



Massachusetts School Building Authority

Deborah B. Goldberg
Chairman, State Treasurer

James A. MacDonald
Chief Executive Officer

John K. McCarthy
Executive Director / Deputy CEO

July 9, 2019

Mr. James J. Athanas, Chair
Northbridge Board of Selectmen
Northbridge Town Hall
7 Main Street
Whitinsville, MA 01588

Re: Town of Northbridge, W. Edward Balmer Elementary School

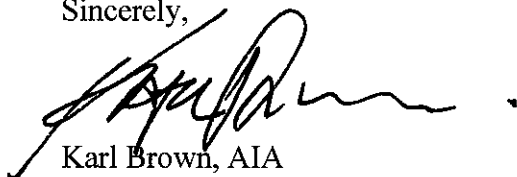
Dear Ms. Cannon:

The Massachusetts School Building Authority (the "MSBA") is forwarding review comments of the 60% Construction Documents submission for the W. Edward Balmer Elementary School Project in the Town of Northbridge, received by the MSBA on June 19, 2019.

Responses to the attached comments shall be forwarded to Brian Lynch (Brian.Lynch@MassSchoolBuildings.org) through the Owner's Project Manager. Please review and return responses within 14 days of receipt of this letter.

If you have any questions or comments, please do not hesitate to contact Kevin Sullivan (Kevin.Sullivan@MassSchoolBuildings.org).

Sincerely,



Karl Brown, AIA
Design Director

Attachment: 60% Construction Documents Review Comments

Cc: Legislative Delegation
Adam Gaudette, Northbridge Town Manager
Alicia Cannon, Vice Chair, Northbridge Board of Selectmen
Michael LeBrasseur, Chair, Northbridge School Committee
Amy McKinstry, Superintendent, Northbridge Public Schools
Melissa Walker, Director of Business and Finance, Northbridge Public Schools

Page 2

July 9, 2019

Northbridge 60% Submission Review Comments

Josepha Strazzula, Chair, Northbridge School Building Committee

Joel G. Seeley, Owner's Project Manager, Symmes Maini & McKee Associates, Inc.

Lee P. Dore, Designer, Dore & Whitter Architects, Inc.

File: 10.2 Letters (Region 2)

APPENDIX 6B

MODULE 6 – 60% CONSTRUCTION DOCUMENTS REVIEW COMMENTS

District: Town of Northbridge

School: W. Edward Balmer Elementary School

Owner's Project Manager: Symmes Maini & McKee Associates, Inc.

Designer Firm: Dore & Whittier Architects, Inc.

Submittal Received Date: June 19, 2019

Review Date: June 20 – July 8, 2019

Reviewed by: Gienapp Architects, K. Brown, K. Sullivan, R. Hudson

MSBA REVIEW COMMENTS

The following comments¹ on the 60% construction documents submittal are issued pursuant to a review of the project submittal document for the new construction of the proposed project and presented as a 60% construction documents submission in accordance with the MSBA Module 6 Guidelines.

6B.1 Summary Comments

- Basic Project Information:
 - *Enrollment: Grades K-5 with an enrollment of 1,030 students, plus Pre-K (90 students).*
 - *PFA GSF: 167,352*
 - *Project Type: New Construction.*
 - *Construction Delivery Method: Construction Manager at Risk (Fontaine Brothers, Inc.)*
- Comments:
 - *The total project budget per the PFA is \$100,968,194, and the information provided in the 60% CD Updated Total Project Budget indicates \$100,968,194.*
 - *The construction cost estimates are \$79,364,084 (CMR's estimate by Fontaine Bros., Inc.) and \$79,223,343 (Designer's estimate by PM&C).*
 - *The construction budget per the PFA is \$79,492,663, and the information provided in the Updated Total Project Budget confirms that the construction cost of \$79,117,606 is within budget.*

¹ The written comments provided by the MSBA are solely for purposes of determining whether the submittal documents, analysis process, proposed planning concept and any other design documents submitted for MSBA review appear consistent with the MSBA's guidelines and requirements, and are not for the purpose of determining whether the proposed design and its process may meet any legal requirements imposed by federal, state or local law, including, but not limited to, zoning ordinances and by-laws, environmental regulations, building codes, sanitary codes, safety codes and public procurement laws or for the purpose of determining whether the proposed design and process meet any applicable professional standard of care or any other standard of care. Project designers are obligated to implement detailed planning and technical review procedures to effect coordination of design criteria, buildability, and technical adequacy of project concepts. Each city, town and regional school district shall be solely responsible for ensuring that its project development concepts comply with all applicable provisions of federal, state, and local law. The MSBA recommends that each city, town and regional school district have its legal counsel review its development process and subsequent bid documents to ensure that it is in compliance with all provisions of federal, state and local law, prior to bidding. The MSBA shall not be responsible for any legal fees or costs of any kind that may be incurred by a city, town or regional school district in relation to MSBA requirements or the preparation and review of the project's planning process or plans and specifications.

- *Many sections in the 60% CD submission reference the original DD submission rather than including those documents in this submission. In the next submission, provide all documents regardless of if they were included in previous submissions.*
- *Although the Trade Bid Summary section includes lists of filed sub-bid relevant drawings, this list is missing in some of the specific filed sub-bid sections. This may be confusing for bidders. This should be reviewed and revised in the next submission.*
- *Several sections in the Project Manual indicate missing paragraphs. This should be reviewed and included in the next submission. This missing information is primarily in Trade Bid Summary sections.*

6B.2 OPM Deliverables: *Unless specifically stated otherwise, the OPM deliverables are included in the submission with no response from MSBA required.*

6B.2.1 Submittal Review & Coordination

- Review designer submissions; make recommendations to Owner. Address each of the following items individually, and describe how each was evaluated.
- Coordinate design; include written recommendations to the Owner.
 - Technical accuracy, coordination & clarity.
 - Efficiency & cost effectiveness.
 - Operability.
 - Constructability.
 - Phasing.
 - Bid-ability.
 - Site access during construction.
- Coordinate the commissioning consultant's review.
 - Include Cx review & District response.
 - Incorporate Cx recommendations. *Commissioning consultant review comments for the 60% CD are included in the submission, however the Designer's response to the comments is not included. Provide the Designer's response to the 60% review comments as part of the response to this review.*
- Coordinate the District response to MSBA comments of previous submittal.
 - Include MSBA review & District response.

6B.2.2 Project Schedule: All schedules should be presented in calendar days.

Update project schedule: As a minimum, the schedule update should provide the same level of detail as was included in Exhibit C of the Project Funding Agreement, expanded and updated to include milestones for Design Development, Bidding, Construction, and Closeout. The updated schedule should include proposed critical path and construction milestone information. In addition

to the construction milestones, the schedule must also include the following information as listed in MSBA Module 7, Schedule Activities:

- Punch list start and end dates.
- Date of Project Registration with the US Green Building Council ("USGBC") or Collaboration for High Performance Schools ("CHPS").
- Provisional/Design package submittal date to USGBC or CHPS.
- Submittal date of 50% DCAMM Notification and 100% DCAMM Notification.
- General Contractor/Construction Manager request for final payment.
- Commissioning Consultant inspection (substantial completion plus approximately 10 months).
- Submittal date of Final Commissioning Report to MSBA.
- Submittal date of Final Construction package including but not limited to Final Commissioning Report to USGBC or CHPS.
- Anticipated issuance date of final Green School Program Certification letter from USGBC or CHPS.
- Submittal date to MSBA of Commissioning Certificate of Completion.
- Submittal date to MSBA of final reimbursement request.
- Indicate submission dates for the following approvals. In addition, provide dates for any other state or federal approval not listed below (the following list is not a comprehensive itemization of required state approvals; other requirements may apply, and some of the items listed below may not be applicable to this project). Indicate "Not Applicable" where appropriate:
 - DESE - Special Education approval by Department of Elementary and Secondary Education.
 - MHC – Project Notification Form and approvals by MA Historical Commission.
 - OIG - Construction Manager at Risk approval by the Office of Inspector General.
 - Executive Office of Energy and Environmental Affairs / EEA:
 - MEPA - MA Environmental Policy Act by Energy & Environmental Affairs:
 - ENF - Environmental Notification Form. *The submission indicates this is not applicable.*
 - EIR - Environmental Impact Report. *The submission indicates this is not applicable.*
 - Article 97 Land Disposition Policy approval by Energy & Environmental Affairs. *The submission indicates this is not applicable.*
 - MA DEP - Massachusetts Department of Environmental Protection. *The submission indicates this is not applicable.*

- MA DOT - Massachusetts Department of Transportation. *The submission indicates this is not applicable.*
- MA DPH - Massachusetts Department of Public Health. *The submission indicates this is not applicable.*
- EPA –NPDES National Pollutant Discharge Elimination System Notice of Intent approval by the US Environmental Protection Agency.
- MAAB - Accessibility variances by MA Architectural Access Board. *The submission indicates this is not applicable.*
- Indicate all required state reviews or permits on the milestone schedule including actual or planned dates of approval which are required in order to maintain the planned bidding and construction schedule and milestones indicated therein. For required state reviews or permit approvals which have not been obtained on schedule, provide a separate (sub network) schedule depicting recovery actions to obtain required approvals in order to maintain the bidding and construction schedule.
- A letter on District letterhead confirming that the Project has undergone review and obtained all necessary state reviews and approvals by any departments or agencies of the Commonwealth required by law to review the Project, including but not limited to the approvals listed above. Attach such letter of documentation evidencing such state reviews and approvals:
 - Identify any state reviews or permits for which approval has not been obtained as of the 60% Construction Documents submission date, and include in the District letter a status update including actions taken to date and actions planned to obtain the required approval(s) in order to comply with Project Funding Agreement (the "PFA") Section 4.12. and maintain the projected schedule milestones listed in OPM Deliverables. .
 - Section 4.12 of the PFA, executed between the District and the MSBA, requires that each project successfully undergo review and obtain all necessary approvals "prior to the solicitation of construction bids, by any departments or agencies of the Commonwealth required by law to review such projects..." As part of the response to these 60% CD submission review comments, MSBA requires documentation that the District is in compliance with this requirement of the PFA.
- The schedule is to be updated and submitted to MSBA as often as is required to reflect any changes, including any changes to milestone dates, but must be submitted with each design submittal (DD, 60% CD, 90% CD).
- Indicate the date for submission to MSBA of the 60% and proposed dates for 90% Construction Documents submittals. The schedule is to incorporate 21 calendar day required duration for MSBA review of each submission, and a minimum of 14 calendar days for project team incorporation of MSBA review comments as well as all others into the

project documents prior to the due date of the next submission or finalizing project documents for bidding. 35 calendar days for each submission is the minimum acceptable duration; if the project team believes additional time is required for any or all of the submissions the durations for these activities are to be increased accordingly.

6B.2.3 Scope and Budget

- Update project scope and budget:
 - Reconciled construction cost estimate including Designer/OPM comparison chart:
 - Prepare independent construction cost estimates pursuant to Section 8.1.2.2 of the Contract for Project Management Services, with escalation to the mid-point of construction, for comparison with the Designer's cost estimate, based upon design development progress documents. *Designer's cost estimate by PM&C indicates an escalation of 2.5%, and the CM's cost estimate indicates an escalation of 2%. As part of the response to these review comments, clarify if these amounts reflect escalation to the mid-point of construction as required.*
 - CMR (if applicable):
 - If Owner has not yet contracted with a Construction Manager (CM), the OPM must develop a construction cost estimate for comparison with the Designer's cost estimate.
 - If the Owner has given the CM a Notice to Proceed, the OPM must review cost estimates provided by the Designer and CM and provide a detailed line by line reconciliation of the Designer's and CM's construction cost estimates. *A detailed line by line reconciliation of the Designer's and CM's cost estimates by the OPM was not provided. Provide this as part of the response to these review comments (please see template attachment at the end of the comments).*
 - Updated project budget in the total project budget format, based on the reconciled construction cost estimate. If the reconciled estimate is not used for the updated project budget, provide an explanation. *A construction budget of \$79,117,606 was used for the updated project budget, but this amount was not indicated to be the reconciled cost estimate. Clarify as part of the response to these review comments and resubmit a corrected project budget spreadsheet if necessary.*
 - Value Engineering recommendations.
 - For any Value Engineering recommendations which have been accepted, provide a copy of the Committee vote. *As part of the response to this review, provide a copy of the Committee vote approving the timber framed entrance canopy in lieu of a metal canopy.*

6B.3 Designer Deliverables: *Unless specifically stated otherwise, the Designer deliverables are included in the submission with no response from MSBA required.*

6B.3.1 General Requirements

- Submit updated work plan.
- Updated and expanded Basis of Design narrative description for all disciplines.
- Updated building code analysis.
- Provide a list identifying all proposed proprietary items (if any) with an affidavit which shall indicate that an elected body of the district (school committee, city or town council, or selectmen, -but not ad-hoc building committee) has been presented with proposals for proprietary requirements approval action, has had an opportunity to investigate, or to require staff or consultant investigation upon each item so proposed, and has majority voted in an open public session that it is in the public interest to do so. Provide MSBA with a certified copy of the vote of the elected body. *The certified copy of the vote is not included in the submission; however, it is indicated that it would occur on the same date as the submission and would be submitted to MSBA on or after June 25, 2019. Provide this information in the response to this review and in the 90% CD submittal.*
- Updated interior color theory statement describing proposed paint and material selections and colors for typical and special spaces, why they have been selected and how these selections relate to exterior materials and colors. Confirm that color and material selections have been presented to and approved by the District.
- Updated structural narrative including methods of lateral bracing and how requirements of earthquake code will be met.
- Updated structural calculations and required floor loads.
- Independent structural design review in compliance with the current edition of The Massachusetts State Building Code (an MSBA requirement for all projects with new construction over 10,000 sf). MSBA requires submission of a structural engineering peer review as part of the Final (100%) Construction Documents submission, to include documentation of resolution of any issues identified by the Peer Reviewer. Actions are to be advanced well prior to the 90% CD submission to engage the peer reviewer, and that scheduling be arranged to allow final structural design drawings and calculations to be submitted to the peer reviewer at the time of completion of the 90% Construction Documents submittal, in order to incorporate comments and response action reporting in the final construction documents and avoid delays. Confirm this process has been initiated. *Initiated but not included, scheduled to be issued to MSBA July 16, 2019. Provide this information in the 90% CD submittal.*
- Updated energy calculations. *The submission indicates there is no change from previous submission.*

- Updated Life Cycle cost analysis for energy and water consuming devices. *The submission indicates there is no change from previous submission.*
- Updated heat gain and loss calculations for Heating, Ventilating and Air Conditioning systems. *The submission indicates there is no change from previous submission.*
- Updated calculations showing total electrical load. *The submission indicates there is no change from previous submission.*
- Updated security and visual access requirements:
 - Confirmation that the persons responsible for implementation of the District's emergency procedures, and responding emergency medical, fire protection, and police agency representatives have been consulted in the planning process and any associated requirements have been included in the project.
 - Identification of any other security related items particular to the District and/or the proposed project.
 - Verification that the following safety and security related issues have been reviewed and are in accordance with the District's procedures as noted above:
 - Main entrance design – describe District protocol for visitor entry and check-in related to the current design for visitors to remain in the vestibule versus a side sub-vestibule.
 - Classroom lockset hardware - confirm hardware functions are compatible with the District's protocols related to lockdown. *The submission indicates this is no substantive change from previous submission.*
 - Classroom / Instructional spaces visibility - confirm that the inclusion of sidelights at entrance locations is compatible with the District's current standards related to visibility from corridors and whether any related. *The submission indicates this is no substantive change from previous submission.*
 - Alternative entry locations - confirm project includes site and building signage, as may be required by District's emergency procedures, to identify locations where first responders may more directly reach a person needing medical attention; Knox Boxes; and provisions for building plans to be delivered to local fire and response agencies. *The submission indicates this is no substantive change from previous submission.* Updated quality Control documents demonstrating:
 - Ceiling clearances.
 - Mechanical room and shaft sizes.
 - Coordinate specifications and drawings.
 - Filed sub-bid work.
 - Scheduling.
 - Equipment and power.
 - Existing and new construction.
 - Phasing.

6B.3.2 Space Summary

- Updated space summary and signed certification that reflects the current design. *Based on the space summary provided, the MSBA notes the following:*

| Spaces | PFA Space Summary | DD Space Summary | 60% CD Space Summary | 90% CD Space Summary | Difference to PFA | Comments |
|---|--------------------------|-------------------------|-----------------------------|-----------------------------|--------------------------|---|
| Core Academic Spaces | 62,850 | 62,850 | 62,850 | | - | This category has not changed since the PFA. |
| Special Education | 13,530 | 13,530 | 13,530 | | - | This category has not changed since the PFA. |
| Art and Music | 5,150 | 5,150 | 5,150 | | - | This category has not changed since the PFA. |
| Health & Physical Education | 6,298 | 6,298 | 6,298 | | - | This category has not changed since the PFA. |
| Media Center | 5,305 | 5,305 | 5,305 | | - | This category has not changed since the PFA. |
| Dining and Food Service | 11,955 | 11,955 | 11,955 | | - | This category has not changed since the PFA. |
| Medical | 810 | 810 | 810 | | - | This category has not changed since the PFA. |
| Administration & Guidance | 3,040 | 3,040 | 3,040 | | - | This category has not changed since the PFA. |
| Custodial & Maintenance | 2,630 | 2,630 | 2,630 | | - | This category has not changed since the PFA. |
| Total Building Net | 111,568 | 111,568 | 111,568 | | - | This category has not changed since the PFA. |
| Non-Programmed Spaces | | | | | | |
| IT Office/Repair | 150 | 150 | 338 | | 188 | This category has increased by 188 nsf since the PFA |
| Unoccupied MEP/FP Spaces | 2,125 | 2,008 | 1,824 | | (301) | This category has decreased by 301 nsf since the PFA. |
| Unoccupied Closets, Supply Rooms & Storage Rooms | 641 | 646 | 625 | | (16) | This category has decreased by 16 nsf since the PFA. |
| Toilet Rooms | 3,955 | 3,937 | 3,943 | | (12) | This category has decreased by 12 nsf since the PFA. |
| Circulation (corridors, stairs, ramps, & elevators) | 29,396 | 31,893 | 30,580 | | 1,184 | This category has increased by 1,184 nsf since the PFA. |
| Remaining | 19,517 | 17,150 | 18,474 | | (1,043) | This category has decreased by 1,043 nsf since the PFA. |
| Total Building Gross | 167,352 | 167,352 | 167,352 | | - | This category has not changed since the PFA. |
| Grossing Factor | 1.50 | 1.50 | 1.50 | | - | This category has not changed since the PFA. |

- Comparison of the current design with the final educational program, and confirmation that there are no variations. If there are variations, the written summary must address the following:
 - Explanation of deviations within the space summary from the Project Funding Agreement. *The submission does not note any deviation other than to the Non-Programmed spaces (see 6A.3.2 above). Because the additional IT Office area is within the acceptable 1.50 grossing factor, and the added space is reallocated from other gross areas, MSBA accepts this variation to the approved project with no further action required.*
- The MSBA considers that deviations include changes in the size of a specific space, the total nsf of a program area (e.g. general classrooms, voc tech, dining etc.), the location of a space, the surrounding adjacencies of a space and or the intended purpose of the room.
- The submittal must clearly call out deviations to location and surrounding adjacencies through the use of redlines or "clouding."
 - The explanation should clearly identify the basis of the change identifying both architectural and/or programmatic reasons.
 - If the basis of the change is programmatic, the submittal should include a red-lined version of the educational plan included in the Project Funding Agreement.
 - Regarding DESE approved SPED spaces:
 - If the District wishes to submit a change to its DESE approved submittal, it must a) confirm that all changes to SPED spaces are final; b) provide a new submittal utilizing the format of the original submittal requirements and clearly noting any changes through use of clouded floor plans and red-lined narratives and tables; and c) indicate how the project schedule can accommodate a potential resubmittal and approval by DESE. Please provide a separate package for changes to DESE approved SPED spaces. *Not Applicable per the submission.*
 - If the District chooses not to change from the DESE approved submittal it should confirm that the spaces are the same or explain when and how the spaces will be returned to the approved size, configuration and location.
- Regarding DESE approved Public Day Education spaces; *Not Applicable per the submission.*
 - If the District wishes to submit a change to its DESE approved submittal, it must a) confirm that all changes to Public Day Education spaces are final; b) provide a new submittal utilizing the format of the original submittal requirements and clearly noting any changes through use of clouded floor plans and red-lined

narratives and tables; and c) indicate how the project schedule can accommodate a potential resubmittal and approval by DESE. Please provide a separate package for changes to Public Day Education Spaces.

- If the District chooses not to change from the DESE approved submittal it should confirm that the spaces are the same or explain when and how the spaces will be returned to the approved size, configuration and location.
- Regarding DESE pre-approved Chapter 74 Program spaces; *Not Applicable per the submission.*

6B.3.3 Project Approvals

- Describe the status of the following approvals. In addition, provide the status of any other state or federal approval not listed below (the following list is not a comprehensive itemization of required state approvals; other requirements may apply, and some of the items listed below may not be applicable to this project). Provide a copy of the appropriate application forms and/or approval letters where applicable. Indicate "Not Applicable" where appropriate. For each agency approval required for this project, indicate the date when approval was received. All required approvals should have an associated approval date indicated as part of the 90% CD submission and prior to advertising for bids.
 - DESE - Special Education approval by Department of Elementary and Secondary Education.
 - MHC – Project Notification Form and approvals by MA Historical Commission.
 - OIG - Construction Manager at Risk approval by the Office of Inspector General.
 - Executive Office of Energy and Environmental Affairs / EEA:
 - MEPA - MA Environmental Policy Act by Energy & Environmental Affairs:
 - ENF - Environmental Notification Form. *The submission indicates this is not applicable.*
 - EIR - Environmental Impact Report. *The submission indicates this is not applicable.*
 - Article 97 Land Disposition Policy approval by Energy & Environmental Affairs. *The submission indicates this is not applicable.*
 - MA DEP - Massachusetts Department of Environmental Protection. *The submission indicates this is not applicable.*
 - MA DOT - Massachusetts Department of Transportation. *The submission indicates this is not applicable.*
 - MA DPH - Massachusetts Department of Public Health. *The submission indicates this is not applicable.*

- EPA –NPDES National Pollutant Discharge Elimination System Notice of Intent approval by the US Environmental Protection Agency.
- MAAB - Accessibility variances by MA Architectural Access Board. *The submission indicates this is not applicable.*
- Confirmation that the Project has undergone review and obtained all necessary approvals by any departments or agencies of the Commonwealth required by law to review the Project, including but not limited to the approvals listed above. Attach such letter of documentation evidencing such reviews and approvals. In accordance with Section 4.12 of the Project Funding Agreement (the "PFA"), the District must obtain such reviews or approvals prior to the solicitation of construction bids. For any required state reviews or permits for which approval has not been obtained as of the 60% Construction Documents submission date, provide a status update including actions taken to date and actions planned to obtain the required state reviews and permit approval(s) in order to comply with PFA Section 4.12 and maintain the projected schedule milestones listed in OPM Deliverables.
- List and target dates for all local zoning approvals, testing and permits.
- Provide a certification that all applicable utility officials have been contacted by the designer regarding each basic design, and utility connections.

6B.3.4 Cost Estimate

- Provide a construction cost estimate based on the 60% Construction Documents, including cost estimates for general conditions, overhead and profit, insurance, bonds, and all other items; and allowances expressed as percentage rates for construction contingencies and escalation to the mid-point of the construction period; and other mutually agreed upon contingencies. Prepare the construction cost estimate in the CSI MasterSpec format to Level 3 and M.G.L. c.149, §44F (filed sub-bid) format including a single line outline specification description for each item with the detailed unit rate or item cost buildup provided as a backup in each case.
- The date of the estimate should be no earlier than the date of 60% Construction Documents. *Date of the estimate is June 4, 2019 and submission of 60% CD is June 18, 2019. With the response to these comments, confirm if the cost estimate is based on the submission.*
 - Provide a summary sheet including the following:
 - Date that the estimate was prepared (value date).
 - Anticipated bid date. *Not Included. Should be included in the next submission.*
 - Project and contract number. *Not Included. Should be included in the next submission.*
 - Title and location of the project.
 - Name of the Designer.
 - Name of the Estimator.

- Site cost (including all utilities). *Utilities are not included. Should be included the in next submission.*
- Building cost (including fixed equipment).
- Estimated construction cost of each Phase of the work, totaled.
- Costs of Item 1 and Item 2 work, as distinguished in the General Contractor's bid forms, individually totaled.

6B.3.5 Drawings (developed to 60% CD progress level)

- Cover sheet showing a list of all drawings, symbols, abbreviations, notes, locations map (the project title should be visible when the drawings are rolled). *There are no symbols or abbreviations on the cover sheet and the title is not visible when the set is rolled. Please include these changes in the next submission.*
- Site drawings showing the following:
 - Layout and location of all proposed work with details.
 - Existing and proposed contours including floor elevations at all entrances/exits showing drainage away from the building.
 - Bench marks and boring locations. *The boring locations are not identified. Please include them in the next submission.*
 - Landscaping and planting.
 - All utility service lines, systems and structures for electricity, gas, oil, water, steam, telephone, CATV, fire alarm, sanitary and storm drainage.
 - Contract limit line and storage area for construction materials. *No materials storage area is identified on the plans. Please include one in the next submission.*
 - Site survey which includes, but is not limited to, all existing foundations, obstructions and other physical characteristics of the site.
- Demolition drawings and temporary work required. *Only site demolition plans are included. Please include building demolition plans in the next submission.*
- Architectural drawings showing the following:
 - Floor plans of each floor, with dimensions, column locations, floor elevations, door and window designations, partition types, built in furniture and equipment, keyed to other architectural drawings and coordinated with exterior grade elevations at all interior/exterior transitions. *No floor elevations or exterior grades at transitions are included. Please include them in the next submission.*
 - Large scale floor plans where required.
 - Roof plans including equipment.
 - Key plans / overall plans where required.
 - Building Sections updated and coordinated with plans and elevations.
 - Building elevations. All building elevations, including hidden elevations, fully developed, showing context and relation to exterior sloping grade around the building. *The exterior grades sloping away from the building are not included. Please include them in the next submission.*

- Wall sections indicating dimensions, flashing, anchorage, reinforcing, coursing, cladding, and all other conditions at wall, roof, foundation, interior floors.
- Exterior details, for roofing, flashing and other details showing all major conditions.
- Door, window, entrance, curtain wall and storefront, schedules, and details.
- Vertical circulation plans, sections and details including ramps, stairs, lifts and elevators.
- Guardrails and handrails including details.
- Interior elevations of all significant and typical spaces.
- Interior details including casework, paneling surfacing and acoustical treatment
- Reflected ceiling plans coordinated with fire protection, mechanical and electrical drawings.
- Ceiling details.
- Schedules (clearly define new or existing):
 - Doors.
 - Equipment, e.g. for services.
 - Partitions.
 - Finishes.
- Structural drawings showing the following:
 - Legend and/or graphical symbols on the first sheet of the structural drawings. *The legend with graphic symbols is not included. Please include one in the next submission.*
 - Foundation plans with bottom grades showing layout of all footings, walls, slabs on grade including reinforcing, grade beams, and columns; include design soil bearing pressures and live loads for each area. *The bottom grades of footings are not included in the foundation plans. Please include them in the next submission.*
 - Floor and roof plans of structural systems including framing, grades of finished floors and depressed areas, with locations and dimensions for all openings, coordinated with the architectural drawings. *The grades of finish floors are not included on the plans. Please include them in the next submission.*
 - Complete foundation wall elevation and typical sections, with reinforcing indicating location, dimensions and grades for all footings, steps and wall openings. *The foundation wall elevations are not included. Please include them in the next submission.*
 - Complete details and section with dimensions for all construction including expansion and construction joints, reinforcing and other embedded items. Coordinate construction and expansion joint details with specified materials including caulking and sealant. *An expansion joint detail is not included. Please include one in the next submission.*
 - Schedules (with dimensions) for all lintels, beams, joists, and columns. Coordinate dimensions of all elements listed in the schedules with

dimensions depicted on the plans. *The beam schedule is not included; consider including in the next submission.*

- Structural supports required for mechanical equipment.
- General notes including the following information: class and 28-day strength of concrete for each portion, structural steel and concrete reinforcing design stresses for each type of structural member, concrete cover for each type of structural member, shrinkage and temperature steel requirements, reinforcing laps for main reinforcing and temperature steel; bend point, cutoff, and hook locations for all members, minimum beam and lintel bearing. *The minimum beam and lintel bearing is not included in the general notes. Please include in the next submission.*
- Fire protection drawings showing the following:
 - Legend and/or graphical symbols on the first sheet of the fire protection drawings.
 - Standpipe systems, sprinkler systems, suppression systems, fire pump where required, accessories, and piping.
 - All piping, equipment, fixtures, valves and devices. *Not all the piping is shown on the plans. Please include in the next submission.*
 - Design criteria shall be provided on the drawings in accordance with NFPA requirements. *The design criteria are not included on the plans. Please include them in the next submission.*
- Plumbing drawings showing the following:
 - Legend and/or graphical symbols on the first sheet of the plumbing drawings.
 - All work done by the Plumbing Subcontractor, which includes all water, gas, air, vacuum, medical gases, sanitary and storm wastes, and accessories.
 - Trapping and venting of all plumbing fixtures including floor drains. Provide location dimensions for floor drains in coordination with the structural plans. *There is no floor drain detail showing the trap. Please include in the next submission.*
 - Water and gas supply sources, storm and sanitary discharge mains.
 - All piping sizes shall be indicated on drawings and riser diagrams. Indicate all directions of flow and pitch on piping. *The direction of flow is not included on the piping lines on the plans. Please include the direction for flow on the plans in the next submission.*
 - All accessories, valves, fixtures including all drinking fountains and grease traps for kitchen waste. *The grease trap is not shown on the plumbing plans, but it is located on the civil plans. Please show it on the plumbing plans in the next submission.*
 - All piping and connections required for other trades (e.g., kitchen equipment, HVAC make-up water, etc.). *The connections to kitchen equipment and boilers are not included on the plans. Please include them in the next submission.*
 - Acid waste (where required), vents and neutralization systems for laboratories. *Not applicable.*

- Plumbing riser diagrams. *The plumbing riser diagram has not been included. Please include one in the next submission.*
- Domestic water booster pumps, boiler feed water, meter location, hose bibs. *The boiler connections are not included. Please include them in the next submission.*
- Domestic hot water: storage tanks, piping material, hanger details. *The hanger detail is not included. Please include one in the next submission.*
- Backflow preventers, and cleanouts.
- Heating, Ventilating and Air Conditioning Drawings showing the following:
 - Legend and/or graphical symbols on the first sheet of the mechanical drawings.
 - Large scale plans of all mechanical & electrical spaces showing equipment to scale. *A large scale plan of the electrical room is not included. Please include one in the next submission.*
 - All piping and ductwork systems shall be located and sized. All ductwork shall be shown double line and drawn to scale.
 - All systems shall be sized at all reductions and riser diagrams of piping and duct systems shall be indicated.
 - All directions of flow and pitch on piping, and direction of flow and volumes for duct systems shall be indicated. *The direction of flow on the pipes are not included. Please include in the next submission.*
 - All equipment shall have sufficient servicing and/or replacement space indicated on drawings. *Service and replacement space have not been indicated on the plans. Please indicate in the next submission.*
 - All equipment, accessories, valves and dampers identified as to type and size.
 - Cooling system pumps, chillers, cooling towers, air handling units, ductwork system and dampers, fan details, temperature control system, air and hydronic balancing equipment, and schedules shall be indicated.
 - Cooling tower (where required) shall be indicated on the drawings showing site location, elevations and floor plan of equipment layout and typical flow diagram as related to the total HVAC system. *The submission indicates this is not applicable.*
 - All fire and smoke dampers, access panels and doors. *Access panels are not included. Please include in the next submission.*
 - Mechanical room designs:
 - Vent pipes for safety valves, relief valves, back pressure valves and tanks shall be extended above flat roofs in accordance with all governing authorities. *There is no detail showing vents through the roof. Please include one in the next submission.*
 - In all designs for boiler and refrigeration plants, include a complete floor plan indicating location of all major mechanical equipment and

sufficient service space. *The service and replacement space are not indicated on the plans. Please indicate in the next submission.*

- In designs of new and/or replacement boiler and refrigeration plants, provide a flow diagram detailing steam or hot water distribution systems, return systems, including all existing equipment and their function, as well as any proposed expansions with all necessary instrumentation and controls.
- Electrical Drawings showing the following:
 - Legend and/or graphical symbols on the first sheet of the electrical drawings.
 - General arrangement: Outline layout of each floor.
 - Indicate interface with other systems. Identify any work by general contractor or other trades.
 - Interior lighting system: Light fixture schedules, circuiting location and mounting heights of all fixtures, receptacle and switch outlets, sizes and types of all lamps, conduits, all other accessories and riser diagrams shall be indicated on drawings. Designer shall specify that all electrical lighting fixtures be supported from the building structure, and shall be independent of ducts, pipes, ceilings and their supporting members. Comply with seismic design criteria. *The mounting heights are not included in the lighting schedule, and there is no lighting riser diagram included. Please include these items in the next submission.*
 - Power system: Locations, types and method of control for all motors, heaters, appliances, controllers, starters, branch circuits, feeder conductors and conduits. Indicate riser diagrams. Show details and indicate method of supporting electrical conduit. For larger projects, thermostats and control wiring are normally covered under the HVAC sub-contract, assure coordination.
 - Fire Alarm, Data, Communications, CATV/CCTV Systems: Locations and types of all devices, outlets and equipment, service connections, wiring diagrams, all other essential details.
 - Services: Location and details of all services, whether overhead or underground, feeder sizes, plans and elevations of switchgear and transformers, metering and service switchboard arrangements, wiring and ground fault diagram and bus ducts. *The service is not indicated in electrical room. Please include in the next submission.*
 - General and sub-stations: Location, size, method of connection and protection of all generators, transformers, exciters, motor generators, switch gear, and associated equipment, current characteristics and equipment capacities. Indicate equipment connections by means of one line and/or wiring diagrams and schedule all major items of equipment and all instruments.
 - Underground work: The size and locations of manholes and types of cables, number, size, and location of ducts, locations, sizes and types of

- cable supports, fireproofing, duct line profile, and one-line diagram of connections.
- Pole line work: Location, length, treatment and class of poles, guying, cross arms, insulators, circuiting, transformers, protective and switching devices, lightning arresters, special structures, diagrams, current characteristics and grounding.
- Exterior lighting: Location, size, and type of transformers, luminary, poles, light standards, cables, ducts, and manholes, details of control equipment and connection diagrams.
- Emergency system (where provided) details including transfer switch, type of fuel.
- One-line diagram indicating load KVA, and available short circuit amperes at each transformer, switchboard, distribution panel board, branch circuit panel board, and at major pieces of equipment. *Load KVA is not indicated at the transformer. Please include in the next submission.*
- Riser diagrams for all system.

6B.3.6 Project Manual (developed to 60% CD progress level)

- The format for the technical specifications shall be CSI Master format (current version) with separate sections for each of class of work required by M.G.L. c. 149 §44F.
- For each item of material or equipment, the specifications shall provide for a minimum of three named brands of material or equipment and the words "or equal" or a description of material or equipment which can be met by a minimum of three manufacturers or producers, and the words "or equal". Proprietary products shall not be specified except as provided by M.G.L. c. 30, § 39M; however, when they are specified, proprietary specifications are subject to the "or equal" provisions of c. 30, § 39M.
- Do not specify that a product or system shall require prequalification for use prior to bidding.
- Include a copy of the geotechnical report, including locations and dates of test boring holes and results of soil investigation, including water levels, allowable solid bearing pressure and bottom grades of footing and slabs. *A preliminary geotechnical report is included as well as a more recent geotechnical report. These are labeled as "Phase 1 and Phase 2 in the Table of Contents. Phase 1 includes limited boring locations with limited information. Please consolidate and update these reports with a final geotechnical report for the next submission.*
- List all required filed sub-bids specification sections. *It is not clear what sections are filed sub-bids. Filed sub-bid sections are indicated with "Filed Sub-Bid Summary" in the Table of Contents, however, the sections themselves refer back to these summaries for Filed Sub-bid information. The work of various sections indicate that they are part of a filed sub-bid but this isn't evident in the Table of Contents or section title. Example: Section 03 4500 Precast Architectural Concrete indicates that this section shall be included in the Masonry Trade Bid and refers back to the*

Masonry Trade Bid Summary. It must be clear which sections are included in filed sub-bids. Please revise for the next submission.

- Each filed sub-bid section shall detail all labor and materials required by the particular sub-trade.
- Staging, scaffolding cutting and patching, refuse collection and disposal, demolition work and cleaning task, allocation policy and proposed language shall be carefully assigned to avoid duplication or omission.
- Describe the extent of the work, the materials and workmanship, and include the work under the proper section. If any portion of the work included in a section of the specifications is to be performed by a trade covered by another section, there shall be clear and distinct cross-referencing between the sections. Merely to state "by others" is not acceptable.
- All "Work by Others" specification references are coordinated.
- Specify work in appropriate Sections according to local trade jurisdiction.
- In sections for which filed sub-bids are required, refrain from using such terms as "the Contractor," the "Heating Contractor," or "the Plumbing Contractor," but where necessary for clarity refer to the "HVAC Subcontractor," the "General Contractor" and so on. *There are several Trade Bid sections that refer to "The Contractor" in a non-specific way and assumes responsibility for the work of the section.*

Example: Section 33 4000 Storm Drainage Utilities refers to "the Contractor" as having carefully examined the site. Please replace like wording with "General Contractor" for next submission.

- Alternates, if approved in writing by the owner, shall be properly described and cross-referenced in the project manual and drawings. *No Alternate section is provided and none are indicated in the drawings; however, Section 01 2300 Alternates is referenced at the beginning of several sections (especially in Article 1.03 Price and Payment Procedures). This should be reviewed and updated in the next submission.*
- Allowances are prohibited pursuant to M.G.L. c. 149, § 44G(A). *There appears to be a reference for allowances in regards to hazardous material removal. It is indicated to provide a cost "allowance for the removal and disposal of inaccessible or hidden ACM". However, this is provided in the report done by UEC (Universal Environmental Consultants). This should be reviewed and revised in the next submission.*
- Unit price items, if permitted or ordered by the owner, shall be properly described in the specifications. *In the list of unit prices included in Section 00 43 22 Unit Prices Form, only a few of the items indicate related Project Manual Sections and drawings. Consider including relevant Project Manual Sections and drawings for all unit prices for clarity.*
- Do not use general clauses intended to be all-inclusive in lieu of complete descriptions.
- Do not duplicate standard requirements that are contained in the contract form.
- Use consistency throughout. The word "will" shall be used to designate what the owner, authority, owner's project manager, or the designer can be expected to do, and the word "shall" shall be used to designate what is mandatory for the contractor or subcontractors to do. *"The Owner shall..." is*

used throughout the Project Manual. "The Designer shall..." is found in the General Conditions. This should be reviewed and revised in the next submission.

- Use the same term throughout for the same subject and the term shall be the same as that used on the drawings. *"Gypsum" and "drywall" are both used in the Project Manual. "Gypsum" is the term primarily used in the drawings. This should be reviewed and coordinated in the next submission.*
- Do not use the term "etc." *There are several instances of the use of "etc." Example: In Section 01 9113 General Commissioning has several listed items ending in "etc.". This should be reviewed and revised in the next submission.*
- Avoid such terms as "to the satisfaction of the designer", "as directed by the designer", "as approved" and "as required." *There are several instances where sections refer to items being "as approved by the Architect/Designer". Example: Section 21 0010 Fire Protection 2.10.E – "key lock system shall be as approved by the Architect". Example: Section 23 0010 HVAC 2.27.D.2 – "surface raceway may be used as approved by the Architect". This should be reviewed and revised in the next submission.*
- Avoid the use of symbols.
- Do not give numbers both in words and figures. Numbers less than 10 shall be written in words, 10 and higher numbers shall be written in figures. In expressing dimensions, figures such as 2 in., 16 in., 7 ft., 6 in., shall be used. *There are several instances where numbers are given in both words and figures. Example: Section 27 4000 Audio-Video Communication Systems or Section 26 0010 Electrical. Please provide figures and words where appropriate and not both together.*
- *Lengths and distances appear to use "or " instead of in. and ft.. Please revise accordingly.*
- Specify materials mined or manufactured in Massachusetts first and the United States of America second whenever possible.

6B.3.7 Project Coordination

- Verify all details are accurately cross-referenced to the correct plan sheet. *The details are not cross referenced to the plans. This should be reviewed and revised in the next submission.*
 - Verify that the structural, mechanical, or other disciplines, do not conflict with architectural plans or specifications.
 - Structural dimensions match architectural drawings.
 - Column orientation matches architectural drawings.
 - Column grid lines match architectural drawings.
 - Column and bearing wall locations match architectural drawings.
 - Column locations coordinated with all other disciplines.
 - Seismic detailing coordinates with architectural drawings. *On sheet S4.02 – BF-10 on the second floor, the brace frame is not located in a wall; it is out in the open. Please review this and correct in the next submission. On sheet S4.01 – BF-3 on*

the first floor there are 2 windows that may interfere with the brace frames. Also on sheet S4.01 – BF-5 on the first floor, the corner of the transom interferes with the brace frame. Please review and revise these items in the next submission.

- Beams and columns protruding horizontally and vertically into stairwells, and other interior spaces.
- The finish grade elevations coordinated between all disciplines. *The finish grade elevations are not included on the architectural plans, so they are not coordinated. Please coordinate in the next submission.*
- Mechanical equipment power requirements and physical locations, including special information as to who mounts, connects, tests, etc.
- Verification of potential spatial conflicts in mechanical equipment.
- Room wall/floor/ceiling construction coordinated with the finish schedule.
- Civil earthwork grading and excavation plans are coordinated with architectural and landscape plans. *The architectural plans do not include floor elevations, so it could not be confirmed that they are coordinated. Please coordinate in the next submission.*
- All room numbers are coordinated between all disciplines.
- Equipment plan coordinates with architectural plans.
- All kitchen equipment connected to utility. *The plumbing plans do not show water, waste and gas lines connected to the kitchen equipment. Please include connections in the next submission.*

CD60 Estimate Analysis

| | A | B | C | D | E | C | F |
|---|------------------|------------------|------------------------|------------------|------------------|------------------------|-------------------------|
| \$(000) except \$/GSF | | | Difference A less B | REVISED | | Difference A less B | Reconciled Estimates |
| New Construction GSF | 177,370 | 177,300 | 70 | 177,370 | 177,300 | 70 | 177,370 |
| Renovations GSF | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL GSF | 177,370 | 177,300 | 70 | 177,370 | 177,300 | 70 | 177,370 |
| Total Construction\$/GSF | \$ 470.73 | \$ 476.49 | \$ (5.76) | \$ 468.64 | \$ 470.06 | \$ (1.42) | \$ 469.32 |
| I. Construction Costs | | | | | | | |
| A. SUBSTRUCTURE | | | | | | | |
| 1 Foundations | 3,714.6 | 3,701.8 | 12.8 | 3,188.3 | 3,306.8 | (118.5) | 3,248.0 |
| A1010 Standard Foundations | 2,478.8 | 2,401.5 | 77.3 | 2,083.8 | 2,043.0 | 40.8 | |
| A1020 Special Foundations | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| A1030 Slab on Grade | 1,235.8 | 1,300.3 | (64.5) | 1,104.5 | 1,263.8 | (159.3) | |
| 2 Basement Construction | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| A2010 Basement Excavation | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| A2020 Basement Walls | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| B. SHELL | | | | | | | |
| 1 Superstructure | 6,156.6 | 6,144.5 | 12.1 | 6,156.6 | 6,144.5 | 12.1 | 6,151.0 |
| B1010 Floor Construction | 2,811.6 | 2,876.4 | (64.8) | 2,811.6 | 2,876.4 | (64.8) | |
| B1020 Roof Construction | 3,345.0 | 3,268.1 | 76.9 | 3,345.0 | 3,268.1 | 76.9 | |
| 2 Exterior Closure | 9,135.2 | 8,989.1 | 146.1 | 8,889.9 | 8,989.1 | (99.2) | 8,940.0 |
| B2010 Exterior Walls | 5,473.4 | 5,471.5 | 1.9 | 5,300.1 | 5,471.5 | (171.4) | 5,385.0 |
| B2020 Exterior Windows | 3,519.9 | 3,368.9 | 151.0 | 3,447.9 | 3,368.9 | 79.0 | 3,409.0 |
| B2030 Exterior Doors | 141.9 | 148.7 | (6.8) | 141.9 | 148.7 | (6.8) | 146.0 |
| 3 Roofing | 2,234.1 | 2,247.2 | (13.1) | 2,214.1 | 2,227.2 | (13.1) | 2,221.0 |
| B3010 Roof Coverings | 2,167.9 | 2,247.2 | (79.3) | 2,167.9 | 2,227.2 | (59.3) | |
| B3020 Roof Openings | 66.2 | 0.0 | 66.2 | 46.2 | 0.0 | 46.2 | |
| C. INTERIORS | | | | | | | |
| 1 Interior Construction | 7,331.9 | 8,114.6 | (782.7) | 7,518.4 | 7,414.2 | 104.2 | 7,467.0 |
| C1010 Partitions | 4,933.6 | 5,296.8 | (363.2) | 4,991.3 | 4,882.8 | 108.5 | |
| C1020 Interior Doors | 938.6 | 1,257.1 | (318.5) | 938.6 | 1,087.9 | (129.3) | |
| C1030 Fittings | 1,459.7 | 1,560.7 | (101.0) | 1,588.5 | 1,463.5 | 125.0 | |
| 2 Staircases | 507.6 | 554.0 | (46.4) | 520.9 | 554.0 | (33.1) | 538.0 |
| C2010 Stair Construction | 420.8 | 416.0 | 4.8 | 420.8 | 416.0 | 4.8 | |
| C2020 Stair Finishes | 86.8 | 138.0 | (51.2) | 100.1 | 138.0 | (37.9) | |
| 3 Interior Finishes | 5,373.9 | 5,223.5 | 150.4 | 5,275.2 | 5,246.6 | 28.6 | 5,261.0 |
| C3010 Wall Finishes | 1,653.8 | 1,798.8 | (145.0) | 1,906.1 | 1,896.0 | 10.1 | |
| C3020 Floor Finishes | 2,204.7 | 2,250.3 | (45.6) | 1,853.7 | 1,880.1 | (26.4) | |
| C3030 Ceiling Finishes | 1,515.4 | 1,174.4 | 341.0 | 1,515.4 | 1,470.5 | 44.9 | |
| D. SERVICES | | | | | | | |
| 1 Conveying Systems | 327.1 | 340.0 | (12.9) | 327.1 | 340.0 | (12.9) | 334.0 |
| D1010 Elevators & Lifts | 327.1 | 340.0 | (12.9) | 327.1 | 340.0 | (12.9) | |
| D1020 Escalators & Moving Walks | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| D1090 Other Conveying Systems | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 2 Plumbing | 2,926.1 | 3,016.9 | (90.8) | 2,926.1 | 2,984.6 | (58.5) | 2,956.0 |
| 3 HVAC | 10,378.1 | 9,822.6 | 555.5 | 10,378.1 | 9,880.4 | 497.7 | 10,130.0 |
| 4 Fire Protection | 928.6 | 1,034.8 | (106.2) | 833.6 | 966.1 | (132.5) | 900.0 |
| 5 Electrical | 6,342.5 | 6,537.8 | (195.3) | 6,486.1 | 6,537.8 | (51.7) | 6,512.0 |
| D5010 Electrical Service & Distribution | 1,806.8 | 4,823.9 | (3,017.1) | 2,140.7 | 4,823.9 | (2,683.2) | |
| D5020 Lighting and Branch Wiring | 2,147.8 | included | 2,147.8 | 2,061.4 | included | 2,061.4 | |
| D5030 Communications & Security | 2,387.9 | 1,713.9 | 674.0 | 2,284.0 | 1,713.9 | 570.1 | |
| D5090 Other Electrical Systems | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| E. EQUIPMENT & FURNISHINGS | | | | | | | |
| 1 Equipment | 812.0 | 1,201.1 | (389.1) | 812.0 | 905.0 | (93.0) | 859.0 |
| E1010 Commercial Equipment | 415.7 | 1,201.1 | (785.4) | 415.7 | 905.0 | (489.3) | |
| E1020 Institutional Equipment | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| E1030 Vehicular Equipment | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| E1090 Other Equipment | 396.3 | 0.0 | 396.3 | 396.3 | 0.0 | 396.3 | |
| 2 Furnishings | 1,946.2 | 1,274.6 | 671.6 | 1,848.7 | 1,731.5 | 117.2 | 1,791.0 |
| E2010 Fixed Furnishings | 1,946.2 | 1,274.6 | 671.6 | 1,848.7 | 1,731.5 | 117.2 | |
| E2020 Movable Furnishings | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| F. SPECIAL CONSTRUCTION & DEMOLITION | | | | | | | |
| 1 Special Construction (Temporary condit | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 Existing Building Demolition | 919.1 | 928.1 | (9.0) | 919.1 | 928.1 | (9.0) | 924.0 |
| 3 Hazardous Material Abatement | 2,000.0 | 2,000.0 | 0.0 | 2,000.0 | 2,000.0 | 0.0 | 2,000.0 |
| G. BUILDING SITEWORK | | | | | | | |
| 1 Site Preparation | 2,988.4 | 3,153.0 | (164.6) | 2,988.4 | 3,153.0 | (164.6) | 3,071.0 |
| G1010 Site Clearing | 800.7 | 323.7 | 477.0 | 800.7 | 323.7 | 477.0 | |
| G1020 Site Demo & Relocations | 0.0 | 595.0 | (595.0) | 0.0 | 595.0 | (595.0) | |
| G1030 Site Earthwork | 2,187.7 | 2,234.3 | (46.6) | 2,187.7 | 2,234.3 | (46.6) | |
| G1040 Hazardous Waste Remediation | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 2 Site Improvements | 4,539.5 | 4,718.2 | (178.7) | 4,877.0 | 4,718.2 | 158.8 | 4,798.0 |
| G2010 Roadways | 1,385.4 | 1,068.1 | 317.3 | 1,385.4 | 1,068.1 | 317.3 | |
| G2020 Parking Lots | 0.0 | 646.4 | (646.4) | 0.0 | 646.4 | (646.4) | |
| G2030 Pedestrian Paving | 462.9 | 428.1 | 34.8 | 462.9 | 428.1 | 34.8 | |
| G2040 Site Development | 1,344.9 | 1,532.4 | (187.5) | 1,344.9 | 1,532.4 | (187.5) | |

CD60 Estimate Analysis

| | A | B | C | D | E | C | F |
|--|-----------------|-----------------|------------------------|-----------------|-----------------|------------------------|---------------------------------|
| \$(000) except \$/GSF | | | Difference A less B | REVISED | | Difference A less B | Average Reconciled Estimates |
| G2050 Landscaping | 1,346.3 | 1,043.2 | 303.1 | 1,683.8 | 1,043.2 | 640.6 | |
| 3 Site Civil/ Mechanical Utilities | 2,024.9 | 2,172.8 | (147.9) | 2,024.9 | 2,172.8 | (147.9) | 2,099.0 |
| G3010 Water Supply | 322.6 | 391.2 | (68.6) | 322.6 | 391.2 | (68.6) | |
| G3020 Sanitary Sewer | 260.9 | 268.2 | (7.3) | 260.9 | 268.2 | (7.3) | |
| G3030 Storm Sewer | 1,414.9 | 1,483.4 | (48.5) | 1,414.9 | 1,483.4 | (48.5) | |
| G3040 Heating Distribution | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| G3050 Cooling Distribution | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| G3060 Fuel Distribution | 26.5 | 50.0 | (23.5) | 26.5 | 50.0 | (23.5) | |
| G3090 Other Site Mechanical Utilities | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 4 Site Electrical Utilities | 685.7 | 943.0 | (257.3) | 770.8 | 943.0 | (172.2) | 857.0 |
| G4010 Electrical Distribution | 322.3 | 364.0 | (41.7) | 407.3 | 364.0 | 43.3 | |
| G4020 Site Lighting | 363.4 | 403.2 | (39.8) | 363.5 | 403.2 | (39.7) | |
| G4030 Site Communications & Security | 0.0 | 175.8 | (175.8) | 0.0 | 175.8 | (175.8) | |
| G4090 Other Site Electrical Utilities | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 5 Other Site Construction | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| G9010 Service & Pedestrian Tunnels | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| G9090 Other Site & Equipment | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Construction Trades Subtotal | 71,272.1 | 72,117.6 | (845.5) | 70,955.3 | 71,142.9 | (187.6) | 71,057.0 |
| H. Contingencies (Design and Pricing) | 3.00% 2,138.2 | 3.00% 2,163.5 | (25.3) | 3.00% 2,128.7 | 3.00% 2,134.3 | (5.6) | 2,132.0 |
| I. Sub-Contractor Bonds | 0.85% 680.7 | 0.85% 688.8 | (8.1) | 0.85% 677.7 | 0.85% 679.5 | (1.8) | 679.0 |
| J. Insurance | 1.35% 1,090.3 | 1.35% 1,103.3 | (13.0) | 1.35% 1,085.5 | 1.35% 1,088.4 | (2.9) | 1,087.0 |
| K. General Conditions | 4.80% 3,594.2 | 4.80% 3,636.9 | (42.7) | 4.80% 3,578.2 | 4.80% 3,587.7 | (9.5) | 3,583.0 |
| 1 General Requirements | 1.80% 1,412.5 | 1.80% 1,429.3 | (16.8) | 1.80% 1,406.2 | 1.80% 1,410.0 | (3.8) | 1,409.0 |
| 2 Permit | 200.0 | 200.0 | - | 200.0 | 200.0 | - | 200.0 |
| L. Fee | 2.00% 1,637.1 | 2.00% 1,656.5 | (19.4) | 2.00% 1,629.9 | 2.00% 1,634.2 | (4.3) | 1,633.0 |
| M. CM Contingency | n/a | n/a | - | n/a | n/a | - | - |
| N. Escalation to Mid-Point of Construction | 2.00% 1,468.2 | 2.00% 1,485.6 | (17.4) | 2.00% 1,461.7 | 2.00% 1,465.5 | (3.8) | 1,464.0 |
| Total Construction Costs | 83,493.3 | 84,481.5 | (988.2) | 83,123.2 | 83,342.5 | (219.3) | 83,244.0 |

| | | | | | | | |
|--------------------------------------|----------------|----------------|---------------|----------------|----------------|---------------|----------------|
| II. Alternates (with markups) | | | | | | | |
| A. [REDACTED] | 1,075.5 | 1,068.6 | 6.9 | 1,075.5 | 1,068.6 | 6.9 | 1,073.0 |
| B. [REDACTED] | 969.8 | 876.9 | 92.9 | 969.8 | 876.9 | 92.9 | 924.0 |
| C. [REDACTED] | 809.0 | 1,001.8 | (192.8) | 809.0 | 1,001.8 | (192.8) | 906.0 |
| D. [REDACTED] | 534.2 | 526.0 | 8.2 | 1,112.1 | 1,104.0 | 8.1 | 1,109.0 |
| Total Alternates | 3,388.5 | 3,473.3 | (84.8) | 3,966.4 | 4,051.3 | (84.9) | 4,012.0 |