

**SECURITY AND ESTATE GROUP**

**DOCUMENTING DEFENCE  
BUILDING AND BASE INFRASTRUCTURE SYSTEMS  
OPERATIONS AND MAINTENANCE MANUALS**

# OFFICAL

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14-05-2021	Lesley Godfrey	1.2	Amend B-2 Index and Revision History, Paragraph 1b. The requirement for Infrastructure Systems O&MM to include appropriate indexation.
21-07-2022	Gavin Nicholls	2.0	<ul style="list-style-type: none"><li>Removed repetition and improved document structure, flow and readability</li><li>Updated document templates and examples</li><li>Updated the Zip file template structure</li><li>Updated organisational references (SEG, DELM)</li><li>Improve roles and responsibility definitions</li><li>Expanded workflow descriptions</li><li>Update records management requirements</li></ul>

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### Definitions

AD EMP	Assistant Director Estate Management Planning
ASCON	As-Constructed
BAAS	Base Auditable Alarm System
BWM	Building Works Manual
CFI	Capital Facility Infrastructure
DEIS	Defence Estate Information Systems
DEQMS	Defence Estate Quality Management System
DFI	Defence Fuel Installation
DFI CMP	Defence Fuel Installation Consolidated Maintenance Plan
DFIMI	Defence Fuel Installation Maintenance Instruction
DLP	Defect Liability Period
DPC	Data Provision Checklist
EBI	Estate Business Identifier. Previously called the Unique Estate identifier (UEI)
ECID	Estate Class Identifier
EM	Estate Management
EMOS	Estate Maintenance & Operations Services
EMOS PSS	EMOS Project Support Service
ERIK	Estate Resource Information Kiosk
FAS ETG	Fist Assistant Secretary Enterprise Transformation and Governance
GDL	GEMS Data Load
GEMS	Garrison & Estate Management Systems
HOTO	Handover/Takeover
HV	High Voltage
MFPE	Manual of Fire Protection Engineering
MIEE	Manual of Infrastructure Engineering Electrical
MSP	Master Site Plan
NSIMS	National Spatial Information Management System
O&MM	Operations & Maintenance Manuals
PCBU	Person conducting a business or undertaking
PD	Project Directors
PM	Project Managers
PMCA	Project Manager Contract Administrators
RP	Defence Registerable Plant
SDMP	Spatial Data Management Plan
SEG	Security and Estate Group
SEGM	Security Estate Group Meeting
WHS	Work Health and Safety

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## Introduction

1. These 'Instructions for Documenting Operations & Maintenance Manuals for the Defence estate (O&MM Instructions) have been prepared by the Security and Estate Group (SEG) and **must** be used by Defence and contracted personnel who develop, and update Operations & Maintenance Manuals (O&MM) required to operate and maintain Defence buildings, Base infrastructure systems and associated equipment.

## Purpose

2. This O&MM Instruction provides Contractors, project stakeholders and all estate data providers with sufficient guidance and clarity to consistently and economically provide Defence with concise, simple and useful O&MM that can be stored and accessed on Defence Estate Information Systems.

3. This O&MM Instruction also seeks to ensure Contractors provide Defence with WHS information necessary for Defence to discharge its duties as a person conducting a business or undertaking (PCBU) to workers and other persons under the Work Health and Safety Act 2011 (Cth) and its associated regulations (collectively WHS Legislation).

4. WHS Information for the purposes of these instructions includes manufacturer, designer, importer supplier, installer, commissioner or constructor literature and information required to be provided by the WHS Legislation and other health and safety information as required to be provided by any project contract.

5. This O&MM Instruction will assist Contractors, Project Directors (PD), Project Manager Contract Administrators (PMCAs), Project Managers (PM) and Estate Maintenance & Operations Services (EMOS) to manage and create the required O&MM content, layout, updates and storage.

6. For ease of information collection; reducing duplication; minimising storage demands and improve the ongoing efficient use of O&MM information; the following key principles have been applied:

- a. Minimise duplication of information already captured in Defence Estate Information Systems (DEIS) such as the Defence Garrison & Estate Management Systems (GEMS), Objective Records Management System and Defence Spatial Information Systems.
- b. Exclude in O&MM, manufacturer's literature and maintenance details for low-risk, simple, general assets, equipment and fixtures; such as taps, basins, paint, carpets, office lighting, doors and windows, handles, latches & coverings etc.
- c. Maximise the use of referencing to manufacturer websites where applicable, and
- d. Where there is no legislative or safety requirement to hold a hard copy O&MM, the supply and ongoing upkeep of electronic copies of O&MM is only required.

## Scope

7. This O&MM Instruction provides instructions and examples on:

- a. When O&MM are required
- b. O&MM structure layout (Zip file and Template Document)
- c. Determining O&MM Content and Requirements
- d. Requesting an O&MM Template

- e. Populating the O&MM
- f. Submitting O&MM for Review and Acceptance
- g. Loading O&MM to Objective

**Roles and Responsibilities**

8. **Sponsors** are required to provide direction and advice for a subset of an 'Estate Business Function' which they are business or subject area experts. The Sponsors for this instruction are:

*Table 1 O&MM Sponsors*

<b>Information Subject Area Steward (Sponsor)</b>	Director General Estate Service Delivery
<b>Business Information Steward (Administrator)</b>	Director Estate and Land Management
<b>SEG Groups Records Manager</b>	Director Information, Graphics and eResources
<b>Subject Matter Experts</b>	Environment and Engineering Branch Estate Planning Branch Estate Service Delivery Branch Base Services Transformation and Estate Data Systems Branch

9. **SEG Project Managers and Staff** are responsible for ensuring arrangements are in place to enable Defence personnel, contractors and EMOS to comply with the provisions for documenting OMM for the Defence estate.

10. **Project Manager Contract Administrators (PMCA) / Project Managers (PM).** Ensuring Contractors meet their responsibilities for timely supply, quality, completeness and/or update of O&MM; as specified in the works contract, O&MM Instructions and agreed Handover/Takeover (HOTO) / Data Provision Checklist (DPC)

11. **EMOS Project Support Service (PSS).** Supply of existing O&MM and drawings for updating where available and applicable, provision of advice and guidance on O&MM Instructions and general maintenance requirements, review draft and final O&MMs for applicable content and completeness and provide Contractors timely feedback on supplied draft and final O&MM.

12. **Contractors.** Timely provision of new and/or update of existing O&MM that enable the safe operation and maintenance of built, installed and/or refurbished buildings, infrastructure and equipment. Contractors include Head and/or Works contractors who are responsible for delivery of projects and the associated works.

### **When O&MM are Required**

13. All Defence buildings and Base infrastructure systems must have an associated O&MM. Contractor and/or PM/PMCA are to contact EMOS who will determine if a new or updated O&MM is required. An O&MM must be created or updated when:
- a. Constructing a new building or base infrastructure system, a new O&MM is produced for each building and infrastructure system (systems external to buildings); and
  - b. Refurbishing, replacing, upgrading or altering existing - buildings and/or infrastructure systems. A new O&MM is produced, or an existing O&MM is updated, but only if it conforms to the current standard / updatable layout.

### **O&MM Structure and Layout**

14. The sponsor is accountable for defining the O&MM structure and layout as described in this instruction. Contractors are accountable for maintaining the structure and content as defined. Contractors are only required to produce O&MM (structure & layout) using the template version on DEQMS / ERIK at the time of contract commencement. However it is preferable if the most current version template is used if/where possible. PM / PMCA & EMOS are responsible to review and ensure contractors meet required standards as defined in the instructions and other policy.

15. To produce O&MM that are highly suited for their intended purpose, O&MM are to be created for each building and Base infrastructure system on a Defence Base or Establishment. Base infrastructure systems requiring their own O&MM are those external to a building. i.e. they include Base electrical, gas or water systems (networked infrastructure assets); and airfields, roads, marine structures, obstacle course (non-networked infrastructure assets) etc.

16. Other separate but minor supporting structures associated with a major building (same design solution) can be incorporated in the Building O&MM, e.g. list the ASCONS for shelters or BBQ areas etc.

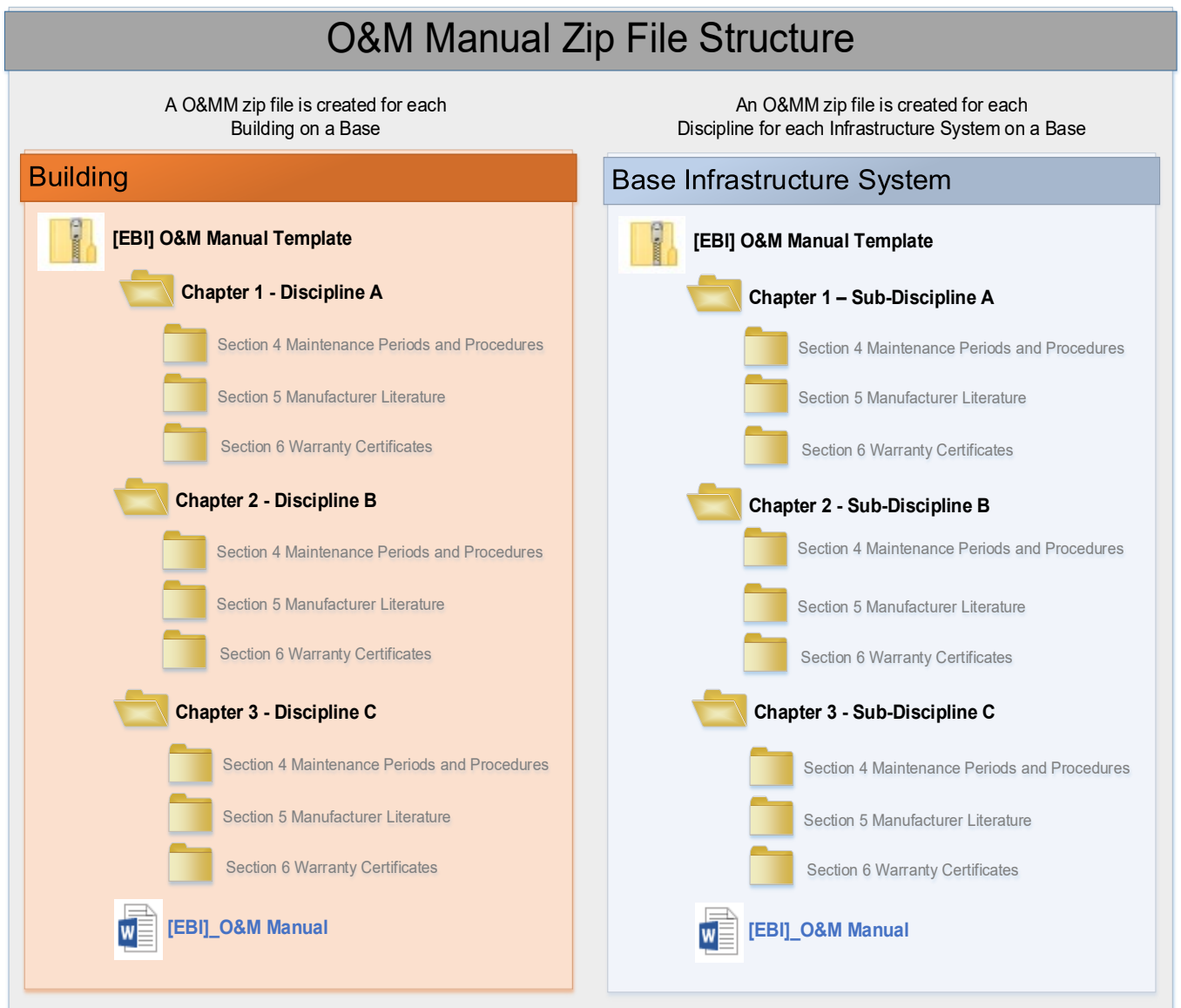
17. In addition to the requirement to produce O&MM in accordance with these O&MM Instructions, Contractors must also comply with relevant contractual, statutory and other Defence policy requirements. Contractors should be aware that they may be required to develop other separate specialised O&MM or procedures in accordance with their contract, Defence policy and other Defence manuals such as the Defence Manual of Infrastructure Engineering Electrical (MIEE), Defence Fuel Installation Maintenance Instruction (DFIMI) and/or statutory requirements. Examples include Verification dossiers, High Voltage System Configuration Manual, Aeronautical Ground Lighting Configuration Manual, and Defence Fuel Installation Consolidated Maintenance Plan (DFI CMP). Where applicable, other specialised maintenance and operation manuals should be referenced where applicable, in the general Building and Base Infrastructure System O&MMs produced in accordance with these O&MM Instructions.

18. Building and Base Infrastructure System O&MM can comprise of many documents. To help keep these documents together, logically linked and to minimise the file sizes; the O&MM is enclosed in a zip file. i.e. a zip file is the "O&MM". Within the zip file is the requisite folder structure (folder-set) for storing attachments and a template O&MM document to record general asset and maintenance information and provide links to the attachments saved in the zip file folder-set.

Zip File – Structure

19. As depicted in Figure 1, there are two types of zip file O&MM. One for Buildings and one for Base Infrastructure Systems, where:
  - a. Building O&MM contain all information and disciplines applicable to a building, and
  - b. Base Infrastructure System O&MM contain all information applicable to an infrastructure system discipline.
  - c. Only Sections 4, 5 and 6 of the O&MM are to have supporting documents contained within the folder set.

*Figure 1 - O&MM Zip File Folder Structure*



20. To ensure the zip file O&MM display information with a consistent and manageable layout, where later retrieval of information is intuitive and easily achieved by maintenance staff, the following folder structures apply:

- a. **Building Zip File** - Building O&MM zip files are structured with chapters assigned for each discipline that is applicable to that building. Table 2 lists most of the recognised building disciplines and their notable components.

**Table 2 - O&MM Disciplines for Buildings**

<b>Architectural</b> <ul style="list-style-type: none"> <li>Roller Doors</li> <li>Protective coatings</li> <li>Water proofing</li> <li>Special cladding &amp; roof</li> <li>Automatic doors &amp; louvers</li> </ul>	<b>Civil</b> <ul style="list-style-type: none"> <li>Pads &amp; slabs</li> </ul>	<b>Structural</b> <ul style="list-style-type: none"> <li>Safety platforms, rails &amp; anchor points.</li> <li>Pest Control (warranty)</li> </ul>
<b>HVAC (Heating Ventilation Air Conditioning)</b> <ul style="list-style-type: none"> <li>Air Distribution – Heating &amp; Cooling</li> <li>Chilled Water</li> <li>Split Air Conditioning</li> <li>Large exhaust systems</li> </ul>	<b>Hydraulic</b> <ul style="list-style-type: none"> <li>Cold &amp; Heated Water Pressure Reduction Valves, Sluice valves</li> <li>Sewage: Pumps &amp; Sewer Treatment</li> <li>Water Treatment &amp; dosing systems</li> <li>Stormwater: Pumps only</li> </ul>	<b>Mechanical</b> <ul style="list-style-type: none"> <li>Compressed Air</li> <li>Vacuum</li> <li>Steam</li> <li>Gas</li> <li>Lifting &amp; Material Handling</li> </ul>
<b>Electrical</b> <ul style="list-style-type: none"> <li>Distribution &amp; Transmission</li> <li>Generation</li> <li>Protection &amp; Safety</li> <li>Monitoring &amp; Control</li> <li>Lighting</li> <li>Lightning Protection</li> </ul>	<b>Communications</b> <ul style="list-style-type: none"> <li>Defence Engineering Services Networks</li> <li>Voice &amp; Data</li> <li>Building Management Systems</li> </ul>	<b>Security</b> <ul style="list-style-type: none"> <li>Detection &amp; Alarm</li> <li>Access Control</li> <li>CCTV</li> </ul>
<b>Fire Safety (Wet and Dry)</b> <ul style="list-style-type: none"> <li>Detection &amp; Emergency Warning</li> <li>Wet Suppression</li> <li>Pumps, tanks, hydrant, hose reels</li> <li>Containment &amp; Separation (doors, walls, fire curtains etc.)</li> <li>Penetrations</li> </ul>	<b>Others</b> <i>Include other applicable disciplines if not listed above e.g. Lifts &amp; escalators and training towers etc.</i>	

21. **Base Infrastructure System Zip Files** - Base Infrastructure System O&MM zip files are structured slightly different to building O&MM. An O&MM (Zip file) is created for all information pertaining to each applicable infrastructure system discipline (includes major infrastructure assets / structures) on a Base. Table 3 lists most of the recognised Infrastructure System disciplines and their sub-disciplines.

**Table 3 - O&MM Disciplines & Sub-Disciplines for Base Infrastructure Systems**

<b>Roads &amp; Transport</b> <ul style="list-style-type: none"> <li>Road Networks</li> <li>Car Parks</li> <li>Hardstands</li> <li>Walkways</li> </ul>	<b>Land Space</b> <ul style="list-style-type: none"> <li>Natural Landscape</li> <li>Training Area</li> <li>Buffer Zone - protection</li> <li>Revetments - protection</li> </ul>	<b>Hydraulic</b> <ul style="list-style-type: none"> <li>Potable</li> <li>Irrigation</li> <li>Fire</li> <li>Sewage</li> <li>Stormwater</li> </ul>
<b>Electrical</b> <ul style="list-style-type: none"> <li>Distribution Network</li> <li>Public Area Lighting</li> </ul>	<b>Communications</b> <ul style="list-style-type: none"> <li>Voice and Data</li> <li>Engineering Services Networks</li> <li>BAAS</li> </ul>	<b>Mechanical (reticulated)</b> <ul style="list-style-type: none"> <li>Air</li> <li>Gas</li> <li>Fuel</li> </ul>
<b>Maritime</b> <ul style="list-style-type: none"> <li>Wharf &amp; Dry-dock</li> <li>Breakwater</li> <li>Beacons / Markers</li> <li>Bridges</li> </ul>	<b>Airfields</b> <ul style="list-style-type: none"> <li>Runway / Taxiway</li> <li>Apron</li> <li>Airfield Lighting</li> </ul>	<b>Other</b> <i>Include other applicable disciplines or sub-disciplines if not listed above</i>

O&MM Document Layout

22. All O&MM must follow the structured layout depicted in Table 4. The Building and Base Infrastructure System O&MM is structured with three parts: Introduction, Chapters, and Sections.

*Table 4 - O&MM Document Structure*

	Description	Building	Base Infrastructure System
O&MM Document Template	Template document to record general asset and maintenance information	An O&MM document is created for each Building on a Base	An O&MM Document is created for each Discipline for each infrastructure system on a Base.
Volume	A document part that makes up a series of O&MM for an asset. Further details about volumes can be found at <a href="#">Zip File - Volumes</a> in this document	Required when zip file reaches 200 MB limit	Required when zip file reaches 200 MB limit
Introduction	An outline of the document subject content and version history <ul style="list-style-type: none"> <li>Title page</li> <li>Table of Context</li> <li>Revision Status</li> </ul> Details about the information and layout of the introduction pages can be found at <a href="#">Document Template - Introduction</a> in this document	One per volume	One per volume
Chapter	Collection of information relating to a single discipline or sub-discipline. Further details about chapters can be found at <a href="#">Zip File – Structure</a> in this document	A chapter is assigned for each <u>discipline</u> that is applicable to that building	A chapter is assigned for each <u>sub-discipline</u> that is applicable to that infrastructure system
Section	A set of topics by which asset and maintenance information is divided for easy reference. <ul style="list-style-type: none"> <li>Operation Description</li> <li>Installer and Supplier Contact Directory</li> <li>Equipment System List</li> <li>Maintenance Periods and Procedures</li> <li>Manufacturer Literature</li> <li>Warranty Information</li> <li>Critical Spare Parts &amp; Specialist Tools</li> <li>As-Constructed Drawing List</li> </ul> Details about the information captured in each section can be found at <a href="#">Document Template – Sections</a> in this document	A set of sections are assigned per chapter (discipline)	A set of sections per chapter (sub-discipline)

O&MM Presentation (Style)

23. The following features for O&MM shall apply:

*Table 5 - O&MM Features*

Font	The O&MM must be in a readable and easily accessible format and presentation. The Defence standard for text is Times New Roman font, colour – black and text size 12 pt for O&MM content, with cover page headings in size 16 pt as per the Estate O&MM Template.
Paper Size	All documents should be sized in the international A4 paper size (210 mm × 297 mm). Other larger material should be sized A3 paper size (297 mm x 420 mm). If other paper sizes are used, they should conform to the standard ISO paper sizes.
Margins	Page margins should be: Top 20 mm, Bottom 20 mm and Sides 25mm.
Page Numbers	Every page should carry a page number (Page of pages format). The title of the document (abbreviated, if necessary) should appear on each page as well as the date of issue. Page numbering of attached separate documents in the folder-set is not required. e.g. a product booklet.
Language	The language used in the document should be appropriate to the user or intended audience and not contain slang.
Photo and reference material	The use of photos and inclusion of relevant reference material is encouraged to ensure the reader can adequately understand the requirements for safe and proper operation and maintenance of the works (i.e. ensure where relevant WHS Information is supplied as required by the WHS Legislation and/or any project contract). Photos must be reduced in size to <500 kB and videos are not acceptable.
Marketing material	The use of manufacturer product marketing material must not occur.
Illustrations, technical drawings, tables, and charts	All illustrations, technical drawings, tables, and charts should be clear, self-explanatory, have descriptive titles that clearly position and correlate to referring text, instructions, and notes.

**Determining O&MM Content and Requirements**

Content Objectives

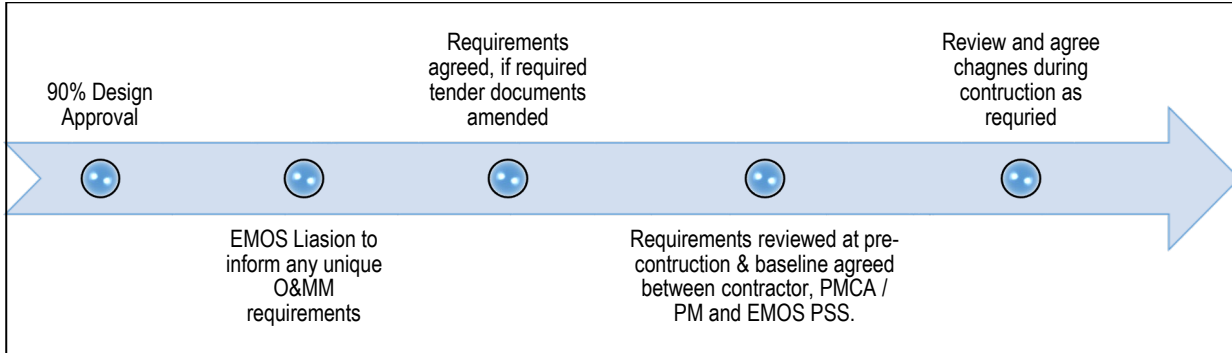
24. The O&MM structure and content schema has been established for several purposes that include compliance with WHS and other legislative requirements, to align with best industry practice, satisfy Defence and AS/NZS 1388: 1994 requirements, providing information that is more focused on the needs of maintenance personnel and reducing content that is minimal risk and unnecessary for sustainment and maintenance.

25. Reducing unnecessary content includes the elimination of duplicated information within an O&MM and/or information that is readily available on other Defence and manufacturers' information systems. e.g. GEMS, DEQMS, websites, or Project & Estate Management (EM) folders in Objective. This means that subject to the provision of any WHS Information; copies of commissioning test results, design & completion certificates, building occupancy certificates and as-constructed drawings etc. are not required in the O&MM because they are provided as separate Handover/Takeover (HOTO) deliverables and stored in other DEIS for access by the EMOS and Defence staff when required. More information about how these types of Defence documents are provided and stored can be found in the [HOTO process](#) and the [Estate Management Objective Workgroup Instructions](#).

Planning for O&MM Content and Requirements – Estate Projects

26. Defence and EMOS requirements for building and infrastructure system maintenance and O&MM content are discussed and determined throughout the design and construction phases. The sequence for determining project O&MM content and requirements is depicted in the figure below and described in the paragraphs below.

*Figure 2 - Determining O&MM content and requirements – Estate Projects*



27. **Design Phase.** Throughout the design phase PMCA / PM and Contractors must consult EMOS PSS for their input about facility maintenance and sustainment requirements to ensure designs provide an efficient “whole of life” operation and maintenance regime. PMCAs and PMs should take advantage of this consultation to identify any unique or explicit O&MM requirements for delivery in the construction phases. The PMCA / PM should also confirm with EMOS if a new or update of an existing O&MM is required. Refer to [Refurbishing or Altering Existing Buildings or Base Infrastructure Systems](#) for further guidance on determining O&MM for existing buildings and Base infrastructure systems. It is expected that these requirements can be identified by 90% design and help inform project scope requirements for construction.

28. **Pre-construction.** At pre-construction the Contractor must provide a list of the proposed O&MMs (at Building and Base Infrastructure System level) and confirm with EMOS PSS, the principles and process that will be used to determine O&MM content. Additionally, the Estate Information Provision Plan (including Data Provision Checklist) must be developed for the construction phase and provide a schedule for review and feedback of O&MM deliverables. When projects are refurbishing, replacing, upgrading, or altering existing buildings and/or infrastructure systems, the Contractor and/or PMCA must request and EMOS PSS are to provide, any applicable existing O&MMs (in the new updatable format) for use and/or updating.

29. **Construction.** Ongoing consultation between the Contractor and EMOS PSS must continue throughout the construction phase to identify opportunities to optimise O&MM content to a level most practical and efficient for future maintenance and sustainment, while still meeting necessary compliance and WHS requirements. Additionally, the Contractor must notify EMOS PSS when there are any variations from the approved tender design for equipment and/or infrastructure systems. This will enable EMOS to confirm with the Contractor and PMCA / PM, if there are any maintenance implications and if revised O&MM requirements apply. Throughout this phase, progress against the DPC must be monitored and for changes agreed between contractor / PMCA/PM and EMOS PSS the DPC is updated.

## Determining O&MM Content and Requirements

30. To assist Contractors and EMOS with determining the content and requirements for each O&MM section and requisite folder structure, the following guidelines have been established.

31. Contractors must provide adequate maintenance and WHS information to discharge their obligations under the WHS Legislation and to ensure Defence can discharge its WHS duties to workers and other persons throughout the facility's lifecycle (including final decommissioning / demolition) once the installed equipment and facilities are operational; including information required to be provided by designers, manufacturers, importers, suppliers, constructors, commissioners and installer under the WHS Legislation and any other WHS information the Contractor is obligated to provide by its project contract.

32. When determining O&MM content and supporting information requirements for Sections 4 or 5 (as relevant), maintenance information for equipment, fixtures and/or conditions must include at a minimum all:

- a. Licenced and registerable plant, where there is a statutory requirement for provision of operating & maintenance instructions, as per Defence Registrable Plant (RP) Technical instructions on DEQMS:  
<https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/RegistrablePlant.asp>;
- b. Structures and equipment relating to Defence Fuel Installations (DFI), which is also directed by the DFI Maintenance Instructions (DFIMI);
- c. Equipment that forms part of safety systems where there is a statutory requirement for provision of operating & maintenance instructions, including hazardous areas information;
- d. Any unique and complex equipment and/or system components, and specific maintenance requirements including Manufacturers Maintenance on propriety systems (including design information specific to the equipment/system or facility); and
- e. Where a deviation from manufacturers or supplier maintenance specification is required due to environmental conditions and/or planned operating cycles.

33. Unless there is a WHS or special maintenance requirement (includes the conditions above), O&MM manufacturer's literature is not required for low-risk, simple, general assets and fixtures; such as taps, basins, paint, carpets, office lighting, doors and windows, handles, latches & coverings etc. This approach has been adopted because Defence's specified maintenance for these items is responsive, the assets are quite simple and present minimal risk; subsequently, maintenance staff typically do not refer to O&MMs when repairing these assets and fixtures. Contractors should seek guidance from EMOS PSS if they are in doubt about what O&MM content to include.

34. A web address to manufacturer's general literature can be provided as an alternative and/or for supplementary information to documents saved in the folder-set. Full web addresses are to be provided and hyper-links to these web sites are not to be embedded in key words.

## Requesting an O&MM Template

35. The size and complexity of the works and status of existing manuals will significantly influence what O&MM products must be produced and supplied to Defence by a project. To determine a project's O&MM requirements, the following instructions are provided:

### New Buildings and Base Infrastructure Systems

36. When a new building or Base infrastructure system is being constructed, Contractors will have to develop a new O&MM and they can obtain a zip file template from the DEQMS / ERIK links below. If Contractors have difficulty downloading a Zip file template, they can request the required template from the PMCA / PM.

- a. [Building – Zip file template.](#)
- b. [Base Infrastructure System – Zip file template.](#)

### Refurbishing or Altering Existing Buildings or Base Infrastructure Systems

37. When an existing building or Base infrastructure system is being refurbished or altered, Contractors will either develop a new or update an existing O&MM. To determine what action is required (if not advised in the tender / contract specification), Contractors must contact the EMOS PSS and request supply of the applicable zip file. EMOS PSS are to follow the instructions below to determine if they are to send the Contractor a blank zip file template (for new O&MM) or an existing zip file O&MM for updating.

- a. Where no O&MM exists, EMOS PSS advise the Contractor an existing manual does not exist and the contractor is to obtain / download an applicable blank zip file template from DEQMS. i.e. Building or Base Infrastructure System zip file template.
- b. Where an O&MM exists, and it is not structured in the layout and format specified in this instruction, EMOS PSS advise the Contractor a manual in the required format does not exist and the contractor is to obtain / download an applicable blank zip file template from DEQMS. i.e. Building or Base Infrastructure System zip file template.
- c. Where an O&MM exists and it is structured in the layout and format specified in this instruction, EMOS PSS provide the O&MM zip file to the Contractor to update. This action incrementally accumulates O&MM information into one manual for each building or Base infrastructure system. Note: Contractors must update 'The Table of Content' and revision status pages to provide a record of changes.
- d. **Note:** Projects only need to create a new O&MM and/or update content that relates to the project scope. This may result in multiple O&MM retained in objective. i.e. legacy O&MM (old format) and new O&MM formatted in the zip file structure that will be progressively updated over the remaining life of the Building / Base Infrastructure System.

### Simultaneous Projects

38. When EMOS PSS issue existing O&MM zip files for projects to update the contents there will be infrequent occasions where buildings and Base infrastructure systems have different projects simultaneously conducting works on that same asset. EMOS PSS is to monitor and manage the issue of manuals and project delivery schedules

to coordinate the merging of updated O&MM sections, establish an oversight of version control and minimise information conflicts.

## Populating the O&MM

### Zip File - Volumes

39. An O&MM will comprise of a Word document and other supporting information and documents (typically pdf documents) saved in a folder-set that are all compressed into a “zip file”. Note: No PDF’s are to be used for documents that may require updating.

40. Where all required information cannot be compiled into a single O&MM zip file due to file size limitations (200MB maximum zip-file) and the large amount of information, Building or Base Infrastructure System O&MM are to be segmented into two or more clearly labelled volumes that are saved as individual O&MM zip files.

41. For Building O&MMs, each volume may comprise of one or more disciplines, depending on the amount of information. For example, O&MM for small simple buildings will only require one volume that contains all applicable disciplines and supporting information. O&MM for large complex buildings are likely to comprise of several volumes where each volume may contain one or more disciplines (dependant on the amount of information). Refer to table 2 for a list of building disciplines.

42. For Base Infrastructure System O&MM, each volume may comprise of one or more sub-disciplines depending on the amount of information. For example, a Base Infrastructure System O&MM – Hydraulic, for a depot is likely to comprise of one volume. Whereas a Base Infrastructure System O&MM – Hydraulic, for a large air base may require of two or more volumes. i.e. one volume for each sub-discipline.

43. To assist with the creation of new O&MM, two preformatted blank templates are available. One for Building O&MM and one for Base Infrastructure System O&MM. These templates must be used by Contractors when providing Defence with O&MM.

44. A copy of the (zip file) Building O&MM Template and Base Infrastructure System O&MM template can be obtained from DEQMS Handover/Takeover Estate O&MM page at: <https://defence.gov.au/estatemangement/lifecycle/PlanHandoverTakeover/OMM.asp>

### Zip File - Folder Set

45. **Buildings.** Each O&MM zip file template provides a generic folder-set of Chapters (discipline folders) and Sections (section folders) that align with [figure 1](#).

46. Each chapter is to be named according to the disciplines applicable to that building. Refer to table 2 for a list of building disciplines. Chapters are only created or updated for the disciplines that the project or works are constructing, affecting or altering.

47. Each chapter folder will have 3 sub-folders (section folders) where O&MM supporting documents are to be placed. These documents can include pdf copies of: maintenance booklets, schedules & data sheets, manufacturer’s literature and warranty certificates. Supporting documents are only expected for sections 4, 5 & 6. Information pertaining to the other sections will be recorded in the O&MM word document.

48. **Base Infrastructure Systems.** Each O&MM zip file template provides a generic folder-set of Chapters (sub-discipline folders) and Sections (section folders) that align with figure 1.

49. Each chapter is to be named according to the sub-disciplines applicable to that infrastructure system (discipline level). Refer to table 3 for a list of disciplines and sub-disciplines. Chapters are only created or updated for the sub-disciplines that the project or works are constructing, affecting or altering.

50. Each chapter folder will have 3 sub-folders (section folders) where O&MM supporting documents are to be placed. These documents can include pdf copies of: maintenance booklets, schedules & data sheets, manufacturer’s literature and warranty certificates. Supporting documents are only expected for sections 4, 5 & 6. Information pertaining to the other sections will be recorded in the O&MM word document.

51. For each additional chapter created, additional section 4, 5 & 6 folders must be created in the zip file. i.e. copy and paste a generic / blank chapter folder. These are the only additional folders allowed to be created. Where generic / blank chapter folders are not used, they are to be deleted.

52. If supplied manufacturer’s literature is referenced in several sections in the O&MM (i.e. general description, maintenance and manufacturer’s literature); do not place multiple copies of the same literature in the folder-set for each referenced section. Where there are multiple section references, just place the manufacturer’s literature in the folder-set for manufacturer’s literature and create hyperlinks to that document (literature).

### Zip File Naming Convention

53. The following file naming convention must be used for all O&MM to ensure nationally consistent practices (as per [Base Services Contract – Objective Operating Instruction](#)) that enable easy document storage and retrieval. The follow conventions apply:

Building	[Building EBI]_OMM [GEMS Building Name] [Volume#] 0908-A0548_OMM Engine Run Up_Volume1
Base Infrastructure System	[Infrastructure System EBI]_OMM [GEMS Property Name]_[Discipline] [Volume#] 0356-CZ002_OMM Lone Pine_Hydraulic_Volume1

54. **Handy Tip:** At times, Windows may not allow the extraction of the zip folder due to a file name pathway being too long. To enable extraction of the zip folder, rename the folder before attempting a further extraction.

### Document Template – Hyperlinking Supporting Information

55. The Building or Base Infrastructure System O&MM template (word Document) must be a self-contained word document with text entries, tables and images only as necessary. Other O&MM supporting information or documents that cannot be included in the word document, such as copies of warranty certificates, manufacturer literature or maintenance booklets are to be stored as individual pdf documents in the appropriate folder-set location within the O&MM zip file.

56. Information saved in the folder-set must be linked to the applicable section in the O&MM word document and hyperlinks must use a relative address path (do not use an absolute address path). If relative addresses are not used, links within the zip folder will not work when documents are saved in different locations. For example. An applicable relative address path would be: ( ./Building/Electrical/05 Manufacturer Literature/file\_name.pdf ).

57. For documents saved in the folder-set, formats other than PDF are acceptable but must comply with the Spatial Data Management Plan (SDMP). e.g., formats such as Word, DWG and XLSX may be used where applicable.

**Document Template - Introduction**

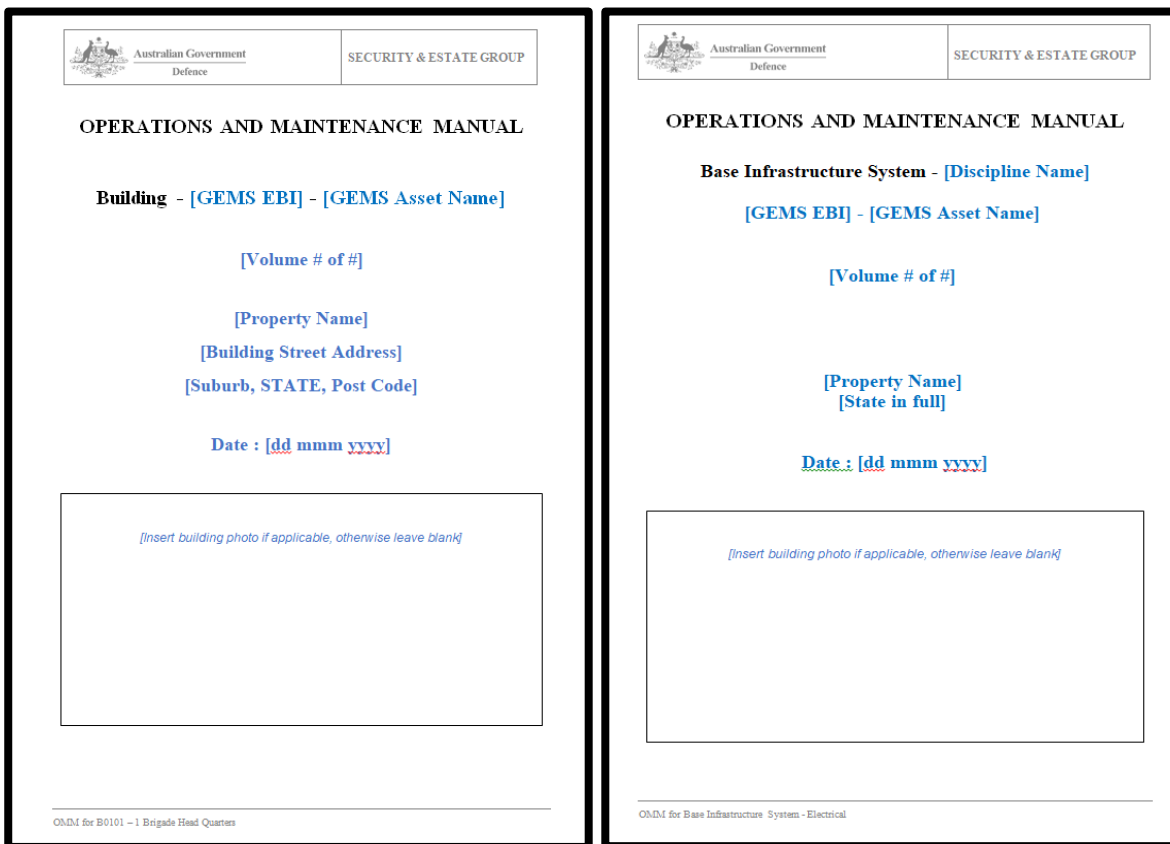
58. The introduction sits at the top of each O&MM document and enables easy identification of the manuals subject, version and content for users and maintainers. The introduction has four parts:

- a. Cover Page
- b. Revision History
- c. Table of Context
- d. General Description

**Cover Page**

59. The cover page advises the reader which asset the O&MM document’s content covers and the asset location. The cover page layouts are shown in figure 3 and its content is explained in Table 6.

*Figure 3 - O&MM Cover Page Layout*



**Table 6 - Cover Page Content Details**

	Building	Base Infrastructure System
Document Title	OPERATIONS AND MAINTENANCE MANUAL Building	OPERATIONS AND MAINTENANCE MANUAL Base Infrastructure System
GEMS Estate Business Identifier (EBI) and Asset Name	Property and Business Identifier (EBI) and building's name as it appears in GEMS: For example: 0908/A0006 - Engine Run-Up Shelter  Discipline details are not required on the building cover page. A chapter is assigned, within the document, for each discipline that is applicable to the building	Discipline details are required on the Base Infrastructure system cover page. An individual O&MM document is assigned for each discipline. For example: Hydraulic  The Property and Business Identifier (EBI) and Base Infrastructure System's name as it appears in GEMS. For example 0908/A0001 - Electrical
Volume When O&MM information cannot be compiled into a single zip file, due to file size limitations, the information must be split into multiple zip files called 'a volume'.	Generally buildings will only require one volume. However, for large complex buildings an O&MM can comprise of several volumes that are split by disciplines. Were two or more volumes are required, the volume must be captured on the Cover page. For example: Volume 1 of 3	Large Base Infrastructure Systems O&MM could comprise of two or more volumes which are segmented at the end of a 'Chapter'. Were two or more volumes are required, the volume must be captured on the Cover page. For example: Volume 2 of 4
Property Name	The Property name on which the building is located: for example RAAF Williamtown	The Property name on which the Base Infrastructure System is located: for example Robertson Barracks
Address	The Building's Street address in full as it appears in GEMS. For example Street Address Suburb, State, Post Code	The Base Infrastructure System's state in full as it appears in GEMS. For example New South Wales
Date	The date when the initial O&MM was created.	The date when the initial O&MM was created.
Image	To further assist the reader with recognising the asset, a photo of the building can be added at the bottom of the cover page, otherwise leave blank	To further assist the reader with recognising the asset, a photo of the Base Infrastructure System can be added at the bottom of the cover page, otherwise leave blank

## Revision History

60. Each O&MM must have a Revision History table that captures when the document was created and provides transparency of document modifications over time. The 'Revision History' page layout is shown in Figure 4. The information to be captured in each column is clarified in Table 7. If an O&MM comprises of more than one volume, each volume must have its own Revision History table covering that volumes content.

*Figure 4 - O&MM Revision History Layout*

<b>REVISION HISTORY</b>				
Creation / Revision Date	Author	Project Name & Number	Version	Description
<i>1 Dec 21</i>	<i>ABC Building</i>	<i>N1234 - Robertson Barracks Redevelopment</i>	<i>1.0</i>	<i>Initial Version</i>

*Table 7 - Revision History Table Content*

Column	Description
Date	Date the O&MM document was created or changed in the format DD/MM/YYYY
Author	Company Author names are preferred over individuals Author names.
Project Number and name	Record any Defence project number and title details in this section to readily identify and locate other complementary information such as HOTO related information. For example N1234 - Robertson Barracks Redevelopment
Version	Standard version number format for example: 0.1 or 2.0
Description	Summary of the changes made to the content within this document and must cover all parts/section of the document. For example: Initial Version Sections 2 to 7 updated to include new equipment

**Table of Content**

61. Each O&MM must have a 'Table of Content' to enable quick and easy location of required information. If an O&MM comprises of more than one volume, each volume must have a 'Table of Content' only for that volume.

62. The table of content headings must be linked to document headings to enable automatic update of details and page numbers once ‘refreshed’ and enable readers to Ctrl + click to follow the link to desired document locations. The O&MM word templates have been preformatted with these features.

*Figure 5 - O&MM Table of Content layout*

BUILDING GENERAL DESCRIPTION.....	4
<b>CHAPTER 1 [ELECTRICAL].....</b>	
OPERATION DESCRIPTION.....	5
OTHER MANUALS.....	5
BUILDER, INSTALLER AND SUPPLIER CONTACT DIRECTORY.....	6
EQUIPMENT SYSTEMS LIST.....	7
MAINTENANCE PERIODS AND PROCEDURES (INCLUDING WHS INFORMATION).....	8
[EBI - ASSET DESCRIPTION].....	9
MANUFACTURER LITERATURE.....	10
WARRANTY INFORMATION.....	11
CRITICAL SPARE PARTS LIST.....	12
SPECIALIST TOOLS LIST.....	12
AS CONSTRUCTED DRAWINGS LIST.....	13
<b>CHAPTER 2 [DISCIPLINE].....</b>	
BUILDING DESCRIPTION.....	14
GENERAL DESCRIPTION.....	14
OPERATION DESCRIPTION.....	14
BUILDER, INSTALLER AND SUPPLIER CONTACT DIRECTORY.....	15
EQUIPMENT SYSTEMS LIST.....	16
MAINTENANCE PERIODS AND PROCEDURES (INCLUDING WHS INFORMATION).....	17
[EBI - ASSET DESCRIPTION].....	18
MANUFACTURER LITERATURE.....	19
WARRANTY INFORMATION.....	20
CRITICAL SPARE PARTS LIST.....	21
SPECIALIST TOOLS LIST.....	21
AS CONSTRUCTED DRAWINGS LIST.....	22
<b>CHAPTER 3 [DISCIPLINE].....</b>	
BUILDING DESCRIPTION.....	23
GENERAL DESCRIPTION.....	23
OPERATION DESCRIPTION.....	23
BUILDER, INSTALLER AND SUPPLIER CONTACT DIRECTORY.....	24
EQUIPMENT SYSTEMS LIST.....	25
MAINTENANCE PERIODS AND PROCEDURES (INCLUDING WHS INFORMATION).....	26
[EBI - ASSET DESCRIPTION].....	27
MANUFACTURER LITERATURE.....	28
WARRANTY INFORMATION.....	29
CRITICAL SPARE PARTS LIST.....	30
SPECIALIST TOOLS LIST.....	30
AS CONSTRUCTED DRAWINGS LIST.....	31
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## General Description

63. The general description is exactly that, a brief general description about the total building or the Base infrastructure system. Detail should include its purpose and any critical and unique features and functions that would assist maintainers to safely fulfil their duties. This is not to be a substitute or replication of the “Facility User Guide”, which is aimed to assist facility occupants with simple day to day operation of equipment and the facility.

64. Additionally, this section is not to provide a description about scope and works done or delivered by a project. The description is to assist maintainers with maintenance, fault rectification and safe operation.

**Figure 6 – O&MM General Description**



**Document Template – Sections**

65. Information in O&MM documents for buildings and Base infrastructure system disciplines and sub-disciplines is to be documented in a consistent standard layout that comprises of 8 Sections. Table 8 below displays how the O&MM document sections are applied to both types of O&MM.

**Table 8 - O&MM Section Headings**

Section 1	Operation Description
Section 2	Installer and Supplier Contact Directory
Section 3	Equipment Systems List
Section 4	Maintenance Periods and Procedures
Section 5	Manufacturer Literature
Section 6	Warranty Information
Section 7	Critical Spare Parts and Specialist Tools
Section 8	As Constructed Drawings

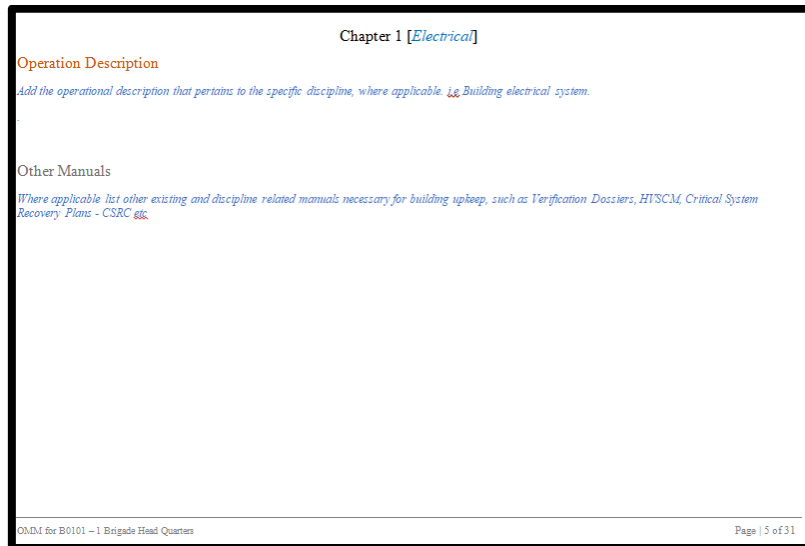
66. Where the project has no applicable information for Table 8 sections, these pages are to be annotated as “intentionally left blank” but template formatting remains. This provides the ability for future updates without major re-formatting.

67. All O&MMs must follow this layout. To assist with drafting new O&MM, the O&MM templates incorporate this section layout.

## Section 1 Operation Description

68. For the applicable discipline, provide an operation description that is sufficiently detailed to enable maintenance staff to safely operate essential equipment and systems, where a competent person would require instructions.

**Figure 7 - O&MM Operation Description Layout**



69. Operation descriptions are only required for:
- unique and/or intricate equipment and systems;
  - where variations to a standard build / installation would not be readily identified or understood by competent or licenced maintenance personnel;
  - enabling facility maintainers to operate essential facility fixtures and systems, where a reasonably competent person would require instructions;
  - where the relevant WHS Information does not contain the facility, systems and equipment operation description; and
  - where special safety and/or licencing requirements exist for systems and equipment operation (e.g. over-head gantry crane).

70. Operation descriptions may include diagrams and examples of graphics to assist the maintainer whilst operating the system and/or equipment and could refer to applicable ASCON drawings, training material, safety & isolation devices and their locations. Descriptions should also include safety and trouble-shooting instructions to assist in solving problems to prevent expensive call outs.

71. An example for Hydraulic - Water is:

### Potable Water Supply

*The Potable water supply is reticulated through Building "xyz". The connection into the main supply has been made via a tapping band directly in front of the Fire Sprinkler room. The valve for this connection has been marked by a cast iron valve cover set in the concrete. This supply then runs to the fire sprinkler room where a second isolation (gate valve), and pressure limiting valve and strainer are located. Termination of potable water at all hospitality and industrial equipment has been made via a lever arm ball valve of pre-nominated size located on the wall behind each appliance. Termination at domestic appliances is via a half inch mini ball-o-fix valve located directly below each fixture location.*

72. Contractors can liaise with the EMOS PSS throughout the construction phase to assist in determining what items require an operation description.

Related Maintenance Manuals

73. Where applicable and available, a list of other related manuals must be listed to aid in the safe and compliant operation, maintenance and repair of that facility, system and/or equipment. e.g. Verification dossiers, HV System Configuration Manual, Aeronautical Ground Lighting Configuration Manual, and Defence Fuel Installation Consolidated Maintenance Manual etc., as applicable.

**Section 2 Installer and Supplier Contact Directory**

74. This section is to be in a table form showing Company name, Trade or item supplied, company points of contact (both emergency and management), contact number, email and postal address. The accuracy of this information is imperative for the timely response to DLP issues and to assist the EMOS maintenance staff and their sub-contractors in maintenance and/or repair of facilities, base infrastructure systems and equipment.

75. Contact details must be provided in a logical order by systems and like equipment and then by project / revision history for ease of use. Where a Contractor and supplier details are common for multiple assets, just list the installer and supplier once and list the multiple assets in the asset row.

76. Note: In addition to the builder or Head Contractor details, the Contractor is to ensure that the table contains contact details of all sub-contractors. See example below:

*Figure 8 - O&MM Installer and Supplier Contact Directory Layout*

**Builder, Installer and Supplier Contact Directory**

Assets	Supplier Company and Address	Installer	Contacts
<ul style="list-style-type: none"> <li>Electrical Cabinets and RCDs</li> <li>Emergency &amp; Exit Lighting System</li> </ul>	Darwin Electrical Warehouse, 101 Smith St, Darwin, NT	Ace Electrical Founga Rd, Berrimah, NT	General Contact John Smith (PM) – 08 4999 xxxxx Email: <a href="mailto:John@PM.com">John@PM.com</a>  Emergency Contact Mick Brown – 0444 xxx xxx Email: <a href="mailto:Mick@AElectrical.com">Mick@AElectrical.com</a>
<ul style="list-style-type: none"> <li>Lighting Protection System</li> </ul>	Peak Electrical Distributors, 22 Main St, Brisbane, QLD	Advanced Electrical Darwin, NT	General Contact John Smith (PM) – 08 4999 xxxxx Email: <a href="mailto:John@PM.com">John@PM.com</a>  Emergency Contact Tony Bai – 0443 xxx xxx Email: <a href="mailto:Tony@AdvancedElectrical.com">Tony@AdvancedElectrical.com</a>

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### Section 3 Equipment Systems List

77. The Section is a reference guide for all equipment systems installed in the building / facility. Information provided in this section shall be in table form for easy reference and overview of the various equipment systems installed in each building / facility. The listed equipment systems must have Estate Class Identifier (ECID) and Estate Business Identifier (EBI) information as this provides the maintainer sufficient information to check GEMS for more detailed physical and functional information and related equipment.

78. Only the equipment system details are required because all child equipment (and equipment details) should be listed in GEMS. This enables equipment details to be sourced from GEMS if/when required. Further information about the different types of equipment systems and applicable GEMS ECIDs can be found in the Estate Register Information Model (ERIM). Assistance can also be obtained from the EMOS PSS.

**Figure 9 - O&MM Equipment Systems List layout**

Equipment Systems List		
Estate Class Identifier (ECID)	Estate Business Identifier (EBI)	Item Description & Location
<i>ES.EL.D</i>	<i>1200/B0101-GF</i>	<i>Electrical Distribution System, Ground floor</i>
<i>ES.EL.D</i>	<i>1200/B0101-01</i>	<i>Electrical Distribution System, Level 1</i>
<i>ES.EL.G</i>	<i>1200/B0101-GF/0003</i>	<i>Electrical Generation System, Plant Room</i>
<i>ES.EL.LP</i>	<i>1200/B0101</i>	<i>Lightning Protection, Roof</i>
<i>ES.EL.EE</i>	<i>1200/B0101-GF</i>	<i>Emergency and Exit Lighting System</i>
<i>ES.EL.EE</i>	<i>1200/B0101-01</i>	<i>Emergency and Exit Lighting System</i>

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### Section 4 Maintenance Periods and Procedures

79. All equipment, fixtures and facility fabric installed by the project will be subject to maintenance using recommended methods detailed by manufacturers such as handbooks, manuals & instructions, certification tests as set by Australian Standards and legislative requirements (including the WHS Legislation). These maintenance requirements and periods will also be influenced by Defence’s unique and specific maintenance requirements for certain critical plant & equipment and/or safety systems, local environmental conditions and/or planned operating cycles.

80. All required maintenance information must be provided in this section of the O&MM. However, where insertion of a diagram cannot be achieved or a maintenance handbook is required, a copy of this information can be saved in the corresponding folder-set and be linked to the appropriate location in this section. Hyperlinks to information saved in the folder-set must use a relative path address. Maintenance descriptions can also refer (hyperlink) to manufacturer literature in Section 5 if provided and relevant, and if applicable, provide Web address details to the relevant website of the supplier of maintenance periods and procedures where such information can be readily accessed.

81. To reduce over-sizing O&MM, maintenance booklets / manuals, including WHS Information, must be exported to pdf (not colour scanned) before saving in the O&MM folder-set

82. Contractors must liaise with the PMCA / PM and EMOS PSS throughout the design and construction phases to help determine what items and information should be detailed in this section 4. Refer to [Determining O&MM Content and Requirements](#) in this document for further guidance. Liaison with EMOS PSS is expected to assist Contractors with optimising listed items and information to an essential minimum amount.

83. A summary of asset system and/or asset details (where applicable) are to be recorded under the headings tabled below to enable easy retrieval of information from GEMS, supplier websites and/or other information, including WHS Information provided in the O&MM. Information must be provided in a logical order and grouping of systems and then like equipment.

**Figure 10 - O&MM Maintenance Periods and Procedures Layout**

Maintenance Periods and Procedures (including WHS information)			
Estate Class Identifier (ECID)	Estate Business Identifier (EBI)	Asset Description & Location	Manufacturer Maintenance Information (Periods, Procedures)
ES.EL.EE	1200/B0101-GF 1200/B0101-01	Emergency and Exit Lighting System	<a href="#">EzyExit Emergency and Exit Lighting – Maintenance Hand Book 2019 edition</a> [with hyperlink to folder-set]
ES.EL.LP	1200/B0101	Lightning Protection, Roof	Maintenance information provided below ARC Lightning Protection System – Product and Maintenance Guide [with hyperlink to folder-set]

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84. Where more detailed information other than a web address or the manufacturer’s literature is required, this can be "manually" placed in the pages (sample below). Refer to “Determining O&MM Content and Requirements” in these instructions to help determine appropriate content for this section of the O&MM.

**Figure 11- O&MM Detailed Asset Maintenance Periods and Procedures Layout**

[EBI - Asset Description]	
Enter maintenance information here as required	
<b>ES.EL.LP      ARC Lightning Protection System</b>	
6 - Monthly	The following tasks accord to the manufacturer's instructions and AUS/NZ 1768.2007. - Inspect general condition and check for signs of burnt or hot connections, circuits, surge protectors and contacts. Clean, tighten and rectify / replace as required. - Check equipment test function and indicator fault lights for operation.
12 - Monthly	The Following tasks are performed in addition to 6 monthly maintenance tasks. - Check the continuity of the ground circuit by electric tests. Resistance to earth Down conductor continuity Continuity and extent / adequacy of air termination network Refer to 1200_B0101_Electrical_Lightning_Protecct_Line_Diagram.dwg for location earth connections.
<ul style="list-style-type: none"> <li>• Where applicable reference (from list of other Manuals) any other existing and related information that is related to each maintenance task such as Verification Dossiers, HTSCM, Critical System Recovery Plans - CSRC etc..</li> </ul>	
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### Section 5 Manufacturer Literature

85. Copies of manufacturer literature that is required to assist Defence with the ongoing maintenance and operation of installed equipment and built facilities and infrastructure systems, including that required to be supplied under the WHS Legislation and Defence Contracts (WHS Information), is to be referenced in this section of the manual (which is not supplied in Section 4).

86. The type of information and literature includes, but is not limited to, standard instruction booklets, maintenance and care procedures, equipment data sheets and drawings. Technical data required for maintenance should be referred to through the maintenance plan or accessed through a separate library or website.

87. All applicable literature (including WHS Information) must be detailed in the summary list of manufacturer literature and provided as a pdf document in the dedicated manufacturer literature folder-set (including use of relative path Hyperlinks to the folder-set) and/or referenced with a web address to the relevant location in the manufacturer's website where applicable. Listed items must be provided in a logical order and grouping of systems and then like equipment. The figure below provides an example summary item list.

88. To reduce over-sizing O&MM, literature and/or booklets, including WHS Information, must be exported to pdf (not colour scanned) before saving in the O&MM folder-set.

89. Contractors must liaise with the EMOS PSS throughout the design and construction phases to help determine what information should be detailed in Sections 4 and 5.

90. Note: Warranty details and certificates are not to be placed in section 5 as literature or information.

**Figure 12 - O&MM Manufacturer Literature Layout**

Manufacturer Literature			
Estate Class Identifier (ECID)	Estate Business Identifier (EBI)	Item Description & Location	Manufacturer Literature
<i>ES.EL.D</i>	<i>1200/B0101-GF</i>	<i>Electrical Distribution System, Ground floor</i>	<i>Document title / description. Hyperlink to folder-set.</i>
<i>ES.EL.P</i>	<i>1200/B0101</i>	<i>Lightning Protection, Roof</i>	<i>Product Specification Sheet</i>

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**Section 6 Warranty Information**

91. A copy of all manufacturers, installer, supplier, and/or collateral warranty certificates / details for the built and installed assets must be inserted in this section. This includes a copy of Project Collateral Warranty notifications supplied in accordance with Annexure 1 – Estate Information, of the suite of Defence facilities contracts. (Head construction contract). However, warranty details and certificates are only required for warranties longer than 12 months from date of supply or installation. This is because provisions of the project defect liability period (DLP) cover the initial 12 months of asset failure, faults and material / workmanship defects.

92. Where a copy of a warranty is provided, they must be logically grouped by systems and then like equipment, copies placed in the Warranty folder-set and details listed in the Summary List of Warranty Certificates for ease of locating. Each listed warranty certificate must be hyperlinked (using relative path address) to the corresponding copy saved in the folder-set.

93. Only a copy of the warranty certificates and excerpt of the applicable discipline project collateral warranty notification (sample below) is required because other basic warranty data is also recorded in GEMS via the GEMS Data Load (GDL) tool. Refer to the GEMS handbook for details about submission of warranty data via GDL.

94. Sample of Project Warranty Information:

Figure 13 - O&MM Warranty Information Layout

Warranty Information				
Description	Warranty Period	Asset or Item, Model or Serial number	Warranty Provider	Warranty Certificate
Electrical Services	5 years	Electrical Installation works	Ace Electrical	Document name with Hyperlink – Collateral warranty
Electrical Building and Distribution Services	5 years	Electrical distribution Cabinet, XX-AB 134	Duggan Electrical Warehouse	Document name with Hyperlink – Warranty certificate
Emergency and Exit Lighting System	2 Years	EscExit Exit & Emergency Light Multi-fit, EFSP10,	EscExit	Document name with Hyperlink – Warranty certificate

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### Section 7 Critical Spare Parts and Specialist Tools

95. Some contracts specify that a certain number of critical spare parts and specialist tools are to be supplied by the sub-contractor. All these parts as well as a recommendation of other parts that should be kept for business continuity and breakdown service response are to be tabled in this section e.g. long supply lead-times. Provide as much detail as possible for spare parts for ease of future ordering. If necessary, there may also be a need to include a paragraph for specific items regarding storage to maintain the life of spare parts e.g. disposable pleat filters for air plant need to be stored in a dry environment etc.

96. Contractors must liaise with the EMOS PSS throughout the construction phase to help determine what items should be detailed in this section and to determine if further instructions are required in the O&MM for the use and operation of specialist tools. Listed spare parts and tools must be provided in a logical order and grouping of systems and the like equipment. Examples are provided below:

Figure 14 - O&MM Critical Spare Parts and Specialist Tools Layout

Critical Spare Parts list				
Estate Class Identifier (ECID)	Estate Business Identifier (EBI)	Critical Spare Part Description	Equipment Manufacturer / Supplier	Manufacturer Part Number
ES.EE.LP	1200.B0101	Lightning Protection System – Surge protection module	Schneider	F64023

Specialist Tools List				
Estate Class Identifier (ECID)	Estate Business Identifier (EBI)	Specialist Tool Description	Specialist Tool Manufacturer / Supplier	Manufacturer Part Number

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## Section 8 As-Constructed Drawings

97. All As-Constructed (ASCON) drawings for Defence buildings, facilities and/or base infrastructure systems must comply with the SDMP and be saved in NSIMS.

Consequently, there is no requirement to provide duplicate copies of ASCONs in the O&MM. An O&MM only needs to provide clearly identifiable references to ASCONs stored in NSIMS to enable easy retrieval and/or viewing when required.

98. The figure below provides examples of the minimum applicable ASCON drawing information to be detailed in an O&MM.

99. ASCON naming conventions must comply with SDMP. Typically file names must succinctly summarise the information to allow users to quickly understand the drawing content. File names must include the subject of information and locality, spaces must not be used, and under-scores must be used to separate text. The drawing list will only include .dwg files (i.e. no .pdf). Refer to the Specialised Data Specification sections of the SDMP for further guidance at the following DEQMS link:

<https://defence.gov.au/estatemangement/governance/Policy/SDMP/Default.asp>

**Figure 15 - O&MM As-Constructed Drawings Layout**

As Constructed Drawings List	
AssetID	File (drawings) name (.dwg)
1200/B0101	1200_B0101_Electrical_Single_Line_Diagram.dwg
1200/B0101	1200_B0101_Electrical_Lightning_Protecct_Line_Diagram.dwg

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## Submitting O&MM for Review and Acceptance

100. Contractors are to provide the PMCA / PM a draft O&MM to review for quality, completeness and compliance with the O&MM Instruction by the 28 Day notice of Completion (for CFI projects) or by 90% construction for all other projects or the date agreed in the project Data Provision Checklist (DPC). Once the PMCA / PM is satisfied with the draft O&MM they will forward a copy of the O&MM to the EMOS to review the agreed content (inclusions / exclusions) and provide feedback on the acceptance by the period agreed in the project DPC. Contractors must confirm with PMCA /PM and EMOS PSS the preferred method of supplying O&MM. These include: preferred option is via Digital File Transfer Platform (i.e. EMOS PSS HOTO correspondence Drop-box, objective folder or equivalent like PROCOM file transfer) or a correctly labelled USB flash drive (least preferred). This must be determined when drafting the project DPC for draft & final O&MM.

101. The final copy of an O&MM must be sent to EMOS PSS for review and acceptance at commencement of the project HOTO period or the date agreed in the project DPC. EMOS PSS are to review O&MM to ensure earlier feedback has been addressed and if acceptable, save O&MMs in the appropriate Objective location.

102. The supply of “hard copy” O&MM is not required. This does not exclude the requirement to provide other hard copy documents where there is legislative and/or WHS requirement. These include but are not limited to: Verification Dossiers for Hazardous Areas and record files for Registrable Plant (RP) etc. (Refer to Chapter E – Technical Instruction for Management of Registrable Plant).

103. Where a USB flash drive is used, they must be:

- a. limited to the minimum required to hold the actual data for all the O&MMs; and
- b. labelled to indicate:
  - (1) location and building/s,
  - (2) O&MM title and volume number if applicable,
  - (3) date submitted,
  - (4) the project number and project title, and
  - (5) Contractor’s name and contact details.

#### Resolving Disputes about Acceptable O&MM Quality

104. Where agreement about the acceptability and compliance of O&MM content, structure and quality cannot be resolved between Contractors, PMCA / PM, EMOS PSS and Zone EMP Representative; the matter is to be escalated to AD EMP for a decision about the acceptable standard. AD EMPs can seek guidance from DELM if they have any uncertainty about the requirements detailed in these instructions.

#### Loading O&MM to Objective

105. Building and Base Infrastructure System zip file O&MMs must be saved in the applicable O&MM folders in Objective EM: Estate Management area by EMOS PSS on acceptance of the “final O&MM”. O&MM are not saved to NSIMS (note: all old O&MM are being transferred from NSIMS to Objective). The objective EM structure has been established to provide an O&MM folder for every building on the Defence estate and an Infrastructure System file for every Defence site. Further detail about the EM folder structure and saving information to Objective can be found in the Base Service Contract Operating Instruction for Objective and Defence Information Management.

106. Because O&MMs are no longer saved in NSIMS, metadata files are not required for O&MM documents. Refer to [Zip File Naming Convention](#) in this document for further guidance.

107. **Note:** O&MM content (word and folder-set documents) can be readily opened and viewed in objective. However, to enable links between the O&MM (word document) and folder-set to work, the file must be “un-zipped” and contents saved external to Objective.

## Implementation

108. O&MM Instructions are reviewed and updated annually and may be amended from time to time to address changes in policy and standards. Where projects / works have commenced using an earlier version O&MM Instruction and templates, the supplied O&MM only need to comply with O&MM Instructions in place at contract commencement. However, where project stakeholders believe the latest version O&MM Instructions offer greater benefit to the project and Defence, the PMCA / PM can seek approval from the Commonwealth's works contract authority for a change to the latest version instructions. The PMCA / PM must consider if a proposed change would adversely impact the contract and/or have a material effect and present all applicable considerations to the Commonwealth as part of the decision-making process.

## Related Policy, Legislation and Further Information

109. When developing O&MM content the following documents may provide useful or necessary information to achieve Defence and project requirements for conforming O&MMs. Contractors should contact the PMCA / PM or EMOS for assistance if they have trouble in obtaining access or copies of these documents:

Aeronautical Ground Lighting Configuration Manual	<a href="https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/AircraftPavement.asp">https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/AircraftPavement.asp</a>
Base Service Contract Operating Instruction for Objective and Defence Information Management.	<a href="https://defence.gov.au/estatemangement/Governance/Policy/RecordsManagement/Docs/BaseServicesContractOperatingInstructionForObjectiveAndDefenceInformationManagement.pdf">https://defence.gov.au/estatemangement/Governance/Policy/RecordsManagement/Docs/BaseServicesContractOperatingInstructionForObjectiveAndDefenceInformationManagement.pdf</a>
Building Works Manual (BWM)	<a href="https://www.defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/Building/Policy/BuildingWorksManual.pdf">https://www.defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/Building/Policy/BuildingWorksManual.pdf</a>
Defence Fuel Installation Consolidated Maintenance Manual	<a href="http://drnet.defence.gov.au/JCG/JLC/FSB/FuelEng/Pages/Home.aspx">http://drnet.defence.gov.au/JCG/JLC/FSB/FuelEng/Pages/Home.aspx</a>
Electrical Engineering and Maintenance – DEQMS	<a href="https://defence.gov.au/estatemangement/Governance/Policy/EngineeringMaintenance/Electrical.asp">https://defence.gov.au/estatemangement/Governance/Policy/EngineeringMaintenance/Electrical.asp</a>
Estate Data Information website – DEQMS	<a href="https://defence.gov.au/estatemangement/lifecycle/EstateDataInformation/Default.asp">https://defence.gov.au/estatemangement/lifecycle/EstateDataInformation/Default.asp</a>
Estate Governance & Integrity System (EGIS)	<a href="https://defence.gov.au/estatemangement/Governance/Policy/EngineeringMaintenance/EEGIS.asp">https://defence.gov.au/estatemangement/Governance/Policy/EngineeringMaintenance/EEGIS.asp</a>
GEMS Handbook - DEQMS	<a href="https://defence.gov.au/estatemangement/lifecycle/EstateDataInformation/Default.asp">https://defence.gov.au/estatemangement/lifecycle/EstateDataInformation/Default.asp</a>
Handover Takeover (HOTO) Process	<a href="https://defence.gov.au/estatemangement/lifecycle/PlanHandoverTakeover/Default.asp">https://defence.gov.au/estatemangement/lifecycle/PlanHandoverTakeover/Default.asp</a>
High Voltage System Configuration Manual	<a href="https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/Electrical.asp">https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/Electrical.asp</a>
Manual of Fire Protection Engineering (MFPE)	<a href="https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/FireProtection/MFPE/MFPE2000.pdf">https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/FireProtection/MFPE/MFPE2000.pdf</a>
Manual of Infrastructure Engineering Electrical (MIEE)	<a href="https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/MIEE.asp">https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/MIEE.asp</a>
Mechanical Engineering & Maintenance – DEQMS	<a href="https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/Mechanical.asp">https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/Mechanical.asp</a>

National Spatial Information Management System (NSIMS)

<https://defence.gov.au/estatemangement/Support/NSIMS/Default.asp>

Registerable Plant – Technical Instructions (DEQMS)

<https://defence.gov.au/estatemangement/governance/Policy/EngineeringMaintenance/RegistrablePlant.asp>

Spatial Data Management Plan (SDMP)

<https://defence.gov.au/estatemangement/Governance/Policy/SDMP/Default.asp>

### **Instruction Review and Feedback**

110. This Instruction will be reviewed annually. The review will be coordinated and governed by Director Estate and Land Management (DELM).

111. Where incorrect information and/or suggested improvements of this instruction are identified, details should be sent to the DELM using the following email address:

[eig servicedelivery.esddelm@defence.gov.au](mailto:eig servicedelivery.esddelm@defence.gov.au)