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2. BOUNDARIES, CONTOURS AND OTHER BASE INFORMATION SHOWN IS INDICATIVE ONLY AND PRIMARILY INFORMED BY AERIAL LASER SURVEY BY SYNERGY POSITIONING SYSTEMS LTD IN APRIL 2016.
3. COORDINATES SHOWN ARE IN TERMS OF MT EDEN 2000 CIRCUIT AND LEVELS ARE RELATIVE TO THE AUCKLAND 1946 VERTICAL DATUM.
4. THE PROPOSED ROAD ALIGNMENT, TURBINE PLATFORMS, AND EARTHWORKS ARE BASED ON AN INDICATIVE ROAD ALIGNMENT AND DETAILED DESIGN.
5. VOLUME ESTIMATES BASED ON COMPARISON OF EXISTING & PROPOSED SURFACE LEVELS & DO NOT ACCOUNT FOR SUBGRADE CUT, BULKING OR COMPACTION FACTORS. OVERALL AREA & VOLUME ESTIMATES INCLUDE 20% CONTINGENCY FOR ADDITIONAL EARTHWORKS IF NECESSARY THROUGH DETAILED DESIGN.

LEGEND

**EXISTING PARCEL BOUNDARY**

**JACKSON PROPERTY BOUNDARY**

**ROTOKOHU FARMS PROPERTY BOUNDARY**

**DENIZE BROTHERS PROPERTY BOUNDARY**

**HDC/MPDC TERRITORIAL BOUNDARY**

**EXISTING MAJOR CONTOUR**

**EXISTING MINOR CONTOUR**

**PROPOSED MAJOR CONTOUR**

**PROPOSED MINOR CONTOUR**

**EXISTENCE OF EARTHWORK**

**PROPOSED TURBINE LOCATION**

**EXISTING NATIONAL GRID LINES**

**PROPOSED ROAD CENTER LINE AND EDGE OF CARROGEWAY**

**EXISTING FENCE**

**INDICATIVE QUARRY SITE**

**INDICATIVE CLEANFILL SITE**

**EXISTING CULVERT**

**PROPOSED UPGRATED CULVERT**

**STREAM (WRC REGIONAL MAP)**

**WAITOKI STREAM**

**S92 RESPONSE UPDATE**

**LT 18.10.18**

**GENERAL ARRANGEMENT PLAN**

**DETAIL PLAN SHEET 7**

**TEKTUS Consultants Ltd**
PO Box 80212 Green Bay
Auckland 0643 NZ
p. 09 827 1191
m. 021 1434 874
www.tektus.nz

**VENTUS ENERGY (NZ) LTD**
10/215 ROSEDALE ROAD, ALBANY, AUCKLAND 0632

**SYNERGY POSITIONING SYSTEMS LTD**
3/52 ARRENWAY DRIVE, ALBANY, AUCKLAND 0632

**KAIMAI WIND FARM**
ROTOPAHU ROAD, PAEROA

**PRELIMINARY CIVIL ENGINEERING DRAWINGS**

**DETAIL PLAN SHEET 7**

**SCALE 1:5000**

**DATE: 15.06.18**

**PROJECT NO: 17022**

**DRAWN BY: J T**

**REVISION: B**

**TEKTUS**

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**TEKTUS**
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5. VOLUME ESTIMATES BASED ON COMPARISON OF EXISTING & PROPOSED SURFACE LEVELS & DO NOT ACCOUNT FOR SUBGRADE CUT, BULKING OR COMPACTION FACTORS.
OVERALL AREA & VOLUME ESTIMATES INCLUDE 20% CONTINGENCY FOR ADDITIONAL EARTHWORKS IF NECESSARY THOUGH DETAILED DESIGN.

LEGEND
- EXISTING PARCEL BOUNDARY
- JACKSON PROPERTY BOUNDARY
- ROTOKOHU FARMS PROPERTY BOUNDARY
- DENIZE BROTHERS PROPERTY BOUNDARY
- HISTORIC TERRITORIAL BOUNDARY
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXTENT OF EARTHWORK
- PROPOSED TURBINE LOCATION
- EXISTING TRANSPOWER NATIONAL GRID LINES
- PROPOSED ROAD CENTER LINE AND EDGE OF CARREIWAY
- EXISTING FENCE
- INDICATIVE QUARRY SITE
- INDICATIVE CLEANFILL SITE
- EXISTING CULVERT
- PROPOSED UPGRADED CULVERT
- STREAM (WRC REGIONAL MAP)

REFERENCE: PRELIMINARY CIVIL ENGINEERING DRAWINGS
DETAIL PLAN SHEET B

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Auckland 0643 NZ
p 09 827 1191
m 021 1434 874
www.tektus.nz

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AUCKLAND 0632

SYNERGY POSITIONING SYSTEMS LTD
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AUCKLAND 0632

KAWAI WIND FARM
ROTONOKI ROAD, PAREOA

PRELIMINARY CIVIL ENGINEERING DRAWINGS

GENERAL ARRANGEMENT PLAN
DETAIL PLAN SHEET B

PROJECT NO: T13022
DRAWING NO: 200-8
A

30 40 40 40 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

CH 0
CH 200
CH 400
CH 600
CH 800

PROPOSED ROAD 1
CULVERT 100
EXISTING 2mx2m 3m LONG BRIDGE REPLACE WITH 2mx2m 9m LONG BOX

CLEANFILL ACTIVITY ALONG PAPER ROAD CORRIDOR INSIDE MPDC DISTRICT PROJECTED TO BE LESS THAN 1000m².
SUBJECT TO TOPOGRAPHICAL SURVEY AND DETAILED DESIGN IN FUTURE.

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OVERALL AREA & VOLUME ESTIMATES INCLUDE 20% CONTINGENCY FOR ADDITIONAL EARTHWORKS IF NECESSARY THROUGHOUT THE DESIGN.

LEGEND
- EXISTING PARCEL BOUNDARY
- JACKSON PROPERTY BOUNDARY
- ROTOKOHU FARMS PROPERTY BOUNDARY
- DENIZE BROTHERS PROPERTY BOUNDARY
- HDC/MPDC TERRITORIAL BOUNDARY
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROADWORK
- PROPOSED ROAD CENTER LINE AND EDGE OF CARREIAGEWAY
- EXISTING FENCE
- INDICATIVE QUARRY SITE
- INDICATIVE CLEANFILL SITE
- EXISTING CULVERT
- PROPOSED UPGRADED CULVERT
- STREAM (WRC REGIONAL MAP)
- INDICATIVE ROAD ALIGNMENT WITH 6m PAVEMENT WIDTH

CULVERT 1300
EXISTING 7.5m WIDE 1650Ø CONCRETE SPILLWAY AND CONSTRUCT CONCRETE SPILLWAY

CULVERT 2060
EXISTING 7.5m WIDE 1800Ø CONCRETE SPILLWAY EXTEND TO 12.5m WIDE

CULVERT 2260
EXISTING 5m WIDE 900Ø CONCRETE SPILLWAY EXTEND TO 10m WIDE

CULVERT 2420
EXISTING 5m WIDE 900Ø CONCRETE SPILLWAY EXTEND TO 10m WIDE

CULVERT 2630
EXISTING 7.5m WIDE 1650Ø CONCRETE SPILLWAY AND CONSTRUCT CONCRETE SPILLWAY

CULVERT 1740
EXISTING 7.5m WIDE 450Ø CONCRETE SPILLWAY EXTEND TO 12.5m WIDE

TURBINE PLATFORMS
- PROPOSED TURBINE LOCATION
- PROPOSED ROAD CENTER LINE AND EDGE OF CARREIAGEWAY

KAWHAI WIND FARM
- ROTOKOHU ROAD, PAEROA
- PRELIMINARY CIVIL ENGINEERING DRAWINGS
- GENERAL ARRANGEMENT PLAN
- DETAIL PLAN SHEET

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AUCKLAND 0632

KAIMAI WIND FARM
- ROTOKOHU ROAD, PAEROA
- PRELIMINARY CIVIL ENGINEERING DRAWINGS
- GENERAL ARRANGEMENT PLAN
- DETAIL PLAN SHEET
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LEGEND

EXISTING PARCEL BOUNDARY
JACKSON PROPERTY BOUNDARY
ROTKOHU FARMS PROPERTY BOUNDARY
DENIZE BROTHERS PROPERTY BOUNDARY
HDC/MPDC TERRITORIAL BOUNDARY
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
EXISTENCE OF EARTHWORK
EXISTING FENCE
INDICATIVE QUARRY SITE
INDICATIVE CLEANFILL SITE
EXISTING CULVERT
PROPOSED UPGRADED CULVERT
STREAM (WRC REGIONAL MAP)

Surface Analysis: Elevation Ranges

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<th>Maximum Elevation (m)</th>
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18x18 CRANE PAD
26x26 OCTAGONAL TURBINE FOUNDATION (MAXIMUM CROSS FALL OF 3%)
1. FOR INFORMATION PURPOSES ONLY.
2. BOUNDARIES, CONTOURS AND OTHER BASE INFORMATION SHOWN IS INDICATIVE ONLY AND TAKEN FROM 2018 AERIAL IMAGE SURVEY BY SYNERGY POSITIONING SYSTEMS LTD. IN APRIL 2018.
3. ELEVATION ELEVATIONS SHOWN ARE BASED ON OR DERIVED FROM 2015 LASER SCAN BY AERIAL SURVEY BY SYNERGY POSITIONING SYSTEMS LTD. IN APRIL 2018.
4. PROPOSED ROAD ALIGNMENT, TURBINE PLATFORMS, AND OVERALL EARTHWORKS ARE BASED ON AN INDICATIVE ROAD ALIGNMENT AND WHISKER SUBGRADE CUT, BULKING OR COMPACTITY FACTORS. GENERAL AREA & VOLUME ESTIMATES INCLUDE 20% CONTINGENCY FOR ADDITIONAL EARTHWORKS IF NECESSARY THROUGH DETAILED DESIGN.

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Notes:
- DISTINGUISH PROPERTY BOUNDARY
- JACKSON PROPERTY BOUNDARY
- ROTOKOHU FARMS PROPERTY BOUNDARY
- DENIZE BROTHERS PROPERTY BOUNDARY
- SITICIS CIVIL ENGINEERING BOUNDARY
- DISTINGUISH MAJOR CONTOUR
- DISTINGUISH MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- INDICATIVE NATIONAL GRID LINES
- PROPOSED ROAD CENTER LINE AND EDGE OF CARCIOUS WAYS
- existing well
- INDICATIVE DRAINAGE LINE
- INDICATIVE CLEANFILL SITE
- INDICATIVE CULVERT
- INDICATIVE ROAD CENTER LINE
- INDICATIVE TRANSFORMER NATIONAL GRID LINES
- PROPOSED ROAD CENTER LINE AND EDGE OF CARCIOUS WAYS
- EXISTING FENCE
- INDICATIVE DRAINAGE LINE
Surface Analysis: Elevation Ranges

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5. VOLUME ESTIMATES BASED ON COMPARISON OF EXISTING & PROPOSED SURFACES. OVERALL AREA & VOLUME ESTIMATES INCLUDE 20% CONTINGENCY FOR ADDITIONAL EARTHWORKS IF NECESSARY THROUGHOUT PROJECT.

Notes:

- Platform for Turbine Foundation, Crane Pad and Storage Area – All in Cut (No Fill)
- 4m Wide Accessway to Platform Area at 10% Gradient
- 16x18 Turbine Pad – Maximum Cross Fall of 3%
1. FOR INFORMATION PURPOSES ONLY.
2. BOUNDARIES, CONTOURS AND OTHER BASE INFORMATION SHOWN IS INDICATIVE ONLY AND PRIMARILY INFORMED BY
   AERIAL LIDAR SURVEY BY SYNERGY POSITIONING SYSTEMS LTD
   IN APRIL 2016.

3. COORDINATES SHOWN ARE IN TERMS OF MT EDEN 2000
   CIRCUIT AND LEVELS ARE RELATIVE TO THE AUCKLAND 1946
   VERTICAL DATUM.

4. THE PROPOSED ROAD ALIGNMENT, TURBINE PLATFORMS,
   AND OVERALL EARTHWORKS ARE BASED ON AN INDICATIVE
   ROAD ALIGNMENT AND REMAIN SUBJECT TO DETAILED DESIGN.

5. VOLUME ESTIMATES BASED ON COMPARISON OF EXISTING &
   PROPOSED SURFACE LEVELS & DO NOT ACCOUNT FOR
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OVERALL AREA & VOLUME ESTIMATES INCLUDE 20%
CONTINGENCY FOR ADDITIONAL EARTHWORKS IF NECESSARY
THROUGH DETAILED DESIGN.

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Legend:

- **EXISTING PARCEL BOUNDARY**
- **JACKSON PROPERTY BOUNDARY**
- **ROTKOHU FARMS Property BOUNDARY**
- **DENIZE BROTHERS Property BOUNDARY**
- **HDC/MPDC TERRITORIAL BOUNDARY**
- **EXISTING MAJOR CONTOUR**
- **EXISTING MINOR CONTOUR**
- **PROPOSED MAJOR CONTOUR**
- **PROPOSED MINOR CONTOUR**
- **EXISTENCE OF EARTHWORK**
- **PROPOSED TURBINE LOCATION**
- **EXISTING TRANSPOWER NATIONAL GRID LINES**
- **EXISTING FENCE**
- **INDICATIVE QUARRY SITE**
- **INDICATIVE CLEANFILL SITE**
- **EXISTING CULVERT**
- **PROPOSED UPGRADED CULVERT**
- **STREAM (WRC REGIONAL MAP)**

---

**Platform for Turbine Foundation, Crane Pad and Storage Area – All in Cut (No Fill)**

**26x26 OCTAGONAL TURBINE FOUNDATION (MAXIMUM CROSS FALL OF 3%)**

**18x18 CRANE PAD (MAXIMUM CROSS FALL OF 3%)**

**74x15 OPTIONAL BLADE STORAGE AREA (MAXIMUM CROSS FALL OF 3%)**
Surface Analysis: Elevation Ranges

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Notes:

1. FOR INFORMATION PURPOSES ONLY.
2. BOUNDARIES, CONTOURS AND OTHER BASE INFORMATION SHOWN IS INDICATIVE ONLY AND PRIMARILY INFORMED BY AERIAL LIDAR SURVEY BY SYNERGY POSITIONING SYSTEMS LTD IN APRIL 2016.
3. COORDINATES SHOWN ARE IN TERMS OF MT EDEN 2000 CIRCUIT AND LEVELS ARE RELATIVE TO THE AUCKLAND 1946 VERTICAL DATUM.
4. PROPOSED ROAD ALIGNMENT, TURBINE PLATFORMS, AND OVERALL EARTHWORKS ARE BASED ON AN INDICATIVE ROAD ALIGNMENT AND TURBINE LOCATION SUBJECT TO DETAILED DESIGN.
5. VOLUME ESTIMATES BASED ON COMPARISON OF EXISTING & PROPOSED SURFACE LEVELS & DO NOT ACCOUNT FOR SUBGRADE CUT, BULKING OR COMPACTION FACTORS.
6. OVERALL AREA & VOLUME ESTIMATES INCLUDE 20% CONTINGENCY FOR ADDITIONAL EARTHWORKS IF NECESSARY THROUGH DETAILED DESIGN.

Legend:

- Existing Parcel Boundary
- Jackson Property Boundary
- Rotokohu Farms Property Boundary
- Denize Brothers Property Boundary
- HDC/MPDC Territorial Boundary
- Existing Major Contour
- Existing Minor Contour
- Proposed Major Contour
- Proposed Minor Contour
- Extent of Earthwork
- Proposed Turbine Location
- Proposed Turbine Foundation
- Crane Pad
- Storage Area – All in Cut (No Fill)
- Extent of Road Centerline and Edge of Carriageway
- Existing Fence
- Indicative Quarry Site
- Indicative Clearfill Site
- Existing Culvert
- Proposed Upgraded Culvert
- Stream (HUC Regional Map)
1. FOR INFORMATION PURPOSES ONLY.
2. BOUNDARIES, CONTOURS AND OTHER BASE INFORMATION SHOWN IS INDICATIVE ONLY AND PRIMARILY INFORMED BY AERIAL LASER SURVEY BY SYNERGY POSITIONING SYSTEMS LTD IN APRIL 2016.
3. VOLUME ESTIMATES ARE BASED ON COMPARISON OF EXISTING & PROPOSED SURFACE LEVELS & DO NOT ACCOUNT FOR SUBGRADE CUT, BULKING OR COMPACTION FACTORS. OVERALL AREA & VOLUME ESTIMATES INCLUDE 20% CONTINGENCY FOR ADDITIONAL EARTHWORKS IF NECESSARY THROUGHOUT DESIGN.

LEGEND
- EXISTING PIECE BOUNDARY
- JACKSON PROPERTY BOUNDARY
- ROTOKOHU FARMS PROPERTY BOUNDARY
- DENIZE BROTHERS PROPERTY BOUNDARY
- HDC/MPDC TERRITORIAL BOUNDARY
- EXISTING MAJOR CONTOUR
- DISTINGUISH MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING EARTHWORK
- PROPOSED TURBINE LOCATION
- PROPOSED ROAD CENTER LINE AND EDGE OF CARREIAGEWAY
- EXISTING FENCE
- INDICATIVE QUARRY SITE
- INDICATIVE CLEANFILL SITE
- EXISTING CULVERT
- PROPOSED UPGRADED CULVERT
- STREAM (WRC REGIONAL MAP)

Surface Analysis: Elevation Ranges

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18x18 CRANE PAD (MAXIMUM CROSS FALL OF 3%)
26x26 OCTAGONAL TURBINE FOUNDATION (MAXIMUM CROSS FALL OF 3%)
74x15 OPTIONAL BLADE STORAGE AREA (MAXIMUM CROSS FALL OF 3%)

PLATFORM FOR TURBINE FOUNDATION, CRANE PAD AND STORAGE AREA – ALL IN CUT (NO FILL)