Fresh Kills Park, Phase 3A, Task 8.3
CONCEPTUAL BRIDGE REPORT

ADVANCE PROGRESS SUBMISSION
FOR VALUE ENGINEERING

September 7, 2007

Prepared for:
New York City Department of Parks and Recreation

Prepared by:
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EXISTING BRIDGES

Main Creek Bridge

The existing Main Creek Bridge has a roadway width of 50 ft. It was designed for heavy haul trucks and therefore has more than adequate capacity for use as a roadway bridge. The existing configuration is shown in Dwg. MC-B-23.01. The proposed modifications for the two-lane option are shown in Dwg. MC-B-23.02. The existing bridge would accommodate a 34-foot roadway with two lanes of traffic, a median and shoulders. A 10-foot wide bicycle path could also be accommodated on one side, separated from traffic by a standard concrete barrier, as well as a 5-foot wide raised pedestrian sidewalk would be provided. The existing parapets would be replaced with a standard concrete barrier on one side and a pedestrian railing on the other. The existing asphalt surface and granular subbase course would be removed and replaced. The proposed modifications for the four-lane option are shown in Dwg. MC-B-23.03. In this option the entire 50-foot width would be used to provide four 11-foot wide lanes with shoulders and no median. Again, the existing parapets, asphalt surface and granular subbase course would be removed and replaced. A new, separated parallel structure would provide 15 ft. of width for bicycles and pedestrians, at a slightly higher elevation.

Richmond Creek Bridge

The existing Richmond Creek Bridge has a roadway width of 50 ft. It was designed for heavy haul trucks and therefore has more than adequate capacity for use as a roadway bridge. The existing configuration is shown in Dwg. RC-B-23.01. The structural configuration is entirely different from that of the Main Creek Bridge. The proposed modifications for the two-lane option are shown in drawing RC-B-23.02. A 34-foot roadway would be provided which accommodates two lanes of traffic with a median and shoulders. A 10-foot wide bicycle path would be provided on one side separated from traffic by a standard concrete barrier, and a 5-foot wide raised pedestrian sidewalk would be provided as well. The existing parapets would be replaced with a standard concrete barrier on one side and a pedestrian railing on the other. The existing asphalt wearing course would be removed and replaced. The proposed modifications for the four-lane option are shown in Dwg. RC-B-23.03. In this option the entire 50-foot width would be used to provide four 11-foot wide lanes with shoulders and no median. Again, the existing asphalt wearing course would be removed and replaced. A new, separated parallel structure would provide 15 ft. of width for bicycles and pedestrians, at a slightly higher elevation.

West Shore Expressway Underpass Roadways

Drawings WS-B-30.01 and WS-B-30.02 present schematic views of the proposed two-lane and four-lane expansion options for the existing 36-foot wide roadway beneath the existing West Shore Expressway twin bridges on shores. A 40 ft. wide roadway is proposed for the two-lane alternative and a 60 ft. roadway is proposed for the 4-lane alternative. Each would expand the roadway towards the water. The existing concrete barriers and concrete crib retaining walls at the toe of the bridge abutment slopes would be removed and replaced in their current locations.

NEW BRIDGES

Perimeter Road Crossing at Yukon Avenue

The new proposed roadway would have to cross over the existing perimeter road in the vicinity of Yukon Avenue. It is anticipated that this road would rise on embankment on each side of the perimeter road and cross over on a single span structure. This structure must not impose new loads on the existing cutoff wall and leachate collection trench located on the interior side of the existing perimeter road (towards the east mound). Any foundation elements that pierce the east mound cap membrane must be accessible to inspect the membrane seal around the foundation elements. Dwg. YC-B-23.04 presents Option YC-1. In this option, the perimeter road would remain in its existing location. The crossover structure would have a standard full height abutment on the exterior side of the perimeter roadway (east side) and would have a V-shaped pier arrangement on the interior side of the roadway (west side) with foundation elements piercing the membrane cap, and a short cantilever reaching to a Mechanically Stabilized Earth (MSE) abutment. A standard abutment cannot be used on the interior side since it would require foundation elements piercing the membrane cap which would not be accessible for inspection. The proposed MSE abutment would not require foundation elements piercing the cap, and the proposed pier foundation would be accessible for inspection and would minimize the loading on the MSE abutment.

Dwg. YC-B-23.05 presents Option YC-2. In this option the perimeter road would be relocated a short distance towards the exterior (east) side, away from the east mound. The crossover structure would be exactly the same as in Option YC-1, but the east pier foundation would pierce the membrane cap as close as feasible to the leachate collection trench (10 ft.), remaining as far away as possible from the cap of the east mound.

Dwg. YC-B-23.06 presents Option YC-3. In this option the perimeter road would be relocated further to the exterior (east) side, far enough that both abutments would be outside the cutoff wall and would not pierce the membrane cap. Standard height abutments would be used on both ends of the crossover structure. Dwg. YC-B-50.01 presents typical deck cross sections and typical east pier elevations for both two-lane and four-lane options for the crossover structure.

Perimeter Road Crossing at Forest Hill Road

The new proposed roadway would have to cross over the existing perimeter road in the vicinity of Forest Hill Road. It is anticipated that the new roadway would be carried on a viaduct structure on the exterior (east) side of the perimeter road, through a wetland area for roughly 800 ft. It would be carried on embankment on the interior (west) side of the perimeter road. This structure must not impose new loads on the existing cutoff wall and leachate collection trench located on the interior side of the existing perimeter road. Any foundation elements that pierce the cap membrane must be accessible to inspect the membrane seal around the foundation elements.
Three options are presented in Drawings FC-B-23.04 through FC-B-23.06, which are similar to the options presented for the Perimeter Road Crossing at Yukon Avenue.

Drawing FC-B-50.01 presents typical deck sections and pier elevations for the crossing in both two-lane and four-lane configurations.

### Forest Hill Road Pedestrian Bridge

A pedestrian bridge will be required over Richmond Ave. at Forest Hill Road. Drawing FP-B-23.01 presents a cable-stayed alternative with a 215-foot long main span. This alternative would provide 14 ft. of width for pedestrians and bicycles. The approach structure at each end is a spiral ramp with a maximum grade of 5% to accommodate wheelchair and handicapped access.

Drawing FP-B-23.02 presents a basket-handle tied arch alternative with the same 215-foot long main span. This alternative would also provide a 14 ft. wide pathway and would have similar spiral ramps at each end.

### Muldoon Avenue Pedestrian Bridge

Within the park, there is a need for a pedestrian bridge crossing Route 440. Drawing MP-B-23.01 presents a cable-stayed alternative which is similar to that proposed over Forest Hill Road, but with a main span of 300 ft. It would provide 14 ft. of width and would have similar spiral ramp approaches with maximum grades of 5%.

Drawing MP-B-23.02 presents a basket-handle tied arch alternative, also with a 300 ft. long main span, 14-foot wide pathway and similar spiral ramps at each end.

### Signature Roadway Bridge over Fresh Kills

The Fresh Kills Park draft master plan proposed to carry the loop drive over Fresh Kills Creek on a signature bridge. Drawing SB-B-23.01 presents a three-tower cable stayed alternative with four suspended spans and four conventional approach spans on the curved alignment. This alternative can be used with both a 40-foot wide two-lane configuration and a 60 ft. wide four-lane configuration.

Drawing SB-B-23.02 presents a triangular shaped steel tube truss bridge. This alternative can be used with both two-lane and four-lane alternatives, as shown.
THE ABOVE SIGNATURES DO NOT IN ANY WAY RELEASE THE CONSULTANT FROM ITS RESPONSIBILITIES REGARDING THE ACCURACY AND COMPLETENESS OF THIS DRAWING.
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**PLAN**

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**ELEVATION**

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**SECTION**

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**NOTES:**

- TBD
- CHKDRNS
- 4 LANE OPTION

**PROJECT TITLE:**

- FRESH KILLS PARK, KEY PLAN

**DRAWING TITLE:**

- TBD

**DESIGNED BY:**

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**DATE:**

- 09.07.07

**SCALE:**

- 1" = 30' - 0" RC-B-23.03 1/XXX

**DRAWING NO.:**

- TBD

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- Field Operations
- 475 Tenth Ave, 10Fl, New York, NY 10018
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NORTH SIDE LOOKING NORTH
NORTH SIDE LOOKING EAST

APPROXIMATE CENTER
OF CONCRETE PIERS

CONCRETE BARRIER

60 FOOT ROAD WIDTH

60 FOOT ROAD WIDTH

CONCRETE BARRIER

APPROX LOCATION OF NORTH
APPROACH BRIDGE ABUTMENT

440 BRIDGE WEST
NORTH ABUTMENT

440 BRIDGE CENTER
NORTH ABUTMENT

440 BRIDGE EAST
NORTH ABUTMENT

APPROXIMATE CENTER
OF CONCRETE PIERS

CONCRETE BARRIER

60 FOOT ROAD WIDTH

60 FOOT ROAD WIDTH

CONCRETE BARRIER

APPROX LOCATION OF NORTH
APPROACH BRIDGE ABUTMENT

APPROXIMATE CENTER
OF CONCRETE PIERS

CONCRETE BARRIER

60 FOOT ROAD WIDTH

60 FOOT ROAD WIDTH

CONCRETE BARRIER

APPROX LOCATION OF NORTH
APPROACH BRIDGE ABUTMENT

THE ABOVE SIGNATURES DO NOT IN ANY WAY RELEASE THE CONSULTANT FROM ITS RESPONSIBILITIES REGARDING THE ACCURACY AND COMPLETENESS OF THIS DRAWING.
FIGURE YC-1.1

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FRESH KILLS - FOREST HILL CROSSING
OPTION Y-1

THE ABOVE SIGNATURES DO NOT IN ANY WAY RELEASE THE CONSULTANT FROM ITS RESPONSIBILITIES REGARDING THE ACCURACY AND COMPLETENESS OF THIS DRAWING.

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FIGURE FC-1

Olive Center
Flushing Meadows-Corona Park
Flushing, New York
City of New York
Parks & Recreation

FRESH KILLS PARK
KEY PLAN:
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Angelyn Chandler
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09.07.07 1"=50' FC-B-23.01 1/XXX
TBD
TBD
CHKDRNDSN
OPTION Y-1
BRIDGE ABUT. ON MOUND
FOREST HILL CROSSING
FRESH KILLS PARK

FIGURE FC-1
FIGURE FC-3

FRESH KILLS - FOREST HILL CROSSING PLAN
OPTION Y-3

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