Marine Estate Management Strategy

Coastal Floodplain Drainage Project - Options Report

Options Report

December 2023

Acknowledgement of Country

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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Coastal Floodplain Drainage Project - Options Report

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Executive summary

The objectives of the coastal floodplain drainage project (the project) are to improve the regulatory framework for coastal agricultural drainage works and activities by:

- addressing the complexity, time and costs associated with the approvals process
- reducing the impact of these works and activities on downstream water quality[1], aquatic ecosystems, communities and industries.

Targeted consultation with key stakeholders by the project's interagency working group in 2020/21 sought a better understanding of stakeholder concerns in the context of these project objectives. A What we heard report, published in mid-2022, outlines the main issues raised by stakeholders and these issues have been categorised and addressed in this options report.

This options report describes improvements to the approvals process that have already occurred and proposes six options for further addressing the project's objectives. Each of the options could be implemented independently (except for Option 6) or in combination with others.

The six proposed options are:

- Option 1: One-stop shop webpage

  A single source of information on the various approvals that may be required by government agencies for coastal floodplain drainage works.
- Option 2: Drainage applications coordinator

  A central officer(s) to guide the applicant through the approvals processes for all NSW government agencies (Department of Planning and Environment's Water Group, Planning, Crown Lands, and the Department of Primary Industries — Fisheries) and answer the applicant's questions about their individual location and proposed works. The drainage applications coordinator would complement both Option 1 and Option 3.
- Option 3: Concurrent assessment

  Concurrent assessment of applications by relevant government agencies.
- Option 4: Risk-based approach

  NSW Government agencies would use a standardised risk matrix to compare the type and extent of the drainage works against the acidic water and blackwater potential of the drainage area to identify the level of risk associated with the proposed works. The identified

[1] In this report, 'water quality' pertains to acidic water and blackwater associated with coastal agricultural drainage works.

level of risk could then be used to determine the level of information required from applicants, the level of assessment required by the approval authority, and the types of conditions applied to any approvals.

- **Option 5: Drainage work approvals under the *Water Management Act 2000***

  Switch on drainage work approvals under the *Water Management Act 2000*. Two different methods of implementation are possible:

  i. a drainage work approval would be required only when works are proposed and for the area of works only
  ii. a drainage work approval could apply to existing and new drainage works across the entire drainage network.

  Within either of these two methods, one of three different approaches for public authorities could be applied:

  a. require public authorities to hold a drainage work approval
  b. allow for public authorities to hold a conditional exemption from requiring approvals
  c. exempt public authorities from requiring a drainage work approval.

- **Option 6: Streamlining of Fisheries and Crown Land approvals through the use of drainage work approvals**

  Drainage work approvals, particularly under Option 5(ii), have the potential to deliver a catchment-wide consideration of the drainage network. This would provide greater certainty to other agencies such as Fisheries and Crown Land that environmental impacts have been considered and appropriate conditions applied, supporting them to assess and issue approvals more quickly.

The report explains how each option is expected to address the project objectives. Because the regulatory regime is limited in its ability to achieve significant water quality improvements, non-regulatory initiatives designed to contribute to water quality improvements are described in Attachment E.

The interagency working group will consult with stakeholders in early 2024 to gain their feedback on these proposed options. The group will consider this feedback and make final recommendations to the relevant NSW Government Minister(s) for their approval. Stakeholders will be advised of the outcomes of this process, including the implementation of any approved regulatory changes.

Purpose

This report presents several options to address key issues related to the regulatory framework and water quality risks associated with coastal floodplain drainage works. It has been developed by the interagency working group for this project following consultation in 2020/21 with key stakeholders.

The interagency group has representatives from the Department of Planning and Environment's Water Group, Planning, Crown Lands, and Environment and Heritage divisions and the Department of Primary Industries — Fisheries (Fisheries).

The interagency group will invite stakeholders to meet and provide feedback on this options report. This feedback will inform the interagency group's final recommendations. In 2024, final recommendations will be submitted to the relevant NSW Government Minister(s) for approval. The interagency working group will advise stakeholders of the outcomes of this process and the proposed implementation of any approved changes to the regulatory framework.

MEMS coastal floodplain drainage project

Project objectives

The coastal floodplain drainage project is one of several Marine Estate Management Strategy (MEMS) projects to improve the health of coastal floodplains and estuaries in NSW. This project is funded under MEMS management action 2.4[2].

The objectives of this project are to reform and improve the regulatory framework for coastal agricultural drainage works and activities by:

1. addressing the complexity, time and costs associated with the approvals process

[2] MEMS management action 2.4:

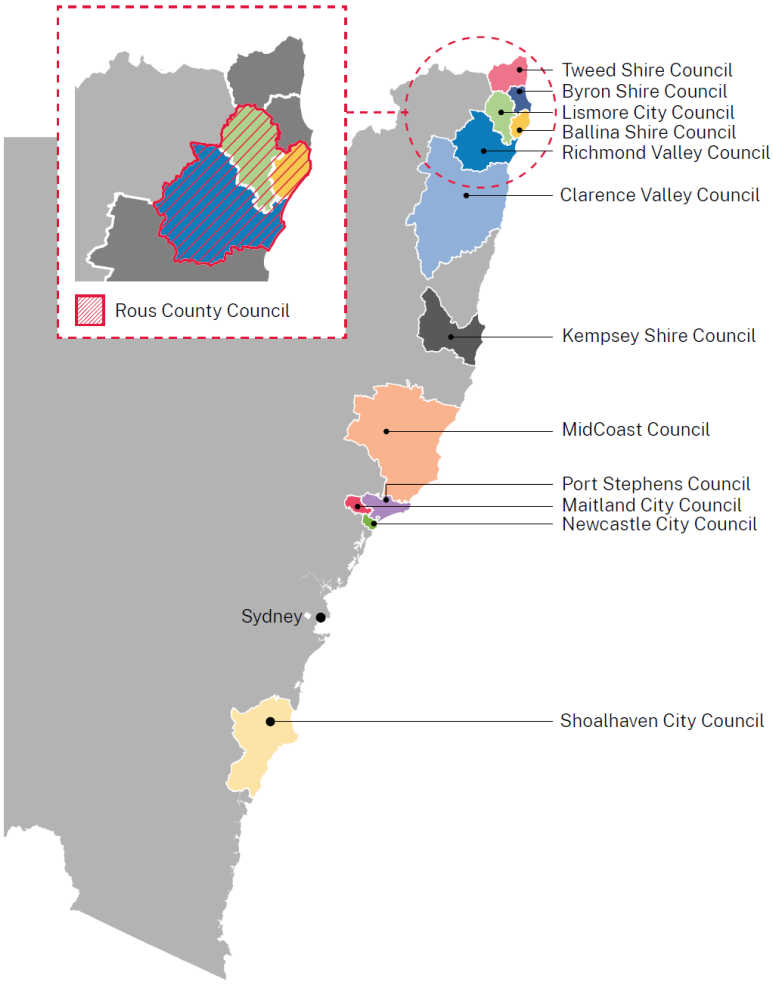
Re-establish resilient coastal floodplains and connectivity within coastal catchments by:

- better aligning existing government policy and resourcing for floodplain and drainage management
- providing fish passage at priority weir and road crossing barrier sites in coastal catchments.

2. reducing the impact of these works and activities on downstream water quality, aquatic ecosystems, communities and industries.

The project is focused on large coastal floodplains from the Tweed in the north to the Shoalhaven in the south, illustrated in Figure 1. The outcomes in terms of any changes to the regulatory framework could apply to all coastal areas of NSW where drainage works exist.

Figure 1. Local government areas consulted in 2020/21 for the coastal floodplain drainage project



Background

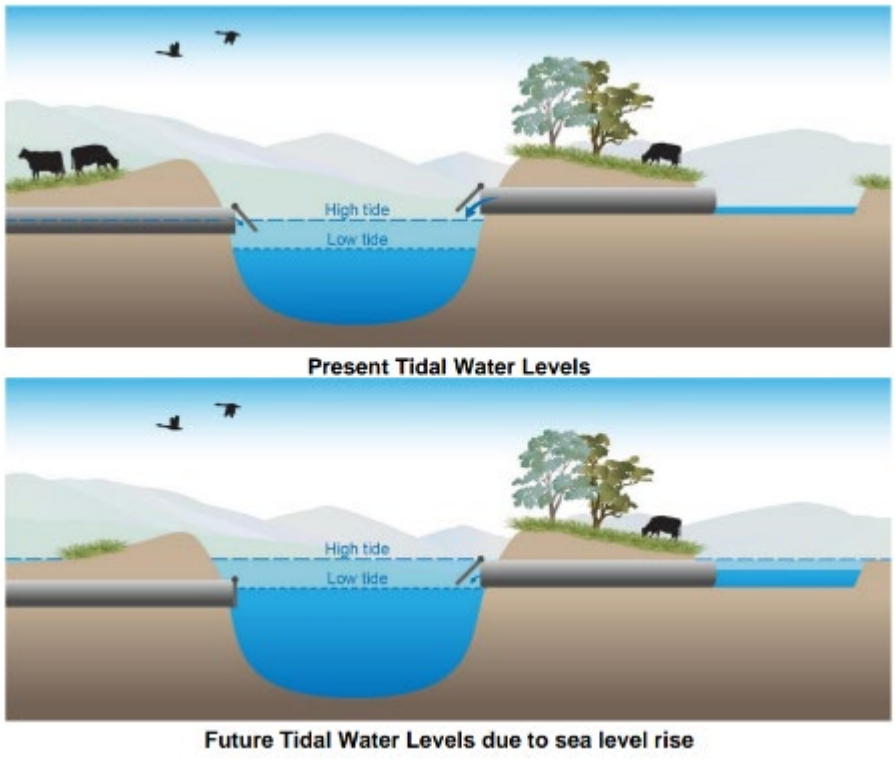
Coastal floodplains and drainage infrastructure

A coastal floodplain is the low-lying and generally flat land surrounding an estuary. In their natural state, large areas of coastal floodplains were once wetlands and backswamps. They were inundated with salty water during high tides, flooded with freshwater after heavy rain and remained wet for prolonged periods. Low-lying areas also have groundwater levels close to the surface.

Between the late 1800s and the 1970s, many of these coastal floodplains were artificially drained and had floodgates installed to drain groundwater, remove surface water and keep out high tides. The extensive drainage of coastal backswamps and wetlands created new areas for land uses such as agriculture and urban development. These works were funded privately and by government. Examples of these works are in Attachment A.

Today, sea levels are rising at an accelerated rate due to climate change. This will increase the low tide levels, which over time will reduce the capacity of coastal drainage infrastructure to drain water (see Figure 2). The impacts of sea level rise on very low-lying coastal floodplains are exacerbated by extreme rainfall events that cause extensive flooding.

Figure 2. Impact of sea level rise: reduced floodgate drainage functionality



Source: UNSW Water Research Library

The process of developing the NSW Marine Estate Management Strategy 2018-2028 included a Threat and Risk Assessment (TARA) that identified agricultural diffuse source runoff as a major threat to the environmental, social, cultural and economic values of the marine estate, particularly to water quality and coastal habitats in estuaries. Some areas of coastal floodplain drainage are a major source of this runoff. The TARA also identified the social, cultural and economic risks associated with regulatory complexity. The TARA has shaped the priorities of this and other linked projects set up under the NSW Marine Estate Management Strategy 2018-2028. These findings were verified for coastal floodplain drainage during key stakeholder consultation and outlined in the What we heard report.

Water quality

In most areas where drainage systems were created, they remain active and are in various states of repair. Over time the environmental impacts of drainage systems have become better understood. It is now clear that lowering groundwater tables through floodplain drainage and establishing non-water tolerant vegetation in low-lying areas, can have substantial ongoing negative impacts on water quality, downstream ecosystems and communities and on industries such as fishing and tourism. The most significant water quality problems are acidic and deoxygenated water, which are described in general terms below.

Where acid sulfate soils are present, sulfuric acid begins to form when soil profiles are exposed to air after floodplain drainage is installed or maintained. When it rains, this acid is mobilised from soils and drains into the river and estuary through the drainage systems. The water can be as low as pH 3, which dissolves many heavy metals from the sediment and is toxic to fish.

Introduced non-water tolerant vegetation decomposes when inundated during flood events and this process uses up the oxygen in the water. As the water drains into rivers through the drainage systems, it carries this deoxygenated 'blackwater' with it. Material known as MBOs (monosulfidic black ooze) also develops in low flow drainage conditions where there are acid sulfate soils and is also mobilised during high flows. This can cause widespread deoxygenation of estuaries and fish deaths. For example, in the 2001 floods blackwater affected the Richmond River estuary for approximately 80 kilometres upstream of its mouth and the river was closed to both recreational and commercial fishing for several months to allow fish populations to recover. Similar events have occurred a number of times, including in association with the most recent 2022 floods.

Blackwater and acid sulfate drainage have become a common threat to the marine estate in most coastal rivers in NSW where floodplain drainage schemes exist and continue to impact on water quality and aquatic ecosystems.

Throughout this report, and unless otherwise indicated, references to 'water quality' pertain to acidic water and blackwater associated with coastal floodplain drainage infrastructure. They do not pertain to other instances or types of poor water quality that may be present across coastal floodplains such as urban stormwater and nutrient inputs.

Regulatory complexity

Works and activities associated with coastal floodplain drainage infrastructure, including maintenance, are regulated under several pieces of legislation, which can be complex to navigate. This includes approvals or assessments under the:

- *Environmental Planning and Assessment Act 1979 (EP&A Act)*
- *Fisheries Management Act 1994*

- *Biodiversity Conservation Act 2016*
- *Crown Land Management Act 2016* (CLM Act)
- *Water Management Act 2000 (WM Act)*
- *Marine Estate Management Act 2014.*

Approvals that may be required include development consent, controlled activity approvals, Fisheries permits, Marine Park permits, Crown Lands landowner's consent and Crown Lands licences. See Attachment B for a more detailed description of these approvals.

Links to other NSW Government strategies and programs

Various NSW Government strategies, programs and studies complement this project, providing ways to improve water quality outcomes as well as new opportunities for coastal floodplain landholders. These are outlined in Attachment E.

Attachment F refers to NSW Government investigations and initiatives that were set up in response to the extreme flooding events throughout coastal NSW in 2022.

Stakeholder issues

The interagency working group consulted with key stakeholders representing local council, agricultural, fisheries/aquaculture and environmental interests in 2020/21 to understand their experiences and concerns related to this project's objectives. This consultation focused on the regulation of water quality and the complexity of the regulatory framework for coastal floodplain drainage. The Water Group also independently consulted with local Aboriginal organisations to understand their concerns about drainage on coastal floodplains. Table 1 details the key issues raised by stakeholders during this consultation, as summarised in the What we heard report. The following section, Stakeholder issues & project scope, provides an explanation of how each key issue has been identified as being in or out of project scope and categorised into themes.

Table 1. Issues raised by stakeholders – local councils, agricultural, fisheries/aquaculture, environmental, and local Aboriginal organisations – during consultation in 2020/21

Stakeholder	Key issues	In *or* out of project scope	Theme
Local councils	Concern for coastal floodplain water quality, including mitigating acid sulfate soil impacts.	In scope	I
	Regulatory complexity, including multiple approval processes across NSW Government agencies.	In scope	A, D

Stakeholder	Key issues	In *or* out of project scope	Theme
	Delays in NSW Government processing of approvals, particularly for works on Crown land.	In scope	F
	Uncertainty about planning approval requirements for environmental protection works and drainage works in mapped coastal wetlands.	In scope	C
	Lack of understanding by private landowners of approval requirements.	In scope	B
	Some private landowners do not seek required approvals to avoid navigating the complex approvals process.	In scope	A, G
	Lack of compliance action by NSW Government to enforce regulatory requirements.	In scope	G
	Lack of resources/funding for local councils to undertake compliance action on private drainage works.	Out of scope	-
	Uncertainty about ownership of, and responsibility for, floodplain drainage infrastructure.	Out of scope	-
	Lack of resources/funding for local councils to maintain publicly owned drainage infrastructure.	Out of scope	-
Agricultural	Regulatory complexity, confusion and delay in gaining approvals for works, especially drain clearing.	In scope	A, B, F
	Cost of approvals.	In scope	E
	Broad mapping of acid sulfate soils can make it difficult to determine if a development consent is required.	In scope	B
	NSW Cane Growers Association: preference for ongoing or increased self-regulation to reduce regulatory complexity and mitigate water quality impacts.	In scope	H

Stakeholder	Key issues	In *or* out of project scope	Theme
	NSW Farmers Association: preference for improved education and industry best practices to reduce the need for approvals and mitigate water quality impacts.	In scope	H
	Lack of responsibility for and maintenance of drainage infrastructure by state and local government(s), especially removal of sediment build-up in drains.	Out of scope	-
Fisheries / aquaculture	Drainage infrastructure impacts on water quality, especially blackwater (deoxygenated water) events leading to fish and shellfish deaths.	In scope	I
	Lack of appropriate regulatory action to prevent major blackwater events.	In scope	I
	Economic impact of fish and shellfish deaths on fisheries/aquaculture industries, caused by poor water quality.	In scope	I
Fisheries / aquaculture & environmental	Regulatory complexity has led to confusion and (seemingly) different requirements from different government departments.	In scope	A, B, D
Local Aboriginal	Compliance and policing of water law is very low throughout the area.	In scope	G
	Poor river health and water quality affects the mental health of Aboriginal people. When Country is affected, the whole community suffers.	In scope	I

Stakeholder issues and project scope

The scope of this project is limited to reforming and improving the ***regulatory*** framework for coastal agricultural drainage works and activities. Specifically, the project objectives are to:

1. address the complexity, time and costs associated with the approvals process
2. reduce (by regulatory means) the impact of these works and activities on downstream water quality, aquatic ecosystems, communities and industries.

Only those key issues that can be addressed by regulatory means and relate to either of the two project objectives are within the scope of, and directly addressed by, this project. Those key issues that do not relate to either of the two project objectives and require a non-regulatory response are outside the scope of this project. The key issues in Table 1 have been marked accordingly.

In-scope issues

The interagency working group identified common themes across many of the key issues raised by different stakeholders. These themes A to I, are marked against the in-scope key issues in Table 1 and are described below. Each theme is addressed in the sections 'Response to stakeholder issues' and 'Options'.

- A – Regulatory complexity
- B – Lack of clarity about approval requirements
- C – Awareness of planning (EP&A Act) approval requirements
- D – The number of approvals required
- E – Cost of approvals
- F – Delays in processing approvals
- G – Compliance with existing approval requirements
- H — Farmers' preference for self-regulation, improved education and/or industry best practices
- I – Water quality impacts.

Out-of-scope issues

Stakeholders raised various issues that do not relate directly to the approvals processes or the regulation of water quality impacts and are therefore outside the scope of this project. However, many of these issues are being considered by the NSW Government through a range of different programs (outlined in Attachment D). In addition to the specific out-of-scope issues noted in Table 1, some concerns or suggestions were raised across stakeholder groups, and had common themes. Together, these issues are summarised as follows:

- ownership, maintenance and responsibility for drainage infrastructure assets
- financial cost of managing drainage infrastructure
- non-regulatory ways to mitigate poor water quality and other environmental impacts
- viability of coastal floodplain agriculture due to sea level rise.

Response to stakeholder issues

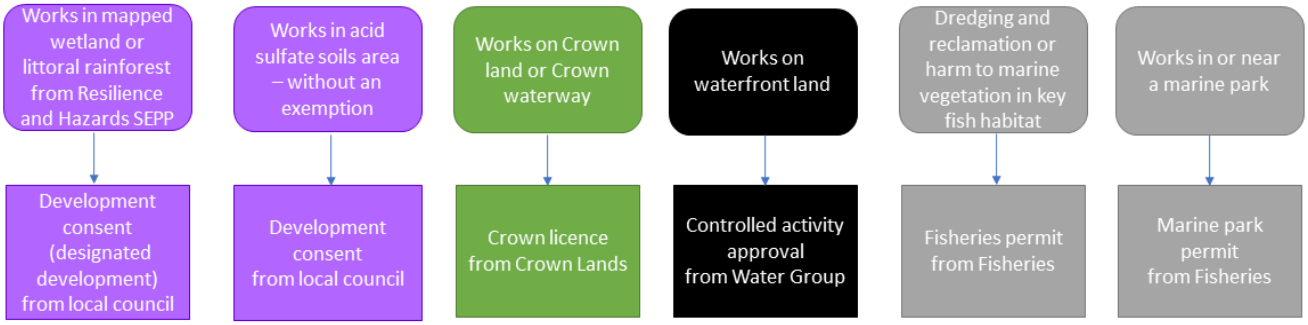
This section provides the interagency working group's responses to the in-scope issues raised by stakeholders, as categorised into themes. Each response either describes steps that have already occurred to address the issue or refers to options that aim to address the issue. These proposed options are fully described in the following section, Options.

A — Regulatory complexity

Local councils and agricultural and environmental groups all raised concern with regulatory complexity. The interagency working group acknowledges this complexity.

NSW government agencies and local councils have regulatory roles in coastal floodplain drainage, with different processing times and requirements. Figure 3 below shows examples of approvals based on the type and/or location of the activity and who issues them. Some coastal floodplain drainage activities, such as works located between the floodgate and watercourses on Crown land, can trigger several different approval requirements. To add to the complexity, there is also an array of exemptions under different Acts, regulations and planning instruments.

Figure 3. Examples of approvals that may be required for coastal floodplain drainage works and the relevant agency that issues them



Specific issues related to regulatory complexity – lack of clarity about which approvals are required, awareness of planning (EP&A Act) approval requirements, and the number of approvals required – are separately addressed below.

B — Lack of clarity about approval requirements

Local councils and agricultural stakeholders said that it is confusing to navigate the approval requirements for coastal floodplain drainage works.

This lack of clarity is evident in the following examples:

- Some of the drainage network is considered waterfront land under the WM Act so works in these areas require a controlled activity approval. Controlled activity approvals ensure that adequate arrangements are in force to ensure that no more than minimal harm will be done to any water source, or its dependent ecosystems, as a consequence of the construction or use of the proposed drainage work. These approvals have not consistently been sought for drainage works.
- In some situations, the ownership and responsibility for drainage infrastructure located on public land is unclear. The boundary between Crown land and private land, particularly in waterways and along foreshores, may often need to be determined.
- When development consent is required under local environment plans for works in high-risk acid sulfate soils areas. This is variable across NSW LGAs and differs depending on the industry doing the work. For example, the sugar cane industry usually does not have the requirement for a development application (DA) due to other management processes, whereas works for other types of farming such as macadamias would require a DA.
- When development consent is needed, the requirement to consider the effects of development on oyster aquaculture under the Primary Production SEPP. Before determining a DA, the consent authority is required to consider the potential impacts of the development on oyster aquaculture development and priority oyster aquaculture areas. This includes considering any comments provided by Fisheries regarding impacts and mitigation. The Healthy estuaries for healthy oysters guideline provides guidance on this and is currently being updated.

The options below improve the implementation of existing regulations, which includes increasing the awareness of approval requirements that may not have been previously understood. This may lead to an increase in the number of approvals being sought, which may in turn be perceived as an increase in approval requirements. Through the issuing of all required approvals, improved water quality outcomes should occur to some degree because relevant water quality conditions could be applied.

This report includes options to assist applicants in understanding which approvals are required and what exemptions may apply at a particular site, including:

- Option 1 – a one-stop shop webpage as a single source of information

- Option 2 – a drainage applications coordinator to guide applicants through the application process.

C — Awareness of planning (EP&A Act) approval requirements

Local councils expressed uncertainty about the assessment and approval requirements for flood mitigation and environmental protection works, including wetland restoration. In particular, they sought clarity on the:

- relationship between State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) and chapter 2 (Coastal Management) of State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)
- definition of 'routine maintenance' under the Transport and Infrastructure SEPP
- ability to have more flexibility and simplified assessment processes for low-risk activities and environmental works (for example, allowing environmental protection works as exempt development under the Transport and Infrastructure SEPP).

Additional guidance will be provided by Planning on these issues (see Option 1). Some guidance has has recently been published and would be included on the one-stop shop webpage:

- Guidelines for Division 5.1 assessments for applicants and determining authorities that undertake environmental impact assessments for activities set out under Division 5.1. An example of an activity that may be carried out under Part 5 of the EP&A Act is flood mitigation works which is an activity designed and constructed for the purpose of mitigating floods. These works could include excavation, or construction of a levee that will alter tidal action to mitigate flood impacts. The guidelines, available on the Planning website, explain what proponents and determining authorities need to do to undertake a Division 5.1 assessment.
- A Development referrals guide to help local councils and applicants understand if their development requires input from another agency and the type of information that needs to be lodged with the development application. This guide, available on the Planning website, details:
  - when an integrated development approval, concurrence or referral is required
  - the referral authority's lodgement requirements
  - how the referral authority will assess an application
  - what outcome applicants should expect.

D — The number of approvals required

Some stakeholders referred to multiple approvals being required for coastal floodplain drainage works. The number of approvals required, and the agencies that require them, depend on several factors, including:

- the type of works and their impacts
- their location
- who is undertaking the works
- the environmental sensitivity of the location.

In situations where multiple pieces of legislation apply, there is an effort to avoid duplication of approval requirements, for example the WM Act provides an exemption from a controlled activity approval where a Crown licence is needed. In general, more approvals are required for more complex works proposed in environmentally sensitive areas. This report outlines options to reduce the number of approvals, including:

- Option 4 – Implement a risk-based approach for drainage works
- Option 6 – Further streamlining of Fisheries and Crown Lands approvals through use of drainage work approvals.

E — Cost of approvals

Some stakeholders raised the financial costs of approval requirements as a significant issue. This includes:

- the NSW Government fees for various approvals
- the costs of developing required environmental assessments
- human resourcing to prepare approval applications.

Approval fees and environmental assessment costs are required for drainage infrastructure activities and other development and works. In some cases, the total costs can be several thousand dollars, however these cases are relatively rare, and usually relate to works proposed in environmentally sensitive areas. In most cases, once the environmental review process has been completed, the documentation can be used repeatedly for ongoing maintenance works if the type of activity remains largely the same.

See Attachment C for examples of costs.

Implementation of Options 1 (one-stop webpage) and 2 (drainage applications coordinator) will increase stakeholder understanding of approval requirements, which may lead to efficiencies in

documentation development and grouping of applications, thereby reducing approval costs. Implementation of Option 4 (risk-based approach) may also lead to a reduction of fees for low-risk works. However, it is likely that works in high-risk locations will still require substantial, and therefore costly, assessment processes and applications may also be refused.

F — Delays in processing approvals

In the What we heard report, stakeholders reported delays in obtaining both Crown Lands' licences and Fisheries permits. Since this issue was raised, approval processing times have been reduced and more is being done.

Crown Lands licences

In 2021-22 Crown Lands improved its approval processes with additional resources and more improvements are anticipated. The short-term Crown Land licence application form is now online, making it easier and faster to lodge and is now processed in about 2-3 months. Longer processing times can occur when an application is incomplete or has inadequate information. If a strong case for urgency is presented, applications can be triaged for priority.

General Crown Lands licences for long-term occupation or dredging works usually take longer to process than short-term licences. This can be because there is greater potential for negative impacts associated with the proposed activity/works, so more in-depth assessment is required. Multiple interagency referrals may also be required, and a statutory period to receive comment. Licence applications for Crown land affected by the Commonwealth *Native Title Act 1993,* or subject to a claim under the *Aboriginal Land Rights Act 1983*, may have notification and consultation requirements. A review of the *Crown Land Management Act 2016* is underway in 2023 and could provide an opportunity to implement legislative changes that might facilitate the objectives of this project.

Options 1 (one-stop shop webpage) and 2 (drainage applications coordinator) should improve stakeholders' understanding of the application process and information requirements, facilitating the lodgement of complete and accurate applications and reducing their processing time.

Fisheries permits

From receipt of a complete application the processing time for a Fisheries permit is 28 days. Longer processing times can occur when an application is incomplete or has inadequate information. Fisheries has also implemented several changes to simplify and reduce the number of individual

Fisheries permit applications required for routine, low-risk activities. These reforms include introducing:

- codes of practice and best practice agreements, including pre-approved work methodologies, assessment procedures, protocols for opening and closing floodgates and review mechanisms
- long-term maintenance permits (up to 5 years) for multiple sites for local councils/ public authorities
- issuing of Fisheries permits, prior to landowner consent.

When codes or agreements exist, fewer approvals are required by Fisheries, which reduces processing time. These changes have improved the regulatory framework and provide for easier operation for public authorities.

G — Compliance with existing approval requirements

Some stakeholders said that a lack of awareness of necessary approvals combined with funding shortfalls means there is a lack of effective compliance with approval requirements for coastal floodplain drainage works. This may lead to ineffective management of risks and poor environmental outcomes. Responsibility for compliance for different approvals are listed in Table 2.

Table 2. Government agencies responsible for compliance, by approval type

Approval	Responsible agency
Approvals under the WM Act	Natural Resources Access Regulator (NRAR)
Development consent	Local councils
Fisheries permits	Fisheries
Crown Lands licences	Crown Lands

Options 1 (a one-stop webpage) and 2 (drainage applications coordinator) should help stakeholders understand the process and information requirements for approvals, which is expected to improve compliance.

H — Farmers' preference for self-regulation, improved education and/or industry best practices

Farming industry associations agreed that regulatory complexity, confusion and delays in gaining approvals for works is concerning. The different associations had a variety of views on how to address these issues given their different circumstances.

The NSW Cane Growers Association supported ongoing or increased self-regulation with limited approval requirements, including increased exemptions for their industry to reduce the financial burden of approvals. Self-regulation in relation to the EP&A Act is available to cane farmers who implement best-practice management of acid sulfate soils. Cane farmers do not require development consent to carry out drainage works under relevant LEPs provided they follow a drainage management plan that is prepared in accordance with the NSW Sugar Industry Best Practice Guidelines for Acid Sulfate Soils (2005) and is endorsed by the Sugar Mill Co-operative as being appropriate for the land. However, approvals under other legislation may be required (see Attachment B). Where this is the case, an environmental assessment is required under Part 5 of the EP&A Act before the approval is granted.

The NSW Farmers Association supported education to increase awareness among landholders (especially new landholders) of regulation and approval requirements, particularly in relation to pre-existing drains. They noted that applying best practice and improved education would help to address environmental impacts, including mitigation of acid sulfate soils. The Australian Macadamia Society felt that landholders should modernise their management approaches and considered that implementing best practices within their industry could mitigate water quality impacts. The NSW Farmers Association and Australian Macadamia Society do not have best practice management guidelines or an oversight body to ensure implementation of best practices. Therefore the self-regulation available to cane farmers under the EP&A Act for works in acid sulfate soils is not proposed to be extended to members of these other farming associations.

Options proposed under this report will help address these requests for self-regulation and education:

- Option 1 — the one-stop shop webpage would help reduce complexity, educate and increase awareness among landholders of regulation and approval requirements as requested by stakeholders.
- Option 2 — by being a central point of contact, the drainage applications coordinator would engage with coastal floodplain drainage stakeholders and help them to understand best practices.
- Option 3 — a risk-based approach includes developing a best practice agreement between NSW Government agencies and landholders/ entities, such as private drainage boards. The

best practice agreements would allow for proactive assessment of works to reduce permit requirements, while also managing water quality risks.

I — Water quality impacts

Stakeholders, particularly local councils, noted that acid sulfate soil is a significant issue, while fisheries and aquaculture stakeholders expressed particular concern about the impacts and occurrence of blackwater events leading to fish and shellfish deaths. Local Aboriginal organisations also referred to the alignment between Aboriginal culture and the environment, and how poor river health and water quality have an adverse impact on their communities.

Limitations of the current regulatory framework to address water quality impacts

Some of these limitations are:

1. The drainage systems are already in place and were created prior to the need to obtain environmental approvals so there are few, or no existing, conditions to adhere to or enforce. If no works are proposed these systems can continue to operate as is.
2. When works are proposed the requirement to obtain an approval is not consistent across a drainage system. Some industries and public authorities are not required to hold an approval, or approvals are only required in some locations and for some activities within the drainage systems. The approvals required will also vary. This makes it difficult to implement a consistent whole-of-catchment approach to achieve effective water quality improvements.
3. Many approval types have limited or no capacity to include conditions to mitigate water quality impacts.
4. The diffuse nature of the water pollution makes it difficult to design appropriate water quality-related conditions.
5. The regulatory framework does not control agricultural business decisions about the types of crops or stock, or whether to restore the land to natural conditions. However, these sorts of decisions affect the type and extent of vegetation on the land and other biophysical factors, which impact water quality, including blackwater events.

Some specific examples of these limitations under the current regulatory framework are outlined below.

- Fisheries permits under the *Fisheries Management Act 1994* and Marine Parks permits under the *Marine Estate Management Act 2014* cannot include conditions specifically for mitigating water quality impacts from coastal floodplain land use practices. The approvals are only

required in limited areas – key fish habitat for Fisheries permits and marine parks for Marine Parks permits.

- Crown land licences can only set conditions for that part of the work that is on Crown land.
- Controlled activity approvals under the WM Act can include conditions designed to mitigate water quality impacts but they only currently apply to some coastal floodplain drainage works and activities – those on waterfront land. Additionally, public authorities are exempt from holding a controlled activity approval.
- Under the EP&A Act, conditions for mitigation of water quality impacts can be applied to developments that require development consent under a Local Environmental Plan (LEP) or State Environmental Planning Policy (SEPP). Development consents run with the land and once commenced do not expire unless stipulated in the development consent conditions. They can only be modified if the applicant seeks to modify the development under section 4.55 of the EP&A Act. This means that development consent conditions cannot be routinely updated to better address water quality issues.

Addressing water quality through regulatory change

It is challenging to achieve water quality improvements through regulatory mechanisms when the source is diffuse, that is, coming from multiple locations and different land use activities. Existing use rights means that lawful development can continue as per the development consent. Even if the legislation has since changed, the existing use rights remain with the land, not the owner of the land. This can lead to industries not keeping up with best practice resulting in water quality impacts.

Most coastal floodplain drainage systems were created prior to the current understanding of their environmental impacts, and under government policy at the time that encouraged and funded this infrastructure. We now better understand the environmental impacts and the consequences for the broader community. However, it is difficult to impose environmental regulation on an industry retrospectively.

Further, blackwater is more difficult to regulate and mitigate than acidic water. In the context of coastal floodplain drainage, acidic water is typically associated with the exposure of acid sulfate soils to air and the subsequent release of acid and heavy metals into waterways. In contrast, various interacting factors can trigger, influence or mitigate a blackwater event, including large-scale floods, drainage and timing of drainage at certain water levels, terrestrial and aquatic vegetation type(s) and land use type(s).

Despite these challenges some regulatory opportunities have been identified. The option to turn on drainage work approvals could partially address limitations 1-3 described on the previous page. Other options detailed in this report also address water quality to varying degrees. (See How each option is expected to address the project objectives.) Those regulatory options that best address

water quality have the greatest potential to address the concerns of fisheries/aquaculture, local Aboriginal organisations and local councils who are concerned about the impact of poor water quality on their industries, Country and communities.

This report also describes some non-regulatory options (Attachment E) that could improve water quality on coastal floodplains and provide new opportunities for floodplain landholders.

Options

While the proposed options aim to achieve both objectives of this project, most of them primarily address either objective 1 or 2 (see How each option is expected to address the project objectives.) Each of the options (except for Option 6) can be implemented independently or in combination with others.

The interagency working group agreed that non-regulatory actions are required to support improvements to the regulatory framework. These actions include providing information to stakeholders about:

- regulatory requirements and any changes to the regulatory requirements that are implemented
- best practice to support their operation within the regulatory framework.

These actions are incorporated into the options described below.

Option 1: One-stop shop webpage

Issues addressed: lack of clarity about which approvals are required, awareness of planning approval requirements, compliance with existing approval requirements.

Information specific to coastal floodplain drainage would be collated from relevant NSW Government agencies' websites into a central, online location to assist the applicant navigate existing approval processes. The one-stop shop webpage would include:

- an overview of the different types of approvals relevant to private landholders who wish to do drainage activities, such as drain or floodgate clearing
- a checklist to help applicants determine which approvals are required
- guidance on the processes to apply for approvals across agencies and the order in which applications should be submitted

- a list of the information required to apply for the various approvals under different legislation
- links to guidance material and relevant information sources for best practice management.

For example, the one-stop shop webpage would provide guidance to address the specific issues raised by stakeholders regarding Planning approvals, including the:

- development consent requirements for private landholders for drainage works on land located on the acid sulfate soils map
- interaction between chapter 2 (Coastal Management) of the Resilience and Hazards SEPP and the Transport and Infrastructure SEPP for flood mitigation works in mapped coastal wetlands/littoral rainforests and explaining the definition of 'routine maintenance' under the Transport and Infrastructure SEPP
- approval requirements under the Resilience and Hazards SEPP for environmental protection works carried out by public authorities, including local councils, in mapped coastal wetlands/littoral rainforests. For example, environmental protection works in mapped coastal wetlands has simplified planning approval requirements under the Resilience and Hazards SEPP compared to other developments
- approval requirements under the Transport and Infrastructure SEPP for environmental management works (which includes environmental protection works) (outside mapped coastal wetlands/littoral rainforests) carried out by public authorities, including local councils. In particular, the information will clarify why it is not appropriate to allow environmental protection works as exempt development under the Transport and Infrastructure SEPP.

Option 2: Drainage applications coordinator to guide applicants through the approval processes

Issues addressed: lack of clarity about which approvals are required, awareness of planning approval requirements, delays in processing approvals, and compliance with existing approval requirements.

The drainage applications coordinator would be a central point of contact for coastal floodplain drainage stakeholders, providing assistance[3] on the application process for relevant approvals administered by the various NSW government agencies (Water Group, Crown Lands and Fisheries)

[3] Assistance provided by the drainage applications coordinator to coastal floodplain drainage stakeholders would ***not***:

- include legal advice, or
- guarantee that an approval will be issued to an applicant. All applications will be assessed and determined under legislative requirements.

and local councils. This would make it easier and quicker for applicants to apply for the approvals required for their individual location and proposed works.

The drainage applications coordinator would be contactable via telephone, email and/or an enquiry form on the one-stop shop webpage. The coordinator would also be responsible for updating the one-stop shop webpage (Option 1) and coordinating concurrent assessments (Option 3) across government agencies.

Option 3: Concurrent assessment

Issues addressed: delays in processing applications for approvals. Under the EP&A Act, integrated development needs development consent and an approval from another public authority such as a Fisheries permit or controlled activity approval. In these circumstances the consent authority must refer the development application to the relevant public authority and incorporate their general terms of approval. The consent authority must not approve the development application if the public authority recommends refusal. Despite the general terms of approval being issued, once the development consent is issued proponents then need to separately apply for permits and approvals from the other public authority/authorities, which can be time consuming.

Option 3 would involve consolidating the information required under multiple approvals to be submitted with an integrated development application to allow for concurrent assessment by the relevant authorities and reduce determination timeframes. The reduction in determination timeframes would require a commitment from agencies to:

- agree on the type of information that is required upfront as part of a development assessment so that the determination of approvals and permits can be expedited
- shorter determination timeframes for approvals and permits if adequate information has been provided as part of the development application.

While applicants would still need to separately apply for public authority approvals such as Fisheries permits or controlled activity approvals, their determination could be expedited as the required information and assessment could occur as part of the integrated development process.

The interagency working group will investigate the viability of Option 3 by considering case studies, funding, resource requirements and commitments across local councils and NSW Government agencies. In particular, the group will closely consult with local councils, as they determine development consents for integrated development.

Option 4: Implement a risk-based approach for approvals for coastal floodplain drainage works

Issues addressed: regulatory complexity, water quality impacts.

This concept builds on proposed risk-based solutions presented by stakeholders. This option would identify categories for low-, medium- and high-risk activities and areas to help better coordinate the application and approval processes.

The risk matrix (Table 3) below identifies three levels of overall risk that, in turn, could determine the level of information required from applicants, the degree of assessment required by the approval authority and the level and types of conditions applied to any approvals granted (including monitoring and reporting requirements). The risk-based approach should help applicants to better understand the downstream impacts of proposed works in different places and the ways those impacts can be reduced.

Further investigation of this option would be required to understand its viability. It is expected that Crown Lands, Fisheries and the Water Group would participate in this risk-based approach. The EP&A Act already sets out a risk-based framework for planning approvals so the risk-based approach in this option would not apply to planning approvals. The planning pathways and environmental assessment for development depend on the environmental impact. Environmental planning instruments set out whether a development is permitted without consent (that is, planning approval), permitted with consent, or prohibited. The level of environmental assessment required for development that requires consent may also differ depending on the likely impacts of the development. For example, developments with a high impact and/or in an environmentally sensitive area would be designated development and require an environmental impact statement. However, Planning could investigate whether standard conditions for drainage works could be prepared as a guide for local councils.

Table 3. Example of a risk matrix

Drainage works scale (type/extent)	Drainage area acidic water/blackwater potential		
	Low	Medium	High
Low	**Very low risk** Low level input/ assessment/ conditions - possible exemptions	**Low risk** Low level input/ assessment/ conditions	**Medium risk** Medium level input/ assessment/ conditions
Medium	**Low risk** Low level input/ assessment/ conditions	**Medium risk** Medium level input/ assessment/ conditions	**High risk** High level input/ assessment/ conditions
High	**Medium risk** Medium level input/ assessment/ conditions	**High risk** High level input/ assessment/ conditions	**Extreme risk** Very high-level input/ assessment/ conditions – unlikely to be approved

To implement a risk-based approach, the following would be required:

- a drainage area classification – the NSW Government has collected data at the sub-catchment level that has enabled mapping that would inform identifying areas of high, medium and low potential for acid sulfate discharge and blackwater generation. This information could be used in combination with other relevant information such as Coastal Wetland mapping under the Resilience and Hazards SEPP and tenure of infrastructure and could build on suggested methodologies proposed by floodplain industry
- a drainage works classification – would identify standard drainage infrastructure works and rank them into risk categories based on their scale (for example, type and extent)
- an overall risk classification – based on drainage area and drainage works classifications
- information required from applicants – based on overall risk
- standardised approval conditions – that reflect overall risk and could be developed from pre-existing work, including current active floodgate management plans, best practice agreements and risk-based industry proposals
- a technical guideline that communicates to stakeholders the risks and ways to mitigate them.

Best practice agreements could be developed between NSW Government agencies and public authorities, other entities (such as private drainage boards) or individual landholders. These agreements could be applicable to multiple properties and landholders. The basis for best practices

to be included in these agreements is already established in some existing documents, such as Rous County Council's Active Floodgate Management Plans, the Department of Primary Industries' Restoring the balance publication and MidCoast Council's Drain Maintenance Guidelines. Best practice agreements can include work methodologies, protocols for opening and closing floodgates and review mechanisms that the proponent or gate managers will implement. These agreements could be integrated/referred to within approvals and ensure all stakeholders have an agreed plan of management for particular gates or groups of gates (such as by level of risk as discussed above).

Compliance activities commensurate with environmental risk (that may include a compliance audit) would need to be developed to underpin this system.

While considerable effort would be required to develop these processes and classifications, it would help to minimise the administrative burden on stakeholders and agencies by:

- rationalising the potential information required from applicants: a low-risk application would require less information than a high-risk application
- rationalising the number of approvals required: exemptions for lower risk scenarios could be possible
- scaling the approval conditions based on the overall risk: low-risk scenarios would have less onerous conditions applied compared to higher risk scenarios and reduce uncertainty and potential conflict around conditions under different legislation.

In addition, best practice agreements would allow for proactive assessment of works to lengthen the term of approvals and cover multiple sites. Overall, increased implementation of best practice agreements could support best practice to become standard practice, providing improvements to water quality.

Option 5: Drainage work approvals under the *Water Management Act 2000*

Issues addressed: regulatory complexity, water quality impacts.

The WM Act has provisions that require a landholder to hold a drainage work approval to construct and use a drainage work for the purpose of draining water from land, including drainage channels and floodgates. These provisions have not been activated and an option is to switch them on for coastal floodplains by proclamation. If this were to occur, the drainage work approval would replace the requirement for a controlled activity approval in those areas where a 'drainage work', as defined by the WM Act, is the most appropriate approval type. A drainage work approval could be applied to all floodplain drainage infrastructure including drains (whether they are artificial, modified or

unmodified watercourses) and floodgates, making it easier than a controlled activity approval to understand where an approval is required.

There are two main ways that the drainage work approval could be implemented:

(i) a drainage work approval would be required only when drainage works are proposed and for the area of works only[4]

(ii) a drainage work approval could apply to existing and new drainage works across the entire drainage network[5].

Compared to options that operate within the existing regulatory framework, drainage work approvals would provide a fit-for-purpose approval under the WM Act that can address water quality impacts.

Sub-option (i) would potentially achieve some improvements to water quality. These improvements would be greater than from controlled activity approvals because they apply to all drainage works not just those on waterfront land. However, the water quality improvements would not be as substantial as could be delivered by sub-option (ii) because sub-option (i) is limited to individual works or sites.

Sub-option (ii) has the greatest potential to significantly improve water quality because it considers the entire drainage system[6]. If sub-option (ii) were implemented, drainage system landholders or their contractor (including local councils) or private drainage boards where operational could hold the drainage work approval for their area of responsibility. These approvals can be granted for up to 10 years and can be renewed before they expire. The approval would also continue to apply to future landowners if the land were sold. Regulations would be needed to operationalise this option and it would be best implemented in conjunction with the risk-based approach described in Option 4.

Public authorities, such as local councils, are exempt from being required to hold a controlled activity approval or flood work approval. Options for public authorities for drainage work approvals could include:

(a) require public authorities to hold a drainage work approval

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[4] Work would include maintenance or modification of existing infrastructure and construction of new infrastructure. Examples of infrastructure include floodgates, drains, drain outlets.

[5] This would apply across the entire drainage network to:

a. existing, functional drainage works (infrastructure), regardless of whether or not it is being, or will be, maintained or modified. A process for decommissioning non-functional drainage infrastructure would be considered.

b. the construction of new drainage works (infrastructure).

Examples of infrastructure include floodgates, drains, drain outlets.

[6] Those options that address water quality are consistent with the *NSW Water Strategy, Action 3.5: Adopt a more intense, state-wide focus on improving water quality*. In considering the entire drainage system, Option 5 (ii) is the most consistent with *Action 3.2: Take landscape scale action to improve river and catchment health.*

(b) allow for public authorities to be given a conditional exemption (for example, exempt provided they follow a plan of management or guideline for drainage works)

(c) follow the precedent for controlled activity approvals and exempt public authorities altogether.

Exemptions for low-risk activities could be applied to private landholders and public authorities. Examples of low-risk activities may include removing sediment and marine vegetation from approximately $1m^3$ in front of a floodgate outlet and clearing vegetation from constructed drains on private land using suitable machinery or hand tools. An example of an activity not considered low risk is deepening of the drain profile.

Option 6: Further streamlining of Fisheries and Crown Lands approvals through use of drainage work approvals

Issues addressed: regulatory complexity.

Drainage work approvals could reduce assessment times for Fisheries and Crown Land approvals and potentially replace some of them in the longer term.

Commencing drainage work approvals could provide an opportunity to further streamline the regulatory framework. The use of drainage work approvals (particularly under Option 5(ii)) could consider water quality at a drainage network or sub-catchment level. This holistic approach could enable the assessment and issuing of a drainage work approval to provide greater certainty to other agencies that the potential environmental impacts have been considered and appropriate conditions applied. This would allow for the other agencies – such as Fisheries and Crown Lands – to review and issue the required approval more quickly.

Current legislation already provides some exemptions from approvals where there is overlapping jurisdiction. For example, a Fisheries permit for dredging activities is not required if an approval has been provided by another agency, such as Crown Lands or the Water Group, because a referral to Fisheries is included in the assessment process. This approach will be maintained if drainage work approvals are commenced, that is, a drainage work approval that covers dredging activities would negate the need for a separate Fisheries permit for dredging. However, there are some scenarios where multiple agency approvals are still required for a particular work, for example, where works, such as a drain and a floodgate, occur on both Crown land and private land. Another example is where mangroves (marine vegetation) must be cleared as part of the works.

Further streamlining would require legislative changes. A review of the CLM Act is planned for 2023 and this could provide opportunities to streamline approvals applicable to coastal floodplain drainage works.

How each option is expected to address the project objectives

Table 4 shows the expected effect of each option on the project objectives, which are to address:

- the complexity, time and cost associated with the approvals process
- water quality and its impact on downstream aquatic ecosystems, communities and industries.

The expected effect of each option on the project objectives is relative only to other effects detailed in Table 5 (refer to the legend in Table 4). In particular, the effects of the regulatory options on water quality should not be compared to any effects that might be achieved by non-regulatory means. The expected effect of each option on approvals complexity, time and cost is based on the effect on applicants only and not on relevant NSW Government agencies.

Table 4. Legend for Table 5: Comparison of the expected effect of each option on the project objectives, being how each option affects: (i) approvals complexity, time and cost, and (ii) water quality

Legend (expected effect)	
Major	Is expected to provide significant improvements to approvals processes and/or water quality
Moderate	Is expected to provide improvements to approvals processes and/or water quality
Minor	Is expected to provide limited improvements to approvals processes and/or water quality
Very minor	Is expected to provide little to no improvements to approvals processes and/or water quality
No additional	Is expected to provide no improvements to approvals processes and/or water quality

Table 5. Comparison of the expected effect of each option on the project objectives, being how each option affects: (i) approvals complexity, time and cost, and (ii) water quality

#	Option	Approvals complexity, time & cost	Water quality
1	One-stop-shop	Minor to moderate effect • Provides information in one place on types of approvals, application processes, required information and	Very minor effect • Increased awareness may result in more approvals being sought, leading to some mitigation of the impacts of drainage works. This may

#	Option	Approvals complexity, time & cost	Water quality
		guidance material from multiple agencies.	result in very limited improvement in water quality.
2	Drainage applications coordinator	Moderate to major effect • Dedicated staff to provide one-on-one, site-specific guidance[7] to assist applicants to navigate approval requirements.	Minor effect • Increased assistance may result in more approvals being sought, leading to some mitigation of the impacts of drainage works. This may result in limited improvement in water quality. • Provides the opportunity to raise awareness of the impacts of drainage works on water quality and methods for mitigation.
3	Concurrent assessment	Moderate effect • Concurrent assessment of application by multiple government agencies. Reduced determination timeframes for applicants.	Very minor effect • Streamlining of the application process may result in more approvals being sought, leading to some mitigation of the impacts of drainage works. This may result in very limited improvement in water quality.
4	Risk-based approach	Moderate effect • Clear information requirements for applications based on level of risk. • Assessment processes tailored to the level of risk. • Coordinated and predetermined standard conditions used by relevant regulatory agencies. • Provides reduced approvals complexity for low-risk scenarios.	Moderate effect Tailoring of regulatory conditions that are consistent across relevant agencies and proportional to water quality risks: • Stricter conditions for high-risk scenarios mitigate the most significant water quality impacts. • Little risk to water quality from streamlined conditions for low-risk scenarios.

[7] Note that legal advice cannot be given by the drainage applications coordinator.

#	Option	Approvals complexity, time & cost	Water quality
5(i)	**Drainage work approval** Applied only where and when work[8] is proposed. Public authorities with no exemption, conditional exemption (e.g. plan of management or guideline) or full exemption.	Minor effect Drainage work approval would replace controlled activity approval. All other approvals managed by Crown Lands, Fisheries and Planning would remain. • Easier to interpret where WM Act approvals are required: no longer restricted to waterfront land (like controlled activity approvals) which can be difficult to identify. Initial increase in approvals time and cost for some applicants: • additional approval for drainage works not on waterfront land (i.e., where a controlled activity approval was not previously required), resulting in a greater number of works requiring an approval than under the current regulatory regime. Subsequent decrease in approvals time and cost: • once drainage work approvals are in place, only modifications and renewals would be required • approvals would apply up to 10 years and be renewable • approval would continue if the land were sold to a new owner. The overall effect could differ depending on the level of exemption provided to public authorities.	Moderate effect • Greater number of drains and other drainage infrastructure subject to approvals and water quality conditions than under the current regulatory regime. • The overall effect could differ depending on the level of exemption provided to public authorities.

[8] Work would include maintenance or modification of existing infrastructure and construction of new infrastructure. Examples of infrastructure include floodgates, drains, drain outlets.

#	Option	Approvals complexity, time & cost	Water quality
5(ii)	**Drainage work approval** Applied to existing and new drainage works across the entire drainage network.[9] Public authorities with no exemption, conditional exemption (e.g. plan of management or guideline) or full exemption.	Moderate effect Same points as for 5(i) except that all existing and new drainage works would require an approval. Initial increase in approvals time and cost for some applicants: • all landholders or private drainage boards within an entire drainage network would be required to hold a drainage work approval for all existing and new drainage infrastructure on their landholding or within their area of responsibility (not just on waterfront land) • information for the whole drainage area within the landholding or area of responsibility needed for the application. **Subsequent decrease** in approvals time and cost: A single approval would apply to all works across the area of responsibility.	Major effect • Approvals that incorporate ongoing, day-to-day operation of the drainage infrastructure and consider water quality at a drainage network or sub-catchment level. • Ensures practices upstream and downstream are consistent and do not risk adversely affecting/undermining each other. The overall effect could differ depending upon the level of exemption provided to public authorities. Given that this option is intended to apply to the whole drainage network on an ongoing basis, the full exemption of such significant owners of drainage infrastructure could impact on water quality improvements.

[9] This would apply across the entire drainage network to:

a. existing, functional drainage works (infrastructure), regardless of whether or not it is being, or will be, maintained or modified. A process for decommissioning non-functional drainage infrastructure would be considered.

b. the construction of new drainage works (infrastructure).

Examples of infrastructure include floodgates, drains, drain outlets.

#	Option	Approvals complexity, time & cost	Water quality
6	**Further streamlining of Fisheries and Crown Land approvals through use of drainage work approvals**	Moderate to major effect Would provide greater certainty to Crown Lands and/or Fisheries that environmental impacts have been considered and appropriate conditions applied, potentially allowing these agencies to assess and determine applications more quickly.	No additional effect • No change to water quality beyond the effect of Option 5(ii).