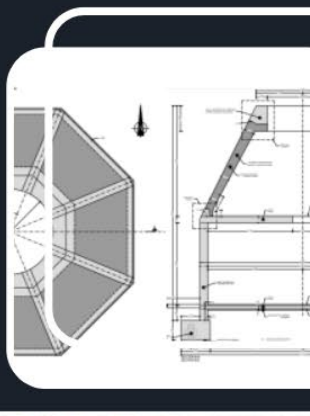
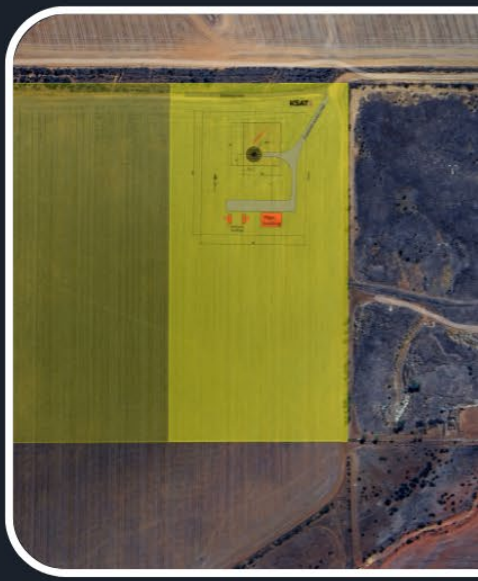
KSAT
KONGSBERG
KONGSBERG SATELLITE SERVICES

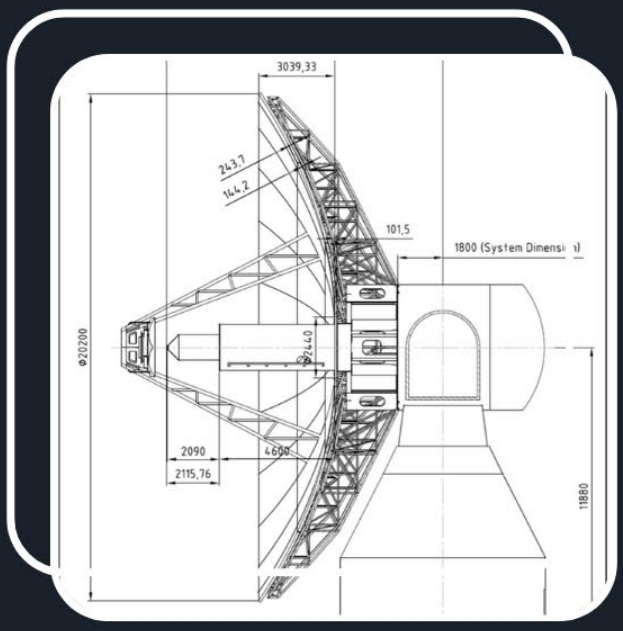
PROJECT PROPOSAL

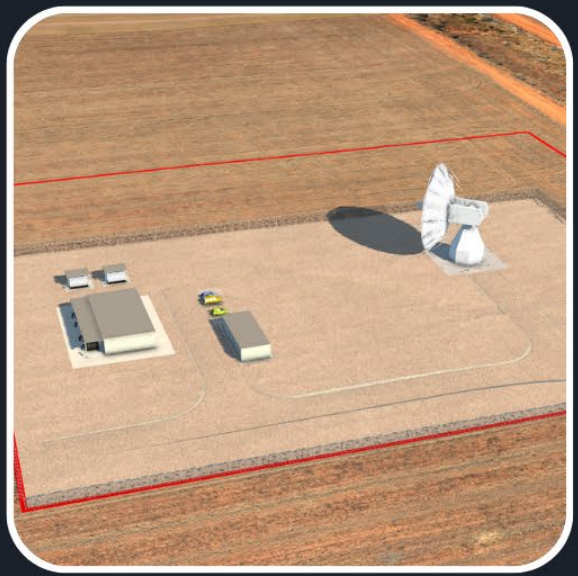


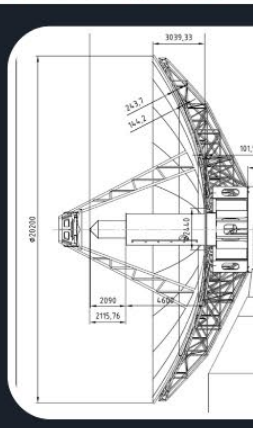
Landuse:
Telecommunications Infrastructure

Address:
Lot 55 Carnarvon-Mullewa Road
Mullewa









Supported by:
STARSITE
AUSTRALIA

DOCUMENT REFERENCES

Address: Lot 55, Carnarvon-Mullewa Rd, Mullewa, Western Australia, 6630
Local Government: City of Greater Geraldton
Description: Telecommunications Infrastructure

VERSION CONTROL

Version	Purpose	Author	Date Submitted
1.0	Initial	PT	25/02/25

PREPARED BY:

STARSITE AUSTRALIA

AND

WA PLANNING & LOGISTICS

Address: PO Box 1570, Geraldton WA 6531
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CONTENTS

1. EXECUTIVE SUMMARY

WA Planning, Kongsberg Satellite Services AS(KSAT) and Starsite Pty Ltd provides the following report for the purpose of lodging a development application upon Lot 55 Carnarvon-Mullewa Rd, Mullewa. The proposal seeks the approval of the following land use:

- Telecommunications Infrastructure
    - A 20.2m full-motion parabolic antenna (satellite dish).
    - An ancillary communications building.
    - Backup generators and supporting infrastructure.
    - Upgraded access roads and parking facilities.

The project aligns with Western Australian Planning Commission (WAPC) priorities for infrastructure expansion in regional areas and supports the objectives outlined in the City of Greater Geraldton Local Planning Strategy (2011-2031). It contributes to advancing regional telecommunications, scientific research, and economic diversification, reinforcing Australia's position in space communications.

This proposal will ultimately provide for the construction of critical infrastructure, including a 20.2m full-motion parabolic antenna (satellite dish), an associated communications building, and backup generators. Together, these components will ensure reliable operations, enabling seamless communication to support missions returning to the moon.

This report seeks to provide a comprehensive overview of the proposed development to demonstrate how this site will be managed as a coordinated telecommunications development in conjunction with the broad acre agriculture-extensive existing for the property.

A site plan, floor plan and elevations for all proposed development has been provided as a separate attachment to this report.

Figure 1: Illustrative plan of location of development upon the land

2. KSAT & STARSITE COLLABORATION

2.1 Kongsberg Satellites Services (KSAT)

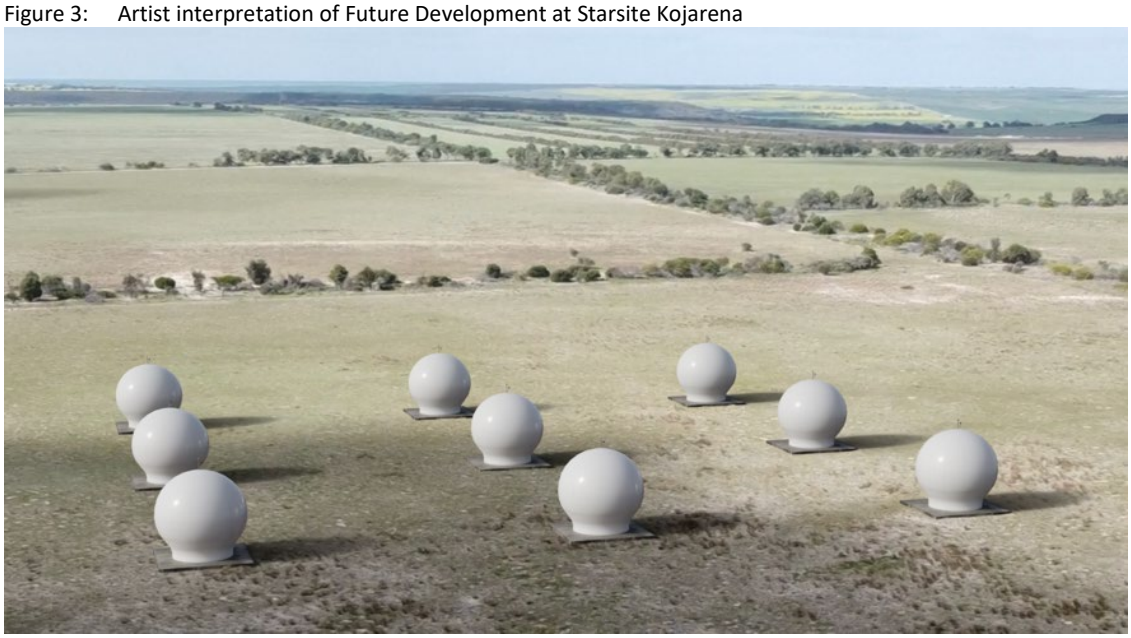
KSAT is a globally recognized leader in satellite ground station services, specializing in tracking, telemetry, and control (TT&C) solutions. KSAT supports international scientific missions, disaster response efforts, and defence applications. This development enhances KSAT's capacity to provide uninterrupted lunar communications through an advanced ground station in Western Australia.

Figure 2: SvalSat - KSAT's Svalbard Ground Station Facility based in the North Pole Region

2.2 About Starsite Pty Ltd

Starsite Pty Ltd, founded in 2022, is a specialized provider of satellite ground station hosting and operations. The company integrates expertise in cybersecurity, space engineering, and telecommunications infrastructure, supporting commercial and government space projects. The Mullewa site will enhance Starsite's strategic presence, reinforcing Australia's role in global space communications.

Figure 3: Artist interpretation of Future Development at Starsite Kojarena



2.3 KSAT & Starsite Collaboration

The KSAT-Starsite partnership leverages global expertise in satellite operations and local infrastructure knowledge to establish Western Australia's first lunar communications hub. The facility integrates with KSAT's global ground station network, ensuring reliable mission support for NASA Artemis and commercial lunar ventures.

A letter of endorsement from JTSI has been included as **Attachment 1** to this report.

Figure 4: Indo-Pacific Space and Earth Conference, Perth

Photo: Peter Teale- Managing Director & Co-Founder of Starsite Pty Ltd, Tom Mathisen- KSAT International Sales Manager, Kenneth Olafsson- Head of KSAT Asia, Representative Director KSAT Japan, James Yuen- Executive Director, Department of Jobs, Tourism, Science and Innovation, Western Australia, Enrico Palermo- Head of Australian Space Agency

2.4 Building a Sustainable, Inclusive, and Technologically Advanced Future

STEM Empowerment

In alignment with Western Australia's government priorities, this project actively supports STEM (Science, Technology, Engineering, and Mathematics) education and career development. By engaging local contractors and fostering employment opportunities, the project promotes regional economic growth while creating pathways for STEM-related skills development. This includes initiatives aimed at inspiring and equipping future generations to contribute to the state's growing space industry. Additionally, the proximity to First Nations communities provides opportunities for cultural engagement and collaboration

Cultural Collaboration

Furthermore, the project underscores its commitment to sustainability and social impact by supporting nearby Indigenous communities, reinforcing Western Australia's focus on innovation, inclusion, and collaboration in advancing its space and technology sectors.

Managing Director of Starsite, Peter Teale, has actively engaged with the local Mullewa Wadjari Cultural Authorisation Committee to ensure transparency and foster a respectful partnership. This collaboration aims to honour the cultural significance of the land while promoting mutual understanding and identifying opportunities for meaningful community involvement in the project.

Supporting Infrastructure

The site's infrastructure is equally robust, with reliable power and fibre connectivity capable of supporting critical lunar and satellite operations. The region's favourable climate, characterized by stable wind and rainfall patterns, further ensures the dependable performance of mission-critical systems.

Community Engagement Philosophy

The KSAT Lunar Mullewa Project is dedicated to fostering open, transparent, and meaningful engagement with the local community to ensure that the development aligns with regional values, aspirations, and long-term interests. We recognize the importance of building strong relationships with residents, Indigenous groups, local businesses, and key stakeholders, and we are committed to ensuring that their perspectives are heard and respected throughout the project's lifecycle.

Our approach to community engagement is guided by the principles of respect, inclusivity, and collaboration. We will maintain ongoing dialogue with local stakeholders through regular updates, consultation sessions, and opportunities for direct feedback to address concerns and explore shared opportunities. Particular emphasis will be placed on cultural engagement with First Nations communities, ensuring that the project acknowledges and respects Indigenous heritage while fostering meaningful partnerships.

In addition to minimizing potential impacts, we seek to create local employment and economic opportunities, actively supporting the growth of STEM education and skills development in the region. By integrating community insights into project planning and execution, we aim to establish a positive, long-term legacy for Mullewa, reinforcing Western Australia's position as a hub for space communications while contributing to local prosperity and sustainability.

3. LOCATION & SURROUNDINGS

3.1 Location

The proposed development will take place on Lot 55 Carnarvon-Mullewa Road, located approximately 2.5 kilometres north of Mullewa. The site is situated on land currently zoned as 'Rural' in City of Greater Geraldton Local Scheme No.1 Map 17.

The site entrance is approximately 550 metres West of the Carnarvon-Mullewa Road at the turn-off north of the Mullewa Cemetery, and west of the Mullewa Tip.

This zoning classification aligns with local and regional planning frameworks, providing the necessary flexibility to accommodate the development of critical infrastructure such as the lunar antenna and associated facilities. The rural setting ensures minimal disruption to urban areas while supporting the project's objectives within the context of Western Australia's strategic land-use priorities.

Figure 5: Lot 55 and its Proximity to Mullewa Town

3.2 Existing Land Use

The site is currently used for extensive agricultural activities, including cropping and livestock grazing, which are well-established and ongoing.

Figure 6: Photograph looking across lot

Figure 7: Photograph of site demonstrating limited vegetation upon the site

3.3 Radio Quiet Zone

The site is strategically located in a region renowned for its low radiofrequency (RF) environment, protected under the Australian Communications and Media Authority's (ACMA) Embargoes 47 and 49. These regulatory measures restrict new frequency assignments to preserve the spectrum for critical space operations and defence activities, creating an ideal setting for seamless lunar communications.

Figure 8: Embargo 47

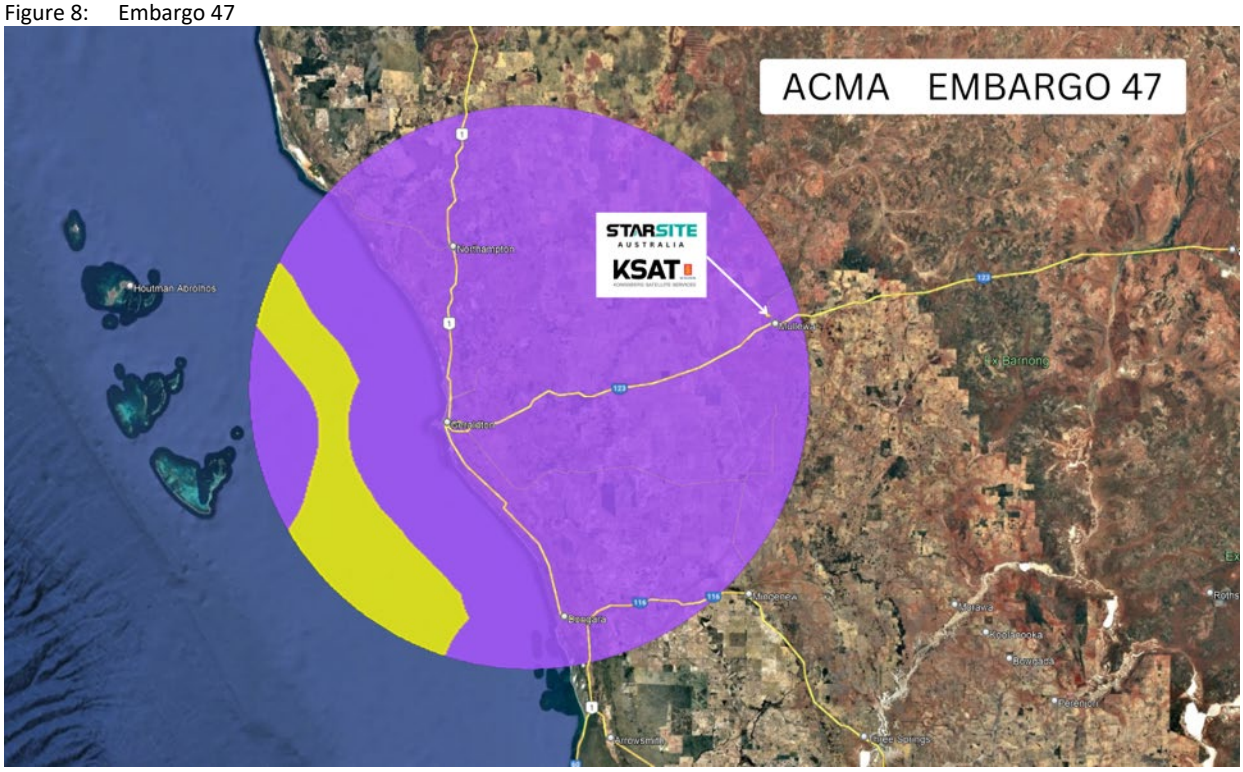
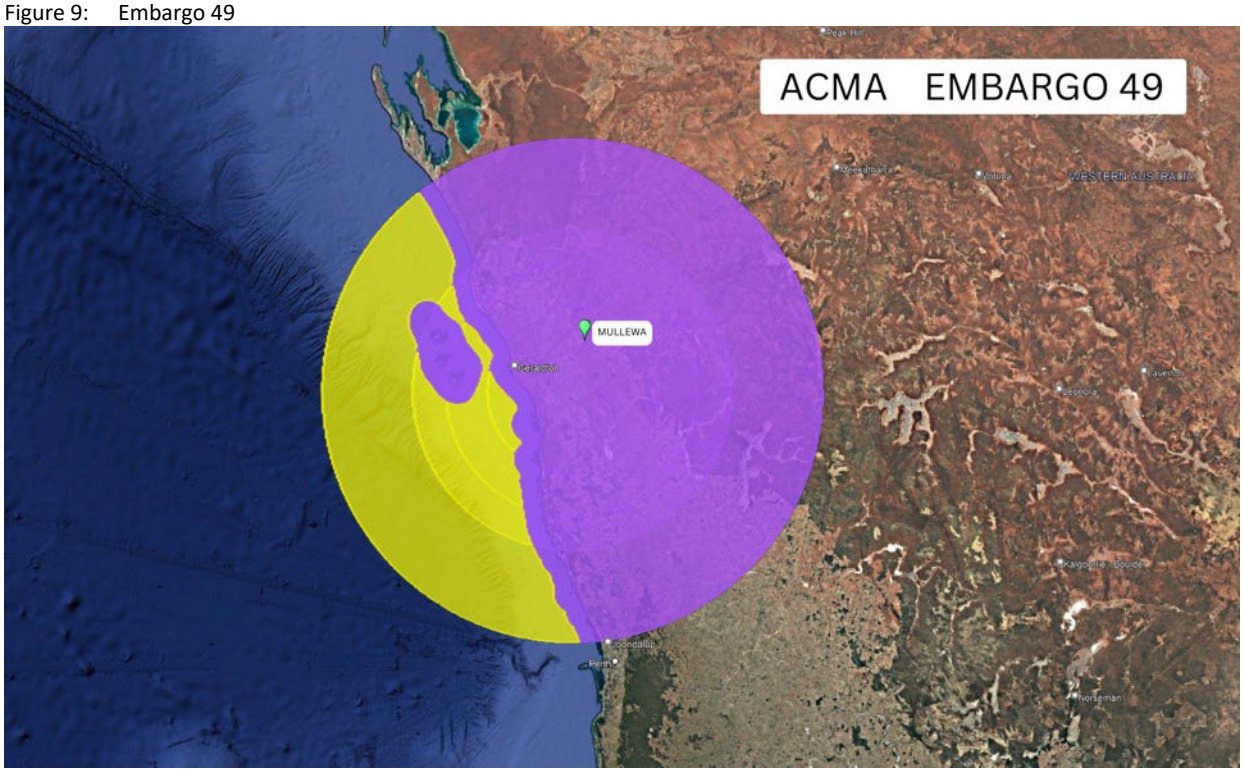


Figure 9: Embargo 49

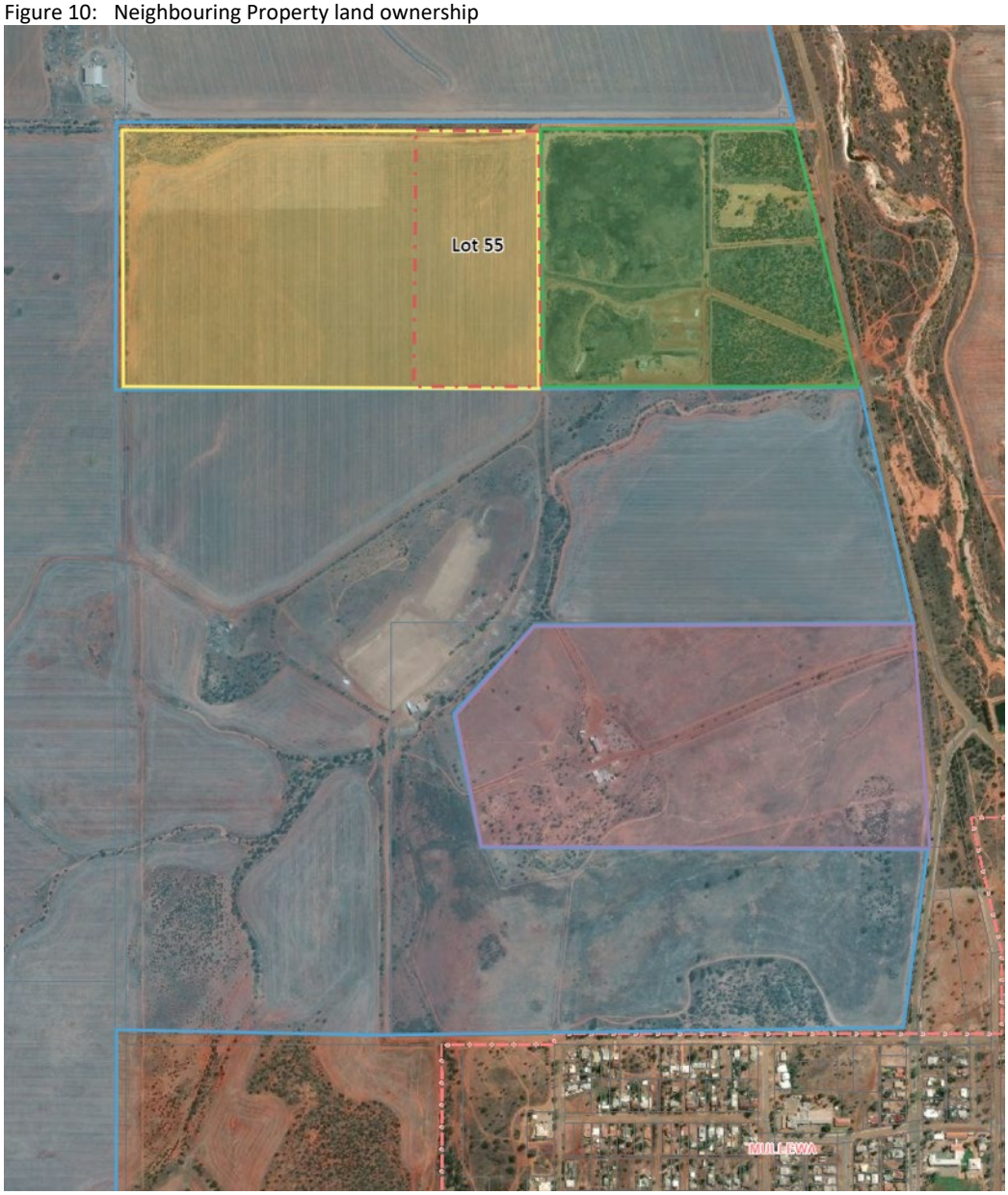


3.4 Neighbouring Properties

The land surrounding is largely zoned ‘rural’ and used for broad acre agricultural purposes. The land to the immediate east of the site is Reserve 12107 which is zoned ‘Public Purposes’ and has a management order to the local government for the purpose of ‘rubbish disposal site’. The land use of telecommunications and refuse site have no impact on each other and can coexist

KSAT and Starsite are committed to maintaining strong relationships with neighbouring property owners to ensure the project aligns with community values and minimizes any potential for impact. Regular communication will be established to provide updates, address concerns, and explore opportunities for collaboration. By working together with neighbouring properties, KSAT and Starsite aim to foster a harmonious environment that supports regional development while respecting the needs and priorities of the local community.

Figure 10: Neighbouring Property land ownership



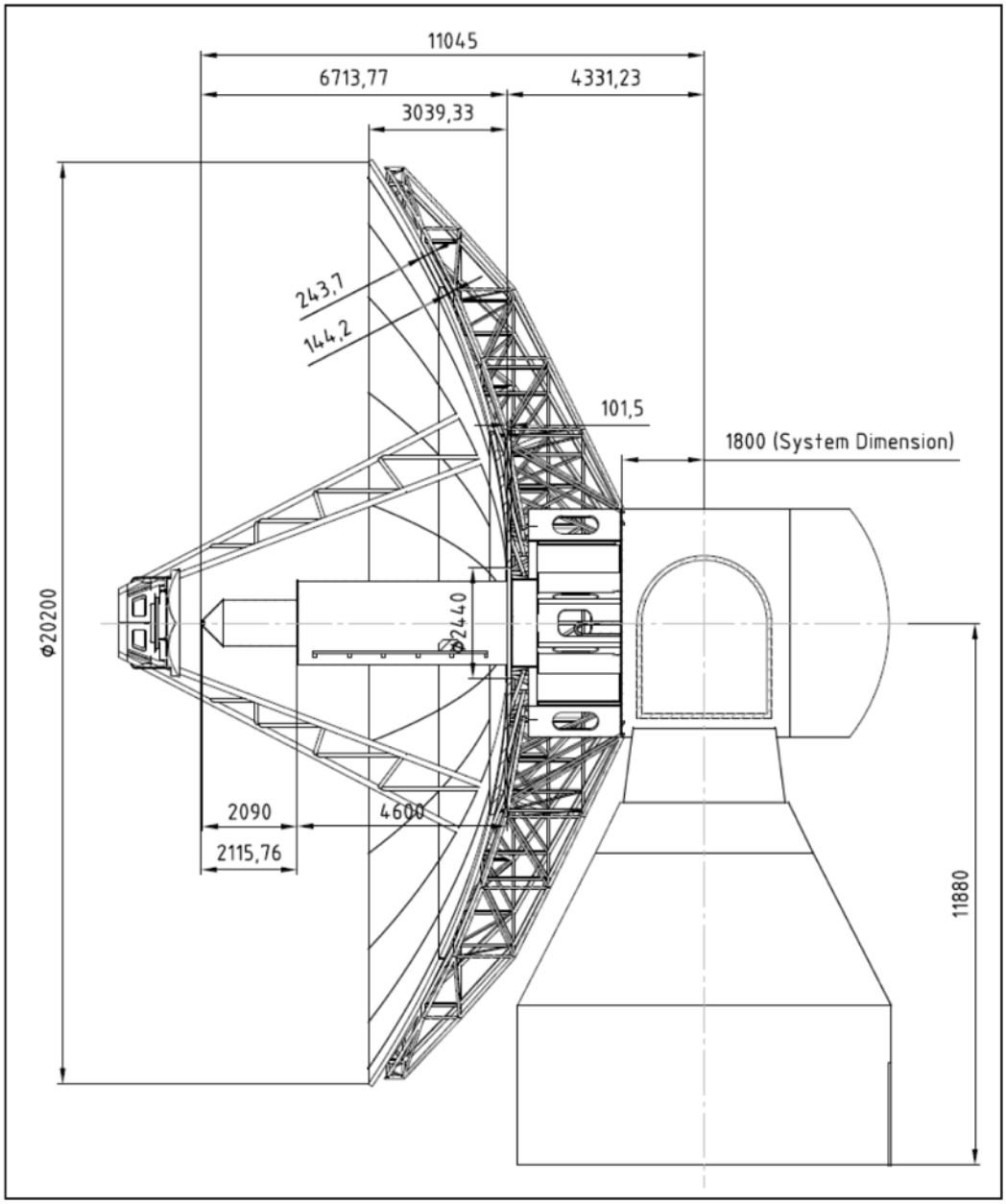
4. PROPOSED DEVELOPMENT

The ‘telecommunications infrastructure’ proposed upon the site comprises of the following details:

4.1 20.2m full-motion Lunar Antenna

- Purpose:
  Transmit and Receive communication signals from Space
- Construction Type:
  Foundation and Tower – Concrete
  Top Section - Aluminium and composite materials

Figure 11: Extract from Antenna Vender



4.2 Technical Building

- Purpose:
  Signal Data Processing, linking into existing Fibre networks, Storage of equipment
- Construction:
  Modular design / Transportable
  Approximate/maximum, 25m x 16m (area of 400m2).

Figure 12: Visual rendering Buildings

4.3 Support Building – Potential / assessment underway if required

- Purpose:
  Transportable office for onsite staff to undertake administrative duties when onsite.
- Construction:
  Transportable
  Approximate, 6m x 10m (area of 60m2)

4.4 Incidental Development

<u>General Parking</u>

- Purpose:
  Operational and Maintenance staff
- Construction:
  Gravel / blue metal

<u>Back-up Power Generators</u>

- Purpose:
  Back-up power supply to essential equipment
- Construction:
  6m x 6m (area of 36m2).

<u>Security Fencing</u>

- Purpose:
  Security and Vermin control
- Construction:
  Steel / Aluminium
  155m x 97m

A full copy of the development plans (including site, floor and elevation plans) has been included separately.

Figure 13: Visual rendering Antennae

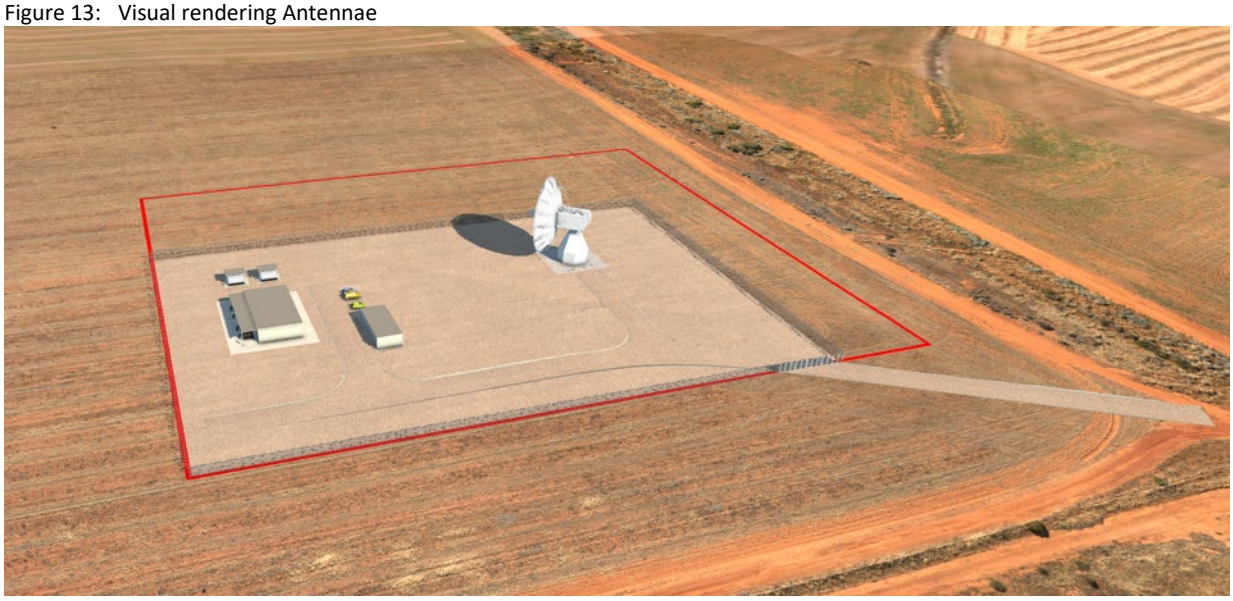


Figure 14: Visual rendering Buildings

4.5 Timeframes and Stages

The development of the 20.2m full-motion parabolic antenna will be carried out in structured phases to ensure efficient execution while minimizing disruption to the surrounding rural landscape. The key stages of the project include:

1. Planning and Approvals (3-6 months)
    - Finalization of detailed designs and site assessments.
    - Completion of required planning approvals and environmental considerations.
    - Engagement with key stakeholders, including local authorities and Indigenous representatives.
2. Construction Phase (6-12 months)
    - Site preparation, including land clearing (if required) and foundational works.
    - Installation of supporting infrastructure, including power and fibre connectivity.
    - Assembly and calibration of the parabolic antenna and associated systems.
3. Testing and Commissioning (3-4 months)
    - System integration and functionality testing.
    - Calibration and verification of operational performance.
    - Final safety and compliance checks before full activation.
4. Operational Phase (Ongoing)
    - Commencement of full-scale operations.
    - Ongoing monitoring, maintenance, and upgrades as required.
    - Continuous engagement with local stakeholders to maximize regional benefits.

This phased approach ensures a structured and efficient development process, balancing infrastructure needs with environmental, agricultural, and community considerations.

5. UTILITIES AND SERVICING

5.1 Effluent Disposal

All ablution facilities on the site will be connected to an on-site wastewater management system, which will include either septic tanks or leach drains, depending on the site conditions and regulatory requirements.

System Design and Installation: The wastewater system will be designed and installed in compliance with the relevant guidelines set by the Department of Health WA and local government authorities. The system will be appropriately sized to handle the anticipated volume of wastewater generated by the site.

Septic Tanks: Where septic tanks are utilized, they will be installed to efficiently treat wastewater, separating solids and liquids, with the effluent directed to leach drains or soak wells for further treatment and absorption into the soil.

Leach Drains: Leach drains will be installed as the final stage of wastewater treatment to safely disperse treated effluent into the surrounding soil. The drains will be designed to ensure effective percolation and minimize environmental impact.

5.2 Water

Rainwater harvesting will be utilized as a supplementary water source on the site to support sustainable water management practices. The system will involve:

Roof Collection: Rainwater will be collected from the roofs of built structures using appropriately designed gutters and downpipes.

Storage: The collected rainwater will be directed to dedicated storage tanks equipped with sealed lids to prevent contamination and evaporation.

Filtration and Treatment: All rainwater intended for potable use will pass through a multi-stage filtration system, including sediment filters and disinfection (e.g., UV sterilization or chlorination) to meet potable water standards. Rainwater used for non-potable purposes (e.g., irrigation or toilet flushing) will undergo basic filtration to remove debris.

5.3 Electricity

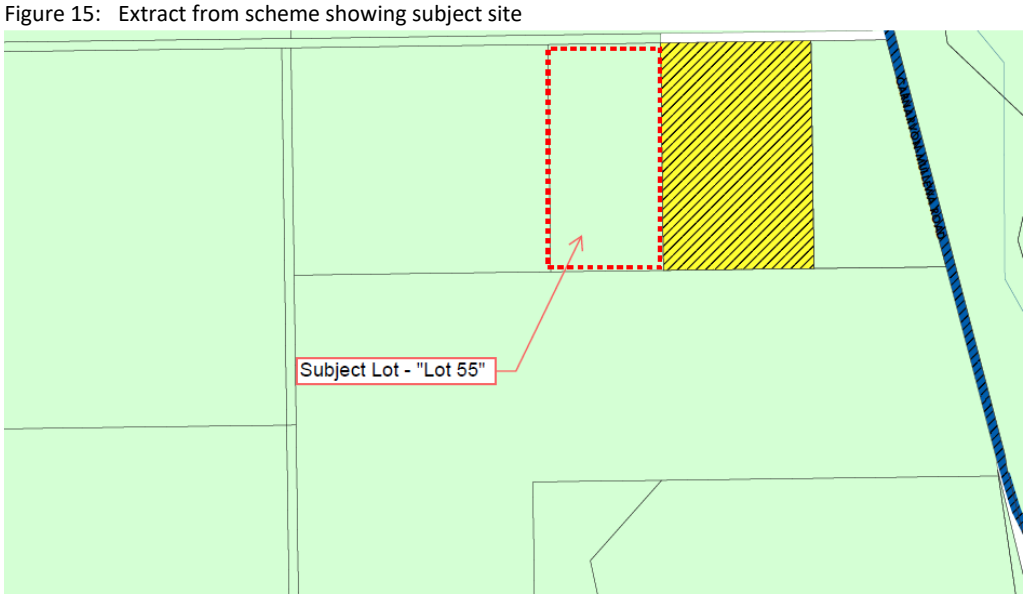
Mains power will be constructed and commissioned in accordance with Australian Standards to ensure safety, reliability, and compliance with all regulatory requirements. The system will be designed to meet the specific needs of the site and integrate seamlessly with the existing electrical infrastructure, while adhering to environmental and operational standards. Regular inspections and testing will be conducted to maintain compliance and performance.

6. LOCAL PLANNING SCHEME CONSIDERATIONS

6.1 Zoning

The site is zoned 'Rural' under the City of Greater Geraldton's Local Planning Scheme No. 1 (the 'Scheme').

Figure 15: Extract from scheme showing subject site



6.2 Land Use & Permissibility

This application is seeking permission for the following:

Land use	Definition	Permissibility
Telecommunications Infrastructure	telecommunications infrastructure means premises used to accommodate the infrastructure used by or in connection with a telecommunications network including any line, equipment, apparatus, tower, antenna, tunnel, duct, hole, pit, or other structure related to the network.	A - means that the use is not permitted unless the local government has exercised its discretion by granting development approval after giving notice in accordance with the Scheme.

The proposal is considered to best fit under this land use definition because:

- Telecommunication is to send/receive information over large distances which is what this development will achieve
- Involves the construction of an antenna and supporting infrastructure

6.3 Objectives of Zone

The Scheme lists the following objectives for the 'Rural' zone:

a) provide for the maintenance or enhancement of specific local character.
b) protect broadacre agricultural activities, such as cropping and grazing, and intensive uses, such as horticulture, from incompatible uses and minimise land use conflicts.
c) provide for a range of non-rural land uses where they have demonstrated benefit and are compatible with the surrounding rural uses.
d) protect and provide for existing or planned key infrastructure, public utilities and renewable energy facilities.

To demonstrate how the proposal will achieve integrated development within Rural zone in line with the objectives of the Rural zone, the following points are raised:

a) provide for the maintenance or enhancement of specific local character.

   The antenna and infrastructure support advanced space exploration and position the region as a hub for cutting-edge science and technology. This enhances the local character by integrating high-tech space industry development with the community's existing identity.

   The infrastructure promotes Mullewa as a centre for innovative activities while respecting the region's radio-quiet zone regulations, preserving the area's unique suitability for such projects.

b) protect broadacre agricultural activities, such as cropping and grazing, and intensive uses, such as horticulture, from incompatible uses and minimise land use conflicts.

   The site's location in a designated radio-quiet zone ensures minimal interference with agricultural operations and supports the coexistence of high-tech facilities and traditional land uses.

   The facility occupies a relatively small footprint and is fenced to prevent interference with nearby agricultural activities, protecting ongoing cropping and grazing operations

c) provide for a range of non-rural land uses where they have demonstrated benefit and are compatible with the surrounding rural uses.

   The project creates local employment opportunities, generates economic benefits, and attracts global attention to the region without displacing existing rural uses.

   The infrastructure complements rural land use by showcasing the possibility of coexisting agricultural and technological development, fostering a diversified local economy.

d) protect and provide for existing or planned key infrastructure, public utilities and renewable energy facilities.

   The antenna relies on robust existing infrastructure, such as the Western Power Grid connection, while also supporting the development of additional utilities, such as fiber optic communications and renewable energy solutions.

   Its presence advocates for improved regional infrastructure, benefiting both the project and surrounding communities, including enhanced road access and utility services.

6.4 Scheme Considerations

Section 3.11.2.3 of the Scheme states:

> "3.11.2.3 In considering development applications the local government shall have regard to:
>
> a) the Department of Agriculture and Food's studies into identification of high-quality agricultural land, to protect the economic and agricultural viability of this land.
> b) the need to protect the economic viability of the rural land use generally.
> c) the need to preserve the rural character and a rural appearance of the area.
> d) the need to ensure that the existing standard of roads, water and electricity supply and other services is sufficient for the additional demands that the proposed development would create.
> e) the need to consider the existence of basic raw materials, mineral resources and the impact of the proposal on existing and potential extractive industry operations in the area."

To demonstrate how the proposal will achieve integrated development within Rural zone in line with the consideration of the Rural zone, the following points are raised:

a) the Department of Agriculture and Food's studies into identification of high-quality agricultural land, to protect the economic and agricultural viability of this land.

   Site Selection: The antenna is strategically sited on land not classified as HQAL, thereby preserving prime agricultural areas for farming activities.

   Land Use Compatibility: By avoiding HQAL, the project supports the Department's goal of protecting economically viable agricultural land from incompatible developments.

b) the need to protect the economic viability of the rural land use generally.

   Minimal Land Disruption: The antenna's footprint is limited, ensuring that the majority of surrounding land remains available for agricultural purposes, thereby sustaining the economic viability of rural land use.

   Economic Diversification: The project introduces technological infrastructure that can coexist with traditional farming, potentially offering new economic opportunities without undermining existing agricultural practices.

c) the need to preserve the rural character and a rural appearance of the area.

   Design Considerations: The antenna and its infrastructure are designed to blend with the rural landscape, utilizing materials and colours that minimize visual impact, thereby maintaining the area's rural character.

   Community Engagement: Ongoing consultations with local residents ensure that the project's development respects and reflects community values and aesthetics.

d) the need to ensure that the existing standard of roads, water and electricity supply and other services is sufficient for the additional demands that the proposed development would create.

Infrastructure Assessment: Comprehensive evaluations of local roads, water, and electricity supplies have been conducted to ensure they can accommodate the project's demands without compromising existing services.

Upgrades and Investments: Where necessary, the project includes plans to upgrade infrastructure, such as enhancing road access and bolstering power supply, benefiting both the project and the local community.

e) the need to consider the existence of basic raw materials, mineral resources and the impact of the proposal on existing and potential extractive industry operations in the area.

Resource Mapping: Prior to development, thorough assessments ensure the site does not overlap with areas designated for BRM extraction or identified mineral resources, thereby avoiding conflicts with existing or potential extractive industry operations.

Compliance with Policies: The project adheres to State Planning Policy 2.4, ensuring that the development does not hinder access to essential raw materials or disrupt current extraction activities.

6.5 Specific Development Standards

Setbacks

Scheme Provision	Proposed	Compliant
Primary Street – 20m	40m	YES
Side boundary – 10m	46m	YES
Rear boundary – 10m	287m	YES
Antenna Height – no restriction	23m	YES
Building Height – As per R-Codes for residential development	Less than 7m	YES
Plot ratio – no restriction	-	YES

Parking

No specific requirements for parking listed within the Scheme. 3 bays are to be provided adjacent to the support building for when technicians may come to site for maintenance. These are to be constructed with compacted gravel only given the intermittent nature of the land use and that it is only expected that 1-2 persons would be onsite at any one time approximately once a week.

7. OTHER PLANNING LEGISLATION CONSIDERATIONS

7.1 Geraldton Region Plan

The KSAT Lunar Mullewa Project aligns closely with the Geraldton Region Plan, which outlines strategic priorities for sustainable regional growth, economic diversification, and infrastructure development. The project contributes to these objectives in the following ways:

1. Economic Diversification & Regional Development

The Geraldton Region Plan emphasizes the need to diversify the regional economy beyond traditional industries such as agriculture, fishing, and mining. By establishing a world-class satellite ground station, the KSAT Lunar Mullewa Project enhances Geraldton's reputation as a hub for advanced technology, space communications, and research, creating new investment and employment opportunities in the region.

2. Infrastructure Expansion & Telecommunications

A key objective of the plan is improving infrastructure and telecommunications connectivity to support regional businesses and industries. The development of a 20.2m full-motion parabolic antenna, along with associated power and fibre-optic infrastructure, strengthens telecommunications capabilities in the Mid West, benefiting scientific, commercial, and public-sector applications.

3. Innovation & STEM Development

The plan encourages the growth of innovation-driven industries to future-proof the region's economy. The project supports STEM education and workforce development, engaging with local schools, universities, and training institutions to create pathways for future employment in the space and technology sectors.

4. Land Use & Compatibility with Rural Zoning

The Geraldton Region Plan acknowledges the importance of integrating new industries within rural areas while preserving agricultural land. The project has been designed to minimize land use conflicts by ensuring the infrastructure occupies a small footprint and is strategically located to coexist with existing agricultural activities such as cropping and livestock grazing.

5. Regional and Global Connectivity

Geraldton has been identified as a strategic gateway for industries requiring global connectivity. The KSAT Lunar Mullewa Project enhances the region's role in international space communications, supporting NASA Artemis missions, commercial lunar ventures, and global satellite operations, reinforcing Geraldton's global significance in the space and technology sectors.

The KSAT Lunar Mullewa Project is well-aligned with the Geraldton Region Plan's vision for economic growth, infrastructure expansion, and industry diversification. By integrating high-tech space infrastructure within a rural setting, the project contributes to the region's long-term economic sustainability, technological advancement, and global competitiveness.

7.2 City of Greater Geraldton Local Planning strategy

The KSAT Lunar Mullewa Project aligns with the City of Greater Geraldton Local Planning Strategy (2011-2031) by supporting economic diversification, infrastructure development, and innovation. By introducing a high-tech space communications facility, the project strengthens Geraldton's role as a hub for advanced technology and research, attracting investment and creating new employment opportunities. Additionally, the installation of a 20.2m full-motion parabolic antenna and supporting infrastructure enhances telecommunications capabilities in the Mid-West, benefiting industry, government, and scientific research.

The project is also designed to coexist with existing agricultural activities, ensuring minimal impact on rural land while contributing to Geraldton's long-term economic sustainability. Its commitment to community engagement, Indigenous partnerships, and STEM development aligns with the strategy's focus on local collaboration and skills growth. By integrating cutting-edge technology within a rural setting, the project reinforces Geraldton's strategic vision for innovation, economic resilience, and global connectivity.

7.3 State Planning Policy 5.2: Telecommunications Infrastructure

The antenna installation aligns with State Planning Policy 5.2 by supporting efficient telecommunications services while minimising environmental and visual impacts. It is located on previously disturbed land to avoid ecologically sensitive areas and designed to blend with the surrounding landscape, reducing its visual prominence.

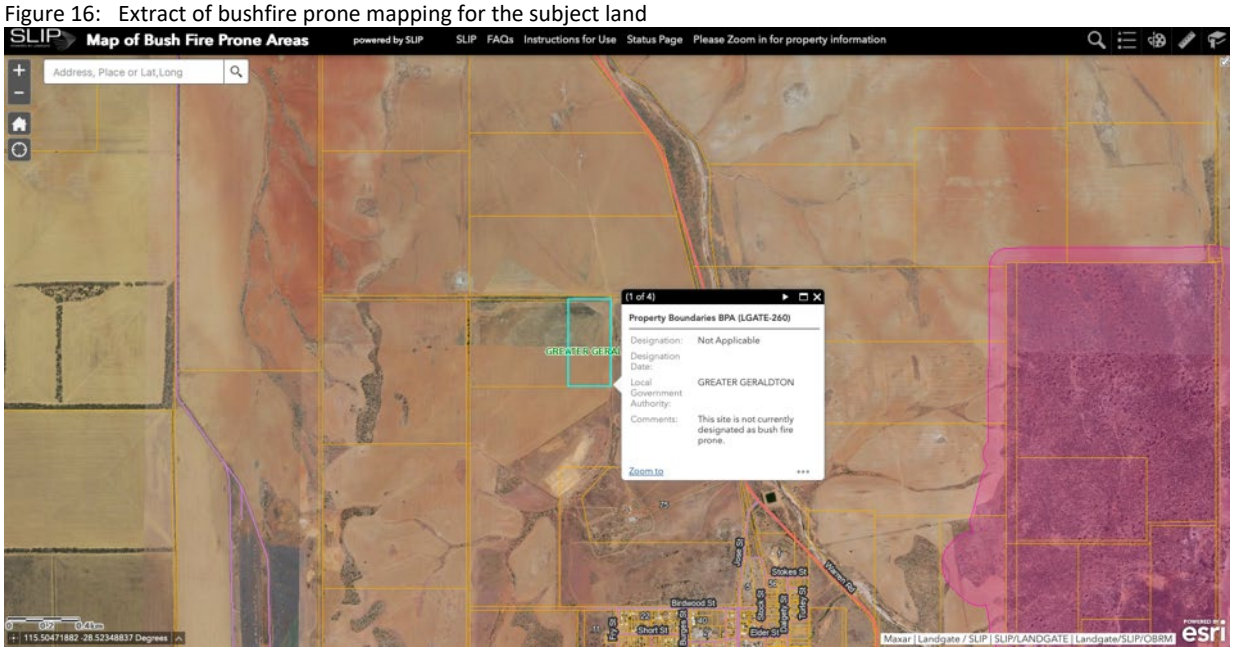
The infrastructure is compatible with adjacent land uses, adheres to health and safety standards, and complies with technical and regulatory requirements. Community consultation is underway to address concerns and promote transparency. This installation supports the policy's objectives by delivering essential telecommunications services in a sustainable and responsible manner.

It should be noted that telecommunications infrastructure is subject to strict licencing and ongoing monitoring under separate legislation to ensure commercial protection and communication security for Australia.

7.4 State Planning Policy: Bushfire

It is noted that the lot is not within a bushfire prone area and is therefore not subject to the requirements of the Policy. It is noted to provide evidence that an assessment against the Bushfire Prone Mapping has been undertaken and deemed to not be applicable to this property.

Figure 16: Extract of bushfire prone mapping for the subject land



7.5 State Planning Policy 2.5: Rural Planning

Telecommunications infrastructure development in rural areas should be carefully planned to ensure it does not compromise the primary land use, such as agriculture or conservation. To minimise land use conflicts and environmental impacts, infrastructure should be strategically designed and integrated into the landscape. Wherever possible, co-location of telecommunications facilities is encouraged to reduce the overall footprint of new infrastructure. Additionally, if a facility is proposed within a priority agriculture zone, it must not significantly impact farming operations, ensuring that essential agricultural activities can continue without disruption.

The development of a 20.2m full-motion parabolic antenna (satellite dish) will have minimal impact on rural land, as it is a low-intensity use that does not interfere with existing agricultural activities or environmental values. The infrastructure will be strategically sited to ensure it does not compromise the primary land use, such as farming or conservation, and will be designed to integrate with the rural landscape while minimising visual and environmental impacts. Additionally, the development will not generate excessive noise, traffic, or emissions, ensuring that surrounding land remains suitable for its intended rural purpose.

7.6 Transport Impact Assessment Guidelines

In accordance with the Transport Impact Assessment Guidelines a Transport Assessment has been undertaken, to determine the level of assessment required for an individual development.

In order to complete the assessment, the number of vehicle trips during the development's peak hour period, is required to be estimated as per the following DPLH Transport Impact Assessment Guidelines:

Figure 17: Figure 12. Level of assessment required

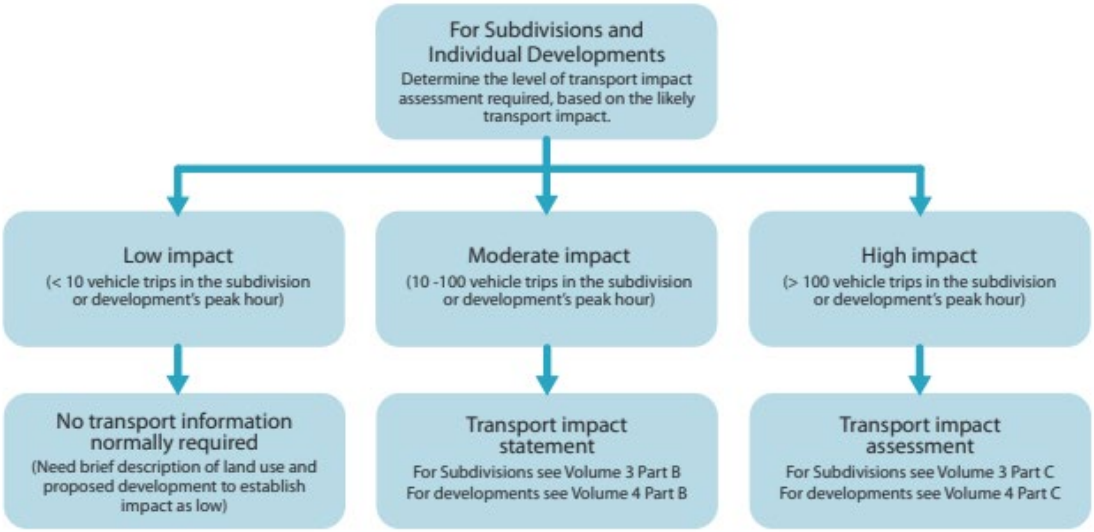


Figure 18: Table 2. Level of traffic impact assessment required by land use and size

LAND USE	MODERATE IMPACT	HIGH IMPACT
	Transport Impact Statement required	Transport Impact Assessment required
	10 – 100 vehicle trips in the peak hour	> 100 vehicle trips in the peak hour
Residential	10–100 dwellings	>100 dwellings
Schools	10–100 students	>100 students
Entertainment venues, restaurants, etc.	100–1000 persons (seats) OR 200–2000 m² gross floor area	>1000 persons (seats) OR >2000 m² gross floor area
Fast food restaurants	50–500 m² gross floor area	>500 m² gross floor area
Food retail /Shopping centres with a significant food retail content	100–1000 m² gross floor area	>1000 m² gross floor area
Non-food retail	250–2500 m² gross floor area	>2500 m² gross floor area
Offices	500–5000 m² gross floor area	>5000 m² gross floor area
Service Station	1–7 refuelling positions	>7 refuelling positions
Industrial/Warehouse	1000–10,000 m² gross floor area	>10,000 m² gross floor area
Other Uses	Discuss with approving authority	Discuss with approving authority

The project has been designed to align with the Transport Impact Assessment Guidelines, ensuring minimal impact on local traffic and infrastructure during both construction and operational phases.

Construction Phase:

- The maximum number of personnel on-site at any one-time during construction would not exceed 10 people.
- Construction-related traffic will be carefully managed, with staggered scheduling of personnel arrivals and departures to avoid peak traffic periods.
- Deliveries and construction vehicles will adhere to a pre-approved traffic management plan, ensuring minimal disruption to local road users and maintaining road safety standards.
- Heavy equipment utilisation will be minimal as much of the construction will be completed off-site.

Operational Phase:

- Once the project is operational, the maximum number of personnel on-site will be limited to 2 people at any given time.

- Traffic generation during operations will therefore be negligible, consisting of occasional vehicle movements for maintenance or other operational requirements.

Based on this estimate of vehicle movements, it is considered that the proposed development falls within the category of "Low Impact", and therefore no further transport information should be required to fulfil the DPLH requirements under the Guidelines.

Proposed vehicle movements during construction

Vehicle Type	Per day/week max	Total Movements per day	Movements Per week	Peak Hour* (highest number of vehicle movements in busiest hour)
PROPOSED MOVEMENTS				
Light Vehicles (workers)	3 per day	6	42	3
Heavy Vehicles	1 per day	2	14	1
visitors	0	0	0	0
	TOTAL	8	56	4

Proposed vehicle movements operational phase

Vehicle Type	Per day/week max	Total Movements per day	Movements Per week	Peak Hour* (highest number of vehicle movements in busiest hour)
PROPOSED MOVEMENTS				
Light Vehicles (workers)	2 per day	4	28	2
Heavy Vehicles	0	0	0	0
visitors	0	0	0	0
	TOTAL	4	28	2

Access Roads:

Existing access roads will be subject to a geotechnical assessment to confirm their compliance with relevant safety and structural standards, ensuring suitability for both construction and operational traffic. Any required upgrades or modifications identified in the assessment will be implemented to meet compliance standards.

This comprehensive approach ensures compliance with the Guidelines by maintaining low traffic volumes, minimizing transport-related impacts, and ensuring access infrastructure meets necessary standards for safety and functionality.

8. SITE CONDITIONS & CONSTRAINTS

8.1 Biodiversity and Natural Assets

The rural property will be managed to protect and enhance its biodiversity and natural assets, ensuring the sustainability of local ecosystems. Key measures include:

Conservation of Native Vegetation:
Existing native vegetation will be preserved where possible, with minimal clearing for development activities. Buffer zones will be established around significant flora and fauna habitats.

Land and Soil Management:
Erosion control measures will be employed to prevent soil degradation.
Sustainable land management practices will be adopted to maintain soil health and productivity.

Compliance and Monitoring:
Activities on the property will comply with relevant environmental regulations and guidelines.
Regular monitoring will be conducted to assess the health of biodiversity and natural assets and guide adaptive management

8.2 Hydrology

The site's hydrology will be carefully assessed and managed to ensure sustainable water use and minimal environmental impact. Key measures include:

Surface Water Management:

- Drainage systems will be designed to control surface runoff, prevent erosion, and manage stormwater effectively.
- Any natural watercourses on or near the site will be preserved and protected.

Groundwater Protection:

- Construction and operational activities will adhere to best practices to prevent contamination of groundwater resources.
- Appropriate setbacks from water bodies and bores will be maintained in line with regulatory requirements.

Sustainable Water Use:

- Rainwater harvesting systems will be utilized where possible to supplement water needs.
- Measures will be implemented to minimize water wastage and promote efficiency.

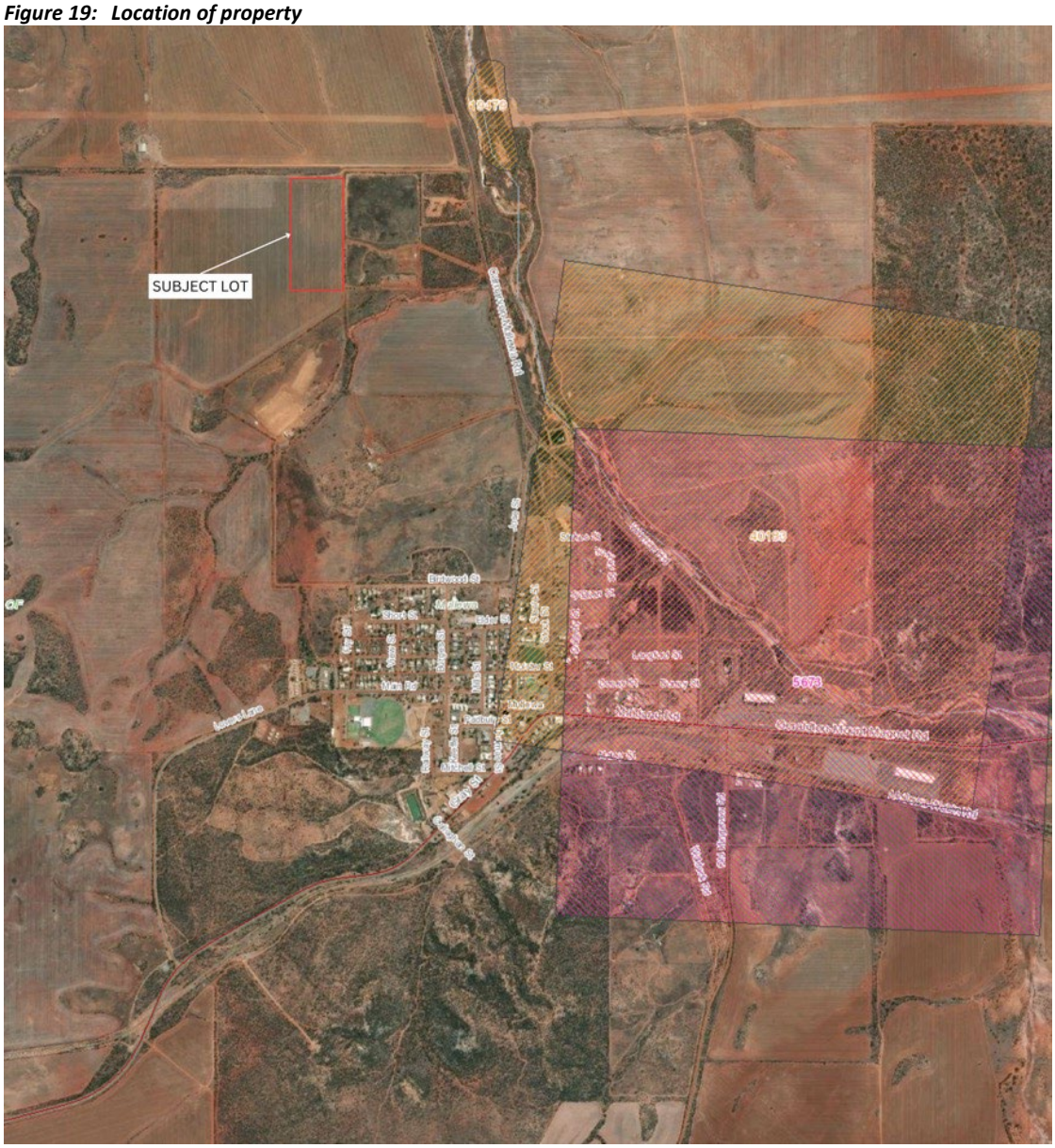
These strategies ensure hydrological considerations are integrated into the planning, development, and operation of the site.

8.3 Heritage – Indigenous

Although not required to undertake a heritage survey due to the freehold status of the land, we recognize the importance of respecting and honouring the cultural heritage of the local area. In consultation with the local elders and community members, a cultural heritage survey will be conducted with appropriate representation from the Mullewa Wadjari Cultural Authorisation Committee.

This initiative demonstrates our commitment to preserving cultural values and fostering positive relationships with the traditional custodians of the land, ensuring that their heritage and knowledge are acknowledged and respected throughout the development process.

Figure 19: Location of property



9. PUBLIC SAFETY

9.1 Commitment to Safety and Compliance

KSAT and Starsite are fully committed to ensuring that the KSAT Lunar Mullewa Satellite Ground Station operates with the highest safety, environmental, and regulatory standards, guaranteeing that it poses no risk to human health, wildlife, or the surrounding environment.

The facility strictly adheres to all Australian Communications and Media Authority (ACMA) regulations and complies with Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) guidelines, which set stringent limits on electromagnetic energy (EME) exposure. These standards are based on scientific research endorsed by the World Health Organization (WHO) and the International Commission for Non-Ionizing Radiation Protection (ICNIRP).

Additionally, the antenna is designed with an inherent safety feature—it has a minimum transmission elevation of 10 degrees off the horizon, ensuring that radiofrequency (RF) energy is directed away from ground level. This design ensures that emissions are focused into space, completely eliminating any potential for ground-level exposure.

9.2 How Electromagnetic Energy (EME) is Controlled and Managed

The 20.2m full-motion parabolic antenna is specifically engineered for space communication, meaning that its emissions are highly directional and only target spacecraft and satellites, not areas on Earth.
Key Safety Measures:

1. Minimal Transmission Power:
    - The antenna operates using adaptive power control, meaning it only transmits at the lowest power required to maintain a secure link with a spacecraft.
    - This prevents unnecessary emissions and ensures that energy levels remain well below safety thresholds.

2. Strict Regulatory Compliance:
    - KSAT and Starsite must conduct and publish an Electromagnetic Energy (EME) compliance report for each facility.
    - These reports are prepared using ARPANSA's strict methodology, demonstrating that the facility operates within safe exposure limits at all times.
    - Independent safety reviews and testing further ensure compliance with ARPANSA, ACMA, WHO, and ICNIRP standards.

3. Built-in Safety Margins:
    - The ARPANSA standard for EME exposure is extremely conservative, incorporating large safety margins to protect people, animals, and the environment.
    - KSAT and Starsite operate well below these limits, ensuring there is no risk to workers, nearby residents, or visitors.

4. No Ground-Level Exposure:
    - Unlike telecommunications towers or mobile networks, this antenna transmits only toward space.
    - The 10-degree minimum elevation angle means that emissions never travel near the ground, eliminating any possibility of public exposure.

9.3 Environmental Protection: No Risk to Fauna, Flora, or the Ecosystem

The KSAT Lunar Mullewa Project has been carefully designed to integrate with the natural environment while ensuring it does not negatively impact wildlife, vegetation, or local ecosystems.

1. Non-Ionizing, Harmless Emissions:
    - The antenna transmits non-ionizing radio waves, which do not cause radiation damage to humans, animals, or plants.
    - Unlike X-rays or gamma radiation, which are harmful, radiofrequency waves have no capacity to alter DNA or cause biological harm.
    -
2. No Interference with Wildlife or Agriculture:
    - Extensive scientific research confirms that radiofrequency emissions from ground stations do not affect migratory birds, livestock, or native wildlife.
    - The facility has been sited in a way that avoids sensitive habitats and agricultural disruptions.

3. Zero Pollutants or Hazardous Waste:
    - The facility does not produce emissions, pollutants, or hazardous materials that could impact air, soil, or water quality.
    - Operations are fully enclosed and self-contained, ensuring zero environmental contamination.

9.4 Ensuring Public Confidence and Transparency

KSAT and Starsite understand that public trust and transparency are essential when introducing new infrastructure. To reinforce public confidence, the following measures are in place:

- Open and Transparent Communication:
    - KSAT and Starsite are committed to ongoing community engagement, ensuring that all residents, stakeholders, and government authorities are informed about the project.
    - Detailed safety assessments, compliance reports, and operational plans will be made available for public review.

- Regulatory Oversight and Independent Audits:
    - The facility is subject to strict government monitoring and independent safety audits.
    - Annual compliance testing will be conducted to ensure that all emissions remain well within ARPANSA guidelines.

- Commitment to Best-Practice Environmental Management:
    - The site will be managed according to sustainable land-use principles, ensuring minimal impact on the landscape and ecosystem.
    - A detailed Environmental Management Plan (EMP) has been developed to ensure long-term sustainability.

The KSAT Lunar Mullewa Project represents a cutting-edge advancement in space communications, bringing world-class satellite infrastructure to Western Australia while ensuring absolute safety for people, wildlife, and the environment.

By adhering to the strictest international and national standards, incorporating built-in safety measures, and maintaining full regulatory compliance, this project poses no risk to public health, environmental integrity, or the surrounding community.

10. MANAGEMENT MEASURES

Environmental issues and potential impacts arising from the operation of the facility can be managed in such a way as to minimise or eliminate those factors. The following information contains the processes and measures that the company has initiated to provide confidence in its operation of the facility to ensure there is no detrimental impact on the surrounding land, land uses or the environment.

10.1 Visual Amenity Management

The visual amenity of a development can be influenced by several key factors, including:

- The elevation and visibility of the development within the landscape
- Proximity to neighbouring properties and dwellings
- The extent of visual screening and integration with the surrounding environment

To assess the potential visual impact, a series of rendered viewpoints for the proposal have been included as **Attachment 2** to this report.

These images provide a realistic representation of how the development will appear within the rural setting, demonstrating that the proposed antenna and associated infrastructure will have minimal impact on the landscape. The structure has been carefully positioned to blend with the natural surroundings while maintaining its functional requirements for space communications.

To further mitigate visual impact and ensure the development remains in harmony with the rural character of the area, the applicant proposes the following measures:

- **Site Maintenance:** The facility will be kept in a clean and orderly condition.
- **Equipment Storage:** Any plant and machinery will be stored out of sight where possible.
- **Access and Yard Maintenance:** Roads and general site areas will be well maintained to preserve a neat appearance.
- **Building Upkeep:** Onsite buildings will be regularly maintained to ensure they complement the surrounding environment.

Given the site is located within a 'Rural' zone, the proposed development is considered low impact in terms of visual amenity. The height of the 20.2m full-motion parabolic antenna has been carefully considered to ensure minimal visibility from key vantage points while maintaining optimal functionality. Additionally, its design, materials, and placement have been selected to integrate as seamlessly as possible with the surrounding landscape, ensuring the facility coexists with the region's agricultural and environmental character.

10.2 Noise Management

Noise has the ability to impact those operating on a site, however noise can also impact on those outside of the facility and it is therefore important to reduce the potential for detrimental impact through sound operational practices and mitigation measures.

The operation of the antenna itself is expected to generate negligible noise, as it primarily consists of passive signal reception from deep space. The only potential noise source associated with the project will be the backup diesel generator, which will operate intermittently when the solar energy system for the site cannot produce the necessary power for operations.

Should substantiated complaints demonstrate that there is concern with the level of noise being generated onsite, the proponent shall commission an Acoustic Assessment to be undertaken by a suitably qualified professional for a period of 1 week to ascertain actual noise emissions and provide this report to the local government.

10.3 Dust Management

There are two sources for potential dust emissions associated with the use of the land; dust generated during construction and dust produced during ongoing operations. Dust emissions will be continually monitored to ensure preventative and proactive measures are taken immediately.

During construction the land upon the site will be disturbed in order to create the building pad for the new buildings and upgrade access crossovers and parking areas. It is suggested that the main sources of dust will be:

- through the grading of accessways and parking;
- transportation of materials to and from the site with vehicle movements upon non sealed accessways; and
- temporary stockpile of gravel onsite prior to spreading and compaction onsite (i.e. gravel base for road prior to bituminisation).

There are no dust emissions associated with the ongoing operations of this site.

To address the potential sources of dust emissions during the construction, the following mitigation measures will be undertaken:

- Dust will be continually monitored and when necessary, water carts will be used to wet down areas to reduce potential dust emissions, this will include:
    - Areas of land to be disturbed for construction purposes prior to commencement of works (i.e. grading, compaction, bulk earthworks)
    - Gravel stockpiles prior to spreading
    - Access roads under construction and/or already constructed. Please note that limited water is to be applied at a time to remove dust emissions but avoid the production of mud issues for the site. Multiple applications per day with the water cart will ensure that this balance can be achieved between dust suppression and avoiding over wetting the accessways
- Speed restriction of 10km/hour on internal access roads supported by signage

In the event of a complaint regarding dust the Site Manager will document, investigate and respond to the complaint. The following information will be recorded for complaints received:

- Registration of complaint;
- Identification of source;
- Assessment of level;
- Corrective action to mitigate emission if found to be unreasonable;
- Re-assessment to ensure control procedures implements are successful;
- Follow up with complainant; and
- Close-out.

The implementation of control measures outlined in this document, when implemented, will successfully mitigate dust generation on-site during construction. Implementation of the controls discussed in this report shall reduce the risk of dust emissions for the site.

10.4 Environmental Management

Starsite is committed to ensuring the highest standard is maintained in the management of environmental factors relating to its operations.

The Environmental Protection Act 1986 is the principal legislation for the prevention, control and abatement of pollution and environmental harm, the regulation of clearing, and the conservation, preservation, protection, enhancement and management of the environment. Clearing of native vegetation is an offence unless a clearing permit has been granted or an exemption applies Under Section 51B of the Environmental Protection Act, the Minister for Environment may declare a specified area to be an 'environmentally sensitive area (ESA)'. A search of Department of Environment Regulation (DER) records indicates that this property is not within an environmentally sensitive area.

The site contains no remnant vegetation as the land has been cropped for broad acre agricultural purposes for many years.

10.5 Lighting Management

The site will not include any external lighting.

10.6 Stormwater and Drainage Management

There are no Department of Environment Regulation-designated Environmentally Sensitive Areas, RAMSAR Wetlands, or Department of Water Public Drinking Water Source Areas within the proposed development site.

Stormwater runoff from the buildings will be managed onsite through retention in natural depressions, while additional drainage infrastructure, including constructed drains alongside accessways, will facilitate controlled water dispersion.

Due to the site's scale and well-draining soils, all stormwater and drainage will be effectively contained within the property, minimizing any risk of offsite impacts.

10.7 Heritage Management

There are no known heritage implications associated with the proposed application site. A search of the Department of Aboriginal Affairs Aboriginal Heritage Inquiry System demonstrated no Registered Sites or other heritage applications at this time.

The applicant acknowledges the requirements of the Aboriginal Heritage Due Diligence Guidelines and will use these guidelines to assist them with planning and considering Aboriginal Heritage in relation to the proposed works.

Attachment 1 - LETTER OF SUPPORT

Government of **Western Australia**
Department of **Jobs, Tourism, Science and Innovation**

Our Ref: J02311/202301
Enquiries: simon.aarons@jtsi.wa.gov.au

C/O Mr Peter Teale
Co-founder and Director
Starsite Pty Ltd

peter@starsite.com.au

To whom it may concern.

I am pleased to offer the Western Australian Government's support for the establishment of a space communication facility at Starsite Mullewa.

Western Australia has more than 60 years of experience in the space industry, benefiting from its geographic location, dry environmental conditions, radio quiet zones, and clear skies. These advantages have made Western Australia an attractive location for major critical space ground infrastructure supporting global civil and defence space operations. Through the operation and sustainment of this infrastructure, Western Australia also possesses significant technical and research capabilities to support the growth of the sector and create a world-leading, thriving space industry.

The space industry has also been identified as a priority sector to grow and diversify the State's economy by the Western Australian Government. It is anticipated that establishing a space communication facility at Starsite Mullewa will grow the State's space communications capability, increase involvement in key space missions, and promote the State's space capability globally to attract investment. It will also enhance the aim of creating a vibrant, sustainable space ecosystem, boost job growth in regional areas, and improve job opportunities, education, and training for the local Aboriginal community.

The Department of Jobs, Tourism, Science and Innovation has been liaising with Starsite over the last 12 months to provide general assistance and to promote Starsite's activities.

Thus, establishing the space communication facility at Starsite Mullewa will support the growth of the Western Australian space industry, contributing to job creation and economic diversification. As such, the Western Australian Government strongly supports this opportunity.

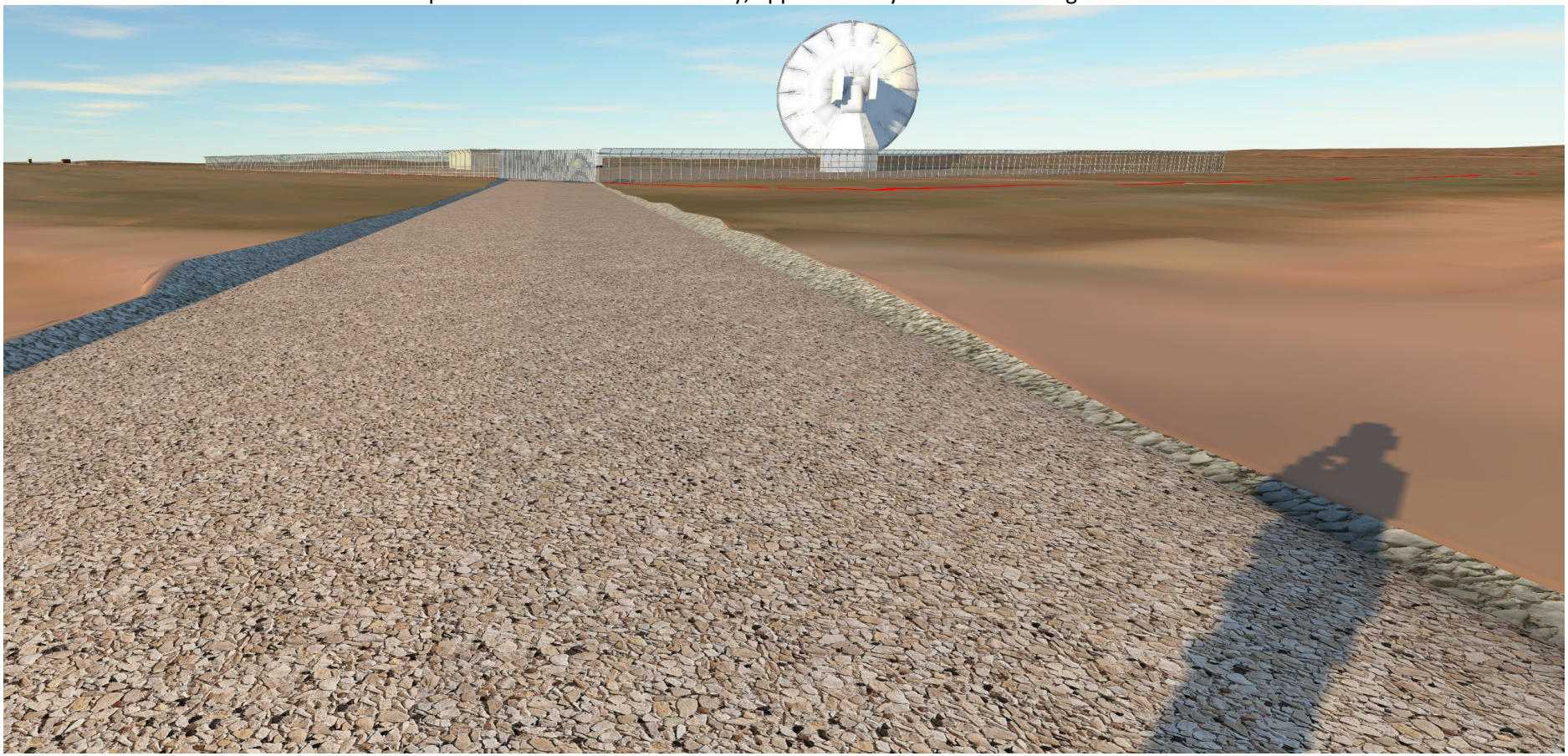
Yours sincerely

James Yuen
EXECUTIVE DIRECTOR, INNOVATION AND EMERGING INDUSTRIES
13 June 2024

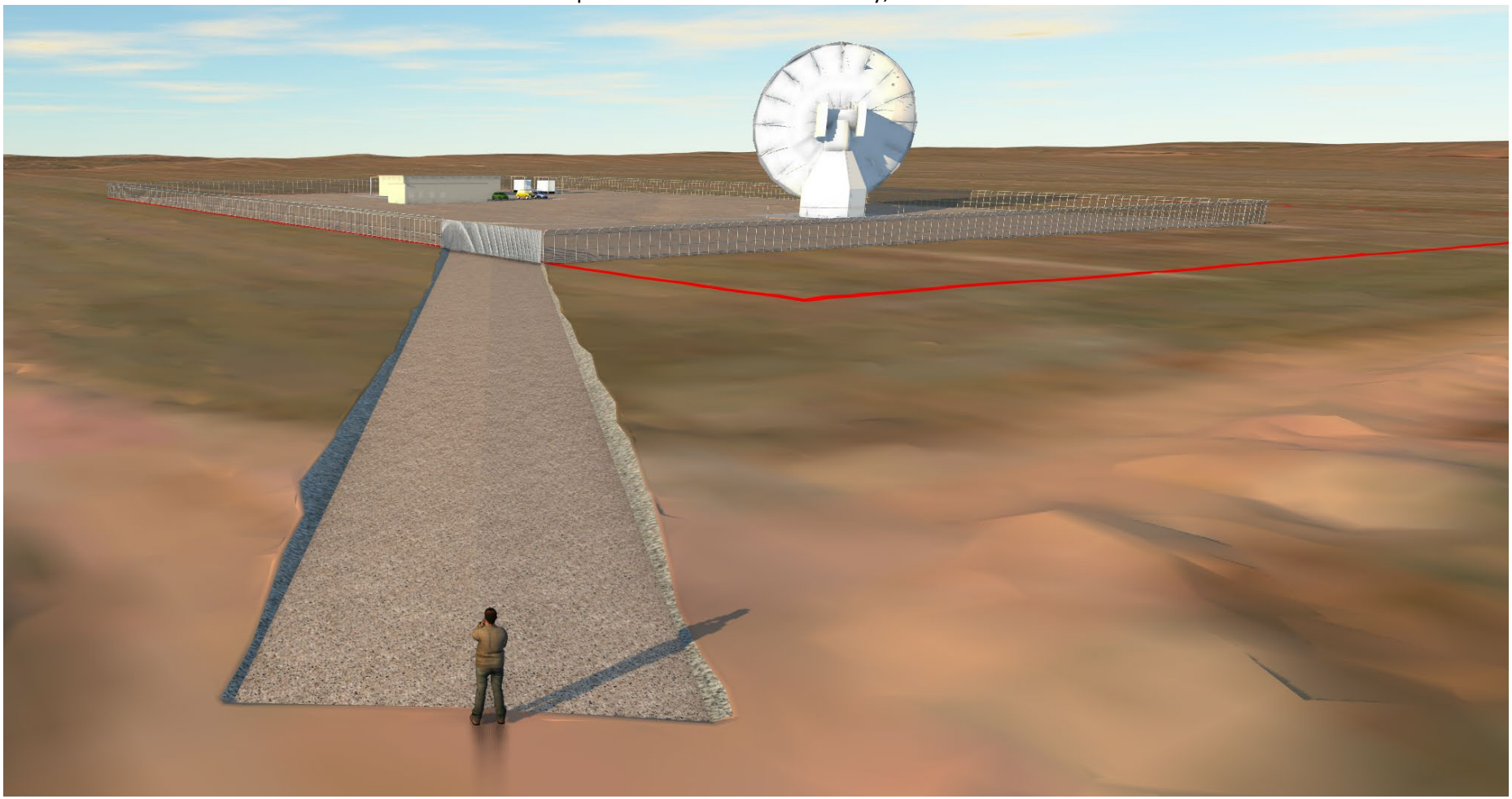
Level 11, 1 William Street Perth Western Australia 6000
Telephone +61 8 6277 3000
www.jtsi.wa.gov.au
ABN 90 199 516 864

Attachment 2 - VISUAL ASSESSMENT

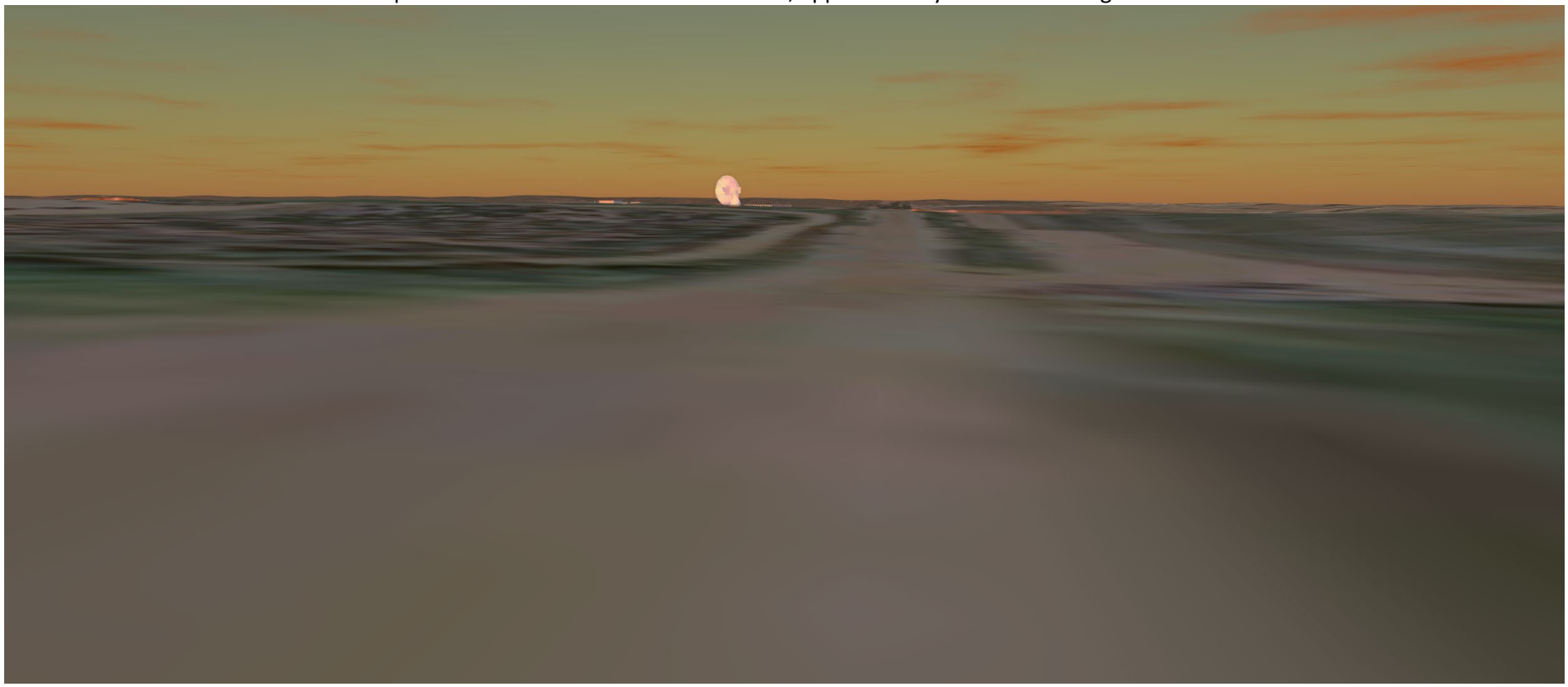
Viewpoint 1 - Starsite Mullewa entry, approximately 2 meters above ground level



Viewpoint 1 - Starsite Mullewa entry, overview



Viewpoint 2 - From Carnarvon Mullewa road, approximately 2 meter above ground level



Viewpoint 2 - From Carnarvon Mullewa Road, overview

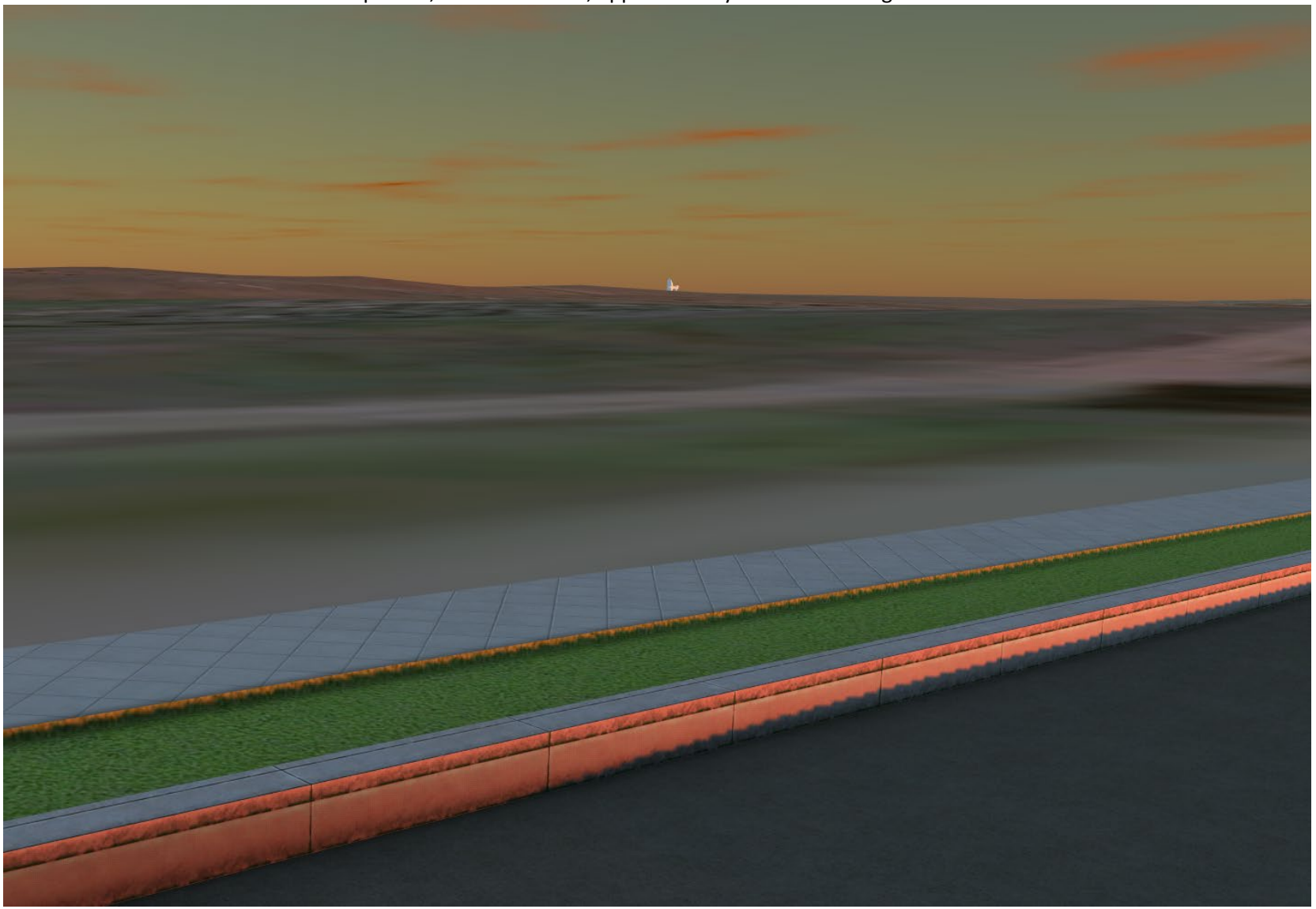
Viewpoint 4 - Entry into Mullewa via Lovers Lane, overview - approximately 2 meters above ground level

Viewpoint 4 - Entry into Mullewa via Lovers Lane, overview

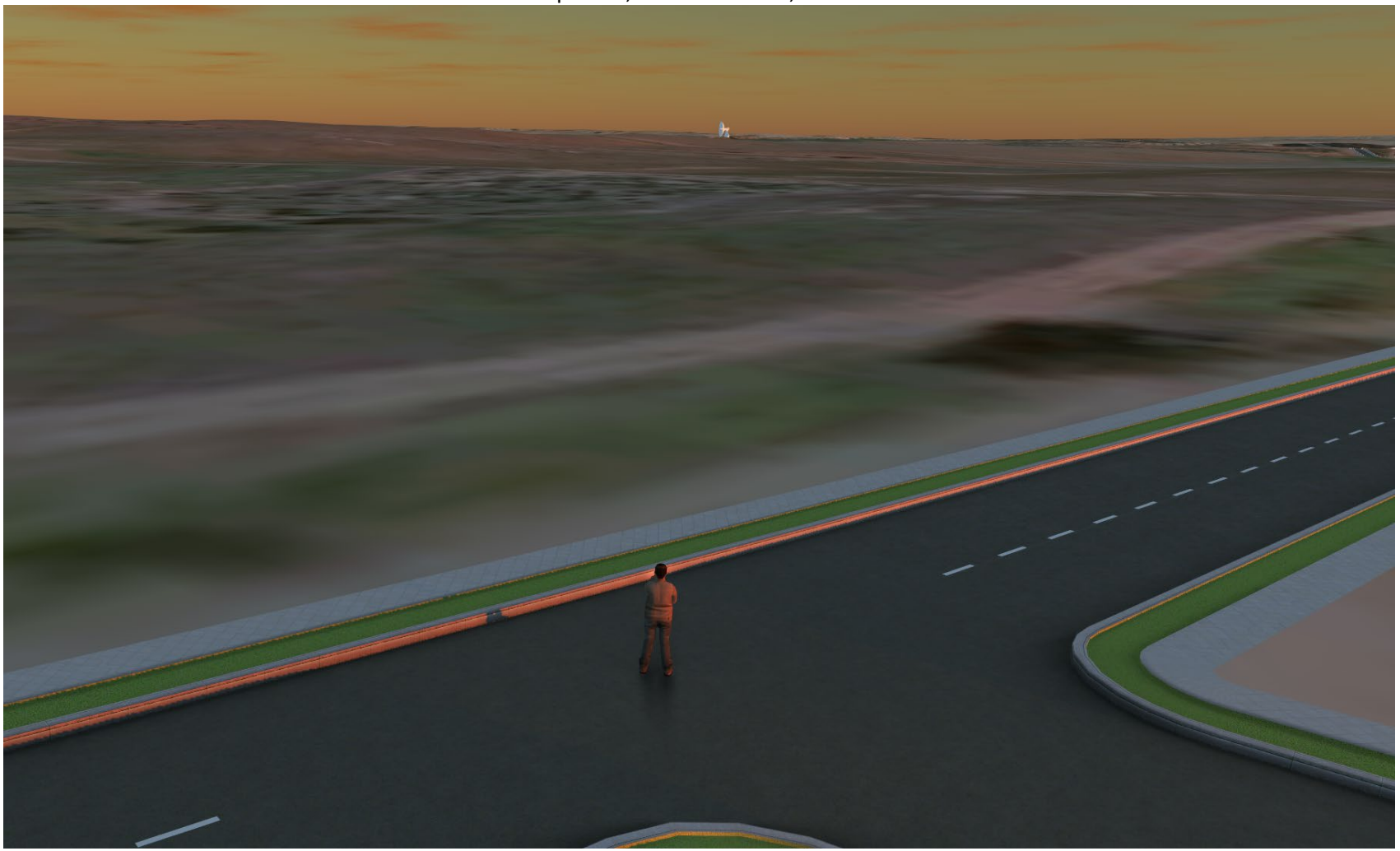
Viewpoint 4 - Entry into Mullewa via Lovers Lane, overview - approximately 2 meter above ground level

Viewpoint 4 - Entry into Mullewa via Lovers Lane, overview

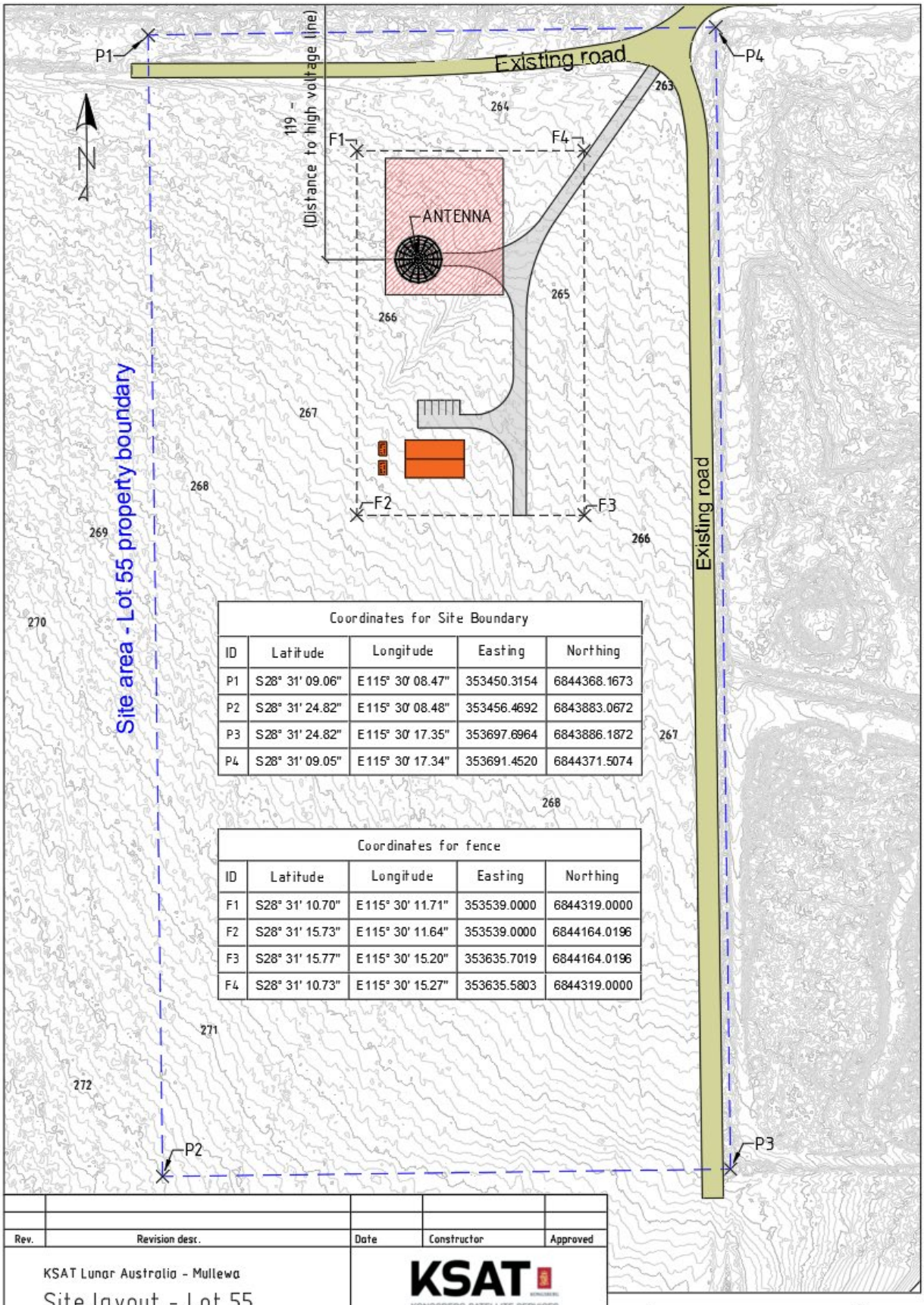
Viewpoint 5, exit of Mullewa, approximately 2 meter above ground level



Viewpoint 5, exit of Mullewa, overview



Attachment 3 - DETAILED SITE PLANS



Coordinates for Site Boundary				
ID	Latitude	Longitude	Easting	Northing
P1	S28° 31' 09.06"	E115° 30' 08.47"	353450.3154	6844368.1673
P2	S28° 31' 24.82"	E115° 30' 08.48"	353456.4692	6843883.0672
P3	S28° 31' 24.82"	E115° 30' 17.35"	353697.6964	6843886.1872
P4	S28° 31' 09.05"	E115° 30' 17.34"	353691.4520	6844371.5074

Coordinates for fence				
ID	Latitude	Longitude	Easting	Northing
F1	S28° 31' 10.70"	E115° 30' 11.71"	353539.0000	6844319.0000
F2	S28° 31' 15.73"	E115° 30' 11.64"	353539.0000	6844164.0196
F3	S28° 31' 15.77"	E115° 30' 15.20"	353635.7019	6844164.0196
F4	S28° 31' 10.73"	E115° 30' 15.27"	353635.5803	6844319.0000

Rev.	Revision desc.	Date	Constructor	Approved

KSAT Lunar Australia - Mullewa

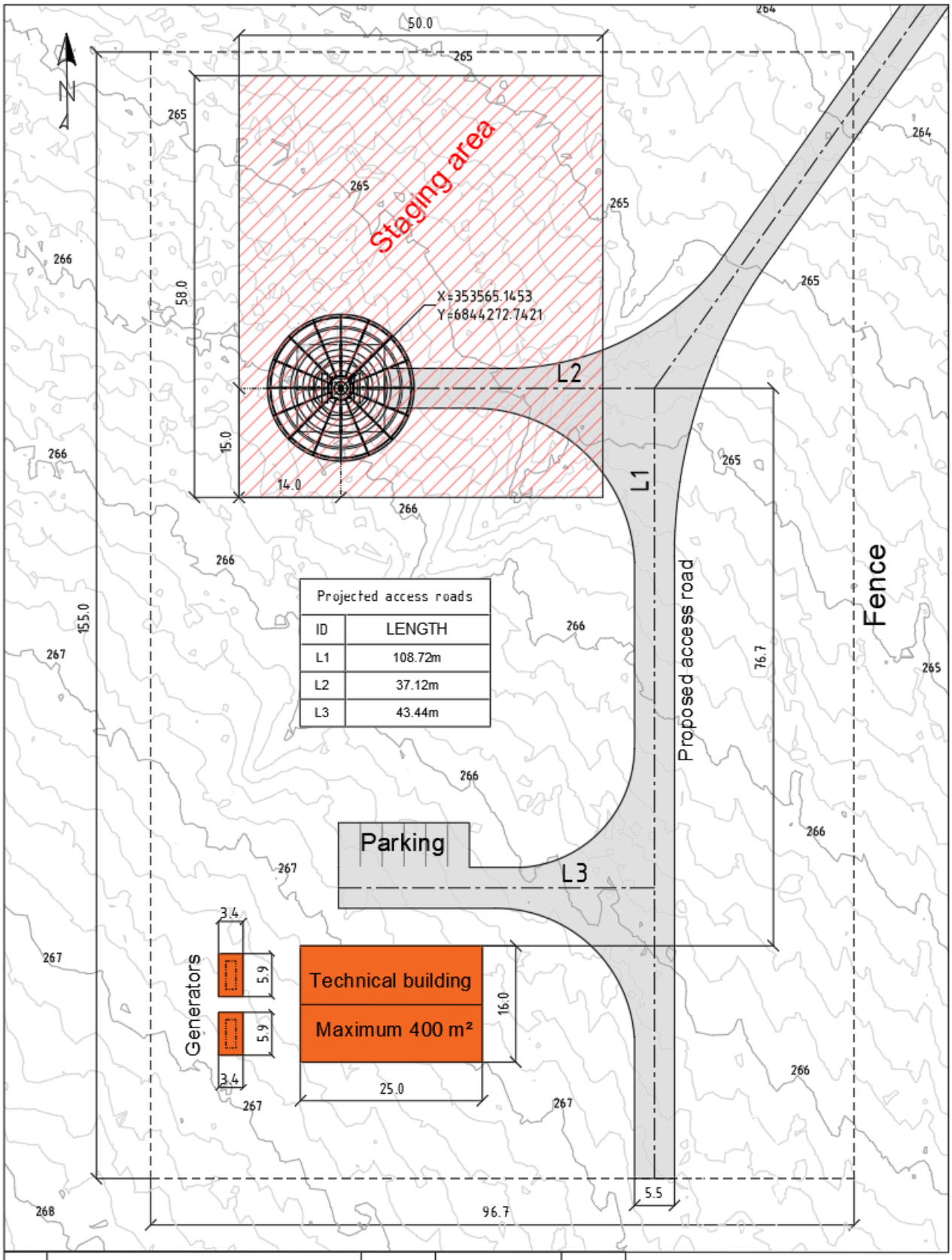
Site layout - Lot 55

KSAT
KONGSBERG SATELLITE SERVICES

Scale	Date	17.02.2025
1:1500 m	Constructor	Mattias Eriksson
	Contr. by	Robert Wallenius

Reference systems	Drawing number.	Sheet size	Rev.
GDA 94 - MGA Zone 50	1	A3	

0 45 90 Meters



Rev.	Revision desc.	Date	Constructor	Approved

KSAT Lunar Australia - Mullewa

Detailed site layout

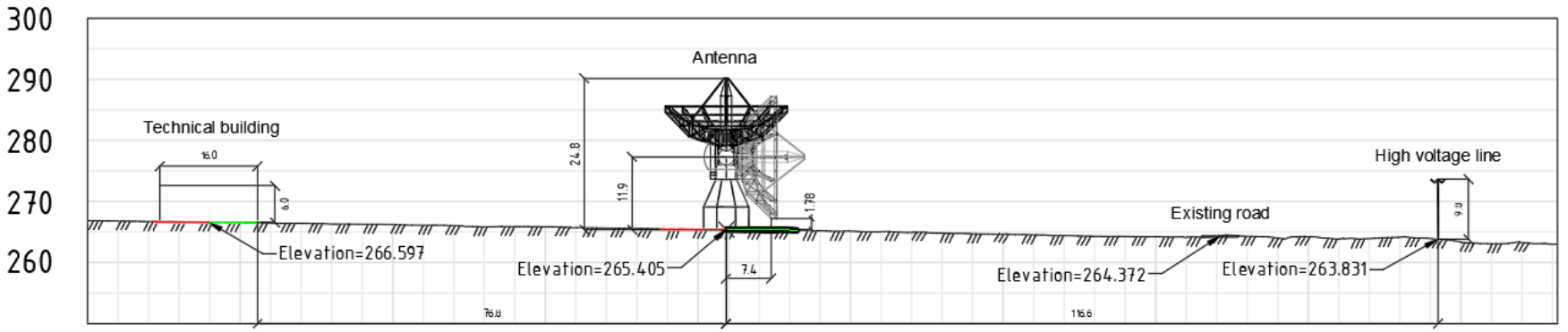
KSAT
KONGSBERG SATELLITE SERVICES

Scale	Date	17.02.2025
1:500 m	Constructor	Mattias Eriksson
	Contr. by	Robert Wallenius

Reference systems	Drawing number.	Sheet size	Rev.
GDA 94 - MGA Zone 50	2	A3	

0 15 30 Meters

Profile view



Rev.	Revision desc.	Date	Constructor	Approved

KSAT Lunar Australia - Mullewa

Antenna and infrastructure profile view

KSAT KONGSBERG SATELLITE SERVICES

Scale 1:750 m	Date	17.02.2025	
	Constructor	Mattias Eriksson	
	Contr. by	Controlled by	
Reference systems N/A	Drawing number. 3	Sheet size A3	Rev.