



Appendix R Erosion and Sediment Control Plan

Fast-Track Approvals Act 2024 Substantive Application

Hinuera Solar Farm

Harmony Energy NZ #6 Limited

SLR Project No.: 880.016894.00001

19 August 2026





EROSION AND SEDIMENT CONTROL REPORT



HINUERA SOLAR FARM
HARMONY ENERGY NZ #6 LIMITED
STATE HIGHWAY 27 & 29
HINUERA



PROJECT INFORMATION

CLIENT	Harmony Energy NZ #6 Limited
PROJECT	MM-0809 – Hinuera Solar Farm

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1. EXECUTIVE SUMMARY

Maven Matamata Limited has been engaged by Harmony Energy NZ #6 Limited (Harmony) to undertake infrastructure design, in support of a proposed Solar Farm, at the corner of State Highway 27 & 29, Hinuera.

The scope of this Erosion and Sediment Control (ESC) Report is in Section 2 below.

This report summarises ESC controls, their implementation on site throughout the earthworks phase, and how they will mitigate the effects of sediment laden runoff, on the receiving environment.

2. INTRODUCTION

The Hinuera Solar Farm (HSF) proposal seeks to construct an approximately 70MW (AC) / 100MWp (DC) Solar/Battery Energy Storage System (BESS) project over an approximately 150ha site area, with exported, generated electricity to be provided to the electrical grid, via the Powerco substation located at the corner of Lake Road and State Highway 27, Hinuera, approximately 2km south of the proposed site.

This report details the proposed earthworks and associated erosion and sediment control measures which will be implemented on site, throughout the earthworks phase. The report will detail how these measures will be applied to help mitigate the effects of sediment laden runoff, on the receiving environment.

This report is to be read in conjunction with the Engineering Drawings supplied as **Appendix A**, and any supplementary reporting or calculations, provided by Maven Matamata Limited, or directly from Harmony, or one of their consultants.

2.1. AUTHOR QUALIFICATIONS AND STATEMENT OF COMPLIANCE

Joshua Dempsey – Civil Engineer/Team Lead – Maven

I am a Civil Engineer and Team Leader at Maven. I have been employed at Maven since 2020. I hold the qualification of Bachelor of Engineering (Honours) from the University of Auckland. I am currently working towards Chartered Professional Engineer (CPEng) registration with Engineering New Zealand.

I have over 5 years of experience in stormwater design, three waters, roading, and earthworks across a diverse range of project types. I've previously lead the civil design for Tauhei solar Farm, where my primary role was to oversee the civil design and delivery including site access, internal roading networks, stormwater management, earthworks, and platform preparation for solar infrastructure.

I confirm that, in my capacity as 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.

Daniel Mackay – Civil Engineer – Maven Matamata

I am a Civil Engineer, based in the Maven Matamata office. Maven is a civil engineering consultancy specialising in land development, infrastructure design, stormwater management, and resource consenting. I hold a New Zealand Certificate of Engineering Technology, from the New Zealand Institute of Highway Technology/Western Institute of Technology at Taranaki and throughout my ten-year career in the civil engineering and land development industry, I draw on diverse experiences within local government, civil contracting and civil consulting to provide site investigation and inspection, civil design, project management and capital works projects.

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

2.2. SITE DESCRIPTION

The subject site is located on the corner of State Highway 27 and State Highway 29, Hinuera, approximately 8 km South of Matamata and 8.5 km North of Tirau, in a direct line.

The site comprises several existing lots, totalling approximately 154.53ha in area, and will be referred to as the 'area of works' or 'earthworks area', shown in Figure 1, below. The area of works sits within the Rural Zone of the Matamata-Piako District and is bounded to the North, East, South and West by State Highway 29, State Highway 27, neighbouring property and the KiwiRail Kinleith Branch railway line, respectively.

The site currently has access from State Highway 29, via existing accessways at numbers 4775 and 4739 SH29 along the Northern boundary, and from State Highway 27, via existing accessways at numbers 8270 and 8302 (two accessways) SH27 along the Eastern boundary.

The site is held in four (4) Records of Title and is legally described as the following:

Record of Title	Address	Legal Description	Area (ha)
SA69A/179	4775 State Highway 29, Matamata	Section 1 Block X Tapapa Survey District and Lot 1-2 Deposited Plan South Auckland 83767 and Section 11 Block X Tapapa SD	38.4035 ha
SA292/111	State Highway 27, Matamata	Lot 1 Deposited Plan 11891	25.7507 ha
SA308/1	8270 State Highway 27, Okoroire, Tirau	Lot 2 Deposited Plan 11891	25.7507 ha
647047	8302 State Highway 27, Okoroire, Tirau	Part Lot 3 Deposited Plan 11891 and Lot 2 Deposited Plan 473263 and Section 3 Block X Tapapa SD	64.6223 ha
		Total Land Area	154.53 ha

The site climbs towards the East, to a peak of approximately RL101m along the eastern boundary of 8270 and 8302 State Highway 27, with existing gradients of up to 10% in localised areas, and an overall, undulating contour from East to West, about 0.5% grade.

SLR Consulting were engaged to complete Water Feature Classification as part of their Ecological Impact Assessment report, which is attached elsewhere within the application documents. They noted that

“Two streams were identified on site, namely, the Mangawhero Stream and an unnamed tributary of the Mangawhero Stream. The streams drain in a generally northern to north easterly direction towards the Waihou River. The unnamed stream has been extensively modified through channel straightening, likely to assist with land drainage”.

According to the geotechnical site investigation completed by CMW Geosciences *“The predominantly cohesive (clayey) nature of the natural soils, which could be used as engineered fill, presents a low risk of erosion”.* Refer to the “Ecological Impact Assessment” prepared by SLR Consulting within the resource consent package for details.

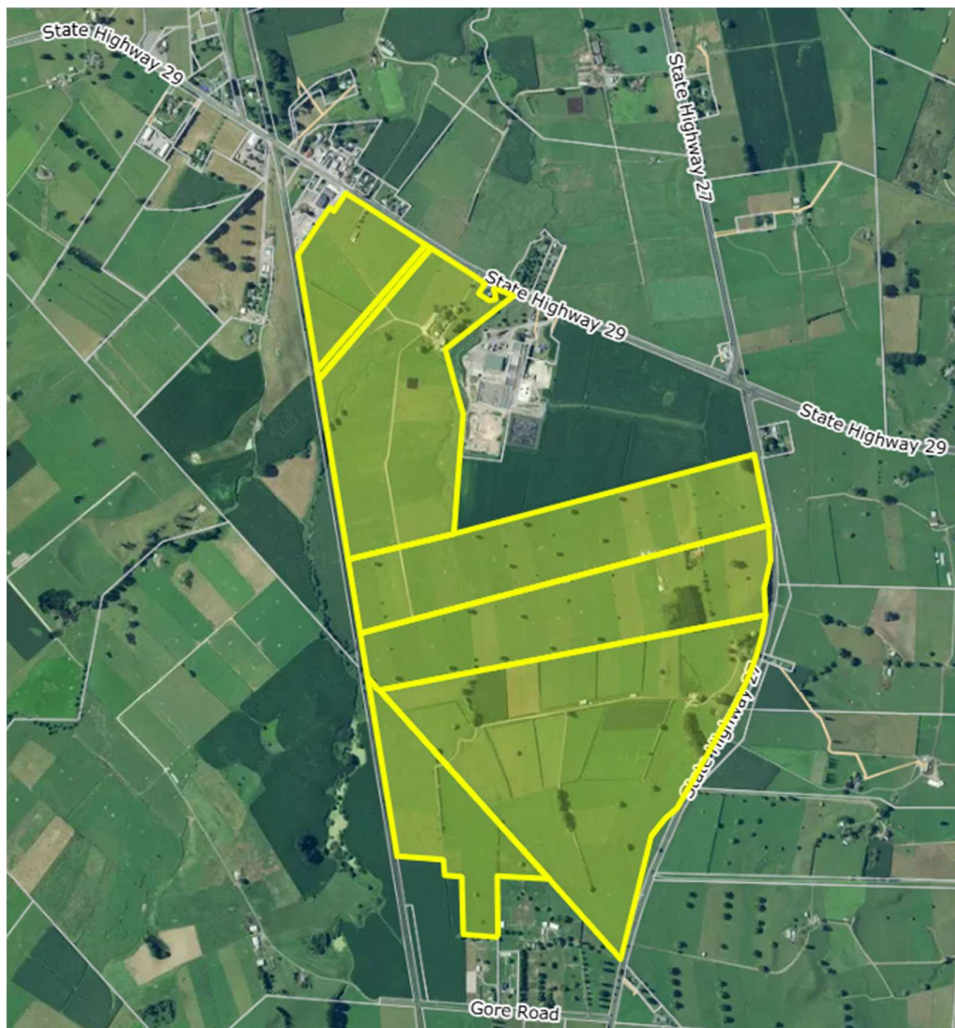


Figure 1: The Area of Works (Source: Grip Map)

2.3. EROSION AND SEDIMENT CONTROL PLAN PREPARATION

This plan has been prepared in accordance with Waikato Regional Council's (WRC) *Erosion and Sediment Control Guidelines for Land Disturbing Activities*.

The principal measures to be implemented are:

- Establishment of stormwater controls around earthwork areas to divert clean water away, therefore reducing the potential for erosion and sediment generation;
- Staging of earthworks, where possible, to limit the area exposed;
- Prompt stabilisation of disturbed ground;
- Utilisation of sediment control measures as identified within WRC's Guidelines.

This ESCP also recognises that good management is required to ensure that this plan is followed correctly, and the site is operated in a responsive manner.

The following management initiatives are included with the plan:

- Regular inspections by Contractor, Geotechnical Engineer, and Council staff;
- Training of and meetings with all project staff;
- Regular maintenance.

3. EARTHWORKS

3.1. PROPOSED EARTHWORKS

Earthworks will be undertaken in accordance with NZS4431:2022, and recommendations of CMW's Geotechnical Investigation Report, dated 06 November 2025.

The proposed work comprises a cut and fill operation to recontour the existing topography and enable building platforms, and roading levels to be established. Building platforms will be formed by cut and fill operations in areas deemed appropriate by the Geotechnical Engineer. The earthworks will be monitored and certified by the Geotechnical Engineer and buildings in these locations are expected to be supported by concrete slab foundations and by specific design of the Geotechnical Engineer.

Cut/fill slopes or batters are to be constructed in a manner to reduce the effects of erosion of susceptible materials, via appropriate gradients. Refinement of the landform design will occur during detailed design.

All earthworks will be certified in accordance with NZS4431:2022, *Engineered Fill Construction for Lightweight Structures*. The cut/fill plan is attached in Engineering Drawings, supplied as **Appendix A**. Prior to work beginning, a review of the current Erosion and Sediment Control design, season, ground conditions, and stormwater catchments will be undertaken, to ensure the most appropriate controls are planned and stage-specific plans are adopted, constantly monitored and reviewed, where needed. This will also consider specific contractor methodologies. Construction represents the period when the most significant impact on the downstream receiving environment can occur, due to erosion and sedimentation from disturbed land. Erosion and sediment control measures are to be implemented to mitigate downstream impacts.

A summary of the proposed earthworks volumes, between the existing, topsoil-stripped ground and proposed subgrade, is set out in **Table 1**, below. Areas for stockpiling will be nominated within the subject site, with an easily accessible haulage route within the earthworks area. Surplus material will be left on site. The proposed area will be managed by silt fencing.

Facility	Area of Disturbance (m ²)	Topsoil Removal - 250mm (m ³)
Roading Network (Modelled, excl. Entrances)	58,442	14,611
Construction Laydown (Assumed, EGL +200mm)	22,405	5,602
Contractor's Camp (Assumed, EGL +200mm)	11,515	2,879
O&M Compound (Assumed, EGL +200mm)	559	140
Warehouse Compound (Assumed, EGL +200mm)	921	231
Switching Station (Assumed, EGL +200mm)	282	71
Inverter Loop & Pads (Assumed, EGL +200mm)	19,247	4,812
Northern Fill Area (Assumed, EGL +300mm)	2,296	574
Trenching (Volume Provided by Others)	18,861	4,715
Total	132,232	33,061

Table 1: Earthworks – Topsoil Strip Volumes

High Risk Erosion Areas (HREAs) relevant to this site include land within 10 metres of a stream or wetland where the slope is less than 15 degrees. No slopes greater than 15 degrees were identified within 100 metres of any waterbody on site. Works within HREAs are summarised separately in Table 2 below. It is anticipated that HREA works are limited to the three stream crossings associated with the roading network and a small section of Road 2 near the internal stream. For more information on HREAs see Drawing C200.

Facility	High Risk Erosion Areas (m ²)	Topsoil Removal - 250mm (m ³)
Roading Network (Modelled, excl. Entrances)	921	230
Construction Laydown (Assumed, EGL +200mm)	0	0
Contractor's Camp (Assumed, EGL +200mm)	0	0
O&M Compound (Assumed, EGL +200mm)	0	0
Warehouse Compound (Assumed, EGL +200mm)	0	0
Switching Station (Assumed, EGL +200mm)	0	0
Inverter Loop & Pads (Assumed, EGL +200mm)	0	0
Trenching (Volume Provided by Others)	0	0
Total	921	230

Table 2: Earthworks – High Risk Erosion Areas

It is advised that majority of the work should be undertaken during the drier/summer period. Measures have been considered to allow for winter earthworks, if conditions are appropriate. It is proposed that winter works restrictions apply only within the HREAs identified in **Table 2** and Maven's C200 drawings,

while earthworks across the remainder of the site may continue under standard erosion and sediment controls. This approach will be discussed with the WRC compliance team, before proceeding with works during the winter period, and it is intended that this be reflected in any consent conditions issued. Prior to the commencement of any excavation or filling, all erosion and sediment control structures will be constructed and operational, to the approval of the Geotechnical Engineer.

3.2. GEOTECHNICAL INVESTIGATION

CMW provided preliminary feedback that considered the site to be generally suitable for the proposed level of development, however, commented that although pile drivability is expected to be good, test piles and load capacity is recommended. The Kerepehi Fault is within the proximity of site, but is not considered an impediment to development. The occurrence of deep-seated land instability occurring is assessed to be low and preliminary estimates of static settlements for typical floor loads exceed the Building Code and will require further analysis once building design is finalised. Liquefaction analysis results are high, resulting in specific design for foundation types.

The existing soils underlying the earthworks area are from the late Pleistocene-age. The geotechnical investigation found topsoil (0.2 – 0.3m deep) over River Deposits of the Hinuera Formation comprising interbedded layers of Silt and Sand with minor gravels and organic peat. Underlying the low hills to the East are middle Pleistocene aged river deposits comprised of moderately to poorly sorted gravel with minor sand and silt. Due to historic farming, some superficial depths of fill are anticipated.

Refer to the Geotechnical Investigation Report, within the resource consent documentation, for further information.

3.3. RESOURCE CONSENT REQUIREMENTS

This plan has been prepared in accordance with WRC's Erosion and Sediment Control Guidelines for Land Disturbing Activities. Implementation of the proposed erosion and sediment control measures are subject to obtaining Resource Consent for earthworks. It is anticipated that conditions of consent will require that proposed measures be implemented and maintained, in accordance with the guidelines and the approved Earthwork drawings.

3.4. PROGRAMME OF WORKS

Works are intended to be carried out in the following steps:

- Install stabilised entranceways;
- Install clean water diversions on works perimeter, and other areas, upslope from proposed earthworks, where required;
- Install silt control measures on downslope perimeter boundaries, where required;
- Install sediment control devices, such as Check Dams and dirty water runoff channels;
- Install drainage systems, outlets, and riprap, where required;
- Carry out bulk earthworks and preload settlement (if needed);
- Form laydown areas, building platform areas and proposed roads concurrently, as site is stabilised;
- Retain silt control measures until completion of the earthworks.

Earthworks will commence when all necessary controls are in place.

3.5. EARTHWORKS STAGING

A staged approach to earthworks is proposed so that areas of destabilised surfaces potentially causing sediment laden runoff are minimised. Reducing the areas exposed also reduce the reliance on water for dust suppression.

The earthworks area will be progressively stabilised throughout construction, and erosion and sediment control measures will be updated to suit the staging of the earthworks. The hardstand areas, such as the contractor's camps, laydowns, warehouse, O&M Building, and switching station will be stabilised with aggregate to limit exposed areas as soon as possible.

Sediment control will only be implemented until the stabilisation of the earthworks is completed and not for the entire duration of construction.

A silt fence will need to be utilised in the north to function as double protection for the overland flow path to the Mangawhero Stream. Similarly, where the southern contractor's camps and laydown are located near existing drains, silt fences will be installed on the downstream side of the earthwork areas. Given these areas naturally fall towards the drain, stormwater controls around earthwork areas to divert water away may be required. As the construction approaches finalisation, mulching may be used over the open ground, until the vegetation grows back.

NOTE: Earthwork areas, staging and methodology are to be reviewed once a Contractor has been appointed, and these may require alteration from what is proposed in this document. Matamata-Piako District Council (MPDC) and Waikato Regional Council will be consulted, should any changes be requested.

3.6. WINTER EARTHWORKS

The Waikato Regional Council generally acknowledges that site specific winter earthworks may be allowed, for essential work, with written approval. An application for Winter Works will be made to WRC.

Where winter works approval is sought, it is proposed that the requirement for such consent be limited to works occurring within high-risk erosion areas only. High-risk erosion areas are considered to include areas within 10 metres of a stream or watercourse where the adjoining slope or where the slope does not exceed 15 degrees. Works falling outside of these defined areas would not be subject to the winter works consent requirement.

4. EROSION AND SEDIMENT CONTROL MEASURES

Silt control measures will need to be installed onsite, checked, and confirmed acceptable by the Geotechnical Engineer and MPDC, before works commence. During earthworks, the sediment control measures will be continuously monitored and maintained to ensure that they function as intended.

The earthworks area will be progressively stabilised, as earthwork levels are achieved, with topsoil, grass seed, and straw mulch, where appropriate, and with the compacted subbase, in areas of proposed roading. Silt control measures will only be removed once the area is considered stable, in terms of silt run-off, by the Geotechnical Engineer.

Earthworks will be undertaken in bulk, as set out in the Erosion and Sediment Control drawings, supplied in **Appendix A**. Prior to work beginning, a review of the current design, season, ground conditions, and catchments will be undertaken to ensure the most appropriate erosion and sediment controls are installed and plans are adopted, as required.

4.1. PROPOSED CONTROLS

STABILISED ENTRANCE

Prior to earthworks beginning on site, stabilised entrances will be installed at the proposed and existing, to be upgraded, locations from State Highway 27 and State Highway 29, to mitigate sediment being tracked onto the public roading network.

Stabilised entrances will be maintained, or replaced, over the course of the works, should they not operate effectively in preventing sediment tracking onto the roading network.

CLEAN WATER DIVERSION CHANNELS (CWDC)

CWDCs are proposed to divert upstream runoff away from the site, preventing clean water from entering the area of works.

All CWDCs are designed to maintain separation of clean and dirty water, by diverting clean water away and around the area of works, before rejoining existing overland flow paths, as efficiently as possible. Existing farm drains will achieve this. For this site, the existing farms drains along the Southern boundary will act as the clean water diversions channels.

SILT FENCE

Silt fences are proposed as a line of defence, on downstream site boundaries, and as an optional control where it is practical to implement throughout site. Care should be taken to ensure only sheet flows are directed towards these areas and there are short silt fence returns projecting upslope, to prevent outflanking.

Silt fences must be at least 400mm above ground level and have supporting waratahs no more than 2m apart.

HAY BALE CHECK/FILTER DAMS

Check/filter dams will be implemented within existing farm drains and proposed table drains to aid in the removal of coarser sediment particles and reduce off-site sediment delivery. They will be located downstream of any road crossing and any works near farm drains.

Hay bale structures will be removed prior to heavy rain weather events and reinstated after high channel flows subside.

STABILISATION AND REVEGETATION

It is proposed that stabilisation and revegetation is to occur progressively, as earthworks are completed.

Acceptable stabilisation techniques are:

- Topsoil and grassing
- Hydroseeding
- Mulching and metaling

Although not explicitly stated, it is considered that 80% ground cover over the entire subject area is necessary to achieve a stabilised surface. Given the scale of the site, it is proposed that up to 1ha of open untreated surfaces may be allowed at any given time. Noting that the 1ha would not include permanent features as roads, hardstands, laydown areas which are in use.

Once established, vegetation protects exposed soils from raindrop impact, reduces runoff velocity and volume, binds soil particles together and can also inhibit weed growth.

STOCKPILING

Any stockpiling will be confined to a nominated area/s and will be treated as a temporary measure, located away from any watercourse or runoff flow path.

Topsoil stockpiles will also be a temporary measure, with surplus material being used in clean water diversion channels, on the perimeter of the earthworks area, and the remaining will be temporarily stockpiled within the earthworks areas and respread immediately following earthworks.

For temporary stockpiles expected to remain for less than 3 months, stabilisation will not be required unless there is a demonstrable risk of erosion. Stabilisation of temporary stockpiles may occur with geotextiles covers or other suitable methods. All stockpiles are to be positioned outside of the 100 m buffer of the identified wetlands, and 20m away from the council drains. Stockpiles will be constructed in accordance with good practice for soil stockpiling and erosion control. Stripping and stockpiling of topsoil and subsoil will be done separately.

When trench dewatering is required, discharge shall be directed to stable vegetated land where practicable. Where discharge to an existing farm drain is necessary, the discharge point shall include suitable erosion and sediment controls such as filter socks, sediment bags, geotextiles to minimise sediment discharge.

4.2. DUST CONTROL

During the earthworks phase there is a risk of dust nuisance during dry and windy weather. To manage potential dust effects, the following management measures are proposed:

- 1) The area exposed for earthworks will be minimised where possible, in accordance with the earthworks staging described in this report. It is anticipated that a maximum area of 1ha is exposed at any time.
- 2) At 5mm/m²/day, the potential, maximum volume of water for dust control required per day is 564m³, however it should be noted that this maximum is of all earthworks areas being opened simultaneously and will decrease progressively as more exposed areas become stabilised.
- 3) There will be no water taken directly from any waterbody or wetland on the site. Dust control options may be undertaken using 10,000L water carts filled from approved off-site supply points and brought to the site each morning, which could fill up tanks or purposed built storage ponds, from which water would be taken for dust suppression and as needed on site. Subject to water quality being suitable, water collected from trench dewatering may also be temporarily stored on site and reused for dust suppression.
- 4) Upon completion of earthwork areas, these shall be effectively stabilised using the following methods:
 - Topsoiling and grassing
 - Hydroseeding
 - Using hay or straw mulching
 - Water cart (where required)
- 5) The consent holder shall ensure that an adequate supply of water, for dust control, and an effective means of application are available on site at all times, during earthworks, until such time as the earthworks area is fully stabilised.

- 6) In the event that wind conditions render dust control impractical, the client shall ensure that any machinery generating airborne dust ceases to operate, until effective dust control is established.
- 7) In the event that dust control management is ineffective and, if found necessary, the client shall employ the use of soil stabilisers (such as polymers or similar) or weatherproof cover, where possible.
- 8) Dust control will be monitored on a daily basis, by the Contractor, and various measures employed, as required, to ensure dust pollution into neighbouring properties does not occur. The Geotechnical Engineer will inspect the earthworks area on a weekly basis (along with other erosion and sediment controls) and ensure that dust is being managed appropriately and the controls in place (such as water cart or stabilisation) are effective.
- 9) The Geotechnical Engineer will also monitor MPDC water supply alert notifications and will instruct the Contractor ahead of time on any alternate dust suppression control measures.

4.2.1. CONTINGENCY

If the water supply is interrupted, works are to temporarily cease until alternative sources of water are found.

Signage will also be placed at the entrance to the earthworks site, providing a 24-hour contact number for dealing with dust complaints that may arise from earthwork operations. If a complaint is made, it will be the Contractor's responsibility to implement satisfactory remediation measures immediately, to correct any issues.

4.3. WORKS WITHIN WATER COURSES

As part of the proposed works, culverts will be installed within existing farms drains and water courses beneath proposed roads. Prior to commencing any instream works, the watercourse shall be surveyed to confirm channel dimensions, bed invert level, and flow conditions.

To isolate the works area, a temporary stream diversion or bypass shall be established upstream of the installation point. This would involve the installation of temporary diversion bunds, pumping, or flume piping to redirect flow around the active works area, ensuring that sediment-laden water does not enter the downstream watercourse during construction.

Excavation of the trench shall be carried out using appropriate plant and equipment, with material stockpiled clear of the channel margins and away from any overland flow paths. The culvert shall be installed at the design invert level, with the base set below the existing bed level to facilitate fish passage. Headwalls or wingwalls shall be constructed at both the inlet and outlet to retain fill material, improve hydraulic performance, and protect against scour and undermining.

Following installation, the trench shall be backfilled and compacted in layers. Outlet protection, such as rock armouring or riprap, shall be placed at the culvert outlet to dissipate flow energy and prevent scour. The temporary stream diversion shall remain in place until the works area is adequately stabilised.

The works within the water courses are expected to comply with WRC's rules related to the concentration of total suspended solids (TSS) in the discharge. It is anticipated that the concentration of TSS will not exceed that specified (100g/m^3) with appropriate mitigation measures as required by the ESCP.

4.4. UPDATES TO REFLECT CONTRACTOR'S METHODOLOGY

An Erosion and Sediment Control Plan is a live document and as the project progresses, the ESCP, as presented, may be changed to reflect adaptations in the contractor's methodology.

Alternative control methods may be discussed with the WRC compliance officer at the preconstruction meeting, before being implemented on site.

5. MONITORING

All sediment control measures will be checked regularly, to ensure that they are performing as intended by design.

A site walk over shall be undertaken daily, before leaving the site to identify any corrective maintenance required. A more thorough inspection will be undertaken at the end of each week, or before and after a forecast major storm event, to identify any preventative and/or corrective maintenance required. A regular program of sediment, debris and trash removal will be undertaken to ensure sediment control measures do not become blocked and ensure they function as proposed. Any large floating matter, including any organic material, i.e., fallen tree litter, reaching the pond or discharge structures is to be removed immediately.

Specific monitoring and maintenance of each mitigation method is included below:

Stabilised Entrance:

- Inspect after heavy rainfall event and during periods of prolonged rainfall for scour and areas of undermining;
- Repair or replace immediately, if required, to ensure that sediment tracking prevention is maintained;
- Remove any accumulated sediment deposited in the entrance material.

Clean Water Diversion Channels:

- Inspect after heavy rainfall event and during periods of prolonged rainfall for scour and areas where they may breach;
- Repair immediately, if required, to ensure that capacity is maintained;
- Remove any accumulated sediment deposited in the channel, due to low gradients and velocities;
- Carefully check outlets to ensure that these remain free from scour and erosion.

Silt Fence:

- Inspect Silt Fences at least once a week and after a heavy rainfall event. Make any necessary repairs when bulges occur, or sediment accumulation reaches 50% of the fabric height;
- Any areas of collapse, decomposition or ineffectiveness need to be immediately replaced;

- Remove sediment deposits, as necessary, to continue to allow for adequate sediment storage and reduce pressure on the Silt Fence. Ensure that the sediment is removed to a secure area;
- Do not remove Silt Fence materials and sediment deposition until the catchment area has been appropriately stabilised. Stabilise the area of the removed Silt Fence.

Hay Bale Check/Filter Dams:

- Inspect frequently and after a heavy rainfall event for scour and areas where they may be breached. Remove during high rainfall weather events and reinstate once high channel flows subside;
- Repair or replace immediately, if required, to ensure that effectiveness is maintained;
- Remove any accumulated sediment build-up, once sediment accumulation reaches 50% of the bale height;
- Carefully check the channel about the check/filter dam to ensure that these remain free from scour and erosion.

6. CONCLUSIONS

Based on the details discussed within this Erosion and Sediment Control Report, we consider that the proposed development can accommodate earthworks at the subject site, with minimal effects on the receiving environment, provided that erosion and sediment control measures are implemented, monitored, and maintained appropriately, on site, and in line with WRC's Erosion and Sediment Control Guidelines for Land Disturbing Activities.

The works are expected to comply with WRC's rules related to the concentration of total suspended solids (TSS) in the discharge. It is anticipated that the concentration of TSS will not exceed that specified (100g/m) with appropriate mitigation measures as required by the ESCP.

7. LIMITATIONS

This report is based on information that has been provided to Maven Matamata Limited, from the Client, or by third parties. The report has been prepared strictly on the basis that the information that has been provided is accurate, complete, and adequate.

To the extent that any information is inaccurate, incomplete, or inadequate, Maven Matamata Limited takes no responsibility, and disclaims all liability whatsoever, for any loss or damage that results from any conclusions, based on information that has been provided to Maven Matamata Limited.

Maven Matamata Limited reserves the right to review our report, should there be items missed, or further information is presented to us.

We have prepared this report in accordance with the 'scope of works' and our terms of engagement. The information contained in this report has been prepared by Maven Matamata Limited at the request of the Client and is exclusively for their use and reliance.

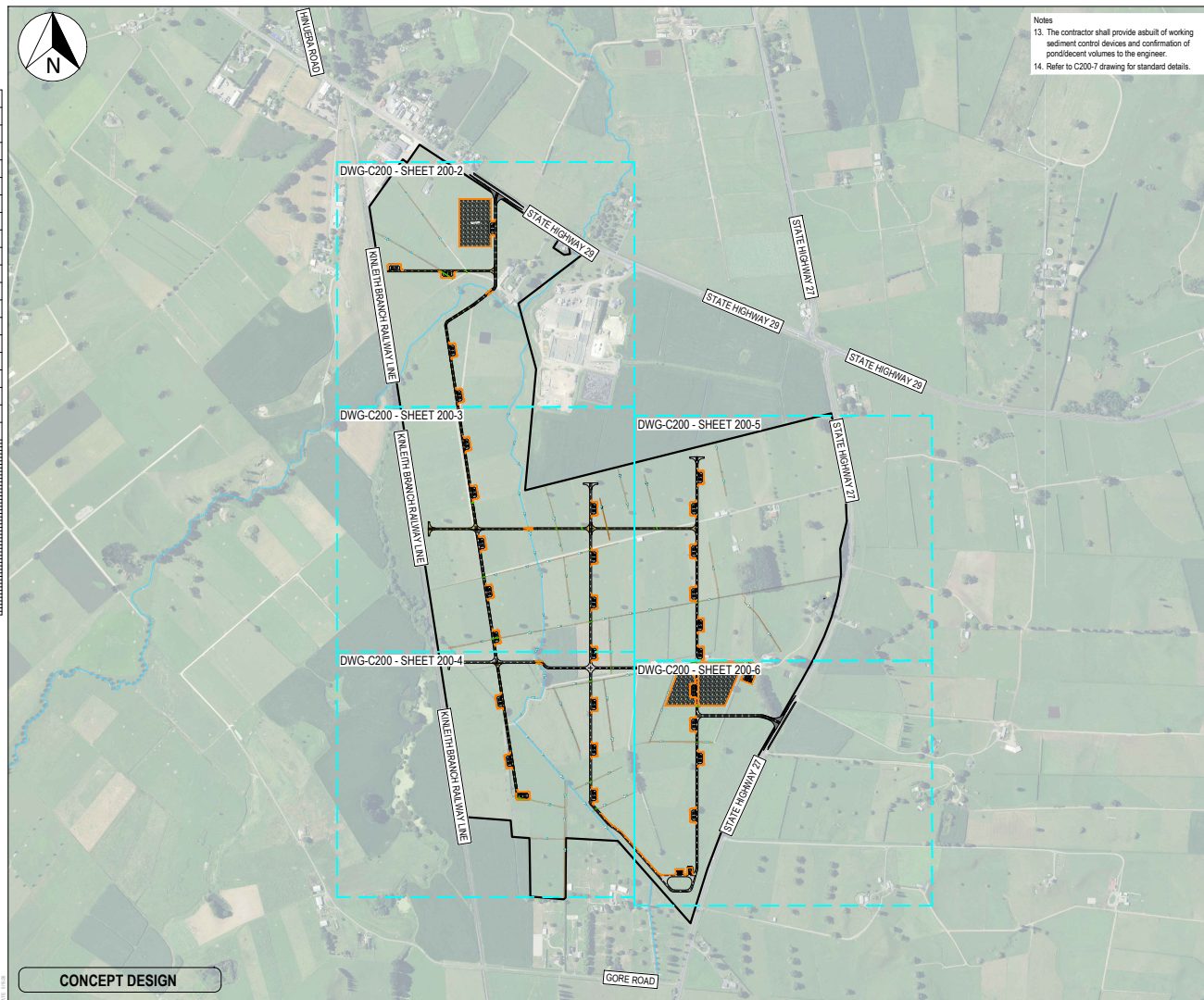
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APPENDIX A – EROSION & SEDIMENT CONTROL DRAWINGS

ORIGINAL SIZE: A3



- Notes
1. All works to be in accordance with MPDC or RITS standards.
 2. Co-ordinates in terms of Mount Eden 2000.
 3. Reduced Levels are in terms of NZVD 2016.
 4. Contour interval Major 5.0m Minor 1.0m.
 5. Roads shown are legal.
 6. Areas, Boundaries and Measurements are approximate only and subject to final survey.
 7. It is the contractors responsibility to locate all services that may be affected by their operations.
 8. The contractor shall comply with all relevant OSH and Health & Safety requirements.
 9. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 10. Sediment control shall be installed and operational before earthworks start onsite in accordance with WRC standards.
 11. All dust, sediment, erosion control and temporary stormwater discharge shall be undertaken in accordance with Waikato Regional Council's "Erosion & Sediment Control: Guidelines for Soil Disturbing Activities".
 12. It is the contractor's responsibility to ensure that soil is kept on site, a stabilised entranceway is used and to ensure that the road is clean.

- Notes
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 4. Contour interval Major 5.0m Minor 1.0m.
 5. Roads shown are legal.
 6. Areas, Boundaries and Measurements are approximate only and subject to final survey.
 7. It is the contractors responsibility to locate all services that may be affected by their operations.
 8. The contractor shall comply with all relevant OSH and Health & Safety requirements.
 9. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 10. Sediment control shall be installed and operational before earthworks start onsite in accordance with WRC standards.
 11. All dust, sediment, erosion control and temporary stormwater discharge shall be undertaken in accordance with Waikato Regional Council's "Erosion & Sediment Control: Guidelines for Soil Disturbing Activities".
 12. It is the contractor's responsibility to ensure that soil is kept on site, a stabilised entranceway is used and to ensure that the road is clean.

- Legend
- EX BOY
 - PROF BOY
 - EX MAJOR CONTOUR
 - EX MINOR CONTOUR
 - PROF SILT FENCE
 - PROF STOCKPILE
 - EX WATERCOURSE
 - PR HARMONY OFFSET
 - PROF 6m WIDE ROAD
 - PROF 6m WIDE ROAD
 - PROF ENTRANCEWAY
 - PR HARDSTAND AREA

C	CONCEPT DESIGN	JLD	05/26
B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25
Rev	Description	By	Date
Survey	LNZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	JLD		11/25

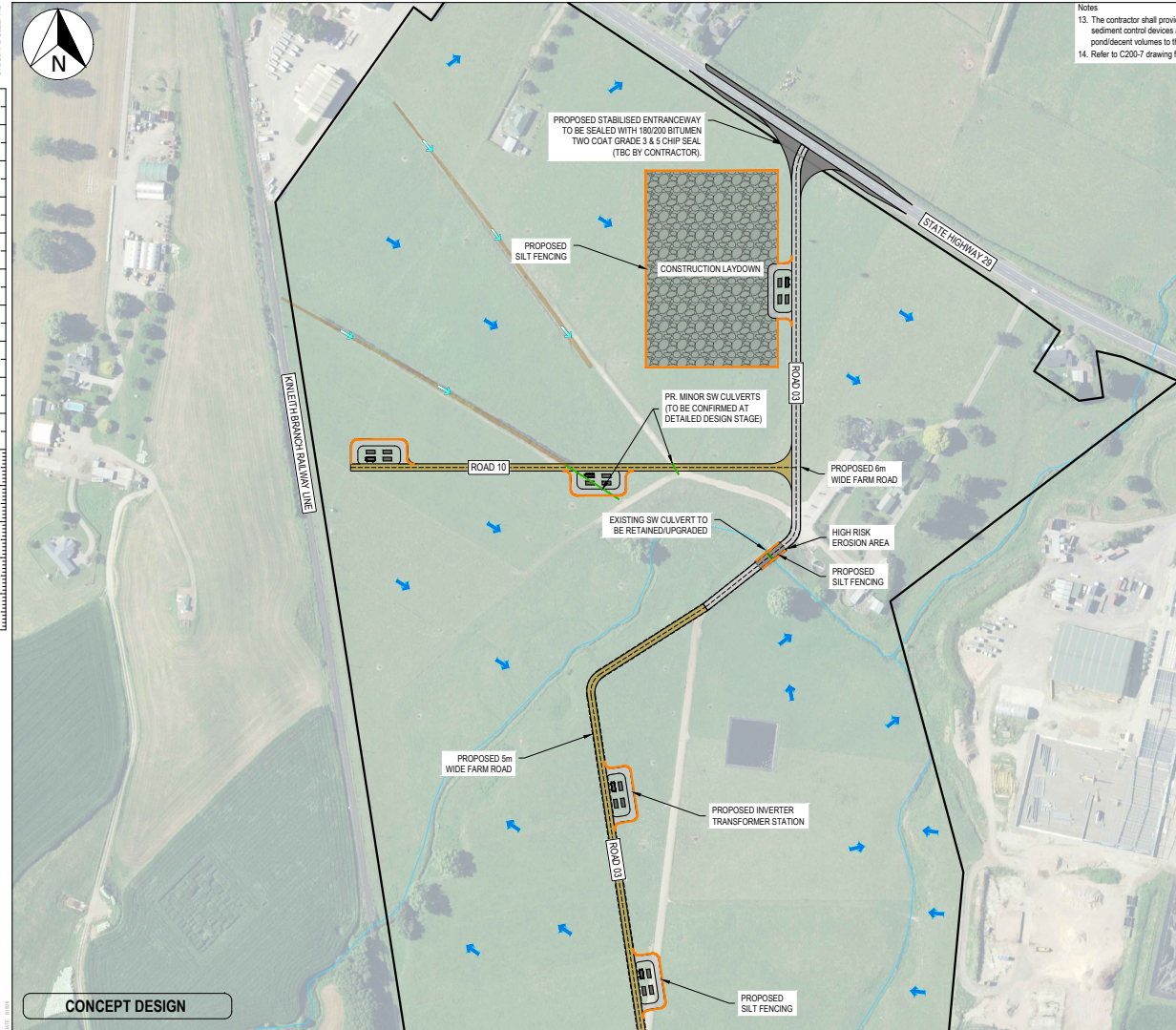


HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED

Title
PROPOSED EROSION
AND SEDIMENT CONTROL
PLAN

Project no.	MM-0809
Scale	1:10000 @ A3
Client	C200 - ESC.DWG
Drawing no.	C200-1
Rev	C

ORIGINAL SIZE: A3



Notes
13. The contractor shall provide as-built of working sediment control devices and confirmation of pond/decant volumes to the engineer.
14. Refer to C200-7 drawing for standard details.

Notes
1. All works to be in accordance with MPDC or RITS standards.
2. Co-ordinates in terms of Mount Eden 2000.
3. Reduced Levels are in terms of NZVD 2016.
4. Contour interval Major 5.0m Minor 1.0m.
5. Roads shown are legal.
6. Areas, Boundaries and Measurements are approximate only and subject to final survey.
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12. It is the contractor's responsibility to ensure that soil is kept on site, a stabilised entranceway is used and to ensure that the road is clean.

Legend

---	EX BOY
---	PROP BOY
---	EX MAJOR CONTOUR
---	EX MINOR CONTOUR
---	PROP SILT FENCE
---	PROP STOCKPILE
---	EX WATERCOURSE
---	PR HARMONY OFFSET
---	PROP 6m WIDE ROAD
---	PROP 5m WIDE ROAD
---	PROP ENTRANCEWAY
---	PR HARDSTAND AREA
---	EX OVERLAND FLOW
---	FARM DRAINS/NALES

C	CONCEPT DESIGN	JLD	05/26
B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25
Rev	Description	By	Date
Survey	LNZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	JLD		11/25

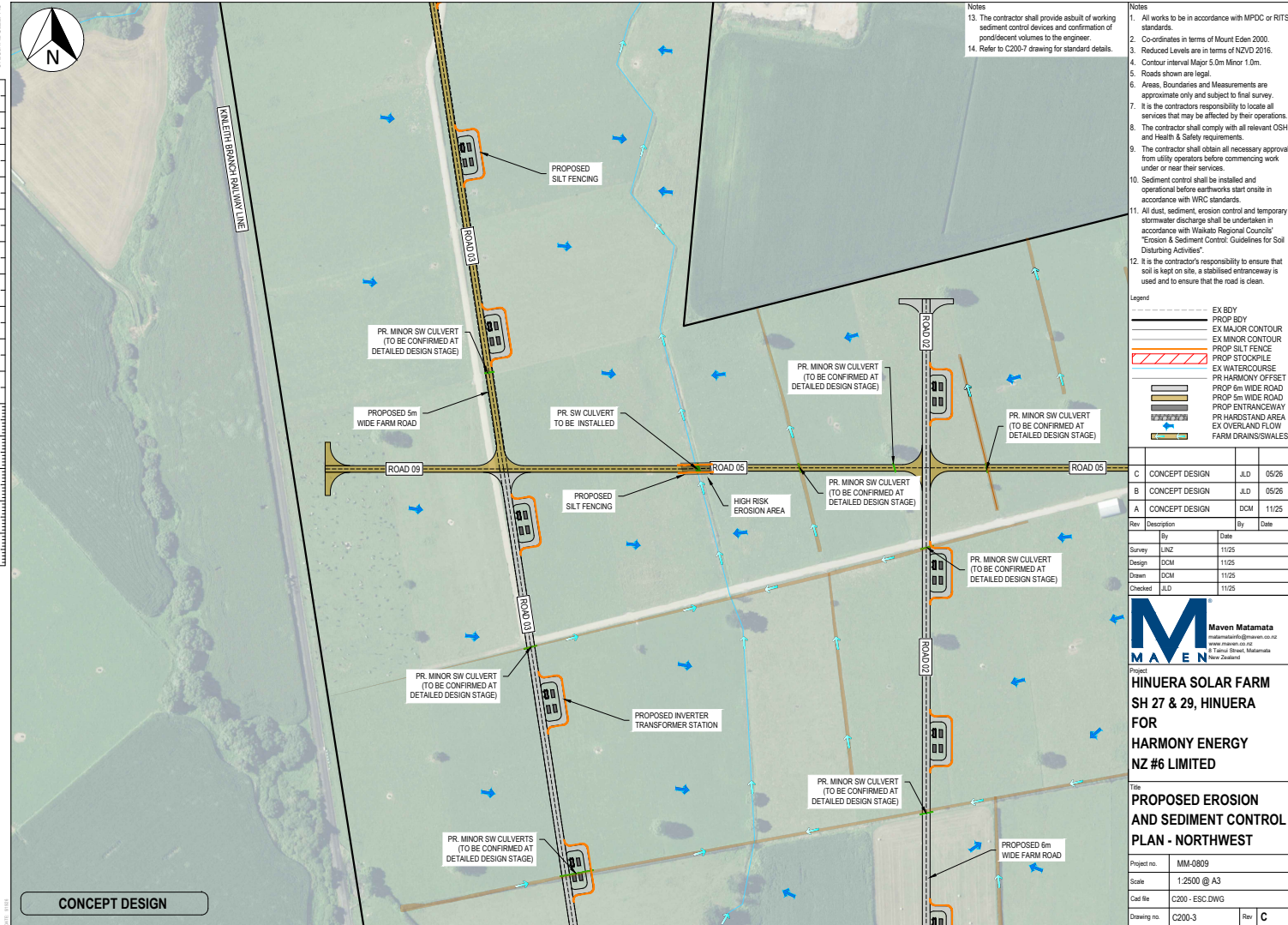


Project
**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

Title
**PROPOSED EROSION
AND SEDIMENT CONTROL
PLAN - NORTH**

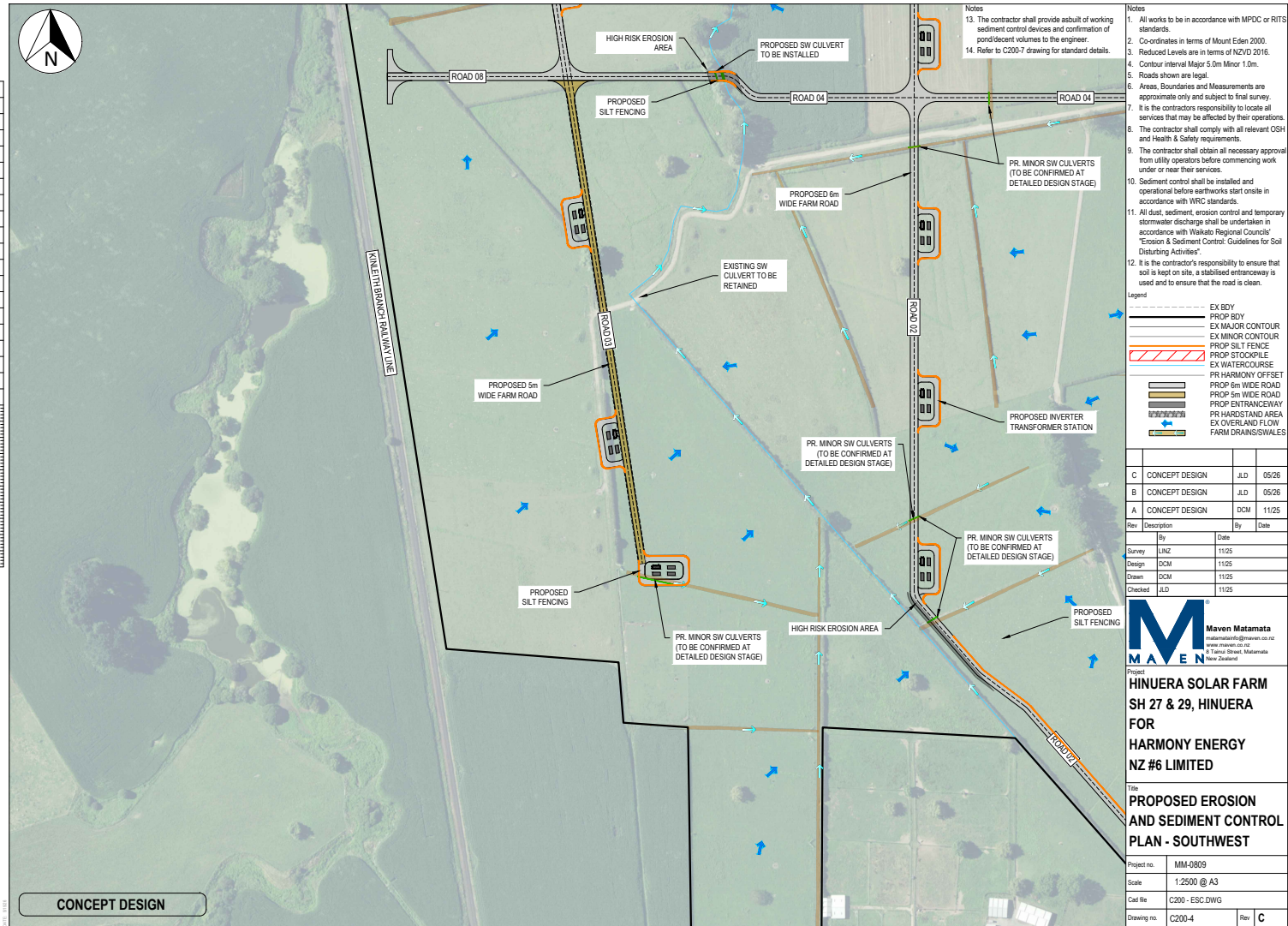
Project no.	MM-0809
Scale	1:2500 @ A3
Client	C200 - ESC.DWG
Drawing no.	C200-2
Rev	C

ORIGINAL SIZE: A3



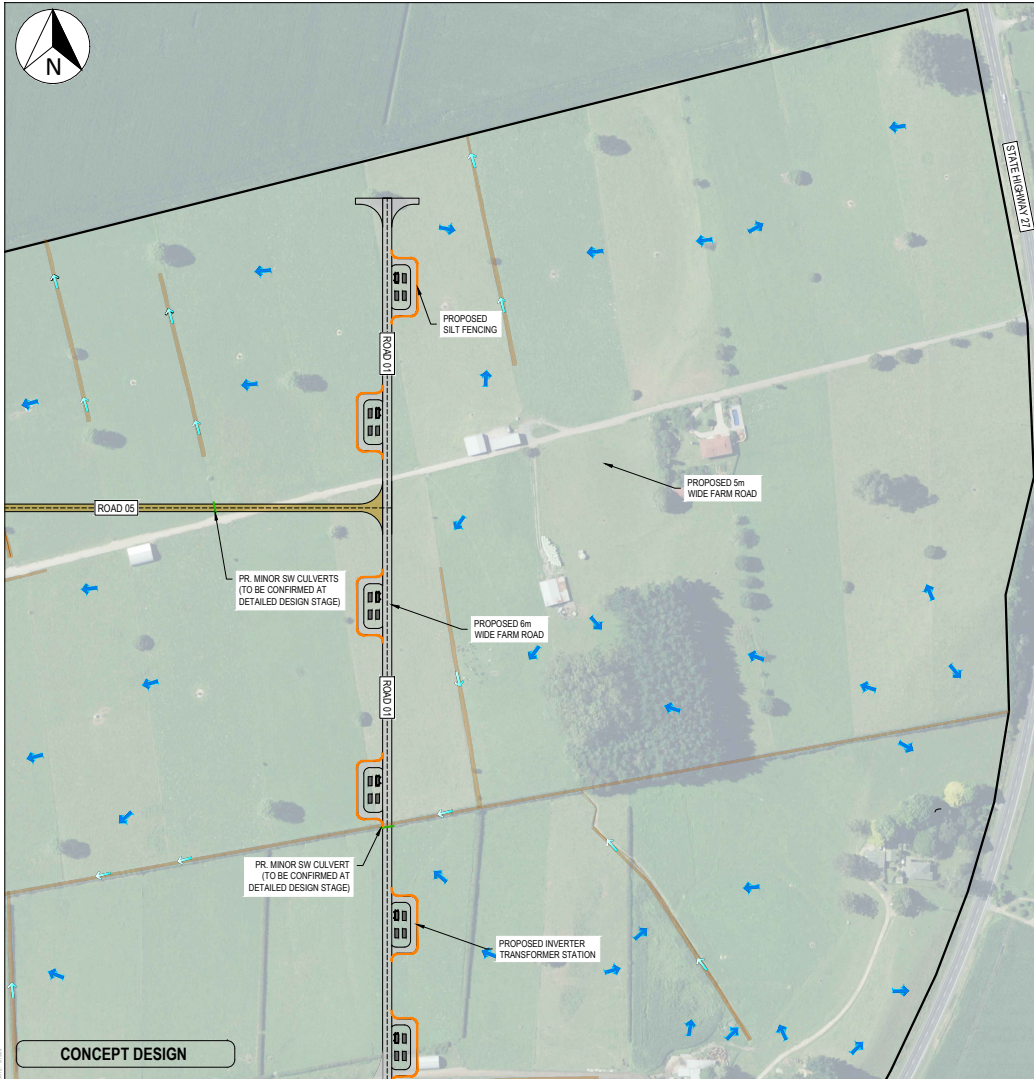
CONCEPT DESIGN

ORIGINAL SIZE: A3



CONCEPT DESIGN

ORIGINAL SIZE: A3



- Notes
13. The contractor shall provide as-built of working sediment control devices and confirmation of pond/decant volumes to the engineer.
 14. Refer to C200-7 drawing for standard details.

- Notes
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 9. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 10. Sediment control shall be installed and operational before earthworks start onsite in accordance with WRC standards.
 11. All dust, sediment, erosion control and temporary stormwater discharge shall be undertaken in accordance with Waikato Regional Council's "Erosion & Sediment Control" Guidelines for Soil Disturbing Activities".
 12. It is the contractor's responsibility to ensure that soil is kept on site, a stabilised entranceway is used and to ensure that the road is clean.

- Legend
- EX BOY
 - PROP BOY
 - EX MAJOR CONTOUR
 - EX MINOR CONTOUR
 - PROP SILT FENCE
 - PROP STOCKPILE
 - EX WATERCOURSE
 - PR HARMONY OFFSET
 - PROP 6m WIDE ROAD
 - PROP 5m WIDE ROAD
 - PROP ENTRANCEWAY
 - PR HARSTAND AREA
 - EX OVERLAND FLOW
 - FARM DRAINS/SWALES

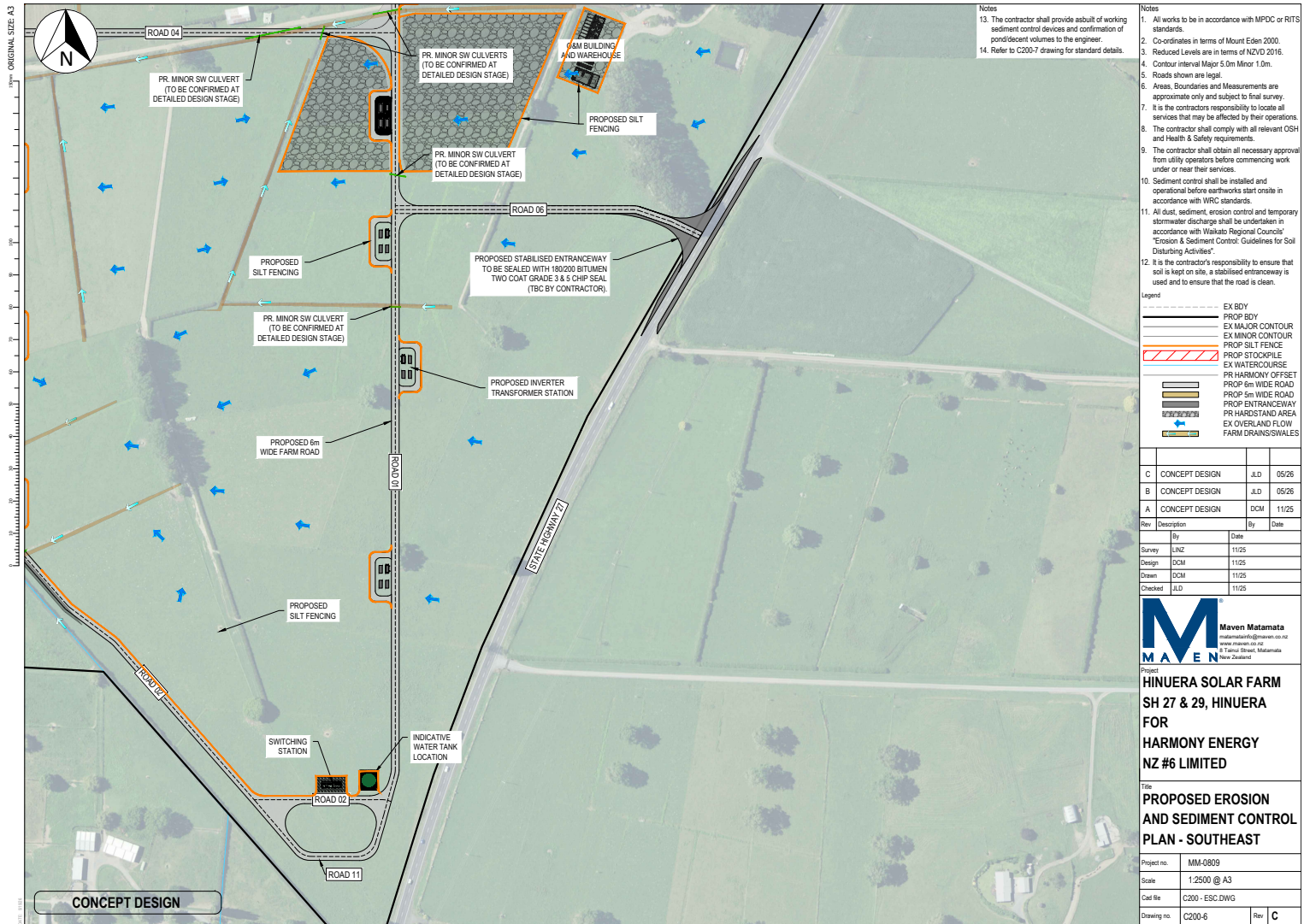
C	CONCEPT DESIGN	JLD	05/26
B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25
Rev	Description	By	Date
Survey	LNZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	JLD		11/25



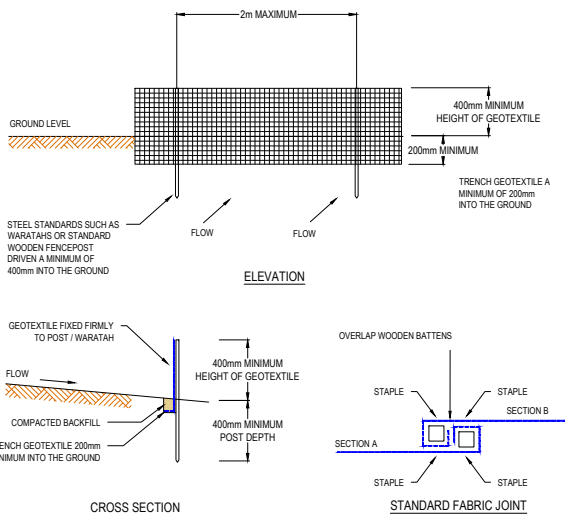
HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED

PROPOSED EROSION
AND SEDIMENT CONTROL
PLAN - NORTHEAST

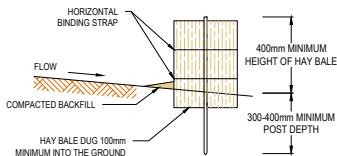
Project no.	MM-0809
Scale	1:2500 @ A3
Card file	C200 - ESC.DWG
Drawing no.	C200-5
Rev	C



ORIGINAL SIZE: A3



SILT FENCE CONSTRUCTION DETAILS



CROSS SECTION
HAY BALE FILTER DAM - TYPICAL DETAIL

SILT FENCE DESIGN CRITERIA:

SLOPE STEEPNESS %	SLOPE LENGTH (m) (MAXIMUM)	SPACING OF RETURNS (m)
< 2%	N/A	UNLIMITED
2-10%	40	60
10-20%	30	50
20-33%	20	40
33-50%	15	30
>50%	6	20

GRAB TENSILE STRENGTH: 440N (ASTM D4632)
TENSILE MODULUS: 0.140 pa (MINIMUM)
APPARENT OPENING SIZED: 1-0.5mm (ASTM D4751)

HAY BALE FILTER DAM DESIGN CRITERIA:

SLOPE STEEPNESS %	SPACING BETWEEN DAMS (m) (MAX.) 450mm CENTRE HEIGHT OF DAM	SPACING BETWEEN DAMS (m) (MAX.) 600mm CENTRE HEIGHT OF DAM
< 2%	24	30
2-4%	12	15
4-7%	8	11
7-10%	5	6
>10%	UTILISE STABILISED CHANNEL	UTILISE STABILISED CHANNEL

- Notes
- All works to be in accordance with MPDC or RITS standards.
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 - The contractor shall comply with all relevant OSH and Health & Safety requirements.
 - The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 - Sediment control shall be installed and operational before earthworks start onsite in accordance with WRC standards.
 - All dust, sediment, erosion control and temporary stormwater discharge shall be undertaken in accordance with Waikato Regional Council's "Erosion & Sediment Control: Guidelines for Soil Disturbing Activities".
 - It is the contractor's responsibility to ensure that soil is kept on site, a stabilised entranceway is used and to ensure that the road is clean.
 - The contractor shall provide as-built of working sediment control devices and confirmation of pond/scent volumes to the engineer.

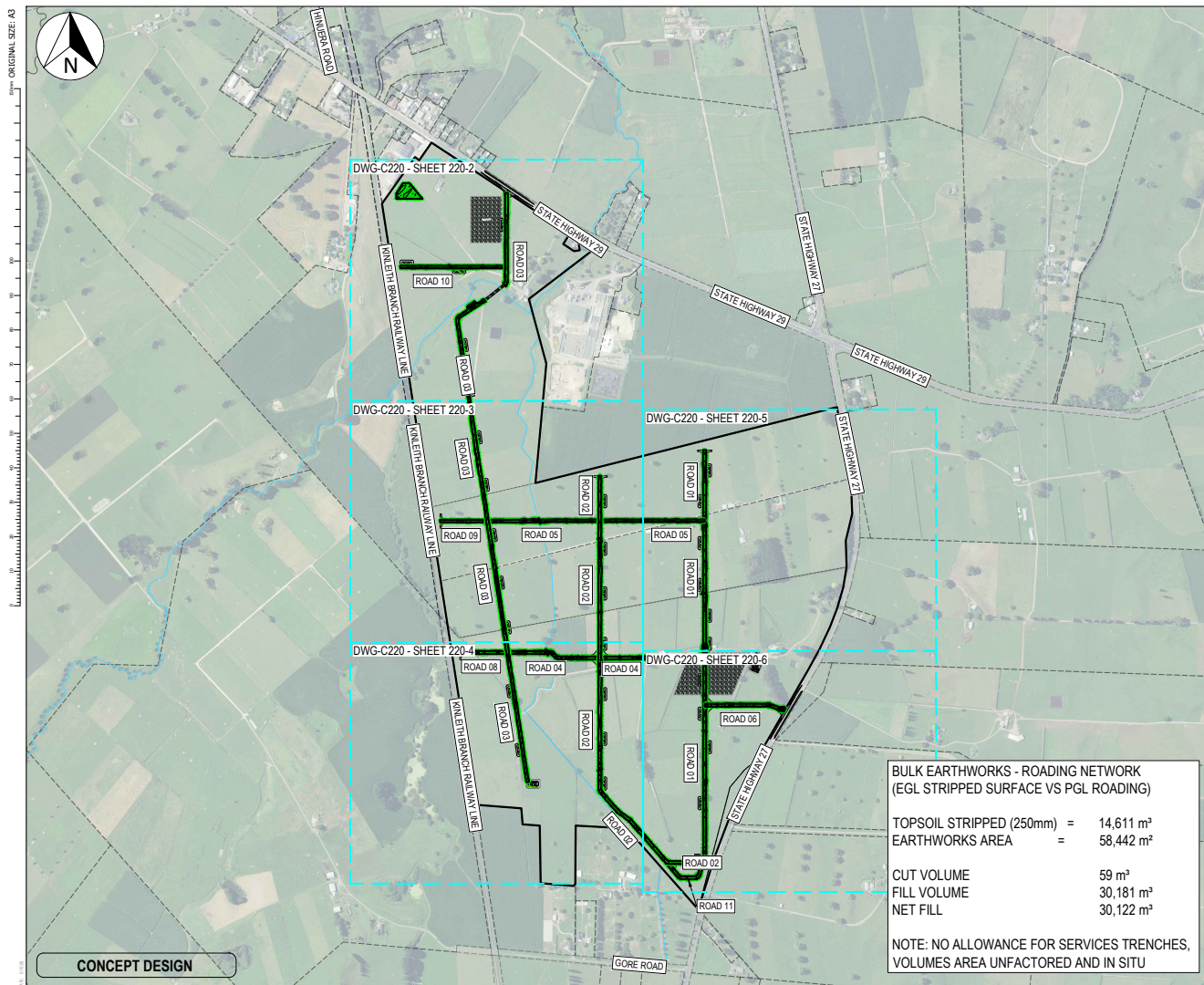
Rev	Description	By	Date
C	CONCEPT DESIGN	JLD	05/26
B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25



Project
**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

Title
**PROPOSED EROSION
AND SEDIMENT CONTROL
DETAILS PLAN**

Project no.	MM-0809
Scale	NTS @ A3
Card file	C200 - ESC.DWG
Drawing no.	C200-7
Rev	C



Notes

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10. All earthworks to be undertaken in accordance with the Geotechnical Investigation recommendations of CMW.

CUTS DATA			
Station	From	To	Level
1	1+000	1+050	1.000
2	1+050	1+100	1.000
3	1+100	1+150	1.000
4	1+150	1+200	1.000
5	1+200	1+250	1.000
6	1+250	1+300	1.000
7	1+300	1+350	1.000
8	1+350	1+400	1.000
9	1+400	1+450	1.000
10	1+450	1+500	1.000
11	1+500	1+550	1.000
12	1+550	1+600	1.000
13	1+600	1+650	1.000
14	1+650	1+700	1.000
15	1+700	1+750	1.000
16	1+750	1+800	1.000
17	1+800	1+850	1.000
18	1+850	1+900	1.000
19	1+900	1+950	1.000
20	1+950	2+000	1.000

Rev	Description	By	Date
C	CONCEPT DESIGN	JLD	05/26
B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25

Rev	Description	By	Date
Survey	LNZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	JLD		11/25

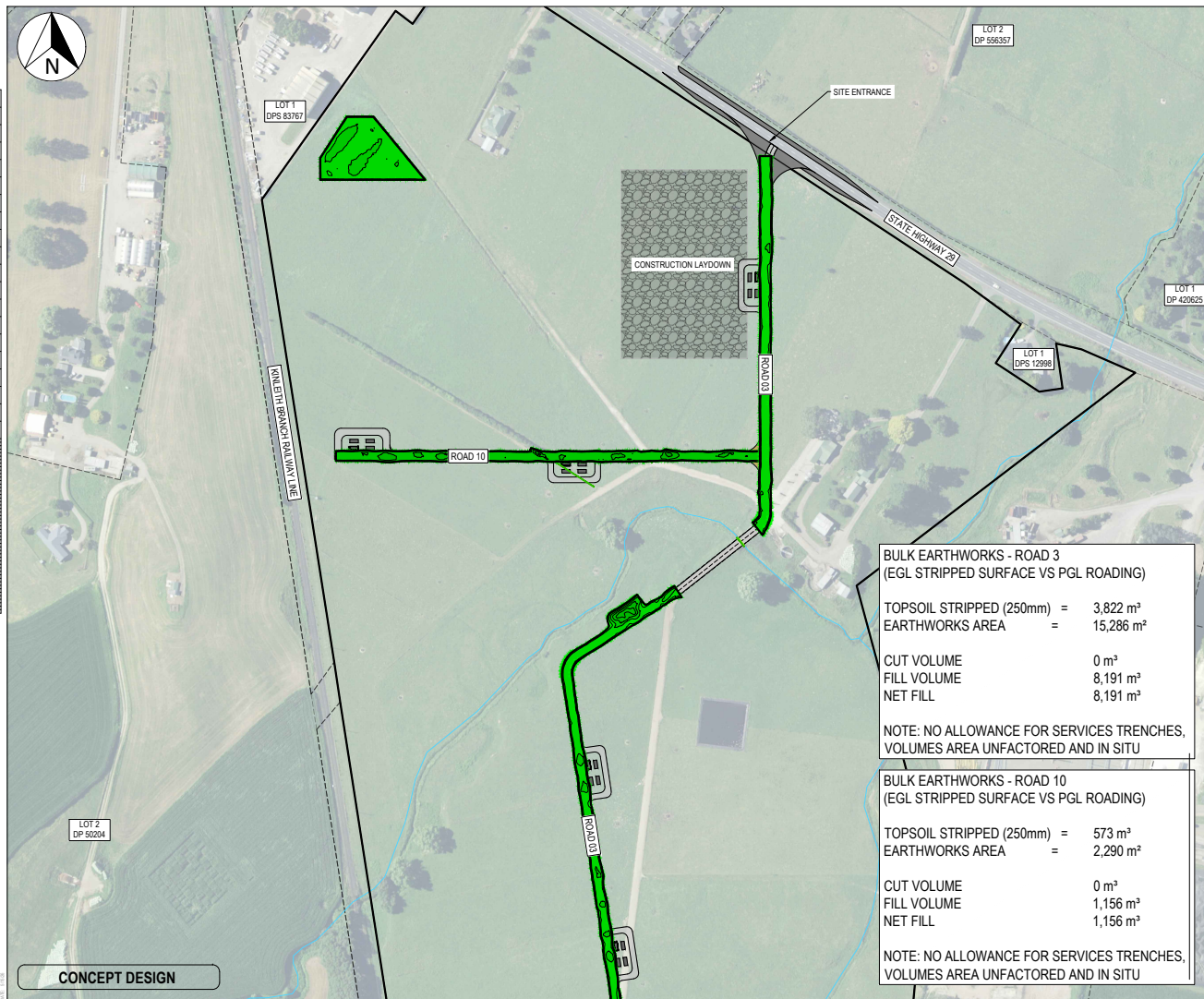
Maven Matamata
matamata@mvn.co.nz
www.mvnc.co.nz
7 Tairāwhiti Street, Matamata
New Zealand

**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

Title
**PROPOSED
ROADING CUT/FILL
PLAN**

Project no.	MM-0809
Scale	1:10000 @A3
Client	C220 - EWS.DWG
Drawing no.	C220-1
Rev	C

ORIGINAL SIZE: A3



BULK EARTHWORKS - ROAD 3
(EGL STRIPPED SURFACE VS PGL ROADING)

TOPSOIL STRIPPED (250mm) = 3,822 m³
EARTHWORKS AREA = 15,286 m²

CUT VOLUME 0 m³
FILL VOLUME 8,191 m³
NET FILL 8,191 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

BULK EARTHWORKS - ROAD 10
(EGL STRIPPED SURFACE VS PGL ROADING)

TOPSOIL STRIPPED (250mm) = 573 m³
EARTHWORKS AREA = 2,290 m²

CUT VOLUME 0 m³
FILL VOLUME 1,156 m³
NET FILL 1,156 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

- Notes
1. All works to be in accordance with MPDC or RITS standards.
 2. Co-ordinates in terms of Mount Eden 2000.
 3. Reduced Levels are in terms of NZVD 2016.
 4. Contour interval Major 1.0m Minor 0.2m.
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 9. Sediment control shall be installed and operational before earthworks start onsite in accordance with WRC standards.
 10. All earthworks to be undertaken in accordance with the Geotechnical Investigation recommendations of CMW.

CUT/FILL			
Depth	Area	Volume	Area
1	1.000	0.000	0.000
2	1.000	0.000	0.000
3	1.000	0.000	0.000
4	1.000	0.000	0.000
5	1.000	0.000	0.000
6	1.000	0.000	0.000
7	1.000	0.000	0.000
8	1.000	0.000	0.000
9	1.000	0.000	0.000
10	1.000	0.000	0.000
11	1.000	0.000	0.000
12	1.000	0.000	0.000
13	1.000	0.000	0.000
14	1.000	0.000	0.000
15	1.000	0.000	0.000
16	1.000	0.000	0.000
17	1.000	0.000	0.000
18	1.000	0.000	0.000
19	1.000	0.000	0.000
20	1.000	0.000	0.000

B	CONCEPT DESIGN	AJD	05/26
A	CONCEPT DESIGN	DCM	11/25
Rev	Description	By	Date
Survey	LNZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	AJD		11/25



**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

**PROPOSED
ROADING CUT/FILL
PLAN - NORTH**

Project no.	MM-0809
Scale	1:2500 @A3
Card file	C220 - EWS.DWG
Drawing no.	C220-2
Rev	B

ORIGINAL SIZE: A3



BULK EARTHWORKS - ROAD 5 (EGL STRIPPED SURFACE VS PGL ROADING)

TOPSOIL STRIPPED (250mm) = 1,208 m³
EARTHWORKS AREA = 4,831 m²

CUT VOLUME 0 m³
FILL VOLUME 2,492 m³
NET FILL 2,492 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

BULK EARTHWORKS - ROAD 9 (EGL STRIPPED SURFACE VS PGL ROADING)

TOPSOIL STRIPPED (250mm) = 258 m³
EARTHWORKS AREA = 1,029 m²

CUT VOLUME 0 m³
FILL VOLUME 522 m³
NET FILL 522 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

CONCEPT DESIGN

- Notes
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 9. Sediment control shall be installed and operational before earthworks start onsite in accordance with WRC standards.
 10. All earthworks to be undertaken in accordance with the Geotechnical Investigation recommendations of CMW.

CUT/FILL			
Station	Volume	Area	Level
1	1.000	0.000	0.000
2	1.000	0.000	0.000
3	1.000	0.000	0.000
4	1.000	0.000	0.000
5	1.000	0.000	0.000
6	1.000	0.000	0.000
7	1.000	0.000	0.000
8	1.000	0.000	0.000
9	1.000	0.000	0.000
10	1.000	0.000	0.000
11	1.000	0.000	0.000
12	1.000	0.000	0.000
13	1.000	0.000	0.000
14	1.000	0.000	0.000
15	1.000	0.000	0.000
16	1.000	0.000	0.000
17	1.000	0.000	0.000
18	1.000	0.000	0.000
19	1.000	0.000	0.000

B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25
Rev	Description	By	Date
Survey	LNZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	JLD		11/25



Project
**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

Title
**PROPOSED
ROADING CUT/FILL
PLAN - NORTHWEST**

Project no.	MM-0809
Scale	1:2500 @A3
Client	C220 - EWS.DWG
Drawing no.	C220-3
Rev	B

ORIGINAL SIZE: A3



BULK EARTHWORKS - ROAD 2 (EGL STRIPPED SURFACE VS PGL ROADING)

TOPSOIL STRIPPED (250mm) = 2,749 m³
EARTHWORKS AREA = 10,993 m²

CUT VOLUME 0 m³
FILL VOLUME 5,488 m³
NET FILL 5,488 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

BULK EARTHWORKS - ROAD 4 (EGL STRIPPED SURFACE VS PGL ROADING)

TOPSOIL STRIPPED (250mm) = 1,243 m³
EARTHWORKS AREA = 4,971 m²

CUT VOLUME 0 m³
FILL VOLUME 2,664 m³
NET FILL 2,664 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

BULK EARTHWORKS - ROAD 8 (EGL STRIPPED SURFACE VS PGL ROADING)

TOPSOIL STRIPPED (250mm) = 290 m³
EARTHWORKS AREA = 1,160 m²

CUT VOLUME 0 m³
FILL VOLUME 582 m³
NET FILL 582 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

CONCEPT DESIGN

KALLETU BRANCH RAILWAY LINE

ROAD 08

ROAD 04

ROAD 04

ROAD 03

ROAD 02

ROAD 02

- Notes
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 10. All earthworks to be undertaken in accordance with the Geotechnical Investigation recommendations of CMW.

CUT/FILL			
Depth	Material	Volume	Area
1	0.000 - 0.000	0.000	0.000
2	0.000 - 0.000	0.000	0.000
3	0.000 - 0.000	0.000	0.000
4	0.000 - 0.000	0.000	0.000
5	0.000 - 0.000	0.000	0.000
6	0.000 - 0.000	0.000	0.000
7	0.000 - 0.000	0.000	0.000
8	0.000 - 0.000	0.000	0.000
9	0.000 - 0.000	0.000	0.000
10	0.000 - 0.000	0.000	0.000
11	0.000 - 0.000	0.000	0.000
12	0.000 - 0.000	0.000	0.000
13	0.000 - 0.000	0.000	0.000
14	0.000 - 0.000	0.000	0.000
15	0.000 - 0.000	0.000	0.000
16	0.000 - 0.000	0.000	0.000
17	0.000 - 0.000	0.000	0.000
18	0.000 - 0.000	0.000	0.000

B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25
Rev	Description	By	Date
	By		
Survey	LNZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	JLD		11/25



Project
**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

Title
**PROPOSED
ROADING CUT/FILL
PLAN - SOUTHWEST**

Project no.	MM-0809
Scale	1:2500 @A3
Client	C220 - EWS.DWG
Drawing no.	C220-4
Rev	B



**BULK EARTHWORKS - ROAD 1
(EGL STRIPPED SURFACE VS PGL ROADING)**

TOPSOIL STRIPPED (250mm) = 2,535 m³
EARTHWORKS AREA = 10,139 m²

CUT VOLUME 0 m³
FILL VOLUME 5,133 m³
NET FILL 5,133 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

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 10. All earthworks to be undertaken in accordance with the Geotechnical Investigation recommendations of CMW.

CUTS DATA			
Station	Existing Elevation	Proposed Elevation	Cut
1	4.000	4.000	0.00
2	4.000	4.000	0.00
3	4.000	4.000	0.00
4	4.000	4.000	0.00
5	4.000	4.000	0.00
6	4.000	4.000	0.00
7	4.000	4.000	0.00
8	4.000	4.000	0.00
9	4.000	4.000	0.00
10	4.000	4.000	0.00
11	4.000	4.000	0.00
12	4.000	4.000	0.00
13	4.000	4.000	0.00
14	4.000	4.000	0.00
15	4.000	4.000	0.00
16	4.000	4.000	0.00
17	4.000	4.000	0.00
18	4.000	4.000	0.00
19	4.000	4.000	0.00

Rev	Description	By	Date
C	CONCEPT DESIGN	JLD	05/26
B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25
Rev	Description	By	Date
Survey	LNZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	JLD		11/25

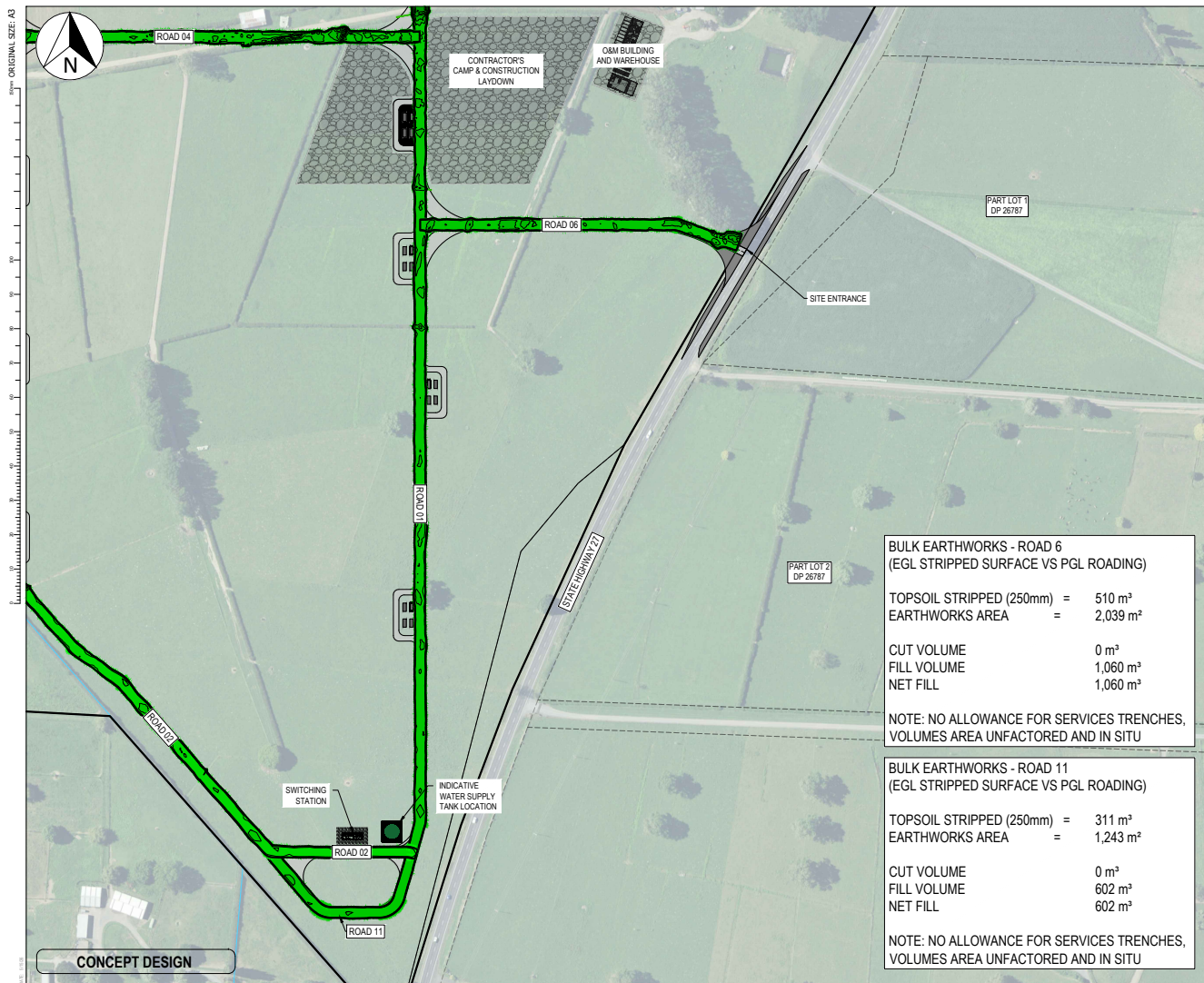


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**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

Title
**PROPOSED
ROADING CUT/FILL
PLAN - NORTHEAST**

Project no.	MM-0809
Scale	1:2500 @A3
Client	C220 - EWS.DWG
Drawing no.	C220-5
Rev	C



- Notes
1. All works to be in accordance with MPDC or RITS standards.
 2. Co-ordinates in terms of Mount Eden 2000.
 3. Reduced Levels are in terms of NZVD 2016.
 4. Contour interval Major 1.0m Minor 0.2m.
 5. Areas, Boundaries and Measurements are approximate only and subject to final survey.
 6. It is the contractors responsibility to locate all services that may be affected by their operations.
 7. The contractor shall comply with all relevant OSH and Health & Safety requirements.
 8. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 9. Sediment control shall be installed and operational before earthworks start onsite in accordance with WRC standards.
 10. All earthworks to be undertaken in accordance with the Geotechnical Investigation recommendations of CMW.

CUTS DATA			
Station	From	To	Level
1	1000	1000	1000
2	1000	1000	1000
3	1000	1000	1000
4	1000	1000	1000
5	1000	1000	1000
6	1000	1000	1000
7	1000	1000	1000
8	1000	1000	1000
9	1000	1000	1000
10	1000	1000	1000
11	1000	1000	1000
12	1000	1000	1000
13	1000	1000	1000
14	1000	1000	1000
15	1000	1000	1000
16	1000	1000	1000
17	1000	1000	1000
18	1000	1000	1000
19	1000	1000	1000

**BULK EARTHWORKS - ROAD 6
(EGL STRIPPED SURFACE VS PGL ROADING)**

TOPSOIL STRIPPED (250mm) = 510 m³
EARTHWORKS AREA = 2,039 m²

CUT VOLUME 0 m³
FILL VOLUME 1,060 m³
NET FILL 1,060 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

**BULK EARTHWORKS - ROAD 11
(EGL STRIPPED SURFACE VS PGL ROADING)**

TOPSOIL STRIPPED (250mm) = 311 m³
EARTHWORKS AREA = 1,243 m²

CUT VOLUME 0 m³
FILL VOLUME 602 m³
NET FILL 602 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

Rev	Description	By	Date
B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25
Rev	Description	By	Date
Survey	LNZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	JLD		11/25



**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

**PROPOSED
ROADING CUT/FILL
PLAN - SOUTHEAST**

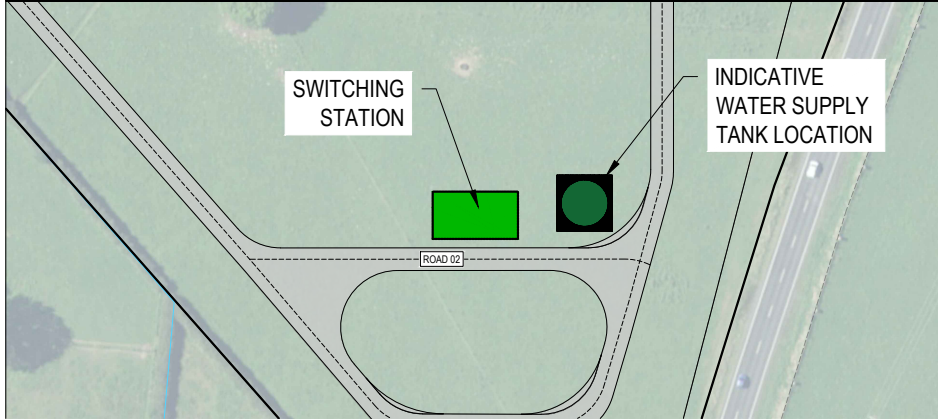
Project no.	MM-0809
Scale	1:2500 @A3
Client	C220 - EWS.DWG
Drawing no.	C220-6
Rev	B

100m ORIGINAL SIZE: A3



- Notes
1. All works to be in accordance with MPDC or RITS standards.
 2. Co-ordinates in terms of Mount Eden 2000.
 3. Reduced Levels are in terms of NZVD 2016.
 4. Contour interval Major 1.0m Minor 0.2m.
 5. Areas, Boundaries and Measurements are approximate only and subject to final survey.
 6. It is the contractors responsibility to locate all services that may be affected by their operations.
 7. The contractor shall comply with all relevant OSH and Health & Safety requirements.
 8. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 9. Sediment control shall be installed and operational before earthworks start onsite in accordance with WRC standards.
 10. All earthworks to be undertaken in accordance with the Geotechnical Investigation recommendations of CMW.

Change	From	To	Area
1	<200	>200	0.00
2	>200	<200	0.00
3	>200	>200	0.00
4	<200	<200	0.00
5	>200	>200	0.00
6	>200	>200	0.00
7	>200	>200	0.00
8	>200	>200	0.00
9	>200	>200	0.00
10	>200	>200	0.00
11	>200	>200	0.00
12	>200	>200	0.00
13	>200	>200	0.00
14	>200	>200	0.00
15	>200	>200	0.00
16	>200	>200	0.00
17	>200	>200	0.00
18	>200	>200	0.00
19	>200	>200	0.00
20	>200	>200	0.00



BULK EARTHWORKS - LAYDOWNS & COMPOUNDS
(EGL STRIP SURFACE VS PGL L & C HARDSTAND)

TOPSOIL STRIPPED (250mm) = 8,104 m³
EARTHWORKS AREA = 32,417 m²

CUT VOLUME 468 m³
FILL VOLUME 14,792 m³
NET FILL 14,324 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

BULK EARTHWORKS - SWITCHING STATION
(EGL STRIP SURFACE VS PGL SWITCHING STATION)

TOPSOIL STRIPPED (250mm) = 71 m³
EARTHWORKS AREA = 282 m²

CUT VOLUME 0 m³

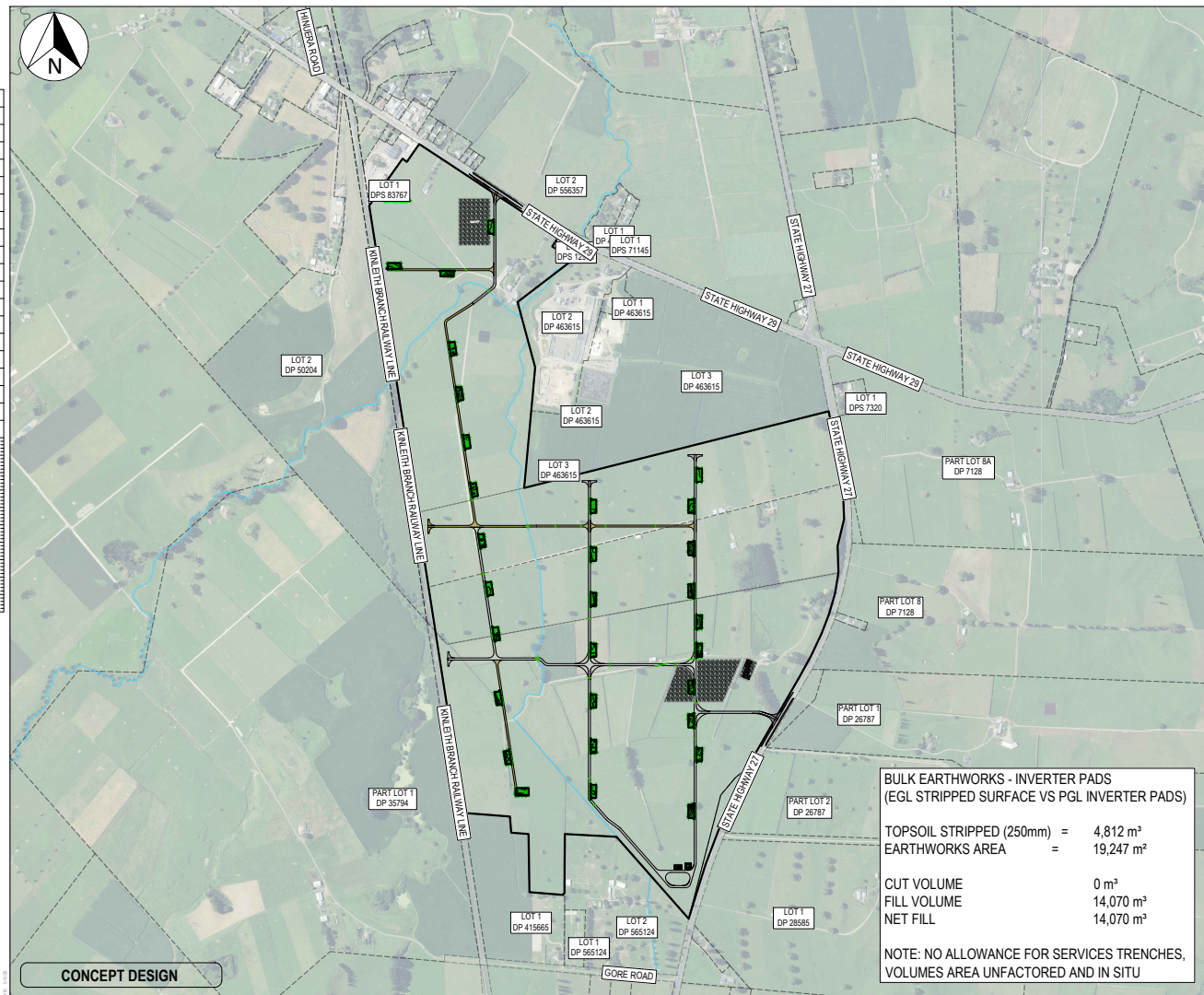
B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	DCM	11/25
Rev	Description	By	Date
Survey	LINZ		11/25
Design	DCM		11/25
Drawn	DCM		11/25
Checked	JLD		11/25



**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

Title
**PROPOSED LAYDOWNS,
COMPOUNDS & SWITCH**

ORIGINAL SIZE: A3



**BULK EARTHWORKS - INVERTER PADS
(EGL STRIPPED SURFACE VS PGL INVERTER PADS)**

TOPSOIL STRIPPED (250mm) = 4,812 m³
EARTHWORKS AREA = 19,247 m²

CUT VOLUME 0 m³
FILL VOLUME 14,070 m³
NET FILL 14,070 m³

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES AREA UNFACTORED AND IN SITU

- Notes
1. All works to be in accordance with MPDC or RITS standards.
 2. Co-ordinates in terms of Mount Eden 2000.
 3. Reduced Levels are in terms of NZVD 2016.
 4. Contour interval Major 1.0m Minor 0.2m.
 5. Areas, Boundaries and Measurements are approximate only and subject to final survey.
 6. It is the contractors responsibility to locate all services that may be affected by their operations.
 7. The contractor shall comply with all relevant OSH and Health & Safety requirements.
 8. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 9. Sediment control shall be installed and operational before earthworks start onsite in accordance with WRC standards.
 10. All earthworks to be undertaken in accordance with the Geotechnical Investigation recommendations of CMW.

CUTS VOLUMES			
Station	Volume	Area	Level
1	1.000	1.000	1.000
2	1.000	1.000	1.000
3	1.000	1.000	1.000
4	1.000	1.000	1.000
5	1.000	1.000	1.000
6	1.000	1.000	1.000
7	1.000	1.000	1.000
8	1.000	1.000	1.000
9	1.000	1.000	1.000
10	1.000	1.000	1.000
11	1.000	1.000	1.000
12	1.000	1.000	1.000
13	1.000	1.000	1.000
14	1.000	1.000	1.000
15	1.000	1.000	1.000
16	1.000	1.000	1.000
17	1.000	1.000	1.000
18	1.000	1.000	1.000
19	1.000	1.000	1.000

Rev	Description	By	Date
B	CONCEPT DESIGN	JLD	05/26
A	CONCEPT DESIGN	OCM	11/25
Rev	Description	By	Date
Survey	LNZ		11/25
Design	OCM		11/25
Drawn	OCM		11/25
Checked	JLD		11/25



**HINUERA SOLAR FARM
SH 27 & 29, HINUERA
FOR
HARMONY ENERGY
NZ #6 LIMITED**

**PROPOSED
INVERTER PADS CUT/FILL
PLAN**

Project no.	MM-0809
Scale	1:10000 @A3
Client	C220 - EWS.DWG
Drawing no.	C220-8
Rev	B