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ZONNEQUA WIND ENERGY FACILITY GRID CONNECTION AMENDMENTS: HERITAGE CONSIDERATIONS

Dear Jo-Anne

Thank you for providing the information regarding the proposed amendments to the already authorised grid connection for the Zonnequa Wind Energy Facility located south east of Kleinsee, Northern Cape. I note that the developer has requested that the following amendments be applied for:

1. Amendment of the co-ordinates of the substation/switching station position to be in line with the amended Facility EA.
2. Amendment of the corridor width from the authorised 300m to 600m (to be 300m east and west of the 400 kV line) to give more flexibility in terms of the placement of the powerline relative to the 400k line.
3. The corridor/envelope around Gromis MTS to be expanded to allow entry to the 132 kV yard from the north and provide more flexibility in terms of entry into the Substation.

The original heritage impact assessment (HIA) for the project was as follows:

Orton, J. 2019. Heritage Impact Assessment: proposed grid connection infrastructure for the Zonnequa Wind Farm near Kleinsee, Namakwaland Magisterial District, Northern Cape. Unpublished report prepared for Savannah Environmental (Pty) Ltd. Lakeside: ASHA Consulting (Pty) Ltd.

Information contained in this letter was also drawn from the following report:

Orton, J. 2019. Heritage Impact Assessment: proposed Zonnequa Wind Farm near Kleinsee, Namakwaland Magisterial District, Northern Cape. Unpublished report prepared for Savannah Environmental (Pty) Ltd. Lakeside: ASHA Consulting (Pty) Ltd.

Affected heritage and comparative assessment of impacts

The original survey could not examine the entire length of the corridor due to no access being possible to a section of the line. Nevertheless, the most important area (the northern third where many open deflation hollows lie) was covered in reasonable detail. Many heritage sites were recorded. Table 1 presents a list of

those falling within the newly proposed Zonnequa corridor and they are mapped in Figures 1 to 4. Because the corridor is wider, there are now more sites included within it. However, it is important to note that the nature of the sites and their general cultural significance is no different. Although more archaeological sites are now included, the probability of impacts will remain the same because the actual footprint required for construction will not change and its final location within the now 600 m wide corridor still remains unknown. The impact assessment for archaeology thus remains identical to that originally predicted (medium negative before mitigation and low negative after mitigation). The assessments for all other aspects of heritage (i.e. palaeontology, graves and the cultural landscape) are not affected in any way by the proposed corridor change. All recommendations in the original HIA must thus also remain identical.

Table 1: List of heritage sites within the new Namas grid corridor.

059	---	S29 36 07.2 E17 10 58.2	Background scatter located in an area of exposed hardpan off which the sand has been removed. The artefacts are of quartz, quartzite, and silcrete and there are many quartzite cobbles. There are some clear hammer stones and one upper grindstone that still bears a 'greasy stain' is presumed to be LSA. The majority of the material is likely MSA or ESA and a single ESA handaxe made from quartzite was seen.	Low	power line
060	DKG2018/001	S29 36 25.4 E17 11 06.8	Ephemeral scatter of <i>C. granatina</i> shell and one piece of ostrich eggshell.	Low	power line
061	---	S29 36 37.9 E17 11 16.1	Widespread background scatter of quartz artefacts in an area where there are bedrock patches exposed on the north bank of the Buffels River.	Very low	power line
062	---	S29 36 53.8 E17 11 30.1	Widespread background scatter of quartz artefacts in an area where there are bedrock patches exposed on the south bank of the Buffels River.	Very low	power line
063	---	S29 36 58.9 E17 11 31.1	Widespread background scatter of quartz artefacts on red sand with many larger grains. This phenomenon is very widespread and the four recorded points cover most of the north-south range.	Very low	power line
063B		S29 37 09.3 E17 11 37.7			
063C		S29 37 22.1 E17 11 47.4			
063D		S29 37 40.9 E17 11 59.5			
064	MV2018/001	S29 37 16.1 E17 11 42.1	Ephemeral shell scatter of <i>C. granatina</i> and <i>S. granularis</i> with some ostrich eggshell. Due to the quartz background scatter it is hard to know if there are stone artefacts directly associated with the shell or not.	Low	power line
065	MV2018/002	S29 37 25.0 E17 11 48.2	Ephemeral scatter of <i>C. granatina</i> and <i>S. granularis</i> located on a slight rise. Due to the quartz background scatter it is hard to know if there are stone artefacts directly associated with the shell or not.	Low	power line
066	MV2018/003	S29 37 54.7 E17 12 09.5	An outcrop of quartz that has been hammered and flaked.	Low	power line
067	MV2018/004	S29 38 02.9 E17 12 14.8	An outcrop of quartz that has been hammered and flaked. It includes one loose boulder which has been rolled around and flaked on various sides like a large irregular core.	Low	power line

068	MV2018/005	S29 38 15.8 E17 12 25.4	A light scatter of informal quartz artefacts located in the southern end of a deflation hollow. It also has ostrich eggshell fragments, a quartzite upper grindstone and a quartzite cobble. Patch B is a group of artefacts and quartz pieces on an exposed area of hardpan in the northern end of the same deflation hollow. They are very weathered and only some are artefacts.	Low 2 hours (Patch A only)	power line
068B		S29 38 13.8 E17 12 26.3			
075	MV2018/012	S29 39 25.8 E17 12 53.9	An ephemeral scatter of informal quartz artefacts located in a small deflation. There were only about 10 quartz artefacts along with one in CCS and one ostrich eggshell fragment.	Low	power line
076	MV2018/013	S29 39 32.2 E17 13 03.9	A widespread but light scatter of informal quartz artefacts located in the southern end of a deflation hollow. The scatter extends up the sandy slope at the southern end of the deflation which suggest it to be very recent. There is also a lower grindstone (found right way up) in the western part of the deflation hollow.	Low 2 hours	power line
077A	MV2018/014	S29 39 39.9 E17 12 59.8	Patch A: A small, light scatter of informal quartz artefacts located in the northern end of a large deflation hollow. There are only about 30 artefacts visible. Patch B: A second similar scatter but with only about 10 artefacts visible but these are all quite large and there is some accumulated sand at this point. Smaller artefacts may thus be buried.	Low	power line
077B		S29 39 41.0 E17 12 59.9			
078	MV2018/015	S29 39 47.7 E17 13 00.2	A light scatter of ostrich eggshell fragments and some informal quartz artefacts in the northern end of a deflation hollow.	Low	power line
079	MV2018/016	S29 40 02.0 E17 13 09.6	A light scatter of informal quartz artefacts throughout a small deflation hollow. The scatter is most dense in the centre of the deflation hollow. Also 2 CCS flakes, a quartzite manuport and a quartzite probable grindstone fragment.	Low 2 hours	power line
081	MV2018/018	S29 40 09.2 E17 13 00.0	A small deflation hollow with only one quartz artefact, two CCS artefacts and one pot rim (plain rounded rim).	Very low	power line
084	MV2018/021	S29 39 58.8 E17 12 52.0	A scatter of ostrich eggshell in the southern end of a large deflation hollow. There are also some quartz and CCS artefacts as well as a quartzite hammer stone/upper grindstone fragment. There was also a fragment of lead and a single ostrich eggshell fragment in the northern end of the same deflation hollow.	Low	power line
085	MV2018/022	S29 39 49.9 E17 12 55.3	An ephemeral scatter of informal quartz artefacts in a deflation hollow.	Low	power line
086	MV2018/023	S29 39 43.5 E17 12 55.2	An ephemeral scatter of informal quartz artefacts in a large deflation hollow.	Low	power line
087	MV2018/024	S29 39 31.6 E17 12 56.5	A light scatter of quartz artefacts in a tiny deflation hollow. The quartz looks generally better quality and is not yellowed from exposure to the red sand. Unlike the other sites in this area, all pieces appear to be flaked artefacts. There is a large quartz cobble core.	Low 2 hours	power line
088	MV2018/025	S29 38 25.3 E17 12 22.4	A slight concentration of small LSA quartz artefacts among the general background scatter of older artefacts.	Very low	power line
089	MV2018/026	S29 38 24.5 E17 12 18.7	A moderate density scatter of informal quartz artefacts in a deflation hollow. Also some flaked artefacts in quartzite, CCS and 'other'. There are two cobbles with light evidence of grinding and	Low 4 hours	power line

			anvil use. The quartz artefacts look quite fresh but the usual selection of manuports and unmodified quartz fragments shows affinity with the informal quartz assemblages.		
090	MV2018/027	S29 38 26.2 E17 12 17.4	A light scatter of informal quartz artefacts in a deflation hollow. Also some CCS and a small quartz pebble hammer stone.	Low 2 hours	power line
091	MV2018/028	S29 38 27.4 E17 12 16.2	A dense scatter of informal quartz artefacts in a deflation hollow. There are also some CCS flakes, a CCS scraper fragment, a few quartzite hammer stones, a quartzite hammer stone/upper grindstone, and some glass. There are many ostrich eggshell fragments in the southern part of the deflation hollow.	Medium 8 hours	power line
092	MV2018/029	S29 38 28.5 E17 12 13.2	An ephemeral scatter of informal quartz artefacts in a shallow deflation hollow.	Low	power line
093A	MV2018/030	S29 38 21.1 E17 12 19.9	Patch A: An ephemeral scatter of informal quartz artefacts in the southern end of a large deflation hollow. Also a quartzite hammer stone fragment. Patch B: A small patch of light scatter in the western side of the same deflation hollow. Also has a quartzite hammer stone and a small 'other' pebble. Patch C: An extensive but light scatter of informal quartz artefacts in the eastern side of the same deflation hollow. There are also several manuports and a quartzite hammer stone/upper grindstone. Patch D: A small but moderate density scatter of informal quartz artefacts in the northern end of the same deflation hollow. There are also two quartzite hammer stones, a quartzite hammer stone/upper grindstone and a large quartz core made on a block of quartz. Patch E: A light scatter of informal quartz artefacts in the central part of the same deflation hollow. There are no other associated finds here.	Medium 8 hours	power line
093B		S29 38 19.9 E17 12 20.1			
093C		S29 38 20.3 E17 12 21.1			
093D		S29 38 19.2 E17 12 20.7			
093E		S29 38 19.9 E17 12 20.6			
094	MV2018/031	S29 38 19.3 E17 12 22.3	An ephemeral scatter of informal quartz artefacts in a small deflation hollow.	Low	power line
095	MV2018/032	S29 38 17.4 E17 12 23.5	An ephemeral scatter of informal quartz artefacts in a shallow deflation hollow. There are also several unmodified quartz rocks (manuports).	Low	power line
096	MV2018/033	S29 37 25.6 E17 11 46.9	An ephemeral scatter of <i>C. granatina</i> and <i>S. granularis</i> with some ostrich eggshell fragments on the slope overlooking the Buffels River to the north. Due to the quartz background scatter it is hard to know if there are stone artefacts directly associated with the shell or not.	Low	power line
097	MV2018/034	S29 37 18.2 E17 11 42.4	A light but quite large scatter of <i>C. granatina</i> and <i>S. granularis</i> on the slope overlooking the Buffels River to the north. Due to the quartz background scatter it is hard to know if there are stone artefacts directly associated with the shell or not. There is also some pottery (9 sherds seen including 1 rim), a CCS flake and quartzite upper grindstone.	Low-medium 4 hours	power line
098	MV2018/035	S29 37 17.5 E17 11 42.0	A light scatter of <i>C. granatina</i> and <i>S. granularis</i> with some ostrich eggshell fragments on the slope overlooking the Buffels River to the north. Due to the quartz background scatter, it is hard to know if there are stone artefacts directly associated with the shell or not. There are also two quartzite hammer stones.	Low-medium 2 hours	power line

099	DKG2018/002	S29 36 48.5 E17 11 21.2	An ephemeral scatter of quartz artefacts with one piece of <i>S. granularis</i> and one of <i>C. granatina</i> on the slope overlooking the Buffels River to the south.	Low	power line
100	---	S29 36 27.4 E17 11 05.6	An area of exposed hardpan with many quartz artefacts exposed. Also a few in silcrete and quartzite.	Very low.	power line
102	ZK2018/002	S29 47 05.5 E17 14 15.6	A fairly wide scatter of ostrich eggshell fragments on the eastern slope of the large dune cordon. There was also one quartz flake showing human presence.	Very low	Zonnequa
110	ZK2018/009	S29 46 04.4 E17 14 36.9	A light artefact scatter in a deflated area on a sandy hilltop on the eastern edge of the large dune cordon overlooking the plains below. It has quartz (50+ seen) and CCS (1 notched flake seen) artefacts as well as a quartzite hammer stone/anvil/irregular core, ostrich eggshell fragments (10+ seen), some burnt bones fragments, a rim potsherd, fragments of a leather shoe, two modern clear glass bottles (one of them broken). The pot rim had either a flared or a vertical orientation and its form was tapered. The sherd was very thin. A second deflation hollow just to the east had an ephemeral scatter of quartz and quartzite with one <i>S. argenvillei</i> fragment and a piece of green glass.	Low-medium 2 hours	power line
112	ZK2018/011	S29 45 37.1 E17 14 28.5	A light scatter of ostrich eggshell fragments (11 seen) on a sandy hilltop. Although no artefacts were seen the scatter must be anthropogenic.	Very low	power line
113	---	S29 45 12.7 E17 14 30.3	A patch of background scatter artefacts associated with the hardpan at a borrow pit.	Very low	Zonnequa

Advantages and disadvantages of the amendments

There are no particular advantages or disadvantages of the amended corridor. Although more sites are included within it, as noted above the probability of impacts remains the same.

Avoidance, management and mitigation measures

As already noted, the recommendations must remain the same. Key among them will be a pre-construction survey which will serve to determine what impacts will actually occur through construction along the final alignment. Measures will then be recommended. Because no sites requiring avoidance due to high cultural significance are known (and none are likely to occur in this area) it is likely that the recommendations of this survey will be that certain sites need to be sampled/excavated to retrieve archaeological materials and data prior to construction.

EMPr changes

No changes to the EMPr are required from a heritage point of view. All existing conditions and requirements must continue to apply.

Conclusion

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This re-examination of the Namas grid connection shows that the proposed amendments will not result in any new or unexpected impacts to heritage resources. There will be no change in significance ratings and all probability ratings will remain the same. No changes to the recommendations or EMPr are required. For convenience, the recommendations contained in the original report are repeated here in full:

Because impacts are not of high significance and can easily be managed, it is recommended that the proposed wind farm, power line and associated infrastructure should be authorised but subject to the following conditions which should be included in the conditions of authorisation:

- *An archaeologist should be appointed to conduct a final pre-construction survey of the approved layout at least 6 months prior to commencement of construction. This includes both the wind energy facility and the power line;*
- *A chance finds procedure must be implemented for the rescuing of any fossils discovered during construction;*
- *All work is to be carried out within the authorised construction footprint. Any new areas that may need to be disturbed must be surveyed for archaeological sites prior to disturbance;*
- *Where possible, built elements should be painted in a colour to match the surrounding landscape;*
- *Any disturbed areas not required during operation must be rehabilitated after construction; and*
- *If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.*

It is the considered opinion of the heritage specialist that all the proposed amendments to the Zonnequa grid connection corridor as listed above may be authorised.

Yours sincerely



Jayson Orton

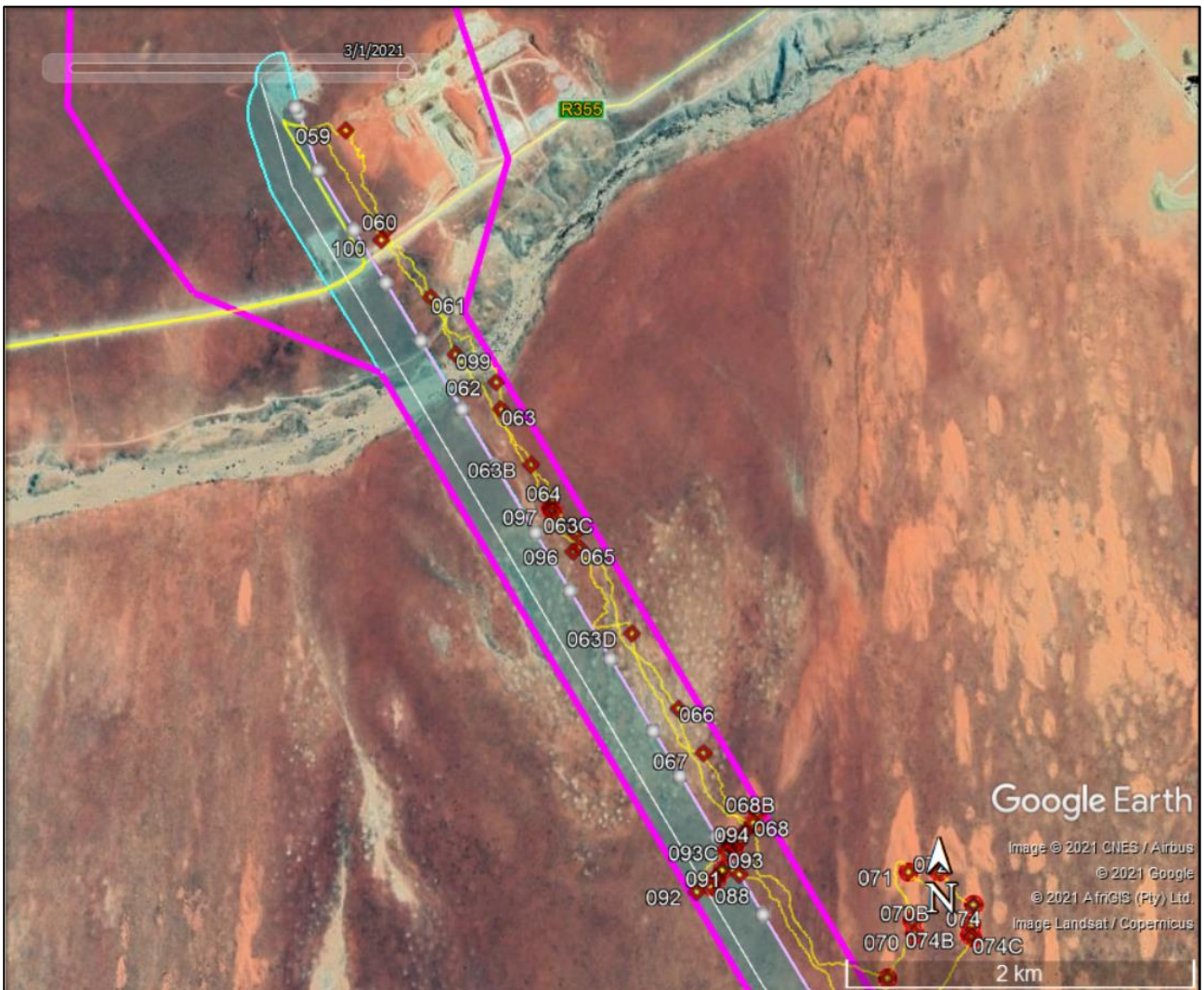


Figure 1: Map showing the northern end of the new corridor (pink outline) compared to the original corridor (shaded turquoise). Archaeological sites are marked by numbered symbols with those requiring mitigation if they are impacted having 50m radius circles around their waypoints. The thin white line is an indicative preferred alignment within the corridor and the pink line with grey dots is the soon-to-be constructed 400 kV power line.

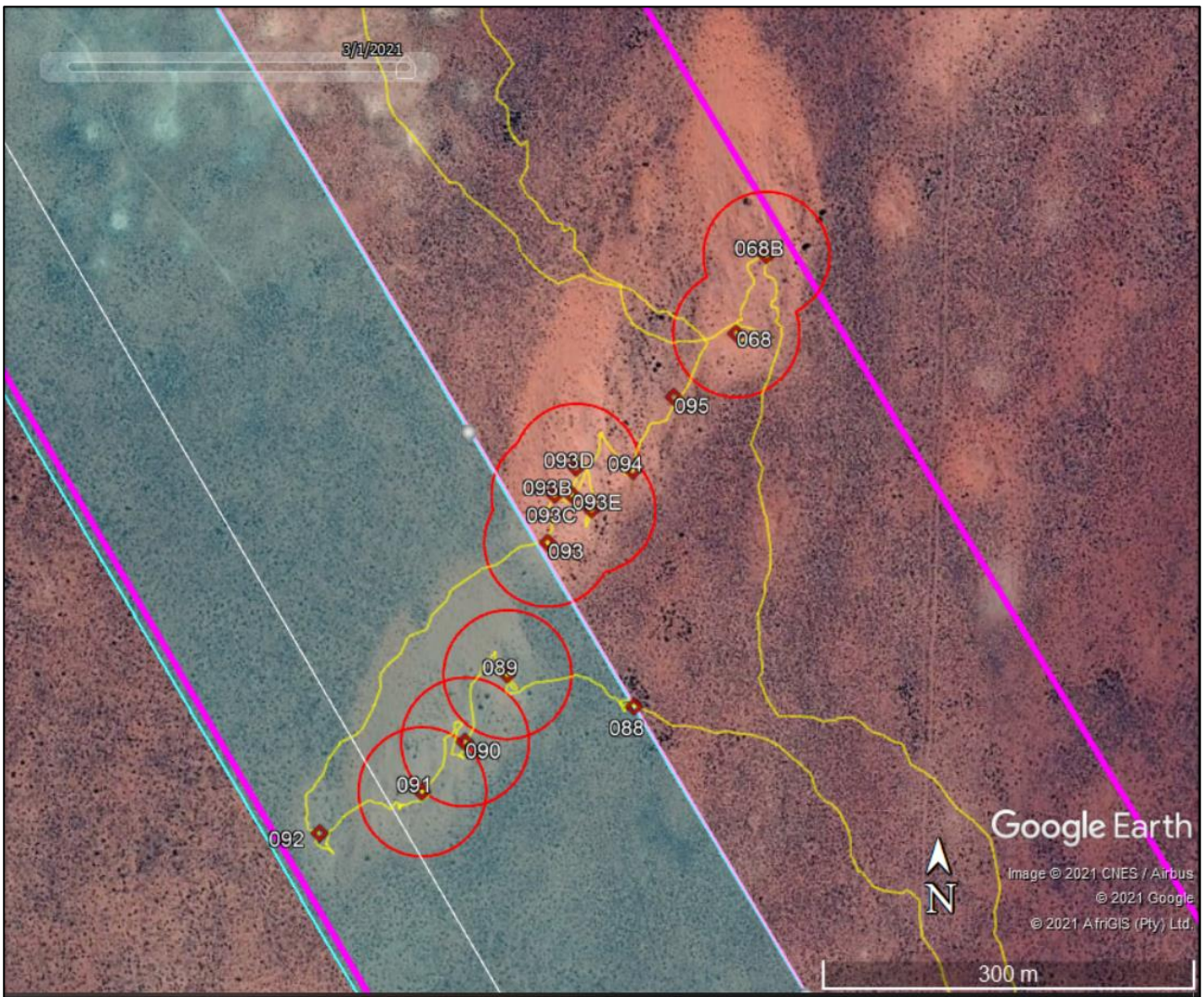


Figure 2: Detail from the southern edge of Figure 1. Key as per figure 1.

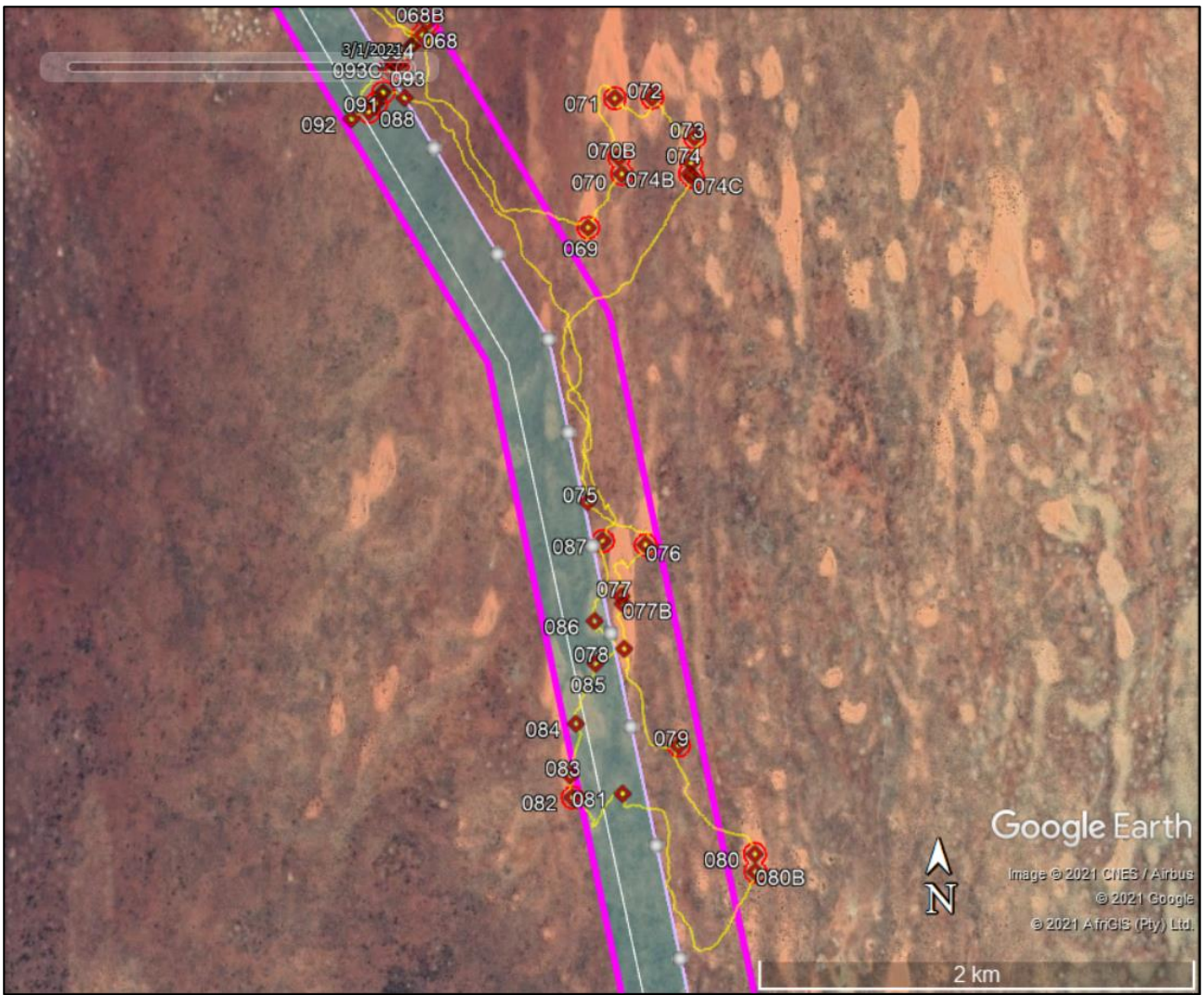


Figure 3: Map of the new corridor in the next area south of Figure 1. Key as per Figure 1.

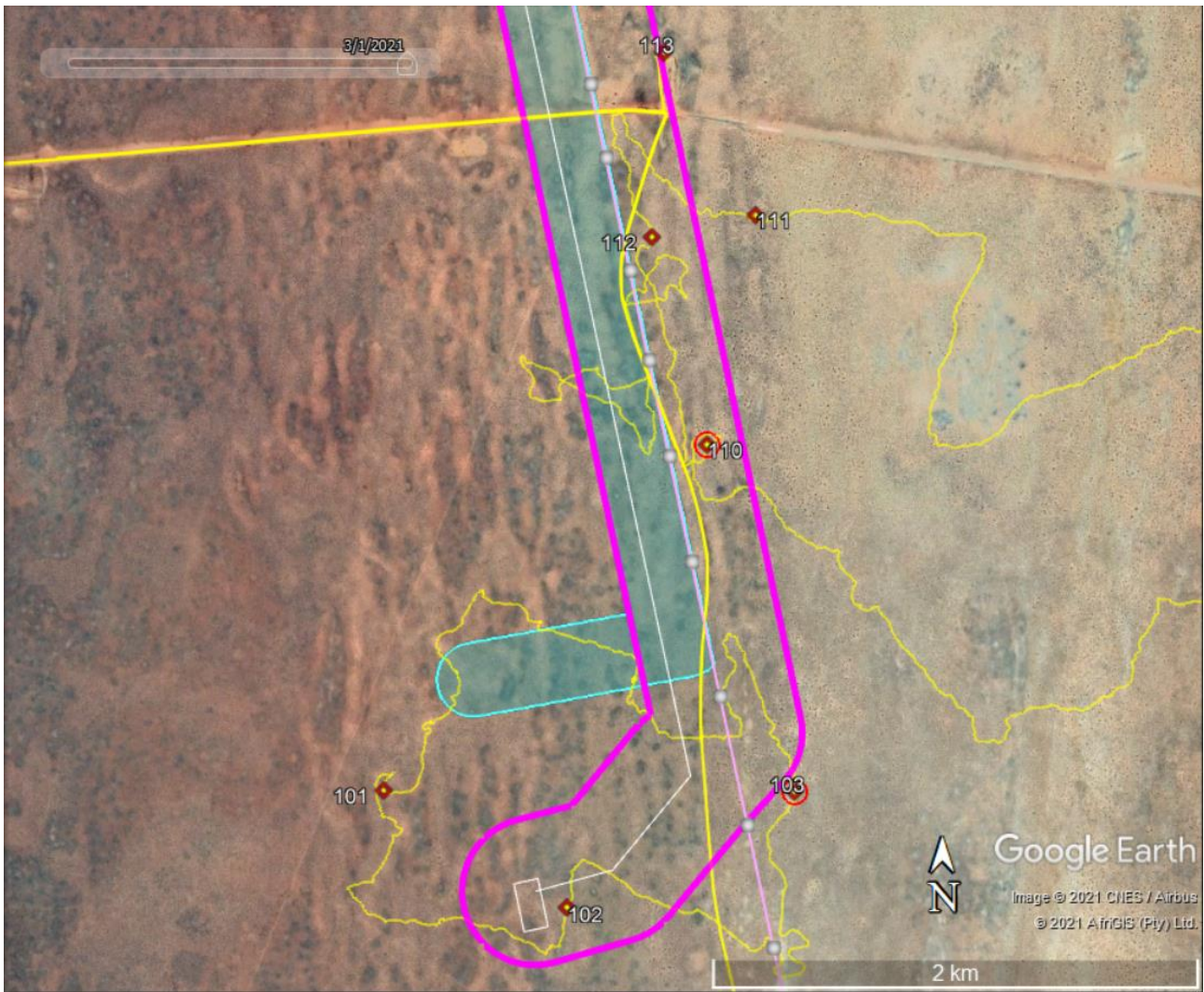


Figure 4: Map showing the southern end of the new corridor. Key as per Figure 1. The white rectangle is the amended substation/switching station location.