TO Warren Maclennan

FROM Petra Burns

DATE 28 November 2024

SUBJECT **Update requested to the Auckland Unitary Plan (Operative in Part 2016) (AUP)**

I request an update to the AUP as outlined below:

Reason for update	Alteration to designation confirmed
Chapter(s)	Chapter K Vector Limited
Designation only	
Designation #	**Designation 8866 – Sandspit Substation Vector Ltd**
Locations:	Mahurangi East Road (Lot 1 DP 426584)
Lapse Date	31 August 2032 unless given effect to prior
Purpose	Substation
Changes to text (shown in underline and strikethrough)	Updates to conditions to reflect the changes to the site layout. Conditions that refer to plans have been updated to include new plans. Refer to attachments 2 and 3.
Changes to diagrams	Replacement Landscape plan. Refer to attachments 2 and 3.
Changes to spatial data	Adjustment to designation boundary. Refer to attachment 4.
Attachments	Attachment 1: Section 181(3) Auckland Council Recommendation and request from Vector Limited Attachment 2: Strike through and underline text Attachment 3: Clean text Attachment 4: GIS before and after alteration

Maps prepared by: Danica Torres Geospatial Specialist	**Text Entered by:** Diana Luong Planning Technician
Signature: 	**Signature:** 
Prepared by: Petra Burns Policy Planner	**Reviewed by:** Peter Vari Team Leader

Signature: 	**Signature:** 
Authorised by: Warren Maclennan Manager Planning – Regional North West and Islands	
Signature: 	

Attachment 1: Section 181(3) Auckland Council Recommendation and request from Vector Limited

Alteration to Designation 8866 – Sandspit substation under s181(3) of the Resource Management Act 1991

Summary

Auckland Council has received a request from Vector under section 181(3) of the Resource Management Act 1991 (RMA), dated 19 September 2024, to alter Designation 8866 – Sandspit substation.

It is considered after undertaking an assessment of the notice, that the proposed alteration meets the statutory tests of section 181(3) of the RMA and can therefore be processed and confirmed as a minor alteration.

Recommendation

1. That the proposed alteration of Designation 8866 – Sandspit substation. in the Auckland Unitary Plan be confirmed**,** subject to the conditions recommended in Section 4 of this report for the following reasons:

- the alteration involves no more than minor changes to the effects on the environment associated with the use of the land;
- there are only minor adjustments to the boundaries of the existing designation;
- both the requiring authority and Auckland Council agree with the alteration; and
- the land is owned and occupied by Vector Limited.

2. That Designation 8866 – Sandspit substation is altered in the designation map layer and Chapter K Designations in the Auckland Unitary Plan.

1. Background

1.1. Minor alteration to a designation

Auckland Council has received a notice of requirement (NoR) for an alteration to Designation 8866 – Sandspit substation from Vector under section 181(3) of the RMA.

The changes proposed to the designation include:

1. Updating the proposed site layout to reflect new best practice that involves separating the switchroom and two transformer bays into two buildings, where originally it was proposed that these would all be housed in one building,

2. As a result of this change in building layout and mass, a change in landscaping is proposed to adequately screen the proposed buildings,

3. Subsequently, a boundary adjustment is required to accommodate the new landscape plan. This results in an increase in site size by 255m² (Figure 1

below). The subdivision required to formalise this has been completed, and the adjacent landowner whose land is required to enlarge the site has provided written approval for this alteration.

1.2. Land affected by the alteration

The land affected by the alteration to the designation is located at Lot 1 DP 426584, Sandspit Road Snells Beach 0982 and is shown in the Auckland Unitary Plan maps as follows:

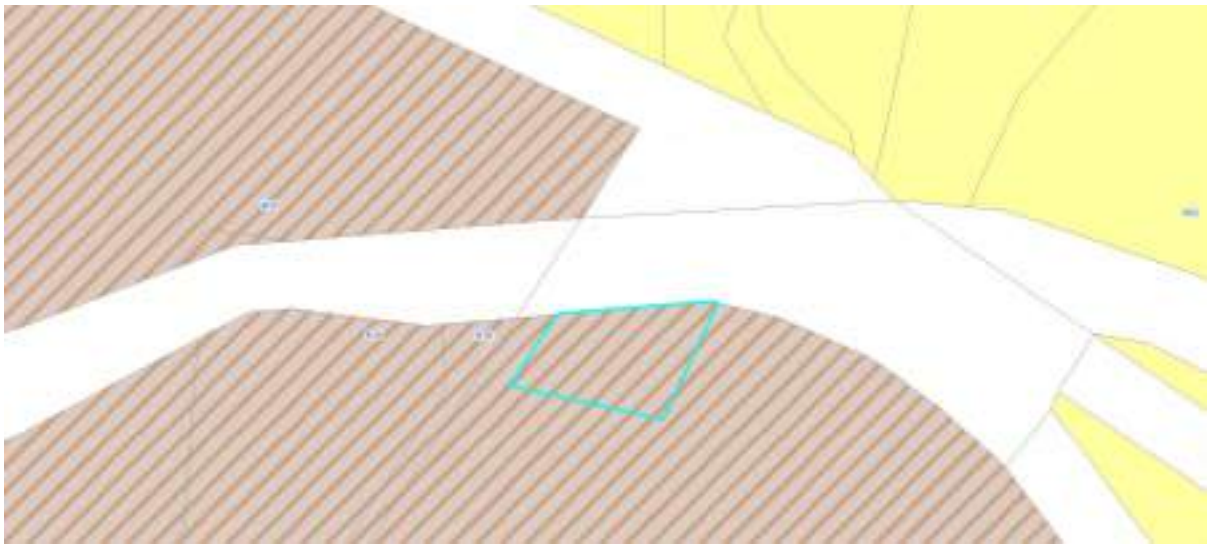


Figure 1: Auckland Unitary Plan

The requiring authority has provided a site plan showing the extent of the alteration to the designation boundary (refer to **Figure 3: Updated designation boundary**).

1.3. Description of the site and existing environment

The site is a rural site sloping slightly from north to south. The site and the surrounding land to the south-west is zoned Mixed Rural zone. To the north-east of the site is residential development with a Large Lot zoning and covered by the Rodney Landscape precinct. This appears more like a rural residential area, even though it has a residential zoning in the AUP, with the application of an 8000m² minimum net site area via the precinct rules.

Figure 2: Subject site and immediate receiving environment

1.4. Delegated authority

The Team Leader - Planning Regional North West and Islands has delegated authority, in accordance with Schedule 2A of the Auckland Council Delegations: Chief Executive Officer (updated October 2024), to exercise the council's functions, powers, duties and discretions under the Resource Management Act 1991 in relation to section 181(3).

The NoR can therefore be considered by the Team Leader – Planning Regional North West and Islands and confirmed or declined under section 181(3)(c).

1.5. Relevant statutory provisions

Section 181 "Alteration of designation" of the Resource Management Act 1991 states:

(1) A requiring authority that is responsible for a designation may at any time give notice to the territorial authority of its requirement to alter the designation.

(2) Subject to subsection (3), sections 168 to 179 and 198AA to 198AD shall, with all necessary modifications, apply to a requirement referred to in subsection (1) as if it were a requirement for a new designation.

(3) A territorial authority may at any time alter a designation in its district plan or a requirement in its proposed district plan if-

(a) The alteration-

(i) Involves no more than minor changes to the effects on the environment associated with the use or proposed use of land or any water concerned; or

(ii) Involves only minor changes or adjustments to the boundaries of the designation or requirement; and

(b) Written notice of the proposed alteration has been given to every owner or occupier of the land directly affected and those owners or occupiers agree with the alteration; and

(c) Both the territorial authority and the requiring authority agree with the alteration –

and sections 168 to 179 and 198AA to 198AD shall not apply to any such alteration.

(4) This section shall apply, with all necessary modifications, to a requirement by a territorial authority to alter its own designation or requirement within its own district.

2. Analysis of the proposed alteration

The relevant matters to consider are contained in section 181(3) of the RMA as outlined above.

The landscape effects and the landscape assessment provided by Vector (by Isthmus Group) for the application have been considered by Peter Kensington, a Landscape Architect from KPLC Limited on behalf of council. On page 2 (paragraphs 9-11) of his memo, Mr Kensington says:

> *I concur with the descriptions of the proposal and the existing environment which have been set out within the Application Assessment, as well as the approach to the statutory planning context. I also agree with the findings of the Application Assessment which outline2 that adverse effects from the revised proposal design will be 'slightly more' than the current designation design, primarily because it will be less integrated with the existing natural landform of the site. However, as has the Application Assessment, I conclude that the implementation, maintenance and establishment of the planting that is illustrated in the Application Landscape Concept Plan, will successfully mitigate these adverse landscape effects.*
>
> *I concur with the identification and evaluation of potentially affected persons on neighbouring properties to the site; and I agree with the assessment's findings for each of these considerations. I also agree with the assessment's findings when considering the potential impacts of the proposal on public views.*
>
> *Overall, I agree with the conclusions of the Application Assessment that the adverse effects of the revised proposal on landscape and visual amenity values will be similar to those that would arise from the current designation design – noting the importance of the planting mitigation in ensuring this outcome.*

I adopt Mr. Kensington's assessment and consider the landscape effects resulting from the change to the site and building layout, and the subsequent changes to the landscape plan, result in less than minor changes to the effects on the environment.

I consider the boundary adjustment to the designation to be minor, and also note that the directly affected landowners have provided written approval for this application.

I concur with the Requiring Authority, Vector Limited, that the application meets the criteria to be considered a minor alteration and can be considered under s181(3) of the Resource Management Act 1991.

I consider that the application passes both tests in s181(3)(a)(i) and (ii), and cumulatively passes all of s181(3)(a), (b) and (c).

2.1. Assessment of Environmental effects (s181(3)(a)(i))

The requiring authority has provided an assessment of environmental effects (AEE) with the NoR. David Hay, a Planner from Osborne Hay, has prepared an AEE and the following effects have been considered:

- Landscape and visual effects
- Construction and operational noise
- Earthworks management
- Traffic
- Infrastructure (stormwater, site servicing)
- Electromagnetic fields

No changes are proposed to the elements and conditions of the designation which deal with construction and operational noise, earthworks management, traffic, stormwater, site-servicing or electromagnetic fields.

The changes to the designation relate to the visual and landscape effects of the site on the receiving environment.

Mr. Hay considers that the proposed alteration to the designation involves no more than minor changes to the effects on the environment. On behalf of the Council, Mr Kensington has considered the landscape assessment submitted with the Notice of Requirement and concluded that effects of the revised proposal will be similar to those that would arise from the current design. Based on that assessment I concur with Mr Hays' assessment that the effects are minor.

2.2. Assessment of minor changes or adjustments to the boundary (s181(3)(a)(ii))

The alteration to the designation involves the following changes to the boundary of the existing designation.

- An additional slice of 86m^2 along the eastern boundary,
- An adjustment to the southern boundary resulting in an additional 180m^2.

Figure 3: Updated designation boundary below illustrates the adjustments to the boundary.

I concur with Mr. Hay that the adjustments to the boundary are minor.

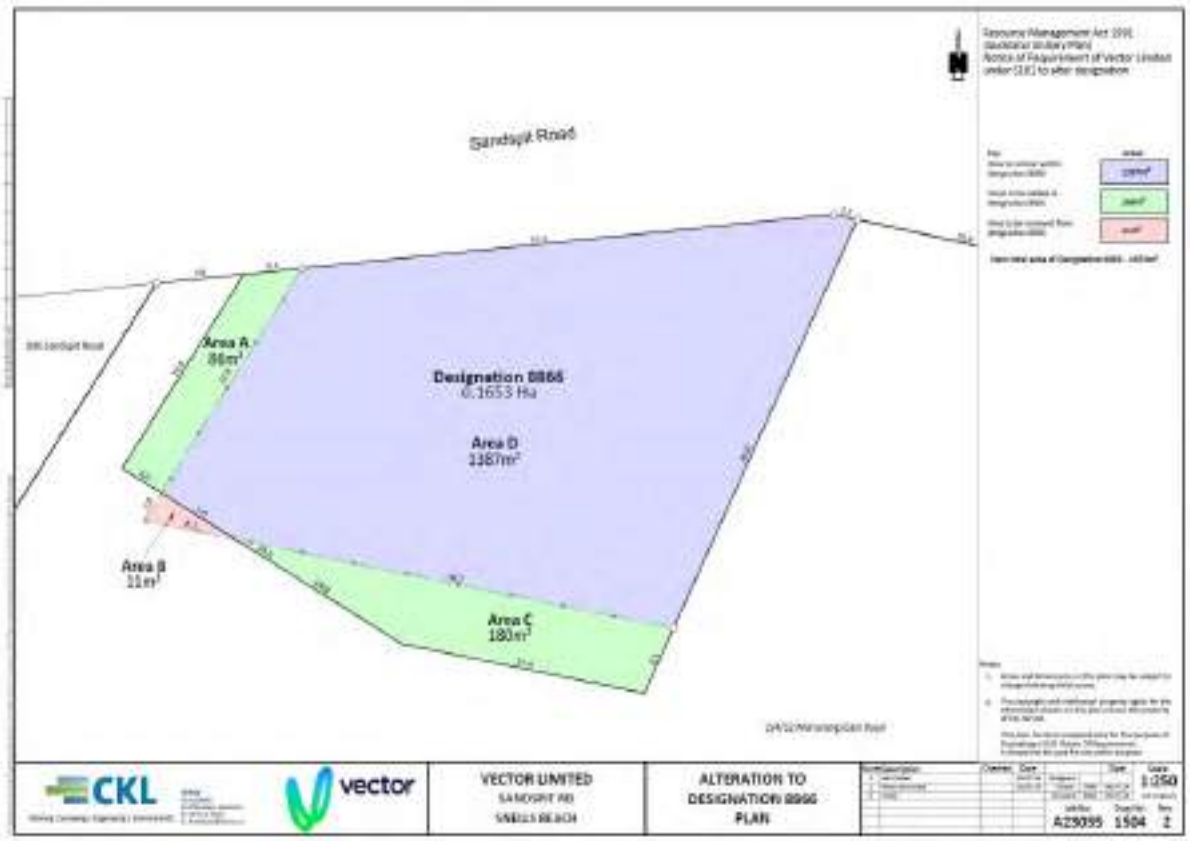


Figure 3: Updated designation boundary

2.3. Written notice of the proposed alteration has been given to every owner or occupier of the land directly affected and those owners and occupiers agree with the alteration (s181(3)(b))

The requiring authority has given written notice to Jason and Racheal Melling, owners and occupiers of 12 Mahurangi East Road, Sandspit, the site where the additional land for the designation is being subdivided from. Their agreement has been provided.

2.4. Agreement of both the territorial authority and the requiring authority (181(3)(c))

The alteration to the designation has been requested by the requiring authority, and therefore it agrees to the alteration. Auckland Council agrees with the proposed alteration for the following reasons:

- The alteration involves no more than minor changes to the environmental effects
- The alteration involves only minor changes to the boundary
- The owners and occupiers of all land directly affected by the proposed alteration have been given notice and agree with the proposed alteration
- Adherence with recommended conditions will ensure any potential adverse effects are avoided, remedied or mitigated.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1. Conclusions

The proposed alteration meets the statutory tests of Section 181(3) of the Resource Management Act 1991, in that:

- The alteration involves no more than minor changes to the environmental effects.
- Existing conditions and recommended changes to the conditions will ensure any potential adverse effects are avoided, remedied or mitigated.
- There are only minor changes or adjustments to the boundaries of the existing designation.
- The owners and occupiers of all land directly affected agree with the alteration.
- The council and the requiring authority agree with the alteration.

3.2 Recommendation

1. That pursuant to Section 181(3) of the Resource Management Act 1991, Vector's notice of requirement for an alteration to Designation 8866 – Sandspit Road is **confirmed** subject to the amended conditions recommended in Section 4 of this report.

2. That Designation 8866 – Sandspit Road is amended in the Designation overlay and Chapter K Designations in the Auckland Unitary Plan Operative in part as recommended in Section 4 of this report.

4. Agreed alterations

The text alterations are shown below. Amendments are shown as either strikethrough or underlined.

8866 Sandspit Substation

Designation Number	8866
Requiring Authority	Vector Ltd
Location	Mahurangi East Road (Lot 1 DP 426584), Snells Beach
Rollover Designation	Yes
Legacy Reference	Designation 617, Auckland Council District Plan (Rodney Section) 2011
Lapse Date	31 August 2032 unless given effect to prior

Purpose

Substation.

Conditions

General

1. The activity shall proceed in general accordance with the Alteration Notice of Requirement under s181(3) submitted to Council dated ~~2 April 2009~~ 19 September 2024 and the plans Proposed Site Layout 4262-8024 Rev. 7 dated 1/8/2024, Finished Site Contours 4262-8043 Rev 2 dated 18/7/2024, Switchroom Elevations 4262-8150 Rev. 4 dated 30/4/2024 and Transformer Enclosure Elevations 4262-8350 Rev. 3 dated 28/2/2024 drawn by Vector Limited. ~~Construkt Architects Limited, including the Proposed Site Plan dated 20/04/09, Basement & Ground Floor Plans and Building Sections plans dated 1/04/09, and the Building Elevation plan dated 7/07/09 all numbered L55148 and signed by Processing Planner Laura Christian, dated 08/06/09.~~

Outline Plan

2. If either the final design and layout of the substation does not reflect the design and layout submitted with the Alteration Notice of Requirement under s181(3), or if there are any future additional works proposed that are not permitted by the Unitary Plan, an outline plan shall be submitted in accordance with section 176A of the Resource Management Act 1991 to the Auckland Council, before any construction is commenced. However, where the future additional work is in accordance with the Alteration Notice of Requirement under s181(3) or is permitted by the Unitary Plan, then the requirement for an Outline Plan is waived under s176A(2).

Landscape Plan

3. The landscaping plan (Isthmus Group Ltd, Drawing 01.01 Rev. Proposed Landscape Plan ~~2633, Figure 5~~, dated 29/4/2024 ~~6/07/09~~) shown in Appendix 15AA(i), shall be implemented during the first planting season after the construction of the substation. The landscaping shall be maintained thereafter.

Fencing

4. The applicant shall construct fencing ~~a post and batten fence~~ around the perimeter of the substation site in accordance with Drawing Civil Services Layout 4262-8031 Rev. 5 prior to the substation becoming operational.

Traffic Management Plan

5. Prior to any construction being undertaken, a temporary Traffic Management Plan is required to be submitted to Council and approved by Manager - Resource consents and Compliance in consultation with Auckland Transport (the road controlling authority).

Access

6. The following measures shall be implemented prior to the operation of the substation:

a. Driveway and access to be constructed to a best practice standard;

b. A sightline covenant as shown in the plans provided with the subdivision application (to the east if the driveway) is to be established;

c. The small bunch of agapanthus within the road reserve near the driveway crossing for 836 Sandspit Road is to be removed at the cost of the applicant, to the approval of the Manager - Resource Consents and Compliance;

d. Further details of the drainage design for the driveway should be provided by the applicant, including culvert size and end treatment; and

e. The open channel surrounding the driveway shall be built up to a slope no steeper than 1 in 4 on either side of the driveway.

Construction Noise

7. Noise from construction activities shall not exceed the limits recommended in and shall be measured and assessed in accordance with, NZS6803:1999, Acoustics — Construction Noise. Note that the noise limit between the hours of 2000 to 0630 weekdays, 1800 to 0630 Saturdays and at all times on Sundays and Public Holidays, may mean that no construction work can take place.

8. (operation noise) The operational noise from the substation shall not exceed the following limits at the notional boundary (notional boundary is defined as a line 20m from the side of a rural dwelling existing as at 1 April 2009, or the legal boundary where this is closer to the dwelling):

a. Monday to Saturday: 6:00am to 6:00pm 55 dBA Leq;

b. Sundays & Public Holidays: 6:00am to 6:00pm 50 dBA Leq; and

c. At all other times: 45 dBA Leq 75 dBA Lmax.

Archaeological

9. If any artefact, including human remains is exposed during any site works the following procedures shall apply:

a. Immediately when an artefact is unearthed, all site works shall cease; and

b. The site supervisor shall immediately secure the area in a way that ensures any artefacts or remains are untouched; and

c. The site supervisor shall notify the following groups that an archaeological site has been unearthed, so that appropriate action can be taken:

i. Tangata whenua,

ii. The New Zealand Historic Places Trust;

iii. The Department of Conservation;

iv. The Council’s RMA Compliance Administration Officer (telephone 301 0101); and

v. In the case of human remains the New Zealand Police.

Lapse

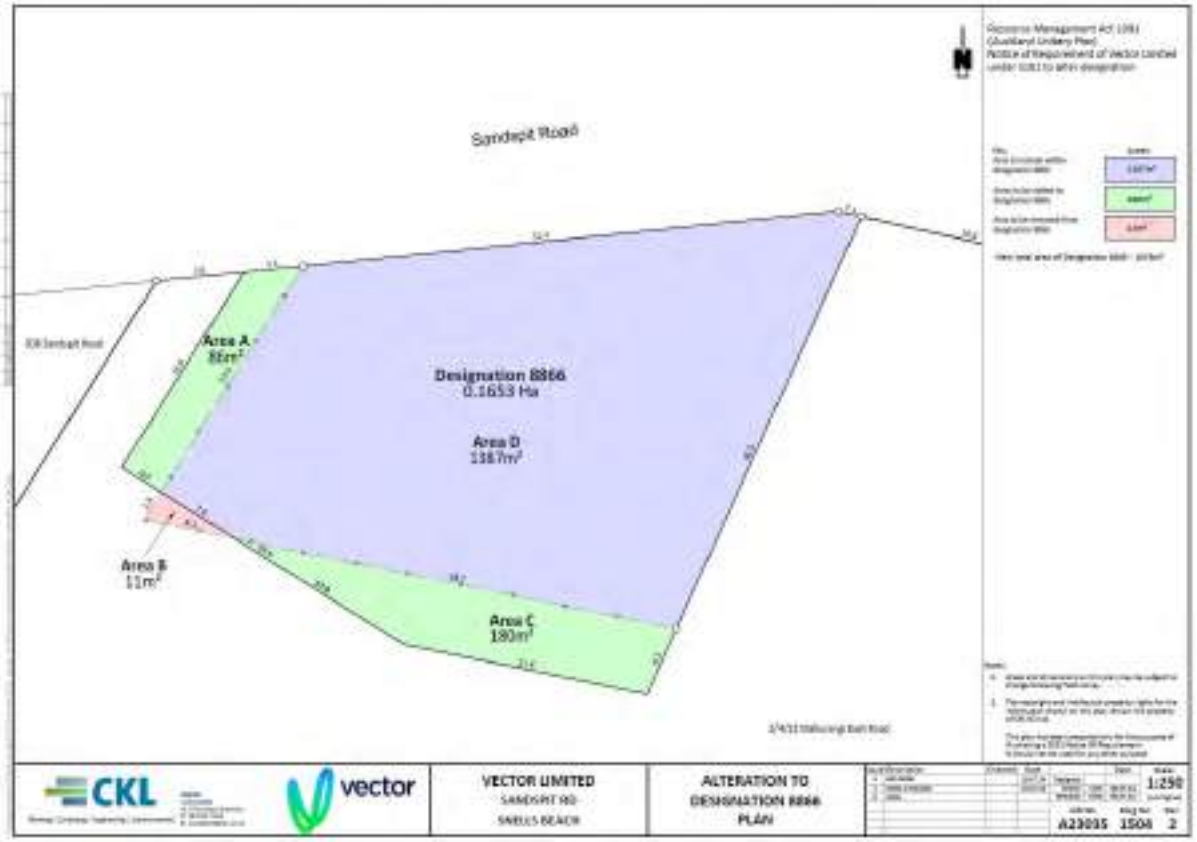
10. 31 August 2032 unless given effect to prior

Attachments

Proposed Vector Sandspit Substation Landscape Concept Plan


Proposed Landscape Plan
Isthmus
Vector Limited
Sandspit Substation
01.01
DRAFT

The boundary alterations are shown below.



Report Prepared by:

Petra Burns

Planner

Date:

13 November 2024

5. SECTION 181(3) DETERMINATION

Having read the council planner's report and recommendations on the notice or requirement, I am satisfied I have adequate information to consider the matters required by the Resource Management Act 1991 (the RMA) and to make a decision under delegated authority.

Accordingly, the notice of requirement for an alteration to Designation 8866 – Sandspit substation is confirmed under section 181(3) of the RMA as agreed and set out in section 4 of this report.

Name:	Peter Vari
Title:	Team Leader – Planning Regional North West and Islands
Signed:	
Date:	13 November 2024

SCHEDULE OF ATTACHMENTS

Attachment A:	Designation 8866 – Sandspit substation [Conditions updated]
Attachment B:	Designation 8866 – Sandspit substation updated plans and drawings referenced in the designation conditions
Attachment C;	Assessment of Environmental effects report by Mr. David Hay

Attachment A: Designation 8866 – Sandspit substation [conditions updated]

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Lapse

10. 31 August 2032 unless given effect to prior

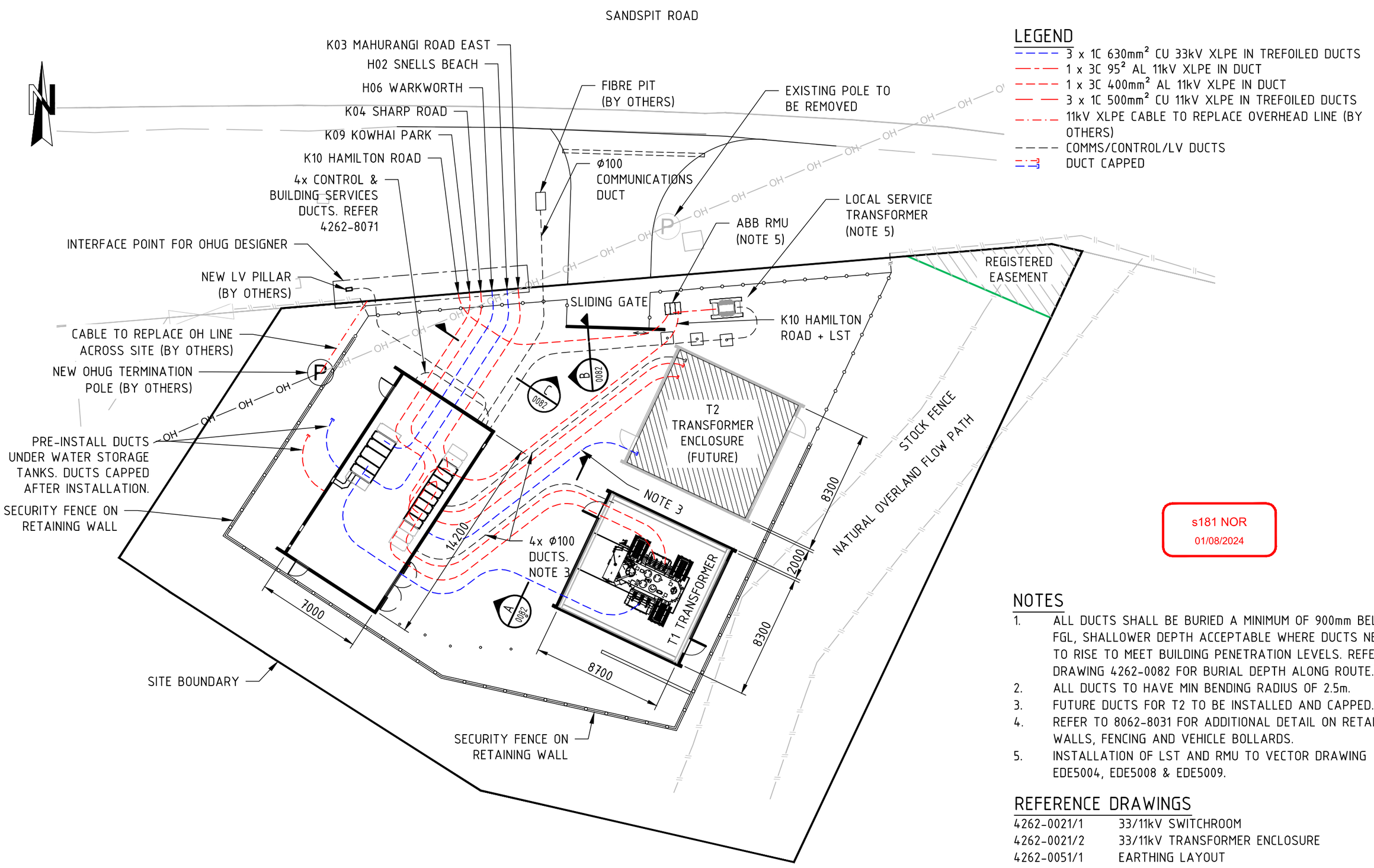
Attachments

Proposed Vector Sandspit Substation Landscape Concept Plan


PROPOSED VECTOR SANDSPIT SUBSTATION
Landscape Concept Plan


Proposed Landscape Plan
isthmus.
Vector Limited
Sandspit Substation
DRAFT

Attachment B: Designation 8866 – Sandspit substation updated plans and drawings referenced in the designation conditions



LEGEND

- 3 x 1C 630mm² CU 33kV XLPE IN TREFOILED DUCTS
- 1 x 3C 95² AL 11kV XLPE IN DUCT
- 1 x 3C 400mm² AL 11kV XLPE IN DUCT
- 3 x 1C 500mm² CU 11kV XLPE IN TREFOILED DUCTS
- 11kV XLPE CABLE TO REPLACE OVERHEAD LINE (BY OTHERS)
- COMMS/CONTROL/LV DUCTS
- DUCT CAPPED

s181 NOR
01/08/2024

NOTES

1. ALL DUCTS SHALL BE BURIED A MINIMUM OF 900mm BELOW FGL, SHALLOWER DEPTH ACCEPTABLE WHERE DUCTS NEED TO RISE TO MEET BUILDING PENETRATION LEVELS. REFER TO DRAWING 4262-0082 FOR BURIAL DEPTH ALONG ROUTE.
2. ALL DUCTS TO HAVE MIN BENDING RADIUS OF 2.5m.
3. FUTURE DUCTS FOR T2 TO BE INSTALLED AND CAPPED.
4. REFER TO 8062-8031 FOR ADDITIONAL DETAIL ON RETAINING WALLS, FENCING AND VEHICLE BOLLARDS.
5. INSTALLATION OF LST AND RMU TO VECTOR DRAWING EDE5004, EDE5008 & EDE5009.

REFERENCE DRAWINGS

4262-0021/1	33/11kV SWITCHROOM
4262-0021/2	33/11kV TRANSFORMER ENCLOSURE
4262-0051/1	EARTHING LAYOUT
4262-0082/1	SUBSTATION DUCTING TRENCH PROFILES
4262-8031/1	CIVIL SERVICES LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	12.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	02.2024	ElectroNet
4	LV CABLE DUCTS ADDED	28/02/2024	ElectroNet
5	DUCTS TO THE NE CORNER OF THE SWITCHRROM REARRANGED, DUCTS FOR 11kV & 33kV FUTURE FEEDERS ADDED TO NW OF SWITCHROOM	30/04/2024	ElectroNet
6	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet
7	DRAWING SCALE WAS AMENDED	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8024-1.dwg
Author	J. H'nboezem		
Auth Date	10.2023	Consultant project no:	VEC6852
Checked by	C Herath		
Chk by date	10.2023	Vector project no:	EC-24-NRNF2-003
Approved by	R Marx		
Appr by date	10.2023		

PROPOSED SITE LAYOUT

11. PRIMARY CABLES, LINES & SUPPORT STRUCTURES
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing FOR CONSENT AND TENDER stamp:
Scale at A3: 1:250
Doc type:
Drawing no: 4262-8024
Rev: 7
Sheet: 1 of 1

s181 NOR
01/08/2024

REFERENCE DRAWINGS:
4262-8042/1 EARTHWORKS DESIGN CROSS SECTION LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	30/04/2024	ElectroNet
2	LEGAL BOUNDARY AMENDED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8043-2.dwg
Author	J. H'nboezem	
Auth Date	30/04/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	30/04/2024	Vector project no: EC-24-NRNF2-003
Approved by	R. Marx	
Appr by date	30/04/2024	

EARTHWORKS DESIGN
FINISHED SITE CONTOURS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: 1:300

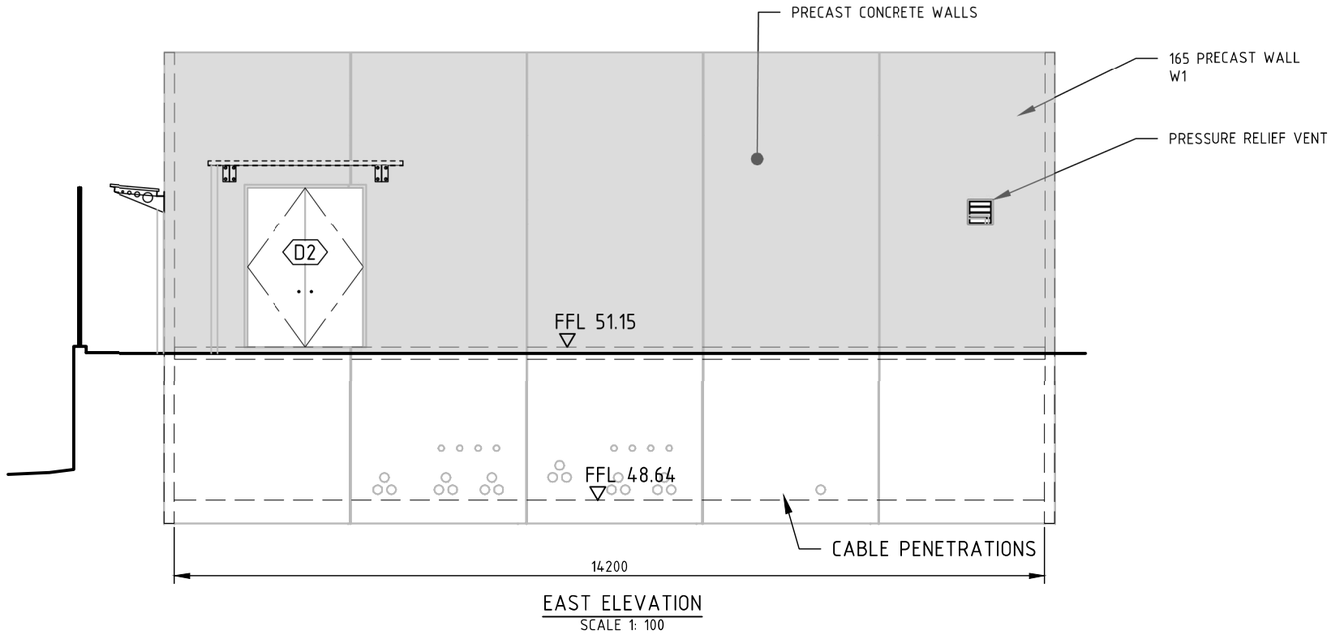
Doc type:

Drawing no: 4262-8043

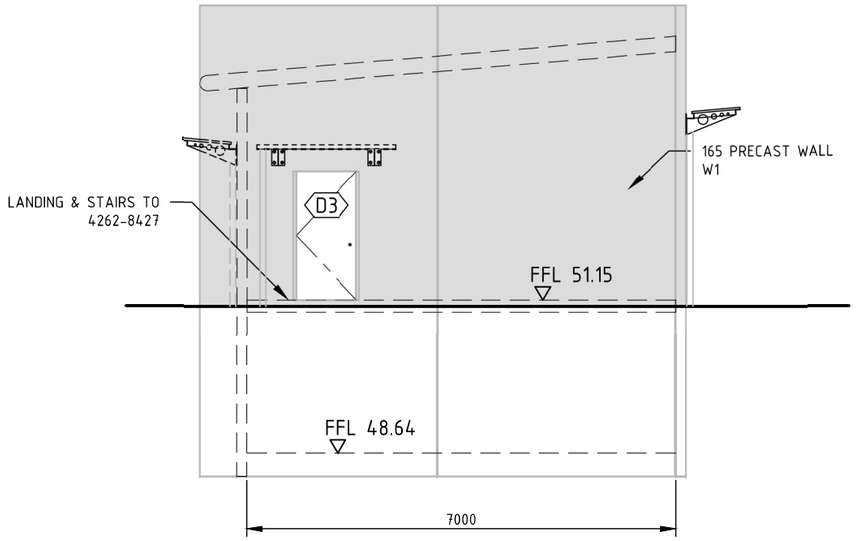
Rev: 2

Sheet: 2 of 2

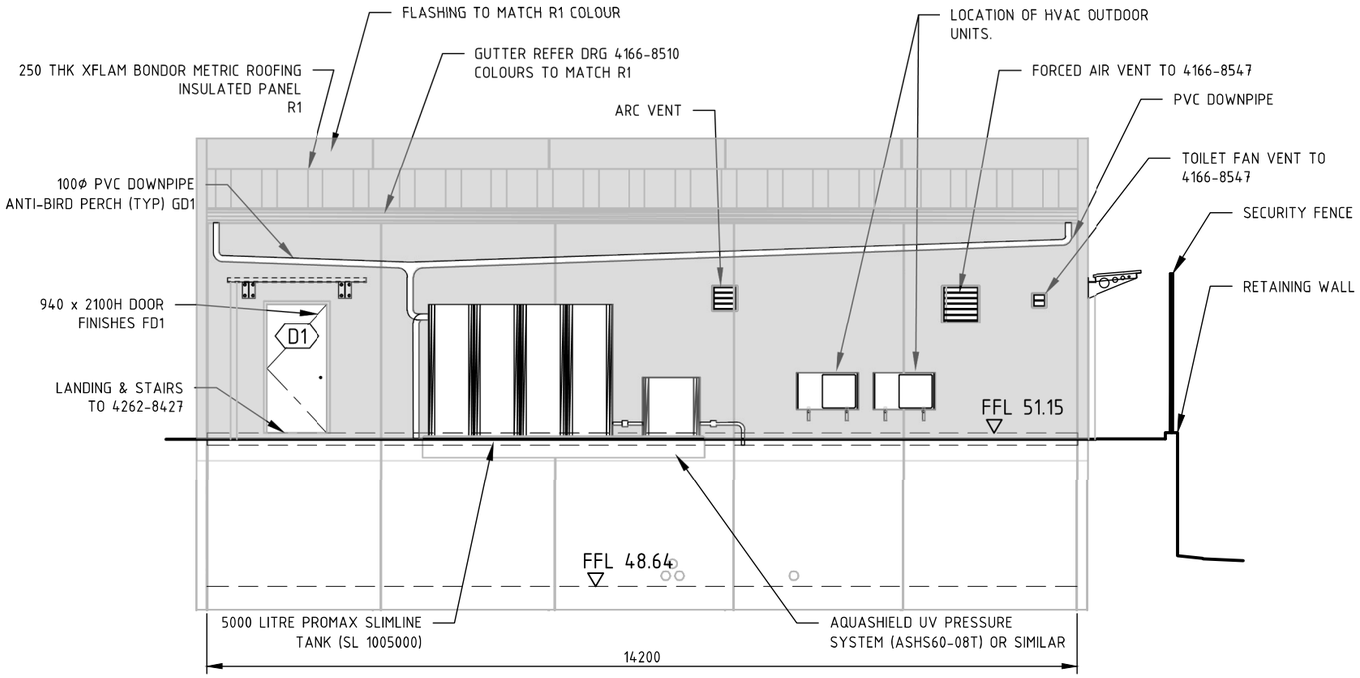
Drawing function:



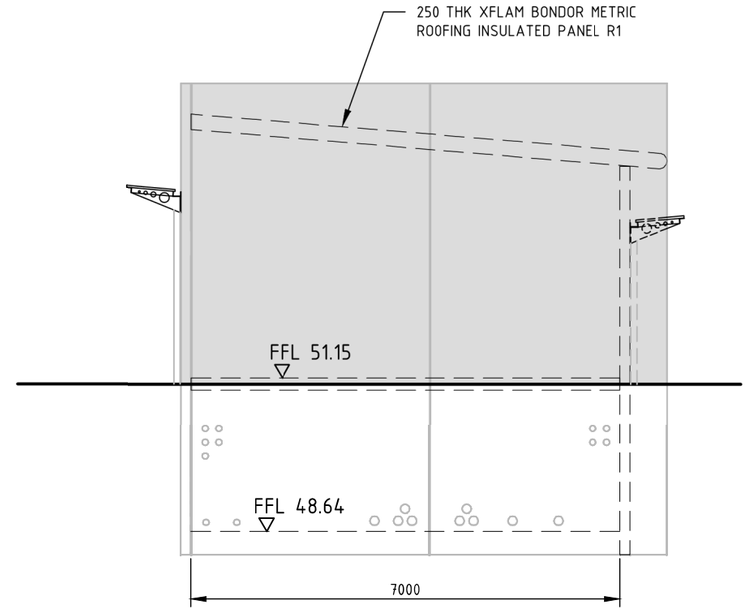
EAST ELEVATION
SCALE 1: 100



SOUTH ELEVATION
SCALE 1: 100



WEST ELEVATION
SCALE 1: 100



NORTH ELEVATION
SCALE 1: 100

s181 NOR
01/08/2024

REFERENCE DRAWINGS:

4262-0021/1	11kV SWITCHROOM LAYOUT
4262-8163	COLOUR FINISHES SCHEDULE

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	02.2024	ElectroNet
4	DOOR CANOPY DOWNPIPES SHOWN	30/04/2024	ElectroNet

Consultant	ELECTRONET	File name:
Author	J. H'nboezem	4262-8150-1.dwg
Auth Date	10.2023	Consultant project no:
Checked by	M. Casey (BB)	VEC6852
Chk by date	10.2023	Vector project no:
Approved by	R. Marx	EC-24-NRNF2-003
Appr by date	10.2023	

33/11kV SWITCHROOM ELEVATIONS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

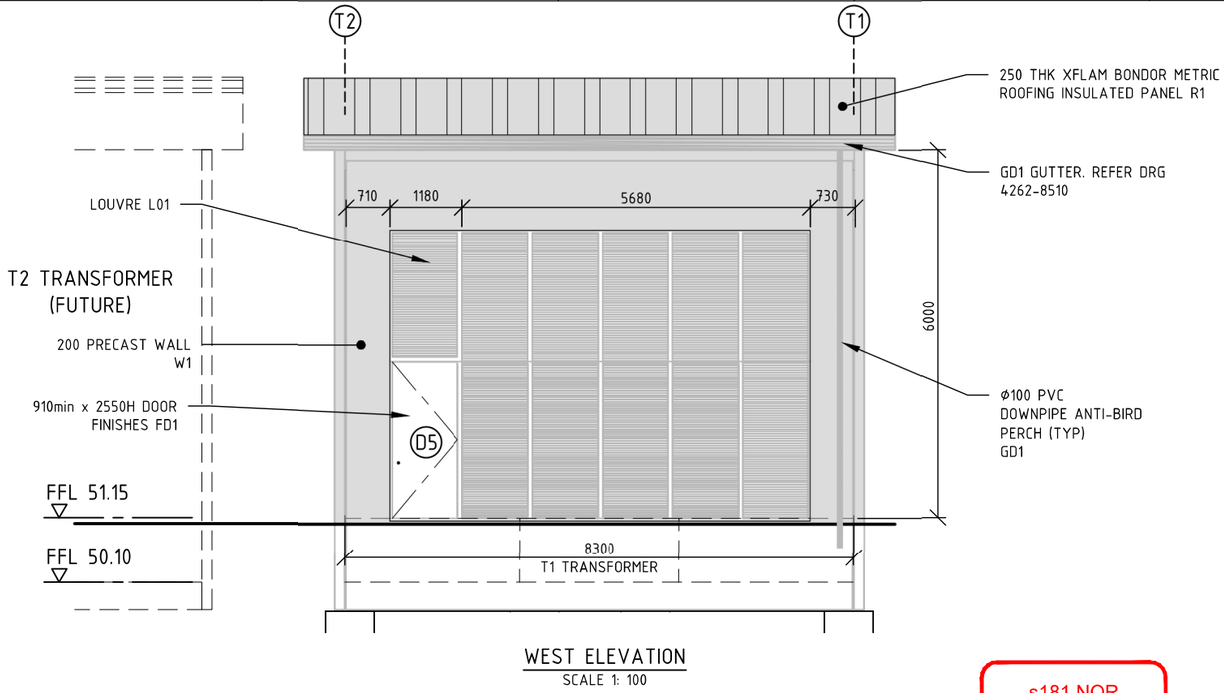
Scale at A3: 1:100

Doc type:

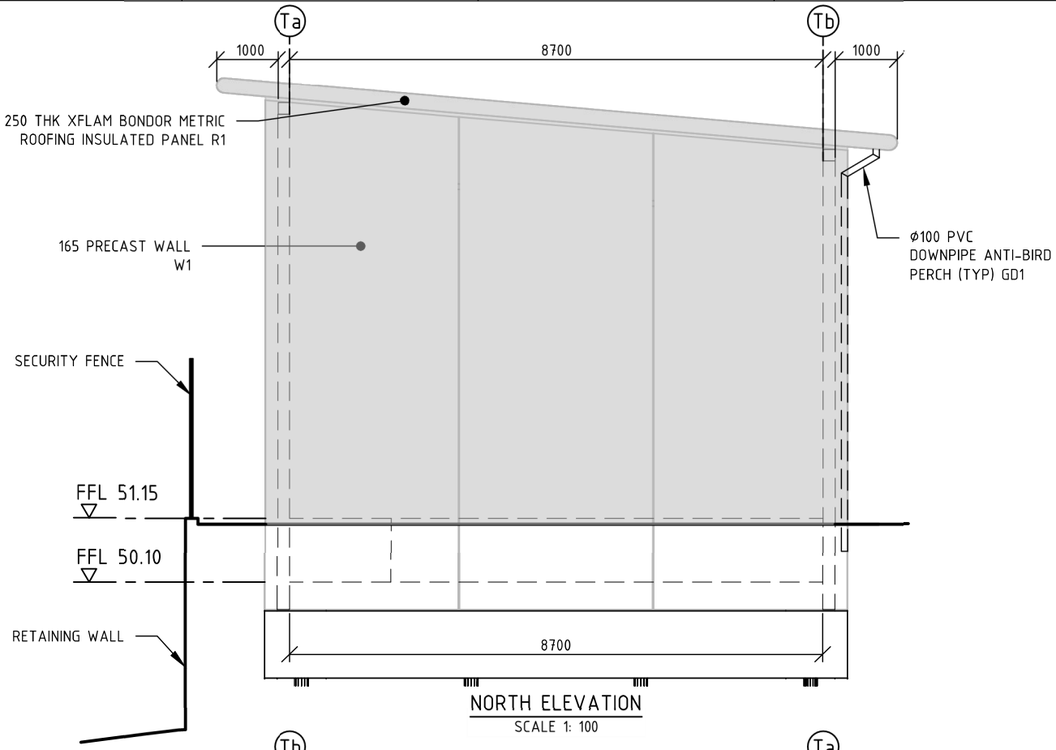
Drawing no: 4262-8150

Rev: 4

Sheet: 1 of 1

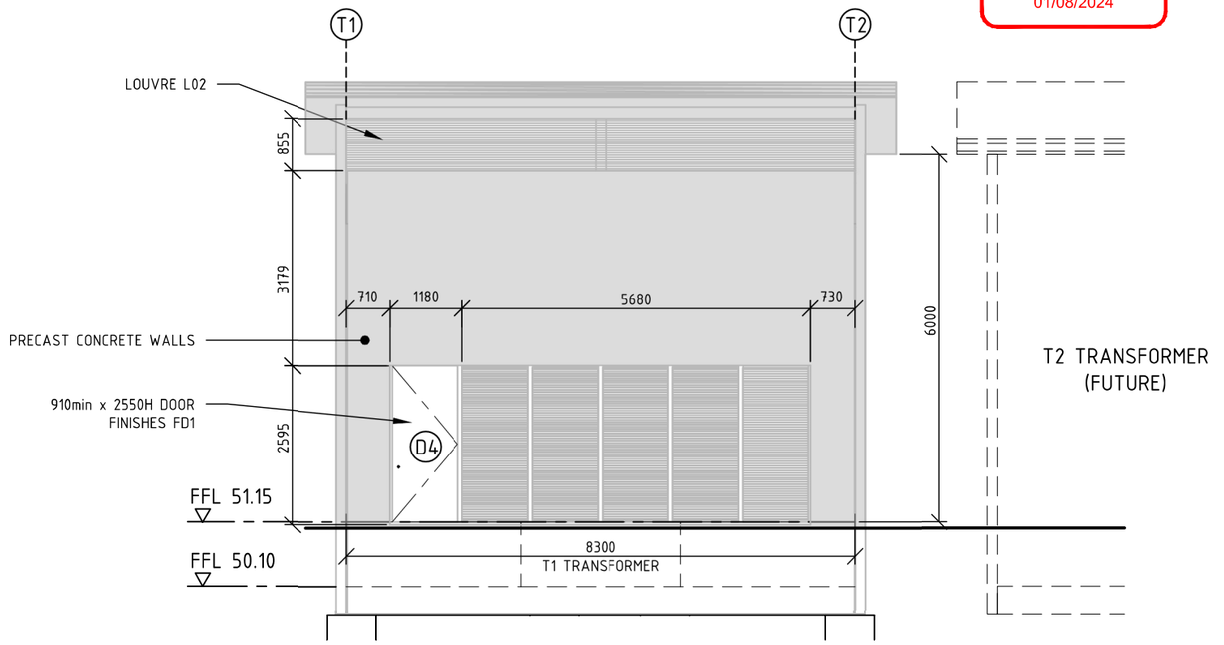


WEST ELEVATION
SCALE 1: 100

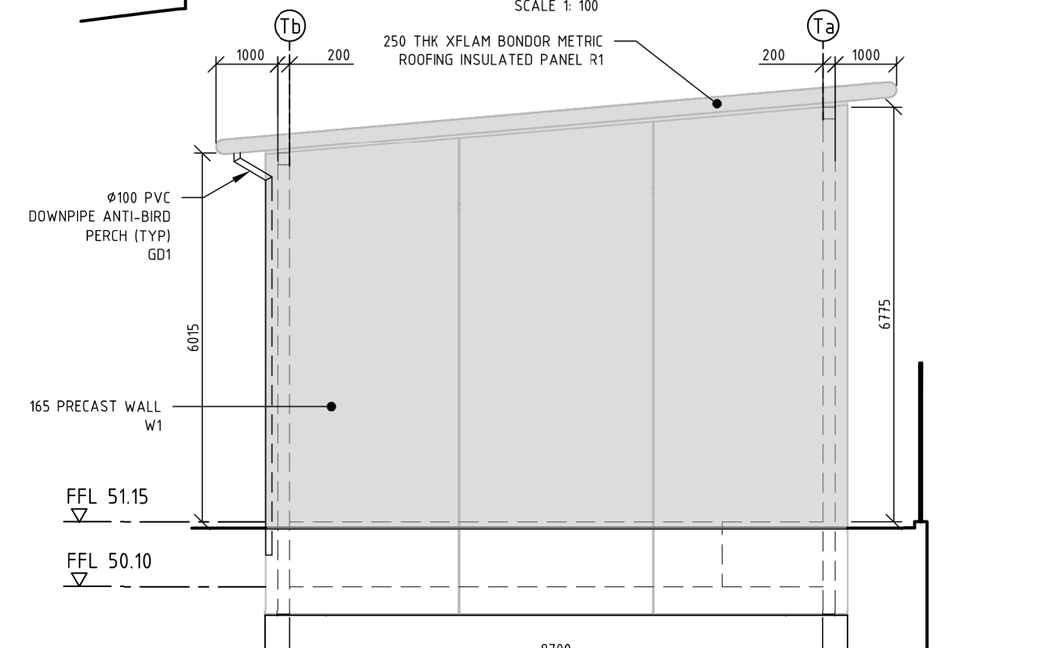


NORTH ELEVATION
SCALE 1: 100

s181 NOR
01/08/2024



EAST ELEVATION
SCALE 1: 100



SOUTH ELEVATION
SCALE 1: 100

REFERENCE DRAWINGS:
4262-0021/2 TRANSFORMER ENCLOSURE LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8350-1.dwg
Author	J. H'nboezem	
Auth Date	10.2023	Consultant project no: VEC6852
Checked by	M. Casey (BB)	
Chk by date	10.2023	Vector project no: EC-24-NRNF2-003
Approved by	R Marx	
Appr by date	10.2023	

vector electricity

33/11kV TRANSFORMER ENCLOSURE ELEVATIONS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: 1:100

Doc type:

Drawing no: 4262-8350

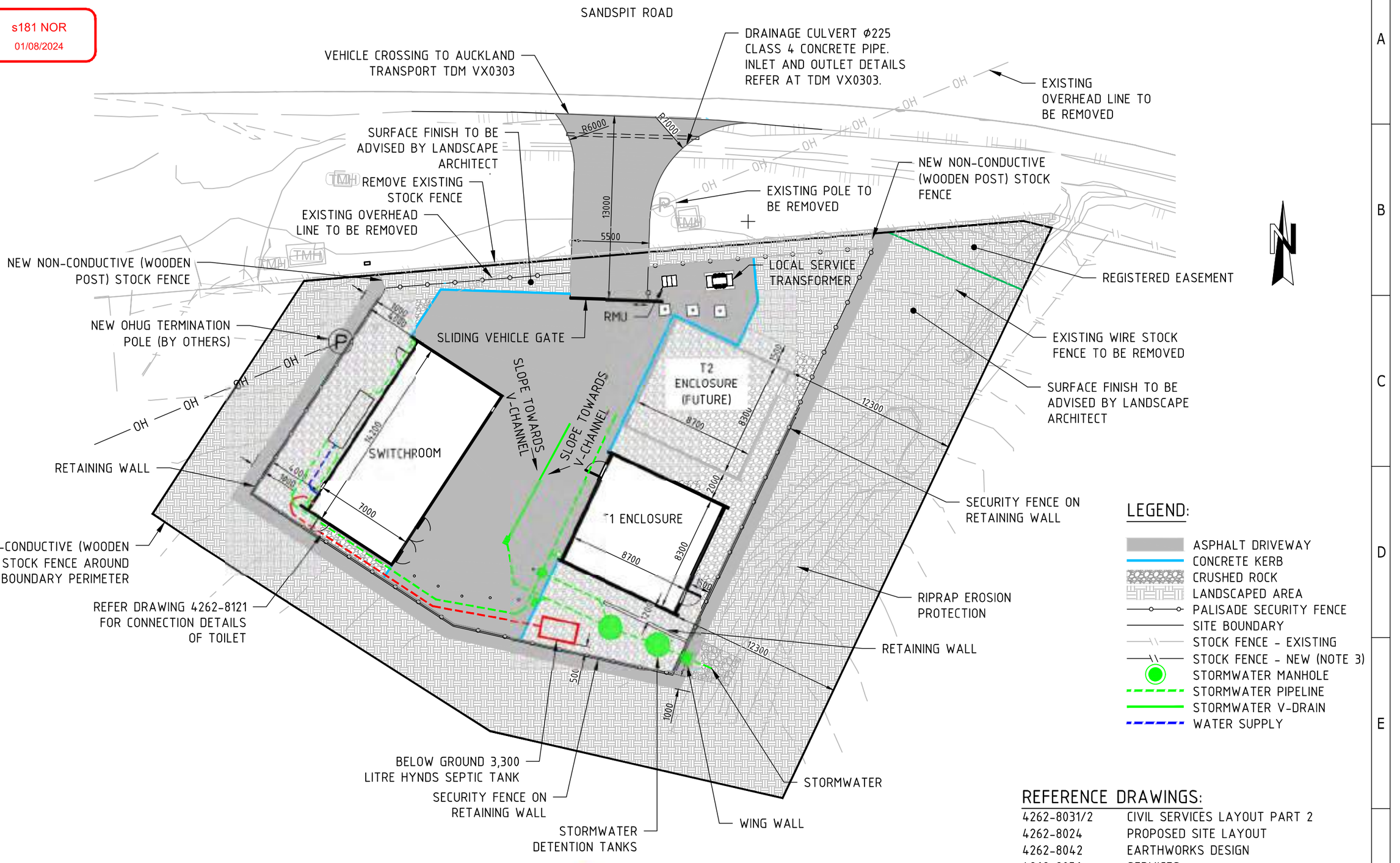
Rev: 3

Sheet: 1 of 1

A3 Titleblock Version 4. © Copyright Vector Limited

s181 NOR
01/08/2024

SANDSPIT ROAD



LEGEND:

- ASPHALT DRIVEWAY
- CONCRETE KERB
- CRUSHED ROCK
- LANDSCAPED AREA
- PALISADE SECURITY FENCE
- SITE BOUNDARY
- STOCK FENCE - EXISTING
- STOCK FENCE - NEW (NOTE 3)
- STORMWATER MANHOLE
- STORMWATER PIPELINE
- STORMWATER V-DRAIN
- WATER SUPPLY

REFERENCE DRAWINGS:

4262-8031/2	CIVIL SERVICES LAYOUT PART 2
4262-8024	PROPOSED SITE LAYOUT
4262-8042	EARTHWORKS DESIGN
4262-8056	SERVICES

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10/2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	12/2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	LANDSCAPING AREA SHOWN, BOLLARDS, STORMWATER & SEWERAGE RE-ALIGNED	30/04/2024	ElectroNet
5	LEGAL BOUDARY ALTERED AND LANDSCAPE AREA REVISED	18/07/2024	ElectroNet
6	DUE TO SCALE CHANGE, DRAWING DIVIDED INTO TWO SHEETS	01/08/2024	ElectroNet

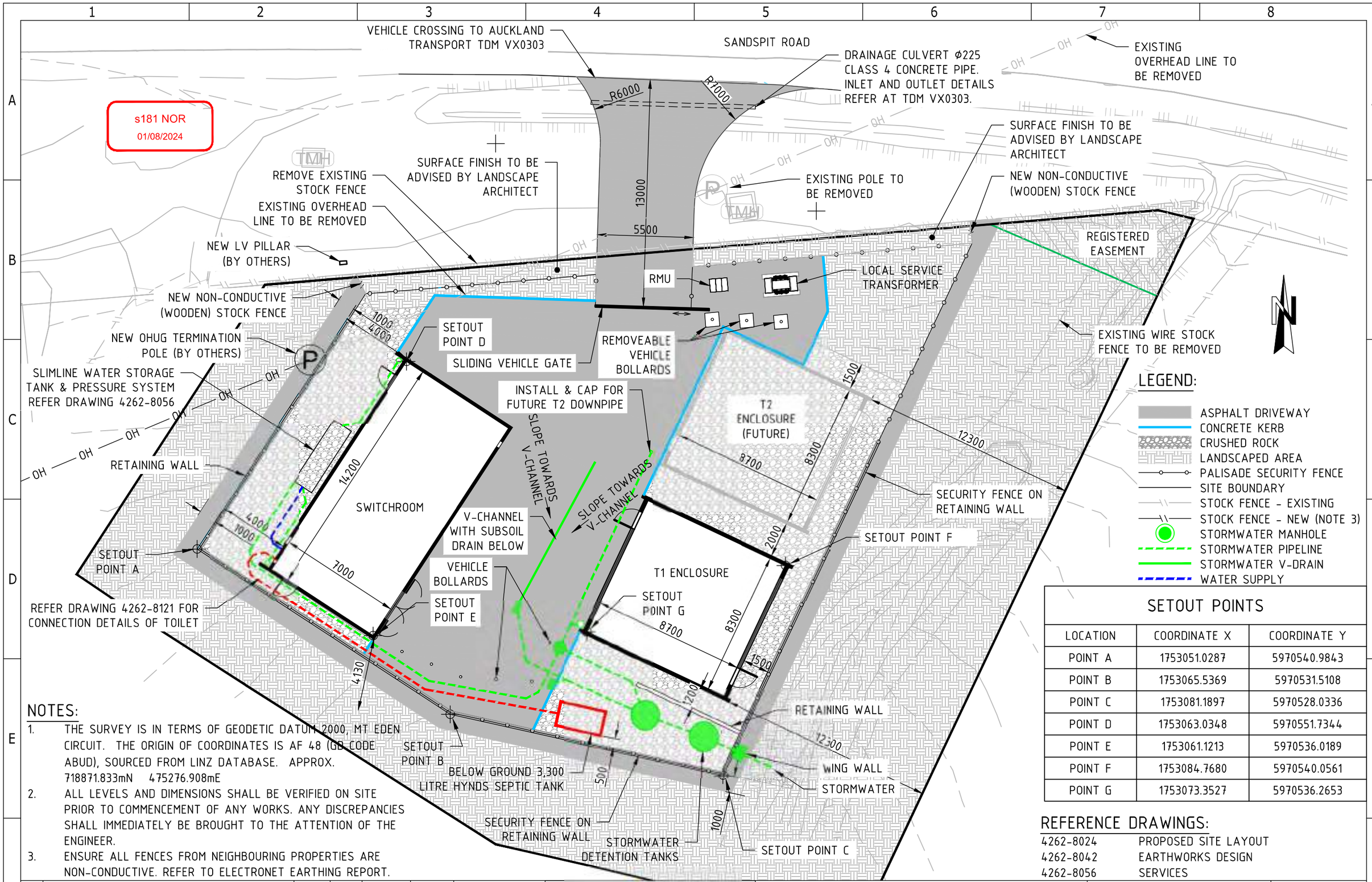
Consultant	ELECTRONET	File name:	4262-8031-1.dwg
Author	J. H'nboezem	Consultant project no:	VEC6852
Auth Date	10/2023	Vector project no:	EC-24-NRNF2-003
Checked by	C. Herath		
Chk by date	10/2023		
Approved by	R Marx		
Appr by date	10/2023		

vector electricity

CIVIL SERVICES LAYOUT PART 1

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing FOR CONSENT AND stamp: TENDER
Scale at A3: 1:250
Doc type:
Drawing no: 4262-8031
Rev: 5
Sheet: 1 of 2



SETOUT POINTS

LOCATION	COORDINATE X	COORDINATE Y
POINT A	1753051.0287	5970540.9843
POINT B	1753065.5369	5970531.5108
POINT C	1753081.1897	5970528.0336
POINT D	1753063.0348	5970551.7344
POINT E	1753061.1213	5970536.0189
POINT F	1753084.7680	5970540.0561
POINT G	1753073.3527	5970536.2653

NOTES:

1. THE SURVEY IS IN TERMS OF GEODETIC DATUM 2000, MT EDEN CIRCUIT. THE ORIGIN OF COORDINATES IS AF 48 (GD CODE ABUD), SOURCED FROM LINZ DATABASE. APPROX. 718871.833mN 475276.908mE
2. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. ENSURE ALL FENCES FROM NEIGHBOURING PROPERTIES ARE NON-CONDUCTIVE. REFER TO ELECTRONET EARTHING REPORT.

REFERENCE DRAWINGS:

4262-8024	PROPOSED SITE LAYOUT
4262-8042	EARTHWORKS DESIGN
4262-8056	SERVICES

Rev	Amendments	Date	Name
1	DUE TO SCALE CHANGE, DRAWING DIVIDED INTO TWO SHEETS	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8031-1.dwg
Author	J. H'nboezem		
Auth Date	10/2023	Consultant project no:	VEC6852
Checked by	C. Herath		
Chk by date	10/2023	Vector project no:	EC-24-NRNF2-003
Approved by	R Marx		
Appr by date	10/2023		

CIVIL SERVICES LAYOUT
PART 2

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing FOR CONSENT AND stamp: TENDER
Scale at A3: 1:200
Doc type:
Drawing no: 4262-8031
Rev: 1
Sheet: 2 of 2

Attachment C: Assessment of Environmental effects report by Mr. David Hay

osbornehay
Resource Management Practice

Applicant:	Vector Limited
Site:	Designation 8866: Sandspit Substation – Un-Numbered Sandspit Road, Snells Beach
Report Title:	Alteration of a Designation under S181(3)

Report Date:	September 2024
Report Version:	Final

Table of Contents

1. **Introduction**

Vector Limited ("**Vector**") has a designation in the Auckland Unitary Plan – Operative in Part (AUPOP) (Designation 8866) at Sandspit Road (Lot 1 DP 426584).

At the time of lodging the Notice of Requirement to Designate the site, Vector had been intending to commence construction fairly shortly after the confirmation of the Designation. For this reason, the Notice of Requirement include concept plans for the substation development and a landscaping plan. For various reasons, the construction of the substation did not proceed at that time.

The substation is now required to service the wider area by late 2025 and over the last year Vector has been undertaking the detailed design. Since the original Notice of Requirement was lodged, the design standards and requirements for substations have evolved. For example, transformer bays now need to be separate from switchrooms.

As a result of these changing requirements, the proposed site layout for the substation has changed from the concept submitted with the original Notice of Requirement. The key components, being a switchroom and two transformer bays have not changed but are now to be separated. In addition, an overland flow path along the eastern side of the site has been formalised in the intervening years and this area is now no longer available for development. Furthermore, it is now the preference of Vector for substation sites to be relatively flat.

Although the current designated area is of an adequate size to accommodate the buildings and equipment, there is inadequate room for the boundary landscaping. As a result of this, Vector has an agreement with the adjoining landowner to undertake a boundary adjustment to increase the size of the Vector site by 255 m^2. An area of 11 m^2 is to be transferred back to the adjoining site. The new lot size is adequate to retain the overland flow path in its current location and to implement a landscaping plan along the site boundaries and within the site.

The subdivision consent for the boundary adjustment has been granted by Council and is attached as Appendix Five. Vector has a sales and purchase agreement in place to purchase the additional land and the new titles will be sought very shortly.

To reflect this change to the site area and the changes to the site layout and landscaping, Vector is lodging this Notice of Requirement ("**NOR**") for the following modifications under s181(3) of the Resource Management Act 1991 ("**the Act**") to Designation 8866. As outlined in Section 3 of this report, s181(3) is dependent on Council agreeing to the proposed modifications.

The following modifications are being sought (additions underline and deletions shown with strikethrough):

General

1 The activity shall proceed in general accordance with the Alteration Notice of Requirement under s181(3) submitted to Council dated ~~2 April 2009~~ 19 September 2024 and the plans Proposed Site Layout 4262-8024 Rev. 7 dated 1/8/2024, Finished Site Contours 4262-8043 Rev 2 dated 18/7/2024, Switchroom Elevations 4262-8150 Rev. 4 dated 30/4/2024 and Transformer Enclosure Elevations 4262-8350 Rev. 3 dated 28/2/2024 drawn by Vector Limited ~~and dated Construckt Architects Limited, including the Proposed Site Plan dated 20/04/09, Basement & Ground Floor Plans and Building Sections plans dated 1/04/09, and the Builidng Elevation plan dated 7/07/09 all numbered L55148 and signed by Processing Planner Laura Christian, dated 08/06/09~~.

Outline Plan

2 If either the final design and layout of the substation does not reflect the design and layout submitted with the Alteration Notice of Requirement under s181(3), or if there are any future additional works proposed that are not permitted by the Unitary Plan, an outline plan shall be submitted in accordance with section 176A of the Resource Management Act 1991 to the Auckland Council, before any construction is commenced. However, where the future additional work is in accordance with the Alteration Notice of Requirement under s181(3) or is permitted by the Unitary Plan, then the requirement for an Outline Plan is waived under s176A(2).

Landscape Plan

3 The landscaping plan (Isthmus Group Ltd, Drawing 01.01 Rev. A~~2633, Figure 5~~ Proposed Landscape Plan, Dated 29/4/2024 ~~6/07/09~~) shown in Appendix 15AA(i), shall be implemented during the first planting season after the construction of the substation. The landscaping shall be maintained thereafter.

Fencing

4 The applicant shall construct ~~a post and batten fence~~ fencing around the perimeter of the substation site in accordance with Drawing Civil Services Layout 4262-8031 Rev. 5 prior to the substation becoming operational.

Replace the Attachment: Proposed Vector Sandspit Substation: Landscape Concept Plan with the following:

Proposed Landscape Plan, Isthmus Group Ltd, Drawing 01.01 Rev. A, Dated 29/04/2024

The updated designation plan is in Appendix Three.

As the alterations being sought involve no more than a minor change to the effects on the environment associated with the use or proposed use of land and minor adjustments to the boundary of the designation and on the basis that Council is in agreement with the changes, then the alterations to the Designation can be undertaken under s181(3) of the Act.

The written consent of the landowner of 12 Mahurangi East Road (Lot 2 DP426584) is included in Appendix Four. It is considered that there is no other land directly affected by the proposed alterations.

Property Information

Site Address:	Un-Numbered Sandspit Road, Sandspit.
Legal Description:	Lot 1 Deposited Plan 426584. The Record of Title is included as Appendix One.
Site Area:	1398 m^2 which is being modified to 1653 m^2.
Underlying Zoning:	Rural – Mixed Rural.
Designation:	8866 Substation. The designation information and conditions from the AUPOP are included in Appendix Two.

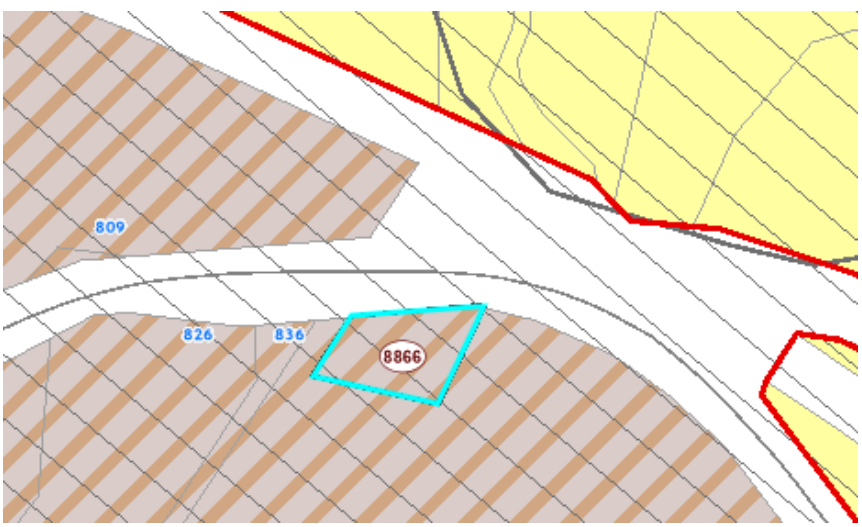


Figure One: ***AUPOP Planning Map***

Photograph One: The Subject Site and Surrounds (from the AC Unitary Plan)

2. **Proposed Changes**

Appendix Three includes the scheme plan showing the proposed modifications to the boundary. The subdivision consent for the boundary adjustment has been granted and the new titles will be sought shortly.

An additional 266 m^2 of land is to be incorporated into the Vector site and 11 m^2 removed. The proposed alteration to the designation reflects the proposed new site boundary.

Appendix Five includes the design drawings, Appendix Six includes the landscaping plan and Appendix Seven includes the supporting Engineering Report.

The site is to be a 33/11kV substation consisting of two transformers (housed within transformer bays) and a switchroom. This has not changed from the original Notice of Requirement.

The following works are proposed:

- Construction of a new driveway into the site.
- Construction of retaining walls and earthworks to form a level building platform for the substation.
- Construction of two roofed transformer bays each housing a transformer. This will be staged with Transformer T1 being constructed initially.
- Construction of a switchroom.
- Installation of a local transformer and RMU.
- Implementation of landscaping in accordance with drawing Proposed Landscaping Plan, Isthmus Group Drawing 01.01 Rev A. Dated 29/04/2024.
- Installation of fencing (a standard Vector security fence within the site and a post and batten farm fence around the boundary except for part of the front boundary).
- Installation of two underground 4000 litre stormwater detention tanks, an aboveground 5000 litre stormwater retention tank and an underground 3300 litre wastewater collection tank and modify the existing stormwater drainage within and from the site.

Approximately 1566 m^3 of earthworks is required over 1,046 m^2 is required to form the building platform.

Transformers

The new transformers are to be located on a bunded concrete foundation within a transformer bay constructed of concrete panels (which act as a firewall) with louvres along the front and rear walls. The maximum height of the transformer bays is approximately 6.8 m. The total length of each transformer bay will be approximately 8.7m long and 8.3 m wide. The external concrete panels are finished in their natural state and are not painted. The transformer bays are roofed.

Switchroom

The switchroom building will have a maximum height of approximately 4.1 m (which is well below the height limit for the underlying zone), a width of approximately 7 m and a length of approximately 14.2 m. The exterior of the substation building will be pre-cast concrete panels finished in a sandtext alabastar colour (or similar). The roofing will be bondor metrix roofing finished in a surfmist colour or similar. The building has three doors and no windows. Standard residential air-conditioning units will be installed for the cooling of the switchboard room.

Earthworks

Approximately 1566 m^3 of earthworks is required over 1,046 m^2 is required to form the building platform.

A Preliminary Site Investigation has been undertaken for the site and this is included in Appendix Twelve. This report confirms that no HAIL activities have been identified as having occurred on the site. No resource consents are required under the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations or the AUPOP.

Lighting

Standard residential sensor security lighting will be installed on the corner of the new switchroom with the exact locations to be confirmed at construction stage.

This lighting will be designed to ensure there is minimal light spill onto adjoining properties. All lighting in hours of darkness for the substation will be minimal as all maintenance is normally undertaken in daylight hours. All non-daytime lighting will be restricted to providing assistance for switch operators during fault finding conditions.

Vehicle Access and Parking

There is no existing driveway into the site from Sandspit Road and a new driveway is to be formed.

No specific marked car parking is provided but there is a large sealed area between the switchroom and the transformers for parking, with maintenance crews generally parking in close vicinity to the area they need to access.

It is noted that a new accessway permit will be applied for from Auckland Transport.

Landscaping

A new landscaping plan has been prepared and is included in Appendix Seven. This plan will be implemented the planting season after the construction of the substation (except the second transformer bay) is completed.

Site Servicing

No new site servicing is required.

A new wastewater holding tank, with a 3300 litre capacity, is to be installed and will be regularly emptied out as part of the site maintenance (with this method being used across a number of Vector rural substation sites).

Potable water on the site is by rain harvesting into a water tank.

Both potable water demand and wastewater generation is very low as there are no permanent staff on site.

3. **Approach to Assessing Effects of the NOR**

The 'activity' for the purposes of this NOR's effects assessment and determining whether or not to notify the NOR is the proposed alteration, as distinct from the existing designation. The effects of the existing designation have already been authorised and are not relevant for the purpose of assessing this NOR.

More specifically, pursuant to sections 181 and 171(1) of the Act, when considering a notice of requirement to alter an existing designation, the Council must consider the effects on the environment of allowing the requirement.

The 'environment' against which the effects of the activity are to be assessed is the 'existing environment'[1] The Courts have specifically confirmed that the 'existing environment' for the purposes of assessing the effects of an alteration to an existing designation includes activities already authorised under the existing designation. In City Rail Link Ltd v Auckland Council [2017] NZEnvC 204, Judge Newhook noted at [43]:

> *Assessment of effects on the environment from the proposed alterations must take into account the existing environment. We agree with submissions on behalf of the requiring authorities that the existing environment in this case is the physical environment inclusive of the current designation, and that the appropriate comparison is between the existing designation and the [proposed altered designation]. That is an important starting point*.

Consequently, the relevant effects of a designation alteration are those effects that are over and above the effects already authorised by the existing designation. In other words, it is the 'delta'/difference between the effects that are authorised by an existing designation and the effects that will be authorised by the alteration that is relevant.

In the present case the relevant effects are limited to the effects associated with the extension of the existing designation footprint and changes to the conditions with respect to updated design and landscaping.

As set out in the Assessment of Landscape and Visual Amenity Effects and in the assessment of effects in this report the effects of the NOR's proposed alteration on the environment have been assessed as minor.

Section 181(3) gives Council powers to alter a designation 'on the papers' without application of sections 168 to 179 provided:

171. The alteration involves either:

(a) no more than minor changes to the effects on the environment associated with the use or proposed use of land or any water concerned; or

(b) only minor changes or adjustments to the boundaries of the designation;

7.2 Written notice of the proposed alteration has been given to every owner or occupier of the land directly affected and those owners or occupiers agree with the alteration; and

7.3 Council and Vector agree with the alteration.

In relation to paragraph [7.1], as noted above, the effects on the environment of the NOR have been assessed as minor and the boundary adjustments are "minor".

In relation to paragraph [7.2] Vector owns the site of the existing designation. The only other area of land directly affected by the NOR is 12 Mahurangi East Road, being an area of land over which Vector has an agreement to purchase and proposes to extend the designation boundary. Vector has provided written notice of the NOR to the owner/occupier of the land directly affected by the alteration at 12 Mahurangi East Road. They have confirmed that they agree with the alterations proposed by the NOR and their written consent is included in Appendix Four.

[1] *Queenstown-Lakes District Council v Hawthorn Estate Ltd* CA45/05, 12 June 2006.

Therefore, subject to Council providing its agreement to the alteration, the legal tests for the NOR being processed as a ‘minor alteration’ under section 181(3) of the RMA have been met. This allows the NOR to be processed efficiently on the papers, without further consideration or process.

In light of the assessments in this NOR, Vector considers that the NOR is of a nature that the Council should agree to exercise its powers under section 181(3) to process as a 'minor alteration’.

Notwithstanding that position, for completeness, should Council not agree to processing the NOR under section 181(3), it can be processed on a non-notified basis pursuant to section 181(2) as the effects of the NOR on any party are less than minor and there are no affected persons under section 149ZCF.

4. **Assessment of the Change of Effects**

The change of effects resulting from the proposed modifications to the designation are assessed below.

The site currently appears as part of a larger gassed paddock used for stock grazing. There is an overland flow path down the eastern side of the site.

The wider area has not changed substantially since the original Notice of Requirement and remains predominantly a countryside living area.

Photograph One: The Subject Site With the Fenced Overland Flow Path on the Left Hand Side (as at February 2024)

Photograph Two: The Overland Flow Path Looking South (as at February 2024)

Photograph Three: The Site Looking Towards the South East.

Change to Designation Boundaries

The change to the designation boundaries is minimal. The change does not result in any effects on the current use of 12 Mahurangi East Road and results in a more usable area for the Vector substation and the proposed landscaping.

The change to the boundaries do not affect any other parties.

The change to the boundaries does not affect the ability to provide a new vehicle access onto Sandspit Road.

The effects of the change to the designation boundaries are less than minor if not negligible.

Visual and Landscape Effects

A Visual and Landscape assessment has been prepared and is included in Appendix Eight. This assessment concludes:

"In summary, landscape and visual amenity effects from the proposal will be slightly more adverse than the consented landscape plan / 2009 proposal, due to a less "easy" / integrated fit into the existing natural landform of the site. However, as the adverse effects will be at the lower end of the scale, effects are considered to be at a similar level (in terms of acceptability) to those provided by the consented plan.

The actual change in landscape effect between the existing development provided for under the designation and the proposed modifications will be minor, in the long term (with growth of the proposed planting).

In public views (for those driving past the site) the change in effect between the existing development provided for under the designation and the proposed modification will be less than minor in the long term (with growth of the proposed planting, and with views being transitory only).

Long term effects on visual amenity for adjoining properties[2] (private views of the site) will range from ***Negligible*** *to* ***Low*** *adverse – considered to be at a similar level to the consented plan. In the long term, with growth of the proposed planting, the actual change in visual amenity effects between the existing development provided for under the designation and the new proposal will be less than minor for the adjoining properties.*

Overall, the revised proposal will appropriately manage any adverse landscape and visual effects, with the planting mitigation proposed."

In summary the change in landscape effects will be minor.

Construction and Operational Noise

An Acoustic Assessment has been prepared and is included in Appendix Ten. This Assessment concludes:

"We have assessed the noise emissions and effects from the proposed Vector Sandspit Substation. In conclusion:

• T1 transformer emissions are predicted to meet designation noise limits, and are considered reasonable in the existing noise environment

- *Transformer ONAN (no fans) operation complies with designation noise limits for all times*
- *Transformer ONAF (with fans) operation complies with designation daytime (including Sunday and public holiday) noise levels*
- *Fans will be disabled during the night-time (6pm to 6am) but may operate in emergencies, unlikely to cause sleep disturbance if they operate*

[2] 16 Mahurangi East Road, 826 Sandspit Road and 836 Sandspit Road.

• *Future T2 transformer emissions are likely to meet designation noise limits*

• *AC outdoor unit noise emissions are likely negligible compared to transformers."*

As the design will comply with the current designation condition, which is not being modified, there is no difference in effects arising as a result of the proposed modifications to the designation.

Earthworks Management

The new design results in the requirement for retaining walls to be constructed within the site on the western and southern sides. These retaining wall along the edge of the building platform will vary in height up to approximately 4m high (at the south-east corner) and will be constructed of reinforced concrete poles, with concrete infill (shotcrete). Long-sections of the site are included in the drawing set.

Total earthworks on the site will now total approximately 1566 m^3 over 1,046 m^2

A sediment and erosion control plan has been prepared (Drawing 4262-8058 Rev 2).

Although a greater volume and area of earthworks is required under the new design, with the implementation of the sediment and erosion control plan any potential change in adverse effects arising from the earthworks will be negligible compared to the original design.

Construction Traffic

A Construction Management Plan (including a Traffic Management Plan) will be prepared in conjunction with the contractor prior to the commencement of works. This plan will address sediment control, noise and vibration management and traffic management. This does not change as a result of the modifications to the designation.

Stormwater Management

Stormwater management has been addressed in the Engineering Report (Appendix Nine).

Stormwater from the new switchroom roof will be harvested and stored in a retention tank for re-use on the site.

All other stormwater (apart that harvested for potable water use) will be diverted to stormwater retention tanks before discharging to the overland flow path.

The proposed modifications to the designation do not change the effects arising from stormwater management on the site.

Site Servicing

No additional site servicing is required. This does not change as a result of the proposed modifications to the designation.

Electromagnetic Fields (EMF)

An EMF Assessment Memorandum is included in Appendix Eleven. This assessment concludes:

"Based on this analysis, our conclusions about the electric and magnetic field environment are:

1. *The electric field environment remains unchanged following the installation of the proposed 33 kV and 11 kV cables.*

2. *The highest magnetic field at the Sandspit property boundary is predicted to be less than 12.38 μT. These values are less than 6 % of the public exposure reference level of 200 μT.*

For both electric and magnetic field levels produced, the values are significantly less than the public exposure reference levels given by both New Zealand and International guidelines.

For both low frequency electric and magnetic field levels produced, the values are significantly less than the public exposure reference levels given by both New Zealand and International guidelines."

The proposed modifications to the designation will not change the degree of effects arising from EMF.

5. **Notification Comment**

The written consent of the owners of 12 Mahurangi East Road has been obtained.

In the event Council forms the opinion it cannot agree to the changes and process this NOR under s181(3) then the notification test will apply. It is considered that no parties are adversely affected by the change in effects resulting from the modification to a minor or more than minor degree. This has specifically been addressed in the visual and landscape assessment. Therefore, the notification of this NOR would not be triggered.

Appendix One: **Records of Title**

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

Identifier **504682**
Land Registration District **North Auckland**
Date Issued 06 September 2010

Prior References
NA33A/921 NA91D/824

Estate	Fee Simple
Area	4.3412 hectares more or less
Legal Description	Lot 2 Deposited Plan 426584

Registered Owners
Jason Troy Melling and Rachael Rosalind Melling

Interests

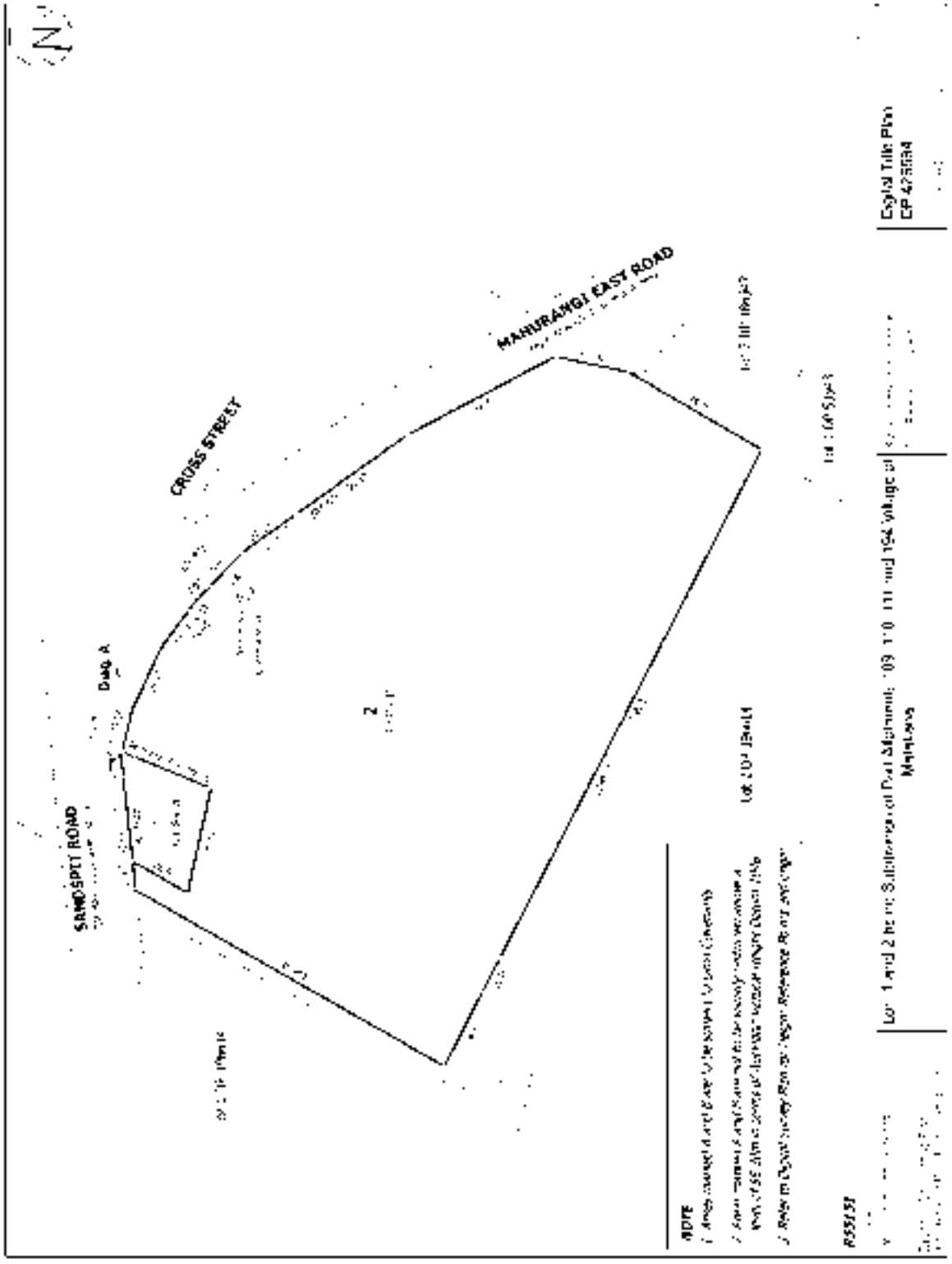
Excepting pursuant to Section 19 Public Works Act 1928 such mines of coal or other minerals not taken by Proclamation 9341 (Affects part formerly contained in CT NA33A/921)

8567546.3 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 13.8.2010 at 10:29 am

8567546.5 Encumbrance to Vector Limited - Produced 13.8.2010 at 10:29 am and entered 6.9.2010 at 7:01 am

12398202.1 Mortgage to ASB Bank Limited - 15.3.2022 at 4:06 pm

Identifier **504682**



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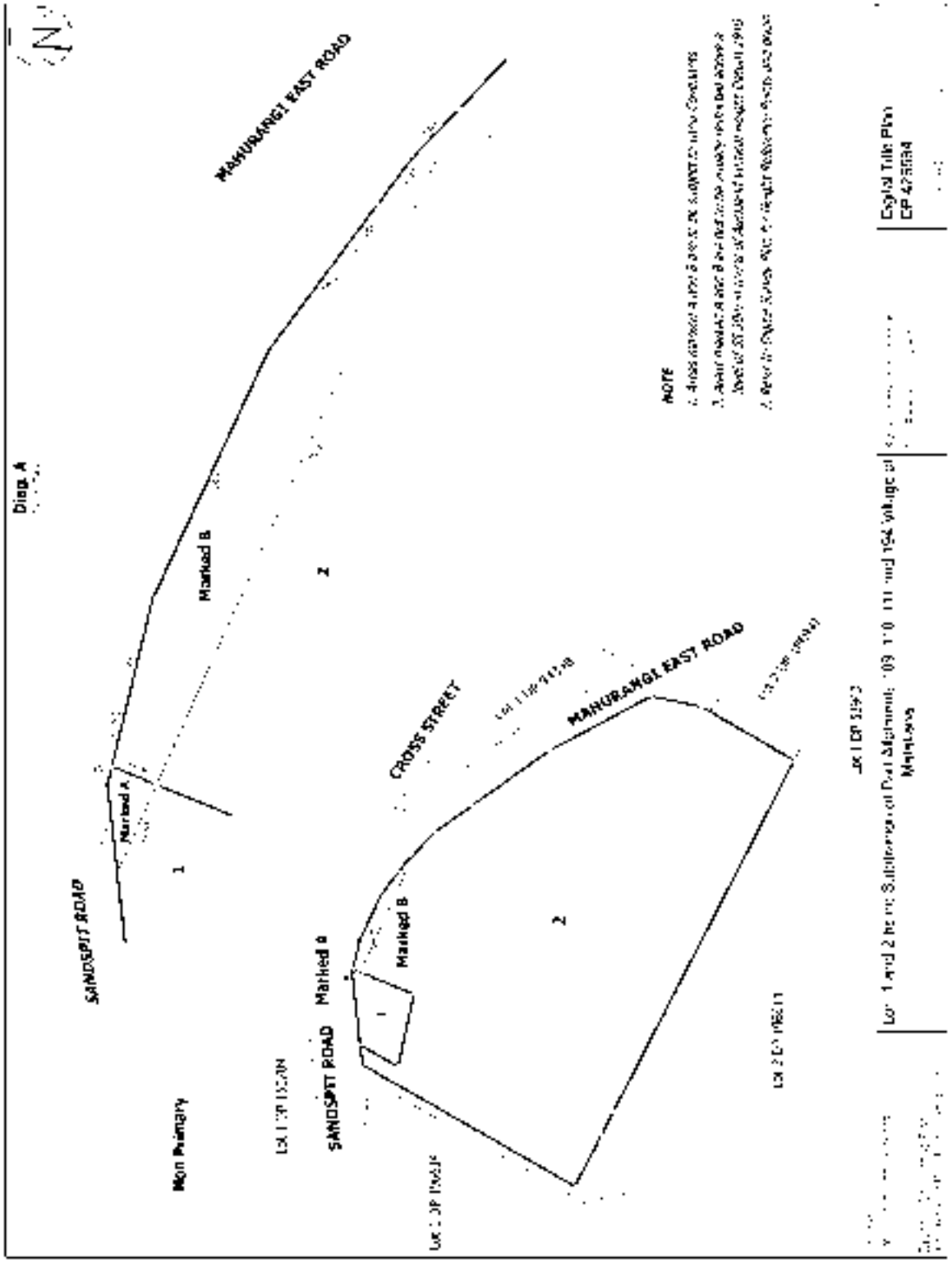


View Instrument Details

Instrument No	8567546.3
Status	Registered
Date & Time Lodged	13 August 2010 10:29
Lodged By	Singh, Babu Gyan
Instrument Type	Consent Notice under s221 Resource Management Act 1991

Affected Computer Registers	Land District
NA93A/921	North Auckland
NA91D/824	North Auckland

Annexure Schedule: Contains 1 Page.

Signature

Signed by James Thomas Varney as Territorial Authority Representative on 05/07/2010 12:30 PM

*** End of Report ***

IN THE MATTER of a Plan lodged for Deposit under Number 426564

Pursuant to Section 221 of the Resource Management Act 1991 THE RODNEY DISTRICT COUNCIL HEREBY GIVES NOTICE that its subdivision consent given in respect of the land in the Second Schedule as shown on Land Transfer Plan 426564 is conditional inter alia upon the compliance on a continuing basis by the Subdivider and the subsequent owners of the land in the Third Schedule hereto with the conditions set forth in the First Schedule hereto.

FIRST SCHEDULE

(building restriction) No residential development shall be undertaken on Lot 1 as the net area is less than the area required to service on-site wastewater disposal

(road crossing sight line) Areas A and B within Lots 1 and 2 are not to be visually restricted above a level of 55.3 metres in terms of Auckland Vertical Height Datum 1946 to ensure the sight lines from the vehicle crossing to Lot 1 are unobstructed.

SECOND SCHEDULE

An estate in fee simple in 4.4810 hectares more or less being: Part Allotments 109, 110, 111 & 194 Village of Matakana comprised in Certificates of Title NA91D/924 and NA33A/921

THIRD SCHEDULE

Lots 1 & 2 DP 423584 totalling 4.4810 hectares in area

DATED this 3rd day of December 2009.

SIGNED for and on behalf of the RODNEY DISTRICT COUNCIL

Authorised Officer

Resource Consent: R55151

s221

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

Identifier	**504681**
Land Registration District	**North Auckland**
Date Issued	06 September 2010

Prior References
NA91D/824

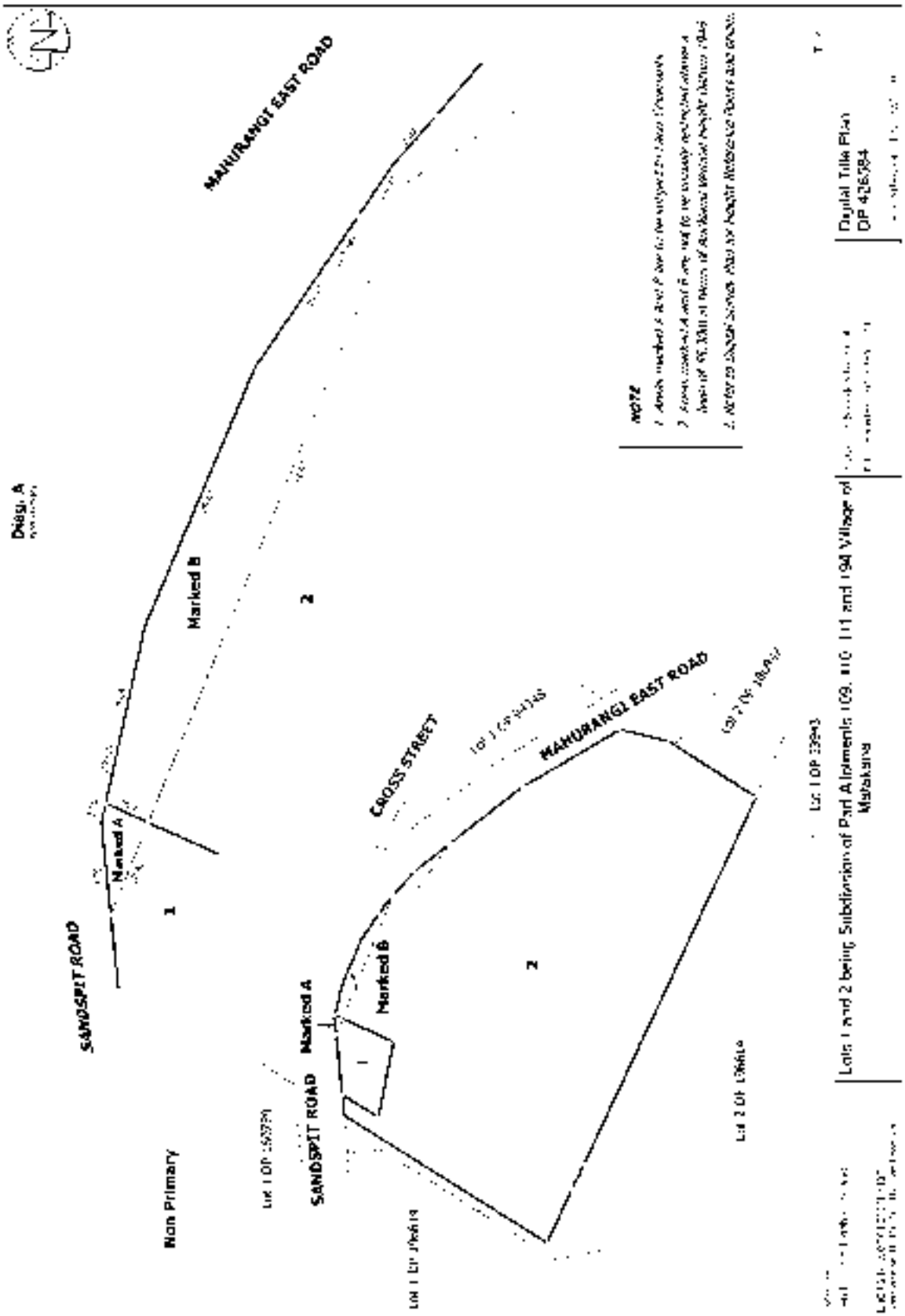
Estate	Fee Simple
Area	1398 square metres more or less
Legal Description	Lot 1 Deposited Plan 426584
Registered Owners	

Vector Northern Property Limited

Interests

8567546.3 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 13.8.2010 at 10:29 am

MAHURANGI EAST ROAD
CROSS STREET
SANDSPIT ROAD
Digital Title Plan
DP 426584
Lots 1 and 2 being Subdivision of Part Allotments 109, 110, 111 and 194 Village of Matakana
NOTE
ASSIST


MAHURANGI EAST ROAD
SANDSPIT ROAD
Marked A
Marked B
Marked A
Marked B
CROSS STREET
MAHURANGI EAST ROAD
SANDSPIT ROAD
Non Primary
Lots 1 and 2 being Subdivision of Part Allotments 109, 110, 111 and 194 Village of Mahurangi
Digital Title Plan
DP 426584

Appendix Two: **AUPOP Designation**

8866 Sandspit Substation

Designation Number	8866
Requiring Authority	Vector Ltd
Location	Mahurangi East Road (Lot 1 DP 426584), Snells Beach
Rollover Designation	Yes
Legacy Reference	Designation 617, Auckland Council District Plan (Rodney Section) 2011
Lapse Date	31 August 2032 unless given effect to prior

Purpose

Substation.

Conditions

General

1. The activity shall proceed in general accordance with the Notice of Requirement submitted to Council dated 2 April 2009 and the plans drawn by Construkt Architects Limited, including the Proposed Site Plan dated 20/04/09, Basement & Ground Floor Plans and Building Sections plans dated 1/04/09, and the Building Elevation plan dated 7/07/09 all numbered L55148 and signed by Processing Planner Laura Christian, dated 08/06/09.

Outline Plan

2. If either the final design and layout of the substation does not reflect the design and layout submitted with the Notice of Requirement, or if there are any future additional works proposed that are not permitted by the Unitary Plan, an outline plan shall be submitted in accordance with section 176A of the Resource Management Act 1991 to the Auckland Council, before any construction is commenced. However, where the future additional work is in accordance with the Notice of Requirement or is permitted by the Unitary Plan, then the requirement for an Outline Plan is waived under s176A(2).

Landscape Plan

3. The landscaping plan (Isthmus Group Ltd, Drawing 2633, Figure 5, dated 6/07/09) shown in Appendix 15AA(i), shall be implemented during the first planting season after the construction of the substation. The landscaping shall be maintained thereafter.

Fencing

4. The applicant shall construct a post and batten fence around the perimeter of the substation site prior to the substation becoming operational.

Traffic Management Plan

5. Prior to any construction being undertaken, a temporary Traffic Management Plan is required to be submitted to Council and approved by Manager - Resource consents and Compliance in consultation with Auckland Transport (the road controlling authority).

Access

6. The following measures shall be implemented prior to the operation of the substation:

a. Driveway and access to be constructed to a best practice standard;

b. A sightline covenant as shown in the plans provided with the subdivision application (to the east if the driveway) is to be established;

c. The small bunch of agapanthus within the road reserve near the driveway crossing for 836 Sandspit Road is to be removed at the cost of the applicant, to the approval of the Manager - Resource Consents and Compliance;

d. Further details of the drainage design for the driveway should be provided by the applicant, including culvert size and end treatment; and

e. The open channel surrounding the driveway shall be built up to a slope no steeper than 1 in 4 on either side of the driveway.

Construction Noise

7. Noise from construction activities shall not exceed the limits recommended in and shall be measured and assessed in accordance with, NZS6803:1999, Acoustics — Construction Noise. Note that the noise limit between the hours of 2000 to 0630 weekdays, 1800 to 0630 Saturdays and at all times on Sundays and Public Holidays, may mean that no construction work can take place.

8. (operation noise) The operational noise from the substation shall not exceed the following limits at the notional boundary (notional boundary is defined as a line 20m from the side of a rural dwelling existing as at 1 April 2009, or the legal boundary where this is closer to the dwelling):

a. Monday to Saturday: 6:00am to 6:00pm 55 dBA Leq;

b. Sundays & Public Holidays: 6:00am to 6:00pm 50 dBA Leq; and

c. At all other times: 45 dBA Leq 75 dBA Lmax.

Archaeological

9. If any artefact, including human remains is exposed during any site works the following procedures shall apply:

a. Immediately when an artefact is unearthed, all site works shall cease; and

b. The site supervisor shall immediately secure the area in a way that ensures any artefacts or remains are untouched; and

c. The site supervisor shall notify the following groups that an archaeological site has been unearthed, so that appropriate action can be taken:

i. Tangata whenua,

ii. The New Zealand Historic Places Trust;

iii. The Department of Conservation;

iv. The Council's RMA Compliance Administration Officer (telephone 301 0101); and

v. In the case of human remains the New Zealand Police.

Lapse

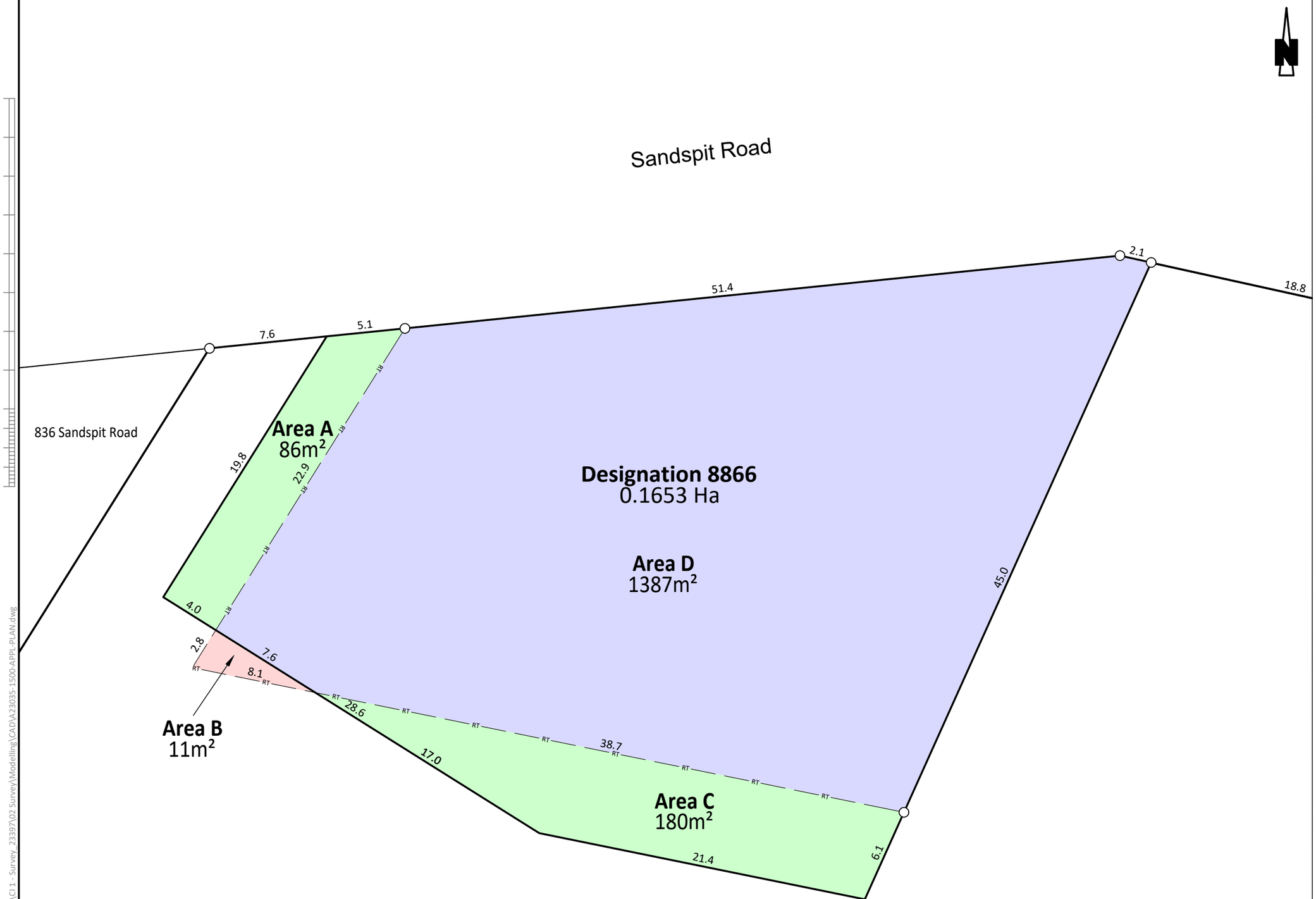
10. 31 August 2032 unless given effect to prior

Attachments

Proposed Vector Sandspit Substation Landscape Concept Plan

Appendix Three: **Designation Plan**

Resource Management Act 1991
(Auckland Unitary Plan)
Notice of Requirement of Vector Limited
under S181 to alter designation



Key:	Areas:
Area to remain within designation 8866	1387m²
Areas to be added to designation 8866	266m²
Area to be removed from designation 8866	11m²

New total area of Designation 8866 - 1653m²

2/4/12 Mahurangi East Road

Notes:

1. Areas and dimensions on this plan may be subject to change following field survey.
2. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL NZ Ltd.

   This plan has been prepared only for the purpose of illustrating a S181 Notice Of Requirement.
   It should not be used for any other purpose.

CKL
Planning | Surveying | Engineering | Environmental

OFFICE
AUCKLAND
A: 25 Broadway, Newmarket
P: 09 524 7029
E: Auckland@ckl.co.nz

vector

VECTOR LIMITED
SANDSPIT RD
SNELLS BEACH

ALTERATION TO DESIGNATION 8866 PLAN

Issue	Description	Checked	Date
2	Add Detail		29.07.24
1	Notes Amended		10.07.24
0	Initial		

		Date
Designed:		
Drawn:	SMR	08.07.24
Checked:	MRD	09.07.24

Scale: 1:250 (A3 Original)

Job No: A23035 | Dwg No: 1504 | Rev: 2

C:\ProgramData\12DSynergy\data\CKL-AZU-SYN-1\C1 - Survey_23397\02 Survey\Modelling\CAD\A23035-1500-APPL-PLAN.dwg

Appendix Four: **Written Consent**

Written approval of affected persons for a Modification to a Designation

Auckland Council

PART A (to be completed by the applicant)

PART A - APPLICATION		
Applicant/s name: (please write all names in full)	Vector Limited	
Address of proposed activity:	Unnumbered Sandspit Road	Application number if known:

Description of proposed activity:

Modification to Designation 8866

List of all documents and plans to be sighted (including title, author and date)

Title	Author	Date
Draft s181 Application	Osbornehay	August 2024
Designation Plan	CKL	29/7/2024
Drawings	Vector	Various

Resource consent/s being sought for (describe why resource consent is required and details of any non-compliance)

Not applicable. This written consent is for a modification to a designation under s181 of the RMA.

PART B (to be completed by the person/s and/or organisation/s who are providing written approval)

PART B – AFFECTED PERSON/S		Tick if owner	Tick if occupier
Full name: (in print)	Jason Troy Melling	✓	✓
Full name: (in print)	Rachael W Melling	✓	✓
Full name: (in print)			
Address of affected property	12 Mahurangi East Rd Sandspit	Postcode:	
Email:	jmelling05@gmail.com	Mobile:	021 741 509

PART B – AFFECTED PERSON/S (continued)

I have authority to sign on behalf of all (tick which one/s apply)

☑	Property owners	☑	Property occupiers

Please note: The approval of all the legal owners and occupiers of the affected property is required. If you have authority however to sign on behalf of others, please provide documentation providing you have this authority.

PART C (to be completed by the person/s and/or organisation/s who are providing written approval)

PART C – DECLARATION

Tick each box below that applies

☑	I/We have been given details of the proposal and plans to which I/we are giving written approval. A list of the documents I/we have sighted is included on page 1.
☑	I/We have signed each page of the plans in respect of this proposal. These need to accompany this form.
☑	I/We understand that by giving my/our written approval, the council cannot take account of any actual or potential effects of the activity on my/our property when considering the application.
☑	Further, I/we understand that at any time before a decision is made about the application, I/we may give notice in writing to the council that this approval is withdrawn.

In signing this form, I/we am/are satisfied that I/we fully understand the proposal.

Contact our Customer Service team on 09 301 0101 if you need more information about the resource consent process.

Signature/s	[signature]	Date	9/9/24
Signature/s		Date	
Signature/s		Date	

PRIVACY INFORMATION

The council requires the information you have provided on this form to process your application under the Resource Management Act 1991 and to collect statistics. The council will hold and store the information on a public register. The details may also be made available to the public on the council's website. These details are collected to inform the general public and community groups about all consents which have been processed or issued through the council. Under the Privacy Act 2020, you have the right to see and correct personal information Auckland Council holds about you.

Advice Note: *If you are asked to give your written approval to someone's proposed activity as part of their application for a resource consent, you should do the following:*

- *Request that the applicant (or their representative) explain the proposal clearly and fully to you.*
- *Study the application and associated plans provided by them in order to understand the effects of the proposed activity. If there are no plans available at this stage, you may wish to wait until they are available.*
- *Ask the applicant (or their representative) if you have been provided with a copy of the full application, including plans.*
- *Ask for time to consider the documents if you think you need it.*

- *Decide whether the proposed activity will adversely affect you or your property. You are entitled to ask the applicant for more information, but you should make a decision about whether you will sign the form or not as promptly as is reasonable in the circumstances. You may suggest amendments to the proposed activity that you consider would reduce the effects on you. If the proposal is amended by the applicant, then you should only sign the amended version of the proposal.*
- *If you consider that you will be adversely affected by the proposal and do not wish to sign the approval form, you will need to advise the applicant (or their representative).*
- *If you change your mind after signing this form, you may withdraw your approval at any time before a decision is made on the application by advising the council in writing that your approval is withdrawn.*

Applicant:	Vector Limited
Comprised In:	504681 504682
Local Authority:	Auckland Council
Total Area:	4.4810 Ha

Note:

Areas A & B DP 426584 are subject to height restriction land covenants created by: 8567548.3
Imagery from LINZ Data Service circa 2010

Legend:

Bank Bottom
Bank Top
Fence
Overland Flow Path
Gate
Power Switchgear
Power Pole
Tree Trunk

Notes:

1. Changes may occur to the layout of the proposal shown as a result of the Resource Consent Conditions.
2. Areas and dimensions on this plan may be subject to change following field survey.
3. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL NZ Ltd.
4. This plan has been prepared only for the purpose of illustrating an application for resource consent. It should not be used for any other purpose.

DRAFT

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AUCKLAND

vector

VECTOR LIMITED
SANDSPIT RD
SNELLS BEACH

PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 426585
SITE LAYOUT

Issue	Description	Checked	Date
1	Sheet 1504 only		30.07.14
2	Initial		

Designed:		
Drawn:	BP	30.07.14
Checked:	MRD	30.07.14

Scale: 1:250 (A3 Original)

Job No: A23035
Dwg No: 1503
Rev: 1

Resource Management Act 1991
(Auckland Unitary Plan)
Notice of Requirement of Vector Limited
under S181 to alter designation

Key:
Areas:

Area to remain within designation 8866	1387m²
Areas to be added to designation 8866	266m²
Area to be removed from designation 8866	11m²

New total area of Designation 8866 - 1653m²

Notes:
1. Areas and dimensions on this plan may be subject to change following field survey.
2. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL NZ Ltd.

This plan has been prepared only for the purpose of illustrating a S181 Notice Of Requirement. It should not be used for any other purpose.

CKL
Planning | Surveying | Engineering | Environmental

vector

VECTOR LIMITED
SANDSPIT RD
SNELLS BEACH

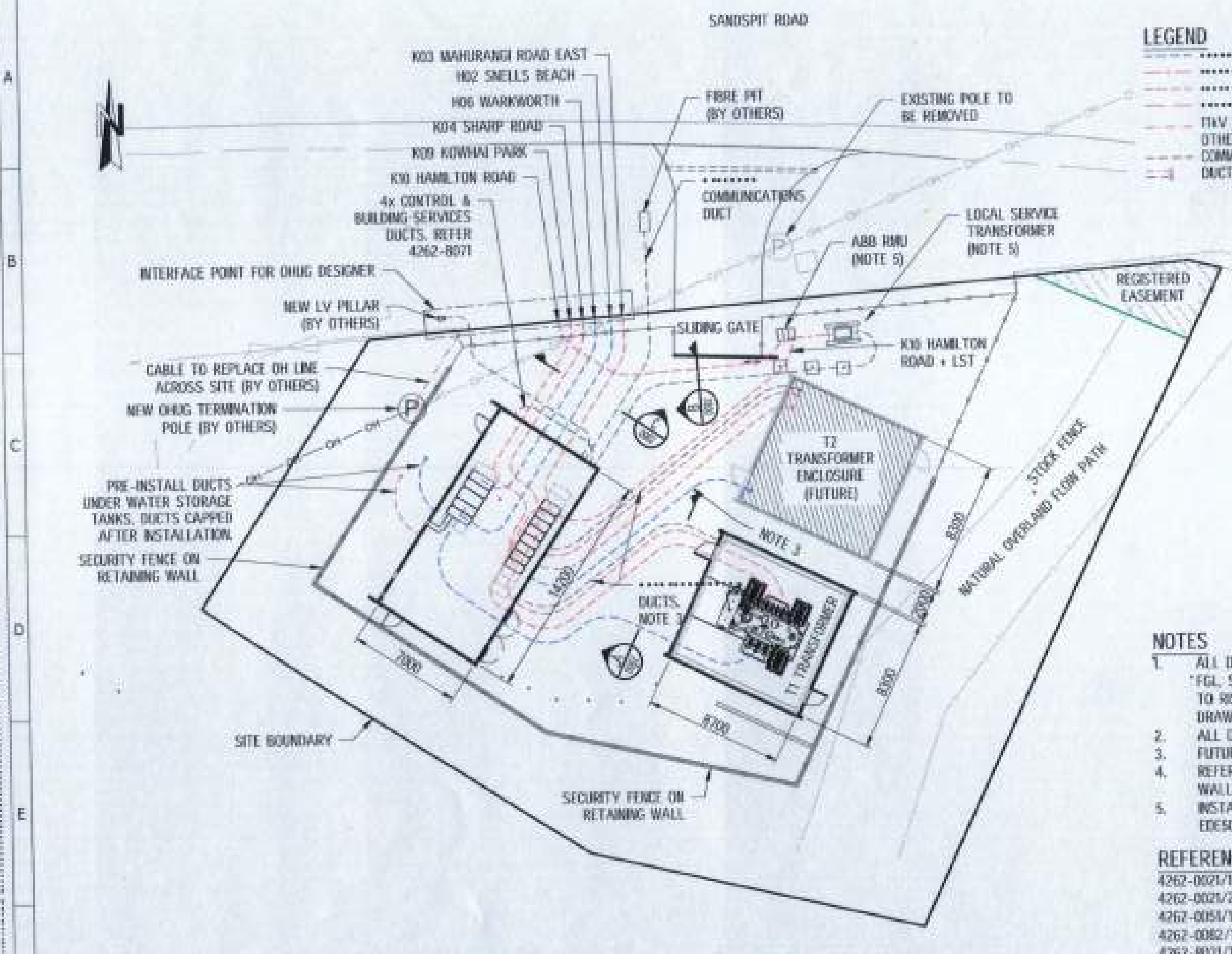
ALTERATION TO
DESIGNATION 8866
PLAN

Issue	Description	Checked	Date
2	Add Extra		28.07.24
1	Notes Amended		18.07.24
0	Initial		

		Date
Designed		
Drawn	DMR	08.07.24
Checked	MRB	08.07.24

Scale: 1:250 (on original)

Job No: A23035
Dwg No: 1504
Rev: 2



LEGEND

11kV XLPE CABLE TO REPLACE OVERHEAD LINE (BY OTHERS)
COMMS/CONTROL/LV DUCTS
DUCT CAPPED

NOTES

1. ALL DUCTS SHALL BE BURIED A MINIMUM OF 900mm BELOW FGL. SHALLOWER DEPTH ACCEPTABLE WHERE DUCTS NEED TO RISE TO MEET BUILDING PENETRATION LEVELS. REFER TO DRAWING 4262-0082 FOR BURIAL DEPTH ALONG ROUTE.
2. ALL DUCTS TO HAVE MIN BENDING RADIUS OF 2.5m.
3. FUTURE DUCTS FOR T2 TO BE INSTALLED AND CAPPED.
4. REFER TO 8062-8031 FOR ADDITIONAL DETAIL ON RETAINING WALLS, FENCING AND VEHICLE BOLLARDS.
5. INSTALLATION OF LST AND RMU TO VECTOR DRAWING EDE5004, EDE5008 & EDE5009.

REFERENCE DRAWINGS

4262-0021/1	33/11kV SWITCHROOM
4262-0021/2	33/11kV TRANSFORMER ENCLOSURE
4262-0051/1	EARTHING LAYOUT
4262-0082/1	SUBSTATION DUCTING TRENCH PROFILES
4262-8031/1	CIVIL SERVICES LAYOUT

s181 NOR

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL		
2	UPDATED AFTER CLIENT REVIEW		
3	UPDATED AFTER CLIENT SECOND REVIEW		
4	[illegible]		
5	[illegible]		
6	[illegible]		
7	[illegible]		

Consultant: Author / Auth Date / Checked by / Chk by date / Approved by / Appr by date
File name:
Consultant project no:
Vector project no:

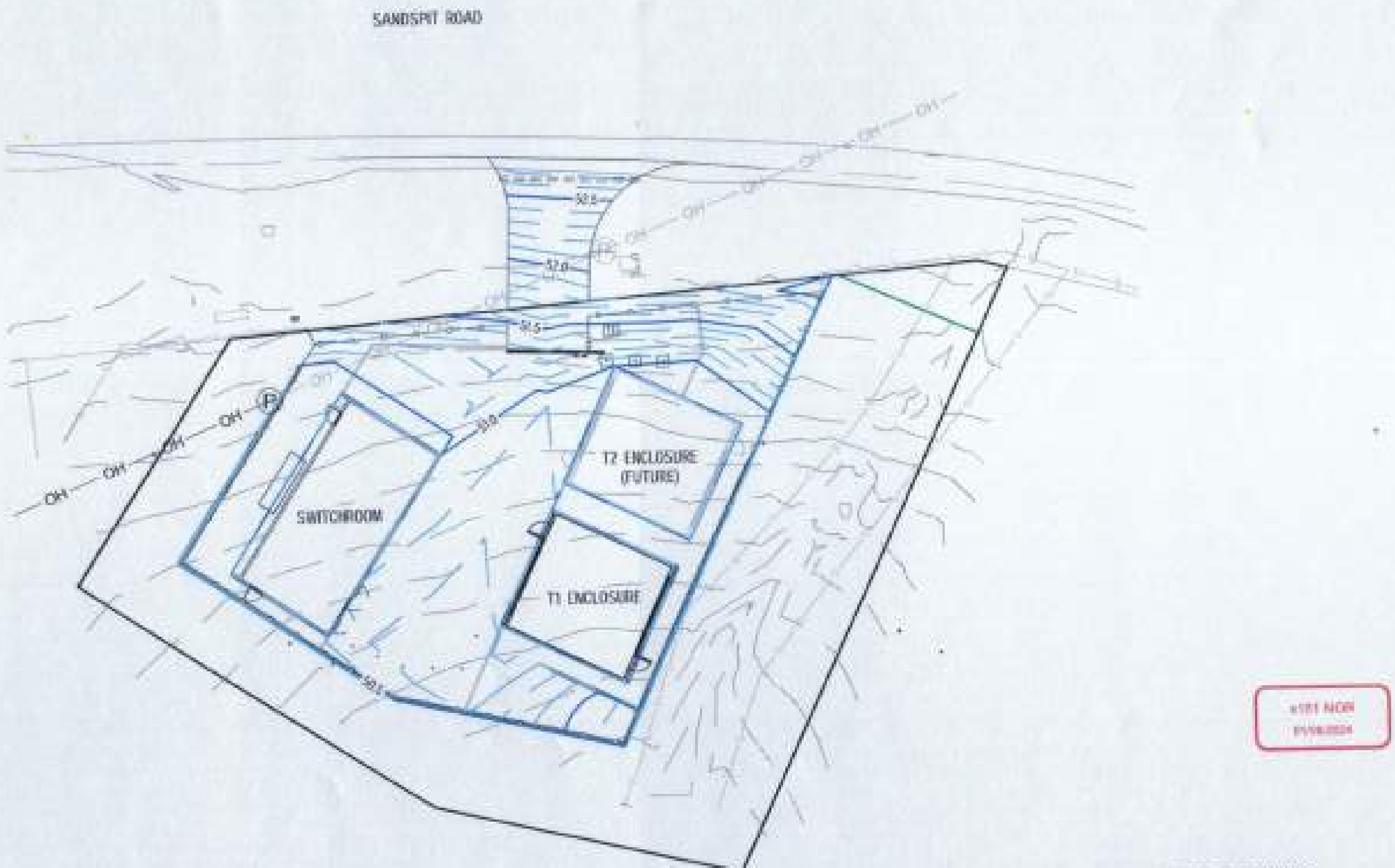
vector electricity

PROPOSED SITE LAYOUT

11. PRIMARY CABLES, LINES & SUPPORT STRUCTURES

Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing stamp: FOR CONSENT AND TENDER
Scale at A3: 1:250
Doc type:
Drawing no: 4262-8024
Rev: 7
Sheet: 1 of 1



REFERENCE DRAWINGS:

4262-8042/1 EARTHWORKS DESIGN CROSS SECTION LAYOUT

EARTHWORKS DESIGN
FINISHED SITE CONTOURS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND TENDER stamp:

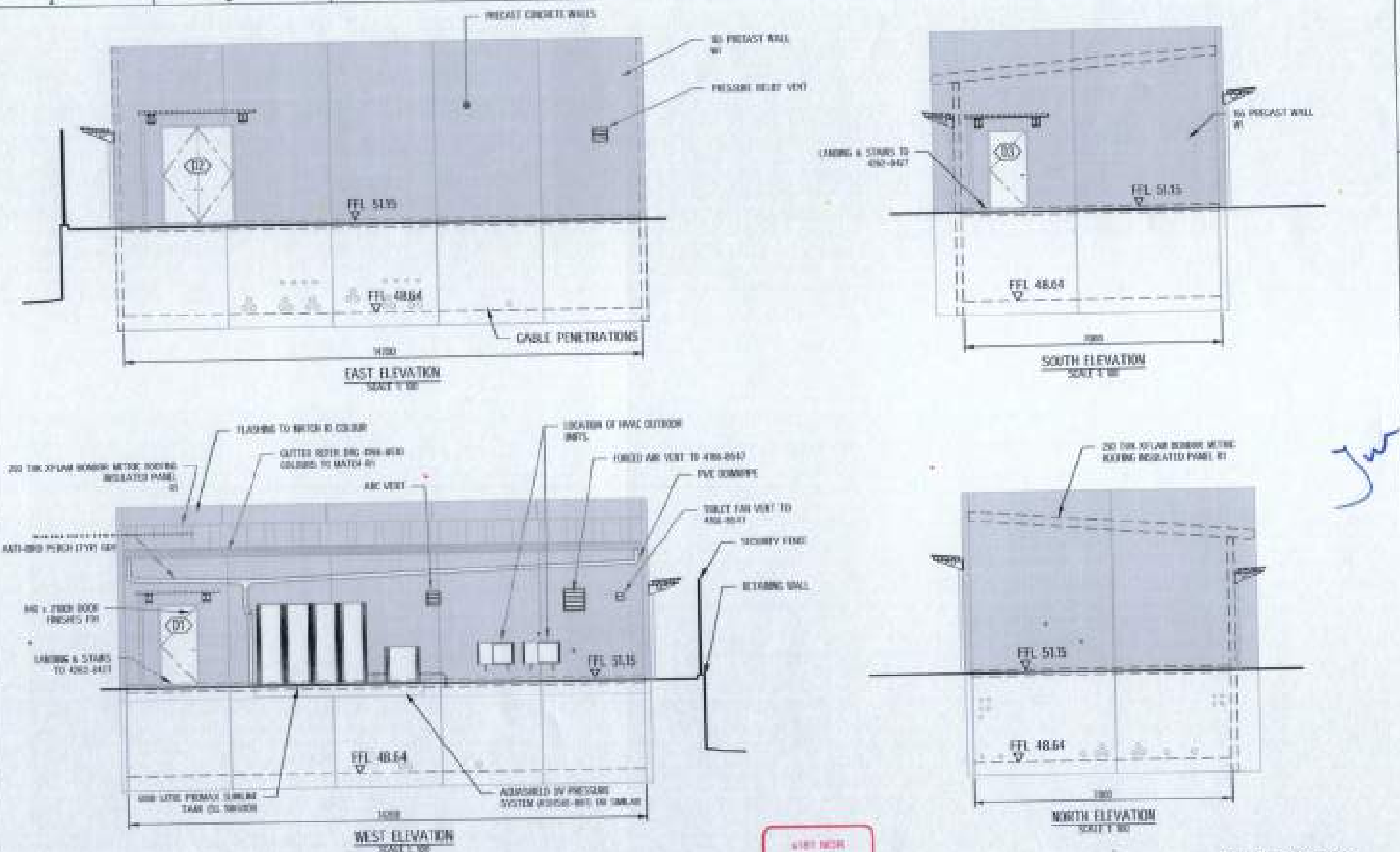
Scale at A3: 1:300

Doc type:

Drawing no: 4262-8043

Rev: 2

Sheet: 2 of 2



REFERENCE DRAWINGS

Rev	Amendments
1	ISSUED FOR APPROVAL
2	UPDATED AFTER CLIENT REVIEW
3	UPDATED AFTER CLIENT DESIGN REVIEW
4	DOOR CANOPY DRAWINGS SHOWN

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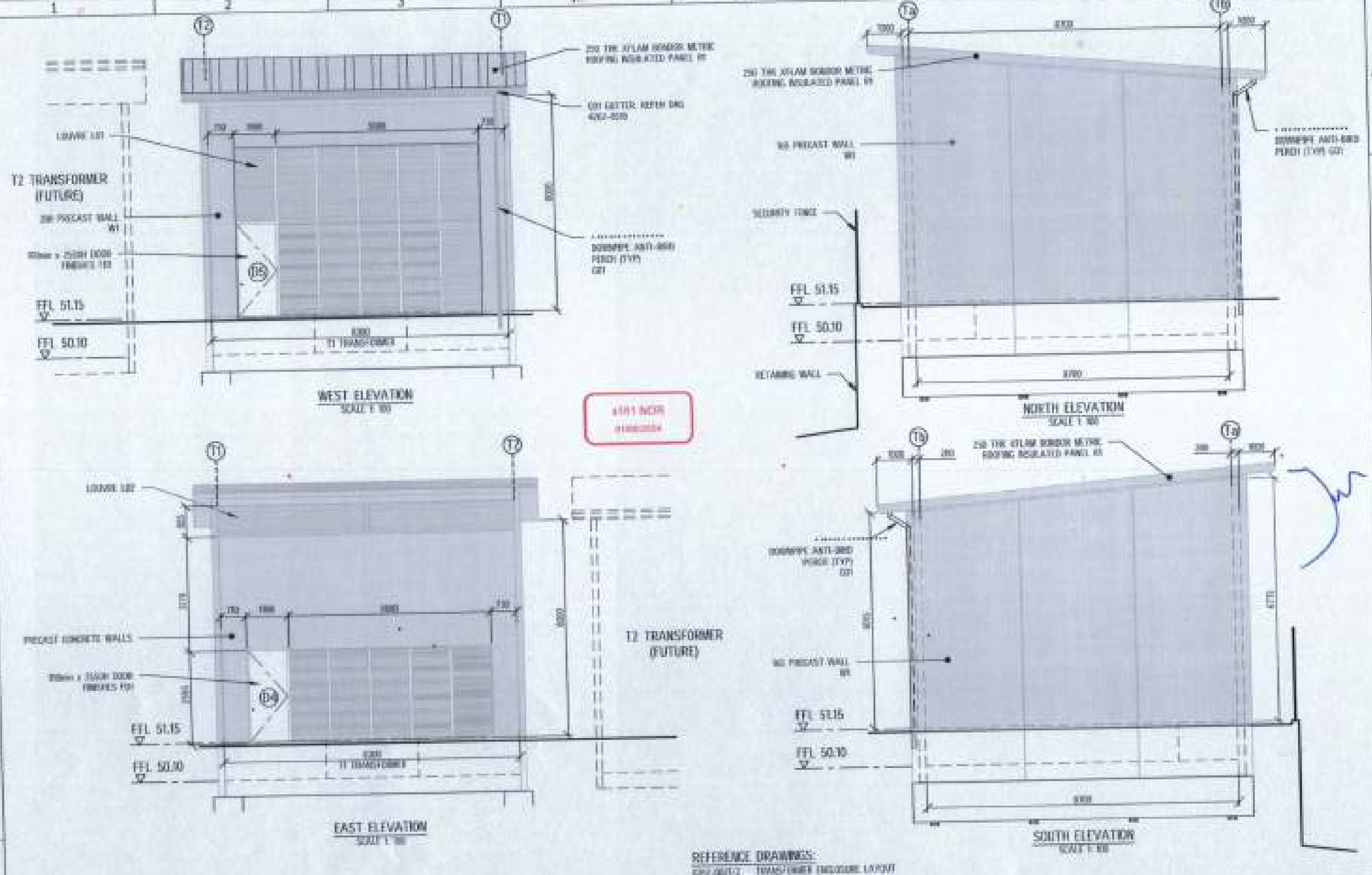
33/11kV SWITCHROOM ELEVATIONS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing stamp: FOR CONSENT AND TENDER
Scale at A3: 1:100
Doc type:
Drawing no: 4262-8150
Rev: 4
Sheet: 1 of 1



REFERENCE DRAWINGS:

33/11kV TRANSFORMER ENCLOSURE
ELEVATIONS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: 1:100

Doc type:

Drawing no: 4262-8350

Rev: 3

Sheet: 1 of 1

vector electricity

Appendix Five: **Subdivision Consent**

Report for an application for resource consent under the Resource Management Act 1991

Discretionary activity – subdivision (s11)

1. Application Description

Application number:	SUB60435358 (s11 subdivision consent)
Applicant:	Vector Limited
Site address:	Lot 1 DP 426584, Sandspit Road, Snells Beach and 12 Mahurangi East Road, Snells Beach
Legal description:	Lot 1 DP 426584 and Lot 2 DP 426584
Site area:	1398m2 and 4.3412ha
Auckland Unitary Plan (Operative in part)	
Zoning and precinct:	Rural - Mixed Rural Zone
Overlays, controls, special features etc:	Controls: Macroinvertebrate Community Index - Exotic Controls: Macroinvertebrate Community Index - Rural
Designations:	Designations - 8866, Substation, Designations, Vector Ltd

2. Proposal, site and locality description

Daniella Holster of CKL NZ Limited has provided a description of the proposal and subject site on pages 6 to 11 of the Assessment of Environmental Effects (AEE) titled: *Resource Consent Application For a Boundary Adjustment between Two Lots in the Rural – Mixed Rural Zone*, A23035, Revision 1, prepared by CKL NZ Limited, dated July 2024.

Having undertaken a site visit on 13 August 2024, I concur with that description of the proposal and the site. It was noted during the site visit that there is a watercourse running along the proposed Lot 1 boundary. However, it is evident that the width of this watercourse is less than 3m.

In brief, the proposal is to undertake a boundary adjustment between the two Rural – Mixed Rural zoned sites. As a result of the proposed boundary adjustment, Lot 1 will increase in size from 1,398m2 to 1,653m2 (+255m2 or 18.24%). Lot 2 will decrease in size from 43,412m2 to 43,157m2 (-255m2 or 0.58%).

Lot 1 is currently vacant and designated as a substation. The requiring authority for the designation 8866 under the AUP OP is Vector Ltd, which is the applicant of this application.

Lot 2 contains an existing dwelling. The proposed boundary adjustment will not change the existing dwelling and associated services.

The purpose of the boundary adjustment is to better accommodate the substation that is proposed to be established on the site as applied under Building Consent BCO10384434.

3. Background

Specialist Input

The proposal has been reviewed and assessed by the following specialist:

- Subdivision advisor, Ken Berger
- Development Engineer, Karl Wu

Consent History

- BCO10384434 – A new 2 level switch room with toilet to be established on Lot 1 DP 426584 (Designation 8866). New single level transformer enclosure. New retaining walls and site fill. New site fencing and vehicle crossing. New water storage tank and pressure system, new WW septic tank, new SW detention tanks and drainage. Application lodged on 03/07/2024 and currently on hold awaiting information.

Records of Title

The subject site contains the following relevant interests on the Records of Title:

Consent Notice 8567546.3

- Building restriction – no residential development shall be undertaken on Lot 1 as the lot is less than the area required to service on-site wastewater disposal
- Road crossing sight line – Areas A and B within Lots 1 and 2 are not be visually restricted above a level of 55.3 metres in terms of Auckland Vertical Height Datum 1946 to ensure the sight lines from the vehicle crossing to Lot 1 are not unobstructed.

Designation

One of the application site, Lot 1 DP 426584, is designated for substation purposes under designation 88665 of the AUP OP. The requiring authority of this designation is Vector Ltd, which is the applicant for this application.

Designation 8866 does not include any conditions restricting the proposed boundary adjustment.

The purpose of the boundary adjustment is to better accommodate the substation that is proposed to be established on the site as applied under Building Consent BCO10384434.

Boundary adjustment of a designation and establishment of the substation outside of the existing designation boundary require alteration of designation

under s181 of the RMA. The AEE advised that this will be undertaken via a separate process.

4. Reasons for the application

Subdivision consent (s11) – SUB60435358

Auckland Unitary Plan (Operative in part)

Subdivision (operative plan provisions)

Subdivision - Rural

- To undertake a boundary adjustment that is located within the one per cent annual exceedance probability floodplain is a **restricted discretionary activity** under rule E39.4.1(A8).
- The proposed boundary adjustment includes a site that cannot provide a 2,000m^2 specified building area as required under standard E39.6.1.1(3). This is a **discretionary activity** under E39.4.1(A9).
- As a result of the proposed boundary adjustment, the proposed Lots will have a site area of 1,653m2 and 43,157m2. This does not meet the minimum site area and minimum average site area for Rural – Mixed Rural Zone as required under E39.6.3.2 (3). This is a **discretionary activity** under E39.4.1(A10).
- No covenant or consent notice is proposed stating that land that is no longer required for the network utility after it disestablishes must be amalgamated with the adjoining land, as required under the permitted standard E39.6.2.2(2). To undertake a subdivision for a network utility that is not complying with the permitted standard is a **restricted discretionary activity** under C1.9(2).

The reasons for consent are considered together as a **discretionary activity** overall.

5. Decision

I have read the application, supporting documents, and the report and recommendations on the application for resource consent. I am satisfied that I have adequate information to consider the matters required by the Resource Management Act 1991 (RMA) and make a decision under delegated authority on the application.

Acting under delegated authority, and for the reasons set out below, under sections 95A and 95C to 95D, and 95B and 95E to 95G of the RMA this application shall be processed non-notified.

Acting under delegated authority, under sections 104, 104B, 106 and Part 2 of the RMA, the resource consent is **GRANTED**.

6. Reasons

The reasons for this decision are:

1. In accordance with an assessment following the steps set out in sections 95A and 95C to 95D the application need not be publicly notified because:

    - Under step 1, public notification is not mandatory as the applicant has not requested it, there are no outstanding or refused requests for further information, and the application does not involve any exchange of recreation reserved land under s15AA of the Reserves Act 1977.
    - Under step 2, the application is not precluded from public notification as:
        - the activities are not for one or more activities that are exclusively subject to a rule or national environmental standard (NES) which precludes public notification (s95A(5)(a)); and
        - the application does not exclusively involve one or more of the activities described in s95A(5)(b).
    - Under step 3, the application is not required to be publicly notified as:
        - the activities are not subject to any rule or a NES that requires public notification (s95A(8)(a)).
        - the council is to disregard any effects on the persons who own or occupy the land in, on, or over which the activity will occur, and on persons who own or occupy any adjacent land (s95D(a)). The land adjacent to the subject site is listed below:
            - 836 Sandspit Road, Snells Beach
            - 882 Sandspit Road, Snells Beach
            - 903 Sandspit Road, Snells Beach
            - 1 Mahurangi East Road, Snells Beach
            - 3 Mahurangi East Road, Snells Beach
            - 16 Mahurangi East Road, Snells Beach
            - 20 Mahurangi East Road, Snells Beach
            - 329 Sharp Road, Snells Beach
            - 329B Sharp Road, Snells Beach
            - 335 Sharp Road, Snells Beach
            - 337 Sharp Road, Snells Beach
            - 339 Sharp Road, Snells Beach

Figure 1: Adjacent Properties (Source: GeoMaps)

- the proposal will have or are likely to have adverse effects on the environment that are not more than minor (s95A(8)(b)) for the following reasons:
    - In regard to the proposed subdivision, the permitted baseline includes subdivisions around a network utility.
    - With regard to the receiving environment, it has been provided in section 2 of this report.
    - The proposed boundary adjustment is limited to the common boundary between the subject sites. The affected area is 255m2, which is minor in scale within a rural environment and neglectable from the wider environment.
    - Although the proposed boundary adjustment will exceed 10% of the original site, it is considered to be an efficient and logical use of the land resource. The purpose of the proposed boundary adjustment is to better accommodate the substation that is proposed to be established on Lot 1. This matches the purposes of the designation on Lot 1. The proposed boundary adjustment will not change the use of the sites.
    - While the proposed site areas do not meet the minimum site area and minimum average site area for the zone, this does not result by the proposed boundary adjustment. It is noted the site area and average site area of the subject sites currently do not comply with this requirement and will remain uncomplying as proposed.
    - No additional buildings are proposed by this application, therefore the existing rural character of the landscape will be retained and there will be no adverse effects. The proposed boundary adjustment will not generate any further development than what could occur as of right, and the proposal will not generate more than minor adverse effects in terms of rural character and amenity values.

        - Although Lot 2 contains land subject to the one per cent annual exceedance probability floodplain, it is located at least 80m from the boundary adjustment affected area. Lot 2 will continue to contain the existing dwelling. The proposed boundary adjustment will not generate any adverse effects associated with the natural hazards.
        - As no new titles are to be created, the proposal will not create any more traffic than could occur at the present time. Proposed Lots will continue to gain direct vehicle access from/to Sandspit Road and Mahurangi East Road.

    - It is not proposed to register a consent notice or covenant on the title of either of the Lots as required under standard E39.6.2.2. Failure to comply with the standard may result in inappropriate development of rural land, such as a residential dwelling located on an urban sized lot within a rural environment. It is noted, however, that there is an existing consent notice registered on the title of Lot 1, which ensures the lot will not be used for residential purposes. This is sufficient to ensure no inappropriate development occurs on Lot 1, should it ever cease to operate as a network utility site, thereby meeting the purpose of E39.6.2.2(2), in the absence of a consent notice requiring amalgamation with Lot 2.Under step 4, there are no special circumstances to warrant public notification because there is nothing exceptional or unusual about the application, and that the proposal has nothing out of the ordinary run of things to suggest that public notification should occur.

2. In accordance with an assessment following the steps set out in sections 95B and 95E to 95G, the application need not be limited notified because:

    - Under step 1, limited notification is not mandatory as there are no protected customary rights groups or customary marine title groups affected by the proposed activity, nor any affected person to whom a statutory acknowledgement is made under schedule 11. The subject site is not located within the statutory acknowledgement area.

    - Under step 2, the application is not for one or more activities that are exclusively subject to a rule or NES which preclude limited notification (s95B(6)(a)); and the application is not exclusively for a controlled activity, other than a subdivision, that requires consent under a district plan (s95B(6)(b)).

    - Under step 3, limited notification is not required as:

        - As this application is not for a boundary activity or a prescribed activity, there are no affected persons related to those types of activities (s95B(7)).

        - There will be no adversely affected persons as a result of the proposal for the following reasons:

            - The proposed boundary adjustment is limited to the common boundary between the subject sites. The affected area is 255m2,

which is minor in scale within a rural environment and neglectable by the people at adjacent properties.

- While the proposed boundary adjustment will be visible from 809 and 836 Sandspit Road, the use of the subject sites will remain no change and the sizes and character of the subject sites will remain similar to the existing sites before the proposed boundary adjustment. The proposed boundary adjustment will generate less than minor adverse effects on rural character and amenity values for the people at adjustment sites.
- Although Lot 2 contains land subject to the one per cent annual exceedance probability floodplain, it is located at least 80m from the boundary adjustment affected area. Lot 2 will continue to contain the existing dwelling. The proposed boundary adjustment will not generate any adverse effects on natural hazards to adjacent properties.
- Failure to comply with the standard E39.6.2.2 may result in inappropriate development of rural land, such as a residential dwelling located on an urban sized lot within a rural environment. The may generate adverse effects on the people at adjacent properties. It is noted, however, that there is an existing consent notice registered on the title of Lot 1, which ensures that the lot will not be used for residential purposes. This is sufficient to ensure no inappropriate development occurs on Lot 1, should it ever cease to operate as a network utility site, thereby meeting the purpose of E39.6.2.2(2), in the absence of a consent notice requiring amalgamation with Lot 2.

- Under step 4, I have turned my mind specifically to the existence of any special circumstances under s95B(10) and conclude that there are no special circumstances to warrant limited notification because there is nothing exceptional or unusual about the application, and that the proposal has nothing out of the ordinary run of things to suggest that limited notification should occur.

3. In accordance with an assessment under s104(1)(a) and 104(1)(ab) of the RMA the actual and potential effects from the proposal will be acceptable as:

    a. The proposal does not result in the creation of any additional sites or dwelling potential and as such does not increase the potential for greater intensity of development in the area.

    b. Although the proposed boundary adjustment will exceed 10% of the original site, it is considered to be an efficient and logical use of the land resource. The proposed lots will be suitable for activities that are permitted in the Rural – Mixed Rural Zone at Lot 2 and designated at Lot 1.

    c. The proposed site sizes and average site area do not comply with the minimum site area and average site area for Rural – Mixed Rural Zone as required under Rule E39.6.5.1(1). However, it is noted the site area and average site area of the subject sites currently do not comply with this requirement and will remain non-complying as proposed.

d. Lot 1 is currently vacant and designated to accommodate a substation. Lot 2 contains an existing dwelling and balanced land. The proposed boundary adjustment does not change this situation. No additional buildings are proposed by this application, therefore the existing rural character of the landscape will be retained and there will be no adverse effects.

e. While the subject sites contain land subject to flood plain, it is located away from the boundary adjustment affected area. The proposal will not generate any adverse effects on natural hazards.

f. There is an existing consent notice registered on the title of Lot 1, which ensures that the lot will not be used for residential purposes. This is sufficient to ensure no inappropriate development occurs on Lot 1, should it ever cease to operate as a network utility site, thereby meeting the purpose of E39.6.2.2(2), in the absence of a consent notice requiring amalgamation with Lot 2.

g. In terms of positive effects, the proposed boundary adjustment will allow for more efficient use of the land and is more consistent with the features of the sites.

h. With reference to s104(1)(ab), there are no specific offsetting or environmental compensation measures proposed or agreed to by the applicant to ensure positive effects on the environment.

4. In accordance with an assessment under s104(1)(b) of the RMA the proposal is consistent with the relevant statutory documents, insofar as they relate to the matters over which discretion is restricted. In particular, the following objectives and policies are within the scope of the discretion and relevant:

   Chapter H19 – Rural Zones Objectives and Policies: H19.2 and H19.4

   Chapter E39 – Subdivision – Rural Objectives and Policies: E39.2 and E39.3

   These objectives and policies encourage the use and development of land for rural production activities generally on smaller rural sites and non-residential activities of a scale compatible with smaller site sizes. Sites in this zone provide flexibility to accommodate a range of rural production activities and associated non-residential activities while still ensuring good amenity levels for residents who use their land for rural lifestyle purposes.

   The proposal does not propose any new sites or additional development potential. The application is consistent with the relevant objectives and policies of the AUP OP in part.

5. In accordance with an assessment under s104(1)(c) of the RMA, no other matters are considered relevant.

6. In terms of s106 of the RMA, the proposal is not considered to give rise to a significant risk from natural hazards, and sufficient provision has been made for legal and physical access to the proposed allotments. Accordingly, the council is able to grant this subdivision consent subject to the conditions below.

7. In the context of this discretionary activity subdivision application, where the objectives and policies of the relevant statutory documents were prepared having regard to Part 2 of the RMA, they capture all relevant planning considerations and contain a coherent set of policies designed to achieve clear environmental outcomes. They also provide a clear framework for assessing all relevant potential effects and there is no need to go beyond these provisions and look to Part 2 in making this decision as an assessment against Part 2 would not add anything to the evaluative exercise.

8. Overall, the proposal will have actual and potential effects on the environment that are considered to be acceptable. The proposal is consistent with the objectives, policies and assessment criteria of the AUP OP and the purposes and principles of the RMA.

7. Conditions

All conditions contained in this decision must be complied with at time of s224(c). The conditions have been separated into 'General', 'section 223' and 'section 224(c)' conditions in order to assist the consent holder in identifying the conditions that must be completed at the respective stages of implementing the resource consent for subdivision.

Under sections 108, 108AA and 220 of the RMA, this consent is subject to the following conditions:

General conditions

1. The boundary adjustment must be as described in the application form and assessment of environmental effects prepared by CKL NZ Limited dated July 2024, and must be carried out in accordance with the plans and information detailed below, and all referenced by the Council as consent number SUB60435358.

Report title and reference	Author	Rev	Dated
Resource Consent Application For a Boundary Adjustment between Two Lots in the Rural – Mixed Rural Zone, A23035	CKL NZ Limited	1	July 2024

Drawing title and reference	Author	Rev	Dated
Proposed Subdivision of Lots 1 & 2 DP 426584 Existing Site Plan; A23035; 1500	CKL NZ Limited	1	10/07/2024
Proposed Subdivision of Lots 1 & 2 DP 426584 Site Plan – Overview; A23035; 1501	CKL NZ Limited	1	10/07/2024
Proposed Subdivision of Lots 1 & 2 DP 426584 Site Plan; A23035; 1502	CKL NZ Limited	1	10/07/2024
Proposed Subdivision of Lots 1 & 2 DP 426584 Site Layout; A23035; 1503	CKL NZ Limited	1	10/07/2024
Proposed Designation Plan; A23035; 1504	CKL NZ Limited	1	10/07/2024

Advice Note:

- *This consent has been granted on the basis of all the documents and information provided by the consent holder, demonstrating that the new lot(s) can be appropriately serviced (infrastructure and access).*
- *The engineering assessment of this resource consent is limited to an effects-based assessment allowed by the Unitary Plan. Plans approved under Resource Consent do not constitute an Engineering Plan Approval. A separate engineering approval will be required for the design of any infrastructure that is to vest in council.*
- *Details and specifications for the provision of infrastructure (e.g., public/ private drainage, location, and types of connections) and access (including drainage of accessways, construction standards etc) are subject to a separate Engineering Plan Approval (EPA) and/or Building Consent approval process.*
- *Should it become apparent during the EPA and/or Building Consent process that a component of the granted resource consent cannot be implemented (e.g., detailed tests for soakage fail to achieve sufficient soakage rates, or sufficient gradients for drainage cannot be achieved in accordance with engineering standards/ bylaws etc), changes to the proposal will be required. This may require either a variation to this subdivision consent (under section 127 of the Resource Management Act 1991) or a new consent.*
- *Similarly, should the detailed design stage demonstrate that additional reasons for consent are triggered (e.g., after detailed survey the access gradient increases to now infringe or increase an approved infringement to a standard in the plan), a new or varied resource consent is required.*
- *It is the responsibility of the consent holder to ensure that all information submitted and assessed as part of the subdivision consent is correct and can be implemented as per the subdivision consent (without requiring additional reasons for consent). Any subsequent approval processes (such as the EPA) do not override the necessity to comply with the conditions of this resource consent.*

2. Under section 125 of the RMA, this consent lapses five years after the date it is granted ("the lapse date") unless:

    a. A survey plan is submitted to Council for approval under section 223 of the RMA before the lapse date, and that plan is deposited within three years of the date of approval of the survey plan in accordance with section 224(h) of the RMA; or

    b. An application under section 125 of the RMA is made to the Council before the lapse date to extend the period after which the consent lapses and the Council grants an extension.

Survey plan approval (s223) conditions

3. The consent holder must submit a survey plan in accordance with the approved resource consent subdivision scheme plan(s) titled 'Proposed Subdivision of Lots 1 & 2 DP 426584 Site Plan – Overview', A23035; 1501, revision 1, prepared by CKL NZ Limited, dated 10/07/2024.

Section 224(c) compliance conditions

No s224(c) conditions

Advice notes

1. *Any reference to number of days within this decision refers to working days as defined in s2 of the RMA.*

2. *For more information on the resource consent process with Auckland Council see the council's website: www.aucklandcouncil.govt.nz. General information on resource consents, including making an application to vary or cancel consent conditions can be found on the Ministry for the Environment's website: www.mfe.govt.nz.*

3. *If you disagree with any of the above conditions, and/or disagree with the additional charges relating to the processing of the application(s), you have a right of objection pursuant to sections 357A and/or 357B of the Resource Management Act 1991. Any objection must be made in writing to the council within 15 working days of your receipt of this decision (for s357A) or receipt of the council invoice (for s357B).*

4. *The consent holder is responsible for obtaining all other necessary consents, permits, and licences, including Designation Alteration under section 181 of the RMA, those under the Building Act 2004, and the Heritage New Zealand Pouhere Taonga Act 2014. This consent does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007 and the Health and Safety at Work Act 2015), regulations, relevant Bylaws, and rules of law. This consent does not constitute building consent approval. Please check whether a building consent is required under the Building Act 2004.*

5. *The consent holder is responsible for ensuring that all development and associated works (including mobile plant and scaffolding) complies with the minimum safe distances from overhead electric lines in compliance with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001) (NZECP34). Resource consent does not confirm compliance with NZECP34. The consent holder should ensure that minimum safe distances are achieved before commencing construction where there are overhead electrical lines nearby.*

   You can search your site address at https://www.ena.org.nz/lines-company-map/ to identify your local lines company.

Vector network: *https://www.vector.co.nz/personal/help-safety/near-our-network/building-near-overhead-lines*
Counties Energy network: *https://www.countiesenergy.co.nz/forms/close-approach-permit*

Recommendation prepared by:

Cindy Yin
Senior Planner
Resource Consents

Date: 12 September 2024

Delegated decision maker:

Name: Lexie Li
Title: Team Leader, Resource Consents
Signed:

Date: 12 September 2024

Applicant:	**Vector Limited**
Comprised In:	**504681**
	504682
Local Authority:	**Auckland Council**
Total Area:	**4.4810 Ha**

Note:

Areas A & B DP 426584 are subject to height restriction land covenants created by: 8567546.3
Imagery from LINZ Data Servicwe Circa 2016

Auckland Council

SUB60435358

Approved Resource Consent Plan

12/09/2024

Notes:

1. Changes may occur to the layout of the proposal shown as a result of the Resource Consent Conditions.
2. Areas and dimensions on this plan may be subject to change following field survey.
3. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL NZ Ltd.
4. This plan has been prepared only for the purpose of illustrating an application for resource consent. It should not be used for any other purpose.

FOR CONSENT

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vector

VECTOR LIMITED
SANDSPIT RD
SNELLS BEACH

PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 426584
EXISTING SITE PLAN

Issue	Description	Checked	Date
1	Sheet 1504 only		10.07.24
0	Initial		

		Date
Designed:		
Drawn:	RP	04.07.24
Checked:	MRD	09.07.24

Scale: **1:1250** (A3 Original)

Job No: **A23035** Dwg No: **1500** Rev: **1**

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Applicant: Vector Limited
Comprised In: 504681
504682
Local Authority: Auckland Council
Total Area: 4.4810 Ha

Note:

Areas A & B DP 426584 are subject to height restriction land covenants created by: 8567546.3
Imagery from LINZ Data Servicwe Circa 2016

Auckland Council

SUB60435358

Approved Resource Consent Plan

12/09/2024

Notes:

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VECTOR LIMITED
SANDSPIT RD
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PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 426585
SITE PLAN - OVERVIEW

Issue	Description	Checked	Date
1	Sheet 1504 only		10.07.24
0	Initial		

		Date
Designed:		
Drawn:	RP	05.07.24
Checked:	MRD	09.07.24

Scale: **1:1250** (A3 Original)

Job No: **A23035** Dwg No: **1501** Rev: **1**

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Applicant:	**Vector Limited**
Comprised In:	**504681**
	504682
Local Authority:	**Auckland Council**
Total Area:	**4.4810 Ha**

Note:

Areas A & B DP 426584 are subject to height restriction land covenants created by: 8567546.3
Imagery from LINZ Data Servicwe Circa 2016

Legend:

- Bank Bottom
- Bank Top
- Fence
- Overland Flow Path
- Gate
- Power Swichgear
- Power Pole
- Tree Trunk

Auckland Council

SUB60435358

Approved Resource Consent Plan

12/09/2024

Lot 1
0.1653 Ha

Lot 2
4.3157 Ha

Notes:

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2. Areas and dimensions on this plan may be subject to change following field survey.
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PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 426585
SITE PLAN

Issue	Description	Checked	Date
1	Sheet 1504 only		10.07.24
0	Initial		

		Date
Designed:		
Drawn:	RP	05.07.24
Checked:	MRD	09.07.24

Scale: **1:250** (A3 Original)

Job No: **A23035** Dwg No: **1502** Rev: **1**

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Applicant:	**Vector Limited**
Comprised In:	**504681**
	504682
Local Authority:	**Auckland Council**
Total Area:	**4.4810 Ha**

Note:

Areas A & B DP 426584 are subject to height restriction land covenants created by: 8567546.3
Imagery from LINZ Data Servicwe Circa 2016

Legend:

- Bank Bottom
- Bank Top
- Fence
- Overland Flow Path
- Gate
- Power Swichgear
- Power Pole
- Tree Trunk

Auckland Council

SUB60435358

Approved Resource Consent Plan

12/09/2024

Notes:

1. Changes may occur to the layout of the proposal shown as a result of the Resource Consent Conditions.
2. Areas and dimensions on this plan may be subject to change following field survey.
3. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL NZ Ltd.
4. This plan has been prepared only for the purpose of illustrating an application for resource consent. It should not be used for any other purpose.

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PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 426585
SITE LAYOUT

Issue	Description	Checked	Date
1	Sheet 1504 only		10.07.24
0	Initial		

		Date
Designed:		
Drawn:	RP	05.07.24
Checked:	MRD	09.07.24

Scale: **1:250** (A3 Original)

Job No: **A23035** Dwg No: **1503** Rev: **1**

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Sandspit Road

Lot 2
DP 196614

Area A
86m²

Lot 1
0.1653 Ha

Area D
1387m²

Area B
11m²

Area C
180m²

Lot 2
4.3157 Ha

7.6
5.1
41.7
9.7
2.1
18.8
10.4
4.9
19.8
22.9
4.0
2.8
8.1
7.6
28.6
38.7
17.0
21.4
6.1
40.1
RT
A
B

Applicant:	**Vector Limited**
Comprised In:	**504681**
	504682
Local Authority:	**Auckland Council**
Total Area:	**4.4810 Ha**

Note:

Areas A & B DP 426584 are subject to height restriction land covenants created by: 8567546.3

Key:	Areas:
Area to remain within Auckland Council designation 8866	1387m²
Areas to be added to Auckland Council designation 8866	266m²
Area to be removed from Auckland Council designation 8866	11m²

Auckland Council

SUB60435358

Approved Resource Consent Plan

12/09/2024

Notes:

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2. Areas and dimensions on this plan may be subject to change following field survey.
3. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL NZ Ltd.
4. This plan has been prepared only for the purpose of illustrating an application for resource consent. It should not be used for any other purpose.

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VECTOR LIMITED
SANDSPIT RD
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PROPOSED DESIGNATION PLAN

Issue	Description	Checked	Date
1	Notes Amended		10.07.24
0	Initial		

		Date
Designed:		
Drawn:	SMR	08.07.24
Checked:	MRD	09.07.24

Scale: **1:250** (A3 Original)

Job No: **A23035** Dwg No: **1504** Rev: **1**

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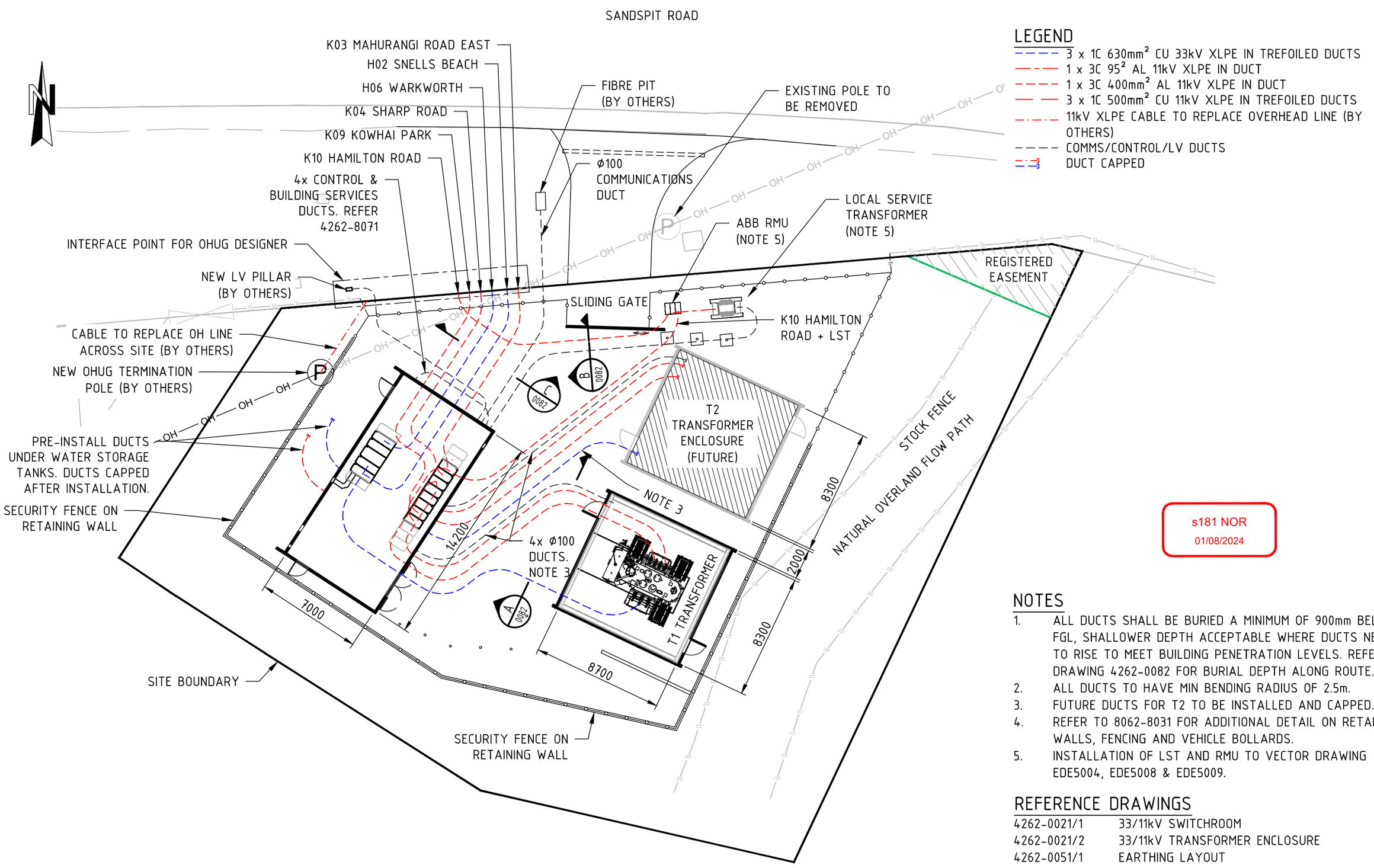
Appendix Six: **Drawings**



LEGEND

- 3 x 1C 630mm² CU 33kV XLPE IN TREFOILED DUCTS
- 1 x 3C 95² AL 11kV XLPE IN DUCT
- 1 x 3C 400mm² AL 11kV XLPE IN DUCT
- 3 x 1C 500mm² CU 11kV XLPE IN TREFOILED DUCTS
- 11kV XLPE CABLE TO REPLACE OVERHEAD LINE (BY OTHERS)
- COMMS/CONTROL/LV DUCTS
- DUCT CAPPED

s181 NOR
01/08/2024

NOTES

1. ALL DUCTS SHALL BE BURIED A MINIMUM OF 900mm BELOW FGL, SHALLOWER DEPTH ACCEPTABLE WHERE DUCTS NEED TO RISE TO MEET BUILDING PENETRATION LEVELS. REFER TO DRAWING 4262-0082 FOR BURIAL DEPTH ALONG ROUTE.
2. ALL DUCTS TO HAVE MIN BENDING RADIUS OF 2.5m.
3. FUTURE DUCTS FOR T2 TO BE INSTALLED AND CAPPED.
4. REFER TO 8062-8031 FOR ADDITIONAL DETAIL ON RETAINING WALLS, FENCING AND VEHICLE BOLLARDS.
5. INSTALLATION OF LST AND RMU TO VECTOR DRAWING EDE5004, EDE5008 & EDE5009.

REFERENCE DRAWINGS

4262-0021/1	33/11kV SWITCHROOM
4262-0021/2	33/11kV TRANSFORMER ENCLOSURE
4262-0051/1	EARTHING LAYOUT
4262-0082/1	SUBSTATION DUCTING TRENCH PROFILES
4262-8031/1	CIVIL SERVICES LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	12.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	02.2024	ElectroNet
4	LV CABLE DUCTS ADDED	28/02/2024	ElectroNet
5	DUCTS TO THE NE CORNER OF THE SWITCHRROM REARRANGED, DUCTS FOR 11kV & 33kV FUTURE FEEDERS ADDED TO NW OF SWITCHROOM	30/04/2024	ElectroNet
6	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet
7	DRAWING SCALE WAS AMENDED	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8024-1.dwg
Author	J. H'nboezem		
Auth Date	10.2023	Consultant project no:	VEC6852
Checked by	C Herath		
Chk by date	10.2023	Vector project no:	EC-24-NRNF2-003
Approved by	R Marx		
Appr by date	10.2023		

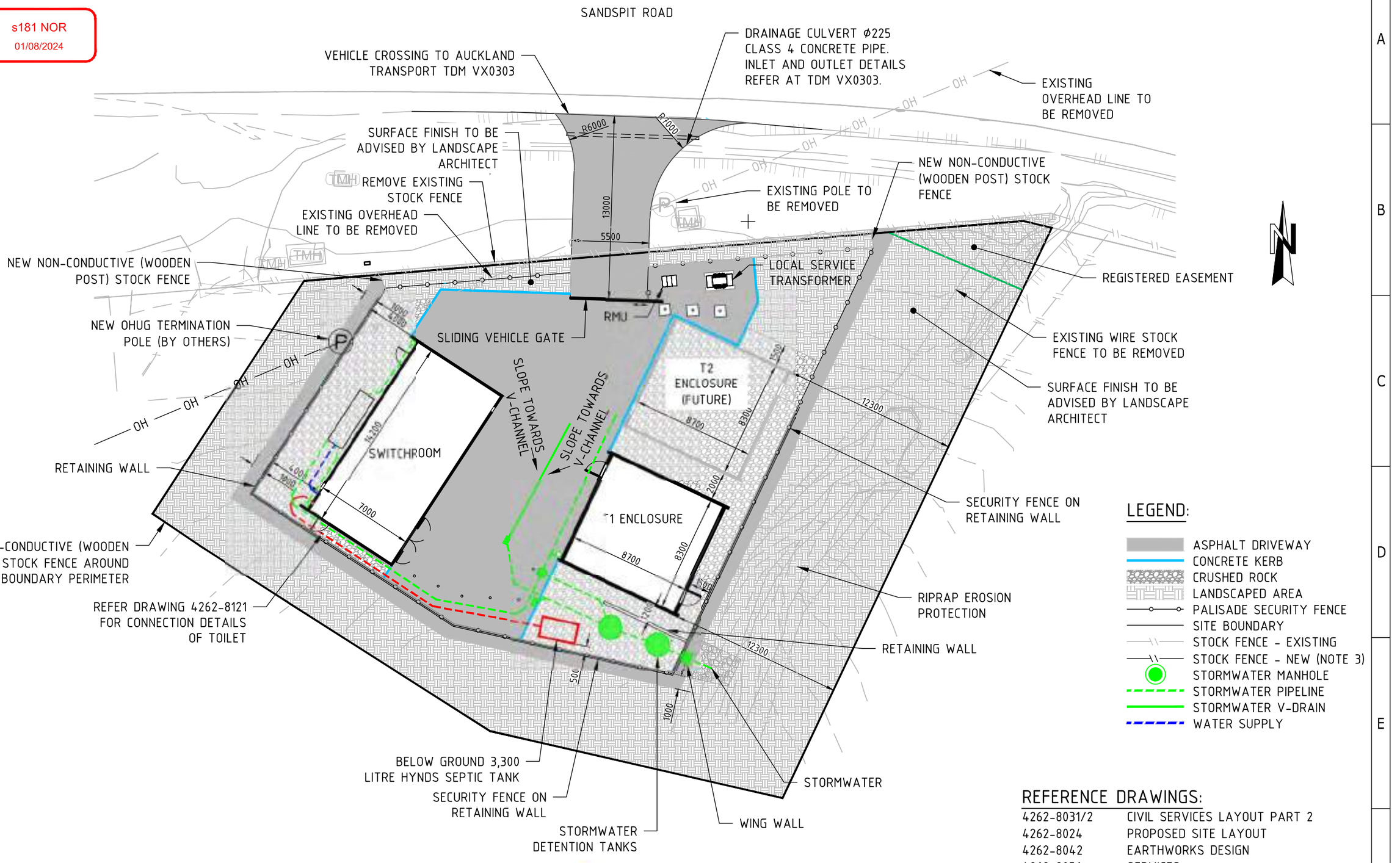
PROPOSED SITE LAYOUT

11. PRIMARY CABLES, LINES & SUPPORT STRUCTURES
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing FOR CONSENT AND TENDER stamp:
Scale at A3: 1:250
Doc type:
Drawing no: 4262-8024
Rev: 7
Sheet: 1 of 1

s181 NOR
01/08/2024

SANDSPIT ROAD



LEGEND:

- ASPHALT DRIVEWAY
- CONCRETE KERB
- CRUSHED ROCK
- LANDSCAPED AREA
- PALISADE SECURITY FENCE
- SITE BOUNDARY
- STOCK FENCE - EXISTING
- STOCK FENCE - NEW (NOTE 3)
- STORMWATER MANHOLE
- STORMWATER PIPELINE
- STORMWATER V-DRAIN
- WATER SUPPLY

REFERENCE DRAWINGS:

4262-8031/2	CIVIL SERVICES LAYOUT PART 2
4262-8024	PROPOSED SITE LAYOUT
4262-8042	EARTHWORKS DESIGN
4262-8056	SERVICES

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10/2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	12/2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	LANDSCAPING AREA SHOWN, BOLLARDS, STORMWATER & SEWERAGE RE-ALIGNED	30/04/2024	ElectroNet
5	LEGAL BOUDARY ALTERED AND LANDSCAPE AREA REVISED	18/07/2024	ElectroNet
6	DUE TO SCALE CHANGE, DRAWING DIVIDED INTO TWO SHEETS	01/08/2024	ElectroNet

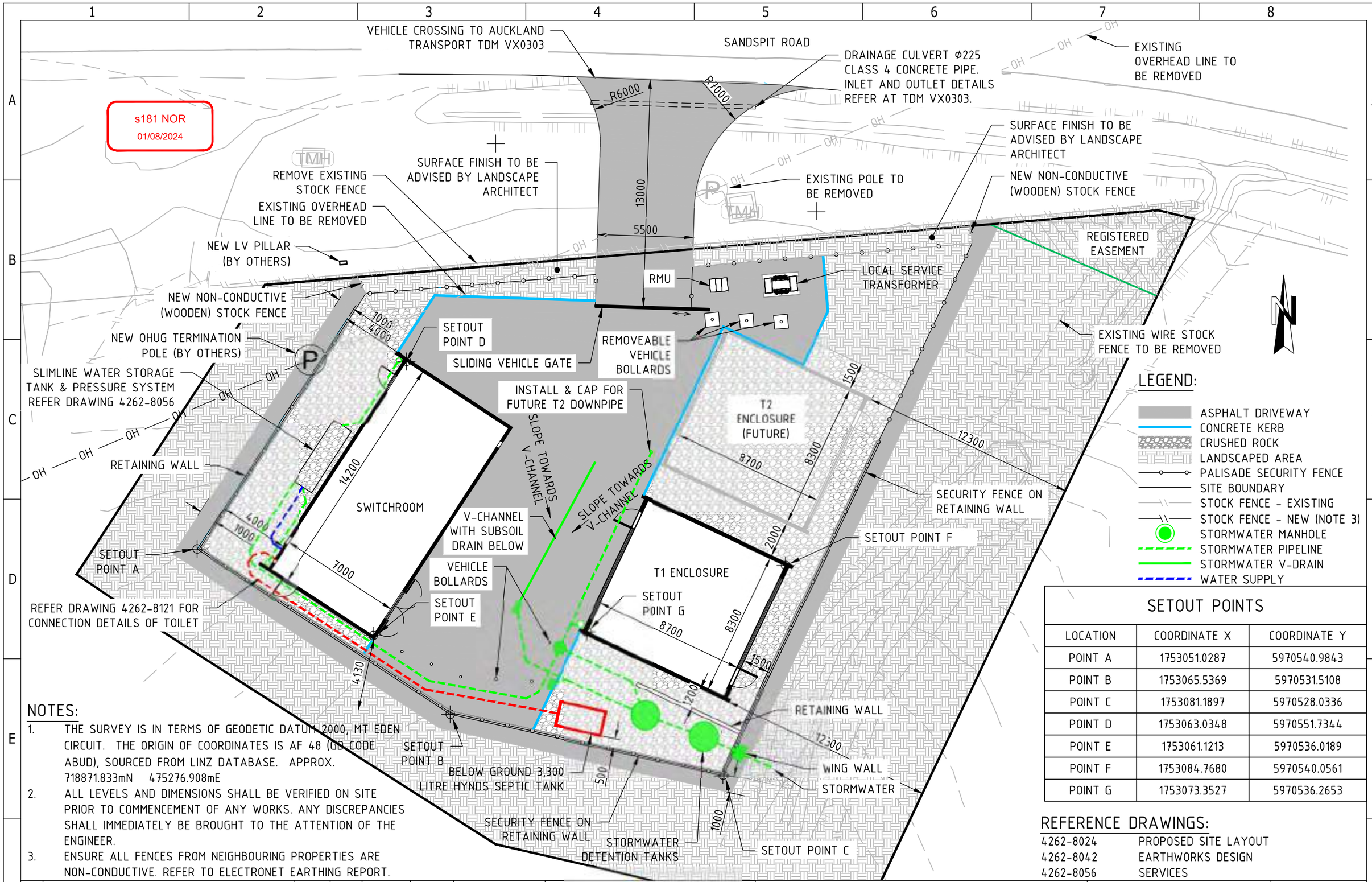
Consultant	ELECTRONET	File name:	4262-8031-1.dwg
Author	J. H'nboezem	Consultant project no:	VEC6852
Auth Date	10/2023	Vector project no:	EC-24-NRNF2-003
Checked by	C. Herath		
Chk by date	10/2023		
Approved by	R Marx		
Appr by date	10/2023		

vector electricity

CIVIL SERVICES LAYOUT PART 1

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing FOR CONSENT AND stamp: TENDER
Scale at A3: 1:250
Doc type:
Drawing no: 4262-8031
Rev: 5
Sheet: 1 of 2



SETOUT POINTS

LOCATION	COORDINATE X	COORDINATE Y
POINT A	1753051.0287	5970540.9843
POINT B	1753065.5369	5970531.5108
POINT C	1753081.1897	5970528.0336
POINT D	1753063.0348	5970551.7344
POINT E	1753061.1213	5970536.0189
POINT F	1753084.7680	5970540.0561
POINT G	1753073.3527	5970536.2653

NOTES:

1. THE SURVEY IS IN TERMS OF GEODETIC DATUM 2000, MT EDEN CIRCUIT. THE ORIGIN OF COORDINATES IS AF 48 (GD CODE ABUD), SOURCED FROM LINZ DATABASE. APPROX. 718871.833mN 475276.908mE
2. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. ENSURE ALL FENCES FROM NEIGHBOURING PROPERTIES ARE NON-CONDUCTIVE. REFER TO ELECTRONET EARTHING REPORT.

REFERENCE DRAWINGS:

4262-8024	PROPOSED SITE LAYOUT
4262-8042	EARTHWORKS DESIGN
4262-8056	SERVICES

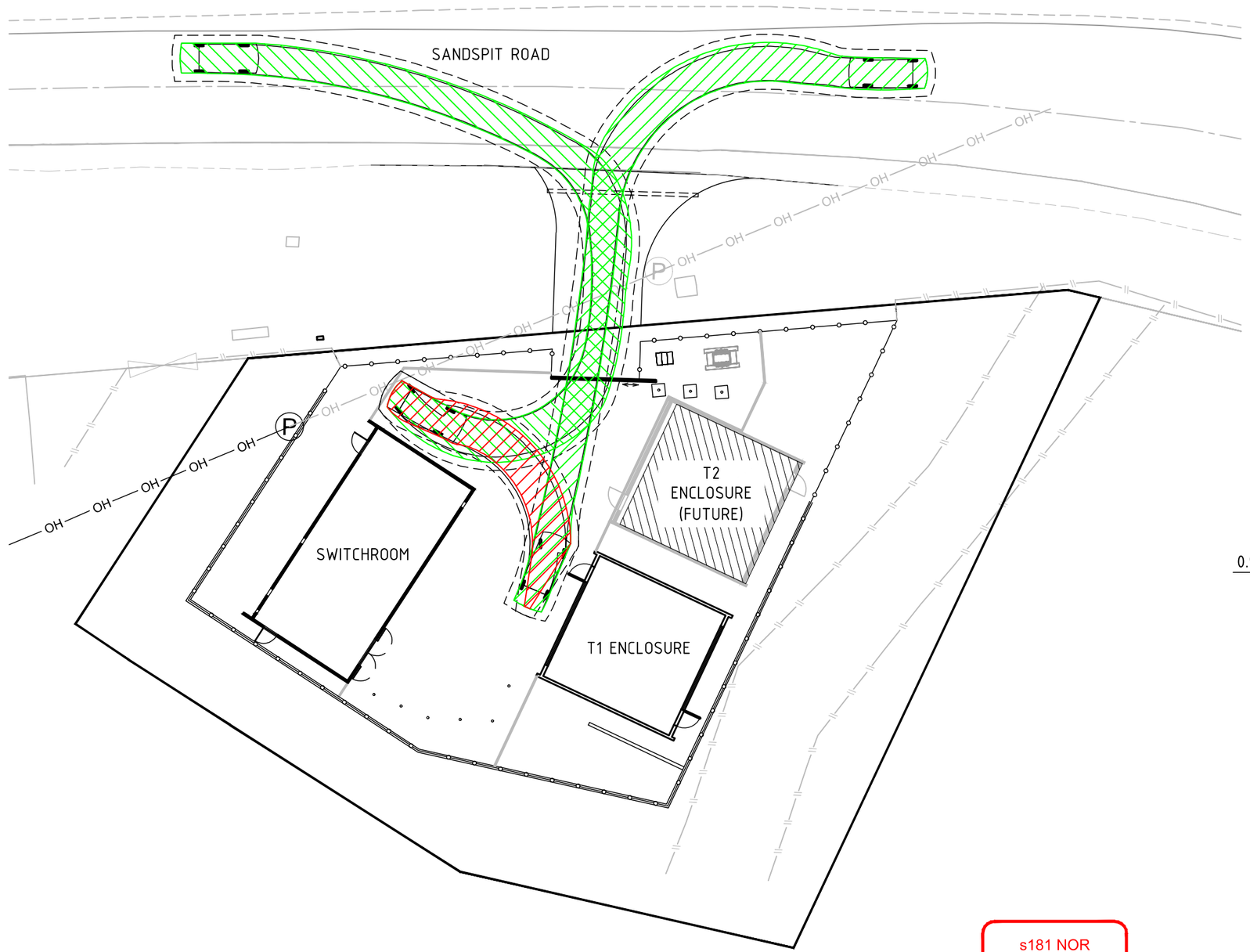
Rev	Amendments	Date	Name
1	DUE TO SCALE CHANGE, DRAWING DIVIDED INTO TWO SHEETS	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8031-1.dwg
Author	J. H'nboezem		
Auth Date	10/2023	Consultant project no:	VEC6852
Checked by	C. Herath		
Chk by date	10/2023	Vector project no:	EC-24-NRNF2-003
Approved by	R Marx		
Appr by date	10/2023		

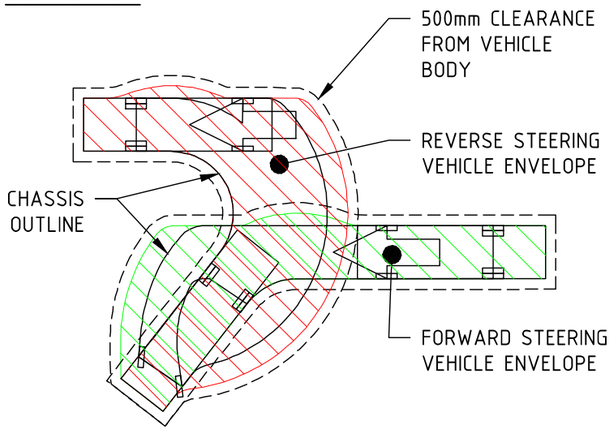
CIVIL SERVICES LAYOUT
PART 2

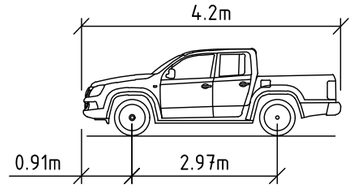
13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing FOR CONSENT AND stamp: TENDER
Scale at A3: 1:200
Doc type:
Drawing no: 4262-8031
Rev: 1
Sheet: 2 of 2



LEGEND:





AT - 95TH - CAR

OVERALL LENGTH	5.060m
OVERALL WIDTH	1.923m
OVERALL BODY HEIGHT	1.784m MIN
BODY GROUND CLEARANCE	0.231m MAX
TRACK WIDTH	1.888m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	6.450m

s181 NOR
01/08/2024

NOTES

1. SWEPT PATH ANALYSIS WITH 5km/h MAXIMUM SPEED.
2. 500mm CLEARANCE HAS BEEN APPLIED.

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	12.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	02.2024	ElectroNet
4	BOLLARDS & CONCRETE KERB RE-ALIGNED	30/04/2024	ElectroNet
5	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8032.dwg
Author	J. H'nboezem		
Auth Date	10.2023	Consultant project no:	VEC6852
Checked by	C Herath		
Chk by date	10.2023	Vector project no:	EC-24-NRNF2-003
Approved by	R Marx		
Appr by date	10.2023		

ROADING LAYOUT
VEHICLE TRACKING = CAR

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND TENDER

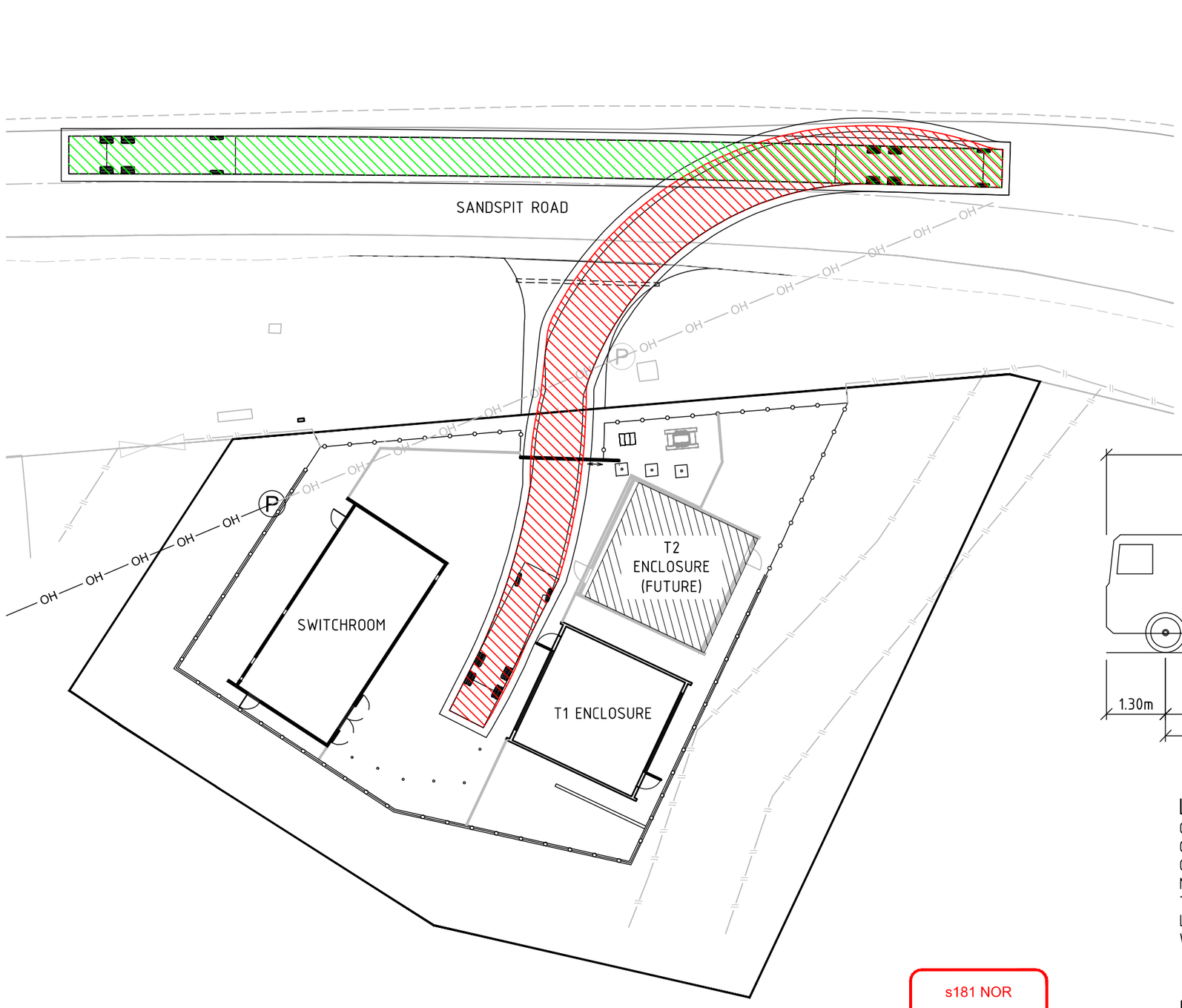
Scale at A3: 1:300

Doc type:

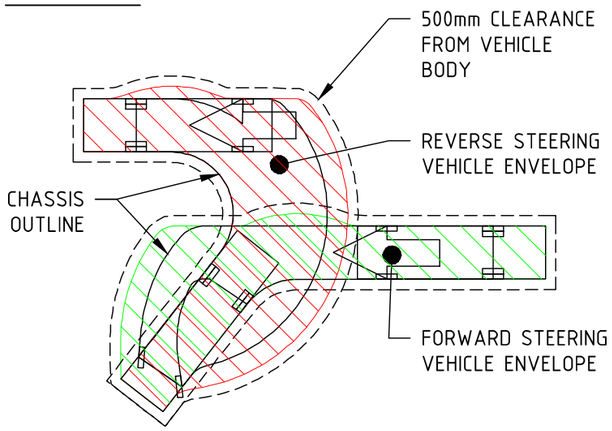
Drawing no: 4262-8032

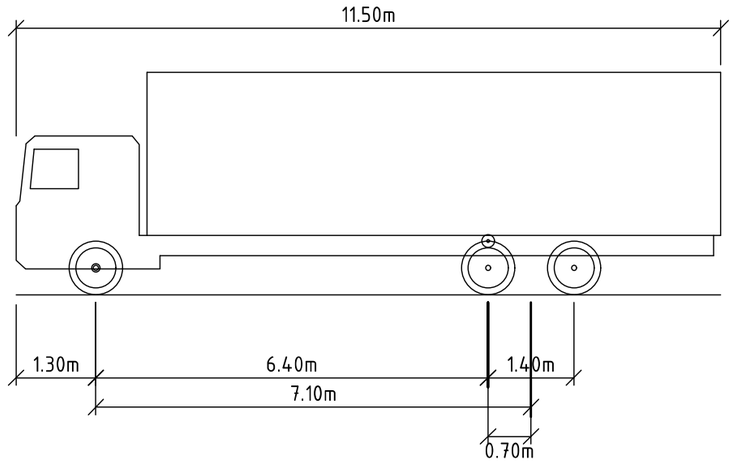
Rev: 5

Sheet: 1 of 2



LEGEND:





LARGE RIGID TRUCK

OVERALL LENGTH	11.500m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	3.632m
MIN BODY GROUND CLEARANCE	0.427m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
WALL TO WALL TURNING RADIUS	12.000m

s181 NOR
01/08/2024

NOTES

1. SWEPT PATH ANALYSIS WITH 5km/h MAXIMUM SPEED.
2. 500mm CLEARANCE HAS BEEN APPLIED.

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	08/03/2024	ElectroNet
4	BOLLARDS & CONCRETE KERB RE-ALIGNED	30/04/2024	ElectroNet
5	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8032.dwg
Author	J. H'nboezem	Consultant project no:	VEC6852
Auth Date	10.2023	Vector project no:	EC-24-NRNF2-003
Checked by	C Herath		
Chk by date	10.2023		
Approved by	R Marx		
Appr by date	10.2023		

vector electricity

ROADING LAYOUT
VEHICLE TRACKING = LARGE RIGID TRUCK

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

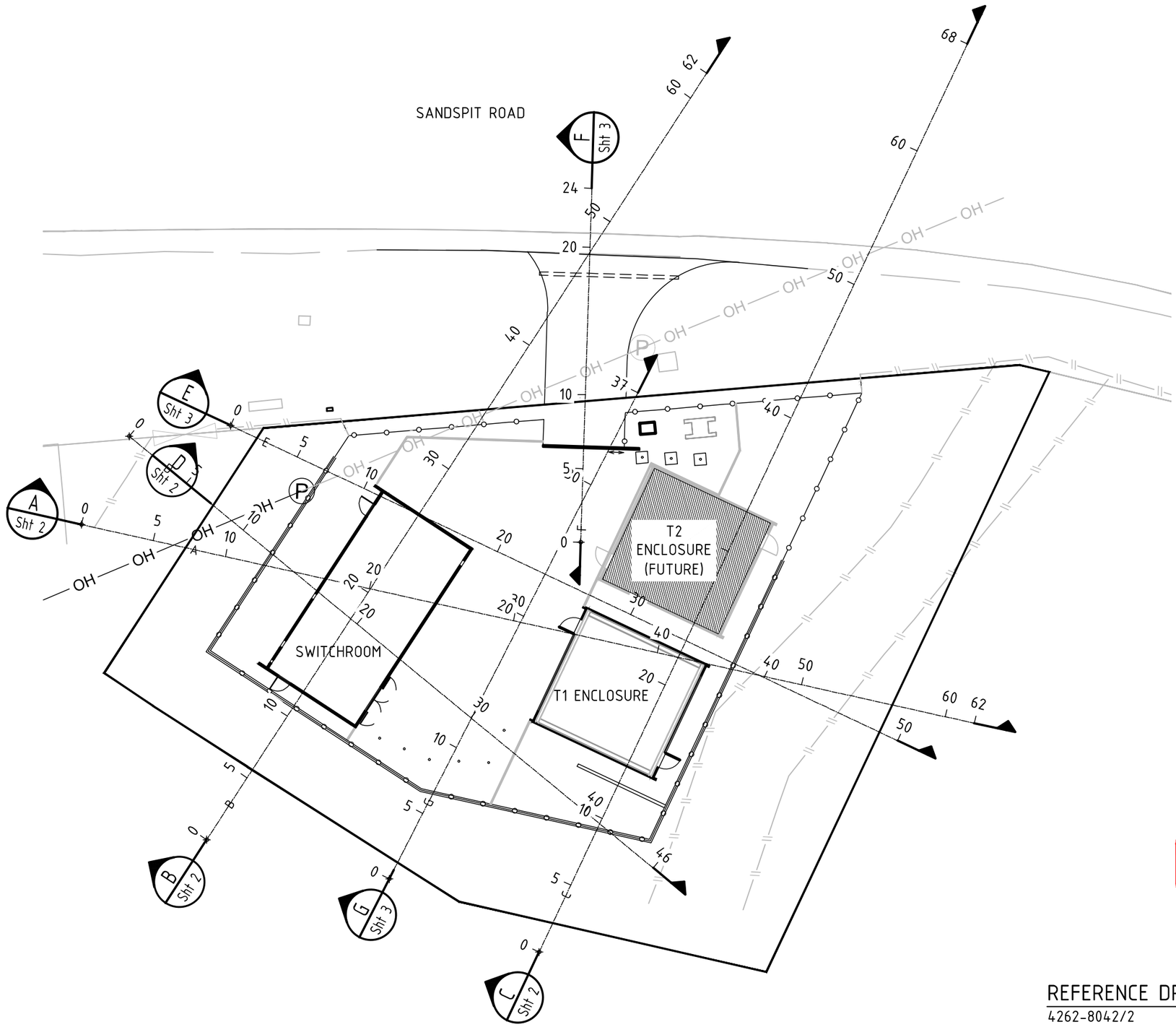
Scale at A3: 1:300

Doc type:

Drawing no: 4262-8032

Rev: 5

Sheet: 2 of 2



s181 NOR
01/08/2024

REFERENCE DRAWINGS:

4262-8042/2	EARTHWORKS DESIGN CROSS SECTIONS - PART 1
4262-8042/3	EARTHWORKS DESIGN CROSS SECTIONS - PART 2

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	12.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	BOLLARDS & CONCRETE KERB RE-ALIGNED	30/04/2024	ElectroNet
5	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet
6	GROUND PROFILES EXTENDED	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8042.dwg
Author	J. H'nboezem	
Auth Date	10.2023	Consultant project no: VEC6852
Checked by	R Chan (BB)	
Chk by date	10.2023	Vector project no: EC-24-NRNF2-003
Approved by	R Marx	
Appr by date	10.2023	

EARTHWORKS DESIGN
CROSS SECTIONS LAYOUT

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

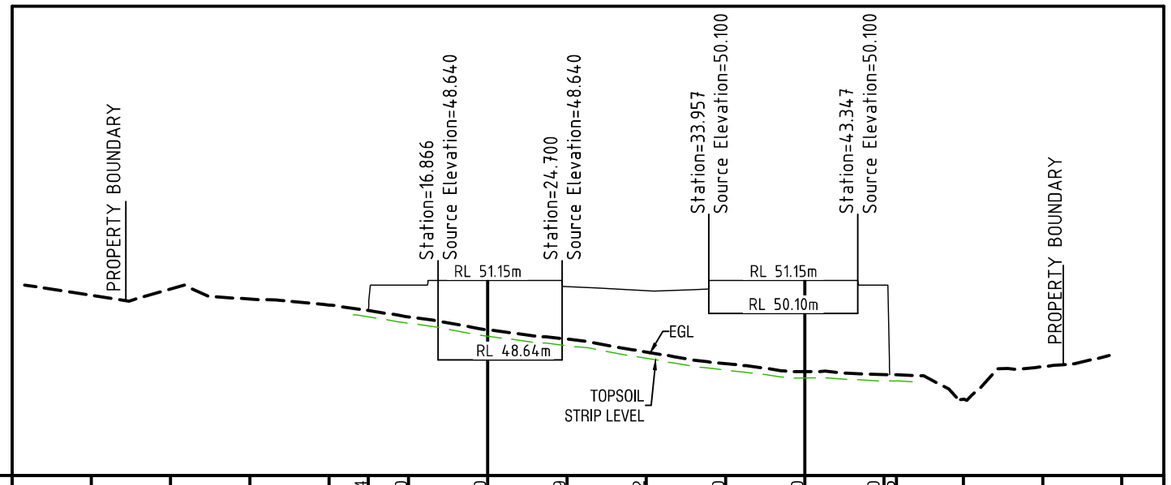
Scale at A3: 1:300

Doc type:

Drawing no: 4262-8042

Rev: 6

Sheet: 1 of 3



SECTION A LONG SECTION

SECTION B LONG SECTION

REFERENCE DRAWINGS:

4262-8042/1 EARTHWORKS DESIGN CROSS SECTIONS LAYOUT

s181 NOR
01/08/2024

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	DATA REVISED	30/04/2024	ElectroNet
5	GROUND PROFILES EXTENDED DUE TO LEGAL BOUNDARY AMENDMENT	01/08/2024	ElectroNet

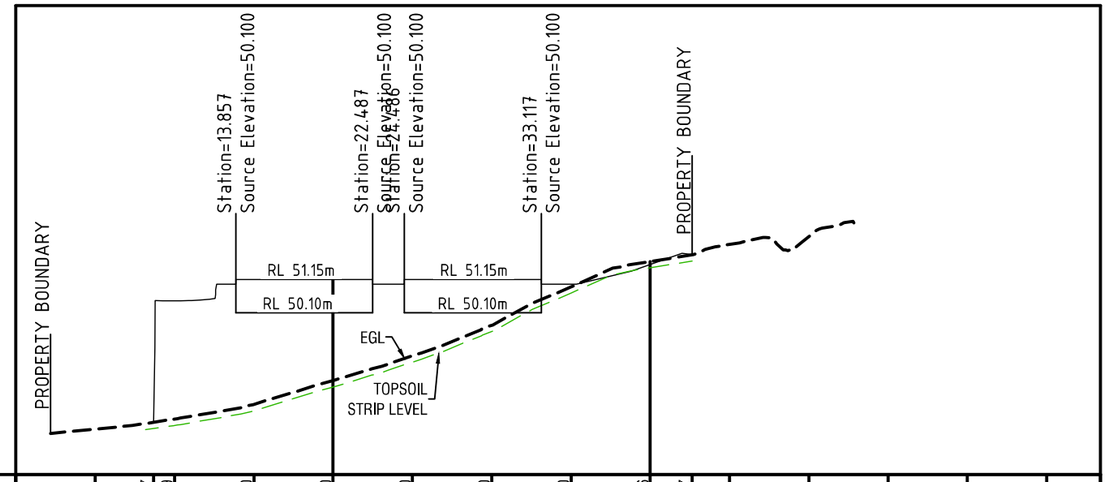
Consultant	ELECTRONET
Author	J. H'nboezem
Auth Date	10.2023
Checked by	R Chan (BB)
Chk by date	10.2023
Approved by	R Marx
Appr by date	10.2023

File name: 4262-8042.dwg
Consultant project no: VEC6852
Vector project no:

EARTHWORKS DESIGN
CROSS SECTIONS
PART 1

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

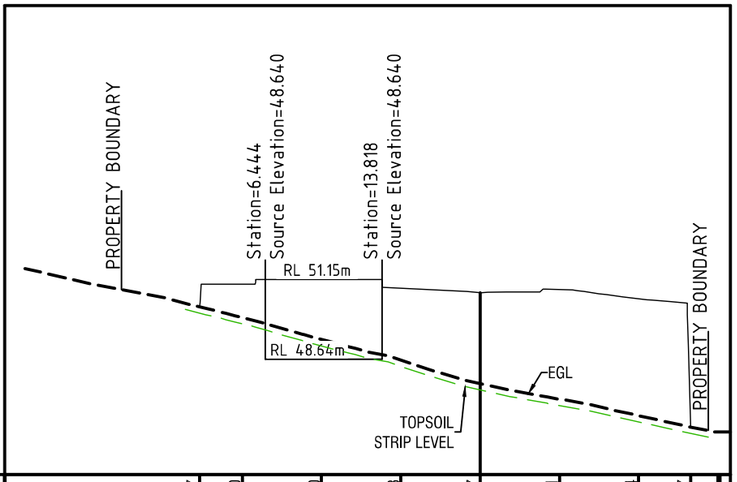
Reference designation:
Drawing function:
Drawing stamp: FOR CONSENT AND TENDER
Scale at A1: NTS
Doc type:
Drawing no: 4262-8042
Rev: 5
Sheet: 2 of 3



VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS			46.647	50.479	51.150	51.150	51.150	51.150	51.000	51.626	51.937				
EXISTING LEVELS		46.519		46.745	47.208	47.956	48.740	49.706	50.916	51.718		52.255	52.498	52.936	
DEPTH			0.000	3.734	3.942	3.194	2.410	1.444	0.084	-0.092	0.003				
CHAINAGE	0.000	5.000	8.677	10.000	15.000	20.000	25.000	30.000	35.000	40.000	42.643	45.000	50.000	55.000	60.000	65.000	68.386

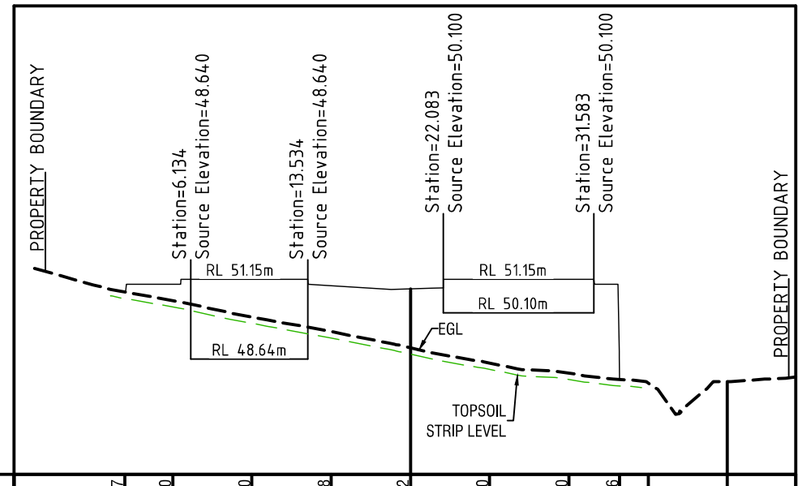
SECTION C LONG SECTION



VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS					50.287	51.000	51.150	50.878	50.737	50.831	50.544	46.497			
EXISTING LEVELS				50.583		49.946	49.257	48.610	47.869	47.375	46.854		46.340	46.337	
DEPTH					0.000	1.054	1.893	2.268	2.869	3.456	3.690	0.000			
CHAINAGE	0.000	5.000	10.000	2.313	15.000	20.000	25.000	30.000	35.000	40.000	43.275	45.000	45.118		

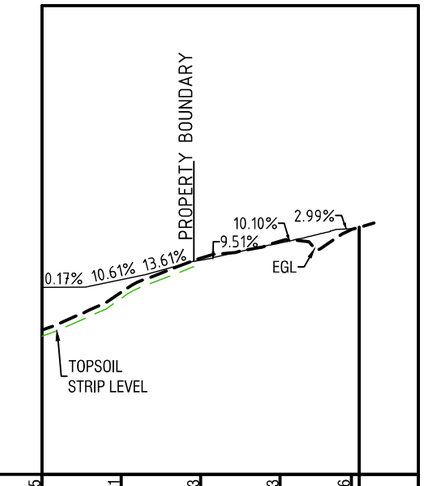
SECTION D LONG SECTION



VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS		50.747	51.000	51.150	50.948	50.852	51.150	51.150	47.996		
EXISTING LEVELS	50.969		50.485	49.964	49.500	48.993	48.511	48.190		47.881	47.921	48.077
DEPTH		0.000	0.515	1.186	1.448	1.859	2.639	2.960	0.000			
CHAINAGE	0.000	5.000	1.985	10.000	15.000	20.000	25.000	30.000	35.000	38.193	40.000	45.000	49.316

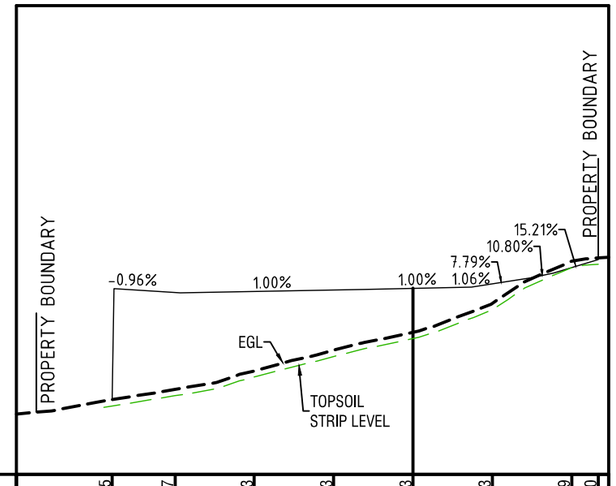
SECTION E LONG SECTION



VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS	50.895	51.141	51.753	52.293	52.746	
EXISTING LEVELS	49.553	50.745	51.816	52.348	52.789	52.977
DEPTH	1.342	0.395	-0.063	-0.055	0.033	
CHAINAGE	0.000	5.000	10.000	15.000	19.502	20.000	23.730

SECTION F LONG SECTION



VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS		47.355	50.727	50.763	50.813	50.863	51.003	51.519	51.820
EXISTING LEVELS	47.266		47.674	48.264	48.909	49.476	50.387	51.720	51.841
DEPTH		0.000	3.054	2.500	1.904	1.387	0.616	-0.200	-0.001
CHAINAGE	0.000	6.046	10.000	15.000	20.000	25.000	30.000	35.000	36.677	37.344

SECTION G LONG SECTION

s181 NOR
01/08/2024

REFERENCE DRAWINGS:
4262-8042/1 EARTHWORKS DESIGN CROSS SECTIONS LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	DATA REVISED	30/04/2024	ElectroNet
5	GROUND PROFILES EXTENDED DUE TO LEGAL BOUNDARY AMENDMENT	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8042.dwg
Author	J. Hrboetem		
Auth Date	10.2023	Consultant project no:	
Checked by	R Chan (BB)		VEC6852
Chk by date	10.2023	Vector project no:	
Approved by	R Marx		
Appr by date	10.2023		

EARTHWORKS DESIGN
CROSS SECTIONS
PART 2

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:	Drawing function:
Drawing FOR CONSENT AND stamp: TENDER	Scale at A1: NTS
Doc type:	
Drawing no: 4262-8042	Rev: 5
Sheet: 3 of 3	

SANDSPIT ROAD

STRIP AREA

EARTHWORKS

TOTAL - TOPSOIL STRIP VOLUME	
EARTHWORKS AREA	980m^2
CUT VOLUME	196m^3
FILL VOLUME	0m^3

TOPSOIL STRIP VOLUME:
EXISTING GROUND LEVEL TO 200mm TOPSOIL STRIP.
STOCKPILE TOPSOIL TRIP FOR USE IN LANDSCAPING LOCATIONS. REFER 4262-8031.

Elevations Table

Number	Minimum Elevation (m)	Maximum Elevation (m)	Color	AREA (m²)	VOLUME (m³)
1	-1.791	-1.000		27.41	7.37
2	-1.000	-0.100		78.23	56.83
3	-0.100	0.100		60.53	86.06
4	0.100	4.500		724.96	1206.23

EARTHWORKS COMPARISON VOLUME:
FINISHED LEVEL TO BOTTOM OF TOPSOIL STRIP

s181 NOR
01/08/2024

REFERENCE DRAWINGS:

4262-8042/1 EARTHWORKS DESIGN CROSS SECTION LAYOUT
4262-8058/1 EROSION & SEDIMENT CONTROL PLAN

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	12.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	28/02/2024	ElectroNet
3	TOPSOIL STRIP NOTE REVISED	23/04/2024	ElectroNet
4	LEGAL BOUNDARIES AMENDED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8043-1.dwg
Author	D Dickinson (BB)	
Auth Date	11.2023	Consultant project no: VEC6852
Checked by	R Chan (BB)	
Chk by date	11.2023	Vector project no: EC-24-NRNF2-003
Approved by	R Marx	
Appr by date	11.2023	

EARTHWORKS DESIGN
CUT & FILL PLAN

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing stamp: FOR CLIENT APPROVAL
Scale at A3: 1:300
Doc type:
Drawing no: 4262-8043
Rev: 4
Sheet: 1 of 2

s181 NOR
01/08/2024

REFERENCE DRAWINGS:
4262-8042/1 EARTHWORKS DESIGN CROSS SECTION LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	30/04/2024	ElectroNet
2	LEGAL BOUNDARY AMENDED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8043-2.dwg
Author	J. H'nboezem	
Auth Date	30/04/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	30/04/2024	Vector project no: EC-24-NRNF2-003
Approved by	R. Marx	
Appr by date	30/04/2024	

EARTHWORKS DESIGN
FINISHED SITE CONTOURS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: 1:300

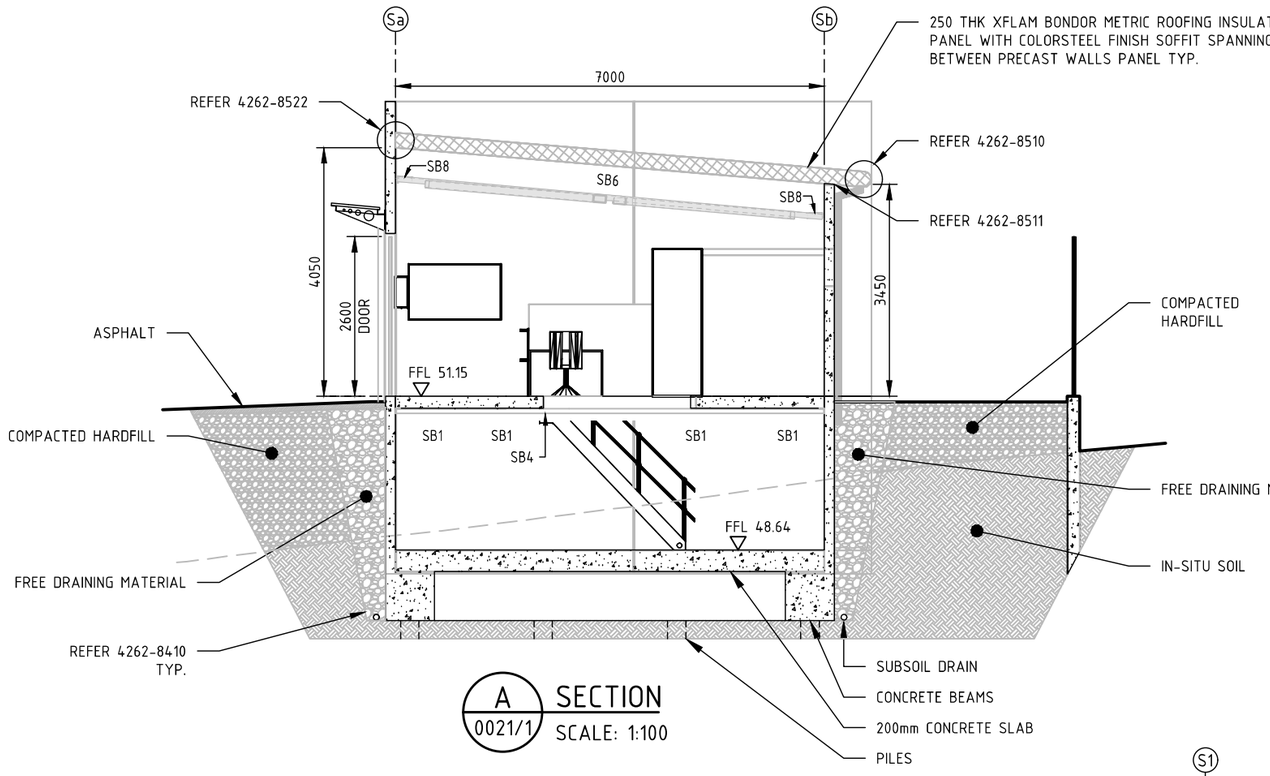
Doc type:

Drawing no: 4262-8043

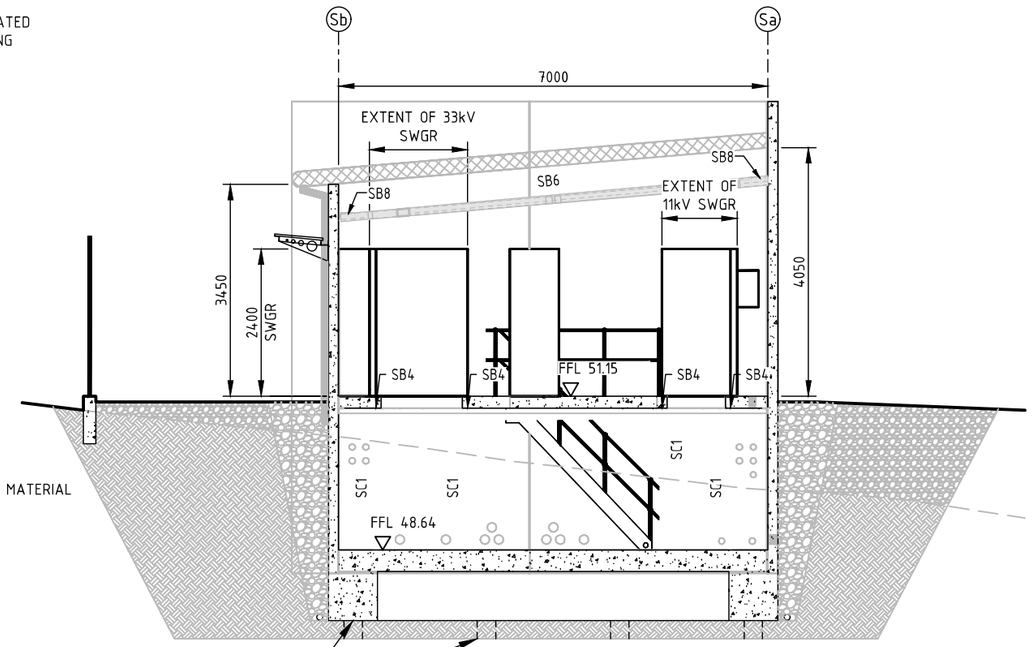
Rev: 2

Sheet: 2 of 2

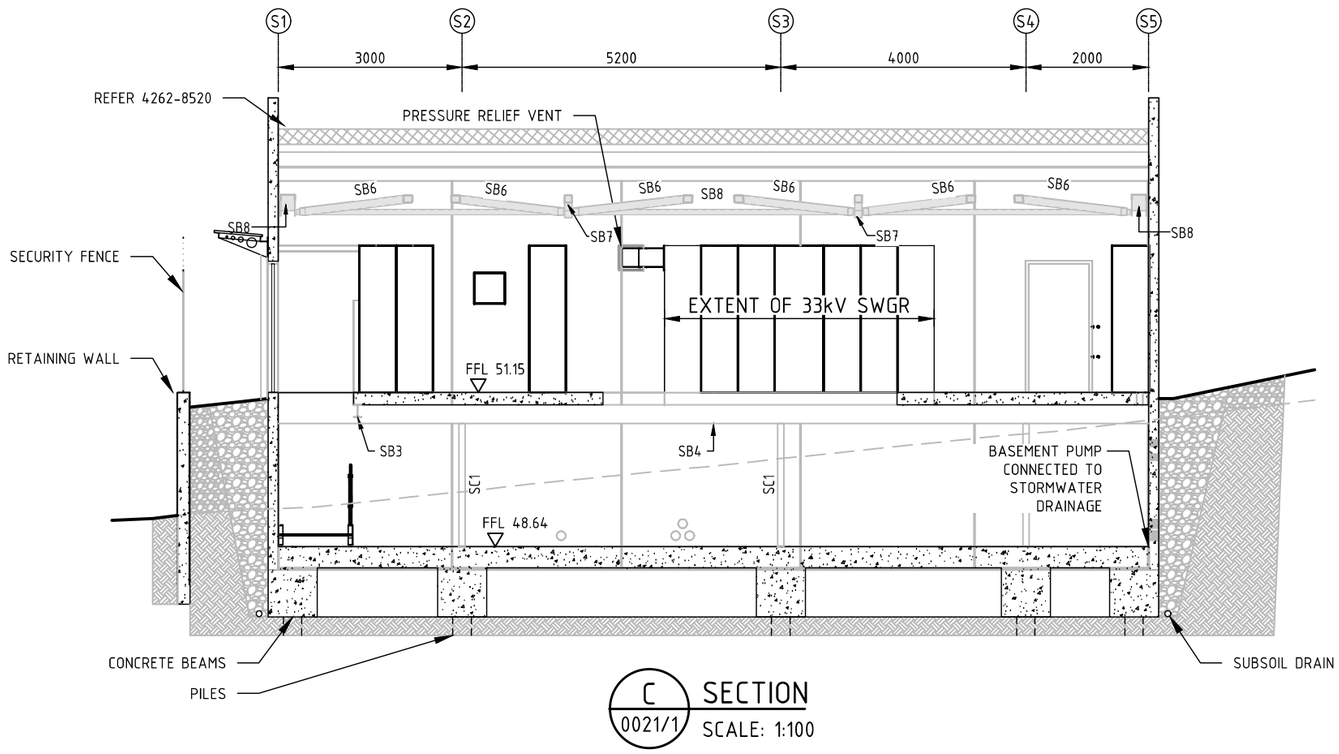
Drawing function:



A SECTION
0021/1 SCALE: 1:100



B SECTION
0021/1 SCALE: 1:100



C SECTION
0021/1 SCALE: 1:100

s181 NOR
01/08/2024

STEEL COLUMN	
TYPE MARK	DESCRIPTION
SC1	100x6 SHS

STEEL FRAMING	
TYPE MARK	DESCRIPTION
SB1	310UB40
SB3	200UB25
SB4	80x6 EA
SB6	125x9 SHS
SB7	125x6 SHS
SB8	250PFC
SB12	125x75x8 UA

NOTES:

1. FFL OF TOP FLOOR TO BE A MINIMUM OF 150mm HIGHER THAN SURROUNDING OUTSIDE GROUND LEVEL. REFER TO DRAWING 4262-8042 FOR DETAIL LEVELS.
2. CONCRETE PRECAST PANELS INDICATIVE. REFER TO DRAWINGS 4262-8160 THROUGH 4262-8162 FOR DETAIL DIMENSIONS.
3. REFER TO DRAWING 4262-8110 FOR PILED FOUNDATION DESIGN.

REFERENCE DRAWINGS:

4262-0021/1 33/11kV SWITCHROOM LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	DOOR CANOPIES ADDED	30/04/2024	ElectroNet

Consultant	ELECTRONET	File name:
Author	J. H'nboezem	4262-8140-1.dwg
Auth Date	10.2023	Consultant project no:
Checked by	M. Casey (BB)	VEC6852
Chk by date	10.2023	Vector project no:
Approved by	R. Marx	EC-24-NRNF2-002
Appr by date	10.2023	

33/11kV SWITCHROOM SECTIONS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

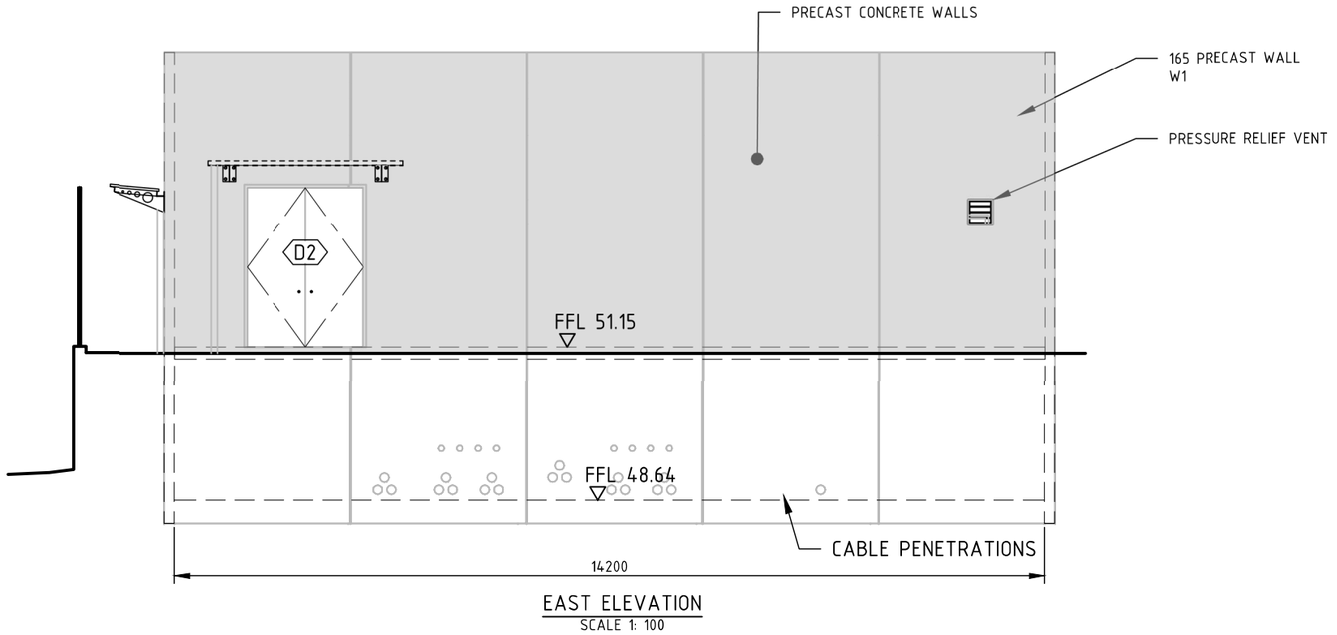
Scale at A3: 1:100

Doc type:

Drawing no: 4262-8140

Rev: 4

Sheet: 1 of 1



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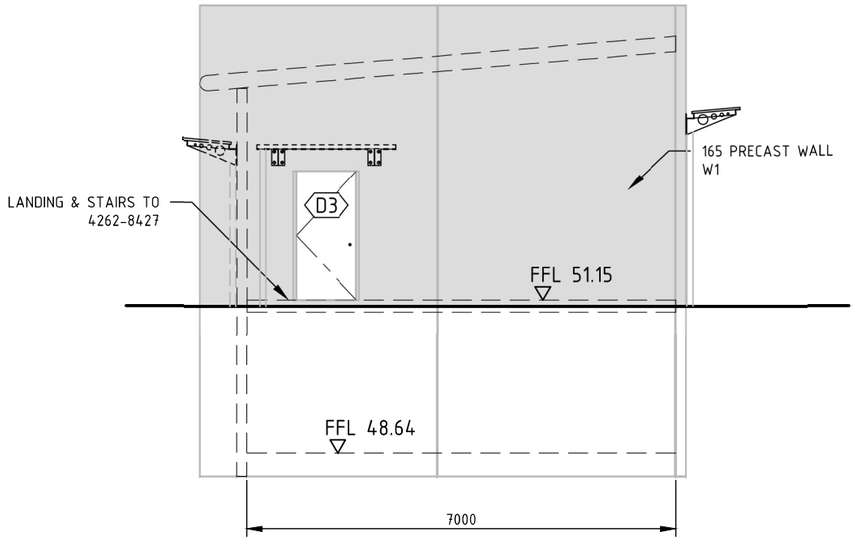
SCALE 1: 100



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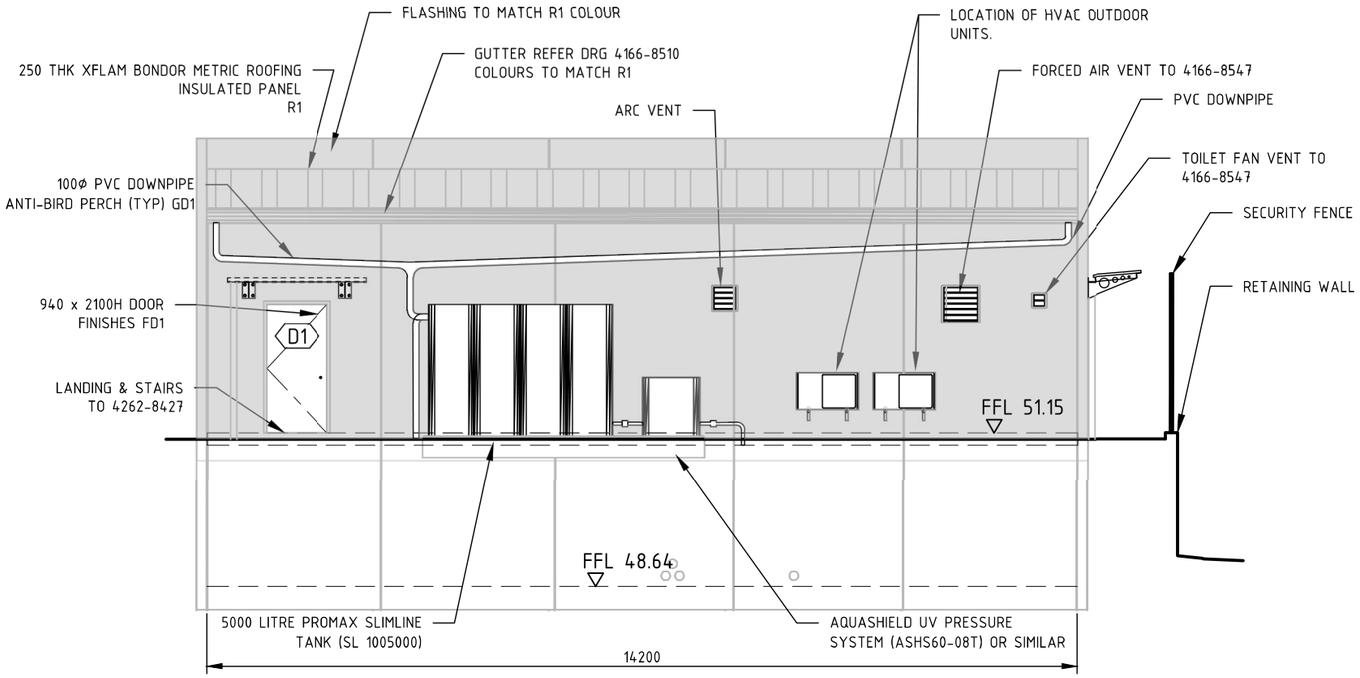

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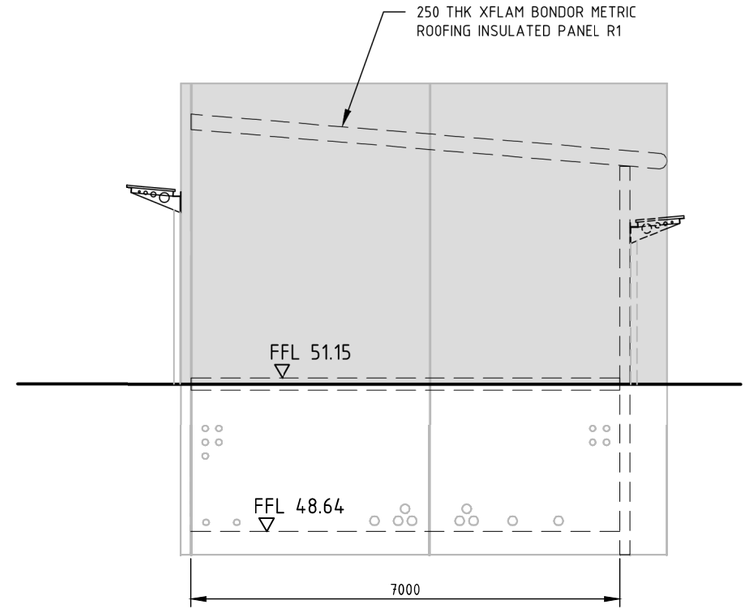


NORTH ELEVATION
SCALE 1: 100

s181 NOR
01/08/2024

REFERENCE DRAWINGS:

4262-0021/1	11kV SWITCHROOM LAYOUT
4262-8163	COLOUR FINISHES SCHEDULE

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	02.2024	ElectroNet
4	DOOR CANOPY DOWNPIPES SHOWN	30/04/2024	ElectroNet

Consultant	ELECTRONET	File name:
Author	J. H'nboezem	4262-8150-1.dwg
Auth Date	10.2023	Consultant project no:
Checked by	M. Casey (BB)	VEC6852
Chk by date	10.2023	Vector project no:
Approved by	R. Marx	EC-24-NRNF2-003
Appr by date	10.2023	

33/11kV SWITCHROOM ELEVATIONS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

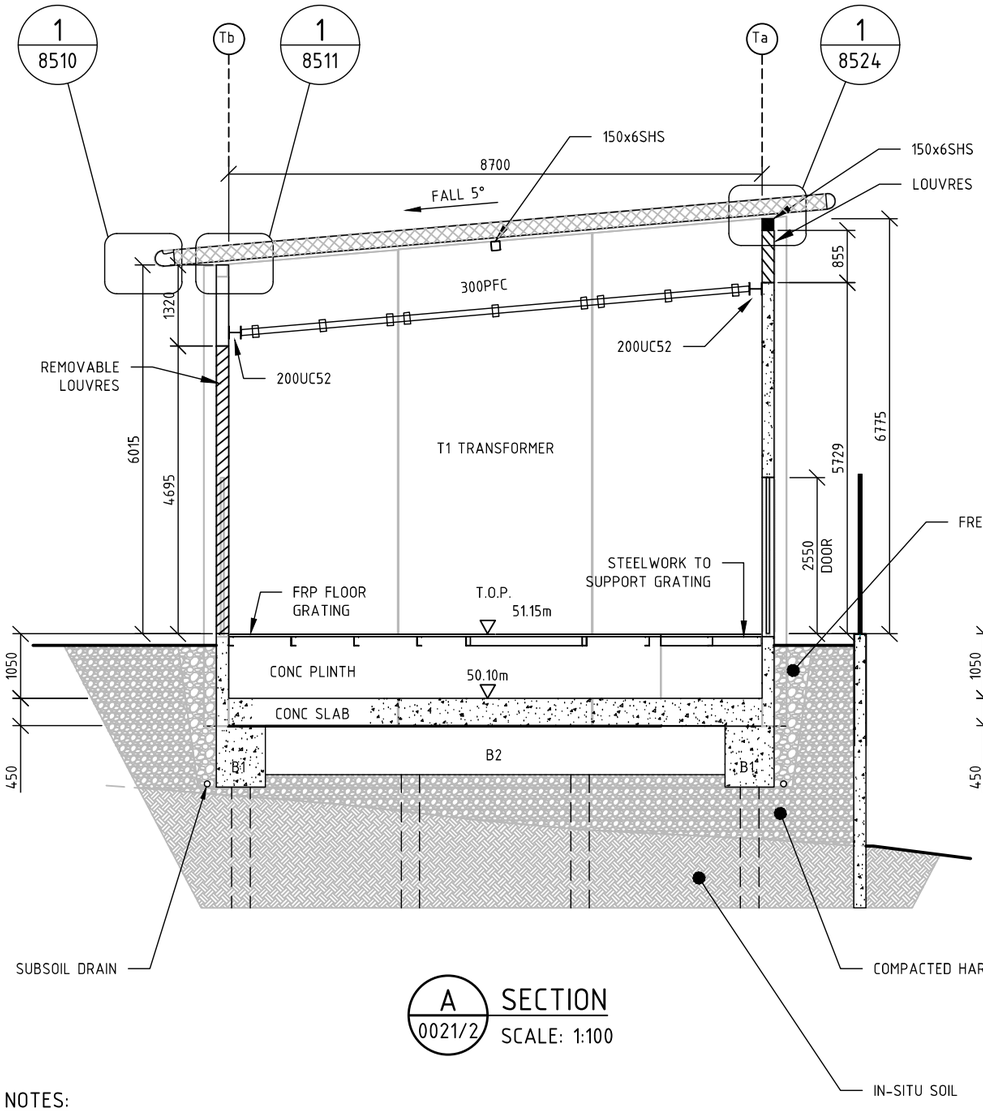
Scale at A3: 1:100

Doc type:

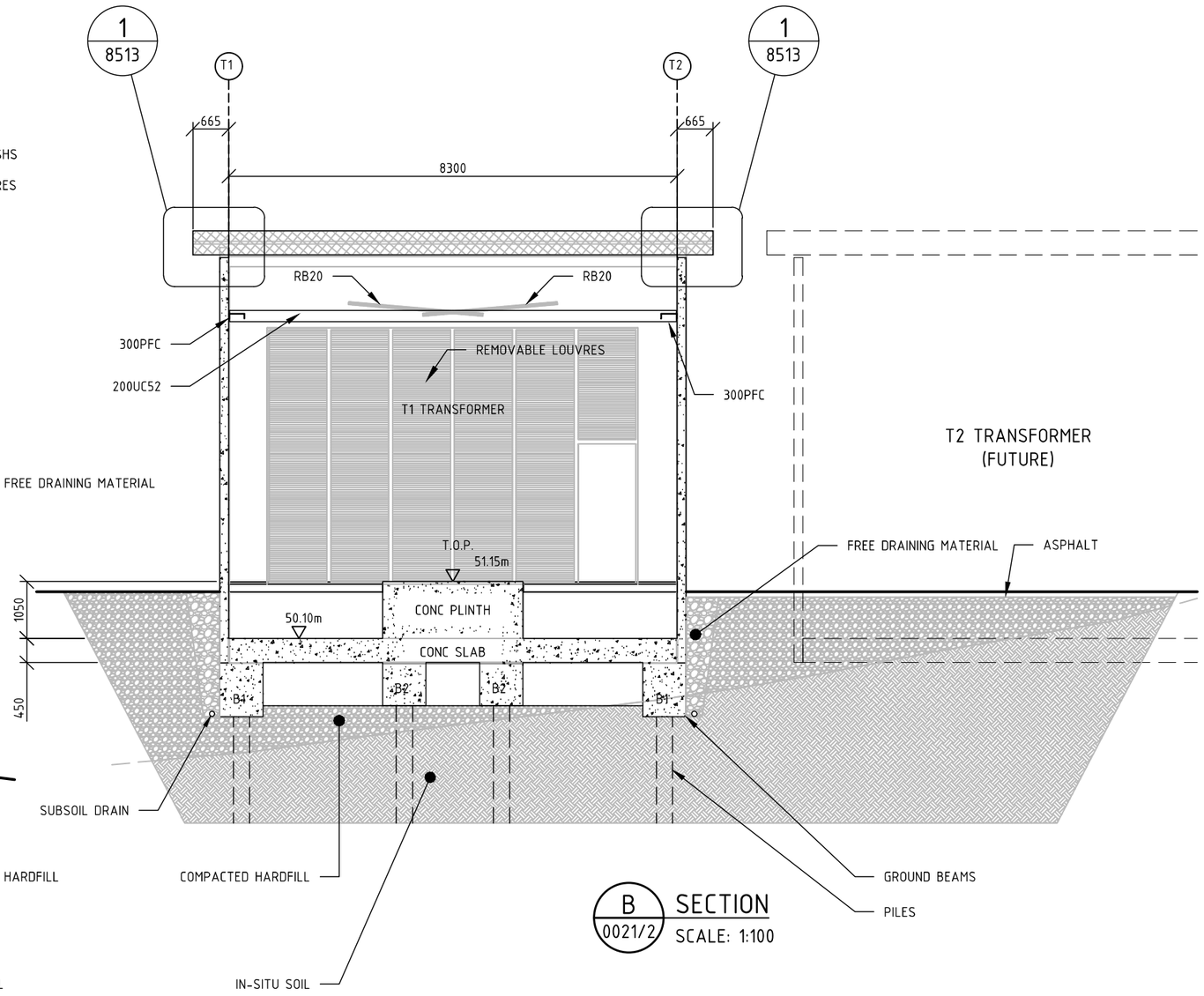
Drawing no: 4262-8150

Rev: 4

Sheet: 1 of 1



A 0021/2 SECTION
SCALE: 1:100



B 0021/2 SECTION
SCALE: 1:100

NOTES:

1. FFL OF TOP FLOOR TO BE A MINIMUM OF 150mm HIGHER THAN SURROUNDING OUTSIDE GROUND LEVEL. REFER TO DRAWING 4262-8042 FOR DETAIL LEVELS.
2. CONCRETE PRECAST PANELS INDICATIVE. REFER TO DRAWINGS 4262-8160 THROUGH 4262-8162 FOR DETAIL DIMENSIONS.
3. GROUND BEAM & PILE FOUNDATIONS INDICATIVE ONLY. REFER TO DRAWING 4262-8110 FOR PILED FOUNDATION DESIGN.

s181 NOR
01/08/2024

REFERENCE DRAWINGS:
4262-0021/2 TRANSFORMER ENCLOSURE LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8340-1.dwg
Author	J. H'nboezem	
Auth Date	10.2023	Consultant project no: VEC6852
Checked by	M. Casey (BB)	
Chk by date	10.2023	Vector project no: EC-24-NRNF2-003
Approved by	R. Marx	
Appr by date	10.2023	

33/11kV TRANSFORMER ENCLOSURE SECTIONS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: 1:100

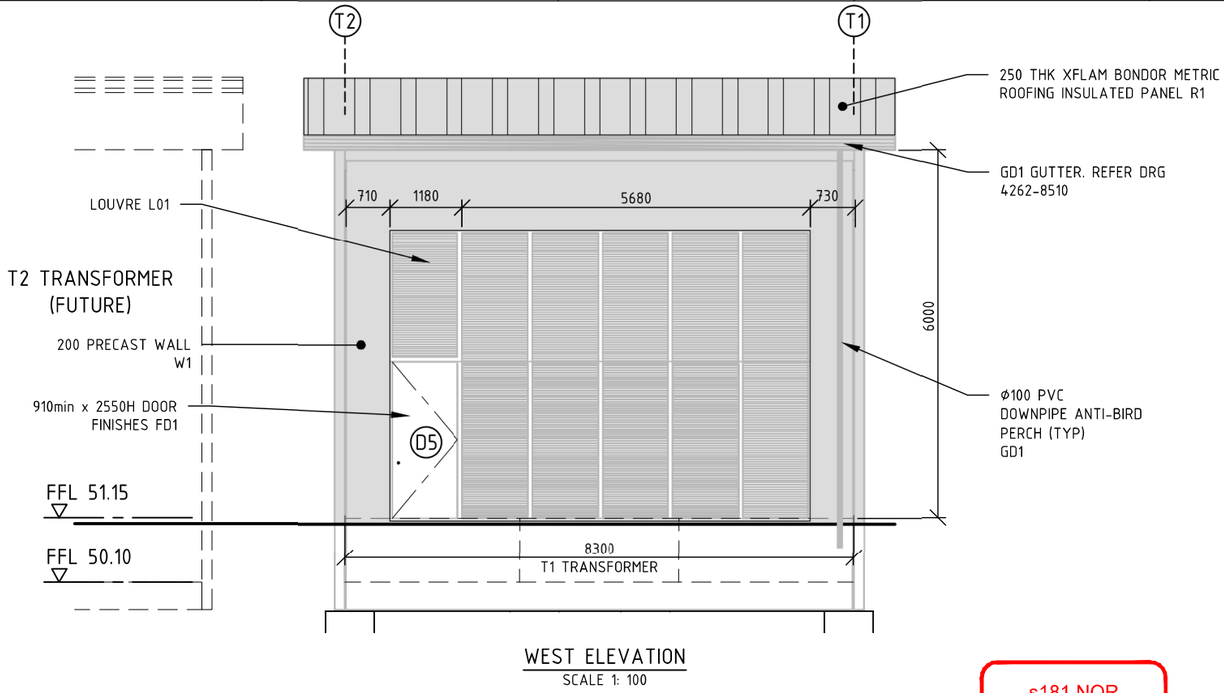
Doc type:

Drawing no: 4262-8340

Rev: 3

Sheet: 1 of 1

Drawing function:



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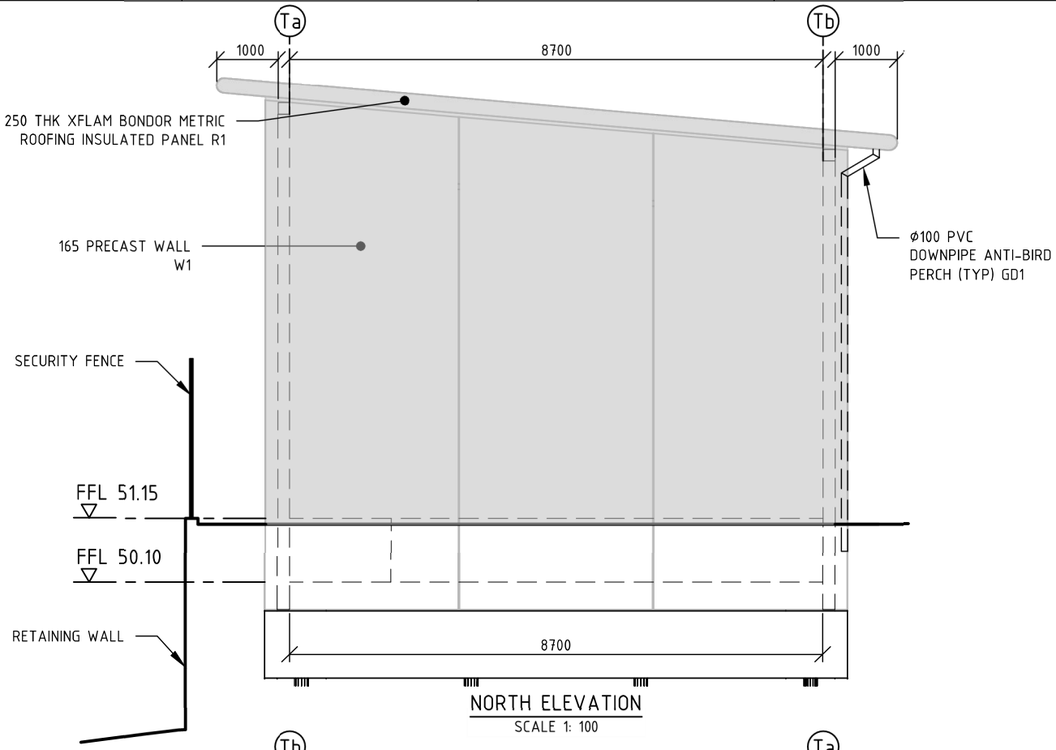
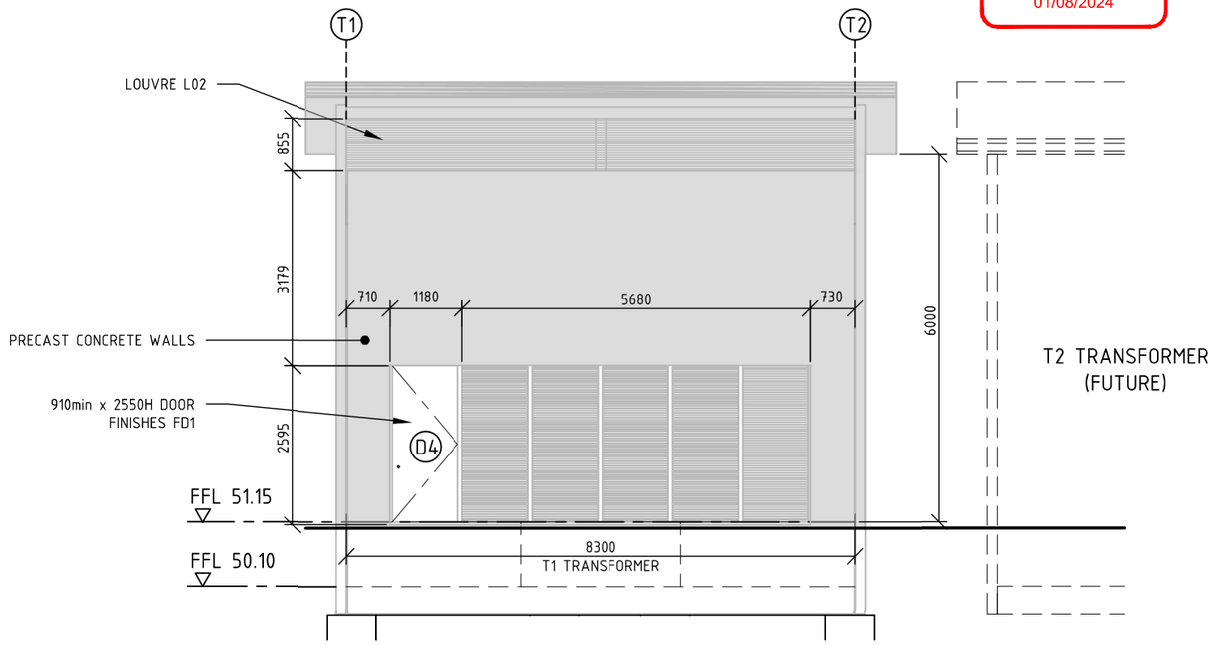
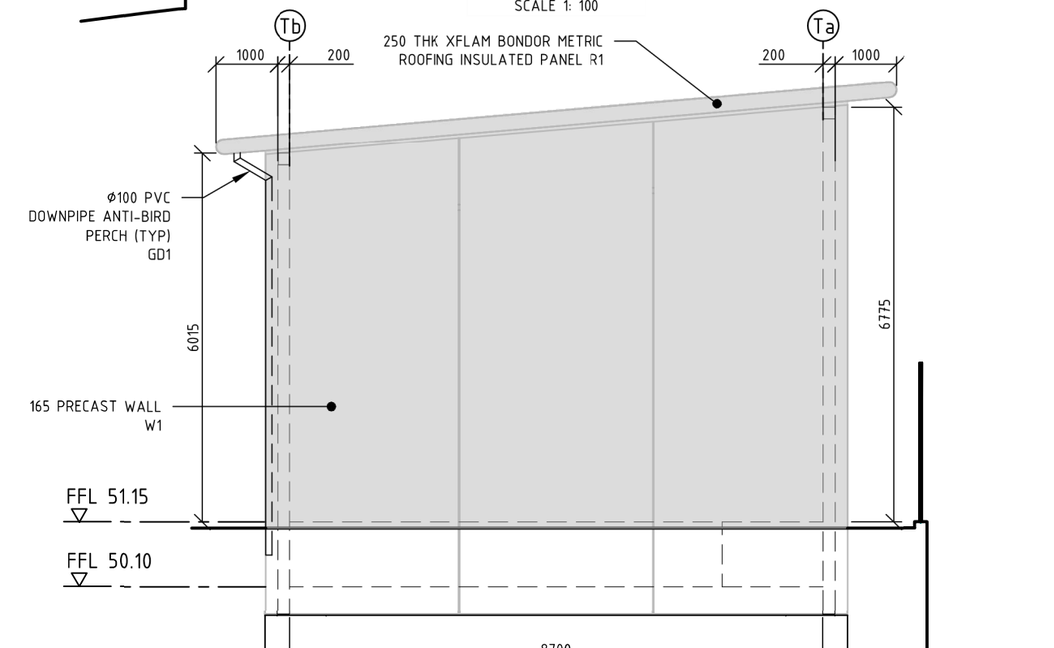


NORTH ELEVATION
SCALE 1: 100

s181 NOR
01/08/2024



EAST ELEVATION
SCALE 1: 100



SOUTH ELEVATION
SCALE 1: 100

REFERENCE DRAWINGS:
4262-0021/2 TRANSFORMER ENCLOSURE LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8350-1.dwg
Author	J. H'nboezem	
Auth Date	10.2023	Consultant project no: VEC6852
Checked by	M. Casey (BB)	
Chk by date	10.2023	Vector project no: EC-24-NRNF2-003
Approved by	R Marx	
Appr by date	10.2023	

vector electricity

33/11kV TRANSFORMER ENCLOSURE ELEVATIONS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: 1:100

Doc type:

Drawing no: 4262-8350

Rev: 3

Sheet: 1 of 1

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01/08/2024

NOTES:

1. CONTRACTOR TO CONSIDER USING THE POSITION OF THE VEHICLE CROSSING FOR THE COMPLETED SUBSTATION AS TEMPORARY SITE ACCESS AT START OF THE PROJECT, SUBJECT TO PRACTICAL CONSIDERATIONS SUCH AS POSSIBLE INFLUENCE ON CONSTRUCTION TIMELINE. PROVISIONAL SUM TO BE PROVIDED FOR SEPARATE TEMPORARY STABILISED ACCESS IN THE LOCATION INDICATED.
2. ALL EROSION AND SEDIMENT CONTROLS WILL BE IN ACCORDANCE WITH AUCKLAND COUNCIL GUIDELINE DOCUMENT 2016/005 (GD05) "EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES IN AUCKLAND REGION".

LEGEND:

PROPOSED SILT FENCE

PROPOSED STABILISED ACCESS
(AS ALTERNATIVE TO USING LOCATION OF DEDICATED VEHICLE CROSSING FOR INITIAL SITE ACCESS).

REFERENCE DRAWINGS:

4262-8059/1 EROSION & SEDIMENT CONTROL PLAN DETAILS

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet
2	BOLLARDS, BUILDINGS, KERB, RETAINING WALLS REMOVED, CONTOUR LINES ADDED.	30/04/2024	ElectroNet
3	LEGAL BOUNDARIES AMENDED	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8058-1.dwg
Author	J. H'nboezem	
Auth Date	28/02/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	28/02/2024	Vector project no: EC-24-NRNF2-003
Approved by	R. Marx	
Appr by date	28/02/2024	

EROSION & SEDIMENT CONTROL PLAN LAYOUT

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

Scale at A3: 1:300

Doc type:

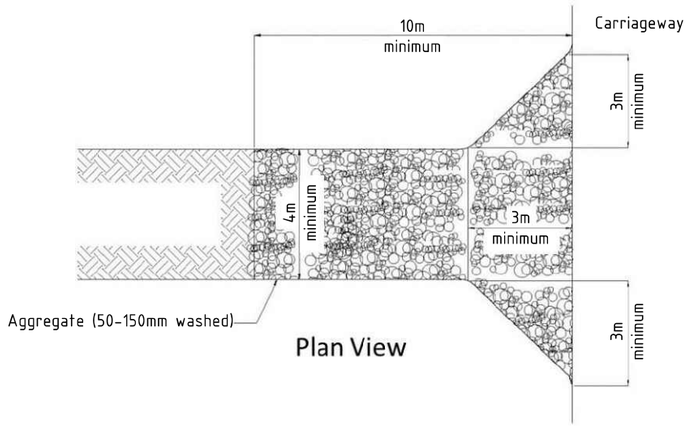
Drawing no: 4262-8058

Rev: 3

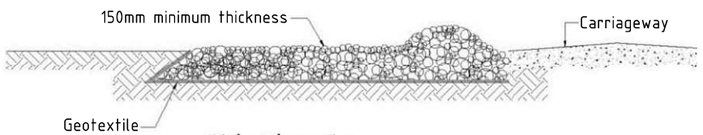
Sheet: 1 of 1

Table 9: Stabilised entranceway specifications

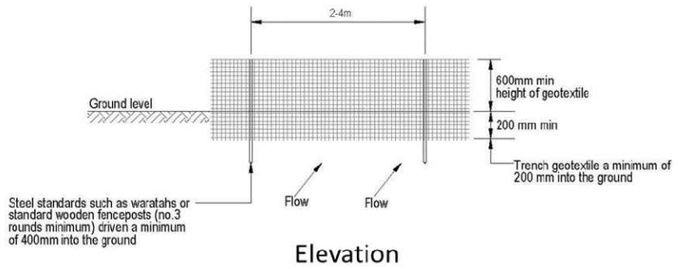
Design parameter	Specification
Aggregate size	50 - 150 mm washed aggregate
Minimum thickness	150 mm
Minimum length	10 m
Minimum width	4 m



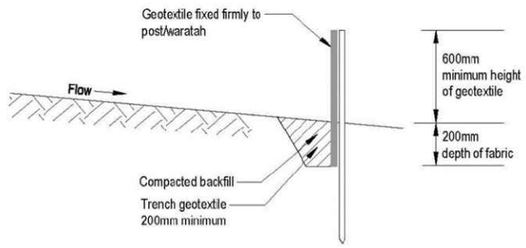
Plan View



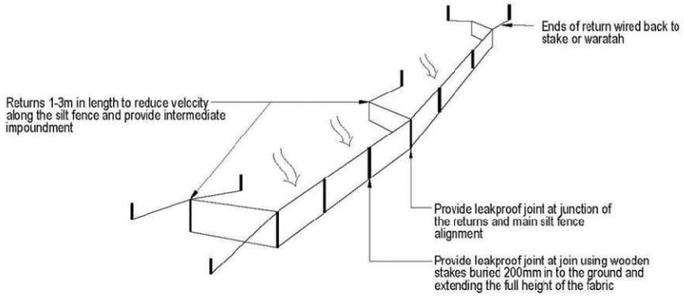
Side Elevation



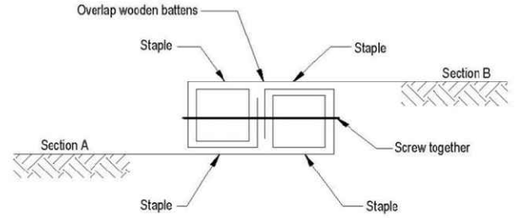
Elevation



Cross-section



Silt fence with returns and support wire



Standard fabric joint

SILT FENCE

STABILISED ENTRANCEWAY

s181 NOR
01/08/2024

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8059-1.dwg
Author	J. H'nboezem	
Auth Date	28/02/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	28/02/2024	Vector project no: EC-24-NRNF2-003
Approved by	R. Marx	
Appr by date	28/02/2024	

EROSION & SEDIMENT CONTROL PLAN DETAILS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

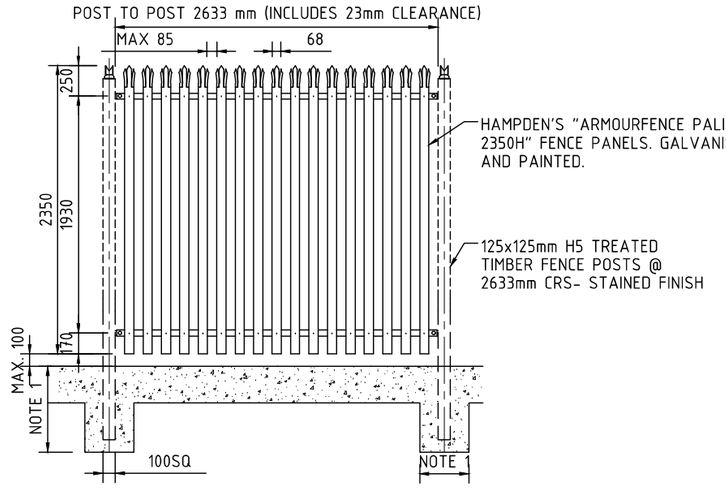
Scale at A3: N.T.S.

Doc type:

Drawing no: 4262-8059

Rev: 1

Sheet: 1 of 1



PALISADE ARMOURFENCE - ELEVATION

SCALE 1:50

NOTES

1. FENCE AND GATE DIMENSIONS TO BE VERIFIED BY CONTRACTOR WITH THE SUPPLIER.
2. READ THIS DRAWING WITH SITE PLAN AND LAYOUT DRAWINGS.
3. REFER TO THE TOPOGRAPHIC PLAN FOR THE FINAL SET-OUT OF PROPERTY BOUNDARY.
4. ALL ACCESSORIES, FIXINGS AND LOCKING SYSTEM SHALL BE SUPPLIED AND INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS.
5. REFER TO DRAWINGS 4262-8810 AND 4262-8811 FOR FIXING DETAIL OF FENCE POSTS TO RETAINING WALL.

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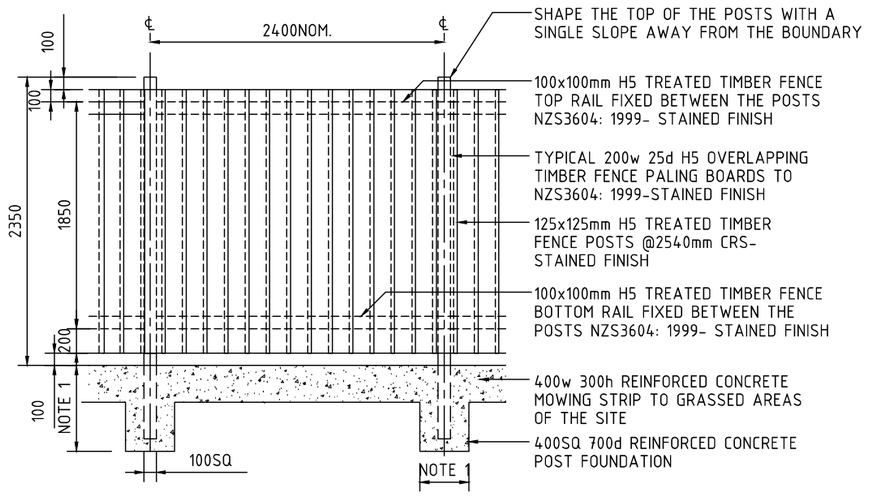
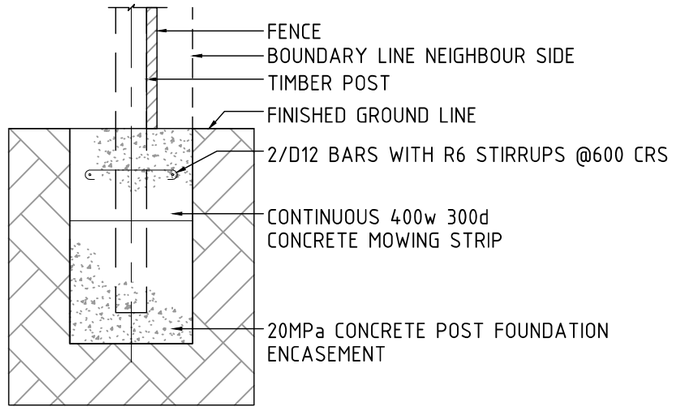


TIMBER BOARD FENCE - ELEVATION

SCALE 1:50



FENCE POST FOUNDATION DETAIL

SCALE 1:20

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet
2	REDESIGNED	30/04/2024	ElectroNet

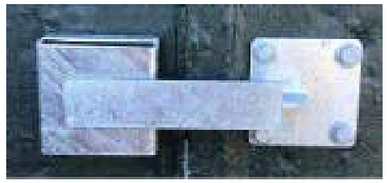
Consultant	ELECTRONET	File name:
Author	J. H'nboezem	4262-8713-1.dwg
Auth Date	28/02/2024	Consultant project no:
Checked by	R. Chan (BB)	VEC6852
Chk by date	28/02/2024	Vector project no:
Approved by	R. Marx	EC-24-NRNF2-003
Appr by date	28/02/2024	

TYPICAL FENCE AND GATE DETAILS
PART 1

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

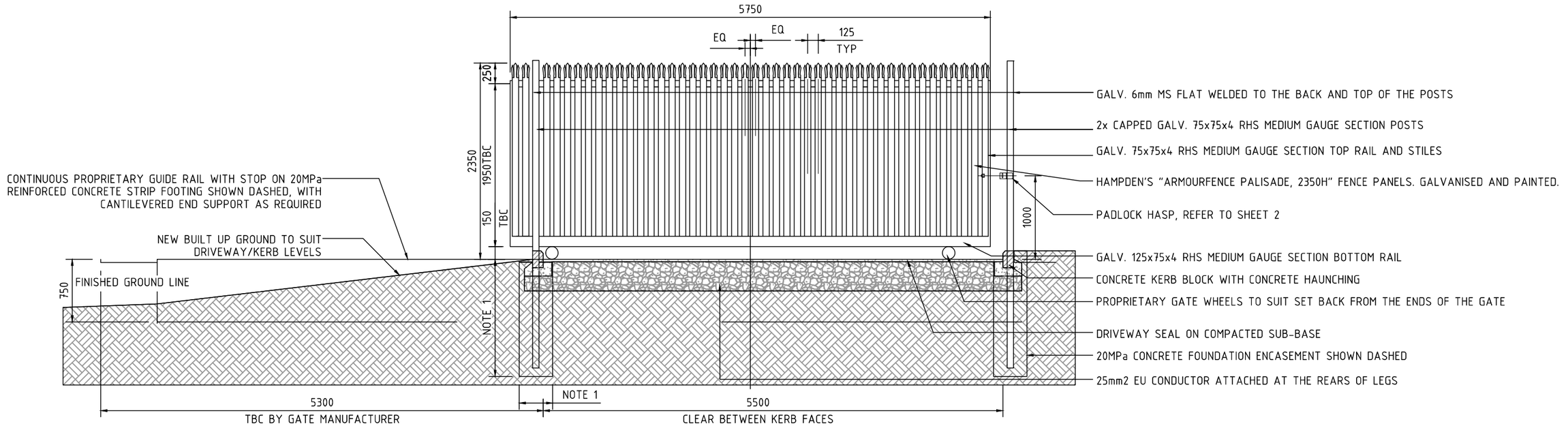
Reference designation:
Drawing function:
Drawing FOR CONSENT AND stamp: TENDER
Scale at A3: AS SHOWN
Doc type:
Drawing no: 4262-8713
Rev: 2
Sheet: 1 of 2



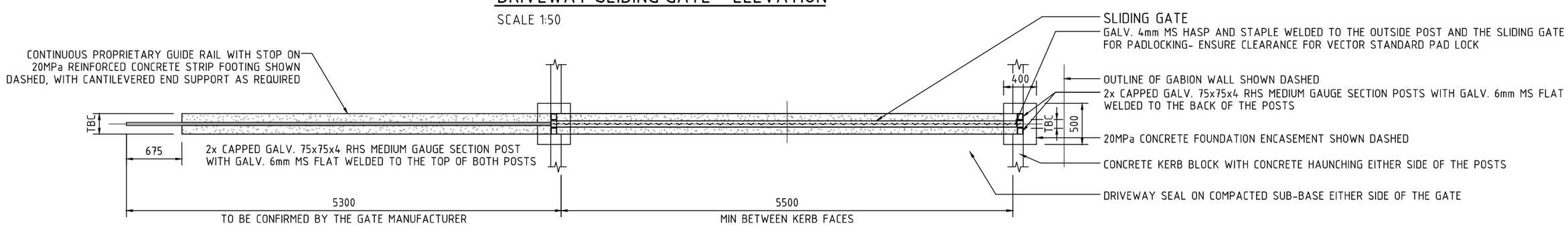
s181 NOR
01/08/2024

PADLOCK-HASP



DRIVEWAY SLIDING GATE - ELEVATION

SCALE 1:50



DRIVEWAY SLIDING GATE - PLAN

SCALE 1:50

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	30/04/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8713-1.dwg
Author	J. H'nboezem		
Auth Date	16/04/2024	Consultant project no:	VEC6852
Checked by	R. Chan (BB)		
Chk by date	16/04/2024	Vector project no:	EC-24-NRNF2-003
Approved by	R. Marx		
Appr by date	16/04/2024		

TYPICAL FENCE AND GATE DETAILS PART 2

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: AS SHOWN

Doc type:

Drawing no: 4262-8713

Rev: 1

Sheet: 2 of 2

Appendix Seven: **Proposed Landscape Plan**

01. Proposal.

Proposed Landscape Plan

Detailed layout of planting to be confirmed through consultation.

Tree Species

Symbol	Scientific Name	Common Name	Bag Size	Plant Number
	Phormium tenax	Harakeke	Pb5	135
	Pittosporum eugenioides	Tarata / Lemonwood	Pb12	18
	Kunzea ericoides	Kānuka	Pb12	16
	Leptospermum scoparium	Mānuka	Pb12	12
	Magnolia grandiflora	Magnolia	12L	8

Plant Mixes

Texture	Scientific Name	Common Name	Area (m2)	Bag Size	Spacing (m)	Plants per m2	Plant Number	Comments
	Carex virgata	Pukio	155.1	RT	0.75	1.78	278	
	Phormium cookianum	Mountain Flax	28.3	Pb5	1.00	1.00	29	

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No.	Description	Drn	Chk	Date
A	DRAFT	RK	RA	29.04.24

Client: Vector Limited

Job Name: Sandspit Substation

Scale: 1:100 @A1, 1:200 @A3

Job No.: 5008

North

Drawing Title: Sandspit Road Substation Proposed Boundary Adjustment and Planting

Drawing Number: 01.01

Revision: A

Issued For: DRAFT

Appendix Eight: **Assessment of Landscape and Visual Amenity Effects**

Vector Limited
SANDSPIT SUBSTATION

ASSESSMENT OF LANDSCAPE AND VISUAL AMENTIY EFFECTS

September 2024

Isthmus.

Client Name:	**Vector Limited**
Project Name:	**Sandspit Substation**
Document Name:	**Assessment of Landscape and Visual Amenity Effects**
Document Status:	**Final**
Date:	**18 September 2024**
IGL Reference:	**5008**
Author:	**Rose Armstrong**
Review:	**Matt Jones**

Isthmus Group Limited

56 Victoria Street

Te Whanganui a Tara Wellington

Tel: 0800 478 468

CONTENTS

Appendices:

1.0 INTRODUCTION

1.1 Isthmus Group Ltd (**IGL**) has been engaged by Vector Limited (**Vector**) to prepare a comparative assessment of potential landscape and visual effects (LVA) for a proposed substation on Sandspit Road, between Sandspit and Warkworth, north of Auckland.

1.2 The site was designated for a substation in 2009[1] but has not yet been developed by Vector. Vector is now progressing an application to Auckland Council[2] to amend the site's designation boundaries and certain conditions.

1.3 The concept design for the substation has now been progressed. Vector will therefore be seeking to change:

- Condition 1 so that it now refers to the updated design drawings;
- Condition 2 so it now refers to the s181 Alteration Notice of Requirement;
- Condition 3 so it refers to the new landscape plan; and
- Condition 4 so the fencing requirements refer to the updated drawings.

1.4 This LVA assesses the landscape and visual amenity effects of the proposed change to the designation boundaries, and the revised site layout and mitigation provided by the proposed (revised) landscape plan - with effects considered relative to the conditioned landscape plan (2009). The key matter for the LVA is to address is whether the proposed landscape plan will avoid, remedy or mitigate adverse landscape and visual amenity effects arising from the new substation to a similar degree as the original proposal, resulting in a similar degree of effect[3] on landscape and visual amenity values. The LVA has also considered the degree of the change of effects between the development of the site currently allowed for under the designation and that which would be provided for under the modified designation.

1.5 **Appendix B** (Graphic Attachments) contains the proposed landscape plan (2024) and the original landscape plan (2009) which was conditioned to the site designation. **Appendix B** also provides visual simulations to illustrate the proposal, and the visualisations included in the 2009 NOR application.

---

1 Through a Notice of Requirement (NOR) to the Rodney District Plan. IGL provided the LVA and Landscape Plan for the NOR.

2 Under section 181 of the Resource Management Act 1991 (RMA).

3 Effects are assessed on a 7-point rating scale and may be adverse, neutral or positive. Refer to Appendix A for further details and the effects ratings scale used in this assessment.

1.6 This LVA includes an integrated approach, whereby design input has been provided to the proposal alongside assessment of effects. The approach has been taken to ensure that adverse landscape and visual amenity effects are appropriately avoided, remedied or mitigated as part of the proposal.

1.7 This LVA has not been required to include assessment of effects in terms of provisions in the Auckland Unitary Plan (AUP), which would be required if this was for a resource consent application.[4]

Background – LVA for the NOR

1.8 In 2009 IGL carried out an LVA[5] for the NOR for the site, relating to the proposed buildings and site layout and the landscape plan prepared at that time.

1.9 The 2009 LVA considered:

- Appropriateness of the site[6] in terms of amenity;
- Effectiveness of the building and landscape design in terms of amenity;
- Effects on the amenity of views from public places;
- Effects on the amenity from nearby properties.

1.10 The 2009 LVA found that the proposal would maintain and enhance landscape and visual amenity in the area due to:

- The appropriateness of the site, taking into account its location on Sandspit's rural fringe, the small visual catchment, and the location below the road on an inside bend;
- The scale and form of the proposed buildings being in keeping with the site's rural context;
- A resulting low (adverse) level of visual effects on public views, taking into account the substation design, its position relative to the road and landscape backdrop, the extent of screening, and the proposed planting recommended in mitigation;
- A resulting low (adverse) effect on amenity from residential properties overall , taking into account the low number of properties with potential views, the extent of screening vegetation for the nearest properties, and the combination of distance, relatively low

4 As advised by the project planning team. Refer to the AEE for information relating to the AUP.
5 Proposed Sandspit Road Substation Landscape and Visual Assessment, Isthmus, 12 March 2009.
6 For designation for use for a substation.

elevation of the substation site, landscape backdrop, and partial filtering of views for those properties further away; and with

- Effective mitigation of remaining visual amenity effects from public and private views by the proposed landscape measures.

1.11 Effects in the 2009 LVA were considered in terms of Part 2 and Section 171[7] of the RMA, and proposed provisions in Chapter 19 of the Proposed Rodney District Plan (2000) – and with the LVA completed in line with methodology at that time.[8]

2.0 ASSESSMENT METHODOLOGY

Methodology

2.1 The methodology used for this LVA is consistent with that recommended in Te Tangi a te Manu [9] and has included the following:

- Review of proposal documents;
- Review of the documents relating to the site's designation:

  - Designation Condition 3 - Landscape Plan (2009);

  - The original LVA from 2009 for the NOR for the site;

- Description and evaluation of the site and context (as an update to the 2009 LVA evaluation provided for the NOR);
- Evaluation of the visual catchment for the proposal, including identification of the locations and audiences likely to gain most prominent views (as an update to the 2009 LVA evaluation provided for the NOR);
- A summary of the proposal focused on differences to the 2009 proposal and the conditioned landscape plan;
- Development of measures to avoid, remedy and mitigate adverse effects on landscape and visual amenity – for inclusion in the proposed landscape plan;
- Recommendations (if required, further to design input to the proposed landscape plan); and

---

7 Relating to designations under the RMA.

8 NZILA has updated its recommended best-practice assessment methodology since the 2009 LVA was completed – with the adoption of Te Tangi a te Manu in 2022 (refer to "Methodology," below).

9 Aotearoa New Zealand Landscape Assessment Guidelines adopted by Tuia Pito Ora New Zealand Institute of Landscape Architects (NZILA) in July 2022.

- Conclusions.

2.2 This LVA does not reconsider the broad-scale suitability of the site for use for a substation (as considered in the 2009 LVA for the NOR).

2.3 Refer to **Appendix A** for definitions and ratings scale used for this assessment, taken from Te Tangi a Te Manu; and for a comparison of the NZILA ratings scale to RMA terminology.

3.0 THE PROPOSAL

3.1 Vector proposes to develop a substation on a site on Sandspit Road which was designated for that purpose in 2009. This proposal seeks to alter the site's designation boundaries and certain conditions including Condition 3 (Landscape Plan).

3.2 The proposed design is to develop the site to include three buildings (housing two transformer rooms and a switch room) and a reconfigured site layout. This is described in detail within the AEE document prepared by Osborne Hay and illustrated on the Vector drawings set (with excerpts from the Vector plans (as relevant to the LVA) included within **Appendix B** to this report).

3.3 In summary, the revised landscape plan proposes to develop the site more fully, including with:

- Higher retaining[10] to enable a building platform and provision for an additional (future) building;
- A building platform roughly level with Sandspit Road, instead of slightly below the road (as in the consented landscape plan);
- Planting around the site boundaries and within the new designation boundaries (new trees and shrubs) rather than retention of pasture and new trees inside the site (as per the 2009 plan); and
- Rock-riprap (to include planting in adjacent areas) within an overflow path[11] on the site (taking water from Sandspit Road).

3.4 The revised landscape plan is needed at the site to:

---

[10] Retaining in the 2009 proposal was to an approximate maximum of 1.2m and this was integrated into the building foundations. In the revised proposal retaining is to a maximum of approximately 4m (at the south-east corner of the site) and is located towards the site boundaries to provide the required building platform.

[11] The overflow path is shown on the proposed landscape plan at Appendix B. The pathway has become more formalised since the site was designated and is now fenced. It is currently grassed and takes overflow from Sandspit Road.

- Avoid any construction at the site which may impede water flow at the overflow pathway in eastern parts of the site;[12]
- Meet Vector standards which have changed since the site was designated;[13]
- Provide for changed needs and future-proofing at the site;[14] and
- To take account of the changes to the designation boundaries.

3.5 As part of the proposal (and to provide for mitigation planting in the proposed landscape plan), Vector has written agreement with the neighbouring property at 12 Mahurangi East Road to purchase additional land at the western and southern boundaries of the designated lot. This will result in a boundary change at the site, and an overall increase of 255m^2 to the designated lot size. (Refer to section 1.0 within **Appendix B** for plans showing the proposed boundary change). It is understood that the subdivision consent for the boundary adjustment has now been granted. This assessment is prepared on the basis that the designation boundaries are to be modified to reflect the new proposed site boundaries.

3.6 Refer to the graphic attachment **Appendix B** for the revised and consented landscape plans, and for photo simulations of the proposal.

4.0 EXISTING ENVIRONMENT

Context

4.1 Overall, the evaluation of the broader context provided by the 2009 LVA for the NOR remains correct, and is set out below:

> *"The site is on the outskirts of Sandspit in a rural landscape on the urban/rural fringe.*
>
> *Sandspit is a coastal settlement at the mouth of Matakana River with Kawau Bay. Along with other coastal settlements in the area, such as Snell's Beach and Algies Bay, Sandspit has developed over recent decades from a bach settlement to become increasingly residential in character.*
>
> *The site is separated from Sandspit by a ridge which forms a natural boundary between Sandspit's residential area and the rural landscape to the west. The site is within a small valley so that the ridges defining the visual catchment are within 200m – 500m of the site in any direction.*
>
> *The site is adjacent to Sandspit Road, the main access road for Sandspit and Snells Beach/Algies Bay, and is near the four-way intersection of Sandspit Road (leading to*

---

12 The consented pan included parts of the vehicle driveway in the area of the overflow pathway.
13 As advised by Vector Limited.
14 With provision for a future transformer room.

Sandspit), Mahurangi East Road (leading to Snells Beach/Algies Bayl, and Sharp Road (leading to Matakana).

Immediately to the west of the site is a neighbouring dwelling within a well treed setting, a roadside ancillary building (orchard shop) and shared a driveway.

The surrounding landscape has a relatively close pattern of rural settlement comprising lifestyle properties, some larger farms, a mix of horticultural, viticultural, pastoral and plantation land-uses. The area has typical rural trees, such as pines and poplars and macrocarpas, together with plantations and tree crops, and remnant stands of totara-broadleaf coastal forest."

4.2 Since the site's designation an adjacent lot to the east has been developed with a new dwelling (at 12 Mahurangi East Road). The dwelling faces the site and includes solid fencing (not visually permeable) around its outdoor area, between the dwelling and the site.[15]

4.3 More immediate areas surrounding the site comprise gently rolling slopes in pasture. There is a large stand of tall trees to the south, and further trees and amenity planting to the west, east and north - at the boundaries of adjacent rural-residential lots and around existing dwellings, and along the edges of Sandspit and Mahurangi East Roads.[16]

4.4 Adjacent to the site's western boundary (and close to Sandspit Road) there are two garages/small storage buildings. These are grouped together and are inside the property boundary of 836 Sandspit Road (the site's neighbouring property to the south).

Site

4.5 The site is adjacent to Sandspit Road and slopes down from the road towards the south. It is located on an inside bend in the road.

4.6 The site is currently in pasture. It includes an overflow pathway (fenced and grassed) which takes water from Sandspit Road. There has been some periodic scouring on the site from stormwater discharge from the road.

4.7 Fencing included at the site (and in immediately adjacent paddocks) is typical rural fencing of post and batten.

4.8 There is an existing overhead electricity line on the roadside verge, along with a telephone and transformer box adjacent to the northern boundary fence.

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15 This property has provided consent to the proposed development.

16 The extent of planting in the area (around the site and along Sandspit Road) can be seen on the viewpoint location plan (aerial photo) included at section 1.0 of Appendix B.

4.9 The site includes a consent notice which places a visual restriction on a small part of the site, at the north-east corner along Sandspit Road. (This is shown on the plans included at **Appendix B**)**.** The consent notice notes that the area is not to be restricted above a level of 55.30m in terms of Auckland Vertical Height Datum 1946.[17]

5.0 STATUTORY PLANNING CONTEXT

Resource Management Act 1991 (RMA)

5.1 RMA s7 other matters requires development to have particular regard to:

- the maintenance and enhancement of amenity values (s7(c); and
- the maintenance and enhancement of the quality of the environment (s7(f)).

Auckland Unitary Plan (AUP)

5.2 Matters pertaining to the AUP are addressed in the AEE for the proposal.[18]

6.0 ASSESSMENT OF EFFECTS

Landscape (Appropriateness of Building and Landscape Design[19])

6.1 There will be a greater level of adverse short-term landscape effects from the proposal (for the reasons set out below), than would occur with the consented proposal. However, in the long term (with growth of proposed mitigation planting), the level of adverse effects will be similar.

6.2 The level of adverse short-term landscape effects is assessed as Low-Moderate. The effects will primarily arise from a less sympathetic (and initially more visually prominent) development on the site, resulting from:

- The taller and more extensive retaining required, and with this located near the lot boundaries - creating a landform platform above surrounding pasture rather than being lower and integrated into building foundations;
- Further to that, buildings being located more level with Sandspit Road rather than being tucked below the road level;

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17 As noted on the Record of Title for the site, Lot 2 Deposited Plan 426584.

18 In line with advice from the project planning team, effects against the AUP provisions are not considered in this LVA.

19 As considered in the 2009 LVA.

- An increased number of buildings and a more visually complex layout.

6.3 Over time (with growth of proposed planting), the adverse landscape effects will reduce to Low adverse. Effects will remain slightly more adverse than the consented plan[20] (when considered on the 7-point ratings scale) but will be similarly at the lower end of the scale. This is because:

- Proposed planting (once grown) will largely conceal retaining and will partially screen new buildings and integrate these into the context;[21]
- Although the proposed planting at lot boundaries will articulate boundaries rather than integrate them more subtly into surrounding pasture,[22] the proposed design will be appropriate. Dense planting at lot boundaries occurs as part of the surrounding rural context (including at adjacent properties) and the proposed design will fit with this pattern;
- Proposed tree species include a mix of exotic and indigenous, which is consistent with the consented plan and will provide a fit with the rural context (which includes a mix of exotic and indigenous species);
- Proposed buildings include simple forms which relate to those typically found in the rural context, and will be of a suitable scale – in line with what could be expected in the rural context;
- External cladding to proposed buildings will be concrete panels (as proposed in the consented proposal), which will assist to reduce potential visual prominence (retaining a neutral/natural concrete colouring); and
- Rock rip-rap will prevent erosion of landform values from possible scouring (a positive landscape effect).

6.4 While the proposed site layout has changed when compared to that of the consented landscape plan, the visually complex[23] rural landscape surrounding the site, and the site's proximity to other

---

20 Due to the proposed development being less of an "easy" / integrated fit into the existing natural landform of the site.

21 The photo simulations for the proposal (refer to section 2.0 of Appendix B) show mitigation planting at 10 years growth - with trees shown at approximately 4-6m height (depending on the species). Proposed trees can be expected to achieve further height over time - Kanuka can be expected to attain approximately 15m in height; Pittosporum up to approximately 12m; and Magnolia up to approximately 10m. This will provide additional screening to proposed buildings – noting also that views of buildings in the rural context will not be inappropriate, and that the proposed buildings are of an appropriate design for the rural context.

22 The consented landscape plan integrates the lot into surrounding pasture with use of retained pasture inside the lot.

23 As noted in the 2009 LVA for the NOR where there is a description of how the landscape includes a complex pattern of trees, shelter belts, buildings and different types of activity.

development, will mean this can be accommodated. The proposed landscape plan will still provide a development with an appropriate fit into the existing setting.

6.5 Overall and in summary, short-term landscape effects are assessed as slightly more adverse than the consented plan, assessed as **Low-Moderate**. In the long-term (with growth of proposed mitigation planting), adverse landscape effects will remain slightly more adverse than the consented plan – assessed as **Low**. The change in landscape effects between the existing development provided for under the designation and the new proposal will be minor.

Visual amenity

Private views

6.6 Views may occur from private properties to the west, east and south of the site. To the north (on Sharp/Sandspit Road) views from private properties will very likely be obscured by intervening landform and vegetation (including vegetation on private properties, and vegetation along the northern edge of Sandspit Road).

6.7 The 2009 LVA for the NOR included a housing inventory, for assessment of effects on private views from development of the site with a substation (as part of the NOR and designation application). It appears that possible views of the site from a number of the properties identified in the inventory to the south/south-east are likely to now be obscured by the large stand of tall trees to the immediate south of the site.[24]

6.8 From the site visit undertaken for this LVA, and from further study of the context using Googlemaps/Streetview, properties likely to gain views of the proposal have been identified as shown in the following table.[25]

6.9 Visual amenity effects in private views are assessed as follows:

16 Mahurangi East Road (east of the site)

Evaluation	Effects rating
Some elevated views of the site may be possible but it appears likely that views will be screened by trees in	*Short-term:* Very Low

[24] The stand of trees can be seen to the south of the site on the viewpoint location plan (aerial photo) included in section 2.0 of Appendix B.

[25] Effects in views from 12 Mahurangi East Road (immediately adjacent to the site to the east) are not considered in this LVA, as the property has provided consent to development of the site as proposed.

western parts of this property. If views are possible the proposal will be seen distantly and as part of a visually complex view, which will reduce any adverse impact.	*Long-term:* Negligible

836 Sandspit Road (to the south of the site)

Evaluation	Effects rating
Views of the proposal will be from the accessway (a long driveway which runs along the west boundary of the site), on arrival and leaving the property. No views will be possible from the dwelling due to intervening tall trees. (At the time of the 2009 LVA for the site's designation, the property was assessed as gaining views of the site from the top storey of the dwelling. Due to growth of trees on the boundary between the dwelling and the site, it appears that views from the dwelling will no longer be possible.) Views from the accessway will be in close proximity to the proposal (being immediately adjacent). From this location the proposed planting will provide visual softening of the proposal. Service components at the rear of the switchroom (facing the private driveway) will be painted the same colour as the building, to reduce their visual prominence in views from the driveway. The service area will be screened in the long-term by the growth of mitigation planting. In the long-term the proposed vegetation will provide greater screening (in views from the driveway) than shown in the visual simulations (with the expected mature height of trees),[26] and will contribute visual amenity to views from the driveway - including with flowering/seasonal variation from proposed Magnolias.	*Short-term:* Moderate adverse *Long-term:* Low adverse

[26] Photo simulations show mitigation planting at 10 years growth (with trees shown at approximately 4-6m height, depending on the species). Proposed trees can be expected to achieve further height over time - Kanuka can be expected to attain approximately 15m in height; Pittosporum up to approximately 12m; and Magnolia up to approximately 10m. This will provide additional screening to proposed buildings – noting also that views of buildings in the rural context will not be inappropriate, and that the proposed buildings are of an appropriate design for the rural context.

A draft landscape plan was provided to the property[27] but no feedback has been received by Vector at the time of writing.	

826 Sandspit Road (to the west of the site)[28]

Evaluation	Effects rating
Views of the road frontage and parts of the west edge of the site will be gained from the entrance to/from this property off Sandspit Road. At the property entrance/exit there will be partial screening of the western edge of the site by existing garages (located at the edge of Sandspit Road and belonging to 836 Sandspit Road). It appears that views from the dwelling will be screened by tall vegetation along this property's eastern boundary. There will be views available from the farm shed at the south end of the property. The proposed planting will provide visual softening of the proposal in views from this property and its entrance/exit. In the long-term the proposed vegetation will provide greater screening (with the expected mature height of trees) and will contribute visual amenity in views for this property - including with flowering/seasonal variation from proposed Magnolias.	*Short-term:* Low-Moderate adverse *Long-term:* Very Low adverse

6.10 The change in visual amenity effects between the existing development provided for under the designation and the new proposal, in private views (for the above listed properties), will be less than minor in the long term (with growth of the proposed planting).

27 As advised by Vector Limited.

28 Views for properties further along Sandspit Road to the west (beyond 826) will be screened by intervening vegetation and/or buildings.

Public views

6.11 Those using Sandspit Road and Mahurangi East Road will be able to see the site - in travelling east towards Sandspit, and in travelling west from Sandspit towards Warkworth. Most views will be transitory, from a moving vehicle in passing the site.

6.12 The revised (2024) proposal will initially be more visually prominent in the pastoral setting than would be the case in the consented landscape plan, due predominantly to the taller and more extensive retaining (seen together with rock riprap in some views), and the location of buildings closer to the level of Sandspit Road. This will result in a higher level of short-term adverse effects on visual amenity – although the significance of this will be reduced by the transitory nature of the most public views (seen from vehicles in passing the site). Additionally, the site is located on an inside bend in the road, which reduces its prominence in views from Mahurangi East and Sandspit Roads.

6.13 In the long term, with growth of planting, the retaining, rock rip rap and buildings will become screened and visually integrated into the context. The proposed planting will contribute visual amenity to views from Mahurangi East and Sandspit Roads, including with flowering/seasonal variation from the Magnolias trees (also included in the consented plan). Views of buildings are not unexpected in rural environments and the proposed buildings will be visually appropriate for the setting.

6.14 Short-term effects on visual amenity in public views is assessed as **Low-Moderate adverse**. Long-term effects are assessed as **Low adverse**. Effects will be at the lower end of the scale and in this regard will provide a similar level of effect in the long term to the consented landscape plan. The change in visual effects between the existing development provided for under the designation and the new proposal will be less than minor, in public views (with transitory views only for those passing the site).

7.0 CONCLUSIONS

7.1 In summary, landscape and visual amenity effects from the proposal will be slightly more adverse than the consented landscape plan / 2009 proposal, due to a less “easy” / integrated fit into the existing natural landform of the site. However, as the adverse effects will be at the lower end of the scale, effects are considered to be at a similar level (in terms of acceptability) to those provided by the consented plan.

7.2 The actual change in landscape effect between the existing development provided for under the designation and the proposed modifications will be minor, in the long term (with growth of the proposed planting).

7.3 In public views (for those driving past the site) the change in effect between the existing development provided for under the designation and the proposed modification will be less than minor in the long term (with growth of the proposed planting, and with views being transitory only).

7.4 Long term effects on visual amenity for adjoining/nearby properties[29] (private views of the site) will range from **Negligible** to **Low** adverse – considered to be at a similar level to the consented plan. In the long term, with growth of the proposed planting, the actual change in visual amenity effects between the existing development provided for under the designation and the new proposal will be less than minor for the adjoining/nearby properties.

7.5 Overall, the revised proposal will appropriately manage any adverse landscape and visual effects, with the planting mitigation proposed.

[29] 16 Mahurangi East Road, 826 Sandspit Road and 836 Sandspit Road – as assessed in this report.

Appendix A: Definitions; NZILA Ratings Scale

Definitions & Explanations

This assessment uses the following definitions/explanations set out in Te Tangi a Te Manu, the Aotearoa New Zealand Landscape Assessment Guidelines (July 2022) adopted by Tuia Pito Ora, New Zealand Institute of Landscape Architects (NZILA):

Landscape

> *"Landscape embodies the relationship between people and place. It is the character of an area, how the area is experienced and perceived, and the meanings associated with it."*

Landscape is an integrating concept. While landscape draws strands from diverse sources (natural sciences, humanities, cultural perspectives), it is perceived and experienced as a unified phenomenon. It is an integrated whole. It is more than a summary of data – the whole is greater than the sum of the parts.

Landscapes have physical, associative, and perceptual dimensions.

Amenity Values

The RMA defines "amenity values" as "those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes."

NZILA Ratings Scale

The 7-point rating scale recommended by Tuia Pito Ora NZILA for assessment of effects is as follows:

Very Low / Low / Low-Moderate / Moderate / Moderate-High / High / Very High

Effects can be adverse, neutral, or positive.

The following graphic provides a comparison of the relationship between the NZILA 7-point rating scale, and RMA terminology, as set out in the NZILA assessment guidelines, Te Tangi a te Manu:

Vector Ltd.
Sandspit Substation.
LVA Appendix B: Graphic Attachments.

August 2024

Isthmus.

Isthmus.

Document record

Issue	Revision	Author	QA	Date
Draft	A	AE	AA	20.06.24
Draft	B	AE	AA	29.07.24
Final	C	RA		26.08.24

Contents

01. Proposal.

Proposed Landscape Plan

Detailed layout of planting to be confirmed through consultation.

Tree Species

Symbol	Scientific Name	Common Name	Bag Size	Plant Number
	Phormium tenax	Harakeke	Pb5	135
	Pittosporum eugenioides	Tarata / Lemonwood	Pb12	18
	Kunzea ericoides	Kānuka	Pb12	16
	Leptospermum scoparium	Mānuka	Pb12	12
	Magnolia grandiflora	Magnolia	12L	8

Plant Mixes

Texture	Scientific Name	Common Name	Area (m2)	Bag Size	Spacing (m)	Plants per m2	Plant Number	Comments
	Carex Virgata	Pukio	155.1	RT	0.75	1.78	278	
	Phormium cookianum	Mountain Flax	28.3	Pb5	1.00	1.00	29	

Boundaries

- Proposed Designation Boundary (Adjustment)
- Existing Designation Boundary
- (A) Visual Easement

Isthmus.
AKL 09 309 9442 | WTN 04 499 9832 | CHC 27 553 3495
www.isthmus.co.nz

Client	Scale	Drawing Title
Vector Limited	1:100 @A1 / 1:200 @A3	Sandspit Road Substation Proposed Boundary Adjustment and Planting

Job Name	Job No.	Drawing Number	Revision
Sandspit Substation	5008	01.01	A

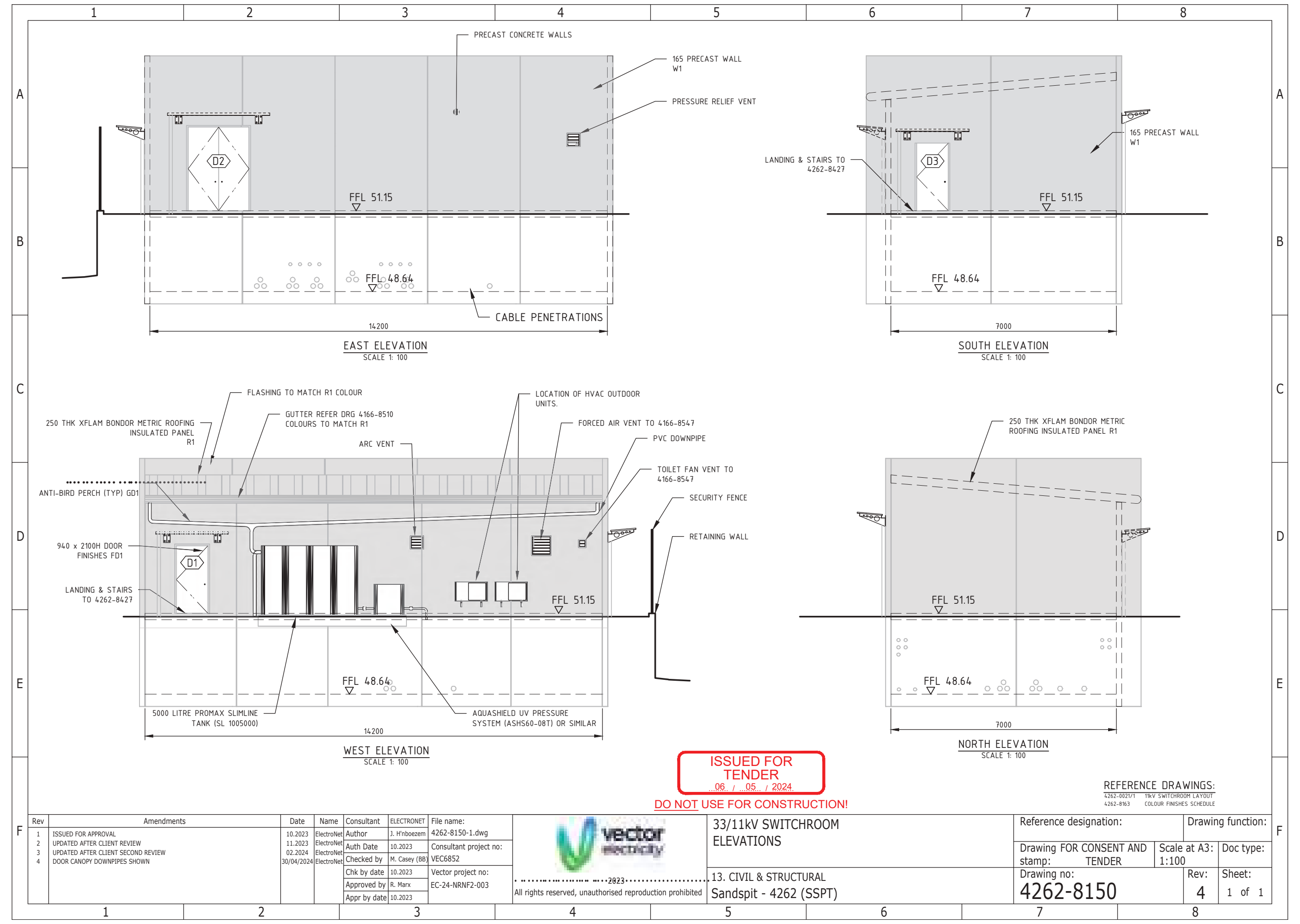
No.	Description	Drn	Chk	Date
A	DRAFT	RK	RA	29.04.24

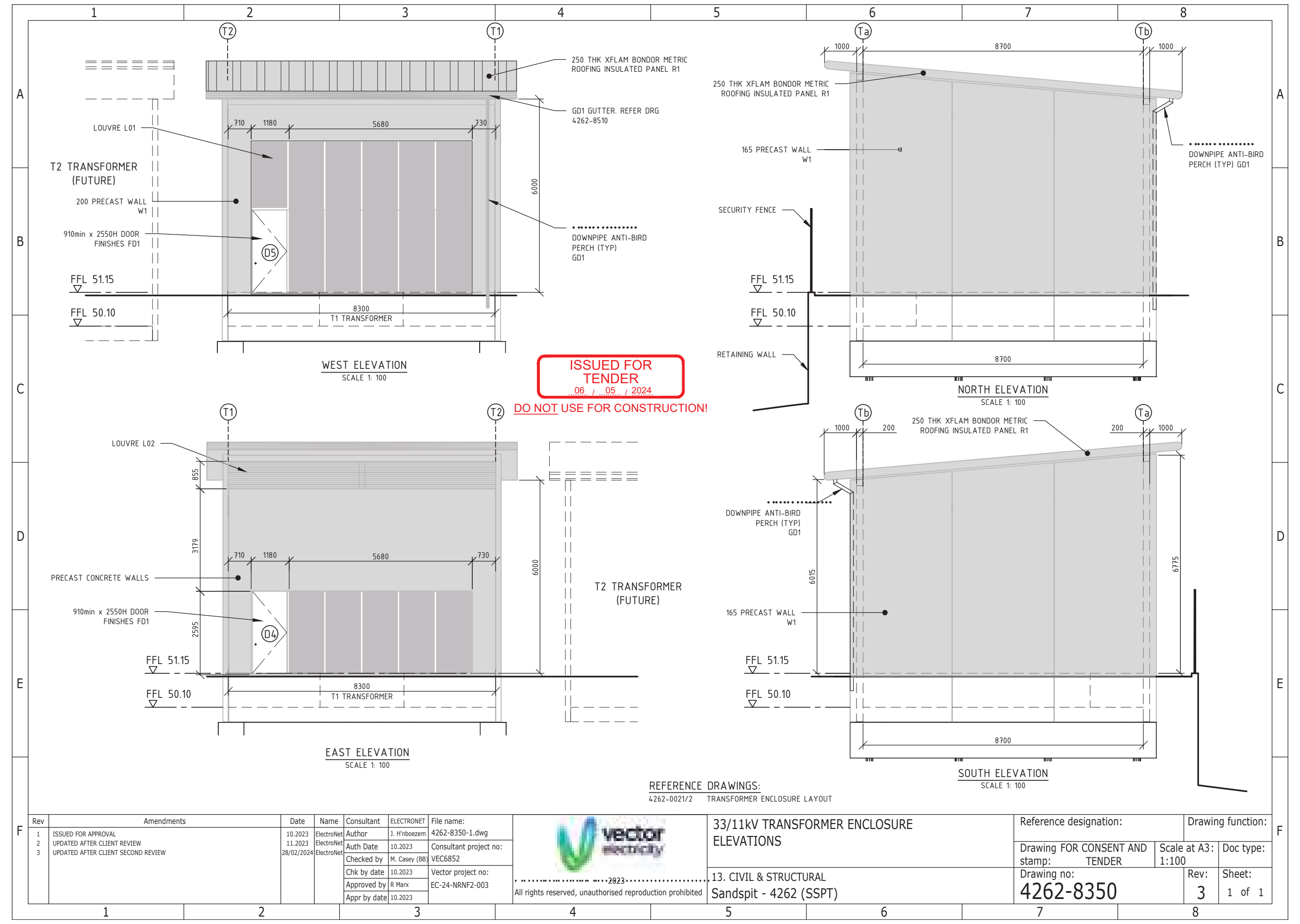
North

Issued For: DRAFT

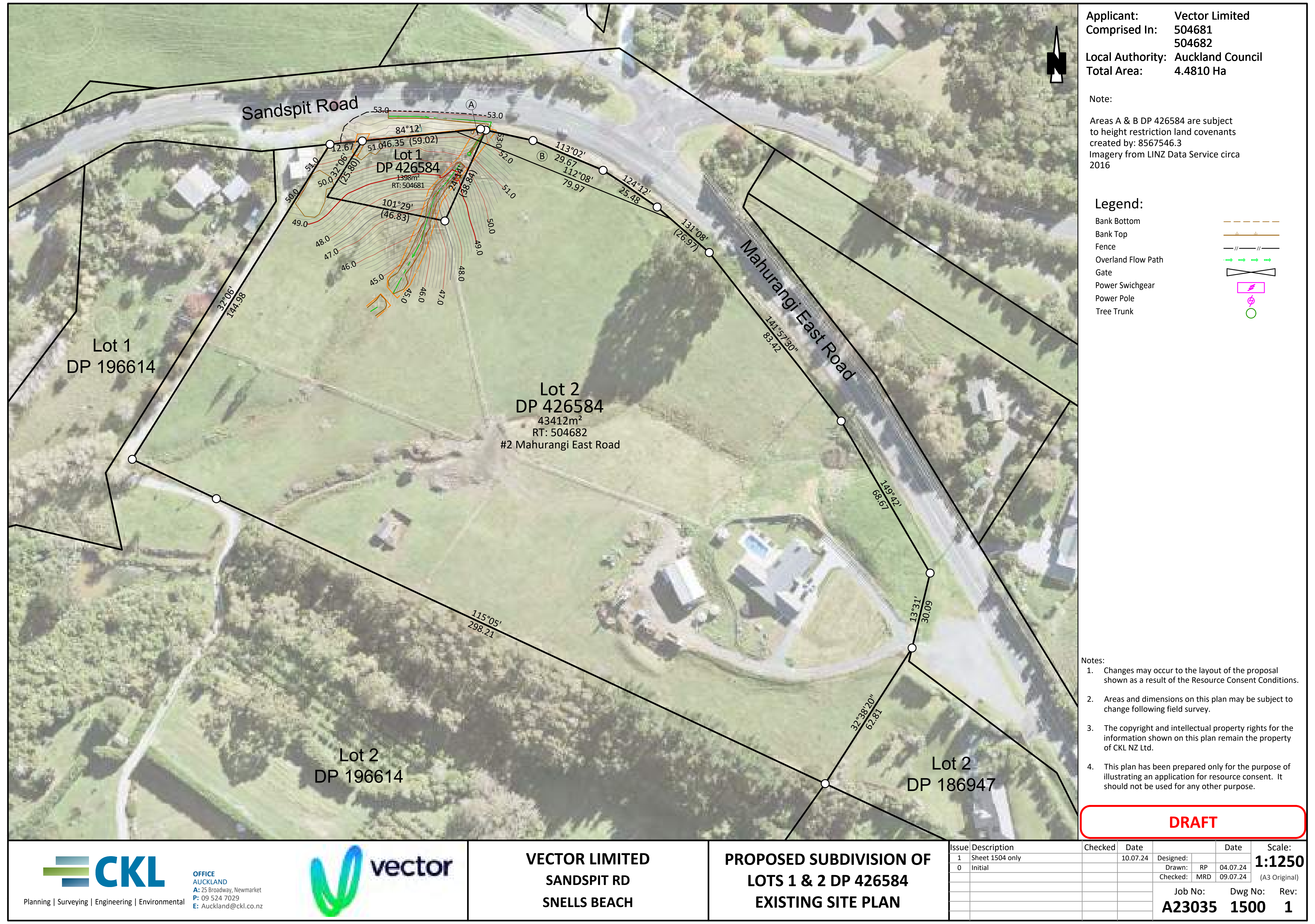
Proposed buildings - elevations

Excerpts from Vector Drawing Set 4262-8000 - 8722. Refer to the AEE for full drawing set.





Site Plan - Existing boundary



Applicant: Vector Limited
Comprised In: 504681
504682
Local Authority: Auckland Council
Total Area: 4.4810 Ha
Note:
Areas A & B DP 426584 are subject to height restriction land covenants created by: 8567546.3
Imagery from LINZ Data Service circa 2016
Legend:
Bank Bottom
Bank Top
Fence
Overland Flow Path
Gate
Power Swichgear
Power Pole
Tree Trunk
Sandspit Road
Mahurangi East Road
Lot 1 DP 426584
Lot 1 DP 196614
Lot 2 DP 426584
43412m²
RT: 504682
#2 Mahurangi East Road
Lot 2 DP 196614
Lot 2 DP 186947
Notes:
1. Changes may occur to the layout of the proposal shown as a result of the Resource Consent Conditions.
2. Areas and dimensions on this plan may be subject to change following field survey.
3. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL NZ Ltd.
4. This plan has been prepared only for the purpose of illustrating an application for resource consent. It should not be used for any other purpose.
DRAFT
CKL
Planning | Surveying | Engineering | Environmental
vector
VECTOR LIMITED
SANDSPIT RD
SNELLS BEACH
PROPOSED SUBDIVISION OF
LOTS 1 & 2 DP 426584
EXISTING SITE PLAN
Scale: 1:1250
Job No: A23035
Dwg No: 1500
Rev: 1

Site Plan - Proposed boundary

Applicant: Vector Limited
Comprised In: 504681
504682
Local Authority: Auckland Council
Total Area: 4.4810 Ha

Note:

Areas A & B DP 426584 are subject to height restriction land covenants created by: 8567546.3
Imagery from LINZ Data Service circa 2016

Legend:

- Bank Bottom
- Bank Top
- Fence
- Overland Flow Path
- Gate
- Power Switchgear
- Power Pole
- Tree Trunk

Notes:

1. Changes may occur to the layout of the proposal shown as a result of the Resource Consent Conditions.
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vector

VECTOR LIMITED
SANDSPIT RD
SNELLS BEACH

PROPOSED SUBDIVISION OF
LOTS 1 & 2 DP 426585
SITE PLAN - OVERVIEW

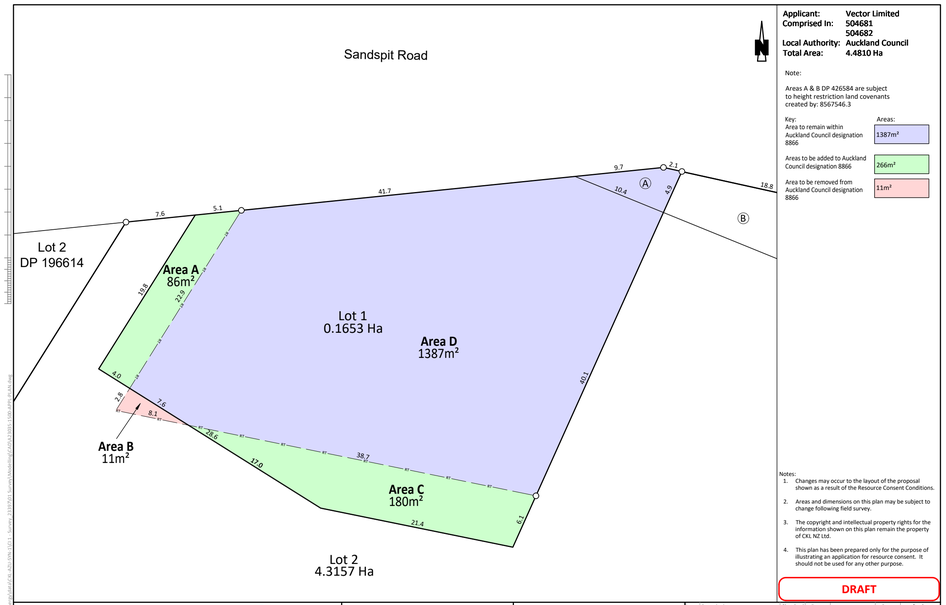
Issue	Description	Checked	Date
1	Sheet 1504 only		10.07.24
0	Initial		

		Date	Scale:
Designed:			1:1250
Drawn:	RP	05.07.24	(A3 Original)
Checked:	MRD	09.07.24	

Job No: A23035 | Dwg No: 1501 | Rev: 1

Isthmus.
Sandspit Substation | Vector Ltd | June 2024

Site Plan - Proposed boundary



Applicant: Vector Limited
Comprised In: 504681
504682
Local Authority: Auckland Council
Total Area: 4.4810 Ha

Note:

Areas A & B DP 426584 are subject to height restriction land covenants created by: 8567546.3

Key:
Area to remain within Auckland Council designation 8866 — Areas: 1387m²

Areas to be added to Auckland Council designation 8866 — 266m²

Area to be removed from Auckland Council designation 8866 — 11m²

Notes:

1. Changes may occur to the layout of the proposal shown as a result of the Resource Consent Conditions.
2. Areas and dimensions on this plan may be subject to change following field survey.
3. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL NZ Ltd.
4. This plan has been prepared only for the purpose of illustrating an application for resource consent. It should not be used for any other purpose.

DRAFT

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vector

VECTOR LIMITED
SANDSPIT RD
SNELLS BEACH

PROPOSED
DESIGNATION
PLAN

Issue	Description	Checked	Date
1	Notes Amended		10.07.24
0	Initial		

		Date	Scale:
Designed:			1:250
Drawn:	SMR	08.07.24	(A3 Original)
Checked:	MRD	09.07.24	

Job No: A23035 | Dwg No: 1504 | Rev: 1

Isthmus.
Sandspit Substation | Vector Ltd | June 2024

02. Photo Simulations - Proposed Landscape Plan.

Viewpoint Location Plan

Scale: 1: 2,000 @ A3
Produced: Isthmus Group Ltd.
Basemap Source: Auckland Council GIS (Geomaps).

LEGEND:

Photo Location.

N

0m 20m 40m 100m

Viewpoint 1 - EXISTING

View from driveway at 836 Sandspit Road

Original Photo AE | 50mm | DSLR Nikon D810 | 13:03 20 May 2024 | 1753009E 5970413N (NZTM)
Reading distance for correct scale: 400mm
Field of View Approximately 110˚ horizontal (across 2 x A3 pages) & 34˚ vertical

Viewpoint 1 - PROPOSED

View from driveway at 836 Sandspit Road

Original Photo AE | 50mm | DSLR Nikon D810 | 13:03 20 May 2024 | 1753009E 5970413N (NZTM)
Reading distance for correct scale: 400mm
Field of View Approximately 110˚ horizontal (across 2 x A3 pages) & 34˚ vertical

Viewpoint 2 - EXISTING

View from near the outdoor area at 12 Mahurangi East Road

Original Photo AE | 50mm | DSLR Nikon D810 | 12:51 20 May 2024 | 1753206E 5970408N (NZTM)
Reading distance for correct scale: 400mm
Field of View Approximately 110˚ horizontal (across 2 x A3 pages) & 34˚ vertical

Viewpoint 2 - PROPOSED

View from near the outdoor area at 12 Mahurangi East Road

Original Photo AE | 50mm | DSLR Nikon D810 | 12:51 20 May 2024 | 1753206E 5970408N (NZTM)
Reading distance for correct scale: 400mm
Field of View Approximately 110˚ horizontal (across 2 x A3 pages) & 34˚ vertical

Photosimulation Methodology Statement

- Photos were taken with a 50mm fixed lens on DSLR camera. Locations were fixed using a handheld GPS unit with accuracy of 5m. These points were cross referenced using the Auckland Council GIS information. Reference points in the landscape, such as trees and existing structures were also located to assist referencing of photo to digital model.
- A sequence of photos was taken from each viewpoint and stitched to form panoramas. Photos were overlapped by approximately 30% and edges cropped prior to stitching to eliminate edge distortion.
- A digital model was created. Computer images were generated within the digital scene from the same locations as the photos. The image was overlaid and aligned with the photo using key reference points and visual matching. (Photos were imported in RAW format to avoid degradation of the image, requiring resizing to match the computer image).
- The wire-frame was then switched off leaving the proposed activity in its correct location and scale relative to the photo. Lower parts of the proposed activity were erased using Photoshop software where they would be behind foreground items.
- The time and weather when the photo was taken was entered to the program in order to replicate lighting conditions.
- The completed photomontage is presented over two pages:
  - The photos are produced to replicate correct scale at the nominated reading distance (in this case 400mm).
  - Each photomontage is printed across two facing pages to illustrate a field of view of approximately 110° at a reading distance of 400mm. This approximates the field of human binocular vision. (But not peripheral vision which extends to approximately 200°)

Notes on use of Photosimulations:

- The Photosimulations are a useful tool but they cannot not precisely reproduce real life for the following reasons:
  - 2D Photography flattens an image compared to binocular vision.
  - Photography is static, whereas the human vision can scan and remember information.
  - Photographs are passive, whereas the eye seeks out detail.
  - The human eye can see more contrast than can be reproduced through photography.

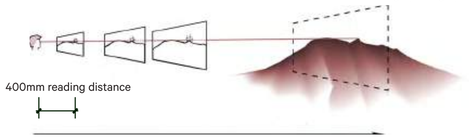


Figure 01: The relationship between reading distance and real life scale.

Visual Simulation Methodology

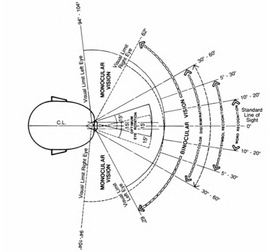


Figure 02: Binocular vision is approximately 124°. Field of view is approximately 110° across 2 x A3 pages at correct scale image for 400mm reading distance (vertical field of view is approximately 33°)

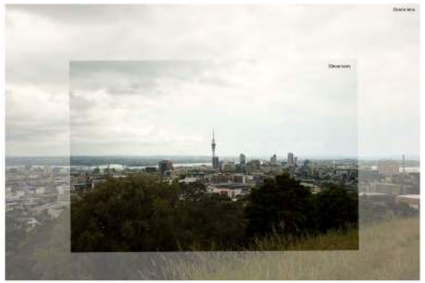


Figure 03: Comparison of 35mm lens and 50mm lens

Two images from the same location. With 35mm and 50mm lenses perspective is influenced by field of view, not by lens focal length. The overlaid portion is identical.

Page intentionally blank

03. Consented Landscape Plan (2009).

PLANTING SCHEDULE

Code	Common Name	Botanical Name	Grade	Spacing	Quantity
	Tarata/ Lemonwood	Pittosporum eugenioides	PB12	3m	16
	Kanuka	Kunzea ericoides	PB12	NA	6
	Totara	Podocarpus totara	PB40	NA	3
	Magnolia	Magnolia grandiflora	PB40	NA	2
	Paperbark birch	Betula papyrifera	PB40	NA	1
	NZ mountain flax	Phormium cookianum	PB5	1m	45

DRAWN:	CHECKED:	DATE: 06.07.09
DP	GL	SCALE: As noted
FIGURE 5		JOB NO: IGL_2633

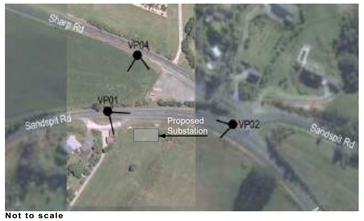
PROPOSED VECTOR SANDSPIT SUBSTATION
Landscape Concept Plan

isthmus

04. Visualisations - Consented Landscape Plan (2009).

Visualisation 1 of 4

Proposed_ without planting



Not to scale

Existing

Sandspit Substation Visual Evidence

Visualisation 1 of 4

View from Sandspit road looking Southeast.
Proposed without planting

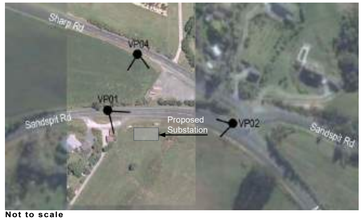
Recommended reading distance for this graphic is approximately 350mm

Original Photo | Danbi Park | 50mm DSLR | 1110 19th December 2008 | E 2663579 N 6532282 (NZMG)
Photomontage* | Danbi Park | Photoshop CS3 & Autodesk 3ds Max Design 2009 32-bit
Distance | Substation building is approximately 36m from the viewpoint

Artists impression based on preliminary computer model.
* Photomontages should be used as a guide to field observations.

isthmus

Proposed_ with planting



Not to scale

Existing

Sandspit Substation Visual Evidence

Visualisation 1 of 4

View from Sandspit road looking Southeast.
Proposed with planting

Recommended reading distance for this graphic is approximately 350mm

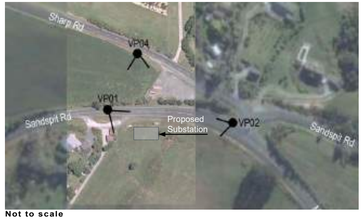
Original Photo | Danbi Park | 50mm DSLR | 1110 19th December 2008 | E 2663579 N 6532282 (NZMG)
Photomontage* | Danbi Park | Photoshop CS3 & Autodesk 3ds Max Design 2009 32-bit
Distance | Substation building is approximately 36m from the viewpoint

Artists impression based on preliminary computer model.
* Photomontages should be used as a guide to field observations.

isthmus

Visualisation 2 of 4

Proposed_ without planting



Not to scale

Existing

Sandspit Substation Visual Evidence

Visualisation 2 of 4

View from corner of Sandspit Road and Mahurangi East Road looking West.
Proposed without planting

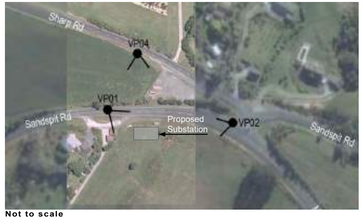
Recommended reading distance for this graphic is approximately 350mm

Original Photo | Danbi Park | 50mm DSLR | 1210 21th October 2008 | E 2663707 N 6532270 (NZMG)
Photomontage* | Danbi Park | Photoshop CS3 & Autodesk 3ds Max Design 2009 32-bit
Distance | Substation building is approximately 83m from the viewpoint

Artists impression based on preliminary computer model.
* Photomontages should be used as a guide to field observations.

isthmus

Proposed_ with planting



Not to scale

Existing

Sandspit Substation Visual Evidence

Visualisation 2 of 4

View from corner of Sandspit Road and Mahurangi East Road looking West. Proposed with planting

Recommended reading distance for this graphic is approximately 350mm

Original Photo | Danbi Park | 50mm DSLR | 1210 21th October 2008 | E 2663707 N 6532270 (NZMG)
Photomontage* | Danbi Park | Photoshop CS3 & Autodesk 3ds Max Design 2009 32-bit
Distance | Substation building is approximately 83m from the viewpoint

Artists impression based on preliminary computer model.
* Photomontages should be used as a guide to field observations.

isthmus

Visualisation 3 of 4

Proposed_ without planting

Not to scale

Existing

Sandspit Substation Visual Evidence

Visualisation 3 of 4

View from Mahurangi Road looking Northwest. Proposed without planting

Recommended reading distance for this graphic is approximately 350mm

Original Photo | Danbi Park | 50mm DSLR | 1230 21th October 2008 | E 2663822 N 6532111 (NZMG)
Photomontage* | Danbi Park | Photoshop CS3 & Autodesk 3ds Max Design 2009 32-bit
Distance | Substation building is approximately 247m from the viewpoint

Artists impression based on preliminary computer model.
* Photomontages should be used as a guide to field observations.

isthmus

Proposed_ without planting

Existing

Not to scale

Sandspit Substation Visual Evidence

Visualisation 3 of 4

View from Mahurangi Road looking Northwest. Proposed without planting

Recommended reading distance for this graphic is approximately 350mm

Original Photo | Danbi Park | 50mm DSLR | 1230 21th October 2008 | E 2663822 N 6532111 (NZMG)
Photomontage* | Danbi Park | Photoshop CS3 & Autodesk 3ds Max Design 2009 32-bit
Distance | Substation building is approximately 247m from the viewpoint

Artists impression based on preliminary computer model.
* Photomontages should be used as a guide to field observations.

isthmus

Proposed_ with planting

Existing

Not to scale

Sandspit Substation Visual Evidence

Visualisation 3 of 4

View from Mahurangi Road looking Northwest. Proposed with planting

Recommended reading distance for this graphic is approximately 350mm

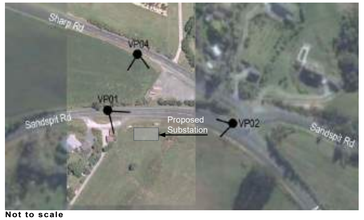
Original Photo | Danbi Park | 50mm DSLR | 1230 21th October 2008 | E 2663822 N 6532111 (NZMG)
Photomontage* | Danbi Park | Photoshop CS3 & Autodesk 3ds Max Design 2009 32-bit
Distance | Substation building is approximately 247m from the viewpoint

Artists impression based on preliminary computer model.
* Photomontages should be used as a guide to field observations.

isthmus

Visualisation 4 of 4

Proposed_ without planting



Not to scale

Existing

Sandspit Substation Visual Evidence

Visualisation 4 of 4

View from Sharp Road looking South.
Proposed without planting

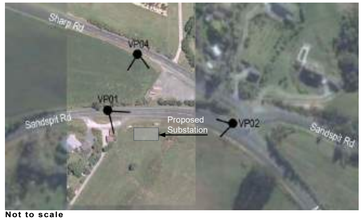
Recommended reading distance for this graphic is approximately 350mm

Original Photo | Danbi Park | 50mm DSLR | 1105 19th December 2008 | E 2663609 N 6532340 (NZMG)
Photomontage* | Danbi Park | Photoshop CS3 & Autodesk 3ds Max Design 2009 32-bit
Distance | Substation building is approximately 84m from the viewpoint

Artists impression based on preliminary computer model.
* Photomontages should be used as a guide to field observations.

isthmus

Proposed_ with planting



Not to scale

Existing

Sandspit Substation Visual Evidence

Visualisation 4 of 4

View from Sharp Road looking South.
Proposed with planting

Recommended reading distance for this graphic is approximately 350mm

Original Photo | Danbi Park | 50mm DSLR | 1105 19th December 2008 | E 2663609 N 6532340 (NZMG)
Photomontage* | Danbi Park | Photoshop CS3 & Autodesk 3ds Max Design 2009 32-bit
Distance | Substation building is approximately 84m from the viewpoint

Artists impression based on preliminary computer model.
* Photomontages should be used as a guide to field observations.

isthmus

Appendix Nine: **Engineering Report**

BLUE BARN
CONSULTING ENGINEERS

Sandspit Zone Substation – 02446

Engineering Report for OPW and Resource Consent Applications

Date:
28/08/2024

Document Number:
BB02446-002-Rev1

Prepared by:
Blue Barn Consulting Limited

Prepared for:
Mitton ElectroNet Limited

0800 BLUE BARN

www.bluebarn.co.nz

ElectroNet

Engineering Report for OPW and Resource Consent Applications

Sandspit Zone Substation

DOCUMENT CONTROL & QUALITY STATEMENT

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NAME	TITLE/GROUP	ORGANISATION
Koogendran Govender	Senior Project Manager	Mitton ElectroNet Limited
Rebecca Marx	Market Leader & Principal Engineer	Mitton ElectroNet Limited
JA Hoogenboezem	Project Director & Principal Engineer	Mitton ElectroNet Limited

REVISION HISTORY

The following table outlines the revision history of this document:

REVISION	PUBLICATION DATE	COMMENTS
Revision 0	20/12/2023	Draft
Revision 1	14/05/2024	Final
Revision 2	28/08/2024	Updated boundary - OPW

Report Prepared For:	Mitton Electronet Limited
Report Prepared By:	Blue Barn Consulting Limited Level 8, 51 Shortland Street Auckland 1010 Contact Number: 0800 258 32276 or +6498397009 www.bluebarn.co.nz

Document author:	**Reviewed by:**	**Authorised for issue:**
Jiayi Chen	Bryan Chong	Raymond Chan
Senior Civil Engineer	Civil/Structural Engineer	Principal – Civil Engineering
BSc, PhD (Environmental)	BE(Hons)	BE(Civil), MEngSt, CPEng, CMEngNZ
		28/08/2024

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Engineering Report for OPW and Resource Consent Applications

Sandspit Zone Substation

TABLE OF CONTENTS

1. INTRODUCTION

1.1 SCOPE BACKGROUND

Blue Barn Consulting Limited (Blue Barn) has been engaged by Mitton ElectroNet Limited (ElectroNet) on behalf of Vector Limited to prepare this engineering report to support the Outline Plan of Works application for the proposed new substation servicing the Sandspit region.

This report covers the proposed civil works to facilitate the construction of the new substation as mentioned above. Specifically, the report covers the following items:

- Earthworks
- Stormwater
- Wastewater
- Water Supply
- Flooding
- Site accessibility
- Utility services
- SEPA Unit and bunding

1.2 SITE FEATURES

The site is located at Lot 1 DP 426584, Sandspit Road, Snells Beach 0982, and is located to the west of the intersection between Mahurangi East Road, Sandspit Road and Sharp Road.

It is currently a greenfield site with farm fencing and a natural overland flow path channel along the east boundary flowing from north to south. It is currently zoned as *Rural – Mixed Rural Zone* in accordance with the Auckland Unitary Plan with a total area of approximately 1,400m^2.

The land has a relatively steep gradient with the northern boundary as the highest elevation, sloping downwards in a south to south-east direction.

FIGURE 1-1 – AUCKLAND GEOMAPS – SITE LOCALITY

2. PROPOSED WORKS

The new substation will off-load both Warkworth and Snells Beach Zone Substations and also increase the security of power supply in the area.

With the site being relatively steep, the civil works will predominantly focus on preparing the appropriate building platform levels for the construction of the new transformer enclosure and switchroom.

The civil works will include earthworks, platforming, retaining walls, pavement construction, new drainage and vehicle access.

Landscaping is proposed between the boundary and the retaining wall along the eastern and southern perimeters.

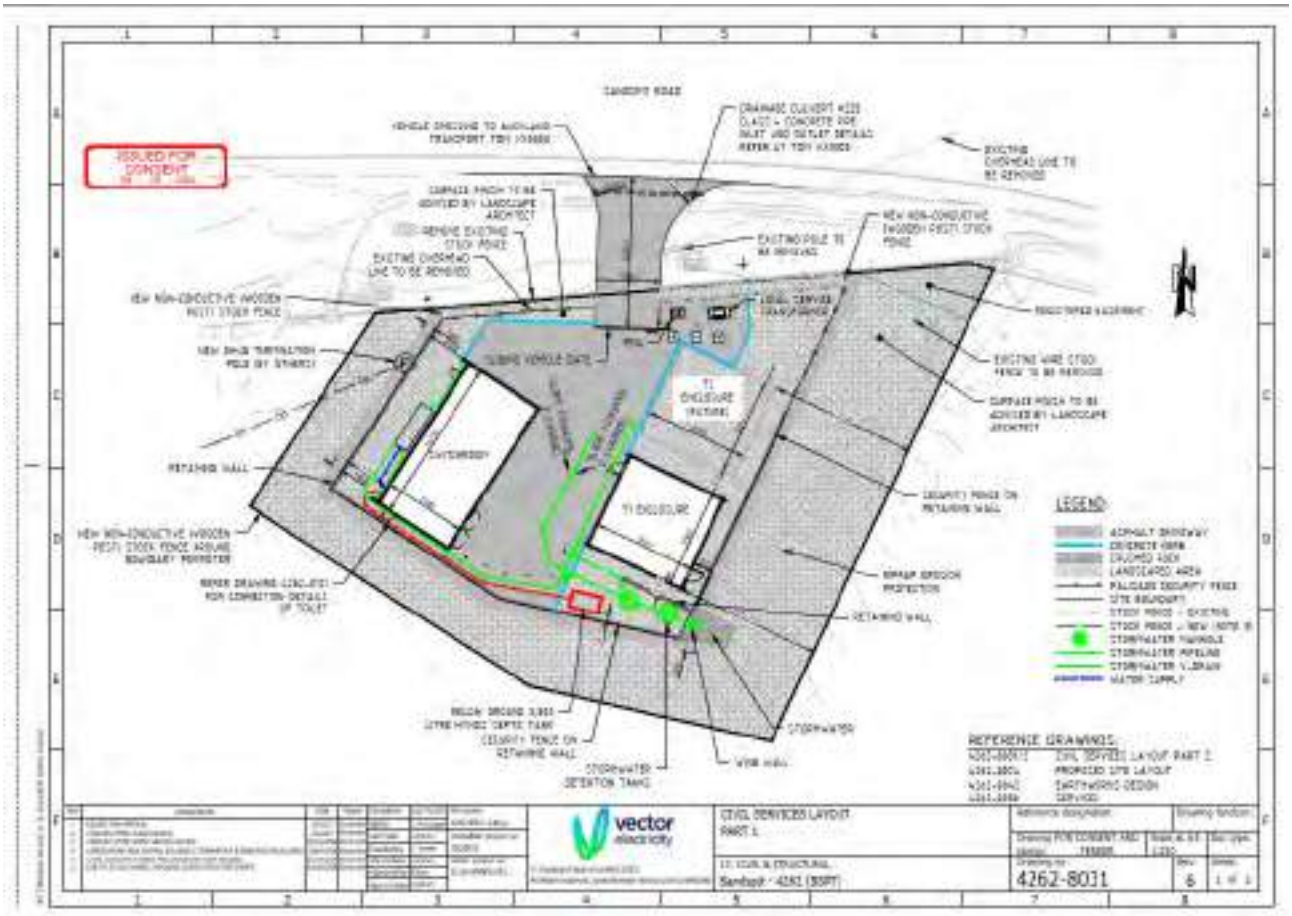


FIGURE 2-1: CIVIL SITE LAYOUT PLAN

3. EARTHWORKS

3.1 EARTHWORKS

To facilitate the construction of the intended structures, earthwork activities will be necessary to achieve appropriate platform levels for the new buildings. Due to the steep slope of the land, where the road is positioned at the uppermost section of the site, the earthwork operations will predominantly involve the addition of fill material. There will be limited excavation for creating the deep basement foundations for the new buildings.

The proposed earthworks will exclude the area around the existing Overland Flow Path to avoid altering the flow path and ensuring the storm water flow is kept as clean diversion.

It is not expected that any undercuts for the removal of unsuitable or contaminated fill will be required following the Preliminary Site Investigation (Ground Contamination) report dated 26th June 2023 by Williamson Water & Land Advisory.

It is proposed that the following works will be conducted as part of the site enabling works:

- Topsoil strip of up to 200mm within the site compound area.
- Preparation of retaining walls around the perimeter of the site compound.
- Filling operation with the use of either engineered re-use inorganic natural clay or hardfill following recommendations of the geotechnical engineer.

The volumes within Table 3-1: Earthwork Volumes indicates the necessary earthwork quantities based on the completed concept plans.

TABLE 3-1: EARTHWORK VOLUMES

TOPSOIL STRIPPING		EARTHWORKS MOVEMENT (EXCLUDES TOPSOIL CUT)	
Earthwork operation	Quantity	Earthwork operation	Quantity
Topsoil Strip Area	1,050 m^2	Earthworks Area	890 m^2
Cut Volume	210 m^3	Cut Volume	150 m^3
		Fill Volume	1,210 m^3
		Net Volume	1,060 m^3

3.2 EROSION AND SEDIMENT CONTROL PLAN

Erosion and sediment control (ESC) measures will be required to manage any sediment run-off during the earthworks process and these have been considered with reference to the *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD005)*.

Given the stripped area of approximately 0.1 hectares, it is proposed that silt or super-silt fences around the site perimeter be the primary ESC measure for the site. Water will naturally fall to the south-east corner following the site contours. These measures are expected to be sufficient unless earthworks are being conducted during the winter seasons in which case it is recommended that the super-silt fence be replaced with a stabilized earth bund.

Once the retaining walls have been constructed, they will serve as a protective barrier to confine any potential sediment run-off. Any surface flow will be captured through the retaining wall's drainage system and be discharged to the natural channel.

Erosion and sediment build-up will be monitored and managed during the construction period should run-off of contaminants be found to be higher than expected.

The section outside the retaining wall, situated in the southwest portion of the site will be stabilized using hydro-seeding or mulch and grass will be planted upon the completion of the retaining wall construction.

FIGURE 3-1: EARTHWORKS CUT-FILL PLAN

4. SITE HYDROLOGY

4.1 FLOODING ASSESSMENT BY EDC

A flood plain report by Engineering Design Consultants was completed for this site which provided an assessment of the flood risk to the proposed substation. The report identified the following:

- Existing open channel for overland flow path down the eastern side of the site with an upstream catchment of 4.436Ha.
- Estimated 200-year flow rate of 2.8m^3/sec.
- Open channel has a steep grade with signs of erosion.
- Expect a 500-600mm depth of stormwater.

The report further recommends erosion protection measures to the open channel to prevent further scouring damage. Please refer to Appendix B – EDC Flood Assessment Report for further information.

4.2 FLOODING ASSESSMENT VALIDATION BY BLUE BARN

Blue Barn was engaged to provide a review of the completed report and GIS information with respect to flooding risk.

The site did not feature any flood plains or flood prone risk. It is unlikely that this will develop in the future as the site is located close to the crest of a hill. Similar to the completed report, an overland flow path capturing road carriageway run-off and part of the uphill catchment crosses the site along the east boundary.

However, it was found through a desktop assessment and site visit that the overland flow path indicated on GIS may have underestimated the upstream catchment size. Due to the road's cross-falls and presence of a kerb upstream, the overland flow path crossing the site features a larger catchment area.

An assessment of the catchment area indicates:

- A 250-year flow rate of 2.16 m^3/sec (including climate change factor of 3.5C)
- Expect a stormwater run-off depth up to 750mm following the use of topographic survey data.

A surface water run-off extent was estimated based on Hydraflow channel analysis to provide an indication of areas influenced by the overland flow path. The proposed buildings are located clear of the indicated overland flow path. With the overland flow path being contained within the channel and outside of any vehicular pathways, a minimum freeboard of 150mm has been specified between the driveway and the Finish Floor Levels.

Please refer to Appendix C – Flood Assessment Verification for further information.

5. SITE ACCESSIBILITY

The proposed entrance to the site will require a relatively steep negative grade falling into the site due to the natural site contours. The new vehicle crossing will be constructed to (TDM Technical Standard Drawing GD020B-1B). A new security gate will be located within the fenced site compound to comply to the 13 meter clearance requirement from the road's edge of seal.

Vehicle tracking has been completed for maintenance and plant delivery vehicles.

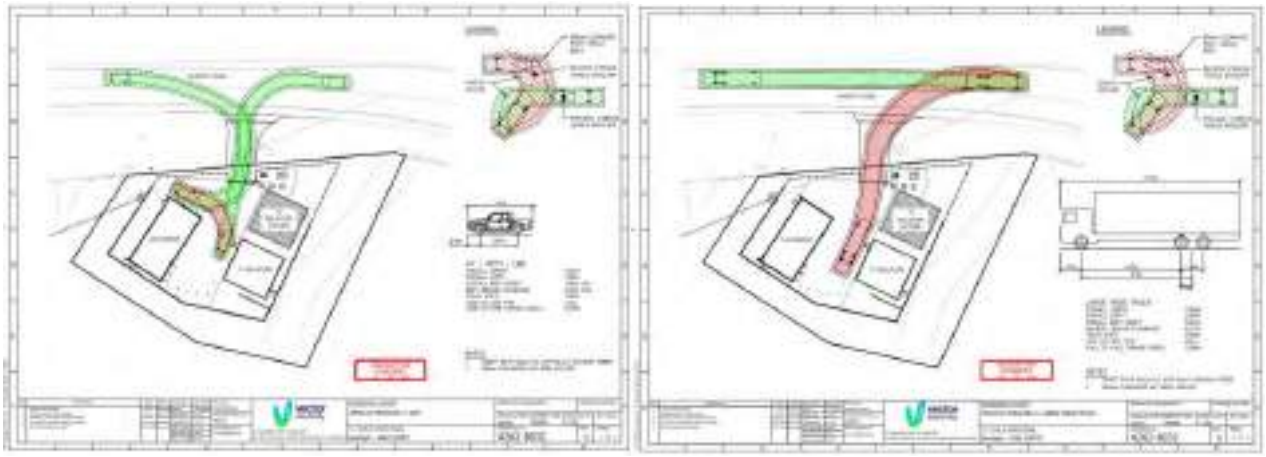


FIGURE 5-1: VEHICLE TRACKING FOR AUCKLAND TRANSPORTS 95TH PERCENTILE CAR

6. DRAINAGE

6.1 STORMWATER DISCHARGE

The site does not have a public stormwater pipe network to discharge; it currently discharges via an open channel that exits the site at the south-east corner.

The increase in stormwater, resulting from an increased impermeable surface is proposed to be attenuated to maintain the same peak flow rate as the existing site conditions. This will be achieved using underground detention tanks located at the south-west corner before the discharge point. The proposed stormwater network will discharge to the same location as the current situation with the addition of riprap for scour protection.

It is expected that the proposed sub-soil drains around the building perimeter will connect to the retaining wall sub-soils, and drain out towards the eastern corner of the retaining wall line, and discharge at the stormwater outlet wingwall.

6.2 WASTEWATER DISPOSAL

The wastewater will be collected in a 3,300L septic storage tank, which will require regular maintenance with a 'sucker' truck. The tank, located just south of the new transformer room, will need vehicle protection to prevent vehicle load surcharging.

6.3 WATER SUPPLY

A potable water supply will be provided on the site through the use of a rainwater storage tank, which will collect water from the switchroom roof and be reticulated to the new toilet via a pump system. The water will be treated with a UV treatment device.

7. CONCLUSION

Earthworks will be required to enable construction of the substation building. Erosion and sediment control measures will be installed before the commencement of earthworks and will be progressively managed/stabilized with the construction of the retaining walls.

Additional stormwater runoff will be attenuated to maintain the same peak flow rate as the existing site conditions, utilising detention tanks. The existing discharge point will be retained and utilised for the onsite stormwater discharge.

A new on-site septic tank is proposed to capture waste from the new toilet located in the switchroom building. This will require a maintenance regime.

A potable water supply will be provided on the site using UV-treated water from a new rainwater harvesting storage tank.

A new vehicle crossing will be constructed to meet Auckland Transport's standards. The driveway tapers to a gentler slope of 2% once past the gate to allow for a workable hardstand allowing for easier lifting of equipment into the switchroom/transformer rooms.

8. LIMITATIONS

1. This report has been prepared solely for Mitton Electronet Limited as a technical assessment of earthquake damage to property at above address only, in accordance with the MBIE Guidelines; it should not be relied upon in any other context or for any other purpose.
2. This report is not to be used or relied upon by third parties.
3. Blue Barn will not be held liable to any third parties.

APPENDIX A – CONSENT DRAWINGS

SANDSPIT SUBSTATION CIVIL DESIGN

DRAWING No.	TITLE	REVISION HISTORY							
4262-8030-1	TITLE PAGE & REVISION HISTORY	1	2	3					
4262-8031-1	CIVIL SERVICES LAYOUT PART 1	1	2	3	4	5	6		
4262-8031-2	CIVIL SERVICES LAYOUT PART 2	1							
4262-8032-1	ROADING LAYOUT VEHICLE TRACKING = CAR	1	2	3	4	5			
4262-8032-2	ROADING LAYOUT VEHICLE TRACKING = LARGE RIGID TRUCK	1	2	3	4	5			
4262-8033-1	ROADING LAYOUT DRIVEWAY PLAN	1	2	3					
4262-8034-1	ROADING LAYOUT DRIVEWAY DETAILS	1							
4262-8042-1	EARTHWORKS DESIGN CROSS SECTIONS LAYOUT	1	2	3	4	5	6		
4262-8042-2	EARTHWORKS DESIGN CROSS SECTIONS PART 1	1	2	3	4	5			
4262-8042-3	EARTHWORKS DESIGN CROSS SECTIONS PART 3	1	2	3	4	5			
4262-8043-1	EARTHWORKS DESIGN CUT & FILL PLAN	1	2	3	4				
4262-8043-2	EARTHWORKS DESIGN FINISHED SITE CONTOURS	1	2						
4262-8056-1	SERVICES SITE PLAN	1	2	3					
4262-8056-2	SERVICES DRAIN PROFILES PART 1	1	2						
4262-8056-3	SERVICES DRAIN PROFILES PART 2	1							
4262-8056-4	SERVICES PROMAX SLIMLINE TANK DETAILS	1							
4262-8057-1	SERVICES DRAINAGE DETAILS - PART 1	1							
4262-8058-1	EROSION & SEDIMENT CONTROL PLAN LAYOUT	1	2	3					
4262-8059-1	EROSION & SEDIMENT CONTROL PLAN DETAILS	1							
4262-8060-1	CIVIL SERVICES GENERAL NOTES	1	2						
4262-8713-1	TYPICAL FENCE AND GATE DETAILS PART 1	1	2						
4262-8713-2	TYPICAL FENCE AND GATE DETAILS PART 2	1							

ISSUED FOR CONSENT
..08.. / ..08.. / 2024

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet
2	REVISED FROM CLIENT COMMENTS	30/04/2024	ElectroNet
3	REVISED FROM LEGAL BOUNDARY ALTERED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8030-1.dwg
Author	J. H'nboezem	
Auth Date	28/02/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	28/02/2024	Vector project no: EC-24-NRNF2-002
Approved by	R. Marx	
Appr by date	28/02/2024	

vector electricity

CIVIL
TITLE PAGE & REVISION HISTORY

TITLE PAGE & REVISION HISTORY
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: NTS

Doc type:

Drawing no: 4262-8030

Rev: 3

Sheet: 1 of 1

ISSUED FOR CONSENT
08 / 08 / 2024

SANDSPIT ROAD

VEHICLE CROSSING TO AUCKLAND TRANSPORT TDM VX0303

DRAINAGE CULVERT 225 CLASS 4 CONCRETE PIPE. INLET AND OUTLET DETAILS REFER AT TDM VX0303.

EXISTING OVERHEAD LINE TO BE REMOVED

SURFACE FINISH TO BE ADVISED BY LANDSCAPE ARCHITECT

REMOVE EXISTING STOCK FENCE

EXISTING OVERHEAD LINE TO BE REMOVED

EXISTING POLE TO BE REMOVED

NEW NON-CONDUCTIVE (WOODEN POST) STOCK FENCE

NEW NON-CONDUCTIVE (WOODEN POST) STOCK FENCE

LOCAL SERVICE TRANSFORMER

REGISTERED EASEMENT

NEW OHUG TERMINATION POLE (BY OTHERS)

SLIDING VEHICLE GATE

RMU

EXISTING WIRE STOCK FENCE TO BE REMOVED

SURFACE FINISH TO BE ADVISED BY LANDSCAPE ARCHITECT

SLOPE TOWARDS V-CHANNEL

SLOPE TOWARDS V-CHANNEL

T2 ENCLOSURE (FUTURE)

SWITCHROOM

T1 ENCLOSURE

SECURITY FENCE ON RETAINING WALL

RETAINING WALL

NEW NON-CONDUCTIVE (WOODEN POST) STOCK FENCE AROUND BOUNDARY PERIMETER

RIPRAP EROSION PROTECTION

REFER DRAWING 4262-8121 FOR CONNECTION DETAILS OF TOILET

RETAINING WALL

BELOW GROUND 3,300 LITRE HYNDS SEPTIC TANK

SECURITY FENCE ON RETAINING WALL

STORMWATER

STORMWATER DETENTION TANKS

WING WALL

LEGEND:

- ASPHALT DRIVEWAY
- CONCRETE KERB
- CRUSHED ROCK
- LANDSCAPED AREA
- PALISADE SECURITY FENCE
- SITE BOUNDARY
- STOCK FENCE - EXISTING
- STOCK FENCE - NEW (NOTE 3)
- STORMWATER MANHOLE
- STORMWATER PIPELINE
- STORMWATER V-DRAIN
- WATER SUPPLY

REFERENCE DRAWINGS:

4262-8031/2	CIVIL SERVICES LAYOUT PART 2
4262-8024	PROPOSED SITE LAYOUT
4262-8042	EARTHWORKS DESIGN
4262-8056	SERVICES

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10/2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	12/2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	LANDSCAPING AREA SHOWN, BOLLARDS, STORMWATER & SEWERAGE RE-ALIGNED	30/04/2024	ElectroNet
5	LEGAL BOUDARY ALTERED AND LANDSCAPE AREA REVISED	18/07/2024	ElectroNet
6	DUE TO SCALE CHANGE, DRAWING DIVIDED INTO TWO SHEETS	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8031-1.dwg
Author	J. H'nboezem	Consultant project no:	VEC6852
Auth Date	10/2023	Vector project no:	EC-24-NRNF2-003
Checked by	C. Herath		
Chk by date	10/2023		
Approved by	R Marx		
Appr by date	10/2023		

CIVIL SERVICES LAYOUT PART 1

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

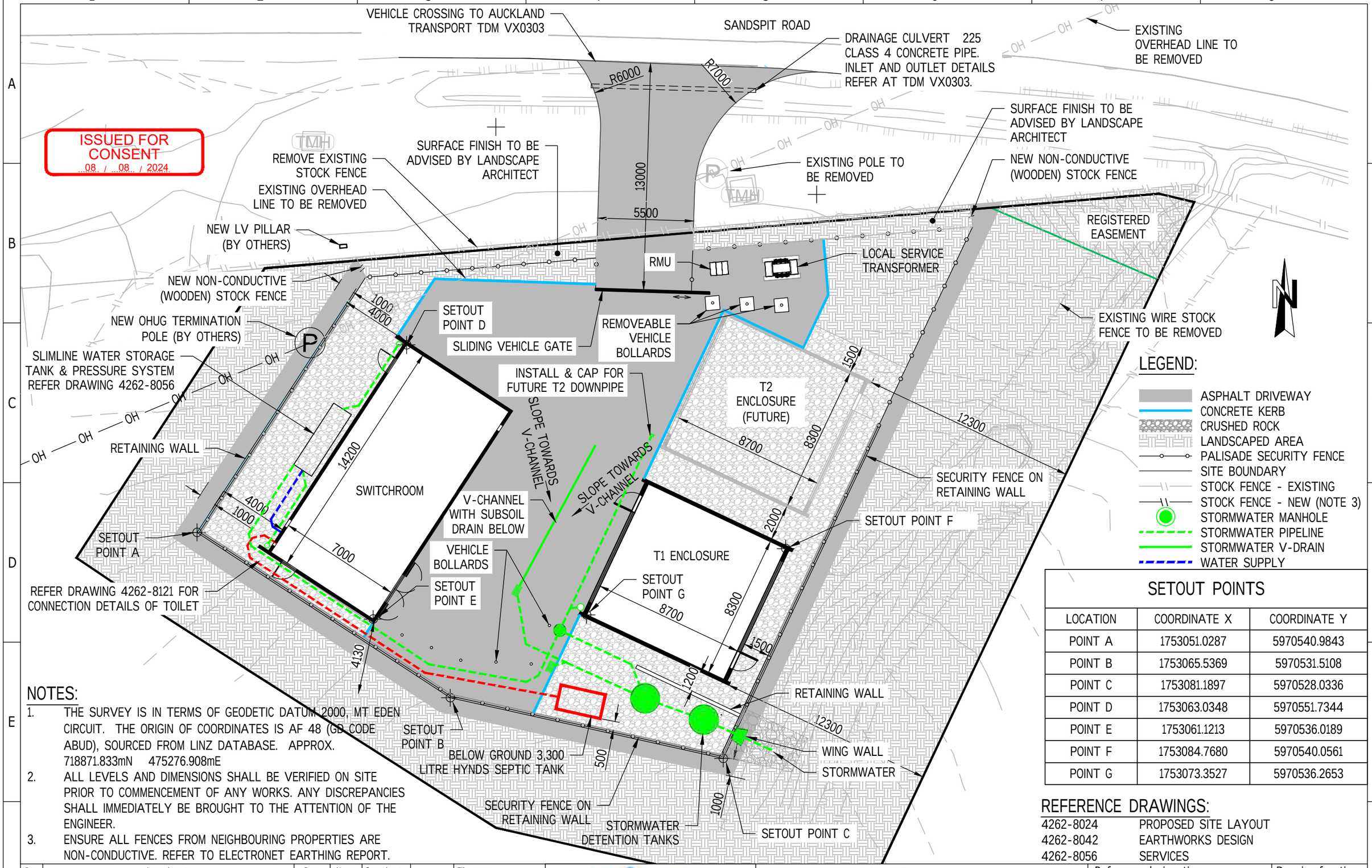
Scale at A3: 1:250

Doc type:

Drawing no: 4262-8031

Rev: 6

Sheet: 1 of 2



NOTES:

1. THE SURVEY IS IN TERMS OF GEODETIC DATUM 2000, MT EDEN CIRCUIT. THE ORIGIN OF COORDINATES IS AF 48 (GD CODE ABUD), SOURCED FROM LINZ DATABASE. APPROX. 718871.833mN 475276.908mE
2. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. ENSURE ALL FENCES FROM NEIGHBOURING PROPERTIES ARE NON-CONDUCTIVE. REFER TO ELECTRONET EARTHING REPORT.

LEGEND:

- ASPHALT DRIVEWAY
- CONCRETE KERB
- CRUSHED ROCK
- LANDSCAPED AREA
- PALISADE SECURITY FENCE
- SITE BOUNDARY
- STOCK FENCE - EXISTING
- STOCK FENCE - NEW (NOTE 3)
- STORMWATER MANHOLE
- STORMWATER PIPELINE
- STORMWATER V-DRAIN
- WATER SUPPLY

SETOUT POINTS

LOCATION	COORDINATE X	COORDINATE Y
POINT A	1753051.0287	5970540.9843
POINT B	1753065.5369	5970531.5108
POINT C	1753081.1897	5970528.0336
POINT D	1753063.0348	5970551.7344
POINT E	1753061.1213	5970536.0189
POINT F	1753084.7680	5970540.0561
POINT G	1753073.3527	5970536.2653

REFERENCE DRAWINGS:

4262-8024	PROPOSED SITE LAYOUT
4262-8042	EARTHWORKS DESIGN
4262-8056	SERVICES

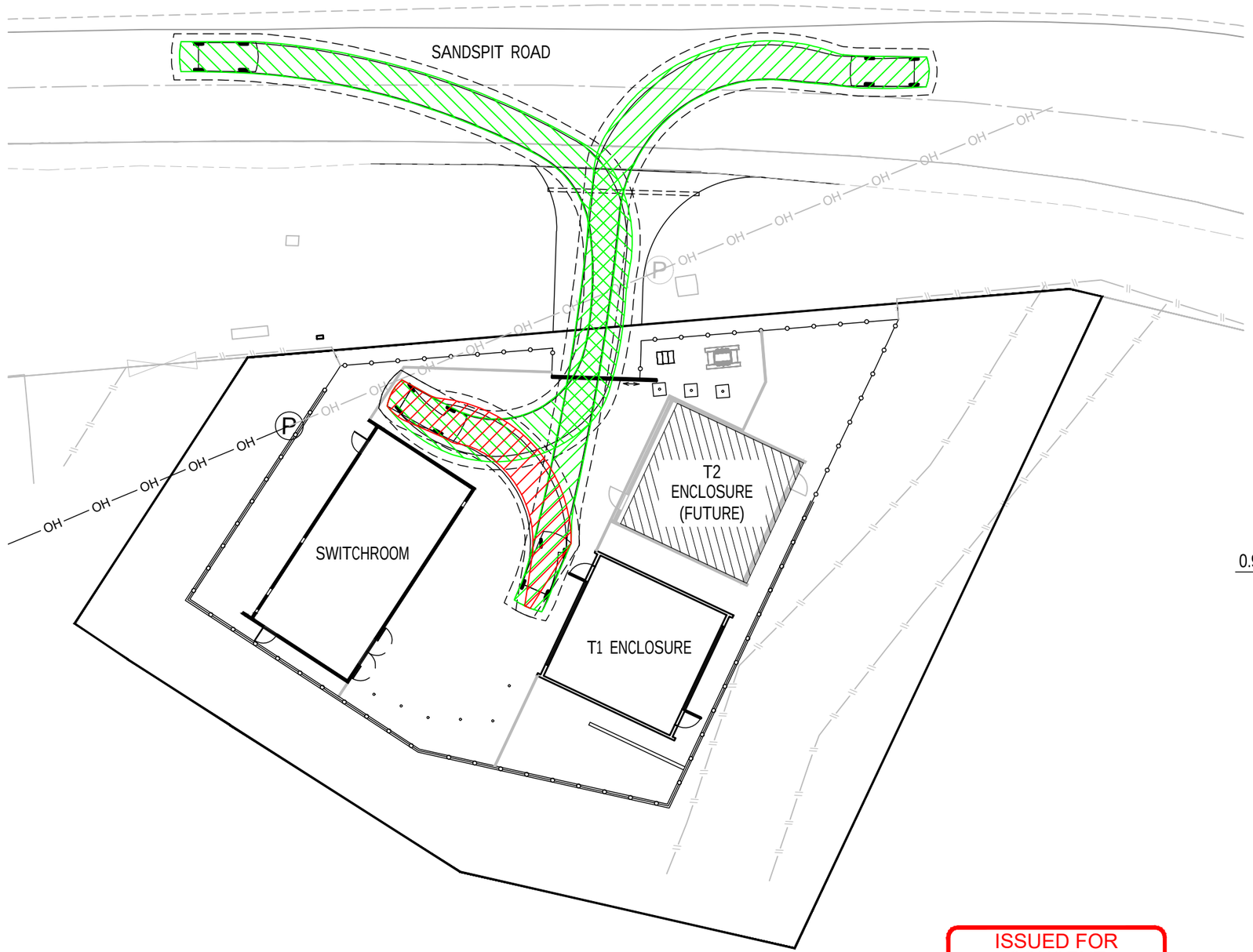
Rev	Amendments	Date	Name
1	DUE TO SCALE CHANGE, DRAWING DIVIDED INTO TWO SHEETS	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8031-1.dwg
Author	J. H'nboezem	
Auth Date	10/2023	Consultant project no: VEC6852
Checked by	C. Herath	
Chk by date	10/2023	Vector project no: EC-24-NRNF2-003
Approved by	R Marx	
Appr by date	10/2023	

CIVIL SERVICES LAYOUT
PART 2

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing stamp: FOR CONSENT AND TENDER
Scale at A3: 1:200
Doc type:
Drawing no: 4262-8031
Rev: 1
Sheet: 2 of 2



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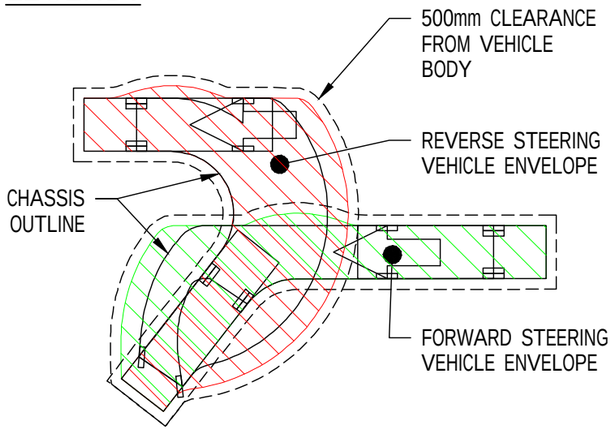
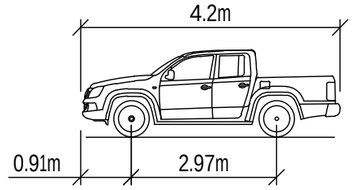




AT - 95TH - CAR

OVERALL LENGTH	5.060m
OVERALL WIDTH	1.923m
OVERALL BODY HEIGHT	1.784m MIN
BODY GROUND CLEARANCE	0.231m MAX
TRACK WIDTH	1.888m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	6.450m

ISSUED FOR CONSENT
08 / 08 / 2024

NOTES

1. SWEPT PATH ANALYSIS WITH 5km/h MAXIMUM SPEED.
2. 500mm CLEARANCE HAS BEEN APPLIED.

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	12.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	02.2024	ElectroNet
4	BOLLARDS & CONCRETE KERB RE-ALIGNED	30/04/2024	ElectroNet
5	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name:
Author	J. H'nboezem	4262-8032.dwg
Auth Date	10.2023	Consultant project no: VEC6852
Checked by	C Herath	
Chk by date	10.2023	Vector project no: EC-24-NRNF2-003
Approved by	R Marx	
Appr by date	10.2023	

vector electricity

ROADING LAYOUT
VEHICLE TRACKING = CAR

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

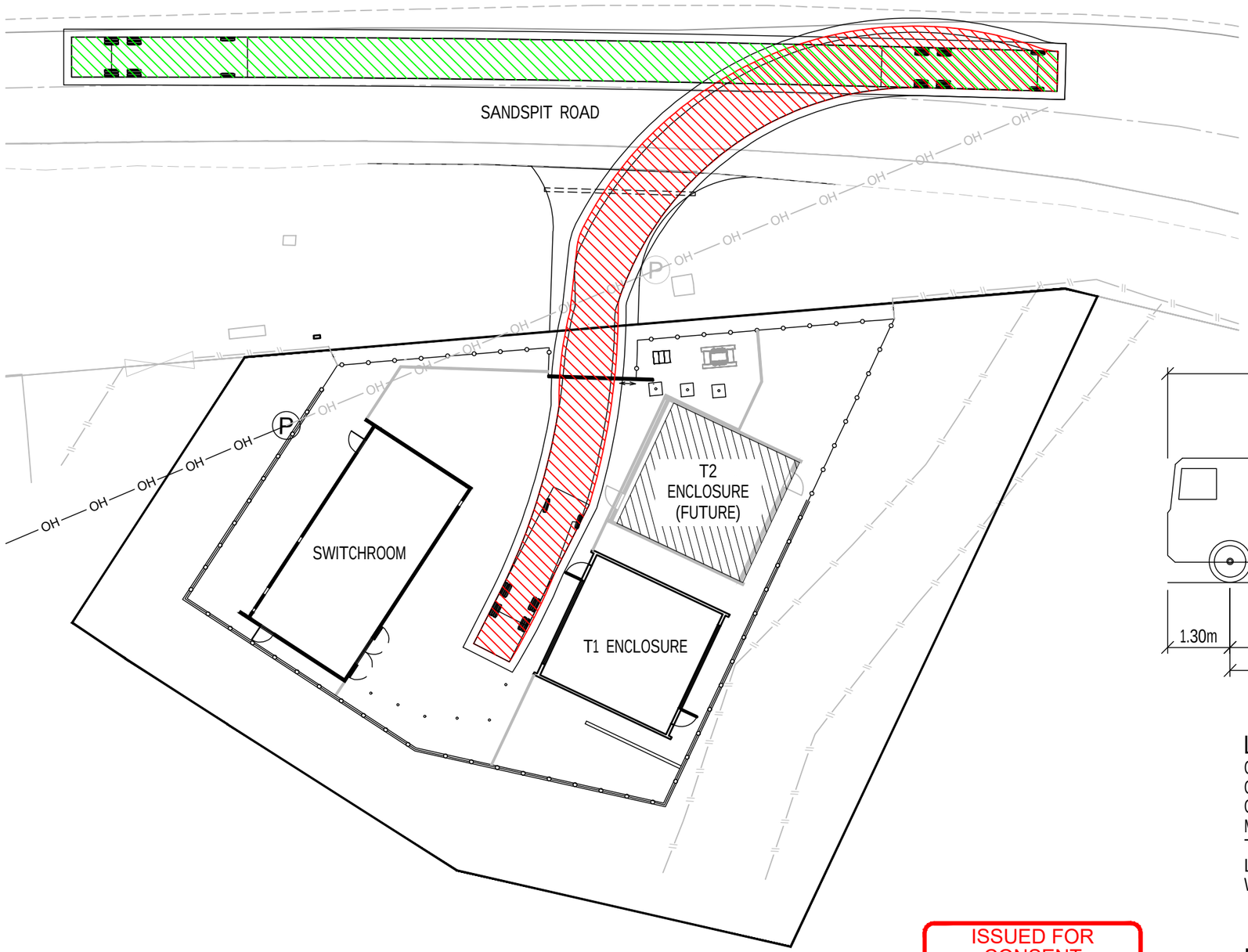
Scale at A3: 1:300

Doc type:

Drawing no: 4262-8032

Rev: 5

Sheet: 1 of 2



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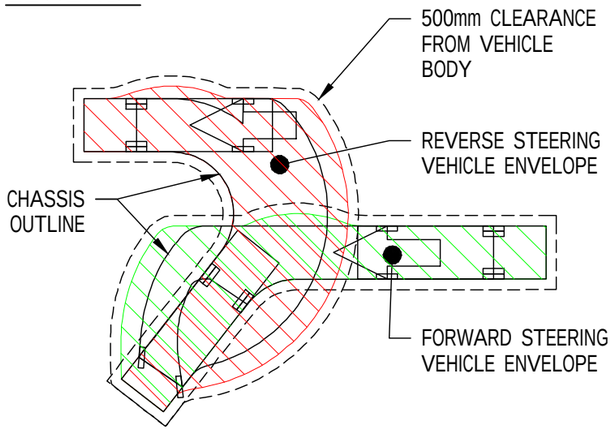
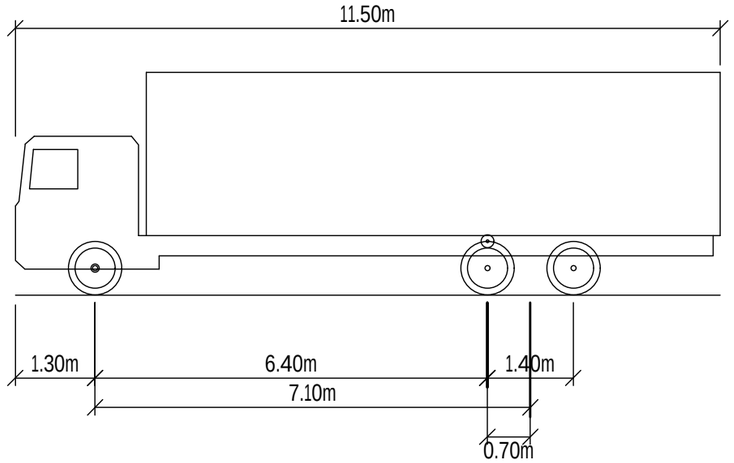




LARGE RIGID TRUCK

OVERALL LENGTH	11.500m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	3.632m
MIN BODY GROUND CLEARANCE	0.427m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
WALL TO WALL TURNING RADIUS	12.000m

ISSUED FOR CONSENT
..08.. / ..08.. / 2024.

NOTES

1. SWEPT PATH ANALYSIS WITH 5km/h MAXIMUM SPEED.
2. 500mm CLEARANCE HAS BEEN APPLIED.

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	08/03/2024	ElectroNet
4	BOLLARDS & CONCRETE KERB RE-ALIGNED	30/04/2024	ElectroNet
5	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8032.dwg
Author	J. H'nboezem		
Auth Date	10.2023	Consultant project no:	VEC6852
Checked by	C Herath		
Chk by date	10.2023	Vector project no:	EC-24-NRNF2-003
Approved by	R Marx		
Appr by date	10.2023		

vector electricity

ROADING LAYOUT
VEHICLE TRACKING = LARGE RIGID TRUCK

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

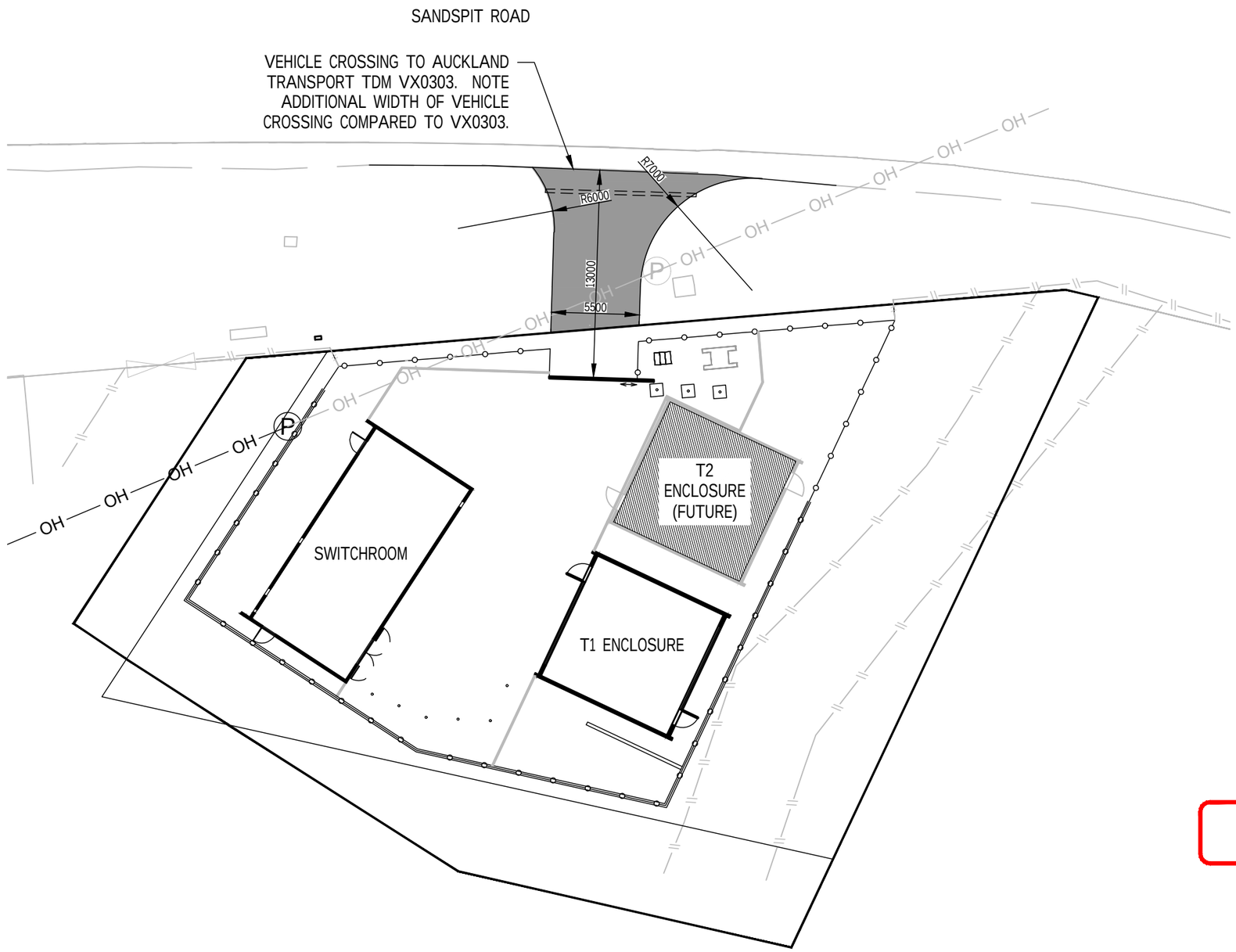
Scale at A3: 1:300

Doc type:

Drawing no: 4262-8032

Rev: 5

Sheet: 2 of 2



ISSUED FOR CONSENT
08 / 08 / 2024

REFERENCE DRAWINGS:

4262-8034 ROADING DETAILS

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet
2	BOLLARDS & CONCRETE KERB RE-ALIGNED	30/04/2024	ElectroNet
3	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name:
Author	J. H'nboezem	4262-8033-1.dwg
Auth Date	28/02/2024	Consultant project no:
Checked by	R. Chan (BB)	VEC6852
Chk by date	28/02/2024	Vector project no:
Approved by	R. Marx	EC-24-NRNF2-003
Appr by date	28/02/2024	

vector electricity

ROADING LAYOUT
DRIVEWAY PLAN

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: 1:300

Doc type:

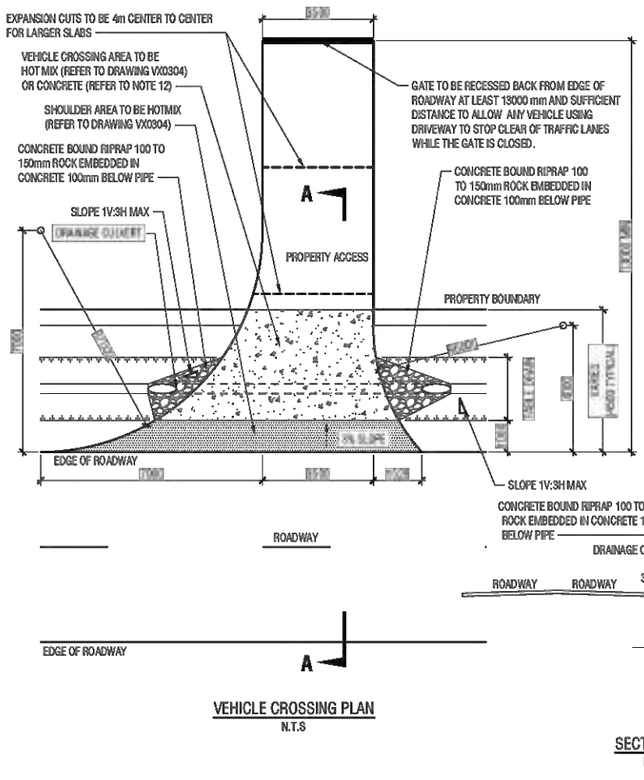
Drawing no: 4262-8033

Rev: 3

Sheet: 1 of 1

3D VIEW
N.T.S

VX0303



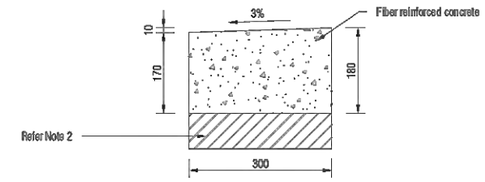
VEHICLE CROSSING PLAN
N.T.S

SECTION A-A
N.T.S

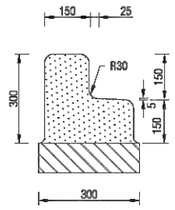
NOTES:

1. All dimensions are in millimeters unless noted otherwise
2. The radius of 7.0m minimum is needed for a van with 20km/hr speed on entering the access.
3. For larger vehicles, the proposed turning speed and tracking need to be supplied. And sealed surface extended to match path.
4. The 13.0m minimum distance to the gate allows for a van turning at 20km/hr to stop. The distance may need to be increased for use by larger vehicles.
5. Drainage culvert ≥ 300mm diameter concrete pipe is required.
6. Pavement design to be approved by AT for use other than single residential life style lot.
7. Table drain may need to be deepened and diverted away from the road to install culvert.
8. Whole driveway in the private property to be soild, either concrete or hotmix, to avoid tracking of materials, detritus, metal etc on to the public road.
9. Larger Slabs to have expansion cuts 4m center to center.
10. Any vehicle clear of road shoulder.
11. Where a footpath is provided or planned, the gate recess must be measured from the back of the footpath.
12. Concrete section – residential standard(150mm thick 20MPa concrete on 100 mm thick GAP 40– subgrade minimum CBR of 3) or commercial standard((200mm thick 20MPa concrete on 100 mm thick GAP 40 with the 661 mesh – subgrade minimum CBR of 3)

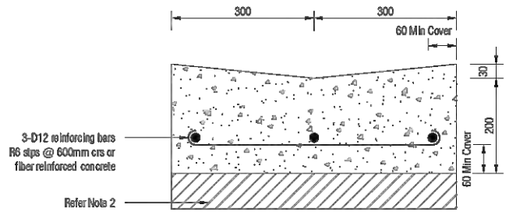
Transport Design Manual | Standard Engineering Details



TYPE 16 FLAT EDGE BEAM



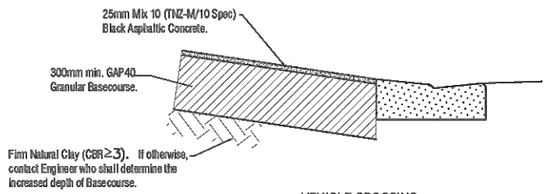
TYPE 7 EXTRUDED STANDARD KERB ONLY



TYPE 18 V-DISH CHANNEL UNDER TRAFFIC

NOTES

1. Concrete Grades:
   - Insitu concrete 20MPa
   - Extruded concrete 20MPa, fiber reinforced
   - 25 MPa fibre reinforced concrete for slip-form.
2. Bedding:
   To consist of 300mm (min) GAP65 subbase in roads (where CBR>5).
3. Jointing:
   Extruded channels cracking control joints formed or saw cut to a minimum depth of 30mm at max 3.00m intervals for unreinforced channels and 3.00m (max) for reinforced channels/nib. If there is a footpath adjacent to the channel/nib the sawcut must coincide with the concrete footpath joint.
4. Selection and use of kerb and channel types must comply with standards in the Transport Design Manual or Auckland Code of Practice for Land Development and Subdivision – Chapter 3: Transpot



VEHICLE CROSSING

ISSUED FOR CONSENT
08 / 08 / 2024

REFERENCE DRAWINGS:
4262-8033 ROADING LAYOUT DRIVEWAY PLAN

CHIEF APPROVED ENGINEER

TDM TECHNICAL STANDARDS
Rural Vehicle Crossing (Zone Speed > 60km/hr)

Date: 11/04/2022
SED No. VX0303
Version C

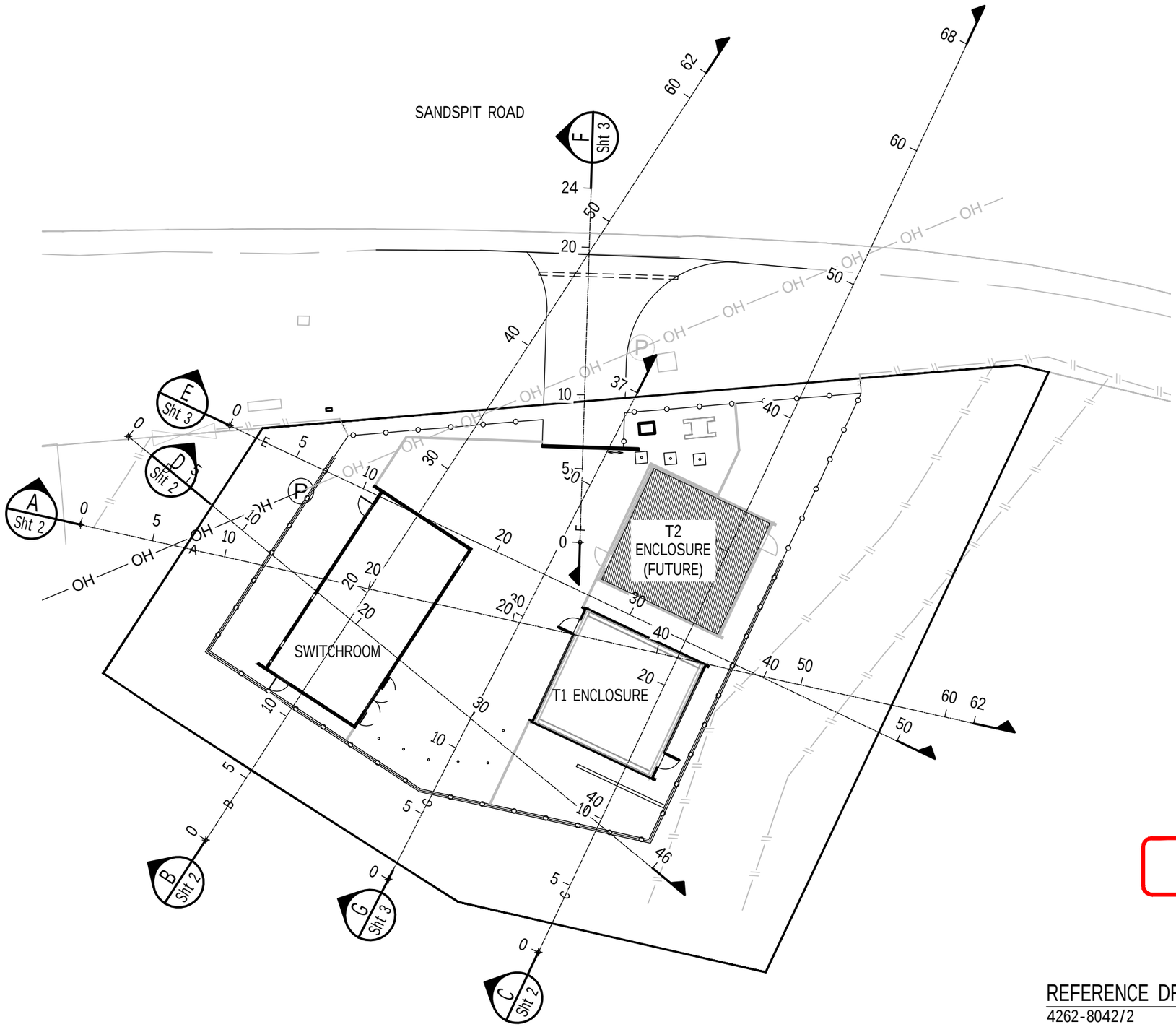
Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8034-1.dwg
Author	J. H'nboezem		
Auth Date	28/02/2024	Consultant project no:	VEC6852
Checked by	R. Chan (BB)		
Chk by date	28/02/2024	Vector project no:	EC-24-NRNF2-003
Approved by	R. Marx		
Appr by date	28/02/2024		

ROADING LAYOUT
DRIVEWAY DETAILS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing stamp: FOR CONSENT AND TENDER
Scale at A3: N.T.S.
Doc type:
Drawing no: 4262-8034
Rev: 1
Sheet: 1 of 1



ISSUED FOR CONSENT
...08.. / ...08.. / 2024.

REFERENCE DRAWINGS:

4262-8042/2	EARTHWORKS DESIGN CROSS SECTIONS - PART 1
4262-8042/3	EARTHWORKS DESIGN CROSS SECTIONS - PART 2

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	12.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	BOLLARDS & CONCRETE KERB RE-ALIGNED	30/04/2024	ElectroNet
5	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet
6	GROUND PROFILES EXTENDED	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8042.dwg
Author	J. H'nboezem	
Auth Date	10.2023	Consultant project no: VEC6852
Checked by	R Chan (BB)	
Chk by date	10.2023	Vector project no: EC-24-NRNF2-003
Approved by	R Marx	
Appr by date	10.2023	

EARTHWORKS DESIGN
CROSS SECTIONS LAYOUT

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

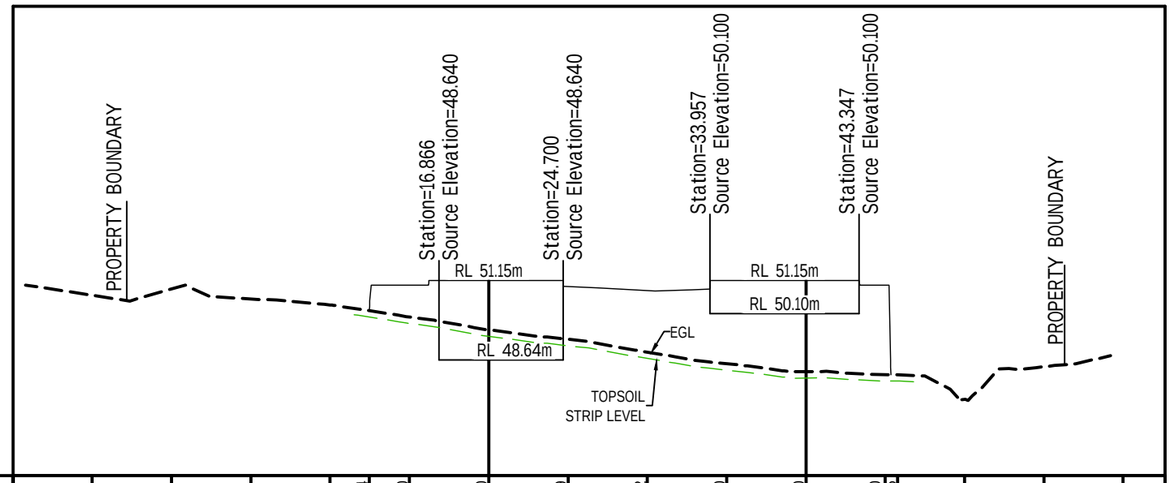
Scale at A3: 1:300

Doc type:

Drawing no: 4262-8042

Rev: 6

Sheet: 1 of 3



CHAINAGE	DESIGN LEVELS	EXISTING LEVELS	DEPTH
0.000			
5.000		50.680	
10.000		50.877 50.991	
15.000		50.565	
20.000		50.376	
22.479	50.194		0.000
25.000	51.000	49.995	1.005
30.000	51.150	49.590	1.560
35.000	50.949	49.292	1.658
40.000	50.822	48.889	1.934
45.000	51.150	48.523	2.627
50.000	51.150	48.274	2.876
55.000	51.000	48.177	2.823
55.347	48.175		0.000
60.000		47.397	
65.000		48.429	
70.000		48.772	
72.648			

SECTION A LONG SECTION

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS	DEPTH
0.000			
5.000		48.443 48.451	
10.000		48.636	
10.548	48.658		0.000
42.705	52.283		-0.060
15.000	51.150	49.053	2.097
20.000	51.150	49.555	1.595
25.000	51.150	50.066	1.084
30.000	51.083	50.668	0.415
35.000		51.587	
40.000		52.199	
45.000	52.572	52.108	0.465
34.813	51.515		-0.048
47.335	52.746	52.929	0.032
50.000			
55.000			
60.000			
61.852			

SECTION B LONG SECTION

REFERENCE DRAWINGS:

4262-8042/1 EARTHWORKS DESIGN CROSS SECTIONS LAYOUT

ISSUED FOR CONSENT
..08.. / ..08.. / 2024

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	DATA REVISED	30/04/2024	ElectroNet
5	GROUND PROFILES EXTENDED DUE TO LEGAL BOUNDARY AMENDMENT	01/08/2024	ElectroNet

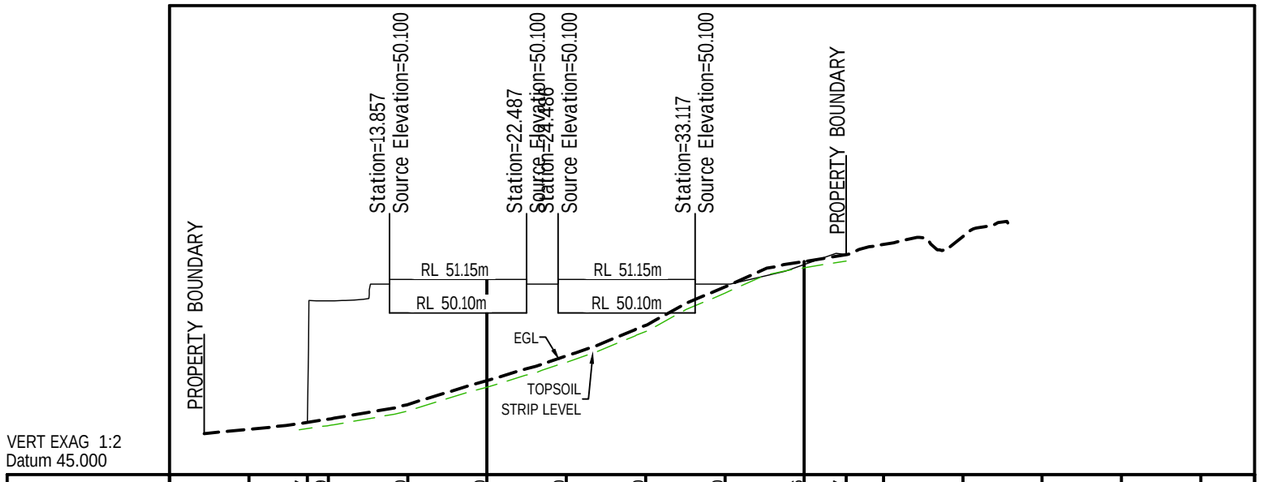
Consultant	ELECTRONET
Author	J. H'nboezem
Auth Date	10.2023
Checked by	R Chan (BB)
Chk by date	10.2023
Approved by	R Marx
Appr by date	10.2023

File name: 4262-8042.dwg
Consultant project no: VEC6852
Vector project no:

EARTHWORKS DESIGN
CROSS SECTIONS
PART 1

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing stamp: FOR CONSENT AND TENDER
Scale at A1: NTS
Doc type:
Drawing no: 4262-8042
Rev: 5
Sheet: 2 of 3



VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS	EXISTING LEVELS	DEPTH	CHAINAGE
			0.000
			5.000
	46.519		
46.647		0.000	8.677
50.479	46.745	3.734	10.000
51.150	47.208	3.942	15.000
51.150	47.956	3.194	20.000
51.150	48.740	2.410	25.000
51.150	49.706	1.444	30.000
51.000	50.916	0.084	35.000
51.626	51.718	-0.092	40.000
51.937		0.003	42.643
	52.255		45.000
	52.498		50.000
	52.936		
			55.000
			60.000
			65.000
			68.386

SECTION C LONG SECTION

VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS	EXISTING LEVELS	DEPTH	CHAINAGE
			0.000
			5.000
	50.583		10.000
50.287		0.000	2.313
51.000	49.946	1.054	15.000
51.150	49.257	1.893	20.000
50.878	48.610	2.268	25.000
50.737	47.869	2.869	30.000
50.831	47.375	3.456	35.000
50.544	46.854	3.690	40.000
46.497		0.000	43.275
	46.340		45.000
	46.337		45.118

SECTION D LONG SECTION

VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS	EXISTING LEVELS	DEPTH	CHAINAGE
			0.000
	50.969		5.000
50.747		0.000	1.985
51.000	50.485	0.515	10.000
51.150	49.964	1.186	15.000
50.948	49.500	1.448	20.000
50.852	48.993	1.859	25.000
51.150	48.511	2.639	30.000
51.150	48.190	2.960	35.000
47.996		0.000	38.193
	47.881		40.000
	47.921		45.000
	48.077		49.316

SECTION E LONG SECTION

VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS	EXISTING LEVELS	DEPTH	CHAINAGE
50.895	49.553	1.342	0.000
51.141	50.745	0.395	5.000
51.753	51.816	-0.063	10.000
52.293	52.348	-0.055	15.000
52.746	52.789	0.033	19.502
	52.927		20.000
			23.730

SECTION F LONG SECTION

VERT EXAG 1:2
Datum 45.000

DESIGN LEVELS	EXISTING LEVELS	DEPTH	CHAINAGE
			0.000
	47.266		
47.355		0.000	6.046
50.727	47.674	3.054	10.000
50.763	48.264	2.500	15.000
50.813	48.909	1.904	20.000
50.863	49.476	1.387	25.000
51.003	50.387	0.616	30.000
51.519	51.720	-0.200	35.000
51.820		-0.001	36.677
	51.841		37.344

SECTION G LONG SECTION

REFERENCE DRAWINGS:
4262-8042/1 EARTHWORKS DESIGN CROSS SECTIONS LAYOUT

ISSUED FOR
CONSENT
08 / 08 / 2024

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	10.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	11.2023	ElectroNet
3	UPDATED AFTER CLIENT SECOND REVIEW	28/02/2024	ElectroNet
4	DATA REVISED	30/04/2024	ElectroNet
5	GROUND PROFILES EXTENDED DUE TO LEGAL BOUNDARY AMENDMENT	01/08/2024	ElectroNet

Consultant	ELECTRONET
Author	J. H'nboezem
Auth Date	10.2023
Checked by	R Chan (BB)
Chk by date	10.2023
Approved by	R Marx
Appr by date	10.2023

File name: 4262-8042.dwg
Consultant project no: VEC6852
Vector project no:

vector electricity

EARTHWORKS DESIGN
CROSS SECTIONS
PART 2
13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing stamp: FOR CONSENT AND TENDER
Scale at A1: NTS
Doc type:
Drawing no: 4262-8042
Rev: 5
Sheet: 3 of 3

STRIP AREA

EARTHWORKS

TOTAL - TOPSOIL STRIP VOLUME	
EARTHWORKS AREA	980m²
CUT VOLUME	196m³
FILL VOLUME	0m³

TOPSOIL STRIP VOLUME:
EXISTING GROUND LEVEL TO 200mm TOPSOIL STRIP.
STOCKPILE TOPSOIL TRIP FOR USE IN LANDSCAPING LOCATIONS. REFER 4262-8031.

Elevations Table					
Number	Minimum Elevation (m)	Maximum Elevation (m)	Color	AREA (m²)	VOLUME (m³)
1	-1.791	-1.000		27.41	7.37
2	-1.000	-0.100		78.23	56.83
3	-0.100	0.100		60.53	86.06
4	0.100	4.500		724.96	1206.23

EARTHWORKS COMPARISON VOLUME:
FINISHED LEVEL TO BOTTOM OF TOPSOIL STRIP

ISSUED FOR CONSENT
..08.. / ..08.. / 2024

REFERENCE DRAWINGS:

4262-8042/1 EARTHWORKS DESIGN CROSS SECTION LAYOUT
4262-8058/1 EROSION & SEDIMENT CONTROL PLAN

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	12.2023	ElectroNet
2	UPDATED AFTER CLIENT REVIEW	28/02/2024	ElectroNet
3	TOPSOIL STRIP NOTE REVISED	23/04/2024	ElectroNet
4	LEGAL BOUNDARIES AMENDED	18/07/2024	ElectroNet

Consultant	ELECTRONET
Author	D Dickinson (BB)
Auth Date	11.2023
Checked by	R Chan (BB)
Chk by date	11.2023
Approved by	R Marx
Appr by date	11.2023

File name: 4262-8043-1.dwg
Consultant project no: VEC6852
Vector project no: EC-24-NRNF2-003

vector electricity

EARTHWORKS DESIGN
CUT & FILL PLAN

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:
Drawing function:
Drawing stamp: FOR CLIENT APPROVAL
Scale at A3: 1:300
Doc type:
Drawing no: 4262-8043
Rev: 4
Sheet: 1 of 2

ISSUED FOR CONSENT
..08.. / ..08.. / 2024

REFERENCE DRAWINGS:

4262-8042/1 EARTHWORKS DESIGN CROSS SECTION LAYOUT

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	30/04/2024	ElectroNet
2	LEGAL BOUNDARY AMENDED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8043-2.dwg
Author	J. H'nboezem	
Auth Date	30/04/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	30/04/2024	Vector project no: EC-24-NRNF2-003
Approved by	R. Marx	
Appr by date	30/04/2024	

EARTHWORKS DESIGN
FINISHED SITE CONTOURS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

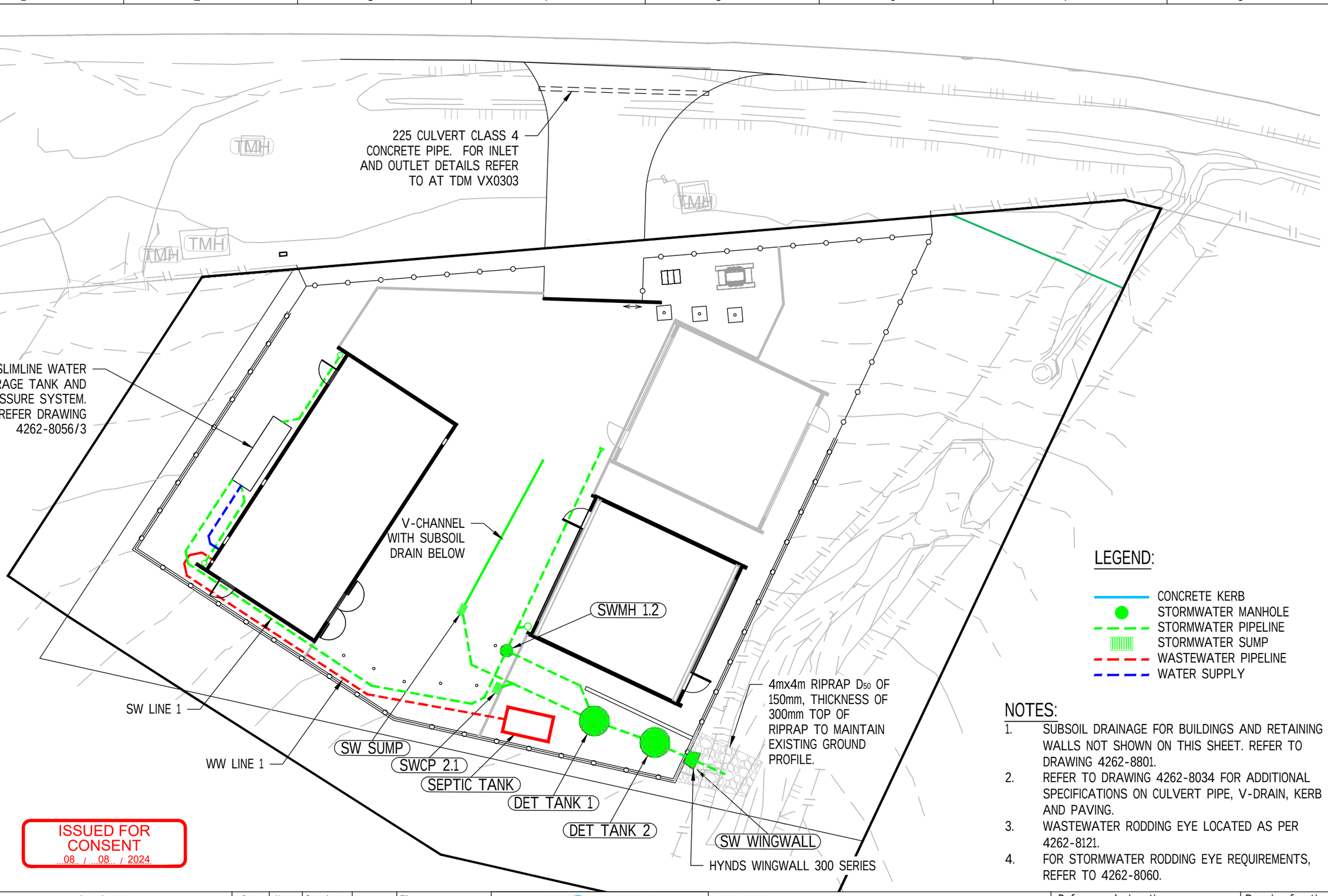
Scale at A3: 1:300

Doc type:

Drawing no: 4262-8043

Rev: 2

Sheet: 2 of 2



ISSUED FOR CONSENT
08 / 08 / 2024

LEGEND:

- CONCRETE KERB
- STORMWATER MANHOLE
- STORMWATER PIPELINE
- STORMWATER SUMP
- WASTEWATER PIPELINE
- WATER SUPPLY

NOTES:

1. SUBSOIL DRAINAGE FOR BUILDINGS AND RETAINING WALLS NOT SHOWN ON THIS SHEET. REFER TO DRAWING 4262-8801.
2. REFER TO DRAWING 4262-8034 FOR ADDITIONAL SPECIFICATIONS ON CULVERT PIPE, V-DRAIN, KERB AND PAVING.
3. WASTEWATER RODDING EYE LOCATED AS PER 4262-8121.
4. FOR STORMWATER RODDING EYE REQUIREMENTS, REFER TO 4262-8060.

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet
2	BOLLARDS, CONCRETE KERB, STORMWATER, SEWERAGE RE-ALIGNED, SHEETS 3 & 4 ADDED	30/04/2024	ElectroNet
3	LEGAL BOUNDARIES ALTERED	18/07/2024	ElectroNet

Consultant	ELECTRONET	File name:
Author	J. H'nboezem	4262-8056-1.dwg
Auth Date	28/02/2024	Consultant project no:
Checked by	R. Chan (BB)	VEC6852
Chk by date	28/02/2024	Vector project no:
Approved by	R. Marx	EC-24-NRNF2-002
Appr by date	28/02/2024	

vector electricity

SERVICES
SITE PLAN

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: 1:200

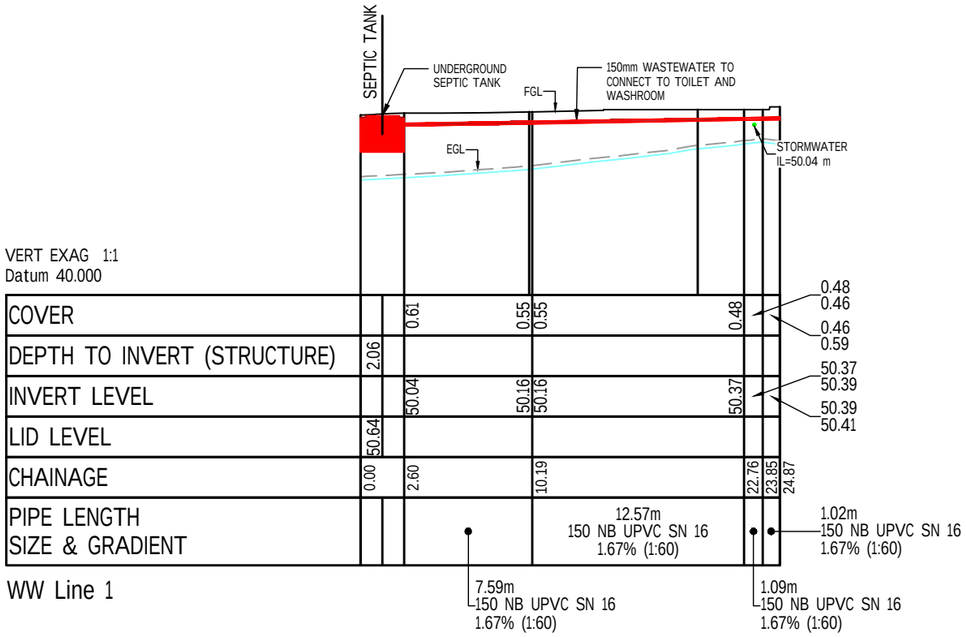
Doc type:

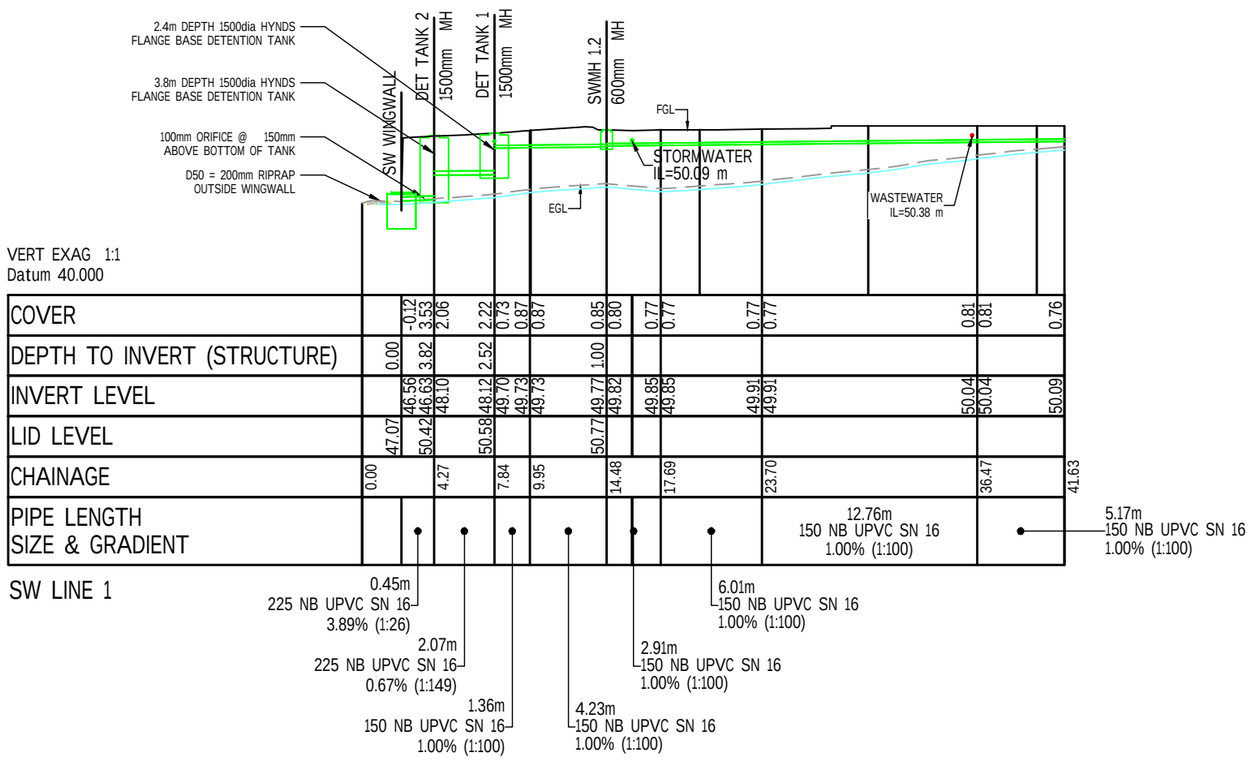
01. OVERVIEW & LAYOUTS
Sandspit - 4262 (SSPT)

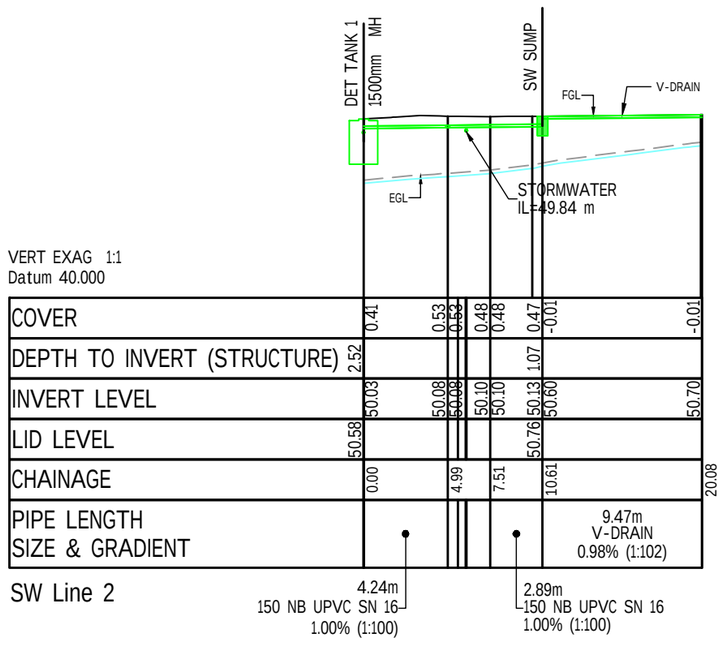
Drawing no: 4262-8056

Rev: 3

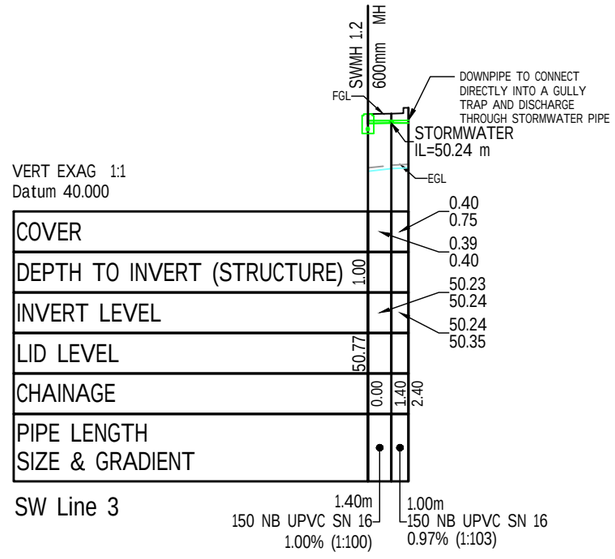
Sheet: 1 of 4







ISSUED FOR CONSENT
..08.. / ..08.. / 2024



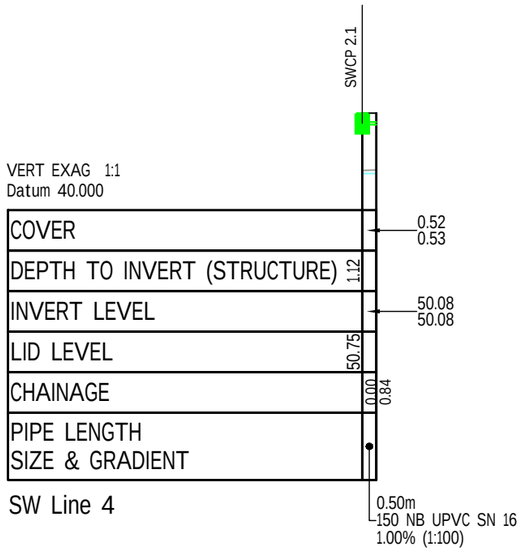
Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet
2	PROFILES REVISED	30/04/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8056-1.dwg
Author	J. H'nboezem	
Auth Date	28/02/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	28/02/2024	Vector project no: EC-24-NRNF2-002
Approved by	R. Marx	
Appr by date	28/02/2024	

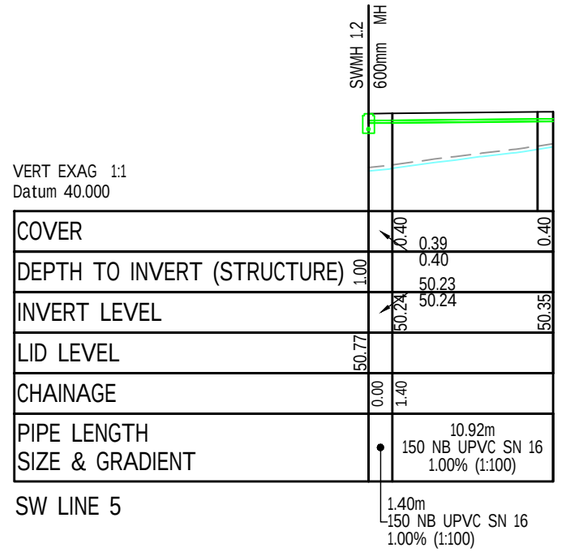
SERVICES
DRAIN PROFILES
PART 1

01. OVERVIEW & LAYOUTS
Sandspit - 4262 (SSPT)

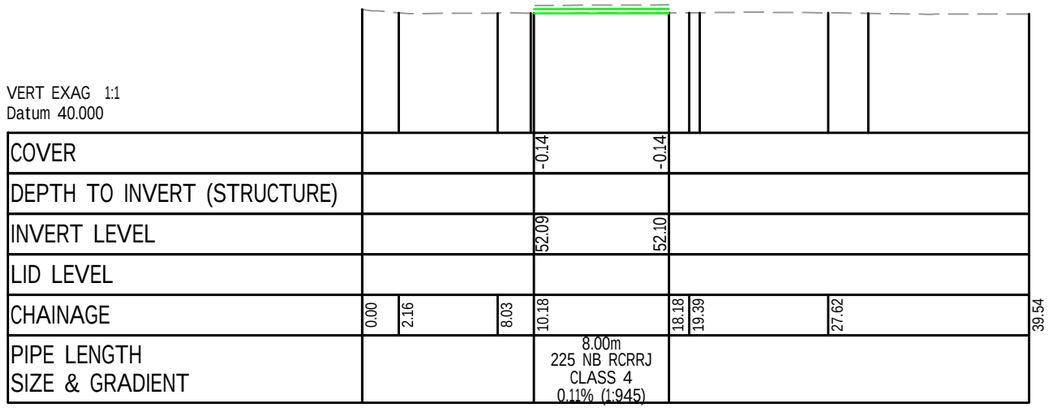
Reference designation:
Drawing function:
Drawing FOR CONSENT AND stamp: TENDER
Scale at A3: NTS
Doc type:
Drawing no: 4262-8056
Rev: 2
Sheet: 2 of 4



SW Line 4



SW LINE 5



Culvert

ISSUED FOR CONSENT
..08.. / ..08.. / 2024

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	30/04/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8056-1.dwg
Author	J. H'nboezem	
Auth Date	23/04/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	23/04/2024	Vector project no: EC-24-NRNF2-002
Approved by	R. Marx	
Appr by date	23/04/2024	

SERVICES
DRAIN PROFILES
PART 2

01. OVERVIEW & LAYOUTS
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND TENDER stamp:

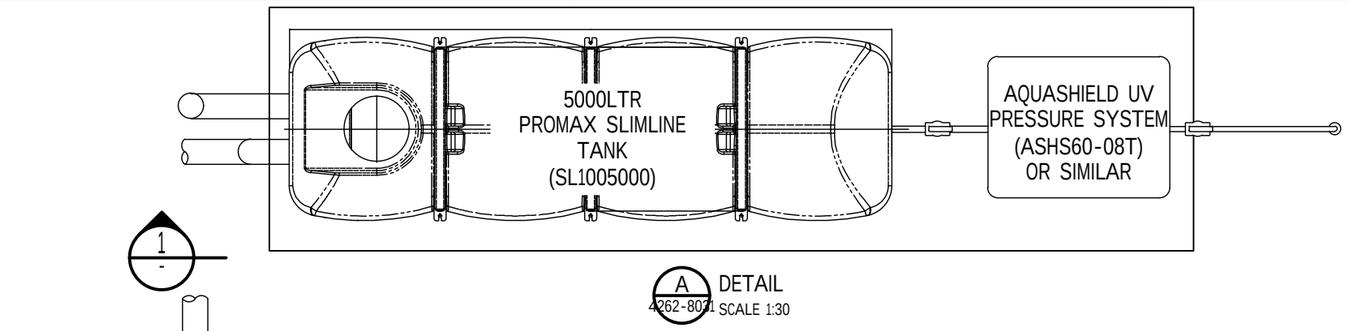
Scale at A3: NTS

Doc type:

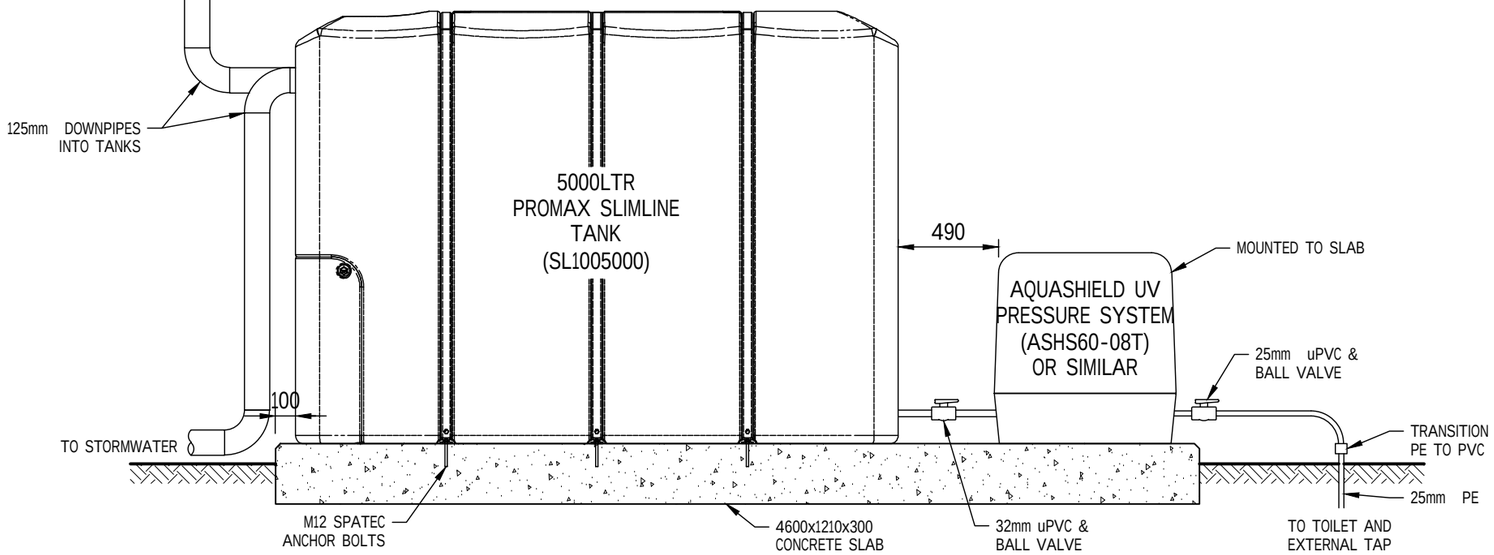
Drawing no: 4262-8056

Rev: 1

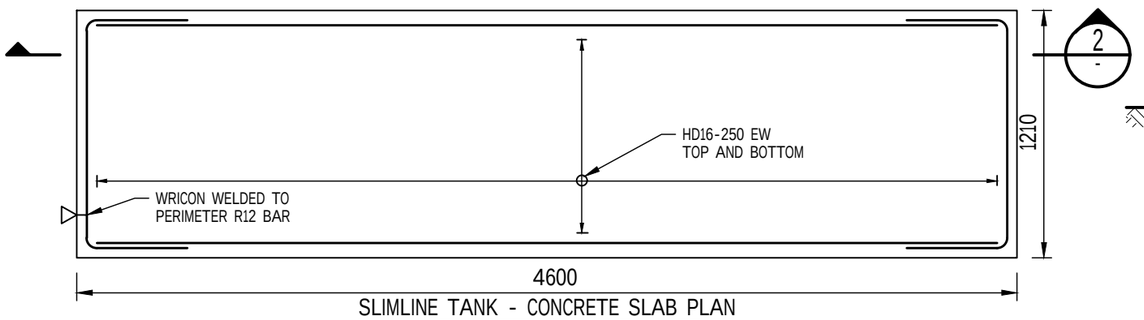
Sheet: 3 of 4



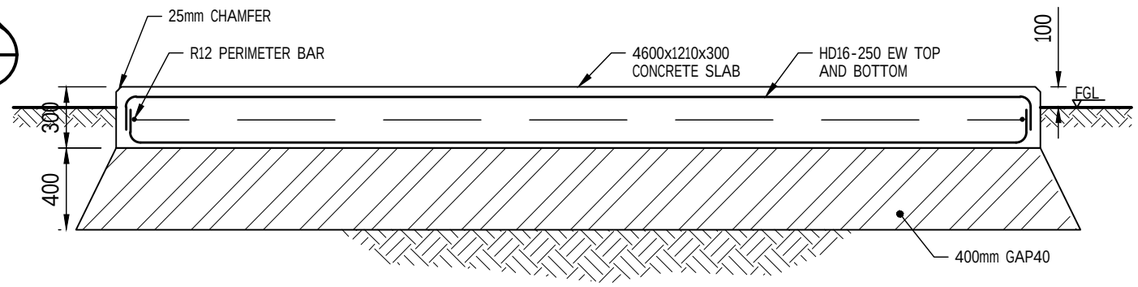
A DETAIL
4262-8021 SCALE 1:30



1 SECTION
SCALE 1:30



SLIMLINE TANK - CONCRETE SLAB PLAN
SCALE 1:30



2 SECTION
SCALE 1:30

ISSUED FOR CONSENT
..08.. / ..08.. / 2024

NOTES:

1. REFER GENERAL NOTES SHEET DRAWING 4262-8060.
2. DIMENSIONS IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
3. WATER TANK AND UV PRESSURE SYSTEM TO BE SECURED/BOLTED TO THE CONCRETE PAD AS PER MANUFACTURERS REQUIREMENTS.
4. STORMWATER TANK CONNECTION DETAILS TO BE IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. DOWNSPOUT INLET PIPE TO TANK TO BE PROVIDED WITH LEAF GUARD.
5. UV PRESSURE SYSTEM INSTALLED TO BE IN ACCORDANCE WITH MANUFACTURERES INSTRUCTION.
6. WATER TANK FOUNDATION TO BE CONFIRMED CLEAR OF EXISTING CABLE DUCTS.

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	30/04/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8056-1.dwg
Author	J. H'nboezem		
Auth Date	23/04/2024	Consultant project no:	VEC6852
Checked by	R. Chan (BB)		
Chk by date	23/04/2024	Vector project no:	EC-24-NRNF2-002
Approved by	R. Marx		
Appr by date	23/04/2024		

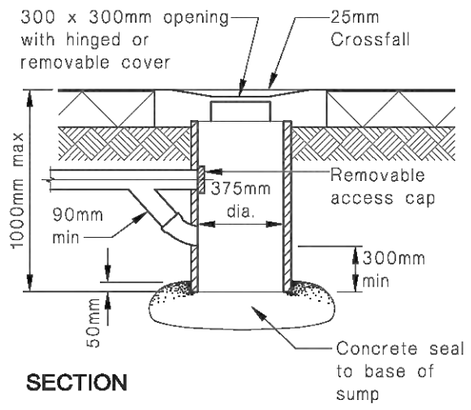
vector electricity

SERVICES
PROMAX SLIMLINE TANK DETAILS

01. OVERVIEW & LAYOUTS
Sandspit - 4262 (SSPT)

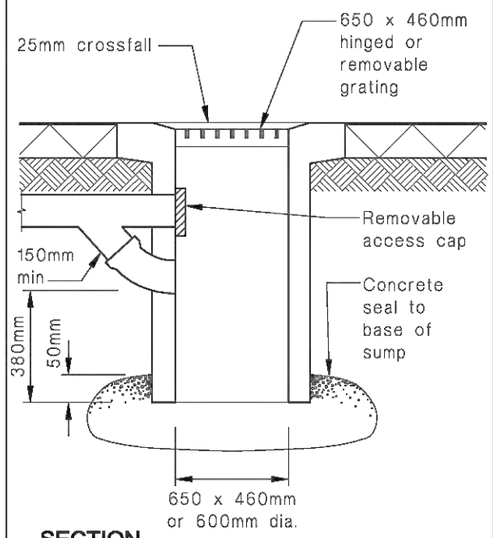
Reference designation:		Drawing function:
Drawing stamp: FOR CONSENT AND TENDER	Scale at A3: 1:30	Doc type:
Drawing no: 4262-8056	Rev: 1	Sheet: 4 of 4

Figure 8: Type-one Surface Water Sump
Paragraph 3.6.2



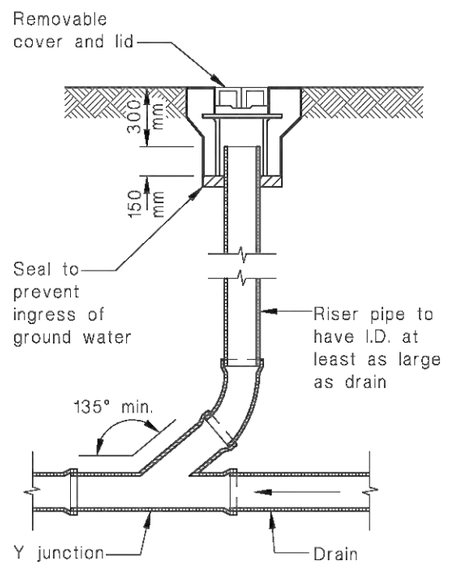
SECTION

Figure 9: Type-two Surface Water Sump
Paragraph 3.6.2



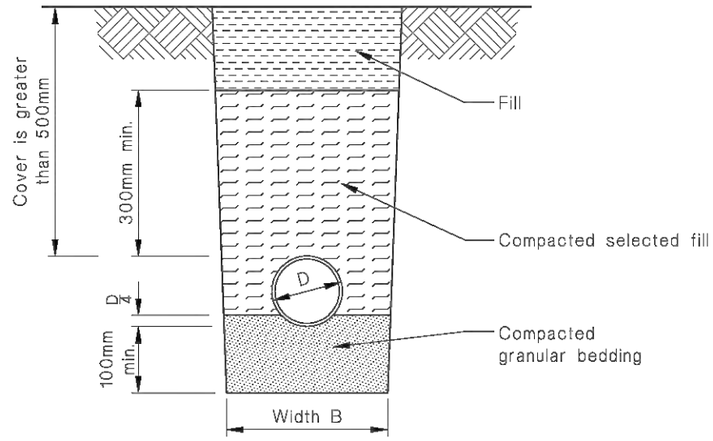
SECTION

Figure 10: Typical Rodding Point
Paragraph 3.7.1

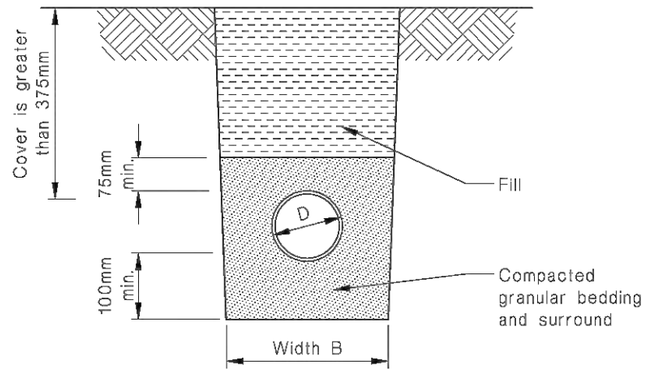


SECTION

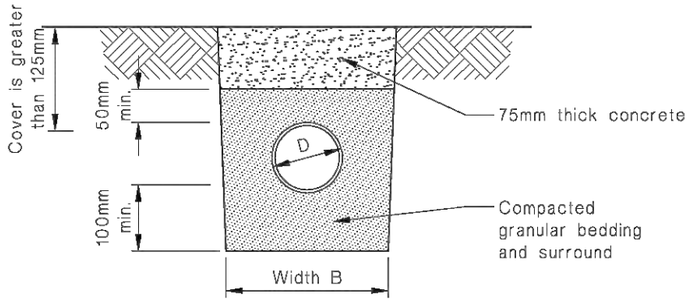
ISSUED FOR CONSENT
...08.. / ...08.. / 2024..



(a) Cover greater than 500mm



(b) Cover greater than 375mm



(c) Cover greater than 125mm

BEDDING AND BACKFILLING

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8057-1.dwg
Author	J. H'nboezem		
Auth Date	28/02/2024	Consultant project no:	VEC6852
Checked by	R. Chan (BB)		
Chk by date	28/02/2024	Vector project no:	EC-24-NRNF2-002
Approved by	R. Marx		
Appr by date	28/02/2024		

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SERVICES
DRAINAGE DETAILS

01. OVERVIEW & LAYOUTS
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND TENDER stamp:

Scale at A3: N.T.S.

Doc type:

Drawing no: 4262-8057

Rev: 1

Sheet: 1 of 1

ISSUED FOR CONSENT
08 / 08 / 2024

NOTES:

1. CONTRACTOR TO CONSIDER USING THE POSITION OF THE VEHICLE CROSSING FOR THE COMPLETED SUBSTATION AS TEMPORARY SITE ACCESS AT START OF THE PROJECT, SUBJECT TO PRACTICAL CONSIDERATIONS SUCH AS POSSIBLE INFLUENCE ON CONSTRUCTION TIMELINE. PROVISIONAL SUM TO BE PROVIDED FOR SEPARATE TEMPORARY STABILISED ACCESS IN THE LOCATION INDICATED.
2. ALL EROSION AND SEDIMENT CONTROLS WILL BE IN ACCORDANCE WITH AUCKLAND COUNCIL GUIDELINE DOCUMENT 2016/005 (GD05) "EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES IN AUCKLAND REGION".

LEGEND:

PROPOSED SILT FENCE

PROPOSED STABILISED ACCESS
(AS ALTERNATIVE TO USING LOCATION OF DEDICATED VEHICLE CROSSING FOR INITIAL SITE ACCESS).

REFERENCE DRAWINGS:

4262-8059/1 EROSION & SEDIMENT CONTROL PLAN DETAILS

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet
2	BOLLARDS, BUILDINGS, KERB, RETAINING WALLS REMOVED, CONTOUR LINES ADDED.	30/04/2024	ElectroNet
3	LEGAL BOUNDARIES AMENDED	01/08/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8058-1.dwg
Author	J. H'nboezem	
Auth Date	28/02/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	28/02/2024	Vector project no: EC-24-NRNF2-003
Approved by	R. Marx	
Appr by date	28/02/2024	

EROSION & SEDIMENT CONTROL PLAN LAYOUT

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

Scale at A3: 1:300

Doc type:

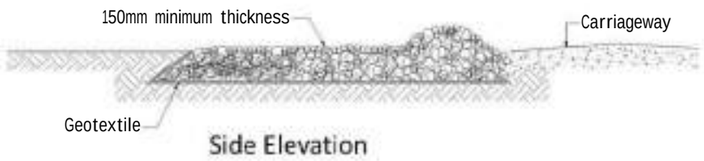
Drawing no: 4262-8058

Rev: 3

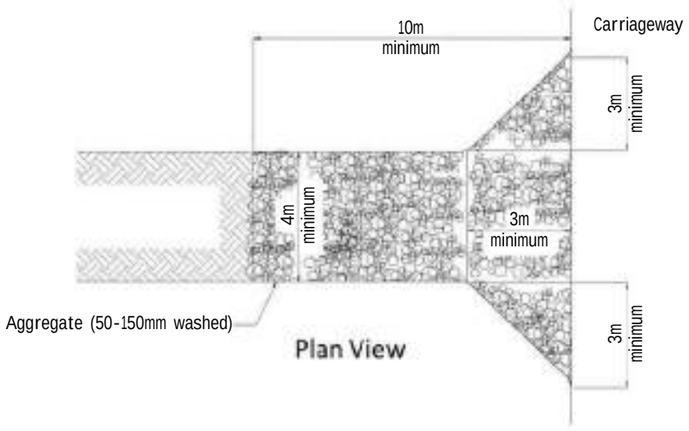
Sheet: 1 of 1

Table 9: Stabilised entranceway specifications

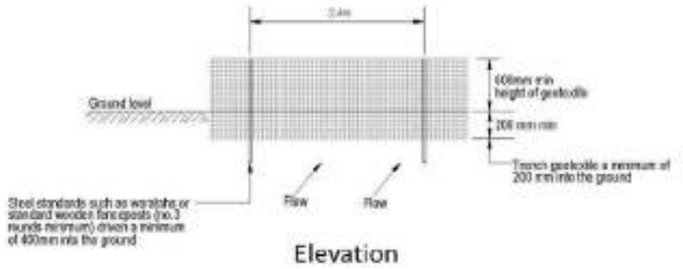
Design parameter	Specification
Aggregate size	50 - 150 mm washed aggregate
Minimum thickness	150 mm
Minimum length	10 m
Minimum width	4 m



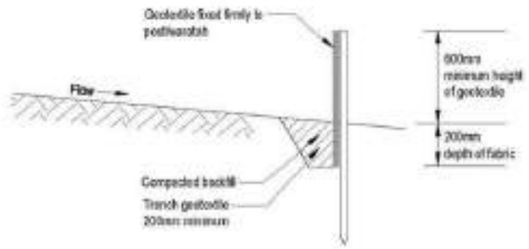
Side Elevation



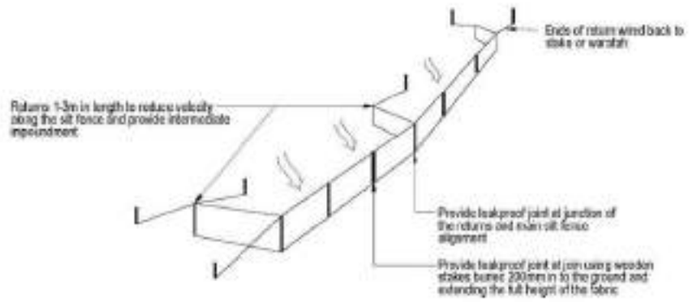
Plan View



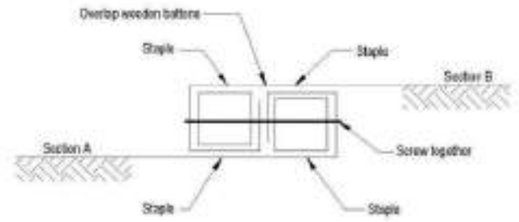
Elevation



Cross-section



Silt fence with returns and support wire



Standard fabric joint

SILT FENCE

STABILISED ENTRANCEWAY

ISSUED FOR CONSENT
08 / 08 / 2024

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet

Consultant	ELECTRONET	File name: 4262-8059-1.dwg
Author	J. H'nboezem	
Auth Date	28/02/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	28/02/2024	Vector project no: EC-24-NRNF2-003
Approved by	R. Marx	
Appr by date	28/02/2024	

vector electricity

EROSION & SEDIMENT CONTROL PLAN DETAILS

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

Scale at A3: N.T.S.

Doc type:

Drawing no: 4262-8059

Rev: 1

Sheet: 1 of 1

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL SERVICES BEFORE COMMENCING CONSTRUCTION AND ADVISE THE ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING. ALLOW FOR ANY SITE CONDITIONS. THE CONTRACTOR MUST COORDINATE THE WORKS WITH OTHER BURIED SERVICES AUTHORITIES.
3. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL CONSULTANT DRAWINGS AND SPECIFICATIONS ALONG WITH ANY OTHER WRITTEN INSTRUCTIONS THAT ARE ISSUED DURING THE COURSE OF THE CONTRACT.
4. ALL DIMENSIONS SHOWN SHALL BE VERIFIED ON SITE PRIOR TO CONSTRUCTION. DRAWINGS SHALL NOT BE SCALED.
5. CONTRACTOR TO ENSURE THAT ALL EXISTING SURVEY MARKERS ARE PRESERVED.
6. EXCAVATED UNSUITABLE TRENCH MATERIAL TO BE DISPOSED OF OFF SITE AT AN APPROPRIATE LANDFILL. REFER TO SITE MANAGEMENT FOR DISPOSAL REQUIREMENT.
7. UNLESS STATED OTHERWISE ALL DRAINAGE PIPES TO BE INSTALLED AT A MINIMUM GRADE OF:
   85 = 1.11% (1:90)
   100 = 0.83% (1:120)
   150 = 0.50% (1:200)
   225 = 0.29% (1:350)
8. ALL CONCRETE TO BE 25MPa 28DAY STRENGTH IN ACCORDANCE WITH NZS 3109 UNLESS STATED OTHERWISE.
9. COMPACTION OF MATERIALS SHALL BE TESTED WITH APPROPRIATE DEVICES TO ENSURE ADEQUATE COMPACTION IS ACHIEVED TO MEET SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR ADEQUATE DATA RECORDING ALONG WITH PHOTOGRAPHIC EVIDENCE.

STORMWATER NOTES:

1. ALL STORMWATER PIPES TO BE SN16 uPVC UNLESS STATES OTHERWISE. DOWNPIPE LATERALS SHALL BE 100 uPVC WITH RODDING EYE VIA GULLY AT THE UPSTREAM END.
2. ALL STORMWATER SUBSOIL TO BE 110 WITH FILTER SOCK LAID AT 0.5% TOWARDS MANHOLES/CHAMBERS UNLESS STATED OTHERWISE. RODDING EYES SHALL BE INSTALLED AT THE UPSTREAM ENDS. SUBSOIL INVERT LEVEL WITH MANHOLES /CHAMBERS TO BE ABOVE SOFFIT OF OUTLET PIPE.
3. ALL PIPE INSTALLATION, EXCAVATION, BEDDING, HAUNCHING AND OVERLAY TO BE HS2 TO AS/NZS 3725 "DESIGN FOR INSTALLATION OF BURIED CONCRETE PIPE" AND AS/NZS 2566.2 "BURIED FLEXIBLE PIPELINES" UNLESS STATED OTHERWISE. BEDDING MUST BE PREPARED TO ACCOMMODATE RPJ COLLARS WITH APPROPRIATE CLEARANCE.
4. COHESIONLESS BEDDING, HAUNCHING, SIDE ZONES AND OVERLAY TO BE COMPACTED TO MINIMUM 95% MDD. COHESIONLESS OVERLAY AND BACKFILL SHALL ALSO BE COMPACTED TO BE 90% MDD. AS STATED IN TABLE 5 PF AS/NZS 3725 STANDARD. THIS EQUATES TO A CIV≥15 OR CBR≥21 FOR BEDDING HAUNCHING AND SIZE ZONE. FOR OVERLAY AND BACKFILL CIV≥25 OR CBR≥49.
5. COMPACTION LAYER TO BE LESS THAN 150mm. FOR BEDDING AND OVERLAY USE A MINIMUM 80KG PLATE COMPACTOR WITH A MINIMUM 3 TO 4 PASSES. FOR HAUNCHING AND SIDE ZONE 15-20KG HAND RAMMER OR WACKER WITH A MINIMUM 20-30 BLOWS ON EACH SIDE. COMPACTED EVENLY EACH SIDE.
6. ALL PIPE WORKS AND MANHOLE MATERIALS, FITTING AND CONSTRUCTION SHALL COMPLY WITH NEW ZEALAND BUILDING CODE E1 SURFACE WATER STANDARDS. MANHOLE/CHAMBER THROATS TO BE PAINTED TO AUCKLAND COUNCIL STANDARDS.
7. AS BUILT LOCATIONS AND LEVELS TO BE TO AUCKLAND COUNCIL STANDARDS AND TO BE OBTAINED PRIOR TO BACKFILLING.
8. ALL PENETRATIONS INTO MANHOLES AND STRUCTURES TO BE SAW CUT OR CORES. SLEDGE HAMMER SHALL NOT BE USED TO CREATE OPENINGS.

WASTEWATER NOTES:

1. ALL WASTEWATER PIPES TO BE INSTALLED TO AS/NZS 2566.2- BURIED FLEXIBLE PIPELINES. RUBBER RING JOINTS (RRJ) SN16 uPVC PIPES TO BE USED UNLESS STATES OTHERWISE.
2. ALL PIPE WORKS, CONNECTIONS AND CONSTRUCTION SHALL COMPLY WITH NEW ZEALAND BUILDING CODE G13 FOUL WATER STANDARD.
3. AS-BUILT LOCATION AND LEVELS TO BE TO AUCKLAND COUNCIL STANDARD AND TO BE OBTAINED PRIOIR TO BACKFILLING.
4. COMPACTION LAYER TO BE LESS THAN 150mm. FOR BEDDING AND OVERLAY USE A MINIMUM 80KG PLATE COMPACTOR WITH A MINIMUM 3 TO 4 PASSES. FOR HAUNCHING AND SIDE ZONE 15-20KG HAND RAMMER OR WACKER WITH A MINIMUM 20-30 BLOWS ON EACH SIDE. COMPACTED EVENLY EACH SIDE.

WATER SUPPLY NOTES:

1. ALL POTABLE WATER INSTALLATION SHALL BE IN ACCORDANCE WITH THE WATERCARE SPECIFICATION AND STANDARD DRAWINGS UNLESS STATED OTHERWISE.
2. METALLIC WARNING TAPES SHALL BE LAID IN PIPE TRENCH WITH MARKING "DANGER - WATER MAIN BELOW" OR SIMILAR. DEPTH OF WARNING TAPE TO BE 250mm BELOW SURFACE OF FOOTPATH AND 400mm BELOW SURFACE IN CARRIAGEWAY.
3. WATER SUPPLY CONNECTIONS SHALL BE TO NEW ZEALAND BUILDING CODE G12.
4. AS-BUILT LOCATION AND LEVELS TO BE TO AUCKLAND COUNCIL STANDARD AND TO BE OBTAINED PRIOR TO BACKFILLING.

PAVEMENT NOTES:

1. CONTRACTOR TO DETERMINE IF SUBGRADE PROOF ROLLING IS REQUIRED AS ULTIMATELY THEY ARE RESPONSIBLE FOR ACHIEVING. THE REQUIRED COMPACTION FIGURES. PROOF ROLLING SHALL BE WITH A MINIMUM 10-12 TONNE STATIC STEEL DRUM ROLLER WHERE APPROPRIATE.
2. PAVEMENT SUBGRADE MINIMUM CBR OF 10. IF CBR < 10, CEMENT AND LIME STABILISATION WILL BE REQUIRED. ENGINEER APPROVAL IS REQUIRED FOR ANY UNDERCUTS.
3. FOR EXCAVATION DEPTHS REFER TO PROPOSED TYPICAL CROSS SECTIONS AND EARTHWORKS PLANS.
4. CONCRETE CRACK CONTROL SAW CUTS SHALL BE CARRIED OUT WITHIN 24 HOURS AFTER POURING AND SHALL BE MINIMUM 1/4 CONCRETE THICKNESS UNLESS STATED OTHERWISE.
5. ASPHALT JOINT SEALANT SHALL BE PLACED ALONG TIE IN POINT (INTERFACE) WITH EXISTING PAVEMENT.
6. REFER TO THE CIVIL TECHNICAL SPECIFICATION FOR THE COMPACTION REQUIREMENTS AND MATERAILS.

ISSUED FOR CONSENT
08 / 08 / 2024

EROSION AND SEDIMENT CONTROL NOTES:

1. CONTRACTOR SHALL SUBMIT THEIR OWN EROSION AND SEDIMENT CONTROL PLAN TO COUNCIL FOR APPROVAL PRIOR TO COMMENCING WORKS.
2. IT IS ENVISIONED DUE TO THE SITE SIZE THAT A SILT FENCE AND STABILISED ENTRANCE IS REQUIRED. IF EXCAVATION WORKS FALL WITHIN THE WET SEASON THE CONTRACTOR WILL SEEK A WINTER WORKS PERMIT PRIOR TO COMMENCING WORKS OR HALT WORKS UNTIL THE DRY SEASON.
3. ALL EROSION AND SEDIMENT CONTROLS WILL BE IN ACCORDANCE WITH AUCKLAND COUNCIL GUIDELINE DOCUMENT 2016/005 (GD05) "EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES IN THE AUCKLAND REGION".

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet
2	NOTES REVISED	30/04/2024	ElectroNet

Consultant	ElectroNet	File name: 4262-8060-1.dwg
Author	J. H'nboezem	
Auth Date	28/02/2024	Consultant project no: VEC6852
Checked by	R. Chan (BB)	
Chk by date	28/02/2024	Vector project no: EC-24-NRNF2-002
Approved by	R. Marx	
Appr by date	28/02/2024	

CIVIL SERVICES
GENERAL NOTES

Reference designation:

Drawing function:

Drawing stamp: FOR CONSENT AND TENDER

Scale at A3: NTS

Doc type:

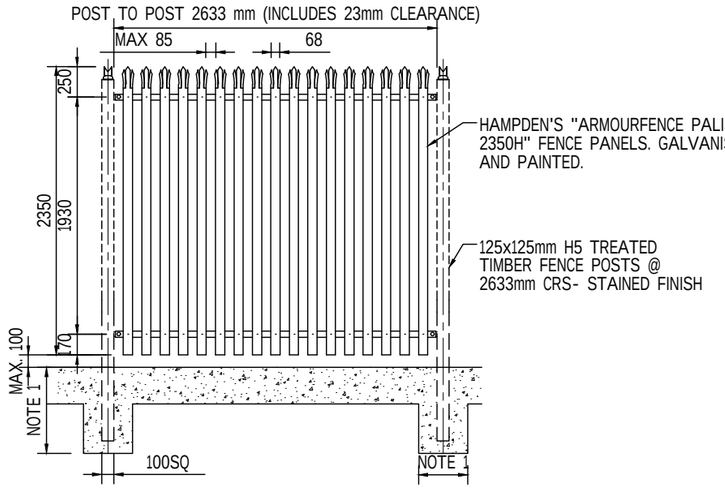
1. Overview & Layouts
Sandspit - 4262 (SSPT)

Drawing no: 4262-8060

Rev: 2

Sheet: 1 of 1

C:\Users\Quinton.Moss\M\Drawings\VEC6852 - Sandspit ZSS\02 - Civil and Structural\ 4262-8060-1.dwg



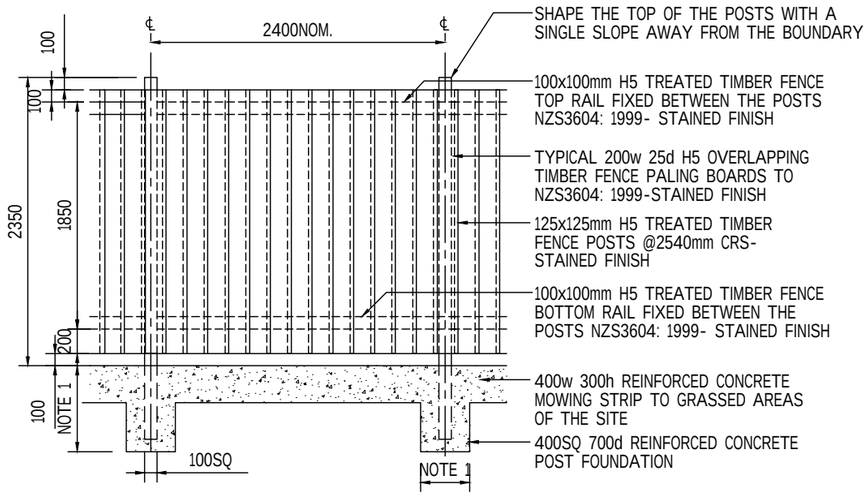
PALISADE ARMOURFENCE - ELEVATION

SCALE 1:50

NOTES

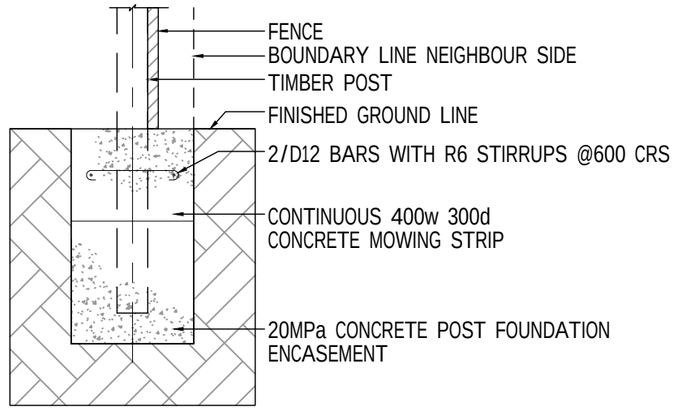
1. FENCE AND GATE DIMENSIONS TO BE VERIFIED BY CONTRACTOR WITH THE SUPPLIER.
2. READ THIS DRAWING WITH SITE PLAN AND LAYOUT DRAWINGS.
3. REFER TO THE TOPOGRAPHIC PLAN FOR THE FINAL SET-OUT OF PROPERTY BOUNDARY.
4. ALL ACCESSORIES, FIXINGS AND LOCKING SYSTEM SHALL BE SUPPLIED AND INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS.
5. REFER TO DRAWINGS 4262-8810 AND 4262-8811 FOR FIXING DETAIL OF FENCE POSTS TO RETAINING WALL.

ISSUED FOR CONSENT
08 / 08 / 2024



TIMBER BOARD FENCE - ELEVATION

SCALE 1:50



FENCE POST FOUNDATION DETAIL

SCALE 1:20

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	28/02/2024	ElectroNet
2	REDESIGNED	30/04/2024	ElectroNet

Consultant	ELECTRONET	File name:
Author	J. H'nboezem	4262-8713-1.dwg
Auth Date	28/02/2024	Consultant project no:
Checked by	R. Chan (BB)	VEC6852
Chk by date	28/02/2024	Vector project no:
Approved by	R. Marx	EC-24-NRNF2-003
Appr by date	28/02/2024	

TYPICAL FENCE AND GATE DETAILS PART 1

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

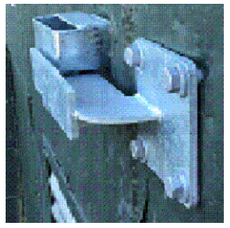
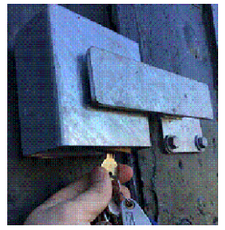
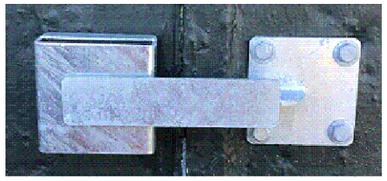
Scale at A3: AS SHOWN

Doc type:

Drawing no: 4262-8713

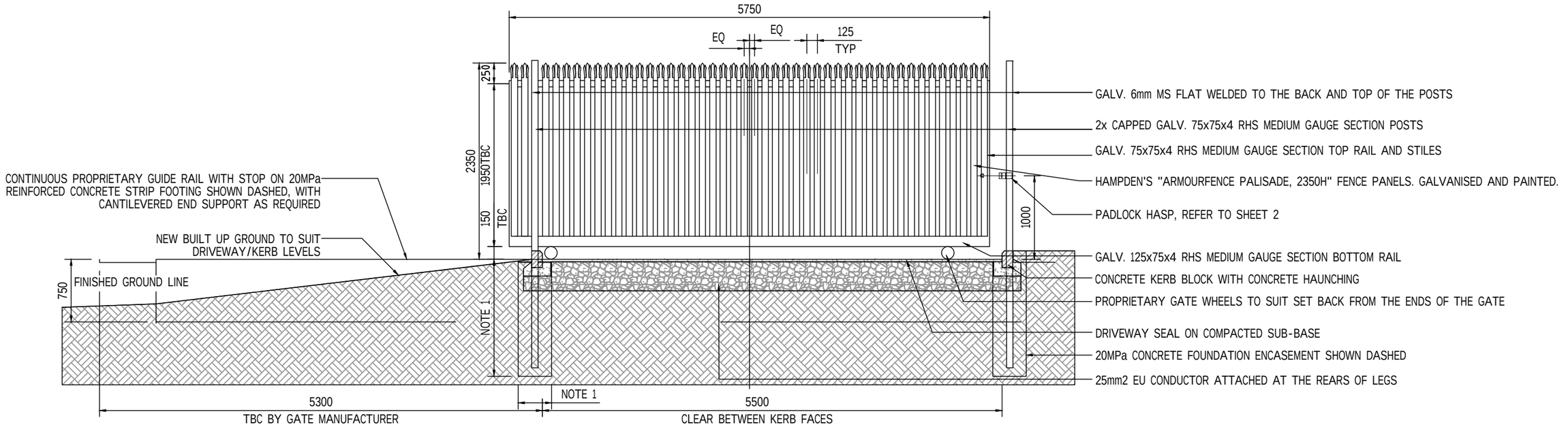
Rev: 2

Sheet: 1 of 2

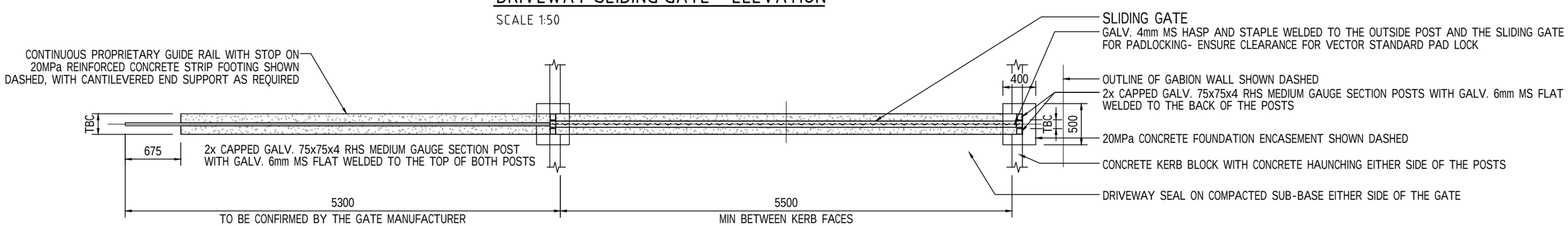
ISSUED FOR CONSENT
..08.. / ..08.. / 2024

PADLOCK-HASP



DRIVEWAY SLIDING GATE - ELEVATION

SCALE 1:50



DRIVEWAY SLIDING GATE - PLAN

SCALE 1:50

Rev	Amendments	Date	Name
1	ISSUED FOR APPROVAL	30/04/2024	ElectroNet

Consultant	ELECTRONET	File name:	4262-8713-1.dwg
Author	J. H'nboezem		
Auth Date	16/04/2024	Consultant project no:	VEC6852
Checked by	R. Chan (BB)		
Chk by date	16/04/2024	Vector project no:	EC-24-NRNF2-003
Approved by	R. Marx		
Appr by date	16/04/2024		

vector electricity

TYPICAL FENCE AND GATE DETAILS PART 2

13. CIVIL & STRUCTURAL
Sandspit - 4262 (SSPT)

Reference designation:

Drawing function:

Drawing FOR CONSENT AND stamp: TENDER

Scale at A3: AS SHOWN

Doc type:

Drawing no: 4262-8713

Rev: 1

Sheet: 2 of 2

APPENDIX B – EDC FLOOD ASSESSMENT REPORT

27 July 2023 Our Ref: 51273-Rev 1

ElectroNet
PO Box 6138
Upper Riccarton
Christchurch 8442
Via email: *ja.hoogenboezem@electronet.co.nz*

Attn. JA Hoogenboezem,

RE: SANDSPIT ZONE SUBSTATION
FLOOD PLAIN REPORT

1.0 INTRODUCTION

Engineering Design Consultants Ltd (EDC) have been engaged by ElectroNet to provide an assessment of the flood risk to a proposed substation located at Lot 1 DP 426584, Sandspit Road, Snells Beach 0982.

2.0 SITE LOCATION

Please refer to Figure 1 below for the site location.

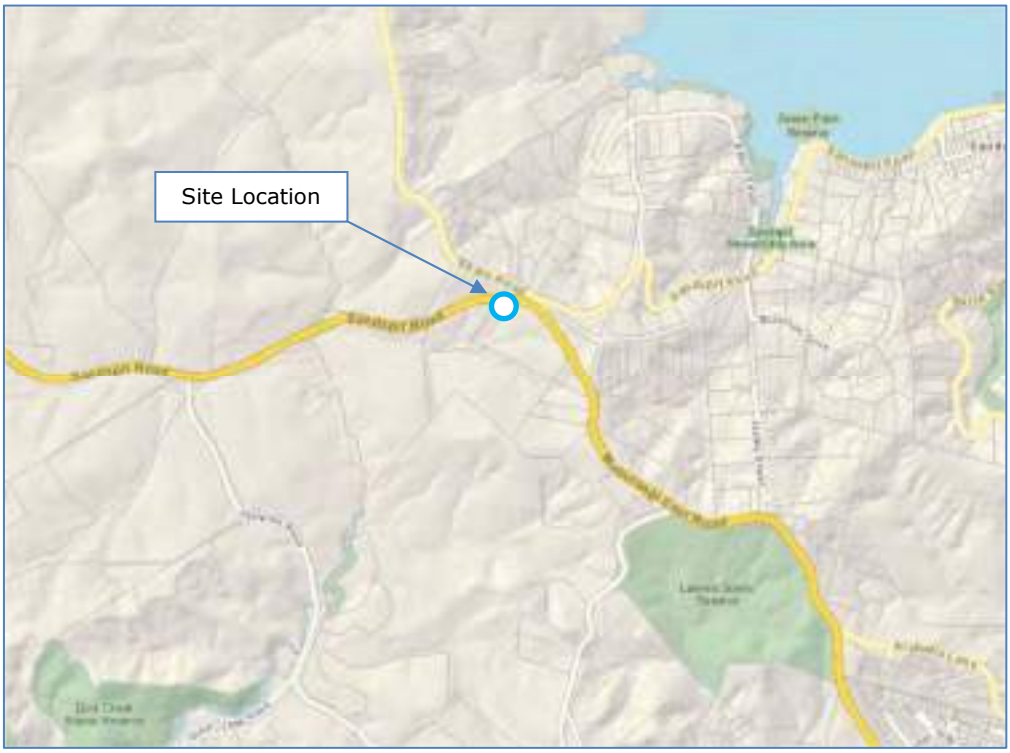


Figure 1 - Site location (Auckland Council GIS)

3.0 EXISTING SITE FEATURES

Existing site features and topography are shown in Figure 2.

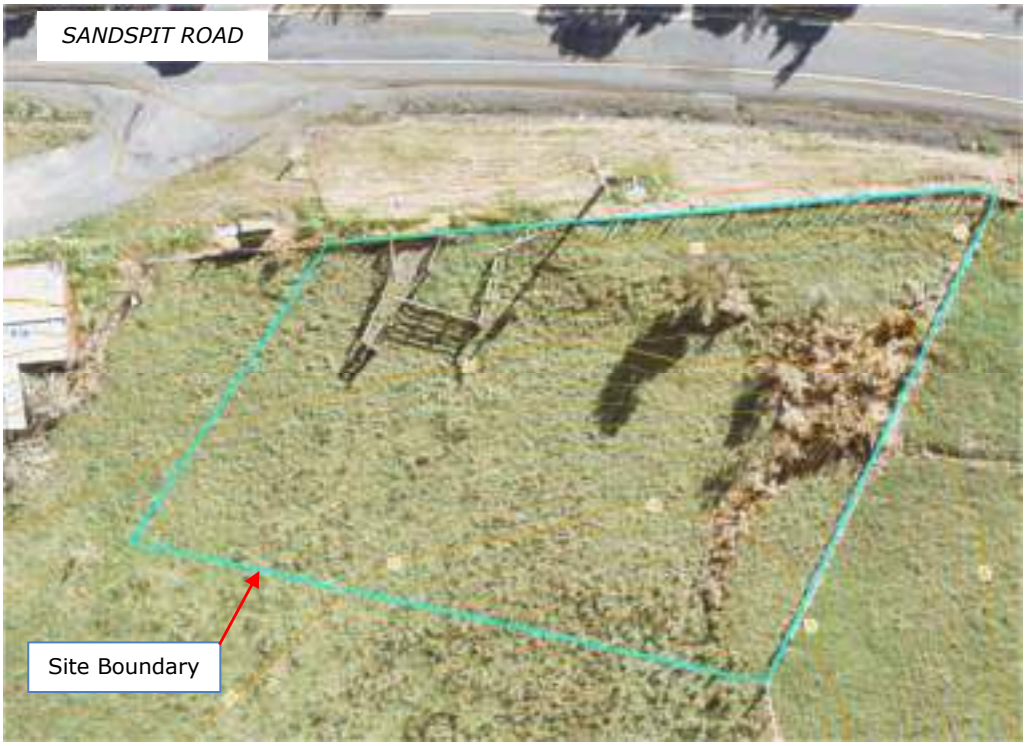


Figure 2 - Existing site features (Auckland Council GIS)

The existing site has no impervious coverage. There is a gully feature running from north to south down the eastern side of the site as shown in Figure 3.

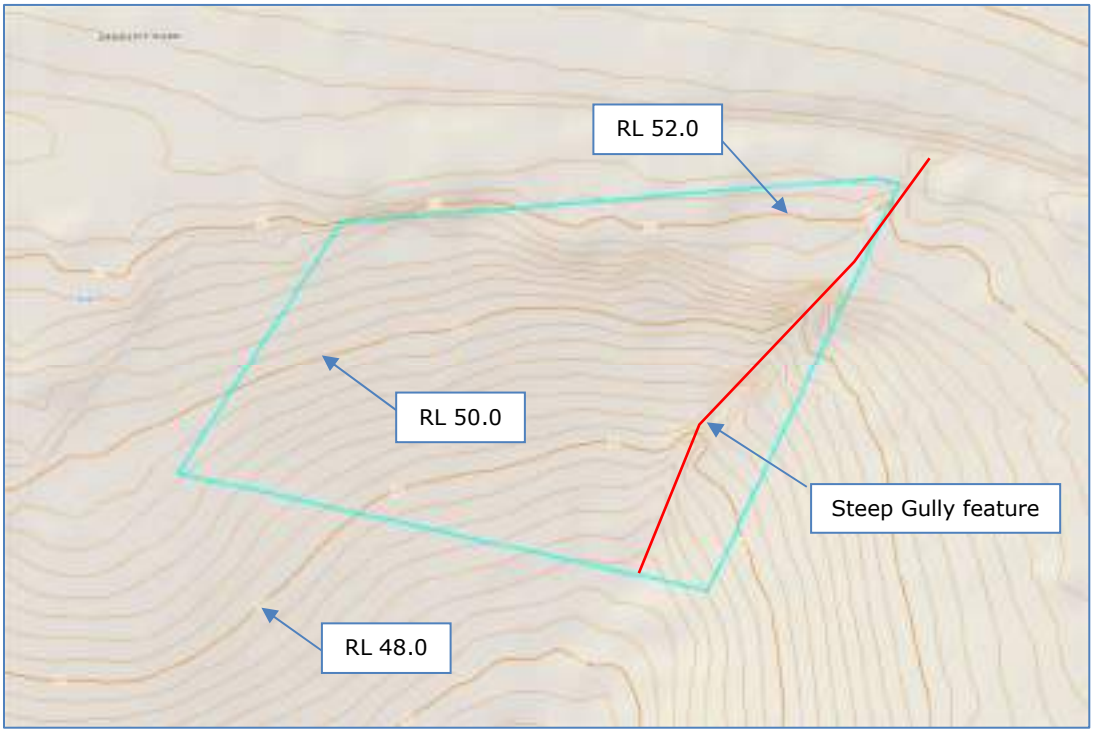


Figure 3 - Existing site topography (Auckland Council GIS)

4.0 PROPOSED DEVELOPMENT

The proposed development is shown in Figure 4.

Figure 4 - Proposed site plan (from ElectroNet)

No details are currently available for any bulk earthworks that may be necessary to facilitate the proposed buildings over sloping land. The proposal currently includes electrical equipment that is close to the gully feature on the eastern side of the site. This report is therefore focused on the flood risk associated with this gully feature.

5.0 FLOOD HAZARD

Figure 5 confirms the Council GIS flood hazard details.

Figure 5 - Existing flood hazards (Auckland Council GIS)

The overland flow path down the eastern side of the site has an upstream catchment extending along part of Sandspit Road and Mahurangi East Road as shown in Figure 6.

Figure 6 – Flow Path Catchment (Auckland Council GIS)

The upstream catchment area is 4.436Ha. There is less than 40% impervious coverage at present, but we recommend a conservative 60% coverage to allow for future development.

The HIRDS 24 hour rainfall depth for the RCP8.5 climate scenario out to 2100 is 310mm for the 200 year storm. We have also adopted a 0.17 hour time of concentration (i.e. minimum allowed).

The attached calculations in Appendix A using Hec-Hms confirm an estimated 200 year flow rate of 2.8 m^3/sec.

6.0 FLOOD HAZARD ASSESSMENT

The flow path comprises an open channel with a base with that is typically around 0.5-1m wide and side slopes that vary between 1:6 and 1:8. No specific topographical information is available at this stage, and our assessment is based on the Auckland Council GIS data.

The flow path is sparsely vegetated and runs through open pasture. There is some erosion along the gully and several culverts with associated fill. Photographs of this gully feature are provided below.

Photo 1 – Flow Path looking South from edge of Sandspit Road

Photo 2 – Erosion along flow path

Stormwater analysis using Manning's equation has been conducted for three flow path cross sections using GIS data. The GIS data and the position of each cross section is shown on Drawing 51273/F100. The cross sections are provided on Drawings 51273/F201 & F202.

The analysis has confirmed a stormwater flow depth of 500-600mm above the open channel invert to convey the estimated 200 year flow rate of 2.8m^3/sec. The estimated extent of a 500m-600mm deep flood plain is shown on Drawing 51273/F100.

7.0 CONCLUSIONS

- There is an existing open channel down the eastern side of the site which has an upstream catchment area of 4.436Ha.
- The estimated 200 year flow rate of 2.8 m^3/sec.
- The open channel has a steep grade and there are signs of erosion.
- The 200 year flood plain will generally comprise a 500mm-600mm depth of stormwater flow based on Manning's equation and the approximate GIS contours available. Further refinement could be carried out with site specific survey data.
- The current layout of the development will result in a building that extends slightly into the outer western edge of the 200 year flood plain, as shown on Drawing 51273/F100. We recommend the minimum floor level for any building adjacent to the edge of this flood plain be elevated at least 500mm above the indicated flood level closest to the upstream end of the building.
- Bulk filling or any other obstructions of the 200 year flood plain should be minimised to retain an overland flow path down the eastern side of the site. This will make retaining walls more practical on the eastern side of the building platforms rather than more expansive battered fill slopes.
- We recommend the project include some erosion protection measures, such as rock lining of the open channel. A site survey and civil engineering advice will be required in connection with these works after site survey. This work could also include some minor re-alignment/shaping of the open channel to suit the final intended layout of the development to minimise adverse effects on the flood plain.

EPORT PREPARED BY:

Zach Lassen
BE (Civil) Hons
Civil Engineer

REPORT CHECKED BY:

Ian Hendy
B.E. (Civil), M. IPENZ, CP Eng.
Technical Lead - Civil

8.0 LIMITATIONS

Except where required by law, the findings presented as part of this report are for the sole use of our client, as noted above. The findings are not intended for use by other parties, and may not contain sufficient information for the purposes of other parties or other uses. No third party (excluding the local authority) may use or rely upon this report unless authorised by EDC in writing.

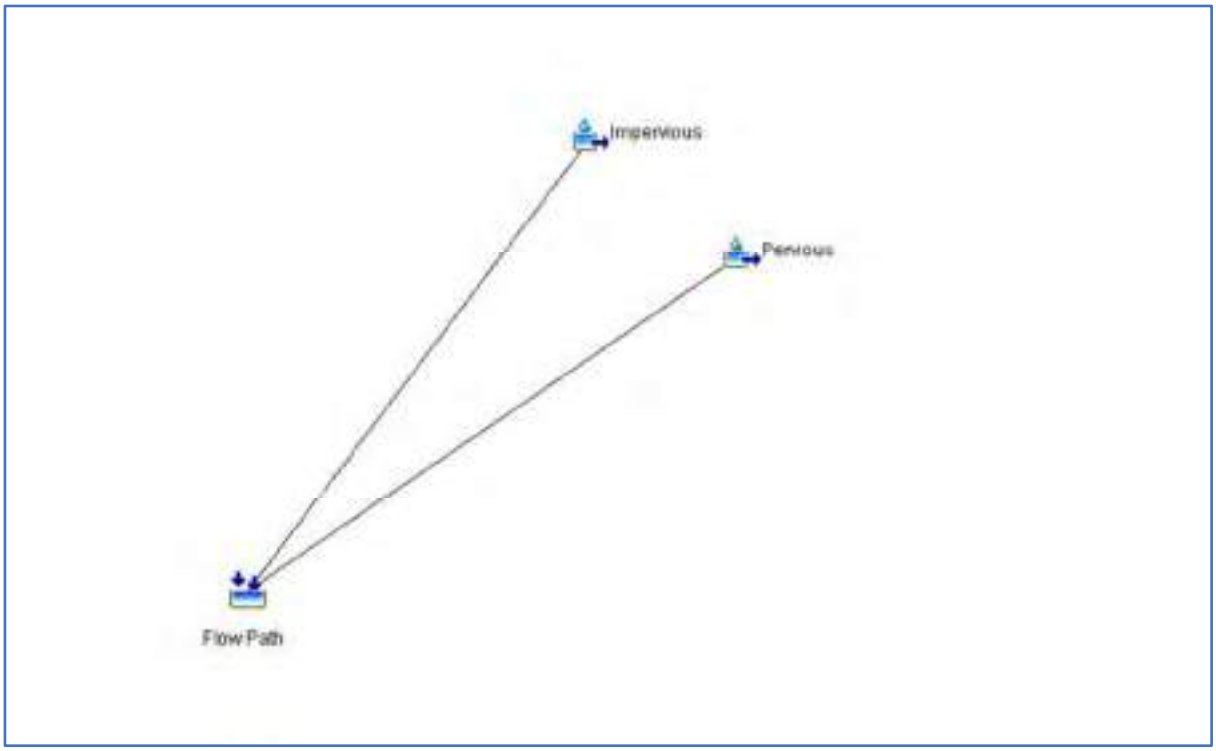
To the extent permitted by law, EDC expressly disclaims and excludes liability for any loss, damage, cost or expense suffered by any third party relating to or resulting from the use of, or reliance upon any information contained in this report. It is the responsibility of third parties to independently make enquiries or seek advice in relation to their particular requirements.

Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practicing in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report, in regard to its accuracy or completeness.

Our opinions and recommendations are based on our comprehension of the current regulatory standards and must not be considered legal opinions. For legal advice, please consult your solicitor. This opinion is not intended to be advice that is covered by the Financial Advisors Act 2010.

This report includes Appendices. These appendices should be read in conjunction with the main part of the report and this report should not be considered complete without them.

APPENDIX A HEC-HMS CALCULATIONS

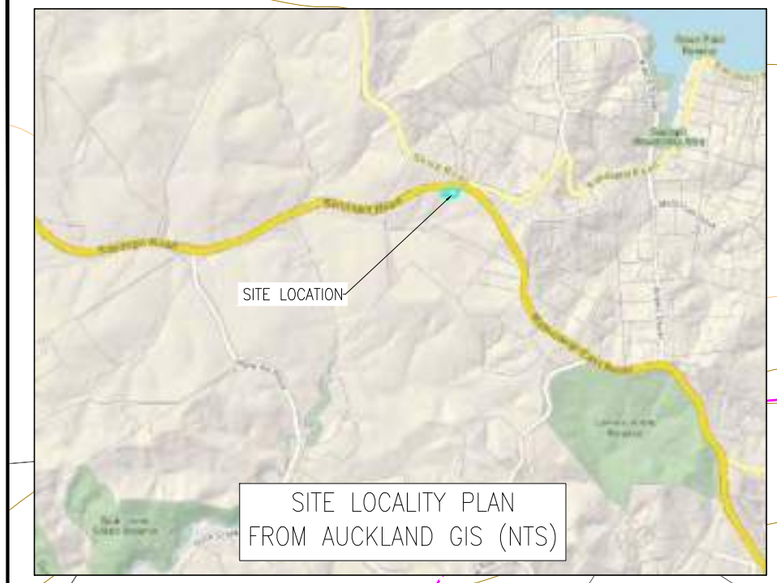


Hec-Hms Model

Hydrologic Element	Drainage Area (KM2)	Peak Discharge (M3/S)	Time of Peak	Volume (MM)
Impervious	0.026616	1.4676	01Jan2000, 09:59	309.7148
Flow Path	0.044360	2.2809	01Jan2000, 10:00	280.1040
Pervious	0.017744	0.8141	01Jan2000, 10:00	235.6878

200 Year Results

APPENDIX B DRAWINGS



SITE LOCALITY PLAN
FROM AUCKLAND GIS (NTS)

SANDSPIT ROAD

XS-1
XS-2
XS-3

SWITCHROOM (FROM ELECTRONET INDICATIVE LAYOUT)

LOT 1
DP 426584

BUILDING OUTLINE (FROM ELECTRONET INDICATIVE LAYOUT)

EXISTING OVERLAND FLOW PATH
(From GIS)

CHANNEL INVERT IL49.5
200 YEAR FLOOD LEVEL 50.0

SITE BOUNDARY (FROM GIS)

CHANNEL INVERT IL48.0
200 YEAR FLOOD LEVEL 48.6

CHANNEL INVERT IL47.0
200 YEAR FLOOD LEVEL 47.5

APPROXIMATE EXTENT OF 200 YEAR FLOOD PLAIN WITH STORMWATER GENERALLY 500–600MM DEEP ABOVE CHANNEL INVERT

EXISTING SITE CONTOURS (FROM GIS ONLY & SURVEY RECOMMENDED)

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

PLEASE DO NOT SCALE FROM THIS DRAWING

S:\51200\51273 - Sandspit Zone Substation - G\4 - Civil\Drawings\20230713_51273_Sandspit Substation_Flood Report.dwg

27/07/2023 12:42

B	27/07/2023	AMENDED TEXT	ZL	IH
A	AS DATED	FLOOD REPORT	ZL	IH
	DATE	REVISION	BY	CHK

ENGINEERING DESIGN CONSULTANTS
CIVIL | STRUCTURAL | GEOTECHNICAL | ENVIRONMENTAL | FIRE
Auckland Office: 1st Floor, Unit 1, 100 Bush Road, Albany 0632 (PO Box 118, Albany Village 0755). Ph: 09 451 9044 Fax: 09 415 1280
Christchurch Office: 15b Leslie Hills Drive, Riccarton 8011 (PO Box 9016, Tower Junction, 8011). Ph: 03 355 5559
Email: team@edc.co.nz Website: www.edc.co.nz

PROJECT: **ELECTRONET**
LOT 1 DP 426584
SNELLS BEACH

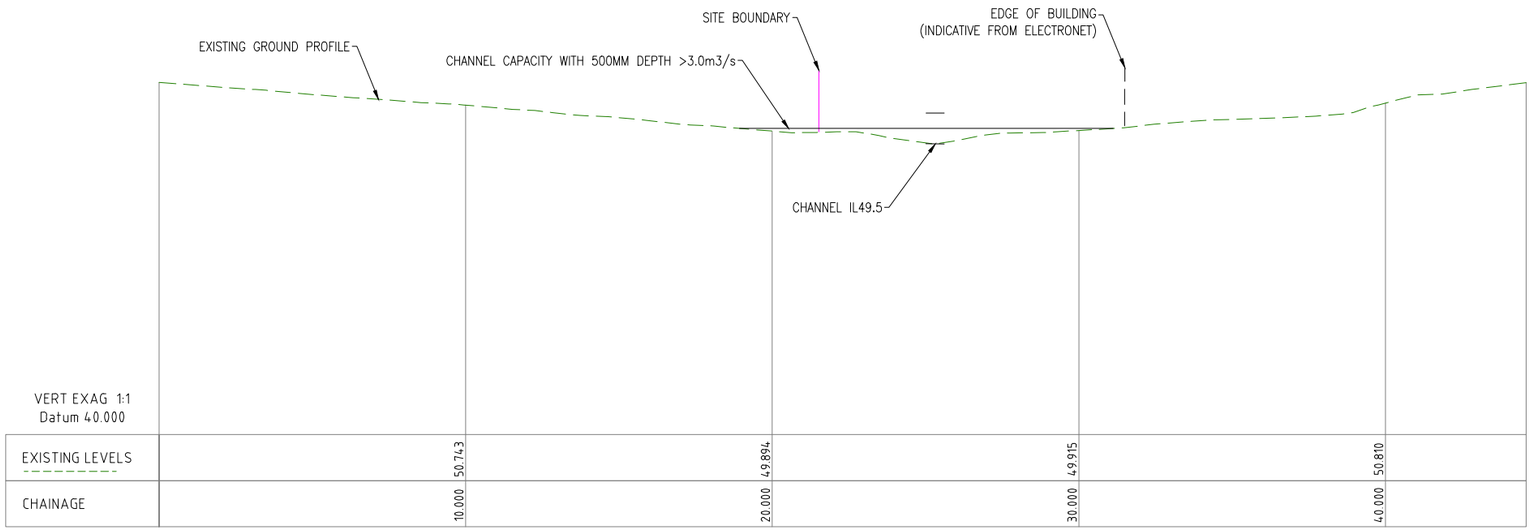
DRAWING TITLE: **FLOOD HAZARD REPORT**
EXISTING SITE PLAN

DESIGNED	ZL
DRAWN	ZL
REVIEWED	IH
DATE	10/07/2023

A1 SCALE	1:100
A3 SCALE	1:200
PAPER SPACE SIZE	1:1 @ A1

FOR INFORMATION
NOT FOR CONSTRUCTION

PROJECT 51273 | DRAWING F100 | REVISION B

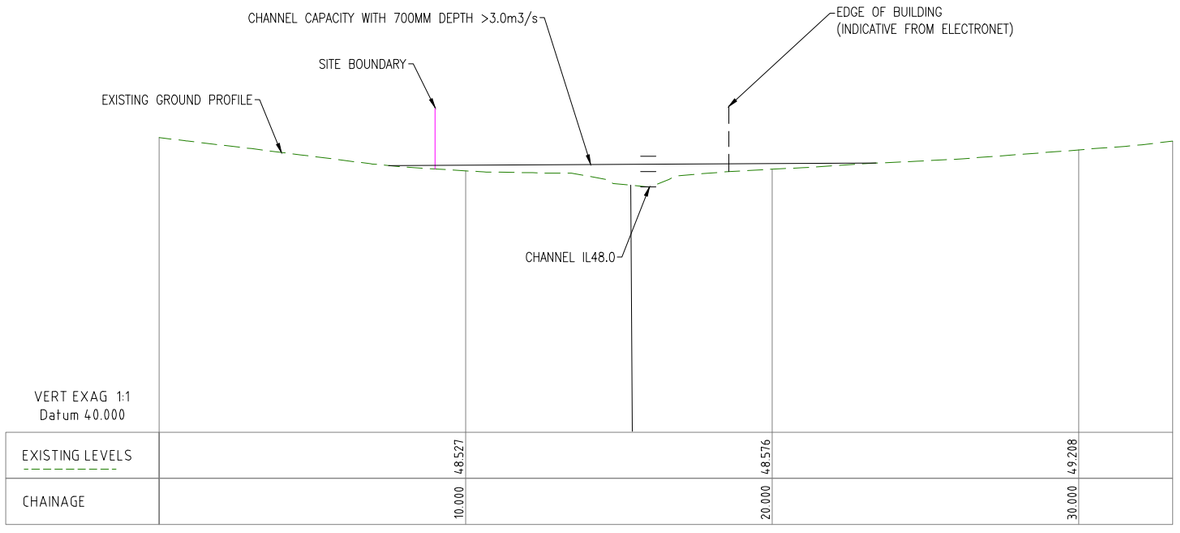


WL	Area	P	R	Q
50.0	2.25	12	0.18	>3m3/s

'n' = 0.075 (Rough natural channel)
s = 10% (varies)

CROSS SECTION: XS–1

REFER TO SHEET F100 FOR LOCATION OF LONG SECTION



WL	Area	P	R	Q
48.5	1.25	8	0.15	1.5m3/s
49.0	1.25	8	0.15	>3m3/s

'n' = 0.075 (Rough natural channel)
s = 10% (varies)

CROSS SECTION: XS–2

REFER TO SHEET F100 FOR LOCATION OF LONG SECTION

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

PLEASE DO NOT SCALE FROM THIS DRAWING

S:\51200\51273 - Sandspit Zone Substation - Gt4 - Civil\Drawings\ 20230713_51273_Sandspit Substation_Flood Report.dwg

	DATE	REVISION	BY	CHK
A	AS DATED	FLOOD REPORT	ZL	IH

ENGINEERING DESIGN CONSULTANTS
CIVIL | STRUCTURAL | GEOTECHNICAL | ENVIRONMENTAL | FIRE
Auckland Office: 1st Floor, Unit 1, 100 Bush Road, Albany 0632 (PO Box 118, Albany Village 0755). Ph: 09 451 9044 Fax: 09 415 1280
Christchurch Office: 15b Leslie Hills Drive, Riccarton 8011 (PO Box 9016, Tower Junction, 8011). Ph: 03 355 5559
Email: team@edc.co.nz Website: www.edc.co.nz

PROJECT: **ELECTRONET**
LOT 1 DP 426584
SNELLS BEACH

DRAWING TITLE: **FLOOD HAZARD REPORT**
CROSS SECTIONS - SHEET 1 OF 2

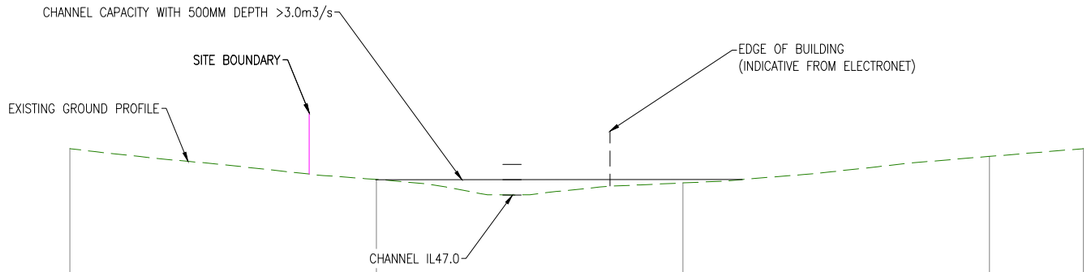
DESIGNED	ZL
DRAWN	ZL
REVIEWED	IH
DATE	10/07/2023

A1 SCALE	1:100
A3 SCALE	1:200
PAPER SPACE SIZE	1:1 @ A1

FOR INFORMATION
NOT FOR CONSTRUCTION

PROJECT 51273 | DRAWING F201 | REVISION A

27/07/2023 12:42



WL	Area	P	R	Q
47.5	2.7	12	0.23	>3m3/s

'n' = 0.075 (Rough natural channel)
s = 10% (varies)

VERT EXAG 1:1 Datum 40.000				
EXISTING LEVELS	47.501	47.384	48.251	
CHAINAGE	10.000	20.000	30.000	

CROSS SECTION: XS-3

REFER TO SHEET F100 FOR LOCATION OF LONG SECTION

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

PLEASE DO NOT SCALE FROM THIS DRAWING

S:\51200\51273 - Sandspit Zone Substation - G4 - Civil\Drawings\20230713_51273_Sandspit Substation_Flood Report.dwg
27/07/2023 12:43

A	AS DATED	FLOOD REPORT	ZL	IH
	DATE	REVISION	BY	CHK

ENGINEERING DESIGN CONSULTANTS
CIVIL | STRUCTURAL | GEOTECHNICAL | ENVIRONMENTAL | FIRE
Auckland Office: 1st Floor, Unit 1, 100 Bush Road, Albany 0632 (PO Box 118, Albany Village 0755). Ph: 09 451 9044 Fax: 09 415 1280
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PROJECT: ELECTRONET
LOT 1 DP 426584
SNELLS BEACH

DRAWING TITLE: FLOOD HAZARD REPORT
CROSS SECTIONS - SHEET 2 OF 2

DESIGNED	ZL
DRAWN	ZL
REVIEWED	IH
DATE	10/07/2023

A1 SCALE	1:100
A3 SCALE	1:200
PAPER SPACE SIZE	1:1 @ A1

FOR INFORMATION
NOT FOR CONSTRUCTION

PROJECT 51273 | DRAWING F202 | REVISION A

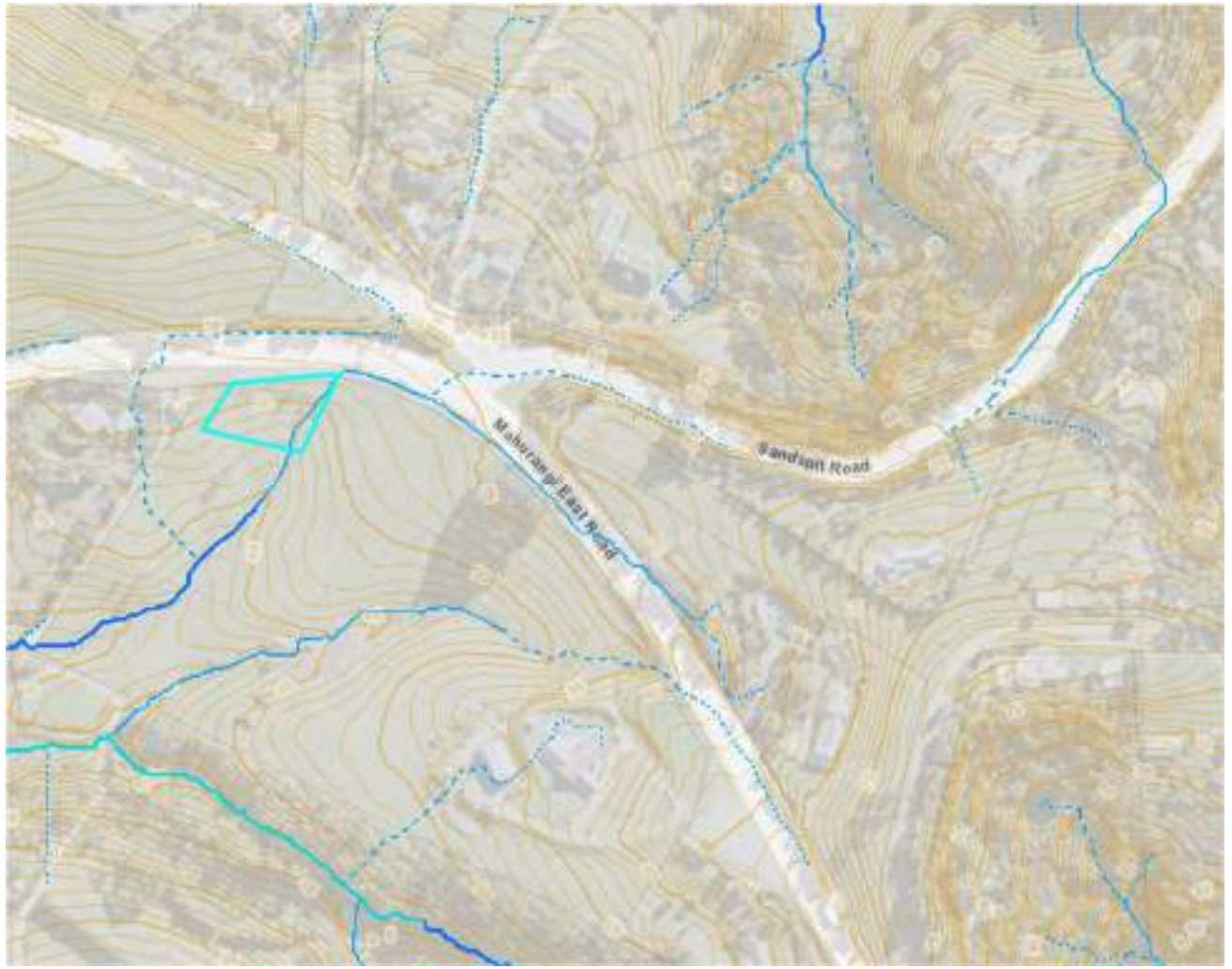
APPENDIX C – FLOOD ASSESSMENT VERIFICATION

Sandspit ZSS

Flooding snapshots and notes

GIS snapshot

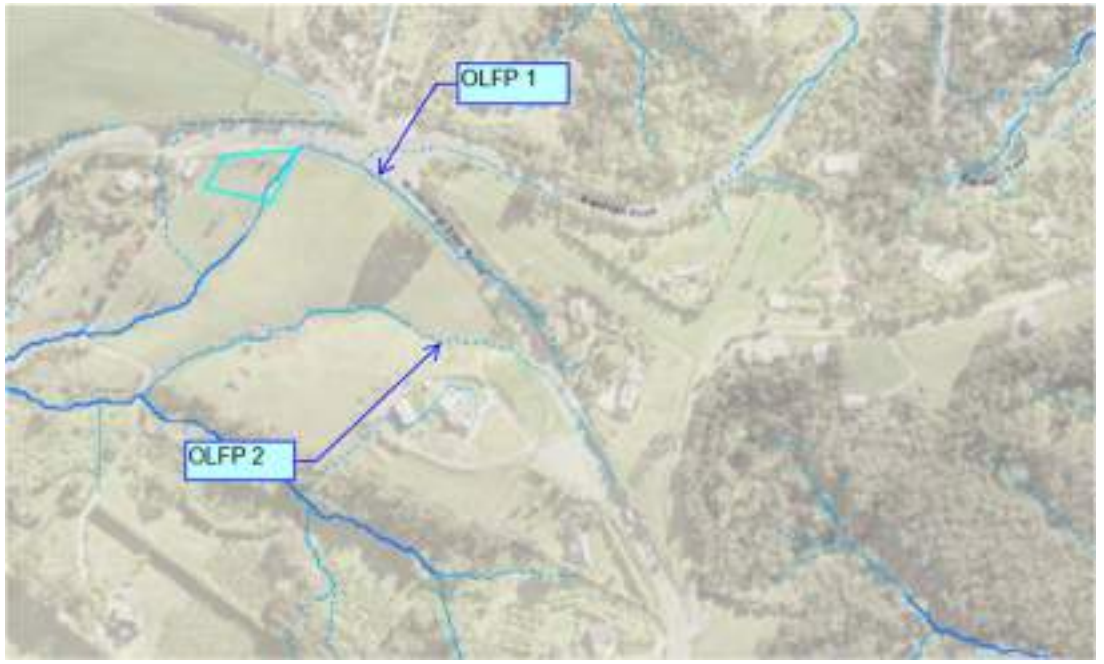
- Site is located at the top of a gully.
- Has an overland flowpath that is collected from Mahurangi East Road and Sandpit Road.
- See next slide for overall catchment and separated catchment

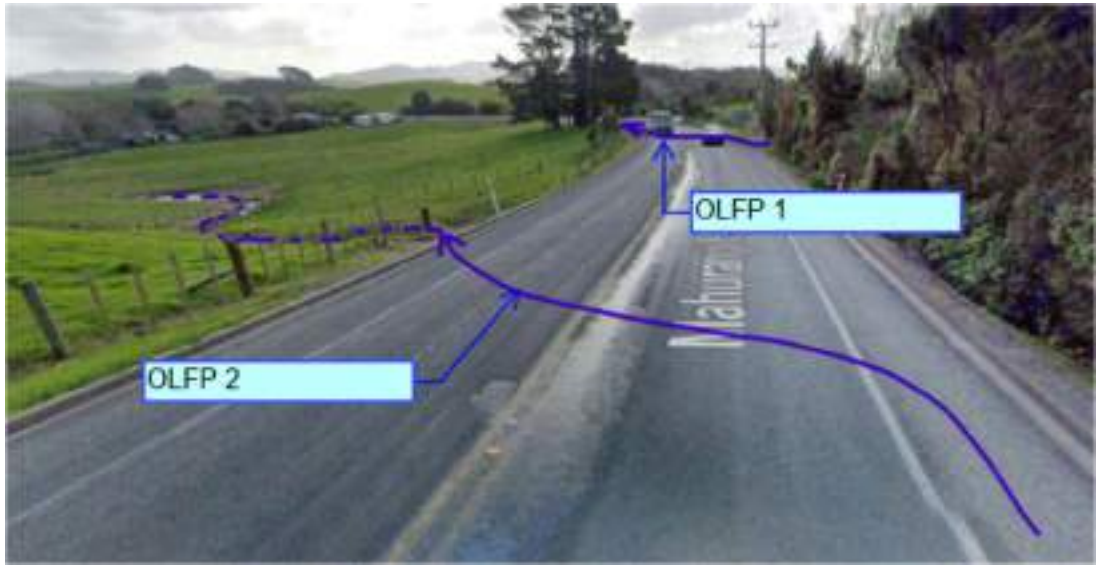


Two OLFP are looked at. OLFP does not appear to be real based on Google Street View.

Surface water will need to overtop the southern kerb to get into the stream for OLFP to be realistic.

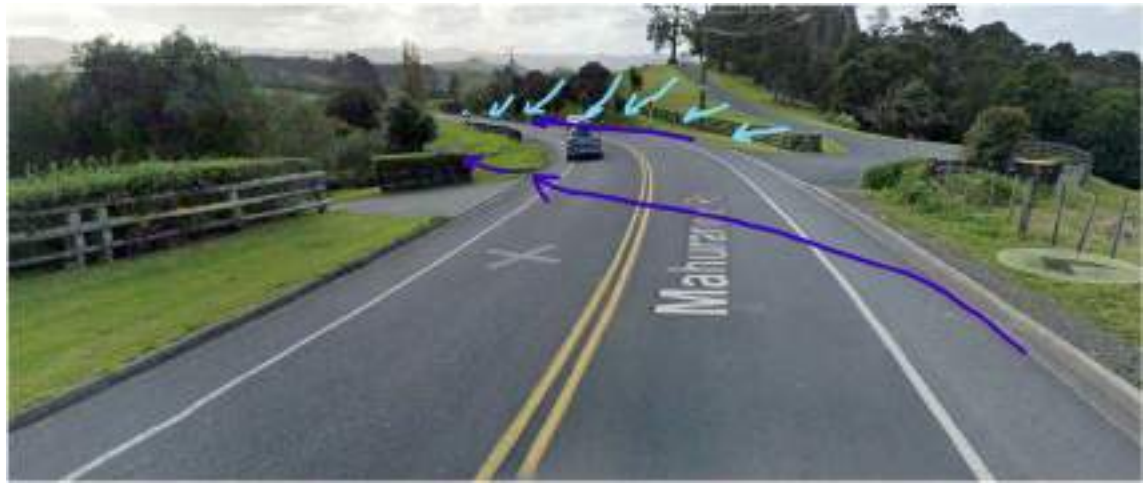
Conduct a surface kerb channel calculation with the OLFP 2 catchment area to determine if water overtops the kerb.

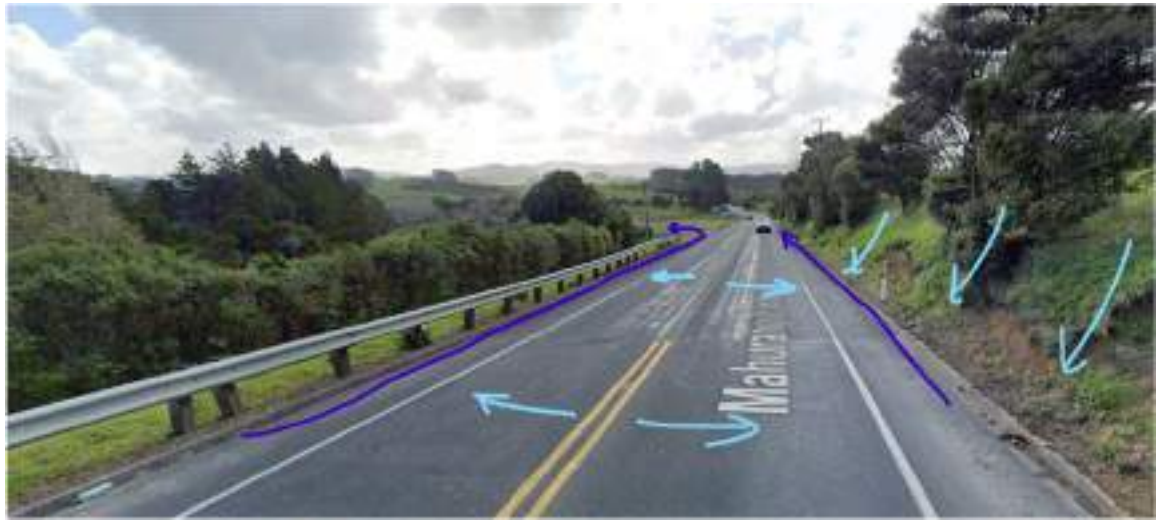




Google Street view – OLFP 1 assessment

Google Street view – OLFP 2 assessment





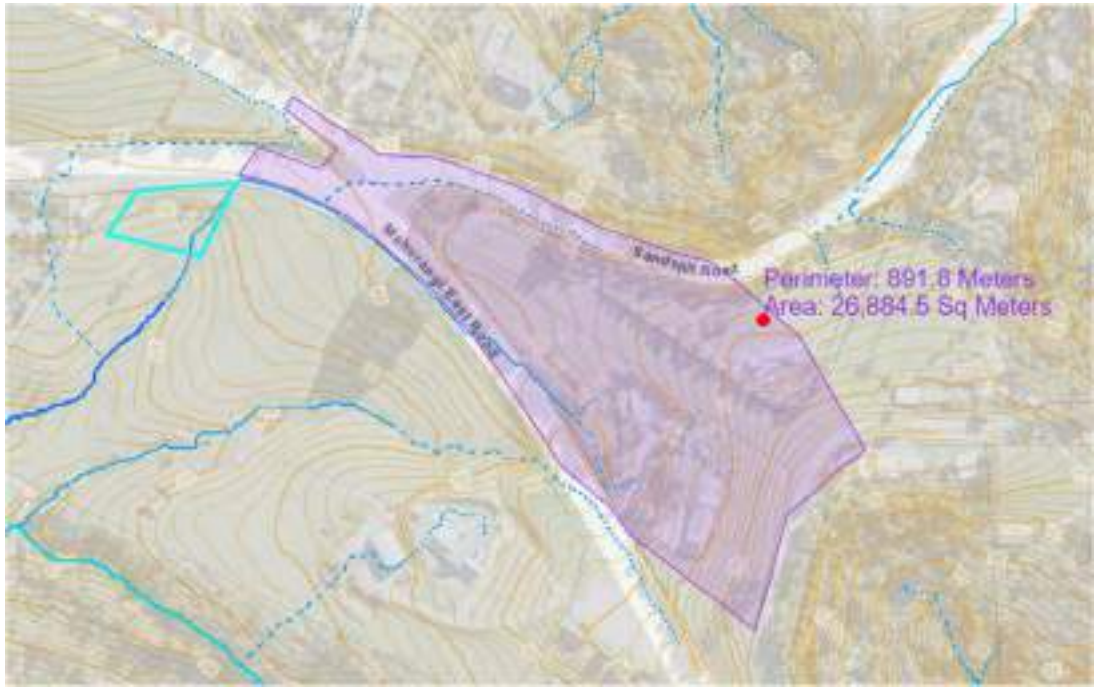
OLFP 2

- We’ll assume that the kerb opening doesn’t allow water to bypass so the water will just cross the road.

- Note even if water bypass, the surface water will contribute to OLFP 1.

Catchment Area

OLFP 1 Catchment
GIS Catchment area = 23,633m^2



Overland Flow Paths - 1ha to 3ha (15,000)

Peak Flow 100yr Future 3.8 degree (m3/s)	Peak Flow 10yr Future 3.8 degree (m3/s)	Peak Flow 2yr Future 3.8 degree (m3/s)	Catchment Area (m2)	Impervious Future (%)
1.520	0.964	0.502	22923	59.84
1.575	0.994	0.521	23633	60.52

OLFP 2 Catchment
GIS Catchment area = 5,334m^2

Overland Flow Paths - 4000m2 to 1ha (8,000)

Attribute	Value
Peak Flow 100yr Future 3.8 degree (m3/s)	0.358
Peak Flow 10yr Future 3.8 degree (m3/s)	0.228
Peak Flow 2yr Future 3.8 degree (m3/s)	0.123
Catchment Area (m2)	5334

Catchment 2 Calculation Parameters

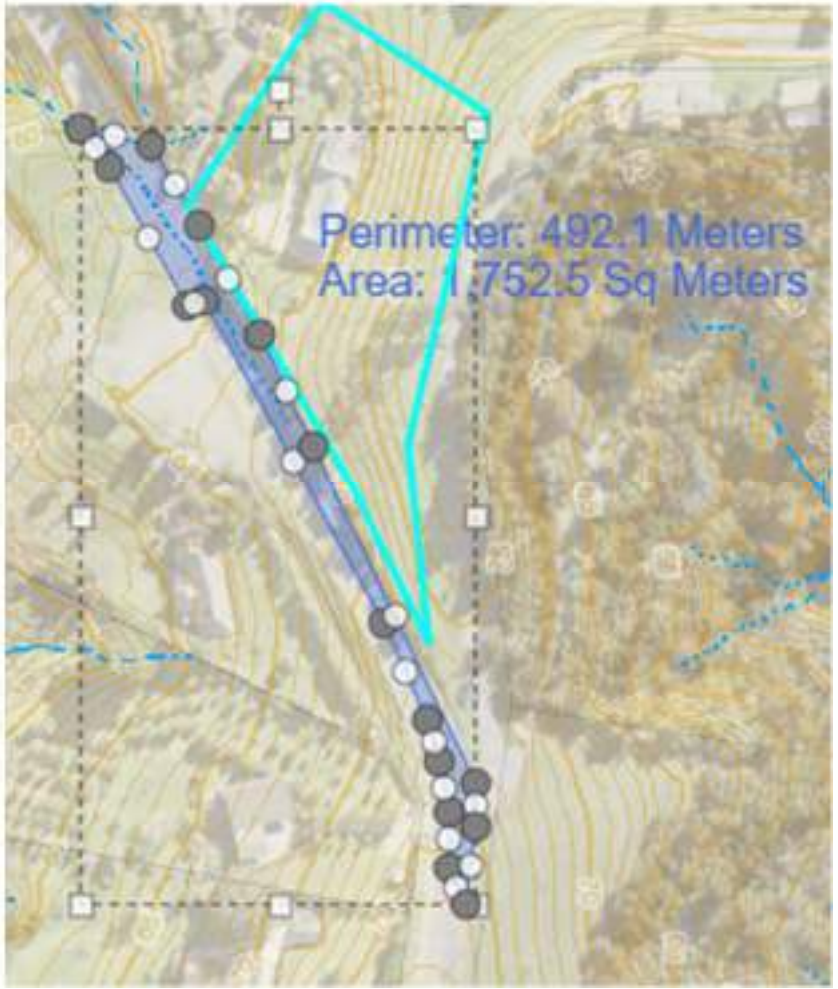
Allow run-off coefficients based on Table 1 from Building Code E1/VM1

- Road area = Allow 1,750m^2 as road pavement.
  (C = 0.85)
- Residential = Allow remaining 4,280m^2 to be residential development.
  (C = 0.55)
- Assume Road Geometry:
  - Standard kerb height of 150mm
  - 3% cross fall.
  - 5m from kerb to apex
- Road grade along catchment = 6.25%
  - GIS Road length = 200m
  - GIS Fall = 74m – 61.5m = 12.5m
- Rainfall assessment (100-year storm)
  - Check for 3.5Deg and 2.1Deg
    - 2.1Deg = 2.1 x 13.6% = 1.286
    - 3.5Deg = 3.5 x 13.6% = 1.476
  - Rainfall = 152mm + 32mm = 184mm
    - 237mm for 2.4deg climate change factor
    - 272mm for 3.5deg climate change factor
  - For 250-year storm, assume 13.6% per degree Celsius as well.

Table 1: Run-off Coefficients

Description of surface	C
Natural surface types	
Bare impermeable clay with no interception channels or run-off control	0.70
Bare uncultivated soil of medium soakage	0.60
Heavy clay soil types:	
– pasture and grass cover	0.40
– bush and scrub cover	0.35
– cultivated	0.30
Medium soakage soil types:	
– pasture and grass cover	0.30
– bush and scrub cover	0.25
– cultivated	0.20
High soakage gravel, sandy and volcanic soil types:	
– pasture and grass cover	0.20
– bush and scrub cover	0.15
– cultivated	0.10
Parks, playgrounds and reserves:	
– mainly grassed	0.30
– predominantly bush	0.25
Gardens, lawns, etc.	0.20
Developed surface types	
Fully roofed and/or sealed developments	0.90
Steel and non-absorbent roof surfaces	0.90
Asphalt and concrete paved surfaces	0.85
Near flat and slightly absorbent roof surfaces	0.80
Stone, brick and precast concrete paving panels:	
– with sealed joints	0.80
– with open joints	0.60
Unsealed roads	0.50
Railway and unsealed yards and similar surfaces	0.35
Land use types	
Industrial, commercial, shopping areas and town house developments	0.65
Residential areas in which the impervious area is less than 35% of gross area	0.45
Residential areas in which impervious area is 35% to 50% of gross area	0.55

Note:
Where the impervious area exceeds 50% of gross area, use method at Paragraph 3.1.2



Catchment 2 Summary

Overland Flow Calculations 217mm/hr rainfall intensity

250-year storm event - 3.5Deg

Catchment Areas Names ~	Post-Development Catchment (ha)	Q_{100} Peak Flow (total) (m^3/s)	$I_{100yr,\ 10min}$ (mm/hr)	C	Grade of Road (minimum) (%)	Longitudinal grade of road (1/S)	Road crossfall (1/Z)	Mannings for road **	Flow correction (F) **	Spread of flow w (m)	Depth of Flow d (m) ^	Channel Flow (m3/s) *	Flow area (m2)	Flow Velocity (m/s)
OLFP 2 Road	0.1752	0.13	320	0.85	6	0.06	33	0.015	0.9	2.18	0.066	0.13	0.07	1.80
OLFP 2 Resident	0.4280	0.21	320	0.55	6	0.06	33	0.015	0.9	2.61	0.079	0.21	0.10	2.03
OLFP 2 Road + Resident	0.6032	0.34			6	0.06	33	0.015	0.9	3.14	0.095	0.34	0.15	2.29

~ Refer included catchment plan for reference to catchment area names (Drawing C-412).

^ Flow depth is at the edge of seal. As below, the channel flow does not include the flow in kerb and channel - only the road. Therefore the depth at the kerb face is 30mm higher than shown.

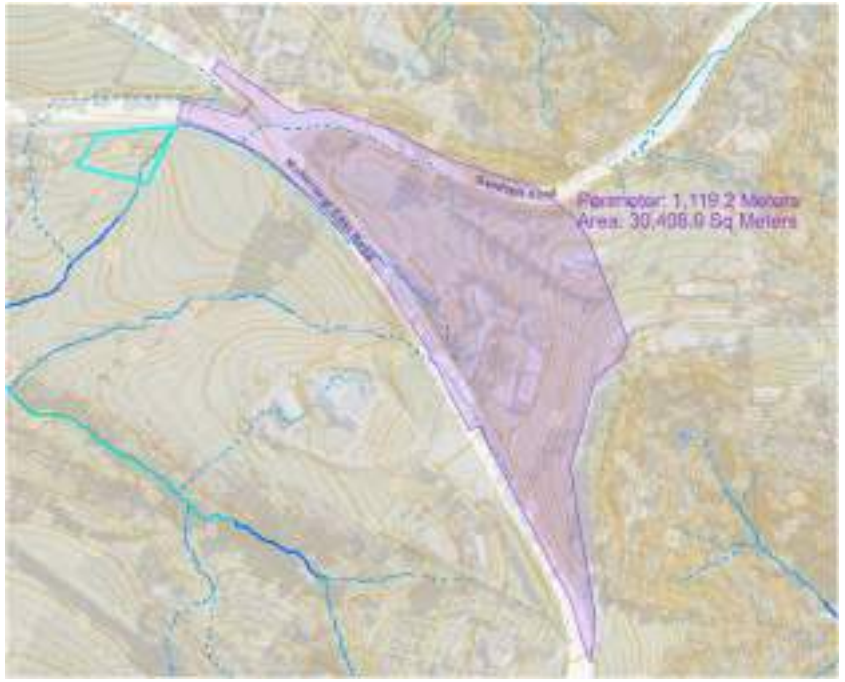
* Channel flow does not include flow within the kerb and channel, it only considers flow within the road corridor and is therefore conservative. Calculations shown below using Izzard's Equation.

Where flow does not discharge along a road (either diffuse flow into the CMA or other properties) flow calculations are not included.

Based on calculations, even using 250-year storm event with 3.5deg Celsius climate change factor, depth of flow in road is 90mm at OLFP 2 outlet.

Therefore, OLFP 2 catchment area to be included in OLFP 1 catchment.

Total combined catchment of OLFP 1 = 30,409m^2



Catchment 1 Calculation Parameters

Conduct assessment using HydroFlow – use TP108 to determine input flow rates.

Geotechnical report by EDC reviewed GNS Geological Map which notes the site is within Pakiri Formation rock formation with previous investigation by Tonkin and Taylor (2013) indicating “a significant depth of completely weathered rock and residual soil”. Therefore, adopt Group C soils.

- Road Area = Allow 6,320m^2 as road pavement. (CN = 98)
- Residential = Allow remaining 24,090m^2 to be residential development with CN based on maximum impervious area based off potential change to unitary plan of Residential – Single House Zone
  - Maximum impervious coverage = 60% = 14,460m^2 (CN = 98)
  - Pervious coverage = 40% = 9,640m^2 (CN = 74)

Sample check

Impervious area	= 1,820m^2
Total area	= 11,370m^2
Impervious ratio	= 16%

Therefore Maximum development is approx. double the impervious area

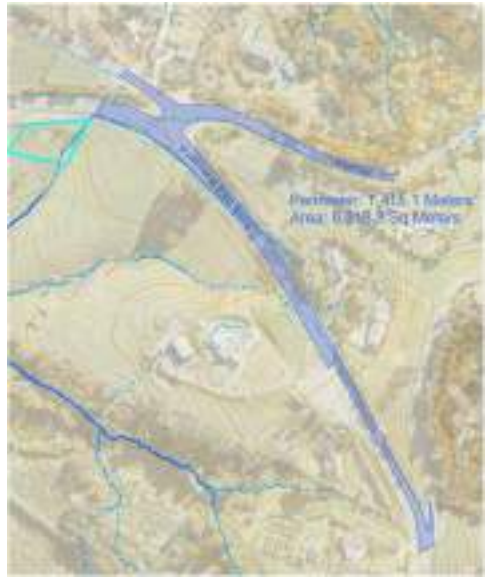


Table 2-2a.-Runoff curve numbers for urban areas[1] (SCS, 1986)

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82

Table 3.2 - Hydrological Soil Classifications for prevalent Auckland Soils

Auckland Soil	SCS Hydrological Soil Group
Weathered mudstone and sandstone (Waitemata and Onerahi Series)	Group C
Alluvial sediments	Group B
Granular volcanic loam (ash, tuff, scoria)	Group A
Granular volcanic loam underlain by free-draining basalt	use CN = 17 for all pervious areas

Table 4.2 - Channelisation factors

Piped stormwater system	C = 0.6
Engineered grass channels	C = 0.8

Manning's n for Channels (Chow, 1959).

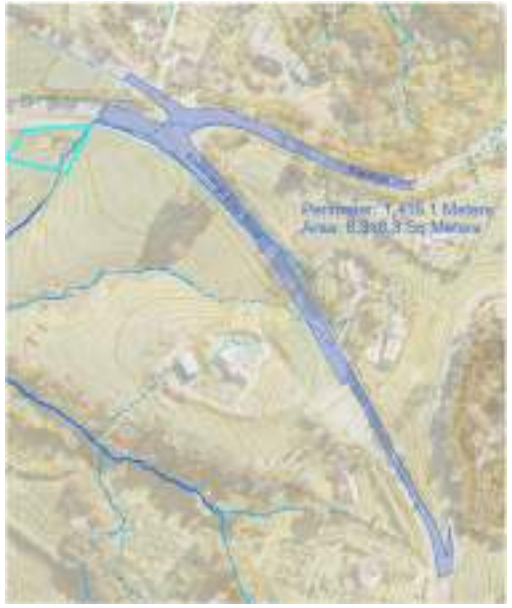
Type of Channel and Description	Minimum	Normal	Maximum
Natural streams - minor streams (top width at floodstage < 100 ft)			
e. Channels not maintained, weeds and brush uncut			
1. dense weeds, high as flow depth	0.050	0.080	0.120

Catchment 1 Calculation Parameters

Conduct assessment using HydroFlow – use TP108 to determine input flow rates.

Geotechnical report by EDC reviewed GNS Geological Map which notes the site is within Pakiri Formation rock formation with previous investigation by Tonkin and Taylor (2013) indicating “a significant depth of completely weathered rock and residual soil”. Therefore, adopt Group C soils.

- Road grade along catchment = 6%
  - Road grade flattens out after the rip-rap. Conservatively assume to maintain 6% at inlet.
- Rainfall depth based on 24-hour period + standard error



Rainfall depths (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	10.2	15	18.6	26.3	36	55.6	78	85.2	108	108	113	117
2	0.5	11.2	16.5	20.4	28.8	39.5	61	76.9	93.6	119	119	124	128
5	0.2	14.5	21.4	26.5	37.5	51.4	79.6	100	123	144	156	163	168
10	0.1	16.9	25	31.1	43.9	60.3	93.3	118	144	170	183	192	198
20	0.05	19.4	28.8	35.7	50.5	69.4	108	139	166	196	212	222	230
30	0.033	20.9	31	38.5	54.5	74.9	116	147	180	212	229	240	248
40	0.025	22	32.6	40.4	57.3	78.8	122	155	189	223	241	253	262
50	0.02	22.8	33.9	42	59.5	81.8	127	161	197	232	251	264	272
60	0.017	23.5	34.8	43.2	61.3	84.3	131	166	203	239	259	272	281
80	0.013	24.6	36.4	45.3	64.1	88.3	137	174	213	251	272	285	295
100	0.01	25.4	37.7	46.8	66.4	91.4	142	180	220	260	282	296	305
250	0.004	28.8	42.7	53.1	75.4	104	162	205	251	297	322	338	349

3. Annual Recurrence Interval (ARI)

3.a Climate change factor

4. 24 hour rainfall depth, P_{24} (mm)

5. Compute c* = $\dfrac{P_{24} - 2Ia}{P_{24} - 2Ia + 2S}$ (mm)

6. Specific flow rate q* (from Fig. 5.1 below)

7. Peak flow rate, $q_p = q^* A P_{24}$ (m^3/sec)

8. Runoff depth, Q_{24} = $\dfrac{(P_{24} - Ia)^2}{(P_{24} - Ia) + S}$ (mm)

9. Runoff Volume, $V_{24} = 1000 \times Q_{24} A$ (m^3)

10yr (2.1°C)	100yr	100yr (2.1°C)	100yr (3.5°C)	250yr (3.5°C)
128%	100%	129%	148%	148%
214.2	260.0	334.3	383.8	442.8
0.711	0.750	0.795	0.817	0.838
0.151	0.155	0.159	0.160	0.160
0.966	1.224	1.614	1.863	2.158
176.3	221.0	294.1	343.0	401.6
5,364	6,724	8,946	10,435	12,215

Catchment 1 Hydraflow analysis

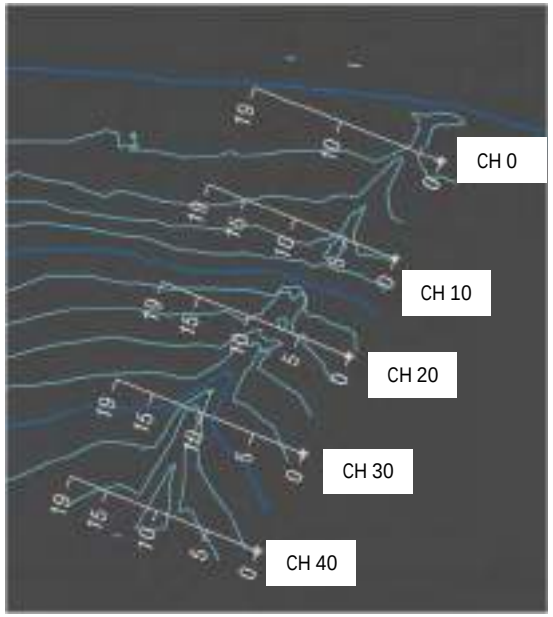
Conduct two checks:

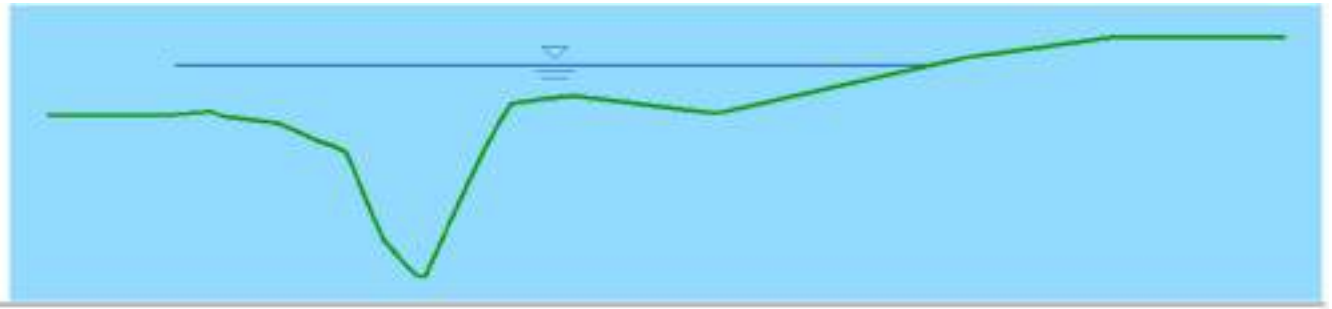
1. 250-year storm event with 3.5Deg climate change factor.
2. 100-year storm event with 3.5Deg climate change factor.

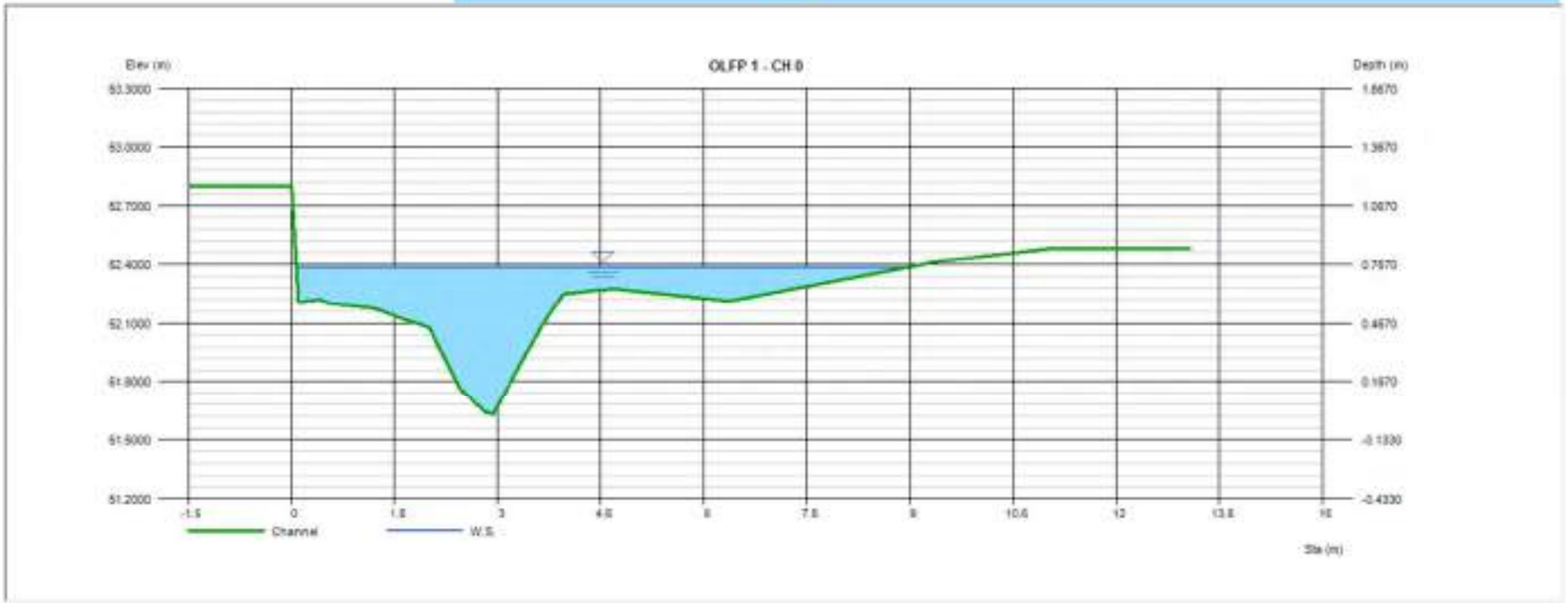
Platform levels will be based on 500mm above the 100-year storm event as freeboard. We'll also check that a 250-year storm event is below the specified freeboard level.

Catchment 1 Hydraflow analysis – CH0

Surveyed CH0 is not sufficiently far enough to assess flood depth. Surface water falls away from site. Checked by drawing a fictitious vertical channel edge on neighbor side to show water level is within the channel.







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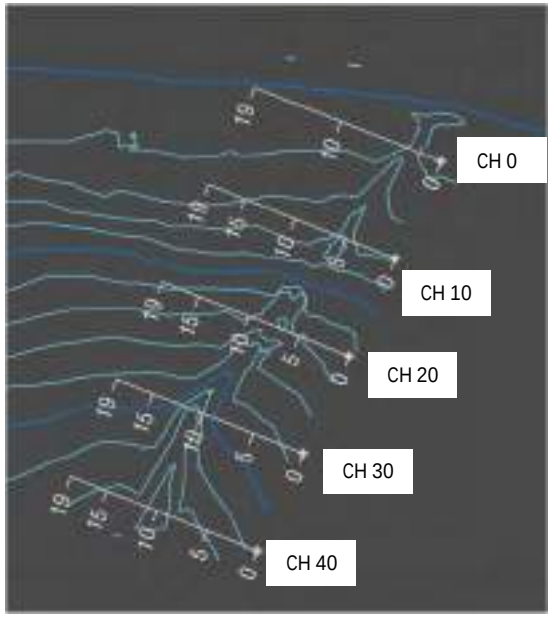
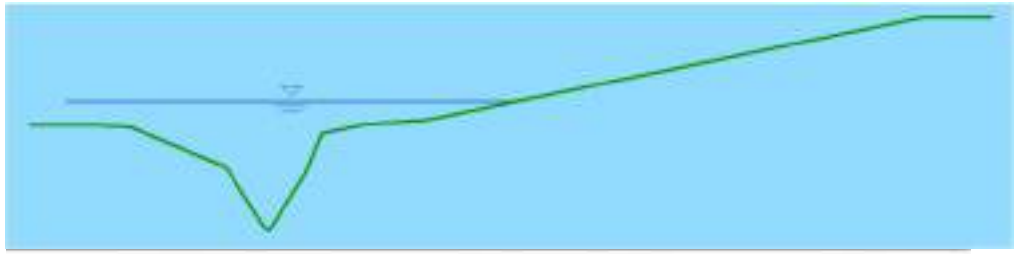
	Slope (%) =	8.2500
	n-value =	0.030
Calcs	Compute by =	Known Q
	Q (cms) =	2.1560

Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(m)	(cms)	(sqm)	(m/s)	(m)	(m)	(m)	(m)
0.7529	2.156	1.963	1.0983	5.3725	0.7102	5.9154	0.8145

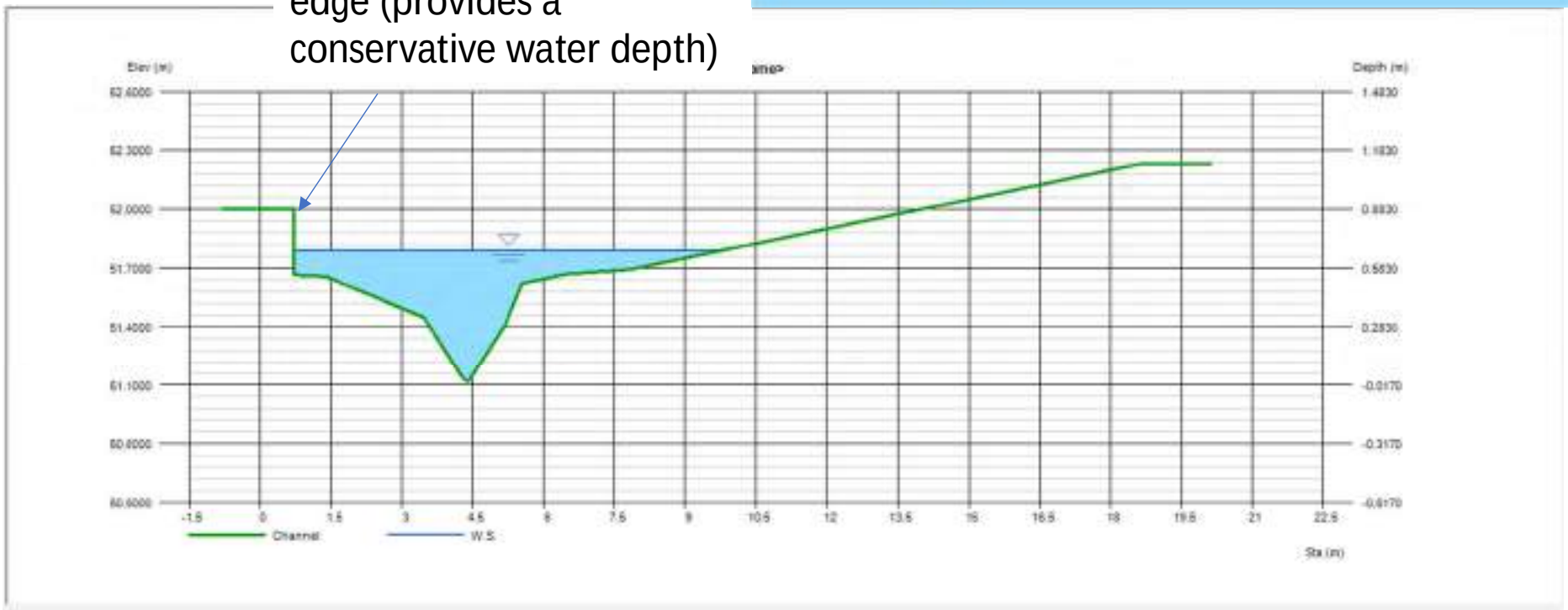
Catchment 1 Hydraflow analysis – CH5

Surveyed CH5 is not sufficiently far enough to assess flood depth. Surface water falls away from site. Checked by drawing a fictitious vertical channel edge on neighbor side to show water level is within the channel.





Fictitious vertical channel edge (provides a conservative water depth)



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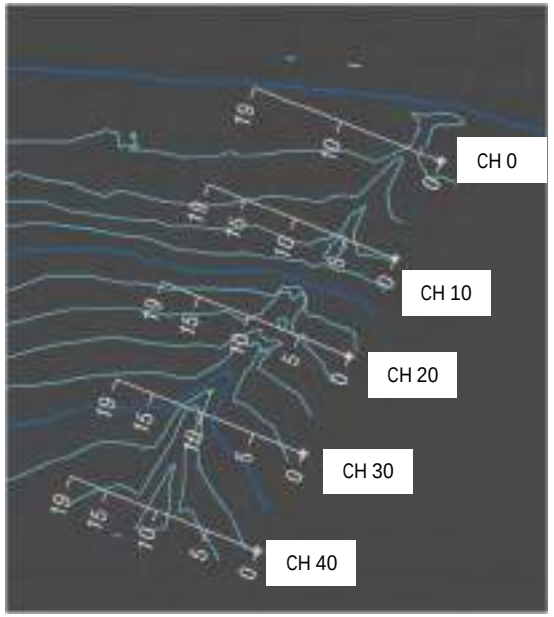
	Inv Elev(m) =	51.1170
	Slope (%) =	6.2500
	n-value =	0.030
Calcs	Compute by =	Known Q
	Q (cms) =	2.1500

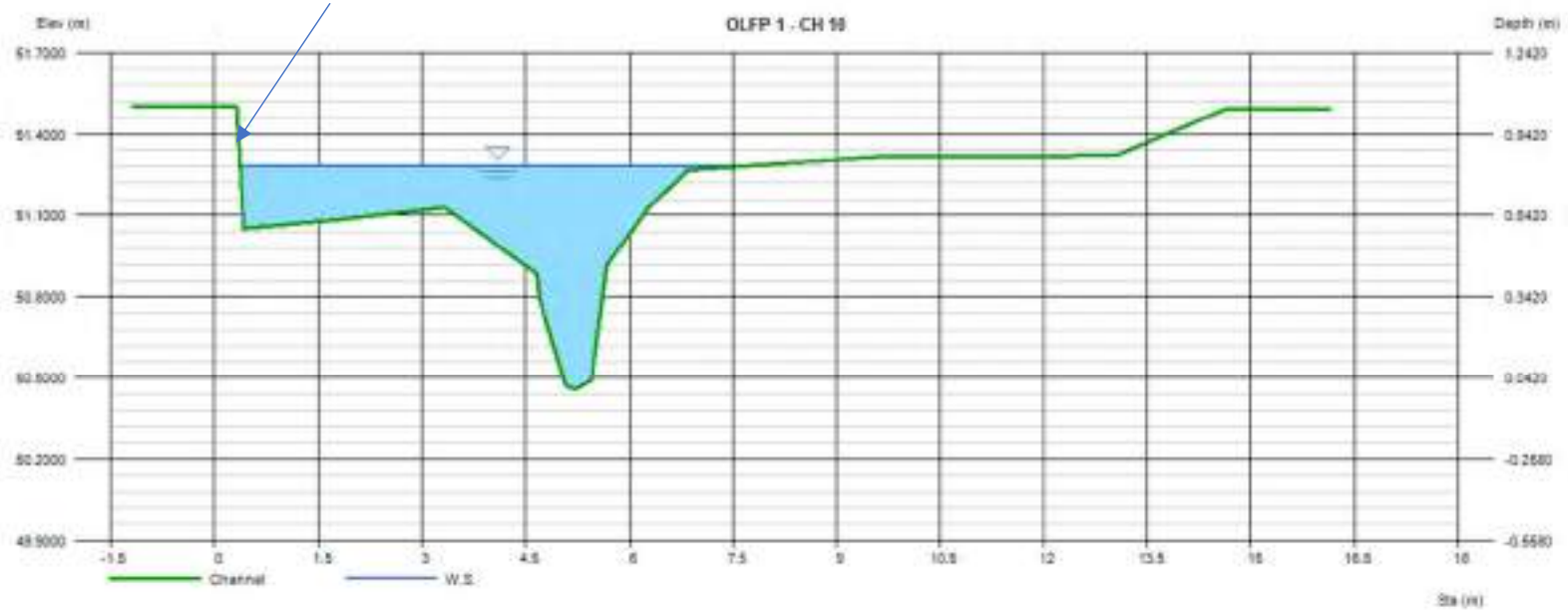
Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(m)	(cms)	(sqm)	(m/s)	(m)	(m)	(m)	(m)

Catchment 1 Hydraflow analysis – CH10

Surveyed CH10 is not sufficiently far enough to assess flood depth. Surface water falls away from site. Checked by drawing a fictitious vertical channel edge on neighbor side to show water level is within the channel.



Fictitious vertical channel edge (provides a conservative water depth)



Section	Item	Input
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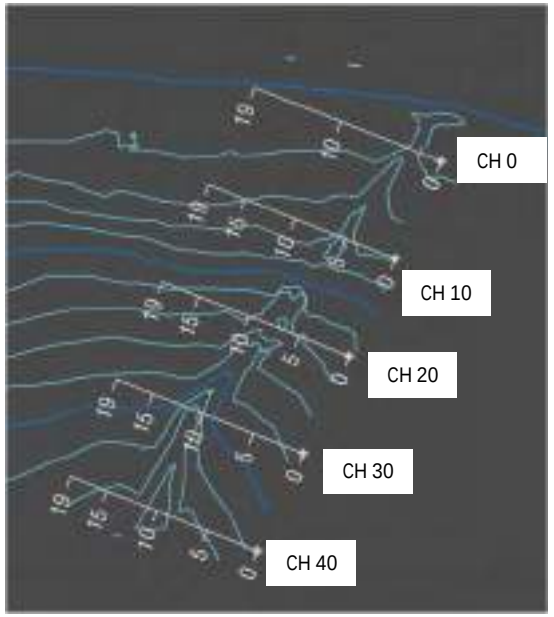
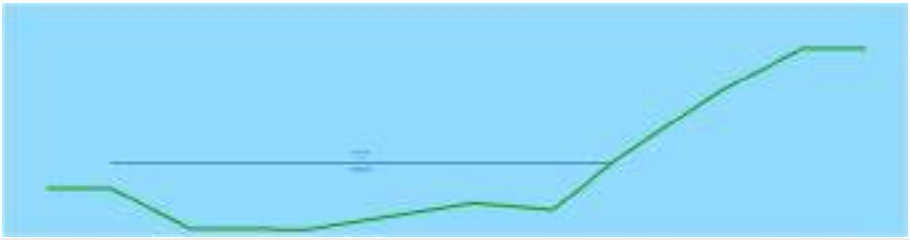
	Inv Elev(m) =	50.4550
	Slope (%) =	6.2500
	n-value =	0.050
Calcs	Compute by =	Known Q
	Q (cms) =	2.1550

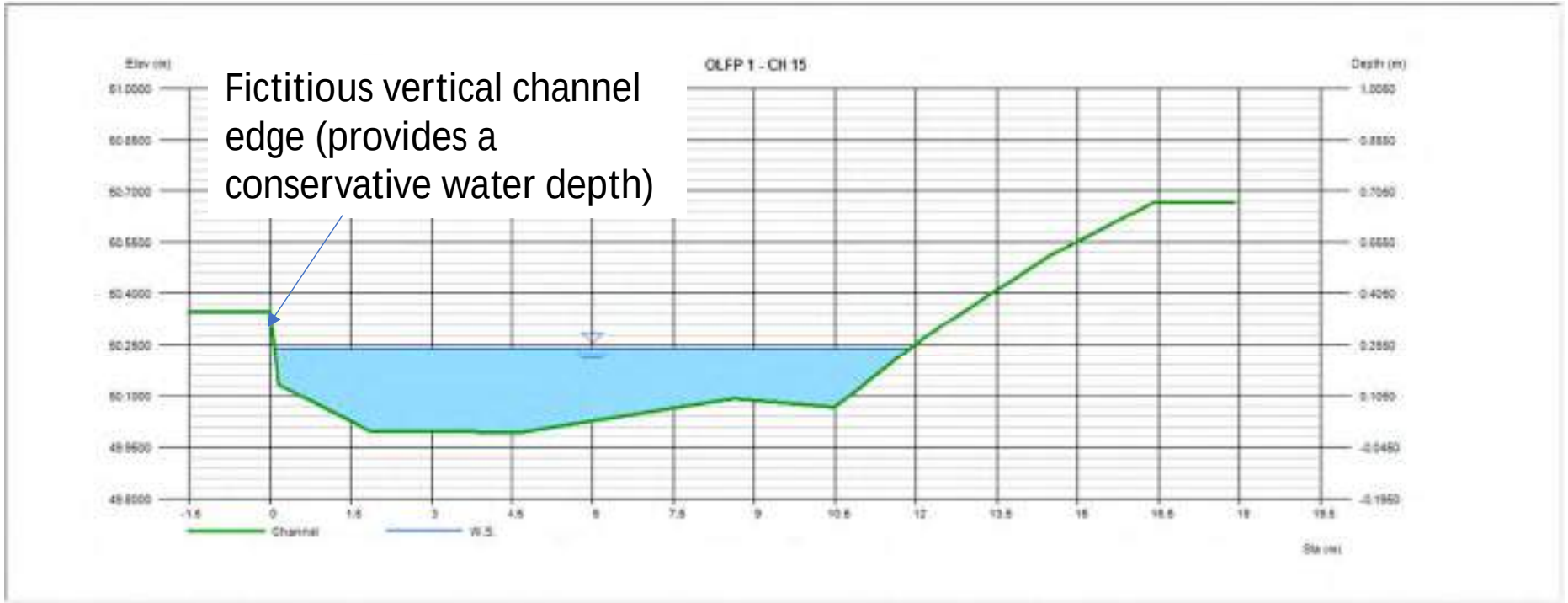
Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(m)	(cms)	(sqm)	(m/s)	(m)	(m)	(m)	(m)
0.8260	2.155	1.854	1.1637	8.1591	0.7855	7.4811	0.8951

Catchment 1 Hydraflow analysis – CH15

Surveyed CH15 is not sufficiently far enough to assess flood depth. Surface water falls away from site. Checked by drawing a fictitious vertical channel edge on neighbor side to show water level is within the channel.







Section	Item	Input
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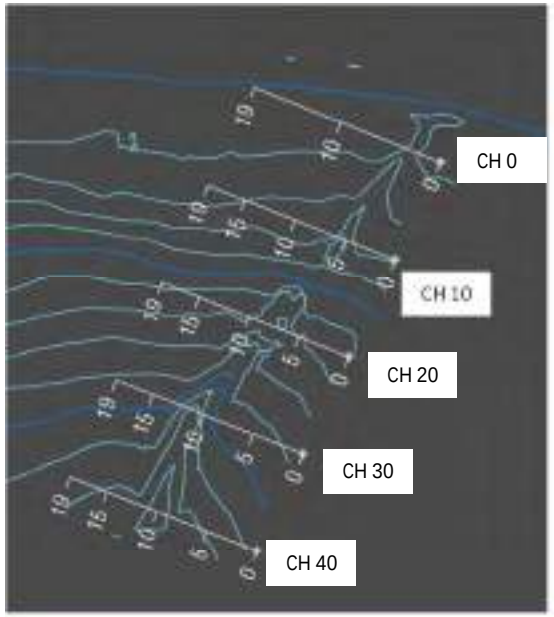
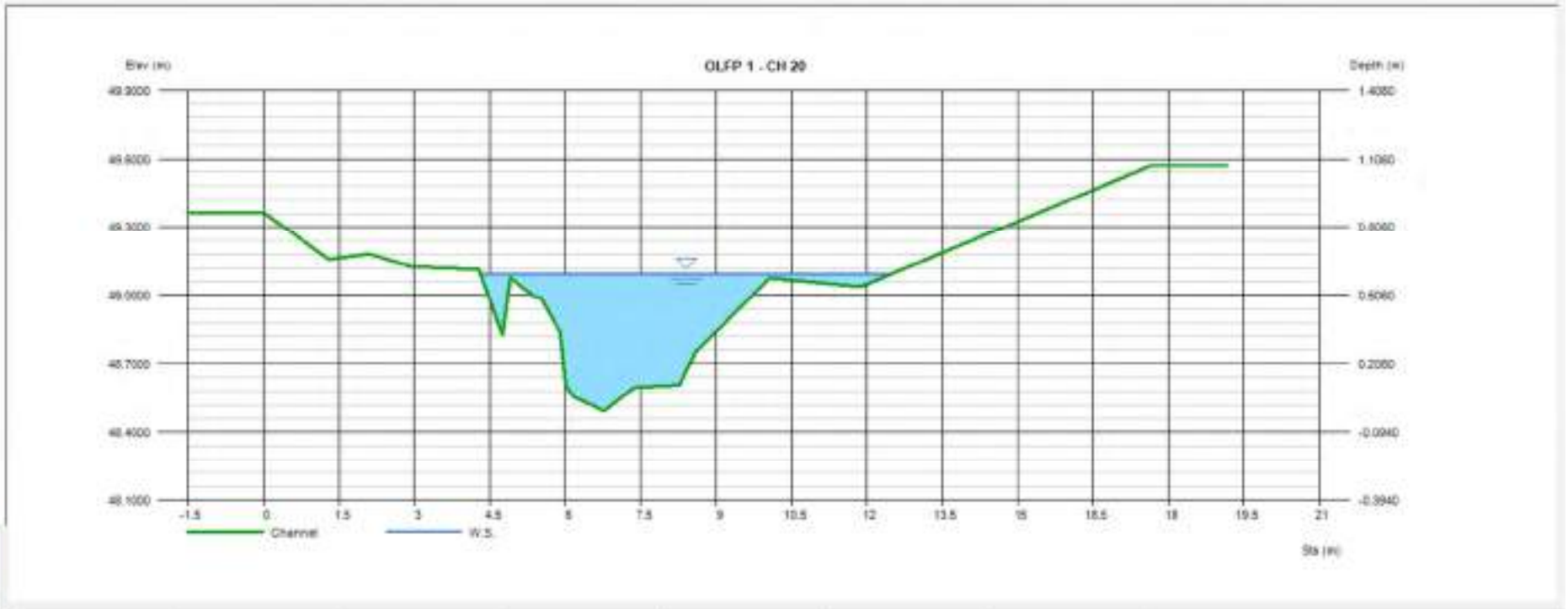
	Inv Elev (m) =	48.4948
	Slope (%) =	6.2500
	n-value =	0.030
Calcs	Compute by =	Known Q
	Q (cms) =	2.1580

Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(m)	(cms)	(sqm)	(m/s)	(m)	(m)	(m)	(m)
0.2438	2.158	2.174	0.9925	11.8634	0.2103	11.7941	0.2941

Catchment 1 Hydraflow analysis – CH20

Check flow depths at 10m centres and key interest points



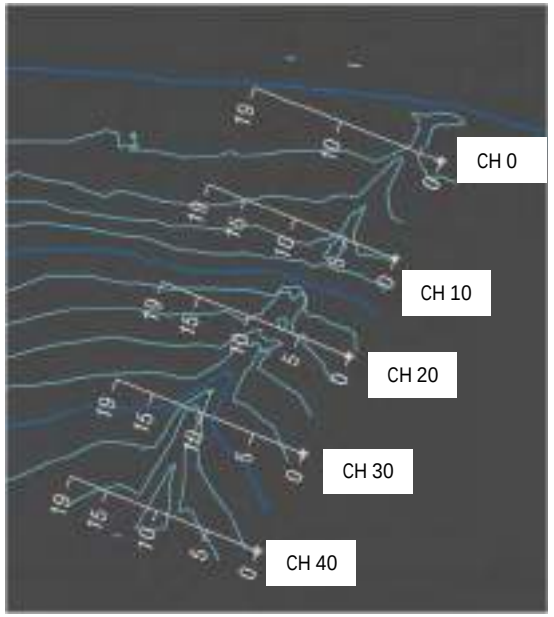


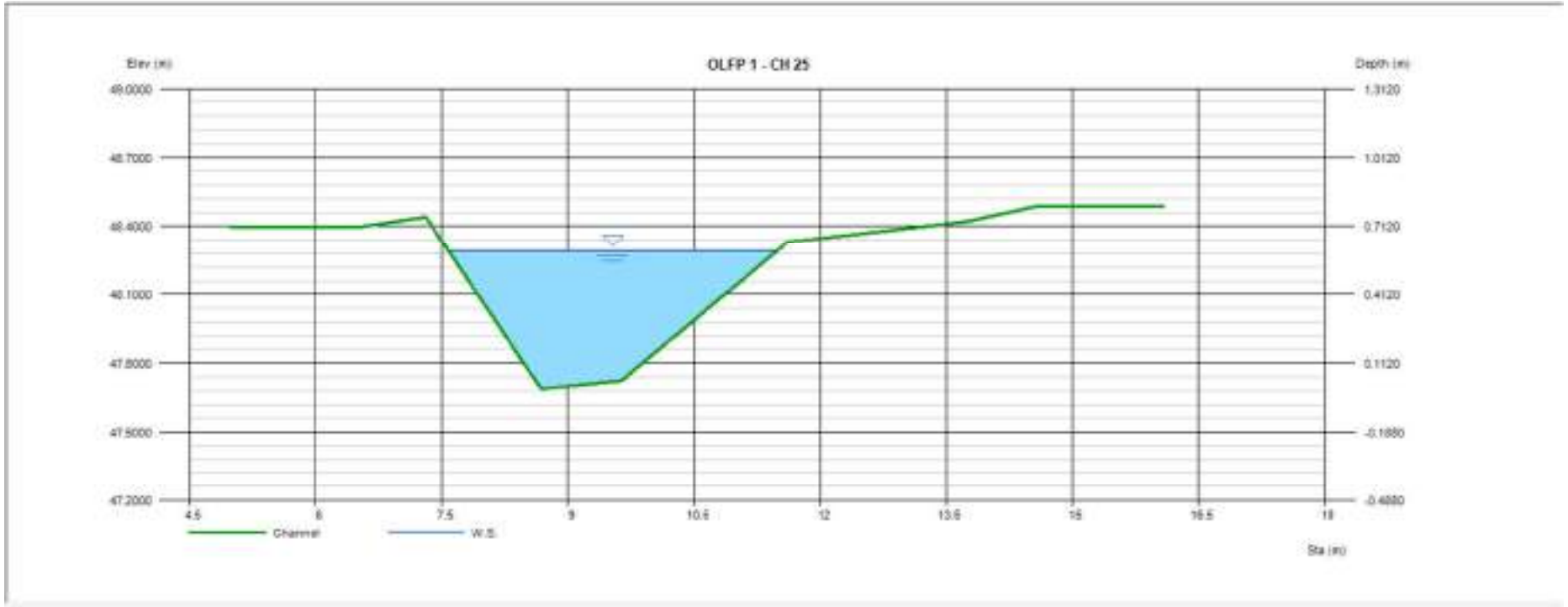
Section	Item	Input
Channel	Section Type =	User-defined
	Btm Width (m)	-0-
	Side Slope, z:1 =	-0-
	Sta-Elev =	Data
	Inv Elev(m) =	48.4940
	Slope (%) =	0.2500
	n-value =	0.080
Calcs	Compute by =	Known Q
	Q (cms) =	2.1580

Depth	Q	Area	Velocity	Wp	Yc	TopWidth	Energy
(ft)	(cms)	(sqft)	(ft/s)	(ft)	(ft)	(ft)	(ft)
0.6035	2.158	1.918	1.1255	6.6733	0.5029	6.1891	0.6650

Catchment 1 Hydraflow analysis – CH 25

Check flow depths at 10m centres and key interest points



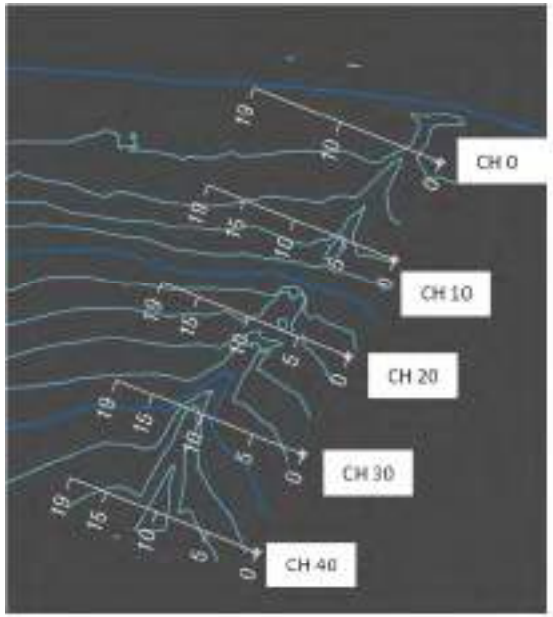


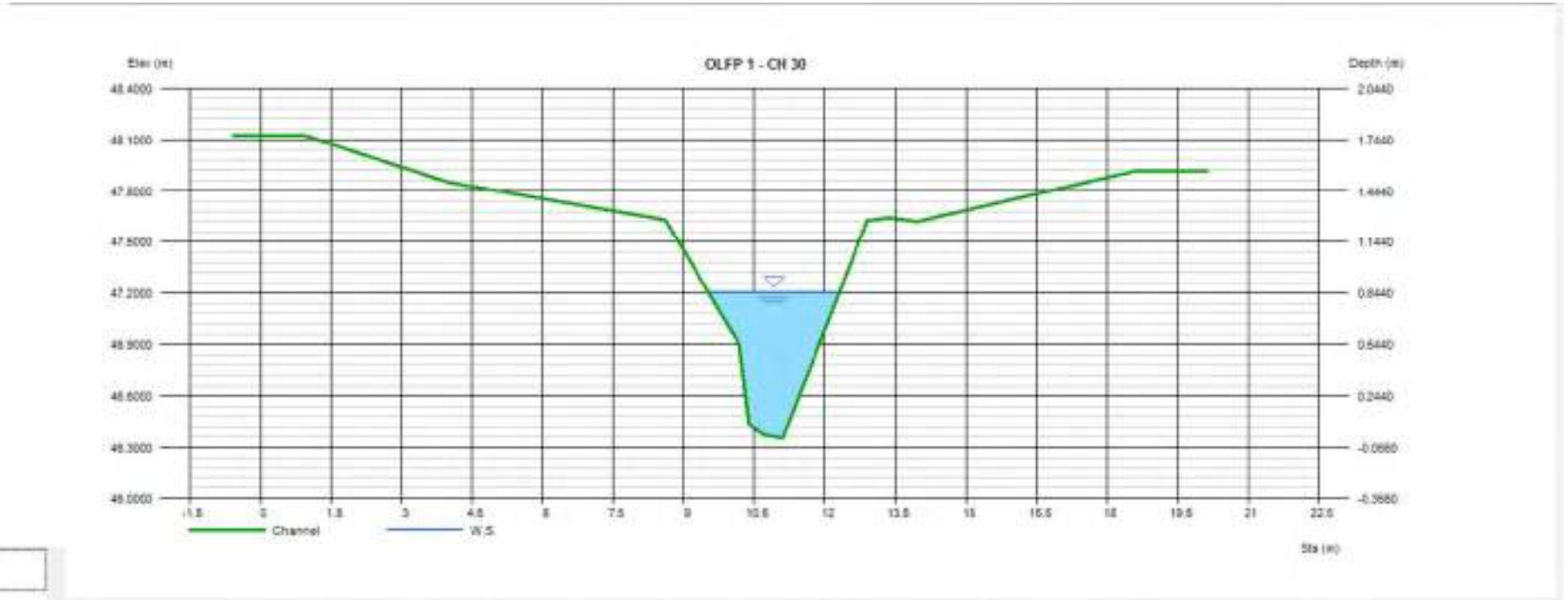
Section	Item	Input
Channel	Section Type =	User-defined
	Btm Width (m)	-0-
	Side Slope, z:1 =	-0-
	Sta-Elev =	Data
	Inv Elev(m) =	47.8880
	Slope (%) =	0.2500
	n-value =	0.030
Calcs	Compute by =	Known Q
	Q (cms) =	2.1580

Depth	Q	Area	Veloc	Wp	Yc	Topwidth	Energy
(m)	(cms)	(sqm)	(m/s)	(m)	(m)	(m)	(m)
0.6035	2.158	1.416	1.5238	4.1481	0.5456	3.9068	0.7219

Catchment 1 Hydraflow analysis – CH30

Check flow depths at 10m centres and key interest points



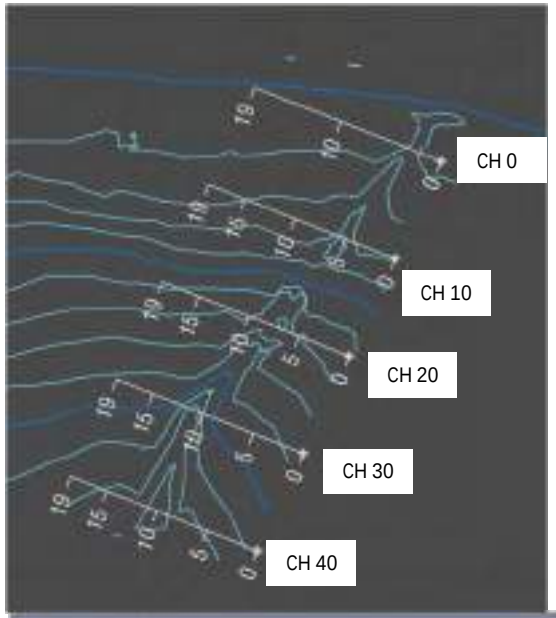


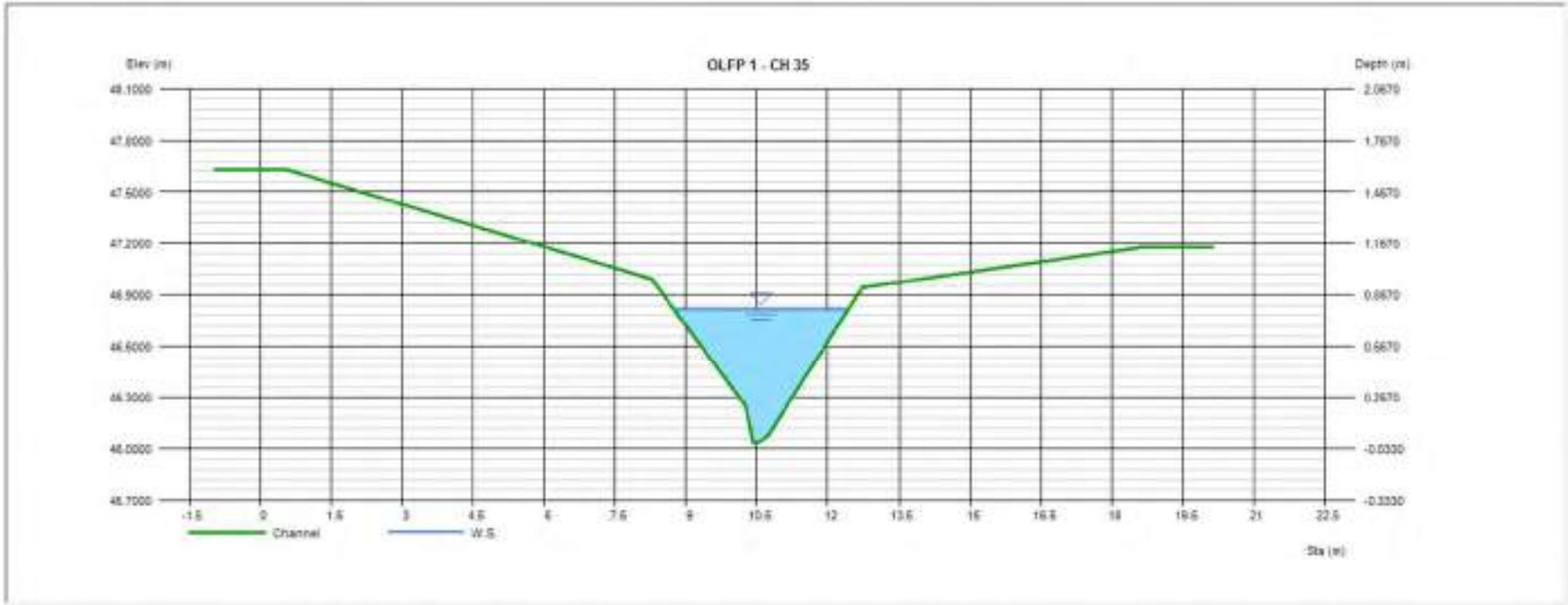
Channel	Section Type =	User-defined
	Btm Width (m)	-0-
	Side Slope, z:1 =	-0-
	Sta-Elev =	Data
	Inv Elev(m) =	46.3560
	Slope (%) =	6.2500
	n-value =	0.060
Calcs	Compute by =	Known Q
	Q (cms) =	2.1580

Depth	Q	Area	Velocity	Wp	Yc	TopWidth	Energy
(m)	(cms)	(sqm)	(m/s)	(m)	(m)	(m)	(m)
0.6471	2.158	1.310	1.6467	3.4234	0.7468	2.7794	0.9857

Catchment 1 Hydraflow analysis – CH35

Check flow depths at 10m centres and key interest points



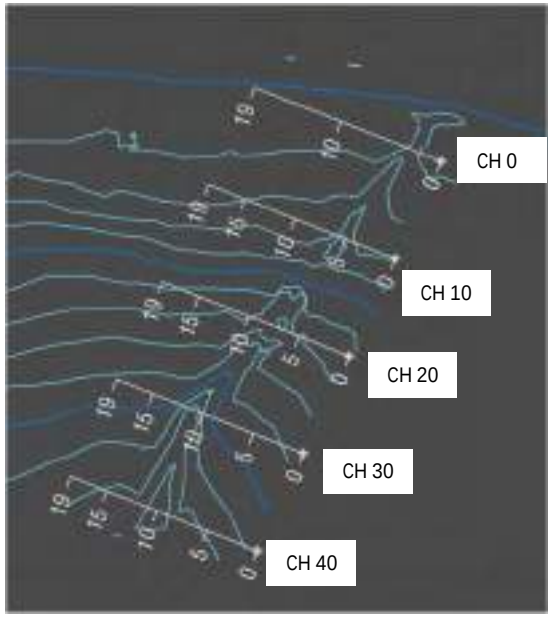


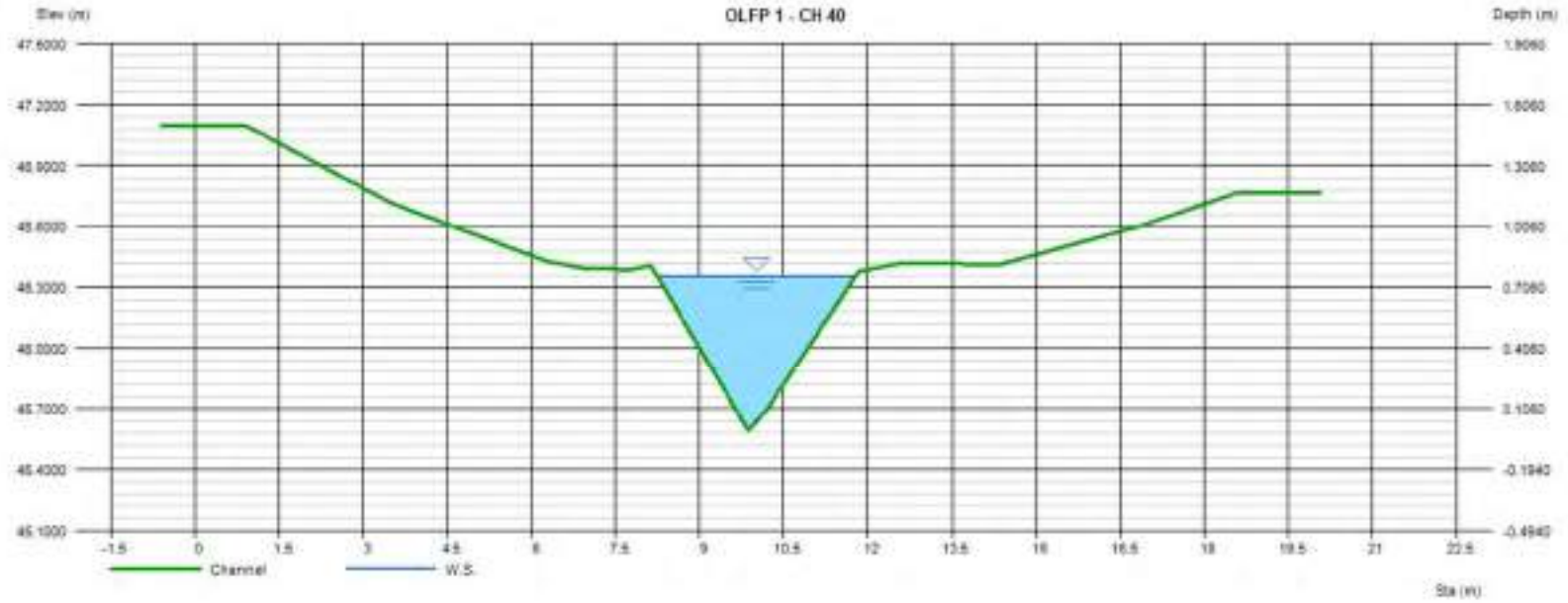
Section	Item	Input
Channel	Section Type =	User-defined
	Btm Width (m)	-0-
	Side Slope, z:1 =	-0-
	Sta-Elev =	Data
	Inv Elev(m) =	46.0330
	Slope (%) =	6.2500
	n-value =	0.060
Calcs	Compute by =	Known Q
	Q (cms) =	2.1580

Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(m)	(cms)	(sqm)	(m/s)	(m)	(m)	(m)	(m)
0.7833	2.158	1.405	1.5359	4.0478	0.7163	3.6823	0.8037

Catchment 1 Hydraflow analysis – CH40

Check flow depths at 10m centres and key interest points





Section	Item	Input
Channel	Section Type =	User-defined
	Btm Width (ft)	-0-
	Side Slope, z:1 =	-0-
	Sta-Elev =	Data
	Inv Elev (ft) =	45.5940
	Slope (%) =	6.2500
	n-value =	0.030
Calcs	Compute by =	Known Q
	Q (cms) =	2.1500

Depth	Q	Area	Velocity	Wp	Yc	TopWidth	Energy
(ft)	(cms)	(sqft)	(fps)	(ft)	(ft)	(ft)	(ft)
0.7620	2.150	1.377	1.5677	3.8538	0.6980	3.5362	0.8874

APPENDIX D – CALCULATIONS

Wastewater Pipeline calculations

CLIENT:	Vector Limited NZ	**JOB No:**		**SHEET:**	1 of 1
JOB:	Sandspit ZSS	**CALCS BY:**	Bryan C	**DATE:**	
SUBJECT:	Septic Tank Sizing	**CHECK BY:**	Raymond C	**DATE:**	

C3.0 Design flow allowance per person

ON-SITE WASTEWATER MANAGEMENT IN THE AUCKLAND REGION

Sizing of tank is back-calculated from smallest concrete tank available from Hynds.
SEP3300DT - 3300L Concrete chamber

Dim A	1.2	m
Dim B	2.575	m
Dim E	1.45	m
Storage Volume	4.4805	m3
Storage Volume	4480.5	L

Assume 10L/person/day usage

Days to full tank	448.05
Days to 80% full tank	358.44

Therefore, service tank annually as minimum

FIG. 4 Single, dual or triple Chamber

STORMWATER NETWORK CALCULATIONS

CLIENT:	Vector Ltd	**JOB No:**	2446	**REV:**	1
JOB:	Sandspit ZSS	**CALCS BY:**	Jiayi C	**DATE:**	2-Feb-24
SUBJECT:	SW Network design	**CHECK BY:**	Raymond C	**DATE:**	2-Feb-24

FACTORS

Tc mins	10		
f years	10		
i mm/hr	163.352	(2.1°C temperatu	112.00
Pipe Coeff.(mm)	1.5		

Runoff Coefficients	
Roof	0.9
Paved	0.85
Grass	0.3

PIPE LINE	CATCHMENT	AREA (m²)	COEFF.	INTENSITY (mm/hr)	EQUIVALENT Increment	AREA Sum	FLOW (l/s)	DIA (mm)	GRADE (%)	CAPACITY (l/s)	VELOCITY (m/s)	UTILISATION Check
Roof and paved	***Imprevious***	660.0	0.90	163.35	0.0594	0.0594	26.95					
Grass	***Previous***	740.0	0.30	163.35	0.0222	0.0222	10.07					
SW discharge pipe	***Total***				0.0816	0.0816	37.03	225.00	3.90	90.59	2.28	41%

Stormwater Riprap Sizing

CLIENT:	Vector Ltd	**JOB No:**	2446		
JOB:	Sandspit ZSS	**CALCS BY:**	Jiayi C	**DATE:**	2-Feb-24
SUBJECT:	SW Network Catchment	**CHECK BY:**	Raymond C	**DATE:**	2/02/2024

Stormwater Rip-rap sizing
based on TR2013-018
Chapter 4- Outlet

Piped Stormwater Outfall

Pipe diameter	0.225	m
Pipe design grade	2.28	%

The design of the outlet is based on maximum flow.

Storm event	Runoff, Q	Velocity, V
10 year	27.03 l/s	2.28 m/s

Rock diameter

d_s = 0.25 x D_o x F_o
= 0.086 m
= 86 mm ← Minimum required rock diameter (150mm)

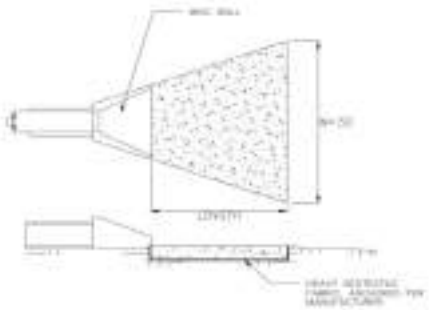
where:

d_s =	riprap diameter (m)		
D_o =	pipe diameter (m)		
F_o =	Froude number = V/g x $d_p^{0.5}$	=	1.535
d_p =	depth of flow in pipe (m)	=	0.225
V =	velocity of flow in pipe (m/s)		

Thickness of rock layer is 2 x rock dimensions = 300.00 mm

Width of area protected is 3 x diameter of pipe = 0.68 m

Length of outfall protection (L_a) = $D_o(8+17 \times \text{Log}F_o)$
2.512 m



The 10 year storm event has the worst case for rip rap length.

The design has adopted:

Rip rap diameter = **150** mm 2 layers thick= **300** mm
0.7 m wide by **1.40** m long

Width and length are approximate and will be placed across the width of the channel to a point at least level with the top of pipe and downstream into the flatter section of the stream.

Project: Sandspit_Detention_Tank
Simulation Run: Pre-Dev
Simulation Start: 31 December 1999, 24:00
Simulation End: 1 January 2000, 24:00

HMS Version: 4.10
Executed: 21 August 2023, 19:53

Global Parameter Summary - Subbasin

Area (KM2)

Element Name	Area (KM2)
Pervious	0

Downstream

Element Name	Downstream
Pervious	Outlet

Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number
Pervious	0	74

Transform: Scs

Element Name	Lag	Unitgraph Type
Pervious	6.7	Standard

Global Results Summary

Hydrologic Element	Drainage Area (KM2)	Peak Discharge (M3/S)	Time of Peak	Volume (MM)
Pervious	0	0.04	01Jan2000, 12:13	136.14
Outlet	0	0.04	01Jan2000, 12:13	136.14

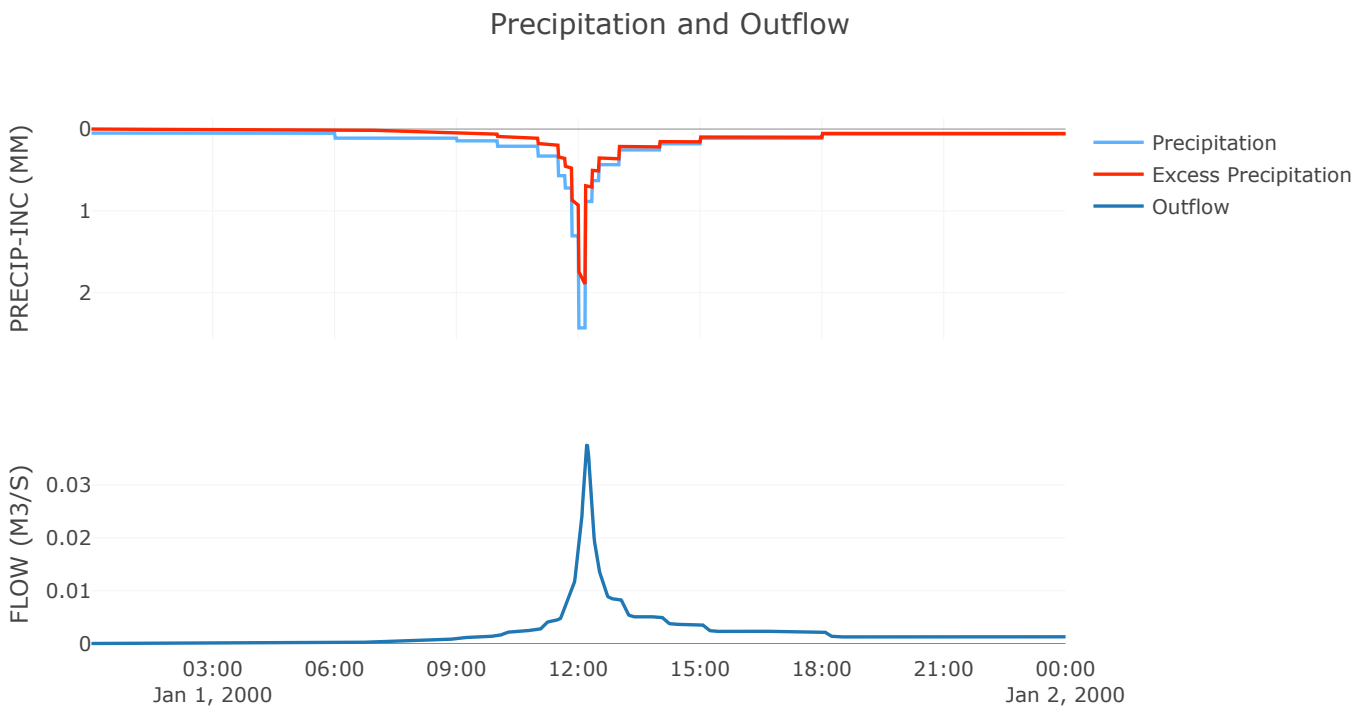
Subbasin: Pervious

Area (KM2) : 0
Downstream : Outlet

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	74

Transform: Scs	
Lag	6.7
Unitgraph Type	Standard

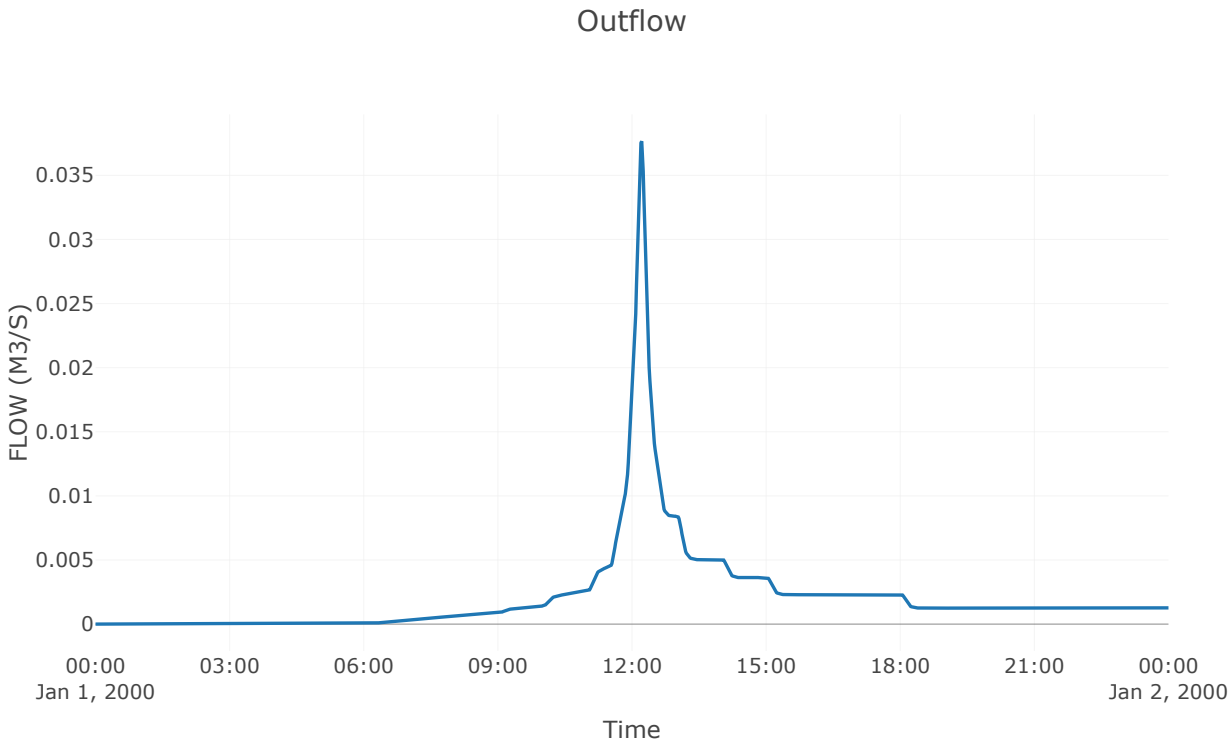
Results: Pervious	
Peak Discharge (M3/S)	0.04
Time of Peak Discharge	01Jan2000, 12:13
Volume (MM)	136.14
Precipitation Volume (M3)	302.4
Loss Volume (M3)	111.13
Excess Volume (M3)	191.27
Direct Runoff Volume (M3)	190.6
Baseflow Volume (M3)	0



Sink: Outlet

Results: Outlet

Peak Discharge (M3/S)	0.04
Time of Peak Discharge	01Jan2000, 12:13
Volume (MM)	136.14



Project: Sandspit_Detention_Tank
Simulation Run: Post-Dev
Simulation Start: 31 December 1999, 24:00
Simulation End: 1 January 2000, 24:00

HMS Version: 4.10
Executed: 13 May 2024, 03:24

Global Parameter Summary - Subbasin

Area (KM2)

Element Name	Area (KM2)
Pervious	0
Impervious	0

Downstream

Element Name	Downstream
Pervious	Detention
Impervious	Detention

Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number
Pervious	0	74
Impervious	0	98

Transform: Scs

Element Name	Lag	Unitgraph Type
Pervious	6.7	Standard
Impervious	6.7	Standard

Global Results Summary

Hydrologic Element	Drainage Area (KM2)	Peak Discharge (M3/S)	Time of Peak	Volume (MM)
Pervious	0	0.02	01Jan2000, 12:13	136.14
Impervious	0	0.02	01Jan2000, 12:12	209.37
Detention	0	0.04	01Jan2000, 12:17	170.64
Outlet	0	0.04	01Jan2000, 12:17	170.64

Subbasin: Pervious

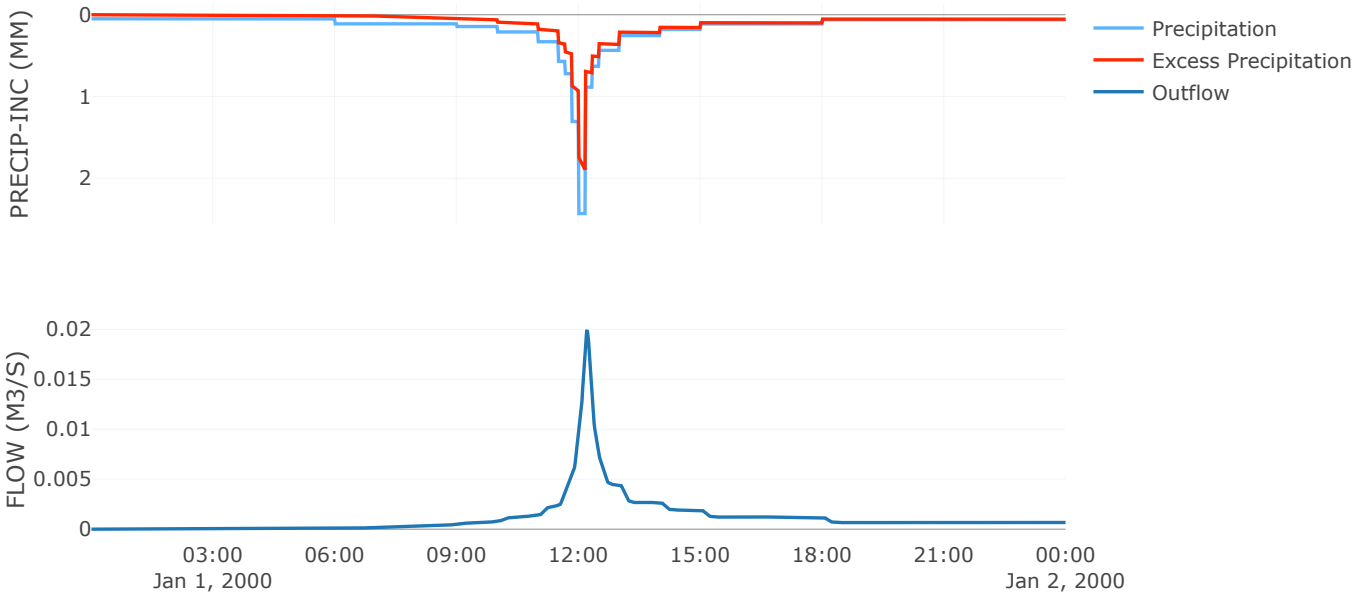
Area (KM2) : 0
Downstream : Detention

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	74

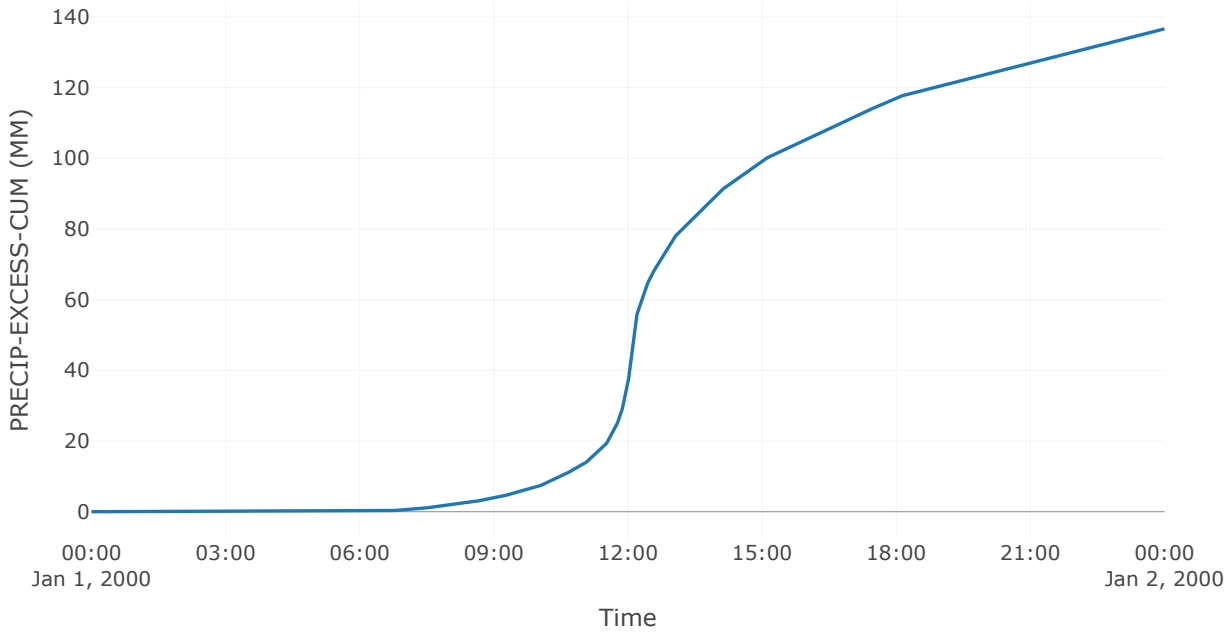
Transform: Scs	
Lag	6.7
Unitgraph Type	Standard

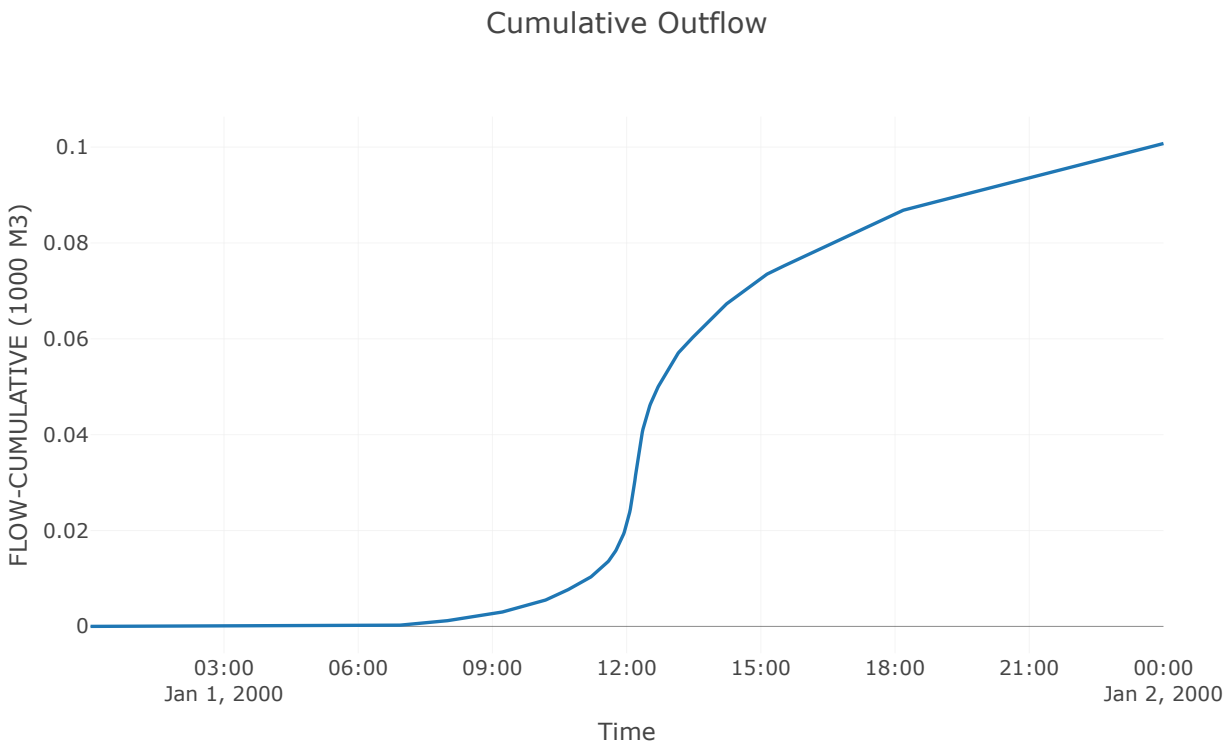
Results: Pervious	
Peak Discharge (M3/S)	0.02
Time of Peak Discharge	01Jan2000, 12:13
Volume (MM)	136.14
Precipitation Volume (M3)	159.84
Loss Volume (M3)	58.74
Excess Volume (M3)	101.1
Direct Runoff Volume (M3)	100.75
Baseflow Volume (M3)	0

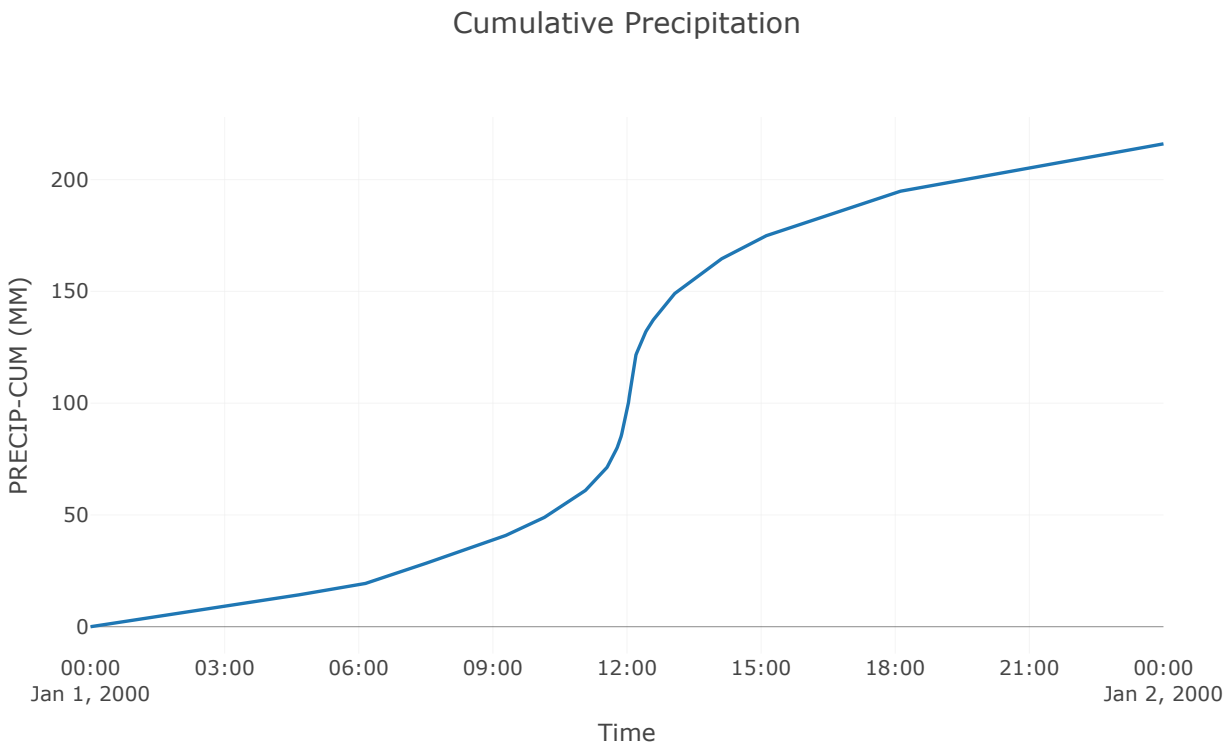
Precipitation and Outflow

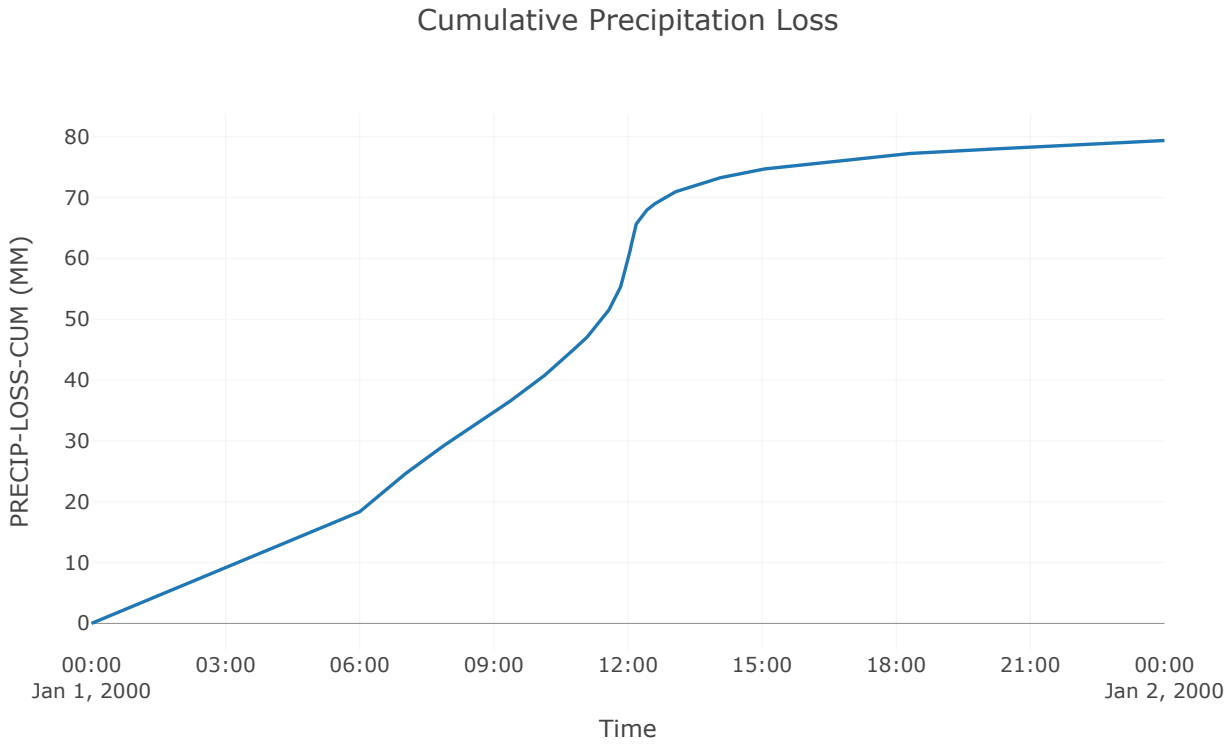


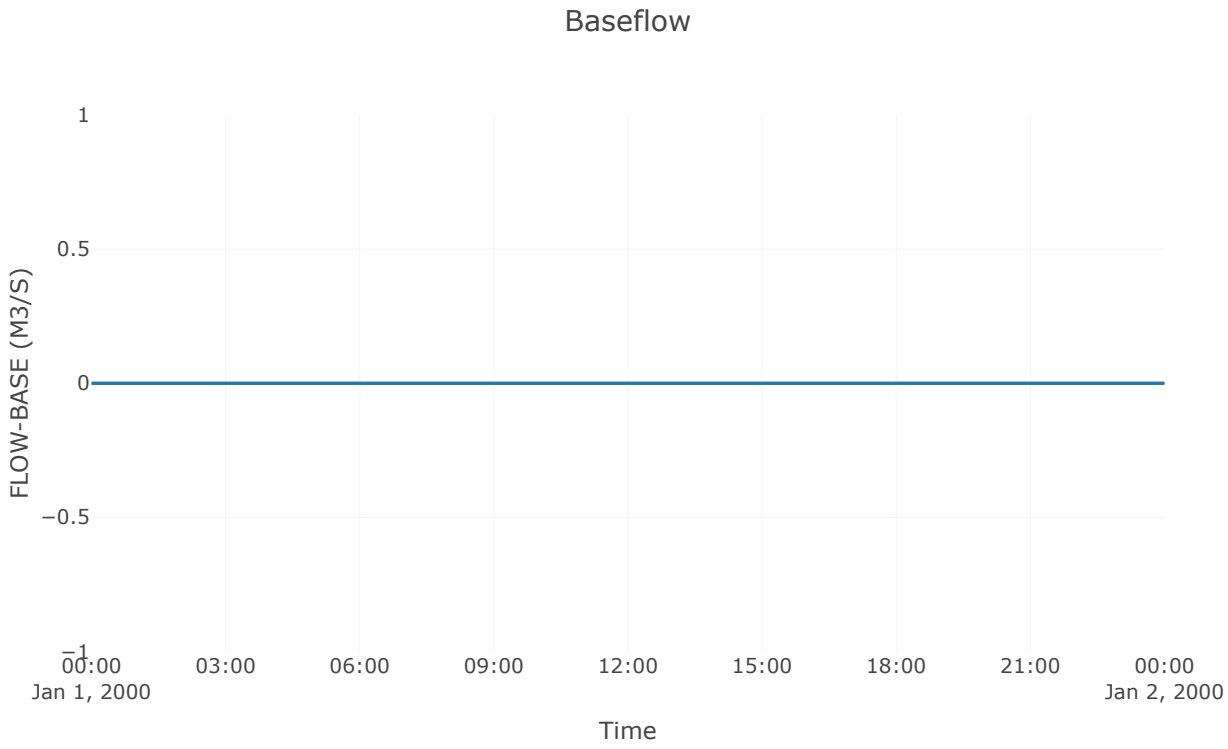
Cumulative Excess Precipitation

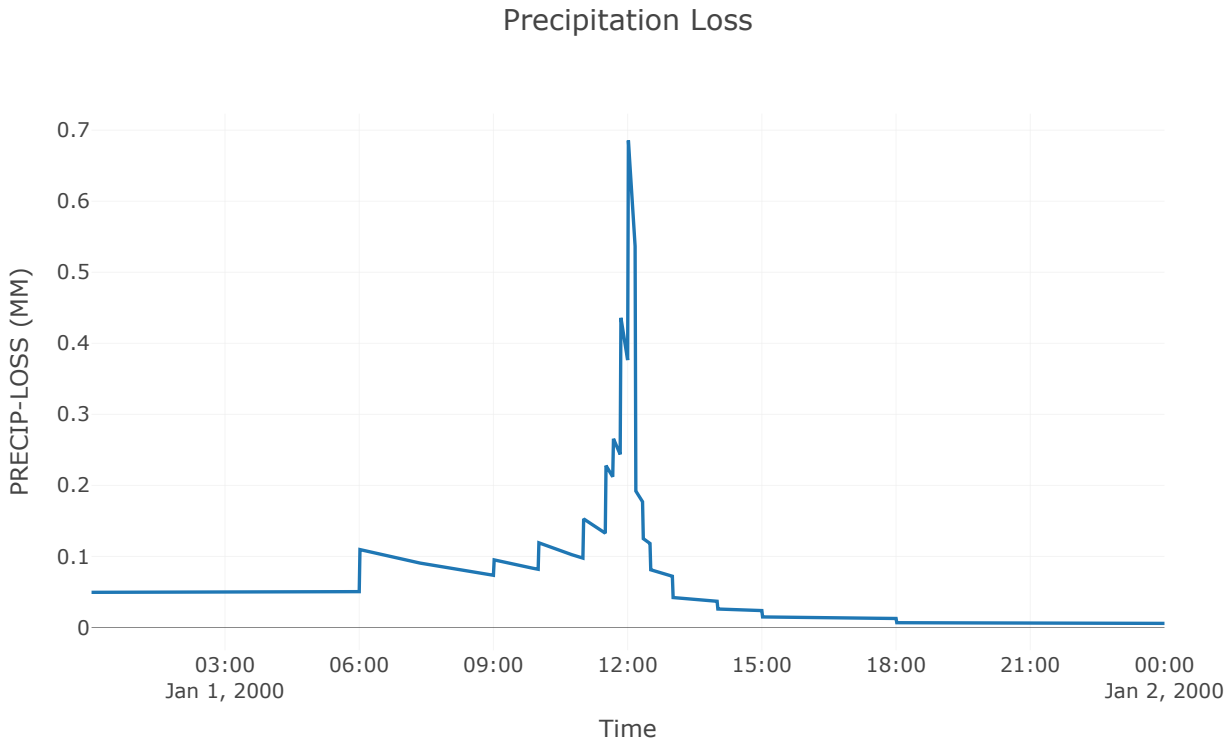


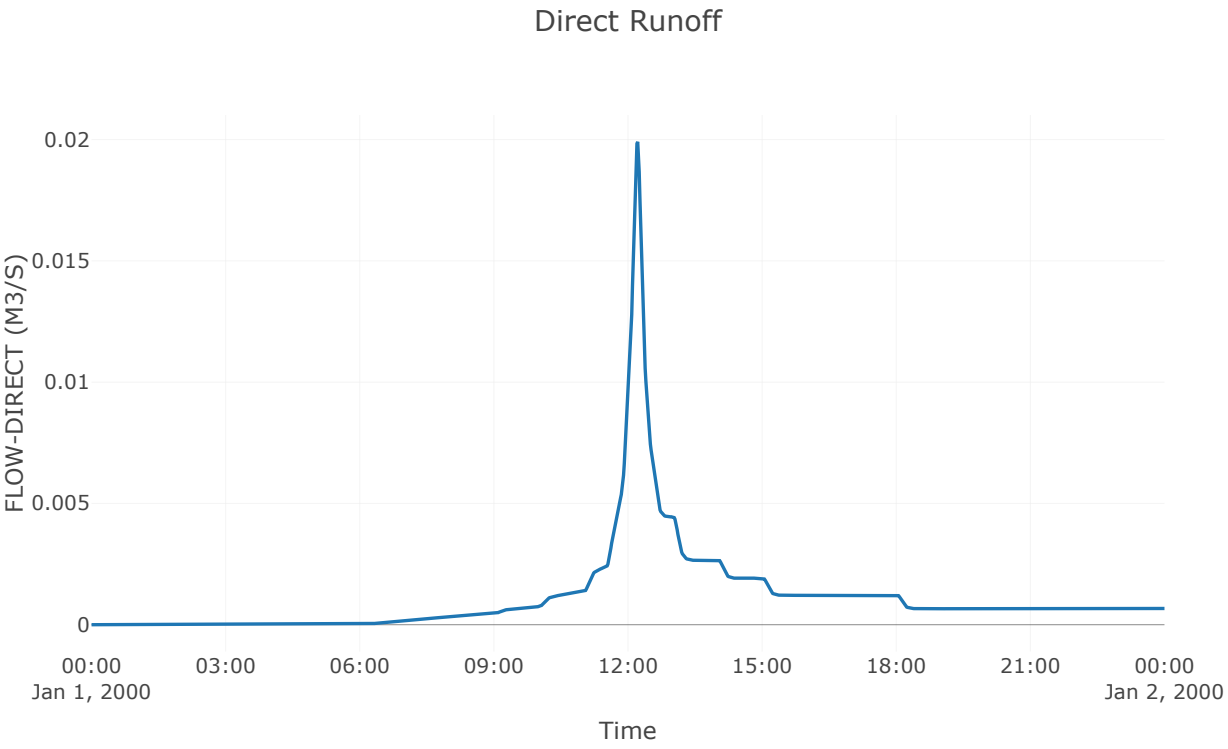

Cumulative Outflow
FLOW-CUMULATIVE (1000 M3)
0.1
0.08
0.06
0.04
0.02
0
03:00
Jan 1, 2000
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

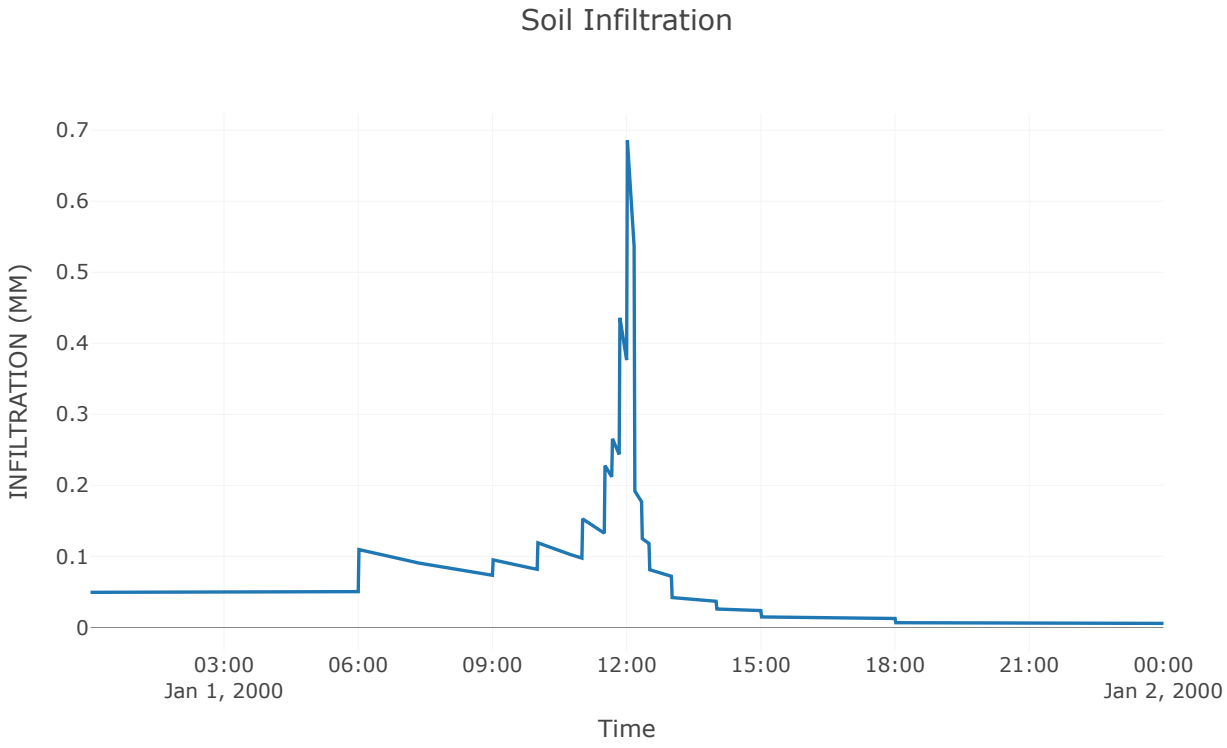

Cumulative Precipitation
PRECIP-CUM (MM)
200
150
100
50
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (MM)
80
70
60
50
40
30
20
10
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Baseflow
FLOW-BASE (M3/S)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Precipitation Loss
PRECIP-LOSS (MM)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
03:00
Jan 1, 2000
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Direct Runoff
FLOW-DIRECT (M3/S)
0.02
0.015
0.01
0.005
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Soil Infiltration
INFILTRATION (MM)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
03:00
Jan 1, 2000
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

Subbasin: Impervious

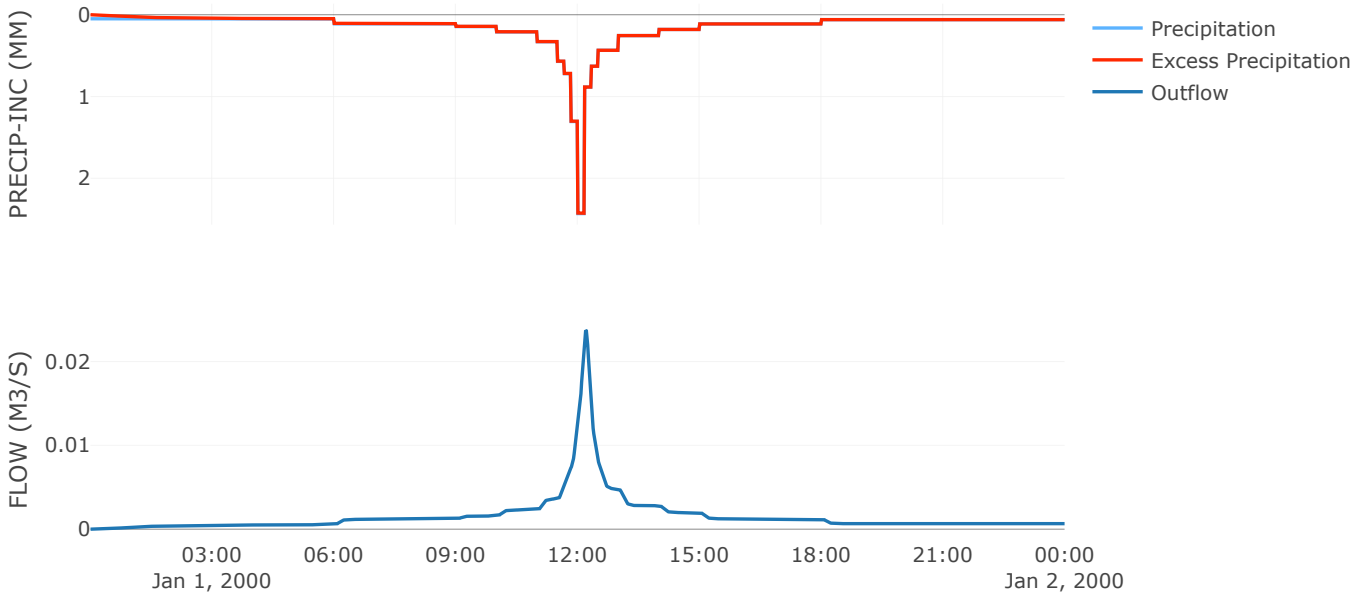
Area (KM2) : 0
Downstream : Detention

Loss Rate: Scs	
Percent Impervious Area	0
Curve Number	98

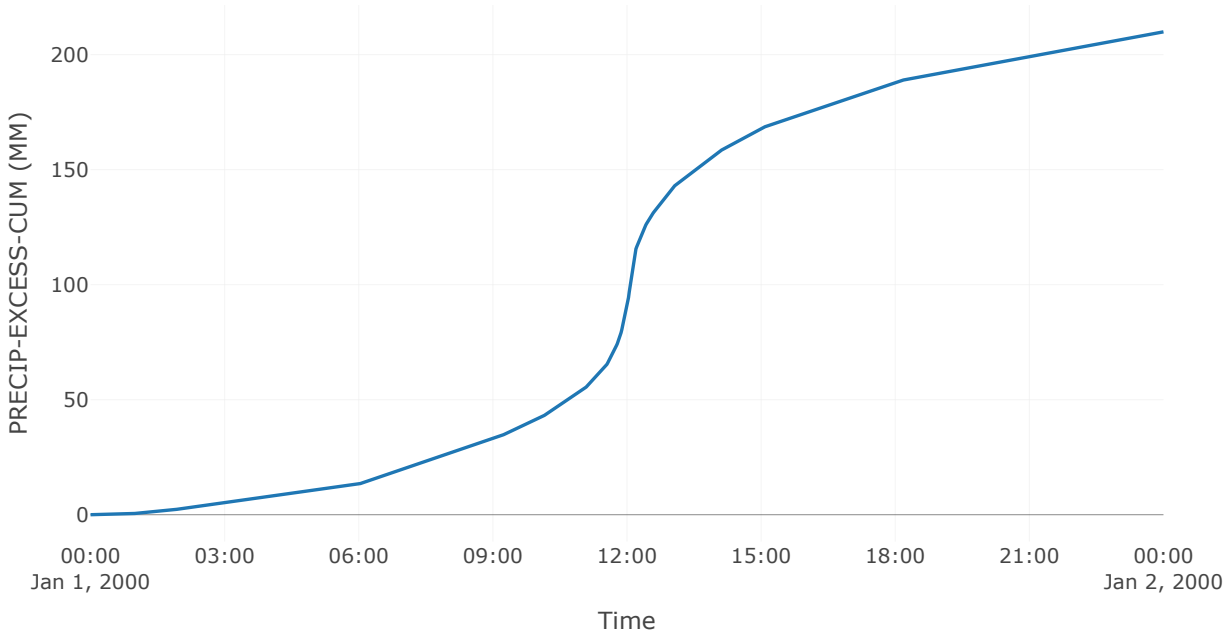
Transform: Scs	
Lag	6.7
Unitgraph Type	Standard

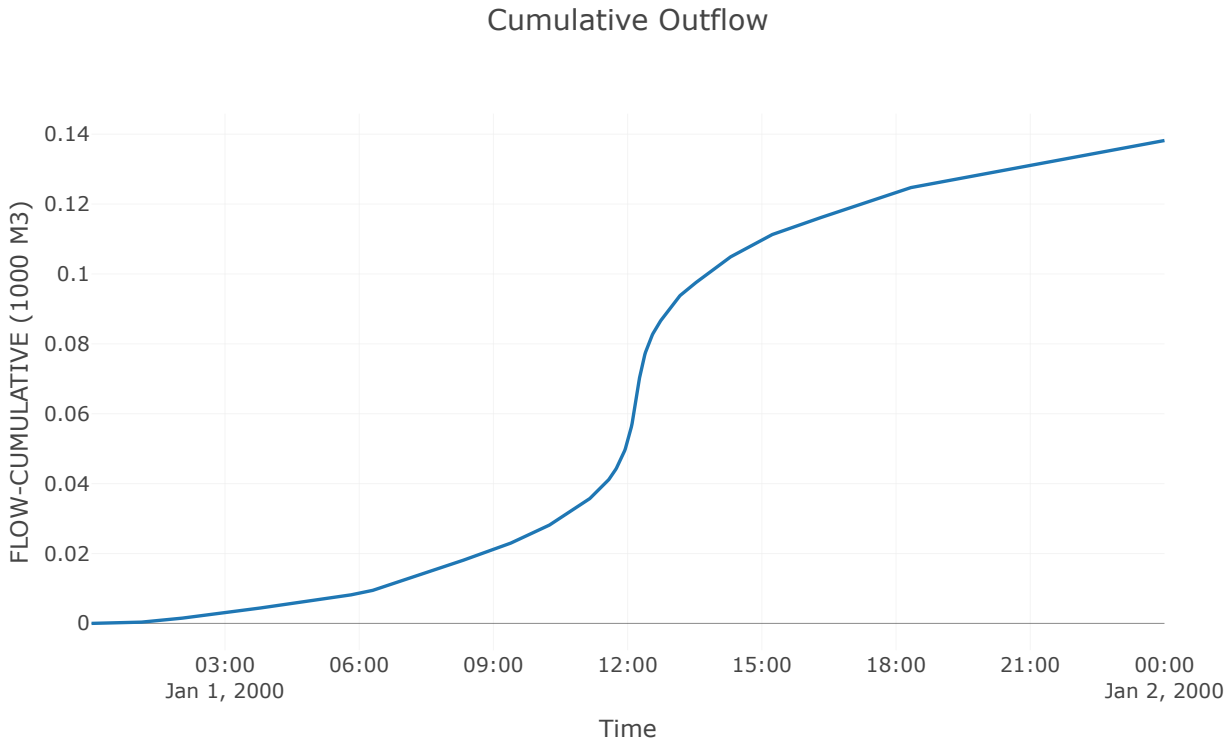
Results: Impervious	
Peak Discharge (M3/S)	0.02
Time of Peak Discharge	01Jan2000, 12:12
Volume (MM)	209.37
Precipitation Volume (M3)	142.56
Loss Volume (M3)	4.02
Excess Volume (M3)	138.54
Direct Runoff Volume (M3)	138.19
Baseflow Volume (M3)	0

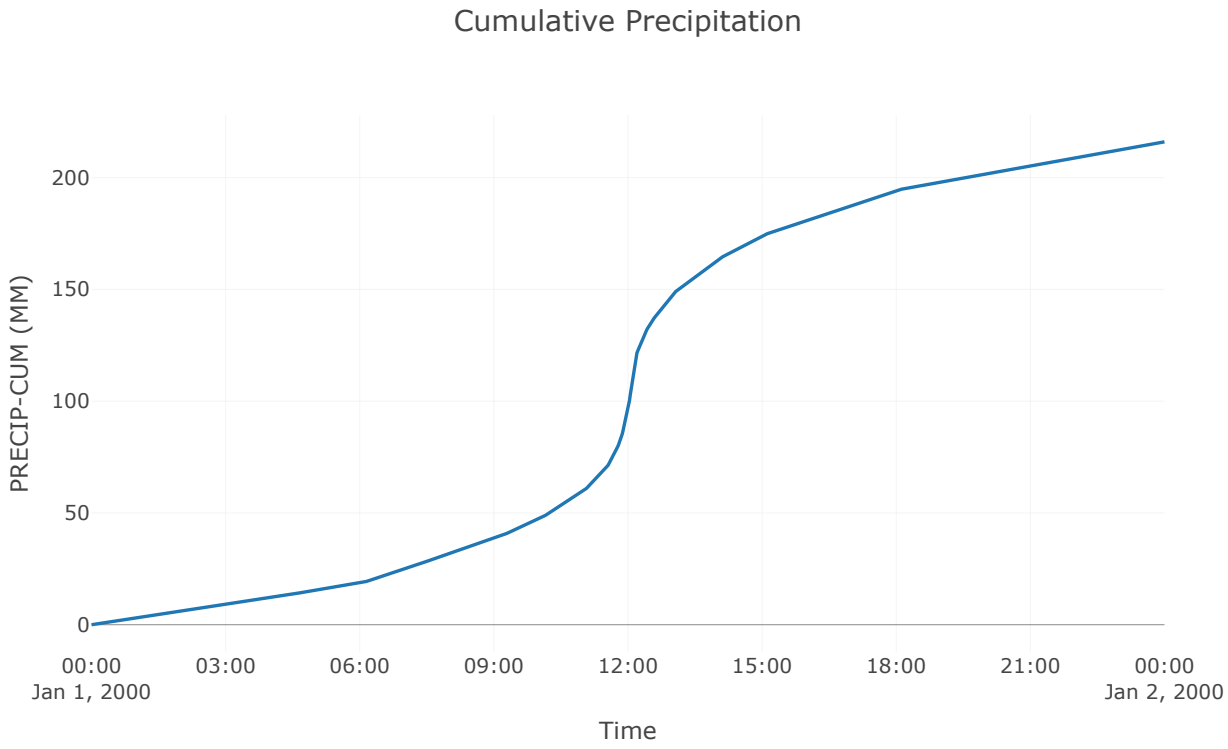
Precipitation and Outflow

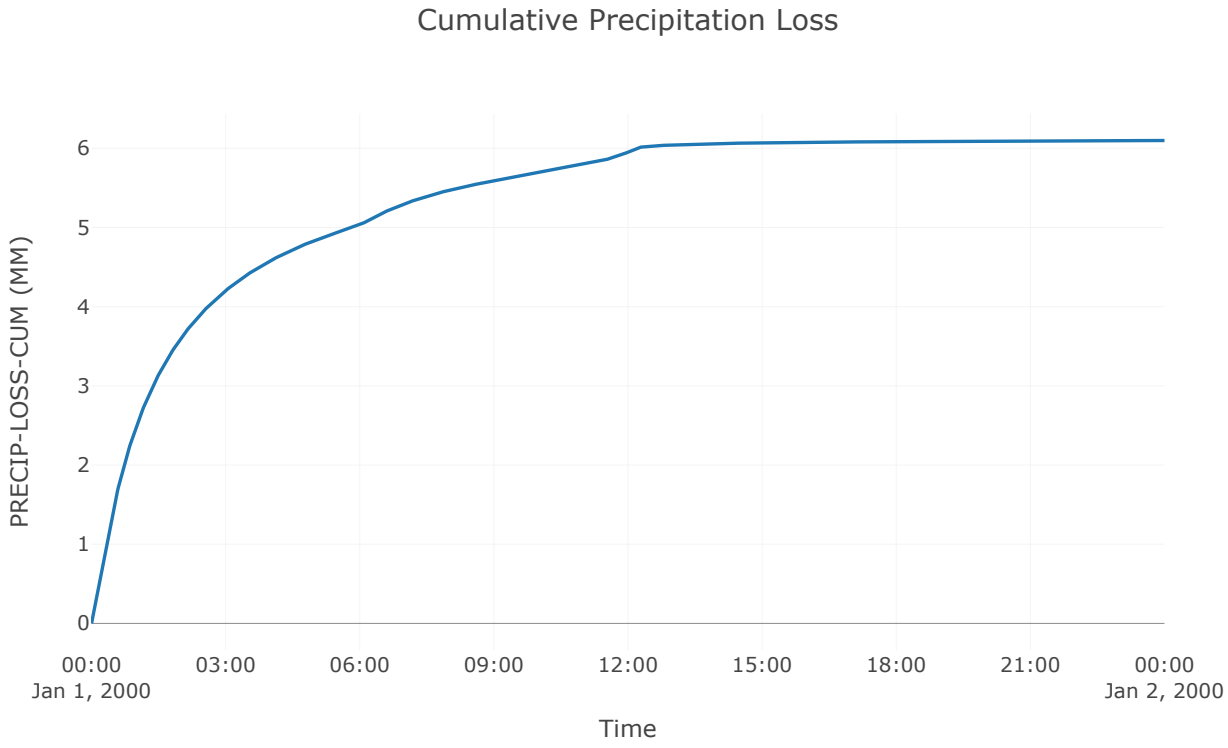


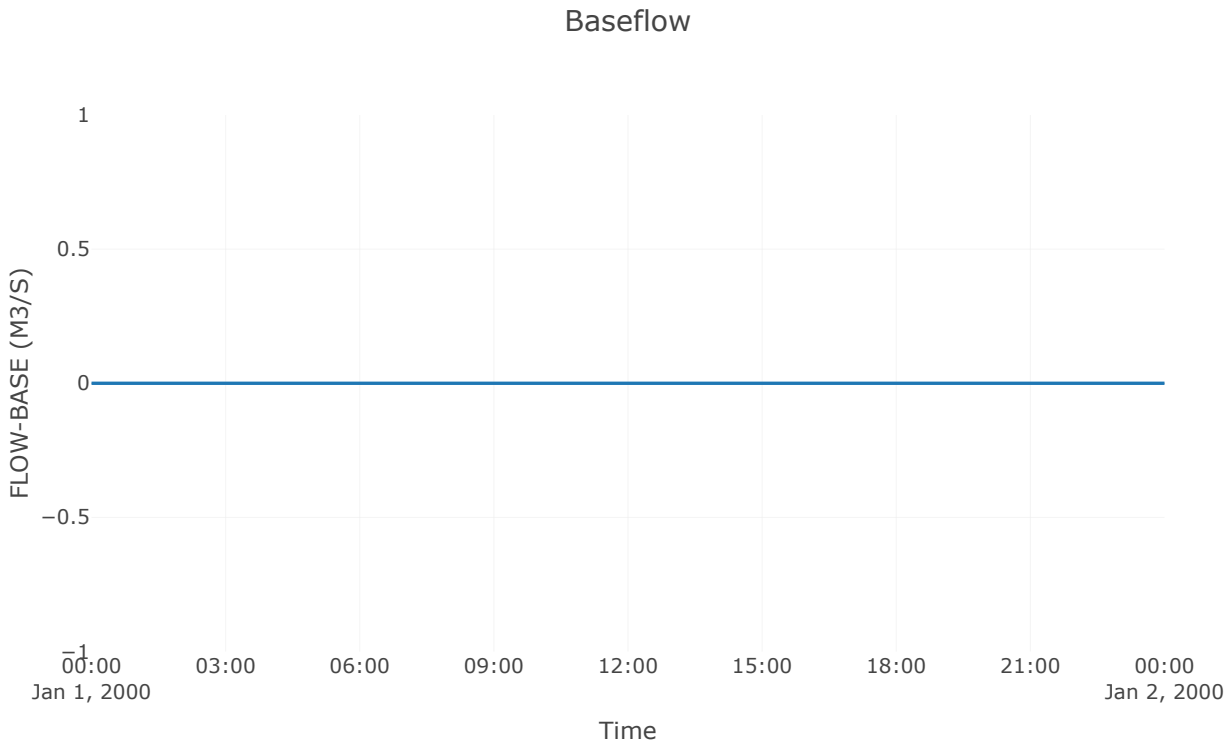
Cumulative Excess Precipitation

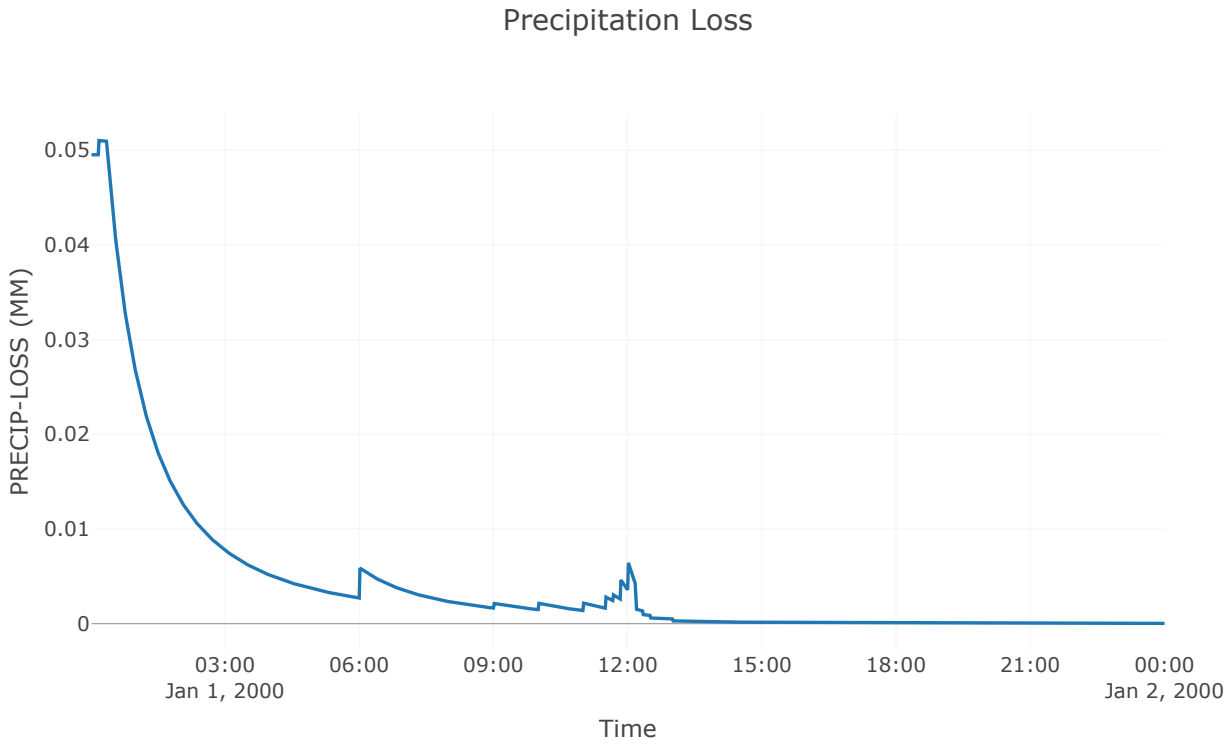


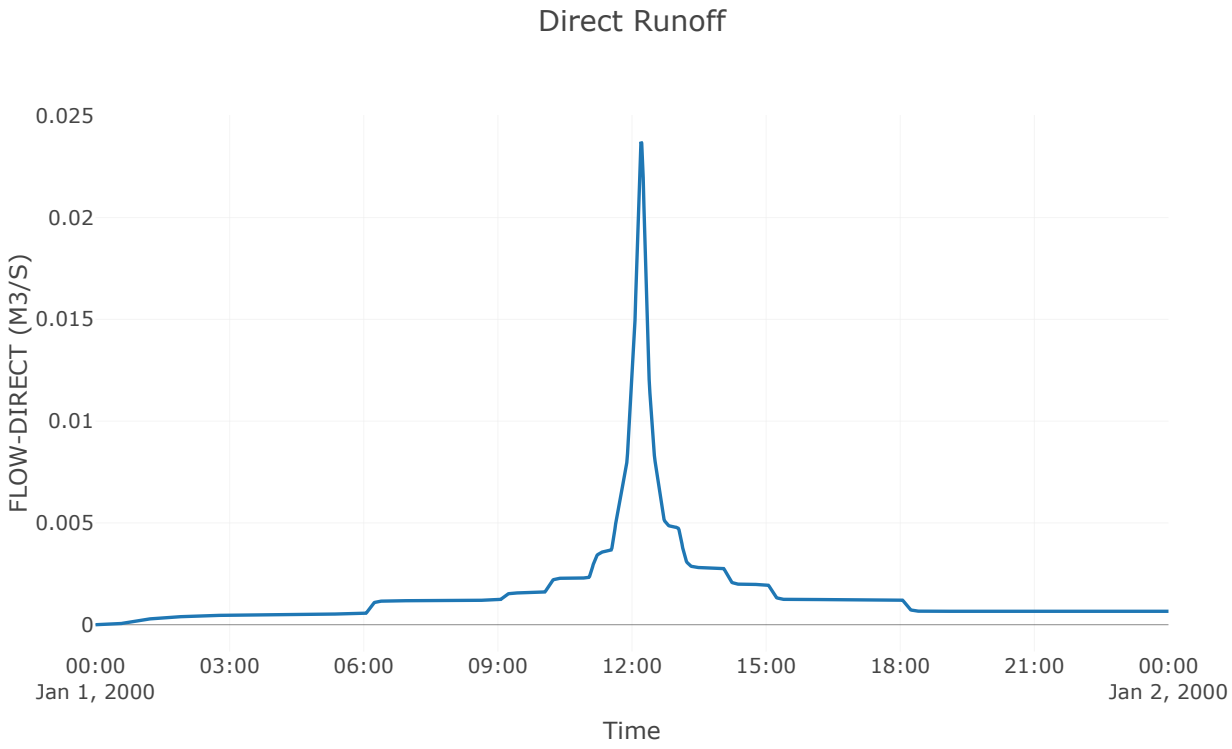

Cumulative Outflow
FLOW-CUMULATIVE (1000 M3)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
03:00
Jan 1, 2000
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

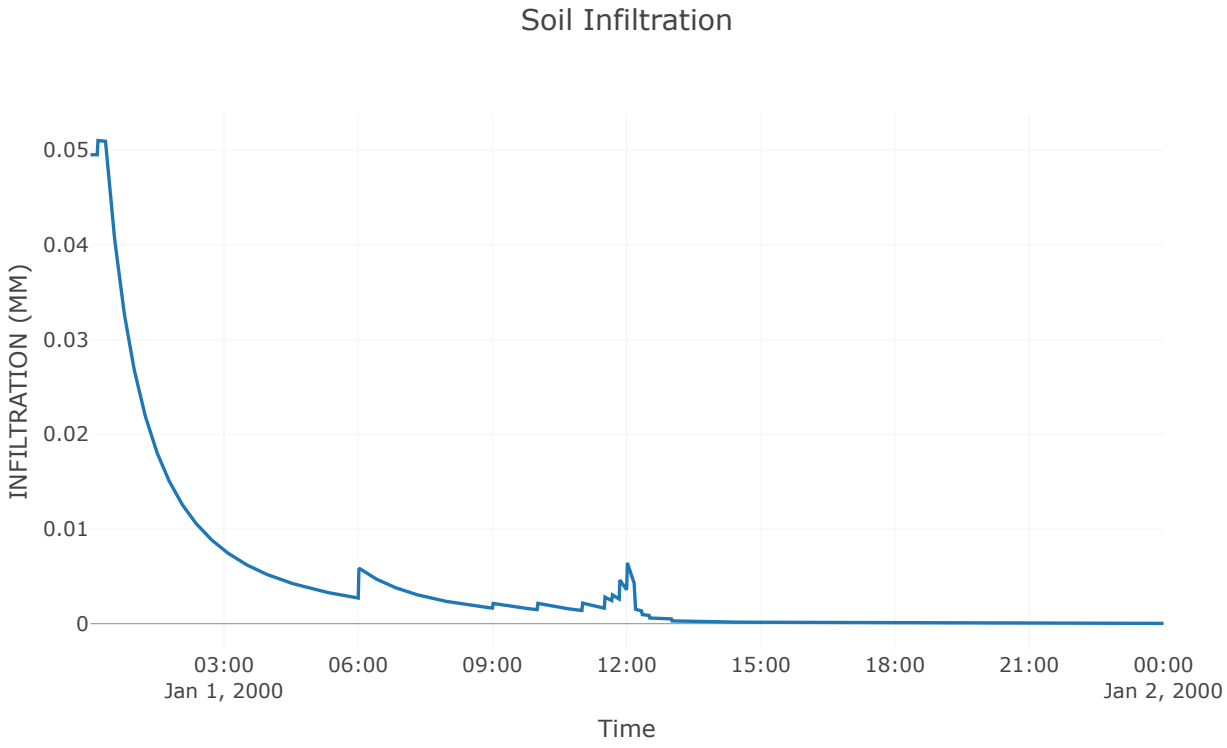

Cumulative Precipitation
PRECIP-CUM (MM)
200
150
100
50
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Cumulative Precipitation Loss
PRECIP-LOSS-CUM (MM)
6
5
4
3
2
1
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Baseflow
FLOW-BASE (M3/S)
1
0.5
0
−0.5
−1
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Precipitation Loss
PRECIP-LOSS (MM)
0.05
0.04
0.03
0.02
0.01
0
03:00
Jan 1, 2000
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

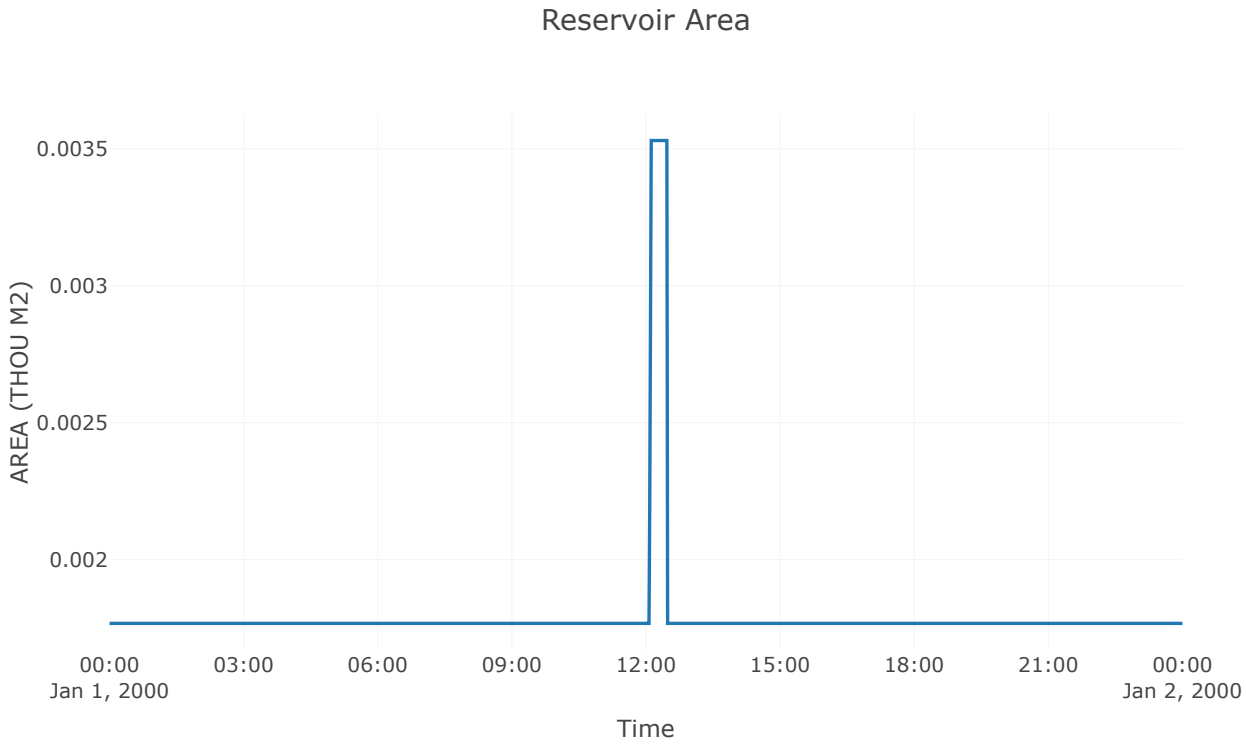

Direct Runoff
FLOW-DIRECT (M3/S)
0.025
0.02
0.015
0.01
0.005
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

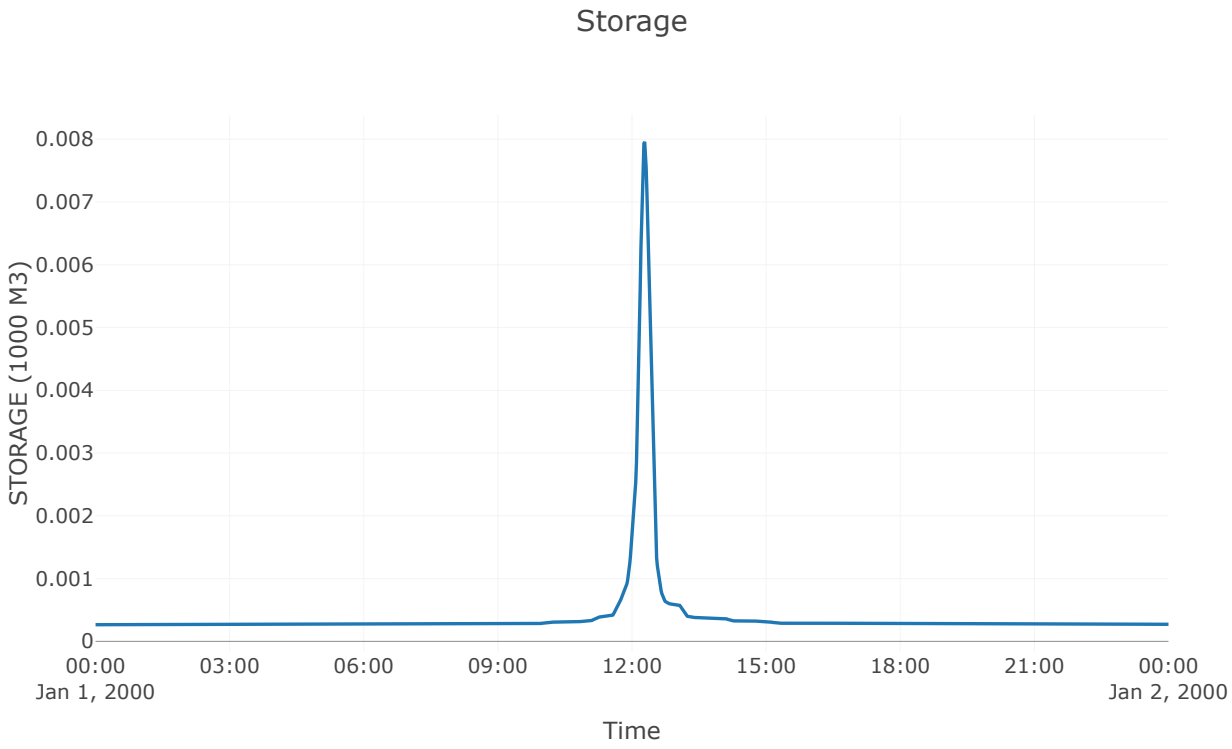

Soil Infiltration
INFILTRATION (MM)
0.05
0.04
0.03
0.02
0.01
0
03:00
Jan 1, 2000
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

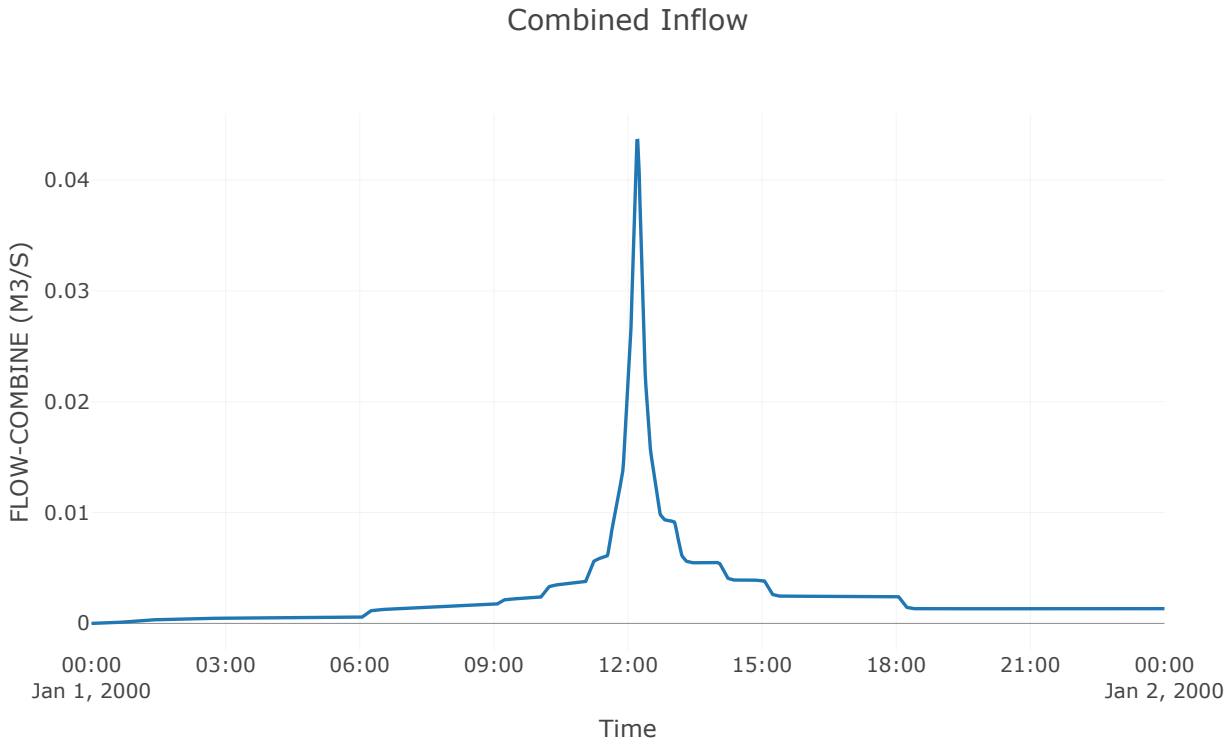
Reservoir: Detention

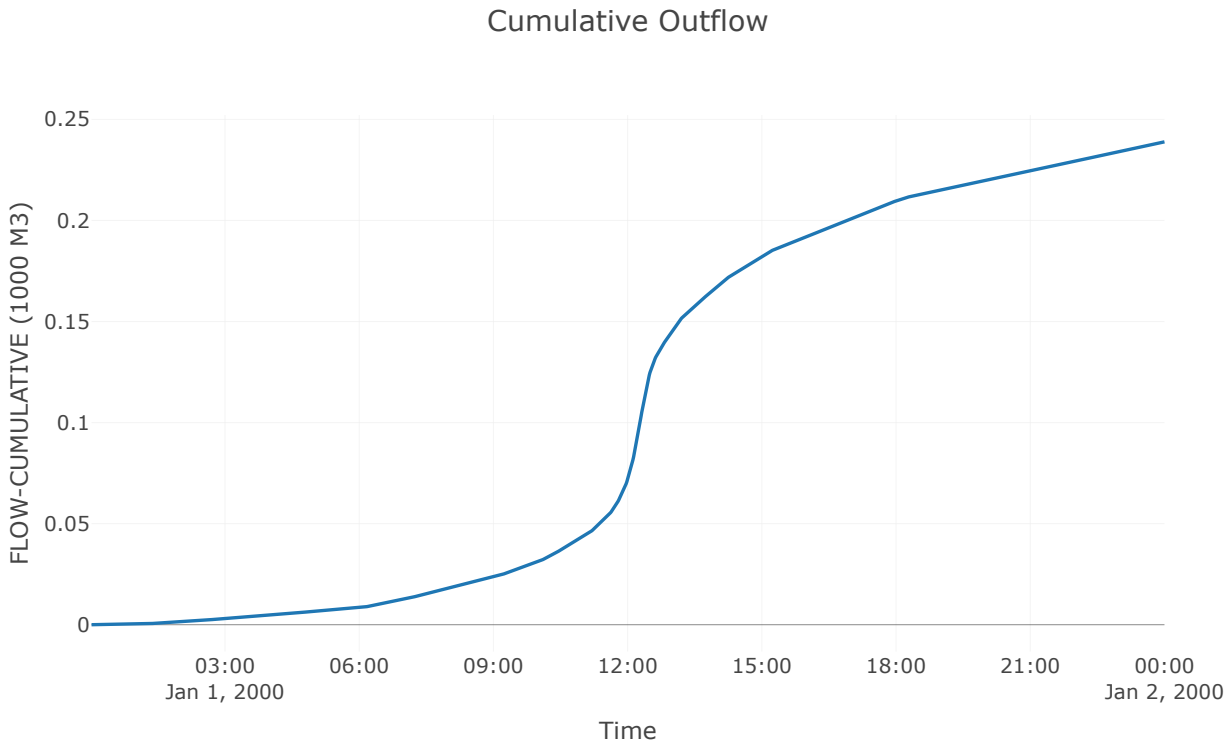
Downstream : Outlet

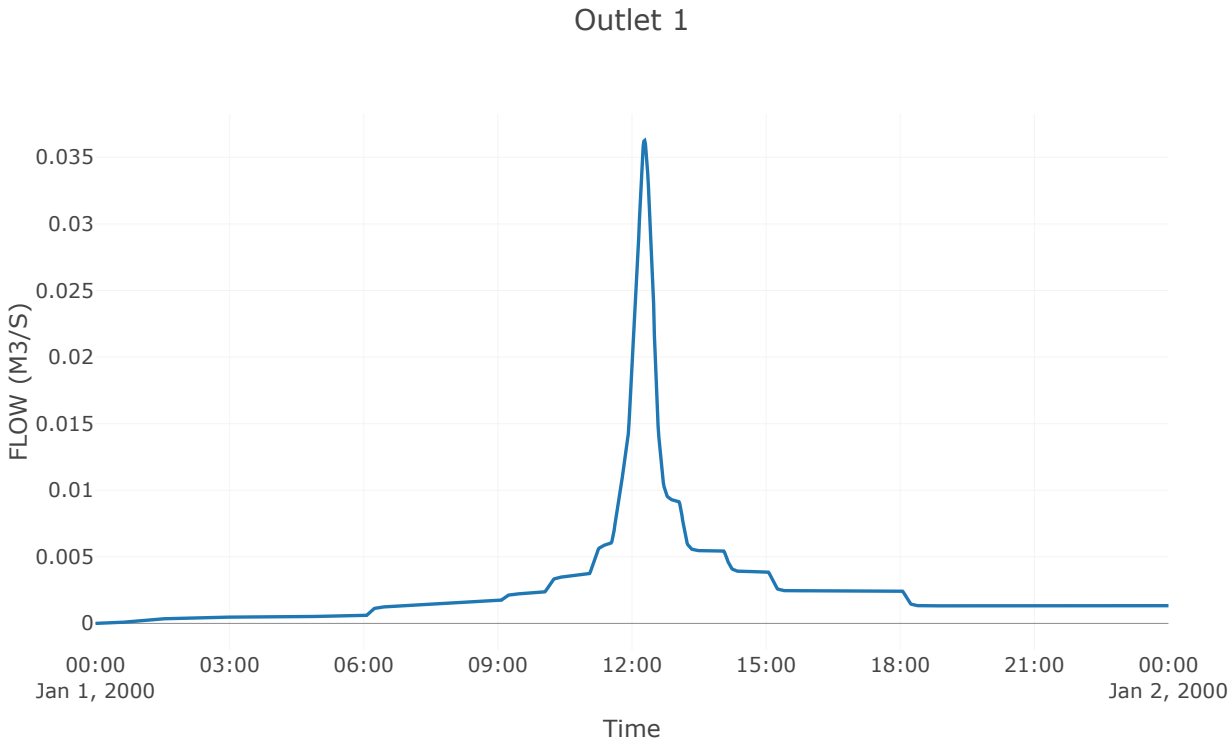
Results: Detention	
Peak Discharge (M3/S)	0.04
Time of Peak Discharge	01Jan2000, 12:17
Volume (MM)	170.64
Peak Inflow (M3/S)	0.04
Time of Peak Inflow	01Jan2000, 12:13
Inflow Volume (M3)	238.93
Maximum Storage (M3)	7.96
Peak Elevation (M)	2.98
Discharge Volume (M3)	238.9

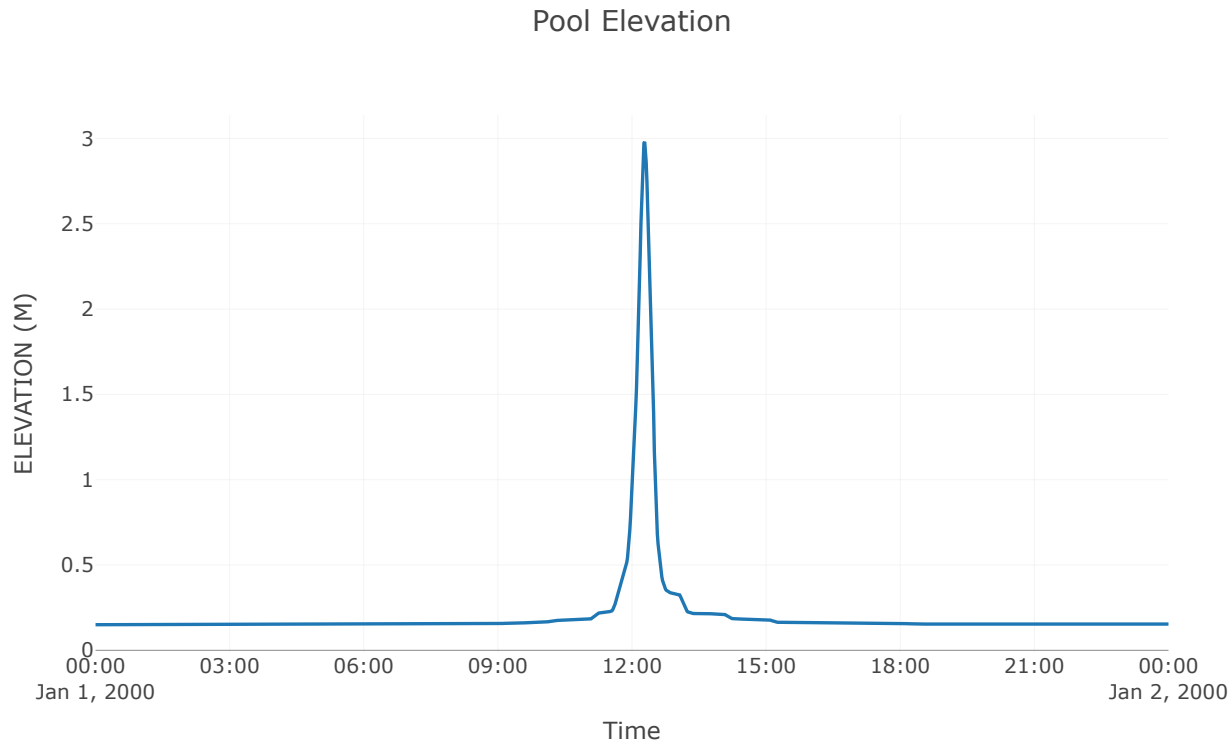

Reservoir Area
AREA (THOU M2)
0.0035
0.003
0.0025
0.002
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

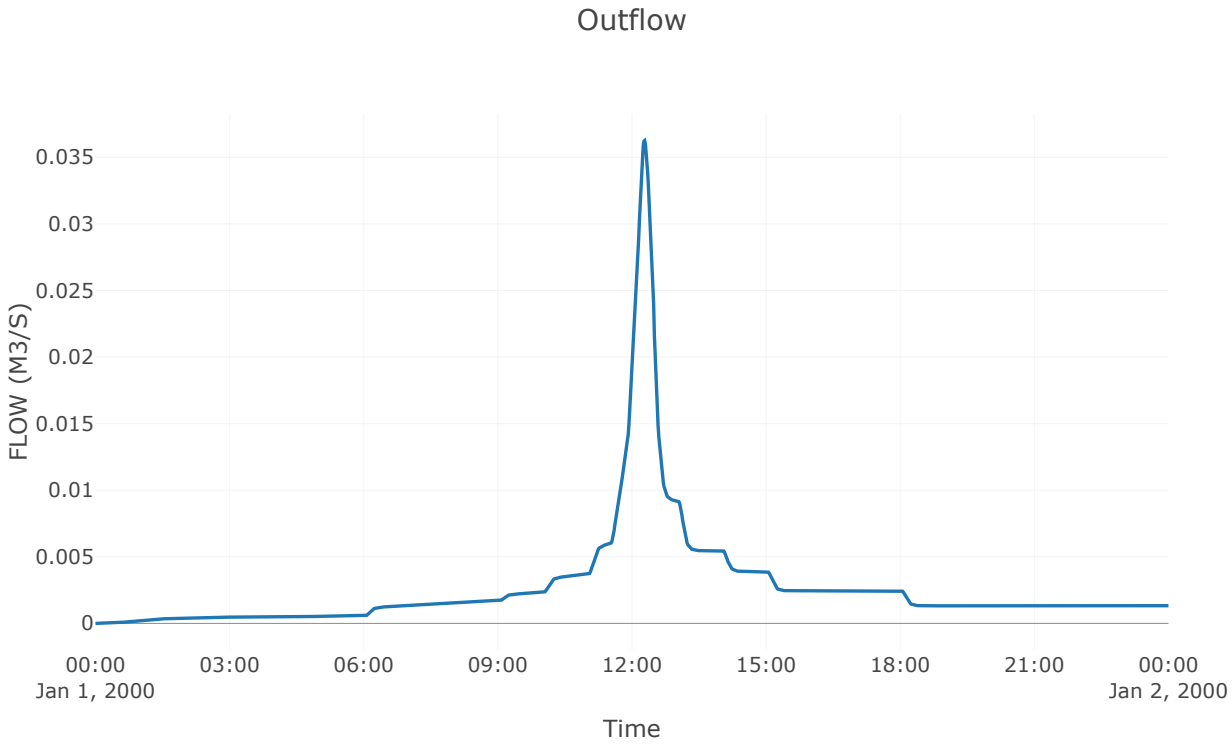

Storage
STORAGE (1000 M3)
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Combined Inflow
FLOW-COMBINE (M3/S)
0.04
0.03
0.02
0.01
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Cumulative Outflow
FLOW-CUMULATIVE (1000 M3)
0.25
0.2
0.15
0.1
0.05
0
03:00
Jan 1, 2000
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time


Outlet 1
FLOW (M3/S)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

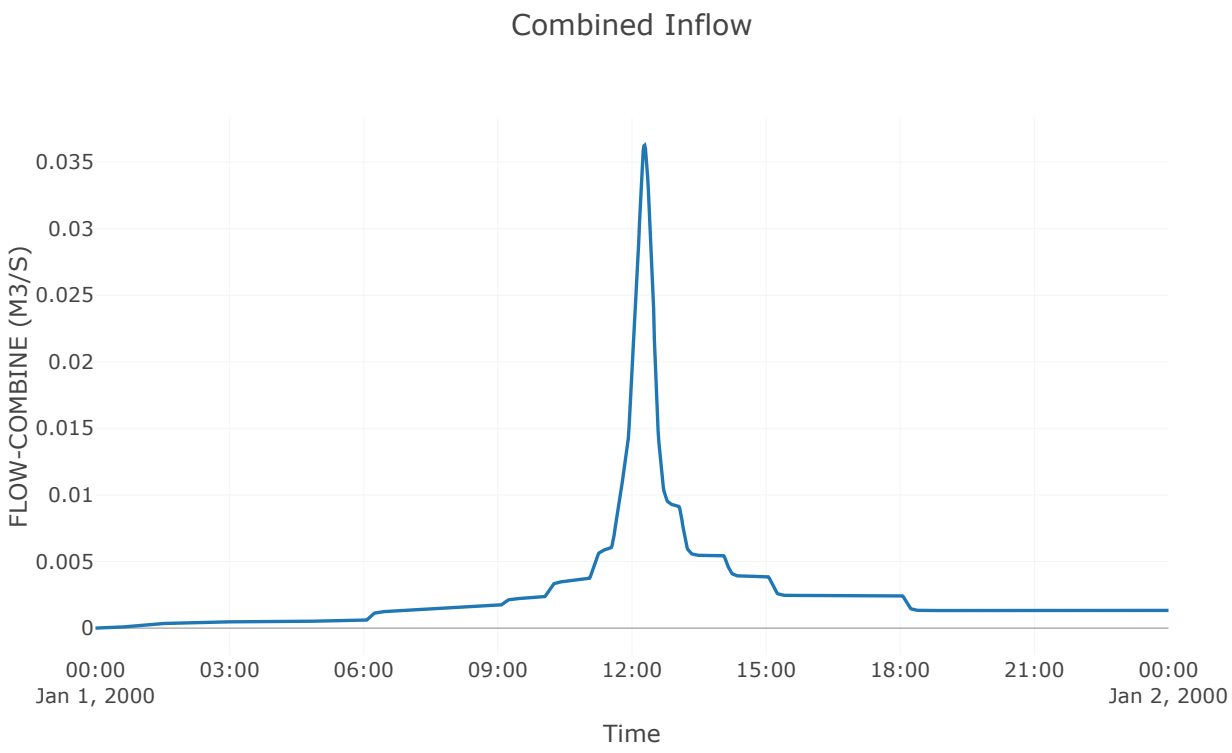

Pool Elevation
ELEVATION (M)
3
2.5
2
1.5
1
0.5
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

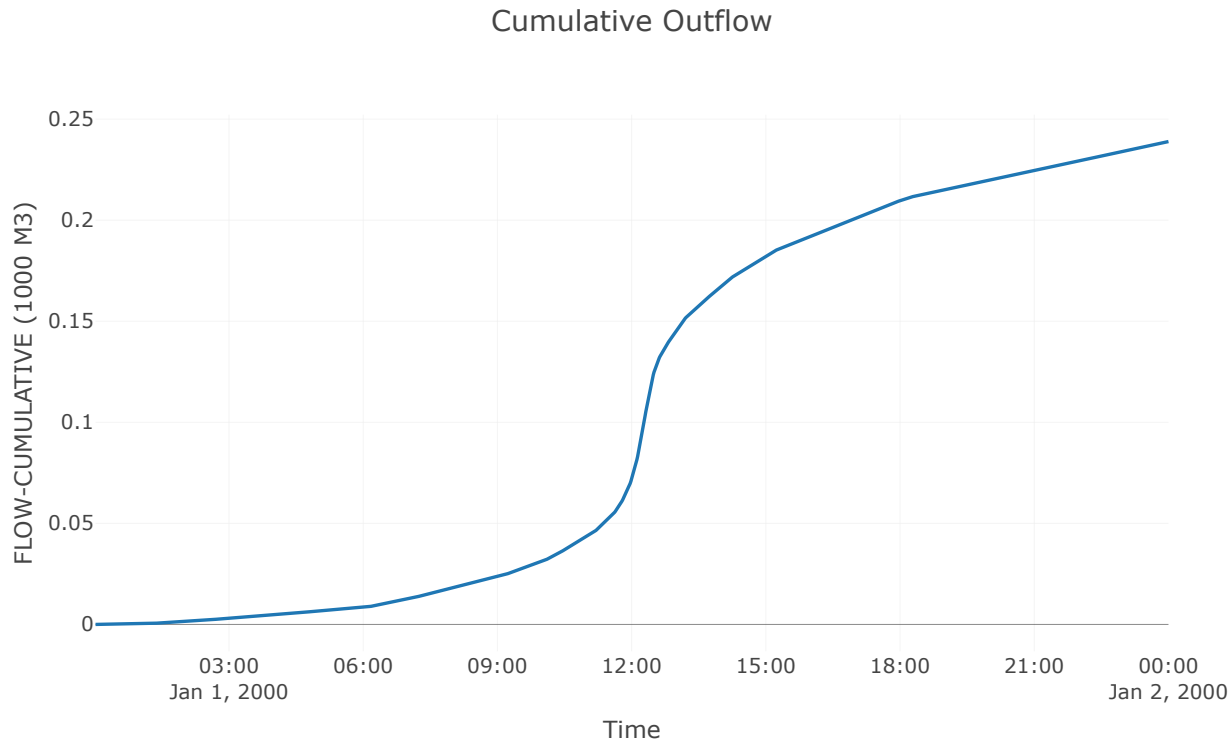

Outflow
FLOW (M3/S)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

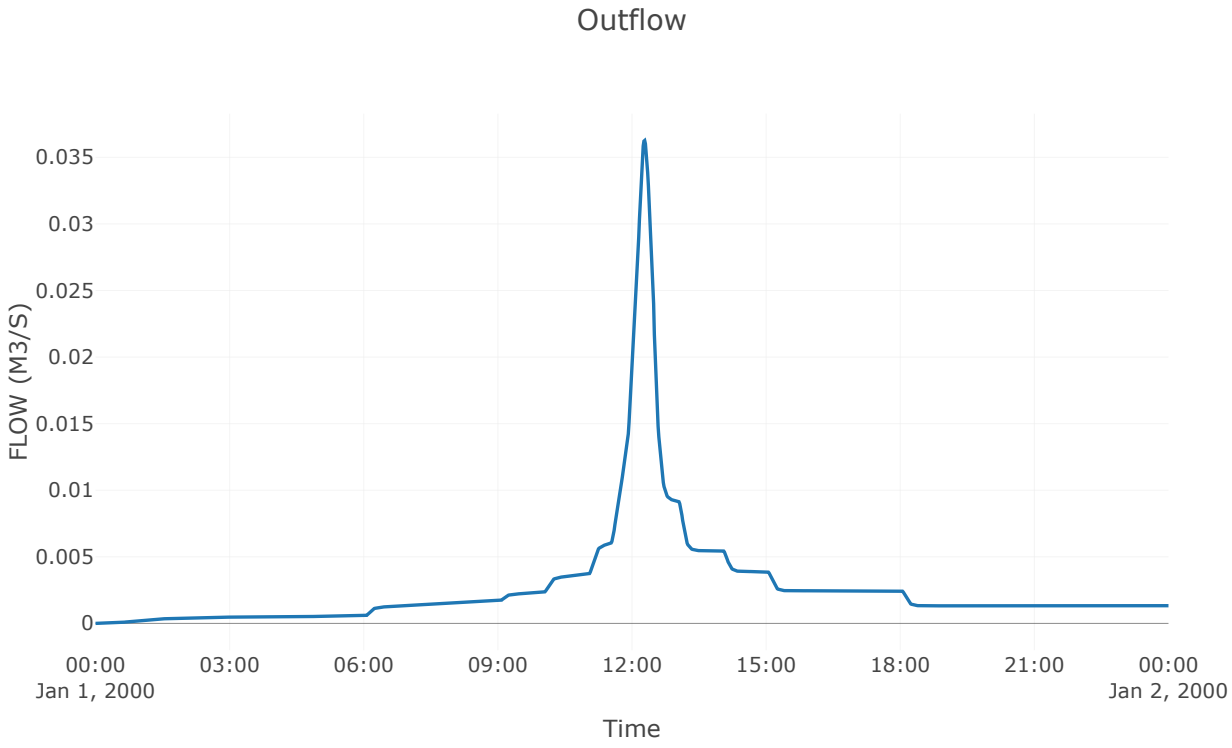
Sink: Outlet

Results: Outlet

Peak Discharge (M3/S)	0.04
Time of Peak Discharge	01Jan2000, 12:17
Volume (MM)	170.64






Outflow
FLOW (M3/S)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
00:00
Jan 1, 2000
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Jan 2, 2000
Time

Appendix Ten: **Assessment of Acoustic Effects**

MARSHALL DAY Acoustics

SANDSPIT ZSS NEW SUBSTATION
ASSESSMENT OF ACOUSTIC EFFECTS

Rp 001 20230437 | 1 February 2024

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Project: **SANDSPIT ZSS NEW SUBSTATION**

Prepared for: **Vector Ltd**
c/o ElectroNet Ltd
P.O. Box 6138
Upper Riccarton
Christchurch 8442

Attention: **Koogendran Govender**

Report No.: **Rp 001 20230437**

Document Control

Status:	Rev:	Comments	Date:	Author:	Reviewer:
Approved	–	–	1 Feb 2024	Maggie Zhang Lancy Paea	Shaun King

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1.0 SUMMARY

ElectroNet has requested that Marshall Day Acoustics assist with an acoustic study for a proposed substation at Lot 1 DP 426584, Mahurangi East Road, Snells Beach 0982. At end-state, we understand that the substation would consist of 33 kV and 11 kV switchboards with two 15/20 MVA ONAN/ONAF 33/11 kV transformers, and HVAC units for the switch-room building.

We have carried out a site visit to establish the ambient night-time noise levels of the site. We created a desktop noise model of the proposed substation to predict noise levels received at adjacent sites. The transformer noise data is based on a similar unit installed at Kaukapakapa Zone Substation, and fan spectrum based on Spur Road Zone Substation adapted to data sheet levels.

We understand that Vector plans to install one transformer at this stage, with a second enclosure to allow for a second future transformer. We understand that transformer T1 may operate in ONAN or ONAF modes, depending on electricity load, and we have modelled and assessed both situations. The noise levels were assessed for compliance against the Designation 8866 operational noise limits.

This report sets out the relevant noise criteria, our measurements, our prediction method, and our prediction results. In summary:

- T1 emissions can achieve compliance at all times in ONAN mode, and can achieve daytime compliance in ONAF mode, and are reasonable for the existing noise environment
- Transformer fan use will be avoided during night-time hours of 6pm to 6am for all days
- Future T2 compliance may be achieved with similar transformer and fans
- AC outdoor unit noise emissions are likely negligible compared to transformers

A glossary of terminology is provided in Appendix A.

Figure 1: Auckland Unitary Plan zoning map of site and surrounds

2.0 PERFORMANCE STANDARDS

2.1 Auckland Unitary Plan Zoning

We note that the site has the underlying designation *8866 Sandspit Substation* within the Auckland Unitary Plan (AUP) and is zoned *Rural - Mixed Rural Zone*. All adjacent sites are zoned *Rural - Mixed Rural Zone* and sites across the intersection to the north are zoned *Residential - Large Lot Zone*.

The AUP zoning map of the site and surrounds is shown in Figure 1 (page 4).

2.2 Noise Performance Standards

Designation *8866 Sandspit Substation* contains the following rule in relation to operational noise:

8. *The operational noise from the substation shall not exceed the following limits at the notional boundary (notional boundary is defined as a line 20m from the side of a rural dwelling existing as at 1 April 2009, or the legal boundary where this is closer to the dwelling):*
    a. *Monday to Saturday: 6:00am to 6:00pm 55 dBA L_{eq}*
    b. *Sundays & Public Holidays: 6:00am to 6:00pm 50 dBA L_{eq}; and*
    c. *At all other times: 45 dBA L_{eq} 75 dBA L_{max}.*

We understand that the nearest dwelling at 826 Sandspit Road was built prior to 2009 and the limit would apply at its boundary. We note that the nearest building at 836 Sandspit Road is not a dwelling, and the limits would not apply to this site.

We understand that transformer noise levels generally have some variability throughout the day which is dependent upon the demand profile for electricity use. We understand that the transformer would operate in both ONAN (oil natural air natural) and ONAF (oil natural air forced) modes throughout the day, depending on the load and thus cooling requirements. We have assessed T1 noise emissions in both operating modes.

We note that the 45 dB L_{Aeq} 'night-time' level is consistent with the AUP Standard E26.2.5.3(2) noise performance rule for substations, as well as the underlying zone limits in Standards E25.6.3(1) and E25.6.15(1). However, the 'night-time' period in the designation condition generally begins and ends earlier than the AUP period.

3.0 EXISTING SITE CONDITIONS

3.1 Noise Measurement Results

We undertook an environmental noise survey on 17 November 2023 between 3:40–4:05am to estimate the noise levels based on traffic. Site photos are included in Appendix B.

We measured noise in general accordance with New Zealand Standard NZS 6801:2008 "*Acoustics-Measurement of Environmental Sound*" with a Brüel and Kjær 2250 sound level meter. We had measured the noise levels 34m east of the existing local area transformer box. However, noise emissions from the local area transformer were not audible at the measurement location. Two measurements were conducted for a duration of 15 minutes at the same measurement position as shown in Figure 2 below.

The predominant noise source at the measurement position for both measurements was distant traffic. However, we note that during the second measurement at 4:02am there was more traffic activity compared to the first measurement.

Figure 2: Noise measurement position relative to site and surrounds

Our measurement results are summarised in Table 1 below.

Table 1: Noise measurements at measurement position

Measurement Position	Start time (duration)	Measured noise levels			Comments
		dB L_{AFmax}	dB L_{Aeq}	dB L_{AF90}	
Measurement position	3:42am (15:01)	47	30	23	Dominant sources: distant traffic (paused out near traffic), crickets Intermittent sources: briefly roosters, owl
	4:02am (15:04)	52	33	25	Dominant sources: distant traffic (paused out near traffic) - more traffic activity, cricket noise Intermittent sources: rooster and frogs

Traffic noise is also anticipated to be the dominant ambient noise source during the daytime. We understand that daily traffic flows on Sandspit Road would be greater than 7500 ADT based on 2020 data[1]. Estimated daytime traffic noise levels on the most exposed façade of 826 Sandspit Road using the UK Calculation of Road-Traffic Noise (CRTN) method[2] are 60–65 dB L_{Aeq}.

[1] Source: Mobile Road https://mobileroad.org/

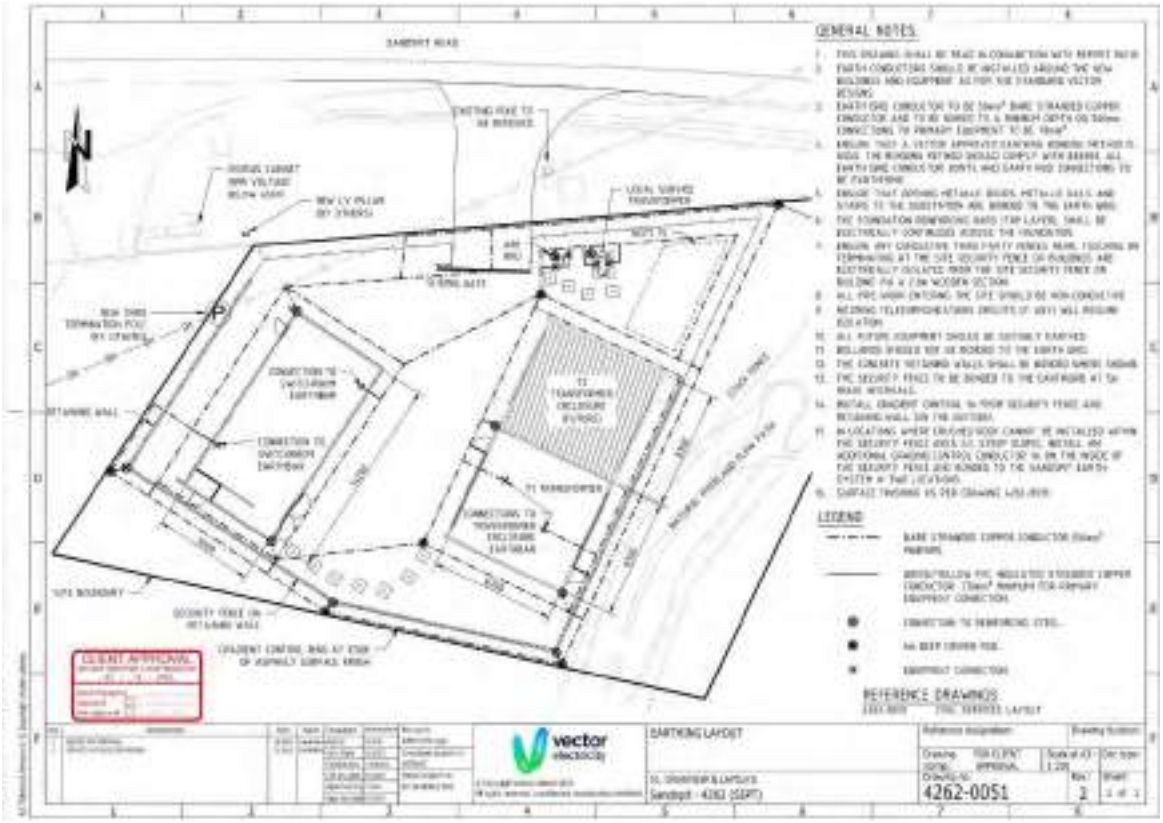
[2] Waka Kotahi Road traffic noise calculator https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines/environment-and-sustainability-in-our-operations/environmental-technical-areas/noise-and-vibration/road-traffic-noise-calculator/

4.0 OPERATIONAL NOISE MODELLING AND ASSESSMENT

4.1 Noise Model Data and Assumptions

We have received the *Civil and Structural* plans prepared by ElectroNet and dated December 2023. The proposed site plan for the substation has been included in Figure 3 below.

Figure 3: Proposed site plan of Sandspit Substation



We have created a computer noise model of the site and surrounds. We understand that earthworks will be undertaken as part of the development of the site to raise the ground elevation. We have assumed a flat terrain for our model such that the floor elevation of the transformer bay is similar to the dwelling receivers.

We used the following inputs:

- Indicative 15/20 MVA (in ONAN cooling mode) transformer sound power level[3] of **61 dB L_{WA},** located 2.0 metres above the transformer bay floor level
- Indicative fan sound pressure level of **77 dB $L_{Aeq,1m}$** from the ARS52-4P-F50 data sheet for each fan:
  - 11 fans per transformer, total sound pressure level of 85 dB $L_{Aeq,1m}$
  - Spectrum[4] derived from 1m sound pressure level measurements at Spur Road Substation

[3] Based on spectrum from data sheet of transformer prepared for Kaukapakapa Zone Substation (APPENDIX C)

[4] As the fan noise spectrum was not provided, we adapted the spectrum of a transformer with fan operating measured at Spur Road Substation (Appendix C). The transformer component of the spectrum was removed from the combined measurement to isolate the fan noise spectrum. As the shape of the fan noise spectrum was adapted, rather than absolute levels, this will have a negligible influence in overall predicted noise levels.

- Located 1.5 metres above the transformer bay floor level

- Non-acoustic weather louvres, and 165mm precast concrete walls lined with 100mm absorptive acoustic lining (e.g., AAB 25-100) for the transformer bays
- 2 outdoor AC units positioned on the west side of the switch-room, with sound power level[5] **58 dB L_{WA}** for each unit, with typical broadband spectrum
- No barrier attenuation from retaining wall on the south-west boundary (below transformer bay R.L.) and security fence

4.2 Operational Noise Assessment

We have predicted noise levels with methods in accordance with ISO 9613-2:1996 "*Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation*". We understand that the transformer will operate in ONAN or ONAF cooling configurations during the daytime, and ONAN only during night-time hours unless in an emergency situation. Therefore, only ONAN emissions will be assessed against the night-time limit.

Noise levels from naturally cooled transformers (ONAN configuration) tend to have a tonal character which is particularly prominent at 100 and 200 Hz third-octave bands. A +5 dB 'special audible character' penalty[6] has been added to the predicted L_{Aeq} level to obtain the noise rating level L_R.

ONAF transformers are generally dominated by fan noise and have a broadband character, particularly when the fans are at least 10 dB louder than the transformer. As this is the case for our data, we assume that daytime noise emissions are dominated by the fans which would adequately mask any tonal components.

The predicted noise levels and assessed rating level is summarised in Table 3.

Table 2: Predicted noise levels from proposed T1 operational emissions at nearest (notional) boundaries

Receiver Address	Distance to (notional) boundary from subject site	Predicted ONAF Levels	Predicted ONAN Levels	
		dB L_{Aeq}	dB L_{Aeq}	dB L_R
826 Sandspit Road	20 m	47	28	33
337 Sharp Road	62 m	45	28	33
339 Sharp Road	61 m	42	22	27
903 Sandspit Road	105 m	38	18	23
12 Mahurangi East Road	145 m	37	17	22

Noise levels/ratings highlighted in:

- Green indicate compliance with noise limits at all times
- Orange indicate compliance with daytime noise limits only

Our assessment indicates that noise emissions from:

- ONAF operation up to 47 dB L_{Aeq} and complies with designation daytime (including Sunday and public holiday) noise limits, broadband noise unlikely noticeable at nearest receiver

[5] Based on assumptions for Vector West Wiri Zone Substation *Rp 001 20201085* issued to Jacobs NZ Ltd

[6] In accordance with the provisions in NZS 6802:2008 Appendix B4 for 'special audible character'

- ONAN operation up to 33 dB L_R and complies with designation noise limits for all times, tonal character likely noticeable at boundary of nearest receiver at night but not within dwelling
- AC outdoor units are up to 20 dB L_{Aeq} and negligible compared to transformer emissions

We understand that the operation of the fans may be disabled during the night-time period to avoid infringing the night-time noise limit. We understand that the fans may operate at night-time during an emergency resulting in the failure of nearby substations. This may result in a minor infringement of up to 2 decibels at the boundary of 826 Sandspit Road, depending on number of fans in operation. The predicted incident level on the nearest dwelling façade is up to 35 dB L_{Aeq}, audible above the ambient noise levels in the area. However, these levels would be less than 25 dB L_{Aeq} within a most exposed bedroom, and highly unlikely to cause sleep disturbance even with windows open.

We note that a future T2 transformer would be installed north of the T1 transformer. Assuming similar transformer and fan noise level and enclosure construction, this is likely to increase noise emissions to the north and east by 3–4 decibels. Noise levels at 826 Sandspit Road are unlikely to increase materially due to shielding by the switch-room building.

5.0 CONCLUSION

We have assessed the noise emissions and effects from the proposed Vector Sandspit Substation. In conclusion:

- T1 transformer emissions are predicted to meet designation noise limits, and are considered reasonable in the existing noise environment
  - Transformer ONAN (no fans) operation complies with designation noise limits for all times
  - Transformer ONAF (with fans) operation complies with designation daytime (including Sunday and public holiday) noise levels
  - Fans will be disabled during the night-time (6pm to 6am) but may operate in emergencies, unlikely to cause sleep disturbance if they operate
- Future T2 transformer emissions are likely to meet designation noise limits
- AC outdoor unit noise emissions are likely negligible compared to transformers

APPENDIX A GLOSSARY OF TERMINOLOGY

A-weighting	The process by which noise levels are corrected to account for the non-linear frequency response of the human ear.
Ambient	The ambient noise level is the noise level measured in the absence of the intrusive noise or the noise requiring control. Ambient noise levels are frequently measured to determine the situation prior to the addition of a new noise source.
dB	Decibel The unit of sound level. Expressed as a logarithmic ratio of sound pressure P relative to a reference pressure of Pr=20 μPa i.e., dB = 20 x log(P/Pr)
dBA	The unit of sound level which has its frequency characteristics modified by a filter (A-weighted) so as to more closely approximate the frequency bias of the human ear.
Frequency	The number of pressure fluctuation cycles per second of a sound wave. Measured in units of Hertz (Hz).
Hertz (Hz)	Hertz is the unit of frequency. One hertz is one cycle per second. One thousand hertz is a kilohertz (kHz).
$L_{A90\,(t)}$	The A-weighted noise level equalled or exceeded for 90% of the measurement period. This is commonly referred to as the background noise level.
$L_{Aeq\,(t)}$	The equivalent continuous (time-averaged) A-weighted sound level. This is commonly referred to as the average noise level. The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10 pm and 7 am.
L_{Amax}	The A-weighted maximum noise level. The highest noise level which occurs during the measurement period.
Octave Band	A range of frequencies where the highest frequency included is twice the lowest frequency. Octave bands are referred to by their logarithmic centre frequencies, these being 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, and 16 kHz for the audible range of sound.
Special Audible Characteristics	Distinctive characteristics of a sound which are likely to subjectively cause adverse community response at lower levels than a sound without such characteristics. Examples are tonality (e.g. a hum or a whine) and impulsiveness (e.g. bangs or thumps).
SPL or L_P	Sound Pressure Level A logarithmic ratio of a sound pressure measured at distance, relative to the threshold of hearing (20 μPa RMS) and expressed in decibels.
SWL or L_W	Sound Power Level A logarithmic ratio of the acoustic power output of a source relative to 10^{-12} watts and expressed in decibels. Sound power level is calculated from measured sound pressure levels and represents the level of total sound power radiated by a sound source.

APPENDIX B SITE PHOTOS

Figure 4: Site looking east from 836 Sandspit Road – transformer in photo was not audible during measurement

Figure 5: Site looking south from 836 Sandspit Road

Figure 6: Site looking south-east of 836 Sandspit Road – transformer was not audible during noise measurement

APPENDIX C NEW TRANSFORMER SOUND DATA

IMS TEST REPORT

Measurement of Sound Level	DOC. NO. : FW-QLT-TB1601	
Calculation of sound pressure from sound power	REV. 0	Page 1 of 2

Serial No. : 3011190038	Contract /PO No. : 4500359119		Standard
Customer : VECTOR LTD, NZ	Type : ORS 15/ 70		IEC 60076-10

15	MVA	33/ 11	kV	50	Hz	Dyn11	CONN.	3	PHASE

Sound Pressure Level at rated voltage and ONAN cooling

L_{WA} = Sound power level measured by Sound Intensity meter
= 60.7 dBA

h = Height of transformer tank
= 2.2 m

L_m = Length of prescribed contour at 1 m distance from transformer
= 24 m

S = Total measurement area
= (h+1) L_m
= 76.8 m^2

S_0 = 1 m^2

10 log S/S0 = 18.9

L_{WA} = L_{PA} + (10 log S/S0)

L_{PA} = Sound Pressure Level

= LWA - (10 log S/S0)

= 60.1 - 18.9 dBA

= 41.8 dBA

Acceptance Criteria : Sound pressure level at rated voltage at 1 meter (ONAN) max. **45 dBA**

Witnessed by,

Date of test : 09 January 2020

Tested by :

PT. GE POWER SYSTEMS INDONESIA • TEST BAY DEPARTMENT •

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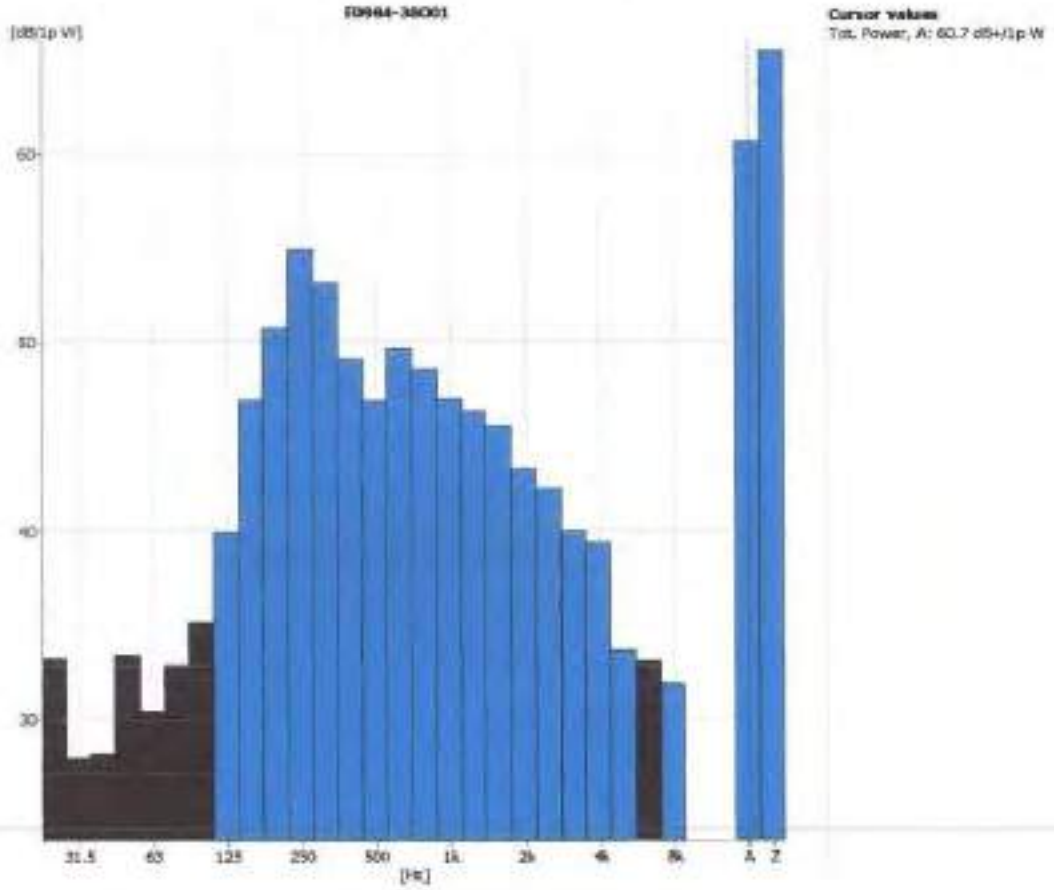
IMS TEST REPORT

Measurement of Sound Level	DOC. NO. : FW-QLT-TB1602	
Sound level spectrum	REV. 0	Page 2 of 2

Serial No. : 3011190038		Contract /PO No. : 4500359119						Standard	
Customer : VECTOR LTD, NZ		Type : ORS 15/ 70						IEC 60076-10	
15	MVA	33/ 11	kV	50	Hz	Dyn11	CONN.	3	PHASE

Sound power at rated voltage and ONAN cooling



Witnessed by,

Date of test : 09 January 2020

Tested by

PT. POWER SYSTEMS INDONESIA • TEST BAY DEPARTMENT •

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APPENDIX D NEW (SPUR ROAD) TRANSFORMER ESTIMATED SOUND POWER LEVELS

We have previously measured the noise from the Spur Road Substation at 2004 East Coast Road, Stillwater, Auckland. The measurements were to get an indication of sound power produced by a transformer which is to be relocated to the Coatesville Zone Substation. We measured the transformer on 27 April 2021 from around 10:30pm to 11:30pm.

Noise from a transformer is typically dominated by noise from the fans and the core. In both cases, the noise increases with the load of the transformer. We understand the transformer was only connected to 1 of the 7 feeders, because of decommissioning. Therefore, core noise will be lower than with 7 feeders connected. However, we were able to manually drive the fans at full speed, representing a worst-case fan noise.

We estimated the sound power of the transformer, as in Table 3 below. Note that with only 1 of 7 feeders connected, this estimate of sound power should be used with caution.

Table 3: Estimated sound power level of the Spur Road transformer (T2)

	Estimated Sound Power (dB L_w) of the Transformer in Third Octave Band Centre Frequency (Hz)																							
	50	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**	**630**	**800**	**1k**	**1.25k**	**1.6k**	**2k**	**2.5k**	**3.15k**	**4k**	**5k**	**6.3k**	**8k**	**10k**	**dB(A)**
No fans	52	52	63	83	63	63	83	64	67	60	61	58	56	53	47	43	41	39	37	36	36	36	35	33	74
With fans	66	69	71	85	78	85	86	80	81	83	83	82	82	81	81	79	77	76	74	72	70	67	64	61	90

Appendix Eleven: **EMF Review**

Sandspit ZSS EMF Review Letter

Project Number: VEC6852

Document: R6178, Rev01

15 December 2023

Prepared By
B. Luo, ElectroNet
P. Boys, ElectroNet

Distribution

Vector is proposing to build Sandspit Zone Substation (Sandspit) along Sandspit Road, approximately 2 km North of Snells Beach. Sandspit will be a 33/11 kV Substation.

Vector has requested ElectroNet assess and report on the (non-ionising radiation) electromagnetic fields (EMF) surrounding the proposed Sandspit site. The CDEGS software (HIFREQ module) has been used to determine the EMF levels and the compliance with the relevant standards and regulations associated with EMF.

The purpose of this review is to compare the calculated EMF produced by the proposed Substation and new 33 kV and 11 kV cabled circuits in line with the New Zealand Ministry of Health, National Radiation Laboratory, 2013, Electric and Magnetic Fields and Your Health: Information on electric and magnetic fields associated with transmission lines, distribution lines and electrical equipment handbook and International Guidelines.

Based on this analysis, our conclusions about the electric and magnetic field environment are:

1. The electric field environment remains unchanged following the installation of the proposed 33 kV and 11 kV cables.
2. The highest magnetic field at the Sandspit property boundary is predicted to be less than 12.38 µT. These values are less than 6 % of the public exposure reference level of 200 µT.

For both electric and magnetic field levels produced, the values are significantly less than the public exposure reference levels given by both New Zealand and International guidelines.

For both low frequency electric and magnetic field levels produced, the values are significantly less than the public exposure reference levels given by both New Zealand and International guidelines.

It should be noted that the EMF produced by the proposed Substation and new 33 kV and 11 kV cabled circuits is defined as non-ionising radiation.

Appendix Twelve: **PSI Report**

WILLIAMSON
WATER & LAND ADVISORY

Sandspit Zone Substation, Snells Beach

Preliminary Site Investigation (Ground Contamination)

MITTON ELECTRONET

WWLA0871 | Rev. 1

26 June 2023

Sandspit Zone Substation, Snells Beach

Project no:	WWLA0871
Document title:	Preliminary Site Investigation (Ground Contamination)
Revision:	1
Date:	26 June 2023
Client name:	Mitton Electronet
Project manager:	Wendi Williamson
Author(s):	Penelope Lindsay
File name:	G:\Shared drives\Projects\Mitton Electronet\WWLA0871_Sandspit substation contamination\Deliverables\WWLA_Sandspit Mitton PSI_260623.docx

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Document history and status

Rev	Date	Description	By	Review	Approved
1	26 June 2023	Ground contamination desk study.	Penelope Lindsay	Wendi Williamson	Wendi Williamson

Distribution of copies

Rev	Date issued	Issued to	Comments
1	26 June 2023	Mitton Electronet Ltd.	

Investigation Summary

Williamson Water & Land Advisory Ltd (WWLA) has prepared this ground contamination desk study known as a preliminary site investigation (PSI), to assist Mitton Electronet Ltd with construction of a new substation at Mahurangi East Road next to 896 Sandspit Road, Snells Beach (Lot 1 DP 426584). Limited soil sampling was also undertaken to support the findings of the desk-based assessment into potential for ground contamination. This report also determines whether there are any ground contamination-related resource consent requirements and whether contamination (if present) poses a risk to human health and the environment during and post development of the substation.

The key findings of this report are:

Site history and potential for contamination [Section 3.2 and 3.3]	**The site history review indicates that no potentially contaminating activities included on the Ministry for the Environment's Hazardous Activities and Industries List (HAIL) have occurred on the site.** The property was covered in scrub/bush, with surrounding land being used for farming from at least 1966 through to clearance in the mid-1990s, after which the site was used for livestock grazing. There have been no significant changes observed on the site since that time, with use for stock grazing continuing to the present day.
Soil sampling and analysis [Section 4]	**Soil sampling observations and laboratory testing data confirms that no contamination is evident and relevant contaminant concentrations in soils are consistent with published background levels for the Auckland region.** Limited soil sampling was undertaken to confirm a suitable offsite disposal site for spoil during construction. Analysis of composite samples from 0.1 m depth (surficial topsoil) and 0.4 m depth (underlying natural insitu subsoils; clayey silt) showed metal and polycyclic aromatic hydrocarbon (PAH) concentrations below published background levels
Conceptual site model (CSM) [Section 5]	**As no HAIL activities were identified there is no risk to human health or the environment from proposed earthworks associated with construction of the substation.** The site history assessment and soil testing confirm no identified potential sources of contamination associated with current and prior land uses. As there is no source of contamination onsite there are no relevant pathways for contaminants to affect receptors under any land development scenario.
Consenting implications [Section 5.1]	**Ground contamination-related consents are not required under the NESCS or the AUP.** • Since no HAIL activities have occurred on the site the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations (NESCS) do not apply. • Consent for discharge of contaminants is not required under the Auckland Unitary Plan (AUP) because a source of soil contamination was not identified.
Redevelopment implications [Section 5.2]	**Standard earthworks and health and safety controls will be appropriate during earthworks. Soils are suitable for disposal to cleanfill.** • The Soil Disposal Certificate attached in **Appendix B** should be supplied to the disposal site operator to gain acceptance of surplus soil.

Contents

Appendices:

1. Introduction

Williamson Water & Land Advisory (WWLA) has prepared this ground contamination desk study, known as a preliminary site investigation (PSI), to assist Mitton Electronet Ltd with construction of a new substation at Mahurangi East Road next to 896 Sandspit Road, Snells Beach (Lot 1 DP 426584), referred to herein as 'the site', location provided in **Figure 1**). This report also includes limited soil sampling undertaken to support permitting of surplus soil for offsite disposal.

Figure 1. Site location, outlined in red. (Image source: LINZ).

1.1 Background

Mitton Electronet propose to construct a new substation for Vector Electricity Ltd (Vector) on land in the Sandspit Zone near Snells Beach, Auckland. The substation will comprise a transformer enclosure (with room for a second transformer to be added at a later date) and a switch room.

This report has been prepared to determine whether land uses that feature on the Ministry for the Environment's Hazardous Activities and Industries List (HAIL) have occurred. Land where HAIL activities have occurred may contain contaminants and are subject to the requirements of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS) Regulations (2011).

1.2 Objective and scope of work

This assessment comprised review of available information and limited soil sampling to establish if there are any implications for ground contamination on the land redevelopment process. The scope of this investigation comprised:

1. Review of the site's history including:

- Historical aerial photographs sourced from Retrolens and Auckland Council (AC) Geomaps.
- The Auckland Council property file.

2. Site walkover inspection by a WWLA contaminated land specialist i.e. a Suitably Qualified and Experienced Practitioner (SQEP).
3. Assessment of the potential for contamination, based on current and past land use and evaluation of that against the HAIL.
4. Collection of composite soil samples for laboratory analysis of typical contaminants.
5. Development of a conceptual site model (CSM) to assess contaminant risks and mitigation requirements during the works and post construction.
6. Evaluation of consenting requirements and earthworks/construction implications for construction of the new substation.

1.3 Legislative requirements

WWLA has undertaken this investigation and prepared this report in general accordance with requirements of published industry best practice guidance, including:

- Ministry for the Environment (MfE) Contaminated Land Management Guideline No. 1: Reporting on Contaminated Sites in New Zealand (Revised 2021) (CLMG 1).
- MfE's Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils (Revised 2021) (CLMG5).
- BRANZ, New Zealand Guidelines for Assessing and Managing Asbestos in Soil (November 2017) (NZAG).
- Health and Safety at Work (Asbestos) Regulations (2016).

This report has been prepared, reviewed, and certified by WWLA's SQEPs as described in the NESCS Users' Guide[1]. CVs confirming the SQEP status of our contaminated land specialists are available on request.

[1] Ministry for the Environment, April 2012. Users' guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.

2. Site Setting

2.1 Site identification and surrounding land use

The site is located between 12 Mahurangi East Road and 836 Sandspit Road near Snell's Beach (refer **Figure 1**). Site identification details are presented in **Table 1**. Surrounding land is rural/rural residential.

Table 1. Site identification details

Address	Legal description	Title number	Area (m^2)
Sandspit Road, Snells Beach 0982	Lot 1 DP 426584	504681	1398

2.2 Environmental setting

The environmental setting is described in **Table 2**. Features of the environmental setting are considered in the context of their potential to affect the distribution, mobility and form of contamination (if present).

Table 2: Environmental setting.

Topography	*The topography of the site influences where contaminants may migrate to if present.* The land slopes down towards the south-southeast, from an elevation of 52 m RL at the Sandspit Road edge of the site to 47 m RL at the southeastern site corner, forming a shallow gully.
Geology	*Geological conditions are considered in the context of describing the conceptual site model (CSM) (**Section 5**) should a potential for contamination be identified by this study. For example, more porous soils can enable contaminants to move more quickly and potentially further than clay-rich soils that retain/bind or prevent penetration of contaminants.* The published geology (**Figure 2**) describes the site as underlain by alternating sandstones and mudstones of the East Coast Bays Formation (ECBF).[2] This material weathers in-situ to form low permeability silts and clays, and in some areas interbedded lenses of volcaniclastic grits may be present. Deposits are generally greenish grey when fresh and weather to light brown.  Figure 2. Published geology of the site. Yellow shading indicates ECBF. (After: Kermode L.O., 1992[3]).
Hydrogeology	*Hydrogeological conditions affect the potential risk of a contaminant entering and being transported in groundwater.* Based on the site's elevation and drilling data in the wider area sourced from the New Zealand Geotechnical

[2] Kermode, L.O. 1992. Geology of the Auckland urban area, Sheet R11. Scale 1:50,000. Institute of Geological and Nuclear Sciences geological map 2. 1 sheet + 63p. Institute of Geological and Nuclear Sciences Ltd., Lower Hutt, New Zealand.
[3] Kermode L.O., 1992. Geology of the Auckland Urban Area, 1:50,000. Department of Lands and Survey.

	Database (NZGD.org.nz), groundwater is expected to be encountered between 2 and 4 m below ground level (m BGL), but with the potential for shallower perched groundwater layers due to the clayey geology. Groundwater is predicted to follow topography and flow south.
Surface water bodies	*Surface water features are potential receiving environments should contaminants be present on a site.* There are no surface water features in the immediately surrounding area. A tributary of Duck Creek is located around 200 m to the south of the site.
Sensitive receptors	*Sensitive environmental receptors could include aquatic or terrestrial ecosystems. This is not an ecological assessment but is instead an initial review of the surrounding environment to assess where contaminants (if present) on the site could migrate to and whether the receiving ecosystem could be vulnerable to contaminants.* There are no sensitive environmental receptors in the vicinity of the site (<100 m radius).
	Sensitive human receptors could for example be children at a school or kindergarten on or adjacent to a site. Workers on industrial land (including or adjacent to a site) would be considered less sensitive. This receptor interpretation informs the CSM and also future guideline value selection for evaluation of soil data. The site is located directly east of the dwelling of the neighbouring rural residential property. Occupants of the property are considered potentially sensitive receptors.

3. HAIL Assessment

This section provides a review of current and historical land uses to determine whether any activities listed on MfE's HAIL have occurred on the site.

3.1 Current site use

The site was visited by a SQEP from WWLA on 6 June 2023. The following observations about the conditions and current use of the site are as follows and as illustrated in **Photographs 1 – 2**):

- The property is used for grazing sheep by the neighbouring farm owner, although the land is owned by Vector. There were no livestock on the site at the time of the visit. No evidence of a sheep dip was seen.
- The site slopes down to the south and has a shallow north/south orientated gully running along the eastern boundary that flows southwards.
- There are no structures on the site, nor evidence of filling or prior land development.

Photograph 1. View from southern boundary of site looking north towards Sandspit Road.

Photograph 2. View looking southeast across the site from the accessway on the western site boundary.

3.2 Site history review

The site history was determined through review of historical aerial photographs and the property file held by Auckland Council, as described in the following subsections and summarised in **Section 3.2.3**.

In summary, the site history review indicates that the site was covered in scrub/bush with surrounding land being used for farming from at least 1966 through to clearance in the mid-1990s, after which the site was used for livestock grazing. There has been no significant change observed on the site since that time, with grazing continuing to the present day.

3.2.1 Historical aerial photographs

Historical aerial imagery available from the Auckland Council GIS viewer (Geomaps), Retrolens.co.nz and Google Earth were reviewed and are summarised in **Table 3**.

Table 3. Historical aerial photograph review.

Photograph date (source)	Activities	Aerial image (approximate site in yellow outline)
1966 (Retrolens 1875/5039/15)	The site is covered in scrub/bush, part of a wider bush-covered allotment. The surrounding land is pasture or bush, and to the west there are properties containing two dwellings and a small orchard around 200 m south.	
1973 (pictured), 1976, 1982, 1992 (Retrolens 3618/4628/12, 5015/J/7, 8104/L/22)	No changes observed on the site or immediate surrounding land through to 1992. In the wider area there is also minimal change noted except for dwellings removed/replaced and some orchard layout adjustments.	

Photograph date (source)	Activities	Aerial image (approximate site in yellow outline)
1996 (Retrolens 9482/G/15)	The site has been cleared of vegetation and appears to be used for pasture. Surrounding land remains largely pastoral, and the orchard to the south has been partially removed.	
2006 (pictured), 2008, 2010, 2017, AC Geomaps	No changes observed on site except for construction of a wooden livestock loading ramp. A shed has been constructed on land to the west of the site, and in the wider area rural residential use continues with additional subdivision/development occurring.	

3.2.2 Auckland Council property file

The property file for the site was received from Auckland Council on 13 June 2023. All documents in the file related to the 2009 resource consent application by Vector to subdivide the wider lot for the purposes of constructing an electrical substation. There was no evidence of any prior contaminating land uses.

3.3 Potential for contamination

This investigation confirms that no HAIL activities have occurred or are likely to have occurred on the site. It is considered highly unlikely there will be a risk to human health or the environment from contaminated soil during earthworks associated with construction of the substation.

4. Soil Sampling and Analysis

Soil sampling was undertaken to confirm a suitable offsite disposal site for spoil during construction.

In summary, no contaminants in soil exceeded published background values which in consistent with field observations and the HAIL assessment.

4.1 Sampling methodology

Soil was sampled on 6 June 2023 by a WWLA SQEP from three locations (refer **Figure 2** for sampling locations). Soil samples were collected from topsoil (0.1 m) and in natural material immediately underlying the topsoil (0.4 m) using a trowel and hand auger. The sampling procedure was as follows:

- Materials encountered were logged in general accordance with the NZ Geotechnical Society "*Guidelines for the classification and field description of soils and rocks for engineering purposes*".
- Soil sampling was in general accordance with the MfE's "Contaminated Land Management Guidelines No. 5, *Site Investigation and Analysis of Soils* (Revised 2021)" (CLMG No. 5). This involved:
  - Collection of samples using gloved hands directly from the trowel (topsoil) and hand auger (subsoils) and placed into laboratory-supplied glass jars.
  - The trowel and hand auger were decontaminated between samples by using a phosphate-free detergent and freshwater rinses, and gloves changed.
  - Samples were couriered to the laboratory chilled, under chain of custody documentation, soon after they were collected.

All samples were sent to Hill Laboratories (Hamilton) for analysis (an IANZ-accredited laboratory). The laboratory composited the samples, as per the requirements of CLMG5, as follows:

- Samples from S1-S3 at 0.1 m depth were composited as Composite 0.1 m.
- Samples from S1-S3 at 0.4 m depth were composited as Composite 0.4 m.

Samples were analysed for heavy metals and polycyclic aromatic hydrocarbons (PAH) which are common contaminants and testing of other contaminants was not necessary based on the historical review.

4.2 Field observations

Around 0.3 m of saturated topsoil (brown wet silt with minor clay) was observed at each location surface. ECBF soils were encountered below the topsoil, comprising yellow-orange firm, wet, clayey silt. No visual or olfactory evidence of contamination was noted.

4.3 Soil evaluation criteria

Soil results were compared to published non-volcanic background concentrations for Auckland described in TP153[4] and Table E30.6.1.4.2 of the Auckland Unitary Plan (AUP), which is used as a basis for acceptance of soil to cleanfill sites. Background values are also considered when assessing the activity status of the NESCS for soil disturbance.

[4] Auckland Regional Council, Technical Publication 153 (TP153): *Background concentrations of inorganic elements in soil from the Auckland Urban Region.*

4.4 Data evaluation

Laboratory transcripts are attached in **Appendix A**. The results of the laboratory analysis are compared with published background concentrations for non-volcanic soils in **Table 5**, which shows that all results are below background.

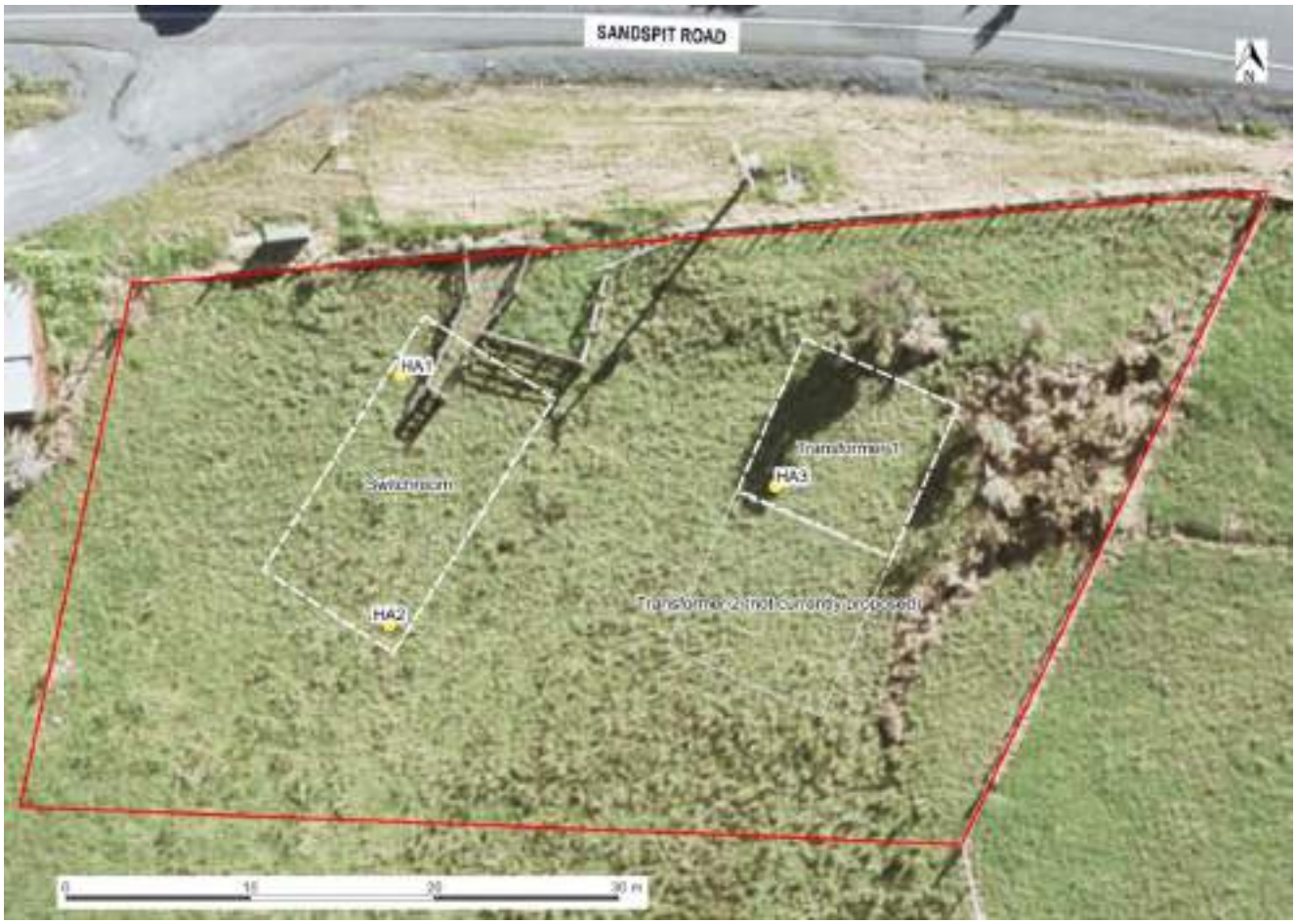

Figure 3. Sampling plan, showing proposed footprint of substation development in white (dashed).

Table 4. Laboratory testing results summary, Lot 1 DP 426584, Sandspit Road.

Sample ID:	**Non-volcanic background for the Auckland Region [4]**	**Composite**	**Composite**
Depth (m):		**0.1**	**0.4**
Date:		**6/06/2023**	**6/06/2023**
Geological unit:		**Topsoil**	**Clayey silt**
Arsenic	12	< 2	< 2
Cadmium	0.65	< 0.10	< 0.10
Chromium	55	6	8
Copper	45	4	2
Lead	65	6.8	3.2
Nickel	35	< 2	< 2
Zinc	180	13	< 4
Polycyclic aromatic hydrocarbons (PAH)	<LD	<LD	<LD

Note. Results in mg/kg

5. Conceptual Site Model

A conceptual site model (CSM) indicates known and potential sources of contamination, routes of exposure (pathways), and the receptors that are affected by contaminants moving along those pathways. Receptors may be people or the environment. *A CSM is the key evaluation process in determining whether potential or actual contamination poses a risk to people or the environment should a proposed activity (in this case soil disturbance and construction of a substation) occur.*

The site history assessment shows there are no identified potential sources of contamination associated with current and prior land uses. As there is no source of contamination of soil remaining on site there are no relevant pathways for contaminants to affect receptors in any land development scenario.

6. Development Implications

6.1 Consenting

A summary of contaminated land-related consenting requirements is provided in **Table 5** and discussed in detail in the following sections.

Table 5. Consenting requirements

Regulatory Framework	Activity/Rule	Consent required
NESCS	5(2) Removal of a fuel storage system	Activity not proposed.
	5(3) Soil sampling	Activity not proposed.
	5(4) Disturbing soil	No HAIL activities identified, so rules do not apply.
	5(5) Subdivision	Activity not proposed.
	5(6) Land use change	No HAIL activities identified, so rules do not apply.
AUP	E30.6.1.2 Discharges of contaminants from soil disturbance activities	No source of potential soil contamination identified thus rules do not apply.

6.1.1 NESCS

The NESCS sets out nationally consistent planning controls appropriate to district and city councils for assessing potential effects on human health from contaminants in soil. **Table 6**, as provided in the NESCS Users' Guide (April 2012), confirms the NESCS does not apply to the site and consent is not required.

Table 6: PSI checklist (NESCS Users' Guide)

NESCS Requirement	Applicable to site?
Is an activity described on the HAIL currently being undertaken on the piece of land to which this application applies?	No
Has an activity described on the HAIL ever been undertaken on the piece of land to which this application applies?	No
Is it more likely than not that an activity described on the HAIL is being or has been undertaken on the piece of land to which this application applies?	No
If 'No' to all the above, then the NESCS does not apply.	

6.1.2 Auckland Unitary Plan

The AUP Section E30 contains rules that address discharges to the environment, both during works and in the long term. The contaminated land rules of the AUP apply to soils with contaminant levels that exceed the permitted activity discharge criteria (Table E30.6.1.4.1 of the plan) and where an earthworks volume of more than 200 m^3 is proposed.

Since there is no source of soil contamination identified Section E30 of the AUP does not apply to the site.

6.2 Redevelopment implications

This investigation has found that prior land uses do not have potential to cause ground contamination and laboratory testing confirms soils comply with the published background and the cleanfill criteria. The implications for development of the substation are summarised in **Table 8**.

There are no long-term ground contamination management requirements following completion of earthworks and construction of the substation, nor are there any contamination considerations should the second transformer compound be constructed in the future.

Table 7. Earthworks requirements.

Earthworks controls	Standard earthworks controls as set out in Auckland Council's GD05 – *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region* will be suitable during soil disturbance.
Health and safety	There are no specific contamination-related health and safety requirements for onsite workers during or following earthworks.
Soil disposal	Soils are suitable for disposal to cleanfill. The Soil Disposal Certificate attached in **Appendix B** should be supplied to the disposal site operator to gain acceptance of surplus soil.

7. Conclusions

This report has been prepared to comply with the requirements of a PSI and has been undertaken to support construct a new substation for Vector on Lot 1 DP 426584 in the Sandspit zone near Snells Beach, Auckland. Soil testing undertaken as part of this assessment assists soil disposal permitting.

The main findings of this investigation are:

- No HAIL activities were identified. The site was in scrub/bush until the 1990s, then was used for stock grazing. As no source of soil contamination is identified, the NESCS regulations do not apply to the soil disturbance proposed as part of the development.
- Consents are also not required under the AUP.
- Surplus soils generated during the substation earthworks are suitable for disposal to cleanfill. The Soil Disposal Certificate attached in **Appendix B** should be supplied to the disposal site operator to gain acceptance of surplus soil.

Appendix A. Laboratory Transcripts

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Williamson Water & Land Advisory Limited	**Lab No:**	3297227 SPv1
Contact:	Penelope Lindsay C/- Williamson Water & Land Advisory Limited PO Box 314 Kumeu 0841	**Date Received:**	08-Jun-2023
		Date Reported:	15-Jun-2023
		Quote No:	94634
		Order No:	WWLA0871
		Client Reference:	WWLA0871
		Submitted By:	Penelope Lindsay

Sample Type: Soil

		Sample Name:	Composite of HA1 0.1m, HA2 0.1m & HA3 0.1m	Composite of HA1 0.4m, HA2 0.4m & HA3 0.4m
		Lab Number:	3297227.7	3297227.8
Individual Tests				
Dry Matter	g/100g as rcvd		71	77
Heavy Metals, Screen Level				
Total Recoverable Arsenic	mg/kg dry wt		< 2	< 2
Total Recoverable Cadmium	mg/kg dry wt		< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt		6	8
Total Recoverable Copper	mg/kg dry wt		4	2
Total Recoverable Lead	mg/kg dry wt		6.8	3.2
Total Recoverable Nickel	mg/kg dry wt		< 2	< 2
Total Recoverable Zinc	mg/kg dry wt		13	< 4
Polycyclic Aromatic Hydrocarbons Screening in Soil*				
Total of Reported PAHs in Soil	mg/kg dry wt		< 0.4	< 0.3
1-Methylnaphthalene	mg/kg dry wt		< 0.014	< 0.013
2-Methylnaphthalene	mg/kg dry wt		< 0.014	< 0.013
Acenaphthylene	mg/kg dry wt		< 0.014	< 0.013
Acenaphthene	mg/kg dry wt		< 0.014	< 0.013
Anthracene	mg/kg dry wt		< 0.014	< 0.013
Benzo[a]anthracene	mg/kg dry wt		< 0.014	< 0.013
Benzo[a]pyrene (BAP)	mg/kg dry wt		< 0.014	< 0.013
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt		< 0.034	< 0.030
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt		< 0.034	< 0.030
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt		< 0.014	< 0.013
Benzo[e]pyrene	mg/kg dry wt		< 0.014	< 0.013
Benzo[g,h,i]perylene	mg/kg dry wt		< 0.014	< 0.013
Benzo[k]fluoranthene	mg/kg dry wt		< 0.014	< 0.013
Chrysene	mg/kg dry wt		< 0.014	< 0.013
Dibenzo[a,h]anthracene	mg/kg dry wt		< 0.014	< 0.013
Fluoranthene	mg/kg dry wt		< 0.014	< 0.013
Fluorene	mg/kg dry wt		< 0.014	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt		< 0.014	< 0.013
Naphthalene	mg/kg dry wt		< 0.07	< 0.07
Perylene	mg/kg dry wt		< 0.014	< 0.013
Phenanthrene	mg/kg dry wt		< 0.014	< 0.013
Pyrene	mg/kg dry wt		< 0.014	< 0.013

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	7-8
Total of Reported PAHs in Soil	Sonication extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	7-8
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	7-8
Polycyclic Aromatic Hydrocarbons Screening in Soil*	Sonication extraction, GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	7-8
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	7-8
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1-6
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	7-8
Benzo[a]pyrene Toxic Equivalence (TEF)*	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b) fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	7-8

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 08-Jun-2023 and 15-Jun-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Kim Harrison MSc
Client Services Manager - Environmental

Appendix B. Soil Disposal Certificate

WILLIAMSON
WATER & LAND ADVISORY

Auckland | Whangārei | Tauranga
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E wendi.williamson@wwla.kiwi
W www.wwla.kiwi

SOIL DISPOSAL CERTIFICATE

Site ID:	Lot 1 DP 426584 next to 896 Sandspit Road, Snells Beach	Rev 1, 26 June 2023

Overview:

Vector Ltd are constructing a new substation at Lot 1 DP 426584 at Sandspit Road, Snells Beach. A preliminary site investigation (PSI)[1] by WWLA has found that the site was in scrub/bush cover until the 1990s, then was used for stock grazing. Soil testing was undertaken to support this disposal certificate as is a requirement of cleanfills regardless of HAIL status. WWLA are qualified SQEPs and have contamination investigations in accordance with industry best practice guidance set out in MfE's CLMG5[2].

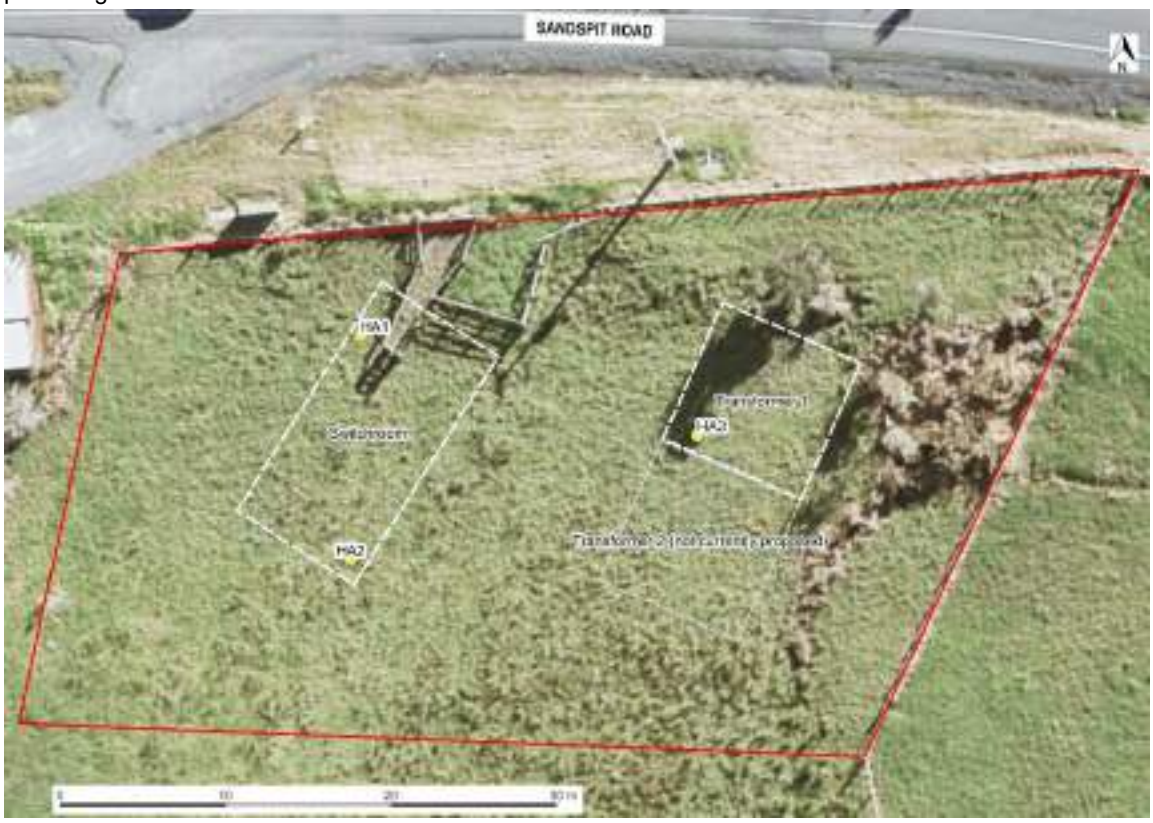

Figure 1. Sampling locations and proposed substation footprint.

HAIL activities:	None
Field observations:	No visual or olfactory evidence of contamination noted. Natural ground is topsoil to 0.3 m underlain by clayey silt of the East Coast Bays Formation.
Testing undertaken at IANZ-accredited laboratory:	• Samples were collected from HA1-HA3 at 0.1 m depth and 0.4 m depth (**Figure 1**) and composited by the laboratory into two samples representing layer at 0.1 and 0.4mBGL. • Samples were tested for metals (arsenic, cadmium, chromium, copper, lead, nickel and zinc) and polycyclic aromatic hydrocarbons (PAH). Laboratory transcripts are **Attached**. Results have been compared to published non-volcanic background concentrations for Auckland described in TP153[3]. **No contaminants are reported above background levels.**

Soil Disposal Requirements:

Material Type	Depth (mBGL)	Auckland Cleanfill	Auckland Managed Fill	Auckland Licensed Landfill	Reuse on site (if geotechnically suitable)
Topsoil	0 – 0.3 mBGL	✓	✓	✓	✓
Natural ground	Below topsoil	✓	✓	✓	✓

[1] WWLA, 26 June 2023. Sandspit Zone Substation, Snells Beach – Preliminary Site Investigation (Ground Contamination). Rev 1.
[2] Ministry for the Environment (2021). Contaminated Land Management Guideline No.5 Site Investigation and Analysis of Soils.
[3] Auckland Regional Council, Technical Publication 153 (TP153): *Background concentrations of inorganic elements in soil from the Auckland Urban Region.*

Report Prepared By:
David Hay

Version: Final

Updated: 19 September 2024

Osborne Hay (North) Limited
PO Box 16 Mobile: 027 425-0234
Warkworth 0941

Attachment 2: Strike through and underline text

8866 Sandspit Substation

Designation Number	8866
Requiring Authority	Vector Ltd
Location	Mahurangi East Road (Lot 1 DP 426584), Snells Beach
Rollover Designation	Yes
Legacy Reference	Designation 617, Auckland Council District Plan (Rodney Section) 2011
Lapse Date	31 August 2032 unless given effect to prior

Purpose

Substation.

Conditions

General

1. The activity shall proceed in general accordance with the Alteration Notice of Requirement under s181(3) submitted to Council dated ~~2 April 2009~~ 19 September 2024 and the plans Proposed Site Layout 4262-8024 Rev. 7 dated 1/8/2024, Finished Site Contours 4262-8043 Rev 2 dated 18/7/2024, Switchroom Elevations 4262-8150 Rev. 4 dated 30/4/2024 and Transformer Enclosure Elevations 4262-8350 Rev. 3 dated 28/2/2024 drawn by Vector Limited. ~~Construkt Architects Limited, including the Proposed Site Plan dated 20/04/09, Basement & Ground Floor Plans and Building Sections plans dated 1/04/09, and the Building Elevation plan dated 7/07/09 all numbered L55148 and signed by Processing Planner Laura Christian, dated 08/06/09.~~

Outline Plan

2. If either the final design and layout of the substation does not reflect the design and layout submitted with the Alteration Notice of Requirement under s181(3), or if there are any future additional works proposed that are not permitted by the Unitary Plan, an outline plan shall be submitted in accordance with section 176A of the Resource Management Act 1991 to the Auckland Council, before any construction is commenced. However, where the future additional work is in accordance with the Alteration Notice of Requirement under s181(3) or is permitted by the Unitary Plan, then the requirement for an Outline Plan is waived under s176A(2).

Landscape Plan

3. The landscaping plan (Isthmus Group Ltd, Drawing 01.01 Rev. Proposed Landscape Plan ~~2633, Figure 5~~, dated 29/4/2024 ~~6/07/09~~) shown in Appendix 15AA(i), shall be implemented during the first planting season after the construction of the substation. The landscaping shall be maintained thereafter.

Fencing

4. The applicant shall construct a post and batten fence around the perimeter of the substation site prior to the substation becoming operational.

Traffic Management Plan

5. Prior to any construction being undertaken, a temporary Traffic Management Plan is required to be submitted to Council and approved by Manager - Resource consents and Compliance in consultation with Auckland Transport (the road controlling authority).

Access

6. The following measures shall be implemented prior to the operation of the substation:

a. Driveway and access to be constructed to a best practice standard;

b. A sightline covenant as shown in the plans provided with the subdivision application (to the east if the driveway) is to be established;

c. The small bunch of agapanthus within the road reserve near the driveway crossing for 836 Sandspit Road is to be removed at the cost of the applicant, to the approval of the Manager - Resource Consents and Compliance;

d. Further details of the drainage design for the driveway should be provided by the applicant, including culvert size and end treatment; and

e. The open channel surrounding the driveway shall be built up to a slope no steeper than 1 in 4 on either side of the driveway.

Construction Noise

7. Noise from construction activities shall not exceed the limits recommended in and shall be measured and assessed in accordance with, NZS6803:1999, Acoustics — Construction Noise. Note that the noise limit between the hours of 2000 to 0630 weekdays, 1800 to 0630 Saturdays and at all times on Sundays and Public Holidays, may mean that no construction work can take place.

8. (operation noise) The operational noise from the substation shall not exceed the following limits at the notional boundary (notional boundary is defined as a line 20m from the side of a rural dwelling existing as at 1 April 2009, or the legal boundary where this is closer to the dwelling):

a. Monday to Saturday: 6:00am to 6:00pm 55 dBA Leq;

b. Sundays & Public Holidays: 6:00am to 6:00pm 50 dBA Leq; and

c. At all other times: 45 dBA Leq 75 dBA Lmax.

Archaeological

9. If any artefact, including human remains is exposed during any site works the following procedures shall apply:

a. Immediately when an artefact is unearthed, all site works shall cease; and

b. The site supervisor shall immediately secure the area in a way that ensures any artefacts or remains are untouched; and

c. The site supervisor shall notify the following groups that an archaeological site has been unearthed, so that appropriate action can be taken:

i. Tangata whenua,

ii. The New Zealand Historic Places Trust;

iii. The Department of Conservation;

iv. The Council's RMA Compliance Administration Officer (telephone 301 0101); and

v. In the case of human remains the New Zealand Police.

Lapse

10. 31 August 2032 unless given effect to prior

Attachments

Proposed Vector Sandspit Substation Landscape Concept Plan


SANDSPIT ROAD
PROPOSED VECTOR SANDSPIT SUBSTATION
Landscape Concept Plan
isthmus


Proposed Landscape Plan
isthmus
Vector Limited
Sandspit Substation
DRAFT

Attachment 3: Clean text

8866 Sandspit Substation

Designation Number	8866
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Lapse

10. 31 August 2032 unless given effect to prior

Attachments

Proposed Vector Sandspit Substation Landscape Concept Plan

Attachment 4: GIS before and after alteration

N

0 5 10 20 Metres

Designation: 8866
Sandpit substation

Auckland Council