

APPROVALS PROPOSAL PATHWAY FORM

PURPOSE

This form is for applicants seeking approval for new works, new research or for current licence holders, seeking amendment to their current licence. The different pathways available for proponents are; (1) no approval requirement, (2) general exemptions, (3) exemptions under the Act, (4) research, development and demonstration projects (RD&D); (5) licence amendment, (6) fast track works approval and (7) standard – works approval.

HOW TO COMPLETE THIS FORM

Guidance on how to complete this form is provided in *EPA publication 1560 Approvals proposal pathway – Guidelines*. If you require further clarification you may contact EPA by email approvals.applications@epa.vic.gov.au or on phone 1300 EPA VIC (1300 372 842).

Once you have completed the form, forward it to approvals.applications@epa.vic.gov.au or for hardcopy to Environment Protection Authority (GPO Box 4395, Melbourne 3001). At this stage no application fees apply. Please note that incomplete forms will be returned to the applicant with a request to provide further information.

STRUCTURE

The form is divided into three parts; (1) **Proposal form** which is a general information part and explains what documents to include with the proposal. (2) **Key questions** which together with (3) **Engagement/consultation** will help the EPA make a pathway decision.

The person completing this form must have the authority to make this submission on behalf of the applicant.

APPLICANT STATEMENT

I declare that to the best of my knowledge the information in this form is true and correct:

Position held:

Full name:

Signature:

Date:

1. PROPOSAL FORM

1.1 General information

Individual/Company name (Legal)	Wannon Region Water Corporation	
ABN/ACN	94007404851	
Registered Office address	25 Gateway Rd Warrnambool Vic 3280	
Billing address	PO Box 1158 Warrnambool Vic 3280	
Relevant current EPA Approval/licence number*		74341

* For existing Approval/licence holders.

CEO contact details

Name	Andrew Jeffers
Phone	1300 926666
Email	andrew.jeffers@wannonwater.com.au

Premises

Premises address	Beath St Hamilton Vic 3300 – Premises No. 72264
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Please note EPA expects that Landowner consent has been granted.

1.2 Primary company contact details

Name	Belinda Garner
Position	Water Quality Projects Officer
Phone	1300 926666
Email	belinda.garner@wannonwater.com.au
Postal address	PO Box 1158 Warrnambool Vic 3280

If a Consultant/Environmental Auditor has been engaged, please provide details:

Name	NA
Position & Company	
Phone	
Email	

1.3 Works details

Project/Works Name	Licence amendment – addition of discharge of waste to surface water for Hamilton WRP.
Cost of Works	\$420,000

1.4 What type of business is the premise?

(see Appendix 1 in the guidelines for category of scheduled premise)

Sewage Treatment

1.5 Describe what you are planning to do in the expandable box below

Wannon Water is seeking an amendment for Licence 74341 – Premises No.72264 Hamilton Water Reclamation Plant (WRP).
 The proposed amendment is to discharge treated wastewater from the Hamilton WRP Monivae Winter Storage into Muddy Creek. This discharge would occur during the non-irrigation season months – typically May to November annually.

The Hamilton WRP storage volume and irrigation area is currently not sufficient to hold and irrigate all flows entering the Hamilton WRP. Wannon Water has designed and costed the required additional winter storage and irrigation area. The additional infrastructure cost estimate was two million dollars.

Since the treatment plant was commissioned 50 years ago there has been some form of irrigation reuse, however achievement of 100 percent reuse has always been difficult and discharge of treated effluent to the Grange Burn has been required. Over the past decade discharge to waterways has occurred in 8 out of the 10 years. Since 2014 discharge of treated wastewater to Muddy Creek has occurred in conjunction with discharge to the Grange Burn.

Wannon Water considers that the high capital cost of the proposed upgrades would not be in the best interests of the Hamilton population for the following reasons:

- Studies have shown the historical discharges have not impacted macroinvertebrate or fish communities, nor detrimentally altered the ecological condition of Muddy Creek or the Grange Burn
- The treated wastewater discharged is of a high standard.
- Capital recovery as spread across the customer base was deemed excessive.

Wannon Water has utilised out a risk based approach to identify the most appropriate method for dealing with the excess treated wastewater. This included:

1. An ecological risk assessment
2. Review of 10 years water quality data
3. Bio-assessment of the receiving waterways
4. Stakeholder consultation
5. Options assessments
6. Best Practice Assessment

A summary of the risk based approach is included below:

1. The environmental risk assessment identified that the controls Wannon Water currently employs when discharging from the Hamilton WRP Monivae winter storage to Muddy Creek are effective in minimizing the risk to the values of the waterway. The majority of these risks are considered to be controlled and at low levels in the Muddy Creek. Risks from increased phosphorus, nitrogen and ammonia in Muddy Creek as a result of discharge are rated medium, due to the changes in creek water quality while discharging.
2. The review of water quality data showed that a change in discharge location from the balancing storage to the Monivae winter storage would result in a significant improvement in discharged water quality. The water discharged from the Monivae winter storage is of high quality. Pathogen levels are less than the primary recreational contact objectives, and better quality than the receiving waters. Turbidity, biochemical oxygen demand, suspended solids and electrical conductivity are also lower than the receiving waters and less than the water quality objectives (Table 1).
 Phosphorus, total nitrogen and ammonia concentrations in the discharge water are greater than the SEPP guidelines. Muddy Creek also has phosphorus and total nitrogen levels in excess of the SEPP guidelines. Discharge of the treated wastewater occurs during the wetter months of the year when flow rates, via catchment run off, in the Creek are high (Table 1). This was also supported by results from the bio assessment study.
 Note the water quality overview was completed prior to the gazettement of the 2018 SEPP, as such the water quality was compared against the 2003 SEPP objectives. Wannon Water subsequently compared the 2003 and 2018 SEPP objectives and the conclusions from the initial water quality overview do not change (refer to Addition to Appendix B).
3. The bio assessment concluded that discharge from the Hamilton WRP Monivae Winter Storage has no impact on macroinvertebrate communities in the creek.
4. The fish survey found a high abundance of fish in the reach up and downstream of the discharge point into Muddy Creek. Threatened species were identified in Muddy Creek during the survey.
5. Consultation with stakeholders indicated that there were no objections to discharging to Muddy Creek from Monivae winter storage during the non-irrigation months.
6. The best practice, considering economic, social and environmental outcomes was identified as discharging to Muddy Creek from the Monivae winter storage, over the wetter months of the year.

Table 1: Typical water quality discharged during the winter months from the Monivae Winter Storage WRP to Muddy Creek.

Parameter	Monivae Winter storage concentrations	Average discharged loads from Monivae to Muddy Creek kg/day	% of load in Muddy Creek as a result of discharge	% Change in the Creek concentration as a result of the discharge*
Ammonia (mg/L)	1.1	2	22	0
BOD (mg/L)	3	6	0	0
E.coli (orgs/100mL)	12	1.39 E+10 ^{\$}	0	0
Electrical Conductivity (uS/cm)	1120			0
pH	8.1			0
Phosphorus (mg/L)	3.8	11	17	0
Total Nitrogen as N (mg/L)	5.5	17	1	0
Total Suspended Solids (mg/L)	4	6	11	0
Turbidity (NTU)	2.2			0

Data from July 2014 to June 2018

^{\$} orgs per day

* Based on up and down stream sample points (4 km apart)

Using the risk based approach Wannon Water has concluded that the discharge of treated wastewater from the Hamilton WRP Monivae winter storage to the Muddy Creek during the non irrigation season;

- Has a low impact on the receiving environment.
- Has a low risk to the Muddy Creek values (Environmental /ecological, Recreational, Economic, Cultural).
- Is best practice for the options assessed (Environmental, Economic and Social).

Therefore it is requested that the EPA amend the current licence to allow annual non irrigation season discharges from the Hamilton WRP Monivae winter storage to Muddy Creek.

Documentation to be included

Please provide the following information with your proposal form and pathway documentation. Documents supporting answers given in section 2 and section 3 needs to be included. Further details are provided in **EPA Publication 1560 Approvals proposal pathway – Guidelines**.

Administrative:

- Certificate of Incorporation (Company); or
- Certificate of Registration (Business) as appropriate ([Appendix H](#))

Maps:

- Site plan ([Appendix H](#))
- Locality plan ([Appendix H](#))
- Planning zone map ([Appendix H](#))
- Attach a map of any sensitive receptors in the area. ([refer to Appendix A – Discharge of Treated Wastewater from Hamilton WRP to Muddy Creek Risk Assessment](#))

Engagement / consultation:

- Evidence of engagement / consultation ([Appendix F Hamilton WRP Stakeholder Consultation](#))
- Any templates and supporting information used to the form. Templates can be found in guidance document.

Supporting Documents:

Please submit any documents you may have supporting the information provided in this form.

- [Appendix A Discharge of Treated Wastewater from Hamilton WRP to Muddy Creek Risk Assessment](#)
- [Appendix B Hamilton Water Reclamation Plant and Receiving Environment Water Quality Overview.](#)
- [Appendix C Rapid Bio-assessment of Muddy Creek for the Hamilton Discharge Spring 2016 \(GHD, 2017\)](#)
- [Appendix D Hamilton WRP Options Identification](#)
- [Appendix E Hamilton WRP Best Practice Assessment for the Treatment and Disposal of Excessive Winter Flows](#)
- [Appendix F Hamilton WRP Stakeholder Consultation](#)

- Appendix G Continual Improvements
- Appendix H – Plan, maps, certificate of business

Commercial in confidence

Commercially confidential material should only be submitted where it is pertinent to the proposal and should be: (a) provided only within a separate appendix and not within the proposal and (b) be clearly marked 'commercial in confidence'. EPA prefers to receive any commercial in confidence document as hard copy rather than electronic copies. This material will be filed separately to ensure security.

2. KEY QUESTIONS

In answering the questions in this section and section 3 you must provide the EPA with sufficient information to determine which pathway is suitable for the proposed work.

Please insert your answers in the expandable text boxes below or in cross referenced appendices where appropriate (i.e. for modelling results, emissions data or estimations etc.). Applicants must not submit false or misleading information.

2.1 What changes in emissions, discharge or other impacts to the environment do you expect as a result of the proposal?

To where (air, land, water, odour and noise), as what (what type of substances), from where (incinerator, waste treatment etc.) and quantity (per day, per week, per month, per year)?

The Hamilton WRP was commissioned in the 1960s. There have been numerous upgrades to the treatment plant over the past 50 years, including adding extra water storage, with the aim of reusing 100 percent of the recycled water via irrigation. However 100 percent reuse has remained difficult to achieve, with discharge of treated effluent to the Grange Burn occurring since the treatment plant was commissioned. Over the past decade discharge to waterways has occurred in 8 of the 10 years. The Hamilton WRP storage capacity and irrigation area is not currently sufficient to meet the EPA licence design criteria of one in 10 year wet weather event.

The proposed licence amendment is to discharge treated wastewater from the Monivae winter storage to Muddy Creek exclusively. A pump upgrade will negate the need to discharge from the Balancing storage (which is poorer quality water) to the Grange Burn. This discharge would be timed to align with high Muddy Creek flows – typically June to October.

Prioritising discharge from Monivae storage by increasing the pumping capacity from the Balancing storage to Monivae storage will result in significant improvements in the quality of the wastewater discharged. For example, annual total nitrogen loads to the creek could be reduced by one tonne (refer to table 1). The Monivae winter storage provides at least an additional 97 days detention.

It is proposed to manage the timing of discharges so that they align with high flows in Muddy Creek, potentially reducing the duration of discharges, but increasing the daily discharge volume. This would reduce the need to discharge in the warmer months when plants are more likely to take up nutrients. This may result in higher median concentrations discharged than has historically occurred. The higher medians will be a result of discharging for a shorter period over the colder months.

Note: there is a strong seasonal trend in total nitrogen and ammonia which rapidly declines from winter to summer.

Refer to Hamilton Water Reclamation Plant and Receiving Environment Water Quality Overview (appendix B attached)

Table 2: Comparison of water quality between balancing storage and winter storage

Parameter	Typical Concentration discharged during the winter/spring months from:		% Improvement
	Monivae winter storage	Balancing storage	
Ammonia as N (mg/L)	1.1	8	86%
Biochemical Oxygen Demand (mg/L)	3	9	67%
E.coli (orgs/100mL)	12	32	63%
Electrical Conductivity (uS/cm)	1120	1100	No sig change
Nitrogen - Total (mg/L)	5.5	16	66%
pH	8.1	7.9	No sig change
Phosphorus - Total (mg/L)	3.8	5.1	25%
Suspended Solids (mg/L)	4	12	67%
Turbidity (NTU)	2.2	5	56%

2.2 Please explain why your proposal and its inherent changes should be considered best practice.

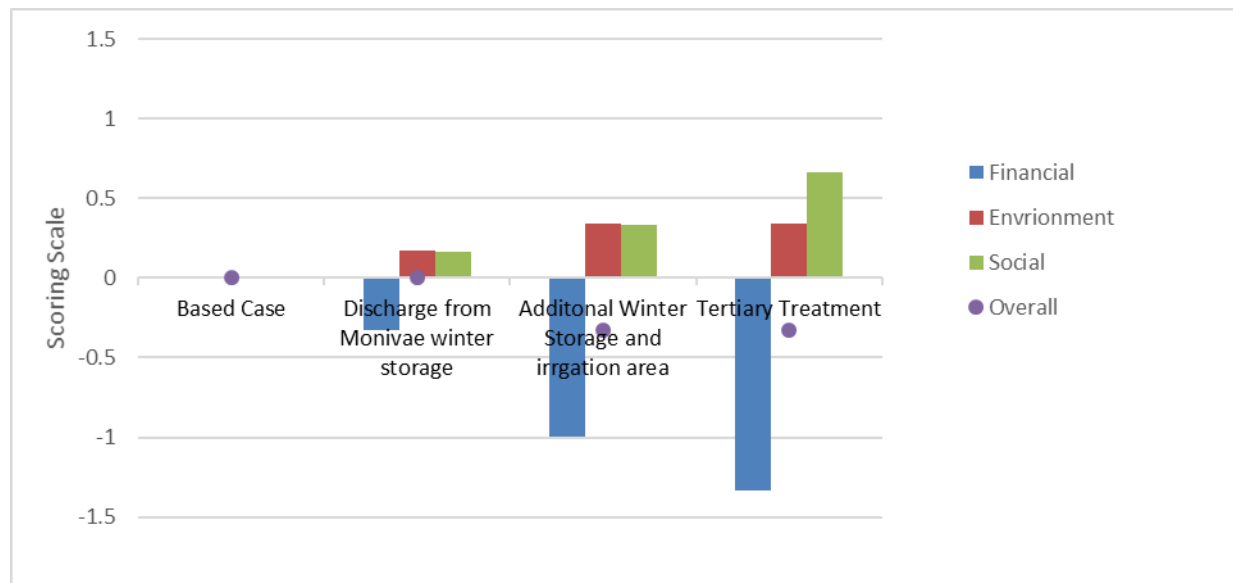
For some pathways the proponent will need to demonstrate that the proposed work has a low impact on the environment, as well as on the community. The impact on the environment can be reduced by using *best practice technology*. Further information and guidance on demonstrating best practice can be found at: <http://www.epa.vic.gov.au/business-and-industry/guidelines/demonstrating-best-practice> or through contacting the EPA.

Wannon Water has used the “*Integration of economic, social and environmental considerations*” analysis technique detailed in the EPA Publication 1517 *Demonstrating Best Practice*, to assess various alternatives for the treatment and disposal of excessive winter flows from the Hamilton WRP.

Figure 1 represents a summary of the financial, environmental and social benefits (+) and impacts (-) for each of the options proposed. Considering the financial, social and environmental benefits / costs the preferred option was identified by Wannon Water as “option 2”, to discharge high quality water from Monivae winter storage to Muddy Creek during the wetter months. This requires upgrading the current transfer pumping capacity from the balancing storage to Monivae storage to minimize discharge to the environment from the balancing storage. This will significantly improving the wastewater quality being discharged. Wannon Water believes that this option will have minimal impact on the environment and come at minimal cost to regional customers.

Refer to: *Hamilton WRP Best Practice Assessment for the Treatment and Disposal of Excessive Winter Flows (Appendix E attached)*

Figure 1: Option scoring – using a weight split of 33 percent.



2.3 Please explain how your proposal will incorporate waste minimisation principles and how you have sought to minimise impact of the environment.

A way of reducing your environmental impact is to use EPA guideline documents related to your specific scheduled premises. If you have reduced your impact of the environment, please describe in what way and refer to the information used. For more information, please look in the guidelines to this document.

The wastewater discharge is managed in accordance with the waste hierarchy, by avoiding/reducing the discharge volume through irrigation to land practices. Reuse of recycled water occurs on Wannon Water owned land, during the warmer months. The storage capacity at the Hamilton WRP is not sufficient to store all incoming water into the plant, to allow for 100% irrigation to land during the warmer months. During the cooler months there is no irrigation demand for the site. Consequently for about three months of the year, any water that cannot be stored for irrigation reuse, is discharged to local waterways. Discharge will be timed to coincide with high creek flows. Since 2014 Wannon Water has discharged to the environment from either the Balancing storage or the Monivae storage. Wannon Water has used a risk based approach to decide which storage to discharge from, considering the water quality in the storages and waterways, incoming volumes and CO² generation via electricity used for pumping.

2.4 If waste is handled, generated or stored on the premise, please describe the nature of this waste, the expected quantities and management of these waste streams.

The Hamilton Water Reclamation Plant (WRP) is designed to provide secondary treatment to a class C standard for agricultural and urban irrigation.

The treatment process and reuse storage consists of the following components:

- Inlet screening - coarse screen and vortex grit chamber
- Clarifiers - two circular primary up-flow sedimentation tanks
- Trickling filters - four circular biological trickling filters with rock media
- Primary / aerated lagoon with two surface aerators
- Maturation lagoons - Lagoons 2 and 3
- Winter storages - Balancing storage and Monivae storage

The Hamilton Water Reclamation plant has been designed so that it typically takes wastewater at least 146 days to traverse through the storages prior to discharge (Table 3).

The primary lagoon is approximately 70 ML in size. The maturation lagoons have a total volume of approximately 75 ML. Water flows by gravity to the balancing storage and is then pumped to the Monivae winter storage which has a total volume of approximately 575 ML.

Table 3: Hamilton treatment lagoon size and detention time.

Lagoon type	Size (ML)*	Detention time (days) Based on median flow	Detention time (days) Based on peak flow
Primary lagoon 1	70	31	12
Maturation lagoon 2	48	21	8
Maturation lagoon 3	27	12	5
Winter Storage – Balancing Storage	68	30	12
Winter Storage – Monivae Storage	575	253	97

* Total Size not all usable

Over the past ten years the volume of treated wastewater discharged to the Grange Burn / Muddy Creek ranged from 0 to 588 ML per year. The typical volume discharged was 4 ML/day. The volume discharge compared to the flow volumes in the Grange Burn (160 ML/day) and Muddy Creek (540 ML/day) is proportionally small.

Table 4 shows the Grange Burn and Muddy Creek flow rates in ML/day versus the discharge rates over the past ten years.

Table 4: Median flow volumes and mixing ratios

Annual discharge volume	190 ML
Mixing ratio Grange Burn to Discharge volume	30 : 1
Mixing ratio Muddy Creek to Discharge volume	184 : 1
Number of days discharge occurs over	54

Refer to Hamilton Water Reclamation Plant and Receiving Environment Water Quality Overview (appendix B attached)

2.5 Is the proposal related to technology development?

This could be that it relates to research, development or testing of a new technology, process or plant. If these conditions apply, please refer to EPA publication 1369 Guidelines for Research, Development and Demonstration Approvals, and provide relevant information i.e. the purpose of the RD&D project, its scale and duration.

Not Applicable

2.6 Will there be changes to your current licence?

(this question is only applicable for current licence holders)

Highlight the proposed changes in the relevant existing condition of your licence and provide supporting evidence to demonstrate how the proposed change will affect/not affect the environment.

It is proposed to add the following condition to the Water Conditions

LI_DW2 Discharge of Waste to Surface Waters (Muddy Creek) in accordance with the Discharge to Water Table

Indicator	Limit Type	Unit	Discharge Limit
Ammonia	Annual Median	mg/l	6
Biochemical Oxygen Demand	Annual Median	mg/l	10
Escherichia Coli	Annual Median	mg/l	100
Suspended Solids	Annual Median	mg/l	10
Total Nitrogen	Annual Median	mg/l	12
Total Phosphorous	Annual Median	mg/l	5
Unionised ammonia	Annual Median	mg/l	0.2
pH	Maximum	pH	9.3
pH	Minimum	pH	7

LI_DW2.10 Discharge from the premises must not exceed a 1:5 dilution factor or an equivalent percentage of receiving surface water flow rate in Muddy Creek.

LI_DW2.15 The Discharge from DP1 must not cause the water quality beyond the mixing zone to be more than background levels in Muddy Creek.

LI_DW3 The mixing zone extends 3km downstream of the licensed waste discharge points.

Using the risk based approach shown in the attached appendices, Wannon Water has concluded that continuation of discharge of treated wastewater from the Hamilton WRP Monivae winter storage to Muddy Creek during the non irrigation seasons:

- Has minimal impact on the receiving environment
- Has minimal impact to the beneficial uses and local values of Muddy Creek.
- Is best practices based on EPA publication 1517 “Integration of economic, social and environmental considerations”.

Historically discharge has not started until all storages were full and continued until irrigation started. If the licence is amended future discharge will be timed to occur when Muddy Creek is flowing strongly maximising dilution ratios. The Discharge Limit values were calculated to reflect what the concentrations would be around the best time to discharge – when flows are greater (high dilution) and temperatures are lower (plants less likely to take up the nitrogen). Based on flow in the Grange Burn @ Morgiana, site 238219 (downstream of Muddy Creek confluence) from 1973 to 2018 August and September generally have the highest flows. Therefore concentration data for August, September and October was used to

determine the Discharge Limit, rather than using data over the historical discharge period which often extended into November.
The dilution ratio is based on section DW2.8 of the Licence Management guidelines 1322
The mixing zone extent was based on Wannon Water's up and downstream monitoring in Muddy Creek. This was supported by the bio-assessment undertaken by GHD.

2.7 Are there special circumstances that apply?

For example is there other legislation related to the project or other approvals (i.e. planning permits) that are still pending?

Not applicable

3. ENGAGEMENT / CONSULTATION

For your application to be accepted, you must have done engagement / consultation or be able to clearly demonstrate it is not applicable because there is no risk and no concern to human health or the environment. To find out how to do engagement / consultation see the guide to this form. If you decide to not do this, there is no evidence whether the proposed work will have a high or low impact and end up in a different pathway. Do not forget to attach the supporting documents for this with the proposal.

3.1 Have you identified potential impacted / interested stakeholders?

EPA wants to know if you have identified surrounding stakeholders that potentially will have an opinion of the proposal (for information about this see appendix 3, 4 and 5 in the guidelines).

Wannon Water's stakeholder engagement program was designed with the aid of the EPA's "Approvals Proposal Pathways Guidelines".

Wannon Water undertook the stakeholder risk assessment matrix outlined in these guidelines, and identified the following;

- Low discharge volumes,
- Unlikely to breach health standards,
- Unlikely impact to amenity/ health,
- The site is away from residents and
- The good company reputation.

Based on the items above the risk of discharge to Muddy Creek from the Hamilton WRP was ranked as low.

Wannon Water used a variety of engagement methods to target different stakeholders with the aim to:

- Provide information on the current operation at the Hamilton WRP
- Provide information on the current environmental impacts
- Gain information on the catchment benefits/ values
- To gauge stakeholder opinion on the options proposed
- To answer questions and concerns

See attached *Hamilton WRP Stakeholder Consultation* (Appendix F attached) for a summary of the stakeholders consulted, the consultation method and their responses to the proposal.

3.2 Describe the engagement / consultation with stakeholders you have done.

What type, with whom, have you met on multiple occasions etc.

Engagement with the following stakeholder groups:

- Waterway/ catchment managers
- Councils
- Traditional owners
- Landholders
- Community groups

The engagement method was tailored to the audience and incorporated one or more of the following:

- Face to face meeting
- Mail out of fact sheets
- Invitation to attend meeting

See attached *Hamilton WRP Stakeholder Consultation* (Appendix F attached) for a summary of the stakeholders consulted, the consultation method and their responses to the proposal.

3.3 What was the response from the stakeholders?

Provide EPA with evidence that stakeholders know about your proposal, what their concerns are (if any) and how these were addressed. For verification purposes include stakeholder contact information (e.g. scanned attendance list with contact information).

Consultation with stakeholders indicated that there were no objections to the option of discharge to creek from Hamilton WRP winter storage during the non-irrigation months.

See attached *Hamilton WRP Stakeholder Consultation* (Appendix F attached) for details on the stakeholders response to the proposal.

FEEDBACK

Please provide any feedback concerning this form or the guidelines to this form:

Nil

PROCESS AFTER THE FORM IS SUBMITTED

Following submission of your proposal form and any required supporting information, a decision will be made within two weeks concerning which pathway is suited for the proposal. The procedure after this depends on the specific timelines for the different pathways (shown in Table 1). For more information please read the guidelines to this document.

Table 1 – The different pathways have different time frames from pathway decision until the final decision is made.

Pathway	Pathway proposal decision	Further stages	Final decision
No approval requirement	2 weeks	No	–
General exemption	2 weeks	No	–
Exemption under the Act	2 weeks	No	2 weeks after pathway proposal decision*
Research Development & Demonstration	2 weeks	Application process	30 days after application has been accepted
Licence amendment	2 weeks	Assessment process	60 days after application has been accepted
Fast track Works approval	2 weeks	Application process	6 weeks after application has been accepted
Standard works approval	2 weeks	Assessment process	3 months after application has been accepted

* could be changed if additional information is required.