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8.00am - 4.00pm MON - FRI

Development Approval Application

INFORMATION TO BE PROVIDED:

- ☐ All details within this form are to be completed to avoid a returned or cancelled Application.
- ☐ Plans are to be submitted with this application in accordance with section 5.
- ☐ Payment of an applicable fee is required when submitting the Application.
- ☐ Signatures of both property owner and applicant are required to process the Application.
- ☐ Please complete and submit 'The Essential Documents Checklist' with the Application.

1. OWNER DETAILS			
Name	State of Western Australia		
Postal Address	Locked Bag 2506, Perth, WA 6001		
Telephone No.		Mobile No.	
Email	landmanagement.kimberley@dplh.wa.gov.au		
Signature	See Attached Letter	Date	1/4/2026
2. APPLICANT DETAILS			
Name	NBN Co Limited C/- Service Stream Limited		
Postal Address	PO Box 14570 Melbourne VIC 8001		
Telephone No.		Mobile No.	0455 214 172
Email	scott.sibly@servicestream.com.au		
Signature		Date	11/04/2025
3. PROPERTY DETAILS			
Lot No.		House/Street No.	34
			Location No.
Street Name	Durack Road		Suburb Wyndham
Nearest Intersection murphy street			
*Certificate Of Title Volume/Folio No.	LR3011/997	Diagram/Plan No.	
*Title Encumbrances (If Any)			
*Information (including copy of title, volume and folio numbers and encumbrances) can be sourced from Landgate on the following web address- https://www.landgate.wa.gov.au/			
4. PROPOSED DEVELOPMENT			
Nature of Development	☐ Works ☐ Use ☒ Works and use		
Description of proposed works and/or land use	Telecommunications infrastructure		
Estimated cost of proposed development	250,000		
Estimated time of completion	10 weeks		
OFFICE USE ONLY			
DATE RECEIVED		DOCUMENT NO.	
FEES PAID		OFFICER	
RECEIPT NO.		RESPONSE	
APPLICATION NO.		ASSESSMENT NO.	

5. ESSENTIAL DOCUMENTS CHECKLIST		Applicant	Officer
Application			
Required information completed including Owner and Applicant details with signatures		☐	☐
Plans listed are copied at a scale of not less than 1:500		☐	☐
Payment of the applicable fee is made when submitting this application		☐	☐
Site Plan at a scale of not less than 1:500 details			
Street name/s; lot number/s; north point; lot dimensions; location of all existing and proposed structures and environmental features, boundary setback distances to existing and proposed buildings, use of new buildings, existing and proposed access		☐	☐
Location, number, dimensions and layout of car parking spaces, location and dimensions of service areas, landscaping, open storage or trade display areas if applicable		☐	☐
Floor Plan at a scale of not less than 1:500 details			
Dimensions of specific rooms and outdoor living areas identified including vehicle parking under main roof		☐	☐
Elevation Plan at a scale of not less than 1:500 details			
Reference to natural ground level, height of walls, and total height to roof pitch		☐	☐
Details of external wall cladding, colours and materials		☐	☐
Stormwater Drainage Plans			
Include method of disposal in accordance with The Shire of Wyndham and East Kimberley Stormwater Management for Development Policy. Note: Local Government encourages on-site retention methods to reduce the amount of water entering the local drainage network.		☐	☐
6. OPTIONAL PLAN		Applicant	Officer
Landscaping Plan			
To include location and area of landscaping to be shown with species and types of plants and their height		☐	☐
7. FEES			
DESCRIPTION	ESTIMATED VALUE	CHARGE	
General Development application	\$50,000 or less	\$147.00	
	\$50,000 or above	0.32% of development cost	
	\$500,000 or above	\$1700 Plus 0.257% for each dollar above \$500,000	
	\$2.5 million or	\$7161 Plus 0.206% for each dollar above \$2.5 million	
	\$5.0 million or	\$12,633 Plus 0.123% for each dollar above \$5.0 million	
	\$21.5 million or	\$34,196 maximum payment	
Change of use of application		\$295	
Extractive Industry Application		\$739	
Extension of Term of Development Approval		\$147.00	
Amendment to Development Approval		\$295.00	



Department of **Planning,
Lands and Heritage**



Our ref: Case 2403868
File ref: 00559-1976
Enquiries: Linzi Makin (08) 9166 7810
Email: Linzi.makin@dplh.wa.gov.au

NBN Co Limited
C/- Service Stream Limited
PO Box 14570
Melbourne
VIC 8001

Sent via email only: Anita.Lustig@servicestream.com.au

Dear Anita

ENDORSEMENT OF DEVELOPMENT APPLICATION FORM – PORTION OF LOT 1252 ON DEPOSITED PLAN 209771 (RESERVE 33852) – WYNDHAM, SHIRE OF WYNDHAM-EAST KIMBERLEY

The Department of Planning, Lands and Heritage (Department) has received your Development Application Form seeking landowner consent over portion of Lot 1252 on DP 209771 (subject land) for works associated with the construction of NBN Co. Limited's telecommunication infrastructure.

The Department provides consent for the planning process to commence as acknowledgement that the application is being made in respect of a portion of Reserve 33852, which is currently managed by the Shire of Wyndham East Kimberley (Shire) for the purpose of "Water supply".

Consent does not allow for any works to occur on the subject land until an appropriate tenure outcome has been reached, being under consideration of the Department's Case 2403868. Endorsement is on the conditional basis of the below condition being met.

CONDITION

- No development is to be undertaken on the subject land by NBN Co. Limited or any associated party until an appropriate tenure outcome has been granted.

The Department will not incur any of the application fees or associated costs with the preparation of plans or development.

The consent is an acknowledgement that a development application is being made in respect of a proposal that includes Crown land, land owned in fee simply by the Crown or a state instrumentality. Crown reserves under management for the purpose, or a road, permitting this application to be assessed under the appropriate local and/or regional planning scheme. The signature does not represent approval or consent for planning purposes under the relevant location and/or region scheme. Further, in the event that development approval is granted for the proposal, the below signature should not be taken as an acknowledgement of or consent to the commencement or carrying out of the proposed development or to any modification of the tenure or reservation classification of the Crown land component.

Should you have any queries regarding this matter please do not hesitate to contact Linzi Makin on the details above.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Jessica Krempp', written in a cursive style.

Jessica Krempp
A/ Assistant Manager
Land Use Management – Kimberley and IOTs

1 April 2026

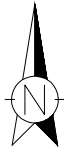
Encl. Proposed tenure map

NOTES:

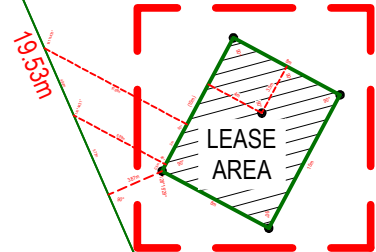
BOUNDARY SHOWN IS APROXIMATE ONLY
AND IS DERIVED FROM LANDGATE DATABASE
VALUES AS AT 05/5/2025.

DIMENSIONS TO BOUNDARY ARE BASED ON
MGA94 (52) HORIZONTAL DATUM.

LEASE CORNERS SHOULD BE ADOPTED FROM
COORDINATES SHOWN



DURACK ROAD



SEE SHEET 2
FOR DETAIL

1243
DP209771

1316
R32078
DP211866

1252
DP209771
R33852
4185m²

1251
DP209771

1249
DP209771

1248
DP209771

1247
DP209771

1246
DP209771

1244
DP209771

1762
DP191920

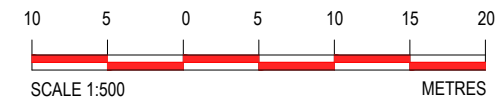
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PO Box 556
Balcatta WA 6914
info@stspatial.com.au

LEASE PLAN SHEET 1 OF 2

NATIONAL BROADBAND NETWORK
SITE No. 6GLZ-6KNR-5101
34 DURACK ROAD, WYNDHAM WA 6740
LOT 1252 ON PLAN DP209771



DRAWN	A.COBBOLD	09/05/2025
SURVEYOR	S.KOHLSCHEIN	07/05/2025
CHECKED	P.SAID	09/05/2025

HORIZONTAL DATUM: MGA94 ZONE 52
VERTICAL DATUM: AHD

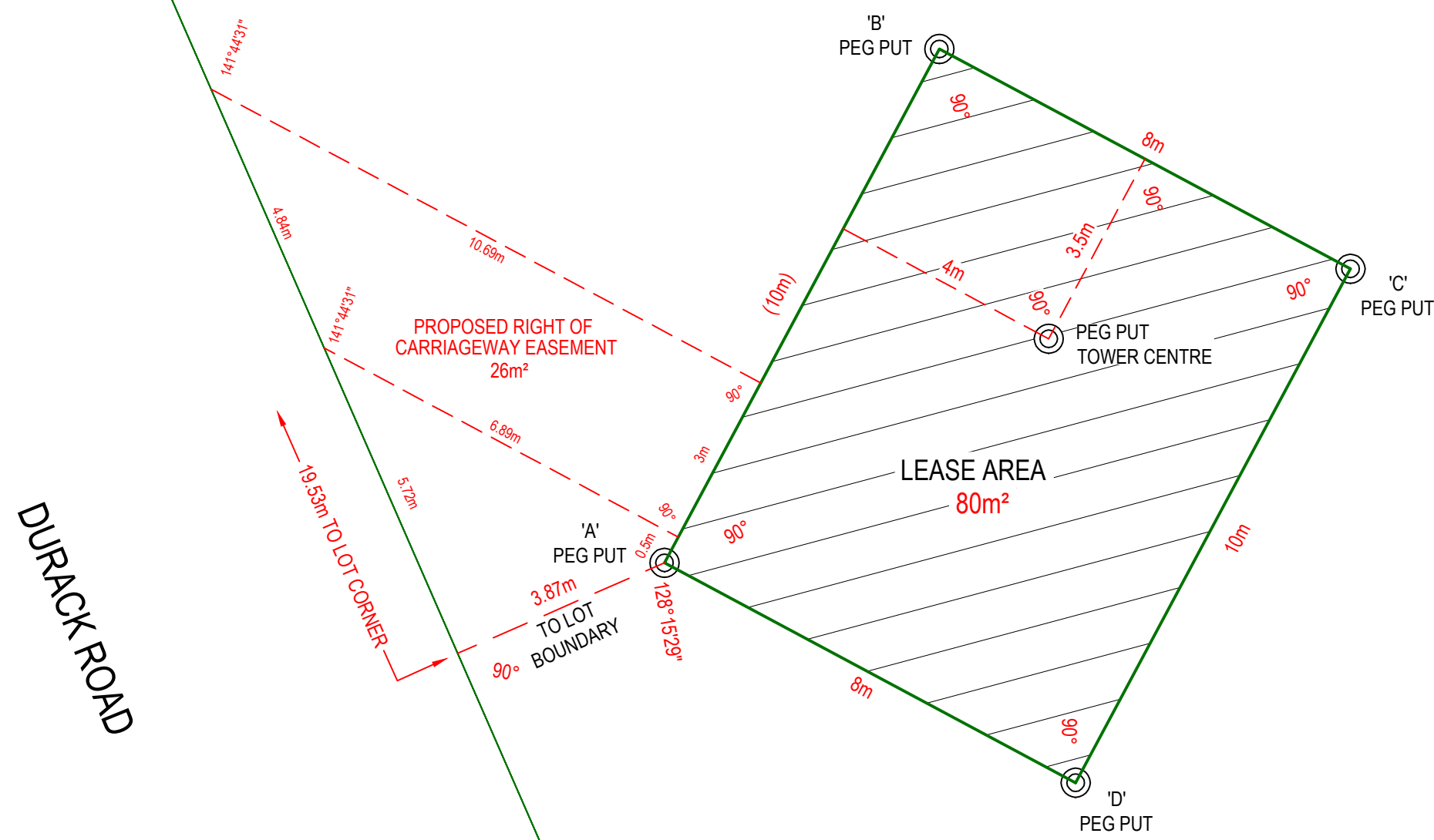
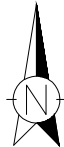
1	30/07/2025	EASEMENT ADDED	TG	SK	PS	ServiceStream	DRAWING NUMBER 25108-02	REV 1	SIZE A3
No.	DATE	REVISION	DRAWN	SURVEYOR	CHECKED	CLIENT			

NOTES:

BOUNDARY SHOWN IS APROXIMATE ONLY
AND IS DERIVED FROM LANDGATE DATABASE
VALUES AS AT 5/5/2025.

DIMENSIONS TO BOUNDARY ARE BASED ON MGA94
(52) HORIZONTAL DATUM.

LEASE CORNERS SHOULD BE ADOPTED FROM
COORDINATES SHOWN



	MGA 94 ZONE 52		GDA 94	
	EASTING	NORTHING	LATITUDE	LONGITUDE
A	405162.734	8287534.021	S -15.487715°	E 128.115849°
B	405167.415	8287542.854	S -15.487635°	E 128.115892°
C	405174.482	8287539.109	S -15.487669°	E 128.115958°
D	405169.800	8287530.276	S -15.487749°	E 128.115914°
TOWER CENTRE	405169.310	8287537.890	S -15.487657°	E 128.115909°

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LEASE PLAN

SHEET 2 OF 2

NATIONAL BROADBAND NETWORK
SITE No. 6GLZ-6KNR-5101
34 DURACK ROAD, WYNDHAM WA 6740
LOT 1252 ON PLAN DP209771

2

1

0

1

2

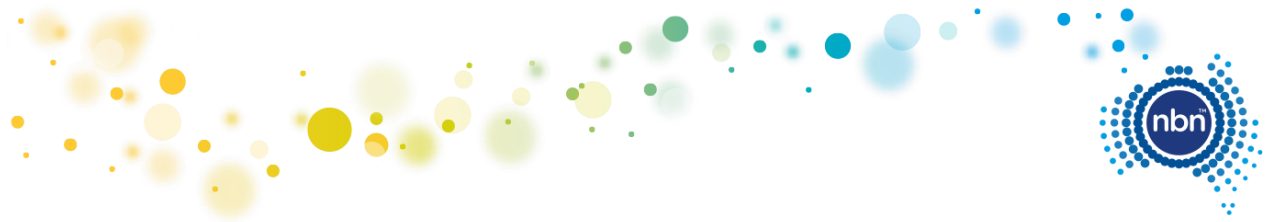
3

4

SCALE 1:100METRES

DRAWN	A.COBOLD	09/05/2025
SURVEYOR	S.KOHLSCHEIN	07/05/2025
CHECKED	P.SAID	09/05/2025
HORIZONTAL DATUM: MGA94 ZONE 52 VERTICAL DATUM: AHD		

1	30/07/2025	EASEMENT ADDED	TG	SK	PS	ServiceStream	DRAWING NUMBER 25108-02	REV 1	SIZE A3
No.	DATE	REVISION	DRAWN	SURVEYOR	CHECKED	CLIENT			



14/04/2026

Shire of Wyndham East Kimberley

Sent via: mail@swek.wa.gov.au

Attention: Planning Department

Dear Sir/Madam

Re: Town planning application for use and development of the land for the purposes of telecommunications infrastructure (fixed wireless facility) at 34 Durack Road, Wyndham WA 6740 (Lot 1252 on DP20977171)

Service Stream Limited ('Applicant Contact') has been engaged by **nbn** ('Applicant') to prepare and submit a town planning permit application for use and development of the land for the purposes of telecommunications infrastructure (fixed wireless facility) at 34 Durack Road, Wyndham WA 6740 (Lot 1252 on DP20977171).

nbn™ requires a fixed wireless site to provide internet coverage to the locality of Wyndham. The site is going to be connected to the fibre network but also designed to achieve 'Line of Sight' and act as a 'Fibre Hub Facility' for another site known Mount Albany (connected via the proposed parabolic dish antenna).

The facility will comprise:

- A 40m monopole (total height of 40.9m);
- A circular headframe on the monopole;
- A 600mm parabolic dish antenna to Mount Albany and six (x6) **nbn™** RF panel antennas;
- A 1.8m high chain-link security compound fence (compound area 8m x 10m), with 3m wide access gate;
- Two (x2) outdoor equipment cabinets on a 1m elevated steel platform, adjacent to the proposed tower;
- Internal 35m access route;
- Underground **nbn™** fibre route;
- Underground **nbn™** power consumer mains approximately 120m long; and
- Associated feeder cables that will run underground from the equipment cabinets, and then internally within the tower to the antennas;
- Ancillary equipment associated with operation of the proposed facility.

The proposal has undergone a rigorous site selection process regarding town planning and environmental constraints, telecommunication coverage objectives and landowner interest.

If you or your office would like more information in relation to the proposal, please contact the undersigned on 0455 214 172 or via scott.sibly@servicestream.com.au.

Yours sincerely,



Scott Sibly
Senior Town Planning Consultant
Service Stream Limited
P: 0455 214 172
E: scott.sibly@servicestream.com.au

Attachment/s:

Planning Report

- a.** Application form and owner's consent
- b.** *Proposal drawings*
- c.** *EME Report*
- d.** *Survey*

Planning Report

Development Application for Telecommunications Infrastructure

34 Durack Road, Wyndham WA 6740 (Lot 1252 on
DP209771)



NBN Site Reference: NBN-6GLZ-6KNR-5101

Disclaimer

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EXECUTIVE SUMMARY

Proposal	nbn™ propose to install a new fixed wireless facility at 34 Durack Road, Wyndham WA 6740 comprised of the installation of the following: • A 40m monopole (total height of 40.9m); • A circular headframe on the monopole; • A 600mm parabolic dish antenna to Mount Albany and six (x6) nbn™ RF panel antennas; • A 1.8m high chain-link security compound fence (compound area 8m x 10m), with 3m wide access gate; • Two (x2) outdoor equipment cabinets on a 1m elevated steel platform, adjacent to the proposed tower; • Internal 35m access route; • Underground nbn™ fibre route; • Underground nbn™ power consumer mains approximately 120m long; and • Associated feeder cables that will run underground from the equipment cabinets, and then internally within the tower to the antennas; • Ancillary equipment associated with operation of the proposed facility.	
Purpose	The proposed facility is necessary to provide nbn™ fixed wireless coverage to Wyndham.	
Property Details	Property description: Lot 1252 on DP20977171 Street Address: 34 Durack Road, Wyndham WA 6740	
Town Planning Scheme	Council: Shire of Wyndham Zone: Infrastructure Services (Reserve) and Special Control Area - Infrastructure - SCA3	
Applicable Planning Policies	Relevant State & Local Planning Policies	Complies
	Planning and Environment Act 2005	Yes
	Planning and Development (Local Planning Schemes) Regulations 2015	Yes
	SPP 5.2 Telecommunications Infrastructure	Yes
	Shire of Wyndham Local Planning Scheme No. 9	Yes
Application	Use and development of the land for the purposes of telecommunications infrastructure	
Applicant	Service Stream Limited on behalf of nbn™ Our Ref: NBN-6GLZ-6KNR-5101	

1 INTRODUCTION

The **nbn**[™] rollout is an upgrade to Australia's existing telecommunications network. It is designed to provide Australians with access to fast, affordable and reliable internet.

nbn[™] plans to upgrade the existing telecommunications network in the most cost-efficient way using best-fit technology and taking into consideration existing infrastructure.

nbn[™] has engaged Service Stream Limited to act on its behalf to design and deliver new fixed wireless equipment and infrastructure within the broader network which is already in operation.

To support the fixed wireless component of this network, **nbn**[™] requires a fixed wireless site to provide internet coverage to the locality of Wyndham. The proposed facility will be located at 34 Durack Road, Wyndham WA 6740 (Lot 1252 on DP209771).

The site is a Wyndham Shire Council ('Council') infrastructure reserve site (owned by Crown Land WA and Primary Interest Holder Shire of Wyndham) which is largely vacant and adjoins the Council water treatment plan, with existing access and power available. The proposed facility is located on the southern side of the site well away from existing Council assets.

Prior to confirming this site as the preferred location for a fixed wireless facility, an in-depth site selection process was undertaken. This process matched potential candidates against five key factors, namely:

- The ability of the site to provide acceptable coverage levels to the area;
- The ability of the site to provide Line of Sight (LoS) to other facilities;
- Town planning considerations (such as zoning, surrounding land uses, environmental significance and visual impact);
- Construction feasibility and cost; and
- The ability of **nbn**[™] to secure a lease agreement with the landowner.

This planning report will provide assessment in respect of the relevant planning legislation and guidelines, and demonstrates site selection on the basis of the following:

- The proposal is designed to comply with state planning legislation and policy;
- The site is designed to achieve the required coverage objectives for the area;
- The site is designed to be appropriately located and sited to minimise visual impact on the immediate and surrounding area;
- The proposal is designed to operate within the regulatory framework of Commonwealth, State and Local Government;
- The proposal has been designed to ensure only minimal environmental impact will result from the proposal
- The facility is designed to operate within all current and relevant standards and is regulated by the Australian Communications and Media Authority.

1.1 Consultation with Council

No pre-lodgement meeting with Council has been held. However informal support has been received from the Council property team.

1.2 Owner's Consent

Owner's consent has been received from the owner (State government) of 34 Durack Road, Wyndham WA 6740 (Lot 1252 on DP209771) which has been submitted as part of this Development Application.

2 BACKGROUND

2.1 nbn™ and the National Broadband Network

nbn™ is the organisation responsible for overseeing the upgrade of Australia's existing telecommunications network and for providing wholesale services to retail service providers. The **nbn™** is designed to provide Australians with access to fast, affordable and reliable internet and landline phone services.

nbn™ plans to upgrade the existing telecommunications network in the most cost-efficient way using best-fit technology and taking into consideration existing infrastructure.

The **nbn™**'s fixed wireless network uses cellular technology to transmit signals to and from a small antenna fixed on the outside of a home or business, which are able to achieve Line of Sight (LoS) towards the fixed wireless facility.

nbn™'s fixed wireless network is designed to offer service providers with wholesale access speeds of up to 50Mbps for downloads and 20Mbps for uploads¹.

2.2 What is Fixed Wireless and how is it different to Mobile Broadband?

The **nbn™**'s fixed wireless network, which uses advanced technology commonly referred to as LTE or 4G, is engineered to deliver services to a fixed number of premises within each coverage area.

This means that the bandwidth per household is designed to be more consistent than mobile wireless, even in peak times of use.

Unlike a mobile wireless service where speeds can be affected by the number of people moving into and out of the area, the speed available in a fixed wireless network is designed to remain relatively steady.

2.3 The Fixed Wireless Network – Interdependencies

Although fixed wireless facilities are submitted to Council as standalone developments, for planning purposes, they are highly interdependent. Each fixed wireless facility is connected to another to form a chain of facilities that link back to the fibre network. This is called the 'transmission network'.

The transmission network requires LoS from facility to facility until it reaches the fibre network via a hub site. The fixed wireless network will remain unconnected without the transmission network and a break in this chain can have flow on effects to multiple communities.

A typical fixed wireless facility will include a number of antennas mounted above a structure on a headframe. Each antenna is designed to cover a set area to maximise signal strength. In turn, these network antennas communicate to a small antenna installed on the roof of each customer's home or business.

The nature of the Fixed Wireless network is visually demonstrated through **Figure 1** below.

¹ **nbn™** is designing the **nbn** to provide these speeds to our wholesale customers, telephone and internet service providers. End user experience including the speeds actually achieved over the **nbn** depends on some factors outside **nbn™**'s control like equipment quality, software, broadband plans and how the end user's service provider designs its network.

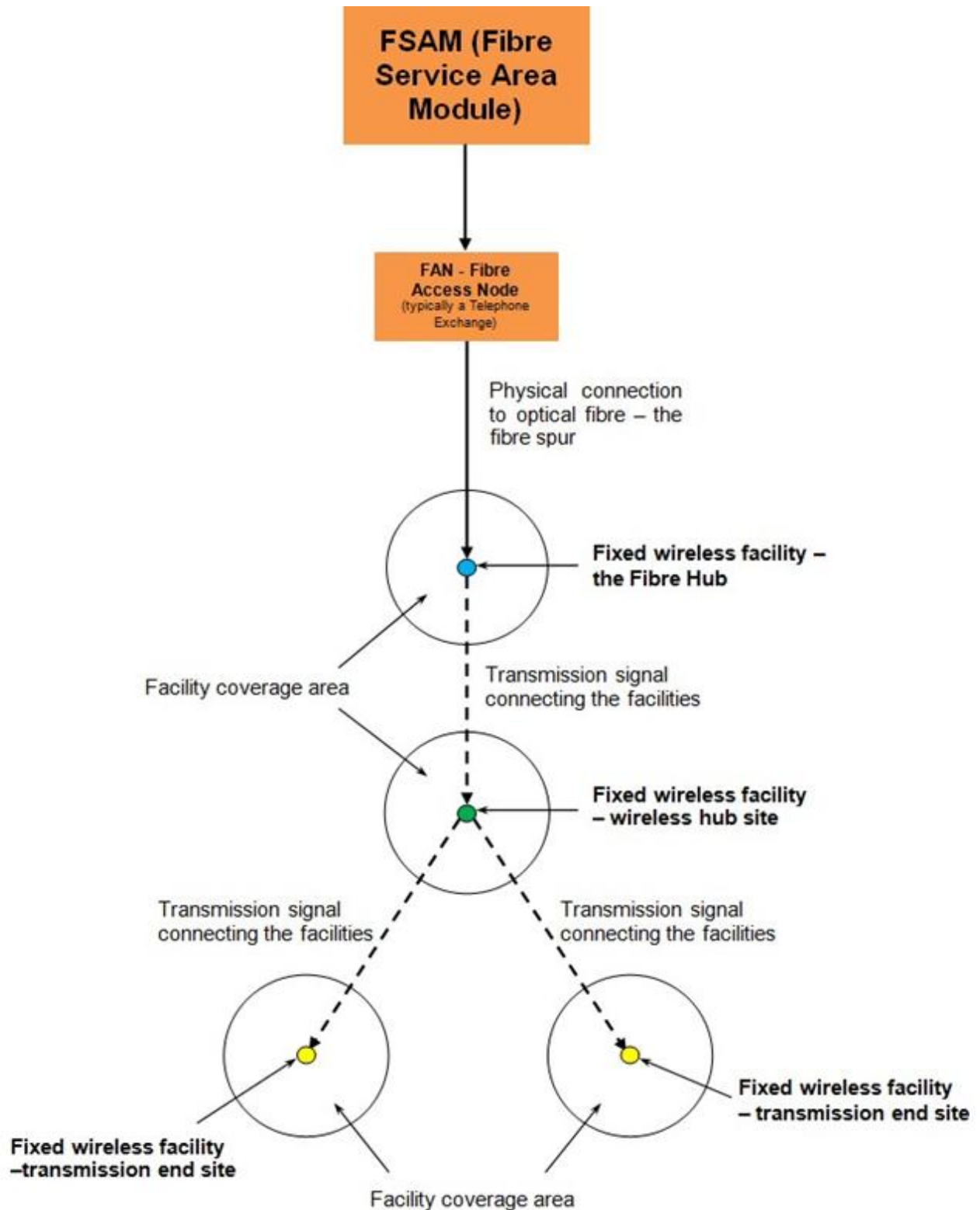


Figure 1 The Fixed Wireless Network

3 SITE SELECTION

Planning for a new fixed wireless broadband facility is a complex process. **nbn**[™] conducts a rigorous multi-stage scoping process, as outlined in this section of the planning report.

3.1 Identification of areas requiring Fixed Wireless coverage

nbn[™] Fixed Wireless locations are determined by many factors including the availability of both the **nbn**[™] Fibre transit network and the availability of Point of Interconnect (POI) facilities to allow for the installation of **nbn**[™] fibre equipment.

nbn[™] uses a number of methods to identify those parts of Australia that require fixed wireless coverage. When an area is identified as requiring fixed wireless coverage, investigations are undertaken to determine the measures required to provide this coverage.

nbn[™] has identified a requirement to provide a fixed wireless facility at Wyndham. The facility is designed to provide fixed wireless internet services to premises in Wyndham and surrounding areas.

Furthermore, the site is going to be connected to fibre but also designed to achieve LoS and act as a Fibre Hub Facility for another site known Mount Albany (connected via the proposed parabolic dish antenna).

3.2 Site Selection Parameters

nbn[™] generally identifies an area where the requirement for a Fixed Wireless facility would be highest known as a 'search area.' A preliminary investigation of the area is then undertaken, in conjunction with radio frequency engineers, planning and property consultants and designers to identify possible locations to establish a facility.

Generally speaking, new sites must be located within, or immediately adjacent to, the identified search area. Search areas are produced by radio frequency engineers who work on the network and are areas where a facility is technically feasible and can meet **nbn**[™] coverage objectives.

While the operational and geographical aspects of deploying new facilities are primary factors, there are also many other issues that influence network design, which should be considered.

Some of the issues that are considered throughout selection include:

- the availability and suitability of land;
- the ability to find a willing landowner to host the proposal;
- topographical constraints affecting network LoS and Network Time Protocol;
- construction constraints;
- occupational health and safety; and
- cost constraints

These compounding factors often severely restrict the available search area within which a facility can be established to provide fixed wireless broadband services to a local community.

3.3 Candidate Sites

3.3.1 Opportunities to Co-locate

The RFNSA Site No 6740003 at 66-70 Koolama Street Wyndham WA 6740 (Candidate G) was investigated for possible colocation.

The existing structure is not listed as having any carrier equipment or antennas in RFNSA; however, Telstra equipment has been identified on the structure.

This site contains a 22.9m steel lattice tower owned by Amplitel Pty Ltd. This height would not provide the required for radio frequency (RF) outcome and this colocation could not process.

3.3.2 Existing Structures

There were no other existing structures within the area that could accommodate the proposed facility.

3.3.3 New Site Candidates

Following desktop and field investigations of a large number of potential candidates. Candidate A, B, C And D were discounted after discussions with the Council planning officer who did not support these locations due to their proximity to residential uses and the recreational reserves (where public access could lead to damage and graffiti of the structure). Candidate E did not proceed as no response from the landowner was received to letters of interest.

A total of 3 candidates as shown in Figure 2 below were selected to be explored in-depth following site design visits and assessment of ground conditions.

The green outline signifies the primary search area.



Figure 2 Candidate Locations

A summary of the candidate sites that were considered in detailed is outlined below in Table 1, including a description of the opportunities and constraints that each site presented.

Candidate	Address and Lot Number	Facility Type	Description
F	34 Durack Road, Wyndham WA 6740 (Lot 1252 on DP209771)	40m monopole	This site is owned by Crown Land WA and Primary Interest Holder is the Shire of Wyndham. The site is located on flat, mostly cleared land within an infrastructure reserve and adjoins the Council water treatment plant, with existing access and power available. The proposed facility is located on the southern side of the site well away from existing Council assets. The site is surrounded by industrial land uses and is therefore away from residential and community uses. This site also scored high for radio frequency (RF) and transmission (TX) assessments. For these reasons Candidate F was selected to accommodate the proposed facility.
G	RFNSA Site No 6740003 at 66-70 Koolama Street Wyndham WA 6740	Colocation on 22.9m steel lattice tower owned by Amplitel Pty Ltd.	As per earlier sections of this report, Candidate G was selected for detailed assessment for its colocation potential. This site contains a 22.9m steel lattice tower owned by Amplitel Pty Ltd. This height would not provide the required for radio frequency (RF) outcome and this colocation could not process. For these reasons, as Candidate G was not selected.
K	10 Coverley Street, Wyndham WA 6470	40m monopole	This candidate adjoins the Wyndham High School, due to the potential community opposition, this candidate was not selected as Candidate F was preferred.

4 SUBJECT SITE & SURROUNDS

The telecommunications facility is proposed to be located at 34 Durack Road, Wyndham WA 6740 (Lot 1252 on DP209771). The site is a Council infrastructure reserve site (purpose of water supply) which is largely vacant and adjoins the Council water treatment plan, with existing access and power available. The proposed facility is located on the southern side of the site well away from existing Council assets. The site also adjoins the King River estuaries therefore the area may become inundated at times, however no flood levels could be obtained.



Figure 3 Locality Map

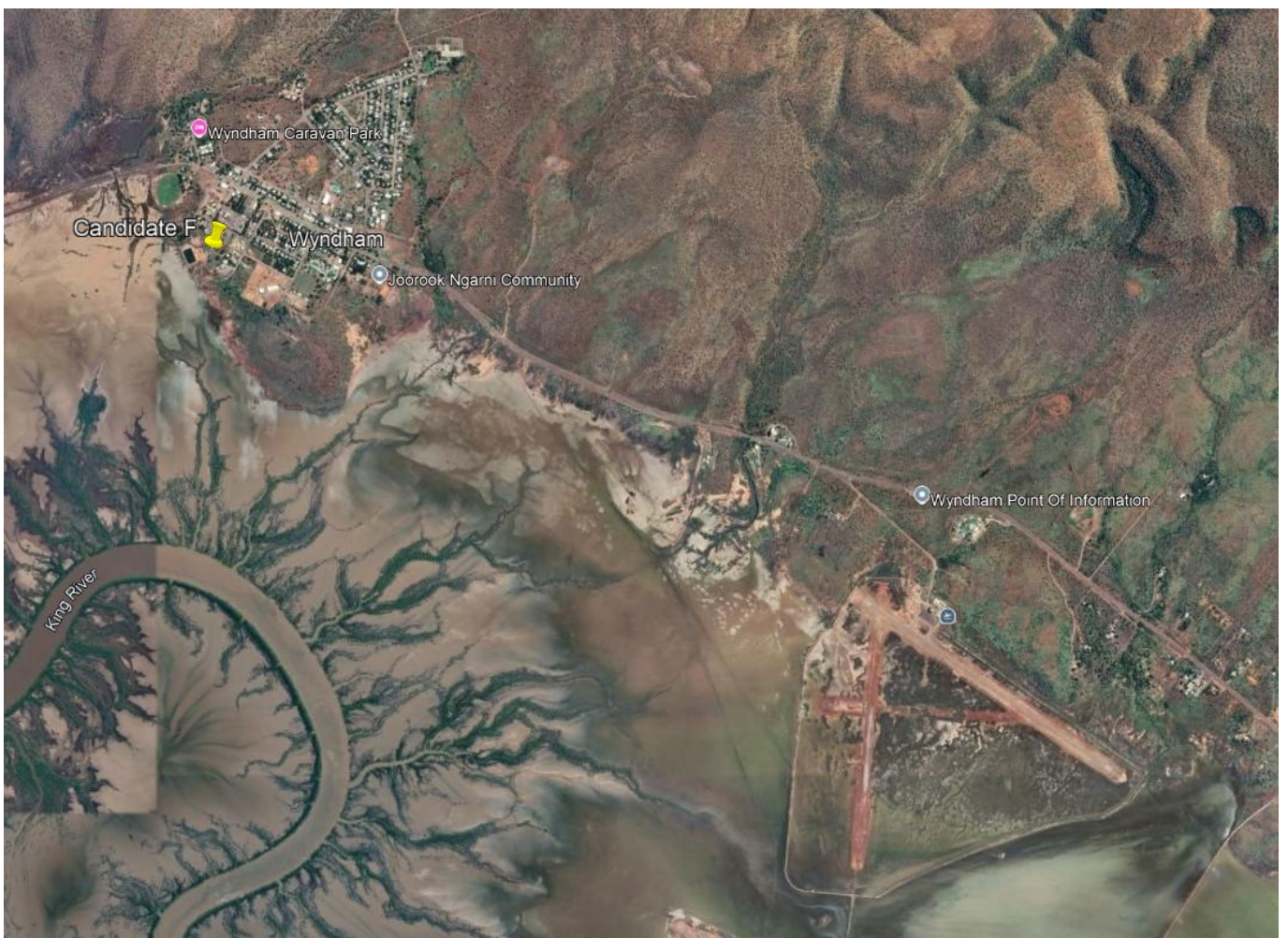


Figure 4 Site Map

The lot is of irregular shape and is largely vacant.

The lot is flat and generally cleared of vegetation.

The lot is within the infrastructure reserve site and well separated to dwellings and community uses.

The site is approximately 4km from the Wyndham Aerodrome, which is a certified Civil Aviation Safety Authority (CASA) aerodrome. No Obstacle Limitation Surface (OLS) mapping can be found for this aerodrome. If required, Council can refer this application to CASA, however it is noted only structures greater than 100m require referral to CASA as per Section 139 of the *Civil Aviation Safety Regulations 1998*.

5 THE DEVELOPMENT APPLICATION

5.1 The nbn™ Fixed Wireless Facility and Equipment Details

The development application seeks approval for the use and development of a telecommunications facility, comprising a 40-metre monopole, antennas, transmission equipment and ground equipment within a secure compound which measures approximately 80m².

The specific components of the proposed installation are described below:

- A 40m monopole (total height of 40.9m);
- A circular headframe on the monopole;
- A 600mm parabolic dish antenna to Mount Albany and six (x6) **nbn™** RF panel antennas;
- A 1.8m high chain-link security compound fence (compound area 8m x 10m), with 3m wide access gate;
- Two (x2) outdoor equipment cabinets on a 1m elevated steel platform, adjacent to the proposed tower;
- Internal 35m access route;
- Underground **nbn™** fibre route;
- Underground **nbn™** power consumer mains approximately 120m long; and
- Associated feeder cables that will run underground from the equipment cabinets, and then internally within the tower to the antennas;
- Ancillary equipment associated with operation of the proposed facility.

This **nbn™** Fixed Wireless facility is a wireless hub site within the network, providing **nbn™** broadband coverage to Wyndham.

Figure 5 below identifies the location of the structure (Candidate F).



Figure 5 Site Location

Please refer to the proposed drawings in **Appendix A** for details of the facility and site compound.

5.2 Construction Schedule

During the construction phase, trucks will be used to deliver the equipment to the site and a crane will be utilised to lift the equipment into place. Any traffic impacts associated with construction will be of a short-term duration and are not anticipated to adversely impact on the surrounding road network. In the unlikely event that road closure will be required, **nbn™** will apply to the relevant authorities for permission.

A total construction period of approximately ten weeks (including civil works and network integration and equipment commissioning) is anticipated.

Construction activities will involve four basic stages:

- Stage 1 (Week 1) – Site preparation works, including field testing, excavation and construction of foundations;
- Stage 2 (Weeks 2, 3 and 4) – Construction of the monopole;
- Stage 3 (Weeks 5 and 6) – Construction of the equipment shelter and fences;
- Stage 4 (Weeks 7 – 10) – Installation of antennas and radio equipment, as well as equipment testing.

Once operational, the facility will function on a continuously unstaffed basis and will typically only require maintenance works around three times a year.

6 RELEVANT PLANNING LEGISLATION AND CONTROLS

6.1 Commonwealth Legislation

As a licensed telecommunications carrier, **nbn**[™] must operate under the provisions of the *Telecommunications Act 1997* and the following supporting legislation:

- *Telecommunications Code of Practice 2021* (as amended);
- *Telecommunications (Low-impact Facilities) Determination 2018* (as amended); and
- *Environment Protection and Biodiversity Conservation Act 1999*.

6.1.1 Telecommunications Act 1997

This legislation establishes the criteria for ‘low impact’ telecommunication facilities. If a proposed facility satisfies the requirements of a ‘low impact’ facility, the development is exempt from the planning approval process.

Further clarification of the term ‘low impact’ is provided in the Telecommunications Act 1997 and the *Telecommunications (Low Impact Facilities) Determination 2018*, which was gazetted subsequent to the Act. The *Telecommunications (Low Impact Facilities) Determination 2018* establishes certain facilities, which cannot be considered ‘low impact’ facilities.

The proposed facility is not considered to be low impact under the definitions contained in the Commonwealth legislation as it involves the construction of a new monopole.

6.1.2 Telecommunications Code of Practice 2021

The Federal Government established the Telecommunications Code of Practice 2021, setting out the conditions under which a carrier must operate when undertaking a prescribed activity. The code of practice sets out design, planning and installation requirements for carriers to install facilities in accordance with industry ‘best practice’, and to:

“... minimise the potential degradation of the environment and the visual amenity associated with the facilities.” [Section 1A.4(3), Telecommunications Code of Practice 2021]. However, it is noted that construction of a new monopole would not fall under a prescribed activity.

Best practice also involves the carrier complying with any relevant industry code or standard that is registered by the Australian Communications and Media Authority (ACMA) under Part 6 of the Act.

6.1.3 Telecommunications (Low-impact Facilities) Determination 2018

The *Telecommunications (Low-impact Facilities) Determination 2018* identifies both the type of facilities that can be “Low-impact”, and the areas in which these facilities can be installed. Importantly, this current facility is not defined as a “low impact facility” and is therefore subject to State and Territory Planning Laws and Regulation.

6.1.4 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) obliges telecommunications carriers to consider ‘matters of national environmental significance’. Under this legislation, an action will require approval from the Minister of Environment if the action has or is likely to have an impact on a matter of ‘national

environmental significance'. According to the *EPBC Act*, there are seven matters of national significance which must be considered.

All relevant EPBC matters have been considered. It is not anticipated that the proposal will have a significant impact on any matters of national environmental significance. Accordingly, approval from the Minister of Environment is not required in this instance.

6.2 Planning and Development Act 2005

The principal legislation regulating land use and development in WA is the *Planning and Development Act 2005 (P & D Act)*.

The project is consistent with the relevant provisions of the *P & D Act* as it promotes the sustainable use and development of land.

6.2.1 Planning and Development (Local Planning Schemes) Regulations 2015

The *Planning and Development (Local Planning Schemes) Regulations 2015* outline the requirements for development approval.

The project meets required development provisions to enable approval including consistency with the local planning scheme.

6.3 State Environmental Planning Schemes and Policy

6.3.1 Metropolitan Region Scheme

Pursuant to the Clause 22 of the Metropolitan Region Scheme, the site has local government zoning and therefore is subject to local authority approval only.

It is also noted that the site is not subject to any metropolitan region scheme zoning.

6.3.2 State Planning Policy 5.2 Telecommunications Infrastructure

The project has been assessed against the SPP5.2 Telecommunications Infrastructure and is consistent with this policy.

Table 5. Response to policy measures of State Planning Policy 5.2: Telecommunications Infrastructure

5 Policy Measures	
5.1 Visual Impacts For telecommunications infrastructure to be effective, structures are generally located prominently, at high points in the landscape or on top of buildings, where they are more likely to be visible to the public. The planning authority may exercise discretion in addressing the visual impacts of telecommunications infrastructure. Visual impacts of an infrastructure development proposal should be assessed by applying the following set of policy measures to guide the location, siting and design of the structure.	
5.1.1 The benefit of improved telecommunications services should be balanced with the visual impact on the surrounding area.	
Measure	Comments
i) Assessment of the visual impact of development proposals for telecommunications infrastructure should be made on a case-by-case basis;	Noted

ii) Telecommunications infrastructure should be sited and designed to minimise visual impact and whenever possible:	COMPLIES State Planning Policy 5.2 (Telecommunications Infrastructure) does not state that proposed telecommunication infrastructure can have no impact on visual amenity. Rather the State Administrative Tribunal has continuously ruled that it will be unavoidable that telecommunications facilities will have a visual impact. The proposed telecommunication infrastructure has been designed and sited to minimise visual impact, as far as possible without detracting from the objective of delivering a telecommunications network to the community. This has been done by locating the monopole on an infrastructure reserve lot on the outskirts of town, well separated to dwellings, community sensitive uses and main roads.
a) be located where it will not be prominently visible from significant viewing locations such as scenic routes, lookouts and recreation sites;	COMPLIES The proposed monopole will not be prominently visible from any significant viewing locations. As there are no such locations in the nearby vicinity.
b) be located to avoid detracting from a significant view of a heritage item or place, a landmark, a streetscape, vista or a panorama, whether viewed from public or private land;	COMPLIES There are no existing views of heritage items, significant landmarks, or panoramas on, or nearby, the site.
c) not be located on sites where environmental, cultural heritage, social and visual landscape values may be compromised and	COMPLIES The proposal is on gently sloping cleared land with no environmental, social, visual or cultural significance.
d) display design features, including scale, materials, external colours and finishes that are sympathetic to the surrounding landscape;	COMPLIES External finishes and materials will be sympathetic to the surrounding landscape with factory grey finish and non-reflective.
iii) In addition to the existing exemptions under the Telecommunication Act, local governments should consider exempting telecommunications infrastructure from the requirement for development approval where: a) The infrastructure has a maximum height of 30 metres from finished ground level;	<i>Noted – no such exemptions are provided in the Wyndham Planning Scheme.</i>

b) The proposal complies with the policy measures outlined in this policy; and c) The proponent has undertaken notification of the proposal in a similar manner to 'low impact facilities' as defined and set out in the Mobile Phone Base Station Deployment Industry Code (C564:2011);	
iv) Telecommunications infrastructure should be located where it will facilitate continuous network coverage and/or improved telecommunications services to the community; and	COMPLIES The proposal meets the RF and TX objectives of nbn™ networks, providing the required coverage to the Wyndham area.
v) Telecommunications infrastructure should be colocated and whenever possible:	COMPLIES A colocation opportunity was explored and was found to be insufficient for NBN requirements.
a) Cables and lines should be located within an existing underground conduit or duct; and	COMPLIES Existing conduits will be utilised where possible.
B) Overhead lines and towers should be co-located with existing infrastructure and/or within existing infrastructure corridors and/or mounted on existing or proposed buildings	COMPLIES No overhead lines are proposed.

6.3.3 State Planning Policy

The site is not impacted by any other relevant State policy matters.

6.4 Local Government Regulatory Framework

Shire of Wyndham Local Planning Scheme No.9

This application is seeking to obtain a planning permit for the use and works of telecommunication infrastructure which is defined under the Planning Scheme as:

means premises used to accommodate the infrastructure used by or in connection with a telecommunications network including any line, equipment, apparatus, tower, antenna, tunnel, duct, hole, pit or other structure related to the network

6.4.1 Zoning

The subject lot does not have any local planning scheme zoning but is rather classified as a reserve for infrastructure services purposes, the objective of this reserve is as follows:

- *Public Purposes which specifically provide a range of essential infrastructure services.*

The proposal is consistent with the objective of the reserve by not impacting the operation of an existing uses on site (vacant), or the potential future infrastructure services use of the lot. This is done by selecting a small compound area of 80m² on the edge of the lot on the southern side.

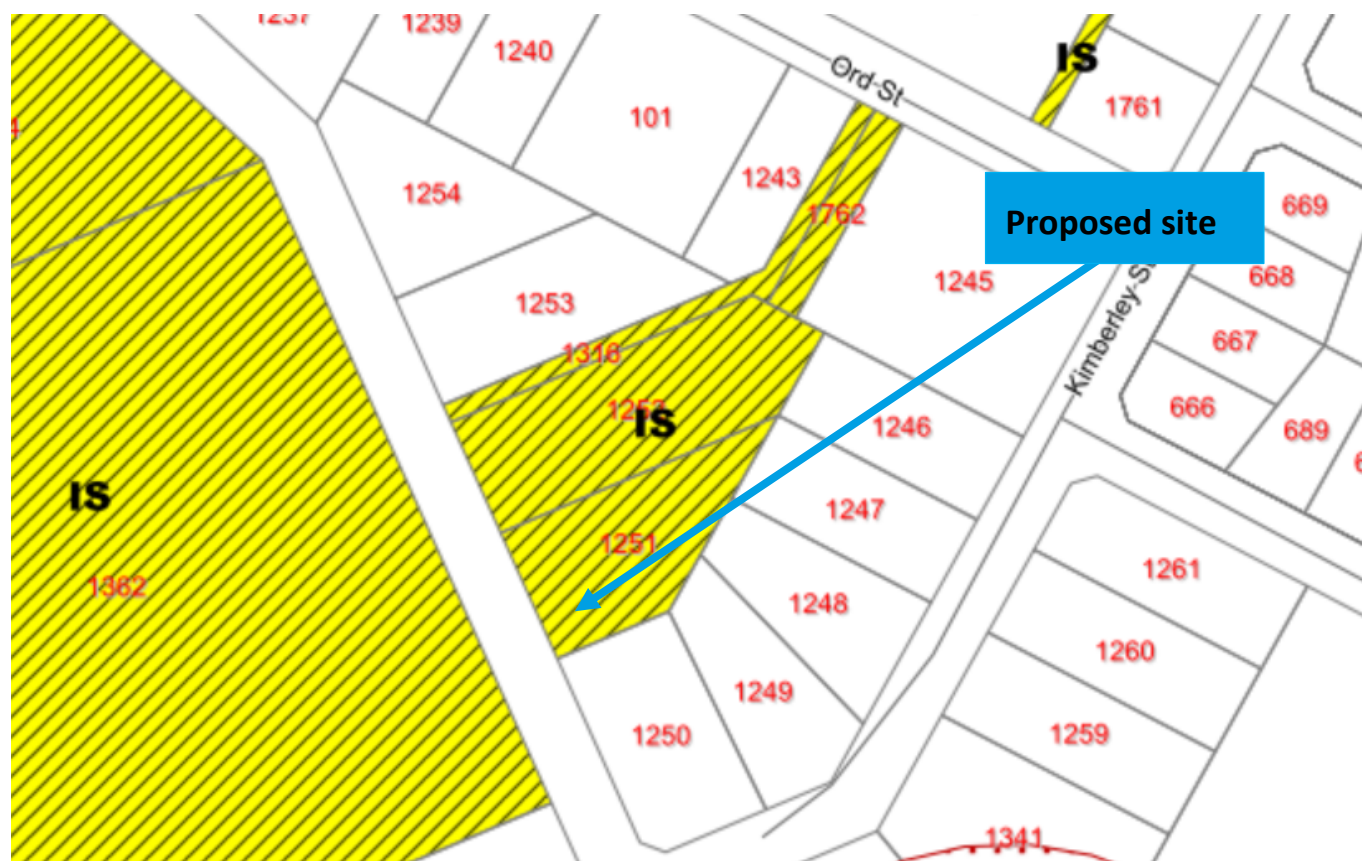


Figure 6 Reserve Map and Location of the Site

6.4.2 Special Control Area

The site is located within Special Control Area - Infrastructure - SCA3, the purpose of which is to:

To provide an appropriate separation distance between sewer treatment infrastructure and potentially sensitive land uses.

Given the proposal is not for a sensitive land use, this special control has no relevance.

7 LIKELY IMPACTS OF THE DEVELOPMENT

7.1 Visual Impact

While the proposed 40m monopole will be visible from the residential area, clustering with other infrastructure uses (i.e. water treatment plant), away from the main road and adjoining uses in an Industrial Zone is a favourable planning outcome. The monopole will also be slimline and finished in non-reflective materials.

7.2 Flora and Fauna

The site is largely cleared of vegetation therefore no further assessment on flora and fauna is required.

7.3 Aboriginal and Non-Aboriginal Heritage

The site is not subject to Aboriginal Cultural Heritage.

7.4 Bushfire Risk

The site is not in a Bush Fire Prone Area.

7.5 Flooding

The site also adjoins the King River estuaries therefore the area may become inundated at times and equipment is proposed to be located on a raised platform.

7.6 Electrical Interference

The **nbn**[™] fixed wireless network is licensed by the Australian Communications and Media Authority (ACMA) for the exclusive use of the OFDMA9800 frequency band. As **nbn**[™] is the exclusive licensee of this sub-band, emissions from **nbn**[™] equipment within the frequency band should not cause interference.

Filters will also help to ensure that each facility meets the ACMA specifications for emission of spurious signals outside the **nbn**[™] frequency allocations. **nbn**[™] intends to promptly investigate any interference issues that are reported.

7.7 Erosion, Sedimentation Control and Waste Management

All erosion and sediment control mitigation measures will comply with the Building Code of Australia, The Blue Book, and local Council standards where applicable. In addition, contractors must comply with the '**nbn**[™] Construction Specification' that requires contractors to undertake the necessary erosion and sediment control measures to protect the surrounding environment.

It is expected that a condition pertaining to erosion and sediment control will be implemented as a condition of development consent if granted by Council.

7.8 Traffic Generation

After the construction period, the only traffic generated by the base station will be that associated with maintenance vehicles. In this respect, it is estimated that maintenance of the facility will generate only three to

four visits per year and will remain unattended at all other times. The traffic generation will therefore be minimal and not sufficient to create any adverse impacts.

7.9 Utility Services

All services required for the ongoing operation of the base station are capable of being provided to the facility without impacting on the supply or reliability of these services to any existing consumers in the locality.

7.10 Noise

Noise and vibration emissions associated with the proposed facility will be limited to the initial construction phase. There will be some low-level noise from the ongoing operation of air conditioning equipment associated with the equipment shelter, once installed. Noise emanating from the air conditioning equipment is at a comparable level to a domestic air conditioning installation and will generally accord with the background noise levels prescribed by Australian Standard AS1055.

7.11 Social and Economic Impacts

Access to fast internet is an essential service in modern society. Initially, small to medium business customers accounted for a significant part of the demand for broadband technology, but internet services have now been embraced by the general public. Usage of internet services continues to widen as new technologies become progressively more affordable and accessible to the wider community.

The new **nbn**[™] network is designed to provide the community with access to fast and reliable internet services. A reliable internet service is important to help promote the economic growth of communities, and the facility is anticipated to have significant social and economic benefits for the local community.

7.12 Public Safety – Radiofrequency Emissions

In relation to public safety and specifically Electromagnetic Emissions (EME) and public health, **nbn**[™] network operates within the operational standards set by the Australian Communication and Media Authority (ACMA) and Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). ARPANSA is a Federal Government agency incorporated under the Health and Ageing portfolio and is charged with the responsibility for protecting the health and safety of both people and the environment from the harmful effects of radiation (ionising and non-ionising).

All **nbn**[™] network installations are designed and certified by qualified professionals in accordance with all relevant Australian Standards. This helps to ensure that the **nbn**[™] facility does not result in any increase in the level of risk to the public.

This facility is to be operated in compliance with the mandatory standard for human exposure to EME – currently the Radio communications (Electromagnetic Radiation Human Exposure) Standard 2003. The EME Report associated with this site is attached in Appendix D. The report shows that the maximum predicted EME will well within the maximum exposure limit.

Moreover, all **nbn**[™] network equipment has the following features, all of which help to minimise the amounts of energy used and emitted:

- Dynamic/Adaptive Power Control is a network feature that automatically adjusts the power and hence minimises EME from the facility.
- Varying the facility's transmit power to the minimal required level, minimising EME from the network, and

- Discontinuous transmission, a feature that reduces EME emissions by automatically switching the transmitter off when no data is being sent.

7.13 The Public Interest

The public benefits of access to high quality broadband have been widely acknowledged for many years. Broadband access is now more than ever considered an integral component of daily life, so much so that its absence is considered a social and economic disadvantage.

Across the Wyndham LGA, the Fixed Wireless network is designed to service rural and rural residential communities that have traditionally been significantly disadvantaged both in terms of basic access to broadband and in terms of the quality and reliability of broadband that these communities receive.

The Government's National Map illustrates the substantial disparity and inequity in service between larger townships and smaller communities, and often even within individual rural communities.

The proposed **nbn**[™] facility is expected to have significant benefit for residents, businesses and educational establishments in Wyndham. It will assist by providing improved internet services within the area. Furthermore, the proposal has been designed to minimise environmental impact.

8 Conclusion

The **nbn**[™] facility proposed has been sited in a manner which allows **nbn**[™] to provide broadband services to Wyndham effectively and efficiently. The facility has been strategically sited and designed to ensure that the target coverage area is able to be provided with **nbn**[™] broadband services and that line of sight will be able to be achieved to an adjoining facility.

The selected site is clustered with similar uses, is largely free of environmental constraints, will not impact the objectives of the reserve and is separated from dwellings and community uses within the township.

The proposed **nbn**[™] facility is expected to have significant benefit for residents, businesses and educational establishments in the Wyndham area. It will assist by providing improved internet services and contribute socially and economically within the area. Furthermore, the proposal has been designed to minimise environmental impact.

Given the considerable merit of this application, we respectfully request that Council considers the limited impacts and expected public benefits of the proposed facility in assessing this Development Application.

Appendix A Application Form and Owners Consent

Appendix B Proposal Plans

Appendix C EME Report

Appendix D Survey

DATE OF ISSUE

DRAWING PACKAGE VERSION

GENERAL

6KNR-51-01-WYND-T1	COVER SHEET	01	A																
6KNR-51-01-WYND-C1	SITE SPECIFIC NOTES	01	A																
6KNR-51-01-WYND-C2	OVERALL SITE PLAN	01	A																
6KNR-51-01-WYND-C3	SITE SETOUT PLAN	01	A																
6KNR-51-01-WYND-C4	SITE ELEVATION AND DETAILS	01	A																
6KNR-51-01-WYND-C4-1	STRUCTURAL EQUIPMENT DETAIL EXPANDED VIEW	01	A																

ELECTRICAL

6KNR-51-01-WYND-E0	ELECTRICAL SPECIFICATION	-	A																
6KNR-51-01-WYND-E1	ELECTRICAL SINGLE LINE DIAGRAM	-	A																
6KNR-51-01-WYND-E2	SITE EARTHING PLAN	-	A																

RF AND TX CONFIGURATIONS

6KNR-51-01-WYND-A1	NBN ANTENNA CONFIGURATION	01	A																
6KNR-51-01-WYND-A2	NBN ANTENNA SETOUT PLAN	01	A																

DESIGN DOCUMENTS

D31120NB-CERT	D31120NB - WYNDHAM - STRUCTURAL ASSESSMENT REPORT	-	1																
D31120NB	D31120NB - WYNDHAM - DISH ROTATION LETTER	-	1																
ELEVATED PLATFORM CERT-WYNDHAM	SSMC STRUCTURAL CERTIFICATE	-	1																

NBN STANDARD DOCUMENTS

NBN-STD-0001	STANDARD CONSTRUCTION NOTES	E	E																
NBN-STD-0012	STANDARD COMPOUND FENCING DETAILS	F	F																
NBN-STD-0016-SHT4	ENCLOSURE E6150 ODC BASE FRAME DETAILS	B	B																
NBN-STD-0016-SHT5	B158 ODC BASE FRAME DETAILS	B	B																
NBN-STD-0018-SHT1	STANDARD SITE EARTHING - MONOPOLE	E	E																
NBN-STD-0021-SHT1	STANDARD EARTH BAR DETAILS	D	D																
NBN-STD-0021-SHT2	SEB ALLOCATION TABLE - SHEET 1	C	C																
NBN-STD-0021-SHT3	SEB ALLOCATION TABLE - SHEET 2	A	A																
NBN-STD-0022	STANDARD METERBOX H-FRAME DETAILS	F	F																
NBN-STD-0027-SHT14	STANDARD PDB / METERING SCHEMATIC - E6150	A	A																
NBN-STD-0028	STANDARD ACCESS TRACK DETAILS	C	C																
NBN-STD-0030-SHT11	STANDARD NBN ANTENNA EME PATTERNS AIR3219 B42 (BROADCAST ENVELOPE)	A	A																
NBN-STD-0030-SHT15	STANDARD NBN ANTENNA EME PATTERNS AIR5322 N257 (BROADCAST ENVELOPE)	A	A																
NBN-STD-0030-SHT17	STANDARD NBN ANTENNA EME PATTERNS AIR6419 B40 (BROADCAST ENVELOPE)	A	A																
NBN-STD-0036	GPS ANTENNA MOUNT DETAILS	A	A																
NBN-STD-0050-SHT1	3 ODC PLATFORM LAYOUT	D	D																

DISTRIBUTION

NBN	SHAIL GOPANI	1	1																
SERVICESTREAM	ISABELLA ZHAO	1	1																

SITE CODE: 6KNR-51-01-WYND

WYNDHAM

34 DURACK ROAD

WYNDHAM

WA 6470

RFNSA No: 6470002



PROJECT SUMMARY

NBN GREENFIELD - NBN-6GLZ-6KNR-5101
NBN 40m HIGH MONOPOLE WITH CIRCULAR HEADFRAME
RF SCOPE - NBN RF ANTENNAS (6-OFF)
TX SCOPE - NBN TRANSMISSION ANTENNA (1-OFF) & FIBRE TO 6KNR FAN VIA
TELSTRA LEASE
NBN OUTDOOR CABINETS (2-OFF) ON ELEVATED STEEL PLATFORM



Client:

Client:

Project:
NATIONAL BROADBAND
NETWORK
SITE No: 6KNR-51-01-WYND
WYNDHAM
34 DURACK ROAD
WYNDHAM
WA 6470

FOR CONSTRUCTION

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01	15.01.25	PRELIMINARY	YL
Rev	Date	Revision Details	CAD



ServiceStream

DESIGNER: SP
CHECKED: PM
APPROVED: IZ

Drawing Title:
COVER SHEET

Drawing No. 6KNR-51-01-WYND-T1
Revision A

SITE INFORMATION:

1. SITE ADDRESS

LOT 1252 ON DP 209771, 34 DURACK ROAD, WYNDHAM, WA 6470.

2. GENERAL

THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT NBN CONSTRUCTION STANDARDS, CURRENT AUSTRALIAN STANDARDS AND SPECIFICATIONS.

3. SITE ACCESS

ENTERING WYNDHAM ON THE GREAT NORTHERN HIGHWAY AND TRAVEL 4km NORTHWEST. TURN LEFT ONTO SHARPE STREET AND TRAVEL SOUTH WEST APPROX 230m. ENTER UNSEALED DURACK ROAD AND TRAVEL 230m. SITE IS LOCATED 35m OPPOSITE OF ACCESS GATES OF WYNDHAM COUNCIL WATER TREATMENT PLANT.

4. EQUIPMENT

NBN OUTDOOR CABINETS E6150 (1-OFF) AND B158 (1-OFF) ON ELEVATED STEEL PLATFORM.

5. STRUCTURE

NBN 40m HIGH MONOPOLE.

6. ANTENNA ACCESS

ANTENNA ACCESS VIA TOWER MOUNTED ACCESS LADDER WITH FALL ARREST OR EWP BY QUALIFIED PERSONNEL ONLY.

7. EXISTING SERVICES

THE CONTRACTOR SHALL IDENTIFY AND CONFIRM THE LOCATION OF ALL RELEVANT EXISTING SERVICES AS REQUIRED PRIOR TO THE COMMENCEMENT OF WORKS.

8. EXISTING SITE HAZARDS

THE FOLLOWING HAZARDS ARE PRESENT ON SITE:

- ELECTRICAL CABLING AND/OR TRIP HAZARDS
- EXCAVATION WORKS
- CRANE LIFTING WORKS
- MANUAL HANDLING
- WORKING AT HEIGHT
- EME EXCLUSION ZONES OF ANTENNAS ON FACILITY

9. ELECTRICAL SUPPLY

REFER TO DRGS E0 AND E1 FOR DETAILS

10. TRANSMISSION LINK & RF CONFIGURATION

REFER TO DRAWINGS 6KNR-51-01-WYND-A1 AND A2 FOR DETAILS.

11. SITE SPECIFIC INFORMATION

DO NOT ACCESS SITE VIA KIMBERLEY STREET AS TRACK MAY GET FLOODED. ROCKY GROUND CONDITIONS AROUND PROPOSED CANDIDATE LOCATION. AREA IS PRONE TO FLOODING.

12. MONOPOLE WIND LOAD PARAMETERS

SITE TOPOGRAPHICAL DATA		
REGION	TERRAIN CATEGORY	TOPOGRAPHIC MULTIPLIER (Mf)
C	1.0-2.5	1.0

13. SITE SIGNAGE REQUIREMENTS

NBN CONTRACTOR NEED TO INSTALL SIGNAGE AS REQUIRED TO COMPLY WITH NBN STANDARD DRAWINGS NBN-STD-0025-SHTS 1&2.

14. SCOPE OF WORK

RF SCOPE

- NBN PANEL ANTENNAS (6-OFF) ON NEW MOUNTS. REFER TO DRGS. A1 AND A2 FOR DETAILS
- NBN TRIANGULAR HEADFRAME (1-OFF) AND STAND-OFF MOUNT (1-OFF)
- NBN HYBRID FEEDER CABLE 6x12 (2-OFF)
- NBN CANISTERS (2-OFF)

TX SCOPE

MOUNT ALBANY (DISH A)

- NBN Ø600 PARABOLIC ANTENNA (1-OFF) WITH NBN RAU'S (2-OFF) BEHIND NEW Ø600 PARABOLIC ANTENNA ON NEW FACE MOUNT
- NBN FEEDER CABLES LDF1-50 (2-OFF)
- FIBRE TO 6KNR FAN VIA TELSTRA LEASE

GROUND WORKS

- NBN OUTDOOR CABINETS E6150 (1-OFF) AND B158 (1-OFF) ON ELEVATED STEEL PLATFORM
- NBN OUTDOOR CABINET STEEL SUPPORT FRAMES (2-OFF)
- NBN 300mm WIDE CABLE LADDER BETWEEN CABINETS
- NBN METER PANEL
- NBN CONSUMER MAIN FROM UNI PILLAR TO NBN METER BOARD

Client:



Client:

Client:

Project:

NATIONAL BROADBAND
NETWORK
SITE No: 6KNR-51-01-WYND
WYNDHAM
34 DURACK ROAD
WYNDHAM
WA 6470

FOR CONSTRUCTION

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DESIGNER: SP

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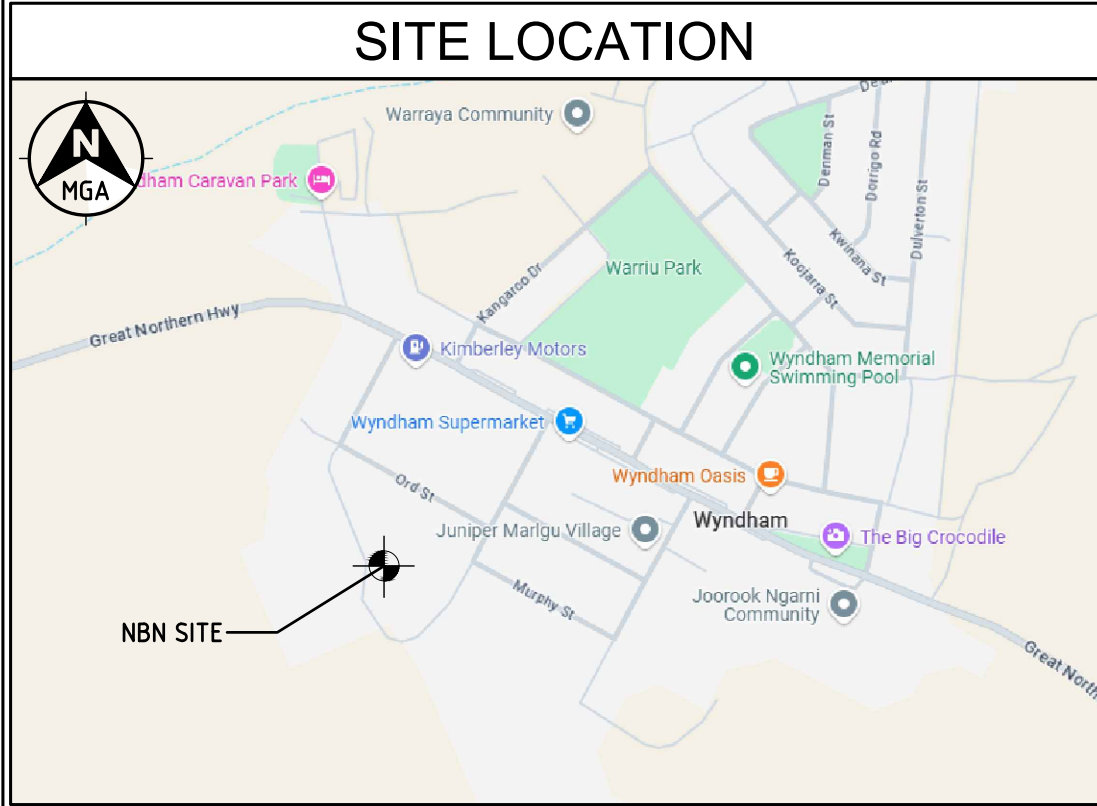
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SITE SPECIFIC
NOTES

Drawing No.
6KNR-51-01-WYND-C1

Revision
A



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SITE CO-ORDINATES	
MONOPOLE LOCATION	
DATUM: MGA(GDA 94)	ZONE: 52L
EASTING	4 05 169.31
NORTHING	8 287 537.89
LATITUDE	-15.487657°
LONGITUDE	128.115909°

LEGEND

— NUE — NUE — NBN UNDERGROUND ELECTRICAL

DBYD JOB NO. 50348389
ENQUIRE DATE: 04/06/2025
CONTRACTOR TO REVALIDATE AT TIME OF CONSTRUCTION

NEW PILLAR TO BE INSTALLED
BY HORIZON POWER INSIDE
THE PROPERTY BOUNDARY

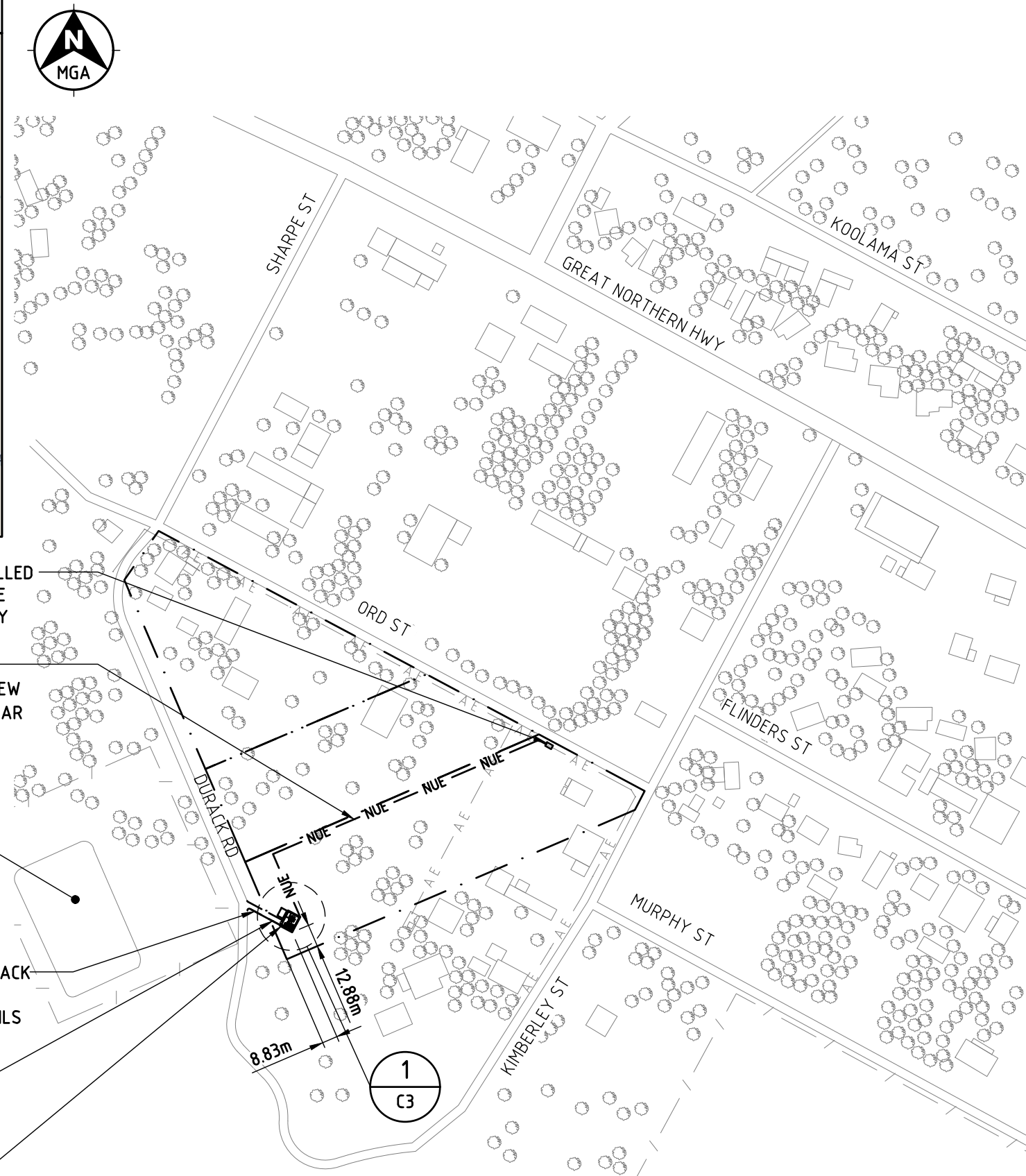
NEW NBN UNDERGROUND
CONSUMER MAINS FROM NEW
WESTERN POWER UNI PILLAR
TO NBN METER BOARD.
(APPROX. 120m)

EXISTING WYNDHAM
COUNCIL WATER
TREATMENT PLANT

NEW NBN SITE ACCESS TRACK
(35m). REFER TO DRG
NBN-STD-0028 FOR DETAILS

NBN FIBRE ROUTE

NBN SITE LOCATION



OVERALL SITE PLAN
SCALE 1:3000

Client:

Client:

Client:

Project:
NATIONAL BROADBAND
NETWORK
SITE No: 6KNR-51-01-WYND
WYNDHAM
34 DURACK ROAD
WYNDHAM
WA 6470

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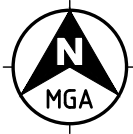
CHECKED: PM

APPROVED: IZ

Drawing Title:
OVERALL SITE
PLAN

Drawing No.
6KNR-51-01-WYND-C2

Revision
A



NOTES:
1. REFER A1 & A2 FOR RF, TRANSMISSION AND GPS ANTENNA DETAILS.



Client:

Client:

Project:

NATIONAL BROADBAND
NETWORK
SITE No: 6KNR-51-01-WYND
WYNDHAM
34 DURACK ROAD
WYNDHAM
WA 6470

FOR CONSTRUCTION

A	14.08.25	FOR CONSTRUCTION	BL
01	15.01.25	PRELIMINARY	YL
Rev	Date	Revision Details	CAD



ServiceStream

DESIGNER: SP
CHECKED: PM
APPROVED: IZ

Drawing Title:
**SITE SETOUT
PLAN**

Drawing No. 6KNR-51-01-WYND-C3
Revision A

NBN COMPOUND SECURITY FENCE
WITH ACCESS GATE. REFER TO DRG.
NBN-STD-0012 FOR DETAILS

NBN RF ANTENNAS (6-OFF)

NBN TRANSMISSION ANTENNA (MOUNT ALBANY)

NEW NBN SITE ACCESS ROUTE (35m)

NBN 40m HIGH MONOPOLE

NEW NBN FIBRE

NBN MONOPOLE FOUNDATION

NBN 300mm WIDE CABLE LADDER WITH
(1-OFF) CABLE LADDER SUPPORT POST

NBN GPS UNIT (1-OFF). FIXED TO THE
CABLE TRAY SUPPORT POST. REFER TO
DRG. NBN-STD-0036 FOR DETAILS

NBN FIBRE PIT

TEMPORARILY GENERATOR AREA
(3.5m x 2m)

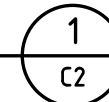
CRANE AREA

NBN OUTDOOR CABINET E6150. REFER TO
DRG. NBN-STD-0016-SHT 4 FOR DETAILS

NBN 300mm CABLE LADDER
BETWEEN CABINETS

NBN OUTDOOR CABINET B158. REFER TO
DRG. NBN-STD-0016-SHT 5 FOR DETAILS

DETAIL
SCALE 1:75



LEGEND

— NUE — NUE — NBN UNDERGROUND ELECTRICAL
— NUF — NUF — NBN UNDERGROUND FIBRE

NOTES:

- 1. REFER A1 AND A2 FOR RF, TRANSMISSION AND GPS ANTENNA DETAILS.
- 2. NBN CONTRACTOR TO INSTALL ODU STEEL SUPPORT FRAME FOR CABINETS.

SITE MATERIAL PAINTING SCHEDULE			
FEATURE	MATERIAL	FINISH	COLOUR
MONOPOLE	STEEL	MATTE	FACTORY COLOUR
HEADFRAME	GALVANISED STEEL	MATTE	FACTORY COLOUR
RF ANTENNAS/RRU	PLASTIC / ALUMINIUM	MATTE	FACTORY COLOUR
TRANSMISSION ANTENNAS/RAU	PLASTIC / ALUMINIUM	MATTE	FACTORY COLOUR
ANTENNA MOUNTS	GALVANISED STEEL	MATTE	FACTORY COLOUR
COMPOUND FENCE	GALVANISED STEEL	MATTE	FACTORY COLOUR
POWER DISTRIBUTION BOARD	STEEL	MATTE	FACTORY COLOUR
ODC	STEEL	MATTE	FACTORY COLOUR
CABLE LADDER	GALVANISED STEEL	MATTE	FACTORY COLOUR

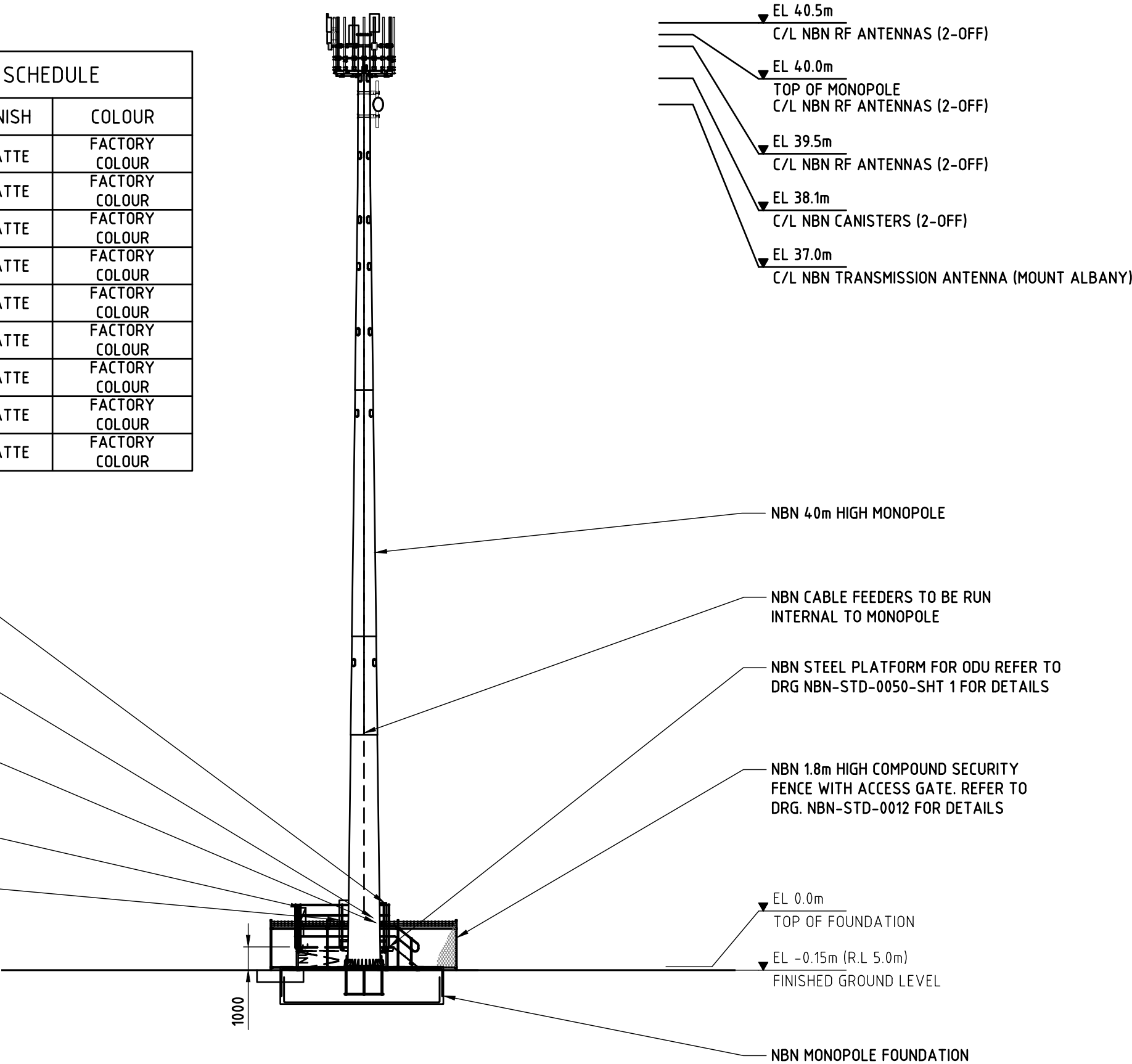
NBN OUTDOOR CABINET E6150. REFER TO DRG. NBN-STD-0016-SHT4 FOR DETAILS

NBN GPS UNIT (1-OFF) (BEHIND). FIXED TO THE CABLE TRAY SUPPORT POST. REFER TO DRG. NBN-STD-0036 FOR DETAILS

NBN 300mm WIDE CABLE TRAY FROM ODU TO LATTICE TOWER (BEHIND)

NBN METER BOX. REFER TO DRG. NBN-STD-0022 FOR DETAILS

NBN OUTDOOR CABINET B158 (BEHIND). REFER TO DRG. NBN-STD-0016-SHT 5 FOR DETAILS



NORTH EAST ELEVATION
SCALE 1:200

Client:



Client:

Client:

Project:

NATIONAL BROADBAND NETWORK

SITE No: 6KNR-51-01-WYND WYNDHAM

34 DURACK ROAD WYNDHAM WA 6470

FOR CONSTRUCTION

A	14.08.25	FOR CONSTRUCTION	BL
01	15.01.25	PRELIMINARY	YL
Rev	Date	Revision Details	CAD



ServiceStream

DESIGNER: SP

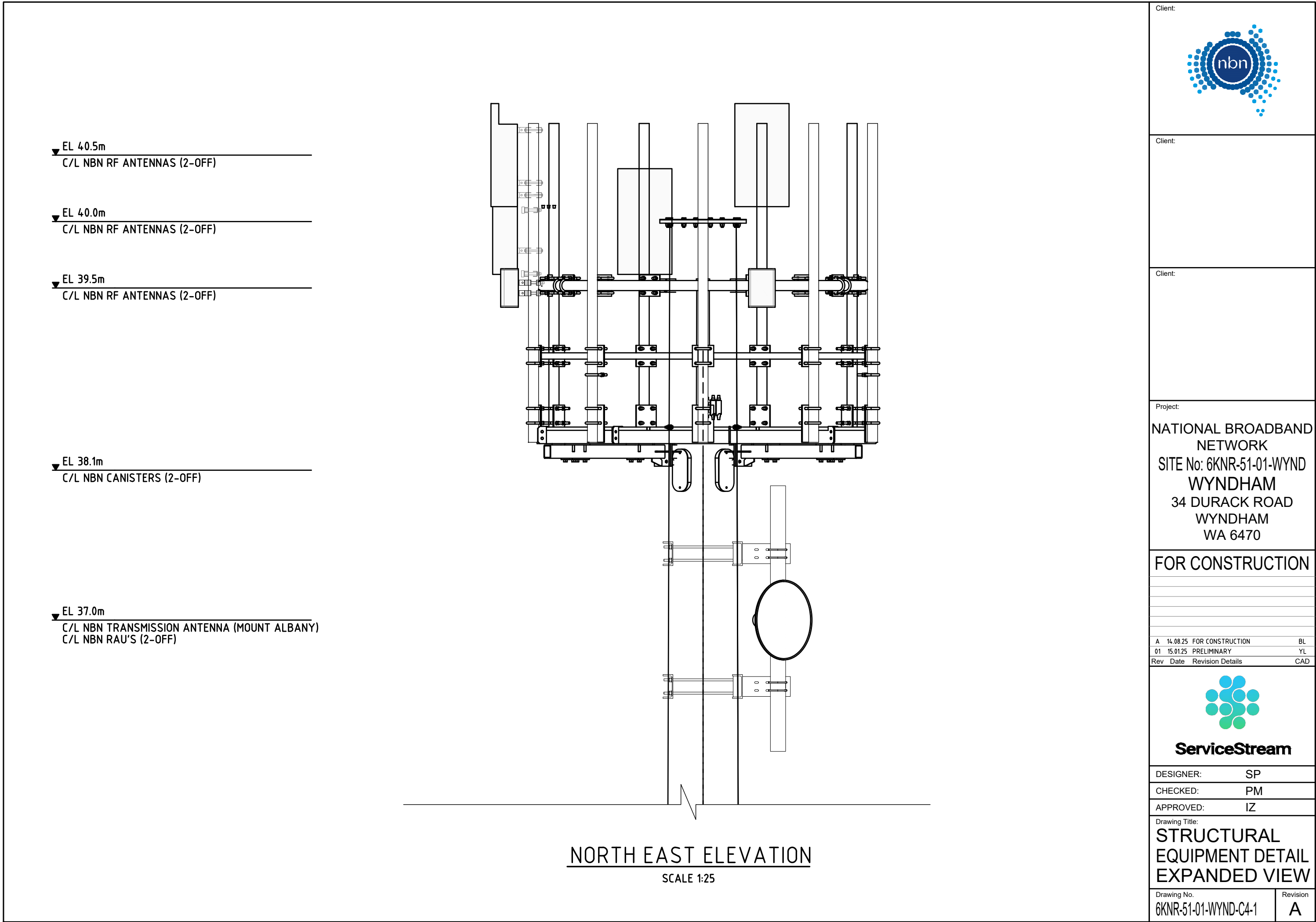
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APPROVED: IZ

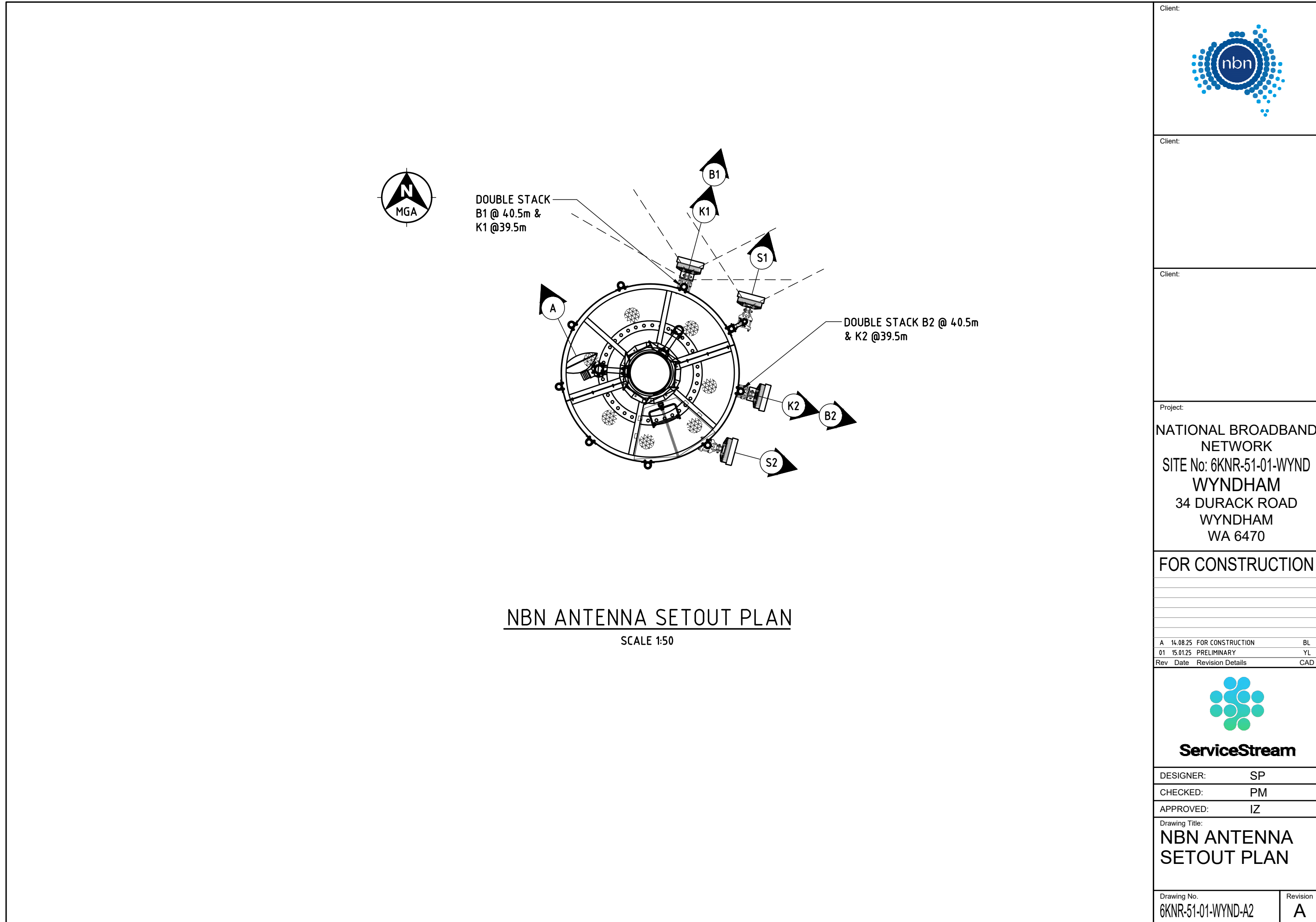
Drawing Title:

SITE ELEVATION AND DETAILS

Drawing No.	Revision
6KNR-51-01-WYND-C4	A



NBN RF ANTENNA CONFIGURATION - 3000MHz & 3400MHz																					Client:	
SECTOR	RF ANTENNA DETAIL								MAIN FEEDER DETAIL					RRU DETAIL					RF TAIL		RET CABLE	 Client: NATIONAL BROADBAND NETWORK SITE No: 6KNR-51-01-WYND WYNDHAM 34 DURACK ROAD WYNDHAM WA 6470 FOR CONSTRUCTION A 14.08.25 FOR CONSTRUCTION BL 01 15.01.25 PRELIMINARY YL Rev Date Revision Details CAD  ServiceStream DESIGNER: SP CHECKED: PM APPROVED: IZ Drawing Title: NBN ANTENNA CONFIGURATION Drawing No. 6KNR-51-01-WYND-A1 Revision A
	TYPE	DIMENSION HxWxD	C/L HEIGHT	AZIMUTH (TN)	E-TILT		MECH TILT	ANTENNA ACTION REQUIRED	TYPE	OVERALL LENGTH	CANISTER HEIGHT	CANISTER TO RRU LENGTH	FEEDER ACTION REQUIRED	TYPE	LOCATION	C/L HEIGHT	ANTENNA PORT	RRU ACTION REQUIRED	TYPE	LENGTH	LENGTH	
S1	ERICSSON AIR6419 B40	929x506x208	40m	15°	P1&P2	2°	0°	INSTALL	H&S HYBRID MKII 6x12 F1	50m	38.1m	4m	INSTALL									
B1	ERICSSON AIR3219 B42	776x408x199	40.5m	15°	P1&P2	2°	0°	INSTALL				4m	INSTALL									
S2	ERICSSON AIR6419 B40	929x506x208	40m	105°	P1&P2	2°	0°	INSTALL				4m	INSTALL									
B2	ERICSSON AIR3219 B42	776x408x199	40.5m	105°	P1&P2	2°	0°	INSTALL				4m	INSTALL									
NBN RF ANTENNA CONFIGURATION - 2600MHz																					Client:	
SECTOR	RF ANTENNA DETAIL								MAIN FEEDER DETAIL					RRU DETAIL					RF TAIL		RET CABLE	
	TYPE	DIMENSION HxWxD	C/L HEIGHT	AZIMUTH (TN)	E-TILT		MECH TILT	ANTENNA ACTION REQUIRED	TYPE	OVERALL LENGTH	CANISTER HEIGHT	CANISTER TO RRU LENGTH	FEEDER ACTION REQUIRED	TYPE	LOCATION	C/L HEIGHT	ANTENNA PORT	RRU ACTION REQUIRED	TYPE	LENGTH	LENGTH	
K1	ERICSSON AIR5322 n257	290x200x136	39.5m	15°	P1&P2	0°	5.5°	INSTALL	H&S HYBRID MKII 6x12 F1	50m	38.1m	4m	INSTALL									
K2	ERICSSON AIR5322 n257	290x200x136	39.5m	105°	P1&P2	0°	5.5°	INSTALL	H&S HYBRID MKII 6x12 F2			4m	INSTALL									
NBN TRANSMISSION AND GPS ANTENNA CONFIGURATION																						
SECTOR	ANTENNA DETAIL						RAU DETAIL			MAIN FEEDER DETAIL			TX SPLITTERS DETAILS									
	TYPE	DIMENSION	C/L HEIGHT	AZIMUTH (TN)	DESTINATION	ANTENNA ACTION REQUIRED	COUNT	TYPE	ACTION	TYPE	OVERALL LENGTH	ACTION	COUNT	ACTION								
A	PARABOLIC ANT3 A 0.6 18 HPX	ø600	37m	334°	MOUNT ALBANY	INSTALL	2	ML6365	INSTALL	LDF1-50	2 x 50m	INSTALL	-	-								
GPS	KRE 101 2395/2	ø77 x 74	2.5m	-	-	INSTALL	-	-	-	LDF1-50	8m	INSTALL	-	-								



Client:



Client:

Client:

Project:

NATIONAL BROADBAND
NETWORK
SITE No: 6KNR-51-01-WYND
WYNDHAM
34 DURACK ROAD
WYNDHAM
WA 6470

FOR CONSTRUCTION

A	14.08.25	FOR CONSTRUCTION	BL
01	15.01.25	PRELIMINARY	YL
Rev	Date	Revision Details	CAD



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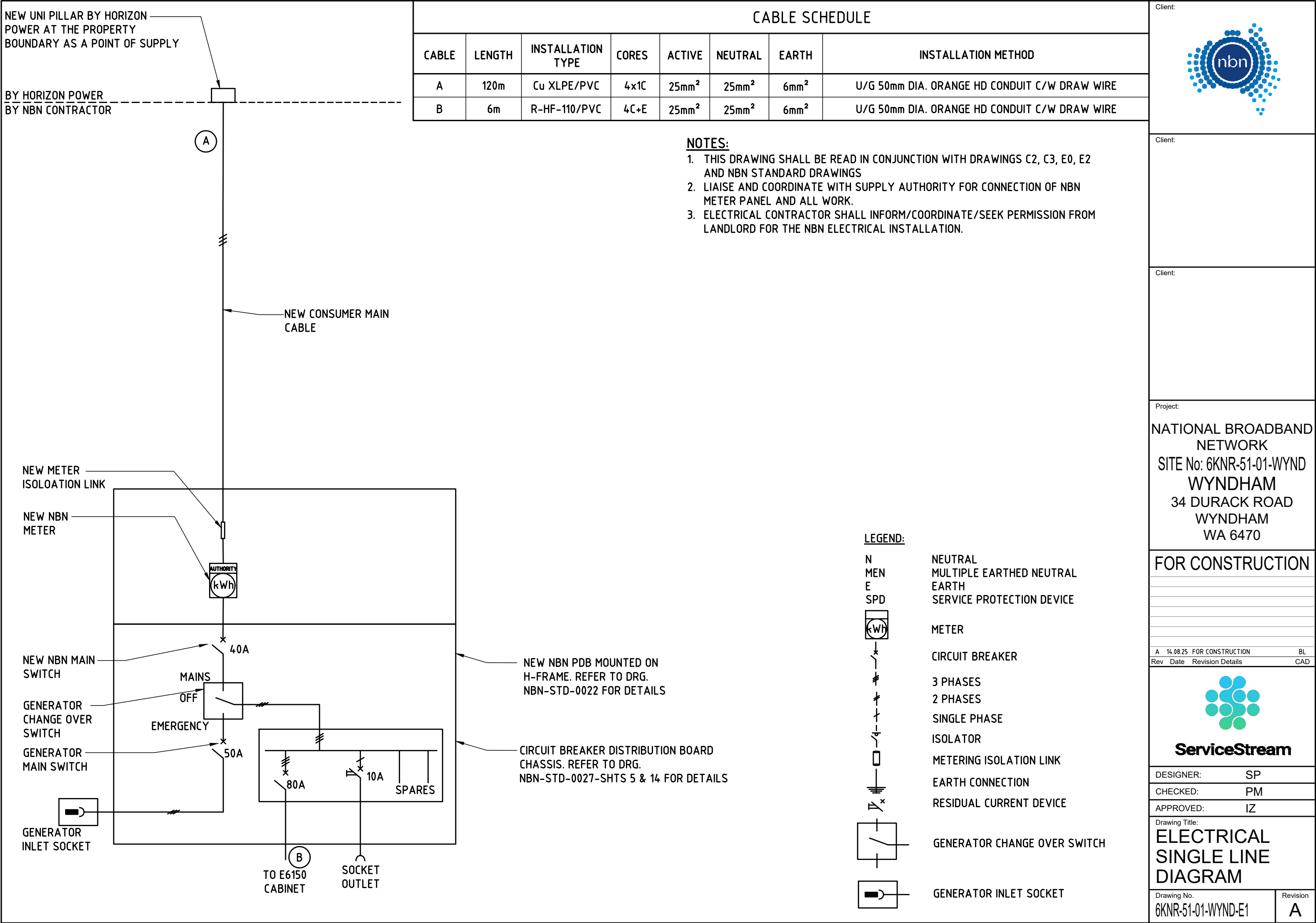
DESIGNER: SP

CHECKED: PM

APPROVED: IZ

Drawing Title:
NBN ANTENNA SETOUT PLAN

Drawing No.	Revision
6KNR-51-01-WYND-A2	A



EARTHING INSTALLATION

ALL ITEMS EARTHED GENERALLY AS SHOWN ON THIS DRAWING. FOR CONNECTION REFERENCE NUMBER, CABLE SIZE, REFER BELOW AND SITE DESIGN DRAWINGS. FOR SPECIFICATIONS AND CONNECTION DETAILS REFER TO "NBN RAN INSTALLATION" DESIGN/CONSTRUCTION SPECIFICATION, SECTION 11 "SITE EARTHING".

ITEM	DESCRIPTION
(A)	SEB TO SHELTER DB EARTH BAR VIA LINK BAR
(B)	SHELTER BASE FRAME TO SEB
(C)	EQUIPMENT EARTH TO SEB
(E)	EARTH BAR TO SEB
(F)	SEB TO ELECTRODE (SEE NOTE 12)
(G)	TOWER TO ELECTRODE
(I)	STEELWORK, FENCING AND GATES (SEE NOTE 10 & 11)
(J)	H-FRAME STEELWORK TO ELECTRODE (SEE NOTE 12)
(K)	GANTRY SUPPORT TO ELECTRODE (SEE NOTE 13)

NOTES:

- ALL EARTHING COMPLIED WITH AS/NZS3000 SECTION 5.3.2.
- ALL EARTHING ELECTRODES 13mm DIAMETER COPPER BONDED HARDENED STEEL RODS DRIVEN TO 3m DEPTH UNLESS SPECIFIED OTHERWISE.
- IF INSTALLED BY DRILLING, INSTALL ELECTRODES IN 75mm MINIMUM DIAMETER HOLES AND BACKFILL WITH APPROPRIATE EARTHING ENHANCING COMPOUND SUCH AS SAND-CEMENT MIX, BENTONITE GYPSUM MIX OR GRAPHITE MIX (GEM).
- PROVIDE MINIMUM OF 3-OFF EARTH BARS: AT TOP OF TOWER, AT BOTTOM OF MONOPOLE AND AT THE ODC. IN THIS CASE, IF ODC IS LESS THAN 1.5 METERS FROM THE TOWER THEN THE EARTH BAR AT THE ODC IS NOT REQUIRED.
- TOP AND BOTTOM EARTH BARS ON TOWER AS PER NBN-STD-0021-SHT 1. EARTH BARS SHALL BE DIRECTLY CONNECTED TO THE POWER AND SHALL NOT BE INSULATED.
- SERVICE EARTH BAR SHALL BE FACE FIXED TO ODC BASE FRAME VIA INSULATORS.
- WHERE LANDSCAPING IS REQUIRED, THE CONTRACTOR ENSURED THAT EXCAVATION FOR LANDSCAPING IS COMPLETE BEFORE INSTALLATION OF THE EARTH TAPE AND LEADS TO AVOID DAMAGE TO THE EARTHING SYSTEM.
- INSTALLED EARTH BAR CONNECTED TO MONOPOLE CLEAT IF INSUFFICIENT HOLES.
- PROVIDE LINK BAR "TRAFFOLYTE" LABEL WHITE BACKGROUND AND MINIMUM 8mm HIGH BLACK LETTERING "BONDING TERMINAL / LINK BAR BEHIND"
- MAKE 1-HOLE LUG CONNECTION TO FENCE/SUPPORT POSTS (WITH TAPPED HOLE) FOR EARTHING BONDS.
- 2mm MINIMUM THICKNESS ON 35mm² EQUIVALENT FLEXIBLE BRAIDED STRAP FOR FENCE AND GATE BONDING.
- CABLE F AND J SHALL BE INSTALLED IN ELECTRICAL CONDUIT AS IDENTIFIED IN NBN-STD-0017/0034. REFER SITE SETOUT PLAN FOR LOCATION AND DIRECTION.
- ALL CABLE LADDER POSTS SHALL BE EARTHED VIA EARTH LEAD TO THE NEAREST ELECTRODE.
- FOR SHELTER SITES, SEB SHALL BE BONDED WITH TWO 70mm² CABLES TO TWO SEPARATE ELECTRODES.
- EARTH GRID ELECTRODES WILL REQUIRE DRILLING DUE TO BEDROCK AT 1.5m DEPTH. EARTH ELECTRODES SHALL BE DRILLED IN 75mm MINIMUM DIAMETER HOLES AND BACKFILLED WITH GEM (GROUND ENHANCEMENT MATERIAL). REFER GEOTECH REPORT FOR DETAILED SOIL CONDITION.

Client:



Client:

Client:

Project:

NATIONAL BROADBAND
NETWORK
SITE No: 6KNR-51-01-WYND
WYNDHAM
34 DURACK ROAD
WYNDHAM
WA 6470

FOR CONSTRUCTION

A	14.08.25	FOR CONSTRUCTION	BL
Rev	Date	Revision Details	CAD

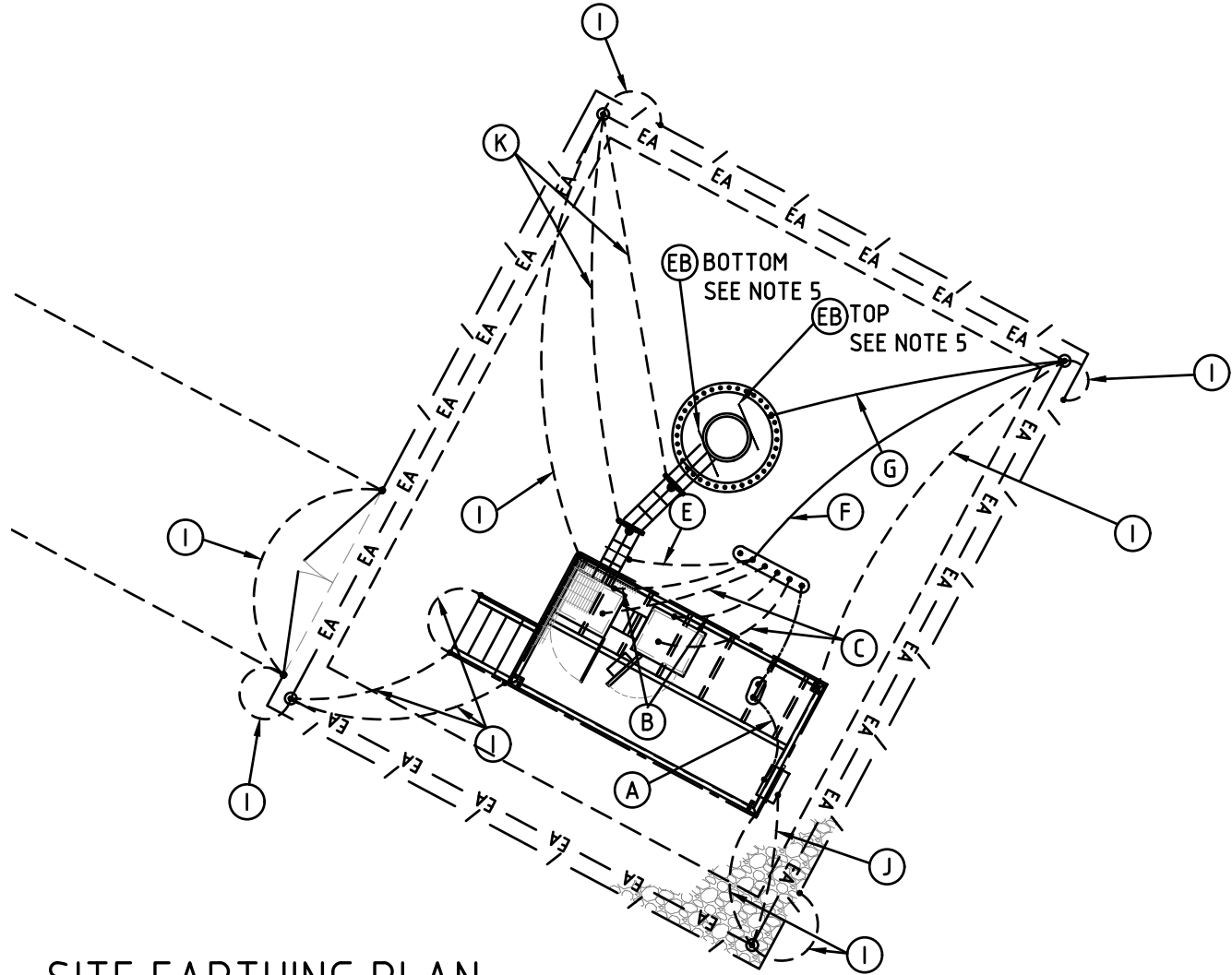


ServiceStream

DESIGNER:	SP
CHECKED:	PM
APPROVED:	IZ

Drawing Title:
**SITE EARTHING
PLAN**

Drawing No. 6KNR-51-01-WYND-E2	Revision A
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SITE EARTHING PLAN

SCALE : NTS

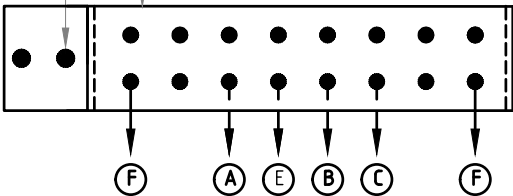
TYPE	DIAMETER	QUANTITY	DEPTH	THEORETICAL EARTH RESISTANCE
COPPER BONDED HARDENED STEEL ROD	13mm	4	3m	0.335Ω

LEGEND:

- MEN ELECTRODE
- ⊙ EARTHING ELECTRODE IN INSPECTION SLEEVE (TRAFFICABLE INSPECTION SLEEVE WHERE REQUIRED)
- 16mm² STRANDED COPPER GREEN / YELLOW PVC CABLE
- - - - 35mm² STRANDED COPPER GREEN / YELLOW PVC CABLE
- EA - 70mm² BARE COPPER CABLE / 25x3 mm COPPER TAPE
- 70mm² STRANDED COPPER GREEN / YELLOW PVC CABLE
- ~~~~~ FLEXIBLE BRAIDED STRAP
- (EB) EARTH BAR (RRU, FEEDER AND RAU EARTHING)
- ⊕ LINK BAR LOCATION BELOW PDB IN CABLE LADDER ON H-FRAME
- / - NEW NBN COMPOUND FENCE

INSULATORS

COPPER EARTH BAR REFER
NBN-STD-0021 SHT 1 & 2 AND SID CL
4.4 ALLOCATION SEB FOR EARTH BAR
CONNECTIONS



SERVICE EARTH BAR (SEB)

Structural Design Certification

Project	RCP3 Greenfield	Client	NBN
Site Name	Wyndham	Site Number	6GLZ-6KNR-5101
Site Address	34 DURACK ROAD WYNDHAM WA 6740	Date	02/09/2025
		Revision	01

Project Description

Structural design & certification of the new elevated platform steelwork, associated connection and connections to the monopole foundation.

Components Certified

- New NBN elevated platform steelwork, associated connection and connections to the monopole foundation.

Design Parameters

Importance Level	2	Terrain Category T_c	2.0
Wind Region	C	Topographic Multiplier M_t	1.00
Regional Wind Speed	57m/s	Wind Direction Multiplier M_d	0.90
Design Life	50 years	Shielding Multiplier M_s	1.0
Climate Change Multiplier M_c	1.05		

Design Documentation

Drawing/Doc No	Drawing Name	Issue	Date
6GLZ-6KNR-5101-C1	SITE SPECIFIC NOTES	A	14.08.2025
6GLZ-6KNR-5101-C3	SITE SETOUT PLAN	A	14.08.2025
6GLZ-6KNR-5101-C4	SITE ELEVATION AND DETAILS	A	14.08.2025
NBN-STD-0050- SHT 1	3 ODC PLATFORM LAYOUT	D	29.03.2022
NBN-STD-0050- SHT 2	3 ODC PLATFORM LAYOUT	A	29.03.2022

Assumptions

- Monopole footing is in good condition and free of any defects.

Exclusions

- Structural adequacy of the NBN 40m high monopole and footing are excluded from this certificate and to be certified by others.

MOBILE COMMUNICATIONS – TOTAL COMMUNICATIONS INFRASTRUCTURE PTY LTD ABN 74 095 043 057
a subsidiary of **SERVICE STREAM LIMITED**

HEAD OFFICE Level 4, 357 Collins Street, Melbourne Vic 3000 | Mailing Address: PO Box 14570 Melbourne VIC 8001
T +61 3 9677 8888 | F +61 3 9677 8877 | E info@servicestream.com.au | www.servicestream.com.au

Service Stream Limited ABN 46 072 369 870

- All antenna/RRU/ancillary mounts, headframes and MW dish mounts are excluded from this certificate and to be confirmed by others.
- Structural adequacy of all equipment mounting kits including antennas, RRUs, and ancillaries are excluded from this certificate.

Compliance

Service Stream Mobile Communications hereby certifies that the structural components covered by this document comply with the minimum design requirements set out in the relevant Compliance Documents as listed below.

Compliance Documents

- AS/NZS 1170.0 - 2002
- AS/NZS 1170.1 - 2002
- AS/NZS 1170.2 - 2021
- AS 3600 - 2018

Signature

Digitally signed by Arash Mozhgani
DN: CN=Arash Mozhgani, OU=Users, OU=Windows 10, OU=Service Stream SGE, DC=servicestream, DC=local
Date: 2025.09.02 16:16:41+10'00'

Arash Mozhgani – Principal Structural Engineer

B.E., M.Sc. (Structure), MIE Aust CPEng NER 3937552, RPEQ 27545, VIC PE0005753, TAS 928370964

(On behalf of Service Stream)

13 August 2025

TO WHOM IT MAY CONCERN

This is to certify that the new 40m Type 3 monopole installed in Wyndham, WA, has adequate strength for the proposed loading criteria as detailed on the attached LeBLANC Pty Ltd "D31120NB-CERT Rev.1" Monopole Certificate. Likewise, the foundation, headframe and microwave mounts are structurally adequate to support the same loading criteria.

All aspects of monopole and antenna configuration are as per "D31120NB-CERT Rev.1" Monopole Certificate.

The rotation at the top of the monopole at serviceability wind speed is within acceptable limits.

Regards,



Qi Zhang
Structural Engineer
MIEAust CPEng NPER 1332111
RPEQ 15129 NT 191518ES



Client: Service Stream
Site Name: Wyndham, WA
Site Number: 6GLZ-6KNR-5101
Job Description: Analysis of new Monopole, Foundation and Mounts; Antenna and Microwave.
Structure: Monopole
Type: Type 3
Height: 40m

Date	Description of Release	Job no.	Rev	Prepared By	Approved By
09/07/2025	1 st Analysis Report	D31120NB	0	ZM	QZ
13/08/2025	Revised Foundation	D31120NB	1	ZM	QZ

Document Number D31120NB-CERT Rev.1

LeBLANC acknowledges the Traditional Owners and custodians of the land, and we pay our respects to their Elders past, present and emerging.
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Monopole Certificate D31120NB-CERT Rev.1

Site Name: Wyndham, WA
Site Number: 6GLZ-6KNR-5101
Designed and Manufactured by: LeBLANC
Year of Manufacture: 2025

LeBLANC Ref.: D31120NB
Analysis Revision: Rev.1

Structure Specifics: Monopole

Type: Type 3
Height: 40m

Drawing Ref: D31120NB-M10T3-1-40TP
Modules: 40S1, 40S2, 40S3, 40S4

Design Criteria:

Wind Loading Code: AS1170.2-2021
Region: C
Terrain Category: 1.0-2.5

Regional Gust Wind Speed: 57 m/s
Topographic Multiplier: 1.00
Climate Change Multiplier: 1.05
Shielding Multiplier: 1.0

Δ Tower Design Loading Criteria: Generic Loading

Type / Size	Height (m)	Bearing	Notes
3 x AIR3219	40.0	0°, 120°, 240°	Installed on headframe
3 x AIR5322	40.0	0°, 120°, 240°	Installed on headframe
3 x Matsing Lens MS-MBA-4.4-SH2-SH2-45 Lens Antenna	40.0	0°, 120°, 240°	Installed on headframe
12 x RRU8863	40.0	N/A	Installed on headframe
1 x Ø1.8m Parabolic Dish	36.0	0°	Installed on strap mount
8 x RAU	36.0	N/A	Installed on strap mount
1 x Ø1.8m Parabolic Dish	33.0	0°	Installed on strap mount
8 x RAU	33.0	N/A	Installed on strap mount

Foundation Criteria:

Type: Raft
Drawing Ref: D31120NB-M10T3-3-40FND Rev.1 dated 13/08/2025
Geotech Report: Geotechnical Investigation Report No. 1250694-1 by Civitest Pty Ltd, dated 5 June 2025

Special Features:

Δ The site configuration for antennas (2 x AIR6419 Panel antennas at 40.0m*, 2 x AIR3219 Panel antenna at 40.5m*, 2 x AIR5322 Panel antenna at 39.5m* and 1 x ANT3 A 0.6 18 HPX at 37m bearing 334°, for current requirements) with corresponding proposed ancillary equipment, is inferior to generic loading. Therefore, the antenna design loading is based on NBN Generic Loading Conditions.

* All orientations and tilts for the panel antennas have been considered.

** ±5° bearing optimisation has been considered for microwave dishes.

Qi Zhang
 Structural Engineer
 MIEAust CPEng NPER 1332111
 RPEQ 15129 NT 191518ES

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1 Analysis Results

1.1 Structure

Table 1 – Structure Stress Levels – Generic Loading

MODULE STRESS SUMMARY (%)		
#	MODULE	STRESS
1	40S1	58
2	40S2	64
3	40S3	66
4	40S4	65

Deflection

A maximum structural rotation value of 0.5° will be achieved at serviceability wind speed of 27 m/s.

Table 2 – Structure Reactions – Factored – Generic Loading

SHEAR (kN)	DEAD WEIGHT (kN)	OTM (kN-m)
151.8	151.9	3924.0

1.2 Foundation

The Raft foundation, described in drawing number D31120NB-M10T3-3-40FND Rev.1 dated 13/08/2025, was designed based on the geotechnical test report and the report recommendations.

Flooding case, temporarily generator and ODU platform impact on footing have been considered in footing designing.

The foundation strength and stability safety factors are listed in Table 3 below.

Table 3 – Raft Foundation Safety Factors – Generic Loading

Description	Safety Factor
Overturning Capacity	1.26 > 1.0 OK!
Bearing Capacity	3.37 > 1.0 OK!

2 Interpretation of Analysis Results

1. All sections and connections of the structure are stressed to within acceptable limits;
2. The foundation is structurally adequate for the structure supporting the loads above;
3. The deflection of the monopole is within acceptable limits.

3 CONCLUSION

The 40m Type 3 monopole and the corresponding foundation installed in Wyndham, WA site code 6GLZ-6KNR-5101, has adequate strength to carry the loading configuration, as shown in Table 1 and Table 3, for the design parameters shown in the D31120NB-CERT, Pg 3.

LeBLANC Pty Ltd would like to point out that any rearrangement of antenna location or orientation that has been considered in this analysis might cause an overstressing situation to the monopole. Comments and checks provided in this certification are valid for antenna types and locations and bearings as indicated in this certificate only.



Prepared by
Zahriani Mastam
Structural Engineer



Approved by
Qi Zhang
Structural Engineer
MIEAust CPEng NPER 1332111
RPEQ 15129 NT 191518ES

Design Standards

- a) AS/NZS 1170.2:2021 – Structural Design Actions – Wind Actions.
- b) AS 3995:1994 – Design of Steel Lattice Towers and Masts.
- c) AS 4100:2020 – Steel Structures.
- d) AS 3600:2018 – Concrete Structures.
- e) AS/NZS 4600:2018 – Cold-Formed Steel Structures.

References

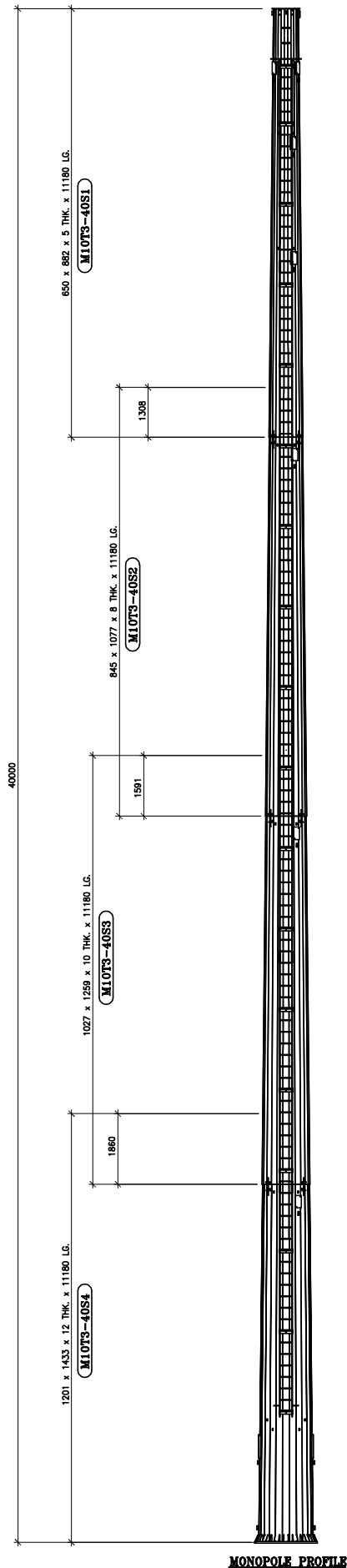
1. Service Stream drawing 6GLZ-6KNR-5101-C1 to C4-1 & A1 to A2 Rev.01 dated 15/01/2025 and emails from Peter Morcos (representing Service Stream) dated 05/06/2025, 30/06/2025, 07/07/2025, 09/07/2025, 10/07/2025 & 30/07/2025.
2. Geotech Report: Geotechnical Investigation Report No. 1250694-1 by Civitest Pty Ltd, dated 5 June 2025.

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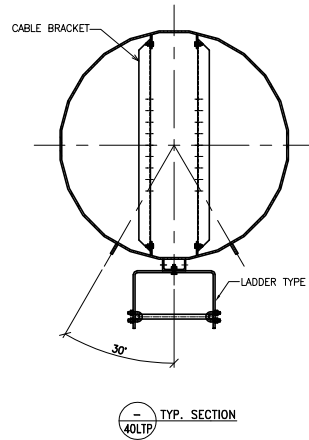
APPENDIX A - Drawings

Site Name: Wyndham, WA
Site Number: 6GLZ-6KNR-5101
Structure: Monopole
Type: Type 3
Height: 40m

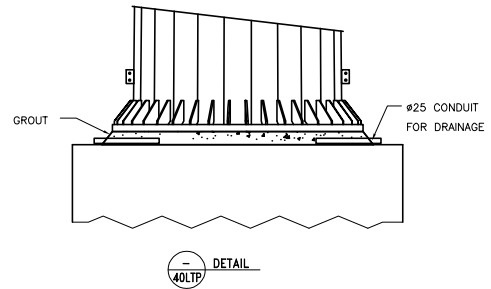
	Drawing No.	Revision	Date
General Arrangement:	D31120NB-M10T3-1-40TP	Rev.0	20/06/2025
Foundation:	D31120NB-M10T3-3-40FND	Rev.1	13/08/2025
Headframe:	D31120NB-M10-2-HFC650	Rev.0	20/06/2025
Standoffs:	STB-2-150-76_76	Rev.1	03/09/2019
Microwave Mounts:	MM-2-UMRK-2S	Rev.0	11/11/2018



MONOPOLE PROFILE



TYP. SECTION



DETAIL

- NOTES :-**
1. ALL DIMENSIONS ARE IN (mm) UNLESS OTHERWISE NOTED.
 2. SHAFT AND BASE PLATE : GBT 15912018 Q355 GRADE B
YIELD STRENGTH : 355 MPa (MINIMUM)
TENSILE STRENGTH : 470 MPa (MINIMUM)
 - OTHERS MATERIAL : GB/T 700-2006 Q235 GRADE B
YIELD STRENGTH : 235 MPa (MINIMUM)
TENSILE STRENGTH : 370 MPa (MINIMUM)
 - ANCHOR BOLT: GRADE 8.8 Fu = 830 MPa
 3. FINISHING :
POLE & ACC : HOT GALVANIZED ISO 14612009 OR EQUI.
 4. ALL BOLTS ARE N/S BOLTS U.N.K.O.
 5. BOLTS: USE GRADE 8.8 OR EQUIVALENT.
 6. DESIGN STANDARD: AS 1170.2-2021
 7. TERRAIN CATEGORY: 1.0-2.5
 8. DESIGN WIND SPEED: 57 m/s (PEAK GUST) REGION C.
OPERATIONAL WIND SPEED: 27 m/s (PEAK GUST).
 9. TOPOGRAPHIC MULTIPLIER : 1.00
 10. MAXIMUM ALLOWABLE TILT/TWIST AT OPERATIONAL WIND SPEED: 1.00 DEGREES.
 11. TYPE OF 24-SIDED POLYGONAL SHAFT MONOPOLE

0	ISSUED FOR CONSTRUCTION	WW	20.06.25	
REV.	DESCRIPTION	BY	DATE	APRV.
This drawing or design is not sold but lent. It remains the property of this company and is subject to recall. Its content must not be communicated to any person whatsoever without the written consent of LeBLANC PTY. LTD.		DRAWN	DATE	
		ZH	01.12.23	
		CHECKED	APPROVED	
				
NBN SITE : WYNDHAM STANDARD MONOPOLE TYPE 3 - 40m GENERAL ARRANGEMENT				
SCALE	DRAWING NUMBER			REV.
n.t.s.	D31120NB-M10T3-1-40TP			0

9 July 2025

**ANTENNA MOUNT STRUCTURAL DESIGN CERTIFICATION
FOR 0.6 M DISH MOUNT AT WYNDHAM, WA
REF: D31120NB**

To whom it may concern,

We certify that the proposed Dish mount on drawing no. MM-2-UMRK-2S, Rev.0 dated 11/11/2018 was found to have adequate strength to carry the proposed antenna loads based on the information below:

Antenna Type:	1 (one) 0.6m Parabolic Dish 2 (two) RAU ML6365
Mount Height @ CL:	EL 37.0m
Wind Region:	C
Average Recurrence Interval:	500
Regional Basic Wind Speed, V_r :	57 m/s peak gust
Terrain Category:	1.0
Shielding Multiplier, M_s :	1.0
Wind Direction Multiplier, M_d :	1.0
Terrain/Height Multiplier, M_z :	1.201
Topographic Multiplier, M_t :	1.0
Climate Change Multiplier:	1.05
Design Wind Speed:	71.88 m/s

This assessment was carried out;

- a) under the supervision of a professional structural engineer certified under NPER;
and
- b) in accordance with the relevant structural requirements of AS4100 and AS1170.2;

This certification does not extend to the monopole or mount supporting structure.

Yours Faithfully,



Prepared by
Zahriani Mastam
Structural Engineer



Approved by
Qi Zhang
Structural Engineer
MIEAust CPEng NPER 1332111
RPEQ 15129 NT 191518ES

9 July 2025

**ANTENNA MOUNT STRUCTURAL DESIGN CERTIFICATION
FOR HEADFRAME MOUNT AT WYNDHAM, WA
REF: D31120NB**

To whom it may concern,

We certify that the proposed headframe mount on drawing no. D31120NB-M10-2-HFC650, Rev.0 dated 20/06/2025 with standoff (1-off) on drawing no. STB-2-150-76_76, Rev.1 dated 03/09/2019 was found to have adequate strength to carry the proposed antenna loads based on the information below:

Antenna Type:	6 (six) RF Panel Antenna (Refer to Structure Certification for antenna & RRU details)
Mount Height @ CL:	EL 40.5m & 40m & 39.5m
Wind Region:	C
Average Recurrence Interval:	500
Regional Basic Wind Speed, V_r :	57 m/s peak gust
Terrain Category:	1.0
Shielding Multiplier, M_s :	1.0
Wind Direction Multiplier, M_d :	1.0
Terrain/Height Multiplier, M_z :	1.211
Topographic Multiplier, M_t :	1.0
Climate Change Multiplier:	1.05
Design Wind Speed:	72.48 m/s

This assessment was carried out;

- a) under the supervision of a professional structural engineer certified under NPER;
and
- b) in accordance with the relevant structural requirements of AS4100 and AS1170.2;

This certification does not extend to the monopole or mount supporting structure.

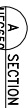
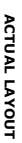
Yours Faithfully,



Prepared by
Zahriani Mastam
Structural Engineer



Approved by
Qi Zhang
Structural Engineer
MIEAust CPEng NPER 1332111
RPEQ 15129 NT 191518ES



1. ALL BOLT Ø10mm AND BELOW TO BE GR 4.6,
ALL BOLT Ø12mm AND ABOVE TO BE GR 8.8;
2. ALL BOLT TO BE C/W NUT, FLAT WASHER &
SPRING WASHER, ALL HOT DIP GALV. FINISH.
3. ALL BOLT TO BE SMUG TIGHTENED IN ACCORDANCE WITH
BOLTING PROCEDURE 8.8/5 WITH THREADS INCLUDED IN
SHEAR PLANE, UNLESS NOTED X/5.
4. ALL STEEL TO BE GB/1700.2006 Q235 GRADE B

TOTAL WEIGHT = 459.08 kg

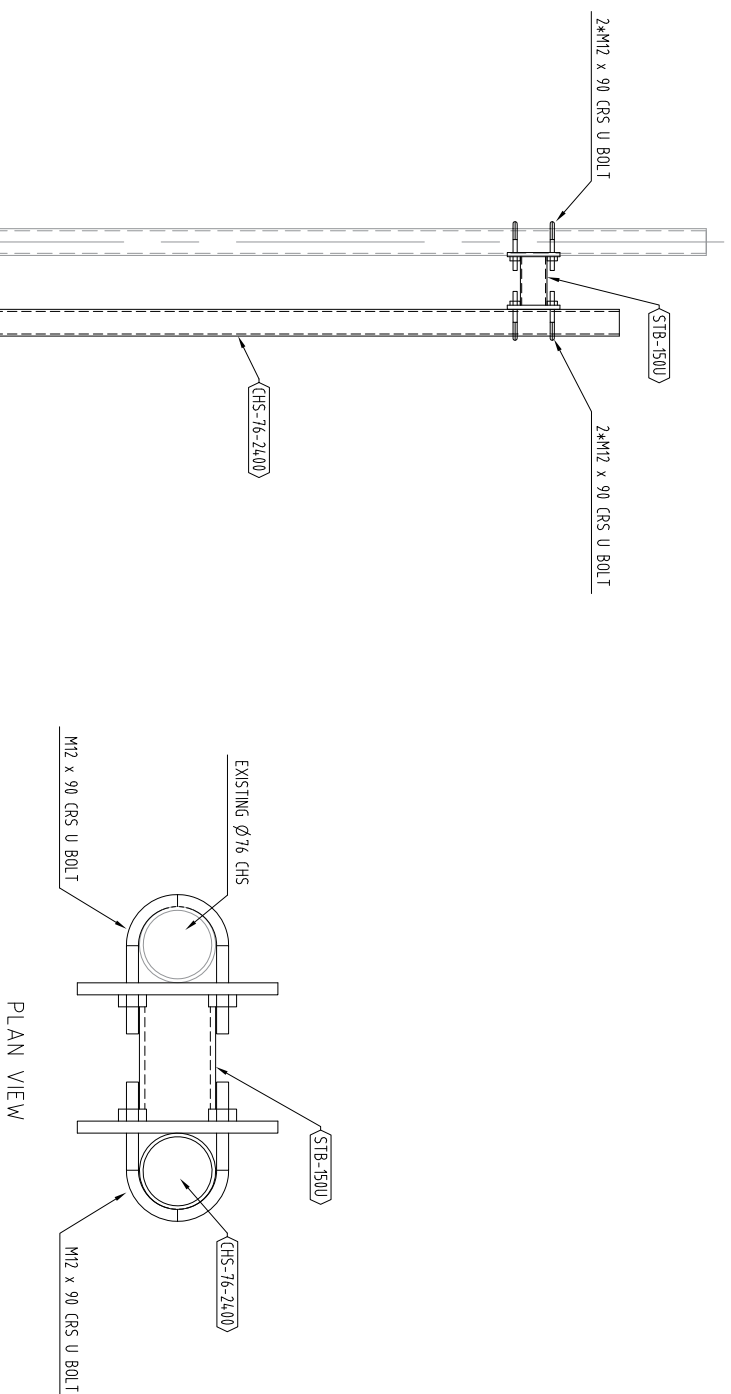
TOTAL WEIGHT = 33.418 kg

leBLANC
leblancgroup.com

SITE: WYNDHAM, WA
GENERIC MONOPOLE HFC - 650
CIRCULAR HEADFRAME - ERECTION

SIB OFFSET MOUNT				
LIST OF MATERIAL				
MARK	QTY	MATERIAL	LENGTH	WEIGHT TOTAL
SIB		ASSEMBLY	--	--
SIB-150U	2	SIB ASSEMBLY	150	8.54 17.08
CHS-76-2400	1	Ø76x4.5 CHS GR30	2400	19.08 19.08
TOTAL WEIGHT =			36.16	Kg

QTY	BOLT SIZE
8	M12 x 90 CRS U BOLT



1	ISSUE FOR CONSTRUCTION	RG	03.09.19	
0	ISSUE FOR CONSTRUCTION	ZH	28.11.14	
REV.	DESCRIPTION	DATE	APPROV	
	This drawing is not valid, but hereby granted a limited non-exclusive, responsible non-forfeitable right of use for technical purposes. The drawing cannot be used for construction, but it may be used for reference and not be communicated to any third whatsoever without the written consent of G&B&B Pty Ltd.	ISSUED BY	APPROVED	
		DATE	DATE	

SCALE	DRAWING NUMBER	REV.
NITS	STB-2-104-16, 76	1

13 August 2025

DOC: Dish Rotation Letter – 13/08/2025

REF: Wyndham, WA

To whom it may concern,

The dish rotation limits outlined in Table 1 below have been reviewed and site specific dish rotation details have been provided. This additional information does not invalidate the structural certification **D31120NB - Wyndham Assessment Rev.1**.

Client: NBN
Site Name: Wyndham, WA
Site Number: Site No. 6GLZ-6KNR-5101
Structure: 40m Type 3 Monopole

Name	Limit	Height	Rotation (Approx.)	Status
DISH 1	1.05°	37.0m	0.36°	Pass

Table 1 – Site Dish Rotation

Regards,



Zah Ani
Structural/Design Engineer

NOTES:

THIS SURVEY MAY ONLY BE USED FOR CONTOUR AND FEATURE PLAN PURPOSES. THE LOT BOUNDARIES SHOWN HEREON WERE NOT MARKED AT THE TIME OF SURVEY AND ARE BASED UPON LANDGATE DATABASE DIMENSIONS ONLY.

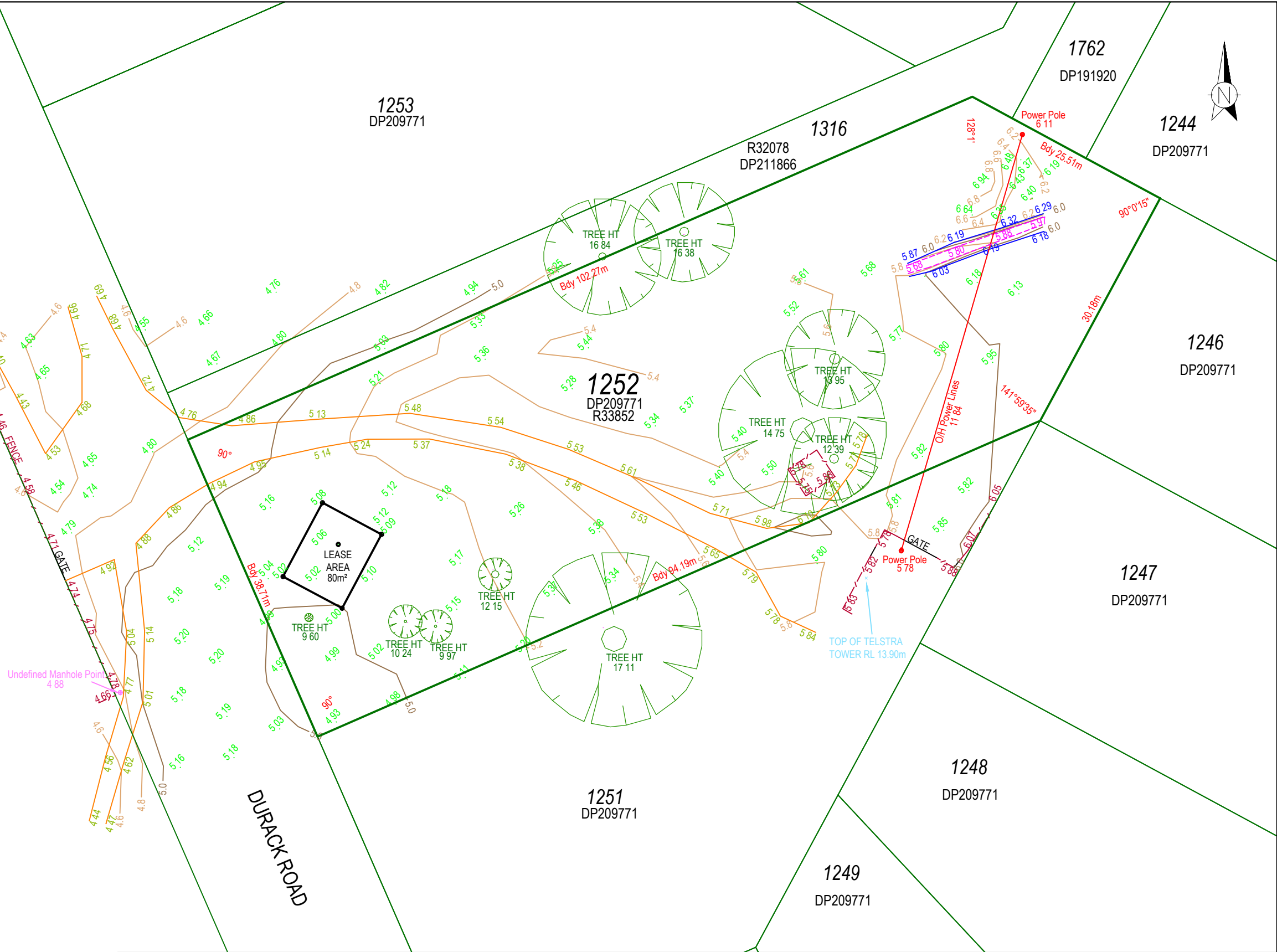
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THIS SURVEY SHOWS ONLY THE RELEVANT VISIBLE FEATURES THAT ARE LOCATED IN THE FIELD AND WILL NOT SHOW LOCATIONS OF ALL UNDERGROUND PIPES OR CONDUITS FOR INTERNAL AND MAINS SERVICES. VERIFICATION OF THE LOCATION OF ALL INTERNAL AND MAINS SERVICES SHOULD BE CONFIRMED PRIOR TO FINALISATION OF ANY DESIGN WORK AND/OR DEMOLITION, EXCAVATION OR CONSTRUCTION.

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VERTICAL DATUM IS A.H.D. HEIGHTS HAVE BEEN ADOPTED FROM S.S.M WYNDHAM 13 RL15.519m



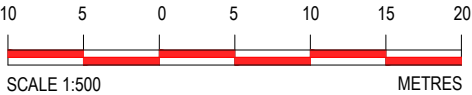
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FEATURE SURVEY

NATIONAL BROADBAND NETWORK
SITE No. 6GLZ-6KNR-5101
34 DURACK ROAD, WYNDHAM WA 6740
LOT 1252 ON PLAN DP209771



DRAWN	A.COBOLD	09/05/2025
SURVEYOR	S.KOHLSCHEIN	07/05/2025
CHECKED	P.SAID	09/05/2025

HORIZONTAL DATUM: MGA94 ZONE 52
VERTICAL DATUM: AHD

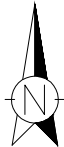
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No.	DATE	REVISION	DRAWN	SURVEYOR	CHECKED	CLIENT	25108-01	0	A3

NOTES:

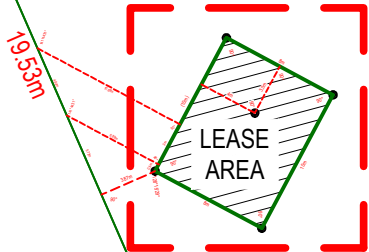
BOUNDARY SHOWN IS APROXIMATE ONLY
AND IS DERIVED FROM LANDGATE DATABASE
VALUES AS AT 05/5/2025.

DIMENSIONS TO BOUNDARY ARE BASED ON
MGA94 (52) HORIZONTAL DATUM.

LEASE CORNERS SHOULD BE ADOPTED FROM
COORDINATES SHOWN



DURACK ROAD



SEE SHEET 2
FOR DETAIL

1243
DP209771

1316

R32078
DP211866

1252
DP209771
R33852
4185m²

1246
DP209771

1247
DP209771

1248
DP209771

1249
DP209771

1762
DP191920

1244
DP209771

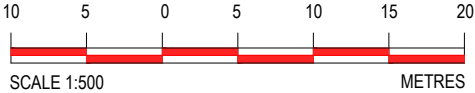
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LEASE PLAN
SHEET 1 OF 2

NATIONAL BROADBAND NETWORK
SITE No. 6GLZ-6KNR-5101
34 DURACK ROAD, WYNDHAM WA 6740
LOT 1252 ON PLAN DP209771



DRAWN	A.COBBOLD	09/05/2025
SURVEYOR	S.KOHLSCHEIN	07/05/2025
CHECKED	P.SAID	09/05/2025

HORIZONTAL DATUM: MGA94 ZONE 52
VERTICAL DATUM: AHD

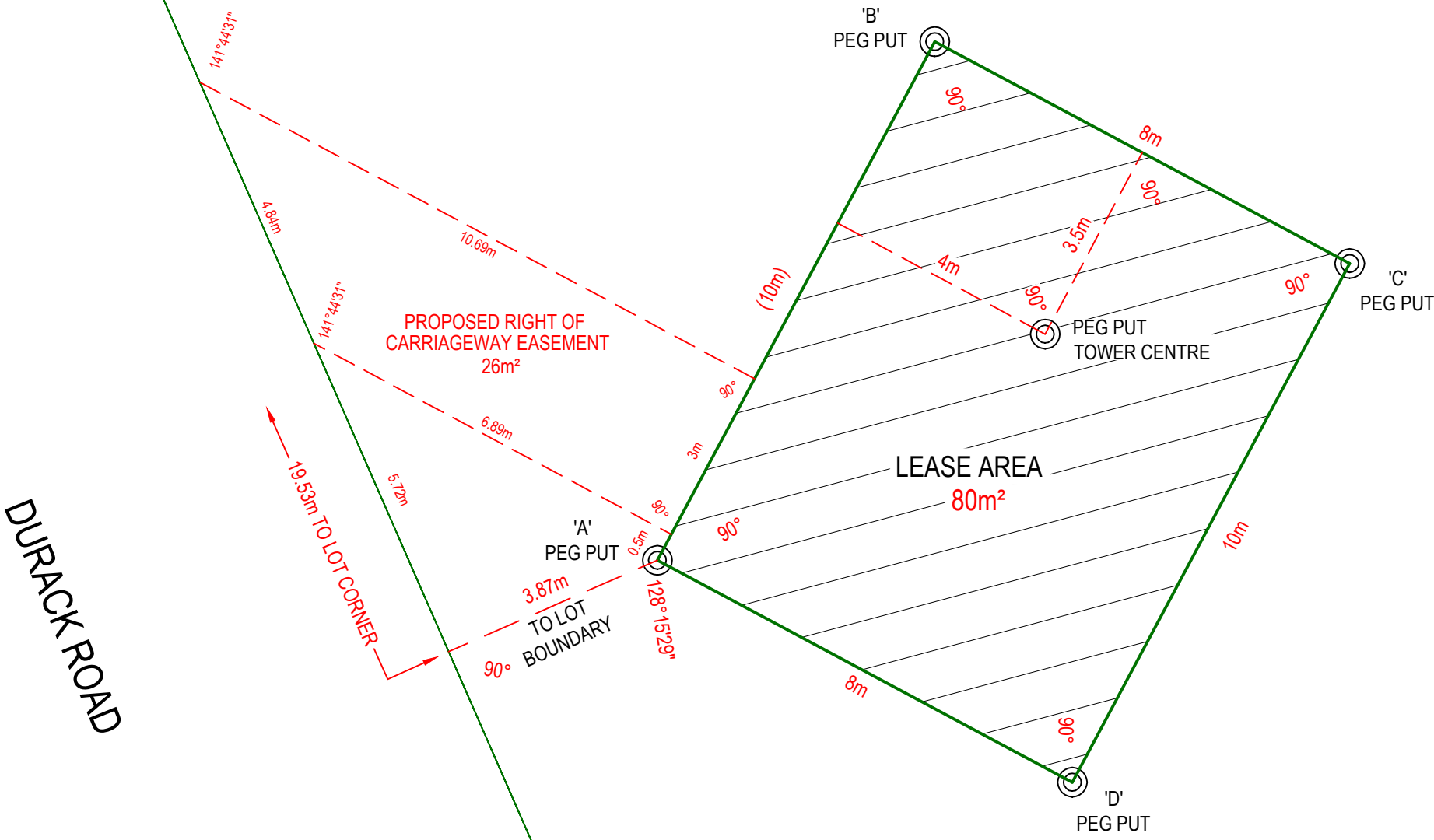
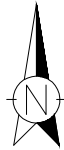
1	30/07/2025	EASEMENT ADDED	TG	SK	PS	ServiceStream	DRAWING NUMBER 25108-02	REV 1	SIZE A3
No.	DATE	REVISION	DRAWN	SURVEYOR	CHECKED	CLIENT			

NOTES:

BOUNDARY SHOWN IS APROXIMATE ONLY
AND IS DERIVED FROM LANDGATE DATABASE
VALUES AS AT 5/5/2025.

DIMENSIONS TO BOUNDARY ARE BASED ON MGA94
(52) HORIZONTAL DATUM.

LEASE CORNERS SHOULD BE ADOPTED FROM
COORDINATES SHOWN



	MGA 94 ZONE 52		GDA 94	
	EASTING	NORTHING	LATITUDE	LONGITUDE
A	405162.734	8287534.021	S -15.487715°	E 128.115849°
B	405167.415	8287542.854	S -15.487635°	E 128.115892°
C	405174.482	8287539.109	S -15.487669°	E 128.115958°
D	405169.800	8287530.276	S -15.487749°	E 128.115914°
TOWER CENTRE	405169.310	8287537.890	S -15.487657°	E 128.115909°

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LEASE PLAN

SHEET 2 OF 2

NATIONAL BROADBAND NETWORK

SITE No. 6GLZ-6KNR-5101

34 DURACK ROAD, WYNDHAM WA 6740

LOT 1252 ON PLAN DP209771

2101234

SCALE 1:100

METRES

DRAWN	A.COBOLD	09/05/2025
SURVEYOR	S.KOHLSCHEIN	07/05/2025
CHECKED	P.SAID	09/05/2025

HORIZONTAL DATUM: MGA94 ZONE 52

VERTICAL DATUM: AHD

1	30/07/2025	EASEMENT ADDED	TG	SK	PS	ServiceStream	DRAWING NUMBER 25108-02	REV 1	SIZE A3
No.	DATE	REVISION	DRAWN	SURVEYOR	CHECKED	CLIENT			

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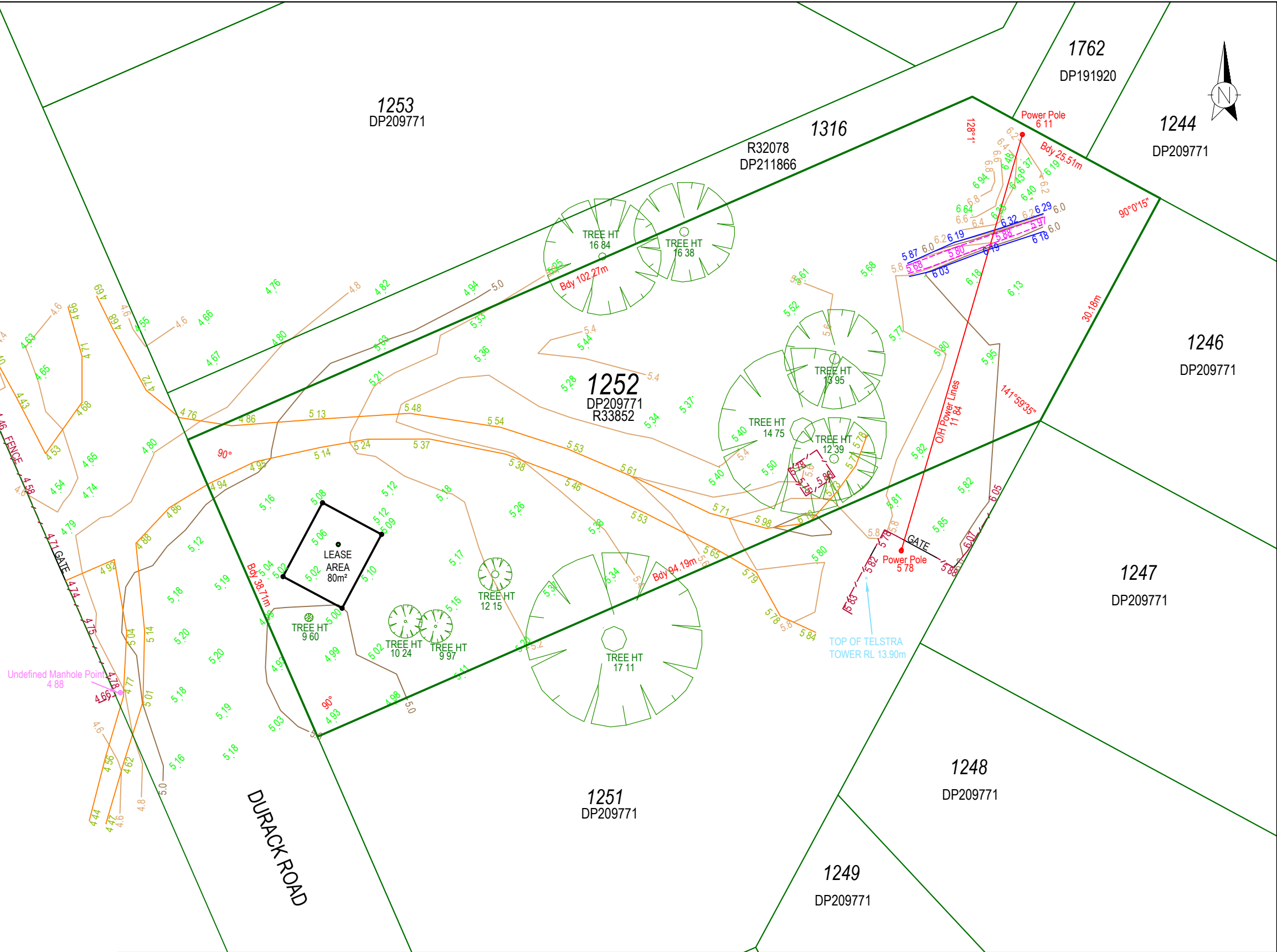
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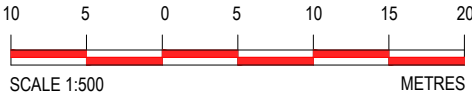
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FEATURE SURVEY

NATIONAL BROADBAND NETWORK
SITE No. 6GLZ-6KNR-5101
34 DURACK ROAD, WYNDHAM WA 6740
LOT 1252 ON PLAN DP209771



DRAWN	A.COBOLD	09/05/2025
SURVEYOR	S.KOHLSCHEIN	07/05/2025
CHECKED	P.SAID	09/05/2025

HORIZONTAL DATUM: MGA94 ZONE 52
VERTICAL DATUM: AHD

0	09/05/2025	APPROVED AND ISSUED TO CLIENT	AC	SK	PS	ServiceStream	DRAWING NUMBER	REV	SIZE
No.	DATE	REVISION	DRAWN	SURVEYOR	CHECKED	CLIENT	25108-01	0	A3

Civiltest Soil Testing
10 Latham Street
Mornington
VIC 3931



NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Jim Perry**

Report **1227381-S**
 Project name **6GLZ-6KNR-5101 WYNDHAM WA**
 Project ID **1250694**
 Received Date **Jun 03, 2025**

Client Sample ID			BH 1 @ 0.5	BH 1 @ 1.0	BH 1 @ 2.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M25- Jn0004059	M25- Jn0004060	M25- Jn0004061
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons					
TRH C6-C9	20	mg/kg	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	-	-
TRH C29-C36	50	mg/kg	< 50	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-
TRH C6-C10	20	mg/kg	< 20	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	-	-
TRH >C10-C16 less Naphthalene (F2) ^{*N01}	50	mg/kg	< 50	-	-
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-
Volatile Organics					
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	-
1.2.4-Trichlorobenzene	0.5	mg/kg	< 0.5	-	-
Hexachlorobutadiene	0.5	mg/kg	< 0.5	-	-
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	-
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	-
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	-
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	-
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	-
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	-	-
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	-
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	-	-
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-
2-Butanone (MEK)	0.5	mg/kg	< 0.5	-	-
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	-	-
4-Chlorotoluene	0.5	mg/kg	< 0.5	-	-

Client Sample ID			BH 1 @ 0.5	BH 1 @ 1.0	BH 1 @ 2.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M25-Jn0004059	M25-Jn0004060	M25-Jn0004061
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Volatile Organics					
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	-	-
Allyl chloride	0.5	mg/kg	< 0.5	-	-
Benzene	0.1	mg/kg	< 0.1	-	-
Bromobenzene	0.5	mg/kg	< 0.5	-	-
Bromochloromethane	0.5	mg/kg	< 0.5	-	-
Bromodichloromethane	0.5	mg/kg	< 0.5	-	-
Bromoform	0.5	mg/kg	< 0.5	-	-
Bromomethane	0.5	mg/kg	< 0.5	-	-
Carbon disulfide	0.5	mg/kg	< 0.5	-	-
Carbon Tetrachloride	0.5	mg/kg	< 0.5	-	-
Chlorobenzene	0.5	mg/kg	< 0.5	-	-
Chloroethane	0.5	mg/kg	< 0.5	-	-
Chloroform	0.5	mg/kg	< 0.5	-	-
Chloromethane	0.5	mg/kg	< 0.5	-	-
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-
Dibromochloromethane	0.5	mg/kg	< 0.5	-	-
Dibromomethane	0.5	mg/kg	< 0.5	-	-
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-
Iodomethane	0.5	mg/kg	< 0.5	-	-
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-
Methylene Chloride	0.5	mg/kg	< 0.5	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-
Styrene	0.5	mg/kg	< 0.5	-	-
Tetrachloroethene	0.5	mg/kg	< 0.5	-	-
Toluene	0.1	mg/kg	< 0.1	-	-
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-
Trichloroethene	0.5	mg/kg	< 0.5	-	-
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	-
Vinyl chloride	0.5	mg/kg	< 0.5	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-
Total MAH*	0.5	mg/kg	< 0.5	-	-
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	-
4-Bromofluorobenzene (surr.)	1	%	94	-	-
Toluene-d8 (surr.)	1	%	80	-	-
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-
Benzo(b,j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	-

Client Sample ID			BH 1 @ 0.5	BH 1 @ 1.0	BH 1 @ 2.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M25-Jn0004059	M25-Jn0004060	M25-Jn0004061
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	50	-	-
p-Terphenyl-d14 (surr.)	1	%	132	-	-
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-
4,4'-DDD	0.05	mg/kg	< 0.05	-	-
4,4'-DDE	0.05	mg/kg	< 0.05	-	-
4,4'-DDT	0.05	mg/kg	< 0.05	-	-
α-HCH	0.05	mg/kg	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-
β-HCH	0.05	mg/kg	< 0.05	-	-
δ-HCH	0.05	mg/kg	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-
γ-HCH (Lindane)	0.05	mg/kg	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-
Toxaphene	0.5	mg/kg	< 0.5	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-
Dibutylchloroendate (surr.)	1	%	130	-	-
Tetrachloro-m-xylene (surr.)	1	%	121	-	-
Polychlorinated Biphenyls					
Aroclor-1016	0.1	mg/kg	< 0.1	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	-
Aroclor-1232	0.1	mg/kg	< 0.1	-	-
Aroclor-1242	0.1	mg/kg	< 0.1	-	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	-
Aroclor-1260	0.1	mg/kg	< 0.1	-	-

Client Sample ID			BH 1 @ 0.5	BH 1 @ 1.0	BH 1 @ 2.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M25-Jn0004059	M25-Jn0004060	M25-Jn0004061
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Polychlorinated Biphenyls					
Total PCB*	0.1	mg/kg	< 0.1	-	-
Dibutylchloredate (surr.)	1	%	130	-	-
Tetrachloro-m-xylene (surr.)	1	%	121	-	-
Phenols (Halogenated)					
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-
2,4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-
2,4,5-Trichlorophenol	1	mg/kg	< 1	-	-
2,4,6-Trichlorophenol	1	mg/kg	< 1	-	-
2,6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-
4-Chloro-3-methylphenol	1	mg/kg	< 1	-	-
Pentachlorophenol	1	mg/kg	< 1	-	-
Tetrachlorophenols - Total	10	mg/kg	< 10	-	-
Total Halogenated Phenol*	1	mg/kg	< 1	-	-
Phenols (non-Halogenated)					
2-Cyclohexyl-4,6-dinitrophenol	20	mg/kg	< 20	-	-
2-Methyl-4,6-dinitrophenol	5	mg/kg	< 5	-	-
2-Nitrophenol	1.0	mg/kg	< 1	-	-
2,4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-
2,4-Dinitrophenol	5	mg/kg	< 5	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-
Total cresols*	0.5	mg/kg	< 0.5	-	-
4-Nitrophenol	5	mg/kg	< 5	-	-
Dinoseb	20	mg/kg	< 20	-	-
Phenol	0.5	mg/kg	< 0.5	-	-
Phenol-d6 (surr.)	1	%	129	-	-
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-
Chloride	5	mg/kg	< 5	100	65
Chromium (hexavalent)	1	mg/kg	< 1	-	-
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	630	3800	3100
Cyanide (total)	5	mg/kg	< 5	-	-
Fluoride	100	mg/kg	< 100	-	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	3.9	1.8	2.1
Resistivity*	0.5	ohm.m	16	2.7	3.2
Sulphate (as SO4)	30	mg/kg	< 30	38	< 30
Heavy Metals					
Arsenic	2	mg/kg	2.7	-	-
Cadmium	0.4	mg/kg	0.5	-	-
Chromium	5	mg/kg	34	-	-
Copper	5	mg/kg	26	-	-
Lead	5	mg/kg	55	-	-
Mercury	0.1	mg/kg	< 0.1	-	-
Molybdenum	5	mg/kg	< 5	-	-
Nickel	5	mg/kg	14	-	-
Selenium	2	mg/kg	< 2	-	-
Silver	2	mg/kg	< 2	-	-
Tin	10	mg/kg	< 10	-	-
Zinc	5	mg/kg	210	-	-

Client Sample ID			BH 1 @ 0.5	BH 1 @ 1.0	BH 1 @ 2.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M25-Jn0004059	M25-Jn0004060	M25-Jn0004061
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Acid Sulfate Soils Field pH Test					
pH-F (Field pH test)*	0.1	pH Units	6.4	7.4	7.4
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.6	6.5	6.9
Reaction Ratings* ^{S05}	0	comment	3.0	4.0	4.0
Sample Properties					
% Moisture	1	%	3.1	4.8	15

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Vic EPA 1828.2 Table 3 (Solids)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jun 04, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 03, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 04, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics	Melbourne	Jun 03, 2025	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jun 04, 2025	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Melbourne	Jun 04, 2025	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Polychlorinated Biphenyls	Melbourne	Jun 04, 2025	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
Phenols (Halogenated)	Melbourne	Jun 04, 2025	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Jun 04, 2025	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Chromium (hexavalent)	Melbourne	Jun 03, 2025	28 Days
- Method: LTM-INO-4100 Hexavalent Chromium by Spectrometric detection			
Cyanide (total)	Melbourne	Jun 03, 2025	14 Days
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Fluoride	Melbourne	Jun 03, 2025	28 Days
- Method: LTM-INO-4150 Determination of Total Fluoride PART A – CIC			
pH (1:5 Aqueous extract at 25 °C as rec.)	Melbourne	Jun 03, 2025	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Metals IWRG 621 : Metals M12	Melbourne	Jun 03, 2025	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Chloride	Melbourne	Jun 03, 2025	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	Melbourne	Jun 03, 2025	7 Days
- Method: LTM-INO-4030 Conductivity			
Sulphate (as SO ₄)	Melbourne	Jun 03, 2025	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Acid Sulfate Soils Field pH Test	Brisbane	Jun 19, 2025	7 Days
- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests			
% Moisture	Melbourne	Jun 03, 2025	14 Days
- Method: LTM-GEN-7080 Moisture			



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Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079	Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554	Auckland 35 O'Rorke Road Penrose Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise Mount Wellington Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road Gate Pa Tauranga 3112 +64 9 525 0568 IANZ# 1402
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Company Name: Civiltest Soil Testing

Address: 10 Latham Street
Mornington
VIC 3931

Project Name: DURACK RD

Project ID: 1250694

Order No.:

Report #: 1227381

Phone: 03 9874 5844

Fax: 03 5975 9589

Received: Jun 3, 2025 10:30 AM

Due: Jun 18, 2025

Priority: 10 Day

Contact Name: Jim Perry

Eurofins Analytical Services Manager : Thomas Mangiameli

Sample Detail						Acid Sulfate Soils Field pH Test	Aggressivity Soil Set	Moisture Set	Vic EPA 1828.2 Table 3 (Solids)
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794 & 2780						X			
External Laboratory									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	BH 1 @ 0.5	Not Provided		Soil	M25-Jn0004059	X	X	X	X
2	BH 1 @ 1.0	Not Provided		Soil	M25-Jn0004060	X	X	X	
3	BH 1 @ 2.0	Not Provided		Soil	M25-Jn0004061	X	X	X	
Test Counts						3	3	3	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1,2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1,3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4,5-Trichlorophenol	mg/kg	< 1			1	Pass	
2,4,6-Trichlorophenol	mg/kg	< 1			1	Pass	
2,6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4,6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2,4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chloride	mg/kg	< 5			5	Pass	
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Conductivity (1:5 aqueous extract at 25 °C as rec.)	uS/cm	< 10			10	Pass	
Cyanide (total)	mg/kg	< 5			5	Pass	
Sulphate (as SO4)	mg/kg	< 30			30	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Silver	mg/kg	< 2			2	Pass	
Tin	mg/kg	< 10			10	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	98			70-130	Pass	
TRH C10-C14	%	80			70-130	Pass	
TRH C6-C10	%	108			70-130	Pass	
TRH >C10-C16	%	79			70-130	Pass	
Naphthalene	%	112			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	117			70-130	Pass	
1.2-Dichlorobenzene	%	109			70-130	Pass	
1.2-Dichloroethane	%	92			70-130	Pass	
Benzene	%	112			70-130	Pass	
Ethylbenzene	%	96			70-130	Pass	
m&p-Xylenes	%	98			70-130	Pass	
Toluene	%	97			70-130	Pass	
Trichloroethene	%	113			70-130	Pass	
Xylenes - Total*	%	98			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	83			70-130	Pass	
Acenaphthylene	%	107			70-130	Pass	
Anthracene	%	119			70-130	Pass	
Benz(a)anthracene	%	95			70-130	Pass	
Benzo(a)pyrene	%	85			70-130	Pass	
Benzo(b&j)fluoranthene	%	74			70-130	Pass	
Benzo(g,h,i)perylene	%	85			70-130	Pass	
Benzo(k)fluoranthene	%	90			70-130	Pass	
Chrysene	%	94			70-130	Pass	
Dibenz(a,h)anthracene	%	71			70-130	Pass	
Fluoranthene	%	72			70-130	Pass	
Fluorene	%	87			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	73			70-130	Pass	
Naphthalene	%	90			70-130	Pass	
Phenanthrene	%	71			70-130	Pass	
Pyrene	%	73			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	87			70-130	Pass	
4,4'-DDD	%	77			70-130	Pass	
4,4'-DDE	%	105			70-130	Pass	
4,4'-DDT	%	77			70-130	Pass	
a-HCH	%	92			70-130	Pass	
Aldrin	%	77			70-130	Pass	
b-HCH	%	92			70-130	Pass	
d-HCH	%	101			70-130	Pass	
Dieldrin	%	80			70-130	Pass	
Endosulfan I	%	83			70-130	Pass	
Endosulfan II	%	101			70-130	Pass	
Endosulfan sulphate	%	84			70-130	Pass	
Endrin	%	83			70-130	Pass	
Endrin aldehyde	%	82			70-130	Pass	
Endrin ketone	%	72			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
g-HCH (Lindane)	%	91			70-130	Pass	
Heptachlor	%	83			70-130	Pass	
Heptachlor epoxide	%	86			70-130	Pass	
Hexachlorobenzene	%	94			70-130	Pass	
Methoxychlor	%	73			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	122			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	92			25-140	Pass	
2,4-Dichlorophenol	%	55			25-140	Pass	
2,4,5-Trichlorophenol	%	54			25-140	Pass	
2,4,6-Trichlorophenol	%	68			25-140	Pass	
2,6-Dichlorophenol	%	64			25-140	Pass	
4-Chloro-3-methylphenol	%	70			25-140	Pass	
Pentachlorophenol	%	46			25-140	Pass	
Tetrachlorophenols - Total	%	61			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	%	37			25-140	Pass	
2-Methyl-4,6-dinitrophenol	%	51			25-140	Pass	
2-Nitrophenol	%	64			25-140	Pass	
2,4-Dimethylphenol	%	93			25-140	Pass	
2-Methylphenol (o-Cresol)	%	87			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	47			25-140	Pass	
4-Nitrophenol	%	62			25-140	Pass	
Dinoseb	%	36			25-140	Pass	
Phenol	%	83			25-140	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	96			70-130	Pass	
Conductivity (1:5 aqueous extract at 25 °C as rec.)	%	93			70-130	Pass	
Cyanide (total)	%	83			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	94			80-120	Pass	
Cadmium	%	92			80-120	Pass	
Chromium	%	91			80-120	Pass	
Copper	%	93			80-120	Pass	
Lead	%	98			80-120	Pass	
Mercury	%	94			80-120	Pass	
Molybdenum	%	94			80-120	Pass	
Nickel	%	93			80-120	Pass	
Selenium	%	91			80-120	Pass	
Silver	%	108			80-120	Pass	
Tin	%	96			80-120	Pass	
Zinc	%	105			80-120	Pass	
LCS - % Recovery							
Chloride	%	72			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M25-Jn0005479	NCP	%	74			70-130	Pass	
TRH C10-C14	M25-Jn0010463	NCP	%	75			70-130	Pass	
TRH C6-C10	M25-Jn0005479	NCP	%	77			70-130	Pass	
TRH >C10-C16	M25-Jn0010463	NCP	%	74			70-130	Pass	
Naphthalene	M25-Jn0005479	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M25-Jn0005479	NCP	%	88			70-130	Pass	
1.2-Dichlorobenzene	M25-Jn0005479	NCP	%	126			70-130	Pass	
1.2-Dichloroethane	M25-Jn0004544	NCP	%	87			70-130	Pass	
Benzene	M25-Jn0005479	NCP	%	83			70-130	Pass	
Ethylbenzene	M25-Jn0005479	NCP	%	76			70-130	Pass	
m&p-Xylenes	M25-Jn0005479	NCP	%	82			70-130	Pass	
o-Xylene	M25-Jn0005479	NCP	%	84			70-130	Pass	
Toluene	M25-Jn0005479	NCP	%	74			70-130	Pass	
Trichloroethene	M25-Jn0005479	NCP	%	79			70-130	Pass	
Xylenes - Total*	M25-Jn0005479	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M25-Jn0004562	NCP	%	96			70-130	Pass	
Acenaphthylene	M25-Jn0004562	NCP	%	117			70-130	Pass	
Anthracene	M25-Jn0004562	NCP	%	84			70-130	Pass	
Benz(a)anthracene	M25-Jn0004562	NCP	%	90			70-130	Pass	
Benzo(a)pyrene	M25-Jn0004562	NCP	%	92			70-130	Pass	
Benzo(b&j)fluoranthene	M25-Jn0004562	NCP	%	75			70-130	Pass	
Benzo(g,h,i)perylene	M25-Jn0004562	NCP	%	80			70-130	Pass	
Benzo(k)fluoranthene	M25-Jn0004562	NCP	%	97			70-130	Pass	
Chrysene	M25-Jn0004562	NCP	%	108			70-130	Pass	
Dibenz(a,h)anthracene	M25-Jn0004562	NCP	%	118			70-130	Pass	
Fluoranthene	M25-Jn0004562	NCP	%	80			70-130	Pass	
Fluorene	M25-Jn0004562	NCP	%	103			70-130	Pass	
Indeno(1,2,3-cd)pyrene	M25-Jn0004562	NCP	%	72			70-130	Pass	
Naphthalene	M25-Jn0004562	NCP	%	101			70-130	Pass	
Phenanthrene	M25-Jn0004562	NCP	%	79			70-130	Pass	
Pyrene	M25-Jn0004562	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M25-Jn0006996	NCP	%	89			70-130	Pass	
4,4'-DDD	M25-Jn0006996	NCP	%	94			70-130	Pass	
4,4'-DDE	M25-Jn0006996	NCP	%	93			70-130	Pass	
4,4'-DDT	M25-Jn0006996	NCP	%	111			70-130	Pass	
a-HCH	M25-Jn0006996	NCP	%	99			70-130	Pass	
Aldrin	M25-Jn0006996	NCP	%	89			70-130	Pass	
b-HCH	M25-Jn0006996	NCP	%	96			70-130	Pass	
d-HCH	M25-Jn0006996	NCP	%	71			70-130	Pass	
Dieldrin	M25-Jn0006996	NCP	%	92			70-130	Pass	
Endosulfan I	M25-Jn0006996	NCP	%	96			70-130	Pass	
Endosulfan II	M25-Jn0006996	NCP	%	99			70-130	Pass	
Endosulfan sulphate	M25-Jn0006996	NCP	%	73			70-130	Pass	
Endrin	M25-Jn0006996	NCP	%	89			70-130	Pass	
Endrin aldehyde	M25-Jn0006996	NCP	%	81			70-130	Pass	
Endrin ketone	M25-Jn0006996	NCP	%	87			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
g-HCH (Lindane)	M25-Jn0006996	NCP	%	74			70-130	Pass	
Heptachlor	M25-Jn0006996	NCP	%	98			70-130	Pass	
Heptachlor epoxide	M25-Jn0006996	NCP	%	94			70-130	Pass	
Hexachlorobenzene	M25-Jn0006996	NCP	%	74			70-130	Pass	
Methoxychlor	M25-Jn0006996	NCP	%	108			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M25-Jn0004562	NCP	%	106			30-130	Pass	
2,4-Dichlorophenol	M25-Jn0004562	NCP	%	98			30-130	Pass	
2,4,5-Trichlorophenol	M25-Jn0004562	NCP	%	71			30-130	Pass	
2,4,6-Trichlorophenol	M25-Jn0004562	NCP	%	70			30-130	Pass	
2,6-Dichlorophenol	M25-Jn0004562	NCP	%	97			30-130	Pass	
4-Chloro-3-methylphenol	M25-Jn0004562	NCP	%	94			30-130	Pass	
Pentachlorophenol	M25-Jn0004562	NCP	%	33			30-130	Pass	
Tetrachlorophenols - Total	M25-Jn0004562	NCP	%	32			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4,6-dinitrophenol	M25-Jn0004646	NCP	%	32			30-130	Pass	
2-Methyl-4,6-dinitrophenol	M25-Jn0004562	NCP	%	42			30-130	Pass	
2-Nitrophenol	M25-Jn0004562	NCP	%	64			30-130	Pass	
2,4-Dimethylphenol	M25-Jn0004562	NCP	%	89			30-130	Pass	
2-Methylphenol (o-Cresol)	M25-Jn0004562	NCP	%	126			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M25-Jn0004562	NCP	%	59			30-130	Pass	
4-Nitrophenol	M25-Jn0004562	NCP	%	34			30-130	Pass	
Dinoseb	M25-Jn0004562	NCP	%	43			30-130	Pass	
Phenol	M25-Jn0004562	NCP	%	115			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M25-My0088467	NCP	%	46			70-130	Fail	Q08
Cyanide (total)	M25-Jn0003078	NCP	%	74			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M25-Jn0007277	NCP	%	97			75-125	Pass	
Cadmium	M25-Jn0007277	NCP	%	123			75-125	Pass	
Chromium	M25-Jn0007277	NCP	%	97			75-125	Pass	
Copper	M25-Jn0007277	NCP	%	98			75-125	Pass	
Lead	M25-Jn0007277	NCP	%	98			75-125	Pass	
Mercury	M25-Jn0007277	NCP	%	116			75-125	Pass	
Molybdenum	M25-Jn0007277	NCP	%	102			75-125	Pass	
Nickel	M25-Jn0007277	NCP	%	100			75-125	Pass	
Selenium	M25-Jn0007277	NCP	%	95			75-125	Pass	
Silver	M25-Jn0004540	NCP	%	96			75-125	Pass	
Tin	M25-Jn0007277	NCP	%	100			75-125	Pass	
Zinc	M25-Jn0007277	NCP	%	102			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M25-Jn0006528	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M25-Jn0006994	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M25-Jn0006994	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M25-Jn0006994	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	M25-Jn0006528	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M25-Jn0006994	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH >C16-C34	M25-Jn0006994	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M25-Jn0006994	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trichlorobenzene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobutadiene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzene	M25-Jn0006528	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Bromobenzene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	M25-Jn0006528	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Iodomethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	M25-Jn0006528	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methylene Chloride	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
o-Xylene	M25-Jn0006528	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Styrene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate								
Volatile Organics				Result 1	Result 2	RPD		
Toluene	M25-Jn0006528	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
trans-1,2-Dichloroethene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
trans-1,3-Dichloropropene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Trichloroethene	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Trichlorofluoromethane	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Vinyl chloride	M25-Jn0006528	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Xylenes - Total*	M25-Jn0006528	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	M25-Jn0006987	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-HCH	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-HCH	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-HCH	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-HCH (Lindane)	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	M25-Jn0006987	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	M25-Jn0006987	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1221	M25-Jn0006987	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1232	M25-Jn0006987	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1242	M25-Jn0006987	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass

Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1248	M25-Jn0006987	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1254	M25-Jn0006987	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1260	M25-Jn0006987	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Total PCB*	M25-Jn0006987	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Phenols (Halogenated)				Result 1	Result 2	RPD		
2-Chlorophenol	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dichlorophenol	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,5-Trichlorophenol	M25-Jn0006987	NCP	mg/kg	< 1	< 1	<1	30%	Pass
2,4,6-Trichlorophenol	M25-Jn0006987	NCP	mg/kg	< 1	< 1	<1	30%	Pass
2,6-Dichlorophenol	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4-Chloro-3-methylphenol	M25-Jn0006987	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Pentachlorophenol	M25-Jn0006987	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Tetrachlorophenols - Total	M25-Jn0006987	NCP	mg/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Phenols (non-Halogenated)				Result 1	Result 2	RPD		
2-Cyclohexyl-4,6-dinitrophenol	M25-Jn0006987	NCP	mg/kg	< 20	< 20	<1	30%	Pass
2-Methyl-4,6-dinitrophenol	M25-Jn0006987	NCP	mg/kg	< 5	< 5	<1	30%	Pass
2-Nitrophenol	M25-Jn0006987	NCP	mg/kg	< 1	< 1	<1	30%	Pass
2,4-Dimethylphenol	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dinitrophenol	M25-Jn0006987	NCP	mg/kg	< 5	< 5	<1	30%	Pass
2-Methylphenol (o-Cresol)	M25-Jn0006987	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	M25-Jn0006987	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
4-Nitrophenol	M25-Jn0006987	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Dinoseb	M25-Jn0006987	NCP	mg/kg	< 20	< 20	<1	30%	Pass
Phenol	M25-Jn0006987	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chromium (hexavalent)	M25-Jn0006996	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Conductivity (1:5 aqueous extract at 25 °C as rec.)	M25-Jn0000317	NCP	uS/cm	39	100	3.2	30%	Pass
Cyanide (total)	M25-Jn0003077	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Resistivity*	M25-Jn0000317	NCP	ohm.m	260	98	3.2	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M25-Jn0006979	NCP	mg/kg	300	300	<1	30%	Pass
Cadmium	M25-Jn0006979	NCP	mg/kg	0.4	0.4	<1	30%	Pass
Chromium	M25-Jn0006979	NCP	mg/kg	240	240	<1	30%	Pass
Copper	M25-Jn0006979	NCP	mg/kg	90	90	<1	30%	Pass
Lead	M25-Jn0006979	NCP	mg/kg	24	24	<1	30%	Pass
Mercury	M25-Jn0006979	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Molybdenum	M25-Jn0006979	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Nickel	M25-Jn0006979	NCP	mg/kg	41	41	<1	30%	Pass
Selenium	M25-Jn0006979	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Silver	M25-Jn0006979	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Tin	M25-Jn0006979	NCP	mg/kg	< 10	< 10	<1	30%	Pass
Zinc	M25-Jn0006979	NCP	mg/kg	350	350	<1	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L25-My0088124	NCP	pH Units	8.6	8.9	pass	20%	Pass
Duplicate								
Sample Properties				Result 1	Result 2	RPD		
% Moisture	M25-Jn0004488	NCP	%	18	21	12	30%	Pass

Duplicate								
				Result 1	Result 2	RPD		
pH (1:5 Aqueous extract at 25 °C as rec.)	M25-Jn0004060	CP	pH Units	1.8	1.7	pass	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chloride	M25-Jn0004061	CP	mg/kg	65	66	2.0	30%	Pass
Sulphate (as SO ₄)	M25-Jn0004061	CP	mg/kg	< 30	< 30	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	N/A
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised by:

Catherine Wilson	Analytical Services Manager
Luke Holt	Senior Analyst-Inorganic
Sheha Prakash	Senior Analyst-Organic
Mary Makarios	Senior Analyst-Sample Properties
Edward Lee	Senior Analyst-Organic
Emily Rosenberg	Senior Analyst-Metal
Carroll Lee	Senior Analyst-Volatile
Jonathon Angell	Senior Analyst-SPOCAS



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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REPORT NO : 1250694-1

CLIENT : Service Stream Maintenance Pty Ltd
Level 3, Zenith Tower B 821 Pacific Hwy
CHATSWOOD NSW 2067

PROJECT : Site Number: 6GLZ-6KNR-5101
Site Name: WYNDHAM
Street Address: 34 Durack Road
Town: WYNDHAM WA

PROPOSAL : It is proposed to construct a 40.0 metre high lattice or monopole tower and a pre-fabricated equipment cabin/shelter at this site.

1. COMMISSION:

Carry out relevant insitu soil tests, log the borehole, and recommend suitable bearing capacities and founding depths for the proposed structure.

All testing and observations carried out are to follow the relevant provisions of AS 1726:2017 (Geotechnical Site Investigations).

2. SITE GEOLOGY:

Geological maps of the area suggest that the site is in an area of Quaternary Estuarine or Tidal Deposits bordering on Paleoproterozoic Sediments, and Early to Middle Cambrian Mafic/Ultramafic Volcanics. The site investigation confirmed this.

3. SITE TOPOGRAPHY:

The site is relatively level. The ground cover comprises of natural grasses and native trees.

4. INVESTIGATION:

Six boreholes were drilled by mechanical auger at the approximate locations shown on the attached plan.

Standard Penetration Testing (SPT) was conducted in boreholes 2 and 3 at a depth of 1.5 metres. Further SPT was not conducted in the boreholes due to the weathered ROCK encountered at shallow depth.

The logs of the boreholes are attached showing the soil descriptions and depths along with any cohesive strengths measured and observed densities of non-cohesive soils.

5. FINDINGS:

The boreholes revealed that the existing soil profile consisted of silty CLAY FILL overlying distinctly weathered SANDSTONE, followed by highly weathered BASALT.

Auger refusal was encountered in all boreholes at a minimum depth of 1.7 metres in borehole 1.

A groundwater table was not intersected in the boreholes during the site investigation.

6. RESISTIVITY IN SOIL BY CONDUCTIVITY MEASUREMENT:

The resistivity of the soil at this site was measured using the Wenner method (or four-pin method) following AS1768 – 2003.

As resistivity measurements are often distorted and invalidated by underground pieces of metal, underground aquifers, building footings, and the like, it is advisable that the resistivity at the site is checked after the tower/pole and service buildings have been built.

Test Number	Spacing (m)	Orientation	pE (Ω m)	ohms Per Cubic Metre
1	0.5	N-S	20.93	69.68
2	1	N-S	22.43	80.09
3	2	N-S	23.25	86.03
4	3	N-S	7.92	9.98
5	4	N-S	9.05	13.03
6	6	N-S	8.29	10.95
7	10	N-S	3.77	2.26
8	0.5	E-W	15.84	39.91
9	1	E-W	19.61	61.17
10	2	E-W	17.85	50.68
11	3	E-W	11.50	21.04
12	4	E-W	11.31	20.36
13	6	E-W	12.82	26.15
14	10	E-W	3.14	1.57

7. SITE CLASSIFICATION:

After considering the area geology, the soil profile encountered in the boreholes, the proposed superstructure, and the climatic zone of the area, this site has been classified as CLASS P with respect to foundation construction (Australian Standard 2870 - 2011 Residential Slabs and Footings), due to the depth of FILL encountered in the boreholes. However, this classification is technically not correct for the proposed type of structure, therefore is given as a guide only.

It is anticipated that the seasonal surface movement at this site will not exceed 20mm.

It must be emphasised that the seasonal surface movement mentioned and recommendations referred to in this report are based solely on the observed soil profile at the time of the investigation for this report without taking into account the effects of any abnormal moisture conditions that may develop after construction as defined in Clause 1.3.3 (A) (B) (C) (D) (E).

8. RECOMMENDATIONS FOR EQUIPMENT CABIN/SHELTER:

8.1 Edge Beams:

Although classified as CLASS P, it is recommended that a CLASS S (Refer AS 2870 - 2011) slab on ground should be used at this site with edge beams founded not less than 200mm below the finished surface level surrounding the structure.

However, the founding depth must be at least 100mm into the distinctly weathered SANDSTONE as described in the engineering logs, which from the site investigation can be assumed to have an allowable bearing pressure of 100kPa at this depth.

As a guide to the founding depths with regard to the above, along with information obtained from the bore, the founding depth at this site will be approximately 600mm in relationship to the existing surface, where this surface is assumed to be the finished surface level surrounding the structure.

After excavations for the footings have been completed, if there is any doubt as to the bearing capacity of the founding soil, then this company should be contacted.

8.2 Slab and or Stiffening Beams:

Any organic and deleterious matter should be removed from under the proposed slab area to a depth of not less than 50mm and replaced with levelling fill (See 8.4 below) under the slab and internal beams. This excavated surface can be assumed to have an allowable bearing pressure of at least 60kPa.

After excavations for the footings have been completed, if there is any doubt as to the bearing capacity of the founding soil, then this company should be contacted.

8.3 Modulus of Subgrade Reaction:

The surface material will provide a subgrade for the slab and based on the field observations and testing, can be assumed to have a modulus of subgrade reaction of 30kPa/mm. This is providing that all the vegetation and any soil containing deleterious matter have been removed and any soft areas have been well compacted.

8.4 Levelling Fill:

Up to 300mm of site derived clayey or 600mm of site-derived sandy or imported sandy levelling fill including existing fill material, if any, may be placed under the slab and internal beams providing that this filling is placed in 150mm thick layers and compacted in a moist condition using a light weight vibratory roller or vibratory plate tamper or similar to form a dense layer. Based on the likely condition of this levelling fill, an allowable bearing pressure of at least 50kPa can be assumed to exist beneath the slab and any internal beams founded in or on this filling.

If more than 300mm of site derived clayey or 600mm of site-derived sandy or imported sandy fill including existing fill material, if any, is required, then the slab must be designed as a suspended slab and supported by a grid of beams founded through any fill material in accordance with the above edge beam recommendations (or see 10.2 below).

Due to the nature and composition of the soil profile found in the site, construction during or after wet weather may be difficult. Therefore, it is recommended that an open cut drain be constructed around the proposed site to a depth of not less than 300mm below the site foundation material, or CLAY, whichever occurs first to intercept any groundwater. There is no need to maintain this drain after construction to ground level has been reached. At this stage the drain should be backfilled, failure to do so may have detrimental effects.

8.5 Foundations Adjacent to Easements:

It is recommended that where any footings are to be constructed next to existing underground services (sewers, etc.), then these footings or edge beams should be founded at a depth below the invert of the service at an angle of 45° for CLAYS and 30° for SANDS, unless special consideration has been given to the founding material.

After excavations for the footings have been completed, if there is any doubt as to the bearing capacity of the founding soil, then this company should be contacted.

9. RECOMMENDED TOWER FOUNDATIONS, ULTIMATE STRENGTH DESIGN:

9.1 Geotechnical Strength Reduction Factor:

A copy of Table 4.3.2(A) in AS2159 - 2009 used in the determination of Individual Risk Rating (IRR) and in turn the Average Risk Rating (ARR), is reproduced below. The relevant IRR values relating to the geotechnical investigation and established parameters have been included. It is recommended that the design engineer for the project should insert relevant IRR values for Design and Installation and determine the Average Risk Rating (ARR) and the corresponding Basic Geotechnical Strength Reduction Factor for use in Ultimate Strength Design.

Risk Factor	Weighting Factor (w _i)	IRR
SITE:		
Geological Complexity of the site	2	2
Extent of Ground Investigation	2	5
Amount & Quality of Geotechnical Data	2	5
DESIGN:		
Experience with similar foundations in similar Geological Conditions	1	2
Method of Assessment of Geotechnical Parameters for Design	2	5
Design Methods adopted	1	
Method of utilising results of in situ test data and installation data	2	
INSTALLATION:		
Level of Construction Control	2	
Level of performance monitoring of the supported structure during and after construction	0.5	

Copies of Table 4.3.2(B) and Table 4.3.2(C) from AS2159 – 2009 are attached to assist the engineer in the determination of ARR and the geotechnical strength reduction factor.

9.2 Foundations:

Foundations of the tower may adopt mass concrete pad footings. The following ultimate bearing pressures can be used at the depths indicated. These must be factored using the above reduction factor, determined from the completed table above.

Material	Depth (m)	Ultimate Bearing Pressure (kPa)
Distinctly weathered ROCK (SANDSTONE) – Medium strength	1.0	1000
Highly weathered ROCK (BASALT) – High strength	1.5	1300
Highly weathered ROCK (BASALT) – High strength	2.0*	1800

*Assumed to be in highly weathered ROCK (BASALT) of high strength.

An alternative foundation system to mass footings is bored piers. The pile foundation should be designed using the geotechnical properties given below and the specific pile properties, geometry and depth of embedment of the chosen pile foundation.

Material	Depth (m)	Ultimate Skin Friction (kPa)	Ultimate End Bearing (kPa)	Ultimate Lateral Resistance (kPa)
Highly weathered ROCK (BASALT) – High strength	3*	200	2500	1800
Highly weathered ROCK (BASALT) – High strength	4*	400	4500	4500
Highly weathered ROCK (BASALT) – High strength	6*	450	5000	5000

*Assumed to be in highly weathered ROCK (BASALT) of high strength.

9.3 Material Parameters:

Material	γ_{bulk} (kN/m ³)	ϕ_u (deg)	ϕ' (deg)	C_u (kPa)	C' (kPa)	E (MPa)	UC (MPa)	ν	k_h (MN/m ³)	K_a	K_p	δ (deg)
Silty CLAY FILL	19.0	16	22	15	3	20	-	0.45	-	0.45	2.20	14
Distinctly weathered ROCK (SANDSTONE) – Medium strength	22.0	-	35	-	-	4,000- 8,000	6-20	0.22	5,000	-	-	23
Highly weathered ROCK (BASALT) – High strength	23.0		38			10,000- 25,000	20	0.20	10,000	-	-	25

Where γ_{bulk} = Unit weight of the soil
 ϕ_u = Undrained angle of shearing resistance
 ϕ' = Effective angle of shearing resistance
 C_u = Undrained cohesion
 C' = Effective cohesion
 E = Elastic (Young's) modulus
 UC = Unconfined compressive strength – only for unfractured rock mass
 ν = Poissons ratio
 k_h = Horizontal subgrade modulus
 K_a = Active earth pressure coefficient
 K_o = At-rest earth pressure coefficient
 K_p = Passive earth pressure coefficient
 δ = Soil/wall friction angle (2/3 of effective angle of shearing resistance)

The potential for liquefaction in the encountered soil profile is negligible.

It is recommended that for shallow foundation construction, a 20-tonne excavator (with a hydraulic rock breaker) or similar equipment should be allowed for. An auger with a rock bit, or a core barrel with a rock bit, would be required for the excavation of bored piers.

If there is any doubt as to the bearing capacity of the founding soil, then this company should be contacted.

10. CONDITIONS OF THE RECOMMENDATIONS:

- 10.1** Since the soil horizons and layers can vary in depth and thickness over the site, the depths and bearing pressures given above are given as a guide only. If the footings are founded at the minimum depth, as stated, and are in the soil as described in the logs of boring for this site, then the requirements of this report have been met.
- 10.2** Where any filling is to be placed (other than under the floor slab, refer to 8.4 above) the footing founding depths recommended in this report will need to be increased accordingly by the depth of that fill unless one of the following occurs:-
- 10.2.1** The base of the footing is founded in the founding soil recommended in sections 8 and 9 above.
- 10.3** The description of the soils found in the borehole closely follows those outlined in AS 1726:2017 (Geotechnical Site Investigations). Colour descriptions can vary with soil moisture content. It should be noted therefore, colour and shade descriptions mentioned in this report are made when the soil is in a moist condition.
- 10.4** After excavations for the footings have been completed, if there is any doubt as to the bearing capacity of the founding soil, then this company should be contacted.
- 10.5** This report has been compiled and recommendations made based on information supplied in the brief to Civiltest Pty Ltd and from the field investigation and observations made including the extent of if any, site filling. Every care has been taken within the terms of the brief to ensure that the field investigation is representative of the site. Therefore, if it is found that for any reason information received by Civiltest Pty Ltd is incorrect or conditions on site vary considerably during construction to those described in this report then the comments and recommendations made in this report may need to be amended.
- 10.6** To ensure acceptable long-term performance of the footing systems recommended in this report, care should be taken that the fundamental building, landscaping, and long-term maintenance procedures are adhered to as set out in the CSIRO Division of Building, Construction, and Engineering: Building Technology File 18-2011, "Foundation Maintenance and Footing Performance: A homeowners guide" which is available on the CSIRO website <http://www.publish.csiro.au/home.htm>. This information sheet forms an integral part of this report.
- 10.7 Abnormal Moisture Conditions:**
The recommendations made in this report are based on current findings and investigations. Civiltest Pty Ltd cannot be held responsible for any financial loss and/or hardship in relation to the construction of the structure and future performance of the footing system if relevant historical information has not been supplied in writing by the client to Civiltest Pty Ltd. (For example, the recent removal of trees or buildings or any other activity that is likely to have created abnormal moisture conditions as defined in AS2870.)
- 10.8** The recommendations given in this report have been based largely on the soil conditions encountered at the time of the field investigation. Under inclement weather or prolonged wet weather conditions, the soil conditions noted and reported herein could vary. It is advisable to undertake construction during and following dry weather conditions (i.e., not during or following inclement weather or prolonged wet weather conditions).
- 10.9** Whilst Civiltest Pty Ltd has accepted the commission for the work reported herein, the ownership of the report and any liabilities associated with it, remain with Civiltest Pty Ltd until all relevant accounts have been paid.

10.10 Any levels referred to in Civiltest Pty Ltd reports should be regarded as general and are not to be interpreted as surveyed confirmed levels. All levels should be checked and confirmed by a licensed surveying organisation or qualified personnel.

10.11 Finally, no responsibility will be taken for this report if it is altered in any way or is not reproduced in full.

This report consists of ten pages including a site plan. Appendices A, B, C and D are attached.



**LIAM COX
SENIOR GEOTECHNICAL ENGINEER
CIVILTEST PTY LTD**

REF: mc/SM/lc/jy/hj

5 June 2025

LOCATION OF TEST SITES: 6GLZ-6KNR-5101 WYNDHAM 34 DURACK ROAD WYNDHAM WA



 Denotes Boreholes

THIS PLAN IS NOT INTENDED TO BE AN
ACCURATE DEPICTION OF THE NUMBER, SIZE
OR LOCATION OF TREES AND/OR SHRUBS

NOT TO SCALE

Appendix A

Engineering Logs

CIVIL

TEST

PTY. LTD.

ENGINEERING LOG-BOREHOLE

REPORT NO. : 1250694-1
BOREHOLE NO. : 1
CLIENT'S REF. NO. : N/A
PAGE : 1/1

PROJECT LOCATION : 34 DURACK ROAD (-15.487657, 128.115909) (6GLZ-6KNR-5101 WYNDHAM WA) WYNDHAM WA 6470
FIELD TECHNICIAN : MC DRILLING PLANT : Trailer Rig SURFACE R.L.(m) : N/A
LOGGED BY : MC COORDINATES : N/A HEIGHT/GRID DATUM : N/A
REVIEWED BY : SM INCLINATION : 90 ° DATE STARTED : 27/05/2025 DATE COMPLETED : 27/05/2025

DRILLING INFORMATION

STRATA DESCRIPTION

DRILLING METHOD	GROUND WATER	SAMPLES/ TESTS RESULTS	R.L. (m)	DEPTH (m)	MATERIAL DESCRIPTION	GRAPHIC LOG	MOISTURE CONDITION	DEGREE OF WEATHERING/ CONSISTENCY/ RELATIVE DENSITY	DCP Test Blows/100mm	FIELD DESCRIPTIONS AND OTHER COMMENTS
HA					FILL , CLAY, silty, with gravel; Brown		D	F		
SFA				0.300	FILL , CLAY, silty, with gravel; Red brown		D	St		
SFA	NE			0.500	SANDSTONE; occasional quartz throughout; Red brown; MS		D	DW		Sedimentary
SFA				1.400	BASALT; Red brown; HS		D	HW		Igneous
				1.700	REFUSAL (27-MAY-2025)					
				2						
				3						
				4						

Method

Log Symbol	Term
HA	Hand Auger
SFA	Screw Flight Auger
SNC	Sonic Drilling
DC	Diamond Coring

Moisture Condition

Log Symbol	Term
D	Dry
M	Moist
W	Wet

Ground Water

Log Symbol	Term
≡	Static Water Level
►	Water Inflow
NE	Not Encountered

Relative Density

Log Symbol	Term
VL	Very Loose
L	Loose
MD	Medium Dense
D	Dense
VD	Very Dense

Consistency

Log Symbol	Term
Vs	Very Soft
S	Soft
F	Firm
St	Stiff
VSt	Very Stiff
H	Hard
Fr	Friable

Defect Description

Log Symbol	Term
J, Js	Joint, Joints
SS	Sheared surface
SZ	Seared zone
Ss	Sheared seam
Cs	Crushed seam
Is	Infilled seam (soil)
Xs	Extremely Weathered seam
BP	Bedding parting
LP	Lamination parting
FP	Foliation parting

Defect spacing

Log Symbol	Term
EC	Extremely Close
VC	Very Close
C	Close
M	Medium
W	Wide
VW	Very Wide

Defect Infill

Log Symbol	Term
Cn	Clean
Std	Stained
Vr	Veneer
Ct	Coating

Degree of Weathering

Log Symbol	Term
RS	Residual Soil
XW	Extremely Weathered
DW	Distinctly Weathered
HW	Highly Weathered
MW	Moderately Weathered
SW	Slightly Weathered
FR	Fresh Rock

Samples & Tests

Log Symbol	Term
D	Disturbed Sample
B	Bulk Sample
U(63)	Undisturbed Sample (63mm tube)
hb	hammer bouncing

Rock Strength

Log Symbol	Term
VLS	Very Low
LS	Low
MS	Medium
HIS	High
VH	Very High
EH	Extremely High

Surface Roughness

Log Symbol	Term
Vro	Very rough
Ro	Rough
Sm	Smooth
Po	Polished
SI	Slickensided

Others

Log Symbol	Term
Cly	Clay
Fe	Iron
Co	Coal
Carb	Carbonaceous
RQD	Rock Quality Designation
TCR	Total Core Recovery

Surface Shape

Log Symbol	Term
Pln	Planar
Cvd	Curved
Und	Undulating
Stp	Stepped
Irr	Irregular

CIVILTESTPTY. LTD.

ENGINEERING LOG-BOREHOLE

REPORT NO. : 1250694-1

BOREHOLE NO. : 2

CLIENT'S REF. NO. : N/A

PAGE : 1/1

SURFACE R.L.(m) : N/A

HEIGHT/GRID DATUM : N/A

DATE COMPLETED : 27/05/2025

PROJECT LOCATION : 34 DURACK ROAD (-15.487657, 128.115909) (6GLZ-6KNR-5101 WYNDHAM WA) WYNDHAM WA 6470

FIELD TECHNICIAN : MC

DRILLING PLANT : Trailer Rig

LOGGED BY : MC

COORDINATES : N/A

REVIEWED BY : SM

INCLINATION : 90 °

DATE STARTED : 27/05/2025

DRILLING INFORMATION

STRATA DESCRIPTION

DRILLING METHOD	GROUND WATER	SAMPLES/ TESTS RESULTS	R.L. (m)	DEPTH (m)	MATERIAL DESCRIPTION	GRAPHIC LOG	MOISTURE CONDITION	DEGREE OF WEATHERING/ CONSISTENCY/ RELATIVE DENSITY	DCP Test Blows/100mm	FIELD DESCRIPTIONS AND OTHER COMMENTS
HA	NE	SPT 1.5m (17/40mm, hb)			FILL , CLAY, silty, with gravel; Brown		D	F		Sedimentary
SFA			0.300	FILL , CLAY, silty, with gravel; Red brown		D	St			
SFA			0.500	SANDSTONE; occasional quartz throughout; Red brown; MS		D	DW			
SFA			1.600	BASALT; Red brown; HS		D	HW			
			2		REFUSAL (27-MAY-2025)					
			3							
			4							

Method

Log Symbol	Term
HA	Hand Auger
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Moisture Condition

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Relative Density

Log Symbol	Term
VL	Very Loose
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MD	Medium Dense
D	Dense
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Consistency

Log Symbol	Term
Vs	Very Soft
S	Soft
F	Firm
St	Stiff
VSt	Very Stiff
H	Hard
Fr	Friable

Defect Description

Log Symbol	Term
J, Js	Joint, Joints
SS	Sheared surface
SZ	Seared zone
Ss	Sheared seam
Cs	Crushed seam
Is	Infilled seam (soil)
Xs	Extremely Weathered seam
BP	Bedding parting
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Defect spacing

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Defect Infill

Log Symbol	Term
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Others

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Carb	Carbonaceous
RQD	Rock Quality Designation
TCR	Total Core Recovery

Surface Shape

Log Symbol	Term
Pln	Planar
Cvd	Curved
Und	Undulating
Stp	Stepped
Irr	Irregular

CIVILTESTPTY. LTD.

ENGINEERING LOG-BOREHOLE

REPORT NO. : 1250694-1

BOREHOLE NO. : 5

CLIENT'S REF. NO. : N/A

PAGE : 1/1

SURFACE R.L.(m) : N/A

HEIGHT/GRID DATUM : N/A

DATE COMPLETED : 27/05/2025

PROJECT LOCATION : 34 DURACK ROAD (-15.487657, 128.115909) (6GLZ-6KNR-5101 WYNDHAM WA) WYNDHAM WA 6470

FIELD TECHNICIAN : MC

DRILLING PLANT : Trailer Rig

LOGGED BY : MC

COORDINATES : N/A

REVIEWED BY : SM

INCLINATION : 90 °

DATE STARTED : 27/05/2025

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STRATA DESCRIPTION

DRILLING METHOD	GROUND WATER	SAMPLES/ TESTS RESULTS	R.L. (m)	DEPTH (m)	MATERIAL DESCRIPTION	GRAPHIC LOG	MOISTURE CONDITION	DEGREE OF WEATHERING/ CONSISTENCY/ RELATIVE DENSITY	DCP Test Blows/100mm	FIELD DESCRIPTIONS AND OTHER COMMENTS
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Po	Polished
SI	Slickensided

Others

Log Symbol	Term
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Fe	Iron
Co	Coal
Carb	Carbonaceous
RQD	Rock Quality Designation
TCR	Total Core Recovery

Surface Shape

Log Symbol	Term
Pln	Planar
Cvd	Curved
Und	Undulating
Stp	Stepped
Irr	Irregular

Appendix B

Soil Resistivity

Soil resistivity is another term for specific resistance of soil and is expressed in ohm metres (symbol $\Omega \cdot m$). The resistivity of the soil depends on its chemical and mechanical composition, moisture content and temperature.

Methodology

The measuring method in accordance to Australian Standard AS/NZS 1768 (Int): 2003 is based on the measuring procedure universally accepted Wenner method developed by Dr. Frank Wenner of the US Bureau of Standards in 1915. (Ref: F. Wenner. A method of measuring Earth Resistivity; Bull National Bureau of Standards, Bull 12 (4) 258, s 478-496; 1915/16.

The Wenner or four-pin method of soil resistivity measurement involves the use of four test pins (test electrodes) equally spaced in a straight line and driven to the same depth d , not exceeding 5 Percent of their separation and not more than 1 metre in any case.

The ground stakes are positioned in a straight line equidistant from one another and a distance between one another reflecting the depth to be measured. The ground stakes are screwed no deeper than $1/3$ the distance from one another. A known fixed current is generated by the resistivity measuring instrument (GEO) between the two outer ground stakes and a drop in potential (which is the result of resistance) is then measured automatically between the two inner ground stakes, then the GEO displays the resistance value in ohms. Because measurement results are often distorted and invalidated by underground pieces of metal, underground aquifers etc, additional measurement is taken in which the stake's axis is turned 90 degrees. By changing the depth and distance several times a profile is produced that can determine a suitable ground resistance system.

The Wenner or four-pin method of soil resistivity measurement formula is as follows:

pE Formula:	$2 \pi a RE$
pE	mean value of resistivity ($\Omega \cdot m$)
RE	measured resistance (Ω)
a	probe distance (m)

Table 1

Refer to Appendix C for Field Resistivity Measurements.

Field Resistivity Results (Example only)

Test Number	Spacing (m) a	Orientation	RE Ω	pE (Ω m)	Ohms per cubic metre
1	20	E-W	0.18	22.62	81.43

Table 2

Mean value of resistance at 20m spacing (E-W) is 22.62 Ω m and 81.43 ohms per cubic metre at 20m spacing.

Ohms per metre calculation

To measure the soil resistivity GEO reading in ohms, spacing (a) is multiplied by pE (Ω m), multiplied by RE Ω value (0.18).

Example:

Refer to test number 1:

Formula: $20 \times 22.62 \times 0.18 = 81.43$ ohms per cubic metre.

The above calculation can be adopted based on the specific requirements at the subject land.

Appendix C

Report No: 1250694-1

Site Name: 6GLZ-6KNR-5101 WYNDHAM WA - BOREHOLE 1

Date: 27/05/2025

Soil Resistivity Test

FIELD READINGS				CALCULATIONS*		
Test Number	Spacing (m)	Orientation	Meter Reads RE Ω	PE (Ωm)	ohms per cubic metre	
1	0.5	N-S	6.66	20.93	69.68	
2	1	N-S	3.57	22.43	80.09	
3	2	N-S	1.85	23.25	86.03	
4	3	N-S	0.42	7.92	9.98	
5	4	N-S	0.36	9.05	13.03	
6	6	N-S	0.22	8.29	10.95	
7	10	N-S	0.06	3.77	2.26	
8	0.5	E-W	5.04	15.84	39.91	
9	1	E-W	3.12	19.61	61.17	
10	2	E-W	1.42	17.85	50.68	
11	3	E-W	0.61	11.50	21.04	
12	4	E-W	0.45	11.31	20.36	
13	6	E-W	0.34	12.82	26.15	
14	10	E-W	0.05	3.14	1.57	

*pE Formula: $2 \pi a RE$

pE mean value of resistivity (Ω m)

RE measured resistance (Ω)

a probe distance (m)

Formula For cubic metre:

pE x a x RE Ω phm per cubic metre

Meter: Sonel MRU-120HD (WA)

Appendix D

Table 4.3.2(B) and Table 4.3.2(C) from AS2159 – 2009

TABLE 4.3.2(B) INDIVIDUAL RISK RATING (IRR)	
Risk level	Individual risk rating (IRR)
Very low	1
Low	2
Moderate	3
High	4
Very high	5

TABLE 4.3.2(C) BASIC GEOTECHNICAL STRENGTH REDUCTION FACTOR (ϕ_{gb}) FOR AVERAGE RISK RATING			
Range of average risk rating (ARR)	Overall risk category	ϕ_{gb} for low redundancy systems	ϕ_{gb} for high redundancy systems
ARR ≤ 1.5	Very low	0.67	0.76
1.5 < ARR ≤ 2.0	Very low to low	0.61	0.70
2.0 < ARR ≤ 2.5	Low	0.56	0.64
2.5 < ARR ≤ 3.0	Low to moderate	0.52	0.60
3.0 < ARR ≤ 3.5	Moderate	0.48	0.56
3.5 < ARR ≤ 4.0	Moderate to high	0.45	0.53
4.0 < ARR ≤ 4.5	High	0.42	0.50
>4.5	Very high	0.40	0.47

Your Ref: Lot 1252, 34 Durack Rd Wyndham
Our Ref: H0004453
Enquiries: Ronald Mukondwa
Telephone (08) 9166 4700

PO Box 916
Kununurra WA 6743
ABN 57 955 011 697

RE-QUOTE

Wednesday, 3 September 2025

Abu Mohiuddin
Servicestream Mobile Communications
L5, 655 Collins St
DOCKLANDS VIC 3008

ATTN: Abu

Abu,

Provide 40A 3Ø Supply and install Unipillar – Lot 1252, 34 Durack Road, Wyndham

Thank you for your request of Monday, 17 March 2025 for a quotation for the above.

Our quotation for this work is \$27,187.61 (non-refundable). This amount includes GST of \$2,471.60

Labour Costs	=	\$ 18,495.00
Equipment Costs	=	\$ 1,287.93
Material Costs	=	\$ 4,285.08
Contractor Related Costs	=	\$ 648.00
Capital Contribution (excl GST)	=	\$ 24,716.01

GST Amount	=	\$ 2,471.60
------------	---	-------------

Capital Contribution (non-refundable)	=	\$ 27,187.61
--	---	---------------------

Less Design Fees paid	=	\$ 0.00
-----------------------	---	---------

Balance Owing	=	\$ 27,187.61
----------------------	---	---------------------

This offer is subject to the attached *Terms and Conditions of Quote* and is valid for a period of **30 days from the date of this correspondence.**

There is no charge for initial quotes. However, Horizon Power reserves the right to charge for any additional time spent re-doing quotes or doing quote variations where the customer requirements change. If you propose to modify the works such that the works will result in the relevant connection having a total maximum load in excess of 30 kVA or CT metering involving an increase in the load capacity at the relevant site, a design fee of \$6,600.00 (including GST) will be payable.

HORIZON POWER'S SCOPE OF WORK

Horizon Power's scope of work (**Works**) which is covered by this quotation is as follows:

- Install new universal pillar
- Install 240mm² cable from pole to new unipillar position
- Terminate 240mm² cable onto pole
- Test and commission installation

All electrical work on the customer's property / premise to allow for the changes requested is the responsibility of the customer's electrical contractor.

CONNECTION

Please note that before final supply connection can be made, the customer's electrical contractor must submit the appropriate notices in accordance with the *WA Electrical Requirements 2023* and/or the *WA Service and Installation requirements Manual*. These documents can be downloaded at the following website:

[Standard](#)

The customer must also complete the appropriate account application form before connection can occur.

PAYMENT INFORMATION

If you wish to proceed with this work, please complete and sign the attached Quotation Acceptance form. The form must be returned to:

Email: Ronald.Mukondwa@horizonpower.com.au

Horizon Power will prepare and forward a Tax Invoice for the above work once the Quotation Acceptance Form has been received at our office. Available payment options are listed at the bottom of the invoice.

Note: that it is important that the Customer Details are completed on the Quotation Acceptance Form, since these will be used to determine who the tax invoice will be issued to.

Please quote Horizon Power's reference number **H0004453** in all correspondence.

ASSISTANCE AND INFORMATION

If you require any assistance with understanding the Formal Quote or the Quotation Acceptance Form, or if you would like copies of the Manuals or Policies referred to in these documents, please contact this office.

Yours sincerely,



Ron Mukondwa
Senior Power Systems Officer

Your Ref: Lot 1252, 34 Durack Rd Wyndham
Our Ref: H0004453
Enquiries: Ronald Mukondwa
Telephone: (08) 9166 4700

QUOTATION ACCEPTANCE FORM

Please complete, sign, and return this form if you accept the quotation provided by Horizon Power for the work specified below.

Project	Lot 1252, 34 Durack Road Wyndham
Horizon Power Reference	H0004453
Quotation Date	Wednesday 3 September 2025
Quotation Amount (incl GST)	\$27,187.61

I hereby accept this quotation and agree to abide by all conditions listed by Horizon Power in the quotation letter and any accompanying correspondence. I also acknowledge that the Tax Invoice will be issued in accordance with the Customer Details completed below.

Signature: _____

Please print name: Abu Mohi_____

Phone No. 0405661018_____

Date: 08/09/2025_____

Your Ref: Lot 1252, 34 Durack Rd Wyndham
Our Ref: H0004453
Enquiries: Ronald Mukondwa
Telephone: (08) 9166 4700

CUSTOMER DETAILS (For Tax Invoice Purposes)**Please ensure all items are completed**Name or Company Name: Servicestream Mobile Communications Pty LtdContact Name: Abu Mohi
(if different)Postal Address: Level 5, 655 Collins Street, Docklands, VIC 3008Address (if different): Same as aboveABN/ACN: _____
(if applicable)Your P/O Number _____
(if applicable)

Phone No.: _____

Mobile No.: 0405661018

Fax No.: _____

Email: Abu.Mohi@servicestream.com.au-----
Horizon Power use only:

ORIGINAL – DESIGNER TO FILE

COPY – A/R USE ONLY

ELLIPSE INVOICE NO:

ASSUMPTIONS OF FORMAL QUOTE

The Formal Quote is based on the following general assumptions:

- a. The accuracy of the information (including the electrical demand requirements and all plans and survey information) provided in your Connection Application and the attached documents as well as any additional information you have provided before the Formal Quote was issued.
- b. All Electricity Infrastructure Works will be undertaken by Horizon Power during Normal Working Hours **7-3pm** on Mondays to Fridays except Public Holidays unless otherwise specifically stated in the Formal Quote.
- c. Horizon Power can reasonably meet the terms on which any required Government approvals and Site access rights are granted with regards to the Electricity Infrastructure Works.
- d. The Customer provides to Horizon Power access to the Site and any related approvals as reasonably required by Horizon Power for its performance of the Electricity Infrastructure Works, as and when Horizon Power requires such access.
- e. There are no latent conditions on or about the Site including the sub-soil and other geographical, geological and environmental conditions likely to affect Horizon Power's performance of the Electricity Infrastructure Works.
- f. Horizon Power does not encounter any physical or artificial obstructions which includes Horizon Power encountering hard rock instead of soft soil whether or not those physical or artificial obstructions were foreseeable.
- g. There are no environmental, native title, Aboriginal heritage or contamination issues affecting the Site.
- h. The Site is readily accessible by a two-wheel drive vehicle.
- i. Site plans without contours marked are level.
- j. The Site will be easily accessible by Horizon Power during Normal Working Hours, Horizon Power has unobstructed access to the Site at all times during the performance of the Electricity Infrastructure Works and the Site conditions are not detrimental to the ability of Horizon Power's employees or contractors to work in an efficient, productive and safe manner.
- k. The parts of the Site which will be accessed in order to install electricity infrastructure as detailed in the Electricity Infrastructure Design and the Electricity Infrastructure Works are clear of vegetation and other infrastructure.
- l. The Customer delivers all of the deliverables required of the Customer in connection with the Electricity Infrastructure Works and this Formal Quote and provides any other information Horizon Power reasonably requests from the Customer within a reasonable timeframe.

The Formal Quote is also based on the following assumptions specific to this Project:

- a. NIL

TERMS AND CONDITIONS OF QUOTE

Acceptance of the Quote is subject to the following terms and conditions.

1. Validity of Quote

The Quote is valid for **30 days** from the date issued.

2. Acceptance of Formal Quote

By signing the Quotation Acceptance Form, you are confirming that you accept the Quote and are entering into a binding contract with Horizon Power subject to these terms and conditions including the terms and conditions in the covering letter (**Contract**). These terms and conditions form part of the Contract unless expressly excluded in writing by Horizon Power. Unless otherwise provided for in the Contract, a purported modification, variation or amendment of this Contract including the scope of works or any waiver of any rights of any party or any approval or consent shall have no effect unless in writing and signed by each party. This does not apply to any Horizon Power initiated modifications to the Works pursuant to clause 9.

3. Credit check

Horizon Power retains the right to inquire as to the credit worthiness of a customer and, in its sole discretion, may decline to perform or further perform the Works whenever Horizon Power does not receive an acceptable credit reference. You acknowledge and agree that you have no claim or right or cause of action against Horizon Power by reason of Horizon Power declining to perform or further perform the Works in the circumstances described in this clause.

4. Licence to access Site

You must grant Horizon Power an unconditional licence to access the Site for the purpose of undertaking the Works from the date the Quotation Acceptance Form is received by Horizon until the date the Works are completed. You must ensure that the Site is safe and you must indemnify Horizon Power against any loss or damage suffered by Horizon Power's officers, employees, contractors and agents (**Horizon Power Personnel**) while on the Site except to the extent such loss or damage was caused or contributed to by the Horizon Power Personnel.

5. Commencement and Completion of Works

Horizon Power will not commence Works until the cost of the Works as set out in the Quote has been received in full by Horizon Power. Any commencement and completion dates set out in the Quote are indicative only and are not guaranteed by Horizon Power.

6. Responsibility for Boundaries

You are responsible for accurately pegging all necessary boundaries to enable accurate placement of cables in the allocated alignment. You acknowledge that if the boundaries are not accurately pegged then Horizon Power may incur additional costs in performing the Works which will be treated as a modification to the Works under this Contract.

7. Adverse conditions

The cost of the Works is based upon normal soil conditions. Adverse conditions, which shall be determined at the sole discretion of Horizon Power, may incur additional charges as assessed by Horizon Power. Unless otherwise specified or agreed by both parties in writing, any additional charges will be payable by you to Horizon Power prior to Works commencing or continuing.

8. Excluded costs

Costs for reinstatement or works associated with other services are not included unless specifically stated.

9. Modification of Works

Horizon Power may, acting reasonably, vary, alter, modify or amend the Works at any time. You may request Horizon Power to modify the Works but Horizon Power may only agree in its sole discretion. Any additional charges incurred by Horizon Power due to any modification to the Works (whether the modification was made by Horizon Power or made at your request) will be payable by you to Horizon Power prior to Works commencing or continuing.

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10. Design fee

If you propose to modify the Works in accordance with clause 9 such that the Works will result in the relevant connections having a total maximum load in excess of 30 kVA or CT metering involving an increase in the load capacity at the relevant site, you must pay Horizon Power a design fee of \$6,600 (including GST).

If the actual costs incurred by Horizon Power in preparing the detailed design and formal quote exceed \$6,600 (including GST), the difference will be incorporated into the formal quote and will be payable by you in accordance with the terms and conditions attached to the formal quote.

The design fee must be paid before Horizon Power will commence the relevant design and revised quote and is in addition to any amounts payable under clause 9. This design fee, once paid, is not refundable.

11. Cancellation fee

If you cancel or modify the Works, an Administration fee as published in Networks Charges Schedule will be deducted from the refund cheque or added to the revised quote and payable in advance of the modification.

12. Force Majeure

Horizon Power is not liable to you for any loss, damage or expense caused by or attributable to Force Majeure. In the event of Force Majeure, Horizon Power may suspend the Works for the period until Horizon Power considers, acting reasonably, that the event of Force Majeure has passed. Horizon Power will not be liable to you in any way in respect of such suspension.

13. Consequential losses excluded

Horizon Power will not be liable for any loss of use, production, profit, revenue, contract or anticipated savings, interruption to any business, or any special, indirect or consequential loss or damage incurred by you in connection with the Works except where such losses or damages are incurred as a result of gross negligence or willful default of Horizon Power.

14. Assignment

Horizon Power may assign, novate, license, charge or otherwise deal with any of its rights and obligations under this Contract without your prior written consent. You must not, without Horizon Power's prior written approval, assign or novate any of your rights and obligations under the Contract.

15. Resolution of disputes

If the parties are not able to resolve a dispute arising out of this Contract, each party agrees that the dispute must be submitted to arbitration in accordance with the Institute of Arbitrators and Mediators of Australia Rules for the Conduct of Commercial Arbitrations.

16. Application of Law

Nothing contained in this Contract shall in any way limit the operation or effect of the *Electricity Corporations Act 2005*, *Energy Operators (Powers) Act 1979*, or any other Law.

17. Notice

Any notice, consent, demand, approval or communication made under this Contract must be in writing, in English and hand delivered, sent by facsimile or pre-paid post, or emailed to the recipient's address.

18. Severability

Part or all of any provision of this Contract that is illegal or unenforceable may be severed from this Contract and the remaining provisions of this Contract continue in force.

19. Survival

The clauses dealing with consequential losses will survive after the Works have been commissioned.

20. Governing Law and jurisdiction

This Contract is governed by the Law applicable in Western Australia. Each party irrevocably and unconditionally submits to the exclusive jurisdiction of the courts of Western Australia.

For the purpose of this Contract, the following definitions apply:

Force Majeure means any cause or event which is not reasonably within the control of the party affected and (without limiting the generality of the foregoing) includes Acts of God; strikes; lockouts; stoppages or restraints of labour or other industrial disturbances; war, acts of public enemies, riot or civil commotion or sabotage; fire,

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explosion, earthquake, landslide, flood, washout, lightning, storm or tempest; breakdown or an accident to plant, machinery, equipment, lines or pipes howsoever caused; failure of suppliers to supply equipment or machinery; and restraints, embargoes or other actions of any government.

Law means any statute, ordinance, code or other law including regulations and other enforceable instruments under it.

Works means Horizon Power's scope of work as described in the Quote.