Neutral or Beneficial Effect on Water Quality Assessment Guideline

2026

Disclaimer

This document includes information about undertaking or assessing a development in the Sydney drinking water catchment. The information contained in this document is based on WaterNSW knowledge and understanding at the time of writing and should not be considered as error free or to include all relevant information.

WaterNSW tries to ensure that the information contained in this document is accurate, adequate and complete. WaterNSW does not make or give any representation or warrant its accuracy, adequacy or completeness, and recommends that users exercise their own skill and care with respect to its use. To the extent permitted by law, WaterNSW excludes any liability, including any liability for any negligence, breach of contract or statutory duty or any failure or the consequences of that failure in relation to the use of the information disclosed in this document.

A reference to State Environmental Planning Policy (Biodiversity and Conservation) 2021 (the B&C SEPP) includes a reference to the SEPP as amended from time to time and to any replacement SEPP.

Copyright

www.waternsw.com.au

Published January 2026

CONTENTS

1. INTRODUCTION

1.1 Context

The 'Neutral or Beneficial Effect on Water Quality Assessment Guideline' provides guidance on the requirement under State Environmental Planning Policy (Biodiversity and Conservation) 2021 (the B&C SEPP) for all development in the Sydney drinking water catchment (SDWC) to have a neutral or beneficial effect on water quality. Section 6.60 of the B&C SEPP identifies that the Sydney catchment area, within the meaning of the *Water NSW Act 2014*, is declared to be the Sydney drinking water catchment. The SDWC is depicted in Figure 1.

1.2 Purpose of the Guideline

This guideline supports the implementation of the B&C SEPP by providing clear direction on what a neutral or beneficial effect means, how to achieve it, and how to assess an application against the neutral or beneficial effect on water quality test using the 'Neutral or Beneficial Effect on Water Quality Assessment Tool' (the NorBE Tool). The guideline also provides the decision-making framework for the NorBE Tool (Appendix 1).

1.3 Audience

The guideline will help consent and public authorities to consider whether or not the proposals in the drinking water catchment would have a neutral or beneficial effect on water quality. The guideline will also help applicants and their consultants to prepare development proposals for consent.

1.4 Principles

The following principles apply to this guideline:

- Assessment for a neutral or beneficial effect on water quality is required under the *Environmental Planning and Assessment Act 1979*.
- It is the development proponent's responsibility to prove that a development would have a neutral or beneficial effect on water quality.
- The level of assessment required matches the level of risk of the development - developments with a greater potential risk to water quality will require more thorough assessment.
- Good stormwater design leading to source management and control, and retaining natural features of waterways, is better than structural and 'end of pipe' solutions. All measures must be taken to contain on-site any potential impacts resulting from a proposed development.
- The guideline outlines a practical and simple process to minimise the cost to developers, the community and the consent or determining authority while providing the flexibility to achieve the best outcomes.

This guideline builds on the extensive experience of WaterNSW and input from various specialist consultants, councils and government agencies.

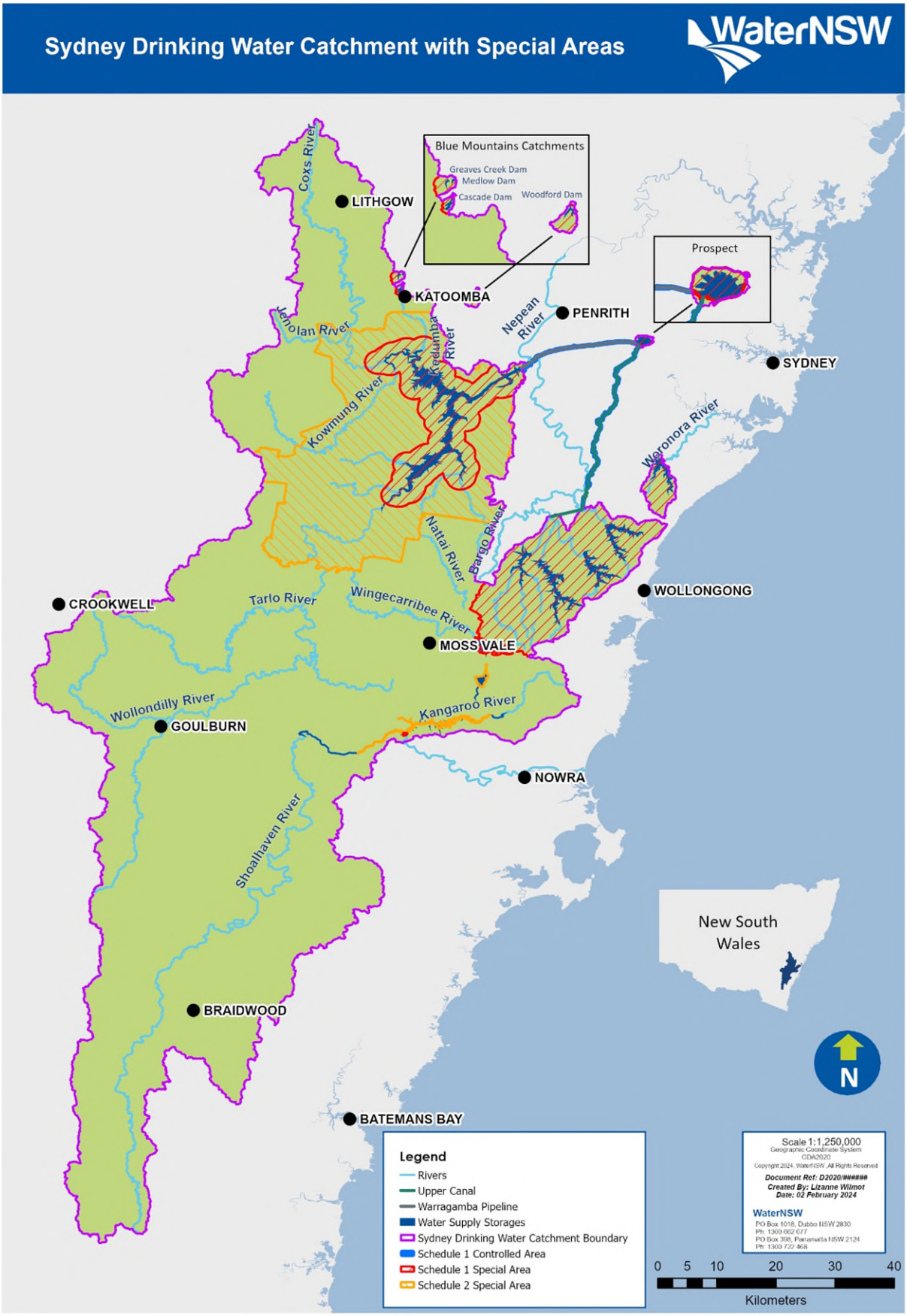


Figure 1: Map of the Sydney Drinking Water Catchment Boundary

2. STATUTORY CONTEXT

2.1 Environmental Planning and Assessment Act

The *Environmental Planning and Assessment Act 1979* (EP&A Act) provides the statutory framework for planning and environmental impact assessment in NSW.

This guideline relates directly to developments being assessed under Part 4 of the Act. The guideline is also designed to assist public authorities when taking into account whether an activity will have a neutral of beneficial effect on water quality (see 2.2.3).

2.2 SEPP (Biodiversity and Conservation) 2021

Under Division 3.2 Section 3.26 of the EP&A Act, provision is to be made in a State Environmental Planning Policy requiring consent authorities to refuse consent to development applications relating to any part of the Sydney drinking water catchment, unless the consent authority is satisfied that the proposed development would have a neutral of beneficial effect (NorBE) on water quality. The NorBE test also applies to continuing development that is extended or expanded under similar conditions as the existing development consent.

Part 6.5 of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (the B&C SEPP) has been made to satisfy this obligation. It sets out the planning and assessment requirements for all new developments in the Sydney drinking water catchment to have a neutral or beneficial effect on water quality. It also requires development to be consistent with this NorBE Guideline and, other than State Significant Development (SSD), for the NorBE Tool to be used. The SEPP also requires the concurrence of the Regulatory Authority (such as WaterNSW) before development consent can be granted.

The B&C SEPP requires consent authorities to refuse approval to new developments under Part 4 of the EP&A Act unless they are satisfied that the proposal would have a neutral or beneficial effect on water quality.

2.2.1 Application of NorBE to SSD

State significant development (SSD) falls under Division of 4.7 of the EP&A Act and requires an EIS and development consent. For SSD, the Minister or Independent Planning Commission (IPC) operates as the consent authority in place of Council. While concurrence is not required for SSD, the Minister or IPC must be satisfied that the carrying out of the development would have a neutral or beneficial effect (NorBE) on water quality and that the development is consistent with the NorBE Guideline (s 6.61 & 6.63 of the B&C SEPP). The NorBE Definition under section 3.1 of the Guideline is relevant to SSD in the application of the NorBE requirement. The NorBE Tool (see Section 4.5) does not apply to SSD.

2.2.2 Extension or expansion of existing development

Part 6.5 of the B&C SEPP also applies to developments where the original consent was limited either in time, area or intensity, but which may apply for extension or expansion in the future (e.g. mining or quarries). The NorBE test applies to continuing development as if the existing development were continued i.e. if a proposed extension or expansion will not increase any water quality impacts beyond what is already permitted, then the proposal will meet the NorBE test for the purpose of the B&C SEPP.

2.2.3 Part 5 Activities

For new activities under Part 5 of the EP&A Act, including State Significant Infrastructure (SSI), section 171A of the Environmental Planning and Assessment Regulation 2021 requires determining authorities to take into account whether the activity will have a neutral or beneficial effect on water quality before they carry out an activity, and whether the activity is consistent with this guideline, including the incorporation of current recommended practices (Section 4.7). The template in Appendix 2 should be used for a Part 5 activity NorBE assessment.

2.3 Assumed Concurrence

Regulations made under the EP&A Act provide that a Regulatory Authority (such as WaterNSW) may give written notice to a consent authority (such as a local council) that concurrence may be assumed, subject to such qualifications or conditions specified in the notice. Such a notice has been issued to all councils in the Sydney drinking water catchment.

The notice issued to councils for the purposes of the B&C SEPP lists the types of development for which a council, as the consent authority, may assume concurrence provided the council has used the NorBE tool and is satisfied that the proposal will have a neutral or beneficial effect on water quality.

3. WHAT IS A NEUTRAL OR BENEFICIAL EFFECT?

3.1 Definition of neutral or beneficial effect

Consent authorities must consider a number of matters to determine a development application, including that it would have a neutral or beneficial effect on water quality (NorBE). The consent authority may refuse an application on other grounds even if NorBE is satisfied.

A **neutral or beneficial effect on water quality** is satisfied if the development:

(a) has **no** identifiable potential impact on water quality, or

(b) will **contain** any water quality impact on the development site and prevent it from reaching any watercourse, waterbody or drainage depression on the site, or

(c) will **transfer** any water quality impact outside the site where it is treated and disposed of to standards approved by the consent authority.

Determining authorities undertaking activities in the Sydney drinking water catchment must also consider whether the proposed activity would have a neutral or beneficial effect on water quality.

The site of a proposed development or activity, to determine water quality impacts, is the land described in the development application or the Part 5 activity documentation. Pollutant loads or concentrations for each pollutant leaving a site are measured at the site boundary, or at the point where the pollutant enters a drainage depression, waterbody or watercourse.

Section 4 describes how a neutral or beneficial effect is assessed and the matters that a proponent must address in an application.

Appendix 2 includes a template for assessing a NorBE for Part 5 activities.

4. ASSESSMENT AND APPROVALS PROCESS

4.1 Roles and responsibilities

Councils have primary responsibility for assessing most development applications under their local environmental plan (LEP). Developments that require consent under an LEP must apply for consent from the relevant local council.

The council will review the application and refer it to other government agencies that may be required to provide input or approvals by other Acts.

A determining authority proposing to carry out a Part 5 activity must take into account whether the proposed activity will have a neutral or beneficial effect on water quality for the life of the activity, including construction, operation, and decommissioning.

The Independent Planning Commission and the Sydney district and regional planning panels, as well as local planning panels, may be involved in determining development applications.

Consultants generally have the responsibility of preparing a NorBE assessment on behalf of the proponent and submitting this to councils with the development application. In some cases, it may be the proponent or a project manager that prepares the NorBE assessment.

4.2 WaterNSW involvement

Councils must seek and obtain **concurrence** from the Regulatory Authority before they can grant consent for a development application in the Sydney drinking water catchment. For practical purposes, the function of the Regulatory Authority has been conferred upon the Chief Executive Officer (CEO) of WaterNSW for all developments under Part 4 of the EP&A Act, except SSD.

Regulations made under the EP&A Act provide that a notice may be issued listing the circumstances where the consent authority may assume the Regulatory Authority's concurrence (see Section 2.3). A notice has been issued that lists certain types of development where council may assume the Regulatory Authority's concurrence and make a NorBE assessment using the NorBE Tool. The notice includes, but is not limited to, developments such as sewered and unsewered dwellings, certain multi dwelling housing, smaller sewered and unsewered subdivisions, and some types of demolitions and earthworks.

Developments that must be referred to WaterNSW for concurrence include, but are not limited to, larger sewered and unsewered subdivisions and larger multi-dwelling proposals, large earthworks, commercial and industrial developments, and designated development. The B&C SEPP requires councils and other consent authorities to forward a copy of their determination to WaterNSW within 10 days.

4.3 Development type and information to be supplied with an application

The development type will determine the type and extent of information needed to demonstrate that a development would have a neutral or beneficial effect on water quality. Councils making determinations under the EP&A Act must also consider other planning matters in addition to water quality. Most applications must meet requirements and standards in addition to the neutral or beneficial effect test before council can give consent.

In most cases, the first step in the consent process is for the applicant to discuss the proposed development with council to decide the type of application and information needed. Schedule 1 of the EP&A Regulation lists the information that must be supplied with a development application. This includes a statement of environmental effects.

WaterNSW requires extra information that must be included with a development application, including a water cycle management study (WCMS), which varies according to the type and scale of development.

The WCMS must include information addressing:

- erosion and sediment control
- stormwater
- contamination, and
- wastewater.

The type of report or model that must be included depends on the complexity of the development. Without this information, the council and WaterNSW cannot adequately assess whether the application meets the NorBE test. Information requirements are detailed in a document developed by WaterNSW: 'Developments in the Sydney drinking water catchment – water quality information requirements' (WaterNSW, 2026a).

The document – 'Using a Consultant to Prepare Your Water Cycle Management Study' (WaterNSW, 2025) – explains the development application process in relation to the water cycle management study requirements, as well as information about choosing and using a consultant to prepare the required WCMS. The documents are available to download from WaterNSW's website at www.waternsw.com.au.

An application for designated development (refer to Schedule 3 of the EP&A Regulation for a list of development declared to be 'designated development' under the EP&A Act) must include an environmental impact statement. Designated development assessed under Part 4 of the EP&A Act follows the same approval process under the B&C SEPP.

4.4 Steps in the assessment process

There are two steps to assess an application to determine whether it would have a neutral or beneficial effect on water quality, as shown in the NorBE Part 4 assessment flowchart (Figure 2). The first applies to an assessment by the consent authority when concurrence may be assumed in accordance with the notice issued under the EP&A Regulation. The second applies when concurrence from WaterNSW is required.

If the council, by using the NorBE Tool, is satisfied that the proposed development would have a neutral or beneficial effect on water quality, they can issue consent based on water quality grounds. If the council is not satisfied that the proposed development would have a neutral or beneficial effect on water quality, they must refuse consent based on water quality grounds or discuss further options to amend the development application with the proponent.

When WaterNSW issues concurrence, the council must consider WaterNSW's expert advice and either refuse or grant consent (as in Figure 2). If consent is granted conditions required by WaterNSW must be included in the development consent.

4.4.1 No identifiable potential impacts on water quality

The neutral or beneficial effect test must be satisfied before consent can be issued with respect to water quality.

It can generally be assumed that a development will have no identifiable potential impact on water quality if the development is unlikely to result in:

- a concentration of flow of water
- the impedance of flow of water
- discharge of effluent, dust pollutants or stormwater, and
- other matters considered to result in a water quality impact, such as the potential for contamination.

Development proposals that would generally satisfy these criteria include, but are not limited to, minor boundary adjustments not involving new construction, or adding an ensuite bathroom without changing the number of bedrooms in a development. Other developments that are unlikely to have an impact on water quality may include a picket fence, a pergola with either no roof or a shade cloth roof, or an office fit out. Many minor forms of development may be exempt or complying development as identified in an environmental planning instrument.

4.4.2 Exempt and complying development

Exempt development

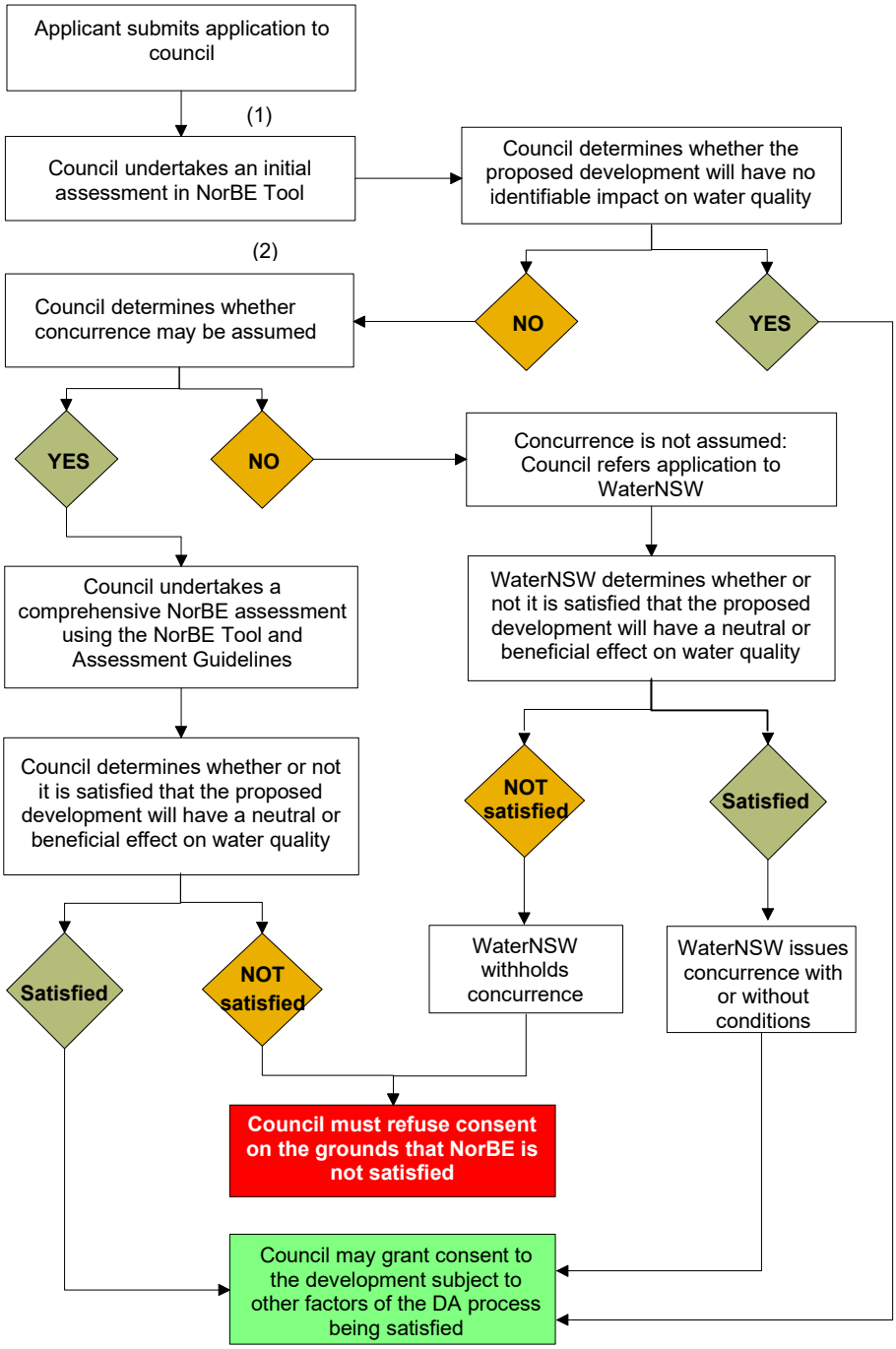
Development that is listed as exempt development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* (Development Codes SEPP) or under a council's LEP does not require a neutral or beneficial effect on water quality assessment.

Complying development

Many types of complying development listed under the Development Codes SEPP do not require a neutral or beneficial effect on water quality assessment, but there are a number of exceptions to this. The exceptions also apply to complying development listed in LEPs as the SEPP overrides LEPs where there are inconsistencies.

Clause 1.19 of the Development Codes SEPP lists the land on which complying development cannot be carried out, generally relating to unsewered land in the Sydney drinking water catchment. Councils and developers must refer to clause 1.19 of the Codes SEPP when assessing or proposing complying development on unsewered land in the catchment.

Figure 2 – NorBE Part 4 Local Development Assessment



Note:

- This flow chart does not include the assessment process for State Significant Development (SSD) or Part 5 activities.
- It may be necessary to seek pre-lodgement advice from WaterNSW for higher water quality risk developments.

(1) if a consultant submits a NorBE assessment to the consent authority, then the process involves certifying that the information and assessment is correct

(2) if the information supplied with the development application is incomplete or incorrect, then the council or possibly WaterNSW will require and request further information before continuing with the assessment.

4.5 The NorBE Tool for Part 4 Development Applications

WaterNSW developed the NorBE Tool (Appendix 1) to help council officers assess whether development under Part 4 of the EP&A Act would have a neutral or beneficial effect on water quality.

Development types have been divided into different development classes consistent with the Standard Instrument – Principal Local Environmental Plan (the Standard Instrument). The development classes are then grouped into modules according to the required development assessment process and the level of potential risk from the development.

Module 1 – These developments typically involve a sewered new single dwelling or dual occupancy, or an alteration/addition to a dwelling. They can also involve, for example, swimming pools and subdivisions of three lots or less in sewered areas, car parks and small demolitions (less than 2,500 m^2). See Table A1 for a full list. This module addresses standard stormwater questions for site risks and management responses that differ according to the size of the construction area.

The concurrence of the Regulatory Authority can be assumed **except where**:

- the total proposed impervious area or construction area is greater than or equal to 2,500 m^2
- the development is proposed to be carried out on crown perpetual leasehold land
- there are inconsistencies with any Section 88 instruments placed by WaterNSW (or the former Sydney Catchment Authority (SCA)) under the *Conveyancing Act 1919*.

Module 2 – Developments typically involve an unsewered new dwelling or dual occupancy, or alterations/additions. They can also involve, for example, swimming pools and subdivisions of three lots or less in unsewered areas. See Table A1 for a full list. The main focus of this module is to assess wastewater systems, including design loadings and site risks.

The concurrence of the Regulatory Authority can be assumed **except where**:

- the development proposal involves non-standard systems
- the total proposed impervious area or construction area is greater than or equal to 2,500 m^2
- there are inconsistencies with any Section 88 instruments placed by WaterNSW (or the former SCA) under the *Conveyancing Act 1919*
- the development is proposed to be carried out on crown perpetual leasehold land.

Module 3 – Developments typically involve, for example, a sewered urban subdivision of four lots or greater that may or may not involve the construction of dwellings. See Table A1 for a full list. Module 3 addresses standard stormwater site risks such as soils and slope, development risks, standard sewerage questions, and in some cases, requires stormwater quality modelling, for example, a MUSIC model evaluation. In this module, subdivision means dividing a larger lot to smaller lots and any construction proposed by the development application.

Module 4 – Developments typically involve, for example, a rural subdivision of four lots or greater with on-site wastewater disposal that may or may not involve the construction of dwellings. See Table A1 for a full list. This module addresses standard stormwater site risks such as soils and slope, development risks, and in some cases, requires stormwater quality modelling, for example, a MUSIC model evaluation, as for Module 3. It also considers standard wastewater questions, and subdivision layout issues such as roads/rights-of-way, and dwelling and internal access issues. In this module, subdivision means lot layout and any construction proposed by the development application.

Module 5 – Other development.

Concurrence of the Regulatory Authority is required for ***all*** developments in Modules 3, 4 and 5. A full list of development classes and module groupings is in Appendix 1 – Table A1.

4.5.1 The NorBE Tool

The NorBE Tool was developed using a risk-based approach. It is consistent with, and uses, assumptions and benchmark indicators of risk and recommended management practices, while providing consistent and transparent assessments.

The Modules include a series of questions that lead to an action or conclusion which may include, but is not limited to:

- more information must be provided to determine a neutral or beneficial effect on water quality
- the development application must be referred to WaterNSW for concurrence
- NorBE is satisfied
- NorBE is not satisfied
- the proponent withdraws the application.

The NorBE Tool will help determine whether there would be a predicted neutral or beneficial effect on water quality based on information entered by council. The information specifically relates to site and development risks, including effluent management and stormwater. Some sections of the NorBE Tool can be completed during a desktop assessment (assuming all documents and relevant information are available or have been provided by the proponent with the development application). Other sections must be completed after a site inspection.

a. Site considerations

Risks associated with development proposals vary greatly depending on site characteristics. Many aspects that may impact on water quality must be considered, including:

- rainfall
- slope (steep slopes pose a greater risk than flat terrain)
- distance from watercourses (developments closer to watercourses pose higher potential risk to water quality)
- soil characteristics (including permeability, depth, type, soil loss class, salinity, phosphorus sorption capacity, sodicity and rock outcropping)
- site issues specific to subdivision design, such as layout, roads and rights-of-way, contamination, extent of cut and fill required, vegetation clearing and watercourse crossings.

Management responses will differ according to site risks and size of the construction area.

b. Assessment of stormwater impacts

Stormwater can impact on water quality, especially if the amount of impervious surface is increased by the development. For example, stormwater leaving an undeveloped lot covered in vegetation will differ in quality and quantity from stormwater leaving a lot with a dwelling (with an impervious roof area) and other associated impervious development (such as driveways, sheds and paved areas).

To assess the impact of development on stormwater, the NorBE Tool includes questions on the proposed size of the impervious area and construction, and slope. These questions can be addressed by preparing stormwater quality modelling using either a Small Scale Stormwater Quality Model (S3QM) for example, or a more detailed model for urban stormwater improvement conceptualisation (MUSIC) or equivalent for larger, more complex developments. Refer to Table A3 for the thresholds that apply for each model.

c. Assessment of wastewater impacts

Potential impacts from wastewater on ambient water quality are a significant issue in the Sydney drinking water catchment due to the large number of existing on-site systems and proposals for unsewered development. The choice of an appropriate on-site wastewater system for a particular development proposal will be greatly influenced by site considerations. These include slope, depth and type of soil, distance from watercourses, and the area available to set aside as an effluent disposal area. Certain site constraints, including the presence of shallow soils or steep slopes, will automatically preclude some wastewater treatment system and effluent disposal types. WaterNSW has developed a GIS-based, effluent

plume generation modelling tool (the wastewater effluent model, or WEM - see Section 5.1) to support the design and assessment of on-site wastewater management systems.

Domestic wastewater management systems available for retail purchase require accreditation by NSW Health and are for premises occupied by up to 10 persons or where the average daily flow is up to 2,000 L only.

A sewerage system with a proposed capacity of more than 20 persons equivalent is a designated development and requires an environmental impact statement and the concurrence of WaterNSW.

d. General considerations and assumptions

The NorBE Tool makes a number of general assumptions that must be considered by the assessor using the NorBE Tool. These include but are not limited to:

- the assessor can access certain software applications such as, for example, stormwater quality modelling including the S3QM or MUSIC, and the Wastewater Effluent Model (WEM). The WEM is embedded in the on-line NorBE Tool. The S3QM is directly available at www.s3qm.com.au
- the comparison between the predicted effect of the proposal on water quality with the estimated effect of the current (legal) use and condition of the site is based on conditions that, for example, exclude breaches of the *Protection of the Environment Operations Act 1997*
- consultants' reports may not match information from WaterNSW databases related to site and soil characteristics, rainfall and evaporation
- a neutral or beneficial effect for certain low-risk developments can be satisfied by adopting current recommended practices (CRPs – see Section 4.7 below)
- any existing wastewater systems must be considered
- any effluent management area is located wholly within each lot or covered by an appropriate easement in a subdivision proposal
- any proposed roads and/or rights-of-way are defined as including roads as well as associated drainage works
- the number of lots fronting a watercourse in a subdivision proposal is minimised
- where there is a technical challenge to the assessment that council cannot resolve they will seek assistance from WaterNSW (with relevant documentation).
- the site was not deliberately degraded, such as through the clearing of vegetation or sealing, before the development application was submitted to lower the neutral or beneficial effect pre-development baseline
- references to a dwelling include all ancillary structures and development such as garages, sheds, tennis courts, driveways, swimming pools and gazebos
- councils may contact WaterNSW for help and advice about their assessments.

The NorBE test is not an exact science. WaterNSW's approach to decide a neutral or beneficial effect will be a mixture of:

- using various guidelines, standards and practices to show that NorBE is satisfied
- quantitative neutral or beneficial effect evaluation or assessment using the WEM and/or stormwater quality models
- assessment of water quality risks
- qualitative assessment of mitigation measures comprising offsets which are required to ensure a neutral or beneficial effect on water quality.

Please note that a development application must not be submitted to WaterNSW for concurrence unless the development type is consistent with those types outlined in Section 55 notice for which WaterNSW concurrence must be sought.

4.5.2 The Electronic NorBE Tool

A web-based software application has been developed for ease of use and access to the NorBE Tool. Users and assessors should refer to the NorBE Assessment Tool User Guides for councils and consultants for detailed step by step instructions and illustrated examples on how to use the NorBE Tool.

The NorBE Tool helps consultants prepare development applications that would have a neutral or beneficial effect on water quality. It also helps councils decide whether the proposed development would have a neutral or beneficial effect on water quality, or whether the concurrence of the Regulatory Authority is required. It records the decision process for each development application.

The NorBE Tool uses answers from the questions in each module to make an assessment. Some parameters are automatically filled in, while others require the user to choose an option or enter a value. An assessment summary including all responses can be printed.

Where an assessment needs to be referred to WaterNSW for concurrence, the assessment summary must be attached to the development application.

The NorBE Tool is not intended for use in assessing water quality impacts from State significant developments, where the Minister for Planning is the consent authority.

4.6 Compliance with conditions of consent

The consent authority is responsible for enforcing development consent conditions. WaterNSW may inspect developments to check WaterNSW's advice or conditions are included in council determinations, and whether the development complies with WaterNSW's conditions. Some conditions are automatically generated by the NorBE Tool (e.g. 'Effective erosion and sediment controls shall be installed prior to any construction activity and shall prevent sediment or polluted water leaving the construction site or entering any natural drainage system or stormwater drain. The controls shall be regularly maintained and retained until works have been completed and groundcover established').

4.7 Current recommended practices and performance standards

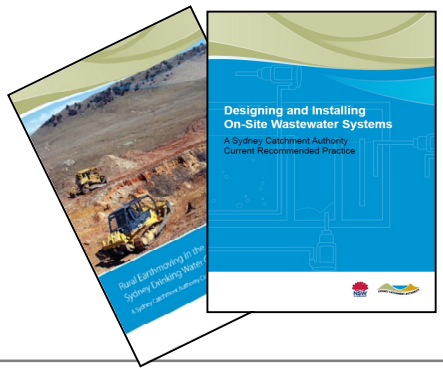
Management practices that have been endorsed by WaterNSW are referred to as current recommended practices (CRPs) and performance standards.

CRPs and standards provide best practice methods to manage the water quality impacts of a range of land uses, developments and activities including urban and rural subdivisions, agriculture, industrial developments, waste and recycling, stormwater and wastewater management, service stations and preparing environmental management plans.

Landholders can get information about CRPs from the WaterNSW website www.waternsw.com.au to include in the project design phase of a development, in property management planning, or in their day-to-day activities (e.g. controlling bank erosion on their property).

New developments or activities should incorporate CRPs and standards endorsed by WaterNSW or adopt approaches that achieve the same or better water quality outcomes. This applies to public and private development. The use of CRPs is therefore an important means for helping to ensure that NorBE is met for development proposed to be carried out in the Sydney drinking water catchment.

All CRPs and standards are listed on WaterNSW's website at www.waternsw.com.au.



5. SUPPORTING TOOLS AND USER GUIDELINES

This guideline and the NorBE Tool refer to a number of different supporting tools and guides, such as the WEM, and stormwater quality modelling (MUSIC).

5.1 Wastewater effluent model

The wastewater effluent model (WEM) is a GIS-based, effluent plume generation modelling tool that supports the design of on-site wastewater management systems. The WEM is integrated into the NorBE Tool. It uses natural resource spatial data for model inputs and design calculations to predict the potential extent of an effluent plume. This allows a visual interpretation and assessment of the potential impact of a development on water quality.

If the effluent plume is predicted to leave the site, or reach a watercourse, waterbody or drainage depression or defined buffers, then the proposed on-site wastewater system will not have a neutral or beneficial effect on water quality. The site or size of the proposed effluent management area, or type of on-site wastewater treatment system, can be changed in various scenarios to help ensure the proposed system can meet the NorBE test.

The WEM provides an objective way to determine whether a proposal would have a neutral or beneficial effect on water quality. It also reduces costs and produces consistent design and assessment. The WEM will help designers and assessment officers to identify and locate an appropriate site for an on-site wastewater management system for developments proposed in the Sydney drinking water catchment.

5.2 Stormwater quality models

MUSIC

The model for urban stormwater improvement conceptualisation (MUSIC) is a decision support system for simulating the performance of stormwater management measures. The model estimates stormwater pollutant generation and the performance of stormwater quality improvement devices (SQIDs) from proposed land development. It is the preferred stormwater quality model to determine a neutral or beneficial effect in the Sydney drinking water catchment for larger developments where the impervious area is greater than or equal to 2,500 m^2.

These types of developments may be found in all Modules of the NorBE Tool and will all be referred to WaterNSW for concurrence. Reference should be made to WaterNSW's 'Using MUSIC in the Sydney Drinking Water Catchment' (2026d).

S3QM

The small-scale stormwater quality model (S3QM) estimates stormwater pollutant generation and the performance of SQIDs from proposed development for smaller, less complex development proposals. S3QM can be used for Modules 1 and 2. It can also be used in place of a MUSIC model, for Modules 3, 4 and 5 where the total proposed impervious area is less than 2,500 m^2.

A certificate from an assessment completed using the S3QM or similar can be submitted with these proposals.

The free software can be found at s3qm.com.au. This tool is one example of small-scale stormwater quality modelling software.

DEFINITIONS

Note: these definitions also apply to the NorBE Tool.

Activity	Has the same meaning as in Part 5 of the *Environmental Planning and Assessment Act, 1979*. Activity is: (a) the use of land, and (b) the subdivision of land, and (c) the erection of a building, and (d) the carrying out of a work, and (e) the demolition of a building or work, and (f) any other act, matter or thing referred to in section 3.14 of the EP&A Act that is prescribed by the regulations for the purposes of this definition but does not include: (g) any act, matter or thing for which development consent under Part 4 is required or has been obtained, or (h) any act, matter or thing that is prohibited under an environmental planning instrument, or (i) exempt development, or (j) development carried out in compliance with a development control plan, or (k) any development of a class or description that is prescribed by the regulations for the purposes of this definition
Annual exceedance probability (AEP)	The chance of a flood of a given size (or larger) occurring in any one year, usually expressed as a percentage. For example, a flood with a 1% AEP has a one in a hundred chance of being exceeded in any year.
Clearing native vegetation	Has the same meaning as in the *Local Land Services Act, 2013*. Clearing native vegetation is any one or more of the following: (a) cutting down, felling, thinning, or otherwise removing native vegetation, (b) killing, destroying, poisoning, ringbarking or burning native vegetation.
Consent authority	Has the same meaning as in the *Environmental Planning and Assessment Act, 1979* see Division 4.5 4.5 Designation of consent authority For the purposes of this Act, the consent authority is as follows: (a) in the case of State significant development—the Independent Planning Commission (if the development is of a kind for which the Commission is declared the consent authority by an environmental planning instrument) or the Minister (if the development is not of that kind), (b) in the case of development of a kind that is declared by an environmental planning instrument as regionally significant development—the Sydney district or regional planning panel for the area in which the development is to be carried out, (c) in the case of development of a kind that is declared by an environmental planning instrument as development for which a public authority (other than a council) is the consent authority—that public authority, (d) in the case of any other development—the council of the area in which the development is to be carried out.
Controlled activity	Has the same meaning as in the *Water Management Act 2000*. Controlled activity is: (a) the erection of a building or the carrying out of a work (within the meaning of the *Environmental Planning and Assessment Act 1979*), or (b) the removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise, or

	(c) the deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or (d) the carrying out of any other activity that affects the quantity or flow of water in a water source (WM Act).
Development	Has the same meaning as in *Environmental Planning and Assessment Act 1979*. Development is: (a) the use of land, (b) the subdivision of land, (c) the erection of a building, (d) the carrying out of a work, (e) the demolition of a building or work, (f) any other act, matter or thing that is controlled by an environmental planning instrument, But does not include any act, matter or thing excluded by the regulations (either generally for the purposes of this Act or only for the purposes of specified provisions of this Act).
Development application	Has the same meaning as in *Environmental Planning and Assessment Act 1979*. A development application means an application for consent under Part 4 to carry out development but does not include an application for a complying development certificate.
Disturbed area	The building footprint plus 25%.
Drainage depression	A drainage depression is a low point that carries water during rainfall events, but dries out quickly when rainfall stops. A gully or incised drainage depression is considered to be a watercourse.
Fill	Has the same meaning as in the *Standard Instrument – Principal Local Environmental Plan*. Fill is the depositing of soil, rock or other similar extractive material obtained from the same or another site, but does not include: (a) the depositing of topsoil or feature rock imported to the site that is intended for use in garden landscaping, turf or garden bed establishment or top dressing of lawns and that does significantly alter the shape, natural form or drainage of the land, or (b) the use of land as a waste disposal facility.
Gully erosion	Gully erosion is erosion that forms deep sided channels or gullies (deeper than 30 cm), usually due to the removal of riparian vegetation.
Intermittent watercourse	An intermittent watercourse is an area with banks and beds or ponds that stays wet for considerable periods between rainfall events and may be characterised by supporting moisture tolerant vegetation.
Potential bedroom	A potential bedroom is a room that could reasonably be used as a bedroom. A potential bedroom is a room with a closable door, at least one window and a minimum of 8 m^2. A room in a separate building such as a studio could be a potential bedroom if it has a toilet and washing facilities or close access to same.
Riparian land	Riparian land is land that adjoins or directly influences a body of water. It includes riverbanks and land immediately alongside gullies, streams, creeks, rivers and wetlands that interact with the flows. There are approximately 110,000 kilometres of riparian land in the catchment.
Section 88	Section 88 provides for the imposition of a restriction or public positive covenant by a prescribed authority on land under the *Conveyancing Act 1919* that can impose obligations relating to development and provisions of services on or to the land and maintenance, repair or insurance of structures or work on the land.
Severe frosts	Areas of severe frost are defined as those where the overnight minimum air temperatures (Stephenson screen) are regularly below -3°C, corresponding to a ground temperature of approximately -5°C. Note that frost hollows and areas of cold air drainage may result in localised areas where frost is more severe than indicated by temperature records for the region.

Site	The site of a proposed development is the area of land described in the development application or the Part 5 assessment.
Site area	The site area is the area of any land on which development is or is to be carried out. The land may include the whole or part of one lot, or more than one lot if they are contiguous to each other, but does not include the area of any land on which development is not permitted to be carried out under the LEP.
Waterbody (artificial)	Includes any constructed waterway, canal, inlet, bay, channel, dam, pond, lake or artificial wetland, but does not include a dry detention basin or other stormwater management construction that is only intended to hold water intermittently.
Waterbody (natural)	A natural waterbody is a natural body of water, whether perennial or intermittent, fresh, brackish or saline, the course of which may have been artificially modified or diverted onto a new course, and includes a river, creek, stream, lake, lagoon, natural wetland, estuary, bay, inlet or tidal waters (including the sea).
Watercourse	A watercourse is any river, creek, stream or chain of ponds, whether artificially modified or not, in which water usually flows, either continuously or intermittently, in a defined bed or channel, but does not include a waterbody (artificial).
Waterfront land	Waterfront land is: (a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or (a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance.
Waterway	A waterway is the whole or any part of a watercourse, wetland, waterbody (artificial) or waterbody (natural).
Wetland	A wetland is: (a) natural wetland, including marshes, mangroves, backwaters, billabongs, swamps, sedgelands, wet meadows or wet heathlands that form a shallow waterbody (up to 2 metres in depth) when inundated cyclically, intermittently or permanently with fresh, brackish or salt water, and where the inundation determines the type and productivity of the soils and the plant and animal communities, or (b) artificial wetland, including marshes, swamps, wet meadows, sedgelands or wet heathlands that form a shallow waterbody (up to 2 metres in depth) when inundated cyclically, intermittently or permanently with water, and are constructed and vegetated with wetland plant communities.
Water cycle management study	A water cycle management study includes: – a conceptual soil and water management plan or erosion and sediment control plan for the construction phase – an on-site effluent management plan if unsewered – water sensitive design features, and – a determination of pre-and post-development loads and concentrations.

ACRONYMS

AEP	Annual exceedance probability
B&C SEPP	State Environmental Planning Policy (Biodiversity and Conservation) 2021
CRP	Current recommended practice
DA	Development application
DLG	The former Department of Local Government (now the Office of Local Government)
EMA	Effluent management area
EP&A Act	*Environmental Planning and Assessment Act 1979*
ESCP	Erosion and sediment control plan
FPL	Flood planning level
GIS	Geographic information systems
LEP	Local environmental plan
MUSIC	Model for urban stormwater improvement conceptualisation
NHMRC	National Health and Medical Research Council
NorBE	Neutral or beneficial effect
NRAR	Natural Resources Access Regulator
SCA	(the former) Sydney Catchment Authority (now WaterNSW)
SLEP	Standard Instrument – Principal Local Environmental Plan
SQIDs	Stormwater quality improvement devices
SSD	State significant development
SSI	State significant infrastructure
S3QM	Small scale stormwater quality model
STP	Sewage treatment plant
SWMP	Soil and water management plan
WEM	Wastewater effluent model
WM Act	*Water Management Act 2000*
WCMS	Water cycle management study

REFERENCES

1. Converse, J.C., & Tyler, E.J. (2000). *Wisconsin Mound Soil Absorption System: Siting Design and Construction Manual.* University of Wisconsin, Madison. http://www.soils.wisc.edu/sswmp/pubs/15.24.pdf
2. Cromer, W.C., Gardner, E.A. & Beavers, P.B. (2001). An Improved Viral Die-off Method for Estimating Setback Distances. In *Proceedings of On-site '01 Conference: Advancing On-site Wastewater Systems* by R.A. Patterson & M.J. Jones (Eds). Published by Lanfax Laboratories, Armidale. ISBN 0-9579438-0-6, pp 105-112.
3. Landcom. (2004). *Managing urban stormwater: soils and construction. Vol. 1, 4th Edition*, (the 'Blue Book' Vol.1). Parramatta, NSW.
4. NSW Department of Environment and Climate Change [DECC]. (2008). *Managing urban stormwater: soils and construction. Volume 2A, Installation of services*. Dept. of Environment and Climate Change, NSW.
5. NSW Health. (05 December, 2012). *Reuse and Recycling of Swimming Pool Backwash Water*. http://www.health.nsw.gov.au/environment/factsheets/Pages/swimming-pool-ackwash.aspx
6. Office of Local Government. (2025). *Onsite Wastewater Management Guidelines*. NSW Government.
7. Standards Australia. (2012). AS/NZS 1547:2012 On-site domestic wastewater management. SAI Global, Sydney.
8. Sydney Catchment Authority. (2014). *Rural Earthmoving in the Sydney Drinking Water Catchment*. Penrith, NSW.
9. WaterNSW (2025). *Using a Consultant to Prepare Your Water Cycle Management Study*. Parramatta, NSW.
10. WaterNSW (2026a). *Developments in the Sydney drinking water catchment – water quality information requirements*. Parramatta, NSW.
11. WaterNSW (2026b). *NorBE assessment tool consultants and consultant administrators user guide*. Parramatta, NSW.
12. WaterNSW (2026c). *NorBE assessment tool council and council administrators user guide*. Parramatta, NSW.
13. WaterNSW. (2026d). *Using MUSIC in the Sydney Drinking Water Catchment.* WaterNSW, Paramatta, NSW.
14. WaterNSW (2026e). *Water Sensitive Design Guide for Rural Residential Subdivisions*. Parramatta, NSW.
15. WaterNSW (2026f). *Designing and Installing On-Site Wastewater Systems*. Paramatta, NSW.
16. Water Services Association of Australia. (2014). *Gravity Sewerage Code of Australia: WSA 02-2014*. Edition 3, Version 3.1, Docklands VIC.

APPENDIX 1 – Neutral or Beneficial Effect on Water Quality Assessment Tool

Neutral or Beneficial Effect (NorBE) on Water Quality Assessment Tool

This Appendix describes how to assess a NorBE on water quality for development applications for land in the Sydney drinking water catchment, as defined in the B&C SEPP.

Types of development are divided into different development classes, consistent with the terminology used in the Standard Instrument — Principal Local Environmental Plan 2006 (SLEP). The development classes are grouped into modules, according to the required development assessment process and the level of complexity. If more than one module applies to the development, the module representing the highest risk to water quality must be chosen. The development classes and module groupings are listed in Table A1. This table should be read in conjunction with the Notes on the following page.

Table A1 – Development Classes and Module Groupings

Description	Development Class	Module Grouping
Existing dwelling / dual occupancy sewered[1]	B	1
New dwelling / dual occupancy sewered[1]	C	1
Farm building/shed without on-site wastewater proposal[2]	D	1
Farm building/shed with on-site wastewater proposal[2]	Du	2
Bed and breakfast sewered	E	1
Bed and breakfast unsewered	I	2
Swimming pool / spa pools only, sewered area[3]	Fs	1
Swimming pool / spa pools only, unsewered area[3]	F_U	2
Existing dwelling / dual occupancy < 8 bedrooms unsewered[1,4]	G	2
New dwelling / dual occupancy < 8 bedrooms unsewered[4,8]	Gs	2
Existing/new dwelling/dual occupancy ≥ 8 bedrooms unsewered[4]	G_L	5
Greywater systems in unsewered areas only	K	2
≤3 multi-dwelling housing, sewered	L_{S1}	1
≥4 multi-dwelling housing, sewered	L_{S3}	3
Multi-dwelling housing, unsewered	L_U	5
Subdivision, sewered <4 lots	M_{S1}	1
Subdivision, sewered ≥4 lots	M_{S3}	3
Subdivision, unsewered <4 lots	N_{US}	2
Subdivision, unsewered ≥4 lots	N_{UL}	4
Industrial	O_I	5
Retail premises/office premises, sewered[5]	O_{RS}	1
Retail premises/office premises, unsewered[5]	O_{RU}	2
Tourist / recreation / religious / education establishment or facility	P	5
Intensive livestock	Q	5
Intensive plant growing[6]	R	5
Designated development	S	5
Other development – e.g. offensive or hazardous industry or storage establishment development, service stations	T	5
Earthworks / farm dams <2,500 m^2 total disturbed area	U_s	1
Earthworks / farm dams ≥2,500 m^2 total disturbed area	U_I	5
Car parks[7] <2,500 m^2	V_S	1
Car parks[7] >2,500 m^2	V_L	5
Demolitions <2,500 m^2	W_S	1
Demolitions >2,500 m^2	W_L	5
Sewerage systems that have an intended processing capacity of more than 10 persons equivalent	Y	5
Temporary events	ZT	5
Other development[8]	ZO	5

Notes for Table A1:

1. Where an attached dwelling is proposed, as defined under the SLEP, and the maximum number of dwellings is three it can be included as development class B or C for sewered areas or development class G for unsewered areas.
2. Farm buildings, as defined in the standard local environmental plan (SLEP), in both sewered and unsewered areas, and sheds in sewered areas, can be included in Development Class D (sewered) or D_U (unsewered).
3. Emptying spa baths can flush out on-site wastewater treatment systems and substantially deteriorate treatment performance. A wastewater surge tank should be installed for these systems.
4. Replacement of an on-site wastewater treatment system or disposal system is to be assessed under development classes G, G_s or G_L.
5. Retail referred to in Development Class O_{RS} and O_{RU} includes the development types of retail premises and offices premises or change of existing buildings as defined in the SLEP.
6. For example, orchards and vineyards require buffers of 20 metres to watercourses and water supply reservoirs, and 10 metres to drainage depressions.
7. Covering an unsealed car park in bitumen is construction. If the proposal involves using bitumen in a car park of area more than 2,500 m^2, it must be referred to WaterNSW for concurrence. All car parks, sealed or not, are considered to be impervious for assessment purposes.
8. However, vacant lots that have an existing dwelling entitlement (e.g. in an unsewered village) should be assessed under Module 5 (i.e. sent to WaterNSW for concurrence).

During the assessment the council assessor may need to pause the NorBE Tool to:

- seek advice from WaterNSW or another agency such as NSW Health, Heritage NSW, or Department of Planning
- discuss the proposal with the proponent or consultant
- revise the size of the effluent management area (and reflect this in conditions of consent)
- amend plans or reports.

Pre-Assessment Checklist

This checklist is a series of general questions to be asked at the start of each assessment, for each development application, modification of consent, or amendment of the application (before every Module 1-5). They help focus the assessment on the nature of the proposal and the adequacy and completion of all documentation with the proposal.

These questions should be asked at the start of every assessment. They are the same for *all* development types.

1. **Is the site of the proposed development in the Sydney drinking water catchment?**

   If any part of the application falls within the catchment, then a NorBE assessment is required (for that part of the site). If wholly outside the Sydney drinking water catchment a NorBE assessment is not required.

   If yes, (inside the catchment), continue to assess NorBE.

   If no, (outside the catchment), **NorBE assessment is not required** for WaterNSW purposes.

2. **Is the proposed development consistent with any WaterNSW instruments, restrictions or covenants on the title?**

   For example, where a dwelling site, including asset protection zone, is to be located where no vegetation clearing is required, or where the location of an effluent management area has been specifically identified on the lot. This may imply a highly constrained lot.

   If yes, or not applicable, continue to the next question.

   If no, either comply with the instrument, **OR** request a variation to the covenant in the water cycle management study (WCMS) then continue to next question, otherwise **refer to WaterNSW for concurrence**.

   Seek advice from WaterNSW regarding any proposed variations.

3. **Is the proposed development located on Crown perpetual leasehold land?**

   If yes, **refer to the WaterNSW for concurrence**.

   If no, continue to the next question.

4. **Does the proposal have an identifiable potential impact on water quality? - see Table A2**

   The criteria for determining that a proposal has an identifiable impact on water quality includes: concentration of flow of water; impedance of flow of water; activity involving discharge (effluent, dust pollutants, stormwater) or any other matter, such as potential site contamination. The assessment officer will be required to address each of the criteria to justify the decision – see Table A2.

   If yes, continue to the next question.

   If no, **NorBE is satisfied**.

Table A2 – Identifiable potential impact on water quality checklist

Criteria for identifiable water quality impact	Yes	No	Comments
Flow of water is concentrated on part of the site during construction or operation			
Flow of water is impeded on part of the site during construction or operation			
Proposed development during construction or operation will discharge effluent (including to sewer), dust, stormwater or other pollutants			
Any other matter considered to result in an identifiable impact on water quality			

5. To which Development Class does the proposal belong?

This is to help focus subsequent questions and identify likely issues. If more than one module applies, choose the relevant module representing the highest risk to water quality (where Module 5 developments are of highest risk, ranging to Module 1 developments of least risk).

See Table A1 above.

6. Is the documentation complete?

This is to ensure there is full documentation before beginning an assessment of the development application – see Table A3. The assessment cannot continue if full documentation is not provided.

If yes, continue to the next question.

If no, provide the required information, then continue to the next question.

7. Does the water cycle management study meet WaterNSW requirements?

WCMSs that are not consistent with WaterNSW / Council requirements will invariably not contain the information or address contemporary requirements and issues necessary for this NorBE analysis. Old subdivision options reports for on-site wastewater management are not suitable for new dwellings and will not address contemporary requirements. Refer to 'Developments in the Sydney drinking water catchment – Water Quality Information Requirements' (WaterNSW, 2026a) on WaterNSW's website (www.waternsw.com.au)

If yes, proceed to the appropriate module (Module 1 or Module 2) **OR** refer to WaterNSW for concurrence (for development classes under Modules 3, 4 and 5).

If no, provide a complete WCMS consistent with WaterNSW requirements before proceeding to the appropriate module or referring the application to WaterNSW for concurrence.

Table A3 – Documentation Requirements

	Module 1	Module 2	Module 3	Module 4	Module 5
Documentation					
WCMS or equivalent information for all modules	Y	Y	Y	Y	Y
plus specific components identified below					
On-site wastewater management report		Y		Y	Y – where on-site wastewater management is proposed
Conceptual erosion and sediment control plan (ESCP)	Y for construction area ≥250 m^2 and <2,500 m^2	Y for construction area ≥250 m^2 and <2,500 m^2	Y for construction area ≥250 m^2 and <2,500 m^2	Y for construction area ≥250 m^2 and <2,500 m^2	Y for construction area ≥250 m^2 and <2,500 m^2
Conceptual soil and water management plan (SWMP) OR Primary and Progressive ESCP for access or road works	Y for construction or impervious areas ≥2,500 m^2	Y for construction or impervious areas ≥2,500 m^2	Y for construction or impervious areas ≥2,500 m^2	Y for construction or impervious areas ≥2,500 m^2	Y for construction or impervious areas ≥2,500 m^2
Small scale stormwater quality modelling (e.g. S3QM)			Y for <2,500 m^2 impervious area	Y for <2,500 m^2 impervious area	Y for <2,500 m^2 impervious area
MUSIC or equivalent stormwater quality modelling (including electronic copy)	Y for ≥2,500 m^2 impervious area*	Y for ≥2,500 m^2 impervious area*	Y for ≥2,500 m^2 impervious area * #	Y for ≥2,500 m^2 impervious area * #	Y for ≥2,500 m^2 impervious area * #
Contamination report	Y where historical land use of the development area indicates potential contamination	Y where historical land use of the development area indicates potential contamination	Y where historical land use of the development area indicates potential contamination	Y where historical land use of the development area indicates potential contamination	Y where historical land use of the development area indicates potential contamination
Flood study	Y where the development area is within or potentially within the AEP and the water sensitive parts of the development are located in the flood area	Y where the development area is within or potentially within the AEP and the water sensitive parts of the development are located in the flood area	Y where the development area is within or potentially within the AEP and the water sensitive parts of the development are located in the flood area	Y where the development area is within or potentially within the AEP and the water sensitive parts of the development are located in the flood area	Y where the development area is within or potentially within the AEP and the water sensitive parts of the development are located in the flood area
Covenant check (identify any relevant covenant on the title)	Y	Y	Y	Y	Y
Any SEPP 1 objection	Y	Y	Y	Y	Y
Operational Environmental	Y – where non-standard large and/or complex	Y – where non-standard large and/or complex	Y – where wastewater and/or	Y – where wastewater and/or	Y – where wastewater and/or

	Module 1	Module 2	Module 3	Module 4	Module 5
Documentation					
Management Plan (OEMP)	wastewater and/or stormwater quality improvement devices are proposed to be installed on the site that require ongoing operational management and maintenance	wastewater and/or stormwater quality improvement devices are proposed to be installed on the site that require ongoing operational management and maintenance	stormwater quality improvement devices are proposed to be installed on the site that require ongoing operational management and maintenance	stormwater quality improvement devices are proposed to be installed on the site that require ongoing operational management and maintenance	stormwater quality improvement devices are proposed to be installed on the site that require ongoing operational management and maintenance
Stormwater Drainage Plan			Y – where stormwater quality improvement devices are proposed, a plan depicting their placement on site and direction of drainage, relative levels, and sections must be prepared by a suitably qualified professional	Y – where stormwater quality improvement devices are proposed, a plan depicting their placement on site and direction of drainage, relative levels, and sections must be prepared by a suitably qualified professional	Y – where stormwater quality improvement devices are proposed, a plan depicting their placement on site and direction of drainage, relative levels, and sections must be prepared by a suitably qualified professional

* An electronic copy of complying stormwater model (MUSIC or equivalent) must accompany the development application when forwarded to WaterNSW for concurrence.

Generally ≥2,500 m^2 but special cases are outlined in WaterNSW's manual 'Using MUSIC in the Sydney Drinking Water Catchment' (WaterNSW, 2026d).

Note: as it is very difficult to accurately determine the impervious area for a larger development (particularly where this involves irregular car parking or driveway areas), any impervious area above 2,000 m^2 will be rounded **up** to the nearest hundred i.e. 2,490 m^2 or 2,437 m^2 both become 2,500 m^2.

MODULE 1

Module 1 developments typically involve a sewered new single dwelling, dual occupancy or townhouse, or an alteration/addition to a dwelling. They may also involve, for example, swimming pools and subdivisions of three lots or less in sewered areas, car parks and small demolitions (less than 2,500 m^2). This module addresses standard stormwater questions for site risks, with management responses differing according to the size of the construction area.

PROCESS:

First answer Questions 1–7 in the Pre-Assessment Checklist above. Then continue to Q1.01 below.

Note: if a revision to the development application is requested / received, the questions should be revisited to ensure accuracy of the assessment.

Development Risks

1.01 Is the total proposed impervious area, excluding access, more than or equal to 2,500 m^2?

If yes, **refer to WaterNSW for concurrence**.

> A stormwater quality model (e.g. MUSIC or equivalent) is required with the development application to WaterNSW for concurrence.

If no, continue to the next question.

1.02 Is the size of the construction area, excluding access, less than 250 m^2?

If yes, council to apply standard erosion controls (as per the 'Blue Book') as conditions of consent, then go to **Q1.10**.

> 'The Blue Book' – 'Managing Urban Stormwater: Soils and Construction Vol 1, 4th edition', (Landcom, 2004). Construction areas are the total of those disturbed during development. Add 25% over and above the footprint of the building to calculate total disturbed area.

If no, continue to the next question.

1.03 Is the size of the construction area more than or equal to 2,500 m^2?

If yes, **refer to WaterNSW for concurrence**.

If no, the proponent must supply a conceptual erosion and sediment control plan (ESCP, as per 'the Blue Book') and then continue to the next question.

> The Blue Book' – 'Managing Urban Stormwater: Soils and Construction Vol 1, 4th edition', (Landcom, 2004).

1.04 If the increased impervious surface is between 250 m^2 and 2,500 m^2, have suitable stormwater quality improvement devices (SQIDs) been incorporated to meet NorBE?

If yes, continue to next question.

If no, justification is required to demonstrate NorBE can be achieved (otherwise **NorBE is not satisfied**).

> A small-scale stormwater quality model such as S3QM can produce a certificate to indicate that NorBE is achieved for stormwater and that proposed management measures are being shown in a suitable location and can be practically implemented.

1.05 Are the type and location of proposed SQIDS consistent across all documentation and modelling?

If yes, continue to next question.

If no, revise the documentation to ensure consistency, then continue to the next question (otherwise **NorBE is not satisfied**).

1.06 Are proposed SQIDs located off-line?

If yes, continue to question **1.08**.

If no, continue to the next question.

> The object of NorBE is to prevent pollutants reaching waterways, and to avoid impairment of treatment performance during high or flood flows.

1.07 Can the proposed SQIDs be relocated to be off-line?

If yes, continue to the next question.

If no, please refer to WaterNSW for assessment and/or advice (otherwise **NorBE is not satisfied**).

> On-line measures should be discussed with and agreed to by WaterNSW before it is formally proposed. Any on-line treatment must be sized to deal with any upstream runoff.

1.08 Are the proposed SQIDs located above the 2% AEP flood level?

If yes, continue to question **1.10**.

If no, continue to next question.

> This is to prevent impairment of longer-term treatment performance and avoid structural damage. While an inundated swale may not be damaged, a bioretention system inundated by floodwater may be clogged with sediment and is likely to have to be rebuilt.

1.09 Can the proposed SQIDs be relocated to be above the 2% AEP flood level?

If yes, continue to the next question.

If no, please refer to WaterNSW for assessment and/or advice (otherwise **NorBE is not satisfied**).

> WaterNSW will consider the location of stormwater management structures on floodplains and near watercourses on a case-by-case basis.

Site Risks (to be confirmed with a site inspection)

1.10 Does the area to be developed have a slope greater than 20% (11.4^0)?

> WaterNSW strongly discourages development on sites with slopes greater than 20% because of the amount of cut and fill involved and the potential for erosion, unless the development is a low impact development specifically designed for the slope, such as a pole house, and/or incorporates long-term ground stabilisation techniques for steep disturbed areas.

If yes, include measures for long-term ground stabilisation techniques to be applied to disturbed areas, or council to include these as a condition of consent, and then continue to the next question.

If no, continue to the next question.

1.11 Is the area to be developed within a 1% annual exceedance probability (AEP) flood level or flood prone area associated with watercourses and drainage depressions?

If yes, council to include condition of consent as follows:

(1) All fixtures capable of draining to the sewer system, including the overflow relief gully, are to be above the 1% AEP flood level and fully sealed; and

(2) Any required termite controls are to be physical barriers only, and chemical barriers or termite protection systems are not to be used below the 1% AEP flood level.

Then continue to the next question.

If no, continue to the next question.

AEP refers to annual exceedance probability of flooding. Include conditions to minimise impact from development occurring within AEP.

WaterNSW prefers effluent management areas and any other part of an on-site system to be located outside the floodway, and encourages all parts of on-site wastewater treatment systems to be located above the 1% AEP. If an EMA is located between these levels it should be a subsurface system. Tanks and active treatment components should be located above the 1% AEP.

1.12 Are there any other site constraints that may impact on the proposed development?

Use site plans and aerial photography, and confirm through a site inspection.
Examples of site constraints may include:
- within 40 metres of a watercourse
- dispersive soils
- nearby sensitive environments such as wetlands
- contaminated areas (including rubbish tips or fuel storage tanks)
- other developments that may have planning implications (e.g. rights-of-way, drainage or other easements, or infrastructure)
- stormwater run-on from other sites (e.g. stormwater culverts under roads etc)

If yes, continue to the next question.

If no, **NorBE is satisfied**.

1.13 Does the development appropriately address the constraints in 1.12?

If yes, **NorBE is satisfied**.

If no, application to be revised to address these issues, then **NorBE is satisfied**, (otherwise **NorBE is not satisfied**).

ACTION FOR COUNCIL:

1. ***Ensure a site inspection has been undertaken.***
2. ***Prepare conditions of consent.***

END

MODULE 2

Module 2 developments typically involve an unsewered new dwelling, dual occupancy or townhouse, or alterations/additions. They may also involve an unsewered subdivision of three lots or less. The main focus of this module is to assess wastewater systems, including design loadings and site risks, and also design aspects for subdivisions.

GENERAL CONSIDERATIONS:

- Where there are significant discrepancies between a consultant's wastewater report and information from WaterNSW's databases or site-specific soil or other information, seek clarification from the consultant then seek advice from WaterNSW if the discrepancy remains unresolved.
- If the proposed effluent management area is located wholly in the same lot as the existing dwelling, include setback distances as a minimum as per Table 2.6 of the 'Designing and Installing On-Site Wastewater Systems' (WaterNSW, 2026f).
- Pump out systems are not suitable – as they are not sustainable and are often the worst performing systems – except under certain circumstances such as imminent connection to reticulated sewer. WaterNSW is to be contacted in circumstances where a pump out system is considered to be the only viable option.
- Greywater systems are treated as wastewater systems for the purposes of this Module, except that the greywater design loading is to be 65% of the calculated design wastewater loading.
- Emerging technology or non-standard on-site wastewater systems such as membrane systems, textile filters systems, high nutrient removal AWTS, or reed beds should be referred to WaterNSW for concurrence.

PROCESS:

First answer Questions 1–7 in the Pre-Assessment Checklist above. Then continue to question 2.01 below.

Desktop Assessment

2.01 Is the on-site wastewater system an emerging technology or non-standard system?

Standard systems include septic tanks, absorption and evapotranspiration absorption (ETA) beds, 10EP aerated wastewater treatment systems (AWTS), irrigation systems, sand mounds, amended soil mounds, wet or dry composting systems, sand filters (both single pass and recirculating), and greywater treatment systems. Refer to the WaterNSW's 'Designing and Installing On-Site Wastewater Systems' (WaterNSW, 2026f).

If yes, **refer to WaterNSW for concurrence**.

If no, continue to the next question.

2.02 Is the application for the same type of system as recommended in the on-site wastewater management report?

If yes, or not applicable, continue to the next question.

If no, applicant is to clarify, and then continue to the next question.

Site Evaluation

2.03 Can the proposed effluent management area (EMA) be located within the lot or property, and does it correspond to the proposed location specified and discussed in the report (map and GPS coordinates)?

> Any discrepancy between map location and GPS coordinates provided in the report need to be clarified and resolved.

If yes, continue to the next question.

If no, applicant to clarify, (otherwise **NorBE is not satisfied**). Then continue to the next question.

2.04 Is the size of the construction area less than 250 m^2?

If yes, apply standard erosion controls (as per the 'Blue Book'), then go to **Q2.06**.

> 'The Blue Book' – 'Managing Urban Stormwater: Soils and Construction Vol 1, 4th edition', (Landcom, 2004). Construction areas are the total of those disturbed during development. Add 25% over and above the footprint of the building to calculate total disturbed area.

If no, continue to the next question.

2.05 Is the size of the construction area and/or total proposed impervious area, excluding access, equal to or greater than 2,500 m^2?

If yes, **refer to WaterNSW for concurrence**.

> A stormwater quality model (e.g. MUSIC or equivalent) is required with the development application to WaterNSW for concurrence.

If no, a conceptual erosion and sediment control plan (ESCP, as per 'the Blue Book') is required, and then continue to the next question.

> 'The Blue Book' – 'Managing Urban Stormwater: Soils and Construction Vol 1, 4th edition', (Landcom, 2004).

Standard Stormwater and Development Site Risks

2.06 Does the area to be developed have a slope greater than 20% (11.4^0)?

> WaterNSW strongly discourages development on sites with slopes greater than 20% because of the amount of cut and fill involved and the potential for erosion, unless the development is a low impact development specifically designed for the slope, such as a pole house, and/or incorporates long-term ground stabilisation techniques for steep disturbed areas.

If yes, continue to the next question.

If no, go to **Q2.10**.

2.07 Can the area to be developed be relocated to avoid the slope of 20% (11.4^0)?

If yes, provide a suitable alternative location, and then continue to the next question.

If no, include measures for long-term ground stabilisation techniques to be applied to disturbed areas, or council to include these as a condition of consent, (otherwise **NorBE is not satisfied**). Then continue to the next question.

2.08 Does the area have steep or highly erodible lands?

If yes, it may be regulated land under the *Local Land Services Act 2013,* continue to the next question.

> See your Local Land Services agency for information regarding regulated land.

If no, go to **Q2.10**.

2.09 Can the area to be developed be relocated to avoid the steep or highly erodible land?

If yes, provide a suitable alternative location, and then continue to the next question.

If no, **NorBE is not satisfied.**

2.10 Is the area to be disturbed in the development proposal within a 1% annual exceedance probability (AEP) flood level or flood prone area associated with watercourses and drainage depressions?

If yes, council to include condition of consent as follows:

(1) All fixtures capable of draining to the sewer system, including the overflow relief gully, are to be above the 1% AEP flood level and fully sealed; and

(2) Any required termite controls are to be physical barriers only, and chemical barriers or termite protection systems are not to be used below the 1% AEP flood level.

Then continue to the next question.

If no, continue to the next question.

AEP refers to annual exceedance probability of flooding. Include conditions to minimise impact from development occurring within AEP. WaterNSW prefers EMAs and any other part of an on-site system to be located outside the floodway, and encourages all parts of on-site systems to be located above the 1% AEP. If an EMA is located between these levels it should be a subsurface system. Tanks and active treatment components should be located above the 1% AEP.

2.11 Are proposed dwellings or building envelopes, and associated works located within 40 metres of a watercourse or waterbody?

This could involve discussions with NRAR and WaterNSW - a controlled activity approval under the *Water Management Act 2000* may be required if works are in or on waterfront land. Any new position is to be reflected clearly in the conditions of consent. NOTE: wastewater management systems are expected to be located more than 100 m from watercourses or a water supply reservoir, and 40 m from drainage depressions / farm dams / roadside swales.

If yes, continue to the next question.

If no, go to **Q2.13**.

2.12 Can the proposed dwellings or building envelopes, and associated works be relocated within their lots to meet the watercourse or waterbody setback?

If yes, provide suitable alternative location(s), and then continue to the next question.

If no, either revise the proposal or lot layout (if a subdivision) and **return to Q2.01**, **OR** include appropriate measures for managing the risk (include these in the WCMS) (otherwise **NorBE is not satisfied**). Then continue to the next question.

2.13 Will more than 250 m^2 of vegetation be removed on the lot (or each proposed lot if a subdivision) including clearing for roads, dwelling access and Asset Protection Zones (APZ)?

NOTE: clearing of vegetation may require approval under the *Local Land Service Act 2013* or the *State Environmental Planning Policy (Vegetation in non-rural areas) 2017*. Clearing of Endangered Ecological Communities should not be undertaken at all.

If yes, continue to the next question.

If no, go to **Q2.15**.

2.14 Can the works (including for the APZ) be relocated to minimise vegetation clearing and soil exposure?

If yes, provide a suitable alternative location, and then continue to the next question.

If no, either revise proposal or lot layout (if a subdivision) and **return to Q2.01 OR** include water quality impacts and offset measures in the WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

2.15 Do the soils in the area to be developed have a wide-spread salinity or sodicity risk?

If yes, continue to the next question.

If no, go to **Q2.17**.

2.16 Can the area to be developed be relocated to avoid the salinity or sodicity risk?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, **either** revise the lot layout (if a subdivision) and **return to Q2.01 OR** appropriate measures for managing the salinity or sodicity risk must be included in the WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

See 'Developments in the Sydney drinking water catchment – water quality information requirements' (WaterNSW, 2026a) for information on preparing a WCMS.

2.17 Do any of the proposed construction works associated with the development occur where more than 10% of the soils on the site are dispersive?

See dispersive soils in Section 3.2.6 of the 'Blue Book' (*Managing Urban Stormwater: Soils and Construction Vol 1, 4th edition,* (Landcom, 2004).

If yes, appropriate measures for managing dispersive soils must be included in the conceptual SWMP (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no, continue to the next question.

2.18 Are there any potentially contaminated sites on the lot (or proposed lots if a subdivision)?

For example, livestock dips, rubbish tips, old industrial sites, fuel storage tanks and service stations.

If yes, ensure appropriate management measures in the WCMS consistent with WaterNSW's current recommended practices (otherwise **NorBE is not satisfied**).

Then continue to the next question.

A list of WaterNSW endorsed current recommended practices (CRPs) is available on the website www.waternsw.com.au. For subdivisions, contaminated sites generally need to be decontaminated, remediated and then re-evaluated.

If no, continue to the next question.

2.19 For the lot (or each lot in the case of a subdivision), are there any other site constraints that may impact on the proposed development?

Use site plans and aerial photography, and confirm through a site inspection.
Examples of site constraints may include:
- rock outcrops
- nearby sensitive environments such as wetlands and National Parks
- shallow soils, scalding, high or low permeability soils
- gullying, highly erosive soils, existing erosion control works (including revegetation areas
- existing developments, including dwellings, access tracks, quarries etc
- other developments that may have planning implications (e.g. rights-of-way, drainage or other easements, or infrastructure)
- stormwater run-on from other sites (e.g. stormwater culverts under roads etc)
- existing or failing on-site wastewater management system.

If yes, continue to the next question.

If no, go to **Q2.21**.

2.20 Does the development appropriately accommodate these other constraints?

If yes, continue to the next question.

If no, address these issues and revise proposal, then continue to the next question (otherwise **NorBE is not satisfied**).

> The design should be consistent with the 'Water Sensitive Design Guide for Rural Residential Subdivisions' (WaterNSW, 2026e), or justification provided for alternative measures for addressing these constraints.

Standard Wastewater Questions:

If a subdivision is proposed, these questions are applicable for each lot.

> If the proposal is a 'paper' subdivision, and no on-site systems are proposed, the answer to some of the following questions will be 'not applicable'.

2.21 Does the application include a swimming pool?

If yes, council to apply conditions that backwash water is not to be disposed of to the wastewater system, or within 40 m of a dam, waterbody, roadside drains or swales, or drainage depression, 100 m of a watercourse or water supply reservoir, or upslope or within an EMA. Then continue to the next question.

> Within established village areas, where these buffer distances cannot be achieved on a lot, the buffer distance must instead be maximised. See 'Reuse and Recycling of Swimming Pool Backwash Water' by NSW Health http://www.health.nsw.gov.au/environment/factsheets/Pages/swimming-pool-ackwash.aspx.

If no or not applicable, go to the next question.

2.22 Does the application include other elements such as dwellings and on-site wastewater systems (in addition to a swimming pool)?

If yes, continue to the next question.

If no, **NorBE is satisfied**.

2.23 Is the proposed wastewater system a pump-out?

> As a result of misuse or poor practices, pump out systems are not sustainable and are often the worst performing.

If yes, continue to the next question.

If no, or not applicable, continue to **Q2.25**.

2.24 Is the pump-out system in an area that is proposed to be connected to a reticulated sewer in the near future?

If yes, council to apply conditions and continue to the next question.

If no, **NorBE is not satisfied**.

2.25 Is the use of the wastewater system intermittent (e.g. holiday cottage)?

If yes, applicant to choose a system that is appropriate for intermittent loading (otherwise **NorBE is not satisfied**) - then continue to the next question.

> For example, a septic tank is suitable for intermittent loading whereas an aerated wastewater treatment system (AWTS) is generally not.

If no, continue to the next question.

Lot size:

2.26 Is the lot solely powered by solar?

If yes, and the applicant is proposing a wastewater system that requires continuous power for normal operation (such as an AWTS), then the applicant must provide a detailed analysis outlining the capacity of the solar power system (and back-up supply), otherwise **NorBE is not satisfied**.

> Information required as part of the detailed analysis is outlined 'Designing and Installing On-Site Wastewater Systems' (WaterNSW, 2026f).

If no, continue to the next question.

2.27 Is the lot size less than 2,000 m^2?

> 2,000 m^2 is considered the minimum whereby a dwelling with setbacks and a suitable EMA with setbacks and buffers may be located on a lot. However, there is no guarantee that 2,000 m^2 will be adequate, especially if the site is steep, or the soils are highly permeable or there are extensive rock outcrops.

If yes, surface irrigation is not suitable, and a suitable small footprint effluent disposal system must be proposed (otherwise **NorBE is not satisfied**). Then continue to the next question.

> Effluent irrigation may not be possible at all, and a small footprint system will be required (e.g. an amended soil mound, a sand mound or absorption systems). A specific wastewater treatment and disposal system will be reflected in a covenant on the title for constrained sites.

If no, continue to the next question.

Slope:

2.28 Is the slope of the EMA more than 10% (5.7^0)?

If yes, surface irrigation and amended soil mound systems are not suitable – an alternative system must be used (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no, go to **Q2.31**.

2.29 Is the slope of the EMA more than 20% (11.4^0)?

If yes, continue to the next question.

If no, go to **Q2.31**.

2.30 Can the proposed EMA be moved to avoid the slope of more than 20% (11.4^0)?

If yes, provide a suitable alternative location(s), then continue to the next question.

If no, **NorBE is not satisfied**.

Climate:

2.31 Is the site located in an area with more than 1,200 millimetres annual average rainfall?

If yes, surface irrigation is not suitable (and **NorBE is not satisfied**).

If sub-surface irrigation is proposed, a water balance calculation should be undertaken, and wet weather storage may be required. If such requirements for a sub-surface irrigation system are met or a non-irrigation disposal system is proposed, then continue to the next question.

If no, continue to the next question.

2.32 Is the site subject to severe and prolonged frosts?

> Some councils may require this as a standard policy. Areas of severe frost are defined as those where the overnight minimum air temperatures (Stephenson screen) are regularly below -3°C, corresponding to a ground temperature of approximately -5°C. Note that frost hollows and areas of cold air drainage may result in localised areas where frost is more severe than indicated by temperature records for the region.

If yes, winter surface irrigation is not suitable, and subsurface irrigation or a hybrid winter/summer system may be required (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no, or not applicable, continue to the next question.

Soils:

2.33 Does the soil information provided in the consultant's report for the (potential) EMA generally match observations in the field and WaterNSW soils database?

This could relate to the accuracy of the soil landscape / facet boundaries or inaccurate soil description. Where significant discrepancies remain between the consultant's advice in relation to wastewater and information from the databases or site-specific information (e.g. soils), discuss with the consultant or seek advice from WaterNSW.

If yes, continue to the next question.

If no, seek clarification and amend report, and then continue to the next question.

2.34 Do the salinity, sodicity or dispersion characteristics of the soil pose major limitations for effluent disposal, as identified in Table 4-5 of the 'Onsite Wastewater Management Guidelines' (more than 8 dS/m electrical conductivity; more than 10% ESP, and Emerson Aggregate Test Class 1)?

'Office of Local Government. (2025). Onsite Wastewater Management Guidelines. NSW Government.

If yes, continue to the next question.

If no, go to **Q2.36**.

2.35 Can the proposed EMA(s) be relocated to avoid areas where these soil constraints are not present?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, revise lot layout (if a subdivision) and **return to Q2.01 OR** propose suitable management measures (otherwise **NorBE is not satisfied**). Then continue to the next question.

2.36 Is the soil depth for the EMA less than 0.25 metres?

If yes, continue to the next question.

If no, go to **Q2.38**.

2.37 Can the EMA be moved to avoid the area where the soil depth is greater than 0.25 metres, or can a mound system be negotiated?

If yes, provide a suitable alternative location with a soil depth of more than 0.25m **OR** a mound system, and then continue to the next question (otherwise **NorBE is not satisfied**).

If no, **NorBE is not satisfied**.

2.38 Is the soil depth less than 0.75 metres or is the dominant soil type a medium or heavy clay?

The 'C' horizon is not to be included in calculating the soil depth. Refer to *AS/NZS1547:2012 'On-site domestic wastewater management'*, (Standards Australia, 2012). Where an absorption trench or bed is proposed on medium or heavy clay, a design that includes special design criteria, such as soil modification and soil permeability testing, may be accepted.

If yes to **either**, absorption trenches or beds are not suitable (noting special design requirements may be accepted for such systems on medium to heavy clays deeper than 0.75 metres), and an alternative system will need to be used for effluent disposal (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no to **both**, continue to the next question.

2.39 Is the soil depth less than 0.75 metres or is the dominant soil type a gravel, sand or sandy loam?

> The 'C' horizon is not to be included in calculating the soil depth. Refer to *AS/NZS1547:2012 'On-site domestic wastewater management'*, (Standards Australia, 2012). Suitable soil can be added to the surface to raise the bed as show on Standard Drawing 10C 'Designing and Installing On-site Wastewater Systems' (WaterNSW, 2026f).

If yes to **either**, ETA systems are not suitable and an alternative system will need to be used for effluent disposal (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no to **both**, continue to the next question.

Design Wastewater Loading:

2.40 Is the design wastewater loading in the consultant's report consistent with WaterNSW's requirements of loading determined per number of potential bedrooms and tank or reticulated/bore water supply?

> If the proposed system involves the augmentation of an existing system, all potential bedrooms must be included. Where a separate dwelling is proposed to be connected to an existing system, the design wastewater loading must be considered separately for each dwelling (in such a case, the design loading rate should *not* be based on the total potential bedrooms in both dwellings).

Design wastewater loading per potential bedroom	Reticulated/Bore Water	Tank Water
1-2 potential bedrooms	600 L/d	400 L/d
3 potential bedrooms	900 L/d	600 L/d
4 potential bedrooms	1200 L/d	800 L/d
More than 4 potential bedrooms	1200 L/d plus 150 L/d for each additional bedroom	800 L/d plus 100 L/d for each additional bedroom

If yes, continue to the next question.

If no, determine appropriate design wastewater loading using the appropriate values from table for further assessment, then continue to the next question.

2.41 Is the system a greywater system?

If yes, the greywater loading should be taken as 65% of the appropriate total design wastewater loading. Then continue to the next question.

If no, continue to the next question.

2.42 Are the effluent design loading rates (DLR) or design irrigation rates (DIR) used in the consultant's report consistent with the values for the identified soil description (texture and structure) as per AS/NZS1547:2012?

> AS/NZS1547:2012 'On-site domestic wastewater management', (Standards Australia, 2012). For septic tanks and absorption trenches/beds, use conservative DLRs from relevant tables. Also, use the conservative values for DLR/DIR where the soil structure is not indicated.

If yes, continue to the next question.

If no, use correct values as per AS/NZS1547:2012, then continue to the next question.

2.43 Is a spa bath proposed?

If yes, add a minimum of 500 litres to the required design volume and load of the septic tank, then continue to the next question.

If no, or not applicable (including AWTS), continue to the next question.

2.44 Is the septic tank or aerated wastewater treatment system sized in accordance with the design wastewater load?

> For septic tanks, see Table J1 in AS/NZS1547:2012 (Note: the tank size should be based on flow, not number of bedrooms or equivalent persons, and must have a minimum volume of 3,000 litres); for AWTS capacity see NSW Health licence conditions.

If yes, continue to the next question.

If no, specify larger (correct) size (otherwise **NorBE not satisfied)**, then continue to the next question.

2.45 If the wastewater system involves absorption trenches or beds, are they correctly sized according to the appropriate WaterNSW design wastewater load and DLR as per AS/NZS1547:2012?

> See Table 5.2 in AS/NZS1547:2012 (Note: the calculated absorption base area is in m^2 and the trench width (typically 0.6m) must be used to determine trench length), based on field soil and texture data.

If yes, or not applicable, continue to the next question.

If no, determine the revised size of absorption trenches or beds, based on the correct design wastewater load, (otherwise **NorBE is not satisfied**), and then continue to the next question.

2.46 If the wastewater system involves irrigation, is it correctly hydraulically sized according to the appropriate WaterNSW design wastewater load and DIR as per AS/NZS1547:2012, and the nutrient balance modelling as per 'Onsite Wastewater Management Guidelines' and/or equation by Daniel Martens as specified in 'Consultant and Consultant Administrators User Guide (2026b)?

> See Table M1 in AS/NZS1547:2012. Note: phosphorus sorption values should be preferably based on site specific information, or information in Appendix 1 of the 'Designing and Installing On-Site Wastewater Systems' (WaterNSW, 2026f). The default value used in the 'Onsite Wastewater Management Guidelines' must not be used.

If yes, or not applicable, continue to the next question.

If no, the revised size of the irrigation area (including the dedicated nutrient uptake area) must be determined, based on the correct design wastewater load, DIR and nutrient and water balance methodology (otherwise **NorBE is not satisfied**), and then continue to the next question.

2.47 If the wastewater system involves a sand mound, is it correctly sized according to Converse and Tyler 2000?

> 'Wisconsin Mound Soil Absorption System: Siting Design and Construction Manual' (Converse & Tyler, 2000). Note: applying the DLRs in Table N1 of the AS/NZS1547:2012 are not appropriate for the sizing of mounds.

If yes, or not applicable, continue to the next question.

If no, the consultant must determine the correct size of the sand mound (otherwise **NorBE is not satisfied**), and then continue to the next question.

2.48 If the wastewater system involves an amended soil mound, is it sized correctly according to the relevant design wastewater loading and DLR for the limiting soil layer as per AS/NZS1547:2012?

> AS/NZS1547:2012 'On-site domestic wastewater management'.

If yes, or not applicable, continue to the next question.

If no, ensure the supplier has sized the mound correctly (otherwise **NorBE is not satisfied**). Then continue to the next question.

2.49 Does the wastewater system involve a dry composting toilet?

The manufacturer often specifies the dimensions required for the absorption trench. Note that a greywater system will also be required. The minimum trench size is five metres in length, and the compost must be buried at a minimum depth of 150 mm and consistent with WaterNSW's buffer requirements.

If yes, then a small absorption trench is required (unless the system incorporates a liquid evaporation system) (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no, then continue to the next question.

Groundwater:

2.50 Are any existing or proposed groundwater bores licensed for domestic water supply located within 100 metres of the proposed EMA?

Table 2.6 in 'Designing and Installing On-Site Wastewater Systems' (WaterNSW, 2026f).

If yes, then continue to the next question.

If no, continue to **Q2.51**.

2.51 Can the EMA be relocated outside the 100 metre buffer?

If yes, revise location of proposed EMA. Then continue to the next question.

If no, undertake bore draw-down zone analysis (e.g. using Cromer et al., 2001) to demonstrate that effluent will not be drawn into the groundwater draw-down zone (and include in WCMS) and continue to the next question (otherwise **NorBE is not satisfied**).

Cromer, W. C., Gardner, E. A. and Beavers, P. D. (2001). An improved viral die-off method for estimating setback distances. In *Proceedings of On-site '01 Conference: Advancing On-site Wastewater Systems 25-27th September 2001* pp.105-112, R.A. Patterson & M.J. Jones (Eds). Published by Lanfax Laboratories, Armidale.

General:

2.52 Are there other potential problems with the wastewater system as proposed?

For example, insufficient head for gravity systems (i.e. system higher than house) or long separation between dwelling and tank, or tank and disposal area, or where a system requiring continuous power is proposed e.g. AWTS and there is no mains power. For domestic wastewater systems, WaterNSW considers 1:40 for a length of 60 metres to be the minimum gradient for untreated effluent gravity systems. Where a wastewater system requiring continuous power for normal operation (such as an AWTS) is proposed on a site relying on solar power, a detailed analysis must be provided outlining the capacity of the solar power system (and back-up supply). Refer to WaterNSW's 'Designing and Installing On-Site Wastewater Systems' (WaterNSW, 2026f) for further information.

If yes, consultant and/or proponent to address, (otherwise **NorBE is not satisfied**), then continue to the next question.

If no, continue to the next question.

Existing Systems:

2.53 Are there any existing wastewater systems on the lot (or lots in the case of a subdivision)?

These must be subject to wastewater effluent modelling to ensure the effluent plume does not move off the proposed lot containing the existing system. Where an effluent disposal system is failing, a suitable upgraded system should be proposed. If an effluent plume crosses the proposed boundary or enters the drainage system, then a new (complying) system must be proposed.

If yes, all existing wastewater systems including EMAs must be identified in the WCMS (including whether they are to be retained or decommissioned) and must be wholly contained in the proposed lot with the dwelling (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no, continue to the next question.

Buffer Distances:

2.54 Does the proposed EMA (on all lots if a subdivision) meet WaterNSW's buffer distances:

- **40 metres for a drainage depression or farm dam**
- **100 metres for a watercourse or water supply reservoir?**

> The distance is the overland flow path i.e. the direction in which any effluent would actually flow. If relocated to a substantially different area, new soil information may be needed – go back to soil questions **Q2.33 – 2.39**. Any revised location needs to be specified clearly in the conditions of consent. For a watercourse, the buffer distance is to be measured from the top bank of the watercourse.

If yes, continue to the next question.

If no, provide an alternative location(s) that meets WaterNSW's buffer requirements (refer to 'Water Sensitive Design Guide for Rural Residential Subdivisions' - WaterNSW, 2026e), otherwise **NorBE is not satisfied**, then continue to the next question.

2.55 Does the EMA meet WaterNSW's setback requirements and any other council setback requirements from buildings, boundaries and swimming pools?

> Refer to Table 2.6 in 'Designing and Installing On-Site Wastewater Systems' (WaterNSW, 2026f). The distance is the overland flow path i.e. the direction in which any effluent would actually flow.

If yes, go to **Q2.56**.

If no, continue to the next question.

2.56 Can the EMA be readily moved *nearby* to meet these setbacks?

If yes, provide an alternative location and amend plans/reports or provide a small footprint system that meets these requirements (e.g. a mound, absorption systems or amended soil system). New soils information may be required. Questions **Q2.33 – 2.39** will need to be re-addressed, and the new location specified clearly by councils in the conditions of consent. Then continue to the next question.

If no, **NorBE is not satisfied**.

<u>Roads/ Rights-of-way/ Dwelling Access:</u>

2.57 Can all works, including drainage infrastructure, be wholly contained within the road reserve or right-of-way, or are there suitably defined easements?

> Note: it is highly unlikely that a typical 20 m wide road reserve in undulating country will be wide enough to contain these works.

If yes, continue to the next question.

If no, redesign and/or create easements (refer to 'Water Sensitive Design Guide for Rural Residential Subdivisions' – WaterNSW 2026e) (otherwise **NorBE is not satisfied**), and then continue to the next question.

2.58 Does any (new) subdivision road, right-of-way, dwelling or dwelling access require significant cut and fill because of slope?

> For the purpose of defining 'significant', three metres cut and fill is to be used as the upper acceptable limit.

If yes, continue to the next question.

If no, go to **Q2.60**.

2.59 Can the subdivision road, right-of-way, dwelling or dwelling access be relocated to minimise cut and fill?

If yes, revise the location of the road / right-of-way / dwelling access, and then continue to the next question.

There is a trade-off between excessively steep roads / rights-of-way and those that largely follow cut and fill – this involves a judgement call. Refer to WaterNSW's endorsed current recommended practices for advice.

If no, special design measures will be required and must be included in the WCMS (refer to 'Water Sensitive Design Guide for Rural Residential Subdivisions' – WaterNSW 2026e), otherwise **NorBE is not satisfied**. Then continue to the next question.

2.60 Is the subdivision road, right-of-way, dwelling or dwelling access (other than crossings and approaches) located within 40 metres of a watercourse or waterbody?

If yes, continue to the next question.
If no, go to **Q2.62**.

2.61 Can the subdivision road, right-of-way or dwelling access be relocated to meet the watercourse or waterbody setback?

If yes, provide a suitable alternative location(s) then continue to the next question.

If no, special design and/or soil and water measures for managing the water quality risk must be included in the WCMS before continuing to the next question (otherwise **NorBE is not satisfied**).

Refer to WaterNSW's endorsed current recommended practices for advice.

2.62 Does the subdivision road, right-of-way or dwelling access require the crossing, piping, diverting or channelization of any watercourse or drainage depression or gully?

If yes, continue to the next question.

If no, go to **Q2.64**.

2.63 Can the subdivision road, right-of-way or dwelling access be relocated or redesigned to avoid the crossing, piping, diverting or channelization of any watercourse or drainage depression or gully?

If yes, provide a suitable alternative location(s), then continue to the next question.

If no, special design and/or appropriate soil and water measures for managing the water quality risk must be included in the WCMS before continuing to the next question (otherwise **NorBE is not satisfied**).

Suitable management measures or construction requirements could include sharing crossings, a concrete causeway, or a box culvert crossing consistent with WaterNSW's current recommended practices.
Any crossing may also require a controlled activity approval under the *Water Management Act 2000*. Any new position or management measures or construction requirements are to be addressed in the WCMS.
See 'Developments in the Sydney drinking water catchment – water quality information requirements' (WaterNSW, 2026a) for information on preparing a WCMS, and other WaterNSW endorsed current recommended practices for advice.

2.64 Can any dwelling access and right-of-way be reasonably shared?

Sharing driveways and watercourse crossings reduces the need for vegetation clearing and other water quality impacts, as well as construction costs, and may assist in achieving a satisfactory NorBE outcome. This may require the creation of a right-of-way over the shared access.

If yes, include details in WCMS, then continue to the next question.

If no, continue to the next question.

2.65 Can the majority of each proposed lot be accessed without the need for crossing any steep watercourses and gullies?

If yes, or not applicable continue to the next question.

If no, revise the lot layout consistent with 'Water Sensitive Design Guide for Rural Residential Subdivisions' (WaterNSW, 2026e), then **go back to Q2.01** (otherwise **NorBE is not satisfied**).

Stormwater quality management questions relating to development risks:

2.66 If the increased impervious surface is between 250 m² and 2,500 m², have suitable stormwater quality improvement devices (SQIDs) been incorporated to meet NorBE?

If yes, continue to next question.

If no, revise the documentation to include SQIDs, then continue to the next question (otherwise **NorBE is not satisfied**).

A small-scale stormwater quality model such as S3QM can produce a certificate to indicate that NorBE is achieved for stormwater and that proposed management measures are being shown in a suitable location and can be practically implemented.

2.67 Are SQIDs consistent with the proposed development, suitably located to capture stormwater and able to be maintained for the life of the development?

If yes to **all**, continue to the next question.

If no to **any**, a valid certificate that addresses all the above matters is required, and then continue to the next question (otherwise **NorBE is not satisfied**).

A small-scale stormwater quality model such as S3QM can produce a certificate to indicate that NorBE is achieved for stormwater and that proposed management measures are being shown in a suitable location and can be practically implemented.

2.68 Are the type and location of proposed SQIDs consistent across all documentation and modelling?

If yes, continue to next question

If no, revise the documentation to ensure consistency, then continue to the next question (otherwise **NorBE is not satisfied**).

2.69 Are proposed stormwater management measures located off-line?

If yes, continue to question **2.71**.

If no, continue to the next question.

The object of NorBE is to prevent pollutants reaching waterways, and to avoid impairment of treatment performance during high or flood flows.

2.70 Can the proposed stormwater management measures be relocated to be off-line?

If yes, continue to the next question.

If no, please refer to WaterNSW for assessment and/or advice (otherwise **NorBE is not satisfied**).

On-line measures should be discussed with and agreed to by WaterNSW before it is formally proposed. Any on-line treatment must be sized to deal with any upstream runoff.

2.71 Are the proposed stormwater management measures located above the 2% AEP flood level?

If yes, continue to question **2.73.**

If no, continue to next question.

This is to prevent impairment of longer-term treatment performance and avoid structural damage. While an inundated swale may not be damaged, a bioretention system inundated by floodwater may be clogged with sediment and is likely to have to be rebuilt.

2.72 Can the proposed stormwater management measures be relocated to be above the 2%AEP flood level?

If yes, continue to the next question.

If no, please refer to WaterNSW for assessment and/or advice (otherwise **NorBE is not satisfied**).

WaterNSW will consider the location of stormwater management structures on floodplains and near watercourses on a case-by-case basis.

In those cases where the impervious area is more than 2,500 m^2, a stormwater quality model (e.g. MUSIC or equivalent) is required with the development application for WaterNSW's concurrence.

2.73 If required, can the stormwater measures be practically implemented on the ground without overlap of any existing or proposed EMA?

Any overlap of the stormwater management measures with the EMA will cause increased saturation of the soil and increase the size of the plume from the EMA, and premature failure of the EMA.

If yes, apply requirements identified in the model and continue to the next question.

If no, move the stormwater measures so that there is no overlap with an existing or proposed EMA (otherwise **NorBE is not satisfied)**.

2.74 Have the responsibilities for the ongoing management of the stormwater management measures been clearly identified in the WCMS?

This should form part of a subsequent operational environmental management plan. Water quality infrastructure management responsibilities should be clearly articulated and practical, and may be placed on a council, a community scheme, businesses or individuals.

If yes, then continue to the next question.

If no, address in the WCMS, (otherwise **NorBE is not satisfied**).

WEM Evaluation

ACTION: *Enter proposed wastewater system data, soils information and locations into WEM for the lot (or each lot in the case of a subdivision). The collective answers for* ***Q2.75 – 2.77*** *are for all lots.*

2.75 Does the modelled effluent plume cross the proposed lot boundary or intersect with a watercourse, waterbody or drainage depression?

If yes, continue to the next question.

If no, **NorBE is satisfied**.

If the plume length is greater than 250 metres, it is considered that NorBE is *not* satisfied.

2.76 Can the EMA be relocated (using the WEM model) to avoid a plume that intersects a watercourse, waterbody, drainage depression or property boundary?

Such revised locations may require new soil information, and soil questions **Q2.32 – 2.38** will need to be re-addressed.

If yes, **NorBE is satisfied**.

If no, continue to the next question.

2.77 Can an alternative wastewater treatment and disposal system be considered?

If yes, re-run WEM (and go back to **Q2.75**). Any specific system must be identified in the WCMS.

A specific wastewater treatment and disposal system will be reflected in a covenant on the title for constrained sites. Such alternative systems may require new soil and other constraint information, and questions **Q2.32 – 2.38** will need to be re-addressed.

If no, **NorBE is not satisfied**.

ACTION FOR COUNCIL:

1. ***Ensure a site inspection has been undertaken***
2. ***Prepare conditions of consent.***

END

MODULE 3

Module 3 developments typically involve a sewered urban subdivision with large multi dwelling housing that may or may not involve the construction of the dwellings. All Module 3 developments will require referral for WaterNSW concurrence. Module 3 addresses standard stormwater site risks such as soils and slope, development risks, standard sewerage questions, MUSIC model evaluation (except where the total proposed impervious area is less than 2,500 m^2 in which case a small-scale stormwater quality model such as S3QM can be used), and site inspection queries. For the purposes of this module, subdivision refers to dividing a larger lot to smaller lots and any proposed construction required by the development application. Any proposed roads and/or rights-of-way and/or dwelling accesses are referred to in this Module as associated works, and include associated drainage works.

All applications must be consistent with the following current recommended practices and performance standards (includes but not limited to):

- 'Developments in the Sydney Drinking Water Catchments – Water Quality Information Requirements' (WaterNSW, 2026a)
- 'Using MUSIC in the Sydney Drinking Water Catchment' (WaterNSW, 2026d)
- 'Managing Urban Stormwater: Soils and Construction Volume 1 & 2A' ('Blue Book') (Landcom, 2004 and DECC, 2008).

Staging: The consultant must check with the developer whether the development is to be staged – NorBE must be satisfied **for all stages** of the development. Also, any staging must be included in the development application (DA). Assessment cannot be undertaken for notional proposed staging that is not included in the DA.

PROCESS:

First answer Questions 1–7 in the Pre-Assessment Checklist above. Then continue at Q3.01 below.

Generic Questions

3.01 Is the development layout and lot numbering consistent throughout all reports?

Often reports are based on earlier versions of the subdivision where lot layout and numbering are different from that submitted.

If yes, continue to the next question.

If no, ensure lot layout and numbering is consistent before continuing to the next question.

3.02 Is the development staged?

The consultant must check with the developer whether the development is to be staged. NOTE: NorBE must be satisfied **for all stages** of the development. Also, any staging must be included in the development application (DA). Assessment cannot be undertaken for notional proposed staging that is not included in the DA. Some developments may require major water quality devices to be installed in the early stages of development in order to meet NorBE for the development proposal as a whole.

If yes, a separate NorBE assessment must be completed for **all stages** of the subdivision before continuing to the next question.

If no, continue to the next question.

Standard Stormwater and Development Site Risks

3.03 Does any area to be developed (including any proposed roads, rights-of-way, dwelling access or building envelopes) occur in areas where the slope is greater than 20% (11.4^0)?

WaterNSW strongly discourages development on sites with slopes greater than 20% because of the amount of cut and fill involved and the potential for erosion, unless the development is a low impact development specifically designed for the slope, such as a pole house, and/or incorporates long-term ground stabilisation techniques for steep disturbed areas.

If yes, continue to the next question.

If no, go to **Q3.07**.

3.04 Can the area to be developed be relocated to avoid the slope of 20% (11.4^0)?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, either revise lot layout and return to **Q3.01 OR** provide appropriate construction erosion and sediment control and post-construction stormwater quality management methods in the WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

3.05 Does the area have steep or highly erodible lands?

If yes, it may be regulated land under the *Local Land Services Act 2013*, continue to the next question.

See your Local Land Services agency for information regarding regulated land.

If no, go to **Q3.07**.

3.06 Can the area to be developed be relocated to avoid the steep or highly erodible land?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, **NorBE is not satisfied**.

3.07 Is any area to be disturbed in relation to the development proposal (including any proposed roads, access ways, rights-of-way or building envelopes) within a 1% annual exceedance probability (AEP) flood level or flood prone areas associated with watercourses and drainage depressions?

If yes, continue to next question.

If no, go to **Q3.09**.

3.08 Can the area to be disturbed in relation to the development proposal be relocated to avoid the 1% AEP flood level?

If yes, provide a suitable alternative location, and then continue to next question.

If no, either revise lot layout and return to **Q3.01 OR** provide construction and management measures for development in the 1% AEP flood level (otherwise **NorBE is not satisfied**). Then continue to the next question.

3.09 Is rainfall erosivity greater than or equal to 4,000 mm/ha/hr/year?

If yes, ensure this is addressed in the conceptual soil and water management plan (SWMP) before continuing to the next question (otherwise **NorBE is not satisfied**).

If no, continue to the next question.

3.10 Do any of the proposed construction works associated with the development occur where more than 10% of the soils on the site are dispersive?

See dispersive soils in Section 3.2.6 of the 'Blue Book' - *Managing Urban Stormwater: Soils and Construction Vol 1, 4th edition,* (Landcom, 2004).

If yes, appropriate measures for managing dispersive soils must be included in the conceptual SWMP (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no, continue to the next question.

3.11 Do the soils in the area to be developed have a wide-spread salinity risk?

If yes, continue to the next question.

If no, go to **Q3.13**.

3.12 Can the area to be developed be relocated to avoid the salinity risk?

If yes, provide suitable alternative location(s), and then continue to the next question.

If no, either revise lot layout and return to **Q3.01 OR** appropriate measures for managing the salinity risk must be included in the WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

> See 'Developments in the Sydney drinking water catchment – water quality information requirements' (WaterNSW, 2026a) for information on preparing a WCMS.

3.13 Is more than 80% of the total site area to be disturbed?

If yes, ensure there is sufficient spare land available to manage sediment and site run-off during the construction phase and manage stormwater quality following development. This must be addressed in the conceptual SWMP (otherwise **NorBE is not satisfied**). Then continue to the next question.

> SWMP to be consistent with Chapter 2 of *Managing Urban Stormwater: Soils and Construction Volume 1, 4th edition* (Landcom, 2004).

If no, continue to the next question.

3.14 Does any (new) subdivision road and right-of-way, dwelling or dwelling access require significant cut and fill because of slope?

> For the purpose of defining 'significant', three metres cut and fill is to be used as the upper acceptable limit.

If yes, continue to the next question.

If no, go to **Q3.16**.

3.15 Can the subdivision road, right-of-way, dwelling or dwelling access be relocated to minimise cut and fill?

If yes, revise the location of the road / right-of-way / dwelling access, and then continue to the next question.

> There is a trade-off between excessively steep roads / rights-of-way and those that largely follow cut and fill – this involves a judgement call. Refer to WaterNSW's endorsed current recommended practices for advice.

If no, special design measures will be required and must be included in the WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

3.16 Are proposed building envelopes or any associated works (other than crossings and approaches) located within 40 metres of a watercourse or waterbody?

> a controlled activity approval under the *Water Management Act 2000* may be required if works are in or on waterfront land. Any new position is to be reflected clearly in the conditions of consent. NOTE: wastewater systems are expected to be located more than 100 metres from watercourses or water supply reservoir, and 40 metres from drainage depressions, farm dams and waterbodies.

If yes, continue to the next question.

If no, go to **Q3.18**.

3.17 Can the proposed building envelopes or associated works be relocated within their lots to meet the watercourse or waterbody setback?

If yes, provide suitable alternative location(s), and then continue to the next question.

If no, either revise lot layout and return to **Q3.01 OR** include appropriate measures for managing water quality impacts during construction and operational phases of the development in the WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

3.18 Do the subdivision roads, rights of way and dwelling accesses require the crossing, piping, diverting of channelization of any watercourse or drainage depression or gully?

This is primarily watercourses mapped under the drainage network layer provided by the NSW Land Registry Services. However, this may also include unmapped watercourses or gullies.

If yes, continue to the next question.

If no, go to **Q3.20**.

3.19 Can the subdivision roads, rights-of-way and dwelling accesses be relocated or redesigned to avoid the need the crossing, piping, diverting or channelization of any watercourse or drainage depression or gully?

If yes, provide a suitable alternative location(s) or modify design for the proposed works relating to the watercourse, then continue to the next question.

If no, either revise lot layout and return to **Q3.01 OR** appropriate measures for managing the water quality risk must be included in the WCMS before continuing to the next question (otherwise **NorBE is not satisfied**).

Suitable management measures or construction requirements could include sharing crossings, a concrete causeway, or a box culvert crossing consistent with WaterNSW's current recommended practices. Any crossing will also need to include 50 metres of sealing on *each* side (where practicable). Any crossing may also require a controlled activity approval under the *Water Management Act 2000*.
Any new position or management measures or construction requirements are to be addressed in the WCMS. See 'Developments in the Sydney drinking water catchments – water quality information requirements' (WaterNSW, 2026a) for information on preparing a WCMS. Advice may be sought from WaterNSW on the adequacy or suitability of such measures.

3.20 Can the majority of each proposed lot be accessed without the need for crossing any steep watercourses and gullies?

If yes, or not applicable continue to the next question.

If no, revise the lot layout consistent with the 'Water Sensitive Design Guide for Rural Residential Subdivisions' (WaterNSW, 2026e), **then go back to Q3.01 OR** ensure appropriate management measures are included in the WCMS, consistent with WaterNSW's current recommended practices (otherwise **NorBE is not satisfied**). Then continue to the next question.

3.21 Will soils be exposed by the removal of more than 250 m^2 of vegetation on each proposed lot (including clearing for Asset Protection Zones (APZ))?

NOTE: clearing of vegetation may require approval under the *Local Land Service Act 2013* or the *State Environmental Planning Policy (Vegetation in non-rural areas) 2017*. Clearing of Endangered Ecological Communities should not be undertaken at all.

If yes, continue to the next question.

If no, go to **Q3.23**.

3.22 Can the works (including for the APZ) be relocated to minimise soil exposure from vegetation clearing?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, either revise lot layout and return to **Q3.01 OR** include water quality impacts and offset measures including appropriate erosion and sediment control in a stormwater management model, for example MUSIC (otherwise **NorBE is not satisfied**). Then continue to the next question.

3.23 Are there any potentially contaminated sites on any of the proposed lots?

For example, livestock dips, rubbish tips, old industrial sites, fuel storage tanks and service stations.

If yes, ensure appropriate management measures are included in the WCMS, consistent with WaterNSW's current recommended practices (otherwise **NorBE is not satisfied**). Then continue to the next question.

A list of WaterNSW endorsed current recommended practices (CRPs) is available on the website www.waternsw.com.au. For subdivisions, contaminated sites generally need to be decontaminated, remediated and then re-evaluated.

If no, continue to the next question.

3.24 For each lot and the proposed development as a whole, are there any other site constraints that may impact on the proposed development?

Use site plans and aerial photography, and confirm through a site inspection.
Examples of site constraints may include:
- nearby sensitive environments such as wetlands and National Parks
- previous development
- other developments that may have planning implications (e.g. rights-of-way, drainage or other easements, or infrastructure)
- stormwater run-on from other sites (e.g. stormwater outlets under roads etc).

If yes, continue to the next question.
If no, go to **Q3.26**.

3.25 Does the development design appropriately accommodate these constraints?

If yes, continue to the next question.
If no, address these issues and revise design and return to **Q3.01** (otherwise **NorBE is not satisfied**).

The design should be consistent with WaterNSW's endorsed current recommended practices and performance standards (see WaterNSW's website www.waternsw.com.au).

Standard Sewerage Risks

3.26 Does any new sewerage infrastructure involve a pump station?

If yes, continue to the next question.
If no, go to **Q.3.28**.

3.27 Does the sewage pump station have the following:

- **the capacity to deal with peak wet weather flow (PWWF) including an emergency containment of 8 hours average dry weather flow (>3 hours PWWF)**
- **an emergency power supply**
- **standby pumps?**

Design details must also consider the pump station location in relation to flood levels. Electrical switchgear and access points need to be located above 1:100 year flood level, and a back-to-base alarm system should be incorporated.

If yes for **all**, continue to the next question.
If no for **any** of these, provide design details and then continue to the next question (otherwise **NorBE is not satisfied**).

3.28 Is the existing sewerage system (pump stations, sewer mains, etc) and sewage treatment plant including effluent management capable of handling the increased sewage loading at all stages of the proposed development, whilst maintaining effluent quality at the required standard for the sewage treatment plant?

> Confirm with council or other sewerage authority. The design capacity of the sewerage infrastructure shall be consistent with the Gravity Sewerage Code of Australia (Water Services Association of Australia, 2014) - or other appropriate standard applied by the sewerage authority. The required standard must be consistent with the STP's conditions of consent and Environment Protection License (EPL).

If yes, include confirmation in WCMS and continue to the next question.

If no, provide upgrade details that ensure water quality outcomes and then continue to the next question (otherwise **NorBE is not satisfied**).

<u>Stormwater quality management questions relating to development risks</u>

> Refer to performance standard 'Using MUSIC in the Sydney Drinking Water Catchment (WaterNSW, 2026d). If the impervious area is less than 2,500 m^2, another stormwater quality model such as S3QM must be prepared to answer the following questions accordingly.

3.29 Are there any areas on the site that can provide opportunities for remediation or protection to offset water quality impacts to ensure NorBE is satisfied?

> For example, areas of erosion, salinity affected areas, erosion control works, riparian zones and native vegetation.

If yes, incorporate into the subdivision design, ensure agreement by the developer and council, and address in the WCMS. Then continue to the next question.

> See 'Developments in the Sydney drinking water catchment – water quality information requirements' (WaterNSW, 2026a) for information on preparing a WCMS.

If no, continue to the next question (this implies a satisfactory proposal has already been prepared).

3.30 If the increased impervious surface is between 250 m^2 and 2,500 m^2, have suitable stormwater quality improvement devices (SQIDs) been incorporated to meet NorBE?

If yes, continue to next question.

If no, revise the documentation to include SQIDs, then continue to the next question (otherwise **NorBE is not satisfied**).

> A small-scale stormwater quality model such as S3QM can produce a certificate to indicate that NorBE is achieved for stormwater and that proposed management measures are being shown in a suitable location and can be practically implemented.

3.31 Are the type and location of proposed SQIDs consistent across all documentation and modelling?

If yes, continue to next question

If no, revise the documentation to ensure consistency, then continue to the next question (otherwise **NorBE is not satisfied**).

3.32 Are proposed SQIDs located off-line?

If yes, continue to question **3.34**.

If no, continue to the next question.

> The object of NorBE is to prevent pollutants reaching waterways, and to avoid impairment of treatment performance during high or flood flows.

3.33 Can the proposed SQIDs be relocated to be off-line?

If yes, continue to the next question.

If no, please refer to WaterNSW for assessment and/or advice (otherwise **NorBE is not satisfied**).

> On-line measures should be discussed with and agreed to by WaterNSW before it is formally proposed. Any on-line treatment must be sized to deal with any upstream runoff.

3.34 Are the proposed stormwater management measures located above the 2% AEP flood level?

If yes, continue to question **3.36**.

If no, continue to next question.

> This is to prevent impairment of longer-term treatment performance and avoid structural damage. While an inundated swale may not be damaged, a bioretention system inundated by floodwater may be clogged with sediment and is likely to have to be rebuilt.

3.35 Can the proposed stormwater management measures be relocated to be above the 2% AEP flood level?

If yes, continue to the next question.

If no, please refer to WaterNSW for assessment and/or advice (otherwise **NorBE is not satisfied**).

> WaterNSW will consider the location of stormwater management structures on floodplains and near watercourses on a case-by-case basis.

3.36 Is the model and associated report consistent with WaterNSW's performance standard 'Using MUSIC in the Sydney Drinking Water Catchment'?

If yes, include a statement to this effect in the WCMS, then continue to the next question.

If no, **NorBE is not satisfied**.

> If not, the model and associated report are to be amended to be consistent with the performance standard, then continue to the next question. For other stormwater management models such as S3QM, the model must be consistent with the thresholds.

3.37 Does the model indicate at least a 10% 'improvement' in pollutant loads for total suspended solids, total phosphorus and total nitrogen?

> This is required because of the uncertainty of the model predictions and to ensure NorBE is satisfied.

If yes, continue to the next question.

If no, **NorBE is not satisfied**.

> If no, the model and associated report are to be amended to indicate a 10% 'improvement', continue to the next question.

3.38 Are the post-development cumulative probability pollutant concentration curves for total phosphorus and total nitrogen between the 50th and 98th percentiles equal to or less than the pre-development curves?

If yes, continue to the next question.

If no, **NorBE is not satisfied**.

> This is for non-zero flows, as indicated in 'Using MUSIC in the Sydney Drinking Water Catchment' (WaterNSW, 2026d). If not, the model and associated report are amended to ensure consistency with this requirement, then continue to the next question.

3.39 Do the proposed stormwater management measures have appropriate discharge points that are not likely to lead to other water quality problems such as erosion?

> Discharge points into drainage depressions and watercourses should be armoured or reinforced as appropriate, and consistent with the 'Blue Book Vol.1' and other relevant guidelines.

If yes, continue to the next question.

If no, redesign to address issues and include details in the WCMS (otherwise **NorBE is not satisfied**) then continue to the next question.

Final evaluation

3.40 Are the responsibilities for the ongoing management of the stormwater management measures clearly identified in the WCMS?

Water quality infrastructure management responsibilities should be clearly articulated and practical, and may be placed on a council, a community scheme, businesses or individuals.

If yes, then **NorBE is satisfied** (and the application must be forwarded to the council for consent. This will also require WaterNSW's concurrence).

If no, address in the WCMS, otherwise **NorBE is not satisfied**.

3.41 Are the responsibilities for the ongoing management of the stormwater management measures clearly identified in an Operational Environmental Management Plan (OEMP)?

An OEMP is required for module 3.

If yes, then **NorBE is satisfied** (and the application must be forwarded to the council for consent. This will also require WaterNSW's concurrence).

If no, address in an OEMP, otherwise **NorBE is not satisfied**.

ACTIONS FOR COUNCIL:

1. ***Ensure a site inspection has been undertaken***
2. ***Prepare conditions of consent.***

END

MODULE 4

Module 4 developments typically involve a rural subdivision with on-site wastewater disposal that may or may not involve the construction of dwellings. All Module 4 developments will require referral for WaterNSW concurrence. This module addresses standard stormwater site risks such as soils and slope, development risks, stormwater quality modelling for example MUSIC (except where the total proposed impervious area is less than 2,500 m^2 in which case an S3QM can be used) and site inspection queries as for Module 3, with the addition of the consideration of standard wastewater questions, and subdivision layout issues such as roads/rights-of-way, and dwelling and internal access issues. For the purposes of this module, subdivision refers to dividing a larger lot to smaller lots and any proposed construction required by the development application. Also, assumptions are based on a wastewater volume calculated for a four bedroom house.

All applications must be consistent with the following current recommended practices and performance standards (includes but not limited to):

- 'Developments in the Sydney drinking water catchment – Water Quality Information Requirements' (WaterNSW, 2026a)
- 'Using MUSIC in the Sydney Drinking Water Catchment' (WaterNSW, 2026d)
- 'Water Sensitive Design Guide for Rural Residential Subdivisions' (WaterNSW, 2026e)
- 'Designing and Installing On-site Wastewater Systems' (WaterNSW, 2026f)
- 'AS/NZS1547:2012 On-site Domestic Wastewater Management' (Standards Australia, 2012)
- 'Managing Urban Stormwater: Soils and Construction Volume 1 & 2A' ('Blue Book') (Landcom, 2004 and DECC, 2008).

Staging: The consultant must check with the developer whether the development is to be staged – NorBE must be satisfied **for all stages** of the development. Also, any staging must be included in the development application (DA). Assessment cannot be undertaken for notional proposed staging that is not included in the DA. Also, a conceptual soil and water management plan (SWMP) must be prepared for the construction phase of each stage of the development.

PROCESS:

First answer Questions 1–7 in the Pre-Assessment Checklist above. Then continue at Q4.01 below.

Generic Subdivision questions:

4.01 Is the development layout and lot numbering consistent throughout all reports?

Often consultant's reports are based on earlier versions of the subdivision where lot layout and numbering are different from that submitted.

If yes, continue to the next question.

If no, ensure lot layout and numbering is consistent before continuing to the next question.

4.02 Is the development staged?

The consultant must check with the developer whether the development is to be staged. NOTE: NorBE must be satisfied **for all stages** of the development. Also, any staging must be included in the development application (DA). Assessment cannot be undertaken for notional proposed staging that is not included in the DA.

If yes, a separate NorBE assessment must be completed for **each stage** of the subdivision before continuing to the next question.

If no, continue to the next question.

Standard Stormwater and Development Site Risks

4.03 Does any of the area to be developed (*excluding* the effluent management area (EMA), but *including* any proposed roads, dwelling access, rights-of-way or building envelopes) occur in areas where the slope is greater than 20% (11.4^0)?

WaterNSW strongly discourages development on sites with slopes greater than 20% because of the amount of cut and fill involved and the potential for erosion, unless the development is a low impact development specifically designed for the slope, such as a pole house, and/or incorporates long-term ground stabilisation techniques for steep disturbed areas.

If yes, continue to the next question.

If no, go to **Q4.07**.

4.04 Can the area to be developed be relocated to avoid the slope of 20% (11.4^0)?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, either revise the lot layout to avoid steep slopes and **return to Q4.01 OR** provide appropriate construction erosion and sediment control and post-construction stormwater quality management methods in the WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

4.05 Does the area have steep or highly erodible lands?

If yes it may be regulated land under the *Local Land Services Act 2013*. Continue to the next question.

See your Local Land Services agency for information regarding regulated land.

If no, go to **Q4.07**.

4.06 Can the area to be developed be relocated to avoid the steep and highly erodible land?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, **NorBE is not satisfied**.

4.07 Is any area to be disturbed in relation to the development proposal (*including* any proposed building envelopes, but *excluding* EMAs) located within a 1% annual exceedance probability (AEP) flood level or flood prone areas associated with watercourses and drainage depressions?

As much as practicable, roads and dwelling access should be above the 1% AEP flood level. Most councils require dwellings and access to dwellings to be located above the 1:100 flood level.

If yes, continue to the next question.

If no, go to **Q4.09**.

4.08 Can the area to be disturbed in relation to the development proposal be relocated to avoid the 1% AEP flood level?

If yes, provide a suitable alternative location, and then continue to the next question.

If no, either revise the lot layout to avoid 1% AEP flood level and **return to Q4.01 OR** provide construction and management measures for development in the 1% AEP flood level (otherwise **NorBE is not satisfied**). Then continue to the next question.

4.09 Is rainfall erosivity greater or equal to 4,000 mm/ha/hr/year?

If yes, ensure this is addressed in the conceptual soil and water management plan (SWMP) before continuing to the next question (otherwise **NorBE is not satisfied**).

If no, continue to the next question.

4.10 Do any of the proposed construction works associated with the development occur where more than 10% of the soils on the site are dispersive?

See dispersive soils in Section 3.2.6 of the "Blue Book" ('Managing Urban Stormwater: Soils and Construction Volume 1, 4th edition', Landcom, 2004).

If yes, either appropriate measures for managing dispersive soils must be included in the conceptual SWMP (otherwise **NorBE is not satisfied**) **OR** the dispersive soils must be avoided. Then continue to the next question.

If no, continue to the next question.

4.11 Do the soils in the area to be developed have a wide-spread salinity or sodicity risk?

If yes, continue to the next question.

If no, go to **Q4.13**.

4.12 Can the area to be developed be relocated to avoid the salinity or sodicity risk?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, **either** revise the lot layout and **return to Q4.01 OR** appropriate measures for managing the salinity or sodicity risk must be included in the WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

See 'Developments in the Sydney drinking water catchment – water quality information requirements' (WaterNSW, 2026a) for information on preparing a WCMS.

4.13 Are proposed building envelopes or associated works (other than crossings and approaches) located within 40 metres of a watercourse or waterbody?

a controlled activity approval under the *Water Management Act 2000* may be required if works are in or on waterfront land. Any new position is to be reflected clearly in the conditions of consent. NOTE: wastewater systems are expected to be located more than, 100 metres from watercourses or a water supply reservoir, and 40 metres from drainage depressions, farm dams and waterbodies.

If yes, continue to the next question.

If no, or not applicable, continue to **Q4.15**.

4.14 Can the proposed building envelopes or associated works be relocated within their lots to meet the watercourse or waterbody setback?

If yes, provide suitable alternative location(s), and then continue to the next question.

If no, revise the lot layout and **return to Q4.01**, **OR** include appropriate measures for managing the risk (including these in the WCMS) (otherwise **NorBE is not satisfied**). Then continue to the next question.

4.15 Will more than 250 m^2 of vegetation be removed on each proposed lot (including clearing for roads, dwelling access and Asset Protection Zones (APZ))?

NOTE: clearing of vegetation may require approval under the *Local Land Service Act 2013* or the *State Environmental Planning Policy (Vegetation in non-rural areas) 2017*. Clearing of Endangered Ecological Communities should not be undertaken at all.

If yes, continue to the next question.

If no, go to **Q4.17**.

4.16 Can the works (including for the APZ) be relocated to minimise vegetation clearing and soil exposure?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, either revise lot layout and **return to Q4.01, OR** include water quality impacts and offset measures in the MUSIC model and WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

4.17 Are there any potentially contaminated sites on any of the proposed lots?

For example, livestock dips, rubbish tips, old industrial sites, fuel storage tanks and service stations.

If yes, ensure appropriate management measures are included in the WCMS consistent with WaterNSW's current recommended practices (otherwise **NorBE is not satisfied**). Then continue to the next question.

A list of WaterNSW endorsed current recommended practices (CRPs) is available on the website www.waternsw.com.au. For subdivisions, contaminated sites generally need to be decontaminated, remediated and then re-evaluated.

If no, continue to the next question.

4.18 For each lot and the proposed subdivision as a whole, are there any other site constraints that may impact on the proposed development?

Use site plans and aerial photography, and confirm through a site inspection.
Examples of site constraints may include:
- rock outcrops
- nearby sensitive environments such as wetlands and National Parks
- gullying, highly erosive soils, existing erosion control works (including revegetation areas
- existing developments, including dwellings, access tracks, quarries etc
- other developments that may have planning implications (e.g. rights-of-way, drainage or other easements, or infrastructure)
- stormwater run-on from other sites (e.g. stormwater culverts under roads etc)
- existing or failing on-site wastewater management system.

If yes, continue to the next question.

If no, go to **Q4.20**.

4.19 Does the development design appropriately accommodate these constraints?

If yes, continue to the next question.

If no, address these issues in the ESCP/SWMP (and include this in the WCMS), revise the design and return to **Q4.01**, (otherwise **NorBE is not satisfied**).

The design should be consistent with the 'Water Sensitive Design Guide for Rural Residential Subdivisions' (WaterNSW, 2026e), or justification provided for alternative measures for addressing these constraints.

Standard Wastewater Questions

Slope:

4.20 Are the slopes for any of the (potential) EMAs on any lot more than 10% (5.7^0)?

If yes, surface irrigation and amended soil mound systems are not suitable – an alternative system must be used (otherwise **NorBE is not satisfied**). Then continue to the next question.

A specific wastewater treatment and disposal system will be reflected in a covenant on the title for constrained sites.

If no, or not applicable, go to **Q4.23**.

4.21 Are the slopes for any of the (potential) EMAs on any lot greater than 20% (11.4^0)?

If yes, continue to the next question.

If no, go to **Q4.23**.

4.22 Can all the proposed EMAs be relocated to avoid the slopes of greater than 20% (11.4^0)?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, revise lot layout and **return to Q4.01** (otherwise **NorBE is not satisfied**).

Climate:

4.23 Is the site located in an area with more than 1,200 mm annual average rainfall?

If yes, surface irrigation is not suitable (**NorBE is not satisfied**). If sub-surface irrigation is proposed, a water balance calculation should be undertaken, and wet weather storage may be required. If such requirements for sub-surface irrigation are met or a non-irrigation disposal system is proposed, then continue to the next question.

If no, continue to the next question.

4.24 Is the site subject to severe and prolonged frosts?

Some councils may require this as a standard policy. Areas of severe frost are defined as those where the overnight minimum air temperatures (Stephenson screen) are regularly below -3°C, corresponding to a ground temperature of approximately -5°C. Note that frost hollows and areas of cold air drainage may result in localised areas where frost is more severe than indicated by temperature records for the region.

If yes, winter surface irrigation is not suitable, and subsurface irrigation or a hybrid winter/summer system may be required (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no, continue to the next question.

Soils:

4.25 Does the soil information provided in the consultant's report for each (potential) EMA generally match observations in the field and WaterNSW soils database?

This could relate to the accuracy of the soil landscape / facet boundaries or an inaccurate soil description. Where significant discrepancies remain between the consultant's advice in relation to wastewater and information from the databases or site-specific information (e.g. soils), discuss with the consultant or seek advice from WaterNSW.

If yes, continue to the next question.

If no, the discrepancies in the WCMS must be addressed before continuing to the next question.

4.26 Are there any sodicity, salinity or dispersion constraints of the soil as identified in the 'Onsite Wastewater Management Guidelines' that pose major limitations for effluent disposal on any of the proposed EMAs (more than 8dS/cm; more than 10% ESP; Emerson Aggregate Test Class 1)?

'Office of Local Government. (2025). Onsite Wastewater Management Guidelines. NSW Government.

If yes, continue to the next question.

If no, go to **Q4.28**.

4.27 Can the proposed EMAs be relocated to avoid areas where these soil constraints are not present?

If yes, provide a suitable alternative location(s), and then continue to the next question.

If no, revise lot layout and **return to Q4.01 OR** propose suitable management measures (otherwise **NorBE is not satisfied**). Then continue to the next question.

4.28 Is the soil depth for the EMA less than 0.25 metres?

If yes, continue to the next question.

If no, go to **Q4.30**.

4.29 Can the EMA be moved to avoid the area where the soil depth is less than 0.25 metres, or can a mound system be negotiated?

If yes, provide a suitable alternative location with a soil depth of more than 0.25 metres **OR** a mound system, and then continue to the next question (otherwise **NorBE is not satisfied**).

If no, **NorBE is not satisfied**.

4.30 Is the soil depth less than 0.75 metres or is the dominant soil type a medium or heavy clay?

The 'C' horizon is not to be included in calculating the soil depth. Refer to AS/NZS1547:2012 'On-site domestic wastewater management' (Standards Australia, 2012). Where an absorption trench or bed is proposed on medium or heavy clay, a design that includes special design criteria, such as soil modification and soil permeability testing, may be accepted.

If yes to **either**, absorption trenches or beds are not suitable (unless special design criteria are met for such systems proposed for medium or heavy clay soils where soil depth is greater than 0.75m) and an alternative system will need to be used for effluent disposal (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no to **both**, continue to the next question.

4.31 Is the soil depth less than 0.75 metres or is the dominant soil type a gravel, sand or sandy loam?

The 'C' horizon is not to be included in calculating the soil depth. Refer to AS/NZS1547:2012 'On-site domestic wastewater management' (Standards Australia, 2012). Suitable soil can be added to the surface to raise the bed as shown on Standard Drawing 10C, in 'Designing and Installing On-site Wastewater Systems' (WaterNSW, 2026f)

If yes to **either**, ETA systems are not suitable and an alternative system may need to be used for effluent disposal (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no to **both**, continue to the next question.

Groundwater:

4.32 Are any existing or proposed groundwater bores licensed for domestic water supply located within 100 metres of the proposed EMA?

Refer Table 2.6 in 'Designing and Installing On-Site Wastewater Systems' (WaterNSW, 2026f)

If yes, continue to next the question

If no, **go to Q4.34**.

4.33 Can the (potential) EMA be relocated outside the 100 metre buffer?

If yes, revise location of proposed EMA. Then continue to the next question.

If no, undertake bore draw-down zone analysis (e.g. using Cromer et al, 2001) to demonstrate that effluent will not be drawn into the groundwater draw-down zone (and include in WCMS) and continue to the next question (otherwise **NorBE is not satisfied**).

Cromer, W. C., Gardner, E. A. and Beavers, P. D. (2001). An improved viral die-off method for estimating setback distances. In *Proceedings of On-site '01 Conference: Advancing On-site Wastewater Systems 25-27th September 2001* pp.105-112, R.A. Patterson & M.J. Jones (Eds). Published by Lanfax Laboratories, Armidale.

Existing Systems:

4.34 Are there any existing wastewater systems on any of the lots?

These must be subject to wastewater effluent modelling to ensure the effluent plume does not move off the proposed lot containing the existing system. Where an effluent disposal system is failing, a suitable upgraded system should be proposed. If an effluent plume crosses the proposed boundary or enters the drainage system, then a new (complying) system must be proposed.

If yes, all existing wastewater systems including EMAs must be identified in the WCMS and must be wholly contained in the proposed lot with the dwelling (otherwise **NorBE is not satisfied**). Then continue to the next question.

If no, continue to the next question.

Buffer Distances:

4.35 Do the proposed EMAs on all lots meet WaterNSW's buffer distances:

- **40 metres for a drainage depression or farm dam**
- **100 metres for a watercourse or water supply reservoir**

The distance is the overland flow path i.e. the direction in which any effluent would actually flow. If relocated to a substantially different area, new soil information may be needed – soil questions **Q4.26 – 4.32** will need to be re-addressed. Any revised location needs to be specified clearly in the conditions of consent. For a watercourse, the buffer distance is to be measured from the top bank of the watercourse.

If yes, continue to the next question.

If no, provide an alternative location(s) that meets WaterNSW's buffer requirements (otherwise **NorBE is not satisfied**), then continue to the next question.

4.36 Does the EMA meet WaterNSW's setback requirements and any other council setback requirements from buildings, boundaries and swimming pools?

Refer to Table 2.6 in 'Designing and Installing On-Site Wastewater Systems' (WaterNSW, 2026f). The distance is the overland flow path i.e. the direction in which any effluent would actually flow.

If yes, go to **Q4.38**.

If no, continue to the next question.

4.37 Can the EMA be readily moved nearby to meet these setbacks?

If yes, provide an alternative location and amend plans/reports or require a small footprint system that meets these requirements (e.g. a mound, absorption systems or amended soil system). New soils information may be required, questions **Q4.25-4.31** will need to be re-addressed, and the new location specified clearly by councils in the conditions of consent. Then continue to the next question.

If no, **NorBE is not satisfied**.

Lot size:

4.38 Are any of the proposed lots unable to provide a constraint free minimum area that can meet the wastewater management requirements for the dwellings?

The proposed EMA locations must be shown in the WCMS and must be clearly identified on the lot layout and given Geocentric Datum of Australia (GDA) co-ordinates.

If yes, revise lot layout or reduce lot yield and **return to Q4.01 OR** propose appropriate small footprint system(s) (and include details in the WCMS), then continue to the next question (otherwise **NorBE is not satisfied**).

If no, continue to the next question.

<u>Roads/Rights-of-way/Dwelling Access:</u>

4.39 Will the proposed subdivision result in a substantial increase in use of any existing roads?

Any substantial increase in the use of an existing right-of-way may require upgrading any road(s), and/or any watercourse crossing(s).

If yes, ensure council engineering staff and WaterNSW are consulted before continuing to the next question.

If no, continue to the next question.

4.40 Can all road works, including drainage infrastructure, be wholly contained within the road reserve or are there suitably defined easements?

Note: it is highly unlikely that a typical 20 m wide road reserve in undulating country will be wide enough to contain these works.

If yes, continue to the next question.

If no, redesign and/or create easements (otherwise **NorBE is not satisfied**), and then continue to the next question.

4.41 Do the (new) subdivision roads and rights-of-way (including dwelling access) require significant cut and fill because of slope?

For the purpose of defining 'significant', three metres cut and fill is to be used as the upper acceptable limit.

If yes, continue to the next question.

If no, go to **Q4.43**.

4.42 Can the subdivision roads and rights-of-way, dwelling or dwelling access be relocated to minimise cut and fill?

If yes, revise the location of the roads / rights-of-way / dwelling access, and then continue to the next question.

There is a trade-off between excessively steep roads / rights-of-way and those that largely follow cut and fill – this involves a judgement call.

If no, special design measures will be required and must be included in the WCMS (otherwise **NorBE is not satisfied**). Then continue to the next question.

4.43 Are the subdivision roads, rights-of-way and dwelling accesses (other than crossings and approaches) located within 40 metres of a watercourse or waterbody?

If yes, continue to the next question.

If no, go to **Q4.45**.

4.44 Can subdivision roads and rights-of-way be relocated outside the 40 metre buffer from a watercourse or waterbody?

If yes, provide a suitable alternative location(s) then continue to the next question.

If no, special design and/or soil and water measures for managing the water quality risk must be included in the WCMS before continuing to the next question (otherwise **NorBE is not satisfied**).

4.45 Do the subdivision roads, rights-of-way and dwelling accesses require the crossing, piping, diverting or channelization of any watercourse or drainage depression or gully?

This is primarily watercourses mapped under the drainage network layer provided by NSW Land Registry Service.

If yes, continue to the next question.

If no, go to **Q4.47**.

4.46 Can the subdivision roads, rights-of-way and dwelling accesses be relocated or redesigned to avoid the crossing, piping, diverting or channelization of any watercourse or drainage depression or gully?

If yes, provide a suitable alternative location(s), then continue to the next question.

If no, special design and/or appropriate soil and water measures for managing the water quality risk must be included in the WCMS before continuing to the next question (otherwise **NorBE is not satisfied**).

Suitable management measures or construction requirements could include sharing crossings, a concrete causeway, or a box culvert crossing consistent with WaterNSW's current recommended practices. Any crossing may also require a controlled activity approval under the *Water Management Act 2000*. Any new position or management measures or construction requirements are to be addressed in the WCMS. See 'Developments in the Sydney drinking water catchment – water quality information requirements' (WaterNSW, 2026a) for information on preparing a WCMS and other WaterNSW endorsed current recommended practices for advice.

4.47 Can any dwelling access and rights-of-way be reasonably shared?

Sharing driveways and watercourse crossings reduces the need for vegetation clearing and other water quality impacts, as well as construction costs, and may assist in achieving a satisfactory NorBE outcome. This may require the creation of rights-of-way over the shared access.

If yes, include details in WCMS, then continue to the next question.

If no, continue to the next question.

4.48 Can the majority of each proposed lot be accessed without the need for crossing any steep watercourses and gullies?

If yes, continue to the next question.

If no, revise the lot layout consistent with the WaterNSW 'Water Sensitive Design Guide for Rural Residential Subdivisions', **then go back to Q4.01 OR** ensure appropriate management measures are included in the WCMS consistent with WaterNSW's current recommended practices (otherwise **NorBE is not satisfied**). Then continue to the next question.

Sediment and Erosion Control:

4.49 Does the site contain active moderate or severe gully or sheet erosion?

'Moderate' to 'severe' is calculated based on a number of parameters including the type, depth, activity, extent, stability and area of the erosion. See the Local Land Services Agency for further information. Offset measures may be used to address the water quality impact from the increased intensity of land use resulting from the development.

If yes, include appropriate management measures in the WCMS then continue to the next question (otherwise **NorBE is not satisfied**).

If no, continue to the next question.

4.50 Are there any erosion control works on the site?

For example: contour banks, dams, flumes, revegetation areas, fenced-off gullies.

If yes, include measures to protect and maintain, or improve, in WCMS, then continue to the next question (otherwise **NorBE is not satisfied**)

If no, continue to the next question.

Stormwater quality management questions relating to development risks

Refer to performance standard 'Using MUSIC in the Sydney Drinking Water Catchment (WaterNSW, 2026d). If the impervious area is less than 2,500 m^2, a small-scale stormwater quality model such as S3QM or other justification must be prepared to answer the following questions accordingly.

4.51 Are there any areas on the site that can provide opportunities for remediation or protection to offset water quality impacts to ensure NorBE is satisfied?

For example: areas of erosion, salinity affected areas, erosion control works, riparian zones and native vegetation.

If yes, incorporate into the subdivision design, ensure agreement by the developer and council, and address in the WCMS. Then continue to the next question.

See 'Developments in the Sydney drinking water catchment – water quality information requirements' (WaterNSW, 2026a) for information on preparing a WCMS.

If no, continue to the next question (this implies a satisfactory proposal has already been prepared).

4.52 If the increased impervious surface is between 250 m² and 2,500 m², have suitable stormwater quality improvement devices (SQIDs) been incorporated to meet NorBE?

If yes, continue to next question.

If no, revise the documentation to include SQIDs, then continue to the next question (otherwise **NorBE is not satisfied**).

A small-scale stormwater quality model such as S3QM can produce a certificate to indicate that NorBE is achieved for stormwater and that proposed management measures are being shown in a suitable location and can be practically implemented.

4.53 Are the type and location of proposed SQIDs consistent across all documentation and modelling?

If yes, continue to next question

If no, revise the documentation to ensure consistency, then continue to the next question (otherwise **NorBE is not satisfied**).

4.54 Are proposed stormwater management measures located off-line?

If yes, continue to question **4.56**.

If no, continue to the next question.

The object of NorBE is to prevent pollutants reaching waterways, and to avoid impairment of treatment performance during high or flood flows.

4.55 Can the proposed stormwater management measures be relocated to be off-line?

If yes, continue to the next question.

If no, please refer to WaterNSW for assessment and/or advice (otherwise **NorBE is not satisfied**).

On-line measures should be discussed with and agreed to by WaterNSW before it is formally proposed. Any on-line treatment must be sized to deal with any upstream runoff.

4.56 Are the proposed stormwater management measures located above the 2% AEP flood level?

If yes, continue to question **4.58**.

If no, continue to next question.

This is to prevent impairment of longer-term treatment performance and avoid structural damage. While an inundated swale may not be damaged, a bioretention system inundated by floodwater may be clogged with sediment and is likely to have to be rebuilt.

4.57 Can the proposed stormwater management measures be relocated to be above the 2%AEP flood level?

If yes, continue to the next question.

If no, please refer to WaterNSW for assessment and/or advice (otherwise **NorBE is not satisfied**).

WaterNSW will consider the location of stormwater management structures on floodplains and near watercourses on a case-by-case basis.

4.58 Is the model and associated report consistent with WaterNSW's performance standard 'Using MUSIC in the Sydney Drinking Water Catchment'?

If yes, include a statement to this effect in the WCMS, then continue to the next question.

If no, **NorBE is not satisfied**.

If no, the model and associated report are to be amended to be consistent with the performance standard, then continue to the next question.

4.59 Does the model indicate at least a 10% 'improvement' in pollutant loads for total suspended solids, total phosphorus and total nitrogen?

This is required because of the uncertainty of the model predictions and to ensure NorBE is satisfied.

If yes, continue to the next question.

If no, **NorBE is not satisfied**.

If no, the model is to be amended to indicate a 10% 'improvement', continue to the next question.

4.60 Are the post-development cumulative probability pollutant concentration curves for total phosphorus and total nitrogen between the 50th and 98th percentiles equal to or less than the pre-development curves?

If yes, continue to the next question.

If no, **NorBE is not satisfied**.

This is for non-zero flows, as indicated in 'Using MUSIC in the Sydney Drinking Water Catchment' (WaterNSW, 2026d). If not, the model and associated report are to be amended to ensure consistency with this requirement, then continue to the next question.

4.61 Do the proposed stormwater management measures have appropriate discharge points that are not likely to lead to other water quality problems such as erosion?

Discharge points into drainage depressions and watercourses should be armoured or reinforced as appropriate, and consistent with the 'Blue Book Vol.1' and other relevant guidelines.

If yes, continue to the next question.

If no, redesign to address issues and include details in the WCMS (otherwise **NorBE is not satisfied**), then continue to the next question.

WEM evaluation

ACTION: Enter proposed wastewater system data, soils information and locations into WEM sequentially FOR EACH LOT. The collective answers for Q4.62-4.64 are for all lots.

4.62 Does the modelled effluent plume cross the proposed lot boundary or intersect with a watercourse, waterbody or drainage depression?

If yes, continue to the next question.

If no, go to **Q4.65**.

If the plume length is greater than 250 metres, it is considered that NorBE is *not* satisfied.

4.63 Can the EMA be relocated (using the WEM model) to avoid a plume that intersects a watercourse, waterbody, drainage depression or property boundary?

Such revised locations may require new soil information and questions **Q4.26 – 4.32** will need to be re-addressed.

If yes, revise the location(s) then go to **Q4.65.**
If no, continue to the next question.

4.64 Can an alternative wastewater treatment and disposal system be considered?

If yes, re-run WEM (and go back to **Q4.62**). Any specific system must be identified in the WCMS. Then continue to the next question.

Options for wastewater treatment and effluent disposal are acceptable at the subdivision stage. But if any lot is highly constrained, a specific wastewater treatment and disposal system will be reflected in a covenant on the title. Such alternative systems may require new soil and other constraint information, and questions **Q4.26 – 4.32** will need to be re-addressed.

If no, **NorBE is not satisfied**.

Final Evaluation

4.65 Are the responsibilities for the ongoing management of the stormwater management measures clearly identified in the WCMS?

This should form part of a subsequent operational environmental management plan. Water quality infrastructure management responsibilities should be clearly articulated and practical, and may be placed on a council, a community scheme, businesses or individuals.

If yes, then **NorBE is satisfied** (and the application must be forwarded to the council for consent. This will also involve WaterNSW's concurrence).

If no, address in the WCMS, otherwise **NorBE is not satisfied**.

4.66 Are the responsibilities for the ongoing management of the stormwater management measures clearly identified in an Operational Environmental Management Plan (OEMP)?

An OEMP is required for module 4.

If yes, then **NorBE is satisfied** (and the application must be forwarded to the council for consent. This will also require WaterNSW's concurrence).

If no, address in an OEMP, otherwise **NorBE is not satisfied**.

ACTION FOR COUNCIL:

1. ***Ensure a site inspection has been undertaken***
2. ***Prepare conditions of consent.***

END

MODULE 5 – Other Development

NOTE: It is strongly recommended that the assessing officer first seeks advice from WaterNSW for the development types listed below before commencing assessment. It is possible that some development types may be able to be assessed by the council under a module other than Module 5 (e.g. for the tourism development class, some Bed and Breakfast establishments may be able to be assessed under Module 1 or Module 2).

If it is established that the development proposal *must* be assessed by WaterNSW under Module 5, the assessing officer must first answer Questions 1 – 7 in the Pre-Assessment Checklist above before referring the development application to WaterNSW for concurrence. Reference should be made to Table A3 in this Guideline for documents that may be required to support the application.

All development classes under this module require referral to WaterNSW.

Development Classes for Module 5 Assessment

G_L Existing/new dwelling/dual occupancy ≥ 8 bedrooms unsewered

L_U Multi-dwelling housing unsewered

O_I Industrial

P Tourism / recreation / religious / education establishment or facility

Q Intensive livestock

R Intensive plant growing

S Designated development

T Other development – e.g. offensive or hazardous industry or storage establishment development, service stations

U_L Earthworks / farm dams >2,500 m^2 total disturbed area (refer to the 'Rural Earthmoving in the Sydney Drinking Water Catchment' (SCA, 2013))

V_L Car parks >2,500 m^2

W_L Demolitions >2,500 m^2

Y Sewerage systems that have an intended processing capacity of more than 10 persons equivalent

Z Other development (including vacant lots with an existing dwelling entitlement (e.g. in an unsewered village).

APPENDIX 2 – Part 5 NorBE Assessment Guide

How to Guide – Part 5 NorBE Assessment

This is the WaterNSW standard template for assessing whether an activity will have a neutral or beneficial effect on water quality (NorBE Assessment). This assessment is typically included in the section of a Review of Environmental Factors (REF) describing potential impacts and safeguards related to water quality.

This 'Guide' should be used when undertaking a NorBE Assessment for proposed activities by determining authorities that will be assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), as specified in Section 171A of *Environmental Planning and Assessment Regulation 2021*.

NorBE assessment template – is there likely to be a neutral or beneficial effect on water quality? *(assessment must consider surface & ground waters and construction & operational stages)*	
1. Are there any identifiable potential impacts on **water quality**? What **pollutants** are likely? *Major potential pollutants are **sediments** (fine & coarse), **nitrogen**, **phosphorus**, **pathogens** and **hazardous chemicals and contaminants** such as oil/fuel.* At what stage do the impacts occur? *i.e. during construction and/or post construction?*	
2. For each pollutant list the **safeguards** needed to prevent or mitigate potential impacts on water quality? *These may be WaterNSW endorsed current recommended practices (CRPs) and/or equally effective other practices*)	
3. Will the **safeguards** be adequate for the time required? How will they need to be maintained?	
4. Will all **impacts** on water quality be effectively **contained on the site** by the identified **safeguards** (above) and not reach any watercourse, waterbody or drainage depression? Or will **impacts** on water quality be **transferred outside the site** for treatment? How? Why?	
5. Is it likely that a **neutral or beneficial effect** on water quality will occur? Justify	

Explanatory notes:

Section 171A of *Environmental Planning and Assessment Regulation 2021* requires that determining authorities must take into account whether any activity they propose will have a neutral or beneficial effect on water quality (NorBE assessment). Activities also need to be consistent with this NorBE Guideline. WaterNSW expects all activities affecting its operational area to be undertaken in a manner that ensures no adverse impact on water quality.

NorBE assessment – will there be a neutral or beneficial effect on water quality? *(Assessment must consider surface & ground waters and must consider construction & operational stages.)*	
1. Are there any identifiable potential impacts on **water quality**? What **pollutants** are likely? *Major potential pollutants are **sediments** (fine & coarse), **nitrogen**, **phosphorus**, **pathogens** and **hazardous chemicals and contaminants** such as oil/fuel.* At what stage do the impacts occur? *i.e. during construction and/or post construction?*	***If there are no potential impacts, answer only the last question in this Section.*** *The major potential pollutants of concern are **sediments** (fine & coarse), **nitrogen**, **phosphorous**, **pathogens** and **hazardous chemicals and contaminants** such as oil/fuel.* *Impacts may occur during different stages – will there be possible impacts after the activity/work is completed (post-construction)? Or only while the construction or work is being undertaken?*
2. For each pollutant list the **safeguards** needed to prevent or mitigate potential impacts on water quality? *These may be WaterNSW endorsed current recommended practices (CRPs) and/or equally effective other practices*)	*These are the water quality protection measures needed to stop the potential pollutants listed above from reaching surface or underground waters – list the safeguards needed to address each pollutant identified, e.g. Sediment – erosion & sediment controls must be installed in accordance with the Blue Book.* *WaterNSW has endorsed a range of CRPs. These are listed on WaterNSW's website (www.waternsw.com.au) & are also available for inspection at the WaterNSW Head Office and Goulburn office.* *Many of the measures needed to prevent or mitigate potential impacts on water quality will be commonly used environmental protection measures that are not directly included in the WaterNSW endorsed CRPs and should be listed.*
3. Will the safeguards be adequate for the time required? How will they need to be maintained?	*All the safeguards should be designed to cope with expected seasonal weather conditions, e.g. high intensity summer storms. Some protection measures might need some maintenance, e.g. cleaning out sediment fencing after rainfall events.*
4. Will all **impacts** on water quality be effectively **contained on the site** by the identified **safeguards** (above) and not reach any watercourse, waterbody or drainage depression? Or will **impacts** on water quality be **transferred outside the site** for treatment? How? Why?	*Explain how effective you think the safeguards you have listed above will be at preventing each of the potential pollutants from reaching the stream system or any waterbody, e.g. Sediment – will be effectively contained on the site provided the required erosion & sediment controls are properly installed and maintained.* *Instead of being contained on the site, potential pollutants might be captured and taken away from the site for appropriate treatment and disposal, e.g. septic pump-out – if so, please explain.*
5. Is it likely that a **neutral or beneficial effect** on water quality will occur?	*This is a concluding statement that summarises and justifies the outcome of the NorBE assessment, e.g. A neutral effect on water quality is likely provided the safeguards identified above are properly implemented and adequately maintained.*

Notes:

1. **A *neutral or beneficial effect* on water quality** occurs when an activity:
   a. has no identifiable potential impact on water quality; **or**
   b. will contain any such impact on the site of the activity and prevent it from reaching any watercourse, waterbody or drainage depression on the site; **or**
   c. will transfer any such impact outside the site by treatment in a facility and disposal approved by a public authority (but only if the public authority is satisfied that water quality after treatment will be of the required standard).

2. For practical application, a proposed activity will have a **neutral or beneficial effect on water quality** if it complies with one of the following:
   I. There are no factors involved that have any potential to impact on water quality. Changes to the site conditions and/or to the nature and location of the activity will not occur in any way that has the potential to:
      a. directly change pollutant loadings by introducing or increasing substances into the hydrological cycle (such as waste flows, increased erosion, nutrients and sediments), **or**
      b. indirectly change the quality of water in the hydrological system by changing the bio-physical characteristics of the site in any way that reduces, or poses a significant threat of reducing, the capacity of the site and related hydrological/ ecological components to assimilate, treat and otherwise produce water of at least equal quality to that contributed by the existing systems. Changes relate to the environmental values of the system, and may include:
         - significant changes to flows (reductions or increases in flows), **or**
         - clearing or degradation of watercourses or of riparian corridors, **or**
         - changing the flow paths of water through these assimilative systems.

   II. The activity will not adversely affect water quality off the site because:
      a. pollutant loads that occur as a result of the activity can be transported to acceptable downstream treatment and disposal facilities without adverse off-site water quality impacts, and/or
      b. any water quality issues can be effectively managed on-site such that there are no adverse water quality impacts occurring off-site, and
      c. there are no adverse water quality impacts that arise or are likely to arise indirectly as a result of changes to factors that affect the treatment, assimilation of pollutants, or affect the quality of water as part of the hydrological cycle (such as changes to flow or flow paths, water courses or riparian corridors) that can adversely affect water quality off the site.

3. As this assessment is typically part of a Review of Environmental Factors (REF), the answer to some of the assessment questions can be simplified by referring to the relevant sections in the REF (e.g. Q2: see REF Section 4.3.3).

Head Office

WaterNSW

169 Macquarie Street

Parramatta NSW 2124

Phone: 1300 662 077

Email: Environmental.Assessments@waternsw.com.au

PO Box 398

Parramatta NSW 2124

Office hours

9.00am to 5.00pm

Monday to Friday

Web: www.waternsw.com.au