Balfour Beatty

EXHIBIT [Q] – [BIM/VDC]

This Exhibit outlines the requirements, responsibilities, and expectations concerning Building Information Modeling (BIM) and MEP coordination for the Project. Additional information may be found within the Owner Agreement or other Contract Documents. Should any conflict arise between these documents, the more stringent requirement shall govern.

1. Level of Development (LOD) Requirements: LOD 350 standards are to be followed as defined by the BIM Forum Level of Development (LOD) Specification Part 1 & Commentary dated December 2023 unless noted otherwise. LOD350 is the minimum level of development required for the following project scope items unless more stringent requirements are outlined in Exhibit B, the Owner Agreement, or required for each specific scope.
    - MEPF (Mechanical HVAC and Piping, Electrical, Low Voltage, Data, Security, Telecom, Plumbing, and Fire Protection)
        - Plumbing Fixtures if not provided by the architect, All Electrical and Mechanical Equipment
        - Lighting including Chandeliers and light supports will be modeled and coordinated by the electrical Subcontractor.
        - Associated Housekeeping pads and curbs for MEPF Equipment
        - The BIM Forum does not specify what size piping is to be modeled per LOD350. Unless noted otherwise, all conduit 1" or larger, or bundles of conduit larger than 1" are required to be modeled. All pipe sizes are required to be modeled unless noted otherwise.
    - Pool & Water Features
    - Civil & Site Utilities (New & Existing)
    - Food Service
    - Drywall, Framing, Doors, and Ceilings (LOD 300)
    - CIP Concrete and congested rebar areas, including sitework (LOD 350), cast-in-place (LOD 350) and precast (LOD 400)
    - Steel (LOD 400)
    - Mass Timber/Wood Framing (LOD 400)
    - Exterior Skin
    - Folding Partitions or Similar
    - Stairs (LOD 400)
    - Misc. Metals (LOD 400)
    - Laundry Chutes with associated supports
    - Racking
    - Walk-in Coolers/Freezers/Fridges
    - Beverage Conduit and Equipment
    - Overhead Doors
    - Fireplaces
    - Any other trades providing prefabricated assemblies or precast elements must provide an LOD400 model
2. Model Element Properties: Subcontractor model elements shall contain information as agreed upon or required by the owner embedded as model element properties such as pipe size, system, material, equipment name and size, functional properties such as CFM, luminescence information, circuit information to be used for search sets and for potential deliverables to the owner for operations.
3. Project Area Modeling: Subcontractors are required to model every area of the Project to the specified LOD for all items installed under the Subcontractor's scope of work. No areas shall be excluded from the BIM scope without prior written approval from the General Contractor.
4. Coordination With Existing Conditions: Subcontractor shall coordinate with existing conditions and shall model existing conditions items if required to fully coordinate new systems being installed under this Scope of Work.
5. Software Requirements: Subcontractors are required to use Autodesk Revit and Navisworks Manage as primary BIM software tools for modeling and coordination. Each subcontractor is responsible for obtaining and maintaining their own licenses for these software tools. Any deviation from these authoring and clash detection software's shall require advanced written approval from the General Contractor.
6. Procore Coordination Issues plugins shall be used for collaboration and issue tracking throughout the project. An invitation to the Procore project will be provided to each Subcontractor for access.

7. BIM Execution Plan (BEP): This Exhibit references the BIM Execution Plan (BEP) for additional Project-specific information and requirements. The BEP shall be mutually agreed upon and shall be utilized as a reference document for a productive BIM Coordination process throughout the lifecycle of the project.
8. Clash Resolution: Subcontractors shall begin the project with a clash avoidance mindset and shall be aware of other trades and architectural and structural constraints at all times. Subcontractors will deliberately avoid modeling over edges of doors, parallel with walls/soffit edges, through structural elements such as columns and beams, shafts, stairways and elevator shafts etc. and use the guidelines and hierarchy as outlined in the BEP to avoid clashes as much as possible during the initial modeling process. At all times, the Subcontractor will review, reference and incorporate the contract drawings, specifications, RFI's and approved submittals into their modeling efforts. Subcontractors shall regularly and proactively review their BIM models for interferences, conflicts, and coordination issues with other trades involved in the Project. Subcontractors are required to promptly rectify identified clashes to ensure the project proceeds efficiently and without delays. Timely resolution of clashes is crucial for maintaining project coordination. Subcontractors shall coordinate with other contributing stakeholders, subcontractors, and the General Contractor to ensure clashes are resolved in accordance with the project's schedule, and any delays caused by unresolved clashes shall be their responsibility. Timely identification and resolution of clashes are essential to maintain project efficiency.
9. Coordination Meetings: Subcontractors are required to actively participate in regularly scheduled coordination meetings as required to meet the project schedule. All Subcontractors are to adhere to the established model upload schedules, so as to provide ample time for Coordination Meeting prep to occur. The following roles are required to attend all Coordination Meetings as well as maintain availability for sidebar meetings during regular business hours to provide the level of knowledge and authority necessary for a productive coordination meeting:
    - Modeler / Coordinator – an individual that is proficient in both the coordination and modeling software's utilized on the project
    - Decision Maker – an individual that has the authority to make reasonable changes on behalf of the respective company
    - Field Knowledge – an individual that has field experience and understands the constructability of the system being discussed
10. Model Organization: Subcontractors shall provide system and layer naming conventions to be utilized within each authoring model file prior to the initiation of the coordination process. Once these naming conventions have been provided and approved by Balfour Beatty, they shall not be changed by the Subcontractor without prior written approval from Balfour Beatty. Any coordination errors due to a failure to follow the naming conventions will be the sole responsibility of the authoring trade.
11. Signoff: At intervals defined by the project schedule and as each area achieves a clash-free state, signoff documentation will be distributed to all applicable parties to officially reflect that coordination is completed in the given area. Each Subcontractor participating in the coordination effort shall review and sign this document in addition to promptly providing all required deliverables for submission.
12. Deliverables: Subcontractors shall provide the following coordinated and clash-free deliverables at intervals defined or required by the project schedule. These documents shall be provided in DWG and 2D PDF format.
    - Equipment and housekeeping pad drawings
    - Sleeve, penetration, and block out drawings for slabs, walls, and facades
    - Shop Drawings (including all applicable scope items, devices, hangers, supports, and access panels)
    - As-Constructed Models reflecting all revisions, RFI's, field directives & other miscellaneous changes that occurred after coordination was completed
    - Composite sleeve, penetration, and block out drawings, to be prepared by Balfour Beatty unless noted otherwise
    - Composite Reflected Ceiling Plans (RCPs), to be prepared by Balfour Beatty unless noted otherwise
    - Record Federated Model to be prepared by Balfour Beatty unless noted otherwise
13. Installation: Subcontractor shall regularly monitor the installation of coordinated elements to ensure that installations are following the coordinated plan. Subcontractor shall promptly correct any areas that are not installed per the coordinated plan.
14. Closeout: Subcontractor shall update the model to reflect any as-built conditions to within a reasonable tolerance defined by the congestion of each area. These models are to be delivered to Balfour Beatty for review and submission to the client.
15. CAD/BIM Release Clauses: Subcontractors must adhere to the clauses below relating to the transfer of VDC Files.
    - Recipient is a subcontractor that is anticipated to perform services and/or directly or indirectly provide labor, services, equipment and materials related to the Project. Balfour Beatty and Recipient (collectively, the "Parties") agree that Balfour Beatty may provide Recipient with electronic files prepared by Balfour Beatty for the Project in the form of an electronic models (which can be CAD, BIM, sequencing, and others), laser scan point clouds, heat maps, photogrammetry, reality capture, or other form of spatial data used in VDC (the "VDC Files").

- Recipient acknowledges and agrees that Balfour Beatty is not the designer of the Project, that the VDC Files are not the product of any design or engineering services performed by Balfour Beatty, and that the VDC Files are comprised of data and information gathered from third parties which may contain inaccurate or erroneous information or omit material information, and that Balfour Beatty makes no warranty or representation as to the accuracy of such data or information.
- The Parties agree and acknowledge that the VDC Files are not Contract Documents (as that term is defined in or understood to mean in the prime agreement between Owner and Balfour Beatty ("Prime Agreement")), do not represent Contract Document modifications, and are not intended to be a substitute for or a supplement to the drawings and specifications, or to necessarily represent actual physical conditions on the Project site.
- Recipient assumes responsibility for either distributing pertinent files to its subcontractors or preferably, provide Balfour Beatty the relevant information to give access to Recipient's subcontractors through the applicable Common Data Environment (CDE). Recipient agrees that the request to provide VDC Files is purely for the convenience of Recipient and does not constitute the rendering of professional services. Balfour Beatty has prepared the VDC Files to facilitate the coordination of the work of trade subcontractors, and the Parties agree and acknowledge that such files are reasonably accurate and complete for such purposes. Again, Recipient acknowledges that Balfour Beatty does not represent the furnished VDC Files as being accurate or complete, as being suitable for Recipient's purpose, or as identifying or containing any issue, anomaly, omission, or concern with reference to the Project. Recipient also understands and agrees that the VDC Files may be subject to anomalies, errors, viruses, malware, or other unintended defects ("Deficiencies"), and that Balfour Beatty has not reviewed or determined whether such Deficiencies may be present in any electronic files, and in consideration for provision and use of such VDC Files Recipient waives and releases Balfour Beatty from any responsibility for Deficiencies or the resulting effects of such Deficiencies. Use of the VDC Files is solely at the risk of Recipient.