### Section 1.2 Project Contacts

Below are the primary contacts from each stakeholder for BIM-related topics. These contacts should be used to obtain information and answer any questions related to their organizations models or downstream needs relevant to BIM and BIM deliverables.

####  University Contacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Role | Organization | Contact Name | Location | E-Mail | Phone |
| UCSD Project Manager | UCSD |  |  |  |  |
| UCSD BIM Lead | UCSD |  |  |  |  |
| UCSD – [Other] | UCSD |  |  |  |  |
| UCSD – [Other] | UCSD |  |  |  |  |

#### Design Contacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Role | Organization | Contact Name | Location | E-Mail | Phone |
| Architectural BIM Manager |  |  |  |  |  |
| Structural Engineer BIM-responsible |  |  |  |  |  |
| Mechanical Engineer BIM-responsible |  |  |  |  |  |
| Plumbing Engineer BIM-responsible |  |  |  |  |  |
| Electrical Engineer BIM-responsible |  |  |  |  |  |
| Civil Engineer BIM-responsible |  |  |  |  |  |
| Lighting Consultant BIM-responsible |  |  |  |  |  |
| Landscape Architect BIM-responsible |  |  |  |  |  |
| [Other] Design Consultant BIM-Responsible |  |  |  |  |  |
| [Other] Design Consultant BIM-Responsible |  |  |  |  |  |

#### Construction Contacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Role | Organization | Contact Name | Location | E-Mail | Phone |
| CM/GC BIM Manager |  |  |  |  |  |
| Steel Subcontractor BIM-responsible |  |  |  |  |  |
| Concrete Subcontractor BIM-responsible |  |  |  |  |  |
| Mechanical Sub BIM-responsible |  |  |  |  |  |
| Plumbing Sub BIM-responsible |  |  |  |  |  |
| Electrical Sub BIM-responsible |  |  |  |  |  |
| Utilities Sub BIM-responsible |  |  |  |  |  |
| Fire Protection Sub BIM-responsible |  |  |  |  |  |
| [Other] Sub BIM-responsible |  |  |  |  |  |
| [Other] Sub BIM-Responsible |  |  |  |  |  |
| [Other] Sub BIM-Responsible |  |  |  |  |  |

# Section 2: Project Goals

### Section 2.1 Project goals leveraging BIM

The projects goals are described in the table below as well as the metric being used to measure their success. The team members have considered the BIM maturity of every stakeholder required to accomplish each goal and confirm that all goals listed are achievable.

The team members acknowledge the success of each goal can only be attained through a combined team effort by all required project participants as listed in the tables in this section.

|  |  |  |
| --- | --- | --- |
| Priority / Measurement | Goal /Achieved if | Primary Responsibility |
| Priority | Goal:  |  |  |
|  |  |
|  |  |
|  |  |
| Measurement | Achieved if: |  |  |
|  |  |
|  |  |

|  |  |  |
| --- | --- | --- |
| Priority / Measurement | Goal /Achieved if | Primary Responsibility |
| Priority | Goal:  |  |  |
|  |  |
|  |  |
|  |  |
| Measurement | Achieved if: |  |  |
|  |  |

### Section 4.2 Coordinate System and Units

All models will be coordinated around one control point, determined at the beginning of the project. UCSD will provide survey information to the team.

The composite model must contain a 3D target element that is a visual reference point to assist in aligning the Revit models. The 3D target also contains the reference data found in the site survey from the project (e.g. elevation above sea level, compass orientation, etc.)

Replace the example 3D target below with the project specific target.

|  |
| --- |
| cid:image001.png@01CF54AF.EB138A10 |

### Section 4.3 Meeting Procedures

The following is a summary list of meetings that the project team will conduct to facilitate progress in the development and definition of design and planning and execution of construction works facilitated by BIM. The below list is a starting point and the team should add all meetings related to successfully executing BIM uses for the specific project in this table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Meeting Type | Project Stage | Frequency | Participants | Location |
| BIM requirements design kick-off | Programming | Once |  |  |
| BIM Execution Plan Review - Design | Programming | As-needed  |  |  |
| FDS Planning - Design | SD | Once |  |  |
| Design Coordination/QC | SD/DD/Bidding | Once per Stage |  |  |
| Design Coordination/QC | CD | Monthly |  |  |
| BIM Requirements CM Kick-off | CM Award | Once |  |  |
| BIM Execution Plan Review | Post-Award | As-needed  |  |  |
| FDS Planning – Construction | Post-Award CM | Once |  |  |
| Constructability Coordination/QC | Construction | Monthly |  |  |
| FDS and Model Deliverable Checks | Design/Construction | Each Data Milestone |  |  |
| Final Punch list | Construction | Once |  |  |
| Lifecycle BIM Planning | Construction | As-needed  |  |  |
| Any other BIM meetings that occurs with multiple parties |  |  |  |  |

### Section 4.4 Information Exchanges

See the Information Exchanges worksheet in the companion Excel file. The Information Exchanges worksheet is intended to communicate all required model delivery and exports required between project team members to facilitate coordination and follow-on uses of BIM across the project.

### Section 4.5 Facility Data

Develop and document a plan for collecting facility data from various project team members including procedures for delivery and storage of data such that data can be accumulated and carried forward from design to construction and closeout.

Determine if model data will be stored as BIM element attributes or in a separate set of files or database with a method to relate between the facility dataset and models (e.g. BIMlink, Assemble Systems, Ecodomus, VueOps, etc.). Define the tool set used to accomplish delivery of the facility data set. If alternative methods are used, then document how the data will be transferred to the LCM systems and the steps to accomplish that.

For CM/GC, describe how FDS requirements will be incorporated for each trade contractor into contract documents/exhibits.

For assets not being modeled but having a facility data requirement, describe the approach that will be taken to collect and provide to UCSD facility data for these sets of assets.

### Section 4.6 File Naming Structure

The model file names below will be used for this project. Refer to BIM Guide Attachment 1 – File Naming Convention for University file naming requirements. Request the facility ID and project number from the University PM if uncertain.

|  |
| --- |
| File Names for Models Should Be Formatted as: |
| Facility ID-Project #-Discipline-Style of File-Scope Designation-Scope Modifer-Floor-Zone-File Extension(example: MCH-9421-A-M-CS-0-0000.rvt) |

|  |
| --- |
| Design Authoring BIM File Naming |
| Architectural Model  |  |
| Architectural Interiors Model |  |
| Civil Sitework Model  |  |
| Civil Utilities Model |  |
| Landscape Model |  |
| Mechanical Model  |  |
| Electrical Model |  |
| Plumbing Model |  |
| Fire Protection |  |
| Food Service Model |  |
| Structural Model |  |
| Telecommunications Model |  |
| Audio Visual Model |  |
| Lighting Consultant Model |  |
| Energy Model |  |
| Constructability Model |  |
| Estimating Model |  |
| Coordination Model |  |

|  |
| --- |
| Construction Models BIM File Naming |
| Drywall and Framing  |  |
| Masonry |  |
| Concrete |  |
| Mechanical Model  |  |
| Electrical Model |  |
| Plumbing Model |  |
| Fire Protection Model |  |
| Mechanical Pipe Model |  |
| Process Piping/Med Gas Model |  |
| Security Model |  |
| Structural Steel Model |  |
| Utilities Models |  |
| Telecommunications Model |  |
| Construction Models |  |
| Coordination Models |  |

# Section 5: Deliverables Matrix

### Section 5.1 Major Model and Data Delivery Schedule

Document the deliverable schedule for models and model-related data that will occur on the project where the University is involved. The intent of the table below is to provide a **high-level summary** of all of the model-related deliverables across the project. Extend the table for additional project-specific deliverables if needed. Detailed information exchanges between project team members should be defined in the Information Exchanges worksheet and Section 7 BIM Use-specific section of this Plan.

Use the Excel version of the table below when filling out this table for a project-specific BIM Execution Plan.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| BIM Submittal Item | File Sender/ Author | File Received/ Location | Distributed or Available | Stage | Frequency of Delivery | File Type | Notes |
| Complete BEP Development Schedule |  |  |  |  |  |  |  |
| BEP (Design) |  |  |  |  |  |  |  |
| Schematic Design Phase Models for Review |  |  |  |  |  |  |  |
| Facility Data Deliverables Schedule |  |  |  |  |  |  |  |
| Design Development Models for Review |  |  |  |  |  |  |  |
| Design Coordination Reports (DD) |  |  |  |  |  |  |  |
| Construction Document Models for Review |  |  |  |  |  |  |  |
| Space Management Floorplans (CD) |  |  |  |  |  |  |  |
| Design Coordination Reports (CD) |  |  |  |  |  |  |  |
| Facility Data Deliverables (Design) |  |  |  |  |  |  |  |
| Construction Documents Model for Bidding |  |  |  |  |  |  |  |
| Project-Specific FDS |  |  |  |  |  |  |  |
| BEP (Construction) |  |  |  |  |  |  |  |
| Construction Models (for Coordination) |  |  |  |  |  |  |  |
| Submittal and Shop Drawings |  |  |  |  |  |  |  |
| Facility Data Deliverables (Construction) |  |  |  |  |  |  |  |
| Space Management Floorplans (Closeout) |  |  |  |  |  |  |  |
| Change Orders |  |  |  |  |  |  |  |
| Record Models |  |  |  |  |  |  |  |
| As-Built Models |  |  |  |  |  |  |  |

# Section 6: Model Quality

### Section 6.1 Model and Data Quality Overview

Describe the major strategies in place to ensure model and data quality at each deliverable and information exchange on the project.

### Section 6.2 Model Quality Tools

List tools used in performing or automating model quality and data checks. Confirm these are consistent with the tools listed in section 3.

### Section 6.2 Model Quality Checklists

The lists below are a starting point for best-practices when it comes to model health and maintenance tasks in Revit. Model data quality checklists are also listed in the tables below. The project team should use these checklists as a starting point and extend them according to their own firm-specific practices and needs at the project level between project team members.

|  |
| --- |
| Revit Model Quality Checklist – General and Settings |
|  | Does the model authoring firm perform a model audit in Revit weekly? |
|  | Are user-models recreated on a weekly basis? |
|  | Are old/un-used views purged on a weekly basis? |
|  | Are warnings reviewed and resolved on a weekly basis? |
|  | Have the use of design options been limited and used sparingly? |
|  | When a design option is accepted, has the model been archived and other design options removed that are no longer relevant? |
|  | At final turnover, have all design options been removed? |
|  | Have all unnecessary raster images been removed in the model? |
|  |  |

|  |
| --- |
| Revit Model Quality Checklist – Elements |
|  | Has the use of Generic Model category elements been minimized? Only special circumstances should elicit the use of a generic model family. |
|  | Have all unnecessary Groups in the model and linked model been removed? |
|  | Do family and type names describe the element adequately? Avoid any vague naming that does not give at least a general description of the element. |
|  | Has manufacturer/vendor or project-specific wording in the family and type name been avoided? |
|  |  |

|  |
| --- |
| Revit Model Quality Checklist – Views |
|  | Have views not on sheets been limited to working views only? Review views not on sheet and remove unneeded views on a periodic basis. |
|  | Have the use of hidden lines been limited? Use visibility settings and overrides to control category and element visibility. |
|  |  |

|  |
| --- |
| Revit Model Quality Checklist – Worksharing |
|  | Have linked files/models been placed on unique worksets? Worksets should be turned off when content is not needed to improve model performance. |
|  |  |

|  |
| --- |
| Revit Model Quality Checklist – Rooms/Spaces |
|  | Have room schedules been reviewed to identify and resolve any unbounded rooms? |
|  | Have rooms been reviewed to eliminate any overlapping room or space elements? |
|  | Do room number and levels correspond to the intended numbering convention and base level? |
|  |  |

|  |
| --- |
| Revit Model Quality Checklist – Data (for elements required in FDS) |
|  | Has the FDS Products and Attributes worksheets been completed prior to the start of modeling? |
|  | Have all models with FDS requirements added a Shared Parameters file and using approved names of parameters per the “Master-ATTRIBUTES” worksheet? |
|  | Have model elements that require facility data been checked in the parameter “Scope”? |
|  | Are all OmniClass Names and Codes parameters populated for in-scope elements? |
|  | Has the Asset Class parameter been populated per the approved UCSD list? |
|  | Has the System name been populated? |
|  | Have space (room) names and numbers been populated for the element? |
|  | Has the building name been populated in the correct parameter for each element? |
|  | Has a general description been populated in the correct parameter for each element? |
|  | Has a tag number been populated for elements requiring a tag? Only assets that need to be uniquely identified require a tag. |
|  | Are UCSD-approved tag abbreviations being used? |
|  |  |

# Section 7: BIM Use Specific Instructions

This section should be used to document the BIM use-specific information related to each required and optional BIM use that the project team will employ. The section headings below are recommended; however, the project team should expand or modify these sections as required by the particular BIM use in question.

### Section 7.1 BIM Use Overview and Expected Benefits

Give a general overview of the BIM use and why it is being applied to the project and expected benefits.

### Section 7.2 Team Members Involved

List the team members involved in developing models or other information required for this BIM use.

### Section 7.3 BIM Use Deliverables and Project Timing

List the deliverables that will be provided out of the BIM Use both between project team members and to the University. Ensure these deliverables align with those listed in Section 5. Indicate the frequency and timing of these deliverables.

### Section 7.4 BIM Use Process Information

Use this section to describe any processes related to the BIM use. For example, a coordination/clash detection BIM use would describe the specific clash tests being used, how the models will be tested and exports required (e.g. by level, by zone) out of authoring tools to perform clash tests, any meetings required to review the results, frequency of review, who should attend, where meetings will be held, etc.

### Section 7.5 BIM Use Procedural Guides

Use this section to document or attach any best practices or procedural guides that the project team will use related to the specific BIM use.

# Section 8: Record Modeling

The items below should be specifically addressed in the Record Modeling-specific BIM Use section **in addition to** the general requirements for the BIM use sections described in Section 7.

### Section 8.1 Record Modeling Strategy

Define the process of how design or construction models will be updated to represent the final design intent in the record models. Include the frequency for incorporating RFI responses and change orders that affect design intent into the design authoring models. Demonstrate how team members will know definitively if an RFI response affects design intent and a process for how to track and follow through on these required updates into the design authoring models.

Record models should remove all unused views and design options and purge all unused content to optimize file size and performance as much as possible.

### Section 8.2 Facility Data Strategy

Use this section to describe how facility data will be provided so that it satisfies the requirement to have a relationship back to the record model deliverables. The most common way to satisfy this requirement is to store facility data in element parameters, however, some teams may use external tools such as spreadsheets, cloud-based databases, or local databases, to store facility data and a Revit add-in to connect the data back to Revit. If external tools outside Revit or add-in’s are to be used, describe how the University should maintain the use of data and record models after project completion (e.g. can cloud-based data be pushed to Excel files with a certain element parameter used as a lookup/key for connectivity back to the model?).

If record models are the final model deliverable in Revit and as-built models for the same system will be provided in CAD-based formats, describe how facility data provided in as-built models and/or through other means by CM/GC/subcontractors will be merged and conformed with designer provided facility data or if they will be conveyed through an external data deliverable. Identify the project team member(s) who will be responsible for this process.

### Section 8.3 Record Modeling Responsibility

Ensure the project BIM LOD Matrix (University BIM Guidelines Appendix C) is complete and has a designated project team member in the model element author (MEA) column for record modeling when there is a record model required for a particular system or scope. Ensure the MEA is aware of their record modeling requirement and document in this section the timing and acceptance criteria for the record model submission.

# Section 9: As-Built Modeling

The items below should be specifically addressed in the As-Built Modeling-specific BIM Use section **in addition to** the general requirements for the BIM use sections described in Section 7.

### Section 8.1 Record Modeling Strategy

Define the process of construction models will be updated to represent the field conditions in the as-built models. Include the timing for when as-built models will be expected from each trade partner. As-built models should be provided in native model formats with Revit being the performed modeling platform.

If CAD-based models are to be provided, freeze all annotations, linework, and points.

If as-built models in Revit are provided, they will supersede any Record models. Describe how facility data from record models and earlier data drops will be merged and conformed into the as-built models or if they will be conveyed through an external data deliverable.