Concept Design Package

Report Template

**TEMPLATE FOR CONSULTANTS/WETLAND DESIGNERS – ADDITIONAL PROJECT SPECIFIC INFORMATION CAN BE ADDED AS REQUIRED**

ADDRESS:

PROJECT TITLE & JOB DESCRIPTION:

DEVELOPER:

CONSULTANT:

MUNICIPALITY:

CONSULTANT REF:

MELBOURNE WATER REF (EPMS #, LD#):

Include company disclaimer plus other information as outlined in table below:

|  |
| --- |
| **Revision No.** |
|  |
| **Date:** |
|  |
| **Prepared:** |
| (Consultant’s name) |
| **Reviewed:** |
| (Consultant’s name) |
| **Approved:** |
| (Consultant’s name) |

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**Attachment A - Deemed to comply checklist**

**Attachment B - Development plans**

**Attachment C – MUSIC model**

**Attachment D – Concept design plans**

**Attachment E – Concept design calculation summary**

**DECLARATION**

|  |
| --- |
| I declare and acknowledge that I have submitted the attached application in its entirety in accordance with Part B of the Melbourne Water Wetland Design Manual. I further acknowledge that if the application is incomplete it will be returned and will not be considered lodged with Melbourne Water.  Signature: Date:  Print name: Position: *Signed by Consultant Principal* |
|  |

**Accepted file formats**

|  |  |
| --- | --- |
| **Item** | **Format** |
| Declaration | Pdf |
| Reports | Pdf |
| Models | MUSIC, Wet spells analysis, IFA, RORB and/or HEC-RAS files |
| Mapping information | Geo-referenced MapInfo layers |
| Sections, schematic drawings | Pdf |
| Plans | Pdf and dwg |
| Specifications | Pdf |

1. **Deemed to comply statement**

Complete Deemed to Comply Checklist (Attachment A).

## 1.1 Statement

*Insert wording: The statement must list any aspects of the package that do not conform with the “Deemed to Comply” requirements outlined in Part A2 of the Melbourne Water Constructed Wetlands Design Manual.*

## 1.2 Justification for any non-compliance

*Insert wording: Justification must be provided for any non-compliant conditions listed in Section 1.1. An explanation must be provided as to how the proposed alternative approach achieves (compared to the deemed to comply approach) equivalent or better:*

* + *pollutant reductions and flow management*
  + *safety outcomes*
  + *maintenance*
  + *sustainability/robustness (i.e. ≥ 25 year life)*

1. **Overview of the development**

*Insert wording: An overview of the proposed development.*

*Insert figure: A draft Plan of Subdivision and draft Development Plan for the development site. The Plan of Subdivision must show the boundary of the reserve the wetland will sit within. The Development Plan must show the whole development area including subdivision stages and all reserves. (Attachment B).*

1. **Catchment analysis**

*Insert wording: A summary of sub-catchments, zoning and land use and the location of receiving waterways.*

*Insert figure: Plan showing existing catchment conditions (Attachment B).*

1. **Site characteristics and constraints**

*Insert wording: A summary of site characteristics and constraints including:*

* *Flora and Fauna survey results including identification of any species of significance listed under the Flora and Fauna Guarantee Act and Environmental Protection and Biodiversity Conservation Act (the full Flora and Fauna survey must be included as an Attachment to the report).*
* *Geology and soils at the site.*
* *Whether the wetland is likely to be inundated by flows from a catchment other than the one it is treating (e.g. overflow from adjacent waterway) and if so how often this inundation is likely to occur.*
* *If applicable, Cultural Heritage Management Plan that is relevant to the wetland footprint (the full Cultural Heritage report must be included as an Attachment to the report)*
* *Information on existing or proposed services or assets.*

*Insert figures: photos of subject site and location of works*

1. **Proposed stormwater management strategy**

*Insert wording: A description of the overall stormwater management strategy (including all treatment systems) for the site including:*

* *whether the treatment systems will be integrated within retarding basins, and/or form part of a stormwater harvesting system*
* *how gross pollutants in the catchment will be managed*
* *whether wetlands are intended to be ephemeral or contain a permanent pool of water*

*Insert figure: Plan showing the location and indicative footprint of all existing and planned treatment systems, waterways (constructed and/or natural) and retarding basins that will be located within and/or service the land shown on the draft Plan of Subdivision (Attachment B)*

1. **MUSIC modelling summary**

*Insert wording: A summary of the MUSIC model including:*

* *version of MUSIC*
* *meteorological data used*
* *catchment areas and percentage impervious*
* *any routing used*
* *treatment node parameters*
* *modelling parameters that are not in accordance with Melbourne Water's MUSIC Modelling Guidelines*
* *pollutant removal results*

*Attach copy of MUSIC model (Attachment C)*

1. **Wetland layout and design intent**

*Insert wording: A description of the proposed wetland layout and design intent.*

*Insert figures: Plans showing concept design (Attachment D).*

1. *A plan of each proposed wetland showing indicative footprint (allowing for batter slopes of sediment pond, high flow bypass, macrophyte zone, maintenance access routes, location of any pipe connections and sediment dewatering areas. The plan must show these items overlayed on site survey and constraints (with labelled contours) or a recent aerial photograph. The plan must show:*
   * *flow direction, inlet and outlet locations*
   * *the boundary of the reserve that the constructed wetland will sit within (Note that the reserve boundary should be at least 20% larger than the maximum extent of all parts of the wetland footprint, as above, to accommodate any changes to the footprint during later design phases) This plan must show existing waterways and/or pipe networks within or adjacent to the reserve*
   * *details on which assets the developer is proposing will be transferred to Melbourne Water and who the proposed owner/operator is for other adjacent assets*
   * *the location of sediment pond inlet(s) and high flow bypass and macrophyte zone outlets*
   * *the alignment of existing or proposed services determined from a desktop study (e.g. sewer, gas, mains water underground electrical cables and overhead powerlines)*
   * *the levels (m AHD) of land surrounding the wetland*
   * *the slope of the batters between TEDD and the site boundary*
   * *the location of any cultural/historical features to be retained*
   * *the boundary of any planning overlays*
   * *any existing or proposed community facilities adjacent to the wetland location (e.g. playgrounds, buildings and/or walking paths)*
2. *An indicative long section for each wetland showing:*
   * *existing surface level (top of batter slope above TEDD)*
   * *NWL*
   * *TEDD*
   * *the base of permanent pool*
   * *planting zones*
   * *invert of inlet pipe/channel(s)*
   * *invert of outlet pipe and how this relates to the receiving waterway/drain*
   * *weir crest levels*
3. *An indicative cross section showing batter slopes*
4. **Key stakeholders**

*Insert wording: Provide a summary of the current and future stakeholders, including a description of roles and responsibilities for design, design acceptance, ownership and maintenance responsibilities of the wetland and surrounding open space and facilities.*

**Attachment A**

Melbourne Water Concept Design Deemed to Comply Checklist.

**Attachment B**

Development plans:

* A draft Plan of Subdivision and draft Development Plan for the development site.
* Plan showing existing catchment conditions
* Plan showing the location and indicative footprint of all existing and planned treatment systems
* Diagram showing MUSIC model

**Attachment C**

Concept design plans of wetland

**Attachment D**

Concept Design Calculation Summary Table

Concept Design

Calculation Summary Table

This template should be refined to be site specific for each concept design submitted to Melbourne Water as part of the Design Acceptance Process for Constructed Wetlands.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Address:** |  | | | **Melways Ref:** |  |
| **Project title & job description:** | | |  | | |
| **Developer:** |  | | | | |
| **Consultant:** |  | | | | |
| **Date:** |  | | | | |
|  | | | | | |
| **MUSIC modelling rainfall station (include name and number):** | | | |  | |
| **MUSIC modelling time step:** | |  | | | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Information required** | | | | | | **Results / Outcome** | | | |
| 1. **Site Characteristics** | | | | | | | | | |
| Area suitable for wetland footprint | | | |  | |  | | ha | |
|  | | | |  | |  | |  | |
| 1. **Catchment Characteristics** | | | | | | | | | |
|  |  | | | | | | | |  |
| Subcatchment | AREA (ha) | | | | | | | | Overall % imperviousness |
| Residential | Commercial | Industrial | | Other | | Total | |
| A |  |  |  | |  | |  | |  |
| B |  |  |  | |  | |  | |  |
| C |  |  |  | |  | |  | |  |
| D  E  F  G |  |  |  | |  | |  | |  |
|  | | | | | | | | | |
| 1. **Estimate design flow rates** | | | | | |  | |  | |
| Time of concentration | | | |  | |  | | mins | |
| Peak design flows | | | |  | |  | |  | |
| * Station used for IFD data | | | | | |  | |  | |
| Q3 month | | | |  | |  | | m3/s | |
| * If located within a floodplain | | | | | |  | |  | |
| Q100 year | | | |  | |  | | m3/s | |
|  | | | |  | |  | |  | |
| 1. **Wetland characteristics and performance** | | | | | |  | |  | |
| All deemed to comply criteria met? | | | | | | Yes/No | |  | |
| Is a GPT proposed? | | | |  | | Yes/No | |  | |
| Sediment pond area @ NWL | | | | | |  | | m2 | |
| Number of sediment ponds | | | | | |  | |  | |
| Design flow for high flow bypass | | | | | |  | | yrs | |
| Total surface area of wetland including batters | | | |  | |  | | m2 | |
| Macrophyte zone area @NWL | | | |  | |  | | m2 | |
| Extended detention depth | | | |  | |  | | m | |
| Notional detention time for macrophyte zone | | | | | |  | | hrs | |
|  | | | | | |  | |  | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **MUSIC results:** | | | | |
| Parameter | In | Out | Removed | % Reduction |
| Flow (ML/yr) |  |  |  |  |
| Total Suspended Solids (kg/yr) |  |  |  |  |
| Total Phosphorous (kg/yr) |  |  |  |  |
| Total Nitrogen (kg/yr) |  |  |  |  |
| Gross Pollutants (kg/yr) |  |  |  |  |