 

v2.0 – October 2015

Construction BIM Management Plan

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| --- | --- |
| Project Reference: |  |
| Project name: |  |
| Project address/location: |  |
| Brief project description: |  |
| Client: |  |

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| Revision | Date | Prepared by | Approved by | Comments |
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**NATSPEC BIM Management Plan Template**

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Bold text, e.g. **BIM meeting schedule** indicates a cross reference to a Section, clause or schedule elsewhere in the document.

**Document references**

In this document:

* The ‘*BMP Template’* or ‘*Template*’ means the *NATSPEC BIM Management Plan Template*.
* The ‘*BIM Plan’* or ‘*BMP*’ means the *BIM Management Plan* (for a specific project).
* The ‘*National BIM Guide’,* ‘*Guide*’ or *‘BMP’*  means the *NATSPEC National BIM Guide*.

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Contact us via email at [bim@natspec.com.au](mailto:bim@natspec.com.au).

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# Project Information

## General project details

Refer to the *BIM Management Plan Executive Summary* for details of:

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* Project team members.
* Roles and responsibilities.
* Project goals.
* Project procurement.
* Project schedule.

Align the items listed above with those in the *BIM Management Plan Executive Summary*.

# BIM Management

## BIM Management Plan overview

Refer to the *BIM Management Plan Executive Summary* for details of:

* Purpose of the BIM Management Plan (BMP).
* Application of the BMP.
* BMP development.
* Elements of the BMP.
* Updating the BMP.

Align the items listed above with those in the *BIM Management Plan Executive Summary*.

# Collaboration Procedures

## Collaboration overview

Refer to the *BIM Management Plan Executive Summary* for details of:

* BIM meeting strategy
* Collaboration resource providers.

Align the items listed above with those in the *BIM Management Plan Executive Summary*.

## Information management

Collaborative information management strategy:

Options include:

* Reference the *Collaborative Information Management Standard* included in the *Project BIM Brief* **Client-specified** **Reference Documents**; or
* reference *National BIM Guide* clauses **6.2 Collaboration Standards** and **6.3 Management of Standards**; and
* describe how the requirements set out in these clauses will be addressed.

Note any amendments to the collaboration procedures included in the *National BIM Guide* or the nominated *Collaborative Information Management Standard*. See *BIM Project Execution Planning Guide* Chapter 5, Part 6.

## Process overview

[Ed. Process Map for communication collaboration and coordination processes/workflows to be inserted here and general guidance added to the NBG.]

## Meeting schedule

Meetings will be held as shown in this table:

| Meeting type | Frequency | Convenor | Participants |
| --- | --- | --- | --- |
| Client BIM briefing |  |  |  |
| Consultants BIM kick-off meeting |  |  |  |
| Modeller BMP induction meeting |  |  |  |
| Model coordination meeting |  |  |  |
| Modelling progress review |  |  |  |
| BMP review |  |  |  |

Include only meetings specifically about BIM-related matters. Coordinate with other project meetings scheduled elsewhere.

**Meeting**: Add or delete meeting types as required.

**Frequency**: e.g. weekly, fortnightly, monthly, 1st Tuesday of each month. If required, this column can be subdivided into project phases to show different frequencies at each.

**Participants**: e.g. Project Architect, Design BIM Manager.

The date of the next meeting, its location, agenda, etc can all be agreed beforehand.

See *BPEPG* Chapter 6 for suggested agendas for the initial series of meetings.

**Participants**: e.g. Project Architect, Design BIM Manager.

## Model coordination meetings

Model coordination meetings will be conducted by the following means. They correspond to those found in the NATSPEC National BIM Guide, and can be identified by the clause and subclause reference number.

| Required (Yes/No) | Clause No. | BIM coordination meetings conducted: | Provided by: |
| --- | --- | --- | --- |
|  | 6.5 a. | In a suitably equipped room at a location agreed by the BIM Team. |  |
|  | 6.5 b. | In a BIM Coordination Room. |  |
|  | 6.5 c. | Using web conferencing. |  |

Note any amendments to the wording of the *NBG* clauses noted in the table. Include the whole amended clause.

If coordination facilities are not required, i.e. if only the last option is selected, delete the following clause.

## Coordination facilities

| Item | Details |
| --- | --- |
| Provider of facilities |  |
| Requirement |  |
| Room |  |
| Equipment | Computer:  Software:  Display:  Smartboard/Interactive whiteboard: |

**Provider of facilities:** Name the company or organisation providing the room and equipment. Refer to the *BIM Management Plan Executive Summary*.

**Requirement:** e.g. Set up a meeting room to serve as the BIM Coordination Room for the project in the project’s site office.

**Room:** e.g. size, room number, location. Provide a room layout showing the location of equipment.

**Equipment:**

* **Computer:** Nominate manufacturer and model or provide specification, e.g. processor speed, hard drive size, RAM, graphics card, to run all software required and handle expected file sizes efficiently.
* **Software:** e.g. operating system, BIM authoring software, CAD software, model review software, e.g. Navisworks in versions necessary to open agreed file types.
* **Displays:** e.g. LED monitor, Ultra-short-throw projector. Nominate manufacturer and model or provide specification.
* **Smartboard/Interactive whiteboard:** Nominate manufacturer and model or provide specification. Include multi-colour pens for mark-ups.

# Modelling Requirements

## Model geographic location

Requirement: Align all models with the Model Reference Point documented in the *Technical Appendix*.

Strategy for aligning models with the Model Reference Point:

e.g. Model Reference Point and/or 3D grids provided by BIM Manager. See NBG clauses 10.3 and 10.4.

Define a Model Reference Point and its position relative to the physical survey point on site.

Site set-out point establishment:

Describe the strategy for defining the location of a physical survey point on site for the purpose of aligning construction set-out with the Model Reference Point. Select a location that can be preserved throughout the construction period.

## Discipline modelling processes

Modelling standards establishment:

Describe the strategy for establishing modelling standards for the project which are to be included in the *Technical Appendix*. Reference any standards specified by the client in the *Project BIM Brief* **Client-specified Reference Documents**. Describe any additional standards required. Adopt existing industry standards, e.g. ANZRS where possible. Another option is to adopt standards developed by team member organisations. Consider how the *NATSPEC BIM Object/Element Matrix* is to be used.

## Model quality control

Establishment of model quality control measures:

Describe the strategy for establishing model quality control measures for the project including standards and procedures which are to be included in the Technical Appendix.

## Design Model and Existing Conditions Model handover

Clauses included in this section assumes a Design Model and Existing Conditions Model will be provided. Existing Conditions Models include those describing existing site conditions, structures, services, buildings and temporary works. If non-BIM methods have been used to deliver the project during the design phase, relevant material from the *Design BIM Management Plan Template* can be used to document how these models can be developed from available information.

Strategy for migrating the ~~BIM~~ model(s) used for design/documentation to those used for construction:

Outline procedures for migration, including handover and sign-off protocols and identify those responsible. Address how this can be done effectively with the minimum effort. Note any amendments to the procedures described in the Design BMP.

~~Permissible uses~~ Acceptance of Design Models and Existing Conditions Models for construction:

If the permissible uses of Design Models and Existing Conditions Models have been defined, confirm their acceptance and have all parties using the models sign-off on them.

If the permissible uses of Design Models and Existing Conditions Models have not been defined, assess the models and define limitations of their use. Summarise what uses they can, and cannot, be relied on for during the construction phases of the project. Reference contract documents as appropriate.

Agree any remedial measures needed to make them conform to the project’s modelling and quality standards.

## As-built Model handover

Strategy for updating and coordinating changes made during construction into the final BIM model deliverable files:

Describe who will be responsible and how the model is to be updated and coordinated. Outline procedures for capturing changes, incorporating them in the model and verifying their correctness, including sign-off protocols.

Coordinate and cross reference this entry with **Facilities Management/As-built models**.

Permissible uses of As-built Models:

Define the status of information in As-built Models. Summarise what it can, and cannot, be relied on for during the operational phases of the project, e.g. records only, facilities management. Reference contract documents as appropriate.

# Model Sharing, Federation and development

## Procedures and protocols

Model sharing and federation protocol establishment:

Describe the strategy for establishing model sharing and federation protocols for the project which are to be included in the *Technical Appendix*. Project object library

Library establishment strategy:

Describe how the library will be established, how it will be hosted and who will be responsible for the tasks involved.

Library management strategy:

Describe how content will be added and managed and object quality maintained. Describe management responsibilities, access rights and permissions.

[Ed. Insert a diagram illustrating the model development process. Show how primary elements are coordinated first, followed by secondary and tertiary elements.]

# Specific Uses of BIM

## General

Project requirements: Refer to the *BIM Management Plan Executive Summary* for details of the uses of BIM applicable to the project.

Edit the following Section to reflect the uses for BIM on the project recorded in the *BIM Management Plan Executive Summary* (Delete uses not indicated there).The uses of BIM are listed in the same order as those in the *Project BIM Brief* and the relevant *National BIM Guide* clause number is given for each.

The *National Guidelines for Digital Modelling (NGDM)* and *BIM Project Execution Planning Guide (BPEPG)* could assist you to complete the prompts. References to relevant clauses are provided for this purpose.

Changes to uses of BIM: As recorded in the *Project BIM Brief.*

Changing uses of BIM during the project changes the scope of service previously documented. Always recording the changes in the *Project BIM Brief* ensures that this information – which can have contractual implications – is consolidated in a single constant location.

## Clash detection/coordination (NBG clause 7.6.1)

Minimum requirements: Conform to the *NATSPEC National BIM Guide*.

Clash detection procedures:

Describe clash detection procedures including organisation, obligations of different team members, workflows to be used, timing, reporting processes and formats, status tracking (New, Active, Resolved, etc), resolution and sign-off.

Describe the overall approach to model coordination. A coordination strategy encompasses more than clash detection alone, e.g. agreeing general zones for services, structure and penetrations before detail design begins. Explain what you trying to achieve at each stage in the process to advance the development of the design. “Resolve problems, not clashes”. If using BIM for clash detection, refer to the **Clash detection schedules** which can be used to detail the order in which items are to be coordinated.

See *NGDM* clause 3.6 & Appendix 1 and *BPEPG* Appendix B, Item 11.

Clash detection rules, sets and colours: Refer to *Technical Appendix.*

## Construction system design (NBG clause 7.6.2)

Strategy for construction system design:

Purpose of using BIM for this, e.g. for planning by the contractor only, for communicating with subcontractors to improve constructability, productivity or safety. Describe what will be modelled, e.g. temporary built works, scaffolding, including level of detail and method of communication.

See *NGDM* clause 3.6 and *BPEPG* Appendix B, Item 8.

## Digital fabrication (NBG clause 7.6.3)

Strategy for digital fabrication:

Identify elements to be digitally fabricated. Specify documentation and file formats to enable digital fabrication. Outline collaboration arrangements between the contractor, fabricators, designers and modellers to maximise its value.

See *NGDM* clause 3.6 and *BPEPG* Appendix B, Item 9.

## Planning construction scheduling and sequencing – 4D (NBG clause 7.6.4)

Strategy for planning construction scheduling and sequencing:

Explain the purpose of using BIM for this, e.g. for planning by the contractor only, for building occupants. 4D can even be used for conceptual design to show massing during the progressive development of a multi-stage project. Describe what will be modelled, e.g. temporary built works, scaffolding, including level of detail and method of communication, e.g. animated models. Detail who will be given 4D information. Describe the method of linking the model to the project program. Reference guidelines to be adopted, e.g. GSA *BIM Guide 04*. See *NGDM* clause 3.6 and *BPEPG* Appendix B, Item 23.

## Communication of construction scheduling and sequencing – 4D (NBG clause 7.6.5)

Strategy for communication of construction scheduling and sequencing:

See *Guidance* for previous item.

## Site utilisation planning (NBG clause 7.6.6)

Strategy for planning site utilisation:

Explain the purpose of using BIM for this, e.g. for planning by the contractor only, for communicating with site personnel to improve productivity or safety. Describe what will be modelled, including level of detail and method of communication. Outline collaboration arrangements between the contractor, site personnel, designers and modellers to maximise its value.

See *NGDM* clause 3.6 and *BPEPG* Appendix B, Item 7.

## Lift planning (NBG clause 7.6.7)

Strategy for lift/erection planning:

Note: This relates to the planning of lifting operations required for the erection of a building.

Describe what will be modelled, including level of detail and method of communication. Outline collaboration arrangements between the engineer, contractor and site personnel to maximise its value.

See *NGDM* clause 3.6 and *BPEPG* Appendix B, Item 10.

## Facilities Management/As-built models (NBG clauses 7.7.1 & 7.7.2)

Strategy for integration of Facility Management information:

**As-built models**

Note: As-built models do not necessarily contain information suitable for FM purposes.

Define the type of As-Built model required. For example:

* As documented plus approved changes during construction.
* As surveyed (on site by scanning, etc.).
* As commissioned. (One of the above plus commissioning data).

State the purpose for which the model is to be used and define the dimensional accuracy required.

**FM data**

The strategy for the collection of FM data at construction stage will be shaped by decisions made earlier in the project, e.g.:

* **Scenario 1 – FM information has been provided as specified:** In this instance have the client confirm that this still meets their requirements. If not, determine what their revised requirements are and agree an appropriate response.
* **Scenario 2 – FM information, if provided is incomplete, poorly structured or not in a preferred format:** In this instance, establish with the client how available information can be consolidated, updated, supplemented or corrected to meet their requirements.

Whichever approach is decided it should be agreed and documented.

Describe the standard or format for integrating FM information, e.g. Construction Operations Building Information Exchange (COBie). Describe the method of recording and exchanging information, e.g. spreadsheets, COBie compliant software. Describe who will be responsible and outline procedures for capturing and recording information and verifying its correctness, including sign-off protocols.

See *NGDM* clause 3.7 and *BPEPG* Appendix B, Items 1 – 4 and 6.