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Issued via email: simon@sgl.nz

Dear Simon

MANGAKURI STATION SUBDIVISION – 402 MANGAKURI ROAD, MANGAKURI

East Cape Consulting (ECC) has been engaged by the SR and BJ Williams Charitable Trust (the Applicant) to prepare a traffic impact assessment for the above subdivision.

By way of summary, it is concluded that the proposed subdivision can be appropriately accessed from the surrounding network. Other than standard engineering approval conditions for the three access points, no specific transportation conditions are recommended.

1. SITE LOCATION

The site is located at Mangakuri Beach, in Central Hawke's Bay District. Mangakuri Beach is a small coastal settlement located (by road) approximately 42km east of Waipawa and 53km south of Havelock North. The site location is shown as Figure 1 and Figure 2.



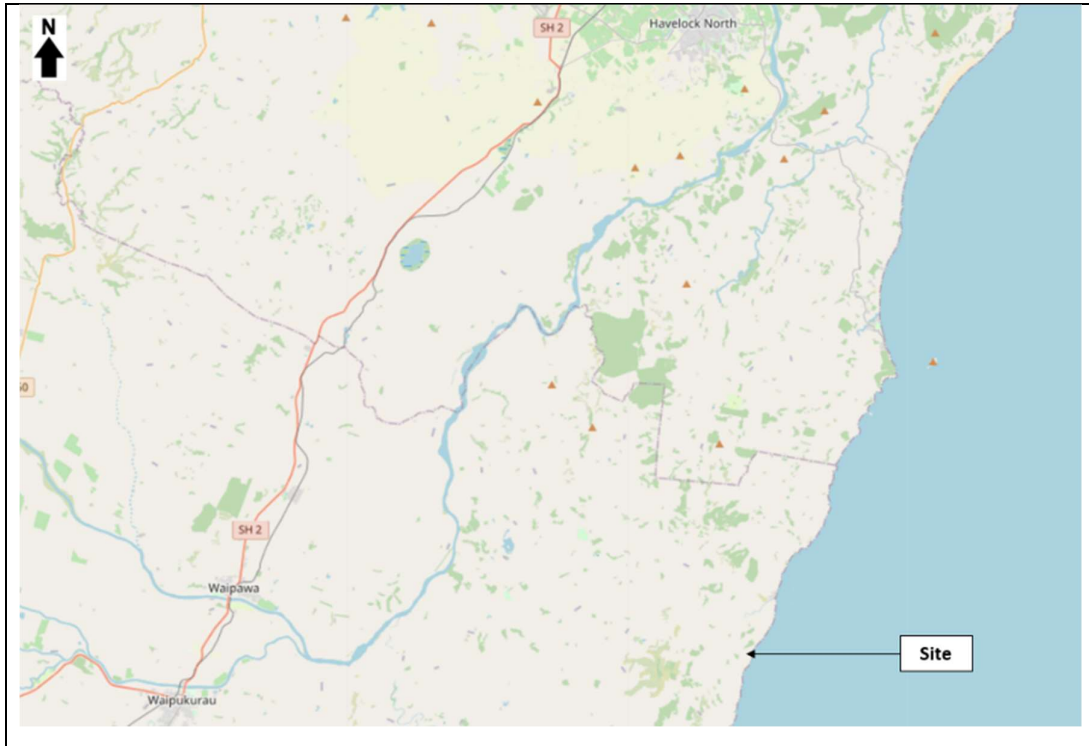


Figure 1 – Site Location (Regional View)



Figure 2 – Site Location (Local View)

The local land use environment includes large rural properties and smaller residential properties located along Williams Road and Okura Road. Figure 3 shows the existing land use setting.



Figure 3 – Existing Environment (Aerial Source: Google Earth Pro)

The site is within the Rural Zone of the Central Hawke’s Bay District Council (CHBDC) Operative District Plan (ODP). The smaller residential properties along Williams Road and Okura Road are zoned Township Zone.

2. EXISTING TRANSPORT ENVIRONMENT

2.1 Road Network

The road network in Mangakuri Beach is made up of Williams Road and Okura Road.

Okura Road is approximately 600m long and provides access to the residential properties that overlook the beach. It is sealed to a width of 2.4m and its alignment is generally flat and gently winds alongside the beach. There are a series of speed humps along its length and the horizontal alignment also helps to manage speeds. The posted speed limit is 50 km/h.

Okura Road is shown as Figure 4 and Figure 5 below.



Figure 4 – Okura Road, looking south from Williams Road



Figure 5 – Okura Road, looking north from site access

The northern section of Williams Road (north of Okura Road) also provides access to residential properties. It has similar features to Okura Road and is encompassed by the 50 km/h posted speed limit from its end to 300m west of the Okura Road intersection.

The southern section of Williams Road runs from Okura Road to the Mangakuri Road/Nilsson Road intersection. This crossroads has four legs and is uncontrolled. The Williams Road approach is sealed due to its gradient, the remaining roads are unsurfaced (gravel).

Williams Road climbs from beside Mangakuri River, over a hill, then drops back to sea level between Mangakuri Road and Okura Road. From Mangakuri Road the surface is chipseal for about 470m, then

reverts to an unbound (gravel) surface for a flatter 360m, then is sealed for another 660m to Okura Road.

Williams Road is formed to a width of approximately 5.8m and has an open road speed limit (up to 300m from Okura Road intersection) although speeds are much lower due to the vertical and horizontal geometry.

Williams Road is shown as Figure 6, Figure 7, and Figure 8 below.



Figure 6 – Williams Road, looking west (leaving beach)



Figure 7 – Williams Road, looking west (gravel/seal transition)

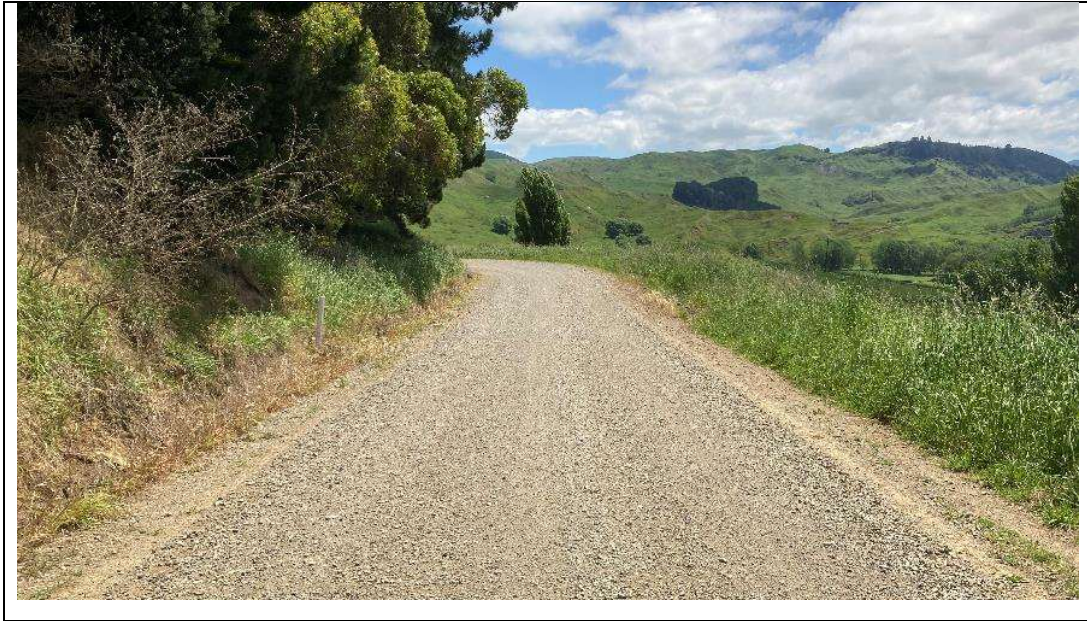


Figure 8 – Williams Road, looking west (top of hill)

Mangakuri Road connects north towards Waipawa and State Highway 2, or south to other settlements along the coast.

2.2 Traffic Volumes

The Mobileroad website, which sources data from Council asset management databases, gives the following average daily traffic volumes on roads in the area:

■ Williams Road (north of Okura Road)	120 vehicles per day (vpd)
■ Williams Road (south of Okura Road)	80 vpd
■ Okura Road	40 vpd
■ Mangakuri Road (north of Williams Road)	60 vpd
■ Mangakuri Road (south of Williams Road)	35 vpd
■ Nilsson Road	50 vpd

This data shows that all roads in the area carry low daily volumes, well within their respective capacities.

2.3 Road Safety

The New Zealand Transport Agency’s Crash Analysis System (CAS) was used to review the road safety history of the area. The search area covered the:

- Full length of Okura Road;
- Full length of Williams Road;
- Williams Road/Okura Road intersection; and

- Williams Road/Mangakuri Road/Nilsson Road intersection;

No crashes were reported on these roads or at these intersections in the last ten years (2012-2021 inclusive, including at data from 2022).

2.4 Other Transport Modes

Mangakuri Beach is a quiet rural settlement made up of permanent residents and holiday homes. Figure 2 shows many walking tracks (red dashed lines) from Williams Road and Okura Road to the beach. Throughout the year people move around the area on foot and bicycle using these tracks and/or the carriageways of Okura Road and Williams Road.

2.5 Parking

Public parking and vehicle/boat access to Mangakuri Beach is available from Okura Road, near the Williams Road / Okura Road intersection as shown in Figure 9. A large, grassed area provides for informal vehicle parking and other activities (such as picnicking).



Figure 9 – Mangakuri Beach Access and Parking Area

3. PROPOSED SUBDIVISION

3.1 Land Use

The proposed subdivision is shown below as Figure 10. The proposed subdivision includes ten rural residential lots, one of which would accommodate two building platforms (Lot 2) and the rest one each.

if the gravel section of Williams Road was sealed the average speed, for the Southern Access – West Approach¹, would not increase much beyond 50 km/h, if at all.

Okura Road is narrow with regular traffic calming features. The site visit indicates that vehicle speeds are lower than 50 km/h.

4. ASSESSMENT OF EFFECTS

4.1 Introduction

The proposed subdivision generates new demand for vehicle movement to and from Williams Road and Okura Road. To support this, the proposed access points need to provide appropriate sight distance and appropriate geometry to support the movement of the relevant design vehicles. These matters are assessed below for each access location.

The relevant sight distance requirements from the ODP (Section 8.4.2, Table 3) for different legal speed limits are:

- 45m at 50km/h; and
- 85m at 70km/h

The operating speeds are significantly lower than the speed limit (as noted in Section 3.3) and therefore the surveyed speeds have been used for this assessment.

4.2 Williams Road Southern Access

This access is located on the outside of a relatively tight bend and because of that, it can achieve at least 100m of sight distance in both directions. These views are shown as Figure 11 and Figure 12.

¹ Southern Access – West Approach, is the only approach which has an all-gravel surface. The Southern Access – North Approach, has 85m of gravel surface beyond which is sealed.

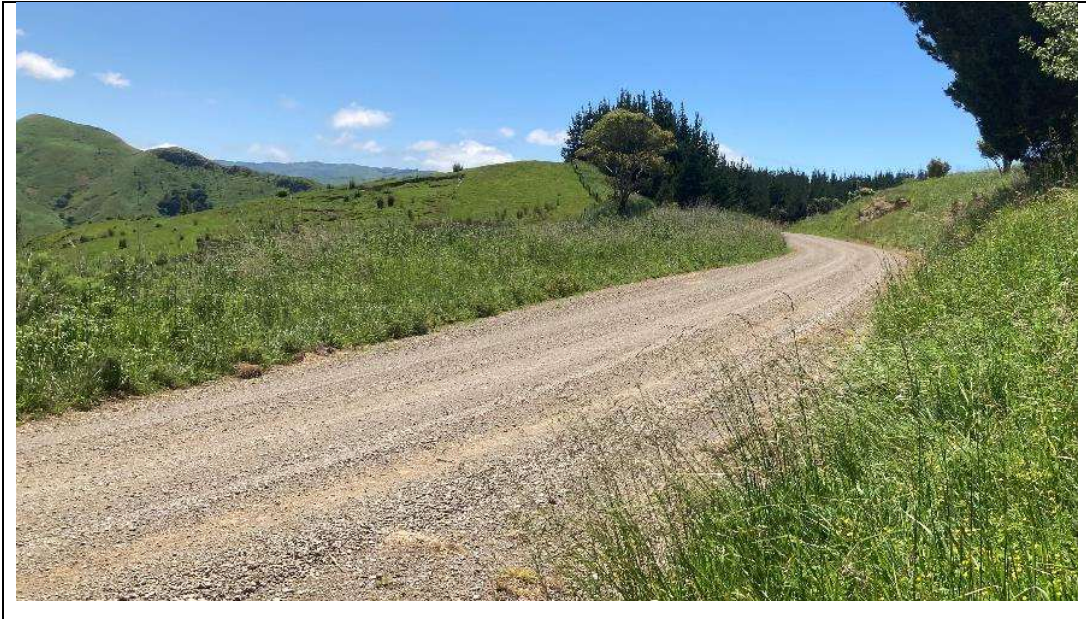


Figure 11 – Williams Road Southern Access North Approach

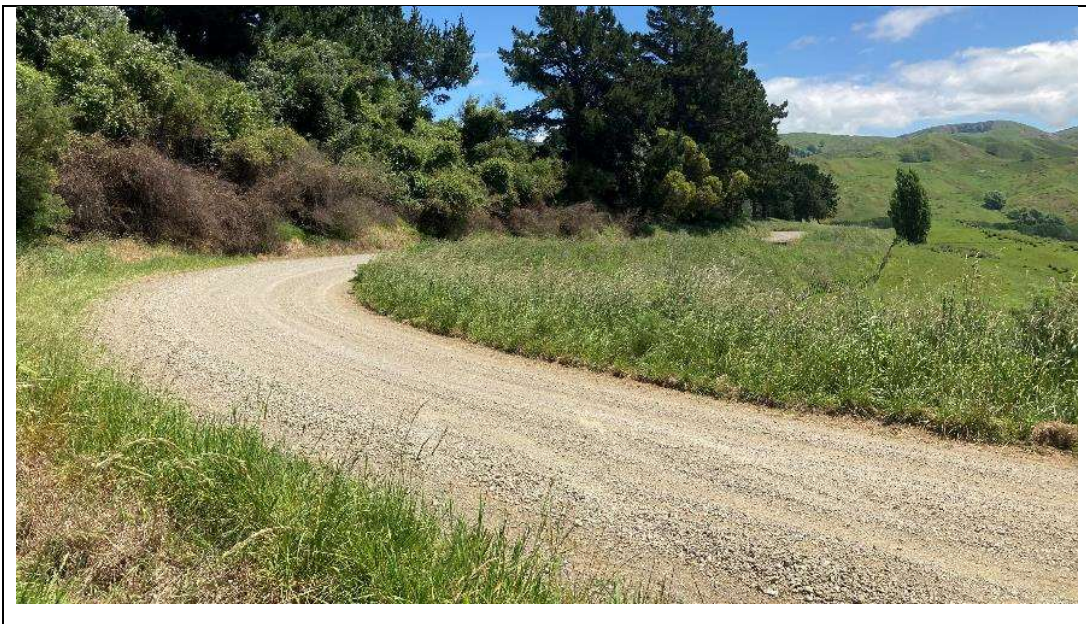


Figure 12 – Williams Road Southern Access West Approach

With more than 100m sight distance available and 45m required for the speed environment this access is ideally located.

4.3 Williams Road Northern Access

This access is located on the inside of a gentle bend (halfway) between an existing gateway and an existing power pole. The current layout can achieve 50m of sight distance to the north and 100m² to the south. These views are shown as Figure 13 and Figure 14.



Figure 13 – Williams Road Northern Access North Approach

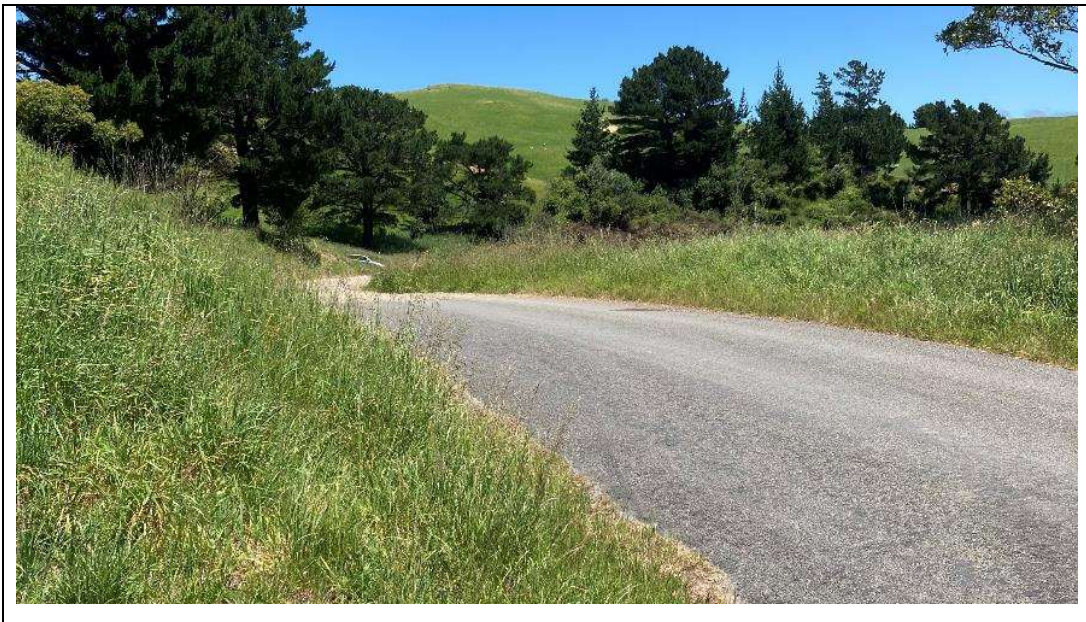


Figure 14 – Williams Road Northern Access South Approach

² The original location was proposed within the existing gateway, moving it slightly (circa 5m) south allows drivers to see over the crest of Williams Road to the Southern Access.

With more than 50m of sight distance available, and 45m required for the speed environment, this access is proposed in a suitable position. It is recommended that regular berm mowing be undertaken to ensure these sight lines are kept clear.

4.4 Okura Road Access

This access is located on a relatively straight section of road. It can achieve at least 80m of sight distance to the north and 60m to the south. These views are shown as Figure 15 and Figure 16.

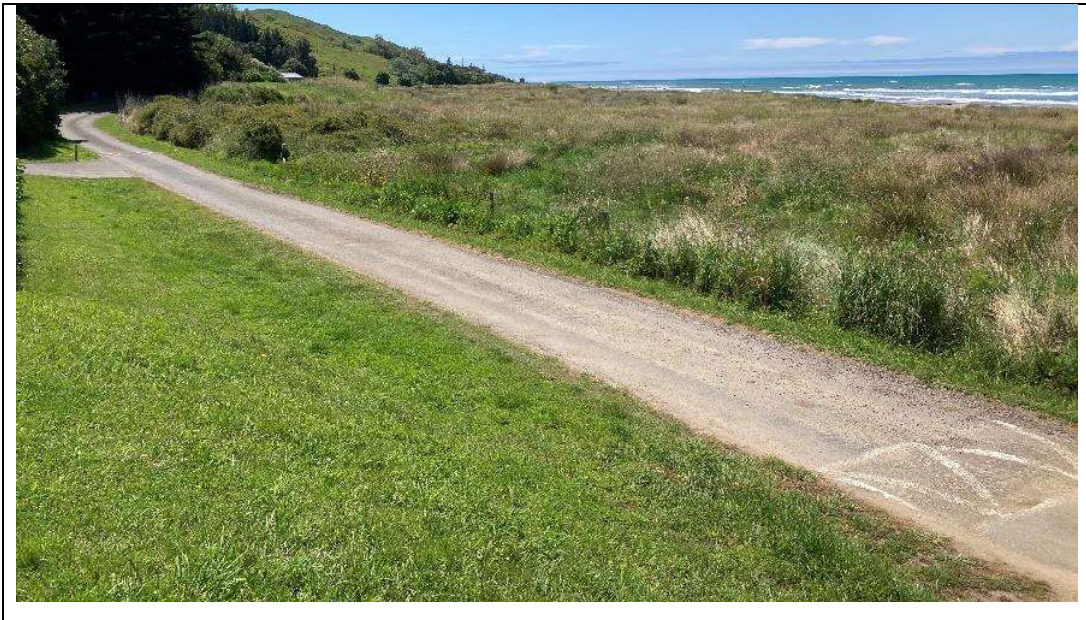


Figure 15 – Okura Road Access North Approach



Figure 16 – Okura Road Access South Approach

With more than 60m of sight distance available, and 45m required for the speed environment, this access location is suitable.

Although existing vegetation (see Figure 16 above) within the road reserve appears to encroach upon the sight distance to the south this can be monitored and trimmed if required.

4.5 Access Design

All accesses are expected to provide an all-weather surface to match the road frontage at a minimum, consequently it is recommended that they be sealed. They should also be designed to provide waiting platforms (with minimum length of 5m at no more than 5% gradient) as they approach each public road.

It is recommended that the accesses be 6m wide, over the first 15m, to allow two large vehicles (such as a tractor towing a trailer, or medium rigid truck and 90 percentile car) to pass each other clear of the public road.

Although the layout may not strictly comply with CHBDC drawing TS-LT-2009-08.14³ this site-specific design is considered appropriate for a semi-rural settlement.

4.6 Other Effects

The proposed subdivision is likely to generate demand for short trips to and from the beach. To support these trips being made on foot (or by bike) it is recommended that the subdivision layout includes a pedestrian/cycle path or trail to enable residents of all lots to use the access to Okura Road as a walking and cycling connection.

5. DISTRICT PLAN REQUIREMENTS

The relevant rules of Part 8 (Transport) and Part 9 (Subdivision) of the CHBDC ODP are summarised in Table 1.

Rule	Requirement	Comment
8	TRANSPORT	
8.5.1(a)	Minimum parking space requirements Residential Unit: 2 parks, 1 being the garage/carport	Compliance expected. All lots have adequate size to comply with this requirement.
8.5.2(a)	Vehicle Access to be Provided In all zones: i. Every lot with direct vehicle access to a road or to a vehicle access lot, shall be provided with a complying vehicle crossing. ii. Every vehicle access lot shall be provided with a complying vehicle crossing.	Compliance expected.

³ Minimum Vehicle Crossing For Multiple Rural Residential Properties.

Rule	Requirement	Comment
	<ul style="list-style-type: none"> iii. Every activity requiring access to a road shall have access to that/those road(s) only by way of a complying vehicle crossing. iv. A complying vehicle crossing shall meet the following requirements: <ul style="list-style-type: none"> a. Where a lot has direct vehicle access to a road: a formed and drivable surface shall be provided between the carriageway of the road and the road boundary of the lot. b. Where a vehicle access lot meets the road: a formed surface and drivable surface shall be provided between the carriageway of the road and the road boundary of the vehicle access lot. c. Where the lot has direct vehicle access to a vehicle access lot: a formed and drivable surface shall be provided between the carriageway of the vehicle access lot and the boundary of the lot. d. An access space shall be established on the lot. This shall comprise an area of land within the lot 3.5m wide by 5.0m long, formed and set aside and useable by a motor car and accessible from the vehicle crossing. (This access space may be used for any aisles or parking or loading spaces provided within the site). 	
8.5.2(b)	<p>Formation and Sealing of Vehicle Crossings</p> <ul style="list-style-type: none"> i. All vehicle crossings shall be formed with an all weather surface and shall be drained to the satisfaction of the Council. ii. Where the road carriageway adjacent to the vehicle crossing is sealed, then the vehicle crossing shall be sealed. iii. Minimum height clearance for vehicle crossings and common vehicle manoeuvring areas on-site, shall be 3.5 metres for residential units and 4.5 metres for all other activities. iv. Vehicle crossing gradients be designed in accordance with the New Zealand Building Code approved document D1: Access Routes. 	Compliance expected.
8.5.2(c)	<p>Migration of Gravel onto Sealed Roads</p> <p>i All formed and drivable surfaces on any lot with direct access to a sealed road, and any vehicle crossing, shall be designed and constructed and maintained in such a way that gravel and/or stones and/or silt shall not migrate on to any formed public footpath or on to the sealed carriageway</p>	Compliance expected.
8.5.2(d)	<p>Location of vehicle crossings with frontage in relation to intersections</p> <p>The following standards apply to all other sites in the Rural Zone:</p> <ul style="list-style-type: none"> a. Where the road frontage of the site lies entirely within 80 metres of an intersection, the vehicle crossing to the site shall be located on the access frontage within 12 metres of the side boundary of the site which is farthest from the intersection. b. Where the road frontage of the site is greater than 80 metres in length, the vehicle crossing to the site shall be located on the allowed access frontage at least 68.0 metres from the intersection. 	Complies. All crossings are >80m from intersections.
8.5.2€	<p>Widths of Vehicle Crossings</p> <p>Residential land use: 3.5m to 6.0m</p> <p>Other land use: 6.0m to 9.0m</p>	Compliance expected. New access points are designed to the 'other' land use standard as they will all provide access to the farm and occasional large vehicles.

Rule	Requirement	Comment
8.5.2(d)	Sight Distances from Vehicle Crossings and Road Intersections On non-State Highways, the minimum sight distance is: 45m at a speed limit of 50km/h 85m at a speed limit of 70km/h	See discussion at Section 4.
9	SUBDIVISION	
9.10g	Property Access v. If the subdivision is creating more than one lot, the following shall apply: c. If the subdivision is in the Rural Zone and if the subdivision is for residential activities then: 1. If the vehicle access to the road has to serve 2 to 4 residential units each lot shall have direct vehicle access to a vehicle access lot with a minimum legal width of 6.0m and a minimum formed width of 3.5m. A turning area is required. 2. If the vehicle access to the road has to serve 5 to 10 residential units each lot shall have direct vehicle access to a vehicle access lot with a minimum legal width of 6.0m and a minimum formed width of 5.0m. A turning area is required.	The Okura Road Access and Williams Road Northern Access are required to have a legal width of 6m and a formed width of 3.5m. The Williams Road Southern Access is required to have a legal width of 6m and a formed width of 5m, with a turning area. Compliance expected.

Table 1: ODP Compliance

6. CONCLUSIONS

A rural subdivision is proposed in Mangakuri Beach to create 10 new residential lots accommodating 11 building platforms. The lots are accessed via three different vehicle accesses, two on Williams Road and one on Okura Road.



Each access complies with the relevant ODP standards for sight distance. It is recommended that regular berm mowing, and occasional vegetation trimming, be undertaken to ensure these sight lines are kept clear.

The accesses will all continue to accommodate farm activities on the property and have therefore should be designed to accommodate the manoeuvring of two tractors (towing a trailer) or a medium rigid truck and 90 percentile car, passing each other. The proposed designs are expected to exceed the relevant ODP minimums for residential activities but may not meet the CHBDC standard for rural residential properties. This non-compliance is assessed as technical only and the accesses are expected to appropriately accommodate the proposed activities, with no adverse operation or safety effects on public roads.

A pedestrian/cycle trail is recommended through the subdivision so that all lots have walking/cycling access to the beach via the Okura Road access.

Overall, it is concluded that the proposed development can be appropriately integrated with the surrounding transport network. Other than standard engineering approval conditions for access works, no specific transportation conditions are recommended.

Yours sincerely,

<p>Anna Wilkins (CMEngNZ)</p>  <p>Principal Engineer East Cape Consulting Limited</p>	<p>George Eivers (CMEngNZ, CPEng, IntPE)</p>  <p>Principal Engineer / Director East Cape Consulting Limited</p>
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Attach:

Attachment 1 – Subdivision Plan (Strata)