



# Appendix E    Traffic Assessment

## **Fast-Track Approvals Act 2024 Substantive Application**

**Hinuera Solar Farm**

**Harmony Energy NZ #6 Limited**

SLR Project No.: 880.016894.00001

19 August 2026



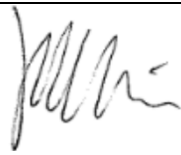


Planning | Surveying | Engineering | Environmental

B25385—Hinuera Solar Farm

Transportation Assessment Report

## Document Control

|                                      |                                                                                                                                     |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>CKL Reference</b>                 | B25385                                                                                                                              |
| <b>Filename:</b>                     | B25385-TR-ITA-Hinuera Solar Farm                                                                                                    |
| <b>Site Location:</b>                | 4379 State Highway 29 (SH29)                                                                                                        |
| <b>Author:</b>                       | Mike Clapp<br>Senior Transportation Engineer<br> |
| <b>Reviewed &amp; Authorised By:</b> | Judith Makinson<br>Director<br>                  |
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# 1 Introduction

CKL has been engaged by Harmony Energy NZ Limited to provide a transportation assessment for a proposed 154ha solar farm located to the southwest of the State Highway 29 (SH29) and State Highway 27 (SH27) intersection with frontage to both highways. The proposal involves the development of an approximately 70MW AC / 100MW DC solar and battery energy storage system (BESS) facility.

The Hinuera Solar Farm is proposed to be located across six Records of Title at the corner of SH29 and SH27, Hinuera. The relevant title references are SA69A179, SA292/111, SA308/1, SA13B/333, SA50B/243 and 647047.

There are currently five vehicle access points to the site, located as follows:

- 4775 SH29 – dwelling access only
- 4739 SH29 – farm access (dairy shed) and dwelling access
- 8270 SH27 – farm and dwelling access
- 8302 SH27 – dwelling access
- 8302 SH27 – farm access and secondary dwelling access

This report addresses the transportation matters of the proposal and includes the following:

- Levels of vehicular traffic likely to be generated during construction and once the site is operational;
- Associated effects on the performance and safety of the surrounding road network;
- Adequacy and function of the parking and access provisions;
- Consideration of the transportation related provisions within the Matamata-Piako District Council (MPDC) District Plan; and
- Consideration of the New Zealand Transport Agency (NZTA) access related provisions of the Access onto the State Highway from Private Property (Access Guide).

These and other matters will be addressed in the detail of the report that follows. By way of summary, it is concluded that the proposed development can be established such that there will be less than minor effects to the function, capacity and safety of the surrounding transportation network.

## 2 CKL Team

The CKL team involved in providing technical transportation engineering input to the project, consulting with NZTA and preparing this Transportation Assessment Report included:

### **Judith Makinson – Director**

Judith Makinson is CKL's Director in charge of Transportation Engineering with over 25 years' experience delivering transport assessment, expert evidence, and consenting support for complex development and infrastructure proposals. Judith is a Chartered Professional Engineer with a Bachelor's degree in Civil Engineering and a Masters degree in Transportation Engineering and Planning from the University of Salford (UK). She has direct fast-track consenting experience (including a large industrial/logistics rezoning adjacent to SH1/WEX in Hamilton) and is highly experienced in statutory processes, including appointment as an Independent Hearings Commissioner for nationally significant infrastructure and planning matters (including Te Ahu a Turanga SH3 replacement and a major KiwiRail hub Notice of Requirement). Judith also leads transport effects assessments for construction-intensive infrastructure projects, including preparation of construction traffic impact assessments and framework CTMP documentation.

Fast-track consenting experience:

- Green Steel facility at Hampton Downs (Waikato District) – Fast Track Integrated Transportation Assessment to support the construction of a new metal recycling plant
- Greenhill Industrial Park (Waikato District) – Fast-track consenting documentation to support the rezoning and development of ~178 ha of rural land to industrial/logistics uses adjacent to the Greenhill Interchange on the Waikato Expressway (SH1/WEX).

Independent Hearings Commissioner and statutory hearing experience:

- Te Ahu a Turanga (Manawatū Gorge SH3 Replacement) – NOR Hearing (2019): One of four Independent Hearing Commissioners considering three NZTA Notices of Requirement across multiple councils. The three-week hearing drew over 730 submissions and addressed complex issues; the decision and conditions were drafted collaboratively within statutory timeframes.
- KiwiRail Hub, Bunnythorpe (Palmerston North) – NOR Hearing: One of four Independent Hearing Commissioners for a proposed ~177 ha rail hub, considering potentially significant community effects including noise, landscape, and social impacts.
- Te Pūtahi Ladies Mile – Plan Change / District Plan Review (Queenstown Lakes): One of five Independent Hearing Commissioners with delegated authority assessing rezoning, with key matters including traffic and transport effects (hearing completed 2023).

Expert witness and evidence leadership

- Te Mihi Power Station expansion (Taupō): Construction Traffic Impact Assessment, including preparation of evidence responding to submitters and hearing attendance.

Transport assessment leadership for infrastructure and construction-impact projects

- Stratford Power Station BESS installation and solar farm: Project Manager for traffic and transportation effects assessment focused on construction-phase impacts; included preparation of a framework Construction Traffic Management Plan.
- Te Mihi Power Station expansion (Taupō): Construction Traffic Impact Assessment (as above), including hearing/evidence components.

Judith's role on the project was to provide technical oversight and guidance for the assessment of construction and operational traffic effects, provide access advice to the project team and lead consultation with NZTA.

I, Judith Makinson, confirm that, in my capacity as the reviewer of this report, I have read and abide by the Environment Court of New Zealand Practice Note 2023, and in particular section 9 the Code of Conduct for Expert Witnesses.

#### **Michael (Mike) Clapp – Senior Transportation Engineer**

Mike has 15 years of civil and transportation engineering experience and holds a Bachelor of Civil Engineering Technology degree from the Waikato Institute of technology (Wintec). Mike is based in the CKL Hamilton office and has a strong background in Roading Design, Integrated Transportation Assessment and Safety Audits across a variety of projects both in scale and complexity and across all project stages. Mike has completed the Waka Kotahi Safe System Engineering Workshop, Safe System Auditor refresher course operated by Safe System Solutions and has operated as lead auditor across multiple projects. Mike also has extensive experience regarding the assessment of transportation effects for the consenting of solar farms across various Council jurisdictions and is well versed in the construction and operational requirements of such projects.

Mike has provided transportation advice and prepared multiple ITAs assessing the transportation effects of solar farms throughout the consenting process. Mike has also assisted Judith and has experience in the preparation of evidence for hearings where required. Some location examples of similar sized solar farms Judith and / or Mike have been involved in include:

- Tauhei;
- Tahuna;
- Taranaki (multiple);
- Waitoki;
- Masterton; and
- Rotorua

Mike is the lead author and assessor in the preparation of this Integrated Transportation Assessment (ITA) for the proposed Hinuera solar farm.

I, Mike Clapp, confirm that, in my capacity as the author of this report, I have read and abide by the Environment Court of New Zealand Practice Note 2023, and in particular section 9 the Code of Conduct for Expert Witnesses.

#### **Evander Patel – Intermediate Transportation Engineer**

Evander is a Transportation Engineer with three years' experience in civil and transportation engineering and holds a Bachelor of Civil Engineering (Honours) from the University of Auckland. He is based in the CKL Auckland office and has some experience in roading design, Integrated Transportation Assessments, safety audits and travel plans across a range of development projects. Evander has completed Site Safe training and a professional report writing course through Engineering New Zealand. In assisting on this report, Evander has also gained exposure to the nature and transportation requirements of solar farm projects, preparing and contributing to technical reporting and assessments and developing an understanding of the associated construction and operational transport considerations.

Evander assisted Mike in early research and in the preparation of this ITA assessment.

## 3 Existing Environment

### 3.1 Site Location

Figure 1 is an aerial photograph with the subject site outlined in yellow. The aerial image is sourced from GripMaps. The five existing accesses have been labelled within the white circles below.

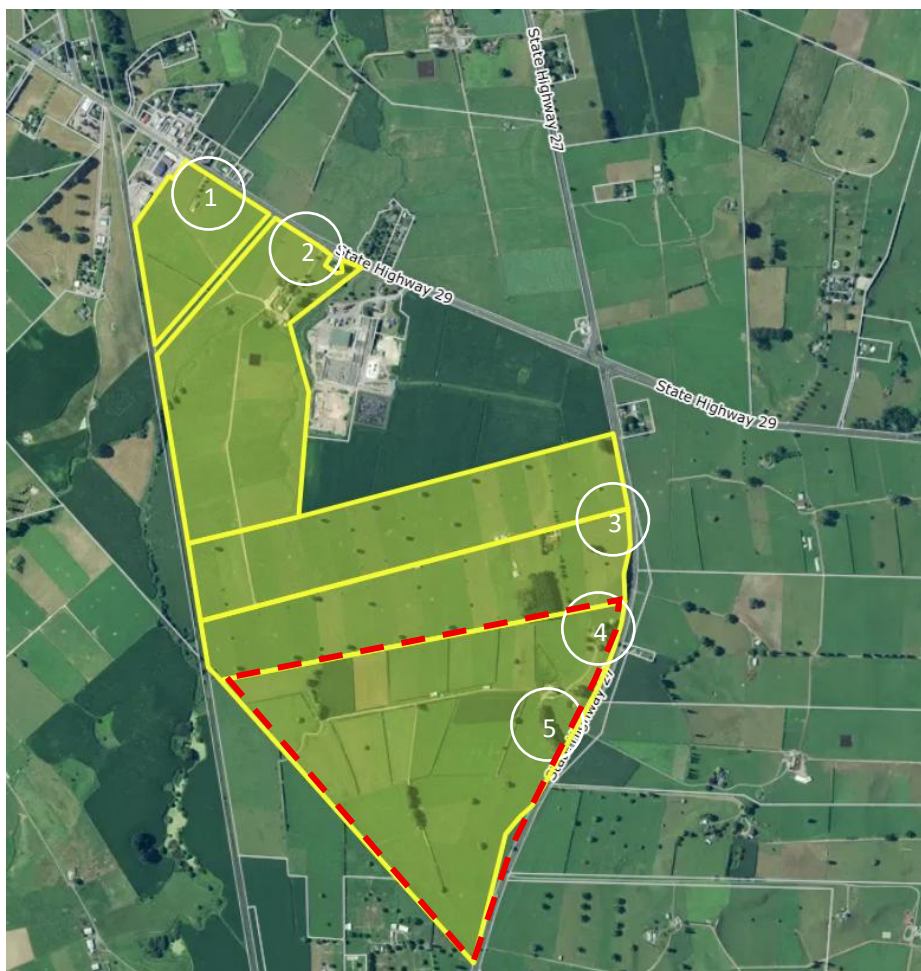


FIGURE 1: AERIAL PHOTOGRAPH OF SITE

The site comprises two separately operating dairy farms. The northern farm, which includes the titles SA69A179, SA292/111, and SA308/1, contains three dwellings, with two located adjacent to SH27 and one located adjacent to SH29. The southern farm, outlined by a red dashed line in Figure 1 and comprised in Record of Title 647047 and SA13B/333, contains one dwelling and a dairy shed, both of which are accessed from SH27.

The site is located under the Rural zone as per the Matamata-Piako District Plan.

### 3.2 Road Network

Figure 2 portrays the site highlighted with a blue star in the context of the wider road network. The figure has been sourced from OpenStreetMap.

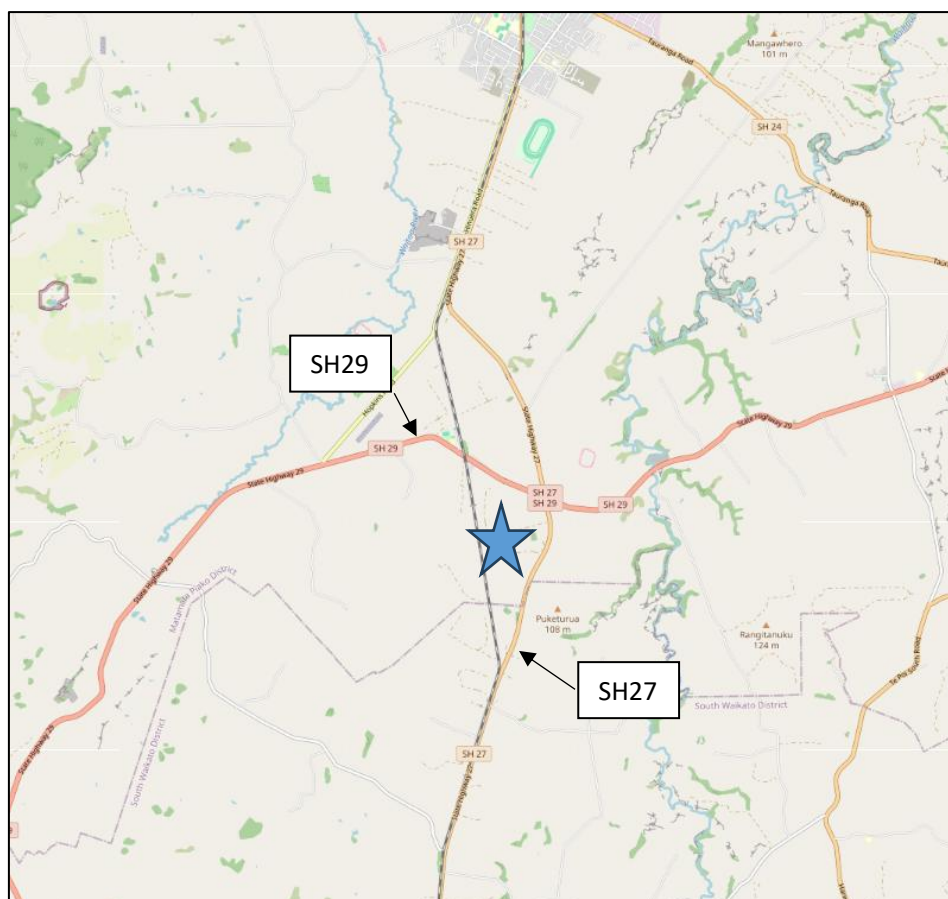


FIGURE 2: SURROUNDING ROAD NETWORK

### 3.2.1 SH 27

SH27 is classified as a significant road within the District Plan and as a rural connector within the one network framework (ONF). As a rural connector, SH27 functions as an arterial, collector and access road serving as an essential rural 'link' road for inter-regional travel and property access. SH27 has a posted speed of 100km/h and comprises of a two-way, two-lane, 6.5m wide carriageway with centreline and edgeline delineation. The carriageway contains no consistent, significant sealed shoulders and is bound by grassed drainage berms both sides as is typical of rural roads. It is also noted that SH27 is classified by the New Zealand Transport Agency (NZTA) as a limited access road (LAR).

A typical cross-section of SH27 along the site frontage, as observed during the site visit undertaken on the 25<sup>th</sup> November 2025, is shown in Figure 3 below.



FIGURE 3: TYPICAL ROAD CROSS SECTION OF SH27

### 3.2.2 SH29

SH29 is classified as a significant road under the District Plan and as an inter-regional connector within the ONF. As an inter-regional connector, SH29 is of both regional and national significance providing an essential goods and service travel route with limited residential property access. As such, inter-regional connectors typically also experience higher percentages of heavy commercial vehicle (HCV) movements.

SH29 operates predominantly as a posted 100km/hr speed environment however it is noted that a 270m section of SH29 to which Lot 1 DPS 83767 has its frontage, at the western end of the site, is a 70km/h speed environment. SH29 typically comprises a two-way, two-lane carriageway approximately 6.5m in width, with centreline and edgeline delineation. The carriageway does not include consistent sealed shoulders and is bound on both sides by grassed drainage berms, which is typical of a rural road environment. It is also noted that SH29 is classified by NZTA as a LAR.

A typical cross section of SH29 along the site frontage and showing the speed transition from 70km/h to 100km/h for eastbound vehicles is shown in Figure 4 below, as observed during the site visit.



Figure 4: Typical Road Cross Section of SH29

### 3.2.3 SH 27/29 Intersections

The SH29 and SH27 intersection takes the form of a staggered, stop controlled, crossroad style intersection with priority afforded to through traffic on SH29. The intersection is fully sealed and includes a painted flush median with back-to-back marked right-turn bays on SH29 to accommodate turning movements while maintaining through traffic flow. Clear lane delineation is provided on the SH27 legs to guide vehicle movements and reduce conflict.

An aerial view of the staggered SH27/SH29 intersection is shown in Figure 5 below.



**FIGURE 5: SH27/SH29 INTERSECTION NORTHEAST OF SITE**

It is noted that the approach speeds towards the intersection on the SH29 road corridor are reduced using a permanent variable speed limit of 60km/h as shown in Figure 5 above and Figure 6 below.



**FIGURE 6: VARIABLE SPEED SIGN ON SH29**

Overall, the intersection is designed to operate within a high-speed rural highway environment, with visibility, priority control, and median treatments that support the safe and efficient operation of SH29.

### 3.3 Public Transport

Scheduled bus services are not located in close proximity to the subject site. As a result, residents and visitors are generally required to travel to nearby towns such as Tirau or Matamata to access regular passenger bus stops servicing regional or local bus routes.

### 3.4 Walking and Cycling

As is typical for rural roads, there are no pedestrian or cycling facilities provided along SH27 or SH29, both of which front the site. Given the subject site has five existing access points, Walk Score ratings have been taken at the two most distant existing access points, Access 1 and Access 5, at either end of the site, being 4775 SH29 to the north-west and 8302 SH27 to the south-east respectively.

From the property at 4775 State Highway 29, the Walk Score is 3 out of 100, indicating that the location is a car-dependent area where almost all errands require the use of a private vehicle. Figure 7 below illustrates the 20-minute walking catchment from this location.

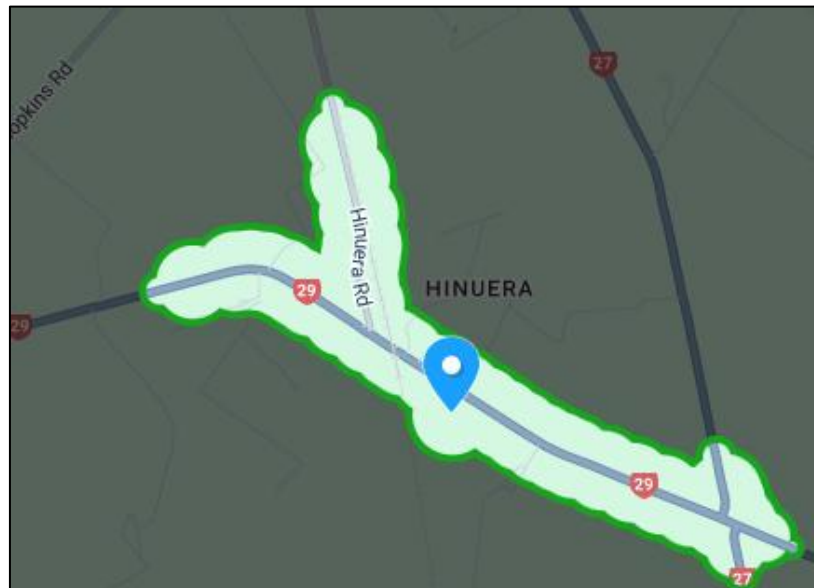


FIGURE 7: 4775 SH29 20-MINUTE WALKING CATCHMENT

Similarly, the property at 8302 State Highway 27 has a Walk Score of 0 out of 100, indicating an even more car-dependent location where most, if not all, errands require the use of a private vehicle. Figure 8 below illustrates the 20-minute walking catchment from this location.

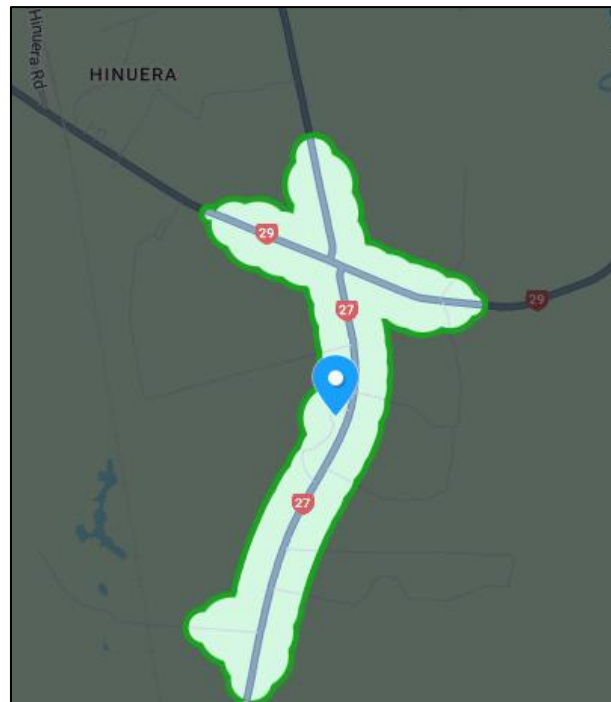


FIGURE 8: 8302 SH27 20-MINUTE WALKING CATCHMENT

### 3.5 Traffic Volumes

Traffic count data between the period of 1 January 2025 to 21 January 2026 sourced from the NZTA Traffic Monitoring System (TMS) database has been used, from which both average daily traffic volumes and peak hour volumes have been obtained. The resulting traffic volumes are summarised in Table 1 below.

TABLE 1: EXISTING TRAFFIC VOLUMES

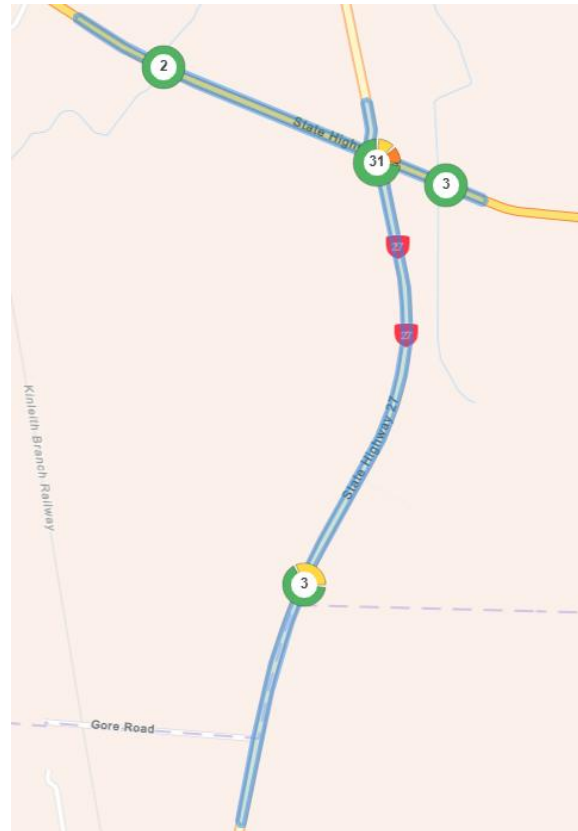
| Road  | Count Identifier Number | Location                        | AM Peak Hour Volume (vph) | PM Peak Hour Volume (vph) | Daily (vpd) |
|-------|-------------------------|---------------------------------|---------------------------|---------------------------|-------------|
| SH 27 | 02700082                | 580m North of SH29 intersection | 247                       | 292                       | 3,646       |
|       | 02700083                | 320m South of SH29 intersection | 238                       | 289                       | 3,498       |
| SH 29 | 02900063                | 1.9km West of SH27 intersection | 467                       | 738                       | 8,990       |

### 3.6 Road Safety

#### 3.6.1 CAS Analysis

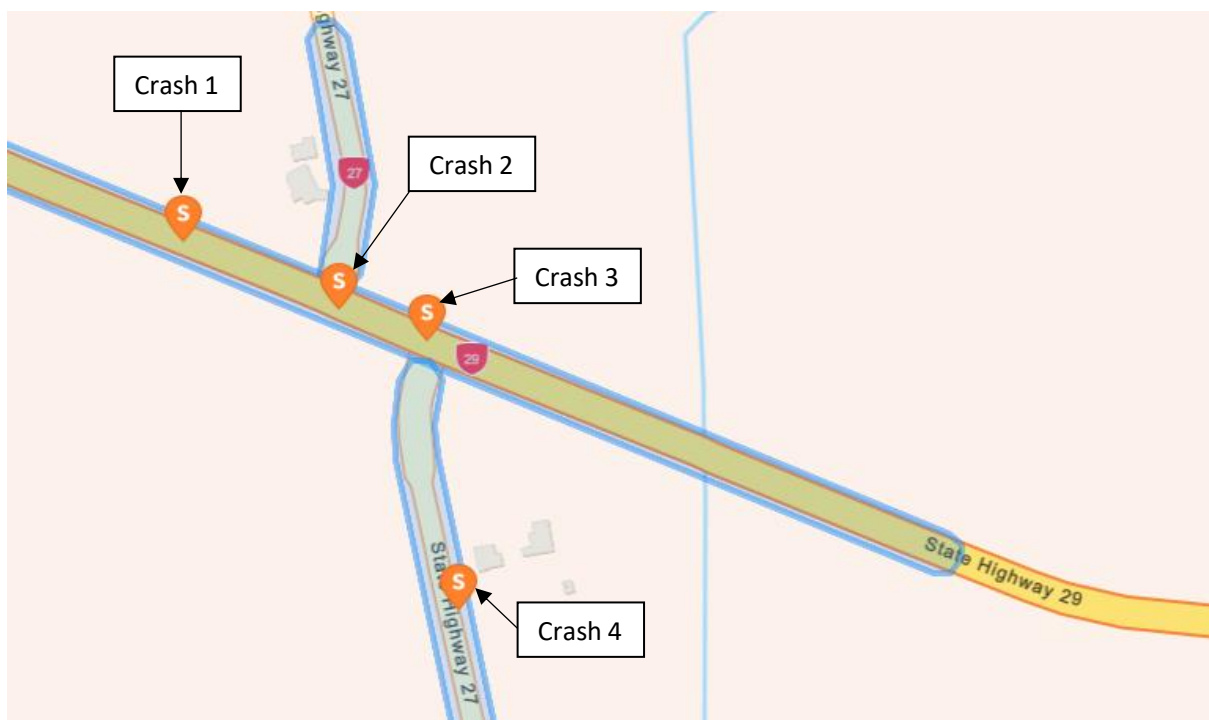
A search of the NZTA Crash Analysis System (CAS) was undertaken on 23<sup>rd</sup> June 2026 for all reported crashes occurring along the road frontage of the site, as well as within the vicinity of the two intersections of SH27 and SH29. As the site requires access to a state highway and both SH27 and SH29 are also LARs, reference for crash analysis requirements has been made to NZTA Access onto the State Highway from Private Property (Access Guide). As required within the Access Guide the search covered an extended ten-year period from 2016 to 2025 and included available crash data for 2026 year-to-date.

Overall, the search identified a total of 39 crashes in the vicinity of the site, of which 34 occurred at the SH27 / SH29 intersection. Overall, thirty of the crashes were reported as non-injury crashes, five resulted in minor injuries, and four resulted in a serious injury, as shown in Figure 9 below.



**FIGURE 9: NZTA CAS SEARCH 2021-2026**

The four reported serious injury crashes are noted to have occurred in the immediate vicinity of the SH27 / SH29 intersection as shown in Figure 10 below.



**FIGURE 10: NZTA CAS 10 YEAR ANALYSIS 2016 - 2026: SERIOUS INJURY**

The serious injury crashes are summarised below:

- Crash 1 – Westbound vehicle on SH29 crossed the centreline and flush median and collided with eastbound truck head-on.

- Crash 2 – Vehicle entering the intersection from SH27 onto SH29 has failed to give way to eastbound through traffic.
- Crash 3 – Motorcycle eastbound on SH29 attempted to overtake a right turning milk tanker (SH29 to SH27 southbound) by utilising the westbound SH29 movement lane.
- Crash 4 – Southbound vehicle on SH27 hit rear end of a van driving slowly. Driver of rear southbound vehicle is reported to have been distracted at the time of collision.

Overall, while a total of 39 crashes has been recorded in the broader vicinity of the site, 34 of these occurred at or in the immediate vicinity of the SH27 / SH29 intersection located to the north-east of the site and are not directly associated with the site itself. Of the five remaining crashes along the site frontage, none were reported to have involved any turning movements associated with traffic entering or exiting the existing vehicle crossings. It is noted that although SH29 in particular is regularly used as a long-haul route by vehicles of all classes, only two crashes are reported to have cited fatigue as a contributing factor within the analysis area. This would indicate that the majority of drivers through the analysis area are alert.

It is also noted that none of the reported injury crashes in the vicinity of the site or intersection related to road geometry, access design, or high operating speeds at this location. No other serious or fatal injury crashes have been recorded in the immediate vicinity of the site accesses.

### 3.6.2 MegaMaps Analysis

The Waka Kotahi MegaMaps database has been used to identify both the personal and collective risk ratings for the roads described above.

- Collective risk is the measure of how likely a crash is to happen along a given stretch of road network.
- Personal risk relates to the chance that if a crash does occur that it involves a given individual. It is not unusual to see higher personal risks on a road, particularly when there are low traffic numbers.

Table 2 below shows a summary of the MegaMaps Risk Ratings for surrounding roads.

**TABLE 2: MEGAMAPS RISK RATINGS**

| Road  | Location                                  | Collective Risk | Personal Risk |
|-------|-------------------------------------------|-----------------|---------------|
| SH 27 | 0-1500m North of SH27/29 Intersection     | Medium/ High    | Medium/ High  |
| SH 27 | 0-1800m South of SH27/29 Intersection     | Low/Medium      | Low           |
| SH 29 | 0m-960m West of SH27/SH 29 Intersection   | Low             | Low           |
| SH 29 | 960m-1800m West of SH27/SH29 Intersection | Medium          | Low           |
| SH 29 | 0m-2100m East of SH27/SH29 Intersection   | High            | Medium/High   |

As shown in Table 2 above, it is noted that the majority of the personal risk ratings are considered low with the exceptions of SH27 north and SH29 to the east, of the SH27 / SH29 intersection which both achieve a personal risk rating of Medium/High. The collective risk ratings however show a much wider degree of risk varying from low to high.

It is also noted however that the majority of the subject site road frontage, encompassed within rows two and three of Table 2, experiences low personal risk ratings and low to low/medium collective risk ratings.

It is therefore considered, when accounting for the ratings along the road frontage, that the proposed site accesses will likely be in sections of road with generally acceptable levels of risk.

The remaining areas of risk shown in Table 2 are also shown to account for long sections of road corridor as well as the SH29 / SH27 intersection which could be considered to account for the relative disparity between the risk ratings to the number of reported crashes as the risk sections far exceed the crash analysis and records along the site frontages.

### 3.7 Committed Environmental Change

There are no known developments or roading upgrades that are committed that would have a noticeable impact on traffic patterns across the frontage of the site.

## 4 Proposal

It is proposed to develop 154ha of the existing farmland across the six nominated land parcels SA69A179, SA292/111, SA308/1, SA13B/333, SA50B/243 and 647047, into a solar farm with the existing residential dwelling(s) remaining. The solar farm development will consist of approximately 107,000 solar panels. In addition to the solar panels, it is proposed to include four Battery Energy Storage Systems (BESS) units. These BESS units are noted to be typically similar in size and general appearance of shipping containers.

It is also understood that the generated electricity will be routed to an on-site substation located in the southeastern corner of the site and will likely be accessible from SH27. From this substation, generated electricity will be directed approximately 1.8km further south to the existing Hinuera substation operated by PowerCo for distribution throughout the network.

The concept layout of the panels is shown dark blue in Figure 11 below.

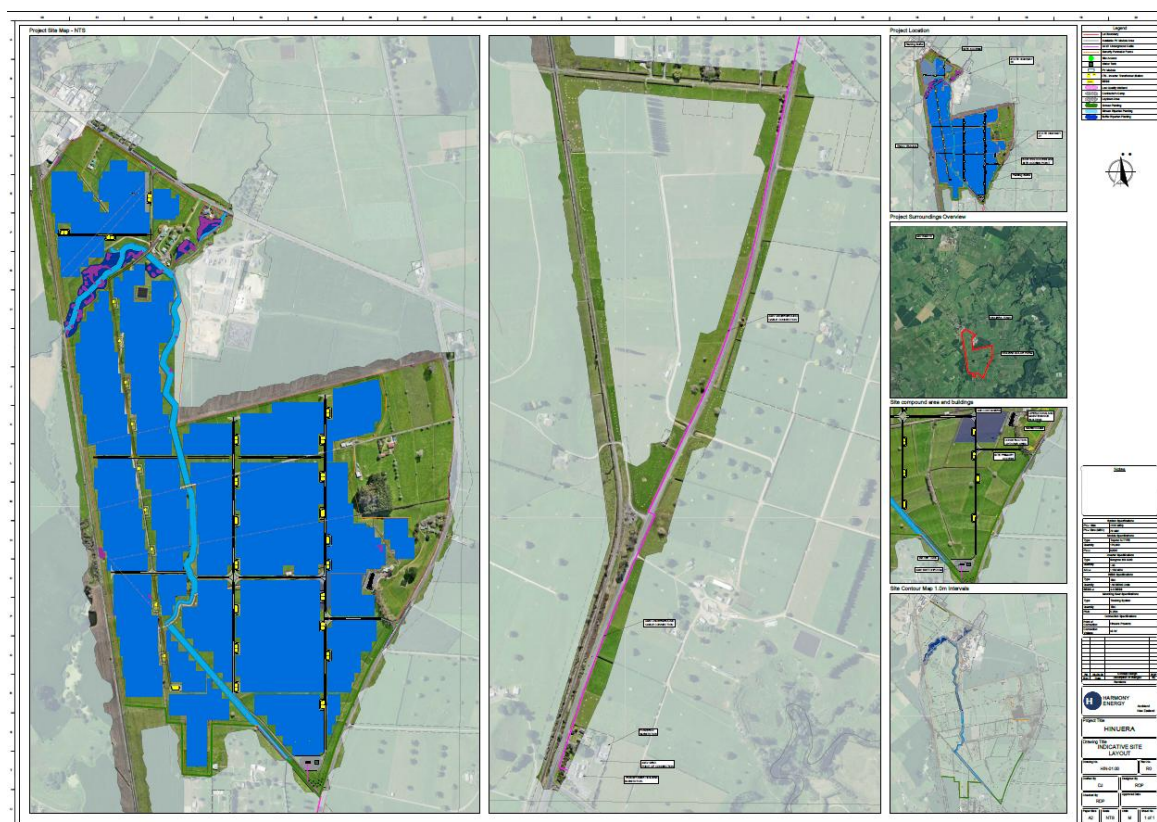


FIGURE 11: CONCEPT PANEL LAYOUT

It is understood that the existing farm and residential accesses and associated residential dwellings are to remain on-site and operational. Existing farm activities are understood to be converted to sheep farming or similar.

## 5 Traffic Effects

### 5.1 Construction Staff and Timing

The below information has been obtained from the Concept Design Statement prepared by Harmony Energy NZ Limited. For ease of reference, anticipated construction movements associated with deliveries and staff have been included in Appendix A and summarised in the assessment below.

#### 5.1.1 Timing

Construction is expected to take 18 to 24 months to complete from start to finish and will generally follow the sequence summarised in Table 3 below.

**TABLE 3: EXPECTED CONSTRUCTION STAGING TIMEFRAME SUMMARY**

| Phase                                        | Expected Construction Months |
|----------------------------------------------|------------------------------|
| General site administration/management staff | 1 - 24                       |
| Site establishment                           | 1 - 4                        |
| Civil works                                  | 2 - 11                       |
| Mechanical construction                      | 6 - 14                       |
| Electrical works                             | 9 - 17                       |
| Grid Connection                              | 12 - 18                      |
| Electrical Commissioning                     | 17 - 22                      |
| Demobilisation                               | 23 - 24                      |
| Transition to Operational                    | 23 - 24                      |

Construction activities will generally occur over a six day working week (i.e. Monday – Saturday), between 7am and 6pm. However, quiet work, staff arrivals and departures and deliveries may occur outside of these hours. There will also be an on-site security guard 24 hours a day, seven days a week, during the construction phases of the project. It is understood that CCTV monitoring will also be installed at a later date / stage yet to be determined.

#### 5.1.2 Staff

Staff numbers are expected to fluctuate throughout the construction phase, with the structural construction phases requiring the greatest staff numbers.

For the purposes of this assessment, it has been conservatively assumed that each worker would drive themselves to and from the site each day. Projected staff trip generation has been undertaken using supplied data and is summarised in Table 4 below.

**TABLE 4: ANTICIPATED TOTAL SITE TRAFFIC MOVEMENTS - HCV AND STAFF**

| Months | Projected Staff Numbers Per Day | Staff Movements Per Day |
|--------|---------------------------------|-------------------------|
| 1      | 25                              | 50                      |
| 2      | 40                              | 80                      |
| 3      | 55                              | 110                     |
| 4      | 55                              | 110                     |
| 5      | 30                              | 60                      |
| 6      | 80                              | 160                     |
| 7      | 80                              | 160                     |
| 8      | 110                             | 220                     |
| 9      | 140                             | 280                     |
| 10     | 150                             | 300                     |

|    |     |     |
|----|-----|-----|
| 11 | 170 | 340 |
| 12 | 180 | 360 |
| 13 | 150 | 300 |
| 14 | 160 | 320 |
| 15 | 110 | 220 |
| 16 | 90  | 180 |
| 17 | 80  | 160 |
| 18 | 50  | 100 |
| 19 | 35  | 70  |
| 20 | 35  | 70  |
| 21 | 35  | 70  |
| 22 | 30  | 60  |
| 23 | 40  | 80  |
| 24 | 40  | 80  |

Table 4 demonstrates the site will experience up to 360vpd during month 12 of construction. This is the point in the construction staging where the mechanical and electrical works stages overlap with the end of the civil works phase and commencement of the grid connection stage. Staff movements are typically expected to occur outside typical peak network hours due to the construction hours of between 7am and 6pm with staff expected to arrive prior to the start of the workday and leave at its end. Therefore, staff movements will likely have a minimal effect to the existing network during peak hours. In practice, it is likely that some workers would car-pool, or the contractors would have vans set up to transport workers from accommodation sites which would notably reduce overall traffic movements.

### 5.1.3 Deliveries

Anticipated monthly heavy commercial vehicle (HCV) movements associated with the construction works / deliveries are summarised in Table 5 below. It is noted that no HCV movements to the network are attributed to earthworks cut to waste as all excavated material are to remain on-site.

**TABLE 5: HCV CONSTRUCTION DELIVERIES SUMMARY**

| Months | Proposed Construction Deliveries per Month | Calculated HCV Movements Per Day |
|--------|--------------------------------------------|----------------------------------|
| 1      | 63                                         | 3                                |
| 2      | 618                                        | 28                               |
| 3      | 648                                        | 29                               |
| 4      | 641                                        | 29                               |
| 5      | 660                                        | 30                               |
| 6      | 660                                        | 30                               |
| 7      | 339                                        | 15                               |
| 8      | 250                                        | 11                               |
| 9      | 227                                        | 10                               |
| 10     | 360                                        | 16                               |
| 11     | 325                                        | 15                               |
| 12     | 329                                        | 15                               |
| 13     | 306                                        | 14                               |
| 14     | 297                                        | 14                               |
| 15     | 201                                        | 9                                |
| 16     | 183                                        | 8                                |
| 17     | 64                                         | 3                                |
| 18     | 64                                         | 3                                |
| 19     | 62                                         | 3                                |
| 20     | 74                                         | 3                                |
| 21     | 29                                         | 1                                |
| 22     | 29                                         | 1                                |
| 23     | 29                                         | 1                                |
| 24     | 29                                         | 1                                |

As shown in Table 5 above, the site HCV requirements are estimated to be highest during the first 6 months of the construction period where the import fill truck movements are highest. Construction months 2 to 6 of the construction schedule are expected to generate between 618 and 660 movements per month. This level of activity equates to a maximum of 30 HCV movements per day to the surrounding network over a 22-working day month. This equates to approximately 3 HCVs per hour or one HCV movement every 20 minutes.

Once the foundations and internal infrastructure is established, the number of HCVs reduces significantly, with relative demand from month 15 to 24 estimated to be a maximum of 9 HCVs per day, equating to one HCV movement per hour.

#### 5.1.4 Construction Site Movements Summary

A summary of the anticipated construction movements associated with the solar farm construction is presented in Table 6 below.

**TABLE 6: ANTICIPATED SITE HCV AND STAFF DAILY TRAFFIC MOVEMENTS COMBINED**

| Months | Calculated HCV Movements Per Day | Calculated Staff Movements Per Day | Total Site Movements Anticipated Per Day |
|--------|----------------------------------|------------------------------------|------------------------------------------|
| 1      | 3                                | 50                                 | 53                                       |
| 2      | 28                               | 80                                 | 108                                      |
| 3      | 29                               | 110                                | 139                                      |
| 4      | 29                               | 110                                | 139                                      |
| 5      | 30                               | 60                                 | 98                                       |
| 6      | 30                               | 160                                | 198                                      |
| 7      | 15                               | 160                                | 175                                      |
| 8      | 11                               | 220                                | 231                                      |
| 9      | 10                               | 280                                | 290                                      |
| 10     | 16                               | 300                                | 316                                      |
| 11     | 15                               | 340                                | 355                                      |
| 12     | 15                               | 360                                | 375                                      |
| 13     | 14                               | 300                                | 314                                      |
| 14     | 14                               | 320                                | 334                                      |
| 15     | 9                                | 220                                | 229                                      |
| 16     | 8                                | 180                                | 188                                      |
| 17     | 3                                | 160                                | 163                                      |
| 18     | 3                                | 100                                | 103                                      |
| 19     | 3                                | 70                                 | 73                                       |
| 20     | 3                                | 70                                 | 73                                       |
| 21     | 1                                | 70                                 | 71                                       |
| 22     | 1                                | 60                                 | 61                                       |
| 23     | 1                                | 80                                 | 81                                       |
| 24     | 1                                | 80                                 | 81                                       |

As shown in Table 6 above, the site is expected to experience peak movements, approximately 375vpd during month 12 of construction with HCV movements peaking in months 5 and 6 and staff movements peaking in month 12.

#### 5.1.5 Power Distribution

Electricity generated from the solar panels will be distributed via an internal substation to the existing Hinuera substation located approximately 1.8km to the south. It is understood that this will involve the underground drilling and installation of conduit for high voltage cables within the SH27 road reserve. It is also understood that drilling works takes approximately three months to complete 1km of drilling. Based on the 1.8km of drilling required, it is anticipated that the drilling works will therefore take approximately

5.5 months or 22 weeks to complete. It is understood that these works can be done separately from but in conjunction with the main solar farm construction. It is understood that where possible, drilling crews will utilise existing farmland to minimise impact to the SH27 road corridor and its users. Should the drilling crews not be able to obtain permission to access all required farmland, it is anticipated that the northbound lane of SH27 may be required to be closed, reducing operation to single lane. Specific details pertaining to traffic volumes and management of any traffic affected by these works will be required to be covered within a suitable Construction Traffic Management Plan (CTMP).

## 5.2 Operational Traffic

Solar farms are considered typically to be a very 'hands-off' means of power generation requiring very few operational staff to operate and maintain the site compared to other forms of power generation. The operational team for the proposed solar farm is anticipated to generally consist of:

- Operations staffing: 1 site manager, 1 site receptionist and administrator, 2-3 operators, and 2–3 full-time technicians, 1-2 security guards on site during business hours (Mon–Fri, 40 hours/week each)
- Corrective maintenance personnel as required to remediate the specific issue.
- Seasonal contractors as required for vegetation, module cleaning, civil works such as drain cleaning, or specialist testing.
- Security monitoring: monitored on-site by the security guard and 24/7 via remote SCADA/CCTV platforms.

It is conservatively assessed that the site will therefore require up to an average of 10 staff per day with periodic maintenance staff as required. As a conservative assessment, operational trip generation is therefore expected to reach 30vpd and up to 10vph during typical network peak hours of 7am to 9am and 3pm to 6pm. It is noted that the daily operational staff movements assume that half of the staff will also conduct an additional round trip movement off-site for lunch etc.

## 5.3 Overall Traffic Effects

As outlined in Table 1, SH29 experiences 738vph during peak hour and 292vph are experienced on SH27 during peak hour. For context, the carrying capacity of a two-way, two-lane road is approximately 1,400vph in each lane providing a two-way capacity of up to 2,800vph. The existing peak hour traffic volumes of SH29 and SH27 therefore indicate existing operational demand of 26% and 10% of the available capacity respectively.

The peak level of site traffic activity is anticipated to occur in construction month 12 with 180 staff being present on site and 15 HCV delivery movements per day. The above assessment utilises a conservative assessment assuming all staff drive themselves to work individually. In practice, it is likely that some workers would car-pool, or the contractors would have vans set up to transport workers from accommodation sites which would notably reduce overall traffic movements.

Therefore, the effect of the construction staff and HCV movements is expected to have a less than minor effect to the capacity of the surrounding network. Operationally, the effect of the anticipated additional 10vph is expected to have a negligible effect on the capacity of the network.

It is typical for a consent condition to stipulate the consent holder is to regularly monitor the area of pavement in the vicinity of the accesses, identify, report, and undertake any required repairs to the road surface due to damage by construction vehicles at the expense of the consent holder.

## 6 Access Effects

Five existing vehicle crossings provide access to the site as shown in Figure 12 below.

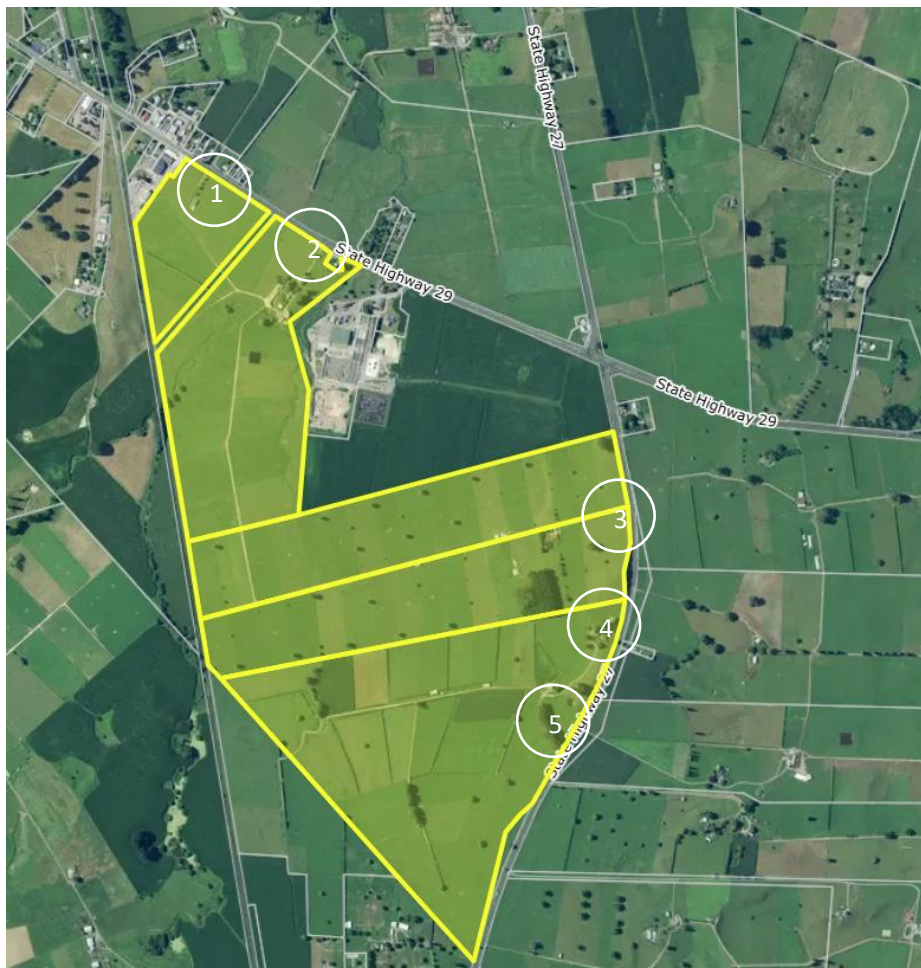


FIGURE 12: EXISTING ACCESS LOCATIONS

Access for the solar farm construction, operation and maintenance is proposed in two scenarios / options. These options are summarised below and are assessed within this report:

- Option 1
  - SH29 – provide a new vehicle crossing between existing access 1 and existing access 2
  - SH27 – upgrade existing access 5
- Option 2
  - SH29 - utilise existing access location 2
  - SH27 – upgrade existing access 5

Consultation with NZTA has been undertaken by way of a preliminary access assessment, to ascertain access feasibility, as well as consultation with affected neighbouring property owners prior to establishing the above access options. Following this consultation with NZTA and after preparation of the concept plans, the potential upgrade of existing access 2 to SH29 was introduced. In each of the above options, the

constructed accesses are to be utilised for construction purposes and retained for operation and maintenance activities.

Existing vehicle crossings 1 to 4 are to be retained to continue providing residential dwelling and farming access locations.

The following assessment has utilised the existing accesses to establish existing conditions and consider the feasibility of the proposed site access locations. This assessment focuses primarily on separation and sight distance requirements using the measured operational speeds to assess compliance and suitability to the requirements of the NZTA Access Guide.

An overall concept plan, Figure 13, indicates the proposed sealed access locations for each option circled red. Figure 12 indicates a second SH27 access located at the southern extent of the site was initially considered however is to be disregarded following NZTA consultation.

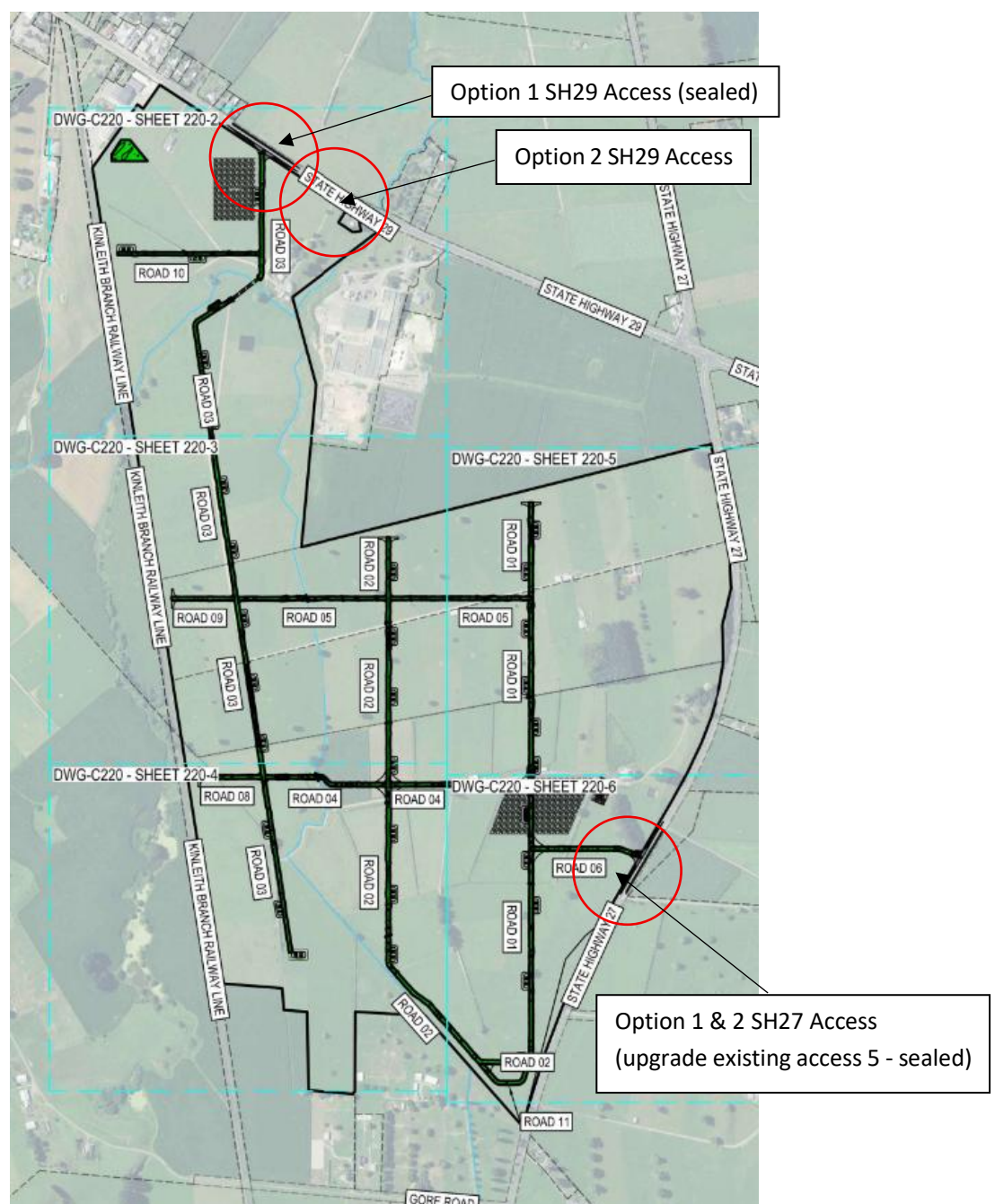


FIGURE 13: OVERALL PROPOSED SITE ACCESS AND INTERNAL ROAD LAYOUT

Figure 14 and Figure 15 below indicate in closer detail, the concept formations of the Option 1 SH29 and SH27 access locations for reference. Under Option 2, the proposal is that the existing Access 2 will be retained 'as is', with potentially minor amendments to allow vehicle swept paths, depending on the vehicle type which will need to access this part of the site.



FIGURE 14: CONCEPT SH29 ACCESS LOCATION

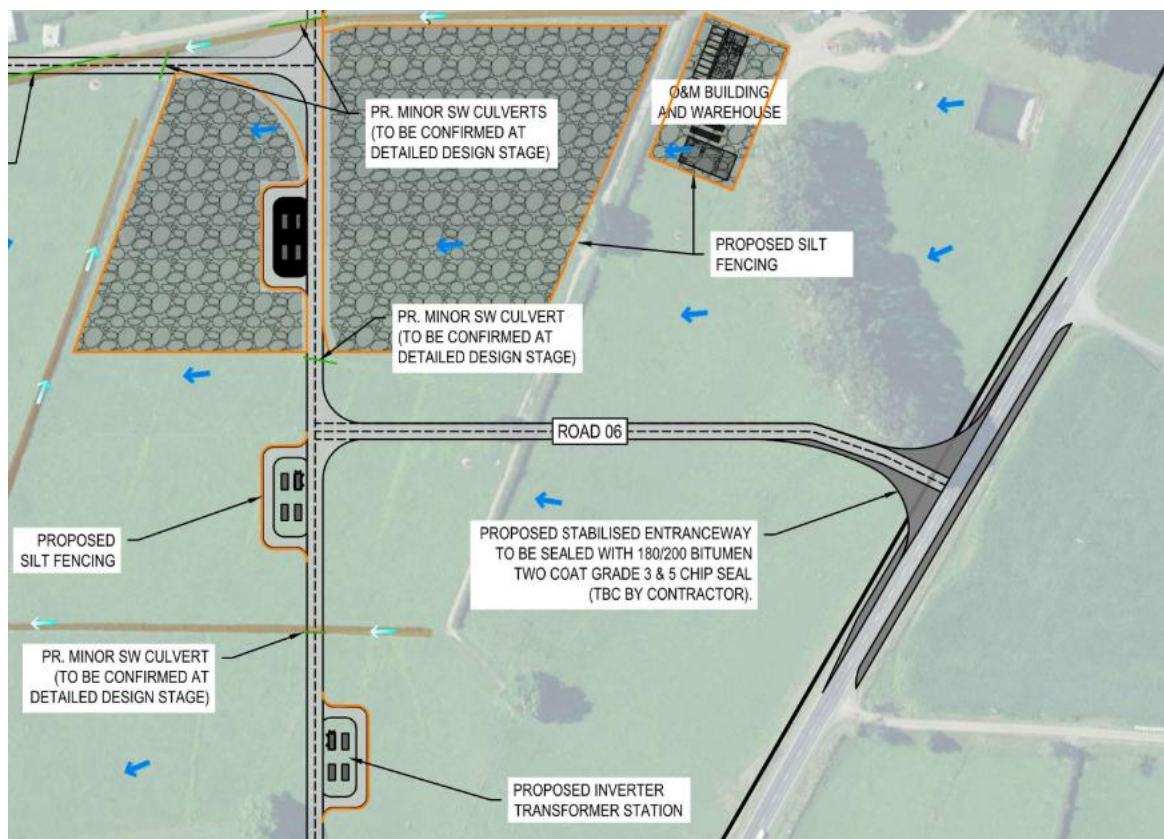


FIGURE 15: CONCEPT SH27 ACCESS LOCATION (EXISTING ACCESS 5)

For ease of reference, the posted speed limits of the surrounding road network relative to the five existing access locations, labelled within the white circles, are shown in Figure 16 below.

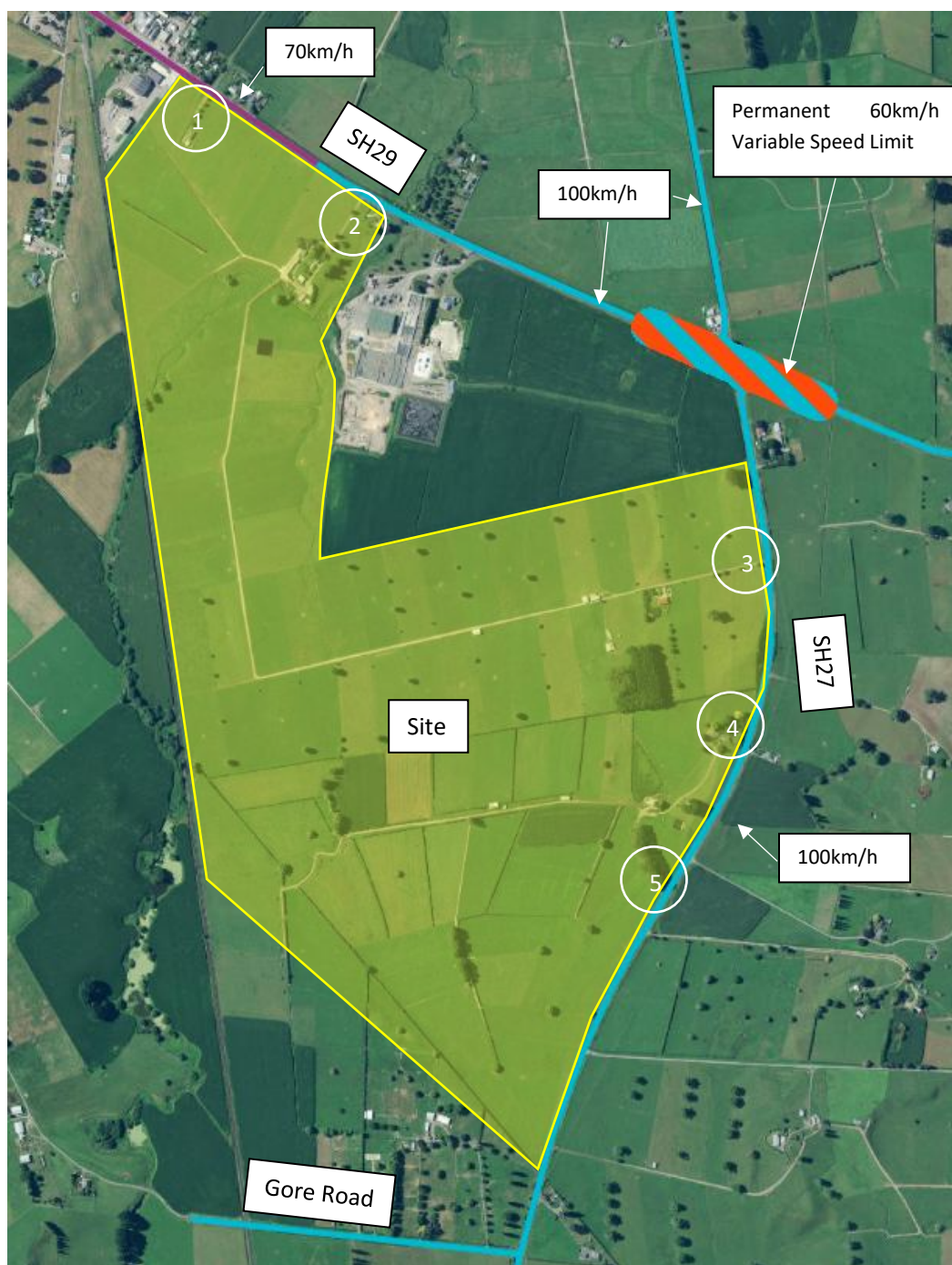


FIGURE 16: SPEED LIMITS OF SURROUNDING ROAD NETWORK RELATIVE TO EXISTING ACCESS LOCATIONS

## 6.1 Existing Access Data

Observation of the operating speeds and sight distances at each existing access along the SH29 and SH27 road corridors are summarised in Table 7 below. Observation of the actual traffic speeds to provide an accurate assessment is in line with NZTA Access Guide section 8.5 methodology. It is noted that a minimum of 14 vehicles were recorded in each direction on SH29 and a minimum of seven vehicles were recorded on SH27 during the site visit undertaken on 25<sup>th</sup> November 2025. This reduced number of vehicles on SH27 is indicative of the lower overall traffic volumes on this road compared to SH29. Although small samples of traffic were observed, it is considered suitable for the purposes of this assessment.

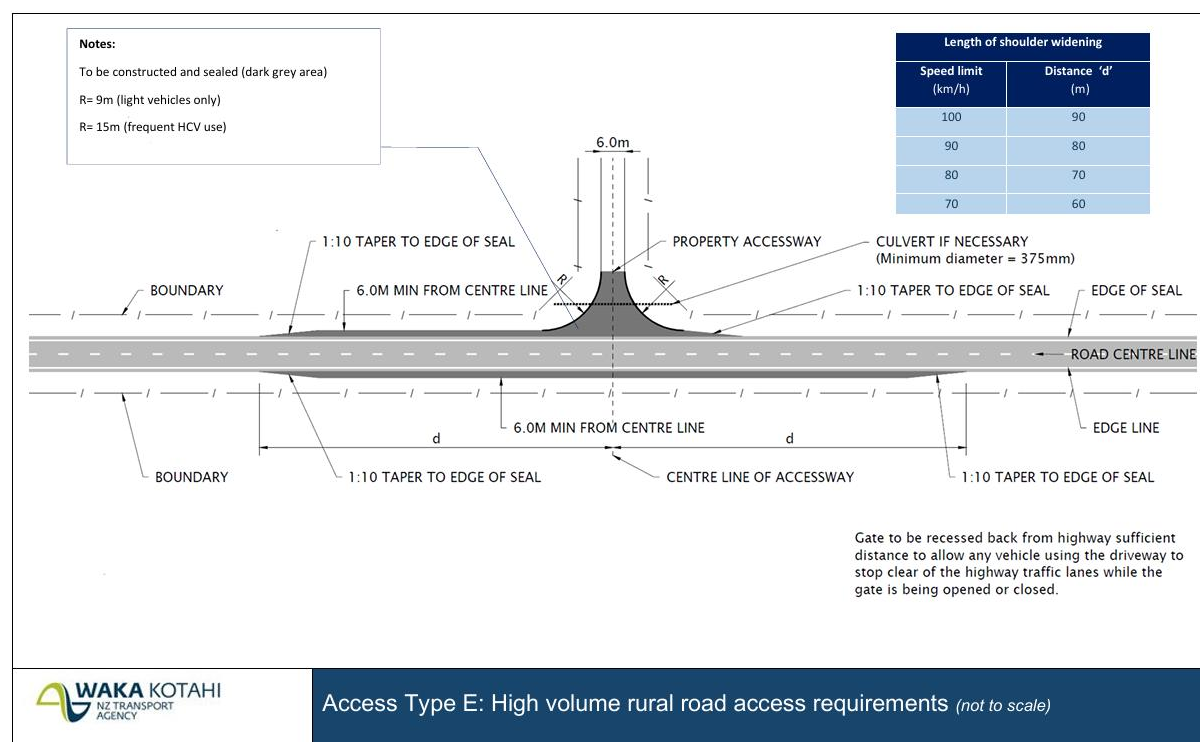
**TABLE 7: OPERATING SPEED AND SIGHT DISTANCES AT EXISTING ACCESS LOCATIONS**

| Existing Access | Direction | 85%ile Operating Speed (km/h) |          | Sight Distance      |
|-----------------|-----------|-------------------------------|----------|---------------------|
|                 |           | Posted Speed                  | Observed |                     |
| 1 (SH29)        | West      | 70                            | 65       | >700                |
|                 | East      |                               | 70       | >400                |
| 2 (SH29)        | West      | 100                           | 88       | >700                |
|                 | East      |                               | 92       | >500                |
| 3 (SH27)        | North     | 100                           | 95       | 271                 |
|                 | South     |                               | 91       | 198 (non-compliant) |
| 4 (SH27)        | North     |                               | 96       | 173 (non-compliant) |
|                 | South     |                               | 103      | 215 (non-compliant) |
| 5 (SH27)        | North     |                               | 94       | 339                 |
|                 | South     |                               | 98       | >400                |

As shown in Table 7 above, using the observed speed data and with reference to Access Guide Table 8-1, establishment of a site access north of existing access 3 or 4 is not considered appropriate. This is due to non-compliant sight distance in one or both directions and are therefore this area is discounted from further analysis.

## 6.2 NZTA Consultation

During a meeting on the 31 March 2026, it was confirmed that NZTA had a preference of access being provided in line with the proposed Option 1 which includes provision of a new vehicle crossing between existing access 1 and existing access 2 and upgrading existing access 5. Access to SH29 was also confirmed to be suitable with a preference for the access to be located within the 70km/h speed environment. It was also communicated that the construction of any new permanent access, regardless of its location on SH29 or SH27 should be undertaken in accordance with Access Guide Type E, shown in Figure 17 below.



**FIGURE 17: NZTA PPM ACCESS TYPE E**

It is noted that following this consultation, the concept access designs are to be made perpendicular to the receiving road environment during detailed design.

## SH27

Site access via existing access 5 is common throughout both proposed Option 1 and 2 and is the NZTA preferred access location to SH27.

Operational speeds rounded up to 100km/h at access 5 require a minimum sight distance of 262m as outlined in Access Guide Table 8-1 and minimum separation distances of 180m between accesses, due to lower traffic volumes, and 450m between an access and an intersection. Access 5, the proposed upgraded northern SH27 site access, is able to achieve compliance across all separation and sight distance requirements outlined in the Access Guide based on the measured operational speed.

Vehicle tracking of the proposed concept site accesses to SH27 has also been undertaken using the largest anticipated construction vehicle, that of a 26m long B-double as shown in Figure 18 below.



**FIGURE 18: PROPOSED UPGRADED SH27 VEHICLE ACCESS TRACKING - B-DOUBLE DESIGN VEHICLE (EXISTING ACCESS 5)**

Construction of the upgraded existing access 5 to SH27 in accordance with Access Guide Type E is considered capable of accommodating all site construction traffic with negligible capacity and safety effects to the surrounding road network.

### 6.2.1 SH29

#### 6.2.1.1 Option 1 – New Access Location SH29

There is approximately 378m separation between existing access 1 and 2 and in excess of 400m separation to the nearest intersection from either existing access, exceeding NZTA Access Guide intersection separation requirements. At an observed maximum operational speed of 92km/h from the east, the Access Guide requires separation distances of 316m between accesses for State Highways with traffic volumes between 5,000vpd to 10,000vpd with a minimum acceptable separation distance of 186m. Provision of an access in this location is not able to achieve compliance with the recommended separation distance of 316m however is able to achieve compliance with the minimum acceptable separation distance of 186m in both directions.

The concept SH29 access location with operationally compliant 270m sight distance, indicated by magenta lines, is shown in Figure 19 below.



Vehicle tracking of the proposed concept site access to SH29 has also been undertaken using the largest anticipated construction vehicle, that of a 26m long B-double as shown in Figure 20 below.



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It is concluded that the effect of the non-compliant separation distance to the two existing vehicle crossings is negligible and that a suitable construction and operational access can be achieved due to the straight, flat road and ample visibility.

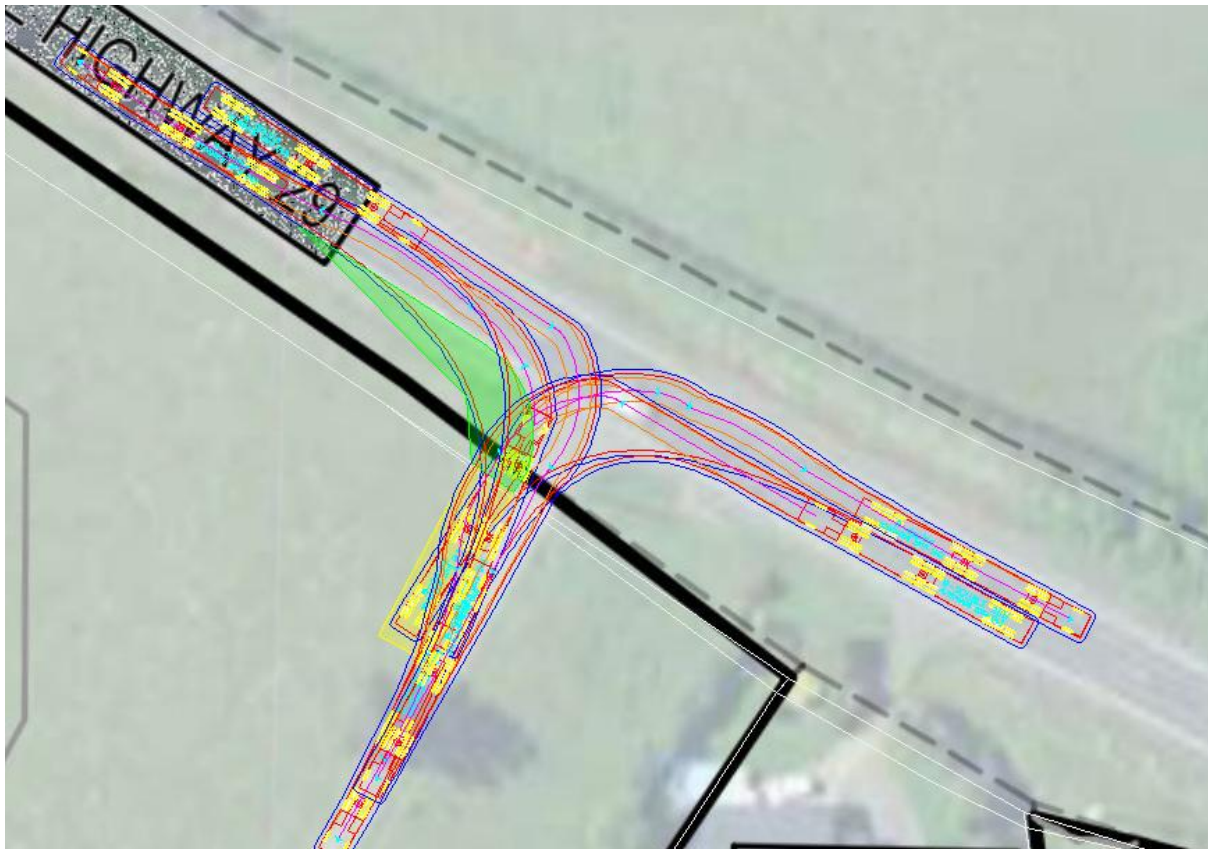
Construction of the Option 1 SH29 access in accordance with Access Guide Type E is considered capable of accommodating all site construction traffic with negligible capacity and safety effects to the surrounding road network.

#### 6.2.1.2 Option 2 – Re-use of Existing Access 2

Existing access 2 is located approximately 378m east of existing access 1 and 246m west of the existing access to the commercial access of 4713 State Highway 29. At an observed operational speed of 92km/h, the Access Guide requires separation distances of 316m between accesses for State Highways with traffic volumes between 5,000vpd to 10,000vpd with a minimum acceptable separation distance of 186m. This option is able to achieve compliance with the recommended separation distance to existing access 1 and is able to achieve compliance with the minimum separation distance between accesses to the existing access to 4713 State Highway 292.

Provision of access in this location is also able to achieve compliant separation to an intersection which, based on 92km/h operational speed is a minimum of 482m.

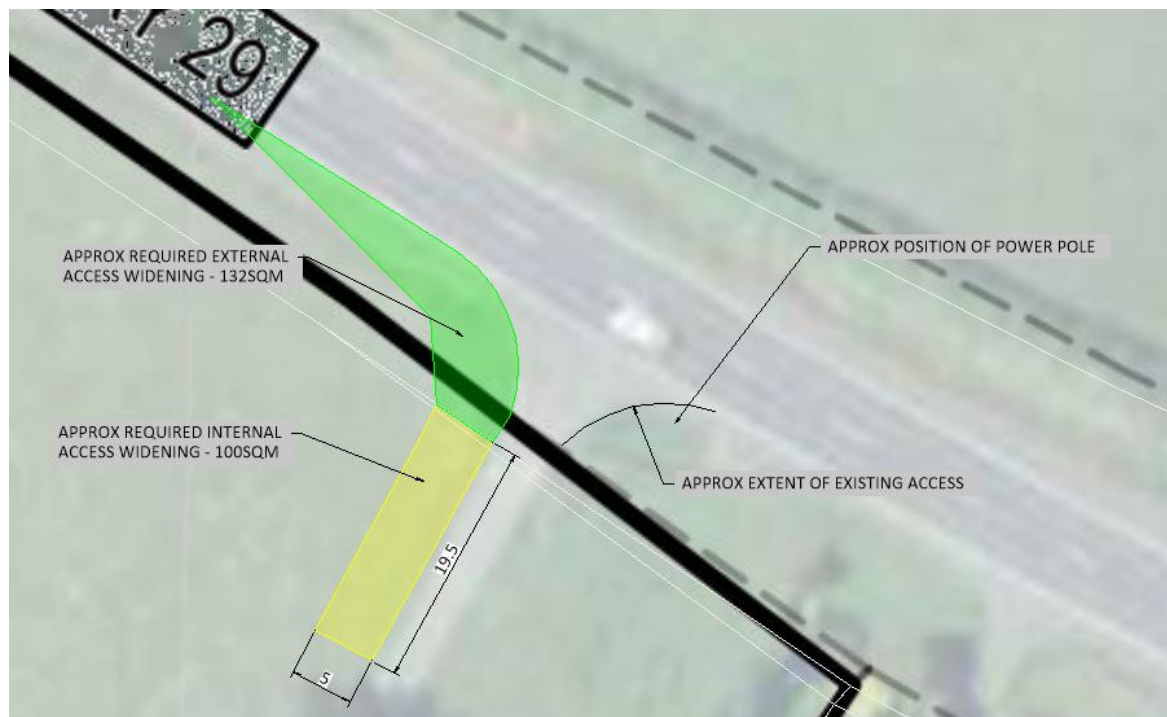
Vehicle tracking of the proposed concept site access to SH29 has also been undertaken using the largest anticipated construction vehicle, that of a 26m long B-double as shown in Figure 21 below.



**FIGURE 21: SH29 OPTION 2 ACCESS LOCATION VEHICLE TRACKING**

In order to achieve the required vehicle tracking paths required for entry and exit movements, widening of the accessway on the nearside of SH29 and for approximately 20m internally to allow two vehicles to pass,

may be required as shown in Figure 22 below. The need for such an upgrade will depend on the size of vehicle expected to require access at this point and can be confirmed within the CTMP.

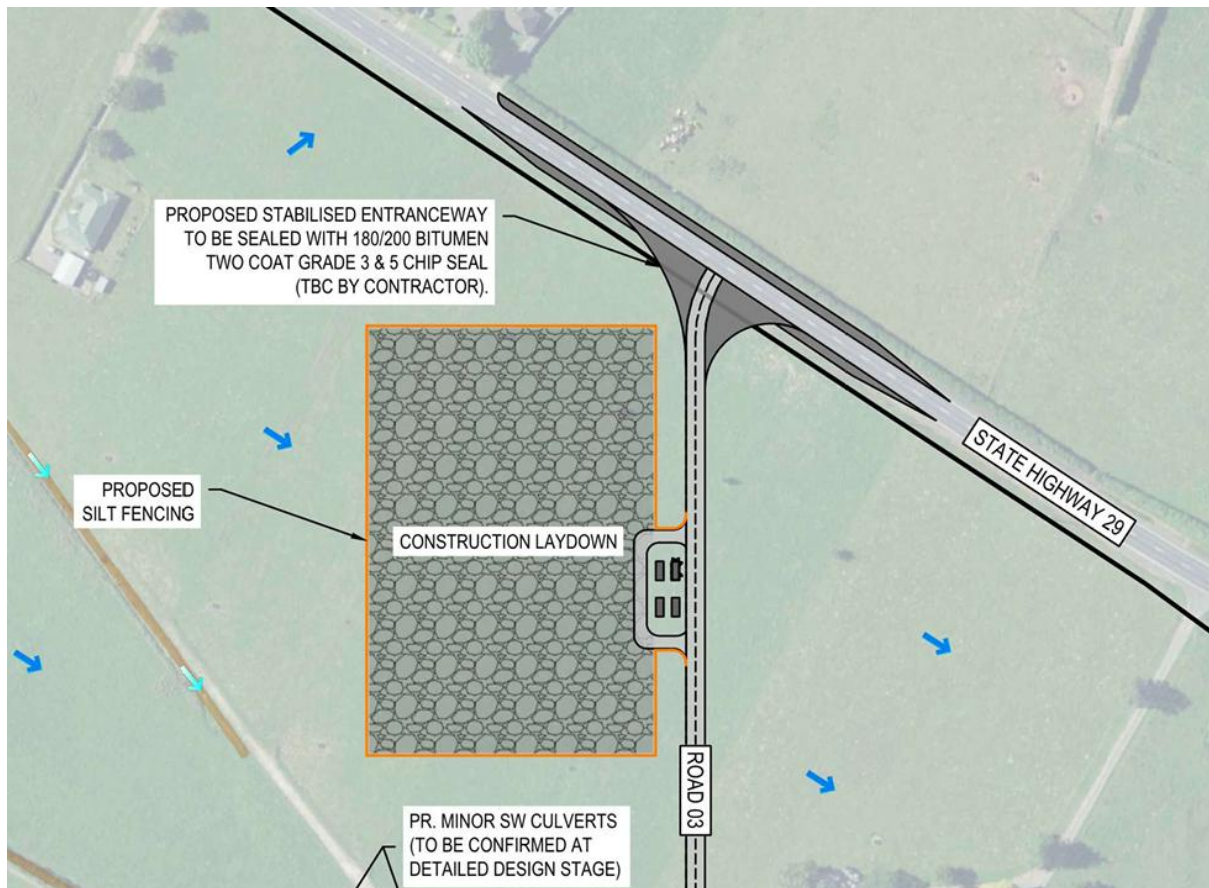


**FIGURE 22: REQUIRED WIDENING OF EXISTING ACCESS 2**

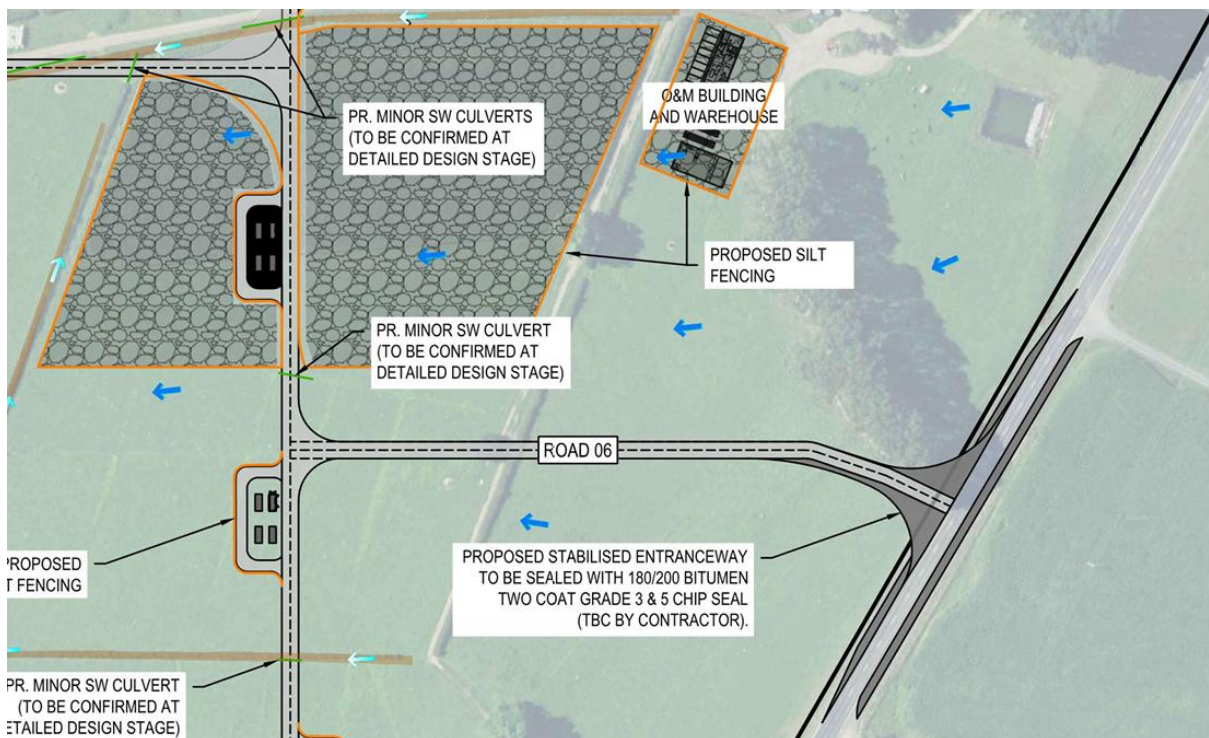
Should Option 2 be implemented as means of access to SH29 it is recommended that HCV deliveries through this access be limited to a maximum 1 – 2 per hour and up to 10 per day. This is considered to be generally in keeping with agricultural level of use and a suitable mitigation of construction traffic effects. However NZTA has indicated that they disagree with this assessment and proposed means of control and would not support use of this access without an upgrade to be compliant with Type E specifications.

## 7 Parking Effects

No formal parking spaces are proposed within the subject site. However, as is typical for large scale construction projects, the proposal includes the provision of temporary construction 'laydown' areas. Two such areas are included in the proposal with one accessed from the proposed SH29 access and one from the upgraded existing access 5 to SH27. These 'laydown' areas are located in close proximity to the site access and are typically sized to provide storage of plant and machinery as well as providing on-site carparking as required. The proposed 'laydown' areas are shown in Figure 23 and Figure 24 below. It is noted that the laydown area shown in Figure 24 is to be accessed via internal roads from existing access 5, not from an additional SH27 access location as shown in the initial concept plans.



**FIGURE 23: SH29 LAYDOWN AREA**



**FIGURE 24: SH27 LAYDOWN AREA**

It is expected that upon completion of construction, the majority of the 'laydown' areas will be returned to its pre-construction state or reclaimed for additional solar farm infrastructure such as panels.

Upon completion of construction works, maintenance and operational vehicles will move along the internal maintenance tracks as required to service the panels, and as such, proposing formal parking spaces is not considered to efficiently cater for the required operations for a maintenance vehicle. Although, should it be required, there is sufficient proposed laydown area that could be reclaimed for operational staff parking requirements, such as at the Operations and Maintenance building adjacent to the proposed substation.

## 8 Glint and Glare

As the proposed solar panels capture sunlight and can be reflective, an assessment of the glare potential of the operational site has been conducted by Wayfinder, using ForgeSolar software. This assessment considers two types of glare potential:

- Yellow Glare – has the potential to cause after-image effects which can cause the driver to squint / experience discomfort and may temporarily impede vision; and
- Green Glare – has a lower potential to cause after-image effects and is generally considered less disruptive to the driver.

The report identified that there are no anticipated glint / glare effects to either SH29 or SH27 as a result of the proposed solar farm.

## 9 Road Safety Effects

The road safety report interrogated in Section 3.6 suggests that the only discernible crash pattern exists involving crashes occur at the existing SH27 / SH29 intersection and involves movements typically associated with intersection type crashes. Typically, these crashes are indicative of excessive speed, turning movements or misinterpretation of acceptable gaps or the intention of the other driver. There were no discernible patterns linking to either road geometry or environmental factors along the road frontage of the site. The main effect of the proposed solar farm to the road network occurs during construction, as this will see the highest traffic volumes. With the establishment of a suitably appropriate Construction Traffic Management Plan (CTMP), the management of construction traffic at the proposed site access points and also at the SH27 / SH29 intersection is considered to have a less than minor effect. Operationally, the proposed development is assessed as having a negligible effect on road safety.

## 10 Construction Effects

It is standard practice as part of the resource consent that a Detailed CTMP is developed to outline how deliveries to and from the site will be managed and mitigated. A Framework CTMP has been developed, and accompanies this ITA, in order to assist in informing the preparation of the Detailed CTMP. Provision of a Detailed CTMP can be required as a condition of consent prior to construction works commencing.

### 10.1 CTMP Considerations

#### 10.1.1 Access

Along the site frontage, SH29 and SH27 typically have a narrow seal width, with a single movement lane in each direction measuring 3.1m to 3.2m in width and sealed shoulders of varying width where provided. The proposed concept access designs are considered to closely align with the NZTA Access Guide Type E vehicle access to high volume state highways requirements. The exception to this is the Option 2 access to Sh29, where it is proposed to control delivery numbers to 10 per day, which is in keeping with existing

farm use. This has been assessed as providing a suitable form of construction access, however NZTA does not agree and prefers upgrading to Diagram E standard. Vehicle tracking also shows the concept designs are able to accommodate appropriate vehicle tracking of a B-double without crossing the road centreline, with appropriate internal widening within the site boundary and are therefore considered appropriate. Confirmation of access design including dimensions and positioning shall be included within the CTMP. Should the proposed northern SH27 access, existing access 5, be repurposed and widened for construction purposes, it is also recommended that all farming / property access through this location be minimised to practical extents during construction with normal function returned upon completion of construction works.

#### 10.1.2 Management and Other Construction

The Detailed CTMP is also required to outline other key details associated with construction such as management, scheduling of HCV deliveries, potential impacts to the road network and TTM requirements in accordance with NZ Guide to Temporary Traffic Management (NZGTTM). Below are some of the additional details typically associated with the provision of a Detailed CTMP.

- a) A contact (mobile) telephone number(s) for the on-site manager where contact could be made 24 hours a day / 7 days a week;
- b) Details of appropriate local signage/information noticeboard on the site that clearly identifies the name, telephone number and address for service of the site manager, including cell phone and after-hours contact details;
- c) A communication and complaints procedure for adjoining property owners/occupiers, passers-by and the like;
- d) Construction dates and hours of operation including any specific non-working hours for traffic congestion, noise, etc;
- e) Diagrams identifying which routes trucks will use to travel to and from the site;
- f) Temporary traffic management signage / details to appropriately manage vehicles and pedestrians in the vicinity of the site; and
- g) Details of site access / egress over the entire construction period noting that all access points to be located so that appropriate visibility is achieved onto the adjacent road network.
- h) Specific consideration for delivery of building materials including loading areas, truck waiting areas and access to the site;
- i) Measures to ensure dirt, mud or debris or other materials are not left on the road; and
- j) Anticipated traffic management issues, including the location of parking for all contractor vehicles and machinery, any road closures, truck movements, any construction loading area(s) and measures to ensure alternative vehicular traffic arrangements if required.

Although not anticipated to be an ongoing requirement as part of this proposal, transportation of large construction materials to the subject site may require the use of heavy vehicles or over-dimension vehicles. In the event such vehicles are required it is expected the CTMP will also include guidance pertaining to suitable routes, scheduling, movement restrictions and traffic management including use of pilot vehicles. HCVs are anticipated to primarily arrive to the site from the east and west either from Tauranga, Auckland or one of the nearby quarries, shown as yellow stars in Figure 25 below.

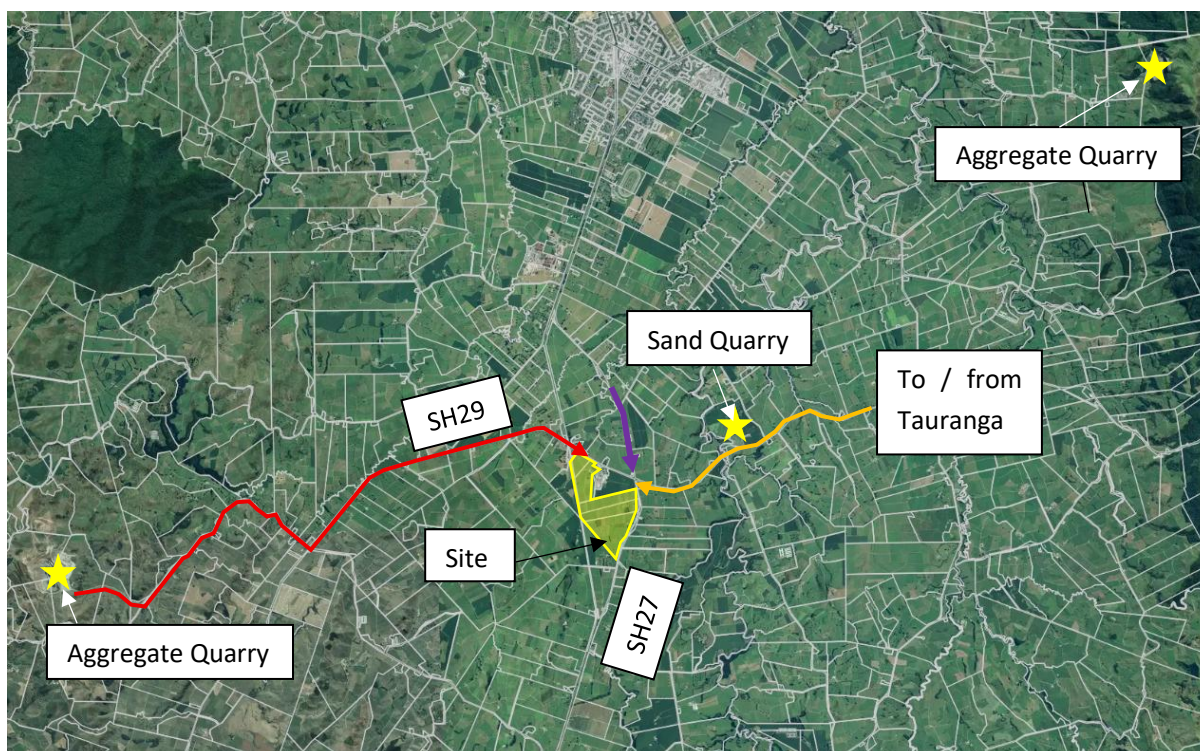


FIGURE 25: ANTICIPATED HCV DELIVERY ROUTES

The exact routing and delivery mechanisms associated with construction plant and materials can be confirmed once a suitably qualified contractor is appointed, however, it is considered that such a vehicle will be able to deliver large materials without significantly affecting other road users.

Of note, the construction activities are temporary and with appropriate measures in place, it is considered that construction activities can be managed to ensure any generated traffic effects are appropriately mitigated.

## 11 Statutory Assessment

An assessment of the proposed solar farm has been undertaken against the relevant transportation performance standards in section 9 of the MPDC District Plan. This is provided in Table 8 below.

TABLE 8: MATAMATA PIAKO DISTRICT PLAN ASSESSMENT

| Rule                                                                                                           | Requirement                                                                                                                                                                                                                             | Compliance          | Proposed                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Section 9 (iii) - Access to significant roads and arterial roads</b>                                        |                                                                                                                                                                                                                                         |                     |                                                                                                                                                                                                                                                                                                                                                             |
| <b>Performance standards</b>                                                                                   |                                                                                                                                                                                                                                         |                     |                                                                                                                                                                                                                                                                                                                                                             |
| The following performance standards shall apply to vehicle crossings onto significant roads and arterial roads |                                                                                                                                                                                                                                         |                     |                                                                                                                                                                                                                                                                                                                                                             |
| i.                                                                                                             | No reasonably practicable alternative legal access is available to another road                                                                                                                                                         | Complies            | Site has frontage to only SH29 and SH27                                                                                                                                                                                                                                                                                                                     |
| ii.                                                                                                            | The vehicle crossing shall be, designed, formed and constructed: <ul style="list-style-type: none"> <li>in accordance with the Development Manual standards for District Roads or such standards as agreed with Council; or:</li> </ul> | Compliance Expected | <p>New access to SH29 and upgrade of existing access 5 to SH27 to be designed and provided in accordance with NZTA Planning Policy Manual section Access onto the State Highway from Private Property – Type E as approved by NZTA</p> <p>Re-use of existing access 2 will require upgrade to design specifications consistent with NZTA Type E Access.</p> |

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                                                                                                                                                                                                                                                                                                                                                                     |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <ul style="list-style-type: none"> <li>if accessing a state highway network in speed environments of 70km/h and over, to the standard required by the NZ Transport Agency as specified in the Development Manual, or such standards as agreed with the NZ Transport Agency.</li> </ul>                                                                                                                                                                                                                                 |                     |                                                                                                                                                                                                                                                                                                                                                                     |
| iii. | <p>There shall be less than an average of 100 car equivalent movements per day within any one week using the vehicle crossing, where a car equivalent movement is defined as follows:</p> <p>1 car to and from the site = 2 car equivalent movements</p> <p>1 truck to and from the site = 6 car equivalent movements</p> <p>1 truck and a trailer to &amp; from the site = 10 car equivalent movements</p> <p><b>Provided that</b> a single residential dwelling is deemed to generate 8 car equivalent movements</p> | Non-compliance      | Proposal does not comply as requirements for construction traffic movements vary through phases. Traffic effects are assessed in Section 5 of this report and are not considered likely to result in any significant adverse safety effects. Appropriate traffic management can be utilised to minimise these effects and are to be outlined within a Detailed CTMP |
| iv.  | All parking and manoeuvring required by the activity shall be provided on site                                                                                                                                                                                                                                                                                                                                                                                                                                         | Compliance Expected | There is sufficient on-site area to provide any and all on-site parking requirements                                                                                                                                                                                                                                                                                |
| v.   | The vehicle crossing shall comply with the minimum sight distances and separation distances contained within the Development Manual.                                                                                                                                                                                                                                                                                                                                                                                   | Compliance Expected | Sufficient sight distance is achieved from all proposed access locations using observed speed. Refer Section 6 of this report                                                                                                                                                                                                                                       |

The assessment has identified one instance of non-compliance with the District Plan requirements pertaining to trip generation. Construction traffic volumes are expected to vary during construction phases and the effects are expected to be able to be adequately mitigated using traffic management techniques to be outlined within an appropriate Detailed CTMP.

## 11.1 NZTA Compliance Analysis

An assessment of the proposal against the key considerations of NZTA Access Guide has been undertaken and is outlined in below.

TABLE 9: NZTA ACCESS GUIDE - ACCESS ONTO STATE HIGHWAY GUIDE FROM PRIVATE PROPERTY

| NZTA Planning Policy Manual                                                              |                                                                                                                                    |
|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Access to State Highway Guide from Private Property                                      |                                                                                                                                    |
| Performance standards                                                                    |                                                                                                                                    |
| The following performance standards shall apply to vehicle crossings onto state highways |                                                                                                                                    |
| Criteria                                                                                 | Comments                                                                                                                           |
| Road Classification (ONF)                                                                | SH29 – inter-regional connector<br>SH27 – rural connector                                                                          |
| 10yr Crash Analysis                                                                      | Conducted within section 3.6. No identified crash patterns along proposed site frontage. Large crash focus at existing SH29 / SH27 |

|                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                     | intersection which is outside site frontage and not in the immediate vicinity of any proposed site access                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Network Infrastructure Effects (other road users)                                                                                                                   | <ul style="list-style-type: none"> <li>Neither SH29 nor SH27 provide dedicated pedestrian or cyclist facilities therefore anticipated effects are less than minor as demand is anticipated to be negligible for these road users.</li> <li>Site traffic effects are assessed in detail in section 5 of this ITA. It is noted that staff movements are anticipated to be outside typical network peaks due to anticipated construction hours of 7am to 6pm. HCV movements to occur outside network peak hours with a maximum of 5 HCV movements anticipated per hour.</li> <li>Detailed CTMP to be required and provided as condition of consent. A Framework CTMP has also been prepared to accompany this ITA and is intended to inform the requirements of the Detailed CTMP.</li> </ul>                                                                                 |
| <p>Access Effects</p> <p>Separation Distance</p> <ul style="list-style-type: none"> <li>To Intersections</li> <li>Between Accesses</li> </ul> <p>Sight Distance</p> | <ul style="list-style-type: none"> <li>Consultation with NZTA has been undertaken on 31 March 2026 where access preferences were agreed as outlined in Section 6.2 of this report.</li> <li>Using observed operational speed analysis, the assessment has found SH29 is able to provide full separation distance compliance to intersections and to the minimum separation requirements between accesses in both Options 1 and 2. Full compliance is also achieved with observed operational speed sightline requirements.</li> <li>Upgrading existing access 5 to Access Guide compliant Type E on SH27 is able to provide full separation and sight distance compliance.</li> <li>Detailed analysis is outlined in section 6 of this report. It is considered that all proposed access locations can be provided with less than minor effects to the network.</li> </ul> |
| Appropriate Access Design to NZTA standard                                                                                                                          | Type E access recommended. Concept access design appears to reflect this and vehicle tracking has been undertaken to confirm suitability of concept design for B-double design vehicle. Detailed design to include confirmation of compliance with NZTA Type E access requirements of all proposed accesses.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Onsite manoeuvring provision                                                                                                                                        | Vehicle tracking demonstrates forward entry and exit achievable at all access locations. Internal road network to facilitate internal site turnarounds for all vehicles.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Parking Provision                                                                                                                                                   | Temporary 'laydown' areas are provided within immediate proximity of the proposed SH29 and at the southern site boundary accessed from SH27. These areas are to be used for HCV movements, plant / equipment storage as well as on-site parking. These areas can also be adapted for operation and maintenance parking upon completion of construction as required. Refer section 7 of this ITA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Queuing                                                                                                                                                             | Although not specifically assessed within this report, the internal road network is considered to provide sufficient queuing to not have any external effects. Gates are to be setback far enough within the site to allow storage of one HCV to fully leave the road and wait.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| External infrastructure mitigation measures such as acceleration / deceleration or turning lanes                                                                    | It is anticipated that TTM compliant with the NZGTTM will be required during construction. This may include temporary speed limits on SH29 and SH27 and / or other methods of control. Establishment of a Detailed CTMP is expected to outline mitigation measures and controls once a contractor is appointed. A Framework CTMP accompanies this ITA to inform the Detailed CTMP. Refer section 10 of this ITA.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

It is noted that there is no fully compliant vehicle access location on SH29 for the provision of site access to a State Highway serving greater than 5,000vpd at the posted speeds. However, due to the unobstructed

sightlines, generally observed lower speed of through traffic and generally acceptable geometry of SH29, it is generally considered that appropriate and operational speed compliant site access via SH29 can be achieved at either Option 1 or Option 2. Fully compliant site access is able to be provided on SH27.

It is generally considered that appropriate vehicle access to the site can be provided and adequately managed during construction via a suitable CTMP. Additional temporary and permanent works may be required to the SH29 and SH27 road corridors to facilitate turning movements. The identification and extent of such works are to be established during preparation of the CTMP.

Post construction, the likely demand through the access is expected to be extremely low by comparison to construction traffic with up to 30vpd by light vehicles anticipated. It is noted that this may temporarily increase should maintenance be required within the site. Any such activities shall be assessed on an as needed basis to establish any requirement for traffic control.

## 12 Conclusion

It is proposed to develop the 154ha site into a solar farm located immediately east of Hinuera township with site frontages to the limited access roads of State Highway 29 and State Highway 27. The installation is expected to incorporate up to 107,00 solar panels and associated plant including a substation located at the southern extent of the site. It is understood that consenting for this solar farm is to be undertaken through the fast-track process.

Peak traffic volumes are typically experienced during the construction stages of such developments. Construction is anticipated to take up to 24 months and this site is expected to generate up to 375 vehicle movements per day anticipated during month 12 of construction. Of this, approximately 360 vehicle movements are anticipated to be associated with staff and the remaining 15 movements are associated with heavy vehicles. Peak HCV generation is expected during months 5 and 6 of construction with approximately 30 movements per day. This would result in approximately 3 HCV movements per hour or one HCV movement every 20 minutes. Due to anticipated construction hours being 7am to 6pm, it is considered likely that staff movements will primarily occur outside the typical network peak hours of 7am to 9am and 3pm to 6pm thereby having a less than minor effect to the network.

Effects associated with construction are temporary in nature and are considered to be able to be appropriately mitigated through implementation of a Detailed CTMP. Provision of the Detailed CTMP is to be required by way of consent condition and to the satisfaction and approval of the consenting authority. A Framework CTMP has been prepared to accompany this ITA and is intended to inform the Detailed CTMP.

The solar farm, once operational, is expected to generate minimal traffic, approximately 30 movements per day, to the surrounding network. Movements through the site will be achieved through the sites internal access road network.

Based on analysis using observed operational speeds along SH29, it is demonstrated that either Option 1 or Option 2 are able to provide compliance with the minimum requirements of the Access Guide for separation distance and are able to exceed the sightline requirements. Following consultation with NZTA it was determined that for access to SH29, preference was establishment of a new Type E vehicle crossing at the Option 1 location. It is considered that establishment of this access is considered appropriate and able to be achieved with less than minor anticipated effects.

Under Option 2, the proposal outlines that the existing Access 2 will be retained 'as is', with potentially minor amendments to allow vehicle swept paths, depending on the vehicle type which will need to access this part of the site. NZTA have however communicated that re-use of this access will not be supported unless it is formally upgraded to meet the formation specifications associated with a Type E access. This access is also considered able to provide compliant sight and minimum separation distance. Should Option 2 be implemented as means of access to SH29 it is recommended that HCV deliveries through this access be limited to a maximum 1 – 2 per hour and up to 10 per day given it is not to be constructed to Type E specifications. This is considered to be generally in keeping with agricultural level of use.

The proposed upgrade of existing access 5 on SH27 to comply with Access Guide Type E has been assessed and is able to achieve NZTA Access Guide compliant separation (between access and to intersections) and sight distance based on operating speed.

Option 1 SH29 and the upgrade of existing access 5 on SH27 are to be constructed in accordance with Access Guide Type E. As such, these access locations are considered capable of accommodating all site construction traffic with negligible capacity and safety effects to the surrounding road network without the need for additional controls.

Generally, the development of the solar farm is considered to align with the performance standard requirements of MPDC District Plan for provision of access to significant or arterial roads and the NZTA PPM Access Guide. One instance of non-compliance has been identified pertaining to trip generation. Construction traffic volumes are expected to vary during construction phases and the effects are expected to be able to be adequately mitigated using traffic management techniques to be outlined within an appropriate Detailed CTMP.

It is therefore concluded that there are no traffic engineering or transport planning reasons to preclude approval of the proposed solar farm development.

CKL

## Appendix A: Anticipated Vehicle Movements

## Construction

### HCV Movements

| Activity                               | Month |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----------------------------------------|-------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|                                        | 1     | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| General Site administration/management |       |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Site Establishment                     |       |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Civil Works                            |       |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Mechanical Construction                |       |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Electrical Works                       |       |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Grid Connection                        |       |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Electrical Testing/ Commissioning      |       |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Demobilisation                         |       |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Transition to Operational              |       |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

### Staff Movements

| Activity                               | Month     |           |           |           |           |           |           |            |            |            |            |            |            |            |            |           |           |           |           |           |           |           |           |           |
|----------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                        | 1         | 2         | 3         | 4         | 5         | 6         | 7         | 8          | 9          | 10         | 11         | 12         | 13         | 14         | 15         | 16        | 17        | 18        | 19        | 20        | 21        | 22        | 23        | 24        |
| General Site administration/management | 10        | 10        | 15        | 15        | 15        | 20        | 20        | 30         | 30         | 30         | 30         | 30         | 30         | 30         | 30         | 30        | 20        | 20        | 15        | 15        | 15        | 10        | 10        | 10        |
| Site Establishment                     | 15        | 20        | 30        | 30        |           |           |           |            |            |            |            |            |            |            |            |           |           |           |           |           |           |           |           |           |
| Civil Works                            |           | 10        | 10        | 10        | 15        | 30        | 30        | 30         | 20         | 20         | 20         |            |            |            |            |           |           |           |           |           |           |           |           |           |
| Mechanical Construction                |           |           |           |           |           | 30        | 30        | 50         | 70         | 70         | 70         | 70         | 30         | 30         |            |           |           |           |           |           |           |           |           |           |
| Electrical Works                       |           |           |           |           |           |           |           |            | 20         | 30         | 50         | 70         | 70         | 70         | 50         | 30        | 20        |           |           |           |           |           |           |           |
| Grid Connection                        |           |           |           |           |           |           |           |            |            |            |            | 10         | 20         | 30         | 30         | 30        | 20        | 10        |           |           |           |           |           |           |
| Electrical Testing/ Commissioning      |           |           |           |           |           |           |           |            |            |            |            |            |            |            |            |           | 20        | 20        | 20        | 20        | 20        | 20        |           |           |
| Demobilisation                         |           |           |           |           |           |           |           |            |            |            |            |            |            |            |            |           |           |           |           |           |           |           | 20        | 20        |
| Transition to Operational              |           |           |           |           |           |           |           |            |            |            |            |            |            |            |            |           |           |           |           |           |           |           | 10        | 10        |
| <b>Total</b>                           | <b>25</b> | <b>40</b> | <b>55</b> | <b>55</b> | <b>30</b> | <b>80</b> | <b>80</b> | <b>110</b> | <b>140</b> | <b>150</b> | <b>170</b> | <b>180</b> | <b>150</b> | <b>160</b> | <b>110</b> | <b>90</b> | <b>80</b> | <b>50</b> | <b>35</b> | <b>35</b> | <b>35</b> | <b>30</b> | <b>40</b> | <b>40</b> |