October 12th, 2012

TECHNICAL ASSIGNMENT TWO

PENN STATE SENIOR THESIS



REPLACEMENT HIGH SCHOOL

MARYLAND

BRADY SHEERIN

CONSTRUCTION MANAGEMENT ADVISOR: CHIMAY ANUMBA

EXECUTIVE SUMMARY

This technical report serves to analyze the key features of this replacement high school project that affect project execution. Within this report there is a detailed project schedule, structural estimate, general conditions estimate, analysis of BIM use, and three constructability challenges encountered on this project. This is explored and illustrated through the use of photographs, figures, and tables.

The actual project schedule has been condensed into a manageable 150 line item gantt chart illustrating the critical tasks. It's difficult to directly see the critical path because of the overlap in trade work, but it goes substructure, superstructure, enclosure, rough-ins, and then finishes. The total duration for the project is 32 months; however the school needs to be completed within the first 18. With such a tight time frame it is imperative that the contractors do not fall behind.

A structural steel and concrete estimate has been provided for the building by completing quantity take offs. Because of the extreme variation throughout the building a module approach to the estimate could not be achieved with any sort of accuracy. Any discrepancies within this estimate and the actual bid price can be contributed to assumptions that were made during take offs.

The general conditions estimate yielded a 3.78% cost of the overall building which is fairly standard in construction. A large portion of this cost came from the project personnel. This can be expected because of the large staff HESS has on site. However, with such a large facility needing to be constructed in such a short period of time every individual is essential and plays a large role in making sure the project gets delivered on time.

The BIM implementation on this project was very comprehensive and covered a lot of good aspects. The use of clash detections will surely benefit the project greatly when the MEP systems start to be installed in the field. Additionally the owner will surely benefit from having an operations model that they can reference in the event of equipment interruptions.

Finally HESS did a great job of addressing some of their constructability issues. Unfortunately no pictures were provided to go along with this section to better detail what is being described.

Contents

EXECUTIVE SUMMARYo
DETAILED PROJECT SCHEDULE
DETAILED STRUCTURAL ESTIMATE
ASSUMPTION4
Estimate Accuracy
GENERAL CONDITIONS ESTIMATE
BIM USE EVALUATION
Analysis10
CONSTRUCTABILITY CHALLENGES 11
APPENDIX A: Project Schedule12
APPENDIX B: STRUCTURAL ESTIMATE
APPENDIX C: GENERAL CONDITIONS ESTIMATE
APPENDIX D: BIM PROCESS MAPS

DETAILED PROJECT SCHEDULE

As was discussed in Technical Assignment One the schedule is a major driver of this project. With only 18 months to construct a brand new school it's imperative that the project team not fall behind. A detailed schedule of 150 line items can be seen in Appendix A. To keep the schedule concise only the most important and significant activities are listed. There are 4 major phases to this project.

Phase 1 deals with the construction of the high schools building pad, football stadium, football field house and tennis courts. This phase is schedule to start at the notice to proceed and be completed in 240 days. The building pad preparation, rough grade and utilities are on the critical path and need to be completed in order to start foundations. The rest of these items in this phase are not on the critical path and therefore not as critical to complete on time.

Phase 2 overlaps with phase 1 and relates to the construction of the school and the work associated with that task. In all this phase is scheduled to take 385 days. The erection of the sub and superstructure are on the critical path followed by the enclosure, rough-ins and finishes. Because of the size of the building there is substantial overlap between these activities during construction. That is to say that once the structure has been erected in one location the enclosure follows closely behind, chasing the progress of the structure. The same goes for the rest of the activities. Substantial completion for the new school is set for July 25th 2013, and final completion is set for September 20th 2013.

At the completion of phase 2 partial demolition of the existing school commences to make way for a new bus loop. After that is complete the rest of the existing school is abandoned and prepped for demolition. Once the building has been torn down the site it was sitting on will be turned into a new parking lot. When it is all said and done the whole project will be completed on July 25th 2014.

DETAILED STRUCTURAL ESTIMATE

The 255,000 square foot replacement high school is a steel frame building with structural decking and concrete slabs supported by spread and continuous footings. The components of the structural system are categorized under sections 03 Concrete and 05 Metals under the CSI Masterformat. Based off of a detailed structural estimate, utilizing RS Means Costworks data, the structural systems cost totaled \$5,602,193.18, which relates to \$21.97 per square foot. This value however does not incorporate any overhead or profit.

Tab	le 1:	Esti	mate	Brea	kdown	

	Project (Cost Data	
CSI Masterformat	Structural Element	Estimated Cost	Estimated Cost Per SF
03	Reinforcing	\$164,780.48	\$0.65
05	Concrete	\$2,086,502.50	\$8.18
03	Metal Deck	\$537,040.00	\$2.11
03	Structural Steel	\$2,813,870.20	\$11.03
	Total	\$5,602,193.18	\$21.97

**A detailed breakdown of costs can be found in Appendix B

Total Building Cost = \$74,225,000.00

Percent of Cost by Structure: 7.55%

When completing the estimate for this building the modular approach was not utilized because of the degree of variation throughout the building. Instead a quantity take off was completed by referencing the structural drawings. It should be noted that lintels and shear studs are not incorporated into this estimate.

ASSUMPTION

- Any value that was not provided by RS Means Costworks was interpolated from given data.
- The cost of labor, material, and equipment is shown as one totaled value for the concrete estimate.
- Connection costs for structural steel were not considered

Estimate Accuracy

Based off of cost data provided by HESS Construction the concrete estimate (including rebar and WWF mesh) was off by 1.7 percent. Without any adjustments the steel and metal deck estimate totals \$3,350,810.20, which is 31% lower than the agreed upon contract amount. However, with a 10% allowance for connections and by adding an overhead and profit of 24% (similar to RS Means) this discrepancy in price is lowered to a difference of 5%.

Cost of Material for Steel (Excluding Deck): \$2,556,640.39

Cost of Labor for Steel (Excluding Deck): \$241,958.65

Cost of Equipment for Steel (Excluding Deck): \$120,292.22

NOTES

- Concrete is cast in place 4000 PSI normal weight
- SOD is 3-1/4" concrete over 2" (2VLI w/ min 3 span condition) 20 GA. Composite steel deck .
- Roof Deck is 1-1/2" 20 GA. Type B

GENERAL CONDITIONS ESTIMATE

**Reference Appendix C for detailed breakdown

The general conditions estimate for this project is \$2,805,635.43 which correlates to 3.78% of the total project cost. Table 2 provides an overview of the costs associated with this project. The estimate was produced by utilizing both RS Means Costworks data and cost information provided by HESS Construction. All costs provided include overhead and profit.

General Con	ditions C	ost
Field Personnel		\$1,079,085.00
Temporary utilities		\$79,168.00
Construction Expenses		\$111,909.52
Construction Aids	\$121,132.02	
Temporary barriers and En	closures	\$80,731.21
Cleaning		\$240,760.68
Insurance and Bonds		\$1,092,849.00
	Total:	\$2,805,635.43

Table 2: GC Estimate Breakdown

The general conditions estimate is based off of a 32 month project schedule. Half of the field personnel will not be on the job site for the whole duration of the project. Some employees split their time between jobs. During the first and last few months they will phase out as the work load decreases as well. The Temporary facilities (I.e. the job site trailers and storage containers) for the project include both a large set up fee and a monthly rental rate. Costs for the GC items are broken down into 4 separate categories: labor costs, material costs, equipment costs, and other.

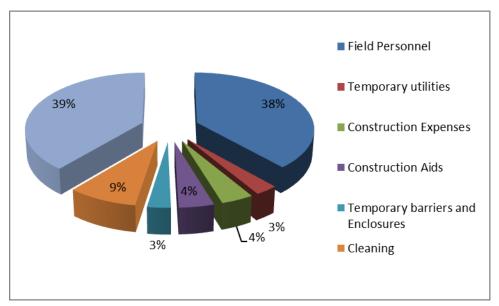


Figure 1: GC Estimate Pie Chart

The pie chart above provides a visual represent of the distribution of funds for the general conditions items. It can be seen that the Field Personnel and Insurance and Bonds are the largest expenses. In by shortening the schedule one month the project could save \$43,200 in project staffing alone.

BIM USE EVALUATION

**See Appendix D for BIM process maps related to this project.

The Use of BIM technology is being used for the construction, as-built documentation and facilities management for this replacement high school project. The model will be constantly updated and transition from a design tool to a construction management tool and finally to an operation and maintenance tool for the owner. A BIM team amongst the subcontractors will be established and they will be responsible for modeling their respective trade work.

HESS is responsible for the management of the coordination model throughout the construction process. Additionally they are responsible for the civil model, architectural model and structural design model created from the design documents. These models will be accessible to the BIM team through an FTP site established and preserved by HESS. These compiled models will be used to coordinate and sequence work for the trade subcontractors in order to maximize efficiencies during the construction process. Conflicts within the model will be addressed during periodic BIM coordination meetings.

Each Trade contractor will be required to produce a fabrication model. These models will be linked together to perform tasks such as clash detections and trade sequencing. Once all clashes are resolved the model will then be used to generate shop drawings. Models are to be updated on a weekly basis or as directed by the project information manager.

At the completion of the model subcontractors will have to submit technical data and warranty information for equipment they are responsible for in an excel template. They will also need to submit the O&M manuals that the owner requires. These files will then be taken by HESS and used to populate the facilities management software. This database will then be synced with the as built model so that the owner can use it to manage their new school. HESS is also required to train the owner's facility managers how to use the model.

Table 3: Bim Goal Description

PRIORITY (HIGH/ MED/ LOW)	GOAL DESCRIPTION	POTENTIAL BIM USES
High	Eliminate Field Conflicts	3D Modeling Clash Detection Design Review
High	BIM to produce accurate shop drawings for fabrication	Used to create construction dwgs
High	Provide Model for Facilities operations and maintenance	Record Modeling, Building maintenance, warranty information, equipment data
High	Clash Detection of MEP and Structural	3D Modeling
Med	As Built Documentation	As built model

Table 4: BIM Uses

Х	PLAN	X	DESIGN	X	CONSTRUCT	Х	OPERATE
	PROGRAMMING	x	DESIGN AUTHORING		SITE UTILIZATION PLANNING	x	BUILDING MAINTENANCE SCHEDULING
	SITE ANALYSIS		DESIGN REVIEWS	x	CONSTRUCTION SYSTEM DESIGN		BUILDING SYSTEM ANALYSIS
		x	3D COORDINATION	x	3D COORDINATION		ASSET MANAGEMENT
			STRUCTURAL ANALYSIS		DIGITAL FABRICATION		SPACE MANAGEMENT / TRACKING
			LIGHTING ANALYSIS		3D CONTROL AND PLANNING		DISASTER PLANNING
			ENERGY ANALYSIS	x	RECORD MODELING	x	RECORD MODELING
			MECHANICAL ANALYSIS				
			OTHER ENG. ANALYSIS				
			SUSTAINABLITY (LEED) EVALUATION				
			CODE VALIDATION				
	PHASE PLANNING (4D MODELING)		PHASE PLANNING (4D MODELING)		PHASE PLANNING (4D MODELING)		PHASE PLANNING (4D MODELING)
	COST ESTIMATION		COST ESTIMATION		COST ESTIMATION		COST ESTIMATION
	EXISTING CONDITIONS MODELING	x	Drawing Generation		EXISTING CONDITIONS MODELING		EXISTING CONDITIONS MODELING

Analysis

In my opinion BIM was used very well on this project. However, I believe it would have been beneficial if it had been utilized more during the planning stages of this project. I believe it would have had value as a programming tool to assess design performances. I think it would have also been beneficial to use the model to perform energy and system analyses because of the goal to achieve a LEED rating. Had this been done during the design it's possible that the building would have been able to achieve more points at a minimal cost impact. With that being said I would say that the overall use is very logical. BIM is obviously a very good tool for clash detections and generating construction drawings. This will undoubtedly save time and headaches when it comes time to install the MEP systems. This is especially important on this project because with such a small construction window, an unforeseen clash in the field could really impact an already tight schedule.

I also think that it's good that they have in their contract language that HESS will teach the facility managers how to use the model after they turn it over. Otherwise it's very likely that it would have been wasted on them.

CONSTRUCTABILITY CHALLENGES

The soil that the proposed replacement school will sit on had been found to be unsuitable material by the geotechnical engineer. The entire footprint of the building sat on moderately compressible fill that had been placed during the construction of the existing school. This meant that all of the existing soil had to be undercut and controlled fill had to be brought on site. Based on the geotechnical engineers recommendations the new fill had to be compacted to 95 percent of the maximum dry density as determined by ASTM D-1557. The way HESS overcame this was by monitoring the settlement with the use of settlement plates to insure that the soil would not settle excessively. This was a huge concern because even with the new fill, it was expected that the soil underneath it would still settle. The settlement plates were installed prior to fill placement and were monitored every day before and during fill placement and for three weeks after the completion of new fill. Foundations were not allowed to be placed during this time.

Another constructability challenge was that HESS was given a later than expected notice to proceed date. On top of that S.A. Halac the structural subcontractor showed up on site two weeks late, which further impacted the schedule. This was extremely

important to overcome, because they were already working on a tight schedule, in which they had to get a 255,000 square foot high school built and occupied in 18 months. This required them to find ways to shorten the critical path because 7 months into the project they were behind schedule by a month and a half. The way they overcame this was by accelerating their steel contractor by requiring them to bring a second crane on site. This allowed for them to set steel in two different sections of the building simultaneously.

Figure 2: BLDG Layout

A third constructability challenge had to do with poor sequencing. When the schedule was originally created not enough consideration was taken concerning school functions and the summer school timetable. Operations such as temporary utility shut downs, road closures and specific construction activities had to be re-sequenced. The project staff overcame this by regularly meeting with the school to find times when they would be allowed to complete the necessary work outside of the original time frame.

APPENDIX A: Project Schedule

Brady Sheerin | Constuction Management

Site Work layout of silt fence & inlet protection	0 days		Wed 10/31/1	H2	H1	Н	2	H1	H2
Notice to proceed Site Work layout of silt fence & inlet protection	0 days		wed 10/21/1	u 1					
Site Work layout of silt fence & inlet protection		Thu 12/1/11	Thu 12/1/11		Notice to proceed	I	•		
layout of silt fence & inlet protection	220 dave	Thu 12/1/11 Thu 12/1/11							
· ·	9 days	Thu 12/1/11		-	layout of silt fence	e & inlet protec	tion		
Increation for S&EC	1 day	Thu 12/1/11 Thu 12/15/11			Inspection for S&	-			
		Fri 12/15/11		-					
	6 days	Fri 12/16/11		-	selective clearin	ø			
·		Tue 12/27/11		-	install storm		ran		
•			Tue 2/7/12	-		no/Remaining c			
·	8 days			-	_	te 1st half build	-		
	0 days	Fri 3/2/12	Fri 3/2/12	_				oile	
				_			Sultable St	2115	
÷				_		-	i ding nad		
				-		iete zna nali bu	nung pau	T	
-				-	B. coloctivo cloori	in a			
				-	-				
•				-			n & trap		
				-					
					rough	grading and ut	ites comp	liete	
				2			·		
				_		_			
				_	_	_			
									38.4
								-	
						_			LDG
-						•	Geother	mal Complete	
				_		—			
						_			
						•	Tennis Co	urts Complete	
	109 days	Thu 5/31/12	Tue 10/30/1	2		-	•		
			Thu 6/7/12			Rough Grade			
Construct Field	103 days	Fri 6/8/12	Tue 10/30/12	2		C			
Substantial completion	0 days	Tue 10/30/12	Tue 10/30/12	2			Subs	tantial completion	
Field House	104 days	Fri 6/8/12	Wed 10/31/1	1		•	•		
Building pad & footings	11 days	Fri 6/8/12	Fri 6/22/12						
U/G plumbing and Electric	9 days	Mon 6/18/12	Thu 6/28/12				-		
SOG & masonry bearing walls	20 days	Fri 6/29/12	Thu 7/26/12			[] SOG &	masonry	bearing walls	
Plumbing/Electrical rough in	7 days	Fri 8/3/12	Mon 8/13/12			Plun	bing/Elec	trical rough in	
Roof	20 days	Mon 8/6/12	Fri 8/31/12			E Ro	of		
overhead rough in and Equipment installation	15 days	Tue 9/4/12	Mon 9/24/12			•	overhead	rough in and Equipme	ent installatio
interior finishes	32 days	Tue 9/18/12	Wed 10/31/1	2			📑 interi	or finishes	
PH 1 Substantial Completion	0 days	Wed 10/31/12	Wed 10/31/1	2			🔷 PH 1	Substantial Completion	on
Task		Project Su	mmary	· · · · · · ·	Inactive Milestone	\$		Manual Summary Rol	llup
Detailed Schedule Split		External Ta	asks		Inactive Summary	∇		Manual Summary	-
10/12/12		External M	lilestone	•	Manual Task			Start-only	E
initestone •				-	Duration-only		1	Finish-only	3
	Rough Grade & Utilities @ East Side of Site selective clearing install storm drain basin & trap rough grading rough grading and utilites complete Geothermal Fields Drill Wells and pipe wells for field 1 & 2 Set Vault #1 / Connect Pipes Drill Wells and pipe wells for field 3 & 4 Set Vault #2 / Connect Pipes S&R pipes from vaults to new BLDG Geothermal Complete Tennis Courts Install Tennis Courts Tennis Courts Complete Football Field Rough Grade Construct Field Substantial completion Field House Building pad & footings U/G plumbing and Electric SOG & masonry bearing walls Plumbing/Electrical rough in Roof overhead rough in and Equipment installation interior finishes PH 1 Substantial Completion	fill and grade20 dayscomplete 2nd half building pad0 daysRough Grade & Utilities @ East Side of Site56 daysselective clearing8 daysinstall storm drain basin & trap45 daysrough grading3 daysrough grading and utilites complete0 daysGeothermal Fields144 daysDrill Wells and pipe wells for field 1 & 255 daysSet Vault #1 / Connect Pipes10 daysSet Vault #2 / Connect Pipes10 daysSet Vault #2 / Connect Pipes11 daysS&R pipes from vaults to new BLDG8 daysGeothermal Complete0 daysTennis Courts73 daysInstall Tennis Courts73 daysTennis Courts Complete0 daysFootball Field109 daysRough Grade6 daysConstruct Field103 daysSubstantial completion0 daysField House104 daysBuilding pad & footings11 daysU/G plumbing and Electric9 daysSOG & masonry bearing walls20 daysPlumbing/Electrical rough in and Equipment installation15 daysinterior finishes32 daysPH 1 Substantial Completion0 daysPutalTaskSplit11 daysMilestone12 days	fill and grade20 daysFri 2/17/12complete 2nd half building pad0 daysThu 3/15/12Rough Grade & Utilities @ East Side of Site56 daysTue 12/27/11selective clearing8 daysTue 12/27/11install storm drain basin & trap45 daysFri 1/6/12rough grading3 daysFri 3/9/12rough grading and utilites complete0 daysTue 3/13/12Geothermal Fields144 daysWed 3/14/12Drill Wells and pipe wells for field 1 & 255 daysWed 3/14/12Set Vault #1 / Connect Pipes10 daysWed 5/30/12Drill Wells and pipe wells for field 3 & 477 daysTue 5/15/12Set Vault #2 / Connect Pipes11 daysThu 8/30/12S&R pipes from vaults to new BLDG8 daysFri 6/8/12Install Tennis Courts73 daysFri 6/8/12Install Tennis Courts73 daysFri 6/8/12Football Field109 daysTue 5/31/12Rough Grade6 daysThu 5/31/12Construct Field103 daysFri 6/8/12Substantial completion0 daysFri 6/8/12U/G plumbing and Electric9 daysMon 8/6/12SOG & masonry bearing walls20 daysFri 6/29/12Plumbing/Electrical rough in7 daysFri 8/3/12Roof20 daysTue 9/18/12PH 1 Substantial Completion0 daysTue 9/12/12Not fills32 daysTre 9/12/12Phit Substantial Completion0 daysTue 9/12Interior finishes	fill and grade20 daysFri 2/17/12Thu 3/15/12complete 2nd half building pad0 daysThu 3/15/12Thu 3/15/12Rough Grade & Utilities @ East Side of Site56 daysTue 12/27/11Tue 3/13/12selective clearing8 daysTue 12/27/11Thu 3/8/12install storm drain basin & trap45 daysFri 3/9/12Tue 3/13/12rough grading and utilites complete0 daysTue 3/13/12Tue 3/13/12Geothermal Fields144 daysWed 3/14/12Tue 3/29/12Drill Wells and pipe wells for field 1 & 255 daysWed 3/14/12Tue 3/29/12Set Vault #1 / Connect Pipes10 daysWed 5/30/12Tue 9/25/12Geothermal Complete0 daysTue 3/13/12Tue 9/25/12Geothermal Complete0 daysFri 9/14/12Tue 9/25/12Geothermal Complete0 daysFri 6/8/12Tue 9/18/12Tennis Courts73 daysFri 6/8/12Tue 9/18/12Tonis Courts Complete0 daysTuu 5/31/12Tue 0/30/12Football Field109 daysFri 6/8/12Tue 10/30/12Substantial completion0 daysTue 10/30/12Tue 10/30/12Substantial completion0 daysFri 6/8/12Tue 10/30/12Substantial completion0 daysFri 6/8/12Thu 6/2/12U/G plumbing and Electric9 daysMon 6/18/12Thu 6/2/12SOG & masonry bearing walls20 daysFri 6/8/12Fri 6/2/12V/G plumbing and Electric9 daysMon 8/6/12Fri 8/31/12 </td <td>fill and grade 20 days Fri 2/17/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 Rough Grade & Utilities @ East Side of Site S6 days Tue 12/27/11 Tue 3/13/12 selective clearing 8 days Tue 12/27/11 Thu 3/8/12 rough grading 3 days Fri 3/9/12 Tue 3/13/12 rough grading and utilites complete 0 days Tue 3/13/12 Tue 3/13/12 Geothermal Fields 144 days Wed 3/14/12 Tue 5/29/12 Drill Wells and pipe wells for field 1 & 2 S5 days Yued 3/14/12 Tue 5/29/12 Set Vault #1 / Connect Pipes 10 days Tue 3/13/12 Tue 6/12/12 Drill Wells and pipe wells for field 3 & 4 77 days Tue 5/15/12 Wed 8/29/12 Set Vault #2 / Connect Pipes 11 days Thu 8/30/12 Tue 9/18/12 Set Vault #2 / Connect Pipes 11 days Fri 6/8/12 Tue 9/18/12 Geothermal Complete 0 days Mon 10/1/12 Tue 9/18/12 Tennis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Install Tennis Courts 73 days</td> <td>fill and grade 20 days Fri 2/17/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 Rough Grade & Utilities @ East Side of Site 56 days Tue 2/27/11 Tue 3/13/12 selective clearing 8 days Tue 1/2/7/11 Tu 3/15/12 rough grading 3 days Fri 3/9/12 Tue 3/13/12 Tue 3/13/12 rough grading and utilites complete 0 days Fri 3/9/12 Tue 3/13/12 Tue 3/13/12 Geothermal Fields 144 days Wed 3/14/12 Mon 10/1/12 Tue 3/13/12 Tue 3/13/12 Drill Wells and pipe wells for field 1 & 2 55 days Wed 3/14/12 Tue 9/18/12 Tue 9/25/12 Set Vault #1 / Connect Pipes 11 days Thu 8/30/12 Thu 9/13/12 Tue 9/18/12 Set Vault #2 / Connect Pipes 11 days Thu 5/31/12 Tue 9/18/12 Tue 9/18/12 Install Tennis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Install Tennis Courts 73 days Fri 6/8/12 Tue 10/30/12 Field House Field House 100 days Tue 0/30/12 Tue 10/30/12 Tue 10/30/12</td> <td>fill and grade 20 days Fri 2/17/12 Thu 3/15/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 Thu 3/15/12 Rough Grade & Utilities @ East Side of Site 56 days Tue 1/2/7/11 Tue 3/13/12 us 3/13/12 selective clearing 8 days Tue 1/2/7/11 Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 rough grading and utilites complete 0 days Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 Drill Wells and pipe wells for field 1 & 2 55 days Wed 3/14/12 Tue 5/15/12 Wed 8/29/12 Set Vault #1 / Connect Pipes 10 days Wed 5/30/12 Tue 9/18/12 Tue 9/18/12 Geothermal Complete 0 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Tennis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Tensis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 10/30/12 Rough Grade 6 days Tue 6/18/12 Tue 9/18/12 Tue 10/30/12 Substantia completion 0 days Fri 6/8/12 Tue 10/30/12 Tue</td> <td>fill and grade 20 days Fri 2/17/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 Rough Grade & Utilitie@ East Side of Site 56 days Tue 1/2/11 Tue 3/13/12 install storm drain basin & trap 45 days Tru 1/2/11 Tue 3/13/12 rough grading and utilites complete 0 days Tru 3/12/12 Tue 3/13/12 rough grading and utilites complete 0 days Tru 3/12/12 Tue 3/13/12 Geothermal Fields 144 days Wed 3/14/12 Tue 3/13/12 Tue 3/13/12 Geothermal Fields 10 days True 3/13/12 Tue 3/13/12 Tue 3/13/12 Set Vauit #1 / Connect Pipes 10 days True 3/13/12 Tue 3/13/12 Tue 3/13/12 Set Vauit #2 / Connect Pipes 10 days True 3/13/12 Tue 9/13/12 Tue 9/13/12 Install Tennis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Tue 1/0/30/12 Rough Grade 6 days Tru 6/30/12 True 1/0/30/12 True 1/0/30/12 True 1/0/30/12 True 1/0/30/12 Subs/111 Building pad & footings 11 days Fri 6/8/12 True 1/0/30/12 Sub/30/12</td> <td>fill and grade 20 days Fri 2/17/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 solective clearing 56 days Tue 12/27/11 Thu 3/15/12 solective clearing 8 days Tue 12/27/11 Thu 3/15/12 install storm drain basin & trap 8 days Fri 3/9/12 Tue 3/13/12 rough grading 3 days Fri 3/9/12 Tue 3/13/12 rough grading and utilites complete 0 days Tue 3/13/12 Tue 3/13/12 rough grading and utilites complete 0 days Tue 3/13/12 Tue 3/13/12 Drill Wells and pipe wells for field 1 & 2 55 days Tue 5/12/12 Wed 5/30/12 Tue 9/13/12 S&R tippes from vaults to new BLO B days Fri 6/3/12 Tue 9/18/12 Tue 9/18/12 Set Vault # / Connect Pipes 11 days Fri 6/3/12 Tue 9/18/12 Tue 9/18/12 Substantial completion 0 days Fri 6/3/12 Tue 9/18/12 Tue 9/18/12 Substantial completion 0 days Fri 6/3/12 Tue 10/30/12 Start only Substantial completion 0 days Fri 6/2/12 Tue 10/30/</td>	fill and grade 20 days Fri 2/17/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 Rough Grade & Utilities @ East Side of Site S6 days Tue 12/27/11 Tue 3/13/12 selective clearing 8 days Tue 12/27/11 Thu 3/8/12 rough grading 3 days Fri 3/9/12 Tue 3/13/12 rough grading and utilites complete 0 days Tue 3/13/12 Tue 3/13/12 Geothermal Fields 144 days Wed 3/14/12 Tue 5/29/12 Drill Wells and pipe wells for field 1 & 2 S5 days Yued 3/14/12 Tue 5/29/12 Set Vault #1 / Connect Pipes 10 days Tue 3/13/12 Tue 6/12/12 Drill Wells and pipe wells for field 3 & 4 77 days Tue 5/15/12 Wed 8/29/12 Set Vault #2 / Connect Pipes 11 days Thu 8/30/12 Tue 9/18/12 Set Vault #2 / Connect Pipes 11 days Fri 6/8/12 Tue 9/18/12 Geothermal Complete 0 days Mon 10/1/12 Tue 9/18/12 Tennis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Install Tennis Courts 73 days	fill and grade 20 days Fri 2/17/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 Rough Grade & Utilities @ East Side of Site 56 days Tue 2/27/11 Tue 3/13/12 selective clearing 8 days Tue 1/2/7/11 Tu 3/15/12 rough grading 3 days Fri 3/9/12 Tue 3/13/12 Tue 3/13/12 rough grading and utilites complete 0 days Fri 3/9/12 Tue 3/13/12 Tue 3/13/12 Geothermal Fields 144 days Wed 3/14/12 Mon 10/1/12 Tue 3/13/12 Tue 3/13/12 Drill Wells and pipe wells for field 1 & 2 55 days Wed 3/14/12 Tue 9/18/12 Tue 9/25/12 Set Vault #1 / Connect Pipes 11 days Thu 8/30/12 Thu 9/13/12 Tue 9/18/12 Set Vault #2 / Connect Pipes 11 days Thu 5/31/12 Tue 9/18/12 Tue 9/18/12 Install Tennis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Install Tennis Courts 73 days Fri 6/8/12 Tue 10/30/12 Field House Field House 100 days Tue 0/30/12 Tue 10/30/12 Tue 10/30/12	fill and grade 20 days Fri 2/17/12 Thu 3/15/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 Thu 3/15/12 Rough Grade & Utilities @ East Side of Site 56 days Tue 1/2/7/11 Tue 3/13/12 us 3/13/12 selective clearing 8 days Tue 1/2/7/11 Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 rough grading and utilites complete 0 days Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 Tue 3/13/12 Drill Wells and pipe wells for field 1 & 2 55 days Wed 3/14/12 Tue 5/15/12 Wed 8/29/12 Set Vault #1 / Connect Pipes 10 days Wed 5/30/12 Tue 9/18/12 Tue 9/18/12 Geothermal Complete 0 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Tennis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Tensis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 10/30/12 Rough Grade 6 days Tue 6/18/12 Tue 9/18/12 Tue 10/30/12 Substantia completion 0 days Fri 6/8/12 Tue 10/30/12 Tue	fill and grade 20 days Fri 2/17/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 Rough Grade & Utilitie@ East Side of Site 56 days Tue 1/2/11 Tue 3/13/12 install storm drain basin & trap 45 days Tru 1/2/11 Tue 3/13/12 rough grading and utilites complete 0 days Tru 3/12/12 Tue 3/13/12 rough grading and utilites complete 0 days Tru 3/12/12 Tue 3/13/12 Geothermal Fields 144 days Wed 3/14/12 Tue 3/13/12 Tue 3/13/12 Geothermal Fields 10 days True 3/13/12 Tue 3/13/12 Tue 3/13/12 Set Vauit #1 / Connect Pipes 10 days True 3/13/12 Tue 3/13/12 Tue 3/13/12 Set Vauit #2 / Connect Pipes 10 days True 3/13/12 Tue 9/13/12 Tue 9/13/12 Install Tennis Courts 73 days Fri 6/8/12 Tue 9/18/12 Tue 9/18/12 Tue 1/0/30/12 Rough Grade 6 days Tru 6/30/12 True 1/0/30/12 True 1/0/30/12 True 1/0/30/12 True 1/0/30/12 Subs/111 Building pad & footings 11 days Fri 6/8/12 True 1/0/30/12 Sub/30/12	fill and grade 20 days Fri 2/17/12 Thu 3/15/12 complete 2nd half building pad 0 days Thu 3/15/12 Thu 3/15/12 solective clearing 56 days Tue 12/27/11 Thu 3/15/12 solective clearing 8 days Tue 12/27/11 Thu 3/15/12 install storm drain basin & trap 8 days Fri 3/9/12 Tue 3/13/12 rough grading 3 days Fri 3/9/12 Tue 3/13/12 rough grading and utilites complete 0 days Tue 3/13/12 Tue 3/13/12 rough grading and utilites complete 0 days Tue 3/13/12 Tue 3/13/12 Drill Wells and pipe wells for field 1 & 2 55 days Tue 5/12/12 Wed 5/30/12 Tue 9/13/12 S&R tippes from vaults to new BLO B days Fri 6/3/12 Tue 9/18/12 Tue 9/18/12 Set Vault # / Connect Pipes 11 days Fri 6/3/12 Tue 9/18/12 Tue 9/18/12 Substantial completion 0 days Fri 6/3/12 Tue 9/18/12 Tue 9/18/12 Substantial completion 0 days Fri 6/3/12 Tue 10/30/12 Start only Substantial completion 0 days Fri 6/2/12 Tue 10/30/

	2014		2015	
	H1	H2	2010	H1
on				
	Deadline	÷		
	Progress			

D	Task Name	Duration	Start	Finish		2012		2013	
					H2	H1	H2	H1	H2
	PH 2A: New School & Associated Work		Mon 4/2/12					_	
43	Structure		Mon 4/2/12		2		Pullel of		
44	Building EXCV/FRP Footings	92 days		Tue 8/7/12		C		CV/FRP Footings	
45	Underground Elec. & plumbing Rough in	88 days	Thu 4/26/12		-	C	_	ound Elec. & plumbing Ro	ugh in
46	Building SOG	89 days	Sat 5/5/12	Wed 9/5/12		-	Building	SOG	
47	Area F	59 days	Tue 7/10/12				÷		
48	Erect Steel & Decking	43 days	Tue 7/10/12					eel & Decking	
49	MEP Prep For SOD	21 days	Mon 7/30/12				MEP Pre		
50	CMU Bearing Walls	11 days	Tue 8/21/12	Tue 9/4/12	-		🗖 CMU Be	aring Walls	
51	SOD	2 days	Fri 9/28/12	Sun 9/30/12	-		I SOD		
52	Area E	28 days	Fri 8/10/12	Tue 9/18/12	_				
53	Erect Steel & Decking	24 days	Fri 8/10/12	Wed 9/12/12				teel & Decking	
54	MEP Prep For SOD	7 days	Wed 8/29/12	Thu 9/6/12			MEP Pro	ep For SOD	
55	SOD	4 days	Thu 9/13/12	Tue 9/18/12			sod		
56	Area D	31 days	Tue 8/21/12						
57	Erect Steel & Decking	27 days	Tue 8/21/12	Wed 9/26/12				Steel & Decking	
58	MEP Prep For SOD	7 days	Wed 9/12/12	Thu 9/20/12			-	rep For SOD	
59	SOD	4 days	Thu 9/27/12	Tue 10/2/12			I SOD		
60	Area G	86 days	Tue 7/24/12	Tue 11/20/1	2			,	
61	CMU Bearing Walls	44 days	Tue 7/24/12	Fri 9/21/12				Bearing Walls	
62	Erect Steel & Decking	37 days	Mon 10/1/12	Tue 11/20/12	2		C 3	Erect Steel & Decking	
63	MEP Prep For SOD	3 days	Fri 10/26/12	Tue 10/30/12	2		IN	1EP Prep For SOD	
64	SOD	2 days	Wed 10/31/1	2 Thu 11/1/12			IS	OD	
65	Area C	57 days	Fri 8/3/12	Mon 10/22/	L:				
66	CMU Bearing Walls	21 days	Fri 8/3/12	Fri 8/31/12	1		CMU Bea	aring Walls	
67	Erect Steel & Decking	34 days	Wed 9/5/12	Mon 10/22/1	2		E Ere	ect Steel & Decking	
68	Area B & A	56 days	Tue 8/21/12	Tue 11/6/12	1				
69	CMU Bearing Walls	27 days	Tue 8/21/12	Wed 9/26/12			CMU	Bearing Walls	
70	Erect Steel & Decking	22 days	Mon 10/8/12	Tue 11/6/12	1		i i i i i i i i i i i i i i i i i i i	rect Steel & Decking	
71	Enclosure		Wed 9/5/12		1				
72	Ground Face CMU		Wed 9/5/12		1		C	Ground Face CMU	
73	Glazing & Windows		Wed 9/5/12				C	Glazing & Windo	ows
74	Ext Wall Panels		Wed 9/26/12				C	Ext Wall Panels	
75	Roofing		Wed 9/5/12				C	Roofing	
76	1st Floor Rough-Ins		Wed 9/5/12		1		-		
77	Interior walls				1			nterior walls	
78	Mechanical Pipe		Mon 9/10/12		1		C	Mechanical Pip	e
79	Cable trays		Fri 9/28/12	Thu 12/20/12	2			Cable trays	
80	Ductwork			Tue 1/29/13			-	Ductwork	
81	Plumbing Pipe	66 days	Tue 10/16/12				-	Plumbing Pipe	
82	set electrical panels		Fri 10/26/12				6	set electrical pan	els
52		05 0845				1			
	Task		Project Su	ummary	÷	Inactive Milestone	\$	Manual Summary Ro	ollup 🚃
Projec	t: Detailed Schedule Split		External T	asks		Inactive Summary	Q	Manual Summary	-
	Fri 10/12/12 Milestone	•	External N	Ailestone	<u>م</u>	Manual Task	C	Start-only	E
	Summary		Inactive Table			Duration-only		Finish-only	3
		-							_
						Page 2			

	2014	_		2015	
2	2014 H1	Г	H2	2013	H1
		4			- 1 =
	Deadline		+		
	Progress				
	5				

98 3rd Floor Rough-Ins 119 days Wed 9/12/12 Mon 12/25/13 99 Interior walls 32 days Wed 9/12/12 Mon 11/5/12 90 Cable trays 32 days Wed 9/12/12 Mon 11/5/12 101 Cable trays 22 days Wed 10/10/1Thu 11/8/12 102 Dutwork 44 days Fin 12/14/12 Wed 11/12/11/12 103 Plumbing Pipe 24 days Fin 12/14/12 Wed 11/16/13 104 set electrical panels 15 days Wed 12/19/11/Twu 12/2/13 105 Insulation 25 days Wed 12/19/11/Twu 12/2/13 106 Insulation 25 days Wed 12/19/11/Twu 12/2/13 107 Sprinkler mains & branches 5 days Wed 12/19/11/Twu 12/2/13 108 pull wire 26 days Mon 1/2/13 109 Insulation 126 days Mon 1/2/13 110 12 refor 116 days Sur 1/5/13 111 2nd Floor 106 days Sur 1/5/13 113 Building Inspections 16 days Mon 7/1/13 113 Building Inspection 5 days Tur 7/9/13) ·	Task Name	Duration	Start	Finish		2012		2013		2014		2015
41 musiation 51 days Fit 12/4/13 45 proleter musis 52 days 51 days 56 pull wice 52 days 51 days 57 7 zdr 1607 days 63 days fit 12/4/13 58 Metchanical Pie 63 days fit 12/4/13 50 Dettores 53 days fit 12/4/13 50 Dettores 53 days fit 12/4/13 50 Dettores 53 days fit 12/4/13 50 days fit 2/4/13 fit 12/4/13 50 musiation fit 12/4/12 fit 12/4/13 51 days fit 12/4/12 fit 12/4/13 50 musiation fit 2/4/14 fit 2/4/13 51 days fit 2/4/14 fit 2/4/14 52 days fit 2/4/14 fit 2/4/14 51 days fit 2/4/14 fit 2/4/14 52 days fit 2/4/14 fit 2/4/14 53 days fit 2/4/14 fit 2/4/14							H1	H2			H1	H2	H1
9. Spinkler mains & branches 59 digs Test 1/4/12 + rit 1/25/13 9. papi wire 26 digs Test 2/4/13 97 20 floor Regules 138 digs Men 1/4/12 + rit 1/25/13 97 20 floor Regules 40 digs Men 1/4/12 + rit 1/25/13 97 20 floor Regules 45 digs Men 1/25/12 98 Dectwork 53 digs Tes 1/4/12 + rit 1/25/13 91 Dectwork 53 digs Tes 1/4/12 + rit 1/25/13 92 Pumbing File 36 digs Men 1/25/12 Tes 1/4/12 + rit 1/25/13 93 dectrical D anches 50 digs Men 1/25/12 Tes 1/4/12 93 dectrical D anches 50 digs Med 1/25/12 Tes 1/4/12 94 dectrical D anches 30 digs Tes 1/45/12 Tes 1/4/12 95 dectrical D anches 30 digs Tes 1/45/12 Tes 1/4/12 95 dectrical D anches 30 digs Tes 1/45/12 Tes 1/45/12 96 floor Regules 30 digs Tes 1/45/12 Tes 1/45/12 <td>_</td> <td></td> <td></td> <td></td> <td></td> <td>12</td> <td></td> <td>C</td> <td>-</td> <td>nduit</td> <td></td> <td></td> <td></td>	_					12		C	-	nduit			
90 pul wire 26 days St12/17/13 fr22/87.3 91 2nd Fior Roughins 35 days March 12/12 March 12/12 88 metricin wills 40 days March 12/12 Minit 12/12 90 Oche tarys 55 days The 12/12/12 Morehance 12/12 March 12/12 91 Outcrew 55 days The 12/12/12 More 12/12/12 Morehance 12/12 92 Outcrew 55 days The 12/12/12 More 12/12/12 March 12/12 92 Dutcrew 55 days The 12/12/12 More 12/12/12 March 12/12 93 st electrical panels 55 days The 2/12/12 More 12/12/12 March 12/12 95 sprinker mains & tranches 55 days The 2/12/12 More 12/12/12 More 1	_		,			_		C					
0 Data floor Rough-Ind 138 days Mon 2/(0/12 Weil 3//0/13 8 Interior wils 40 days Mon 2/(0/12 Weil 3//0/13 89 Michanical Pipe 55 days Thi 2//0/12 90 Cable trays 55 days Thi 2//0/12 91 Ductwork 55 days Thi 1//0/12 92 Purbling Pipe 36 days Thi 1//0/12 Thi 1//0/12 93 set electrical panels 52 days Mon 1//0/13 Tra 2//0/13 94 deterrical of A conduit 56 days The 2//0/13 Thi 1//0/12 94 deterrical of A conduit 56 days Weid 3//0/13 Thi 1//0/12 94 days The 2//0/13 Thi 2//0/13 Thi 2//0/13 95 and floor Rough-Inc 20 days The 2//0/13 Thi 1//0/12 95 days Yeid Mir Yeid Mir Yeid Mir 90 days Yeid Mir Yeid Mir Yeid Mir 90 find congol-Inc 100 days Yeid Mir Yeid Mir <td< td=""><td></td><td>•</td><td></td><td></td><td></td><td>_</td><td></td><td>C</td><td></td><td>s & branches</td><td></td><td></td><td></td></td<>		•				_		C		s & branches			
88 Mcchanic roll > 40 day Mon 2/0/12 fr11/2/12 98 Mcchanic rip ⊢ 56 day Tun 2/20/12 Mon 12/2/12 90 Cubic roys 56 day Tun 12/2/12 Mon 12/2/12 91 Ductows 58 day Tun 12/2/12 Mon 12/2/12 92 Purbming Pipe 38 day Fi11/6/12 Tun 12/2/13 93 st electrical panels 56 day Wed 12/2/12 Tun 2/12/13 94 electrical Ol & Conduit 50 day Wed 12/2/12 Tun 2/12/13 95 multidion 66 day Wed 12/2/12 Tun 2/12/13 96 multidion inclose 50 day Wed 12/2/12 Tun 2/12/13 97 pul wire 76 day Wed 12/2/12 Tun 2/12/13 98 101 day Wed 12/2/12 Tun 2/12/12 Wed 12/2/12 Tun 2/12/12 90 Mcchanical panels 103 day Wed 11/2/12 Wed 11/2/12 91 Ductowers 104 days Mcchanical panels 92 purbming Pipe 24 days Tun 12/3/12 91 purbming Pipe 102/2/12 Wed 11/2/12 Wed 11/2/17/12 91 purbming Pipe 103 day Mcchanical Pipe <	_					_			pull wire				
Bit Michaela Pipe SS days In 97/07/2 Work 1/16/13 0 Cable ray SS days In 97/07/2 Work 1/16/13 91 Outwork SS days In 116/12 Mon 1/17/13 92 Punching Pipe SS days In 116/12 Thu 1/17/13 93 ast electrical panels SS days Non 1/17/13 Fi/12/17/13 94 electrical OR & conduit SG days Nue 2/12/13 Work 1/12/12 95 insulation SG days Nue 2/12/13 Work 1/12/12 Nue 2/12/13 96 sprinfer mains & banches SG days Nue 2/12/12 Nue 1/12/12		-				.3		-					
90 Cable trays 45 days 11/10/12 Mon 12/1/12 Mon 12/1/12 91 Ductoork 58 days 11/10/12 Tun 12/1/12 Tun 12/1/12 92 Pumbing Pipe 38 days 11/10/13 Trays Trays<	_												
91 Ductwork \$3 days us 11/d/12 Two 11			,					C	-	e			
29 Plumbing Pipe 33 days Fi11/R/12 Use 1/R/13 29 set electrical panels 50 days Non 1/13 Fi2/R/13 34 set electrical OH & conduit 50 days Wei 1/2/13 Fi2/R/13 36 set electrical OH & conduit 50 days Wei 1/2/12 Fin1/R/12 Fin1/R/13 36 sprinkler mains & branches 50 days Wei 1/2/12 Fin1/R/12 Fin1/R/12 37 pull wire 10 days Wei 1/2/12 Fin1/R/12 Fin1/R/12 Fin1/R/12 38 36 floor Rough-Ins 10 days Wei 1/2/12 Fin1/R/12 Fin1/R/			1					c					
93 size electrical panels 25 days Mon 1//13 P12/12/13 94 electrical 01 8 conduit 66 days Wed 1/12/11 Wed 2/27/13 95 invalation 66 days Wed 1/12/11 Wed 2/27/13 97 pall wire 26 days Tote 2/12/12 Wed 2/27/13 98 af door Rough-hs 26 days Tote 2/12/12 Wed 2/27/13 99 metric/ roualis 3 days Wed 9/2/12 Who 1/27/12 Wed 9/2/12 Wed 2/27/13 90 Interior walls Wed 9/2/12 Who 1/2/12 Wed 9/2/12 Wed 1/2/17 101 Cable trays Wed 9/11/12 Wed 1/2/12 Wed 1/16/12 102 Dectorial Pine 24 days Fin 12/12/12 Wed 1/2/12 103 Dectorial Pine 24 days Fin 12/12/12 Wed 1/2/12 104 etelectrical OH & conduit 61 day Wed 1/16/12 105 etelectrical OH & conduit 61 day Wed 1/16/12 106 etelectrical OH & conduit 61 days Wed 1/16/13 103 defor Tot 1/12/12 Wed 1/2/12 Wed 1/16/13 104 etelectrical OH & conduit 61 days Non 12/12/13 Mon 2/2/13 <td< td=""><td>_</td><td></td><td></td><td></td><td></td><td></td><td></td><td>C</td><td></td><td></td><td></td><td></td><td></td></td<>	_							C					
94 94 94 extrical 0H 8 conduit 50 days Twe 3/20/13 95 insulation 60 days Weid 12/5/12 two 3/25/13 insulation		Plumbing Pipe	,			_		-	-				
99 insulation 66 days Wed 11/28/12 Wed 27/13 91 sprinker mains & branches 50 days Wed 12/5/12 Tue 2/12/13 93 afforo Rough-ins 110 days Wed 12/5/12 Tue 2/12/13 93 afforo Rough-ins 110 days Wed 12/5/12 Tue 2/12/13 94 afforo Rough-ins 110 days Wed 12/5/12 Tue 2/12/13 95 afforo Rough-ins 110 days Wed 3/12/12 Tu 10/15/12 100 Acchanical Pipe 30 days Tue 5/25/12 Mon 11/5/12 101 Cable trays 42 days Tu 10/18/12/12 102 Ductwork 41 days Tu 10/18/12 103 Pumbing Pipe 22 days Wed 12/9/11/12 Wed 11/21/12 103 est electrical panels 15 days Wed 3/21/12 Tu 10/2/31/11/12 103 est electrical panels 10 days Mon 12/1/13 Mon 2/5/13 103 est electrical panels 10 days Mon 12/1/13 Mon 2/5/13 103 pull wire 26 days Wed 13/21/12 Tue 12/21/11 104 final MF Pinopection 10 days Mon 12/1/13 Mon 2/5/13 105 final Fina alm Inspections		set electrical panels	25 days	Mon 1/7/13	Fri 2/8/13					-			
95 sprinkler mains & branches 50 days Verd 12/5/12 Tue 2/12/13 97 pull wire 26 days Tue 2/12/13 Tue 2/12/13 98 3rd Fieor Rough-Ins 139 days Verd 9/12/12 Tun 10/5/12 100 Mechanical Pipe 30 days Tue 2/12/13 Tue 2/12/11 101 Cable trays 22 days Wed 9/12/12 Tun 10/5/12 102 Ductoork 41 days Tun 10/5/12 103 Cable trays 22 days Wed 10/12/11/11 104 set electrical panels 51 days Tun 11/12/12 105 electrical Orl & conduit 61 days Wed 11/12/12 106 insultation 20 days Tue 2/12/13 Tue 11/12/12 107 sprinkler mains & branches 61 days Wed 11/12/12 108 pellwire 26 days Tue 10/32/12 Tue 0/32/12 Tue 6/1/13 109 pill wire 26 days Tue 10/32/12 Tue 6/1/13 Tue 10/32/12 Tue 6/1/13 109 pall wire 10 days Sub 10/12/13 Sub 10/12/13 Sub 10/12/13 108 pall dift Disor 10 days Sub 10/12/13 Sub 10/1		electrical OH & conduit	50 days	Thu 1/10/13	Wed 3/20/1	3				l OH & conduit			
97 pull wire 26 day: Tue 2/12/13 Tue 3/19/13 98 Jud Floor Rough-Ins 130 day: Wed 9/12/12 Mon 2/25/13 100 Mechanical Pipe 30 day: Tue 9/25/12 Mon 11/5/12 101 Cable trays 20 day: Wed 9/12/12 Mon 12/5/13 102 Cable trays 20 day: Wed 9/12/12 Mon 12/5/13 103 Ductwork 41 day: Thu 10/18/12 Tub 12/13/12 104 Set electrical panels 15 day: Wed 12/19/17 tub 12/21/13 105 electrical OH & conduit electrical panels 15 day: Wed 12/19/17 tub 12/21/13 105 electrical OH & conduit insulation 25 day: Wed 12/19/17 tub 12/21/13 104 sprilder mains & branches 64 day: Tru 10/23/12 Tie 6/11/13 105 insulation 26 day: Mon 12/21/3 Mon 2/25/13 Mon 2/21/3 Mon 2/25/13 105 Final Fire alarm Inspections 6 day: Mon 6/17/13 Fir 6/14/13 106 Inst Moor 10 day: Mon 6/17/13 Fir 6/14/13 107 Issue Certificat of Occupancy 3 day: Nur 7/16/13 Mon 7/25/13 103 and Floor 10	95	insulation	66 days	Wed 11/28/	12 Wed 2/27/1	3							
98 Jor Floor Rough-Ins 119 days: Wed 9/12/12 Yum 0.72/5/13 99 Interior walls 32 days Wed 9/12/12 Yum 1.0/5/12 100 Mechanical Pipe 30 days Yum 9/25/12 Ministry 101 Cable trays 22 days Wed 10/10/11Thu 11/5/12 Mechanical Pipe Cable trays 102 Ductwork 41 days Fin12/14/12 Wed 10/10/11Thu 11/5/12 Wed 10/10/11Thu 11/5/12 103 Set electrical panels 15 days Wed 11/1/12 Wed 11/1/12 Wed 11/1/12 103 set electrical panels 15 days Wed 11/1/12 Wed 11/2/12 104 set electrical panels 15 days Wed 11/12/12 Wed 11/12/13 103 pall wire 26 days Wed 11/12/12 Wed 11/12/12 Wed 11/12/12 105 electrical OH & conduit insulation set electrical panels set electrical Panels </td <td>96</td> <td>sprinkler mains & branches</td> <td>50 days</td> <td>Wed 12/5/1</td> <td>2 Tue 2/12/13</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	96	sprinkler mains & branches	50 days	Wed 12/5/1	2 Tue 2/12/13								
99 Interior walts 32 days Wed 9/12/12 Thu 10/25/12 00 Mechanical Pipe 30 days Two 2/5/12 More 9/15/12 More Pipe 101 Cable trays 22 days Wed 9/12/12 Wed 9/12/12 More Pipe 102 Cable trays 22 days Wed 9/12/12 Wed 9/12/12 More Pipe 102 Cable trays 22 days Wed 10/10/12 Thu 11/9/12 Wed 10/10/12 More Pipe Sole More Pipe Sole More Pipe Sole Sole More Pipe Sole Sol	97	pull wire	26 days	Tue 2/12/13	Tue 3/19/13				pull wire	2			
100 Mechanical Pipe 30 days Tue 9/25/12 Mon 11/5/12 101 Cable trays 22 days Wed 10/10/17/hu 11/8/12 102 Ductwork 41 days Thu 10/18/12 thu 12/13/12 103 Subtericial panels 15 days Thu 11/12/12 Wed 13/20/13 104 set electrical panels 15 days Wed 13/10/12 Wed 13/20/13 105 electrical OH & conduit 61 days Wed 13/21/12 Wed 13/20/13 106 insultation 25 days Wed 13/21/12 Wed 13/20/12 107 sprinkler mains & branches 45 days Tue 10/23/12 Tri 6/14/13 108 pulmking lipsections 16 days Wed 13/21/13 Mon 72/5/13 109 pulmking lipsections 12 days Sub1/21/13 Mon 72/5/13 111 2nd Floor 12 days Sub1/21/13 Thu 7/13 Fri 6/28/13 112 3rd Floor 10 days Non 7/1/13 Fri 6/28/13 113 Building lipsections 6 days Non 7/1/13 Fri 6/28/13 114 Final MEP Inspections 6 days Non 7/1/13 Fri 6/28/13 115 Final Fri alarm Inspections 6 days Non 7/1/13 Fri 6/28/13 <tr< td=""><td>98</td><td>3rd Floor Rough-Ins</td><td>119 day</td><td>s Wed 9/12/1</td><td>2 Mon 2/25/1</td><td>.3</td><td></td><td></td><td>•</td><td></td><td></td><td></td><td></td></tr<>	98	3rd Floor Rough-Ins	119 day	s Wed 9/12/1	2 Mon 2/25/1	.3			•				
100 Cable trays 22 days Wed 10/10/12 Thu 11/8/12 101 Cable trays 41 days Thu 11/8/12 102 Ductwork 41 days Thu 11/8/12 103 Plumbing Pipe 24 days Final MR2 104 set electrical panels 15 days Thu 11/12 105 electrical OH & conduit 5 days Wed 11/2/12/12 106 electrical OH & conduit 6 days Wed 11/2/12/12 107 sprinkler mains & branches 45 days Wed 11/2/12 108 pull wire 26 days Non 12/2/13 109 Insulation 26 days Sat 6/8/13 101 1st Floor 166 days Sat 6/8/13 101 1st Floor 106 days Sat 6/8/13 113 Building Inspections 6 days Mon 7/1/13 123 3rd Floor 10 days Mon 7/8/13 124 Final MEP Inspections 6 days Mon 7/8/13 125 Substantial completion 6 days Mon 7/8/13 126 final completion 6 days Fin 1/2/2/13	99	Interior walls	32 days	Wed 9/12/1	2 Thu 10/25/1	.2							
1002 Ductwork 41 days Thu 10/18/12 Thu 12/13/12 100 Plumbing Pipe 24 days Fri 12/14/12 Wed 11/21/14 101 Set electrical Dn8 k conduit 51 days Wed 11/12/11/12 Wed 11/23/12 102 set electrical Dn8 k conduit 51 days Wed 11/12/11/12 Wed 11/23/12 103 electrical Dn8 k conduit 51 days Wed 11/21/12 Wed 11/23/12 103 insluation 25 days Wed 11/21/12 Wed 11/23/12 104 sprinkler mains & branches 45 days Tue 10/30/12 Mon 12/31/12 105 Finisher 166 days Tue 10/23/12 Tue 6/1/13 106 Finisher 166 days Sun 1/20/13 107 Finisher 166 days Sun 1/20/13 108 Finisher 106 days Sun 1/20/13 112 2nd Floor 10 days Sun 1/20/13 113 End HPI Inspections 10 days Non 71/13/13 114 Finisher alam Inspections 6 days Mon 71/25/13 115 Finisher alam Inspections 6 days Non 71/25/13 116 Substantial completion 0 days Fin/22	100	Mechanical Pipe	30 days	Tue 9/25/12	Mon 11/5/1	2							
100 Plumbing Pipe 24 days Fri12/14/12 Wed 1/16/13 101 set electrical OH & conduit 61 days Wed 1/16/13 102 electrical OH & conduit 61 days Wed 1/16/13 103 electrical OH & conduit 61 days Wed 1/16/13 106 insulation 25 days Wed 1/21/12/12/12/13 107 sprinkler mains & branches 5 days Tue 10/30/12/12/10 / 12/12/13 108 pull wire 26 days Tue 10/30/12/11/14 / 12/2/13 109 Finishes 169 days Tue 10/30/12/11/14 / 12/2/13 101 1st Floor 166 days Tue 10/30/12/11/14 / 12/2/13 101 1st Floor 106 days Son fi/1/13 Fri 5/20/13 101 1st Floor 10 days Son fi/1/13 Fri 5/20/13 113 Building Inspections 6 days Tue 7/5/13 113 Building Inspections 6 days Tue 7/5/13 113 Substantial completion 0 days Fri 3/20/13 114 Final MP Inspections 6 days Fri 9/20/13 115 Substantal completion 0 days Fri	101	Cable trays	22 days	Wed 10/10/	12 Thu 11/8/12				-				
104 set electrical panels 15 days Thu 1/1/12 Wed 11/21/12 105 electrical OH & conduit 61 days Wed 11/71/2 Wed 13/07/13 105 instaliation 25 days Wed 12/71/2 Wed 13/07/12 Wed 13/07/13 106 instaliation 25 days Wed 12/71/2 Wed 13/07/12 Wed 13/07/13 107 sprinkler mains & branches 45 days Tue 10/23/12 Find Son 2/25/13 108 pull wire 16 days Tue 10/23/12 Find Son 2/25/13 108 pull wire 16 days Tue 10/23/12 Find Son 2/25/13 101 1st Floor 116 days Sat 6/5/13 Sat 6/5/13 112 2nd Floor 110 days Sat 6/5/13 Sat 6/5/13 112 3nd Floor 10 days Mon 6/17/13 Fin 6/14/13 113 Building Gnspections 6 days Tue 7/16/13 Fin 9/20/13 115 Final MEP Inspections 6 days Tue 7/16/13 Fin 9/20/13 118 Substantial completion 0 days Fin 9/20/13 Fin 9/20/13 119 Punchilst completi	102	Ductwork	41 days	Thu 10/18/1	2 Thu 12/13/1	.2		C	-				
103 electrical OH & conduit 61 days Wed 11/7/12 Wed 1/30/13 106 insulation 25 days Wed 12/3/17 uru /22/13 107 insulation 26 days Turu 1/22/13 108 pull wire 26 days Mon 1/21/13 109 finishes 166 days Turu 1/22/13 101 ist Floor 166 days Turu 1/22/13 101 ist Floor 166 days Turu 1/22/13 110 ist Floor 106 days Turu 1/22/13 111 2.nd Floor 106 days Sun 1/20/13 112 3rd Floor 106 days Mon 6/17/13 112 3rd Floor 10 days Mon 6/17/13 113 Final MEP Inspections 10 days Mon 6/17/13 114 Final MEP Inspections 6 days Turu 7/5/13 115 Final Final arm Inspection 5 days Turu 7/5/13 116 Building Inspection 5 days Turu 7/2/5/13 Mon 7/15/13 117 Issue Certificate of Occupancy 3 days Turu 7/2/5/13 Fin/3/20/13 118 Subtartial	103	Plumbing Pipe	24 days	Fri 12/14/12	Wed 1/16/1	3							
106 insulation 25 days Wed 12/19/12Tue 1/22/13 107 sprinkler mains & branches 45 days Tue 10/30/12 Mon 12/31/1 108 pull wire 26 days Yue 10/32/12 Tue 6/11/13 109 Ist Floor 166 days Tue 10/23/12 Tue 6/11/13 110 1 st Floor 112 days Stu 12/03/13 Fri 6/14/13 111 2nd Floor 110 days Stu 12/01/3 Fri 6/28/13 112 3 rd Floor 10 days Stu 12/01/3 Fri 6/28/13 113 Building Inspections 10 days Mon 7/1/3 Fri 6/28/13 114 Final MEP Inspections 10 days Mon 7/1/3 Fri 6/28/13 115 Final Affe arm Inspections 6 days Tue 7/16/13 Thu 7/18/13 116 Building Inspection 5 days Tue 7/16/13 Thu 7/18/13 117 Issue Certificate of Occupancy 3 days Tue 7/16/13 Thu 7/18/13 118 Substantial completion 0 days Fri 19/20/13 119 Punchist completion 0 days Fri 19/20/13 112 Sprinkler maine & Tri 19/20/13 F	104	set electrical panels	15 days	Thu 11/1/12	Wed 11/21/	12		•••	set electrical panels				
102 sprinkler mains & branches 45 days Tue 10/30/12 Mon 12/31/12 108 pull wire 26 days Mon 12/31/12 109 Finishes 166 days Tue 10/23/12 Fi 6/14/13 110 1st Floor 112 days Sat 1/5/13 Sat 6/8/13 111 2nd Floor 112 days Sat 0/2013 Fi 6/14/13 112 3rd Floor 10 days Mon 0/17/13 Fi 6/2/13 113 Building Close-Out 70 days Mon 0/17/13 Fi 6/2/13 115 Final MEP Inspections 10 days Mon 7/15/13 116 Building Inspection 5 days Tue 7/9/13 Mon 7/15/13 117 Issue Cartificate of Occupancy 3 days Tue 7/16/13 Fi 9/20/13 118 Substantial completion 0 days Fi 9/20/13 Fi 9/20/13 119 Punchist completion 0 days Fi 9/20/13 Fi 9/20/13 119 Punchist completion 0 days Fi 9/20/13 Fi 9/20/13 119 Punchist completion 0 days Fi 9/20/13 Fi 9/20/13 120 Cut & Cap utilites	105	electrical OH & conduit	61 days	Wed 11/7/1	2 Wed 1/30/1	3		C	_	& conduit			
108 pull wire 26 days Mon 1/21/13 Mon 2/25/13 109 Finishes 169 days Tue 10/23/12 Fri 6/14/13 111 2.nd Floor 112 days Sat 1/5/13 Sat 6/8/13 111 2.nd Floor 112 days Sat 1/5/13 Sat 6/8/13 112 3rd Floor 112 days Sat 1/5/13 Sat 6/8/13 113 Building Close-Out 70 days Mon 6/17/13 Fri 6/14/13 114 Final MEP Inspections 10 days Mon 6/17/13 Fri 6/28/13 115 Final Fire alarm Inspections 6 days Tue 7/13 Mon 7/8/13 116 Building Inspection 5 days Tue 7/13 Fri 9/20/13 117 Issue Certificate of Occupancy 3 days Tue 7/16/13 Thu 7/25/13 118 Substantial completion 0 days Fri 9/20/13 Fri 9/20/13 119 Punchlist completion 41 days Fri 8/20/13 Fri 8/20/13 120 Trak Fri 9/20/13 Fri 9/20/13 Fri 9/20/13 121 Ourser moved out of Demo Area 7 days Fri 9/20/13 <t< td=""><td>106</td><td>insulation</td><td>25 days</td><td>Wed 12/19/</td><td>12 Tue 1/22/13</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	106	insulation	25 days	Wed 12/19/	12 Tue 1/22/13								
109 Finishes 169 days Tue 10/23/12 Fri 6/14/13 110 1st Floor 166 days Tue 10/23/12 Tue 6/11/13 111 2nd Floor 112 days Sat 6/8/13 112 3rd Floor 100 days Sun 1/20/13 113 Building Close-Out 70 days Mon 6/17/13 114 Final MEP Inspections 10 days Mon 6/17/13 115 Final Fire alarm Inspections 10 days Mon 7/1/13 116 Building Inspection 5 days Tue 7/6/13 117 Issue Certificate of Occupancy 3 days Tue 7/13 118 Substantial completion 0 days Mon 7/1/13 119 Punchist completion 0 days Fri 9/20/13 120 final completion 0 days Fri 9/20/13 121 Phase 28: Drive Isle 41 days Fri 7/26/13 Fri 9/20/13 122 Owner moved out of Demo Area 7 days Fri 9/20/13 Fri 8/9/13 122 Owner moved out of Demo Area 7 days Fri 9/20/13 Fri 8/9/13 122 Owner moved out of Demo Area 7 days Fri 7	107	sprinkler mains & branches	45 days	Tue 10/30/1	2 Mon 12/31/	12		C		branches			
110 1st Floor 166 days Tue 10/23/12 Tue 6/1/13 111 2nd Floor 112 days Sat 1/5/13 Sat 6/8/13 112 3rd Floor 106 days Sun 1/20/13 Fri 6/14/13 113 Building Close-Out 70 days Mon 6/17/13 Fri 6/14/13 114 Final MEP Inspections 10 days Mon 7/1/13 Fri 9/20/13 115 Final MEP inspections 6 days Mon 7/15/13 Mon 7/15/13 116 Building Inspection 5 days Tue 7/16/13 Thu 7/18/13 118 Substantial completion 0 days Fri 9/20/13 Fri 9/20/13 119 Punchist completion 0 days Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 121 Phase 28: Drive Isle 4 days Fri 9/20/13 Fri	108	pull wire	26 days	Mon 1/21/1	3 Mon 2/25/1	3			pull wire				
111 2nd Floor 112 days Sat 1/5/13 Sat 6/8/13 112 3rd Floor 106 days Sun 1/20/13 Fri 6/14/13 113 Building Close-Out 70 days Mon 6/17/13 Fri 6/28/13 114 Final MEP Inspections 10 days Mon 6/17/13 Fri 6/28/13 115 Final MEP Inspections 6 days Mon 7/1/13 Mon 7/8/13 115 Building Inspection 5 days Tue 7/16/13 Thu 7/15/13 116 Building Inspection 0 days Thu 7/15/13 Thu 7/12/13 117 Issue Certificate of Occupancy 3 days Tue 7/16/13 Thu 7/25/13 119 Punchlist completion 0 days Fri 9/20/13 Fri 9/20/13 112 Phase 28: Drive Isle 41 days Fri 7/26/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 122 Owner moved out of Demo Area 7 days Fri 9/20/13 123 Cut & Cap utilites 4 days Fri 9/20/13 Fri 9/20/13 123 Cut & Cap utilites 4 days Fri 8/9/13 <td< td=""><td>109</td><td>Finishes</td><td>169 day</td><td>s Tue 10/23/1</td><td>2 Fri 6/14/13</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	109	Finishes	169 day	s Tue 10/23/1	2 Fri 6/14/13								
112 3rd Floor 106 days Sun 1/20/13 Fri 6/14/13 113 Building Close-Out 70 days Mon 6/17/13 Fri 6/14/13 114 Final MEP Inspections 10 days Mon 6/17/13 Fri 6/14/13 114 Final MEP Inspections 10 days Mon 6/17/13 Fri 6/14/13 115 Final Fire alarm Inspections 6 days Mon 7/8/13 Mon 7/8/13 116 Building Inspection 5 days Tue 7/16/13 Thu 7/18/13 Mon 7/18/13 117 Issue Certificate of Occupancy 3 days Tue 7/16/13 Fri 9/20/13 Fri 9/20/13 118 Substantial completion 0 days Fri 9/20/13 Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 Fri 9/20/13 121 Phase 28: Drive Isle 41 days Fri 7/26/13 Fri 8/9/13 Fri 8/9/13 122 Phase 28: Drive Isle 41 days Fri 8/9/13 Fri 8/9/13 Fri 8/9/13 122 Cut &	110	1st Floor	166 day	s Tue 10/23/1	2 Tue 6/11/13			C		1st Floor			
Building Close-Out 70 days Mon 6/17/13 Fri 9/20/13 113 Building Close-Out 70 days Mon 6/17/13 Fri 9/20/13 114 Final MEP Inspections 10 days Mon 7/1/13 Mon 7/8/13 115 Final Fire alarm Inspections 6 days Mon 7/1/13 Mon 7/8/13 116 Building Inspection 5 days Tue 7/9/13 Mon 7/15/13 116 Building Inspection 5 days Tue 7/9/13 Mon 7/15/13 117 Issue Certificate of Occupancy 3 days Tue 7/9/13 Fri 9/20/13 119 Punchlist completion 0 days Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 121 Phase 28: Drive Isle 41 days Fri 8/9/13 Mon 8/5/13 122 Owner moved out of Demo Area 7 days Fri 8/9/13 Mon 8/5/13 122 Owner moved out of Demo Area 7 days Fri 8/9/13 Mon 8/5/13 123 Cut & Cap utilites 4 days Tue 8/6/13 Fri 8/9/13 123 Cut & Cap utilites External Tasks <td>111</td> <td>2nd Floor</td> <td>112 day</td> <td>s Sat 1/5/13</td> <td>Sat 6/8/13</td> <td></td> <td></td> <td></td> <td>C 3</td> <td>2nd Floor</td> <td></td> <td></td> <td></td>	111	2nd Floor	112 day	s Sat 1/5/13	Sat 6/8/13				C 3	2nd Floor			
114 Final MEP Inspections 10 days Mon 6/17/13 Fri 6/28/13 115 Final Fire alarm Inspections 6 days Mon 7/1/13 Mon 7/8/13 116 Building Inspection 5 days Tue 7/9/13 Mon 7/15/13 117 Issue Certificate of Occupancy 3 days Tue 7/2/13 Mon 7/15/13 117 Issue Certificate of Occupancy 3 days Tue 7/2/13 Mon 7/15/13 118 Substantial completion 0 days Thu 7/25/13 Thu 7/25/13 119 Punchlist completion 0 days Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 121 Phase 2B: Drive Isle 41 days Fri 9/20/13 Fri 9/20/13 122 Owner moved out of Demo Area Tue 8/6/13 Fri 8/9/13 122 Owner moved out of Demo Area Tue 8/6/13 Fri 8/9/13 123 cut & Cap utilites 4 days Tue 8/6/13 Fri 8/9/13 124 fuel Kone Katerial Tasks Inactiv	112	3rd Floor	106 day	s Sun 1/20/13	Fri 6/14/13					3rd Floor			
115 Final Fire alarm Inspections 6 days Mon 7/1/13 Mon 7/8/13 116 Building Inspection 5 days Tue 7/9/13 Mon 7/15/13 117 Issue Certificate of Occupancy 3 days Tue 7/16/13 Thu 7/18/13 118 Substantial completion 0 days Thu 7/25/13 Thu 7/25/13 119 Punchlist completion 0 days Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 121 Phase 2B: Drive Isle 41 days Fri 7/26/13 Mon 8/5/13 122 Owner moved out of Demo Area 7 days Fri 8/9/13 Inactive Milestone Manual Summary Rollup Deadline tropect: Detailed Schedule Split External Tasks Inactive Summary Manual Task Manual Summary Progress Split External Milestone Manual Task Start-only External Milestone Manual Task Start-only External	113	Building Close-Out	70 days	Mon 6/17/1	3 Fri 9/20/13								
116 Building Inspection 5 days Tue 7/9/13 Mon 7/15/13 117 Issue Certificate of Occupancy 3 days Tue 7/9/13 Thu 7/18/13 118 Substantial completion 0 days Thu 7/25/13 Thu 7/25/13 119 Punchlist completion 0 days Fri 9/20/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 121 Phase 2B: Drive Isle 0 days Fri 9/20/13 Fri 9/20/13 120 Owner moved out of Demo Area 7 days Fri 9/20/13 121 Phase 2B: Drive Isle 4 days Tue 8/6/13 Fri 8/9/13 122 Owner moved out of Demo Area 7 days Fri 8/9/13 Fri 8/9/13 123 Cut & Cap utilites 4 days Tue 8/6/13 Fri 8/9/13 roject: Detailed Schedule Split External Tasks Inactive Milestone Manual Summary Deadline Progenses Values Inactive Summary Manual Task Start-only E Final-only E	114	Final MEP Inspections	10 days	Mon 6/17/1	3 Fri 6/28/13					Final MEP Inspection	ons		
Image: Substantial completion 3 days Tue 7/16/13 Thu 7/18/13 Issue Certificate of Occupancy 3 days Tue 7/16/13 Thu 7/18/13 Issue Certificate of Occupancy 0 days Thu 7/25/13 Thu 7/25/13 Insue Certificate of Occupancy 0 days Thu 7/25/13 Thu 7/25/13 Insue Certificate of Occupancy 0 days Fri 7/26/13 Fri 9/20/13 Insue Certificate of Occupancy 0 days Fri 9/20/13 Fri 9/20/13 Insue Certificate of Occupancy 0 days Fri 9/20/13 Fri 9/20/13 Insue Certificate of Occupancy 0 days Fri 9/20/13 Fri 9/20/13 Insue Certificate of Demo Area 7 days Fri 7/26/13 Fri 9/20/13 Insue Cut & Cap utilites 4 days Tue 8/6/13 Fri 8/9/13 Inactive Allestone Manual Summary Rollup Deadline F Vroject: Detailed Schedule Split External Tasks Inactive Summary Manual Summary Progress Split External Milestone Manual Task Manual Task Start-only E	115	Final Fire alarm Inspections	6 days	Mon 7/1/13	Mon 7/8/13					📱 Final Fire alarm In	spections		
111 Substantial completion 0 days Thu 7/25/13	116	Building Inspection	5 days	Tue 7/9/13	Mon 7/15/1	3				Building Inspection	on		
119 Punchlist completion 41 days Fri 7/26/13 Fri 9/20/13 120 final completion 0 days Fri 9/20/13 Fri 9/20/13 121 Phase 2B: Drive Isle 41 days Fri 7/26/13 Fri 9/20/13 122 Owner moved out of Demo Area 7 days Fri 7/26/13 Fri 9/20/13 123 Cut & Cap utilites 4 days Tue 8/6/13 Fri 8/9/13 123 Cut & Cap utilites 4 days Tue 8/6/13 Fri 8/9/13 123 Cut & Cap utilites Project Summary Inactive Milestone Manual Summary Rollup Deadline roject: Detailed Schedule Split External Tasks Inactive Summary Manual Task Start-only E Milestone External Milestone Manual Task Start-only E E	117	Issue Certificate of Occupancy	3 days	Tue 7/16/13	Thu 7/18/13					Issue Certificate	of Occupancy		
120 final completion 0 days Fri 9/20/13 Fri 9/20/13 <t< td=""><td>118</td><td>Substantial completion</td><td>0 days</td><td>Thu 7/25/13</td><td>Thu 7/25/13</td><td></td><td></td><td></td><td></td><td>🔷 Substantial con</td><td>pletion</td><td></td><td></td></t<>	118	Substantial completion	0 days	Thu 7/25/13	Thu 7/25/13					🔷 Substantial con	pletion		
Indication Indication <td>119</td> <td>Punchlist completion</td> <td>41 days</td> <td>Fri 7/26/13</td> <td>Fri 9/20/13</td> <td></td> <td></td> <td></td> <td></td> <td>Punchlist</td> <td>completion</td> <td></td> <td></td>	119	Punchlist completion	41 days	Fri 7/26/13	Fri 9/20/13					Punchlist	completion		
122 Owner moved out of Demo Area 7 days Fri 7/26/13 Mon 8/5/13 123 Cut & Cap utilites 4 days Tue 8/6/13 Fri 8/9/13 Imactive Milestone Imactive Milestone Imactive Milestone Manual Summary Rollup Deadline Deadline Project: Detailed Schedule Split External Tasks Imactive Summary Manual Task Manual Summary Progress Progress Milestone External Milestone Manual Task Manual Task Start-only Imactive Milestone Imactive Milestone Imactive Summary Imactive Summ	120	final completion	0 days	Fri 9/20/13	Fri 9/20/13					🔷 final com	pletion		
123 Cut & Cap utilites 4 days Tue 8/6/13 Fri 8/9/13 Inactive Milestone Manual Summary Rollup Deadline Project Summary External Tasks External Tasks Inactive Summary Manual Summary Rollup Deadline Value Fri 10/12/12 Milestone External Milestone Manual Task Start-only E	121	Phase 2B: Drive Isle	41 days	Fri 7/26/13	Fri 9/20/13								
123 Cut & Cap utilities 4 days Tue 8/6/13 Fri 8/9/13 Inactive Milestone Manual Summary Rollup Deadline Project Sumdary Project Summary External Tasks Inactive Summary Manual Summary Rollup Deadline Split External Tasks External Milestone Manual Task Manual Summary Project Summary Milestone External Milestone Manual Task Start-only External Start-only	122	Owner moved out of Demo Area	7 days	Fri 7/26/13	Mon 8/5/13					Owner moved	out of Demo Area		
Project: Detailed Schedule Split External Tasks Inactive Summary Progress Date: Fri 10/12/12 Milestone External Milestone Manual Task Start-only E	123	Cut & Cap utilites	4 days	Tue 8/6/13	Fri 8/9/13					T Cut & Cap utili	tes		
Project: Detailed Schedule Split External Tasks Inactive Summary Progress Date: Fri 10/12/12 Milestone External Milestone Manual Task Start-only E		Task		Project S	Summary		Inactive Milestone	\$	Manual Summary	Rollup	Deadline	+	
Date: Fri 10/12/12 Milestone External Milestone Manual Task	Declart			-	-			0	-			-	
	-	- AQ (AQ /AQ				<u>^</u>	-	-	-	-	- Hogiess		
Summary Inactive Task Duration-only Finish-only	vate: F	in course				*			-	E .			
		Summar	y 🖵	 Inactive 	Task		Duration-only		Finish-only	3			

) ľ	Fask Name	Duration	Start	Finish		2012		2013		2014		2015
					H2	H1	H2	H1	H2	H1	H2	H1
124	excavate to subgrade		Mon 8/12/13						excavate to	-		
125	layout/grade for curb/gutter	2 days	Wed 9/4/13	Thu 9/5/13						e for curb/gutter		
126	storm drain and curb and gutter	5 days	Wed 9/4/13	Tue 9/10/13					-	and curb and gutter		
127	site lighting	3 days	Fri 9/6/13	Tue 9/10/13					T site lighting	1		
28	sidewalks	5 days	Tue 9/10/13	Mon 9/16/13					sidewalks			
29	stone and pave for bus loop	3 days	Tue 9/17/13	Thu 9/19/13					T stone and	pave for bus loop		
130	bus loop complete	0 days	Fri 9/20/13	Fri 9/20/13					🔷 bus loop	complete		
131	Phase 3: BLDG DEMO/NEW PKG LOT	196 days	Tue 8/6/13	Tue 5/6/14					-			
132	remaining owner move out	21 days	Tue 8/6/13	Tue 9/3/13					remaining o	wner move out		
133	remove classroom trailers	40 days	Tue 8/6/13	Mon 9/30/13					remove o	lassroom trailers		
.34	hazmat abatement	22 days	Wed 9/4/13	Thu 10/3/13					📑 hazmat a	abatement		
.35	complete bldg demo	48 days	Fri 10/4/13	Tue 12/10/13						omplete bldg demo		
.36	excavate and rough grade	22 days	Thu 12/12/13	Fri 1/10/14					C	excavate and rough	grade	
37	basins, dikes and associated storm drains	19 days	Mon 1/13/14	Thu 2/6/14						basins, dikes and	associated storm	drains
38	p-lot layout/grade	5 days	Wed 2/12/14	Tue 2/18/14						p-lot layout/gra	de	
.39	p-lot curb/gutter	13 days	Thu 2/20/14	Mon 3/10/14						🔲 p-lot curb/gu	tter	
.40	p-lot lighting/sidewalks	19 days	Thu 2/20/14	Tue 3/18/14						p-lot lighting	/sidewalks	
.41	p-lot base pave	18 days	Thu 3/20/14	Mon 4/14/14						p-lot base	e pave	
.42	set light poles and fixtures	6 days	Tue 4/15/14	Tue 4/22/14						🔳 set light	poles and fixtures	
43	landscaping	6 days	Fri 4/18/14	Fri 4/25/14						Iandsca	ping	
.44	final pave and stripe all paving areas	6 days	Tue 4/29/14	Tue 5/6/14						1 final p	ave and stripe all p	aving areas
45	site work complete	0 days	Tue 5/6/14	Tue 5/6/14						🔷 site w	ork complete	
46	Phase 4: Baseball & Softball Fields	55 days	Tue 4/1/14	Mon 6/16/14								
47	build fields	55 days	Tue 4/1/14	Mon 6/16/14						C 3 b	uild fields	
48	phase 4 complete	0 days	Mon 6/16/14	Mon 6/16/14						🔶 P	hase 4 complete	
49	Close Out	5 days	Sat 7/19/14	Fri 7/25/14							RP	
150	Building LEED flush out	6 days	Sat 7/19/14								📱 Building LEED fl	ush out

	Task		Project Summary	÷	Inactive Milestone	\$	Manual Summary Rollug	p
Project: Detailed Schedule	Split		External Tasks		Inactive Summary	V	Manual Summary	-
Date: Fri 10/12/12	Milestone	•	External Milestone	+	Manual Task	c 3	Start-only	E
	Summary	÷	Inactive Task		Duration-only		Finish-only	3
					Page 4			

Deadline Progress +

APPENDIX B: STRUCTURAL ESTIMATE

Brady Sheerin | Constuction Management

			Truss	Mem	bers		
Member	Quantity	Unit	Material	Labor	Equipment	Total	Total Cost
10K1	838.83	LF	\$4.02	\$3.30	\$1.51	\$8.83	\$7,406.87
12K1	315.41	LF	\$4.36	\$2.60	\$1.16	\$8.12	\$2,561.13
14K1	417.33	LF	\$4.59	\$2.60	\$1.16	\$8.35	\$3,484.71
14K3	12	LF	\$4.59	\$2.60	\$1.16	\$8.35	\$100.20
14K4	30	LF	\$4.59	\$2.60	\$1.16	\$8.35	\$250.50
16K2	58.25	LF	\$4.70	\$2.45	\$1.16	\$8.31	\$484.06
16K3	565.75	LF	\$4.82	\$2.17	\$1.16	\$8.15	\$4,610.86
16K4	72.25	LF	\$6.20	\$2.17	\$0.97	\$9.34	\$674.82
18K3	2123.75	LF	\$4.50	\$1.95	\$0.87	\$7.32	\$15,545.85
18K4	589	LF	\$5.20	\$1.95	\$0.87	\$8.02	\$4,723.78
18K5	75	LF	\$5.90	\$1.95	\$0.87	\$8.72	\$654.00
18K7	50	LF	\$6.40	\$1.95	\$0.87	\$9.22	\$461.00
20K3	1088	LF	\$5.80	\$1.95	\$0.87	\$8.62	\$9,378.56
20K4	1312.25	LF	\$5.95	\$1.95	\$0.87	\$8.77	\$11,508.43
20K5	191.25	LF	\$6.15	\$1.95	\$0.87	\$8.97	\$1,715.51
20K6	70.25	LF	\$6.50	\$1.95	\$0.87	\$9.32	\$654.73
20K7	87	LF	\$7.60	\$1.95	\$0.87	\$10.42	\$906.54
20K10	116.25	LF	\$8.10	\$1.95	\$0.87	\$10.92	\$1,269.45
22K4	499	LF	\$6.30	\$1.95	\$0.87	\$9.12	\$4,550.88
22K5	364.25	LF	\$6.60	\$1.95	\$0.87	\$9.42	\$3,431.24
22K6	119.33	LF	\$7.10	\$1.95	\$0.87	\$9.92	\$1,183.75
22K7	480	LF	\$7.90	\$1.95	\$0.87	\$10.72	\$5,145.60
22K10	64.25	LF	\$8.50	\$1.95	\$0.87	\$11.32	\$727.31
24K4	530.41	LF	\$6.80	\$1.77	\$0.79	\$9.36	\$4,964.64
24K5	460.5	LF	\$7.30	\$1.77	\$0.79	\$9.86	\$4,540.53
24K7	131.58	LF	\$8.10	\$1.77	\$0.79	\$10.66	\$1,402.64
24K8	28.75	LF	\$8.95	\$1.77	\$0.79	\$11.51	\$330.91
24K10	321.66	LF	\$9.85	\$1.77	\$0.79	\$12.41	\$3,991.80
26K7	748.25	LF	\$7.95	\$1.77	\$0.79	\$10.51	\$7,864.11
26K9	395.75	LF	\$10.35	\$1.77	\$0.79	\$12.91	\$5,109.13
28K7	357	LF	\$8.85	\$1.63	\$0.72	\$11.20	\$3,998.40
28K8	395	LF	\$9.55	\$1.63	\$0.72	\$11.90	\$4,700.50
28K10	155.75	LF	\$11.25	\$1.63	\$0.72	\$13.60	\$2,118.20
28K12	78.25	LF	\$12.85	\$1.63	\$0.72	\$15.20	\$1,189.40
30K11	1507.33	LF	\$12.10	\$1.63	\$0.72	\$14.45	\$21,780.92
30K12	1372.5	LF	\$13.20	\$1.63	\$0.72	\$15.55	\$21,342.38

· · VCS-	100 -	LF	* • * •	#a 6a	¢.,	¢9 a =	¢0 00
14KCS1	102.5	LF	\$4.59	\$2.60	\$1.16	\$8.35	\$855.88
30KCS4	311	LF	\$9.90	\$1.63	\$0.72	\$12.25	\$3,809.75
18LH03	33	LF	\$10.15	\$2.79	\$1.24	\$14.18	\$467.94
32LH06	149.75	LF	\$12.20	\$2.17	\$0.97	\$15.34	\$2,297.17
32LH07	29.66	LF	\$14.40	\$2.17	\$0.97	\$17.54	\$520.24
32LH09	986.25	LF	\$19.80	\$2.17	\$0.97	\$22.94	\$22,624.58
32LH12	592	LF	\$25.50	\$2.17	\$0.97	\$28.64	\$16,954.88
44LH09	637.75	LF	\$18.65	\$1.77	\$0.79	\$21.21	\$13,526.68
48LH16	1534.5	LF	\$35.50	\$1.77	\$0.79	\$38.06	\$58,403.07
					Total:		\$284,223.50

	Miscellaneous									
Member	Quantity	Unit	Lbs/Lf	Material \$/lb	Labor \$/lb	Equip. \$/lb	Total \$/lb	Total Cost		
HSS20X12X3/8	155	LF	81.67	\$1.25	\$0.24	\$0.13	\$1.62	\$20,507.34		
HSS20X8X3/8	155	LF	8	\$1.25	\$0.24	\$0.13	\$1.62	\$2,008.80		
HSS18X6X5/16	49	LF	51.04	\$1.25	\$0.24	\$0.13	\$1.62	\$4,051.56		
HSS12x12x5/8	166	LF	102.08	\$1.25	\$0.24	\$0.13	\$1.62	\$27,451.35		
HSS12x8x3/8	280.25	LF	51.04	\$1.25	\$0.24	\$0.13	\$1.62	\$23,172.42		
HSS12x4x1/4	66.5	LF	27.22	\$1.25	\$0.24	\$0.13	\$1.62	\$2,932.41		
HSS10X10X5/8	128.25	LF	85.07	\$1.25	\$0.24	\$0.13	\$1.62	\$17,674.57		
hss10X10X1/2	276.75	LF	68.06	\$1.25	\$0.24	\$0.13	\$1.62	\$30,513.68		
HSS8x8x1/2	202.5	LF	54.4	\$1.25	\$0.24	\$0.13	\$1.62	\$17,845.92		
HSS7x7x1/2	172.33	LF	47.64	\$1.25	\$0.24	\$0.13	\$1.62	\$13,299.88		
HSS6X6X1/2	80	LF	40.83	\$1.25	\$0.24	\$0.13	\$1.62	\$5,291.57		
HSS6x4x1/4	58	LF	17.01	\$1.25	\$0.24	\$0.13	\$1.62	\$1,598.26		
HSS6x2x1/4	205.5	LF	13.61	\$1.25	\$0.24	\$0.13	\$1.62	\$4,530.91		
HSS4x2x1/4	218.16	LF	10.21	\$1.25	\$0.24	\$0.13	\$1.62	\$3,608.41		
HSS2x2x1/4	127.225	LF	6.81	\$1.25	\$0.24	\$0.13	\$1.62	\$1,403.57		
L6X6X3/8	19.25	LF	15.31	\$1.25	\$0.24	\$0.13	\$1.62	\$477.44		
L3x3x5/16	159.75	LF	6.38	\$1.25	\$0.24	\$0.13	\$1.62	\$1,651.11		
L2X1.5X1/8	104.5	LF	1.5	\$1.25	\$0.24	\$0.13	\$1.62	\$253.94		
WT8x13		LF		¢	6 0.04	¢ o 10	¢1.60	ta oar =6		
WT7X21.5	96	LF	13	\$1.25	\$0.24	\$0.13	\$1.62	\$2,021.76		
W 17A21.5	96	Lſ	21.5	\$1.25	\$0.24	\$0.13	\$1.62	\$3,343.68		
C15X50	234.5	LF	50	\$1.25	\$0.24	\$0.13	\$1.62	\$18,994.50		
C15X33.9	142.32	LF	33.9	\$1.25	\$0.24	\$0.13	\$1.62	\$7,815.93		
C12X30	116	LF	30	\$1.25	\$0.24	\$0.13	\$1.62	\$5,637.60		
C12X20.7	497.66	LF	20.7	\$1.25	\$0.24	\$0.13	\$1.62	\$16,688.53		
C8X11.5	1325.75	LF	11.5	\$1.25	\$0.24	\$0.13	\$1.62	\$24,698.72		
MC12x30.9	64	LF	30.9	\$1.25	\$0.24	\$0.13	\$1.62	\$3,203.71		
			52.9	÷J	÷-•=∓	Tot		\$260,677.56		

		V	Vide Fla	nge B	eams		
Member	Quantity	Unit	Material	Labor	Equipment	Total	Total Cost
W8x10	648.9	LF	\$14.30	\$4.58	\$2.54	\$21.42	\$13,899.44
W8x18	78.75	LF	\$25.75	\$4.58	\$2.54	\$32.87	\$2,588.51
W8x24	27.8	LF	\$34.50	\$4.99	\$2.77	\$42.26	\$1,174.83
W8x28	4.5	LF	\$40.00	\$4.99	\$2.77	\$47.76	\$214.92
W8x31	137.6	LF	\$44.50	\$4.99	\$2.77	\$52.26	\$7,190.98
W10X12	3691.25	LF	\$17.15	\$4.58	\$2.54	\$24.27	\$89,586.64
W10X15	86.25	LF	\$21.50	\$4.58	\$2.54	\$28.62	\$2,468.48
W10X17	112	LF	\$24.00	\$4.58	\$2.54	\$31.12	\$3,485.44
W10X22	88	LF	\$31.50	\$4.58	\$2.54	\$38.62	\$3,398.56
W10x39	134.5	LF	\$54.50	\$4.99	\$2.77	\$62.26	\$8,373.97
W12X14	1250.5	LF	\$19.50	\$3.12	\$1.73	\$24.35	\$30,449.68
W12X16	468.4	LF	\$23.00	\$3.12	\$1.73	\$27.85	\$13,044.94
W12X19	179	LF	\$27.25	\$3.12	\$1.73	\$32.10	\$5,745.90
W12X22	35.33	LF	\$31.50	\$3.12	\$1.73	\$36.35	\$1,284.25
W12x26	19.33	LF	\$37.00	\$3.12	\$1.73	\$41.85	\$808.96
W14x16	23.8	LF	\$23.00	\$2.77	\$1.54	\$27.31	\$649.98
W14X22	2921.33	LF	\$34.50	\$2.77	\$1.54	\$38.81	\$113,376.82
W14x26	76.66	LF	\$37.00	\$2.77	\$1.54	\$41.31	\$3,166.82
W14x30	82.5	LF	\$43.00	\$3.05	\$1.69	\$47.74	\$3,938.55
W16x26	3362	LF	\$37.00	\$2.75	\$1.52	\$41.27	\$138,749.74
W16x31	1361	LF	\$44.50	\$3.05	\$1.69	\$49.24	\$67,015.64
W16x36	89	LF	\$50.50	\$3.43	\$1.91	\$55.84	\$4,969.76
W16x40	21.5	LF	\$57.00	\$3.43	\$1.91	\$62.34	\$1,340.31
W16x50	156.8	LF	\$71.50	\$3.43	\$1.91	\$76.84	\$12,048.51

					Tota	1:	\$1,590,395.14
W40x503	45	LF	\$785.00	\$4.40	\$2.25	\$791.65	\$35,624.25
W40x167	30	LF	\$243.00	\$3.45	\$1.45	\$247.90	\$7,437.00
	TT			÷.)-T	+12	•	
W30X173	44	LF	\$247.00	\$3.54	\$1.49	\$252.03	\$11,089.32
W30X124	48.5	LF	\$177.50	\$3.42	\$1.44	\$182.36	\$ 8,8 44.46
W30x99	36.5	LF	\$142.00	\$3.30	\$1.39	\$146.69	
W30x90	88.5	LF	\$139.00	\$3.30	\$1.39	\$143.69	\$12,716.57
W27x84	45.5	LF	\$120.00	\$3.33	\$1.40	\$124.73	\$5,675.22
W27x76	54.5	LF	\$109.00	\$3.33	\$1.40	\$113.73	\$6,198.29
W24x84	31	LF	\$120.00	\$3.67	\$1.55	\$125.22	\$3,001.02
W24x76	163.5	LF LF	\$109.00	\$3.57	\$1.50	\$114.07	\$18,650.45 \$3,881.82
W24x68	77.25	LF LF	\$97.00	\$3.57	\$1.50	\$102.07	\$7,884.91
W24x62	386.25		\$88.50	\$3.57	\$1.50	\$93.57	\$36,141.41
W24x55	1224.75	LF LF	\$78.50	\$3.57	\$1.50	\$83.57	\$102,352.36
		LE	¢=9 = -	¢	<i>t</i>	¢9	*
W21X122	119	LF	\$174.00	\$3.96	\$1.67	\$179.63	\$21,375.97
W21X111	39.75	LF	\$159.00	\$3.96	\$1.67	\$164.63	\$6,544.04
W21X73	85	LF	\$104.50	\$3.83	\$1.67	\$110.00	\$9,350.00
W21x62	39.5	LF	\$88.50	\$3.83	\$1.61	\$93.94	\$3,710.63
W21x55	84	LF	\$80.50	\$3.73	\$1.57	\$ 85.8 0	\$7,207.20
W21x50	648.75	LF	\$71.50	\$3.73	\$1.57	\$76.80	\$49,824.00
W21X48	31	LF	\$68.50	\$3.73	\$1.57	\$73.80	\$2,287.80
W21X44	1148.75	LF	\$63.00	\$3.73	\$1.57	\$68.30	\$78,459.63
W18x97	32.33	LF	\$137.50	\$4.40	\$1.85	\$143.75	\$4,647.44
W18x76	152.75	LF	\$109.00	\$4.40	\$1.85	\$115.25	\$17,604.44
W18x71	233.5	LF	\$101.00	\$4.40	\$1.85	\$107.25	\$25,042.88
W18x65	158	LF	\$93.00	\$4.40	\$1.85	\$99.25	\$15,681.50
W18x60	113.75	LF	\$85.75	\$4.35	\$1.83	\$91.93	\$10,457.04
W18x55	231.25	LF	\$78.50	\$4.35	\$1.83	\$84.68	\$19,582.25
W18x50	400.5	LF	\$71.50	\$4.35	\$1.83	\$77.68	\$31,110.84
W18x46	108	LF	\$66.00	\$4.13	\$1.74	\$71.87	\$7,761.96
W18x40	1572.75	LF	\$57.00	\$4.13	\$1.74	\$62.87	\$98,878.79
W18x35	6981.33	LF	\$50.00	\$4.13	\$1.74	\$55.87	\$390,046.91

	HSS Columns									
Member	Quantity	Unit	Lbs/Lf	Material \$/lb	Labor \$/lb	Equip. \$/lb	Total \$/lb	Total Cost		
HSS12x12x5/8	93.75	LF	102.08	\$1.25	\$0.24	\$0.13	\$1.62	\$15,503.40		
HSS12x12x3/8	30.5	LF	61.25	\$1.25	\$0.24	\$0.13	\$1.62	\$3,026.36		
HSS10x10x5/16	99	LF	42.53	\$1.25	\$0.24	\$0.13	\$1.62	\$6,820.96		
HSS9x9x5/8	47	LF	76.56	\$1.25	\$0.24	\$0.13	\$1.62	\$5,829.28		
HSS8x8x5/8	421	LF	68.05	\$1.25	\$0.24	\$0.13	\$1.62	\$46,411.46		
HSS8x8x3/8	538.5	LF	40.83	\$1.25	\$0.24	\$0.13	\$1.62	\$35,618.87		
HSS8x8x5/16	1177	LF	34.03	\$1.25	\$0.24	\$0.13	\$1.62	\$64,886.36		
HSS6x6x3/8	48	LF	30.63	\$1.25	\$0.24	\$0.13	\$1.62	\$2,381.79		
HSS6x6x5/16	269	LF	25.52	\$1.25	\$0.24	\$0.13	\$1.62	\$11,121.11		
HSS8.625x0.322	128	LF	37.8	\$1.25	\$0.24	\$0.13	\$1.62	\$7,838.21		
HSS6.625x0.5	81	LF	45.09	\$1.25	\$0.24	\$0.13	\$1.62	\$5,916.71		
HSS6.625x0.25	32	LF	22.54	\$1.25	\$0.24	\$0.13	\$1.62	\$1,168.47		
HSS10.75x0.5	194	LF	73.16	\$1.25		-	\$1.62	\$22,992.72		
HSS14x0.5	46.75	LF	95.28				\$1.62	\$7,216.03		
-		_	_		-	Tot	tal	\$236,731.73		

			Сс	olumn	S		
Member	Quantity	Unit	Material	Labor	Equipment	Total	Total Cost
W8x24	625	LF	\$34.50	\$4.99	\$2.77	\$42.26	\$26,412.50
W8x28	252.5	LF	\$40.00	\$4.99	\$2.77	\$47.76	\$12,059.40
W8x31	194	LF	\$42.50	\$2.50	\$1.39	\$46.39	\$8,999.66
W8x35	206	LF	\$50.50	\$3.43	\$1.91	\$55.84	\$11,503.04
W8x40	791	LF	\$57.00	\$4.13	\$1.74	\$62.87	\$49,730.17
W8x48	1000	LF	\$66.00	\$2.62	\$1.45	\$70.07	\$70,070.00
W8x58	365.5	LF	\$85.75	\$4.35	\$1.83	\$91.93	\$33,600.42
W8x67	34	LF	\$92.00	\$2.75	\$1.52	\$96.27	\$3,273.18
W10X33	204.5	LF	\$44.50	\$3.05	\$1.69	\$49.24	\$10,069.58
W10x39	112	LF	\$54.50	\$4.99	\$2.77	\$62.26	\$6,973.12
W10x45	77	LF	\$62.00	\$2.62	\$1.45	\$66.07	\$5,087.39
W10x49	185	LF	\$71.50	\$3.43	\$1.91	\$76.84	\$14,215.40
W10x54	128.25	LF	\$78.50	\$4.35	\$1.83	\$84.68	\$10,860.21
W10x60	96	LF	\$85.75	\$4.35	\$1.83	\$91.93	\$8,825.28
W10x68	62.5	LF	\$93.50	\$2.75	\$1.52	\$97.77	\$6,110.63
W14x99	180	LF	\$142.00	\$3.30	\$1.39	\$146.69	\$26,404.20
W14X109	90	LF	\$165.00	\$2.82	\$1.56	\$169.38	\$15,244.20
W14X145	90	LF	\$223.00	\$3.45	\$1.45	\$227.90	\$20,511.00
W14x193	180	LF	\$287.00	\$3.54		\$292.03	\$52,565.40
W14X211	45	LF	\$310.00	\$3.54	\$1.49	\$315.03	\$14,176.35
w14x311	45	LF	\$422.00	\$3.54		\$427.03	\$19,216.35
				Tota	մ։	\$425,907.47	

Spread Footings Area A&B									
Easting Sins	Total Length	Reinforcing	Total Concrete	Total Rebar					
Footing Size	(LF)	Rebar	(CY)	Wt. (tons)					
		(3) #5 bars &							
3' X 1'	851	#4's @ 18" o.c.	94.6	1.900					
		(3) #5 bars &							
2.5' X 1'	233	#4's @ 18" o.c.	21.6	0.494					
		Total	116.1	2.394					

Spread Footings Area C									
	Total Length	Reinforcing	Total Concrete	Total Rebar					
Footing Size	(LF)	Rebar	(CY)	Wt. (tons)					
		(3) #5 bars &							
3' X 1'	1600	#4's @ 18" o.c.	177.8	3.572					
		(5) #4 bars &							
3' x 9"	139	#4's @ 16" o.c.	11.6	0.337					
		Total	189.4	3.909					

Spread Footings Area D									
Footing Size	Total Length	Reinforcing	Total Concrete	Total Rebar					
Footing Size	(LF)	Rebar	(CY)	Wt. (tons)					
		(3) #5 bars &							
3' X 1'	314	#4's @ 18" o.c.	34.9	0.701					
		(4) #5 bars &							
4' X 1'	78	#4's @ 18" o.c.	11.6	0.232					
16" x 24" (Grade		(8) #4 bars &							
Beam)	166	#4's @ 18" o.c.	16.4	0.665					
		Total	62.8	1.599					

	Spread Footings Area D									
Footing Size	Total Length (LF)	Reinforcing Rebar	Total Concrete (CY)	Total Rebar Wt. (tons)						
3' x 1'	314	(3) #5 bars & #4's @ 18" o.c.	34.9	0.701						
4' X 1'	78	(4) #5 bars & #4's @ 18" o.c.	11.6	0.232						
16" x 24" (Grade Beam)	166	(8) #4 bars & #4's @ 18" o.c.	16.4	0.665						
		Total	62.8	1.599						

Spread Footings Area E								
Footing Size	Total Length (LF)	0		Total Rebar Wt. (tons)				
3' x 1'	316.5	(3) #5 bars & #4's @ 18" o.c.	35.2	0.707				
16" x 24" (Grade Beam)	-		14.6	0.593				
Beam) 148 #4's @ 18" o.c. 14.6 Total 49.7								

Spread Footings Area F								
Footing Size	Total Length (LF)	0						
3' x 1'	644.5	(3) #5 bars & #4's @ 18" o.c.	71.6	1.439				
16" x 24" (Grade Beam)	364	(10) #4 bars & #4's @ 18" o.c.	35.9	1.702				
		Total	107.5	3.141				

Spread Footings Area G								
Footing Size	Total Length (LF)	Total LengthReinforcingTotal Concrete(LF)Rebar(CY)		Total Rebar Wt. (tons)				
		(3) #5 bars &						
3' x 1'	1065.5	#4's @ 18" o.c.	118.4	2.379				
		(5) #5 bars &						
4' x 1.5'	119.5	#5's @ 12" o.c.	26.6	0.561				
		(3) #5 bars &						
3'-4" x 16"	93.5	#5's @ 12" o.c.	15.4	0.309				
		(3) #5 bars &						
2.5' X 1'	435	#5's @ 18" o.c.	40.3	1.059				
		(2) #5 bars &						
2' X 1'	236.5	#4's @ 18" o.c.	17.5	0.352				
		Total	218.1	4.659				

SOG Foundations 5" 4000PSI						
Location	Area (SF)	Total Concrete (CY)	Reinforcing (W.W.F. 6x6 W2.1xW2.1)			
Area A & B	16960	261.7	16960			
Area C	33253	513.2	33253			
Area D	17990	277.6	17990			
Area E	14130	218.1	14130			
Area F	34064	525.7	34064			
Area G	28000	432.1	28000			

Elevated Slabs 2nd Floor 3-1/4" NW concrete								
		Reinforcing						
Location	Area (SF)	(CY)	2VLI Metal Deck (SF)	(W.W.F. 6x6)				
Area D	17990	236.0	17990	17990				
Area E	14130	185.3	14130	14130				
Area F	22795	299.0	22795	22795				

Eleavted Slabs 3rd Floor 3-1/4" NW concrete							
Total Concrete Reinforcin							
Location	Area (SF)	(CY)	(W.W.F. 6x6)				
Area D	17990	236.0	17990	17990			
Area E	14130	185.3	14130	14130			
Area F	7230	94.8	7230	7230			

Individual Footings								
			Reinforcin	ıg rebar	Total	Total		
		Depth	Quantity		Concrete	Rebar Wt		
Footing Size	quantity	(in)	(E.W.)	Size	(CY)	(tons)		
4X4	28	18	5	#6	16.0	0.841		
4.5x4.5	3	18	5	#6	20.3	0.101		
5x5	10	18	6	#6	25.0	0.451		
5.5x5.5	9	18	6	#6	30.3	0.446		
6x6	19	18	6	#6	36.0	1.027		
6.5x6.5	11	18	7	#6	42.3	0.752		
7x7	9	18	8	#6	49.0	0.757		
7.5x7.5	24	18	8	#6	56.3	2.163		
8x8	27	20	9	#6	79.0	2.920		
8.5x8.5	7	20	10	#6	89.2	0.894		
9x9	9	22	10	#7	121.0	1.656		
9.5x9.5	3	22	10	#7	134.8	0.583		
10X10	8	36	11	#8	400.0	2.350		
10.5x10.5	5	24	11	#7	196.0	1.180		
12X12	23	48	13	#9	1024.0	12.199		
14X14	4	36	13	#8	784.0	1.944		
15X15	1	48	20	#9	1600.0	1.020		
16x16	2	36	17	#8	1024.0	1.452		
17X17	1	36	18	#8	1156.0	0.817		
19X19	1	36	20	#8	1444.0	1.015		
16x14	1	48	18	#9	1592.9	0.918		
14x8	1	24	9	#7	199.1	0.202		
22.5X10	1	48	18	#9	1600.0	0.995		
			Tota	ls:	11719.0	36.682		

Total Deck & Concrete Costs								
Material	Quanitiy	Unit	Cost	Total				
REBAR	53.683	Ton	\$980.00	\$52,609.34				
CONCRETE	15927.5	C.Y.	\$131.00	\$2,086,502.50				
WWF	238662	S.F.	\$47.00	\$112,171.14				
Metal Deck	94265	S.F.	\$2.30	\$216,809.50				
Roof Deck	156210	S.F.	\$2.05	\$320,230.50				

Project Cost Data							
CSI Masterformat	Structural Element	Estimated Cost	Estimated Cost Per SF				
03	Reinforcing	\$164,780.48	\$0.65				
05	Concrete	\$2,086,502.50	\$8.18				
03	Metal Deck	\$537,040.00	\$2.11				
03	Structural Steel	\$2,813,870.20	\$11.03				
	Total	\$5,602,193.18	\$21.97				

Brady Sheerin | Constuction Management

APPENDIX C: GENERAL CONDITIONS ESTIMATE

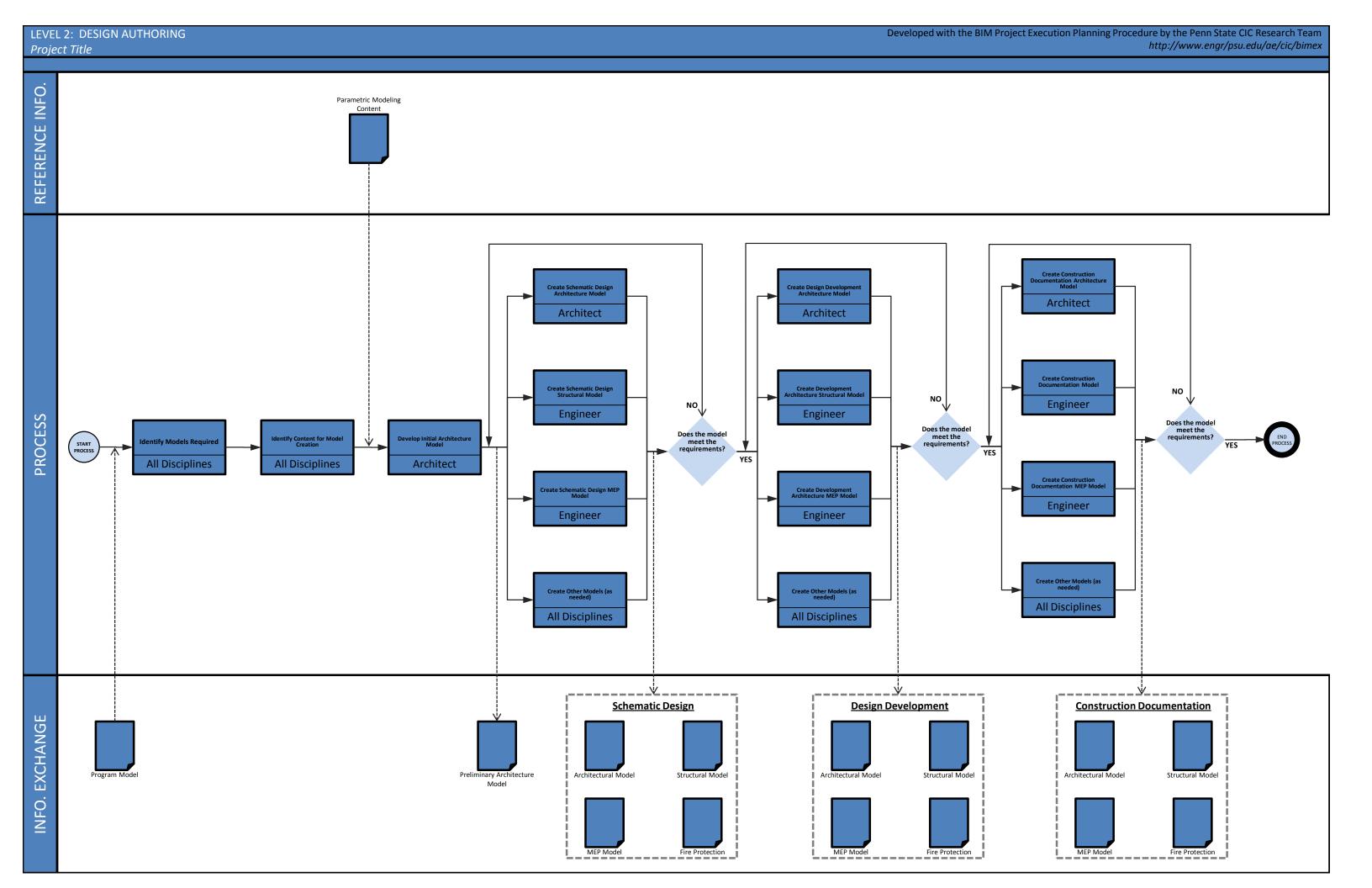
TECHNICAL ASSIGNMENT TWO

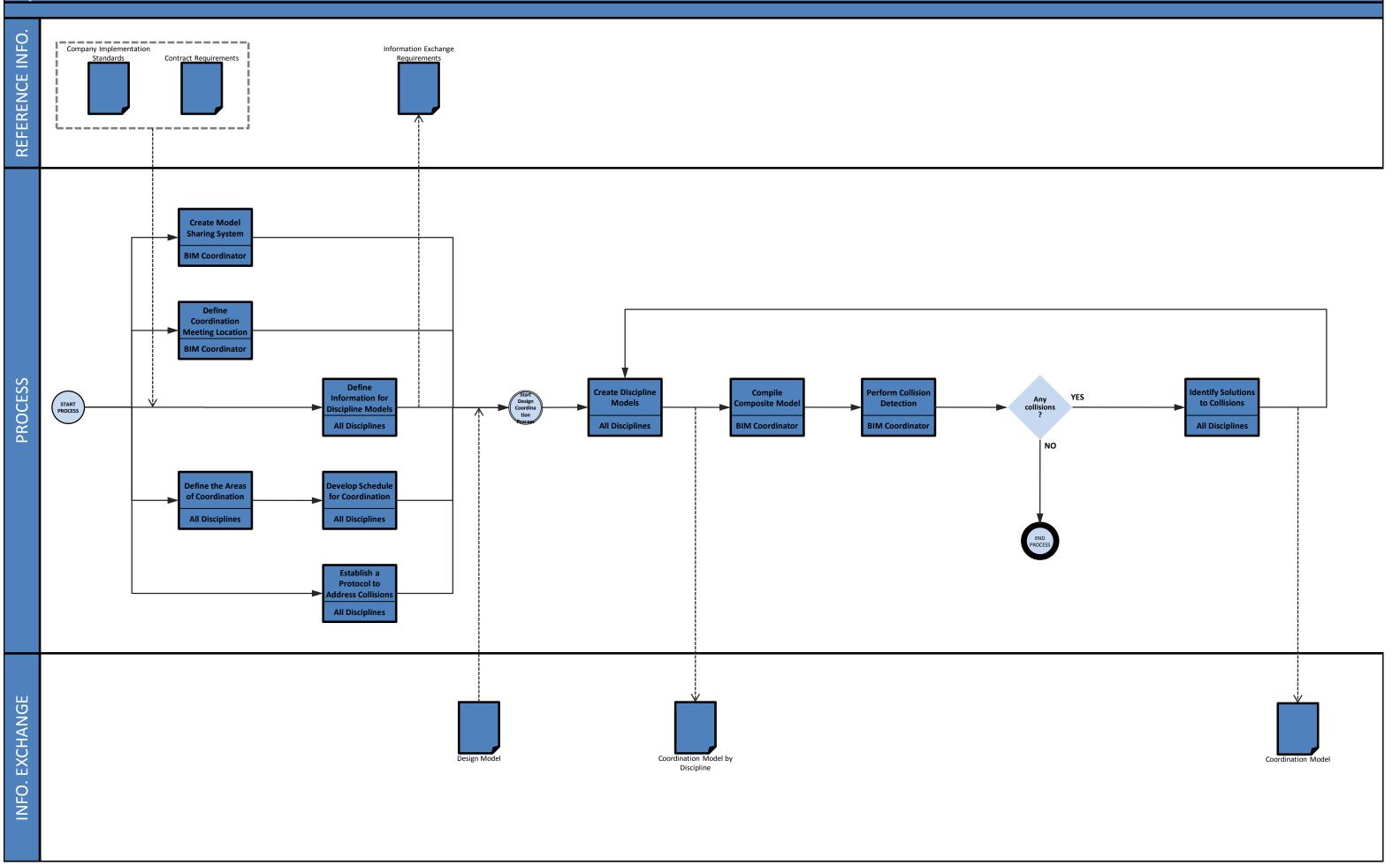
	Gen	eral (Conditio	ns Cost	Estimate			
			Labor	Material	Equipment	Other		
Description	Ouantity	Unit	Cost	Cost	Cost	Cost	Total Cost	Grand Total
Field Personel								
Site Superintendent	20	mo	\$8,465.00				\$8,465.00	\$169,300.00
MEP superintendent	20	mo	\$8,465.00				\$8,465.00	\$169,300.00
General Superintendent	32	mo	\$8,465.00				\$8,465.00	\$270,880.00
Field Engineer	32	mo	\$5,570.00				\$5,570.00	\$178,240.00
Project Manager	21	mo	\$9,105.00				\$9,105.00	\$191,205.00
Project Administrator	32	mo	\$3,130.00				\$3,130.00	\$100,160.00
					•	•	Total:	\$1,079,085.00
Temporary Utilities								
generator	12	mo		\$185.00		\$435.00	\$620.00	\$14,880.00
temp heat	8	mo	\$1,375.00	\$637.00			\$2,012.00	\$16,096.00
temp power and lighting	32	mo	\$628.00	\$628.00			\$1,256.00	\$40,192.00
monthly water bill	32	mo				\$250.00	\$250.00	\$8,000.00
							Total:	\$79,168.00
Construction Expenses								
office trailers 32'x8' rent per month	86	ea		\$325.00			\$325.00	\$73,950.00
storage boxes 20'x8' rent per month	80	ea		\$105.25			\$105.25	\$16,420.00
office equipment rental	32	mo		\$174.23			\$174.23	\$5,575.36
office supplies	32	mo		\$108.24			\$108.24	\$3,463.68
telephone bill	32	mo		\$266.53			\$266.53	\$8,528.96
field office lights and HVAC	32	mo		\$124.11			\$124.11	\$3,971.52
							Total:	\$111,909.52
Construction Aids								
Peronal Protective Equipment	32	ea		\$247.11			\$247.11	\$7,907.52
Portable toilets rent per month	225	ea			\$503.22		\$503.22	\$113,224.50
							Total:	\$121,132.02
Temporary Barriers and Enclosures								
winter protection, tarpaulins	6	mo	\$600.00	\$1,232.00			\$1,832.00	\$10,992.00
snow removal	7	ea	\$5,258.57	\$563.22	\$775.81		\$6,597.60	\$46,183.20
fence	1	ea	\$2,589.55	\$6,054.25	\$800.00		\$9,443.80	\$9,443.80
silt fence	1	ea	\$2,851.35	\$7,245.22	\$800.00		\$10,896.57	\$10,896.57
signage	1	ea		\$3,215.64			\$3,215.64	\$3,215.64
							Total:	\$80,731.21
Cleaning								
clean up field office	32	mo	\$834.64	\$78.88	\$2.51		\$916.03	\$29,312.96
street sweeper	18	mo				\$1,987.24	\$1,987.24	\$35,770.32
dumpsters, per pull	218	ea		\$512.00			\$512.00	\$111,616.00
site staging and restoration	1	ea				\$55,800.00	\$55,800.00	\$55,800.00
final clean	1	ea	\$5,324.78	\$654.78	\$2,281.84		\$8,261.40	\$8,261.40
							Total:	\$240,760.68
Insurance and Bonds								
General Liability insurance	1	ea				\$468,364.00	\$468,364.00	\$468,364.00
Builders risk insurance	1	ea				\$265,406.00	\$265,406.00	\$265,406.00
Performance payment bond	1	ea				\$359,079.00	\$359,079.00	\$359,079.00
							Total:	\$1,092,849.00

Total General Conditions Cost \$2,805,635.43

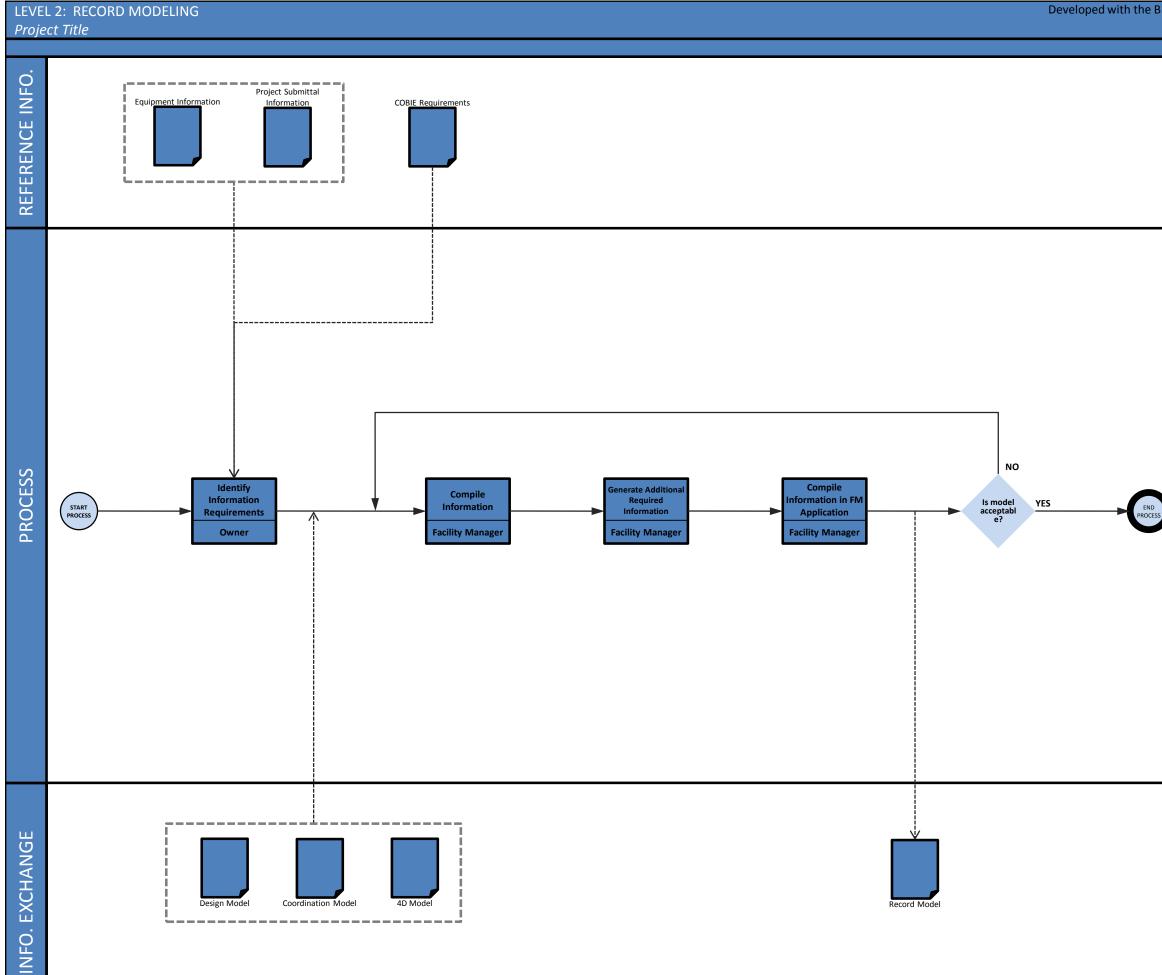
APPENDIX D: BIM PROCESS MAPS

Brady Sheerin | Constuction Management





Developed with the BIM Project Execution Planning Procedure by the Penn State CIC Research Team http://www.engr/psu.edu/ae/cic/bimex



Developed with the BIM Project Execution Planning Procedure by the Penn State CIC Research Team http://www.engr/psu.edu/ae/cic/bimex