7 December 2023

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267_03

Dear Sarah

PROPOSED ONGAONGA SOLAR FARM, TRANSPORT ASSESSMENT ISSUE 4

1. SUMMARY

This report assesses the potential transport impacts of the proposed Ongaonga solar farm in the Central Hawkes Bay. To summarise:

- The proposal is not expected to have an adverse effect on transport network efficiency.
- Potential safety impacts can be mitigated by way of consent conditions.

Provided that the recommendations outlined in this letter are implemented, there is no reason related to transportation why the proposal should not proceed. We have provided suggested wording for consent conditions in Appendix D.

2. BACKGROUND

2.1. Background and Purpose

Helios Energy Limited proposes to develop a solar farm on land adjacent to Taylor Road, east of SH50 in the Central Hawkes Bay. The purpose of this report is to assess the potential transport effects of the proposed solar farm construction and operation, and consider the transport aspects of the Central Hawkes Bay District Plan.

2.2. Basis and Structure of this Report

This transport assessment focuses on access (standards/sightlines) and construction traffic effects. The report is structured as follows:

- Background – purpose, use
- The site and existing transport network – traffic volumes, road description, crash history etc.
- Proposal details, including access and predicted travel data
- Appraisal of transportation effects – construction traffic, safety, efficiency etc.
- Comments on potential effects from glint and glare
- Avoiding or mitigating actions
- Discussion and recommendations.

Our report is based on:

- Photos and notes from a site visit carried out by Holly McIntee from The Property Group, 20 July 2023.
- Construction statistics for a similar solar farm of equivalent size[1]
- Traffic volumes from www.mobileroad.org
- Crash statistics from Waka Kotahi's Crash Analysis System (CAS)
- Ongaonga Solar Farm Glint and glare study, ITP Renewals, Revision 01, November 2023

[1] Construction volumes provided by Coronium Pty Ltd, a company with a proven track record in the development, delivery and performance of a wide variety of utility scale solar farms across Australia and the Pacific.

3. THE SITE AND THE EXISTING TRANSPORT NETWORK

3.1. Location and Existing Land Use

The site is located at Taylor Road, east of SH50 as shown below. The site is currently farmland and is zoned 'rural' in the Operative Central Hawkes Bay District Plan and 'rural productive' in the Proposed Central Hawkes Bay District Plan. Surrounding land use is also predominantly farmland, with a number of lifestyle blocks along Taylor Road. The Ongaonga Golf Club is located to the north west and Ongaonga township to the north.

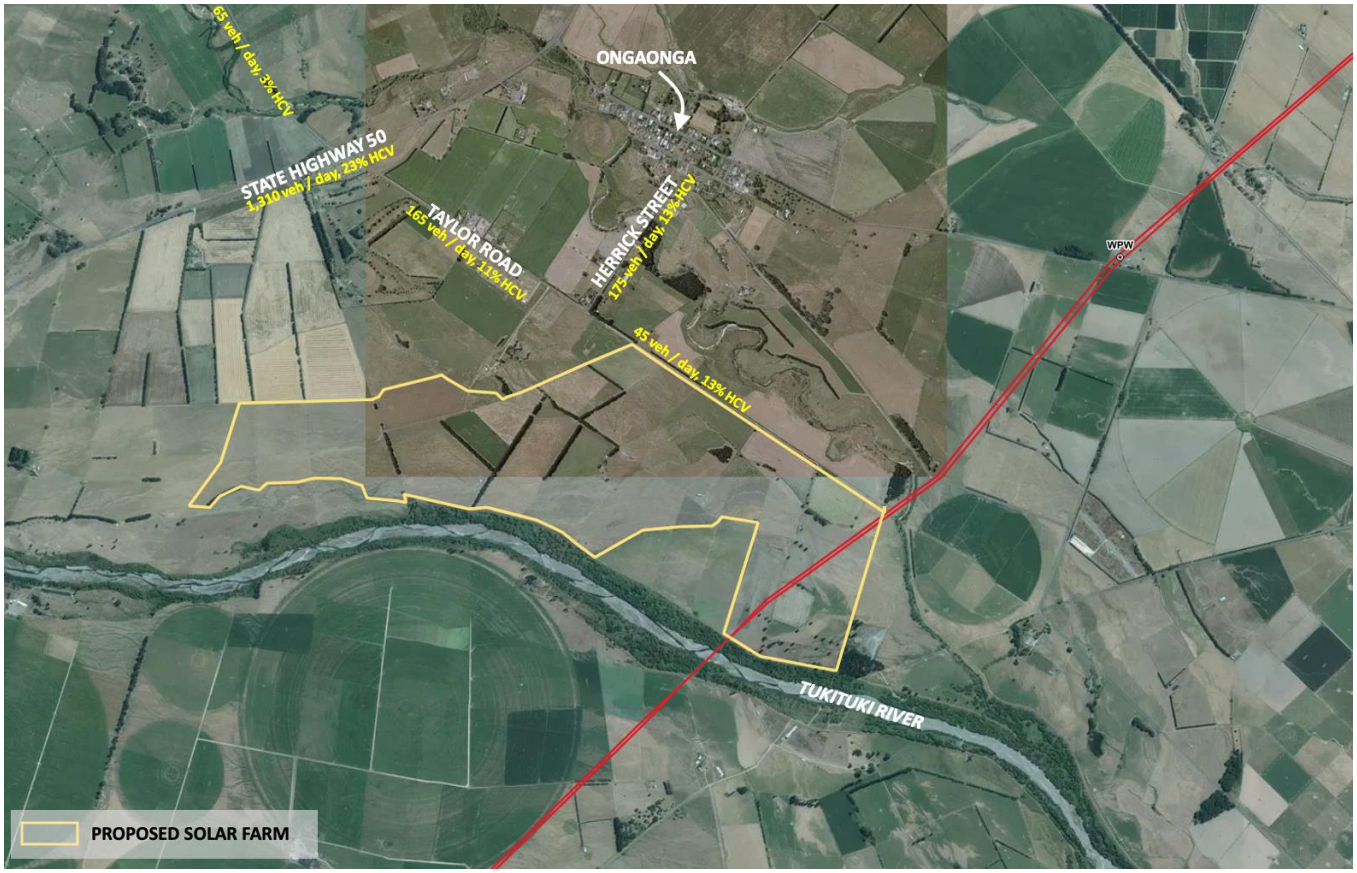


Figure 1 Location, land use, traffic volumes

3.2. Current Site Access

Current site access is via a series of existing farm gates and driveways from Taylor Road, providing access to farm dwellings and paddocks. Three existing access points are proposed to be used to access the solar farm during construction and operation. These are shown in Figure 2 to Figure 5 (below) and Appendix E.

Figure 2 Proposed Site Accesses

Figure 3 Proposed Access 1 (existing)

Figure 4 Proposed Access 3 (existing)

Figure 5 Proposed Access 3 (existing)

3.3. Surrounding Road Network

3.3.1. Network Description

Traffic volumes are shown in Figure 1. All of the roads in the vicinity have a 100 km/h speed limit, however the operating speeds of the local roads is likely to be much lower. The local roads are narrow, very low volume and rural.

Taylor Road is a no-exit road. It provides access to farmland and dwellings. The first 1.5km between SH50 and Herrick Street is sealed. The section of Taylor Road to the east of Herrick Street is unsealed (metal) as described below. Herrick Street provides a link between Taylor Road and the Ongaonga township. It is sealed and under 5m wide.

The SH50 / Taylor Road intersection is a skewed cross-roads intersection controlled by give way signage and markings. The intersection of Taylor Road and Herrick Road is a T-intersection with no priority signage.

Photos of the nearest intersections, existing and proposed access points are included in Appendix E. The following show typical road characteristics. The roads are straight and flat, with a sight distance of over 200m in both directions at all intersections.

Figure 6 Taylor Rd, east of Herrick St

Figure 7 Taylor Rd, west of Herrick St

Figure 8 Herrick St

Figure 6 shows that the condition of the unsealed section of Taylor Road to the east of Herrick Street is currently poor, with numerous potholes.

3.3.2. Alternative Modes

There are no facilities for alternative modes within the vicinity of the site. Due to the nature of the activity proposed, no non-vehicular traffic is expected.

3.3.3. Crash History

Waka Kotahi's CAS database shows that in the last five years (2018 – 2023) there were no reported crashes on Taylor Road or Herrick Street. There was a non-injury crash at the SH50 / Taylor Road intersection in 2019, that occurred when a vehicle failed to give way.

Based on the information available, there is no safety issue at the site.

4. PROPOSAL DETAILS

4.1. Layout and Activity Description

The proposal is to construct a solar farm within the site boundaries indicated below. A security fence will surround the site, comprising 2m high deer fencing. Construction is likely to last approximately 12 months.

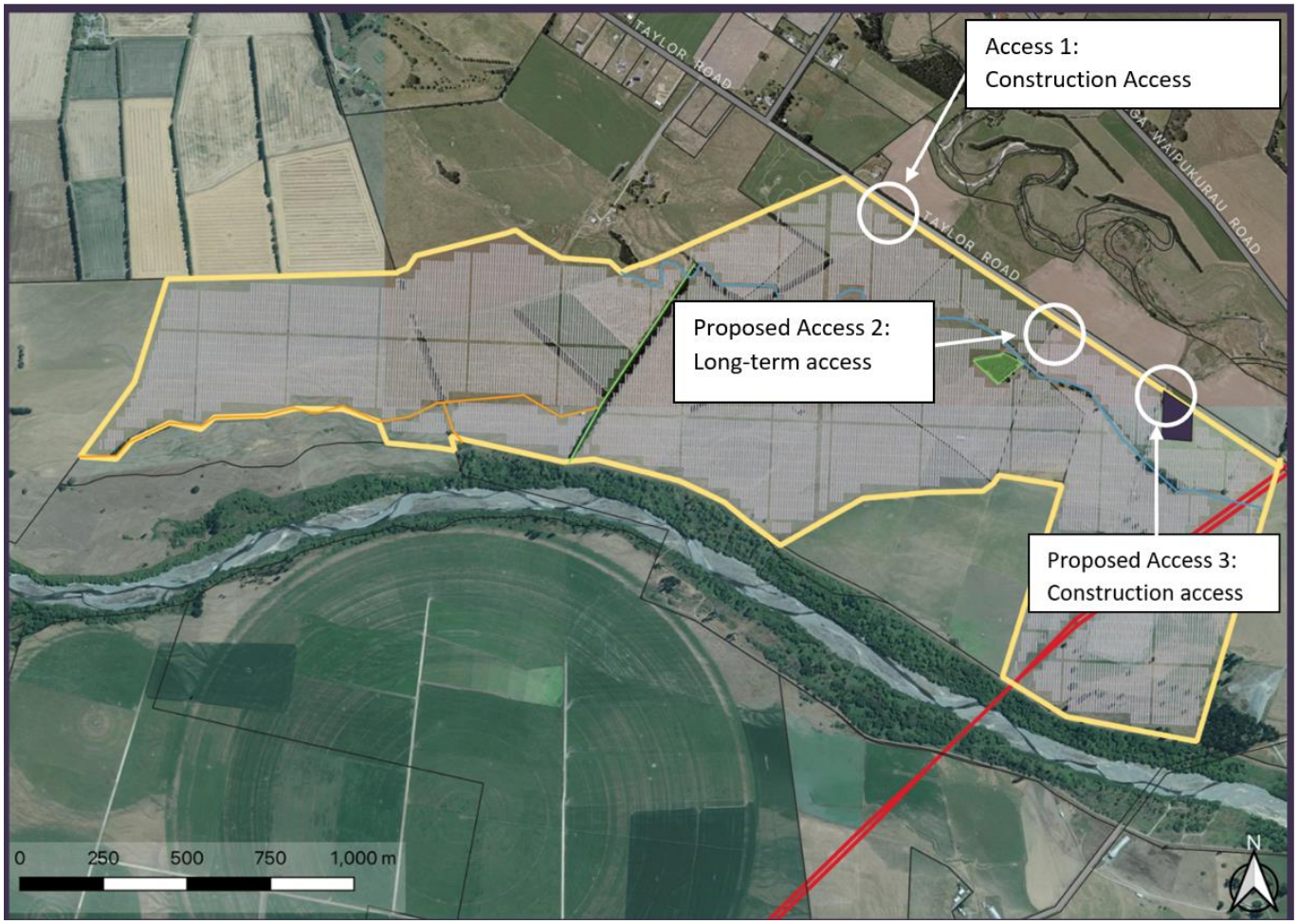


Figure 9 Proposed solar farm extent, layout, access points

4.2. Proposed Access and Parking

The white circles in Figure 9 show the proposed access points. There is no direct access to the state highway from the site. Parking will be contained within the site. All internal access, parking, loading areas will be constructed to an all-weather, metalled surface with necessary stormwater control.

It would be prudent for a Construction Management Plan to be required as a condition of consent, to include management of internal construction traffic and manoeuvring, including parking and circulation.

Note that Taylor Road via the Stage Highway is the most appropriate access from the wider transport network to the site. Other access routes have been considered and discounted, as described below:

Alternative Routes	Description	Comments
Herrick Street	Herrick Street, with vehicles travelling down Herrick Street to site and turning left onto the unsealed section of Taylor Road.	Herrick Street has a concrete slab/ bridge crossing (shown in the below photo)  We understand that route often closes due in winter due to debris and flooding. It is unlikely to be suitable for large vehicles or therefore as a site access route.
Taylor Road to Fairfield Road.	Via the paper road extension (east of site access points)	This route is unsuitable due to existing physical constraints, including a waterway and existing irrigation pivot. The process to develop a paper road for access by heavy vehicles is likely to be costly. Given the temporary nature of the solar farm construction activity, and available route that is already formed, we consider this route unsuitable.

5. PREDICTED TRAVEL DATA

5.1. Construction Traffic

Helios has confirmed that this proposal is a 100MWac project, which is equivalent to 118MWp. We have therefore increased the provided traffic information for a typical 100MWp solar farm by 18% to reflect potential trips to and from the proposed Ongaonga site. The information is indicative and may vary depending on the contractor's scope, specific installation sequencing and their construction program.

Table 1 below summarises transport information for the 'worst case' scenario at the time of construction when the most trips are expected.

Table 1 Predicted travel data (during construction)

Vehicle type	Vehicles / Month	Trips / month	Trips / day	Notes
Delivery vehicles (to and from site)	130	260	11	Averaged out over 24 working days
Heavy vehicles for construction equipment (on site)	20	40	20	Related to delivery of construction equipment. Likely to stay on site for the month. Worst case would be all arrive on the same day and leave on the same day.
Construction light vehicles (on site)	19	38	19	
Construction light vehicles (to and from site)	78	156	6	Staff travel to the site every day. Averaged out over 24 working days
Additional earthworks trucks			8	Four entering then leaving. Refer to Appendix A for more detail. Worst-case scenario, based on trucks

Vehicle type	Vehicles / Month	Trips / month	Trips / day	Notes
				with a capacity of 10cu.m. If B-train vehicles are available for use, then the trip generation associated with earthworks will reduce by more than two thirds.
Total			**64**	Worst-case, conservative value.

At the peak of the construction activity onsite, the worst-case number of trips per day is likely to be 64, comprising:

- 11 delivery vehicles, travelling both to and from the site;
- 20 heavy vehicles, travelling either to or from the site;
- 19 light vehicles, travelling either to or from the site;
- Six light vehicles, travelling both to and from the site; and
- Eight earthworks truck trips (three trucks arriving then leaving).

The assessment is conservative, assuming that all vehicles that remain on site for a month, arrive on the same day, then leave on the same day. Delivery trips are averaged out over 24 working days per month.

Table 2 provides an assessment of possible trip generation in the peak hour, for the worst-case morning peak, and evening peak.

Table 2 Potential peak hour trips

Vehicle type	Trips / day	Trips / AM peak	Trips / PM peak	Assumptions
Delivery vehicles (to and from site)	11	2	2	Generally, deliveries are likely to be spread over the day. We have assumed that two may arrive in the morning peak period, and the last two may leave in the evening peak.
Heavy vehicles on site	20	3	3	We have assumed that these will arrive throughout the day with 15% in the peak period. This would be reversed on the day that the vehicles leave the site. These trips would only occur a few days per month.
Construction light vehicles on site	19	3	3	
Construction light vehicles (to and from site)	6	3	3	We have assumed these are staff that all arrive in the morning peak and leave in the evening peak.
Additional earthworks trucks	8	4	4	Most likely to be one truck that comes and goes throughout the day; however, we have assumed four trucks to be conservative.
Total	4	15	15	

The total of 15 trips in the peak hour is equivalent to one trip every four minutes. Construction traffic will be via SH50 and the Napier Port.

5.2. Operational Traffic

During operation of the solar farm, traffic volumes will be low. There may be 5-6 staff visiting the site office once per week equating to 12 trips/week (or 1-2 trips per day which is less than would be generated by a residential dwelling). This is considered negligible, and the focus of this assessment is therefore construction traffic.

6. DISTRICT PLAN ASSESSMENT

Appendix B includes an assessment of the proposal against the requirements of the Operative Central Hawkes Bay District Plan (District Plan). We have assumed the parking and loading will be managed within the site, and these aspects will comply with District Plan requirements.

The proposal complies with sight distance requirements. The District Plan refers to the Hastings Engineering Code of Practice 2020 (ECOP), which requires that rural vehicle crossings have a separation distance of 248m where the speed limit is 100km/h. Proposed solar farm Access 1 is approximately 190m from the closest residential vehicle crossing at 179 Taylor Road. This is in line with what would be required for a speed limit of between 80 and 90km/h.

Given the nature of Taylor Road (narrow and unsealed), operating speeds are likely to be significantly lower than the speed limit, and 190m separation between crossings is considered sufficient.

7. ASSESSMENT OF EFFECTS

7.1. Efficiency

The proposal has the potential to add, on average, 15 trips (one vehicle every four minutes) during peak hours, at the busiest period during construction. Nine of these may be heavy vehicles. Taylor Road is very low volume, and no efficiency effects are expected.

State Highway 50 has a daily traffic volume of 1,310 veh / day. Based on a peak proportion of 10% this means a peak hour traffic volume of around 131 veh / hour, or roughly two per minute. With 23% HCV, 30 veh / hour may be heavy vehicles (one every two minutes). This leaves plenty of time for turning movements into and out of Taylor Road without an adverse effect on efficiency.

Based on the above, we do not expect the proposal to have any noticeable adverse effect on transport efficiency.

7.2. Safety

The potential effect on safety is a possible increase in crashes resulting from the increase in traffic. However:

- There is no existing crash problem at or near the site.
- There is plenty of time between passing SH50 vehicles for traffic to turn into and out of Taylor Road.
- Sight distance in both directions at site access points, the Taylor Road / Herrick Street intersection and the Taylor Road / SH50 intersection is more than adequate, and greater than the required stopping sight distance for trucks.

The following sections provide some discussion on pedestrian safety, intersection form, road form and vehicle crossings.

7.2.1. Pedestrian Safety

We understand that pedestrians sometimes use Taylor Road, mainly walking to and from school. Although the potential consequence of conflict between pedestrians and heavy traffic is high, the risk of conflict is low given the low traffic volume (14 trips per day expected from development), low pedestrian volume and the short time period within which pedestrians are expected (limited to before and after school).

Options to address pedestrian safety are outlined and discussed below:

Option	Discussion	Conclusion
Do nothing	This requires pedestrians to use the grass verge to avoid conflict with construction traffic.	Not recommended.
Constructing a footpath along Taylor Road	Constructing a footpath along Taylor Road would reduce the risk of conflict with heavy vehicles by separating pedestrians from road traffic.	Due to the high construction cost and ongoing maintenance demands, this approach is regarded as excessive and

Option	Discussion	Conclusion
	Constructing a footpath is likely to be expensive and would create an asset that would need to be maintained in the future, incurring additional costs. The number of pedestrians is likely to be low given the rural nature of the area. Footpath would potentially impact on stock grazing the grass berm	impractical given the low risk of conflict and low pedestrian and traffic volumes.
Reducing the speed limit.	Temporarily reducing the speed limit would improve safety. Visibility along Taylor Road is sufficient for pedestrians and drivers to see each other.	Given the temporary nature of the construction activity and low pedestrian and vehicle volume, this is considered the most appropriate approach.

We recommend a reduced speed limit (30km/h) along Taylor Road for the duration of construction activity. This could be implemented as part of a Construction Management Plan.

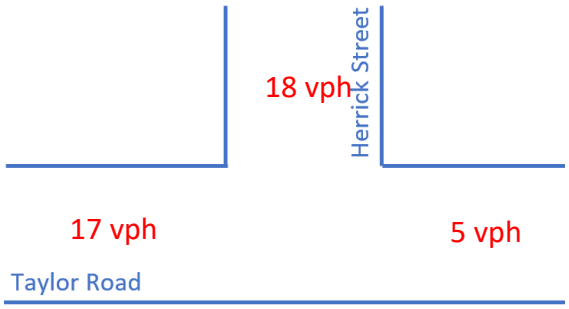
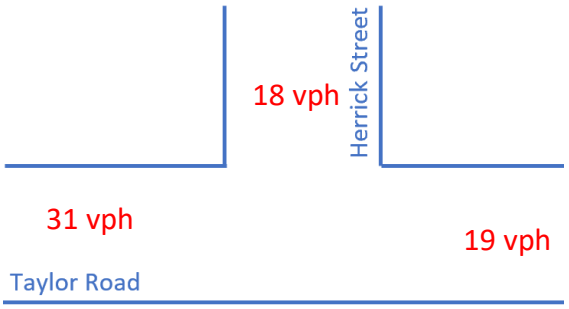
7.2.2. Intersection Form

We note that there is currently no signage indicating priority at the Taylor Road / Herrick Street intersection. However, the existence of directional chevron signage indicates that the eastern Taylor Road leg is the minor road, with priority movements around the curve.

Figure 10 Taylor Road/ Herrick Street intersection, looking east from Taylor Road to the intersection

The table below shows the existing and expected peak hour traffic volumes at the Taylor Road / Herrick Street intersection, assuming that existing peak traffic is about 10% of daily traffic and that all construction traffic uses Taylor Road.

Table 3 Existing and expected traffic volumes at Taylor Road / Herrick Street intersection

Existing	Expected
	

Installing priority signage would improve safety at the intersection.

Given that the construction traffic is temporary, we recommend that the eastern Taylor Road leg be considered the minor road, and signage and marking be installed to manage traffic. The Traffic Control Devices Manual[2] (TCD Manual) Part 4 recommends that where the main route through the intersection does not follow a straight line and has a radius of less than 100 m, centrelines to confirm route priority should be used.

We recommend that the following be erected:

- Permanent intersection and side road warning signs on the main approaches (Herrick Street and western Taylor Road approach).
- A centreline around the curve from the western Taylor Road section to Herrick Street.
- Give way sign on Taylor Road east approach.
- A temporary reduced speed limit of 30km/h on Taylor Road and Herrick St approach to the intersection for the duration of construction.

The proposed signs and marking should form part of the Construction Management Plan which is reviewed and approved by Council. A suggested layout is shown below:

[2] Waka Kotahi NZ Transport Agency, December 2008

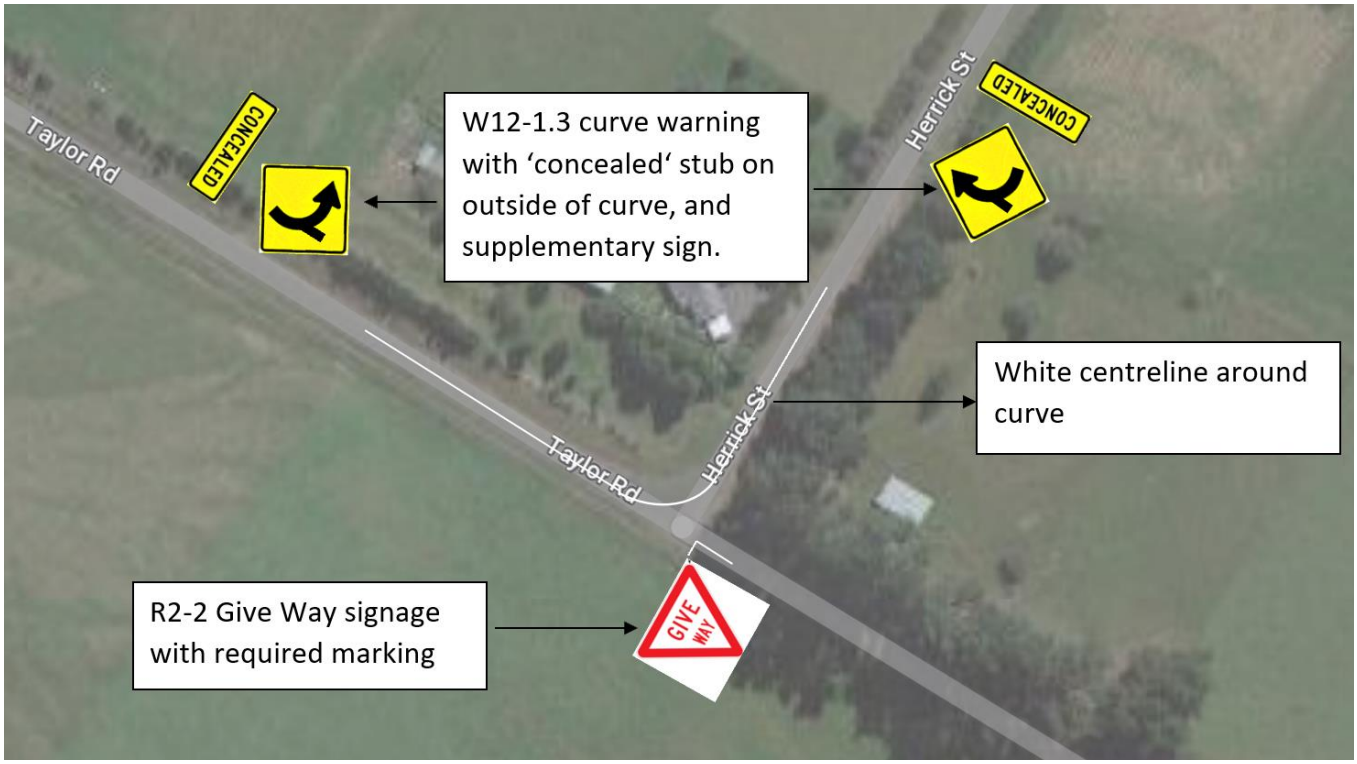


Figure 11 Recommended signage / marking layout

7.3. Road standards

The Hastings Engineering Code of Practice 2020 (ECOP) set out standards for the design and construction of roading and service infrastructure, used as a means of compliance with the objectives, policies, rules and standards of the District Plan for different road classifications. Taylor Road is a rural road with the primary function of 'property access'. Table C4 of the ECOP sets out requirements, which are compared to the existing Taylor Road characteristics below:

Table 4 Road standards

Design aspect	ECOP	Taylor Road
Max traffic volume	200 vpd	<200 vpd
Locality served	Low level agricultural activity	Farm access and solar farm access
Target operating speed	Up to 100 km/h	<100 km/h
Minimum road reserve width	20m	
Max grade	10%	<10% (flat)
Pedestrians	Shared (on shoulder and berm)	Shared (on berm)
Passing, parking, loading and shoulder	Total shoulder 1.0m	No defined shoulder
Cyclists	Shared (in movement lane)	Shared (in movement lane)
Minimum movement lane	2 x 2.7m	Between SH50 and Herrick Street <5m East of Herrick Street <5m

We recommend:

- Constructing two pull-over bays on Taylor Road, between the eastern site entrance and the Herrick Street intersection. The pull-over bays should be 30m long, and have 30m entry and exit tapers at 1:10 (i.e. total length 90m). The bays should provide a total road width of 5.5m to allow passing.

- Sealing at least 20m along Taylor Road east of the Herrick Street intersection, to prevent tracking of dust and debris onto the sealed roads.
- Carrying out a pre- and post-construction inspection of the road condition with the affected roads returned to at least the pre-construction condition.

7.4. Vehicle Crossing Form

The Central Hawkes Bay District Plan does not provide diagrams for vehicle crossing standards, however, requires the that for land uses other than residential, a vehicle crossing width to be between 6m and 9m and refers to the ECOP for guidance. ECOP includes standards for various private rural accessway use options. The most relevant standards are identified in Table 5 below:

Table 5 Vehicle Crossing standards

Vehicle crossing type	Use definition	Design aspects	Comments
Private rural access – low vehicle use.	1 – 30 ecm / day using entrance <5000 vpd using adjoining road	No road widening. 3.5 – 6m wide entrance. 9m radius at entry.	Design radius of 9m for light vehicles only. Bigger radius likely to be needed to accommodate expected heavy vehicle.
Private rural access – moderate vehicle use.	1 – 30 ecm / day using entrance >5,000 vpd using adjoining road	Widening both sides of road (35m one side, 15m other side). 6m wide entrance. 15m radius at entry to accommodate HCVs.	Adjacent roads are low-volume, however entry accommodates expected HCVs.
Private rural access – regular heavy vehicle use.	30-100 ecm/day 5,000-10,000 vpd using adjoining road.	Widening both sides of road, 60-90m either side of vehicle crossing (speed dependant) 6m wide entrance. 15m radius at entry to accommodate HCVs.	Adjacent roads are low-volume, however entry accommodates expected HCVs.

For the proposed solar farm:

- 62 daily movements are expected; however, this is a conservative estimate and only at the busiest time of construction.
- Following construction, the amount of traffic to and from the site is negligible.
- Adjacent road traffic volumes are very low.
- Given the nature of the transport network, the operating speed is likely to be well below the speed limit.

Given the above points, we recommend that the ECOP standard for "Private rural access – moderate vehicle use" is adopted for both entrances. This is illustrated in ECOP Diagram C26 (refer to Appendix C) and comprises:

- 6m wide entrance.
- Entry curve radius of 15m, to accommodate heavy vehicles.
- Widening tapers and widening along 50m on opposite side of road.

7.5. Internal Access, Parking and Manoeuvring Areas

All internal accesses, parking and loading areas will be constructed to an all-weather, metalled surface with necessary stormwater control. These details can be confirmed during approval of the Construction Management Plan.

8. GLINT AND GLARE

8.1. Purpose

The purpose of this letter section is to assess the transport effects of potential glint and glare on road users in the vicinity of the proposed solar farm.

The Applicant provided a Glint and Glare study, prepared by ITP Renewables in November 2023. The report assesses the glint and glare impact of the proposed Ongaonga Solar Farm. The report concludes: *"The results of the Glare Gauge analysis for year 1 indicated two observation points and five road routes received green glare, while three road routes received yellow glare (Taylor Road, Ongaonga Waipukurau Road, and Fairfield Road). Yellow glare has the potential to cause after-image to observers, while green glare has low potential to cause after-image. In year 5, the growth of the vegetation screens reduced the glare impact for all receptors.*

Taylor Road received the most glare, with up to 5 minutes of yellow glare in a single day. The yellow glare received by Taylor Road was limited to the section immediately before it turns into a paper road. We expect very low traffic volume along this section of road. Combined with the short daily duration, we consider this glare to be low impact, and further mitigation is not required."

8.2. Assessment

The model assumes:

- Clear sky conditions
- The height of the observation points for road users was assumed to be 1.5 m.
- The height for a person standing was assumed to be 1.65 m

Weather data[3] for the Waipawa area indicates that the cloud cover is 'mostly cloudy' or 'overcast' around 40% of the time, which reduces the likelihood that solar reflection is possible.

[3] https://weatherspark.com/y/144901/Average-Weather-in-Waipawa-New-Zealand-Year-Round

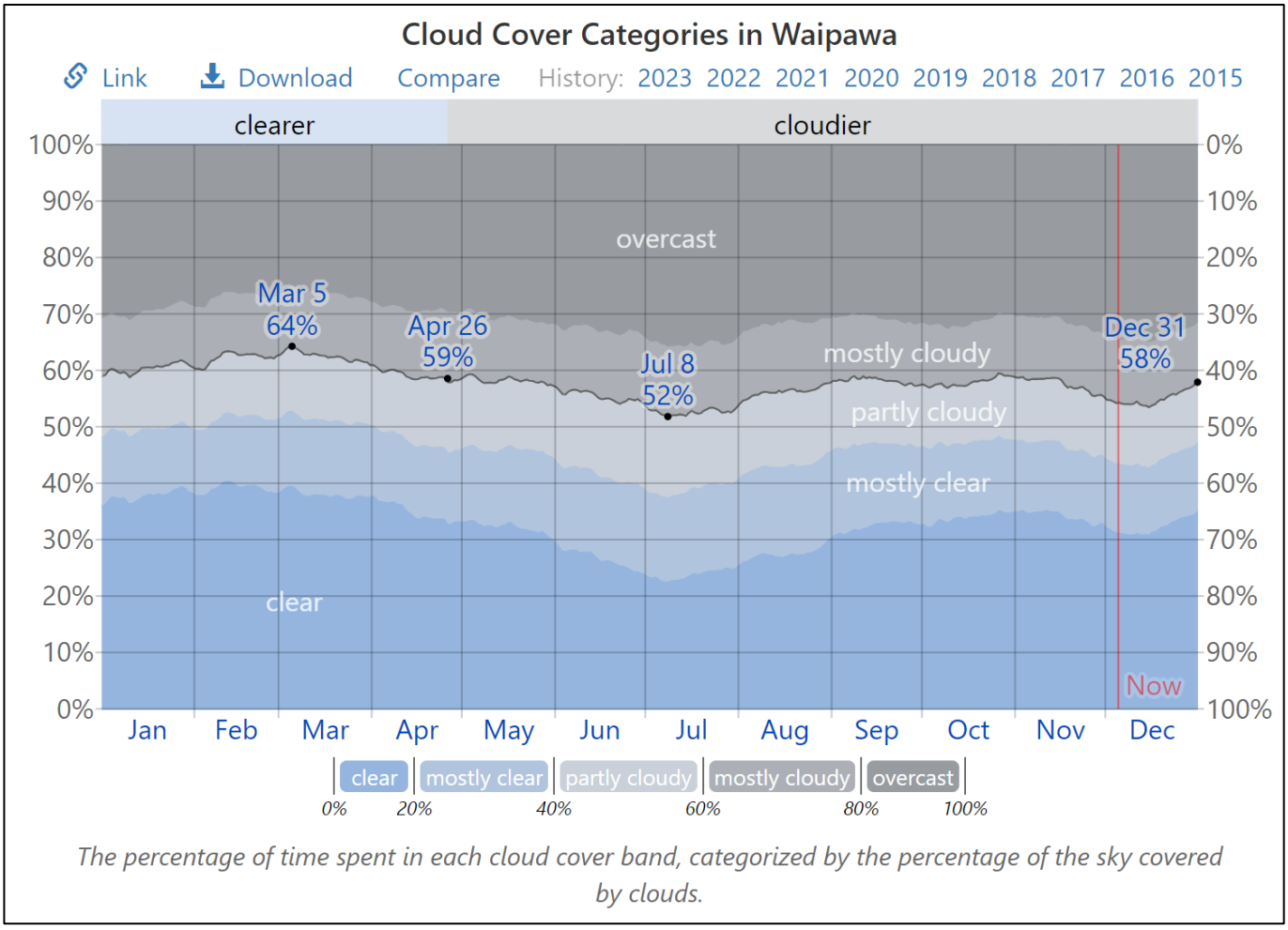


Figure 12 Cloud cover in Waipa (see footnote 3)

The report considers two scenarios: Year 1: With vegetation screens as planted and Year 5: With vegetation screens after five years of growth. The locations where assessment concludes there is a risk of glint and glare are listed in the Glint and Glare assessment.

Our discussion focuses on Year 1, when the risk of glint and glare is higher due to the low height of screen planting. Although, we note that plants may be varying heights and views to the solar farm may be intermittent.

We have considered the location with the most yellow glare, as green glare has low potential to cause retina after-image.

Yellow glare has the potential to cause after-image to observers. The worst case for yellow glare potential is on Taylor Road (RT01), with a total of 200 minutes of yellow glare, and up to 5 minutes of yellow glare between 6:00 pm and 7:30 pm, from 1 February to 12 March and from 1 October to 8 November.

Taylor Road has a traffic volume of 165 veh/ hr, or around 17 veh / hour in the peak period assuming a 10% peak. The 'risk time' from 6pm until 7.30pm is outside network peak times, and during this time period traffic volumes are likely to be lower, and the traffic that is facing in the direction of the solar farm will be lower still.

Note:

= Glare is for 5 minutes within a 90-minute timeframe, a probability of 6%

- The likelihood of a vehicle being on Taylor Road during the 90 minute 'risk period' is 17 vehicles[4] x 60 seconds[5] travel time / 90 minutes = 19%.

The likelihood of both occurring at the same time is therefore 6% x 19% = 1%. We consider this very low.

8.3. Glint and Glare conclusion

We agree with the conclusion of the Glint and Glare assessment. The risk and impact of glare is very low even in the worst-location, and no additional mitigation is needed. The risk is further reduced as the proposed screen planting grows in height, and given that 40% of the time it is overcast or cloudy.

9. AVOIDING OR MITIGATING ACTIONS

Actions to mitigate the effects of the solar farm construction are:

- Upgrading site entrances to comply with Diagram C26 in the Hastings Engineering Code of Practice 2020
- Install priority signs and markings at the Taylor Road / Herrick Street intersection.
- Widening Taylor Road to a minimum of 5.5m from SH50 to the site entrances, with Taylor Road (east of Herrick Street) to remain unsealed.
- Require a Construction Management Plan to manage on site parking, circulation and manoeuvring.
- Forming internal access, parking and manoeuvring areas with an all weather, metalled surface.
- Preventing solar farm related traffic from using all other site access points (farm gates)
- Screen planting to reduce visibility from the road.

This mitigation can be managed via consent conditions. We have provided suggested wording in Appendix D.

10. CONCLUSION AND RECOMMENDATIONS

The proposed solar farm may add up to 15 trips in the peak hour (64 per day) to the transport network during the busiest period of construction. Following construction, normal operation of the site may generate visits by 5-6 staff per week. Our assessment is conservative.

No effect on the efficiency of transport on adjacent roads is expected. There may be some safety effects associated with sight / separation distances, which can be mitigated as outlined in Section 8 of this report.

Provided that the mitigation recommendations outlined in this report are implemented, the risk of adverse traffic safety effects is low and there is no reason related to traffic why this proposal should not proceed. We have attached draft condition wording in Appendix D.

If you have any questions or need anything else, please contact us.

Yours sincerely

Isa Ravenscroft
Senior Transportation Engineer

Alastair Black
Senior Transportation Engineer

[4] Assuming 70% in the dominant direction, 10% of daily traffic represents peak traffic. 165 veh / day x 10% x 1.5 hours x 70% = 17 vehicles.

[5] Figure 12 in the report indicates that at most a 500m section of road is affected. At 50km/h this is around 35 seconds of travel time, and at 30km/h, this is around 60 seconds of travel time.

APPENDIX A: PREDICTED TRAVEL DATA SUMMARY

Vehicle type	Vehicles / Month	Trips / month	Trips / day	Notes
Delivery vehicles (to and from site)	130	260	11	Averaged out over 24 working days
Heavy vehicles for construction equipment (on site)	20	40	20	Related to delivery of construction equipment. Likely to stay on site for the month. Worst case would be all arrive on the same day and leave on the same day.
Construction light vehicles (on site)	19	38	19	
Construction light vehicles (to and from site)	78	156	6	Staff travel to the site every day. Averaged out over 24 working days

Additional earthworks vehicles

Helios Energy has provided expected traffic volumes associated with earthworks separately, shown below. During the busiest period of construction there may be eight trucks per day.

	Cut	Fill	Cut to Fill	Total
Total Volume	-	12,641	17,430	30,072
Trucks to move soil (15m3 trucks)	-	843	-	843
Trucks per week (20 Weeks)	-	42	-	42
Approximate Trucks per day	-	8	-	8

Component	Area of Earthworks	Volume of Cut	Volume of Fill	Volume of Cut to Fill	Total Volume of Earthworks
Units	*m2*	*m3*	*m3*	*m3*	*m3*
DC Cable trenching	7,800		1,872	4,680	6,552
AC Cable Trenching	4,127		1,321	3,302	4,622
HV Cable Trench	0		0	0	0
Inverters	452		135.72	136	271
Roading	32,764		6,553	6,553	13,106
Substation	6,300		2,520	2,520	5,040
BESS Area	1,200		240	240	480
Total:	**52,644**		**12,641**	**17,430**	**30,072**

APPENDIX B: DISTRICT PLAN ASSESSMENT

OPERATIVE CENTRAL HAWKES BAY DISTRICT PLAN PART 8

Rule Ref	Details	Compliance
8.5.1	Parking and Loading	
	(a) Minimum Parking Space Requirements i All activities listed in Table 1 below shall provide at least the number of parking spaces on site required by the rates identified in that table. The required parking spaces shall be available for residents, staff and visitors at all times during the hours of operation of the activity.	Solar farm does not fit under any of Table 1 categories, and therefore parking requirements are best served using an assessment of demand. This may change throughout construction and will be confirmed in the Construction Management Plan. There is adequate space to supply parking on site as needed.
	ii Where there are two or more different activities on the site, the total requirement for the site shall be the sum of the parking requirements for each activity.	Complies - sufficient space for parking on site.
	(b) Car Parking for Staff Minimum parking requirement stated in Table 1 for staff shall be exclusively reserved for, and made available to, staff.	Will comply – parking area to be defined in Construction Management Plan.
	(c) Assessment of Parking Areas Where the parking requirements listed in Table 1 results in a fractional space, any fraction of one half or more shall be counted as one car parking space. The area of any parking space or spaces provided and of vehicular access, drives and aisles provided within a building shall be excluded from the assessment of gross floor area of that building for the purpose of ascertaining the total number of spaces required or permitted.	Complies – sufficient space for parking on site.
	(d) Size of Parking Spaces All required parking spaces and associated manoeuvring areas, other than for residential units, are to be designed in accordance with the New Zealand Building Code approved document D1: Access Routes.	Will comply – sufficient space for parking on site.
	(e) Accessible Car Spaces Accessible parking spaces are to be designed in accordance with the New Zealand Building Code approved document D1: Access Routes.	No demand for accessible parking expected.

Rule Ref	Details	Compliance
	(f) Queuing All queuing spaces are to be designed in accordance with the New Zealand Building Code approved document D1: Access Routes.	Will comply – sufficient space for queuing on site.
	(g) Reverse Manoeuvring	
	i On-site manoeuvring shall be provided for all vehicles to ensure that no vehicle is required to reverse either onto or off a road except where: a) Any activity is required to provide, or contain, two or less parking or loading spaces; or b) An activity is in the Business 1 Zone and has access onto any road other than a State Highway. Such on-site manoeuvring shall comply with the following requirements for a design vehicle anticipated to use a site: · for a design car (refer Appendix E3), · for a design two axled truck (refer Appendix E4), · for all other vehicles (refer Australian Standard AS 2890.2-1989, Off-street parking, Part 2: Commercial vehicle facilities).	Complies – no reversing onto a road needed. Sufficient manoeuvring space provided on site.
	ii All truck refuelling sites shall be designed to accommodate a maximum length BTrain in a manner which will avoid the need to reverse off the site.	NA – not a truck refuelling site.
	iii Parking spaces shall be located so as to ensure that no vehicle is required to carry out any reverse manoeuvring when moving from any vehicle access to any required parking spaces. iv Vehicles shall not undertake more than one reverse manoeuvre when manoeuvring out of any required parking or loading space to depart the site.	Complies.

Rule Ref	Details	Compliance
	(h) Loading Areas All service, industrial and commercial activities (including retail activities) in the Business Zone 2 shall provide one loading space and associated manoeuvring area, in accordance with the following: Every loading space shall be of a useable shape and shall have a minimum height of 3.8m and a minimum width of 3.5m or such greater width as is required for adequate manoeuvring. The depth shall be as follows: i For transport depots or other similar activities, not less than 9m. ii For retail premises, offices, warehouses, bulk stores, industrial and service activities and other similar uses, not less than 8m. except that iii Offices and other non-goods handling activities, where the gross floor area is less than 1500m2 the space can be reduced to 6m in depth, 3m wide and 2.6m high.	NA – not in business zone.
	(i) Surface of Parking and Loading Areas i The surface of all parking, loading and trade vehicle storage areas shall be formed and finished with an all weather, dust free surface and shall be drained to the satisfaction of the Council. Rule i (i) does not apply where a site contains one residential unit and which requires no more than two parking spaces.	Will comply.
8.5.2	VEHICLE ACCESS	
	(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.	Complies.
	ii Every vehicle access lot shall be provided with a complying vehicle crossing.	

Rule Ref	Details	Compliance
	iii Every activity requiring access to a road shall have access to that/those road(s) only by way of a complying vehicle crossing.	Complies – two vehicle crossings proposed.
	iv A complying vehicle crossing shall meet the following requirements: 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.	Will comply.
	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.	NA
	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.	NA
	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).	Parking proposed within the site.
	Please refer to Appendix E of the Plan which illustrates these vehicle access terms. Note: Notwithstanding the Rules in this Plan, every person proposing to construct or modify an accessway onto a State Highway must obtain permission from Transit New Zealand. Acceptable location and design details can be obtained from the Transit New Zealand Regional Office (currently at Napier).	NA – no direct access to the state highway.
	(b) Formation and Sealing of Vehicle Crossings	
	i All vehicle crossings shall be formed with an all weather surface and shall be drained to the satisfaction of the Council.	Will comply.

Rule Ref	Details	Compliance
	ii Where the road carriageway adjacent to the vehicle crossing is sealed, then the vehicle crossing shall be sealed. ·Rule 8.5.2 (b) (i) and (ii) does not apply where the vehicle crossing gives access to paddocks which do not contain any buildings, and which are used exclusively for extensive grazing or cropping. Rule 8.5.2 (b) (i) applies to dairy herds using any vehicle crossing on a regular basis for milking	Complies.
	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.	Complies.
	iv Vehicle crossing gradients be designed in accordance with the New Zealand Building Code approved document D1: Access Routes.	Will comply.
	(c) Migration of Gravel onto Sealed Roads 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." Advice Note: Please contact the Council for advice on the design and construction details before commencing any work on your driveway. Any works on the vehicle crossing, between your property and the road carriageway must be done in consultation with the Council.	NA – access is to metal road, not sealed road.
	(d) Location of vehicle crossings with frontage in relation to intersections i The following standard applies to sites that have frontage to State Highway 2 and 50 in the Rural Zone:	NA – no frontage to state highways.
	a Where the road frontage of the site lies entirely within 212m 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 212m in length, the vehicle crossing to the site shall be located on the access frontage at least 200 metres from the intersection.	

<table>
<tr><th>Rule Ref</th><th>Details</th><th>Compliance</th></tr>
<tr><td></td><td>ii The following standards apply to all other sites in the Rural Zone:</td><td></td></tr>
<tr><td></td><td>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.</td><td>NA – site access more than 80m from intersection.</td></tr>
<tr><td></td><td>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.</td><td>Complies, access is more than 68m from intersection.</td></tr>
<tr><td></td><td>iii The following standards apply to all sites in all Zones except the Rural Zone:</td><td rowspan="3">NA – site is in rural zone</td></tr>
<tr><td></td><td>a Where the entire road frontage of the site lies within 62 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.</td></tr>
<tr><td></td><td>b Where the road frontage of the site is greater than 62 metres in length, the vehicle crossing to the site shall be located</td></tr>
<tr><td></td><td>(e) Widths of Vehicle Crossings

The following crossing widths shall apply:

Table 2 - Crossing Widths<table><tr><th>Land Use</th><th colspan="2">Width of Crossing (m)</th></tr><tr><td></td><td>Minimum</td><td>Maximum</td></tr><tr><td>Residential</td><td>3.5</td><td>6.0</td></tr><tr><td>Other</td><td>6.0</td><td>9.0</td></tr></table>
The width of culverts and crossings shall be the actual length of channel covers or the length of the fully dropped curb.</td><td>Complies.</td></tr>
</table>

<table>
<tr><th>Rule Ref</th><th>Details</th><th>Compliance</th></tr>
<tr><td></td><td>(f) Sight Distances from Vehicle Crossings and Road Intersections Unobstructed sight distances, in accordance with the minimum sight distances specified in Table 3, shall be available from all vehicle crossings and road intersections.

Table 3 - Minimum Sight Distances from Vehicle Crossings and Road Intersections
<table><tr><th>Legal Speed Limit for Road (km/hr)</th><th>Minimum Sight Distance (m)</th><th>Minimum Site Distances for State Highways</th></tr><tr><td>50
70
100</td><td>45
85
170</td><td>85
140
250</td></tr></table>
All sight distance measurements shall be undertaken in accordance with the relevant diagram in Appendix E.</td><td>Complies.</td></tr>
<tr><td></td><td>(g) Vehicle Oriented Commercial Activities</td><td>NA – activity is not in this category</td></tr>
<tr><td></td><td>(f) Road/Rail Level Crossings</td><td>NA – none in vicinity.</td></tr>
</table>

PROPOSED DISTRICT PLAN – DECISIONS VERSION, RELEVANT TRANSPORT RULES

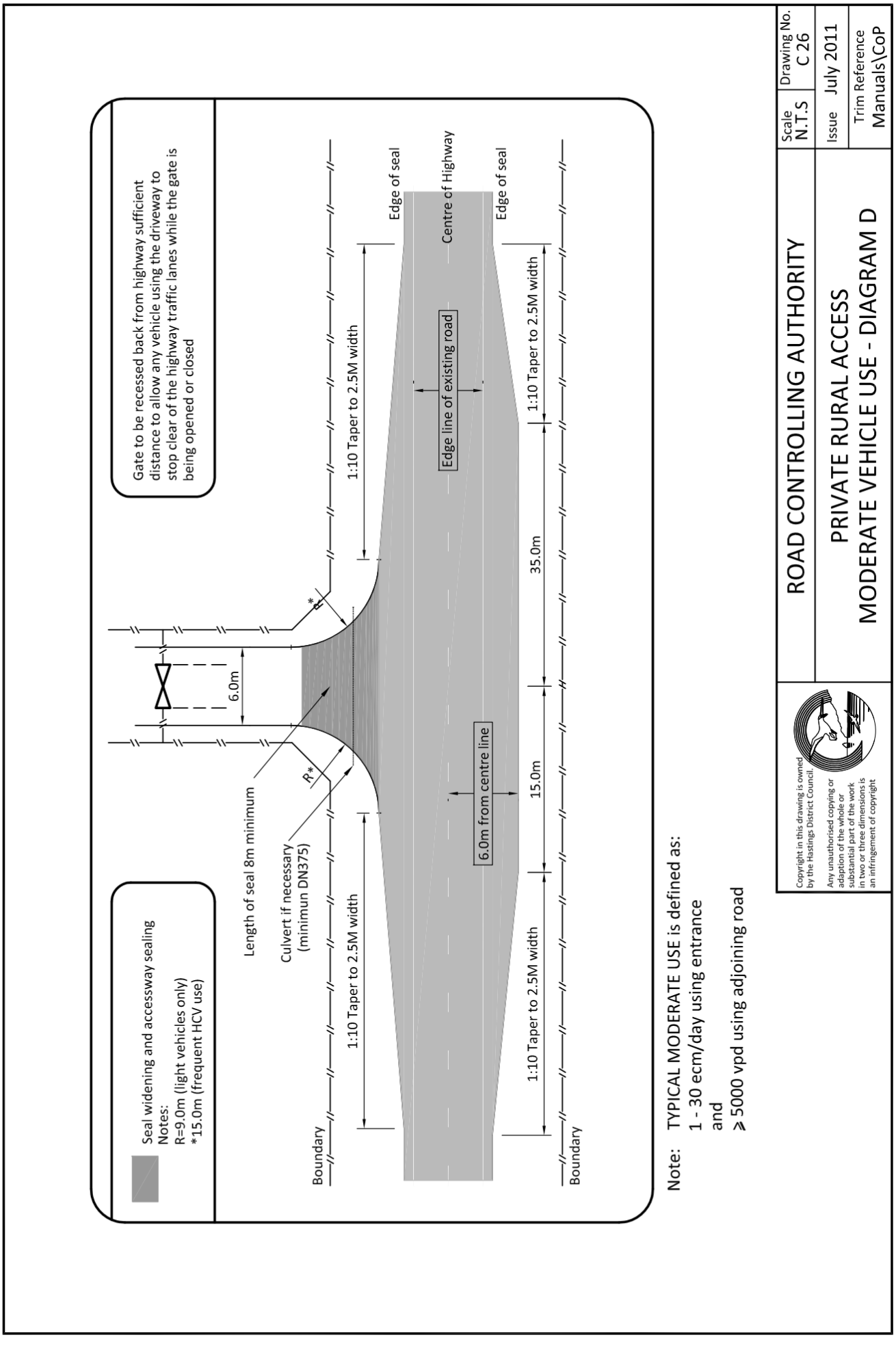
Rule Ref	Details	Compliance
TRAN-S1 Vehicle Parking	1. Every owner or occupier who proposes to construct or substantially reconstruct, alter, or add to a building on any site, or change the activity carried out on any land or in any building, must provide suitable areas on the site for parking in accordance with the requirements listed in the table below (Table 1).	Solar farm does not fit under any of Table 1 categories, and therefore parking requirements are best served using an assessment of demand. This may change throughout construction and will be confirmed in the Construction Management Plan. There is adequate space to supply parking on site as needed.
	2. When the assessment of the number of parking spaces required in respect of the use of any land or building results in a fraction, a fraction under one half must be disregarded, and fractions of one half or more must require an additional parking space.	
TRAN-S2 Parking Spaces for People with Disabilities	3. When constructing car parks, developers, owners or occupiers must make provision for disabled car parks in compliance with TRAN-APP1 and they must also be clearly marked or signposted as such.	NA - no disabled parking anticipated.
TRAN-S3 Design and Construction of Parking Areas	1. Vehicle Dimensions: a. All parking spaces and access and manoeuvring areas, including ramps, must be of a size and layout to accommodate a passenger vehicle as defined in the *Austroads Design Vehicles and Turning Path Templates Guide AP-G34-13* (Austroads, 2013) – refer to TRAN-APP2 for the dimensions of this vehicle. 2. General Design and Construction Details: a. All public and required parking areas, and any outdoor display areas (such as car, caravan or boat sales yards) must comply with the following general requirements: i. Parking areas must be designed and constructed to ensure that stormwater runoff from the parking area does not adversely affect adjoining properties. ii. Parking areas, together with access and turning space, must be designed to ensure that vehicles negotiate the parking area at a safe speed and are not required to reverse either on to or off a street, provided that this requirement will not apply in any General Residential Zone, Large Lot Residential Zone or Settlement Zone where a single accessway serves not more than two residential buildings. Vehicles using the parking area must only enter or leave the site by the accessway.	Will comply – sufficient space on site to meet needs.

Rule Ref	Details	Compliance
	iii. Where a public or non-residential parking area is within or adjoins a General Residential Zone, Large Lot Residential Zone or Settlement Zone, a 1.8-metre-high, fully enclosed screen must be erected, or a landscape strip of a minimum width of 5 metres along the boundary must be provided. These requirements may be reduced or waived with the consent of the adjoining neighbour. iv. A queuing space must be provided within public car parks to prevent vehicles queuing on the street. v. Provision must be made for the illumination of access drives and pedestrian areas within public car parks. Such illumination is to be directed away from adjoining General Residential Zone, Large Lot Residential Zone or Settlement Zone sites.	
TRAN-S4 Vehicle Loading	1. Provision of Loading Spaces a. Every owner or occupier who proposes to construct or substantially reconstruct, alter or add to a building on any site, or change the activity carried out on the site, must provide one Loading Space and an associated manoeuvring area. The Loading Space must be designed and located on the site to provide for the efficient loading or fueling of vehicles associated with the use of any building or activity carried out on the site, except where a service lane is designated or provided. Separate Loading Spaces must be provided for each occupier of the site. The Loading Space will be additional to the parking required in Table 1 – Car Parking Spaces. b. Every Loading Space, together with access, must be designed so that it is not necessary to reverse vehicles either onto or off the street. The Loading Space must not be stacked or located within vehicle manoeuvring areas. c. The provision of a Loading Space in respect of any site may be made as part of the side and/or rear yard space, but not as part of the front yard space of that site. d. The method of loading must ensure that the footpath or access to adjacent properties remains clear at all times and traffic safety is maintained.	Will comply – sufficient space on site for loading.
	2. Design of Loading Spaces a. The design of Loading Spaces and the layout adopted will depend on the area and shape of the land available, the purpose for which loading is required, and the	Will comply – sufficient space on site for loading.

Rule Ref	Details	Compliance
	functional design of the building. The layout must be of sufficient size to accommodate the following design vehicles: **i.** Activities requiring loading facilities or servicing from heavy vehicles: A "Single Unit Bus / Truck" as defined in the *Austroads Design Vehicles and Turning Path Templates Guide AP-G34-13* (Austroads, 2013) – refer to TRAN-APP3 for the dimensions of this vehicle. **ii.** Where articulated vehicles or trucks and trailers are anticipated: a "Prime Mover and Semi-Trailer" as defined in the *Austroads Design Vehicles and Turning Path Templates Guide AP-G34-13* (Austroads, 2013) – refer to TRAN-APP2 for the dimensions of this vehicle.	
TRAN-S5 Vehicle Access	1. Every owner or occupier must provide a legal, safe and effective vehicular access to any activity undertaken on a site, and required parking or loading areas, from an existing, formed legal road, to enable vehicles to enter the site.	Complies.
	2. There must be a maximum of one vehicle crossing per site within the General Residential Zone, Large Lot Residential Zone and Settlement Zone, except where the site is an emergency services facility. Where the site is bordered by two or more roads, the vehicle access to the property must be from the lower category road or road with the lowest traffic volumes when road hierarchy status is equal.	NA – not in mentioned zones. Two vehicle crossings proposed.
	3. The minimum legal widths for private access are contained in Table 2 – Residential Units & Home Businesses, Table 3 – Rural Environments – Commercial, Industrial & Other Activities, and Table 4 – Urban Environments – Commercial & Industrial Activities below. Private access to properties must allow the safe passage from the edge of the road to the legal boundary of the lot for a single site or household unit. For two or more sites or residential units or for any Right of Way, formation of the access to the activity undertaken on the site is required in compliance with Table 2.	Expected to comply.
	4. A property access which crosses the rail network does not constitute legal access. Sites adjoining a railway line or designation must provide an alternative access to a legal road which does not require a crossing of the railway line or designation.	NA – no rail network.

Rule Ref	Details	Compliance
TRAN-S6 Distance between Vehicle Accesses and Separation from Road Intersections	4. Any new vehicle access to any property shall be sited at least 100 metres from an intersection of a State Highway.	Complies.
TRAN-S7 Distance of Vehicle Access from Railway Level Crossings	1. Any new vehicle access point shall be located a minimum of 30 metres from a rail level crossing	NA – no railway crossing.
TRAN-S8 Safe Sightline Distances	1. Vehicle accesses and intersections must be located to ensure that Safe Sightline Distances are maintained. 2. All level crossings must remain unobstructed in accordance with the sight triangles provided in TRAN-APP4 (Level Crossing Sight Triangles), with the exception of existing buildings associated with existing level crossings which do not have to meet the sight triangles.	Complies.

APPENDIX C: VEHICLE CROSSING STANDARD



APPENDIX D: DRAFT CONSENT CONDITIONS

Construction – Site

1. Prior to commencing construction, the consent holder is required to construct or upgrade the proposed solar farm accesses to comply with Diagram C26 of the Hastings Engineering Code of Practice.
2. All internal access, parking and manoeuvring areas shall be formed with an all-weather, metalled surface.

Construction – Transport Network

3. Prior to commencing construction, the consent holder is required to construct pull-over bays on Taylor Road. Two bays are required between the Herrick Street intersection and the furthest site access. Each bay should be 30m long, with 30m tapers at either end (1:10), and provide a total road width of at least 5.5m.
4. Prior to commencing construction, the consent holder shall provide CHBDC with pre-construction inspection photos illustrating the existing condition of Taylor Road.
5. Following the completion of construction, the consent holder shall be responsible for any required remediation of Taylor Road to at least the recorded pre-construction condition.

Design and Approvals

6. **Construction Management Plan**
7. A Construction Management Plan (CMP) shall be submitted to Central Hawkes Bay District Council at least 20 working days prior to the commencement of any construction activities. The objective of the CMP is to outline the approach to be taken for managing earthworks and construction works to ensure that impacts that may arise from the works have been appropriately identified, managed and minimised.
8. The Construction Management Plan (CMP) shall include but not limited to:
    - Details of the works, intended construction timetable and hours of operation
    - Methods to control dust, debris on roads and silt laden runoff during construction
    - Anticipated truck movements and routes to and from the site during construction
    - Site access, parking and manoeuvring management.
    - Traffic Management Plan
    - Any changes to permanent signs and markings at the Taylor Road/ Herrick Street intersection.
    - Contact details for the principal contractor, including a process for complaints and remedying concerns
    - Process for adjacent landowner / occupier liaison during the construction stage
    - Quality assurance/quality control
    - General methods to mitigate and manage construction noise and vibration in order to comply with the applicable noise limits

Any changes to the Construction Management Plan shall be made in accordance with the methodology and approved procedures in that plan and shall be confirmed in writing by the consent holder following consultation with Central Hawkes Bay District Council Engineers before implementation.

APPENDIX E: SITE VISIT PHOTOS

References (refer to following photos)

A: SH50 / Taylor Road Intersection

C: Vehicle Crossing

B: Taylor Road / Herrick Street Intersection

Looking east down Taylor Road from intersection

Looking west down Taylor Road from intersection

Signage at intersection

D: Proposed Access 1 location

Existing access

Looking right (east from existing access)

Looking left (west from existing access)

E: Existing Access

Existing farm access

F: Proposed Access 2 location

Proposed Access 2 location

Farm gate adjacent to Access 2

Farm gate adjacent to Access 2