ITEM NO: 7.1
REPORT NUMBER: 205/23

DEVELOPMENT NO.:	22038963
APPLICANT:	Amplitel Pty Ltd
ADDRESS:	151-151A BRIGHTON RD GLENELG SOUTH SA 5045
NATURE OF DEVELOPMENT:	Replacement telecommunications facility - 25m tall monopole, antennas, equipment cabinets, bollards
ZONING INFORMATION:	**Zones:** • Employment **Overlays:** • Airport Building Heights (Regulated) • Building Near Airfields • Major Urban Transport Routes • Prescribed Wells Area • Regulated and Significant Tree • Traffic Generating Development **Technical Numeric Variations (TNVs):** • Maximum Building Height (Levels) (Maximum building height is 2 levels)
LODGEMENT DATE:	22 Nov 2022
RELEVANT AUTHORITY:	Assessment Panel at City of Holdfast Bay
CATEGORY OF DEVELOPMENT:	Code Assessed - Performance Assessed
NOTIFICATION:	Yes
RECOMMENDING OFFICER:	Michael Gates Development Services (Planning and Building) Lead

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DETAILED DESCRIPTION OF PROPOSAL:

This application is for the construction of a replacement telecommunications pole, to a height of 25 metres, equipment cabinets. The monopole will be located at the southern end of the car park, where the existing infrastructure is for the pole located on the stobie pole. Therefore, the proposal is not a change of use for the site.

BACKGROUND:

The application was assessed by the Council Assessment Panel at the meeting on 24 February and refused for the following reason:

> *The proposal is at variance with Employment Zone PO 1.3 in that the development will have an unreasonable visual impact to the properties located adjacent Established Neighbourhood Zone.*

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SUBJECT LAND & LOCALITY:

Site Description:

Location reference: 151-151A BRIGHTON RD GLENELG SOUTH SA 5045
Title ref.: CT 6134/451 **Plan Parcel:** F12522 AL174 **Council:** CITY OF HOLDFAST BAY

The subject site is located on the western side of Brighton Road, on the southern side of the intersection with Bath Street. The site is a regular shaped allotment, with a slight corner cut off with a building located fronting on Brighton Road, and a car park at the rear. The site already has existing telecommunications infrastructure in the southwestern corner of the carpark, which is associated with the existing telecommunications tower on the Stobie pole out the front of 72 Bath Street. The existing facility attached to the Stobie pole is 17 metres high.

Aerial image of the subject site

Locality

The locality comprises several different Zones including the Employment Zone, the Established Neighbourhood Zone, the Housing Diversity Neighbourhood Zone and the Local Area Centre Zone. As such the pattern of development in the area is quite mixed. There is predominantly housing to the east and west of the site, there is a range of commercial uses along Brighton Road, including a petrol station. There is also a Council reserve 60 metres to the west of the site.

Housing in the area is also a mix detached dwellings and residential flat buildings. There is a small shopping centre 200 metres to the west of the site, and a BMW car dealership directly to the north.

There are three representative buildings directly to the west of site. All three buildings have been significantly modified from their original design and during the recent Local Heritage review, none were considered appropriate to be heritage listed.

Previous Case Law

It is worth noting that Council has twice refused similar applications for telecommunications tower which have been heard by the Environment Resources and Development Court, with both appeals being successful in overturning the refusal of the Council.

In TELSTRA CORP LTD v CITY OF HOLDFAST BAY [2008] SAERDC 47, the application was for a telecommunications facility at 33 Jetty Road Glenelg in a District Centre Zone. The application was refused for its detrimental impact on character and amenity of the locality and detrimental impact on the adjoining Local Heritage Place. The appellant was successful with the appeal and Development Plan Consent was granted by the Courts.

In VODAFONE HUTCHISON AUSTRALIA v CITY OF HOLDFAST BAY [2015] SAERDC 20, the application was for a telecommunications facility at 352 Brighton Road Hove in a Neighbourhood Centre Zone, adjacent a Residential Zone. It was refused for the following reasons:

- Does not create a pleasant environment in which to live for the residents of the adjacent Residential Zone;
- Impairs the amenity of the locality by the appearance of the development;
- Does not incorporate landscaping as a means to screen the development; and
- Does not incorporate innovative design that would otherwise positively contribute to the character of the area.

The appellant was successful with their appeal and Development Plan Consent was granted by the Courts.

All of the relevant case suggests that the merits for the essential need of a telecommunications tower outweighs the negative impacts of the structure, and it would be very difficult to defend the refusal should the appeal proceed to a hearing.

Alternative Sites

The applicant has provided details about potential alternative sites in the area to demonstrate that the subject site is the only suitable site in the area. Five sites were contacted about a possible lease including the BMW site across the road. None of the sites showed much interest or potential due to lack of space and possible sites being located adjacent to residential properties with the same issues as the current site. The applicant has discussed the merits of each site in the attached report from the consultant. The overall outcome from assessing the alternative sites, is that none have suitable space that would provide a better outcome than in this proposal. Therefore, it is considered that applicant has sufficiently investigated alternative sites.

As shown in the aerial image below, all of the sites located in either the Employment Zone or the Local Area Centre Zone abut residential properties, so there is no suitable alternative site. In the case of the BMW site, the potential spot is zoned Residential.

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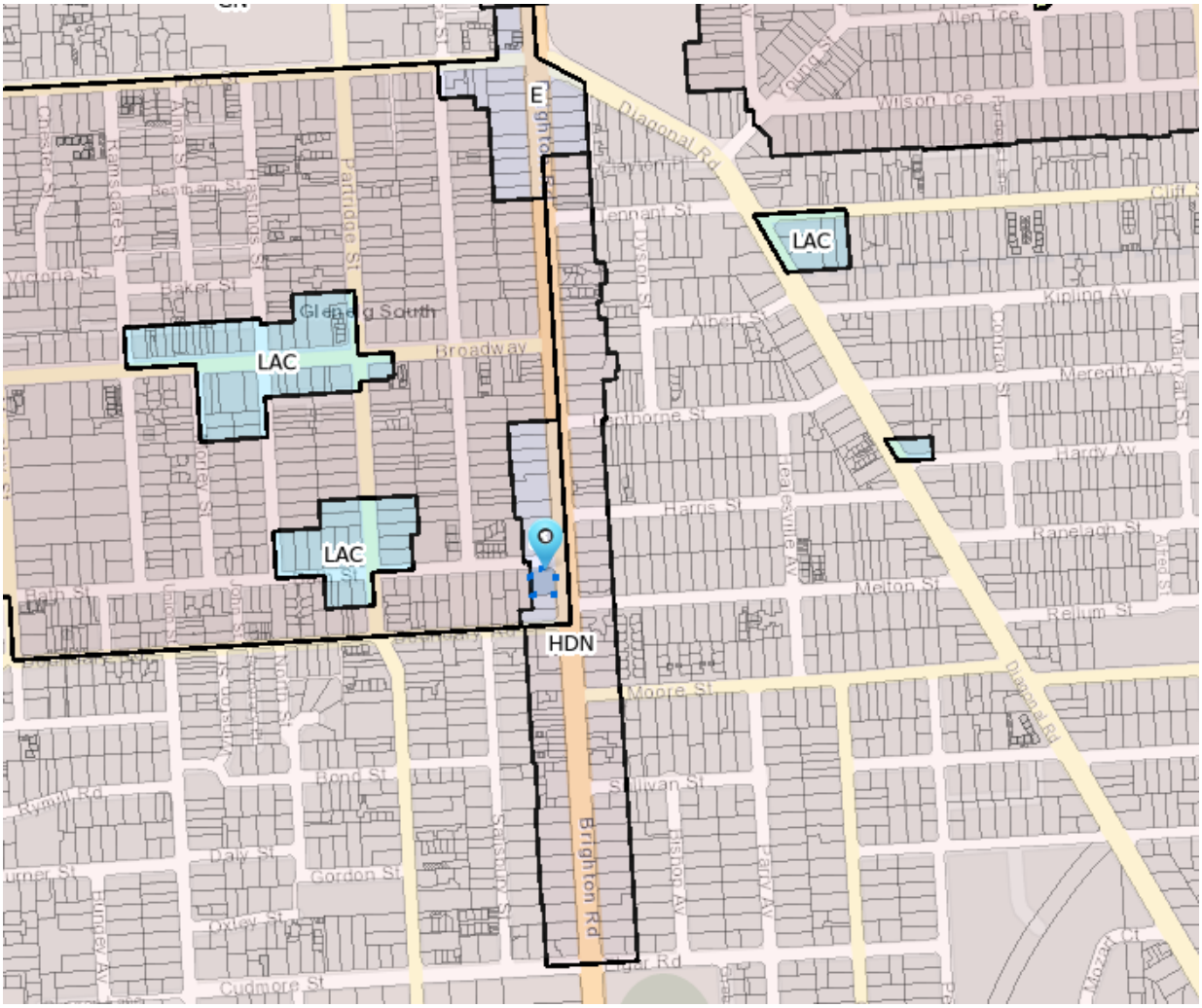


Aerial image showing the Zone boundaries.

Amended Plans

The applicant has provided amended plans in order to seek a compromise. The equipment at the top of the tower has been slimmed down as to minimise the visual impact to neighbouring properties. The changes are considered to be relatively minor, but they does assist with minimising the visual bulk of the infrastructure at the top of the tower. The changes are considered to be sufficient for the Panel to agree to a compromise.

Visual Impacts

Both of the two previously mentioned Court appeals discuss the visual impact to adjacent residential properties. It is noted that the development will have some visual impact on the neighbouring properties, it is an accepted principle that some uses at Zone interfaces while have some negative impacts.

In para 62 of VODAFONE HUTCHISON AUSTRALIA v CITY OF HOLDFAST BAY [2015] SAERDC 20, the Courts state

> 62. *To the extent that it is able, I accept that VHA has sought to minimise the visual impact of the facility upon the amenity of the local area. This is not to say it will not be visible, and in some instances prominently so, from some perspectives including numerous locations within Alice Street and the properties along that street. The residences along Alice Street, whilst located within a Residential Zone, abut the Neighbourhood Centre Zone containing business, commercial and retail activities lining Brighton Road. It is an accepted principle that uses at a zone interface will likely be subject to impacts generated*

> *by activities in an adjoining zone.[32] Indeed, the presence of Brighton Road, by way of road noise and buildings of differing form, bulk and height, is evident from some locations along Alice Street and, in particular, from the rear yards of many of the residences along the western side of the road.*

In this instance, the slim design of the pole will have minimal impact to the majority of the adjacent Established Neighbourhood Zone.

CONCLUSION

There have been numerous appeals in the ERD Court where an application for a telecommunications tower was refused, only to have the decision overturned by the Court. Generally, the need for essential services will overrule the visual impact to a couple of properties. In this instance it is considered that the applicant has sufficiently demonstrated that there are no other reasonable sites located nearby, as all the alternatives shown by the applicant have similar issues with residential properties. There are limited opportunities for developments such as this as the appropriate zones are limited in size and abut residential properties.

Given those reasons, the proposal is considered to sufficiently accord with the relevant principles in the Planning and Design Code as to warrant supporting the compromise.

RECOMMENDATION

It is recommended that the Council Assessment Panel resolve that:

1. That the Environment, Resources and Development Court be advised that the Council Assessment Panel supports the amended plans as a compromise in the Appeal Matter of ERD 23-37 Amplitel Pty Ltd v City of Holdfast Bay Assessment Panel, subject to the following conditions of consent.

    1. The development granted approval shall be undertaken and completed in accordance with the stamped plans and documentation, except where varied by conditions below (if any).

    2. That all mechanical plant and equipment, including air conditioners, should be selected, designed, and installed to comply with the following mandatory criteria:

        (a) Noise level not to exceed 52dB(A) between the hours of 7am and 10pm when measured and adjusted at the nearest residential zone interface in accordance with the Environment Protection (Noise) Policy 2007*, and

        (b) Noise level not to exceed 45dB(A) between the hours of 10pm and 7am when measured and adjusted at the nearest residential zone interface in accordance with the Environment Protection (Noise) Policy 2007*, and

        (c) Where marked with an * the above noise levels must include a penalty for each characteristic where tonal/modulating/impulsive/low frequency characteristics are present in accordance with the Environment Protection (Noise) Policy 2007.

3. The monopole is to be painted in a N53 blue-grey colour.

OFFICER MAKING RECOMMENDATION

Name: Michael Gates
Title: Development Services (Planning and Building) Lead
Date: 7/6/2023

7 June 2023

SAQ Consulting Pty Ltd
ABN 76 864 757 592
P O Box 50
Clayfield QLD 4011

Michael Gates
Development Services Lead
City of Holdfast Bay
P O Box 19
BRIGHTON SA 5048

Dear Michael

RE: Proposed telecommunications facility (replacement)
151-151A Brighton Road, GLENELG SOUTH
ERD-23-000037 - AMPLITEL PTY LTD v ASSESSMENT PANEL - CITY OF HOLDFAST BAY

As you are aware, SAQ Consulting Pty Ltd acts on behalf of Amplitel, part of the Telstra group, in respect of this application.

Further to the lodgement of an appeal with the ERD Court in respect of the Assessment Panel's refusal of the application, Amplitel has undertaken some additional analysis of the potential for alternate locations within the *Employment Zone* and nearby non-residential zones to assist the Panel in better understanding the constraints in respect of potential locations.

Amplitel has also, in good faith, made some amendments to the Telstra equipment proposed for the top of the monopole, by incorporating elements previously attached directly to the monopole below the headframe into the headframe itself. Whilst the change is not a major one, it certainly does assist in having as 'clean' a design as possible. Painting of the monopole and equipment also remains an option should Council consider that an appropriate outcome.

Accordingly, following yesterday's ERD Court conference on the matter, Amplitel puts forward, on a without prejudice basis, the following information as a genuine attempt to resolve the matter.

Alternate Sites
Following Council's refusal of the application, a detailed analysis by Amplitel's property consultant was undertaken in the *Employment Zone* and the *Local Activity Centre* located a short distance to the west. A Google Earth map showing the locations considered is attached for reference.

The analysis revealed there were only two alternate properties in the *Employment Zone.* To the north of Bath Street, all allotments within the zone are controlled by the same entity which runs a BMW/car dealership from this location (indicated by the red pin marked

Candidate A). Redevelopment plans are underway at this location (to continue as a car dealership and service centre) and the owner has advised there is nowhere for the proposed facility to go. However, if there were it would be on the rear (western) boundary, which would place it against a residential backyard.

To the south of the subject land is one commercial allotment within the zone that, on any inspection of that land, is clearly incapable of accommodating the proposed facility and certainly not in any location that would result in an obviously better outcome than the subject proposal. This is not marked on the map and has been dismissed as a potential alternate.

As such, there are no alternate locations within the *Employment Zone*, which is, as noted in the application documents, a zone which specifically lists telecommunications facilities as an envisaged land use within the zone. It is also a reality that in this narrow zone, the most likely location for a facility is on the rear boundary abutting residential uses.

Within the *Local Activity Centre Zone* to the west, several properties were dismissed upon inspection as there was either no access or no space available on those properties for the proposed facility. Those properties are marked with blue pins on the attachment. It is noteworthy that, notwithstanding the access/space issue, none of those properties would have presented an obviously better outcome than the subject land as they all back on to residential properties.

Despite several attempts, no response was received from the Foodland property (marked as *Candidate B* with a yellow pin), however an inspection of that property reveals very little space available on the property generally and assumes all carparking and loading/delivery areas would not be available. It is difficult to see how the proposed facility could be located on this land in a general sense and also in a way which avoids it being very prominent in the streetscape, or impacting on residential properties in a similar way to the subject proposal.

The three green pins shown on the attached are properties where there was some interest from landowners but at location D and E there would be unfavourable lease terms requiring a relocation of the facility within the first 10-year term. Given the cost and difficulty of establishing such facilities, this is an unacceptable condition to Amplitel. Regardless, neither candidates D or E would result in a visual outcome obviously better than the subject proposal and would directly impact on more residential properties than the subject proposal.

Candidate C was the only property where the landowner had a favourable view on a long-term lease with Amplitel. However, given there is parking and underground services at the rear of the existing building the facility would most likely end up in either the north-western or south-western corners of the rear yard, placing it immediately adjacent residential properties. Once again, whilst this location might be potentially workable it is not an obviously better solution and the *Local Activity Centre Zone* is not one where telecommunications facilities are listed as an envisaged land use.

All of this analysis points back to the subject proposal at 151-151A Brighton Road, Glenelg South being at least as suitable as any other site and on my assessment is the most suitable location given the *Employment Zone* is more favourable. It also the only location which would directly impact on only one residential dwelling (with that impact mitigated at least to some extent by the existing tree).

As the network need for the site has been both demonstrated (refer to page 2 of the planning statement dated 17 November 2022), the demand need for the facility is given (refer paragraph 47, DAC v 3GIS [2007] SASC 216), the zone selected is clearly appropriate and there is no obviously better location for the facility (or alternate configuration on the subject land), it is reasonable to conclude that the proposed location at 151-151A Brighton Road is the most suitable and is capable of approval.

Design Changes

In an effort to reduce the overall impact of the proposed structure, some changes have been made to the configuration of equipment at the top of the monopole. The changes proposed incorporate all equipment previously attached to the monopole beneath the headframe into the headframe space, giving a somewhat cleaner profile to the facility.

Amended plans are attached for the Panel's consideration.

Painting of the monopole, headframe and equipment can also be done to further mitigate the visual impact. N53 Blue-Grey has shown over time (including as part of ERD Court orders) to be an appropriate finish but Amplitel has not particular preference and will leave any such colour choice up to the Panel should it choose to do so.

Past Cases

Given the current point in the process, I respectfully suggest it would be worthwhile for the Assessment Panel to review the outcomes in a number of past ERD Court cases, that have similar circumstances including proximity to residential properties and a lack of alternate locations, as this might provide some guidance as to the likely path ahead.

For ease of reference, I would recommend considering:

- Vodafone Hutchison Australia v City of Holdfast Bay
  [2015] SAERDC 20

- Telstra Corp Ltd v City of Onkaparinga & Anor
  [2013] SAERDC 25

A very important Supreme Court case that also assists more generally with the deployment of telecommunications and interpretation of the relevant legislation is *Development Assessment Commission v 3GIS Pty Ltd & Anor* [2007] SASC 216.

I understand the details set out here and the outcome of the recent ERD Court conference will be considered by the Assessment Panel on 28 June 2023. I am available to attend that meeting but will need to do so remotely due to prior commitments. Please advise of the necessary details in due course.

In the meantime, should you have any questions, please do not hesitate to contact me.

Yours sincerely

MARK BAADE
Planning Consultant
B. Plan (Hons)
M: 0417 088 000
mark@saqconsulting.com.au

Attached:
Google Earth map of alternate locations considered
Revised proposal plans


Somerton Park North
Candidate investigations
Legend
Candidate A
Candidate B
Candidate C
Candidate D
Candidate E
No space
No access
No space
No space/access
No space/access
Partridge St
Penzance St
Hastings St
Morley St
Bath St
Boundary Rd
Lapthorne St
Harris St
Melton St
Brighton Rd
Salisbury St
John St
North St
A15
Google Earth
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
N
100 m

TN

HEADFRAME ORIENTATION 60° TN

PROPERTY BOUNDARY

EXISTING MASONARY FENCE

EXISTING CONCRETE KERB

EXISTING ELETRICAL CABLE TO BE REMOVED

PROPOSED U/G FIBRE ROUTE TBC AT DETAILED DESIGN

PRIVATE RESIDENCE

PROPOSED U/G POWER ROUTE TBC AT DETAILED DESIGN

EXISTING SERVICES PIT TO BE REMOVED

PROPOSED 300mm WIDE CABLE GANTRY ACCOMMODATING FEEDERS AND HYBRID CABLES

PROPOSED DURALCO STEP ABOVE CABLE TRAY AND BELOW DOOR SWING

PROPOSED TELSTRA DISTRIBUTION BOARD (ABOVE) AND 1-OFF SPD BOX (BELOW) FOR LTE1800/LTE2100/LTE2600/NR3500 ON PROPOSED H-FRAME

AMENDED

LOT 174 PLAN

EXISTING BITUMAN CAR PARK

EXISTING BUILDING

PROPOSED TELSTRA LEASE AREA APPROX 5.0m x 5.0m (TBC BY SURVEY)

PROPOSED TELSTRA BOLLARDS (TYP.) (Ø165mm CONC. FILLED)

PROPOSED TELSTRA 25m MONOPOLE WITH HEADFRAME

EXISTING TELSTRA EQUIPMENT SHELTER TO BE REMOVED

PROPOSED 1-OFF COMPACT RACK 6123 WITH PROPOSED 3-OFF RADIO4480 B26/B28 (ABOVE) AND 3-OFF IMF KA-6025 FILTERS (BELOW) FOR LTE700/NR850

PROPOSED SCM1004 ODU WITH 2-OFF BB6651 AND ANCILLARY EQUIPMENT

PROPOSED 1-OFF TELSTRA VERTIV SP22 ODU POWER RACK TO BE FIXED TO PLINTH AND NEW CONCRETE SLAB

PROPERTY BOUNDARY

EXISTING BUILDING

PROPOSED 1-OFF TELSTRA GPS ANTENNA A22 AT E.L 2.2m MOUNTED ON TOP OF SCM1004 ODU

5000

5000

6

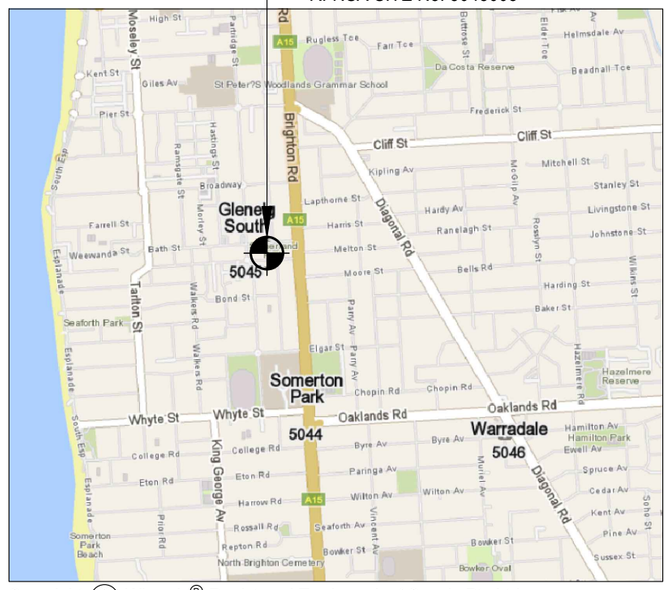
#2 x6

#13

SITE LAYOUT

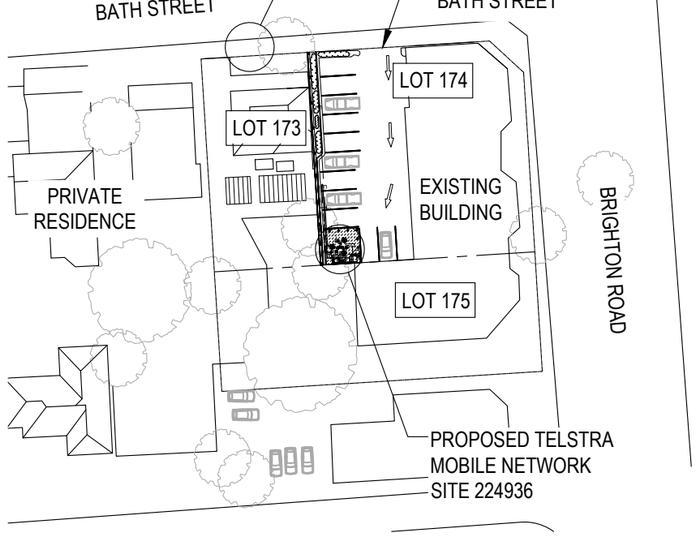
1m 500 0 500 1m 1.5m 2m 2.5m 3m 3.5m SCALE 1:75

RFNSA SITE No. 5045005



LOCALITY PLAN

NOT TO SCALE



SITE ACCESS

NOT TO SCALE

NOTES :

1. ALL FEEDER ACCESS POINTS ON THE STRUCTURE MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615
2. FOR EME SIGNS NOTED #X AS REFER TO 005486 DOCUMENTS FOR DETAILS.
3. #2 EME SIGNS TO BE SECURED TO THE REAR OF EACH ANTENNA.
4. #6 EME SIGN TO BE SECURED 1.5m AGL TO MOPOLE.
5. #13 EME SIGN TO BE SECURED TO TELSTRA ODU DOOR.
6. THIS DRAWING SET IS PERMINARY ONLY AND ISSUE FOR COMMENT. IT IS NOT DETAILED SURVEY/STRUCTURAL DRAWING AND THEREFORE COULD BE SUBJECT TO CHAGE.
7. POWER AND LINK ROUTES ARE INDICATIVE AND WILL BE DETERMINED AT DETAILED DESIGN.
8. ALL FOOTING TYPES AND DETAILS HERE ARE SUBJECT TO CONFIRMATION BY GEOTECHNICAL INVESTIGATION AND STRUCTURAL DESIGN.
9. ALL DIMENSIONS ARE IN MILLEMTRES UNLESS OTHERWISE STATED.

LEGEND

- PROPOSED TELSTRA LEASE AREA.
- E — EXISTING UNDERGROUND POWER ROUTE
- E — PROPOSED UNDERGROUND POWER ROUTE
- T — PROPOSED UNDERGROUND FIBRE ROUTE

TO BE READ IN CONJUNCTION WITH SHEETS S3 & S3-1.

PROPERTY DESCRIPTION

ALLOTMENT 174 ON PLAN 12522,
GLENELG HUNDRED OF NOARLUNGA
CT6129/128

SITE STRUCTURE CO-ORDINATES (GDA94) GPS READING ACCURACY: ±10m CENTRE OF POLE	
LATITUDE	-34.990542° (GDA94)
LONGITUDE	138.520583° (GDA94)

ERICSSON

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
SN01883.01	PB	AR	PRELIMINARY 30088473WO100ERIC L700/NR850/L1800/L2100/L2600/NR3500	LJ	RS	20.12.22	1

UNAPPROVED DRAWING

PRELIMINARY

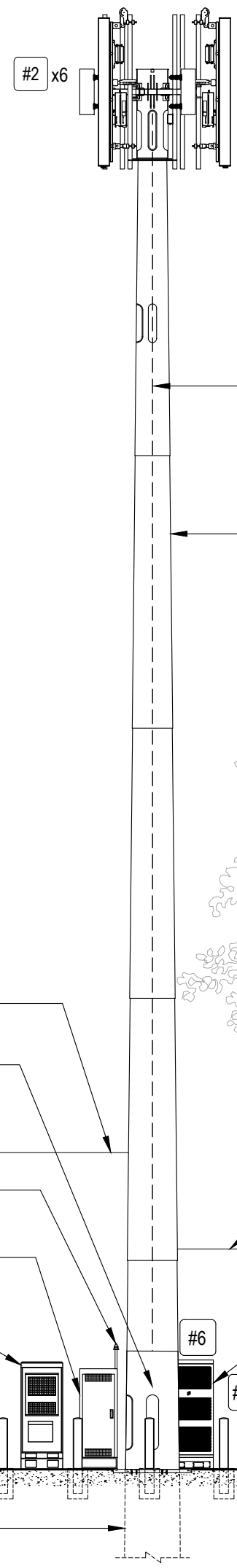
Telstra

MOBILE NETWORK SITE 224936
SOMERTON PARK NORTH
SITE LAYOUT AND ACCESS
72 BATH ST, GLENELG SOUTH, SA 5045

DWG NO. S106386 SHT NO. S1 INDEX

A3

AMENDED



NOTES :

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2. FOR EME SIGNS NOTED AS (#X) REFER TO 005486 DOCUMENTS FOR DETAILS.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
4. (#2) EME SIGNS TO BE SECURED TO ANTENNAS AS PER 055486 DOCUMENT.
5. (#6) EME SIGN TO BE SECURED TO MONOPOLE 1.5m AGL.
4. (#13) EME SIGN TO BE SECURED TO TELSTRA ODU DOOR.
5. THIS DRAWING SET IS A PRELIMINARY DRAWING ONLY AND ISSUE FOR COMMENT. IT IS NOT A DETAILED SURVEY/STRUCTURAL DRAWING AND THEREFORE COULD BE SUBJECT TO CHANGE.
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NORTH ELEVATION

1m 0 1m 2m 3m 4m 5m SCALE 1:100

DO NOT SCALE

DIMENSIONS IN

TO BE READ IN CONJUNCTION WITH SHEET S1 & S3-1

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
SN01883.01	PB	AR	PRELIMINARY 30088473WO100ERIC L700/NR850/L1800/L2100/L2600/NR3500	LJ	RS	20.12.22	1

UNAPPROVED DRAWING

PRELIMINARY

ERICSSON

Telstra

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SOMERTON PARK NORTH
NORTH ELEVATION
72 BATH ST, GLENELG SOUTH, SA 5045

DWG NO. S106386

SHT NO. S3 INDEX

Telstra Networks Wireless Program Delivery Template - 017866P02 issue 12 11 /04/ 2016

A3V

PlanSA

DECISION NOTIFICATION FORM

Section 126(1) of the Planning, Development and Infrastructure Act 2016

TO THE APPLICANT(S):

Name: Amplitel Pty Ltd
Postal address: C/- SAQ Consulting P O Box 50 Clayfield QLD 4011
Email: mark@saqconsulting.com.au

IN REGARD TO:

Development application no.: 22038963	Lodged on: 22 Nov 2022
Nature of proposed development: Replacement telecommunications facility - 25m tall monopole, antennas, equipment cabinets, bollards	

LOCATION OF PROPOSED DEVELOPMENT:

Location reference: 151-151A BRIGHTON RD GLENELG SOUTH SA 5045		
Title ref.: CT 6134/451	**Plan Parcel:** F12522 AL174	**Council:** CITY OF HOLDFAST BAY

DECISION:

Decision type	**Decision** (granted/refused)	**Decision date**	**No. of conditions**	**No. of reserved matters**	**Entity responsible for decision** (relevant authority)
Planning Consent	Refused	24 Feb 2023			Assessment Panel at City of Holdfast Bay
Building Consent					To be Determined
Development Approval - Planning Consent; Building Consent					City of Holdfast Bay

FROM THE RELEVANT AUTHORITY: Assessment Panel - Section 93 at City of Holdfast Bay
Date: 24 Feb 2023

REFUSAL REASONS

Planning Consent

The proposal is at variance with Employment Zone PO 1.3 in that the development will have an unreasonable visual impact to the properties located adjacent Established Neighbourhood Zone.

ADVISORY NOTES

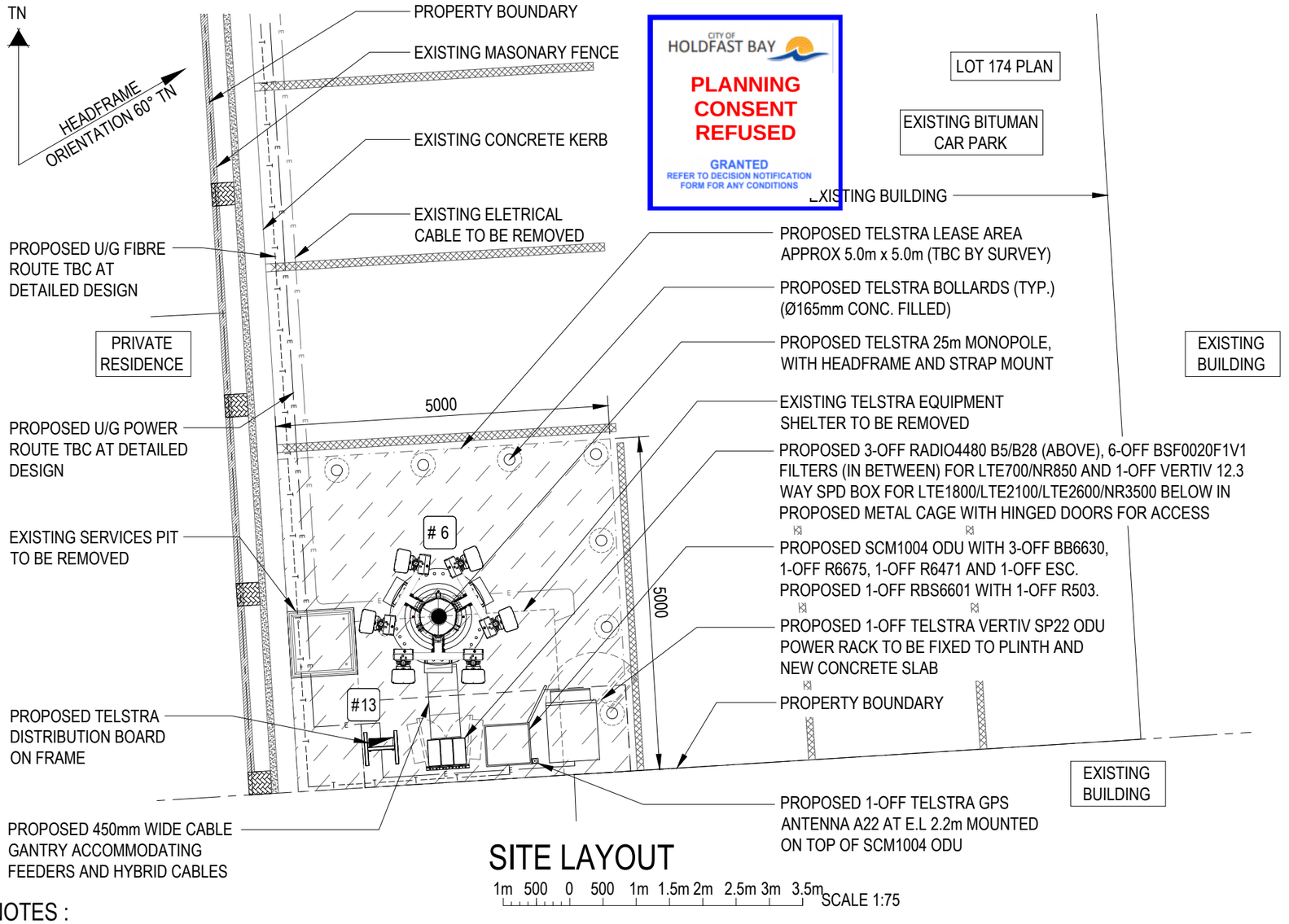
Planning Consent

None

This form constitutes the form of a decision notification under section 126(1) of the Planning, Development and Infrastructure Act 2016, as determined by the Minister for Planning for the Purposes of regulation 57(1) of the Planning, Development and Infrastructure (General) Regulations 2017. Published: 7 July 2022.

CONTACT DETAILS OF CONSENT AUTHORITIES

Name: City of Holdfast Bay	Type of consent: Planning
Telephone: 8229 9999	Email: dalodgement@holdfast.sa.gov.au
Postal address: PO Box 19, BRIGHTON SA 5048	



SITE LAYOUT

1m 500 0 500 1m 1.5m 2m 2.5m 3m 3.5m SCALE 1:75

NOTES :

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2. FOR EME SIGNS NOTED (#X) AS REFER TO 005486 DOCUMENTS FOR DETAILS.
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PROPERTY DESCRIPTION

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LENELG HUNDRED OF NOARLUNGA
CT6129/128

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LONGITUDE	138.520583° (GDA94)

ERICSSON

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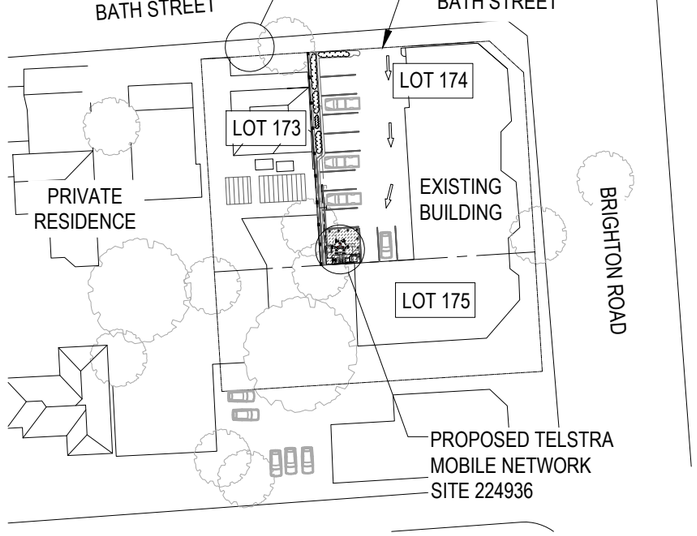
TO BE READ IN CONJUNCTION WITH SHEETS S3 & S3-1.

LOCALITY PLAN

NOT TO SCALE



SITE ACCESS

NOT TO SCALE

PRELIMINARY

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UNAPPROVED DRAWING

Telstra

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SOMERTON PARK NORTH
SITE LAYOUT AND ACCESS
72 BATH ST, GLENELG SOUTH, SA 5045

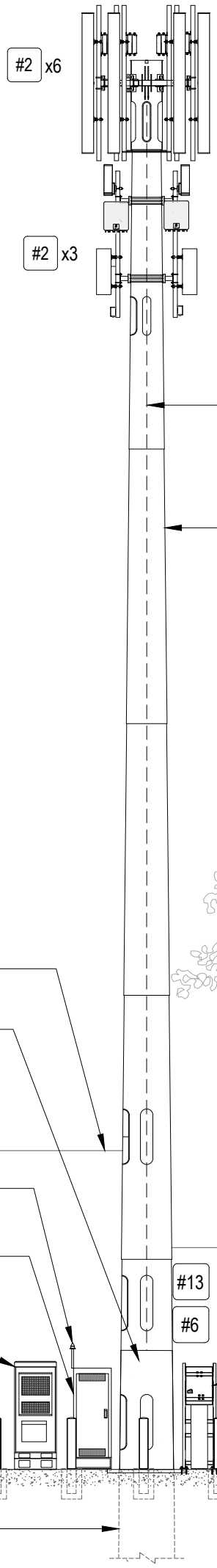
DWG NO. S106386 | SHT NO. S1 INDEX

A3

CITY OF HOLDFAST BAY

PLANNING CONSENT REFUSED

GRANTED
REFER TO DECISION NOTIFICATION FORM FOR ANY CONDITIONS



NOTES :

1. ALL FEEDER ACCESS POINTS ON THE STRUCTURE MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR EME SIGNS NOTED AS (#X) REFER TO 005486 DOCUMENTS FOR DETAILS.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
4. (#2) EME SIGNS TO BE SECURED TO ANTENNAS AS PER 055486 DOCUMENT.
5. (#6) EME SIGN TO BE SECURED TO MONOPOLE 1.5m AGL.
4. (#13) EME SIGN TO BE SECURED TO TELSTRA ODU DOOR.
5. THIS DRAWING SET IS A PRELIMINARY DRAWING ONLY AND ISSUE FOR COMMENT. IT IS NOT A DETAILED SURVEY/STRUCTURAL DRAWING AND THEREFORE COULD BE SUBJECT TO CHANGE.
6. ALL FOOTING TYPES AND DETAILS HERE ARE SUBJECT TO CONFIRMATION BY GEOTECHNICAL INVESTIGATION AND STRUCTURAL DESIGN
7. ALL DIMENSIONS ARE IN MILLEMTRES UNLESS OTHERWISE STATED.

NORTH ELEVATION

1m 0 1m 2m 3m 4m 5m SCALE 1:100

DO NOT SCALE

DIMENSIONS IN

TO BE READ IN CONJUNCTION WITH SHEET S1 & S3-1

PRELIMINARY

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
SN01883.01	PB	AR	PRELIMINARY - 30088473WO100ERIC - L700/NR850/L1800/L2100/L2600/NR3500	LJ	RS	05.04.22	1

UNAPPROVED DRAWING

ERICSSON

Telstra

MOBILE NETWORK SITE 224936
SOMERTON PARK NORTH
NORTH ELEVATION
72 BATH ST, GLENELG SOUTH, SA 5045

DWG NO. S106386

SHT NO. S3 INDEX

A3V

CITY OF HOLDFAST BAY

PLANNING CONSENT REFUSED

GRANTED
REFER TO DECISION NOTIFICATION FORM FOR ANY CONDITIONS

TELSTRA MOBILES ANTENNA CONFIGURATION TABLE

ANTENNA No	ANTENNA TYPE & SIZE H x W x D	ANTENNA STATUS	ANTENNA HEIGHT C/L A.G.L	ANTENNA BEARING (° T)	SECTOR No & SYSTEM
A1	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	70°	S1: LTE700/NR850 S1: LTE700/NR850
					S1: LTE1800/LTE2100 S1: LTE1800/LTE2100
					S1: LTE1800/LTE2100 S1: LTE1800/LTE2100
A2	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	180°	S2: LTE700/NR850 S2: LTE700/NR850
					S2: LTE1800/LTE2100 S2: LTE1800/LTE2100
					S2: LTE1800/LTE2100 S2: LTE1800/LTE2100
A3	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	280°	S3: LTE700/NR850 S3: LTE700/NR850
					S3: LTE1800/LTE2100 S3: LTE1800/LTE2100
					S3: LTE1800/LTE2100 S3: LTE1800/LTE2100
A4	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	70°	S1: LTE700/NR850 S1: LTE700/NR850
					S1: LTE2600 S1: LTE2600
					S1: LTE2600 S1: LTE2600
A5	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	180°	S2: LTE700/NR850 S2: LTE700/NR850
					S2: LTE2600 S2: LTE2600
					S2: LTE2600 S2: LTE2600
A6	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	280°	S3: LTE700/NR850 S3: LTE700/NR850
					S3: LTE2600 S3: LTE2600
					S3:LTE2600 S3: LTE2600
A7	ERICSSON AIR6488 PANEL 827 x 415 x 263mm	INSTALL	21.6m	70°	S1: NR3600 S1: NR3600
A8	ERICSSON AIR6488 PANEL 827 x 415 x 263mm	INSTALL	21.6m	180°	S2: NR3600 S2: NR3600
A9	ERICSSON AIR6488 PANEL 827 x 415 x 263mm	INSTALL	21.6m	280°	S3: NR3600 S3: NR3600
A22	GPS ANTENNA	INSTALL	2.2m	0°	GPS

DO NOT SCALE

DIMENSIONS IN

TO BE READ IN CONJUNCTION WITH SHEETS S1 & S3.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
SN01883.01	PB	AR	PRELIMINARY - 30088473WO100ERIC - L700/NR850/L1800/L2100/L2600/NR3500	LJ	RS	05.04.22	1

UNAPPROVED DRAWING

PRELIMINARY

ERICSSON

Telstra

MOBILE NETWORK SITE 224936
SOMERTON PARK NORTH
ANTENNA CONFIGURATION TABLE
72 BATH ST, GLENELG SOUTH, SA 5045

DWG NO. S106386

SHT NO. S3-1 INDEX

A3V

ITEM NO: 5.1
REPORT NUMBER: 40/23

VDEVELOPMENT NO.:	22038963
APPLICANT:	Amplitel Pty Ltd
ADDRESS:	151-151A BRIGHTON RD GLENELG SOUTH SA 5045
NATURE OF DEVELOPMENT:	Replacement telecommunications facility - 25m tall monopole, antennas, equipment cabinets, bollards
ZONING INFORMATION:	**Zones:** • Employment **Overlays:** • Airport Building Heights (Regulated) • Building Near Airfields • Major Urban Transport Routes • Prescribed Wells Area • Regulated and Significant Tree • Traffic Generating Development **Technical Numeric Variations (TNVs):** • Maximum Building Height (Levels) (Maximum building height is 2 levels)
LODGEMENT DATE:	22 Nov 2022
RELEVANT AUTHORITY:	Assessment Panel at City of Holdfast Bay
PLANNING & DESIGN CODE VERSION:	2022.21
CATEGORY OF DEVELOPMENT:	Code Assessed - Performance Assessed
NOTIFICATION:	Yes
RECOMMENDING OFFICER:	Michael Gates Development Services (Planning and Building) Lead
REFERRALS STATUTORY:	Not required
REFERRALS NON-STATUTORY:	Not required

CONTENTS:

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DETAILED DESCRIPTION OF PROPOSAL:

This application is for the construction of a replacement telecommunications pole, to a height of 25 metres, equipment cabinets. The monopole will be located at the southern end of the car park, where the existing infrastructure is for the pole located on the stobie pole. Therefore the proposal is not a change of use for the site.

BACKGROUND:

There is currently telecommunications infrastructure located on a stobie pole in front of 72 Bath. The facility is currently licensed for 3G infrastructure, and this development is proposed to allow the facility to provide for 4G and 5G technology. The infrastructure on the stobie pole will be removed if this development proceeds.

SUBJECT LAND & LOCALITY:

Site Description:

Location reference: 151-151A BRIGHTON RD GLENELG SOUTH SA 5045
Title ref.: CT 6134/451 **Plan Parcel:** F12522 AL174 **Council:** CITY OF HOLDFAST BAY

The subject site is located on the western side of Brighton Road, on the southern side of the intersection with Bath Street. The site is a regular shaped allotment, with a slight corner cut off with a building located fronting on Brighton Road, and a car park at the rear. The site already has existing telecommunications infrastructure in the south western corner of the carpark, which is associated with the existing telecommunications tower on the Stobie pole out the front of 72 Bath Street. The existing facility attached to the Stobie pole is 17 metres high.

Aerial image of the subject site

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Photo showing the existing monopole in front of 72 Bath Street.

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Photo of the carpark in which the new pole is proposed.

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Photo of the existing telecommunications infrastructure.

Locality

The locality comprises several different Zones including the Employment Zone, the Established Neighbourhood Zone, the Housing Diversity Neighbourhood Zone and the Local Area Centre Zone. As such the pattern of development in the area is quite mixed. There is predominantly housing to the east and west of the site, there is a range of commercial uses along Brighton Road, including a petrol station. There is also a Council reserve 60 metres to the west of the site.

Housing in the area is also a mix detached dwellings and residential flat buildings. There is a small shopping centre 200 metres to the west of the site, and a BMW car dealership directly to the north.

There are three representative buildings directly to the west of site. All three buildings have been significantly modified from their original design and during the recent Local Heritage review, none were considered appropriate to be heritage listed.

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Aerial image of the locality, showing the Zone boundaries

CONSENT TYPE REQUIRED:

Planning Consent

CATEGORY OF DEVELOPMENT:

- **PER ELEMENT:** Telecommunications facility: Code Assessed - Performance Assessed
- **OVERALL APPLICATION CATEGORY:**

  Code Assessed - Performance Assessed

- **REASON**

  P&D Code

PUBLIC NOTIFICATION

- **REASON**

  The subject site is located adjacent a Neighbourhood Zone and therefore is not exempt from notification.

- **LIST OF REPRESENTATIONS**

Given Name	Family Name	Address	Wishes To Be Heard	Represented By
John	Abols	11 SCARBOROUGH STREET,SOMERTON PARK SA 5044	No	
Susan	Bowmer	95 Penzance Street, GLENELG SOUTH SA 5045	No	
Evan	Clarke	Address not provided, Adelaide SA 5000	No	
Charlotte	Clarke	Not provided, Adelaide SA 5000	No	

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Given Name	Family Name	Address	Wishes To Be Heard	Represented By
Alison	Cropley	1/37 Bath Street, Glenelg South SA 5045	Yes	Alison Cropley
Craig	Gear	Not provided, Adelaide SA 5000	No	
Melanie	Gear	93 Penzance Street, GLENELG SOUTH SA 5045	No	
Brent	Loughton	6 SALISBURY STREET, SOMERTON PARK SA 5044	No	
Karen	Lower	2A Harris St, Glenelg East SA 5045	No	
Terri	Macguire	2/89 Penzance Street, GLENELG SOUTH SA 5045	No	
Michael	Maguire	2/89 Penzance Street, GLENELG SOUTH SA 5045	No	
Kaye	Monck	72, Bath, GLENELG SOUTH SA 5045	Yes	David Monck
Martin		Not provided, Adelaide SA 5000	No	
Erica	Niehuus	3/89 PENZANCE STREET, GLENELG SOUTH SA 5045	No	
Melanie	Porter	3 Scarborough Street, Somerton Park SA 5044	No	
Janine	Power	PO Box 2137, GLENELG SA 5045	No	
Taylor	Prlitt	13 SALISBURY STREET, SOMERTON PARK SA 5044	No	
Kerrie	Rayner	16 MELTON STREET, GLENELG EAST SA 5045	No	
Max	Rayner	16 MELTON STREET, GLENELG EAST SA 5045	No	
Mark	Stefanac	15 Scarborough Street, Somerton Park SA 5044	No	
Virginia	Taylor	13 SALISBURY STREET, SOMERTON PARK SA 5044	No	
Hannah	Taylor	Address not provided, Adelaide SA 5000	No	
Jane	Whiting	Not provided, Adelaide SA 5000	No	

- **SUMMARY**
  - Location adjacent a Historic Conservation Area
  - Scale not consistent with a Neighbourhood Zone
  - Height of the tower inappropriate
  - Lower property values
  - Proposal not in accordance with DPF 1.3, in that the tower is within 50 metres of a Neighbourhood Zone.

A large percentage of the representations received relate to concerns about electromagnetic energy (EME). The Planning and Design Code does not have policies relating to EME as the assessment of this application is of the built form, not the outputs of the tower if approved. Also, Council staff do not have the expertise to undertake such an assessment, or the authority to make decisions relating to EME.

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) says what is a safe level of EME for people and this is monitored by the Australian Communications and Media Authority (ACMA), who also grant the licenses for telecommunications towers. Whilst it is noted that the representors have raised those concerns, they are not relevant to this assessment.

The applicant has provided the relevant EME analysis which demonstrates that the proposal is well within the allowable EME range. Therefore, the assessment of this application cannot assess concerns about the EME outputs.

The applicant has provided a response to the representations received including responses to the concerns about EME, Zoning and interpretation of the Code. The applicant has stated:

- That EME do not form part of the assessment and the relevant authorities are not required to assess health related issues;
- The development is a desired form of development for the zone; and
- That DPF are a guideline, not a measure of what is allowable within a zone. The PO 1.3 for the zone merely seeks that visual impact of the monopole is minimise, not to completely screened from vision.

AGENCY REFERRALS

No external referrals required.

INTERNAL REFERRALS

No internal referrals required.

PLANNING ASSESSMENT

The application has been assessed against the relevant provisions of the Planning & Design Code, which are contained in Appendix One.

Land Use

The site at 151 Brighton Road is already used as a telecommunication facility so the proposal does not alter the existing use of the land.

Some of the representation have raised suggestions about alternate sites for the telecommunications tower. The applicant has provided analysis demonstrating that this site is the most suitable in the area given the location of other telecommunications. Furthermore the site already has an existing tower attached to a stobie pole out the street. Further to this, it is not an assessment requirement to look at alternative sites. The applicant has lodged a proposal for this site and the relevant must assess the application as presented to the Panel against the relevant provisions of the Planning and Design Code.

Building Height

The tower is proposed to be 26 metres high, which is less than the 30 metres guide prescribed in DPF 1.3 for the Zone. Therefore, the height is considered acceptable in this instance.

Setbacks, Design & Appearance

The proposed tower is set at the rear of the carpark, as far back from Bath Street as possible. The tower is proposed to be just several metres from the western boundary of the site. The site abuts the Established Neighbourhood Zone to the west, which also has an Historic Area Overlay. The Historic Area Overlay contains the majority of representative buildings within the Holdfast Bay Council area. The representative buildings along the eastern end of Bath Street are considered not to be representative of the heritage character of the Zone and will not be unreasonably impacted by the proposal.

In GARDNER & ANOR v CITY OF BURNSIDE & ANOR [2013] SAERDC 14 (23 April 2013), the Court assessed a proposal to install lights to an existing public tennis facility and the impacts of those to the adjacent residents. An important part of that assessment related to how different uses impacted on residential properties. In para 75, the Court discusses a previous case which is relevant to this application as it looked at the impacts of an Industrial Zone adjacent a Residential Zone.

> *75. In Lanzilli Holdings v City of Campbelltown (1982) 32 SASR 81 at 85 Jacobs J dealt with a comparable situation, in which occupants of dwellings close to an industrial use argued that noise from that use created an*

unacceptably adverse impact on their amenity. In his judgment in that matter, His Honour observed, inter alia, that "the amenity of the locality ... has to be judged by reference to the locality as a whole, and not by reference only to the houses located closest to the Industrial Zone ... the amenity of such a locality is not to be measured by the standards appropriate to a solely residential zone, and the amenity and convenience of those who choose to live on the very boundary of the Light Industrial Zone ought not necessarily to be regarded as the appropriate standard of amenity and convenience for the locality as a whole".

In that case, as in the Gardner v City of Burnside, it was acknowledged that it is reasonable for non-residential uses in another Zone to have some impacts where they abut a residential Zone. Therefore, with this application it is reasonable to expect a lower amenity for properties adjacent an Employment Zone, compared to other properties within the Established Neighbourhood Zone, which do not abut a different Zone.

DPF 1.3 for the Neighbourhood Zone seeks that telecommunication towers are no closer than 50m to a Neighbourhood type Zone. Whilst it is located closer than 50 metres, it is considered acceptable in this instance given that it is replacing an existing facility. This guideline as described in the PO is to minimise the visual impact of the structure, which given existing trees and buildings next to the pole, will screen the structure.

It was suggested to the applicant to locate the pole to the eastern side of the car park, but this was not amended due to the impact this would have on the layout of car park.

The applicant has indicated that they would not object to condition of approval being included that requires the structure to be painted a certain colour. It is common for proposed telecommunication towers such as this to be conditioned so that it is painted in a N53 blue grey, to assist the structure to blend in with the sky as much as possible. To minimise the impacts to neighbouring properties, a condition has been included in the recommendation that the structure be painted in N53 blue grey.

Traffic Impact, Access and Parking

The proposal does not have any impact on the existing access to the car park. The proposal will retain 12 parking spaces for use with the associated building. The Planning and Design Code also makes mention of landscaping around facilities. Due to the layout of the car park landscaping is not considered appropriate in this instance.

Signage

The proposal does not include any include.

CONCLUSION

On balance the proposal is considered to reasonably accord with the relevant principles in the Planning. It is acknowledged that a large amount of representations were raised in regards the impacts relating to EME. Whilst there may be a community angst, the applicant has provided documentation that demonstrates that the proposal is well within the guidelines set out by the Australian Radiation Protection and Nuclear Safety Agency.

The tower is significantly higher than any other structure in the area, but mobile phone towers are an essential infrastructure in order for the community to operate. The subject site is located within the Employment Zone which envisages a range of developments such as this proposal. The properties adjacent to the Employment cannot reasonably expect the same level of amenity as the whole of the residential as there needs to be a transition between the Zones.

For those reasons the proposal is considered to reasonably accord with the relevant provisions within the Planning and Design Code and will not unreasonably impact on the amenity of the locality and warrants Planning Consent being granted.

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RECOMMENDATION

That Planning Consent be granted subject to relevant conditions.

It is recommended that the Council Assessment Panel resolve that:

1. Pursuant to Section 107(2)(c) of the Planning, Development and Infrastructure Act 2016, and having undertaken an assessment of the application against the Planning and Design Code, the application is NOT seriously at variance with the provisions of the Planning and Design Code; and

2. Development Application Number 22038963, by Amplitel Pty Ltd is Granted Planning Consent subject to the following conditions:

CONDITIONS

Planning Consent

1. The development granted approval shall be undertaken and completed in accordance with the stamped plans and documentation, except where varied by conditions below (if any).

2. That all mechanical plant and equipment, including air conditioners, should be selected, designed, and installed to comply with the following mandatory criteria:

   (a) Noise level not to exceed 52dB(A) between the hours of 7am and 10pm when measured and adjusted at the nearest residential zone interface in accordance with the Environment Protection (Noise) Policy 2007*, and

   (b) Noise level not to exceed 45dB(A) between the hours of 10pm and 7am when measured and adjusted at the nearest residential zone interface in accordance with the Environment Protection (Noise) Policy 2007*, and

   (c) Where marked with an * the above noise levels must include a penalty for each characteristic where tonal/modulating/impulsive/low frequency characteristics are present in accordance with the Environment Protection (Noise) Policy 2007.

3. The monopole is to be painted in a N53 blue-grey colour.

ADVISORY NOTES

General Notes

1. No work can commence on this development unless a Development Approval has been obtained. If one or more consents have been granted on this Decision Notification Form, you must not start any site works or building work or change of use of the land until you have received notification that Development Approval has been granted.

2. Appeal rights – General rights of review and appeal exist in relation to any assessment, request, direction or act of a relevant authority in relation to the determination of this application, including conditions.

3. This consent or approval will lapse at the expiration of 2 years from its operative date, subject to the below or subject to an extension having been granted by the relevant authority.

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4. Where an approved development has been substantially commenced within 2 years from the operative date of approval, the approval will then lapse 3 years from the operative date of the approval (unless the development has been substantially or fully completed within those 3 years, in which case the approval will not lapse).

Planning Consent

General Notes

1. No work can commence on this development unless a Development Approval has been obtained. If one or more consents have been granted on this Decision Notification Form, you must not start any site works or building work or change of use of the land until you have received notification that Development Approval has been granted.

2. Appeal rights – General rights of review and appeal exist in relation to any assessment, request, direction or act of a relevant authority in relation to the determination of this application, including conditions.

OFFICER MAKING RECOMMENDATION

Name: Michael Gates
Title: Development Services (Planning and Building) Lead
Date: 1 February 2023

Address: **151-151A BRIGHTON RD GLENELG SOUTH SA 5045**

Click to view a detailed interactive SAILIS in SAILIS

To view a detailed interactive property map in SAPPA click on the map below

Property Zoning Details

Local Variation (TNV)
Maximum Building Height (Levels) *(Maximum building height is 2 levels)*
Overlay
Airport Building Heights (Regulated) *(All structures over 15 metres)*
Building Near Airfields
Major Urban Transport Routes
Prescribed Wells Area
Regulated and Significant Tree
Traffic Generating Development
Zone
Employment

Selected Development(s)

Telecommunications facility

This development may be subject to multiple assessment pathways. Please review the document below to determine which pathway may be applicable based on the proposed development compliances to standards.
If no assessment pathway is shown this mean the proposed development will default to performance assessed. Please contact your local council in this instance. Refer to Part 1 - Rules of Interpretation - Determination of Classes of Development

Property Policy Information for above selection

Telecommunications facility - Code Assessed - Performance Assessed

Part 2 - Zones and Sub Zones

Employment Zone

Assessment Provisions (AP)

Desired Outcome	
DO 1	A diverse range of low-impact light industrial, commercial and business activities that complement the role of other zones accommodating significant industrial, shopping and business activities.
DO 2	Distinctive building, landscape and streetscape design to achieve high visual and environmental amenity particularly along arterial

	roads, zone boundaries and public open spaces.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land Use and Intensity	
PO 1.1 A range of employment-generating light industrial, service trade, motor repair and other compatible businesses servicing the local community that do not produce emissions that would detrimentally affect local amenity.	DTS/DPF 1.1 Development comprises one or more of the following: (a) Advertisement (b) Consulting room (c) Indoor recreation facility (d) Light industry (e) Motor repair station (f) Office (g) Place of worship (h) Research facility (i) Retail fuel outlet (j) Service trade premises (k) Shop (l) Store (m) Telecommunications facility (n) Training facility (o) Warehouse.
PO 1.3 Telecommunication facilities located to mitigate impacts on visual amenity in residential areas.	DTS/DPF 1.3 Telecommunications facility in the form of a monopole: (a) up to a height of 30m (b) no closer than 50m to a neighbourhood-type zone.

Table 5 - Procedural Matters (PM) - Notification

The following table identifies, pursuant to section 107(6) of the *Planning, Development and Infrastructure Act 2016*, classes of performance assessed development that are excluded from notification. The table also identifies any exemptions to the placement of notices when notification is required.

Interpretation

Notification tables exclude the classes of development listed in Column A from notification provided that they do not fall within a corresponding exclusion prescribed in Column B.

Where a development or an element of a development falls within more than one class of development listed in Column A, it will be excluded from notification if it is excluded (in its entirety) under any of those classes of development. It need not be excluded under all applicable classes of development.

Where a development involves multiple performance assessed elements, all performance assessed elements will require notification (regardless of whether one or more elements are excluded in the applicable notification table) unless every performance assessed element of the application is excluded in the applicable notification table, in which case the application will not require notification.

Class of Development (Column A)	Exceptions (Column B)
1. Development which, in the opinion of the relevant authority, is of a minor nature only and will not unreasonably impact on the owners or occupiers of land in the locality of the site of the development.	None specified.
2. Any development involving any of the following (or of any combination of any of the following): (a) advertisement	Except development that exceeds the maximum building height specified in Employment Zone DTS/DPF 3.5 or does not satisfy any of the following:

(b) air handling unit, air conditioning system or exhaust fan (c) building on railway land (d) carport (e) fence (f) outbuilding (g) retaining wall (h) shade sail (i) solar photovoltaic panels (roof mounted) (j) temporary public service depot (k) verandah (l) water tank.	1. Employment Zone DTS/DPF 3.6 2. Employment Zone DTS/DPF 3.7.
3. Any development involving any of the following (or of any combination of any of the following): (a) consulting room (b) light industry (c) office (d) motor repair station (e) retail fuel outlet (f) store (g) warehouse.	Except where the site of the development is adjacent land to a site (or land) used for residential purposes in a neighbourhood-type zone.
4. Any development involving any of the following (or of any combination of any of the following): (a) internal building works (b) land division (c) replacement building (d) temporary accommodation in an area affected by bushfire (e) tree damaging activity.	None specified.
5. Demolition.	Except any of the following: 1. the demolition of a State or Local Heritage Place 2. the demolition of a building (except an ancillary building) in a Historic Area Overlay.
6. Shop within any of the following: (a) Retail Activity Centre Subzone (b) Roadside Service Centre Subzone.	Except shop that exceeds the maximum building height specified in Employment Zone DTS/DPF 3.5 or does not satisfy any of the following: 1. Employment Zone DTS/DPF 3.6 2. Employment Zone DTS/DPF 3.7.
7. Shop.	Except: 1. where the site of the shop is adjacent land to a site (or land) used for residential purposes in a neighbourhood-type zone or 2. shop that exceeds the maximum building height specified in Employment Zone DTS/DPF 3.5 or 3. shop that does not satisfy Employment Zone DTS/DPF 1.2.
8. Telecommunications facility.	Except telecommunications facility that does not satisfy Employment Zone DTS/DPF 1.3.

Placement of Notices - Exemptions for Performance Assessed Development

None specified.

Placement of Notices - Exemptions for Restricted Development
None specified.

Part 3 - Overlays

Airport Building Heights (Regulated) Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Management of potential impacts of buildings and generated emissions to maintain operational and safety requirements of registered and certified commercial and military airfields, airports, airstrips and helicopter landing sites.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Built Form	
PO 1.1 Building height does not pose a hazard to the operation of a certified or registered aerodrome.	DTS/DPF 1.1 Buildings are located outside the area identified as 'All structures' (no height limit is prescribed) and do not exceed the height specified in the Airport Building Heights (Regulated) Overlay which applies to the subject site as shown on the SA Property and Planning Atlas. In instances where more than one value applies to the site, the lowest value relevant to the site of the proposed development is applicable.

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
Any of the following classes of development: (a) building located in an area identified as 'All structures' (no height limit is prescribed) or will exceed the height specified in the *Airport Building Heights (Regulated) Overlay* (b) building comprising exhaust stacks that generates plumes, or may cause plumes to be generated, above a height specified in the *Airport Building Heights (Regulated) Overlay*.	The airport-operator company for the relevant airport within the meaning of the *Airports Act 1996* of the Commonwealth or, if there is no airport-operator company, the Secretary of the Minister responsible for the administration of the *Airports Act 1996* of the Commonwealth.	To provide expert assessment and direction to the relevant authority on potential impacts on the safety and operation of aviation activities.	Development of a class to which Schedule 9 clause 3 item 1 of the Planning, Development and Infrastructure (General) Regulations 2017 applies.

Building Near Airfields Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Maintain the operational and safety requirements of certified commercial and military airfields, airports, airstrips and helicopter landing sites through management of non-residential lighting, turbulence and activities that may attract or result in the congregation of wildlife.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
PO 1.1 Outdoor lighting associated with a non-residential use does not pose a hazard to commercial or military aircraft operations.	DTS/DPF 1.1 Development: (a) primarily or wholly for residential purposes (b) for non-residential purposes that does not incorporate outdoor floodlighting.
PO 1.2 Development likely to attract or result in the congregation of wildlife is adequately separated from airfields to minimise the potential for aircraft wildlife strike.	DTS/DPF 1.2 All development except where it comprises one or more of the following located not less than 3km from the boundaries of an airport used by commercial or military aircraft: (a) food packing/processing plant (b) horticulture (c) intensive animal husbandry (d) showground (e) waste management facility (f) waste transfer station (g) wetland (h) wildlife sanctuary.

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
None	None	None	None

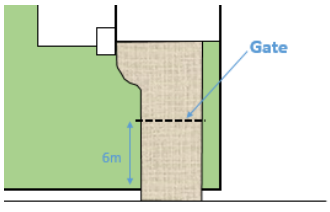
Major Urban Transport Routes Overlay

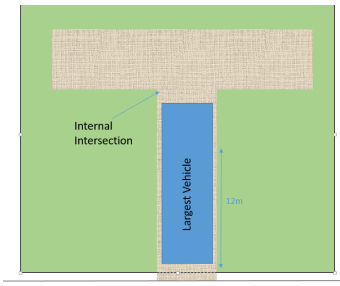
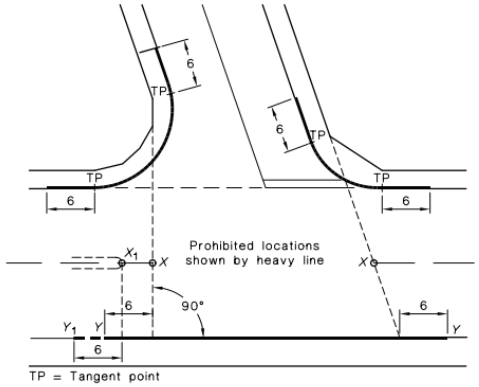
Assessment Provisions (AP)

Desired Outcome	
DO 1	Safe and efficient operation of Major Urban Transport Routes for all road users.
DO 2	Provision of safe and efficient access to and from Major Urban Transport Routes.

Performance Outcomes (PO) and Deemed to Satisfy (DTS) / Designated Performance Feature (DPF) Criteria

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Access - Safe Entry and Exit (Traffic Flow)	
PO 1.1 Access is designed to	DTS/DPF 1.1 An access point satisfies (a), (b) or (c):

allow safe entry and exit to and from a site to meet the needs of development and minimise traffic flow interference associated with access movements along adjacent State Maintained Roads.	(a) where servicing a single (1) residential dwelling / residential allotment: (i) it will not result in more than one access point (ii) vehicles can enter and exit the site in a forward direction (iii) vehicles can cross the property boundary at an angle between 70 degrees and 90 degrees (iv) passenger vehicles (with a length up to 5.2m) can enter and exit the site wholly within the kerbside lane of the road (v) have a width of between 3m and 4m (measured at the site boundary). (b) where the development will result in 2 and up to 6 dwellings: (i) it will not result in more than one access point servicing the development site (ii) entry and exit movements are left turn only (iii) vehicles can enter and exit the site in a forward direction (iv) vehicles can cross the property boundary at an angle between 70 degrees and 90 degrees; (v) passenger vehicles (with a length up to 5.2m) can enter and exit the site wholly within the kerbside lane of the road (vi) have a width of between 5.8m to 6m (measured at the site boundary) and an access depth of 6m (measured from the site boundary into the site). (c) where the development will result in over 7 dwellings, or is a non-residential land use: (i) it will not result in more than one access point servicing the development site (ii) vehicles can enter and exit the site using left turn only movements (iii) vehicles can enter and exit the site in a forward direction (iv) vehicles can cross the property boundary at an angle between 70 degrees and 90 degrees (v) have a width of between 6m and 7m (measured at the site boundary), where the development is expected to accommodate vehicles with a length of 6.4m or less (vi) have a width of between 6m and 9m (measured at the site boundary), where the development is expected to accommodate vehicles with a length from 6.4m to 8.8m (vii) have a width of between 9m and 12m (measured at the site boundary), where the development is expected to accommodate vehicles with a length from 8.8m to 12.5m (viii) provides for simultaneous two-way vehicle movements at the access; A. with entry and exit movements for vehicles with a length up to 5.2m vehicles being fully within the kerbside lane of the road and B. with entry movements of 8.8m vehicles (where relevant) being fully within the kerbside lane of the road and the exit movements of 8.8m vehicles do not cross the centreline of the road.
Access - On-Site Queuing	
PO 2.1 Sufficient accessible on-site queuing adjacent to access points is provided to meet the needs of development so that all vehicle queues can be contained fully within the boundaries of the development site, to minimise interruption of the functional performance of the road and maintain safe vehicle movements.	DTS/DPF 2.1 An access point in accordance with one of the following: (a) will not service, or is not intended to service, more than 6 dwellings and there are no internal driveways, intersections, car parking spaces or gates within 6.0m of the access point (measured from the site boundary into the site) as shown in the following diagram:  (b) will service, or is intended to service, development that will generate less than 60 vehicle movements per day and: (i) is expected to be serviced by vehicles with a length no greater than 6.4m (ii) there are no internal driveways, intersections, parking spaces or gates within 6.0m of the access point (measured from the site boundary into the site).

	(c) will service, or is intended to service, development that will generate less than 60 vehicle movements per day and: (i) is expected to be serviced by vehicles with a length greater than a 6.4m small rigid vehicle (ii) there are no internal driveways, intersections, parking spaces or gates within 6.0m of the access point (measured from the site boundary into the site) (iii) any termination of, or change in priority of movement within the main car park aisle is located far enough into the site so that the largest vehicle expected on-site can store fully within the site before being required to stop (iv) all parking or manoeuvring areas for commercial vehicles are located a minimum of 12m or the length of the largest vehicle expected on site from the access (measured from the site boundary into the site) as shown in the following diagram: 
Access – Location (Spacing) - Existing Access Points	
PO 3.1 Existing access points designed to accommodate the type and volume of traffic likely to be generated by the development.	DTS/DPF 3.1 An existing access point satisfies (a), (b) or (c): (a) it will not service, or is not intended to service, more than 6 dwellings (b) it is not located on a Controlled Access Road and will not service development that will result in a larger class of vehicle expected to access the site using the existing access (c) it is not located on a Controlled Access Road and development constitutes: (i) change of use between an office less than 500m² gross leasable floor area and a consulting room less than 500m² gross leasable floor area or vice versa (ii) change in use from a shop to an office, consulting room or personal or domestic services establishment (iii) change of use from a consulting room or office less than 250m² gross leasable floor area to shop less than 250m² gross leasable floor area (iv) change of use from a shop less than 500m² gross leasable floor area to a warehouse less than 500m² gross leasable floor area (v) an office or consulting room with a gross leasable floor area less than 500m².
Access – Location (Spacing) – New Access Points	
PO 4.1 New access points are spaced apart from any existing access point or public road junction to manage impediments to traffic flow and maintain safe and efficient operating conditions on the road.	DTS/DPF 4.1 A new access point satisfies (a), (b) or (c): (a) where a development site is intended to serve between 1 and 6 dwellings and has frontage to a local road (not being a Controlled Access Road) with a speed environment of 60km/h or less, the new access point is provided on the local road and located a minimum of 6.0m from the tangent point as shown in the following diagram:  NOTE: The points marked X_1 and X are respectively at the median end on a divided road and at the intersection of the main road centre-line and the extensions of the side road property lines shown as dotted lines, on an undivided road. On a divided road, dimension Y-Y extends to Point Y_1.

(b) where the development site is intended to serve between 1 and 6 dwellings and access from a local road (being a road that is not a State Maintained Road) is not available, the new access:

(i) is not located on a Controlled Access Road

(ii) is not located on a section of road affected by double barrier lines

(iii) will be on a road with a speed environment of 70km/h or less

(iv) is located outside of the bold lines on the diagram shown in the diagram following part (a)

(v) located minimum of 6m from a median opening or pedestrian crossing.

(c) where DTS/DPF 4.1 part (a) and (b) do not apply and access from an alternative local road at least 25m from the State Maintained Road is not available, and the access is not located on a Controlled Access Road, the new access is separated in accordance with the following:

Speed Limit	Separation between access points	Separation from public road junctions and merging/terminating lanes
50 km/h or less	No spacing requirement	20m
60 km/h	40m	123m
70 km/h	55m	151m
80 km/h	70m	181m
90 km/h	90m	214m
100 km/h	110m	248m
110 km/h	135m	285m

Access - Location (Sight Lines)

PO 5.1

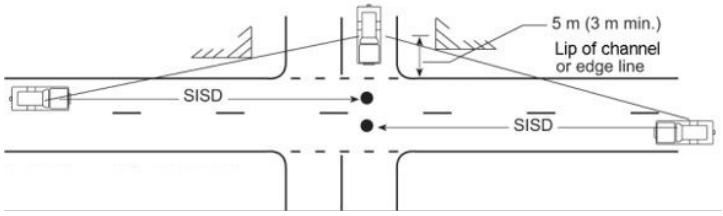
Access points are located and designed to accommodate sight lines that enable drivers and pedestrians to navigate potential conflict points with roads in a controlled and safe manner.

DTS/DPF 5.1

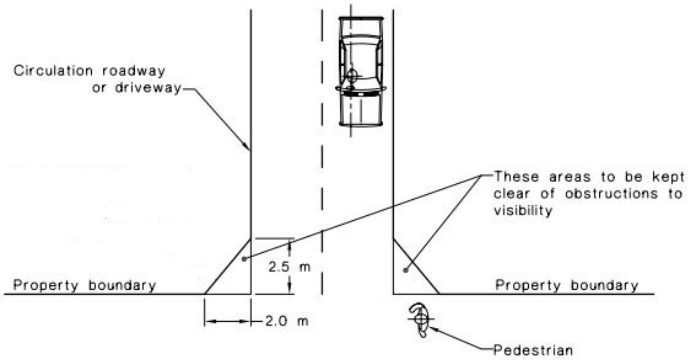
An access point satisfies (a) or (b):

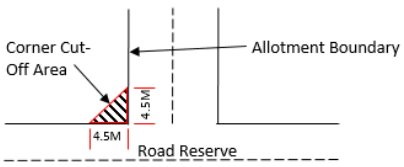
(a) drivers approaching or exiting an access point have an unobstructed line of sight in accordance with the following (measured at a height of 1.1m above the surface of the road):

Speed Limit	Access Point serving 1-6 dwellings	Access point serving all other development
40 km/h or less	40m	73m
50 km/h	55m	97m
60 km/h	73m	123m
70 km/h	92m	151m
80 km/h	114m	181m
90 km/h	139m	214m
100 km/h	165m	248m
110km/h	193m	285m



(b) pedestrian sightlines in accordance with the following diagram:



Access - Mud and Debris	
PO 6.1 Access points constructed to minimise mud or other debris being carried or transferred onto the road to ensure safe road operating conditions.	DTS/DPF 6.1 Where the road has an unsealed shoulder and the road is not kerbed the access way is sealed from the edge of seal on the road for a minimum of 10m or to the property boundary (whichever is closer)
Access - Stormwater	
PO 7.1 Access points designed to minimise negative impact on roadside drainage of water.	DTS/DPF 7.1 Development does not: (a) decrease the capacity of an existing drainage point (b) restrict or prevent the flow of stormwater to an existing drainage point and system.
Building on Road Reserve	
PO 8.1 Buildings or structures that encroach onto, above or below road reserves designed and sited to minimise impact on safe movements by all road users.	DTS/DPF 8.1 No encroachment of buildings or structures onto, above or below the road reserve.
Public Road Junctions	
PO 9.1 New junctions with public roads (including the opening of unmade public road junctions) or modifications to existing road junctions located and designed to ensure safe and efficient road operating conditions are maintained on the State Maintained Road.	DTS/DPF 9.1 Development does not comprise any of the following: (a) creating a new junction with a public road (b) opening an unmade public road junction (c) modifying an existing public road junction.
Corner Cut-Offs	
PO 10.1 Development is located and designed to maintain sightlines for drivers turning into and out of public road junctions to contribute to driver safety.	DTS/DPF 10.1 Development does not involve building work, or building work is located wholly outside the land shown as 'Corner Cut-Off Area' in the following diagram: 

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
Except where all of the relevant deemed-to-satisfy criteria are met, development (including the division of land) that involves any of the following to/on a State Maintained Road or within 25 metres of an intersection with any such road: (a) creation of a new access or junction (b) alterations to an existing access or public road junction (except where deemed to be minor in the opinion of the relevant authority) (c) development that changes the nature of vehicular movements or increase the number or frequency of movements through an existing access (except where deemed to be minor in the opinion of the relevant authority).	Commissioner of Highways.	To provide expert technical assessment and direction to the Relevant Authority on the safe and efficient operation and management of all roads relevant to the Commissioner of Highways as described in the Planning and Design Code.	Development of a class to which Schedule 9 clause 3 item 7 of the Planning, Development and Infrastructure (General) Regulations 2017 applies.

Part 4 - General Development Policies

Clearance from Overhead Powerlines

Assessment Provisions (AP)

Desired Outcome	
DO 1	Protection of human health and safety when undertaking development in the vicinity of overhead transmission powerlines.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
PO 1.1 Buildings are adequately separated from aboveground powerlines to minimise potential hazard to people and property.	DTS/DPF 1.1 One of the following is satisfied: (a) a declaration is provided by or on behalf of the applicant to the effect that the proposal would not be contrary to the regulations prescribed for the purposes of section 86 of the *Electricity Act 1996* (b) there are no aboveground powerlines adjoining the site that are the subject of the proposed development.

Infrastructure and Renewable Energy Facilities

Assessment Provisions (AP)

Desired Outcome	
DO 1	Efficient provision of infrastructure networks and services, renewable energy facilities and ancillary development in a manner that minimises hazard, is environmentally and culturally sensitive and manages adverse visual impacts on natural and rural landscapes and residential amenity.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Telecommunication Facilities	
PO 6.1 The proliferation of telecommunications facilities in the form of	DTS/DPF 6.1 None are applicable.

towers/monopoles in any one locality is managed, where technically feasible, by co-locating a facility with other communications facilities to mitigate impacts from clutter on visual amenity.	
PO 6.2 Telecommunications antennae are located as close as practicable to support structures to manage overall bulk and mitigate impacts on visual amenity.	DTS/DPF 6.2 None are applicable.
PO 6.3 Telecommunications facilities, particularly towers/monopoles, are located and sized to mitigate visual impacts by the following methods: (a) where technically feasible, incorporating the facility within an existing structure that may serve another purpose or all of the following: (b) using existing buildings and landscape features to obscure or interrupt views of a facility from nearby public roads, residential areas and places of high public amenity to the extent practical without unduly hindering the effective provision of telecommunications services (c) using materials and finishes that complement the environment (d) screening using landscaping and vegetation, particularly for equipment shelters and huts.	DTS/DPF 6.3 None are applicable.

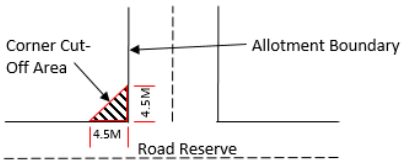
Transport, Access and Parking

Assessment Provisions (AP)

Desired Outcome	
DO 1	A comprehensive, integrated and connected transport system that is safe, sustainable, efficient, convenient and accessible to all users.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Movement Systems	
PO 1.4 Development is sited and designed so that loading, unloading and turning of all traffic avoids interrupting the operation of and queuing on public roads and pedestrian paths.	DTS/DPF 1.4 All vehicle manoeuvring occurs onsite.
Vehicle Access	
PO 3.1 Safe and convenient access minimises impact or interruption on the operation of public roads.	DTS/DPF 3.1 The access is: (a) provided via a lawfully existing or authorised driveway or access point or an access point for which consent has been granted as part of an application for the division of land or (b) not located within 6m of an intersection of 2 or more roads or a pedestrian activated crossing.
PO 3.5	DTS/DPF 3.5

Access points are located so as not to interfere with street trees, existing street furniture (including directional signs, lighting, seating and weather shelters) or infrastructure services to maintain the appearance of the streetscape, preserve local amenity and minimise disruption to utility infrastructure assets.	Vehicle access to designated car parking spaces satisfy (a) or (b): (a) is provided via a lawfully existing or authorised access point or an access point for which consent has been granted as part of an application for the division of land (b) where newly proposed, is set back: (i) 0.5m or more from any street furniture, street pole, infrastructure services pit, or other stormwater or utility infrastructure unless consent is provided from the asset owner (ii) 2m or more from the base of the trunk of a street tree unless consent is provided from the tree owner for a lesser distance (iii) 6m or more from the tangent point of an intersection of 2 or more roads (iv) outside of the marked lines or infrastructure dedicating a pedestrian crossing.
Vehicle Parking Areas	
PO 6.1 Vehicle parking areas are sited and designed to minimise impact on the operation of public roads by avoiding the use of public roads when moving from one part of a parking area to another.	DTS/DPF 6.1 Movement between vehicle parking areas within the site can occur without the need to use a public road.
PO 6.6 Loading areas and designated parking spaces for service vehicles are provided within the boundary of the site.	DTS/DPF 6.6 Loading areas and designated parking spaces are wholly located within the site.
Corner Cut-Offs	
PO 10.1 Development is located and designed to ensure drivers can safely turn into and out of public road junctions.	DTS/DPF 10.1 Development does not involve building work, or building work is located wholly outside the land shown as Corner Cut-Off Area in the following diagram: 

17 November 2022

SAQ Consulting Pty Ltd
ABN 76 864 757 592
P O Box 50
Clayfield QLD 4011

Anthony Marroncelli
Manager – Development Services
City of Holdfast Bay
P O Box 19
BRIGHTON SA 5048

Dear Anthony

RE: Proposed telecommunications facility (replacement)
151-151A Brighton Road, GLENELG SOUTH

I advise **SAQ Consulting Pty Ltd** acts on behalf of **Amplitel**, part of the Telstra group, in respect of this application. The proposal by Amplitel is to construct a telecommunications facility at the rear of 151-151A Brighton Road, Glenelg South for use by Telstra. The new facility will replace an existing facility located on a Stobie pole outside 72 Bath Street.

The subject land is located within the *Employment Zone* of the City of Holdfast Bay pursuant to the Planning and Design Code. The proposal is a 'performance-assessed' kind of development as it is listed in Zone Table 3. A telecommunications facility is an envisaged land use within the *Employment Zone.*

This letter constitutes a detailed planning statement as to the merits of the proposal to assist Council in determining the application.

Need for the Replacement Facility

The proposed facility will replace an existing facility located on a Stobie pole outside 72 Bath Street, Glenelg South, which is the property immediately to the west of the subject land.

The existing Stobie pole facility, as well as being of a relatively low height (the centreline height of the antennas is approximately 17.3 metres), has no ability to support the additional infrastructure to provide Telstra's 4G and 5G services at this location. Such additional infrastructure consists of larger panel antennas, additional 5G antennas, remote radio units and other ancillary equipment.

The existing ground-based equipment shelter for the Stobie pole installation is already located on the subject land at 151-151A Brighton Road at the rear of the carpark and will also be removed to allow for the installation of the replacement facility, which will use smaller ground-based cabinets instead. As such, the subject land is also the site of the telecommunications facility to be replaced.

When replacing an existing facility, Telstra must try to select a location that can, as closely as possible, replicate and, ideally, enhance the existing services provided to customers. A number of other potential locations have been considered in this instance with more details set out below.

The proposed facility will provide significant improvements to network coverage and capacity in the surrounding area and 5G services will also be more widely available in the area as a result of the proposal. This outcome will help cater for increased customer demand and improve connectivity in the area more generally.

Figure 1 is an extract from www.rfnsa.com.au which shows all current and proposed facilities in the area. The proposed location and existing Stobie pole location are indicated by the orange square.

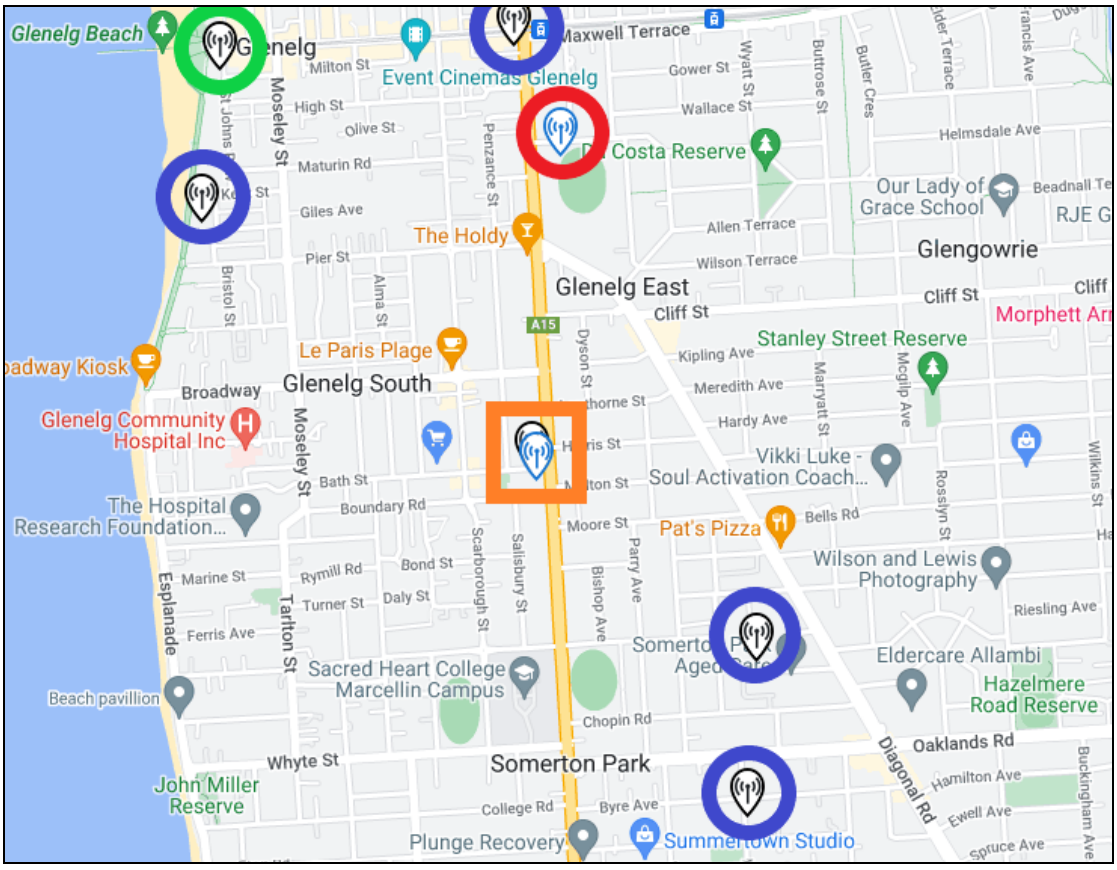


Figure 1: Extract from www.rfnsa.com.au showing the proposed location and existing facilities in the area
(Subject proposal and existing site shown in the orange square)

Telstra already has facilities at all locations highlighted with a blue circle and apart from the existing Optus facility at the Stamford Grand in Glenelg (green circle) and a proposed Vodafone facility at Glenelg Oval (red circle, not constructed) – neither of which can serve the area of interest at Glenelg South - there are no existing facilities within one kilometre of the subject land on which Telstra is not already located. As such, there are no collocation options available to Telstra in this instance.

Further, there are no sufficiently tall buildings in the area on which the facility could be located and meet the technical and network outcomes required. As such, a new structure is required.

Accordingly, it is considered the need for the proposed facility has been established and the existing facility must be replaced to ensure continuity of and improvements to Telstra services in the surrounding areas of Glenelg South and Somerton Park, including the important transport corridors through the area.

The Subject Land

The subject land is located on the corner of Brighton Road and Bath Street at Glenelg South. The formal description of the land is A174 FP 12522, with Certificate of Title details of 6134/451. The land is roughly square in shape with a 26.22m frontage to Brighton Road, a 6-metre corner cut-off and a 23.83m frontage to Bath Street. The area of the land is roughly 720 sqm.

The land is currently occupied by a single-storey commercial building along the entire frontage of Brighton Road, which is presently used as a gym. The western side of the land contains the associated carpark, which is access from Bath Street. Apart from low-level landscaping around the perimeter of the property, there is no vegetation of note on the property.

Telstra currently has an equipment shelter (with lease) in the south-western corner of the carpark, which is associated with the nearby Stobie pole installation. The area to be occupied by the proposed facility is within an area bounded by existing carparking spaces to both the north and east and as such cannot be used for car-parking. To that end, there is no impact on car parking arising from the proposal.

The subject land is shown in Figure 2 below, with the proposed facility's location marked in red and the existing Stobie pole facility circled in blue.

Figure 2: Subject Land with proposed and existing facility locations marked

The Locality

The locality, shown in Figure 3 below, is located either side of the Brighton Road thoroughfare and generally consists of non-residential uses on the western side of Brighton Road and residential uses elsewhere (across three different residential zones). The built form is almost exclusively low-rise and low density. A local activity centre is located a short distance to the west, which comprises some local shops.

As noted above, there are no existing telecommunications facilities in the locality, apart from the Stobie pole facility to be replaced by the subject proposal.

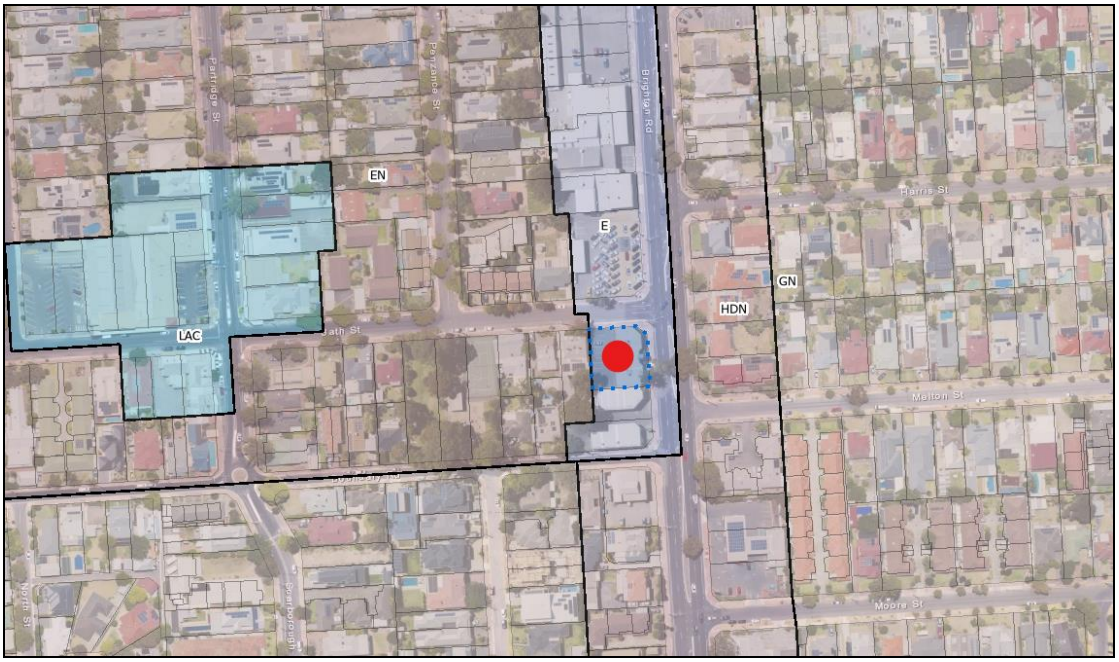


Figure 4: Subject Land and surrounding locality

The Proposal

The proposal is to establish a new telecommunications facility on the subject land to replace the existing Stobie pole facility nearby. As noted above, the equipment shelter associated with the Stobie pole facility is already located on the subject land and will be removed to allow for the proposed installation.

The details of the proposed facility are shown on the plans submitted with the application, with the proposal consisting of the following key elements:

- a 25-metre tall monopole located in the rear, south-western corner of the subject land, approximately 27 metres south of the Bath Street frontage;
- six (6) panel antennas, mounted to a new circular headframe on the top of the proposed monopole, giving an overall finished height above ground of 26.4m;
- three (3) 5G panel antennas mounted to the monopole directly below the headframe (centreline height of 21.6m);
- six (6) remote radio units (RRUs) mounted on to the monopole;

- two equipment cabinets adjacent the monopole;
- ancillary ground-based equipment; and
- bollards to protect the facility from vehicle impact.

The monopole can be painted if desired by Council, with N53 blue grey a recommended finish. The monopole facility also allows for future collocation should another carrier wish to do so.

All cables connecting the antennas to the cable tray will be internal to the monopole, except where they exit the monopole to connect to the antennas. The monopole does not have any provision to allow it to be climbed.

Whilst not a relevant planning issue, it is worthy of note that the maximum levels of electromagnetic energy from the proposed facility is estimated at 3.10% of the exposure limits mandated by the Commonwealth Government. A copy of the standard form EME report is attached for Council's information.

Alternate Locations

Being a replacement facility, there is a need for the new facility to be located as close as possible to the existing facility to ensure the existing coverage area is maintained. However, as with all new facilities, the potential for alternate locations that provide for an obvious improvement was also considered for the siting of the facility. It should be noted that any alternate location would need to cater for a similar facility as that now proposed (i.e. monopole and ground-based equipment).

The arrangement of land uses (particularly the residential/non-residential interface), allotments and zoning in the area strongly dictates the likely suitability of land in the area. In particular, the residential zone is unlikely to be more suitable for such a facility and appropriate and available space would also seem very unlikely.

The properties within the *Employment Zone* to the north and south have generally very constrained with space often at a premium, particularly for car-parking purposes, and as such locating sufficient ground space that does not adversely impact on operations and/or carparking requirements is a highly limiting factor.

Similarly, the properties in the *Local Activity Centre Zone* to the west are also highly space constrained and siting difficult given any such facility would need to be in the carpark.

As noted above, there are no existing telecommunications structures on which to collocate and there are no existing buildings of any notable height in the area that would be suitable for the new facility.

As such, there is no obviously better location available in the locality that is available to Telstra and would have less impact on the locality, especially on residential uses.

To that end, Telstra has undertaken sufficient due diligence with respect to the alternate locations and the replacement of the existing facility at ostensibly the same location is the preferred and logical option in this instance.

Assessment against the Planning and Design Code

As noted above, the subject land and proposal is located in the *Employment Zone* pursuant to the Planning and Design Code. A telecommunications facility is specifically listed in Zone Table 3 and is therefore a 'Performance Assessed' type of development. A telecommunications facility is also an envisaged use in the zone.

Employment Zone

The *Employment Zone*'s desired outcomes are set out as follows:

DO 1 - A diverse range of low-impact light industrial, commercial and business activities that complement the role of other zones accommodating significant industrial, shopping and business activities.

DO 2 - Distinctive building, landscape and streetscape design to achieve high visual and environmental amenity particularly along arterial roads, zone boundaries and public open spaces.

The *Employment Zone* list a telecommunications facility as a type of development envisaged within the zone at DTS/DPF 1.1(m) which is consistent with Zone PO 1.1, which states:

> *"A range of employment-generating light industrial, service trade, motor repair and other compatible businesses servicing the local community that do not produce emissions that would detrimentally affect local amenity."*

The proposed facility comprises essential infrastructure that will support local businesses (and other surrounding land uses including residential) through improved telecommunications access and does not produce any emissions that detrimentally affect local amenity.

As such, the proposal achieves the outcomes of PO1.1 and DTS/DTF 1.1.

PO1.2 does not apply to the proposal.

PO1.3 seeks to minimise impacts of telecommunications facilities on residential areas, which is relevant to the subject proposal. Whilst the proposal does comply with DTS/DPF1.3 and does not exceed 30 metres in height (finished height is 26.4m), it is closer than 50 metres to a neighbourhood-type zone. Unfortunately, there is no location anywhere in the entire extent of the local *Employment Zone* where a 50-metre buffer could be achieved due to the zone's dimensions.

However, the following points are worthy of note in this instance:

- the only residential property affected is 72 Bath Street, with a commercial property located directly to the south;
- the proposed monopole replaces the facility on the Stobie pole on the Bath Street frontage of 72 Bath Street, with the existing facility to be removed;

- Large trees in the backyard of 72 Bath Street, including one immediately adjacent the proposed location, will substantially limit impact on the private open space;
- The monopole has minimised its impacts on Brighton Road and Bath Street by way of maximum set back and the use of a small headframe;
- There are no other locations on the property available that would result in a better outcome; and
- No other residential properties in the vicinity are materially impacted by the proposal.

As such, in this instance there is only a fairly minimal change from the existing impacts arising from the Stobie pole installation to the proposed monopole at the rear of the subject land's carpark. Despite being on the residential boundary, the proposed facility has minimised and mitigated its impacts to an appropriate extent in respect to the subject land, the adjacent and surrounding residential properties and the road network in the area.

I also note that this non-compliance with DTS/DPF1.3 triggers public notification of the proposal. To that end, any concerns raised during that process can be further considered by the applicant.

PO1.4 does not apply.

PO2.1 seeks to achieve *"high visual and environmental amenity particularly along arterial road, zone boundaries and public open spaces."*

As noted above, the proposed facility has maximised its setbacks from Brighton Road and has utilised a small headframe – it therefore achieves the outcome of PO2.1 in respect to arterial roads. The subject land is not near public open space.

Although the proposed facility is located on a zone boundary, for the reasons set out above there are significant mitigating circumstances and the impact is very localised.

As such, given telecommunications facilities are essential infrastructure and are anticipated to have some negative impact, the proposed facility adequately complies with the intent of PO2.1.

PO2.2 is not readily applicable to the subject proposal, as it is not a building in the context of the PO. However, it is worthy of note that the proposed monopole and headframe can be painted to assist in ensuring visual impact is minimised on the surrounding area.

PO3.1 is not intended to be applied to the subject proposal and PO3.2 is of limited application, as the subject proposal has achieved the maximum setbacks from both road frontages in any event.

PO3.3 – the subject proposal does not impact on carparking spaces or the use and function of the carpark itself.

PO3.4 – the subject proposal is located in the existing rear carpark.

PO3.5 is not applicable to the proposal – pursuant to Part 8 of the Code, telecommunications facilities are exempt from building height restrictions.

Having regard for the exemption from building height restrictions, PO3.6 and PO3.7 have limited application and, in any event, the proposed facility has very little building mass, which for the reasons set out above, is substantially mitigated in this instance.

PO3.8 – the proposed facility does not front Bath Street and has maximised its setback.

PO4.1 is not applicable.

PO5.1 is not applicable as the proposed facility is set back the maximum distance from Bath Street where some landscaping already exists.

PO5.2 – the proposed facility is located in a part of the carpark that is furthest from Bath Street, cannot be utilised for carparking, is not required for manoeuvring, deliveries, storage or any other function (in fact, it is located where the existing Stobie pole facility's equipment shelter is sited) and does not impact on existing landscaped areas.

PO6.1 is not applicable.

PO7.1 is not applicable.

In summary, the proposed facility is located in an appropriate zone but is constrained by the dimensions of the zone and cannot provide any substantial setback to the adjoining residential zone. However, for the reasons set out above there are significant mitigating factors which deem the proposal suitable, remembering it is a replacement facility rather than a 'greenfield' proposal.

For those reasons, the proposal is considered acceptable in the *Employment Zone.*

Overlays
The subject land is affected by a number of overlays. The relevant of each overlay, along with its applicability to the subject proposal, is assessed below.

Airport Building Heights Overlay
A 15m height trigger for referral to Adelaide Airport exists over the subject land. Given the height of existing telecommunications facilities in the wider area (such as at the Glenelg Exchange and 41 Byre Avenue), this is not expected to be problematic for the proposal.

Building Near Airfields
The proposed facility is more than 3.5 kilometres from Adelaide Airport and will be subject to referral. As stated above, given the height of existing telecommunications facilities in the wider area, this issue is not expected to be problematic for the proposal.

Major Urban Transport Routes
This overlay appears to relate to road-widening for Brighton Road. Given the selected location of the proposal at the rear of the subject land, this overlay is of no material relevance to the subject proposal.

Prescribed Wells Area
The proposed facility does not require or impact on any water resources.

Regulated and Significant Tree
No trees are affected by the proposal.

Traffic Generating Development
Once constructed and operational, the proposed facility will not generate any increase in the level of traffic already associated with the subject land.

Variations
There is a building height variation affecting the subject land. However, as stated above, telecommunications facilities are specifically exempted from building height limitations.

General Development Policies
In terms of the General Development Policies contained within the Planning and Design Code, the Infrastructure and Renewable Energy Facilities module is directly relevant.

The development, design and siting of the proposed facility is consistent with the Desired Outcome in that it represents the efficient provision of infrastructure which has minimised hazard, is environmentally sensitive and has managed its visual impacts on residential amenity for the reasons already set out above.

With respect to the relevant Performance Outcomes within the module, I note the following :

- The siting of the proposed facility poses no hazard or nuisance on adjacent land uses (PO1.1);

- The siting of the proposed facility balances the need for the service and the structure's impact on local amenity (PO2.1). It is well set back from public roads, replaces an existing facility, is located at the site of existing telecommunications infrastructure and is located in a zone where such a land use is specifically envisaged;

- The proposed facility is very unlikely to pose any threat to Adelaide Airport operations (PO4.1) and will the subject of a referral to the airport during the planning assessment process;

- No collocation options at an alternate location are available for use (PO6.1) and a new structure is required in this instance. However, given the subject land is already used as a telecommunications facility, the proposed facility is, in fact, collocated;

- The panel antennas (9 of) are mounted as close as practicable (six on the compact headframe and three mounted directly to the monopole) while still allowing for the cabling, ancillary equipment and the necessary separations and bearings of the antennas (PO6.2); and

- In this instance, it is not practicable (or, in my view, necessary) for the proposed facility to serve another purpose, particularly given the proposal replaces an existing facility. However, the proposed facility is well set back from public roads and screened by existing buildings, particularly from Brighton Road. The monopole and antennas can be painted to further reduce their impacts. Given the location on the subject land, no landscaping is proposed or necessary, as it would have no effect on screening the facility (PO6.3).

Importantly, the proposal will not materially interfere with the continuing use of the subject land, the policies and desired outcomes for the *Employment Zone* and has minimised its impacts on surrounding land uses to an acceptable level (and to the extent it can) through siting and design.

Given the proposed facility replaces an existing facility, is located in an appropriate zone, has no impact on car-parking or vegetation and the salient issues relevant to the proposed facility have been dealt with extensively above, it is unlikely that any other general development modules could have a significant impact on the merits of the application.

Conclusion

The proposal is for a new telecommunications facility at the rear of 151-151A Brighton Road, Glenelg South. The facility will replace an existing facility located on a nearby Stobie pole and with associated equipment already located on the subject land.

The existing Stobie pole facility cannot be upgraded or expanded to provide the full complement of Telstra 4G and 5G services and there are no existing facilities in the surrounding area on which the facility could be located.

Having regard to the requirements of the existing network and the applicable policies within the Planning and Design Code, the proposed facility is located in an appropriate zone, the proposed land use is envisaged within the zone and there are no material impacts on traffic, carparking or vegetation. The proposed facility has minimised its impacts on the adjacent and nearby residential areas to an acceptable level through its design and siting and having regard for mitigating circumstances.

Importantly, the proposed facility's location and design will not have any material impact on the continuing use of the subject land or surrounding land or the achievement of the Desired Outcomes for the *Employment Zone* or the adjoining zones more generally.

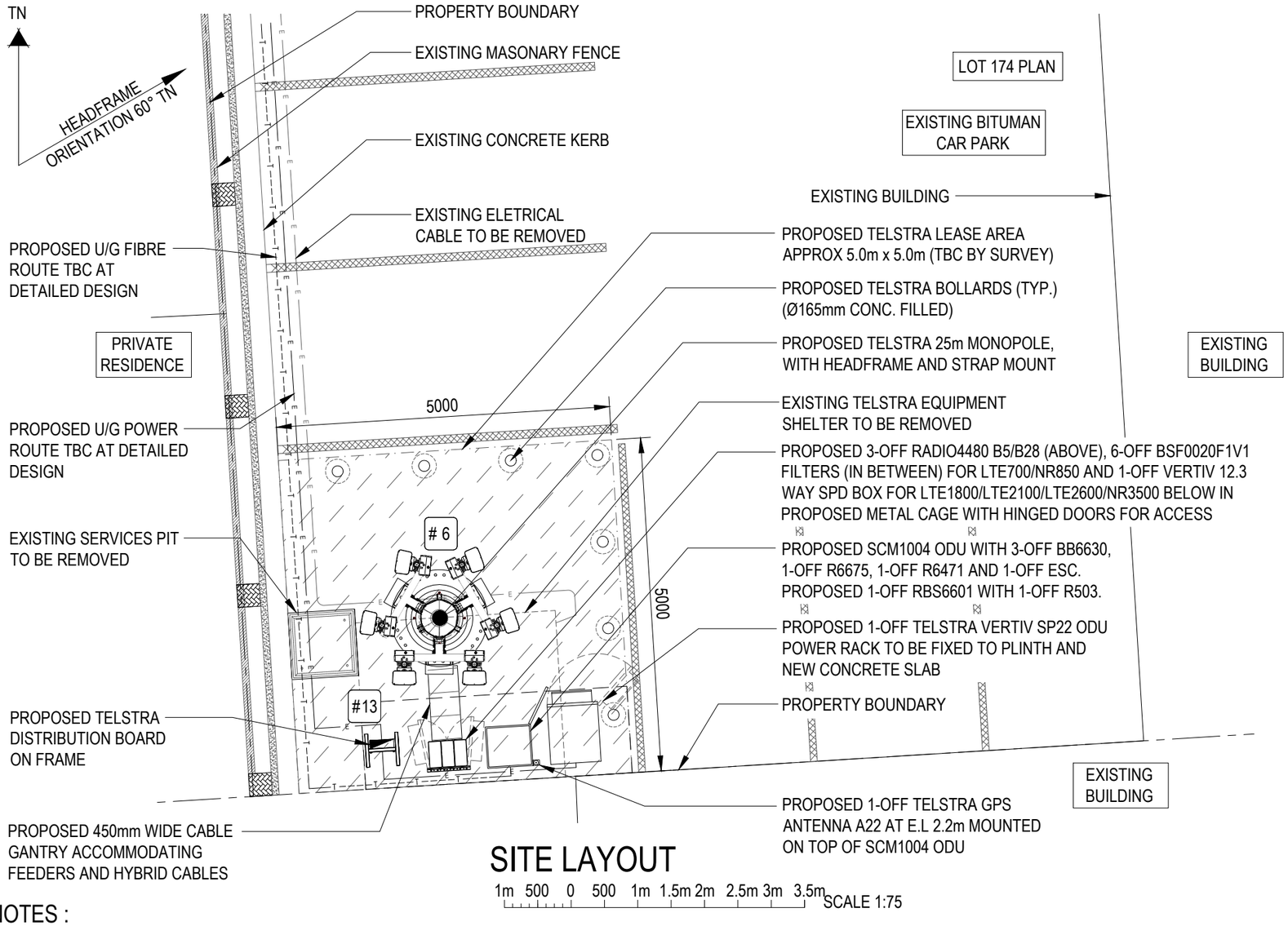
Accordingly, the proposal represents an appropriately considered and logical replacement of an essential piece of telecommunications infrastructure and warrants planning consent.

Should you have any questions, please do not hesitate to contact me.

Yours sincerely

MARK BAADE
Planning Consultant
B. Plan (Hons)
M: 0417 088 000
mark@saqconsulting.com.au

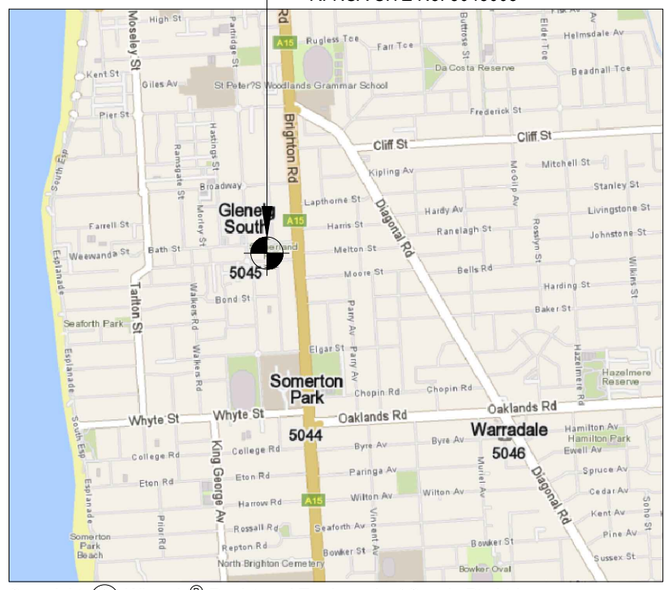
Attached:
Proposal plans
Certificate of Title
EME report



SITE LAYOUT

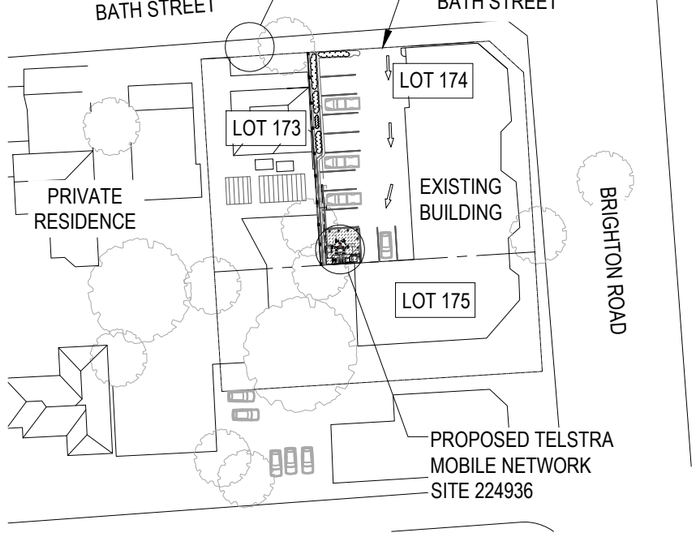
1m 500 0 500 1m 1.5m 2m 2.5m 3m 3.5m SCALE 1:75

RFNSA SITE No. 5045005



LOCALITY PLAN

NOT TO SCALE



SITE ACCESS

NOT TO SCALE

NOTES :

1. ALL FEEDER ACCESS POINTS ON THE STRUCTURE MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615
2. FOR EME SIGNS NOTED (#X) AS REFER TO 005486 DOCUMENTS FOR DETAILS.
3. (#2) EME SIGNS TO BE SECURED TO THE REAR OF EACH ANTENNA.
4. (#6) EME SIGN TO BE SECURED 1.5m AGL TO MOPOLE.
5. (#13) EME SIGN TO BE SECURED TO TELSTRA ODU DOOR.
6. THIS DRAWING SET IS PERMINARY ONLY AND ISSUE FOR COMMENT. IT IS NOT DETAILED SURVEY/STRUCTURAL DRAWING AND THEREFORE COULD BE SUBJECT TO CHAGE.
7. POWER AND LINK ROUTES ARE INDICATIVE AND WILL BE DETERMINED AT DETAILED DESIGN.
8. ALL FOOTING TYPES AND DETAILS HERE ARE SUBJECT TO CONFIRMATION BY GEOTECHNICAL INVESTIGATION AND STRUCTURAL DESIGN.
9. ALL DIMENSIONS ARE IN MILLEMTRES UNLESS OTHERWISE STATED.

LEGEND

- PROPOSED TELSTRA LEASE AREA.
- E — EXISTING UNDERGROUND POWER ROUTE
- E — PROPOSED UNDERGROUND POWER ROUTE
- T — PROPOSED UNDERGROUND FIBRE ROUTE

PROPERTY DESCRIPTION

ALLOTMENT 174 ON PLAN 12522,
LENELG HUNDRED OF NOARLUNGA
CT6129/128

SITE STRUCTURE CO-ORDINATES (GDA94) GPS READING ACCURACY: ±10m CENTRE OF POLE	
LATITUDE	-34.990542° (GDA94)
LONGITUDE	138.520583° (GDA94)

ERICSSON

TO BE READ IN CONJUNCTION WITH SHEETS S3 & S3-1.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
SN01883.01	PB	AR	PRELIMINARY - 30088473WO100ERIC - L700/NR850/L1800/L2100/L2600/NR3500	LJ	RS	05.04.22	1

UNAPPROVED DRAWING

PRELIMINARY

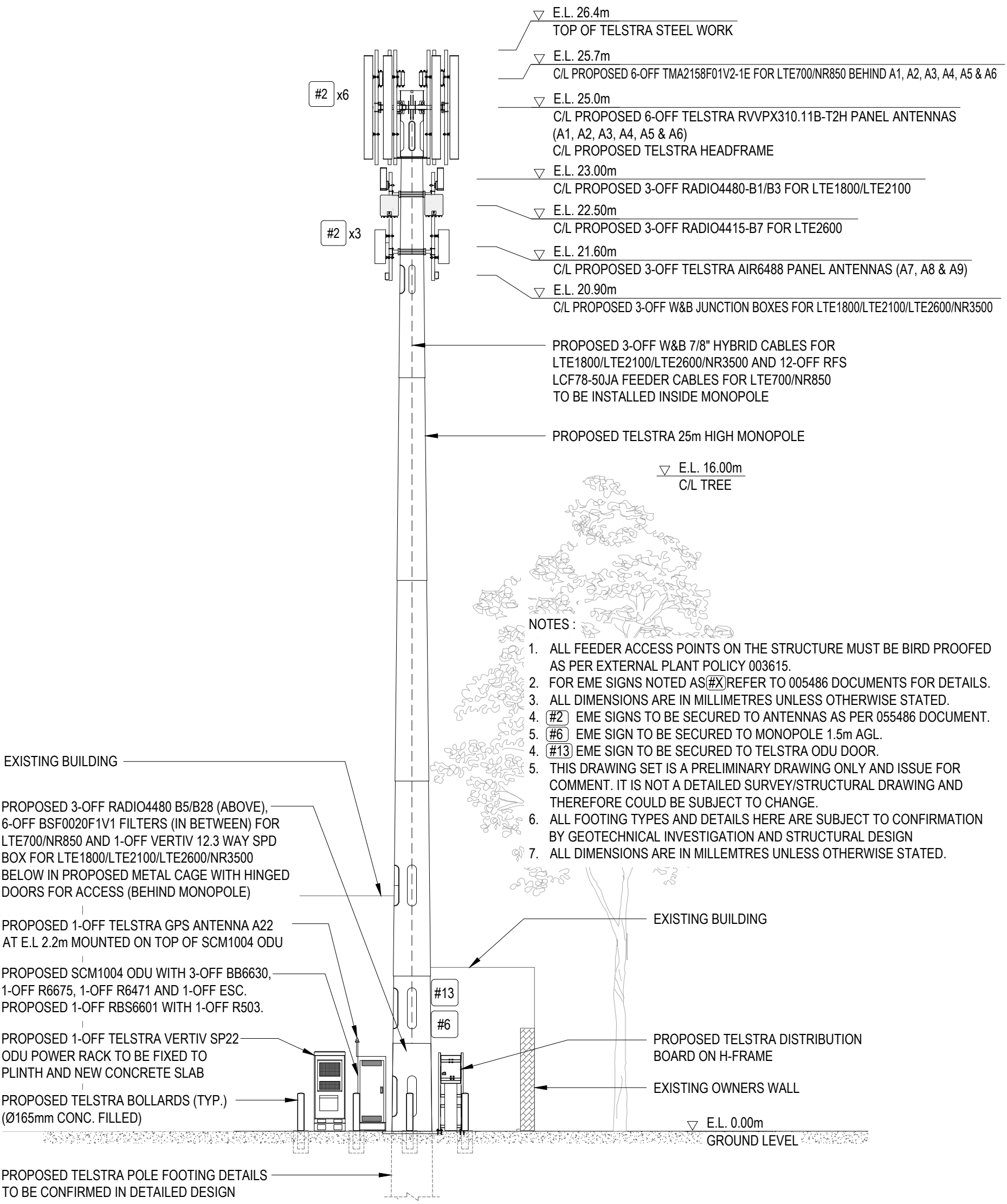
Telstra

MOBILE NETWORK SITE 224936
SOMERTON PARK NORTH
SITE LAYOUT AND ACCESS
72 BATH ST, GLENELG SOUTH, SA 5045

DWG NO. S106386

SHT NO. S1 INDEX

A3



NORTH ELEVATION

1m 0 1m 2m 3m 4m 5m SCALE 1:100

DO NOT SCALE

DIMENSIONS IN

TO BE READ IN CONJUNCTION WITH SHEET S1 & S3-1

PRELIMINARY

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
SN01883.01	PB	AR	PRELIMINARY - 30088473WO100ERIC - L700/NR850/L1800/L2100/L2600/NR3500	LJ	RS	05.04.22	1

UNAPPROVED DRAWING

ERICSSON

Telstra

MOBILE NETWORK SITE 224936
SOMERTON PARK NORTH
NORTH ELEVATION
72 BATH ST, GLENELG SOUTH, SA 5045

DWG NO. S106386

SHT NO. S3 INDEX

A3V

TELSTRA MOBILES ANTENNA CONFIGURATION TABLE

ANTENNA No	ANTENNA TYPE & SIZE H x W x D	ANTENNA STATUS	ANTENNA HEIGHT C/L A.G.L	ANTENNA BEARING (° T)	SECTOR No & SYSTEM
A1	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	70°	S1: LTE700/NR850 S1: LTE700/NR850
					S1: LTE1800/LTE2100 S1: LTE1800/LTE2100
					S1: LTE1800/LTE2100 S1: LTE1800/LTE2100
A2	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	180°	S2: LTE700/NR850 S2: LTE700/NR850
					S2: LTE1800/LTE2100 S2: LTE1800/LTE2100
					S2: LTE1800/LTE2100 S2: LTE1800/LTE2100
A3	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	280°	S3: LTE700/NR850 S3: LTE700/NR850
					S3: LTE1800/LTE2100 S3: LTE1800/LTE2100
					S3: LTE1800/LTE2100 S3: LTE1800/LTE2100
A4	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	70°	S1: LTE700/NR850 S1: LTE700/NR850
					S1: LTE2600 S1: LTE2600
					S1: LTE2600 S1: LTE2600
A5	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	180°	S2: LTE700/NR850 S2: LTE700/NR850
					S2: LTE2600 S2: LTE2600
					S2: LTE2600 S2: LTE2600
A6	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	25m	280°	S3: LTE700/NR850 S3: LTE700/NR850
					S3: LTE2600 S3: LTE2600
					S3:LTE2600 S3: LTE2600
A7	ERICSSON AIR6488 PANEL 827 x 415 x 263mm	INSTALL	21.6m	70°	S1: NR3600 S1: NR3600
A8	ERICSSON AIR6488 PANEL 827 x 415 x 263mm	INSTALL	21.6m	180°	S2: NR3600 S2: NR3600
A9	ERICSSON AIR6488 PANEL 827 x 415 x 263mm	INSTALL	21.6m	280°	S3: NR3600 S3: NR3600
A22	GPS ANTENNA	INSTALL	2.2m	0°	GPS

DO NOT SCALE

DIMENSIONS IN

TO BE READ IN CONJUNCTION WITH SHEETS S1 & S3.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
SN01883.01	PB	AR	PRELIMINARY - 30088473WO100ERIC - L700/NR850/L1800/L2100/L2600/NR3500	LJ	RS	05.04.22	1

UNAPPROVED DRAWING

PRELIMINARY

ERICSSON

Telstra

MOBILE NETWORK SITE 224936
SOMERTON PARK NORTH
ANTENNA CONFIGURATION TABLE
72 BATH ST, GLENELG SOUTH, SA 5045

DWG NO. S106386

SHT NO. S3-1 INDEX

A3V

Environmental EME Report

Location	151 Brighton Road, GLENELG SOUTH SA 5045		
Date	15/11/2021	**RFNSA No.**	5045014

How does this report work?

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at 151 Brighton Road, GLENELG SOUTH SA 5045. These levels have been calculated by Telstra using methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).
A document describing how to interpret this report is available at ARPANSA's website:
A Guide to the Environmental Report.

A snapshot of calculated EME levels at this site

There are currently no existing radio systems for this site.

The maximum EME level calculated for the **proposed** changes at this site is

3.10%

out of 100% of the public exposure limit, 39 m from the location.

EME levels with the proposed changes

Distance from the site	Percentage of the public exposure limit
0-50 m	3.10%
50-100 m	2.52%
100-200 m	1.33%
200-300 m	0.72%
300-400 m	0.30%
400-500 m	0.16%

For additional information please refer to the EME ARPANSA Report annexure for this site which can be found at *http://www.rfnsa.com.au/5045014*.

Radio systems at the site

This base station currently has equipment for transmitting the services listed under the existing configuration.
The proposal would modify the base station to include all the services listed under the proposed configuration.

	Existing		Proposed	
Carrier	**Systems**	**Configuration**	**Systems**	**Configuration**
Telstra			4G, 5G	LTE700 (proposed), NR850 (proposed), LTE1800 (proposed), LTE2100 (proposed), LTE2600 (proposed), NR3500 (proposed)

An in-depth look at calculated EME levels at this site

This table provides calculations of RF EME at different distances from the base station for emissions from existing equipment alone and for emissions from existing equipment and proposed equipment combined. All EME levels are relative to 1.5 m above ground and all distances from the site are in 360º circular bands.

	Existing configuration			Proposed configuration		
Distance from the site	Electric field (V/m)	Power density (mW/m^2)	Percentage of the public exposure limit	Electric field (V/m)	Power density (mW/m^2)	Percentage of the public exposure limit
0-50m				10.78	308.11	3.10%
50-100m				9.70	249.49	2.52%
100-200m				6.39	108.24	1.33%
200-300m				4.73	59.28	0.72%
300-400m				3.16	26.43	0.30%
400-500m				2.33	14.37	0.16%

Calculated EME levels at other areas of interest

This table contains calculations of the maximum EME levels at selected areas of interest, identified through consultation requirements of the Communications Alliance Ltd Deployment Code C564:2020 or other means. Calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

Maximum cumulative EME level for the proposed configuration

Location	Height range	Electric field (V/m)	Power density (mW/m^2)	Percentage of the public exposure limit
Local reserve	0-3 m	7.68	156.65	1.93%
Sacred Heart College	0-3 m	2.00	10.59	0.12%
ACH Aged Care	0-4 m	1.77	8.35	0.09%

Details of Representations

Application Summary

Application ID	22038963
Proposal	Replacement telecommunications facility - 25m tall monopole, antennas, equipment cabinets, bollards
Location	151-151A BRIGHTON RD GLENELG SOUTH SA 5045

Representations

Representor 1 - Kaye Monck

Name	Kaye Monck
Address	72, Bath GLENELG SOUTH SA, 5045 Australia
Submission Date	13/12/2022 04:00 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	Yes
My position is	I oppose the development

Reasons

I believe the applicant has not followed due process ie Section 112 of the Telecommunications Act 1997 Industry Code C564:2020 MOBILE PHONE BASE STATION DEPLOYMENT Investigate opportunities for the coordinated, strategic and efficient deployment of Mobile Phone Radiocommunications Infrastructure in other suitable locations - Provide a summary of the alternative sites that were considered and the reasons why they were not preferred. I have spoken with many potential commercial property owners (Zone LAC,HDN,E) with suitable sites (5m x 5M with access) in less than 250m range of the existing tower who said they were not considered / contacted. (I can provide seven examples). Section 4.1.4 (g) The heritage significance (built, cultural and natural). My house is zoned Historic conservation area and also listed as a contributory item (72 Bath Street GLENELG SOUTH Dwelling CT 5094/732 4976). Historic Conservation Zones are local areas that exhibit discernible historic character worthy of retention and contributory item is a building that contribute to the character of an area. While this Tower technically is on a commercial zone (2 m from boundary) , its sheer enormous size will actually make it part of the historic zone landscape. refer to image attached.

Attached Documents

tower-1157291.jpg


Street View - Sept 2021
Eblen
Melton St
Moore St
Google

Representations

Representor 2 - Mark Stefanac

Name	Mark Stefanac
Address	15 Scarborough Street SOMERTON PARK SA, 5044 Australia
Submission Date	23/12/2022 04:31 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development

Reasons
Telecommunications towers are a required piece of infrastructure & that is acceptable. The question relates to the location of the tower within or adjacent to a residential zone. Thus planning consent should not be permitted - the proposed industrial structure is not aligned with a neighbourhood zone. - size, scale of the proposed development not aligned with neighbourhood character.

Attached Documents

Representations

Representor 3 - Melanie Porter

Name	Melanie Porter
Address	3 Scarborough Street SOMERTON PARK SA, 5044 Australia
Submission Date	27/12/2022 01:38 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development

Reasons

This is a residential location. Despite having one face on the main road, the tower's other faces are next to residential buildings and it's proximity to residential living significantly impacts the health and safety of those residents. As the council members are no doubt aware, such towers have proven impact on the safety of those who are unfortunate enough to live near it. This includes the children living and playing at the Boundary road Sutherland Reserve - one of the few reserves remaining for those who are not in the more salubrious suburbs (e.g. Glenelg East) that Holdfast Shore council members seem to favour. My husband is in remission from cancer and we live extremely close to this tower. We are certainly not the only ones who will suffer the negative health impacts of this proposal. i refer you to just some of the research done on these towers, and have attached articles citing the health impacts for people who have suffered from the towers they live near. I have also attached an article proving that telecommunication towers impact the soil quality and it will therefore not be possible for us to continue growing our home kitchen gardens. Does the council plan to inform close residents to stop growing their herbs and vegetables due to safety risks? Results showed that children exposed to electromagnetic radiations from antennae of telecom masts located close to residential and basic school premises suffered memory loss, dizziness and nose bleeding, while the adults (staff and parents/guardians) suffered fatigue, stress, muscles pains and aches, eye symptoms (such as burning sensations), digestive disorders, sleep disturbance, facial pricking, rashes and ear/nose/throat symptoms. It was recommended that telecom masts should be kept sufficiently away from residential and basic school premises. As you are well aware, there are many more research and articles strongly recommending that people - especially children and elderly, are not subject to the ill-health effects of telecommunication towers. The place of the proposed tower is definitely not the answer for our community. We at Somerton Park, and the surrounding residents of the proposed sight pay just as much in rates as every other suburb in the council area and do not deserve to be the residents who suffer with these health risks. There are parts of the Council that are industrial zoned, and I suggest the council make more effort to look further for a sight that will accommodate this. By placing the tower in an industrial neighbourhood, you are less likely to have further health impacts on residents. Not to mention the damage the council will be doing to its own residents in terms of financial burden. A tower in a residential zone, so close to a park and houses damages the value of these properties - not only is it an eye sore, but future potential purchasers of these properties don't want the health risks associated with the tower either! Placing the tower (if it is in fact really needed??) in an industrial zone will not impact the area financially. We, as a family of 4 adults, implore the council to make an alternative decision about the location of this tower. The residents that will be effected long-term and for decades to come, do not deserve this proposal. Yours sincerely Mel Porter, Ben Porter, Jordan Porter, Holly Porter Note we are all adults in this council area

Attached Documents

EPHEofAntennaofTelecomMastsinEnugu-1161626.pdf
fin_irjmets1637734846-1161627.pdf

207121-Article-Text-515624-1-10-20210513-1161628.pdf
ANALYSIS_OF_RESIDENT_PERCEPTION_OF_LIVIN-1161629.pdf

ENVIRONMENTAL POLLUTION HEALTH EFFECTS OF ELECTROMAGNETIC RADIATIONS FROM ANTENNAE OF TELECOMMUNICATION MASTS ERECTED NEAR RESIDENTIAL AND EDUCATIONAL FACILITIES IN ENUGU, NIGERIA

Onyenekenwa Cyprian Eneh
Institute for Development Studies, Enugu Campus, University of Nigeria, Nsukka
Mobile: *+234-803-338-7472,* Email: *onyenekenwa.eneh@unn.edu.ng*

ABSTRACT
Despite the discrepancies in reports that emissions from the antennae of telecommunication (telecom) masts erected near dwellings cause a myriad of health challenges, there is a growing fear of such radiations. More research is necessary to get the facts, expose the truth and harmonise opinions on the effects of emissions from telecom masts antennae. This study investigated some health effects of the environmental pollution by the electromagnetic radiations from the antennae of telecom masts located close to residential and basic educational facilties in Enugu, Nigeria. Five residential houses and five basic schools which have telecom masts located less than 10-metre radius away from them were selected for the study. Five residential houses and five basic schools which had no telecom masts located near them were chosen to serve as control. Questionnaire were used to elicit information on selected health crises suffered by children and adults in residential and basic school premises. Results showed that children exposed to electromagnetic radiations from antennae of telecom masts located close to residential and basic school premises suffered memory loss, dizziness and nose bleeding, while the adults (staff and parents/guardians) suffered fatigue, stress, muscles pains and aches, eye symptoms (such as burning sensations), digestive disorders, sleep disturbance, facial pricking, rashes and ear/nose/throat symptoms. It was recommended that telecom masts should be kept sufficiently away from residential and basic school premises.

Keywords: *Environmental pollution, Health crises, Electromagnetic radiations, Antenna of telecommunication mast*

INTRODUCTION

The World Health Organisation (WHO) warns that a telecommunication (telecom) mast should be located at least 10-metre radius away from a residential quarter. But, many Nigerian landlords let out their pieces of land for erection of telecom masts near reidential and educational facilities without thinking of the health hazards that may arise there-from. On their part, telecom firms callously capitalize on the people's naivety to send them to their early graves (*All Africa,* 2012).

According to medical reports, some ailments are caused by radiation or emission of electromagnetic impulses from a telecom mast erected close to residential premises. These killer masts transmit poisonous gases that impair the immune system and human neurological functions. Frequent and close contacts with the radioactive substances could hamper memory and sleep patterns, cause brain tumours, cancers and Alzheimer's disease (loss of memory and ability to speak clearly in older people). The radiation impacts on fertility and metabolism and can cause depression and fatigue. Other diseases, like leukemia, cancer, depression, lymphoma, eurtropenia,

lymphocytosis and platelet, result from hoisting a telecom mast within 10 metres radius to human habitation. Children suffer memory loss, dizziness and bleeding from the nose. Consequently, domestic animals have been wiped out and families are at the verge of extinction in some cases. This growing wrong practice is further compounded by environmental risks associated with cracks of the walls of houses located close to the masts due to vibration from the generating plants that power the system (*All Africa*, 2012).

Sharing the dangers of electromagnetic fields (EMFs) and the key steps to reducing exposure and improving health, Riggs (2009) submits that EMFs are the cause of cancer, insomnia and fatigue in adults and concurs that EMFs can cause symptoms of illness in infants, children and adults, particularly those who already experience low immunity. People sensitive to EMFs may experience nervous system symptoms (like fatigue, stress and sleep disturbances), skin symptoms (such as facial prickling, burning sensations and rashes), body symptoms (like pains and aches in muscles), eye symptoms (such as burning sensations), foggy thinking and depression, a variety of less common symptoms (like ear, nose, and throat symptoms and digestive disorders), infertility, and leukemia in children. Breast cancer or cancer clusters have been linked to high exposure to EMFs (Riggs, 2012).

However, radiation dramatically and rapidly decreases as distances increase from the mast. Thus, at 10 metres away, the dose is 0.1% that of 1-metre distance, and at 20 metres away, the dose is 0.0125% that of 1-metre distance. There are claims that the Nigerian Communications Commission (NCC) certifies a 5-metre distance and other requirements, while the National Environmental Standard Regulatory Agency (NESREA) insists on a minimum of 10 metres, as stipulated by its 2007 establishing Act. Consequently, NESREA has shut down a number of base stations that contravened its position.

Otitoloju, Obe, Adewale, Otubanjo and Osunkalu (2009) reported that exposure of male mice to radiofrequency radiations from mobile phone (GSM) base stations at a workplace complex and residential quarters caused 39.78% and 46.03% respectively in sperm head abnormalities compared to 2.13% in control group. Statistical analysis of sperm head abnormality score showed that there was a significant ($p < 0.05$) difference in occurrence of sperm head abnormalities in test animals. The major abnormalities observed were knobbed hook, pin-head and banana-shaped sperm head. The occurrence of the sperm head abnormalities was also found to be dose-dependent.

Nonetheless, it is opined that there is no conclusive evidence that emissions from telecom masts antennae cause leukemia and other diseases. Other reports show that it is the antenna that actually emits radio waves, not the structure that supports it; to get a dose of radiation considered dangerous from the antenna requires almost touching it, and the antenna does not beam signals directly down, nor ‘blow’ radiation directly down to people below.

Attendant upon the reports that a telecom mast erected close to a residential compound is the cause of a myriad of health challenges, there is a growing fear of

radiations from the mast (*All Africa*, 2012). Amidst the controversy, precaution is needed, especially as some people are more susceptible and/or gullible than others. More research is needed to get the facts, expose the truth and harmonise opinions on the effects of emissions from telecom masts antennae. Therefore, this study was aimed at investigating the environmental pollution health effects of the radiation from the antennae of telecom masts located near residential and basic school premises. The health crises suffered by children and adults using residences and/or basic school facilities harbouring telecom masts nearby were compared with those using residences and/or basic school facilities far away from telecom masts.

Questionnaire was administered to parents/teachers (non-health experts) to identify the frequency of a variety of simple symptoms like memory loss or foggy thinking, dizziness and nose bleeding for children, and fatigue, stress, sleep disorder, facial prickling, rashes, muscles pains and aches, eye symptoms (such as burning sensations), ear/nose/throat symptoms, and digestive disorders for adults. A delimitation of the study is, therefore, that it did not investigate diseases like leukemia in children, and brain tumour, Alzheimer's disease, infertility, metabolism, depression, lymphoma, eurtropenia, lymphocytosis, platelet, and cancer (including breast cancer or cancer clusters) in adults. Although these diseases have been linked to high exposure to EMFs, they require complex and expensive diagnostic investigations.

MATERIALS AND METHODS

The area of the study, Enugu metropolis, has been adequately described by Eneh (2013), Eneh and Ogbuefi-Chima (2013), and Eneh and Anamalu (2012). Preliminary survey had shown that telecom masts, which are easily sighted by aid of their towering heights, are erected in densely populated neighbourhoods of Enugu metropolis closer to residential houses and within basic educational premises than in the relatively sparsely populated rural communities with fewer number of schools. Therefore, the study, which aimed at investigating some environmental pollution health effects of the radiation from the antennae of telecom masts located near residential and basic educational premises, had to concentrate on the metropolis, where masts are erected at closer distances to residential houses and basic schools premises than in rural communities. Residences and basic educational facilities were targetted because they harbour children and parents/guardians (adults) and pupils and staff (adults) respectively, who may experience health crises as a result of the environmental pollution arising from electromagnetic radiations from the antennae of telecom masts located close to their homes and/or schools.

Five residences with telecom mast less than 10 metres away and five basic schools harbouring telecom mast within less than 10 metres radius were purposively selected for further investigations. Five households and five basic schools without masts nearby were identified to serve as control. The consent for involvement in the study was obtained from the parents and teachers of the twenty selected residences and basic schools.

Key informant technique was adopted to elicit information on health crises of the study targets from parents/guardians (in homes) and staff (in schools). Questionnaire copies were administered. The questionnaire was divided into two sections, A and B. Section A contained questions on demography (age, sex) of targets. Section B contained questions on health (symptoms, frequency) in likert scale-points: very frequent (VF = 4), frequent (F = 3), not frequent (NF = 2), and not experienced (NE = 1). In some cases, firstaid records on the pupils/children/wards (where available) were used to corroborate volunteered information. Where multiple key informants were available, their consensus opinion was adopted.

Symptoms considered were memory loss, dizziness and nose bleeding for children. Others were fatigue, stress, sleep disorder, facial prickling, rashes, muscle pains and aches, eye symptoms (such as burning sensations), ear/nose/throat symptoms, and digestive disorders for adults. These are simple symptoms associated in literature with radiations from telecom mast antennae. The study target, who were non-health experts, could relate to and identify these symptoms. Other symptoms identified in literature, which required complex and expensive diagnostic invetigations, were avoided.

The Average Mean Score (AMS) technique (Eneh, 2014) was used to analyse the data. The decision value (DV) was calculated as the average of the four likert scale-points, as follows:

$$DV = \frac{4+3+2+1}{4} = \frac{10}{4} = 2.50$$

The calculated value (CV) was obtained with the formula:

$$CV = \frac{\sum Fx}{\sum F}$$

Where F is frequency

x is scale-point

The CV was compared with DV. If CV was greater than DV, then the response was regarded as being in the affirmative. Otherwise, it was regarded as being in the negative. The CV of experimental samples was compared with that of control in order to draw inferences on the environmental pollution health effects of electromagnetic radiations from the antennae of telecom masts located close to homes and basic schools. Various symptoms among the adults and children were thus confirmed.

RESULTS AND DISCUSSION

Table 1 shows the frequency of memory loss, dizziness and nose bleeding experienced by children in homes with telecom mast. The CV for memory loss was 2.30 for experimental group, which was less than DV (2.50), showing that respondents did not affirm memory loss as a symptom of environmental pollution by

radiations from the antennae of telecom mast located close to homes. This is understandable, since memory loss among children is not easily discernible by non-health experts. However, comparing the CV (2.30) of experimental group with that of control group (1.10) showed a wide difference (1.20) that reflected significant effect on memory retention by the presence of antennae of telecom mast located close to homes. Therefore, it was inferred that radiations from antennae of telecom mast located less than 10 metre-radius to homes predisposed children to memory loss.

Table 1: Frequency of health crises experienced by children in homes with telecom mast

S/No.	Symptom	Frequency									
		Exprimental					Control				
		VF 4	F 3	NF 2	NE 1	CV	VF 4	F 3	NF 2	NE 1	CV
1.	Memory loss	1	3	4	2	2.30	0	0	1	9	1.10
2.	Dizziness	1	3	3	3	2.80	0	0	2	8	1.20
3.	Nose bleeding	3	5	1	1	3.00	0	0	1	9	1.10

VF - very frequent (4), F – frequent (3), NF - not frequent (2), NE – not experienced (1).
DV = 2.50

On the other hand, the CV for dizziness (2.80) for experimental group was higher than DV (2.50), showing that respondents affirmed dizziness as a symptom of environmental pollution from radiations of antennae of telecom mast located close to homes. This finding was internally validated by a significant difference (1.60) between the CV (2.80) of experimental group and that of control group (1.20). Therefore, dizziness was among the health effects suffered by children living in homes with telecom masts located less than 10 metres nearby.

Nose bleeding had CV of 3.00 for experimental group, which was higher than DV (2.50). This showed that respondents affirmed nose bleeding as an environmental pollution health effect from radiations of antennae of telecom masts located less than 10 metres away. This finding was internally validated by a significant difference (1.80) between the CV (3.00) of experimental group and that of control group (1.20). Therefore, nose bleeding was among the health effects suffered by children living in homes located less than 10 metres to telecom masts.

Table 2 shows the frequency of some health crises experienced by children in basic schools harbouring telecom masts. Memory loss had CV of 2.00 for experimental group, which was less than DV (2.50), showing that respondents did not affirm memory loss as a symptom of environmental pollution by radiations from the antennae of telecom mast located close to basic educational facilities. However, comparing the CV (2.30) of experimental group with that of control group (1.10) showed a significant difference (1.20) that reflected memory loss attributable to the presence of telecom mast close to basic schools. Therefore, it was inferred that

environmental pollution from the radiations of antennae of telecom mast located less than 10 metre-radius to basic school premises predisposed the children to memory loss.

Table 2: Frequency of some health crises experienced by children in basic schools with telecom mast

S/No.	Symptom	Frequency									
		Exprimental					Control				
		VF 4	F 3	NF 2	NE 1	CV	VF 4	F 3	NF 2	NE 1	CV
1.	Memory loss	1	2	3	4	2.00	0	0	1	9	1.10
2.	Dizziness	2	4	3	1	2.70	0	0	3	7	1.30
3.	Nose bleeding	3	6	1	0	3.20	0	0	2	8	1.20

VF - very frequent (4), F – frequent (3), NF - not frequent (2), NE – not experienced (1).
DV = 2.50

The CV (2.70) for dizziness for experimental group was higher than DV (2.50), showing that respondents affirmed dizziness as a symptom of radiations from antennae of telecom mast located close to basic schools premises. This finding was internally validated by a significant difference (1.40) between the CV (2.70) of experimental group and that of control group (1.30). Therefore, dizziness was among the health effects suffered by children attending basic schools with telecom masts erected less than 10 metre-radius.

The CV (3.20) for nose bleeding for experimental group was higher than DV (2.50), showing that respondents affirmed nose bleeding as an environmental pollution health effect from radiations of antennae of telecom mast located near basic schools. This finding was internally validated by a significant difference (2.00) between the CV (3.20) of experimental group and that of control group (1.20). Therefore, nose bleeding was among the health effects suffered by children attending basic schools with telecom masts erected less than 10 metre-radius.

The finding that the children exposed to electromagnetic radiations from antennae of telecom mast suffered memory loss, dizziness and nose bleeding confirmed earlier report by *All Africa* (2012). Memory loss translates to poor school achievement and retardation in educational development of the children. Dizziness and nose bleeding are no mean health crises that task emotions and limited time and financial resources.

Table 3 shows the frequency of health crises experienced by adults (staff) of basic schools close to which telecom mast was erected. For fatigue, stress, muscles pains and aches, eye symptoms (such as burning sensations) and digestive disorders, the CVs for experimental groups (3.40, 3.60, 3.20, 2.6 and 2.60 respectively) were not only higher than DV (2.50), but also higher than CVs of control groups (1.70, 2.00, 1.5, 1.30 and 1.40 respectively). This showed that radiations from the antannae

of telecom mast predisposed adults (staff) to fatigue, stress, muscles pains and aches, eye symptoms (such as burning sensations) and digestive disorders. For sleep disturbance, facial pricking, rashes and ear/nose/throat symptoms, the CVs for experimental groups (2.40, 1.70, 1.60 and 2.30 respectively) were lower than DV (2.50), but still higher than CVs of control groups (1.80, 1.10, 1.20 and 1.60 respectively), showing that radiations from the antannae of telecom mast predisposed adults (staff) to these health crises.

Table 3: Frequency of health crises experienced by adults in basic schools with telecom mast

S/No.	Symptom	Frequency									
		Exprimental					Control				
		VF 4	F 3	NF 2	NE 1	CV	VF 4	F 3	NF 2	NE 1	CV
1.	Fatigue	4	6	0	0	3.40	1	1	2	6	1.70
2.	Stress	6	4	0	0	3.60	1	2	3	4	2.00
3.	Sleep disturbance	2	2	4	2	2.40	1	1	3	5	1.80
4.	Facial prickling	0	1	5	4	1.70	0	0	1	9	1.10
5.	Rashes	0	1	4	5	1.60	0	0	2	8	1.20
6.	Pains and aches in muscles	4	4	2	0	3.20	0	1	3	6	1.50
7.	Eye symptoms (such as burning sensations)	2	3	4	1	2.60	0	0	3	7	1.30
8.	Ear, nose and throat symptoms	2	2	3	3	2.30	0	1	4	5	1.60
9.	Digestive disorders	2	3	4	1	2.60	0	0	4	6	1.40

VF - very frequent (4), F – frequent (3), NF - not frequent (2), NE – not experienced (1).
DV = 2.50

Table 4 shows the frequency of some health crises experienced by adults in homes with telecom masts erected close-by. The CVs for experimental groups were 3.00, 2.70, 2.90, 2.80 and 2.70 for fatigue, stress, muscles pains and aches, eye symptoms (such as burning sensations) and digestive disorders respectively. They were higher than DV (2.50) and also higher than CVs of control groups (1.90, 1.50, 1.80, 1.60 and 1.70 respectively), showing that radiations from the antannae of telecom mast predisposed resident adults to fatigue, stress, muscles pains and aches, eye symptoms (such as burning sensations) and digestive disorders. The CVs for experimental groups (2.20, 1.60, 1.50 and 2.20 respectively) for sleep disturbance, facial pricking, rashes and ear/nose/throat symptoms were lower than DV (2.50), but still higher than CVs of control groups (2.20, 1.30, 1.40 and 1.90 respectively), showing that radiations from the antannae of telecom mast predisposed resident adults to these health crises.

These findings confirm the earlier report that electromagnetic radiations from the antannae of telecom mast are responsible for fatigue, stress, muscles pains and

aches, eye symptoms (such as burning sensations), digestive disorders, sleep disturbance, facial pricking, rashes and ear/nose/throat symptoms in adults (*All Africa*, 2012). Each of these health crises is undesirable. Yet, a combination of some or all these health crises could lead to complications.

Table 4: Frequency of some health crises experienced by adults in homes with telecom masts

S/No.	Symptom	Frequency									
		Exprimental					Control				
		VF 4	F 3	NF 2	NE 1	CV	VF 4	F 3	NF 2	NE 1	CV
1.	Fatigue	3	5	1	1	3.00	1	1	4	4	1.90
2.	Stress	4	4	1	1	2.70	1	3	3	3	1.50
3.	Sleep disturbance	2	1	4	3	2.20	1	1	5	3	2.00
4.	Facial prickling	0	1	4	5	1.60	0	0	3	7	1.30
5.	Rashes	0	1	3	6	1.50	0	0	4	6	1.40
6.	Pains and aches in muscles	3	5	2	0	2.90	0	3	2	5	1.80
7.	Eye symptoms (such as burning sensations)	1	5	4	1	2.80	0	2	2	6	1.60
8.	Ear, nose and throat symptoms	1	3	3	3	2.20	0	3	3	4	1.90
9.	Digestive disorders	3	3	2	2	2.70	0	2	3	5	1.70

VF - very frequent (4), F – frequent (3), NF - not frequent (2), NE – not experienced (1).
DV = 2.50

CONCLUSIONS

The study found that children exposed to electromagnetic radiations from antennae of telecom masts located close to residential and basic school premises suffered memory loss, dizziness and nose bleeding, while the adults (staff and parents/guardians) suffered fatigue, stress, muscles pains and aches, eye symptoms (such as burning sensations), digestive disorders, sleep disturbance, facial pricking, rashes and ear/nose/throat symptoms. These undesirable health crises could also combine, leading to complications, which would worsen the low health status of the average Nigerian. Thus, whatever economic gains in terms of rent derivable from hosting telecom masts within 10 metre-radius to residential and basic school premises cannot be compared to the lives of children at risk and in jeopardy of a myriad of health crises arising from the resultant environmental pollution by electromagnetic radiations from the antennae of the telecom masts. Therefore, the practice of erecting telecom masts less than 10 metre-radius to residential and basic school premises must be discouraged and the law enforced. Telecom masts ought to be kept sufficiently away from schools and homes, the immediate economic gains (rent) notwithstanding.

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EFFECTS OF TELECOMMUNICATION MASTS ON THE SOIL USING HEAVY METALS

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ABSTARCT

Sixteen soil samples were collected from five locations where telecommunication masts are installed. Upon collection, they were digested, extracted and analyzed for metal concentration by using Uv/Visible spectrophotometer. Results obtained showed mean metal concentration of iron in the range of 0.443 – 0.663mg/kg; zinc: 1.101 – 2.684mg/kg; nickel: 0.309 – 0.752mg/kg; cadmium 0.529 – 0.859mg/kg; lead: 0.01-0.01mg/kg; chromium: 0.01 – 0.01mg/kg and cobalt: 0.01 – 0.01mg/kg. all the water leaves samples analyzed were found to be contaminated with metals and amongst the metals, zinc and cadmium were in abundance as their concentrations were higher than the control and WHO standard values for vegetables the metal loading capacity thus followed the order: Cr/Co/Pb<Ni<Fe<Cd<Zn. It is therefore recommended that growing vegetables and other edible crops under telecommunication mast should be discouraged and public awareness should be created on the likely effects

Keywords: Telecommunication Masts, Heavy Metals, Soil, Concentration, Contamination.

I. INTRODUCTION

The important of communication in human life cannot be overemphasis so also the importance of communicating with the people in distanced place with their instance responses. This ability to communicate with people from far distance with instance response is one of the goodies of telecommunication. However, as it is almost impossible that a particular beneficial development will not have some side effects, the invention of telecommunication as beneficial as it is to the mankind has some negative impact on human environment (Bond and Wang 2005). The establishment of more telecommunications infrastructure such as masts and base stations has raised some environmental concerns, especially in the area of Environmental Impact Assessment. It has become a part of the environment to see tall masts in different locations around the country. These masts though helpful, are believed to have negative health effects on people living near where they are erected. It is argued that telecom towers interfere with aircrafts approaching landing and feared that towers could fall on people and property. The erection of masts clustered in built-up areas are thus said to be hazardous following the fuss about the hazardous effects of radiation of telecommunication towers on human health and the complaints about noise, vibrations and fumes from standby power generators at telecom base stations from the populace (Bientinesi *et. al.,* 2013).

The word Telecommunication is distilled from the words “tele” and “communication”. Tele means over a long distance or far while communication on other hand means the activities or process of expressing ideas or feelings or of a given people information. Communication is also defined to mean communication whether between persons or and persons, things and things, or person and things, in the form of sound, data, text, visual images, signals or any other form or any combination of those forms (Bello, 2010). Therefore, Telecommunication may be defined as the sending of signals, visual images, sound, data, text and messages over long distances by the aid of technology such as radio, telephone, television, satellite etc (Barnes, 1999). Despite the growing rate of industrialization in our country, Nigeria, little attention and concern is paid to the environment as it affects the health of occupants around its vicinity and there is also little of no availability of adequate regulatory and enforcement measures to ensure that the pollution of the environment is minimize. The aim of this research work is to determine the effects of installed communication masts on the surrounding

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soil. The objective is to determine the heavy metals such as cobalt, nickel, zinc, copper, iron lead and manganese on the surrounding soil where communication masts are installed

II. METHODOLOGY

Sampling locations

The study was carried out within Oghara town in Ethiope West Local Government Areas of Delta State, Nigeria where telecommunication masts are installed. The study sites were carefully chosen based on accessibility, freedom from obstacle where the samples were collected.

Soil sampling

Soil samples were collected at the five sampling points and at a control site with the aid of a soil auger. The soils were put in black polythene bags, labeled and were transported to the laboratory for chemical analysis. Three soil samplings were carried out at each location around the telecommunication masts and a total of fifteen (15) soil samples were collected for the five locations and one from the control site making a total of sixteen (16) samples

Sample digestion, extraction and instrumental analysis

Soil samples collected from all the locations were tested for heavy metals concentrations. The soil samples collected were dried ($80\pm10^{o}C$) for 10 hours in a hot air oven, homogenized and sieved for extraction of metals. 1.0 ± 0.05g dried and ground soil samples were placed inside a crucible and ignited at a muffle furnace at $500^{o}C$ for 3 hours. The ignited mass were cooled inside desiccators and were transferred into a 100mL borosil beaker and 10mL concentrated HCl was added and the suspensions were swirled. The suspensions were kept inside a thermostat controlled water bath in a temperature range of $70\text{-}80^{o}C$ for 1hour. The supernatants were decanted and kept inside a 100mL volumetric flask. These contain mostly alkaline earth metals. To the residue in the beaker, 10mL each of HCl (concentrated) and $HClO_4$ (concentrated 70% pure) and few porous beads were added and were evapourated to dryness over a hot plate. The process was repeated where necessary. The dried residues were dissolved completely by using minimum amount of concentrated HCl. This solution was then transferred to the same volumetric flask where previous extracts containing alkaline earth metals were stored. The flasks were then made up to volume by distilled water and stored in a refrigerator for metal analysis. The various metals were determined by atomic Absorption Spectrophotometer (AAS). The digested and extracted samples were each aspirated into the flame through an air stream as fine mist. The sample passed into the burner through a mixing chamber. The air met the fuel gas (acetylene) supplied to the burner and the mixture was burnt. The radiation from the resulting flame passed through a lens to the monochromator and then to an optical filter which permitted only the radiation characteristics of the metal under analysis and finally through a photo cell. The result was read through a monitor. Optical densities of the standard solutions of the various metal ions were measured at their wavelength and their standard curves prepared by plotting the absorbances against metal concentrations (Ekeayanwu *et. al.,* 2011)

III. RESULTS

Table 1: Metal concentrations (mg/kg) in soil around Telecommunication masts

LOCATION	Fe	Zn	Ni	Cd	Pb	Cr	Co
Mast A1	20.41	4.76	1.76	1.58	1.25	0.01	0.01
Mast A2	18.68	3.66	0.96	1.45	1.11	0.01	0.01
Mast A3	18.64	3.14	0.41	0.69	1.07	0.01	0.01
Mast B1	68.74	8.61	0.66	0.97	0.64	0.01	0.01
Mast B3	64.16	7.36	0.78	0.86	0.76	0.01	0.01
Mast B1	64.22	5.64	0.42	0.47	0.44	0.01	0.01
Mast C1	124.11	16.63	2.11	1.77	0.32	0.01	0.01
Mast C2	118.66	16.14	1.66	0.96	0.27	0.01	0.01

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Mast C3	117.76	12.66	0.64	0.47	0.16	0.01	0.01
Mast D1	54.61	7.33	6.64	1.66	0.76	0.01	0.01
Mast D2	50.11	6.84	5.44	1.43	0.61	0.01	0.01
Mast D3	50.66	4.66	5.37	0.76	0.37	0.01	0.01
Mast E1	126.61	21.44	1.66	0.96	0.09	0.01	0.01
Mast E2	117.76	20.34	1.74	0.54	0.03	0.01	0.01
Mast E3	112.78	16.33	0.96	0.48	0.04	0.01	0.01
CONTROL	12.66	2.17	0.26	0.06	0.01	0.01	0.01

Table 2: Mean metal concentrations (mg/kg) in soil around Telecommunication Masts in comparison with WHO targeted value for unpolluted soil

LOCATION	Fe	Zn	Ni	Cd	Pb	Cr	Co
Mast A	19.24±1.66	3.85±0.16	1.04±0.06	1.24±0.04	1.14±0.09	0.01±0.00	0.01±0.00
Mast B	65.71±2.61	7.20±0.86	0.64±0.04	0.76±0.03	0.61±0.04	0.01±0.00	0.01±0.00
Mast C	120.18±2.16	15.14±1.38	1.47±0.16	1.07±0.01	0.25±0.04	0.01±0.00	0.01±0.00
Mast D	51.79±1.26	6.28±0.03	5.98±0.01	1.28±0.02	0.58±0.04	0.01±0.00	0.01±0.00
Mast E	119.05±12.11	19.64±2.66	1.45±0.06	0.66±0.04	0.05±0.01	0.01±0.00	0.01±0.00
Control	12.66	2.17	0.26	0.06	0.01	0.01	0.01
WHO (2008)	N/A	50.00	35.00	0.30	85.00	100	N/A

Note: Note Available

IV. DISCUSSIONS

Table 1 showed the results of metals concentration of soils at telecommunication masts in the study locations while table 4.2 showed the mean metals concentration in comparison with target values of soil in unpolluted soils. Lead was found present in all the soil samples investigated from the areas around the telecommunication masts. The lead concentration ranged from 1.07 – 1.25, 0.44 – 0.76, 0.16 – 0.32, 0.37 – 0.76 and 0.03 – 0.09mg/kg respectively for masts A – E with corresponding means of 1.14, 0.61, 0.25, 0.58 and 0.05mg/kg respectively. The concentration of lead in the soils surrounding the masts were found to be higher than that of the control with 0.01mg/kg but lower than the targeted value provided by the World Health Organization (WHO) for unpolluted soils.

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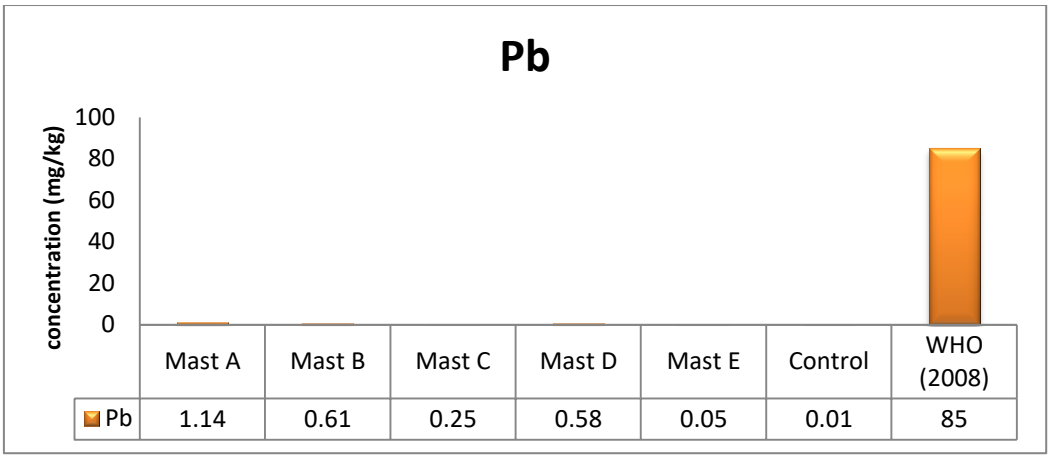

Fig 1: Lead concentration in soil compared with control and WHO standard

The difference in the lead values compared to the control site suggested contamination which could be attributed to the anthropogenic activity around the masts. Statistical analysis of the locations and the control showed that there is a significant difference ($p \leq 0.05$). The difference observed in the soil could have resulted from leaching of metals used in building the masts into the soil and the presence of emission of carbonates from the generating sets used in powering the masts as the carbonate enhance the principal retention mechanism of lead in soils around the surrounding soil.

Zinc concentration was found in the range of 3.14 – 4.76, 5.64 – 8.61, 12.66 – 16.63, 4.66 – 7.33 and 16.33 – 21.44mg/kg for masts A – E respectively with corresponding means of 3.85, 7.20, 15.14, 6.28 and 19.54mg/kg. zinc concentration observed from the soil surrounding the communication mats were higher than that of the control which is 2.17mg/kg but lower than the WHO targeted value of 50mg/kg for unpolluted soil.

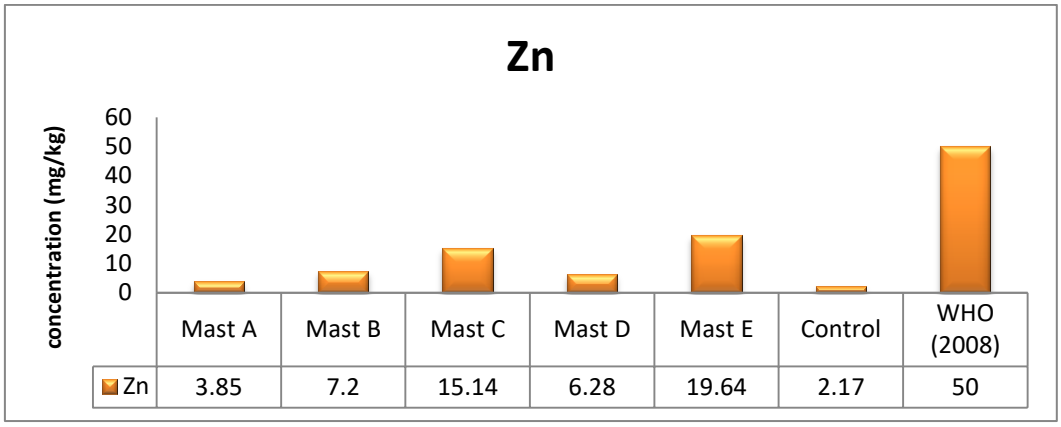

Fig 2: Zinc concentration in soil compared with control and WHO standard

Statistical analysis showed that there is significant difference between the study soil and the control ($p \leq 0.05$). This difference thus suggested contamination which could be attributed to the gradual wearing out of metals used in constructing the masts which seeps into the soil and is retained there; the use of petroleum diesel could also contaminate the soil and emission from the power generating set around the masts.

Nickel was found in the range of 0.41 – 1.76, 0.42 – 0.78, 0.64 – 2.11, 5.44 – 6.64 and 0.96 – 1.74mg/kg for masts A – E respectively with corresponding means of 1.04, 0.64, 1.47, 5.98 and 1.45mg/kg. Lead concentration in all the soils analyzed were found to be within the permissible value of WHO which is 35mg/kg for unpolluted soil but were higher than the control soil value of 0.26mg/kg. Statistical analysis of the results showed that there is a significant difference ($p \leq 0.05$) between the studied sites and the control.

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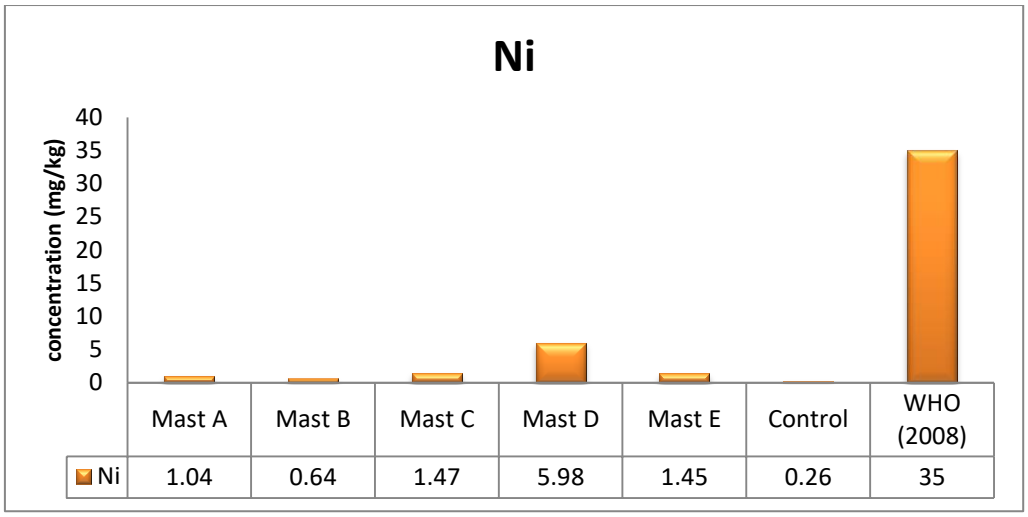

Fig 3: Nickel concentration in soil compared with control and WHO standard

The difference in values between the studied sites and the control could be attributed to generation of electronic wastes which were used in the construction and servicing of the masts like circuit boards from computer, operation and maintenance of backup generators and service vehicles may also results in the generation of used tires, waste oils and used filters. The presence of these substances in the soil during servicing of the masts tends to contaminate the soil and increase the presence of metals in the soil.

The presence of cadmium in the soil around the telecommunication masts was found in the range of 0.69 – 1.58, 0.47 – 0.86, 0.47 – 1.77, 0.76 – 1.66 and 0.48 – 0.96mg/kg for masts A – E respectively with corresponding means of 1.24, 0.76, 1.07, 1.28 and 0.66mg/kg respectively. The concentration of cadmium in the study locations were higher than that of the control with value of 0.06mg/kg and that of the WHO of 0.3mg/kg for unpolluted soils.

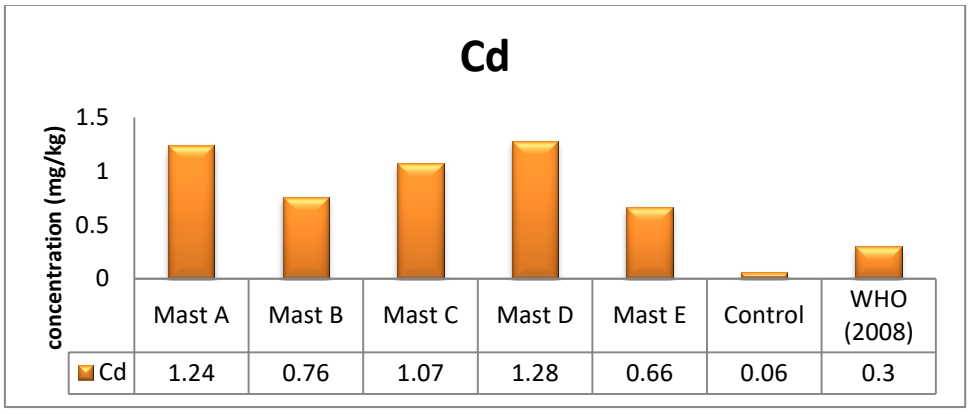

Fig 4: Cadmium concentration in soil compared with control and WHO standard

The differences in these values could be attributed to the presence of potential materials used during the installation process and the cooling equipment which contain refrigerants which also contain cadmium as materials used in refrigerants. These materials find their way into the soil and contaminate it and during rainfall, they are washed and distributed round the soil and thus contaminate the soil.

Iron which is a naturally occurring element in soil was found in the range of 18.64 – 20.41, 64.16 – 68.74, 117 – 124.11, 50.11 – 54.61 and 112.78 – 126.61mg/kg with corresponding means of 19.24, 65.71, 120.18, 51.79 and 119.05mg/kg respectively for masts A – E respectively. All the soil samples analyzed recorded iron value higher than that of the control site with 12.66mg/kg.

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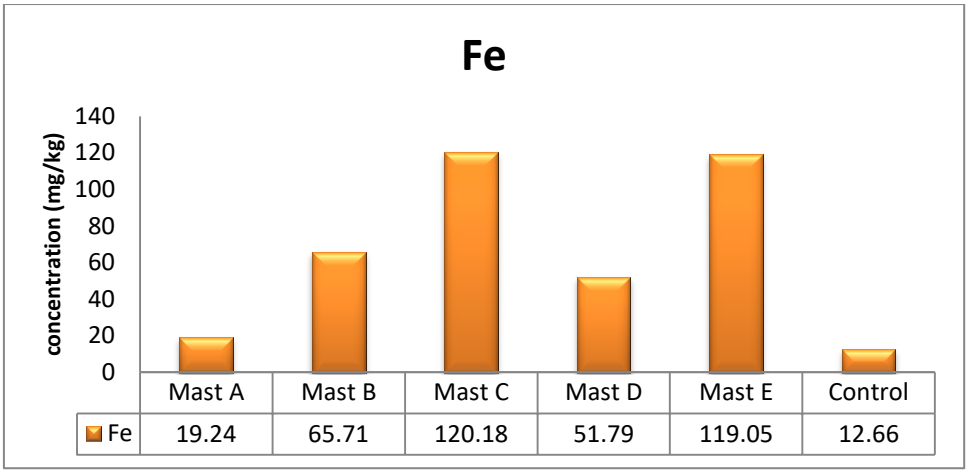

Fig 5: Iron concentration in soil compared with control and WHO standard

Though iron is naturally occurring in soil, it is worthy to mention that the increase or difference the studied sites and the control could be attributed to the presence of iron materials used in the construction of the masts, generating sets and other materials used for servicing which wears out and are washed into the soil over a long period of time. Statistical analysis of the results and control showed significant difference ($p \leq 0.05$) between the locations and control.

The presence of chromium and cobalt were found to be 0.01mg/kg for all locations, means and control and these values were all within the permissible values of the WHO for unpolluted soils.

Contamination of the soils around the telecommunication masts were found to be reducing as one moves away from the masts in all the locations. This showed that the presence of the telecommunication masts in the surrounding has great effects on the soil. This could be as a result of the materials used for the construction, the use of diesel in power generating sets, servicing vehicles and other man made activities around the sites. Amongst the metals investigated, iron was in abundance followed by zinc, nickel, cadmium while chromium and cobalt were the least. Thus the contamination of the soil by metals followed the order: Fe>Zn>Ni>Cd>Pb>Cr/Co.

V. CONCLUSION

The widespread of telecommunication masts around our vicinity have dramatically affected the surrounding soil unknown to the operators and occupants around the vicinity. This has increased the concentration of metals in the soil. Amongst the metals investigated, iron was in abundance followed by zinc, nickel, cadmium, lead while chromium and cobalt are the least. The soils were therefore found to be contaminated as metal concentration around the telecommunication masts were higher than that of the control site.

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Effects of Telecommunication Mast Electromagnetic Radiation (EMR) on Exposed Rats (*Rattus norvegicus*)

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Abstract

Background: The safety of electromagnetic radiation (EMR) from modern telecommunication devices is controversial as some studies reported negative effects, while others reported no effects. Thus, more studies are necessary to clear the controversy, so as to design appropriate precautionary and palliative measures if found toxic.

Objective: This study was conducted to determine the effects of telecommunication mast EMR on selected health indices of rats (*Rattus norvegicus*).

Materials and Methods: Twenty-four (24) rats were divided into two groups of 12 rats each. Group 1 was made the control, while group 2 was exposed to 18000 MHz EMR at 50 m from a telecommunication mast. The weight, body temperature, reproductive activities, and reactions of the rats were observed for 60 days. Thereafter, the rats were sacrificed and their blood parameters, liver function, and histology were examined.

Results: The exposed rats were less active, weighed and reproduced less, had lower offspring survival rates and insignificantly ($P > 0.05$) elevated body temperature. The white blood cells (WBC) of the exposed rats were significantly increased ($P < 0.05$), while the packed cell volume (PCV), hemoglobin (Hb), red blood cells (RBC), and lymphocytes were reduced. The aspartate aminotransferase (AST), alkaline phosphatase (ALP), alanine aminotransferase (ALT), and total protein (TP) of the exposed rats were significantly increased, while the albumin (ALB) was significantly reduced. The ovary, lung, and kidney tissues of the exposed rats showed no abnormalities, but necrosis of the hepatocytes and fat were observed in their livers and the skins, respectively.

Conclusion and Recommendation: It is concluded that electromagnetic radiation (EMR) from modern telecommunication devices harmed the health of exposed rats. It is inferred from the results that EMR has negative effects on the health of mammals. Hence, it is advisable not to site telecommunication masts close to dwelling places.

Keywords: EMR; Lymphocytes; Necrosis; PCV; Rat; Telecommunication mast

1. Introduction

Electromagnetic radiation (EMR) is widely used in modern technologies. However, some of these devices may emit EMR strong enough to induce toxicity in biological systems, thus necessitating their safety evaluation. EMR is an energy that moves in waves and takes many forms, such as radio waves, microwaves, heat waves, ultraviolet light, infrared light, x-rays, and gamma rays (Jim, 2015). Among the EMR forms, gamma rays have the shortest wavelength, being less than a nanometer, while radio waves have the longest wavelength, being more than a nanometer (Jim, 2015). The length of the wavelength is inversely proportional to the amount of energy. Thus, short-wavelength radiations have more energy than long-wavelengths (Cleaver *et al*., 2010). As such, gamma rays, x-rays, and some ultraviolet waves with short wavelengths have a high amount of energy and frequency to knock out electrons from atoms and are termed ionizing EMR (Nagaraja, 2019). EMR such as radio waves, microwaves and heat waves have a long wavelength which results in low frequency and energy and are termed non-ionizing EMR (WHO, 2019).

Acute exposures to ionizing EMR can cause skin burns or radiation syndrome, while prolonged exposures may cause chronic diseases (WHO, 2018). These chronic diseases include cancers, mental disorders, neurologic illnesses, fetal abnormalities, cardiovascular diseases, sleep disorders, etc. (Naeem, 2014; Batool *et al*., 2019). A non-ionizing EMR can set an atom in motion but does not have enough energy to remove or alter it (USEPA, 2019). However, long-term exposure to large amounts of non-ionizing EMR may result in heat-related health

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hazards such as skin burns, premature aging of the skin, eye damage, and skin cancer (CDC, 2015).

However, controlled EMR can be used in the hospital to treat diseases, especially to destroy cancer cells (Nagaraja, 2019). EMR is also used in academics, industry, agriculture, archaeology (carbon dating), space exploration, law enforcement, geology (e.g. mining), as well as for generating electricity, among others (USNRC, 2017). Additionally, EMR is used in modern technologies such as mobile phones, wi-fi, computer, and television.

Electromagnetic radiations have numerous sources, which are classified into natural and man-made (ACS, 2019). Natural sources include cosmic microwaves, infrared light, visible light, among others, while artificial sources include light bulbs, gas discharge lamps, x-ray machines, lasers, radiotherapy equipment, nuclear facilities, etc. (Julie *et al.,* 2014; Panagopoulos *et al.*, 2015). Modern telecommunication facilities, particularly telecommunication masts, mobile phones, among others, are some recent additions to the list of suspected EMR sources (Olatunde *et al.*, 2011). Modern telecommunication devices have helped revolutionize communication and formed part of human socioeconomic life. However, there is a controversy surrounding the safety of the EMR from mobile phone devices. While some studies like Al-Glaib *et al.* (2008) and El-Bediwi *et al.* (2011) linked mobile phone EMR to health hazards, some others like Keykhosravi *et al.* (2018) and USFG (2020) found no link. Thus, more studies are needed to clear the controversy, so as to design appropriate precautionary and palliative measures if found toxic. To this end, this study assessed the effects of telecommunication mast EMR on some exposed rats in Kalgo, Kebbi State, Nigeria.

2. Materials and Methods

2.1. Description of Study Area

The study was carried out in Kalgo, northwestern, Nigeria. Kalgo is about 15 km from Birnin Kebbi, the capital city of Kebbi State. Kalgo is a nodal town, along the intersection of Birnin Kebbi-Jega Road and Birnin Kebbi-Bunza Road on latitude 12°27'57.8808' North and longitude 4°11'58.2864' East (Figure 1). It has a telecommunication mast density of at least 20, most of which are located in residential areas. Kebbi State is bordered by Sokoto State in the north, Niger State in the south, Katsina and Zamfara State in the east as well as Niger and Benin Republic in the west. As of 2006, at least 3,256,541 people lived in the state (Population Council, 2007), mostly artisans and farmers. The natural vegetation of the state comprises a mixture of Sudan and Guinea Savannah. However, long-term anthropogenic activities have changed the natural vegetation of the state to mainly Sudan Savannah vegetation. The climate of the state is characterized by a long dry season and short wet season with an annual rainfall of about 787 mm (Yahaya *et al.*, 2020). The temperature could fall below 20 °C and rise above 40 °C.

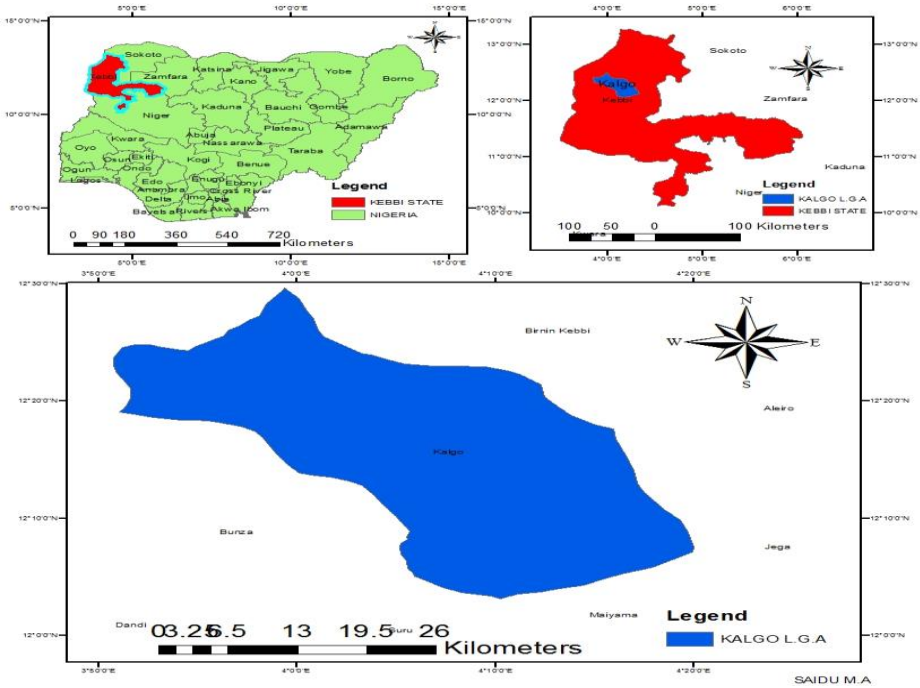


Figure 1. Locations of Kalgo, Kebbi State, Nigeria (ArcGIS 10.3 software).

2.2. Sources of Animal Samples and Management

The study was approved and conducted according to the guidelines set by the Animal Ethics Committee of Federal University Birnin Kebbi, Nigeria. Twenty-four (24) mixed-sex rats (*Rattus norvegicus*), aged 50 days and mean weight 201 ± 11 g were sourced from the Department of Biology, Federal University Birnin Kebbi in December 2019. The rats were managed in well-ventilated metal cages, under ambient conditions with a 12h light/dark cycle. The rats were allowed to acclimatize to the environment for 14 days before commencing the study. Water and pellet feeds purchased from the Vital Feed Industry, Lagos, Nigeria, were fed to the rats *ad libitum*.

2.3. Study Design

The rats were divided into two groups of 12 rats each (6 males and 6 females), of which group one was made the control and placed away (at about 1 km) from all sources of EMR. Group 2 was exposed to 18000 MHz EMR at about 50 m from a telecommunication mast (Aderoju *et al.*, 2014). The weight, reproductive activities, body temperature, and reactions of the rats were observed daily for 60 days, after which the rats were sacrificed by cervical dislocation. Blood samples were taken for hematological and liver function tests and the livers, lungs, kidneys, skins and ovaries were obtained for histopathological examination.

2.4. Procedure for Blood Collection

Each rat was held firmly while its tail was swapped with alcohol to disinfect the tail veins. The veins were then pierced with a 5 ml syringe, 20 gauge needle, and about 2.5 ml of blood was drawn slowly and transferred to bottles containing disodium ethylenediaminetetraacetic acid (Na_2EDTA).

2.5. Measurement of EMR, Body Temperature, Weight, and Reactions

The EMR around the telecommunication mast was measured using a Trifield EMR meter (model TF2) and the body temperature was measured by inserting a clinical thermometer into the rectal cavity of the rats. The weight was measured using an electronic weighing balance, while the rats' reactions were scored very active, active, or not active based on the interactions with other rats, feed intake, and mobility.

2.6. Hematological Tests

2.6.1. Determination of packed cell volume (PCV)

The PCV was determined using the micro-hematocrit centrifuge method described by Bull and Hay (2001). Two-third of a capillary tube was filled with each of the blood samples and one end of the tube was sealed using a Bunsen burner flame to prevent leakage, before and during spinning in the hematocrit centrifuge machine. The capillary tubes were labeled, arranged in the micro-hematocrit centrifuge machine, and centrifuged at 12,000 rpm for five minutes. The centrifugation separated the blood plasma from the red blood cells in the tubes, which was then measured using a micro-hematocrit reader.

2.6.2. Determination of hemoglobin (Hb)

The Hb content was measured using the cyanmethemoglobin method as described by Hope *et al.* (2019). About 0.02 ml of blood was transferred into a test tube containing 5 ml Drabkin's reagent. The solution was mixed thoroughly and allowed to stand for 10 minutes at 250 °C to allow cyan-methemoglobin to form. The mixture was then transferred into a cuvette and read on a spectrophotometer at a wavelength of 540 nm. The reading recorded was compared with a pre-calibrated chart to obtain the actual Hb values in g dl^{-1}.

2.6.3. Determination of white (WBC) and red blood cells (RBC)

The WBC and RBC were estimated using the improved Neubauer hemocytometer as described by Cheekurthy (2019). The blood samples were diluted at a ratio of 1:200 with ammonium oxalate and Hayem's solution and added to the hemocytometer chamber. The WBC being bigger was counted from the four corner squares of the chamber. To estimate the RBC, the small squares in the middle of the chamber were zoomed, and the RBC counted.

2.6.4. Determination of lymphocytes

The lymphocytes were estimated as described by Heather and Tim (2016). A drop of each blood sample was smeared on a clean glass slide and stained with a Wright-Giemsa dye, which helped differentiate the subtypes of the WBC in the sample. The number of lymphocyte cells was then calculated using an automated blood count machine.

2.7. Liver Function Tests

The liver function tests were performed from the blood serum, which was prepared as described by Henry (1979). Blood samples in covered test tubes were allowed to clot by leaving it undisturbed at room temperature for about 30 minutes. The clots were then removed by centrifuging between 1000 and 2000 x g for 10 minutes in a refrigerated centrifuge. The resulting supernatant (serum) was immediately transferred into a clean polypropylene tube using a Pasteur pipette and then used to determine the liver enzymes and proteins outlined below.

2.7.1. Determination of alanine aminotransferase (ALT)

The ALT activity was estimated by colorimetric method described by Mirmiran *et al.* (2019). A reagent, 2, 4 dinitrophenyl hydrazine was added to the blood serum, producing pyruvate hydrazine. The ALT was measured using a Cobas Mira Plus CC Chemistry Analyzer

(Switzerland) based on the colorimetric measurement of pyruvate hydrazine formed.

2.7.2. Determination of aspartate aminotransferase (AST)

The same colorimetric method used to determine the ALT activity was also used for the AST. However, the reagent, 2, 4 dinitrophenyl hydrazine was replaced with 2, 4 nitrophenyl hydrazine, producing oxaloacetate hydrazine. The colorimetric measurement of the oxaloacetate hydrazine concentration was used to estimate the AST activity.

2.7.3. Determination of alkaline phosphatase (ALP)

The ALP activity was determined using the spectrophotometric method described by Bergmeyer and Bernt (1974). About 0.02 ml of the blood serum was added to 1.0 ml diethanolamine buffer, pH 9.9, magnesium chloride (MgCl2), and a substrate, p-nitrophenyl phosphate. The mixture produced was stirred, and the absorbance was taken over 1, 2 and 3 minutes using a timer at 405 nm in a spectrophotometer. Change in absorbance taken after 2 and 3 minutes was used to determine the final absorbance of ALP.

2.7.4. Determination of total protein (TP)

The Biuret method described by Layne (1957) was used to determine the TP. About 0.02 ml of the blood serum was treated with an equal volume of 1% sodium hydroxide followed by a few drops of aqueous copper (II) sulfate. The mixture was stirred and incubated for 10 minutes at room temperature, after which the absorbance of the colored solution was read at 546 nm.

2.7.5. Determination of albumin (ALB)

The bichromatic digital endpoint method described by Kelly (1979) was used to determine the ALB concentrations. About 1.0 ml of Bromcresol purple (BCP) was added to 0.02 ml of the blood serum, producing BCP–ALB complexes. The change in the absorbance at 600 nm was measured with a spectrophotometer and considered the concentration of ALB in the sample.

2.8. Evaluation of Reproductive Performance

The reproductive performance of the rats was evaluated from the numbers of the reproductive cycle completed by females in each group and the number of offspring born per birth. The offspring survival rate in each group was also calculated by taking the percentage of the offspring that survived from the total offspring born per female.

2.9. Histopathological Examination

The histopathological examination was carried out as described by Tajudeen *et al.* (2020). About 5 mm thick samples of the selected tissues were preserved in 10% neutral buffered formalin solution to prevent putrefaction and maintain the original structures and shapes of the tissues. The tissues were then dehydrated using increasingly concentrated alcohol (60, 80, and 100%) and then embedded in paraffin wax. The embedded tissues were thereafter sectioned at 5 μm with a rotary microtome (model YR421), spread on glass slides, and air-dried. Hematoxylin and eosin dyes were used to stain the slides and viewed under a light microscope for histopathological abnormalities.

2.10. Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 20 for Windows. The Student's *t*-test was used to compare the differences between the test and control groups in which $P \leq 0.05$ was considered a significant difference.

3. Results and Discussion

3.1. Effects of the EMR on Rats' Weight, Body temperature and Reactions

Compared with the control, the exposed rats had insignificantly ($P > 0.05$) elevated body temperature, were less active, and weighed significantly ($P < 0.05$) less (Table 1). An earlier study by Wyde *et al.* (2018) also observed non-significant elevated body temperature in some rats exposed to mobile phone EMR. However, Forouharmajd *et al.* (2018) and Mai *et al.* (2020) reported a significantly elevated body temperature in some mice exposed to mobile phones EMR. Changes in the body temperature could result from an interaction between EMR and a primary cold sensor in mammals known as transient receptor potential cation channel subfamily melastatin member 8 (TRPM8) receptors (Mai *et al.*, 2020). The non-consistence of the mentioned studies and the present study could be due to the varied distances of the test subjects from the communication gadgets. In a survey conducted by Akintonwa *et al.* (2008), 57.72% of the participants who suffered from EMR-related diseases, including increased body temperature lived close to telecommunication masts (less than 50 m). The authors concluded that the hazards of EMR from communication devices and facilities are directly proportional to the proximity and duration of exposure.

The loss of weight observed in the exposed rats could be a sign of cytotoxic interactions between the EMR and the rat cells. According to Gye and Park (2012), EMR exposure may generate free radicals, causing cell growth inhibition, protein misfolding, and DNA breaks. Earlier studies by Aziz *et al.* (2010) and Srivastava *et al.* (2017) also reported growth retardation among some rats exposed to 900 MHz EMR from mobile phones. However, Sani *et al.* (2018) recorded a weight increase by some rats exposed to low EMR from mobile phones, while Lee *et al.* (2004) recorded no weight gain in rats exposed to 60 MHz EMR.

Table 1. Weight, body temperature and reactions of rat exposed to telecommunication Mast EMR.

Group	Weight gain (g)	Average temperature (°C)	Reaction
Control	4.10 ± 1.1	32.10 ± 2.2	Very active
Exposed	2.30 ± 0. 8*	33.16 ± 2.4	Active

Note: Values were expressed as mean ± SD (n = 12); the value with an asterisk (*) in the column is statistically different from the control at p ≤ 0.05 (student's t-test).

3.2. Effects of the EMR on Hematological Parameters

The levels of the WBC of the exposed rats were significantly higher ($P < 0.05$) than the control, indicating that the body recruited more immune cells to fight the absorbed EMR (Table 2). Adebayo *et al.* (2019) also observed elevated WBC levels in some rats exposed to 1.40 W cm^{-2} EMR at 24 m from the base of telecommunication masts. The authors opined that the elevated WBC levels could be an indicator of self-defense mechanism against exposure to foreign bodies. In contrast to the WBC, the levels of the PCV, Hb, RBC, and lymphocytes of the exposed rats were reduced, but the reduction was significant ($P < 0.05$) only in the levels of the PCV and lymphocytes. The reduced blood parameters indicate that the rats were anemic, possibly modulated by the reduced activities noticed in the rats, which could have resulted in loss of appetite and fewer feed intakes, culminating in iron deficiency. According to Tatala *et al.* (1998), dietary iron deficiency is a major cause of anemia. The reduction in the blood parameters could also mean the EMR induced oxidative damage in the rats' blood cells. According to Adebayo *et al.* (2019), EMR exposure may induce oxidative stress in animal systems, resulting in the reduction of blood parameters. Previous studies by Singh *et al.* (2013) and Aberumand *et al.* (2016) also found significant decreases in the levels of Hb, RBC, and blood platelets of some mice exposed to mobile phone EMR. However, Sani *et al.* (2018) reported an increase in the Hb and RBC levels of some rats exposed to EMR from mobile phones.

Table 2. Blood parameters of the rats exposed to telecommunication mast EMR.

Parameter	Control	Exposed
PCV (L L^{-1})	0.28 ± 0.01	0.26 ± 0.01*
HB (g dL^{-1})	9.43 ± 2.2	8.67 ± 2.0
WBC (mc mm^{-3})	6.32 ± 1.9	11.36 ± 3.3*
RBC (mc mm^{-3})	5.30 ± 1.0	4.73 ± 1.4
LYM (c μL^{-1})	91.93 ± 2.6	81.03 ± 4.1*

Note: Values were expressed as mean ± SD (n = 12); the values with an asterisk (*) in the row are statistically different from the control at p ≤ 0.05 (student's t-test); PVC = packed cell volume; Hb = hemoglobin; WBC = white blood cells and LYM = lymphocytes.

3.3. Effects of the EMR on Liver Function Enzymes and Proteins

Table 3 compares the effects of the EMR on the liver enzymes and proteins of the exposed rats with the control. The TP, AST, ALP, and ALT of the exposed rats were significantly increased ($P < 0.05$), while the ALB was significantly reduced. These findings agree with El-Bediwi *et al.* (2011) and Ghaedi *et al.* (2013) who observed elevated levels of AST and ALT as well as decreased levels of ALB in some rats exposed to mobile phone radiation. The increase in the liver enzymes of the rats in the present study could mean a sign of liver damage. According to El-Bediwi *et al.* (2011), the membrane of hepatocytes (liver cells) is highly permeable, so when the liver is injured, the liver enzymes are released into the bloodstream, raising the levels of the enzymes in the blood. The decrease in the ALB levels could indicate oxidative stress from the EMR, damaging the ALB molecules. According to Jbireal *et al.* (2018), EMR may generate reactive oxygen species, damaging cellular components such as proteins, lipids and DNA.

Table 3. Levels of the liver enzymes and proteins of the rats exposed to telecommunication mast EMR.

Parameter	Control	Exposed
TP (g L^{-1})	70.000 ± 0.58	95.00 ± 12.1*
ALB (g L^{-1})	40.67 ± 0.88	33.33 ± 0.88*
ALP (IU L^{-1})	21.00 ± 0.58	26.67 ± 3.18*
AST (IU L^{-1})	11.67 ± 0.88	21.02 ± 2.01*
ALT (IU L^{-1})	13.33 ± 0.67	19.00 ± 2.08*

Note: Values were expressed as mean ± SD (n = 12); the values along the same row with an asterisk (*) are statistically different from the control at $p \leq 0.05$ (student's t-test).

3.4. Effects of the EMR on Reproductive Performance

Table 4 reveals the effects of the EMR on the reproductive activities of the rats. While the control rats completed two reproductive cycles during the duration of the experiments, the exposed rats did one cycle. The number of offspring per birth and the offspring survival rates of the control rats were also higher than the exposed rats. These observations showed that the EMR reduced the reproductive function of the exposed rats and the survival rates of their offspring. The reduced offspring survival rates could be due to exposure during fetal development and after birth. The reduced reproductive function could result from the reduced activities of the rats, which could have reduced the mating frequency of the rats. The EMR could also induce sperm abnormalities in the exposed rats. According to Adah *et al.* (2018) and Kesan *et al.* (2018), EMR may induce oxidative stress, causing hormonal, sperm and testicular abnormalities. EMR exposure may also affect estrous cycle, pregnancy success, and fetal development (Gye and Park, 2012). An earlier study by Magras and Xenos (1997) observed a loss of reproductive function indicated by progressive decrease in the number of newborns in mice exposed to between 168 nW cm^{-2} and 1053 nW cm^{-2} RF-EMR.

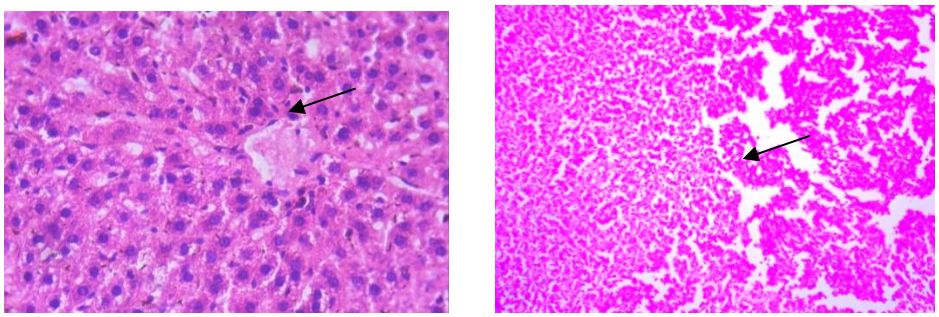
Table 4. Reproductive performance of the rats exposed to telecommunication mast EMR.

Group (n = 12)	No of reproductive cycles in 60 days	Offspring per birth	Offspring survival rate (%)
Control	2	12	90.00
Exposed	1	8	81.91

3.5. Histopathological Effects of the EMR

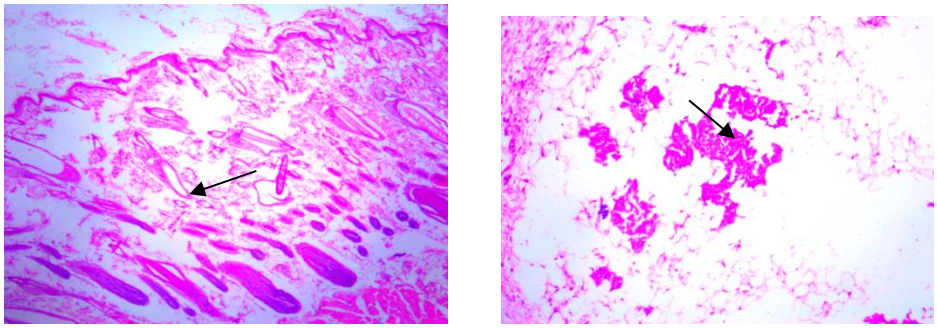
The effects of the EMR on the livers, skins, ovaries, kidneys, and lungs of the exposed rats are shown in Plates 1 to 5. While normal hepatocytes were seen in the livers of the control rats (Plate 1a), necrosis of the hepatocytes were observed in the livers of the exposed rats (Plate 1b). The skins of the control rats (Plate 2a) had mild thinning of the epidermis, while fat necrosis was observed in the epidermis of the exposed rats (Plate 2b). There were no histological changes in the ovaries of the control and exposed rats as both showed normal ovarian follicles (Plates 3 a and b). Plates 4 a and b also showed no abnormalities in the kidneys of the control and exposed rats as both groups had normal glomeruli and tubules. Similarly, normal alveolar spaces were observed in the lungs of the control and exposed rats (Plates 5 a and b).

The presence of necrosis in the livers and the skins of the exposed rats proved that the EMR was strong enough to induce biological effects, particularly tissue damage. Liver and kidney damage in rats exposed to 900 MHz EMR were reported by El-Bediwi *et al.* (2011) and Deniz *et al.* (2017). Akintonwa *et al.* (2009) also reported skin irritations among people living near telecommunication masts. EMR causes histopathology damage by inducing oxidative stress in the tissues of the exposed organisms, generating free radicals (Oktem *et al.*, 2005; Kıvrak *et al.*, 2017). The normal histology of the lungs, kidneys, and ovaries of the exposed rats in this study suggests that the livers and the skins are the most affected, or points of the first contact by the EMR. These claims are justifiable because the skin is the body's contact with the environment and the liver is the body's main detoxifier. The normal histology of the ovary further showed that the reduced reproductive function observed in the exposed rats could have been induced by other factors listed earlier.



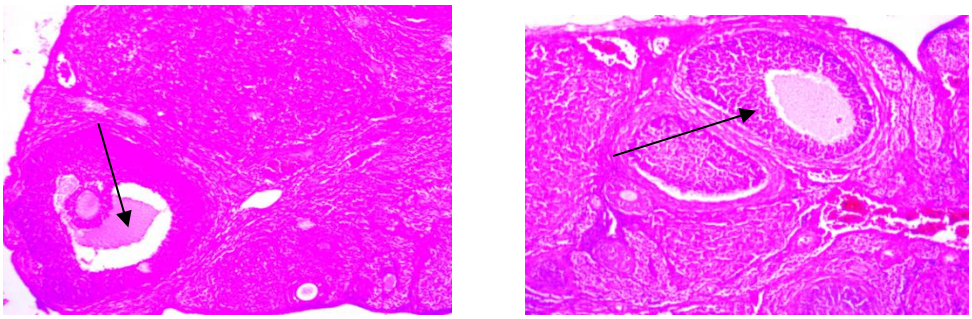
[a] **[b]**

Plate 1. Photomicrographs of the livers of the control rats (a) showing normal hepatocytes and exposed rats (b) showing necrosis of the hepatocytes (x 100).



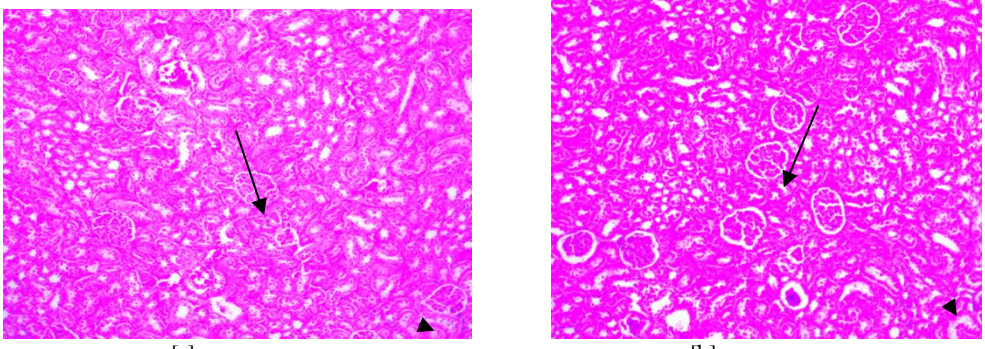
[a] [b]

Plate 2. Photomicrographs of the skin of the control rats (a) showing thinning of the epidermis and exposed rats (b) showing fat necrosis (x 100).



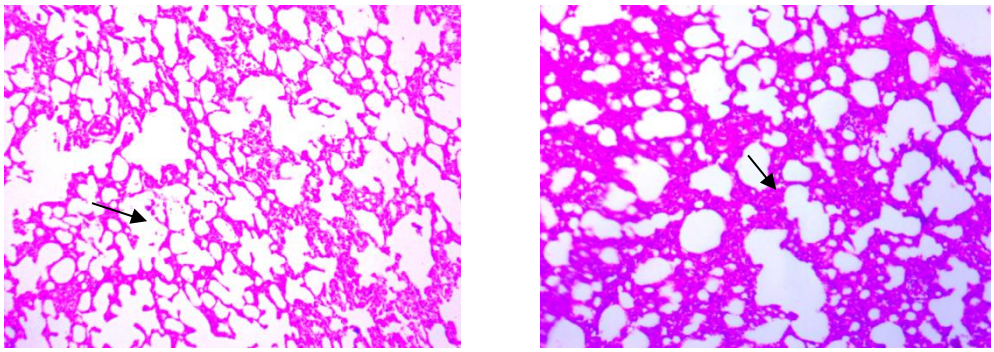
[a] [b]

Plate 3. Photomicrographs of the ovaries of the control (a) and exposed rats (b) showing normal ovarian follicle (x 100).



[a] [b]

Plate 4. Photomicrographs of the kidneys of the control (a) and exposed rats (b) showing normal glomeruli (long arrows) and tubules (short arrows) (x 100).



[a] [b]

Plate 5. Photomicrographs of the lungs of the control (a) and exposed rats (b) showing normal alveolar spaces (x 100).

4. Conclusion

The results of this study have established that exposure to telecommunication mast EMR can induce toxicity in biological systems. In particular, the EMR interfered with the functions of the selected health indices of the exposed rats, resulting in reduced reactivity. The exposed rats also weighed less than the control, indicating mitotic cell death or a loss of appetite consequent of the reduced activities. Similarly, the blood parameters as well as the liver enzymes and proteins of the exposed rats were altered, suggesting anemia and liver damage, respectively. The presence of necrosis in the livers and the skins of the exposed rats further proved the toxicity of the EMR. The exposed rats also showed reduced reproductive activities and offspring survival rates, which add to the body of evidence that EMR from the telecommunication mast was strong enough to cause harmful effects. Collectively, the findings of the study showed that exposure to telecommunication mast EMR can induce toxicity to cells and hence affect their functions. While we recommend further studies, it is advisable to site telecommunication masts away from dwelling places.

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ANALYSIS OF RESIDENT PERCEPTION OF LIVING CLOSE TO TELECOMMUNICATION MASTS.

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INTRODUCTION

Background To The Study

The increasing need for functional telecommunication networks to service the desires and need of the teeming users for effective communication and the use of mobile phones has increased dramatically over the last decade. The launch of Global System for Mobile (GSM) Communications in Nigeria in 2001 heralded a dawn of relieve to teeming Nigerians.

Today services like mobile TV, electronic payments, mobile tracking services, cheaper international calls, internet banking, and mobile banking etc. occasioned by mobile telecommunication are commonplace in the country. GSM has become a vital and an indispensable tool of transmitting or exchanging information for a modern man (Bello, 2010).

Wireless digital telecommunications, the internet and information communication technology have revolutionized the world and the impact of information technology (IT) has been felt in all economic and social activities in every conceivable manner. The convergence of all forms of communications on the digital playfield is opening up immense new possibilities of achieving speed, versatility, and space-time independence. The use and deployment of cellular phones and other wireless communication facilities around the world is phenomena, it has not only reduced the world into a global village but more importantly into a global household. What was once solely a business tool; wireless phones are now a mass market consumer device

contributing positively, to the Gross Domestic Products (GDP) of various countries and providing job opportunities to millions of youths, professionals and even petty traders (Otubu, 2012).

GSM base stations and cellular telephone masts form part of the infrastructure required for an effective communication system. In order to have optimal network coverage, most base stations locate in close proximity to the target users; this is the reason telecom operators also site their masts in residential neighborhoods. The base stations transfer signals between mobile telephones and a network for mobile or normal telephony by means of radio frequency electromagnetic fields. The increasing number of people being exposed to the electromagnetic fields used for the data transfer between mobile telephones and base stations and the possible negative effect on health has been a thing of concern to many people including researchers. Many studies have linked certain health condition to hazard of exposure to electromagnetic fields.

Although studying effects of electromagnetic field on health have been discouraged by authoritative bodies like WHO (2006) International EMF Project and COST 281(Kundi and Hutter, 2009), available literature have not totally allayed the fear attributed to the perceived danger associated with living close to the station. The choice of where to reside as tenant is premised on many criteria, which could be internal or external to the rented apartment. The importance attached to the choice eventually made determine what they will be willing to pay as rent.

Osun state is one of the state currently experiencing a high pace of urbanisation compared to other emerging cities in Nigeria (Tofowomo, 2008) and there is increasing need to service the

populace with tele-communication infrastructure. This has led to proliferation of many telecommunication base stations around the city. In spite of many perceived health-related problems claimed to be associated with electromagnetic emissions from telecommunication base stations, the proximity of the stations do not appear to influence decision of many individuals on where to reside.

The establishment of more telecommunications infrastructure such as masts and base stations has raised some environmental concerns, especially in the area of Environmental Impact Assessment. It has become a part of the environment to see tall masts in different locations around the country. These masts though helpful, are believed to have negative health effects on people living near where they are erected. It is argued that telecom towers interfere with aircrafts approaching landing and feared that towers could fall on people and property. The erection of masts clustered in built-up areas are thus said to be hazardous.

To this effect, this study seeks to explain further and identify some other problems affecting resident living close to telecommunication masts. Also building on earlier research projects and study, this study sets to deepen our understanding and expose us to more facts in terms of health effect of people living close to telecommunication masts.

OBJECTIVE

The main objective of this study is to empirically investigate the perception of resident living close to telecommunication masts.

The specific objectives are;

i. To determine the health effect of living close to the telecommunication masts

ii. To determine the effect of the radioactive emission from telecommunication masts.

iii. To determine the perception on the effect of masts on residential property.

iv. To determine the distance of the properties from telecommunication masts.

v. To determine health hazards associated with telecommunication masts.

STUDY AREA

Osogbo is the capital of Osun state, south western Nigeria. It is some 88 kilometers by road Northeast of Ibadan. It is also some 100 kilometers by road South of Ilorin and 115 kilometers Northwest of Akure. It is situated between the latitude 9.7^0 N and on Longitude 4.5^0E. It is on the railway link from Lagos to Kano. Osogbo is the capital of Osun State. Osun State is bounded by Ogun state to the South, Kwara State to the North, Ondo State to the East and Oyo State to the West. Osun State is rich in Natural and Human resources which has led to tremendous growth of Osogbo. Osogbo is south-west of Lagos Nigeria center of commerce. It is known to be geographically located in a strategic position in Nigeria as it is only about two and half hours from Lagos and about six hours from Nigeria Federal Capital Abuja.

Osogbo is located in the heart of the south west Nigeria, It is in the centre of Yoruba Land. The physical location of Osogbo has led to rampant in development of Infrastructure and human resources. Osogbo geographical location must have helped in it being the power house of Nigeria as Osogbo enjoys the National Grid. Osun-Osogbo being in the upland has vast land and Hills and Mountains.

PHYSIOGRAPHIC AND GEOLOGY

The relief of the area is mostly lowland. The elevation of the area is between 20m to 30m above the sea level. There are no highland or high mountains but of low topography with several

inland drainages. The area is drained by rivers and streams, which bring about the name “the state of the living spring”.

CLIMATE AND VEGETATION

The climate is tropical with high temperature, high relative humidity, and high rainfall all through the year. The rainfall is marked by double maximum between June/July and September/October rainy period. The rainfall seasons last between 6 and 8 months. The area is lowland with undulated terrain. The dry period is between November/February every year but the Inter Tropical Convergence Zone (ITCZ) determines it. That is, the influence of the two dominant winds that blow across the region can determine whether there will be long rainy season or not. Tropical maritime known as south-west Trade Wind is stronger, it trend to push the ITCZ northward and the areas within the zone will experience constant rainfall at this time. However, where continental tropical known as North Trade Wind is stronger, the areas will experience dry, dusty, and Harmattan wind. Climate controls time and seasons throughout the year.

Considerably, (Adejuwon and Jeje, 1976) explained that climate factors appear to be the most influential factors of vegetation distribution and physiognomic characteristics. They further explain that various element of climate affecting plant growth, solar radiation or sunlight, temperature, water and wind. The most important effect of sunlight is in photosynthesis, that is, in the basis organic matter accumulation process (Adejuwon and Jeje, 1999).

Generally, the vegetation belt is lowland rainforest. This consists of a great variety or species, of which such as the Mahogany (KhayaEntradrophragma), Obeche (Triplochiton), African walnut (Lovoa).

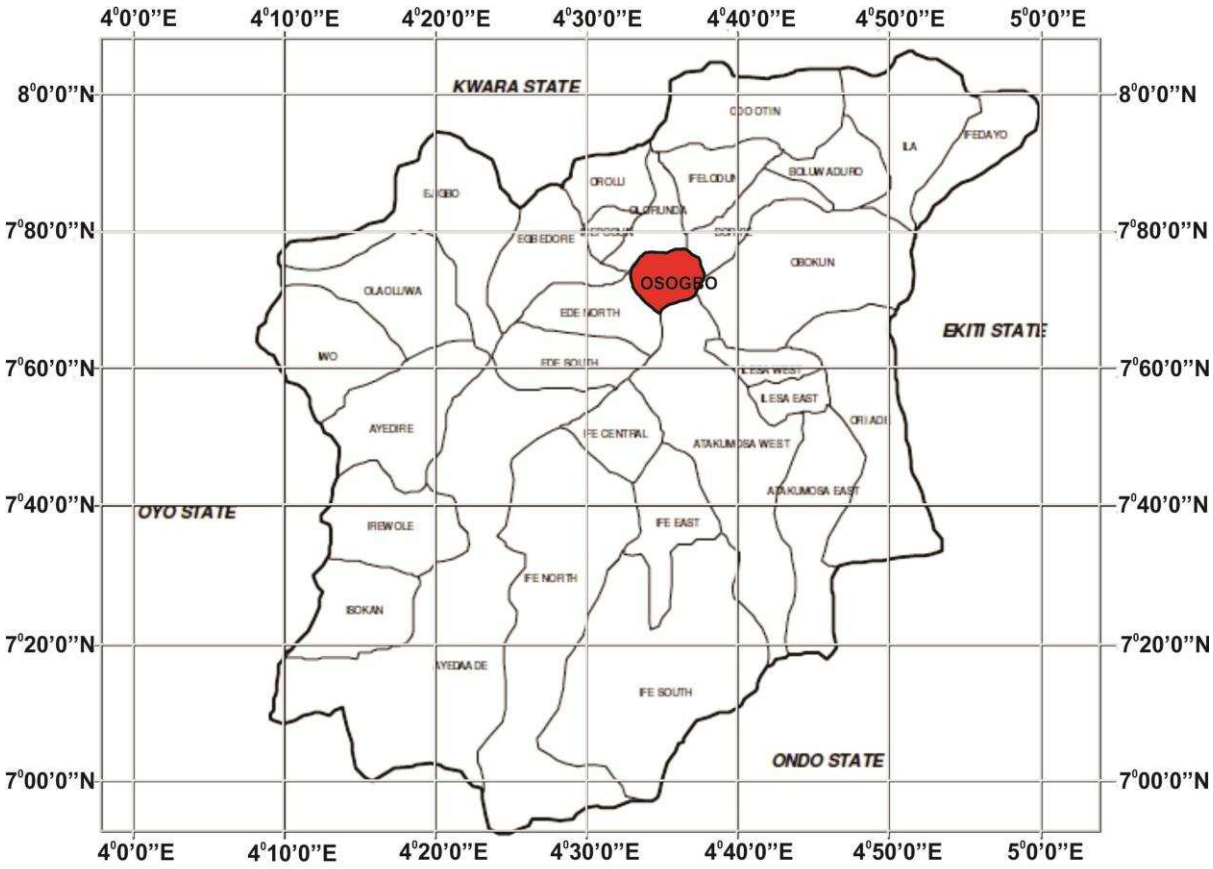
JUSTIFICATION FOR THE STUDY

Life has evolved under the influence of two omnipresent forces: gravity and electromagnetism. It should be expected that both play important roles in the functional activities of organisms. Before the 1990's radiofrequencies were mainly from a few radio and television transmitters, located in remote areas and/or very high places. Since the introduction of wireless telecommunication in the 1990's the rollout of phone networks has caused a massive increase in electromagnetic pollution in cities and the countryside (Firstenberg 1997). Multiple sources of mobile communication result in chronic exposure of a significant part of the wildlife (and man) to microwaves at non-thermal levels (Belyaev 2005).

In recent years, individual household has been chronically exposed to microwaves and RFR (Radiofrequency radiation) signals from various sources, including GSM and UMTS/3G wireless phones and base stations, WLAN (Wireless Local Area Networks), WPAN (Wireless Personal Area Networks such as Bluetooth), and DECT (Digital Enhanced (former European) Cordless Telecommunications) that are erected indiscriminately without studies of environmental impact measuring long-term effects. These exposures are characterized by low intensities, varieties of signals, and long-term durations. The greater portion of this exposure is from mobile telecommunications (geometric mean in Vienna: 73% (Hutter, H. Moshammer 2006).

In Nigeria the telecommunication tower radiation is the dominating high frequency source in residential areas (Haumann 2002). Also GSM is the dominating high frequency source in the wilderness of osun state (personal observation). Numerous experimental data have provided strong evidence of thermal microwave effects and have also indicated several regularities in these effects: dependence of frequency within specific frequency windows of

“resonance-type”; dependence on modulation and polarization; dependence on intensity within specific intensity windows, including super low power density comparable with intensities from base stations/masts (Haumann 2002)..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LITERATURE REVIEW

There have been significant concerns raised about possible health effects from exposure to radiofrequency (RF) electromagnetic fields, especially after the rapid introduction of the mobile telecommunication systems (Wolf and wolf, 2004). People who live within 100 m – 300 m from the base of mobile phone telecommunication masts (when the mast is clearly visible) are generally more concerned about possible health effect associated with living close to them.

The mast location is a leisure facility, surrounded on three sides by gardens of surrounding properties, and on a fourth by gardens and a second leisure facility, itself backed by housing. The local housing to the south and west is small terraced properties, and to the north and east, semi-detached properties. It is a small but active facility, and the housing is very close. There has not been a history of resentment or feeling, and most residents appear to accept that for this kind of community activity, the effects of sound, lights and parking can be annoying but largely should be tolerated. From time to time requests have been made to reduce the volume, and more recently to have floodlights shrouded to reduce light pollution. Apart from that, relations have on the whole been good.

REVIEW OF PREVIOUS STUDY

Man as a social being must interact and this is achieved by exploring every avenue that provides a cheap mean among alternatives. Cell phones serve as tool for social connection and managing social relationships among people (Banjo, Hu and Sundar, 2008). However, there is currently considerable confusion over the health and safety issues relating to non-ionizing radiation emitted by GSM telephony masts. There is obviously conflicting information from the various

scientific sources and environmental groups with respect to health hazards associated with telecommunication masts (Yusuf, 2009).

A growing number of studies have linked electromagnetic field associated with the operation of mobile phone masts with health hazards ranging from changes in cognitive performance and sleep disturbances to serious illness and disablement, with even higher cancer rates (Wolf and Wolf, 2004). Hamblin and Wood (2002) claimed that exposures to electromagnetic radiation can affect the natural rhythms of the brain's electrical activity, as measured by Electroencephalogram. Fernie and Reynolds (2005) iterated that studies of the effects of exposure to electromagnetic fields on populations of wild birds can provide further insights into the potential impacts on animal and human health. According to Cherry (2000), cell sites are risk factors for cancer, specifically brain tumors and leukemia; heart attack and heart disease, particularly arrhythmia; neurological effects including sleep disturbance, learning difficulties, depression and suicide; reproductive effects, especially miscarriage and congenital malformation; viral and infectious diseases because of reduced immune system competency associated with reduced melatonin and altered calcium ion homeostasis.

Contrariwise, some research works opposed the assertion that erection of GSM mast within residential neighbourhoods has negative effect on people's health. For instance, Chagnaud et al. (1999). Heikkinen et al. (2001) looked at the short time effects of pulse microwave radiation on rodents and the result produced negative evidence of the effect of mast on these animals. This further alleviated the fears of people who live in close proximity to these masts.

The literature on the impact of telecommunication masts on residential perception is still very scanty especially in developing countries. Bello (2010) examined the variation in the satisfaction

of people living around GSM base stations with samples drawn from Akure, Nigeria. Using Crosstabs' nominal-by-nominal measures, the study found that residents' satisfaction increases with distance away from the base station.

EFFECT OF TELECOMMUNICATION MASTS ON EXPOSED WILDLIFE.

PROBLEMS IN REPRODUCTION

In the town of Casavieja (Ávila, Spain) a telephony masts was installed that had been in operation for about

5 years. Then some farmers began blaming the antenna for miscarriages in many pigs, 50–100 m from the antenna (on the outskirts of the town). Finally the topic became so bad that the town council decided to disassemble the antenna. It was removed in the spring 2005. From this moment onwards the problems stopped (C. Lumbreras personal communication).

A Greek study reports a progressive drop in the number of rodent births exposed to radiofrequencies. The mice exposed to 0.168W/cm2 become sterile after five generations, while those exposed to 1.053W/cm2 became sterile after only three generations [22].

In pregnant rats exposed to 27.12 MHz continuous waves at 100W/cm2 during different periods of pregnancy, half the pregnancies miscarried before the twentieth day of gestation, compared to only a 6% miscarriage rate in unexposed controls, and 38% of the viable fetuses had incomplete cranial ossification, compared to less than 6% of the controls.

Nervous system

Microwaves may affect the blood brain barrier which lets toxic substances pass through from the blood to the brain okonigene, yusufu (2009). (Adang et al. Elieen.2006) examined the effect of

microwave exposure to a GSM-like frequency of 970 MHz pulsed waves on the memory in rats by means of an object recognition task.

The rats that have been exposed for 2 months show normal exploratory behaviour. The animals that have been exposed for 15 months show derogatory behaviour. They do not make the distinction between a familiar and an unfamiliar object. In the area that received radiation directly from “Location Skrunda Radio Station” (Latvia), exposed children had less developed memory and attention, their reaction time was slower and neuromuscular apparatus endurance was decreased (Ayinmoda 2010).

Exposure to cell phones prenatally and, to a lesser degree, postnatally was associated with behavioural difficulties such as emotional and hyperactivity problems around 7 years of age WHO 2006. Electromagnetic radiation caused modification of sleep and alteration of cerebral electric response (EEG) (Adang et al. Elieen.2006). Microwave radiation from phone masts may cause aggressiveness in people and animals (Alfonso, 2009).

DETERIORATION OF HEALTH

Animals exposed to electromagnetic fields can suffer a deterioration of health and changes in behaviour (maplandia 2012 & Animan 2010). There was proof of frequent death in domestic animals; such as, hamsters and guinea pigs, living near mobile telecommunication masts (Alfonso, 2009).

The mice in an experimental group exposed to microwave radiation showed less weight gain compared to control, after two months. The amount of food used was similar in both groups (Jamaludin 2010). A link between electromagnetic field exposure and higher levels of oxidative

stress appears to be a major contributor to aging, neurodegenerative diseases, and immune system disorders, and cancer in mammals (maplandia 2012)

The effects from GSM base transceiver station (BTS) frequency of 945 MHz on oxidative stress in rats were investigated. When EMF at a power density of 3.67 W/m2, below current exposure limits, were applied, MDA (malon-dialdehyde) level was found to increase and GSH (reduced glutathione) concentration was found to decrease significantly ($P < 0.0001$). Additionally, there was a less significant ($P = 0.0190$) increase in SOD (superoxide dismutase) activity under EM exposure (Alfonso, 2009).

RADIO FREQUENCY (RF) EMISSION IN THE ENVIRONMENT

Radio frequency (RF) emission is one of several types of electromagnetic fields (EMF). Electromagnetic energy consists of waves of electric and magnetic energy components moving together through space at the speed of light. The EMF is a term used to describe energy that travels through air or space, the most common form of which is visible light.

We come into daily contact with EMF in many different forms. Other sources of EMF include televisions, microwave ovens, computers, light bulbs, cordless phones and digital clock radios. The movement of electrical charges generates these waves. In the case of cellphone technology, the movement of charges (i.e alternating current) in a transmitting radio antenna creates electromagnetic waves that is emitted away from the antenna and can be picked up by a receiving antenna.

The electromagnetic waves specific to cell phone technology, are known as non-ionising radiation. This implies that they are not capable of breaking chemical bonds in biological structures (such as humans) or removing electrons (ionisation).

RADIOFREQUENCY EXPOSURE AROUND TELECOMMUNICATION MASTS.

Exposure from mobile phone telecommunication masts is basically divided into the near field exposure and the far field exposure, where far field exposure measurements are used for public exposure level assessment. The radiation from a mast depends on its antenna characteristics, like the antenna gain, emitted power, directivity, height and the tilt angle of the antenna. Also, it is known theoretically that at the far field of the antenna the radiation intensity reduces according to the inverse square law. Typically, radiation from the GSM antenna reaches the ground level at 50 to 300 meters (Mann et al., 2000). Thus it is expected that under the mast, low radiation levels can be found.

In real life situation, the variation of radiation exposure with distance can be very difficult to predict (Miclaus and Bechet, 2007). Factors like the number and position of buildings and vegetation, concentration of base station, and base station to bases station distance, can make the radiation level within 10 m to vary by a thousand fold.

Nevertheless, practical experience shows that exposure levels close to the feet of some base stations can be quite high. Radiation levels may have an increasing pattern within 30 to 150 meter radius of base stations in densely populated areas where many base stations are sited, but as one moves away from 200 meter radius of the base station the exposure may begin to have a reducing pattern.

ROLE OF EPIDEMIOLOGY IN RADIOFREQUENCY HEALTH IMPACT ASSESSMENT

Epidemiology can be defined as the study of the distribution and the determinants of health-related state or events in specified population and the application this study to control of health

problems (Last, 1995). It plays an important role in biological research, to assessing the causal and spread of diseases which is in turn serves an important tool in curbing further harm which such diseases may pose to the populace. There is a proliferation and every day improvements on mobile phone technology.

Epidemiology studies has since then played a critical role in trying to find a link between radiofrequency exposure and some health symptoms. The essential role of epidemiology in the Global Strategy for Health for All was recognized in a World Health Assembly resolution in May 1998 urging member of states to make use of epidemiological data, concept and method in the preparation, updating, motoring and evaluations of their work in this field (Beaglehole, et al., 1993).

Base Station Exposure Levels And Some Suspected Health Symptoms

In the current effort to find a link between RF exposure and some health symptoms, many studies have been conducted with evidence of some association between them. A study conducted in Israel shows that there is an association between increased incidence of cancer and living in the proximity of a cell phone transmitter station (within 350 m radius), with the obtained power density far below 0.53 μW/cm2 (5.3 mW/m2) (Wolf and Wolf, 2004).

A study involving roughly 1,000 patients in Naila, Germany, concluded that the proportion of newly developing cancer case was significantly higher among those patients who lived up to 10 years at a distance within 400 m from cellular transmitter site, compared to those patients living farther away (Eger, et al., 2004). A similar study conducted in a remote part of a town in

Westphalia, Germany involving 575 inhabitants, showed a statistically significant increase of the cancer incidence within a 400-metre radius of a mobile base station five years after it was sited there (Eger and Neppe, 2009).

In Austria a study involving Self-declared base station neighbors (DBS ≤ 100 meters) shows that people who rated the distance from their home to the next base station as 100 meters or less had higher scores in psychological strain scales, with significantly higher concentrations of alpha-amylase in their saliva, obsessive-compulsive, anxiety and so on. The mean power density measurement taken in rooms of persons rating DBS 100 meters or less, for GSM-900 MHz and

GSM-1800 MHz in the mean was 856.75 μW/m2 for DBS less than 100 meters it was 223.80 μW/m2 (Augner and Hacker, 2009). According to Hutter, et al. (2006), with confounding variables, including the fear of adverse effects from exposure to high RF radiation from GSM base stations, there was a significant relationship between some observed symptoms to measured power density, of which an average of 0.05 mW/m2 was obtained in rural areas within 24 – 60 m and an average of 0.02 mW/m2 in urban areas within 20-250 m from cellular transmitter site (Hutter, et al., 2006).

In Nigeria, a study shows that proximity and duration of mast radiation is directly proportional to hazard effect. From this study, most respondent stayed closest to mast in the range of 1–50 m accounting for 31.5 % of the respondent, 24 % were in the range of 50 – 100 m and 18% were in the range of 100 – 1000 m; and average power density within 200 m radius was 1.32 ± 0.075 mW/cm2 (13.2 W/m2) (Akintonwa, et al., 2009). The exposure of male mice to radiofrequency radiations from GSM base stations at a workplace complex and residential quarters in some locations in Nigeria caused 39.78 and 46.03%, respectively, of the mean sperm head

abnormalities compared to 2.13% in control group of the study population. Both the residential quarter and the office block complex were found to be close to a base station, while the control station was located within 300 m radius of a base station. Power density measurements at these locations were found to be 59 mV/m (9.2 μW/m2) in the control station, 489 mV/m (634.3 μW/m2) in the workplace complex, and 625 mV/m (1036.1 μW/m2) in the residential quarters (Otitiloju, et al., 2010).

PROBLEMS ASSOCIATED WITH TELECOMMUNICATION MASTS

- **Public health**

One of the concerns over telecommunication masts is the possible health effects of electromagnetic waves. Mobile phone technology operates at ultra-high frequency (UHF). At this stage there seems to be no clear understanding of the effects of Mobile phone technology on humans and other species. There is no proof that Mobile phone technology poses a health risk, but there is also no proof to the contrary. The World Health Organization is busy with various studies on the effects of electromagnetic fields. The first results are only expected in the year 2003.

- **Resistance from the community**

The driving force behind Mobile phone technology is effective communication in the information society at a lower cost, in a safer way and with more convenience. At the centre of all this is the community, and therefore their needs must be met.

The general problems that communities raise are:

- Masts block their view.

- Masts are ugly.
- Masts emit radiation.
- Masts are used in order to watch them.
- They do not want masts in their backyard.

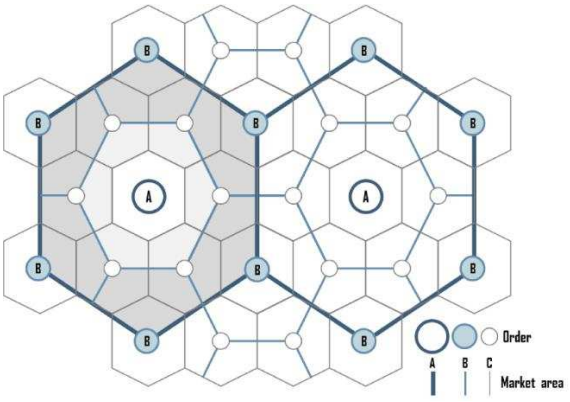
It must be kept in mind that public relations is very important for social stability and that rebellious communities are difficult to satisfy. That is why it is important to avoid action that may cause problems in the community.

➢ **Public safety**

Public safety could be affected if, for example, a telecommunication mast is placed on flight paths close to airports. Safety could also be a cause for concern if the structures are not up to standard or are erected without the necessary permission.

THEORETICAL FRAMEWORK

Telecommunication mast location can be explained with central place theory. If the layout of a cellular network and the problems associated with masts are understood, the future location of masts can be managed to ensure sustainable development in the in osogbo area.



Central Places Theory (Market Principle) Central places theory is deri from the work of the German geographer Walter Christaller who investigated the urban system of Southern Germany during the 1930s. He was mainly looking for relationships between the size, the number and the geographic distribution of cities. Although his work is mostly empirical, it is the theoretical part that had the most impacts on geography. His observations enabled the elaboration of this important theory of spatial structure and order, mandatory in the study of urban, economic and transport geography. Central places theory tries to explain the spatial distribution of a system of cities. This distribution is best understood by assuming a central place and its market area. A central place has the main function to supply goods and services to the surrounding population. It is specialized in selling various goods and services, and the market area is the summation of consumers traveling to the central place, which is a part of hierarchy with other central places. Its influence is a function of its market area and the size of this market area will determine the nature of the spatial order. The above figure illustrates a system of central places according to the market principle with three orders of centers. In this case the market area of a center of higher order includes the equivalent of three market areas of centers of the next lower order.

In conclusion GSM is one of the fastest growing and most demanding telecommunication applications in the world today its present a continuously increasing telephone subscription around the world. Nigeria is one of the largest user of GSM equipment (mobile unit) in Africa, over 50% of the total population in Nigeria depend on the GSM as the easiest means of communication (ZAIN, 2005) but, Since the introduction of mobile phone in Nigeria the health implication of RF radiation from the base station has been a subject of great debate and concern among the Nigerian citizens. Some interested groups opine that radiation from base station

(GSM) Masts are dangerous to health and some believed that to date, human health have the relationship between exposures to RF field.

They also believed that exposure to radiation from base station for long period could cause different diseases like cancer, destroys reproductive organs, congenital anomalies, epilepsy and persistent headache. In Nigeria some of the base stations are planted right in a home of residence. Some international communities also believed that exposure to RF have effect on two areas of the body like eyes and testes, are particularly vulnerable to RF heating because of the relative lack of available blood flow to dissipate the excessive heat load (Hyland, 2000). At relatively low levels of exposure to RF radiation, that is, levels lower than those that would produce significant heating; the evidence for harmful biological effects is ambiguous and unproven. Such effects have sometimes been referred to as "non-thermal" effects. It is generally agreed that further research is needed to determine the effects and their possible relevance, if any, to human health (Kelly, 2005; Krzysztof, 2002; Zsolt, 2006).

Others also believed that there is risk of RF radiation to pregnant women; a pregnant woman and the foetus both are vulnerable because of the fact that these RF radiation continuously react with the developing embryo, increasing cells, because of the thermal radiation also when the pregnant ladies either use Mobile phone or when illuminated with RF radiation, the developing child can become affected, the developmental malformation may occur and it may also affect human brain; human brain is the most vulnerable portion to the NIEMR(RFR).

Contrariwise, some research works opposed the assertion that erection of GSM mast within residential neighbourhoods has negative effect on people's health. For instance, Chagnaud et al.

(1999) and Heikkinen et al. (2001) looked at the short time effects of pulse microwave radiation on rodents and the result produced negative evidence of the effect of mast on these animals.

RECOMMENDATIONS AND CONCLUSIONS

This study is based on the analysis of residential perception of living close to telecommunication masts. To analyse the impact of telecommunication masts on residential health in osun state Nigeria. A total of 110 resident were survey for this study. From this study it can be observed that telecommunication masts have negative effect on individual resident.

The result of the also shows that the percentage number of the respondents who perceive the electromagnetic emission from GSM mast as dangerous to their health is higher than those who have contrary opinion. This was reflected in the way the respondents feel about the presence of the masts in their neighbourhood. This consequently has a bearing on their willingness to not rent or buy property near telecommunication masts

The literature also review that telecommunication masts radiation can produce effects especially on nervous, cardiovascular, immune and reproductive systems;

- Damage to the nervous system by altering electroencephalogram, changes in neural response or changes of the blood–brain barrier.

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Representations

Representor 4 - Brent Loughton

Name	Brent Loughton
Address	6 SALISBURY STREET SOMERTON PARK SA, 5044 Australia
Submission Date	03/01/2023 10:16 AM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I support the development with some concerns
Reasons	

Attached Documents

BrentLoughton-4611699.png
BrentLoughton-4611806.jpeg

Mon 2/01/2023 2:29 PM

Brent Loughton <bloughton2002@yahoo.com>

Planned Telecommunications tower

DALodgement

Penny Nemeth

Dear Holdfast Bay Council,
We, like many other local residents, wish to express our concern on the proposed implementation of a telecommunications tower at Glenelg South.

The following areas are of concern:
1) EMF Radiation. There are too many unknowns - we have researched numerous Government and independent sites, it seems to be introducing significant risk to an area close to a popular children's playground and densely populated housing & shopping precinct.
2) Location. As noted above, placing this so close to a children's playground, housing and shops, it does not seem a practical decision.
3) Size. A 26 metre tower will be significantly higher than any other structure nearby and will clearly stand out. It will also reduce the attractiveness of the highly sought after Glenelg South suburb in the Holdfast Bay area.
4) Area Value. We feel having such a structure will reduce the appeal and value of the Holdfast Bay area. Only time will tell but the aesthetics will clearly be affected, potentially bringing land value down and causing land value disputes between Council and residents.

Whilst we are not against progress in the modern world, our suggestion would be to find a more suitable area (i.e. Not close to a playground, houses and shops) to place the new tower.

Thank you for the opportunity to provide feedback, we trust you will give our concerns their due consideration.

Regards,
Loughton Family
6 Salisbury Street, Somerton Park

Representations

Representor 5 - Taylor Prlitt

Name	Taylor Prlitt
Address	13 SALISBURY STREET SOMERTON PARK SA, 5044 Australia
Submission Date	03/01/2023 10:19 AM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

PriitTaylor-4611729.png
PriittTaylor-4611739.png
PriittTaylor-4611748.png

Representations

Representor 6 - John Abols

Name	John Abols
Address	11 SCARBOROUGH STREET SOMERTON PARK SA, 5044 Australia
Submission Date	03/01/2023 10:24 AM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

JohnAbols-4611784.jpeg
JohnAbols-4611789.jpeg

Sat 31/12/2022 3:11 PM

John Abols <John.Abols1@hotmail.com>

Proposal for 151 -151 A Brighton Road, Glenelg South

To DALodgement

I wish to formally register my objection to the proposed telecommunications tower. I live locally, only 190 metres as the crow flies, from 151 - 151A Brighton Road and hold concerns on three fronts:

- In the first instance, for the poor resident/s residing next door at 72 Bath Street. Not only would the presence of a tower significantly lower the value of the property, but if I owned it, I would consider the risk to my health and welfare, too significant to ignore. I would leave.
- Secondly, my research on the Plan SA Website, indicates that the proposed tower would contravene the requirement 'DTS/DPF 1.3 (b) no closer than 50m to a neighbourhood-type zone'. As such, that alone should have the proposal rejected.
- Thirdly and on a personal basis, I have concerns in relation to EMF radiation and my living within 500 metres of any tower.

Please reject the application.

31 December 2022

John Abols

11 Scarborough Street, Somerton Park

Sat 31/12/2022 3:11 PM

John Abols <John.Abols1@hotmail.com>

Proposal for 151 -151 A Brighton Road, Glenelg South

To DALodgement

I wish to formally register my objection to the proposed telecommunications tower. I live locally, only 190 metres as the crow flies, from 151 - 151A Brighton Road and hold concerns on three fronts:

- In the first instance, for the poor resident/s residing next door at 72 Bath Street. Not only would the presence of a tower significantly lower the value of the property, but if I owned it, I would consider the risk to my health and welfare, too significant to ignore. I would leave.
- Secondly, my research on the Plan SA Website, indicates that the proposed tower would contravene the requirement 'DTS/DPF 1.3 (b) no closer than 50m to a neighbourhood-type zone'. As such, that alone should have the proposal rejected.
- Thirdly and on a personal basis, I have concerns in relation to EMF radiation and my living within 500 metres of any tower.

Please reject the application.

31 December 2022

John Abols

11 Scarborough Street, Somerton Park

Representations

Representor 7 - Craig Gear

Name	Craig Gear
Address	Not provided ADELAIDE SA, 5000 Australia
Submission Date	03/01/2023 11:50 AM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

CraigGear-4612838.jpg

Tue 3/01/2023 10:39 AM
Craig Gear <cagear@gmail.com>
Glenelg Telecommunications Tower

To DALodgement

If there are problems with how this message is displayed, click here to view it in a web browser.

These three items alone, which are in direct CONTRAVENTION to your council guidelines should be reason enough to NOT proceed with the construction of the telecommunications tower.

The power density exposure limit as prescribed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is detailed below:
" For telecommunications infrastructure such as mobile phone base stations the limits for whole body exposure are expressed in a quantity called 'power density' and for the general public they range from 2 to 10 watts per square meter (W/m2) depending on the operating frequency.

For 5G mobile phone base stations the public exposure limit is 10 W/m2."

Again, this limit is EXCEEDED by the proposed telecommunication tower.

An investigation by the Australian Government stated that:

Exposure of people to a dose of radiofrequency radiation will give rise to an increase in body temperature of less than 1o Centrigrade. Higher induced temperatures are not tolerated, however, and have several well-known deleterious effects. Such effects include:

- **Heat effects on brain tissue** are thought to be the reason why people can actually hear pulsed radio frequencies. The sound is described as 'buzzing, clicking, hissing or popping'.
- **The eyes** are felt to be peculiarly sensitive to RF radiation. Lens tissue has no blood supply to act as coolant, there is little self-repair at that site and thus damage and damage products tend to accumulate.
- Male **testes** exposed to RF radiation are damaged to the extent that there is temporary infertility and an altered division pattern of germ cells.
- **Circulatory and immune system** shows some alterations in response to RF radiation.
- pregnant women exposed to RF radiation caused abnormalities and death of **embryos**.

There are a number of elderly residents in the area. Not too mention a well used playground, tennis court and dog park close by (Sutherland Park, within 100m), and a shopping centre down the road (Glenelg South, about 400m). People using these facilities will be CONTINUALLY EXPOSED to the emitted radiation. If you care about your constituents, then the aforementioned health issues is another compelling reason to NOT proceed with the construction of the telecommunications tower.

I have highlighted above many reasons why the proposed telecommunications tower should NOT go ahead.
As an elected member of the council, I do hope you take my concerns, and that of my fellow neighbourhood, into consideration.

Regards

Craig Gear

Representations

Representor 8 - Evan Clarke

Name	Evan Clarke
Address	Address not provided ADELAIDE SA, 5000 Australia
Submission Date	03/01/2023 11:55 AM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

EvanClarke-4612888.jpg

Fri 30/12/2022 8:23 AM

Evan Clarke <evan_012@hotmail.com>

22038963 Replacement telecommunications facility

To DALodgement

Hello Holdfast ,

I am writing to you to formalise my disapproval of the above development application number.
There are alarming concerns for public safety due to the EMF radiation these towers omit.
The proposed location backs onto houses and a public park. There had been no consideration as to what effect this tower may have on people living or using the park. I am one of those residents near by and I have young children (one being sensitive to radiation).
Can you please confirm all building codes have been met considering the proposed location backs onto a neighbourhood zoning area?

Thank you
Evan Clarke
0433146010

Representations

Representor 9 - Janine Power

Name	Janine Power
Address	PO Box 2137 GLENELG SA, 5045 Australia
Submission Date	03/01/2023 12:00 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

JaninePower-4612961.jpg

Tue 27/12/2022 2:27 PM

Janine Power <janine@seedevents.com.au>

Proposed development

To DALodgement

Dear Holdfast Bay Council,

I strongly oppose the proposed development of a 5G telecommunications tower that is planned for 151-151A Brighton Road, Glenelg South.

I am a resident in nearby Salisbury Street, Somerton Park and **do not** wish for this to be built in the proposed location.

I understand that the current proposal contravenes the planning and design code stating that such a structure cannot be built less than 50 metres from a neighbourhood-type zone. It also far exceeds the height of any other building of structure in the surrounding area.

I have concerns about the health and wellbeing of residents in the area from this proposed telecommunications tower being built near homes, nearby reserve and supermarket.

Kind Regards, Janine

Janine Power
Director

seed EVENTS

m +61 4 0028 0811
e janine@seedevents.com.au
w seedevents.com.au
po Box 2137 Glenelg SA 5045

Representations

Representor 10 - Virginia Taylor

Name	Virginia Taylor
Address	13 SALISBURY STREET SOMERTON PARK SA, 5044 Australia
Submission Date	03/01/2023 12:02 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

VirginiaTaylor-4612977.jpg

Tue 27/12/2022 11:16 AM

Virginia Taylor <vptaylor13@gmail.com>

Proposed development 151-151a Brighton rd Glenelg South

To DALodgement

To whom it may concern

I reside at 13 Salisbury Street Somerton Park and vehemently object to the erection of a 5G tower at 151 Brighton rd Glenelg south . This contravenes the planning and design code re it's excessive height . I am very concerned re the effects of EMF radiation of which there is extensive research proving the detrimental effects it has on people .

Kind regards

Virginia Taylor , a very concerned rate payer !

Representations

Representor 11 - Hannah Taylor

Name	Hannah Taylor
Address	Address not provided ADELAIDE SA, 5000 Australia
Submission Date	03/01/2023 12:05 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

HannahTaylor-4612996.jpg

Tue 27/12/2022 10:07 AM

Hannah Taylor <hannz2410@outlook.com>

Proposed 5G tower for 151-151A Brighton Road Glenelg South

To DALodgement

Hi there,

I am a resident of Somerton Park and I strongly object to the proposed plan to build this 5G tower in my neighbourhood. Please do not go forward with this project.

Many thanks

Hannah

Sent from my iPhone

Representations

Representor 12 - Kerrie Rayner

Name	Kerrie Rayner
Address	16 MELTON STREET GLENELG EAST SA, 5045 Australia
Submission Date	03/01/2023 12:07 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

KAndMRayner-4613018.jpg

Mon 26/12/2022 6:46 PM

Kerry Rayner <kray2817@bigpond.net.au>

Proposed Development 151-151A Brighton Rd

To DALodgement

We are writing to express our objection & great concern regarding the proposed Telecommunications Tower .
The proposal by Amplitel contravenes the Planning and Design Code stating that such a structure cannot be built less than 50 metres from a neighborhood type zone . It also exceeds the height of any other structures and buildings in the area .
This structure is close to our home , shops & facilities that we use in our everyday life . It is extremely concerning that this structure is built so close to a popular park & recreation area that is a popular spot for children , young families & people exercising their dogs .
Our grandchildren live in this area & use this park daily .
EMF radiation from Telecommunications towers is widely researched & published .
The council would be extremely negligent in allowing this proposal to proceed . Over time the repercussions of having this tower in a residential area will be apparent as reported in other situations .
We strongly urge the Council not approve this development .
Yours Faithfully
Kerry & Max Rayner
16 Melton St
Glenelg East

Representations

Representor 13 - Max Rayner

Name	Max Rayner
Address	16 MELTON STREET GLENELG EAST SA, 5045 Australia
Submission Date	03/01/2023 12:09 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

KAndMRayner-4613031.jpg

Mon 26/12/2022 6:46 PM

Kerry Rayner <kray2817@bigpond.net.au>

Proposed Development 151-151A Brighton Rd

To DALodgement

We are writing to express our objection & great concern regarding the proposed Telecommunications Tower .
The proposal by Amplitel contravenes the Planning and Design Code stating that such a structure cannot be built less than 50 metres from a neighborhood type zone . It also exceeds the height of any other structures and buildings in the area .
This structure is close to our home , shops & facilities that we use in our everyday life . It is extremely concerning that this structure is built so close to a popular park & recreation area that is a popular spot for children , young families & people exercising their dogs .
Our grandchildren live in this area & use this park daily .
EMF radiation from Telecommunications towers is widely researched & published .
The council would be extremely negligent in allowing this proposal to proceed . Over time the repercussions of having this tower in a residential area will be apparent as reported in other situations .
We strongly urge the Council not approve this development .
Yours Faithfully
Kerry & Max Rayner
16 Melton St
Glenelg East

Representations

Representor 14 - Susan Bowmer

Name	Susan Bowmer
Address	95 Penzance Street GLENELG SOUTH SA, 5045 Australia
Submission Date	03/01/2023 12:14 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

SusanBowmer-4613079.jpg

Sat 24/12/2022 11:35 AM

Susan Bowmer <nasus01@hotmail.com>

Telecommunications Tower

DALodgement

As a rate payer of Holdfast Bay Council, I strongly object, to the location and construction of the proposed telecommunications tower at 151 Brighton Road, Glenelg South.
My home is only 100 metres from the proposed site; I should have been informed by Holdfast Bay Council of the proposal, and its impacts on the area.

- Glenelg South is a residential zoned area, not an industrial zoned area.
- Glenelg South has a reputation of being an area of historic homes, family friendly parks and safe streets.
- The height of the proposed tower will be a visual eye saw for the residents, and visitors to Glenelg South.
- This proposed tower will lower the reputation of Holdfast Bay Council to one who doesn't care about the resident's health, or the area's historic importance and appearance.
- The tower will devalue many homes in Glenelg South, including my own.

Has Holdfast Bay Council done a study of the impact the proposed tower will have on resident's health living in the area?

- What will be the impact on the health of the babies, children and adults using the play equipment, picnic areas and tennis courts at Sutherland Reserve on Bath Street, less than 100 meters away from Proposed tower.

- What will be the health impact on elderly residents of Glenelg South living at ECH Retirement Homes at 31 Bath Street, and ACH Retirement Homes at 89 Penzance Street, both only approximately 100 meters from the proposed tower?

- What will be the impact on my health, 100 meters from the proposed tower?

As a rate payer I would like Holdfast Bay Council to please answer these questions, I am very concerned about the location and the impact of this proposed telecommunications tower.
Kind regards
Susan Bowmer
95 Penzance Street,
Glenelg South SA 5045

Representations

Representor 15 - Martin Name not provided

Name	Martin Name not provided
Address	Not provided ADELAIDE SA, 5000 Australia
Submission Date	03/01/2023 12:20 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

Martin-4613116.jpg

Sat 24/12/2022 11:29 AM

shiraz67@tpg.com.au

5G tower installation at 151-151A Brighton rd

DALodgement

Hi

As a concerned resident living within the 60m radius of the proposed 5G tower installation at 151-151A Brighton rd in Glenelg South, I wish to voice my strong opposition to this installation as I believe that it will affect my health and that of my neighbors, in particular the residents of 72 bath st which will have it at their back door.

I wish to challenge the installation on the grounds that "such an installation would contravene the Planning and Design code as it can not be built less than 50 meters from a neighbourhood type zone", can you please confirm if this is the case or not?

I feel that due diligence is required in this matter and requires a health expert to do a study to verify the impact on the the health implications of this proposed install, as mentioned I value my health as do those that are visiting the gym, please respect our decision and allow us the time to further discuss this matter.

I would hate to see numerous lawsuits in the future that may involve the Council as a result of a hasty decision made by someone that may not live in the area or be affected in the slightest by this decision, please do not consider this decision lightly, I will be keeping this email in case it is required in any future court action.

Kind regards,
Martin

Representations

Representor 16 - Charlotte Clarke

Name	Charlotte Clarke
Address	Not provided ADELAIDE SA, 5000 Australia
Submission Date	03/01/2023 12:24 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

CharlotteAndEvanClarke-4613156.jpg

Sat 24/12/2022 11:23 AM

Charlotte Clarke <charlotte@theclarkecollection.com.au>

5G telecommunications tower Glenelg South disapproval

o DALodgement

To whom it may concern,

We have been alerted to the intention to build a 5G telecommunications tower at 151-151a Brighton Rd, Glenelg South and would like to voice our strong disapproval and concern regarding this proposal.

We have grave concerns about the safety of this for our children and our health as there is strong evidence to support serious health concerns for anyone residing within 500m of these towers. We live within 200m of the proposed tower with our two young children; a 1 year old and 4 year old. We are aware that this structure would contravene the planning and design code which states that these types of structures cannot be built less than 50m from a neighbour zone as it is directly in a neighbourhood zone. In fact it will be on the back fence of someone's property.

We urge you to reconsider the location of this proposal for the sake of the community.

Charlotte, Evan, Mia and Benji Clarke
Salisbury st, Somerton Park

Representations

Representor 17 - Michael Maguire

Name	Michael Maguire
Address	2/89 Penzance Street GLENELG SOUTH SA, 5045 Australia
Submission Date	03/01/2023 01:09 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

MAndTMaguire-4613463.jpg

Fri 23/12/2022 11:42 AM

kapunda3 kapunda3 <kapunda3@bigpond.com>

Communication Towers Glenelg South

DALodgement

To whom it may concern,

I am writing to protest regarding the proposed building of a Communicatios Tower in the carpark of Fitness Plus 24hr gym in Bath st Glenelg South, approx 100 metres from my house and next door to public tennis court and childrens playground.

I must disagree most vehemently against this proposal and its associated dangers in this most built up and populated area.

Please record my disapproval and NO vote.
Build it somewhere else less populated, so not to disturb the ambience and seaside atmosphere in our vacinity. I live within 100metres of the proposed site. Sutherland Park the proposed next door neighbour is used by families all year round.

WE DO NOT WANT THIS TOWER.

Thanking you for the opportunity to put our opinion forward
Glenelg South Lover and Resident
Michael & Terri Maguire
2/89 Penzance st
Glenelg South SA 5045

Representations

Representor 18 - Terri Macguire

Name	Terri Macguire
Address	2/89 Penzance Street GLENELG SOUTH SA, 5045 Australia
Submission Date	03/01/2023 01:20 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

MAndTMaguire-4613537.jpg

Fri 23/12/2022 11:42 AM

kapunda3 kapunda3 <kapunda3@bigpond.com>

Communication Towers Glenelg South

DALodgement

To whom it may concern,

I am writing to protest regarding the proposed building of a Communicatios Tower in the carpark of Fitness Plus 24hr gym in Bath st Glenelg South, approx 100 metres from my house and next door to public tennis court and childrens playground.

I must disagree most vehemently against this proposal and its associated dangers in this most built up and populated area.

Please record my disapproval and NO vote.
Build it somewhere else less populated, so not to disturb the ambience and seaside atmosphere in our vacinity. I live within 100metres of the proposed site. Sutherland Park the proposed next door neighbour is used by families all year round.

WE DO NOT WANT THIS TOWER.

Thanking you for the opportunity to put our opinion forward
Glenelg South Lover and Resident
Michael & Terri Maguire
2/89 Penzance st
Glenelg South SA 5045

Representations

Representor 19 - Jane Whiting

Name	Jane Whiting
Address	Not provided ADELAIDE SA, 5000 Australia
Submission Date	03/01/2023 03:14 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

JaneWhiting-4614660.jpg

Tue 3/01/2023 11:44 AM

Jane Whiting <janewhiting11@gmail.com>

Please STOP proposed 5g tower

To DALodgement

Dear Holdfast Bay Councillors,

I write with great concern regarding the proposed 5G telecommunications tower at 151 Brighton Rd, Glenelg South.

As a concerned citizen I have been following 5G for several years now, and there is enormous research that highlights the risks to public health from this technology.

The evidence is clear that 5G radiation is NOT safe and poses considerable risks to one's health including significantly increasing the risk of cancer

Placing the 5g Tower very close to a children's playground and right in the heart of a residential area must not be allowed.

Whilst telecommunication companies are very powerful, I trust that Holdfast Bay councillors genuinely have the best interests of their constituents at heart and will vote NO to this proposal.

Thank you.

Yours sincerely,
Jane Whiting
04319 212 46

Representations

Representor 20 - Karen Lower

Name	Karen Lower
Address	2A Harris St GLENELG EAST SA, 5045 Australia
Submission Date	03/01/2023 09:29 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development

Reasons
I am writing to express my strong opposition to the current proposal to erect a telecommunications tower at 151-151A Brighton Road, Glenelg South. It is my contention that planning consent should be refused on the grounds that the proposed tower will back onto a residential property (72 Bath Street, Glenelg South), which contravenes the current Planning and Design Code. The proposed location is within a neighbourhood area and therefore this type of construction is not only inappropriate, it contravenes current planning code.
Furthermore, the height of this tower will far exceed any other buildings in the area, representing an eye sore which will be out of keeping with the skyline and surrounding area of this beautiful seaside suburb.

Attached Documents

Representations

Representor 21 - Alison Cropley

Name	Alison Cropley
Address	1/37 Bath Street GLENELG SOUTH SA, 5045 Australia
Submission Date	03/01/2023 11:42 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	Yes
My position is	I oppose the development
Reasons	

Attached Documents

Alison-Cropley-response-re-Planning-Application-number-22038963-1162884.pdf

I object to PlanSA proposal– application number 22038963, regarding the building of a 26.4 metre telecommunications tower at 151-151A Brighton Road, Glenelg South. I do not think the proposed site is a suitable for a number of reasons:

It does not comply with DTS/DPF1.3 of the Planning and Design code which requires a telecommunications tower to be more than 50 metres from a neighbourhood-type zone. It backs directly onto the back fence of 72 Bath Street, Glenelg South and is very close to the back garden of number 33 Boundary Road and just across the street from number 39 Bath Street. There would be other houses within the 50-metre radius of the proposed telecommunications tower, including those directly across the other side of Brighton Road.

At 26.4 metres it towers over all other existing structures and homes in the neighbourhood-type area. Glenelg South is a desirable suburb with many significant heritage-type homes. This telecommunications tower would be an eyesore and be highly likely to decrease the desirability and value of homes nearby, possibly by 10-20%. I believe the resale value of 72 Bath Street would be significantly affected with a 26.4 metre telecommunications tower at its back fence. I do not believe that the Planning Design code regulations should be ignored, and Glenelg South residents made to suffer both visually and financially because a telecommunications company claims it cannot find anywhere more suitable.

It is also referred to as being a “replacement” facility and “not a green field” proposal when the previous structure at 72 Bath Street was a completely different stobie pole type structure with an antenna. According to RFNSA.com.au website, this stobie pole type structure is not working and has been decommissioned with all equipment removed. The last ARPANSA EME Report listed was in May 2008 and indicates 0.13 Maximum EME levels and thus it cannot have been used for more than 3G technology at best. The proposed 26.4 metre telecommunications tower would be a completely new and significantly more substantial and dominating structure. It is not a “replacement” facility.

Whilst not having submitted individual representations, I have spoken to the owners of number 2 and 4 at 37 Bath Street, Cherie Melville and Megan Frankenfeld and they are also against the building of the 26.4 metre telecommunications tower at 151-151A Brighton Road, Glenelg South. Thus, the majority of unit owners at 37 Bath Street are against the proposal.

Whilst it is beyond the scope of the proposed development, I do have some concerns about the effects of EMF radiation from Telecommunications towers on nearby residents of the proposed tower. Some studies suggest that humans are not safe within approximately 500 metres of transmission towers and that EMF radiation can cause headaches, sleep problems or even cancer. Switzerland was one of the world’s leaders in the rollout of 5G but now has a moratorium on the use of 5G technology until the risks have been sufficiently studied.

I would also like to state that I am disappointed that consultation with the public over plans for something as significant and impactful as a 26.4 metres telecommunications tower, is only required to be open for 3 weeks (or slightly longer due to public holidays) and that in this case it also happened to correspond with the Christmas holiday period when most people are probably too busy and preoccupied to respond to the proposal.

Thank you for the opportunity to make this submission.

Kind regards
Alison Cropley

Enquiry type (please select)

Complaint

First name

Erica

Last name

Niehuus

Email

ericadn45@yahoo.com.au

Phone number

0417801960

Your Address

Auto-Complete: 3/89 Penzance Street, Glenelg SA, Australia

Suburb: Glenelg

Postcode: 5045

Address of the issue

Street Number and name: No response.

Suburb: No response.

Postcode: No response.

Please give a detailed description of the issue and work required

Concern re the proposed telecommunications tower proposed in car park 151-151A Brighton Road, Glenelg South.

Is this work of an urgent nature e.g. : Is it dangerous to the public*

Yes

When the work has completed, how would you prefer to be notified ?*

None

Comments

I object strongly to this tower being located in this area close to residential houses, local park and playground. This proposal by Amplitel contravenes the Planning and Design code and structures of this type cannot be built less than 50 metres from neighbouring zones. This is apart from the information regarding ongoing health issues including sleep disorders and. cancer risks. I am recovering from cancer at this present time and have no wish for this to be reoccurring. This telecommunications tower will present enormous risks to current residents and under no circumstances should proceed.

Attachment

No response.

Tue 3/01/2023 10:05 PM

Melanie Gear <melgear8@gmail.com>

Proposed Development 151-151A Brighton Road Glenelg South

To DALodgement

To Whom It May Concern,

I Melanie Gear of 93 Penzance Street Glenelg South, adversely oppose the proposed development of a 26.4m 5G Telecommunications Tower to be built in the car park at 151-151A Brighton Road, Glenelg South.

Firstly, the proposed structure cannot be built less than 50 metres from a neighbourhood type zone. This would contravene the Planning and Design Code. 72 Bath street is less than 50 metres from the proposed structure.

Secondly, we have a young family in which we frequently utilise the front and backyard and nearby Sutherland park. As do many fellow members of our community. It is a much loved park for dog owners too. The proposed structure and the EMF radiation effects are detrimental to the health and well-being of both humans and animals.

Thirdly, Glenelg South is an affluent suburb in which to reside. The proposed structure will severely impact property prices and will deface with it's unsightliness.

I hope you listen to our valid concerns regarding the proposed development of the telecommunications tower. Find another safer more appropriate location please.

Kind Regards

Melanie Gear

24 January 2023

SAQ Consulting Pty Ltd
ABN 76 864 757 592
P O Box 50
Clayfield QLD 4011

Michael Gates
Development Services Lead
City of Holdfast Bay
P O Box 19
BRIGHTON SA 5048

Dear Michael

RE: Proposed telecommunications facility (replacement)
151-151A Brighton Road, GLENELG SOUTH
RESPONSE TO SUBMISSIONS

As you are aware, SAQ Consulting Pty Ltd acts on behalf of Amplitel, part of the Telstra group, in respect of this application.

The proposal by Amplitel is to construct a telecommunications facility at the rear of 151-151A Brighton Road, Glenelg South for use by Telstra. The new facility will replace an existing telecommunications facility, part of which is located on a Stobie pole outside 72 Bath Street and ground-based equipment on the subject land. The existing facility, previously used by another carrier, is not suitable for Telstra's 4G and 5G services and a new structure must be built to meet the need for the facility.

The subject land is located within the *Employment Zone* of the City of Holdfast Bay pursuant to the Planning and Design Code. A telecommunications facility is an envisaged land use within the *Employment Zone.*

I am in receipt of the representations received as part of the public notification of the proposal.

A number of issues were raised in the representations, with the key issues being:

- Potential for health impacts from EME
- Property values
- Visual impact
- Suitability of zoning
- Zoning policies

This letter constitutes a response to the representations received on the proposal.

Perceived health and safety impacts from EME

Concern was raised in most of the submissions about the electromagnetic emissions emitted by the proposed facility and whether adverse health impacts would result.

Concerns over the potential for health impacts from telecommunication facilities are commonly raised during public consultation processes, with the concerns usually focussing on the effect of exposure of humans to electromagnetic energy, or EME.

Amplitel and Telstra acknowledge some people are genuinely concerned about possible health effects from the EME generated by radio frequency technology and are committed to addressing these concerns responsibly.

All radio communications facilities, including the one proposed, emit EME in order to operate. Such facilities include AM and FM radio, television, paging services, emergency services systems such as the Government Radio Network and CB Radio, many of which have been in use for decades.

Telecommunications facilities emit and receive EME to transmit and receive the necessary information associated with mobile handsets operating within that part of the network, but at power levels much less than any of the systems mentioned above.

The proposed facility is designed to accommodate the 3G, 4G and 5G requirements for Telstra in this location. As with all cellular networks of this type, sophisticated power management techniques are utilised to constantly monitor power levels and ensure only the minimum amount of power required is used by both the base-station and the handset. This is critical to the network and its proper operation, as it assists in minimising interference from surrounding base-stations.

The current position of the WHO is available in the Online Q&A (updated 21 February 2020) the WHO state: *"Studies to date provide no indication that environmental exposure to RF fields, such as from base stations, increases the risk of cancer or any other disease"*

ARPANSA's position is: *"Based on current research there are no established health effects that can be attributed to the low RF EME exposure from mobile phone base station antennas."*

The EME levels emitted are very low and in the case of the subject proposal, are estimated to be (as shown in the EME report provided to Council), as a maximum at 1.5m above the ground, 3.10% of the exposure limits mandated by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and is known as the RPS S-1 standard.

The RPS S-1 standard:

- protects all people including children, 24 hours a day, 7 days a week
- is very conservative and includes large reduction factors
- covers all RF EME frequencies including those used by 5G and future technologies
- was developed after a thorough review of all relevant scientific literature in conjunction with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and an extensive public consultation process

As such, the RPS S-1 standard adopts a conservative and precautionary approach and adequately protects the public and as such the location of the proposed small cell to residential uses, schools or any other land use for that matter is simply not relevant as the protection afforded by the standard does not rely on arbitrary separations. Further, the protection of the public is '24/7' – that is, the amount of time - whether large, small or constant - spent near the facility does not impact the safety provided by the RPS S-1 standard.

As with all mobile telecommunications facilities in Australia, the proposed facility is required to comply at all times with the relevant Radiation Protection Standard (currently RPS S-1) and once operational must have this compliance certified by an accredited person.

One of the representations stated the proposed facility exceeded the ARPANSA standard with respect to 5G emissions. The representation is correct in that the power density for 5G frequencies (above 2GHz) is 10 watts per square, which is equivalent to 10,000 milliwatts per square metre. However, as shown by the EME report on page 2, the maximum power density of the proposed facility is around 308 milliwatts per square metre, or 0.3 watts per square. This is obviously well within the limits allowable.

With respect to the planning application, in Council's determination of the planning application before it, it is worthy of note the Environment, Resources and Development Court (ERDC) has examined the issue of telecommunication facility EME in detail, most notably in the matter of *Optus v City of Kensington and Norwood and Frost* (ERDC 344/97).

In its judgment, the Court stated:

> *"We acknowledge the desirability of adopting a precautionary approach to the assessment of risk to humans of new land uses, but we are satisfied that the Australian and New Zealand standard referred to above embraces the precautionary approach and that RFR levels are well within the standard."*

The Court went on to address the issue of perceived amenity, both in relation to the visual impact of the tower and the health implications, and stated:

> *"thus we do not accept that it is reasonable for the residents to perceive that the amenity of the locality would be affected by the proposed development."*

In more recent times, the ERD Court has again had cause to consider the perception of health impacts from mobile phone towers. In *Foresto & Ors v DAC & Ors*[1], the Court stated:

> *"It is not sufficient to simply raise personal concerns or to rely on general material published in various media. This issue and concern has previously been dealt with by this Court and others in Australia, it is regulated by the Commonwealth Government and there has been no finding that I am aware of to reject a telecommunications facility of this kind on the basis of potential health effects on the community. At this time the Court must accept that position." (para. 31)*

The issue has also been considered by other courts across Australia and New Zealand and have resulted in similar outcomes and are further supported by on-going studies into the potential health effects of mobile phones.

[1] [2005] SAERDC 45

Planning SA also stated in the Fact Sheet accompanying the *Telecommunications Facilities Statewide Policy Framework PAR*:

> *"it is not considered appropriate for Development Plan policies to require planning authorities to assess potential public health impacts."*

Notwithstanding that the proposed facility meets the required standard by a significant margin and there is no cause for concern in that regard, the issue of health impacts, perceived or otherwise, is not a relevant planning issue in the determination of this matter.

Impact on property values

There are tens of thousands of mobile telecommunications facilities installed across Australia. Neither Amplitel, Telstra nor SAQ Consulting are not aware of any credible evidence that the installation of these facilities has had any adverse and direct impact upon property values or leasing values, despite this claim often being made.

Of course, property and leasing values are influenced by many factors, but notwithstanding that, Development Plans - or indeed the South Australian planning system - do not specifically reference land, property or leasing values and certainly not with respect to specific types of development. Instead, the proposal must be assessed against the relevant provisions of the Development Plan.

This approach was reaffirmed by the ERD Court in Foresto & Ors v DAC & Ors, when the Court offered comment on the relevance of property values in respect to a proper assessment of mobile phone towers, stating:

> *"A fourth issue raised by the appellants in documentation (but not the hearing) is the possible affect of the proposal on land values of properties surrounding the recreation area. There is no relevant basis in the Development Plan provisions for an assessment of this issue and it is generally accepted that it is not a relevant factor to be taken into account in planning assessment and decision-making." (paragraph 32)*

As such, the impact on property values is not relevant to the proper assessment of this proposal against the Development Plan and cannot be taken into account by Council as part of its determination.

Visual impact

By their very nature, telecommunications facilities require sufficient height to operate effectively. As such, it will not be possible for the proposed facility to have no visual impact, however it is not required to have 'no impact.'

The ERD Court has previously stated that of the structure of the provisions relating to telecommunications facilities under the Development Plan regime specifically anticipates that there will be detriment caused by such facilities – that is, they are unlikely to improve the appearance of an area. Therefore, the key is to minimise the impact as much as practical whilst still ensuring technical requirements are met. It is important that 'minimising impact' is not construed to mean 'no impact.'

This approach has been endorsed separately by the ERD and Supreme Courts (see Development Assessment Commission v 3GIS Pty Ltd & Anor [2007] SASC 216 para. 72) and is the accepted approach for the assessment of such facilities.

To further set that out, in *DAC v 3GIS* The South Australian Supreme Court said at paragraphs 70-72 (with emphasis added):

> 70 *The function of this part of the Development Plan is to ensure not only that the technological requirements for delivery of the service can be satisfied by a particular installation but that they can be satisfied in a way which minimises what are assumed to be adverse effects on the visual amenity of the locality. It is not a matter of balancing the facility need with the environmental effects and then deciding whether the facility should be installed.*
>
> 71 *The provisions of the Development Plan relating to telecommunications facilities are not cast in the form of weighing that need against any other objectives or principles of the Plan, such as Objective 82. It recognises and assumes that telecommunications facilities will have a detrimental effect on visual amenity. Objective 88 makes this clear when it speaks of locating and designing facilities "to minimise" visual impact on the amenity of the local environment. For that reason the Plan encourages the development of low-impact facilities where possible "to minimise" visual impact on local environments. It encourages construction of such facilities in industrial and commercial and appropriate non-residential zones, and it requires facility design and location to ensure that visual impacts on the amenity of local environments are "minimised". Those objectives are developed further in Principles 294-298.*
>
> 72 *To the extent that a planning authority must ensure that the installation of a proposed facility will minimise the effect on the environment, the planning authority will need to consider, where alternative sites or low-impact facilities are suggested, whether that minimisation can be better achieved by installation of a facility at some other preferred site. But it will also need to consider whether that possible preferred site will meet the facility demand. If it will not, it may be discarded. There may be other reasons why a particular alternative site is inappropriate or impracticable.*

In this case, the facility demand – which is the replacement of an old and now unsuitable facility - can only be met by a new structure of around the height now proposed. There are no existing buildings or structures in the area that are sufficiently tall to provide for a suitable low-impact facility.

Although the above judicial comments relate to the previous Development Plan regime, it is the case that the Planning and Design Code has not materially altered the importance placed by policy on the need for telecommunications facilities. As such, it seems reasonable that the approach to the assessment and determination of such facilities should remain unchanged.

As set out in the planning statement, investigations into alternate sites have not revealed any other location in the surrounding area that could meet the requirements of replacing the existing facility and be an obviously better choice with respect to minimising visual impact through siting and design.

Notwithstanding this, simply having visual impact is not a basis on which telecommunications facilities can or should be refused, with some detrimental impact from such facilities anticipated but minimised.

That approach is evidenced by previous comments from the ERD Court in respect of assessing the visual impact of proposed telecommunication facilities such as this. The Court stated a proper approach to assessment must include consideration of all aspects of the proposal, including relevant technical requirements.

In *Telstra Corporation Limited v City of Norwood Payneham & St Peters* (ERD-05-111) the Court stated:

> *"….the Plan does not contemplate a rejection of a telecommunications facility on the grounds of visual intrusiveness alone."*

The visual impact from the subject proposal has been minimised to the extent it can be through the use of the absolute minimum number of antennas and use of a 'slimline' monopole and circular headframe. There is nothing further that can be done to the structure to further minimise its impact, as its height is a relatively fixed component.

This is an approach endorsed by the Court in Telstra v Holdfast Bay[2], which involved the construction of a similarly tall monopole near the corner of Jetty and Brighton Roads at Glenelg (also at a Telstra Exchange). The Court noted at paragraph 66 that whilst acknowledging that the facility would be prominent in parts of the locality:

> *"However, not a lot more is possible, whilst fulfilling the technical needs of the appellant. For example, a lower pole would not meet the technical requirements of the appellant and unless it was significantly lower, any further minimisation of visual impact would be marginal."*

In its concluding comments, the Court also noted at paragraph 76:

> *"…that visual amenity impacts on the locality and parts of it will be significant, but they are minimised to an appropriate and acceptable extent and are otherwise difficult to avoid;"*

This comment is highly relevant to the subject proposal, as there is little more that can be done in the existing landscape to reduce the impact of the monopole, particularly when technical requirements dictate the height of the facility.

As such, it is considered the proposed facility is appropriately sited to provide the necessary level of service required whilst minimising its impact <u>to the extent it can</u> (given there is an assumed detrimental impact on amenity) and within the constraints presented by the prevailing configuration of zoning and land use.

[2] [2008] SAERDC 47

Suitability of Zoning

The proposal is located within the *Employment Zone* pursuant to the Planning and Design Code. A telecommunications facility is specifically listed in Zone Table 3 and is therefore a 'Performance Assessed' type of development. A telecommunications facility is also an envisaged use in the zone.

As such, it is clear the proposal is sited within an appropriate zone within the locality and one to which such a proposal is directed. The proposal is also generally supported by the zone provisions, which are discussed at length in the planning statement provided to Council.

Further, in the wider locality there are clearly no more obviously better zones, the majority of which are residential zones.

A number of submission cited zone provision DTS/DPF 1.3 as a non-compliance of the proposal, but this is a misreading of the Planning and Design Code.

The purpose of DTS/DPF 1.3 is simply to state a desirable separation distance of 50 metres between telecommunications facilities and residential zones, purely for visual impact purposes. If the 50 metres separation cannot be achieved, the outcome is the proposal must be advertised, as it has been in this instance. The provision does not require compliance for the proposal to be approved but in any event such a separation is not possible on the subject land or any similarly-zoned land in this locality.

Several submissions also mentioned the height of the tower as excessive and not in accordance with the Planning and Design Code. However, as set out in the planning statement provided to Council, pursuant to Part 8 of the Planning and Design Code, telecommunications facilities are exempt from building height restrictions.

Conclusion

Having regard to the requirements of the existing network and the applicable policies within the Planning and Design Code, the proposed facility is located in an appropriate zone, the proposed land use is envisaged within the zone and there are no material impacts on traffic, carparking or vegetation. The proposed facility has minimised its impacts on the adjacent and nearby residential areas (as per the information set out in the planning statement) to an acceptable level through its design and siting and having regard for mitigating circumstances.

Having considered the content of the representations, I remain of the view that the proposal represents an appropriately considered and logical replacement of an essential piece of telecommunications infrastructure and warrants planning consent.

I understand the matter will be determined by the Council Assessment Panel. Please advise of the meeting date so I can arrange my attendance.

In the meantime, should you have any questions, please do not hesitate to contact me.

Yours sincerely

MARK BAADE
Planning Consultant
B. Plan (Hons)
M: 0417 088 000
mark@saqconsulting.com.au