Our ref: 19310.6

08 September 2020

Gunnedah Shire Council
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Attention: Wade Hudson

Dear Wade,

RE: Response to Request for Additional Information – DA-2020/035 – 262 Hunts Road Gunnedah NSW 2380

Thank you for your letter dated 10 August 2020, which sought additional information regarding the proposed establishment of a solar farm (DA-2020/035) at 262 Hunts Road Gunnedah NSW 2380.

Please find below a response to these matters raised by Council, prepared by KDC Pty Ltd (KDC) on behalf of Providence Asset Group (PAG).

1 REQUEST FOR FURTHER INFORMATION

Council Comment:

1 Demonstrate how the development will meet each of the zone objectives of the RU4 Primary Production Small Lots zone in accordance with Clause 2.3 of the Gunnedah Local Environmental Plan 2012;

Response:

An assessment of the proposed development against the objectives of the RU4 Primary Production Small Lots zone has been undertaken in Table 1.

Table 1 – Response to RU4 zone objectives

Objective	Response
+ To enable sustainable primary industry and other compatible land uses.	Solar farms are compatible with rural land uses due to their low environmental impacts on soil, water, and air quality. The overall loss of agricultural productivity is considered to be low with options to allow for sheep grazing under the arrays being explored. The solar farm is not expected to have any long-term detrimental impacts which would inhibit any future primary production on the site or the surrounding area.

	The site has been chosen due to its cleared and highly disturbed nature minimising impacts on native vegetation and biodiversity.
+ To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.	The provision of a solar PV farm in the agricultural area will contribute to the diversity of compatible land uses and provide employment opportunities in construction and ongoing maintenance.
+ To minimise conflict between land uses within this zone and land uses within adjoining zones.	Due to their relatively low environmental impacts, visual impacts arise as a primary impact of solar PV development. As a result, substantial landscaping is proposed to be planted around the development site supported by an appropriate setback and existing trees both within the site and within the road verge. Further mitigation measures will be implemented such as green construction mesh covering on security fencing until landscaping reaches maturity, and anti-reflective coatings on solar panels to further reduce potential impacts. This arrangement minimises available views into the site minimising potential land use conflict with neighbouring land uses.
+ To maintain the rural and scenic character of the land.	The visual impacts are proposed to be mitigated through the provision of landscaping obscuring views of the solar farm and associated security fence from the north, east, and west. Further mitigation measures will be implemented such as green construction mesh covering on security fencing until landscaping reaches maturity, and anti-reflective coatings on solar panels to further reduce potential impacts. This arrangement minimises available views into the site minimising potential land use conflict with neighbouring land uses. In combination with a substantial setback and existing road verge trees, the visual impact is considered to be effectively managed minimising impacts.
+ To ensure that development does not unreasonably increase the demand for public services or public facilities.	Solar PV farms have low impact on public infrastructure. Construction periods see a higher impact on road infrastructure however the overall number of delivery vehicles is generally low per day and only a 300m portion of the vehicle route is unsealed. Road impacts will be effectively managed during the construction period.
+ To conserve and enhance the quality of valuable environmental assets, including waterways, riparian land, wetlands and other surface and groundwater resources, remnant native vegetation and fauna movement corridors as part of all new development and land use.	The solar PV farm only requires clearing of 9 trees to facilitate to proposal. A small portion of immature shrubs located within the north eastern portion of the site will also be removed to facilitate the proposed development. No watercourses are located within the development area. The provision of landscaping will enhance the existing trees on the site and will provide improved fauna movement corridors around the site.
+ To provide opportunities for a restricted range of employment-generating development that is compatible with, and adds value to, local agricultural production.	The proposed solar PV farm is considered to add value to the local agricultural base as it will enhance the existing electrical supply for the Gunnedah region with minimal impacts on the agricultural productivity of the area, water quality, and soil quality. The solar farm is not expected to have any long-term detrimental impacts which would inhibit any future primary production on the site or the surrounding area.
+ To minimise conflict between land uses in the zone and with adjoining zones.	Due to their relatively low environmental impacts, visual impacts arise as a primary concern typical of solar PV development. As a result, substantial landscaping is

	proposed to be planted around the development site supported by an appropriate setback and existing trees both within the site and within the road verge. This arrangement minimises available views into the site minimising potential land use conflict with neighbouring land uses and land zones.
+ To maintain native vegetation and wildlife corridors.	A total of 9 trees are proposed to be removed as part of the application. A small portion of immature shrubs located within the north eastern portion of the site will also be removed to facilitate the proposed development. To ameliorate the loss of these trees and improve visual impacts substantial landscaping is proposed along the northern, eastern, and western boundaries. This landscaping will improve the amount of native vegetation in the site and provide enhanced wildlife corridors by connecting the existing vegetation community in pockets in the site.

As discussed above, the proposed solar PV farm is considered to be a compatible and complimentary land use within the rural/primary production area by nature of its relatively low environmental impacts and management of visual impacts on the rural setting. The provision of landscaping around the northern, eastern, and western boundaries enhances the existing vegetation communities noted within the site and sufficiently compensates for the proposed loss of 6 site trees.

The proposed solar PV is considered to meet the objectives of the RU4 Primary Production Small Lots zone and is appropriate for the area.

Council Comment:

2 It is noted that your application requests a variation to The Gunnedah Development Control Plan 2012 with regards to sealing of internal maneuvering areas. The Gunnedah 2020/21 Operational Plan includes development fees applicable to any requested variation to a development standard. Please refer to the attached Fee Quotation for applicable fees;

Response:

Noted, payment is to be made by the proponent.

A construction management plan (CMP) will be in place governing the construction phase of the development. This CMP will include management of the small number of vehicle movements on the unsealed surfaces which will minimise generation of dust during the construction period.

Council Comment:

3 The Noise Assessment Report that accompanied the Statement of Environmental Effects (SoEE) was deficient with a number of errors and matters that required addressing. The Noise Assessment Report is to be updated to include, but not be limited to the following inclusions. Where additional matters are to be addressed:

3.1 The list of nearby receivers within the Noise Assessment does not include all residences within close proximity of the site, including:

a) 540 Blackjack Road

b) 530 Blackjack Road

c) 532 Blackjack Road

d) 216 Hunts Road

e) 203 Hunts Road

f) 3-33 Robert Gordon Road

g) 117-95 Bushs Lane

This density is higher than that of the original assessment and may have additional cumulative impact on the context and amenity of the area.;

3.2 Provide details of tracking motorisation occurs to reposition panels from West to East overnight. When does this occur and how (intermittently or in one motion). Have these noise emissions been considered within the noise assessment report and do they comply with noise guidelines for the period of operation (NSW EPA Industrial Noise Guidelines).

3.3 Mitigation actions are to be introduced to the Noise Assessment Report to reduce the potential noise impacts on nearby receptors where construction noise criteria is exceeded and demonstrate how these will be effective to ensure noise limits are not exceeded.

3.4 The Noise Assessment Report is to be corrected to note exceedance of construction noise levels at all 6 receivers noted in figure 1. The current report notes only exceedance at 3 receivers.

3.5 Council suggests that loading/unloading areas be relocated away from adjoining receivers. The current area identified on Plan AC190968-4 is directly adjoining to Receiver R1 which exceeds noise criteria.

3.6 The Noise Assessment refers to nearby commercial receiver (C1, Chainsaw and Mower Centre). Please clarify the position of this receiver.

3.7 Provide details of operational procedure to occur in the event that noise validation monitoring assessment, referred to in 7.2 of the assessment detects anomalies in noise levels or any noise levels in exceedance of modelled or acceptable noise levels.

3.8 Correct numerical error of 288 Bushs Lane, currently identified as 28 Bushs Lane

Response:

An amended noise assessment has been provided in Enclosure A alongside this RFI response. All items raised have been addressed within the amended report with the noise assessment continuing to find the noise impacts generated by the proposed solar PV farm are within the applicable criteria and are acceptable for the area. Construction noise impacts are temporary and can be minimised through management procedures in line with accepted practice.

Council Comment:

4 The Visual Impact Assessment that accompanied the SoEE is to be updated to include:

4.1 An assessment of the visual impacts of the proposed perimeter security fence, including consideration of the need for inclusions of barbed wire in the fence design.

4.2 The visual impact from view points 1 and 3 should be considered as a greater impact as U1 (Bushs Lane) is an elevated position overlooking the site and potential landscaping and U3 (Blackjack Road) allows for the site to be visible from a greater distance than noted.

4.3 The Visual Impact Assessment should include representative view points from adjoining impacted recoveries due to their proximately, as these receptors receive a more prolonged period of impact than motorists or pedestrians within the road reserve. The current assessment only includes viewpoints from public reserves.

4.4 The visual impact assessment is to be updated to include investigation of the effectiveness of proposed landscaping as a visual screen. Council suggest that multiple layers of landscaping and staggered planting rows will achieve a more robust screen from broader viewing perspectives.

4.5 As vegetation planting will not create an effective screen until vegetation reaches maturity, provide details of suitable temporary screening measures to be implemented until such time as vegetation reaches maturity.

4.6 The Visual Impact Assessment notes tracking orientation North-South (pp 12). Please clarify orientation of tracking.

Response:

The visual impact assessment included consideration of all aspects of the solar PV farm including the security fence as shown within the provided photomontages. The use of barbed wire is essential due to the presence of high voltage electricity which may pose risk to unauthorised entrants to the site.

A green construction mesh/shade cloth screen is proposed to be placed over the chain mesh security fencing portion which will obscure views to the solar panels prior to the maturing of the proposed landscaping. This will ensure visual impact outcomes are preserved throughout the operation of the solar PV farm.

Council Comment:

5 Provide details of sediment and erosion controls that will be implemented for the life of the development to prevent scaring from concentrated water runoff from solar panels.

Response:

While the solar panels themselves may be impervious, the underlying ground remains pervious as per the existing site condition. The apparent concentrating effect of the panels is ameliorated by the sheet flow over the pervious ground maintaining the natural flow.

By discharging the runoff from proposed Photovoltaic Array's directly to the existing ground surface and maintaining the existing natural surface levels and travel paths the proposed development model showed a reduction in the peak runoff during the 1% AEP.

Further, the underlying ground cover vegetation is to be retained providing effective soil stabilisation minimising erosion and sediment impacts.

Through the maintenance of natural water flows and the retention of ground cover vegetation, the impact of sediment and erosion is considered to be low and inline with current conditions on the site.

Council Comment:

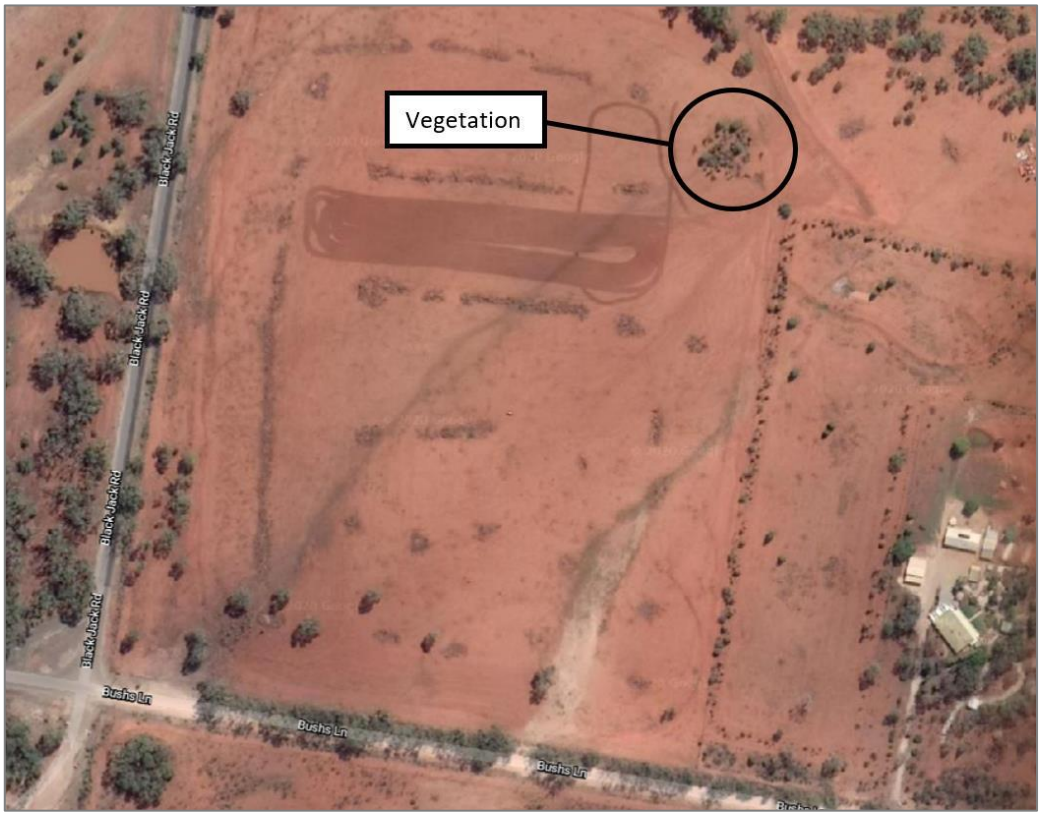
6 Clarify the retention of vegetation in North-West corner of the site as development plans indicate the placement of panels within this area.

Response:

It is understood that point 6 refers to the vegetation located within the north eastern corner of the site, refer to site aerial at Figure 1 below.

This vegetation consists of immature shrubs, including Callitris glaucophylla (White Cypress) and will be required to be removed to facilitate the proposal. The FFAR has been updated to reflect this removal, refer to Enclosure B.

Figure 1 – Site Aerial (Source: Google Maps)



Council Comment:

7 Located existing or proposed electrical distribution line on landscaping plan. Minimised landscaping vegetation should only be planted under distribution lines. Vegetation is to demonstrate suitable level of visual screening;

Response:

Exact requirements for the interaction between the proposed solar PV farm and associated elements with the electrical transmission network is to be determined through agreement with Essential Energy as part of the connection process. This will allow Essential Energy to directly stipulate their requirements in a single clear and cohesive approval.

Council Comment:

8 Provide details of external illumination proposed. Development details conclusive on the use of lighting location of illumination should be indicated so the potential implications to neighbors and the environment can be considered. Any lighting must comply with AS 4282 Control of Obtrusive Effects of Outdoor Light.

Response:

No external lights proposed.

Council Comment:

9 The developer is to confirm the intended lifespan of the development from operation to point of decommission.

Response:

The development land is being leased from the land owner which holds a termination date after 25 years however there is option to extend or renew the lease agreement by up to 10 years allowing for the continued operation of the solar PV farm.

Council Comment:

10 Provide a site specific Decommission and Rehabilitation Plan for the completion of the operational lifespan of the facility. The Decommission and Rehabilitation Plan should include, but not be limited to:

- *the method of recycling or disposal of panels and surface infrastructure*
- *stages of decommission work;*
- *state and measures of success for rehabilitation work*

Response:

The need for a decommission and rehabilitation plan is not considered to be required for the proposed development due to the negligible long term impacts along with the ease and simplicity of decommission.

On cessation of power generation operations, the solar panels along with the supporting structures and associated infrastructure are to be removed from the site. The panels themselves are to be removed and directed to an appropriately licenced facility with recycling to be prioritised over landfill options subject to availability at the decommissioning stage. Surface infrastructure such as the array frames are readily recyclable and will be directed to appropriately licenced resource recovery facilities.

As the supporting solar panel structures are proposed to be driven into the ground rather than using earthworks, they are to be similarly lifted out of the ground with no or negligible earthworks required. This significantly reduces decommission time and retains the natural landform of the site.

The associated energy infrastructure is to be disconnected from the grid. Infrastructure may be reconditioned for reuse elsewhere or recycled offsite. Cabling is to be recovered and directed for recycling.

Site improvements such as driveway and stormwater management are to be returned to its state prior to development. The proposed boundary landscaping is to remain on the site.

Where landfilling is required there will be a preference to large scale and appropriately licenced landfills outside of the Gunnedah region. This will ensure the landfill capacity supporting Gunnedah and surrounding areas is reserved for the needs of the community and maintain its existing projected lifespan.

Council Comment:

11 Provide a Koala Assessment Report and include an assessment under the provisions of State Environmental Planning Policy (Koala Habitat Protection) 2019, and Koala Habitat Protection Guidelines. This assessment is to be undertaken over the entire development allotment, not only the construction area (refer to Clause 1.5 of the Koala Habitat Protection Guideline).

Response:

The FFAR has been updated for the proposal to include a Koala Habitat Assessment Report, refer to Enclosure B. The assessment determined that impacts to Koalas will be minimal due to the small number of trees to be removed and the amount of vegetation to be retained following the development.

Council Comment:

12 Consider the impacts of conflicting land uses, Clause 6.6.3 of the Gunnedah Development Control Plan 2012, as the site is in proximity to the R5 large Lot Residential land zone.

Response:

Clause 6.6.3 of the Gunnedah Development Control Plan (DCP) 2012 has been provided in Table 2.

Table 2 – Gunnedah DCP 2012 – Conflicting land uses control response

Control	Requirement	Comment	Compliance
6. General Development Specifications			
6.6 Environmental Controls			
6.6.3 Conflicting Land Uses			
Buffers are an important tool to reduce land use conflicts where competing or conflicting uses are proposed. People intending to develop within a rural area or within the rural/residential interface should contact Council to find out about the buffer requirements for their locality, site and the land use proposed. Buffer zones and management options will vary according to the significance of a site, its locality, the topography of the land and its relationship to a range of other geographic and culturally relevant factors.		The proposed solar PV farm has been located at the western portion of the site to provide an approximate buffer distance of 465m to the nearby R5 zone. This buffer distance is significant combined with the proposed landscaping which will provide an effective visual buffer from the residential zone achieving a desirable outcome for the rural/residential interface.	Y

Council Comment:

13 Provide a revised Stormwater Management Plan, which incorporates the following input parameters:

- *Retardance coefficient , apposed to the 0.075 which has been adopted (Appendix N: Flood Impact Assessment, Initial Loss Continuing Loss Models). The use of a retardance coefficient 0.075 is considered to be generous to the development.*
- *Pervious area initial loss of 20mm be adopted, apposed to the 49mm which has been adopted (Appendix N: Flood Impact Assessment, Post- development Peak Flow Scenarios). The use of 49mm pervious area is considered to be generous to the development.*

- *Please explain the rationale behind the factoring up of Initial and continuing losses by 1.5414. Alternatively do not factor up and utilise 20mm and 0.3mm/hr respectively (refer Drawing CIV02)*
- *Low flow pipe and overflow weir are directed towards adjacent property boundary, essentially concentrating flows onto neighbour. Please direct these flows onto the developers allotment and towards natural drainage pathways (suggest in proximity of "334" annotation on drawing) to encourage flows to dissipate before crossing property boundaries*

Response:

The above points are addressed below:

- Reducing the coefficient down to 0.05 will have negligible impact on the outcomes of the DRAINS model as the majority of the site is pervious surface. Utilising the figure of 0.05 is not considered to result in any discernible improvement in stormwater outcomes for the development.
- The pervious area initial loss has been directly outputted by the Australian Rainfall and Runoff Data Hub which is considered the standard and most reliable source for obtaining relevant calculation figures. If differing values are requested by Council, it is requested that these guidelines be provided to allow for cross referencing in the site model;
- The rationale behind factoring up the Initial Losses is because DRAINs modelling does not accurately model the solar panel scenario as a default model. The catchment nodes have to be set up to represent the area the rainfall is falling on (which includes the impervious area of the solar panels). However, DRAINs only applies the CL and IL to the pervious area. As the solar panels fall directly onto the ground, and the ground surface underneath the panels is not taking direct rainfall, factoring up the IL is a way to include the IL of the area under the solar panels, replicating the available initial storage available for the entire solar panel catchment area.
- The low flow pipe and overflow weir have been located to replicate natural water flows. The current water flows are collected by an existing earth bund and directed to the north around the bund. The proposed system will reduce the peak flows to less than existing and discharge to the same regime as existing.

The stormwater management system has been designed to maintain natural stormwater flows and will result in a reduction in post-development flows to pre-development levels. The system has been designed in accordance with applicable guidelines using appropriate numbers and results in an appropriate outcome for stormwater management for the site.

2 RESPONSE TO SUBMISSIONS

A total of thirteen (13) submissions were received during the exhibition period for the proposed development. A summary of the items raised was provided within the RFI letter received on the 10 August 2020 with a response provided to each below.

Impact of the development on house and land prices

Response:

Visual impacts are the main impact of solar PV farms and as such a Visual Impact Assessment (VIA) has been undertaken provided at Appendix E of the SEE.

View point 1 of the VIA assessed the view directly adjoining the site from the corner of Black Jack Road and Bushes Lane provides a worst case view of the site representing view points from the west of the site including the residents along Bushes Lane. As a result of the view point proximity to the site along with existing vegetation, topography change, and

setback distances the visual impact was noted as being moderate. The nearest resident to the west is located approximately 190m west of the site boundary. This neighbouring site contains a large number of trees which obscure view to the subject site and would provide effective visual buffering by itself. Further, the topography of the site slopes gently downward toward the north east. The sloping ensures that the visual impact of the solar panels is minimised with the first row obscuring subsequent panels from the south and west.

View point 2 is located in the public domain in front of the site on Bushes Lane to provide a worst case view point from an eastern and southern view point noting the nearest resident located approximately 110m from the development area boundary and is considered to be most likely to be impacted noting a high visual impact rating. As a result of the high rating from the residence and the visual impacts from the viewpoint, landscaping is proposed along the eastern boundary of the development area to obscure views into the site.

Viewpoint 3 represents the residents from the north west of the site which, while located substantial distance from the site, have up hill and generally unobscured views to the site. The provided photomontage provides a representative view of the site with the solar PV farm rendered into the proposed location. As shown, despite the uphill view and generally unobscured line of sight, the distance buffering absorbs the solar arrays into the landscape resulting in an assessed visual impact of low.

The establishment of the recommended trees and large shrubs provide a range of vertical canopy cover to provide visual screening to the surrounding area. Further mitigation measures include the use of anti-reflective coated solar panels and muted colours on supporting structures to blend into the surrounding environment. As such, the proposed development is considered to have minimal visual impact on surrounding residents with impact on property values expected to be low as a result.

Noise Impacts on nearby receivers

Response:

The provided noise impact assessment at Appendix H predicted noise impacts generated by the proposed operation of the solar PV farm at nearby receivers including the nearest receiver located approximately 110m east of the development area. Based on the model, there are no noise related issues which would prevent the approval of the project with noise experienced noted as less than 30db meeting compliance with the strictest noise criteria level of 35db.

Modelled noise emissions from project construction activities identify that relevant noise management levels may be exceeded at the surrounding receivers. These impacts are noted as temporary and would generally occur with most types of construction occurring at the site due to the low criteria levels for the rural area.

As a result, noise impacts on nearby receivers are expected to be low from the ongoing operation of the facility.

Reflection glare impacts

Response:

Reflectivity and glare impacts have been discussed within the provided Reflective Glare Assessment provided at Appendix K.

Glare impacts on the surrounding receivers are expected to be negligible due to the design and nature of solar PV farms.

The solar arrays utilise a solar tracking system which respond to the location of the sun which not only maximises the amount of electricity generated but also ensures that the outgoing light is appropriately managed and hold a tilt angle which reflects any resulting light upward towards the sky.

Further to this, all panels to be used are to be treated with an anti-reflective coating reducing the amount of light reflected.

As a result, glare impacts on the adjoining properties are expected to be negligible with the reflected light reduced and directed upward away from the receivers.

Visual impacts

Response:

Visual impacts are the main impact of solar PV farms and as such a Visual Impact Assessment (VIA) has been undertaken provided at Appendix E of the SEE.

Viewpoint 1 of the VIA assessed the view directly adjoining the site from the corner of Black Jack Road and Bushs Lane provides a worst case view of the site representing view points from the west of the site including the residents along Bushes Lane. As a result of the viewpoints proximity to the site along with existing vegetation, topography change, and setback distances the visual impact was noted as being moderate. The nearest resident to the west is located approximately 190m west of the site boundary. This neighbouring site contains a large number of trees which obscure view to the subject site and would provide effective visual buffering by itself. Further, the topography of the site slopes gently downward toward the north east. The sloping ensures that the visual impact of the solar panels is minimised with the first row obscuring subsequent panels from the south and west.

Viewpoint 2 is located in the public domain in front of the site on Bushes Lane to provide a worst case view point from an eastern and southern view point noting the nearest resident located approximately 110m from the development area boundary and is considered to be most likely to be impacted noting a high visual impact rating. As a result of the high rating from the residence and the visual impacts from the viewpoint, landscaping is proposed along the eastern boundary of the development area to obscure views into the site.

Viewpoint 3 represents the residents from the north west of the site which, while located substantial distance from the site, have uphill and generally unobscured views to the site. The provided photomontage provides a representative view of the site with the solar PV farm rendered into the proposed location. As shown, despite the uphill view and generally unobscured line of sight, the distance buffering absorbs the solar arrays into the landscape resulting in an assessed visual impact of low.

The establishment of the recommended trees and large shrubs provide a range of vertical canopy cover to provide visual screening to the surrounding area. Further mitigation measures include the use of anti-reflective coated solar panels and muted colours on supporting structures to blend into the surrounding environment. As such, the proposed development is considered to have minimal visual impact on surrounding residents with the landscaping established.

The impacts of the development on the character of area, being inconsistent with the zone objectives

Response:

Solar PV farms are considered to be compatible with primary production zones throughout the state with many projects established in rural areas. This is thanks to the low impacts generated by solar farms in terms of noise, dust/air quality, and water.

A full assessment against the objectives of the RU4 zone has been provided at Table 1 of this response.

The proximity of the development to residential areas

Response:

The site holds a buffer distance of approximately 465m to the nearby R5 Large Lot Residential zone located to the east of the development area. When combined with the proposed landscaping along the eastern boundary and the existing road reserve trees the visual impact on the nearby residential area is considered to be minimal with the proposed structures effectively obscured from view.

Lack of formal consultation

Response:

The solar farm proponent consulted with or attempted to consult with nearby residents along Black Jack Road and Bushs Lane. A total of six letters were issued to direct / closest neighbouring properties at least four weeks prior to the submission of the Development Application (DA) notifying residents of the proposed development, with contact details provided for those seeking further phone and face-to-face discussions.

A total of four neighbouring residents reached out for additional discussions. Due to ongoing travel restrictions associated with COVID-19, opportunities to meet face-to-face were limited. Consequently, additional discussions were held via phone conversations and email only. Preliminary site plans of the development were provided for discussion where requested.

The residents' concerns generally related to land devaluation and land suitability for a development of this kind. Two of the respondents were also concerned that this would reduce their ability to later subdivide and whether their blocks would then sell. An adjacent neighbour raised concerns of water flow but were happy with the response provided in relation to the proposed stormwater management plan.

A summary of the neighbour consultation process and method is provided below:

- Letters (mailed) – 6 (Early April March 2020)
- Phone Discussions held / Reply correspondence – 5 (17 April 2020 – 20 April 2020)

The Council notification period represents an excellent opportunity for members of the community to provide input on new development. Being undertaken by Council ensures the process is objective void of any conflicts of interest when compared to the consultation undertaken by or on behalf of the proponent.

As a result, the undertaken consultation is considered appropriate for the scale of development proposed.

SoEE is deficient and contains inconsistencies

Response:

The provided SoEE is appropriate for the type and scale of development proposed. Additional detail has been requested by Council which has been provided within this report. The amount of detail is considered appropriate for a determination to be made by the RPP.

Decommission and disposal post development lifespan not addressed

Response:

Decommissioning and disposal arrangements have been discussed within this RFI response. The development has no limiting lifespan.

The design of the development ensures that decommissioning of the site will result in very little impacts with the existing landform largely left untouched. All proposed site infrastructure such as the solar panels and arrays are to be directed to appropriately licenced recycling facilities and if any element is required to be landfilled the operator is to direct that waste to out of area landfills with sufficient capacity and appropriately licences to handle the waste.

Stormwater drainage modelling and stream order is inaccurate

Response:

As the design of the solar PV farm largely retains the natural landform ensuring that stormwater will continue flowing to the north east as per existing conditions. This has resulted in the proposed detention basin located in this north eastern corner of the development area to manage these flows from the described catchment areas.

All modelling has been undertaken in accordance with all applicable guidelines using ARR 2019 Initial loss - Continuing loss (IL-CL) hydrological model and 2016 IFD data. The design of the detention basin has ensures post-development flow rates from the basin will be limited to the pre-development flow rate.

The stormwater management plan is considered to be appropriate for the proposed development and will achieve the stormwater outcomes desired by Council.

Impacts on local road network not appropriately addressed

Response:

The construction traffic impacts have been assessed as part of the provided Traffic Impact Assessment (TIA) at Appendix D of the SEE. The TIA projected an average of 10 light vehicles per day of which will arrive between 6am and 7pm then departing the site between 5pm and 6pm. Heavy vehicles are projected to be 5 per day spread out between 10 am and 4pm.

Protection of Bushs Lane is able to be conditioned as part of a future determination for the development. Conditions can be made requiring a dilapidation report on Bushs Lane to establish its pre-works state along with a condition requiring a bond be paid to Council for any potential damage to the roadway.

With such conditions in place the roadway will be maintained and repaired to its pre-development state.

Conflict between construction and operational vehicles, pedestrians and cyclists

Response:

All employees and contractors associated with the construction phase to abide by the road rules and will be notified of the road conditions to which they will interact with.

Possible health implication to long term exposure to high voltage electrical transmission

Response:

Health impacts from electrical generation and transmission generally pertain to those who utilise pacemaker systems to regulate heart function. This occurs when the electrical fields interfere with the electrical function of the pacemaker. Many studies have investigated the risk associated with this interaction however the studies found that the person may experience discomfort when in close proximity to the source of the electrical/magnetic field and is generally short term in nature.

Issues arising between the use of electrical fields and pacemakers generally require close proximity to high energy electrical plant or equipment which includes many household appliances, high energy tools, any faulty electrical appliance, and electrical generation and transmission.

The proposed solar PV farm does not use a traditional generator system with the electrical fields generated by each individual solar PV panel generally low and inline with lower energy appliances common within one's home. The greatest source of electromagnetic fields will be the inverter and transformers unit. These units are for all practical purposes largely similar to the padmounted substations used for general electricity distribution in urban and semi-urban streets and frequently located adjacent to residential properties.

The electrical power station unit and inverter unit are associated with the transmission of electricity from solar panels to the transmission grid and may hold a risk to those with pacemakers. These units are proposed to be located wholly within the site and hold substantial buffer distances to nearby residents. It is also noted that additional medium voltage infrastructure intended to be constructed for the purposes of the solar PV farm will be located further away from residents than the existing Essential Energy 22 kV (medium voltage) network currently installed along Bushs Lane. Further, security fencing is employed around the site to prevent unauthorised entry into the site blocking events where an unauthorised person with a pacemaker comes into proximity with the units.

With the buffer distances involved and the provision of security fencing he potential for a medical event tied to the generated electrical fields is considered to be negligible.

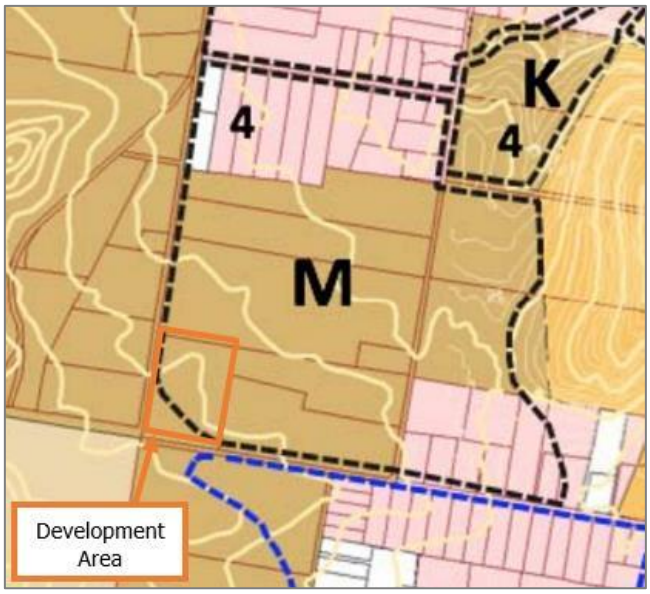
The development is inconsistent with Councils Urban Land use Strategy

Response:

It is acknowledged that part of the development area is located within a Residential Phasing area noted within the Gunnedah Urban Landuse Strategy. The site is located within Area M and is noted to retain the existing RU4 with R5 with a re-evaluation once Areas D, F and H are exhausted.

The development area is located on the very south western corner of Area M with a large portion of the development area located outside of Area M, see Figure 1.

Figure 1 – Residential Phasing Plan Extract – Area M



The location of the development area at the boundary of the area allows for sufficient area for any future residential expansion if deemed to be required by Council once the existing housing stock has been exhausted. The proposed landscaping, while designed for existing proximate residential properties will continue to provide effective visual buffering to any future residences in the area.

The dust impacts from unsealed vehicle movements

Response:

The proposed vehicle route travels via Blackjack Road turning onto Bushs Lane and travelling approximately 300m on unsealed road to the proposed entry point. All heavy vehicles travelling along this portion of road along with internal roadways are to limit speeds which will significantly reduce dust impacts on the surrounding area.

Construction works are limited in duration and with the limited time spent on the unsealed road and the speed restrictions to be applied to heavy vehicles the dust levels generated are expected to be low.

Management of vegetation regrowth and weeds has not been adequately addressed

Response:

Weeds on site will be appropriately managed. Details regarding proposed Weed Management procedures can be provided to Council as a condition of consent.

Increased Bushfire risk on surrounding areas

Response:

The proposed solar PV farm has been designed with consideration of the Planning for Bushfire Protection 2019 published by the Rural Fire Service. This includes appropriate buffer distances between infrastructure and combustible materials reducing risk of bushfire and ensuring the electrical supply is maintained during emergencies to assist facilitate firefighting efforts.

Impacts on local flora from changes to microclimate

Response:

Solar PV farms have been found to increase air temperatures above the solar panels. As distance from solar panels increases the air temperature returns back to ambient temperatures which minimises impacts outside of the solar PV farm site. Air temperatures below solar panels are noted as being lower due to the reduced exposure to light.

Landscaping utilising canopy trees as proposed have been found to be effective at reducing temperatures. The proposed landscaping will effectively manage any microclimate changes resulting from the solar PV farm.

Vegetation clearing potentially exceeds BOS thresholds of 0.5ha as per Clause 7.2 of Biodiversity Conservation Regulation 2017

Response:

The development area is largely cleared of vegetation with the remaining trees located in pockets at site boundaries barring a total of 9 trees located within the solar PV farm footprint. A small portion of immature shrubs located within the north eastern portion of the site will also be removed to facilitate the proposed development.

Combined with groundcover species present on the site the overall vegetation clearing is below 0.5ha and does not exceed the BOS threshold.

3 CONCLUSION

The proposed establishment of a Solar PV Farm at 262 Hunts Road, Gunnedah will provide a desirable rural compatible use desired by the Gunnedah community. It will support the region assisting to meet the energy needs of the Gunnedah region in a cost effective and environmentally friendly way.

We trust that the information provided is sufficient, however, if any clarification is needed or you require further information, please contact our office.

Yours sincerely,

Courtney Sargent
Town Planner
KDC Pty Ltd

Enclosure A – Updated Noise Impact Assessment
Enclosure B – Updated Fauna and Flora Assessment