Engineering and Other Services for the Marine Export of Solid Waste

Study of the Friends of the Hudson River Park Pier 76 Concept

Prepared for the
New York City Department of Sanitation

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GREELEY AND HANSEN

Executive Summary

The New York City Department of Sanitation (DSNY) requested that Greeley and Hansen review and evaluate a proposal for the development of a consolidated solid waste and recyclables transfer facility with a rooftop park on Pier 76 on the Hudson River at 36th Street (the "Pier 76 proposal"). The proposal was developed by a team of engineering and design consultants retained by Friends of Hudson River Park and the Coalition to Protect Our Parks as a replacement for two Manhattan-based facilities in the City's Solid Waste Management Plan: a proposed marine transfer station (MTS) for recyclables on the Gansevoort peninsula and an MTS for commercial waste at West 59th Street and the Hudson River.

The Pier 76 proposal envisions using the 6-acre pier as a site for a new solid waste containerization facility, a new recyclables transfer facility, a modified New York City Police Department (NYPD) Tow Pound, stables for an NYPD Mounted Unit, other facilities and a rooftop park. The proposal appears to be based on a number of assumptions, including that the existing pile-supported foundation infrastructure of Pier 76 could support the proposed facility. Greeley and Hansen conducted a technical evaluation of Pier 76 based on the original 1961 plans for the Pier, inspection reports prepared in November 2006 and December 2001 and an analysis of the MTS design requirements. We have concluded that the existing substructure and concrete deck structure of Pier 76 cannot carry the expected loads from a DSNY containerization facility and a rooftop park. The basis for this conclusion is fully explained in Section 2 below. In summary:

- Neither pier 76 itself or the pile clusters have sufficient load bearing capacity to support a DSNY containerization facility.

- The existing piles cannot accommodate the additional lateral forces a containerization facility would impose.

- The column grid needed for a containerization facility is significantly different from the beam and pile spacing of Pier 76.

- The Pier 76 pier deck cannot support the loads that would be imposed by full containers stacked two high.

- The weight of the proposed rooftop park will considerably reduce the load bearing capacity of the existing Pier 76 pier deck.

- The existing pier deck cannot accommodate the shuttle car system needed to move empty and full containers into and out of the building or the gantry cranes that would move containers on to and off of barges.

In addition, the Pier 76 proposal raises a number of operational and technical issues (discussed in Section 3 below) that could greatly restrict or prohibit certain operations on the pier including:

- The proposed facility appears to provide only one single-lane exit ramp. This is an unacceptable feature as it would prevent access and halt operations in the event of a breakdown.

- The access ramps to the proposed facility are too steep to safely operate DSNY equipment. To meet DSNY design criteria, the ramp would need to be approximately 413 feet, not the 130 feet shown in the Pier 76 proposal. It is not clear how or if the pier can accommodate such an access ramp.

- It is unlikely that the lane widths and turning radii of the access ramps in the proposed facility could accommodate an industry-standard 32-cubic-yard collection vehicle.

- The proposed facility does not include a means to access the loading floor or pier deck by operating equipment, service vehicles and emergency vehicles. Such access is critical to the safe operation of a DSNY facility of this kind.

- The 30-foot distance shown from the solid waste tipping floor to the top of the proposed rooftop is insufficient space to provide structural support to operate collection vehicles and to incorporate building systems, including fire protection, dust suppression, HVAC and lighting. To properly address these issues, the elevation of the rooftop park would likely exceed 70 feet.

- The proposed design does not appear to provide any space for HVAC equipment above the floors. To address this, the roofs will have to be raised higher than the Pier 76 proposal indicates or this equipment would need to be housed below the tipping floors. Given the size of the existing pier and the amount of HVAC equipment required for the proposed facility, it is not clear how the design could be modified to address this issue.

To address some of these issues, it is likely that the rooftop park would be a series of small flat areas connected by steep ramps and/or stairs, rather than the large gently-sloping open space depicted in the Pier 76 proposal. Assuming that all of the operational, technical and design issues noted above could be resolved, we estimate that the Pier 76 proposal will cost $436 million to build—approximately $311 million more than the Gansevoort and West 59th Street MTSs in the City's SWMP. In light of this analysis, we have concluded that the Pier 76 proposal is not a viable alternative for the proposed recyclables transfer facility at the Gansevoort peninsula and for making the West 59th Street MTS available for the transfer of commercial waste.

Section 1 Introduction

The New York City Department of Sanitation (DSNY) has requested that Greeley and Hansen review and evaluate a proposal for the development of a consolidated solid waste and recyclables transfer facility with a park on the roof on Pier 76 which is on the Hudson River waterfront at 36th Street. The proposal was developed by a team of engineering and design consultants retained by Friends of Hudson River Park and the Coalition to Protect Our Parks and is being promoted by these groups as a replacement for a proposed recyclables transfer facility to be located at the Gansevoort Peninsula and the West 59th Street Marine Transfer Station (MTS), which is currently proposed to be made available for the transfer of commercial waste.

The Pier 76 proposal is documented in a seven (7) page report (see Attachment 1) dated May 2007 that includes conceptual illustrations of the proposed consolidated facility. The Executive Summary of the proposal describes the proposed concept and states:

> *"The substructure of Pier 76 is already in place and appears to be in excellent condition, with capacity to carry the expected loads of this program."*

It is inferred from this statement that the consolidated solid waste transfer station concept proposed is based upon reuse of the existing pier structure and its foundation elements, either in whole or in part, to support the new consolidated facilities.

This report presents a technical evaluation of the Pier 76 proposal including review of two inspection reports and assessments of the ability of the existing Pier 76 structures to carry the expected loads and of how the proposed consolidated facility design addresses operational and technical requirements. Additionally, this report includes a review of the rooftop park concept that is part of the consolidated facility proposed for Pier 76. Finally, an estimate of the probable cost of constructing the proposed consolidated facility is presented and compared to the costs of facilities it is proposed to replace.

Description of the Existing Pier 76 Structures

Pier 76 is located on the Hudson River along the west side of Manhattan, opposite the Jacob K. Javits Convention Center and currently supports and houses the New York City Police Department (NYPD) Tow Pound and stables for an NYPD Mounted Unit. Original construction documents for Pier 76 obtained from the New York City Department of Design and Construction are dated 1961 and indicate that the pier was constructed for United States Lines, Co. under the auspices of the City of New York Department of Marine and Aviation.

The pier is approximately 615 feet wide at the inshore headhouse structure, 300 feet wide at the outshore end and extends approximately 726 feet into the Hudson River from the physical bulkhead line. An additional pile-supported structure is located inland of the original bulkhead line. Inshore of this structure, a concrete cribbing system retains fill as a cut-off wall below the platform.

The pier supports a steel framed shed on a 9-inch thick reinforced concrete deck slab supported by 3-foot wide by 2-foot deep concrete cap beams spaced at 10-foot intervals along the north-south width of the pier. The cap beams are supported by timber piles with concrete extensions that extend from the piles at approximately mean low water (MLW) elevation to the bottoms of the cap beams. The concrete extensions consist of a reinforced concrete pipe section placed over the top of the timber pile approximately 24 inches and filled with grout or concrete. The timber piles are braced at the low water level with 3-inch by 8-inch timber staylathing installed on both sides of the piles, immediately below the concrete extensions. Column loads imposed by the shed structure above are carried by clustered pile groupings of various configurations depending on the column loads.

The original construction drawings indicate that the timber friction piles were to be driven to an elevation -81 feet to achieve an allowable bearing capacity of 20 tons.

Review of Inspection Reports

In December 2001 the firm of Goodkind & O'Dea, Inc. submitted to the New York State Department of Transportation a document titled "In-Depth Inspection Report Pier & Bulkhead Inspection for New York City West Side Piers Pier 76". The report describes the areas of Pier 76 that were inspected and the methodologies employed to inspect and evaluate the condition of the timber piles, concrete extensions, underside of the reinforced concrete deck slab and the timber staylathing.

It is noteworthy that the top of the concrete pier deck was not inspected as the Goodkind & O'Dea representatives were not given access by the pier's tenant, the NYPD, to the areas within the shed structure. Additionally, there were no records published of the field inspections of the timber piles, staylathing or concrete structures beneath the 615-foot wide headhouse portion of the pier.

The report's Conclusion, Recommendations and Cost Estimate Section stated that, "Pier 76 is generally in good condition with a live load rating of 602 PSF", but noted there were several instances where cracks, spalls and exposed reinforcing steel were observed. Additionally, the report noted moderate evidence of teredo (marine borer) infestation observed in approximately 1 percent of the timber piles with greater infestation and section losses up to 40 percent observed in the timber staylathing.

A structural "red flag" was issued for a portion of the pier due to breakage of the concrete pile extensions at the northeast corner of the pier. The report recommended repairs to the damaged concrete and timber members that it estimated would cost $145,000.

In November 2006 the firm of HPA Engineers, P.C. submitted to the Hudson River Park Trust a document titled "Inspection of Permanently Remaining Piers and Bulkhead Structures Pier 76". This report describes the areas inspected and the methodologies employed in inspecting and evaluating the condition of the timber piles, concrete extensions, pile caps, underside of the reinforced concrete deck slab and the timber staylathing. The purpose of the report was to identify

structural and non-structural deficiencies and to determine whether the structural condition of the pier had deteriorated since the previous Goodkind & O'Dea inspection. The top of the concrete pier deck within the shed structure was again not inspected.

This report describes continued deterioration of the staylathing due to teredo infestation and indicates that at 45 years old, the original timber pile treatment is nearing the end of its predicted life and will start to lose its effectiveness as time progresses.

The report further notes that the repairs previously recommended by Goodkind & O'Dea in its December 2001 inspection report were apparently never implemented and stated that "none of the timber piles showed evidence of prior repair." HPA further states: "The overall uniform live load rating for Pier 76 remains at 602 PSF" except at areas with damaged pile extensions. The report recommends that repairs be made to several of the concrete pile extensions, but offers no estimate of costs.

Description of the Pier 76 Proposal

The proposal for Pier 76 envisions the pier serving as a site for a new solid waste containerization facility, a new recyclables transfer facility, a modified NYPD Tow Pound, stables for an NYPD Mounted Unit, other facilities and a rooftop park. It is inferred from our reading of the report documenting the proposal (see Attachment 1) that the existing pile supported foundation infrastructure of Pier 76 would be utilized to support these facilities since the engineering/design team states:

> *"The substructure of Pier 76 is already in place and appears to be in excellent condition, with capacity to carry the expected loads of this program."*

The proposed solid waste containerization facility would be situated at the western end of the pier and would be similar in arrangement and operation to the containerization facilities designed for the DSNY that are to be developed pursuant to the City's Solid Waste Management Plan. The proposed recyclables transfer facility would be located inboard of the containerization

facility and would be similar in arrangement and operation to one of DSNY's existing marine transfer stations, such as the West 135th Street MTS.

Truck access to and egress from the proposed consolidated transfer station facility and the tow pound would be through an entrance gateway located at the northeast corner of Pier 76. The proposal envisions the entranceway being beneath a raised section of the Hudson River Park. This feature would allow pedestrians and bicyclists to rise above and pass over the grade level entrance and exit for sanitation and other vehicles. It would also allow pedestrians and cyclists to gain access to the proposed rooftop park.

The proposed rooftop park would be constructed above the consolidated transfer stations and tow pound. It would begin at an elevation 20 feet above grade and is shown sloping up to a level 60 feet above ground level.

Section 2 Structural and Geotechnical Considerations

Typical Design Requirements of a DSNY Containerization Facility

The design of the containerization facility proposed for Pier 76 will need to accommodate the physical and operational requirements of a heavy industrial facility in a harsh marine environment. In response to these requirements, DSNY containerization facility designs include the following:

- High-strength structural steel is used to accommodate the heavy floor loads and long, column-free spans required in the waste dumping, processing and container handling areas.
- Long-span steel roof trusses are employed to enclose the tipping and loading levels in order to maximize open space for improved accessibility and operational flexibility. The adopted building column grid supporting the roof structures above the tipping and load-

ing levels has been configured to optimize collection vehicle turning maneuvers on the tipping floor.

- Clearance heights have been set to provide a minimum of 26'-0" vertical clearance above the truck dumping and waste processing areas to accommodate the front-end wheel loaders and excavator at the loading level and the Department's inventory of large, dump-truck-style collection vehicles at the tipping floor level. These features are illustrated in the cross section of a typical DSNY containerization facility in Figure 2-1.

- The tipping floors (Figure 2-2) are designed to accommodate the heaviest collection vehicles in the Department's inventory and other vehicles anticipated to travel on the tipping floor areas subject to moving equipment loads. The tipping floor bays adjacent to the backing logs are designed to resist the gravity and impact loads imposed by a pair of the Department's critical Heil 23A collection vehicles dumping their contents onto the loading level from two adjacent bays. The Heil 23A is also the governing DSNY collection vehicle in a moving position. This vehicle was determined to impose more critical wheel loads on the tipping floor when evaluated against AASHTO HS-25 design loads and the critical wheel loads imposed by the front-end wheel loaders designated for use at the loading level.

- The loading level (Figure 2-3) floor framing is sized to support the most critical load resulting from a 15-foot maximum depth of MSW piled on the floor or wheel loads imposed by the specified front-end wheel loaders or excavator equipment positioned anywhere on the floor to facilitate the through-the-floor container loading. The loading level has a series of rectangular loading slots, one above each container location and sized to be slightly smaller than the interior dimensions of the container.

Figure 2-1
Cross Section of a DSNY Containerization Facility

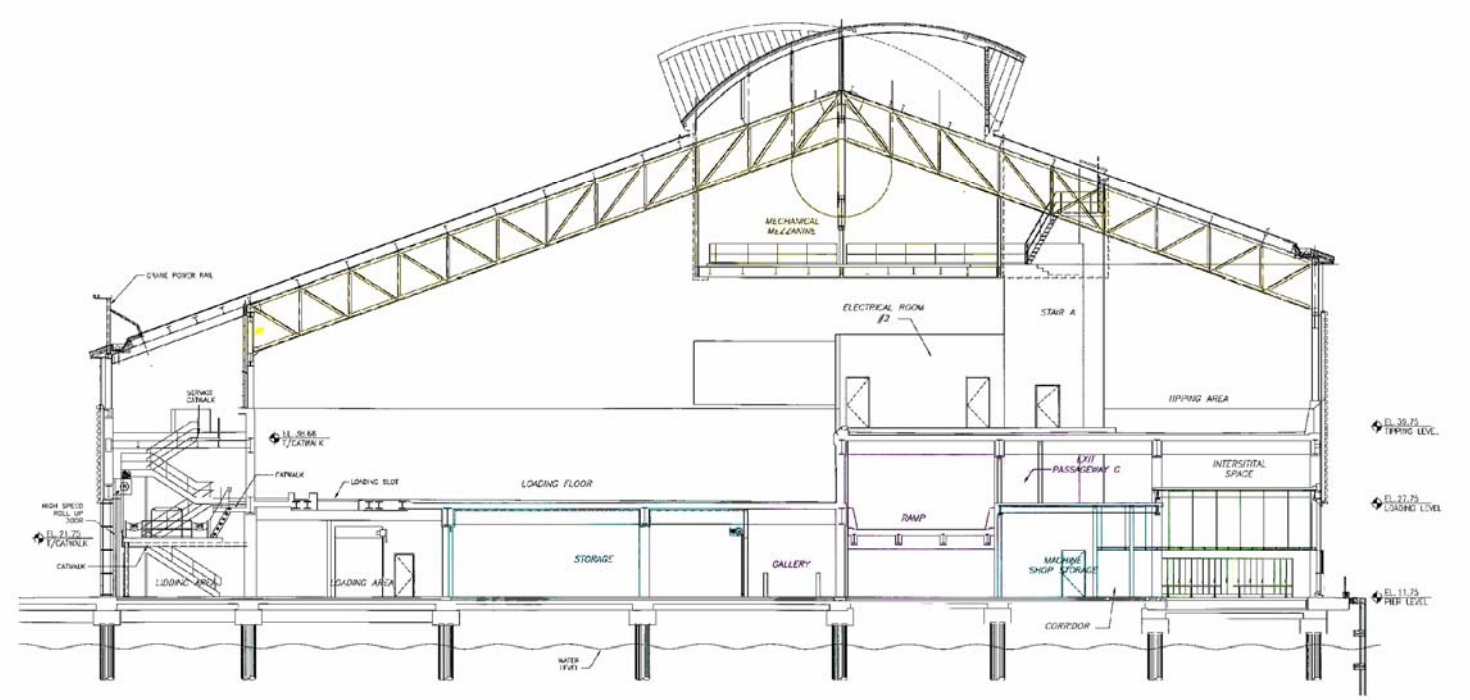


Figure 2-2
DSNY Containerization Facility Tipping Floor Level

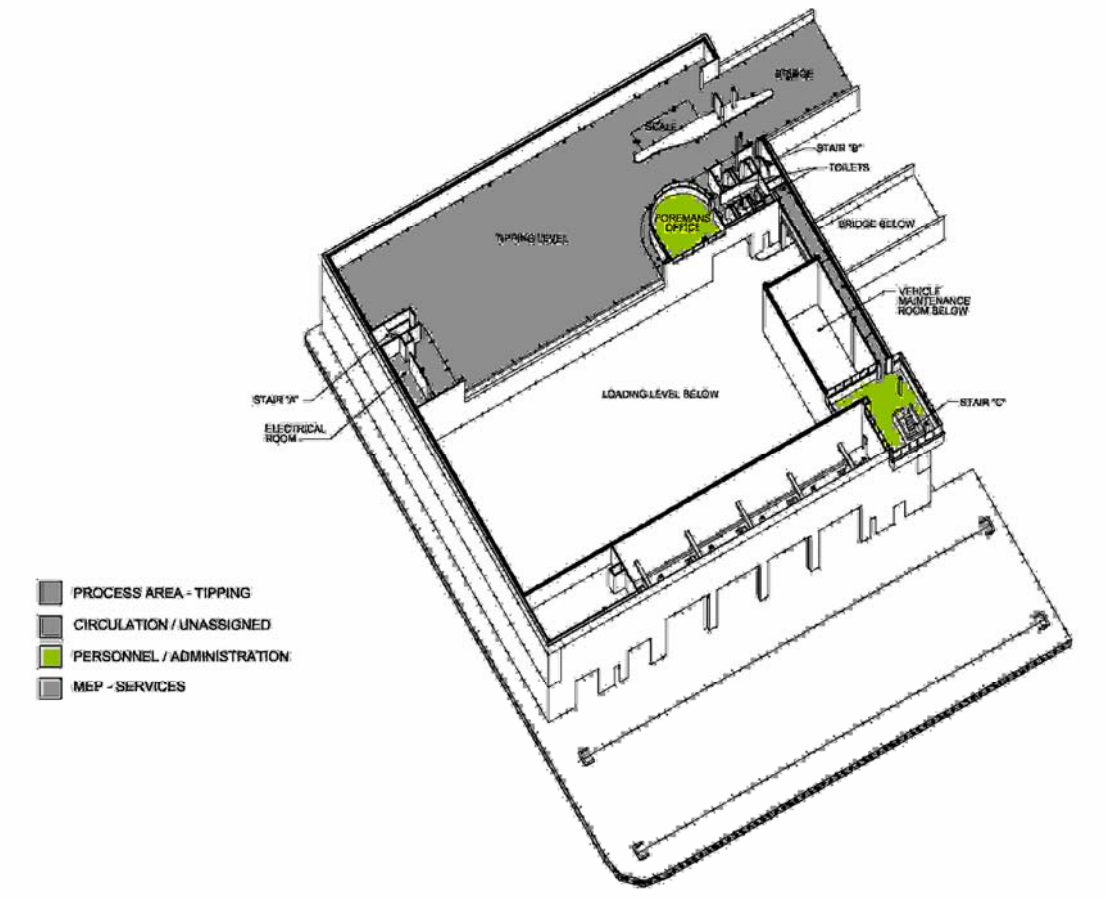
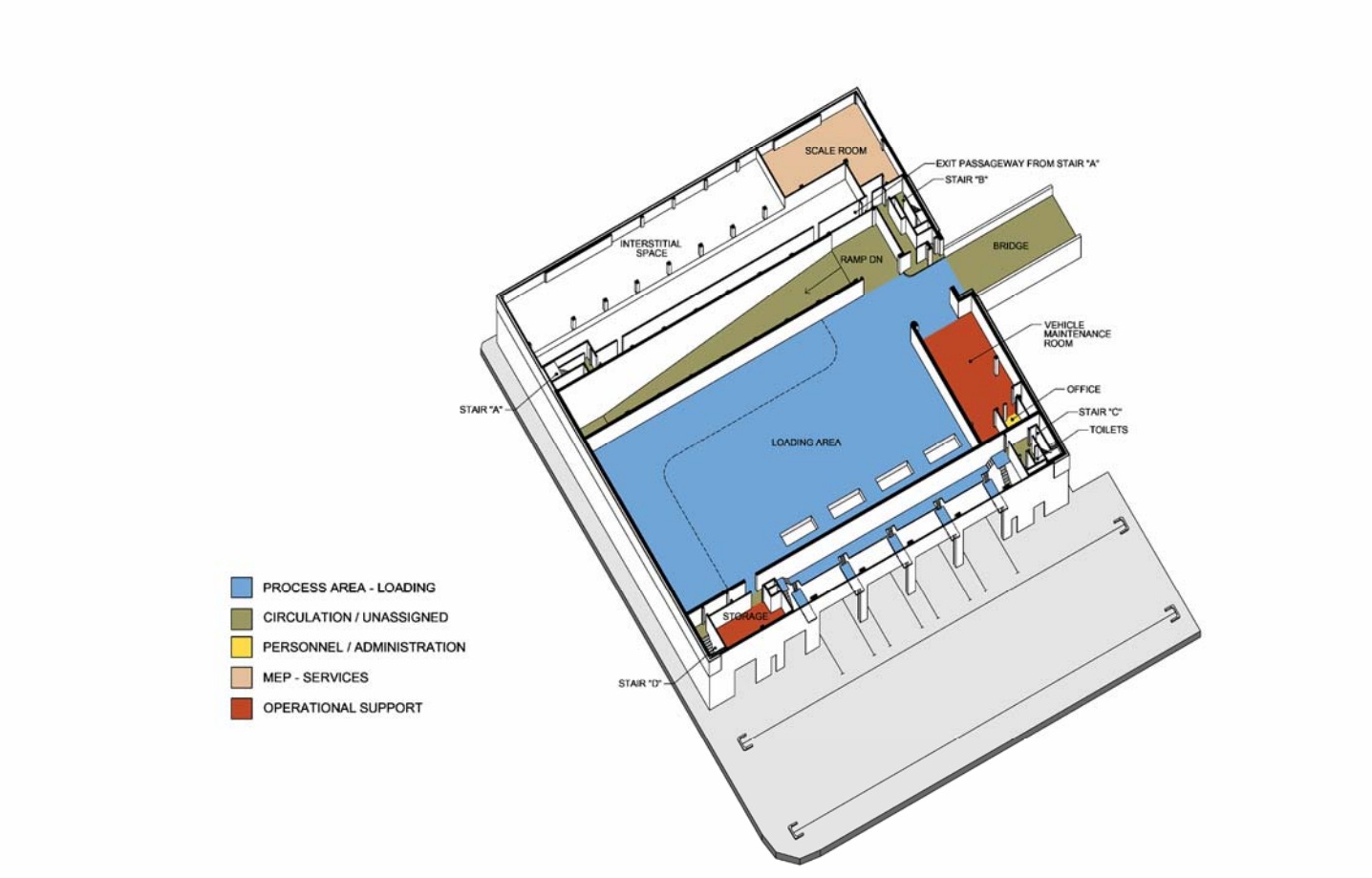


Figure 2-3
DSNY Containerization Loading Floor Level



- An internal ramp is provided to facilitate light vehicular access between the loading level and the pier deck level. The ramp is designed to accommodate the wheel loads of a DSNY rack-type truck or an AASHTO HS-15 vehicle. The ramp is framed in concrete-encased structural steel with a cast-in-place concrete deck.

- The entire pier deck floor area serviced by the gantry cranes is designed to resist the weight of filled containers stacked two high. The pier deck (Figure 2-4) framing will be constructed of continuous reinforced concrete pile bents supporting a precast, prestressed concrete plank floor deck with a composite cast-in-place reinforced concrete topping, and a wearing surface consisting of precast concrete pavers installed on a one-inch thick sand bedding. Due to the high concentrated loads of the gantry cranes (Figure 2-5), a continuous pile-supported, reinforced concrete girder, fortified to transfer horizontal operating loads into the concrete deck slab, is required directly beneath each rail of the gantry crane.

- The floor deck of the enclosed lidding area is designed to support the weight of a filled container on a shuttle carriage moving along each of four sets of rails into and out of the lidding area. The floor area behind the lidding area and beneath the loader slots will be designed to accommodate a filled container on a shuttle carriage plus substantial tamping loads imposed by the excavator working at the loading level above.

Finally, to accommodate expected physical and operational requirements the North Shore and other DSNY containerization facility designs call for the main building structure, exterior pier deck and access ramps to be supported on high-capacity foundation piles driven to a dense subsurface soil stratum or rock. Geotechnical analysis indicates that larger diameter steel pipe piles, with their top sections filled with concrete to below mean low water level, offer better

Figure 2-4
DSNY Containerization Facility Pier Level

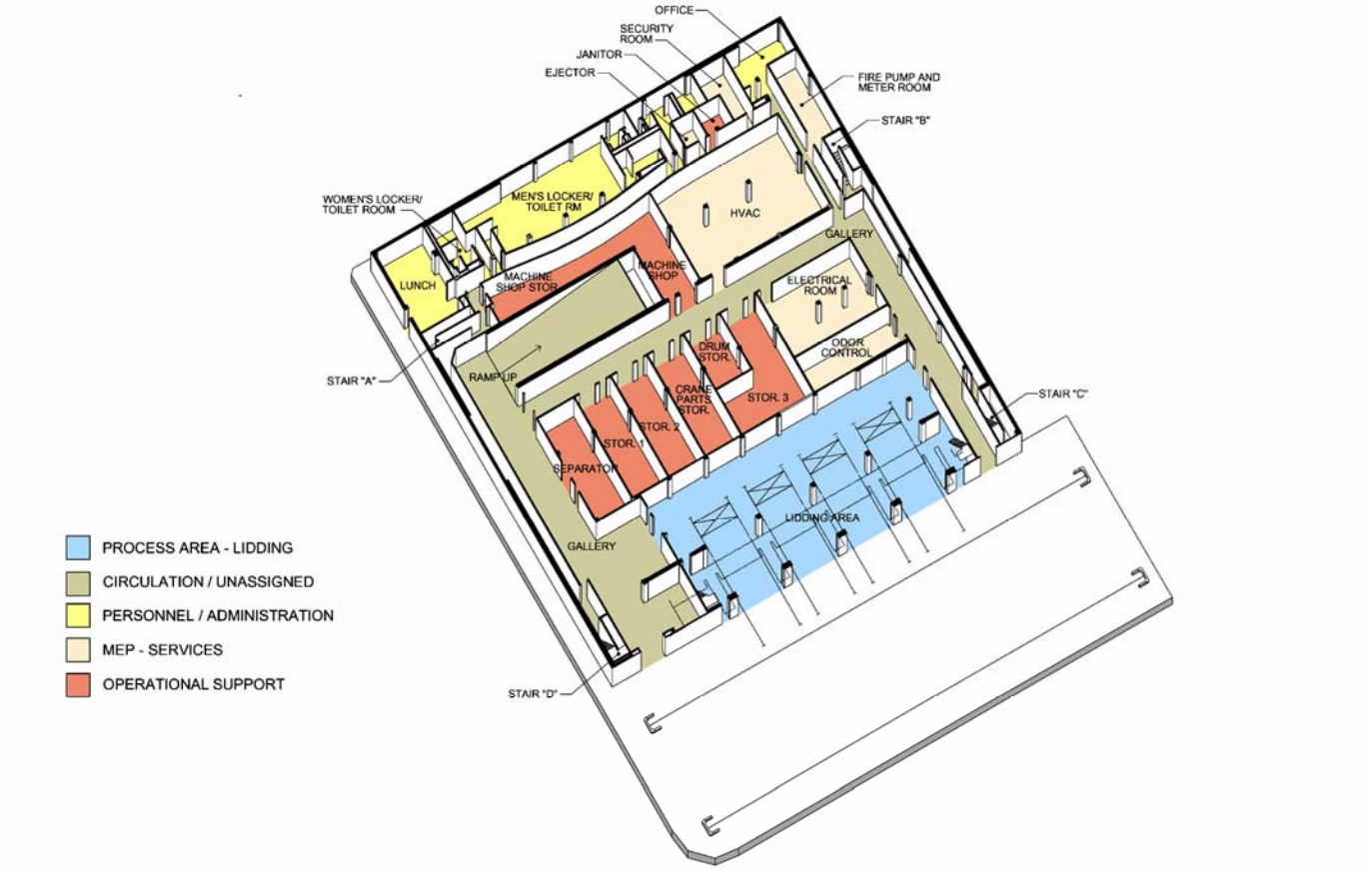
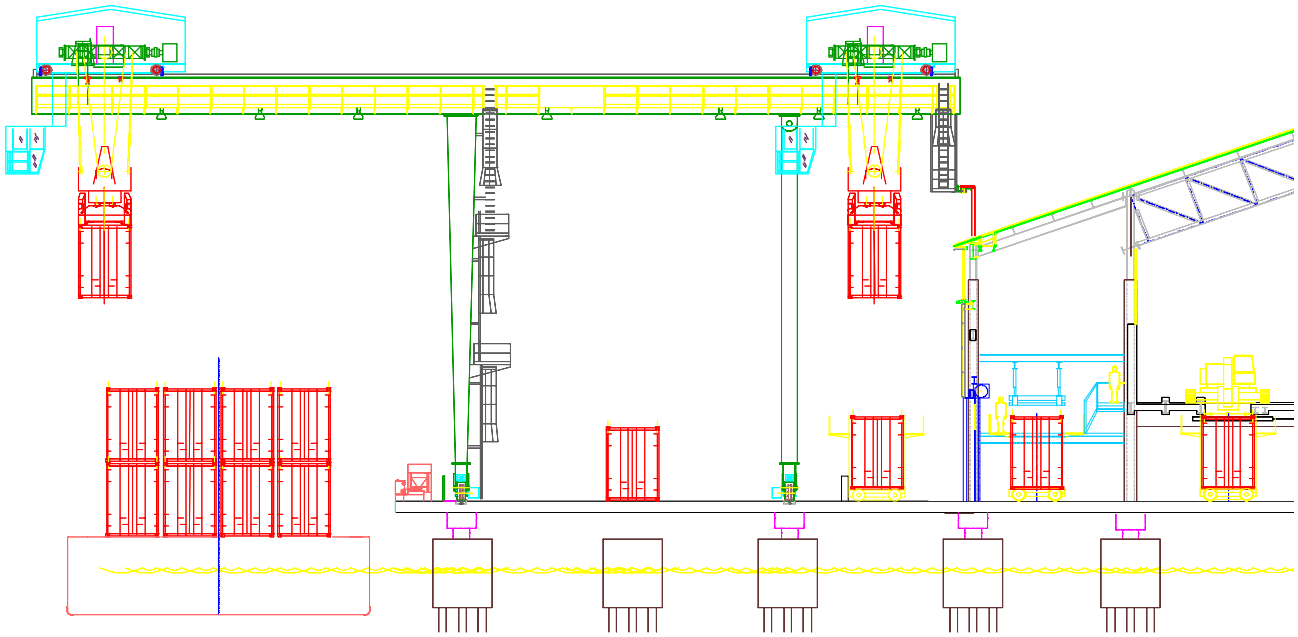


Figure 2-5
DSNY Containerization Facility
Container Handling Gantry Crane



downward load capacity and lateral resistance against seismic loads than concrete piles, and better corrosion resistance than steel H-piles in the tidal zone.

Structural Feasibility of Pier 76 Reuse

The substructure and concrete deck structure of Pier 76, as they currently exist, are not capable of carrying the expected loads from a DSNY containerization facility for the following reasons:

- **Pier 76 does not have sufficient load bearing capacity to support a DSNY containerization facility.** A DSNY containerization facility design incorporates approximately 300 piles, each with an allowable capacity of 275 tons, to support the building and pier. Based on these numbers, the total load capacity needed to support the building is roughly 80,000 tons. The portion of Pier 76 that underlies the proposed containerization facility has approximately 1600 piles, each with an allowable capacity of 20 tons which yields a. total load capacity of 32,000 tons. The required pile capacity is roughly 250% greater than the available capacity; therefore, the existing pier does not have sufficient capacity to support the new structure.

- **The column grid needed for a containerization facility is significantly different from the beam and pile spacing of Pier 76.** In order to accommodate the heavy loads from the vehicles, equipment and piles of waste, the column grid of a DSNY containerization facility is closely spaced with dimensions varying from 18 feet to 25 feet in the east-west direction and varying from 27 feet to 33 feet in the north-south direction. The average spacing is roughly 20 feet by 30 feet. The spacing of the existing pile clusters at Pier 76 is roughly 85 feet by 30 feet which is too far apart to accommodate the required column grid for a containerization facility.

- **The existing Pier 76 pile clusters do not have sufficient load bearing capacity to support a DSNY containerization facility.** The typical interior column loads for a DSNY containerization facility range from 400 to 800 tons. At the columns that support the

long-span transfer truss above the tipping area, the column loads increase to as high as 1,100 tons. The existing 9-inch concrete pier deck at Pier 76 is only load-rated to support a 20.5 ton truck and is not capable of supporting concentrated column loads between timber pile clusters. The largest pile clusters at Pier 76 have only 15 piles which can safety support a maximum of 300 tons which is less than that required to support the column loads of a DSNY containerization facility. Additional pile clusters would also be required to support the required concentrated column loads and spacing for the proposed facility.

- **The existing Pier 76 pier deck cannot support the loads that would be imposed by full containers stacked two high.** The existing pier deck is 9 inches thick and can support a 20.5 ton vehicle. Such a vehicle would impose a load on the deck of roughly 16 tons on its rear axle and 4 tons on its front axle. The design weight of a full container is 30 tons. The containers are supported on four ISO blocks and during normal operations will need to be stacked two high, anywhere on the pier deck. The double-stacked arrangement imposes a load of 15 tons per ISO block on the pier deck. In addition, the containers can be placed as close as 12 inches apart. Thus, four adjacent containers, stacked two high, will impose a load of 60 tons in an area slightly more concentrated than the rear axle of a truck. This is 370% higher than the rated capacity of the pier deck. In order to stack containers in the deck area, the entire deck would need to be replaced.

- **The weight of the proposed rooftop park will considerably reduce the load bearing capacity of the existing Pier 76 pier deck.** The service live load capacity of the existing pier was calculated as 602 PSF. If the park area is constructed using approximately 18 inches of soil, the service live load capacity would be reduced to an estimated 375 PSF and would reduce the rated allowable truck load accordingly.

- **The existing pier deck cannot accommodate the shuttle car system that would be used to move empty and full containers into and out of the building.** For safety con-

siderations and to facilitate equipment maneuvering on the pier deck, the typical design adopted for the shuttle car system calls for its pair of rails to be embedded in the concrete deck. In addition each rail needs to be supported by a continuous and pile supported concrete beam to accommodate the heavy shuttle car wheel loads. The existing Pier 76 pier deck slab is not thick enough to allow the shuttle cars rails to be embedded and the configuration of the existing piles do not provide adequate load capacity to support the shuttle car system.

- **The existing pier deck cannot support the gantry cranes that would move containers on to and off of barges.** Each gantry crane weighs 375 tons and is supported on four legs. When operating, each leg of the crane exerts a force of up to 149 tons on the pier deck. This is over 900% more than the rated truck axle load of 16 tons the existing pier deck can accommodate. The two crane rails are supported on continuous pile supported reinforced concrete girders. The piles under Pier 76 are 20-ton capacity piles spaced at 8 feet on center in the direction of the crane travel. Even a pair of these piles would be overstressed more than 600% under the weight of the operating crane.

- **The existing piles cannot accommodate the additional lateral forces a containerization facility would impose.** Due to the heavy weight of a DSNY containerization facility and the weight of the equipment and waste piles it houses, the lateral forces calculated for the design seismic event are very high, generally ranging from 15 to 30 tons at each column. There are approximately 1600 piles under the area that the containerization facility would occupy If the allowable lateral load on each timber pile is 0.5 tons, the capacity of the group to resist lateral forces is on the order of 800 tons. The lateral force from the structure alone under a seismic event is on the order of 1,600 tons. The lateral force from the self weight of the existing pier will add an additional 400 to 800 tons of lateral load under a seismic event. Consequently, the timber piles do not have sufficient lateral capacity to support both the existing pier deck and a DSNY containerization facility under the design seismic event.

The principal observation and conclusions cited above would also apply to the recyclables transfer facility. Specifically, the overall load bearing capacity of Pier 76, the load bearing capacity of the pile clusters and the arrangement of the piles are not adequate to accommodate a recyclables transfer facility similar in arrangement and operation to one of DSNY's existing marine transfer stations, such as the West 135th Street MTS. Additionally, the considerable number of piles that would have to be removed to create the barge slips needed could diminish the viability and require the reconstruction of a considerable portion of the existing pier structures. Finally, the docking and maneuvering of barges will exacerbate the lateral force issue described above.

Section 3 Review of Operational Components of the Pier 76 Concept

Access and Circulation of Vehicles

According to the Pier 76 proposal, trucks bound for the consolidated facility would enter at grade level and then travel up a ramp that appears to be approximately 130 feet in length to reach the weigh station at an elevation 20 feet above grade. After passing through the weigh station, trucks carrying recyclables would make a 90 degree left turn to the recycling tipping area, maneuver and then dump their loads into open hopper barges. Trucks carrying solid waste, once through the weigh station, would travel up an additional ramp to reach the waste tipping floor which is at an elevation 30 feet above grade. To exit, all trucks would use a single lane ramp that is approximately 100 feet long and turns 90 degrees as the trucks exit. The proposed consolidated facility design does not appear to include any ramps for accessing the loading level of the proposed containerization facility or the pier level where the container handling equipment operate.

The access ramps in the proposed consolidated facility appear to have slopes of 15% or greater. In deference to the capabilities of its equipment and for safety, DSNY design criteria call for truck ramps to have slopes of 6-8%, to include transition areas (i.e., vertical curves) at the start of a ramp to prevent trucks from bottoming out and to have flat zones before and after

a scale. Based on this design criteria, the access ramp of the proposed consolidated facility would have a total length of 413 feet rather than the 130 feet shown. Given the size of the existing pier and the facility layout proposed, it is not clear how or if such a ramp could be accommodated.

In addition to the slopes, the ramps in the proposed consolidated facility appear to have lane widths and turning radii that would be problematic. Specifically, the lane widths and turning radii should be able to accommodate the dimensions of a 32 cubic yard collection vehicle, which is a vehicle commonly employed by commercial haulers. Hence, the lane widths should be at least 17 feet and the turning radius for inside lanes should be a minimum of 32 feet. The lane widths and turning radii shown in the proposal do not appear to meet these standards.

The proposed consolidated facility design appears to be based upon use of only inbound scales and tare keys for determining and keeping track of the amounts of solid waste and recyclables delivered. Such systems, while workable, involve transactions at the weigh station that take considerably longer and are more likely to cause queues than the transactions associated with the separate inbound/outbound scale arrangements that are the current state of the art and will be employed at all DSNY containerization facilities. Additionally, the inbound/outbound arrangements are generally much more accurate. They do, however, require slightly more space and it does not appear that the proposed consolidated facility design could be modified to accommodate a sufficient number of outbound scales to allow for the implementation of such a system.

The proposed consolidated facility appears to provide only one single lane ramp for exiting from the transfer facilities. If a truck were to break down on this ramp, truck access to and all operations at the transfer facilities would have to be halted until it was removed. This is an unacceptable feature. To prevent such a problem, the exit lanes from a DSNY containerization facility run adjacent to the access lane, which allows the access lane to be temporarily used for bypass in the event an exiting truck breaks down. Additionally, this arrangement allows for easy and quick access to the disabled vehicle, which is something the single lane arrangement in the proposed

concept would not allow. Given the size of the existing pier, the previously noted deficiency in the length of its access ramps and the circulation pattern defined, it is not clear how or if the proposed consolidated facility design could be modified to address this issue.

The proposed consolidated facility does not appear to include a means for operating equipment, service vehicles and emergency vehicles to gain access to the loading floor of the containerization facility or the pier deck. Without such an access route, the proposed transfer facilities could not be operated efficiently or safely. DSNY containerization facility designs address this issue by providing a ramp off the main vehicle access ramp that connects directly to the loading floor and through the provision of an internal ramp that can carry service and emergency vehicles to the pier deck. Given the size of the existing pier and the arrangement of facilities, it is not clear how or if the proposed consolidated facility could be modified to address this issue.

Spatial and Layout Considerations

As shown, the distance from the solid waste tipping floor to the top of the rooftop park is 30 feet. This is insufficient clearance to allow for the collection vehicles to raise their tailgates, provide for structural long-span support of the roof and park structures above and incorporate building systems such as fire protection, dust suppression, HVAC ducts and lighting. It is therefore probable the elevation of the rooftop park could exceed +70 feet.

Depending on the framing configuration, the overall depth of the floor slab and framing at the proposed recyclables tipping area would need to be on the order of 4 to 5 feet deep due to the heavy loads on the truck rear axles when tipping and the long clear spans needed. The structure thickness shown in the Pier 76 proposal appears to be much less. Hence, the proposed recycling tipping floor height of 20 feet above the pier level may not be sufficient to accommodate full and empty barges during expected tidal conditions. As a result, the proposed elevation of the recyclables tipping floor as well as the elevation of the roof above it may need to be increased.

Increases to the height of the rooftop park to address the concerns noted above will cause the slope of the park to be steeper or necessitate the use of stairs. In either case, the rooftop park would become more difficult to maintain as a green space and more difficult for the public to access and enjoy.

HVAC Considerations

The proposed consolidated facility design does not appear to provide any space for installing HVAC equipment above the floors. Consequently, the roofs will have to be raised higher than the Pier 76 proposal indicates or this equipment would need to be housed below the tipping floors, down on the pier deck, or elsewhere in the consolidated facility. The first option would make the rooftop park slopes even steeper and the second option would make providing vehicular access to the pier level even more critical. Additionally, the second option would likely require the installation of larger equipment and considerably more duct work to address and compensate for the distances between the location where the equipment is installed and the spaces to be ventilated, heated and cooled. This arrangement, combined with the fact the volume of the proposed consolidated facility is four times greater than that of a typical DSNY containerization facility, it is likely that the equipment room needed will be at least four times larger than the 10,000 square foot equipment mezzanine a DSNY containerization facility includes. Given the size of the existing pier, the facility arrangement proposed and previously noted absence of access to the pier deck, it is not clear how the proposed consolidated facility design could be modified to address this issue

Section 4 Review of Pier 76 Rooftop Park Proposal

Length and Grade of Overpass and Entrance to Rooftop Park

The proposed concept calls for sections of the Hudson River Park walkway and bike path to the northeast and southeast of Pier 76 to be gently sloped up so as to allow pedestrians and cyclists to pass above trucks and other vehicles entering and exiting the proposed consolidated

facility. The gently sloped bike path and walkway will also serve to allow pedestrians and cyclists to enter the rooftop park that would be above the consolidated facilities.

The proposal does not define an exact slope for the walkway and bike path; however, it is not unreasonable to assume that a 5% slope (i.e., 1 foot of rise for each 20 feet of length) would be the maximum grade that would be comfortable for pedestrians, the handicapped and cyclists to negotiate. At that slope a distance of 400 feet would be needed to rise the necessary 20 feet from existing grade. Essentially, this means for nearly 400 feet to the north and south of Pier 76 the eastern and western edge of the Hudson River Park walkway and bike path would be walls. There appears to be sufficient space available for this concept to the south of Pier 76. To the north, however, it appears the implementation of this concept would block access to an excursion boat dock and impinge upon a tourist bus staging area. Consequently, it is clear that while this concept would eliminate a safety concern, it cannot be implemented without imposing at least considerable visual and other impacts and complicating traffic and pedestrian movements to the north of Pier 76.

Rooftop Park Grade and Area

The proposal shows the rooftop park starting at an elevation of 20 feet above grade and sloping up to a large flat area above the containerization facility that is at an elevation of 60 feet. As noted above, because of clearance and structural issues it is more likely that the elevation of the portion of the rooftop park above the containerization facility to be positioned at the western end of the pier would need to be at least 70 feet. To rise to this elevation at a 5% slope would require a distance of 1,000 feet, which is approximately 275 feet greater than the length of the pier. Consequently, the rooftop park is more likely to be several small flat areas at different elevations connected by ramps with slopes greater than 5% or stairs instead of the single, large gently sloping open space the proposed concept suggests.

Section 5 Comparison of Probable Costs

Probable Construction Cost of Pier 76 Proposal

An estimate of the probable construction cost of the Pier 76 proposal is shown in Table 5-1 below. Costs shown are estimated to the midpoint of construction which is projected to be October of 2013.

Table 5-1
Estimated Cost of Pier 76 Proposal

Pier 76 Demolition	**Cost**	
Environmental assessment & remediation	$2,100,000	
Demolition	$10,600,000	
	Total	$12,700,000
Ramps and Circulation	**Cost**	
Foundations	$9,600,000	
Structure	$10,600,000	
	Total	$20,200,000
Containerization Facility	**Cost**	
Foundations	$21,900,000	
Structure	$59,400,000	
Equipment	$32,600,000	
HVAC	$ 8,100,000	
Plumbing	$ 4,100,000	
Electrical	$22,000,000	
	Total	$148,100,000
Recyclables Transfer Facility	**Cost**	
Foundations	$18,900,000	
Structure	$51,900,000	
Equipment	$17,200,000	
HVAC	$ 6,300,000	
Plumbing	$3,200,000	
Electrical	$17,000,000	
	Total	$114,500,000

Table 5-1
Estimated Cost of Pier 76 Proposal
(continued)

Tow Pound and Stables	**Cost**	
Foundations	$17,100,000	
Structure	$46,900,000	
Equipment	$1,200,000	
HVAC	$ 4,600,000	
Plumbing	$2,300,000	
Electrical	$12,600,000	
	Total	$84,700,000
Rooftop Park and Transitions	**Cost**	
Structure	$45,400,000	
Plumbing	$1,600,000	
Electrical	$ 8,800,000	
	Total	$55,800,000
Total Estimated Cost of Pier 76 Proposal		**$436,000,000**

This estimate is based on the extensively detailed construction cost estimate prepared in January of 2005 for the DSNY's North Shore, Queens containerization facility (see Attachment 2). Of the four containerization facilities to be developed by the DSNY pursuant to the City's Solid Waste Management Plan, North Shore was chosen as a basis for estimating Pier 76 costs because, like the consolidated facility proposed for Pier 76, it will be entirely over water. In addition to the North Shore estimate, the preliminary estimates for the Pier 76 proposal reflect consideration of the following:

- The impact of inflation. Since January of 2005, the costs of construction materials have risen by an average of 6% per year and the cost of labor has increased by approximately 3% per year.

- The determination that the substructure of Pier 76 does not have the capacity to carry the loads the proposed consolidated facility would impose and would have to be replaced.

- The more extensive and difficult demolition effort the Pier 76 proposal would require.

- The greater amounts of steel each component of the Pier 76 proposal would have to include in order to handle the loads the rooftop park would generate.

- The modifications to the Hudson River Park walkway and bike path and the construction of the rooftop park.

Finally, the construction cost estimate for Pier 76 reflects consideration of a recent trend in the bidding of public contracts in New York City which has seen an overall reduction in the number of bidders willing or able to compete for large projects and is resulting in unexpectedly high bid prices for such projects.

Probable Construction Cost of a Recycling Transfer Facility at the Gansevoort Peninsula

It is assumed that the construction cost of a recyclables transfer facility at the Gansevoort Peninsula would be slightly lower than the cost shown in Table 5-1 for the recyclables transfer facility at Pier 76. In part, this is because differences in the structures to be removed would result in lower demolition costs for a recyclables transfer facility at Gansevoort. It also reflects the fact that the facility at Gansevoort would require lower quantities of steel because it would not have a rooftop park incorporated into its design structural loads. Finally, building heating, ventilation and air conditioning costs would also be less because the volume of the recyclables transfer facility at Gansevoort would be lower and easier to service than the volume of the recyclables transfer facility at Pier 76.

Probable Construction Cost of Refurbishing the West 59th Street MTS

The West 59th Street Marine Transfer Station was originally constructed in the late nineteenth century as a passenger ship pier and was modified in the mid-twentieth century to serve as a

marine transfer station by the Department of Sanitation (DSNY). The facility was rehabilitated in the 1980's to its existing configuration, which consists of an entrance ramp, tipping floor and pier level with a separate operations building that houses personnel facilities.

The City's Solid Waste Management Plan calls for the West 59th Street MTS to be refurbished and made available to serve as a commercial waster transfer facility. The refurbishment of the West 59th Street MTS would principally consist of stabilization of the foundation systems to achieve a 20-year service life and replacement of building systems as necessary and, based on line item estimates prepared for the containerization facilities, is expected to cost between $40 and $45 million.

Comparison of Costs

Assuming the operational and technical issues discussed in Section 3 could be addressed, a comparison of the estimated cost to implement the Pier 76 proposal to the cost of implementing the Gansevoort and West 59th Street MTS proposals is shown in Table 5-2 below:

Table 5-2
Comparison of Costs

Total Estimated Cost of Pier 76 Proposal		$436,000,000
	Cost	
Gansevoort Recyclables Transfer Facility	$ 82,500,000	
West 59th Street MTS	$ 42,500,000	
	Total	$125,000,000
Total Difference		**$311,000,000**

Section 6 Conclusion

In summary, the principal findings of the technical evaluation of the Pier 76 proposal described in this report are as follows:

- The substructure of Pier 76 does not have the capacity to carry the loads the proposed consolidated facility would impose, thus implementing the Pier 76 proposal would require the demolition and replacement of the existing pier and substructure.

- The proposed consolidated facility has many operational and technical problems and deficiencies that it may not be possible to correct or address without diminishing or eliminating important features of the proposal, including the rooftop park.

- Clearance and structural requirements are likely to cause the rooftop park to be a series of smaller flat areas connected by steep ramps and/or stairs instead of the large gently sloping open space shown.

- The Pier 76 proposal would cost $311 million dollars more to implement than it would cost to build both a recycling transfer facility at the Gansevoort peninsula and the current proposal for the West 59th Street MTS.

In light of these findings, the Pier 76 proposal cannot be considered a viable alternative for the proposed recyclables transfer facility to be located at the Gansevoort peninsula and for making the West 59th Street MTS available for the transfer of commercial waste.

ATTACHMENT 1

Friends of the Hudson River Park and Coalition to Protect Our Parks Pier 76 Proposal

PIER 76

MAY 07

Friends of Hudson River Park

weisz+yoes architecture
Michael Singer Studios

Halcrow

Friends of Hudson River Park and the Coalition to Protect Our Parks retained an engineering/design team, led by Halcrow and including Weisz + Yoes Architecture and Michael Singer Studio, to investigate the feasibility of using Pier 76 on the Hudson River waterfront (at 36th Street) as a consolidated solid waste transfer station, replacing the proposed Gansevoort recycling facility and Pier 99 transfer station, both planned on Manhattan's West Side, within Hudson River Park.

The engineering/design team has undertaken a preliminary evaluation of a **Pier 76 combined transfer station** and the results are encouraging. The following is a summary description of the planned facility.

Expediting the Solid Waste Management Plan Manhattan's West Side

Under the Hudson River Park Act, Pier 76 is obligated to remove from its current use the Manhattan tow pound. This plan seeks to replace this function with a solid waste marine transfer station with the capacity both to (1) accept and transfer into barges all of Manhattan's recyclables and (2) process, containerize and load into barges most of Manhattan's commercial waste. The goal is to locate a West Side transfer facility in Manhattan south of 96th Street in a way that would most effectively meet the needs of the NYC Department of Sanitation and private haulers and best meet community concerns, all within the context of the Mayor's Solid Waste Management Plan (SWMP).

The substructure of Pier 76 is already in place and appears to be in excellent condition, with capacity to carry the expected loads of this program.

Waste Transfer +

Pier 76 (244,600 sq/ft) is more than twice the square footage of the proposed Gansevoort (35,000 sq/ft) and Pier 99 (57,100 sq/ft) footprints combined. This will add flexibility to the waste transfer operations planned for the West Side. There is capacity to handle two recycling barges at a time within an enclosed facility on the south side of the Pier; one for metal, glass and plastic and another for paper. Unlike Pier 99, the footprint of which is limited by the Hudson River Park Act, Pier 76 also has ample space for on-site compaction and containerization of commercial waste.

This consolidation will eliminate the need for a new transfer station in Hudson River Park at Gansevoort and Pier 99 will be freed up for park use at the north end of the Park. Prelimarily it appears that **NYPD tow pound and stable functions can be retained at the Pier.**

On the roof of the Pier we envision a spacious new Park as a major public space connecting to the new development and parks in the Hudson Yards. – a waterfront "porch" for a renovated Jacob Javits Convention Center and Far West Side.

Access

Currently, one of the worst grade crossings for Hudson River Park is at the Ferry Terminal exit just north of Pier 76, due to the narrow width of the Park at this point, the exiting buses and other vehicles, and the entrance to the tow pound. Indeed, one fatality and many accidents have occurred at this location.

The Plan calls for a raised section of the Hudson River Park on the east side of Pier 76, allowing pedestrians and bicyclists to rise above grade, while sanitation trucks and all other vehicles (including the buses out of the Ferry Terminal) will cross below at grade.

Below the **elevated walkway and bikeway**, traffic remains at grade. The sanitation trucks rise inside the Pier to the tipping floor on the second level. All queuing for peak activities is accommodated indoors and off the street – another major advantage over Pier 99.

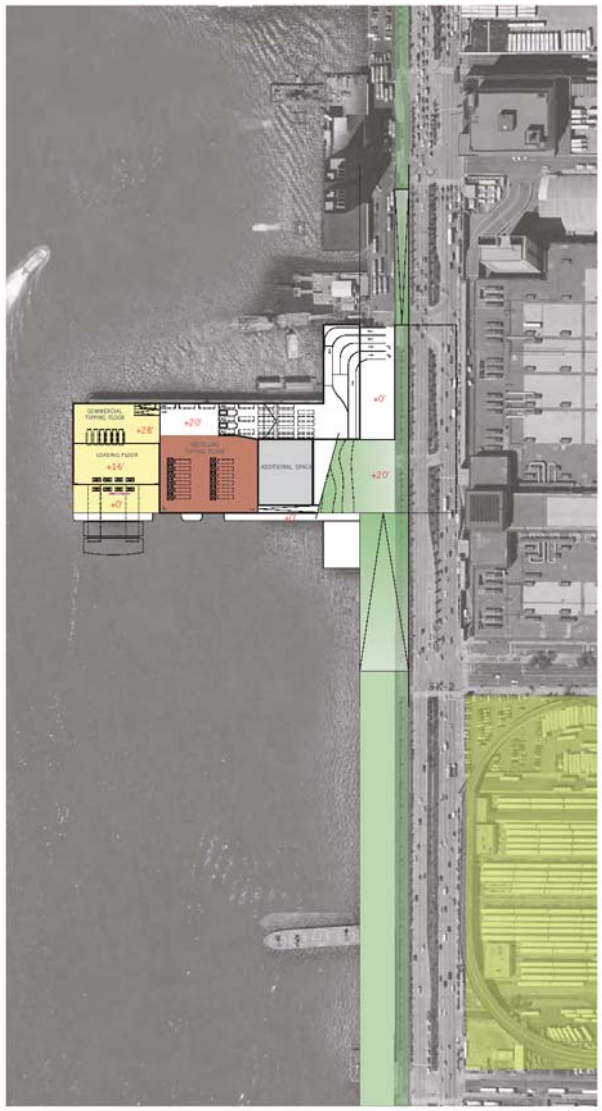
The gentle slope lifting the bike path and walkway will also bring people halfway up to a rooftop park to be built above the consolidated transfer station. Crossing into the rooftop, pedestrians would then continue up a gently sloped roof to the main expanse of park. Views will be focused to the north on the Palisades and the boat traffic at the Passenger Ship Terminal. There could be a terrace connection to the Javits Center and the park will serve as a destination on the Hudson for the High Line and Hudson Yards, connecting Midtown to the West Side Ferry Terminal.

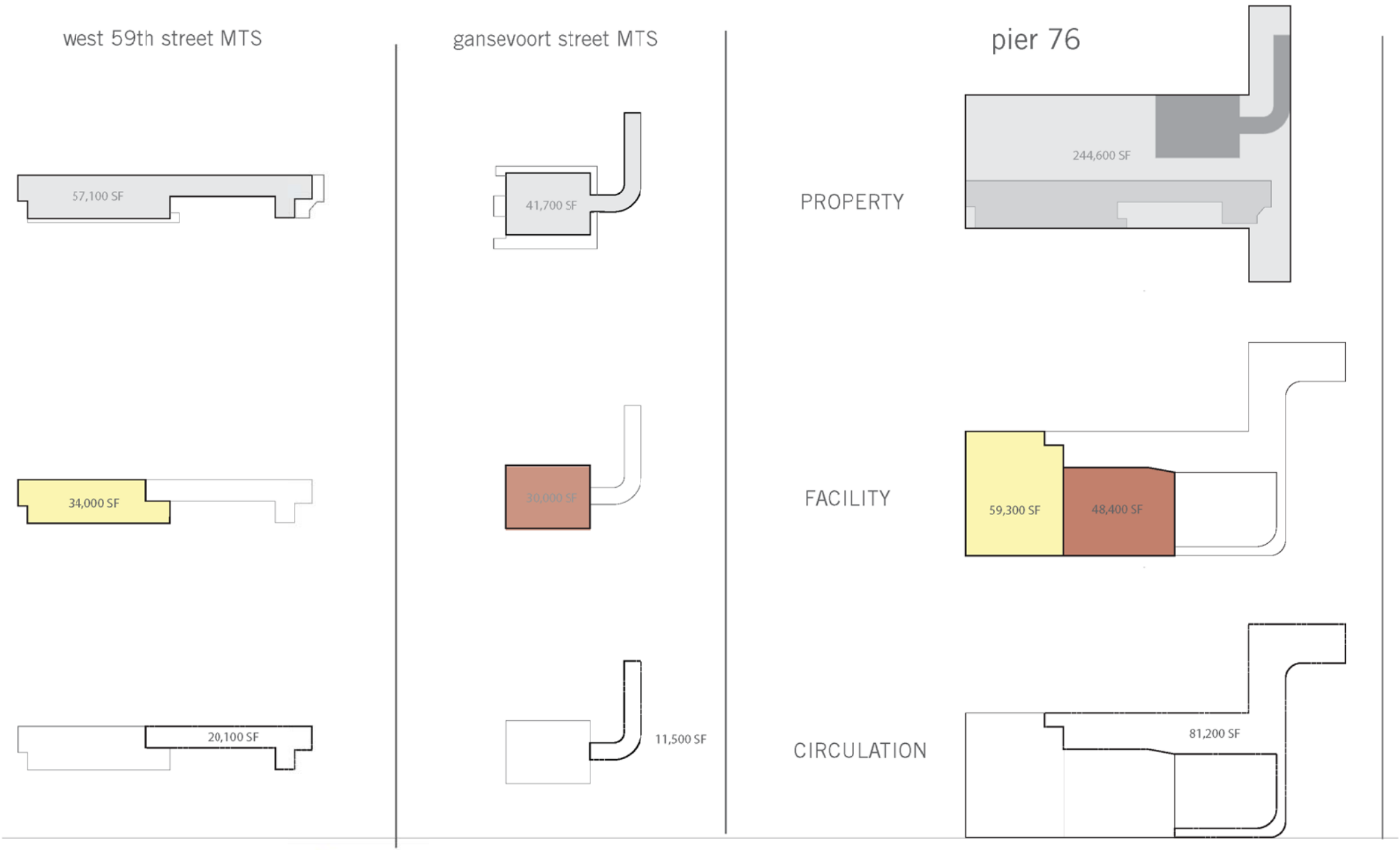
Plans and Diagrams

Preliminary Evaluation Plans and Diagrams reflecting the layout being developed for Pier 76 are attached.

Future Work

Over the next two months, the engineering/design team will refine the preliminary evaluation and test the assumptions on which it is based. The goal is to come up with a more detailed concept plan that will further demonstrate the feasibility of using Pier 76 as a consolidated marine transfer station. Preliminary cost estimates will also be developed. It is estimated that **construction on this facility could begin immediately** setting a precedent for siting and operating working waterfront facilities city wide.





PIER 76

Friends of Hudson River Park

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Michael Singer Studios

Halcrow

MAY 2007
Comparative Analysis

PIER 76

Friends of Hudson River Park

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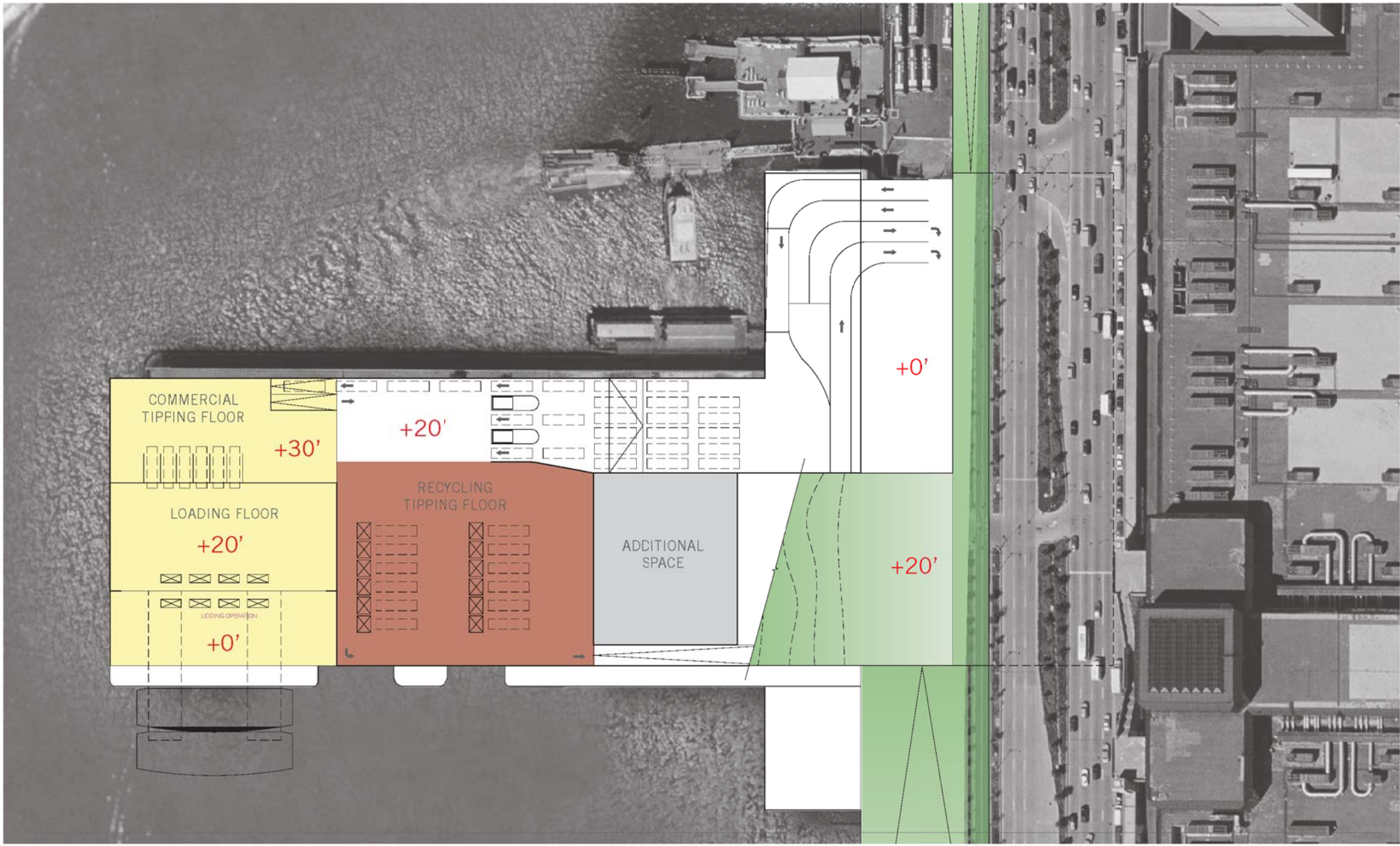
Pier Deck Plan



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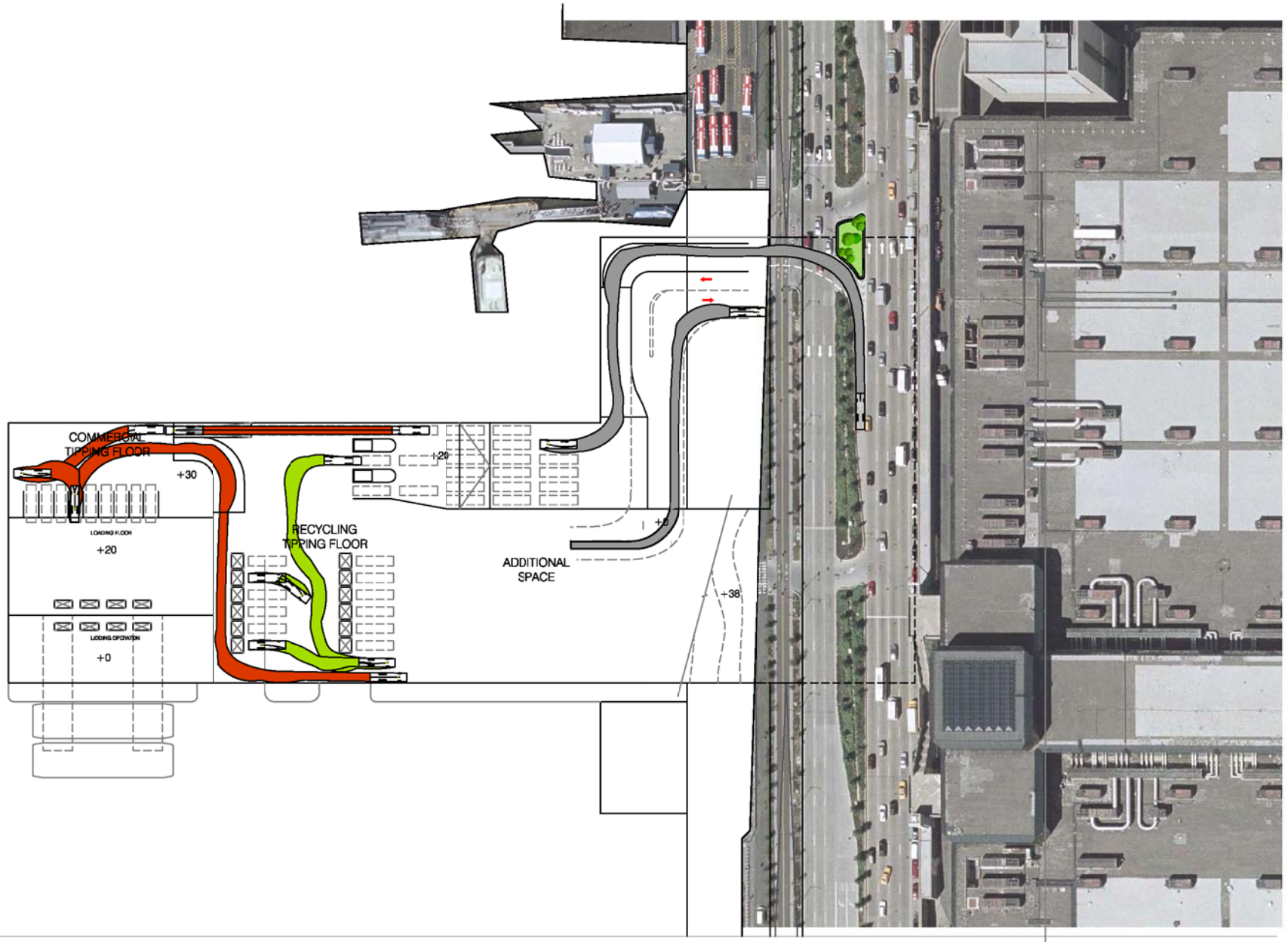
Tipping Floor Plan



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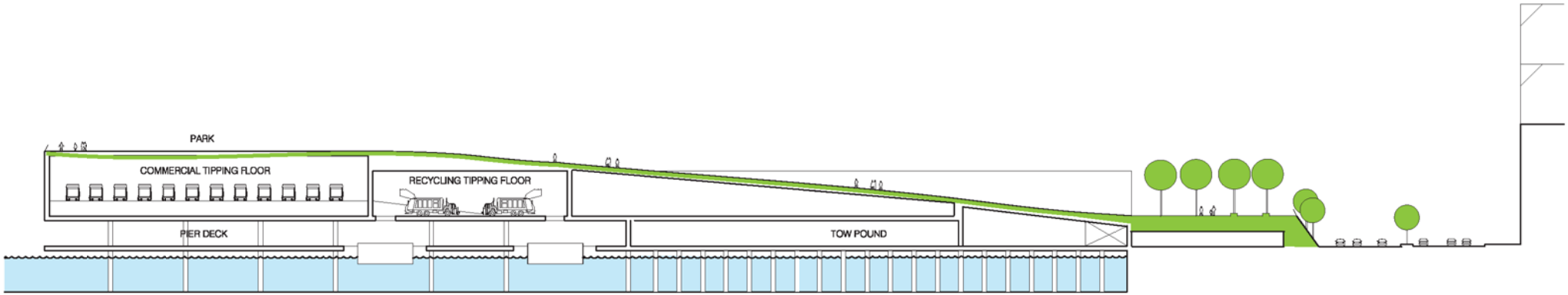
Traffic Analysis



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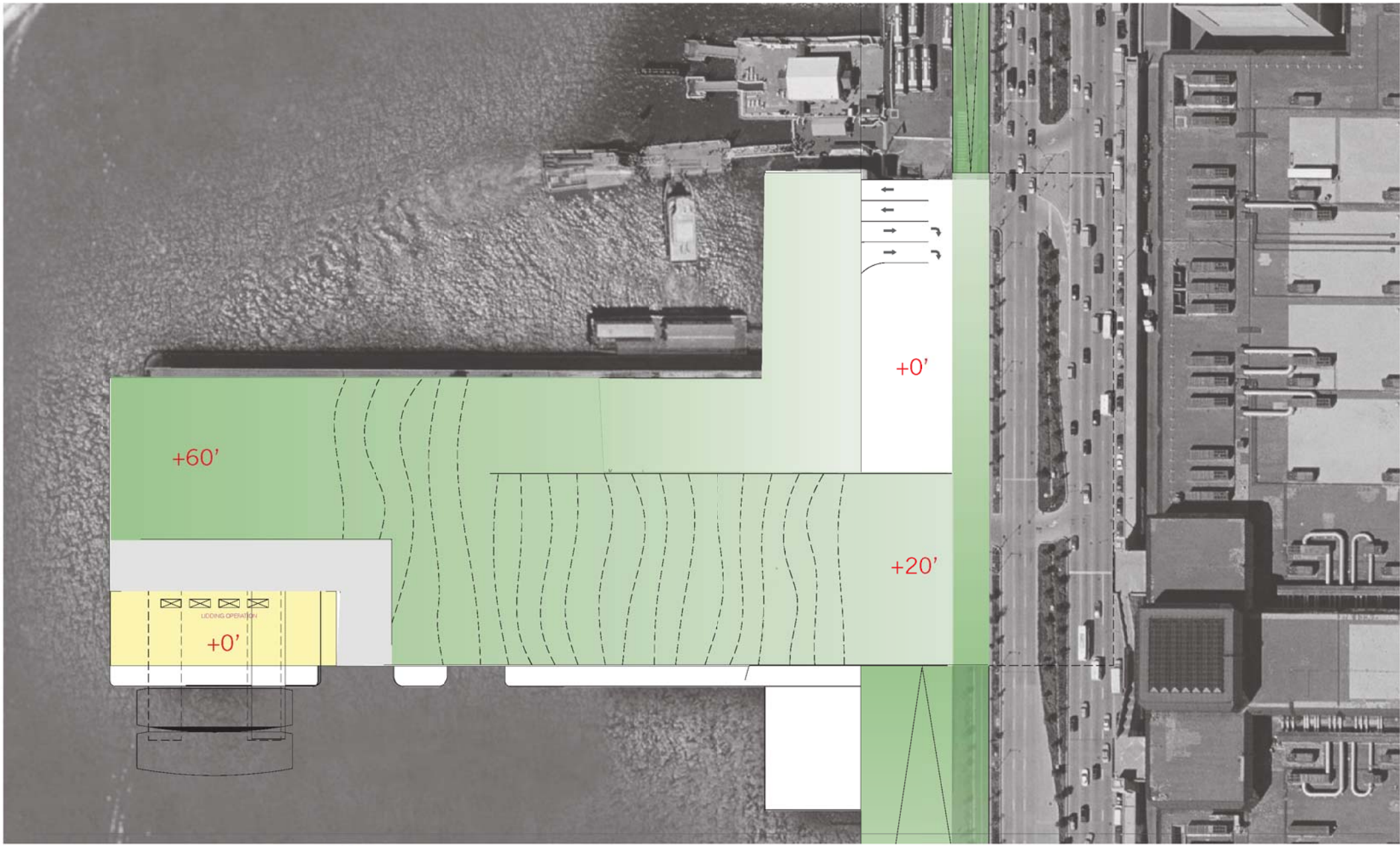
Section



PIER 76

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MAY 2007
Park Plan

ATTACHMENT 2

Detailed Construction Cost Estimate DSNY North Shore Containerization Facility – January 2005

North Shore Marine Transfer Station Conversion
Draft Final Cost Estimate
January 2005

Description	North Shore
Demolition	$2,225,000
Environmental Cleanup	$153,000
Sitework and Utilities	$1,922,000
Dredging	$1,898,000
Service Water	$156,000
Bilge Water	$51,000
Ramps w/ Foundations	$6,611,000
Structural Steel	$8,096,000
Pile Foundations	$3,379,000
Precast Structural Concrete	$1,442,000
Cast-in-Place Concrete	$6,914,000
Reinforced Concrete Walls	$668,000
Reinforced Concrete Elevated Slab	$2,425,000
Concrete Encase. for Bms & Cols	$1,713,000
Concrete for Composite Deck	$224,000
Fendering System	$1,313,000
Marine Hardware	$578,000
Architectural Work	$6,700,000
Dust and Odor Control Systems	$238,000
Lidding/Unlidding Process	$374,000
Maintenance Bay Equipment	$66,000
Safety Equipment	$25,000
Interior Paint Marking and Signage	$36,000
Heat Tracing	$680,000
I&A Equipment	$374,000
Heating and Ventilitation	$2,648,000
Plumbing	$1,048,000
Fire Protection	$624,000
Gantry Cranes (Labor)	$400,000
Interior and Exterior Electrical Work	$7,691,000
CONTROL COMPONENTS AND DEVI	$12,000
DISCONNECT SWITCHES	$107,000
MINI POWER CENTERS	$2,000
DRY TYPE TRANSFORMERS	$71,000
PANEL BOARDS	$39,000
WIRING DEVICES	$29,000
ELECTRICAL RACEWAY SYSTEM	$1,385,000
GROUNDING	$73,000
WIRE AND CABLES	$497,000
LIGHTNING PROTECTION SYSTEM	$124,000
PACKAGED ENGINE GENERATOR	$156,000
MOTOR CONTROL CENTERS	$272,000
480V SWITCHGEAR	$331,000
UNDERGROUND ELECTRICAL DISTF	$1,398,000
SECURITY SYSTEM	$676,000
LIGHTING	$1,264,000
FIRE ALARM SYSTEM	$166,000
VOICE/DATA & PAGING SYSTEM	$141,000
RADIO COMMUNICATIONS	$37,000
SITE POWER & LIGHTING	$1,178,000
Sub Totals (O&P Items):	$60,672,000
Overhead and Profit (21%)	$12,741,120
Sub Totals:	**$73,413,120**
Spare Marine Hardware	$346,000
Open Top Shuttle System	$1,038,000
Utility Vehicle	$16,000
Fuel Tank Truck	$113,000
Tractor with Hydraulic Gooseneck	$79,000
Vacuum Sweeper	$75,000
Vaccum Truck	$61,000
7,000 lb Forklift	$40,000
4,000 lb Pallet Truck	$7,000
Scissor Lift	$79,000
Self Propelled Boom Lift	$139,000
Sub Totals (10% O&P Items)	$1,993,000
Overhead and Profit (10%)	$199,300
Sub Totals:	**$2,192,300**
Wheel Loaders	$936,000
Excavators	$1,044,000
Skid Steer Loader	$83,000
Compact Wheel Loader	$155,000
Diesel Hydraulic Power Cart	$70,000
Gantry Cranes	$6,093,000
Sub Totals (No O&P Items):	**$8,381,000**
Subtotals (including O&P):	$83,986,420
Miscellaneous and Contingencies (3%)	$2,131,380
Sub Totals :	$86,117,800
Escalation @ 3.0%/Yr.	$5,253,186
Grand Totals:	$91,370,986
ADJUSTED TOTALS:	**$91,370,000**

Note: 1. Costs are esclated to mid-point of construction assumed to be March 2007 @ 3.0% per year (Multiplier = 1.061)
2. Escalation is calculated from February 2005 to March 2007

GREELEY AND HANSEN

CONTAINER LIDDING SYSTEM COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
14601 Container Lidding System										
2.02	**HOIST,**	4	EA.	$28,839	$115,356					$115,356
A.	5 ton Chester Cat. No. WD-3108S, four hook lug mounted worm drive electric wire rope hoist.									
	30foot lift, 13' x 6' hook pattern									
	30FPM hoist speed, 2 part single reeving									
	2- NEMA 4 Push Button Enclosures									
	15 hp Motor, 460V, 3ph, 60hz.									
	Unit weight = 2,900 lbs.									
	Per Chester Hoist Quote dated March 19, 2004									
	SPARE PARTS	1	L.S.	$3,605	$3,605					$3,605
B.	**LIDDING SPREADER**	4	EA.	$40,000	$160,000					$160,000
	Hydraulic latching/unlatching system with manual lever backup									
	6 fixed guide arms, with 4 positioning lights and operator grab handles									
	Lift 8'- 6" x 20'- 0" Container Lids weighing 1200 lbs.									
	5hp. Hydraulic Motor									
	NEMA 4 Control Panel									
	Per ELME Budget Estimate July 24, 2003									
	SPARE PARTS	1	L.S.	$6,250	$6,250					$6,250
C.	**LIDDING SPREADER (SPARE)**	1	Ea.	$40,000	$40,000					$40,000
	INSTALLATION LABOR	1	L.S.					$48,782		$48,782
	Labor at 15% of Equipment Cost plus Contractor Rental Equipment									
	Totals:				$325,211			$48,782		$373,993

TRANSPORT SYSTEM COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
14511	**CONTAINER TRANSPORT SYSTEM**									
	Pricing per Mentor AGVS Proposal No. 22187-1, dated 11-3-03									
A	SYSTEM CONTROLS	1	L.S.	$63,400	$63,400			0		$63,400
B	SHUTTLE CARS - LATITUDINAL	4	EA.	$213,269	$853,076			0		$853,076
C	REQUIRED BATTERY	4	EA.	$6,316	$25,264			0		$25,264
D	SWAP BATTERY	2	EA.	$6,316	$12,632			0		$12,632
E	BATTERY CHARGERS	4	EA.	$6,703	$26,812			0		$26,812
F	SPARE CHARGER	1	EA.	$6,703	$6,703			0		$6,703
G	BATTERY RACK	2	EA.	Included	$0			0		$0
H	INSTALLATION LABOR AND TRAINING	1	L.S.		$0			Included		$0
I	SPARE PARTS & SYSTEM ENGINEERING	1	L.S.		$50,000			0		$50,000
	TOTALS:				$1,037,887					$1,037,887

MAINTENANCE BAY EQUIPMENT COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
1150 Maintenance Bay Shop Equipment										
A	**55 Gallon Drum**	4	each	$46.95	$187.80			$0		$187.80
	Global Industrial Equipment, Stock No. WG657107									
B	**Drum Opener**	1	each	$43.95	$43.95			$0		$43.95
	Global Industrial Equipment, Stock No. WG226376									
C	**Drum Wrench**	1	each	$23.50	$23.50			$0		$23.50
	Global Industrial Equipment, Stock No. WG227201									
D	**Drum Dollies**	2	each	$39.95	$79.90			$0		$79.90
	Global Industrial Equipment, Stock No. WG233880									
E	**Drum Truck**	1	each	$259.95	$259.95			$0		$259.95
	Global Industrial Equipment, Stock No. WG975273									
F	**Drum Pump**	3	each	$395.50	$1,186.50			$0		$1,186.50
	Airline Hydraulics (phone): Model 4480									
G	**Fork Lift Racker**	1	each	$780.00	$780.00			$0		$780.00
	Zorin Material Handling Co. Model No. V-DRUM-P									
	Fork Pocket measures 6.5" x 1.5" for 19.5" centers									
	Capacity: 800lbs, Weight: 321 lbs									
	Size: 26.5" x 67" x 32.5"									
H	**Rolling Oil Drain Pan**	1	each	$599.99	$599.99			$0		$599.99
	NorthernTool.com Item No. 144720									
I	**Oil Drain Pan Pump**	1	each	$99.99	$99.99			$0		$99.99
	NorthernTool.com Item No. 145996									
J	**Portable Grease Pump**	1	each	$1,451.43	$1,451.43			$0		$1,451.43
	LiquiDynamics, 13070-S3									
K	**Spill Containment Platforms**	2	each	$229.00	$458.00			$0		$458.00
	Global Industrial Equipment, Stock No. WG954284									
	30.5" x 106" x 6.75"									
L	**Drum Rack**	1	each	$449.95	$449.95			$225		$674.93
	Global Industrial Equipment, Stock No. WG793200									
	36" x 105" x 84"									
M	**Shop Vaccume**	1	each	$176.00	$176.00			$0		$176.00
	Grainger, Item No:1UG91									
	Tank (Gal.): 22									
	Peak HP: 6.5									
	Amps @ 120V: 12									
N	**Storage Rack**	3	each	$255.95	$767.85			$384		$1,151.78
	Global Industrial Equipment, Stock No.WG236608									
	18" x 60" x 72"									
O	**All Purpose Tool Cabinets**	1	each	$235.43	$235.43			$0		$235.43
	McMaster-Carr Stock No. 5089T52									
	24" x 36" x 72"									
P	**Tool Drawer Cabinet**	1	each	$1,373.79	$1,373.79			$0		$1,373.79
	McMaster-Carr Stock No. 4795T12									
	28.25" x 30" x 59.25"									
Q	**Portable Pressure Washer**	1	each	$4,950.00	$4,950.00			$0		$4,950.00
	Jenny E-300-C									
	230 Volt, 60 Herts, 3 Phase, 64 Amps									
R	**Drum Funnel**	4	each	$169.95	$679.80			$0		$679.80
	Global Industrial Equipment, Model 440128									
	Threads into 2" bung opening									
S	**5 Ton Bridge Crane**	1	each	$23,451.00	$23,451.00			$11,726		$35,176.50
	Yale quote									
T	**Air Compressor**	1	each	$6,314.00	$6,314.00			$3,157		$9,471.00
	Ingersoll-Rand-No. 2000E20 FP									
	120 Gallons									
	HP: 25									
	Volts: 460									
	Amps: 28									
	72" x 34" x 67" (L x W x H)									
U	**Air Dryer**	1	each	$1,818.00	$1,818.00			$909		$2,727.00
	Ingersoll-Rand-No. DS75									
	75 scfm									
	Motor HP: 1/2									
	28" x 14" 24" (D x W x H)									
V	**Filter/Regulator/Lubricator**	3	each	$168.30	$504.90			$252		$757.35
	Ingersoll-Rand CCN # 38328951									

MAINTENANCE BAY EQUIPMENT COST ESTIMATE

New York City Department of Sanitation
Project**: DSNY MTS Conversion Project**
Date**: January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
	Maximum supply pressure: 175 PSIG									
W	**Air Hose and Reel**	3	each	$342.00	$1,026.00			$513		$1,539.00
	Ingersoll-Rand Low Pressure Ultra Duty Reel and Hose									
	ID: 3/8"									
	Max Pressure: 300 PSI									
	Hose Length: 50 ft.									
	16.5" x 6" x 17.5" (L x W x H)									
X	**Stainless Steel Piping-Air Compressor**									
	Length= 45 feet (1" Diameter)-Air	45	L.F.	$6.75	$303.75			$151.88		$455.63
	Length= 10 feet (1/2" Diameter)-Air	10	L.F.	$4.83	$48.30			$24.15		$72.45
	Length=15 feet (1/2" Diameter)-Water	15	L.F.	$4.83	$72.45			$36.23		$108.68
Y	**Fittings for Air Compressor**									
	1" Union	2	each	$51.00	$102.00			$51.00		$153.00
	1/2" Union	3	each	$25.50	$76.50			$38.25		$114.75
	1" 90 Degree Elbows	2	each	$53.00	$106.00			$53.00		$159.00
	Tee Reducing Outlet, 1" x 1/2"	1	each	$73.00	$73.00			$36.50		$109.50
	1" x 3/4" Reducers	2	each	$28.50	$57.00			$28.50		$85.50
Z	**Valves for Air Compressor-Bronze**									
	1" Ball Valve	1	each	$13.95	$13.95			$6.98		$20.93
	1/2" Ball Valve	3	each	$6.75	$20.25			$10.13		$30.38
	1 Automatic Drain Valve-115 Volt	1	each	$148.50	$148.50			$74.25		$222.75
	Totals:				**$47,939.43**			**$17,676.70**		**$65,616.13**

SAFETY EQUIPMENT COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
11501 SAFETY EQUIPMENT									
A	**First Aid Kit**	10	each	$129.95	$1,299.50		$20.00	$200.00	$1,499.50
B	**Stretcher**	1	each	$190.00	$190.00		$0.00	$0.00	$190.00
C	**Stretcher Case**	1	each	$125.88	$125.88		$30.00	$30.00	$155.88
C	**Emergency Blanket**	2	each	$53.70	$107.40		$30.00	$60.00	$167.40
D	**Respirator**	16	each	$198.00	$3,168.00		$0.00	$0.00	$3,168.00
E	**Disposable Particulate Respirators**	8 boxes	each	$29.00	$232.00		$0.00	$0.00	$232.00
F	**Ring Preservers**	12	each	$69.99	$839.88		$0.00	$0.00	$839.88
	30" White - Ring Buoy								
	Vinyl-coated plastic nylon skin								
G	**Roughnek Ring Buoy Racks**	12	each	$84.99	$1,019.88		$45.00	$540.00	$1,559.88
H	**Overboots**	28 pair	each	$18.00	$504.00		$0.00	$0.00	$504.00
I	**Hearing Protection**	24 pair	each	$23.43	$562.32		$0.00	$0.00	$562.32
J	**Nitrile Gloves**	96 pair/8 dozen	each	$24.20	$193.60		$0.00	$0.00	$193.60
		24.20/dozen							
K	**Personal Flotation Device**	24	each	$73.00	$1,752.00		$0.00	$0.00	$1,752.00
L	**Personal Flotation Device Cabinet**	1	each	$1,115.00	$1,115.00		$120.00	$120.00	$1,235.00
M	**Reflective Vest**	32	each	$18.33	$586.56		$0.00	$0.00	$586.56
N	**Convex Mirror**	2	each	$115.00	$230.00		$120.00	$240.00	$470.00
O	**Safety Equipment Cabinet A**	1	each	$2,546.94	$2,546.94		$465.00	$465.00	$3,011.94
	Size: 60" x 47" x 18" (HxWxD)								
	Color: Weathered Iron								
	3 shelves								
P	**Safety Equipment Cabinet B**	1	each	$2,546.94	$2,546.94		$465.00	$465.00	$3,011.94
	Size: 60" x 47" x 18" (HxWxD)								
	Color: Weathered Iron								
	3 shelves								
Q	**Safety Equipment Cabinet C**	1	each	$2,546.94	$2,546.94		$465.00	$465.00	$3,011.94
	Size: 60" x 47" x 18" (HxWxD)								
	Color: Weathered Iron								
	3 shelves								
R	**Safety Equipment Cabinet D**	1	each	$2,546.94	$2,546.94		$465.00	$465.00	$3,011.94
	Size: 60" x 47" x 18" (HxWxD)								
	Color: Weathered Iron								
	3 shelves								
	Totals				**$22,113.78**			**$3,050.00**	**$25,163.78**

PAINT MARKING AND SIGNAGE COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Sign No.*	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	**Labor/Equipment Unit $	**Labor/Equipment TOTAL $ $	Unit Total Unit Cost	Total Labor and Materials $
09912 INTERIOR PAINTING										
A	**4" Wide Painted Traffic Lines - Yellow Line**		1950.00	L.F.	0.15	$292.50	0.08	$156		$580
B	**6" Wide Painted Traffic Lines - Yellow Line**		1426.43	L.F.	0.14	$199.70	0.16	$228		$553
C	**6" Wide Painted Traffic Lines - White Line**		210.00	L.F.	0.14	$29.40	0.16	$34		$81
D	**12" Wide Painted Traffic Lines - Yellow Line**		2077.00	L.F.	0.36	$747.72	0.42	$872		$2,095
E	**12" Wide Painted Traffic Lines - White Line**		667.70	L.F.	0.36	$240.37	0.42	$280		$673
F	**12" Wide Painted Traffic Lines - Black Line**		90.00	L.F.	0.36	$32.40	0.42	$38		$91
G	**Painted Letters**		73	S.F.	1.49	$108.77	2.98	$218		$422
H	**Surface Prep. - Gore Lines**		6494	L.F.	1.19	$7,728.02	0.78	$5,065		$16,542
	SUB-TOTAL:					**$9,378.88**		**$6,891**		**$21,037**
10440 INTERIOR SIGNS										
H	**24" X 36" Aluminum Panel Sign**	1	2	each	112.00	$224.00	137.00	$274		$553
I	**24" X 24" Aluminum Panel Sign**	2	6	each	74.00	$444.00	137.00	$822		$1,405
J	**18" X 18" Aluminum Panel Sign**	3	4	each	65.00	$260.00	137.00	$548		$897
K	**14" X 10" Interior Sign**	4	4	each	38.00	$152.00	137.00	$548		$777
L	**30" X 30" Interior Sign**	5	3	each	112.00	$336.00	183.00	$549		$982
M	**14" X 10" Interior Sign**	6	6	each	34.00	$204.00	183.00	$1,098		$1,445
N	**24" X 30" Interior Sign**	7	2	each	102.00	$204.00	137.00	$274		$531
O	**24" X 30" Interior Sign**	8	2	each	102.00	$204.00	137.00	$274		$531
P	**24" X 30" Interior Sign**	9	1	each	102.00	$102.00	137.00	$137		$265
Q	**24" X 36" Interior Sign**	10	2	each	112.00	$224.00	137.00	$274		$553
R	**30" X 42" Interior Sign**	11	2	each	112.00	$224.00	137.00	$274		$553
S	**24" X 24" Interior Sign**	12	3	each	81.75	$245.25	137.00	$411		$728
T	**24" X 24" Interior Sign**	13	1	each	81.75	$81.75	137.00	$137		$243
U	**14" X 10" Interior Sign**	14	1	each	38.00	$38.00	137.00	$137		$194
V	**14" X 10" Interior Sign**	15	20	each	38.00	$760.00	137.00	$2,740		$3,885
W	**10" X 17" Interior Sign**	16	1	each	38.00	$38.00	137.00	$137		$194
X	**10" X 17" Interior Sign**	17	2	each	38.00	$76.00	137.00	$274		$389
Y	**10" X 7" Interior Sign**	18	1	each	27.00	$27.00	45.00	$45		$80
Z	**10" X 7" Interior Sign**	19	1	each	27.00	$27.00	45.00	$45		$80
AA	**10" X 7" Interior Sign**	20	1	each	27.00	$27.00	45.00	$45		$80

PAINT MARKING AND SIGNAGE COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Sign No.*	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	**Labor/Equipment Unit $	**Labor/Equipment TOTAL $ $	Unit Total Unit Cost	Total Labor and Materials $
AB	**10" X 7" Interior Sign**	21	1	each	27.00	$27.00	45.00	$45		$80
AC	**10" X 17" Interior Sign**	22	1	each	38.00	$38.00	137.00	$137		$194
AD	**10" X 17" Interior Sign**	23	1	each	38.00	$38.00	137.00	$137		$194
	SUB-TOTAL:					**$4,001.00**		**$9,362**		**$14,833**
	TOTAL PAINT MARKING AND SIGNAGE					**$13,379.88**		**$16,253.37**		**$35,870.36**

*For location of specific signs see drawing M-640 and specific drawing number.
** Means Cost Estimating 2005 - New York Labor Factor Applied

BRUSH SEAL COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity			Material					Total
		Amt	Length of brush	**Unit	Unit $	Total $	***LABOR	Total $	Total Unit Cost	# Labor and Materials $
a.	90 degree angled "K" aluminum holder XTK1092CLA and Brush SFK130BL, 3.58" OAT, 3.00, .035" Black level nylon.	33	23.00"	4	45.89	$6,057.48	1053.6	$4,214.40		$13,127.46
b.	20% Spare Brushes and Holders	6	23.00"	4	45.89	$1,101.36		$0.00		$1,407.54
	TOTAL									**$14,535**

*Quote by SEALEZE on January 12th, 2005
**4 slot openings
***Includes 2 laborers and equipment.
Means Cost Estimating 2005, New York Labor Factor Applied

I&A EQUIPMENT COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
					0			0		0
02827	Swing Gate Operators	2	ea.	$ 15,572	$ 31,145			$ 7,714		$ 38,859
02890	Traffic Signals - Inbound Scale	4	ea.	$ 295	$ 1,180			$ 688		$ 1,868
	Traffic Signals - Outbound Scale	4	ea.	$ 360	$ 1,440			$ 750		$ 2,190
	Traffic Signals - Tipping Bay	6	ea.	$ 1,020	$ 6,120			$ 2,375		$ 8,495
10881	Vehicle Scales	2	ea.	$ 19,979	$ 39,957			$ 10,600		$ 50,557
13852	Radiation Detection Equipment	1	ea.	$ 62,642	$ 62,642			$ 8,718		$ 71,360
17210	Operator Workstation	3	ea.	$ 2,500	$ 7,500			$ -		$ 7,500
17212	PLC-01	1	ea.	$ 13,070	$ 13,070			$ 1,945		$ 15,015
	PLC-02	1	ea.	$ 13,365	$ 13,365			$ 2,385		$ 15,750
17213	Consoles - Foreman's Office	1	ea.	$ 52,300	$ 52,300			$ -		$ 52,300
	Consoles - Operations Room	1	ea.	$ 14,250	$ 14,250			$ -		$ 14,250
17230	HMI Software	3	ea.	$ 5,000	$ 15,000			$ -		$ 15,000
17250	Network Equipment	1	LS	$ 38,200	$ 38,200			$ 4,875		$ 43,075
17260	Laser Page Printer	1	ea.	$ 2,050	$ 2,050			$ -		$ 2,050
17270	Monitoring and Control Criteria	2	LS	$ 1,100	$ 2,200			$ 10,000		$ 12,200
17600	Control Strategies	1	LS	$ -	$ -			$ 24,000		$ 24,000

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DUST AND ODOR CONTROL COST ESTIMATE

New York City Department of Sanitation
Project**: DSNY MTS Conversion Project**
Date**: January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
					0			0		0
11560	Dust Suppression Systems (Complete)	1	Ea.		0			0	100,000	100,000
					0			0		0
13861	Odor Control Systems (Complete)	1	Ea.		0			0	80,000	80,000
					0			0		0
13861	Odor Control Chemical (55-Gallon Drums)	4	Ea.	800	3,200	0	0	0		3,200
					0			0		0
15081	Fiberglass Insulation				0			0		0
	- Dust Suppression Piping	3,320	LF	1.82	6,042	0.133	100	44,156		50,198
	- Odor Control Piping	320	LF	1.82	582	0.133	100	4,256		4,838
TOTAL					**10,000**			**48,000**	**180,000**	**238,000**

SERVICE WATER COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH per Unit	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
	SERVICE WATER SYSTEM									
11211	Package Service Water Pump System	1	ea	$ 40,000.00	$ 40,000	54.00	54.00	100.00	$ 5,400.00	$ 45,400
15054	2.5" Steel Pipe	400	lf	$ 18.54	$ 7,416	0.50	200.00	100.00	$ 20,000.00	$ 27,416
15054	3" Steel Pipe	120	lf	$ 23.40	$ 2,808	0.50	60.00	100.00	$ 6,000.00	$ 8,808
15054	4" Steel Pipe	280	lf	$ 36.60	$ 10,248	0.50	140.00	100.00	$ 14,000.00	$ 24,248
15058	100' Hose Reel Assemblies	9	ea	$ 1,700.00	$ 15,300	2.00	18.00	100.00	$ 1,800.00	$ 17,100
15058	100' Hoses with Couplings	9	ea	$ 232.80	$ 2,095				$ -	$ 2,095
15058	Hose Nozzles	9	ea	$ 253.00	$ 2,277				$ -	$ 2,277
15112	2.5" Gate Valves	1	ea	$ 940.00	$ 940	3.20	3.20	100.00	$ 320.00	$ 1,260
15112	3" Gate Valves	1	ea	$ 940.00	$ 940	3.50	3.50	100.00	$ 350.00	$ 1,290
15112	4" Gate Valves	1	ea	$ 1,375.00	$ 1,375	5.33	5.33	100.00	$ 533.00	$ 1,908
15112	Hosebibs/Valves	10	ea	$ 383.00	$ 3,830	0.50	5.00	100.00	$ 500.00	$ 4,330
15081	Cellular Glass Insulation - 2.5" Piping	400	lf	$ 2.92	$ 1,168	0.15	60.80	100.00	$ 6,080.00	$ 7,248
15081	Cellular Glass Insulation - 3" Piping	120	lf	$ 6.60	$ 792	0.20	24.00	100.00	$ 2,400.00	$ 3,192
15081	Cellular Glass Insulation - 4" Piping	280	lf	$ 7.37	$ 2,064	0.25	68.88	100.00	$ 6,888.00	$ 8,952
	TOTAL				**$ 92,000**	**71**	**643**		**$ 65,000**	**$ 156,000**

SERVICE WATER COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	LABOR MH per Unit	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
	BILGE WATER SYSTEM									
02081	Hydrant Coupler/Adapter	3	ea	$ 145.95	$ 438	0.50	1.50	100.00	$ 150.00	$ 588
02081	Cam and Groove Coupler/Adapter	3	ea	$ 104.70	$ 314	0.50	1.50	100.00	$ 150.00	$ 464
15051	4"x3" Reducer	3	ea	$ 94.00	$ 282	4.80	14.40	100.00	$ 1,440.00	$ 1,722
15051	4" 90 degree bends	3	ea	$ 71.00	$ 213	3.00	9.00	100.00	$ 900.00	$ 1,113
15112	3" Gate Valves	3	ea	$ 940.00	$ 2,820	3.50	10.50	100.00	$ 1,050.00	$ 3,870
15051	4" DI Pipe	380	lf	$ 14.16	$ 5,381	0.50	190.00	100.00	$ 19,000.00	$ 24,381
15054	2" Steel Pipe	40	lf	$ 16.02	$ 641	0.50	20.00	100.00	$ 2,000.00	$ 2,641
15112	2" Gate Valves	2	ea	$ 570.00	$ 1,140	1.00	2.00	100.00	$ 200.00	$ 1,340
15112	4" Gate Valves	1	ea	$ 1,375.00	$ 1,375	5.33	5.33	100.00	$ 533.00	$ 1,908
15081	Cellular Glass Insulation - 4" Piping	380	lf	$ 7.37	$ 2,801	0.25	93.48	100.00	$ 9,348.00	$ 12,149
15081	Cellular Glass Insulation - 2" Piping	40	lf	$ 2.92	$ 117	0.15	6.08	100.00	$ 608.00	$ 725
	TOTAL				**$ 16,000**	**20**	**354**		**$ 36,000**	**$ 51,000**

HEAT TRACING COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit	Total Labor and Materials $
	HTS-01 under Contract 1G									
	Heat tracing control panel HTS-01				$ 25,000	24.000	$ 85.00	$ 2,040		$ 27,040
	Self regulating heat trace cable, 240V, 3 W/ft (up to and incl 4")	5,760	LF	$ 4.65	$ 26,784	0.167	$ 85.00	$ 81,763	$ 19	$ 108,547
	Self regulating heat trace cable, 240V, 5 W/ft (<4")	1,350	LF	$ 4.95	$ 6,683	0.167	$ 85.00	$ 19,163	$ 19	$ 25,846
	Power termination kit	26	EA	$ 24.00	$ 624	1.000	$ 85.00	$ 2,210	$ 109	$ 2,834
	End termination	20	EA	$ 4.00	$ 80	0.250	$ 85.00	$ 425	$ 25	$ 505
	Splice kit	20	EA	$ 5.00	$ 100	0.500	$ 85.00	$ 850	$ 48	$ 950
	RTD, right angle	18	EA	$ 60.00	$ 1,080	0.500	$ 85.00	$ 765	$ 103	$ 1,845
	Warning label	520	EA	$ 1.50	$ 780	0.050	$ 85.00	$ 2,210	$ 6	$ 2,990
	Instrumentation cable, 600V Cu, #16, 3/C shielded twisted	50	CLF	$ 47.00	$ 2,350	1.000	$ 85.00	$ 4,250	$ 132	$ 6,600
	#10 XHHW 600V Cu wire	50	CLF	$ 14.75	$ 738	0.800	$ 85.00	$ 3,400	$ 83	$ 4,138
	3/4" RGS, PVC coated conduit	6,000	LF	$ 4.70	$ 28,200	0.143	$ 85.00	$ 72,930	$ 17	$ 101,130
	Junction boxes	24	EA	$ 108.00	$ 2,592	1.125	$ 85.00	$ 2,295	$ 204	$ 4,887
	Miscellaneous electrical, 10% of conduit and wire costs				$ 3,129			$ 8,058		$ 11,187
	HTS-01 Total (Rounded up to nearest $1,000)									**$ 299,000**
	HTS-02 under Contract 1P									
	Heat tracing control panel HTS-02				$ 25,000	48.000	$ 85.00	$ 4,080		$ 29,080
	Self regulating heat trace cable, 240V, 3 W/ft	3,220	LF	$ 4.65	$ 14,973	0.167	$ 85.00	$ 45,708	$ 19	$ 60,681
	Self regulating heat trace cable, 240V, 5 W/ft	2,130	LF	$ 4.95	$ 10,544	0.167	$ 85.00	$ 30,235	$ 19	$ 40,779
	Power termination kit	40	EA	$ 24.00	$ 960	1.000	$ 85.00	$ 3,400	$ 109	$ 4,360
	End termination	20	EA	$ 4.00	$ 80	0.250	$ 85.00	$ 425	$ 25	$ 505
	Splice kit	20	EA	$ 5.00	$ 100	0.500	$ 85.00	$ 850	$ 48	$ 950
	RTD, right angle	20	EA	$ 60.00	$ 1,200	0.500	$ 85.00	$ 850	$ 103	$ 2,050
	Warning label	470	EA	$ 1.50	$ 705	0.050	$ 85.00	$ 1,998	$ 6	$ 2,703
	Instrumentation cable, 600V Cu, #16, 3/C shielded twisted	55	CLF	$ 47.00	$ 2,585	1.000	$ 85.00	$ 4,675	$ 132	$ 7,260
	#10 XHHW 600V Cu wire	55	CLF	$ 14.75	$ 811	0.800	$ 85.00	$ 3,740	$ 83	$ 4,551
	3/4" RGS, PVC coated conduit	6,600	LF	$ 4.70	$ 31,020	0.143	$ 85.00	$ 80,223	$ 17	$ 111,243
	Junction boxes	26	EA	$ 108.00	$ 2,808	1.125	$ 85.00	$ 2,486	$ 204	$ 5,294
	Miscellaneous electrical, 10% of conduit and wire costs				$ 3,442			$ 8,864		$ 12,305
	HTS-02 Total (Rounded up to nearest $1,000)									**$ 282,000**
	HTS-03 under Contract 1H									
	Heat tracing control panel HTS-03				$ 15,000	24.000	$ 85.00	$ 2,040		$ 17,040
	Self regulating heat trace cable, high temp., 240V, 20 W/ft	770	LF	$ 13.50	$ 10,395	0.167	$ 85.00	$ 10,930	$ 28	$ 21,325
	Power termination kit, high temp., w/ junction box	9	EA	$ 86.79	$ 781	1.000	$ 85.00	$ 765	$ 172	$ 1,546
	End termination, high temp.	9	EA	$ 9.38	$ 84	0.250	$ 85.00	$ 191	$ 31	$ 276
	Moisture sensor	1	EA	$ 250.00	$ 250	2.000	$ 85.00	$ 170	$ 420	$ 420
	Warning label	18	EA	$ 1.50	$ 27	0.050	$ 85.00	$ 77	$ 6	$ 104
	Control cable, 600V Cu, #14 THWN w/ PVC jacket, 4/C	3	CLF	$ 24.50	$ 74	1.143	$ 85.00	$ 291	$ 122	$ 365
	#10 XHHW 600V Cu wire	76	CLF	$ 14.75	$ 1,121	0.800	$ 85.00	$ 5,168	$ 83	$ 6,289
	3/4" RGS, PVC coated conduit	2,600	LF	$ 4.70	$ 12,220	0.143	$ 85.00	$ 31,603	$ 17	$ 43,823
	Junction boxes	11	EA	$ 108.00	$ 1,188	1.125	$ 85.00	$ 1,052	$ 204	$ 2,240
	Miscellaneous electrical, 10% of conduit and wire costs				$ 1,341			$ 3,706		$ 5,048
	HTS-03 Total (Rounded up to nearest $1,000)									**$ 99,000**

MARINE EQUIPMENT COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material + Fab Labor Unit $	Material + Fab Labor Total $	Equipment Installation Labor LABOR MH/UNIT	Equipment Installation Labor LABOR $/Hr	Equipment Installation Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
	CAPSTANS	5	EA		$ -	48	$ 73.00	$ 17,520.00	$ 27,825.00	$ 156,645.00
	CT WINCH SYSTEM	2	EA		$ -	60	$ 73.00	$ 8,760.00	$ 131,775.00	$ 272,310.00
	CLEATS	13	EA			16	$ 73.00	$ 15,184.00	$ 728.00	$ 24,648.00
	BOLLARDS	3	EA			24	$ 73.00	$ 5,256.00	$ 4,622.00	$ 19,122.00
	HORIZ GUIDE SHEAVE	2	EA			24	$ 73.00	$ 3,504.00	$ 1,600.00	$ 6,704.00
	FOUR ROLLER FAIRLEAD	2	EA			24	$ 73.00	$ 3,504.00	$ 6,300.00	$ 16,104.00
	CRANE BUMPERS (ENDS OF PIER)	4	EA	$ 4,500.00	$ 18,000.00	40	$ 73.00	$ 11,680.00		$ 29,680.00
	CRANE TIEDOWN PADEYES	24	EA	$ 675.00	$ 16,200.00	8	$ 73.00	$ 14,016.00		$ 30,216.00
	SHUTTLE CAR EMER HNDLG GEAR	1	SET	$ 1,300.00	$ 1,300.00	8	$ 73.00	$ 584.00		$ 1,884.00
	SHUTTLE CAR BUMPERS	8	EA	$ 1,970.00	$ 15,760.00	8	$ 73.00	$ 4,672.00		$ 20,432.00
	Grand Totals:									$ 577,745.00

SPARE EQUIPMENT COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
	CAPSTANS	2	EA		$ -				$ 27,825.00	$ 55,650.00
	CT WINCH SYSTEM	2	EA		$ -				$ 131,775.00	$ 263,550.00
	CLEATS	2	EA						$ 728.00	$ 1,456.00
	BOLLARDS	2	EA						$ 4,622.00	$ 9,244.00
	HORIZ GUIDE SHEAVE	2	EA						$ 1,600.00	$ 3,200.00
	FOUR ROLLER FAIRLEAD	2	EA						$ 6,300.00	$ 12,600.00
	Grand Totals:									$ 345,700.00

GANTRY CRANE COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material + Fab Labor Unit $	Material + Fab Labor Total $	Equipment Installation Labor LABOR MH/UNIT	Equipment Installation Labor LABOR $/Hr	Equipment Installation Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
	GANTRY CRANES	2	EA		$ -			$ -	$ 3,000,000.00	$ 6,000,000.00
	GANTRY CRANE INSTALLATION	2	EA		$ -			$ -	$ 200,000.00	$ 400,000.00
	ELEC POWER CONDUCTOR (CRANES)	1	SET	$ 45,000.00	$ 45,000.00			$ 40,000.00		$ 85,000.00
	LIMIT SWITCH CAM INSTALLATION (FACILITY)	1	SET	$ 2,500.00	$ 2,500.00			$ 5,000.00	*	$ 7,500.00

Grand Totals: $ 6,492,500.00

* Min order of four (4) cranes
Delivered, Tested and Certified

ENVIRONMENTAL CLEANUP COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
1	Mobilization/Demobilization	1	LS		0			0	10000	10000
2	Equipment Removal	1	LS		0			0	24000	24000
3	Lead- and Cadmium-in-Paint/Bird Excrement Removal	1	LS		0			0	35000	35000
4	Abatement, Transportation, and Disposal of Asbestos-Containing Material	1	LS		0			0	8000	8000
5	Contractor's Air Monitoring	1	LS		0			0	45000	45000
6	Material Handling, Transportation, and Disposal (excludes demolition debris)	1	LS		0			0	10000	10000
7	Impacted Soil Handling	1	LS		0			0	21000	21000
								Total Cost	153000	153000

"YELLOW" EQUIPMENT COST ESTIMATE

New York City Department of Sanitation | Description: Dec **2004 Drawings**
Project: **DSNY MTS Conversion Project** | **3rd Prefinal Submittal**
Date: **January-05** | Station: **North Shore**

Caterpillar 966G Series II WHA	**$312,140**	8	4	**12**	**$3,745,680**
John Deere 744J WHA	**$420,500**				**$5,046,000**
Tamping Excavators:					
Caterpillar 325CL	$522,095	4	4	**8**	
Modifications:					
Total	**$522,095**				**$4,176,760**
John Deere 270C LC	217300				
Modifications:	$74,200				
Total	**$291,500**				**$2,332,000**
Skid Steer:					
Caterpillar 262	**$83,119**	4	0	**4**	**$332,476**
John Deere 328	**$40,000**				**$160,000**
Compact Wheel Loader:					
Caterpillar 908	**$154,912**	4	0	**4**	**$619,648**
John Deere 304J	**$100,000**				**$400,000**
Utility Vehicle:					
John Deere Gator HPX 4x4 (diesel)	**$16,200**	4	0	**4**	**$64,800**
Fuel Tank Truck:					
Mack Granite Single Axle Chassis	**$80,000**	2	1	**3**	
Body/Tank and Appurtences	**$70,000**				
Total	**$150,000**				**$450,000**
Tractor with Hydraulic Gooseneck Flatbed and I-Beam Trailers:					
Mack CV713	**$115,000**	1	0	**1**	
65-Ton Hyd. Gooseneck Flatbed	**$100,000**				
65-Ton Hyd. Gooseneck I-Beam	**$100,000**				
Total	**$315,000**				**$315,000**
Vacuum Sweeper:					
Johnston CN100	**$75,000**	4	0	**4**	**$300,000**
Vacuum Truck:					
Keith Huber Dominator with GMC 5500 Chassis	**$121,000**	2	0	**2**	**$242,000**
7,000 Pound Forklift:					
Yale GDC-70-LJ (diesel)	**$40,000**	4	0	**4**	**$160,000**
4,000 Pound Pallet Truck:					
Yale MPB040-E	**$6,500**	4	0	**4**	**$26,000**
Scissor Lift:					
Genie GS-4390 RT	**$79,000**	4	0	**4**	**$316,000**
Self Propelled Boom Lift (Bucket Lift):					
Genie S-60	**$139,000**	4	0	**4**	**$556,000**
Diesel Hydraulic Power Cart:					
Pierce Pacific Custom	**$70,000**	4	0	**4**	**$280,000**

HVAC COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor MH	Labor $/Hr	Labor TOTAL $	Total Labor and Materials $
	HEATING AND VENTILATION						$ 82.00		
	FANS								
	31,900 CFM, 25 hp, D-SAF-1,3,5	3	ea	$10,200	$ 30,600	60.00	$ 82.00	$ 14,760	$ 45,360
	31,900 CFM, 30 hp, D-SAF-2,4,6	3	ea	$ 9,500	$ 28,500	60.00	$ 82.00	$ 14,760	$ 43,260
	17,270 CFM, 25 hp, D-SAF-7	1	ea	$ 9,740	$ 9,740	50.00	$ 82.00	$ 4,100	$ 13,840
	47,700 CFM, 40 hp, D-SAF-8	1	ea	$16,120	$ 16,120	60.00	$ 82.00	$ 4,920	$ 21,040
	1,800 CFM, .75 hp, D-SAF-9	1	ea	$ 1,290	$ 1,290	8.00	$ 82.00	$ 656	$ 1,946
	10,000 CFM, 5 hp, D-SAF-10	1	ea	$ 7,300	$ 7,300	10.00	$ 82.00	$ 820	$ 8,120
	600 CFM, 0.33 hp, D-SAF-15	1	ea	$ 1,320	$ 1,320	8.00	$ 82.00	$ 656	$ 1,976
	38,350 CFM, 20 hp, D-EAF-1, 2, 4, 6	4	ea	$12,500	$ 50,000	50.00	$ 82.00	$ 16,400	$ 66,400
	30,350 CFM, 15 hp, D-EAF-3, 5	2	ea	$11,000	$ 22,000	30.00	$ 82.00	$ 4,920	$ 26,920
	18,170 CFM, 25 hp, D-EAF-7	1	ea	$ 8,900	$ 8,900	50.00	$ 82.00	$ 4,100	$ 13,000
	50,200 CFM, 40 hp, D-EAF-8	1	ea	$14,700	$ 14,700	60.00	$ 82.00	$ 4,920	$ 19,620
	1,800 CFM, 1 hp, D-EAF-9	1	ea	$ 785	$ 785	8.00	$ 82.00	$ 656	$ 1,441
	10,000 CFM, 5 hp, D-EAF-10	1	ea	$ 7,300	$ 7,300	8.00	$ 82.00	$ 656	$ 7,956
	250 CFM, .33 hp, D-EAF-11	1	ea	$ 1,200	$ 1,200	8.00	$ 82.00	$ 656	$ 1,856
	100 CFM, .25 hp, D-EAF-12	1	ea	$ 1,050	$ 1,050	8.00	$ 82.00	$ 656	$ 1,706
	4,925 3 hp, D-EAF-13	1	ea	$ 5,400	$ 5,400	6.00	$ 82.00	$ 492	$ 5,892
	16,000 CFM, 10 hp, D-EAF-14	1	ea	$ 7,600	$ 7,600	13.00	$ 82.00	$ 1,066	$ 8,666
	200 CFM, 1/6 hp, D-EAF-15	1	ea	$ 600	$ 600	4.00	$ 82.00	$ 328	$ 928
	1930 CFM, 1.5 hp, D-RAF-1	1	ea	$ 1,270	$ 1,270	8.00	$ 82.00	$ 656	$ 1,926
	1425 CFM, 0.75 hp, D-RAF-2	1	ea	$ 1,230	$ 1,230	8.00	$ 82.00	$ 656	$ 1,886
	2250 CFM, 1.5 hp, D-RAF-4	1	ea	$ 1,270	$ 1,270	8.00	$ 82.00	$ 656	$ 1,926
	2300 CFM, 1.5 hp, D-RAF-5	1	ea	$ 1,310	$ 1,310	8.00	$ 82.00	$ 656	$ 1,966
	6500 CFM, 5 hp, D-RAF-6	1	ea	$ 2,490	$ 2,490	8.00	$ 82.00	$ 656	$ 3,146
	BALANCE FANS	31	ea		$ -	1.00	$ 430.00	$ 13,330	$ 13,330
								Subtotal	**$ 314,107**
	HVAC UNITS								
	4825 CFM, W/GAS, D-ACU-1	1	ea	$18,000	$ 18,000	18.00	$ 82.00	$ 1,476	$ 19,476
	2250 CFM, W/GAS, D-ACU-2	1	ea	$15,145	$ 15,145	16.00	$ 82.00	$ 1,312	$ 16,457
	2300 CFM, W/GAS, D-ACU-3	1	ea	$15,000	$ 15,000	16.00	$ 82.00	$ 1,312	$ 16,312
	800 CFM, ELEC., D-ACU-4	1	ea	$ 3,000	$ 3,000	12.00	$ 82.00	$ 984	$ 3,984
	2400 CFM, ELEC., D-ACU-5	1	ea	$ 2,800	$ 2,800	14.00	$ 82.00	$ 1,148	$ 3,948
	25 Ton, D-ACC-1	1	ea	$ 8,260	$ 8,260	68.00	$ 82.00	$ 5,576	$ 13,836
	6 Ton, D-ACC-2	1	ea	$ 1,500	$ 1,500	30.00	$ 82.00	$ 2,460	$ 3,960
	5 Ton, D-ACC-3	1	ea	$ 1,100	$ 1,100	26.00	$ 82.00	$ 2,132	$ 3,232
	6 Ton, D-ACC-5	1	ea	$ 1,300	$ 1,300	28.00	$ 82.00	$ 2,296	$ 3,596
	1675 CFM, 4 Ton, D-RTU-2	1	ea	$ 3,000	$ 3,000	26.00	$ 82.00	$ 2,132	$ 5,132
	6500 CFM, W/GAS, D-HVU-1	1	ea	$12,150	$ 12,150	16.00	$ 82.00	$ 1,312	$ 13,462
	6700 CFM, W/GAS, D-HVU-2	1	ea	$12,150	$ 12,150	16.00	$ 82.00	$ 1,312	$ 13,462
	BALANCE HVAC UNITS	7	ea		$ -	1.00	$ 430.00	$ 3,010	$ 3,010
	BALANCE ROOFTOP UNITS	1	ea		$ -	1.00	$ 350.00	$ 350	$ 350
								Subtotal	**$ 120,217**
	ELECTRIC BASEBOARD HEATERS								
	2.2 kW, D-ECV-1	1	ea	$ 200	$ 200	2.00	$ 82.00	$ 164	$ 364
	2.2 kW, D-ECV-2	1	ea	$ 200	$ 200	2.00	$ 82.00	$ 164	$ 364
	2.2 kW, D-ECV-3	1	ea	$ 200	$ 200	2.00	$ 82.00	$ 164	$ 364
	2.2 kW, D-ECV-4	1	ea	$ 200	$ 200	2.00	$ 82.00	$ 164	$ 364
	2.2 kW, D-ECV-5	1	ea	$ 200	$ 200	2.00	$ 82.00	$ 164	$ 364
	2.2 kW, D-ECV-6	1	ea	$ 200	$ 200	2.00	$ 82.00	$ 164	$ 364
	2.2 kW, D-ECV-7	1	ea	$ 200	$ 200	2.00	$ 82.00	$ 164	$ 364
								Subtotal	**$ 2,548**
	ELECTRIC REHEAT COILS								
	3 kW, D-RHC-1	1	ea	$ 540	$ 540	1.25	$ 82.00	$ 103	$ 643
	2 kW, D-RHC-2	1	ea	$ 540	$ 540	1.25	$ 82.00	$ 103	$ 643
	1 kW, D-RHC-3	1	ea	$ 540	$ 540	1.25	$ 82.00	$ 103	$ 643
	7 kW, D-RHC-4	1	ea	$ 895	$ 895	1.33	$ 82.00	$ 109	$ 1,004
	7.5 kW, D-RHC-5	1	ea	$ 895	$ 895	1.33	$ 82.00	$ 109	$ 1,004
								Subtotal	**$ 3,936**
	DRAFT INDUCERS								
	D-DIF-1	1	ea	$ 6,200	$ 6,200	8.00	$ 82.00	$ 656	$ 6,856
	Breeching and Fittings for D-ACU-1,2,3 and D-HVU-1 and 2	1	lump	$ 4,000	$ 4,000	40.00	$ 82.00	$ 3,280	$ 7,280

HVAC COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
								Subtotal	**$ 14,136**
	HEAT TRACING								
	HEAT TRACING SYSTEM		lump					**Subtotal**	**$ -**
	VEHICLE EXHAUST SYSTEM								
	VEHICLE EXHAUST SYSTEM		lump					**Subtotal**	**$ 20,648**
	INFRARED GAS HEATERS								
	D-IFH-1	1	ea	$ 990	$ 990	4.00	$ 82.00	$ 328	$ 1,318
	D-IFH-2	1	ea	$ 990	$ 990	4.00	$ 82.00	$ 328	$ 1,318
	D-IFH-3	1	ea	$ 990	$ 990	4.00	$ 82.00	$ 328	$ 1,318
	D-IFH-4	1	ea	$ 990	$ 990	4.00	$ 82.00	$ 328	$ 1,318
	D-IFH-5	1	ea	$ 990	$ 990	4.00	$ 82.00	$ 328	$ 1,318
	D-IFH-6	1	ea	$ 990	$ 990	4.00	$ 82.00	$ 328	$ 1,318
								Subtotal	**$ 7,908**
	Ductwork for each System								
	Intake Plenums		lump					**Subtotal**	$ 74,840
	D-SAF-1-2								
	Number of Systems multiplier	*2*	lump						
								Subtotal	$ 72,860
								Subtotal w/multiplier	**$ 145,720**
	D-SAF-3-4								
	Number of Systems multiplier	*2*	lump						
								Subtotal	$ 74,258
								Subtotal w/multiplier	**$ 148,517**
	D-SAF-5-6								
	Number of Systems multiplier	*2*	lump						
								Subtotal	$ 76,466
								Subtotal w/multiplier	**$ 152,932**
	D-SAF-7		lump					**Subtotal**	$ 81,544
	D-SAF-8		lump					**Subtotal**	$ 159,947
	D-SAF-9		lump					**Subtotal**	$ 8,166
	D-SAF-10		lump					**Subtotal**	$ 14,385
	D-SAF-15		lump					**Subtotal**	$ 2,696
	D-EAF-1-2-4-6								
	Number of Systems multiplier	*4*	lump					**Subtotal**	$ 72,860
								Subtotal w/multiplier	**$ 291,440**
	D-EAF-3-5								
	Number of Systems multiplier	*2*	lump					**Subtotal**	$ 67,565
								Subtotal w/multiplier	**$ 135,129**
	D-EAF-7		lump					**Subtotal**	**$ 66,318**
	D-EAF-8		lump					**Subtotal**	**$ 115,723**
	D-EAF-9		lump					**Subtotal**	**$ 930**
	D-EAF-10		lump					**Subtotal**	**$ 16,019**
	D-EAF-11		lump					**Subtotal**	**$ 5,913**
	D-EAF-12		lump					**Subtotal**	**$ 5,172**
	D-EAF-13		lump					**Subtotal**	**$ 29,353**
	D-EAF-14		lump					**Subtotal**	**$ 57,403**
	D-EAF-15		lump					**Subtotal**	**$ 4,925**

HVAC COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
	D-EAF-16		lump					**Subtotal**	**$ 7,550**
	INTAKE, EXHAUST PLENUM AND DUCT		lump					**Subtotal**	**$ 92,340**
	D-ACU-1		lump					**Subtotal**	**$ 35,593**
	D-ACU-2		lump					**Subtotal**	**$ 35,528**
	D-ACU-3		lump					**Subtotal**	**$ 26,549**
	D-ACU-4		lump					**Subtotal**	**$ 6,517**
	D-ACU-5		lump					**Subtotal**	**$ 25,049**
	D-RTU-2		lump					**Subtotal**	**$ 8,889**
	D-HVU-1		lump					**Subtotal**	**$ 43,191**
	D-HVU-2		lump					**Subtotal**	**$ 21,477**
	D-RAF-1		lump					**Subtotal**	**$ 13,150**
	D-RAF-2		lump					**Subtotal**	**$ 5,666**
	D-RAF-4		lump					**Subtotal**	**$ 30,924**
	D-RAF-5		lump					**Subtotal**	**$ 19,646**
	D-RAF-6		lump					**Subtotal**	**$ 56,729**
	Fire Dampers avg size and price		lump					**Subtotal**	**$ 8,390**
	Fire Smoke/Dampers avg size and price		lump					**Subtotal**	**$ 6,040**
	Controls								
	DDC TEMPERATURE CONTROLS		lump					**Subtotal**	**$ 110,000**
	INCLUDES: WIRING TO TCP								
	CONVENTIONAL CONTROLS		lump					**Subtotal**	**$ 20,000**
	Control Dampers w/MOD		lump					**Subtotal**	**$ 7,788**
	AIR MONITORING SYSTEM								
	AIR MONITORING SYSTEM		lump					**Subtotal**	**$ 66,773**
								Sheet Total	**$ 2,648,354**

HVAC COST ESTIMATE

New York City Department of Sanitation		Description: Dec **2004 Drawings**	
Project**:**	**DSNY MTS Conversion Project**	**3rd Prefinal Submittal**	
Date**:**	**January-05**	Station: **North Shore**	

CSI		Quantity		Material			Labor			Total
#	**Description**	Amt	Unit	Unit $	Total $	TOTAL $ w/ 10% Profit	LABOR MH	LABOR $/Hr	LABOR TOTAL $	Labor and Materials $
								$ 82.00		
	Ductwork for each System									
	144"x96", 17.5' Plenum	2000	lb	$ 1.05	$ 2,100	$ 2,310	0.10	$ 82.00	$ 16,400	$ 18,710
	144"x96", 17.5' Plenum	2000	lb	$ 1.05	$ 2,100	$ 2,310	0.10	$ 82.00	$ 16,400	$ 18,710
	144"x96", 17.5' Plenum	2000	lb	$ 1.05	$ 2,100	$ 2,310	0.10	$ 82.00	$ 16,400	$ 18,710
	144"x96", 17.5' Plenum	2000	lb	$ 1.05	$ 2,100	$ 2,310	0.10	$ 82.00	$ 16,400	$ 18,710
									Subtotal	**$ 74,840**
	D-SAF-1-2									
	Number of Systems multiplier	*2*								
	28" dia Stainless Steel	56	ft	$ 44	$ 2,464	$ 2,710	0.83	$ 82.00	$ 3,811	$ 6,522
	38" dia Stainless Steel	40	ft	$ 71	$ 2,840	$ 3,124	1.00	$ 82.00	$ 3,280	$ 6,404
	52" dia Stainless Steel	160	ft	$ 122	$ 19,520	$ 21,472	1.46	$ 82.00	$ 19,155	$ 40,627
	52" dia elbow	6	ea	$ 610	$ 3,660	$ 4,026	10.00	$ 82.00	$ 4,920	$ 8,946
	40x12, Registers	13	ea	$ 650	$ 8,450	$ 9,295	1.00	$ 82.00	$ 1,066	$ 10,361
									Subtotal	$ 72,860
									Subtotal w/multiplier	**$ 145,720**
	D-SAF-3-4									
	Number of Systems multiplier	*2*								
	20" dia Stainless Steel	10	ft	$ 24	$ 240	$ 264	0.57	$ 82.00	$ 467	$ 731
	28" dia Stainless Steel	36	ft	$ 44	$ 1,584	$ 1,742	0.83	$ 82.00	$ 2,450	$ 4,193
	38" dia Stainless Steel	66	ft	$ 71	$ 4,686	$ 5,155	1.06	$ 82.00	$ 5,737	$ 10,891
	52" dia Stainless Steel	160	ft	$ 122	$ 19,520	$ 21,472	1.46	$ 82.00	$ 19,155	$ 40,627
	52" dia elbow	5	ea	$ 610	$ 3,050	$ 3,355	10.00	$ 82.00	$ 4,100	$ 7,455
	40x12, Registers	13	ea	$ 650	$ 8,450	$ 9,295	1.00	$ 82.00	$ 1,066	$ 10,361
									Subtotal	$ 74,258
									Subtotal w/multiplier	**$ 148,517**
	D-SAF-5-6									
	Number of Systems multiplier	*2*								
	28" dia Stainless Steel	36	ft	$ 44	$ 1,584	$ 1,742	0.83	$ 82.00	$ 2,450	$ 4,193
	38" dia Stainless Steel	44	ft	$ 71	$ 3,124	$ 3,436	1.06	$ 82.00	$ 3,824	$ 7,261
	52" dia Stainless Steel	180	ft	$ 122	$ 21,960	$ 24,156	1.46	$ 82.00	$ 21,550	$ 45,706
	52" dia elbow	6	ea	$ 610	$ 3,660	$ 4,026	10.00	$ 82.00	$ 4,920	$ 8,946
	40x12, Registers	13	ea	$ 650	$ 8,450	$ 9,295	1.00	$ 82.00	$ 1,066	$ 10,361
									Subtotal	$ 76,466
									Subtotal w/multiplier	**$ 152,932**
	D-SAF-7									
	14"x8" Stainless Steel	503	lb	$ 1.05	$ 528	$ 581	0.10	$ 82.00	$ 4,125	$ 4,706
	20"x20" Stainless Steel	320	lb	$ 1.05	$ 336	$ 370	0.10	$ 82.00	$ 2,624	$ 2,994
	34"x16" Stainless Steel	586	lb	$ 1.05	$ 615	$ 677	0.10	$ 82.00	$ 4,805	$ 5,482
	34"x26" Stainless Steel	879	lb	$ 1.05	$ 923	$ 1,015	0.10	$ 82.00	$ 7,208	$ 8,223
	18"x10" Stainless Steel	169	lb	$ 1.05	$ 177	$ 195	0.10	$ 82.00	$ 1,382	$ 1,576
	26"x12" Stainless Steel	229	lb	$ 1.05	$ 240	$ 264	0.10	$ 82.00	$ 1,876	$ 2,140
	30"x14" Stainless Steel	212	lb	$ 1.05	$ 223	$ 245	0.10	$ 82.00	$ 1,738	$ 1,983
	32"x16" Stainless Steel	914	lb	$ 1.05	$ 960	$ 1,056	0.10	$ 82.00	$ 7,495	$ 8,550
	24"x20" Stainless Steel	2014	lb	$ 1.05	$ 2,115	$ 2,326	0.10	$ 82.00	$ 16,515	$ 18,841
	36"x28" Stainless Steel	375	lb	$ 1.05	$ 394	$ 433	0.10	$ 82.00	$ 3,075	$ 3,508
	40"x36" Stainless Steel	445	lb	$ 1.05	$ 467	$ 514	0.10	$ 82.00	$ 3,649	$ 4,163
	40" dia Stainless Steel	70	ft	$ 71	$ 4,970	$ 5,467	1.06	$ 82.00	$ 6,084	$ 11,551
	40" dia elbow	3	ea	$ 355	$ 1,065	$ 1,172	6.50	$ 82.00	$ 1,599	$ 2,771
	Registers	8	ea	$ 500	$ 4,000	$ 4,400	1.00	$ 82.00	$ 656	$ 5,056
									Subtotal	$ 81,544
	D-SAF-8									
	7-36"x20" x2' Stainless Steel boots	270	lb	$ 1.05	$ 284	$ 312	0.10	$ 82.00	$ 2,214	$ 2,526
	14"x24" Stainless Steel	183	lb	$ 1.05	$ 192	$ 211	0.10	$ 82.00	$ 1,501	$ 1,712
	30"x24" Stainless Steel	325	lb	$ 1.05	$ 341	$ 375	0.10	$ 82.00	$ 2,665	$ 3,040
	36"x24" Stainless Steel	352	lb	$ 1.05	$ 370	$ 407	0.10	$ 82.00	$ 2,886	$ 3,293
	44"x24" Stainless Steel	398	lb	$ 1.05	$ 418	$ 460	0.10	$ 82.00	$ 3,264	$ 3,723
	48"x26" Stainless Steel	433	lb	$ 1.05	$ 455	$ 500	0.10	$ 82.00	$ 3,551	$ 4,051
	48"x32" Stainless Steel	2577	lb	$ 1.05	$ 2,706	$ 2,976	0.10	$ 82.00	$ 21,131	$ 24,108
	24" dia Stainless Steel	15	ft	$ 29	$ 435	$ 479	0.68	$ 82.00	$ 836	$ 1,315
	30" dia Stainless Steel	15	ft	$ 54	$ 810	$ 891	0.83	$ 82.00	$ 1,021	$ 1,912
	34" dia Stainless Steel	15	ft	$ 71	$ 1,065	$ 1,172	0.93	$ 82.00	$ 1,144	$ 2,315
	38" dia Stainless Steel	15	ft	$ 105	$ 1,575	$ 1,733	1.06	$ 82.00	$ 1,304	$ 3,036
	42" dia Stainless Steel	15	ft	$ 105	$ 1,575	$ 1,733	1.20	$ 82.00	$ 1,476	$ 3,209
	46" dia Stainless Steel	15	ft	$ 122	$ 1,830	$ 2,013	1.33	$ 82.00	$ 1,636	$ 3,649
	52" dia Stainless Steel	100	ft	$ 122	$ 12,200	$ 13,420	1.46	$ 82.00	$ 11,972	$ 25,392
	60" dia Stainless Steel	150	ft	$ 156	$ 23,400	$ 25,740	1.73	$ 82.00	$ 21,279	$ 47,019

HVAC COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Unit	Material Unit $	Material Total $	TOTAL $ w/ 10% Profit	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
	Registers 36x20	7	ea	$ 900	$ 6,300	$ 6,930	1.50	$ 82.00	$ 861	$ 7,791
	Registers 42x20	16	ea	$ 1,130	$ 18,080	$ 19,888	1.50	$ 82.00	$ 1,968	$ 21,856
									Subtotal	$ 159,947
	D-SAF-9									
	18" dia Stainless Steel	100	ft	$ 22	$ 2,200	$ 2,420	0.55	$ 82.00	$ 4,510	$ 6,930
	Registers	3	ea	$ 300	$ 900	$ 990	1.00	$ 82.00	$ 246	$ 1,236
									Subtotal	$ 8,166
	D-SAF-10									
	18"x22"Stainless Steel	96	lb	$ 1.05	$ 101	$ 111	0.10	$ 82.00	$ 787	$ 898
	24"x24"Stainless Steel	289	lb	$ 1.05	$ 303	$ 334	0.10	$ 82.00	$ 2,370	$ 2,704
	34"x26"Stainless Steel	700	lb	$ 1.05	$ 735	$ 809	0.10	$ 82.00	$ 5,740	$ 6,549
	42"x58"x10' Plenum	300	lb	$ 1.05	$ 315	$ 347	0.10	$ 82.00	$ 2,460	$ 2,807
	Registers	4	ea	$ 250	$ 1,000	$ 1,100	1.00	$ 82.00	$ 328	$ 1,428
									Subtotal	$ 14,385
	D-SAF-15									
	12"x12"Stainless Steel	250	lb	$ 1.05	$ 263	$ 289	0.10	$ 82.00	$ 2,050	$ 2,339
	Registers	1	ea	$ 250	$ 250	$ 275	1.00	$ 82.00	$ 82	$ 357
									Subtotal	$ 2,696
	D-EAF-1,2,4,6									
	Number of Systems multiplier	*4*								
	28" dia Stainless Steel	56	ft	$ 44	$ 2,464	$ 2,710	0.83	$ 82.00	$ 3,811	$ 6,522
	38" dia Stainless Steel	40	ft	$ 71	$ 2,840	$ 3,124	1.00	$ 82.00	$ 3,280	$ 6,404
	52" dia Stainless Steel	160	ft	$ 122	$ 19,520	$ 21,472	1.46	$ 82.00	$ 19,155	$ 40,627
	52" dia elbow	6	ea	$ 610	$ 3,660	$ 4,026	10.00	$ 82.00	$ 4,920	$ 8,946
	40x12, Registers	13	ea	$ 650	$ 8,450	$ 9,295	1.00	$ 82.00	$ 1,066	$ 10,361
									Subtotal	$ 72,860
									Subtotal w/multiplier	**$ 291,440**
	D-EAF-3,5									
	Number of Systems multiplier	*2*								
	34" dia Stainless Steel	20	ft	$ 44	$ 880	$ 968	0.83	$ 82.00	$ 1,361	$ 2,329
	46" dia Stainless Steel	25	ft	$ 71	$ 1,775	$ 1,953	1.00	$ 82.00	$ 2,050	$ 4,003
	52" dia Stainless Steel	150	ft	$ 122	$ 18,300	$ 20,130	1.46	$ 82.00	$ 17,958	$ 38,088
	52" dia elbow	3	ea	$ 610	$ 1,830	$ 2,013	10.00	$ 82.00	$ 2,460	$ 4,473
	48x30, Registers	12	ea	$ 1,340	$ 16,080	$ 17,688	1.00	$ 82.00	$ 984	$ 18,672
									Subtotal	$ 67,565
									Subtotal w/multiplier	**$ 135,129**
	D-EAF-7									
	20"x10" Stainless Steel	72	lb	$ 1.05	$ 76	$ 84	0.10	$ 82.00	$ 593	$ 676
	20"x20" Stainless Steel	289	lb	$ 1.05	$ 303	$ 334	0.10	$ 82.00	$ 2,369	$ 2,703
	24"x22" Stainless Steel	111	lb	$ 1.05	$ 116	$ 128	0.10	$ 82.00	$ 909	$ 1,037
	30"x24" Stainless Steel	130	lb	$ 1.05	$ 137	$ 150	0.10	$ 82.00	$ 1,066	$ 1,216
	36"x24" Stainless Steel	352	lb	$ 1.05	$ 370	$ 407	0.10	$ 82.00	$ 2,886	$ 3,293
	36"x26" Stainless Steel	726	lb	$ 1.05	$ 762	$ 839	0.10	$ 82.00	$ 5,953	$ 6,792
	36"x30" Stainless Steel	387	lb	$ 1.05	$ 406	$ 447	0.10	$ 82.00	$ 3,173	$ 3,620
	38"x30" Stainless Steel	1992	lb	$ 1.05	$ 2,092	$ 2,301	0.10	$ 82.00	$ 16,334	$ 18,635
	48"x30" Stainless Steel	1371	lb	$ 1.05	$ 1,440	$ 1,584	0.10	$ 82.00	$ 11,242	$ 12,826
	40" dia Stainless Steel	50	ft	$ 71	$ 3,550	$ 3,905	1.00	$ 82.00	$ 4,100	$ 8,005
	40" dia elbow	1	ea	$ 355	$ 355	$ 391	6.50	$ 82.00	$ 533	$ 924
	Grilles	16	ea	$ 300	$ 4,800	$ 5,280	1.00	$ 82.00	$ 1,312	$ 6,592
									Subtotal	$ 66,318
	D-EAF-8									
	30" dia Stainless Steel	10	ft	$ 29	$ 290	$ 319	0.68	$ 82.00	$ 558	$ 877
	40" dia Stainless Steel	10	ft	$ 48	$ 480	$ 528	0.87	$ 82.00	$ 713	$ 1,241
	48" dia Stainless Steel	25	ft	$ 71	$ 1,775	$ 1,953	1.06	$ 82.00	$ 2,173	$ 4,126
	52" dia Stainless Steel	20	ft	$ 122	$ 2,440	$ 2,684	1.46	$ 82.00	$ 2,394	$ 5,078
	60" dia Stainless Steel	235	ft	$ 156	$ 36,660	$ 40,326	1.73	$ 82.00	$ 33,337	$ 73,663
	68" dia Stainless Steel	40	ft	$ 190	$ 7,600	$ 8,360	2.00	$ 82.00	$ 6,560	$ 14,920
	60" dia elbow	4	ea	$ 780	$ 3,120	$ 3,432	8.00	$ 82.00	$ 2,624	$ 6,056
	Registers	12	ea	$ 665	$ 7,980	$ 8,778	1.00	$ 82.00	$ 984	$ 9,762

HVAC COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Material TOTAL $ w/ 10% Profit	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
									Subtotal	$ 115,723
	D-EAF-9									
		100	lb	$ 1	$ 100	$ 110	0.10	$ 82.00	$ 820	$ 930
									Subtotal	$ 930
	D-EAF-10									
	18"x22"Stainless Steel	96	lb	$ 1.05	$ 101	$ 111	0.10	$ 82.00	$ 787	$ 898
	24"x24"Stainless Steel	289	lb	$ 1.05	$ 303	$ 334	0.10	$ 82.00	$ 2,370	$ 2,704
	34"x26"Stainless Steel	703	lb	$ 1.05	$ 738	$ 812	0.10	$ 82.00	$ 5,765	$ 6,577
	42"x58"x10' Plenum	300	lb	$ 1.05	$ 315	$ 347	0.10	$ 82.00	$ 2,460	$ 2,807
	Grilles	4	ea	$ 615	$ 2,460	$ 2,706	1.00	$ 82.00	$ 328	$ 3,034
									Subtotal	$ 16,019
	D-EAF-11									
		500	lb	$ 1.05	$ 525	$ 578	0.10	$ 82.00	$ 4,100	$ 4,678
	Grilles	5	ea	$ 150	$ 750	$ 825	1.00	$ 82.00	$ 410	$ 1,235
									Subtotal	$ 5,913
	D-EAF-12									
		500	lb	$ 1.05	$ 525	$ 578	0.10	$ 82.00	$ 4,100	$ 4,678
	Grilles	2	ea	$ 150	$ 300	$ 330	1.00	$ 82.00	$ 164	$ 494
									Subtotal	$ 5,172
	D-EAF-13									
		2900	lb	$ 1.05	$ 3,045	$ 3,350	0.10	$ 82.00	$ 23,780	$ 27,130
	Registers	9	ea	$ 150	$ 1,350	$ 1,485	1.00	$ 82.00	$ 738	$ 2,223
									Subtotal	$ 29,353
	D-EAF-14									
	16"x24"Stainless Steel	183	lb	$ 1.05	$ 192	$ 211	0.10	$ 82.00	$ 1,501	$ 1,712
	24"x24"Stainless Steel	231	lb	$ 1.05	$ 243	$ 267	0.10	$ 82.00	$ 1,894	$ 2,161
	32"x24"Stainless Steel	328	lb	$ 1.05	$ 344	$ 379	0.10	$ 82.00	$ 2,690	$ 3,068
	40"x24"Stainless Steel	375	lb	$ 1.05	$ 394	$ 433	0.10	$ 82.00	$ 3,075	$ 3,508
	50"x24"Stainless Steel	420	lb	$ 1.05	$ 441	$ 485	0.10	$ 82.00	$ 3,444	$ 3,929
	58"x24"Stainless Steel	2830	lb	$ 1.05	$ 2,972	$ 3,269	0.10	$ 82.00	$ 23,206	$ 26,475
	58"x40"x 10' Plenum	338	lb	$ 1.05	$ 355	$ 390	0.10	$ 82.00	$ 2,772	$ 3,162
	40" dia Stainless Steel	50	ft	$ 71	$ 3,550	$ 3,905	1.06	$ 82.00	$ 4,346	$ 8,251
	Registers	11	ea	$ 350	$ 3,850	$ 4,235	1.00	$ 82.00	$ 902	$ 5,137
									Subtotal	$ 57,403
	D-EAF-15									
		500	lb	$ 1.05	$ 525	$ 578	0.10	$ 82.00	$ 4,100	$ 4,678
	Registers	1	ea	$ 150	$ 150	$ 165	1.00	$ 82.00	$ 82	$ 247
									Subtotal	$ 4,925
	D-EAF-16									
	38"x18"Stainless Steel	410	lb	$ 1.05	$ 431	$ 474	0.10	$ 82.00	$ 3,362	$ 3,836
	28" dia Stainless Steel	20	ft	$ 44	$ 880	$ 968	0.83	$ 82.00	$ 1,361	$ 2,329
	Grilles	2	ea	$ 555	$ 1,110	$ 1,221	1.00	$ 82.00	$ 164	$ 1,385
									Subtotal	$ 7,550

HVAC COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Unit	Material Unit $	Material Total $	Material TOTAL $ w/ 10% Profit	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
								$ 82.00		
	Ductwork for each System									
	INTAKE PLENUM	1500	lb	$ 1.05	$ 1,575	$ 1,733	0.10	$ 82.00	$ 12,300	$ 14,033
	1.5" BOARD INSULATION	660	sf	$ 1.76	$ 1,162	$ 1,278	0.12	$ 82.00	$ 6,657	$ 7,935
									Subtotal	$ 21,967
	EXHAUST PLENUM	1200	lb	$ 1.05	$ 1,260	$ 1,386	0.10	$ 82.00	$ 9,840	$ 11,226
	1.5" BOARD INSULATION	800	sf	$ 1.76	$ 1,408	$ 1,549	0.12	$ 82.00	$ 8,069	$ 9,618
									Subtotal	$ 20,844
	INTAKE DUCT	4000	lb	$ 1.05	$ 4,200	$ 4,620	0.10	$ 82.00	$ 32,800	$ 37,420
	1.5" FRK INSULATION	2700	sf	$ 0.35	$ 945	$ 1,040	0.05	$ 82.00	$ 11,070	$ 12,110
									Subtotal	$ 49,530
	D-ACU-1, 5200 CFM, 25T	2800	lb	$ 1.05	$ 2,940	$ 3,234	0.10	$ 82.00	$ 22,960	$ 26,194
	DIFFUSERS	9	ea	$ 150	$ 1,350	$ 1,485	1.00	$ 82.00	$ 738	$ 2,223
	1.5" FRK INSULATION	1600	sf	$ 0.35	$ 560	$ 616	0.05	$ 82.00	$ 6,560	$ 7,176
									Subtotal	$ 35,593
	D-ACU-2, 2700 CFM, 6T	2750	lb	$ 1.05	$ 2,888	$ 3,176	0.10	$ 82.00	$ 22,550	$ 25,726
	DIFFUSERS	7	ea	$ 150	$ 1,050	$ 1,155	1.00	$ 82.00	$ 574	$ 1,729
	1.5" FRK INSULATION	1800	sf	$ 0.35	$ 630	$ 693	0.05	$ 82.00	$ 7,380	$ 8,073
									Subtotal	$ 35,528
	D-ACU-3, 1800 CFM, 5T	1800	lb	$ 1.05	$ 1,890	$ 2,079	0.10	$ 82.00	$ 14,760	$ 16,839
	LINEAR DIFFUSERS	15	ea	$ 200	$ 3,000	$ 3,300	1.20	$ 82.00	$ 1,476	$ 4,776
	1.5" FRK INSULATION	1100	sf	$ 0.35	$ 385	$ 424	0.05	$ 82.00	$ 4,510	$ 4,934
									Subtotal	$ 26,549
	D-ACU-4, 800 CFM, 2T	500	lb	$ 1.05	$ 525	$ 578	0.10	$ 82.00	$ 4,100	$ 4,678
	DIFFUSERS	2	ea	$ 150	$ 300	$ 330	1.00	$ 82.00	$ 164	$ 494
	1.5" FRK INSULATION	300	sf	$ 0.35	$ 105	$ 116	0.05	$ 82.00	$ 1,230	$ 1,346
									Subtotal	$ 6,517
	D-ACU-5, 2400 CFM, 6T	1800	lb	$ 1.05	$ 1,890	$ 2,079	0.10	$ 82.00	$ 14,760	$ 16,839
	DIFFUSERS	6	ea	$ 150	$ 900	$ 990	1.00	$ 82.00	$ 492	$ 1,482
	1.5" FRK INSULATION	1500	sf	$ 0.35	$ 525	$ 578	0.05	$ 82.00	$ 6,150	$ 6,728
									Subtotal	$ 25,049
	D-RTU-2, 1600 CFM, 4T	600	lb	$ 1.05	$ 630	$ 693	0.10	$ 82.00	$ 4,920	$ 5,613
	DIFFUSERS	6	ea	$ 150	$ 900	$ 990	1.00	$ 82.00	$ 492	$ 1,482
	1.5" FRK INSULATION	400	sf	$ 0.35	$ 140	$ 154	0.05	$ 82.00	$ 1,640	$ 1,794
									Subtotal	$ 8,889
	D-HVU-1	4300	lb	$ 1.05	$ 4,515	$ 4,967	0.10	$ 82.00	$ 35,260	$ 40,227
	DIFFUSERS	12	ea	$ 150	$ 1,800	$ 1,980	1.00	$ 82.00	$ 984	$ 2,964
									Subtotal	$ 43,191
	D-HVU-2									
	28" dia Stainless Steel	105	ft	$ 44	$ 4,620	$ 5,082	0.83	$ 82.00	$ 7,146	$ 12,228
	28" dia elbow	5	ea	$ 220	$ 1,100	$ 1,210	4.12	$ 82.00	$ 1,689	$ 2,899
	20" dia Stainless Steel	20	ft	$ 24	$ 480	$ 528	0.68	$ 82.00	$ 1,115	$ 1,643
	18" dia Stainless Steel	20	ft	$ 22	$ 440	$ 484	0.55	$ 82.00	$ 902	$ 1,386
	30x18, Registers	4	ea	$ 680	$ 2,720	$ 2,992	1.00	$ 82.00	$ 328	$ 3,320
									Subtotal	$ 21,477
	D-RAF-1									
		1300	lb	$ 1.05	$ 1,365	$ 1,502	0.10	$ 82.00	$ 10,660	$ 12,162
	DIFFUSERS	4	ea	$ 150	$ 600	$ 660	1.00	$ 82.00	$ 328	$ 988
									Subtotal	$ 13,150
	D-RAF-2									
		500	lb	$ 1.05	$ 525	$ 578	0.10	$ 82.00	$ 4,100	$ 4,678
	DIFFUSERS	4	ea	$ 150	$ 600	$ 660	1.00	$ 82.00	$ 328	$ 988
									Subtotal	$ 5,666
	D-RAF-4									
		3200	lb	$ 1.05	$ 3,360	$ 3,696	0.10	$ 82.00	$ 26,240	$ 29,936
	DIFFUSERS	4	ea	$ 150	$ 600	$ 660	1.00	$ 82.00	$ 328	$ 988
									Subtotal	$ 30,924
	D-RAF-5									
		2100	lb	$ 1.05	$ 2,205	$ 2,426	0.10	$ 82.00	$ 17,220	$ 19,646
									Subtotal	$ 19,646
	D-RAF-6									
		5800	lb	$ 1.05	$ 6,090	$ 6,699	0.10	$ 82.00	$ 47,560	$ 54,259

HVAC COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Material TOTAL $ w/ 10% Profit	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
	DIFFUSERS	10	ea	$ 150	$ 1,500	$ 1,650	1.00	$ 82.00	$ 820	$ 2,470
									Subtotal	$ 56,729
	Control Dampers w/MOD	22	ea	$ 210	$ 4,620	$ 5,082	1.50	$ 82.00	$ 2,706	$ 7,788
	Fire Dampers avg size and price	51	ea	$ 75	$ 3,825	$ 4,208	1.00	$ 82.00	$ 4,182	$ 8,390
	Fire Smoke/Dampers avg size and price	20	ea	$ 200	$ 4,000	$ 4,400	1.00	$ 82.00	$ 1,640	$ 6,040
	D-VES-1									
	Exhaust System Quote	1	lump	$ 14,000	$ 14,000	$ 15,400	-	$ 82.00	$ -	$ 15,400
	Mechanical Labor	1	lump	$ -	$ -	$ -	64.00	$ 82.00	$ 5,248	$ 5,248
									Subtotal	$ 20,648

HVAC COST ESTIMATE

New York City Department of Sanitation
Project**: DSNY MTS Conversion Project**
Date**: January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Material TOTAL $ w/ 10% Profit	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
								$ 82.00		
	DDC Points for each System									
	D-OIT	1	Points	$ 500	$ 500		-	$ -	$ -	$ 500
	D-DIF	1	Points	$ 500	$ 500		-	$ -	$ -	$ 500
	D-FACP	1	Points	$ 500	$ 500		-	$ -	$ -	$ 500
	D-ACU-1	17	Points	$ 500	$ 8,500		-	$ -	$ -	$ 8,500
	D-EAF-13	8	Points	$ 500	$ 4,000		-	$ -	$ -	$ 4,000
	D-ACC-1	4	Points	$ 500	$ 2,000		-	$ -	$ -	$ 2,000
	D-ACU-2	17	Points	$ 500	$ 8,500		-	$ -	$ -	$ 8,500
	D-RAF-4	8	Points	$ 500	$ 4,000		-	$ -	$ -	$ 4,000
	D-ACC-2	3	Points	$ 500	$ 1,500		-	$ -	$ -	$ 1,500
	D-ACU-3	17	Points	$ 500	$ 8,500		-	$ -	$ -	$ 8,500
	D-RAF-5	8	Points	$ 500	$ 4,000		-	$ -	$ -	$ 4,000
	D-ACC-3	3	Points	$ 500	$ 1,500		-	$ -	$ -	$ 1,500
	D-ACU-4	7	Points	$ 500	$ 3,500		-	$ -	$ -	$ 3,500
	D-ACU-5	11	Points	$ 500	$ 5,500		-	$ -	$ -	$ 5,500
	D-RAF-1	8	Points	$ 500	$ 4,000		-	$ -	$ -	$ 4,000
	D-EAF-12	4	Points	$ 500	$ 2,000		-	$ -	$ -	$ 2,000
	D-ACC-5	3	Points	$ 500	$ 1,500		-	$ -	$ -	$ 1,500
	D-RTU-2	21	Points	$ 500	$ 10,500		-	$ -	$ -	$ 10,500
	D-RAF-2	8	Points	$ 500	$ 4,000		-	$ -	$ -	$ 4,000
	D-EAF-11	4	Points	$ 500	$ 2,000		-	$ -	$ -	$ 2,000
	D-HVU-1	17	Points	$ 500	$ 8,500		-	$ -	$ -	$ 8,500
	D-RAF-6	3	Points	$ 500	$ 1,500		-	$ -	$ -	$ 1,500
	D-HVU-2	17	Points	$ 500	$ 8,500		-	$ -	$ -	$ 8,500
	D-EAF-16	3	Points	$ 500	$ 1,500		-	$ -	$ -	$ 1,500
	D-SAF-10	8	Points	$ 500	$ 4,000		-	$ -	$ -	$ 4,000
	D-EAF-10	8	Points	$ 500	$ 4,000		-	$ -	$ -	$ 4,000
	D-EAF-15	5	Points	$ 500	$ 2,500		-	$ -	$ -	$ 2,500
	D-SAF-15	5	Points	$ 500	$ 2,500		-	$ -	$ -	$ 2,500
		220	points						**Subtotal**	**$ 110,000**
	Conventional Controls									
	Misc Fans and Conventional Controls		lump		$ 10,000					$ 10,000
	OIT and TCP display		lump		$ 10,000					$ 10,000
									Subtotal	**$ 20,000**
	Air Monitoring									
	1" Conduit	1500	lf	$ 5	$ 7,500	$ 8,250	0.145	$ 85.00	$ 18,488	$ 26,738
	2/C#16 TWSH 4 cables each conduit	6000	lf	$ 0.4	$ 2,400	$ 2,640	0.0145	$ 85.00	$ 7,395	$ 10,035
	Vulcain System quote		lump							$ 30,000
									Subtotal	**$ 66,773**
	Heat Tracing									
	Heat tracing control panel HTS-03	1	ea	$ 24,000	$ 24,000	$ 26,400	24.000	$ 85.00	$ 2,040	$ 28,440
	Self regulating heat trace cable, high temp., 240V, 20 W/ft	770	LF	$ 13.50	$ 10,395	$ 11,435	0.167	$ 85.00	$ 10,930	$ 22,365
	Power termination kit, high temp., w/ junction box	9	EA	$ 86.79	$ 781	$ 859	1.000	$ 85.00	$ 765	$ 1,624
	End termination, high temp.	9	EA	$ 9.38	$ 84	$ 93	0.250	$ 85.00	$ 191	$ 284
	Moisture sensor	1	EA	$ 250.00	$ 250	$ 275	2.000	$ 85.00	$ 170	$ 445
	Warning label	18	EA	$ 1.50	$ 27	$ 30	0.050	$ 85.00	$ 77	$ 106

HVAC COST ESTIMATE

New York City Department of Sanitation
Project**: DSNY MTS Conversion Project**
Date**: January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Material TOTAL $ w/ 10% Profit	Labor LABOR MH	Labor LABOR $/Hr	Labor LABOR TOTAL $	Total Labor and Materials $
	Control cable, 600V Cu, #14 THWN w/ PVC jacket, 4/C	3	CLF	$ 24.50	$ 74	$ 81	1.143	$ 85.00	$ 291	$ 372
	#10 XHHW 600V Cu wire	76	CLF	$ 14.75	$ 1,121	$ 1,233	0.800	$ 85.00	$ 5,168	$ 6,401
	3/4" RGS, PVC coated conduit	2,600	LF	$ 4.70	$ 12,220	$ 13,442	0.143	$ 85.00	$ 31,603	$ 45,045
	Junction boxes	11	EA	$ 108.00	$ 1,188	$ 1,307	1.125	$ 85.00	$ 1,052	$ 2,359
	Miscellaneous electrical, 10% of conduit and wire costs				$ 1,341	$ 1,476			$ 3,706	$ 5,182
									Subtotal	**$ 112,623**

RAMP COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost $	Labor and Materials $
02240	Dewatering	90	Days	348	31350	24.00	77	165607	2188.413	196957
02316	Excavation	3793	CY	29	108480	0.30	69	78219	49.222	0
02330	Structural Backfill	1564	CY	27	42943	0.36	68	38540	52.099	0
02456	Pile Load Test	3	Ea						50000.000	150000
02364	Foundation Piles, 3'-0" Dia. & 51'-0" long in water	6120	LF						220.000	1346400
03300	Cast-in-place Concrete (including forms & reinf)									
	-Pile Caps (In Water)	1342	CY	265	355440	2.57	79	271265	466.993	626705
	-Pier Stems & Pier Caps (In Water)	951	CY	404	383990	3.93	78	291369	710.156	675359
	-Abutment	129	CY	404	52087	2.81	78	28235	622.652	80322
	-Box Girders Over Water (including falsework)	728	CY						2000.000	1456000
	-Road Deck (Elevated) w/Micro Silica Wear Surface	663	CY	977	647672	5.47	91	331860	1477.424	979532
	-Sidewalk, Parapet, Misc.	826	CY						900.000	743400
05820	Bridge Bearings	54	Ea	2104	113593	8.57	85	39475	2834.592	153068
05830	Bridge Expansion Joint Assemblies	315	Ft.	165	51818	6.40	75	151381	645.076	203199
					1787372			**1395952**		**6610942**

$ 6,610,941.63

FIRE PROTECTION COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

	QUANTITY		MATERIAL		LABOR			UNIT	TOTAL
Description	Amt	Unit	UNIT $	TOTAL $	LABOR MH	$/HR	TOTAL	TOTAL	LABOR & MAT
STEEL PIPE , GALV. (T & C)									
1"	4500	FT	$ 2.71	$ 12,195.00	0.178	$ 75.00	$ 60,075.00	$ 16.06	$ 72,270.00
1 1/4"	1100	FT	$ 3.52	$ 3,872.00	0.213	$ 75.00	$ 17,572.50	$ 19.50	$ 21,444.50
1 1/2"	1100	FT	$ 4.08	$ 4,488.00	0.232	$ 75.00	$ 19,140.00	$ 21.48	$ 23,628.00
2"	1000	FT	$ 5.34	$ 5,340.00	0.286	$ 75.00	$ 21,450.00	$ 26.79	$ 26,790.00
2 1/2"	150	FT	$ 8.69	$ 1,303.50	0.364	$ 75.00	$ 4,095.00	$ 35.99	$ 5,398.50
4"	2300	FT	$ 18.32	$ 42,136.00	0.615	$ 75.00	$ 106,087.50	$ 64.45	$ 148,223.50
STEEL PIPE BLACK (T & C)									
1"	1600	FT	$ 2.35	$ 3,760.00	0.18	$ 75.00	$ 21,600.00	$ 15.85	$ 25,360.00
1 1/4"	300	FT	$ 3.03	$ 909.00	0.18	$ 75.00	$ 4,050.00	$ 16.53	$ 4,959.00
1 1/2"	300	FT	$ 3.47	$ 1,041.00	0.2	$ 75.00	$ 4,500.00	$ 18.47	$ 5,541.00
2"	550	FT	$ 4.54	$ 2,497.00	0.25	$ 75.00	$ 10,312.50	$ 23.29	$ 12,809.50
2 1/2"	300	FT	$ 7.70	$ 2,310.00	0.32	$ 75.00	$ 7,200.00	$ 31.70	$ 9,510.00
4"	800	FT	$ 15.68	$ 12,544.00	0.444	$ 75.00	$ 26,640.00	$ 48.98	$ 39,184.00
INSULATION									
2"	275	FT	$ 4.54	$ 1,248.50	0.25	$ 75.00	$ 5,156.25	$ 23.29	$ 6,404.75
2 1/2"	150	FT	$ 7.70	$ 1,155.00	0.32	$ 75.00	$ 3,600.00	$ 31.70	$ 4,755.00
4"	400	FT	$ 15.68	$ 6,272.00	0.444	$ 75.00	$ 13,320.00	$ 48.98	$ 19,592.00
SPRINKLER HEADS									
PENDANT	93	EACH	$ 7.43	$ 690.99	0.8	$ 75.00	$ 5,580.00	$ 67.43	$ 6,270.99
FLUSH	776	EACH	$ 14.58	$ 11,314.08	0.8	$ 75.00	$ 46,560.00	$ 74.58	$ 57,874.08
SIDEWALL	52	EACH	$ 8.58	$ 446.16	0.8	$ 75.00	$ 3,120.00	$ 68.58	$ 3,566.16
VALVES									
6" RELIEF VALVE	1	EACH	$ 1,800.00	$ 1,800.00	17.78	$ 75.00	$ 1,333.50	$ 3,133.50	$ 3,133.50
1 1/2" GATE VALVE	2	EACH	$ 57.75	$ 115.50	0.615	$ 75.00	$ 92.25	$ 103.88	$ 207.75
2 1/2" GATE VALVE	5	EACH	$ 214.50	$ 1,072.50	3.2	$ 75.00	$ 1,200.00	$ 454.50	$ 2,272.50
4" GATE VALVE	13	EACH	$ 577.50	$ 7,507.50	5.333	$ 75.00	$ 5,199.68	$ 977.48	$ 12,707.18
6" GATE VALVE	2	EACH	$ 984.50	$ 1,969.00	8	$ 75.00	$ 1,200.00	$ 1,584.50	$ 3,169.00
6" CHECK VALVE	3	EACH	$ 2,777.40	$ 8,332.20	8	$ 75.00	$ 1,800.00	$ 3,377.40	$ 10,132.20
6" CHECK VALVE WITH 3/4" ABD VALVE	1	EACH	$ 2,900.00	$ 2,900.00	12	$ 75.00	$ 900.00	$ 3,800.00	$ 3,800.00
2" SPRK CONTROL VALVE ASSEMBLY	1	EACH	$ 1,292.00	$ 1,292.00	8	$ 75.00	$ 600.00	$ 1,892.00	$ 1,892.00
2 1/2" SPRK CONTROL VALVE ASSEMBLY	2	EACH	$ 1,375.00	$ 2,750.00	8	$ 75.00	$ 1,200.00	$ 1,975.00	$ 3,950.00
4" SPRK CONTROL VALVE ASSEMBLY	2	EACH	$ 1,622.50	$ 3,245.00	16	$ 75.00	$ 2,400.00	$ 2,822.50	$ 5,645.00
4" DRY VALVE ASSEMBLY	4	EACH	$ 2,530.00	$ 10,120.00	16	$ 75.00	$ 4,800.00	$ 3,730.00	$ 14,920.00
1 1/4" SPRK SYSTEM SUB VALVE ASSEMBLY	1	EACH	$ 400.00	$ 400.00	5	$ 75.00	$ 375.00	$ 775.00	$ 775.00
4" ALARM VALVE	1	EACH	$ 946.00	$ 946.00	8	$ 75.00	$ 600.00	$ 1,546.00	$ 1,546.00
PUMPS									
FIRE PUMP 750 GPM	1	EACH	##########	$ 37,000.00	89	$ 75.00	$ 6,675.00	$ 43,675.00	$ 43,675.00
JOCKEY PUMP 15 GPM	1	EACH	$ 5,000.00	$ 5,000.00	97	$ 75.00	$ 7,275.00	$ 12,275.00	$ 12,275.00
EQUIPMENT									
6" STRAINER	2	EACH	$ 3,000.00	$ 6,000.00	8	$ 75.00	$ 1,200.00	$ 3,600.00	$ 7,200.00
HOSE RACKS	13	EACH	$ 115.00	$ 1,495.00	1.5	$ 75.00	$ 1,462.50	$ 227.50	$ 2,957.50
TOTAL									**$ 623,838.61**

PLUMBING COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

Department: Plumbing	QUANTITY		MATERIAL		LABOR			UNIT	TOTAL
Description	Amt	unit	UNIT $	TOTAL	MH	$/HR	TOTAL	TOTAL $	LABOR & MAT.
PLUMBING									
COPPER PIPE TYPE "K"									
3/4"	650	ft	$ 3.32	$ 2,158.00	0.105	$ 75.00	$ 5,118.75	$ 11.20	$ 7,276.75
1"	350	ft	$ 4.37	$ 1,529.50	0.118	$ 75.00	$ 3,097.50	$ 13.22	$ 4,627.00
1 1/4"	150	ft	$ 5.40	$ 810.00	0.138	$ 75.00	$ 1,552.50	$ 15.75	$ 2,362.50
1 1/2"	150	ft	$ 7.15	$ 1,072.50	0.145	$ 75.00	$ 1,631.25	$ 18.03	$ 2,703.75
2"	1000	ft	$ 10.95	$ 10,950.00	0.19	$ 75.00	$ 14,250.00	$ 25.20	$ 25,200.00
2 1/2"	100	ft	$ 16.34	$ 1,633.50	0.258	$ 75.00	$ 1,935.00	$ 35.69	$ 3,568.50
3"	200	ft	$ 22.55	$ 4,510.00	0.286	$ 75.00	$ 4,290.00	$ 44.00	$ 8,800.00
4"	50	ft	$ 38.50	$ 1,925.00	0.41	$ 75.00	$ 1,537.50	$ 69.25	$ 3,462.50
STEEL PIPE, BLACK, T & C gas only									
1 1/4"	150	ft	$ 3.03	$ 453.75	0.18	$ 75.00	$ 2,025.00	$ 16.53	$ 2,478.75
1 1/2"	100	ft	$ 3.47	$ 346.70	0.2	$ 75.00	$ 1,500.00		$ 1,846.70
2"	100	ft	$ 4.54	$ 454.00	0.25	$ 75.00	$ 1,875.00	$ 23.29	$ 2,329.00
2 1/2"	50	ft	$ 7.70	$ 385.00	0.32	$ 75.00	$ 1,200.00	$ 31.70	$ 1,585.00
4	100	ft	$ 15.68	$ 1,567.50	0.444	$ 75.00	$ 3,330.00	$ 48.98	$ 4,897.50
STEEL PIPE, GALV, SCHED. 40 T & C vent only									
1 1/2"	150	ft	$ 4.08	$ 612.00	0.232	$ 75.00	$ 2,610.00	$ 21.48	$ 3,222.00
2"	200	ft	$ 5.34	$ 1,068.00	0.286	$ 75.00	$ 4,290.00	$ 26.79	$ 5,358.00
3"	400	ft	$ 11.22	$ 4,488.00	0.421	$ 75.00	$ 12,630.00	$ 42.80	$ 17,118.00
4"	700	ft	$ 18.32	$ 12,820.50	0.5	$ 75.00	$ 26,250.00	$ 55.82	$ 39,070.50
CAST IRON PIPE EXH. B & S									
2"	250	ft	$ 5.09	$ 1,273.25	0.254	$ 75.00	$ 4,762.50	$ 24.14	$ 6,035.75
3"	1250	ft	$ 6.99	$ 8,731.25	0.267	$ 75.00	$ 25,031.25	$ 27.01	$ 33,762.50
4"	1250	ft	$ 8.91	$ 11,137.50	0.291	$ 75.00	$ 27,281.25	$ 30.74	$ 38,418.75
6"	1750	ft	$ 18.15	$ 31,762.50	0.429	$ 75.00	$ 56,306.25	$ 50.33	$ 88,068.75
8"	200	ft	$ 28.38	$ 5,676.00	0.642	$ 75.00	$ 9,630.00	$ 76.53	$ 15,306.00
10"	300	ft	$ 138.16	$ 41,446.80	0.7	$ 75.00	$ 15,750.00	$ 190.66	$ 57,196.80
PIPE INSULATION									
3/4"	650	ft	$ 1.82	$ 1,183.00	0.133	$ 75.00	$ 6,483.75	$ 11.80	$ 7,666.75
1"	350	ft	$ 1.82	$ 637.00	0.133	$ 75.00	$ 3,491.25	$ 11.80	$ 4,128.25
1 1/4"	150	ft	$ 1.82	$ 273.00	0.133	$ 75.00	$ 1,496.25	$ 11.80	$ 1,769.25
1 1/2"	150	ft	$ 1.82	$ 273.00	0.133	$ 75.00	$ 1,496.25	$ 11.80	$ 1,769.25
2"	1250	ft	$ 2.92	$ 3,650.00	0.152	$ 75.00	$ 14,250.00	$ 14.32	$ 17,900.00
2 1/2"	100	ft	$ 2.92	$ 292.00	0.152	$ 75.00	$ 1,140.00	$ 14.32	$ 1,432.00
3"	1450	ft	$ 6.60	$ 9,570.00	0.2	$ 75.00	$ 21,750.00	$ 21.60	$ 31,320.00
4"	1750	ft	$ 7.37	$ 12,897.50	0.246	$ 75.00	$ 32,287.50	$ 25.82	$ 45,185.00
6"	1750	ft	$ 12.61	$ 22,071.00	0.42	$ 75.00	$ 55,125.00	$ 44.11	$ 77,196.00
8"	200	ft	$ 16.24	$ 3,247.20	0.5	$ 75.00	$ 7,500.00	$ 53.74	$ 10,747.20
10"	300	ft	$ 16.84	$ 5,050.80	0.6	$ 75.00	$ 13,500.00	$ 61.84	$ 18,550.80
CLEANOUTS (FLOOR TYPE)									
6"	43	each	$ 161.70	$ 6,953.10	2.67	$ 75.00	$ 8,610.75	$ 361.95	$ 15,563.85
CLEANOUTS (WALL TYPE)									
2"	3	each	$ 138.60	$ 415.80	0.571	$ 75.00	$ 128.48	$ 181.43	$ 544.28
4"	17	each	$ 160.60	$ 2,730.20	0.8	$ 75.00	$ 1,020.00	$ 220.60	$ 3,458.23
6"	31	each	$ 258.50	$ 8,013.50	1	$ 75.00	$ 2,325.00	$ 333.50	$ 9,873.50
VALVES									
BALL VALVES 150 psi, threaded									
3/4"	10	each	$ 12.71	$ 127.10	0.4	$ 75.00	$ 300.00	$ 42.71	$ 427.10
1"	3	each	$ 16.01	$ 48.03	0.421	$ 75.00	$ 94.73	$ 47.59	$ 142.76
1 1/4"	3	each	$ 18.87	$ 56.61	0.533	$ 75.00	$ 119.93	$ 58.85	$ 176.54
1 1/2"	1	each	$ 29.15	$ 29.15	0.615	$ 75.00	$ 46.13	$ 75.28	$ 75.28
2"	13	each	$ 36.30	$ 471.90	0.727	$ 75.00	$ 708.83	$ 90.83	$ 1,180.73
GATE VALVES 125 lb N.R.S.									
3"	5	each	$ 401.50	$ 2,007.50	2	$ 75.00	$ 750.00	$ 551.50	$ 2,757.50
4"	9	each	$ 577.50	$ 5,197.50	5.333	$ 75.00	$ 3,599.78	$ 977.48	$ 8,797.28
6"	1	each	$ 984.50	$ 984.50	8	$ 75.00	$ 600.00	$ 1,584.50	$ 1,584.50
CHECK VALVES									
3/4" check swing regrinding disk	2	each	$ 38.50	$ 77.00	0.4	$ 75.00	$ 60.00	$ 68.50	$ 137.00
3" silent check, bronze trim 150 lb	4	each	$ 275.00	$ 1,100.00	2	$ 75.00	$ 600.00	$ 425.00	$ 1,700.00
4" silent check, bronze trim 150 lb	6	each	$ 467.50	$ 2,805.00	3.2	$ 75.00	$ 1,440.00	$ 707.50	$ 4,245.00
PLUG VALVES. Threaded 200 psi									
3/4"	2	each	$ 67.65	$ 135.30	0.5	$ 75.00	$ 75.00	$ 105.15	$ 210.30
1 1/4"	6	each	$ 103.95	$ 623.70	0.633	$ 75.00	$ 284.99	$ 151.45	$ 908.69
1 1/2"	2	each	$ 112.20	$ 224.40	0.8	$ 75.00	$ 120.00	$ 172.20	$ 344.40
2"	2	each	$ 132.00	$ 264.00	1	$ 75.00	$ 150.00	$ 207.00	$ 414.00

PLUMBING COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

Department: Plumbing	QUANTITY		MATERIAL		LABOR			UNIT	TOTAL
Description	Amt	unit	UNIT $	TOTAL	MH	$/HR	TOTAL	TOTAL $	LABOR & MAT.
2 1/2"	1	each	$ 204.60	$ 204.60	3.2	$ 75.00	$ 240.00	$ 444.60	$ 444.60
FLOOR DRAINS									
3" FD-A	8	each	$ 179.30	$ 1,434.40	2	$ 75.00	$ 1,200.00	$ 329.30	$ 2,634.40
4" FD-B	16	each	$ 200.00	$ 3,200.00	2.3	$ 75.00	$ 2,760.00	$ 372.50	$ 5,960.00
6" FD-C	31	each	$ 225.00	$ 6,975.00	2.75	$ 75.00	$ 6,393.75	$ 431.25	$ 13,368.75
6" FD-D	4	each	$ 280.00	$ 1,120.00	3	$ 75.00	$ 900.00	$ 505.00	$ 2,020.00
6" RD	6	each	$ 500.00	$ 3,000.00	3.2	$ 75.00	$ 1,440.00	$ 740.00	$ 4,440.00
8" RD	6	each	$ 660.00	$ 3,960.00	5.333	$ 75.00	$ 2,399.85	$ 1,059.98	$ 6,359.85
4" FFD-E	1	each	$ 225.00	$ 225.00	1.666	$ 75.00	$ 124.95	$ 349.95	$ 349.95
6" FFD-E	1	each	$ 225.00	$ 225.00	1.666	$ 75.00	$ 124.95	$ 349.95	$ 349.95
TRENCH DRAIN	210	ft	$ 72.33	$ 15,189.30	0.5	$ 75.00	$ 7,875.00	$ 109.83	$ 23,064.30
TOILET FIXTURES									
LAVATORIES	12	each	$ 500.00	$ 6,000.00	8	$ 75.00	$ 7,200.00	$ 1,100.00	$ 13,200.00
COUNTER TOP LAVATORIES	12	each	$ 360.00	$ 4,320.00	10	$ 75.00	$ 9,000.00	$ 1,110.00	$ 13,320.00
WATER CLOSETS	22	each	$ 878.00	$ 19,316.00	10	$ 75.00	$ 16,500.00	$ 1,628.00	$ 35,816.00
KITCHEN SINKS	4	each	$ 400.00	$ 1,600.00	10	$ 75.00	$ 3,000.00	$ 1,150.00	$ 4,600.00
MOP RECEPTORS	4	each	$ 700.00	$ 2,800.00	8	$ 75.00	$ 2,400.00	$ 1,300.00	$ 5,200.00
ELECTRIC WATER COOLER	2	each	$ 1,000.00	$ 2,000.00	8.333	$ 75.00	$ 1,249.95	$ 1,624.98	$ 3,249.95
SHOWERS	10	each	$ 540.00	$ 5,400.00	15.57	$ 75.00	$ 11,677.50	$ 1,707.75	$ 17,077.50
URINALS	8	each	$ 500.00	$ 4,000.00	10.5	$ 75.00	$ 6,300.00	$ 1,287.50	$ 10,300.00
SERVICE SINK	2	each	$ 700.00	$ 1,400.00	5.3	$ 75.00	$ 795.00	$ 1,097.50	$ 2,195.00
EMERGENCY EYEWASH SHOWER	2	each	$ 400.00	$ 800.00	4	$ 75.00	$ 600.00	$ 700.00	$ 1,400.00
PLUMBING EQUIPMENT									
TRIPLEX BOOSTER WATER PUMP	1	each	$ 25,800.00	$ 25,800.00	37	$ 75.00	$ 2,775.00	$ 28,575.00	$ 28,575.00
VERTICAL SEWAGE EJECTOR PUMP	1	each	$ 15,000.00	$ 15,000.00	6	$ 75.00	$ 450.00	$ 15,450.00	$ 15,450.00
1" RPZ	1	each	$ 220.00	$ 220.00	1.143	$ 75.00	$ 85.73	$ 305.73	$ 305.73
3" RPZ	2	each	$ 1,567.50	$ 2,530.00	3.556	$ 75.00	$ 533.40	$ 1,834.20	$ 3,668.40
PRESSURE GAGE	1	each	$ 50.00	$ 50.00	1.333	$ 75.00	$ 99.98	$ 149.98	$ 149.98
HOSE BIBB	1	each	$ 400.00	$ 400.00	2	$ 75.00	$ 150.00	$ 550.00	$ 550.00
OIL/ WATER SEPARATOR-LIFTING PUMP	1	each	$ 19,000.00	$ 19,000.00	25	$ 75.00	$ 1,875.00	$ 20,875.00	$ 20,875.00
OIL/ WATER SEPARATOR	1	each	$ 21,000.00	$ 21,000.00	200	$ 75.00	$ 15,000.00	$ 36,000.00	$ 36,000.00
2" TEST TEE	1	each	$ 1,000.00	$ 1,000.00	0.5	$ 75.00	$ 37.50	$ 1,037.50	$ 1,037.50
6"DOUBLE CHECK DETECTOR ASSEMBLY	2	each	$ 2,722.50	$ 5,445.00	4	$ 75.00	$ 600.00	$ 3,022.50	$ 6,045.00
HOT WATER CIRCULATING PUMP	1	each	$ 1,595.00	$ 1,595.00	10	$ 75.00	$ 750.00	$ 2,345.00	$ 2,345.00
4" WATER METER	1	each	$ 3,327.50	$ 3,327.50	6	$ 75.00	$ 450.00	$ 3,777.50	$ 3,777.50
INSTANTANEOUS ELEC. HOT WATER HEATER	1	each	$ 2,750.00	$ 2,750.00	5.33	$ 75.00	$ 399.75	$ 3,149.75	$ 3,149.75
DOMESTIC WATER HEATER	1	each	$ 13,000.00	$ 13,000.00	20	$ 75.00	$ 1,500.00	$ 14,500.00	$ 14,500.00
VORTECHS UNIT	2	each	$ 25,000.00	$ 50,000.00	200	$ 75.00	$ 30,000.00	$ 40,000.00	$ 80,000.00
HOT WATER STORAGE TANK	1	each	$ 3,750.00	$ 3,750.00	4	$ 75.00	$ 300.00	$ 4,050.00	$ 4,050.00
EXP TANK	1	each	$ 2,250.00	$ 2,250.00	2.667	$ 75.00	$ 200.03	$ 2,450.03	$ 2,450.03
DRAINAGE WATER ALARM TANK	1	each	$ 2,500.00	$ 2,500.00	6	$ 75.00	$ 450.00	$ 2,950.00	$ 2,950.00
4" STRAINER	1	each	$ 1,622.50	$ 1,622.50	5.333	$ 75.00	$ 399.98	$ 2,022.48	$ 2,022.48
6" BASKET STRAINER	1	each	$ 3,000.00	$ 3,000.00	8	$ 75.00	$ 600.00	$ 3,600.00	$ 3,600.00
SHOCK ABSORBER	18	each	$ 125.00	$ 2,250.00	1	$ 75.00	$ 1,350.00	$ 200.00	$ 3,600.00
3" FLEX CONNECTION	3	each	$ 70.00	$ 210.00	1.143	$ 75.00	$ 257.18	$ 155.73	$ 467.18
3" x 4" REDUCER	3	each	$ 50.00	$ 150.00	0.571	$ 75.00	$ 128.48	$ 92.83	$ 278.48
CATCH BASINS	2	each	$ 310.00	$ 620.00	5.3	$ 75.00	$ 795.00	$ 707.50	$ 1,415.00
TOTAL COST									**$ 1,047,512.65**

ARCHITECTURAL COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Assignment	Quantity			Total
			Qty	Unit	Unit $	Labor and Materials $
ALL CONTRACTS						
Division 2 - Site Construction						
02821	Metal Fence	GH				
02822	Ornamental Fences	A/RDP		LS	$ 28,260.00	$ 28,260
	Entrance gates	A/RDP		LS	$ 23,810.00	$ 23,810
Division 3 - Concrete						
03450	Plant - Precast Architectural Concrete	A/RDP				
	Precast Concrete panels		16,600	SF	$ 35.00	$ 581,000
Division 4 - Masonry						
04201	Unit Masonry	A/DMJM	14,600	SF	$ 24.27	$ 354,342
Division 5 - Metals						
05500	Metal Fabrications	A/DMJM	2,000	LBS	$ 14.29	$ 28,580
	Roof Access	A/GH	1	FLT	$ 3,500.00	$ 3,500
05512	Interior Metal Stairs	A/DMJM				
	Stairs A/B		14	FLT		
	Stairs C		4	FLT		
	Stairs D		2	FLT		
	Stairs E/F		6	FLT		
			26	FLT	$ 3,500.00	$ 91,000
05521	Exterior Pipe and Tube Railings (Stainless Steel)	A/RDP				
	Stainless steel railing (all elevations)		318	LF	$ 200.00	$ 63,600
05522	Interior Pipe and Tube Railings (Stainless Steel)	A/DMJM	626	LF	$ 200.00	$ 125,200
Division 6 - Wood and Plastics						
06100	Rough Carpentry	A/DMJM	1	LS	$ 22,790.00	$ 22,790
06200	Finished Carpentry	A/DMJM	1	LS	$ 12,500.00	$ 12,500
06400	Architectural Woodwork/Casework	A/DMJM	1	LS	$ 25,500.00	$ 25,500
Division 7 - Thermal and Moisture Protection						
07115	Bituminous Dampproofing	A/RDP				
	Bituminous Dampproofing @ CMU wall behind precast panels		12,800	SF	$ 0.65	$ 8,320
07140	Fluid-applied Waterproofing	A/RDP				
	Fluid Applied Waterproofing under ceramic tiles		1,500	SF	$ 2.40	$ 3,600
	Split Slab (Tipping, Loading Fl)		33,900	SF	$ 2.40	$ 81,360
07141	Interior Surface-Applied Waterproofing	A/RDP				
	Above electrical room		400	SF	$ 3.50	$ 1,400
	Above Forman's Office		1,750	SF	$ 3.50	$ 6,125
	Interstitial Area		8,350	SF	$ 3.50	$ 29,225
	Interior Ramp		4,900	SF	$ 3.50	$ 17,150
	Above Storage Rm		1,100	SF	$ 3.50	$ 3,850
07210	Building Insulation	A/DMJM	21,575	SF	$ 1.76	$ 37,972
	Rigid Insulation		7,000	SF		INCL ABOVE
	Batt Insulation		12,400	SF		INCL ABOVE
	Spray on insulation		18,800	SF	$ 2.00	$ 37,600
07211	Foundation and Underslab Insulation	A/RDP				
	Included in Div 3					
07410	Metal Wall Panels	A/RDP				
	Aluminum wall panels		21,000	SF	$ 25.00	$ 525,000
	Aluminum Soffits		220	SF	$ 25.00	$ 5,500
	Alum. Liner Panel		2,700	SF	$ 25.00	$ 67,500
07610	Sheet Metal Roofing/Insulation & Accessories	A/RDP				
	Zinc roofing panels (incl. flashings and trim)		50,100	SF	$ 25.00	$ 1,252,500
	Zinc canopy panels (incl. flashings and trim) above high speed roll up door & North Elev.		900	SF	$ 25.00	$ 22,500
	Zinc Soffits @ Canopies & Truck Entry Areas		1,700	SF	$ 25.00	$ 42,500
	Zinc Soffits @ Monitors		1,100	SF	$ 25.00	$ 27,500
	Zinc Soffits @ Monitor Eaves		420	SF	$ 25.00	$ 10,500
	Zinc Soffits @ Building Eaves		1,900	SF	$ 25.00	$ 47,500
	Zinc Siding @ Monitors		4,300	SF	$ 25.00	$ 107,500
	Snow guards w/ Ice Guards		400	LF	$ 25.00	$ 10,000

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New York City Department of Sanitation
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			Qty	Unit	Unit $	Labor and Materials $
	Stainless steel recessed roof gutters, 5' girth		400	LF	$ 150.00	$ 60,000
07620	Sheet Metal Flashing and Trim	A/RDP				W/SECTION 07610
07620	Zinc roof flashings & trim	A/RDP				W/SECTION 07610
07721	Roof Hatches	A/RDP				
	Access hatches		1	EA	$ 1,000.00	$ 1,000
	Smoke hatches		4	EA	$ 3,500.00	$ 14,000
07811	Sprayed Fire-Resistive Materials	A/DMJM	55,000	SF	$ 4.43	$ 243,650
07842	Fire-Resistive Joint Systems	A/DMJM	1	LS	$ 15,249.60	$ 15,250
07920	Exterior Joint Sealants	A/RDP				
	Exterior Joint Sealants		1	LS	$ 25,000.00	$ 25,000
07921	Interior Sealants	A/DMJM	1	LS	$ 17,730.24	$ 17,730
Division 8 - Doors and Windows						
08110	Stainless Steel Doors and Frames	A/GH				
	Single doors (No Hardware)		73	EA	$ 4,000.00	$ 292,000
	Double doors (No Hardware)		7	EA	$ 6,000.00	$ 42,000
08311	Access Doors and Frames	A/GH	4	EA	$ 300.00	$ 1,200
08331	Overhead Coiling Doors	A/GH	11	EA	$ 10,000.00	$ 110,000
08342	Overhead High Speed Fabric Door	A/RDP				
	M&I door @ Maint. Rm.		1	EA	$ 45,000.00	$ 45,000
	M&I door @ end of ramp		1	EA	$ 45,000.00	$ 45,000
	High speed roll-up doors, 23' H x 18' W		4	EA	$ 45,000.00	$ 180,000
	High speed roll-up doors, 21' H x 18' W		1	EA	$ 40,000.00	$ 40,000
	High speed roll-up doors, 16' Hx 18' W		1	EA	$ 30,000.00	$ 30,000
	High speed roll-up doors, 12' H x 18' W		1	EA	$ 20,000.00	$ 20,000
	High speed roll-up doors, 12' H x 14' W		1	EA	$ 18,000.00	$ 18,000
08520	Aluminum Windows	A/RDP				
	Aluminum windows-Exterior		630	SF	$ 75.00	$ 47,250
	Aluminum windows-Interior	A/GH	706	SF	$ 75.00	$ 52,950
08630	Translucent Insulating Panels	A/RDP				
	Translucent panels-Exterior		8,600	SF	$ 40.00	$ 344,000
	Translucent panels-Interior		4,480	SF	$ 40.00	$ 179,200
08660	Window Security Screens	A/RDP				
	Window security screens		176	SF	$ 35.00	$ 6,160
08711	Door Hardware	A/GH				
	Single Doors		73	EA	$ 605.00	$ 44,165
	Double Doors		7	EA	$ 1,050.00	$ 7,350
Division 9 - Finishes						
09206	Metal Furring and Lathing	A/GH	1	LS	$ 13,000.00	$ 13,000
	Expanded metal lathing to underside of roof		49,300	SF	$ 3.00	$ 147,900
	Monitor Side walls		3,600	SF	$ 3.00	$ 10,800
09265	Gypsum Board Shaft-Wall Assemblies	A/GH	1,383	SF	$ 9.50	$ 13,139
09310	Ceramic Tile	A/GH	10,439	SF	$ 10.00	$ 104,390
09513	Acoustical Snap-In Metal Panel Ceilings	A/GH	6,803	SF	$ 14.00	$ 95,242
	Linear Ceiling Panel	A/GH	1,463	SF	$ 14.00	$ 20,482
09671	Resinous Flooring	A/GH	4,903	SF	$ 9.00	$ 44,127
09911	Exterior Painting	A/RDP				
	Misc Paint		1	LS	$ 5,000.00	$ 5,000
	Paint bollards		69	EA	$ 25.00	$ 1,725
09912	Interior Painting	A/GH	80,000	SF	$ 1.00	$ 80,000
Division 10 - Specialties						
10125	Bulletin Boards and Display Cases	A/GH	2	EA	$ 124.00	$ 248
10155	Toilet & Shower Compartments	A/GH	13	EA	$ 575.00	$ 7,475
10200	Louvers and Screens	A/RDP				
	Aluminum louvers, Type 1		456	SF	$ 65.00	$ 29,640
	Aluminum louvers, Type 2		660	SF	$ 65.00	$ 42,900
	Aluminum Louvers Type 3		35	SF	$ 65.00	$ 2,275
10290	Bird & Pest Control		1	LS	$ 13,000.00	$ 13,000
10350	Flagpoles					
	Flagpoles 1@30', 2@35'		3	EA	$ 2,500.00	$ 7,500
10436	Exterior (Panel) Signs	A/RDP				
	Panel sign with DOS graphic, (16' Dia)		2	EA	$ 25,000.00	$ 50,000
	Panel sign with DOS graphic (4' Dia) and letters		1	EA	$ 10,000.00	$ 10,000
10440	Signs (Interior)	A/GH		LS	$ 11,500.00	$ 11,500
10505	Phenolic Lockers	A/GH	129	EA	$ 560.00	$ 72,240
	Phenolic Benches in Locker Room	A/GH	236	LF	$ 100.00	$ 23,600
10520	Fire Protection Specialties	A/DMJM	35	EA	$ 1,758.60	$ 61,551
10671	Metal Storage Shelving	A/GH	155	LF	$ 206.00	$ 31,930
10801	Toilet and Bath Accessories	A/GH				

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New York City Department of Sanitation
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CSI #	Description	Assignment	Quantity Qty	Unit	Unit $	Total Labor and Materials $
	Grab bars		0	EA	$ 100.00	$ -
	Mirrors		10	EA	$ 186.00	$ 1,860
	Waste receptacle		9	EA	$ 190.00	$ 1,710
	Electric handdryer		9	EA	$ 560.00	$ 5,040
	Toilet paper dispenser		9	EA	$ 42.00	$ 378
	Soap dispenser		13	EA	$ 55.00	$ 715
	Sanitary napkin dispenser		4	EA	$ 328.00	$ 1,312
	Toilet paper dispenser/napkin disposal		5	EA	$ 65.00	$ 325
	Shower curtain w/rod		8	LF	$ 150.00	$ 1,200
	Shower bases		8	EA	$ 300.00	$ 2,400
	Recessed soap holder @ Showers		8	EA	$ 50.00	$ 400
	Folding seats @ Showers		8	EA	$ 200.00	$ 1,600
	Robe hooks		18	EA	$ 20.00	$ 360
	Toilet seat cover dispensers		14	EA	$ 42.00	$ 588
Division 11 - Equipment						
11010	Fall restraint	A/RDP				
	Type 1- Spot Restraints		10	EA	$ 350.00	$ 3,500
	Type 2- Hands Free		1,000	LF	$ 25.00	$ 25,000
11452	Residential Appliances	A/RDP				
	Stainless Steel Refrigerator		2	EA	$ 1,700.00	$ 3,400
	Stainless Steel Microwave		2	EA	$ 230.00	$ 460
Division 12 - Furnishings						
12484	Floor Mats	A/GH				
	Surface Aluminum Mats @ Entrance		72	SF	$ 41.00	$ 2,952
	Vinyl Mats (@ Shower Areas)		52	SF	$ 7.50	$ 390
	Rubber Mats (@Electrical Room 1&2)		225	SF	$ 8.00	$ 1,800
12491	Horizontal Louver Blinds	A/GH	64	SF	$ 11.00	$ 704
12500	Furniture	A/GH				
	Lunch tables		8	EA	$ 400.00	$ 3,200
	Chairs @ Lunch room		32	EA	$ 200.00	$ 6,400
	Office chairs		11	EA	$ 350.00	$ 3,850
	Desks		5	EA	$ 4,600.00	$ 23,000
	Total					$ 6,578,296
	Transformer Building					
Division 7 - Thermal and Moisture Protection						
07530	Single Ply Waterproofing & Roofing Membrane	A/RDP				
	Roofing & Waterproofing over transformer rm		1,200	SF	$ 12.00	$ 14,400
7710	Manufactured Roof Specialties					
	S.Stl Gutters and Downspouts			LS	$ 2,500.00	$ 2,500
	S. Stl Coping		147	LF	$ 150.00	$ 22,050
Division 8 - Doors and Windows						
08110	Stainless Steel Doors and Frames	A/GH				
	Single doors (No Hardware)		5	EA	$ 4,000.00	$ 20,000
08711	Door Hardware	A/GH				
	Single Doors		5	EA	$ 605.00	$ 3,025
Division 10 - Specialties						
10200	Louvers and Screens	A/RDP				
	Aluminum Louvers Type 4 (Removable w/Doors)		4	EA	$ 15,000.00	$ 60,000
	Total					**$ 121,975**

ELECTRICAL COST ESTIMATE

New York City Department of Sanitation
Project**:** **DSNY MTS Conversion Project**
Date**:** **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

				COST ESTIMATE	
	CONTROL COMPONENTS AND DEVICES			$ 11,377.87	
	DISCONNECT SWITCHES			$ 104,265.53	
	MINI POWER CENTERS			$ 2,107.00	
	DRY TYPE TRANSFORMERS			$ 69,654.32	
	PANEL BOARDS			$ 37,728.30	
	WIRING DEVICES			$ 27,727.09	
	ELECTRICAL RACEWAY SYSTEM			$ 1,321,842.34	
	GROUNDING			$ 68,870.24	
	WIRE AND CABLES			$ 471,432.39	
	LIGHTNING PROTECTION SYSTEM			$ 114,788.68	
	PACKAGED ENGINE GENERATOR			$ 155,291.00	
	MOTOR CONTROL CENTERS			$ 266,450.00	
	480V SWITCHGEAR			$ 327,000.00	
	UNDERGROUND ELECTRICAL DISTRIBUTION			$ 1,340,566.72	
	SECURITY SYSTEM			$ 653,153.49	
	LIGHTING			$ 1,224,064.44	
	FIRE ALARM SYSTEM			$ 159,903.94	
	VOICE/DATA & PAGING SYSTEM			$ 134,707.98	
	RADIO COMMUNICATIONS			$ 37,100.00	
	SITE POWER & LIGHTING			$ 1,162,970.94	
	SUB TOTAL			$ 7,691,002.27	
	MISCELLANEOUS MATERIALS (10%)				
	TOTAL			$ 7,691,000.00	

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	CONTROL COMPONENTS AND DEVICES								
	CONTROL STATIONS	34	EA	$ 164.00	$ 5,576.00	1.51	$ 78.00	$ 4,001.87	$ 9,577.87
	MOTOR STARTER, MANUAL, 1 PH NEMA 4	6	EA	$ 144.00	$ 864.00	2.00	$ 78.00	$ 936.00	$ 1,800.00
	TOTAL								$ 11,377.87

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	DISCONNECT SWITCHES								
	DISCONNECT SWITCHES 30A 3P	85	EA	$ 365.00	$ 31,025.00	2.58	$ 78.00	$ 17,112.03	$ 48,137.03
	DISCONNECT SWITCHES 60A 3P	18	EA	$ 375.00	$ 6,750.00	3.64	$ 78.00	$ 5,104.94	$ 11,854.94
	DISCONNECT SWITCHES 100A 3P	2	EA	$ 600.00	$ 1,200.00	4.44	$ 78.00	$ 693.26	$ 1,893.26
	DISCONNECT SWITCHES 1200A 3P	3	EA	$ 5,250.00	$ 15,750.00	20.00	$ 78.00	$ 4,680.00	$ 20,430.00
	DISCONNECT SWITCHES 30A 6P	3	EA	$ 1,425.00	$ 4,275.00	2.96	$ 78.00	$ 693.34	$ 4,968.34
	DISCONNECT SWITCHES 100A 6P	2	EA	$ 2,075.00	$ 4,150.00	5.33	$ 78.00	$ 831.95	$ 4,981.95
	TOGGLE SWITCH DISCONNECT	40	EA	$ 144.00	$ 5,760.00	2.00	$ 78.00	$ 6,240.00	$ 12,000.00
	TOTAL								$ 104,265.53

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	MINI POWER CENTERS								
	MINI POWER CENTER 480V-120/240V 1PH, 5k	1	EA	$ 1,600.00	$ 1,600.00	6.50	$ 78.00	$ 507.00	$ 2,107.00
	TOTAL								$ 2,107.00

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	DRY TYPE TRANSFORMERS								
	30kVA 3PH 480V-480Y/277V	1	EA	$ 2,375.00	$ 2,375.00	17.78	$ 78.00	$ 1,386.68	$ 3,761.68
	112.5kVA 3PH 480V-480Y/277V	4	EA	$ 8,200.00	$ 32,800.00	22.22	$ 78.00	$ 6,932.64	$ 39,732.64
	45kVA 3PH 480V-208Y/120V	4	EA	$ 2,800.00	$ 11,200.00	20.00	$ 78.00	$ 6,240.00	$ 17,440.00
	45kVA 3PH 480V-480Y/277V	2	EA	$ 2,800.00	$ 5,600.00	20.00	$ 78.00	$ 3,120.00	$ 8,720.00
	TOTAL								$ 69,654.32

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	PANEL BOARDS								
	120/208V 3PH 4W 42CKT W/MCB 225A	4	EA	$ 1,775.00	$ 7,100.00	28.57	$ 78.00	$ 8,914.15	$ 16,014.15
	480V-480Y/277V 4W 42CKT W/MCB 225A	4	EA	$ 3,200.00	$ 12,800.00	28.57	$ 78.00	$ 8,914.15	$ 21,714.15
	TOTAL								$ 37,728.30

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	WIRING DEVICES								
	RECEPTACLE, DUPLEX 120V, 20A	152	EA	$ 8.55	$ 1,299.60	0.30	$ 78.00	$ 3,509.38	$ 4,808.98
	RECEPTACLE, GFCI, DUPLEX 120V, 20A	60	EA	$ 31.50	$ 1,890.00	0.30	$ 78.00	$ 1,385.28	$ 3,275.28
	PVC COATED STEEL OUTLET BOX 1 GANG, F	60	EA	$ 39.50	$ 2,370.00	0.73	$ 78.00	$ 3,402.36	$ 5,772.36
	PVC COATED DUPLEX RECEPTACLE COVER	46	EA	$ 29.00	$ 1,334.00	0.13	$ 78.00	$ 448.50	$ 1,782.50
	CAST OUTLET BOX, 1 GANG, FD 3/4" HUBS	152	EA	$ 16.60	$ 2,523.20	0.67	$ 78.00	$ 7,907.95	$ 10,431.15
	WEATHER PROOF RECEPTACLE COVER	14	EA	$ 4.80	$ 67.20	0.13	$ 78.00	$ 136.50	$ 203.70
	RECEPTACLE COVER PLATE, STAINLESS ST	152	EA	$ 1.76	$ 267.52	0.10	$ 78.00	$ 1,185.60	$ 1,453.12
	TOTAL								$ 27,727.09

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	ELECTRICAL RACEWAY SYSTEM								
	3/4" RGS	2500	LF	$ 2.96	$ 7,400.00	0.10	$ 78.00	$ 19,500.00	$ 26,900.00
	1" RGS	300	LF	$ 4.40	$ 1,320.00	0.12	$ 78.00	$ 2,878.20	$ 4,198.20
	2" RGS	1200	LF	$ 8.85	$ 10,620.00	0.18	$ 78.00	$ 16,660.80	$ 27,280.80
	4" RGS	1900	LF	$ 28.00	$ 53,200.00	0.40	$ 78.00	$ 59,280.00	$ 112,480.00
	3/4" RGS PVC COATED	33000	LF	$ 4.70	$155,100.00	0.11	$ 78.00	$ 293,436.00	$ 448,536.00
	1" RGS PVC COATED	2900	LF	$ 5.90	$ 17,110.00	0.15	$ 78.00	$ 32,799.00	$ 49,909.00
	1 1/4" RGS PVC COATED	3300	LF	$ 7.50	$ 24,750.00	0.16	$ 78.00	$ 41,184.00	$ 65,934.00
	1 1/2" RGS PVC COATED	1800	LF	$ 9.00	$ 16,200.00	0.18	$ 78.00	$ 24,991.20	$ 41,191.20
	2" RGS PVC COATED	700	LF	$ 11.85	$ 8,295.00	0.23	$ 78.00	$ 12,503.40	$ 20,798.40
	2 1/2" RGS PVC COATED	600	LF	$ 19.15	$ 11,490.00	0.32	$ 78.00	$ 14,976.00	$ 26,466.00
	4" RGS PVC COATED	3100	LF	$ 35.00	$108,500.00	0.44	$ 78.00	$ 107,359.20	$ 215,859.20
	Junction box, PVC coated steel	310	EA	$ 108.00	$ 33,480.00	1.13	$ 78.00	$ 27,202.50	$ 60,682.50
	Junction box, cast, 12"x12"x6"	60	EA	$ 450.00	$ 27,000.00	3.48	$ 78.00	$ 16,277.04	$ 43,277.04
	Junction box, SS, 36"x36"x12"	25	EA	$ 5,725.00	$143,125.00	16.00	$ 78.00	$ 31,200.00	$ 174,325.00
	Weatherhead	3	EA	$1,140.00	3420	2.50	$ 78.00	$ 585.00	$ 4,005.00
	TOTAL								$ 1,321,842.34

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	GROUNDING								
	Column bonding plate	16	EA	$ 7.75	$ 124.00	1.00	$ 78.00	$ 1,248.00	$ 1,372.00
	Heavy duty wall mtd. Ground bar(1/4x2x16)	5	EA	$ 131.80	$ 659.00	0.50	$ 78.00	$ 195.00	$ 854.00
	Ground access well # 362PS12CILS80	28	EA	$ 109.47	$ 3,065.16	0.50	$ 78.00	$ 1,092.00	$ 4,157.16
	Exothermic connection (1 way)	59	EA	$ 7.35	$ 433.65	1.14	$ 78.00	$ 5,260.09	$ 5,693.74
	Exothermic connection (3 way)	28	EA	$ 22.05	$ 617.40	1.14	$ 78.00	$ 2,496.31	$ 3,113.71
	Exothermic conn.to Gantry/Shuttle bay rails	20	EA	$ 7.35	$ 147.00	1.14	$ 78.00	$ 1,783.08	$ 1,930.08
	Exothermic Mold	4	EA	$ 84.74	$ 338.96	1.00	$ 78.00	$ 312.00	$ 650.96
	1 inch GRS conduit	1400	LF	$ 4.40	$ 6,160.00	0.12	$ 78.00	$ 13,431.60	$ 19,591.60
	1 inch PVC conduit	600	LF	$ 5.90	$ 3,540.00	0.15	$ 78.00	$ 6,786.00	$ 10,326.00
	# 6 AWG green insulated ground conductor	1	CLF	$ 26.50	$ 26.50	1.23	$ 78.00	$ 95.94	$ 122.44
	# 4/0 AWG green insulated ground conductor	14	CLF	$ 181.00	$ 2,534.00	3.63	$ 78.00	$ 3,963.96	$ 6,497.96
	Ground plate at each transformer	20	EA	$ 94.60	$ 1,892.00	0.50	$ 78.00	$ 780.00	$ 2,672.00
	4 inch conduit ground bushing	36	EA	$ 33.00	$ 1,188.00	1.00	$ 78.00	$ 2,808.00	$ 3,996.00
	Brazed water pipe connection	2	EA	$ 26.50	$ 53.00	1.14	$ 78.00	$ 178.31	$ 231.31
	3/4 inch dia.x10 ft long Stain.Steel Grd Rod	33	EA	$ 96.44	$ 3,182.52	1.74	$ 78.00	$ 4,478.76	$ 7,661.28
	TOTAL								$ 68,870.24

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	WIRES AND CABLES - 600VOLTS								
	#14 XHHW 600 CU WIRE	1191	CLF	$ 8.20	$ 9,766.20	0.62	$ 78.00	$ 57,132.27	$ 66,898.47
	#12 XHHW 600V CU WIRE	365	CLF	$ 10.75	$ 3,923.75	0.73	$ 78.00	$ 20,697.69	$ 24,621.44
	#10 XHHW 600V CU WIRE	911	CLF	$ 14.75	$ 13,437.25	0.80	$ 78.00	$ 56,846.40	$ 70,283.65
	750 KCMIL XHHW 600V WIRE	187	CLF	$ 735.00	$ 137,445.00	7.27	$ 78.00	$ 106,083.98	$ 243,528.98
	#8 RHW 600V CU WIRE	121	CLF	$ 28.00	$ 3,388.00	1.00	$ 78.00	$ 9,438.00	$ 12,826.00
	#6 RHW 600V CU WIRE	74	CLF	$ 41.00	$ 3,034.00	1.23	$ 78.00	$ 7,105.33	$ 10,139.33
	#4 RHW 600V CU WIRE	20	CLF	$ 59.50	$ 1,190.00	1.51	$ 78.00	$ 2,354.04	$ 3,544.04
	#3 RHW 600V CU WIRE	12	CLF	$ 75.50	$ 906.00	1.65	$ 78.00	$ 1,544.40	$ 2,450.40
	#2 RHW 600V CU WIRE	22	CLF	$ 88.50	$ 1,947.00	1.78	$ 78.00	$ 3,051.05	$ 4,998.05
	#1 RHW 600V CU WIRE	8	CLF	$ 119.00	$ 952.00	2.00	$ 78.00	$ 1,248.00	$ 2,200.00
	#1/0 RHW 600V CU WIRE	11	CLF	$ 143.00	$ 1,573.00	2.42	$ 78.00	$ 2,079.79	$ 3,652.79
	#2/0 RHW 600V CU WIRE	22	CLF	$ 144.00	$ 3,168.00	2.76	$ 78.00	$ 4,734.44	$ 7,902.44
	#3/0 RHW 600V CU WIRE	43	CLF	$ 178.00	$ 7,654.00	3.20	$ 78.00	$ 10,732.80	$ 18,386.80
	TOTAL								$ 471,432.39

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	LIGHTNING PROTECTION SYSTEM								
	Aluminum roof conductor #A37	20	CLF	$ 1.04	$ 20.80	2.81	$ 78.00	$ 4,383.60	$ 4,404.40
	Air terminal on standing seam base #ALSB	46	EA	$ 44.89	$ 2,064.94	1.50	$ 78.00	$ 5,382.00	$ 7,446.94
	Standing seam Clamp # ALSC	600	EA	$ 3.06	$ 1,836.00	1.75	$ 78.00	$ 81,900.00	$ 83,736.00
	Column bonding plate	22	EA	$ 7.75	$ 170.50	2.00	$ 78.00	$ 3,432.00	$ 3,602.50
	Thru-roof connector #RATW1/2BM-12	20	EA	$ 28.67	$ 573.40	2.50	$ 78.00	$ 3,900.00	$ 4,473.40
	Bi-metalic conductor connector # 211XL	5	EA	$ 14.61	$ 73.05	0.75	$ 78.00	$ 292.50	$ 365.55
	Exothermic connection (1 way)	16	EA	$ 7.13	$ 114.08	1.14	$ 78.00	$ 1,422.72	$ 1,536.80
	Thru-roof air term.on concealed base #A158-5/8	5	EA	$ 53.95	$ 269.75	2.50	$ 78.00	$ 975.00	$ 1,244.75
	Roof drain/gutter bonding plate	85	EA	$ 7.75	$ 658.75	0.50	$ 78.00	$ 3,315.00	$ 3,973.75
	Roof equipment bonding plate	10	EA	$ 7.75	$ 77.50	0.50	$ 78.00	$ 390.00	$ 467.50
	# 4/0 AWG bare copper ground conductor	5.6	CLF	$ 169.00	$ 946.40	2.81	$ 78.00	$ 1,227.41	$ 2,173.81
	Copper ground conductor #28	3	CLF	$ 181.00	$ 543.00	2.81	$ 78.00	$ 657.54	$ 1,200.54
	Exothermic Mold	1	EA	$ 84.74	$ 84.74	1.00	$ 78.00	$ 78.00	$ 162.74
	TOTAL								$ 114,788.68

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	PACKAGED ENGINE GENERATOR								
	PACKAGED ENGINE GENERATOR	1	EA		$ 144,761.00	135.00	$ 78.00	$ 10,530.00	$ 155,291.00
	TOTAL								$ 155,291.00

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	MOTOR CONTROL CENTERS								
	MCC-01	1			$ 90,000.00	325.00	$ 78.00	$ 25,350.00	$ 115,350.00
	MCC-02	1			$ 68,000.00	250.00	$ 78.00	$ 19,500.00	$ 87,500.00
	MCC-03	1			$ 48,000.00	200.00	$ 78.00	$ 15,600.00	$ 63,600.00
	TOTAL								$ 266,450.00

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	480V SWITCHGEAR								
	SWITCHGEAR	1			$ 288,000.00	500.00	$ 78.00	$ 39,000.00	$ 327,000.00
	TOTAL								$ 327,000.00

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Labor and Materials $
	CCTV EQUIPMENT LIST								
	HRCC, ICH, LTC3364/50 LENS	4	EA	$ 616.10	$ 2,464.40	6.15	$ 78.00	$ 1,920.05	$ 4,384.45
	HRCC, ICH, LTC3374/50 LENS	3	EA	$ 686.80	$ 2,060.40	6.15	$ 78.00	$ 1,440.04	$ 3,500.44
	HRCC, ENH, LTC3364/50 LENS	14	EA	$ 1,121.10	$ 15,695.40	6.15	$ 78.00	$ 6,720.17	$ 22,415.57
	WPCC, EDH, PTZ, 25X ZOOM LENS	8	EA	$ 5,555.00	$ 44,440.00	6.15	$ 78.00	$ 3,840.10	$ 48,280.10
	WPCC, EDH, PTZ, 18X ZOOM LENS	2	EA	$ 5,353.00	$ 10,706.00	6.15	$ 78.00	$ 960.02	$ 11,666.02
	4-POSITION COAX SELECTOR SWITCH	6	EA	$ 400.00	$ 2,400.00	3.00	$ 78.00	$ 1,404.00	$ 3,804.00
	DIGITAL VIDEO RECORDER	4	EA	$ 6,000.00	$ 24,000.00	3.00	$ 78.00	$ 936.00	$ 24,936.00
	ETHERNET SWITCH	4	EA	$ 1,430.00	$ 5,720.00	2.00	$ 78.00	$ 624.00	$ 6,344.00
	EQUIPMENT RACK W/ SHELVES	4	EA	$ 1,774.00	$ 7,096.00	3.00	$ 78.00	$ 936.00	$ 8,032.00
	EXTERNAL HARD DRIVE	1	EA	$ 300.00	$ 300.00	1.00	$ 78.00	$ 78.00	$ 378.00
	FO MULTIPLEXER	2	EA	$ 2,450.00	$ 4,900.00	3.00	$ 78.00	$ 468.00	$ 5,368.00
	INDUSTRIAL MONITOR	6	EA	$ 1,755.00	$ 10,530.00	3.00	$ 78.00	$ 1,404.00	$ 11,934.00
	NETWORK TERMINAL UNIT	3	EA	$ 1,080.00	$ 3,240.00	3.00	$ 78.00	$ 702.00	$ 3,942.00
	POWER SUPPLY	3	EA	$ 375.00	$ 1,125.00	2.00	$ 78.00	$ 468.00	$ 1,593.00
	SINGLE PHASE UPS	4	EA	$ 669.00	$ 2,676.00	3.00	$ 78.00	$ 936.00	$ 3,612.00
	CCTV SOFTWARE	1	EA	$ 10,000.00	$ 10,000.00	0.00	$ 78.00	$ -	$ 10,000.00
	WORKSTATION	4	EA	$ 2,500.00	$ 10,000.00	3.00	$ 78.00	$ 936.00	$ 10,936.00
	SPARE HRCC	1	EA	$ 323.20	$ 323.20	0.00	$ 78.00	$ -	$ 323.20
	SPARE LTC3364/50 LENS	1	EA	$ 111.10	$ 111.10	0.00	$ 78.00	$ -	$ 111.10
	SPARE LTC3374/50 LENS	1	EA	$ 181.80	$ 181.80	0.00	$ 78.00	$ -	$ 181.80
	SPARE WPCC, 25X ZOOM LENS	1	EA	$ 5,555.00	$ 5,555.00	0.00	$ 78.00	$ -	$ 5,555.00
	SPARE WPCC, 18X ZOOM LENS	1	EA	$ 5,353.00	$ 5,353.00	0.00	$ 78.00	$ -	$ 5,353.00
	SPARE POWER SUPPLY	2	EA	$ 375.00	$ 750.00	0.00	$ 78.00	$ -	$ 750.00

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Labor and Materials $
	ACCESS CONTROL EQUIPMENT LIST								
	ETHERNET SWITCH	4	EA	$ 1,430.00	$ 5,720.00	2.00	$ 78.00	$ 624.00	$ 6,344.00
	EQUIPMENT RACK W/ SHELVES	4	EA	$ 1,774.00	$ 7,096.00	3.00	$ 78.00	$ 936.00	$ 8,032.00
	THINLINE II CARD READER	31	EA	$ 335.00	$ 10,385.00	2.96	$ 78.00	$ 7,164.53	$ 17,549.53
	MAXIPROX CARD READER	2	EA	$ 900.00	$ 1,800.00	2.96	$ 78.00	$ 462.23	$ 2,262.23
	INTERCOM	3	EA	$ 300.00	$ 900.00	2.00	$ 78.00	$ 468.00	$ 1,368.00
	POWER SUPPLY	9	EA	$ 375.00	$ 3,375.00	2.00	$ 78.00	$ 1,404.00	$ 4,779.00
	PRINTER	1	EA	$ 4,351.00	$ 4,351.00	1.00	$ 78.00	$ 78.00	$ 4,429.00
	SINGLE PHASE UPS	4	EA	$ 669.00	$ 2,676.00	3.00	$ 78.00	$ 936.00	$ 3,612.00
	ACCESS CONTROL SOFTWARE	1	EA	$ 10,000.00	$ 10,000.00	0.00	$ 78.00	$ -	$ 10,000.00
	WORKSTATION	4	EA	$ 3,500.00	$ 14,000.00	3.00	$ 78.00	$ 936.00	$ 14,936.00
	SPARE THINLINE II CARD READER	6	EA	$ 335.00	$ 2,010.00	0.00	$ 78.00	$ -	$ 2,010.00
	SPARE MAXIPROX CARD READER	4	EA	$ 900.00	$ 3,600.00	0.00	$ 78.00	$ -	$ 3,600.00
	SPARE POWER SUPPLY	2	EA	$ 375.00	$ 750.00	0.00	$ 78.00	$ -	$ 750.00
	PROXIMITY CARDS	200	EA	$ 4.40	$ 880.00	0.00	$ 78.00	$ -	$ 880.00
	GENERAL								
	30KVA, 480-208/120V, 3PH UPS	1	EA	$ 30,514.00	$ 30,514.00	8.00	$ 78.00	$ 624.00	$ 31,138.00
	PANELBOARD	1	EA	$ 1,775.00	$ 1,775.00	28.57	$ 78.00	$ 2,228.54	$ 4,003.54
	DUPLEX RECEPTACLE	6	EA	$ 8.55	$ 51.30	0.30	$ 78.00	$ 138.53	$ 189.83
	CAST OUTLET BOX, 1 GANG, FD 3/4" HUBS	6	EA	$ 16.60	$ 99.60	0.67	$ 78.00	$ 312.16	$ 411.76
	RECEPTACLE COVER PLATE, SS	6	EA	$ 1.76	$ 10.56	0.10	$ 78.00	$ 46.80	$ 57.36
	JUNCTION BOX (1"C MAX)	21	EA	$ 108.00	$ 2,268.00	1.13	$ 78.00	$ 1,842.75	$ 4,110.75
	JUNCTION BOX (2"C MAX)	44	EA	$ 450.00	$ 19,800.00	3.48	$ 78.00	$ 11,936.50	$ 31,736.50
	2" GRS CONDUIT	650	LF	$ 8.85	$ 5,752.50	0.18	$ 78.00	$ 9,024.60	$ 14,777.10
	1-1/2" GRS CONDUIT	330	LF	$ 6.90	$ 2,277.00	0.15	$ 78.00	$ 3,732.30	$ 6,009.30
	1-1/4" GRS CONDUIT	430	LF	$ 6.00	$ 2,580.00	0.13	$ 78.00	$ 4,460.82	$ 7,040.82
	1" GRS CONDUIT	260	LF	$ 4.40	$ 1,144.00	0.12	$ 78.00	$ 2,494.44	$ 3,638.44
	3/4" GRS CONDUIT	5380	LF	$ 2.96	$ 15,924.80	0.10	$ 78.00	$ 41,964.00	$ 57,888.80
	2" PVC GRS CONDUIT	1260	LF	$ 11.85	$ 14,931.00	0.23	$ 78.00	$ 22,506.12	$ 37,437.12
	1-1/2" PVC GRS CONDUIT	290	LF	$ 9.00	$ 2,610.00	0.18	$ 78.00	$ 4,026.36	$ 6,636.36
	1-1/4" PVC GRS CONDUIT	520	LF	$ 7.50	$ 3,900.00	0.16	$ 78.00	$ 6,489.60	$ 10,389.60
	1" PVC GRS CONDUIT	180	LF	$ 5.90	$ 1,062.00	0.15	$ 78.00	$ 2,035.80	$ 3,097.80

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Labor and Materials $
	3/4" PVC GRS CONDUIT	5830	LF	$ 4.70	$ 27,401.00	0.11	$ 78.00	$ 51,840.36	$ 79,241.36
	#10 XHHW WIRE	230.7	CLF	$ 14.75	$ 3,402.09	0.80	$ 78.00	$ 14,392.56	$ 17,794.65
	#12 XHHW WIRE	9.2	CLF	$ 10.75	$ 98.90	0.73	$ 78.00	$ 521.70	$ 620.60
	FIBER OPTIC MULTIMODE CABLE	80.55	CLF	$ 24.00	$ 1,933.20	1.00	$ 78.00	$ 6,282.90	$ 8,216.10
	RG59/U COAXIAL CABLE	7.9	CLF	$ 23.50	$ 185.65	1.00	$ 78.00	$ 616.20	$ 801.85
	CAT 6 CABLE	12.9	CLF	$ 15.60	$ 201.24	1.14	$ 78.00	$ 1,150.09	$ 1,351.33
	1-PR #16	530	LF	$ 0.42	$ 222.60	0.02	$ 78.00	$ 661.44	$ 884.04
	2-PR #16	360	LF	$ 0.75	$ 270.00	0.02	$ 78.00	$ 561.60	$ 831.60
	2/C#16 UTP	3170	LF	$ 0.42	$ 1,331.40	0.02	$ 78.00	$ 3,956.16	$ 5,287.56
	2/C#18	15745	LF	$ 0.21	$ 3,243.47	0.01	$ 78.00	$ 14,737.32	$ 17,980.79
	5/C#20 SHEILDED	9065	LF	$ 1.60	$ 14,504.00	0.02	$ 78.00	$ 11,313.12	$ 25,817.12
	GATE ENTRY STATION	1	EA	$ 1,500.00	$ 1,500.00	4.00	$ 78.00	$ 312.00	$ 1,812.00
	TOTAL								**$ 653,153.49**

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Labor and Materials $
	UNDERGROUND ELECTRICAL DISTRIBUTION								
	4 inch GRS conduit concrete encased	1300	LF	$ 28.00	$ 36,400.00	0.40	$ 78.00	$ 40,560.00	$ 76,960.00
	2 inch GRS conduit concrete encased	935	LF	$ 8.85	$ 8,274.75	0.18	$ 78.00	$ 12,981.54	$ 21,256.29
	4 inch GRS conduit PVC coated	7600	LF	$ 33.50	$ 254,600.00	0.44	$ 78.00	$260,832.00	$ 515,432.00
	2 inch GRS conduit PVC coated	3437	LF	$ 11.85	$ 40,728.45	0.23	$ 78.00	$ 61,391.69	$ 102,120.14
	4 inch conduit elbow GRS PVC coated	112	EA	$ 135.00	$ 15,120.00	2.11	$ 78.00	$ 18,389.28	$ 33,509.28
	2 inch conduit elbow GRS PVC coated	50	EA	$ 31.50	$ 1,575.00	1.00	$ 78.00	$ 3,900.00	$ 5,475.00
	Pullbox in Box Girder	2	EA	$ 5,725.00	$ 11,450.00	40.00	$ 78.00	$ 6,240.00	$ 17,690.00
	Junction Box in Box Girder	3	EA	$ 158.00	$ 474.00	2.00	$ 78.00	$ 468.00	$ 942.00
	Cast-in-place Hanhole 58"Hx48"Lx46"W	6	EA	$ 680.00	$ 4,080.00	14.29	$ 78.00	$ 6,687.72	$ 10,767.72
	4 inch OZ type AXDX Deflec/Expan fitting	80	EA	$ 750.00	$ 60,000.00	3.33	$ 78.00	$ 20,779.20	$ 80,779.20
	2 inch type AXDX Deflec/Expan fitting	90	EA	$ 315.00	$ 28,350.00	1.74	$ 78.00	$ 12,214.80	$ 40,564.80
	4 inch OZ type DX Deflec/Expan fitting	22	EA	$ 500.00	$ 11,000.00	3.33	$ 78.00	$ 5,714.28	$ 16,714.28
	2 inch OZ type DX Deflec/Expan fitting	9	EA	$ 147.00	$ 1,323.00	1.74	$ 78.00	$ 1,221.48	$ 2,544.48
	# 750 kcmil conductor	300	CLF	$ 735.00	$ 220,500.00	7.27	$ 78.00	$170,118.00	$ 390,618.00
	# 10 AWG Conductor	4.5	CLF	$ 14.75	$ 66.38	0.80	$ 78.00	$ 280.80	$ 347.18
	# 12 AWG Conductor	21.2	CLF	$ 10.75	$ 227.90	0.73	$ 78.00	$ 1,202.17	$ 1,430.07
	# 14 AWG Conductor	145	CLF	$ 8.20	$ 1,189.00	0.62	$ 78.00	$ 6,955.65	$ 8,144.65
	RS-232	13	CLF	$ 25.00	$ 325.00	1.33	$ 78.00	$ 1,348.62	$ 1,673.62
	Cast-in-place reinforced concrete manhole	2	EA	$ 1,600.00	$ 3,200.00	29.15	$ 78.00	$ 4,547.40	$ 7,747.40
	Cast iron manhole frame & cover H-20 load	2	EA	$ 610.00	$ 1,220.00	8.00	$ 78.00	$ 1,248.00	$ 2,468.00
	Concrete	13.37	CY	$ 97.00	$ 1,296.89	2.00	$ 78.00	$ 2,085.72	$ 3,382.61
	TOTAL								$ 1,340,566.72

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Labor and Materials $
	ELECTRICAL								
	Lighting								
	Type "A" 2x4 Fluorescent Fixture, 2 Lamps	69	EA	$ 350.00	$ 24,150.00	1.50	$ 78.00	$ 8,073.00	$ 32,223.00
	Type "A1" 2x4 Fluorescent Fixture, 3 Lamps	39	EA	$ 350.00	$ 13,650.00	1.66	$ 78.00	$ 5,049.72	$ 18,699.72
	Type "A2" 1x4 Fluorescent Fixture, 2 Lamps	28	EA	$ 325.00	$ 9,100.00	1.50	$ 78.00	$ 3,276.00	$ 12,376.00
	Type "B" Enclosed 1x4 Fixture, 1 Lamp	100	EA	$ 600.00	$ 60,000.00	1.50	$ 78.00	$ 11,700.00	$ 71,700.00
	Type "C" Enclosed 1x4 Fixture, 3 Lamps	188	EA	$ 450.00	$ 84,600.00	1.66	$ 78.00	$ 24,342.24	$ 108,942.24
	Type "C1" Enclosed 1x4 Fixture, 2 Lamps	112	EA	$ 425.00	$ 47,600.00	1.50	$ 78.00	$ 13,104.00	$ 60,704.00
	Type "D" Compact Fluorescent Shower Light	4	EA	$ 130.00	$ 520.00	1.50	$ 78.00	$ 468.00	$ 988.00
	Type "E" Enclosed 2' Corner Fluorescent Fixture	35	EA	$ 215.00	$ 7,525.00	1.00	$ 78.00	$ 2,730.00	$ 10,255.00
	Type "E1" Enclosed 4' Corner Fluorescent Fixtur	33	EA	$ 225.00	$ 7,425.00	2.00	$ 78.00	$ 5,148.00	$ 12,573.00
	Type "EM" Emergency Lighting Unit	125	EA	$ 860.00	$ 107,500.00	2.00	$ 78.00	$ 19,500.00	$ 127,000.00
	Type "EX" Exit Sign	54	EA	$ 175.00	$ 9,450.00	1.00	$ 78.00	$ 4,212.00	$ 13,662.00
	Type "G" 400W Metal Halide Fixture	30	EA	$ 470.00	$ 14,100.00	6.66	$ 78.00	$ 15,584.40	$ 29,684.40
	Type "G4"400W Metal Halide Fixture, Bi-Level	183	EA	$ 625.00	$ 114,375.00	6.66	$ 78.00	$ 95,064.84	$ 209,439.84
	Type "G6" 250W Metal Halide Fixture	113	EA	$ 460.00	$ 51,980.00	3.00	$ 78.00	$ 26,442.00	$ 78,422.00
	Type "H" 1000W Metal Halide Floodlight	11	EA	$ 1,340.00	$ 14,740.00	8.00	$ 78.00	$ 6,864.00	$ 21,604.00
	Type "J" 70W Metal Halide Floodlight	15	EA	$ 600.00	$ 9,000.00	3.00	$ 78.00	$ 3,510.00	$ 12,510.00
	Type "J1" 70W Metal Halide Floodlight	15	EA	$ 600.00	$ 9,000.00	3.00	$ 78.00	$ 3,510.00	$ 12,510.00
	Light Switch, 1-Way	35	EA	$ 30.00	$ 1,050.00	1.25	$ 78.00	$ 3,412.50	$ 4,462.50
	Light Switch, 3-Way	56	EA	$ 32.00	$ 1,792.00	1.50	$ 78.00	$ 6,552.00	$ 8,344.00
	Lighting Panel, 480/277V,125A, Main Breaker	4	EA	$ 5,800.00	$ 23,200.00	24.00	$ 78.00	$ 7,488.00	$ 30,688.00
	Lighting Control System	1	LS	$ 50,000.00	$ 50,000.00	80.00	$ 78.00	$ 6,240.00	$ 56,240.00
	Photocell	1	EA	$ 160.00	$ 160.00	1.33	$ 78.00	$ 103.74	$ 263.74
	Lighting Contactor Enclosure	1	EA	$ 600.00	$ 600.00	4.00	$ 78.00	$ 312.00	$ 912.00
	Emergency Lighting UPS/Battery	2	EA	$ 15,500.00	$ 31,000.00	16.00	$ 78.00	$ 2,496.00	$ 33,496.00
	#8 AWG, 600V	3	CLF	$ 28.00	$ 84.00	1.00	$ 78.00	$ 234.00	$ 318.00
	#10 AWG, 600V	500	CLF	$ 14.75	$ 7,375.00	0.80	$ 78.00	$ 31,200.00	$ 38,575.00
	3/4" Rigid Galvanized Steel-PVC Coated	16000	LF	$ 4.70	$ 75,200.00	0.11	$ 78.00	$ 142,272.00	$ 217,472.00
	Lighting Subtotal								**$ 1,224,064.44**

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Labor and Materials $
	Fire Alarm System								
	Fire Alarm Control Panel	1	EA	$ 35,000.00	$ 35,000.00	48.00	$ 78.00	$ 3,744.00	$ 38,744.00
	Purge Panel	1	EA	$ 20,000.00	$ 20,000.00	48.00	$ 78.00	$ 3,744.00	$ 23,744.00
	Fire Alarm Remote Annunciator Panel	1	EA	$ 2,500.00	$ 2,500.00	16.00	$ 78.00	$ 1,248.00	$ 3,748.00
	Fused Cut Out	2	EA	$ 200.00	$ 400.00	2.00	$ 78.00	$ 312.00	$ 712.00
	Manual Pull Station	17	EA	$ 150.00	$ 2,550.00	1.33	$ 78.00	$ 1,763.58	$ 4,313.58
	Fire Alarm Strobe Light	18	EA	$ 160.00	$ 2,880.00	1.33	$ 78.00	$ 1,867.32	$ 4,747.32
	Combination Fire Alarm Horn and Strobe	54	EA	$ 100.00	$ 5,400.00	1.50	$ 78.00	$ 6,318.00	$ 11,718.00
	Area Smoke Detector	8	EA	$ 160.00	$ 1,280.00	1.33	$ 78.00	$ 829.92	$ 2,109.92
	Duct Smoke Detector	15	EA	$ 310.00	$ 4,650.00	2.50	$ 78.00	$ 2,925.00	$ 7,575.00
	Tamper/Flow Switch Addressable Input Module	11	EA	$ 100.00	$ 1,100.00	1.00	$ 78.00	$ 858.00	$ 1,958.00
	Trouble Bells	3	EA	$ 60.00	$ 180.00	1.00	$ 78.00	$ 234.00	$ 414.00
	1 Pair #18 AWG-2 Conductor	1500	LF	$ 0.21	$ 315.00	0.01	$ 78.00	$ 1,404.00	$ 1,719.00
	#14 AWG	96	CLF	$ 8.20	$ 787.20	0.62	$ 78.00	$ 4,605.12	$ 5,392.32
	3/4" Rigid Galvanized Steel-PVC Coated	3900	LF	$ 4.70	$ 18,330.00	0.11	$ 78.00	$ 34,678.80	$ 53,008.80
	Fire Alarm System Subtotal								**$ 159,903.94**
	Voice/Data and Paging System								
	Desk Top Paging Station, 5 Party	3	EA	$ 820.00	$ 2,460.00	1.00	$ 78.00	$ 234.00	$ 2,694.00
	Wall Speaker	21	EA	$ 100.00	$ 2,100.00	1.00	$ 78.00	$ 1,638.00	$ 3,738.00
	Wall Mounted Paging Handset, 5 Party	20	EA	$ 570.00	$ 11,400.00	2.00	$ 78.00	$ 3,120.00	$ 14,520.00
	Speaker Amplifier	7	EA	$ 100.00	$ 700.00	1.50	$ 78.00	$ 819.00	$ 1,519.00
	Weatherproof Bullhorn Speaker	37	EA	$ 100.00	$ 3,700.00	1.50	$ 78.00	$ 4,329.00	$ 8,029.00
	Spare Parts	1	LS	$ 4,500.00	$ 4,500.00				$ 4,500.00
	17 Conductor, 1 Triplet #14 + 7 Pr#18	20	CLF	$ 3.50	$ 70.00	3.00	$ 78.00	$ 4,680.00	$ 4,750.00
	1 Pair #18-2 Conductor	1500	LF	$ 0.21	$ 315.00	0.01	$ 78.00	$ 1,404.00	$ 1,719.00
	Data Outlet, 2 RJ45 Jacks	4	EA	$ 30.00	$ 120.00	1.66	$ 78.00	$ 517.92	$ 637.92
	Combination Voice/Data Outlet, 4 RJ45 Jacks	14	EA	$ 50.00	$ 700.00	1.66	$ 78.00	$ 1,812.72	$ 2,512.72
	Main Telephone Distribution Board	1	EA	$ 1,500.00	$ 1,500.00	24.00	$ 78.00	$ 1,872.00	$ 3,372.00
	Data Communications Rack	1	EA	$ 2,000.00	$ 2,000.00	16.00	$ 78.00	$ 1,248.00	$ 3,248.00
	Rack Mounted UPS, 1-phase, 1 kVA	1	EA	$ 2,000.00	$ 2,000.00	16.00	$ 78.00	$ 1,248.00	$ 3,248.00
	Rack Mounted Category 6 Patch Panel	1	EA	$ 3,000.00	$ 3,000.00	16.00	$ 78.00	$ 1,248.00	$ 4,248.00
	4 UTP #24, Category 6	23	CLF	$ 15.60	$ 358.80	1.14	$ 78.00	$ 2,050.54	$ 2,409.34
	3/4"Rigid Galvanized Steel Conduit-PVC Coated	2500	LF	$ 4.70	$ 11,750.00	0.11	$ 78.00	$ 22,230.00	$ 33,980.00
	1"Rigid Galvanized Steel Conduit-PVC Coated	2300	LF	$ 5.90	$ 13,570.00	0.15	$ 78.00	$ 26,013.00	$ 39,583.00
	Voice/Data and Paging System Subtotal								**$ 134,707.98**

	Description	Quantity		Material		Labor			Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Labor and Materials $
	Radio Communications								
	Hand-Held 2-Way Radios	60	EA	$ 425.00	$ 25,500.00	0.00	$ -		$ 25,500.00
	Desktop Radio Station	2	EA	$ 1,300.00	$ 2,600.00	0.00	$ -		$ 2,600.00
	Multi-Unit Battery Chargers	10	EA	$ 200.00	$ 2,000.00	0.00	$ -		$ 2,000.00
	Spare Parts	1	LS	$ 7,000.00	$ 7,000.00	0.00	$ -		$ 7,000.00
	Radio Communications Subtotal								**$ 37,100.00**
	Site Power and Lighting								
	Underground 4"Schedule 40 PVC in Ductbank	100	LF	$ 5.40	$ 540.00	0.36	$ 78.00	$ 2,808.00	$ 3,348.00
	Underground 1"Schedule 40 PVC in Ductbank	270	LF	$ 0.76	$ 205.20	0.05	$ 78.00	$ 1,053.00	$ 1,258.20
	5" FRE in Ductbank	760	LF	$ 8.20	$ 6,232.00	0.25	$ 78.00	$ 14,820.00	$ 21,052.00
	1"Rigid Galvanized Steel Conduit-PVC Coated	100	LF	$ 5.90	$ 590.00	0.15	$ 78.00	$ 1,131.00	$ 1,721.00
	1"Rigid Galvanized Steel Conduit	1110	LF	$ 4.40	$ 4,884.00	0.12	$ 78.00	$ 10,649.34	$ 15,533.34
	Con Edison 480V Facility Charge								$ 100,000.00
	Con Edison Blockhouse-Equip Install/Connect/Te	1	LS			480.00	$ 78.00	$ 37,440.00	$ 37,440.00
	Con Edison Feeder Extension Cost	1	LS						$ 615,000.00
	Con Edison Blockhouse- Duplex Receptacles	8	EA	$ 30.00	$ 240.00	1.25	$ 78.00	$ 780.00	$ 1,020.00
	Con Edison Blockhouse- Grounding System	1	LS	$ 5,000.00	$ 5,000.00	60.00	$ 78.00	$ 4,680.00	$ 9,680.00
	Con Ed Blockhouse- Fused 4000A Switch	4	EA	$ 30,000.00	$ 120,000.00	40.00	$ 78.00	$ 12,480.00	$ 132,480.00
	Con Ed Blockhouse- Fused 30A, 600V Switch	1	EA	$ 450.00	$ 450.00	2.50	$ 78.00	$ 195.00	$ 645.00
	Con Ed Blockhouse- Fused 30A, 240V Switch	2	EA	$ 160.00	$ 320.00	2.50	$ 78.00	$ 390.00	$ 710.00
	Con Ed Blockhouse- Light Switch, 1-Way	4	EA	$ 30.00	$ 120.00	1.25	$ 78.00	$ 390.00	$ 510.00
	Con Ed Blockhouse- Light Switch, 3-Way	2	EA	$ 32.00	$ 64.00	1.50	$ 78.00	$ 234.00	$ 298.00
	27kV 4/0 Primary Cables within Property Line	3200	LF	$ 12.50	$ 40,000.00	0.09	$ 78.00	$ 21,216.00	$ 61,216.00
	#8 AWG, 600V	73.5	CLF	$ 28.00	$ 2,058.00	1.00	$ 78.00	$ 5,733.00	$ 7,791.00
	Pedestrian Gate & Entrance Vehicle Intercoms	3	EA	$ 300.00	$ 900.00	2.00	$ 78.00	$ 468.00	$ 1,368.00
	Recessed Junction Boxes in Ramp Barrier	48	EA	$ 200.00	$ 9,600.00	2.00	$ 78.00	$ 7,488.00	$ 17,088.00
	Type "F" Flagpole In-Ground Floodlight	3	EA	$ 1,300.00	$ 3,900.00	3.00	$ 78.00	$ 702.00	$ 4,602.00
	Type "F1" Sign Logo In-Ground Floodlight	2	EA	$ 1,300.00	$ 2,600.00	3.00	$ 78.00	$ 468.00	$ 3,068.00
	Type "J" 70W Metal Halide Floodlight	3	EA	$ 600.00	$ 1,800.00	3.00	$ 78.00	$ 702.00	$ 2,502.00
	Type "K" 70W Metal Halide Ramp Barrier Light	48	EA	$ 1,360.00	$ 65,280.00	8.00	$ 78.00	$ 29,952.00	$ 95,232.00
	Type "N" 150W Globe Light, Con Ed Blockhouse	16	EA	$ 75.00	$ 1,200.00	1.30	$ 78.00	$ 1,622.40	$ 2,822.40
	Type "P3" 1-Arm 16' Alum Pole, 250W MH Lights	1	EA	$ 2,550.00	$ 2,550.00	16.00	$ 78.00	$ 1,248.00	$ 3,798.00
	Type "P4" 20' Alum Pole, 250W MH Floodlight	3	EA	$ 1,850.00	$ 5,550.00	16.00	$ 78.00	$ 3,744.00	$ 9,294.00
	Type "P5" 20' Alum Pole, 2-250W MH Floodlights	1	EA	$ 2,750.00	$ 2,750.00	16.00	$ 78.00	$ 1,248.00	$ 3,998.00
	Type "P7" 2-Arm 16' Alum Pole, 250W MH Lights	2	EA	$ 3,500.00	$ 7,000.00	16.00	$ 78.00	$ 2,496.00	$ 9,496.00
	Site Power and Lighting Subtotal								**$ 1,162,970.94**

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	STRUCTURAL CONCRETE									
	PRECAST CONCRETE									
03410	Precast Underdeck Planks: Concrete Class 50M									
	10" thick	9180	SF	19	174420	0.002	1500	27540		201,960
	12" thick	36950	SF	22	812900	0.002	1500	110850		923,750
03200	1.25" dia. Dywidag threadbar:	5400	LF	4.3	23220	0.01	1500	81000		104,220
03410	Precast Sump Pits; Concrete Class 50M	32	CY	640	20480	0.6	1500	28800		49,280
03200	Reinforcing for the above	1.5	tons	2800	4200			0		4,200
02780	Concrete Unit Pavers: 10,000 psi concrete, 3.25" thick	8710	SF	2.1	18291	0.04	400	139360		157,651
02780	1" thick Sand bedding for pavers	26.9	CY	15	403.5	0.08	400	860.8		1,264

$ 1,442,325

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	PILE FOUNDATIONS									
	Bearing Piles									
02364	Pipe: 30" dia x 0.625" wall	278	piles							
		18400	LF						160	2944000
09967	Coating	10000	LF							0
03300	Concrete Fill, Class 45 mix	780	CY							
03200	Reinforcement: A615 Gr 60	150	Ton							
02317	Sand fill	250	CY							
	Test Piles									
02456	Static Load Test	6	Ea						50000	300000
02456	PDA Tests	12	Ea	0	0	4.5	2500	135000		135000
~~**02456**~~	~~Lateral Load Test~~	0	Ea	0	0	30	2500	0		0

$ 3,379,000

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR MH/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	CAST IN PLACE CONCRETE									
	Pile Caps and Beams:									
03311	Concrete, Class 45M mix	1,815	CY	200	363000	0.4	700	508200		871,200
03100	Formwork	1,815	CY	170	308550	0.2	1500	544500		853,050
03200	Reinforcement: A615 Gr 60, uncoated	407	Ton	1400	569800	2	700	569800		1,139,600
	Fender Support Beams									
03311	Concrete, Class 45M mix	175.4	CY	200	35080	0.4	700	49112		84,192
03100	Formwork	175.4	CY	50	8770	0.2	1500	52620		61,390
03200	Reinforcement: A615 Gr 60, uncoated	54.6	Ton	1400	76440	2	700	76440		152,880
	Cast-in-place Deck Overlay (over caps, beams and precast planks)									
03311	Concrete, Class 45M mix	2,328	CY						700	1,629,600
03200	Reinforcement: A615 Gr 60, uncoated	216	Ton							0
	Cast-in place Deck (on forms; beyond precast planks)									
03311	Concrete, Class 45M mix	500	CY						700	350,000
03100	Formwork	500	CY							0
03200	Reinforcement: A615 Gr 60, uncoated	44	Ton							0
	Cast-in-Place Pads For Mooring Fittings									
03311	Concrete, Class 45M mix	10	CY						700	7,000
03100	Formwork	10	CY							0
03200	Reinforcement: A615 Gr 60, uncoated	1	Ton							0
07211	2" Styrofoam insulation (High Load 100)	13,930	SF	2.0	27860	0.02	700	195020		222,880
07211	3" Styrofoam insulation (High Load 60)	26,550	SF	1.3	34515	0.025	700	464625		499,140
03300	4" pavement over insulation Class 45	21,200	SF							0
03300	5" pavement over insulation Class 45	13,930	SF							0
03300	6" pavement over ballast Class 45	4,740	SF							0
03100	Reinforcing W4xW4-4"x4"	16.3	Ton							0
02317	Solite lightweight ballast fill	249	CY	100	24900	0.25	700	43575		68,475

3300	Pavement	564	CY						700	394,800
02398	Timber Curb 12"x12" Treated Southern Pine	750	LF	20	15000	0.05	400	15000		30,000

$ 6,364,207

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR $/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	NORTH SHORE MTS									
02455	**PILE FOUNDATIONS**									
	18" dia Concrete Filled Piles(Transformers)	1190	LF						80	95200
										95200

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR $/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	NORTH SHORE MTS									
05120	**STRUCTURAL STEEL**									
	Floor & Misc. Framing	1197	TN	2107	2522079	1451		1736847		4258926
	Roof and Mezzanine Framing	364	TN	2107	766948	1886		686504		1453452
	Truss and Monitor Framing	396	TN	2854	1130184	1886		746856		1877040
	1" Steel Plate Push Wall Armor	1920	SF	55	105600	17		32640		138240
	1/4" Steel Curb Plate	1327	SF	14	18578	17		22559		41137
	3/4" dia Shear Studs	4043	EA	5	20215	3		12129		32344
	5/8"dia Hanger and Sag Rods	5728	LF	5	28640	2		11456		40096
	4" dia. Steel Pier Railing & Bollards	453	LF	35	15855	15		6795		22650
05311	**STEEL ROOF DECK**				0			0		
	3" Deck, 20 GA	51638	SF	2	103276	1		51638		154914
05312	**STEEL FLOOR DECK**									
	1 1/2" Deck, 20 GA	25700	SF	2	51400	1		25700		77100
					$4,762,775			$ 3,333,124		**$ 8,095,899**

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR $/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	NORTH SHORE MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Concrete Topping	647	CY	308	199276	420		271740		471016
	Curbs and Barriers	87	CY						900	78300
										549316
	91st STREET MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Concrete Topping	647	CY	308	199276	420		271740		471016
	Curbs and Barriers	87	CY	575	50025	750		65250		115275
										586291
	HAMILTON MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Concrete Topping	647	CY	308	199276	420		271740		471016
	Curbs and Barriers	87	CY	575	50025	750		65250		115275
	Base Slabs	5578	CY	875	4880750	500		2789000		7669750
	Pile Caps	1401	CY	575	805575	650		910650		1716225
	Grade Beams	2546	CY	675	1718550	915		2329590		4048140
										14020406

	SOUTHWEST BROOKLYN MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Concrete Topping	647	CY	308	199276	420		271740		471016
	Curbs and Barriers	87	CY	575	50025	750		65250		115275
	Base Slabs	4792	CY	875	4193000	420		2012640		6205640
	Pile Caps	1291	CY	575	742325	650		839150		1581475
	Grade Beams	3524	CY	875	3083500	915		3224460		6307960
	Concrete Sidewalk 7.5'	29	CY	350	10150	25		725		10875
										14692241

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR $/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	NORTH SHORE MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Reinforced Concrete Walls	742	CY						900	**667800**
	91st STREET MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Reinforced Concrete Walls	742	CY	875	649250	1006		746452		**1395702**
	HAMILTON MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Reinforced Concrete Walls	742	CY	875	649250	915		678930		**1328180**
	SOUTHWEST BROOKLYN MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									

	Reinforced Concrete Walls	742	CY	875	649250	915		678930		**1328180**

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR $/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	NORTH SHORE MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Reinforced Concrete Elevated Slab	1592	CY						1180	1878560
	Transformer Enclosure	316	CY						1180	372880
	Site Structures	75	CY	1050	78750	1260		94500		173250
										2424690

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR $/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	NORTH SHORE MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Concrete Encasements	1452	CY						1180	**1713360**

CSI #	Description	Quantity		Material		Labor			Unit	Total
		Amt	Unit	Unit $	Total $	LABOR $/UNIT	LABOR $/Hr	LABOR TOTAL $	Total Unit Cost	Labor and Materials $
	NORTH SHORE MTS									
03300	**STRUCTURAL CONCRETE**									
	(Includes Reinforcement, Finishes & Formwork)									
	Composite Deck	320	CY						700	**224000**

CIVIL/SITEWORK COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
2	**Sitework**									
022	Sawcut and Remove Piles	317	EA	$ -	$ -		$ -	$ -	$ 500	$ 158,500
022	Pull Piles in Water	947	EA	$ -	$ -		$ -	$ -	$ 500	$473,500
022	Demo Concrete Sidewalk and Curbs	332	LF	$ 4.00	$ 1,328	0.1	$ 57.78	$ 1,918		$ 3,246
022	Demo Existing Asphalt Pavement (12" Deep)	40731	SF	$ 0.15	$ 6,110	0.0065	$ 57.78	$ 15,297		$ 21,407
022	Demo Fence	0	LF	$ 4.00	$ -	0.1	$ 57.78	$ -		$ -
022	Remove Manhole or Catch Basin	2	EA	$ -	$ -	6	$ 57.78	$ 693		$ 693
022	Remove Fire Hydrant or Cap Water Connection	1	EA	$ -	$ -	8	$ 57.78	$ 462		$ 462
022	Remove Sewer/Water Pipe (12" or less)	35	LF	$ -	$ -	0.14	$ 57.78	$ 283		$ 283
022	Remove Sewer/Water Pipe (24")	0	LF	$ -	$ -	0.2	$ 57.78	$ -		$ -
022	Shoring	22583	SF	$ 0.92	$ 20,776	0.055	$ 76.24	$ 94,695		$ 115,471
022	Dewatering	1	LS	$ -	$ -			$ -	$ 50,000	$ 50,000
022	Mill pavement	2964	SY	$ 1.17	$ 3,468	0.058	$ 1.69	$ 291		$ 3,758
023	Trench Excavation	806	CY	$ -	$ -	0.08	$ 63.39	$ 4,087		$ 4,087
023	Excavation	6107	CY	$ -	$ -	0.185	$ 63.39	$ 71,612		$ 71,612
023	Hand Excavation	23	CY	$ -	$ -	1.54	$ 57.78	$ 2,047		$ 2,047
023	Handling of Impacted Soil	5980	CY						$ 6	$ 59,800
023	Haul and Dispose Excess Soil Off-site (impacted)	5980	CY						$ 65	$ 388,700
023	Backfill - Site Material	956	CY	$ -	$ -	0.31	$ 63.39	$ 18,785		$ 18,785
023	Backfill - New	1564	CY						$ 35	$ 54,740
023	Backfill Compaction - 12" Lifts	2520	CY	$ -	$ -	0.029	$ 63.21	$ 4,620		$ 4,620
023	Pipe Bedding - Trench	174	CY	$ 18.80	$ 3,271	0.249	$ 63.21	$ 2,739		$ 6,010
023	Stone Mat	113	CY	$ 18.00	$ 2,034	0.249	$ 63.21	$ 1,779		$ 3,813
024	Mob and Demob for Pile Driving & Caissons	1	LS	$ -	$ -			$ -	$ 7,500	$ 7,500
024	Concrete Pipe Cradle 4'W x 3'D	0	LF	$ 41.70	$ -	0.441	$ 67.25	$ -		$ -
024	Timber Piles - HP10x57	10385	LF	$ -	$ -	0	$ -	$ -		$ -
025	8" Concrete Pipe	0	LF	$ 4.32	$ -	0.214	$ 57.78	$ -		$ -
025	12" Concrete Pipe	143	LF	$ 5.90	$ 844	0.24	$ 57.78	$ 1,983		$ 2,827
025	15" Concrete Pipe	198	LF	$ 6.90	$ 1,366	0.267	$ 57.78	$ 3,055		$ 4,421
025	18" Concrete Pipe	220	LF	$ 8.45	$ 1,859	0.333	$ 57.78	$ 4,233		$ 6,092
025	24" Concrete Pipe	0	LF	$ 12.75	$ -	0.48	$ 57.78	$ -		$ -
025	30" Concrete Pipe	0	LF	$ 37.50	$ -	0.636	$ 57.78	$ -		$ -
025	36" Concrete Pipe	0	LF	$ 52.50	$ -	0.778	$ 57.78	$ -		$ -
026	Manholes - 5' Dia. x Ave. 6' Deep	9	EA	$ 605.00	$ 5,445	12	$ 63.39	$ 6,846		$ 12,291
026	Added Depth to Manholes Over 6' Deep	45	LF	$ 85.00	$ 3,825	6	$ 63.39	$ 17,114		$ 20,939
026	Manhole Cover and Frame	9	EA	$ 470.00	$ 4,230	8	$ 57.78	$ 4,160		$ 8,390
026	Catch Basins - 4' Dia. x Ave. 6' Deep	2	EA	$ 540.00	$ 1,080	10	$ 63.39	$ 1,268		$ 2,348
026	Catch Basin Cover and Frame	2	EA	$ 350.00	$ 700	3.429	$ 57.78	$ 396		$ 1,096
027	Asphalt Paving									
027	2" Surface Course (Wearing Course)	5850	SY	$ 3.83	$ 22,388.07	0.024	$ 50.27	$ 7,199	$ -	$ 29,587
027	8" Binder Course									
027	3" AC Binder Course	2886	SY	$ 4.96	$ 14,315.02	0.029	$ 49.69	$ 4,213	$ -	$ 18,528
027	6" AC Base Course	2886	SY	$ 6.91	$ 19,929.97	0.020	$ 73.44	$ 4,151	$ -	$ 24,081
027	4" Treated Permeable Base	2886	SY	$ 6.03	$ 17,400.16	0.005	$ 64.71	$ 914	$ -	$ 18,314
027	12" Subbase Layer (Broken Stone)	2886	SY	$ 13.50	$ 38,965.24	0.028	$ 73.44	$ 5,880	$ -	$ 44,846
027	Geotextile Reinforcing Fabric	2886	SY	$ -	$ -	0.000	$ -	$ -	$ 4.02	$ 11,602
027	12" Select Granular Subgrade	2886	SY	$ 5.67	$ 16,354.00	0.083	$ 57.78	$ 13,841	$ -	$ 30,195
027	Compacted Subgrade	2886	SY	$ 1.14	$ 3,287.15	0.026	$ 67.55	$ 5,091	$ -	$ 8,378
027	White Epoxy Lines	0	LF	$ 0.13	$ -	0.002	$ 60.80	$ -		$ -
027	Yellow Epoxy Lines	0	LF	$ 0.13	$ -	0.002	$ 60.80	$ -		$ -
027	White Epoxy Letters and Arrows	2	EA	$ 22.50	$ 45	0.4	$ 60.80	$ 49		$ 94
028	Traffic Signs	2	EA	$ 52.35	$ 105	0.617	$ 57.78	$ 71		$ 176
028	Wheel Stops	0	EA	$ 34.00	$ -	0.333	$ 57.78	$ -		$ -
028	Corrugated Guard Rail and Posts	85	LF	$ 10.75	$ 908	0.038	$ 57.78	$ 186		$ 1,094
028	Half Section Concrete Jersey Barrier	300	LF	$ 29.50	$ 8,850	0.147	$ 57.78	$ 2,548		$ 11,398
028	3' High Retaining Wall	0	LF	$ 77.00	$ -	3.458	$ 57.63	$ -		$ -
028	8' High Chain Link Fence	372	LF	$ 19.95	$ 7,421	0.178	$ 57.78	$ 3,826		$ 11,247
028	12' Wide Swing Gate - 8' High	0	EA	$ 760.00	$ -	15.002	$ 57.78	$ -		$ -
028	24' Wide Slide Gate - 8' High	0	EA	$ 1,450.00	$ -	15.002	$ 57.78	$ -		$ -
028	Auger Holes for Posts	18	EA	$ 3.00	$ 54	0.183	$ 57.78	$ 190		$ 244
029	Finish Grading	5953	SY	$ -	$ -	0.034	$ 57.78	$ 11,695		$ 11,695
029	Seed and Topsoil	103	SY	$ 0.12	$ 12	0.012	$ 57.78	$ 71		$ 84
029	Landscaping	1	LS	$ -	$ -			$ -	$ 15,000	$ 15,000
023	Rip Rap	274	CY	$ 26.95	$ 7,384	0.258	$ 8.25	$ 583		$ 7,968
	CSI Division 2 Totals							$ -		**$ 1,743,999**

CIVIL/SITEWORK COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion Project**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Unit	Material Unit $	Material Total $	Labor MH/UNIT	Labor $/Hr	Labor TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
3	**Concrete**				$ -			$ -		$ -
033	Cast-In-Place Concrete - Dumped	156	CY	$ 100.00	$ 15,640	3.08	$ 57.78	$ 27,833		$ 43,473
033	Steel Faced Concrete Curb	543	LF	$ 15.97	$ 8,672	0.2	$ 57.78	$ 6,275		$ 14,947
	CSI Division 3 Totals				$ -			$ -		**$ 58,420**
5	**Metals**				$ -			$ -		$ -
051	8" Bollard	9	EA					$ -	$ 500	$ 4,500
	CSI Division 5 Totals							$ -		**$ 4,500**
15	**Mechanical**									
	Plumbing Site Work (From 5' out)									
	Fire Protection (FP) and City Water (CW)									
150	4" Pipe; D.I.Restrained push on joint	295	LF	9.50	$ 2,803	0.22	$ 78.00	$ 5,062		$ 7,865
150	6" Pipe; D.I.Restrained push on joint	805	LF	11.50	$ 9,258	0.25	$ 78.00	$ 15,698		$ 24,955
150	8" Pipe; D.I.Restrained push on joint	510	LF	15.00	$ 7,650	0.30	$ 78.00	$ 11,934		$ 19,584
150	4" Fittings; D.I.	3	EA	150	$ 450	3.00	$ 78.00	$ 702		$ 1,152
150	6" Fittings; D.I.	10	EA	175	$ 1,750	3.75	$ 78.00	$ 2,925		$ 4,675
150	8" Fittings; D.I.	2	EA	275	$ 550	4.50	$ 78.00	$ 702		$ 1,252
020	4" Fire Hydrant w/ shut-off valve and box	1	EA	2,000	$ 2,000	8.00	$ 78.00	$ 624		$ 2,624
	3"x3"x6" Freestanding Siamese	1	EA	800	$ 800	8.00	$ 78.00	$ 624		$ 1,424
150	Connect to existing main in street	3	EA	2,500	$ 7,500	24.00	$ 78.00	$ 5,616		$ 13,116
151	Flush/test/clean/disinfect	1	LS		$ -	40.00	$ 60.00	$ 2,400		$ 2,400
	Sanitary (SAN)							$ -		$ -
150	6" Pipe; D.I.Restrained push on joint	40	LF	11.50	$ 460	0.30	$ 78.00	$ 936		$ 1,396
150	8" Pipe; D.I.Restrained push on joint	0	LF	15.00	$ -	0.33	$ 78.00	$ -		$ -
150	10" Pipe; D.I.Restrained push on joint	540	LF	18.00	$ 9,720	0.36	$ 78.00	$ 15,163		$ 24,883
150	12" Pipe; D.I.Restrained push on joint	0	LF	22.00	$ -	0.42	$ 78.00	$ -		$ -
150	6" Fittings; D.I.	0	EA	175	$ -	3.75	$ 78.00	$ -		$ -
150	8" Fittings; D.I.	0	EA	275	$ -	4.50	$ 78.00	$ -		$ -
150	10" Fittings; D.I.	0	EA	480	$ -	5.00	$ 78.00	$ -		$ -
150	12" Fittings; D.I.	0	EA	600	$ -	6.00	$ 78.00	$ -		$ -
	Connect to existing pipe/MH	1	LS	1,000	$ 1,000	32.00	$ 78.00	$ 2,496		$ 3,496
	Gas (GAS)							$ -		$ -
150	4" Pipe; Carbon Steel	40	LF	8.11	$ 324	0.38	$ 78.00	$ 1,186		$ 1,510
150	Gas Meter and Regulator	1	EA	2,500	$ 2,500	32.00	$ 78.00	$ 2,496		$ 4,996
	CSI Division 15 Totals									**$ 115,328**
	TOTAL									**$ 1,922,247**

FENDERING COST ESTIMATE

New York City Department of Sanitation
Project: **Conversion of 4 Marine Transfer Stations**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Pre-Final Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
	Primary Fendering									
02396	Buffer Unit (Trellex MV 400 x 1000B)	62	EA	420	26040	0.50	1500	46500		72,540
02396	Extruded Fender, H=12", W=12", 18" long	31	EA	100	3100	0.50	400	6200		9,300
02396	2" fiberglass grating 3.7 ft wide	492	LF	41	20172	0.1	400	19680		39,852
02396	Upper Wale (W24 x 117)	532	LF	94	50008	0.15	1500	119700		169,708
02396	Lower Wale (HSS14x14x5/8) 111 #/ft	532	LF	89	47348	0.10	1500	79800		127,148
02396	Beam HSS12x12x1/2 76 #/ft	313.2	LF	61	19105.2	0		0		19,105
02396	Beam HSS24x16x5/8 163 #/ft	499.5	LF	130	64935	0		0		64,935
02396	Post HSS14x14x5/8 110.4 #/ft	2025	LF	89	180225			0		180,225
02396	2.5" UHMW Polyethylene 11.5" Wide	3024	LF	24	72576	0		0		72,576
02396	3" Dia. Extra Strong Pipe Snubber 10 #/ft	492	LF	10	4920	0		0		4,920
02396	Hinge Connection at Top Wale 300lb	23	EA	240	5520	1	1500	34500		40,020
02396	Hinge Connection At Bottom Wale 300lb	23	EA	240	5520	1	1500	34500		40,020
02396	Walkway & Catwalk support 50 lb	135	EA.	40	5400	1	400	54000		59,400
02396	Suspension Chain 7/8" Grade 80, 8.5' long	54	EA.	92	4968	1.5	700	56700		61,668
02396	Tension Chain 1" Grade 80, 3.5' long	31	EA.	48	1488			0		1,488
02396	Ladder 16' long 20lb/ft	7	EA.	256	1792	1	400	2800		4,592
02396	Retainer Bracket HSS14x14x1/2 4.0' lg 90#/ft	54	EA.	288	15552	0.3	400	6480		22,032
02396	Face boards 8x12, 16.5 lg, Greenheart	30	EA	180	5,400	0.4	700	8,400		13,800
	Timber Pile Clusters:									
02464	Greenheart Timber Piles (48 Piles)	3120	LF	18	56160	0.008	1500	37440		93,600
02398	Timber Chocks	144	FT	20	2880	0.03	1500	6480		9,360
02464	7/8" Cable	504	LF	4	2016	0.01	1500	7560		9,576
02398	Galv. 1" dia. A307 galv. tie rods w/nuts & washers	240	LF	4	960	0.02	1500	7200		8,160
	North Berth Fendering:									
02464	14" Greenheart Piles (22 Piles)	1430	LF	18	25740	0.008	1500	17160		42,900
02398	Timber Chocks (10" x 12")	579	LF	17	9843	0.05	1500	43425		53,268
02398	Timber Wales (12" x 12")	642	LF	20	12840	0.05	1500	48150		60,990
02398	12" Extended Square Fender	22	LF	100	2200	0.2	400	1760		3,960
02398	Retainer Plate 1/2"x8"x9.5"	44	EA	38	1672	0.25	400	4400		6,072
02398	1" dia. A307 galv. Threaded Rod, 1.4 ft. long	66	EA.	9.8	646.8	0.3	400	7920		8,567
02396	Bracing Chain 3/4" Grade 80, 6.0' long	12	EA.	42	504	1.5	700	12600		13,104

$ 1,312,886

DREDGING COST ESTIMATE

New York City Department of Sanitation
Project**: DSNY MTS Conversion**
Date**: January-05**

Description: Dec **2004 Drawings**
3rd Pre-Final Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
02325	**Dredging**									
	Dredge and Disposal	24811	CY		0			0	65	1,612,715
	Mobilization/Demobilization	1	LS		0			0	145100	145,100
	Survey	1	LS		0			0	140600	140,600

$ 1,898,415

STRUCTURAL COST ESTIMATE

New York City Department of Sanitation
Project: **DSNY MTS Conversion**
Date: **January-05**

Description: Dec **2004 Drawings**
3rd Pre-Final Submittal
Station: **North Shore**

CSI #	Description	Quantity Amt	Quantity Unit	Material Unit $	Material Total $	Labor LABOR MH/UNIT	Labor LABOR $/Hr	Labor LABOR TOTAL $	Unit Total Unit Cost	Total Labor and Materials $
	PILE FOUNDATIONS									
	Bearing Piles									
02364	Pipe: 30" dia x 0.625" wall	278	piles							
		18400	LF						160	2944000
09967	Coating	10000	LF							0
03300	Concrete Fill, Class 45 mix	780	CY							
03200	Reinforcement: A615 Gr 60	150	Ton							
02317	Sand fill	250	CY							
	Test Piles									
02456	Static Load Test	6	Ea						50000	300000
02456	PDA Tests	12	Ea	0	0	4.5	2500	135000		135000
~~**02456**~~	~~Lateral Load Test~~	0	Ea	0	0	30	2500	0		0
										3,379,000
	Transformer Building									
02455	18" dia Concrete Filled Piles(Transformers)	1190	LF						80	**95,200**
	STRUCTURAL CONCRETE									
	Precast Concrete									
03410	Precast Underdeck Planks: Concrete Class 50M									
	10" thick	9180	SF	19	174420	0.002	1500	27540		201,960
	12" thick	36950	SF	22	812900	0.002	1500	110850		923,750
03200	1.25" dia. Dywidag threadbar:	5400	LF	4.3	23220	0.01	1500	81000		104,220
03410	Precast Sump Pits; Concrete Class 50M	32	CY	640	20480	0.6	1500	28800		49,280
03200	Reinforcing for the above	1.5	tons	2800	4200			0		4,200
02780	Concrete Unit Pavers: 10,000 psi concrete, 3.25" thick	8710	SF	2.1	18291	0.04	400	139360		157,651
02780	1" thick Sand bedding for pavers	26.9	CY	15	403.5	0.08	400	860.8		1,264
										1,442,325
	Includes Reinforcement, Finishes & Formwork									
	Reinforced Concrete Walls	742	CY						900	667800
	Reinforced Concrete Elevated Slab	1592	CY						1180	1878560
	Transformer Enclosure	316	CY						1180	372880
	Site Structures	75	CY	1050	78750	1260		94500		173250
	Concrete Encasements	1452	CY						1180	1713360
	Composite Deck	320	CY						700	224000
										5,029,850
	CAST IN PLACE CONCRETE									
	Pile Caps and Beams:									
03311	Concrete, Class 45M mix	1,815	CY	200	363000	0.4	700	508200		871,200
03100	Formwork	1,815	CY	170	308550	0.2	1500	544500		853,050
03200	Reinforcement: A615 Gr 60, uncoated	407	Ton	1400	569800	2	700	569800		1,139,600
	Fender Support Beams									
03311	Concrete, Class 45M mix	175.4	CY	200	35080	0.4	700	49112		84,192
03100	Formwork	175.4	CY	50	8770	0.2	1500	52620		61,390
03200	Reinforcement: A615 Gr 60, uncoated	54.6	Ton	1400	76440	2	700	76440		152,880
	Cast-in-place Deck Overlay (over caps, beams and precast planks)									
03311	Concrete, Class 45M mix	2,328	CY						700	1,629,600
03200	Reinforcement: A615 Gr 60, uncoated	216	Ton							0
	Cast-in place Deck (on forms; beyond precast planks)									
03311	Concrete, Class 45M mix	500	CY						700	350,000
03100	Formwork	500	CY							0
03200	Reinforcement: A615 Gr 60, uncoated	44	Ton							0
	Cast-in-Place Pads For Mooring Fittings									
03311	Concrete, Class 45M mix	10	CY						700	7,000
03100	Formwork	10	CY							0
03200	Reinforcement: A615 Gr 60, uncoated	1	Ton							0
07211	2" Styrofoam insulation (High Load 100)	13,930	SF	2.0	27860	0.02	700	195020		222,880
07211	3" Styrofoam insulation (High Load 60)	26,550	SF	1.3	34515	0.025	700	464625		499,140
03300	4" pavement over insulation Class 45	21,200	SF							0
03300	5" pavement over insulation Class 45	13,930	SF							0
03300	6" pavement over ballast Class 45	4,740	SF							0
03100	Reinforcing W4xW4-4"x4"	16.3	Ton							0
02317	Solite lightweight ballast fill	249	CY	100	24900	0.25	700	43575		68,475
3300	Pavement	564	CY						700	394,800
02398	Timber Curb 12"x12" Treated Southern Pine	750	LF	20	15000	0.05	400	15000		30,000
										6,364,207
	Includes Reinforcement, Finishes & Formwork									
	Concrete Topping	647	CY	308	199276	420		271740		471016
	Curbs and Barriers	87	CY						900	78300
										549,316
05120	**STRUCTURAL STEEL**									

	Floor & Misc. Framing	1197	TN	2107	2522079	1451		1736847		4258926
	Roof and Mezzanine Framing	364	TN	2107	766948	1886		686504		1453452
	Truss and Monitor Framing	396	TN	2854	1130184	1886		746856		1877040
	1" Steel Plate Push Wall Armor	1920	SF	55	105600	17		32640		138240
	1/4" Steel Curb Plate	1327	SF	14	18578	17		22559		41137
	3/4" dia Shear Studs	4043	EA	5	20215	3		12129		32344
	5/8"dia Hanger and Sag Rods	5728	LF	5	28640	2		11456		40096
	4" dia. Steel Pier Railing & Bollards	453	LF	35	15855	15		6795		22650
05311	**Steel Roof Deck**				0			0		
	3" Deck, 20 GA	51638	SF	2	103276	1		51638		154914
05312	**Steel Floor Deck**									
	1 1/2" Deck, 20 GA	25700	SF	2	51400	1		25700		77100
										8,095,899

ELECTRICAL COST ESTIMATE

New York City Department of Sanitation
Project**: DSNY MTS Conversion Project**
Date**: January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

	Description	Quantity Amt	Unit	Material Unit $	Material Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Total Labor and Materials $
	CONTROL COMPONENTS AND DEVICES								
	CONTROL STATIONS	34	EA	$ 164.00	$ 5,576.00	1.51	$ 78.00	$ 4,001.87	$ 9,577.87
	MOTOR STARTER, MANUAL, 1 PH NEMA 4	6	EA	$ 144.00	$ 864.00	2.00	$ 78.00	$ 936.00	$ 1,800.00
	DISCONNECT SWITCHES								
	DISCONNECT SWITCHES 30A 3P	85	EA	$ 365.00	$ 31,025.00	2.58	$ 78.00	$ 17,112.03	$ 48,137.03
	DISCONNECT SWITCHES 60A 3P	18	EA	$ 375.00	$ 6,750.00	3.64	$ 78.00	$ 5,104.94	$ 11,854.94
	DISCONNECT SWITCHES 100A 3P	2	EA	$ 600.00	$ 1,200.00	4.44	$ 78.00	$ 693.26	$ 1,893.26
	DISCONNECT SWITCHES 1200A 3P	3	EA	$ 5,250.00	$ 15,750.00	20.00	$ 78.00	$ 4,680.00	$ 20,430.00
	DISCONNECT SWITCHES 30A 6P	3	EA	$ 1,425.00	$ 4,275.00	2.96	$ 78.00	$ 693.34	$ 4,968.34
	DISCONNECT SWITCHES 100A 6P	2	EA	$ 2,075.00	$ 4,150.00	5.33	$ 78.00	$ 831.95	$ 4,981.95
	TOGGLE SWITCH DISCONNECT	40	EA	$ 144.00	$ 5,760.00	2.00	$ 78.00	$ 6,240.00	$ 12,000.00
	MINI POWER CENTERS								
	MINI POWER CENTER 480V-120/240V 1PH, 5kVA	1	EA	$ 1,600.00	$ 1,600.00	6.50	$ 78.00	$ 507.00	$ 2,107.00
	DRY TYPE TRANSFORMERS								
	30kVA 3PH 480V-480Y/277V	1	EA	$ 2,375.00	$ 2,375.00	17.78	$ 78.00	$ 1,386.68	$ 3,761.68
	112.5kVA 3PH 480V-480Y/277V	4	EA	$ 8,200.00	$ 32,800.00	22.22	$ 78.00	$ 6,932.64	$ 39,732.64
	45kVA 3PH 480V-208Y/120V	4	EA	$ 2,800.00	$ 11,200.00	20.00	$ 78.00	$ 6,240.00	$ 17,440.00
	45kVA 3PH 480V-480Y/277V	2	EA	$ 2,800.00	$ 5,600.00	20.00	$ 78.00	$ 3,120.00	$ 8,720.00
	PANEL BOARDS								
	120/208V 3PH 4W 42CKT W/MCB 225A	4	EA	$ 1,775.00	$ 7,100.00	28.57	$ 78.00	$ 8,914.15	$ 16,014.15
	480V-480Y/277V 4W 42CKT W/MCB 225A	4	EA	$ 3,200.00	$ 12,800.00	28.57	$ 78.00	$ 8,914.15	$ 21,714.15
	WIRING DEVICES								
	RECEPTACLE, DUPLEX 120V, 20A	152	EA	$ 8.55	$ 1,299.60	0.30	$ 78.00	$ 3,509.38	$ 4,808.98
	RECEPTACLE, GFCI, DUPLEX 120V, 20A	60	EA	$ 31.50	$ 1,890.00	0.30	$ 78.00	$ 1,385.28	$ 3,275.28
	PVC COATED STEEL OUTLET BOX 1 GANG, FS 3/4" HUB	60	EA	$ 39.50	$ 2,370.00	0.73	$ 78.00	$ 3,402.36	$ 5,772.36
	PVC COATED DUPLEX RECEPTACLE COVER	46	EA	$ 29.00	$ 1,334.00	0.13	$ 78.00	$ 448.50	$ 1,782.50
	CAST OUTLET BOX, 1 GANG, FD 3/4" HUBS	152	EA	$ 16.60	$ 2,523.20	0.67	$ 78.00	$ 7,907.95	$ 10,431.15
	WEATHER PROOF RECEPTACLE COVER	14	EA	$ 4.80	$ 67.20	0.13	$ 78.00	$ 136.50	$ 203.70
	RECEPTACLE COVER PLATE, STAINLESS STEEL	152	EA	$ 1.76	$ 267.52	0.10	$ 78.00	$ 1,185.60	$ 1,453.12
	ELECTRICAL RACEWAY SYSTEM								
	3/4" RGS	2500	LF	$ 2.96	$ 7,400.00	0.10	$ 78.00	$ 19,500.00	$ 26,900.00
	1" RGS	300	LF	$ 4.40	$ 1,320.00	0.12	$ 78.00	$ 2,878.20	$ 4,198.20
	2" RGS	1200	LF	$ 8.85	$ 10,620.00	0.18	$ 78.00	$ 16,660.80	$ 27,280.80
	4" RGS	1900	LF	$ 28.00	$ 53,200.00	0.40	$ 78.00	$ 59,280.00	$ 112,480.00
	3/4" RGS PVC COATED	33000	LF	$ 4.70	$ 155,100.00	0.11	$ 78.00	$ 293,436.00	$ 448,536.00
	1" RGS PVC COATED	2900	LF	$ 5.90	$ 17,110.00	0.15	$ 78.00	$ 32,799.00	$ 49,909.00
	1 1/4" RGS PVC COATED	3300	LF	$ 7.50	$ 24,750.00	0.16	$ 78.00	$ 41,184.00	$ 65,934.00
	1 1/2" RGS PVC COATED	1800	LF	$ 9.00	$ 16,200.00	0.18	$ 78.00	$ 24,991.20	$ 41,191.20
	2" RGS PVC COATED	700	LF	$ 11.85	$ 8,295.00	0.23	$ 78.00	$ 12,503.40	$ 20,798.40
	2 1/2" RGS PVC COATED	600	LF	$ 19.15	$ 11,490.00	0.32	$ 78.00	$ 14,976.00	$ 26,466.00
	4" RGS PVC COATED	3100	LF	$ 35.00	$ 108,500.00	0.44	$ 78.00	$ 107,359.20	$ 215,859.20
	Junction box, PVC coated steel	310	EA	$ 108.00	$ 33,480.00	1.13	$ 78.00	$ 27,202.50	$ 60,682.50
	Junction box, cast, 12"x12"x6"	60	EA	$ 450.00	$ 27,000.00	3.48	$ 78.00	$ 16,277.04	$ 43,277.04
	Junction box, SS, 36"x36"x12"	25	EA	$ 5,725.00	$ 143,125.00	16.00	$ 78.00	$ 31,200.00	$ 174,325.00
	Weatherhead	3	EA	$1,140.00	3420	2.50	$ 78.00	$ 585.00	$ 4,005.00
	GROUNDING								
	Column bonding plate	16	EA	$ 7.75	$ 124.00	1.00	$ 78.00	$ 1,248.00	$ 1,372.00
	Heavy duty wall mtd. Ground bar(1/4x2x16)	5	EA	$ 131.80	$ 659.00	0.50	$ 78.00	$ 195.00	$ 854.00
	Ground access well # 362PS12CILS80	28	EA	$ 109.47	$ 3,065.16	0.50	$ 78.00	$ 1,092.00	$ 4,157.16
	Exothermic connection (1 way)	59	EA	$ 7.35	$ 433.65	1.14	$ 78.00	$ 5,260.09	$ 5,693.74
	Exothermic connection (3 way)	28	EA	$ 22.05	$ 617.40	1.14	$ 78.00	$ 2,496.31	$ 3,113.71
	Exothermic conn.to Gantry/Shuttle bay rails	20	EA	$ 7.35	$ 147.00	1.14	$ 78.00	$ 1,783.08	$ 1,930.08
	Exothermic Mold	4	EA	$ 84.74	$ 338.96	1.00	$ 78.00	$ 312.00	$ 650.96
	1 inch GRS conduit	1400	LF	$ 4.40	$ 6,160.00	0.12	$ 78.00	$ 13,431.60	$ 19,591.60
	1 inch PVC conduit	600	LF	$ 5.90	$ 3,540.00	0.15	$ 78.00	$ 6,786.00	$ 10,326.00
	# 6 AWG green insulated ground conductor	1	CLF	$ 26.50	$ 26.50	1.23	$ 78.00	$ 95.94	$ 122.44
	# 4/0 AWG green insulated ground conductor	14	CLF	$ 181.00	$ 2,534.00	3.63	$ 78.00	$ 3,963.96	$ 6,497.96
	Ground plate at each transformer	20	EA	$ 94.60	$ 1,892.00	0.50	$ 78.00	$ 780.00	$ 2,672.00
	4 inch conduit ground bushing	36	EA	$ 33.00	$ 1,188.00	1.00	$ 78.00	$ 2,808.00	$ 3,996.00
	Brazed water pipe connection	2	EA	$ 26.50	$ 53.00	1.14	$ 78.00	$ 178.31	$ 231.31
	3/4 inch dia.x10 ft long Stain.Steel Grd Rod	33	EA	$ 96.44	$ 3,182.52	1.74	$ 78.00	$ 4,478.76	$ 7,661.28
	WIRES AND CABLES - 600VOLTS								
	#14 XHHW 600 CU WIRE	1191	CLF	$ 8.20	$ 9,766.20	0.62	$ 78.00	$ 57,132.27	$ 66,898.47
	#12 XHHW 600V CU WIRE	365	CLF	$ 10.75	$ 3,923.75	0.73	$ 78.00	$ 20,697.69	$ 24,621.44
	#10 XHHW 600V CU WIRE	911	CLF	$ 14.75	$ 13,437.25	0.80	$ 78.00	$ 56,846.40	$ 70,283.65
	750 KCMIL XHHW 600V WIRE	187	CLF	$ 735.00	$ 137,445.00	7.27	$ 78.00	$ 106,083.98	$ 243,528.98
	#8 RHW 600V CU WIRE	121	CLF	$ 28.00	$ 3,388.00	1.00	$ 78.00	$ 9,438.00	$ 12,826.00
	#6 RHW 600V CU WIRE	74	CLF	$ 41.00	$ 3,034.00	1.23	$ 78.00	$ 7,105.33	$ 10,139.33
	#4 RHW 600V CU WIRE	20	CLF	$ 59.50	$ 1,190.00	1.51	$ 78.00	$ 2,354.04	$ 3,544.04

ELECTRICAL COST ESTIMATE

New York City Department of Sanitation
Project**: DSNY MTS Conversion Project**
Date**: January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

	Description	Quantity Amt	Unit	Material Unit $	Material Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Total Labor and Materials $
	#3 RHW 600V CU WIRE	12	CLF	$ 75.50	$ 906.00	1.65	$ 78.00	$ 1,544.40	$ 2,450.40
	#2 RHW 600V CU WIRE	22	CLF	$ 88.50	$ 1,947.00	1.78	$ 78.00	$ 3,051.05	$ 4,998.05
	#1 RHW 600V CU WIRE	8	CLF	$ 119.00	$ 952.00	2.00	$ 78.00	$ 1,248.00	$ 2,200.00
	#1/0 RHW 600V CU WIRE	11	CLF	$ 143.00	$ 1,573.00	2.42	$ 78.00	$ 2,079.79	$ 3,652.79
	#2/0 RHW 600V CU WIRE	22	CLF	$ 144.00	$ 3,168.00	2.76	$ 78.00	$ 4,734.44	$ 7,902.44
	#3/0 RHW 600V CU WIRE	43	CLF	$ 178.00	$ 7,654.00	3.20	$ 78.00	$ 10,732.80	$ 18,386.80
	LIGHTNING PROTECTION SYSTEM								
	Aluminum roof conductor #A37	20	CLF	$ 1.04	$ 20.80	2.81	$ 78.00	$ 4,383.60	$ 4,404.40
	Air terminal on standing seam base #ALSB	46	EA	$ 44.89	$ 2,064.94	1.50	$ 78.00	$ 5,382.00	$ 7,446.94
	Standing seam Clamp # ALSC	600	EA	$ 3.06	$ 1,836.00	1.75	$ 78.00	$ 81,900.00	$ 83,736.00
	Column bonding plate	22	EA	$ 7.75	$ 170.50	2.00	$ 78.00	$ 3,432.00	$ 3,602.50
	Thru-roof connector #RATW1/2BM-12	20	EA	$ 28.67	$ 573.40	2.50	$ 78.00	$ 3,900.00	$ 4,473.40
	Bi-metalic conductor connector # 211XL	5	EA	$ 14.61	$ 73.05	0.75	$ 78.00	$ 292.50	$ 365.55
	Exothermic connection (1 way)	16	EA	$ 7.13	$ 114.08	1.14	$ 78.00	$ 1,422.72	$ 1,536.80
	Thru-roof air term.on concealed base #A158-5/8	5	EA	$ 53.95	$ 269.75	2.50	$ 78.00	$ 975.00	$ 1,244.75
	Roof drain/gutter bonding plate	85	EA	$ 7.75	$ 658.75	0.50	$ 78.00	$ 3,315.00	$ 3,973.75
	Roof equipment bonding plate	10	EA	$ 7.75	$ 77.50	0.50	$ 78.00	$ 390.00	$ 467.50
	# 4/0 AWG bare copper ground conductor	5.6	CLF	$ 169.00	$ 946.40	2.81	$ 78.00	$ 1,227.41	$ 2,173.81
	Copper ground conductor #28	3	CLF	$ 181.00	$ 543.00	2.81	$ 78.00	$ 657.54	$ 1,200.54
	Exothermic Mold	1	EA	$ 84.74	$ 84.74	1.00	$ 78.00	$ 78.00	$ 162.74
	PACKAGED ENGINE GENERATOR								
	PACKAGED ENGINE GENERATOR	1	EA		$ 144,761.00	135.00	$ 78.00	$ 10,530.00	$ 155,291.00
	MOTOR CONTROL CENTERS								
	MCC-01	1			$ 90,000.00	325.00	$ 78.00	$ 25,350.00	$ 115,350.00
	MCC-02	1			$ 68,000.00	250.00	$ 78.00	$ 19,500.00	$ 87,500.00
	MCC-03	1			$ 48,000.00	200.00	$ 78.00	$ 15,600.00	$ 63,600.00
	480V SWITCHGEAR								
	SWITCHGEAR	1			$ 288,000.00	500.00	$ 78.00	$ 39,000.00	$ 327,000.00
	CCTV EQUIPMENT LIST								
	HRCC, ICH, LTC3364/50 LENS	4	EA	$ 616.10	$ 2,464.40	6.15	$ 78.00	$ 1,920.05	$ 4,384.45
	HRCC, ICH, LTC3374/50 LENS	3	EA	$ 686.80	$ 2,060.40	6.15	$ 78.00	$ 1,440.04	$ 3,500.44
	HRCC, ENH, LTC3364/50 LENS	14	EA	$ 1,121.10	$ 15,695.40	6.15	$ 78.00	$ 6,720.17	$ 22,415.57
	WPCC, EDH, PTZ, 25X ZOOM LENS	8	EA	$ 5,555.00	$ 44,440.00	6.15	$ 78.00	$ 3,840.10	$ 48,280.10
	WPCC, EDH, PTZ, 18X ZOOM LENS	2	EA	$ 5,353.00	$ 10,706.00	6.15	$ 78.00	$ 960.02	$ 11,666.02
	4-POSITION COAX SELECTOR SWITCH	6	EA	$ 400.00	$ 2,400.00	3.00	$ 78.00	$ 1,404.00	$ 3,804.00
	DIGITAL VIDEO RECORDER	4	EA	$ 6,000.00	$ 24,000.00	3.00	$ 78.00	$ 936.00	$ 24,936.00
	ETHERNET SWITCH	4	EA	$ 1,430.00	$ 5,720.00	2.00	$ 78.00	$ 624.00	$ 6,344.00
	EQUIPMENT RACK W/ SHELVES	4	EA	$ 1,774.00	$ 7,096.00	3.00	$ 78.00	$ 936.00	$ 8,032.00
	EXTERNAL HARD DRIVE	1	EA	$ 300.00	$ 300.00	1.00	$ 78.00	$ 78.00	$ 378.00
	FO MULTIPLEXER	2	EA	$ 2,450.00	$ 4,900.00	3.00	$ 78.00	$ 468.00	$ 5,368.00
	INDUSTRIAL MONITOR	6	EA	$ 1,755.00	$ 10,530.00	3.00	$ 78.00	$ 1,404.00	$ 11,934.00
	NETWORK TERMINAL UNIT	3	EA	$ 1,080.00	$ 3,240.00	3.00	$ 78.00	$ 702.00	$ 3,942.00
	POWER SUPPLY	3	EA	$ 375.00	$ 1,125.00	2.00	$ 78.00	$ 468.00	$ 1,593.00
	SINGLE PHASE UPS	4	EA	$ 669.00	$ 2,676.00	3.00	$ 78.00	$ 936.00	$ 3,612.00
	CCTV SOFTWARE	1	EA	$ 10,000.00	$ 10,000.00	0.00	$ 78.00	$ -	$ 10,000.00
	WORKSTATION	4	EA	$ 2,500.00	$ 10,000.00	3.00	$ 78.00	$ 936.00	$ 10,936.00
	SPARE HRCC	1	EA	$ 323.20	$ 323.20	0.00	$ 78.00	$ -	$ 323.20
	SPARE LTC3364/50 LENS	1	EA	$ 111.10	$ 111.10	0.00	$ 78.00	$ -	$ 111.10
	SPARE LTC3374/50 LENS	1	EA	$ 181.80	$ 181.80	0.00	$ 78.00	$ -	$ 181.80
	SPARE WPCC, 25X ZOOM LENS	1	EA	$ 5,555.00	$ 5,555.00	0.00	$ 78.00	$ -	$ 5,555.00
	SPARE WPCC, 18X ZOOM LENS	1	EA	$ 5,353.00	$ 5,353.00	0.00	$ 78.00	$ -	$ 5,353.00
	SPARE POWER SUPPLY	2	EA	$ 375.00	$ 750.00	0.00	$ 78.00	$ -	$ 750.00
	ACCESS CONTROL EQUIPMENT LIST								
	ETHERNET SWITCH	4	EA	$ 1,430.00	$ 5,720.00	2.00	$ 78.00	$ 624.00	$ 6,344.00
	EQUIPMENT RACK W/ SHELVES	4	EA	$ 1,774.00	$ 7,096.00	3.00	$ 78.00	$ 936.00	$ 8,032.00
	THINLINE II CARD READER	31	EA	$ 335.00	$ 10,385.00	2.96	$ 78.00	$ 7,164.53	$ 17,549.53
	MAXIPROX CARD READER	2	EA	$ 900.00	$ 1,800.00	2.96	$ 78.00	$ 462.23	$ 2,262.23
	INTERCOM	3	EA	$ 300.00	$ 900.00	2.00	$ 78.00	$ 468.00	$ 1,368.00
	POWER SUPPLY	9	EA	$ 375.00	$ 3,375.00	2.00	$ 78.00	$ 1,404.00	$ 4,779.00
	PRINTER	1	EA	$ 4,351.00	$ 4,351.00	1.00	$ 78.00	$ 78.00	$ 4,429.00
	SINGLE PHASE UPS	4	EA	$ 669.00	$ 2,676.00	3.00	$ 78.00	$ 936.00	$ 3,612.00
	ACCESS CONTROL SOFTWARE	1	EA	$ 10,000.00	$ 10,000.00	0.00	$ 78.00	$ -	$ 10,000.00
	WORKSTATION	4	EA	$ 3,500.00	$ 14,000.00	3.00	$ 78.00	$ 936.00	$ 14,936.00
	SPARE THINLINE II CARD READER	6	EA	$ 335.00	$ 2,010.00	0.00	$ 78.00	$ -	$ 2,010.00
	SPARE MAXIPROX CARD READER	4	EA	$ 900.00	$ 3,600.00	0.00	$ 78.00	$ -	$ 3,600.00
	SPARE POWER SUPPLY	2	EA	$ 375.00	$ 750.00	0.00	$ 78.00	$ -	$ 750.00
	PROXIMITY CARDS	200	EA	$ 4.40	$ 880.00	0.00	$ 78.00	$ -	$ 880.00
	GENERAL								
	30KVA, 480-208/120V, 3PH UPS	1	EA	$ 30,514.00	$ 30,514.00	8.00	$ 78.00	$ 624.00	$ 31,138.00
	PANELBOARD	1	EA	$ 1,775.00	$ 1,775.00	28.57	$ 78.00	$ 2,228.54	$ 4,003.54
	DUPLEX RECEPTACLE	6	EA	$ 8.55	$ 51.30	0.30	$ 78.00	$ 138.53	$ 189.83
	CAST OUTLET BOX, 1 GANG, FD 3/4" HUBS	6	EA	$ 16.60	$ 99.60	0.67	$ 78.00	$ 312.16	$ 411.76

ELECTRICAL COST ESTIMATE

New York City Department of Sanitation
Project**: DSNY MTS Conversion Project**
Date**: January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

	Description	Quantity Amt	Unit	Material Unit $	Material Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Total Labor and Materials $
	RECEPTACLE COVER PLATE, SS	6	EA	$ 1.76	$ 10.56	0.10	$ 78.00	$ 46.80	$ 57.36
	JUNCTION BOX (1"C MAX)	21	EA	$ 108.00	$ 2,268.00	1.13	$ 78.00	$ 1,842.75	$ 4,110.75
	JUNCTION BOX (2"C MAX)	44	EA	$ 450.00	$ 19,800.00	3.48	$ 78.00	$ 11,936.50	$ 31,736.50
	2" GRS CONDUIT	650	LF	$ 8.85	$ 5,752.50	0.18	$ 78.00	$ 9,024.60	$ 14,777.10
	1-1/2" GRS CONDUIT	330	LF	$ 6.90	$ 2,277.00	0.15	$ 78.00	$ 3,732.30	$ 6,009.30
	1-1/4" GRS CONDUIT	430	LF	$ 6.00	$ 2,580.00	0.13	$ 78.00	$ 4,460.82	$ 7,040.82
	1" GRS CONDUIT	260	LF	$ 4.40	$ 1,144.00	0.12	$ 78.00	$ 2,494.44	$ 3,638.44
	3/4" GRS CONDUIT	5380	LF	$ 2.96	$ 15,924.80	0.10	$ 78.00	$ 41,964.00	$ 57,888.80
	2" PVC GRS CONDUIT	1260	LF	$ 11.85	$ 14,931.00	0.23	$ 78.00	$ 22,506.12	$ 37,437.12
	1-1/2" PVC GRS CONDUIT	290	LF	$ 9.00	$ 2,610.00	0.18	$ 78.00	$ 4,026.36	$ 6,636.36
	1-1/4" PVC GRS CONDUIT	520	LF	$ 7.50	$ 3,900.00	0.16	$ 78.00	$ 6,489.60	$ 10,389.60
	1" PVC GRS CONDUIT	180	LF	$ 5.90	$ 1,062.00	0.15	$ 78.00	$ 2,035.80	$ 3,097.80
	3/4" PVC GRS CONDUIT	5830	LF	$ 4.70	$ 27,401.00	0.11	$ 78.00	$ 51,840.36	$ 79,241.36
	#10 XHHW WIRE	230.65	CLF	$ 14.75	$ 3,402.09	0.80	$ 78.00	$ 14,392.56	$ 17,794.65
	#12 XHHW WIRE	9.2	CLF	$ 10.75	$ 98.90	0.73	$ 78.00	$ 521.70	$ 620.60
	FIBER OPTIC MULTIMODE CABLE	80.55	CLF	$ 24.00	$ 1,933.20	1.00	$ 78.00	$ 6,282.90	$ 8,216.10
	RG59/U COAXIAL CABLE	7.9	CLF	$ 23.50	$ 185.65	1.00	$ 78.00	$ 616.20	$ 801.85
	CAT 6 CABLE	12.9	CLF	$ 15.60	$ 201.24	1.14	$ 78.00	$ 1,150.09	$ 1,351.33
	1-PR #16	530	LF	$ 0.42	$ 222.60	0.02	$ 78.00	$ 661.44	$ 884.04
	2-PR #16	360	LF	$ 0.75	$ 270.00	0.02	$ 78.00	$ 561.60	$ 831.60
	2/C#16 UTP	3170	LF	$ 0.42	$ 1,331.40	0.02	$ 78.00	$ 3,956.16	$ 5,287.56
	2/C#18	15745	LF	$ 0.21	$ 3,243.47	0.01	$ 78.00	$ 14,737.32	$ 17,980.79
	5/C#20 SHEILDED	9065	LF	$ 1.60	$ 14,504.00	0.02	$ 78.00	$ 11,313.12	$ 25,817.12
	GATE ENTRY STATION	1	EA	$ 1,500.00	$ 1,500.00	4.00	$ 78.00	$ 312.00	$ 1,812.00
	UNDERGROUND ELECTRICAL DISTRIBUTION								
	4 inch GRS conduit concrete encased	1300	LF	$ 28.00	$ 36,400.00	0.40	$ 78.00	$ 40,560.00	$ 76,960.00
	2 inch GRS conduit concrete encased	935	LF	$ 8.85	$ 8,274.75	0.18	$ 78.00	$ 12,981.54	$ 21,256.29
	4 inch GRS conduit PVC coated	7600	LF	$ 33.50	$ 254,600.00	0.44	$ 78.00	$ 260,832.00	$ 515,432.00
	2 inch GRS conduit PVC coated	3437	LF	$ 11.85	$ 40,728.45	0.23	$ 78.00	$ 61,391.69	$ 102,120.14
	4 inch conduit elbow GRS PVC coated	112	EA	$ 135.00	$ 15,120.00	2.11	$ 78.00	$ 18,389.28	$ 33,509.28
	2 inch conduit elbow GRS PVC coated	50	EA	$ 31.50	$ 1,575.00	1.00	$ 78.00	$ 3,900.00	$ 5,475.00
	Pullbox in Box Girder	2	EA	$ 5,725.00	$ 11,450.00	40.00	$ 78.00	$ 6,240.00	$ 17,690.00
	Junction Box in Box Girder	3	EA	$ 158.00	$ 474.00	2.00	$ 78.00	$ 468.00	$ 942.00
	Cast-in-place Hanhole 58"Hx48"Lx46"W	6	EA	$ 680.00	$ 4,080.00	14.29	$ 78.00	$ 6,687.72	$ 10,767.72
	4 inch OZ type AXDX Deflec/Expan fitting	80	EA	$ 750.00	$ 60,000.00	3.33	$ 78.00	$ 20,779.20	$ 80,779.20
	2 inch type AXDX Deflec/Expan fitting	90	EA	$ 315.00	$ 28,350.00	1.74	$ 78.00	$ 12,214.80	$ 40,564.80
	4 inch OZ type DX Deflec/Expan fitting	22	EA	$ 500.00	$ 11,000.00	3.33	$ 78.00	$ 5,714.28	$ 16,714.28
	2 inch OZ type DX Deflec/Expan fitting	9	EA	$ 147.00	$ 1,323.00	1.74	$ 78.00	$ 1,221.48	$ 2,544.48
	# 750 kcmil conductor	300	CLF	$ 735.00	$ 220,500.00	7.27	$ 78.00	$ 170,118.00	$ 390,618.00
	# 10 AWG Conductor	4.5	CLF	$ 14.75	$ 66.38	0.80	$ 78.00	$ 280.80	$ 347.18
	# 12 AWG Conductor	21.2	CLF	$ 10.75	$ 227.90	0.73	$ 78.00	$ 1,202.17	$ 1,430.07
	# 14 AWG Conductor	145	CLF	$ 8.20	$ 1,189.00	0.62	$ 78.00	$ 6,955.65	$ 8,144.65
	RS-232	13	CLF	$ 25.00	$ 325.00	1.33	$ 78.00	$ 1,348.62	$ 1,673.62
	Cast-in-place reinforced concrete manhole	2	EA	$ 1,600.00	$ 3,200.00	29.15	$ 78.00	$ 4,547.40	$ 7,747.40
	Cast iron manhole frame & cover H-20 load	2	EA	$ 610.00	$ 1,220.00	8.00	$ 78.00	$ 1,248.00	$ 2,468.00
	Concrete	13.37	CY	$ 97.00	$ 1,296.89	2.00	$ 78.00	$ 2,085.72	$ 3,382.61
	LIGHTING								
	Type "A" 2x4 Fluorescent Fixture, 2 Lamps	69	EA	$ 350.00	$ 24,150.00	1.50	$ 78.00	$ 8,073.00	$ 32,223.00
	Type "A1" 2x4 Fluorescent Fixture, 3 Lamps	39	EA	$ 350.00	$ 13,650.00	1.66	$ 78.00	$ 5,049.72	$ 18,699.72
	Type "A2" 1x4 Fluorescent Fixture, 2 Lamps	28	EA	$ 325.00	$ 9,100.00	1.50	$ 78.00	$ 3,276.00	$ 12,376.00
	Type "B" Enclosed 1x4 Fixture, 1 Lamp	100	EA	$ 600.00	$ 60,000.00	1.50	$ 78.00	$ 11,700.00	$ 71,700.00
	Type "C" Enclosed 1x4 Fixture, 3 Lamps	188	EA	$ 450.00	$ 84,600.00	1.66	$ 78.00	$ 24,342.24	$ 108,942.24
	Type "C1" Enclosed 1x4 Fixture, 2 Lamps	112	EA	$ 425.00	$ 47,600.00	1.50	$ 78.00	$ 13,104.00	$ 60,704.00
	Type "D" Compact Fluorescent Shower Light	4	EA	$ 130.00	$ 520.00	1.50	$ 78.00	$ 468.00	$ 988.00
	Type "E" Enclosed 2' Corner Fluorescent Fixture	35	EA	$ 215.00	$ 7,525.00	1.00	$ 78.00	$ 2,730.00	$ 10,255.00
	Type "E1" Enclosed 4' Corner Fluorescent Fixture	33	EA	$ 225.00	$ 7,425.00	2.00	$ 78.00	$ 5,148.00	$ 12,573.00
	Type "EM" Emergency Lighting Unit	125	EA	$ 860.00	$ 107,500.00	2.00	$ 78.00	$ 19,500.00	$ 127,000.00
	Type "EX" Exit Sign	54	EA	$ 175.00	$ 9,450.00	1.00	$ 78.00	$ 4,212.00	$ 13,662.00
	Type "G" 400W Metal Halide Fixture	30	EA	$ 470.00	$ 14,100.00	6.66	$ 78.00	$ 15,584.40	$ 29,684.40
	Type "G4"400W Metal Halide Fixture, Bi-Level	183	EA	$ 625.00	$ 114,375.00	6.66	$ 78.00	$ 95,064.84	$ 209,439.84
	Type "G6" 250W Metal Halide Fixture	113	EA	$ 460.00	$ 51,980.00	3.00	$ 78.00	$ 26,442.00	$ 78,422.00
	Type "H" 1000W Metal Halide Floodlight	11	EA	$ 1,340.00	$ 14,740.00	8.00	$ 78.00	$ 6,864.00	$ 21,604.00
	Type "J" 70W Metal Halide Floodlight	15	EA	$ 600.00	$ 9,000.00	3.00	$ 78.00	$ 3,510.00	$ 12,510.00
	Type "J1" 70W Metal Halide Floodlight	15	EA	$ 600.00	$ 9,000.00	3.00	$ 78.00	$ 3,510.00	$ 12,510.00
	Light Switch, 1-Way	35	EA	$ 30.00	$ 1,050.00	1.25	$ 78.00	$ 3,412.50	$ 4,462.50
	Light Switch, 3-Way	56	EA	$ 32.00	$ 1,792.00	1.50	$ 78.00	$ 6,552.00	$ 8,344.00
	Lighting Panel, 480/277V,125A, Main Breaker	4	EA	$ 5,800.00	$ 23,200.00	24.00	$ 78.00	$ 7,488.00	$ 30,688.00
	Lighting Control System	1	LS	$ 50,000.00	$ 50,000.00	80.00	$ 78.00	$ 6,240.00	$ 56,240.00
	Photocell	1	EA	$ 160.00	$ 160.00	1.33	$ 78.00	$ 103.74	$ 263.74
	Lighting Contactor Enclosure	1	EA	$ 600.00	$ 600.00	4.00	$ 78.00	$ 312.00	$ 912.00
	Emergency Lighting UPS/Battery	2	EA	$ 15,500.00	$ 31,000.00	16.00	$ 78.00	$ 2,496.00	$ 33,496.00
	#8 AWG, 600V	3	CLF	$ 28.00	$ 84.00	1.00	$ 78.00	$ 234.00	$ 318.00
	#10 AWG, 600V	500	CLF	$ 14.75	$ 7,375.00	0.80	$ 78.00	$ 31,200.00	$ 38,575.00

ELECTRICAL COST ESTIMATE

New York City Department of Sanitation
Project**: DSNY MTS Conversion Project**
Date**: January-05**

Description: Dec **2004 Drawings**
3rd Prefinal Submittal
Station: **North Shore**

	Description	Quantity Amt	Unit	Material Unit $	Material Total $	Labor MH/Unit	Labor $/Hr	Labor Total $	Total Labor and Materials $
	3/4" Rigid Galvanized Steel-PVC Coated	16000	LF	$ 4.70	$ 75,200.00	0.11	$ 78.00	$ 142,272.00	$ 217,472.00
	FIRE ALARM SYSTEM								
	Fire Alarm Control Panel	1	EA	$ 35,000.00	$ 35,000.00	48.00	$ 78.00	$ 3,744.00	$ 38,744.00
	Purge Panel	1	EA	$ 20,000.00	$ 20,000.00	48.00	$ 78.00	$ 3,744.00	$ 23,744.00
	Fire Alarm Remote Annunciator Panel	1	EA	$ 2,500.00	$ 2,500.00	16.00	$ 78.00	$ 1,248.00	$ 3,748.00
	Fused Cut Out	2	EA	$ 200.00	$ 400.00	2.00	$ 78.00	$ 312.00	$ 712.00
	Manual Pull Station	17	EA	$ 150.00	$ 2,550.00	1.33	$ 78.00	$ 1,763.58	$ 4,313.58
	Fire Alarm Strobe Light	18	EA	$ 160.00	$ 2,880.00	1.33	$ 78.00	$ 1,867.32	$ 4,747.32
	Combination Fire Alarm Horn and Strobe	54	EA	$ 100.00	$ 5,400.00	1.50	$ 78.00	$ 6,318.00	$ 11,718.00
	Area Smoke Detector	8	EA	$ 160.00	$ 1,280.00	1.33	$ 78.00	$ 829.92	$ 2,109.92
	Duct Smoke Detector	15	EA	$ 310.00	$ 4,650.00	2.50	$ 78.00	$ 2,925.00	$ 7,575.00
	Tamper/Flow Switch Addressable Input Module	11	EA	$ 100.00	$ 1,100.00	1.00	$ 78.00	$ 858.00	$ 1,958.00
	Trouble Bells	3	EA	$ 60.00	$ 180.00	1.00	$ 78.00	$ 234.00	$ 414.00
	1 Pair #18 AWG-2 Conductor	1500	LF	$ 0.21	$ 315.00	0.01	$ 78.00	$ 1,404.00	$ 1,719.00
	#14 AWG	96	CLF	$ 8.20	$ 787.20	0.62	$ 78.00	$ 4,605.12	$ 5,392.32
	3/4" Rigid Galvanized Steel-PVC Coated	3900	LF	$ 4.70	$ 18,330.00	0.11	$ 78.00	$ 34,678.80	$ 53,008.80
	VOICE/DATA PAGING SYSTEM								
	Desk Top Paging Station, 5 Party	3	EA	$ 820.00	$ 2,460.00	1.00	$ 78.00	$ 234.00	$ 2,694.00
	Wall Speaker	21	EA	$ 100.00	$ 2,100.00	1.00	$ 78.00	$ 1,638.00	$ 3,738.00
	Wall Mounted Paging Handset, 5 Party	20	EA	$ 570.00	$ 11,400.00	2.00	$ 78.00	$ 3,120.00	$ 14,520.00
	Speaker Amplifier	7	EA	$ 100.00	$ 700.00	1.50	$ 78.00	$ 819.00	$ 1,519.00
	Weatherproof Bullhorn Speaker	37	EA	$ 100.00	$ 3,700.00	1.50	$ 78.00	$ 4,329.00	$ 8,029.00
	Spare Parts	1	LS	$ 4,500.00	$ 4,500.00				$ 4,500.00
	17 Conductor, 1 Triplet #14 + 7 Pr#18	20	CLF	$ 3.50	$ 70.00	3.00	$ 78.00	$ 4,680.00	$ 4,750.00
	1 Pair #18-2 Conductor	1500	LF	$ 0.21	$ 315.00	0.01	$ 78.00	$ 1,404.00	$ 1,719.00
	Data Outlet, 2 RJ45 Jacks	4	EA	$ 30.00	$ 120.00	1.66	$ 78.00	$ 517.92	$ 637.92
	Combination Voice/Data Outlet, 4 RJ45 Jacks	14	EA	$ 50.00	$ 700.00	1.66	$ 78.00	$ 1,812.72	$ 2,512.72
	Main Telephone Distribution Board	1	EA	$ 1,500.00	$ 1,500.00	24.00	$ 78.00	$ 1,872.00	$ 3,372.00
	Data Communications Rack	1	EA	$ 2,000.00	$ 2,000.00	16.00	$ 78.00	$ 1,248.00	$ 3,248.00
	Rack Mounted UPS, 1-phase, 1 kVA	1	EA	$ 2,000.00	$ 2,000.00	16.00	$ 78.00	$ 1,248.00	$ 3,248.00
	Rack Mounted Category 6 Patch Panel	1	EA	$ 3,000.00	$ 3,000.00	16.00	$ 78.00	$ 1,248.00	$ 4,248.00
	4 UTP #24, Category 6	23	CLF	$ 15.60	$ 358.80	1.14	$ 78.00	$ 2,050.54	$ 2,409.34
	3/4"Rigid Galvanized Steel Conduit-PVC Coated	2500	LF	$ 4.70	$ 11,750.00	0.11	$ 78.00	$ 22,230.00	$ 33,980.00
	1"Rigid Galvanized Steel Conduit-PVC Coated	2300	LF	$ 5.90	$ 13,570.00	0.15	$ 78.00	$ 26,013.00	$ 39,583.00
	RADIO COMMUNICATIONS								
	Hand-Held 2-Way Radios	60	EA	$ 425.00	$ 25,500.00	0.00	$ -		$ 25,500.00
	Desktop Radio Station	2	EA	$ 1,300.00	$ 2,600.00	0.00	$ -		$ 2,600.00
	Multi-Unit Battery Chargers	10	EA	$ 200.00	$ 2,000.00	0.00	$ -		$ 2,000.00
	Spare Parts	1	LS	$ 7,000.00	$ 7,000.00	0.00	$ -		$ 7,000.00
	SITE POWER AND LIGHTING								
	Underground 4"Schedule 40 PVC in Ductbank	100	LF	$ 5.40	$ 540.00	0.36	$ 78.00	$ 2,808.00	$ 3,348.00
	Underground 1"Schedule 40 PVC in Ductbank	270	LF	$ 0.76	$ 205.20	0.05	$ 78.00	$ 1,053.00	$ 1,258.20
	5" FRE in Ductbank	760	LF	$ 8.20	$ 6,232.00	0.25	$ 78.00	$ 14,820.00	$ 21,052.00
	1"Rigid Galvanized Steel Conduit-PVC Coated	100	LF	$ 5.90	$ 590.00	0.15	$ 78.00	$ 1,131.00	$ 1,721.00
	1"Rigid Galvanized Steel Conduit	1110	LF	$ 4.40	$ 4,884.00	0.12	$ 78.00	$ 10,649.34	$ 15,533.34
	Con Edison 480V Facility Charge								$ 100,000.00
	Con Edison Blockhouse-Equip Install/Connect/Test	1	LS			480.00	$ 78.00	$ 37,440.00	$ 37,440.00
	Con Edison Feeder Extension Cost	1	LS						$ 615,000.00
	Con Edison Blockhouse- Duplex Receptacles	8	EA	$ 30.00	$ 240.00	1.25	$ 78.00	$ 780.00	$ 1,020.00
	Con Edison Blockhouse- Grounding System	1	LS	$ 5,000.00	$ 5,000.00	60.00	$ 78.00	$ 4,680.00	$ 9,680.00
	Con Ed Blockhouse- Fused 4000A Switch	4	EA	$ 30,000.00	$ 120,000.00	40.00	$ 78.00	$ 12,480.00	$ 132,480.00
	Con Ed Blockhouse- Fused 30A, 600V Switch	1	EA	$ 450.00	$ 450.00	2.50	$ 78.00	$ 195.00	$ 645.00
	Con Ed Blockhouse- Fused 30A, 240V Switch	2	EA	$ 160.00	$ 320.00	2.50	$ 78.00	$ 390.00	$ 710.00
	Con Ed Blockhouse- Light Switch, 1-Way	4	EA	$ 30.00	$ 120.00	1.25	$ 78.00	$ 390.00	$ 510.00
	Con Ed Blockhouse- Light Switch, 3-Way	2	EA	$ 32.00	$ 64.00	1.50	$ 78.00	$ 234.00	$ 298.00
	27kV 4/0 Primary Cables within Property Line	3200	LF	$ 12.50	$ 40,000.00	0.09	$ 78.00	$ 21,216.00	$ 61,216.00
	#8 AWG, 600V	73.5	CLF	$ 28.00	$ 2,058.00	1.00	$ 78.00	$ 5,733.00	$ 7,791.00
	Pedestrian Gate & Entrance Vehicle Intercoms	3	EA	$ 300.00	$ 900.00	2.00	$ 78.00	$ 468.00	$ 1,368.00
	Recessed Junction Boxes in Ramp Barrier	48	EA	$ 200.00	$ 9,600.00	2.00	$ 78.00	$ 7,488.00	$ 17,088.00
	Type "F" Flagpole In-Ground Floodlight	3	EA	$ 1,300.00	$ 3,900.00	3.00	$ 78.00	$ 702.00	$ 4,602.00
	Type "F1" Sign Logo In-Ground Floodlight	2	EA	$ 1,300.00	$ 2,600.00	3.00	$ 78.00	$ 468.00	$ 3,068.00
	Type "J" 70W Metal Halide Floodlight	3	EA	$ 600.00	$ 1,800.00	3.00	$ 78.00	$ 702.00	$ 2,502.00
	Type "K" 70W Metal Halide Ramp Barrier Light	48	EA	$ 1,360.00	$ 65,280.00	8.00	$ 78.00	$ 29,952.00	$ 95,232.00
	Type "N" 150W Globe Light, Con Ed Blockhouse	16	EA	$ 75.00	$ 1,200.00	1.30	$ 78.00	$ 1,622.40	$ 2,822.40
	Type "P3" 1-Arm 16' Alum Pole, 250W MH Lights	1	EA	$ 2,550.00	$ 2,550.00	16.00	$ 78.00	$ 1,248.00	$ 3,798.00
	Type "P4" 20' Alum Pole, 250W MH Floodlight	3	EA	$ 1,850.00	$ 5,550.00	16.00	$ 78.00	$ 3,744.00	$ 9,294.00
	Type "P5" 20' Alum Pole, 2-250W MH Floodlights	1	EA	$ 2,750.00	$ 2,750.00	16.00	$ 78.00	$ 1,248.00	$ 3,998.00
	Type "P7" 2-Arm 16' Alum Pole, 250W MH Lights	2	EA	$ 3,500.00	$ 7,000.00	16.00	$ 78.00	$ 2,496.00	$ 9,496.00
	TOTAL							**$**	**7,691,000.00**

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