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I. Introduction

The city of New York is primarily served by a combined sewer system. Approximately 70% of the City is comprised of combined sewers with 4,800 miles of combined sewers within the five boroughs. The sewer system drains some 200,000 acres and serves a population of about 7 million. Approximately 450 outfalls are permitted to discharge during wet-weather through combined-sewer overflows (CSOs) to the receiving waters of the New York Harbor. Although these discharges do not represent a major source of pollution to the harbor on a long-term basis, they can result in local water-quality problems such as periodically high levels of coliform bacteria, nuisance levels of floatables, depressed dissolved oxygen, and, in some cases, sediment mounds and unpleasant odors.

The NYC Department of Environmental Protection (DEP) is committed to improving water quality and achieving the maximum potential uses of the region's waters, and to maintaining compliance with the applicable regulations. The City has committed billions of dollars for improved pollution-control facilities, water-quality monitoring programs, and scientific and engineering investigations of innovative and cost-effective pollution-control alternatives. As a result, water quality has improved dramatically over the past 10 years.

One of the City's major initiatives to improving local receiving water quality is the $1.8 billion Citywide CSO Program. For this program the City has been divided into eight (8) areas which together cover the entire harbor area. Four (4) area-wide project areas were developed (East River, Jamaica Bay, Inner Harbor, and Outer Harbor) and four (4) tributary projects areas were defined (Flushing Bay, Paerdegat Basin, Newtown Creek, and the Jamaica Tributaries) as shown in Figure 1.

This quarterly report summarizes recent progress by the City in its efforts to plan and construct the recommended CSO facilities under the Citywide CSO Program.

II. Project Progress for Comprehensive Citywide CSO Project

A.) Flushing Bay

- **Corona Avenue Vortex Facility**

The Corona Avenue Vortex Facility includes three vortex units operating in parallel in an underground facility in Corona Avenue, Queens. The three units treat flow diverted from the lower deck of the "CS-3" outfall (permitted CSO outfall BB–006 in the Bowery Bay WPCP system). The overflow from the facility is returned to the CSO outfall, the underflow (foul waste) is carried to the 108th Street Pumping Station which pumps the flow to the high level interceptor**.**

Construction

Construction is substantially complete. The facility has been on-line since November 1997. A few punch list items remain to be completed by the contractor.

Monitoring Program

The two-year sampling program began in March 2000. To date, seven water quality sampling events have been conducted. The program was originally to include 15 sampling events; however, additional events are now planned to allow testing of the vortex units individually for a number of storms. To date, ten floatable sampling events have been completed. An interim report on the sampling and monitoring was submitted on January 17, 2001. A second interim report will be prepared for the period ending March 31, 2001.

- **Flushing Bay CSO Retention Facility**

The Flushing Bay CSO Retention Facility is an underground storage tank, which will have a storage capacity of 43 million gallons, 28 MG in the tank and 15 MG in the upstream sewers. The facility collects flow from the system tributary to the "CS-4" outfall which discharges to the head of Flushing Creek. The elements of the facility include:

- Relocation of ball fields at the construction site
- Rerouting of sewers around the construction site
- Phase 1 construction of the underground structural elements of the tank
- Phase 2 construction of the mechanical and above-ground portion of the facility
- Construction of tide gates on the tank outfall sewer

Design

Design has been completed for all elements**.**

Construction

Construction has been completed for the relocation of ball fields and the rerouting of sewers. Phase 1 construction (Contract CS4-3) for the tank is 83% complete. Completion of all contract work for Phase 1 is projected for June 23, 2001. Bids were opened for the Phase 2 construction contracts but contracts have not yet been awarded. Phase 2 construction is projected to be completed for final acceptance by July 2004.

Table 1

Flushing Bay CSO Project

Plan Elements:	Corona Avenue Vortex Facility	Flushing Bay CSO Retention Facility	
Location:	Corona Avenue, Queens	Intersection of College Point Boulevard and Avery Avenue, Queens	
Actions:	Design and construction of three underground vortex units to treat CSO diverted from the lower deck of the "CS-3" outfall.	Design and construction of a 43 MG storage facility which includes a 28 MG underground storage tank and 15 MG in-line storage in upstream sewers. The facility collects flow from the system tributary to the "CS-4" outfall.	
Cost:	$33,000,000	$280,000,000	
Status:	Construction – substantially complete	Bids opened for Phase 2 construction but not yet awarded	
Other Issues:	Monitoring program – ongoing Contracts for final design of an odor treatment system at the facility and for final design of modifications at the facility are in progress.	Contract change orders for additional work are in progress.	

B.) Paerdegat Basin

The Paerdegat Basin CSO Retention Facility is located in southeastern Brooklyn and receives combined sewer overflows from a drainage area of approximately 6,000 acres. The Facility consists of a four (4) bay underground storage tank, which will have storage capacity of 30 million gallons, 20 MG in the tanks and 10 MG in the influent channels. The upstream combined sewers can store additional 20 million gallons. The stored CSO is pumped back to the Coney Island WPCP for treatment after each rain event.

The elements of the facility include the following design and construction phases:

- Phase IA (Contract 4A) – Influent Channels
- Phase II (Contract 4B) – Foundations and Substructures – underground structural elements
- Phase III (Contracts 5G, H, P & E) – Structures and Equipment – aboveground buildings and equipment
- Phase IV (Contract 6) – Natural Area Park Restoration

- **Phase IA – Influent Channels**

Design

Design was completed in 1997**.**

Construction

Construction of the influent channels to the CSO facility is ongoing. Completion of contract work is projected for September 2001.

- **Phase II - CSO Facility Foundations and Substructures**
- **Phase III – Structures and Equipment**

Meetings

Principal meetings held during this report period are as follows:

- Progress meetings with DEP were held during this period. The meetings took place on January 24, February 28, and March 28, 2001.

Design

Final design work continues on both Phases of the project simultaneously**.**

All outstanding Value Engineering (VE) issues from the previous VE sessions were resolved and responses to VE recommendations were finalized.

Cost Estimates and Schedules

The Consultant has developed final cost estimate for Contract 4B, Foundations and Superstructures. The cost estimate was submitted to DEP to obtain the CP number for the

project. The construction schedules were also developed. Contract 4B duration is estimated at 42 months; Contract 5 duration is estimated at 36 months. The Notice To Proceed (NTP) for Contract 4B is planned for January 2002.

Dredging

New bathymetry and chemical analysis of the Paerdegat Basin sediment were required to update the existing dredging permit application. To address this issue, the bathymetric survey of Paerdegat Basin was performed in late November 2000. The sediment sampling and analysis was done in January 2001.

Soils Disposal

It was determined that barges will be used to remove all excess soils from the construction site.

- **Phase IV – Natural Area Park Restoration**

Design

This phase will be designed in the future.

Table 2

Paerdegat Basin CSO Project

	Phase IA	*Phase II*	*Phase III*	*Phase IV*
Plan Elements:	Influent Channels	Foundations and Substructures	Structures and Equipment	Natural Area Park Restoration
Location:	Ralph Avenue and Flatlands Avenue, Brooklyn	Ralph Avenue and Flatlands Avenue, Brooklyn	Ralph Avenue and Flatlands Avenue, Brooklyn	Ralph Avenue and Flatlands Avenue, Brooklyn
Actions:	Construction of the influent channels to the CSO facility	Underground structural elements	Aboveground buildings and equipment	Park extending on both sides of Paerdegat Basin.
Cost:	$9,000,000	$145,809,424	$130,026,844	$8,000,000
Status:	Design was completed in 1997 Completion of Contract work is projected for September 2001	Final design work continues simultaneously With Phase III.	Final Design work continues simultaneously with Phase II.	This phase will be designed in the future.
Other Issues:		Barges will be used to remove the excess soil from the construction site	Barges will be used to remove the excess soil from the construction site	

C.) Inner Harbor

The Inner Harbor CSO Facility Planning area consists of the North River, Newtown Creek, and Red Hook WPCP drainage areas. The facility plan concluded that CSOs in the Inner Harbor do not contribute to dissolved oxygen and coliform problems in the open water areas of the Hudson River, Lower East River, and Upper Bay. Therefore, consistent with the EPA's Nine Minimum Controls, the recommended elements of the facility plan for the open waters consists of:

- Regulator improvements
- In-Line CSO storage
- Throttling Facilities

In contrast to open waters, in Gowanus Canal, CSOs have a significant impact on Numerical water quality limits for dissolved oxygen. The recommended plan for Gowanus included:

- Reactivate the Flushing tunnel
- Dredge the canal

- **Open Waters**

Meetings

Three progress meetings between Hazen and Sawyer and DEP were held during this period. The meetings took place on January 16, February 20, and March 20, 2001.

Final Design

In the final design contract, the following three elements have been targeted in order to achieve the goals of reducing the magnitude, frequency, and duration of CSO discharges:

- Phase I – Regulator Improvements
- Phase II – Throttling Facilities
- Phase III – In-Line Storage (Inflatable Dams)

Design has continued on the Phase I portion of the contract. The major components of this segment are: conversion to fixed orifice type regulators with the removal of all actuator and associated mechanical equipment, replacement of all sluice gates, capping of all water supply lines to the regulators, replacement of deteriorated stop plank guides, and replacement of all manhole rungs. New sluice gates will be manually operated through floor boxes located at surface level; portable actuators will be provided to the DEP as part of the contract. Approximately 70 regulators in Manhattan and Brooklyn will be affected by these improvements.

Design has begun on the Phase II portion of the contract. This phase will provide two new 5’ wide by 6’ high throttling gates upstream of the North River WPCP, which currently treats an average dry weather flow of 170 MGD and a peak wet weather flow of 340 MGD. The gates will be located in the junction chamber 450’ upstream of the plant forebay, and will be individually powered with electric hydraulic actuators to be controlled from the plant. Installation will take place through a new shaft that will be drilled to the 100-foot depth of the throttling facility. After construction is complete, this shaft will provide a permanent passageway for maintenance of the gates and actuators.

Final design of Phase III has not yet been initiated.

Table 3

Inner Harbor CSO Project

OPEN WATERS

	Phase I	*Phase II*	*Phase III*
Plan Elements:	Regulator Improvements	Throttling Facility	In-Line Storage
Location:	70 regulator sites throughout Manhattan and Brooklyn	North River WPCP	Upstream of regulators B-6 and R-20 in Brooklyn
Actions:	Conversion to manually operated sluice gates, replacement of stop plank guides, termination of water supply	Installation of two sluice gates in interceptor sewer	Installation of two inflatable dams in the combined sewer systems
Construction Cost:	$14,000,000	$2,000,000	$3,000,000
Status:	Final Design – 75% Complete	Final Design –15% Complete	Final Design – Not Initiated
Other Issues:	-	-	-

D.) Outer Harbor

The Outer Harbor CSO Facility Planning area consists of the drainage areas of the Port Richmond, Oakwood Beach, Owls Head and Coney Island (separately sewered area) Water Pollution Control Plants (WPCPs) and their associated sewers and pumping stations. The receiving waters of the study area include the New York limits of the Raritan Bay, Arthur Kill, Kill Van Kull, Upper New York Bay waters to the boundary of the Inner Harbor CSO Project, the Narrows, Gravesend Bay, Lower New York Bay, Richmond Creek and Lemon Creek. The facility plan concluded that CSOs have minimal impact on the dissolved oxygen and coliform concentrations in the open water areas of the Outer Harbor. Therefore, consistent with the EPA's Nine Minimum Controls, the recommended elements of the facility plan for the open waters consist of:

- Regulator Improvements
- Throttling Facilities
- In-Line CSO Storage

- **Open Waters**

Preliminary Design

Meetings

Principal meetings held during this report period were as follows:

- Project Progress Meetings with NYCDEP on January 16, February 20, and March 20, 2001.

Throttling Facilities

Evaluation of the feasibility of installation of new throttling gate in the East Branch 2 interceptor, from Hannah Street Pump Station to the Port Richmond WPCP, was completed. A 60" x 72" sluice gate is proposed to be installed approximately 120 ft upstream of the junction chamber in the east interceptor in order to store the flow on the east side. In addition, throttling of the proposed new gate would reduce the high velocities at the screening channels which result from throttling of the existing sluice gates at the Port Richmond WPCP.

Design Memorandums

A preliminary design report was submitted for review to the NYCDEP on March 8, 2001. This report includes the following recommended elements:

- Regulator Improvements
- Throttling Facility
- In-Line Storage

Table 4

Outer Harbor CSO Project

	Phase I	*Phase II*	*Phase III*
Plan Elements:	Regulator Improvements	Throttling Facility	In-Line Storage
Location:	70 regulator sites throughout Manhattan and Brooklyn	Port Richmond WPCP	Owls Head: OH-6C Port Richmond: PR-6W
Actions:	Conversion to manually Operated sluice gates, replacement of stop plank guides, termination of water supply	Installation of sluice gate in east interceptor sewer	Installation of two inflatable dams in the combined sewer system
Project Cost:	$4,800,000	$1,300,000	$3,100,000
Status*:*	Final Design – Not initiated	Final Design – Not initiated	Final Design – Not initiated
Other Issues:	------	-----	-----

E.) Jamaica Bay

The Jamaica Bay CSO Abatement Facilities Plan submitted in November 1993 recommended retention of 34 million gallons of CSO from Fresh Creek (27 million gallons) and Hendrix Creek (7 million gallons) combined. The retention facility was to be located beneath the Bruekelen Houses Park, a 12-acre site north of the head end of Fresh Creek, and adjacent to the major CSO sewer in Williams Avenue.

Two issues that necessitated examining alternate options impacted the feasibility of constructing this facility at the proposed location. These issues were: 1) the need to provide five interim ballfields off-site, but within the immediate neighborhood, to replace the five ballfields that would be eliminated during the construction, and 2) the subsequent sale of the only large available land in the immediate neighborhood that could accommodate five interim ballfields.

Recently, a third issue necessitating alternatives to storage beneath Bruekelen Park materialized: park land alienation resulting from the Croton Water Treatment Plant lawsuit.

Over the past several years, the advent of soft ground tunneling has resulted in this type of construction to now be seen as practical for the project area. The alternate option of a storage/conveyance tunnel in lieu of retention tank involves a construction of a 23 foot diameter tunnel about 80 feet beneath Jamaica Bay using advanced full faced Earth Pressure Balanced Tunnel Boring Machine (EPBTMB) and precast concrete segmented gasketed lining techniques. This facility relocates the CSO from the existing Fresh Creek outfall by the Williams Avenue regulator to a NYCDEP owned site south of the sludge dewatering facility at the 26th Ward WPCP, and from Hendrix Creek outfall at the Hendrix Street Canal near the 26th Ward WPCP to the south of sludge dewatering facility at the 26th Ward WPCP. The proposed tunnel will store and convey about 27 million gallons (per Value Engineering revision) of CSO from Fresh Creek (22 million gallons) and Hendrix Creek (5 million gallons), combined, before overflowing into the Hendrix Creek just south of the 26th ward WPCP. Preliminary estimates resulted in a tunnel length of approximately 16,000-ft. Preliminary examination has indicated that less land acquisition would be required for construction for this alternate and also, water quality computer models have resulted in improved water quality in Fresh Creek in reference to dissolved oxygen (DO) and coliform standards.

Other derivative studies from Jamaica Bay CSO Facility Planning Project are the Jamaica Bay Eutrophication Study and Jamaica Bay Chlorine Residual Study.

Meetings

No meetings held during this period.

Preliminary Examinations

Further work on CSO planning and preliminary design is awaiting administrative approvals for a change order to the Engineer's contract. The draft final O'Brien & Gere Eutrophication Study report was submitted to the Department on October 19, 2000 and to the NYSDEC on November 3, 2000. A report on the Chlorine Residual Study is under development.

Table 5

Jamaica Bay CSO Project

Plan Elements:	CSO Storage Tank	Dredging	
Location:	Fresh Creek, Brooklyn	Head Ends of Fresh, Hendrix and Spring Creeks	
Actions:	Facility Plan and conceptual/preliminary design to be revised for storage/conveyance tunnel	No additional actions regarding dredging have been taken on this project at this time	
Project Cost:	$295 million	$3 million (estimate from 1993 Facility Plan)	
Status:	Awaiting administrative approval for a change order for facility plan revisions and conceptual/preliminary design	No further work undertaken	
Other Issues:	ULURP, SEQR to be revised		

F.) East River

- **Bronx River**

Project Description

The Bronx River CSO Storage Conduit Project will include construction of a storage conduit to effect 4 MG of off-line CSO storage capacity to provide CSO abatement at Outfall HP-23 on the Bronx River. The storage conduit, which will be approximately 500' L x 60' W x 18' H, will be located along the east shore of the Bronx River in an area immediately south of the intersection of East 177th Street, Devoe Avenue and the Sheridan Expressway. This project will also include relocating Outfall HP-23, approximately 600 feet downstream of the outfall's existing location, to the downstream end of the storage conduit. Existing Outfall HP-23 will be abandoned. Other principal facilities to be constructed as part of this project include a pumping station with a rated capacity of 2,800 gpm with an accompanying 16-inch diameter force main for pumpback purposes, air treatment facilities, and mechanical screening facilities.

Meetings

Principal meetings held during this report period are as follows:

- Project Progress meetings on January 18, 2001, February 15, 2001 and March 15, 2001 at the NYC Department of Environmental Protection (NYCDEP) offices between representatives of the NYCDEP, NYS Department of Environmental Conservation (NYSDEC), URS, Lawler, Matusky and Skelly Engineers (LMS) to discuss and review the overall progress of the East River CSO Project.
- Meeting on January 12, 2001 at the MTA-NYCT (Metropolitan Transit Authority-New York City Transit) Coliseum Bus Depot Project site between representatives of Consolidated Edison, NYSDOT, MTA-NYCT, NYCDEP and URS to discuss in place contract utility work affected by the Bronx River CSO Storage Conduit and the Greenway Project.
- Meetings on January 18, 2001 and February 15, 2001 at the NYCDEP offices between representatives of the NYCDEP, NYCDPR, NYSDOT, NYC Mayor's Office of Environmental Coordination (NYCMOEC), URS and LMS to discuss issues, responsibilities and schedules with regard to preparation of the EAS for the Bronx River CSO Storage Conduit Project and the Greenway Project.
- Presentation on February 23, 2001 by URS at the NYCDEP offices to representatives of the NYCDEP on all issues relating to the Bronx River CSO Storage Conduit Project and the Greenway Project, but specifically including discussions on ULURP issues and possible alienation of parkland issues.
- Meeting on March 27, 2001 at the NYCDEP offices between representatives of the NYCDEP and URS to discuss the draft Memorandum of Understanding (MOU) for the Bronx River CSO Storage Conduit/Greenway Project.

- Meeting on March 30, 2001 at the NYCDCP offices in Manhattan between representatives of the NYCDCP, NYCDEP and URS to discuss issues and requirements pertaining to the preparation of the ULURP Application for the Bronx River CSO Storage Conduit/Greenway Project.

Field Investigations

Principal field investigations conducted during this report period are as follows:

- Topographical, utility and boundary surveys for the project were completed in January 2001, except surveys of the Amtrak bridge for use by the NYSDOT. Plots of the surveys were provided to URS for review.
- Selected and approved by the NYCDEP Craig Test Boring Company to drill the environmental borings at the site of the CSO Storage Conduit, and Toxikon to analyze the samples collected from these borings in January 2001.
- Initiated archaeological review of the geotechnical boring logs for the conduit site in January 2001.
- Prepared and submitted protocols for drilling and analysis of ten additional environmental borings along the northern portion of the Greenway Project to the NYCDEP in mid-January 2001 for review.
- Completed the geotechnical investigation report for the CSO Storage Conduit, and submitted it to the NYCDEP in late January 2001.
- Continued to revise the odor sampling and testing protocols for the CSO Storage Conduit, based on comments received from the NYCDEP.

Environmental Review

URS prepared and submitted to the NYCDEP in mid-March 2001 a summary describing details, scenarios, alternatives and issues regarding the Bronx River CSO Storage Conduit/Greenway Project; in particular, the development of the EAS for the combined project, and the development of the responsibilities for the northern and southern sections of the Greenway Project.

URS and LMS continued with preparation of the draft EAS.

ULURP

URS continued with preparation of the draft ULURP Application.

A meeting was held between NYCDEP and NYCDCP on March 30 to discuss the issues relating to the ULURP application for this project.

Facility Planning/Preliminary and Final Designs

Principal work performed during this report period includes:

- Prepared and submitted to the NYCDEP an updated construction cost estimate for the Bronx River CSO Storage Conduit Project in January 2001.
- Completed an investigation to determine the possibility of revising the footprint of the CSO Storage Conduit to avoid a conflict with two utilities (a communications cable and a storm sewer) previously installed as part of the Coliseum Bus Depot Project. The results of this investigation were summarized in a letter to the NYCDEP in mid-March 2001.
- Continued with preliminary design of the CSO Storage Conduit.

Table 6

Bronx River CSO Project

Plan Elements:	Bronx River CSO Storage Facility		
Location:	Property off of intersection of 177th Street, DeVoe Ave., and Sheridan Expressway		
Actions:	Design and construction of 4.0 M.G. storage facility, with outfall, including screenings, air treatment system, and pumping station to pump stored CSO flow back into the interceptor system.		
Cost:	$50,000,000		
Status:	Final Design 70% complete		
Other Issues:	Awaiting EAS Negative Declaration		

Hutchinson River

Project Summary

The Hutchinson River CSO Storage Conduit Project will include the construction of a storage conduit to effect 7 MG of off-line storage in order to provide CSO abatement at Outfalls HP-14 and HP-15 on the Hutchinson River. The design of the storage conduit will incorporate the San Francisco Collector concept so as to achieve a level of primary treatment (settling) within the conduit. The storage conduit will consist of a northern reach and a southern reach. The northern reach will consist of a conduit varying in width from 16'-0" to 24'-0" by a height of 11'-0" extending southward within roadway rights-of-way approximately 3,600 linear feet from near where Boston Road crosses over the Hutchinson River to the Conner Street Pumping Station, resulting in 4.7 MG of storage capacity. The southern reach will consist of a conduit (10'-0" W x 11'-0" H) extending southward within roadway rights-of-way approximately 3,300 linear feet from the intersection of Conner Street and Peartree Avenue to the CO-OP City North Pumping Station, resulting in 2.3 MG of storage capacity. Other principal facilities to be constructed as part of this project include: four large chambers for connection of the storage conduit to the existing sewer system; modifications to the existing Conner Street and CO-OP City North Pumping Stations; air treatment facilities; rehabilitation of existing Outfalls HP-14 and HP-15; and construction of a new outfall at the southern terminus of the southern reach.

Meetings

Principal meetings held during this report period are as follows:

- Project Progress meetings on January 18, 2001, February 15, 2001 and March 15, 2001 at the NYC Department of Environmental Protection (NYCDEP) offices between representatives of the NYCDEP, NYS Department of Environmental Conservation (NYSDEC), URS, Lawler, Matusky and Skelly Engineers (LMS) and Dvirka and Bartilucci Engineers to discuss and review the overall progress of the East River CSO Project.
- Meeting on February 9, 2001 at the New York Bus Service Company (NYBSC) offices in the Bronx between representatives of the NYBSC, Consolidated Edison, NYCDEP and URS to discuss the NYBSC high pressure gas main which will be installed along Loop Road.
- Meeting on February 27, 2001 at the URS offices between representatives of URS and LMS to discuss geotechnical and environmental issues for the project, including pumping and treating groundwater, contamination from the Hexagon Pharmaceutical spill site and the NYBSC fuel oil spill, the soil support system along the route of the conduit, pile design and soil liquefaction.

Field Investigations

Principal field investigations conducted during this report period are as follows:

- Completed review of the final draft of the seismic refraction survey report prepared by Hager-Richter Geoscience, Inc., for the southern reach of the CSO Storage Conduit, and submitted the report to the NYCDEP in late January 2001.
- Completed the soils classification analyses in March 2001 to determine quantities of regulated, non-regulated and hazardous soils for bidding purposes. These analyses are currently under in-house review.
- Continued to review the draft report prepared by LMS summarizing the results and conclusions of the baseline odor sampling investigation.
- Continued to prepare a draft geotechnical investigation report summarizing the results and conclusions of the subsurface investigation along both the northern and southern reaches of the CSO Storage Conduit in a single report.
- Prepared a draft environmental investigation report summarizing the results and conclusions of the environmental boring investigation along both the northern and southern reaches of the CSO Storage Conduit in a single report.

Environmental Review

The revised draft EAS submitted to the NYCDEP in late December 2000 remained under review.

ULURP

The NYCDEP Corporation Council made a determination that a ULURP review is not needed for the CSO Storage Conduit, and sent correspondence to the NYSDEC documenting this determination.

Facility Planning/Preliminary and Final Designs

Principal work performed during this report period includes:

- Continued to refine landside modeling of the Hunts Point WPCP sewer system downstream of the proposed CSO Storage Conduit.
- Prepared and submitted updated construction costs for the northern and southern reaches of the Hutchinson River CSO Storage Conduit in January 2001.
- Completed the layouts of the chambers and revisions to the CSO Storage Conduit in January 2001.
- Submitted a memorandum summarizing the discussions of the February 27, 2001 meeting between URS and LMS at the URS offices to the NYCDEP in March 2001.
- Continued civil and structural design of the northern and southern reaches of the conduit.

- Continued design to prevent potential inflow of contaminated groundwater from the Hexagon Pharmaceutical Spill site into the construction work.
- Continued to make revisions to the traffic control plan, pavement limits and related items for the northern and southern reaches of the CSO Storage Conduit for re-submittal to the NYCDOT for review and approval.

Table 7

Hutchinson River CSO Project

Plan Elements:	Hutchinson River CSO Storage Conduit		
Location:	Public Right-of-Ways from Boston Road to COOP City North Pumping Station		
Actions*:*	Design and construction of 4.7 M.G. northern segment and 2.3 M.G. southern segment of CSO Storage Conduit. Includes overflow chambers and conduits, dry weather flow conduits, outfalls and drainage conduits with connections to Conner Street P.S. for northern segment, and CO-OP City North P.S. for southern segment.		
Cost:	$120,000,000		
Status:	Final Design beginning.		
Other Issues:	Awaiting EAS Negative Declaration and ULURP review.		

Alley Creek

Project Summary

The Alley Creek Drainage Area Improvements/CSO Abatement Facilities Project will be constructed in two phases with the first phase consisting of two stages, the Alley Creek Drainage Area Improvements (Phase I, Stage 1), the Alley Creek CSO Abatement Facilities (Phase I, Stage 2), and the Oakland Ravine Stormwater Treatment System (Phase II). The principal elements included in the project are additional stormwater and combined sewers, a new outfall sewer, and a new combined sewer outfall to substantially eliminate street flooding and sewer surcharging, and construction of a new 5 MG CSO Storage Facility to abate CSO discharges into Alley Creek (Phase I, Stage 1); activation of the 5 MG CSO Storage Facility (Phase I, Stage 2); and, construction of a stormwater treatment system in the form of settling basins and natural emergent wetlands (Phase II).

The principal facilities to be provided under Phase I, Stage 1 include approximately 1,300 linear feet of an 11'-0" W x 8'-0" H combined sewer; approximately 1,200 linear feet of an 11'-0" W x 9'-0" H combined sewer; approximately 2,900 linear feet of stormwater sewers ranging from 15- through 48-inches in diameter; a double barrel outfall sewer consisting of approximately 1,475 linear feet of two 16'-0" W x 7'-6" H barrels followed downstream by approximately 650 linear feet of two parallel 20'-0" W x 8'-6" H barrels (average height); a CSO Storage Facility to be constructed alongside of the 20'-0" W x 8'-6" H (average height) double barrel outfall sewer, with approximate dimensions of 120 feet wide by 600 feet long and a maximum depth of 15 feet; and, an outfall structure on Alley Creek. The outfall sewer will discharge into Alley Creek through the new outfall structure to be constructed under Phase I, Stage 1.

The 5 MG CSO Storage Facility will also be constructed under Phase I, Stage 1, and activated under Phase I, Stage 2. The final 600 feet of the new outfall sewer will function as part of the CSO Storage Facility after the construction of a weir to induce CSO storage during rainstorms. The CSO Storage Facility will be cleaned, after storms and draining, using ten HydroSelf Flushing Gates (five at each end of the CSO Storage Facility). The stormwater treatment system to be provided under Phase II will consist of a wetlands treatment system to be constructed in Oakland Ravine to provide primary and secondary treatment, with the treated effluent being discharged into Oakland Lake, and ultimately into Alley Creek through the existing 10'-0" W x 7'-6" H outfall sewer.

Meetings

Principal meetings held during this report period are as follows:

- Project Progress meetings on January 18, 2001, February 15, 2001 and March 15, 2001 at the NYC Department of Environmental Protection (NYCDEP) offices between representatives of the NYCDEP, NYS Department of Environmental Conservation (NYSDEC), URS, Lawler, Matusky and Skelly Engineers (LMS) and

Dvirka and Bartilucci Engineers to discuss and review the overall progress of the East River CSO Project.

- Meeting on January 18, 2001 at the NYCDEP offices between representatives of the NYCDEP and URS to discuss the hydraulics and operation of the Alley Creek Drainage Area Improvements/CSO Abatement Facilities Project.
- Meeting on January 24, 2001 at the NYCDEP offices between representatives of the NYCDEP, URS and LMS to discuss and coordinate issues and requirements to allow finalization of the ULURP Application and Environmental Assessment Statement (EAS).
- Meeting on January 30, 2001 at Middle School MS 158 between representatives of the community, Community Board No. 11, NYCDEP, URS and SIMCO Engineering to discuss issues regarding the Alley Creek Project, including traffic issues and construction along 46th Avenue.
- Meeting on February 6, 2001 at the NYC Department of Transportation (NYCDOT) offices in Manhattan between representatives of the NYCDOT, NYCDEP and URS to review the Maintenance and Protection of Traffic (MPT) plans.
- Meeting on February 21, 2001 at the NYCDEP offices between representatives of the NYCDEP, Consolidated Edison, Verizon, Time Warner Cable, NYC Fire Department, NYCDOT, NYC Department of Design and Construction (NYCDDC) and URS to discuss utility coordination for the Alley Creek Project.
- Meeting on March 7, 2001 at the Queens Borough President's Office (QBPO) between representatives of the community, Community Board No. 11, political organizations, QBPO, NYSDOT, NYCDDC, NYCDEP, NYCDPR, NYSDEC and URS to review and discuss the progress of the Alley Creek Project.
- Meeting on March 28, 2001 at the NYCDEP offices between representatives of the NYCDEP and URS to review the design of the Alley Creek Project
- Meeting on April 2, 2001 at the NYCDEP offices between representatives of the NYCDEP NYC Department of Parks and Recreation (NYCDPR), URS and LMS to review the designs for the ecological restoration within Alley Park, the planting of street trees along the routes of the sewer work included in the project and the restored/created wetlands.

Field Investigations

Principal field investigations conducted during this report period are as follows:

- Analyzed results of initial round of groundwater samples collected from monitoring wells installed along the routes of the upstream sewers and the outfall sewer/CSO Storage Facility in January 2001.
- Analyzed results of a second round of groundwater samples collected from monitoring wells installed along the routes of the upstream sewers and the outfall

sewer/CSO Storage Facility due to high results for BOD_5, COD and TSS, using the laboratory which analyzed the initial round, as well as an independent laboratory, in late January 2001.

- Completed the soils classification analyses based on soil samples collected from the environmental borings drilled along the routes of the upstream sewers and outfall sewer/CSO Storage Facility, and submitted a report presenting the results and findings of the soils classification analyses to the NYCDEP in February 2001.

URS submitted water quality data for Oakland Lake, based on samples collected from the lake in 1996 and 1997, to the NYSDEC in mid-January 2001.

Massand Engineering initiated work to prepare the metes and bounds survey of the Alley Creek CSO Project limits within Alley Park, which is required to support proposed parkland alienation legislation, in March 2001.

URS continued to finalize the geotechnical investigation report by incorporating recent design revisions.

URS and LMS continued to finalize the environmental investigation report.

Environmental Review

URS submitted to the NYCDEP design drawings presenting the details with regard to the replacement of the street trees, the wetlands mitigation plan for Alley Park and the ecological restoration plans for Alley Park in late January 2001. The survey results of existing trees within Alley Park was also included in this submittal.

URS prepared a memorandum addressing issues with regard to potential erosion of the streambanks opposite the new CSO outfall on Alley Creek, and submitted it to the NYCDEP in early February 2001.

URS and LMS revised the report entitled, "Updated Water Quality Modeling of Alley Creek and Little Neck Bay to Evaluate Proposed CSO Outfall Storage Plan" and submitted it to the NYCDEP in mid-February 2001.

URS prepared a draft memorandum regarding parkland alienation and submitted it to the NYCDEP in mid-February 2001 for review and approval.

URS and LMS provided the NYCDEP with the information required to finalize the review of the EAS by mid-February 2001.

URS prepared a draft letter of response to the NYSDEC letter of December 14, 2000, with regard to NYSDEC concerns about the effects of the proposed Alley Creek CSO Abatement Plan on the Class SA (shellfish) waters of western Long Island Sound, and submitted this draft letter to the NYCDEP for review and approval in early March 2001. The NYCDEP prepared and submitted a finalized version of this letter to the NYSDEC, which requested approval of the Alley Creek CSO Abatement Plan.

URS prepared the NYCDEP Dewatering Permit Application package for construction of the Alley Creek Project and submitted this package to the NYCDEP in early March 2001 for review and approval.

LMS performed additional water quality modeling of Alley Creek to determine levels of dissolved oxygen and coliforms in the Creek with the revised 5 MG CSO Storage Facility in March 2001.

ULURP

URS submitted a revised ULURP Application for the Alley Creek Project, Phase I, Stages 1 and 2, to the NYCDEP in early February 2001. The NYCDEP approved this revision of the ULURP Application, and submitted it to the NYCDCP in mid-February 2001. The NYCDCP informed the NYCDEP that minor revisions needed to be made to the ULURP Application. URS completed these further revisions to the ULURP Application and submitted the finalized ULURP Application to the NYCDEP in mid-March 2001.

Facility Planning/Preliminary and Final Designs

Principal work performed during this report period includes:

- Submitted the MPT Plans to Community Board No. 11 in mid-January 2001 and to the NYCDOT in late January 2001 for review and comment.
- Prepared and submitted updated construction costs for the two phases of the Alley Creek CSO Project to the NYCDEP in January 2001.
- Finalized the Tributary Facilities Plan Report for Alley Creek and submitted it to the NYCDEP in early February 2001. NYCDEC approval for Alley Creek abatement plan was requested on March 21, 2001.
- Submitted completed bid documents and specifications of the Alley Creek Drainage Area Improvements – Phase I, Stage 1 to the NYCDEP in early March 2001.
- Addressed comments on the amended drainage plan and hydraulic calculations received from the NYCDEP, and submitted a revised amended drainage plan to the NYCDEP in late February 2001. The NYCDEP provided further comments on the revised amended drainage plan, and URS submitted a second revised amended drainage plan to the NYCDEP in mid-March 2001.
- Completed revisions to the upstream sewer drawings based on comments provided by the NYCDEP, utility companies and residents of the community, and submitted the drawings, along with structural and hydraulic computations, to the NYCDEP in mid-January 2001 for review and comment. The NYCDEP provided further comments on these drawings in February 2001. URS completed revisions to the upstream sewer drawings based on the February 2001 comments, and submitted them to the NYCDEP in mid-March 2001.

- Submitted additional sets of the MPT plans to the NYCDOT in February 2001, at the request of the NYCDEP. The NYCDOT provided minor comments on the MPT Plans, which URS incorporated into the contract documents in March 2001.
- Prepared an outline of a scope of services for a project to develop, evaluate, design and construct facilities to maximize wet weather flow to the Tallman Island Water Pollution Control Plant (WPCP), and submitted this outline to the NYCDEP in late March 2001.
- Continued to finalize the design of the outfall sewer/CSO Storage Facility based on a decision to increase the storage capacity from 3 MG to 5 MG, and to be capable of conveying the NYCDEP 5-year design storm peak flow with 5 MG of sewage in storage.
- Continued preparation of the Conceptual Design Report for the Oakland Ravine Stormwater Treatment System.
- Finalized the design of the new storm drain to convey stormwater collected by catch basins located on the Cross Island Parkway on the north side of the outfall sewer crossing.
- Finalized the design of the new force main for the Old Douglaston Pumping Station.
- Finalized designs for ecological restoration and the restored/created wetlands in Alley Park.

Table 8

Alley Creek CSO Project

Plan Elements:	Alley Creek Drainage Area Improvements (Phase I, Stage 1)	Alley Creek CSO Abatement Facilities (Phase I, Stage 2)	Oakland Ravine Stormwater Treatment System (Phase II)
Location:	46th Avenue, 53rd Avenue, 56th Avenue, Bell Boulevard, Luke Place, 214th Street, 216th Street, 217th Street, Springfield Boulevard, Cross Island Parkway, Northern Boulevard and Alley Park in Bayside, Queens	Northern Boulevard and Alley Park in Bayside, Queens	Oakland Ravine and Oakland Lake in Bayside, Queens; Queensborough Community College Campus in Bayside, Queens
Actions:	Design and construction of additional combined sewers, catchbasins, outfall sewer and outfall structure to effect improved drainage in areas upstream of Outfall TI-7 in Bayside, Queens; design and construction of 5 MG CSO storage facility for CSO abatement within Alley Creek	Design and construction of modifications to the Old Douglaston Pumping Station including air treatment facilities to treat air exhausted from the CSO storage facility; hydraulic control structures and facilities to activate the 5 MG CSO storage facility constructed under Phase I, Stage 1	Design and construction of a wetlands stormwater treatment system in Oakland Ravine to treat stormwater prior to discharge into Oakland Lake and ultimately into Alley Creek; design and construction of upgrades to the stormwater sewer system on the Queensborough Community College Campus; and design and construction of rehabilitation measures within Oakland Ravine and Oakland Lake
Cost:	$117,800,000	$17,700,000	$21,000,000
Status:	Final design nearly complete; preparing to advertise for bids	Preliminary design to be initiated in May 2001	Preparation of conceptual design report underway; draft report scheduled to be completed in May 2001
Other Issues:	Parkland alienation issue needs to be resolved; negative declaration for project needs to be issued	Parkland alienation issue needs to be resolved; available capacity in Old Douglaston Pumping Station and sewer system for pumpback purposes needs to be verified	

- **Westchester Creek**

Project Summary

The Westchester Creek CSO Storage Tank Project will include construction of a 12 MG underground CSO storage tank to be located in the southwest section of the Bronx Psychiatric Center (BPC) Campus adjacent to Waters Place, near the intersection of Eastchester Road. The proposed underground storage tank will have approximate dimensions of 410' L x 155' W x 27' D and will provide CSO abatement at Outfall HP-25 on Westchester Creek. Other principal facilities to be constructed as part of the project include: a two story administration/support building; an air treatment building; a single-barrel supply conduit (13'-0" W x 8'-0" H) extending from the Outfall HP-25 sewer in Eastchester Road to the underground storage tank, a double-barrel overflow conduit (each barrel 12'-0" W x 5'-0" H) extending from the underground storage tank to the Outfall HP-25 sewer in Eastchester Road, and a pumping station with a rated capacity of approximately 5,600 gpm and an accompanying 24-inch diameter force main extending from the underground storage tank to the sewer system in Eastchester Road for pumpback purposes. In addition to the facilities required for CSO abatement at Outfall HP-25, the NYCDEP has agreed to provide, as part of this project, amenities for use by the two Little Leagues that utilize the baseball fields adjacent to the site of the underground storage tank. These amenities consist of restroom facilities, a clubhouse, a paved parking area on top of the underground storage tank, and fencing to enclose the Little League areas so as to keep the ballfields and parking areas separated from the BPC Campus facilities.

Meetings

Principal meetings held during this report period are as follows:

- Project Progress meetings on January 18, 2001, February 15, 2001 and March 15, 2001 at the NYC Department of Environmental Protection (NYCDEP) offices between representatives of the NYCDEP, NYS Department of Environmental Conservation (NYSDEC), URS, Lawler, Matusky and Skelly Engineers (LMS) and Dvirka and Bartilucci Engineers to discuss and review the overall progress of the East River CSO Project.

Environmental Review

URS and LMS initiated preparation of the EAS for the CSO Storage Tank. The NYCDEP indicated that the environmental borings previously drilled at the CSO Storage Tank site are sufficient for preparation of the EAS.

Site Acquisition/ULURP

URS prepared and submitted a draft ULURP Application for the CSO Storage Tank to the NYCDEP in mid-February 2001.

The NYC Department of Citywide Administrative Services (DECAS) continued to prepare a cost appraisal for the proposed storage tank site, and will tender an offer to the Dormitory Authority of the State of New York for purchase of the site.

Facility Planning/Preliminary and Final Designs

Principal work performed during this report period includes:

- Prepared and submitted an updated construction cost for the Westchester Creek CSO Storage Tank to the NYCDEP in January 2001.
- Initiated a preliminary hydraulic analysis to investigate the best alternative for the routing of the influent and overflow conduits for the CSO Storage Tank.

Table 9

Westchester Creek CSO Project

Plan Elements:	Westchester Creek CSO Storage Tank		
Location:	Bronx Psychiatric Center Campus in the Bronx		
Actions:	Design and construction of a 12 MG underground CSO Storage Tank to provide CSO abatement at Outfall HP-25 on Westchester Creek, including influent and overflow conduits along Waters Place; design and construction of a two-story support/ operations building; and design and construction of amenities for the Bronxchester and Van Nest Little Leagues.		
Cost:	$152,000,000		
Status:	Draft ULURP Application was submitted in February 2001 and EAS is underway with a scheduled completion date of July 2001 for a draft EAS		
Other Issues:	Site needs to be acquired by NYCDEP from the State of New York		

G.) Coney Island Creek

- **Avenue V Pumping Station**

The recommended plan for the Coney Island Creek CSO Facility Planning Project is to increase the wet weather pumping capacity of the Avenue V Pumping Station. The Avenue V Pumping Station tributary area encompasses 2,900 acres, of which 2,056 acres are separately sewered and 844 acres have combined sewers. The Avenue V Pumping Station capacity will be increased to capture 85 percent, by volume, of the CSO discharges to Coney Island Creek. The capacity of the pumping station will be increased from approximately 30 mgd to 80 mgd. New pumps, motors, variable frequency drives (VFDs) and controls will be installed and two new force mains will be constructed.

Meetings

Principal meetings held during this report period were as follows:

- Meetings with NYCDEP and Hazen and Sawyer on January 31, February 28 and March 28, 2001.
- Value Engineering Workshop meetings with NYCDEP, NYCOMB and Hazen and Sawyer on January 11 and week of January 22-26.

Final Design

Final design work of the pumping station upgrade and associated new force mains has continued. A Design Review submittal to NYCDEP was made on December 13, 2000 and the 2nd Draft Final Design Report was submitted the following day. These documents were used in the Value Engineering (VE) Workshop during the week of January 22, 2001.

Air dispersion modeling work is complete. A report was submitted to NYCDEP on February 1. Use of field measured hydrogen sulfide concentrations in air at Avenue V and model output suggests that odor control would not be required to satisfy the relevant standards. Additional field measurements will be performed during Summer 2001 to confirm previous field measurements prior to design of an odor control system, if required.

Value Engineering

The Value Engineering (VE) Orientation Presentation was made to NYCOMB by NYCDEP and Hazen and Sawyer on January 11, 2001. Following the presentation, a visit was made to the Avenue V Pumping Station site.

The VE Workshop was held during the week of January 22, 2001. NYCDEP and Hazen and Sawyer made a Technical Presentation to kick-off the Workshop. Cost estimate reconciliation was performed on January 22-23. Additional meetings were held on January 24 to discuss potential VE concepts. The Workshop concluded on January 26 with a presentation by NYCOMB to NYCDEP and Hazen and Sawyer.

A report of *Draft Responses to Value Engineering Recommendations* was submitted by Hazen and Sawyer to NYCDEP on February 27. This report was based on draft VE

recommendations received from NYCOMB on January 31. The bound *Preliminary Value Engineering Report* was received from NYCOMB on March 14. No significant changes from the draft report were noted. A report of *2nd Draft Responses to Value Engineering Recommendations* will be submitted by Hazen and Sawyer shortly.

Table 10

CONEY ISLAND CREEK CSO Project

	Contracts PS-79G, H, P, E	*Contract PS-79G*	*Contract PS-79F*
Plan Elements:	Pumping Station Upgrade	Regulator Modifications	New Force Mains
Location:	Avenue V PS (Avenue V and West 11th Street)	Reg. AV-1 at Avenue V PS site; Reg. OH-1 (Shore Pkwy. Vic. Verrazano Bridge)	42-inch to SE-133 (Shore Pkwy. Vic. Verrazano Bridge); 48-inch to vic. Reg. 9A
Actions:	Comprehensive upgrade to automate and increase station capacity to 80 mgd; Lower Wet Well to reduce sewer surcharges; Generator system to improve station reliability; Architectural restoration of Main Building to 1915 appearance	Enlarge orifice from Regulator AV-1 to branch interceptor to maximize flow to Wet Well before onset of CSO event; Automate Reg. AV-1 throttling gate; Lower weir at Reg. OH-1 diversion chamber to maintain existing HGL in upstream sewers	New force mains to convey DWF and WWF
Cost:	$31,000,000	Incl. at left	$62,000,000
Status:	Final Design – 50% Complete	Final Design – 0% Complete	Final Design – 50% Complete
Other Issues:	____	____	____

H.) Newtown Creek

- **In-line Storage Facilities**

This element of the plan includes installation of inflatable dams to retain wet weather flow in the combined sewers and CSO outfalls to reduce CSO discharged to English Kills and the East Branch of Newtown Creek. Dams were proposed for the two barrels of the Scott Avenue outfall (2.0 MG); two locations in the 180" diameter combined sewer in St. Nicholas Avenue (3.0 MG); and two barrels of the CSO outfall at Regulator B1 (2.6 MG).

Modeling

The Newtown Creek WPCP interceptor system and the combined sewer systems tributary to the St. Nicholas Weir and Regulator B1 have been modeled with in-line storage dams operating according to a strategy which maintains the peak hydraulic grade line at the existing condition for the "design storm". The peak hydraulic grade line under the design storm shows surcharging in several areas. A program to inspect buildings to establish the elevation of building sewers in these surcharge areas was completed in September. The building sewer elevations were incorporated into data tables. The data were evaluated to determine areas where sewer surcharging may have an impact on building sewer connections. A technical memorandum was prepared describing the results of the real-time control modeling of in-line storage facilities, and incorporating the information from the building inspections. The conclusions presented were that sections of the combined sewer system are stressed under existing conditions when handling design flows. In-line facilities therefore present a risk of exacerbating existing problems.

A proposal to increase conveyance of wet weather flow to the WPCP from the Regulator B1 drainage area by increasing the pumping capacity at the Newtown Creek WPCP was evaluated. Modeling simulations projected that with throttling of the Kent Avenue Interceptor, this proposal could achieve CSO reductions for English Kills comparable to those projected for the facilities recommended in the Facilities Plan. The modeling also indicated that the proposed modifications to increase flow to the WPCP would not produce conditions in the combined sewers which would be inconsistent with the City Drainage Plan.

Receiving water modeling to assess the benefits of this proposal have been initiated. The modeling will determine whether the reduced CSO discharge to English Kills will meet water quality targets in English Kills and the East Branch.

Preliminary Design

Preliminary design will be completed after the modeling conclusions have been reviewed.

- **Phase I Aeration Facilities**

This element of the plan will provide for aeration of English Kills, south of the Metropolitan Avenue bridge, to raise DO concentrations to a minimum of 1.0 mg/l at all times. A compressor station will be located at 1106 Grand Street, adjacent to English Kills and will

deliver air to English Kills via air headers and diffusers on the Creek bottom along its center-line. Data will be collected during the first year of operation to guide refinements in operating procedures and verify performance.

Preliminary Design

The preliminary design has been completed. Drawings, facility descriptions and construction cost estimates have been prepared for three alternatives. The alternatives have been presented to the Department.

CEQR and Permitting

An EAS for the Phase I Aeration has been completed and sent to NYSDEC together with applications for permits for their review. OEPA issued a negative declaration on December 14, 2000 for the Phase I Aeration project. NYSDEC is reviewing the permit application. Contacts have been made with the USACOE and the US Coast Guard for their review of the project.

ULURP

A draft ULURP application has been completed and is awaiting signature by the Department of City-Wide Services, as co-applicant. DCAS approval is contingent upon their appraisal of the property, which has not yet been completed.

- **Phase II Aeration Facilities**

This element of the facility plan includes aeration of the Lower English Kills, the East Branch and Dutch Kills. This work will follow the performance evaluation of the Phase I facilities.

- **Off-Line Storage Tank**

This plan element comprises the construction of a 3.5 million gallon off-line storage facility to control CSO discharge into English Kills. Flow would be diverted from the combined sewers flowing west along Johnson Avenue near Varick Avenue. The proposed tank was to be on property located on Varick Avenue, adjacent to English Kills. Construction of a pump station at the tank, and a new force main connecting into the Morgan Avenue Interceptor downstream from Regulator B1, would be provided to drain the tank for treatment at the Newtown Creek WPCP.

Preliminary Design

The tank was to be co-located on the site with a Department of Sanitation facility. The preliminary design of the tank on this site was initiated, but the design was halted when the acquisition of the site from its private owner became doubtful. An alternative siting proposal was developed, to construct the 3.5 MG tank within the head end of English Kills. This proposal was sent to NYSDEC for comment on its feasibility. Further work on this facility is awaiting comments from NYSDEC.

- **Sediment Dredging**

A dredging feasibility study was added to the facility plan at the request of NYSDEC. The feasibility of dredging CSO sediments from the branches of Newtown Creek will be investigated. The investigation includes a hydrographic survey to determine locations of sediment mounds and sediment sampling to clarify sediment quality.

Feasibility Study

The draft Dredging Feasibility Study Report was completed in October 2000. The Department anticipates collaboration with the Army Corps of Engineers to include the dredging of Newtown Creek with the COE Habitat Restoration Projects.

Table 11

Newtown Creek CSO Project

Plan Elements:	In-Line Storage Facilities	Phase I Aeration Facilities	Off-line Storage Tank
Location:	Sewers tributary to CSO outfalls discharging to English Kills and East Branch, Brooklyn	Head end of English Kills, south of Grand Street	Sewers tributary to CSO outfall discharging to English Kills
Actions:	Design of inflatable dams in combined sewers and CSO outfalls in order to reduce CSO discharge to the English Kills and East Branch of Newtown Creek. Total CSO retention is estimated to be 6.6 MG.	Provide aeration of English Kills to raise DO concentrations to a minimum of 1.0 mg/l. The facility includes a landside compressor station and an air header and diffuser assembly on the Creek bottom.	Design of 3.5 MG off-line storage facility to control CSO discharge into English Kills. The facility would include the tank, a pumping station, and a new force main to drain the tank for treatment at the Newtown Creek WPCP.
Cost:	$7,500,000	$8,000,000	$57,000,000
Status:	Preliminary design to be completed after evaluation of modeling work.	Preliminary design & CEQR completed. ULURP and Permitting in progress.	A siting proposal is under review by the NYSDEC
Other Issues:	Sewer surcharging was found and may preclude implementation.	Phase II for the lower English Kills, the East Branch and Dutch Kills will follow.	Siting is problematic.

I.) Jamaica Tributaries

The Jamaica Tributaries project area includes the Jamaica WPCP sewershed area and the tributaries which receive the wet weather discharges from the drainage area. These tributaries include Bergen, Thurston, Shellbank, and Hawtree Basin, which are located in the northeast portion of Jamaica Bay.

Flow Monitoring and Modeling

Continued the calibration of the HydroWorks model of the Jamaica WPCP drainage area. Confirming model input data including regulator drainage area and dry weather flow.

Field Investigations

Completed detailed field investigations of the storm sewer system tributary to Bergen and Thurston Basin. The results obtained from the field investigations are currently being analyzed. A report discussing these results should be submitted in the 2nd Quarter of 2001.

High Rate Physical Chemical Treatment Demonstration (HRCPT)

See write up in Section IV – Demonstration Projects

Destratification Demonstration

See write up in Section IV- Demonstration Projects

Abatement of Meadowmere/Warnerville Dry Weather Discharges

The Draft Facility Plan for the Meadowmere and Warnerville pump stations was completed and submitted to the Department on April 4, 2001.

In order to abate dry weather sanitary discharges to Jamaica Bay, a plan has been developed to provide wastewater collection and conveyance in the area. Dual 4-inch force mains will convey wastewater from the Meadowmere pumping station (approximately 1,800 feet). The combined wastewater flow from the Meadowmere and Warnerville will then be transferred from the Warnerville pumping station to the nearest New York City gravity sewer manhole on Brookville Boulevard and 149th Avenue (approximately 4,800 feet), in the Borough of Queens, NY.

This plan will be followed by the preliminary design report. The preliminary design report will include detailed structural, electrical and HVAC designs. These designs will be completed by subconsultants. The geotechnical subsurface exploration cost proposal is expected from the subconsultant by April 30th.

The ULURP and environmental review procedures were initiated during this period. Work has begun on preparing the ULURP application for the abatement of dry weather flow from Meadowmere/Warnerville. Work on obtaining EAS information has commenced, and anticipated subcontractors needed for this project are being forwarded for approval and will be contacted to commence work once approved by the Deputy ACCO.

Meetings

Principal meetings held during this report period were as follows:

- Project Progress Meetings with NYCDEP on January 16, February 20 , and March 20, 2001.

Table 12

Jamaica Tributaries CSO Project

Plan Elements:	Chemical Oxidation, HRPCT and Destratification Demonstrations	Abatement of Meadowmere and Warnerville	Preliminary Design – In-line storage and Thurston/Bergen Drainage Plan
Location:	Jamaica WPCP, Jamaica WPCP, and Shellbank Basin	Meadowmere and Warnerville – Queens, New York	Jamaica WPCP Drainage Area
Actions:	Conduct demonstration testing of new technologies	Construction of 2 Pumping Stations, Sewer Collection System, and Force Mains	
Construction Cost:	Pilot HRPCT - $100,000 Destratification - $100,000	$12.2 million	To be determined
Status:	HRPCT Pilot completed Destratification to be reactivated in May	Conceptual Design Complete	Preliminary Design Underway
Other Issues:		ULURP for site and site acquisition for pumping stations	

J.) Citywide Floatables

Work continued on tasks being performed for the development of the Comprehensive City-Wide Floatables Control Abatement Plan. During the period January through March 2001, progress continued on tasks related to comprehensive plan development, public outreach, best management practices (BMPs) analysis, CSO modeling, and catch basin and CSO abatement demonstration projects.

Comprehensive Plan Development

Kickoff meetings were held with the project team members on January 26, February 28 and March 27, 2001 to discuss plan development issues for, respectively, the North River WPCP, Red Hook WPCP, and Hunts Point WPCP drainage areas. Development of a draft pilot comprehensive plan for floatables and settleable solids control for the Bowery Bay WPCP drainage area neared completion, as additional analysis of potential CSO control options were performed, best management practices were assessed, and costs of the various options were refined. Completion of the draft comprehensive plan for the Bowery Bay WPCP area is expected during the second quarter of 2001.

The water quality impairment issues that require abatement vary with the different WPCP service areas. Impacts under investigation include odors and floatables, and may include sediment build-up. Use-impairments associated with potential beach closures due to elevated coliform concentrations are also being analyzed. The plans under development address CSO abatement activities to these issues under the demonstration approach. In addition, the planning efforts are evaluating costs to achieve the presumptive approach as well as to achieve virtually complete elimination of CSOs.

In addition, technologies available for widespread application of best management practices (BMPs) are being evaluated in the plan. Technologies being evaluated include public education, adopt-a-street programs, infiltration of stormwater and in-sewer CSO controls such as baffles and bending weirs. Use of these controls could provide area-wide CSO pollution reduction for the water bodies of concern.

Public Outreach

Work continued under the Public Outreach subtask as Audits and Surveys Worldwide, Inc. (ASW) completed their surveys of the selected focus groups. Analysis of the survey results has been completed, and ASW is completing work on a public-relations strategy that will most effectively increase public awareness of the problem and ultimately reduce littering. The final summary report, to be completed in the second quarter of 2001, will include an analysis of an effective media campaign aimed at key target groups.

Near-Field CSO Sediment Mounds Evaluations

A dye tracer, turbidity mapping, and CSO sampling program has been ongoing since May 1999 as part of the Near-Field CSO Sediment Mounds Evaluation project. To date, five dye studies have been completed, and the information is being incorporated into the comprehensive plan development. During the first quarter of 2001, crews mobilized for one wet-weather event,

but the rain event was insufficient to generate an overflow. As this project has been hampered by drought conditions and certain sampling restrictions, the sampling effort is expected to be suspended by the end of April 2001.

Settleable Toxics

HydroQual completed a sampling plan to obtain representative samples of combined sewage for analysis of toxics and metals under the Containment Assessment and Reduction Program (CARP). Modeling work was performed to verify the minimum flow thresholds for wet-weather flow, and field investigations were conducted to identify sampling locations at each of the combined WPCPs. During the first quarter of 2001, sampling crews completed sampling of combined sewage at the Newtown Creek WPCP, at both the influent channel and the Manhattan Pump Station, and the Bowery Bay WPCP, at both the High Level and Low Level channels. Following each event, samples were delivered to the NYSDEC Regional Office at 4740 21st Street, Long Island City, for sample preparation for the analysis of target analytes. The sampling program is expected to be completed by mid 2001.

Catch Basin Cleaning Demonstration Project

The objective of the catch basin demonstration project is to estimate grit and litter accumulation rates in catch basins, evaluate the impact of grit and litter accumulation on hood performance and determine optimum cleaning intervals based on floatables retention efficiency. This is being done to address concerns that the hooding of catch basins may increase the need and frequency for catch basin cleaning. Grit and litter accumulation rates are being developed from inspections of approximately 4000 catch basins distributed across different land use classes. Catch basin flooding evaluations (frequency and cause) were also made through information gathered from NYCDEP's maintenance yards. A full-scale pilot catch basin system is being used to assess the impact of grit and litter on hood efficiency. This system has been constructed at the Tallman Island WPCP. A flume, pump and water tank are utilized to permit testing at a range of flows that are typically encountered by catch basins during wet weather events. A synthetic litter matrix was prepared, composed of 20 common street litter floatable items. Grit levels will be simulated with mason sand. Testing was initiated in January 2001, and will be completed in the second quarter of 2001. Preliminary data indicate floatables retention rates generally ranged between 60 to 100% over a flow range from 75 to 1350 gpm and trash volumes of 3.5 to 28 cubic feet. Preliminary results also indicated that at flows greater than 1000 gpm, efficiencies dropped to a range of 34 to 72%.

A field trip and demonstration runs were conducted on March 1, 2001 following the monthly Comprehensive Plan project review meeting. Personnel from HydroQual, NYCDEP, NYSDEC, and USEPA were on hand for the demonstration runs.

In-Stream Controls

The NYCDEP is investigating the purchase of inter-pier skimmer vessels to supplement existing marine trash skimming vessels. The new vessels shall be completely self-contained, self-powered, and capable of operating on New York City inter-pier waterways. During the month of January, NYCDEP and HydroQual met with two skimmer-boat manufacturing companies, Hewitt Environmental and SMAVE. A subsequent meeting with Hewitt took place on March 8, 2001. Both companies presented their company's history and capabilities to

manufacture inter-pier marine trash skimmer vessels that meet NYCDEP's specifications. Hewitt Environmental and SMAVE intend to respond the NYCDEP request for proposal (RFP).

A Pre-Solicitation Review (PSR) report for an inter-pier marine trash skimmer vessel was prepared. In addition, a draft RFP for inter-pier skimmer vessels was prepared. The RFP contains the performance specifications of the skimmer vessels. Included in the preparation for the RFP were review of other RFPs/specifications, a search for rules and regulations affecting marine vessels, and contacting facilities for scale model building and testing.

Currently, SMAVE has two full-scale vessels under construction. A site visit to observe their fabrication shop and to observe sea trials is planned for June 26-28, 2001. A trip request letter and detailed estimated cost for the trip were prepared and submitted to the NYCDEP in this period.

Wet Weather Capacity Analysis and Generic Wet Weather Operations Plan

As part of the effort to maximize wet weather flows to the City's WPCPs, an evaluation of wet weather capacity of each plant servicing a combined collection system was initiated during the third quarter of 2000. This is being done to define the maximum flows that can be handled by the plant's headworks and primary and secondary treatment processes and the bypass channels. A generic wet weather operating plan will also be prepared to establish an operating strategy for maximizing wet weather capacity.

During the first quarter of 2001, a summary of information on sizing and design capacity of major unit operations was completed. Treatment plant design drawings and other process specifications are being assembled so plant wet weather capacity can be estimated. Information packages for each of the wastewater treatment plants are being developed and will serve as a basis for discussion with the plant superintendents and process engineers. Plant superintendents and process engineers will then be interviewed to incorporate their operating experience into the analysis. A draft wet weather operations plan developed by Hazen and Sawyer Engineers, P.C. for the BNR plants was reviewed. The hydraulic capacity of the biological treatment processes of the BNR plant may be downgraded from 1.5 times design dry-weather flow (DDWF). These decreases will increase the hydraulic load to the bypass channel if the plants are to maintain a total wet weather capacity of 2 times DDWF. HydroQual also reviewed a report provided by NYCDEP on full-scale secondary clarifier test and performance which indicated that secondary clarifiers at the Rockaway WPCP were able to withstand overflow rates of up to 1600 gpd/sf. This information will be used in evaluating wet weather capacities for secondary clarifiers. This project is expected to be completed by the end of 2001.

Cryders Lane Outfall Diversion Channel Project

The following presents a summary of the ongoing engineering and technical activities for Cryders Lane Outfall Diversion Channel Project from January through March 2001.

In January, HydroQual received comments from NYCDEP, to the 90% design documents submitted on December 22. Responses to NYCDEP comments and questions were documented in a letter to Facilities Design-North and the comments were incorporated into the final design

documents. The final design documents were submitted for final review to Facilities Design-North on February 2.

HydroQual prepared and submitted to the NYCDEP information required to obtain Capital Project (CP) number and budget for the construction. The information included project description, a draft Pre-Solicitation Review (PSR) Report, and detailed engineering cost estimate. The construction cost is estimated to be $2.5 million.

A meeting with NYCDEP Office of Environmental Planning and Assessment (OEPA) took place in early January. There were discussions concerning the details of permit applications, which will be submitted to various agencies. Drafts of the City Environmental Quality Review (CEQR) Environmental Assessment, the New York State Department of Environmental Conservation (NYSDEC) and U.S. Army Corps of Engineers (USACE) permits were submitted to OEPA on January 22. An additional copy of the drafts of the CEQR Environmental Assessment, the NYSDEC Joint application for permit and supporting documentation, and USACE permits were submitted to NYCDEP's Bureau of Environmental Engineering (BEE) on January 24.

During the month of January, there were conversations with the BEE concerning the New York Clean Water State Revolving Fund (CWSRF) loan for Water Pollution Control Projects. It was decided that the NYCDEP would apply for the CWSRF. Work will commence on the CWSRF environmental review and permitting process. There were also discussions concerning the need of obtaining a New York City Department of Parks and Recreation (DPR) work permit. The DPR will be contacted to commence work on the work permit.

In February, HydroQual responded to comments from the NYSDEC, requesting more information concerning the stabilized construction entrance near the Cryders Lane Outfall. Drawings were generated to include dimensions, materials, purpose, and relative location to Mean High Water (MHW) and Mean Low Water (MLW) as applicable. Two sets of the design drawings were also requested by the NYSDEC, as well as an estimate of the flow rate of the outfall for the 1-year and 5-year storms.

On February 20, HydroQual received a Notice of Incomplete Application (NOIA) from the NYSDEC concerning the permits for the proposed Cryders Lane Outfall Diversion Channel. HydroQual prepared a draft response to the NOIA, which addressed the outstanding issues, with the appropriate materials as requested by the NYSDEC. The draft was provided to the NYCDEP on March 7 for review and comment. HydroQual also had several additional discussions with NYCDEP regarding modifications to the proposed NOIA response and reviewed revised text from OEPA and provided comments.

During the month of March, HydroQual also had several discussions with the OEPA regarding the review of the draft EAS documentation. Revisions were made to the EAS and six copies of the final EAS were submitted to the NYCDEP on March 23. HydroQual also followed up with the USACE regarding their review of the draft application for the proposed Cryders Lane Outfall Diversion Channel.

Based on request by NYCDEP, HydroQual met with Facilities Design North and other representatives of NYCDEP at the Cryders Lane Outfall on March 8. Comments to the final design documents were discussed at the site, which included revisions to the ornamental fences and gates and disposition of the proposed dredged material. Additional comments on the final specifications were received from the Specification Section. All comments were incorporated into the final documents for bid, which were submitted to NYCDEP on March 29.

HydroQual attended a meeting with the DEP and the Queens Borough President on March 14 to discuss the status of the proposed facility and the anticipated schedule. The potential mapping of the area as parkland was discussed at the meeting, as well as the completion of the final design of the facility. A follow-up meeting with the Queens Borough President is scheduled for July 9.

III. Project Progress for Use and Standards Attainment Project

- **Interagency Coordination**

The Use and Standards Attainment (USA) Project is being conducted by the New York City Department of Environmental Protection (DEP) for waterbodies throughout New York Harbor to address compliance with water quality standards and designated uses. The goals of the USA Project are to:

- Define, through a public process, more specific and comprehensive long-term beneficial use goals for each waterbody, including habitat, recreational, wetlands and riparian uses, in addition to water quality goals, thus maximizing the overall environmental benefit;
- Develop technical, economic, public and regulatory support for prioritizing and expediting implementation of projects and actions needed to attain the defined goals; and
- Provide the technical, scientific and economic bases to support the regulatory process needed to define water quality standards for the highest reasonably attainable use and to allow water quality standards to be attained upon implementation of recommended projects.

Waterbody/Watershed assessments are being conducted for 23 waterbodies throughout New York Harbor. The waterbodies include major open water areas of New York Harbor and selected urban tributaries. The USA Project started on August 5, 1999 and is scheduled for completion on August 5, 2003.

- **Waterbody/Watershed Assessments**

Assessment Schedule

Assessments are anticipated to be 18 to 24 months in duration. Work begun in Fall 1999 on two "pilot assessments" is continuing for the Bronx River and Paerdegat Basin. Preliminary work has begun on the Group I waterbodies, which are Jamaica Bay, Mill and East Mill Basins, Fresh Creek, and Shellbank, Bergen and Thurston Basins, and Group II waterbodies, which are the East River, Alley Creek, the Hutchinson River, Westchester Creek, Flushing Creek and Bay, Newtown Creek, and Gowanus Canal. Work is scheduled to start in Fall 2001on Group III waterbodies, which are the Harlem River, Hudson River, Upper New York Bay, Lower New York Bay, Kill van Kull, Arthur Kill, Raritan Bay, and Coney Island Creek.

Waterbody/Watershed Stakeholder Team Activities

Local Waterbody/Watershed Stakeholder Teams have been formed for the Bronx River and Paerdegat Basins waterbody/watershed assessments. The Bronx River Stakeholder Team has held two meetings and the Paerdegat Basin Stakeholder Team held one meeting. Meetings are scheduled in April for both Stakeholder Teams. Meeting notes are recorded and distributed to participants. Activities have commenced for convening stakeholder teams for the Group I waterbodies. Some of the waterbodies are being aggregated to accommodate similar watersheds, common community characteristics, common waterbody uses, and waterbody proximity. One stakeholder team will represent Mill and East Mill Basin. Fresh, Hendrix and Spring Creeks will have one team. Shellbank Basin will have its own team. Bergen and Thurston Basins are being combined into one team. Finally, a Jamaica Bay Stakeholder Team will be convened.

Arrangements have been made to make initial presentations to local Community Boards to solicit their involvement and their recommendations for other team members.

Field Investigations

Field Sampling and Analysis Programs (FSAPs) are being developed and executed to conduct field investigations for waterbody/watershed assessments. Specific FSAPs address biological sampling, shoreline characterizations, and other investigations necessary for collecting comprehensive information on each waterbody/watershed, where no information has previously been collected or is out of date.

A Field and Laboratory Standard Operation Procedures (SOP) document for the USA Project is being finalized. The SOP provides detailed procedures for conducting all field and laboratory investigations for the USA Project. Additional procedures will be added to the document as FSAPs are developed. The SOP is being developed in conformance with SOP guidelines developed by the U.S. Environmental Protection Agency (EPA) and discussed with the EPA Monitoring and Assessment Branch in Edison, NJ.

Biological FSAPs are being executed for the Bronx River and Paerdegat Basin. A majority of the work is complete. Data collected during these FSAPs are being added to the USA Project's comprehensive, relational database and geographical information system (GIS). One remaining task of these FSAPs involves quarterly sample collection for assessing epibenthic recruitment and survival, and ichthyoplankton sampling for assessing aquatic spawning, both which are on schedule and will conclude by June 2001.

A Harbor-Wide Ichthyoplankton FSAP and a Harbor-Wide Epibenthic Recruitment and Survival FSAP have been developed for conducting harbor-wide investigations. The Ichthyoplankton FSAP is being conducted to investigate spawning throughout New York Harbor and its tributaries. The Epibenthic FSAP is being conducted to characterize benthic invertebrate recruitment and community composition, species richness, and diversity throughout New York Harbor and its tributaries. The FSAPs are being developed in conformance with Quality Assurance Project Plan guidelines developed by EPA and discussed with the EPA Monitoring and Assessment Branch in Edison, NJ. Fieldwork commenced on both FSAPs during the month of March 2001.

Work was suspended on developing a biological FSAP for the Group I waterbodies while the USA Project SOP and the two harbor-wide FSAPs were being finalized in order to commence their execution in March 2001. Drafting of the Group I waterbodies biological FSAP has now restarted in anticipation of finalization and commencement of fieldwork in the summer of 2001.

Land Use and Shoreline Characterizations

Land use and shoreline characterizations described in the previous status report are continuing.

Public Opinion Survey

A proposed outline of public opinion survey scope of work was presented to the Harbor-Wide Government Steering Committee to the USA Project to solicit comments and guidance. The survey will focus on several populations including focus groups, members of the 59 Community Boards, those who live within a community designated as a waterbody/watershed assessment area, and the public at large. The general purpose of the survey is to identify desired

beneficial uses with a focus on measuring how several populations feel about, use, and might use water resources in their community and elsewhere throughout New York Harbor. The Steering Committee endorsed the survey and it will be added to the USA Project in a future contract change.

- **Interagency Coordination**

Harbor-Wide Government Steering Committee

A Harbor-Wide Government Steering Committee provides guidance and coordination for conducting the USA Project. Members of the Harbor-Wide Government Steering Committee represent the EPA, the National Park Service, the U.S. Army Corps of Engineers (USACE), the Interstate Environmental Commission, the New York State Department of Environmental Conservation, the New York City Departments of Environmental Protection, City Planning, and Parks & Recreation, and the New York City Citizens Advisory Committee on Water Quality. Harbor-Wide Government Steering Committee meetings are scheduled to occur on a quarterly basis. A meeting was held on January 31, 2001. The next meeting is being scheduled for September 2001.

U.S. Army Corps of Engineers Restoration Projects

The USA Project is conducting a variety of field and engineering investigations that are similar in scope to proposed plans being developed by the USACE for New York Harbor and its tributaries. These plans are primarily focused on habitat/ecosystem restoration. USA Project efforts are continually being evaluated for identifying cost-sharing opportunities that will fulfill DEP's commitments as a local sponsor to the USACE projects. Specifically, the USA Project is coordinating Jamaica Bay activities with the USACE for their work on the Jamaica Bay Ecosystem Restoration Project (JABERP). Some examples of these activities include field sampling programs, water quality modeling, and geographic information system development. The USA Project is also evaluating a Project Management Plan for a Gowanus Canal ecosystem restoration project to identify cost-sharing and scheduling opportunities.

- **Project Documentation, Reports and Publications**

Preliminary Waterbody/Watershed Characterizations

Preliminary waterbody/watershed characterization documents are being developed for each waterbody being assessed by the USA Project. Documents are being developed for each of the Group I and II waterbodies. These preliminary characterization documents are being used as a baseline for developing more comprehensive documents for each waterbody/watershed as their assessments proceed and planning is begun.

Project Web Site

A project web site describing the objectives of the USA Project and the importance of public participation is being constructed. The web site will have specific areas focused on each of the waterbody/watershed assessments. Dissemination of local waterbody stakeholder teams documents such as meeting notes is facilitated. Information on other DEP activities effecting particular waterbodies will be provided. Federal and state regulations on designated uses and water quality standards will be described with links to governmental sites for additional

information. An interactive mapping tool will provide spatial representations of USA Project and general DEP activities.

Reports

No reports have been issued for the USA Project.

IV. Demonstration Projects

A.) Destratification Demonstration at Shellbank Basin

The purpose of this demonstration is to specifically address the poor water quality that seasonally exists in Shellbank Basin (located in the Jamaica Bay) due to natural stratification of the waterbody.

System Design

In an effort to mitigate the natural stratification and resulting marine kills and odor releases, a full-scale destratification demonstration system has been installed in the Shellbank Basin. The destratification facility consists of a shoreside compressor station and diffused air lines, which run along the bottom of the basin. The destratification system delivers compressed air to the basin bottom, which is intended to vertically mix the water column of Shellbank Basin to create an isothermal condition.

System Preparations

Began preparing for the reactivation of the destratification demonstration in Shellbank Basin. The sampling vessel was placed in Shellbank Basin and the condition of the compressor and aeration hose were assessed. The equipment appears to be in good condition with no damage occurring during the winter months. The destratification system is scheduled to be placed back in service by mid-May.

B. In-Line Storage

The Hunts Point drainage basin comprises the eastern two thirds of the borough of the Bronx. It is bounded by Westchester County to the north and the East River estuary to the east and the south. The drainage area comprises of approximately 1,800 acres of urban terrain. The Hunts Point drainage area sewer system may be appropriate for in-line storage because of a large sewer storage capacity, shallow hydraulic grade, gravity flow, and low potential for flooding.

The Hunts Point In-line Storage project incorporates the use of three inflatable dams, installed in sewers within the Hunts Point drainage basin, to make use of the in-line storage capacity of the sewers. The purpose of this project is to demonstrate the technology and ascertain the operational and maintenance issues and concerns at actual full scale New York City installations. The systems from two inflatable dam manufacturers, Rodney Hunt and Bridgestone, will be tested. O'Brien and Gere will be operating both systems for a period of one year.

The use of inflatable dam sewer installations are planned for use at several Track 1 CSO abatement projects and could be involved in Track 2 CSO abatement projects (floatables and settleables control).

Meetings

No meeting conducted this period.

Preliminary Examinations

Further progress toward startup has been delayed pending contractual issues with construction contractor.

C. High Rate Physical Chemical Treatment

Preliminary Design

Continued the planning of a HRPCT demo plant for the 26th Ward WPCP. The demo plant will allow for further testing of this technology which was successfully pilot tested at 26th Ward during the Summer of 1999.

During this reporting period, additional evaluation of the CDS pretreatment units (combined fine screens and degretting) was conducted. These units appear to be a valid alternative to typical climber fine screens considering that degritting is required ahead of the HRPCT units, and that both functions, screening and degritting, are combined in the CDS unit.

A Preliminary Design and Operational Issues Report was drafted. The report addresses the operational and design issues regarding the HRPCT demonstration plant. The report was distributed to the NYCDEP on February 26, 2001.

D. CSO Control Technologies

The evaluation of baffles and bending weirs as retrofit CSO control technologies continued in this period. HydroQual conducted a screening investigation, where 14 regulators were identified as potential sites for the demonstration tests of baffles and bending weirs. Hunts Point Regulator 24 (CSO 28) on the Bronx River was also evaluated. The screening evaluation included review of regulator size, internal configuration, and accessibility. Regulator hydraulics for the identified regulators was also evaluated. Next, a hydraulic analysis of the upstream sewers will be conducted to evaluate the impacts of design flows and the technologies on their hydraulic conditions.

HydroQual completed a draft technical memorandum summarizing the engineering analysis completed to date. The memorandum includes discussions on the regulator screening process, control technologies evaluation, the engineering design results and the conclusions of the hydraulic analysis on the regulators and combined sewer analysis. The conceptual design of a hinged baffle is presently under review. The results of the evaluation will be incorporated into the draft technical memorandum.

HydroQual also reviewed design criteria for storm sewers for various municipalities such as Boston, Cleveland, and the State of New Jersey. The purpose of the review was to evaluate basis for calculating storm water flows in the design of storm water systems. The information will then be compared with NYCDEP's procedure for designing combined sewers.

V. Contracts

New Contracts

Newtown Creek

- Contract IV for Final Design of the CSO abatement facilities is in process.

Change Orders

Citywide Floatables

- Change Order X-5 to the City-Wide Floatables Study Contract II was submitted to NYCDEP on January 17, 2001. The scope of work for this change order includes additional work involving assessment of end-of-pipe netting systems and modified designs for existing systems, and additional funding for testing of the Corona Avenue Vortex Facility (CAVF) resulting from delays in the scheduled readiness of sampling equipment and changes in the status of the CAVF as a non-confined space and the associated equipment costs.

Comprehensive CSO Plan

- Change Order X-5 to the Comprehensive City-Wide Floatables Control Abatement Plan was submitted to NYCDEP on March 7, 2001. HydroQual and DEP have discussed specific aspects of the scope of work, which includes additional funding to evaluate capacity and operation and maintenance (CMOM) issues and funding for evaluating the use of skimmer vessels to remove floatables from New York Harbor if other CSO control measures are unable to.

East River Combined Sewer Overflow (CSO) Project

The facility planning and design services for this project are being performed under East River CSO Project Contracts II, III and IV.

- Change Order X-11 to East River Contract II was submitted to the Mayor's Office of Construction (MOC) for review. The scope of work for this change order includes additional work involving: facilities planning, public participation, subsurface investigations, surveying, ULURP Applications and reviews, and environmental reviews (CEQR/SEQR activities) for the four (4) East River CSO Projects (Alley Creek, Bronx River, Hutchinson River and Westchester Creek). The ULURP and environmental review activities required for the NYSDOT-sponsored Greenway Project as part of the Bronx River CSO Storage Conduit Project are also included in this change order.

VI. Public Participation

- **Public Outreach**

Citizens Advisory Committee on Water Quality

There was one Citizens Advisory Committee on Water Quality Meetings held during the first quarter period; the meeting was held on February 14, 2001. The agenda from the meeting is presented in Appendix B.

Local Waterbody Stakeholder Teams

Stakeholder involvement has been identified as a critical component of the USA Project. Local waterbody stakeholder teams will be convened for each waterbody assessment. The USA Project is forming local waterbody stakeholder teams for the Bronx River and Paerdegat Basin.

Invitations were extended to Bronx Community Boards 2, 3, 6, 9, 11, and 12 for forming the Bronx River Stakeholder Team. An invitation was also extended to a non-governmental group, the Bronx River Working Group. These efforts have resulted in identifying more than twenty citizens for participation in the Bronx River Stakeholder Team. The first meeting of the Bronx River Stakeholder Team is scheduled for January 17, 2001.

Efforts have continued for forming the Paerdegat Basin Stakeholder Team. Several members of Brooklyn Community Board 18 have volunteered for participation on the Paerdegat Basin Stakeholder Team. A meeting was held on December 5, 2000 with representatives of several organizations who were involved with previous DEP facility planning activities at Paerdegat Basin in order to solicit participation of local waterbody users. Although the Paerdegat Basin Stakeholder Team has not been completely formed, DEP is making every effort to hold its first meeting by the end of January 2001.

Internet Project Site

The USA Project includes provisions for developing an Internet project site for dissemination of project information to the public. Development of the web site is currently underway under guidelines established by the City of New York. The web site includes general information on the USA Project, information specific to each waterbody being assessed including maps and pictures, stakeholder team meeting schedules and documents, relevant regulations, links to related web resources, documents for public release, interactive mapping, and officially released data collected by the DEP Harbor Survey. DEP is making every effort to make the project site available to the public in the winter of 2001.

- **Project Documentation, Reports and Publications**

Waterbody Fact Sheets

Fact sheets have been developed for each waterbody being assessed by the USA Project. These fact sheets include a map showing the waterbody and watershed with combined sewer, storm sewer, and overland runoff components. Locations of CSO and wastewater treatment plant discharges are also provided on the maps. The fact sheets provide tabulated information such as adjacent boroughs and community boards, water use classification, compliance with water quality standards, shoreline characterizations, waterbody improvement initiatives, and projected

water quality improvements for the waterbody. These fact sheets have been distributed to the Harbor-Wide Government Steering Committee and are being incorporated into the Internet project site.

Preliminary Waterbody Characterizations

Preliminary waterbody characterization documents are being developed for each waterbody being assessed by the USA Project. These documents build on the brief information compiled for the waterbody fact sheets. Preliminary characterization documents were finalized for the Bronx River, Paerdegat Basin, and Jamaica Bay. These documents were distributed to the Harbor-Wide Steering Committee. Documents are being developed for the entire Group I waterbodies. These preliminary characterization documents are being used as a baseline for developing more comprehensive documents for each waterbody as their assessments proceed and planning is begun.

Project Brochure

A USA project brochure is being developed for public use. This brochure will be distributed to stakeholder teams and during DEP public outreach activities. At the time of this report, the brochure has been approved by the DEP and is being prepared by a professional printer.

APPENDIX A

QUARTERLY REPORT ON STATUS OF CITY-WIDE FLOATABLES PLAN

City of New York
Department of Environmental Protection
Bureau of Environmental Engineering
Comprehensive City-Wide Floatables Control Abatement Plan

TECHNICAL MEMORANDUM

QUARTERLY REPORT ON STATUS OF CITY-WIDE FLOATABLES PLAN JANUARY 2001 - MARCH 2001

April 2001

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GLOSSARY OF ACRONYMS USED IN THIS REPORT

BNR	Biological Nutrient Removal
CAC	Citizens' Advisory Committee
CB-01	Capital Program for replacement of collapsed catch basins
CP	Capital Program (NYC)
CSO	Combined (Sanitary and Stormwater) Sewer Overflow
DEC	Department of Environmental Conservation (NYS)
DEP	Department of Environmental Protection (NYC)
DWF	Dry-Weather Flow
DDWF	Design Dry-Weather Flow
DOS	Department of Sanitation (NYC)
DOT	Department of Transportation (NYC)
HI-3	Capital Program for hooding of catch basins in Phase III areas
HI-S	Capital Program for hooding of catch basins in high-speed roadways
HSV	Harbor Survey Vessel
IFCP	Interim Floatables Containment Program
MOO	Mayor's Office of Operations (NYC)
NYC	New York City
NYS	New York State
OMB	Office of Management and Budget (NYC)
SLR	Scorecard Litter Rating
PS	Pumping Station
USA	Use and Standard Attainment
WPCP	Water Pollution Control Plant
XP-SWMM	Storm Water Management Model, (proprietary version)

OVERVIEW OF PLAN ELEMENTS

REPORTING PERIOD: JANUARY 2001 THROUGH MARCH 2001

Floatables Plan Elements	New Information This Period
1. Ongoing Activities	
-Maintain Street Cleanliness	Yes
-Catch Basin Hooding in Phase I/II Areas	No
-Netting/Booming and Skimming	Yes
-Track I Facilities	*
-Maximizing Wet-Weather Flow to WPCPs	Yes
2. Catch Basin Hooding in Phase III Areas	Yes
3. City-Wide Reconstruction of Unhoodable Catch Basins	Yes
4. City-Wide Catch Basin Re-Inspection Program	No
5. Illegal Disposal Control	No
6. Public Education Program	*
7. Pilot Studies and Demonstration Projects	*

* -Please refer to Section 2 of the CSO Quarterly Report.

1. Ongoing Activities

a) Maintain Street Cleanliness

Previous studies have indicated that most floatable litter in New York Harbor can be traced to city streets (HydroQual, 1993). Although many factors can affect the amount of litter on city streets at any given time, the City of New York attempts to control litter levels through a street-sweeping program administered by the Department of Sanitation and through systematic street-litter monitoring, known as the "Scorecard Program," conducted by the Mayor's Office of Operations.

According to the Mayor's Office of Operations, city-wide street litter levels have improved substantially over the past six years. Scorecard Program results for the past six 12-month periods are summarized in the following table and on Figure 1. These results show that street cleanliness has been maintained at or better than 1995 levels.

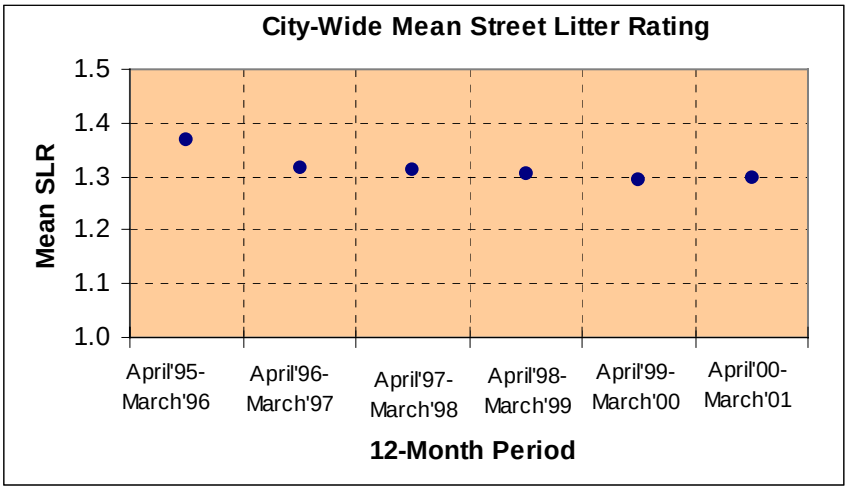
City-Wide Street Cleanliness, 1995 - 2001

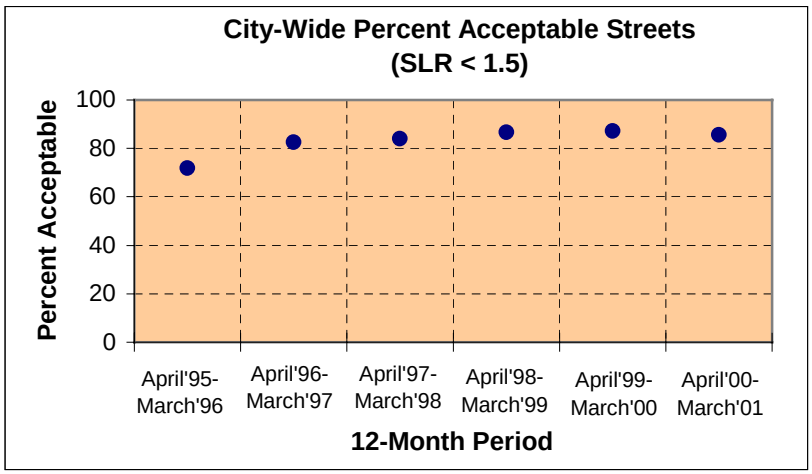
Measure of Street Cleanliness	Results of Scorecard Litter Ratings (SLR)					
	4/95-3/96	4/96-3/97	4/97-3/98	4/98-3/99	4/99-3/00	4/00-3/01
Mean SLR[(1)]	1.37	1.32	1.31	1.30	1.30	1.30
%Acceptable[(2)]	71.9	82.6	84.1	86.6	87.2	85.5
%Filthy[(3)]	6.1	2.5	2.1	1.2	1.2	1.37

Notes:
(1) SLRs follow a 7-point scale from 1.0 (cleanest) to 3.5 (dirtiest).
(2) Percentage of tested blockfaces with SLR less than 1.5.
(3) Percentage of tested blockfaces with SLR greater than 1.74.

b) Catch Basin Hooding in Phase I / II Areas

Catch basin hooding in Phase I/II areas was completed on or ahead of schedule. A detailed description of these activities, with a summary of the results, is available in previous Quarterly Reports and will not be repeated here.





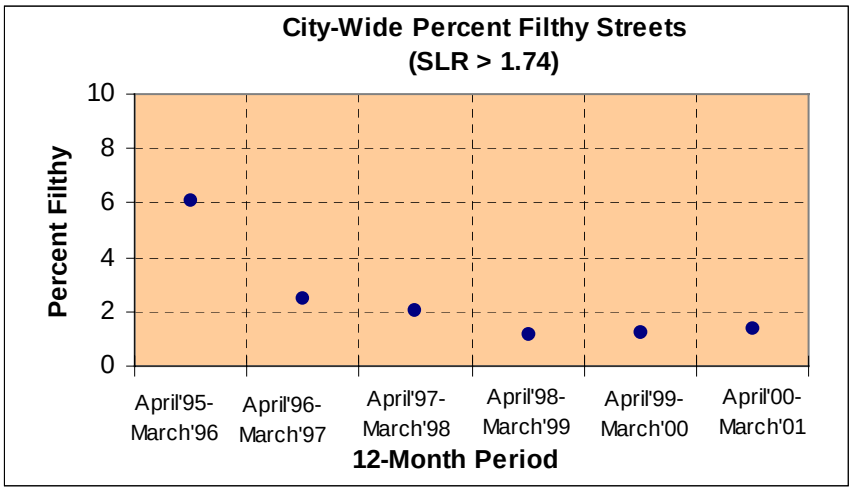


Figure 1. Street Cleanliness

c) Netting/Booming and Skimming (Interim Floatables Containment Program)

As of March 31, 2001, the IFCP included 19 boomed sites and 4 netted sites draining a total of approximately 58,600 acres. As shown in the table below and on Figure 2, the total volume of floatable material retrieved annually from these sites has varied between about 500 and 1,700 cubic yards. These retrievals are affected by many factors, including the number and efficiency of IFCP sites, street cleanliness, catch basin hooding, and weather. These factors are being analyzed to determine whether the overall decline in retrievals may be attributed to increased catch basin hooding in upland areas.

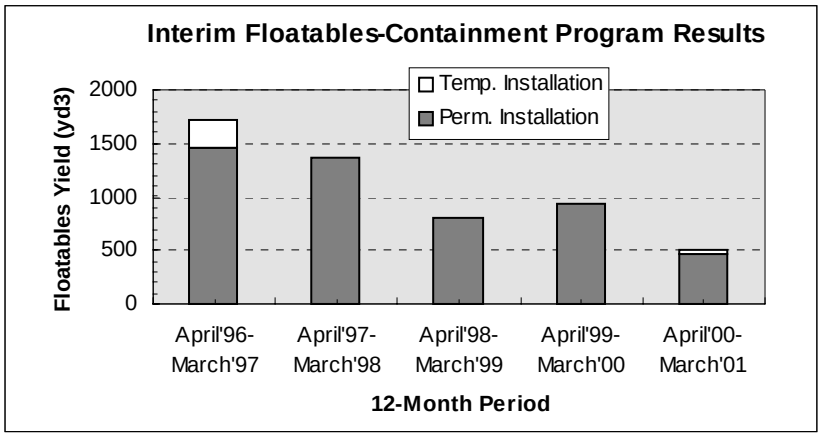


Figure 2. Floatable Material Retrieved from IFCP

As shown on Figure 2 and in the table below, the most recent quarter experience lower yields than in previous years. Preliminary analysis indicates that this may be due to much lower-than-normal precipitation in January and February, 2001, when much of what precipitation did fall was snow and did not contribute to floatables-laden CSO. Overall, a number of sites have yielded lower-than-expected volumes of floatables. HydroQual is investigating the reasons for these low yields and will recommend modifications to the program to increase floatables containment.

Interim Floatables Containment Program Results, 1996[1] - 2001

	4/96-3/97	4/97-3/98	4/98-3/99	4/99-3/00	4/00-3/01
No. Sites[2]					
Permanent	20	22	22	22	21
Temporary	12	2	1	2	2
Total	22	23	23	23	23
Volume [cy][3]					
Permanent	1,456	1,360	812	943	460
Temporary	267	4	0	0.0	54
Total	1,723	1,364	812	943	514

Notes:

(1) Volume measurements began 7/95.

(2) Maximum number of sites operating during period.

(3) Total volume of floatables retrieved from sites during period.

(4) "Temporary-status" sites feature lower-quality equipment than "Permanent-status" sites.

In addition to the IFCP netting and booming sites, there are two additional sites from which DEP has recently agreed to collect material on an as-needed basis. These sites are located at Buttermilk Channel (at the intake to the water tunnel) and near Bowery Bay at the Ogden Fuel Services site. Both sites are boomed. From January through March 2001, 10 cubic yards of material was collected from the Buttermilk channel site (including material collected by the Transportation Section). Nothing was observed at the Ogden Fuel services site.

DEP also conducts retrievals of large floating debris using the *Cormorant* skimmer vessel throughout New York Harbor. During January, February and March, the *Cormorant* retrieved a total of approximately 55 tons of floating debris, including roughly 3 tons of trash. Most of the remaining material was comprised of wood from decayed piers and derelict vessels.

No community clean-up activities were reported during this period.

d) Track I Facilities

Please refer to Section 2 of the CSO Quarterly Report.

e) Maximizing Wet-Weather Flow to WPCPs

Recommendations have been finalized for 7 of the 9 WPCPs not affected by Track I facilities. These recommendations, and the estimated cost associated with the recommendations, are summarized in the Quarterly Report dated July 1998 and will not be repeated here.

On behalf of NYCDEP, HydroQual, Inc. is beginning a study to investigate the wet-weather capacity of the city's WPCPs with an emphasis on their ability to process two times design dry-weather flow (DDWF). Unit-process sizing will be reviewed and capacities will be determined based on traditional engineering principles.

Information packages for each of the wastewater treatment plants are being developed and will serve as a basis for discussion with the plant superintendents and process engineers. Hazen and Sawyer has provided a draft copy of their wet-weather operations plan for the WPCPs with biological nutrient reduction (BNR). The hydraulic capacity of the biological treatment processes of the BNR plants may be downgraded from 1.5 times DDWF. These decreases will increase the hydraulic load to the bypass channel if the plants are to maintain a total wet-weather capacity of 2.0 times DDWF. DEP has also provided a report on full-scale secondary clarifier tests and performance which indicated that secondary clarifiers at the Rockaway WPCP were able to withstand overflow rates of up to 1,600 gpd/sf. This information will be used in evaluating wet-weather capacities for secondary clarifiers.

2. Catch Basin Hooding in Phase III Areas

Non-priority ("Phase III") areas of the city are not subject to Consent Order requirements for catch basin inspections and hooding. However, DEP is proceeding with catch basin inventory and hood replacement operations in Phase III areas. According to data available through February 16, 2001, a total of 40,822 structures have been found in Phase III areas, 35 percent more structures than DEP had previously estimated in these areas. Of these structures, about 76 percent are basins (that is, structures connected directly to the sewer) and about 9 percent are hoodable inlets (structures not connected directly to sewer and having a sump depth of greater than 27 inches). The remaining 15 percent of structures are inlets with sump depths of less than 27 inches, which DEP does not consider candidates for hoods.

Figure 3 summarizes the hooding program in Phase III areas as of February 16, 2001. About 15 percent of all Phase III structures are not candidates for hooding, about 38 percent

structures were found hooded, 42 percent have been installed with hoods as part of this program, and the remaining 4 percent of structures are still missing hoods.

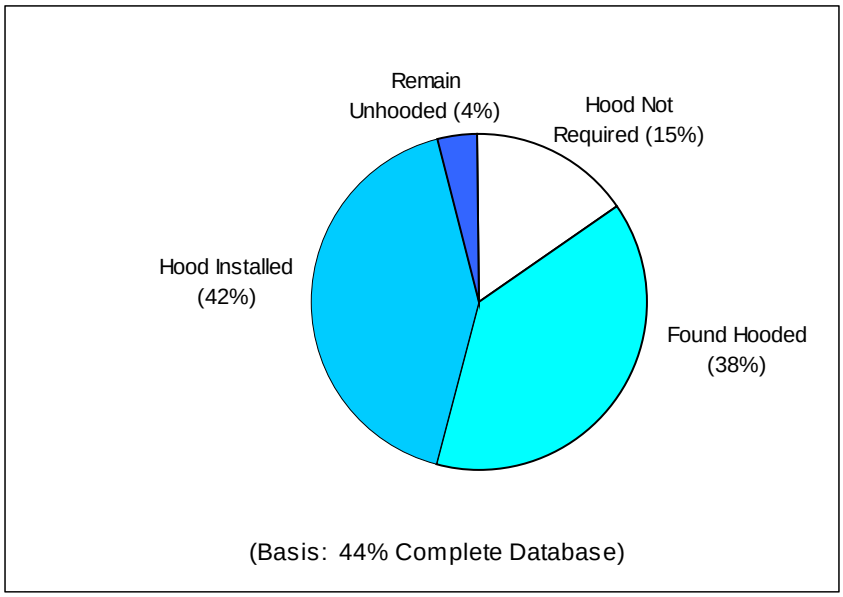


Figure 3. Status of DEP Hooding Program (Phase III)

3. City-Wide Reconstruction of Unhoodable Catch Basins

The ongoing catch basin hooding program continues to identify basins that cannot be hooded due to physical conditions requiring extensive repairs or reconstruction for hooding. DEP is reviewing the various conditions that preclude normal hooding and is assessing how many basins can be "retrofitted" with modified hood designs. Retrofitting is desirable because it can be done more quickly and cost-effectively than reconstructing the basins. DEP has developed prototype versions of modified hoods to be used in situations where a normal hood cannot be used because:

1)the exit pipe is too close to the top of the basin (15 percent of unhoodable basins),
2)the back wall of the basin is too deteriorated to support hood hanger hooks (15 percent of unhoodable basins),
3)steel plates above the exit pipe preclude hanging a normal hood (1 percent of unhoodable basins), and
4)the exit pipe is located in a corner of the basin (3 percent of unhoodable basins).

DEP has initiated a pilot program to evaluate whether the modified hood designs provide adequate performance over a reasonable time period. From March through June, 2000 and as part of this pilot program, 48 of 60 catch basins in the Queens 10 community district, which had been previously defined as requiring reconstruction for hooding, have been fitted with conventional or modified hoods. The other 12 basins have been identified for structural repair or catch basin replacement.

In addition to investigating modified hoods in lieu of basin reconstruction, Capital Program CB-01 appropriates $6 million annually for replacement of collapsed catch basins and associated work required to make sidewalks handicapped accessible. The funding for CB-01 is above and beyond the existing levels needed to address normal repair work.

In addition to the catch basins being identified for reconstruction, and based on estimates by Liro Consulting Engineers, P.C., there are roughly 1,067 catch basins that cannot be inspected and hooded as part of the ongoing program because they are located in "high-speed roadways" and as such require DOT permits as well as special safety equipment. Liro Consulting Engineers, P.C. has visited these high-speed sites to determine the need for safety measures, lane closures, etc., and contract specifications were completed for this project (MI-4) by January 2001. NYCDEP is now in the process of selecting a contractor for catch basin cleaning and hooding in those areas.

4. City-Wide Catch Basin Re-inspection Program

As a follow-up to the catch basin hooding program (discussed in Section 1b), the Consent Order also requires that all catch basins in Phase I and Phase II areas be re-inspected every two years to confirm that hoods remain in place. These two-year re-inspection cycles are to commence upon completion of the initial hooding process, for which the milestone dates were February 1998 (Phase I) and February 1999 (Phase II). DEP completed initial hooding ahead of schedule, in December 1999 (Phase I) and September 1998 (Phase II).

DEP finished re-inspections of Phase I basins by December 1999, ahead of the original milestone date in the Consent Order and within two years of completing the initial hooding. According to DEP, all missing hoods were replaced within 90 days of the inspection, as per the Consent Order. As part of its inspection program of all catch basin structures, DEP reports finishing Phase II basins re-inspection and hooding by the end of 2000. Phase III re-inspections are expected to start within a short period of time.

DEP compiled the results of the Phase I re-inspections and determined that, of the 29,383 basins that had been hooded initially, just under 3.3 percent required re-hooding over the two-year re-inspection cycle (as shown below). This equates to an annual hood-dislodge rate of about 1.6 percent. Results of the Phase II re-inspections are currently being compiled by DEP and they are not available at this time.

Status of Catch Basin Re-Inspection For Hoods[1] – Phase I

Community Board	Number of Basins(2)	Total Hoods Replaced	Rehooding Percentage(3)
BX01	772	75	9.7%
BX02	595	3	0.5%
BX03	536	46	8.6%
BX04	774	1	0.1%
BX05	590	38	6.4%
BX07	682	48	7.0%
BX09	1,612	23	1.4%
KG04	574	23	4.0%
KG06	1,040	6	0.6%
KG07	887	93	10.5%
KG10	1036	25	2.4%
KG12	1,515	27	1.8%
KG18	2,760	65	2.4%
MN01	621	3	0.5%
MN02	859	2	0.2%
MN03	679	6	0.9%
MN09	541	8	1.5%
MN10	472	20	4.2%
MN11	438	30	6.8%
MN12	824	31	3.8%
QN01	2,046	116	5.7%
QN02	2,032	90	4.4%
QN10	2,875	113	3.9%
QN14	2,168	44	2.0%
SI01	2,455	29	1.2%
Total	**29,383**	**965**	**3.3%**
	Annual Hood-Dislodge Rate		**1.6%**

[1] From information provided by NYCDEP, March 2, 2000

[2]Total number of basins that do not require extensive repairs for hooding

[3]Rehooding percentage over the 2-year re-inspection cycle.

5. Illegal Disposal Control

In 1998, HydroQual helped DEP and DOS develop a protocol to record and report locations of suspected illegal shoreline trash-dumping. This "Illegal Dumping Notification" program has coordinated efforts between DEP's Harbor Survey Program, DEP's Sentinel Monitoring Program, and two branches of DOS, the Environmental Police and the Sanitation Police. The Environmental Police handle information related to hazardous substances (such as medical waste and asbestos), and the Sanitation Police handle information related to illegal trash dumping.

It is anticipated that the Illegal Dumping Notification Program will continue in 2001. With respect to enforcement, the DOS Sanitation Police will again be notified of these possible active dumping locations.

6. Public Education

Please refer to Section 2 of the CSO Quarterly Report.

7. Pilot Studies and Demonstration Projects

Please refer to Section 2 of the CSO Quarterly Report.

APPENDIX B

CITIZEN ADVISORY COMMITTEE ON WATER QUALITY – MEETING MINUTES

WATER QUALITY CITIZENS ADVISORY COMMITTEE

MEETING REMINDER

To: Water Quality Citizens Advisory Committee Participants
From: Rick Raymond, Tel 718.595-6272. Fax. 718.595-6259

The next meeting of the Water Quality CAC is scheduled for:

Date **WEDNESDAY, FEBRUARY 14, 2001**
Time: **3:00 - 6:00 P.M.**
Place: **Environmental Defense Fund (EDF)**
257 Park Avenue South (20/21 Sts.)
17th Floor Conference Room
Attn.: Jim Tripp 212-505-2100

The agenda includes:

- Status on the upgrade of the Rockaway, Staten Island and North River Water Pollution Control Plants - Jim Mueller, Bureau of Environmental Engineering, NYCDEP
- New York State Department of Environmental Conservation activities in wetland restoration -- Steve Zahn, Marine Resource Program Manager, NYSDEC
- Update and status of the Use and Standards Attainment (USA) project -- John St. John, HydroQual
- Presentation, Working 'Waterfronts, Redefining "Build to Suit" ' -- Carter Craft, Metropolitan Waterfront Alliance