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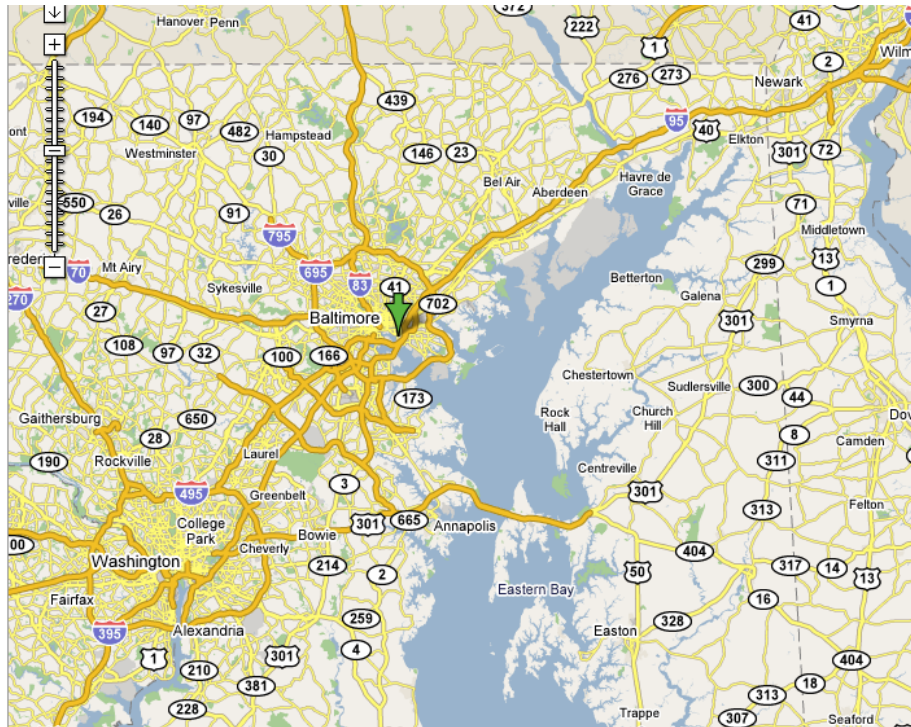
# Technical Assignment 1: Construction Project Management

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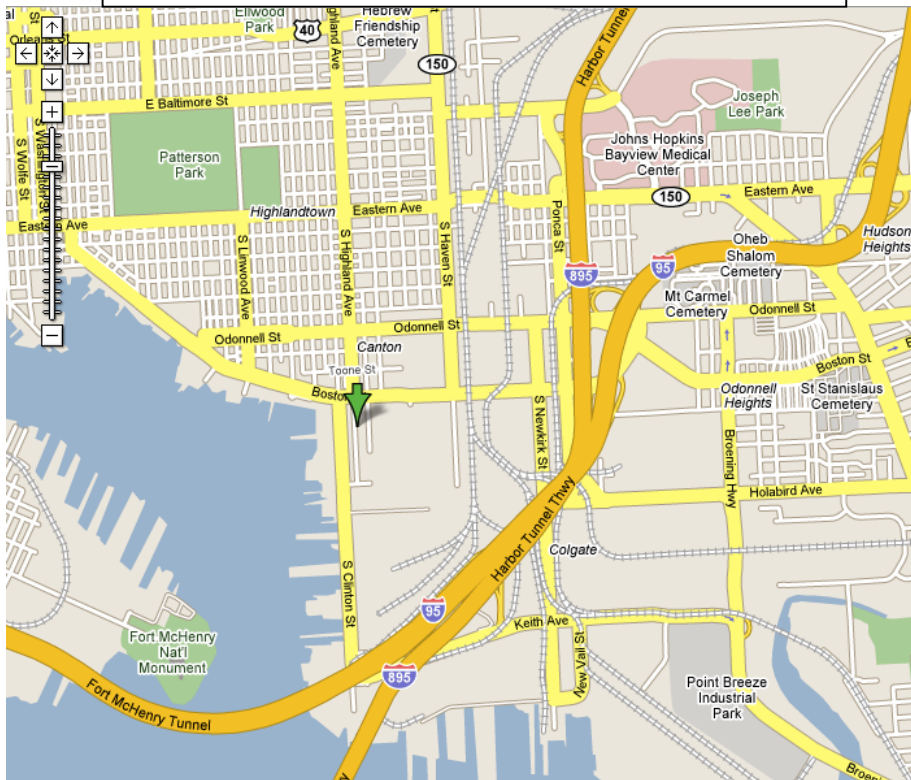
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# Site Plan of Existing Conditions

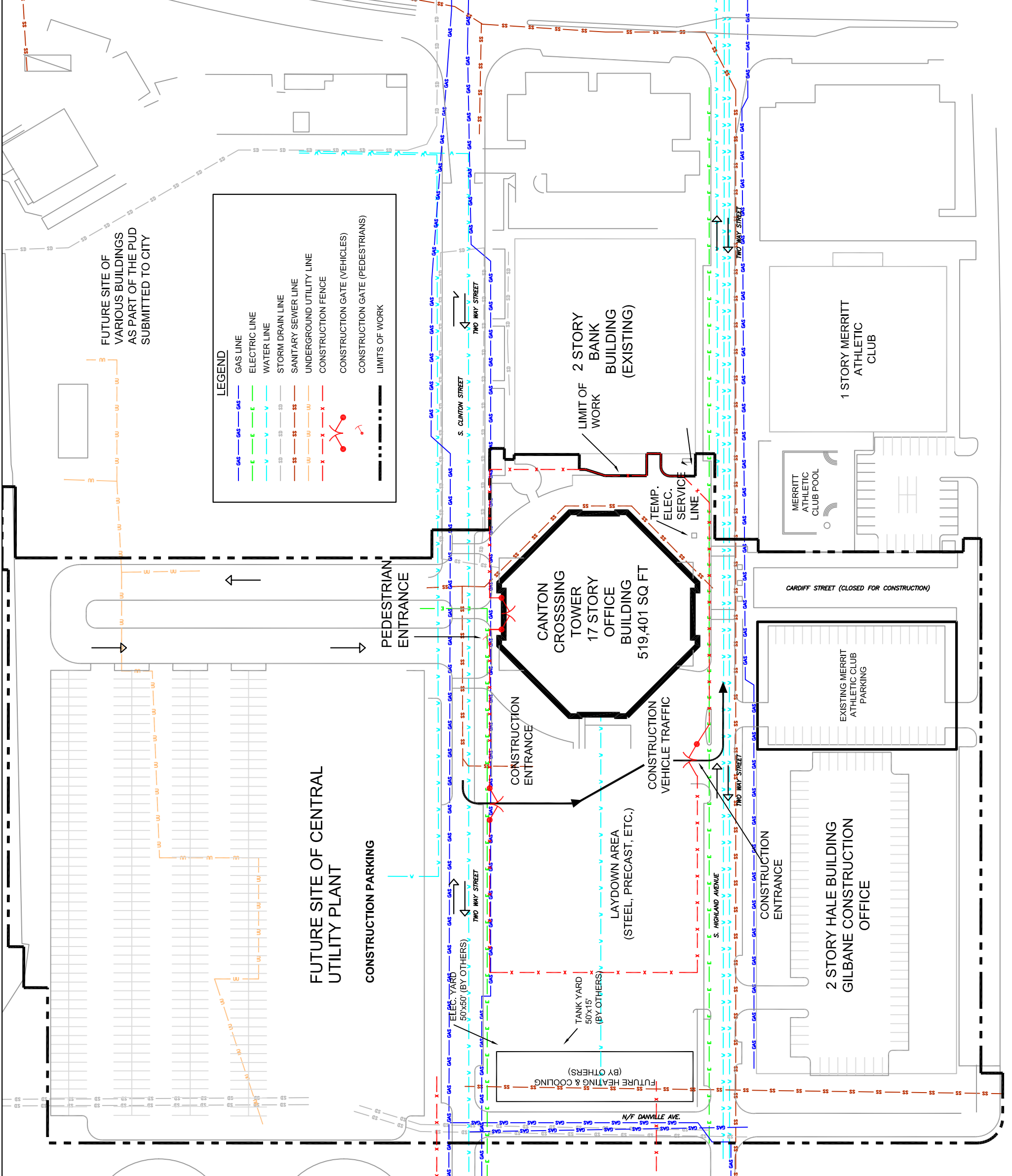
## Vicinity Maps



**Fig 1 – Project vicinity map (Greater Baltimore and DC areas)**



**Fig 2– Project vicinity map (Canton and surrounding areas)**



FUTURE SITE OF VARIOUS BUILDINGS AS PART OF THE PUD SUBMITTED TO CITY

**LEGEND**

- GAS LINE
- ELECTRIC LINE
- WATER LINE
- STORM DRAIN LINE
- SANITARY SEWER LINE
- UNDERGROUND UTILITY LINE
- CONSTRUCTION FENCE
- CONSTRUCTION GATE (VEHICLES)
- CONSTRUCTION GATE (PEDESTRIANS)
- LIMITS OF WORK

FUTURE SITE OF CENTRAL UTILITY PLANT

CONSTRUCTION PARKING

PEDESTRIAN ENTRANCE

CANTON CROSSING TOWER  
17 STORY OFFICE BUILDING  
519,401 SQ FT

2 STORY BANK BUILDING (EXISTING)

1 STORY MERRITT ATHLETIC CLUB

MERRITT ATHLETIC CLUB POOL

CARDIFF STREET (CLOSED FOR CONSTRUCTION)

EXISTING MERRITT ATHLETIC CLUB PARKING

2 STORY HALE BUILDING  
GILBANE CONSTRUCTION OFFICE

FUTURE HEATING & COOLING (BY OTHERS)

TANK YARD 50'x15' (BY OTHERS)

LAYDOWN AREA (STEEL, PRECAST, ETC.)

ELEC. YARD 50'x60' (BY OTHERS)

CONSTRUCTION VEHICLE TRAFFIC

CONSTRUCTION ENTRANCE

CONSTRUCTION ENTRANCE

TEMP. ELEC. SERVICE LINE

LIMIT OF WORK

S. CANTON STREET

TWO WAY STREET

S. HIGHLAND AVENUE

N/F DANVILLE AVE.

NORTH

GRAPHIC SCALE  
0 20' 40' 60'

<b>CANTON CROSSING TOWER</b> 1501 S. CLINTON ST BALTIMORE, MD 21224
<b>SITE PLAN OF EXISTING CONDITIONS</b>
TECH ASSG #1 R - 11/6/06 TYLER SWARTZWELDER CM OPTION - DR. MESSNER
<b>DWG - 1.0 R</b>





Fig 3 - 3D aerial view of site logistics for Canton Crossing Tower during excavation



## Local Conditions

The site of construction for the Canton Crossing Tower is located in the Southeastern part of Baltimore City, otherwise known as Canton. The existing site and adjacent site locations of the Canton Crossing Tower were classified as an industrial area and were previously vacant. In order for the rezoning from industrial to commercial to occur, Hale Properties had to submit a Planned Unit Development (PUD) to Baltimore City. Once approved by the city, the rezoning occurred and construction development began. The tower building was the first of 14+ buildings being built in the 65 acre campus. The methods of construction, as well as the architectural style, used on the tower building will be the beginning of the new style of the Canton Crossing Campus.

The site logistics plan for construction of the tower was favorable to the General Contractor. There is no demolition required onsite before construction, and the existing active utilities are water main and overhead electric. The lot the building sits on is roughly 1.23 acres. Directly adjacent to this lot is a 1.47 acre lot that is available for trailers, steel staging and laydown areas, and dumpsters. Across the street from these lots is a 3+ acre empty lot that can easily hold more trailers, as well as the construction parking for the project. On the opposite side of



**Fig 4–** Aerial view of existing site conditions

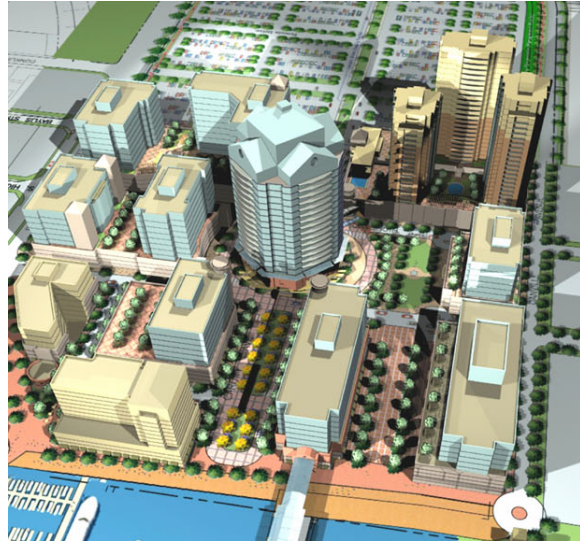
the street, an existing 2 story warehouse building (also owned by Hale Properties), is the location of the General Contractor's office.

The existing soil conditions became a major issue for the whole construction team in the construction of the tower. A large portion of the Canton Crossing Campus was previously the site of an Exxon Terminal that handled heavy-weight fuel oils. Due to impacts from the terminal, all of the soils on the site have been classified as contaminated. Therefore a Corrective Action Plan (CAP) had to be implemented for the excavation and off-site transportation of the petroleum saturated soils.

The Geotechnical Engineering Study by D.W. Kozera indicates site soils are underlain by a layer of man-made fill, which is then underlain by recent alluvial deposits. Also, since the site is part of the Atlantic Coastal Plain Physiographic Province, the site soils are also underlain by the Potomac Group deposits of the Cretaceous age. These deposits lie above the bedrock that is approximately 200' below ground. The water table is high on the project, sitting just 8' below finished grade.

## Client Information

The owner of the Canton Crossing Tower, Hale Properties, built the tower as the first building in their Planned Unit Development (PUD). The company, founded by Edwin F. Hale, Sr. in 1978, is a developer, owner and manager of east coast real estate. Hale Properties' vision is to completely change the existing industrial area of Canton,



**Fig 5–** 3D aerial of the Planned Unit Development (PUD)

into a thriving area where individuals can “live, work, and play.” The team’s PUD had to gain approval from the city of Baltimore before the development of Canton Crossing could occur.

The cost of the project was set between the Owner (Hale Properties) and the General Contractor (Gilbane) as a Guaranteed Maximum Price of nearly \$52 million. The existing offices of Hale Properties are located directly adjacent to the new construction lot of the tower. This made it very easy for both parties, the Owner and the GC, to control quality issues. Both teams embraced the convenient location and used it to their advantage throughout construction. Issues such as first delivery inspections, mock-ups, color schemes for finishes, etc. could be discussed by both teams and decisions were made in a more timely fashion. The schedule of construction was critical to the owner’s interests for the major factor of tenant fit-outs. The sooner the GC could complete the core and shell of the tower, the sooner the new tenants could begin their fit outs. Hale



Properties watched the schedule rather closely because of the amount of money that could potentially be lost due to late tenant move-in. Rather than this issue becoming a problem, both teams worked vigorously together as one to assure a beneficial occupancy



**Fig 6–** Project Safety Day presented by Gilbane

date as close to the original as possible.

The building requiring over 20 stories of steel erection caused safety to be a pivotal factor in the successful completion of the tower. From the very start, Hale

Properties did everything possible to help

Gilbane implement their Project Safety

Plan. At no point did the schedule, cost, and/or quality of the building take precedence over safety.

The sequencing of construction of this project is of utmost interest to the owner because of tenant fit-outs. The first step in the process is the completion of the core and shell of the building. To speed up the tenant move in dates, the Owner decided to allow the tenant space GC's to begin working simultaneously with Gilbane. Most importantly, the core and shell GC (Gilbane) must have their Certificate of Occupancy from the Baltimore City Fire Marshall before the tenants could apply for their own. The Certificate of Occupancy was the key factor to completing the tower on schedule and to the owner's satisfaction. This was made possible through exceptional communication lines being drawn between Hale Properties, Gilbane, and tenant fit out GC's. Also, the tremendous cooperation from the Baltimore City Fire Marshall was imperative.

## Project Delivery System

The construction of the Canton Crossing tower is being delivered as a Construction Management at Risk with a Guaranteed Maximum Price contract with the owner. The CM at Risk delivery method was chosen to help alleviate some of the duties, such as managing the subcontractors, from the Hale Properties staff team. The GMP contract is typical for Gilbane and was what their team proposed.

The contract between Hale Properties and Gilbane was a GMP of nearly \$52 million and schedule duration of 18 months. The lump sum contracts that Gilbane holds with the subcontractors specify all of the following; list of contract documents, scope of work (inclusions and exclusions), bid breakdown, unit rates, construction milestones, termination conditions, change order process, bonds and insurance, paid when paid conditions, etc.

The Owner-CM contract was based on a prior relationship between Gilbane's Regional Manager and Hale Properties Owner Mr. Hale. Gilbane did not bid the project with the other GC's; instead they negotiated with the owner through the design phases (SD, DD, & CD) by providing estimates and value engineering ideas. At the completion of the Construction Documents, Gilbane then submitted a GMP to be reviewed and approved by the owner. The subcontractor's were selected through a process that reviewed several of the low bids. The process consisted of scope review meetings and review of bond qualifications. Through all of these parameters a subcontractor was chosen, meaning the low bidder was not always chosen.

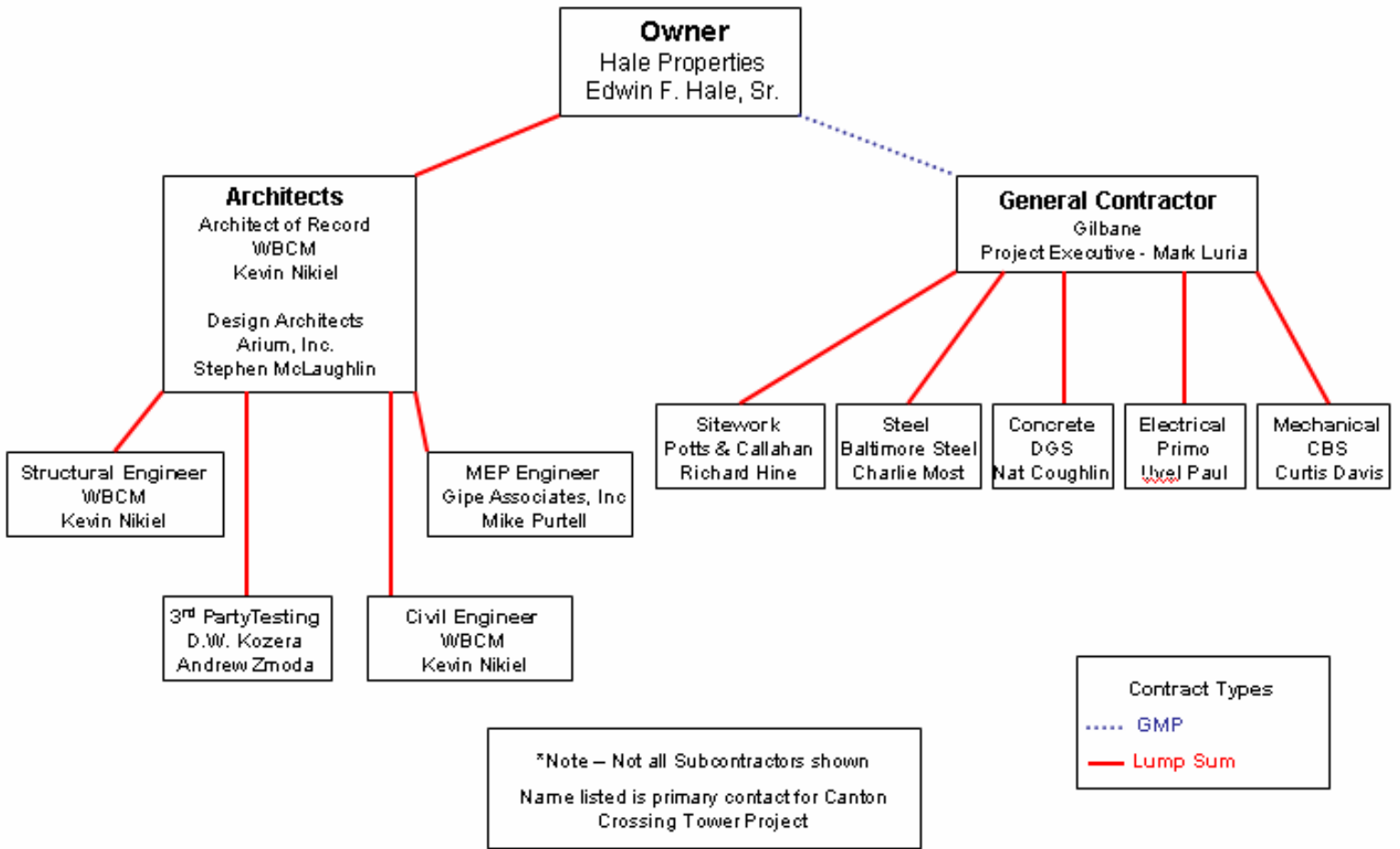
The owner held the builder's risk insurance for the project, which almost immediately was put into effect. After a barge of precast piles tipped over, the insurance teams were

called into action, specifically the builder's risk. The cost of the materials was paid in full by the insurance group. Gilbane carried general liability, automobile, comprehensive, and worker's compensation insurance, but was not required to be bonded. Instead the executives, through a solid relationship with the owner, guaranteed the work on the job. Gilbane requires each subcontractor to have a performance and payment bond, and on this project those bonds accounted for the majority of the contract. This allowed Mr. Hale to save some expenses and not require Gilbane to be bonded. Each subcontractor also had to provide general liability insurance, excess liability insurance, automobile insurance, and worker's compensation insurance. The subcontractors also held Hale Properties and Gilbane as additional insurers in their umbrella.

The CM at Risk delivery method used for the tower was appropriate because Gilbane needed control over the subcontractors to complete the intense 18 month schedule. However, since Gilbane was involved in the design phase, there is a possibility that a Design-Build delivery could have been beneficial to them. Typically design-build gives the owner less control of the design issues, which Hale Properties was not interested in. Also, a Design-Build-Finance approach was mentioned during negotiation but decided against by the team. Overall, the CM at Risk with a GMP contract seemed to be successful.



# Canton Crossing Tower Organizational Chart



## Staffing Plan

Gilbane was a part of the project team from the schematic design phase. The Preconstruction Department provided many services to the owner including, estimating, constructability at all design phases, purchasing, and overall budget management and control. The preconstruction team included the Principle in Charge, Estimating, Purchasing, as well as the Project Executive. At the point construction began the operations team from Gilbane took over. The Project Executive was in charge of the operations team. From there, the Project Manager and Superintendent had control of their respective teams. The PM was responsible for many things including cost reporting, owner correspondence, and schedule updating. The Assistant Project Manager was the first in command to the PM, assisting with the duties as well as managing the Project Engineers. The Superintendent of the project was in charge of the schedule for construction, site logistics, safety, among many other things. Gilbane opted to have an MEP Superintendent on the project team to alleviate some of the duties of the Superintendent. The Project Executive, PM, and Assistant PM all worked hand in hand with the Accountant to for the task of cost reporting.

# Gilbane Staffing Plan for Canton Crossing

