

**UNDER**

the Resource Management Act 1991

**IN THE MATTER**

of a request to Kaipara District Council for  
Private Plan Change 81: Dargaville  
Racecourse by the Dargaville Racing Club Inc

**SECOND SUPPLEMENTARY STATEMENT OF DON MCKENZIE  
IN RESPONSE TO MATTERS RAISED AT THE HEARING**

**TRANSPORTATION**

**19 MAY 2023**

**1. INTRODUCTION**

1.1 My full name is Donald John McKenzie. My qualifications, background and experience as set out in my primary statement of evidence to this hearing dated 10 March 2023. I do note however that since the hearing I have left the employment of Stantec New Zealand and now operate as a sole practitioner and Director of the firm Don McKenzie Consulting Ltd.

1.2 I have prepared this second supplementary statement in advance of the Applicant's right of reply as I am travelling overseas from 20 May – 26 June 2023.

**2. INTERSECTION DESIGN, SAFETY AND SIGHT DISTANCES**

2.1 Mr Mat Collins –the transportation engineering consultant engaged by Waka Kotahi to consider and advise on the detailed matters of the Plan Change's transportation effects and the proposed mitigation by way of intersection upgrading at SH14/Awakino Point North – presented in his primary statement and concluded in response to the Panel's questioning, that if the Applicant's proposal for the upgrading of the intersection as an at-grade tee-intersection could achieve the necessary sight distance requirements based on the prevailing posted speed limit, then in his view the effects of the Plan Change would be acceptable.

2.2 I consider that Mr Collins approach based on safety and performance metrics such as safe intersection sight distance is to be preferred over the more strategy-based approach advanced by the other Waka Kotahi representatives.

2.3 The design approach adopted and referenced in my Primary Statement and which I presented and discussed with the Hearings Panel uses a combination of raised speed platforms and other



associated speed management devices. While speed limits would be of assistance to reinforce the speed reductions, as I stated at the hearing there are in my opinion other engineering approaches available to achieve reduced operational speeds matched to the operation of the tee-intersection.

2.4 In response to the discussion and conclusions made by Mr Collins during the hearing in relation to the provision of sight distances, and his conclusion that with sufficient complying sight distance provided from the Awakino Point North Road approach a priority-controlled tee-intersection would satisfy the safety needs of the Plan Change, I make the following observations in relation to the intersection.

- (a) Following the conclusion of the hearing I instructed colleagues at Stantec to make a series of modest adjustments to the intersection layout plan for the SH14/Awakino Point North Road intersection to optimise the sight distances in both directions as viewed from Awakino Point North Road;
- (b) I present the updated intersection form (remaining in the same general form of at-grade tee-intersection) but with a minor adjustment to the positioning and alignment of the Awakino Point North Road as an Attachment to this statement;
- (c) In my opinion and with the benefit of the background of my involvement with the Plan Change and its transportation matters, as well as hearing the discussion from Mr Collins as well as that from Mr Hills on behalf of the District Council, I consider that the proposed location of the intersection in the Attachment ensures the optimal outcome of sight lines in both directions, based on a practical assessment and best suited to the future of development and activity in this location.
- (d) The Applicant's updated design ensures the provision of a minimum practically available Safe Intersection Sight Distance ("**SISD**") of 285m in both directions along SH14 which is a distance meeting the Waka Kotahi Planning Policy Manual for a 100km/h posted speed limit. The sight line to the north is entirely within the legal road reserve corridor of the State Highway, while the sight line to the south lies largely within the road corridor but "clips" the private land on the western side of the intersection.
- (e) The sight line to the south is practically possible, albeit that the legal property boundary of the SH14 corridor extends over the corner of the private land on the



inside of the curve. While the sight distance triangle is (technically) outside the legal boundary of the State Highway corridor, the positioning of items within the “practically defined” road corridor such as the roadside tree enables full complying sight distance to be achieved.

- (f) My consideration of the position of the sight distance requirements through this corner of the curve (and across the private land), there are several specific elements of the existing road and road-side environment of the State Highway that practically ensure that the available sight line (irrespective of the specific legal boundary position that might appear “on paper”) will be maintained into the future including:
  - (i) Line of mature roadside trees on the western side of the intersection effectively providing and defining the edge of the roadway (outside the road shoulder/berm area);
  - (ii) There are existing underground services in this area;
  - (iii) An swale / open drainage channel is positioned between the tree line and the road carriageway.

2.5 The above roadway and roadside elements are shown in the screenshot below:



**Figure 1: SH14/Awakino Point North Road (view from south of the intersection) – Source: Google Streetview**

2.6 Ms Anich (the Applicant’s resource management planner) has informed me that from a planning perspective, a building/structure could not be established in this location (without a Land Use Resource Consent) that would block the sight lines due to:



- (a) The District Plan building/structure setback Rule 12.10.7(1)(a) that will maintain the visibility through this part of the road reserve/private land including a minimum of 10m front yard setback from a road boundary to any building or structure.
  - (b) In addition, any building/structure that is proposed to be established within 300m from an intersection of a State Highway and a local road is required to obtain a Land Use Resource Consent (Rule 12.10.7(1)(f)) and consult with Waka Kotahi to address potential traffic safety effects.
- 2.7 From my inspections of the site and this intersection, I can confirm that the trees do not practically impede the current sight distance nor would they compromise the sight distance to be provided from the modified intersection as shown in the attachments to this statement.

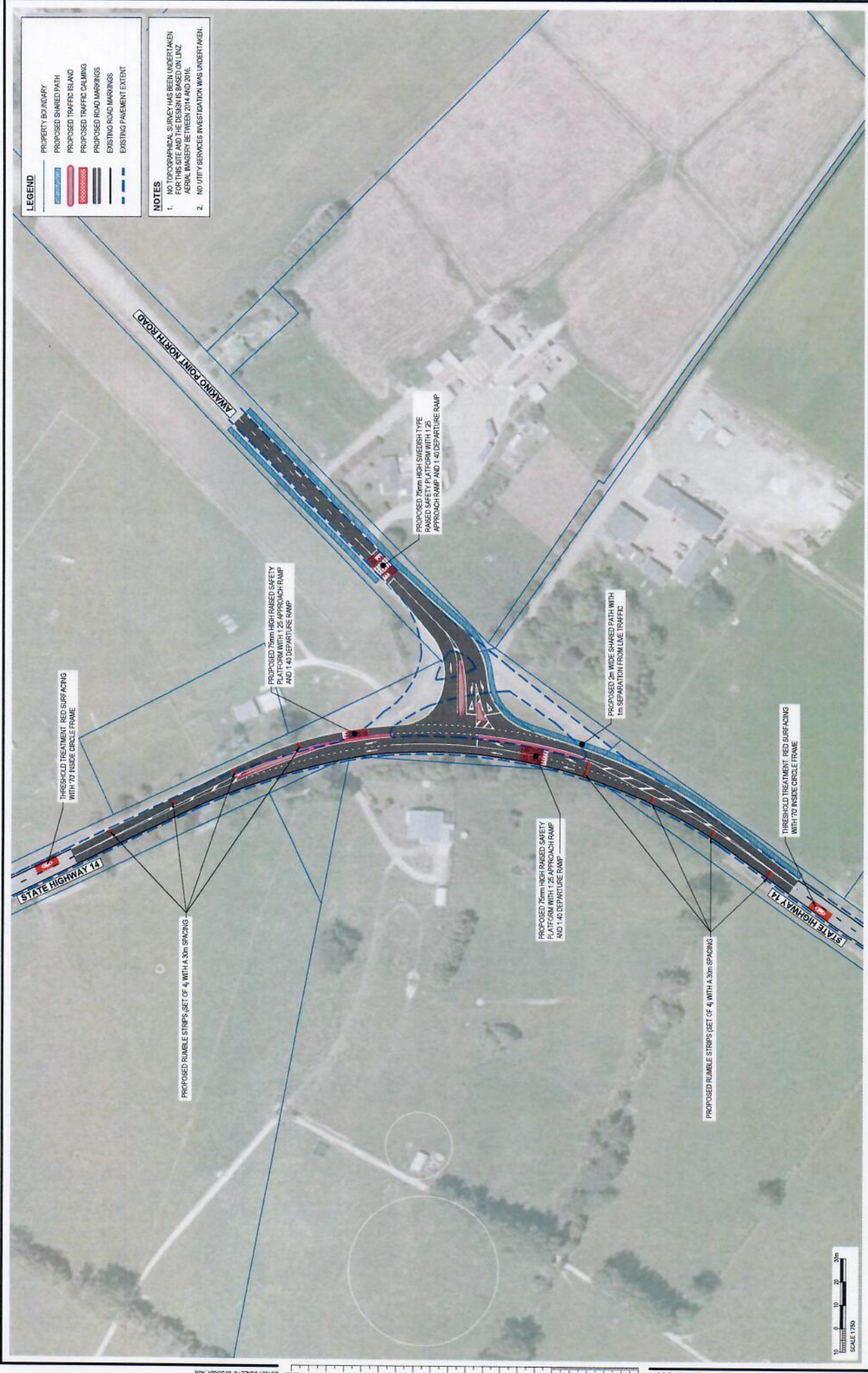
### 3. CONCLUSION

- 3.1 In my opinion and based on the assessment and investigations I have undertaken through the course of my input to the project, I consider that the updated design for the at-grade, tee-intersection attached to this statement represents the optimal arrangement of the intersection in support of the Plan Change and will deliver safe outcomes matched to the practical sight distance recommendations for State Highway intersections. I consider that the position advanced by Mr Collins on behalf of Waka Kotahi at the hearing in Dargaville on 26 March whereby safe intersection sight distances can be achieved is helpful and to be preferred over the strategy-based approach of other Waka Kotahi advisers.
- 3.2 I can confirm that the proposed design can satisfy the Waka Kotahi Safe Intersection Sight Distances for the current speed limit and can be practically provided through the road corridor. The positioning of roadside trees, swale drain and associated underground infrastructure services, together with District Plan requirements, ensures that available sight distances will be maintained. I reiterate my views expressed at the hearing that any future alteration to the speed limits (not proposed or required to support the Plan change) will reduce the required sight distance I have discussed in this statement, but are not relied upon to reach my opinion that the proposed tee intersection will deliver safe outcomes.

Don McKenzie

19 May 2023





**LEGEND**

[Blue dashed line]	PROPERTY BOUNDARY
[Red dashed line]	PROPOSED SHARED PATH
[Red solid line]	PROPOSED TRAFFIC ISLAND
[Red dashed line]	PROPOSED TRAFFIC CALMING
[Red dashed line]	PROPOSED ROAD MARKINGS
[Red dashed line]	EXISTING ROAD MARKINGS
[Blue dashed line]	EXISTING PAVEMENT EXTENT

**NOTES**

- NO TOPOGRAPHICAL SURVEY HAS BEEN UNDERTAKEN IN THIS SITE AREA SINCE THE LAST AERIAL MAPPING BETWEEN 2014 AND 2016.
- NO UTILITY SERVICES INVESTIGATION WAS UNDERTAKEN.

**NOT FOR CONSTRUCTION**

Issue No	FINAL
Issue Date	04.04.2023
Scale	1:750 @ A1: 1:500 / A3
Project No	3102004755-02-001-020
Sheet No	C

PROPOSED DARGAVILLE RACECOURSE PPC  
 DARGAVILLE RACING CLUB INC  
 SH14 / AWAKINO PT NORTH RD INTERSECTION CONCEPT  
 GENERAL LAYOUT PLAN



NO.	DATE	DESCRIPTION	BY	CHECKED	APPROVED
1	19/02/23	ISSUED FOR PERMIT	MAH/LOD	MAH/LOD	MAH/LOD
2	07/03/23	ISSUED FOR PERMIT	MAH/LOD	MAH/LOD	MAH/LOD
3	07/03/23	ISSUED FOR PERMIT	MAH/LOD	MAH/LOD	MAH/LOD
4	07/03/23	ISSUED FOR PERMIT	MAH/LOD	MAH/LOD	MAH/LOD
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1	19/02/23	ISSUED FOR PERMIT	MAH/LOD	MAH/LOD	MAH/LOD
2	07/03/23	ISSUED FOR PERMIT	MAH/LOD	MAH/LOD	MAH/LOD
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10	07/03/23	ISSUED FOR PERMIT	MAH/LOD	MAH/LOD	MAH/LOD

SCALE 1:750  
 ORIGINAL SIZE A1  
 DO NOT SCALE - R IN DOUT A8





**LEGEND**

- PROPERTY BOUNDARY
- PROPOSED SHARED PATH
- PROPOSED TRAFFIC ISLAND
- PROPOSED TRAFFIC CALMING
- PROPOSED ROAD MARKINGS
- EXISTING ROAD MARKINGS
- EXISTING PAVEMENT EXTENT

**NOTES**

1. ALL PHOTOGRAMMETRIC SURVEY HAS BEEN UNDERTAKEN FOR THIS SITE AND THE DESIGN IS BASED ON LAZ AERIAL IMAGERY BETWEEN 2014 AND 2016.
2. NO UTILITY SERVICES INVESTIGATION WAS UNDERTAKEN.

**SAFE INTERSECTION SIGHT DISTANCE**

REF	P/F	MSD REQ	FRICTION FACTOR	ROAD GRADE	DECISION TIME	DESIGN SPEED
SI02(2)	PASS	265m	0.35	0.0%	5.0 seconds	110 km/h

- Observation time = 3 sec; Reaction time = 2 sec  
 - SSD for cars is measured from a driver's eye height (1.1 m) to car roof height (2.25m)  
 - Grade refers to the average grade over the entire stopping distance (see flowchart / see layout)  
 - A 1.5 s reaction time is only to be used in constrained situations where drivers will be alert. - the general minimum reaction time is 2 s  
 - A friction factor of 0.35 is used for cars, 0.26 for trucks, and 0.15 for high friction surfacing.

**NOT FOR CONSTRUCTION**

DATE: 04.04.2023

SCALE: 1:750 @ A1: 1500 A3

PROJECT: 310204755-02-001-C023

REV: C

PROPOSED DARGAVILLE RACECOURSE PPC  
 DARGAVILLE RACING CLUB INC  
 SH14 / AWAKINO PT NORTH RD INTERSECTION CONCEPT  
 SISD PLAN - SHEET 1



NO.	DATE	DESCRIPTION	BY	CHKD
1	18/03/23	MARK LLOYD	MARK LLOYD	
2	07/02/23	OWEN	OWEN	
3	07/02/23	OWEN	OWEN	
4	07/02/23	OWEN	OWEN	
5	07/02/23	DIM	DIM	

**PROF REGISTRATION**

NO.	DATE	DESCRIPTION	BY	CHKD
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**LEGEND**

- PROPERTY BOUNDARY
- PROPOSED SHARED PATH
- PROPOSED TRAFFIC ISLAND
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**NOTES**

1. THIS PROVISIONAL SURFACE HAS BEEN UNDERTAKEN FOR THIS SITE AND THE DESIGN IS BASED ON LATEST AERIAL IMAGERY BETWEEN 2014 AND 2016.
2. NO UTILITY SERVICES INVESTIGATION WAS UNDERTAKEN.

**SAFE INTERSECTION SIGHT DISTANCE**

REF	PIF	SISD	REC	FRICTION FACTOR	ROAD GRADE	DECISION TIME	DESIGN SPEED
SISD1	PASS	285m		0.36	0.0%	0.5 seconds	110 km/h

- Observation time = 3 sec, Reaction time = 2 sec
- SISD for cars is measured from a driver's eye height (1.1 m) to car roof height (1.25m)
- Grade refers to the average grade over the entire stopping distance (-ve downhill, +ve uphill)
- A 1.5 s reaction time is only to be used in constrained situations where drivers will be alerted. - The general minimum reaction time is 2 s
- A friction factor of 0.36 is used for cars, 0.26 for trucks and 0.5 for high friction surfacing.

**NOT FOR CONSTRUCTION**

<b>PROPOSED DARGAVILLE RACECOURSE PPC</b>		<b>FINAL</b>	
<b>DARGAVILLE RACING CLUB INC</b>		<b>04.04.2023</b>	
<b>SH14 / AWAKINO PT NORTH RD INTERSECTION CONCEPT</b>		<b>Scale: 1:750 @ A1, 1:100 @ A3</b>	
<b>SISD PLAN - SHEET 2</b>		<b>Drawn: 31/02/2023</b>	
		<b>Project: 310204755-02-001-C023</b>	
		<b>Rev: C</b>	

NO.	DATE	DESCRIPTION	BY	CHECKED	DATE
1	19/02/23	DESIGNED	MARK LUD	MARK LUD	19/02/23
2	20/02/23	DRAWN	MARK LUD	MARK LUD	20/02/23
3	07/03/23	CAD REVIEW	GWV	GWV	07/03/23
4	07/03/23	DESIGN CHECK	GWV	GWV	07/03/23
5	07/03/23	DESIGN REVIEW	GWV	GWV	07/03/23
6	07/03/23	APPROVED	DM	DM	07/03/23
7	07/03/23	PPCP RECEPTION	DM	DM	07/03/23

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