BEFORE THE HEARINGS PANEL APPOINTED BY CANTERBURY REGIONAL COUNCIL

UNDER the Resource Management Act 1991 (RMA)

AND

IN THE MATTER of an application by Canterbury Regional Council

for resource consent to discharge agrichemicals to rivers and their connected waterbodies, air and the coastal marine area, and the clearance of vegetation, for the purposes of weed management to provide flood, erosion, drainage and river enhancement works.

STATEMENT OF EVIDENCE OF JOLENE IRVINE ON BEHALF OF CANTERBURY REGIONAL COUNCIL (APPLICANT)

11 March 2023

SUMMARY STATEMENT

1. These applications are to discharge contaminants (agrichemicals) to water, to land where it may enter water, to the coastal marine area (riverine environments only), and to air, where required to control pest plants for flood, erosion, drainage and river enhancement works throughout Canterbury. They are to replace consents CRC981580 and CRC041535. The proposal also seeks to authorise the removal of vegetation in and within 10 metres of wetlands which now require consent under the Resource Management (National Environmental Standards for Freshwater) Regulations 2020. I consider resource consents are required under sections 9, 12, 13 and 15 of the RMA with a discretionary activity status.
2. The s42A officer recommends that RMA s12 and s15 permits (consents) are **granted.** She acknowledges the need for resource consents under s9 and s13 but is silent on these in her recommendation to grant or decline. I consider it appropriate that these consents are granted together.
3. There has been generally consistent advice between experts on the potential and actual effects of the proposed activities, with no significant issues raised. That said, I do not consider all of the mitigation recommended through consent conditions is justified or practical.
4. I am in agreement with the s.42A report that the proposal is largely consistent with the relevant statutory provisions, and note that there are provisions enabling the mitigation of natural hazards and protection of losses from floods. The focus of my evidence is therefore on achieving a suite of suitable consent conditions.
5. I consider that the 20 year duration sought is justified given the importance of the work, the adaptive management approach proposed and the level of existing investment.

Introduction

6. My full name is Jolene Margaret Irvine. I am a Rivers Planning Advisor at the Canterbury Regional Council.
7. I am the project lead for seeking this set of required Resource Consents for the council's agrichemical use and vegetation clearance in and near rivers and their associated waterbodies.
8. The Canterbury Regional Council is both the applicant and the consenting authority. In this report I will refer to 'the Council (applicant)' and 'the Council (Consenting authority)' to identify the separate roles.
9. I have prepared this planning evidence on behalf of the Council (applicant).

Qualifications and Experience

10. I have been employed by the Regional Council for 15 years. I have been in my current

position for 11 years and prior to that I was a Consents Planner.

11. I hold a Master of Science with Distinction in Zoology from University of Otago, a Post Graduate Diploma in Science with Distinction in Environmental Science from Canterbury University and a Bachelor of Science in Zoology (major) and Ecology (minor) from University of Otago.
12. My education and employment have had a focus on rivers and waterways. My current role and relevant experience include providing objective plan interpretation and consenting advice to the Rivers Section of the Regional Council, which delivers the flood, erosion and drainage responsibilities, and river enhancement works, throughout the Canterbury Region.
13. I was one of the authors of the Assessment of Environmental Effects and subsequent information provided for these resource consent applications.

Code of Conduct

14. I can confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. I have complied with the Code of Conduct in preparing this evidence and I agree to comply with it while giving any oral evidence during this hearing. Except where I state that I am relying on the evidence of another person, my evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.
15. Although I am employed by the Regional Council, I am conscious that in giving evidence in an expert capacity that my overriding duty is to the Hearings Panel.

Scope of evidence

16. My evidence focuses on the planning issues associated with the Application, and my conclusions on these matters are informed by the evidence of the Council's (applicant) other experts. I do not intend to repeat in full content that has already been covered in the AEE, evidence, or where there is general agreement between the experts and s42A report.
17. I generally structured my evidence to mirror the structure of the s42A report, covering the following topics:
    a. The Proposal (summary);
    b. Changes and updates since lodgement;
    c. Assessment of Relevant Rules and Consent Status;
    d. Matters raised by Submissions;
    e. Matters raised in the s42A Report;
    f. Actual and Potential Effects;
    g. Evaluation of the activity against relevant statutory planning instruments;

h. Conditions of Consent; and
i. Duration sought.

18. In preparing my evidence I have reviewed the following documents:
    a. The application and assessment of environmental effects;
    b. Three requests for further information, and their responses;
    c. The submissions;
    d. All expert evidence; and
    e. The Consent Planner's s42A report.
19. I attended a stie visit on 30 October 2023 to Waipara River to observe aerial spraying by helicopter. I have reviewed the videos taken by other experts who attended a site visit on 2 November 2023 demonstrating unmanned aerial vehicle (UAV) spraying, vehicle and knapsack spraying. I have also visited many of the river and drainage rating districts and their waterways throughout my years in my current role.
20. I note that throughout my evidence when referring to agrichemical concentrations in water I have always converted the measurement to mg/L[1] for ease of consistent comparison.

The Proposal (Summary)

21. The Application has been comprehensively described in the AEE, in additional information provided in response to further information requests (pursuant to RMA s92, and referred throughout as 's92 RMA RFI (1), (2) and (3)) and summarised in the s42A Report and the evidence of experts (particularly the evidence of Melissa Shearer). I agree with those descriptions and do not repeat them in full here. For completeness, the Application relates to the discharge of contaminants (agrichemicals) to water or to land where it may enter water, and to air, where required to control pest plants for flood, erosion, drainage and river enhancement works throughout Canterbury. The proposal includes the removal of vegetation in and within 10 metres of wetlands and to the coastal marine area (riverine environments only).
22. The overall aim is to enable the ongoing delivery of the Council's flood, erosion and drainage responsibilities, including river enhancement works.
23. The proposal is to allow for the continuation of existing operations; albeit within the context of updated planning and consenting requirements and refreshed conditions and mitigation measures. Agrichemical control of weeds to deliver the Council's flood, erosion and drainage responsibilities has been occurring for decades and continues to occur under s124 continuance of (now expired) discharge permits CRC981580 and CRC041535. These applications are to replace these consents.

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[1] 1.0 g/m^3 = 1.0 mg/L = 1000 µg/L.

24. The application covers all rivers, drains and their connected waterbodies throughout Canterbury. Regular work programs are concentrated within existing established river and drainage rating districts (as per Soil Conservation and Rivers Control Act 1941 and Land Drainage Act 1908), however the application seeks to authorise these works anywhere within Canterbury. The rating districts are explained further in the evidence of David Aires.
25. The Applicant proposes a multi-facetted adaptive management approach comprising of four key components:
    a. site specific planning, under the criteria set in the Canterbury Regional Code of Practice for defences against water and drainage schemes and the 'Spray handbook' (as appended to the evidence of Melissa Shearer);
    b. ongoing and regular engagement with papatipu rūnanga and key stakeholders;
    c. water quality monitoring to detect and respond to any presence of the used agrichemicals within waterbodies adjacent to the works;
    d. ongoing assessment (via an Agrichemical Strategic Management Plan) to ensure that agrichemicals are the most appropriate tool for the desired pest plant control, to identify opportunities to reduce agrichemical use and to ensure that the agrichemicals being used are the most appropriate, and safest for the required outcome.
26. The Application included a set of proposed conditions of consent (Appendix 11 to the AEE) and recommended conditions were appended to the s.42A report. I have provided my suggested conditions as Appendix 1 and have provided amendments and comments on the s.42A report conditions in in Appendix 3 based on changes proposed by the applicant, updated expert evidence, concerns expressed by some submitters.
27. A 20-year duration is sought.

Matters raised in the s42A Report

28. I have reviewed the s42A Report and generally agree with the technical and planning assessments provided, and the recommendation to grant these applications. The key disagreements appear to relate to the proposed conditions of consent, which I consider are as follows:
    a. That vegetation clearance in and within 10m of a wetland is a RMA s9 and s13 consenting requirement (land use), and needs to be specifically prescribed in the scoping conditions;
    b. The ability to use 'improved' agrichemicals, if they become available in the future;
    c. The use of triclopyr where it may enter surface or groundwater, and what appropriate mitigation measures are;
    d. The extent of reporting and information sharing with third parties;

e. The extent of environmental sampling and research;
f. Consent duration.

29. The s42A report acknowledges the need for section 9 and section 13 RMA land use consents under the NES-F, however does not recommend that these consents be granted or provide consent conditions. I consider it appropriate to grant these consents alongside the section 15 and section 12 consents to ensure consistency between consent conditions.

Notification and Submissions

30. The applicant requested public notification anticipating public interest in the proposal, acknowledging the regional extent of the proposal and the adaptive management styled proposed conditions.
31. I agree with the information presented on notification and submissions within the s42A report (paragraphs 51-73, pages 9-12 and Appendix 1).
32. I have considered the submission points in the relevant sections of the Assessment of Actual and Potential Effects below. I agree with the s42A report assessment that some submissions are outside of the scope of what can be considered under these resource consent applications and the RMA.

Assessment of Consent Status

33. I generally agree with the assessment provided in the s42A report. I have summarised in this section those assessments that I agree with and have provided additional or alternative assessments where I consider it is required.
34. Further legal and planning assessments were provided within RMA s92 RFI (3) on 27 October 2023. Of note, an updated assessment against the NES-F was provided in that response which supersedes the assessment provided in the AEE. This updated assessment was required due to updates to the NES-F after this application was lodged. I do not consider these consenting requirements have been adequately addressed in the s42A report's recommendations (see paragraph 40 below, and Appendix 2 of the s42A report).

The Resource Management Act 1991 (RMA)

35. I agree with the s.42A report that the following four sections of the Resource Management Act (1991)apply:
    a. Section 9, the clearance of vegetation on land, within proximity to wetlands;
    b. Section 13, the clearance of vegetation on the beds of rivers, within proximity to wetlands;
    c. Section 12, carrying out any activity on and over any coastal marine area; and
    d. Section 15, the discharge of agrichemicals to water, to land where it may enter

water and to air.

36. The proposal includes the discharge of agrichemicals to water, to land where it may enter water, including the coastal marine area, and to air. The spraying of agrichemicals to vegetation is a form of vegetation clearance.[2]
37. The proposal does not meet the existing use criteria provided for through RMA sections 10, 10A, and 20A, due to the infrequency of repetitive weed control at any one location.

National Environmental Standards

Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F)

38. The NES-F has had five amendments since this application was lodged, with the latest being 31 September 2023. I therefore prepared an updated assessment against the NES-F dated 27 October 2023 which identifies the relevant rules for the clearance of vegetation in and within 10m of wetlands. I consider this updated assessment to be current and correct.
39. In that assessment I concluded that:

> *Due to ambiguity on whether the Conditions of Regulations 46 and Regulation 55 can be met, I recommend the proposal is assigned an activity status of Restricted Discretionary under Regulation 47.*

40. Wetlands may occur on land, as covered by s9 of the RMA, or within the beds of lakes and rivers, as covered by s13 of the RMA, therefore these regulations trigger consenting requirements under both s9 and s13 of the RMA for vegetation clearance.

Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 (NES-DW)

41. I agree with the assessment provided in the s42A report (paragraphs 213-217, pages 36-37) on the NES-DW, however note that Regulations 7 and 8 only apply to registered drinking water supplies for more than 500 people, for not less than 60 days each year (as outlined in Regulation 6 of the NES-DW).
42. No other National Environmental Standard are considered relevant to the proposal.

Regional Rules

43. Section 7.3 of the AEE correctly identifies the relevant Plans however, of note, proposed Plan Change 7 to the Canterbury Land and Water Regional Plan (PC7) is now operative. The assessments and relevant rules remain unchanged.

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[2] The resource consent requirements are discussed in detail in Section 7 of the AEE, paragraphs 307 – 312

44. I have reviewed paragraphs 218-224 (pg 37-38) of the s42A report and agree with the statements made.

Canterbury Land and Water Regional Plan (LWRP)

45. I agree with the LWRP rules assessment in the s42A report (paragraphs 225-241, page 38-40). In summary:
    a. Rule 5.22 provides for the discharge of agrichemicals as a permitted activity. The proposal will not always comply with condition 4 of Rule 5.22 and therefore the discharge of agrichemicals to surface water and to land where it may enter surface water is a discretionary activity under Rule 5.23 of the LWRP.
    b. Rules 5.163, 5.167 and 5.170 provide for vegetation clearance as a permitted activities and the proposal meets all conditions of these rules.
    c. Rule 5.179 permits the use of land for storage and use of hazardous substances. I agree with the s.42A report that this rule does not apply to the proposed activity.
46. The s42A report provides further assessment against sub-regional rules in the LWRP (paragraphs 242-245, pages 40-41). I agree with the conclusions reached that there are no rules that would trigger additional consenting requirements.

Canterbury Air Regional Plan (CARP).

47. I agree with the assessment provided in the s42A report (paragraphs 246-249, page 41). Rule 7.77 is the relevant permitted activity rule for the discharge of agrichemicals to air. The proposal may not meet condition 5 of this rule and hence cannot be considered a permitted activity. The proposal then escalates to a restricted discretionary activity under Rule 7.79. The matters to which discretion is restricted are:

The exercise of discretion is restricted to the following matters:

1. *The substance to be discharged including its toxicity and volatility and the carrying agent (formulation); and*
2. *The proposed method of application, including the type of spray equipment to be used, the spray volume and droplet size, the direction of spraying and the height of release above the ground; and*
3. *The nature of any training undertaken by the operator; and*
4. *Measures to avoid agrichemical spray drift or fertiliser drift beyond the target location; and*
5. *The extent to which the use or application complies with NZS8409:2004 Management of Agrichemicals; and*
6. *Benefits to the community; and*
7. *The matters set out in Rule 7.2; and*
8. *Any effect on the environment of not meeting the condition or conditions of the particular rule contravened; and*
9. *Whether the conditions of the rule, when considered as a package, remain effective; and*
10. *Mitigation methods available to minimise any actual or potential environmental effects on the efficacy of the package of conditions."*

> **7.2 In considering applications for controlled activities or restricted discretionary activities, the matters on which:**
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> **1. control is reserved;**
>
> **2. or exercise of discretion is restricted;**
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> **include the lapsing period, the term of the resource consent, the review of the conditions of a resource consent, the need for a bond or financial contributions, any actual or potential adverse effects on places of significance to Ngāi Tahu and the collecting, recording, monitoring and provision of information concerning the exercise of a resource consent. These matters are in addition to those listed in the applicable rule for the activity.**

48. For clarity, it is my view that only the discharge of agrichemicals from aerial based operations (helicopter and drone) triggers the requirement for assessment against the CARP rules, and ground-based operations do not. In forming this opinion, I reviewed the decision makers' report for the CARP, which considered that handheld spraying is not a discharge to air.

Regional Coastal Environment Plan (RCEP).

49. I agree with the assessment in the s42A report (page 70) that the discharge of any water or any contaminant into water, or onto or into land, in the Coastal Marine Area, is a Discretionary Activity under Rule 7.2 of the RCEP.
50. There are no relevant rules in the RCEP addressing the clearance of vegetation in the CMA.

Waimakariri River Regional Plan (WRRP) –

51. I agree with the assessment provided in the s42A report (paragraphs 253-261, page 41-42) that:
    a. Rule 6.1 addresses the discharge of agrichemical subject to a number of standards. The proposal can be managed to ensure that no standards are breached for all water classes, therefore the proposed discharge is classified as a discretionary activity under rule 6.1 of the WRRP.
    b. Rule 7.2 provides a permitted activity for the clearance of vegetation within the bed of any river in the Waimakariri River catchment. The s42A report correctly identifies the updated assessment that vegetation clearance may occur within wetlands, therefore the activity status is discretionary under Rule 7.4 of the WRRP.

Opihi River Regional Plan (ORRP) –

52. I agree with the assessment provided in the s42A report (paragraphs 262-265, page 42). Acknowledging that ORRP is now revoked, if an updated rule assessment was completed for this catchment now, it would be in accordance with the LWRP assessment above. Based on the assessment at the time the application was lodged the proposed discharge was classified as a discretionary activity under Rule 1

(Chapter 6).

Activity status summary

53. Based on the above assessment, I consider that consents are required for the following activities:
    a. Under section 15 of the RMA the discharge of agrichemicals:
        i. to water, or to land where they may enter water is discretionary under Rules 5.23 of the LWRP, Rule 6.1 of the WRRP and Rule 1 (Chapter 4) of the ORRP.
        ii. to air is a restricted discretionary activity under Rule 7.79 of the CARP.
    b. Under section 12 of the RMA the discharge of agrichemicals to the CMA is a discretionary activity under Rule 7.2 of the RCEP.
    c. Under section 9 and section 13 of the RMA the use of land, including the potential vegetation clearance within, or within 10 metres of a wetland, is a restricted discretionary activity under regulation 47 of the NES-F.
54. The above assessment aligns with that provided in the s42A report, except that in my opinion Rule 7.2 of the RCEP is a discharge rule, not a land use for vegetation clearance rule. Activity status is determined by the rule framework that applies at the time the consent application is lodged. In this case, the ORRP has been revoked but the rules in these plans still apply.
55. To enable the consideration of the activity as a whole, the component activities are generally bundled and the most restrictive status applies to all. I consider that the application should be assessed as a **discretionary activity**.

Actual and Potential Effects

56. As outlined in the s42A report, from paragraph 274 (page 44), the RMA requires decision makers to have regard to the actual and potential effects of an activity on the environment.
57. I agree with the overall activity status being discretionary, allowing the decision makers unrestricted discretion on what matters they consider. I have included a section under each effect covering the permitted baseline, and/or referred to the conditions of rules that were breached, thereby triggering the need for consent, as a means to provide relative scope of where the activity sits above the permitted activity thresholds.
58. The permitted baseline is a term that was initially applied to the RMA through caselaw before being incorporated into the Act itself. Section 104(2) provides that when considering an application for resource consent, *"a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect".* It should be noted that the application of

the permitted baseline by the consent authority is discretionary. If a decision maker applies the permitted activity baseline concept, then only the effects over and above those forming a part of the baseline need to be considered.

59. The LWRP has an enabling approach for the use of agrichemicals and the resulting clearance of vegetation is a permitted activity under this plan. Given this enabling approach, I consider that it is appropriate to apply the permitted baseline for the proposed activities.
60. The AEE provided an assessment on the actual and potential effects throughout section 8 (page 75-110). I have worked through the actual and potential effects in the same order provided in the s42A report, minimising repeated information where possible.

Over-arching positive effects

61. The proposal, at is core, is to protect people, their assets, and the infrastructure required for well-functioning and prosperous communities. Enabling people and communities to provide for their social, economic and cultural well-being and for their health and safety is a central purpose of the RMA, as long as effects are managed to an appropriate standard.
62. As well as protecting people and communities from significant risks of natural hazards, there are many other positive effects from managing weeds in and near rivers and their connected waterways. They are listed throughout the AEE and summarised in paragraphs 282-285 (page 45) of the s42A report.
63. The following additional positive effects were explained in the expert evidence of:
    a. Ms Leigh Griffith - flood protection is a community priority and a Council responsibility.
    b. Both Ms Griffith and Mr Greg Stanley – integration of flood protection delivery with river enhancement projects.
    c. Mr David Aires –weed management is a core component of river and drainage protection schemes and needed to keep people and communities safe.
    d. Ms Jean Jack – well considered weed management is important for indigenous biodiversity.
    e. Dr Duncan Gray and Mr Aires – weed control in braided rivers can maintain natural character of braided rivers.
    f. AEE (section 4, page 30) and Mr Stanley – regular agrichemical weed control is cost effective.
64. In my opinion, the proposal is to enable the use of a key tool for the delivery of works to keep people and communities safe from flooding risks, to provide for peoples' social and economic well-being by protecting productive land and to maintain the

effectiveness of, and financial commitment to, existing community flood, erosion, and drainage assets. The secondary benefits to indigenous biodiversity are also clear from the evidence of Dr Jack and the s42A report of 'Wildlands (section 14).

Inclusion of Other Herbicides Approved by the EPA

65. As stated above, the s42A report does not propose a condition to allow new, EPA-approved agrichemicals to be used. In addition to the matters discussed in paragraphs 286-287 (page 45 of the s.42A report) the Council's witnesses have stated:
    a. It is Ms Griffith's opinion that a fully stocked toolbox so the Council can choose the appropriate tool needed to address the specific spot on the ground is imperative to delivery;
    b. Ms Shearer has discussed the process of identifying 'new and improved' agrichemicals that might become available, and how it would be beneficial for the applicant to not be disincentivised in using improved products;
    c. Mr Gill has explained, that while glyphosate and triclopyr are currently the best available agrichemicals, it is possible improved products may become available.
66. The authors of the Wildlands advice (page 165 of the AEE), state that *"changing the chemical to be used in accordance with advice from the EPA is good practice."*
67. I consider that, with appropriate conditions requiring monitoring and best practice management, these consent applications should provide for the use of new, EPA-approved agrichemicals.
68. I do not believe it would be the best outcome for the applicant to be restricted to only glyphosate and triclopyr products if new information identifies better agrichemicals. This is not a novel approach, as consent CRC192924 was granted to Waka Kotahi NZ Transport Agency for the discharge of unspecified, EPA-approved agrichemicals near waterways alongside the state highway network. This consent was granted via a non-notified process for a 15 year consent duration.
69. I acknowledge the wide skill set of scientists that are employed by the Regional Council which, coupled with the EPA approval process, make the investigations of new agrichemicals a feasible option.
70. The planning assessment against the rules and objectives and policies remains unchanged with any new agrichemical as it would also fit the definition of agrichemical and/or contaminant. As you will read in the following sections, there is a reasonably enabling permitted baseline in regards to the proposal and subject to any new agrichemical being approved for use in the required way by the EPA, that assessment would not change. In my opinion, most care would need to be had when exploring the risk to drinking water supplies for any new agrichemicals.
71. I consider this a sensible approach by the applicant, and have recommended a

condition to allow for this process to occur.

Adverse Effects on Groundwater Environments

72. I note that, whilst Dr Duncan Gray did provide the overarching technical advice to inform the application, the content covered in that initial report from Dr Gray is now covered by three experts on behalf of the applicant:
    a. Dr Duncan Gray – Surface Water Quality and Ecology and Stygofauna.
    b. Dr Marta Scott – Groundwater Quality and Users;
    c. Dr Jean Jack – Terrestrial Ecology and Wetlands;

Effects on Groundwater Quality

73. The assessment of potential effects on water quality were addressed in section 8.1 (page 77) of the AEE and paragraphs 295-321 of the s42A report.
74. I consider the common findings between Mr Neil Thomas and Dr Scott to be:
    a. There are no known records of glyphosate or triclopyr being detected within groundwater samples from the Canterbury region, although sampling is uncommon. Overall, there is limited information and past studies.
    b. A recommendation to avoid spraying triclopyr over shallow groundwater and in proximity to community drinking water supplies sourced from groundwater.
75. There are differing opinions on the risks of glyphosate leaching to groundwater. Mr Thomas considers that due to the tight bond glyphosate has with soil, it is not considered a risk to groundwater. Whereas Dr Scott refers to overseas studies where glyphosate has been frequently detected in groundwater, that glyphosate appears to have similar leaching properties to phosphorus (also found in groundwater) and that due to the activity being in and near rivers with course-textured soils there may be increased risk of glyphosate leaching, particularly after rainfall events.

Effects on Groundwater Users

76. Mr Thomas focused his assessment on an analytical contaminant transport model to advise on a suitable setback between agrichemical discharge and shallow bores (those shallower than 20m) and recommended a 50m exclusion zone between all discharges and bores that are shallower than 20m. This setback is consistent with Dr Scott's advice.
77. Dr Scott reviewed water quality limits and standard regionally, nationally and internationally. She also recommended a 50m setback from shallow drinking water supply bores and a setback of 5 metres to any other bore.

Effects on Stygofauna

78. I agree with paragraphs 311-313 (page 49) of the s42A report. Dr Gray continues to be the expert providing evidence on the potential effects on stygofauna.

Conclusions and Recommendations

79. Both Mr Thomas and Dr Scott have identified situations where glyphosate and triclopyr could enter groundwater and the identified receptors (end users) are people through drinking water, surface water biota through groundwater upwelling, and stygofauna.
80. Dr Scott provided water quality limits for glyphosate and triclopyr regionally, nationally and internationally. The limits proposed by the applicant (0.1mg/L glyphosate and 0.01mg/l triclopyr) in their surface water sampling is under the provided limits, with the exception of the European Union.
81. Mr Thomas and Dr Scott have both recommended that all spraying operations are set back at least 50 metres from shallow bores (20m and shallower) used for drinking water supply. However, the s42A officer has recommended a condition with this setback to *all* shallow bores.
82. With a focus on the potential effects above the permitted activity threshold (LWRP Rule 5.22), I agree with a condition requiring a 50 metre setback from shallow (<20m deep) drinking water bores. I recommend an addition to that condition to allow for the owners of those bores to provide their written agreement for any spraying to occur closer. This would allow for any bore owners who support the spraying of weeds closer to their bore to approve for that to happen. In that instance, I recommend a setback of five metres from the bore which is consistent with advice from Dr Scott to protect groundwater contamination via the bore head.
83. The applicant also proposed conditions on using HSNO approved products, setbacks of mixing and diluting, rinsing and cleaning of containers and backflow prevention devices to ensure compliance with conditions 1-3 of rule 5.22. I consider these conditions are appropriate and have been included in my recommended condition set.
84. Based on the information presented to me, whilst I acknowledge to possibility of agrichemical leaching to groundwater, on balance I consider that the proposal has no more than minor effects on groundwater quality. The key reasons for this conclusion include:
    a. No known records of glyphosate or triclopyr being detected in Canterbury groundwater;
    b. The extensive overlap with the permitted baseline. Given the extensive use of agrichemicals, particularly on surrounding farmland, it seems unreasonably to not disregard the potential risk of groundwater contamination from discharges away from water;
    c. The water quality limits proposed for surface water sampling are generally (but

not always) lower than drinking water limits regionally, nationally and internationally;

d. A recommended condition with a setback to drinking water bores (50m) and all bore heads (5m) consistent with that recommended by the respective experts.

Adverse Effects on Surface Water Environments including the CMA

85. The s42A report address this assessment in paragraphs 322 – 334 (page 49 – 51) which includes and refers to a technical assessment on the adverse effects on surface water environments, including the CMA, by Ms Laura Drummond (addended to the s42A report, starting on page 126). The applicant's assessment on this is provided under Section 8.2 (page 83) of the AEE and supported by Dr Gray evidence.

86. Key findings that Dr Gray and Ms Laura Drummond draw the same conclusion on:

a. Direct discharge of agrichemicals to water should be avoided as far as possible.

b. Triclopyr is highly toxic to aquatic fauna and a high level of caution is warranted when spraying in proximity to waterways. A recommendation that there should be no direct discharge to surface water and avoid its discharge over shallow groundwater.

c. That TEA (amine) is the preferred formulation of triclopyr as it is safer than BEE (ester) for the aquatic environment; however, TEA is not currently available for use in New Zealand.

d. Limited scientific research on the effects of agrichemicals on indigenous fish and invertebrates.

e. A register to identify many sensitive aquatic habitat should be created.

f. That an Agrichemical Strategy Management Plan is a positive approach.

g. There can be benefits to surface water environments from the control of weeds by use of agrichemicals.

Conclusions and Recommendations

87. On review of the technical assessments, I consider that there is a risk to the surface water environment from direct agrichemical discharges and that a cautious approach is justified.

88. The key rule/condition trigger that triggers the consenting requirements is a failure to meet condition 4 of LWRP Rule 5.22. This condition is focused on setbacks to community drinking water supplies and other surface water intakes. Whilst the aerial discharges require consent under the CARP rules, I consider it most appropriate to take direction from the LWRP rules for direct impacts on water. This is because the risk of surface water contamination from air discharge is secondary, and a direct discharge is likely to cause the most elevated levels of agrichemicals in surface water.

89. The assessment of effects provided by Ms Drummond and Dr Gray have focused on the aquatic ecosystem. Dr Scott provided evidence on drinking water limits in groundwater, and that advice is also relevant to surface water sources of drinking water. When considering the permitted baseline, the presence (or not), of community water protection zones and other intakes is not providing any assessment against or protection to surface water ecosystems and biota.
90. Ms Drummond (in paragraph 43 of her report, page 133) incorrectly states that the applicant *"volunteered a condition (in the Section 92 response dated 20 April 2020) to provide 50 m buffers for inanga spawning habitat and salmon spawning habitat"*. The commitment made in that Section 92 response was to notify the relevant agencies (being Department of Conservation and Fish and Game) if agrichemical discharge was to occur within those areas, not to outright avoid discharging in those areas.
91. With that in mind, I consider the recommended mitigations from Ms Drummond are unnecessarily burdensome and not required based on:
    a. The sampling cost estimates provided by Ms Shearer, I consider the increased sampling regime is unreasonably onerous.
    b. Ms Shearer has explained how the increased provision of planning material is unnecessarily repetitive, complex and in her view (qualified on discussions with some recipients of that information) unnecessary and it will likely cause information overload to those the applicant regularly engages with;
    c. That complete exclusion from ecologically sensitive environments will be significantly restrictive to the applicant in providing flood and erosion protection.
92. I agree with the recommended conditions that:
    a. A register of sensitive sites be created (in my recommended conditions, this is Schedule 2) with corresponding actions required (ie. notifications, setbacks, technical advice);
    b. Single-pass drone spraying only occur when there is more than 90% cover of emergent macrophytes, otherwise plants need to be targeted (to minimise direct discharge to water).
    c. As mentioned in the groundwater assessment, conditions about EPA approved agrichemicals, setbacks for mixing and cleaning etc, and backflow preventors.
    d. That water quality sampling should focus on smaller waterways where, due to less mixing potential, there is a higher probability of detecting agrichemical presence.
93. I recommend a setback of 8 metres from aerial discharge of agrichemicals not approved to be discharged to water (including triclopyr), which is a distance consistent with the modelling from Dr Richardson.
94. I recommend the conditions refer to 'adjuvants', and not surfactants, for the reasons

explained by Mr Gill.

95. The applicant has proposed a sampling regime to detect whether the agrichemicals persist in surface water, after reasonable mixing downstream of the application area. The proposed upper limit for glyphosate is 0.1mg/L which is lower than the ANZECC guidelines and more conservative than the thresholds provided in the LWRP. I consider this limit will ensure less than negligible effects on surface water environments.

96. The applicant has proposed an upper limit for triclopyr of 0.01mg/L. This is lower than the EPA set residue Environment Exposure Limit (EEL) of 0.059mg/L (see paragraph 409, page 83 of AEE). Dr Gray also identifies the ANZECC recreational bathing trigger of 0.02 mg/L. The s42A reporting officer has recommended a condition that this limit only apply to BEE formulations of triclopyr, and no detectable limit be applied for TEA formulations.

97. In regards to the acceptable detectable levels of TEA in surface water to protect aquatic organisms, I have considered the advice from Dr Gray and Ms Drummond, the water quality limits for drinking water provided by Dr Scott, and the practicality concerns and past sampling results provided in Ms Shearer's evidence. I am also aware of Safety Data Sheets listing the acute toxicity for various species, which are always above 'zero'. I suggest a lower limit for triclopyr may be justified, but stipulating 'no detectable limit' may not be achievable.

98. The s42A reporting officer has recommended conditions 32 and 33 that effectively hold the applicant to the permitted activity requirements. As explained in the AEE, meeting those thresholds were not possible, and hence this application for resource consent. I recommend that conditions stating the setback to community drinking water supplies remains at 250m for aerial discharges, with a setback of 25m for ground-based operations within community drinking water supplies and a setback of 25m (for all discharge methods) to any other surface water intake. As with the bore setback recommendation above, I suggest this condition allows for the owners of those intakes to approve the use of agrichemicals closer to their intakes.

99. My proposed conditions, and those recommended in the s42A report, have the following conditions that I consider contribute to the mitigation of effect on surface water environments and should be included:

    a. no direct charges to water, unless there is no other practicable option and an agrichemical approved for use in water is used;
    b. surface water sampling protocol;
    c. strategic agrichemical management plan to ensure the safest agrichemicals are being used and to have a future focus of how to reduce reliance on agrichemicals to manage weeds.

100. I consider the potential effects on surface water ecosystems of using glyphosate formulations that the EPA approve for discharge directly to water, to be no more than what is provided by the permitted activity baseline. I consider the potential effects on the users of surface water intakes to be appropriately mitigated.

Adverse Effects on Terrestrial Ecology

101. I have reviewed the statements made in paragraphs 335-356 (page 53-55) of the s42A report and the attached Wildlands report (page 143 onwards).
102. Dr Jean-Marie Jack has provided expert evidence on behalf of the applicant on terrestrial and wetland habitats. She has broadly described the values within the receiving environment within the categories of braided river environments. It is Dr Jack's opinion that further ground survey and protocols would be required to update the inventory records of areas with indigenous vegetation and habitat values.
103. Both Mr Stanley and Ms Griffiths have explained the Regional Council continues to shift towards a more integrated approach to river enhancement works addressing flood, erosion and drainage management, biodiversity, biosecurity, cultural and other community and recreation enhancement. Mr Stanley provided examples of past projects.

Conclusions and Recommendations

104. For vegetation clearance as a result of agrichemical use that is more than 10m from a wetland, the application has been assessed as meeting the permitted activity vegetation clearance rules or be authorised through the applicant's spawning consents CRC175009-11 (details in Ms Shearer's evidence, paragraph 47, page 7).
105. I acknowledge that indigenous vegetation will be ubiquitous throughout riverbeds and it is challenging to identify and avoid all plants prior to spraying to provide confidence that high value areas are identified and avoided (or spraying is managed to protect the indigenous vegetation).
106. A common issue across each of these terrestrial ecology and wetland habitats is first the identification of the areas with values. I agree with the s42A report and Dr Jack that, an inventory / register of these sensitive sites should be created and expanded on as new information can be added. I recommend inclusion of a condition to this effect, and includes a requirement to include threatened invertebrates and lizards.
107. I also recommend a condition that the Proposed Annual Spray program is submitted to the Science section, to allow Science staff to advise on what areas need field validation by suitably qualified staff prior to any agrichemicals being used. This will allow for the planned spray operations to be adjusted to avoid those values or planned to mitigate significant effects, as suggested by Dr Jack.

108. The s.42A report recommends a condition that all field staff will have adequate training in the identification of these terrestrial values. Ms Shearer has also explained the staff training, job set up process to identify and protect areas of high terrestrial value, review of higher-risk activities by a Senior Environmental Advisor, and if required field validation. All with the support of CRC Science section, if required. I have recommended an addition to that condition so that, if field staff identify an areas with specific value (that hasn't already been identified in the job description (Statement of Works / Operations Management Plan), they will stop work in that area until appropriately trained staff have assessed the site and made a recommendation on how to proceed.
109. The s.42A report has added criteria to the 'Spraying Handbook' in her recommended condition 21, based on the advice from 'Wildlands'. Ms Shearer has explained that some of the 'working guides' recommended by 'Wildlands' are already incorporated into a 'working' Environmental Guide. This guide provides that specific content on how to identify and protect areas of specific values, including indigenous vegetation, lizards, bats, birds, terrestrial insects etc. Ms Shearer has demonstrated that considerable documentation on these values already exists, and on-balance with what can occur as a permitted activity, I do not consider it necessary to restate these requirements within conditions.
110. The s42A officer's recommended conditions includes a requirement for a Habitat Restoration Plan, as recommended to her in the 'Wildlands' report. I consider this unnecessary for the following reasons:
    a. The clearance of fast growing weeds is the purpose of the operations, and it doesn't seem sensible, or even possible, to expect these areas to be restored with an equal area of indigenous vegetation / equivalent habitat;
    b. The applicant has demonstrated extensive indigenous planting programs they have already completed, and indicate they will continue to do.
    c. Weed clearance maintains certain (other) habitats, such as open river fairways.
    d. Weed clearance under this proposal is unlikely to cause a universal clearance of all flowering plants, flying pollinators will be able to locate other flowers nearby.
    e. The clearance of vegetation, when it is not within 10m of a wetland, is a permitted activity.
111. In regards to the additional mitigation recommended in the s42A report to protect bats and their roosting habitat, I agree that a condition controlling the timing of discharge in relation to bat activity has merit and I have included such a condition in my recommended conditions in Appendix 1. I disagree with including other components of the s42A reporting officer's conditions based on:
    a. That some weed control may be required to protect the old and large trees that

have become bat roosts. If that is the case, the bat roost trees are protected through the Proposed Timaru District Plan;

b. That the fairways are managed to be clear of large trees; therefore, I consider it unlikely that there are trees large enough to provide bat roosts within the river fairway;
c. The applicant has demonstrated knowledge of bat habitat, bat roost tree identification and has completed a project installing bat roost poles.

Adverse Effects on Exotic Bees and Apiculture

112. I have reviewed paragraphs 380-384 of the s42A report (page 59). The 'Wildlands' report has recommended a condition to restore habitats near apiaries that are lost through the proposed agrichemical spraying.

Conclusions and Recommendations

113. Whilst acknowledging the concerns raised by Wildlands on exotic bees, I do not consider additional mitigation/conditions are justified for the reasons outlined in the above section (Adverse effects on terrestrial ecology) and including:
    a. The applicant has proposed, and I have recommended, a 50 metre setback from hives, which allows a continual untouched habitat for foraging bees;
    b. That weed growth in and near rivers is prolific. Whilst target weeds will be killed by the proposal, there will continue to be other flowering exotic plants nearby;
    c. That the applicant has engaged extensively with Apiculture NZ who have provided written support for the application;
    d. With the exception of some vegetation clearance in and near wetlands, the clearance of vegetation meets the Permitted Activity rules within the LWRP.

Adverse Effects on Air Quality

114. I have reviewed the assessment provided in the s42A report in sections 389 - 401 (page 59-62) and Mr Jeffery Bluett's report (Appendix 6, pages 208-224).

Conclusions and Recommendations

115. I do not consider there to be a benefit of including reference to the 'Spraying Handbook' in the condition set. My understanding of Ms Shearer's evidence is that the Spraying Handbook is to provide operators advice on how to undertake spraying whilst ensuring they meet the conditions of consent (and other requirements). It seems circular to then have the conditions require the 'Spraying Handbook'. This will also remove unnecessary repetition and complexity in the recommended condition set. In saying that, it is my view the Spraying Handbook is a valuable tool to bridge between

the legal and consenting requirements, best practices and a workable level of detail for field staff.

116. In response to paragraph 58 of Mr Bluett's report (page 219), Ms Shearer has included a decision tree of the modelled drift results and recommended setbacks in her attached 'Spraying Handbook'.
117. The components of CARP permitted activity Rule 7.77 that are not met by the proposal are addressed by:
    a. An assessment on wāhi tapu, wāhi taonga, or place of significance to Ngai Tahu that is identified in an Iwi Management Plan is assess in the following section 'Adverse Effects on Mana Whenua and Cultural Values'.
    b. An assessment against public amenity areas, included in the definition of 'sensitive activity' is included in the subsequent section 'Effects on Human Health and Amenity and Recreational Values'.
    c. The abovementioned assessment addresses the risk of having adverse effects on non-target crops and organic farmers by quantifying the expect risk of agrichemical drift from the target area. Sensitive sites are included within 'the register' where notification and/or setback criteria are listed and the Canterbury Regional Flood Protection and Drainage Bylaw (2013) provides a pathway for organic farmers to request no agrichemicals are applied in/near their properties. Ms Shearer has also outlined how these sensitive sites are identified during job planning.
118. Ms Drummond, paragraph 35 (page 131) recommends a more conservative windspeed limit of 10km/hr. It is my view that Mr Bluett, Dr Richardson and Mr Michelle are the most qualified to make recommendations on windspeed and drift risk.
119. Whilst I acknowledge that spray drift is a risk from all spray operations, in my opinion the requirement for an air discharge permit (consent) is only required when agrichemicals are discharged from UAV and Helicopters (aerial methods).
120. It is my view, and based on the technical advice provided by Mr Bluett, Dr Richardson, Mr Michelle and Ms Shearer, that appropriate mitigations are in place to address effects on air quality.

<u>Adverse Effects on Mana Whenua and Cultural Values</u>

121. I have reviewed the assessment provided in paragraphs 402-406 (page 63-64) of the s42A report and refer to section 8.8 (page 103 onwards) of the AEE.
122. Ms Griffith has provided an overview of braided river revival, including 100 year vision is to be written in partnership with papatipu rūnanga.

Conclusions and Recommendations

123. I generally agree with paragraphs 410-414 (page 63-64) of the s42A report.
124. Mr Greg Stanley has provided examples where the applicant has explored alternative solutions to agrichemical use. Although not a feasible solution for all areas, and cost prohibitive, this does demonstrate a willingness to identify alternative solutions.
125. Ms Shearer has outlined the routine engagement with papatipu rūnanga, and continual willingness to discuss the use of agrichemicals.
126. The s.42A report has recommended conditions that requires post-grant agreement to be met on subsequent documents. I am hesitant to recommend such a condition, as Papatipu rūnanga have submitted in opposition to these applications, and it may not be possible or reasonable to expect full agreement to be met outside of this consent process. This is effectively third-party approval which is not considered *vires* for consent conditions.
127. The applicant is in partnership with papatipu rūnanga, and on balance of meeting their responsibilities to protect people and communities from the effects of flooding, they have demonstrated a willingness to identify and act on changes to incrementally address concerns.

<u>Adverse Effects on Human Health and Amenity and Recreational Values</u>

128. I have reviewed paragraphs 415—421 (page 64-65) of the s.42A report.

Conclusions and Recommendations

129. The s42A report has recommended a condition that no discharge can occur on edible plants, fruit and berries. I consider this too restrictive in that it will hinder the provision of weed control to provide flood protection. As an alternative, I have recommended a condition that when accessible edible plants are being sprayed, signs notifying the public of the presence of agrichemicals should remain in place for two weeks. Most plants that have been sprayed should start dying in two weeks, and therefore it should be self-evident to the public after that time that the plants are not in good health.
130. I disagree that the full Proposed Annual Spray Plan should be published in papers. This is a large document, includes permitted activity work, and is not suitable for newspaper publication (see Ms Shearer's evidence). I do recommend the condition proffered by the applicant to place notices in newspaper(s) prior to helicopter based discharges is retained as this operation covers larger areas in any one day, where there is an increased chance of unknown access points, and public areas that are more likely to have recreationist.

<u>Review of Operation Management and Procedures and Adequacy of Proposed Conditions</u>

131. I have reviewed paragraphs 422-425 (page 65-66) and Mr Nick Ranger's report

(Appendix 7, from page 225).

132. Under Mr Ranger's assessment of 'Annual planning of works', it appears that he assumed no further notification occurs if spraying is done at the locations and times outlined in the Proposed Annual Spray Plan. Current and recommended conditions require the parties listed in "Condition 23" (it was condition 23 at the time of Mr Rangers review) are notified again 10 days prior to spraying. I consider that appropriate as there is more specific information available within 10 days of spraying than there was prior to the spray season starting.
133. In regards to concerns on lag time between a consent decision and the development of documentation, such as the Agrichemical Strategic Management Plan. I consider it reasonable to allow the applicant time to generate any document not currently required of them. The applicant has demonstrated a need for their operations to continue to provide effective flood protection. When documents require input from papatipu rūnanga and a number of stakeholders, it can take some time.
134. Mr Aires has also explained that annual meetings are held with most river and drainage rating districts where elected representatives of their regions have face-to-face discussions and updates on the operations of their perspective districts. Every three years they are public meetings and cover re-elections. Submitter Mr Brown is an elected member for the Lower Rakaia River Rating District.

Conclusions and Recommendations

135. Whilst I accept the intension of the s42A reporting officer's recommendations here, I consider some of the additional detail, reporting and overlap of reports to be creating unnecessary complexity and confusion. I also see a risk of 'consultation fatigue' if the applicant was to provide more details and information to their partners and stakeholders.

Relevant Statutory Provisions (overarching comments)

136. For brevity, I have tabled the relevant statutory assessments undertaken in the s42A report and AEE that I agree with and adopt in Appendix 2 and simply stated 'agreement' in this section.

Relevant Statutory Provisions (Section 104(1)(b))

137. I have reviewed paragraphs 437 – 439 (page 67) of the s42A report, and refer back to my assessment against the NES-DW and NES-F in paragraphs 36-40 of this evidence. A statutory assessment was provided in section 11 (page 112 onwards) of the AEE.
138. Although not covered in this section by the s42A report, the AEE also provided an assessment against the following documents. In my view, these remain valid and should be considered when making a determination on these applications:

a. National Environmental Standard for Sources of Human Drinking Water 2007
b. Hazardous Substances and New Organisms Act 1996
c. Agricultural Compounds and Veterinary Medicines Act 1997
d. Canterbury Regional Policy Statement

139. I am in agreement (refer to Appendix 2) on the assessment against:
    a. New Zealand Coastal Policy Statement 2010
    b. Canterbury Air Regional Plan
    c. Regional Coastal Environment Plan
    d. Waimakariri River Regional Plan
    e. Opihi River Regional Plan
140. In addition to the agreements identified in Table 1, I expand on the following relevant statutory provisions (Section 104(1)(b)).

National Policy Statement for Freshwater Management 2020 (NPS-FM)

141. A agree with the comments made in both the AEE (section 11.2, page 113 – 117) and the s42A report (paragraphs 440-446).
142. Te Mana o te Wai has been raised by submitters, and in a planning sense, is a requirement of the NPS-FM. The effects assessment and recommended conditions have been focused on looking after the health of the water and removal of weeds can help maintain river extent (Policy 7 of the NPS-FM). I consider the proposal is consistent with Te Mana o te Wai, and the NSP-FM.

National Policy Statement for Indigenous Biodiversity 2023

143. I agree with the assessment provided in RMA s92 RFI dated 27 October 2023 and paragraph 447 of the s42A report.
144. For the reasons discussed earlier in this evidence, I do not consider it justified to require habitat restoration and riparian planting plans as conditions of consent.
145. It is my opinion that the proposal is still consistent with the NPS-IB.

Canterbury Regional Policy Statement

146. I agree with the assessments provided in the AEE (section 11.8, page 120-121) and the s.42A report (paragraphs 454-456, page 70). I consider the proposal consistent with the additional following policies:
    a. Policy 10.3.1 addresses activities in rivers and their riparian zones and states:
    "*To provide for activities in river and lake beds and their riparian zones, including the planting and removal of vegetation and the removal of bed material, while:*
        1. *Recognising the implications of the activity on the whole catchment;*
        2. *Ensuring that significant bed and riparian zone values are maintained or enhanced;*

3. *Avoiding significant adverse effects on the values of those beds and their riparian zones, unless they are necessary for the maintenance, operation, upgrade, and repair of essential structures, or for the prevention of losses from floods, in which case significant adverse effects should be mitigated or remedied.*"

b. Policy 11.3.6 also states:

"*The role of natural topographic (or geographic) and vegetation features which assist in avoiding or mitigating natural hazards should be recognised and the features maintain, protected and restored, where appropriate.*"

Canterbury Land and Water Regional Plan

147. I agree with the assessments provided in the AEE (section 11.9, page 121-123) and the s42A report (paragraphs 457-462, page 71). An assessment against new policy 2A.3 (as inserted by the NSP-FM) was provided in the third RMA s92 RFI (dated 27 October 2023).

148. I agree with the s42A reporting officer that the additional policies are relevant to the proposal:

a. Policies 4.5 and 4.7 require the setting of water quality limits and not allowing new activities to cause a breach of those limits;

b. Policy 4.14 addresses the risk to groundwater contamination from discharges to land. Relevant aspects includes a requirements that that there is no discharges to ground, that cannot be stored or treated by the soil, but where that is not practicable, ensure there is sufficient distance between the discharge and drinking water supplies;

c. Policy 4.14B requires decision to have regard to Ngai Tahu values, and in particular those expressed within an iwi management plan.

d. Policy 4.81 address discharges and vegetation clearance in wetlands, but allows for *"a temporary and or minor adverse effect where that activity is part of installing, maintaining, operating or upgrading infrastructure, pest management, or habitat restoration or enhancement works."*

e. Policy 4.85 seeks to enhance water quality, indigenous biodiversity and ecosystem health of waterways through establishing or restoring riparian planting.

f. Policies 4.85A and 4.86 are about preserving indigenous biodiversity, habitats of indigenous fauna and flora, and the natural character of Canterbury's braided rivers.

g. Policy 4.101 protects critical habitat, by requiring application of effects management hierarchy.

149. In addition, the proposal is consistent with:

a. Policy 4.92 of the LWRP which requires that "*Communities are protected from*

the natural hazards of flooding and erosion through… establishment and maintenance of flood protection assets.";

b. Policy 7.1 of the WRRP which requires the control of activities within riverbeds so that "*the flood hazard to adjacent land is not increased*" and Policy 7.2 that seeks the promotion of that value.

150. I agree with the s42A report that each of these matters has been addressed throughout the assessment of effects and that the application is consistent with them.

Other Relevant Matters (Section 104(1)(c))

151. I am in agreement (refer to Appendix 2) on the assessment against:
    a. Water Conservation Orders
    b. Regional Pest Management Plan

Iwi Management Plans and Policy Statements

152. I agree with the identified relevant IMP and policy statements listed in paragraphs 476-478 of the s42A report.
153. The AEE provided an assessment against these IMPS and policy statements throughout section 11.15 (page 129).
154. I generally agree with the statements and conclusions made within the s42A report for the assessments against each of these IMP and policy statements (paragraphs 479-494, pages 74-76). As outlined in the earlier sections and Appendix 3 (commentary on s42A recommended conditions), I do not believe that all additional mitigation recommended by the s42A report are justified or necessary.
155. With my recommended conditions (Appendix 1), and the reasons outlined in the AEE and earlier section of this evidence, I consider the proposal to have many consistencies with IMPs and policy statements. Whilst acknowledging concerns with the discharge of agrichemicals in and near water as raised in submissions, on-balance, I consider the proposal to not be inconsistent with IMPs and policy statements.

Other Section 104 -107 Matters

156. I am in agreement (refer to Appendix 2) on the assessment against:
    a. Value of Investment of the Existing Consent Holder (Section 104(2A))
    b. MACA Customary Marine Title Group Planning Document (Section 104(2B))
    c. Adequate Information (Section 104(6) and (7))
    d. Consideration of Activities Affecting Drinking Water Supplies (Section 104G)
    e. Matters Relevant to Certain Applications (Section 105)
    f. Restriction on Grant of Certain Discharge Permits (s107)

Part 2 – Purpose and Principles

157. I agree that the proposal is consistent with Part 2 of the RMA.
158. Other matters listed as national importance, under Section 6 of the RMA, include the maintenance and enhancement of public access to and along the coastal marine area, lakes and rivers (s.6(d)) and the management of significant risk from natural hazards(s.6(h).

Determination of Applications for Discretionary or Non-complying Activities (Section 104B)

159. I agree that the overall activity status is discretionary, and that s104B of the RMA allows for the decision makers to grant or refuse the application, and if granted, may impose conditions under section 108 of the RMA.

Conclusion

160. I consider it is appropriate for the applications to be granted. The key reasons in making this conclusion include:
    a. The benefits of the proposal. This in turn, considers the consequences of doing nothing;
    b. That the recommended conditions (Appendix 1), should appropriately mitigate potential and actual effects;
    c. The application is, on balance, consistent with the objectives and policies within the various national and regional planning documents relevant for assessing this application.

Conditions

161. I have prepared a set of recommended conditions in Appendix 1. Inclusion of those conditions in any decision (if granted), qualifies my conclusion that these applications can be granted.
162. The s42A report also recommended a set of conditions in her Appendix 2. I have provided commentary on my review of those conditions in Appendix 3 below.

Duration

163. The applicant has sought a duration of 20 years, the s42A report has recommended a duration of 15 years and the maximum duration provided for through RMA s123 is 35 years.
164. I agree that the matters listed under paragraph 571 of the s42A report are appropriate considerations for duration, however in my view a duration of 20 years is appropriate.

165. Central to this recommendation is:
    a. the requirement to keep people and communities safe from floods;
    b. the general agreement between experts that, on balance, weed control in and near waterways, if done appropriately, is likely to have positive effects on the environment;
    c. the additional mitigation proposed by the applicant, to identify and manage potential effects on the environment, including people,
    d. the minor nature of the effects that are beyond what is provided for by permitted activities (the permitted baseline test);
    e. conditions that allow for adaptive management throughout the life of the consent to ensure ongoing best practice;
    f. the Regional Council is both applicant and the organisation responsible to inform and protect the environment. The applicant can work alongside their Science team to ensure they are operating to best practice to protect, or mitigate any impacts on the environment;
166. It is my view that the recommended condition set I have prepared addresses each of the reasons provided by the s42A report (paragraph 574, page 88) as to why she recommended a shorter duration.

Prepared by: _____ Dated: 11 March 2024

Jolene Irvine
Rivers Planning Advisor
Environment Canterbury

Appendix 1 Recommended conditions

	Definitions, abbreviations and reports Agrichemical: means any substance, or mixture of substances, (including approved adjuvants), whether inorganic or organic, man-made or naturally occurring, modified or in its original state that is used to eradicate, or control flora and fauna. It excludes oral nutrition compounds, vertebrate pest controls and fertilisers. Community Drinking Water Supply Abstraction Point: is defined as a publicly or privately owned drinking-water supply that provides no fewer than 25 people with drinking water for not less than 60 days each calendar year or is listed in Schedule 1(a) of the Canterbury Land and Water Regional Plan, or any successor document. Natural Inland Wetland: has the same meaning as defined in the National Policy Statement for Freshwater Management 2020 (or any equivalent definition in any successor document). Riverine Environments within the Coastal Marine Area: means the typical river environment, and connected fresh and brackish water environments, where that river connects to the coastal marine area as it exits to the sea, as described in Clause B of the definition of the Coastal Marine Area in the Resource Management Act 1991
	Activity
1	The activities authorised under these resource consents are limited to: (a) the discharge of agrichemicals to air, (b) the discharge of agrichemicals to surface water or land where the agrichemical may enter water; (c) the discharge of agrichemicals to riverine environments within the Coastal Marine Area (CMA); and (d) the clearance of vegetation within, and within 10metres of, wetlands; within the Canterbury Region, as shown on attached 'Plan', which forms part of this consent. Advice Note: This Discharge Permit authorizes the described discharge of agrichemicals where there is a requirement for Resource Consent. Not all spraying operations undertaken by the Consent Holder requires Resource Consent, and may be undertaken as a Permitted Activity.
2	The discharge of agrichemicals must only be discharged via the following methods: (a) Aerial: Spraying from a fixed wing aircraft or helicopter fitted with a spray bar system which is adjustable to provide optimal flow and direction for agrichemical discharge. The aircraft shall have GPS tracking for flight paths and spray zones. (b) Drone: Spraying from an Unmanned Aerial Vehicle (UAV or 'drone') fitted with a spray bar system which is adjustable to provide optimal flow and direction for agrichemical discharge. The drone shall have GPS tracking for flight paths and spray zones. (c) Ground-based: vehicle mounted guns, booms and knapsacks or other handheld means (including stump painting).
3	The discharge of agrichemicals, including adjuvants, shall be in accordance with the requirements set under the Hazardous Substance and New Organism Act (HSNO), or any successor legislation, including manufacturers instructions, safety data sheets and the product label requirements. The agrichemicals authorized to be discharged under this consent are listed in Schedule 1, and includes: (a) formulations of glyphosate; (b) formulations of triclopyr; (c) adjuvants

	(d) formulations of other agrichemicals that have been approved through the criteria set out in condition 4.
	SCHEDULE OF AGRICHEMICALS TO BE USED
4	To add additional agrichemicals to Schedule 1, the consent holder shall complete the following assessment to demonstrate the added agrichemical is fit for purpose and has improved outcomes compared to glyphosate and triclopyr: (a) An assessment of the potential risks to human health and the environment from the use of the proposed substance, and measures to reduce these risks. (b) A review of the EPA conditions of approval and set operational requirements and instructions to ensure that these conditions of approval are met. (c) A determination of appropriate water quality limits for the proposed substance to ensure that, after reasonable mixing, the product does not adversely affect water quality, including quality for human and animal consumption, and aquatic ecology. This limit will be used for water quality monitoring in accordance with Condition 32 below. (d) The consent holder shall prepare a report summarising the findings of clause (a), (b) and (c) of this condition, and provide that report to Canterbury Regional Councils (CRC) Science Manager, CRC Compliance Monitoring Manager and papatipu rūnanga. These parties shall be invited to, within one month of being provided that report, respond in writing to the consent holder: i. That they do not object to the new agrichemical being added to Schedule 1. ii. Of any concerns they have, or further information or assessment they require, prior to the new agrichemical being added to Schedule 1; (e) The agrichemical can only be added to Schedule 1 if all those provided the report under clause (d) above have: i. confirmed they do not object to the new agrichemical being added to Schedule 1 or if no response is received, the Consent Holder has made two follow up attempts to receive a response from each party and no response was forthcoming; or ii. all concerns or further information or assessment required under (b)(ii) have been addressed by the consent holder and the party subsequently confirms they do not object to the new agrichemical being added to Schedule 1. (f) If (e)(ii) cannot be satisfied within three months of the report being circulated, the consent holder may choose to organise a decision-making panel which will include one representative from the consent holder, one representative from the group raising concerns and a mutually agreed independent representative selected from the approved decision makers list. (g) Any amendments to Schedule 1 shall be provided to those parties listed under Condition 5, within one week of those changes being made.
	ANNUAL REPORTING
	AGRICHEMICAL STRATEGIC MANANAGEMENT PLAN
5	The consent holder must prepare an Agrichemical Strategic Management Plan (ASMP) within the first six (6) months of this consent being granted. This ASMP must be available to any party on request. It must include at a minimum: (a) The purpose and scope of the ASMP and these resource consents; (b) A review of current agrichemicals in use to determine if there have been changes to the hazard classification, controls or approvals required for that substance to be used in New Zealand for the required purpose; (c) A review of current practices regarding agrichemical uses and alternative agrichemical formulations that could be used;

	(d) An assessment of alternatives to agrichemical spraying to achieve the purposes of these resource consents, and identification of sites where these alternatives can be employed; (e) Methods and actions for the progressive expansion of areas where alternatives to agrichemicals is employed with a goal of decreasing agrichemical reliance over the duration of the consent; (f) Monitoring and reporting on progress made for extending areas where alternatives to agrichemicals were used, and the effectiveness of the actions listed in the ASMP for reducing agrichemical use under these resource consents; (g) A record of consultation undertaken for the development of this ASMP. At a minimum the following parties must be consulted with: i. Te Rūnanga o Ngāi Tahu; ii. Papatipu Rūnanga within whose rohe spraying is proposed; iii. The Department of Conservation area conservancies within which the discharge will occur; iv. The Councils of Fish and Game New Zealand within whose regions the discharge will occur; v. The Canterbury Branches of the Royal Forest and Bird Protection Society of New Zealand (Forest and Bird); vi. Apiculture New Zealand – Canterbury Hub; vii. Te Whatu Ora Health New Zealand – Waitaha Canterbury; and viii. The territorial authorities within whose districts the discharges will occur. (h) A record of any reviews and amendments made to the ASMP;
	PROPOSED ANNUAL SPRAY PROGRAMME
6	The consent holder must prepare a "Proposed Annual Spray Programme" (The Annual Programme) at least once per year. The Annual Programme must include for the period 1 October to 30 September: (a) The proposed agrichemical discharge areas; (b) The proposed dates of agrichemicals discharges; (c) Method(s) and chemicals to be used.
7	The 'Annual Programme' prepared under Condition (6) shall, by 20 August each year, shall be made publicly available on the consent holders website and be provided to: (a) Canterbury Regional Council Compliance and Monitoring Section; (b) Te Rūnanga o Ngāi Tahu; (c) Papatipu Rūnanga within whose rohe spraying is proposed; (d) The Department of Conservation area conservancies within which the discharge will occur; (e) The Councils of Fish and Game New Zealand within whose regions the discharge will occur; (f) Forest and Bird Canterbury Branches; (g) Apiculture New Zealand – Canterbury Hub; (h) Te Whatu Ora Health New Zealand – Waitaha Canterbury; (i) The territorial authorities within whose districts the discharges will occur; and (j) Any other party the consent holder has arranged to consult with on these resource consents or The Annual Programme. With each party invited to: (k) Provide feedback in writing within 15 working days; (l) Confirm they want to meet with the consent holder for the purposes set out in Condition (8).
8	If a party listed in Condition (7) confirms they want to meet the consent holder, a meeting shall be organized during October, or earlier, with the agenda to discuss:

	(a) The circulated Proposed Annual Spray Programme for that year; (b) A review of the ASMP and any amendments that need to be made to it; (c) A review of the Register and any amendments that need to be made to it; (d) The previous years 'Annual Spray Completion Report' as required by Condition (60); (e) The results of the water quality ~~and benthic invertebrate~~ monitoring completed within the previous year; (f) Examples and extent of where alternatives to agrichemicals were used, and the outcome of that work.
9	If a meeting is held in accordance with condition (8), or feedback is received in accordance with condition 7(k), within 20 working days of the conclusion of that meeting, a report that records: a) the matters discussed, dispute resolutions (if any), actions points, and any amendments required to be made to any document required by these conditions of consent; and b) any written feedback received in accordance with condition 7(k). A copy of this report shall be provided to CRC Attention: Regional Leader – Compliance Monitoring.
10	If there are any alterations made to The Annual Programme, prior to the commencement of any agrichemical discharges in that area, the consent holder will notify those parties listed in Condition (7) that have overlapping rohe or territory within the catchment the change relates to.
	REGISTER OF SENSITIVE, RESTRICTED AND NOTIFIABLE SITES
11	The consent holder must establish and maintain a register of restricted and notifiable sites (the Register) to identify particularly sensitive sites that require a high level of protection, or particular pre-spray notification. The register: (a) May be in the form of a written report or GIS records; (b) Shall be reviewed at least once per year and updated where relevant; (c) Shall include, at a minimum the sites and features listed in Schedule 2 that are within the identified setback for aerial or ground-based discharges.
	OPERATIONS
	PRIOR NOTIFICATION
12	At least 10 days prior to any agrichemical discharge operations, the consent holder must notify: (a) Canterbury Hub of Apiculture New Zealand; (b) Any known bee keepers who may be operating hives in the proposed spray area; (c) Fish and Game Council for the areas where spraying may occur; (d) Papatipu Rūnanga within whose rohe spraying may occur; (e) Owners and occupiers of any known organic farms adjacent to the proposed spray area; and (f) Any other party that the consent holder has arranged to be notified.
13	Prior to any aerial spray operation, the consent holder shall place public notifications on their website and in local newspaper(s).
	JOB PLANNING
14	Agrichemicals shall only be discharged where there are no practical alternatives to vegetation management (as identified in the ASMP).
15	An Operations Management Plan (OMP) must be prepared, and adhered to, to plan the delivery of each individual spray operation undertaken by the consent holder or its contractors. The OMP must: (a) Be prepared in accordance with the conditions of this resource consent and the following document(s), or any successor documents: (i) NZS 8409:2021; (ii) The ASMP, as required by Condition (5); (b) Identify and record:

	(i) The proposed area for spraying and the name of any waterbody affected, including a map and GPS location; (ii) The proposed method(s) of spraying and agrichemicals to be used; (iii) Dates and durations of the proposed discharge; (iv) Proposed methods to reduce agrichemical spray drift; (v) The agency conducting the operation, including contact details of the person supervising the discharge; (vi) Identification on the map created under clause (b)(i) of this condition, any sites from the Register that intersect or are within the setback described in Schedule 2 of the proposed discharge area; (vii) A list of parties notified about the proposed agrichemical spray operation the OMP relates to, as required by Condition 12 and Condition 11, Schedule 2; (viii) Details of methods and measures to avoid or manage the effects of agrichemicals spraying in these identified sensitive areas; (ix) Assessment of alternatives to agrichemicals considered for this proposed discharge area; (x) The location and methods for any water ~~and/or benthic invertebrate~~ sampling required.
	JOB DELIVERY
16	<u>Operators</u> The Consent Holder shall ensure all individuals involved in the handling and the discharging of agrichemicals authorised by these resource consents must: a. Meet the qualification requirements set by EPA. b. be provided with, and adhere to, the conditions of these resource consents, the OMP, and the Hazardous Substance Spill Avoidance and Response Plan (required by Condition (30)); and c. be trained by a suitably qualified and experienced person(s) in the identification of: i. wetland areas, ii. At Risk and Threatened indigenous vegetation, iii. braided river indigenous bird nesting habitat and breeding behaviours, and iv. indigenous lizards, and cease spraying if these values are encountered without and the OMP has not addressed that value. Works may only resume once the value is addressed within the OMP. ***Advice Note:*** *'Threatened' or 'At Risk' are as defined in the New Zealand Threat Classification System (NZTCS), or any successor document.*
17	<u>Signage</u> Prior to the discharge of agrichemicals, and for at least 24 hours afterwards, the consent holder must erect and maintain signs at places where people normally obtain access (pedestrian and vehicular) to the spray area. These signs must comply with the signage requirements of New Zealand Standard 'Management of Agrichemicals' 8409:2021 (NZS 8409:2021), or any successor document, and must state at a minimum: (a) that spraying is in progress; (b) the proposed duration of the spraying, including starting and finishing dates and times; (c) the method(s) of spraying; (d) the active herbicide and adjuvant being used; and (e) Contact name and number for the person managing the operation.
18	Where there are publicly accessible edible plants or fruit that may be foraged by people, signs shall remain onsite for two weeks.

19	Setbacks There shall be no discharge of agrichemicals within the listed setbacks for sensitive, restricted and notifiable sites identified within Schedule 2 unless: (a) The required approval, as listed in Table 1 of Schedule 2, has been obtained and provided to CRC Compliance prior to spraying; (b) The required notification, as listed in Table 2 of Schedule 2, has occurred at least 10 days prior to spraying.
20	Triclopyr and any other agrichemical approved for use under this consent with the Globally Harmonised System 7 Classification (or any successor classification system) of "hazardous to the aquatic environment acute Category 1" or "hazardous to the aquatic environment chronic Category 1" must not be discharged aerially within 8 metres of ponded or flowing surface water.
21	Timing Agrichemicals must not be discharged on Sundays, public holidays, or weekends which immediately precede or follow public holidays, including regional holidays.
22	The discharge of agrichemicals must be carried out using methods and equipment that minimizes spray drift beyond the target area and must include: (a) Prohibiting spraying when rain is publicly forecast to occur before the manufacturers labelled drying times; (b) Prohibiting, or ceasing if the operation has started, spraying when adverse wind conditions that are likely to exacerbate spray drift are forecast to occur within a spraying location or time.
23	Emergent macrophytes There must be no direct discharge of agrichemicals to surface water, unless: (a) The discharge is explicitly to target emergent aquatic vegetation (macrophytes); and (b) The consent holder has assessed the suitability of the site for other practicable options to control the macrophytes; and (c) Where the macrophytes cover is more that 90% of the surface of the waterway, those macrophytes may be sprayed in a single 'pass-over'; or (d) Where the macrophytes is cover less than 90% of the surface of the waterway, spraying must be targeted to the plants only, to minimize agrichemical discharge to open water.
24	Backflow prevention The operator discharging agrichemicals must ensure that: (a) The filling of tanks to dilute concentrated agrichemicals is carried out in a manner that prevents back-flow of any agrichemical to the water source; and (b) The filling procedures and back-flow prevention devices and methods must comply with the Australian Standard/New Zealand Standard 2845.1:2022 'Water supply – Backflow prevention devices, Part 1: Materials, design and performance requirements', or any successor document.
25	Bees Discharge shall only occur during the time of day, or during weather conditions, where there is a reduced number of exotic bees and other pollinators foraging on flowers, unless evidence has been published that the mixture to be applied is not toxic to bees and other pollinators.
26	Bats Between 1 January and the following 31 March inclusive, and within any documented bat habitats, the discharge of agrichemicals must commence after sunrise and cease before 2pm.
27	Birds Prior to any agrichemical discharge being carried out in the river fairway during the period 1 August to 1 February inclusive each year, the consent holder must ensure that:

	a. Surveys of the proposed area of works have been carried out by a suitably qualified and experienced person no earlier than 10 working days prior to the commencement of the agrichemical discharges, to locate any nests, colonies or chicks of any Threatened or At Risk bird species present within the proposed discharge areas. b. The person(s) who have carried out the survey prepares a report that identifies all the located bird breeding or nesting sites and provides copies of that report to the consent holder and the Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring. c. The report clearly states what measures the consent holder will take to avoid, minimise or mitigate adverse effects on any bird breeding or nesting sites identified in accordance with parts (a) and (b) of this condition, or encountered on site that were not previously recorded in the bird survey reports. At a minimum, this must include maintaining an exclusion zone of 100 metres between breeding or nesting sites and spray vehicles, noting short-duration disturbance caused by work activities may be adopted where provided for by the bird survey report recommendations; d. Any person(s) carrying out discharges authorised by these resource consents are informed of any bird breeding or nesting sites; e. If the discharges are disrupted by a major flood event (bank to bank flooding), and do not resume within eight days of peak flood flows, the site will be re-surveyed for bird breeding and nesting sites in accordance with parts (a) to (d) of this condition; and f. Where work ceases for more than eight days for any reason other than for a flood event, the site must be re-surveyed for bird breeding and nesting sites in accordance with parts (a) to (d) of this condition. ***Advice Notes:*** *1 A "suitably qualified and experienced person" is defined as someone who has a minimum of 160 hours field experience locating and monitoring shorebird nests.* *2 'Threatened' or 'At Risk' are as defined in the New Zealand Threat Classification System (NZTCS), or any successor document.*
	ENVIRONMENTAL SAMPLING – WATER QUALITY
28	Each year, samples of receiving waters must be taken from at least nine (9) locations, unless clause (b) of this condition applies, where there has been agrichemical discharge under these resource consents: (a) The samples shall be from: (i) at least three sites adjacent to, or overlapping with, any sensitive, restricted and notifiable sites identified within Schedule 2; (ii) at least three sites within the drainage network waterways; and (iii) at least three sites within rivers (b) No sample is required from a site listed in (a)(i)-(a)(iii) of this condition if no spraying has occurred in that environment in that spray season.
29	Samples for each 'sample event' required under Condition 28 shall be taken as follows: (a) One sample must be taken from the spray reach immediately prior to spraying occurring (Sample 1); (b) One sample must be taken approximately 25 m downstream of the spray reach, after reasonable mixing, immediately after spraying has completed (Sample 2); and (c) One sample must be taken from the same location as Sample 2 two hours after the spraying is completed (Sample 3).
30	Sample 2 shall be analysed for the agrichemicals discharged in that area by an accredited laboratory within two weeks of the sample being taken and results provided to CRC, Attention: Regional Leader – Compliance Monitoring.

31	If the Sample 2 test results exceed the limits set in Condition 32, the Consent Holder shall: (a) Within one week, analyze Sample 1 and Sample 3, taken on the day of the agrichemical discharge, for those same agrichemicals and send those results to CRC, Attention: Regional Leader – Compliance Monitoring; (b) Within one day of receiving Sample 2 test results provide notice of the exceedance to the owners of any known: i. community water supply whose mapped protection zone (LWRP reference) overlaps with the discharge area ii. surface water intake that is within 250m of the discharge area iii. active bore owner within 250m, which is screened at a depth less than 20 metres below ground. (c) Within two days, return to site and take one (1) sample from the same location as Sample 2 (Sample 4). Sample 4 is to be analysed for those same agrichemicals if Sample 3 test result identifies an exceedance of the limits set in Condition 32 (below); (d) Within 15 days complete an investigation into the potential cause of the exceedance, which must at a minimum: i. investigating the weather conditions, flow conditions, agrichemical concentrations, mixing rates, application rates and volumes used; ii. Condition of weed growth at the time of spraying; iii. Operator handling; and iv. Any spills or other relevant contributing factors including the results of Sample 1 and 2 (pre discharge testing). (e) Within 15 days report on the findings of the investigation undertaken in accordance with clause (d) and set out any learnings or change in practices required to minimise the risk of future exceedances. The report on these findings shall be submitted to the CRC, Attention: Regional Leader – Compliance Monitoring within 7 days of the completion of these documents. (a) Contact those parties listed under clause (b) on return of Sample 3, or if applicable Sample 4, and provide them the report created under clause (e).
	Water quality - the limits
32	The water quality concentration limits for agrichemicals tested in the water samples are: (a) 0.1g/m3 for glyphosate; (b) 0.01g/m3 for triclopyr; (c) The limit set for any other approved agrichemical as identified in Schedule 1.
	DAILY SPRAY RECORDS
33	The consent holder must ensure that the personnel carrying out the agrichemical discharges authorised by these resource consents keeps a daily record of: (a) all agrichemicals applied during each spraying operation. (b) A location map of the areas of spray application and spray mixing locations and supporting GPS logs (if aerial or UAV methods used) or track logs (for ground based methods); (c) The types, rates and amounts of agrichemicals used; (d) Methods and equipment used; (e) Start and finish times and dates; (f) Target plant species; (g) Operators names and details of the agrichemical application qualifications; (h) Weather conditions (including details of wind speed readings taken at least at the start of the spray operation, and four-hourly thereafter until the completion of spraying that day); (i) The location of the water sources used for diluting agrichemical solutions and for cleaning spray equipment;

	(j) A section confirming the ecological and cultural significant sites and sensitive sites (in list or map form) as identified in the OMP for the spray operation that have been avoided during the spray operation. This section must also include any additional ecological or cultural significant sites or other sensitive sites encountered (and avoided) that were not identified in the OMP; (k) Records of any water samples taken (if required in the OMP for the spray operation).
	MIXING AND CLEANING
34	The consent holder must ensure that all empty chemical containers are disposed of at an authorized disposal site
35	Any mixing or diluting of an agrichemical or rinsing or cleaning of containers or equipment, and the discharge of water used for rinsing or cleaning, shall not take place within: a. 10 metres of any ponded or flowing surface water, bore, known subsurface drainage infrastructure or stormwater system; or b. The Christchurch Groundwater Protection Zone as shown on the Canterbury Land and Water Regional Plan Planning Maps or successor document, or a Community Drinking-water Protection Zone as set out in Schedule 1 of the Land and Water Regional Plan, or any such zone determined in a successor document, unless: i. The mixing or dilution takes place within a sealed, bunded system that will contain a volume of at least 110 percent of the largest spray tank to be filled; and ii. The mixing or dilution is for a hand-held application technique or method authorised under Condition 6(b) and (c). ***ADVICE NOTE:*** *For the purposes of this consent only, stormwater system includes sumps, manholes, outfalls, soakage pits, or any system which may discharge to surface water.*
	SPILLS
36	Vehicles and machinery discharging agrichemicals must not: (a) enter river channels containing flowing water within 250 metres; (b) or travel on land within 25 metres upstream of any community or papakāinga surface water supply abstraction point.
37	A Hazardous Substance Spill and Response Plan (HSSRP) must be prepared by the consent holder which details measures and methods for avoiding the unwanted discharge of hazardous substances (including agrichemicals) to water or to land where it may enter water, and a response plan in the event that this unwanted discharge occurs.
38	The HSSRP must be prepared in accordance with the "Emergency Planning – Spills" section of NZS 8409:2021 (or any successor document) and the Spill Response portion of the HSSRP must include at least the following steps: a. Implement all practicable measures to reduce the contaminant in the receiving environment. Such measures may include cessation of activites that may have caused the excessive contaminant discharge or removal of the contaminant source(s). b. Notify the owners or operators of any public, community or private drinking water supplies within 2 km of the spill; c. Notify the Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring, as well as the respective Papatipu Rūnanga whose rohe the spill is located, and their associated environmental entity; and Implement all practicable measures to prevent a reoccurrence of the spill event.
	ANNUAL COMPLETION REPORTS
39	The consent holder must provide an "Annual Spray Completion Report" to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring

	and to the parties listed in Condition 7, by the 31 October of each year. This Annual Spray Completion Report is for the purpose of recording and reviewing the agrichemical discharge that has occurred under these resource consents in the previous twelve months and shall include: a. the areas of operation; b. the agrichemicals used; c. the amount of agrichemicals used; d. spray methods used; e. the dates of the operation; f. the results, and an analysis of the results, of any water quality monitoring that has taken place;
40	The consent holder shall keep a register of any formal complaints received that list any direct actual or perceived impact on the complainant due to the discharge of agrichemicals under this Consent and provide that register to the CRC, Attention: Regional Leader - Compliance Monitoring by the 31 October each year. This complaints register shall include: a. the date and time the complaint was received; b. the nature of the complaint; c. the name, telephone number, and address of the complainant (if provided); d. a link to the OMP and Daily Spray Log relevant to the complaint; e. any remedial actions taken to address the complaint and prevent further incidents. *Advice note: the intension of the complaints register is to record direct impacts on people's health, assets or wildlife and does not set an expectation that all spray related commentary is recorded. Such incidents warranting a record include non-target plant damage, damage to private enhancement or aesthetic plantings, observed wildlife deaths.*
	ADMINISTRATION
41	The Canterbury Regional Council may annually on the last working day of May or November, pursuant to Sections 128, 129, 130, 131 and 132 of the RMA, serve notice of its intention to review the conditions of this resource consent for the purposes of: a. Dealing with adverse effect on the environment which may arise from the exercise of these resource consents, and which is not appropriate to deal with at a later stage; or b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or c. Requiring the consent holder to carry out monitoring and reporting instead of, or in addition to, that required by these resource consents; or To modify the conditions of this consent to ensure that it is consistent with the operative provisions of a regional plan.
42	If this consent is not exercised before 30 June 2029, it must lapse in accordance with Section 125 of the Resource Management Act 1991.

Recommended redrafting of conditions relating to macroinvertebrate and groundwater sampling, if the decision makers are of the opinion these conditions are required. For avoidance of doubt, these are not included in my recommended condition set.

	Environmental monitoring - macroinvertebrate
X1	Within the first year of this Consent being issued, the consent holder shall establish an investigation, with the agreement of the Science Section, to be conducted over a period up to five years that monitors macroinvertebrate communities before and after the discharge of agrichemicals. Total effort applied to such study shall be between 10 – 20 total (people) days per year (to plan, field and laboratory work, and

	reporting). The findings shall be summarized in a report and provided to CRC, Attention: Regional Leader - Compliance Monitoring within six months of the completion of the investigation. *Note: The purpose of this condition is to improve the knowledge of agrichemical use impacts on benthic macro invertebrate communities, that may influence decision on future use of agrichemicals in and near water.*
	Environmental monitoring - groundwater
X2	Within the first year of this Consent being issued, the consent holder shall establish an investigation, with the agreement of the Science Section, to be conducted over a period up to five years that samples groundwater quality, in bores identified as being at most risk of contamination from the discharge of agrichemical under this consent, to detect the presence, or absence, of the discharged agrichemical. Total effort applied to such study shall be between 10 – 20 total (people) days per year (to plan, field and laboratory work, and reporting) and up to six water quality analyses each year. The findings shall be summarized in a report and provided to CRC, Attention: Regional Leader - Compliance Monitoring within six months of the completion of the investigation. *Note: The purpose of this condition is to improve the knowledge of the risk of agrichemical leaching to groundwater that may influence decision on future use of agrichemicals in and near water.*

Schedule 1 – Schedule of Agrichemicals to be used

In accordance with Condition 3, Schedule 1 includes:

1. Formulations of glyphosate
2. Formulations of triclopyr
3. Adjuvants
4. *Holding spot for any addition agrichemicals added in accordance with condition 4.*

Schedule 2 – Register of Sensitive, Restricted and Notifiable Sites

In accordance with condition 4, the consent holder is required to create and maintain a register of sensitive, restricted and notifiable sites under this resource consent. That register may be in written report form, or digitally mapped. The identified restricted sites shall, at a minimum, include known 'Sites' listed under Table 1. The notifiable sites shall, at a minimum, include the known 'Sites' listed under table 2.

Table 1: Sensitive sites with setback restrictions; no discharge can occur within the setbacks until prior approval is obtained and provided to CRC compliance.

ref	Site	Setback	Who can approve
1	Schools and preschools	Aerial: 250m Ground: 50m	Site manager/principal.
2	Surface water intake* for community or papakāinga supply	Aerial: 250m Ground: 50m	Supply manager
3	Surface water intake* (other than above)	25m	Owner of intake
4	Groundwater intake*, less than 20m deep, for community or papakāinga supply	Aerial: 250m Ground: 50m	Supply manager
5	Groundwater intake*, less than 20m deep, for drinking water supply (other than above)	50m	Owner of intake
6	Groundwater intake*, 20m and deeper	5m	nil
7	Residential dwelling	50m	Occupier
8	Established campsites	Aerial: 50m Ground: nil	Site manager
9	Beehive	50m	Owner
10	Designated mahinga kai gathering site	Aerial: 8m Ground: 5m	Papatipu rūnanga
11	Private flood protection vegetation	Aerial: 8m Ground: Avoid direct discharge on those plants	Owner
12	Indigenous vegetation		ECan science
13	Aesthetic and commercial vegetation		Owner
14	Known trees with roosting bats		DOC
15	Nesting birds	100m	Ecan science
16	Wetlands (for spraying other than maintenance and operation of specified infrastructure).	Aerial: 26m Ground: 10m	Ecan science
17	Critical habitat mapped in LWRP	Aerial: 26m Ground: 10m	Ecan science
18	Inanga Spawning habitat between 1 January and the following 1 June (only).	Aerial: 26m Ground: 10m	DOC
19	Known habitat of indigenous fauna listed as threatened or at risk.	Aerial: 26m Ground: 10m	ECan science
20	other sites requested through annual hui or as notified by public.	As agreed	As agreed

**only active intakes need to be considered. To be considered an active intake there must be intake infrastructure on-site or listed as active within the CRC database.*

Table 2: Sensitive sites with additional notification requirements:

Site	Who requires notification
Mapped salmon spawning sites	F&G
Known Trout habitat	F&G
Bat roost area	DOC
Organic farms within 50m	Farm manager

Appendix 2 – Statutory provisions where I agree with the AEE and s42A report.

Table 1: statutory provisions to be assessed under s104(1)(b)… (p=paragraph reference, pg=pg reference)

Document	AEE reference	S42A report reference	Advice
NZ Coastal Policy Statement 2010	*section 11.3 pg 117*	*p 454-456, pg 70*	*Consistent*
Canterbury Air Regional Plan	*section 11.10, pg 124*	*p 463-467, pg 72*	*Consistent*
Regional Coastal Environment Plan	*section 11.11, pg 125*	*p 468-470, pg 72*	*Consistent*
Waimakariri River Regional Plan	*section 11.12, pg 126*	*p 471-472, pg 72*	*Consistent*
Opihi River Regional Plan	*outdated*	*p 473-474, pg 73*	*Consistent*
Water Conservation Orders	*section 11.5, pg 118-119*	*p 495-499, pg 76*	*Consistent*
Regional Pest Management Plan	*section 11.14, pg 127-128*	*P 500-502, pg 77*	*Consistent*

Table 2: RMA, other relevant s104-107 matters

RMA reference	AEE reference	S42A report reference	Advice
Value of Investment of the Existing Consent Holder (Section 104(2A))	*RMA s92 RFI (3)*	*p 504-507, pg 77*	
MACA Customary Marine Title Group Planning Document (Section 104(2B))		*p 508-510, pg 77-78.*	*Addressed.* *Notifications were sent prior to the applications being lodge. No response has been received.*
Adequate Information (Section 104(6) and (7))		*p 511-513, pg 78*	*adequate information has been provided to make a determination on the application.*
Consideration of Activities Affecting Drinking Water Supplies (Section 104G)		*p 514-515, pg 78*	*that regard has been had to potential effects on drinking water supplies, as required by s104G RMA.*
Matters Relevant to Certain Applications (Section 105)		*p 516-547, pg 79-83*	*Consistent*
Restriction on Grant of Certain Discharge Permits (s107)	*p 662-664, pg 135-136*	*p 552-553, pg 83*	*that s107 does not preclude this application from being granted.*

Appendix 3: Commentary on the s42A report recommended conditions

Def.[s]	Confusion to define manager as the CRC Regional Leader Compliance Monitoring. I recommend using the text throughout the condition in case other managers (like Science) are referred to. Add definition for agrichemical, using that in the LWRP, as various planning documents have various definitions.
1	Requires inclusion of 'the removal of vegetation in, and within 10 metres of, wetlands. Suggest advice note: *This Discharge Permit authorizes the described discharge of agrichemicals where there is a requirement for Resource Consent. Not all spraying operations undertaken by the Consent Holder requires Resource Consent, and may be undertaken as a Permitted Activity.*
2	HSNO do not use the terms 'in or onto water, or onto land where it may enter water' like the regional planning documents do. Recommend: *"The discharge of agrichemicals, including adjuvants, shall be in accordance with the requirements set under the Hazardous Substance and New Organism Act (HSNO), or any successor legislation, including manufacturers instructions, safety data sheets and the product label requirements."*
3	Request: strikeout of proprietary as this term could be confused to mean the first company to have the formulation on the market. Update b. *"Additives to these agrichemicals must only be adjuvants used in accordance with manufacturer's instructions."* Refer to my recommended condition set that allows for 'new/better' agrichemicals to be added at a later date.
4	Concerned with the uncertainty of the HSNO process and risk assessments (discussed in Ms Shearers evidence, comments on condition 4), anticipated label requirements and uncertainty on the financial feasibility of this condition. Recommend delete. This opportunity would be more appropriately assessed through the ASMP and 'new/better' agrichemical assessment as recommended in my condition set.
5	Recommend a setback of 8 metres to water for clause (b), which is consistent with the modelling advice from Dr Richardson. Part (a) doesn't add much, because those chemicals would have label requirements not to apply them to water. Recommend an alternative to 'surface water body' term used, as by definition this covers the full width of the riverbed. An alternative could be "pooled and flowing surface water".
6	Unnecessary. Setback to bores manages that risk.
7	Agree
8	Unnecessary, addressed in my recommended update to condition 2. Alternatively, suggest updated wording: *Agrichemical use, including the application rates and concentration, shall be in accordance with the manufacturers instruction and label requirements for the proposed use.*
9	Agree with intent of Agrichemical Strategic Management Plan, however have recommended a simplified version in my recommended conditions. Agree with clauses a., c., i. and j. Suggest changes to f. and g. to focus on the increased use of alternatives, whilst not requiring a firm reduction in area/volume of agrichemicals used (future weed infestations or funding opportunities may allow for increase weed control, which most experts agree have an environmental benefit). Delete clauses b. d. (covered elsewhere), e.is unnecessary, h.

10	Agree with concept, but have recommended a redrafted version. Unnecessary for 'Manager' to certify that programme. Also recommend removing the need to identify water and benthic sampling sites and habitat restoration plan.
11	Agree with concept, but have recommended a redrafted version.
12	Agree with concept, but have recommended a redraft and consolidation.
13	Agree with records of feedback / meetings being made, but I do not consider circulation of that feedback is required. I have recommended a draft.
14	Agree with intent, incorporated into my redrafted condition.
15	Recommend change: "*If there are any alterations made to The Annual Programme, the consent holder will notify those parties listed in Condition (12)(b) that have overlapping territory with the relevant change, prior to the commencement of any agrichemical discharges."*
16	Disagree with requirement to place Annual Works Programme in newspapers(s) as overly onerous for an activity that is largely within the permitted baseline. Agree Annual Works Programme can be made available on the applicants webpage. Agree that public notification of aerial operations should occur. I have redrafted to this effect in my recommended conditions.
17	Generally agree, although I do not consider it justified (and it would be onerous) to notify all adjoining landowners and occupiers. The applicant has land access and powers outlined in the Local Government Act 2002 (s171, 174), Canterbury Flood Protection and Drainage Bylaw 2013 (s7), Soil Conservation and Rivers Control Act 1941 (s132, s133, s134 and s135), Public Works Act 1981 (s110, s111) and Land Drainage Act 1908 (s17, s18)
18	Agree
19	Agree, although these requirements are incorporated in other conditions within my recommended conditions.
20	Generally agree, although for (i) I have recommended a single appendix and register for sensitive sites requiring setbacks or notifications and (l) I recommend there is no justification of benthic sampling.
21	Unnecessary as this condition, and 'Spraying Handbook' will be reiterating the requirements of other conditions. I recommend that the 'Spraying Handbook' is not a requirement of consent, but left to the applicant as the implementation guide they intended it to be.
22	Agree
23	Refer to Ms Shearers evidence, comments on condition 23. I do not consider it justified to require qualifications above what is required by HSNO Act. Recommendation that operators hold the required HSNO Act qualification.
24	Agree, although (a) will be a label requirement and already covered.
25	Agree
26	Generally agree, removed reference to 1m deep groundwater as this is not within Rule 5.22 LWRP and is difficult to determine for compliance (as per Ms Shearers evidence).
27	Agree, but more concise to include with condition 26.
28	Agree
29	Agree
30	Generally agree, although suggest addition to (b) *If a spill occurs that is directly to water, and greater than 250mL or to ground, where it may enter surface or groundwater, and greater than 1000mL the consent holder shall notify:* *(i) the owners or operators of any public, community or private drinking water supplies, if the spill occurred within a drinking water protection zone;* *(ii) CRC, Regional Leader Compliance Monitoring; and* *(iii) Papatipu rūnanga, for whose rohe the spill was located*

	If this amendment to (b) is accepted, than clause (c) can be deleted.
31	Agree, although (b) is unnecessary as they are public holidays.
32	Disagree. This condition is requiring the applicant to meet the Permitted Activity of LWRP Rule 5.22. This is not consistent with what is being applied for. Recommended setbacks in my condition set, reference to active intakes only and to allow for intake owners to approve agrichemical use closer to their bore if they wish.
33	Disagree, for same reasons as condition 32.
34	Disagree, expert advice was to apply the 50m setback to shallow groundwater takes used for drinking water. Recommend setback in this condition is 5m to protect contamination via the bore head, as recommended by Dr Scott.
35	Agree with setback to school (as proffered by the applicant), disagree with "any other structure used as a catchment for water supply" because I cannot see how this condition can be complied with.
36	Agree, as proffered by applicant.
37	Disagree, this condition effectively requires the applicant to meet the Permitted Activity of CARP Rule 7.77. I have recommended an alternative condition addressing sensitive sites, notification and setback requirements.
38	Condition is unreasonably restrictive, nor do I think it is well justified given the permitted baseline. I acknowledge the applicant has proffered the condition, so suggest rewording to *"Discharge shall only occur during the time of day, or during weather conditions, where there is a reduced number of exotic bees and other pollinators foraging on those plants, unless evidence has been published that the mixture is not toxic to bees and other pollinators."*
39	Generally agree but suggest: *"There must be no direct <u>non-target</u> discharge of agrichemicals onto flood protection plantings, indigenous vegetation, or other vegetation planted for aesthetic purposes, such as for enhancement works, or planted for economic purposes, such as crops and forestry planting"*
40	Disagree. The applicant has outlined why this cannot be achieved. I recommend and addition to the signage rule that *"where there are publicly accessible edible plants or fruit that may be foraged, signs shall remain onsite for two weeks"*
41	Agree
42	Disagree, applicant holds consent for the clearance of vegetation in these areas already. I have recommended an alternative condition addressing sensitive sites, notification and setback requirements.
43	Disagree, I have recommended notification of the relevant agency (Fish and Game) when agrichemicals are used in sports-fish habitat. As per Dr Gray's evidence these fish are unlikely to be significantly affected by spray operations and Ms Shearer has also explained the large overlap between the flood protection areas and these fishes habitat.
44	Generally agree, although suggest improvements to (b)(ii) "if the macrophyte cover is less then 90% of the waterway, only spot spraying of emergent macrophytes may occur to minimise the direct discharge of agrichemicals to water". I am also comfortably with the replacement condition recommended by Ms Shearer *"There must be no direct discharge of agrichemicals to water unless that agrichemical is approved for use as an aquatic herbicide and the discharge is for the treatment of emergent aquatic macrophytes. All practicable measures must be taken to avoid discharging agrichemical over open water."*
45	Half agree. (a) addressed below and agree with clause (b) that between 1 January and the following 31 March inclusive and within any documented bat habitats, the discharge of agrichemicals must commence after sunrise and cease before 2pm. I have chosen 2pm as a time after which the agrichemical should dry prior to bat emerging and minimise spraying on invertebrates consumed by bats.

46	Condition 45(a) and condition 46 are about protecting trees used as bat roosts. Whilst I consider the protection of these tree paramount, I consider the scope of these conditions outside of the proposal. The protection of those trees is addressed through the proposed Timaru District Plan, Mr Stanley has outlined how the applicant has supported bat roost pole installations, Ms Shearer has explained the need for some weed control (particularly vine weeds) around old and large trees often used for roosting to help them survive. Aerial discharges only occur to maintain a clear fairway where these large old trees will not exist. In the berm areas discharges are ground based and precise.
47	Agree with a condition to protect disturbance to nesting 'threatened' and 'at risk' birds, however I favour the months recommended by Dr Jack, which is consistent with the majority of riverbed disturbance consents issued by CRC.
48	Part agree. The s42A officer has doubled the sites of required sampling. Given the extent of permitted activity, and costs of sample processing, I consider this unreasonable. The proposed requirement to sample with six sensitive sites doesn't align with other conditions that requires avoidance of those areas. On balance, between the condition proffered by the applicant, and that recommended in the s42A report, I suggest a requirement of nine sample sites per year.
49	Agree
50	Generally disagree with a condition requiring benthic studies, however I have drafted a condition on this should the decision makers think it is required. All three benthic sampling related conditions have been addressed at the end of my recommended condition set.
51	Reference needs updated to (48)-(49), as condition (50) does not relate to agrichemicals. As outlined by Ms Shearer, requiring the 'before' sample to be tested at the same time as the others is not necessary, particularly given the cost of analysis.
52	Generally agree, although I have recommended more concise wording. I do not believe a full sample set is required after a detected exceedance, but I do consider it appropriate for a single sample to be taken to provide results to any downstream users (presumably that the agrichemical has now dissipated).
53	Generally disagree with a condition requiring benthic studies, however I have drafted a condition on this should the decision makers think it is required. All three benthic sampling related conditions have been addressed at the end of my recommended condition set.
54	Recommend esther-based formulation of triclopyr have a limit of 0.005mg/L.
55	Presume tracklogs are not expected to be electronic ground based discharged, but this needs to be more certain. If these are intended to be electronically recorded, Ms Shearer has explained that a lead in time will be required. Generally accept although suggest update to (b)(vii) to *"weather conditions (including details of wind speed readings taken at least at the start of the spray operation, and four-hourly thereafter until the completion of spraying that day")* (x) and (xii) are included in OMP so can be removed to repeat duplication. (xi) is addressed in another condition.
56	Agree but the condition needs to be focused on complaints that are a direct result of the operation (ie. Reported breaches of conditions, unintended kill-off of non-target vegetation) and not expected to cover all negative commentary received by the Regional Council in regard to agrichemical use. I have suggested a redraft in my recommended conditions.
57	Generally disagree with a condition requiring benthic studies, however I have drafted a condition on this should the decision makers think it is required. All three benthic sampling related conditions have been addressed at the end of my recommended condition set.

58	Generally agree, although without reference to invertebrate sampling or restoration plans.
59	Agree
60	Agree