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Technical Report 2

Doctors Community Hospital Lanham, MD

October 24, 2008

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EXECUTIVE SUMMARY

Technical report two is based on a frame work of a detailed cost analysis and in depth schedule for the Doctor's Community Hospital in Lanham, MD. Site layout and logistics, project schedule, structural estimate breakdown, and general conditions costs are the topics focused on. At the conclusion, a discussion of the Pace Roundtable is introduced, and one technical session of the conference is analyzed in depth.

Technical report two further develops ideas that were introduced in technical report one. A detailed schedule is developed that looks closely at trade relations and how work will be sequenced throughout the construction of the project. All major milestones are delineated on the schedule, as well as structural, exterior façade, and interior fit-out sequences.

Site layout is an important issue on any construction. Doctor's Community Hospital, with its very congested site, is no different. Three phases wroth of site plans were developed. They outline the layout at excavation, steel erection, and interior fit-out time frames on site.

Two detailed estimates were created for this report. The first is a detailed structural estimate. It outlines the expected costs for all steel, concrete, and reinforcing that will be required for DCH. The second estimate developed was for general conditions. Looking at jobsite overhead costs such as personnel, site utilities, facilities, and site requirements such as fencing, barricades, and signage, the general conditions analyze the cost of operating a jobsite.

The final element of the report is an analysis of a technical session presented at the PACE roundtable. Focusing on the BIM session, topics that were discussed revolved around the concept of "Putting the 'I' in BIM". Topics that were discussed include transfer of information, who is responsible for what level of detail, and what current uses are being implemented in the field.

DETAILED PROJECT SCHEDULE

SCHEDULE OVERVIEW

The Doctors Community Hospital (DCH) is a 3 piece addition to the existing building. The first piece is 1 story on the south end that will expand the Emergency Department (ED). Piece two is a five story tower being built alongside the existing patient room tower. The first floor of this tower will tie in with the Emergency Department expansion. The second floor is currently left as shell space, but allowances have been placed in the schedule to facilitate the build out when it is released. The hospital has not finalized what the space will be used for, but it is expected to be partially an MRI suite, with the remainder being used for administrative office space. The top three floors of piece two are all private patient rooms. The final piece is actually an extension of piece two. The north end of the patient tower is being built on top of an existing two story transition care portion of the building. When the addition is complete, renovations are to take place on floors three through five of the existing tower. This point will signify the complete of the project. A detailed Gantt chart showing durations and relations can be found in Appendix I: Detailed Project Schedule.

PHASING REQUIREMENTS

Three major milestones affect the phasing of this project. The first milestone is the completion and occupancy of the ED expansion. DCH has directed Gilbane to have this portion of the hospital open and operational in March of 2009. The next milestone is the completion of the patient tower. Scheduled to be complete by Mid-summer 2009, this tower will drastically increase the number of beds available for inpatient treatment. Completing the renovations is the final milestone with which DCH is concerned. Renovations will be completed by February of 2010, and mark the final phased milestone, and also the completion of the job at DCH.

SITE LAYOUT PLANNING

Site planning is a critical issue on the Doctors Community Hospital project. The site is extremely congested, and there are multiple construction projects going on simultaneously. Furthermore, the hospital is remaining in full operation during the construction. This fact means traffic management will be a critical issue so as not to interfere with emergency vehicles entering and leaving the campus.

If the north side of the site were able to be utilized for traffic flow, it would be a big advantage because one-way traffic could be implemented. However, as noted on the site plan in Appendix I, the area is too congested. Parking for hospital employees limits the traffic to typical pickup trucks and foreman vehicles only. Tractor trailers and other large delivery trucks have too large a turning radius to safely navigate that area. As a result, all larger deliveries (Concrete trucks, Flatbeds, large trucks) must all come in from, and exit at the south gate. This situation also makes communication of traffic patterns to delivery people crucial. If a tractor trailer were to take the west entrance road, they would get stuck and have to navigate out of the lot by backing the whole way back down to the main road. Traffic would be congested if this were too happen, which could impact emergency vehicles entering and exiting the hospital grounds.

EXCAVATION

Excavation was not very extensive on this project. Shallow excavation was all that had to occur at the south end of the building. The grade was already low enough, and the only excavation that occurred was for footings and underground MEP installation. The northern limit of excavation was deeper and also required underpinning along the existing building so as not to undercut existing foundations. (See Appendix I: Site Layout Planning for plan)

STEEL ERECTION

Steel Erection poses one very distinct challenge. With the crane on site, it becomes very difficult to have traffic move through the site. Fortunately, there was just enough room when having the truck crane on site, other vehicles were still able to get by if needed, though it was avoided if at all possible. One crane was used for steel erection, and though it was a truck crane, they only used two locations.

INTERIOR FIT-OUT

Throughout the façade installation and during interior fitout, a hoist will be used to move people and materials vertically. This situation will exist until the permanent elevators are fully functional and protected to be used for the duration of construction. Buggies and trash chutes will be used until the building is closed in. As the façade closes, the chute will be removed, and the buggies will go all the way to the dumpster.

DETAILED STRUCTURAL SYSTEMS ESTIMATE

OVERVIEW

Take-offs for this estimate were prepared using a combination of Revit Architecture and Revit Structure. A detailed model of the steel and concrete systems was created based of the hard copy construction drawings. Quantities were generated automatically within Revit using the Schedule/Quantities function. These gross values were then imported into Excel to filter into useful numbers that could be estimated with RS Means. The total for the detailed estimate for the structural system at Doctors Community Hospital was $1,539,912 as illustrated below in Table 1. A detailed breakdown of the estimate maybe found in Appendix III of this report.

TABLE 1: SUMMARY OF DETAILED STRUCTURAL ESTIMATE

Summary of Detailed Estimate		
Steel		
Columns	$	291,324
Beams	$	623,164
Metal Deck	$	116,042
Concrete		
Foundations	$	210,067
Slabs	$	252,835
Slab Reinforcing	$	46,480
Structural Total	**$**	**1,539,912**

METHODOLOGY AND ASSUMPTIONS FOR ESTIMATE

- Used RS Means online costworks for all cost values (2008 values)
- Adjusted to reflect Maryland's location factor of .97 (Automatically done online)
- Utilized "Concrete in place" category, which includes formwork, finishing, placement, and reinforcement in unit cost
- Overhead and Profit were not included
- Open shop labor was assumed

GENERAL CONDITIONS ESTIMATE

General conditions at Doctors Community Hospital have been divided into 4 major categories: Personnel, Utilities/Facilities, Site Office Support, and General Requirements. Personnel includes all project management staff that are onsite and employed by the CM, Gilbane. Temporary utilities and the trailers they power are included in the Utilities/Facilities category. Products that are necessary for the proper functioning of an office are in the Site Office Support category. This includes travel, vehicles, office supplies, phones, and furniture. General requirements encompasses everything else that is required for a safe and productive site including but not limited to signage, barriers and fences, waste removal, and hoists. A summary breakdown is shown below in Table 2: Summary of General Conditions. The final cost is $1,717,335 which translates to %5.5 of the original bid price.

TABLE 2: SUMMARY OF GENERAL CONDITIONS ESTIMATE

Summary of General Conditions Estimate		
Personnel	$	1,104,915
Utilities/Facilities	$	90,190
Site Office Support	$	91,950
General Requirements	$	430,280
Total	**$**	**1,717,335**

Note: A detailed breakdown of the entire estimate can be found in Appendix IV: General Conditions Estimate.

CRITICAL INDUSTRY ISSUES

The pace Roundtable was held at the Penn Stater Conference Center on October 16th, 2008. Three topics were selected as the main focus of the technical sessions: LEED Evolution, BIM Strategies, and Energy and then Economy. BIM Strategies was the session I elected to attend. This session seemed to attract the most participants, and had a wide representation from the industry including companies such as Barton Malow, Benchmark, Forrester, Truland, Balfour Beatty, PSU OPP, and Alexander Construction. Having both an owner and GCs/CMs in the room helped to foster an open line of discussion about several topics, including information transfer, level of detail for models, current uses, and next steps.

BIM SESSION REVIEW

Discussion at the BIM session focused around the concept of "Putting the 'I' in BIM", and what exactly this phrase means to owners, contractors, and subcontractors. The majority of representatives in the room indicated that the extent of their use for BIM revolved mostly, if not entirely, around 3D MEP coordination and clash detection.

One example that was going a step further, provided courtesy of Barton Malow, was a move towards more information being attached to the model. Specifically, on many of their projects, they have been using a program called "Techla", which originally was developed as a steel detailing software program, but has expanded itself to help with the project management aspect as well. They have been linking submittals and RFI's to a model to help document progress and be able to clearly articulate to the owner "We cannot proceed because we are waiting on RFI XXX, which is delaying this section of steel". It wasn't made entirely clear, but the implication seemed to be that information (submittals, RFI's, etc) was being stored in Techla, and this was not necessarily being linked back to other PM software that was being used.

Another topic that received attention was the level of detail that models need to have, and who is responsible for taking that far. There was a common sentiment that models being developed for design were not adequate to aide contractors in using them for quantity take-offs. A prevailing school of thought among those present, was that the architects' model was for design intent, and then it was the subcontractors' responsibility to take the model to the level of detail that they needed for takeoff or coordination processes. Many participants in the room indicated that this methodology seemed to work, and even stated that in terms of technology, the subcontractors were often ahead of the curve of the owners and GCs/CMs. One point that was made by the group was a desire to see vendors and suppliers lead the charge in terms of creating content that can be easily used by the A/E community with all the information already attached.

As these levels of detail are developed, the next logical step in the discussion was how to transfer the volumes of information that was now being produced. Questions that came out of this discussion were "How do we retain the information?" and "What information does each party really

need?" Unfortunately, there were no clear answers or direction offered up by the group. Conversion of files to IFC was mentioned and received the most focus. While there was a general support for this method, several examples of its shortcomings were presented. One such example included an exported file being imported to a different program and having the beams be changed into trees. Work on the interoperability of systems and software is an area that needs to improve for BIM to continue to move forward. Limited discussion occurred on information transfer between construction and facility management. The main concerns here were the amount of information to include and team limitations of the owner.

SURPRISING FACT

The fact that most surprised me was the lack of utilization of more BIM uses by the industry as a whole. While the technology is still working its way into the mainstream, the fact that more companies in the discussion have not completely embraced it was surprising. Many company representatives readily admitted that they were beginners or even below beginner, and that the companies they worked for were not using very much, if any, BIM. MEP coordination was the most wide spread use, but this only scratches the surface of potential. I was under the impression that many more companies were utilizing BIM in more ways than just 3D coordination.

IMPACT ON THESIS RESEARCH

Doctors Community Hospital is a very MEP intensive project. With 3D coordination so prevalent in the industry, Gilbane could benefit from implementing this use on the DCH project. Moving beyond 3D coordination though, other BIM uses could have positive gains for the project. The site is extremely congested, which makes site planning incredibly important, but a static plan is not good enough. 4D site utilization plans are a good way to create a dynamic site plan that is easily communicated to other project participants. Taking this one step further, 4D construction sequencing can also be an effective tool to implement. It can help to analyze work flows and sequences on a congested site that has a tight schedule driving the project.

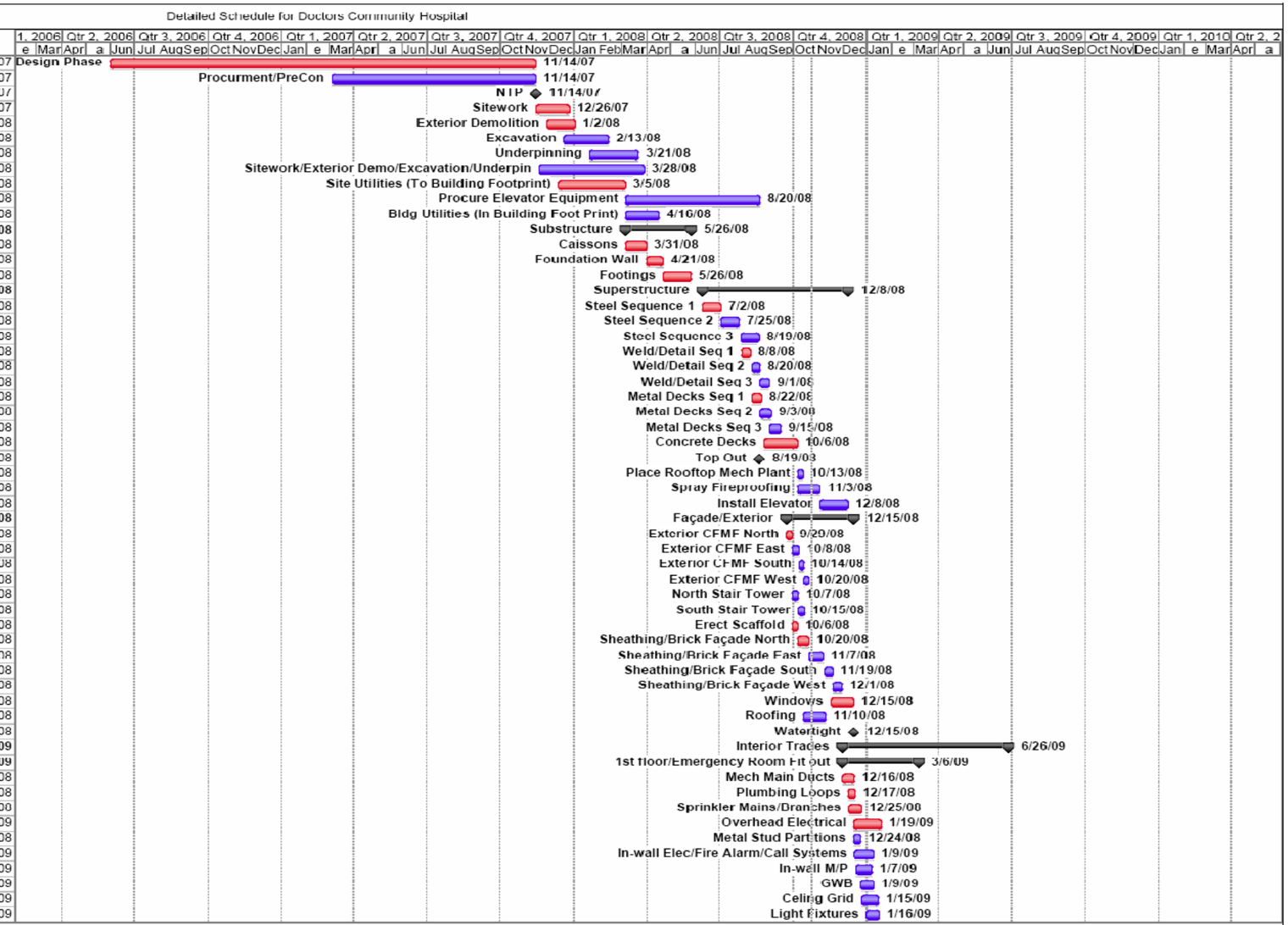
KEY CONTACTS

As previously stated, many of the industry members in the session were not confident in the BIM skills and understanding. There was one person however that could prove to be helpful as I move forward. Corinne Ambler, with Barton Malow, showed an in depth knowledge of implementing BIM on projects. The uses that were being applied laid outside of what I will likely focus on, but in terms of how to be successful in getting the team and subcontractors on board, she could prove to be a valuable asset.

APPENDIX I: DETAILED PROJECT SCHEDULE

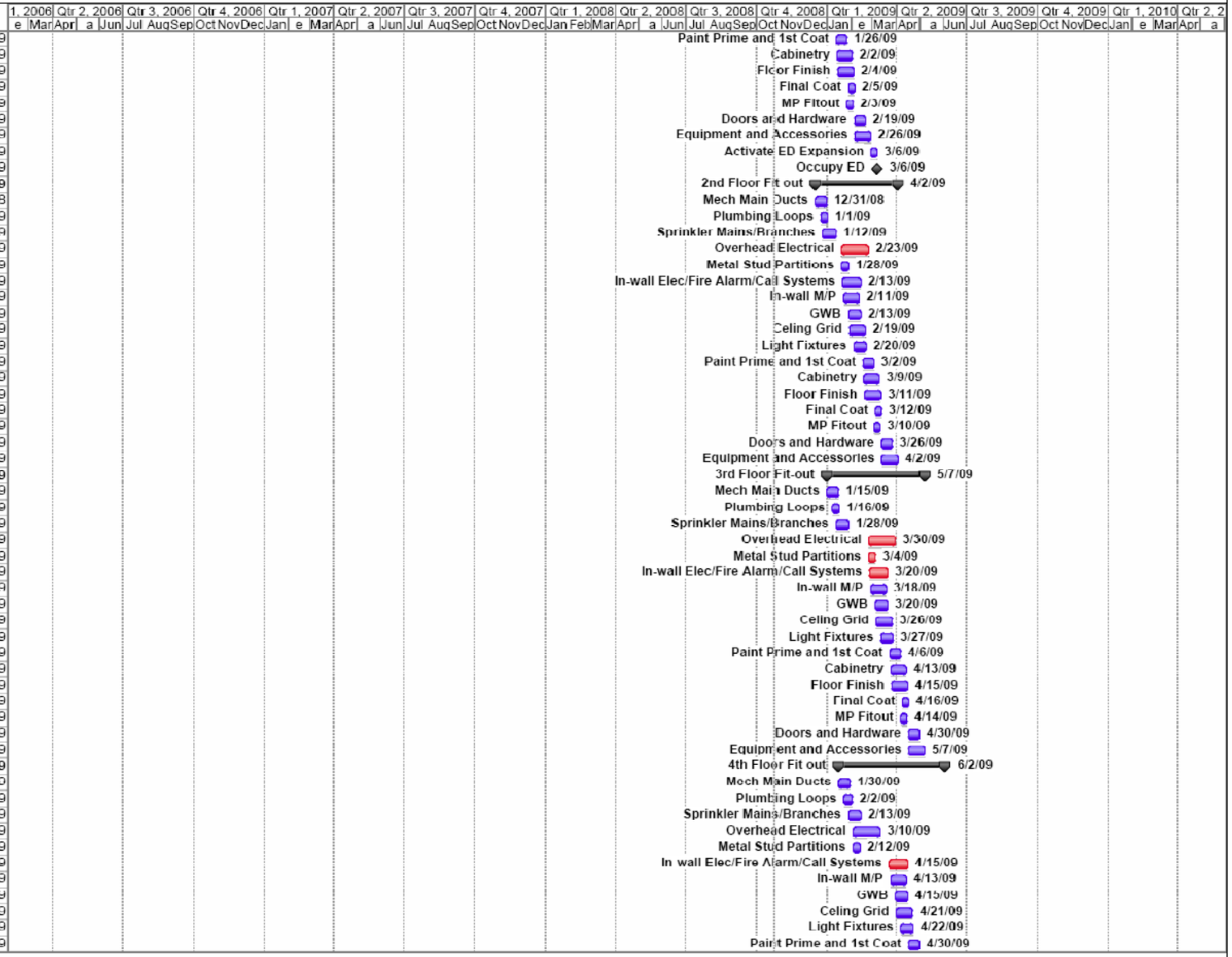
Detailed Schedule for Doctors Community Hospital

ID	Task Name	Duration	Start	Finish
1	Design Phase	380 days	Thu 6/1/06	Wed 11/14/07
2	Procurment/PreCon	183 days	Mon 3/5/07	Wed 11/14/07
3	NTP	0 days	Wed 11/14/07	Wed 11/14/07
4	Sitework	30 days	Thu 11/15/07	Wed 12/26/07
5	Exterior Demolition	25 days	Thu 11/29/07	Wed 1/2/08
6	Excavation	40 days	Thu 12/20/07	Wed 2/13/08
7	Underpinning	45 days	Mon 1/21/08	Fri 3/21/08
8	Sitework/Exterior Demo/Excavation/Underpin	95 days	Mon 11/19/07	Fri 3/28/08
9	Site Utilities (To Building Footprint)	60 days	Thu 12/13/07	Wed 3/5/08
10	Procure Elevator Equipment	120 days	Thu 3/6/08	Wed 8/20/08
11	Bldg Utilities (In Building Foot Print)	30 days	Thu 3/6/08	Wed 4/16/08
12	**Substructure**	**58 days**	**Thu 3/6/08**	**Mon 5/26/08**
13	Caissons	18 days	Thu 3/6/08	Mon 3/31/08
14	Foundation Wall	15 days	Tue 4/1/08	Mon 4/21/08
15	Footings	25 days	Tue 4/22/08	Mon 5/26/08
16	**Superstructure**	**130 days**	**Tue 6/10/08**	**Mon 12/8/08**
17	Steel Sequence 1	17 days	Tue 6/10/08	Wed 7/2/08
18	Steel Sequence 2	17 days	Thu 7/3/08	Fri 7/25/08
19	Steel Sequence 3	17 days	Mon 7/28/08	Tue 8/19/08
20	Weld/Detail Seq 1	9 days	Tue 7/29/08	Fri 8/8/08
21	Weld/Detail Seq 2	8 days	Mon 8/11/08	Wed 8/20/08
22	Weld/Detail Seq 3	8 days	Thu 8/21/08	Mon 9/1/08
23	Metal Decks Seq 1	10 days	Mon 8/11/08	Fri 8/22/08
24	Metal Decks Seq 2	10 days	Thu 8/21/08	Wed 9/3/08
25	Metal Decks Seq 3	10 days	Tue 9/2/08	Mon 9/15/08
26	Concrete Decks	30 days	Tue 8/26/08	Mon 10/6/08
27	Top Out	0 days	Tue 8/19/08	Tue 8/19/08
28	Place Rooftop Mech Plant	5 days	Tue 10/7/08	Mon 10/13/08
29	Spray Fireproofing	20 days	Tue 10/7/08	Mon 11/3/08
30	Install Elevator	25 days	Tue 11/4/08	Mon 12/8/08
31	**Façade/Exterior**	**60 days**	**Tue 9/23/08**	**Mon 12/15/08**
32	Exterior CFMF North	5 days	Tue 9/23/08	Mon 9/29/08
33	Exterior CFMF East	7 days	Tue 9/30/08	Wed 10/8/08
34	Exterior CFMF South	4 days	Thu 10/9/08	Tue 10/14/08
35	Exterior CFMF West	4 days	Wed 10/15/08	Mon 10/20/08
36	North Stair Tower	6 days	Tue 9/30/08	Tue 10/7/08
37	South Stair Tower	6 days	Wed 10/8/08	Wed 10/15/08
38	Erect Scaffold	5 days	Tue 9/30/08	Mon 10/6/08
39	Sheathing/Brick Façade North	10 days	Tue 10/7/08	Mon 10/20/08
40	Sheathing/Brick Façade East	14 days	Tue 10/21/08	Fri 11/7/08
41	Sheathing/Brick Façade South	8 days	Mon 11/10/08	Wed 11/19/08
42	Sheathing/Brick Façade West	8 days	Thu 11/20/08	Mon 12/1/08
43	Windows	20 days	Tue 11/18/08	Mon 12/15/08
44	Roofing	20 days	Tue 10/14/08	Mon 11/10/08
45	Watertight	0 days	Mon 12/15/08	Mon 12/15/08
46	**Interior Trades**	**149 days**	**Tue 12/2/08**	**Fri 6/26/09**
47	**1st floor/Emergency Room Fit out**	**69 days**	**Tue 12/2/08**	**Fri 3/6/09**
48	Mech Main Ducts	11 days	Tue 12/2/08	Tue 12/16/08
49	Plumbing Loops	7 days	Tue 12/9/08	Wed 12/17/08
50	Sprinkler Mains/Branches	12 days	Wed 12/10/08	Thu 12/25/08
51	Overhead Electrical	25 days	Tue 12/16/08	Mon 1/19/09
52	Metal Stud Partitions	7 days	Tue 12/16/08	Wed 12/24/08
53	In-wall Elec/Fire Alarm/Call Systems	18 days	Wed 12/17/08	Fri 1/9/09
54	In-wall M/P	14 days	Fri 12/19/08	Wed 1/7/09
55	GWB	12 days	Thu 12/25/08	Fri 1/9/09
56	Celing Grid	15 days	Fri 12/26/08	Thu 1/15/09
57	Light Fixtures	12 days	Thu 1/1/09	Fri 1/16/09



Detailed Schedule for Doctors Community Hospital

ID	Task Name	Duration	Start	Finish
58	Paint Prime and 1st Coat	10 days	Tue 1/13/09	Mon 1/26/09
59	Cabinetry	14 days	Wed 1/14/09	Mon 2/2/09
60	Floor Finish	15 days	Thu 1/15/09	Wed 2/4/09
61	Final Coat	6 days	Thu 1/29/09	Thu 2/5/09
62	MP Fitout	6 days	Tue 1/27/09	Tue 2/3/09
63	Doors and Hardware	10 days	Fri 2/6/09	Thu 2/19/09
64	Equipment and Accessories	15 days	Fri 2/6/09	Thu 2/26/09
65	Activate ED Expansion	6 days	Fri 2/27/09	Fri 3/6/09
66	Occupy ED	0 days	Fri 3/6/09	Fri 3/6/09
67	**2nd Floor Fit out**	**77 days**	**Wed 12/17/08**	**Thu 4/2/09**
68	Mech Main Ducts	11 days	Wed 12/17/08	Wed 12/31/08
69	Plumbing Loops	7 days	Wed 12/24/08	Thu 1/1/09
70	Sprinkler Mains/Branches	12 days	Fri 12/26/08	Mon 1/12/09
71	Overhead Electrical	25 days	Tue 1/20/09	Mon 2/23/09
72	Metal Stud Partitions	7 days	Tue 1/20/09	Wed 1/28/09
73	In-wall Elec/Fire Alarm/Call Systems	18 days	Wed 1/21/09	Fri 2/13/09
74	In-wall M/P	14 days	Fri 1/23/09	Wed 2/11/09
75	GWB	12 days	Thu 1/29/09	Fri 2/13/09
76	Celing Grid	15 days	Fri 1/30/09	Thu 2/19/09
77	Light Fixtures	12 days	Thu 2/5/09	Fri 2/20/09
78	Paint Prime and 1st Coat	10 days	Tue 2/17/09	Mon 3/2/09
79	Cabinetry	14 days	Wed 2/18/09	Mon 3/9/09
80	Floor Finish	15 days	Thu 2/19/09	Wed 3/11/09
81	Final Coat	6 days	Thu 3/5/09	Thu 3/12/09
82	MP Fitout	6 days	Tue 3/3/09	Tue 3/10/09
83	Doors and Hardware	10 days	Fri 3/13/09	Thu 3/26/09
84	Equipment and Accessories	15 days	Fri 3/13/09	Thu 4/2/09
85	**3rd Floor Fit-out**	**91 days**	**Thu 1/1/09**	**Thu 5/7/09**
86	Mech Main Ducts	11 days	Thu 1/1/09	Thu 1/15/09
87	Plumbing Loops	7 days	Thu 1/8/09	Fri 1/16/09
88	Sprinkler Mains/Branches	12 days	Tue 1/13/09	Wed 1/28/09
89	Overhead Electrical	25 days	Tue 2/24/09	Mon 3/30/09
90	Metal Stud Partitions	7 days	Tue 2/24/09	Wed 3/4/09
91	In-wall Elec/Fire Alarm/Call Systems	18 days	Wed 2/25/09	Fri 3/20/09
97	In-wall M/P	14 days	Fri 2/27/09	Wed 3/18/09
93	GWB	12 days	Thu 3/5/09	Fri 3/20/09
94	Celing Grid	15 days	Fri 3/6/09	Thu 3/26/09
95	Light Fixtures	12 days	Thu 3/12/09	Fri 3/27/09
96	Paint Prime and 1st Coat	10 days	Tue 3/24/09	Mon 4/6/09
97	Cabinetry	14 days	Wed 3/25/09	Mon 4/13/09
98	Floor Finish	15 days	Thu 3/26/09	Wed 4/15/09
99	Final Coat	6 days	Thu 4/9/09	Thu 4/16/09
100	MP Fitout	6 days	Tue 4/7/09	Tue 4/14/09
101	Doors and Hardware	10 days	Fri 4/17/09	Thu 4/30/09
102	Equipment and Accessories	15 days	Fri 4/17/09	Thu 5/7/09
103	**4th Floor Fit out**	**98 days**	**Fri 1/16/09**	**Tue 6/2/09**
104	Mech Main Ducts	11 days	Fri 1/16/09	Fri 1/30/09
105	Plumbing Loops	7 days	Fri 1/23/09	Mon 2/2/09
106	Sprinkler Mains/Branches	12 days	Thu 1/29/09	Fri 2/13/09
107	Overhead Electrical	25 days	Wed 2/4/09	Tue 3/10/09
108	Metal Stud Partitions	7 days	Wed 2/4/09	Thu 2/12/09
109	In-wall Elec/Fire Alarm/Call Systems	18 days	Mon 3/23/09	Wed 4/15/09
110	In-wall M/P	14 days	Wed 3/25/09	Mon 4/13/09
111	GWB	12 days	Tue 3/31/09	Wed 4/15/09
112	Celing Grid	15 days	Wed 4/1/09	Tue 4/21/09
113	Light Fixtures	12 days	Tue 4/7/09	Wed 4/22/09
114	Paint Prime and 1st Coat	10 days	Fri 4/17/09	Thu 4/30/09



Project: DetailSched
Date: Fri 10/24/08

Task | Milestone | Rolled Up Critical Task | Split | Group By Summary
Critical Task | Summary | Rolled Up Milestone | External Tasks | Deadline
Progress | Rolled Up Task | Rolled Up Progress | Project Summary

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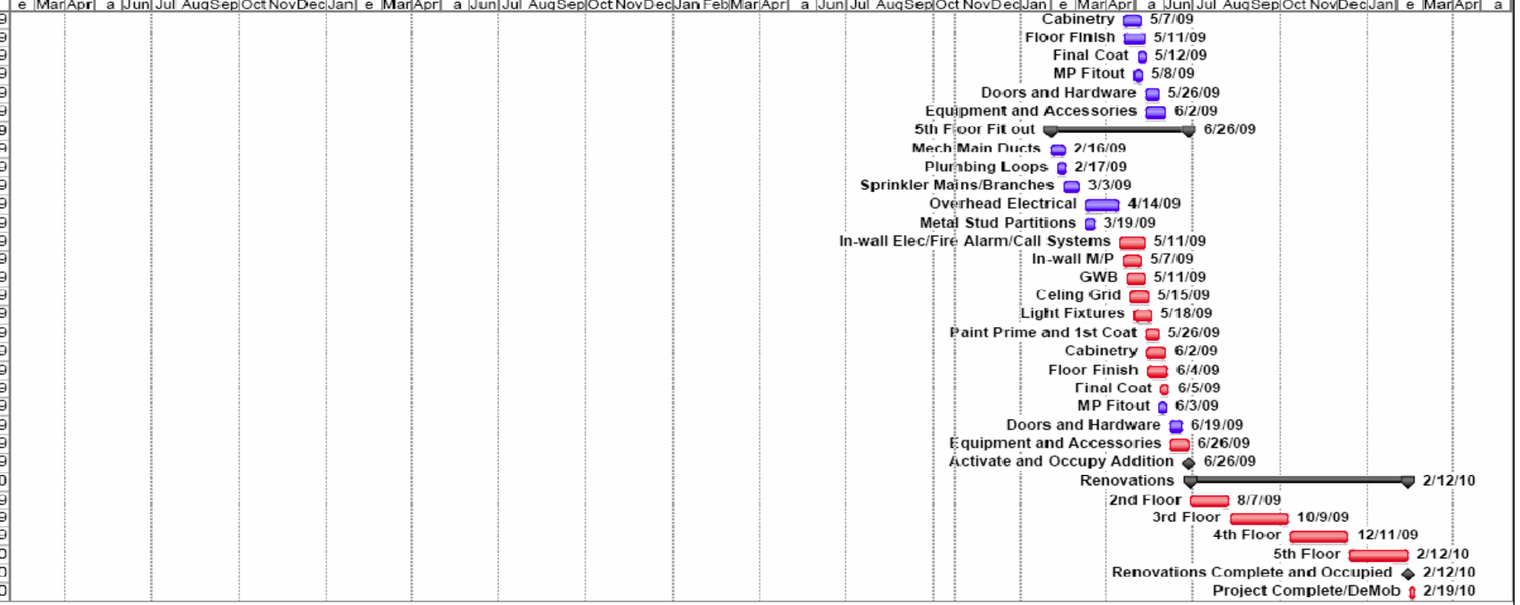
Detailed Schedule for Doctors Community Hospital

ID	Task Name	Duration	Start	Finish
115	Cabinetry	14 days	Mon 4/20/09	Thu 5/7/09
116	Floor Finish	15 days	Tue 4/21/09	Mon 5/11/09
117	Final Coat	6 days	Tue 5/5/09	Tue 5/12/09
118	MP Fitout	6 days	Fri 5/1/09	Fri 5/8/09
119	Doors and Hardware	10 days	Wed 5/13/09	Tue 5/26/09
120	Equipment and Accessories	15 days	Wed 5/13/09	Tue 6/2/09
121	**5th Floor Fit out**	**105 days**	**Mon 2/2/09**	**Fri 6/26/09**
122	Mech Main Ducts	11 days	Mon 2/2/09	Mon 2/16/09
123	Plumbing Loops	7 days	Mon 2/9/09	Tue 2/17/09
124	Sprinkler Mains/Branches	12 days	Mon 2/16/09	Tue 3/3/09
125	Overhead Electrical	25 days	Wed 3/11/09	Tue 4/14/09
126	Metal Stud Partitions	7 days	Wed 3/11/09	Thu 3/19/09
127	In-wall Elec/Fire Alarm/Call Systems	18 days	Thu 4/16/09	Mon 5/11/09
128	In-wall M/P	14 days	Mon 4/20/09	Thu 5/7/09
129	GWB	12 days	Fri 4/24/09	Mon 5/11/09
130	Celing Grid	15 days	Mon 4/27/09	Fri 5/15/09
131	Light Fixtures	12 days	Fri 5/1/09	Mon 5/18/09
132	Paint Prime and 1st Coat	10 days	Wed 5/13/09	Tue 5/26/09
133	Cabinetry	14 days	Thu 5/14/09	Tue 6/2/09
134	Floor Finish	15 days	Fri 5/15/09	Thu 6/4/09
135	Final Coat	6 days	Fri 5/29/09	Fri 6/5/09
136	MP Fitout	6 days	Wed 5/27/09	Wed 6/3/09
137	Doors and Hardware	10 days	Mon 6/8/09	Fri 6/19/09
138	Equipment and Accessories	15 days	Mon 6/8/09	Fri 6/26/09
139	Activate and Occupy Addition	0 days	Fri 6/26/09	Fri 6/26/09
140	**Renovations**	**165 days**	**Mon 6/29/09**	**Fri 2/12/10**
141	2nd Floor	30 days	Mon 6/29/09	Fri 8/7/09
142	3rd Floor	45 days	Mon 8/10/09	Fri 10/9/09
143	4th Floor	45 days	Mon 10/12/09	Fri 12/11/09
144	5th Floor	45 days	Mon 12/14/09	Fri 2/12/10
145	Renovations Complete and Occupied	0 days	Fri 2/12/10	Fri 2/12/10
146	Project Complete/DeMob	5 days	Mon 2/15/10	Fri 2/19/10



Project: DetailSched
Date: Fri 10/24/08

Task	Milestone	Rolled Up Critical Task	Split	Group By Summary
Critical Task	Summary	Rolled Up Milestone	External Tasks	Deadline
Progress	Rolled Up Task	Rolled Up Progress	Project Summary	

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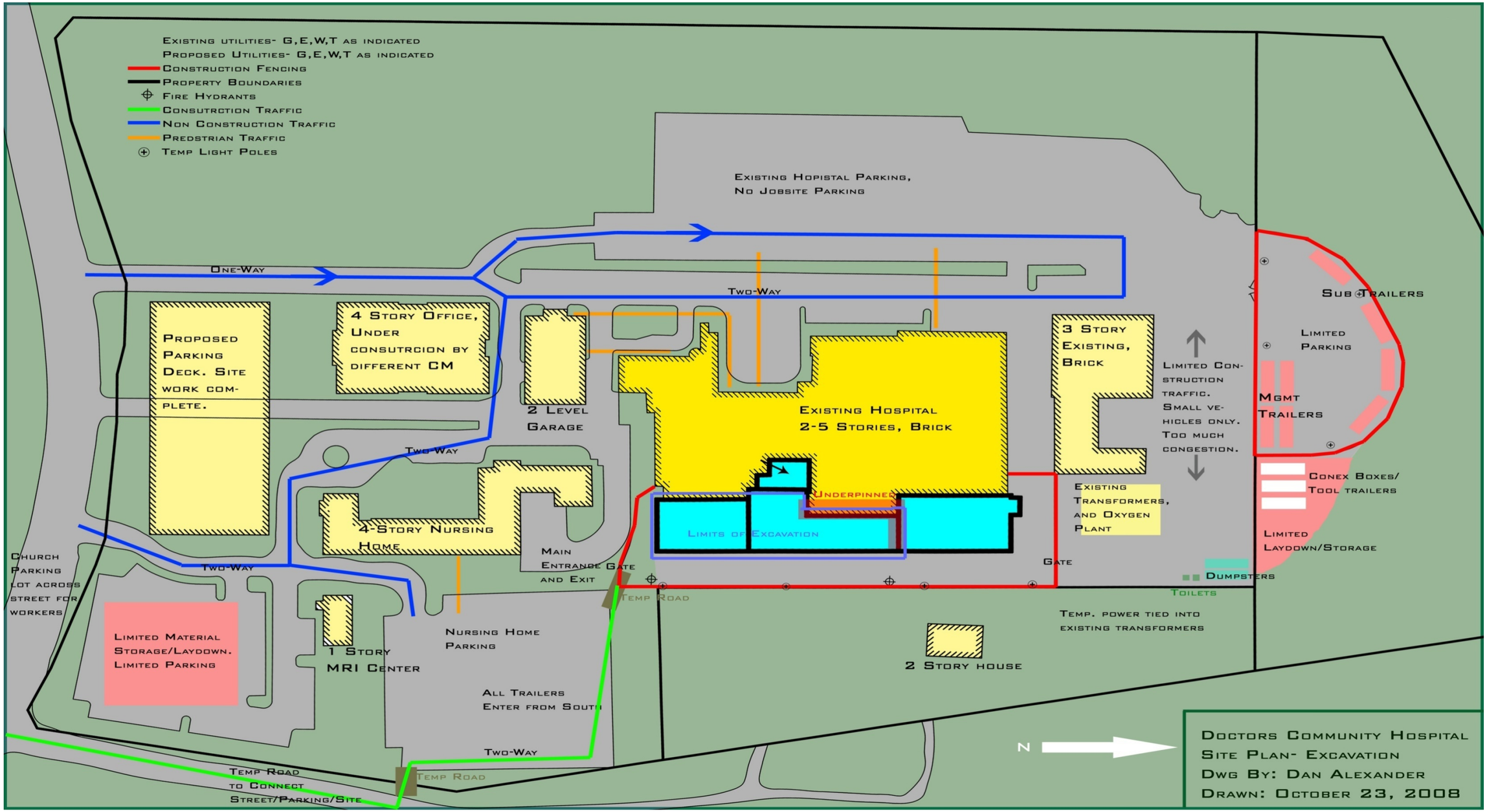
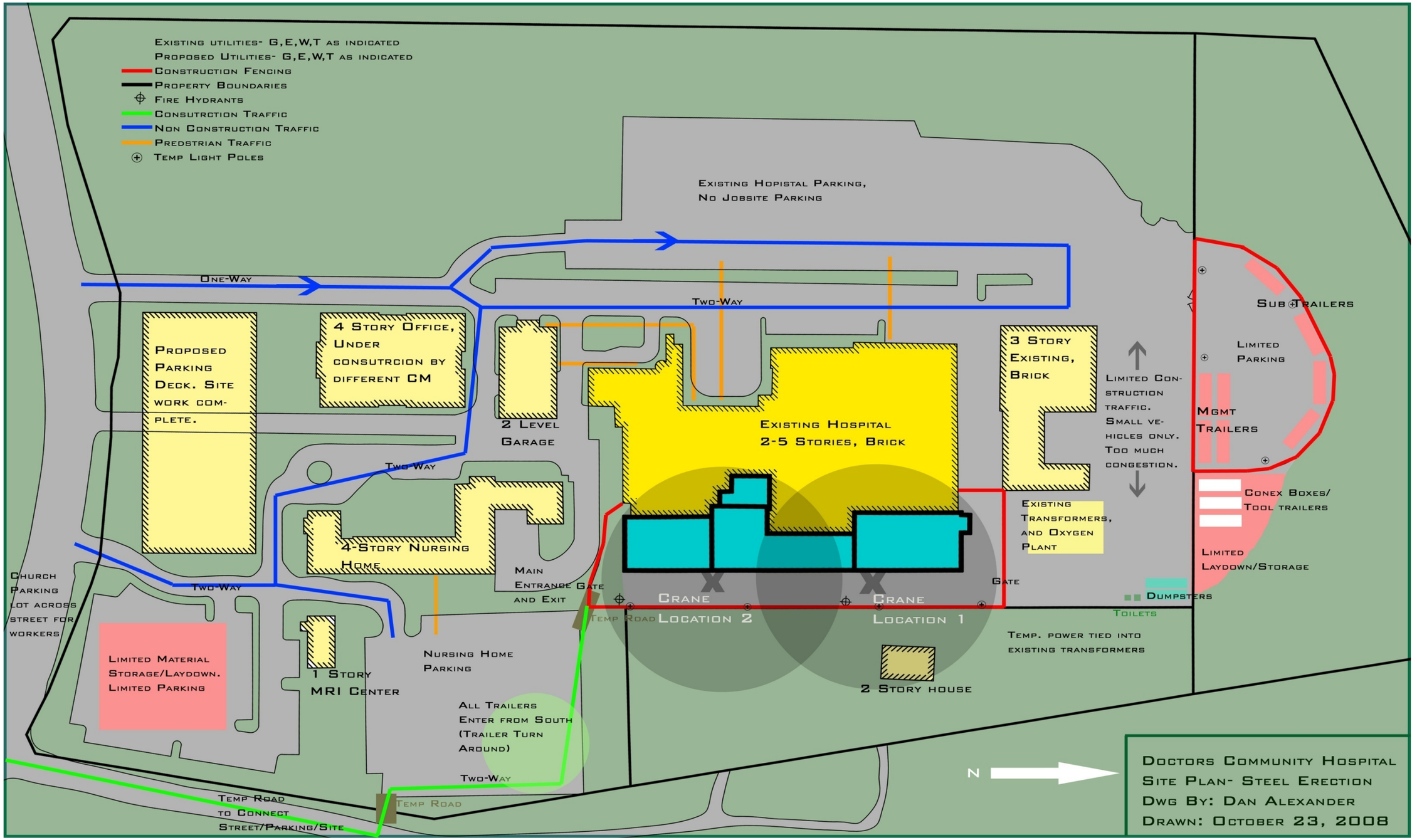
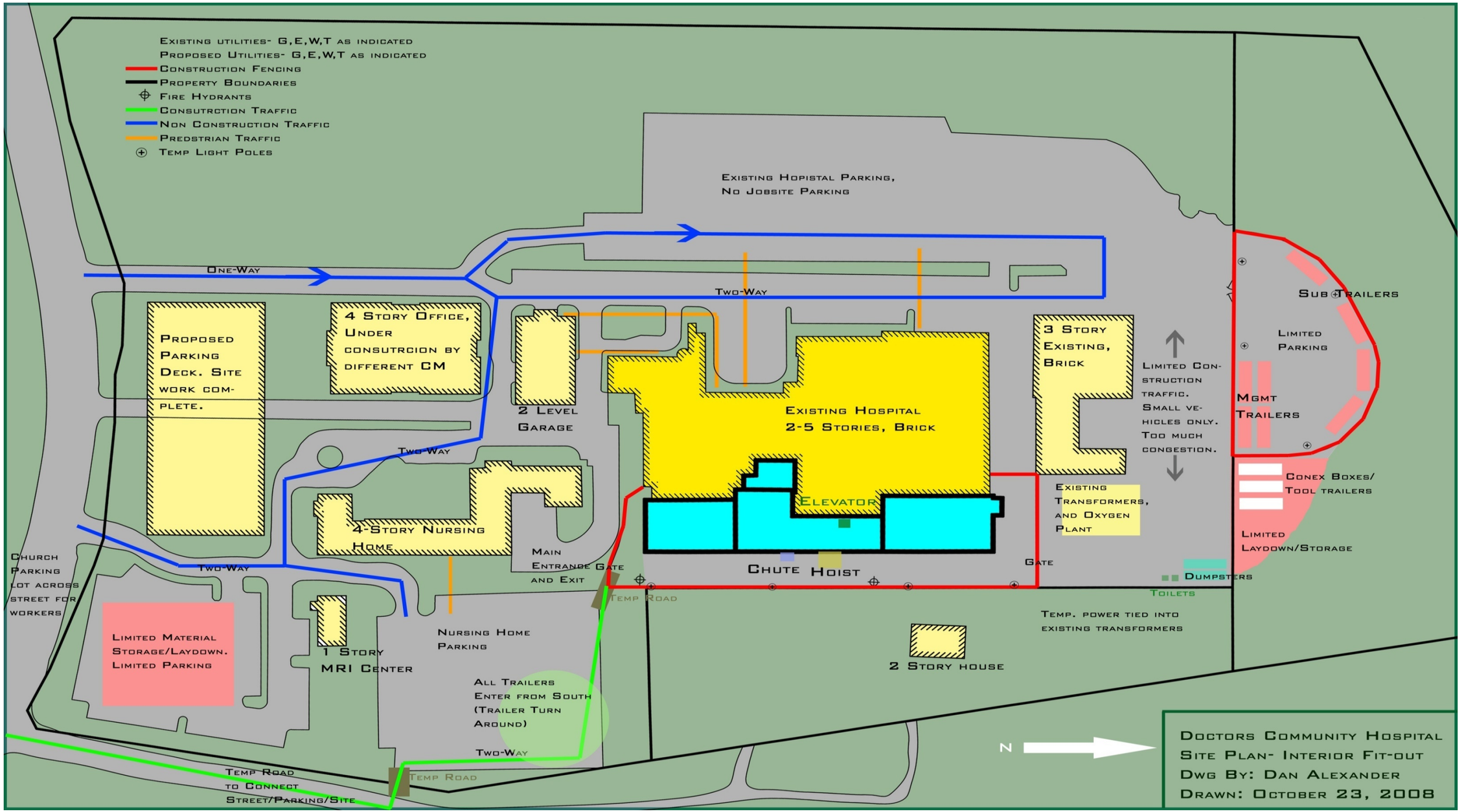
APPENDIX II: SITE LAYOUT PLANS




Existing utilities- G,E,W,T as indicated
Proposed Utilities- G,E,W,T as indicated
Construction Fencing
Property Boundaries
Fire Hydrants
Consutrction Traffic
Non Construction Traffic
Predstrian Traffic
Temp Light Poles
Existing Hopistal Parking,
No Jobsite Parking
One-Way
Two-Way
Proposed Parking Deck. Site work complete.
4 Story Office, Under consutrcion by different CM
2 Level Garage
Existing Hospital 2-5 Stories, Brick
3 Story Existing, Brick
Limited Construction traffic. Small vehicles only. Too much congestion.
Sub Trailers
Limited Parking
Mgmt Trailers
Conex Boxes/ Tool trailers
Limited Laydown/Storage
Existing Transformers, and Oxygen Plant
Gate
Dumpsters
Toilets
Temp. power tied into existing transformers
Two-Way
4-Story Nursing Home
Main Entrance Gate and Exit
Church Parking lot across street for workers
Two-Way
Limited Material Storage/Laydown. Limited Parking
1 Story MRI Center
Nursing Home Parking
Crane Location 2
Temp Road
Crane Location 1
2 Story house
All Trailers Enter from South (Trailer Turn Around)
Two-Way
Temp Road to Connect Street/Parking/Site
Temp Road
N
Doctors Community Hospital
Site Plan- Steel Erection
Dwg By: Dan Alexander
Drawn: October 23, 2008


Existing utilities- G,E,W,T as indicated
Proposed Utilities- G,E,W,T as indicated
Construction Fencing
Property Boundaries
Fire Hydrants
Consutrction Traffic
Non Construction Traffic
Predstrian Traffic
Temp Light Poles
Existing Hopistal Parking, No Jobsite Parking
One-Way
Two-Way
Proposed Parking Deck. Site work com-plete.
4 Story Office, Under consutrcion by different CM
2 Level Garage
Two-Way
4-Story Nursing Home
Church Parking Lot across street for workers
Two-Way
Main Entrance Gate and Exit
Limited Material Storage/Laydown. Limited Parking
1 Story MRI Center
Nursing Home Parking
All Trailers Enter from South (Trailer Turn Around)
Two-Way
Temp Road to Connect Street/Parking/Site
Temp Road
Existing Hospital 2-5 Stories, Brick
Elevator
Chute Hoist
Temp Road
3 Story Existing, Brick
Limited Con-struction traffic. Small ve-hicles only. Too much congestion.
Existing Transformers, and Oxygen Plant
Gate
Dumpsters
Toilets
Temp. power tied into existing transformers
2 Story house
Sub Trailers
Limited Parking
Mgmt Trailers
Conex Boxes/ Tool trailers
Limited Laydown/Storage
N
Doctors Community Hospital
Site Plan- Interior Fit-out
Dwg By: Dan Alexander
Drawn: October 23, 2008

APPENDIX III: DETAILED STRUCTURAL ESTIMATE BREAKDOWN

Detailed Structural Estimate								
Steel								
	Quantity	**Unit**	**Material**	**Labor**	**Equipment**	**Total Unit Cost**	**Total**	
Columns								
HSS6X6X5/16	13	EA	$ 297.00	$ 43.50	$ 29.00	$ 369.50	$	4,803.50
W10X49	39	LF	$ 54.50	$ 2.27	$ 1.52	$ 58.29	$	2,273.31
W12X106	52	LF	$ 140.00	$ 2.55	$ 1.68	$ 144.23	$	7,499.96
W12X136	84	LF	$ 150.00	$ 2.55	$ 1.68	$ 154.23	$	12,955.32
W12X170	68	LF	$ 230.00	$ 2.57	$ 1.72	$ 234.29	$	15,931.72
W12X40	135	LF	$ 57.00	$ 2.27	$ 1.52	$ 60.79	$	8,206.65
W12X53	239	LF	$ 63.00	$ 2.27	$ 1.52	$ 66.79	$	15,962.81
W12X58	26	LF	$ 68.00	$ 2.30	$ 1.52	$ 71.82	$	1,867.32
W12X65	660	LF	$ 77.00	$ 2.32	$ 1.54	$ 80.86	$	53,367.60
W12X72	68	LF	$ 84.00	$ 2.35	$ 1.56	$ 87.91	$	5,977.88
W12X79	106	LF	$ 93.00	$ 2.35	$ 1.57	$ 96.92	$	10,273.52
W12X87	262	LF	$ 105.00	$ 2.38	$ 1.59	$ 108.97	$	28,550.14
W8X31	1480	LF	$ 37.50	$ 2.17	$ 1.45	$ 41.12	$	60,857.60
W8X35	226	LF	$ 42.00	$ 2.19	$ 1.47	$ 45.66	$	10,319.16
W8X40	216	LF	$ 49.00	$ 2.24	$ 1.49	$ 52.73	$	11,389.68
W8X48	169	LF	$ 58.00	$ 2.27	$ 1.52	$ 61.79	$	10,442.51
W8X58	93	LF	$ 68.00	$ 2.32	$ 1.55	$ 71.87	$	6,683.91
W8X67	282	LF	$ 81.00	$ 2.38	$ 1.59	$ 84.97	$	23,961.54
Beams								
W10X12	335.07	LF	$ 14.50	$ 3.91	$ 2.61	$ 21.02	$	7,043.17
W12X14	718.6	LF	$ 16.95	$ 2.66	$ 1.78	$ 21.39	$	15,370.85
W12X19	2361.84	LF	$ 24.00	$ 2.66	$ 1.87	$ 28.53	$	67,383.30
W12X22	159.1	LF	$ 26.50	$ 2.66	$ 1.87	$ 31.03	$	4,936.87
W12X30	180.22	LF	$ 35.00	$ 2.76	$ 1.90	$ 39.66	$	7,147.53
W12X35	709.25	LF	$ 42.50	$ 2.89	$ 1.93	$ 47.32	$	33,561.71
W12X40	280.05	LF	$ 48.00	$ 2.93	$ 1.97	$ 52.90	$	14,814.65
W14X22	6816.6	LF	$ 28.50	$ 2.35	$ 1.55	$ 32.40	$	220,857.84
W14X26	126.82	LF	$ 31.50	$ 2.37	$ 1.58	$ 35.45	$	4,495.77
W16X26	2097.62	LF	$ 31.50	$ 2.37	$ 1.58	$ 35.45	$	74,360.63
W16X31	97.76	LF	$ 37.50	$ 2.60	$ 1.74	$ 41.84	$	4,090.28
W16X36	1273.93	LF	$ 44.50	$ 2.87	$ 1.90	$ 49.27	$	62,766.53
W16X40	516.18	LF	$ 48.50	$ 2.93	$ 1.96	$ 53.39	$	27,558.85
W18X35	44.76	LF	$ 42.50	$ 3.53	$ 1.77	$ 47.80	$	2,139.53
W18X40	130.67	LF	$ 48.50	$ 3.53	$ 1.77	$ 53.80	$	7,030.05
W18X50	195	LF	$ 60.50	$ 3.72	$ 1.86	$ 66.08	$	12,885.60
W21X44	52	LF	$ 53.00	$ 3.19	$ 1.60	$ 57.79	$	3,005.08
W21X50	26	LF	$ 60.50	$ 3.19	$ 1.60	$ 65.29	$	1,697.54
W21X57	168	LF	$ 69.00	$ 3.24	$ 1.62	$ 73.86	$	12,408.48
W21X68	281.5	LF	$ 82.50	$ 3.27	$ 1.64	$ 87.41	$	24,605.92
W24X68	56	LF	$ 82.50	$ 3.06	$ 1.53	$ 87.09	$	4,877.04
W24X76	55.5	LF	$ 92.00	$ 3.06	$ 1.53	$ 96.59	$	5,360.75
W24X94	29.5	LF	$ 114.00	$ 3.14	$ 1.57	$ 118.71	$	3,501.95
W8X15	34.68	LF	$ 18.15	$ 3.81	$ 2.61	$ 24.57	$	852.09
W8X18	15	LF	$ 21.00	$ 3.84	$ 2.63	$ 27.47	$	412.05
Metal Deck								
1 1/2" 18 Gauge	67861	SF	$ 1.36	$ 0.32	$ 0.03	$ 1.71	$	116,042.31
					Steel Total		**$**	**1,030,530.47**

Detailed Structural Estimate (Cont)

Concrete

		Quantity	Unit	Material	Labor	Equipment	Total Unit Cost	Total
Foundations								
	Spread Footings (1-5 CY)	367	CY	$ 192.00	$ 95.50	$ 0.57	$ 288.07	$ 105,721.69
	Caissons	550	VLF	$ 56.50	$ 57.50	$ 66.00	$ 180.00	$ 99,000.00
	Grade Wall	10	CY	$ 228.00	$ 279.00	$ 27.50	$ 534.50	$ 5,345.00
Floors								
	Slab on Grade (6")	17423	SF	$ 1.95	$ 0.75	$ 0.01	$ 2.71	$ 47,216.33
	Concrete on Metal Deck (6")	67861	SF	$ 2.02	$ 0.73	$ 0.28	$ 3.03	$ 205,618.83
	6x6 WWF Reinforcing	852.84	CSF	$ 29.00	$ 25.50	$ -	$ 54.50	$ 46,479.78
						Concrete Total		**$ 509,381.63**

STRUCTURAL TOTAL:	**$**	**1,539,912.10**

APPENDIX IV: GENERAL CONDITIONS ESTIMATE

General Conditions Estimate

Total Project Weeks	119
Total Project Months	27

Personnel	% of time on Project	Total Billable Weeks	Cost per Week	Total Cost
Project Executive	50%	59.5	$ 2,100	$ 124,950
Project Manager	100%	119	$ 1,850	$ 220,150
Assistant Project Manager	100%	119	$ 1,600	$ 190,400
Field Engineer	100%	119	$ 1,125	$ 133,875
General Superintendent	70%	83.3	$ 1,800	$ 149,940
Assistant Superintendent	100%	119	$ 1,600	$ 190,400
Office Manager	100%	119	$ 800	$ 95,200
Category Total				**$ 1,104,915**

Utilities/Facilities	Frequency	Duration	Cost/Unit Time	Total Cost
Electric/Water	Monthly	27	500	$ 13,500
Internet	Monthy	27	$ 300	$ 8,100
Porta Johns	Weekly	119	$ 60	$ 7,140
Telephone	Monthly	27	$ 600	$ 16,200
Trailer Set up	Lump Sum	-	-	$ 10,000
Trailers	Monthly	27	$ 750	$ 20,250
Utilities Hook Up	Lump Sum	-	-	$ 15,000
Category Total				**$ 90,190**

Site Office Support	Frequency	Duration	Cost/Unit Time	Total Cost
Cell phone and Nextel	Monthly	27	$ 300	$ 8,100
Computers	Lump Sum	-	-	$ 10,000
Janitorial service for trailer	Monthly	27	$ 200	$ 5,400
Job Travel	Monthly	27	$ 250	$ 6,750
Job vehicle fuel/maintenance	Monthly	27	$ 400	$ 10,800
Job Vehicle/Auto Allowance	Monthly	27	$ 1,000	$ 27,000
Office Furniture	Lump Sum	-	-	$ 5,000
Office Supplies	Monthly	27	$ 400	$ 10,800
Postage and Shipping	Monthly	27	$ 300	$ 8,100
Category Total				**$ 91,950**

General Conditions Estimate (Cont)

General Requirements	Frequency	Duration	Cost/Unit Time	Total Cost
Bid Set Repro Costs/Distribution	Lump Sum	-	-	$ 25,000
Copiers and Supplies	Monthly	27	$ 600	$ 16,200
Dumpsters	Weekly	119	$ 650	$ 77,350
Final Clean	Lump Sum	-	-	$ 20,000
Material Hoist	Weekly	21	$ 1,780	$ 37,380
Mock-up (Patient Room)	Lump Sum	-	-	$ 45,000
Safety and First Aid	Monthly	27	$ 1,200	$ 32,400
Signage	Lump Sum	-	-	$ 10,000
Snow Removal	Lump Sum	-	-	$ 25,000
Survey and Layout	Lump Sum	-	-	$ 35,000
Temp Fence	Monthly	27	$ 550	$ 14,850
Temp Ladders/Stairs/Ramps	Lump Sum	-	-	$ 30,000
Temp Roads	Lump Sum	-	-	$ 50,000
Trash Chute	Weekly	22	$ 550	$ 12,100
Category Total				**$ 430,280**
General Conditions Total				**$ 1,717,335**