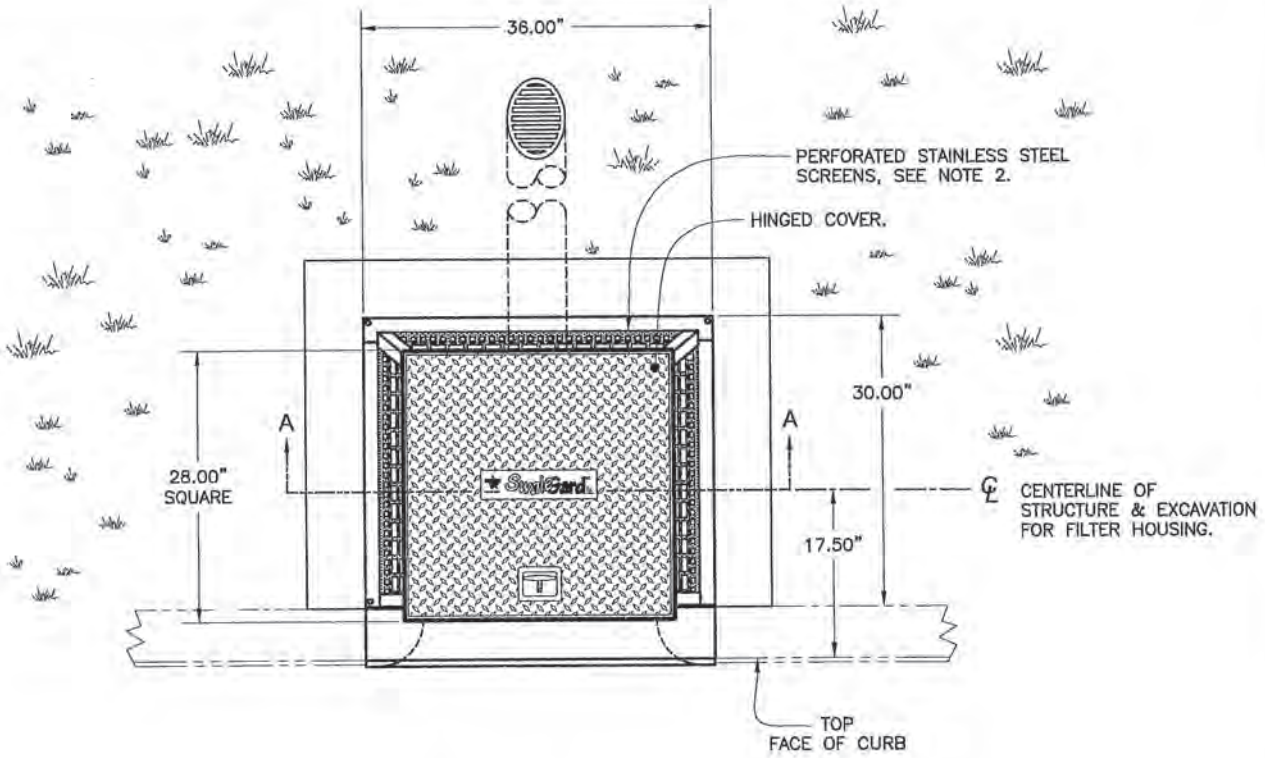
SwaleGard®

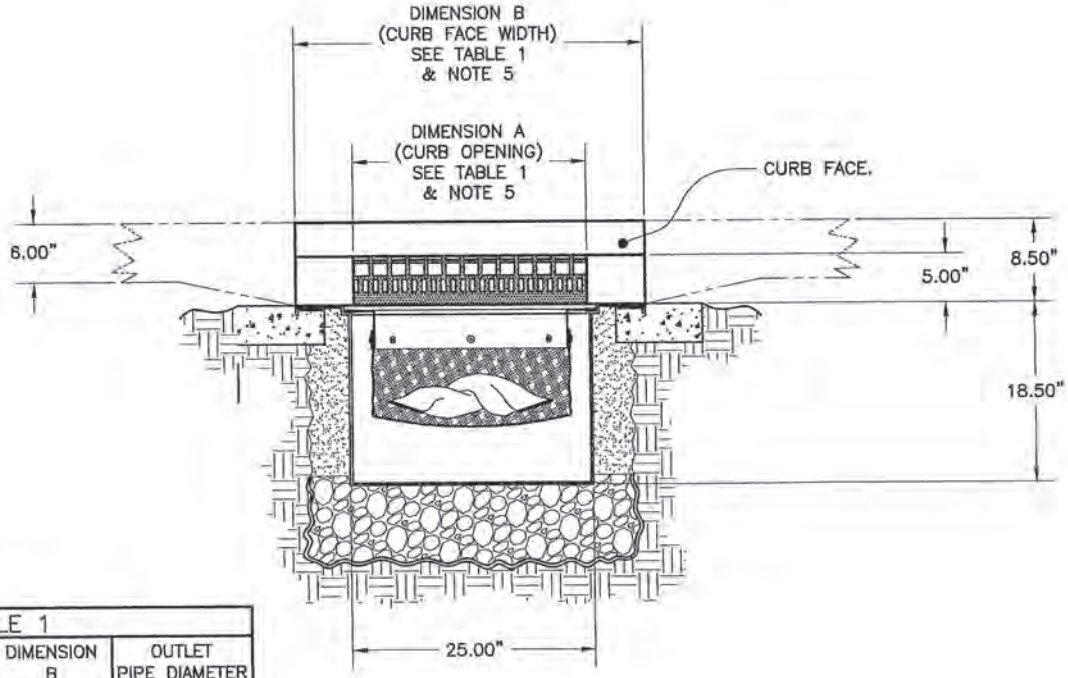
GRASSY SWALE PRE-FILTER

KriStar Enterprises, Inc.
360 Sutton Place, Santa Rosa, CA 95407
Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

DRAWING NO.	REV	ECO	DATE	SHEET
SG-0001	D	0076 JPR 8/19/09	JPR 9/18/06	1 OF 2

SG-0001





SECTION A-A
(SECTION IS FROM BELOW CURB OPENING & FRAME ONLY)

TABLE 1

MODEL NUMBER	DIMENSION A	DIMENSION B	OUTLET PIPE DIAMETER
FF-GS24-4	24"	36"	4"
FF-GS24-6	24"	36"	6"
FF-GS48-4	48"	60"	4"
FF-GS48-6	48"	60"	6"

U.S. PATENT NUMBER 6,905,599

TITLE

SwaleGard®

GRASSY SWALE PRE-FILTER

KriStar Enterprises, Inc.
360 Sutton Place, Santa Rosa, CA 95407
Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

DRAWING NO.	REV	ECO	DATE	SHEET
SG-0001	D	0076 JPR 8/19/09	JPR 9/18/06	SHEET 2 OF 2

APPENDIX D

Drainage Swale (Open Channel) Inspection Checklist

Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Contributing areas clean of debris		
2. Check Dams or Energy Dissipators (Annual, After Major Storms)		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
3. Vegetation (Monthly)		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
4. Dewatering (Monthly)		
Dewaters between storms		

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Sediment deposition (Annual)		
Clean of sediment		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repairs		
No evidence of erosion		

Comments:

Actions to be Taken:

APPENDIX E

Hydrodynamic Separator Maintenance Guide

(Manufacturer: Terre Kleen TK36)

TERRE HILL
STORMWATER SYSTEMS

485 WEAVERLAND VALLEY ROAD
POST OFFICE BOX 10
TERRE HILL, PA 17581

MAINTENANCE PROCEDURES FOR TERRE KLEEN™ TK36

ITEM	DESCRIPTION	COMMENT
Primary chamber	Oil, litter and debris capture	16 oil absorption booms were supplied
Grit chamber	36 inclined sedimentation cells	230 square feet of projected sedimentation area
Total removal volume	3442 gallons	Use a Vacuum truck with at least this capacity for complete cleaning.
Oil storage	327 gallons	
Sediment storage	202 cubic feet (1510 gallons)	Combined primary and grit chamber volume.
Water depth - Empty	75 Inches	Measured from water surface to concrete bottom at no flow.
Water depth - Full	42 Inches	Measured from water surface to top of collected sediment at no flow.

General

The Terre Kleen™ system (US Patent No. 6,676,832 B2) is designed to capture solids and their associated pollutants that are typically found in stormwater runoff. The captured trash, oils, and sediments are stored in the unit itself. After a time period, these pollutants need to be removed from the structure. Inspection and maintenance are a routine part of ensuring the Terre Kleen™ unit functions as designed and continues to remove the desired pollutants from the stormwater. This document includes recommendations for this procedure.

Maintenance Procedures

Maintenance Record

When a Terre Kleen™ unit is newly installed, frequent inspection is highly recommended. The design of the Terre Kleen™ unit permits easy inspection. It is recommended that during the first two years after installation, inspections be performed at least quarterly for the purpose of noting the rate of sediment and floatable accumulation.

Attached is a form that may be used for recording information resulting from the inspections. Maintaining accurate records provides a history of the pollutant accumulation for this unit and can be used as a comparison to other Terre Kleen™ units that are in use in your region.

To determine sediment accumulation, a stadia rod or similar measuring device may be used. Cleaning is recommended when the sediment is found to be at the level shown in the Terre Kleen™ flow diagram. To avoid underestimating the volume of sediment in the chamber, care must be exercised in lowering the measuring device to the top of the sediment pile. The clean-out procedure may occur anytime after a rain event. It is not necessary to wait for particles to settle due to the high sedimentation efficiency of the device.

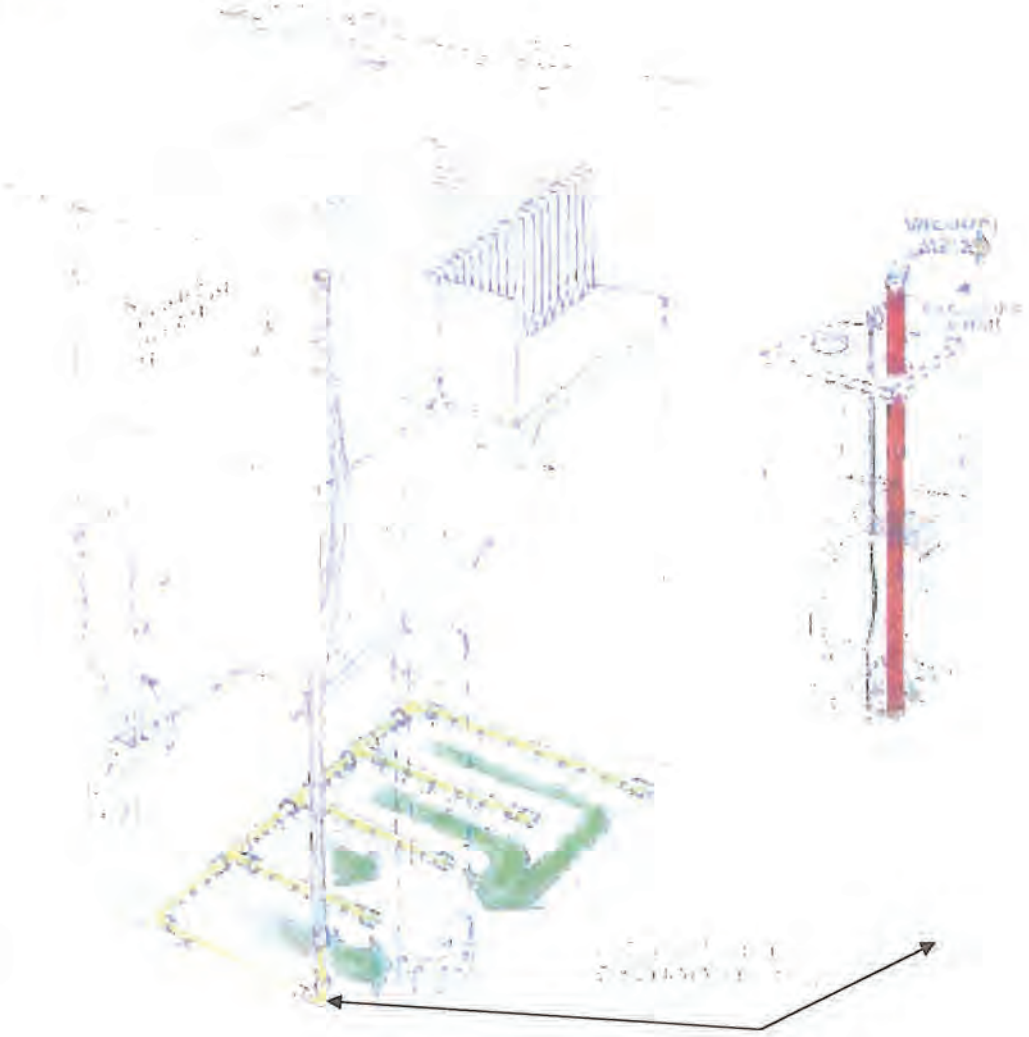
Maintenance Cleaning

The Terre Kleen™ is designed with clear access to the primary and grit chambers. A vacuum truck, or similar trailer mounted equipment, can be used to clean both chambers by lowering the suction hose through the openings. The oil and litter in the primary chamber should be removed first. Depending on the equipment used, it may be necessary to remove floating trash and debris with a net or rake. To further prevent discharge of hydrocarbons, "oil absorption booms" were added to the primary chamber during installation. They will float among the litter and begin to sink as they absorb oil. The boom size 2¼" Ø x 12" will absorb about a quart of oil and solidify it within the boom. These booms should be replaced when they become saturated with oil and no longer appear above the water surface. Depending on the site conditions, the number of booms can be adjusted up or down. Additional booms can be purchased from Terre Hill Concrete Products. *(The sorbent booms are placed in the primary chamber for the absorption of gasoline; diesel fuel, lube oil, jet fuel, transformer oils, chlorinated solvents, aromatic solvents, hydraulic oils, and light crude. The sorbent boom is Rubberizer® boom manufactured by Haz-Mat Response Technologies Inc. A standard TerreKleen™ TK09 has 4 booms, TK18 has 8 booms, TK27 has 12 booms, TK36 has 16 booms, and TK45 has 20 booms.)*

After the oil and litter is removed, the grit chamber can be cleaned out. Finally, switch back to the primary chamber to remove remaining debris. Water can be sprayed into the chambers as necessary to loosen debris.

Sludge dispersion manifold

Each Terre Kleen™ water quality device contains a"Sludge Dispersion Manifold". The manifold pipes are mounted to the floor underneath the inclined plate settler and connect to a hose that leads to the clean out opening at grade level. This hose is pressurized by the vacuum truck's spray nozzle. While the suction nozzle removes the captured pollutants, the pressurized manifold sprays water through the small horizontal holes in the manifold pipes. This water lifts and disperses the sludge blanket causing it to drain to the suction nozzle.



Disposal

Disposal of removed material will depend on the nature of the drainage area. For example, sediment collected from a system of stormwater inlets may possibly be disposed at a landfill after the liquid fraction is decanted at a sewage treatment facility. Material removed from the Terre Kleen™ must be handled according to local, state, and federal regulations. Some materials, such as sediment and detritus from lawn areas may be reused on site, which is often recommended by the local authorities. After the clean-out procedure is complete, replace the manhole covers securely to the frames for safety purposes.

Cold Weather Concerns

There is limited data concerning cold weather effects on a properly maintained Terre Kleen™ device. The depth of the structure in the soil insulates it from freezing which is similar to exposure conditions of septic tanks. When inlets are integrated into the Terre Kleen™, exposure to freezing may become an issue and may result in more runoff bypassing the treatment system due to a build-up of snow and ice. Saltwater stratification in the water may also reduce detention time. Colder temperatures reduce the settling velocity of particles, which can result in fewer particles being "trapped". The amount of grit and sand in the runoff from paved areas may be significantly increased in the winter, which may warrant more frequent maintenance. Access to the device for maintenance may be more difficult.

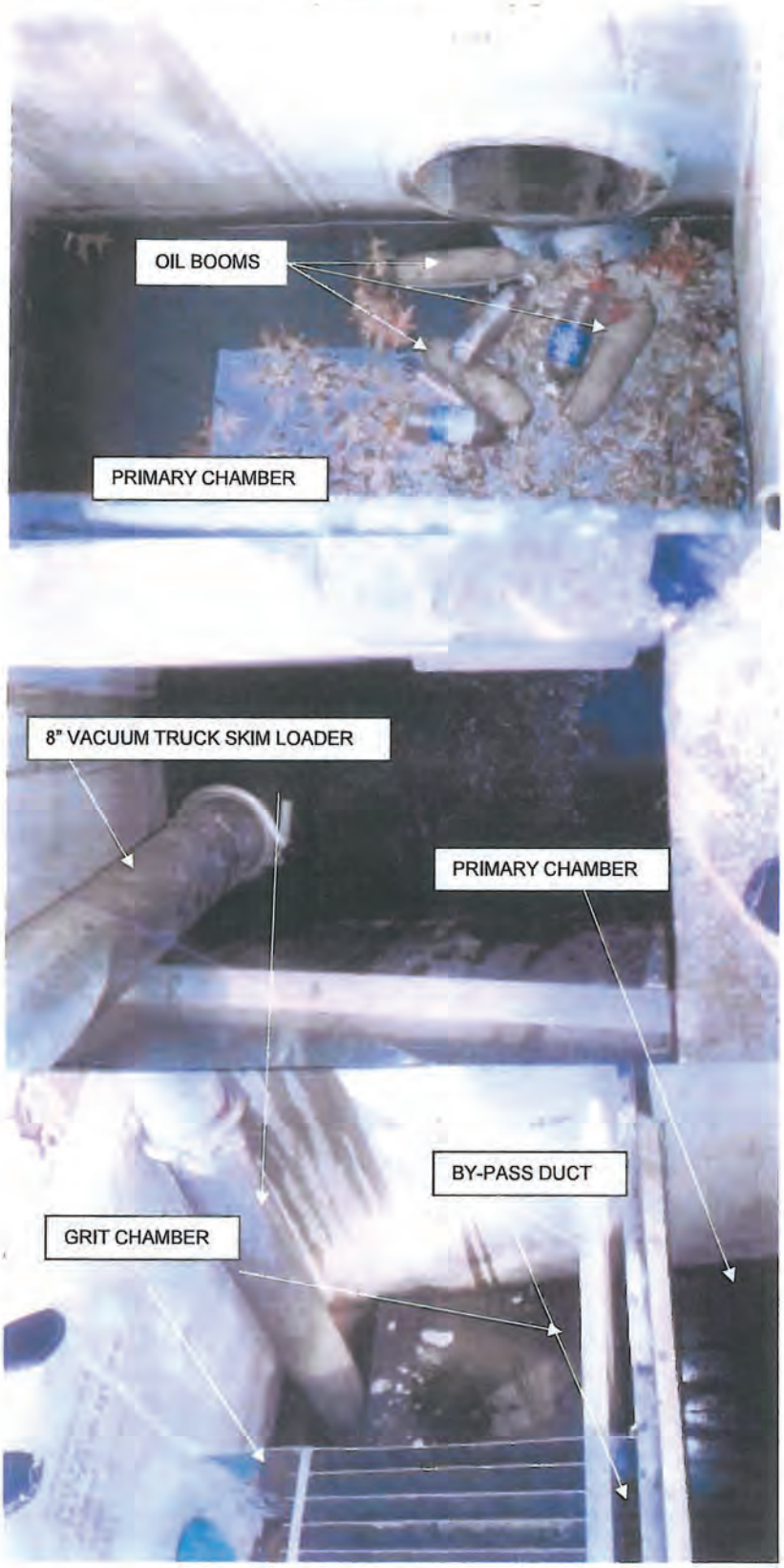
Confined Space Entry

Regular maintenance and clean out does not require confined space entry into the Terre Kleen™ unit. If confined entry is required, it will need to be performed by qualified personnel who are properly trained for confined space activity using proper equipment as per the latest OSHA regulations.

The Terre Kleen™ will trap floatable litter and oils that are not emulsified in the stormwater runoff. **Keep sparks and open flames away when working around a Terre Kleen™ unit that may contain flammable material.**

Attachments:
Appendix A - Clean-out sequence
Appendix B - Terre Kleen™ Maintenance Chart

Appendix A – Clean out sequence



The Primary Chamber is where the stormwater enters. The water may enter through pipes or an inlet grate in the lid.

Gross pollutants, oils, and course sediment is collected in this chamber. Oil booms may be used to absorb hydrocarbons.

First: Remove trash and oil until the sheen is largely reduced to a rainbow colored reflection of the light on the oil.

Second: Move the skim-loader to the Grit Chamber and draw the water down to the sediment and sludge layer. Water will drain from both chambers and drag sludge to the vacuum nozzle.

Third: Move back to the Primary Chamber and remove the remaining sediment.

Fourth: Activate the (optional) dispersion manifold and spray water on the soiled areas and complete removal of loosened debris.

Fifth: Drop new oil booms into the Primary Chamber and reinstall the lids of the manholes and/or grates.

Terre Kleen™ Maintenance Chart					
Model:			Water Depth Empty:		
Date	Water Depth	Sediment Depth	Floatable Layer Thickness	Maintenance Performed	Comments

APPENDIX F

Stormwater Filter Maintenance Guide

(Manufacturer: Fabco Stormsafe Helix)

fabco Industries Inc

StormSafe Helix

Stormwater Filtration Chamber

Inspection and Maintenance Guide

Important:

- Inspection and maintenance to be performed by qualified personnel only.
- Helical filter replacement will require personnel properly trained for confined space activity in accordance with Local and OSHA regulations.

66 Central Ave • Farmingdale New York 11735
Tel: (631) 244-3536 • Fax: (631) 244-7581 • Web: www.fabco-industries.com

Inspection and Cleaning Overview

The StormSafe, like any other stormwater remediation device, requires regular maintenance intervals to remain effective as a stormwater filter. Since maintenance requirements and frequency are dependent on the pollutant load characteristics of each site, Fabco recommends a regular inspection and maintenance regime to maintain peak performance of the helical filters. As required, both the influent and effluent chambers should be cleaned of any collected oil, trash, debris and sediment that may inhibit filter performance.

Recommended Cleaning Frequency

Site conditions will determine the required cleaning frequency to maintain peak performance of the StormSafe Helix treatment chamber. There is no universal rule to predict the optimal cleanout cycle for stormwater filter systems; however locations with stabilized surface conditions will require less frequent cleaning then areas exposed to erosion or construction. Over a short period of time, regular inspection by maintenance personnel will dictate the appropriate cleaning frequency. For new installations, Fabco recommends at least two (2) inspections per year. Additional inspections are recommended following major rain events. Cleaning and filter replacement should be "as needed" based on these inspections. Fabco recommends an initial filter replacement frequency of once per year until sufficient historical data predicts otherwise.

In Case of Spills

In the event of a spill, all inspection and cleaning operations should be aborted until trained HAZMAT personnel secure the jobsite.

Included Reference Material

StormSafe Detail (Figure 1), Maintenance Log Sheet.

Visual Inspection Procedure

Inspection and cleaning should be performed only after NO rainfall for at least 24 hours.

If working in the street, wear proper safety equipment and follow the local road safety rules & regulations.

Begin by removing both the 36" and 30" manhole access covers located over the influent and effluent chambers of the StormSafe. Allow several minutes for the system to vent.

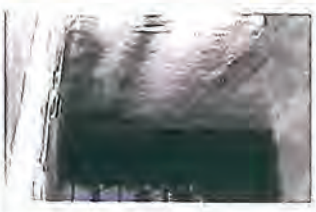
CAUTION: Grates are extremely heavy. Some type of lifting mechanism is highly recommended.

Visually inspect both chambers for heavy sediment, trash and debris loading that may limit or prevent water flow into the filter housings. A battery powered flashlight or droplight is recommended for thorough inspection.

Some telltale signs that cleaning or filter replacement is necessary are as follows:

- Waterline marks less than 12-in below the top of the bypass weir.
- Water level differential between the influent chamber and the effluent chamber.
- For most installations, not more than three-quarters (3/4) of the filter housing diameter should be submerged on a dry day.
- Obvious heavy loading of leaves, sticks or construction debris.

Record observations and comments on the maintenance log sheet. In addition, the use of digital photographs and/or sketches may be warranted to maintain the most accurate historical records.



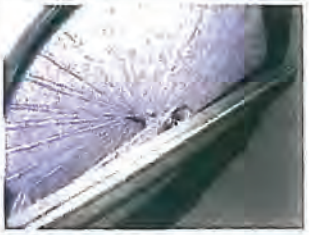
Cleaning and Helical Filter Replacement

If cleaning or helical filter replacement is deemed necessary, the following procedure is recommended:

1. Secure the worksite with the appropriate safety equipment in accordance with local and OSHA regulations.
2. Remove both the 36" and 30" manhole access covers located over the influent and effluent chambers of the StormSafe. Allow several minutes for the chambers to vent.
3. Perform an internal and external visual inspection of the vault's general condition including both access manhole covers and castings, as well any exposed concrete surfaces. Record any visual anomalies such as cracks, gouges, hollows, excess wear or settling.
4. Without entering the vault, both the Influent and effluent chambers can be cleaned using a typical vacuum truck or similar vacuum equipment with sufficient storage capacity.
5. Both the influent and effluent chambers are designed to accommodate standard suction hoses typical to vacuum equipment. Thoroughly vacuum liquids, debris and sediment from both chambers.
6. If helical filter replacement is deemed unnecessary, reinstall both the 36" and 30" manhole access covers. Clean the jobsite as necessary and record pertinent information on the attached "Maintenance Log Sheet" to complete the job.
7. If helical filter replacement is deemed necessary, vault entry is required, and OSHA rules for confined space entry must be followed.
8. Removal of the helical filters is done from the influent chamber. Due to possible slippery floor conditions, care should be taken to avoid falls.
9. Using a suitable ladder, enter the influent chamber and start by removing the diffuser assembly located on the face of each filter housing tube. Each diffuser assembly is attached to the housings by means of three (3) wing nuts. A pair of pliers may be required to loosen the wing nuts.
10. With the diffuser assembly removed, the helical filters are exposed and can be pulled directly out of the housing. In general, each housing will contain five (5) separate helical filters. Each helical filter contains a centrally located eye-nut. The eye-nut conveniently allows for a pole hook to aid in the removal of each helical filter.

Cleaning and Helical Filter Replacement *(continued)*

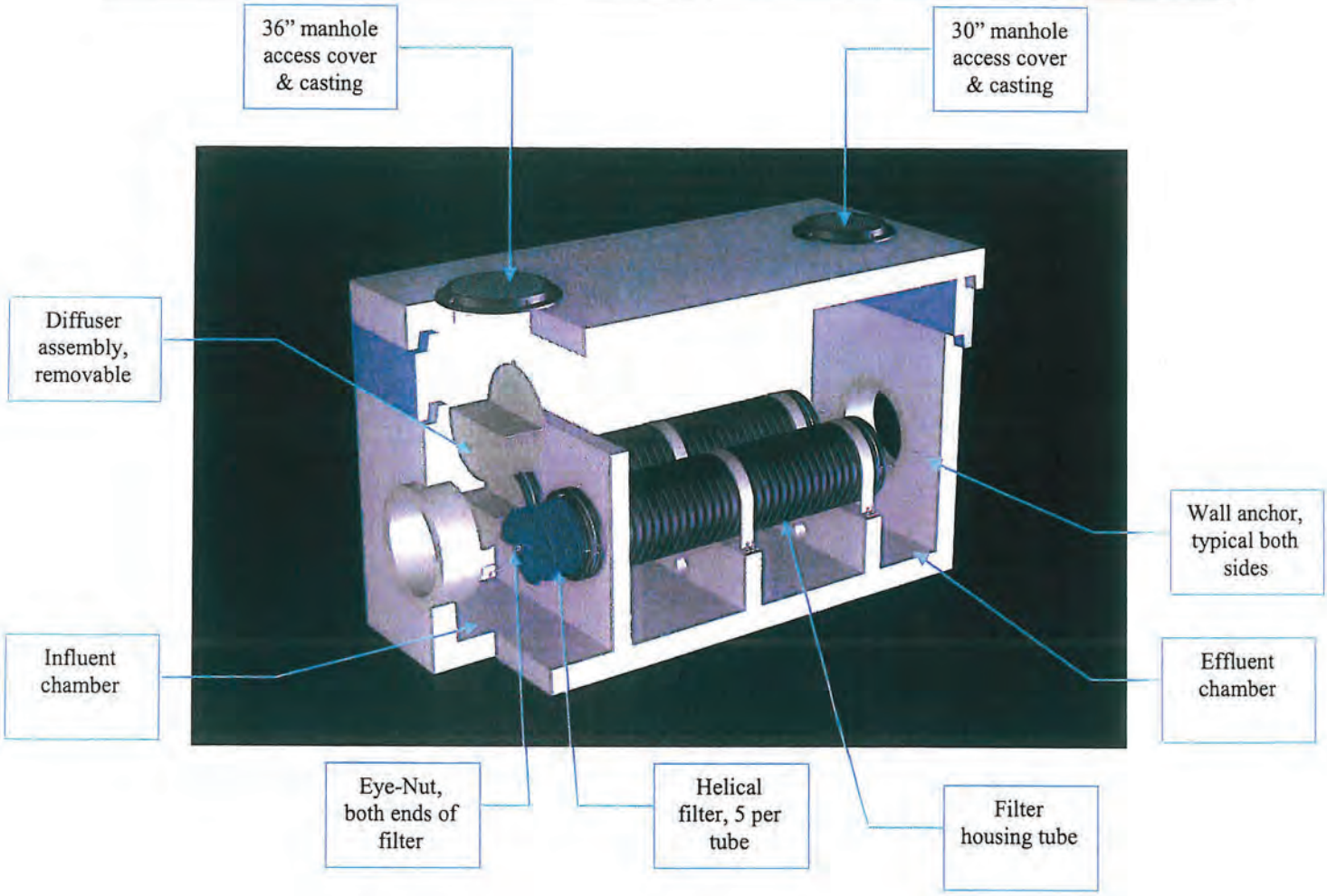
11. In the unusual circumstance that a helical filter is difficult to remove by hand, wall anchors are provide and located directly across from the filter housings. The wall anchors can be used to attach a ratchet pulling device or a crank puller.
12. Remove the helical filters from the housing one at a time and locate under the 36" manhole. Using a rope or chain and hook assemble (rated for a 100-lb load min.) lift the spent helical filter out of the vault. Note that the eye-nut located on each end of the filter is designed to support the full weight of the spent filter. Repeat this process until all the spent helical filters have been removed from the vault.
13. Although not generally required, a small crane system can be used to lift (or lower) the helical filters. Typical spent filter weight is approximately 75-lb.
14. With the helical filters removed, visually inspect the housing tube(s) for any sign of damage. Remove as much sediment and /or debris as possible to allow for a clean installation of the new helical filters.
15. Again, using the eye-nuts located on either side of the helical filters, lower each new filter through the 36" manhole opening to the vault floor.
16. With the diffuser assembly removed, carefully push each new helical filter into the housing tube, ensuring that each filter is fully inserted prior to installing the next.
17. After installing the five (5) helical filters into each of the housing tubes, replace the diffuser assemblies and secure in place by tighten the wing nuts.
18. Filter installation is now complete. Remove any tools, ropes, chains or installation devices from both chambers.
19. Brush or scrape as necessary the manhole covers and support frames prior to reinstalling both the 36" and 30" manhole covers.
20. Clean the jobsite as necessary and record pertinent information on the attached "Maintenance Log Sheet".



Disposal

All removed water, oils, sediment, debris, trash and other accumulates collected in the StormSafe must be handled and disposed of in accordance with local, state and federal regulations.

Disposal considerations must be part of a well-planed and scheduled vault maintenance regime. Solid waste disposal can typically be coordinated with a local landfill, whereas liquid waste can be disposed of at either a wastewater treatment plant, or a municipal vacuum truck decant facility.



Inspection and Maintenance Log-Sheet **StormSafe –Helix Stormwater Treatment Chamber**
Maintenance Company Information
Company Name:
Onsite Technician:
Contact Phone No:

StormSafe-Helix Vault Information	
Date of Maintenance:	Fabco Vault P/N:
Vault Location:	
Water Depth (prior to maintenance):	**Comments**
Sediment Depth (prior to maintenance):	
Structural Damage:	
Maintenance Performed:	
Water level differential between chambers:	
Additional Work Required:	
Structural Repairs:	

APPENDIX G

Tree Box Maintenance Guide and DVD

(Manufacturer: Filterra)

Filterra® Maintenance Steps

1. Inspection of Filterra and surrounding area

2. Removal of tree grate and erosion control stones

3. Removal of debris, trash and mulch

4. Mulch replacement

5. Clean area around Filterra

6. Complete paperwork and record plant height and width

For additional information please contact your local Filterra sales representative.
Eastern Zone: 866-349-3458, Western Zone: 877-345-1450.

APPENDIX H

STORMWATER BMP- ANNUAL MAINTENANCE REPORT

Nassau County Department of Public Works

STORMWATER BMP – ANNUAL MAINTENANCE REPORT

Employee Name: Title:	Date of Inspection:
Supervisor: Title:	Department:

NAME AND LOCATION OF STORMWATER BMP
• • •

LAST RAINFALL EVENT (DATE AND MAGNITUDE OF EVENT)
• • •

WEATHER CONDITIONS
• • •

CONDITION OF BMP NOTED DURING EVALUATION
• • •

NOTES / ISSUES / FOR FURTHER ACTION
• • • •

EMPLOYEE SIGNATURE	SUPERVISOR SIGNATURE
Name: Date:	Name: Date:

APPENDIX I

FACILITY SELF-ASSESSMENT CHECKLIST FORM

FACILITY SELF-ASSESSMENT CHECKLIST FORM

Directions: This Facility Self-Assessment Checklist Form should be used as a supplement to the most recent version of the NYSDEC SPDES General Permit for Stormwater Discharges from MS4s; any relevant local laws; the SWMP Plan and associated/supplemental documents; and State and Federal technical standards and guidance documents.

Operations conducted at and/or from the facility should be included on this Facility Self-Assessment Checklist Form. Attach photographs, maps, aerial photographs, site plans, etc. to this Form. If a section or question is not applicable, leave blank and skip to the next section or question.

Date:	Assessed by:
Camera ID Number:	Photo Numbers:

A. Basic Facility Information	
Facility Name:	Unique Site ID:
Facility Type:	
Facility Street Address:	
Receiving Water Body or Recharge Basin (if known):	
Facility Manager:	Phone Number:
Basic Description of Operations:	

B. Street/Parking Lot Maintenance ☐ **N/A** *(Skip to Section C)*			**Potential Pollutant Source?**
Condition of paved surfaces: ☐Clean ☐Stained ☐Debris Accumulation ☐Cracked ☐Broken			☐
Is a regular street sweeping program conducted for municipal roads/properties?	☐Yes	☐No	☐
Are logs kept on the miles of streets and acres of parking lots swept?	☐Yes	☐No	☐
What percentage of public streets are swept at least once a month? _____%			☐
Are streets swept in the early spring to clean winter sand/sediment accumulation?	☐Yes	☐No	☐
Is there a management plan for collected sweepings?	☐Yes	☐No	☐
Is the street sweeping equipment capable of picking up a range of sediment particles?	☐Yes	☐No	☐
Is the street sweeping equipment regularly maintained?	☐Yes	☐No	☐
Are herbicides and/or pesticides applied (within the right-of-way)?	☐Yes	☐No	☐
Are fertilizers applied (within the right-of-way)?	☐Yes	☐No	☐
Are maintenance, paving and resurfacing conducted during dry weather?	☐Yes	☐No	☐
Are procedures followed to protect storm drains during maintenance operations?	☐Yes	☐No	☐
Are stockpiles (e.g., sand/salt) stored indoors or covered?	☐Yes	☐No	☐
Are stockpiles (e.g., sand/salt) stored on paved surfaces?	☐Yes	☐No	☐
Are stockpiles (e.g., sand/salt) bermed and placed away from storm drains?	☐Yes	☐No	☐
Have anti-icing programs been considered?	☐Yes	☐No	☐

FACILITY SELF-ASSESSMENT CHECKLIST FORM

C. Vehicle and/or Equipment Maintenance ☐N/A *(Skip to Section D)*	**Potential Pollutant Source?**
Types of Vehicles/ Equipment: ☐Fleet ☐Construction ☐Garbage ☐Concrete ☐Emergency ☐Sweeper ☐Vactor ☐Mower ☐Others: _____	☐
Approximate Number of Vehicles Maintained on Site: #_____	☐
Vehicle Activities: ☐Stored ☐Fueled ☐Washed ☐Maintained ☐Repaired	☐
Are vehicles/equipment maintained and/or repaired inside? ☐Yes ☐No	☐
If they are maintained/repaired outside, do they have runoff diversion methods? ☐Yes ☐No	☐
Is there evidence of spills/leakages from vehicles/equipment on the pavement? ☐Yes ☐No	☐
Are fueling areas covered? ☐Yes ☐No	☐
Are fueling areas connected to storm drains? ☐Yes ☐No	☐
Are "Do Not Top Off" signs posted at the fueling area? ☐Yes ☐No	☐
Are vehicles/equipment washed indoors? ☐Yes ☐No	☐
Does the wash area discharge to the storm drain? ☐Yes ☐No	☐
Are detergents used to wash vehicles/equipment? ☐Yes ☐No	☐
Are all floor drains connected to the sanitary sewer? ☐Yes ☐No	☐
Are dry cleaning methods used for indoor and outdoor areas? ☐Yes ☐No	☐

D. Building/Yard Maintenance ☐N/A *(Skip to Section E)*	**Potential Pollutant Source?**
Approximate Age of Building: _____ yrs.	☐
Condition of Surfaces: ☐Clean ☐Stained ☐Discoloration ☐Dirty ☐Damaged	☐
Is there evidence of maintenance discharges to the storm drains? ☐Yes ☐No	☐
Are downspouts discharging to impervious surfaces or directly connected to storm drains? ☐Yes ☐No	☐
Are procedures followed to protect the storm drains during maintenance operations? ☐Yes ☐No	☐
Are loading/unloading operations conducted under covered and bermed? ☐Yes ☐No	☐
Are materials stored indoors or under cover with secondary containment? ☐Yes ☐No	☐
Are storage areas or loading/unloading operations directly connected to the storm drain? ☐Yes ☐No	☐
Is there an up-to-date inventory of all stored materials? ☐Yes ☐No	☐
Are storage containers missing labels or in poor condition (e.g., rusting)? ☐Yes ☐No	☐
Are dry cleaning methods used for indoor and outdoor areas? ☐Yes ☐No	☐
Condition of Dumpsters: ☐Good ☐No cover/Open lid ☐Damaged ☐Leaking ☐Overflowing	☐
Are dumpsters located near a storm drain inlet? ☐Yes ☐No	☐
Are General Permit/SWPPP procedures followed for applicable municipal construction? ☐Yes ☐No	☐

FACILITY SELF-ASSESSMENT CHECKLIST FORM

E. Parks/Landscape Maintenance ☐N/A *(Skip to Section F)*	**Potential Pollutant Source?**
% of Site with: ____Impervious Surfaces ____Trees ____Turf ____Plantings/Landscaping ____Bare Soil	☐
Are grasses cut shorter than 4 inches in height? ☐Yes ☐No	☐
Are herbicides and/or pesticides applied? ☐Yes ☐No	☐
Are fertilizers applied? ☐Yes ☐No	☐
Are there areas of compacted or bare soils? ☐Yes ☐No	☐
Intensity of Turf Management: ☐High ☐Medium ☐Low	☐
Is there evidence of non-target irrigation (runoff to impervious surfaces)? ☐Yes ☐No	☐
Does runoff from the landscaped areas lead to the storm drain? ☐Yes ☐No	☐
Are native plants used? ☐Yes ☐No	☐

F. Storm Water System Maintenance ☐N/A *(Skip to Section G)*	**Potential Pollutant Source?**
Complete and attach the CATCH BASIN INSPECTION FORM for two on-site or municipally-owned catch basins.	
Is Catch Basin #1 in satisfactory condition? ☐Yes ☐No	☐
Is there evidence of illicit discharges in Catch Basin #1? ☐Yes ☐No	☐
Is Catch Basin #2 in satisfactory condition? ☐Yes ☐No	☐
Is there evidence of illicit discharges in Catch Basin #2? ☐Yes ☐No	☐
Is there a regular inspection and maintenance program for catch basins? ☐Yes ☐No	☐
Are catch basins cleaned out when they are 1/3 or more filled with sediment/debris? ☐Yes ☐No	☐
Is there a management plan for materials and wastewater collected from catch basins? ☐Yes ☐No	☐
Are the catch basin cleaning trucks regularly maintained? ☐Yes ☐No	☐
Have all outfalls been inspected during dry weather in the last five years? ☐Yes ☐No	☐
Is there an inspection and maintenance program for other engineered storm water structures? ☐Yes ☐No	☐

G. Operation/Facility Potential Pollutant Status: Self-Assessment Results

☐Not a Source ☐Potential Source of Pollutants ☐Confirmed Source of Pollutants ☐Severe Source of Pollutants

Recommended Follow-up Actions:	
☐Immediate remediation action required	☐Track down answers to unknown questions
☐Review pollution prevention/good housekeeping procedures	☐Include in future employee education efforts
☐Revise pollution prevention/good housekeeping procedures	☐Search for illicit discharges
☐Include in pollution prevention/good housekeeping program	☐Schedule an in-depth/comprehensive inspection
	☐Other:_____

PHASE II STORM WATER MANAGEMENT PROGRAM
MINIMUM CONTROL MEASURE 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

CATCH BASIN INSPECTION

A. Basic Information		
Inspected By:	Date:	Time:
Structure ID:	Location Sketch (*Indicate address, streets, intersections, etc.*)	
Address:		
Nearest Intersection:		
Location: ☐ Roadway ☐ Curb ☐ Private Property ☐ Easement ☐ Gutter ☐ Other: _____		
Material: ☐ Brick ☐ Concrete		

B. Structure Condition					
	Satisfactory	Unsatisfactory	Not Applicable	Not Visible	If Unsatisfactory or Not Visible, Describe:
Cover	☐	☐	☐	☐	
Ring/Frame	☐	☐	☐	☐	
Rungs	☐	☐	☐	☐	
Walls	☐	☐	☐	☐	
Bottom	☐	☐	☐	☐	

C. Illicit Discharge Indicators					
Condition	☐ Clean/Dry	☐ Standing Water	☐ Flowing Water	☐ Sediment	
	☐ Organic Matter	☐ Trash/Debris	☐ Not Visible	☐ Other:_____	
Flow	☐ Trickle	☐ Moderate	☐ Substantial	☐ None-Standing Water	☐ None-Dry
Rate	☐ Steady	☐ Intermittent	☐ Not Applicable		
Illicit Discharge Indications Present? (dry weather flow, odor, color, floatables, turbidity, viscosity)	☐ Yes*	☐ No			
Comments/Notes:					

* If an Illicit Discharge is suspected, refer to the Written Procedures for Minimum Control Measure 3: Illicit Discharge Detection and Elimination Document for confirmation, elimination and enforcement procedures.

Form Completed By:

Name (print):	Date:
Signature:	

Excellence Delivered ***As Promised***

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