| Consent ID | Description | Table 3 Location |
|---|---|---|
| CRC063564 | To take and use up to 42 litres per second of water and a maximum volume of 25,402 cubic metres per week, and a maximum volume of 432,000 cubic metres per year from Manuka Creek, between, at or about map reference NZMS H39:540-225 to H39:542-226, to supply water for irrigation of up to 72 hectares of pasture, winter fodder and Lucerne crops at Twin Peaks Station, approximately 18 km south-west of Omarama. At a time of higher flows, to divert and take for storage purposes up to 60 litres per second continuously. A duration until 2025 is sought. | All other rivers and streams |
| **Activity Status** | | |
| Rule 2, Table 3 WCWARP: No allocation limit is specified for "all other stream", and the minimum flow has been determined as the 1 in 5 year, 7 day low flow required in the WCWARP which is proposed to be complied with.<br><br>Rule 6, Table 5 WCWARP: The proposed annual volume is within the allocation limit for "Upstream of Waitaki Dam, but not upstream of the outlets of the glacial lakes".<br><br>**Overall status:** Any activity that complies with Rules 2 and 6 is a discretionary activity as per Rule 15 | | |
| **Consent ID** | **Description** | **Table 3 Location** |
| CRC063565 | To disturb the bed of Manuka Creek between, at, or about map reference NZMS 260 H39:540-225 to H39:542-226, to allow for the construction and maintenance of an intake structure at Twin Peaks Station approximately 18 kms south-west of Omarama. A duration until 2025 is sought. | Not Applicable |
| Activity Status | | |
| TRP: There is no operative regional plan so S77C of the RMA applies, and the activity is **discretionary**.<br><br>NRRP: The activity may not comply with condition 9 of Rule BLR2 (discharge of sediment) and condition 8 of Rule BLR3 (works in surface water), therefore the activity is **discretionary** under rule BLR8.<br><br>**Overall status: Discretionary** | | |

# 1 PROPOSAL

1. Twin Peaks Station Ltd (herein refered to as the applicant) farm Twin Peaks Station, located between Broken Hutt Road and SH8 (Omarama Lindis Pass Rd), near Omarama.
2. The applicant applied for CRC063564 and CRC063565 on the 7 April 2006. CRC063564 seeks to take and use up to 42 litres per second from Manuka Creek with the ability to abstract a total of 60l/s at higher flows. CRC063565 is to disturb the bed of Manuka Creek to allow for the construction and maintenance of an intake structure.
3. The proposed command area to be irrigated is shown on a plan contained in Appendix A
4. The proposed abstraction point is located just prior to the Manuka Creek exiting the gorge, at or about map reference NZMS 260 H39:540-225 to H39:542-226. The intake is proposed to consist of a buried infiltration gallery below stream bed level
5. The water will be gravity fed (either by pipe or race) from the proposed abstraction point to a small dam of 20,000m3 in accordance with permitted activity requirements, then piped to the pivot which will irrigate the 72ha.
6. There is an existing stock water race system already operating however the applicant will take the opportunity to implement a piped and trough system at least within the irrigation area.
7. In order to utilise the natural gravity of the property, the applicant is considering in-line micro-hydro turbines to generate enough power to electrically operate the irrigator given gravity provides the pivot pressure. This may then mean there is no need for any electrical (main lines power) or diesel power for the irrigation system.

## 1.1 Timeline and Summary of Amendments made to the Applications

| Timeline | CRC063564 | CRC063565 |
|---|---|---|
| **Date of Lodging** | 7 April 2006 | 7 April 2006 |
| **First Notifiable Date** | 7 April 2006 | 7 April 2006 |
| **WCWAP Notifiable Date** | N/A | N/a |
| **Public Notification** | 4 August 2008 | 4 August 2007 |

8. These applications were lodged in April 2006 seeking a new consent for the take and use of water.
9. In December 2008, it was clarified that stock water was not applied for as part of this application given it was allowed under S14 3) of the RMA. Ecan was made aware that the applicant was investigating a minimum flow for Manuka Stream and that the intake would be fish screened.
10. In February 2009, it was clarified that up to the full 60l/s would only be taken at times of high flows but that this flow was still being determined. Clarification was provided that the irrigation area shown was the command area and that the 72ha would occur within that. Details of the buried infiltration gallery were provided plus the fact that the buffer dam was likely to be within permitted allowances and dealt with at a later date if required.
11. No other changes have been made to the application.

# 2 BACKGROUND INFORMATION

## 2.1 Farm Details

12. Twin Peaks Station Ltd (herein referred to as 'the applicant) operates a 3500 ha leasehold high country station located between Broken Hutt Road and the Lindis Pass.

13. Twin Peaks Station is a 3500 ha high country station which comprises of 600 ha of flats and the balance 2900ha of hill country.

14. The applicant currently holds consent CRC960044.2 which allows them to take and use up to 40L/s from the Clifton Downs Swamp Drain. The water taken pursuant to this consent is used to irrigate approximately 130 hectares of land via spray irrigation. This land area is located within a separate land area, below where the new area is proposed.

15. The station currently runs 6000 stock units with approximately 90% of these being merino sheep and 10% cattle. The ewes are put out onto the hill country in September and come back down onto the flats in August. The lambs are brought down on to the flats at weaning and stay down. At particuar times of the year (i.e. for weaning and shearing) the stock in the hill country are brought down to the flats.

16. The proposed irrigation is extremeley important as it provides the areas where winter feed crops can be grown to sustain the winter period. This helps to ensure that none have to be purchased.

17. One of the main benefits to the applicant of this proposed irrigation is to enable the applicant to continue to hold onto stock and fatten in a dry year rather than sell as stores (sell at a lower weight for a lesser price). The applicant takes all of their merino lambs through a winter, shears them and then fattens to sell to the freezing works. This proposed irrigation will enable the applicant to continue this even in dry years.

18. The applicant is to undertake Tenure Review and does not know exactly what this will entail at present. The proposed irrigation along with the existing irrigation will ensure that the applicant can continue to farm an economically sustainable unit after Tenure Review.

## 2.2 Water Source

19. Manuka Creek drains the Weather Range and is east-flowing. The riverbed consists of greywacke materials. It is known as a permanent water body with a rock and gravel substrate, an average width of 3 meters and an average depth of around 500mm. The stream is in excellent condition with very good water quality and a range of invertebrate suggestive of a stream of high quality. In the lower reaches where it exits the gorge it is often ephemeral between this point and where it occasionally discharges into Omarama Stream during high rainfall events. Much of the stream bed in this location is nothing more than a ditch.

## 2.3 Mackenzie Irrigation Company Shares held

| **Name: Twin Peaks Station Ltd** | **Number** |
|---|---|
| **Property Shares** | 1 |
| **Irrigation Shares** | 250 |

20. Irrigation shares are required for the full irrigation area as this consent is a new consent

### 2.4 Derogation Approval

21. Derogation approval was obtained in standard format from Meridian Energy Limited on the 11th September 2009 – Appendix D

## 3 SUBMISSIONS

22. A summary of submissions is as follows

| Resource Consent | Submissions in support | Submission in opposition | Neutral |
|---|---|---|---|
| CRC063564 | 1 | 18 | 2 |
| CRC063565 | 1 | 14 | 2 |

23. Details of the submissions made in response to all applicants that were publically notified at the same time in 2007 are contained in CRC Report 1, Appendix 5. I have reviewed this report and consider it as a true and accurate summary of the submissions received.

24. Details of the submissions received that are not common to all applications are as follows:

| Submitter | Issues | Support/ neutral/oppose |
|---|---|---|
| Water Resources Otago Ltd on behalf of Killermont Station Ltd | Do not oppose the granting of the application if the granting does not adversely effect the submitters existing and new consent and if the applicants proposed consent is at times of medium to high flows. | Oppose |
| Central South Island Fish and Game Council | The submission generally indicates that F&G support the WCWARP including minimum flows, flow-sharing and allocation limits.<br>However with regard to the Ahuriri catchment, it is proposed that the Ahuriri WCO environmental flow provisions specified shall apply of which Manuka Creek was identified. | Oppose |

25. There has been a large amount of consultation undertaken between Killermont Station and Twin Peaks, primarily between the respective consultants in relation to flow-sharing and minimum flows. This has been resolved by an MOU signed by both parties, and Killermont Station Ltd withdrew the above submission on the 18th August 2009. The applicant also withdrew their submission on Killermont Station Ltd on the 28th August 2009.

26. Fish and Game support the proposed minimum flow of 65L/s determined for the Manuka Creek as the 5yr 7DLF which is considered to be required by the WCWARP.

27. Furthermore the applicant clarified recently in an email to F&G and DOC dated 26th August 2009, various details on the application. Feedback was sought but had not been received at the time of writing this evidence.

# 4 CRC0063564 - TAKE AND USE CONSENT

# 5 ASSESSMENT OF ENVIRONMENTAL EFFECTS

## 5.1 Effects on other water users

| **Effects on other water users** | |
|---|---|
| Comments | This is a new application for water, with an existing user downstream.<br><br>The CRC reporting officer for these applications agrees that effects on other water users are minor. |

28. Currently there is an existing abstractor downstream of the applicants proposed abstraction. Killermont Station has an existing consent from Manuka Creek (CRC00002.1) for 23l/s continuously. The minimum flow is considered to sufficiently provide for this take.

29. Killermont Station has a new consent application (CRC041798) from Manuka Creek for 37l/s, whereby an MOU has been established with the applicant setting out the minimum flow and flow-sharing regime.

30. Furthermore both Killermont Station and the applicant have removed previous submissions on this matter.

31. Table 3 of the WCWARP provides a minimum flow for all “other rivers and streams” of the 5-year 7-day low flow which has been determined as 65l/s. An upstream site has been determined given the stream is dry below Killermont Stations’ existing intake.

32. This minimum flow aims to ensure that where there are competing users for the resource, the effects on these users is ‘acceptable’ which was established by the WCWARP.

33. The take sits within the area defined as “Upstream of Waitaki Dam, but not upstream of the outlets of the glacial lakes” in Table 5 of the WCWARP. Table 5 sets a cumulative allocation of 275 million cubic metres per year for this area.

34. Report 3 – Annual Allocations to Activities (Rule 6 Table 5) acknowledges that the granting of the applications subject to this hearing will not result in the cumulative allocation limit being exceeded.

35. These allocation limit, established by the WCWARP aims to ensure that where there are competing users for the resource, the effects on these users is ‘acceptable’.

36. Mitigation is proposed restricting the rate of take, volume per week and minimum flows. Given this, effects on other users are considered to be minor.

## 5.2 Effects on Ecosystem values

| **Effects on Ecosystem Values** |
|---|

| | |
|---|---|
| Comments | Manuka Creek is classified as "all other streams and rivers" specified in Table 3 of the WCWARP, which has been determined as 65l/s.<br><br>The CRC reporting officer for these applications agrees that effects on ecosystems are minor. |

37. The minimum flow proposed by the WCWARP for 'all other streams and rivers" was developed to ensure that the aquatic values of streams are protected.

38. Table 3 of the WCWARP sets a minimum flow regime for Manuka Creek of the 5-year 7-day low flow as assessed by CRC at the downstream end of the catchment. But as already noted this stream is ephemeral and zero flow is usually experienced at the end of the catchment. Consequently this flow has been correlated upstream and agreed by Ecan and F&G.

39. Imposing the minimum flows for Ahuriri National Water Conservation Order was also considered for this application during consultation with the Reporting Officer, Mr Stewart and Mr Boraman. All concluded this was not necessary or appropriate given Manuka Creek only ever reached the Omarama Stream during flood events and it was expected that underground flows would have a significant time delay if they reach the Omarama Stream.

40. A water level recorder will be installed on the Manuka Stream to ensure compliance with the minimum flow. The take itself will also be appropriately metered

41. The intake is proposed to be fish screened in accordance with "Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007".

42. Given this, effects on in stream values are minor.

## 5.3 Effects of inefficient water use

| **Reasonable and Efficient Use Seasonal Volumes and Land Use** | |
|---|---|
| **Land Use** | Intensive Pasture (Sheep/Beef) |
| **Area to be irrigated (hectares)** | 72 ha (within a command area of 150ha) |
| **Method of application** | Spray |
| **Efficiency of application** | 80% |
| **Daily application depth** | 5 mm |
| **Return period** | 3-7 days |
| **Return period application depth** | 15-35 mm |
| **Soil profile available water** | 30-100mm (T Webb) |
| **Effective Irrigation Season Rainfall** | 180mm/ha/yr |
| **Seasonal volume as per Irricalc ($m^3$/year)** | 557,840 m3/year |
| **Seasonal volume required ($m^3$/year)** | 432,000m3/year |

| | |
|---|---|
| **Volume to be included in Table 5 (WAP) allocation** | 432,000m3 |
| **Comments** | The proposed annual volume has been determined using 600mm (as per MIC shareholding) for 72Ha and justified by Irricalc which is considered to be consistent with Policy 16 c of the WCWARP.<br><br>If stock water is required it will be determined using Schedule WQN11 of the NRRP<br><br>The CRC reporting officer for these applications considers this is an efficient use of water and the effects are minor. However I note 150ha (command area) was used for the WQN9v2 assessment rather than 72ha in the Reporting Officers S42a report. |

43. The proposed application depth of 15-35mm per return period is less than 50% of the water holding capacities expected. This is considered to be an efficient use of water and the irrigation systems will be determined and managed to ensure compliance

44. Policy 16 (c) of the WCWARP defines two alternative approaches for determining appropriate annual volumes for irrigation. These are as follows:

    i) soil-moisture measurements, local rainfall and evapotranspiration modeling for the 1-in-5 year dry season (the year for which seasonal demand is exceeded in 20 percent of years);

    or

    ii) the difference between peak total seasonal demand as shown in Table A1, Environment Canterbury Report U05/15 and the effective summer rainfall exceeded 80 percent of the time from an approved rainfall site.

45. The first method described is a soil water balance approach, and the second is more commonly referred to as Schedule WQN9v2.

46. Irricalc is a soil water balance approach developed by Aqualinc Research Ltd, and who carried out the modeling for this application. This method is a daily accounting system of the water entering and exiting the soil within the root zone of a particular crop.

47. Furthermore, Irricalc models the effect of all of the factors mentioned in Policy 16(a), namely land use, soil water-holding capacity and spatial variability, spatial and temporal rainfall and potential evapotranspiration variability, as well as irrigation system operation and management.

48. The model inputs are attached to this report as Appendix F.

49. Policy 15 and 19 of the WCWARP encourages the piping or otherwise sealing of water distribution systems to minimise water losses and meet efficiency and effective use requirements. In the section between the intake and buffer pond there may be a short section of headrace but otherwise the system is proposed to be completely piped to a spray irrigation system and reticulated trough system.

50. Policy 21 of the WCWARP requires all water takes to be metered. To ensure that this application is consistent with this policy, the applicant proposes to meter their take.

51. Given this, effects of inefficient water use are minor.

## 5.4 Effects of the use of water on water quality

| Water Quality | |
|---|---|
| Comments | The CRC reporting officer for these applications is not currently satisfied that effects of water quality are minor.<br><br>Cumulative effects on water quality have been addressed by Mackenzie Water Resources Limited (MWRL) and are summarized below.<br><br>Local effects have also been addressed below |

52. The property according to the MWRL Water Quality Study, is located within the Omarama groundwater and predominantly Omarama Stream surface water catchments with a small area of Ahuriri River catchment. For this property, the Lake Benmore mitigation requirements are the most stringent and are accounted for in the overall property threshold from the MWRL Study.

53. The calculated nutrient mitigation requirement of the receiving environments determined in the MWRL Study has identified the N and P thresholds for the property. These are shown in the table below.

54. "OVERSEER® has been RUN by a QUALIFIED person to model the N and P outputs from the proposed farming system. The results of the model have been incorporated in to the table below. This table shows that the applicant can meet the property thresholds which are the most restrictive.

| | **Nitrogen Threshold** | **Phosphorous Threshold** |
|---|---|---|
| MWRL Water Quality Study Property Thresholds | 10,937 | 200 |
| OVERSEER® Outputs | 9,479 | 194 |

55. The applicant is committed to implementing the "Mandatory Good Agricultural Practices" set out within the Farm Environmental Management Plan (FEMP) (see Appendix E). Implementing these practices ensure that the OVERSEER® results are validated. This along with ensuring that the property thresholds of the WQS (set out in the table above) are not exceeded will ensure that the cumulative effects of the use of water for irrigation on water quality are no more than minor.

56. Whilst the applicant is within their property thresholds, the MWRL Study identified that the applicant still has to consider specific on farm effects and the impacts these activities could have on the local receiving environment. This requires a specifically developed FEMP to identify and implement appropriate mitigation measures set out in the draft attached (see Appendix E).

57. At a workshop held in Twizel in August 2009, the applicants met with Ms Melissa Robson of GHD Limited. A "desk top" on farm risk assessment was undertaken. This is considered to be the "starting point" of the FEMP.

58. The workshop identified potential on farm risks specific to each farm along with possible mitigation measures. The on farm risks identified during the desktop risk assessment need to be verified by an appropriately qualified person who has carried out a site visit. It is anticipated that this will occur should the application be granted.

59. For Twin Peaks, the desktop risk assessment identified the following potential risks:

    a) Soil erosion potentially an issue

b) Timing of fertiliser application

c) Track runoff

d) Location of water troughs

60. The applicant has committed to implementing the FEMP including an on farm risk assessment, appropriate mitigation, monitoring and auditing before the first exercise of this consent. The FEMP has been proposed as condition of consent and the draft FEMP is attached to this evidence as Appendix E.

61. The applicant has already identified draft mitigation and as summarized below:

e) Irrigation buffer from Manuka Creek will be established

f) Stock access from Manuka Creek will be prevented within the irrigation area, where the stream flows regularly

62. The Reporting Officer identifies mitigation from the original AEE. The mitigation will be finalised as part of the FERA to complete the FEMP. Given developments since the original AEE it is considered N and P thresholds are more appropriate to limit discharges rather than specifying farming activities.

63. Given that the N and P thresholds from the MWRL Study can be met, and the applicants commitment to addressing on farm risks with the implementation of the FEMP, the effects of the use of water on water quality for both the local receiving environment and cumulative effects are considered to be minor.

## 5.5 Effects on Landscape

| **Effects on Landscape** | |
|---|---|
| Comments | Landscape effects have been addressed by UWAG's Landscape Architect, Mr Andrew Craig, who considers that this proposal will have a minor effect on landscape values.<br><br>The CRC reporting officer for these applications considers that effects are minor at a local level and cumulatively unlikely to have more than minor effects. |

64. Mr Andrew Craig is a landscape architect who is providing general and specific recommendations on behalf of UWAG clients to this hearing. His conclusions reflect that the general effects on the MacKenzie landscape of these further applications within the basin will be significantly less than minor. I adopt his recommendations to the committee. In terms of the specific placement of the irrigation structures associated with this application, I confirm the following:

65. The land proposed for developed is considered to be within the rural Rural Scenic under the Waitaki District Plan.

66. The proposed abstraction is located in the gorge of Manuka Creek with the irrigation development located at the base of the Weather Range on the flats. This area of irrigation development is likely to be visual from Broken Hutt Rd but is not visible from the main SH8 (Lindis Omarama Pass Rd).

67. The irrigation area proposed for this application is already part of a substantially modified environment. The land has already been progressively developed with;

a. Existing Irrigation

b. Cultivation and re-grassing

c. Top dressing and generally increasing soil fertility

d. New fencing and subdivision of paddocks

68. Therefore, it is concluded that effects on landscape values will be minor.

### 5.6 Effects on People, Communities and Amenity Values

| Effects on People, Communities and Amenity Values | |
|---|---|
| Comments | The CRC reporting officer for these applications considers that effects are no more than minor on amenity values |

69. The applicant has proposed the minimum flow as specified in the WCWARP for the water body from which they have applied to take and use water. A minimum flow is designed to adequately protect people, community and amenity values.

70. The activities all occur in a rural setting, where the dominant land use is pastoral farming. Given that the proposed activities all occur on private farmland; as such the use of water is unlikely to adversely affect amenity values.

71. The WCWARP sets an annual allocation "cap" for agricultural and horticultural activities within defined areas (Table 5) which in Section 5.2 is considered to be met. The applicant has proposed an annual allocation limit for their own resource consents for the use of water.

72. Water quality is addressed in Section 5.5 in terms of cumulative and individually with the FEMP and landscape has been considered with Section 5.6

73. Therefore, given the applicant's commitment to ensuring efficient use of water on their properties and implementing the minimum flow values, it is considered that effects on people, communities and amenity will be minor.

### 5.7 Effects on Tangata Whenua Values

74. Te Runanga O Ngai Tahu submitted on all applications in the catchment, seeking that all applications be declined.

75. The primary reasons for this were that the applications were considered to be inconsistent with the policies and objectives of the WCWARP, and also at odds with the cultural objectives of the RMA.

76. This application is considered to be within the allocation limits and in accordance with the minimum flows of the WCWARP. Te Runanga O Ngai Tahu had considerable input into the creation of the WCWARP.

77. An email was sent to Paul Horgan on the 26th August 2009, outlining the proposal and any changes made since notification. Feedback was sought but not received at the time of writing this evidence.

78. However, it is acknowledged that Te Runanga O Ngai Tahu have a significant relationship with the Waitaki Catchment, and as such, appropriate minimum flow conditions, and management of water quality effects, is proposed by the applicant to ensure that the potential effects on the environment, including tangata whenua values are minor.

# 6 CRC063565 – LAND USE CONSENT

# 7 ASSESSMENT OF THE ENVIRONMENTAL EFFECTS

79. The potential effects considered to be relevant to this activity are as follows:

## 7.1 Effects of the works on flood-carrying capacity and erosion

80. The intake is proposed to consist of an infiltration gallery buried up to approximately one metre below stream bed level which is considered appropriate for the intake size and stream velocities; any excavated materials will be replaced to bring the area back to bed level. The intake should be installed within approximately half a day.

81. The intake is proposed to be located in the stream bed but should have no effect on the flowing water as it is proposed to be buried.

82. The main flowing water may be disturbed on installation of the intake when the stream may need to be temporarily diverted around the area where the intake pipe is being installed. On completion of construction, the stream will be reinstated over the infiltration gallery.

83. The proposed intake structure should not create any erosion or increase bank instability to other banks in the vicinity given the buried and unobtrusive nature proposed.

84. It is noted that Manuka Creek is a rocky, stable creek at the proposed abstraction site and not subject to adverse bank erosion

85. The Killermont Station intake is approximately 200 mtrs downstream of the intake location and is not considered affected by the activity proposed given the intake proposed and this was never raised in Killermonts submission which has subsequently been withdrawn.

86. Given this the effects on flood-carrying capacity and erosion of Manuka Creek are considered to be minor as concluded by the Reporting Officer.

## 7.2 Effects of the works on water quality and ecosystems

87. Works around the intake area will be undertaken during the initial construction and on an as needed basis for such activities as maintenance at the beginning of the irrigation season.

88. It is acknowledged that the in-stream works can cause a temporary discolouration of the water and particularly from the perspective of the aquatic ecosystems that may be present in the stream; such sedimentation can have an impact at sensitive times such as spawning, which can therefore be avoided.

89. Sedimentation can also affect downstream users taking water for domestic or stock water purposes.

90. The most common approach is to avoid undertaking works within flowing water, thereby avoiding the possibility of increasing levels of suspended sediment contained within the waterway. In this instance it is simply not practicable for the works associated with the intake to occur in an area where water is not flowing.

91. However it is proposed that the stream be temporarily diverted (less than 50mtrs) around where the intake is to be located so that works does not occur in continuously flowing water.

92. The applicant provided clarification to DOC and F&G on the 26th August and feedback was sought. Therefore no specific times to avoid intake construction have been identified in relation to the Manuka Creek.

93. The intake is proposed to be fish screened in accordance with "Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007".

94. The area of works will be re-instated on completion of works to minimise the adverse effects on riparian ecosystems

95. Given the short term nature of the work, and the proposed mitigation measures as per the consent conditions, effects on ecosystem values and water quality are able to be effectively mitigated as concluded by the Reporting Officer.

### 7.3 Effects on amenity, people, communities and Tangata Whenua values

96. The proposed intake abstraction point on the applicants' property is alongside a remote no exit road.

97. The intake will be inconspicuous as it is located under the river bed and covered by rock material. The water will be piped. After the initial construction, the disturbed area should re-vegetate and in time blend back into the surroundings.

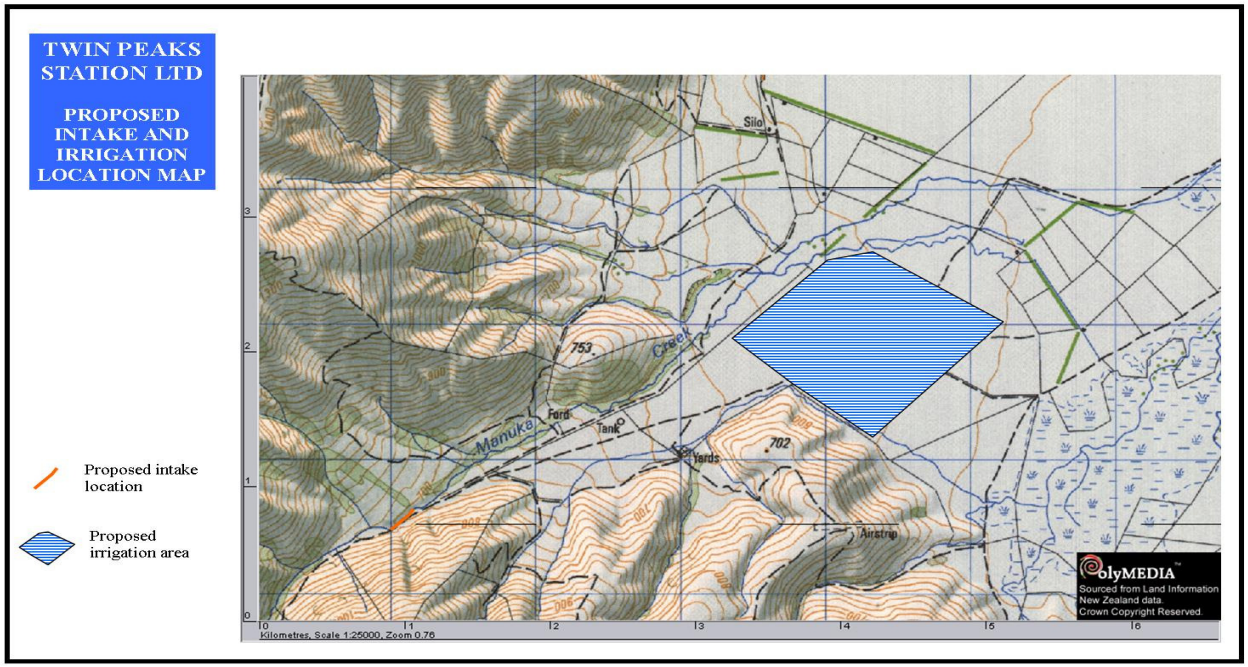
98. In relation to Tangata Whenua values, accidental recovery protocol has already been proposed by the applicant. Furthermore with email correspondence with Ngai Tahu, the land use consent has not been raised as a concern associated with the water permit.

99. The Reporting Officer considers the effects on Tangata Whenua values are minor given water quality effects are considered minor. The effects on amenity, people, communities and Tangata Whenua values are considered minor.

## 8 CONCLUSIONS

100. The potential effects associated with the take and use of water, and the related ancillary landuse activities have been assessed, taking the concerns of submitters into account, and are considered to be minor.

# APPENDIX A: Area of proposed irrigation development at Twin Peaks



# APPENDIX B:

Photo 1: Manuka Creek in the lower reaches showing the ephemeral nature

Photo 2: Manuka Creek approximately 200mtrs below proposed abstraction

Photo 3: Proposed Irrigation area, towards the shelter belt.

# APPENDIX C: PROPOSED RESOURCE CONSENT CONDITIONS

CRC Proposed conditions used with track changes

Please note that conditions relating to water quality and FEMP are still to be added

| No. | Condition Code[1] | Details |
|---|---|---|
| **Take** | | |
| 1 | WP01 | *Name of waterbody*: Manuka Creek<br>*Map reference:* between NZMS 260 H39:540-225 and NZMS 260 H39:542-226.<br>*Instantaneous rate:* 42 litres per second<br>*Volume:* 432,000 cubic metres<br>Insert tranching regime from Derogation Approval |
| 2 | WP03 | *Instantaneous rate:* 42 litres per second<br>*Volume:* 25,402 cubic metres<br>*Design return period:* 7 days<br>*Seasonal volume:* 432,000 cubic metres |
| **Use** | | |
| 3 | WP04 | *Type of irrigation:* Spray irrigation<br>*Number of hectares:* 72 hectares<br>*Use:* Pasture for grazing sheep and beef cattle.<br>*Plan No:* CRC063564 |
| 4 | WP05 | |
| 5 | WP06 | |
| **Mitigation** | | |
| 6 | WP07 modified to include additional take over the minimum flow for water storage. | *Tributary name:* Manuka Creek<br>*Recorder site:* Twin Peaks<br>*Grid reference of recorder site:* H39:541-225<br>*"B" Minimum flow:* 144 l/s<br>*Rate of take:* 42 l/s<br>*Daily volume:* 3,629 cubic metres<br>*Annual volume:* 432,000 cubic metres<br>*"A" Minimum flow:* 65 l/s<br>*Minimum flows for water storage requirements* |

[1] See Report 1, Appendix 6 for condition code and wording.

| | | |
|---|---|---|
| | | *"D" Minimum flow:* 160 l/s<br>*"C" Minimum flow:* 144 l/s |
| 7 | WP08 | *Minimum flow grid reference:* H39:541-225<br>*Water body name:* Manuka Creek |
| 8 | WP14 | Infiltration gallery fish screening condition |
| **Measuring & Metering** | | |
| 9 | ME01 | |
| 10 | ME03 | |
| 11 | ME04 | Datalogger required as part of Derogation Approval |
| 12 | ME05 | |
| 13 | ME06 | *Waterway:* Manuka Creek |
| **Administrative Conditions** | | |
| 14 | AD01 | |
| 15 | AD02 | *Number of working days:* 5<br>*Month 1*: May<br>*Month 2:* October<br>*Waterbody:* Manuka Creek<br>*Cross reference to Condition:* 6 |
| 16 | AD04 | |

| No. | Consent Code[2] | Details |
|---|---|---|
| **Scope** | | |
| 1 | LU01 | The works shall be limited to the use, erection, placement and maintenance of an intake structure (piped infiltration gallery) in or on the bed and banks of Manuka Creek for abstracting water under consent CRC063564. |
| **Location** | | |
| 2 | LU02 | *Cross reference to Condition:* 1<br>*Name of watercourse:* Manuka Creek<br>*Map reference:* H39:540-225 and H39:542-226 |

[2] See Report 1, Appendix 6 for condition code and wording.

| | | |
|---|---|---|
| **Limits of Excavation** | | |
| 3 | LU03 | *Depth of excavation:* 2.5 metres below bed level |
| 4 | LU06 | |
| 5 | LU07 | |
| **Erosion Protection** | | |
| 6 | LU12 | |
| 7 | LU13 modified | Works shall not be undertaken in a manner likely to cause erosion of, or instability to, the banks or bed of Manuka Creek; or reduce the flood-carrying capacity of the waterway. |
| **Prior to Construction** | | |
| 8 | Non standard | The Canterbury Regional Council Compliance Monitoring Officer shall be notified at least 48 hours prior to the commencement of work. |
| 9 | LU08 | |
| 10 | LU19 | |
| 11 | LU20 | |
| **During Construction** | | |
| 12 | LU18 | |
| 13 | LU21 | |
| 14 | LU23 modified | All practicable measures shall be undertaken to minimise vehicles and machinery entering Manuka Creek. |
| 15 | Non standard | Re-fuelling or storage of machinery or vehicles used for carrying out the work shall not occur in or near Manuka Creek. |
| 16 | LU26 | |
| 17 | LU24 | |
| 18 | LU25 | |
| **Accidental Discovery Protocol** | | |
| 19 | LU09 | |
| **Upon Completion** | | |
| 20 | LU28 | |
| 21 | Non standard | On completion of works, the area shall be restored to its original condition as far as practicable. |

| Administrative Conditions | | |
|---|---|---|
| 22 | AD03 | |
| 23 | AD04 | |