



Neutral or Beneficial Effect on Water Quality Assessment Tool

COUNCIL AND COUNCIL ADMINISTRATORS USER GUIDE

2026

Document Control

Version	Date	Document Administrator
Council training draft v1	September 2014	SCA Environment and Heritage Team*
Version 1	February 2015	WaterNSW Environment and Heritage Team
Council training draft v2	February 2021	WaterNSW Catchment Protection Team
Version 2	October 2021	WaterNSW Catchment Protection Team
Version 3	November 2022	WaterNSW Catchment Protection Team
Version 4	February 2026	WaterNSW Catchment Protection Team

*From 1 January 2015, the Sydney Catchment Authority (SCA) joined with State Water to form WaterNSW, the new single organisation responsible for managing bulk water supply across the State. All references in this document to WaterNSW encompass the former SCA.

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1. INTRODUCTION

1.1. ABOUT THE NorBE TOOL AND USER GUIDE

This Guide is to help you use the neutral or beneficial effect assessment Tool (the NorBE Tool). It will take you through the NorBE Tool step by step and includes information to help you understand how:

- the NorBE assessment process works
- to get registered, log in and change your password
- to create, complete and save a NorBE assessment
- to run a wastewater effluent model (WEM) for development proposals in unsewered areas
- to determine whether NorBE has been satisfied or not, and if you need to refer the application to WaterNSW for concurrence
- to produce a variety of reports for individual NorBE assessments and development proposals.

The NorBE Tool has been designed so that it will calculate some parameters automatically requiring the minimal amount of your input and prompts you when the proposal requires referral to WaterNSW for concurrence. The detailed decision-making process that underlies the Tool is documented in the 'Neutral or Beneficial Effect on Water Quality Assessment Guideline 2026', available on WaterNSW's website. The Guideline also provides relevant definitions and detailed supporting information.

The NorBE Tool has different levels of authorisation for access to, and use of, the Tool by council staff. Consultants are also able to undertake NorBE assessments to accompany a development application for consideration by council staff.

The Tool will not make information from your assessment available to other councils, or other third parties. WaterNSW will be able to view all NorBE assessments for the purpose of providing assistance to users but will not be able to edit or modify them.

1.2. WHY DO A NorBE ASSESSMENT?

Under Part 6.5 of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (the SEPP), all development in the Sydney drinking water catchment that requires consent must have a neutral or beneficial effect on water quality and as such requires a NorBE assessment to be undertaken. The Tool has been developed to support this requirement and its use is also required by the SEPP.

The Tool is also consistent with the Section 55 Notice issued under the Environmental Planning and Assessment Regulation 2021 to catchment councils by WaterNSW. The Notice specifies the circumstances in which WaterNSW's concurrence may be assumed.

Note: even for developments that require WaterNSW's concurrence, the details of the development must be entered into the NorBE Tool and a preliminary assessment undertaken.

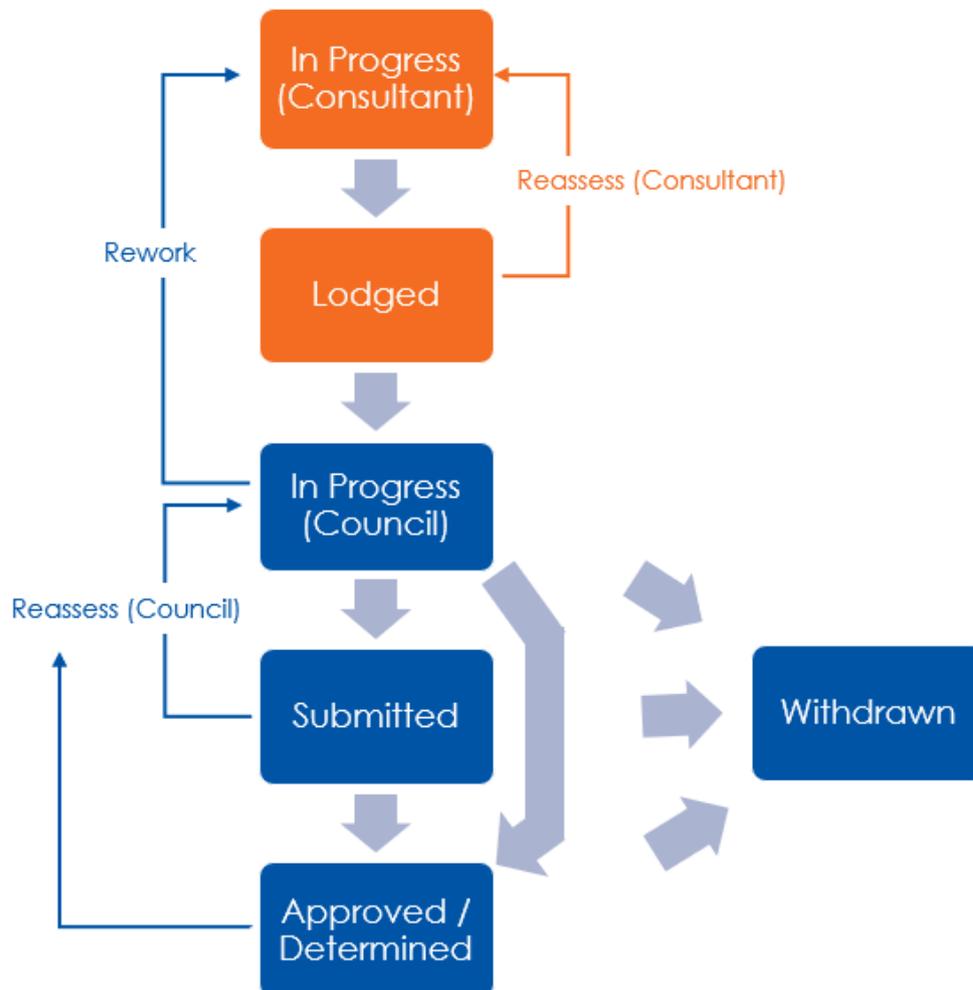
As the NorBE Tool is also available to consultants, councils may no longer have to undertake a full NorBE assessment for those developments where a consultant undertakes and lodges the NorBE assessment instead; rather Council will only be required to certify that the information is correct and consistent with the development application documentation and site constraints.

1.3. HOW THE NorBE ASSESSMENT PROCESS WORKS

There are two types of NorBE assessment – those undertaken (1) by Councils and (2) by Consultants. Council users can create and assess their own assessment and also certify an

assessment that has been lodged by a consultant. Section 3 of this user guide explains each stage of the process in more detail and Section 4 details the different user authorisations.

The flow chart below summarises the NorBE assessment process. Consultant assessments are represented in **Orange** and Council assessments are represented in **Blue**.



- Councils do not need to create a new assessment where a Consultant has Lodged one – simply review the Consultant’s assessment for adequacy and accuracy. See Section 4.1 for further information.
- Council Managers are able to ‘skip’ the Submitted step and self-approve their own assessments.
- Councils are able to Withdraw assessments at any stage of the assessment process except when a development application has been Determined.
- Council assessments can be sent back to the In Progress state for reassessment from the Submitted and Approved states.
- Council can also send back assessments to consultants for reworking.
- Consultants are able to reassess their own assessments that have been lodged until a council opens the lodged assessment.

1.4. USER HINTS AND TIPS

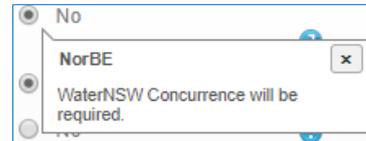
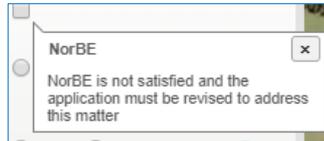
- A link to the NorBE Assessment Guideline is available on the bottom of each screen of the NorBE Tool.
- Use the **Filter** function on the Assessments Screen to search for a specific NorBE assessment or group of assessments. Assessments can be filtered by DA number, consultant reference number, date created, the person who created the assessment or NorBE outcome. Using the filter function will only filter assessments that are in that screen:

Filter by:

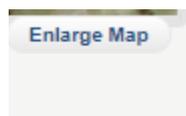
- Use the **Sort** function by clicking on a column heading in the Assessments Screen to sort the assessments by that column.
- Clicking **Next** when you've completed a screen will automatically save the information you've provided up to that point and move you along to the next tab. If you click **Close** before completing a screen or click on another tab, any information you've entered on that screen will be lost.



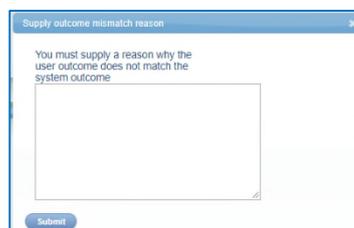
- All questions *must* be answered before progressing to the next screen. If you are unsure how to answer a question, or what is required, hover over the  icon for further information.
- A dialog box such as the ones below will appear if, for example, NorBE will not be satisfied or WaterNSW concurrence is required. Other dialog boxes are described in this guide:



- When creating a wastewater effluent model (WEM) use the **Enlarge Map** button to view the map on a larger screen. Click the **Close** button or 'Esc' to return to the previous screen:



- A **Note** must be added to the dialog box when sending an assessment back for reassessment or reworking:



2. GETTING STARTED

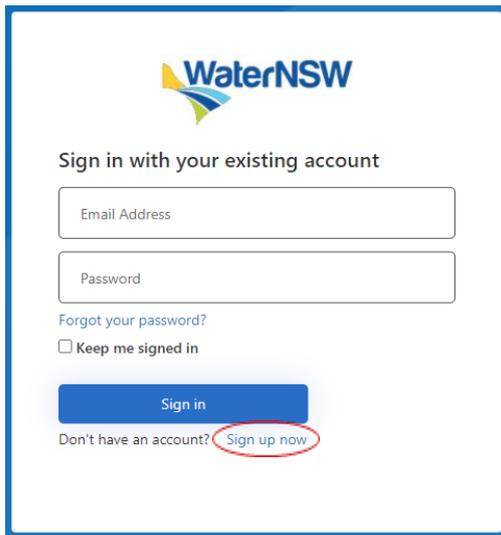
2.1. WEB ADDRESS

To access the NorBE Tool go to <https://norbe.waternsw.com.au>

2.2. REGISTERING AS A NEW USER

The first time you log in you will need to register with the NorBE Tool Administrator for your council (see Section 4).

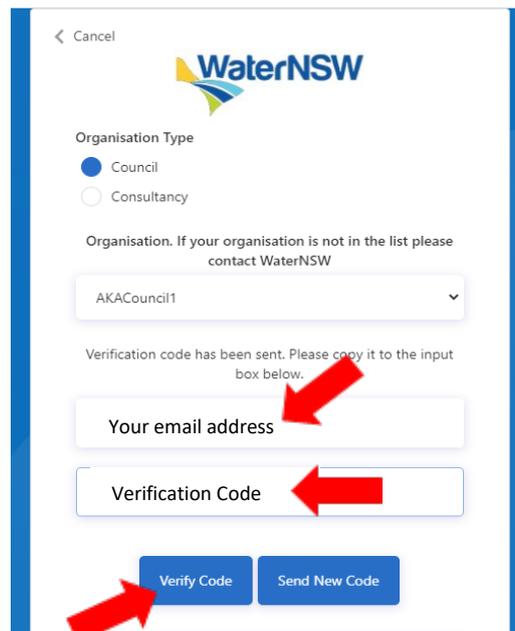
STEP 1: The first screen you will see is the Login Screen – click on **Sign up now** (circled in red):



STEP 2: On the next screen, choose the 'Council' radio button and your Council's name from the drop-down list. Enter your **Email Address** and click on the **Send Code** button:



STEP 3: You will receive an email with your 'NorBE account email verification code'. The six-figure code is in this email. Enter the code and click on the **Verify Code** button (NB: if you are delayed in entering the verification code, you will need to click on the **Send New Code** button, and retrieve the new code from your email):



STEP 4: Complete your details, including setting a password – note the password must be in the format of 8-16 characters, containing 3 out of 4 of the following: Lowercase characters, uppercase characters, digits (0-9), and one or more of the following symbols: @ # \$ % ^ & * - _ + = [] { } | \ : ' , ? / ` ~ " () ; ..

Then click on the **Create** button.

STEP 5: You will receive an email to say your registration was received by NorBE, and that another would be received when your ‘account’ has been approved and activated by your Council’s NorBE Tool Administrator.

In the meantime, your Council NorBE Tool Administrator will receive an email to advise them that you have applied to register as a user for that council. The Administrator will need to login to the NorBE Tool to action the request.

Your NorBE Tool Administrator can assist you with queries regarding your user details and level of authorisation within the Tool (see Section 4).

You can then login on the landing page.

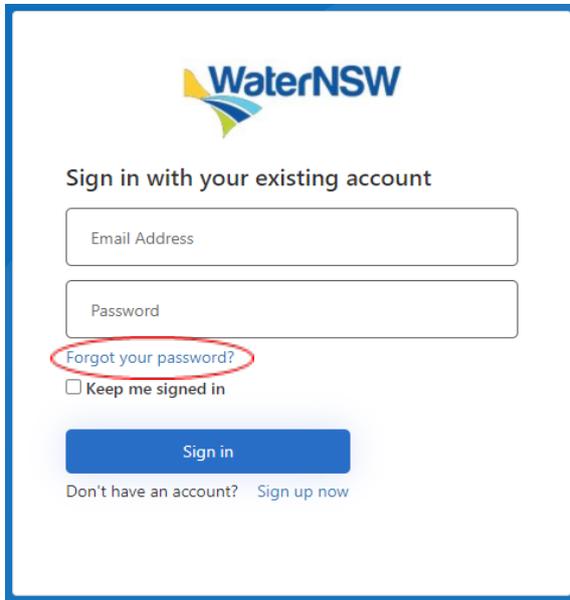
2.3. FOR REGISTERED USERS

The first screen you see is the Login Screen. Enter your **Email Address** and **Password** as normal, and click the **Sign in** button.

Note: you will automatically be logged out of the NorBE Tool after four (4) hours of inactivity.

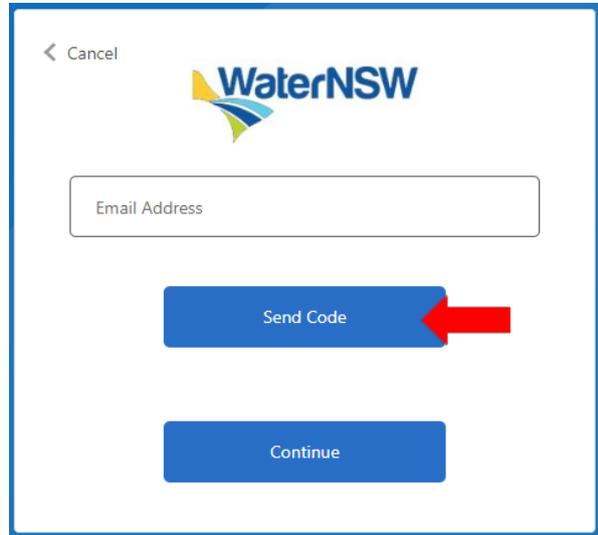
2.4. CHANGE / FORGOTTEN PASSWORD

STEP 1: To change your password, or if you have forgotten it, click **Forgot your password?** on the Login Screen.



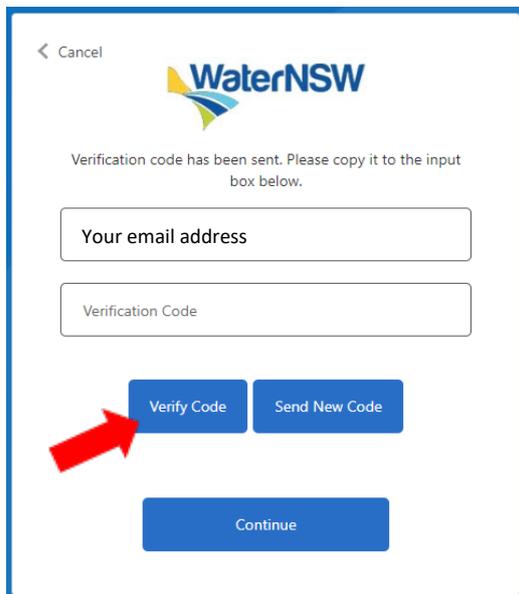
The screenshot shows the WaterNSW login interface. At the top is the WaterNSW logo. Below it, the text "Sign in with your existing account" is displayed. There are two input fields: "Email Address" and "Password". A link labeled "Forgot your password?" is circled in red. Below the input fields, there is a checkbox for "Keep me signed in" and a blue "Sign in" button. At the bottom, there is a link that says "Don't have an account? Sign up now".

STEP 2: The next screen prompts you to enter your **Email Address** and click on **Send Code**.



The screenshot shows the WaterNSW interface for entering an email address. At the top left is a "Cancel" link. The WaterNSW logo is at the top center. Below the logo is an input field labeled "Email Address". There are two blue buttons: "Send Code" and "Continue". A red arrow points to the "Send Code" button.

STEP 3: You will receive an email with a Verification Code from 'Microsoft on behalf of WaterNSW – NorBE'. Enter that code and click on the **Verify Code** button



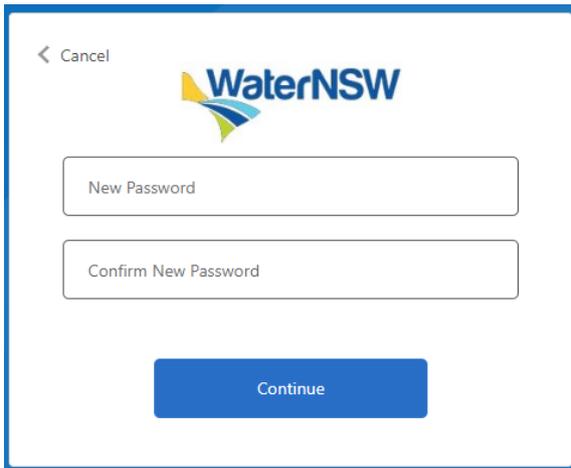
The screenshot shows the WaterNSW interface for entering a verification code. At the top left is a "Cancel" link. The WaterNSW logo is at the top center. Below the logo, the text "Verification code has been sent. Please copy it to the input box below." is displayed. There are two input fields: "Your email address" and "Verification Code". There are three blue buttons: "Verify Code", "Send New Code", and "Continue". A red arrow points to the "Verify Code" button.

STEP 4: Click on the **Continue** button



The screenshot shows the WaterNSW interface for clicking the "Continue" button. At the top left is a "Cancel" link. The WaterNSW logo is at the top center. Below the logo is a greyed-out input field labeled "Your email address". There are two blue buttons: "Change" and "Continue". A red arrow points to the "Continue" button.

STEP 4: Enter your **New Password** and **Confirm New Password** then **Continue**



The screenshot shows a mobile application interface for creating a new password. At the top left, there is a back arrow and the text "Cancel". In the center, the "WaterNSW" logo is displayed, featuring a stylized water drop icon. Below the logo are two text input fields: the first is labeled "New Password" and the second is labeled "Confirm New Password". At the bottom center, there is a blue button with the text "Continue".

The NorBE Tool will take you back to the Login Screen where you can login using your new Password.

3. USER AUTHORISATIONS

There are three different levels of authorisations for councils to access and use the NorBE Tool. These are Council Administrator, Council Manager and Assessment Officer. NB: the role titles do not necessarily reflect Council roles and are only relevant for use in the context of the NorBE Tool.

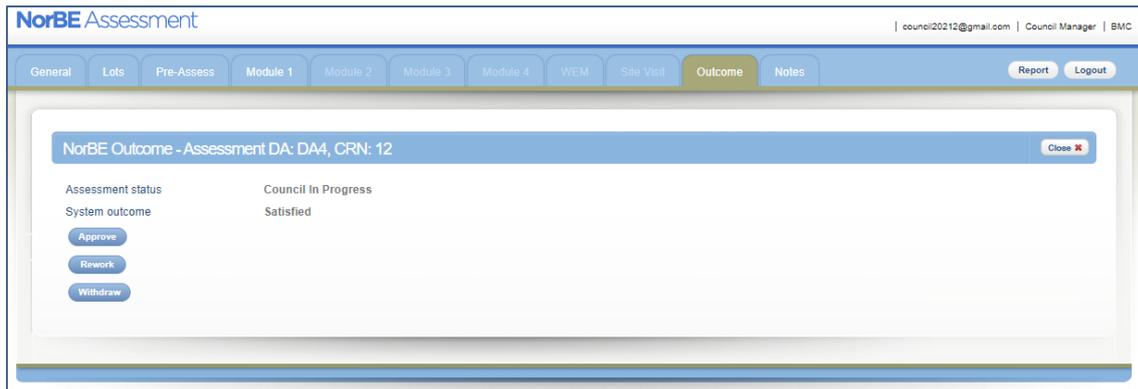
These levels of authorisation are identified in the following table:

	Council (NorBE Tool) Administrators	Council (NorBE Tool) Managers	Council Assessment Officers
View, copy, update and delete assessments they have created or been assigned.	✓	✓	✓
Create, update or delete notes for assessments they have created.	✓	✓	✓
Submit and withdraw assessments they have created or been assigned.	✓	✓	✓
Return any consultant's DAs that they've been assigned for reworking.	✓	✓	✓
View, copy and update all assessments within their council.	✓	✓	X
Set DA determinations and manage WaterNSW concurrence.	✓	✓	X
Re-assess, submit, withdraw and approve/reject any assessment lodged by a council user or a consultant. Can return any consultant's DAs back for reworking and can return council created DAs to officers for reassessing.	✓	✓	X
Delete any assessment within their council.	✓	X	X
Approve/decline users within their council	✓	X	X
Reallocate the level of authorisation for user roles from the Users tab.	✓	X	X

3.1. CONSULTANT USERS

Consultants also have access to complete their own assessments for the majority of development application types, including certain developments that require WaterNSW concurrence. Consultants will only be able to **Lodge** NorBE assessments to council, who in turn will be able to submit and approve/decline the assessments and seek WaterNSW's concurrence where required. Assessments created by a consultant are 'read only' to council users to protect the integrity and version control of the assessment. However, it is possible to return an assessment back to a consultant using the **Rework** button from the **In Progress** state should any amendments need to be made, or if the assessment has not been completed properly.

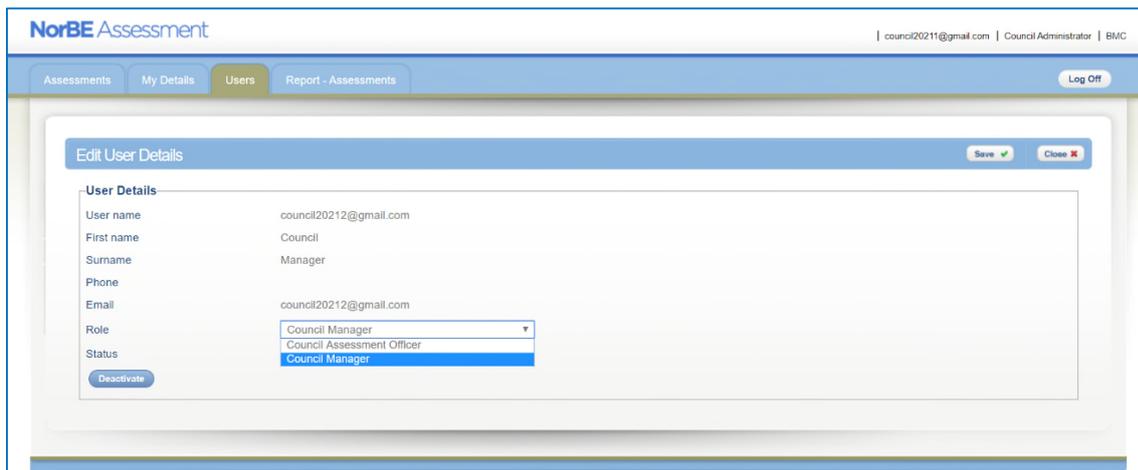
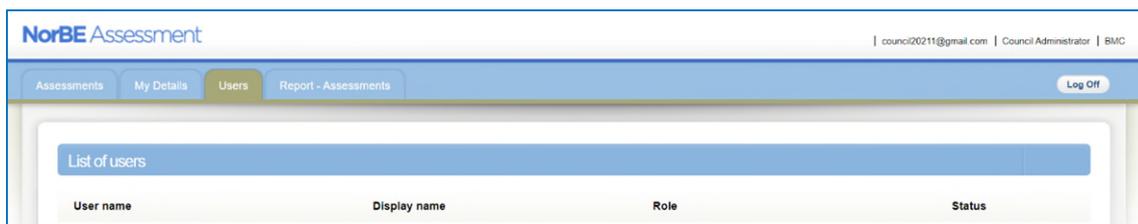
Note: Council users do not have to create new NorBE assessments for DAs where a consultant has Lodged a NorBE assessment – it is only necessary to certify the assessment after assigning a DA number – see Section 4.1 of this guide.



3.2. APPROVING NEW USERS (COUNCIL ADMINISTRATOR)

Council Administrators have access to a **User** tab that will allow them to view and modify the role (i.e. level of access) of an approved NorBE user in their council. When a new council user registers as a NorBE user, the Council Administrator will receive an email notification prompting them to approve and set the new users' level of access. The new council user will also receive an email once the Council Administrator either approves or rejects their request.

The list of users will show the users' display name, role and status; a role must be assigned for each approved user or they will not be able to login, irrespective of them receiving an email stating their registration is approved. Clicking on a username in the list will show more of that user's details.



It is also possible for Council Administrators to change the status of a user and **Deactivate** an account from the **Users** menu e.g. when a user is no longer employed by Council, by clicking on the **Deactivate** button on that user's Detail screen. Once an account has been deactivated it is not possible to reactivate the account. Council Administrators and Council Managers can still view and edit the deactivated user's assessments for submitting.

Edit User Details

Save

Close

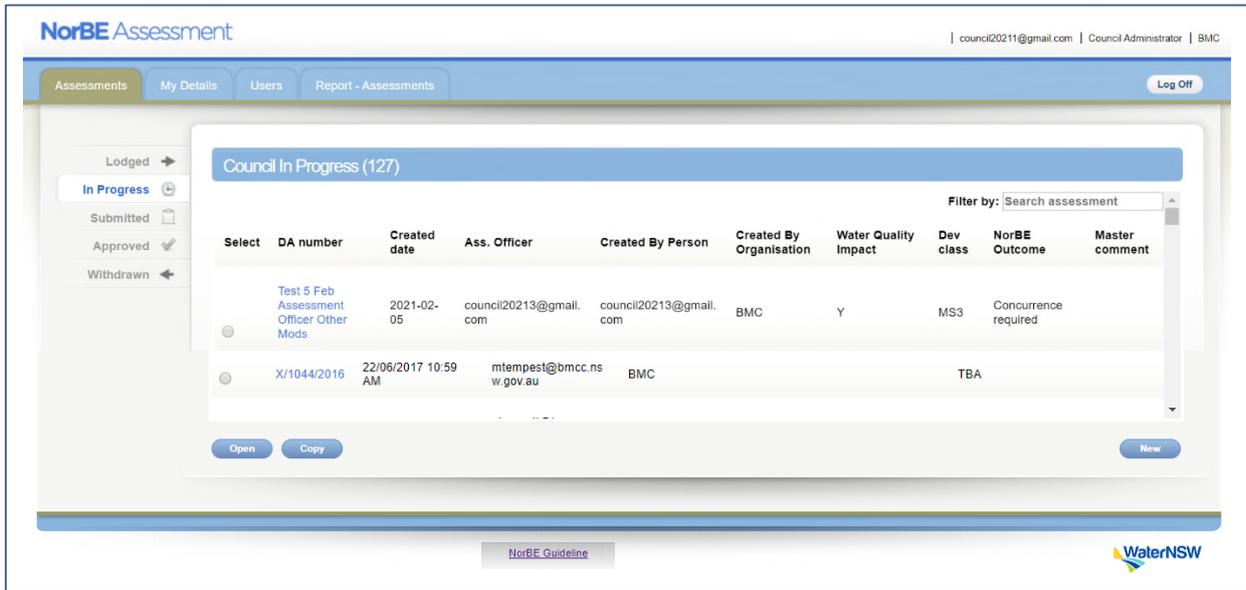
User Details

User name	council20213@gmail.com
First name	Council
Surname	Officer
Phone	
Email	council20213@gmail.com
Role	Council Assessment Officer
Status	Approved

Deactivate

4. ASSESSMENTS PAGE

Once you log in you will be taken to the **Assessments** screen. Four or five categories of Development Applications (DAs) are available for viewing from the Assessments screen, depending on your level of access (Council Assessment Officers will only see four). These are: **In Progress** (the default screen), **Lodged**, **Submitted**, **Approved** and **Withdrawn**. These can be viewed by clicking on the relevant tab in the menu on the left hand side of the screen.



The screenshot displays the NorBE Assessment tool interface. At the top, the header includes the logo 'NorBE Assessment', the user's email 'council20211@gmail.com', the role 'Council Administrator', and the council name 'BMC'. A navigation bar contains tabs for 'Assessments', 'My Details', 'Users', and 'Report - Assessments', with a 'Log Off' button on the right. On the left, a sidebar menu shows 'Lodged', 'In Progress' (selected), 'Submitted', 'Approved', and 'Withdrawn'. The main content area is titled 'Council In Progress (127)' and features a search filter. Below the filter is a table with the following columns: Select, DA number, Created date, Ass. Officer, Created By Person, Created By Organisation, Water Quality Impact, Dev class, NorBE Outcome, and Master comment. Two rows of data are visible:

Select	DA number	Created date	Ass. Officer	Created By Person	Created By Organisation	Water Quality Impact	Dev class	NorBE Outcome	Master comment
<input type="radio"/>	Test 5 Feb Assessment Officer Other Mods	2021-02-05	council20213@gmail.com	council20213@gmail.com	BMC	Y	MS3	Concurrence required	
<input type="radio"/>	X/1044/2016	22/06/2017 10:59 AM	mtempest@bmcc.nsw.gov.au	BMC				TBA	

At the bottom of the table, there are 'Open' and 'Copy' buttons for each row, and a 'New' button in the bottom right corner. A 'NorBE Guideline' link is located at the bottom center, and the 'WaterNSW' logo is in the bottom right corner.

There is also a series of tabs along the top of the screen, **Assessments**, **My Details** and **Report-Assessments**. Council Administrators will also have access to a **Users** tab that will allow them to view and modify the role (i.e. level of access) of an approved NorBE user in their council, approve/reject new users and deactivate current users (see Section 3).

Your username, level of access and council name will appear on the top right hand side of each screen while you are logged into the Tool.

Assessments screen navigation

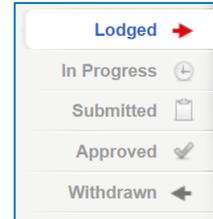
The **DA number** (and the Consultant **Reference number** if the assessment has been lodged by a consultant) represent the title of the assessment when open. The **DA number** is also visible in a column on the **Assessments** screen. The **Reference number** will initially be visible in the **Lodged** tab. Other columns also give a quick summary of information about the assessment such as the date the assessment was created and by whom, the relevant **Development Class** and the **NorBE Outcome**.

- To start a new assessment click the **New** button in the bottom right hand corner of the screen (for further details on creating a new assessment see Section 5).
- To open an existing assessment either select the assessment using the radio button next to the DA number for that assessment and click **Open** or click on the relevant **DA number**.
- To copy an assessment click the radio button next to the DA number and click on the **Copy** button. It is possible to make a copy of an assessment at all stages of the assessment process. If you are making a copy of an application that was initially **Lodged** by a consultant, the copy of their assessment will appear in the **In Progress** screen.
- To delete an assessment click the radio button next to the DA number and click on the **Delete** button (note: you can only delete assessments or copies created by yourself, and you can't delete assessments that have been **Determined**).

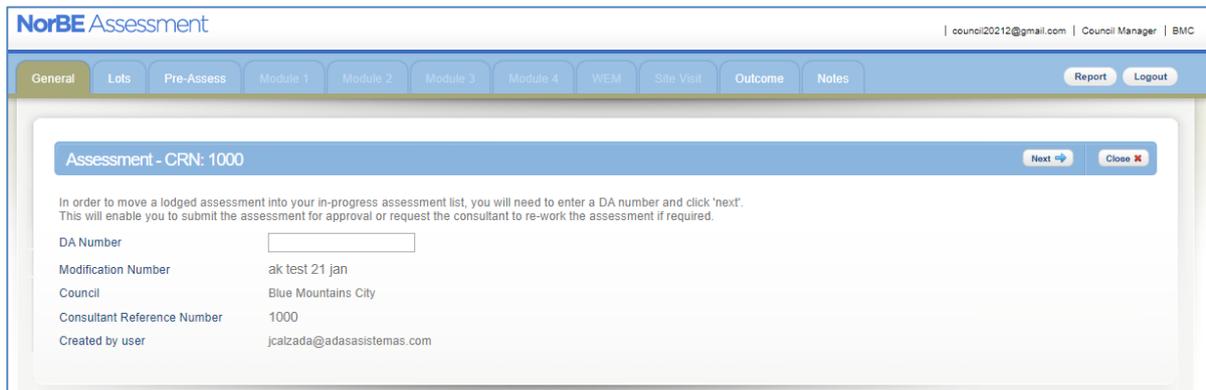
- To search for an Assessment in the list on the **Assessments** screen, type the DA number in the **Filter by:** box at the top right of the screen. Information from any column can be used to filter assessments.
- To **Sort** the list of assessments on the **Assessments** screen, click on any column heading.

4.1. LODGED

When an assessment is lodged by a consultant it will appear in the **Lodged** screen, identified by a **Reference Number**. An assessment lodged by a consultant is 'read-only' for council users and cannot be updated. Councils will simply need to check the accuracy of these lodged assessments and any issues can be discussed with the consultant; assessments can be sent back to the consultants to be re-worked.



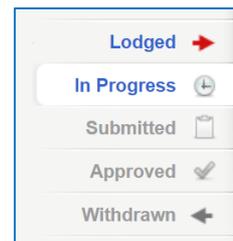
When you open a newly lodged assessment a **Council DA number** will need to be assigned to the application – text appears on the **General** tab to prompt you. Once this has been done it is important to note that the application will move to the **In Progress** screen (where it will still be 'read-only') and will no longer sit in the **Lodged** screen. From the **In Progress** screen a consultant's assessment will have both a Consultant reference number and Council DA number attached.



4.2. IN PROGRESS

Once you have created a new assessment or if you are returning to continue an assessment it will sit in the **In Progress** screen. It is from this screen that the details for the assessment will be entered.

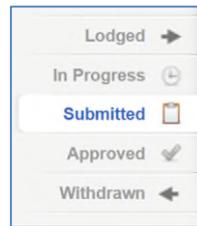
It is possible to move an assessment from the **In Progress** stage to **Submit** or **Approve** stage, depending on your role. In the case of a consultant's assessment, it can be sent back to the consultant for **Rework** if required using the **Rework** button on the **Outcome** screen. When an assessment is returned to a consultant for reworking a **Note** must be added to the dialog box that appears before it can be sent. Returning the assessment to the consultant will remove it from council's **Assessments** screen and return it to the *consultant's In Progress* screen. An email notification will be sent to the consultant when a rework request is made, and the email will be copied to the council officer. It will reappear in the council's **Lodged** screen once it has been re-lodged by the consultant.



An assessment that has been created by a council user will sit in the **In Progress** screen until it is **Submitted** (if you are a Council Assessment Officer) or **Approved** (if you are a Council Manager).

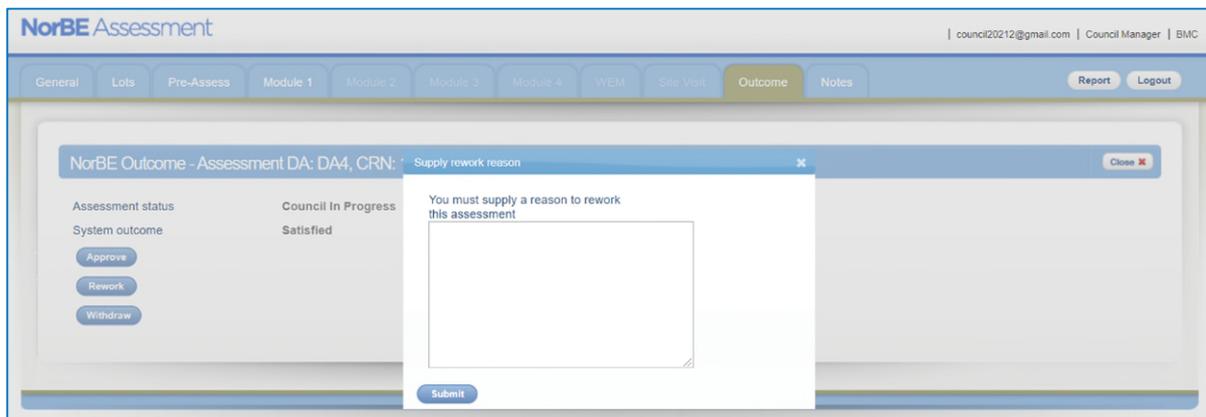
4.3. SUBMITTED

An assessment appears in the **Submitted** screen when the NorBE assessment is completed and it has been submitted to the relevant Council Manager or Administrator for 'sign-off'. A Council Manager or Administrator can sign-off their own assessments.



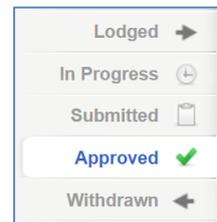
A DA that has been created by a Council Assessment Officer can either be approved from here by a Council Manager or Administrator or can be sent back to the user for further work using the **Reassess** button.

A DA that has been created by a consultant can either be **Approved** from here by a Council Manager or Administrator or can be returned to the Assessment Officer using the **Reassess** button, who will then have to use the **Rework** button from the **In Progress** state, to return the assessment back to the consultant for reworking.



4.4. APPROVED AND DETERMINED

This **Approved** screen combines all assessments that have both been Approved (i.e. the NorBE assessment has been 'signed-off' by the relevant Council Manager or Administrator), and then subsequently Determined (i.e. when the entire DA has been determined – consent has either been granted or refused).



An **Approved** assessment can still be returned for further assessment using the **Reassess** button, but one that has been **Determined** cannot be reassessed.

An assessment that has been created by a consultant can either be **Determined** by entering the determination result and date or can be returned to the consultant for reworking (to do this the manager will click the **Reassess** button, and the relevant user will then have to use the **Rework** button that will send the assessment back to the consultant).

A **Determined** assessment lists the **Determination result** and whether there are conditions that must be included in the development consent, indicated by a green 'tick' symbol . Assessments listed in this screen that are **Approved** but not yet **Determined** will have **TBA** in the column under **Determination result**.

NorBE Assessment | council20212@gmail.com | Council Manager | BMC

Assessments My Details Report - Assessments Log Off

Lodged →
In Progress ⌚
Submitted 📄
Approved ✓
Withdrawn ←

Approved (1648)

Filter by: Search assessment

Select	DA number	Approved date	Determ. date	Created By Person	Created By Organisation	Water Quality Impact	Dev class	NorBE Outcome	Determ. result	Cond. in consent
<input type="radio"/>	Ak test 28 jan - Administrator	2021-02-03	2021-02-03	council20211@gmail.com	BMC	Y	C	Satisfied	Consent granted	✓
<input type="radio"/>	DA1	2021-02-02	0001-01-01	council20212@gmail.com	BMC	Y	GS	TBA	TBA	✓
<input type="radio"/>	AK test BReq14 1 Feb	2021-02-02	2021-02-02	council20212@gmail.com	BMC	Y	C	Satisfied	Consent granted	✓
<input type="radio"/>	XI273/2018	2020-08-26	2020-08-26	kmcrae@bmcc.nsw.gov.au	BMC	N	B	Satisfied	Consent granted	
<input type="radio"/>	XI487/2020	2020-08-18	2020-08-18	riwalker@bmcc.nsw.gov.au	BMC	N	D	Satisfied	Consent granted	

Open Copy Delete New

4.5. WITHDRAWN

An assessment associated with a DA that has been withdrawn will appear in the **Withdrawn** screen. An assessment can be withdrawn while it is **In Progress**, **Submitted** or **Approved**. Once an assessment has been **Determined** it can't be withdrawn. Once an assessment has been withdrawn, it cannot be moved out of this state, however it can be copied. That copy will move into an **In Progress** state.

Lodged →
In Progress ⌚
Submitted 📄
Approved ✓
Withdrawn ←

NorBE Assessment | council20212@gmail.com | Council Manager | BMC

Assessments My Details Report - Assessments Log Off

Lodged →
In Progress ⌚
Submitted 📄
Approved ✓
Withdrawn ←

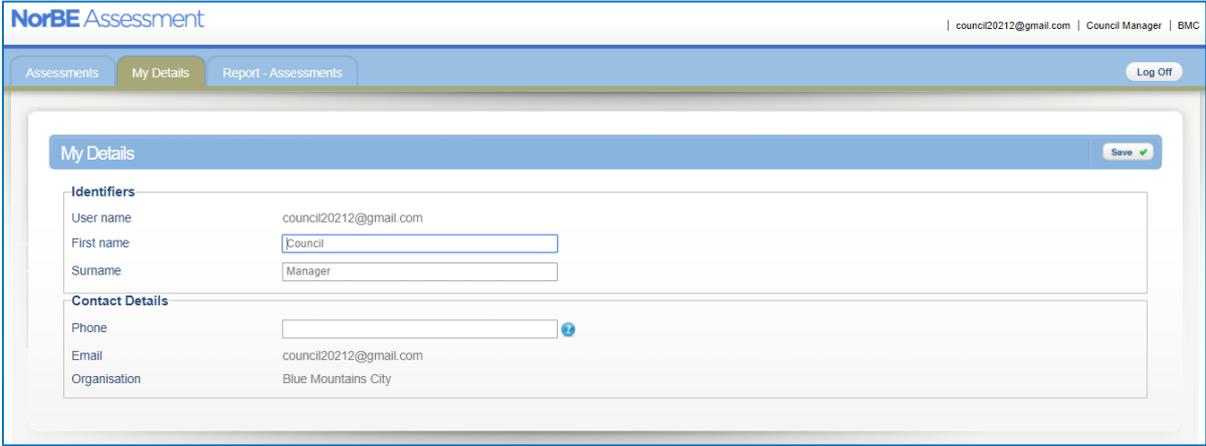
Withdrawn(8)

Filter by: Search assessment

Select	DA Number	Withdrawn Date	Created By Person	Created By Organisation	Water Quality Impact	Dev class	Withdraw reason	Cond. in consent
<input type="radio"/>	XI19/2020	12/06/2020 4:58 PM	gbennett@bmcc.nsw.gov.au	BMC	N	B	Satisfied	
<input type="radio"/>	XI989/2020	12/05/2020 4:43 PM	gbennett@bmcc.nsw.gov.au	BMC	Y	C	Satisfied	✓
<input type="radio"/>	XI519/2018	12/07/2018 3:38 PM	kmcrae@bmcc.nsw.gov.au	BMC	Y	G	Not required	
<input type="radio"/>	XI1044/2016	22/06/2017 10:59 AM	mtempest@bmcc.nsw.gov.au	BMC			TBA	
<input type="radio"/>	XI1244/2016	04/04/2017 9:25 AM	gbennett@bmcc.nsw.gov.au	BMC	Y	C	Satisfied	✓

4.6. MY DETAILS

To edit your personal details click on the **My Details** tab. Click on the **Save** button to save any changes you make. Note: you can't change your Username, Email or Organisation.



NorBE Assessment | council20212@gmail.com | Council Manager | BMC

Assessments My Details Report - Assessments Log Off

My Details Save ✓

Identifiers

User name council20212@gmail.com

First name Council

Surname Manager

Contact Details

Phone

Email council20212@gmail.com

Organisation Blue Mountains City

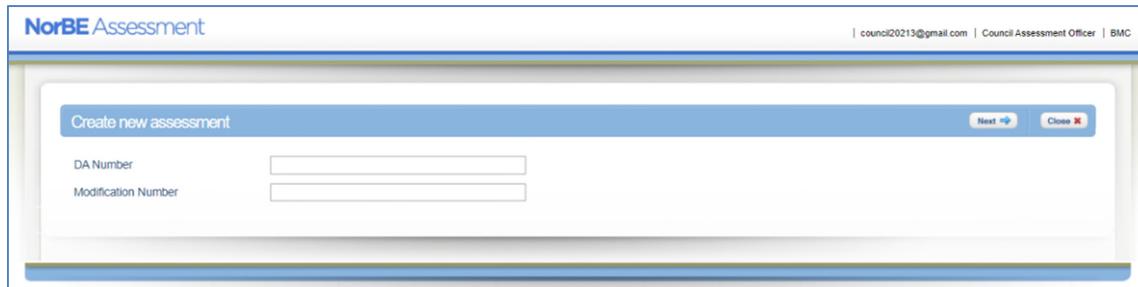
4.7. REPORTS

To generate a report click on the **Report – Assessments** tab. Further information regarding creating assessment reports is included in Section 13.

5. CREATING A NEW ASSESSMENT

5.1. GENERAL

To create a new assessment click **New** from the **Assessments** screen (**In Progress** screen).



The screenshot shows a web interface for creating a new assessment. At the top, there is a blue banner with the text 'Create new assessment' and two buttons: 'Next' and 'Close'. Below the banner, there are two input fields: 'DA Number' and 'Modification Number'. The interface is part of the 'NorBE Assessment' system, as indicated by the logo in the top left corner.

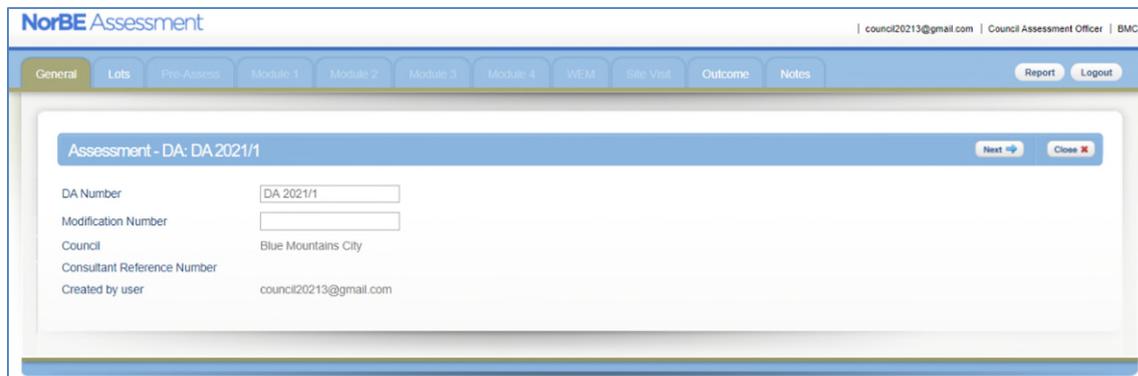
You will need to enter a **DA number** (maximum 40 characters, no restriction on type of character) and **Modification number** if relevant, and then click **Next** to move to the **General** screen. The **DA number** will then appear as the screen title in the blue banner.

Click **Next** to save the assessment to the **In Progress** list of DAs, and to move to the **Lots** screen.

To return to the **Assessments** screen, click **Close**. The new assessment with the DA number will appear here.

5.2. LOTS

Enter the Lot, Section and DP information and click **Add Lot**. If there is no Section number then leave this field blank. If a Lot is described by a letter (e.g. Lot A) rather than a number, be sure to enter it in its correct (upper) case.



The screenshot shows a web interface for an assessment. At the top, there is a blue banner with the text 'Assessment - DA: DA 2021/1' and two buttons: 'Next' and 'Close'. Below the banner, there are several input fields: 'DA Number' (filled with 'DA 2021/1'), 'Modification Number', 'Council' (filled with 'Blue Mountains City'), 'Consultant Reference Number', and 'Created by user' (filled with 'council20213@gmail.com'). The interface is part of the 'NorBE Assessment' system, as indicated by the logo in the top left corner. A navigation bar at the top shows tabs for 'General', 'Lots', 'Pre-Assess', 'Module 1', 'Module 2', 'Module 3', 'Module 4', 'WEL', 'Site Visit', 'Outcome', and 'Notes'. There are also 'Report' and 'Logout' buttons.

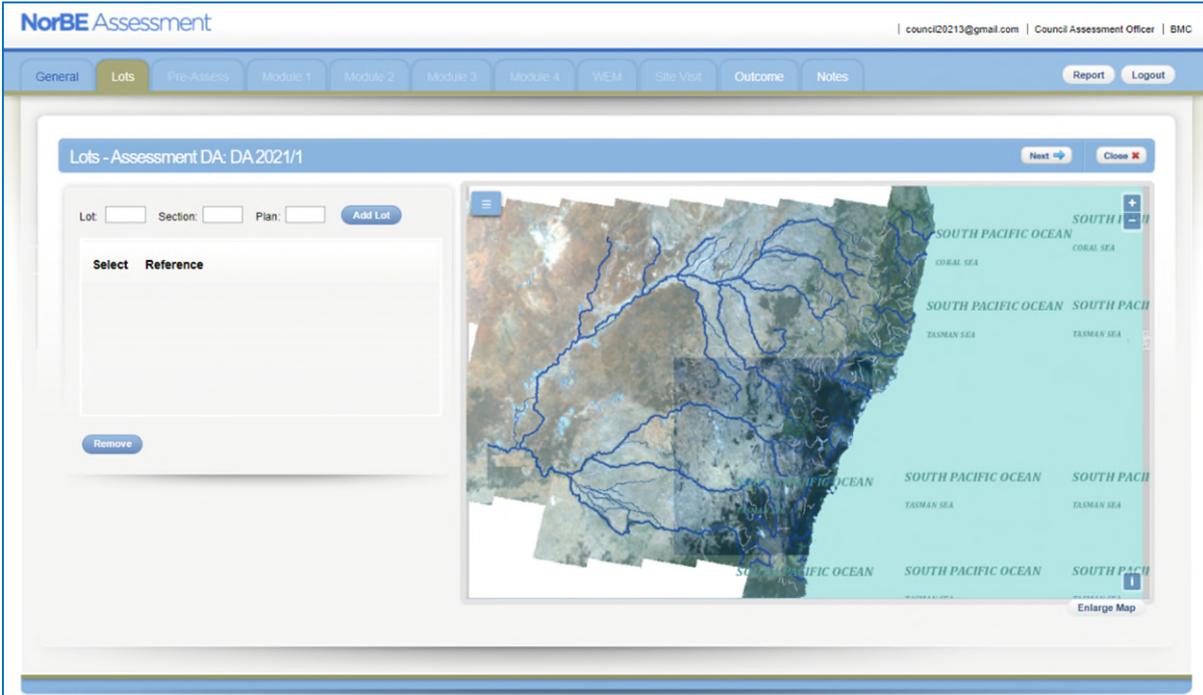
This information then appears in the Reference list.

If more than one lot is involved in the DA you can enter the Lot, Section and DP information for each lot, clicking on the **Add Lot** button each time until the list is complete.

To remove a lot from the list click the radio button next to the lot you want to remove and click the **Remove** button.

If you are dealing with a Strata Plan then only put in the Plan number.

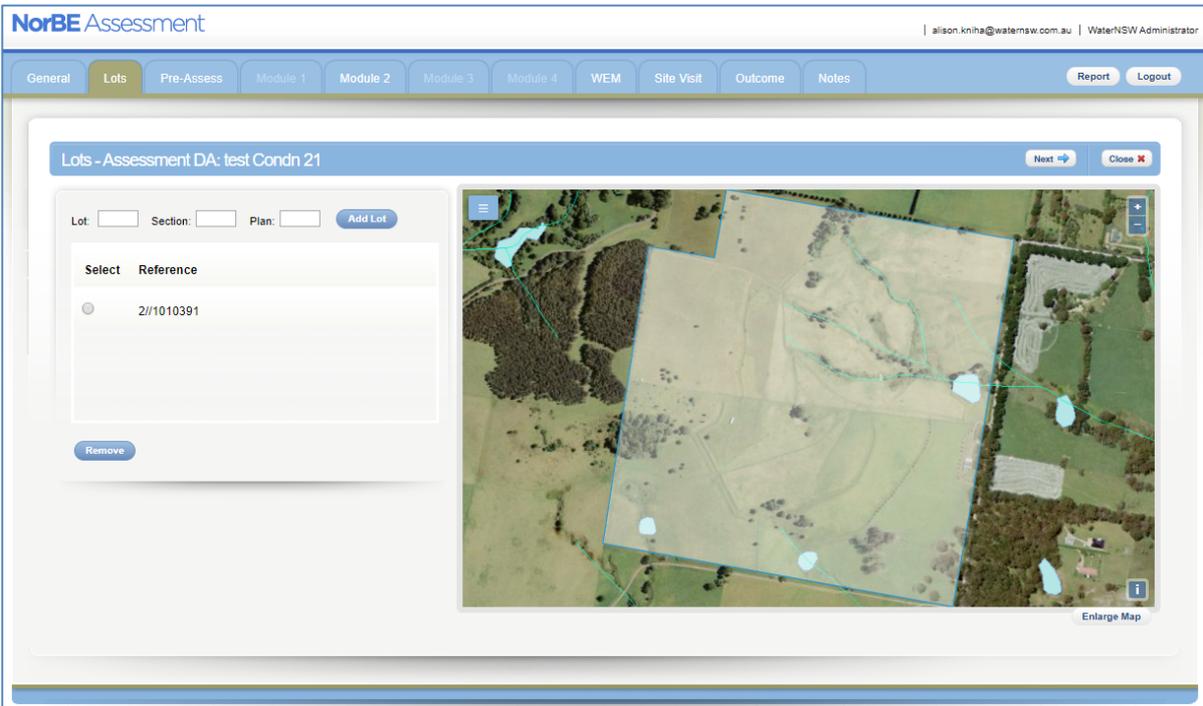
When all relevant lots are added click **Next** to be taken to the **Pre-Assessment** tab (see Section 5.4 below).



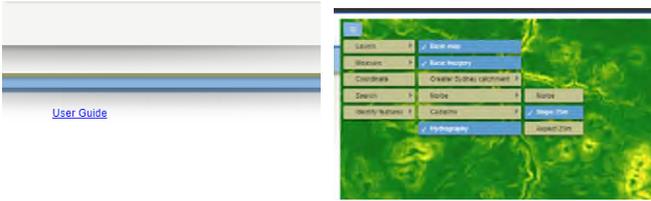
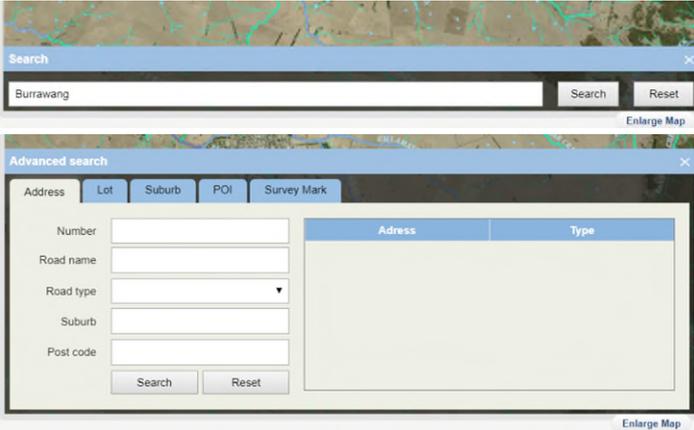
5.3. MAPPING VIEWER

The mapping viewer on the right of the screen will automatically zoom in to the lot in question with a blue border showing every lot added.

Click **Enlarge Map** to enlarge the map to fill the whole screen. Use the 'Esc' button on your keyboards or click on the **Close** button to return to the previous screen.



There are a number of features available in this mapping viewer:

<p>Layers (Base map, imagery, outline of the catchment, NorBE (slope and aspect), cadastre and hydrography):</p> 	<p>Measure (area and distance):</p> 
<p>Search for location or address / Lot and DP:</p> 	<p>Identify the coordinates on a lot:</p> 
<p>Search for location or address / Lot and DP (continued):</p> 	<p>Identify features by point or including them in a rectangle or polygon:</p> 

5.4. PRE-ASSESSMENT CHECKLIST

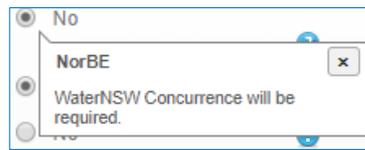
The Pre-Assessment checklist is the beginning of the NorBE assessment decision making process. All Pre-Assessment questions *must* be answered for every NorBE assessment. Entering all the relevant information into the Pre-Assessment checklist will help determine:

- if you need to continue to use the NorBE Tool for a Module 1 (sewered) or Module 2 (unsewered) assessment
- whether information may be missing from the application
- whether the application must be referred to WaterNSW for concurrence.

To complete the **Pre-Assessment** checklist complete the following steps:

- Answer Yes or No to each question. If you are unsure hover over the  icon for further information.

- Use the dialog boxes such as the one below to help complete the Pre-Assessment checklist:



- Include any additional information in the free text **Description** box (optional).
- Click **Next** to save your assessment and to automatically continue to the relevant Module screen (for Module 1 and Module 2 assessments) or the **Outcome** screen (in the case where an assessment is not required, where WaterNSW concurrence is required or NorBE is satisfied).
- Or click **Next** and then **Close** to save and exit the assessment.

The following are the main considerations for the Pre-Assessment checklist:

- Is the development located within the Sydney drinking water (declared) catchment? If so a NorBE assessment is always required.
- Will there be a *potential* identifiable water quality impact (for both construction *and* operation)? If not, then NorBE will always be satisfied and you will be taken to the **Outcome** screen when you click **Next**.¹
- Choose the appropriate **Development class** from the drop-down box. This will determine whether the development is to be assessed under Module 1, Module 2, or be referred to WaterNSW for concurrence. For further information on development classes and Modules in the NorBE Tool, refer to the 'NorBE Assessment Guideline 2026' on WaterNSW's website. A more detailed description of the development types and which modules they correspond to is provided in Appendix 2 of this User Guide.
- The Pre-Assessment cannot continue if all the documentation is not complete. It is essential that all documentation is available to be reviewed.

¹ For minor alterations and additions to existing dwellings in unsewered areas (Module 2), where the proposed works do not alter the wastewater load or existing on-site wastewater management system, click the 'No' radio button for 'water quality impact' to ensure a wastewater effluent model is not required. A Specific note (see Section 8) is to be made for the assessment outlining the risk and management of other potential water quality impacts e.g. stormwater.

- It is also important that the documentation provided with the DA is consistent with WaterNSW’s requirements for water cycle management studies (WCMS). A link to the document detailing the requirements is available on the **Pre-Assessment** screen.

5.5. MODULE 1 ASSESSMENT

After completing the Pre-Assessment checklist, the NorBE Tool will automatically take you to the **Module 1** screen for development classes in that module. As a general rule, Module 1 developments are alterations and additions, urban dwellings or small urban subdivisions (less than four lots) that are sewered.

To complete a **Module 1** assessment, work through the following steps:

- Enter a value greater than 0 for the **Construction area** and **Impervious area** (both in square metres and as a whole number). The size of the area will help determine whether WaterNSW concurrence is required or which erosion and sediment control conditions will be placed on the development.
- Click the radio button to select whether:
 - adequate stormwater treatment devices have been proposed to be included as part of the development
 - the development site slope is lesser or greater than 20%
 - it’s within 1% of AEP flood level or flood prone land, and
 - there are any other site constraints.
- If appropriate management measures have been proposed to address any other site constraints, **tick** the box (otherwise NorBE will not be satisfied).

The screenshot displays the NorBE Assessment tool interface. At the top, the header includes the logo 'NorBE Assessment', the user email 'council20213@gmail.com', the role 'Council Assessment Officer', and the BMC logo. Below the header is a navigation menu with tabs for 'General', 'Lots', 'Pre-Assess', 'Module 1' (selected), 'Module 2', 'Module 3', 'Module 4', 'WEM', 'Site Visit', 'Outcome', and 'Notes'. On the right side of the menu are 'Report' and 'Logout' buttons. The main content area is titled 'Module 1 - Assessment DA: Test 5 Feb Assessment Officer Other Mods' and includes a 'Next' button and a 'Close' button. The form is divided into two main sections: 'Development risks' and 'Area to be disturbed'. The 'Development risks' section contains input fields for 'Construction area (m²)' and 'Impervious area (m²)', both set to '150', and a radio button question: 'Are there adequate stormwater treatment devices proposed in the development?' with 'Yes' selected. The 'Area to be disturbed' section contains three radio button questions: 'Development site slope >20%', 'Development site within 1% AEP flood level or flood prone land?', and 'Other Site Constraints?'. The first two have 'No' selected, and the third has 'Yes' selected. Below these is a checkbox question: '(if yes) Have appropriate management measures been proposed?'. A small 'NorBE' notification box is overlaid on the map, stating: 'NorBE is not satisfied and the application must be revised to address this matter'. The map shows an aerial view of a rural area with a large rectangular site boundary highlighted in blue. An 'Enlarge Map' button is located at the bottom right of the map area.

- Click **Next** to be taken to the **Outcome** tab once you’ve answered all Module 1 questions (see Section 9 for further detail on the NorBE **Outcome** tab).
- Click the **Report** button to download an assessment report in PDF format in a separate window, which will provide all details entered for the assessment. This can be downloaded at any stage during the assessment. You can either save this electronically or print a hard copy (see Section 13 for more details).

The following are the main considerations when completing a Module 1 assessment:

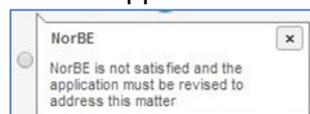
- A value of greater than zero must be entered for the impervious and construction areas otherwise an error message will be displayed. WaterNSW concurrence will be required if the impervious or construction areas are 2,500 m² or greater.
- If the proposed Impervious area is greater than 250 m², supplementary questions will appear regarding 'SQIDs' – Stormwater Quality Improvement Devices. If the answer to any of these questions is 'No', further secondary questions will appear (see figure right).
- If adequate stormwater treatment devices / SQIDs are not proposed, then NorBE will not be satisfied and the development will have to be revised.
- WaterNSW strongly discourages development on sites with slopes greater than 20% and a condition will automatically be set for developments that have slopes greater than 20%.
- If there are other site constraints, NorBE will not be satisfied unless appropriate management measures have been proposed.
- Use site plans and aerial photography and confirm information in the DA through a site inspection (see Section 7).

5.6. MODULE 2 ASSESSMENT

After completing the Pre-Assessment checklist, the NorBE Tool will automatically take you to the **Module 2** screen for development classes in that module. As a rule Module 2 developments are alterations and additions, rural dwellings and small rural subdivisions (less than 4 lots) that are unsewered.

To complete a **Module 2** assessment, complete the following steps:

- Choose the **Development site slope** from the drop-down list.
- Enter a value greater than 0 for the **Construction area** and **Impervious area** (in square metres and as a whole number). The size of the area will determine whether WaterNSW concurrence is required or what condition will be placed on the development. As for **Module 1** above, supplementary questions regarding SQIDs will appear for Impervious Areas greater than 250 m².
- Choose a radio button option (Yes or No or N/A) to each question.
- Ensure that you address any issues if the following dialog box appears, this usually occurs when secondary questions appear where a site issue has been identified.



- Once you've answered all Module 2 questions click **Next**. This will usually take you to the wastewater effluent model (**WEM**) tab (see Section 6 for further detail on the WEM); otherwise the Tool will take you directly to the **Outcome** tab (see Section 9 for further detail on the **Outcome** tab).

- Click the **Report** button to download an assessment report in PDF format in a separate window, which will provide all details entered for the assessment. This can be downloaded at any stage during the assessment. You can either save this electronically or print a hard copy (see Section 13 for more detail).

The following are the main considerations when completing a Module 2 assessment:

- WaterNSW strongly discourages development on sites with slopes greater than 20% and a condition will automatically be set for developments that have slopes greater than 20%.
- WaterNSW concurrence will be required if the construction area is greater than 2,500 m².
- An assessment can be completed for proposals that involve *only* a swimming pool (i.e. no on-site wastewater disposal). An 'N/A' radio button appears if both the 'Swimming pool?' and '(if yes) Only a swimming pool proposed?' questions are answered positively (see figure right).
- The wastewater system must be the same in both the DA and the accompanying wastewater management report.
- The NorBE Tool has been designed to assess standard treatment and disposal systems. If the technology proposed is emerging or new, you will have to refer the assessment to WaterNSW.

- WaterNSW does not support pump-out systems unless it is proposed in an area that is likely to be sewered in the near future. In the event that there is no other viable on-site wastewater system and/or council DCP allows for pump-outs contact WaterNSW for advice.
- If there are other site constraints NorBE will not be satisfied unless appropriate management measures have been proposed. Use site plans and aerial photography and confirm information in the DA through a site inspection (see Section 7).

6. WASTEWATER EFFLUENT MODEL (WEM)

One of the key features of the NorBE Tool is the wastewater effluent model (WEM).

The WEM models the predicted extent of an effluent plume from an on-site effluent disposal system and allows a visual interpretation and assessment of the potential impact of a development on water quality. Specifically, the WEM models the direction and distance that three contaminants (faecal coliforms, nitrogen, and phosphorus) will travel within the soil sub-surface beyond the edge of the effluent management area (EMA) to the point where contaminant concentrations reach a pre-determined threshold level. The resulting output is plume with three colours displayed visually on the map.

The model is run over a 25-year period at 2.5 metre increments over a maximum distance of 250 metres. In addition, the model is a 'stochastic' model, which means that it is not run just once, but 100 times to enable the model outcomes to be reviewed in terms of confidence limits rather than absolute values. The outcome values (i.e. the plume distances you see visually displayed on the map) represent the 95th percentile.

The WEM also contains a front-end design component that ensures that effluent disposal areas meet the minimum area requirements of AS/NZS1547:2012.

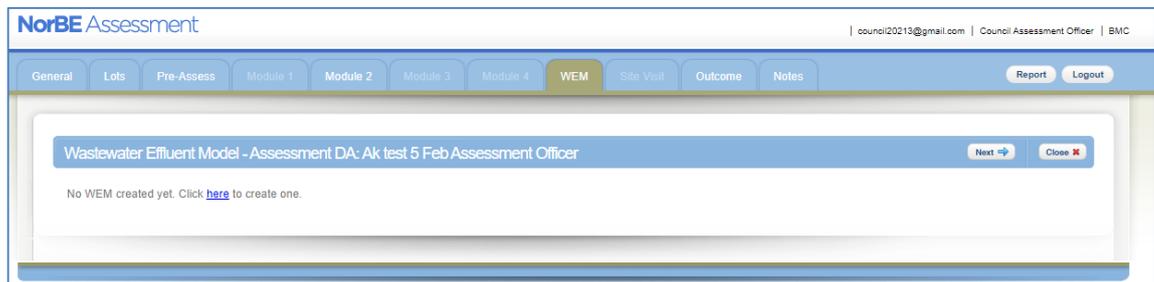
Site conditions and constraints will affect which on-site wastewater system and effluent disposal system will be appropriate. See tables in **Section 6.7** that outline the site limitations associated with on-site wastewater and effluent disposal systems to help you determine whether a system is appropriate for the specific site conditions. If an inappropriate system is selected for the site conditions, the Tool will notify the user of this and they cannot proceed with running a model. Discussions will need to take place with the consultant/proponent to consider a more suitable system or location. These tables should be referred to when considering the proposed development and when undertaking a site inspection to confirm site conditions and constraints.

6.1. CREATING A NEW WEM PLUME MODEL

You will be required to create a WEM for most Module 2 assessments and the Tool will automatically take you to the **WEM** tab when this step is required. Also note that Consultants will also be required to create WEMs for Module 4 assessments (larger unsewered subdivisions).

To create a new WEM plume model when in the **WEM** tab:

- Click on [here](#) to create a new model.



- Enter a Model name or number in the free-text box.
- Choose the lot where the EMA will be placed from the drop-down box (if there is more than one lot in the DA).
- Click on the **Next** button.

NorBE Assessment | council20213@gmail.com | Council Assessment Officer | BMC

Create new plume model
Next →
Close ✕

Model name

Nominated lot

Also note that for rural subdivisions, more than one WEM will need to be created to ensure that on-site wastewater disposal can meet NorBE within each of the proposed lots, and to identify where a restriction to the title may be required for on-site treatment and/or disposal system type or location of the system.

You will then be required to enter data into four screens that appear as ‘tabs’ across the top of the screen.

6.2. GENERAL

The first screen is the **General** tab, which is the default screen for the model. This displays the **Model name**, any **Model description** you enter, the **Date saved** and the chosen lot over an aerial photo. It also allows you to locate the EMA. The process for locating the EMA is explained on the screen.

NorBE Assessment | alison.kniha@watnsw.com.au | WaterNSW Administrator

General
Soil
Risk
Effluent
WEM Outcome
Report
Logout

Model: 2
Next →
Close ✕

General

Model name

Model description

Centre of downstream long edge of EMA

Latitude 9550551.61718784

Longitude 4329420.472991012

Slope 0.068427 m/m

Site possibly suitable for an EMA

EMA distance to

Drainage depression

Watercourses and Water supply reservoirs

Licensed drinking water bores

Date saved 16 Feb 2021 06:02

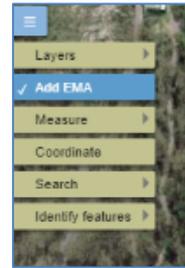
Once you have answered the questions about the distance of the EMA from drainage depressions, watercourses and drinking water bores, click NEXT to continue.

If you wish to relocate your EMA, click on the EMA button so that it is highlighted yellow and click on the lot where the new location of the EMA will be. This will over-ride all existing data entered in the WEM for the previous EMA location.



Enlarge Map

- To choose a site on the lot to place the EMA, click on the layers menu on the top left corner of the map, and select **Add EMA** (the layer box will turn blue and contain a tick to indicate it has been chosen), then click on the map in the proposed EMA location. Note: The location of the marker will represent the midpoint of the downslope edge of the EMA (i.e. the middle of the lowest boundary of the EMA).
- Once the EMA is located, GIS information for this specific location is called up and the **General** screen will expand to display this information, including slope, latitude and longitude from the GIS.



NOTE: If a slope value of greater than 20% is displayed, this will not be suitable for an EMA. While you can continue with the assessment in such instances, you will not be able to run the model unless you confirm, based on the site inspection, that the slope is in fact suitable for the chosen system (this will be located on the **WEM Outcome** Tab).

The Tool then requires you to choose the distance of the EMA to any drainage depressions, watercourses and groundwater bores from the drop down boxes – use the distance measuring Tool in the Toolbar if you are unsure. The distance represents the overland flow path.

NOTE: If you select an 'EMA distance to' range below the minimum threshold for that feature, then the NorBE Tool WEM Outcome will be 'Not Satisfied' and you cannot run the WEM, and the NorBE Outcome will also be 'Not Satisfied' for this model if nominated as the final model considered in the assessment.

6.3. SOIL

Once you have located the EMA and completed the **General** screen, click the **Next** button and the NorBE Tool will take you to the **Soil** screen (the next 'tab' along). The **Soil** screen displays the characteristics of the soil at your chosen EMA location, derived from GIS values based on the soil facets layer developed by the former SCA and DLWC.

You can either use these values or override them if site specific information is available in the consultant's report – tick the **Override** box and type in the value in the corresponding text box. If you do choose to override the GIS value, you will need to either choose a value from the drop-down box for soil texture and structure or you can enter a new value in the relevant box for the other characteristics.

	GIS	Override	Units
Soil texture	Light clays	<input type="checkbox"/> Gravels and sands	
Soil structure	Moderate	<input type="checkbox"/> Structureless	
Soil depth (to impermeable layer)	0.75	<input type="checkbox"/>	m
Bulk density	1.6599	<input type="checkbox"/>	g/cm ³
Saturated hydraulic conductivity (Ksat)	0.4	<input type="checkbox"/>	m/day
Phosphorus sorption	381	<input type="checkbox"/>	mg/kg

NOTE: If you do change the **Soil texture** and **Soil Structure**, default values (that are indicative of a typical soil of this type) will automatically populate **Bulk Density**, **Saturated hydraulic conductivity** (Ksat) and **Phosphorus sorption** (P_{sorp}). You can further override these values if you have site specific values for these by simply typing in new values in the text box. Table 6.3.1 provides these default values for each soil type and texture. Soil depth will not automatically be over-ridden.

Table 6.3.1– Typical values for soils

Soil Category	Texture	Structure	Typical K _{sat} (m/day)	Typical Psorp* (mg/kg)	Bulk Density g/cm ³
1	Gravels and sands	Structureless	4.0	50	1.8
2a	Sandy loams	Weak	3.0	100	1.8
2b	Sandy loams	Massive	2.0	100	1.8
3a	Loams	High / moderate	1.5	200	1.5
3b	Loams	Weak / massive	1	200	1.5
4a	Clay loams	High / moderate	0.75	400	1.5
4b	Clay loams	Weak	0.4	400	1.5
4c	Clay loams	Massive	0.1	400	1.5
5a	Light clays	Strong	0.3	500	1.3
5b	Light clays	Moderate	0.1	500	1.3
5c	Light clays	Weak / massive	0.06	500	1.3
6a	Med-heavy clays	Strong	0.08	600	1.3
6b	Med-heavy clays	Moderate	0.06	600	1.3
6c	Med-heavy clays	Weak / massive	0.06	600	1.3

* If soil parent material is basalt then increase Psorp by 100 mg/kg

- WaterNSW prefers that the site-specific soil values in the consultant’s wastewater report are used, and that these are confirmed during the site inspection.
- There are some small areas in the catchment where the soils data is not available. In this case, the GIS value will be ‘Not Provided’ and the **Override** box will automatically be checked. You will be required to enter site specific information otherwise the WEM will fail and you will be asked to re-run the model after providing the information.

- Where **Soil depth** is less than 0.25 m, this is considered not suitable for most effluent disposal systems, with the exception of mound systems. Therefore, it is important to closely examine soil values, in particular soil depth, to ensure this is adequate for the proposed system, and that this is confirmed during the site inspection where possible.

6.4. RISK

Once you have completed the **Soil** screen, click on the **Next** button. The NorBE Tool will take you to the **Risk** screen (the next ‘tab’ along) where you will be required to enter further information from a number of drop-down lists. This information relates to **Flood potential of disposal systems**, **Landform score**, **Run-on and up-slope seepage** and **Rock outcropping**, and in combination with other factors, including soils properties and distance to watercourses, may cause the on-site wastewater system to operate in a failure mode. The NorBE application will determine whether there is a low, moderate, or high risk of failure, and this will potentially affect the size and potentially direction of the effluent plume will be affected. The result of this failure mode risk assessment is displayed on the **WEM Outcome** screen.

6.5. EFFLUENT

Once you have completed the **Risk** screen, click on the **Next** button. The NorBE Tool will take you to the **Effluent** screen (the next 'tab' along).

On the **Effluent** screen, you need to enter information about:

- the development, including **Number of bedrooms** and **Water supply type** to calculate the design wastewater load. **NOTE:** while you will be asked to enter the proposed wastewater load, it is the calculated design wastewater load that will be used for modelling purposes, although both volumes will appear on the WEM report.
- the **Treatment system** (choose from a drop-down box)
- whether the system will be used continuously (defaulted to 'Yes')

- the **Effluent disposal system** (choose from a drop-down box that automatically corresponds to the treatment system selected) proposed size of the EMA and proposed number of trenches (where relevant)
- the EMA site **Vegetation for nutrient uptake**
- other site information such as whether the site is subject to severe frosts (defaulted to 'No').

NOTE: Lot size will be automatically displayed from the GIS, however if this comes up as zero or blank, you should manually enter the lot size – use 'Measure Area' from the layers list to measure the lot size.

It is important to note that the WEM will not run when the proposed EMA:

- is less than the minimum required EMA consistent with AS/NZS 1547:2012
- exceeds the practicable maximum EMA size (see Table 6.5.1 below)
- a trench length exceeds the maximum allowable length of 20 metres.

Refer to Appendix 3 for further detail on sizing the EMA for irrigation and other systems.

Table 6.5.1 – Maximum Allowable EMA Sizes

Disposal System Type	Maximum Allowable EMA Area (m ²)
Absorption trench	150
Absorption bed	200
ETA bed	250
Sand mound	250
Amended soil mound	250
Surface irrigation	1,500
Sub-surface irrigation	1,500

The NorBE Tool will generate a message notifying the user when the above situations occur and the user will be required to change the proposed area or system type otherwise the WEM will not be allowed to run. This check is done immediately for the trench length, and for the minimum and maximum EMA requirements (upon clicking the **Next** button).

Once you have completed this screen, click on the **Next** button. The NorBE Tool will take you to the final **WEM Outcome** screen.

6.6. WEM OUTCOME

The **WEM Outcome** screen will display the EMA as proposed and will request the user to **Run** the model. **Note:** for irrigation disposal when the evaporation rate is greater than the rainfall, the EMA will include a 'hatched' area that represents the actual area that will need to be irrigated (the hydraulic area) plus an additional nutrient uptake area, as shown in the figure below. The screen will also display the size of the area that actually requires irrigation – in the figure below, the minimum size of the EMA is 554 m², however the Irrigation area is only 300 m². It is not necessary to irrigate an area greater than this, and in fact the system will not function properly if the irrigation hoses or pipes are spread over the larger area.

There will be some circumstances where the user cannot **Run** the model, including:

- the wastewater system is not compatible with various site constraints including soils, slope, lot size, rainfall, occurrence of severe frost, or intermittent use of the system and a WEM outcome of 'Not satisfied' is generated. **Note:** high rainfall restrictions are only relevant for surface irrigation
- where a slope is not compatible with the chosen system. The user can run a model if they confirm that the site slope is suitable based on a site inspection (a check box is provided in this case)
- where a disposal system requires more detailed design for the soil type. A message will be provided to remind the user of this requirement.

In the event that the model runs and a plume greater than 250 m is generated, a message will appear stating this fact, and the plume will be displayed to the 250 m maximum. It is likely that NorBE will not be satisfied.

When the WEM is **Run**, it will take approximately five minutes, depending on whether there are other WEMs that may be waiting to run. The **WEM Outcome** screen now displays the date and the time the model was submitted to be **Run**.

You will receive an email notification once the model is run, providing details of the NorBE and WEM assessment name and number and a link to the assessment. You can then view the WEM output (the plume). You will also receive an email if a model fails.

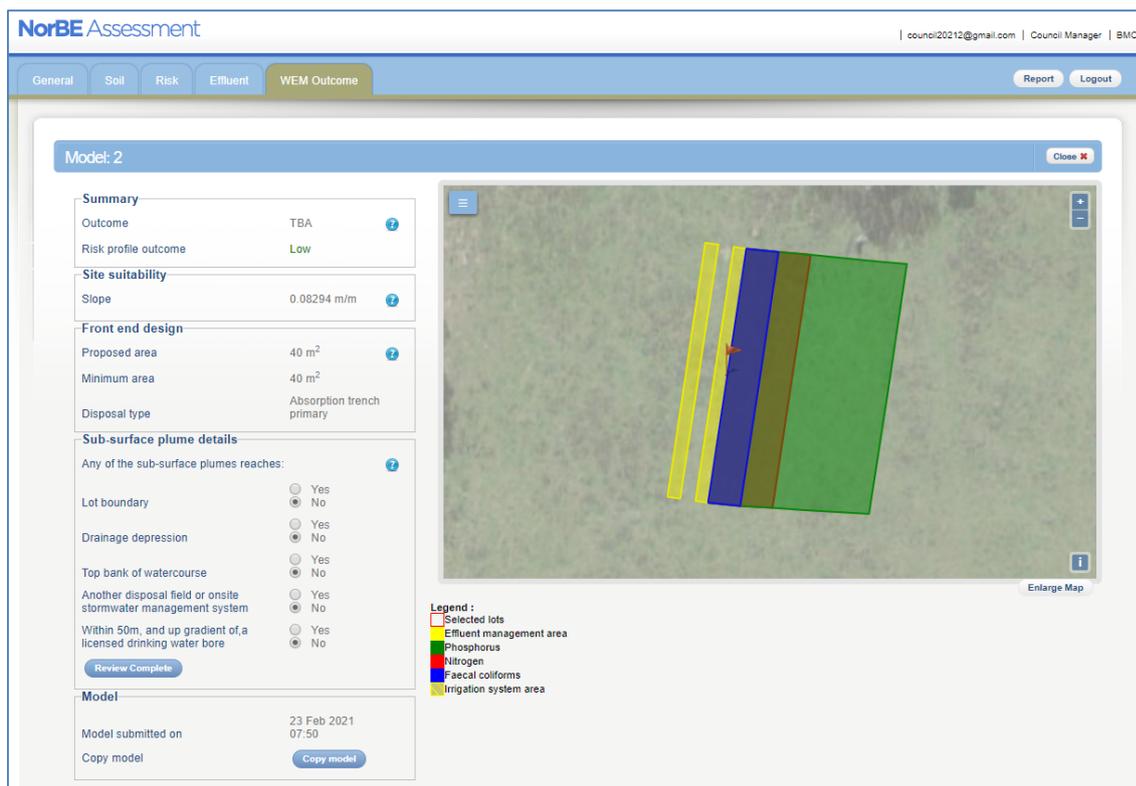
NOTE:

- While the model is running, the NorBE application can still be used to assess other DAs or to create and run new models.
- If you have not already closed the **WEM Outcome** screen prior to receiving the email notification, you will need to refresh your screen (press F5) to view the plume.
- If you do not have your email open and want to check whether the model has been completed, you can just refresh the screen or go to the **WEM** tab (a completed model will be indicated by a green tick).

Once the model has been run, you will then need to check whether the plume intersects a lot boundary or comes within relevant buffers to drainage depressions, watercourses, groundwater bores etc. A series of questions records this information, which will determine the WEM outcome and therefore whether NorBE is satisfied for wastewater or not. If the answer to *any* of the Review Questions is 'Yes', NorBE is **Not satisfied**.

You will need to click the **Review Complete** button after answering these questions, which will generate the final WEM Outcome and lock the WEM.

Before you review the WEM, make sure you have visited the site so you can confirm the location of watercourses, drainage depressions and bores.



The **WEM Outcome** screen will display the WEM outcome, risk profile, initial slope, proposed and minimum area of the EMA, disposal system type, and the date the model was submitted. The user can also make a copy of the model from this page.

The EMA is displayed in the **WEM Outcome** screen as the area outlined in yellow with the flag. This represents the actual size of the proposed EMA. If system is trenches, each individual trench will be displayed. The plume is then displayed from the downslope edge of the EMA. There are three plumes displayed (faecal coliforms, nitrogen and phosphorus),

which are translucent and overlaid on top of one another. The legend is located under the map.

If you click on the **Report** button, you will download a WEM assessment report, in PDF format in a separate window, which provides all details entered for the model.

6.7. ON-SITE WASTEWATER SYSTEM AND DISPOSAL SYSTEM SITE REQUIREMENTS

Consistent with the Standard AS/NZS 1547:2012, limitations are placed on the use of certain effluent disposal systems – see table 6.7.1 below.

Table 6.7.1 – General Limitations for Wastewater and Disposal Systems

System/Disposal Method	Limitations	Implications for design
Wastewater systems		
AWTS	<ul style="list-style-type: none"> Intermittent loads 	System not suitable
Effluent disposal system		
ETA	<ul style="list-style-type: none"> Slope > 20% Soil depth < 0.75 m 	System not suitable System not suitable
Sand Mound	<ul style="list-style-type: none"> Slope > 15% 	System not suitable
Amended Soil Mound	<ul style="list-style-type: none"> Slope > 7% 	System not suitable
Absorption trenches	<ul style="list-style-type: none"> Slope > 20% Soil depth < 0.75 m 	System not suitable System not suitable
Absorption beds	<ul style="list-style-type: none"> Slope > 20% Soil depth < 0.75 m 	System not suitable System not suitable
Surface Irrigation	<ul style="list-style-type: none"> Lot size < 2,000 m² Slope > 7% Annual Rainfall > 1200 mm Severe Frosts Soil depth < 0.25 m 	System not suitable System not suitable System not suitable System not suitable System not suitable
Sub-surface irrigation	<ul style="list-style-type: none"> Slope > 20% Soil depth < 0.25 m 	System not suitable System not suitable

Note: where system is not suitable, a message will appear in the WEM to indicate this and the assessment cannot continue. On such occasions, a suitable design will need to be negotiated with the consultant/proponent, otherwise councils will need to refuse consent on water quality grounds and a note will need to be added to the NorBE assessment to that affect.

Table 6.7.2 below also lists on-site wastewater disposal system limitations associated with soil type consistent with the AS1547:2012.

Table 6.7.2 – Soil Type Limitations for On-site Wastewater Disposal systems

Soil Texture	Soil Structure	Primary Effluent*1				Secondary Effluent*2				Amended Soil Mound	Sand Mound	Subsurface Irrigation	Surface Irrigation
		Trenches	Absorption Beds	ETA/ETS Beds	Subsurface Irrigation*3	Trenches	Absorption Beds	ETA/ETS Beds					
Gravels & Sands	Structureless	✓	✓	✗	✗	✓	✓	✗	✓	✓	✓	✓	✓
Sandy Loams	Weak	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓
Sandy Loams	Massive	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓
Loams	High/Moderate	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓
Loams	Weak/Massive	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓
Clay Loams	High/Moderate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Clay Loams	Weak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Clay Loams	Massive	✓	✓	✓	✓	✓	✓	✓	✓ plus SDR*4	✓ plus SDR*4	✓	✓	✓
Light Clays	Strong	✓	✓	✓	✓ plus SDR*4	✓	✓	✓	✓	✓	✓	✓	✓
Light Clays	Moderate	✓ plus SDR*4	✓ plus SDR*4	✗	✓ plus SDR*4	✓	✓	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓	✓
Light Clays	Weak/Massive	✓ plus SDR*4	✓ plus SDR*4	✗	✓ plus SDR*4	✓	✓	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓	✓
Med-heavy Clays	Strong	✗	✗	✗	✗	✗	✗	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓	✓
Med-heavy Clays	Moderate	✗	✗	✗	✗	✗	✗	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓	✓
Med-heavy Clays	Weak/Massive	✗	✗	✗	✗	✗	✗	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓ plus SDR*4	✓	✓

Notes

*1. Septic tank, Dry Composting Toilet, Wet Composting Toilet, Greywater Systems

*2. AWTs, Sand Filter

*3. For Wet Composting Systems ONLY. Disposal must be by Subsoil LPED Irrigation.

*4 SDR = Special design required. Special design criteria need to be applied, including soil modifications and soil permeability testing.

✓ Allowable system

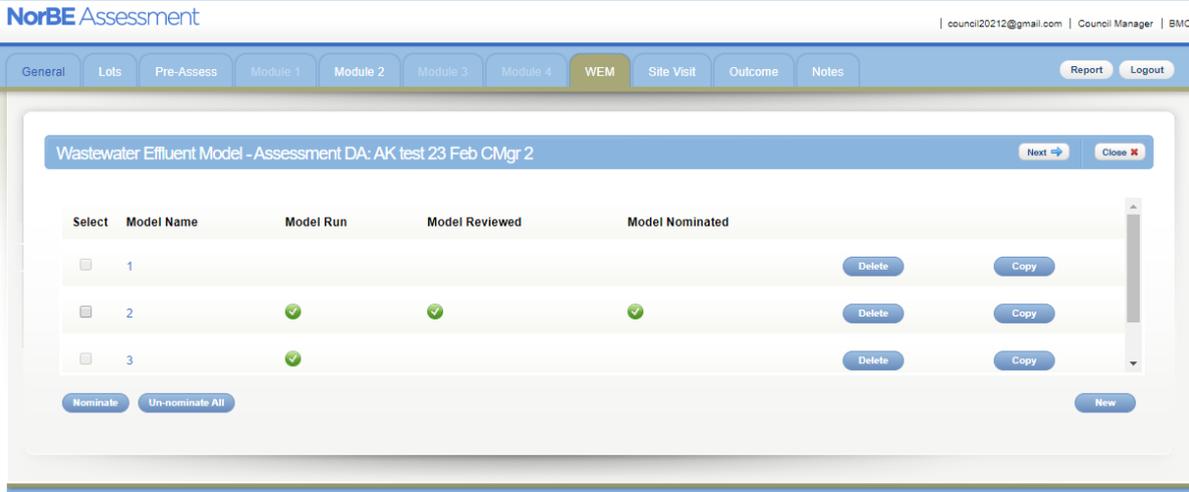
✗ System not preferred (not suitable / not possible) and therefore cannot be modelled in the WEM

6.8. WEM TAB/NOMINATE A WEM

The final stage of the WEM process is to nominate the WEM(s) you are going to use for your final NorBE outcome. The WEM tab lists all models that have been created and indicates where a model has been run, where a model has been reviewed and where a model has been nominated for the final assessment. On this page you can also copy or delete a model and create a new model.

- To nominate one or more models as final, select those models using the checkbox.
- Click the nominate button.

If you wish to un-nominate any model you must first un-nominate all models using the **Un-nominate All** button. You can then re-nominate the correct models for the assessment.



The screenshot shows the 'NorBE Assessment' interface with the 'WEM' tab selected. The page title is 'Wastewater Effluent Model - Assessment DA: AK test 23 Feb CMgr 2'. The interface includes a navigation bar with tabs for 'General', 'Lots', 'Pre-Assess', 'Module 1', 'Module 2', 'Module 3', 'Module 4', 'WEM', 'Site Visit', 'Outcome', and 'Notes'. There are also buttons for 'Report' and 'Logout'. The main content area displays a table with the following columns: 'Select', 'Model Name', 'Model Run', 'Model Reviewed', and 'Model Nominated'. The table contains three rows of data. Row 1 has a checkbox, '1', and empty cells for the other columns. Row 2 has a checkbox, '2', and green checkmarks in the 'Model Run', 'Model Reviewed', and 'Model Nominated' columns. Row 3 has a checkbox, '3', and a green checkmark in the 'Model Run' column. Below the table are buttons for 'Nominate', 'Un-nominate All', and 'New'. Each row in the table also has 'Delete' and 'Copy' buttons.

Select	Model Name	Model Run	Model Reviewed	Model Nominated
<input type="checkbox"/>	1			
<input type="checkbox"/>	2	✓	✓	✓
<input type="checkbox"/>	3	✓		

7. SITE VISIT

An essential component of the NorBE assessment is to undertake a site visit to confirm the accuracy of the desktop assessment and to identify any other site-specific information and constraints that may not have been evident in the application. *It is mandatory for councils to undertake a site visit for all Module 2 developments, and it is highly recommended for Module 1 developments.* Consultants will be required to undertake site visits for Module 3 and 4 developments as well.

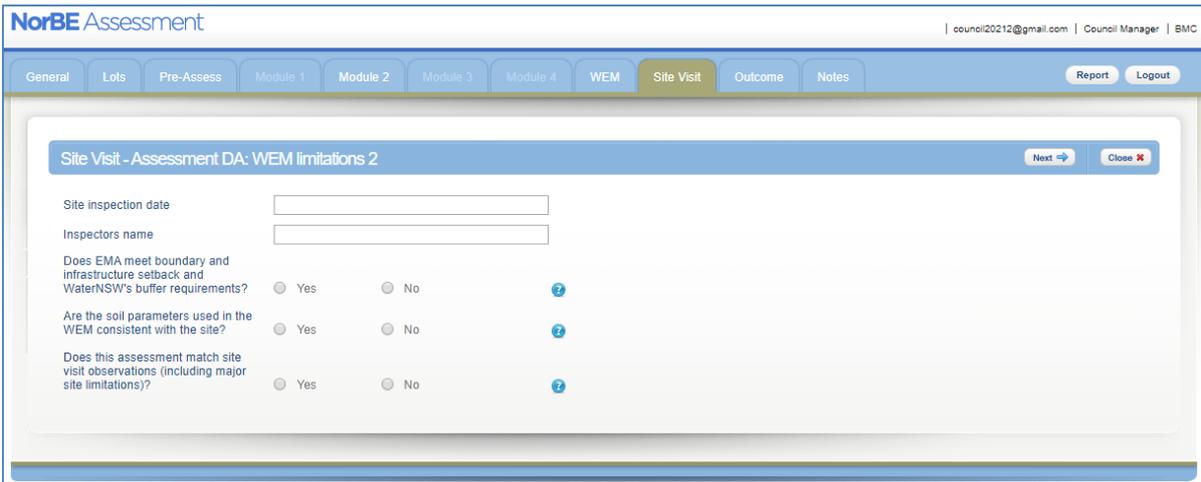
Prior to visiting the site, it is recommended that you print out a copy of the NorBE assessment report and, where relevant, a WEM report, which contains screen shot of the relevant WEM run. All relevant documentation for the DA, including plans and maps should also be taken on the site visit. The site visit will be required *before* completing the final **Review** of the model.

One of the last steps of the NorBE assessment will be completing the **Site Visit** tab by undertaking the following steps:

- Enter the relevant information, including date of the site visit and the inspector's name, both of which are compulsory.
- Confirm that the site visit matches the desk top assessment.

Also confirm whether:

- Lot boundary and infrastructure setback requirements are met.
- Soil in field /GIS is consistent with the wastewater report.



The screenshot displays the 'NorBE Assessment' software interface. At the top, there is a navigation bar with tabs for 'General', 'Lots', 'Pre-Assess', 'Module 1', 'Module 2', 'Module 3', 'Module 4', 'WEM', 'Site Visit' (which is highlighted), 'Outcome', and 'Notes'. On the right side of the navigation bar, there are buttons for 'Report' and 'Logout'. Below the navigation bar, the main content area is titled 'Site Visit - Assessment DA: WEM limitations 2'. It contains three text input fields: 'Site inspection date', 'Inspectors name', and 'WaterNSW's buffer requirements?'. Below these fields are three radio button options: 'Yes' and 'No' for each question. To the right of each 'No' option is a blue question mark icon. At the bottom right of the form area, there are 'Next' and 'Close' buttons.

NOTE: If any other aspect of the desktop assessment does not match the site visit observations, then those aspects will need to be re-visited in the NorBE assessment otherwise the NorBE outcome will be set at 'Not Satisfied'.

8. ADDING CONDITIONS AND NOTES

The NorBE Tool allows you to add in a **Master note** and **Specific notes** at any stage of the assessment until it has been submitted for Approval. This can be done by clicking on the **Notes** tab along the top right-hand side of the assessment screen.

- A **Master note** can be added by typing the note in the free text box and then clicking on the **Save** button.
- To **Edit** or **Delete** a master note, change or delete the text in the text box and click the **Save** button again.

Master notes can be viewed from the Assessments Screen by hovering over the speech bubble next to the assessment in the DA list.

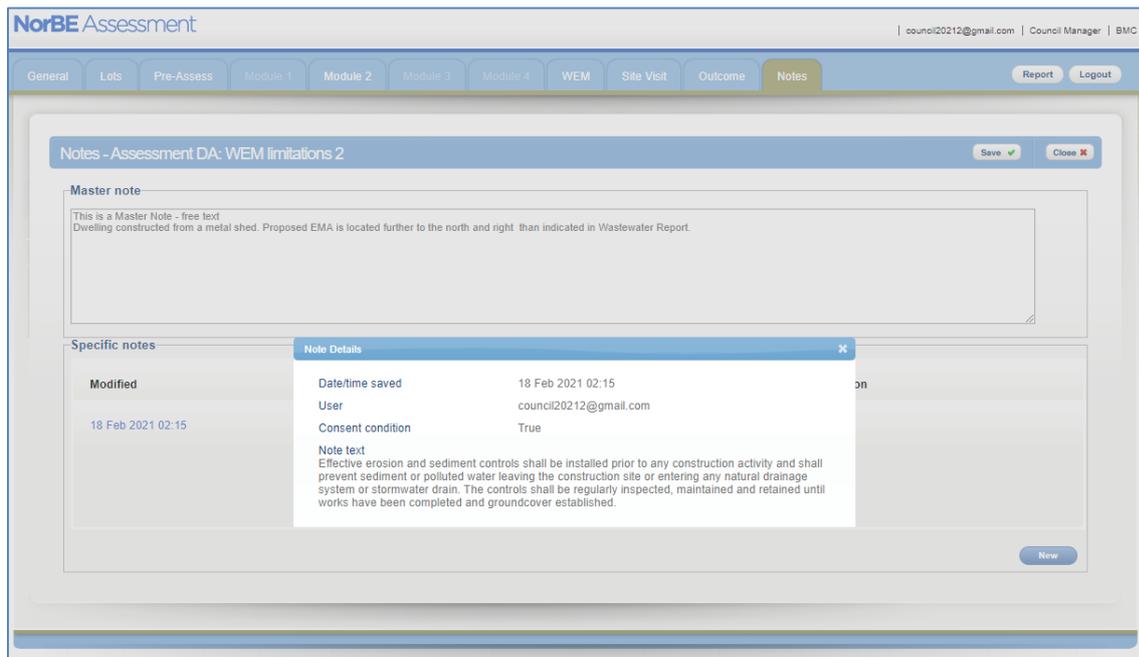
Select	DA number	Created date	Ass. Officer	Created By Person	Created By Organisation	Water Quality Impact	Dev class	NorBE Outcome	Master comment
<input type="radio"/>	WEM limitations 2	2021-02-18	council20212@gmail.com	council20212@gmail.com	BMC	Y	GS	TBA	Master Note Text This is a Master Note - free text Dwell ing constructed from a metal shed. Proposed EDA is located further to the north and right than indicated in Vast
<input type="radio"/>	WEM limitations	2021-02-18	council20212@gmail.com	council20212@gmail.com	BMC	Y	GS	TBA	
<input type="radio"/>	AK test 17 Feb 2	2021-02-17	council20211@gmail.com	council20211@gmail.com	BMC	Y	GS	TBA	
<input type="radio"/>	breq15	2021-02-17	council20212@gmail.com	council20212@gmail.com	BMC	Y	GS	TBA	
<input type="radio"/>	Lot removal test	2021-02-17	council20212@gmail.com	council20212@gmail.com	BMC			TBA	

- A **Specific note** can be added by clicking the **New** button at the bottom right of the page. Enter the note into the text box that appears and click **Save**.
- To **Edit** a specific note, click on the note to open up the text box, edit the text and click on the **Save** button again.

- To **Delete** a specific note, click on the note to open up the text box and then click the **Delete** button.

More than one **Specific note** can be added and will appear as a list in this section. It should be noted that **only** the user who created a note can edit or delete it.

The NorBE Tool also sets conditions automatically for matters not relating to on-site wastewater systems, depending on what information is entered into the assessment for the Module screens. These conditions are listed in the Specific notes section of the **Notes** screen with a green tick next to them. To view the text for a condition, click on the condition.



NOTE: Conditions are not automatically set within the WEM tabs due to the complex nature of the model. WaterNSW has conditions for each type of wastewater system and disposal field.

Both Notes and Conditions will be detailed in the NorBE Assessment Report (see Section 13).

9. NorBE OUTCOME

Once you have answered all relevant questions and completed a WEM and site visit (where appropriate) clicking the **Next** button will take you to the **Outcome** tab. The NorBE Tool will generate an outcome based on the information you entered during the assessment. The **Outcome** tab will appear slightly differently depending on your assigned role.

- If you are a Council Assessment Officer it will look like this:

NorBE Assessment | council20213@gmail.com | Council Assessment Officer | BMC

General Lots Pre-Assess Module 1 Module 2 Module 3 Module 4 WEM Site Visit **Outcome** Notes Report Logout

NorBE Outcome - Assessment DA: DA123 Close X

Assessment status	Council In Progress
System outcome	Satisfied
User outcome	Satisfied

Submit Withdraw

- If you are a Council Manager or Council Administrator it will look like this:

NorBE Assessment | council20212@gmail.com | Council Manager | BMC

General Lots Pre-Assess Module 1 Module 2 Module 3 Module 4 WEM Site Visit **Outcome** Notes Report Logout

NorBE Outcome - Assessment DA: Ak test 28 jan - Asst Officer Close X

Assessment status	Submitted
System outcome	Satisfied
User outcome	Satisfied

Approve Reassess Withdraw

A **System outcome** is automatically generated by the Tool and cannot be changed. When an assessment is in progress the **Assessment status** will be '**Council In Progress**' and the **System outcome** will be '**TBA**' (to be advised). An assessment that has been lodged by a consultant will have the Assessment status '**Consultant in Progress**'.

Other Assessment statuses will show as **Submitted**, **Approved**, **Determined** or **Withdrawn**, depending on where the DA is in the NorBE process. Other System outcomes will show as **Satisfied**, **Not satisfied** or **WaterNSW concurrence required**.

Provision is made in the Tool for a **User outcome** to be recorded. Where a **User outcome** is different to the **System outcome** a note must be entered to explain the discrepancy in the outcome (a text box will appear automatically). This is used in the event that the council user does not agree with the NorBE system outcome or there are issues not captured by the decision-making framework in the Tool (which is considered unlikely). The **User outcome** will override the **System outcome** in the event that they are different.

NorBE Outcome - Assessment DA: DA123

Close

Assessment status Council In Progress
System outcome Refused consent on water quality grounds (NorBE not satisfied)
User outcome Satisfied

Submit

Withdraw

Supply outcome mismatch reason

You must supply a reason why the user outcome does not match the system outcome

[Empty text input area]

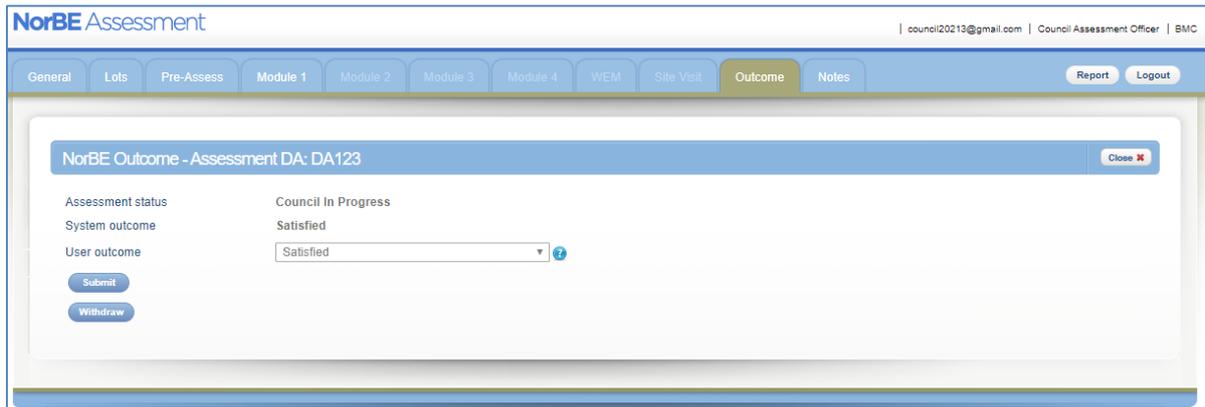
Submit



10. SUBMITTING AN ASSESSMENT

Council Assessment Officers who are unable to approve their own assessments must **Submit** their NorBE assessments for approval by a Council Manager or Council Administrator. This can be done once an assessment is finished, and a system outcome (other than TBA) has been generated.

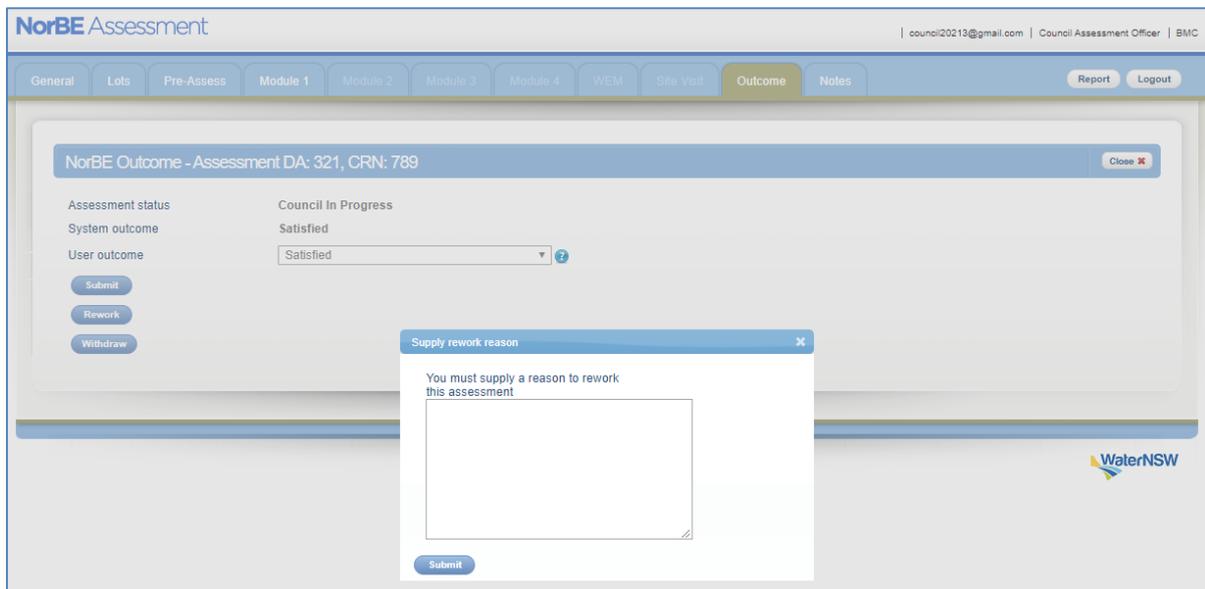
- To submit an assessment that is **In Progress**, click the **Submit** button (on the **Outcome** tab).
- To withdraw an assessment, click the **Withdraw** button (also on the **Outcome** tab).



The screenshot shows the 'NorBE Assessment' interface. At the top, there's a navigation bar with tabs: General, Lots, Pre-Assess, Module 1, Module 2, Module 3, Module 4, WEM, Site Visit, Outcome (selected), and Notes. On the right of the navigation bar are 'Report' and 'Logout' buttons. The main content area is titled 'NorBE Outcome - Assessment DA: DA123'. It displays the following information: Assessment status: Council In Progress; System outcome: Satisfied; User outcome: Satisfied (with a dropdown arrow and a help icon). Below this information are two buttons: 'Submit' and 'Withdraw'. A 'Close' button with an 'x' icon is in the top right corner of the content area.

Note: If your role is a Council Manager or Council Administrator, the Tool will automatically 'skip' this step so you don't have to **Submit** and assessment to yourself for approval.

To send a consultant's assessment that is **In Progress** back for reworking click the **Rework** button on the **Outcome** screen of the assessment. A note must be entered in the text box to explain why it has to be reworked.



The screenshot shows the 'NorBE Assessment' interface for Assessment DA: 321, CRN: 789. The navigation bar and main content area are similar to the previous screenshot. The 'User outcome' is 'Satisfied'. In addition to 'Submit' and 'Withdraw' buttons, there is a 'Rework' button. A modal dialog box titled 'Supply rework reason' is open in the foreground. The dialog contains the text: 'You must supply a reason to rework this assessment'. Below the text is a large empty text box for input, and a 'Submit' button is at the bottom of the dialog. The 'WaterNSW' logo is visible in the bottom right corner of the page.

Note: if you accidentally submit your assessment, you or your council manager can send your application back to you by hitting the **Reassess** button.

11. APPROVING AN ASSESSMENT

11.1. APPROVING COUNCIL ASSESSMENTS

Council Managers or Administrators can approve assessments for determination.

- If you are the *creator* of the assessment, your **Outcome** screen will display the **Approved** button, allowing you to 'skip' the **Submit** step of the assessment (Section 10 above).
- Assessments created by Council Assessment Officers will be **Submitted** to you to Approve, and you will find them in the **Approved** tab.

To approve an assessment that has been submitted open the Assessment to the **Outcome** screen and click the **Approve** button. To withdraw an assessment, click the **Withdraw** button.

The screenshot shows the 'NorBE Assessment' interface. The top navigation bar includes 'General', 'Lots', 'Pre-Assess', 'Module 1', 'Module 2', 'Module 3', 'Module 4', 'WEM', 'Site Visit', 'Outcome' (highlighted), and 'Notes'. On the right, there are 'Report' and 'Logout' buttons. The main content area is titled 'NorBE Outcome - Assessment DA: DA123' and contains a 'Close' button. Below the title, the assessment status is shown as 'Submitted', with 'System outcome' and 'User outcome' both 'Satisfied'. At the bottom, there are three buttons: 'Approve', 'Reassess', and 'Withdraw'.

To send the assessment back for reassessment, click the **Reassess** button. A note must be entered in the text box to explain why it requires reassessment.

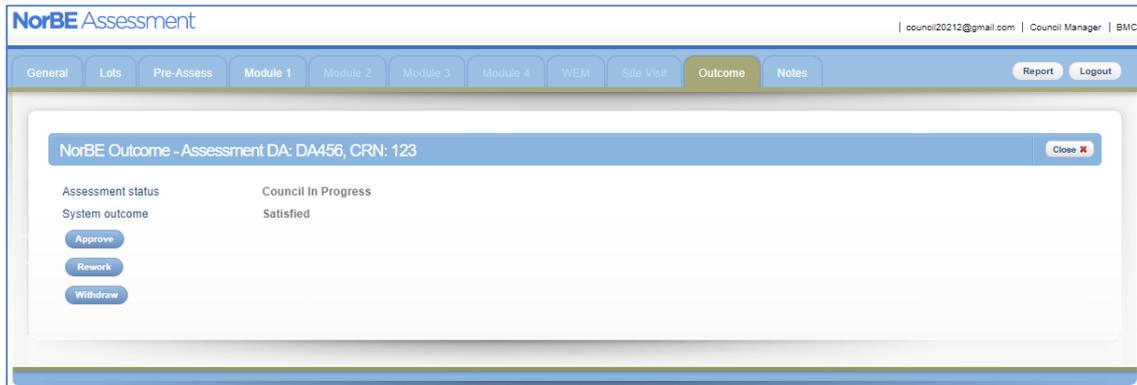
The dialog box is titled 'Supply reassess reason' and contains the text 'You must supply a reason to reassess this assessment'. Below the text is a large empty text area for input. At the bottom right, there is a 'Submit' button.

11.2. APPROVING A LODGED CONSULTANT ASSESSMENTS

From the **Outcome** screen, it is also possible for Council Managers and Administrators to **Approve** assessments that have been lodged by a consultant for determination. After opening the **Lodged** assessment, enter the **DA Number** and click **Next**. You can then go straight to the **Outcome** screen to **Approve** the assessment.

The screenshot shows the 'NorBE Assessment' interface. The top navigation bar includes 'General', 'Lots', 'Pre-Assess', 'Module 1', 'Module 2', 'Module 3', 'Module 4', 'WEM', 'Site Visit', 'Outcome' (highlighted), and 'Notes'. On the right, there are 'Report' and 'Logout' buttons. The main content area is titled 'Assessment - DA: DA1239, CRN: AK456' and contains 'Next' and 'Close' buttons. Below the title, there is a form with the following fields: 'DA Number' (DA1239), 'Modification Number' (DA123), 'Council' (Blue Mountains City), 'Consultant Reference Number' (AK456), and 'Created by user' (norbeconsultant@gmail.com).

If a **Lodged** consultants assessment needs to be sent back at this point in the assessment process, it first needs to be sent back to the **In Progress** state using the **Reassess** button before using the **Rework** button to send it back to the consultant.



As well as the Module 1 and Module 2 assessments that Council users have access to, consultant users can also complete assessments for developments under Module 3 (large urban subdivisions) and Module 4 (large rural subdivisions). Council users can view these assessments in the same way as they would a Module 1 or Module 2 assessment, however Module 3 and Module 4 assessments will always need to be referred to WaterNSW for concurrence before they can be determined. In most cases Module 3 and 4 assessments will have an outcome of **WaterNSW concurrence** however on the rare occasion a consultant submits an assessment with a NorBE outcome of not satisfied this still requires WaterNSW concurrence.

12. DETERMINATION OUTCOME

Once an assessment has been approved it can be **Determined**. Assessments with either an Approved status or Determined status appear in the same **Approved** screen. The **Determination result** column identifies if an Assessment is still awaiting Determination with a status of **TBA**.

Select	DA number	Approved date	Determ. date	Created By Person	Created By Organisation	Water Quality Impact	Dev class	NorBE Outcome	Determ. result	Cond. in consent
<input type="radio"/>	Ak test 28 jan - Administrator	2021-02-03	2021-02-03	council20211@gmail.com	BMC	Y	C	Satisfied	Consent granted	<input checked="" type="checkbox"/>
<input type="radio"/>	DA1	2021-02-02	0001-01-01	council20212@gmail.com	BMC	Y	GS	TBA	TBA	<input checked="" type="checkbox"/>
<input type="radio"/>	AK test BReq14 1 Feb	2021-02-02	2021-02-02	council20212@gmail.com	BMC	Y	C	Satisfied	Consent granted	<input checked="" type="checkbox"/>
<input type="radio"/>	X/273/2018	2020-08-26	2020-08-26	kmcrae@bmcc.nsw.gov.au	BMC	N	B	Satisfied	Consent granted	<input checked="" type="checkbox"/>
<input type="radio"/>	X/487/2020	2020-08-18	2020-08-18	rlwalker@bmcc.nsw.gov.au	BMC	N	D	Satisfied	Consent granted	<input checked="" type="checkbox"/>

An assessment that has an outcome of **Satisfied** can either have a **Determination outcome** of **Consent granted** or **Refused for non-NorBE reasons**.

An assessment that has an outcome of **Not satisfied** can either have a **Determination outcome** of **Refused for NorBE reasons** or **Refused for non-NorBE reasons**.

Information relating to whether WaterNSW has granted or denied their concurrence, when relevant, will also need to be entered into the assessment prior to the determination of the DA. Where WaterNSW concurrence has not been given, a determination outcome of consent granted is not possible.

To enter determination information (where WaterNSW concurrence advice was required), first choose the relevant DA button according to whether WaterNSW concurrence was **Granted** or **Denied**:

NorBE Outcome - Assessment DA: Mod 1 Concurrence

Assessment status: Approved
 System outcome: Concurrence required
 User outcome:
 WaterNSW concurrence status: Pending

Buttons: Reassess, Grant WaterNSW concurrence, Deny WaterNSW concurrence, Withdraw

For all assessments, choose the **Determination outcome** from the drop down menu and enter the **Determination date** before clicking **Record determination**.

The screenshot shows the NorBE Assessment web application. The top navigation bar includes the logo 'NorBE Assessment' on the left and user information 'council20212@gmail.com | Council Manager | BMC' on the right. Below the navigation bar is a series of tabs: 'General', 'Lots', 'Pre-Assess', 'Module 1', 'Module 2', 'Module 3', 'Module 4', 'WEM', 'Site Visit', 'Outcome' (which is highlighted), and 'Notes'. To the right of these tabs are 'Report' and 'Logout' buttons. The main content area is titled 'NorBE Outcome - Assessment DA: DA2021/123' and contains the following information:

Assessment status	Approved
System outcome	Satisfied
User outcome	
Determination outcome	Consent granted
Determination date	

At the bottom of the form are three buttons: 'Reassess', 'Record determination', and 'Withdraw'.

To withdraw an assessment, change the status on the NorBE **Outcome** tab by clicking the **Withdraw** button.

To send the application back for reassessment, click the **Reassess** button. A note must be entered in the text box to explain why it requires reassessment.

13. CREATING REPORTS

13.1. NorBE ASSESSMENT REPORT

When completing a Module 1 or Module 2 assessment it is possible at any stage of the assessment to download an assessment summary by clicking the **Report** button at the top right of the screen. The report opens in a new window and can be printed or saved electronically. An excerpt from a NorBE assessment summary report is shown below:

NorBE Assessment

Assessment Summary

General Information

Consultancy	-	Lot	Section	Plan
Consultant	-	29		750050
Consultant reference number	-			
DA number	Ak test 28 Jan - Administrator			
Assessing officer	council20211@gmail.com			
Council	Blue Mountains City			
Development class	New dwelling/dual occ sewer			
Date of assessment	2/3/2021 11:40:09 AM			

Assessment Summary

Assessment status	Determined		
System outcome	Satisfied	User outcome	
WaterNSW concurrence outcome			
Determination outcome	Granted	Determination date	2/4/2021 12:00:00 AM

Pre-Assessment

Located within Sydney drinking water catchment?	Yes
Is development consistent with any existing SCA/WaterNSW S88 instruments on title?	N/A
Crown perpetual leasehold land?	No
Water quality impact ?	Yes
Documentation is complete?	Yes
Does Water Cycle Management Study meet WaterNSW/Council requirements?	Yes

Description

Module 1

Development risks

Impervious area(m2)	300
Construction area(m2)	300
Adequate SSSQM certificate provided?	Yes

Area to be disturbed

Development site slope > 20%?	No
Development site within 1% AEP flood level flood prone land?	No
Other site constraints?	No



This report acts as a summary of everything that is entered into that specific assessment at the time the report is generated and can be included in the Council Development Application assessment. It will include the details of all WEMs completed as well as the site inspection questions.

13.2. WEM REPORT

It is possible to download a WEM summary report at any stage during the WEM by clicking the **Report** button at the top right of the screen, when you are in the WEM. The report opens in a new window and can be printed or saved electronically.

This report acts as a summary of everything that is entered into that specific WEM at the time the report is generated and can be included in the Council Development Application assessment. The report also includes a map of the WEM outcome plume and all the relevant lot(s).

NorBE Assessment version 3

WEM Summary

General Information

WEM model ID	2279674	Associated DA number	AK Rollover Test 29 April						
Model description		Consultant	-						
Consultancy	-	Assessing officer	alison.kniha@watnsw.com.au						
Consultant reference number	-	Assessing officer	alison.kniha@watnsw.com.au						
Council	Blue Mountains City	Assessing officer	alison.kniha@watnsw.com.au						
Nominated lot	100//1159475	Associated lots	<table border="1"> <thead> <tr> <th>Lot</th> <th>Section</th> <th>Plan</th> </tr> </thead> <tbody> <tr> <td>100</td> <td></td> <td>1159475</td> </tr> </tbody> </table>	Lot	Section	Plan	100		1159475
Lot	Section	Plan							
100		1159475							
Development class	New dwelling/dual occ <8bdm unsewered								
Date of model run	4/29/2021 5:29:08 PM								

WEM Model Run Summary

Model run outcome: **Pending**

Any of the sub-surface plumes reaches:

Lot boundary	N/A
Drainage depression	N/A
Top bank of watercourse	N/A
Another disposal field or onsite stormwater management system	N/A
Within 50m, and up gradient of, a licensed drinking water bore	N/A

Proposed Front End Design

Length (across slope)(m)	15.0	Width (up slope)(m)	1.0
Proposed area(m ²)	30.0	Minimum Required area (m ²)	30.0
Number of trenches	2		
Effluent volume proposed (l/day)	600		
Effluent volume calculated (l/day)	600		

WEM Model Inputs

Location

Easting	9569462.047743	Northing	4317825.011173
Slope (m/m)	0.01670	Slope is suitable based on site inspection (Applicable to some disposal systems on steep slopes)	N/A

Development

Development type	Dwellings	Development detail	3 bedrooms
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NorBE Assessment version 3

WEM Summary

Water supply type	Rainwater	Spa Bath	No
Continuous system use	Yes		
Treatment system	Septic tank	Disposal system	Absorption trench – primary effluent

Site

Lot size(m ²)	100000		
Subject to severe frost	No	Bulk density(g/cm ³)	1.80
Vegetation for nutrient uptake	Perennial pasture	Phosphorus sorption (mg/kg)	100
Soil depth (to impermeable layer) (m)	1.00	Soil structure	Weak
Saturated hydraulic conductivity (Ksat)(m/day)	3.00		
Soil texture	Sandy loams		

Effluent disposal risk factors

Depth to water table	0.4 - 1.0
Flood potential of disposal system	Above 1 in 50 year ARI
Landform score	Hill crests, convex side slopes and plains
Run-on and upslope seepage	None-low, diversion possible
Rock outcrops, scarp and bedrock	< 5%
Distance to drainage depression	> 50
Distance to watercourses and water supply reservoirs	> 120

NorBE Assessment version 3

WEM Summary

WEM Plume Map

13.3. ASSESSMENT REPORTS

The NorBE Tool has a reporting function that enables reports to be compiled using DAs at any stage of their workflow status through the **Assessment – Report** screen.

You can compile reports based on any combination of filters or just one e.g. **Determination Outcome**. First, choose the **Name** of the report, either:

- **Assessment List**, which will allow you to compile a report for a chosen **Workflow status** within a **Date range**, or
- **Assessment Counts**, which will display the numbers of DAs in each stage of the assessment for a given **Date range**.

You can select whether you want the report to be generated as a **PDF** or opened in **Excel**. Then click on the **Generate** button. The reports will open in a new window.

The screenshot shows the 'NorBE Assessment' web application interface. At the top, there is a navigation bar with 'Assessments', 'My Details', and 'Report - Assessments' tabs. A 'Log Off' button is in the top right. The main content area is titled 'Assessment Report' and contains several sections:

- Report**: Includes dropdown menus for 'Name' and 'Workflow status', both currently set to 'Choose from list'.
- Date range (based on workflow status)**: Includes input fields for 'Start date' and 'Finish date', both with a placeholder 'dd/mm/yyyy'.
- Filters**: Includes dropdown menus for 'Assessing officer', 'Determination outcome', 'User outcome', 'System outcome', and 'Concurrence outcome', all set to 'Choose from list'.
- Format**: Includes a dropdown menu for 'Format' set to 'PDF'.

A 'Generate' button is located at the bottom left of the form area.

DA Report for Determination

Reporting Period (based on date for Determination)

01 Sep 2021 to 30 Sep 2021

DA Number	Assessing Officer	Sub-Catchment	Dev Class/Type	System Outcome	User Outcome	WaterNSW Concurrence Outcome	Determination Result	Determination Date	No Water Quality Impact
DAXX/2021	Officer		New dwelling/dual occ sewered	Satisfied			Granted	06 Sep 2021	No
			New dwelling/dual occ sewered	Satisfied			Granted	12 Sep 2021	No
			Existing dwelling/dual occ sewered	Satisfied			Granted	06 Sep 2021	Yes
			Existing dwelling/dual occ sewered	Satisfied			Granted	21 Sep 2021	Yes
			Existing dwelling/dual occ sewered	Satisfied			Granted	06 Sep 2021	Yes
			Existing dwelling/dual occ sewered	Satisfied			Granted	06 Sep 2021	Yes
			New dwelling/dual occ sewered	Satisfied			Granted	15 Sep 2021	Yes
			Existing dwelling/dual occ sewered	Satisfied			Granted	21 Sep 2021	Yes
			Existing dwelling/dual occ sewered	Satisfied			Granted	21 Sep 2021	Yes
			Existing dwelling/dual occ sewered	Satisfied			Granted	22 Sep 2021	No
			Existing dwelling/dual occ sewered	Satisfied			Granted	23 Sep 2021	Yes
			Existing dwelling/dual occ sewered	Satisfied			Granted	24 Sep 2021	Yes
			Farm building/shed without on-site wastewater proposed	Satisfied			Granted	28 Sep 2021	No
			Existing dwelling/dual occ sewered	Satisfied			Granted	22 Sep 2021	Yes



14. CONTACT DETAILS

- For technical help with the Tool email Environmental.Assessments@waternsw.com.au.
- For general enquiries regarding NorBE assessments for DAs contact a member of the WaterNSW’s Catchment Protection team on 1300 662 077.

APPENDIX 1 – ACRONYMS

AEP	Annual exceedance probability
DA	Development application
DLWC	(former) Department of Land and Water Conservation
EMA	Effluent management area
GIS	Geographical information systems
Ksat	Saturated hydraulic conductivity or soil permeability
NorBE	Neutral or beneficial effect (on water quality)
Psorp	Phosphorus sorption
SCA	(former) Sydney Catchment Authority
SEPP	State Environmental Planning Policy (Biodiversity and Conservation) 2021
WCMS	Water cycle management study
WEM	Wastewater effluent model

APPENDIX 2 – DEVELOPMENT CLASSES

Description	Development Class	Module Grouping
Existing dwelling / dual occupancy sewer ¹	B	1
New dwelling / dual occupancy sewer 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 sewer	E	1
Bed and breakfast unsewer	I	2
Swimming pool / spa pools only, sewer area ³	Fs	1
Swimming pool / spa pools only, unsewer area ³	Fu	2
Existing dwelling / dual occupancy < 8 bedrooms unsewer ^{1,4}	G	2
New dwelling / dual occupancy < 8 bedrooms unsewer ^{4,8}	Gs	2
Existing/new dwelling/dual occupancy ≥ 8 bedrooms unsewer ⁴	GL	5
Greywater systems in unsewer areas only	K	2
≤3 multi-dwelling housing, sewer	Ls1	1
≥4 multi-dwelling housing, sewer	Ls3	3
Multi-dwelling housing, unsewer	Lu	5
Subdivision, sewer <4 lots	Ms1	1
Subdivision, sewer ≥4 lots	Ms3	3
Subdivision, unsewer <4 lots	NuS	2
Subdivision, unsewer ≥4 lots	NuL	4
Industrial	Oi	5
Retail premises/office premises, sewer ⁵	ORs	1
Retail premises/office premises, unsewer ⁵	ORu	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	Us	1
Earthworks / farm dams ≥2,500 m ² total disturbed area	Ui	5
Car parks ⁷ <2,500 m ²	Vs	1
Car parks ⁷ >2,500 m ²	Vl	5
Demolitions <2,500 m ²	Ws	1
Demolitions >2,500 m ²	Wl	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:

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 sewerred areas or development class G for unsewerred areas.
2. Farm buildings, as defined in the standard local environmental plan (SLEP), in both sewerred and unsewerred areas, and sheds in sewerred areas, can be included in Development Class D (sewerred) or D_U (unsewerred).
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 square metres, 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 unsewerred village) should be assessed under Module 5 (i.e. sent to WaterNSW for concurrence).

APPENDIX 3 – SIZING THE EFFLUENT MANAGEMENT AREA

The WEM requires the EMA to be sized consistent with WaterNSW requirements for minimum area, which incorporates methods described in AS/NZS 1547:2012. These requirements have been incorporated into the WEM. The following equations and values are used in the WEM to automatically calculate the minimum area.

Note: The WEM uses the proposed EMA to run the model, not the calculated minimum area. However, where the proposed EMA is smaller than the calculated minimum area, the WEM will not run and a message will be displayed stating that the proposed EMA must be equal to or greater than the minimum area.

For Non-irrigation Systems:

The minimum area is calculated using hydraulic sizing only.

The hydraulic sizing is calculated using the following equation:

$$A_D = \frac{Q}{DLR}$$

where:

A_D = total minimum effluent management area (m²)

Q = daily hydraulic flow from on-site wastewater treatment system (L/d)

DLR = design hydraulic loading rate to soil (mm/d or L/m²/d)

DLR is a value that varies primarily with soil type, quality of effluent being applied and the disposal method. Values for DLR are provided in Table A1.

For Irrigation Systems:

The minimum area is calculated using the hydraulic sizing and nutrient sizing (for both nitrogen and phosphorus). The minimum area is taken to be the largest minimum area of the three areas calculated individually for the required hydraulic sizing, nitrogen sizing and phosphorus sizing.

Consistent with the sizing for non-irrigation systems, the hydraulic sizing for irrigation systems is calculated using the following equation:

$$A_D = \frac{Q}{DLR}$$

where:

A_D = total minimum effluent management area (m²)

Q = daily hydraulic flow from the on-site wastewater treatment system (L/d)

DLR = design hydraulic loading rate to soil (mm/d or L/m²/d)

Values for DLR are provided in Table A1.

The minimum area is also calculated on the basis of an annual nutrient application budget and soil sorption processes.

The nutrient sizing (for both phosphorus and nitrogen) is calculated using the following equation, specifically developed for the WEM:

$$A_D = \frac{3.65c_x Q}{U_R + 0.2d(1 - n_p)G_s X_{\text{sorption}}}$$

where:

A_D = total minimum effluent management area (m²)

C_x = nutrient concentration from on-site wastewater treatment system (mg/L)

Q = daily hydraulic flow from onsite wastewater treatment system (L/d)

U_R = plant nutrient uptake rate (kg/ha/year)

d = design soil depth (m)

n_p = soil porosity

G_s = soil specific gravity (typically 2.65 g/cm³)

X_{sorption} = nutrient sorption with soil (mg/kg)

Values for plant nutrient uptake rate (U_R) are provided in Table A2.

Values for nutrient concentration from on-site wastewater treatment system (C_x) are provided in Table A3.

Soil porosity (n_p) can also be calculated as (1- soil bulk density/soil specific gravity)

Note: in the case of nitrogen, X_{sorption} is assumed to be 0, therefore the equation becomes:

$$A_D = \frac{3.65c_x Q}{U_R}$$

Table A1 – Design Loading Rates for Hydraulic Loading Sizing

Soil Texture	Soil Structure	Primary Effluent				Secondary Effluent			Amended Soil Mound	Sand Mound	Subsurface Irrigation	Surface Irrigation
		Trenches	Absorption Beds	ETA Beds	Subsurface Irrigation ¹	Trenches	Absorption Beds	ETA/ETS Beds				
Gravels & Sands	Structureless	20	20	NP	NS	50	50	NP	32	32	5	5
Sandy Loams	Weak	20	20	NP	4	50	50	NP	24	24	5	5
Sandy Loams	Massive	15	15	NP	4	50	50	NP	24	24	5	5
Loams	High/Moderate	15	15	NP	3.5	50	50	NP	24	24	4	4
Loams	Weak/Massive	10	10	NP	3.5	30	30	NP	16	16	4	4
Clay Loams	High/Moderate	10	10	12	3	30	30	12	16	16	3.5	3.5
Clay Loams	Weak	6	6	8	3	20	20	8	8	8	3.5	3.5
Clay Loams	Massive	4	4	5	3	10	10	5	5 plus SDR	5 plus SDR	3.5	3.5
Light Clays	Strong	5	5	8	2.5 plus SDR	12	12	8	8	8	3	3
Light Clays	Moderate	5 plus SDR	5 plus SDR	NS	2.5 plus SDR	10	10	5 plus SDR	5 plus SDR	5 plus SDR	3	3
Light Clays	Weak/Massive	5 plus SDR	5 plus SDR	NS	2.5 plus SDR	8	8	5 plus SDR	5 plus SDR	5 plus SDR	3	3
Med-heavy Clays	Strong	NS	NS	NS	NS	NS	NS	5 plus SDR	5 plus SDR	5 plus SDR	2	2
Med-heavy Clays	Moderate	NS	NS	NS	NS	NS	NS	5 plus SDR	5 plus SDR	5 plus SDR	2	2
Med-heavy Clays	Weak/Massive	NS	NS	NS	NS	NS	NS	5 plus SDR	5 plus SDR	5 plus SDR	2	2

1 – For Wet composting systems ONLY. Disposal must be by Subsoil LPED Irrigation.

SDR – Special Design Required

NS – Not Suitable NP – Not Possible

Table A2 – Plant Nutrient Uptake Rates for Effluent Disposal

Crop	Total Nitrogen (kg/ha/year)	Total Phosphorus (kg/ha/year)
Good quality woodland	90	25
Poor quality woodland	65	20
Lawn – fully managed (clippings removed)	240	30
Lawn – unmanaged	120	12
Improved pasture	280	24
Perennial pasture	99	11
Shrubs and some trees – fully managed	150	16
Shrubs and some trees - unmanaged	75	8

Table A3 – On-site Wastewater Treatment System Effluent Quality

Treatment System	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Faecal Coliforms (CFU/100mL)
Septic Tank	160	21	1.0E+07
Dry composting toilet	6000	1500	1.0E+05
Wet composting toilet	35	10	5.0E+03
Sand filter – single pass (includes septic tank pre-treatment)	35	10	5.0E+03
Sand filter – recirculating (includes septic tank pre-treatment)	25	10	5.0E+03
Amended soil mound (includes septic tank pre-treatment)	15	1	1.0E+03
AWTS – Standard	30	12	1.0E+02
Sand Mound (includes septic tank pre-treatment)	35	10	5.0E+03
Greywater systems	10	20	5.0E+02