Attachment 7

Croton Water Treatment Plant Above Ground Structures and Landscape

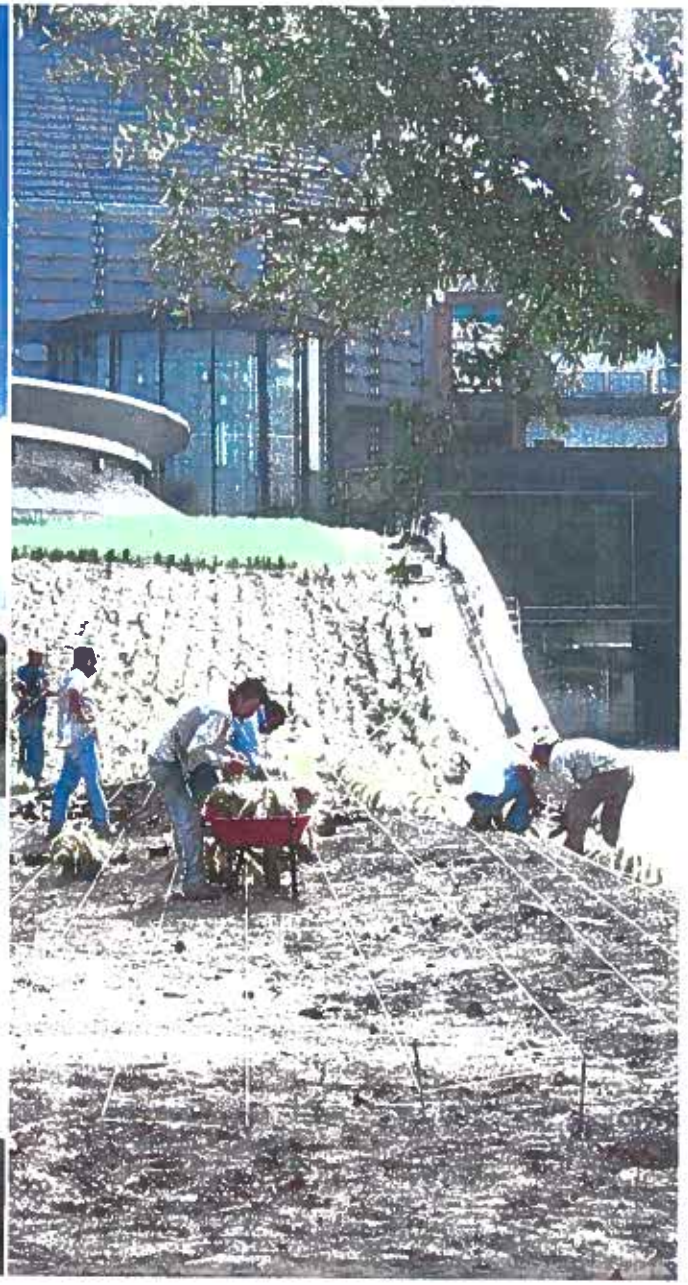
GRIMSHAW ARCHITECTS

# DESIGN UPDATE PRESENTATION FOR CROTON FACILITY MONITORING COMMITTEE MEETING

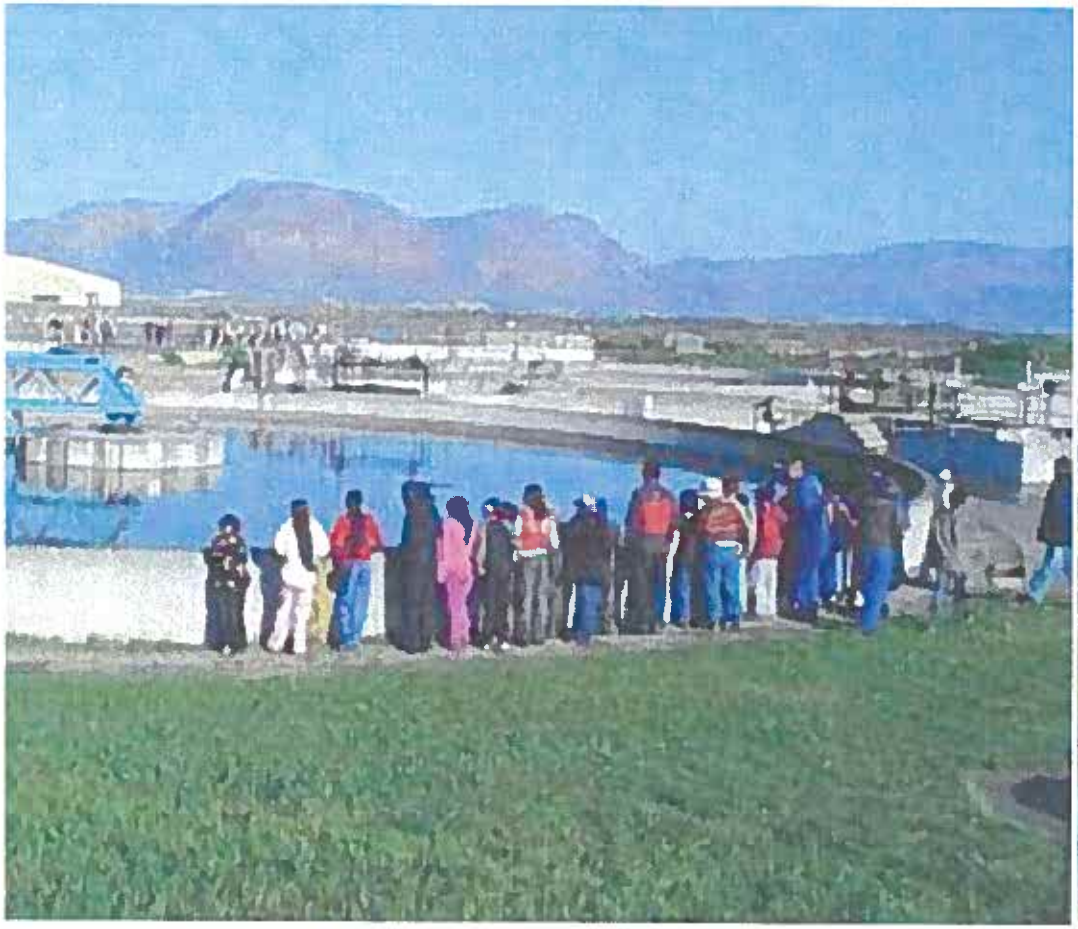
June 18th, 2009

NEW YORK CITY DEPARTMENT O

and creative integration of buildings in the landscape



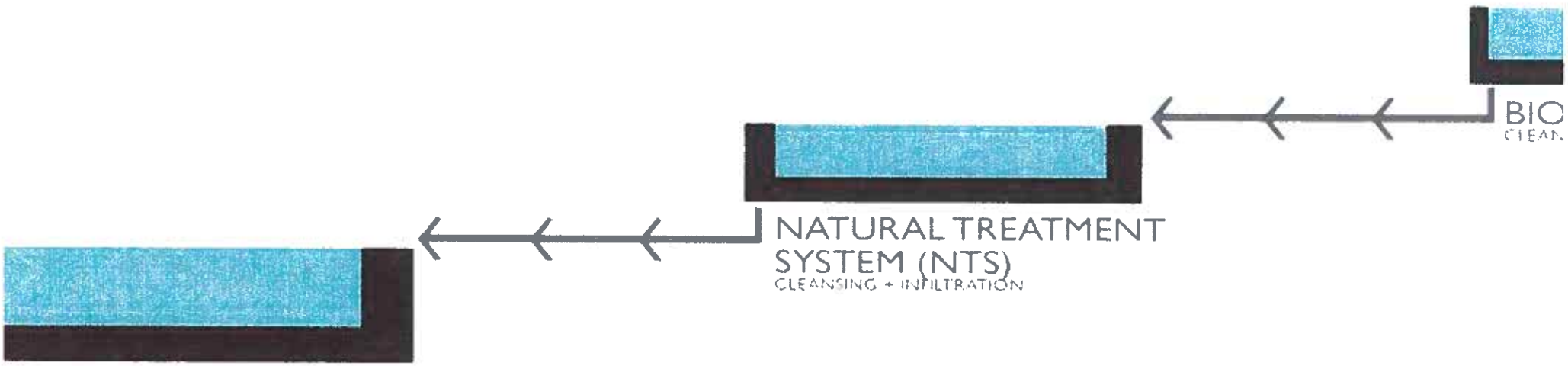
# Create amenity for recreation and education



# Sustainable design through the best practices of storm management and site design

SUPPLY: STORMWA

IRRIGATION, CLUBHOUSE, EVAPORATION




ENTION POND

SUPPLY: GROUND WATER, CROTON WATERSI

CROTON WTP

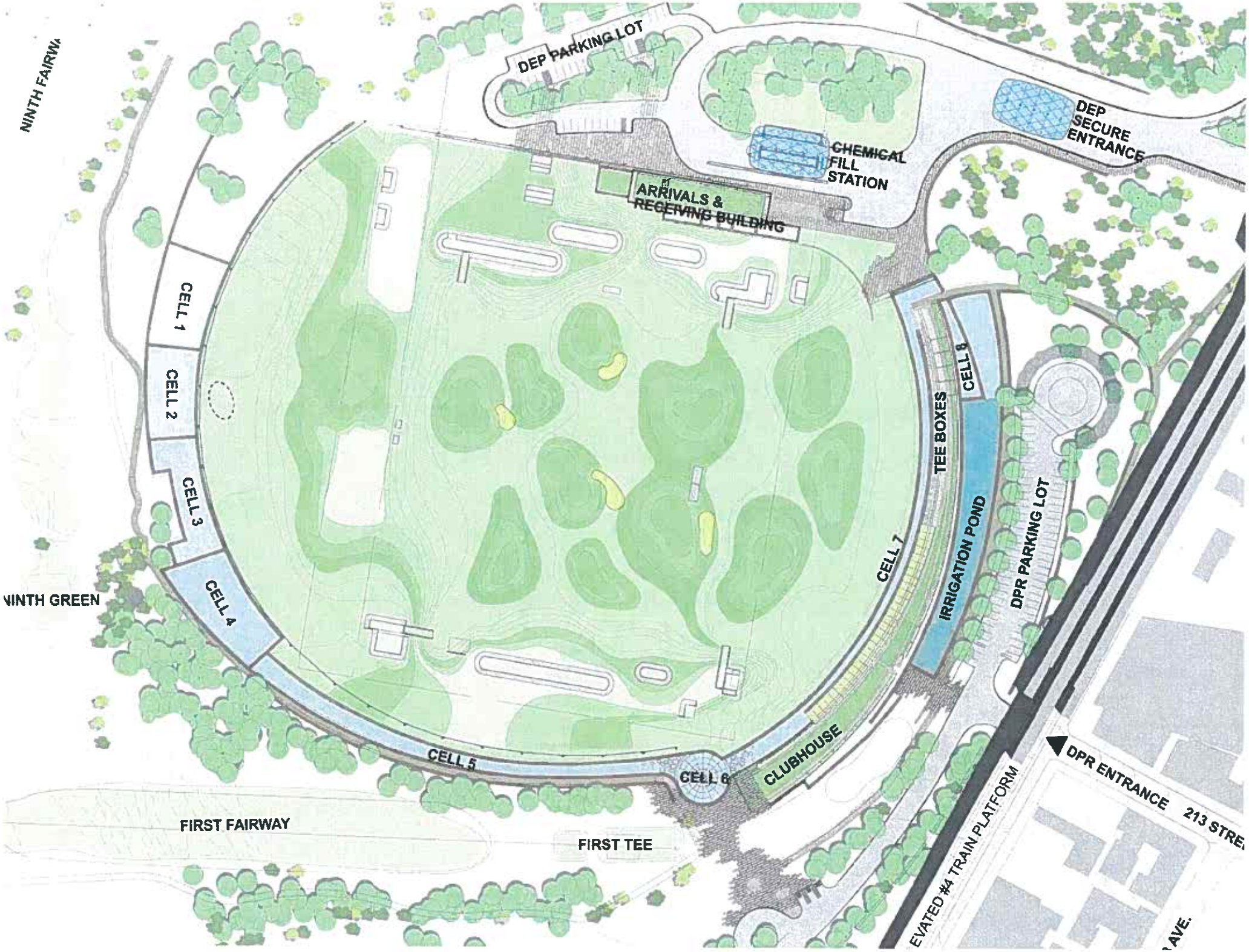
# SCHEMATIC DESIGN

FALL 2008

WTP EMPLOYEE AND GUEST PARKING ~45 SPACES
GUARD HOUSE
CHEMICAL FILL BUILDING
ARRIVALS AND RECEIVING BUILDING
MGC DRIVING RANGE PARTERRE
TEE BOXES
IRRIGATION POND
MGC CLUBHOUSE
JEFFERSON AVENUE
PROPOSED FIRST FAIRWAY
PROPOSED FIRST TEE
PROPOSED FIRST GREEN
CLUBHOUSE PARKING 75 SPACES

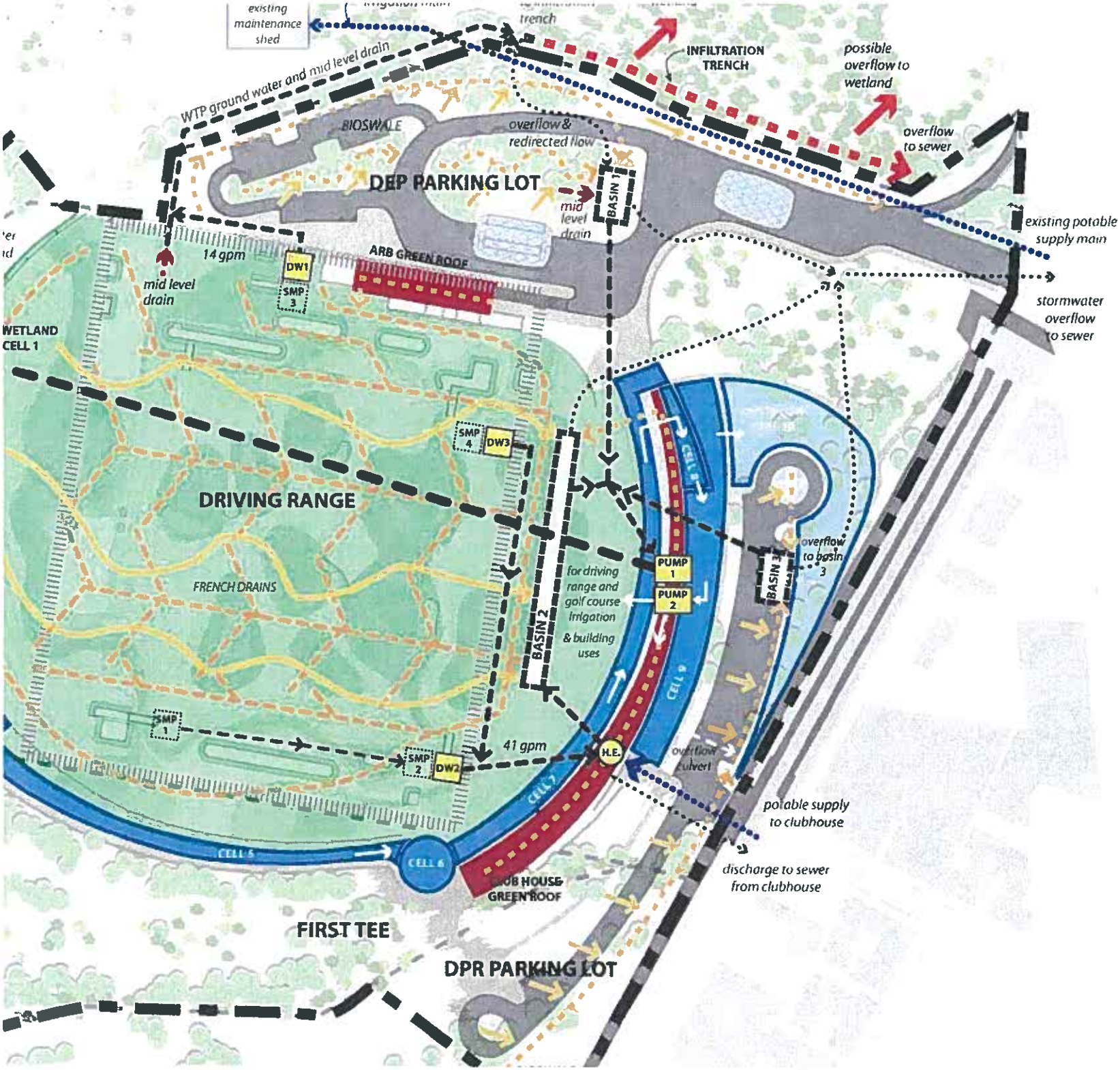
# DESIGN DEVELOPMENT

SPRING 2009


NINTH FAIRWA
DEP PARKING LOT
CHEMICAL FILL STATION
DEP SECURE ENTRANCE
ARRIVALS & RECEIVING BUILDING
CELL 1
CELL 2
CELL 3
CELL 4
CELL 5
CELL 6
CELL 7
CELL 8
TEE BOXES
IRRIGATION POND
DPR PARKING LOT
CLUBHOUSE
NINTH GREEN
FIRST FAIRWAY
FIRST TEE
DPR ENTRANCE
213 STRE
EVATED #4 TRAIN PLATFORM
AVE.

# WATER FLOW PLA

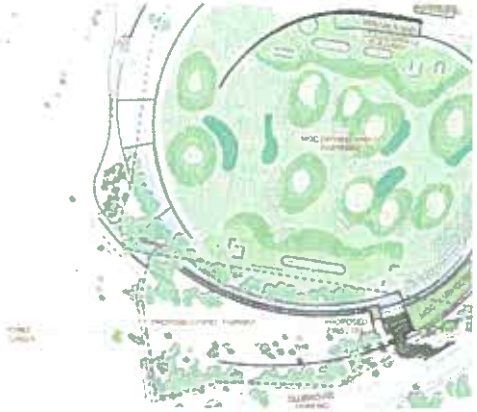
GRI



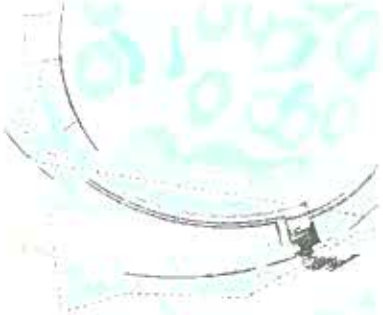

LEGEND

- Surface Wa
- Biofiltration
- H.E. Heat Excha
- Pump
- Sump
- Dashed Lin Signifies Un
- Infiltration T
- Basin
- Green Roof Ground Stru
- Wetland Sy
- Driving Ran
- Paving and
- Site Extents

VELOPMENT



KEY PLAN



KEY PLAN

KEY PLAN

VELOPMENT

KEY PLAN

KEY PLAN

VELOPMENT

KEY PLAN

**22 Questions to the FMC and the DEP by Karen Argenti, June 18, 2009**

1. Why is the Demonstration Building surrounded by a chain link, not an opaque fence as required by law? Why is this temporary building standing, if the Buildings Department permit approved demolition in January 2009?[1]
2. Why are there depressions in the roadway on Goulden Avenue at various work sites extending from Sedgwick to 205th Street where the DEP contractor dug up and filled in? Why has the work stopped on the sound barriers?
3. Can you specify the new "information not previously available" as mentioned in the Minor Modification (MM) on page 2 that you received to make changes to the work at the Jerome Park Reservoir (JPR)?[2]
4. Can you provide access to review all geologist reports for JPR?
5. Can you reference the page in Table 1 for the project element discussion "As Discussed in the Final SEIS" as well as the "As Currently Proposed (Minor Modification)?
6. Can you reference the page in the old FSEIS[3] referenced on page 9 of the MM[4] when you compare the work proposed in the FSEIS to the new work for the south basin ramp?
7. What other alternatives did you review in the site and the method of excavation for the Shaft and Meter Chamber?
8. What other alternatives did you review for the site and construction of the ramp for the south basin (i.e. such as one attached to the dividing wall)?
9. Where in the FSEIS did you study the impact of the construction of the south basin ramp, as well as the traffic impact for its use?
10. Where are the plans for the Outdoor Urban Ecology Lab (OUEL)?

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[1] See the following link for the permit to demolish January 15, 2009, with no asbestos abatement and pre-demolition inspection of February 27, 2009 http://a810-bisweb.nyc.gov/bisweb/JobsQueryByNumberServlet?requestid=2&passjobnumber=210107819&passdocnumber=01

[2] Minor Modification of April 2009, page 2: "Since completion of the Final SEIS, design has progressed to the final design and, as is typical for large scale and complex engineering projects, some changes to the preliminary design and proposed construction methods **were made based on information that was previously not available.**" (emphasis added)

[3] There was no work proposed for the South Basin Ramp in the Final SEIS JPR. It stated in section 8.2.1.4 that: "The Microstrainer Building would be demolished, and the area would be landscaped and kept open for a potential access ramp to the bottom of the Reservoir's south basin.

[4] MM, page 9: "The Final SEIS proposed that an access ramp to the South Basin be constructed in the vicinity of Gate House No. 6. ..... Construction of the South Basin Ramp, adjacent to Gate House No. 6 along the western wall of the Reservoir, is proposed for inclusion under Contract CRO-312OS."

11. Where are the DEP's plans for the restoration of the Harris Park Annex after the work is completed?
12. Where is the geologist report mentioned on page 15 of the MM?
13. Why did the city claim[5] the community's court case was not ripe in August 2008, when it already had a complete statement of the process in an addendum to the original Cultural Resources Assessments related to CRO-313 and CRO-312OS with a state agency (no more an interested party than the public or the court) and made an agreement concerning impacts?[6]
14. What is the basis for holding executive sessions of the FMC? All public bodies must hold meetings open to the public unless certain reasons for executive sessions apply.[7]
15. Where is the public participation for the evacuation plan as stated in the document you provided to the EPA?[8]
16. What is the timeline and status of the work on the pipeline from the plant to the Hunts Point Dewatering Plant?
17. When is the DEP's hearing for the MM?
18. When will the FMC meet during the summer?
19. Can the community have input in the plans for the vacated Jerome Avenue Pumping Station, and when will it be offline?
20. Where are the permits posted for the work ongoing at JPR?
21. Will the DEP discuss these projects at the DSC of the affected community boards and/or borough board?
22. What is the status of the park work at JPR?

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[5] Affidavit of Heath from the DEP http://www.waterblogged.org/wp-content/uploads/2008/08/cityheathaff082908full.pdf

[6] MM, page 15: "In response to a July 28, 2008 addendum to the original Cultural Resources Assessments, related to Contract CRO-313 and CRO-312OS work on the SMC, the OPRHP accepted the finding that a controlled blasting program can be developed that would minimize impacts to historic resources, and also agreed that there would be no adverse impact so archeological or architectural resources (OPRHP, September 5, 2008 included in Attachment A).

[7] http://www.dos.state.ny.us/lgss/pdfs/public.pdf See page 2 for info on the Executive Sessions.

[8] RMP Database: rtknet.org The Right to Know Network, the DEP stated: "If there is an accidental release, we will immediately call for emergency response to minimize the effect of the release and **notify the public of any actions necessary to ensure public protection**, through the City emergency management agencies." Emphasis added

**City of New York**
**Parks & Recreation**
**Capital Projects**
The Arsenal
Central Park
New York, NY 10021

Adrian Benepe
Commissioner

Olmsted Center-
Flushing Meadows- Corona Park
Flushing, NY 11368

Thérèse Braddick
Deputy Commissioner

# *MEMORANDUM*

TO: Alicia West, Public Design Commission

FROM: Matt Blood, Project Manager

DATE: July 20, 2009

SUBJECT: Mosholu Golf Course –Response To Dart Westphal's Questions

Cc: McKinney, Carlson, Uhrynowski, Choudhury, Gomez, McCue, DesNoyer, Mituzas, Perron, Lebeaux, Torres, Shuldiner

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**It is my understanding that the final design will provide for 18 tees on 9 holes. Is that still so?**

The final design of the golf course will provide for two tee boxes for each hole, for a total of 18 tees on the 9-hole golf course. This will allow golfers to play the 9-hole golf course twice, and change their tee shot from the front nine to the back nine.

**Does the new footprint of the driving range and retention system interfere with more than just the first hole.**

The new footprint of the driving range and water retention system impacts only the first fairway and tee boxes. The golf course designers propose to locate the first fairway and tee boxes immediately to the south of the original location. This has proved difficult because the site is constrained by a row of fence line trees to the south, and the retention system and cart path to the north. The design is further complicated by the existence of 24 mature trees within the proposed fairway alignment.

**What is the proposed layout of the first hole if they have to move it from the previous design?**

The golf course designers have worked with Bronx Forestry and the Park's Capital Projects Arborist to come up with a dogleg design that preserves many of the mature trees in place. In order to accomplish this, we are shifting the tee box location towards the line of the construction fence. We plan to remove some of the self-seeded trees along the fence line. We are also examining the possibility of shifting the tee box further south, in order to preserve the most desirable trees within the proposed fairway alignment.

**Might it be possible to move the fence on the fourth hole (the one closest to Gun Hill Road) so that it will be easier to make a good connection from the southwest corner to the Croton Aqueduct Trail west of the golf course?**

While we recognize that relocating the fence near the fourth hole would make a stronger connection between Sackerah Woods and the Croton Aqueduct Trail, it is unfortunately out of the scope of this project. The site of the fence is approximately a quarter of a mile beyond our project boundary.

GRIMSHAW

# MEMO

## Croton Water Treatment Plant's Above Ground Facilities

| | |
|---|---|
| **Title** | **Design Commission - Response to Conditions of Preliminary Approval** |
| **Date** | July 29, 2009 |
| **To** | Alicia West |
| **From** | Grimshaw |

Grimshaw has prepared the following memorandum on behalf of the New York City Department of Environmental Protection (DEP) in order to provide the Design Commission with a comprehensive set of explanations for all of the significant design changes that have occurred since December 2008 for the Croton Water Treatment Plant's Above Ground Facilities.

As per DEP's request, this document also addresses the conditions for Preliminary Approval that were issued by the Design Commission on December 8, 2008 as well as subsequent inquiries made by the Commission since that date.

### Project Overview

Grimshaw began the design of the above ground structures and landscape in the fall of 2006. Pre-Schematic Design consisted of a programming and conceptual design phase that culminated with the issue of the Pre-Schematic Design Report in February 2007. The report and project concept was presented to the Art Commission on May 14th, 2007 for Conceptual Design Approval. The project was well received by the Art Commission and was granted approval to continue into Schematic Design.

During Pre-Schematic Design, three clear core concepts were established and these concepts continue to give clear direction to the development of the above ground buildings and landscape. These core concepts include the creative and artistic integration of the buildings into the landscape, a truly sustainable approach to building design and landscape by emphasizing best practice for storm water management and water reuse, and ultimately the enhancement of Van Cortlandt Park for recreation and educational purposes.

The use of green roofs, locally sourced materials and bermed landscape all contribute to a seamless integration between buildings and landscape. Landscape additions and subtractions act as natural security barriers, roofs and building facades. Gabion baskets and stone faced walls act as security interdiction as well as retaining walls and complement the natural landscape through the use of naturally sourced stone. Building and landscape are combined at the Croton Water Treatment Plant to blur the line between the building and the natural environment.

An essential concept of the design of the above ground buildings and landscape has always been the demonstration of best practice for storm water management and water reuse. The Croton Water Treatment Plant is an unsurpassed venue to incorporate the use of innovative ecological water treatment technologies and to educate the public about their value. This integrated set of onsite water management solutions provide tremendous benefit to all stakeholders involved and demonstrates the ecological and economic value of water, in a highly urbanized setting.

This water management solution emphasizes bioengineering ecological features both on and adjacent to the surrounding buildings. Storm and ground water collection, storage, and water recycling systems are integrated into project design to retain and maintain water flow throughout the site, reducing the need to discharge water into the City's combined sewer.

The design strategies focus on reuse of onsite groundwater, storm water, and wastewater. Constructed wetlands filter groundwater and storm water runoff for reuse within the buildings and on the site. Heat exchangers also use groundwater to mediate building temperatures and to minimize energy use and cost.

Planted buffers of native grasses, shrubs, and perennial plants are designed to treat excess water from turf grass. The buffers and landscaped areas will provide a visually pleasing backdrop to screen the golf course, and add habitat for native flora and fauna. Due to the high evapotranspiration rate of plant material, placing vegetation on and adjacent to building structures provides additional temperature amelioration. This significantly reduces cooling loads and energy demands. Ultimately, the above ground buildings and landscape at the Croton Water Treatment Plant can become a vital resource for the surrounding neighborhood, borough and City. Our design intention is to create an enhanced recreational environment at the Moshulu Golf Course complimenting the First Tee mission of

promoting learning facilities and educational programs that promote character development and life-enhancing values through the game of golf, as well as provide a demonstrative solution to the ongoing problem of storm water management in New York City.

The above ground buildings and landscape have continued to develop throughout the last year. Grimshaw has developed architectural, structural and mechanical solutions to complement these core concepts developed in Pre-Schematic and Schematic Design and are confident these initial ideas have continued to drive the design process. . Concrete, timber and natural stone structural systems have been developed for structures across the site to maintain a robust and safe environment while continuing to complement the park setting outdoors. Transparent glass curtain wall systems enhance views throughout these structures and out to the park environment beyond.

Finally, value engineering has been undertaken within the Schematic Design phase to accurately identify areas that can be simplified to reduce cost but maintain core design concepts. This value engineering process has enhanced the overall project quality and reduced total cost while not sacrificing design quality.

### Conditions of Preliminary Approval

The New York City Department of Parks and Recreation (DPR), and Grimshaw presented the preliminary design of the Above Ground Facilities for the Croton Filtration Plant to the members of the Design Commission and public on December 8, 2008. The Commission commended the design and granted the project Preliminary Approval, "with the understanding that the agencies will restudy the design of the golf course parking lot to preserve as much of the open space to the south of the golf course as possible" (Certificate #23373).

Since December of 2008, DEP, DPR, and Grimshaw have taken the Design Commission's conditions of Preliminary Approval under serious consideration and have worked extensively to develop an alternative golf course parking design that resolves the issues of the golf course parking lot (DPR parking lot) size and location. The design team produced an alternative design that significantly shifts the golf course parking lot north along Jerome Avenue with a compacted footprint.

### Revised DPR Parking Lot

As per direction from Design Commission, changes were made to reduce the footprint of the parking lot and its associated entry drive within the zone of Temporary Alienation by at least 50%. In efforts to meet this reduction, the DPR parking lot was relocated to the north, while essential drop-off, turnaround, and ADA parking were maintained at the southern location near the Clubhouse entrance. This change reduced the overall footprint within the zone of Temporary Alienation from 1.1 acres to .24 acres, a 75% reduction. Other efforts to reduce overall footprint included a reduction in the number of parking spaces from 75 to 70 as well as a reduction in the size of the parking stall from 10' x 20' to 9' x 18'.

In the process of developing the design for the DPR parking lot, the New York City Department of Transportation (DOT) approved the location of a curb cut at Jerome Avenue directly across from 213th Street, which signaled a change from the mid-block curb cut initially proposed between 212th and 213th Streets. This relocation also shifted the entry road location further north.

The curb cut and Clubhouse entrance location and the requirement to have the DPR parking lot shifted to the north resulted in a split drive scenario and required two turnarounds, one at both the north and south end. Three key parameters of 1) existing elevation at Jerome Avenue curb cut, with 2) proposed finished floor elevation of Clubhouse, and 3) a 5% maximum grades between Clubhouse/ADA parking/drop-off areas, necessitated a grading solution that then required retaining walls along Jerome Avenue street frontage.

While every effort was made to save existing trees, the new design and grading requires the removal of 5 "less significant trees" (as termed by DPR), which include one at the curb cut and 4 along the entry drive, versus the one existing tree (of greater caliper) required for removal in the Schematic Design of the Preliminary Approval submission.

Also, as the parking lot design has developed, the material finish has changed from one of proposed concrete, to a pervious paving system of cast-in-place concrete with voids filled with drought-tolerant turf and/or gravel.

Below is a bulleted summary of the Schematic Design of the DPR Parking Lot that was submitted for Preliminary Approval in November of 2008:

1. 75 parking spaces

# MEMO

2. 10' X 20' parking stalls
3. Mid-block curb cut between 212th and 213th streets
4. Consolidated design of parking to one location on site vs. split parking, entry drive, and turnaround to north and south of site
5. Design provided combined drop-off, ADA and general parking at building entrance
6. Drop-off located at 150'-0" from clubhouse entrance 7. Design resulted in loss of one existing tree
8. Parking lot location may have required wall, netting, and/or fence to separate functional spaces of 1st tee/fairway and parking lot area.
9. Material finish of concrete for entry drive, parking, and turnaround/drop-off
10. Footprint = 1.1 acres outside of permanent alienation line

Below in a bulleted summary of the Revised Schematic Design of the DPR Parking Lot that is currently proposed:

1. 70 parking spaces
2. 9' X 18' parking stalls
3. Curb cut located at 213th street
4. Design requires split drive to north for parking; all general public parking located to the north, with split drive, two turnarounds required
5. Design maintains essential drop-off, turnaround, and ADA parking to the south at clubhouse entrance
6. Drop off located at 185' +/- from clubhouse
7. Design resulted in loss of 5 "less significant existing trees" due to relocation of entry road
8. Grading of parking lot resulted in need for retaining walls along Jerome Avenue frontage
9. Material finish for parking area and turnaround/drop-off to be grasscrete with porous infill- paving will be 30-40% pervious
10. Footprint = .24 acres outside of permanent alienation line

### Revised DPR Parking Lot: On-site Water Management and Habitat Creation Plan

The relocation of the parking lot to the north eastern area of the site has been reviewed with our environmental consultants to ensure that the revised design maintains the integrity of the integrated storm water management system as well as the nominated habitats as shown on the drawings submitted in 2008.

The functional and ecological role of cells 9 and 10 within the storm water management system remain the same in the revised scheme. A majority of the storm water entering the broader constructed wetland system in a 10 year storm event will detained in cells 1-9. When the system reaches capacity Cell 9 is designed to overflow into Cell 10, the flooded plain. The flooded plain is a planted mix of wetland shrubs and tree species. Permeable soils allow for storm water infiltration and the dense planting creates habitat value and fall color. The introduction of the parking lot in the cell 9 and 10 area does not change this functional arrangement.

Grimshaw reviewed the changes to the cell 10 overflow catchment area as a result of the parking lot location moving from the south of the site to the area along Jerome Avenue. The change to cell 10 has not significantly modified our approach to the storm water management system as it was previously designed during the Schematic Design Phase. At the moment, cell 10 is being engineered further as we move forward into Construction Documentation and Grimshaw does not foresee any additional changes to the storm water management system.

# MEMO

In addition, Grimshaw has reviewed the cell 10 habitat creation and plant lists and do not see any necessary modifications to what was planned previously due to the change in the DPR parking lot location.

## DEP Secured Area Perimeter Walls

Since December 2008, DEP's security consultant raised concerns regarding the climbability of the gabion walls that were designed for the perimeter of the DEP secured area. To address these concerns, Grimshaw is currently proposing a stone-faced concrete wall, which maintains the feel of the stone gabion.

The Grimshaw design team proposes using a combination of gabion walls and stone-faced concrete walls for the project to satisfy security requirements, cost reduction measures, and aesthetic goals. Natural stone from the New York City region was chosen as an appropriate material for a cohesive architectural language of the site and various buildings.

A key concept of the Grimshaw team's wall design has been that the wall profiles follow the natural slope of the land without abrupt changes or stepping. The wall design satisfies the following programmatic requirements: 1) meeting existing grades at property lines, 2) allowing for 4'-0" parapet to meet code where wall exceeds 30" ht. in elevation change, 3) accommodating security requirements of 10'-0" minimum for pedestrian interdiction walls and 3'-6" minimum for vehicle interdiction walls, and 4) functioning as structural/retaining walls, both for early construction of the DEP area below grade work and as permanent retaining walls.

With these design goals in mind, the walls are designed from proposed finished top of wall elevation downwards to subgrade condition, with standard basket units or concrete core taking up varying conditions and grade changes below finished grade. Doing so prevents the walls from stepping up and down to accommodate varying conditions. Specifications are being tightly written to ensure quality of wall construction and finish. Specifications will require that site areas for walls are adequately surveyed, and excavated to finished sub-grade conditions, and that leveling strings are constructed in field to show proposed top of wall to ensure quality and craft of construction and to ensure a level top of wall across the site.

## DEP Secured Area Perimeter Walls: Gabion Wall Construction

Typically, gabion wall construction entails the pre-fabrication of selected standard gabion baskets which are delivered to site in a flattened condition, and are pre-fabricated to be clipped together on three sides. Once delivered to site, the baskets are unfolded, and side panels are secured together with binding wire laced along edges with single and double loops, typically 4" between each loop. The wire can be secured with a ring fastener. The baskets are wired together in groups and lifted into place individually atop or alongside gabions already in position.

Typically, filling the baskets with stone occurs in 3 steps. First, the basket is filled to one third with level surface on top, and then bracing wires are fixed inside; the procedure is repeated when basket is 2/3 full. When the basket is filled, the lids are levered down and laced shut. The crushed stone size is typically 4"-8" diameter to ensure that the stone stays within basket which can have openings of up to 2" diameter.

This project proposes the use of standard gabion basket sizes with the typical finished basket size proposed to be 3'-0"wide x 3'-0" high x 9-0"'long. The 9'-0"long basket actually includes (3) standard basket sizes of 3'-0"wide x 3'-0" high 3'-0"long cells securely wired together with the larger 9'-0" basket. Structurally, the baskets must be stacked in a pyramid formation, usually to the retaining side, to counter lateral forces. To economize on construction, baskets can be stacked on a 1 to 1.5 ratio, which introduces the use of a second standard basket size of 1'-6" wide x 3'-0" high x 3'-0" long.

A 2'-0" minimum deep aggregate sub-base is added to support the walls at foundation level. And, while not required for structural reasons, gabion basket manufacturers recommend at minimum 1:12 batter on face of walls for aesthetic reasons, to counter a sense of the wall tipping forward. This is particularly useful when wall heights exceed eye level.

As per project aspirations to employ a best practice approach to environmental considerations, the Grimshaw team proposes that the gabion baskets have a nylon coating instead of only galvanized (which reduces longevity of basket) or pvc coating (which poses toxicity impacts to the environment over time). Coating of baskets would be part of the pre-fabrication process.

## DEP Secured Area Perimeter Walls: Stone-Faced Concrete Wall Construction

site grading in this area, branching will be required in the range of 4'-0" to 14'-0" heights along this corridor (with branching generally required between 4'-8' at southern end of parking lot to 6'-14' at northern end of parking lot at turnaround).

The preliminary submission tree list includes 4 species which were selected based on being an extension of the native species found in and around site, including: Liquidambar Styraciflua, Sweet Gum; Quercus Bicolor, Swamp White Oak; Quercus Palustris, Pin Oak; and Sassafras Albidum, Sassafras.

### Maintenance of Lotuses in Retention Pond

Proposed lily and lotus are *Nymphaea odorata* and *Nelumbo lutea*, native perennial species that will survive New York winters. They will die back in winter and emerge again in spring, requiring no additional maintenance. We have confirmed this with local growers of these species. While development of the pond is still underway, DEP and DPR will continue to work on creating a cooperative plan that ensures the maintenance of the pond as well as the rest of the facilities in the design.

### Summary of Community Response to Design Changes

As per the Design Commission's request, the agencies and Grimshaw presented the revised and updated preliminary design to the members of the Croton Facility Monitoring Committee (CFMC) on June 18, 2009. Representatives of the Bronx Borough Present's office, Council Member G. Oliver Koppell's office, DEP, DPR, Community Boards 7, 8, and 12, and the public were in attendance.

The following is a compilation of the community concerns expressed by members of the public who attended the CFMC meeting on June 18, 2009. A memorandum dated July 20, 2009 from DPR is included in this submission and summarizes the questions received that address portions of the design that will serve as DPR facilities. The responses below each issue were prepared by Grimshaw and will be shared with the individuals who expressed their concerns. These questions and responses are as follows:

#### *On-site Stormwater and Groundwater Management*

a. Will the ponds that will retain storm and groundwater provide some treatment beyond simple retention and if so how much? (Dart Westphal, Mosholu Preservation Corporation)

The ponds are part of a larger site response to storm and ground water management that includes an integrated on site system of bio-swales, green roofs and constructed wetland. This system slows, stores, and polishes water, preparing it for use within the golf course irrigation system and golf course club house. First, ground water is collected through dewatering pumps located at the base of the Croton Water Treatment Plant. This water is collected in underground detention/retention basins 1 and 2 for use in the site system. Simultaneously, storm water flowing over the landscape and off several green roofs is collected in drainage channels, bio-swales and gravel runnels. This storm water is collected in basins 1 and 2, as well as 3 where it is mixed with the ground water. From here this combined storm and ground water flows to pump 1 where it is then pumped to the sites highest elevation, the top of constructed wetland cell 1. Flowing downhill slowly, gravity directs this collected site water through 8 connected wetland cells for polishing. The water moves through an emergent marsh, where suspended sediments drop out, plants uptake nutrients, and soils bind contaminants, and then into a narrow rocky stretch that aerates and cools the water. After 4 days within the system, it arrives in wetland cell 9 for use by the irrigation system and for clubhouse toilet flushing. The filtration features are outlined further below-

Bioswales:

Surface water from landscape areas in the DEP and DPR parking lots will be collected and directed into vegetated bioswales. As runoff flows into and along the swale, vegetation will slow water flow, allowing sediments and related contaminants to settle out. Infiltration of water through a 30" gravel drainage layer below 12" of planting soil will further improve water quality and reduce water volume, with any remaining runoff to be collected in Basins 1 or 3.

Green Roofs:

Surface water from the driving range located over the water treatment facility will be collected via subsurface drains. Contaminants that may potentially occur in the storm water from maintenance of the driving range or via natural chemical processes of rainwater, such as fertilizers and pesticides will be treated by vegetative and soil microbial processes. The soil composition and associated green roof assembly act in concert to not only slow the percolation of water collected on the W.T.P. roof but also retain moisture for plant use.

# MEMO

To maintain visual continuity across all site walls, the concrete stone-faced walls have been designed to be 3'-0" wide to match standard gabion basket size of 3'-0" wide. In an effort to reduce cost, and for economy of stone-facing, the concrete core is proposed to be 2'-0" wide, with typical stone facing 6" deep on each side for a total 3'-0" width. Concrete wall construction will require the use of formwork for the concrete to be cast-in-place. Concrete wall footings will be a minimum of 4'-0" deep to be below frost line.

Once concrete has been poured and cured, walls will require steel dovetail anchors in regular slots across face of wall. The stone pieces will be "laid wet to look dry." In other words, they will be mortared with recessed joints to give the appearance of a dry-laid stone wall. Heights and lengths of stone will vary according to stone type ultimately selected, but current designs propose a banding design (similar to formation made by sedimentary stone) with stone heights varying 2"-18" high and lengths varying from 9"-72". The selected stone, either bluestone or granite, will be same type for both concrete walls and gabion basket walls to ensure visual continuity across the site. The selected stone will feature a natural variation in color and texture and will be supplied from a regional quarry within a close distance to New York City.

A range of scale and texture will be used for the stone-faced walls of the various DEP and DPR buildings depending on the building size and its proximity to the site walls.

### DEP Chemical Fill Station and Guard House Canopies

Since December 2008, DEP's security consultant also raised concerns regarding the roofs of the canopies over the DEP Chemical Fill Station and Guard House. DEP's security consultant indicated that the canopies over both buildings represented a significant structural vulnerability in the event of a blast in the DEP secure area. In the original design, both canopies, because of their green roofs, were so heavy that their collapse would also compromise the integrity of the infrastructure below them. In the case of the Chemical Fill Station, a collapse would compromise the chemical intake facility, which would make operation of the filtration plant impossible.

As such, Grimshaw worked to streamline and simplify the design of the canopies, primarily by removing the green roof system. The new design maintains the aesthetic vocabulary of the original canopies, and is responsive to Commissioner Nielsen's original concern that the visual effect of the green roof over the canopy was undesirable. In addition, the new design has conscientiously avoided impacting the site wide storm water management plan or goals.

Grimshaw now proposes a lightweight fabric Polytetrafluoroethylene (PTFE) system for the canopies roofs of the Chemical Fill Station and Guard House, with similar canopies at the golf cart path and Tee-box structures within the DPR areas. All these open-air structures have the same PTFE translucent material and similar steel structural system, reinforcing a cohesive design language across the entire site. PTFE provides good shade and solar heat gain reduction and, as a light-weight material, requires minimal steel support structure compared to many other types of canopies. The canopy structures are optimized to resist wind and lateral forces as well as snow loads and are easily maintained. Unlike ETFE (Ethylene Tetrafluoroethylene) pillow cushion systems, which the design team had considered earlier in the design process, PTFE translucent material is a tensile fabric requiring no mechanical air pressure for support and is less costly. PTFE comes in a wide variety of colors and a suitable color will be chosen to complement the stone site walls and building architecture.

### Golf Netting Poles: Height of Netting and Pole Placement

Detailed review of the more advanced design documents indicated that the filtration plant roof/driving range could not support the cantilevered golf netting poles as originally designed, particularly during heavy snow events. As such, Grimshaw has relocated the golf netting poles to grade, though their function remains unchanged.

The overall pole height has also been optimized: taking into account the trajectory of the golf ball. This has allowed for a reduction in height of the poles at the park end of the driving range.

### Plant Selection for Cell 10

The Design Commission requested the design include a selection of low-branching alders for cell 10 to ensure that the parking lot is well screened from the street. Trees and/or shrubs will be selected to provide screening of Clubhouse parking lot from eye-level at Jerome Avenue. These trees/shrubs will provide necessary screening in addition to and/or beyond the screening already provided by proposed, low retaining walls along length of parking lot and Jerome Avenue. Trees/shrubs will be selected whose mature growth habit will provide screening through branching across a varying grade differential along length of parking lot and turnaround. Based on current

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Wetlands:

In nature, wetlands function as highly efficient water purification and flood storage systems. The Croton WTP wetlands are designed to increase water detention and utilize physical and phytoremediation processes to improve the physical and chemical properties of collected storm water and groundwater. As water flows through the soil, vegetation, and roots of Wetland Cells 1 through 4 (emergent marsh), plants uptake nutrients, microorganisms break down hydrocarbons, and slowly moving water encourages settling out of sediment particles. Certain chemicals will bind to soil particles. Some nitrogen, phosphorous, and potassium present in the water will be absorbed. The longer water is retained in a wetland, the greater the ability of wetland processes to improve the quality of the water. The water stays in these first 4 cells almost 3 days. Water is then agitated and shaded as it moves through Wetland Cells 5, 7, and 8, improving dissolved oxygen levels and lowering temperatures. Finally, suspended roots from floating vegetation islands in cell 9, the irrigation pond, help to continue filtration of the water prior to reuse. Water is estimated to remain in Cell 9 for a minimum of 7.5 days during peak irrigation days in summer.

Contingent on the types and quantities of contaminants, nutrients, and sediments present in the storm water, groundwater, and irrigation water, the design team projects that the wetland will provide ample water treatment functionality.

b. What level of storm will be retained? What kind of system will be in place for overflows and how often would they be expected to occur? (Dart Westphal, Mosholu Preservation Corporation)

The design team has designed the storm water detention system to meet the requirements of the BWSO (NYC DEP Bureau of Water and Sewer Operations) permit which stipulates a maximum 10 year storm discharge rate of 10.52 cfs to the Jerome Avenue sewer. This permit was obtained for the entire Water Treatment Plant (WTP) site, the purpose of which is to demonstrate that the storm water runoff rate from the WTP site after it is constructed and is fully operational does not exceed the runoff rate to the Jerome Avenue sewer prior to WTP construction. Three underground detention basins that collect and detain storm water from green roofs, bioswales and catch basins on the site work to meet the permit requirements of no increase in runoff rate. Overflows, and the runoff rate from the WTP site in general, are therefore similar to the preconstruction peak runoff characteristics of the site prior to WTP. In addition to the detention facilities, storm water will be retained in the wetland system and water will be used on site and in the golf course to the extent possible. However, the requirements of the BWSO design and site conditions dictate that some water discharges to the sewer at all times therefore not all of the 10-year event can be retained.

c. Concerns about use of 'polluted storm water' on public parkland outside of the alienation boundary (Karen Argenti, Friends of Jerome Park Reservoir)

In the development of the Croton Water Treatment Plant (WTP) storm water management system, the design team developed the following goals-

1. To minimize the discharge of site water in to New York's city's combined sewer by storm water and ground water detention beyond what is required of city regulations.
2. To minimize the use of potable water onsite
3. To create native ecological or native wetland habitat on site.

In an effort to achieve these goals, the design team has created an integrated on site system of bioswales, green roofs and constructed wetland as outlined in response to comment 'a' on storm water management. As described, this system slows, stores, and polishes water, preparing it for use within the golf course irrigation system.

To elaborate further, the storm water is collected in underground detention basins where it is mixed with the ground water collected from the WTP foundations. This ground water if not reused on site would be discharged to sewer. The combined storm and ground water is then directed through the constructed wetland system designed to temporarily detain and polish the water in a series of native ecological and native wetland habitats. This is what is referred to on Karen Argenti's blog as a "storm water-moat-turned-into-a-settling-basin". The constructed wetland system has in fact been designed to demonstrate the following performance based characteristics-

i. The health and vitality of the vegetation within the constructed wetland cell system will be maintained by minimum water flows during drought conditions
ii. Once entering the wetland system, a 10yr 24 hour storm is contained within the cells and associated infrastructure, which reduces impact on the combined sewer/storm water system

iii. The constructed wetland system will improve water quality use within the irrigation system.

Improvement of water quality in the wetland system takes place in several ways. As outlined previously, in nature wetlands function as highly efficient water purification and flood storage systems and the design of the Croton WTP wetlands takes advantage of these natural properties through careful consideration of water depth, rate of flow, and plant and soil types within each of the connected cells. The longer water is retained in a wetland, the greater the ability of wetland processes to improve the quality of the water. During the peak summer irrigation period, water is estimated to remain in the system for a minimum of 10.5 days before use in the irrigation system. During the winter months when no irrigation is required this pre-filtered water is slowly discharged to sewer in accordance with regulatory requirements.

The bioengineered storm water filtration systems form part of a broader habitat creation plan for the site which references local plant communities and ecosystems found in Van Cortlandt Park, the Staten Island Blue Belt wetlands, as well as other NYC systems. These ecosystems are integrated as a series of planted buffers of native grasses, shrubs and perennial plants which will provide a visually pleasing backdrop to the new driving range facility as well as add habitat for native flora and fauna.

It should be noted that only a small portion of the storm water management system sits outside of the alienation boundary of the site. This area comprises part of wetland cells 1-3, the emergent marsh, which perform a majority of the water filtration activities within in the system as well as providing enhanced ecological habitat and visual amenity, and hence value to the land. Additionally, as an important part of the storm water management and water recycling system, it contributes to an estimated reduction of potable water consumption for golf course and landscape irrigation of 40%, and reduction of discharge to the combined sewer and storm water system of 40%. This benefits not only the DPR and DEP, but also the local residents and the City through improved amenity generally.

### *On Pedestrian Access to Van Cortlandt Park*

Will pedestrians be able to access the park only from Jerome Avenue? (Laura Stockstill, Office of the Bronx Borough President)

At the June 18, 2009 CFMC meeting, Grimshaw responded that while the primary access to the park remains to be from Jerome Avenue, other entries into the park may also be feasible and have not been precluded.

### *On Handicap Parking*

How much of the land that has been allocated for handicap parking and use falls outside of the alienation boundary? (Jane Sokolow, Bronx Council on the Urban Environment)

The revised golf course parking lot design places the bulk of the golf course parking within the alienation boundary along Jerome Avenue, which satisfies the community and Design Commission's concern that were expressed in the fall and winter of 2008. Grimshaw responded to questions regarding the handicap parking spaces, which fall outside of the alienation boundary, by explaining that these spaces occupy considerably less that one acre. While a small portion of the golf course parking lot, specifically the turnaround loop and handicapped spaces, still straddle over the alienation boundary, this parking lot will serve the Park's Department's concessionaire and not DEP operations of the plant.

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| | **WRITTEN COMMENTS** | |
| **Introduction** | | |
| | What conditions or information changed between the writing of the original Environmental Impact Statement (EIS) and now to indicate that the mechanical methods stated in the EIS are not preferred for this job? And if nothing changed, then is this yet another example of how the EIS and other information given to the public and legislatures was deliberately slanted to get the Bronx site approved? | At the time of the preparation of the Final Supplemental Environmental Impact Statement (Final SEIS), the blasting method was eliminated as a means to minimize the environmental impacts and disruptions including noise and vibration of the work proposed at Jerome Park Reservoir. However, since the decision to eliminate blasting was made, the New York City Department of Environmental Protection (NYCDEP) and its consultants have learned a great deal about controlling blasting during extensive rock removal on City Tunnel No. 3, CRO-311, and more recently on the Raw Water Tunneling under CRO-313. NYCDEP now believes there are considerable benefits to blasting that better address the environmental concerns of the Bronx High School of Science and the surrounding area. |
| | When was it decided that blasting was preferred for this part of the project and why wasn't there immediate notification to the public about this significant change? | NYCDEP started reevaluating the potential to use blasting in early 2008. This process started with a technical evaluation with respect to controlling vibrations and minimizing the risk of damage to the adjacent historic structures. The technical evaluation concluded that a controlled blasting program could be developed and implemented that would control both excessive vibration and minimize risk of damage to the adjacent aqueducts and other structures. Therefore, NYCDEP determined that blasting for the CRO-312OS Shaft and Meter Chamber (SMC) rock excavation is technically feasible. In order to make this rock removal option available as part of contract CRO-312OS-G, the option was added as part of Addendum No. 2 on 3/28/08 during the contract bidding period. However, the final decision regarding blasting was decided with the completion of the CRO-313 and CRO-312OS Minor Modification. |

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| **A. Environmental Impact Statement (EIS) and/or Environmental Assessment (EA)** | | |
| 1 | How will this decision to change the method described in the EIS affect the schedule for a new Environmental Assessment and/or Supplemental Impact Statement and analysis? When will you start the public scope and how long will the study take? Won't this further delay the project as no work on this part of the project can be done while the EAS and supplemental EIS are being done? | According to the Environmental Conservation Law Part 617.9(a)(7)(i) Supplemental EISs: The lead agency may require a supplemental EIS, limited to the specific significant adverse environmental impacts not addressed or inadequately addressed in the EIS.<br><br>The Minor Modification includes the documentation and analysis that supports the conclusions for the finding that no new significant adverse environmental impacts would occur as a result of the project changes. Therefore, a Supplemental EIS is not required. |
| 2 | How long do you plan to mitigate the noise from surface blasting and excavation since the EIS stated that raise bore drilling is the most practical and feasible method, and no other method was studied for impact and mitigation purposes? | As recommended in the Final SEIS, a noise attenuating barrier was planned to be constructed to reduce the construction-generated noise. Since the Final SEIS, plans were developed to construct a 20-foot high noise wall to the north, east, and south of the SMC. In addition, a noise attenuation blanket will be installed on the existing fence to the west of the SMC, adjacent the Jerome Park Reservoir perimeter wall. The noise wall was put in place prior to any surface blasting or excavation. As a supplement to these noise attenuation systems, NYCDEP has established a monitoring program and dedicated complaint response system to address any unforeseen construction-related noise impacts. (Please refer to the *Noise* section of the Minor Modification for further details.) |
| 3 | How do you plan to mitigate the air pollution from the blasting in an area of the City with high asthma rates? | The blasting method is the best applied technique for bedrock removal because it reduces the amount of diesel-fueled construction equipment and the associated diesel particulate matter (PM) and fugitive PM. Detonating the explosive charges would last only a few seconds. By comparison, backhoes and hoe-rams would be |

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| | | anticipated to operate nearly continuously during the construction day if rock removal were by mechanical means alone. With blasting, the backhoes and hoe-rams would be used intermittently (for breaking rock loosened by explosives into smaller pieces for removal).<br><br>Blasting would require placement of blasting caps and explosive charges within holes drilled in the bedrock. The bedrock does not contain loosely consolidated soils and dirt, and the fugitive PM generated by the blasting event would be small. Air quality emissions would be minimized through the use of a controlled drilling and blasting program. This would involve drilling many small (i.e., 2.5-inch diameter) holes in the rock using rock drills, and then placing small amounts of explosives in each hole. Blast mats would be placed on the rock to control potential flying debris, PM, and fugitive dust during blasts.<br><br>When blasting is conducted, one to two blasts would be expected to occur on a given day. The typical blasting sequence is as follows:<br><br>• Drilling of blast holes<br>• Placement of explosives<br>• Placement of blasting mats<br>• Clearing area in vicinity of blast<br>• Detonation of explosives<br>• Removal of blast mats<br>• Removal of rock<br><br>Additional fugitive dust emissions reductions associated with blasted material would be achieved through the implementation of best management practices. The |

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| | | Contractor would be responsible for controlling visible dust caused by work operations and the moving of vehicles and equipment. Dust control would be implemented when soils are exposed, before, during and after work activity ceases (including weekends). The Contractor would apply water or employ other dust control methods when visible dust is present on-site. Drill rigs are anticipated to be equipped with sprays to suppress dust during drilling. (Please see the *Air Quality* section within the Minor Modification for additional details.) |
| **B. Specific Information Concerning the Work Methods at JPR** | | |
| 4 | Where near the worksite (the Jerome Park Reservoir) will the Construction Manager's office be located? What is the contact number for the community? | The CRO-312OS Field Trailer Office Complex, which will include the Construction Manager's office, will be located approximately 200 feet northeast of the SMC construction area (or 680 feet northeast of Gate House No. 5) and immediately west of Goulden Avenue.<br><br>The contact number for the community is the NYCDEP Outreach Office at 718-231-8470. |
| 5 | How do you plan to notify residents in case of extraordinary circumstances or emergency situations? | Notification of the community in emergency situations at Jerome Park Reservoir or in any neighborhood in New York City are governed by procedures of the Office or Emergency Management (OEM), Fire Department of the City of New York (FDNY), and New York City Police Department (NYPD). The NYCDEP Police will respond to and coordinate on any Jerome Park Reservoir incident, along with the aforementioned emergency responders. These agencies manage incidents and take command, passing information to residents and schools when and as appropriate.<br><br>However, in non-emergency situations NYCDEP notifies the community to provide information about activities in or near Jerome Park Reservoir. This is done by contacting the Croton Facilities Monitoring Committee (FMC), nearby schools |

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| | | and the management offices of residential buildings. Contacts may be by email, phone and/or fax with a short message.<br><br>Should the need to make notifications occur after hours or on weekends, the 311 communications system will contact the persons and organizations noted above.<br><br>For routine questions and general information, contact NYCDEP's community office at 718-231-8470 or call 311. For site specific information about Croton work at Jerome Park Reservoir, call the construction manager [James Morris at 718-696-2031/Joseph Jao at 718-696-2039]. The construction manager's information is listed on the construction trailer at the site. You may also contact Martha Holstein from the construction management team at 718-625-1005 x 223. |
| 6 | How do you intend to remove the debris and muck from surface blasting? | The bedrock removed during surface blasting would be removed using mechanical excavators to remove the material from the excavation area and load into trucks. The trucks would transport the material from the site along either the Northern or Southern Route, as described in the *Traffic* section of the Minor Modification. |
| 7 | Since there were no prior traffic impacts with the raised bore drilling method, and now there may be impacts, how will you find a route that the contractor will use to truck material in and out of the site that will not adversely impact the neighborhood and/or schools' students? Where do you plan to wash the trucks and/or the streets? Will you put in a weigh station? | As described in the *Traffic* section of the Minor Modification, the Northern Route would be utilized for site-generated vehicles entering at Gate House No. 5, and the Southern Route would be utilized for the vehicles entering at Gate House No. 6. Allowing the two routes to the Reservoir would split the construction related vehicles between the Northern and Southern Routes, which would provide the most direct routes to the respective work sites and reduce traffic congestion within the community.<br><br>As described in the *Air Quality* section of the Minor Modification, the Contractor would apply water or employ other dust control methods when visible dust is present on-site. Drill rigs are anticipated to be equipped with sprays to suppress |

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| | How are you going to mitigate traffic congestion? | dust during drilling. The beds of any trucks removing soil, rock, or material from the site will be covered with tarpaulins, and soil/sediment will be removed from vehicle tires prior to equipment leaving the work site. No weigh station installation is planned.<br><br>As described in the *Traffic* section of the Minor Modification, the existing signal timings at four intersections (i.e., Bailey Avenue/Van Cortlandt Park West/I-87 NB Exit Ramp, Bailey Avenue/West 230th Street/I-87 NB Exit Ramp, Kingsbridge Road/Bailey Avenue, and Sedgwick Avenue/Goulden Avenue/Dickinson Avenue) would be adjusted to avoid adverse effects of construction. In order to implement three of the recommended signal timing adjustments, new equipment will be installed (i.e., Bailey Avenue/Van Cortlandt Park West/I-87 NB Exit Ramp, Bailey Avenue/West 230th Street/I-87 NB Exit Ramp, and Kingsbridge Road/Bailey Avenue), providing an additional benefit to the Bronx traffic control system. These recommended signal timing adjustments, since they are proposed to be set permanently, would improve the existing traffic network in the project area and would provide long-term benefit to the community. |
| 8 | Where will you relocate the school buses so that they do not interfere with Scott Tower residents? | The school buses will not be relocated. The SMC blasting is planned for after-school hours. Therefore, the buses will continue to operate within their existing routes and the regular bus schedules will be followed.<br><br>As described in the *Traffic* section of the Minor Modification, the bedrock removal trucks would utilize the Northern Route if entering at Gate House No. 5, and the Southern Route would be utilized for the trucks entering at Gate House No. 6. NYCDEP will be in close coordination with the bus companies to avoid any unforeseen conflict between the truck and bus schedules. |

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| 9 | How are they going to organize the traffic flow and mitigate its affects to the community? Also, what is the affect on parking on Goulden Avenue? | Please see Response #7 above for a description of the traffic improvement measures.<br><br>As described in the *Traffic* section of the Minor Modification, on-street parking along Goulden Avenue would be available to accommodate the 21 worker vehicles on weekdays and the 12 worker vehicles on Saturdays with no expected adverse impact to the community due to the fact that there is sufficient on-street parking capacity along Goulden Avenue to accommodate the workers and the public. The workers could park along Goulden Avenue north of Bedford Park Boulevard close to the project site, or if there is insufficient capacity there the workers could also park at the parking meters south of Bedford Park Boulevard. |
| 10 | What is your projected need for night work and/or blasting? Many of us remember midnight lights, noise, dust and rats during the Dividing Wall construction. We are not in favor of night work. | Night work is not planned. Most of the project work would occur during regular work hours (7am – 3pm) and blasting would occur after school hours. The blasting is planned to occur in the late afternoon but could occur sporadically later due to delays in blast preparation. |
| **C. Specific Methodology Used to Compare and Contrast the Two Methods** | | |
| 11 | Can you provide us with your studies which determined that surface blasting would take less time than raise bore drilling? | Experience from the work on City Tunnel No. 3, CRO-311, and more recently on the Raw Water Tunneling under CRO-313 showed that removing rock by blasting would take half as many days compared to removing rock by mechanical means alone. Blasting allows deep and large excavation areas to be removed with a single shot (blast). |
| 12 | Did you review the risk to the Branch Aqueduct? Did you review the risk to the other under and above ground structures? | Yes. Extensive studies were undertaken to evaluate the effects of vibrations from blasting on the Jerome Park Reservoir and associated structures.<br><br>Excavation required for construction of the SMC would come within ten feet of the |

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| | | enclosed New Croton Branch Aqueduct (NCBA) and the Jerome Park Reservoir perimeter wall, both of which are historic structures. As noted in the *Historic and Archaeological Resources* and *Infrastructure* sections of the Minor Modification, a vibration analysis was conducted to address concerns regarding potential damage to these structures from construction activities, including the proposed blasting of rock for the construction of the SMC and associated yard piping. Based on the vibration criteria used for the analysis, neither the proposed blasting nor mechanical excavation would damage the Jerome Park Reservoir perimeter wall or the enclosed NCBA. Impacts to other existing water distribution system infrastructure in the Jerome Park Reservoir area are not anticipated since they are at greater distances from the construction site than the NCBA. As a precaution, seismographs would be installed and operated in the vicinity of the SMC construction site to monitor the velocities of ground vibrations and air-blast overpressure to ensure that they do not exceed safe levels. In response to a July 28, 2008 addendum to the original Cultural Resources Assessments, related to Contract CRO-313 and CRO-312OS work on the SMC, the New York State Office of Parks, Recreation and Historic Preservation accepted the finding that a controlled blasting program can be developed that would prevent impacts to historic resources, and also agreed that there would be no adverse impacts to archeological or architectural resources. The Minor Modification contains additional detail on the vibration analysis. |
| 13 | What is the risk assessment to the students in the schools and the community? | As detailed in the *Project Background* section of the Minor Modification, the proposed blasting would involve development and implementation of a Blasting Plan to protect workers and the public. The public would be notified about the blasting program. In coordination with the FDNY, blasting would be timed to occur after school hours in order to avoid disturbing students in the area schools. Blasting would be limited to one to two blasts on a given day, with blasts occurring |

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| | | three to five times a week. The blasting would also be planned to occur before hours when residents in the surrounding community would likely be sleeping.<br><br>The SMC is proposed to be located further away from the Bronx High School of Science as compared to the originally proposed locations of the Flow Meter Chambers and Shaft Chamber, which is anticipated to help minimize construction-related impacts to this sensitive receptor since construction activity would be consolidated in one location at a greater distance from the school.<br><br>Also, as was done for the construction activities at Mosholu for the Croton Water Treatment Plant (WTP), a Quality of Life Plan would be developed and approved for Contracts CRO-313 and CRO-312OS, which the CRO-312OS Contractor would be required to implement. The Quality of Life Plan includes the following construction activity requirements: noise control, dust control, particulate control, rodent control, cleanliness and maintenance of the site and surrounding areas, adherence to traffic and parking stipulations, emissions control for non-road vehicles, and emissions control for on-road vehicles. These work restriction requirements would help to further minimize potential impacts to students in the nearby schools and the surrounding community. |
| 14 | Can you compare impacts of removing the spoils through the tunnel to Croton WTP to trucking the spoils through the streets of the Jerome Park Reservoir community and the surrounding communities? | As stated in Table 1 in the Minor Modification, the Final SEIS indicated that the shaft in the Shaft Chamber would be constructed using the raise bore method (rock spoil would drop into the tunnel below and be removed from the tunnel at the WTP site). As for the remainder of the rock excavation for the SMC and yard piping, the spoils would be removed from the surface and removed from the site using trucks as this would be the most efficient method of removal for this volume of material. Removal of these spoils through the tunnel to the WTP site would result in a longer construction period due to the slower removal of materials through the tunnel, and |

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| | | additional equipment would need to be introduced to the site to lower the materials into the tunnel. The longer construction period would also delay completion of the CRO-313 Tunneling Contract, delaying the completion of the overall project, because this method of removing rock would impede the Tunnel Contractor from placing the lining pipe inside the tunnel until the rock excavation work is completed for the SMC, since removing the rock through the tunnel could damage the tunnel lining pipe. Furthermore, the footprint of the work area at the SMC site would need to be expanded to accommodate this activity. Therefore, surface road trucking is the preferred method of spoils removal. |
| **D. New Consolidated Valve Chamber Impact on Harris Park Annex Public Access** | | |
| 15 | It seems that the valve chamber is substantially bigger than what is described in the FSEIS. Whether or not consolidating the facilities is a good idea is not the issue here. If all the facilities are below grade in Harris Park Annex, do you plan to allow public access to the area above the facilities upon completion of the project? | Once SMC construction is complete, the disturbed area within the Harris Park Annex would be graded and the grass replaced to resemble pre-construction conditions. Additional trees would not be planted above the water supply structures to allow for future maintenance and access to the SMC. Public access would be provided to this area. It should be noted that the Department of Parks and Recreation along with NYCDEP are designing a new Jerome Park Reservoir pathway that will include the area above the SMC. This pathway would further enhance public access to, and enjoyment of, the reservoir and surrounding area. |
| 16 | If not, the parkland will have to be alienated and this will trigger multiple processes that have to be completed before you can begin work. Won't this further delay the project and add to the already growing costs? How will all of this | The Harris Park Annex is City property and is not mapped as parkland. Therefore, alienation of this land is not required. |

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| | affect public access to Jerome Park Reservoir and the lands and parkland surrounding it? | |
| **E. Contract and Costs** | | |
| 17 | Can you provide us with the details of the contracts, such as the cost and when it was awarded and to whom? How much money do you plan to save? Explain how it would cost the city less money now that the contract is already bid? | CRO-312OS-G in the amount of $96,842,500 was awarded to Picone/Schiavone JV on 10/01/08. Notice to Proceed (NTP) was issued on 2/05/09. There are two separate bid prices for rock excavation in the contract CRO-312OS-G, which has a rock quantity of 9,000 cubic yards. Item G2- Rock Excavation by Blasting Method was bid by Picone/Schiavone at $75/cubic yard. Item G2A- Additional Cost to Excavate Rock by Mechanical or Chemical Method was also bid at $75/cubic yard. Therefore, if all 9,000 yards are removed by blasting the savings would be $675,000 (9,000 cubic yards x $75/cubic yard = $675,000). This would be the maximum savings.<br><br>Since rock removal by blasting would take less time and cost considerably less than rock removal using the mechanical method, it would help NYCDEP by allowing the Contractor to meet the Consent Decree Schedule. |
| 18 | If you have a provision in the contract which expressly details this new method, please prepare those documents for distribution. When did you first discuss this new method with the contractor? | Detailed Specification 02414-Rock Excavation by Blasting was added as an alternative rock removal method on 3/28/08 by Addendum No. 2 during the bid period. |

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| 19 | Can you provide other examples of how a contractor suggested method saved the city money? For instance, we understand that CRO-311 was completed sooner than expected, but it still had a cost over run of $6 million. | NYCDEP does not know when this contract will end as the Contractor only started in February 2009 and has 1,451 consecutive calendar days to complete his work. Contract CRO-311 was completed two days ahead of schedule and had a $13 million under run, not a $6 million over run. |
| **F. Miscellaneous** | | |
| 20 | Now that you are suggesting opening up avenues not previously explored in the 2004 FSEIS, let's make another change. Review Membrane Filtration which is proven to be a better, cheaper and smaller process train than the one chosen in 2004. Please add the comparison of Membrane Filtration as well as the study of Blasting for the Shaft and Valves at Jerome Park Reservoir to the scope of the new EIS. | The Minor Modification was prepared to document changes relating to the work at Jerome Park Reservoir. NYCDEP does not plan to review the WTP filtration process as construction for the current design is almost 50 % complete. |

**CRO-313/312OS MINOR MODIFICATION**
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| No. | COMMENT | RESPONSE |
|---|---|---|
| | | **VERBAL COMMENTS** |
| 1 | There is no mention of the Old Croton Aqueduct (OCA) in the Historic and Archaeological section of the Minor Modification. Federal consultation is required because OCA is on the National Register (NR). | No specific mention is made of the Old Croton Aqueduct (OCA) because it is not the closest National Register (NR) or National Register eligible (NR eligible) historic resource to the proposed area of excavation for the Shaft and Meter Chamber (SMC). The OCA is located in the perimeter wall along with the New Croton Branch Aqueduct (NCBA). The NCBA is NR eligible and is, in fact, closer to the excavation area. The OCA is located within the wall on the interior side closest to the Reservoir and the NCBA is on the exterior closest to the excavation; therefore, if no impacts are anticipated on the NCBA, as noted in the Minor Modification, then no impacts are anticipated for the OCA since it is located further from the blasts.<br><br>As for special consideration, all NR and NR eligible structures are treated equally, as mandated by environmental regulations. The New York State Historic Preservation Office (SHPO), administered through the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) administers programs authorized by both the National Historic Preservation Act of 1966 and the New York State Historic Preservation Act of 1980. These programs include the Statewide Historic Resources Survey, and the New York State and National Registers of Historic Places. No federal consultation is required unless requested by SHPO, or if the project is a federal undertaking. |

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|---|---|---|
| 2 | Provide copies of the Cultural Resources Assessments for work at the Jerome Park Reservoir. | Copies of the Cultural Resources Assessments and their Addenda were mailed to the Commenter on July 7, 2009. These assessments were generated in order to assist DEP in the decision-making process regarding the project components at Jerome Park Reservoir and design changes that have occurred during the project development. As part of the decision-making process NYCDEP submitted these assessments to the OPRHP in order to obtain their expert opinion on the potential for adverse impact to the historic Jerome Park Reservoir from the proposed project as it evolved.<br><br>It should be noted that NYCDEP, as a normal business practice, consults with OPRHP whenever it proposes to undertake projects that could potentially impact the City's water supply infrastructure in order to evaluate the potential impact from the proposed projects during the planning phase of the projects since the New York City Water Supply System is of significant historic importance. |