Land River Sea Consulting Limited
Level 4, 22 Moorhouse Ave, Addington
Christchurch 8011
PO Box 27121, Shirley
Christchurch 8640
http://www.landriversea.com

Memorandum

Recipient Name:	Tom Hopkins
Recipient Organisation:	West Coast Regional Council
Issue Date:	19 February 2026
Author:	Rose Beagley

SUBJECT: WAIHO RIVER – AVULSION UPDATE – FEBRUARY 2026

Land River Sea Consulting has been contracted by West Coast Regional Council to provide a brief update on the development of the Waiho River avulsion channel since October 2025.

To do this, high resolution satellite imagery of the avulsion reach has been downloaded monthly from Sentinel Hub during periods of no to minimal cloud cover. The true left and true right banks of the channel have then been delineated and compared over time to identify any areas of change.

Analysis

The aerial imagery shows that the Waiho River has continued to erode the true right bank of the avulsion channel, as it gradually shifts to the north east capturing the farmland between the Waiho and Tatare rivers (Figure 1).

The month to month change between each set of imagery is described below in Table 1, including the maximum amount of lateral erosion between each month. This has also been annotated in Figure 1.

Table 1: Change over time (month to month) in the Waiho avulsion channel.

Date	Change
27th October 2025	Reference point
11th November 2025	Minimal to none
16th December 2025	Up to 50 m lateral erosion all the way down the true right bank of the avulsion channel; widening is greater at the downstream end of the channel.
5th January 2026	Up to 20 m lateral erosion all the way down the true right bank of the channel.
14th February 2026	Up to 15 m lateral erosion along the true right bank at the upstream end of the channel.

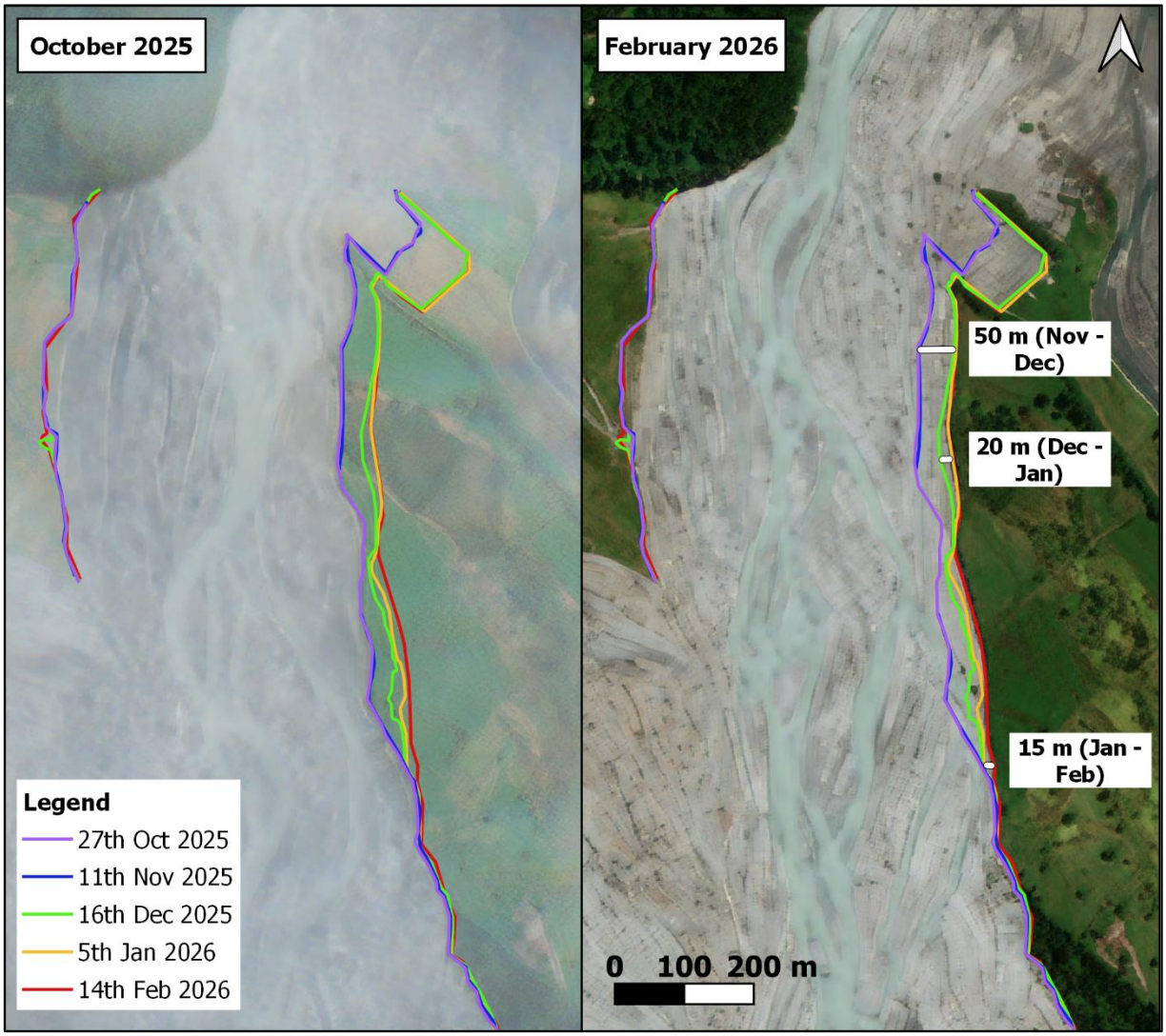


Figure 1: Comparison of the Waiho avulsion channel between the October 2025 and February 2026 aerial imagery, overlain with the delineated bank edges.

This change appears to have been proportional to the weather events experienced.

- The larger amount of lateral erosion that occurred between the November and December imagery, likely corresponds with the weather event on the 18th of November. Over 200 mm of rainfall in 24 hours was recorded at each of the Waiho River at SH6 and Waiho River at Douglas Hut sites. However, this was not a significant event by any means, as was less than a 2.33 return period for both sites.
- The smaller amounts of erosion occurred during a period of more settled weather, with a couple of smaller rainfall events.

Additionally, the location of the lateral erosion has shifted from being more pronounced at the downstream end to occurring only at the upstream end. This is in line with past incisional and widening behaviour through this reach, which tends to begin downstream and gradually migrate upstream.

As a result of the focal point of the erosion shifting, the cumulative erosion over the four months has not been significantly greater than what occurred from month to month. The overall change between October 2025 and February 2026 is shown in Figure 2, with the maximum amount of lateral erosion (60 m) occurring at the upstream end of the avulsion channel.

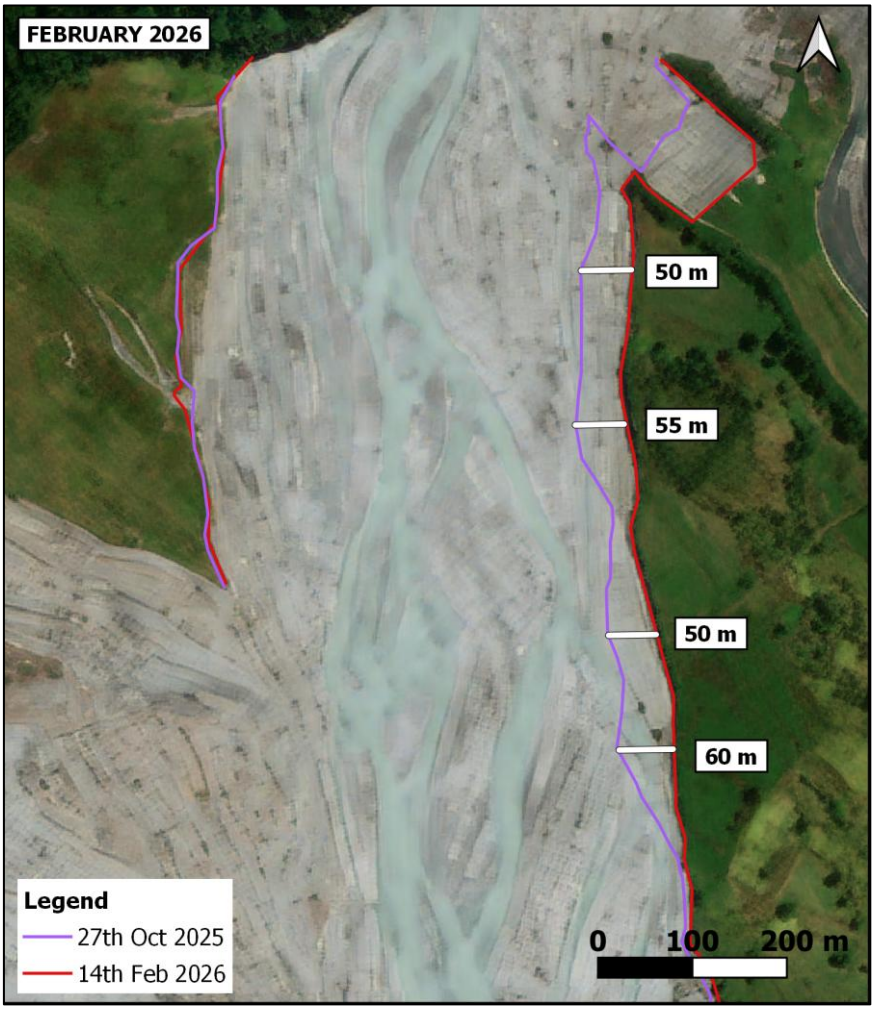


Figure 2: Lateral erosion between October 2025 and February 2026.

Summary

Over the last four months – between October 2025 and February 2026 – the Waiho River has eroded the true right bank of the avulsion channel by up to 60 m in places, with the focal point of erosion shifting from the downstream end to the upstream end over this time.

Given the past and recent behaviour of the Waiho River through this avulsion reach, it is likely that the lateral erosion will continue to widen the true right bank and extend upstream towards Havill's stopbank and the wastewater treatment ponds, with incisional behaviour to follow.

Future LiDAR capture will allow for geomorphic change detection analyses to be completed, and therefore analysis of the incisional behaviour of the river through this reach.

Please contact me if you need further clarification.

Kind regards,

Rose Beagley (BSc, MSc)
Geomorphologist / Water Resource Scientist
Land River Sea Consulting Ltd