Ballarat West Employment Zone (BWEZ) – Stage 4

Service Infrastructure Report

Prepared for: Development Victoria

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Contents

1.	Introduction	1
2.	Site and Surrounds	2
2.1	Site Context	2
2.2	Subject Site	3
3.	Subdivision Masterplan	4
4.	Servicing	6
4.1	General	6
4.2	GeneralWater Authority Works	6
4.3	Gas	9
4.4	Electricity Supply	10
4.5	Gas Electricity Supply Telecommunications	11
Apper	ndix A – Indicative Subdivision Masterplan	1
Apper	ndix B – Sewer Servicing Plan	2
Apper	ndix C - Water Servicing Plan	3
Apper	ndix D - Gas Servicing Plan	4
Apper	ndix E — Electrical Servicing Plan	5
Apper	ndix F – NBN Servicing	6

Introduction

This Service Infrastructure Report has been prepared to outline the proposed servicing strategy for Ballarat West Employment Zone Stage (BWEZ) Stage 4. The report has been prepared to support the planning permit application for subdivision development.

The subject site comprises roughly 61.3 hectares of greenfield land located within the central section of the BWEZ development site in Cardigan. The application encompasses the subdivision of lots ranging in size from 1.0 to 15.9 hectares.

Working on behalf of Development Victoria, Stantec are the lead consultant of the subdivision development and are responsible for the engineering design and subconsultant services that include surveying, geotechnical engineering, and landscape design.

The report provides assessment of the existing services infrastructure and required upgrade works to facilitate full servicing to all lots in the subdivision application.

The report aims to describe the servicing strategy for the subdivision, including:

- Dual water
- Sewer
- Electricity
- Gas, and
- NBN

The servicing advice provided by Stantec herein, builds on and draws from previous consultant's reports including BWEZ Integrated Infrastructure Plan (Cardno, 2014).

The report is supported by the following documents:

- Servicing scheme plans prepared by Stantec included in the Appendices, as follows:
 - A. CI-060-SK02 Subdivision Masterplan
 - B. CI-080-SK01 Services Layout Plan Sewer Reticulation and Pressure Main Scheme
 - C. CI-080-SK02 Services Layout Plan Dual Water Supply Scheme
 - D. CI-080-SK03 Services Layout Plan Gas Supply Scheme
 - E. CI-080-SK04 Services Layout Plan Electrical Supply Scheme
 - F. CI-080-SK06 Services Layout Plan NBN Scheme

2. Site and Surrounds

2.1 Site Context

The Ballarat West Employment Zone (BWEZ) is 438 hectares in size and is located centrally within the western growth area of Ballarat, approximately 7 km north-west of the Ballarat CBD. BWEZ Stage 4 encompasses approximately 54 hectares of the overall development site and is bounded by Ballarat Airport, Airport Road, the preceding Ballarat Integrated Freight Hub (BIFH) and BWEZ Stage 3.

Refer Figure 1 for the BWEZ Stage 4 existing site plan.



Figure 1 BWEZ Stage 4 Existing Site Plan

Immediate surrounds to the subject site are described below.

North

The north of the site is bounded by Airport Road, where existing access to the site is located.

East

Directly adjacent to the east of the site is BIFH, previously constructed as a part of BWEZ. Liberator Drive is an existing boulevard and the eastern access point to the subdivision. Ballarat Airport also extends into the northern and eastern boundaries of the site.

South

Ballarat-Ararat Railway Line is directly to the south, separating the subdivision to the preceding BWEZ Stage 3 and existing ACACIA development.

West

Existing residential property Lot 36 Airport Road currently being utilised as farmland shares the western boundary with the subject site.

2.2 Subject Site

The BWEZ Stage 4 subject site is currently a developed parcel of land operating as an autocross track. There is an existing dirt racetrack located on the north of the site, as well as an unsealed road (Residence Road) leading from the northern access point southbound. Besides the track and road, site conditions are mostly uniform being grassed open fields with scattered vegetation and trees throughout. The site also has two heritage places, one of which being a Victorian Heritage Register Place.

Site topography falls from a high point near the south of the site, converging towards the outer lot boundaries. The highest RELIMINARY FOR INFORMATION SPECIAL PROPERTY OF THE PROPERTY OF point of elevation lies at 446.5m AHD. At the northwest corner of the lot is the lowest point at 436m AHD.

3. Subdivision Masterplan

The BWEZ initiative involves the development of 438 hectares of Crown land adjacent to Ballarat Airport as an integrated industrial and business precinct that will offer affordable and large serviced lots suitable for a range of manufacturing, freight and logistics, construction and research and development uses.

BWEZ Stage 4 succeeds the Stage 3 subdivision to the south of the development site.

The Indicative Subdivision Masterplan (refer Appendix A) for BWEZ Stage 4 has been prepared by Stantec that has been included with this application.

The BWEZ Stage 4 subdivision project will comprise:

- Total development area of 61.3 hectares.
- Approximately 28.9 hectares of industrial zoned land made up of 11 serviced lots (number may vary subject to vendor negotiations) ranging in size from 1 to 13.5 ha.
- Drainage Reserves including:
 - o 1.062 hectares reserve to the north corner of the site
 - o 1 hectare reserve to the north-east corner of the site
 - Existing 2.05 hectares reserve to the southeast corner of the site (constructed as part of the Stage 1 works)
- Open Space including:
 - 1.8 hectares reserve between Liberator Drive and the Ballarat to Ararat Railway Line
 - 7.6 hectares open space backing onto Ballarat Airport
- 15.9 hectares Transport Terminal.
- Liberator Drive extension towards proposed Airport Road intersection.
- 30m wide Heritage Reserve fronting Airport Road.
- Provision of services including electricity, gas, dual water supply, sewer and NBN.
- Provision of stormwater drainage infrastructure, including pipe drainage, overland flow, WSUD and on-site detention.
- Landscape to road verges.

The area of the BWEZ Stage 4 land release is as defined in Figure 2 below.

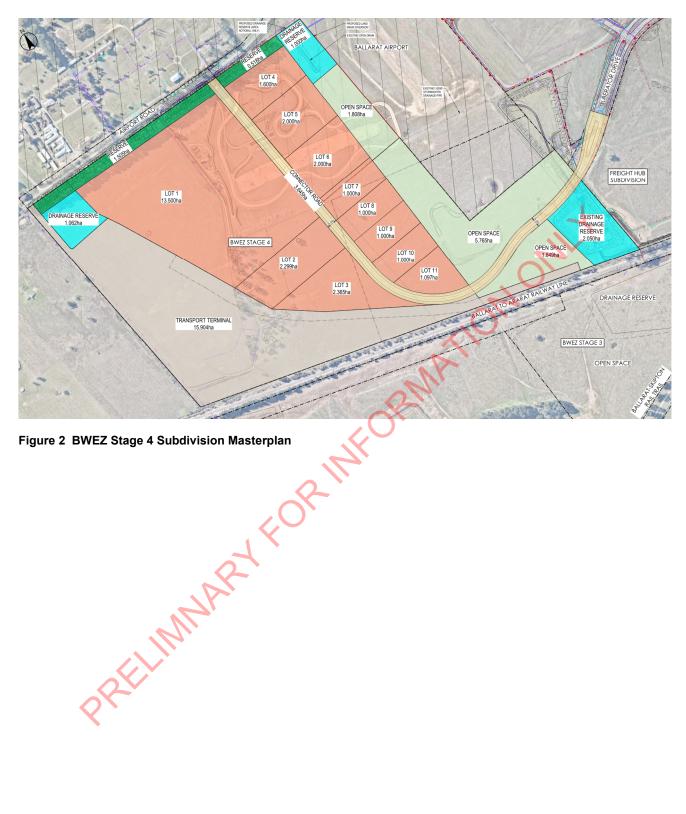


Figure 2 BWEZ Stage 4 Subdivision Masterplan

4. Servicing

4.1 General

All lots in BWEZ are to be fully serviced and readily able to connect to service infrastructure including sewer, dual water supply (i.e. potable and recycled water mains), electricity, gas and NBN. The subdivision will require service infrastructure upgrades to achieve full servicing of all lots. Summary of service upgrades is provided in the following sections.

The alignment of all services has been selected to comply with the IDM and the Code of Practice – Management of Infrastructure in Road Reserves.

4.2 Water Authority Works

4.2.1 General

The water authority works for BWEZ Stage 4 will include construction of dual water supply (portable and recycled water), gravity sewer reticulation, a new sewer pump station and rising main required to the service the industrial subdivision.

4.2.2 Responsible Authority

Central Highlands Water (CHW) is the responsible authority for dual water supply and sewer infrastructure serving BWEZ.

Servicing advice applications have been made to Central Highlands Water and a response from Central Highlands Water is awaited. It is anticipated the developers of BWEZ will meet the full cost of this infrastructure.

4.2.3 Design Standards

BWEZ Stage 4 dual water supply, gravity sewer and sewer pump station will be designed in accordance with the following Australian Standards and guidance documents.

Relevant Australian Standards:

AS/NZS 3500.2:2021 - Plumbing and Drainage – Part 2: Sanitary Plumbing and Drainage

Other guidance documents:

- WSA 02-2014-3.1 Gravity Sewerage Code of Australia Melbourne Retail Water Agencies Edition, Version 2.
- WSA 03-2011-3.1 Water Supply Code of Australia Melbourne Retail Water Agencies Edition, Version 2.0.
- WSA 04-2005-2.1 Sewerage Pumping Code of Australia, Version 2.1
- Central Highlands Water, Supplementary Manual to the 'Gravity and Sewerage Code of Australia' WSA 02- 2014-3.1, Melbourne Retail Agencies Edition Version 2.
- Central Highlands Water, Supplementary Manual to the WSAA Water Supply Code (WSA 03-2011:3.1), Melbourne Retail Agencies Edition V2.0.
- Central Highlands Water, Supplementary Manual to the WSAA Sewerage Pumping Station Code (WSA 04-2005:2.1), Version 2.1.

4.2.4 Easement and Licensing Agreements

Easements in favour of CHW are required to be created around all sewers and water mains where they pass through private property. Easement widths and locations are to be confirmed pending advice from CHW.

The preliminary sewer alignment results in an easement along the northern side and rear of Lot 1 and the rear of Lot 2.

4.2.5 Sewerage

Refer Appendix B for BWEZ Stage 4 indicative sewer servicing scheme (CI-4-080-SK01).

The 11 industrial lots will be serviced by a gravity sewer system that falls towards the proposed SPS located at the rear of Lot 3 (refer Figure 3). These wastewater flows will be pumped towards the nominated discharge point through a rising main on the western side of the connector road (extension of Liberator Drive). The discharge point is an existing maintenance hole on Liberator Drive near the BIFH tie in on the east.

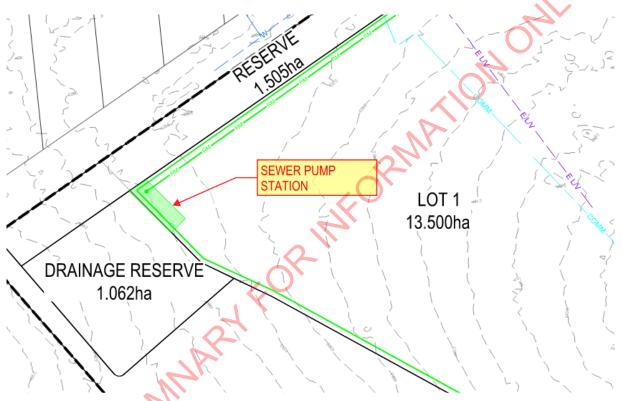


Figure 3 BWEZ Stage 4 SPS Scheme

The final alignment and connection point of rising main will be subject to further assessment and advice from CHW. Stantec will investigate this option once rising main pump rates have been determined.

All gravity sewer main infrastructure will be graded to achieve vertical lot control in accordance with WSA 02-2014-3.1, with the following assumptions for private on-site sewer design parameters:

Cover to the highest sewer reach: 500mm (AS3500.2 Section 3.7.2)

Minimum sewer grading:
 1.25% (1:80 for 100m diameter – AS3500.2 Section 3.4.2)

1.0% (1:100 for 150mm diameter – for large lots with long boundaries)

In accordance with WSA 02-2014-3.1 Section 4.6.4.3, consideration may be given to splitting the larger lots for service purposes, i.e. controlling portions of the lot to various points along the sewer. However, this approach will require approval of the Water Agency.

Each lot within BWEZ Stage 4 will be provided with a suitably sized sewer connection that will extend into the site and be capped off. The diameter of the connections will typically be 150mm diameter for the smaller lots (<2 hectares) and 225dia for the larger lots (>2 hectares size).

4.2.6 Water Supply

Refer Appendix C for BWEZ Stage 4 indicative dual water supply servicing scheme (CI-4-080-SK02).

Reticulation of dual supply water services will be contained within the reserves of the proposed connector road, with connection points located at the BIFH tie in on the east and the Airport Road intersection (refer Figures 4 and 5). This ensures a closed loop is established between the BWEZ network and the existing water reticulation on Airport Road. The dual water mains will be 225mm in size subject to demand requirements.

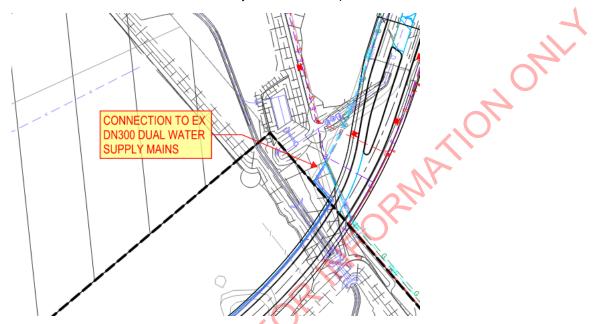


Figure 4 BWEZ Stage 4 Dual Water Connection Points on Liberator Drive

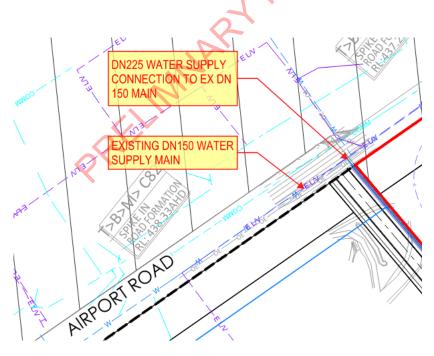


Figure 5 BWEZ Stage 4 Dual Water Connection Point on Airport Drive

Lateral lot connections will be provided to lots as required. Land purchasers will be responsible for completing their own water main tapping into the reticulation network. A 50mm diameter supply line will need to be included in the development plan to service the SPS.

Fire services will require individual assessment at the time of development. Depending on the available pressure and flow in the network, properties may require pumps and tanks to achieve compliance, pending the proposed facilities conditions.

4.3 Gas

4.3.1 Responsible Authority

Ausnet is the authority responsible for the provision of gas supply facilities to BWEZ.

Servicing advice application has been made to Ausnet and a response from Ausnet is awaited.

4.3.2 Existing Conditions

There is an existing gas main along Liberator Drive that terminates on the boundary between BWEZ Stage 4 and BIFH provided as a part of BIFH works. Excluding this main, there are no surrounding gas assets within immediate proximity of the development.

Ballarat's gas supply is sourced from a pressure regulator connection to a transmission pipeline on the eastern edge of Ballarat, with trunk feeder mains extending west through Ballarat from this point. The recent reinforcement of the network in the form of upgrades to mains in the centre of Ballarat has boosted supply capacity in Ballarat West.

4.3.3 BWEZ Stage 4

Refer Appendix D for BWEZ Stage 4 indicative gas servicing scheme (CI-4-080-SK03).

As previously mentioned, Ausnet gas supply has been provided to the boundary of BWEZ Stage 4. The existing main will be extended into the subdivision following the proposed road alignment, terminating where necessary to provide servicing to all lots (refer Figure 6).

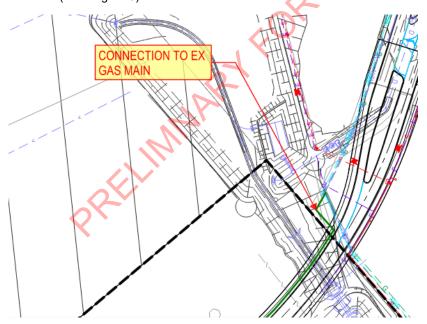


Figure 6 BWEZ Stage 4 Gas Connection Scheme

4.4 Electricity Supply

4.4.1 Responsible Authority

Powercor is the authority responsible for the provision of electricity supply facilities to BWEZ. This includes electricity reticulation network design for below ground electricity supply mains and street lighting.

Servicing advice application has been made to Powercor and a response from Power is awaited.

4.4.2 Existing Conditions

The area is currently serviced from the Ballarat South (BAS) zone substation.

The subject site is within vicinity of surrounding overhead and underground Powercor assets. There is existing underground electricity along Liberator Drive that terminates on the boundary between BWEZ Stage 4 and BIFH provided as a part of BIFH works. Below ground and overhead electricity is also present along the southern side of Airport Road. Existing supply follows Residence Road into the site, branching from the overhead line on Airport Road. A small high voltage network is also situated near the southwest corner of the subdivision.

4.4.3 BWEZ Stage 4

Refer Appendix E for BWEZ Stage 4 indicative electrical servicing scheme (CI-4-080-SK04).

Prior to commencement of works, all internal electricity is to be decommissioned and removed where required. The existing electricity on Liberator Drive is to be extended into the subdivision following the proposed road alignment (refer Figure 7). Provisions also exist to connect into the supply on Airport Road if necessary. A supply main will need to be included in the development plan to service the SPS.

It is proposed to provide metered Category P lighting for Liberator Drive in accordance with the light technical parameters specified in AS/NZS 1158.1.1 & 3.1 – 2005. The individual lots will be serviced from local supply pillars distributed around the development. At the time of purchase, lots will be provided with an electrical conduit and pull cable that will extend from the supply pillar into the lot. Lot purchasers are responsible for establishing electricity supply to their lots directly with Powercor.

Information from Powercor is required to confirm tie in points and understand any additional requirements. They have instructed that this information will not be supplied without a formal online application with detailed development layout and design plans.

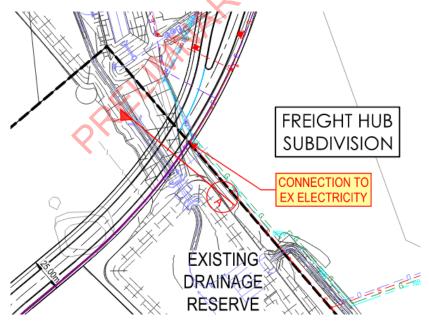


Figure 7 BWEZ Stage 4 Electricity Supply Connection Scheme

4.5 Telecommunications

4.5.1 Responsible Authority

Under current legislation NBN Co is the default provider of telecommunication services to new greenfield developments and is the nominated service provider for BWEZ.

Development Victoria has entered into a Master Developer Agreement with NBN Co that includes supply of telecommunications to BWEZ Stage 4.

4.5.2 Existing Conditions

There is existing NBN along Liberator Drive that terminates on the boundary between BWEZ Stage 4 and BIFH provided as a part of BIFH works. Telecommunications is also present along the northern side of Airport Road. Existing supply traverses adjacent to Residence Road into the site southbound, branching from the line on Airport Road.

4.5.3 BWEZ Stage 4

Refer Appendix E for BWEZ Stage 4 indicative NBN servicing scheme (CI-4-080-SK05).

Prior to commencement of works, all internal telecommunications are to be decommissioned and removed where required. The existing NBN on Liberator Drive is to be extended into the subdivision following the proposed road alignment (refer Figure 7). Provisions also exist to connect into the supply along the north of Airport Road if necessary.

The suitability of existing lines to supply the development is unknown and advice from NBN is necessary to understand such.

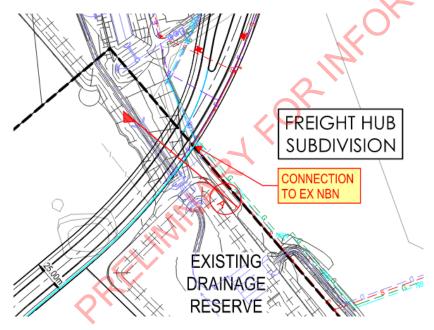
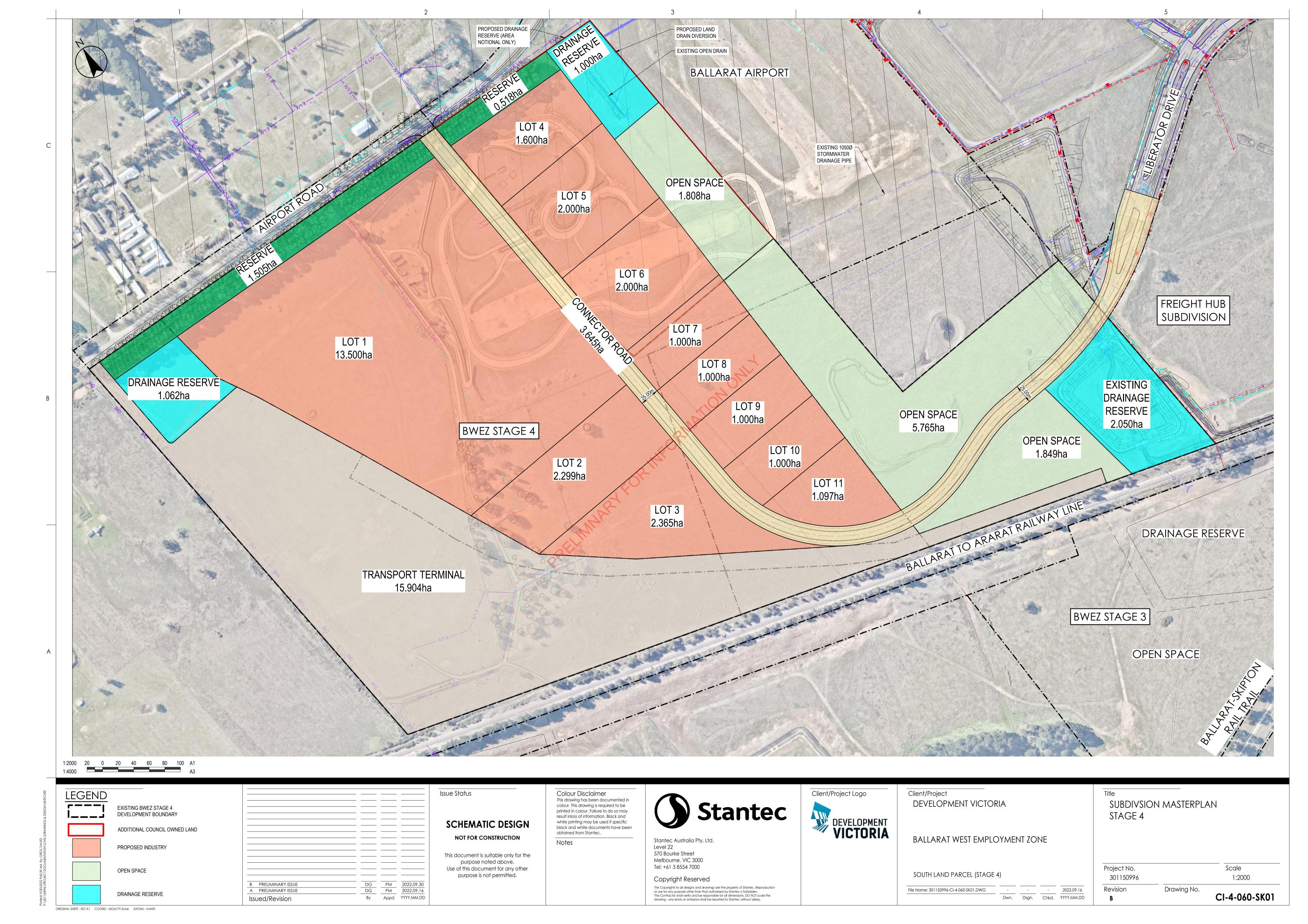


Figure 8 BWEZ Stage 2 NBN Supply Connection Scheme

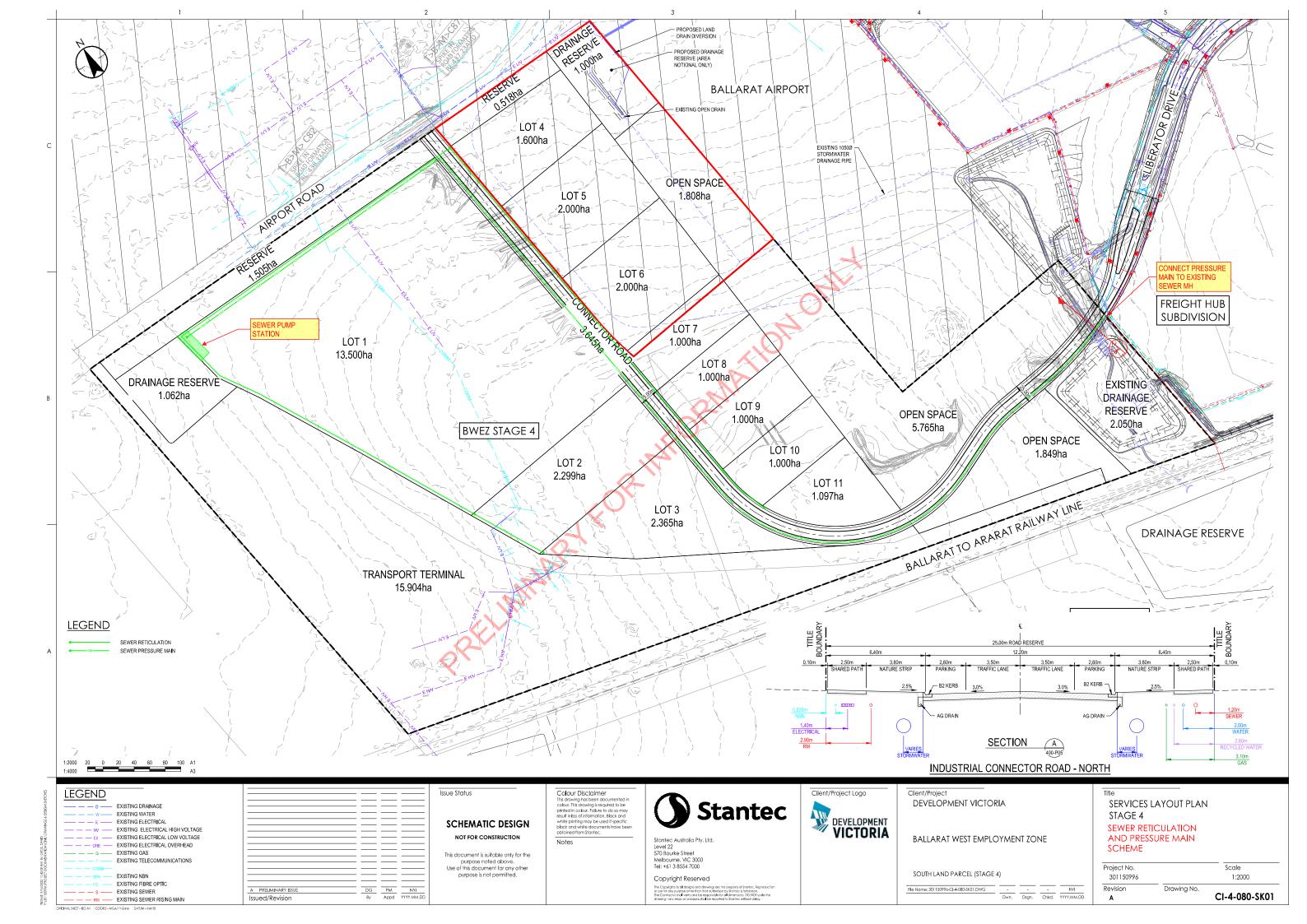
Appendix A - Indicative Subdivision Masterplan

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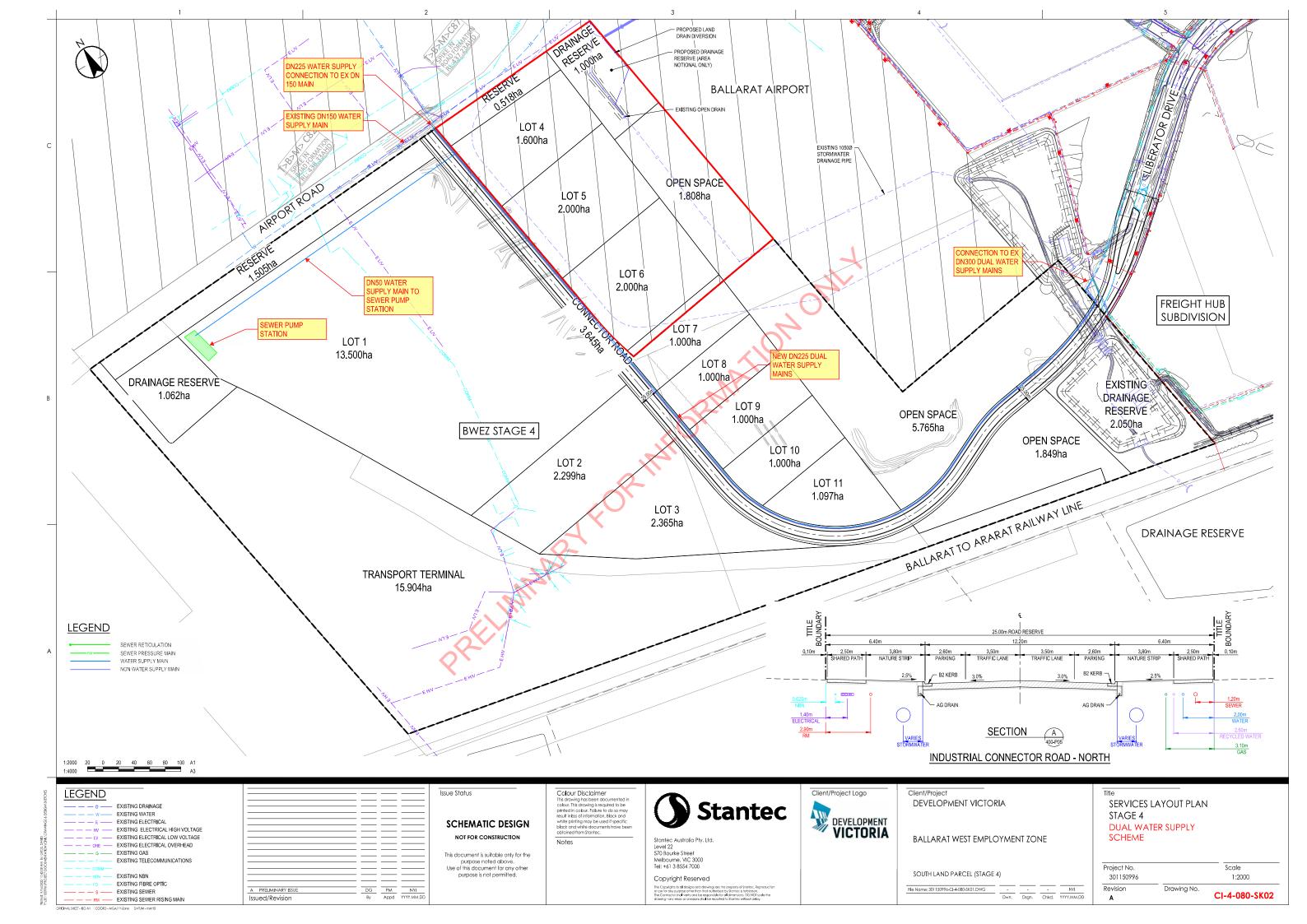
Appendix B – Sewer Servicing Plan

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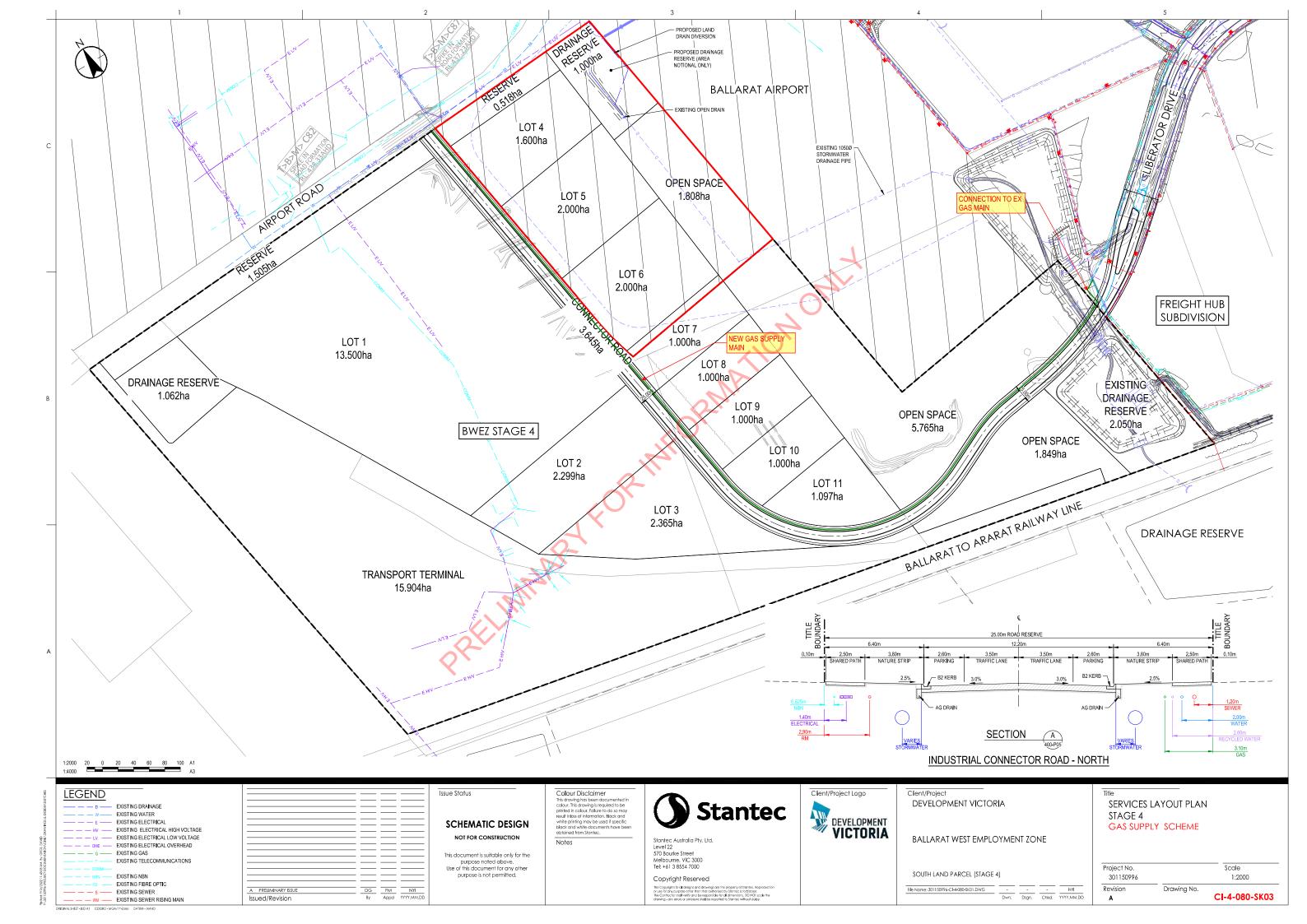
Appendix C - Water Servicing Plan

PRELIMMARY FOR INFORMATION ONLY

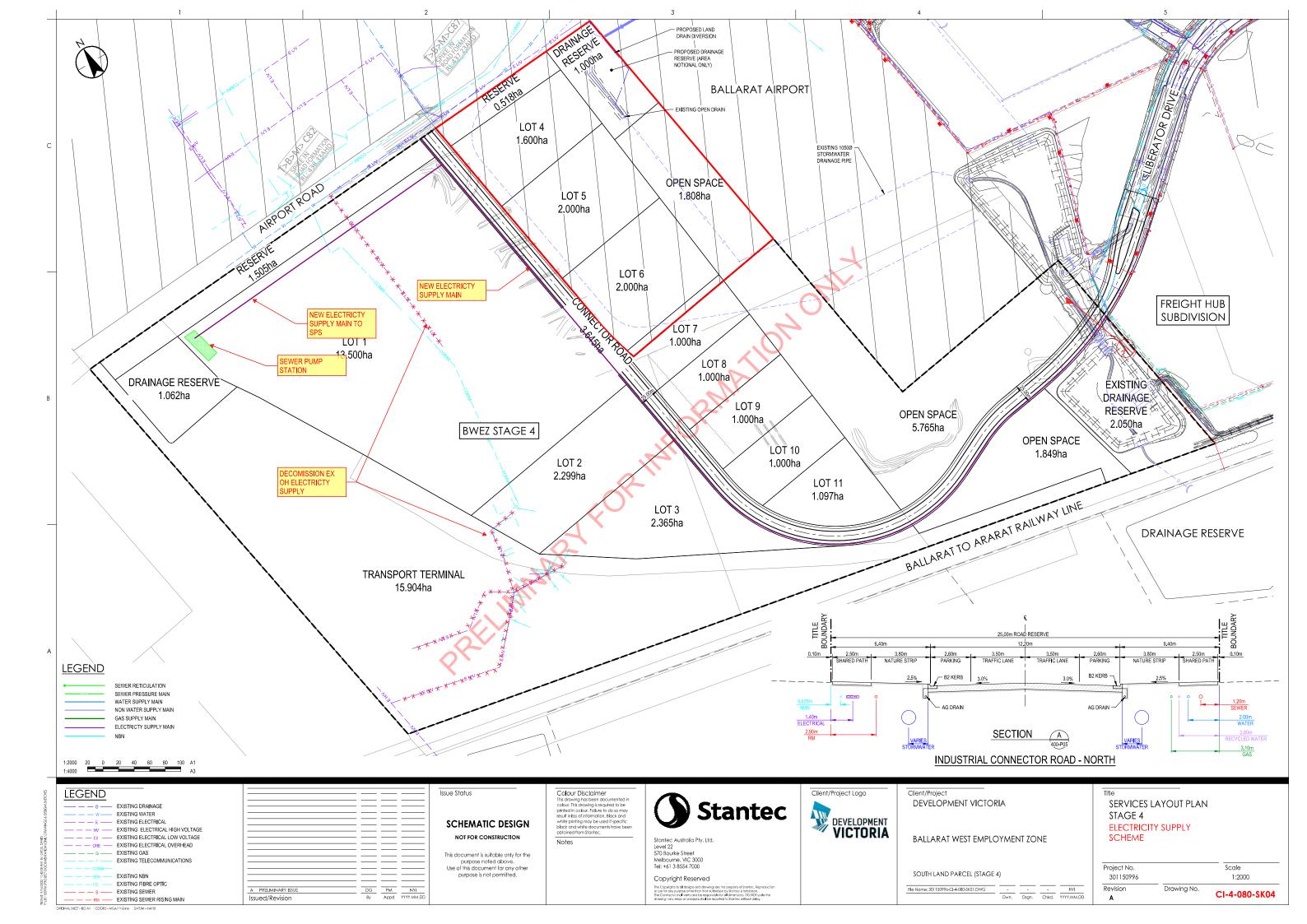


Appendix D - Gas Servicing Plan

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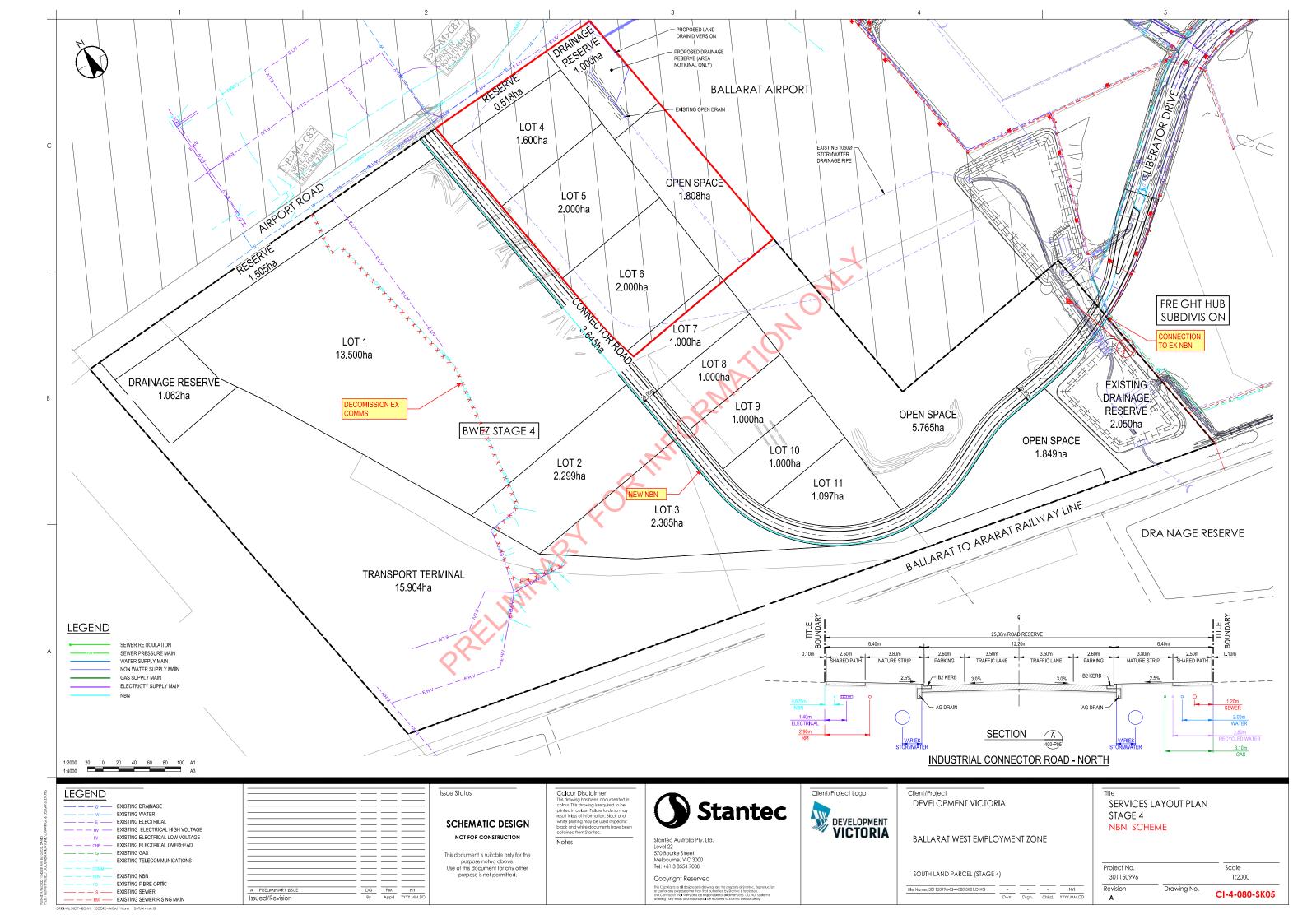


Appendix E – Electrical Servicing Plan



Appendix F - NBN Servicing

PRELIMINARY FOR INFORMATION ONLY



Design with community in mind

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