

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of Proposed Plan Change 11 to the Waipa
District Plan – Bardowie Industrial Precinct

STATEMENT OF EVIDENCE (TRAFFIC)

Alasdair Gray

19 November 2018

1 INTRODUCTION

1. My name is Alasdair David Angus Gray. My qualifications and experience are as follows:

- a. I hold a Bachelor of Science degree (Civil Engineering, 1986) from the University of Aberdeen. I am a Corporate Member of the Institution of Professional Engineers New Zealand and a Chartered Professional Engineer. I hold a Ministry for the Environment Making Good Decisions certificate.
- b. I have worked in the transportation field as a civil/transportation engineer for more than 30 years and have been involved at a senior level in the investigation and development of projects in Hamilton City and the Waikato Region for more than 20 years. I am based in Hamilton and established my own consultancy, Gray Matter Ltd, in January 2006. For 5 years prior to that I was Group Engineer, Asset Development, with Opus International Consultants Ltd in Hamilton, managing approximately 30 technical staff in a range of road projects. For the previous 5 years I was a senior civil/transportation engineer with AECOM's predecessor in Hamilton.
- c. I am familiar with the transport issues arising in and around Waikato, having provided advice to Hamilton City Council, Waipa and Waikato District Councils and other local authorities, Waikato Regional Council, NZ Transport Agency, and developers on projects in the area over the past 20 years. I have the following specific experience with respect to the matters currently in front of the Hearing:
 - i. Traffic engineer supporting NZ Transport Agency, Hamilton and Tauranga City Councils, and Rotorua, Waipa, Waikato and Matamata Piako District Councils in transport-related aspects of District Plan changes, reviews and variations including the Ruakura Board of Inquiry;
 - ii. Consultant civil/transportation engineer for developers, landowners and local authorities assisting in preparing and

reviewing Notices of Requirement for road projects and consent applications, including in Peacocke Stage 1A;

- iii. Assisting NZTA with traffic engineering and transport planning for the state highway network, including two years' experience as the network safety engineer for the Manawatu State highway network, investigation and implementation of the SH3/Airport Road roundabout, and advice on responding to the impacts of development on the SH3 corridor in south Hamilton;
- iv. Assisting Hamilton City Council and Waikato Regional Council in peer reviewing the Hamilton to Auckland Passenger Rail Business Case; and
- v. I am currently project managing the implementation of the Peacocke network infrastructure, including strategic transport and wastewater packages.

2 EXPERT CODE OF CONDUCT

- 2. I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and have complied with that practice note in preparation of this evidence. I agree to comply with it in presenting evidence at this hearing. The evidence that I give is within my area of expertise, except where I have stated my reliance on other identified evidence. I have considered all material facts that are known to me that might alter or detract from the opinions that I express in this evidence.

3 SCOPE OF EVIDENCE

- 3. I have been retained by Bardowie Investments Ltd (BIL) to provide traffic engineering and transport planning advice relating to Plan Change 11 - Bardowie Industrial Precinct.
- 4. I am familiar with the road network near the Plan Change area. The site is located on one of my routes to and from work. I have travelled along the roads and visited the site on a number of occasions, including observing traffic conditions on Victoria Road and connecting routes, including Hautapu Road.

5. The purpose of this statement of evidence is to address matters raised in the application relating to transport and consideration of submissions and further submissions in this regard.
6. My evidence covers:
 - a. A summary of my involvement in preparation of the Plan Change;
 - b. A summary of the key traffic characteristics of the proposal and transport infrastructure in the area;
 - c. A description of options to service the site and its development stages;
 - d. Comments on the S42A report and relevant submissions; and
 - e. My conclusion that the site can adequately be serviced for access and traffic.

4. MY INVOLVEMENT IN PREPARATION OF THE PLAN CHANGE;

7. I was involved in the development of the plan change proposal from an initial briefing with BIL in May 2018 as part of concept development. I participated in the Council workshop on preliminary concepts and findings in June 2018.
8. I managed preparation of and reviewed the Integrated Transport Assessment (Appendix C to Plan Change 11). That assessment evolved past a plan change level of detail into subdivision and intersection concept design to support discussions with Waipa DC roading staff.
9. I subsequently assisted the Plan Change 11 team in discussions with Council staff and NZ Transport Agency in relation to the intersection option evaluation and concept design, including dealing with potential additional development land. This included some investigation work for Council seeking to optimise solutions to coordinate road connections and allow for staging and connectivity for industrial land to the west of Victoria Road as part of Plan Change 6: Hautapu Structure Plan. The double roundabout and five leg roundabout concepts from that investigation have been refined following discussions with Waipa DC and NZTA staff and are attached (Attachments 1a and 1b to this statement). We

provided those to Waipa DC on 29 October 2018 and Waipa arranged for a peer review by WSP-Opus.

5. KEY TRAFFIC CHARACTERISTICS OF TRANSPORT INFRASTRUCTURE IN THE AREA AND OF THE PROPOSAL;

10. The ITA describes the proposal and transport infrastructure in the area. These remain valid, but I note that recent investigations for passenger rail connections between Hamilton and Auckland contemplate passenger rail between Cambridge and Hamilton in some form.

11. Key points for the traffic characteristics of transport infrastructure in the area include:

- a. There is an active infrequent rail service for Fonterra freight, with the Cambridge Branch Line track infrastructure terminating just north of the Victoria Road Hautapu Road intersection. South from there the rail corridor continues towards Cambridge, stopping before the Victoria Road/Hamilton Road roundabout. Recent road crossings such as Norfolk Drive have a deed of grant for the road crossing the rail corridor. Any changes or new road/rail crossings need KiwiRail authorisation. BIL have agreed crossing arrangements for the Southern access to PC11.
- b. State Highway 1B Victoria Road is likely to be revoked as soon as the Hamilton Section of the Waikato Expressway is operational, planned for 2020. That means that the road will revert to Waipa DC control, currently NZTA, prior to the Stage 3 connection and potentially before any changes to the proposed Stage 1 right turn bay. Completion of the Hamilton Section and Huntly Sections also means that through traffic demand will reduce. Modelling suggests that there will still be quite high volumes but I am not sure why, since there are few traffic attractor that would be serviced by that route.
- c. Speeds in the area are likely to reduce to 50km/h or 60km/h as development takes place. That reduces the risk of safety problems, design criteria (e.g. sight distances) and the attractiveness of the roads to through traffic.

- d. The Hautapu West Road layout is also expected to change as part of Plan Change 6. The changes are provided for in the intersection concepts, which allow for staging.
- e. Laurent Road between the two access points for Plan Change 11 is likely to be closed.
- f. In my opinion it would be appropriate to leave intersection design and investment decisions until closer to development. The Plan Change requires a development agreement to be in place prior to any development occurring within the Bardowie Industrial Precinct Structure Plan Area. That allows the traffic changes from the state highway network changes and revocation, speed changes and the traffic characteristics of development of earlier Plan Change 11 stages and of Hautapu west to be understood and taken into account in decision-making.

12. Key points relating to the Proposal and traffic include:

- a. The Waipa District Plan shows 50ha of industrial zone within the Hautapu Industrial Structure Plan area (96ha total) and is expected to be developed over the next 30 years or more. The area to the east of Laurent Road is shown as future industrial, covering at least 136ha, extending to Swayne Road and Zig Zag Road. The Waipa DP shows approximately 30ha of the Laurent Road block zoned as Deferred Industrial Zone. Our assessment conservatively presumes that the Plan Change 11 development would be additional, but that depends on whether the industrial demand in projections such as Waipa 2050 and FutureProof is fixed or elastic, and increases with land availability.
- b. We have based our traffic assessments on a reasonably conservative 20vehicles/hour/ha (gross area). Initial development is likely to generate significantly less traffic. The Campus Hub may generate more traffic but a proportion will be part of trips with a shared purpose within the zone, such as deliveries and accommodation, or work trips and childcare trips.

- c. In my opinion, it is unlikely that all of the land that will be zoned industrial will be occupied and generate traffic within a reasonable infrastructure planning period of 30 – 50 years. The objectives align with the Waikato Regional Policy Statement land allocation tables. As long as there is space for appropriate connections, the detailed alignments and intersection forms can be decided at the time of subdivision and development, optimised for the relevant traffic conditions.

6. A DESCRIPTION OF OPTIONS TO SERVICE THE SITE AND ITS DEVELOPMENT STAGES

13. We developed the site layout and access options recognising transportation requirements, staging and future flexibility as important outcomes. The concepts and development process is set out in the ITA. The collector road network around Industrial Node 1B allows for early development where likely to be serviced efficiently and for connections to future stages and potential development external to the Plan Change 11 area.
14. The southern Development Access is likely to be a right turn bay initially, with an upgrade to traffic signals that would be triggered by assessment prior to development in Node 2. The right turn bay can accommodate the traffic demands from around 45ha industrial and may be able to accommodate more depending on traffic growth on Victoria Road, activity peak timing compared to the Victoria Road peak periods and what the turning demands are compared to our conservative assessment of 20% north/80% south. Concept designs are attached (Attachments 2a and 2b). The connection to Victoria Road will require the road to cross the rail corridor. Waipa DC staff have indicated that Laurent Road can be closed. I consider that its current access functions (such as farm access and walking/cycling) can be accommodated as part of detailed design if necessary.
15. The northern access option is more complex. We selected the options attached for a double roundabout and a five leg roundabout as the best options. The five leg roundabout is more efficient, and the double roundabout is lower risk if dual laning is needed. Waipa DC and NZTA have expressed preferences for the double roundabout arrangement. Ultimately, if additional capacity is needed, both options could be dual-laned and there are also options for future connections from the BIL area to the road network elsewhere to the east and north.

16. The roads and site will be designed to accommodate buses, cyclists and pedestrians.
17. The Stage 1A development will have one very large building with relatively few employees (about 150) managing industrial activities. That means that the typical parking requirements are not efficient or appropriate. The Plan change includes a new parking requirement based on employee numbers for single occupancy buildings with a GFA greater than 10,000m as suggested in the ITA.

7. RESPONSES TO SECTION 42A HEARING REPORT AND SUBMISSIONS RELATED TO TRANSPORT AND TRAFFIC.

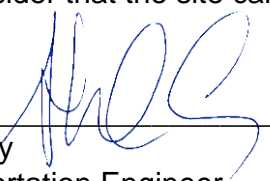
18. Sections 5.5 and 5.6 of the Section 42A report cover traffic and service connections and agree with the conclusion that traffic intersections and connections to the precinct can be provided. I consider that the ITA, responses to submissions and the further design development for intersections adequately addresses the issues raised in submissions. Mr Chrisp will deal with KiwiRail agreement for the southern crossing. The Structure Plan General Arrangement drawing (Attachment 3 to this statement) requires external connections to be confirmed and vested as part of Stage 3.
19. The submission from Hefin Davies [Sub:9] commented on the right turn bay for the southern entrance regarding access to properties at 183A, 167 and 151 Victoria Road and the proposed location of the South Access to the BIL site. The submission comments on several aspects of the proposal and raises concerns relating to:
 - a. accessibility, vehicle safety and/or visibility; and
 - b. the potential adverse effects on the Submitter's property have not been inadequately identified, considered and/or avoided, reminded or mitigated.
20. We completed a detailed assessment of access impacts. The closest vehicle crossing for the submitter's properties is located approximately 80m south of the proposed south access intersection. The proposed intersection layout includes the extension of the existing flush median from outside the Z Petrol Station at 167 Victoria Road, up to the proposed right turn bay, providing a continuous 3m wide flush median. The proposed 3m wide flush median between the Waikato Expressway interchange and the proposed South Access will provide sufficient space for vehicle to wait for a suitable gap in traffic before completing their turn into

183A, 167 or 151 Victoria Road, improving safety and offsetting most efficiency effects, with the property access still operating at an acceptable level of service (peak delays < 25 seconds). With signals, a keep clear hatching could be used but may not be needed. I consider that the right turn bay and signals can be implemented with little impact on the property access. Detailed design will be subject to Waikato DC and NZTA approvals, and to safety audit which will include consideration of the entranceway. I do not consider that any changes to the Plan Change provisions are necessary.

21. Waipa District Council [Sub:22], NZ Transport Agency [FS:27] and the Henmar Trust [FS:30] submitted on the northern access seeking confirmation of an appropriate design solution. I have provided additional information and two practical options that can service the development. My preference is for the five leg roundabout, but the double roundabouts is supported by Waipa DC and NZTA, and is likely to be less challenging for KiwiRail. In my opinion, it would be desirable to defer decisions on the intersection form until development, or at least until after revocation of SH1B and completion of the current rail investigations. An agreed process for and timing of decisions could form part of the Development Agreement required by the plan change.

8. CONCLUSION THAT THE SITE CAN ADEQUATELY BE SERVICED FOR ACCESS AND TRAFFIC.

22. The Proposal contributes to the transportation objectives in the District Plan and Council's strategies. From a transportation perspective, the Proposal is well located to make efficient use of existing infrastructure and reduce adverse effects. The Proposed Plan Change includes a Structure Plan for the Bardowie Industrial Precinct to support the rezoning to ensure that the development occurs in a coordinated and planned manner.
23. I consider that the site can adequately be serviced for access and traffic.

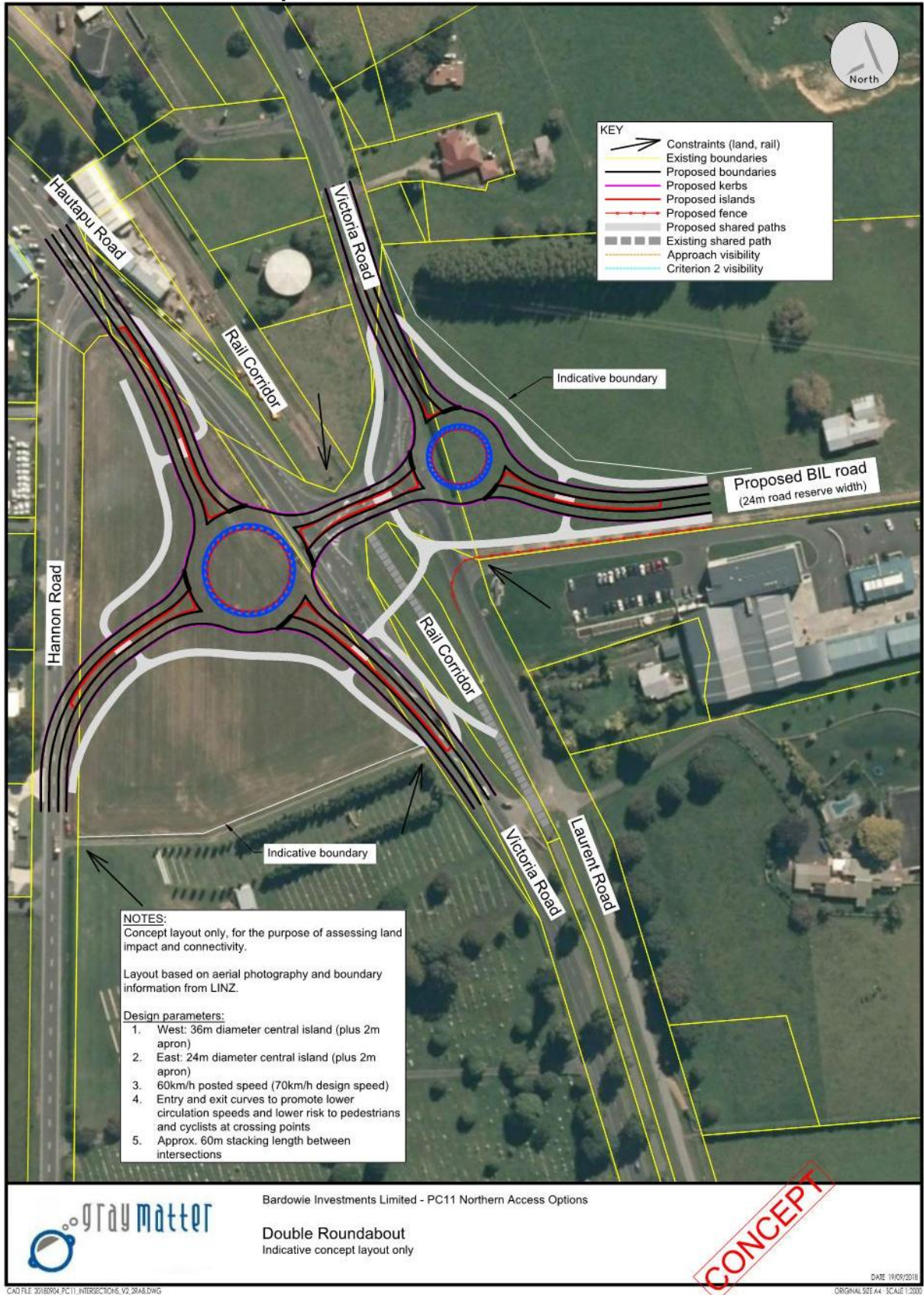


Alasdair Gray
Civil/Transportation Engineer
Gray Matter Ltd

Dated: 19 November 2018

Attachment 1: Northern Access Layouts

1A: Double roundabout Option – Northern Access



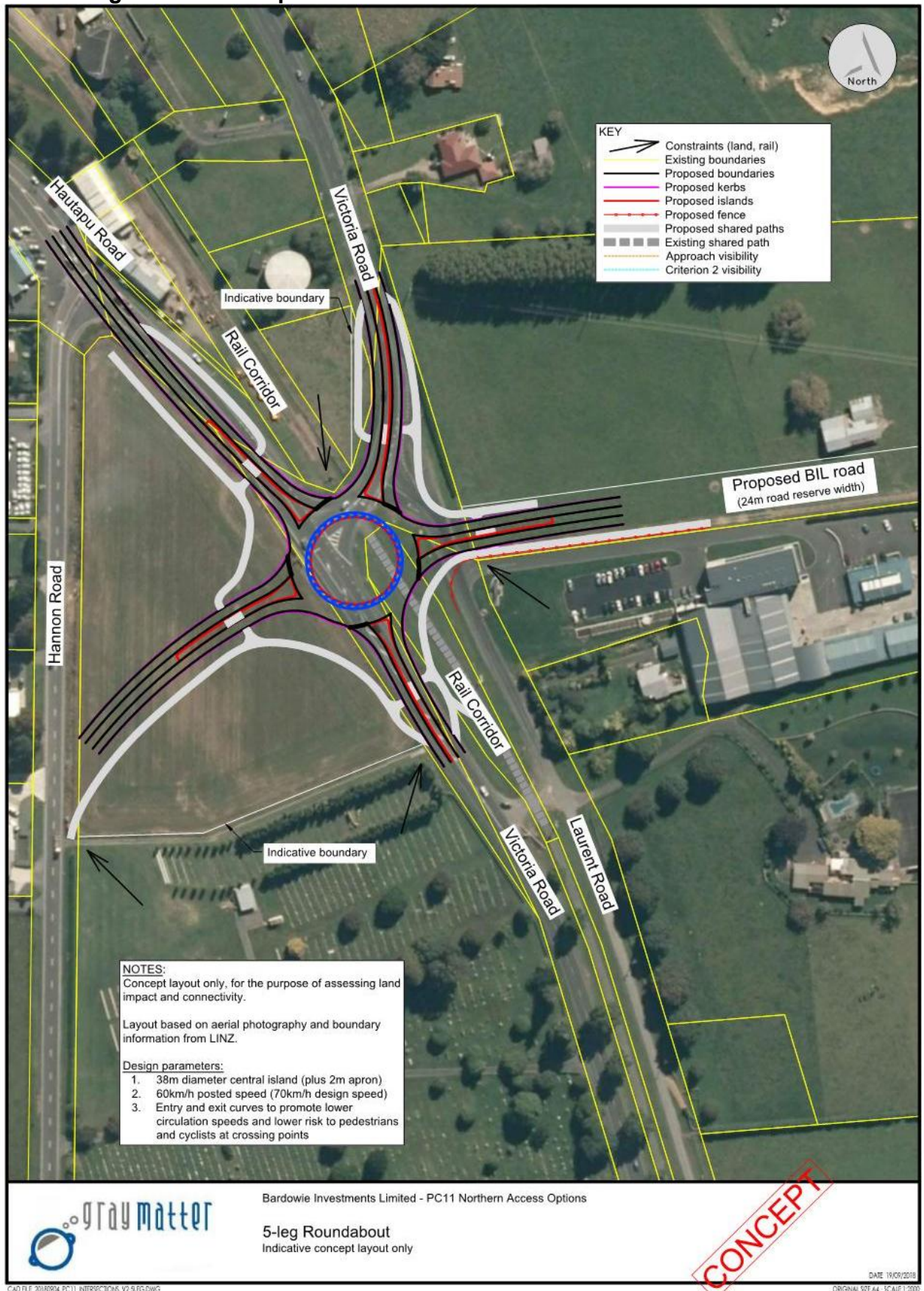
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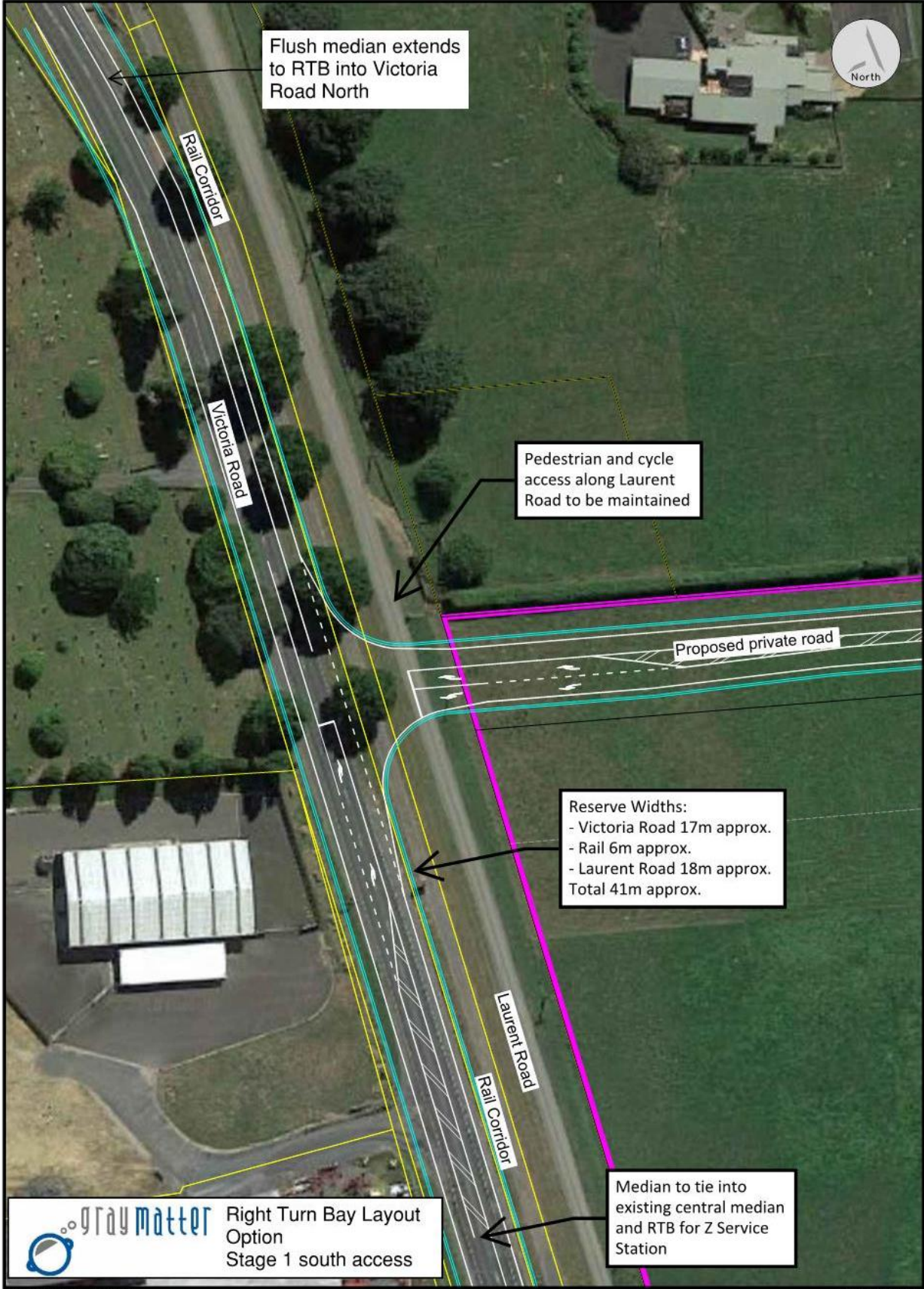
Bardowie Investments Limited - PC11 Northern Access Options

Double Roundabout
 Indicative concept layout only

1B: Five leg roundabout Option – Northern Access



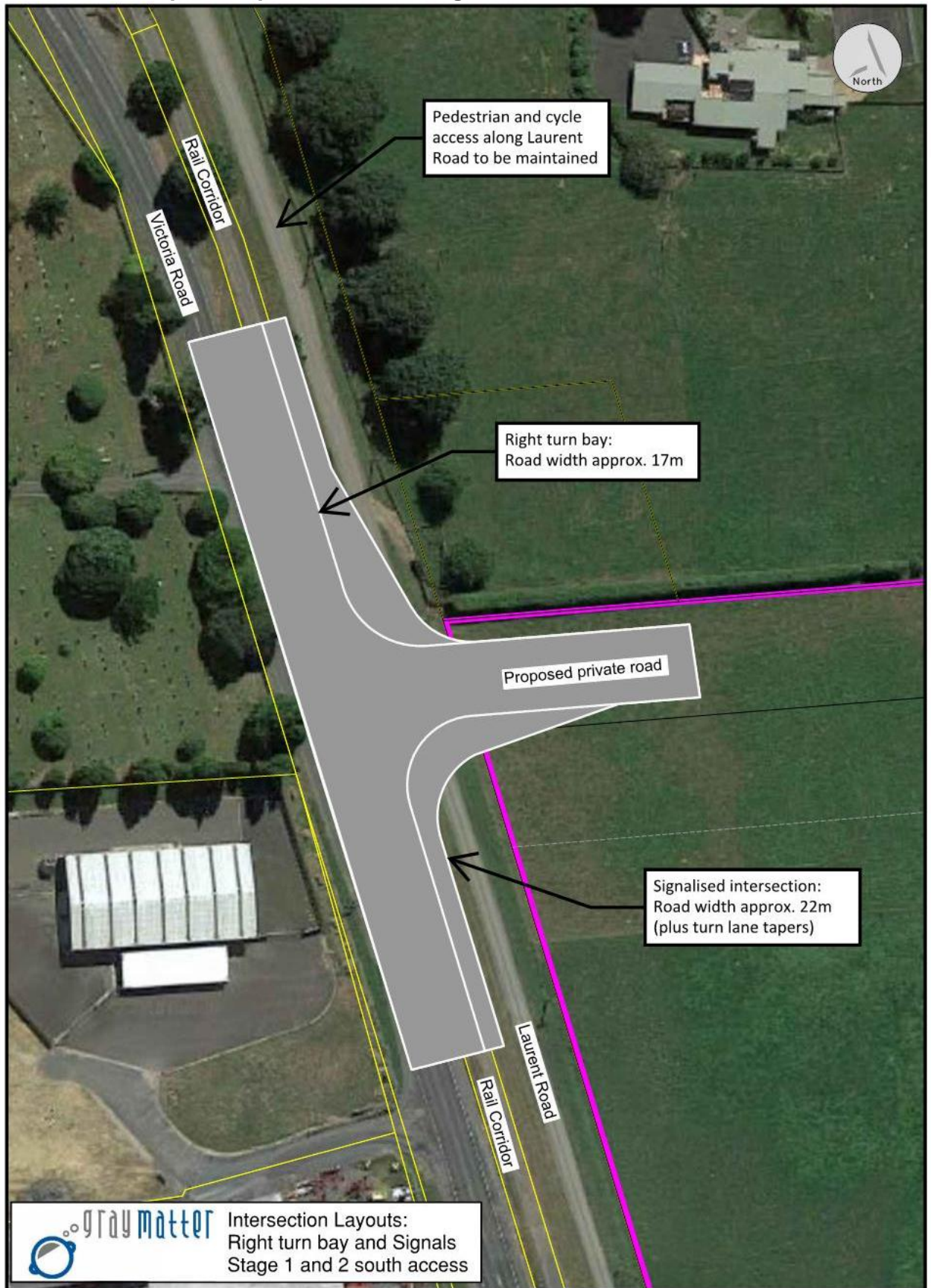
2A Right turn bay layout – Southern Access



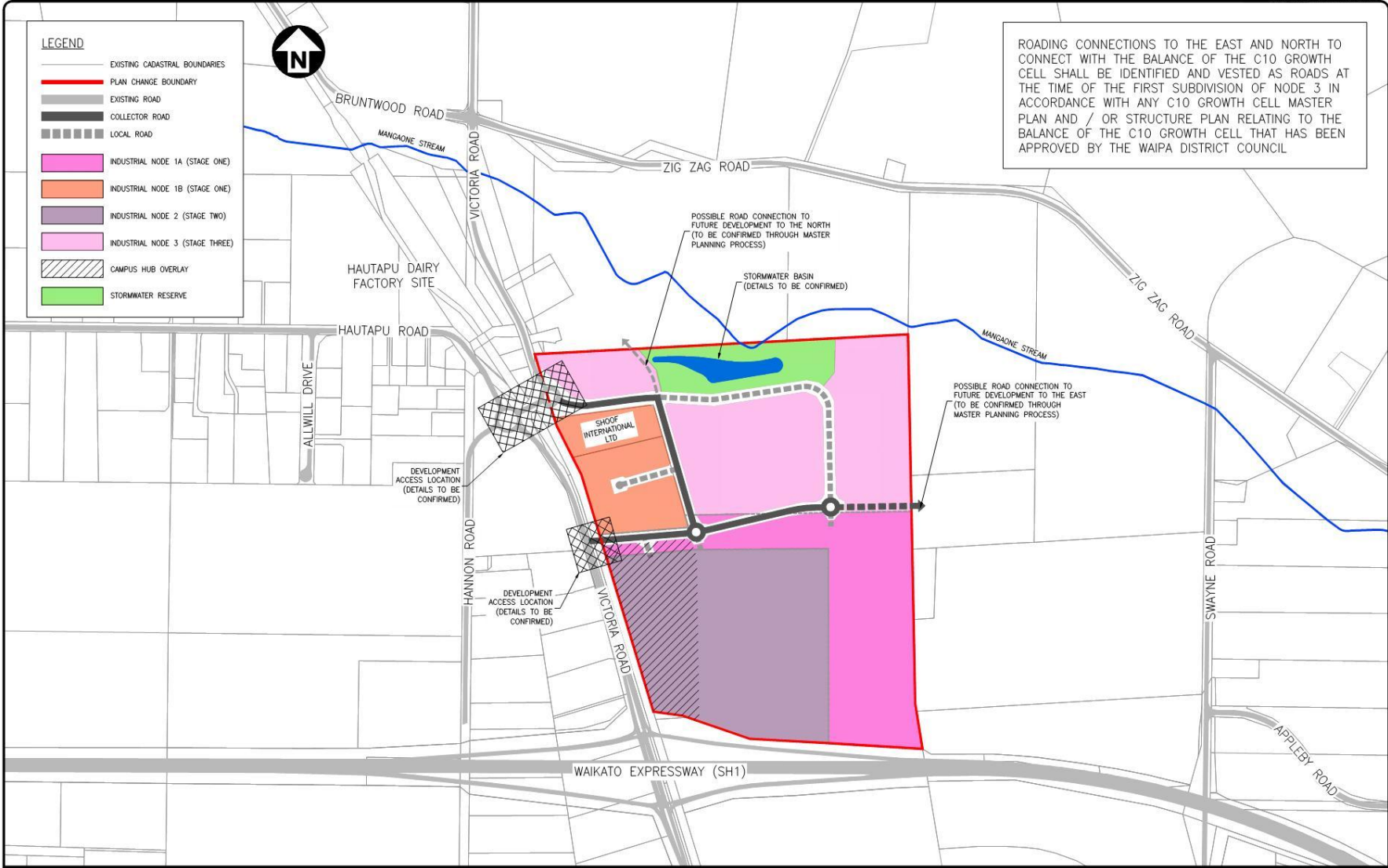
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ORIGINAL SIZE A4 - SCALE 1:500

2B Additional space required for traffic signals



Attachment 3: Structure Plan General Arrangement



ROADING CONNECTIONS TO THE EAST AND NORTH TO CONNECT WITH THE BALANCE OF THE C10 GROWTH CELL SHALL BE IDENTIFIED AND VESTED AS ROADS AT THE TIME OF THE FIRST SUBDIVISION OF NODE 3 IN ACCORDANCE WITH ANY C10 GROWTH CELL MASTER PLAN AND / OR STRUCTURE PLAN RELATING TO THE BALANCE OF THE C10 GROWTH CELL THAT HAS BEEN APPROVED BY THE WAIPA DISTRICT COUNCIL

LEGEND

- EXISTING CADASTRAL BOUNDARIES
- PLAN CHANGE BOUNDARY
- EXISTING ROAD
- COLLECTOR ROAD
- LOCAL ROAD
- INDUSTRIAL NODE 1A (STAGE ONE)
- INDUSTRIAL NODE 1B (STAGE ONE)
- INDUSTRIAL NODE 2 (STAGE TWO)
- INDUSTRIAL NODE 3 (STAGE THREE)
- CAMPUS HUB OVERLAY
- STORMWATER RESERVE

PROPOSED PLAN CHANGE 11 TO THE WAIPA DISTRICT PLAN
BARDOWIE INDUSTRIAL PRECINCT

STRUCTURE PLAN
GENERAL ARRANGEMENT