

2009

# Thames St. Wharf Office Building

Technical Assignment I

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# Thames St. Wharf Office Building

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## Executive Summary

This assignment will illustrate the existing conditions of the Thames St. Wharf Office Building site, the construction management techniques of the Armada Hoffler construction team and some insights into the reasons behind Harbor Point Development pursuing this project. Contractual obligations between the owner, design firms, CM firm and the subcontractors are also presented. Additionally a historical data estimate as well as a square foot estimate are included in this report and are compared to the actual construction cost.

The Thames St. Wharf Office Building is located in downtown Baltimore, MD on the bank of the Patuxant River in the Baltimore Inner Harbor. The building is being built for the financial services firm Morgan Stanley and the interior finishes will be of the utmost quality. Construction on the building began in October 2007 and is scheduled to finish in March of 2010. The total cost of construction is \$54 Million. This building is the first in a series of buildings proposed for the Harbor Point area of Baltimore. Harbor Point is a small section of land in between Harbor East and Fells Point. It has been undeveloped vacant lot for multiple decades due to soil contamination on the site from a chemical plant that existed there previously.

A major issue that occurred on this project that affects some of the data presented in this report, and will most likely affect later data, was the transfer of the construction management responsibilities from Streuver Bros. Eccles and Rouse (SBER) to Armada Hoffler on May 1, 2009. SBER won the original construction contract in 2007, then ran into financial trouble midway through the project and was forced to give up its construction duties. No contacts were available from SBER to confirm data from the beginning of the project or during their tenure as CM. All information regarding project contracts and staffing having to do with the construction management firm are based on Armada Hoffler and not SBER.

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## Project Schedule Summary

*For a copy of the project schedule summary please see Appendix A.*

Due to the change in contractors on May 1, 2009 there was a lot of difficulty compiling a schedule for the project that was consistent and accurate from start to finish. I was unable to come into contact with anyone from SBER to obtain an original construction schedule so the dates and durations for construction from 10/1/2007-3/16/2009 are a best estimate of what occurred. The estimates are based on the drawings and from memory of what took place while I was on-site from 5/27/2008-8/1/2008. The schedule I received from Armada Hoffler starts on 3/16/2009.

### ***Design and Procurement:***

Upon talking with the owner's representative I was informed that the design for the project began schematically in 2003 and was done sporadically until its completion in late 2006. Intense design took place from late 2005 through late 2006 and that is what is listed on the project schedule summary in Appendix A. Following design completion there was a time gap before procuring a CM for the project. The reasons for the gap are unknown as the representative that I am in contact with was not working on this particular project at that time, and the person who was is no longer employed at Harbor Point Development.

### ***Sitework Sequence:***

Before any excavation could take place the existing parking lot had to be demolished. It was only demolished in select spots as needed for construction in order to keep the contaminated soil as covered and undisturbed as possible. After the parking lot was demolished the building footprint was excavated to an elevation six to eight inches below the top of the proposed piles. The piles were then driven; the sequence for the pile driving is unknown. After the piles were driven and cut the site was backfilled with controlled fill, some of which was contaminated soil that was excavated earlier. On top of the controlled fill a layer geotextile fabric was put down followed by a capillary break and then another layer of geotextile fabric. This was done to prevent any contaminants from reaching the surface.

### ***Foundation Sequence:***

After all the piles were sunk pile caps were placed on top. Again it is unknown if the pile caps were placed before or after the site was backfilled but due to the environmental concerns and insurance risks for having workers work directly on contaminated soil it is my assumption that the site was backfilled first. The ground floor slab was placed on top of pile caps and grade beams that were also supported by pile caps. All under slab piping was hung from the slab to ensure they wouldn't move if the under-slab fill eroded away.

### ***Structural Sequence:***

The superstructure was formed, reinforced and placed from the north to south. Due to the size of each floor slab, each slab was broken into three pours. After each section of slab was poured it cured until it reached a strength of 2500psi (two days on average) before the vertical formwork was stripped and the PT cables were tensioned. After the horizontal formwork was removed vertical re-shoring

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stayed in place until at least 28 days after the original pour. After a section of slab was formed, but before it was reinforced, all other trades were expected to place all of their embeds and sleeves.

A lot of issues arose during the concrete sequence due to coordination. Certain sleeves were moved or completely omitted and the shop drawings were incorrect resulting in the structural dimensions being too large after the system was poured creating more coordination issues.

## ***Façade Sequence:***

The start times for the façade are not known. To my best guess it was not started until a while after the superstructure was completed. I am basing this assumption on the fact that façade installation still had a long remaining duration on 3/16/09. According to the schedule I received from Armada Hoffer the façade sequence was first face brick then windows and then curtain wall in most cases. All four faces of the building were being constructed at approximately the same time. The scaffolding plan for the masonry is unknown as it was completed prior to May 1, 2009. That material hoist for the project is on the west face of the building and will be removed and closed after the elevators are installed.

## ***Finish Sequence:***

The finish schedule is typical for the ground level through the 3<sup>rd</sup> level, and is from ground up. There is no tenant yet on these levels so they are just core and shell construction. First the main floor area is roughed in and the access floor is installed. As crews finish working in the main floor area they move into the core. The core is fully finished and follows the normal sequence of work; MEP rough-in, walls, ceilings, flooring, paint, trim-out. After a crew has finished in the core they move to the next floor and repeat the process.

Levels 4-7 require a tenant fit out. The sequence is still floor wide rough-in and then core but after core comes tenant fit out. After a crew is done in the core they move to the tenant fit out spaces. The work in the tenant space follows the same sequence as the work in the core.

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## Building System Summary

### *Building System Checklist:*

| <b>Work Scope</b>      | <b>Yes/No</b> |
|------------------------|---------------|
| Demolition             | Yes           |
| Support of Excavation  | Yes           |
| Cast in Place Concrete | Yes           |
| Structural Steel Frame | Yes           |
| Precast Concrete       | Yes           |
| Mechanical System      | Yes           |
| Electrical System      | Yes           |
| Masonry                | Yes           |
| Curtain Wall           | Yes           |

### *Demolition:*

- A parking lot existed on site and needed to be partially demolished before work could commence. The lot was only torn up in the building footprint and approximately 10 feet on all sides. The rest remains to make construction activities easier and to prevent disturbing the contaminated soil.

### *Support of Excavation:*

- For excavation around the pilings and pile caps the soil was sloped away from the excavation at a slope that was dictated by the soil material. This occurred because all of the soil around the pilings was controlled fill material that did not have a lot of cohesive abilities.
- For trenching a setback of 4:2 was used. The soil that the trenches were being dug in was existing and had cohesive properties that allowed for steep sides. The 4:2 ratio was chosen per OSHA regulations.

### *Cast in Place Concrete:*

#### Foundation

- 4000 psi: used for pile fill under SOG and in marine piles
- 4000 psi: used for SOG, no horizontal formwork was needed; vertical formwork was plywood and rough carpentry.
- 5000 psi: used for marine promenade pile fill
- 5000 psi: used for all pile caps except for shear wall foundations. Formwork type is unknown but believed to be plywood and rough carpentry
- 8000 psi: used for shear wall foundation pile caps
- SOG was pumped, the pile fill and pile caps were placed by crane and bucket.

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## Superstructure

- 5000 psi: used for PT slabs and beams, all formed with plywood and rough carpentry. Slabs and beams poured monolithically.
- 5000 psi: used for the majority of columns on levels two and three and for all columns above level three. Reusable flying formwork was used for the square columns and cylindrical cardboard tubes were used for the round columns.
- 8000 psi: used for all columns on the ground and first floors and key columns up to the third floor. Utilized the same formwork as the 5000 psi columns.
- 8000 psi: used for the shear walls. Formed with large reusable flying formwork
- All the slabs and beams were pumped, columns and shear walls were placed by crane and bucket

## ***Structural Steel:***

- Wide flange steel beams and girders support a 3", 20G metal roof deck
- Wide flange steel columns support roof beams and girders
- Hollow structural steel members are used as cross bracing to support roof system

## ***Mechanical System:***

- Each floor has two self packaged air handling units (SCU), one serves the north half of the floor plan and the other serves the south half. Each SCU is housed in its own mechanical room located in the section of building it serves. All the SCU's are variable volume air systems except for the SCU that serves that 1<sup>st</sup> floor lobby, which is constant volume. Each SCU uses 460V, 3-Phase, 4 wire power and operates at 60 Hz.
- The ground floor and lobby on level one have ceiling mounted duct work for their air distribution systems. The rest of the building is served by under floor ductwork that is pumped to a general location under the floor and then allowed to flow freely throughout the rest of the under-floor system before it moves to the occupied spaces.
- The elevator machine room, security room and telecom roof all have their own AHU's because they are cut off from the rest of the building mechanical systems. All are constant volume and are located in the room that they serve.
- The building utilizes a dry fire suppression system in the loading dock only and a wet fire suppression system throughout the rest of the structure.

## ***Electrical System:***

- The main building supply comes through two transformers into two switchboards, both rated for 4000A 277/480V, 3 Phase systems. A switchboard and transformer combo for both the north and south sections of the building.
- One 500 kW emergency generator for emergency building systems
- Two 2000 kW emergency generators for tenant spaces with space for an optional third generator.

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## ***Masonry:***

- 1500 psi CMU blocks are used in the exterior bearing walls above grade. Type N-1 CMU
- 1500 psi CMU blocks are used for non-reinforced interior partition walls. Type S-1 CMU
- 2500 psi grout is used with both types of CMU
- Brick veneer along slab lines and at column lines. Supported by ties linking it directly to the concrete structure.

## ***Curtain Wall:***

- Aluminum composite stick built curtain wall. 1" thick insulated glass is supported by aluminum composite mullions.

## ***LEED and Project Specific Requirement:***

- Project is looking to achieve a LEED Silver Rating.
- Co-mingled dumpsters are used to aid in recycling.
- Environmental insurance requirements dictate that EWMI must do all excavation into contaminated soil.
- Partial green roof will be installed.
- Under-floor mechanical system (see mechanical system details for additional mechanical system information)
- HVAC system will remain off as long as possible during construction and once it is temporary filters will be used and switched upon turnover.



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## Project Cost Evaluation

### *Actual Costs:*

| General Costs           |               |         |
|-------------------------|---------------|---------|
|                         | Cost          | Cost/SF |
| Construction Cost (CC)* | \$51 Million  | \$195   |
| Total Cost              | \$100 Million | \$361   |

\* Cost breakouts for permitting and fees were unavailable and are included in the construction cost that is reported.

| Building System Costs |               |          |         |
|-----------------------|---------------|----------|---------|
| System                | Cost          | Cost/SF  | % of CC |
| Concrete Structure    | \$8.2 Million | \$ 29.60 | 15%     |
| HVAC                  | \$10 Million  | \$ 36.10 | 19%     |
| Electric              | \$6.9 Million | \$ 24.91 | 13%     |
| Misc Metals*          | \$1.1 Million | \$ 3.97  | 2%      |
| Masonry               | \$1.9 Million | \$ 6.86  | 4%      |
| Curtain Wall          | \$4.2 Million | \$ 15.16 | 8%      |

\*Misc Metals includes structural steel for Penthouse

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### *D4 Cost Estimate:*


| Thames St. Wharf Office Building |                               |             |                  |                      |
|----------------------------------|-------------------------------|-------------|------------------|----------------------|
|                                  | Building Sq. Size:            | 277,000     | Building Use:    | Office               |
|                                  | No. of Floors:                | 8           | Foundation:      | PIL                  |
|                                  | Project Height:               | 131         | Ext. Walls:      | CUR                  |
|                                  | 1st Floor Height:             | 13          | Int. Walls:      | DRY                  |
|                                  | 1st Floor Size:               | 34,553      | Roof Type:       | MEM                  |
|                                  |                               |             | Floor Type:      | CON                  |
|                                  |                               |             | Project Type:    | NEW                  |
| Division                         |                               | Percent     | Sq. Cost         | Amount               |
| 00                               | Procurement & Contracting Req | 2.14%       | \$ 3.02          | \$ 835,581           |
| 01                               | General Requirements          | 12.81%      | \$ 18.03         | \$ 4,994,865         |
| 03                               | Concrete                      | 19.43%      | \$ 27.36         | \$ 7,579,883         |
| 04                               | Masonry                       | 1.78%       | \$ 2.51          | \$ 694,519           |
| 05                               | Metals                        | 9.45%       | \$ 13.31         | \$ 3,687,322         |
| 06                               | Wood,Plastics & Composites    | 0.20%       | \$ 0.28          | \$ 78,017            |
| 07                               | Thermal & Moisture Protection | 1.03%       | \$ 1.45          | \$ 402,070           |
| 08                               | Openings                      | 21.43%      | \$ 30.18         | \$ 8,360,521         |
| 09                               | Finishes                      | 1.42%       | \$ 2.00          | \$ 554,216           |
| 10                               | Specialties                   | 3.32%       | \$ 4.67          | \$ 1,293,967         |
| 12                               | Furnishings                   | 1.26%       | \$ 1.78          | \$ 492,734           |
| 14                               | Conveying Systems             | 4.37%       | \$ 6.15          | \$ 1,702,590         |
| 21                               | Fire Suppresion               | 2.02%       | \$ 2.85          | \$ 789,684           |
| 22                               | Plumbing                      | 1.46%       | \$ 2.06          | \$ 570,356           |
| 23                               | HVAC                          | 10.08%      | \$ 14.20         | \$ 3,932,696         |
| 26                               | Electrical                    | 7.78%       | \$ 10.96         | \$ 3,035,431         |
| <b>Total Building Costs</b>      |                               | <b>100%</b> | <b>\$ 140.81</b> | <b>\$ 39,004,454</b> |
| 02                               | Existing Conditions           | 2.93%       | \$ 0.30          | \$ 72,946            |
| 31                               | Earthwork                     | 21.29%      | \$ 2.22          | \$ 530,349           |
| 32                               | Exterior Improvements         | 51.59%      | \$ 5.37          | \$ 1,285,023         |
| 33                               | Utilities                     | 24.19%      | \$ 2.52          | \$ 602,438           |
| <b>Total Non-Building Costs</b>  |                               | <b>100%</b> | <b>\$ 10.40</b>  | <b>\$ 249,756</b>    |
| <b>Total Project Costs</b>       |                               | <b>--</b>   | <b>\$ 151.21</b> | <b>\$ 41,495,210</b> |

For complete estimate see Appendix B

This estimate was developed based on the Ha-Lo Headquarters Office Building which was estimated in August 1998. It is a 7 Story, 267,000 SF office building in IL. The total project cost was \$40,134,138.

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## Square Foot Cost Estimate:

|                       |   |   |
|-----------------------|---|---|
| Estimate Name:        | <b>Thames St Wharf</b>  |   |
| Building Type:        | <b>Office, 5-10 Story with Face Brick with Concrete Block Back-up / R/Conc. Frame</b> |   |
| Location:             | <b>BALTIMORE, MD</b>  |  <p>Costs are derived from a building model with basic components. Scope differences and market conditions can cause costs to vary significantly.</p> |
| Story Count:          | <b>8</b>  |   |
| Story Height (L.F.):  | <b>13</b>   |   |
| Floor Area (S.F.):    | <b>277000</b>   |   |
| Labor Type:           | <b>Open Shop</b>  |   |
| Basement Included:    | <b>No</b>   |   |
| Data Release:         | <b>Year 2007 Quarter 4</b>  |   |
| Cost Per Square Foot: | <b>\$85.11</b>  |   |
| Building Cost:        | <b>\$23,575,500</b>   |   |

|   | % of Total   | Cost Per S.F.  | Cost                |
|---|--------------|----------------|---------------------|
| <b>A Substructure</b>                                       | 2.70%        | \$2.26         | \$625,500           |
| <b>B Shell</b>  | 27.60%       | \$23.50        | \$6,510,500         |
| <b>C Interiors</b>  | 20.40%       | \$17.39        | \$4,817,000         |
| <b>D Services</b>   | 49.00%       | \$41.73        | \$11,042,500        |
| <b>E Equipment &amp; Furnishings</b>                        | 0.30%        | \$0.23         | \$62,500            |
| <b>F Special Construction</b>                               | 0.00%        | \$0.00         | \$0                 |
| <b>G Building Sitework</b>                                  | 0.00%        | \$0.00         | \$0                 |
| <b>SubTotal</b>   | <b>100%</b>  | <b>\$85.11</b> | <b>\$23,058,000</b> |
| <b>Contractor Fees (General Conditions,Overhead,Profit)</b> | <b>0.00%</b> | <b>\$0.00</b>  | <b>\$0</b>          |
| <b>Architectural Fees</b>                                   | <b>0.00%</b> | <b>\$0.00</b>  | <b>\$0</b>          |
| <b>User Fees</b>  | <b>0.00%</b> | <b>\$0.00</b>  | <b>\$0</b>          |
| <b>Total Building Cost</b>                                  |              | <b>\$85.11</b> | <b>\$23,058,000</b> |

\*Developed using RS Means Online – <http://www.meanscostworks.com/>

For complete estimate see Appendix B

For the RS Means estimate I chose a 5-10 story office building with face brick and a concrete structural frame. The façade system is not exactly what is used on the building but is closest of the options that were given. The curtain wall system that is actually installed will be more expensive than the face brick system chosen and will cause a discrepancy in the final estimate number.

## Estimate Comparison:

Both of the estimates are lower than the actual construction costs. The RS Means estimate is over 50% off the construction cost. The total construction cost that is reported includes fees that the Means estimate does not which causes some disparity in the price. Other reasons include the expensive HVAC system that was installed and the higher quality finishes that Morgan Stanley desires over the

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base finishes that the estimate assumes. Those same reasons are most likely the cause for the difference in cost between the D4 estimate and the actual price as well.

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## Site Plan of Existing Conditions

*For a copy of the site plans please see Appendix D*

### ***Site Location:***

- Located on the Harbor in downtown Baltimore, MD.
- Bordered by public roads on three sides
  - West – Wills St. (to be closed)
  - North – Dock St. (to be closed)
  - Northeast – Caroline St. (to remain open)
- Block St. and Philpot St. run directly through site – Both to be permanently closed
- Thames St. (to remain open) dead ends into Philpot St.

### ***Neighboring Properties:***

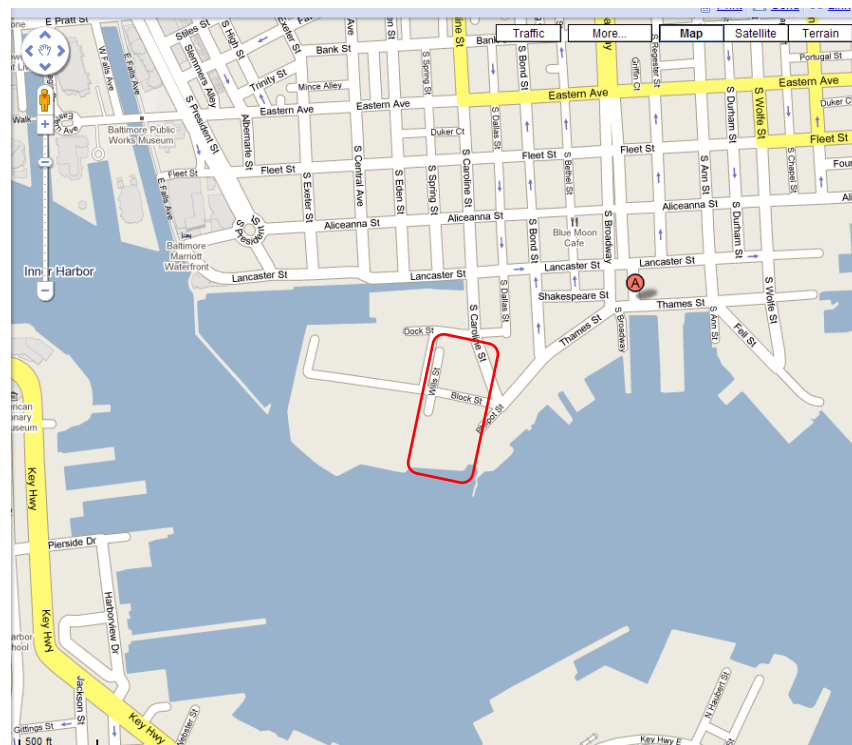
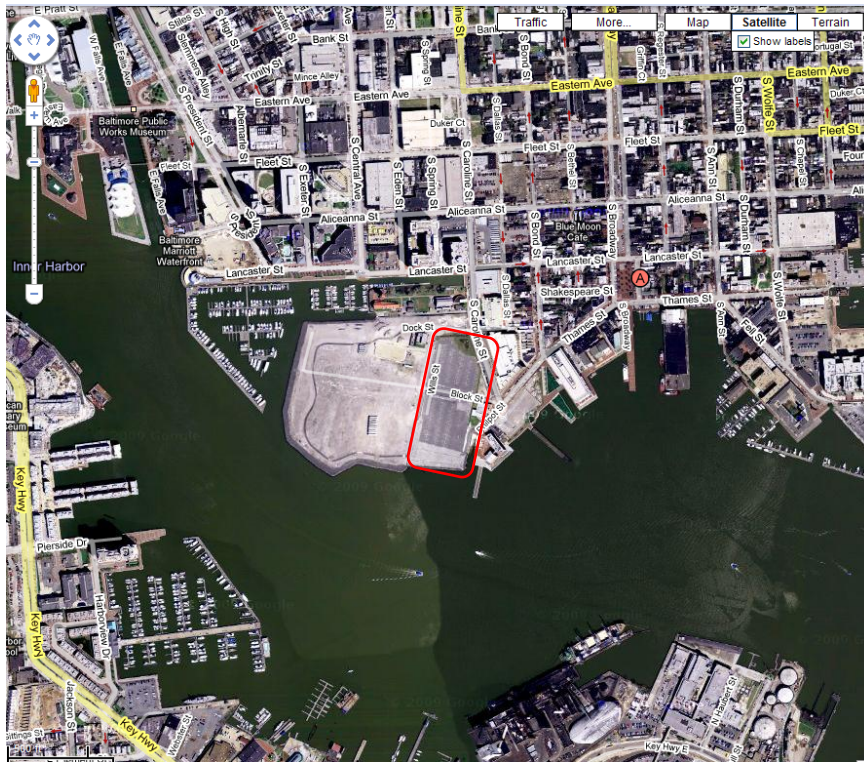
- Large open plot to the west
- 2 story transfer station off of the northwest corner of the site – far away from construction activities so should not cause any issues
- Ferndale Awning & Fence Company borders the northeast corner of the construction activities. It is a 1 story CMU structure that will be out of reach of the crane swing but will have excavation up to the walls of the structure. Have to be careful not to disturb building foundation.
- Douglas/Myers Maritime Museum is adjacent to the site on the southeast corner along the water. It is a 3 story brick structure that will remain open during construction. Will not be under the crane swing and will not be close to any significant construction activities therefore it should not cause any significant issues.

### ***Existing Utilities:***

- Gas, sewer, electric and water run under both Block St. and Philpot St. Electric also runs under the parking lot on the southern half of the site where the building will sit and through the northwest corner of the site. Telecom runs under Block St. and along the northwest edge of the site. Sanitary Sewer also runs along the northwestern edge. An additional water line runs through the northwest corner. The only storm drain onsite is in the drainage ditch in the northeast corner. Municipal storm drains are located along Caroline and Thames St.
- None of the utilities in the southern half of the site will be utilized and will be shut off and removed as needed. The new utilities will be connected to the existing utilities along Block St. and at the end of Thames St.

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## Vicinity Plan:



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## Local Conditions

### *Preferred Methods of Construction:*

- Baltimore, MD has a wide array of steel and standard reinforced concrete and post tensioned concrete structures, so contractors and designers in the area are familiar with all three.
- A PT concrete structure was chosen because it allows for shallower beams over longer spans than the other two systems. This allows for a lower floor-to-floor height while creating a more open floor plan. The weight of the concrete system also reduces vibrations throughout the building.

### *City of Baltimore/Neighborhood Concerns:*

- The City of Baltimore and the local neighborhood required the pile driving for the foundation system to take place during normal working hours due to noise concerns.
- The paved area inside of the limit of disturbance had to be watered multiple times daily while any excavation was taking place to keep dust levels down. This was done because the city did not want contaminated soil particles leaving the site.

### *U.S. Army Corps of Engineers Concerns:*

- Due to the site being adjacent to and extending over the Patuxant River (Baltimore Inner Harbor) Army Corps guidelines had to be followed.
- Weep holes had to be cut into the sheet pile to allow water to rise and fall in the harbor the way they had before construction. The weep holes also had to be large enough to allow fish to swim through them allowing fish habitats to be preserved.
- Any and all structures or materials placed in the water had to be approved by the Army Corps before they could be set.

### *Construction Parking:*

- Parking is available onsite on the northern section of the site in between the job trailers and the soil stockpile.
- On site parking is reserved for all CM personnel as well as administrative personnel working in the sub trailers. Laborers are allowed to park on-site only if there is space available.
- Metered parking is available on Caroline St. and a pay lot is available across from the Ferndale Awning Company on Thames St.

### *Soils Report:*

- Site was a small peninsula that was filled beyond original shoreline in the 1800's
- Fill depth ranges from 7-18.5 feet below grade
- Multiple types of sands, silts, clays and rock types below surface

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- Bed rock is between 100-121 feet below grade
- Bed rock is an intermediate to medium hard gneiss
- Water level on site ranges from elevation +0.66' to +2.9 feet depending on harbor water levels and location on site

### ***Available Recycling and Tipping Fees:***

- Because the project is seeking the LEED on-site recycled materials credit the Armada Hoffer has contracted with a roll off company to use co-mingled dumpsters. The price per pull is \$200.



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## Client Information

Harbor Point Development, LLC is a subsidiary of H&S Properties, a development company based out of Baltimore, MD. Harbor Point Development was created as an LLC to protect H&S Properties for liability and financial purposes. It was created for the Harbor Point Project that the Thames St. Wharf Building is a part of. If something was to happen that would result in legal action H&S would not be held liable or financially responsible.

The project is being pursued out of a need that Morgan Stanley had for expansion. They are currently leasing space in multiple properties that H&S owns around Baltimore. Morgan Stanley came to H&S and expressed their need for more space, and it was determined that moving all of Morgan Stanley into one building would be best. Currently Morgan Stanley is only a 50% tenant for the building leaving the rest open for other tenants.

The major concern for the Harbor Point team is that Morgan Stanley is able to move in on time. It is more important for the facility to be operational and ready for move in on time that it is for the project to stay on budget. The project is still a for profit venture though so it has been stressed that on budget is also a major concern. Harbor Point also wants to assure that the quality of the building is as high as it can be when the building is turned over. To ensure that this will happen they are going through a lengthy commissioning process that will test every system in the building to make sure it is working properly.

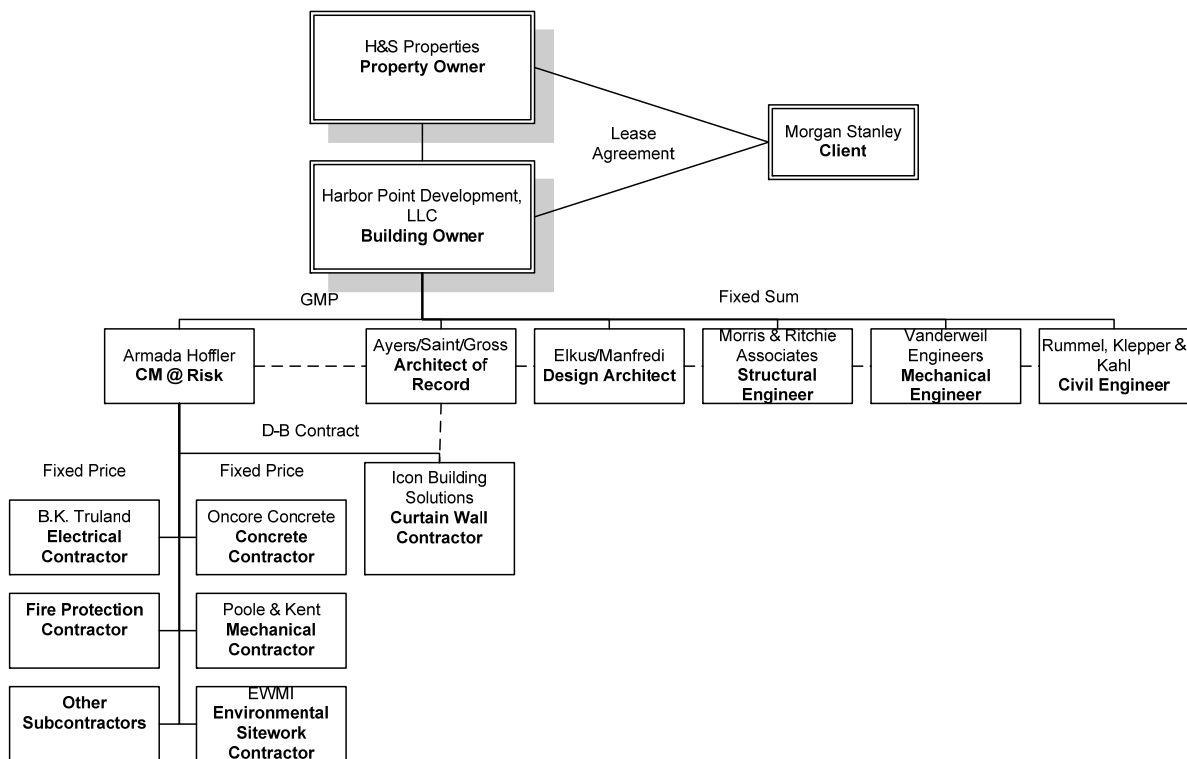
Harbor Point and H&S hope to keep a strong working relationship with Morgan Stanley and hope that Morgan Stanley expands into more of the building after their scheduled move in date. They also hope that the quality building they are constructing and the effort that they are putting forward to please their client will help them secure other clients to fill this building and in the future for other projects.

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## Project Delivery System

The project is being delivered as a traditional design-bid-build with a CM-at-Risk. This method was chosen due to the amount of time that was available for design and procurement before construction needed to begin. It is also a very familiar delivery system that all of the parties involved are comfortable with. The person I have been in contact with at Harbor Point does not remember the reason behind choosing a CM-at-Risk over a GC though.

### Organizational Chart:

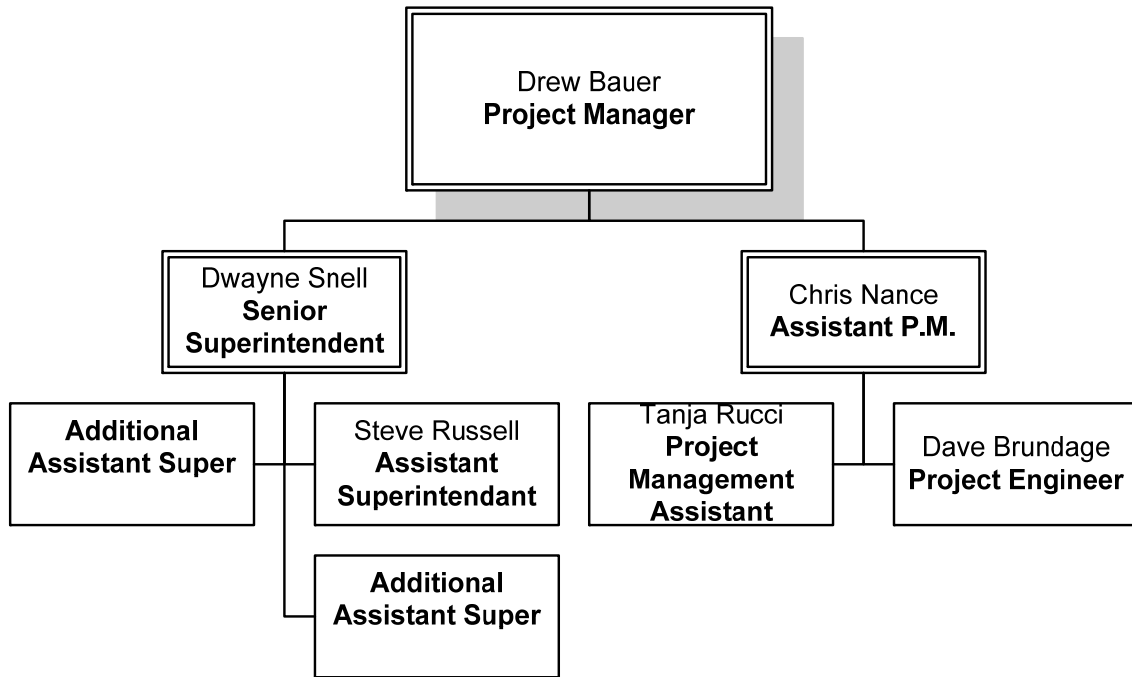


### Contract Information:

Harbor Point holds all of the design contracts and uses ASG as a contact point with all of the design firms except Elkus/Manfredi. The contracts with the design firms are basic fixed sum contracts. Harbor Point also holds a GMP contract with Armada Hoffer. The key contact with Harbor Point does not know how SBER was selected originally, but Armada Hoffer was chosen because they are contracted with H&S Properties on a different project in the Baltimore Inner Harbor. When it became apparent that a new CM was going to be needed on the project it was easier to contract with Armada Hoffer than bring in a new CM firm that didn't already have a working relationship with H&S.

Armada Hoffer holds all of the subcontractor contracts. All of the subcontractor contracts are fixed price contracts except for the one with the curtain wall contractor. The curtain wall is being delivered design-build with a design-build contract.

## Onsite Staffing Plan



### Staffing Notes:

All project members listed are staffed on-site. Two additional assistant superintendents will be staffed on-site near the end of the project and during close-out to help monitor the project. The specific personnel that will be assigned are yet to be determined. Office staffing information was not included because Drew Bauer oversees the whole project.

**Appendix A**  
*Project Schedule Summary*

| ID | Task Name                          | Duration         | Start              | Finish             | 2006  |       |       |       |       |       |       |       |       |       |       |       | 2007                               |       |       |       | 2008  |       |       |       | 2009  |       |  |  | 2010 |  |  |  |
|----|------------------------------------|------------------|--------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|------|--|--|--|
|    |                                    |                  |                    |                    | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3                              | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |  |  |      |  |  |  |
| 1  | Design?                            | 315 days         | Mon 10/3/05        | Fri 12/15/06       | [Bar] |       |       |       |       |       |       |       |       |       |       |       | Design?                            |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 2  | Procurement of CM?                 | 60 days          | Mon 3/12/07        | Fri 6/1/07         |       |       |       |       |       |       |       |       |       |       |       |       | Procurement of CM?                 |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 3  | <b>SBER Construction?</b>          | <b>414 days</b>  | <b>Mon 10/1/07</b> | <b>Thu 4/30/09</b> |       |       |       |       |       |       |       |       |       |       |       |       | 10/1 [Bar] SBER Construction? 4/30 |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 4  | Notice To Proceed?                 | 0 days           | Mon 10/1/07        | Mon 10/1/07        |       |       |       |       |       |       |       |       |       |       |       |       | Notice To Proceed? 10/1            |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 5  | Mobilization?                      | 25 days          | Mon 10/1/07        | Fri 11/2/07        |       |       |       |       |       |       |       |       |       |       |       |       | Mobilization?                      |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 6  | Demo Existing?                     | 12 days          | Mon 11/5/07        | Tue 11/20/07       |       |       |       |       |       |       |       |       |       |       |       |       | Demo Existing?                     |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 7  | Excavation?                        | 8 days           | Wed 11/21/07       | Fri 11/30/07       |       |       |       |       |       |       |       |       |       |       |       |       | Excavation?                        |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 8  | Pile Driving?                      | 105 days         | Mon 12/3/07        | Fri 4/25/08        |       |       |       |       |       |       |       |       |       |       |       |       | Pile Driving?                      |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 9  | Foundation Concrete?               | 15 days          | Mon 4/28/08        | Fri 5/16/08        |       |       |       |       |       |       |       |       |       |       |       |       | Foundation Concrete?               |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 10 | Structure?                         | 132 days         | Mon 5/19/08        | Tue 11/18/08       |       |       |       |       |       |       |       |       |       |       |       |       | Structure?                         |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 15 | MEP?                               | 244 days         | Wed 5/21/08        | Mon 4/27/09        |       |       |       |       |       |       |       |       |       |       |       |       | MEP?                               |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 11 | Top Out Concrete?                  | 0 days           | Tue 11/18/08       | Tue 11/18/08       |       |       |       |       |       |       |       |       |       |       |       |       | Top Out Concrete? 11/18            |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 12 | Brick Work?                        | 65 days          | Fri 1/30/09        | Thu 4/30/09        |       |       |       |       |       |       |       |       |       |       |       |       | Brick Work?                        |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 13 | Curtain Wall?                      | 35 days          | Fri 3/13/09        | Thu 4/30/09        |       |       |       |       |       |       |       |       |       |       |       |       | Curtain Wall?                      |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 14 | Roof/PH Construction?              | 30 days          | Fri 3/20/09        | Thu 4/30/09        |       |       |       |       |       |       |       |       |       |       |       |       | Roof/PH Construction?              |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 16 | A.H. Tenant Fit Out Bid            | 12 days          | Fri 4/10/09        | Mon 4/27/09        |       |       |       |       |       |       |       |       |       |       |       |       | A.H. Tenant Fit Out Bid            |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 17 | <b>Armada Hoffler Construction</b> | <b>230 days?</b> | <b>Mon 4/27/09</b> | <b>Mon 3/15/10</b> |       |       |       |       |       |       |       |       |       |       |       |       | 4/27 [Bar] Armada Hoffler 3/15     |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 18 | A.H. Notice to Proceed             | 0 days           | Mon 4/27/09        | Mon 4/27/09        |       |       |       |       |       |       |       |       |       |       |       |       | A.H. Notice to Proceed 4/27        |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 19 | Mobilization                       | 4 days           | Tue 4/28/09        | Fri 5/1/09         |       |       |       |       |       |       |       |       |       |       |       |       | Mobilization                       |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 20 | Brick Work                         | 13 days          | Mon 5/4/09         | Wed 5/20/09        |       |       |       |       |       |       |       |       |       |       |       |       | Brick Work                         |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 21 | Curtain Wall                       | 146 days?        | Mon 5/4/09         | Mon 11/23/09       |       |       |       |       |       |       |       |       |       |       |       |       | Curtain Wall                       |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 22 | Roof/PH Construction               | 10 days          | Mon 5/4/09         | Fri 5/15/09        |       |       |       |       |       |       |       |       |       |       |       |       | Roof/PH Construction               |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 24 | MEP Install                        | 182 days         | Mon 5/4/09         | Tue 1/12/10        |       |       |       |       |       |       |       |       |       |       |       |       | MEP Install                        |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 23 | PH/Roof Completion                 | 0 days           | Fri 5/15/09        | Fri 5/15/09        |       |       |       |       |       |       |       |       |       |       |       |       | PH/Roof Completion 5/15            |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 25 | Tenant Fit Out                     | 132 days         | Fri 9/11/09        | Mon 3/15/10        |       |       |       |       |       |       |       |       |       |       |       |       | Tenant Fit Out                     |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 26 | <b>Close-Out</b>                   | <b>91 days</b>   | <b>Mon 11/9/09</b> | <b>Mon 3/15/10</b> |       |       |       |       |       |       |       |       |       |       |       |       | 11/9 [Bar] Close 3/15              |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 27 | Commissioning                      | 61 days          | Mon 11/9/09        | Mon 2/1/10         |       |       |       |       |       |       |       |       |       |       |       |       | Commissioning                      |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 28 | Punchlist                          | 64 days          | Wed 12/9/09        | Mon 3/8/10         |       |       |       |       |       |       |       |       |       |       |       |       | Punchlist                          |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 29 | Temporary CofO                     | 0 days           | Wed 2/17/10        | Wed 2/17/10        |       |       |       |       |       |       |       |       |       |       |       |       | Temporary CofO 2/17                |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 30 | Substantial CofO                   | 0 days           | Tue 3/9/10         | Tue 3/9/10         |       |       |       |       |       |       |       |       |       |       |       |       | Substantial CofO 3/9               |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |
| 31 | Completion                         | 0 days           | Mon 3/15/10        | Mon 3/15/10        |       |       |       |       |       |       |       |       |       |       |       |       | Completion 3/15                    |       |       |       |       |       |       |       |       |       |  |  |      |  |  |  |

|  |           |  |                     |  |                  |  |
|--|-----------|--|---------------------|--|------------------|--|
| Project: Schedule<br>Date: Mon 10/5/09 | Task      |  | Rolled Up Task      |  | External Tasks   |  |
|  | Progress  |  | Rolled Up Milestone |  | Project Summary  |  |
|  | Milestone |  | Rolled Up Progress  |  | Group By Summary |  |
|  | Summary   |  | Split               |  | Deadline         |  |

**Appendix B**  
*D4 Cost Estimate*

# Statement of Probable Cost

Thames St. Wharf Office Building - Oct 2007 - MD - Baltimore

|                    |                                  |                 |               |
|--------------------|----------------------------------|-----------------|---------------|
| Prepared By:       | <b>Harbour Contractors, Inc.</b> | Prepared For:   |               |
|                    | <b>215 West Main Street</b>      |                 |               |
|                    | <b>Plainfield, IL 60544</b>      |                 |               |
|                    | <b>Fax:</b>                      |                 | <b>Fax:</b>   |
| Building Sq. Size: | <b>277000</b>                    | Site Sq. Size:  | <b>239425</b> |
| Bid Date:          | <b>10/1/2007</b>                 | Building use:   | <b>Office</b> |
| No. of floors:     | <b>8</b>                         | Foundation:     | <b>PIL</b>    |
| No. of buildings:  | <b>1</b>                         | Exterior Walls: | <b>CUR</b>    |
| Project Height:    | <b>131</b>                       | Interior Walls: | <b>DRY</b>    |
| 1st Floor Height:  | <b>13</b>                        | Roof Type:      | <b>MEM</b>    |
| 1st Floor Size:    | <b>34553</b>                     | Floor Type:     | <b>CON</b>    |
|                    |                                  | Project Type:   | <b>NEW</b>    |

| Division  |  | Percent      | Sq. Cost     | Amount           |
|-----------|--|--------------|--------------|------------------|
| <b>00</b> | <b>Procurement and Contracting Require</b> | <b>2.14</b>  | <b>3.02</b>  | <b>835,581</b>   |
|           | Civil Engineer                             | 0.17         | 0.23         | 64,544           |
|           | Insurance                                  | 1.06         | 1.49         | 412,820          |
|           | Permits                                    | 0.56         | 0.79         | 219,665          |
|           | Site Security                              | 0.19         | 0.26         | 72,209           |
|           | Testing                                    | 0.17         | 0.24         | 66,342           |
| <b>01</b> | <b>General Requirements</b>                | <b>12.81</b> | <b>18.03</b> | <b>4,994,865</b> |
|           | Architect Fee                              | 6.06         | 8.54         | 2,364,591        |
|           | Contractor Fee                             | 2.22         | 3.13         | 865,901          |
|           | General Requirements                       | 4.52         | 6.37         | 1,764,373        |
| <b>03</b> | <b>Concrete</b>                            | <b>19.43</b> | <b>27.36</b> | <b>7,579,883</b> |
|           | Cast-In-Place                              | 19.43        | 27.36        | 7,579,883        |
| <b>04</b> | <b>Masonry</b>                             | <b>1.78</b>  | <b>2.51</b>  | <b>694,519</b>   |
|           | Architectural Stone Flooring Unit          | 1.28         | 1.81         | 500,298          |
|           |  | 0.50         | 0.70         | 194,221          |
| <b>05</b> | <b>Metals</b>                              | <b>9.45</b>  | <b>13.31</b> | <b>3,687,322</b> |
|           | Architectural Metal Framing                | 4.66         | 6.56         | 1,816,028        |
|           | Fabrications                               | 2.32         | 3.27         | 905,516          |
|           | Ornamental                                 | 2.48         | 3.49         | 965,778          |
| <b>06</b> | <b>Wood, Plastics, and Composites</b>      | <b>0.20</b>  | <b>0.28</b>  | <b>78,017</b>    |
|           | Finish Carpentry                           | 0.15         | 0.20         | 56,748           |
|           | Rough Carpentry                            | 0.05         | 0.08         | 21,269           |
| <b>07</b> | <b>Thermal and Moisture Protection</b>     | <b>1.03</b>  | <b>1.45</b>  | <b>402,070</b>   |
|           | Firestopping                               | 0.19         | 0.27         | 74,046           |
|           | Membrane Roofing                           | 0.73         | 1.03         | 284,647          |
|           | Waterproofing                              | 0.11         | 0.16         | 43,378           |
| <b>08</b> | <b>Openings</b>                            | <b>21.43</b> | <b>30.18</b> | <b>8,360,521</b> |
|           | Glazed Curtainwalls                        | 9.16         | 12.90        | 3,572,224        |
|           | Interior/Exterior Glass Cleaning           | 0.25         | 0.35         | 95,595           |
|           | Metal Doors & Frames                       | 0.17         | 0.24         | 65,430           |
|           | Special Doors                              | 0.44         | 0.62         | 170,427          |
|           | Structural Glazing                         | 11.43        | 16.09        | 4,456,845        |
| <b>09</b> | <b>Finishes</b>                            | <b>1.42</b>  | <b>2.00</b>  | <b>554,216</b>   |
|           | Ceramic Tile                               | 0.31         | 0.44         | 121,131          |
|           | Metal Studs & Drywall                      | 1.00         | 1.42         | 391,971          |
|           | Painting                                   | 0.10         | 0.14         | 40,046           |
|           | Resilient Flooring                         | 0.00         | 0.00         | 1,067            |
| <b>10</b> | <b>Specialties</b>                         | <b>3.32</b>  | <b>4.67</b>  | <b>1,293,967</b> |
|           | Louvers                                    | 0.08         | 0.11         | 30,919           |
|           | Raised Access Floor                        | 2.96         | 4.17         | 1,153,750        |
|           | Toilet Partitions                          | 0.28         | 0.39         | 109,298          |
| <b>12</b> | <b>Furnishings</b>                         | <b>1.26</b>  | <b>1.78</b>  | <b>492,734</b>   |
|           | Window Treatment Furnish                   | 1.18         | 1.67         | 461,608          |

|                                 |                              |               |               |                   |
|---------------------------------|------------------------------|---------------|---------------|-------------------|
|                                 | Window Treatment Install     | 0.08          | 0.11          | 31,126            |
| 14                              | <b>Conveying Systems</b>     | <b>4.37</b>   | <b>6.15</b>   | <b>1,702,590</b>  |
|                                 | Elevators                    | 3.70          | 5.21          | 1,441,954         |
|                                 | Hoists & Cranes              | 0.67          | 0.94          | 260,636           |
| 21                              | <b>Fire Suppression</b>      | <b>2.02</b>   | <b>2.85</b>   | <b>789,684</b>    |
|                                 | Fire Protection              | 2.02          | 2.85          | 789,684           |
| 22                              | <b>Plumbing</b>              | <b>1.46</b>   | <b>2.06</b>   | <b>570,356</b>    |
|                                 | Plumbing                     | 1.46          | 2.06          | 570,356           |
| 23                              | <b>HVAC</b>                  | <b>10.08</b>  | <b>14.20</b>  | <b>3,932,696</b>  |
|                                 | HVAC                         | 10.08         | 14.20         | 3,932,696         |
| 26                              | <b>Electrical</b>            | <b>7.78</b>   | <b>10.96</b>  | <b>3,035,431</b>  |
|                                 | Service & Distribution       | 7.78          | 10.96         | 3,035,431         |
| <b>Total Building Costs</b>     |                              | <b>100.00</b> | <b>140.81</b> | <b>39,004,454</b> |
| 02                              | <b>Existing Conditions</b>   | <b>2.93</b>   | <b>0.30</b>   | <b>72,946</b>     |
|                                 | Preparation                  | 2.93          | 0.30          | 72,946            |
| 31                              | <b>Earthwork</b>             | <b>21.29</b>  | <b>2.22</b>   | <b>530,349</b>    |
|                                 | Earthwork                    | 21.29         | 2.22          | 530,349           |
| 32                              | <b>Exterior Improvements</b> | <b>51.59</b>  | <b>5.37</b>   | <b>1,285,023</b>  |
|                                 | Caissons                     | 12.41         | 1.29          | 309,043           |
|                                 | Landscaping                  | 15.13         | 1.57          | 376,868           |
|                                 | Paving & Surfacing           | 24.05         | 2.50          | 599,112           |
| 33                              | <b>Utilities</b>             | <b>24.19</b>  | <b>2.52</b>   | <b>602,438</b>    |
|                                 | Utilities #1                 | 20.08         | 2.09          | 500,115           |
|                                 | Utilities #2                 | 4.11          | 0.43          | 102,323           |
| <b>Total Non-Building Costs</b> |                              | <b>100.00</b> | <b>10.40</b>  | <b>2,490,756</b>  |
| <b>Total Project Costs</b>      |                              | <b>--</b>     | <b>--</b>     | <b>41,495,210</b> |



**Appendix C**

*RS Means Square Foot Estimate*

# Thames St. Wharf Office Building

## Square Foot Cost Estimate Report

Estimate Name: **Thames St Wharf**

Building Type: **Office, 5-10 Story with Face Brick with Concrete Block Back-up / R/Conc. Frame**

Location: **BALTIMORE, MD**

Story Count: **8**

Story Height (L.F.): **13**

Floor Area (S.F.): **277000**

Labor Type: **Open Shop**

Basement Included: **No**

Data Release: **Year 2007 Quarter 4**

Cost Per Square

Foot: **\$85.11**

Building Cost: **\$23,575,500**



Costs are derived from a building model with basic components.

Scope differences and market conditions can cause costs to vary significantly.

|                       |  | % of Total    | Cost Per S.F.  | Cost               |
|-----------------------|--|---------------|----------------|--------------------|
| <b>A Substructure</b> |  | <b>2.70%</b>  | <b>\$2.26</b>  | <b>\$625,500</b>   |
| <b>A1010</b>          | <b>Standard Foundations</b><br>Strip footing, concrete, reinforced, load 11.1 KLF, soil bearing capacity 6 KSF, 12" deep x 24" wide<br>Spread footings, 3000 PSI concrete, load 800K, soil bearing capacity 6 KSF, 12' - 0" square x 37" deep  |               | <b>\$1.54</b>  | <b>\$427,000</b>   |
| <b>A1030</b>          | <b>Slab on Grade</b><br>Slab on grade, 4" thick, non industrial, reinforced  |               | <b>\$0.48</b>  | <b>\$134,000</b>   |
| <b>A2010</b>          | <b>Basement Excavation</b><br>Excavate and fill, 10,000 SF, 4' deep, sand gravel, or common earth, on site storage   |               | <b>\$0.02</b>  | <b>\$6,000</b>     |
| <b>A2020</b>          | <b>Basement Walls</b><br>Foundation wall, CIP, 4' wall height, direct chute, .148 CY/LF, 7.2 PLF, 12" thick  |               | <b>\$0.21</b>  | <b>\$58,500</b>    |
| <b>B Shell</b>        |  | <b>27.60%</b> | <b>\$23.50</b> | <b>\$6,510,500</b> |
| <b>B1010</b>          | <b>Floor Construction</b><br>Cast-in-place concrete column, 20" square, tied, 800K load, 12' story height, 394 lbs/LF, 6000PSI<br>Cast-in-place concrete column, 20" square, tied, 900K load, 12' story height, 394 lbs/LF, 6000PSI<br>Cast-in-place concrete column, 20", square, tied, minimum reinforcing, 500K load, 10'-14' story height, 375 lbs/LF, 4000PSI<br>Flat plate, concrete, 9" slab, 20" column, 20'x25' bay, 75 PSF superimposed load, 188 PSF total load |               | <b>\$13.84</b> | <b>\$3,835,000</b> |
| <b>B1020</b>          | <b>Roof Construction</b><br>Floor, concrete, beam and slab, 20'x25' bay, 40 PSF superimposed load, 18" deep beam, 8.5" slab, 146 PSF total load  |               | <b>\$1.47</b>  | <b>\$407,000</b>   |
| <b>B2010</b>          | <b>Exterior Walls</b>  |               | <b>\$5.43</b>  | <b>\$1,505,000</b> |

# Thames St. Wharf Office Building

|                    |   |               |                |                     |
|--------------------|---|---------------|----------------|---------------------|
|                    | Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, perlite core fill  |               |                |                     |
| <b>B2020</b>       | <b>Exterior Windows</b>   |               | <b>\$2.07</b>  | <b>\$573,000</b>    |
|                    | Windows, aluminum, sliding, insulated glass, 5' x 3'  |               |                |                     |
| <b>B2030</b>       | <b>Exterior Doors</b>   |               | <b>\$0.20</b>  | <b>\$54,500</b>     |
|                    | Door, aluminum & glass, with transom, narrow stile, 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  |               |                |                     |
| <b>B3010</b>       | <b>Roof Coverings</b>   |               | <b>\$0.49</b>  | <b>\$136,000</b>    |
|                    | Roofing, asphalt flood coat, gravel, base sheet, 3 plies 15# asphalt felt, mopped   |               |                |                     |
|                    | Insulation, rigid, roof deck, composite with 2" EPS, 1" perlite   |               |                |                     |
|                    | Roof edges, aluminum, duranodic, .050" thick, 6" face   |               |                |                     |
|                    | Flashing, aluminum, no backing sides, .019"   |               |                |                     |
| <b>C Interiors</b> |   | <b>20.40%</b> | <b>\$17.39</b> | <b>\$4,817,000</b>  |
| <b>C1010</b>       | <b>Partitions</b>   |               | <b>\$1.68</b>  | <b>\$466,000</b>    |
|                    | Metal partition, 5/8" water resistant gypsum board face, no base layer, 3-5/8" @ 24" OC framing ,same opposite face, no insulation 1/2" fire rated gypsum board, taped & finished, painted on metal furring |               |                |                     |
| <b>C1020</b>       | <b>Interior Doors</b>   |               | <b>\$1.87</b>  | <b>\$517,000</b>    |
|                    | Door, single leaf, kd steel frame, hollow metal, commercial quality, flush, 3'-0" x 7'-0" x 1-3/8"  |               |                |                     |
| <b>C1030</b>       | <b>Fittings</b>   |               | <b>\$0.63</b>  | <b>\$175,000</b>    |
|                    | Toilet partitions, cubicles, ceiling hung, plastic laminate   |               |                |                     |
| <b>C2010</b>       | <b>Stair Construction</b>   |               | <b>\$2.29</b>  | <b>\$633,000</b>    |
|                    | Stairs, steel, cement filled metal pan & picket rail, 16 risers, with landing   |               |                |                     |
| <b>C3010</b>       | <b>Wall Finishes</b>  |               | <b>\$0.68</b>  | <b>\$188,500</b>    |
|                    | Painting, interior on plaster and drywall, walls & ceilings, roller work, primer & 2 coats  |               |                |                     |
|                    | Vinyl wall covering, fabric back, medium weight   |               |                |                     |
| <b>C3020</b>       | <b>Floor Finishes</b>   |               | <b>\$6.32</b>  | <b>\$1,751,000</b>  |
|                    | Carpet, tufted, nylon, roll goods, 12' wide, 36 oz  |               |                |                     |
|                    | Carpet, padding, add to above, minimum  |               |                |                     |
|                    | Vinyl, composition tile, maximum  |               |                |                     |
|                    | Tile, ceramic natural clay  |               |                |                     |
| <b>C3030</b>       | <b>Ceiling Finishes</b>   |               | <b>\$3.92</b>  | <b>\$1,086,500</b>  |
|                    | Acoustic ceilings, 3/4" mineral fiber, 12" x 12" tile, concealed 2" bar & channel grid, suspended support   |               |                |                     |
| <b>D Services</b>  |   | <b>49.00%</b> | <b>\$41.73</b> | <b>\$11,560,000</b> |
| <b>D1010</b>       | <b>Elevators and Lifts</b>  |               | <b>\$11.52</b> | <b>\$3,190,500</b>  |
|                    | 4 - Traction geared elevators, passenger, 3500 lb, 5 floors, 200 FPM  |               |                |                     |

# Thames St. Wharf Office Building

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|              |   |                |                    |
|--------------|---|----------------|--------------------|
|              | Traction, geared passenger, 3500 lb, 8 floors, 12' story height, 2 car group, 200 FPM                             |                |                    |
| <b>D2010</b> | <b>Plumbing Fixtures</b>  | <b>\$1.55</b>  | <b>\$428,500</b>   |
|              | Water closet, vitreous china, bowl only with flush valve, wall hung   |                |                    |
|              | Urinal, vitreous china, wall hung   |                |                    |
|              | Lavatory w/trim, vanity top, PE on CI, 20" x 18"  |                |                    |
|              | Service sink w/trim, PE on CI, corner floor, wall hung w/rim guard, 24" x 20"                                     |                |                    |
|              | Water cooler, electric, wall hung, 8.2 GPH  |                |                    |
|              | Water cooler, electric, wall hung, wheelchair type, 7.5 GPH   |                |                    |
| <b>D2020</b> | <b>Domestic Water Distribution</b>  | <b>\$0.07</b>  | <b>\$18,500</b>    |
|              | Gas fired water heater, commercial, 100< F rise, 200 MBH input, 192 GPH   |                |                    |
| <b>D2040</b> | <b>Rain Water Drainage</b>  | <b>\$0.03</b>  | <b>\$9,500</b>     |
|              | Roof drain, CI, soil, single hub, 5" diam, 10' high   |                |                    |
|              | Roof drain, CI, soil, single hub, 5" diam, for each additional foot add   |                |                    |
| <b>D3050</b> | <b>Terminal &amp; Package Units</b>   | <b>\$14.28</b> | <b>\$3,956,500</b> |
|              | Rooftop, multizone, air conditioner, offices, 25,000 SF, 79.16 ton  |                |                    |
| <b>D4020</b> | <b>Standpipes</b>   | <b>\$0.06</b>  | <b>\$16,500</b>    |
|              | Wet standpipe risers, class I, steel, black, sch 40, 4" diam pipe, 1 floor  |                |                    |
|              | Wet standpipe risers, class I, steel, black, sch 40, 4" diam pipe, additional floors                              |                |                    |
| <b>D5010</b> | <b>Electrical Service/Distribution</b>  | <b>\$0.46</b>  | <b>\$128,000</b>   |
|              | Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 1600 A         |                |                    |
|              | Feeder installation 600 V, including RGS conduit and XHHW wire, 1600 A  |                |                    |
|              | Switchgear installation, incl switchboard, panels & circuit breaker, 1600 A                                       |                |                    |
| <b>D5020</b> | <b>Lighting and Branch Wiring</b>   | <b>\$8.92</b>  | <b>\$2,472,000</b> |
|              | Receptacles incl plate, box, conduit, wire, 16.5 per 1000 SF, 2.0 W per SF, with transformer                      |                |                    |
|              | Miscellaneous power, 1.2 watts  |                |                    |
|              | Central air conditioning power, 4 watts   |                |                    |
|              | Motor installation, three phase, 460 V, to and incl 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, 2 watt per SF, 40 FC, 10 fixtures per 1000 SF                     |                |                    |
| <b>D5030</b> | <b>Communications and Security</b>  | <b>\$3.93</b>  | <b>\$1,088,500</b> |
|              | Telephone wiring for offices & laboratories, 8 jacks/MSF  |                |                    |
|              | Communication and alarm systems, includes outlets, boxes, conduit and wire, fire detection systems, 100 detectors |                |                    |
|              | Internet wiring, 8 data/voice outlets per 1000 S.F.   |                |                    |
| <b>D5090</b> | <b>Other Electrical Systems</b>   | <b>\$0.91</b>  | <b>\$251,500</b>   |

# Thames St. Wharf Office Building

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Generator sets, w/battery, charger, muffler and transfer switch,  
diesel engine with fuel tank, 100 kW  
Uninterruptible power supply with standard battery pack, 15  
kVA/12.75 kW

|   |   |              |                |                     |
|---|---|--------------|----------------|---------------------|
| <b>E Equipment &amp; Furnishings</b>                        |   | <b>0.30%</b> | <b>\$0.23</b>  | <b>\$62,500</b>     |
| <b>E1090</b>  | <b>Other Equipment</b><br>32 - Detection Systems, smoke detector, duct type, excl. wires & conduit<br>32 - Detection Systems, heat detector, smoke detector, ceiling type, excl. wires & conduit<br>2 - Directory boards, plastic, glass covered, 36" x 48"<br>31 - T.V. SYSTEMS, closed circuit, surveillance, for additional camera stations, add<br>7 - T.V. SYSTEMS, closed circuit, surveillance, one station (camera & monitor) |              | <b>\$0.23</b>  | <b>\$62,500</b>     |
| <b>F Special Construction</b>                               |   | <b>0.00%</b> | <b>\$0.00</b>  | <b>\$0</b>          |
| <b>G Building Sitework</b>                                  |   | <b>0.00%</b> | <b>\$0.00</b>  | <b>\$0</b>          |
| <b>SubTotal</b>   |   | <b>100%</b>  | <b>\$85.11</b> | <b>\$23,575,500</b> |
| <b>Contractor Fees (General Conditions,Overhead,Profit)</b> |   | <b>0.00%</b> | <b>\$0.00</b>  | <b>\$0</b>          |
| <b>Architectural Fees</b>                                   |   | <b>0.00%</b> | <b>\$0.00</b>  | <b>\$0</b>          |
| <b>User Fees</b>  |   | <b>0.00%</b> | <b>\$0.00</b>  | <b>\$0</b>          |
| <b>Total Building Cost</b>                                  |   |              | <b>\$85.11</b> | <b>\$23,575,500</b> |

**Appendix D**  
*Site Plans*



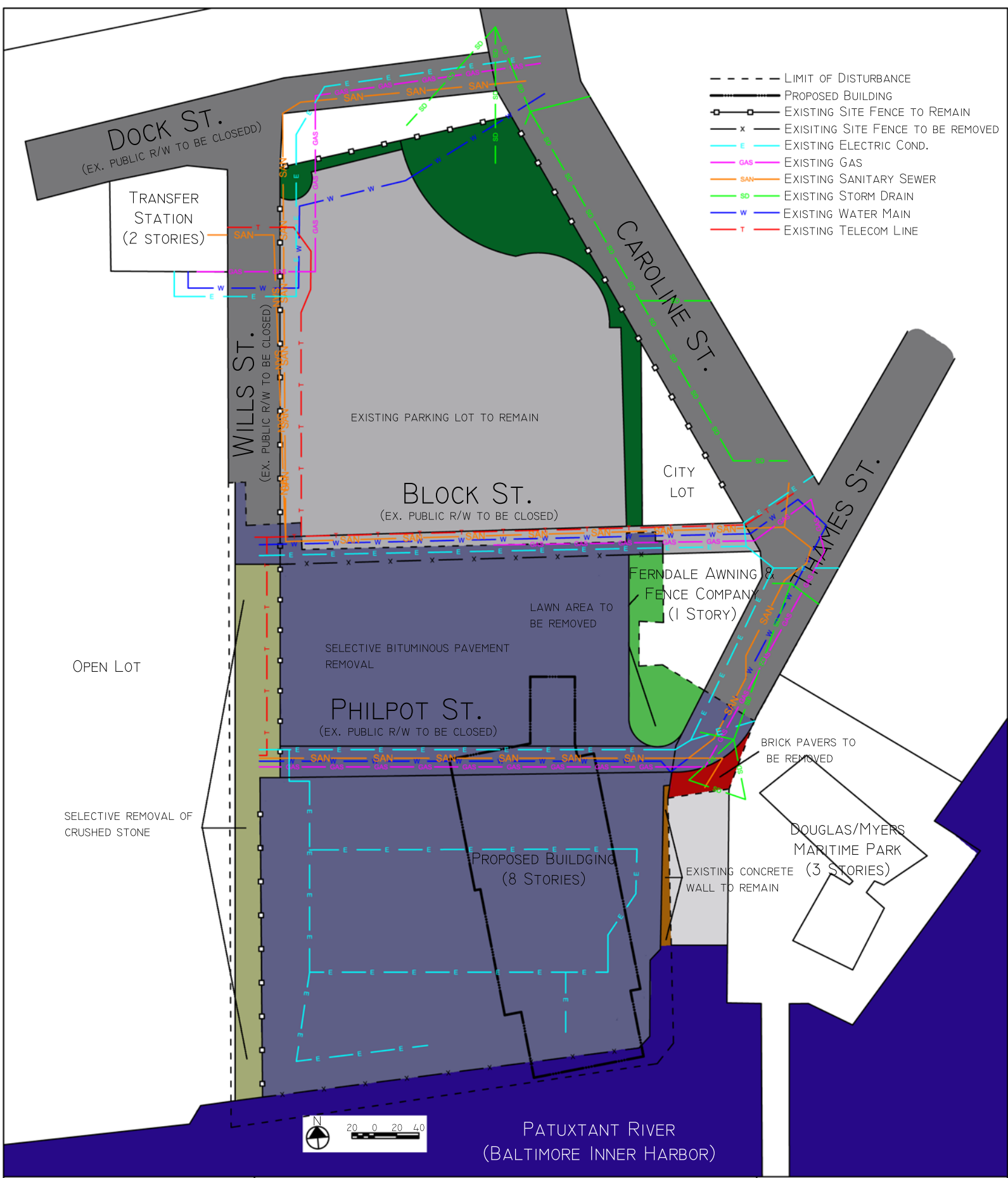
- - - LIMIT OF DISTURBANCE
- PROPOSED BUILDING
- PROPOSED PROPERTY LINE

CHRIS BELL

THAMES ST. WHARF OFFICE BUILDING

BALTIMORE, MD

SATELITE IMAGE OF SITE PLAN



- LIMIT OF DISTURBANCE
- ▬ PROPOSED BUILDING
- ◻ EXISTING SITE FENCE TO REMAIN
- ✕ EXISTING SITE FENCE TO BE REMOVED
- E— EXISTING ELECTRIC COND.
- GAS— EXISTING GAS
- SAN— EXISTING SANITARY SEWER
- SD— EXISTING STORM DRAIN
- W— EXISTING WATER MAIN
- T— EXISTING TELECOM LINE



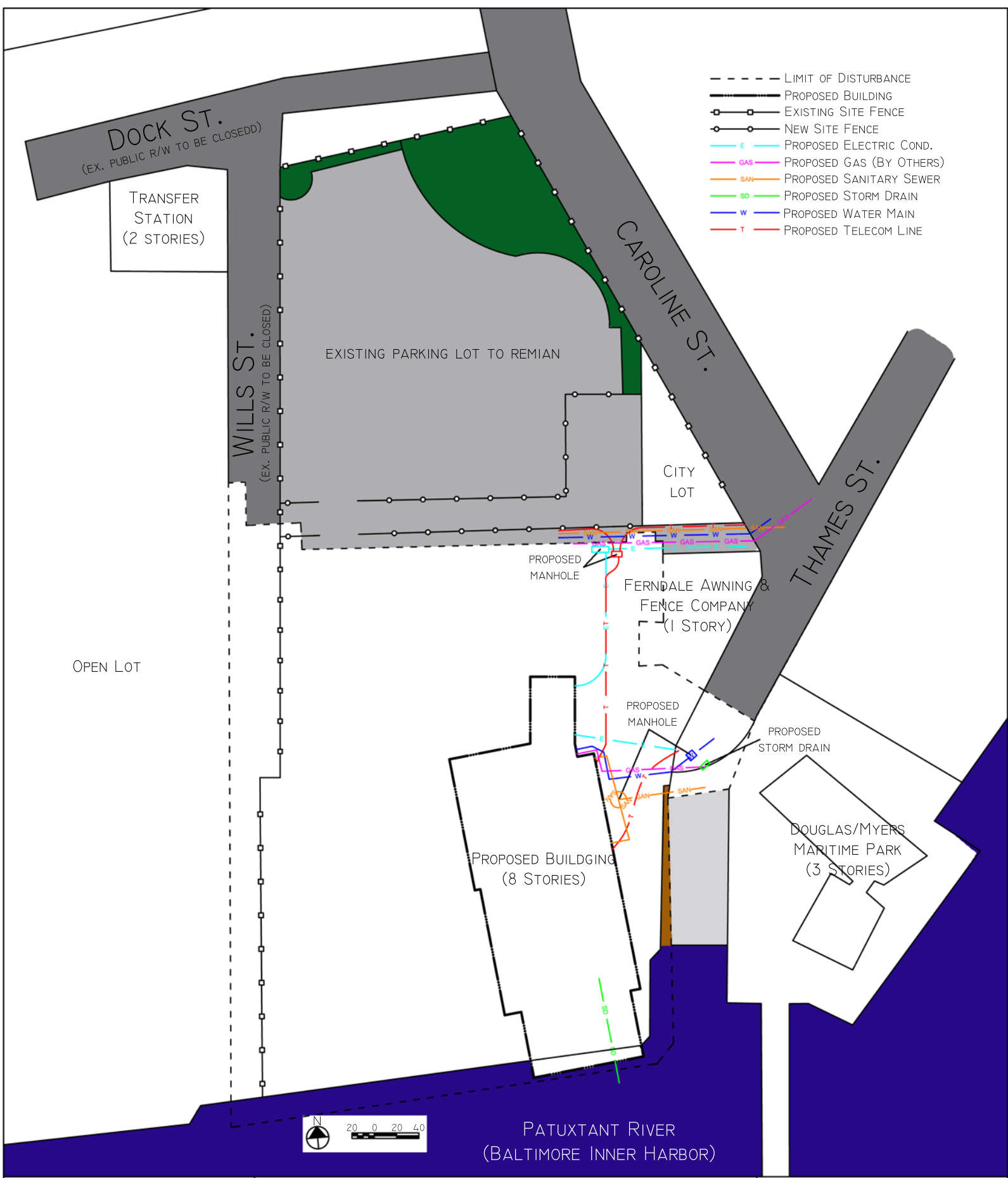
THAMES ST. WHARF OFFICE BUILDING

CHRIS BELL

BALTIMORE, MD

EXISTING SITE PLAN





- LIMIT OF DISTURBANCE
- ▬ PROPOSED BUILDING
- ◻ EXISTING SITE FENCE
- ◻ NEW SITE FENCE
- E— PROPOSED ELECTRIC COND.
- GAS— PROPOSED GAS (BY OTHERS)
- SAN— PROPOSED SANITARY SEWER
- SD— PROPOSED STORM DRAIN
- W— PROPOSED WATER MAIN
- T— PROPOSED TELECOM LINE

DOCK ST.  
(EX. PUBLIC R/W TO BE CLOSED)

TRANSFER STATION  
(2 STORIES)

WILLS ST.  
(EX. PUBLIC R/W TO BE CLOSED)

EXISTING PARKING LOT TO REMIAN

CAROLINE ST.

CITY LOT

THAMES ST.

PROPOSED MANHOLE

FERNDALE AWNING & FENCE COMPANY  
(1 STORY)

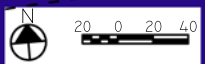
OPEN LOT

PROPOSED MANHOLE

PROPOSED STORM DRAIN

PROPOSED BUILDING  
(8 STORIES)

DOUGLAS/MYERS MARITIME PARK  
(3 STORIES)



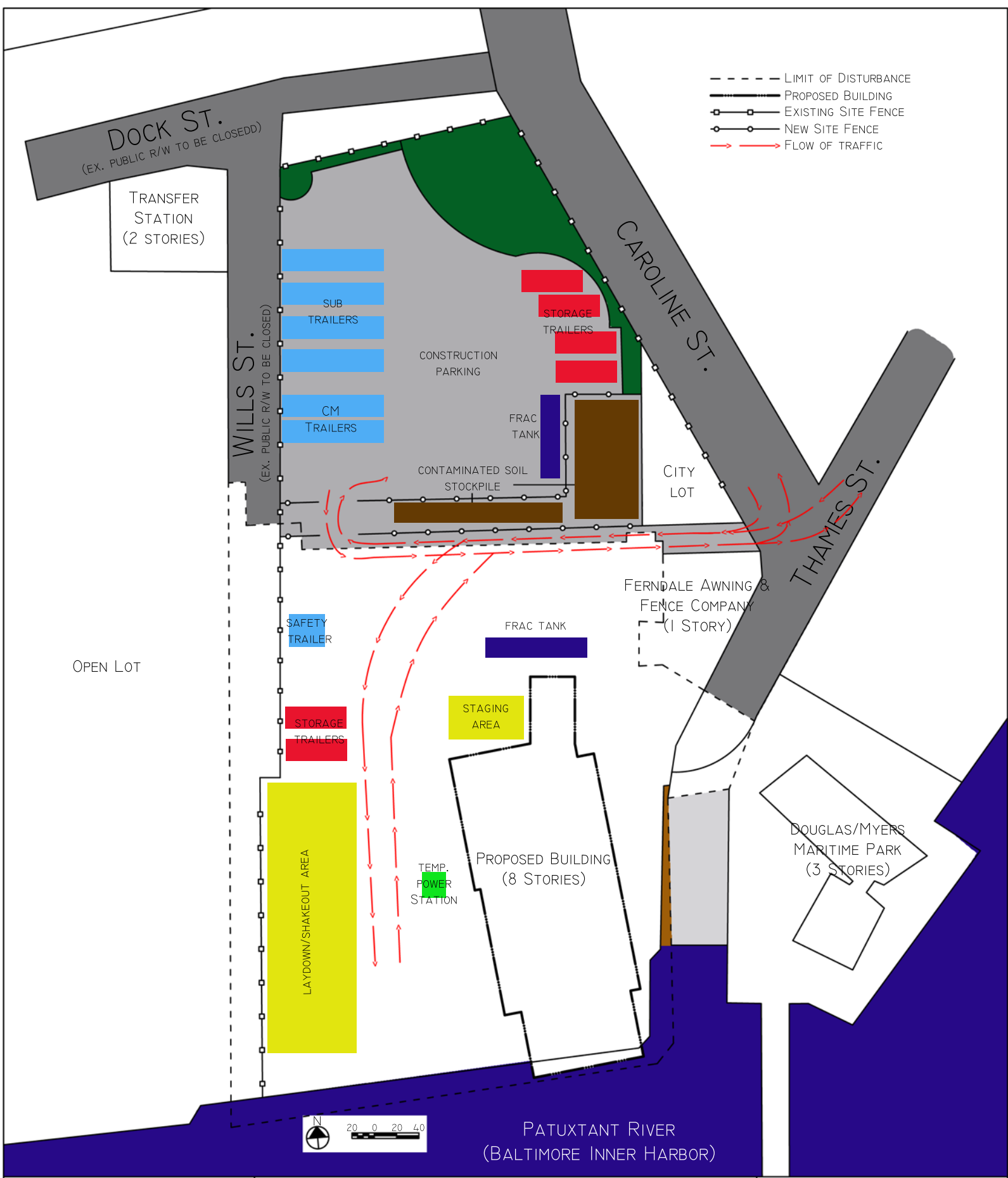
PATUXTANT RIVER  
(BALTIMORE INNER HARBOR)

THAMES ST. WHARF OFFICE BUILDING

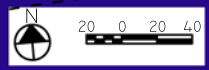
CHRIS BELL

BALTIMORE, MD

SITE PLAN WITH PROPOSED UTILITIES



- LIMIT OF DISTURBANCE
- PROPOSED BUILDING
- - - EXISTING SITE FENCE
- - - NEW SITE FENCE
- FLOW OF TRAFFIC



THAMES ST. WHARF OFFICE BUILDING

CHRIS BELL

BALTIMORE, MD

SITE PLAN WITH  
TEMP. FACILITIES