GOUVERNEUR HEALTHCARE SERVICES

227 MADISON STREET, NEW YORK, NY, 10002

TECHNICAL ASSIGNMENT I

ALEX D DESPOTOVICH | CONSTRUCTION MANAGEMENT

FACULTY ADVISOR: DR. JOHN I. MESSNER

FRIDAY, OCTOBER 14, 2011

EXECUTIVE SUMMARY

The purpose of Technical Report 1 is to analyze various aspects of construction to the Gouverneur Healthcare Facility, including project schedule and cost evaluations; building systems summary; existing conditions and site planning; local conditions; client information; project delivery method; and staffing plan. These studies will provide one with the opportunities and constraints that affect the design and construction process of a healthcare facility.

The Gouverneur Healthcare Services facility is undergoing a major modernization that includes a complete renovation of the existing thirteen story building, mechanical infrastructure upgrades, and a new five story building and eight story "bump out" of additional space to the existing building in order to achieve the hospitals long term bed count goal of 295 beds. The project schedule contains six different phases, beginning in construction on January 30, 2009 and achieving substantial completion by December 30, 2013. A summary schedule and further explanation on phasing can be seen in this technical report.

The overall project cost of the building is approximately $150 million for building construction costs and $207 million for overall project costs. A square foot estimate of the building concluded a total cost of $127.8 and was compared to the actual building construction cost. Additionally, an in-depth analysis of costs for major project systems was conducted, as well as an MEP assemblies estimate which produced a total systems cost of $12.7 million.

Due to the nature of working on the Lower East Side of New York City, the site logistics for different phases of construction were planned out in this technical report to better understand the site during different major phases of construction, including excavation/foundation, superstructure, and interior phases. This furthered an understanding of how construction will affect an active healthcare facility with an active ambulatory and residence entrance and receiving area.

The ultimate user for the facility is the New York City Health and Hospitals Corporation, HHC, a city agency that owns and operates the healthcare facility. The Dormitory Authority for the State of New York, DASNY, serves as the client and is contracted by HHC to finance and oversee the project from design through construction. Hunter Roberts Construction Group is contracted by DASNY to serve as a construction management agency to the owner.

TABLE OF CONTENTS

PROJECT SUMMARY SCHEDULE

From architectural design and preconstruction services to final project substantial completion, the Gouverneur Healthcare Services facility will serve as a four year project beginning pre-construction and design on January 2, 2007 and ending on December 30, 2013. During that time, the facility will receive a complete renovation of the existing building, mechanical infrastructure upgrades, and a new five story building and eight story "bump out" of additional space to the existing building. Throughout the entire project, the healthcare facility will remain fully operationally for staff and patients. In order to prevent disruption to the staff and patients, the construction of the facility will occur in six different phases including 1, 2, 2A, 3, 4, and 5. This will allow certain floors to be turned over in order to proceed with demolition and renovation services on other floors.

Please refer to Figure 1 and Figure 2 to establish the difference between the new and existing building. Additionally, please note for the new building, the podium is considered floors 1-5 and the tower is considered floors 6-13. These titles will be referenced in the project summary schedule and throughout this technical report.

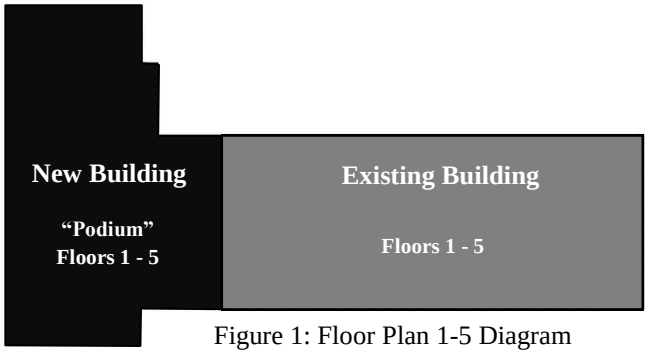


Figure 1: Floor Plan 1-5 Diagram

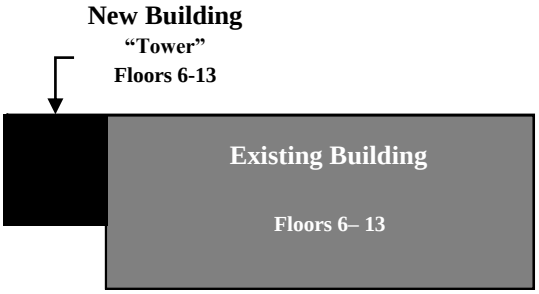


Figure 2: Floor Plan 6-13 Diagram

The project summary schedule, which is located in Appendix A, is organized into two main categories, New Building Construction and Existing Building Construction. It deemed most efficient to organize the schedule this way because the Temporary Certificate of Occupancy for the new building was the first major section of the project to be turned over to the owner on September 6, 2011. Also turned over at that time was the 13th floor of both the existing and new building. Upon completion of the new building, departments of the healthcare facility are able to move out of the existing building into their new spaces. As staff and patients move out of the

existing building, other phases of demolition and renovation of existing floors are able to proceed in the existing building. The remaining phases of construction included turning over the tower of the new building and the demolition and renovation of existing floors as coordinated between the owner and construction management team.

The construction of the new building consisted of typical New York City methods using steel construction and concrete slab on metal deck construction. The detailed phases of construction for the new building are as follows:

- Soil Remediation
- Excavation
- Foundations
- Structural Steel Erection
- Steel Deck Installation
- Pour Concrete Slab
- Steel Fireproofing
- Curtain Wall Installation
- MEP Rough-In
- Interior Fit Out
- MEP Installation
- Interior Finishes

The construction of the existing building consisted of complete demolition and renovation of the existing conditions. The detailed phases of construction for the existing building are as follows:

- General Floor Demolition
- General Abatement
- MEP Systems Demolition
- Existing Window Demolition
- Install New Punch Windows
- Install New Punch Windows
- MEP Rough-In
- Interior Fit Out
- MEP Installation
- Interior Finishes

BUILDING SYSTEMS SUMMARY

Table 2: Building System Summary Checklist		
Yes	**No**	**Scope of Work**
X		Demolition Required
X		Structural Steel Frame
X		Cast-in-Place Concrete
X		Precast Concrete
X		Mechanical System
X		Electrical System
X		Curtain Wall
X		Masonry
X		Support of Excavation
	X	LEED Certification

DEMOLITION

In order to fully renovate the thirteen stories of existing facility, a full demolition of the interior is required, as well as the demolition of existing windows in preparation for new punch out windows. Diagram 1 depicts the completed product of a full demolition of a floor in the existing building.

The existing Gouverneur Healthcare Services facility was opened in 1972. At that time, construction methods that were used to build the facility are not currently accepted by code and city agencies. Asbestos was applied through various methods of construction including flooring; window and door caulking; block tar coating; pipe insulation; mechanical equipment and materials; and electrical components. Prior to demolition, existing plans were used to develop new plans to locate the use of all asbestos in preparation for removal. In preparation for removal of asbestos, the contractor must totally isolate the area of removal preventing other workers and hospital staff from entering the area. Diagram 2 depicts an area in the existing structure receiving asbestos removal treatment with proper use of negative pressurization and signage. In order to remove asbestos from the exterior of the building, the scaffolding system used to install windows throughout the building was used.

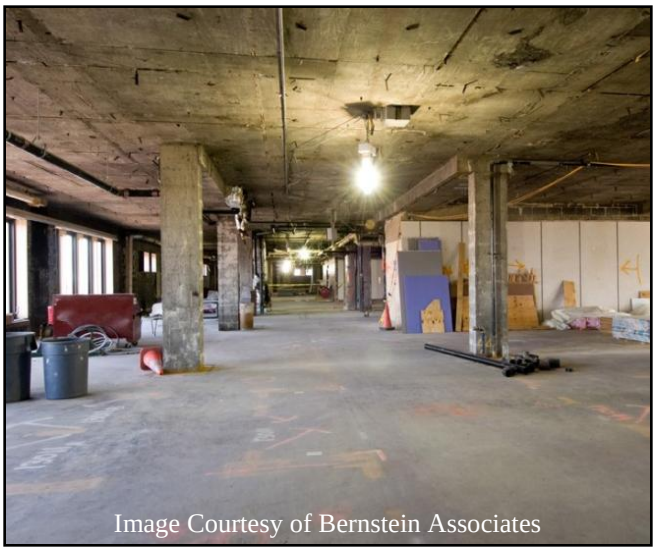


Diagram 1: 13th Floor Demolition

Diagram 2: 13th Floor Abatement

Existing plans for the building were also used in preparation of hazardous material, universal waste, and polychlorinated biphenyl (PCB) removal. Hazardous material and universal waste that were removed throughout the building include chlorofluorocarbon or CFC containing equipment; PCB containing equipment; HID lighting; fluorescent bulbs and ballasts; chemical; mercury containing materials; and red bagged waste. PCB material that was removed throughout the building includes exterior window caulking, expansion joint caulking, slop sink caulking, and louver frame caulking.

STRUCTURAL STEEL FRAME

The existing structure is comprised of a typical concrete structure incorporating a concrete beam, column, and slab system. The structural engineer deemed the existing structure's design to be acceptable to support the newly renovated spaces, therefore, requiring no added structural support to support the floors.

The new podium and tower being constructed is a structural steel and concrete slab system. The base columns on the inside of the building are supported by 12' x 6' piers which each rely on 5 to 10, 100 ton piles for stability. All columns that support the structure are W-flanged members that typically span two to three floors at a time. Compared to a typical W-beam support system, structural designers incorporated a castellated beam and W-beam design. The integrated design would allow for equal floor elevations between the new buildings steel structure and the existing buildings concrete structure. The design also provided the maximum allowable heights

achievable between floors, which serves as a benefit to the high volume of MEP equipment and material that will support the healthcare facility. Supported by the beam is 4 ¼" lightweight concrete fill reinforced with 6x6-W2.1x2.1 WWF placed 1" from the top of slab on a 2" 16 gage galvanized composite floor deck. For lateral load stability, the structure is supported with horizontal bracing members typically consisting of HSS8x8x5/8 and HSS16x8x5/8 members. Additionally, all structural steel columns located on the exterior to support overhangs are encased in a round lightweight concrete column. The following diagrams depict some of the structural descriptions mentioned above.

Diagram 3: New Building Structure

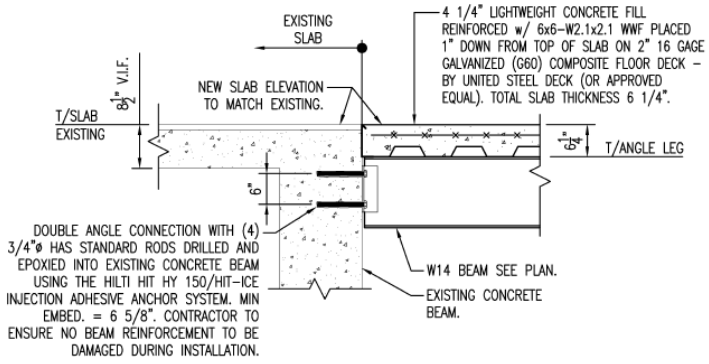


Diagram 4: Slab Elevations

Diagram 5: Exterior Columns

A Manitowoc 4100 crawler crane was used to pick steel members throughout the entire erection of the structural steel frame. The crawler crane has a maximum lifting capacity of 230 tons and a reaching capability of up to 250 feet. For the majority of the erection phase, the crane traveled a designated path along the corner of Madison Street and Jefferson Street. For a better understanding of the crawler crane's location, see the Superstructure Planning Layout in Appendix E on page 41.

CAST-IN-PLACE CONCRETE

The foundation that will support the new building structure, including the footers, piers, floor slab, and grade beams, consists of cast-in-place concrete. The concrete used for foundation work and floor slabs was placed using a traditional pump truck that transported the concrete by pump from the truck to the location of placement. Conventional wood formwork was used to form and support the concrete where necessary. Additionally, on the exterior, all of the new sidewalks, planters, ramp, and front entrance staircase base used cast-in-place concrete and was formed using traditional horizontal and vertical wooden formwork, as seen in Diagram 6 below. Most of this concrete was delivered by concrete truck and placed using a concrete placement buckets.

Diagram 6: Main Entrance Stair Base

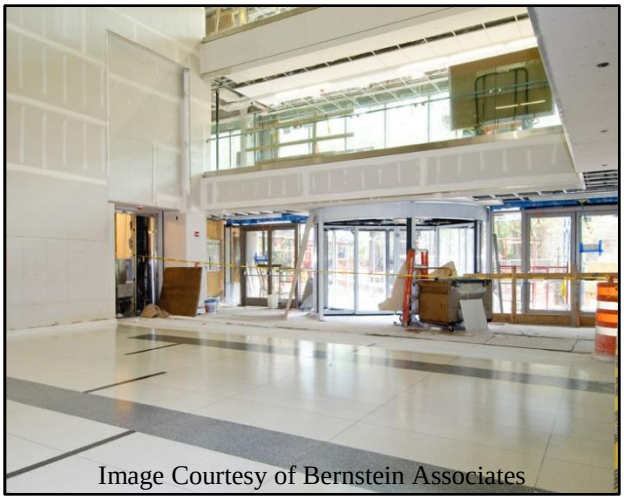


Diagram 7: Atrium Lobby Terrazzo

On the interior of the new building, the floor slabs consisted of cast-in-place 4 ¼" lightweight concrete which was support by a 2" 16 gage galvanized deck. No shoring was required for these pours because the steel deck used in design met the allowable deflection requirements. On the first floor, a cast-in-place terrazzo flooring system was incorporated in the design throughout the atrium and lobbies, as seen in Diagram 7 above. Additionally, cast-in-place concrete infill's were used to patch flooring throughout the existing building.

PRECAST CONCRETE

Precast concrete was not used for this project, except in a couple instances. In the main lobby of the new building, a one story feature staircase will use precast terrazzo treads and risers. Also, the exterior main entrance staircase will feature precast granite block to serve as the tread and riser of the staircase. The precast concrete used on the job was cast in an off-site location and delivered to the site for installation. The precast systems used can be seen in the diagrams below.


Image Courtesy of Bernstein Associates

Diagram 8: Main Entrance Granite Stairs

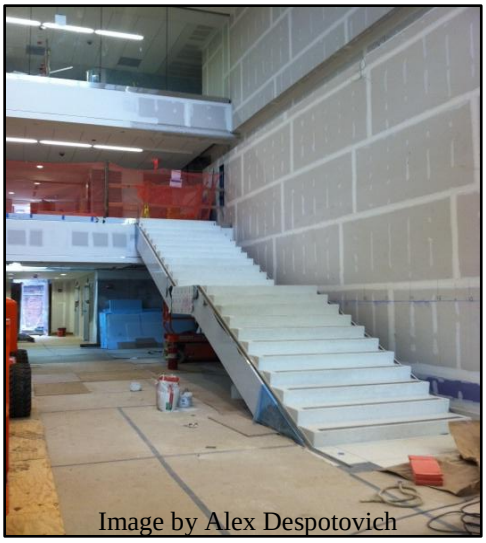


Image by Alex Despotovich

Diagram 9: Terrazzo Atrium Stairs

MECHANICAL SYSTEM

The Gouverneur Healthcare Services facility will undergo a complete modernization of its existing infrastructure and receive new equipment and support systems that will support both the new and existing facility. Overall, the mechanical system will feature a combination of eleven air handling units that are capable of delivering a combined air flow of 350,200 CFM to spaces throughout the building. Additionally, the mechanical system will feature three induced draft cooling towers to supply chilled water to various mechanical components that support the building.

Located on the 6th floor of the new building are three variable air volume air handling units, AHU-5, AHU-6, and AHU-7, which will distribute air to the podium, floors 1-5, of the new building. AHU-5 will primarily serve the four story atrium with 14,000 CFM of air, while AHU-

6 and AHU-7 will each provide 50,000 CFM of air throughout the various podium spaces located in the new building. Located on the 14th floor roof/penthouse of the existing building are four variable air volume air handling units, AHU-1, AHU-2, AHU-3, and AHU-4, which will distribute air to spaces throughout the existing building. AHU-1 will serve the north end with 17,000 CFM of air, AHU-2 will serve the south end with 20,000 CFM of air, AHU-3 will serve the west end 100,000 CFM of air, and AHU-4 will serve the east end 60,000 CFM of air. Additionally, there are four existing air handling units that are to remain in the building which will serve the existing building's cellar and first floor including the main lobby, auditorium, and staff locker rooms.

To ensure the safety of all occupants of the building, a variety of methods have been incorporated in the design of the building fire suppression system. Approximately 195 fire smoke dampers have been incorporated into the fire suppression design that are connected to a number of duct smoke detectors that will use the ductwork as a method of smoke control during a fire. The fire protection design incorporates a combination of both a pre-action integrated sprinkler system and dry pipe sprinkler total pac system. The sprinkler system will be fed by a new, automatic fire pump located in the cellar of the existing building.

ELECTRICAL SYSTEM

The Gouverneur Healthcare Services facility will undergo a complete modernization of its existing infrastructure through replacement of most of the electrical systems. The electric service is fed to the building by Con Edison of New York. The service is fed into the electrical room in the cellar of the existing building at 208/120V power to two 4000 amp, 3 phase service boards, Service Board "A" and Service Board "B". Each service board feeds power to a 4000 amp, 3 phase Main Distribution Board "MBD-A" and a 3000 amp, 3 phase Main Distribution Board "MBD-B" which distributes the power where necessary throughout the building. Service Board "A" serves a 3000 amp bus duct which supplies power to the electrical closets of the existing building and 14th floor penthouse. Main Distribution Board "MDB-B" serves an 800 amp bus duct which supplies power to the electrical closets of the new building and 6th floor roof mechanical equipment. Service Board "B" also distributes power to a fire alarm fused cut-out panel that controls the fire command station, central station, pre-action panel system, and DGP riser. A new 1000KW, 480/277V emergency generator will feed power through a step down

transformer to support Service Board "B" in the case of an emergency. Power created by the generator also distributes power to the fire pump and a 480/277V, 200 amp Service Board "E" which feeds hospital equipment that must remain active during an emergency outage. When necessary, power is stepped up or switched from 208/120V to 480/277V by use of a transformer to systems that require such type of power.

CURTAIN WALL

The design of the new addition will step away from the existing brick veneer by incorporating a glazed curtain wall system. The eight story tower façade is comprised of fabricated wall panel assemblies, structural sealant glazed curtain wall, bronze tinted low-e insulating glass, and a flat resin panel screen up on the penthouse level. The five story building façade is comprised of bronze tinted low-e insulated glass, glazed aluminum curtain wall, fabricated wall panel assemblies, and flat resin panel screen on the 6th floor penthouse. The new main entrance to the facility will feature a bronze tinted, glazed revolving door and glazed aluminum storefront doors. A visual rendering and picture can be seen below to better understand the new curtain wall system.

Diagram 10: Main Entrance Curtain Wall

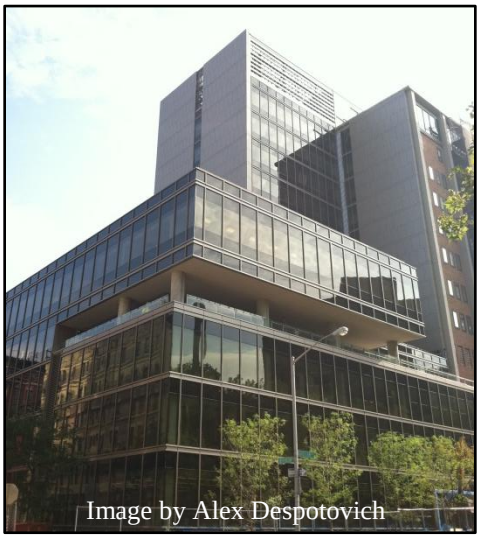


Diagram 11: New Curtain Wall

The curtain wall design for the new building was designed by one of New York City's largest metal and glass company and country's largest supplier of structural glass systems, W&W Glass LLC. In addition to the design, W&W also installs the curtain wall system work with their own union labor work force of glaziers and ironworkers.

For the construction of the system, the curtain wall was delivered in protective crates, transported up the hoist, and staged on its designated floor of installation. In order to install the system, a Beech Counterweight Hydraulic Floor Crane was used. The crane was set one or two stories above the installation location and would allow workers to pick sections of the system from the floor below and set the system into place while other workers fastened connections.

MASONRY

The design of the new addition to the Gouverneur Healthcare Services facility does not incorporate the use of any load bearing or veneer masonry. The existing thirteen story structure, however, uses a brick veneer to serve as the exterior façade. During the renovation of the existing structure, an engineered traditional scaffolding system will rise from the ground to the roof. This scaffold will be used to replace the existing 2' x 4' windows with new 3' x 6' punch windows, to paint all of the exterior columns, and if necessary, make repairs to the existing brick veneer.

SUPPORT OF EXCAVATION

The excavation done, in preparation for installation of foundation work, served as quite challenge for the project superintendents. Some of the challenges posed included coordinating work with the New York City Department of Transportation and the New York City Department of Design and Construction, monitoring the foundation of the existing building during excavation, and understanding the location of existing, active underground utilities in the area of excavation. Additionally, the excavation crew discovered historical foundations of buildings estimated to have been built back in the 1800's.

In order to handle tight site conditions between excavation and active sidewalks and roadways, a mixture of excavation support methods were applied. Where excavation occurred on Madison Street, a sheeting and shoring support system was used to support excavation in order to prevent disruption to the active sidewalk and bicycle lanes. As work progressed away from Madison Street towards Henry Street, excavation was able to meet OSHA slope ratio requirements without disrupting adjacent streets or sidewalks.

During the installation of the piles that are to support major foundation components, a dewatering pump system was installed to remove water from the pile holes. A major scope of work during excavation included a soil remediation plan that removed contaminated soil and water caused by existing utilities. During this process, a dewatering plan was put in effect that would remove and filter the water during remediation and would have to been overseen by the New York City Department of Environmental Protection agency.

LEED CERTIFICATION

The Gouverneur Healthcare Services building renovation and addition will not be constructed as a LEED project, therefore no efforts will be put forth to acquire a LEED rating. Design consultants implemented the use of lighting motion sensors as replacement to manual switches for a majority of areas throughout the building. Additionally, as required by code, mechanical infrastructure upgrades will feature energy efficient mechanical, electrical, and plumbing systems. The sixth floor roof is to feature a roof garden for use of patients of the hospital which will house multiple benches and a variety vines, shrubs, and perennial herbs. See below diagrams for a better understanding of the green roof details.

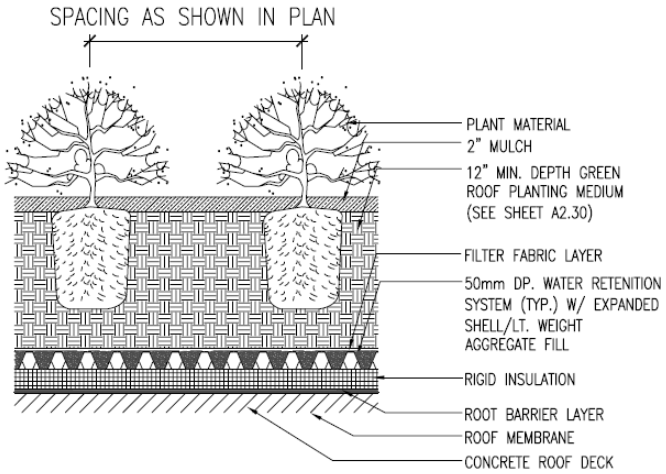


Diagram 12: Shrub Planting Detail

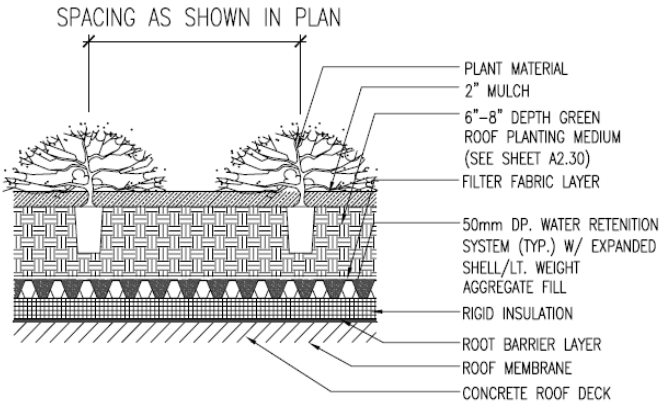


Diagram 13: Ground-Cover Planting Detail

PROJECT COST EVALUATION

The total cost of the modernization to the Gouverneur Healthcare Service facility is currently budgeted at approximately $207 million. All listed project costs have been provided by Hunter Roberts Construction Group and are forecasted project costs estimated by the construction management team.

PROJECT PARAMETERS

- NEW BUILDING SQUARE FOOTAGE: 116,954 SF
- EXISTING BUILDING SQUARE FOOTAGE: 328,665 SF
- TOTAL BUILDING SQUARE FOOTAGE: 445,610 SF
- TOTAL BUILDING PERIMETER: 1,035 LF

BUILDING CONSTRUCTION COSTS

- CONSTRUCTION COSTS: $157,445,805
- CONSTRUCTION COSTS PER SQUARE FOOT: $353.33/SF

TOTAL PROJECT COSTS

- PROJECT COSTS: $207,350,938
- PROJECT COSTS PER SQUARE FOOT: $465.32/SF

BUILDING SYSTEMS COSTS

Table 3: Building System Costs

BUILDING SYSTEM	PROJECTED COSTS	PROJECTED COSTS/SF
STRUCTURAL STEEL	$ 7,302,390.00	$ 16.39
MECHANICAL SYSTEM	$ 24,503,029.00	$ 54.99
FIRE SUPPRESSION SYSTEM	$ 3,350,826.00	$ 7.52
PLUMBING SYSTEM	$ 13,941,380.00	$ 31.29
ELECTRICAL SYSTEM	$ 18,988,728.00	$ 42.61
TELECOMMUNICATIONS/SECURITY	$ 3,216,908.00	$ 7.22
CURTAIN WALL SYSTEM	$ 8,217,346.00	$ 18.44
TOTAL	$ 79,520,607.00	$ 178.46

SQUARE FOOT ESTIMATE

The square foot estimate for the Gouverneur Healthcare Services facility was calculated using RSMeans Cost Works online estimating software. Considering the project type and the scope of work for the actual project, it is very difficult to determine an accurate estimate for the building. This is because approximately 300,000 SF of facility already exists, but requires complete demolition and renovation, while approximately 117,000 SF of building is new construction. The estimating software, based on past experience, serves as a great tool for rough estimate of the cost of a brand new building. Due to the complexity of demolition, renovation, and new construction, it is difficult to produce an accurate square foot estimate without performing detailed take offs and estimating costs using those values. Additionally, RSMeans stated that the parameters are not within the recommended ranges, referring to the height and square footage of the building. Please refer to Appendix B for the estimates detailed breakdown.

The produced estimate is based off of historical data gathered by RSMeans for hospital buildings and has been adjusted for inflation and location. Please note that the total building cost does not include contractor overhead/profit, architectural fees, and user fees. The following parameters listed in Table 4 produced a total building cost of $127,837,000 and total cost per square foot of $280.58/SF. Complexity aside, the square foot estimate is within twenty percent of the actual building project cost, which is an acceptable standard in the industry for this type of estimate.

Table 4: RSMeans Estimate Parameters

ITEM	DESCRIPTION
BUILDING TYPE	Hospital, 4-8 Story with Face Brick with Concrete Block Back-up/ R/ Concrete Frame
LOCATION	New York, NY, 10002
STORIES COUNT	13
STORIES HEIGHT (FT)	12
FLOOR AREA	455,610
LABOR TYPE	Union
BASEMENT INCLUDED	Yes
DATA RELEASE	Year 2011 Quarter 3
COST PER SQUARE FOOT	$280.58
TOTAL BUILDING COST	$127,837,000

ASSEMBLIES COST ESTIMATE

The assemblies cost estimate for the Gouverneur Healthcare Services facility was calculated using RSMeans Cost Works online estimating software. Considering the project type and the scope of work for the actual project, it is very difficult to determine an accurate estimate for the building. The detailed assemblies estimate can be found in Appendix C.

The scope of work included in the estimate compared to the project varies greatly between estimated and actual costs. Reasoning behind this flaw may be caused by how the estimates were determined. The assemblies cost estimate used quantity of systems, as compared to square foot costs. For example, the mechanical system estimate accounts for the major mechanical systems on the job, but not added material costs such as ductwork and fittings. For electrical, major components of the system such as electrical panels and generators were accounted for, but not conduit, wire, receptacles, and lighting. Lacking these system components has greatly deviated the estimate cost compared to actual costs because the missing components make up a large portion of the systems cost, especially in large healthcare facility. Please refer to Table 5 for the quantities that were estimated for the MEP system of the healthcare facility.

Table 5: RSMeans Assemblies Estimate Comparison

TYPE OF SYSTEM	ESTIMATE COSTS	ACTUAL COSTS
PLUMBING SYSTEM	$ 5,723,879.35	$ 13,941,380.00
MECHANICAL SYSTEM	$ 5,598,496.68	$ 24,503,029.00
ELECTRICAL SYSTEM	$ 1,413,962.94	$ 18,988,728.00
TOTAL SYSTEM COST	$ 12,736,338.97	$ 57,433,137.00

CONCLUSION

In conclusion, the RS Means Square Foot estimate actually served as a fairly accurate estimate to the actual building cost comparing totals within twenty percent. Major systems such as mechanical, electrical, and plumbing had fairly produced fairly positive estimates compared to actual costs of the project. On the other hand, an assemblies cost of the project at hand did not serve as an accurate estimate to the actual building costs. Lacking components such as ductwork and lighting can greatly deviate the estimate and it is clearly shown through the results of the assemblies estimate.

SITE PLANS

EXISTING CONDITIONS

The Gouverneur Healthcare Services building is located on the Lower East Side of New York City at 227 Madison Street, New York, NY, 10002. The building occupies a full city block and is surrounded by very active streets including Madison Street to the south, Henry Street to the north, Clinton Street to the east, and Jefferson Street to the west, three of which are one way streets. The area contains a variety of buildings including residential, mixed-use, open space, community facilities and manufacturing, all of which are less than 10 stories above the street level. See Diagram 14 for a better understanding of the location and surrounding area.

Diagram 14: Front and Rear Existing Conditions View

For a more detailed reference of the existing conditions of the Gouverneur Healthcare Services project, please refer to Appendix D. This particular healthcare project serves as a great challenge to the team constructing it due to the fact that the hospital will remain active during the entire phase of construction. The safety of the workers, staff and patients of the facility, and many pedestrians that travel alongside the site is of the upmost importance. In order to do so, overhead protection was constructed in locations surrounding the site to protect passing pedestrians. The underground utilities that service the existing building will remain during and after construction. Working with limited on site space, the construction fence extends out past the property line into the surrounding streets on Jefferson Street and Madison Street. During construction, approval was obtained by the New York City Department of Transportation to occupy the existing

sidewalk and partial street because it would not disrupt the one way street traffic on Jefferson Street. Pedestrian and vehicular traffic would be accommodated accordingly.

The existing entrance of the facility is located on Madison Street. During construction, the main entrance will be moved to Clinton Street to allow the new building to be constructed and provide the construction team with more site space. At the end of the first major phase of construction, the new building will be turned over to the owner and will feature the new main entrance to the facility. Also, an existing service road runs parallel to Henry Street adjacent to the existing facility. After construction, the proposed design will eliminate that service road and a new one will be constructed entering the site from the corner of Henry Street and Jefferson Street.

SITE LAYOUT PLANNING

The site layout drawings are phased into four separate plans including Excavation/Foundation, Superstructure, Interiors Phase 1, and Interiors Phase 2 in order to accommodate the owners needs to maintain an operational facility while achieving an efficient production of construction. All site layout planning drawings can be seen in Appendix E.

During the Excavation/Foundation phase of construction, the location of the new building is the only space that will be closed off to the public. Working with the New York City Department of Transportation, the construction boundary was able to extend out into Jefferson Street. Additionally, the side walk that is consumed by construction on Madison Street has been accommodated for by using barriers to create a safe path for pedestrians. With an extension of the construction boundary, a construction gate entrance and exit was laid out for trucks to enter along Jefferson Street and exit onto Madison Street. An equipment entrance and exit has been placed at the north end of the site to allow construction equipment to access the excavation area, as well as access for dump trucks to transport excavated soil off the site. A concrete pump truck has been placed on the sidewalk where a concrete truck can park next to it, pump concrete, and exit the site in an efficient manner. Due to lack of site space, any necessary office space for construction personnel has been located inside the building on a floor that has been turned over to the construction team for demolition.

As the Excavation/Foundation phase of construction proceeds to Superstructures, the hospital will turn over the existing main entrance to allow for more site access for construction personnel.

A temporary main entrance has been located on Clinton Street for visitors and staff of the facility, and the existing main entrance will now serve as a construction personnel entrance. The path of travel for the concrete and steel trucks will remain the same. For the structural steel erection, a crawler crane has been strategically located at the south end of the site that allows the crane to make picks to any location. Additionally, during the curtain wall installation, a beech hydraulic counterweighted crane will be used to pick sections of glass at any point along the outside of the building. It will be located on the interior of the building and its path of travel can be seen on the Superstructure Plan. A personnel and material hoist has been located along Madison Street and will rise to the 13th floor during the superstructure phase of construction to deliver manpower and material to their designated floors. Due to lack of site space, any necessary office space for construction personnel has been located inside the building on a floor that has been turned over to the construction team for demolition. Site superintendents have a conveniently located site trailer along Madison Street for easy access to both the existing building and new construction.

The interior site layout planning drawing has been divided into two phases. During phase one of the interior plans, the new building is progressing towards turnover while demolition and renovation will only occur on the 13th floor prior to new building turnover. Most of the work being done during this phase consists of interior fit out and finishes, but site work on the exterior of the new building will still be taking place. The access road to the site will remain the same with interior delivery path located towards the corner of Henry Street and Jefferson Street up to the new building's first floor or down into the cellar. Also, concrete trucks will continue to use this access road to deliver concrete for site work that is being done on Madison Street and Jefferson Street. Since almost all work has moved inside, bathrooms have been built out for the use of construction workers. Temporary power exists in the same location but will also be fed into the building for interior work. During phase two of the interior plan, all work being done will consist of demolition and renovation of existing floors throughout the building. At this point in time, the new building will have been turned over to the owner and the new entrance will be open to the public. All deliveries will be made through the facilities loading dock and delivered by elevator from the cellar. The loading dock will also be for garbage removal during demolition and renovation. The site has drastically changed at this point because the new building has been turned over. Construction trailers for the construction management and

general contractor will remain in their location and the contractor's trailers will be located in the existing parking lot. Although the main entrance for the new building has opened, a covered temporary entrance will still remain on Clinton Street.

Overall, the construction management team has done an excellent job in preparing site layout plans for the facility. The team has successfully planned around the owner's needs and lack of site space by coordinating work with the City. Working with a tight site can pose many challenges on a job site, but through coordination and planning it can be done successfully. As with all projects, the safety of pedestrians, faculty, patients, and construction workers are of the upmost importance on this project.

LOCAL CONDITIONS

In the New York City area, the preferred method of construction is steel due to the height of structures being built and site restrictions for many projects throughout the city. On the Lower East Side, however, many of the buildings were built in the mid 1980's and were either constructed using concrete or load bearing masonry structures. In current day, steel construction is a very common practice due to the high productivity rates achieved using this method. The existing Gouverneur facility, built in 1972, is a concrete structure with a brick veneer façade, but the new building will be built using steel construction methods.

Due to very tight site conditions, the availability for construction parking does not exist on site. If workers choose to travel by car, there are various parking options on surrounding streets and parking lots, but none specifically dedicated to workers on the project. However, in New York City, it's not very common for one to travel by car to work, so many take advantage of the elaborate amount of public transportation including subways, buses, and cabs. Located directly on Madison Street are bus stops that travel to directly to the PATH station, for those who commute from New Jersey. Located a few blocks away on Rutgers Street and East Broadway are subway stops that allow one to travel one of the many subways that run underneath the city.

The availability of recycling and tipping fees does not exist on the Gouverneur Healthcare Services. Although no recycling was used, typical separation of materials is monitored when processing garbage on the jobsite.

After reviewing the geotechnical report produced by GZA GeoEnvironmental of New York, it was determined that the soil below grade contained a variety of silt-based soils, including silty clay and silty sand. Groundwater readings were made over a stabilization time of 25 hours recorded readings of a 5-10 depth.

CLIENT INFORMATION

The owner of the Gouverneur Healthcare Services facility is the New York City Health and Hospitals Corporation, HHC. The New York City HHC is an integrated healthcare delivery system that provides medical, mental health, and substance abuse services through a variety of care hospitals, nursing facilities, community based clinics, and diagnostic and treatment centers. Through a five year, $824 million investment plan, HHC is modernizing existing and new structures to "facilitate the delivery of effective, efficient and patient-centered care, maximizing the comfort and dignity all HHC patients deserve," according to the HHC website.

New York City HHC is looking to completely renovate and expand the Gouverneur Healthcare Services facility to provide faculty and patients with more comfortable and user friendly spaces. The modernization of the mechanical infrastructure will provide the facility with new energy efficient and state of the art equipment to support the building. At the end of day, the renovation and expansion will reach Gouverneur's goal to expand their patient bed count from 210 beds to 295 beds. The new building will provide Gouverneur with space to house ambulatory care departments including Surgery, Podiatry, OB/GYN, Adult Behavioral Program, Women Infants and Children, and Pharmacy.

The construction management team, Hunter Roberts Construction Group, is working very closely with the owner and the Dormitory Authority for the State of New York, DASNY, in order to deliver the project with the highest quality of construction while meeting both schedule and cost expectations. The sequencing of the schedule has been strategically planned to deliver construction in six phases to meet the owner's needs in maintaining a fully operational facility during construction, as well as maintaining occupancy requirements as required by New York City. Because the facility will remain operational, the safety of not only the construction workers, but also the patients and staff throughout, is of the upmost importance.

In order to complete the project to the owner's satisfaction, it is important that Hunter Roberts, HHC, and DASNY work closely in design and coordinating work to prevent disruption throughout the active facility. Also, working closely to meet schedule needs is very important in maintaining satisfaction for not only the owner and staff, but also for the patients.

PROJECT DELIVERY METHOD

The Gouverneur Healthcare Services renovation and expansion project is being delivered as design-bid-build, in prime contractor format, with a construction management agency. New York City Health and Hospitals Corporation, HHC, is state agency for the city of New York who is the owner and operator of the healthcare facility.

When working in the educational and healthcare sector of construction in New York City, typically there is a state agency involved in the project, whether it may be to oversee design and construction or provide funding or both. In this case, the Dormitory Authority for the State of New York, DASNY, is contracted directly through HHC to oversee the modernization project from conceptual design to final completion, as well as providing the facility with a budget to fully fund the project. DASNY is contracted by HHC through a Memorandum of Understanding.

As part of the design and construction process, DASNY is the major player for the project to which they hold the contracts between all parties involved, including the design consultants, prime contractor, and vendors. Contractors for the job publically bid for work and work directly for DASNY if awarded the contract. Contracts held between DASNY and the contractors are all Prime Lump Sum contracts. The design consultants are contracted by DASNY through a Lump Sum contracts as well. Hunter Roberts Construction Group is contracted by Memorandum of Understanding through DASNY to serve as a construction management agency to both DASNY and the Health and Hospitals Corporation. Because this job is built under the public sector, every party involved on the job is responsible for their own bonding and insurance plans.

Please refer to Figure 3 for a visual understanding of the project delivery method used on the Gouverneur Healthcare Services modernization project.

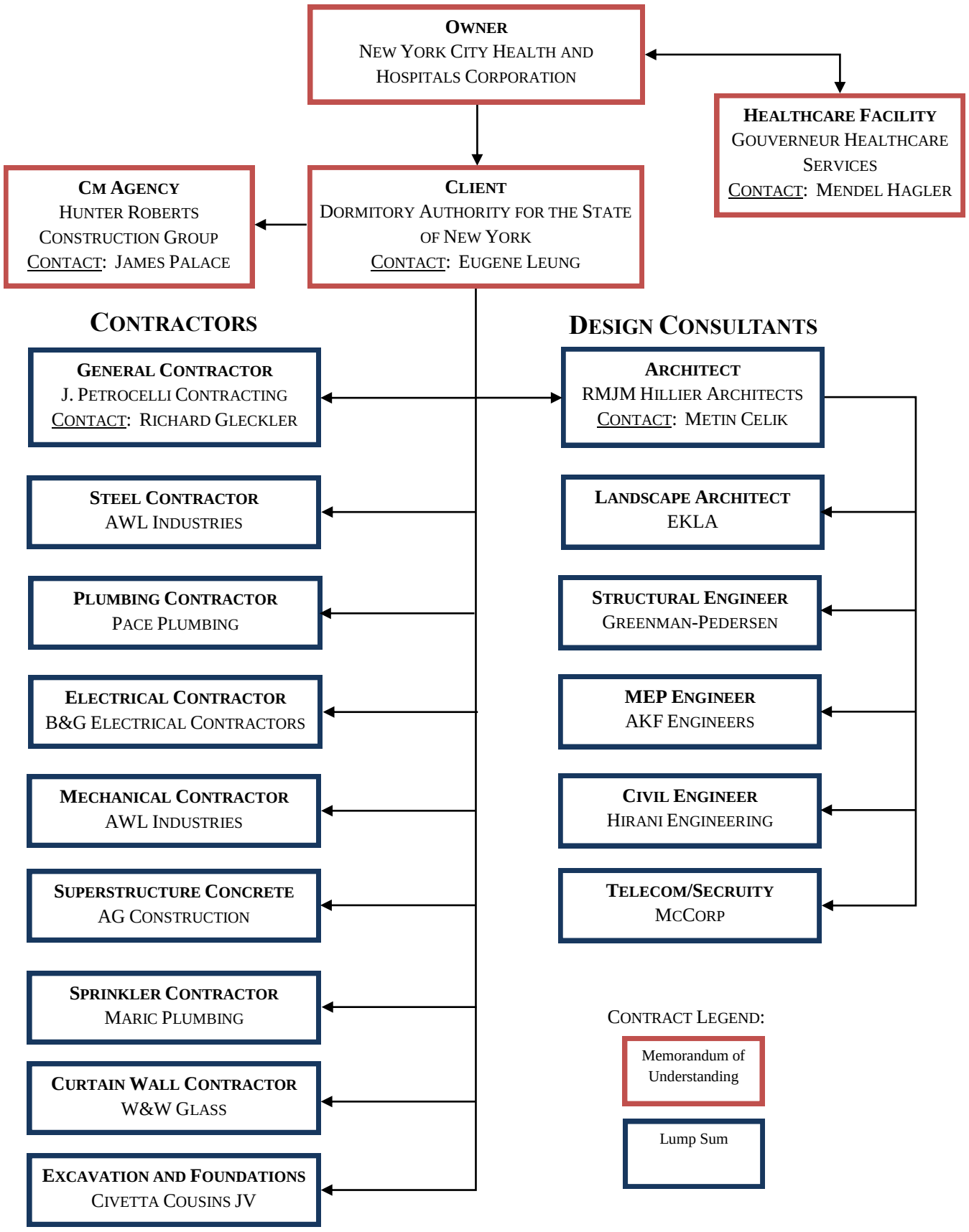


Figure 3: Project Delivery Method

STAFFING PLAN

The staffing plan assigned for the Gouverneur Healthcare Service renovation and expansion can be seen in Figure 4 below. This plan shows the staff assigned for the construction management agency, Hunter Roberts Construction Group. Senior project executive, James Palace, and his team work very closely to efficiently manage the construction process in order to provide the owner with a high quality product while maintaining schedule and cost expectations.

The project management team staffed to the job work very closely with the owner, design consultants, and construction contractors to resolve issues in design, monitor costs, meet schedules requirements, and working with the owner to coordinate work in a very active healthcare facility.

Due to the volume of construction taking place for this project, four superintendents are staffed to monitor all work being put in place in the field and coordinate work between various trades on site. With the complete mechanical infrastructure being upgraded, it was deemed necessary to have staffed two MEP superintendents to monitor the high volume of equipment and new infrastructure being installed throughout the building.

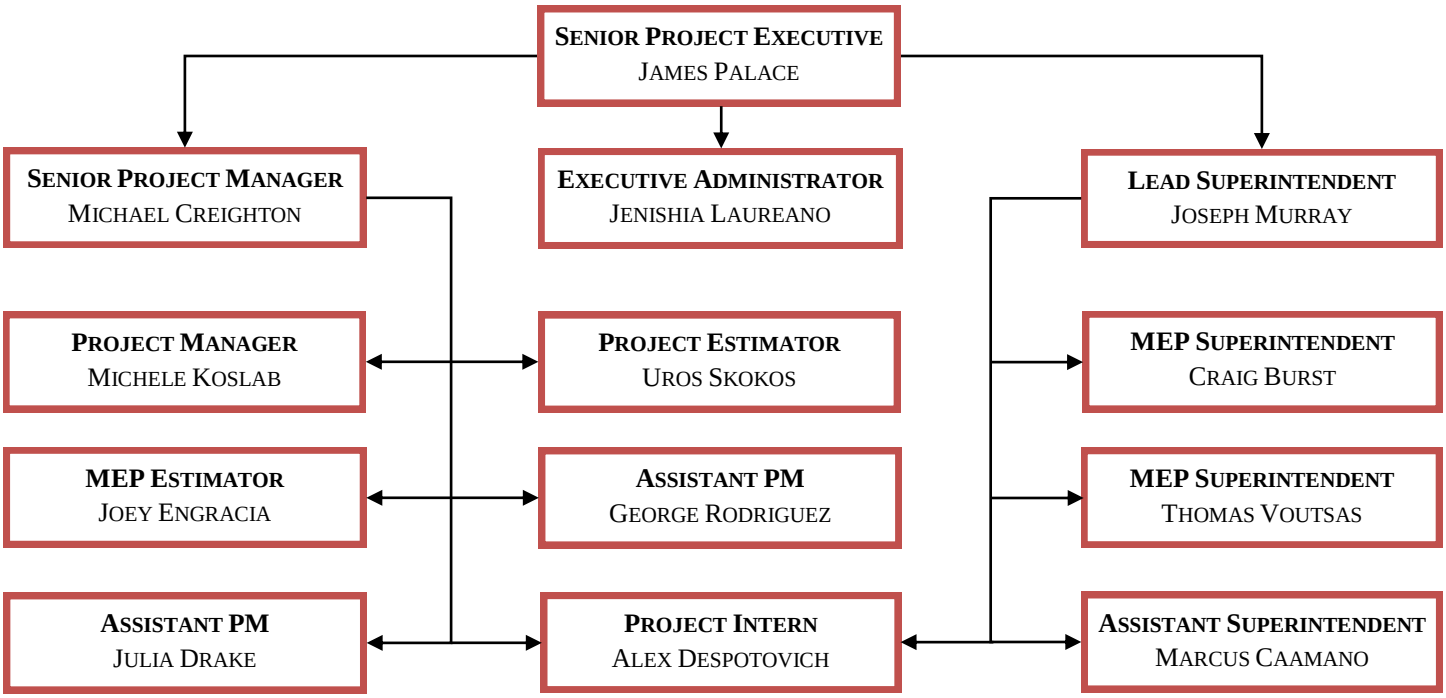


Diagram 4: Staffing Plan

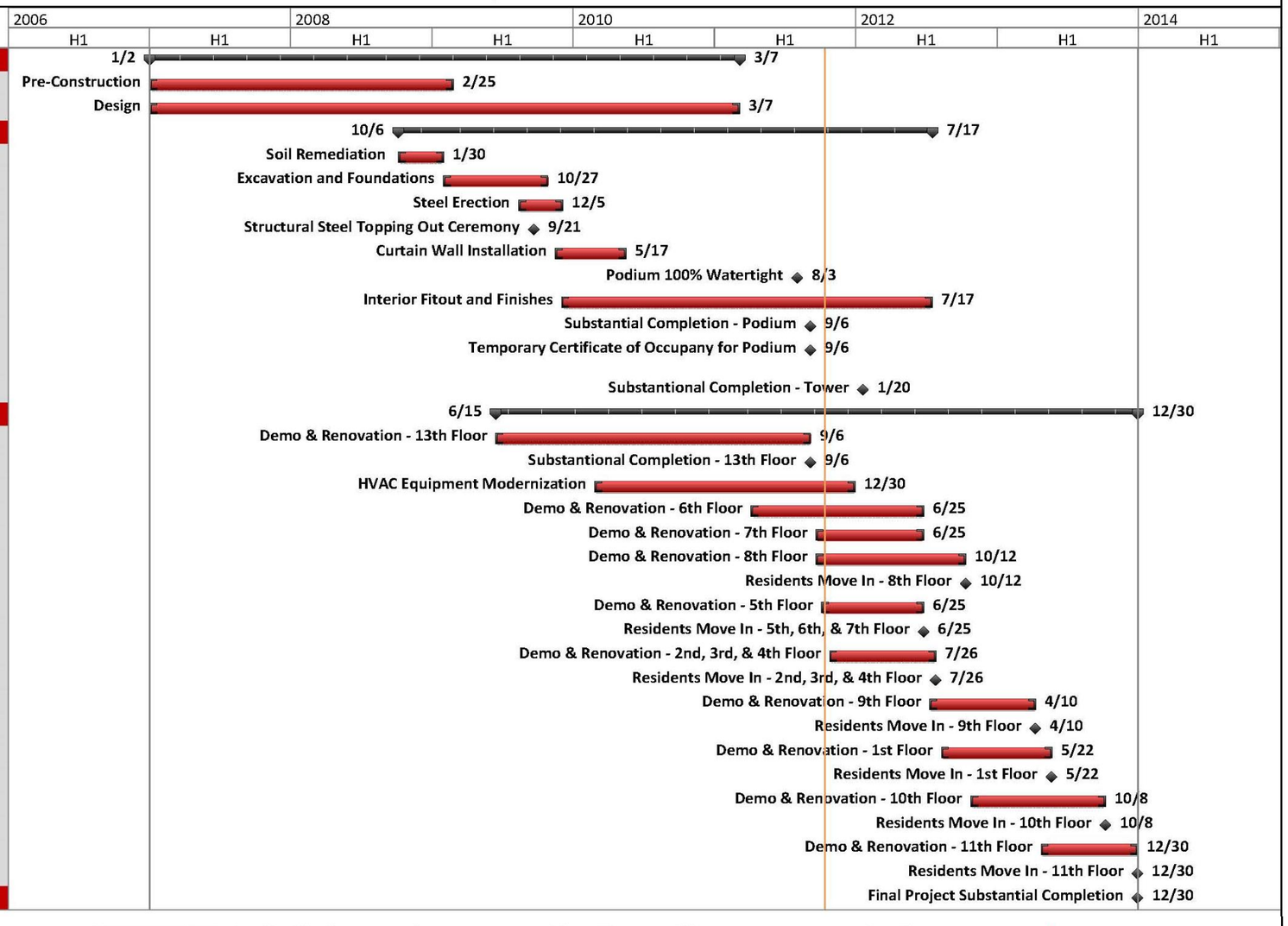
APPENDIX A

SUMMARY SCHEDULE

GOUVERNEUR HEALTHCARE SERVICES PROJECT SUMMARY SCHEDULE

Gouverneur Healthcare Services Summary Schedule

ID	Task Name	Duration	Start	Finish
1	**Pre-Construction Phase**	**1090 days**	**Tue 1/2/07**	**Mon 3/7/11**
2	Pre-Construction	562 days	Tue 1/2/07	Wed 2/25/09
3	Design	1090 days	Tue 1/2/07	Mon 3/7/11
4	**New Building Construction**	**987 days**	**Mon 10/6/08**	**Tue 7/17/12**
5	Soil Remediation	85 days	Mon 10/6/08	Fri 1/30/09
6	Excavation and Foundations	193 days	Fri 1/30/09	Tue 10/27/09
7	Steel Erection	83 days	Thu 8/13/09	Sat 12/5/09
8	Structural Steel Topping Out Ceremony	0 days	Mon 9/21/09	Mon 9/21/09
9	Curtain Wall Installation	131 days	Mon 11/16/09	Mon 5/17/10
10	Podium 100% Watertight	0 days	Wed 8/3/11	Wed 8/3/11
11	Interior Fitout and Finishes	685 days	Wed 12/2/09	Tue 7/17/12
12	Substantial Completion - Podium	0 days	Tue 9/6/11	Tue 9/6/11
13	Temporary Certificate of Occupany for Podium	0 days	Tue 9/6/11	Tue 9/6/11
14	Substantional Completion - Tower	0 days	Fri 1/20/12	Fri 1/20/12
15	**Existing Building Construction**	**1186 days**	**Mon 6/15/09**	**Mon 12/30/13**
16	Demo & Renovation - 13th Floor	582 days	Mon 6/15/09	Tue 9/6/11
17	Substantional Completion - 13th Floor	0 days	Tue 9/6/11	Tue 9/6/11
18	HVAC Equipment Modernization	481 days	Fri 2/26/10	Fri 12/30/11
19	Demo & Renovation - 6th Floor	319 days	Wed 4/6/11	Mon 6/25/12
20	Demo & Renovation - 7th Floor	199 days	Wed 9/21/11	Mon 6/25/12
21	Demo & Renovation - 8th Floor	278 days	Wed 9/21/11	Fri 10/12/12
22	Residents Move In - 8th Floor	0 days	Fri 10/12/12	Fri 10/12/12
23	Demo & Renovation - 5th Floor	189 days	Wed 10/5/11	Mon 6/25/12
24	Residents Move In - 5th, 6th, & 7th Floo	0 days	Mon 6/25/12	Mon 6/25/12
25	Demo & Renovation - 2nd, 3rd, & 4th Fl	197 days	Wed 10/26/11	Thu 7/26/12
26	Residents Move In - 2nd, 3rd, & 4th Floo	0 days	Thu 7/26/12	Thu 7/26/12
27	Demo & Renovation - 9th Floor	196 days	Wed 7/11/12	Wed 4/10/13
28	Residents Move In - 9th Floor	0 days	Wed 4/10/13	Wed 4/10/13
29	Demo & Renovation - 1st Floor	204 days	Fri 8/10/12	Wed 5/22/13
30	Residents Move In - 1st Floor	0 days	Wed 5/22/13	Wed 5/22/13
31	Demo & Renovation - 10th Floor	249 days	Thu 10/25/12	Tue 10/8/13
32	Residents Move In - 10th Floor	0 days	Tue 10/8/13	Tue 10/8/13
33	Demo & Renovation - 11th Floor	178 days	Thu 4/25/13	Mon 12/30/13
34	Residents Move In - 11th Floor	0 days	Mon 12/30/13	Mon 12/30/13
35	**Final Project Substantial Completion**	**0 days**	**Mon 12/30/13**	**Mon 12/30/13**



Gouverneur Healthcare Services
Alex Despotovich
September 23, 2011

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline
Split	External Tasks	Inactive Summary	Manual Summary	Progress
Milestone	External Milestone	Manual Task	Start-only	
Summary	Inactive Task	Duration-only	Finish-only	

Appendix A

APPENDIX B

RS MEANS SQUARE FOOT ESTIMATE

Square Foot Cost Estimate Report

Estimate Name:	**Gouverneur Healthcare Services**
	227 Madison Street
	New York
	NY
	10002
Building Type:	**Hospital, 4-8 Story with Face Brick with Concrete Block Back-up / R/Conc. Frame**
Location:	NEW YORK, NY
Stories Count (L.F.):	**13.00**
Stories Height	**12.00**
Floor Area (S.F.):	**455,610.00**
LaborType	**Union**
Basement Included:	Yes
Data Release:	**Year 2011 Quarter 3**
Cost Per Square Foot	**$280.58**
Total Building Cost	**$127,837,000**

Costs are derived from a building model with basic components. Scope differences and market conditions can cause costs to vary significantly. **Parameters are not within the ranges recommended byRSMeans.**

		% of Total	Cost Per SF	Cost
A Substructure		**1.3%**	**3.75**	**$1,706,500**
A1010	**Standard Foundations**		**1.92**	**$875,000**
	Strip footing, concrete, reinforced, load 14.8 KLF, soil bearing capacity 6 KSF, 12" deep x 32" wide			
	Spread footings, 3000 PSI concrete, load 400K, soil bearing capacity 6 KSF, 8' - 6" square x 27" deep			
A1030	**Slab on Grade**		**0.55**	**$251,000**
	Slab on grade, 4" thick, non industrial, reinforced			
A2010	**Basement Excavation**		**0.43**	**$195,000**
	Excavate and fill, 10,000 SF, 8' deep, sand, gravel, or common earth, on site storage			
A2020	**Basement Walls**		**0.85**	**$385,500**
	Foundation wall, CIP, 12' wall height, pumped, .52 CY/LF, 24.29 PLF, 14" thick			
B Shell		**19.1%**	**53.52**	**$24,386,500**
B1010	**Floor Construction**		**32.69**	**$14,894,500**
	Cast-in-place concrete column, 16" square, tied, 400K load, 12' story height, 251 lbs/LF, 4000PSI			
	Cast-in-place concrete column, 20" square, tied, 600K load, 12' story height, 394 lbs/LF, 4000PSI			
	Flat slab, concrete, with drop panels, 6" slab/2.5" panel, 12" column, 15'x15' bay, 75 PSF superimposed load, 153 P			
	Waffle slab, cast-in-place concrete, 12" deep rib, 18" column, 30'x30' bay, 75 PSF superimposed load, 204 PSF tota			
B1020	**Roof Construction**		**2.27**	**$1,034,000**
	Floor, concrete, beam and slab, 35'x35' bay, 40 PSF superimposed load, 16" deep beam, 14" slab, 174 PSF total loa			
B2010	**Exterior Walls**		**11.82**	**$5,386,500**
	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, perlite core fill			
B2020	**Exterior Windows**		**5.02**	**$2,286,500**
	Windows, aluminum, sliding, insulated glass, 5' x 3'			
B2030	**Exterior Doors**		**0.99**	**$452,000**
	Door, aluminum & glass, with transom, full vision, double door, hardware, 6'-0" x 10'-0" opening			
	Door, aluminum & glass, with transom, non-standard, double door, hardware, 6'-0" x 10'-0" opening			
	Door, steel 18 gauge, hollow metal, 1 door with frame, no label, 3'-0" x 7'-0" opening			
B3010	**Roof Coverings**		**0.70**	**$319,000**
	Roofing, single ply membrane, reinforced, PVC, 48 mils, fully adhered, adhesive			

		% of Total	Cost Per SF	Cost
	Insulation, rigid, roof deck, composite with 2" EPS, 1" perlite			
	Roof edges, aluminum, duranodic, .050" thick, 6" face			
	Flashing, copper, no backing, 16 oz, < 500 lbs			
B3020	**Roof Openings**		0.03	$14,000
	Roof hatch, with curb, 1" fiberglass insulation, 2'-6" x 3'-0", galvanized steel, 165 lbs			
C Interiors		24.0%	67.40	$30,706,500
C1010	**Partitions**		11.82	$5,384,500
	Metal partition, 5/8" vinyl faced gypsum board face, 5/8"fire rated gypsum board base, 3-5/8" @ 24",s ame opposite			
	Gypsum board, 1 face only, 5/8" with 1/16" lead			
C1020	**Interior Doors**		14.15	$6,449,000
	Door, single leaf, kd steel frame, hollow metal, commercial quality, flush, 3'-0" x 7'-0" x 1-3/8"			
	Door, single leaf, kd steel frame, metal fire, commercial quality, 3'-0" x 7'-0" x 1-3/8"			
C1030	**Fittings**		1.17	$533,000
	Partitions, hospital curtain, ceiling hung, poly oxford cloth			
C2010	**Stair Construction**		1.49	$680,000
	Stairs, steel, cement filled metal pan & picket rail, 12 risers, with landing			
C3010	**Wall Finishes**		11.52	$5,247,500
	Glazed coating			
	Painting, interior on plaster and drywall, walls & ceilings, roller work, primer & 2 coats			
	Vinyl wall covering, fabric back, medium weight			
	Ceramic tile, thin set, 4-1/4" x 4-1/4"			
C3020	**Floor Finishes**		15.41	$7,020,000
	Composition flooring, epoxy terrazzo, maximum			
	Terrazzo, maximum			
	Vinyl, composition tile, maximum			
	Tile, ceramic natural clay			
C3030	**Ceiling Finishes**		11.84	$5,392,500
	Plaster ceilings, 3 coat prl, 3.4# metal lath, 3/4" crc, 12"OC furring, 1-1/2" crc, 36" OC support			
	Acoustic ceilings, 3/4"mineral fiber, 12" x 12" tile, concealed 2" bar & channel grid, suspended support			
D Services		46.8%	131.38	$59,857,000
D1010	**Elevators and Lifts**		7.52	$3,426,500
	Traction, geared hospital, 6000 lb, 6 floors, 12' story height, 2 car group, 200 FPM			
D2010	**Plumbing Fixtures**		16.32	$7,437,000
	Water closet, vitreous china, bowl only with flush valve, wall hung			
	Urinal, vitreous china, wall hung			
	Lavatory w/trim, wall hung, PE on CI, 19" x 17"			
	Kitchen sink w/trim, raised deck, PE on CI, 42" x 21" dual level, triple bowl			
	Laundry sink w/trim, PE on CI, black iron frame, 48" x 21" double compartment			
	Service sink w/trim, PE on CI,wall hung w/rim guard, 22" x 18"			
	Bathtub, recessed, PE on CI, mat bottom, 5'-6" long			
	Shower, stall, baked enamel, terrazzo receptor, 36" square			
	Water cooler, electric, wall hung, wheelchair type, 7.5 GPH			
D2020	**Domestic Water Distribution**		4.76	$2,170,500
	Electric water heater, commercial, 100< F rise, 1000 gal, 480 KW 1970 GPH			
D2040	**Rain Water Drainage**		0.80	$366,500
	Roof drain, CI, soil,single hub, 5" diam, 10' high			
	Roof drain, CI, soil,single hub, 5" diam, for each additional foot add			
D3010	**Energy Supply**		5.53	$2,519,000
	Hot water reheat system for 200,000 SF hospital			
D3020	**Heat Generating Systems**		0.48	$219,000

		% of Total	Cost Per SF	Cost
	Boiler, electric, steel, steam, 510 KW, 1,740 MBH			
D3030	**Cooling Generating Systems**		3.46	$1,574,500
	Chiller, reciprocating, water cooled, standard controls, 100 ton			
	Chiller, reciprocating, water cooled, standard controls, 150 ton			
	Chiller, reciprocating, water cooled, standard controls, 200 ton			
D3090	**Other HVAC Systems/Equip**		46.39	$21,137,500
	Ductwork for 200,000 SF hospital model			
	Boiler, cast iron, gas, hot water, 2856 MBH			
	Boiler, cast iron, gas, hot water, 320 MBH			
	AHU, rooftop, cool/heat coils, VAV, filters, 5,000 CFM			
	AHU, rooftop, cool/heat coils, VAV, filters, 10,000 CFM			
	AHU, rooftop, cool/heat coils, VAV, filters, 20,000 CFM			
	VAV terminal, cooling, hot water reheat, with actuator / controls, 200 CFM			
	AHU, rooftop, cool/heat coils, VAV, filters, 30,000 CFM			
	Roof vent. system, power, centrifugal, aluminum, galvanized curb, back draft damper, 1500 CFM			
	Roof vent. system, power, centrifugal, aluminum, galvanized curb, back draft damper, 2750 CFM			
	Commercial kitchen exhaust/make-up air system, rooftop, gas, 5000 CFM			
	Plate heat exchanger, 400 GPM			
D4010	**Sprinklers**		4.08	$1,857,500
	Wet pipe sprinkler systems, steel, light hazard, 1 floor, 10,000 SF			
	Wet pipe sprinkler systems, steel, light hazard, each additional floor, 10,000 SF			
	Standard High Rise Accessory Package 8 story			
D4020	**Standpipes**		0.44	$202,000
	Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, 1 floor			
	Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, additional floors			
	Cabs, hose rack assembly, & extinguisher, 2-1/2" x 1-1/2" valve & hose, steel door & frame			
	Alarm, electric pressure switch (circuit closer)			
	Escutcheon plate, for angle valves, polished brass, 2-1/2"			
	Fire pump, electric, with controller, 5" pump, 100 HP, 1000 GPM			
	Fire pump, electric, for jockey pump system, add			
	Siamese, with plugs & chains, polished brass, sidewalk, 4" x 2-1/2" x 2-1/2"			
	Valves, angle, wheel handle, 300 lb, 2-1/2"			
	Cabinet assembly, includes. adapter, rack, hose, and nozzle			
D5010	**Electrical Service/Distribution**		2.37	$1,080,500
	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 2000 A			
	Feeder installation 600 V, including RGS conduit and XHHW wire, 2000 A			
	Switchgear installation, incl switchboard, panels & circuit breaker, 2000 A			
D5020	**Lighting and Branch Wiring**		29.75	$13,556,500
	Receptacles incl plate, box, conduit, wire, 20 per 1000 SF,2.4 W per SF, with transformer			
	Wall switches, 5.0 per 1000 SF			
	Miscellaneous power, 1.2 watts			
	Central air conditioning power, 4 watts			
	Motor installation, three phase, 460 V, 15 HP motor size			
	Motor feeder systems, three phase, feed to 200 V 5 HP, 230 V 7.5 HP, 460 V 15 HP, 575 V 20 HP			
	Fluorescent fixtures recess mounted in ceiling, 0.8 watt per SF, 20 FC, 5 fixtures @32 watt per 1000 SF			
D5030	**Communications and Security**		3.49	$1,592,000
	Communication and alarm systems, fire detection, addressable, 100 detectors, includes outlets, boxes, conduit and			
	Fire alarm command center, addressable with voice, excl. wire & conduit			
	Internet wiring, 8 data/voice outlets per 1000 S.F.			
D5090	**Other Electrical Systems**		5.97	$2,718,000

		% of Total	Cost Per SF	Cost
	Generator sets, w/battery, charger, muffler and transfer switch, diesel engine with fuel tank, 100 kW			
	Generator sets, w/battery, charger, muffler and transfer switch, diesel engine with fuel tank, 400 kW			
	Uninterruptible power supply with standard battery pack, 15 kVA/12.75 kW			
E Equipment & Furnishings		**8.8%**	**24.54**	**$11,180,500**
E1020	**Institutional Equipment**		**20.20**	**$9,201,500**
	Architectural equipment, laboratory equipment glassware washer, distilled water, economy			
	Architectural equipment, sink, epoxy resin, 25" x 16" x 10"			
	Architectural equipment, laboratory equipment eye wash, hand held			
	Fume hood, complex, including fixtures and ductwork			
	Architectural equipment, medical equipment sterilizers, floor loading, double door, 28"x67"x52"			
	Architectural equipment, medical equipment, medical gas system for large hospital			
	Architectural equipment, kitchen equipment, commercial dish washer, semiautomatic, 50 racks/hr			
	Architectural equipment, kitchen equipment, food warmer, counter, 1.65 KW			
	Architectural equipment, kitchen equipment, kettles, steam jacketed, 20 gallons			
	Architectural equipment, kitchen equipment, range, restaurant type, burners, 2 ovens & 24" griddle			
	Architectural equipment, kitchen equipment, range hood, including CO2 system, economy			
	Special construction, refrigerators, prefabricated, walk-in, 7'-6" high, 6' x 6'			
	Architectural equipment, darkroom equipment combination, tray & tank sinks, washers & dry tables			
E1090	**Other Equipment**		**0.00**	**$0**
E2020	**Moveable Furnishings**		**4.34**	**$1,979,000**
	Furnishings, hospital furniture, patient wall system, no utilities, deluxe , per room			
F Special Construction		**0.0%**	**0.00**	**$0**
G Building Sitework		**0.0%**	**0.00**	**$0**
Sub Total		**100%**	**$280.58**	**$127,837,000**
Contractor's Overhead & Profit		**0.0%**	**$0.00**	**$0**
Architectural Fees		**0.0%**	**$0.00**	**$0**
User Fees		**0.0%**	**$0.00**	**$0**
Total Building Cost			**$280.58**	**$127,837,000**

APPENDIX C

RS MEANS ASSEMBLIES COST ESTIMATE

RS MEANS ASSEMBLIES COST ESTIMATE

Assembly Number	Description	Quantity	Unit	Unit Costs			System Costs		
				Material O&P	Installation O&P	Total O&P	Ext. Material O&P	Ext. Installation O&P	Ext. Total O&P
Plumbing									
D20104404300	Service sink w/trim, PE on CI,wall hung w/rim guard, 22" x 18"	50	Ea.	$ 2,387.43	$ 1,940.63	$ 4,328.06	$ 119,371.50	$ 97,031.50	$ 216,403.00
D20202402500	Electric water heater, commercial, 100< F rise, 1500 gal, 480 KW 1970 GPH	5	Ea.	$ 98,179.50	$ 9,315.00	$ 107,494.50	$ 490,897.50	$ 46,575.00	$ 537,472.50
D20402102040	Roof drain, DWV PVC, 4" diam, diam, 10' high	20	Ea.	$ 461.39	$ 1,457.63	$ 1,919.02	$ 9,227.80	$ 29,152.60	$ 38,380.40
D20101101920	Water closet, vitreous china, tank type, floor mount, 1 piece	415	Ea.	$ 1,555.85	$ 1,242.00	$ 2,797.85	$ 645,677.75	$ 515,430.00	$ 1,161,107.75
D20102102000	Urinal, vitreous china, wall hung	20	Ea.	$ 633.07	$ 1,319.63	$ 1,952.70	$ 12,661.40	$ 26,392.60	$ 39,054.00
D20103102040	Lavatory w/trim, wall hung, PE on CI, 18" x 15"	420	Ea.	$ 933.51	$ 1,293.75	$ 2,227.26	$ 392,074.20	$ 543,375.00	$ 935,449.20
D20107102100	Shower, ss panels, handicap w/fixed & handheld head, control valves,grab bar & seat	150	Ea.	$ 5,697.63	$ 6,072.00	$ 11,769.63	$ 854,644.50	$ 910,800.00	$ 1,765,444.50
D20104101960	Kitchen sink w/trim, countertop, stainless steel, 33" x 22" double bowl	350	Ea.	$ 1,555.85	$ 1,388.63	$ 2,944.48	$ 544,547.50	$ 486,020.50	$ 1,030,568.00
			Total	**$ 111,404.23**	**$ 24,029.27**	**$ 135,433.50**	**$ 3,069,102.15**	**$ 2,654,777.20**	**$ 5,723,879.35**
Mechanical									
D30401081020	AHU, field fabricated, built up, cool/heat coils, filters, VAV, 100,000 CFM	1	Ea.	$ 192,603.50	$ 67,867.50	$ 260,471.00	$ 192,603.50	$ 67,867.50	$ 260,471.00
D30401121050	AHU, central station, cool/heat coils, VAV, filters, 30,000 CFM	9	Ea.	$ 117,493.50	$ 36,474.00	$ 153,967.50	$ 1,057,441.50	$ 328,266.00	$ 1,385,707.50
D30401081010	AHU, field fabricated, built up, cool/heat coils, filters, VAV, 75,000 CFM	1	Ea.	$ 127,687.00	$ 65,392.50	$ 193,079.50	$ 127,687.00	$ 65,392.50	$ 193,079.50
D30301401020	Chiller, centrifugal, water cooled, packaged hermetic, standard controls, 400 ton	3	Ea.	$ 167,924.50	$ 73,209.50	$ 241,134.00	$ 503,773.50	$ 219,628.50	$ 723,402.00

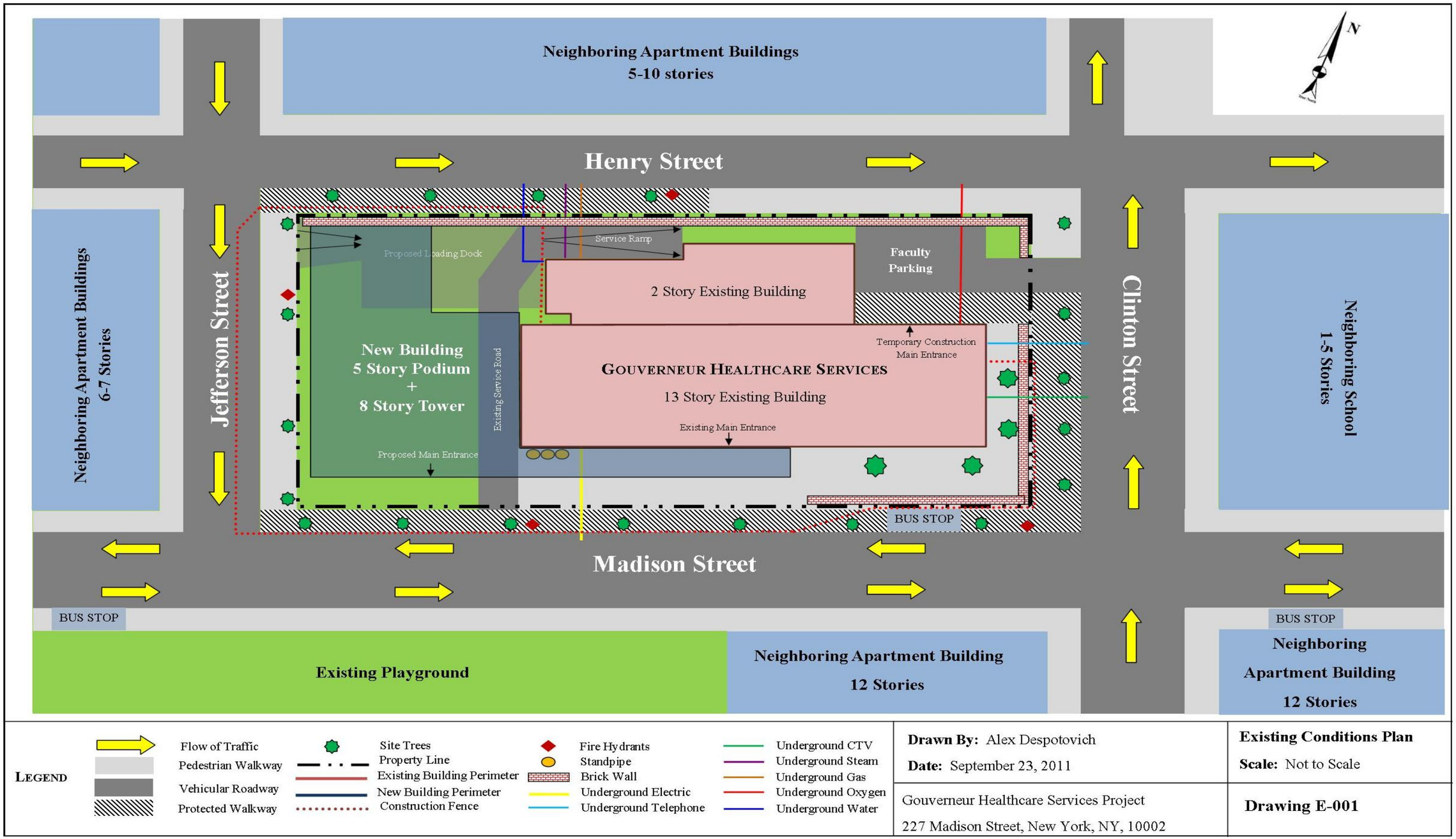
D30303301030	Cooling tower, stainless steel, packaged unit, draw thru, 300 ton	2	Ea.	$ 75,110.00	$ 28,082.00	$ 103,192.00	$ 150,220.00	$ 56,164.00	$ 206,384.00
D30303301020	Cooling tower, stainless steel, packaged unit, draw thru, 110 ton	1	Ea.	$ 44,958.70	$ 18,582.50	$ 63,541.20	$ 44,958.70	$ 18,582.50	$ 63,541.20
D30406201030	Shell & tube heat exchanger, 240 GPM	5	Ea.	$ 43,456.50	$ 29,925.00	$ 73,381.50	$ 217,282.50	$ 149,625.00	$ 366,907.50
D30406201040	Shell & tube heat exchanger, 600 GPM	2	Ea.	$ 84,230.50	$ 42,350.00	$ 126,580.50	$ 168,461.00	$ 84,700.00	$ 253,161.00
D30402401080	Roof vent. system, power, centrifugal, aluminum, galvanized curb, back draft damper, 13,800 CFM	2	Ea.	$ 11,266.50	$ 98,325.00	$ 109,591.50	$ 22,533.00	$ 196,650.00	$ 219,183.00
D30402401060	Roof vent. system, power, centrifugal, aluminum, galvanized curb, back draft damper, 5000 CFM	2	Ea.	$ 6,062.45	$ 52,785.00	$ 58,847.45	$ 12,124.90	$ 105,570.00	$ 117,694.90
D30402401020	Roof vent. system, power, centrifugal, aluminum, galvanized curb, back draft damper, 800 CFM	5	Ea.	$ 1,555.85	$ 7,417.50	$ 8,973.35	$ 7,779.25	$ 37,087.50	$ 44,866.75
D30402601060	Commercial kitchen exhaust/make-up air system, rooftop, gas,16,000 CFM	2	Ea.	$ 81,011.50	$ 70,380.00	$ 151,391.50	$ 162,023.00	$ 140,760.00	$ 302,783.00
D30402601020	Commercial kitchen exhaust/make-up air system, rooftop, gas, 3000 CFM	4	Ea.	$ 30,044.00	$ 22,252.50	$ 52,296.50	$ 120,176.00	$ 89,010.00	$ 209,186.00
D30401241080	Fan coil A/C system, horizontal with housing, controls, 2 pipe, 5 ton	4	Ea.	$ 6,572.13	$ 17,250.00	$ 23,822.13	$ 26,288.52	$ 69,000.00	$ 95,288.52
D30401381070	VAV terminal, cool, hot water reheat, fan powered, with actuator/controls, 1500 CFM	20	Ea.	$ 4,292.00	$ 13,239.38	$ 17,531.38	$ 85,840.00	$ 264,787.60	$ 350,627.60
D30501850680	Computer room unit, air cooled, includes remote condenser, 20 ton	1	Ea.	$ 55,796.00	$ 13,023.75	$ 68,819.75	$ 55,796.00	$ 13,023.75	$ 68,819.75
D30203401020	Pump, base mounted with motor, double suction, 8" size, 75 HP, to 2500 GPM	8	Ea.	$ 38,628.00	$ 31,156.00	$ 69,784.00	$ 309,024.00	$ 249,248.00	$ 558,272.00
D30203301030	Pump, base mounted with motor, end-suction, 4" size, 7-1/2 HP, to 350 GPM	7	Ea.	$ 16,953.40	$ 8,635.38	$ 25,588.78	$ 118,673.80	$ 60,447.66	$ 179,121.46
			Total	**$ 1,105,646.03**	**$ 696,347.51**	**$ 1,801,993.54**	**$ 3,382,686.17**	**$ 2,215,810.51**	**$ 5,598,496.68**
					Electrical				

D50902101400	Generator sets, w/battery, charger, muffler and transfer switch, diesel engine with fuel tank, 1000 kW	1000	kW	$ 279.14	$ 20.62	$ 299.76	$ 279,140.00	$ 20,620.00	$ 299,760.00
D50101200280	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 200 A	140	Ea.	$ 2,145.00	$ 3,010.70	$ 5,155.70	$ 300,300.00	$ 421,498.00	$ 721,798.00
D50101200560	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 2000 A	5	Ea.	$ 35,006.40	$ 17,355.80	$ 52,362.20	$ 175,032.00	$ 86,779.00	$ 261,811.00
D50101200320	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 400 A	3	Ea.	$ 5,062.20	$ 5,534.38	$ 10,596.58	$ 15,186.60	$ 16,603.14	$ 31,789.74
D50101200480	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 1200 A	2	Ea.	$ 18,075.20	$ 10,626.00	$ 28,701.20	$ 36,150.40	$ 21,252.00	$ 57,402.40
D50101200400	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 800 A	2	Ea.	$ 11,668.80	$ 9,032.10	$ 20,700.90	$ 23,337.60	$ 18,064.20	$ 41,401.80
			Total	**$ 72,236.74**	**$ 45,579.60**	**$ 117,816.34**	**$ 829,146.60**	**$ 584,816.34**	**$ 1,413,962.94**
								Total	**$ 12,736,338.97**

APPENDIX D

EXISTING CONDITIONS PLAN

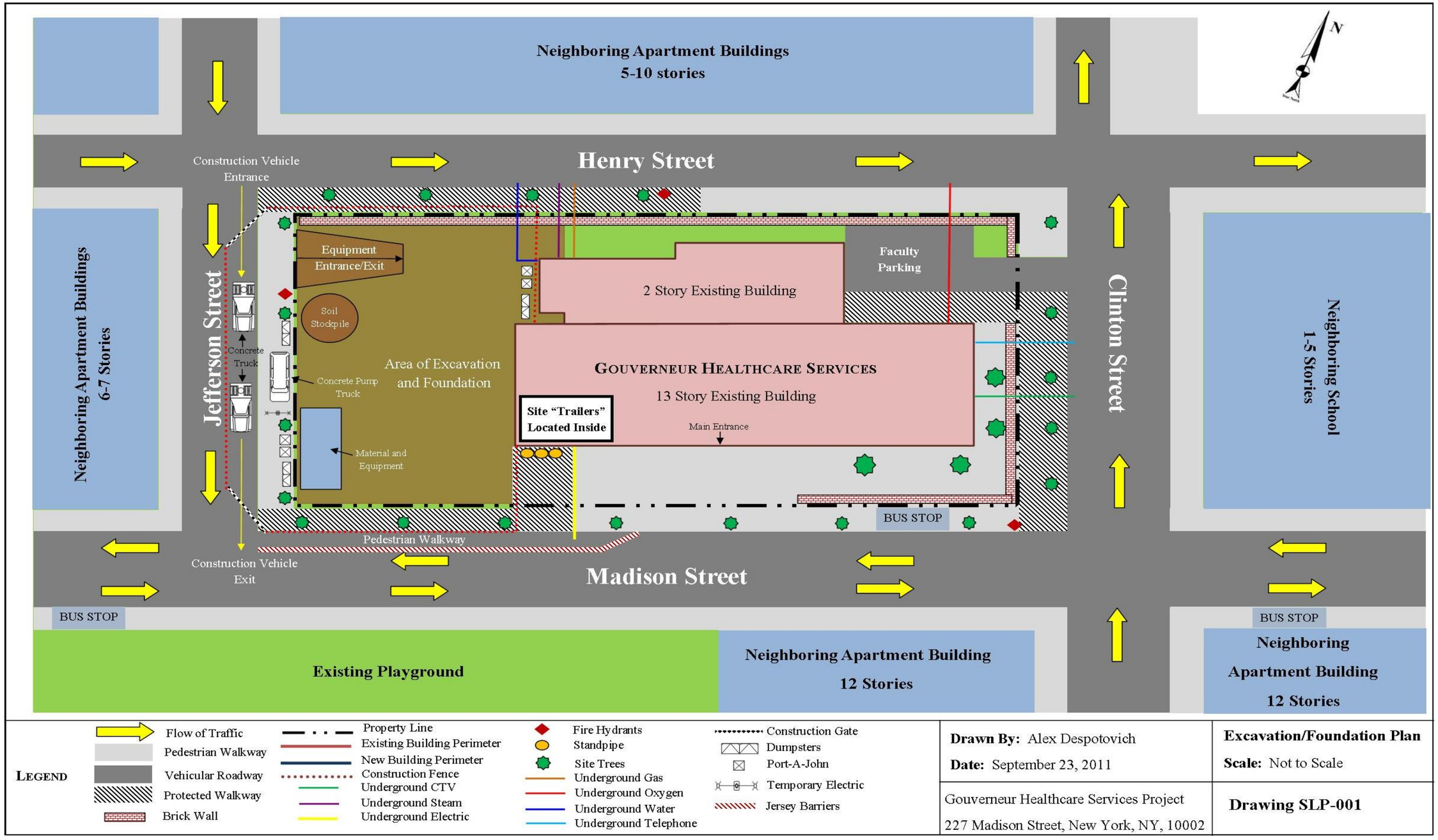
EXISTING CONDITIONS PLAN



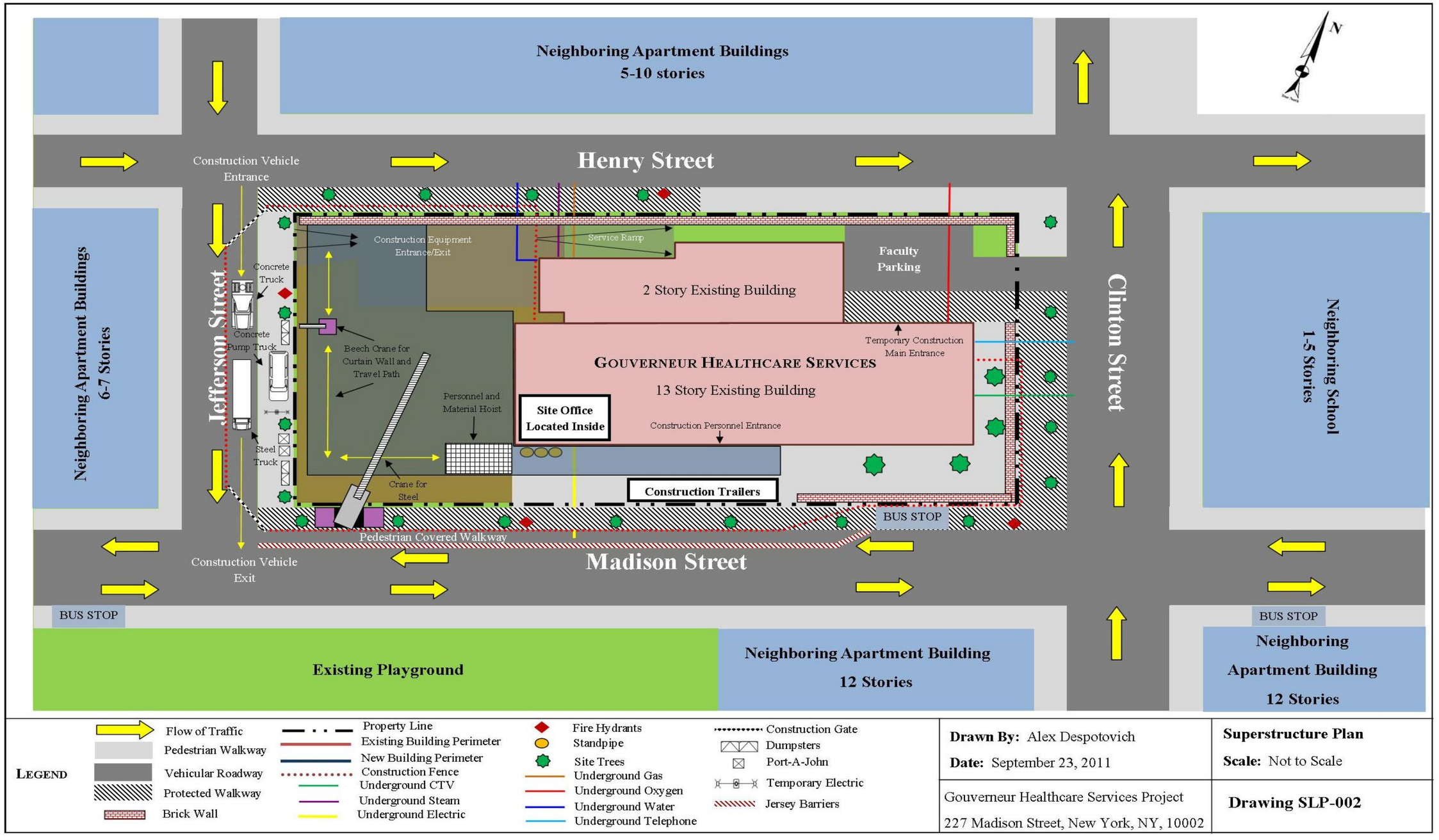
APPENDIX E

SITE LAYOUT PLANNING

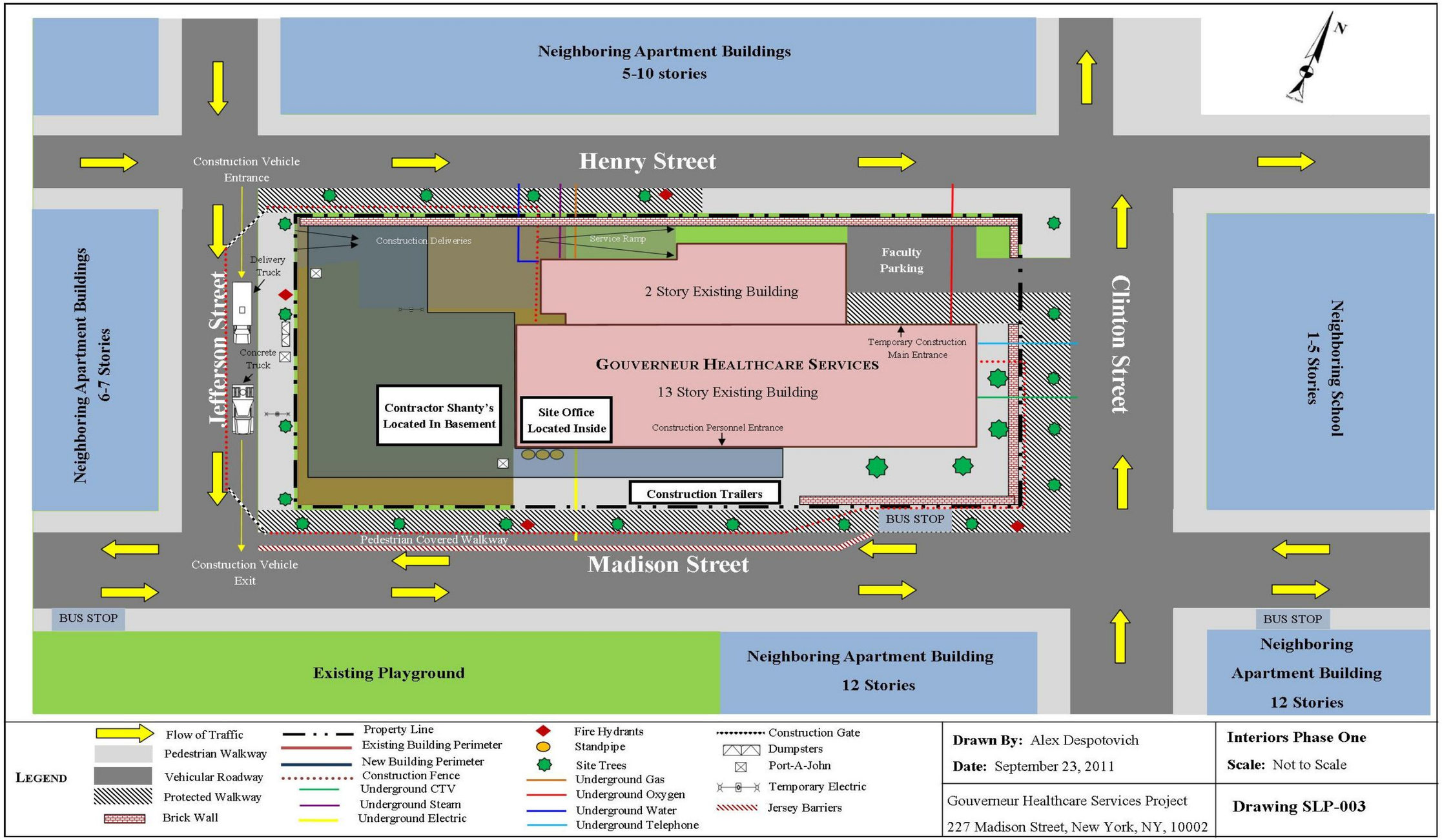
EXCAVATION/FOUNDATION PLAN



SUPERSTRUCTURE PLAN



INTERIOR PHASE ONE PLAN



INTERIOR PHASE TWO PLAN