



3MS OF CAMBRIDGE GP LIMITED

**PROPOSED KELLY ROAD
RESIDENTIAL SUBDIVISION**

**RESOURCE CONSENT
APPLICATION AND ASSESSMENT
OF ENVIRONMENTAL EFFECTS**

22 August 2023

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REPORT INFORMATION

Report Status	Final
Our Reference	MDL000972 - 3MS RESIDENTIAL DEVELOPMENT OF C2 GROWTH CELL
Author	Abbie Fowler
Review By	Mark Chrisp
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PART A

Resource Consent Application

APPLICATION FOR RESOURCE CONSENT UNDER SECTION 88 OF THE RESOURCE MANAGEMENT ACT 1991

To: Waipā District Council
Private Bag 2402
Te Awamutu 3840

3MS of Cambridge GP Limited applies for the following resource consents:

- **Subdivision consent** to enable the creation of 4 residential lots within the C2 Growth Cell in Cambridge.

The Waipā District Council application form is presented in **Appendix A**.

The activities are more fully described in Part B of this document.

1. **The names and addresses of the owner and occupier (other than the applicant) of any land to which the application relates are as follows:**

Not applicable

2. **The locations to which the applications relate are:**

- 32A Kelly Road, Cambridge 3434: Lot 2 DP 364040 (comprised in Record of Title 260489);

- 32 Kelly Road, Cambridge 3434: Lot 1 DP 364040 (comprised in Record of Title 260488).

The Records of Title are presented in **Appendix B**.

3. **The activities to which these applications relate to are fully described in Part B of this document.**

4. **Other resource consents required:**

Not applicable.

5. **Attached is an assessment of the proposed activity's effect on the environment that—**

- (a) **includes the information required by clause 6 of Schedule 4 of the Resource Management Act 1991; and**

- (b) **addresses the matters specified in clause 7 of Schedule 4 of the Resource Management Act 1991; and**



(c) includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

6. Attached (Part B) is an assessment of the proposed activity against the matters set out in Part 2 of the Resource Management Act 1991.
7. Attached (within Part B) is an assessment of the proposed activity against any relevant provisions of a document referred to in section 104(1)(b) of the Resource Management Act 1991, including the information required by clause 2(2) of Schedule 4 of that Act.
8. There is no other information required to be included in this application by the district plan, the regional plan, the Resource Management Act 1991, or any regulations made under that Act.

Dated 22 August 2023

Signature: 3MS of Cambridge GP Limited

by its duly authorised agents Mitchell Daysh Limited



Abbie Fowler
Associate

Address for Service: Mitchell Daysh Limited
PO Box 1307
HAMILTON 3240
Attention: Abbie Fowler

Telephone: 021 385 991

Email: abbie.fowler@mitchelldaysh.co.nz

Address for Billing: 211 Zig Zag Road
RD1
CAMBRIDGE 3493
Attention: Matt Smith

Telephone: 021 289 0576

Email: matt@3msofcambridge.co.nz





PART B

Assessment of Environmental Effects

1. INTRODUCTION

1.1 INTRODUCTION AND OVERVIEW

This Assessment of Environmental Effects (“**AEE**”) has been prepared in support of resource consent applications under the Resource Management Act 1991 (“**RMA**” or “**Act**”) by 3MS of Cambridge GP Limited (“**3MS**” or the “**Applicant**”) to enable its properties on Kelly Road, Cambridge to be subdivided for residential purposes (the “**Proposed Subdivision**”).

3MS is the owner of two properties on Kelly Road – 32A Kelly Road and 32 Kelly Road. 3MS is seeking to subdivide those properties to create four lots (two additional) that will be used for residential purposes within the Cambridge C2 Structure Plan area. In addition to 32A and 32 Kelly Road, 3MS also owns 47.85 hectares of land directly to the west of the Kelly Road properties. In 2021, 3MS obtained a subdivision consent to create 121 residential lots (and lots for public assets) and is presently in the process of developing those lots. It is 3MS intention that the proposed four new lots on Kelly Road integrate with the wider 3MS development in the C2 Growth Cell.

The land to which the application relates is comprised of two separate Records of Title that collectively form ‘the application site’. Both titles are zoned Residential Zone as per the operative Waipā District Plan. The application site is located within the Cambridge C1 and C2/C3 Structure Plan Area.

1.2 STRUCTURE OF THIS REPORT

- Section 1:** This introduction provides background to the Proposed Subdivision, an introduction to 3MS and the structure of this AEE.
- Section 2:** Describes the environmental setting, including general site characteristics and physical setting.
- Section 3:** Provides a detailed description of the Proposed Subdivision.
- Section 4:** Sets out the statutory planning requirements and resource consents required from the Waipā District Council.
- Section 5:** Provides an assessment of environmental effects associated with the Proposed Subdivision.
- Section 6:** Sets out the statutory framework against which the resource consent application has been made and considers the Proposed Subdivision in relation to the provisions of the RMA and the relevant statutory planning documents prepared by the Waipā District Council, Waikato Regional Council and tangata whenua.
- Section 7:** Discusses the requested limited notification of this application.
- Section 8:** Is a concluding statement.

2. THE EXISTING ENVIRONMENT

2.1 SUBDIVISION BACKGROUND

32A and 32 Kelly Road were created as part of a 10-lot subdivision (by Twin Star Developments Limited), where the lots typically had a lot size of 1,200 m². It is 3MS understanding that 32A and 32 Kelly Road were larger than the other properties forming part of the subdivision due to the stormwater management function they would be providing (for the rest of the development). There is an existing easement on these two lots in respect of their stormwater management function (this is now redundant as the Kelly Road properties are proposed to be serviced via the public C1 and C2/C3 stormwater system).

The subdivision consent was granted in 2004.

There is an existing covenant that applies to the lots within the subdivision (dated 2006). This private covenant places restrictions on a number of building related matters and restricts further subdivision. The covenant is discussed later in this AEE.

2.2 SITE LOCATION AND KEY FEATURES

The application site is a property located on the northern side of Cambridge Road and west the Cambridge Town Centre.

A locality plan is shown below.



Figure 1. Locality Map

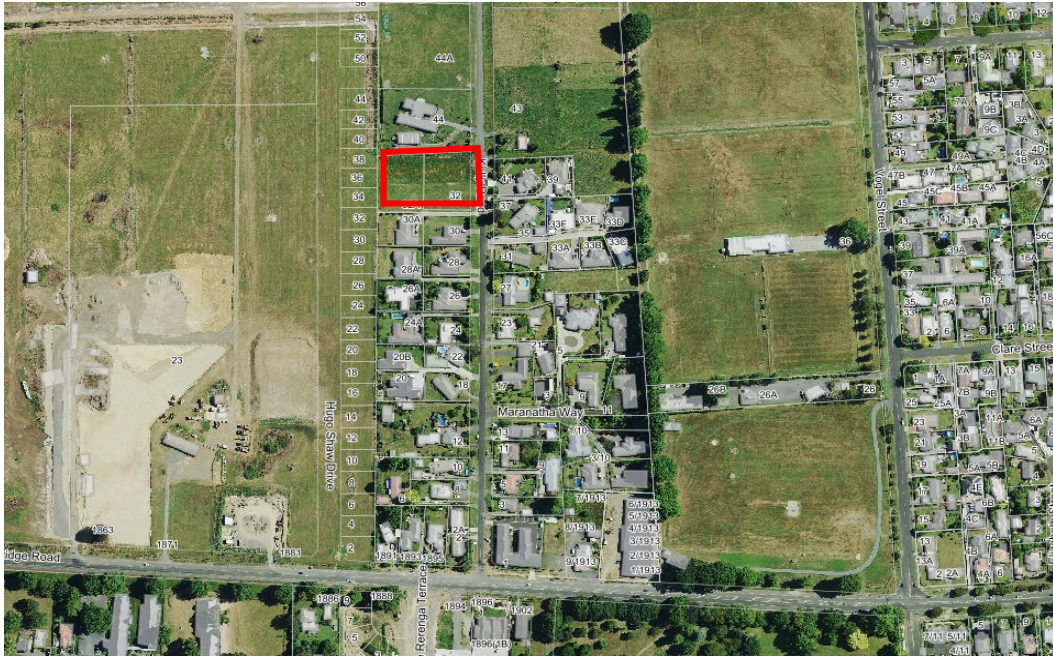


Figure 2. The Application Site

The application site is flat (Figure 3) and contains no buildings. The only ‘feature’ within the application site is the existing stormwater management area.

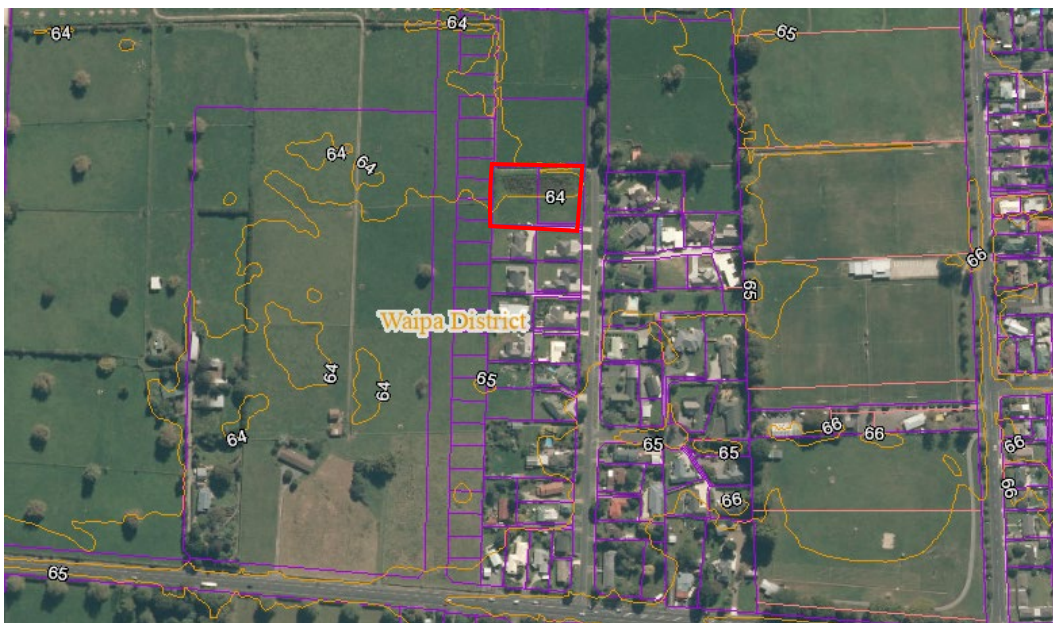


Figure 3. Contour Map (Source: WRC Contour Map - LiDAR Contours 1m)

2.3 VEGETATION

The proposed application site is covered in pasture. Furthermore, there are no identified “Significant Natural Areas” within or in the vicinity of the site.

2.4 HAZARDS

The site is not subject to any hazard areas (for example, river flooding, Karapiro Dam Break), as identified by the Waikato Regional Council.

As shown in Figure 4, the Waipā District Council identifies the following potential hazards as applicable to the application site, or land immediately surrounding it:

- **Poor Soakage** – is identified over the existing residential development immediately to the south of the site (across the Kelly Road properties); and
- **Flood Hazard** is identified over the area of the application site that is used for stormwater management purposes.

Please note that this map is from the “Environment - Special Features” maps on Waipā Intramaps, therefore, is not a Waipā District Plan Planning Map for rule assessment purposes.



Figure 4. Hazards Map

Any relevant aspects relating to the flooding hazard on site have been considered as part of the stormwater solution. Other hazards areas identified are not applicable to the application due to their minimal overlap with the site.

2.5 SITE ACCESS

Both lots that are the subject of this resource consent application obtain access to Kelly Road via a shared right of way.

2.6 DRAINAGE AND STORMWATER

The application site, and the existing Kelly Road properties are serviced via private stormwater soakage basins, including the existing private stormwater basin located at 32 and 32A Kelly Road.



Figure 5. Existing Private Stormwater Soakage Basin at 32 & 32A Kelly Road.

2.7 GEOTECHNICAL MATTERS

Probase Engineering were engaged by 3MS to prepare a site suitability investigation to support this resource consent application. The report is attached as **Appendix C**, and is summarised as follows:

- The subject site is mapped as Hinuera Formation;
- Groundwater was encountered between depths of between 1900-3000mm below existing ground level within the site. The site was testing in the winter months therefore, groundwater is expected to rise approximately 350mm in the winter months;
- Given the nature and topography of the site, it is unlikely that the water table would rise significantly to the extent that it would interfere with shallow foundations; and
- The site has a moderate liquefaction vulnerability; and

- Proposed Lots 2 and 3 sit within a potential flood zone, and Lots 1 and 4 are not located within a flood zone. However, the Waipā District Council Flood Maps show Kelly Road as being within a flood zone.

2.8 LAND USE INFORMATION REGISTER

The site is not identified by the Waipā District Council as being on the Land Use Information Register and is not a potential HAIL site.

2.9 CULTURAL AND HERITAGE VALUES

There are no recorded cultural or heritage sites of significance within the site.

3MS acknowledges that the application site is in the rohe of both Ngāti Hauā and Ngāti Korokī Kahukura, and 3MS has worked with both Ngāti Hauā and Ngāti Korokī Kahukura in respect to the various developments it has been involved in within the Cambridge area.

2.10 TITLE INFORMATION

2.10.1 Records of Title

The application site comprises of two existing Records of Title as follows:

Table 1. Title Information

Address	Legal Description	Area	Owners
32 Kelly Road	Lot 2 Deposited Plan 364040 (comprised in Record of Title 260489)	2,200 m ²	3MS of Cambridge Limited Partnership
32A Kelly Road	Lot 1 Deposited Plan 364040 (comprised in Record of Title 260488)	2,107 m ²	

Copies of the Records of Title are included in **Appendix B**.

2.10.2 Legal Interests

The following legal interests / encumbrances are registered on the existing Records of Title. Copies of the easement documents can be provided to the council upon request.

Table 2. Legal Interests

Address	Legal Interest / Encumbrances
32 Kelly Road	6927453.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 29.6.2006 at 9:00 am

Address	Legal Interest / Encumbrances
Lot 2 Deposited Plan 364040	<p>Subject to a right (in gross) to drain sewage over the part marked R and a right to drain stormwater over the parts marked C & D, all marked on DP 364040 and in favour of Waipa District Council created by Easement Instrument 6927453.4 - 29.6.2006 at 9:00 am</p> <hr/> <p>The easements created by Easement Instrument 6927453.4 are subject to Section 243 (a) Resource Management Act 1991</p> <hr/> <p>Subject to a right of way, a water supply and an electricity, natural gas and telecommunications easements over the parts marked D & R and a stormwater easement over the part marked A, all marked on DP 364040 and created by Easement Instrument 6927453.5 - 29.6.2006 at 9:00 am</p> <hr/> <p>Appurtenant hereto is a right of way, a water supply and an electricity, natural gas, stormwater and telecommunications easements created by Easement Instrument 6927453.5 - 29.6.2006 at 9:00 am</p> <hr/> <p>The easements created by Easement Instrument 6927453.5 are subject to Section 243 (a) Resource Management Act 1991</p> <hr/> <p>Land Covenant in Easement Instrument 6927453.6 - 29.6.2006 at 9:00 am</p>
32A Kelly Road	6927453.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 29.6.2006 at 9:00 am
Lot 1 Deposited Plan 364040	<p>Subject to a stormwater easement over the part marked B on DP 364040 created by Easement Instrument 6927453.5 - 29.6.2006 at 9:00 am</p> <hr/> <p>Appurtenant hereto is a stormwater easement created by Easement Instrument 6927453.5 - 29.6.2006 at 9:00 am</p> <hr/> <p>The easements created by Easement Instrument 6927453.5 are subject to Section 243 (a) Resource Management Act 1991</p> <hr/> <p>Land Covenant in Easement Instrument 6927453.6 - 29.6.2006 at 9:00 am</p>

The following section of this AEE addresses the partial cancellation of some of these easements required as part of the Proposed Subdivision.

2.11 EXISTING PRIVATE COVENANT

As set out earlier in this AEE, there is an existing covenant that applies to the lots within the original Twin Star Development Ltd subdivision (dated 2006). This private covenant places restrictions on a number of building related matters and restricts further subdivision of the lots created as part of the Twin Star Development Ltd development. Clause 2 of the covenant is replicated below:

2. No subdivision or amalgamation

- (a) The Grantor will not subdivide the Property further in order to create any additional lot or lots whether by fee simple titles, unit titles or cross leases of otherwise;
- (b) in the event of the Grantor amalgamating the Property with any other Lot then for the purposes of these covenants (and in particular, clause 4) the amalgamated property will be deemed to comprise one single Lot. Thereafter the Purchaser will not be entitled to subdivide the amalgamated property into a greater number of Lots than those which made up the amalgamated property. On any such subdivision each of the new Lots will be subject to this building scheme and the land covenants.

Importantly, this 'no subdivision' restriction was not a consent notice on the approved subdivision consent. This indicates that the subdivision was not driven by the council and the developer did this to retain value for the properties in terms of space / amenity. The lot sizes that 3MS is proposing as part of this application is entirely consistent with the outcomes the original subdivision consent sought to achieve in terms of the lot sizes.

This covenant is a contract between landowners which is registered against the affected certificates of title and "runs with the land". The covenant will remain upon a certificate of title and will continue to bind prospective owners in perpetuity, and consent from all owners of affected titles is required to cancel or vary the covenant.

Cambridge (and New Zealand more generally) has experienced significant residential growth in the 17 years since the covenant was signed, with a greater emphasis now being placed on increasing the density of residentially zoned land. 3MS is of the view that given the current regulatory environment relating to urban development and density, this covenant is redundant. In that respect, 3MS will be discussing the covenant with the landowners of the affected lots and seeking that the covenant be either cancelled or varied, and 3MS is seeking that this application be limited notified to the owners of the properties comprising the original subdivision.

2.12 DISTRICT PLAN FEATURES

2.12.1 Zoning

The entire site, Residential Zone and is subject to Cambridge C1 and C2/C3 Structure Plan. This is detailed below in Figure 6.

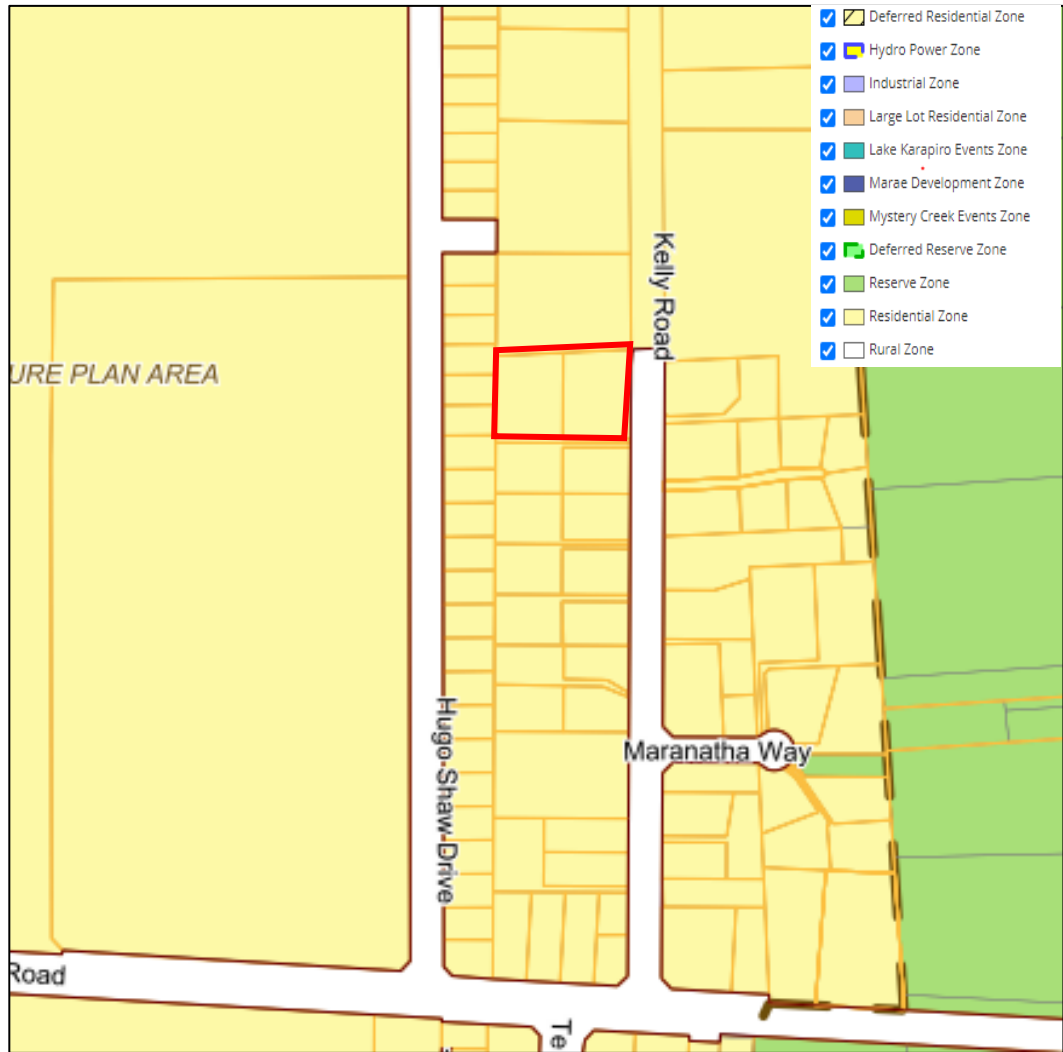


Figure 6. Zone Map

The site is proposed to be rezoned to Medium Density Residential Zone as part of Plan Change 26 to the District Plan.

2.12.2 Policy Areas

The site is not within any identified overlays.

3. DESCRIPTION OF THE PROPOSAL

3.1 PROPOSED SUBDIVISION

The applicant is applying for resource consent approval to subdivide their two existing properties to create four residential lots.

Table 3 below provides a summary of the proposed new lots, including their intended use and respective areas.

Table 3. The Proposed Lots

Proposed Lot Number	Area	Purpose
Lot 1	924 m ²	Residential - General
Lot 2	1,127 m ² (total) 1,014 m ² (net)	Residential - General
Lot 3	1,016 m ²	Residential - General
Lot 4	1,241 m ² (total) 1,079 m ² (net)	Residential - General

A copy of the proposed scheme plan for the proposed subdivision is included as **Appendix D**, and shown in Figure 7.

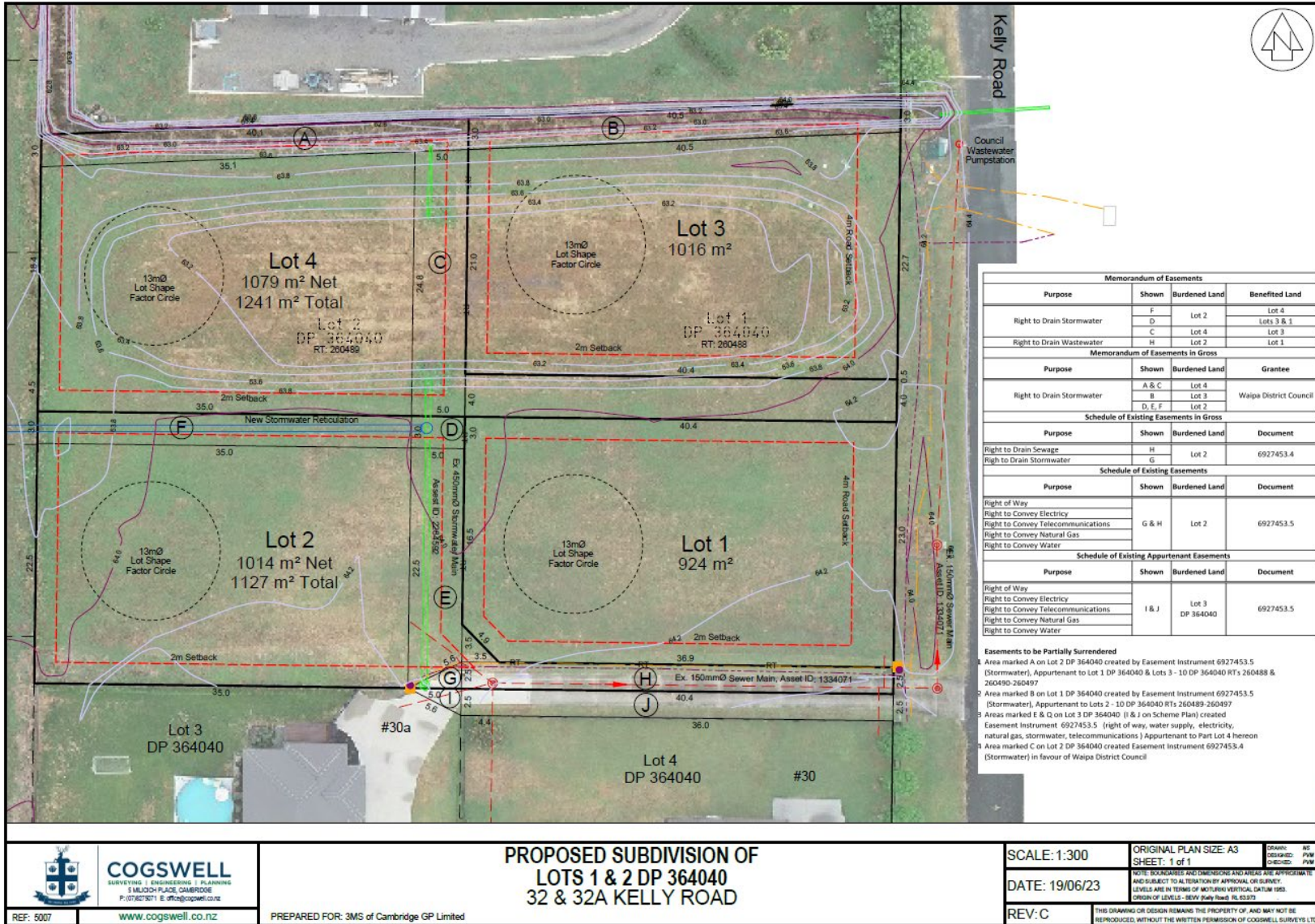


Figure 7. Scheme Plan

Application for Subdivision Consent for 3MS of Cambridge GP Limited – Kelly Road, Cambridge



3.2 EASEMENTS

The memorandum of easements is detailed on the Scheme Plan, and also in the following table:

Table 4. Memorandum of Easements

Purpose	Shown as	Burdened Land	Benefitted Land
Right to Drain Stormwater	F	Lot 2	Lot 4
	D	Lot 4	Lot 3 & 1
	C	Lot 2	Lot 3
Right to Drain Wastewater	H	Lot 2	Lot 1

Table 5. Memorandum of Easements in Gross

Purpose	Shown as	Burdened Land	Grantee
Right to Drain Stormwater	A & C	Lot 4	Waipā District Council
	B	Lot 3	
	D, E, F	Lot 2	

As part of the Proposed Subdivision, the following easements need to be partially surrendered (these are also shown on the Scheme Plan).

- Area marked A on Lot 2 DP 364040 created by Easement Instrument 6927453.5 (Stormwater), Appurtenant to Lot 1 DP 364040 & Lots 3 - 10 DP 364040 RTs 260488 & 260490-260497;
- Area marked B on Lot 1 DP 364040 created by Easement Instrument 6927453.5 (Stormwater), Appurtenant to Lots 2 - 10 DP 364040 RTs 260489-260497;
- Areas marked E & Q on Lot 3 DP 364040 (I & J on Scheme Plan) created Easement Instrument 6927453.5 (right of way, water supply, electricity, natural gas, stormwater, telecommunications) Appurtenant to Part Lot 4 hereon; and
- Area marked C on Lot 2 DP 364040 created Easement Instrument 6927453.4 (Stormwater) in favour of Waipā District Council.

3.3 INFRASTRUCTURE SERVICING

3.3.1 Introduction

The information in the following sections is summarised from the engineering assessment undertaken by MACC (**Appendix E**) which was commissioned by 3MS to determine how the Proposed Subdivision is to be serviced from a transportation and three waters perspective.

By way of summary, the assessment prepared by MACC demonstrates that there are suitable engineering solutions to service the proposed 3MS subdivision at 32 and 32A Kelly Road. Engineering drawings are contained in **Appendix F**, which show the infrastructure servicing solutions, along with proposed locations for the new connections into existing public networks.

3.3.2 Transportation

As detailed in the engineering assessment:

- The Proposed Subdivision can be accessed via an existing public road with all four proposed new lots having direct access onto Kelly Road;
- The access to Lot 2 will be via the existing entranceway and right-of-way servicing 30A and 32A Kelly Road;
- New concrete entranceways on Kelly Road will be required to service Lots 1, 3 and 4;
- A portion of the traffic movements from the new lots have already been accounted for through the current properties at 32 and 32A Kelly Road; and
- The two additional lots are only likely to increase the current traffic volumes using Kelly Road by around ~4% which is not expected to have any notable effect on the local traffic volumes.

3.3.3 Water Supply

The existing water supply network present within Kelly Road currently provides one existing water connection to the application site which will be utilised to service proposed Lot 1. The three additional connections required to service Lots 2, 3 and 4 will be installed directly into the 63mm diameter rider main on the Kelly Road frontage.

3.3.4 Wastewater Reticulation

The existing wastewater network present within Kelly Road currently provides two existing wastewater connections to the development site which will be utilised to service Lot 1 and Lot 2.

The two additional connections required to service Lot 3 and Lot 4 will be installed directly into the existing 150mm diameter gravity pipeline on the Kelly Road frontage.

3.3.5 Stormwater

The new comprehensive stormwater network for the C1 and C2/C3 structure plan area (adjacent to the Proposed Subdivision) includes the construction of large open drainage swales along with pipe connections to capture stormwater from existing areas adjacent to the site. Waipā District Council is looking to consolidate the existing stormwater network in this area by integrating private stormwater devices into the comprehensive stormwater network. One of these devices is the existing private stormwater soakage basin located at 32 and 32A Kelly Road. The connection of the Kelly Road stormwater system to the C1 and C2/C3 stormwater system means that the stormwater device on 32 and 32A Kelly Road will no longer be required.

An existing secondary overland flow path within 32 and 32A Kelly Road currently conveys water north to an open drain in the north which flows east across the neighbouring properties. This existing drain will be formalised as a secondary flow path as part of the Proposed Subdivision and reinstated using the standard RITS detail (D4.4) once engineering approval is given by the Waipā District Council to backfill the stormwater detention pond. The stormwater pipe, which previously discharged into the detention basin, is now connected to the C2 Growth Cell reticulation to the east via a 600mm concrete pipe vested in Waipā District Council (asset ID 2022114132843). Flows in excess of the pipe capacity will flow down the secondary flow path.

All lots will have direct connection into the stormwater network.

In addition to the primary stormwater network, the individual lots will require a rainwater collection tank, with a non-potable water reuse system to be installed to utilise the collected runoff.

3.3.6 Utilities

The existing site, and the surrounding lots on Kelly Road, are all appropriately serviced from an electricity and telecommunications perspective. It is therefore anticipated that the new lots that are part of the Proposed Subdivision can be serviced in the same manner.

4. RESOURCE CONSENT REQUIREMENTS

4.1 INTRODUCTION

The Proposed Subdivision is subject to the rules set out in the Waipā District Plan and the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (the “NES”). An analysis of the relevant rules in those statutory documents are provided in the sub-sections below and is based on the information contained in Section 3 of this AEE.

For completeness, it is noted that no resource consent is required from the Waikato Regional Council for the activities proposed.

4.2 WAIPĀ DISTRICT PLAN

The Waipā District Plan is a statutory planning document required under the RMA and it contains the objectives, policies and rules which cover the way in which land may be used within the Waipā District.

The Proposed Subdivision requires consent as a result of the following rules in the Waipā District Plan:

- Operative District Plan: Rule 15.4.2.1 (ac): Residential subdivision in the C1 and C2/C3 structure plan areas, as the maximum lot area of three of the four proposed new lots exceed 1,000 m² and the average net lot area is not <800 m², as a non-complying activity; and
- PC26: Rule 15.4.2.1 (a) subdivision in the Medium Residential Density Zone as the maximum lot area of three of the four proposed new lots exceed 1,000 m².

It is also considered that the proposal complies with the following rules and performance standards of the Operative District Plan (which largely align with the rules of PC26):

- Rule 15.4.2.3: Lot frontage, lot shape factor and vehicle crossings;
- Rule 15.4.2.4: Minimum width of vehicle access to rear lots;
- Rule 15.4.2.5: Lot design (lot shape factor);
- Rule 15.4.2.6: Lot design (number of rear lots);
- Rule 15.4.2.7: Lot design (road frontage);
- Rule 15.4.2.13: Sites suitability (general);
- Rule 15.4.2.16: Infrastructure servicing in all zones;



- Rule 15.4.2.18, Rule 15.4.2.19 and Rule 15.4.2.20: Additional infrastructure servicing for the residential, commercial and industrial zones within the urban limits;
- Rule 15.4.2.25 (b) and Rule 15.4.2.26: Stormwater; and
- Rule 15.4.2.69: All development and subdivision in areas subject to a Structure Plan.

4.3 NATIONAL ENVIRONMENTAL STANDARDS FOR ASSESSING AND MANAGING CONTAMINANTS IN SOIL TO PROTECT HUMAN HEALTH

The NES regulations apply if an activity or industry described in the Hazardous Activities and Industries List (“**HAIL**”) is undertaken, has been undertaken, or more likely than not, is being or has been undertaken on the land.

Clause 5(7) of the NES states:

Land covered

- (7) The piece of land is a piece of land that is described by 1 of the following:
- a) an activity or industry described in the HAIL is being undertaken on it;
 - b) an activity or industry described in the HAIL has been undertaken on it;
 - c) it is more likely than not that an activity or industry described in the HAIL is being or has been undertaken on it.

There is no evidence to suggest that a HAIL activity is being undertaken, or has been undertaken, on the property. Furthermore, it is more likely than not that a HAIL activity has not been undertaken on the subject property.

The site is not identified in the District Plan as a potential HAIL site, nor has the site been identified as a HAIL site by the Waikato Regional Council or on Waipā intramaps. The provisions in Section 5(7) are therefore not applicable to application site or the proposed subdivision.

In summary, the provisions of the NES are not applicable to this application.

4.4 SUMMARY OF ACTIVITY STATUS

The Proposed Subdivision is a **Non-Complying Activity**.



5. ASSESSMENT OF ENVIRONMENTAL EFFECTS

5.1 INTRODUCTION

This section of the AEE addresses the actual and potential environmental effects associated with Proposed Subdivision.

The relevant actual and potential effects are considered to be:

- Character and amenity effects;
- Geotechnical considerations; and
- Servicing effects.

When considering the effects of the Proposed Subdivision, the receiving environment consists of:

- The existing environment and the associated effects from lawfully established activities;
- The existing environment as modified by any resource consents granted and likely to be implemented; and
- The environment as likely to be modified by activities permitted by the District Plan.

5.2 CHARACTER AND AMENITY EFFECTS

A subdivision of land does not create any actual or potential physical effects on the environment. It is only the land uses that might occur as a result of a subdivision that can cause effects. The specific land use matters will be considered at a later date, either via compliance with applicable permitted activity rules, or via a separate land use consent process.

In the present case, the use of the land once the subdivision is completed will be residential, in accordance with the underlying zoning of the land. The development will be unsurprising given the wider area has been earmarked for intensive residential development.

It is also noted that the lot sizes of the proposed new lots are consistent with the sizes of the existing Kelly Road properties.

For these reasons, the proposed subdivision is considered to positively contribute to the character and amenity of the area, and plays an important part in ensuring the character and amenity of the future residential development that is anticipated at the site, as set out in the C1 and C2/C3 Structure Plan.

For the reasons outlined above any effects on character and amenity are considered to be negligible. However, as discussed later in this AEE, 3MS seeks that this application be limited notified to the owners of the other properties forming part of the original 10-lot



subdivision on the basis that the proposed lot sizes are smaller than the size anticipated by the original subdivision (as evident by the restricted covenant prohibited further subdivision).

5.3 GEOTECHNICAL CONSIDERATIONS

The site suitability assessment prepared by Probase Engineering concludes that the site is suitable for the Proposed Subdivision (and subsequent development) and has made the following recommendations:

- Due to the moderate liquefaction vulnerability a TC2 foundation design specification level is recommended;
- The finished floor levels for all lots needs to be designed to have a minimum freeboard of 500 m above the flood level;
- A temporary catchment pond sits within the building platforms designated for Lots 2 and 3, which is to be removed/ excavated and replaced by approved compacted fill material. Fill must be placed in accordance with NZS 4431:1989. Any fill placed of a height greater than 1000mm is recommended to be carried out under the supervision of a suitably qualified engineer; and
- It is recommended that further testing and consideration be made at time of building consent.

5.4 SERVICING EFFECTS

As detailed in Section 3.3 of this AEE, the Proposed Subdivision can be appropriately serviced in an efficient manner.

5.5 SUMMARY OF ENVIRONMENTAL EFFECTS

Based on the technical assessments commissioned by 3MS it is considered that adverse effects of the Proposed Subdivision will be negligible.

6. STATUTORY ASSESSMENT

6.1 INTRODUCTION

The RMA is the principal statutory document governing the use of land, air, and water. The purpose of the RMA, as set out in Section 5, is to “promote the sustainable management of natural and physical resources”. This section of the AEE sets out the framework under the RMA that applies to the resource consents that are being sought from the Waipā District Council.

6.2 REQUIREMENTS OF A CONSENT APPLICATION

Section 88 of the RMA requires that an application for a resource consent be made in the prescribed form and manner, and include, in accordance with Schedule 4, the information relating to the activity, including an assessment of the activity's effects on the environment, as required by Schedule 4.

The resource consent application in Part A of this AEE is in the prescribed form, as set out in Form 9 of the Resource Management (Forms, Fees, and Procedure) Regulations 2003. Waipā District Council's Consent Application Form has also been completed (**Appendix A**).

By way of summary, the AEE meets the requirements of Schedule 4, and the requirements of section 88 of the RMA.

6.3 SECTION 104D ASSESSMENT

As a Non-Complying Activity, the application must be considered under section 104D of the RMA, and in particular what are known as the ‘gateway’ tests. In accordance with section 104D Council must only grant consent if either subsection 1(a) ‘the adverse effects of the activity on the environment will be minor’; or 1(b) ‘will not be contrary to the objectives and policies of relevant plans and proposed plans in respect of the locality; is met.

104D Particular restrictions for non-complying activities

- (1) Despite any decision made for the purpose of notification in relation to adverse effects, a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that either—
 - (a) the adverse effects of the activity on the environment (other than any effect to which section 104(3)(a)(ii) applies) will be minor; or
 - (b) the application is for an activity that will not be contrary to the objectives and policies of—
 - (i) the relevant plan, if there is a plan but no proposed plan in respect of the activity; or



- (ii) the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or
 - (iii) both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.
- (2) To avoid doubt, section 104(2) applies to the determination of an application for a non-complying activity.

In respect of section 104D(1)(a) an assessment of the actual and potential environmental effects associated with the proposed activities is provided in Section 5 of this AEE. Overall, it is concluded that any adverse effects of the proposal on the surrounding environment will be negligible. The application therefore passes this gateway.

The objectives and policies of the Waipa District Plan (being the relevant plan for the purpose of Section 104(1)(b) of the RMA) are assessed further in this AEE. As is noted subsequently it is concluded that the proposal is consistent with the objectives and policies relating to the Residential Zone / Medium Residential Density Zone. As this proposal seeks consent for residential land uses, it is considered that this proposal is inherently consistent with the relevant objectives and policies. While the Proposed Subdivision exceeds the maximum lot size requirements of the Residential Zone / Medium Density Residential Zone, it is not considered that this is inconsistent with the District Plan direction regarding maintaining amenity and character values, given the existing lot sizes within the Kelly Road area (which are larger lots).

In light of the above, section 104D of the RMA is not considered to be an impediment to the granting of the resource consent for the proposed activities and it can be further considered under section 104 of the Act. In this regard, both 'gateway' tests in section 104D are able to be passed, and the application may be considered under the provisions of section 104 of the RMA.

6.4 SECTION 104 ASSESSMENT

Section 104 of the RMA lists the matters that a consent authority must, subject to Part 2, have regard to in determining whether a resource consent application should be granted. It states:

- (1) When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to—
 - (a) any actual and potential effects on the environment of allowing the activity; and
 - (ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity; and



- (b) any relevant provisions of—
 - (i) a national environmental standard;
 - (ii) other regulations;
 - (iii) a national policy statement;
 - (iv) a New Zealand coastal policy statement;
 - (v) a regional policy statement or proposed regional policy statement;
 - (vi) a plan or proposed plan; and
 - (c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.
- (2) When forming an opinion for the purposes of subsection (1)(a), a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect.
- (2A) When considering an application affected by section 124 or 165ZH(1)(c), the consent authority must have regard to the value of the investment of the existing consent holder.

The matters for consideration under section 104 of the RMA are assessed in the following subsections.

6.4.1 Section 104(1)(a) Assessment - Actual and Potential Effects

With respect to section 104(1)(a) of the RMA, the actual and potential effects on the environment of the proposed activities are set out in Section 5 of this AEE. As concluded in that section, it is considered that all actual and potential adverse effects of the Proposed Subdivision can be appropriately avoided, remedied, or mitigated to the extent that any residual effects will be negligible.

6.4.2 Section 104(1)(ab) Assessment – Offset or Compensatory Measure

Given that this proposal is for a subdivision consent and will result in negligible adverse effects (if any), no specific offsetting or compensation measures are required or proposed.

6.4.3 Section 104(1)(b) Assessment – Policy and Planning Documents

With respect to section 104(1)(b) of the RMA the following documents are considered to be of relevance to the proposal:

- Te Ture Whaimana o Te Awa o Waikato (“**Te Ture Whaimana**”);
- National Policy Statement on Urban Development;
- Waikato Regional Policy Statement (“**Waikato RPS**”); and
- Waipā District Plan.



Each are discussed in turn.

6.4.3.1 Te Ture Whaimana o Te Awa o Waikato

The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 and the Ngati Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010 inserted Te Ture Whaimana into the (then) operative Waikato RPS. Te Ture Whaimana prevails over any inconsistent provisions in a national policy statement.

Te Ture Whaimana applies to the area of the Waikato River from Huka Falls to Te Puuaha o Waikato (Port Waikato) and the Waipā River from its junction with the Punui River to its confluence with the Waikato River at Ngaruawahia.

The Vision for the Waikato River is:

“... for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come.”

There are 13 objectives included to realise the above Vision, 12 strategies to achieve those objectives and 18 methods to implement those strategies.

Of these provisions, it is the 13 objectives which contain the desired outcomes for the management of the Waikato River.

For the reasons detailed below, the Proposed Subdivision is considered to be consistent with the relevant objectives and strategies of Te Ture Whaimana:

- The Proposed Subdivision is located approximately 950 m from the Waikato River and does not have any direct or indirect effects on the awa;
- Stormwater from the Proposed Subdivision will not be discharged directly to the Waikato River. The Proposed Subdivision facilitates are better stormwater system servicing the Kelly Road properties, ensuring that the C1 and C2/C3 system (which increase treatment and soakage) is utilised;
- The Proposed Subdivision will not adversely impact the health and wellbeing of the Waikato River, or the relationship of the region’s communities with the Waikato River;¹
- The integrated management approach that has been adopted for the design and development of the Proposed Subdivision will ensure that the natural, physical, cultural and historic resources of the Waikato River are not adversely affected;² and

¹ Objectives (a) and (d) of Te Ture Whaimana.

² Objective (e) of Te Ture Whaimana.

- The Proposed Subdivision will not result in adverse cumulative effects that have the potential to impact the health and wellbeing of the Waikato River.³

6.4.3.2 National Policy Statement on Urban Development Capacity

The NPS-UD came into effect on 20 August 2020. The NPS-UD identifies Hamilton (including the Waipā District) as a 'Tier 1 Urban Environment' – reflecting the area's population size and growth rate.

To provide a broader context, the NPS-UD seeks:

- Well-functioning urban environments that enable all people and communities to provide for their social, economic and cultural wellbeing, and for their health and safety, now and into the future;
- To enable more people to live in, and more businesses and community services to be located in, areas of an urban environment that are near centres and/or employment, well-serviced by public transport, and where there is high demand; and
- Urban environments that develop and change, including their amenity values, over time in response to the diverse and changing needs of people, communities and future generations.

In terms of the outcomes identified above, the Proposed Subdivision, while small scale in nature, will promote the outcomes sought by the NPS-UD

The NPS-UD directs planning decision-makers to have particular regard to the benefits of urban development that are consistent with well-functioning urban environments. These include:

- The provision of a variety of homes (in terms of type, price, and location); and
- The provision of good accessibility for all people between housing, jobs, community services, natural spaces, and open space, including by way of public or active transport.

The NPS-UD also directs planning decision-makers to have particular regard to any relevant contribution that will be made to provide or realise development capacity. The Proposed Subdivision will contribute to development capacity within Cambridge (albeit in a very modest way, and enable the more efficient utilisation of two lots within the Residential Zone).

The NPS-UD also directs planning decision-makers to have particular regard to the planned urban built form anticipated by planning documents that have given effect to the NPS-UD, which may involve significant changes to an area. The Proposed Subdivision is entirely consistent with the built form anticipated by the C1 and C2/C3 Structure Plan.

³ Objective (g) of Te Ture Whaimana.



Overall, the Proposed Subdivision is consistent with the outcomes sought by the NPS-UD.

6.4.3.3 Waikato Regional Policy Statement

The Waikato RPS provides an overview of the resource management issues in the Waikato Region, and the objectives and policies and methods to achieve integrated management of natural and physical resources. These methods include directions for provisions in district and regional plans.

By way of summary, the Proposed Subdivision is considered to be consistent with the relevant objectives and policies of the Waikato RPS for the following reasons:

- The development of the Proposed Subdivision will provide for the economic, social and cultural wellbeing to the people and communities of Cambridge;⁴
- The Proposed Village will not adversely impact the health and wellbeing of the Waikato River and will be in accordance with Te Ture Whaimana;⁵
- The Proposed Subdivision will be developed to occur in an integrated, sustainable and planned manner, therefore enabling positive environmental, social, cultural and economic outcomes;⁶
- The Proposed Subdivision has been designed in accordance with the qualities and characteristics of the existing Cambridge amenity;⁷ and
- The Proposed Subdivision is within the identified urban limits of Cambridge, and positively contribute to the establishment of compact urban environments and minimum housing (dwelling) targets in a Future Proof area.⁸

6.4.3.4 Waipā District Plan

Operative Waipā District Plan

The key conclusions in relation to the consistency of the Proposed Subdivision with the relevant objectives and policies for the Residential Zone in the Waipā District Plan are:

- The Proposed Subdivision will enable a residential land use that will reflect the existing character and amenity values of Cambridge residential areas, and will be consistent with the amenity values of the existing Kelly Road properties;⁹

⁴ Objective IM-O2 of the Waikato RPS.

⁵ Objective IM-O4 and Policy LF-P5 of the Waikato RPS.

⁶ Objective UFD-O1 and Policy UFD-P1 of the Waikato RPS.

⁷ Objective IM-O9 and Policy IM-P5 of the Waikato RPS.

⁸ Objective UFD-O2 and Policies UFD-P11 and UFD-P12 of the Waikato RPS.

⁹ Objectives 2.3.1, 2.3.3 and 2.3.5, and Policies 2.3.1.1, 2.3.2.5, 2.3.3.1 and 2.3.5.1 of the Waipā District Plan.



- The Proposed Subdivision has been designed to integrate with the existing neighbourhood amenity of the area and will not impact on the existing privacy or sunlight access of surrounding residents;¹⁰
- The new lots resulting from the Proposed Subdivision will contain sufficient open space. Sufficient parking and vehicle manoeuvring areas will also be provided onsite, and the Proposed Village will comply with the site coverage requirements of the Waipā District Plan;¹¹
- The disposal of stormwater will be managed via the comprehensive stormwater system for the C2 Growth Cell;¹² and
- The Proposed Subdivision has been designed and developed to safely connect to / with the infrastructure provisions of the wider area.

The following conclusions can be made with respect to the other relevant objectives and policies of the Waipā District Plan related to the Proposed Subdivision:

- The Proposed Subdivision is capable of accommodating activities anticipated in the Residential Zone;¹³
- The site has not been identified as being susceptible to natural hazards or the effects of climate change;¹⁴
- The Proposed Subdivision will not result in reverse sensitivity effects on adjacent sites, activities, or the wider receiving environment;¹⁵
- The Proposed Subdivision will be suitably serviced by the proposed infrastructure provisions for the site, and the integration and connection of those provisions to the infrastructure of the wider C2 Growth Cell;¹⁶
- The Proposed Subdivision is located on a site that has been identified for development by the Waipā District Plan, as demonstrated by the zoning site for residential purposes;¹⁷
- The Proposed Subdivision will not result in adverse effects on the Waipā District's natural environment and functioning of the natural environment;¹⁸ and

¹⁰ Objectives 2.3.2 and 2.3.5, and Policies 2.3.2.1, 2.3.2.3, 2.3.2.19, 2.3.2.20 and 2.3.5.1 of the Waipā District Plan.

¹¹ Policies 2.3.2.6 and 2.3.5.1 of the Waipā District Plan.

¹² Policies 2.3.2.3 and 2.3.2.7 of the Waipā District Plan.

¹³ Objective 15.3.2 and Policy 15.3.2.1 of the Waipā District Plan.

¹⁴ Policies 15.3.2.2 and 15.3.2.3 of the Waipā District Plan.

¹⁵ Policy 15.3.2.4 of the Waipā District Plan.

¹⁶ Policy 15.3.3.1 of the Waipā District Plan.

¹⁷ Policy 15.3.3.2 of the Waipā District Plan.

¹⁸ Objective 15.3.7 and Policy 15.3.7.1 of the Waipā District Plan.

- As noted earlier in this AEE, the Proposed Subdivision will not impact the ability to achieve the objectives of Te Ture Whaimana.¹⁹

PC26 to the Waipā District Plan

The key provisions of PC26 relevant to the Proposed Subdivision are set out in section 2A: Medium Density Residential Zone. The provisions require:

- A well-functioning urban environment that enables all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future;²⁰
- Provision of a variety and housing types and sizes, and to enable housing to be designed to meet the day-to-day needs of residents;²¹
- Achievement of a minimum target density of 25 – 35 dwellings per hectare;²²
- The maintenance and enhancement of the existing elements of a residential area that gives Cambridge its own character;²³
- The maintenance of amenity values and enhancement of safety, including by designing buildings, setting buildings back appropriately and provision of open space to provide for landscaping, outdoor living areas and stormwater soakage;²⁴
- Incorporating Crime Prevention through Environmental Design (CPTED) principles;²⁵ and
- The maintenance and enhancement of amenity values within and around dwellings and sites in the Medium Density Residential Zone through the location, layout and design of dwellings and buildings.²⁶

It is considered that the Proposed Subdivision is consistent with the relevant provisions as the lot size enables greater density than the balance of the Kelly Road lots, while maintaining amenity values and general consistency with the larger lot sizes on Kelly Road.

¹⁹ Objective 15.3.12 of the Waipā District Plan.

²⁰ Objective 2A.3.1. of PC26

²¹ Objective 2A.3.2, Policy 2A.3.2, Policy 2A.3.2.6, Objective 2A.3.6 and Policy 2A.3.6.1 of PC26.

²² Policy 2A.3.2.2 of PC26.

²³ Objective 2A.3.3 and Policy 2A.3.3.1 of PC26.

²⁴ Objective 2A.3.4, Policy 2A.3.4.1, Policy 2A.3.4.3, 2A.3.4.5 and Policy 2A.3.4.6 of PC26.

²⁵ Policy 2A.3.4.17 of PC26.

²⁶ Objective 2A.3.5, Policy 2A.3.5.1, Policy 2A.3.5.2, 2A.3.5.3, Policy 2A.3.5.4, Policy 2A.3.5.5 and Policy 2A.3.5.6 of PC26.



6.4.3.5 Precedent Effect

One final matter that may need some comment is the potential for the granting of the current consent application to cause a 'precedent effect'. This issue sometimes arises due to a concern held by the Waipā District Council that a decision to grant a consent for a Non-Complying Activity could undermine the integrity of the Waipā District Plan.

Based on the conclusions in this AEE, it is considered that there will be no precedent effect that undermines the integrity of the Waipā District Plan arising from the granting of the current consent application for a Non-Complying Activity. The reasons for this conclusion are:

- Every resource consent application that is made to consent authorities throughout New Zealand is due to a proposed activity not complying with the permitted activity rules and/or performance standards in the relevant plan. Simply breaching a rule or a performance standard is not a sufficient reason to decline consent or be concerned about a precedent effect (otherwise the resource consent application process would serve no purpose). Applications need to be determined based on an evaluation of the effects of the proposed activity on the environment and the outcomes sought to be achieved in the relevant statutory instruments in accordance with section 104 and, in this case, section 104D, of the RMA;
- A precedent effect should only be a matter of concern where it results in substantive environmental outcomes that are contrary to what the relevant plan is seeking to achieve. As discussed above, the current proposal will not result in any of the issues or adverse effects that the plan seeks to avoid. Residential development in this area is entirely anticipated; and
- The Proposed Subdivision is consistent with the overall outcomes of the C1 and C2/C3 Structure Plan.

In summary, it is 3MS view that the granting of this subdivision consent application would not create a precedent effect, nor would it result in the integrity of the Waipā District Plan being compromised.

6.4.3.6 Section 104(1)(c) – Other Relevant Matters

Introduction

Under section 104(1)(c) Iwi Management Plans are a relevant matter to be considered by the Waikato Regional Council when assessing this application under section 104 of the RMA. This section provides commentary on the two Iwi Management Plans of relevance to this application.

- Tai Tumu Tai Pari Tai Ao, the Waikato-Tainui Environment Plan; and



- Te Rautaki Tāmata Ao Turoa o Hauā, the Ngāti Hauā Environmental Management Plan.

Each are briefly addressed below.

Tai Tumu Tai Pari Tai Ao

Tai Tumu Tai Pari Tai Ao, the Waikato-Tainui Environment Plan (“**WTEP**”) was lodged with Waikato Regional Council on 6th September 2013. The purpose of the plan is to:

‘provide a map or pathway that will return the Waikato-Tainui rohe to the modern-day equivalent of the environmental state that it was in when Kiingi Taawhiao composed his maimai aroha’.

3MS has reviewed the WTEP and provides an assessment against the provisions below. However, the 3MS acknowledges that only Waikato-Tainui can determine for Waikato-Tainui if, from a Waikato-Tainui perspective, the magnitude, frequency, and duration of the effect, and if the overall effect of an activity is positive or negative.

Section C of the WTEP contains the Issues, Objectives, Policies and Methods, the most pertinent of which relate to land, land use planning and infrastructure. For the reasons already addressed in this AEE relating to the negligible effects of the Proposed Subdivision and efficient use of Residential Zoned land, it is considered that the Proposed Subdivision will not be inconsistent with the direction of the WTEP.

Te Rautaki Tāmata Ao Turoa o Hauā

Te Rautaki Tāmata Ao Turoa o Hauā, the Ngāti Hauā Environmental Management Plan (“**NHEMP**”), was developed to express Ngāti Hauā values and aspirations for their environment. It was lodged with the relevant regulatory agencies in 2018 and is intended for those utilising the plan to understand the values, frustrations and aspirations for the environment and state the Ngāti Hauā views on particular land uses and activities.

The policies and actions of the NHEMP are primarily aimed at Regional and District Councils within their rohe. However, the provisions are also to be used to inform and guide engagement processes and decisions associated with resource consent applications.

The most pertinent section of the NHEMP in respect of the Proposed Subdivision is section 9 – sustainable land use and development. The provisions of Section 9 seek to manage the effects of urban land use and development within the rohe of Ngāti Hauā, including the promotion of low impact urban design and the utilisation of locally sourced native plants for landscaping (for example). Furthermore, the provisions require that a holistic and integrated approach be taken in relation to the sustainable use, development and management of land. This is to be achieved through working with other parties to ensure that land use and development within the rohe recognises and provides for:



- Mauri of land and soil resources;
- Relationship between Ngāti Hauā and natural resources;
- Value of the knowledge held by Ngāti Hauā;
- Role and application of mātauranga and tikanga;
- Principle of interconnectedness; and
- Aspirations to enhance social and economic wellbeing.

For the reasons already addressed in this AEE relating to the negligible effects of the Proposed Subdivision and efficient use of Residential Zoned land, it is considered that the Proposed Subdivision will not be inconsistent with the direction of the NHEMP.

6.5 PART 2 MATTERS

Recent case law has confirmed that a consent authority must have regard to the provisions of Part 2 when it is appropriate to do so.²⁷ Part 2 is an overriding matter and decisions on resource consents must demonstrably contribute towards the purpose of the Act. Reference to Part 2 of the RMA beyond its expression in the relevant statutory planning documents is appropriate where there is invalidity, incomplete coverage or uncertainty of meaning within the statutory planning documents in respect of determining a resource consent application. For this application, there is no invalidity, incomplete coverage or uncertainty of meaning within the statutory planning documents.

Notwithstanding the above, in accordance with Schedule 4(2)(1)(f) of the RMA, Part 2 of the RMA is considered to the extent appropriate in the following paragraphs.

The previous sections have set out the key matters the Waipā District Council will be required to have regard to when considering the application. However, these considerations are expressly “subject to Part 2”, which incorporates an overall assessment of the proposal against the sustainable management purpose of the RMA, which is defined in section 5 of the Act as:

- ... managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—
- (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems;

²⁷ R J Davidson Family Trust v Marlborough District Council, [2018] NZCA 316.



and

- (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Applying section 5 of the RMA involves judgement of whether a proposal would promote the sustainable management of natural and physical resources, and that judgement allows for the comparison of conflicting considerations and the scale and degree of them and their relative significance or proportion in the final outcome.

Regarding the requirement that effects be “avoided, remedied or mitigated”, case law has established that it is not required that all effects be avoided, or that there is no net effect on the environment or that all effects are compensated for in some way. Rather, it is about doing what is reasonably necessary, given the circumstances of the particular case, to lessen the severity of effects. The measures to be employed by 3MS in respect to the subdivision of land at the subject property ensures that any actual and potential adverse environmental effects are avoided, remedied and/or mitigated.

Sections 6, 7 and 8 of the RMA set out the principles to be applied in achieving the purpose of the Act. They are not an end in themselves, but an accessory to the principal purpose. To the extent the principles of those sections are relevant they do not suggest the granting of the consent sought by 3MS is inappropriate.

6.6 SUMMARY

In summary the Proposed Subdivision is consistent with all the policy framework in the relevant national and regional planning instruments.



7. NOTIFICATION

Sections 95A – 95G of the RMA set out the matters that Waipā District Council must consider when deciding whether to notify the resource consent application.

As already discussed in this AEE, the existing lots were created as part of a 10-lot subdivision which a restrictive private covenant in place that prohibits any further subdivision of lots in the subdivision. As 3MS are seeking to progress the Proposed Subdivision in a manner that is not consistent with the original subdivision (and will seek to cancel the covenant), 3MS seeks that this application be limited notified to the owners of the properties that form part of the original subdivision. Those properties are as follows:

- 30A Kelly Road (LOT 3 DP 364040);
- 30 Kelly Road (LOT 4 DP 364040);
- 28A Kelly Road (LOT 6 DP 364040);
- 28 Kelly Road (LOT 5 DP 364040);
- 26A Kelly Road (LOT 7 DP 364040);
- 26 Kelly Road (LOT 8 DP 364040);
- 24A Kelly Road (LOT 9 DP 364040); and
- 24 Kelly Road (LOT 10 DP 364040).



8. CONCLUSION

3MS is the owner of two properties on Kelly Road – 32A Kelly Road and 32 Kelly Road. 3MS is seeking to subdivide those properties to create four lots (two additional) that will be used for residential purposes within the Cambridge C2 Structure Plan area.

A subdivision consent is required from the Waipā District Council for a Non-Complying Activity. Therefore, the application needs to be considered in accordance with section 104D of the RMA. It is considered that both of the 'gateway' tests in section 104D of the RMA are met, and the Waipā District Council can consider this application in accordance with section 104 of the RMA.

In accordance with section 104(1)(a) of the RMA, the actual and potential environmental effects of the Proposed Subdivision have been assessed and are considered to be negligible.

The Proposed Subdivision has been assessed to be consistent with the relevant objectives and policies of the NPS-UD, Te Ture Whaimana, Waikato RPS and Waipā District Plan, in accordance with section 104(1)(b) of the RMA. In accordance with section 104(1)(c) of the RMA, the Waikato Tainui Environmental Management Plan and Ngati Hauā Iwi Environmental Plan have also been addressed and it is concluded that the proposal is consistent with the direction of those plans.

It is also considered that the Proposed Subdivision is consistent with the purpose of the RMA and there are no reasons why the resource consent should not be granted. However, 3MS seek that this resource consent application be processed on a limited notified basis to the owners of the properties forming part of the original subdivision and that are subject to the private covenant that restricts further subdivision of the lots.



APPENDIX A

**Waipā District Council Consent
Application Form**

Resource Consent Application Form

Section 88 of the Resource Management Act 1991 (RMA). This form provides us with your contact information and details about your proposal. Please print clearly and complete all sections.

Note to Applicant:

You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.

To: Name of Council that is the consent authority for this application: ~~Select a Council~~ Waipa District Council

Type of resource consent being applied for:

- Land use
 Subdivision
 Combined land use and subdivision

Activity Status

- Controlled
 Restricted Discretionary
 Discretionary
 Non-complying
 I don't know

Fast Track Resource Consent

The Resource Management Act 1991 provides for land use activities that have a controlled activity status to be fast tracked through the resource consent process and processed within 10 working days of the application being lodged with Council. Your consent may be fast tracked if you tick 'yes' to the first two questions below.

1. Is this application for a controlled activity (land use consent only)? Yes No
2. Have you provided an electronic address for this service? Yes No

If you wish to opt out of the fast track process, tick here:

Applicant Name

Please provide the full name of the persons, company, society or trust applying for this resource consent. If the applicant is a trust, please provide the full name/s of all trustees of that trust.

Name:

3MS of Cambridge GP Limited



Applicant Contact Details

Postal Address:	See AEE (Part A)		
Post code:		Email:	
Phone:		Mobile:	

Agent Contact Details

If you have an agent or other person acting on your behalf, please complete the details below.

Agent:	Mitchell Daysh Limited		
Contact:	Abbie Fowler		
Postal Address:			
Post code:		Email:	abbie.fowler@mitchelldaysh.co.nz
Phone:		Mobile:	021 385 991

Location of Proposal

Please complete with as much detail as you can, so the site for your proposal is clearly identifiable. Include details such as unit number, street number, street name and town.

Property address:

32A Kelly Road & 32 Kelly Road

Legal description:

Lot 2 DP 364040 & Lot 1 DP 364040

V1 | 01/04/20

Owner/Occupier of Site

Landowner's full name, phone number and address:

OR

 Same as applicant details

Occupiers full name, phone number and address:

OR

 Same as applicant details**Description of Proposal**

Please provide a brief description of the proposal and the reasons why resource consent is required ie which rules in the district plan are infringed. If the space provided is insufficient, please attach additional pages.

Other Consents

Please let us know of any other consents that you have applied for or know that you need to apply for related to this application. This includes any resource consents that may be required from a regional council under a regional plan.

Other resource consents

Resource consent no. (if known)

Building consent

Building consent no. (if known)

Regional plan consent

Type of regional consent:

*e.g. water discharge permit,
water intake permit*

National Environmental Standards (NES)*

Please let us know if you require consent under a National Environmental Standard. National Environmental Standards are regulatory documents that contain standards pertaining to certain matters eg management of contaminated land, telecommunications.

Is consent required under a NES?

Yes

No

I don't know

Tick the following applicable NES:

NES for Air Quality

NES for Drinking Water

NES for Telecommunication Services

NES for Electricity Transmission Services

NES for Assessing and Managing Contaminants in Soil to Protect Human Health

NES for Plantation Forestry

Other

* For further information about National Environmental Standards, their requirements and forms please refer to any other sheets provided with these application forms.

Assessment of Proposal

Please attach an assessment of your proposal's effects on the environment, an assessment against the relevant matters of Part 2 of the RMA and any relevant provisions of NES, regulations, national policy statement, regional policy statement, regional plan and district plan.

See AEE

Pre-application Information

We recommend that you have a pre-application discussion about your proposal with a Council planner.

Have you had a pre-application meeting with a Council planner? Yes No

Have you had any other conversations with any other Council staff? Yes No

Date of meeting:

Please provide the names of Council staff you have spoken with:

If notes of the meeting or other conversations were provided to you, please attach copies.

Have you attached any minutes/notes from the meeting? Yes No

Notification

The Resource Management Act 1991 allows applications to be notified for public submissions on request of the applicant.

Are you requesting that your application be publicly notified? Yes No

If you selected 'yes' to the above question, please attach a short summary outlining the details of your application.

Have you attached a summary? Yes No

Site Visit Requirements

As landowner and with the consent of any occupiers or lessee, I am aware that Council staff or authorised consultants may visit the site which is the subject of this application, for the purposes of assessing this application, and agree to a site visit.

OR

If the applicant is not the owner, I understand that Council staff or authorised consultants may visit the site, which is the subject of this application, for the purposes of assessing this application, and agree to a site visit.

Is there a locked gate or security system restricting access by Council staff? Yes No

Are there any dogs on the property? Yes No

Are there any hazards that may place a visitor at risk? Yes No

Provide details of any entry restrictions that Council staff should be aware of e.g. health and safety, organic farm etc.

Please contact Abbie Fowler prior to going on site

Draft Conditions

When a consent is granted, Council can include conditions to manage any adverse effects.

Do you wish to see draft conditions prior to Council making a decision on the application? Yes No

By ticking this box, I understand that the opportunity to review the draft conditions is an act of good faith by the Council intended to assist with identifying errors before consent is granted. I further understand that Council has the right to continue processing the application if too much time is taken in the review of draft conditions. By requesting draft conditions I agree to an extension of time under section 37 of the RMA.

Signature of the applicant(s)

Please read the information below before signing the application form.

Payment of fees and charges

You must pay the charges payable to Council for this application under the RMA. Please refer to Council's Fees and Charges on its website.

By submitting this application to Council, you agree to pay the charges set out in Council's Fees and Charges relevant to the application.

Privacy information

Council requires the information you have provided on this form to process your application under the RMA. 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. If you would like to request access to, or correction of any details, please contact the Council.

Information checklist

The information checklist provided with this form sets out the full set of information that Council requires for your application to be considered complete. Your application may be returned as incomplete if you do not provide adequate information. Your completed application should be submitted to Council with any supplementary forms and/or guidance as provided by Council.

Correspondence and Invoices

Please let us know where to send any correspondence and invoices. Where possible any correspondence will be sent by email.

All correspondence excluding invoices sent to: Applicant or Agent

All invoices sent to: Applicant or Agent

Confirmation by the applicant

I/we confirm that I/we have read and understood the information and will comply with our obligations as set out above. A signature is not required if you submit this form electronically.

Applicant name: Signature: Date:

Applicant name: Signature: Date:

Applicant name: Signature: Date:

Confirmation by the agent authorised to sign on behalf of the applicant

As authorised agent for the applicant, I confirm that I have read and understood the above information and confirm that I have fully informed the applicant of their obligations in connection with this application, including for fees and other charges, and that I have the applicant's authority to sign this application on their behalf. (A signature is not required if you submit this form electronically.)

Agent's full name: Signature: Date:

Information Checklist for Resource Consent Application

All applications must include the following information:

- A description of the activity
- A description of the site where the activity will occur
- The full name and address of each owner or occupier of the site

- A description of any other activities that are part of the proposal to which this application relates
- A description of any other resource consent required for the proposal to which the application relates
- An assessment of the proposed activity's effects on the environment
- An assessment of the activity against Part 2 of the Resource Management Act 1991. This will need to address section 5 'Purpose', section 6 'Matters of national importance', section 7 'Other matters' and section 8 'Treaty of Waitangi'
- An assessment of the activity against any relevant objectives, policies or rules in the district plan
- An assessment of the activity against any relevant requirements, condition or permissions in any rules in a document listed in section 104(1)(b) of the RMA
- Record of title(s) for the subject site
This must be less than 3 months old. Please attach the title(s) and any consent notices, covenants, easements attached to the title(s)
- Site plan or scheme plan
Please provide at an appropriate scale (for example 1:100) showing the location of the building or activity in relation to all site boundaries. The site plan should include the following where relevant:
 - North point
 - Title or Reference No.
 - Scale
 - Date the plans were drawn
 - Topographical information
 - Natural features, including protected trees, indigenous vegetation, water courses
 - Archaeological and/or cultural/heritage sites
 - Record of Title boundaries/location of fence positions relative to boundaries
 - Accessways and road frontages, including proposed crossing places/right of ways
 - Onsite manoeuvring and existing and proposed car parking spaces
 - Legal and physical roads
 - Existing buildings
 - Existing wells and/or effluent disposal systems
 - Buildings on adjacent sites
 - Layout and location of proposed buildings and activities in relation to legal site boundaries
 - Earthworks design and contours/areas of excavation
 - Landscaping
 - Site coverage calculation
 - Details of any signage (sign design, dimensions and location on buildings)
 - Areas subject to hazards e.g. unstable slopes, areas of flooding, peat soils or fill
 - Areas of potential or confirmed contamination
- Elevation plans
Please provide at an appropriate scale (for example 1:50, 1:100 or 1:200) and show all structures to be constructed or altered, showing the relationship and appearance of proposed buildings.
- Floor plans of proposed building or buildings to be used for the activity
Please clearly show the use of each area/buildings
- Engineering design plans for any water, wastewater and stormwater works
(Only concept engineering plans are required at this stage.)
- An assessment of the activity against any relevant provisions of a:
 - National Environmental Standard
 - National Policy Statement
 - Regional Policy Statement
 - Regional Plan

- A description of any part of the activity that is permitted under the district plan
- If a permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates it complies with the relevant requirements and conditions for that permitted activity (so that resource consent not required for that activity).
- An assessment of effects (AEE) of the activity

An AEE is an essential part of your application. If an AEE is not provided Council is unlikely to accept your application. The AEE should discuss all the actual and potential effects of your proposed activity on the environment. Schedule 4 of the RMA outlines all of the matters that must be addressed in your AEE. The amount of detail provided must reflect the scale and significance of the effects that the activity may have on the environment. For example, if there are major effects arising from the proposal, a detailed analysis and discussion of these effects must be included in the AEE. It may require the provision of information from specific experts (eg a traffic engineer). If the effects of the proposal are minor, then a less detailed AEE can be submitted. *(The Council has information available to assist you to prepare the AEE – please contact us if you have any questions.)*

All applications for subdivision consent must also include the following information:

- The position of all new boundaries
- A north arrow and the scale (1:2000)
- All proposed and existing easements (including private easements)
- Any amalgamations
- Stages (if proposed)
- Dimensions and sizes of existing and proposed new lots
- Legal and physical roads, accessways and rights of way including grades (if applicable)
- All existing buildings and structures, their distance to existing and proposed boundaries and the position of any eaves in relation to rights of way/accessways
- The areas of all new allotments, unless the subdivision involves a cross lease, company lease, or unit plan
- The locations and areas of new reserves to be created, including any esplanade reserves and esplanade strips
- The locations and areas of any existing esplanade reserves, esplanade strips, and access strips
- The locations and areas of any part of the bed of a river or lake to be vested in a territorial authority under section 237A
- The locations and areas of any land within the coastal marine area (which is to become part of the common marine and coastal area under section 237A)
- The locations and areas of land to be set aside as new roads

Other useful information

The following examples of information are not compulsory, but they will be useful in helping Council make an informed decision about your application. Submitting this information *if it is relevant to your proposal* may save time and costs further down the track.

- Locality plan or aerial photo

Please provide at an appropriate scale (for example 1:500). Please indicate the location of the site in relation to roads and other landmarks. Show the street number of the subject site and those of adjoining sites.
- Volume of any earthworks

This must include area and volume of soil removed/imported and depth of cut/fill

- Details of Hazardous Activities and Industries (HAIL) List activity
If you are unsure whether your site is on the HAIL list please contact Council for assistance
- Any written approvals including details of those sought but not obtained
Please include any signed written approval forms and signed plans if acquired.
- Specialist reports to support your application
This may include traffic impact studies, landscape and planting plans, acoustic design certificates etc.
- Details and outcome of any consultation undertaken with adjacent land owners and occupiers, and relevant bodies. For example, the Regional Council, Heritage New Zealand Pouhere Taonga, Transpower, KiwiRail, NZTA, Department of Conservation etc.
- Details of any consultation undertaken with iwi
If you are unsure whether your proposal may affect matters of interest to iwi, or who the relevant iwi groups might be, please discuss this with Council prior to lodging your application
- Any other information arising from specific district plan provisions

Other information to include in an application for subdivision consent if it is relevant to your proposal

Proposal details

- Site coverage calculations
- Existing and proposed crossing places and sight distances and separation distances between crossing places
- Building platforms for all allotments including shape factors
- Onsite manoeuvring and existing and proposed vehicle parking spaces (where required)

Network utility operations

- Existing high voltage electricity lines and gas lines
- Location of existing and proposed service connections (including connections to reticulated services) and/or systems ie water, wastewater, stormwater and any easements
- Onsite effluent treatment and disposal areas and fields

Natural features

- Significant trees, bush stands, protected trees (including their extent of their dripline), covenanted areas or other features
- Water bodies

Heritage

- Archaeological and/or cultural heritage sites

Hazards

- Areas of likely or confirmed contamination

- Areas subject to land hazards e.g. unstoppable slopes, areas of flooding, peat soils, fill
- Details of proposed stormwater management appropriate to the scale and nature of the subdivision
- Pipework and onsite stormwater systems
- Open drains (including ownership)
- Effect of subdivision and end use on existing overland flow paths
- Contours showing existing and finished ground level (levels to the relevant datum) at 0.5m intervals within the subdivision, and at 2 metre intervals on adjoining properties (to enable effects on those properties to be assessed). A separate plan may be needed to show these details.
- Areas of proposed or existing fill or excavation
- Any proposed retaining walls or embankments (note if retaining wall over 1m is proposed, a typical cross section is required.)
- In urban areas, details of the percentage of proposed and existing impermeable and permeable areas
- Natural hazards, e.g. unstable slopes, areas of flooding, ponding, peat soils
- Elevations (to scale) of buildings which are affected by the location of new boundaries (e.g. where height in relation to boundary rules apply)



APPENDIX B

Records of Title



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy**




R.W. Muir
Registrar-General
of Land

Identifier 260488
Land Registration District South Auckland
Date Issued 29 June 2006

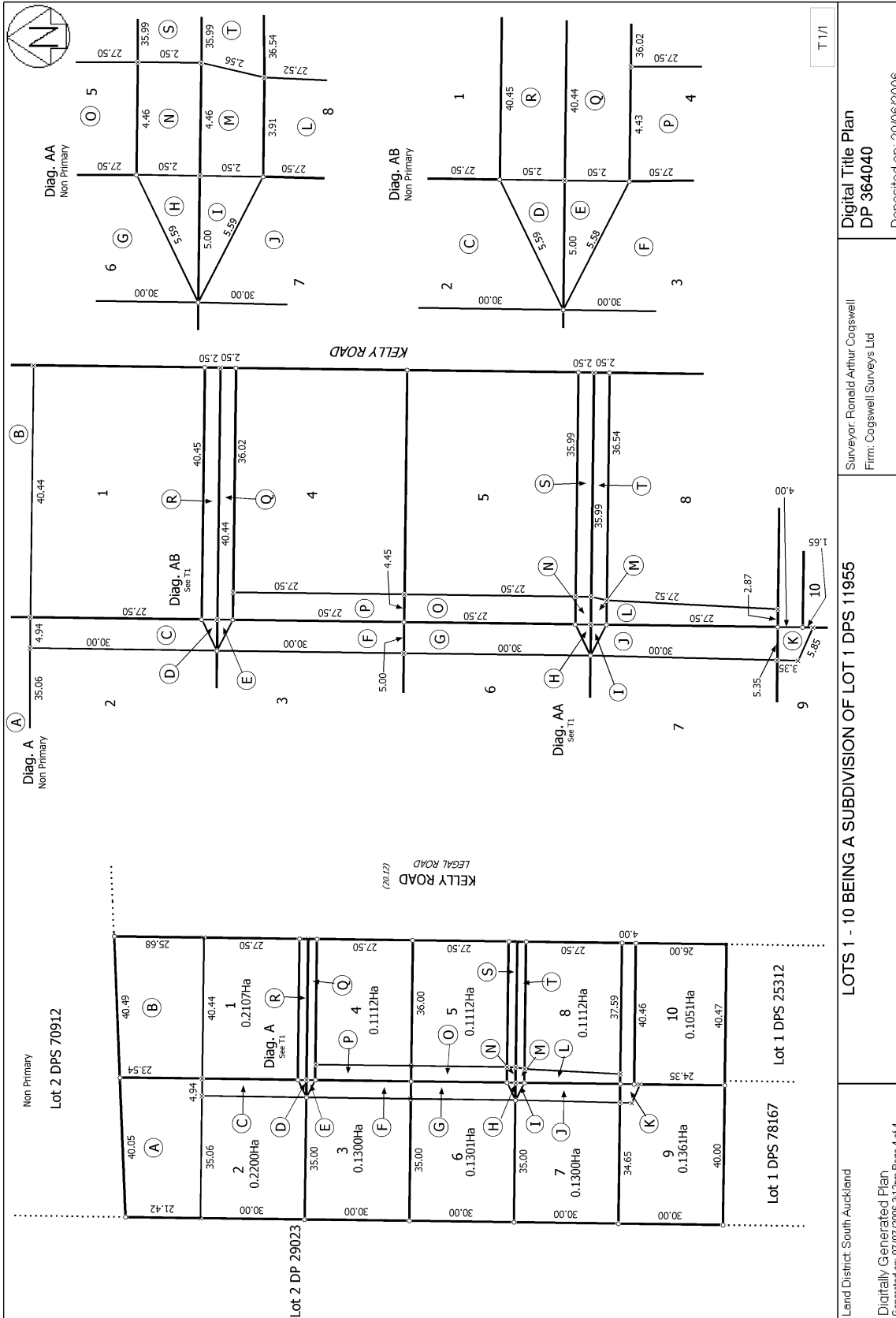
Prior References
SA14A/252

Estate Fee Simple
Area 2107 square metres more or less
Legal Description Lot 1 Deposited Plan 364040

Registered Owners
3MS of Cambridge Limited Partnership

Interests

6927453.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 29.6.2006 at 9:00 am
Subject to a stormwater easement over the part marked B on DP 364040 created by Easement Instrument 6927453.5 - 29.6.2006 at 9:00 am
Appurtenant hereto is a stormwater easement created by Easement Instrument 6927453.5 - 29.6.2006 at 9:00 am
The easements created by Easement Instrument 6927453.5 are subject to Section 243 (a) Resource Management Act 1991
Land Covenant in Easement Instrument 6927453.6 - 29.6.2006 at 9:00 am



Land District: South Auckland
 Digitally Generated Plan
 Generated on: 07/07/2006 3:12pm Page 4 of 4

LOTS 1 - 10 BEING A SUBDIVISION OF LOT 1 DPS 11955
 Surveyor: Ronald Arthur Cogswell
 Firm: Cogswell Surveys Ltd

Digital Title Plan
 DP 364040
 Deposited on: 29/06/2006
 T 1/1



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy**




R.W. Muir
Registrar-General
of Land

Identifier 260489
Land Registration District South Auckland
Date Issued 29 June 2006

Prior References
SA14A/252

Estate Fee Simple
Area 2200 square metres more or less
Legal Description Lot 2 Deposited Plan 364040
Registered Owners
3MS of Cambridge Limited Partnership

Interests

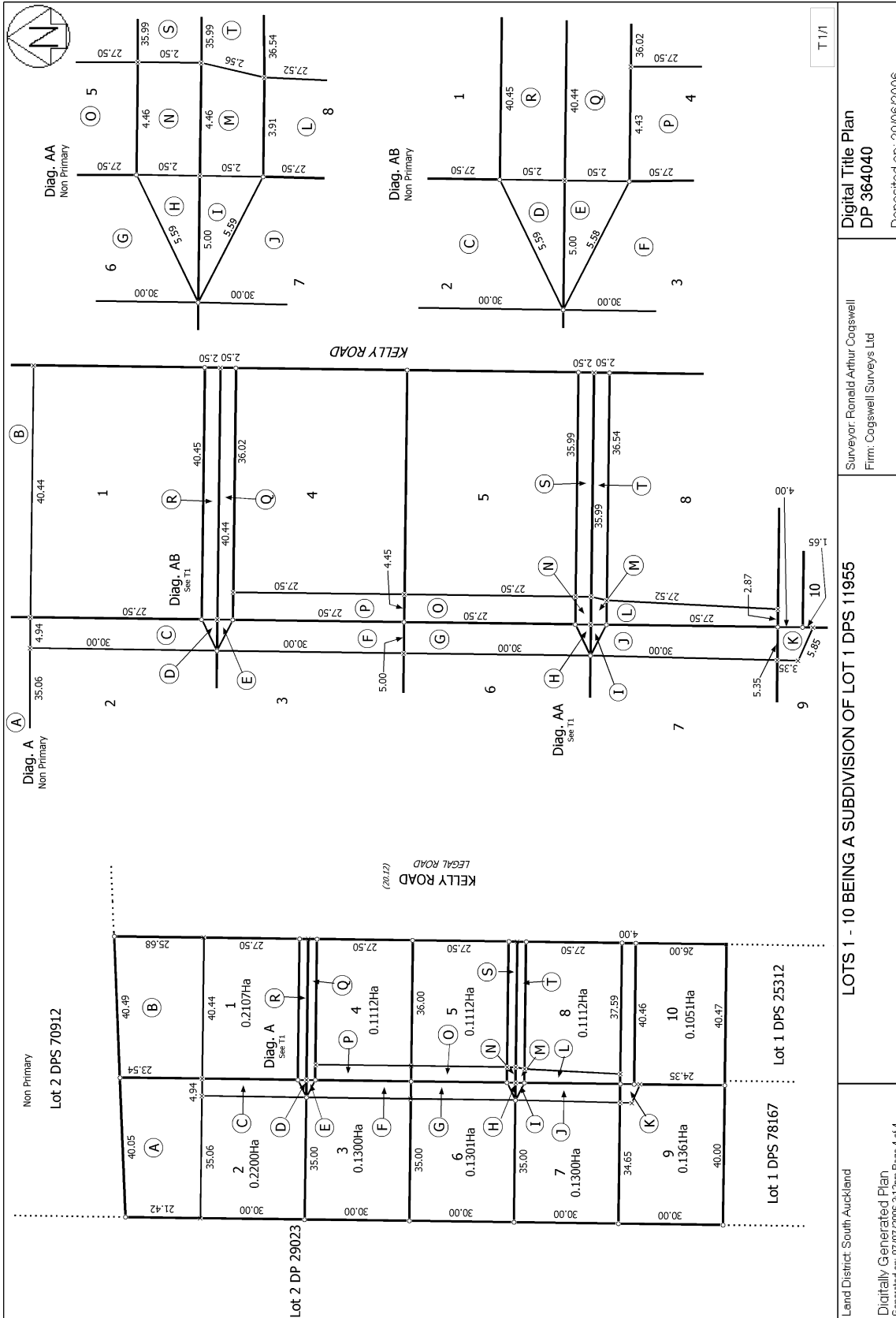
6927453.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 29.6.2006 at 9:00 am

Subject to a right (in gross) to drain sewage over the part marked R and a right to drain stormwater over the parts marked C & D, all marked on DP 364040 and in favour of Waipa District Council created by Easement Instrument 6927453.4 - 29.6.2006 at 9:00 am

The easements created by Easement Instrument 6927453.4 are subject to Section 243 (a) Resource Management Act 1991 Subject to a right of way, a water supply and an electricity, natural gas and telecommunications easements over the parts marked D & R and a stormwater easement over the part marked A, all marked on DP 364040 and created by Easement Instrument 6927453.5 - 29.6.2006 at 9:00 am

Appurtenant hereto is a right of way, a water supply and an electricity, natural gas, stormwater and telecommunications easements created by Easement Instrument 6927453.5 - 29.6.2006 at 9:00 am

The easements created by Easement Instrument 6927453.5 are subject to Section 243 (a) Resource Management Act 1991 Land Covenant in Easement Instrument 6927453.6 - 29.6.2006 at 9:00 am



Land District: South Auckland
Digitally Generated Plan
Generated on: 07/07/2006 3:12pm Page 4 of 4

LOTS 1 - 10 BEING A SUBDIVISION OF LOT 1 DPS 11955
Surveyor: Ronald Arthur Cogswell
Firm: Cogswell Surveys Ltd

Digital Title Plan
DP 364040
Deposited on: 29/06/2006
T 1/1



APPENDIX C

Site Suitability Report

SITE SUITABILITY REPORT

32 Kelly Road
Cambridge
P22472

Client: Langsford and Ogle

Date: 09/08/2023

Prepared by: CC

Email: James@probase.co.nz

REPORT SUMMARY



Probase Engineering was engaged by Langsford and Ogle to carry out a site suitability investigation at 32 Kelly Road, Cambridge.

This report is intended for resource consent purposes. Further investigation may be required for building consent purposes.

Report Prepared for: **Langsford and Ogle**

Note: The information contained in this document is solely for the use of the Client identified above for the purpose for which it has been prepared and the Author undertakes no duty to or accepts any responsibility to any third party who may rely upon this document.

Revision:	Date:	Details:	Prepared by:	Reviewed by:
0	07/06/2022	Final	CC	James Harper
1	31/07/2023	SW Update	ND	JH
2	09/08/2023	SW Update	ND	JH

Quality Assurance Statement		
Task	Responsibility	Signature
Testing and Report by:	Chris Choi BEngTech (Civil)	
Reviewed and Approval by:	James Harper Managing Director NZDE, BEngTech, CMEngNZ	

James Harper is a Chartered Member of Engineering New Zealand and a Registered Producer Statement Author for the Waikato Building Consent Group with 20 years' experience in the New Zealand development and building industry. Specializing in Geotechnical, Wastewater and Stormwater Systems: Registration #535.

SUMMARY

Probable Engineering Investigations confirm that the subject site is suitable for development

The following provides a summary of recommendations for the proposed subdivision at 32 Kelly Road, Cambridge.

Liquefaction Assessment

Lot Number	Liquefaction Vulnerability	Foundation Design Specification level
Lots 1 to 4	Moderate	TC2 (Preliminary recommendation)

- Refer to section 2.7 *Liquefaction Assessment* for more detail.

Slope Stability Assessment

Lot Number	Recommendations for slope stability
Lots 1 to 4	The sites are near level – No further action deemed necessary.

Foundations:

Lot Number	Foundation Recommendations
Lots 1 to 4	Specific Engineering Design (SED) TC2 type foundation: As prescribed in Section 5.3.1, options 1 – 4 from the 'Canterbury Guidance Part A: Technical Guidance (TC1 and TC2), documents authored by Ministry of Business and Innovation (MBIE).

- As per the Waipa District Council Flood Maps. Kelly Road sits within a flood hazard zone. Therefore, all new FFLs need to be designed to consider a minimum freeboard of 500mm.
- A temporary catchment pond sits within the building platforms designated for Lots 2 and 3, which is to be removed/ excavated and replaced by approved compacted fill material. Fill must be placed in accordance with NZS 4431:1989. Any fill placed of a height greater than 1000mm is recommended to be carried out under the supervision of a suitably qualified engineer.
- Location of the Council Stormwater pipes that are running through the lots will need to be confirmed prior to building consent.
- **Results are based off the information available at the time of testing. It is recommended that further testing and consideration be made at time of building consent.**

Waters:

- Stormwater for the proposed new lots will be managed via 2,000L (minimum) reuse tanks.
- Site connections will be required for each lot.

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1 ENGAGEMENT

Probase Engineering was engaged by Langsford and Ogle to carry out a site suitability investigation in support of a resource consent at 32 Kelly Road, Cambridge. It is proposed to subdivide the existing property for residential development. Testing pertaining to this report as shown in Appendix A on the 'Test Location Plan'.

No previous geotechnical reports were available to Probase Engineering at the time of this report.

2 SOILS INVESTIGATION

2.1. Geological Description

The subject site is mapped as Hinuera Formation

Which can be described as Cross-bedded pumice sand, silt and gravel with interbedded peat.

2.2. Ground Conditions

Testing to determine ultimate bearing capacity of soils was carried out on the 2nd of June 2022 in accordance with NZS 3604:2011; the non-specific design standard for Timber Framed Buildings.

Investigations were carried out at Seven test positions. This is outlined in Appendix A 'Test Location Plan'.

Testing comprised of:

- 7 x Machine augers between 2000mm - 4300m below EGL.
- 7 x Dynamic Cone Penetrometer tests.
- A visual inspection and walk over of the site.

Ground conditions and soil characteristics are outlined in Appendix B 'Soil Logs'.

2.3. Groundwater Conditions

Groundwater was encountered between depths of between **1900-3000mm** below existing GL within the site. The site was testing in the winter months therefore, groundwater is expected to rise approximately **350mm** in the winter months. Given the nature and topography of the site, it is unlikely that the water table would rise significantly to the extent that it would interfere with shallow foundations.

Due to the material encountered during investigations and high-water table, earthworks activity in wet weather/winter conditions is not recommended. Detrimental results of earthworks activity may be mitigated by completing earthworks during either fine weather or within the drier summer months.

Probable Engineering recommendations:

- Soils may begin to weave/become soft. Should this occur, any material that shows dilatant properties will need to be removed prior to backfilling.
- Contractors may place a rock blanket to provide a base working layer to remedy rising water table during excavations and wet or weaving ground if required. The fill will comprise imported GAP65 placed on approved subgrade, in layers not exceeding 150mm (uncompacted thickness) in accordance with NZ4431:1989.

Table 4-20: Groundwater Seasonal Adjustments

Time of Testing	Adjustment to site observation - assume groundwater raises
Dec-March	1.0m higher than found during inspection
April-May, November	0.65m higher than found during inspection
June, October	0.35m higher than found during inspection

2.4. Achievement of 'Good Ground'

NZS 3604:2011 requirements for the achievement of 'Good Ground'.

- 5 DCP blows/100mm down to a depth of twice the width of the footing
- 3 blows/ 100mm at greater depths to establish good ground in terms of bearing capacity of soils.

Test results indicate near surface soils have bearing capacities less than 100 kPa (300 kPa ultimate bearing capacity). **Note:** Ground remedial work (Excavation of unsuitable material and replacement with compacted pit sand or approved alternative granular material) will make the ground conditions NZS3604:2011 compliant for bearing capacity.

2.5. Slope Stability

A slope stability study has been conducted through a site investigation and desktop analysis for the proposed building sites and the following has been identified:

Table 2.7.1: Topography and significant features.

Lot Number	Recommendations for slope stability
Lots 1 to 4	The building platforms designated for lots 1 to 4 are near level.

Probable Engineering Further Recommendations

- Any fill required to create a level building platform will need to be designed and/or supervised by a suitably qualified engineer at the time of building consent.
- All stormwater from proposed hardstand areas should be collected and directed to an appropriate discharge location away from slopes and foundations to mitigate instability caused by surface and groundwater.

2.6. Seismic Hazard Assessment

2.6.1. Seismic Hazard Parameters

A desktop (Level B) Seismic Hazard Assessment has been conducted in accordance with the relevant guidance documents¹.

Design peak ground acceleration for the 1 in 500-year average recurrence interval earthquake event ultimate limit state (ULS) has been calculated using values from *Table A1: Appendix A, Module 1 Earthquake Geotechnical Engineering Practice Document* and adjusted for a 7.5 magnitude earthquake using the Magnitude scaling factor by *Idriss and Boulanger 2008* ($MSF=6.9exp(-M/4)-0.058$).

Table 2.9.1: Peak Ground Acceleration

25-YEAR Return Period (Cambridge)		500-YEAR Return Period (Cambridge)		500-YEAR Return Period (Cambridge) Adjusted*	
$a_{max}^{(g)}$ (m/s ²)	Magnitude (M)	$a_{max}^{(g)}$ (m/s ²)	Magnitude (M)	$a_{max}^{(g)}$ (m/s ²)	Magnitude (M)
0.07	5.9	0.28	5.9	0.18	7.5*

The adjusted PGA for the site is **0.18g** which is **below** the recommended 0.30g in accordance with table 4.3 of the guidance documents¹.

2.6.2. Site Subsoil Classification

The Seismic subsoil class in accordance with NZS 1170.5:2004 (Section 3.1.3) for the study area is '**Class D – Deep or Soft Soil Sites**' due to the large depth to bedrock.

2.6.3. Design Life and Importance level.

Design life and importance have been assessed in accordance with AS/NZS 1170. Design life of 50 years has been adopted for the assessment for most development. Importance Level 2 was adopted for this residential development

-
- ¹ Planning and engineering guidance for potentially liquefaction prone land' authored by the Ministry for the Environment and Ministry of Business, Innovation and Employment, Rev 0.1, dated September 2017
 - Subsoil Class D – Deep or Soft Soil (NZS 1170.5:2004), importance level 2, 50-year design life NZTA Bridge Manual 2018.
 - Earthquake Geotechnical Engineering Practice Documents modules 1-6 authored by MBIE New Zealand Geotechnical Society (NZGS). Dated November 2021
 - 'Hamilton City Council, Liquefaction Desktop Study' authored by Tonkin & Taylor dated February 2019 – Job No. 1007144.v1.1
 - Development of a Waikato Basin T0 and depth model by the H/V spectral ratio method (S. Jeong and L.M. Wotherspoon) paper 301 2019 Pacific Conference on Earthquake Engineering and Annual NZSEE Conference

2.7. Liquefaction Assessment

A calibrated desktop (Level B) liquefaction assessment has been conducted in accordance with the relevant guidance documents². Boreholes to a maximum depth of **4300mm** were undertaken during investigations.

The following factors were employed in the determination of liquefaction risk.

- Material characteristics that are/are not likely to liquefy in a seismic event in accordance with Table 4.3 of the guidance documents:
- PGA (peak ground acceleration) less than:
 - Late Pleistocene age – 0.3g
 - Holocene age – 0.2g
- Allowable depth to groundwater for granular soils:
 - Late Pleistocene age - 4000mm below GL.
 - Holocene age - 6000mm below GL

Table 2.10.1: Liquefaction Assessment

Lot Number	Soil Type/Age	Granular/Cohesive (Likely/Unlikely to Liquefy)	Density Of Soil	Depth to Groundwater
Lots 1 to 4	Hinuera Formation Late Pleistocene (0.012-0.027 million years)	Granular -Likely to liquefy	Medium dense	1800mm

Based on the above assessment, given the age and lithology and location of the sites, the table below provides liquefaction classifications for the proposed lots.

Table 2.10.3: Liquefaction Design Vulnerability and Design Specifications

Lot Number	Liquefaction Vulnerability	Foundation Design Specification level
Lots 1 to 4	Moderate Vulnerability	TC2 (Prelim following further investigations)

Based on the referenced guidance documents² and above site-specific assessment, Probase Engineering classifies the site as having a '**Moderate Liquefaction Vulnerability**'. Therefore, SED foundations are required and need to consider liquefaction in their design.

-
- ² Planning and engineering guidance for potentially liquefaction prone land' authored by the Ministry for the Environment and Ministry of Business, Innovation and Employment, Rev 0.1, dated September 2017
 - Subsoil Class D – Deep or Soft Soil (NZS 1170.5:2004), importance level 2, 50-year design life NZTA Bridge Manual 2018.
 - Earthquake Geotechnical Engineering Practice Documents modules 1-6 authored by MBIE New Zealand Geotechnical Society (NZGS). Dated November 2021
 - Hamilton City Council, Liquefaction Desktop Study' authored by Tonkin & Taylor dated February 2019 – Job No. 1007144.v1.1

2.8. Building Foundation Recommendations

A preliminary assessment of the soils logs has deemed the following foundation options suitable:

Lot Number	Foundation Recommendations
Lots 1 to 4	Specific Engineering Design (SED) TC2 type foundation: As prescribed in Section 5.3.1, options 1 – 4 from the 'Canterbury Guidance Part A: Technical Guidance (TC1 and TC2), documents authored by Ministry of Business and Innovation (MBIE).

Results are based on the information available at the time of testing. Other foundation options may be considered at the time of building consent.

3 THREE WATERS MANAGEMENT

3.1. Stormwater Requirements for Proposed Development

Stormwater for the proposed new lots will be managed via a minimum 2,000L rainwater reuse tanks. These tanks are for the purpose of recycling water within the primary dwelling. Overflows will be discharged to a site connection.

This requirement is part of the site specific "developers toolbox" which was required by the Waikato Regional Council to confirm compliance with AUTH141099.01.01.

3.1.1. Ground Water Levels

The ground water level at the time of testing was encountered at 1.8m below EGL. Ongoing wet weather may waterlog the ground and future development near the site may affect the ground water levels such that the water table differs from this assumption. Probase have taken all care to calculate soakage rates in accordance with the building code and current council standards, however no liability is accepted for extreme weather (outside of the design event) or changes in ground water table

3.1.2. Flooding

The sections of the proposed Lots 2 and 3 sit in a flood zone, and Lots 1 and 4 are not located within a flood zone, but Kelly Road does as per the Waipa District Council Flood Maps. It should be noted that the finished floor level will need to sit 500mm above this flooding level. It is recommended to lift the site up rather than cutting however due to limited information on the location of the house and proposed earthworks this will need to be assessed at building consent stage.

3.2. Wastewater Management

There is an existing 150mm uPVC wastewater main running in the road reserve of Kelly Road with two existing service connections to the development. These will be utilised for two of the lots, with two more 100mm connections to be installed to service the remaining lots.

3.3. Water Management

There is an existing 63mm rider main in the road reserve of Kelly Road with one existing service connection. The new lots will connect directly to the rider main in Kelly Road.

4 LIMITATIONS

Recommendations given in this report are based on site data retrieved from the bore holes from discreet locations, soil exposures, Scala Penetrometer results and other test results. Inferences about subsurface soils away from the test locations at the site can be made but cannot be guaranteed. Variations in ground conditions from those described in this report could exist across the site and that ground conditions can vary with seasonal changes. Allowances for construction should be made for these conditions.

This report has been prepared specifically for our client based on their particular project brief and no responsibility is accepted for the use of any part of this report by others or for any other purpose. It contains my professional opinion regarding foundation stability based on the data retrieved from the specific tests and boreholes completed and is not to be construed as a guarantee that the whole site is suitable for the foundations originally proposed.

Contamination risks are not covered and outside the scope of this report.

5 APPENDICIES

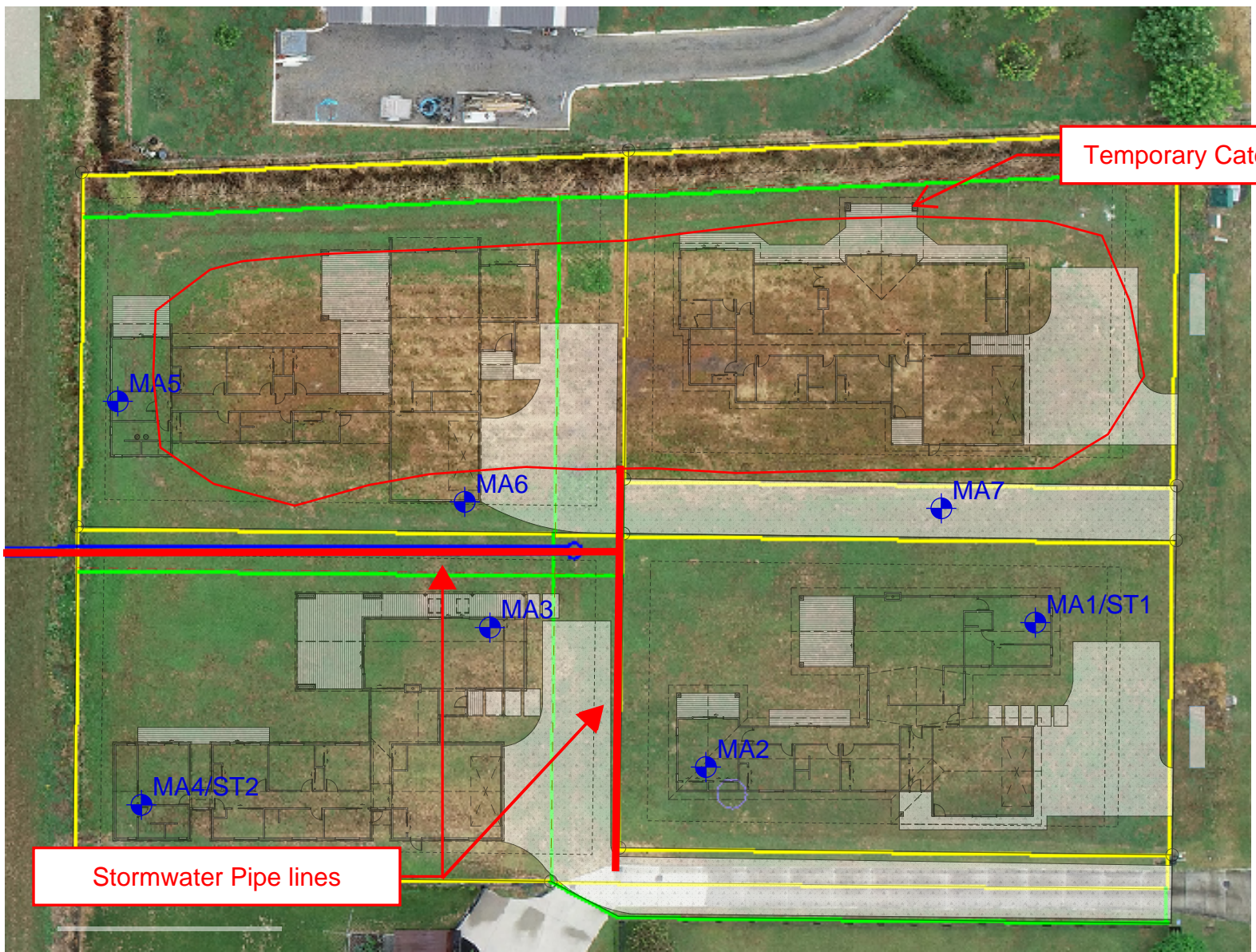
- Appendix A – Test Location Plan
- Appendix B – Soil Logs
- Appendix C – Natural Hazard Risk Assessment
- Appendix D - Soakage Results



APPENDIX A

Test Location Plan








Temporary Catchment Pond

Stormwater Pipe lines

LEGEND

-  HA Hand Auger
-  MA Machine Auger
-  DCP Dynamic Cone Penetrometer



Project Title: 32 Kelly Road, Cambridge

Figure Title: Test Location Plan

Author: JM

Date: 02/06/2022

Job No: P22472

Figure: 1



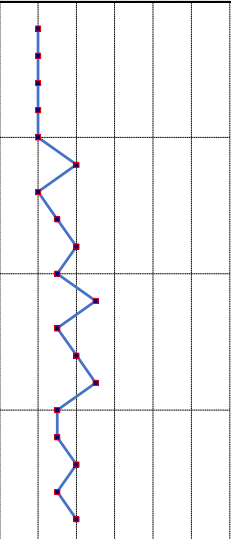
APPENDIX B

Soil Logs



PROJECT: Soils Investigation	JOB No. P22472
CLIENT: Langsford and Ogle	DATE: 6/2/2022
LOCATION: 32 Kelly Road, Cambridge	TESTED BY: JM, CC
NOTES: Refer to attached Site Plan for testing locations	SHEAR VANE ID: 2688

BOREHOLE ID: DCP/MA01/ST

Depth (m)	No of Blows ¹	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10	SOIL DESCRIPTION ²	Depth (m)	UNDRAINED SHEAR ³ (kPa)	Geologic Unit ⁴	Ground Water	
0.5	2		TOPSOIL; dark brown. Moist			TS	Groundwater Encountered from 1.9m below EGL (perched)	
	2							
	2							
	2							
	4			SILT, some clay, minor sand; light grey/light brown. Loose to medium dense. Moist; sand, fine to medium	0.5			
	2							
	3			SAND, minor silt; light brown. Loose to medium dense. Moist; sand, fine to medium				
	4							
1.0	3			[INTERBEDDED] SILTs and SANDs; light grey. Medium dense. Moist, grading to wet; sand, very fine to fine	1.0			Hinuera Formation
	5							
	3							
	4							
1.5	5				1.5			
	3							
	4							
	3							
	4							
2.0	3		becomes saturated	2.0				
	4							
	3							
	4							
			End of borehole at 2.0m - Target depth.					
2.5				2.5				
3.0				3.0				
3.5				3.5				
4.0				4.0				
4.5				4.5				

Notes:

Reference:

1 = Results obtained in accordance with NZS4402, Test 6.5.2:1988

2 = Refer NZGS Field Description of Soil and Rock Dec 2005 for further information

3 = Refer to Guideline for Hand Held Shear Vane Test; NZGS August 2001

Probase Engineering Limited - PO Box 20 492 - Hamilton - 07 850 4093

PROJECT: Soils Investigation	JOB No. P22472
CLIENT: Langsford and Ogle	DATE: 6/2/2022
LOCATION: 32 Kelly Road, Cambridge	TESTED BY : JM, CC
NOTES: Refer to attached Site Plan for testing locations	SHEAR VANE ID: 2688

BOREHOLE ID: DCP/MA02

Depth (m)	No of Blows	Scala Penetrometer (Blows / 100mm)					SOIL DESCRIPTION ²	Depth (m)	UNDRAINED SHEAR ³ (kPa)	Geologic Unit ⁴	Ground Water
		2	4	6	8	10					
0.5	1						TOPSOIL; dark brown. Moist	0.5		TS	Groundwater Encountered from 2.0m below EGL (perched)
	3						SILT, some clay, minor sand; light grey/light brown mottle. Loose to medium dense. Moist; sand, fine to coarse				
	2										
1.0	6						SAND, minor silt; light brown. Medium dense. Moist; sand, fine to medium	1.0			
	3										
	2										
	4										
1.5	4						[INTERBEDDED] SILTs and SANDs; light grey. Medium dense. Moist, grading to wet; sand, very fine to fine	1.5			
	5										
	3										
	4										
2.0	4						becomes pumiceous fine to coarse sand becomes saturated 200mm SILT lenses	2.0			
	5										
	3										
	5										
2.5							pumiceous SAND, minor silt; light grey, grading to grey. Moist to wet; sand, fine to coarse	2.5			
3.0							becomes saturated	3.0			
3.5											
4.0							sandy SILT; light brown. Moist; sand, very fine 50mm layer of traces of wood fragments				
4.5							End of borehole at 4.3m - Target depth.	4.5			

Notes:

Reference:

- 1 = Results obtained in accordance with NZS4402, Test 6.5.2:1988
- 2 = Refer NZGS Field Description of Soil and Rock Dec 2005 for further information
- 3 = Refer to Guideline for Hand Held Shear Vane Test; NZGS August 2001

PROJECT: Soils Investigation	JOB No. P22472
CLIENT: Langsford and Ogle	DATE: 6/2/2022
LOCATION: 32 Kelly Road, Cambridge	TESTED BY: JM, CC
NOTES: Refer to attached Site Plan for testing locations	SHEAR VANE ID: 2688

BOREHOLE ID: DCP/MA03

Depth (m)	No of Blows	Scala Penetrometer (Blows / 100mm)					SOIL DESCRIPTION ²	Depth (m)	UNDRAINED SHEAR ³ (kPa)	Geologic Unit ⁴	Ground Water
		2	4	6	8	10					
0.5	1						TOPSOIL; dark brown. Moist			TS	
	2										
	2										
	2										
1.0	4						SILT, some clay, minor sand, traces of fine gravel; brown. Very loose to medium dense. Moist; sand, fine to medium	0.5			
	2										
	1										
	2										
1.5	3						SAND, minor silt; light brown. Loose. Moist; sand, fine to medium				
	5										
	5										
	4										
2.0	3						[INTERBEDDED] SILTs and SANDs; light grey. Medium dense. Moist, grading to wet; sand, very fine to fine				
	7										
	6										
	4										
2.5	5						pumiceous SAND, minor silt; light grey. Wet to saturated; sand, fine to coarse				
	4										
	5										
	4										
3.0							becomes saturated				
3.5							200mm SILT lense with wood fragments				
4.0							[INTERBEDDED] SILTs and SANDs; light grey. Moist to wet; sand, very fine to fine				
4.5							End of borehole at 4.2m - Target depth.				

Notes:

Reference:

- 1 = Results obtained in accordance with NZS4402, Test 6.5.2:1988
- 2 = Refer NZGS Field Description of Soil and Rock Dec 2005 for further information
- 3 = Refer to Guideline for Hand Held Shear Vane Test; NZGS August 2001

PROJECT: Soils Investigation	JOB No. P22472
CLIENT: Langsford and Ogle	DATE: 6/2/2022
LOCATION: 32 Kelly Road, Cambridge	TESTED BY: JM, CC
NOTES: Refer to attached Site Plan for testing locations	SHEAR VANE ID: 2688

BOREHOLE ID: DCP/MA04/ST

Depth (m)	No of Blows	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10	SOIL DESCRIPTION ²	Depth (m)	UNDRAINED SHEAR ³ (kPa)	Geologic Unit ⁴	Ground Water
	1		TOPSOIL; dark brown. Moist			TS	Groundwater Encountered from 1.9m below EGL
	1						
	2						
0.5	2		SILT, some clay, minor sand; brown. Loose to medium dense. Moist; sand, fine to medium	0.5			
	3						
	5						
	4						
1.0	4		SAND, minor silt; brown, grading to light brown. Medium dense. Moist; sand, fine to medium	1.0			
	5						
	5						
	4		[INTERBEDDED] SILTs and SANDs; light grey. Medium dense. Moist, grading to wet; sand, very fine to fine				
	4						
1.5	6			1.5			
	5						
	4						
	3						
2.0	3		becomes saturated	2.0			
	3						
			End of borehole at 2.0m - Target depth.				
2.5				2.5			
3.0				3.0			
3.5				3.5			
4.0				4.0			
4.5				4.5			

Notes:

Reference:

- 1 = Results obtained in accordance with NZS4402, Test 6.5.2:1988
- 2 = Refer NZGS Field Description of Soil and Rock Dec 2005 for further information
- 3 = Refer to Guideline for Hand Held Shear Vane Test; NZGS August 2001

PROJECT: Soils Investigation	JOB No. P22472
CLIENT: Langsford and Ogle	DATE: 6/2/2022
LOCATION: 32 Kelly Road, Cambridge	TESTED BY : JM, CC
NOTES: Refer to attached Site Plan for testing locations	SHEAR VANE ID: 2688

BOREHOLE ID: DCP/MA05

Depth (m)	No of Blows	Scala Penetrometer (Blows / 100mm)					SOIL DESCRIPTION ²	Depth (m)	UNDRAINED SHEAR ³ (kPa)	Geologic Unit ⁴	Ground Water
		2	4	6	8	10					
0.5	2						TOPSOIL; dark brown. Moist	0.5		TS	Groundwater Encountered from 2.1m below EGL
	2						SILT, some clay, minor sand; orange brown/light grey. Loose to medium dense. Moist; sand, fine to medium				
	2										
	4										
1.0	3						SAND, minor silt; orange brown. Very loose to medium dense. Moist; sand, fine to medium	1.0			
	2										
	3										
	3										
1.5	1						[INTERBEDDED] SILTs and SANDs; light grey. Loose to medium dense. Wet; sand, very fine to fine	1.5			
	2										
	3										
	2										
2.0	4						pumiceous SAND, minor silt; light grey. Loose to dense. Wet; sand, fine to coarse	2.0			
	3										
	3										
	4										
2.5	2						becomes grey, saturated	2.5	Hinuera Formation		
	3										
	7										
	5										
3.0	4							3.0			
	6										
	8										
	6										
3.5	7						300mm organic SILT	3.5			
	4										
	6										
	5										
4.0	5						200mm clayey SILT with wood fragments	4.0			
	7										
	7										
	5										
4.5	5						SAND, minor silt; light brown. Moist; sand, very fine to fine	4.5			
	7										
	7										
	5										
						End of borehole at 4.2m - Target depth.					

Notes:

Reference:

- 1 = Results obtained in accordance with NZS4402, Test 6.5.2:1988
- 2 = Refer NZGS Field Description of Soil and Rock Dec 2005 for further information
- 3 = Refer to Guideline for Hand Held Shear Vane Test; NZGS August 2001

PROJECT: Soils Investigation	JOB No. P22472
CLIENT: Langsford and Ogle	DATE: 6/2/2022
LOCATION: 32 Kelly Road, Cambridge	TESTED BY : JM, CC
NOTES: Refer to attached Site Plan for testing locations	SHEAR VANE ID: 2688

BOREHOLE ID: DCP/MA06

Depth (m)	No of Blows	Scala Penetrometer (Blows / 100mm)					SOIL DESCRIPTION ²	Depth (m)	UNDRAINED SHEAR ³ (kPa)	Geologic Unit ⁴	Ground Water
		2	4	6	8	10					
0.5	1						TOPSOIL; dark brown. Moist			TS	Groundwater Encountered from 1.8m below EGL
	2										
	2										
	2										
	2										
1.0	1						SILT, some clay, minor sand; brown. Moist; sand, fine to medium			Hinuera Formation	
	0										
	1										
	2										
	1										
1.5	1						[INTERBEDDED] SILTS and SANDS; light grey. Very loose to medium dense. Moist, grading to wet; sand, very fine to fine			Hinuera Formation	
	1										
	2										
	3										
	2										
2.0	4						becomes saturated			Hinuera Formation	
	3										
	4										
	4										
	5										
2.0		End of borehole at 2.0m - Target depth.									
2.5											
3.0											
3.5											
4.0											
4.5											

Notes:

Reference:

- 1 = Results obtained in accordance with NZS4402, Test 6.5.2:1988
- 2 = Refer NZGS Field Description of Soil and Rock Dec 2005 for further information
- 3 = Refer to Guideline for Hand Held Shear Vane Test; NZGS August 2001

PROJECT: Soils Investigation	JOB No. P22472
CLIENT: Langsford and Ogle	DATE: 6/2/2022
LOCATION: 32 Kelly Road, Cambridge	TESTED BY: JM, CC
NOTES: Refer to attached Site Plan for testing locations	SHEAR VANE ID: 2688

BOREHOLE ID: DCP/MA07

Depth (m)	No of Blows ¹	Scala Penetrometer (Blows / 100mm)					SOIL DESCRIPTION ²	Depth (m)	UNDRAINED SHEAR ³ (kPa)	Geologic Unit ⁴	Ground Water
		2	4	6	8	10					
0.5	2						TOPSOIL; dark brown. Moist			TS	Groundwater Encountered from 2.0m below EGL
	1										
	2						SILT, some clay, minor sand; brown. Very loose to loose. Moist; sand, fine to medium				
	1										
	3						sandy SILT; brown. Loose to medium dense. Moist; sand, fine to medium				
	3										
	3										
	3						SAND, minor silt; brown. Medium dense. Wet; sand, fine to medium				
	4										
1.0	4										
	4						[INTERBEDDED] SILTs and SANDs; light grey. Very loose to medium dense. Moist to wet; sand, very fine to fine				
	4										
	3										
1.5	4										
	4										
	1										
	2										
	7										
2.0	9						pumiceous SAND, minor silt; grey. Loose to dense. Saturated; sand, fine to coarse				
	10										
	10										
	7										
	3										
2.5	4										
	3										
	2										
	4										
3.0	5										
3.5							SILT; dark brown/light grey. Wet				
4.0							clayey SILT, minor fine gravel, dark brown. Wet				
							[INTERBEDDED] SILTs and SANDs; light grey. Moist; sand, very fine to fine				
4.5							End of borehole at 4.3m - Target depth.				

Notes:

Reference:

- 1 = Results obtained in accordance with NZS4402, Test 6.5.2:1988
- 2 = Refer NZGS Field Description of Soil and Rock Dec 2005 for further information
- 3 = Refer to Guideline for Hand Held Shear Vane Test; NZGS August 2001



APPENDIX C

Natural Hazard Risk Assessment



Risk Assessment: Natural Hazards



Project Name: P22472 - 32 Kelly Road, Cambridge
 Completed By: CC

Date: 7th June 2022

Natural Hazard	Risk score			Mitigation Measures	Material Damage if Natural Hazard Occurred
	Likelihood	Consequence	Factor		
Earthquake	2	5	Moderate	All structures to be built in accordance with the Building Code and other relevant standards. As part of the geotechnical investigations at the site, a Level B liquefaction assessment in accordance with the MBIEs' "Planning and Engineering Guidance for Potentially Liquefaction-prone Land" has been completed - refer to report. Due to age of soils, groundwater and soil type there is a Moderate	Structural damage, earth movement.
Tsunami	1	5	Low	No mitigating actions possible. Site is above sea level and is not located in a Tsunami Hazard Area as per the Waikato Regional Hazard Maps.	Structural damage, earth movement.
Erosion	1	3	Low	No signs of erosion were present during site investigations.	Structural damage, earth movement.
Volcanic or geothermal activity	1	5	Low	Site is not in the vicinity of active volcanos or geothermal activity.	Structural damage, earth movement.
Landslip	1	4	Low	No immediate hazards in the vicinity.	Structural damage, earth movement.
Subsidence	1	4	Low	No human inducted activity (ie mining, water extraction) known in the immediate area to cause potential subsidence. No potential natural causes known as site is not near any known fault lines (active or inactive).	Structural damage, earth movement.
Sedimentation	1	1	Low	Sedimentation has the potential to flow from the property during construction. Sediment traps and bagging should be used to capture sediment during construction phases to mitigate potential sediment flowing to neighbouring properties.	Deposition of soils.
Wind	1	1	Low	Site is in a rural, open area. All structures (bracing) to be built in accordance with the Building Code and other relevant standards (AS/NZS 1170).	Structural damage.
Drought	1	3	Low	Soils show expansive properties.	Soil shrinkage.
Fire	1	4	Low	No immediate hazards in the vicinity.	Structural damage.
Flooding	2	4	Moderate	The sites sit within a Council defined flood hazard area.	Water damage to property and possessions.



APPENDIX D

Soakage Results

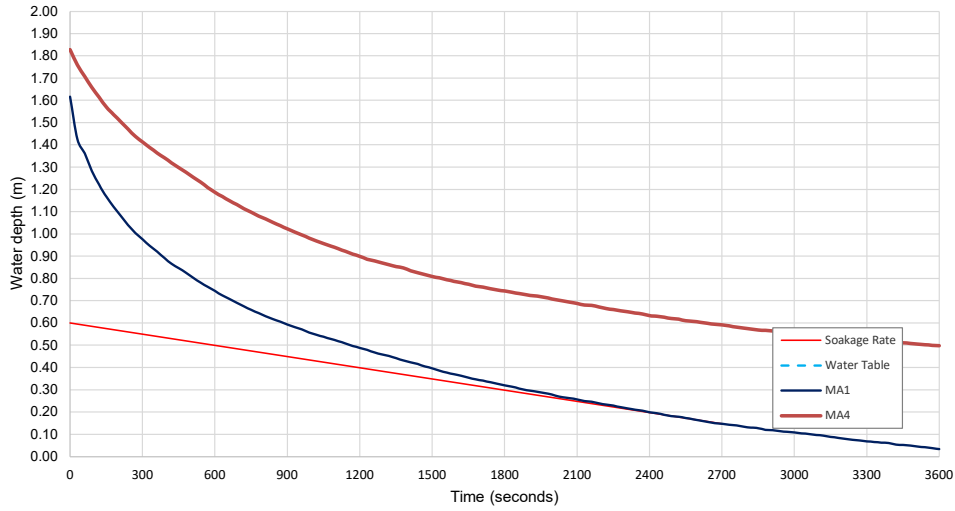


Stormwater Soakage Test Results - Using E1/VM1 - Clause 9.0.2

PROJECT:	PROPOSED DEVELOPMENT P22472 - 32 Kelly Road, Cambridge
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Perc Test Results

Test Position	MA1, MA4	Date =	02.06.2022
Bore Hole Dia =	100 mm	BH Depth =	2000 mm
Start WL =	0 mm	Ground water Depth =	N/A mm



Soakage Rate (MA1)

Soakage Rate (mm/hr)	=	604.0
Design Soakage Rate (Sr)	=	302.0 mm/hr



APPENDIX D

Proposed Scheme Plan



Memorandum of Easements			
Purpose	Shown	Burdened Land	Benefited Land
Right to Drain Stormwater	F	Lot 2	Lot 4
	D		Lots 3 & 1
	C	Lot 4	Lot 3
Right to Drain Wastewater	H	Lot 2	Lot 1

Memorandum of Easements in Gross			
Purpose	Shown	Burdened Land	Grantee
Right to Drain Stormwater	A & C	Lot 4	Waipa District Council
	B	Lot 3	
	D, E, F	Lot 2	

Schedule of Existing Easements in Gross			
Purpose	Shown	Burdened Land	Document
Right to Drain Sewage	H	Lot 2	6927453.4
Right to Drain Stormwater	G		

Schedule of Existing Easements			
Purpose	Shown	Burdened Land	Document
Right of Way	G & H	Lot 2	6927453.5
Right to Convey Electricity			
Right to Convey Telecommunications			
Right to Convey Natural Gas			
Right to Convey Water			

Schedule of Existing Appurtenant Easements			
Purpose	Shown	Burdened Land	Document
Right of Way	I & J	Lot 3 DP 364040	6927453.5
Right to Convey Electricity			
Right to Convey Telecommunications			
Right to Convey Natural Gas			
Right to Convey Water			

- Easements to be Partially Surrendered**
- Area marked A on Lot 2 DP 364040 created by Easement Instrument 6927453.5 (Stormwater), Appurtenant to Lot 1 DP 364040 & Lots 3 - 10 DP 364040 RTs 260488 & 260490-260497
 - Area marked B on Lot 1 DP 364040 created by Easement Instrument 6927453.5 (Stormwater), Appurtenant to Lots 2 - 10 DP 364040 RTs 260489-260497
 - Areas marked E & Q on Lot 3 DP 364040 (I & J on Scheme Plan) created Easement Instrument 6927453.5 (right of way, water supply, electricity, natural gas, stormwater, telecommunications) Appurtenant to Part Lot 4 hereon
 - Area marked C on Lot 2 DP 364040 created Easement Instrument 6927453.4 (Stormwater) in favour of Waipa District Council

5 MILICICH PLACE, CAMBRIDGE
P: (07)8275071 E: office@cogswell.co.nz
www.cogswell.co.nz

PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 364040 32 & 32A KELLY ROAD

PREPARED FOR: 3MS of Cambridge GP Limited

SCALE: 1:300	ORIGINAL PLAN SIZE: A3 SHEET: 1 of 1	DRAWN: NS DESIGNED: PVM CHECKED: PVM
DATE: 19/06/23	NOTE: BOUNDARIES AND DIMENSIONS AND AREAS ARE APPROXIMATE AND SUBJECT TO ALTERATION BY APPROVAL OR SURVEY. LEVELS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953. ORIGIN OF LEVELS - BEVV (Kelly Road) RL 63.973	
REV: C	THIS DRAWING OR DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED, WITHOUT THE WRITTEN PERMISSION OF COGSWELL SURVEYS LTD	

PLOT FILE: 5007.SP-01.PLOTTED: Mon Jun 19 09:27:35 2023



APPENDIX E

**Development Engineering
Assessment**

3rd August 2023

32 & 32A Kelly Road Development: Engineering Assessment

3MS of Cambridge Ltd
694 Grassland Drive,
Cambridge 3493
NEW ZEALAND

Attention: Matt Smith

Dear Matt,

The following is an engineering assessment of the subdivision of 32 and 32A Kelly Road outlining the servicing strategy for this new development. The following is a summary of the proposed engineering solutions along with detailed engineering drawings for approval by Waipa District Council.

Background

3MS of Cambridge (3MS) have proposed a new subdivision to develop their current land holdings at 32 and 32A Kelly Road. The two sites are currently vacant residential properties which contain significant easements to accommodate an existing privately owned stormwater soakage basin on the northern half of both lots (refer to Figure 1 below).

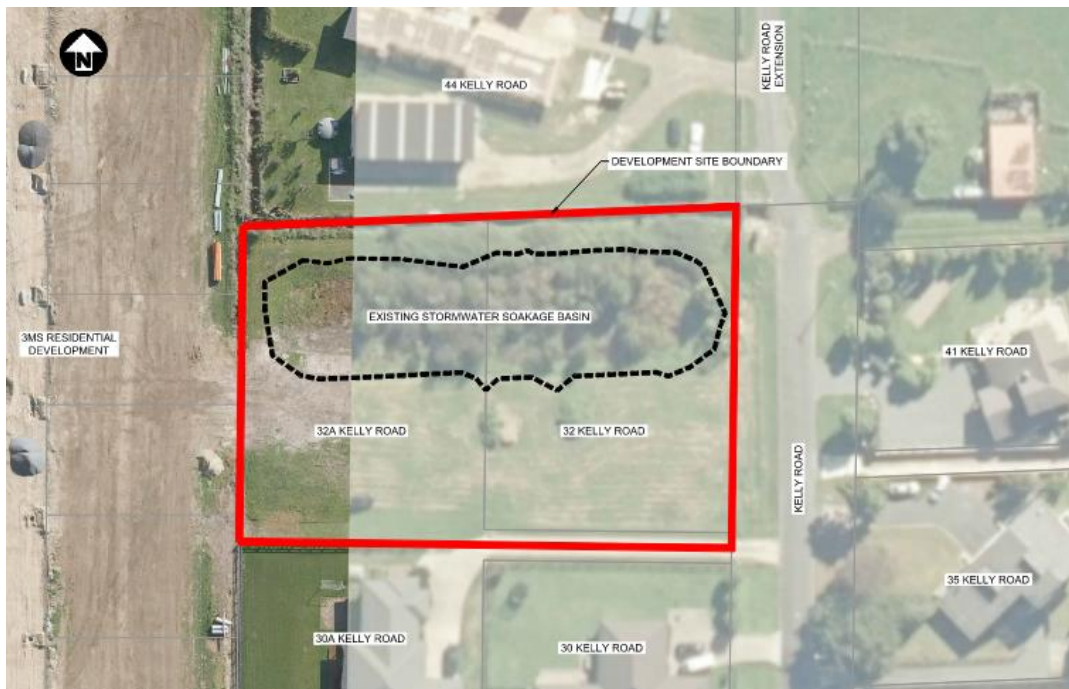


Figure 1 – Existing site (32 & 32A Kelly Road)

The proposed subdivision is based on the decommissioning of the existing stormwater soakage basin and the creation of 4 individual lots across the two sites. Figure 2 below shows the

proposed subdivision layout along with an initial concept for the private development within each lot.

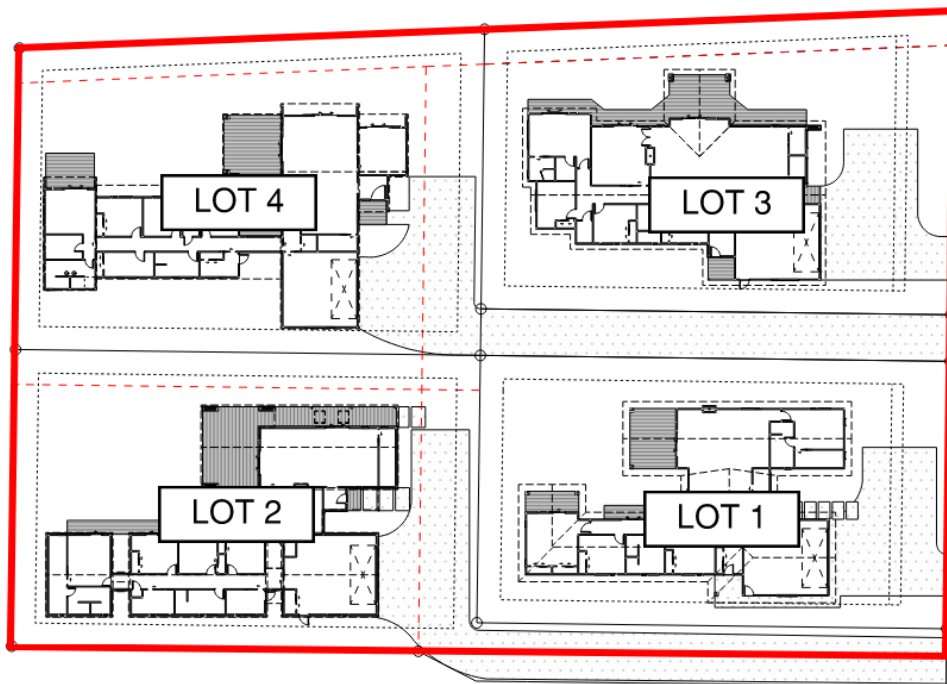


Figure 2 – Proposed subdivision layout (32 & 32A Kelly Road)

Engineering Assessment

The following is a summary of the preliminary engineering assessment completed on the key aspects required to service the development.

Transport and access

The proposed subdivision can be accessed via an existing public road with all four sites having direct access onto Kelly Road. The access to lot 2 will be via the existing entranceway and right-of-way servicing 30A and 32A Kelly Road. New concrete entranceways on Kelly Road will be required to service Lots 1, 3 and 4.

Part of the traffic movements from the new development have already been accounted for through the current properties at 32 and 32a Kelly Road. The two additional lots are only likely to increase the current traffic volumes using Kelly Road by around ~4% which is not expected to have any notable effect on the local traffic volumes.

Stormwater

The development of the neighbouring property at 1863 and 1871 Cambridge Road by 3MS (SP/0148/21) has provided a new public stormwater system under the new regional discharge consent¹ (AUTH141099.01.01). This new network includes the recently completed connection to the existing primary stormwater pipe network servicing the eight existing Kelly Road properties²

¹ Refer to C1 and C2/C3 Stormwater Management Plan for further details (Beca, 2019)

² 24, 24A, 26, 26A, 28, 28A, 30 and 30A Kelly Road

north of the development site while also accommodating runoff from the proposed development. The new connection diverts runoff away from the existing private Kelly Road soakage basin allowing it to be de-commissioned and reinstated.

In addition to the primary stormwater network the individual lots will require a rainwater collection tank³ to be installed within each site to comply with consent requirements. A non-potable water re-use system to utilise the collected runoff will also be provided within the primary dwelling (i.e. laundry and toilets).

An existing secondary overland flowpath within 32 and 32A Kelly Road currently conveys water north to an open drain in the north which flows east across the neighbouring properties. This existing drain will be formalised as a secondary flowpath as part of the subdivision and reinstated using the standard RITS detail (D4.4) once the upstream catchment has been diverted (subject to WDC approval).

The above stormwater proposal is consistent with the consented stormwater network for the overall C1 and C2/C3 structure plan area and integrates with the recently installed 1800mm dia bulk stormwater culvert installed within the existing drain 70m north of the development site.

Wastewater

The existing wastewater network present within Kelly Road currently provides two existing wastewater connections to the development site which will be utilised to service lots 1 and 2. The two additional connections required to service Lots 3 and 4 will be installed directly into the existing 150mm dia gravity pipeline on the Kelly Road frontage⁴.

Water Supply

The existing water supply network present within Kelly Road currently provides one existing water connection to the development site which will be utilised to service lot 1. The three additional connections required to service Lots 2, 3 and 4 will be installed directly into the 63mm dia ryder main on the Kelly Road frontage⁴.

Earthworks

Site earthworks are required to achieve the design levels and grading proposed as part of the subdivision. The finished floor levels determined for the site have been set based on the new stormwater design while also aligning with building levels required as part of the original site subdivision⁵.

The majority of works will consist of importation and placement of approved engineering fill material for the reinstatement of the existing Kelly Road soakage basin located within lots 3 & 4. Refer to Site Suitability Report⁶ for further information on geotechnical and foundation requirements.

³ Minimum tank size to be 2000L

⁴ Waipa District Council to confirm the existing Kelly Road pump station and existing water reticulation network has sufficient capacity to accommodate the two additional development sites

⁵ Refer to Waipa District Council Resource Consent 6927453.2

⁶ Site Suitability Report – 32 Kelly Road Cambridge (Probase Engineering Ltd, June 2023)

Summary

The above assessment demonstrates that there are suitable engineering solutions to service the proposed 3MS subdivision at 32 and 32A Kelly Road. Detailed engineering drawings are attached showing the solutions listed above along with proposed locations for the new connections into existing public networks.

Please contact me if you have any questions regarding the above information.

Yours sincerely,

A handwritten signature in blue ink that reads "Liam McCaffrey". The signature is fluid and cursive, with the first name "Liam" and the last name "McCaffrey" clearly legible.

Liam McCaffrey
Director

Attachments

- 17001-SK-254-REVA – Upgraded Public Stormwater Network
- 3MS Kelly Road Development – Civil Works Drawing Set (Issue#3)



APPENDIX F

Engineering Drawings



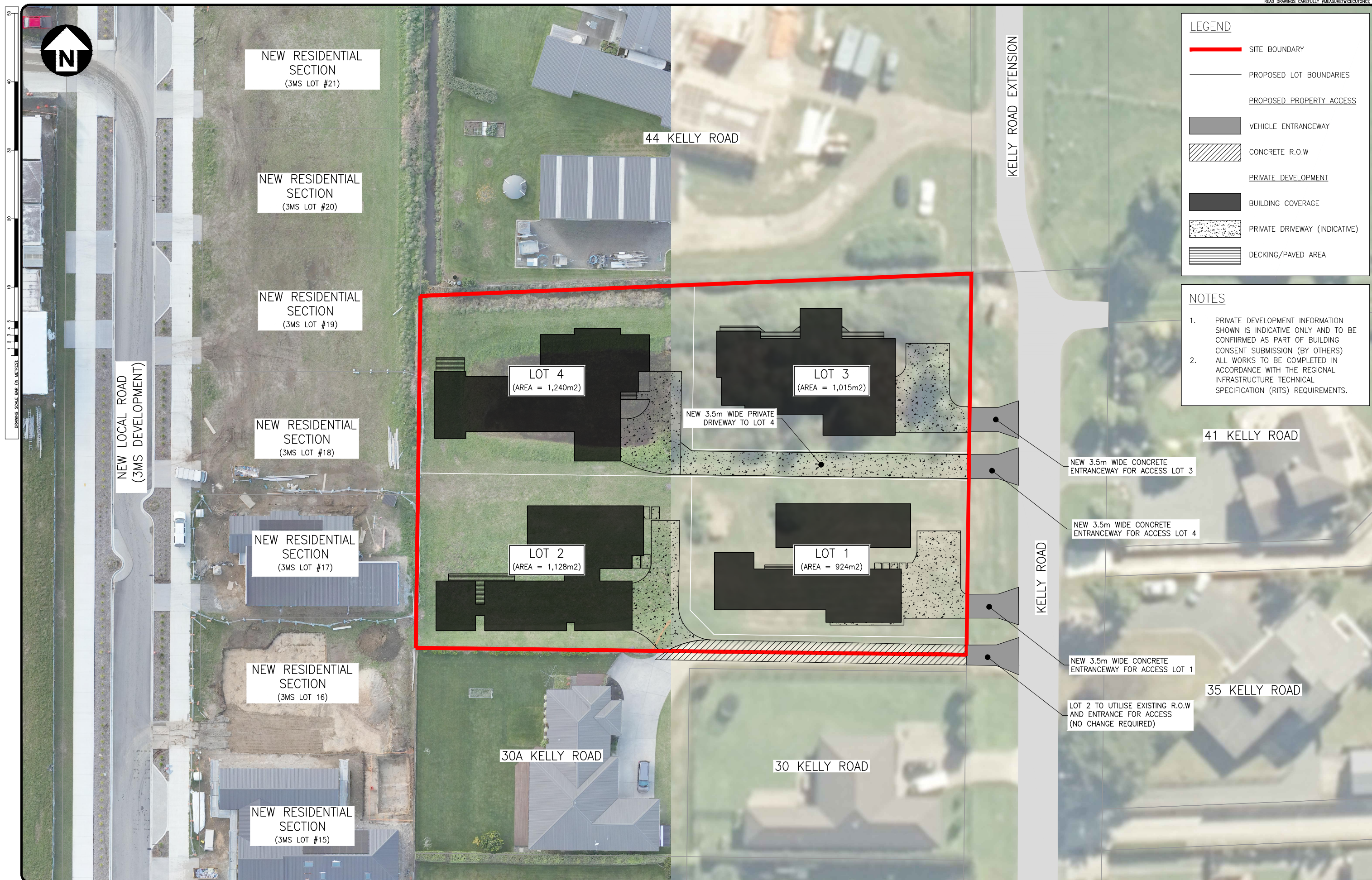
PROJECT

3MS KELLY ROAD DEVELOPMENT

CIVIL WORKS DRAWING SET

DRAWING No.	DRAWING TITLE	REV
17001-C-0810	COVER SHEET & DRAWING LIST	D
17001-C-0811	GENERAL ARRANGEMENT	D
17001-C-0815	EARTHWORKS TECHNICAL SPECIFICATIONS SHEET 1	B
17001-C-0816	EARTHWORKS TECHNICAL SPECIFICATIONS SHEET 2	B
17001-C-0821	EARTHWORKS DESIGN LEVELS & CONTOURS LAYOUT PLAN	D
17001-C-0822	EARTHWORKS CUT FILL CONTOURS LAYOUT PLAN	D
17001-C-0823	EARTHWORKS TYPICAL CROSS SECTIONS SHEET 1	D
17001-C-0831	ENTRANCES & ACCESSWAYS LAYOUT PLAN	D
17001-C-0832	ACCESSWAY TYPICAL DETAILS SHEET 1	B
17001-C-0835	STORMWATER LAYOUT PLAN	C
17001-C-0836	STORMWATER LONGITUDINAL SECTIONS SHEET 1	B
17001-C-0837	STORMWATER TYPICAL DETAILS SHEET 1	C
17001-C-0838	STORMWATER TYPICAL DETAILS SHEET 2	B
17001-C-0841	UTILITY SERVICES LAYOUT PLAN	C
17001-C-0842	UTILITY SERVICES LONGITUDINAL SECTIONS SHEET 1	C
17001-C-0843	UTILITY SERVICES TYPICAL DETAILS SHEET 1	C



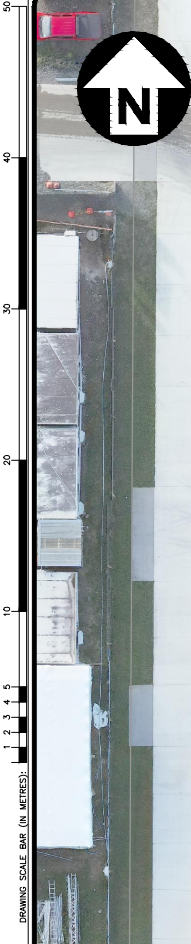


LEGEND

- SITE BOUNDARY
- PROPOSED LOT BOUNDARIES
- PROPOSED PROPERTY ACCESS
- VEHICLE ENTRANCEWAY
- CONCRETE R.O.W
- PRIVATE DEVELOPMENT
- BUILDING COVERAGE
- PRIVATE DRIVEWAY (INDICATIVE)
- DECKING/PAVED AREA

NOTES

1. PRIVATE DEVELOPMENT INFORMATION SHOWN IS INDICATIVE ONLY AND TO BE CONFIRMED AS PART OF BUILDING CONSENT SUBMISSION (BY OTHERS)
2. ALL WORKS TO BE COMPLETED IN ACCORDANCE WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (RITS) REQUIREMENTS.



D	FOR INFORMATION – FFL UPDATE	LPM	03.08.23
C	FOR INFORMATION – OLFP UPDATED	LPM	14.12.22
B	FOR INFORMATION	GCJ	29.08.22
A	FOR INFORMATION	GCJ	17.08.22
REV	DESCRIPTION	BY	DATE

FOR INFORMATION	
DESIGNED BY L. MCCAFFREY	DATE 17.08.22
DRAWN BY G. JONES	DATE 17.08.22
APPROVED BY	DATE

CLIENT NAME

PROJECT NAME

3MS KELLY ROAD DEVELOPMENT

CIVIL WORKS

DRAWING TITLE

GENERAL ARRANGEMENT

PRODUCED BY

McCaffrey and Cable Consultants

DRAWING SCALE	1:500	D
DISCIPLINE	CIVIL ENGINEERING	
DRAWING No.	17001-C-0811	

EARTHWORKS SPECIFICATION

SCOPE OF SPECIFICATION

'EARTHWORKS' APPLIES TO ALL EARTHWORKS ON THE SITE. THE EARTHWORKS SPECIFICATION COVERS THE FOLLOWING:

- EXCAVATION OF ALL CUTS (INCLUDING BULK EARTHWORKS).
- EXCAVATION OF BORROW AREAS, BENCHES, SURFACE DRAINAGE FEATURES
- PLACEMENT AND COMPACTION OF FILL MATERIAL
- UNDERCUT OF UNSUITABLE MATERIAL AND REPLACEMENT WITH SELECTED FILL
- REQUIREMENTS FOR VISUAL INSPECTION AND TESTING INCLUDING HOLD POINTS

RELATED DOCUMENTS

THIS SPECIFICATION SHOULD BE READ IN CONJUNCTION WITH THE **CODE OF PRACTICE FOR EARTH FILL FOR RESIDENTIAL DEVELOPMENT – NZS4431:1989**. UNLESS OTHERWISE CLARIFIED OR MODIFIED BELOW, THE REQUIREMENTS OF THAT CODE OF PRACTICE SHALL BE MET IN CONSTRUCTING THE EARTH FILLS ON THE PROJECT.

EXCAVATION

GENERAL

THE RECOMMENDATIONS BELOW SHOULD BE FOLLOWED FOR ANY EXCAVATIONS REQUIRED FOR THE WORKS:

- ALL CUT SURFACES AT A GRADE LESS THAN 1 VERTICAL TO 3 HORIZONTAL (1V:3H) SHALL BE SEALED OFF AT THE END OF EACH DAY'S WORK WITH RUBBER TYRED PLANT TO PREVENT EROSION AND PROTECT ALL EXPOSED MATERIAL.
- ALL EXCAVATIONS/CUTS SHALL BE CARRIED OUT IN A SAFE MANNER, WITH ANY TEMPORARY SLOPES GRADED SO THAT THE STABILITY OF SUCH SLOPES IS MAINTAINED FOR THE DURATION OF THE WORKS.
- ALL EXCAVATIONS/CUTS SHALL BE CARRIED OUT IN FULLY DRAINED CONDITIONS WITH NO FREE WATER ON THE WORKING SURFACES.
- ALL CUT SURFACES INTENDED AS A SUBGRADE FOR ENGINEERED FILL ARE TO BE VISUALLY INSPECTED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO FILLING.

WATER CONTROL

THE CONTROL OF SURFACE DRAINAGE AND GROUNDWATER IN EXCAVATIONS SHALL BE UNDERTAKEN EARLY IN THE WORK TO MAINTAIN THE NATURAL WATER DRAINAGE PATHS AND LIMIT THE INTRODUCTION OF WATER INTO THE EARTHWORKS. BOTH CUT AND FILL AREAS SHALL BE SLOPED ADEQUATELY TO PREVENT PONDING OF STORMWATER, AND TEMPORARY BUNDING AND DRAINAGE OR PUMPING MAY BE NECESSARY.

CUT AREAS SHALL BE SLOPED AND GRADED ADEQUATELY SO THAT THEY DO NOT POND WATER OR ALLOW IT TO INFILTRATE. DRAINS SHALL BE INSTALLED, OR PUMPING CARRIED OUT AS NECESSARY ON A REGULAR BASIS TO REMOVE WATER FROM THE AREAS OF OPERATIONS, OR TO DRAIN WATER AS SOON AS IT IS SEEN TO POND.

WHERE EXCAVATIONS ARE BELOW THE GROUNDWATER TABLE OR ARE IN AN AREA WHERE SURFACE WATER CAN ENTER THE WORKS AREA, THE CONTRACTOR MUST CONTROL THE WATER BY DIVERSION, PUMPING OR OTHER APPROPRIATE MEANS TO ALLOW THE WORKS TO BE CONSTRUCTED IN DRY CONDITIONS. WORKS, SUCH AS FILL PLACED, THAT FAIL TO MEET THE SPECIFICATION DUE TO POOR CONTROL OF WATER SHALL BE REMOVED AND REMEDIATED BY THE CONTRACTOR.

SHAPE CONTROL

THE CONTRACTOR IS RESPONSIBLE FOR CUTTING EXCAVATIONS TO THE DESIGN LEVELS. OVERCUTTING WILL NEED TO BE REMEDIATED WITH FILLING TO THE SPECIFICATION.

BULK FILLING

ENGINEERED FILL

ENGINEERED FILL IS DEFINED AS MATERIAL THAT IS PLACED WITHIN THE PROJECT AREA AND IS CONDITIONED, PLACED AND COMPACTED IN ACCORDANCE WITH THESE SPECIFICATIONS AND WITH NZS4431: 1989 'CODE OF PRACTICE FOR EARTH FILL FOR RESIDENTIAL DEVELOPMENT'. THE CUT FILL PLAN IN APPENDIX A GIVES AN INDICATION OF THE EXPECTED AREA OF ENGINEERED FILL. THE WHOLE OF THE SHOWN FILL AREA IS TO BE ENGINEER CONTROLLED FILL.

CONTROLLED FILL

CONTROLLED FILL IS DEFINED AS MATERIAL THAT IS PLACED WITHIN THE PROJECT AREA AND IS CONDITIONED, PLACED AND COMPACTED IN A CONTROLLED MANNER. ALTHOUGH THE FILL IS PLACED IN A CONTROLLED MANNER IT MAY NOT MEET THE MINIMUM REQUIREMENTS OF THIS SPECIFICATION OR NZS4431: 1989. CONTROLLED FILL IS NOT ANTICIPATED AT THIS STAGE. ANY USE OF CONTROLLED FILL MUST BE APPROVED BY PROJECT GEOTECHNICAL ENGINEER.

UNCONTROLLED FILL

ANY UNCONTROLLED FILL FOUND DURING CONSTRUCTION SHOULD BE REMOVED TO THE NATURAL SUBGRADE AND THE AREA BUILT UP WITH ENGINEERED FILL.

IF UNCONTROLLED FILL IS IDENTIFIED WITHIN THE PAVEMENT ALIGNMENT ONCE SUBGRADE HAS BEEN STRIPPED DURING CONSTRUCTION, ANY EXISTING FILL WILL NEED TO BE EXCAVATED TO UNDISTURBED, NATURAL SOILS.

FILL PLACEMENT

SURFACE CONDITIONS

THE SURFACE OF ANY AREA TO BE FILLED MUST BE CONDITIONED BEFORE THE NEXT LIFT IS PLACED. THE SURFACE CONDITION MUST BE AS FOR THE NEW FILL TO BE PLACED. I.E., IF A LAYER IS TESTED AND HAS MET THE COMPACTION REQUIREMENTS AND IS THEN LEFT EXPOSED, IT WILL REQUIRE REWORKING IF IT BECOMES WET AND OR DRY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT LAYERS THAT HAVE BEEN TESTED AND PASSED, ARE PROTECTED TO AVOID REWORKING. ANY REWORKING THAT RESULTS WILL BE AT THE CONTRACTOR'S COST.

DRY SURFACES

SURFACES THAT ARE LEFT TO BECOME DRY OF OPTIMUM WILL START TO CRACK. WHEN THE NEXT LAYER IS PLACED, THE DRY LAYER MAY BEGIN TO BREAK DOWN FORMING LARGE VOIDS. THESE VOIDS MAY ALLOW FOR WATER INGRESS LEADING TO SOIL SOFTENING. ANY SURFACES THAT ARE LEFT TO BECOME DRY OF OPTIMUM MUST BE REMEDIATED BY REMOVING DOWN TO FRESH, PLASTIC MATERIAL OR MUST BE RIPPED, CONDITIONED AND RECOMPACTED, AT THE CONTRACTOR'S EXPENSE, PRIOR TO THE NEXT LIFT BEING PLACED.

TO AVOID REWORKING THE MATERIAL, A LOOSE LIFT CAN BE PLACED AND NOT COMPACTED. THIS LOOSE LAYER CAN THEN BE CONDITIONED PRIOR TO COMPACTION TO ENSURE IT IS AT OPTIMUM MOISTURE.

WET SURFACES

COMPACTED SURFACES THAT ARE LEFT TO BECOME WET MAY FORM A THIN LAYER OF SOFTENED MATERIAL OR 'SLUDGE'.

ANY SURFACE THAT BECOMES SATURATED AND OR FORMS A 'SLUDGE' MUST BE TRIMMED BACK TO FRESH MATERIAL PRIOR TO THE NEXT LIFT BEING PLACED. THE WET MATERIAL CAN BE MIXED WITH DRIER MATERIAL AND CONDITIONED BEFORE BEING REUSED, OR MAY BE DISCARDED AS 'UNSUITABLES'. THIS WILL BE AT THE EXPENSE OF THE CONTRACTOR

TO AVOID HAVING TO TRIM THE SURFACES, COMPACTED LAYERS CAN BE COVERED WITH A LOOSE PROTECTIVE LAYER BEFORE WET WEATHER SETS IN. THIS LOOSE MATERIAL WILL ACT TO PROTECT THE LAYERS BELOW AND CAN THEN BE CONDITIONED AND THEN COMPACTED.

PLACEMENT AND COMPACTION

FILL SHOULD BE PLACED AND COMPACTED IN LAYERS 150mm TO 250mm THICK (LOOSE). SUITABLE COMPACTION IS OFTEN ACHIEVED WITH 6 TO 8 PASSES OF THE COMPACTION MACHINERY. ACTUAL LAYER THICKNESS AND NUMBER OF PASSES WILL DEPEND ON THE MATERIAL AND SIZE OF THE COMPACTION MACHINERY. THE CONTRACTOR MAY NEED TO UNDERTAKE TRIALS TO ESTABLISH APPROPRIATE LOOSE LIFT THICKNESSES AND COMPACTION EFFORT REQUIRED TO ACHIEVE THE SPECIFICATION.

MATERIALS ON SITE RANGE FROM DRY TO WET OF OMC AS DISCUSSED IN THE PROJECT SPECIFICATION. IF COMPACTION IS NOT ACHIEVED, CONDITIONING BY DRYING OR BY WETTING AND DISCING OF MATERIAL MAY BE REQUIRED BEFORE COMPACTION.

FILL TRIAL (IF NEEDED)

IF MATERIAL IS ENCOUNTERED THAT IS OUTSIDE THE MATERIAL TESTED FOR THIS SPECIFICATION PLATEAU TESTING WILL BE NEEDED TO ESTABLISH THE MAXIMUM DRY DENSITY (MDD). THIS WILL BE MATERIAL THAT IS COHESIVE (CLAY) AND SHOULD NOT BE TESTED WITH A DCP. MATERIAL WILL NEED TO ACHIEVE 95% OF MDD WHEN TESTED WITH A NDM.

FILL ON SLOPING GROUND

- ANY FILLING ON A SLOPE WHERE THE SLOPE IS STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL (1V:4H) SHALL BE BENCHED BEFORE FILLING IS CARRIED OUT, UNLESS OTHERWISE DIRECTED BY THE PROJECT GEOTECHNICAL ENGINEER.
- EACH BENCH SHALL BE HORIZONTAL AND CONSTRUCTED TO A WIDTH ADEQUATE TO PERMIT SUITABLE KEYING INTO THE MATERIAL BELOW. BENCHES WILL TYPICALLY NEED TO BE AT LEAST 1M WIDE TO ACHIEVE THIS REQUIREMENT.
- IF A BENCH IS TO BE OPEN FOR A PERIOD OF TIME THAT MAY EXPERIENCE RAINFALL, THE BASE OF THE BENCHES SHALL BE SLOPED INWARDS AT A SLOPE OF 1 VERTICAL TO 12 HORIZONTAL (1V:12H). THE LONGITUDINAL PROFILE OF EACH BENCH SHALL BE GRADED TO ENSURE ADEQUATE DRAINAGE AND SAFE DISCHARGE OF WATER.

OVERFILLING/SHAPE CONTROL

THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING THE SHAPE OF THE EARTHWORKS SUCH THAT DESIGN BATTERS ARE WHOLLY FORMED OF ENGINEERED FILL. THIS WILL REQUIRE BULK FILLING TO EXTEND BEYOND THE DESIGN PROFILE AND THEN THE FINAL SHAPE TO BE CUT INTO ENGINEERED FILL. WHERE THE FILL HAS NOT

BEEN EXTENDED FAR ENOUGH TO ENSURE THAT THE FINAL SHAPE IS ENTIRELY FORMED OF ENGINEERED FILL, THE CONTRACTOR MAY BE INSTRUCTED TO PLACE ADDITIONAL ENGINEERED FILL, TO THIS SPECIFICATION, AND THEN TO CUT THE FINAL SHAPE.

LIFT HEIGHTS

THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING LIFT CONTROLS IN OR BEYOND THE AREA TO BE FILLED. EACH LIFT PEG IS TO BE OF SUFFICIENT HEIGHT TO SHOW SEVERAL MARKS INDICATING INCREMENTAL LIFTS OF NO MORE THAN 1 METRE. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO A LIFT BEING COMPLETED TO ENABLE TESTING TO BE SCHEDULED (AT LEAST 24 HOURS' NOTICE OF TESTING IS REQUIRED). GRANULAR MATERIAL

- OBSERVATION TESTING WILL BE REQUIRED IN 1.0m LIFTS.
- TESTING WILL CONSIST OF DYNAMIC CONE PENETROMETERS (DCP).
- CRITERIA FOR BLOWS PER 100mm WILL BE A MINIMUM OF 4 AND AN AVERAGE OF 5.

FINISHING

TOPSOIL SPREADING

- TOPSOIL SHALL BE PLACED AND COMPACTED AS AGREED WITH THE ENGINEER. TOPSOIL SHOULD NOT BE OVER-COMPACTED TO ALLOW GRASS TO 'TAKE'.
- FOR SLOPING BATTER SURFACES (BOTH IN FILL AND CUT SOILS) OVER 15 DEGREES, THE SURFACE MUST BE APPROPRIATELY ROUGHENED TO ENABLE THE TOPSOIL TO 'KEY' ON TO THE SLOPE. SMOOTH SURFACES CAN ENABLE TOPSOIL TO SLIDE OFF, ESPECIALLY WHEN SATURATED. APPROPRIATE MEANS OF KEYING THE TOPSOIL ON INCLUDE USING A TOOTHED DIGGER BUCKET TO 'CRISS CROSS' OR ROUGHEN THE SURFACE. THE GROOVES CREATED SHOULD BE AT AN ANGLE OF NO MORE THAN 45 DEGREES, OR SHOULD BE HORIZONTAL ACROSS THE SURFACE. GROOVES THAT RUN VERTICALLY WILL NOT PREVENT SLUMPING.
- AT THE COMPLETION OF THE BATTER SLOPES, SURFACE WATER SHOULD BE CONTROLLED (BY BUNDING OR PROVIDING DRAINS) TO PREVENT SATURATION UNTIL THE GRASS OR PLANTING IS ESTABLISHED.

INSPECTION AND ACCEPTANCE TESTING

CONTRACTOR QUALITY ASSURANCE

THE CONTRACTOR IS RESPONSIBLE FOR MEETING THE SPECIFICATIONS FOR THE WORKS. AS SUCH, THE CONTRACTOR SHALL UNDERTAKE THE WORKS TO THE SPECIFICATION AND IS REQUIRED TO UNDERTAKE AND RECORD SUFFICIENT TESTING TO SATISFY THEMSELVES THAT THEY ARE MEETING THE SPECIFICATION IN RELATION TO COMPACTION. AS A MINIMUM THE CONTRACTOR SHOULD HAVE A DYNAMIC CONE PENETROMETER WITH THE ABILITY TO TEST TO AT LEAST 2 METRES DEPTH ON SITE AT ALL TIMES THAT FILL IS BEING UNDERTAKEN.

THE CONTRACTOR SHOULD COMPLETE TESTING OF GRANULAR MATERIALS AFTER ROLLING TO CHECK THAT COMPACTION HAS BEEN ACHIEVED BEFORE CONTINUING WITH THE NEXT LAYER. SHEAR VANES WILL VARY DEPENDING ON MATERIAL TYPE BEING COMPACTED. REFER TO TABLE 1 FOR TARGET DYNAMIC CONE PENETROMETER RESULTS.

ANY WEAVING OR PUMPING OF THE SOIL OR SUBGRADE DURING THE COMPACTION PROCESS IS LIKELY TO INDICATE EITHER THAT THE WATER CONTENT IS EXCESSIVE OR THAT THE MATERIAL HAS BEEN OVER COMPACTED. IF WEAVING OR PUMPING IS OBSERVED, DYNAMIC CONE PENETROMETER TESTING SHOULD BE UNDERTAKEN AND PROJECT GEOTECHNICAL ENGINEER SHOULD BE CONTACTED.

GEOTECHNICAL ENGINEER QUALITY ASSURANCE

THE PROJECT GEOTECHNICAL ENGINEER WILL BE UNDERTAKING INDEPENDENT TESTING TO ENABLE COMPLETION REPORTING AND TO ASSIST THE ENGINEER IN DETERMINING IF THE PLACED FILL MEETS THE SPECIFICATION. DURING FILL CONSTRUCTION EACH LIFT MAY BE SUBJECT TO INSPECTION BY THE ENGINEER TO CONFIRM THAT THE REQUIRED COMPACTION STANDARDS HAVE BEEN ACHIEVED. THIS TESTING IS COMPLETED AS A CHECK IN ADDITION TO THE TESTING COMPLETED BY THE CONTRACTOR.

WHERE TESTING OR INSPECTION BY PROJECT GEOTECHNICAL ENGINEER IDENTIFIES THAT AN AREA OF FILL DOES NOT MEET THE REQUIRED STANDARDS THE AREA IS TO BE IDENTIFIED (BY 'CHASING OUT') AND THE MATERIAL EXCAVATED, RE-WORKED, CONDITIONED, RE-COMPACTED AND THEN RE-INSPECTED.

COMPLETION OF ADDITIONAL LIFTS PRIOR TO INSPECTION AND CONFIRMATION OF PASSING RESULTS IS UNDERTAKEN AT THE RISK OF THE CONTRACTOR. ANY FILL THAT FAILS TO MEET THE REQUIRED SPECIFICATIONS WILL REQUIRE EXCAVATION, RE-WORKING, RE-COMPACTION, AND RE-TESTING REGARDLESS OF WHEN THE FAILED FILL IS FOUND OR IF ADDITIONAL MATERIAL HAS BEEN PLACED ABOVE THE FAILED FILL.

PROJECT MATERIAL SPECIFICATION

TESTING OF THE FILL MATERIAL IS REQUIRED DURING CONSTRUCTION. TARGET RESULTS FOR TESTS AS WELL AS THE MINIMUM TESTING FREQUENCY ARE SUMMARISED IN TABLE 1.

INSPECTIONS AND HOLD POINTS

PROJECT GEOTECHNICAL ENGINEER INSPECTIONS IN BULK FILL AREAS ARE REQUIRED AS DETAILED IN THE SPECIFICATION. INSPECTIONS IDENTIFIED AS HOLD POINTS MEAN THAT NO WORK MAY CONTINUE UNTIL THE INSPECTION HAS BEEN UNDERTAKEN AND CONFIRMATION RECEIVED THAT THE WORKS MEET THE SPECIFICATION.

GEOTECHNICAL HOLD POINTS ARE SUMMARISED IN TABLE 2

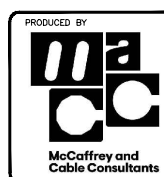
B	FOR INFORMATION – FFL UPDATE	LPM	03.08.23
A	FOR INFORMATION	GCJ	17.08.22
REV	DESCRIPTION	BY	DATE

APPROVAL STATUS		FOR INFORMATION	
DESIGNED BY	L. MCCAFFREY	DATE	17.08.22
DRAWN BY	G. JONES	DATE	17.08.22
APPROVED BY	—	DATE	—



CLIENT NAME	3MS KELLY ROAD DEVELOPMENT
PROJECT NAME	CIVIL WORKS

DRAWING TITLE	EARTHWORKS TECHNICAL SPECIFICATION
	SHEET 1



DRAWING SCALE	AS SHOWN	REVISION No.	B
DISCIPLINE	CIVIL ENGINEERING		
DRAWING No.	17001-C-0815		

EARTHWORKS SPECIFICATION CONT.

TABLE 1: MATERIALS SPECIFICATION

TEST TYPE	CRITERIA	MATERIAL TARGET (SAND AND GRAVEL)	FREQUENCY OF CONTRACTOR TESTING	FREQUENCY OF SUPERVISING ENGINEER TESTING
DYNAMIC CONE PENETROMETER (DCP)	MINIMUM BLOWS PER 100mm	4	EVERY 0.5m AT APPROXIMATELY ONE TEST PER 100m ²	REPRESENTATIVE TESTING AT 1.0m LIFTS
	AVERAGE BLOWS PER 100mm	5		

TABLE 2: EARTHWORKS – INSPECTION AND TESTING CHECKLIST

ELEMENT	TESTING REQUIRED	RESPONSIBLE PARTY	HOLD POINT?*
1. SUBGRADE FOLLOWING TOPSOIL STRIPPING, PRIOR TO FILL PLACEMENT	VISUAL, PROOFROLL, DCP, SHEAR VANE	PROJECT GEOTECHNICAL ENGINEER	YES
2. COHESIVE FILL	NDMS, SHEAR VANES AT LEAST EVERY 0.6M VERTICAL LIFT	PROJECT GEOTECHNICAL ENGINEER / CONTRACTOR	NO; ADDITIONAL FILL MAY BE PLACED AT CONTRACTOR'S RISK PROVIDED PROJECT GEOTECHNICAL ENGINEER TESTS DURING NEXT VISIT
3. SAND FILL	DCPS AT LEAST EVERY 1.0M VERTICAL LIFT	PROJECT GEOTECHNICAL ENGINEER; CONTRACTOR (QUALITY ASSURANCE TESTING)	NO; ADDITIONAL FILL MAY BE PLACED AT CONTRACTOR'S RISK PROVIDED PROJECT GEOTECHNICAL ENGINEER TESTS DURING NEXT VISIT

* INSPECTIONS IDENTIFIED AS HOLD POINTS MEAN THAT NO WORK MAY CONTINUE UNTIL THE INSPECTION HAS BEEN UNDERTAKEN AND CONFIRMATION RECEIVED THAT THE WORKS MEET THE SPECIFICATION.

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CLIENT NAME
3MS

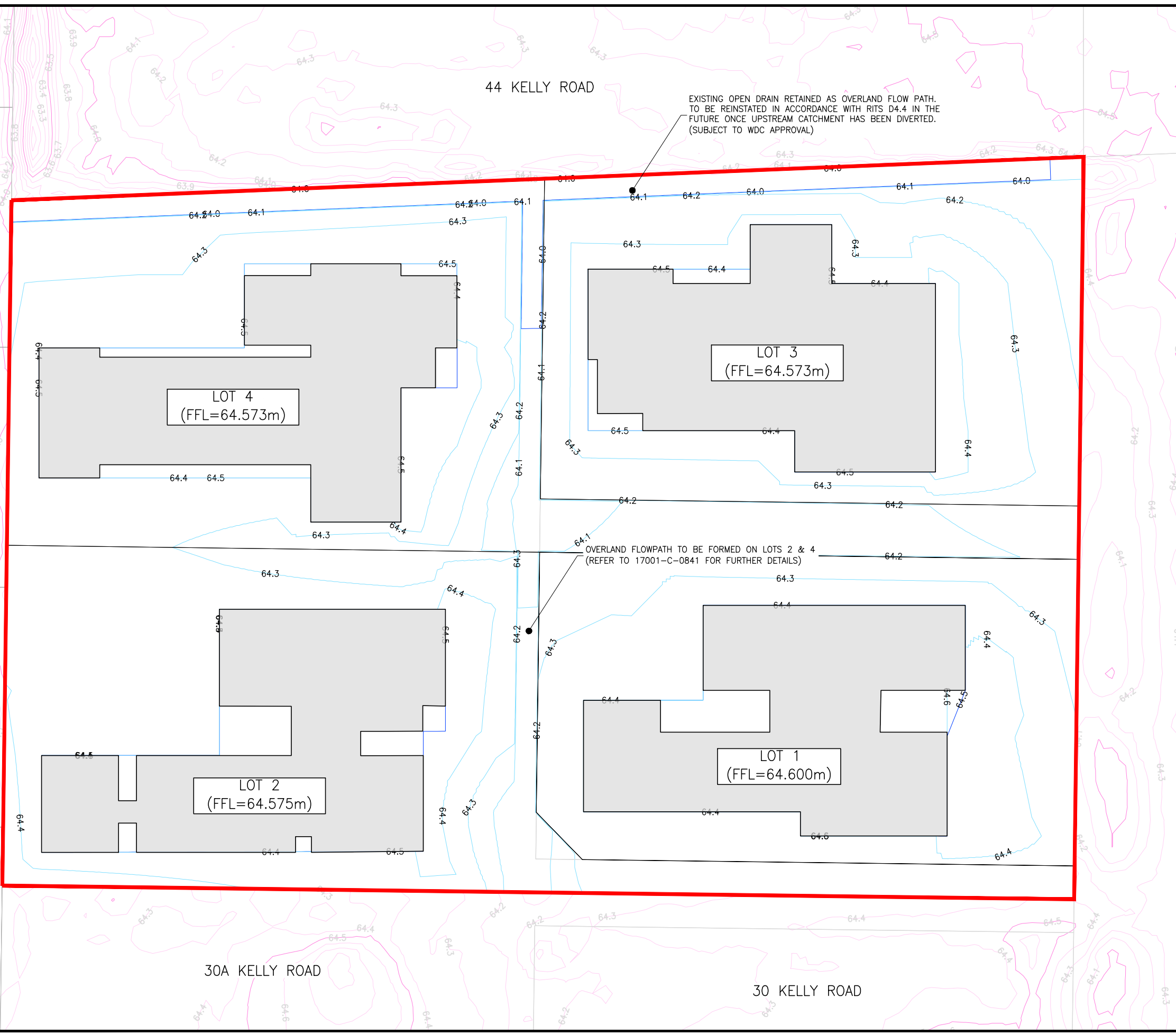
PROJECT NAME
3MS KELLY ROAD DEVELOPMENT
DRAWING TITLE
EARTHWORKS TECHNICAL SPECIFICATION
SHEET 2



DRAWING SCALE	REVISION No.
N.A	B
DISCIPLINE	CIVIL ENGINEERING
DRAWING No.	17001-C-0816



DRAWING SCALE BAR (IN METRES): 0 0.5 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30



LEGEND	
	SITE BOUNDARY
	EARTHWORKS EXTENTS
	EXISTING CONTOUR (MAJOR) (0.5m INTERVALS)
	EXISTING CONTOUR (MINOR) (0.1m INTERVALS)
	DESIGN CONTOUR (MAJOR) (0.5m INTERVAL)
	DESIGN CONTOUR (MINOR) (0.1m INTERVAL)

- NOTES**
1. ALL WORKS TO BE IN ACCORDANCE WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (RITS) UNLESS OTHERWISE SPECIFIED
 2. CONTRACTOR IS RESPONSIBLE FOR THE MANAGEMENT OF ALL TEMPORARY STORMWATER DRAINAGE WITHIN THE SITE FOR THE DURATION OF THE CONTACT WORKS
 3. DESIGN LEVELS DEPTHS SHOWN ARE BASED ON FINISHED LOT/FOUNDATION LEVELS AND PROVIDED FOR REFERENCE ONLY. FINAL SURFACE TO BE CONFIRMED AS PART OF BUILDING CONSENT APPLICATION (BY OTHERS)

EXISTING OPEN DRAIN RETAINED AS OVERLAND FLOW PATH. TO BE REINSTATED IN ACCORDANCE WITH RITS D4.4 IN THE FUTURE ONCE UPSTREAM CATCHMENT HAS BEEN DIVERTED. (SUBJECT TO WDC APPROVAL)

OVERLAND FLOWPATH TO BE FORMED ON LOTS 2 & 4 (REFER TO 17001-C-0841 FOR FURTHER DETAILS)

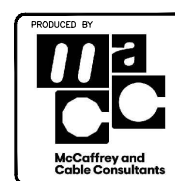
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FOR INFORMATION	
DESIGNED BY	DATE
L. MCCAFFREY	17.08.22
DRAWN BY	DATE
G. JONES	17.08.22
APPROVED BY	DATE
—	—



PROJECT NAME
3MS KELLY ROAD DEVELOPMENT
CIVIL WORKS

DRAWING TITLE
EARTHWORKS DESIGN LEVELS & CONTOURS
LAYOUT PLAN



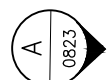
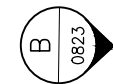
DRAWING SCALE		REVISION No.
1:300		D
DISCIPLINE		
CIVIL ENGINEERING		
DRAWING No.		
17001-C-0821		



DRAWING SCALE BAR (IN METRES): 0 0.5 1 2 3 4 5 6 8 10 12 14 16 18 20 22 24 26 28 30

44 KELLY ROAD

EXISTING OPEN DRAIN RETAINED AS OVERLAND FLOW PATH. TO BE REINSTATED IN ACCORDANCE WITH RITS D4.4 IN THE FUTURE ONCE UPSTREAM CATCHMENT HAS BEEN DIVERTED. (SUBJECT TO WDC APPROVAL)

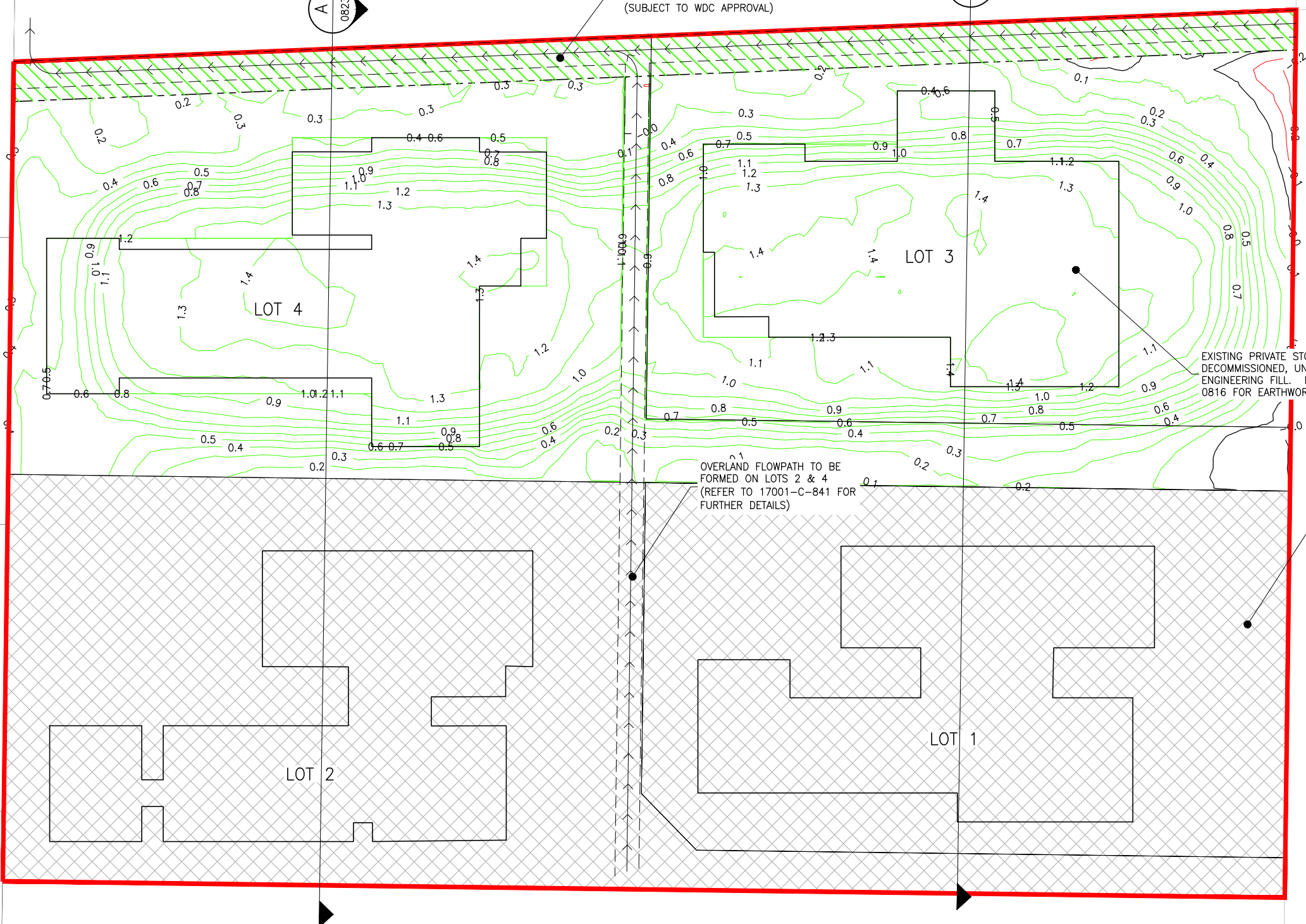


LEGEND

- SITE BOUNDARY
- - - - EARTHWORKS EXTENTS
- 0 — EXISTING SURFACE INTERFACE
- - - 0.5 - - DESIGN CUT CONTOUR (0.1m INTERVAL)
- - - 0.5 - - DESIGN FILL CONTOUR (0.1m INTERVAL)
- SURFACE CONTOURING ONLY

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (RITS) UNLESS OTHERWISE SPECIFIED
2. CUT FILL DEPTHS SHOWN ARE BASED ON SURVEYED SURFACES ONLY WITH NO ALLOWANCE FOR STRIPPING OR FOUNDATION DEPTHS



EXISTING PRIVATE STORMWATER BASIN TO BE DECOMMISSIONED, UNDERCUT AND BACKFILLED WITH ENGINEERING FILL. REFER TO 17001-C-0815 & 0816 FOR EARTHWORKS TECHNICAL SPECIFICATION

OVERLAND FLOWPATH TO BE FORMED ON LOTS 2 & 4 (REFER TO 17001-C-841 FOR FURTHER DETAILS)

ONLY MINOR SURFACE CONTOURING REQUIRED WITHIN LOT 1 & 2

30A KELLY ROAD

30 KELLY ROAD

KELLY ROAD

D	FOR INFORMATION -- FFL UPDATE	LPM	03.08.23
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CLIENT NAME

PROJECT NAME

3MS KELLY ROAD DEVELOPMENT

CIVIL WORKS

DRAWING TITLE

EARTHWORKS CUT FILL CONTOURS LAYOUT PLAN

PRODUCED BY

McCaffrey and Cable Consultants

DRAWING SCALE	1:300	D
DISCIPLINE	CIVIL ENGINEERING	
DRAWING No.	17001-C-0822	



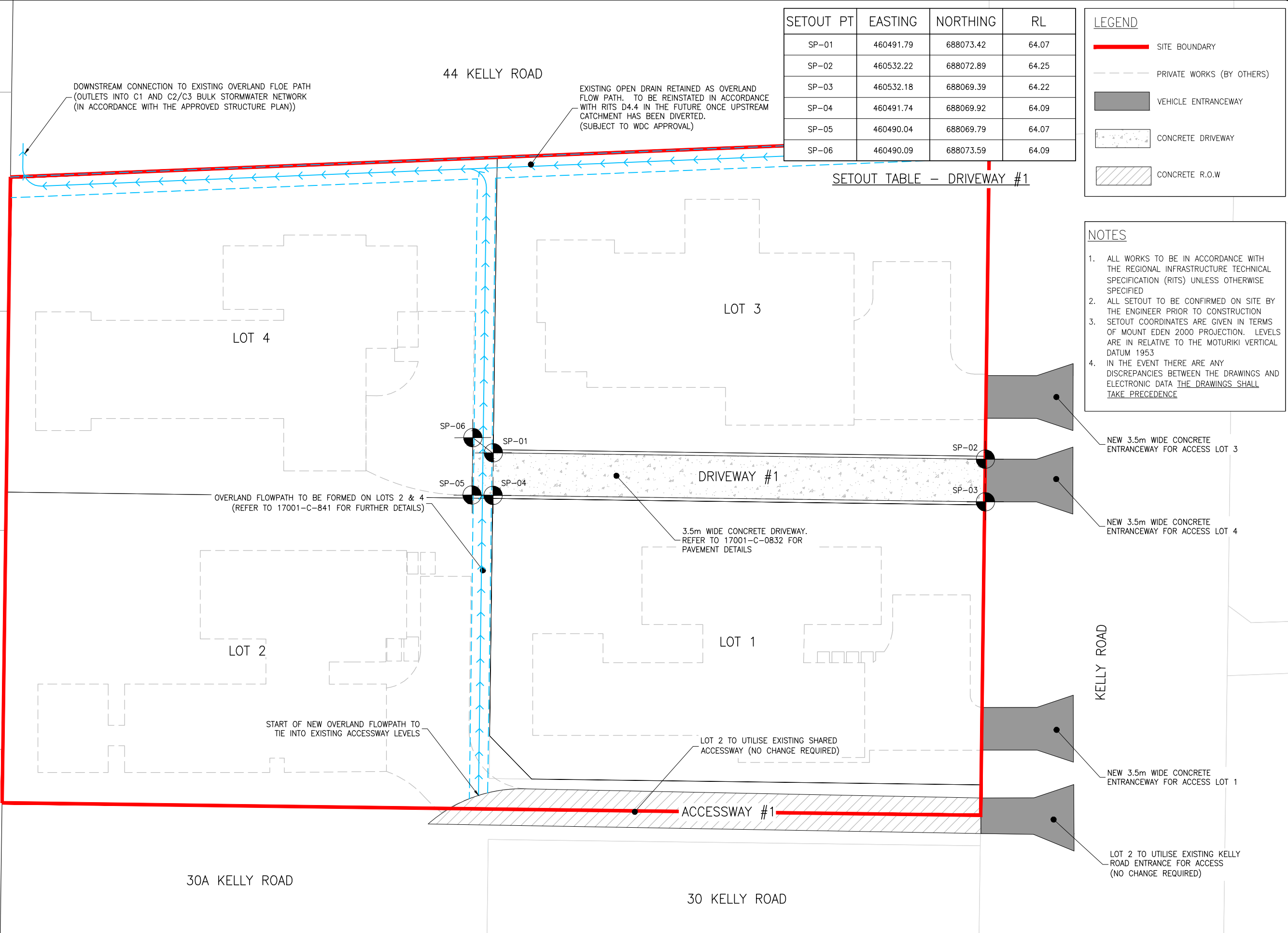
DRAWING SCALE BAR (IN METRES): 0 0.5 1 2 3 4 5 6 8 10 12 14 16 18 20 22 24 26 28 30

SETOUT PT	EASTING	NORTHING	RL
SP-01	460491.79	688073.42	64.07
SP-02	460532.22	688072.89	64.25
SP-03	460532.18	688069.39	64.22
SP-04	460491.74	688069.92	64.09
SP-05	460490.04	688069.79	64.07
SP-06	460490.09	688073.59	64.09

LEGEND

- SITE BOUNDARY
- PRIVATE WORKS (BY OTHERS)
- VEHICLE ENTRANCEWAY
- CONCRETE DRIVEWAY
- CONCRETE R.O.W

- NOTES**
1. ALL WORKS TO BE IN ACCORDANCE WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (RITS) UNLESS OTHERWISE SPECIFIED
 2. ALL SETOUT TO BE CONFIRMED ON SITE BY THE ENGINEER PRIOR TO CONSTRUCTION
 3. SETOUT COORDINATES ARE GIVEN IN TERMS OF MOUNT EDEN 2000 PROJECTION. LEVELS ARE IN RELATIVE TO THE MOTURIKI VERTICAL DATUM 1953
 4. IN THE EVENT THERE ARE ANY DISCREPANCIES BETWEEN THE DRAWINGS AND ELECTRONIC DATA THE DRAWINGS SHALL TAKE PRECEDENCE



REV	DESCRIPTION	BY	DATE
D	FOR INFORMATION -- FFL UPDATE	LPM	03.08.23
C	FOR INFORMATION -- OLFP UPDATED	LPM	14.12.22
B	FOR INFORMATION	GCJ	29.08.22
A	FOR INFORMATION	GCJ	17.08.22

APPROVAL STATUS	
FOR INFORMATION	
DESIGNED BY	L. MCCAFFREY
DATE	17.08.22
DRAWN BY	G. JONES
DATE	17.08.22
APPROVED BY	---
DATE	---

CLIENT NAME

PROJECT NAME

3MS KELLY ROAD DEVELOPMENT

CIVIL WORKS

DRAWING TITLE

ENTRANCE & ACCESSWAYS

LAYOUT PLAN

PRODUCED BY

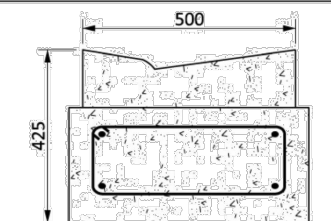
McCaffrey and Cable Consultants

DRAWING SCALE	REVISION No.
1:300	D
DISCIPLINE	CIVIL ENGINEERING
DRAWING No.	17001-C-0831

	Pedestrian Footpath (Single Residential Dwelling)	Residential Strength Vehicle Crossing (Multi Dwellings 2-6)	Commercial Strength Vehicle Crossing (Multi Dwellings 7+)	Industrial Strength Vehicle Crossings
Asphalt Surfacing	25mm Mix 10 Asphalt 150mm GAP 40 CBR > 10 Pavement Depth = 175mm	25mm Mix 10 Asphalt 175mm GAP 40 CBR > 10 Pavement Depth = 200mm	25mm Mix 10 Asphalt 225mm GAP 40 CBR > 10 Pavement Depth = 250mm	50mm Mix 20 Asphalt 250mm GAP 40 CBR > 10 Pavement Depth = 300mm
Concrete Surfacing	100mm Concrete 75mm sand / GAP 20 CBR > 10 Pavement Depth = 175mm	125mm Concrete 75mm sand / GAP 20 CBR > 10 Pavement Depth = 200mm	150mm Concrete 100mm GAP 20 CBR > 10 Pavement Depth = 250mm	175mm Concrete 125mm GAP 20 CBR > 10 Pavement Depth = 300mm
Interlocking Block Paving	50/60mm Paving Block 90mm GAP 40 25mm Bedding Sand CBR > 10 Pavement Depth = 175mm	80mm Paving Block 90mm GAP 40 25mm Bedding Sand CBR > 10 Pavement Depth = 195mm	80mm Paving Block 145mm GAP 40 25mm Bedding Sand CBR > 10 Pavement Depth = 250mm	80mm Paving Block 195mm GAP 40 25mm Bedding Sand CBR > 10 Pavement Depth = 300mm
Depressed Kerb and Channel Crossing	Pedestrian crossing (No Lip) 125mm 75mm GAP 20 CBR > 10 Pavement Depth = 200mm	Residential dwelling vehicle crossing (1-6 Dwellings) 125mm 75mm GAP 20 CBR > 10 Pavement Depth = 200mm	225mm 75mm GAP 20 CBR > 10 Pavement Depth = 300mm	300mm 75mm GAP 20 CBR > 10 Pavement Depth = 350mm

NOTES:

- Concrete - 28 Day in place minimum strength of 20MPa.
- Basecourse depth can be amended by using steel mesh reinforcing in concrete vehicle crossings (specific design required).
- Depth of sand / GAP material to be increased where the CBR is not achievable.



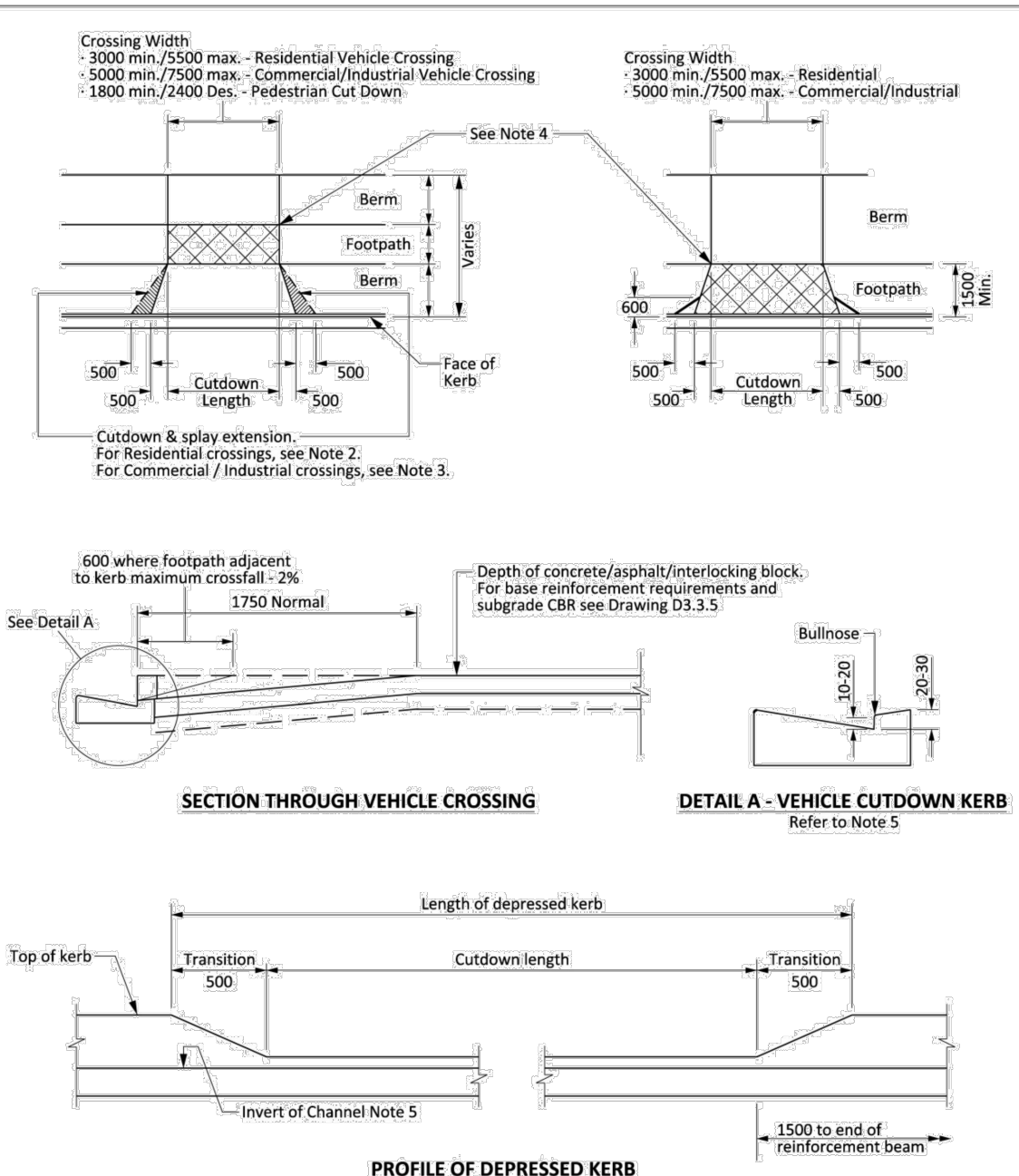
MACHINE EXTRUDED CROSSING
Pavement Depth = 425mm CBR > 10



CROSS SECTION DETAILS FOR FOOTPATH, VEHICLE CROSSINGS AND DEPRESSED KERB AND CHANNEL **D3.3.5**

REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: AUGUST 2016



NOTES:

- When commercial and industrial crossings are constructed, the reinforcement beam is to extend 1500 either side of cutdown.
- Cutdown and splay extension to be constructed where the carriageway width is less than 9000 and the crossing width is less than 4000.
- This area is to be formed and surfaced to the Commercial/Industrial standard for all Commercial/Industrial vehicle crossings. This may be extended to where footpath commences.
- The footpath within the crossing area shall be removed and strengthened to match the vehicle crossing construction standard and then be surfaced with the same material as the footpath either side.
- When crossing is a pedestrian cutdown use pedestrian / cycle cutdown shown in Drawing D3.6.4.



VEHICLE CROSSING AND PEDESTRIAN CUTDOWN SET OUT **D3.3.1**

REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: AUGUST 2016

NOTES

- STANDARD DETAILS SHOWN IN THIS DRAWINGS HAVE BEEN REPRODUCED FROM THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (MAY 2018) AND HAVE NOT BEEN ALTERED

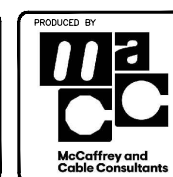
REV	DESCRIPTION	BY	DATE
B	FOR INFORMATION - FFL UPDATE	LPM	03.08.23
A	FOR INFORMATION	GCJ	17.08.22

APPROVAL STATUS	
FOR INFORMATION	
DESIGNED BY L. MCCAFFREY	DATE 17.08.22
DRAWN BY G. JONES	DATE 17.08.22
APPROVED BY	DATE



PROJECT NAME
3MS KELLY ROAD DEVELOPMENT
CIVIL WORKS

DRAWING TITLE
ENTRANCE & ACCESSWAYS TYPICAL DETAILS
SHEET 1



DRAWING SCALE	REVISION No.
N.T.S	B
DISCIPLINE	
CIVIL ENGINEERING	
DRAWING No.	
17001-C-0832	



DRAWING SCALE BAR (IN METRES): 0 0.5 1 2 3 4 5 6 8 10 12 14 16 18 20 22 24 26 28 30

LEGEND

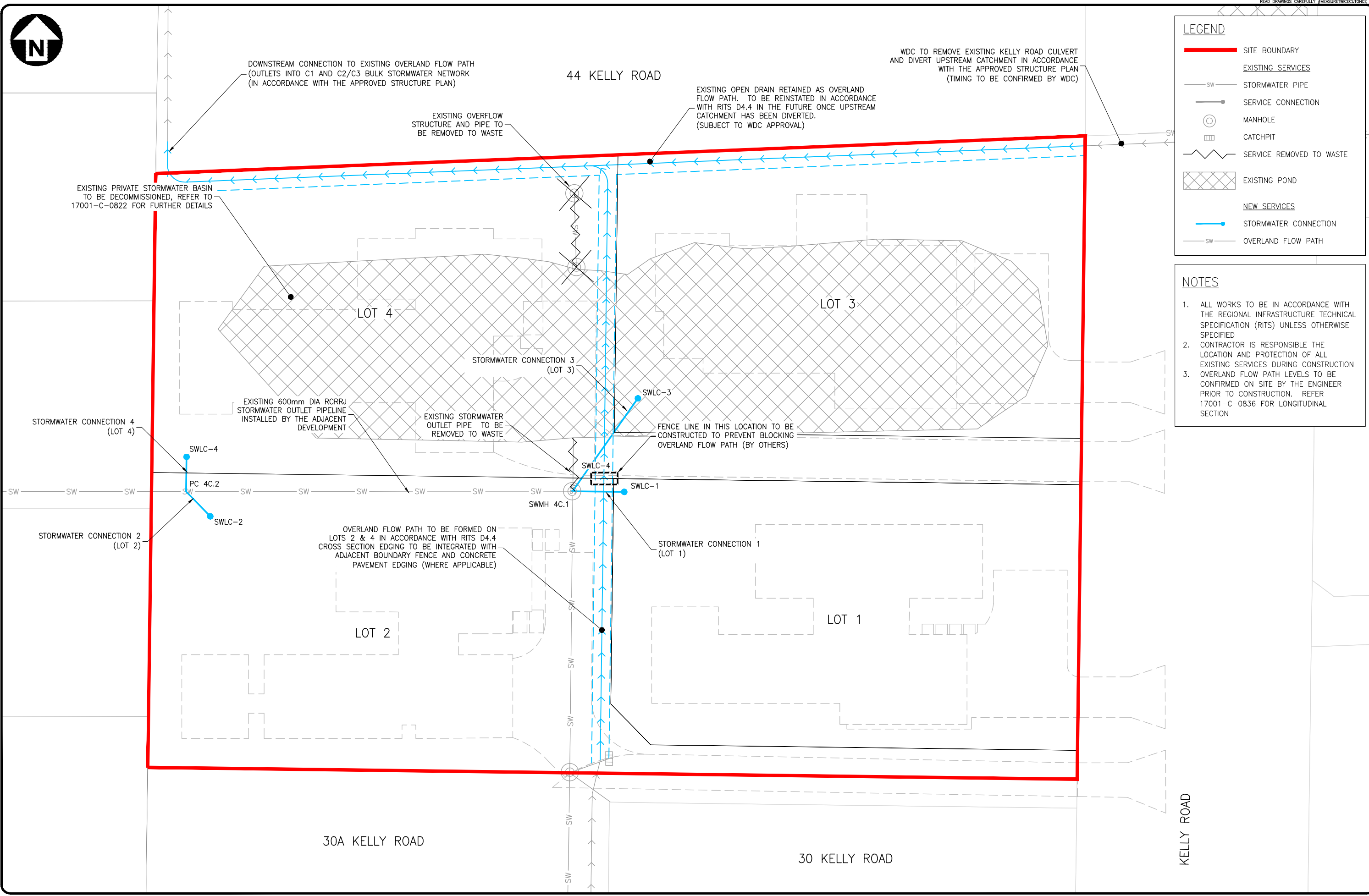
EXISTING SERVICES

- SW — STORMWATER PIPE
- SERVICE CONNECTION
- ⊙ MANHOLE
- ⊞ CATCHPIT
- /—/— SERVICE REMOVED TO WASTE
- ▨ EXISTING POND

NEW SERVICES

- STORMWATER CONNECTION
- SW — OVERLAND FLOW PATH

- NOTES**
1. ALL WORKS TO BE IN ACCORDANCE WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (RITS) UNLESS OTHERWISE SPECIFIED
 2. CONTRACTOR IS RESPONSIBLE THE LOCATION AND PROTECTION OF ALL EXISTING SERVICES DURING CONSTRUCTION
 3. OVERLAND FLOW PATH LEVELS TO BE CONFIRMED ON SITE BY THE ENGINEER PRIOR TO CONSTRUCTION. REFER 17001-C-0836 FOR LONGITUDINAL SECTION



REV	DESCRIPTION	BY	DATE
C	FOR INFORMATION - FFL UPDATE	LPM	03.08.23
B	FOR INFORMATION - OLFP UPDATED	LPM	14.12.22
A	FOR INFORMATION	GCJ	29.08.22

APPROVAL STATUS

FOR INFORMATION

DESIGNED BY	DATE
L. MCCAFFREY	29.08.22
DRAWN BY	DATE
G. JONES	29.08.22
APPROVED BY	DATE
—	—



PROJECT NAME

3MS KELLY ROAD DEVELOPMENT

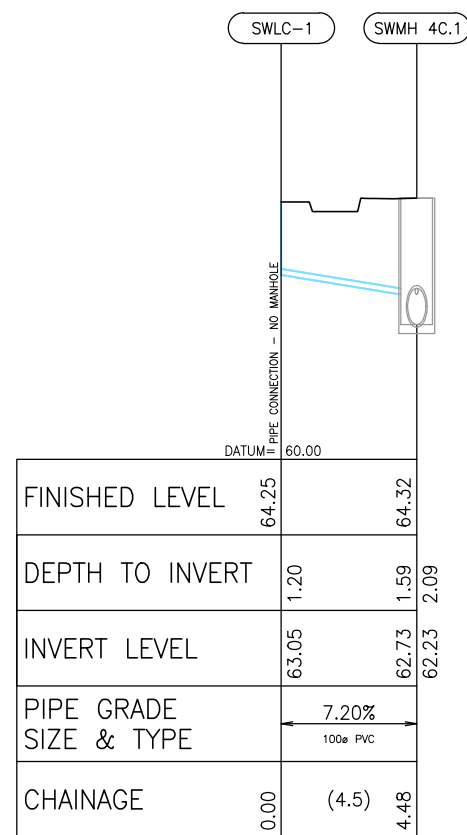
CIVIL WORKS

DRAWING TITLE

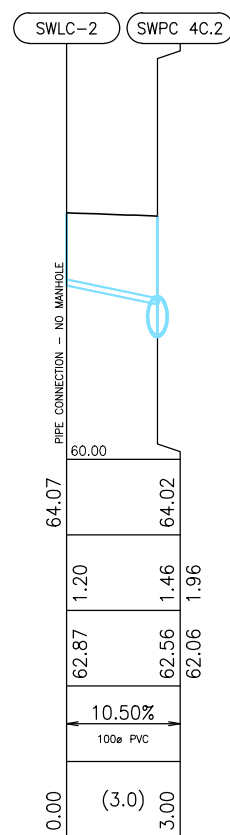
STORMWATER LAYOUT PLAN



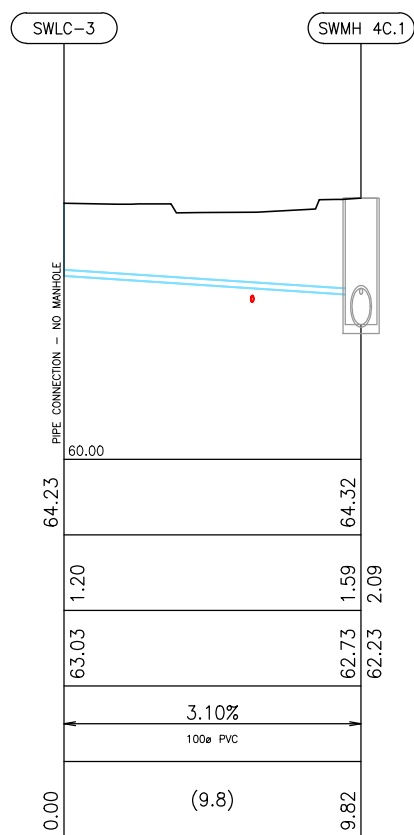
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DISCIPLINE	CIVIL ENGINEERING		
DRAWING No.	17001-C-0835		



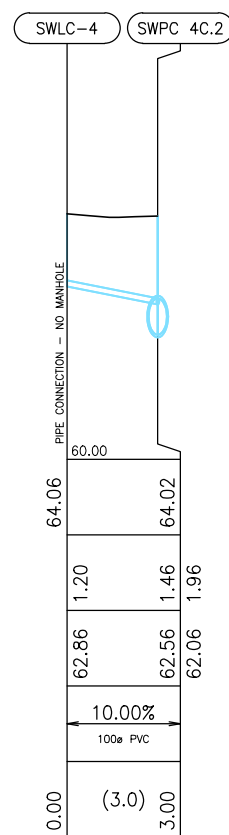
SW CONNECTION 1



SW CONNECTION 2



SW CONNECTION 3



SW CONNECTION 4

PIT ID	EASTING	NORTHING
SWLC-1	460492.65	688068.51
SWLC-2	460456.82	688066.40
SWLC-3	460493.83	688076.60
SWLC-4	460454.77	688071.55

SETOUT TABLE - LOT CONNECTIONS

NOTES

1. ALL SETOUT TO BE CONFIRMED ON SITE BY THE ENGINEER PRIOR TO CONSTRUCTION
2. SETOUT COORDINATES ARE GIVEN IN TERMS OF MOUNT EDEN 2000 PROJECTION. LEVELS ARE IN RELATIVE TO THE MOTURIKI VERTICAL DATUM 1953
3. IN THE EVENT THERE ARE ANY DISCREPANCIES BETWEEN THE DRAWINGS AND ELECTRONIC DATA THE DRAWINGS SHALL TAKE PRECEDENCE

LONGITUDINAL SECTION SCALE - 1:250 HORIZONTAL / 1:125 VERTICAL

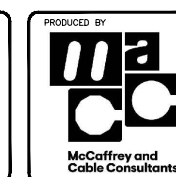
REV	DESCRIPTION	BY	DATE
B	FOR INFORMATION - FFL UPDATE	LPM	03.08.23
A	FOR INFORMATION	GCJ	29.08.22

APPROVAL STATUS	
FOR INFORMATION	
DESIGNED BY L. MCCAFFREY	DATE 29.08.22
DRAWN BY G. JONES	DATE 29.08.22
APPROVED BY -	DATE -

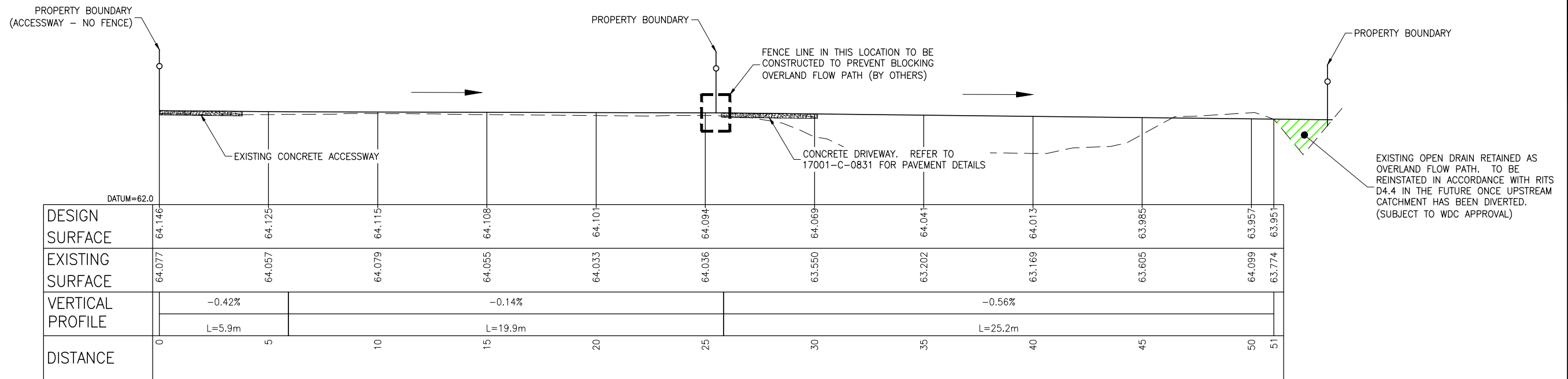


PROJECT NAME 3MS KELLY ROAD DEVELOPMENT CIVIL WORKS

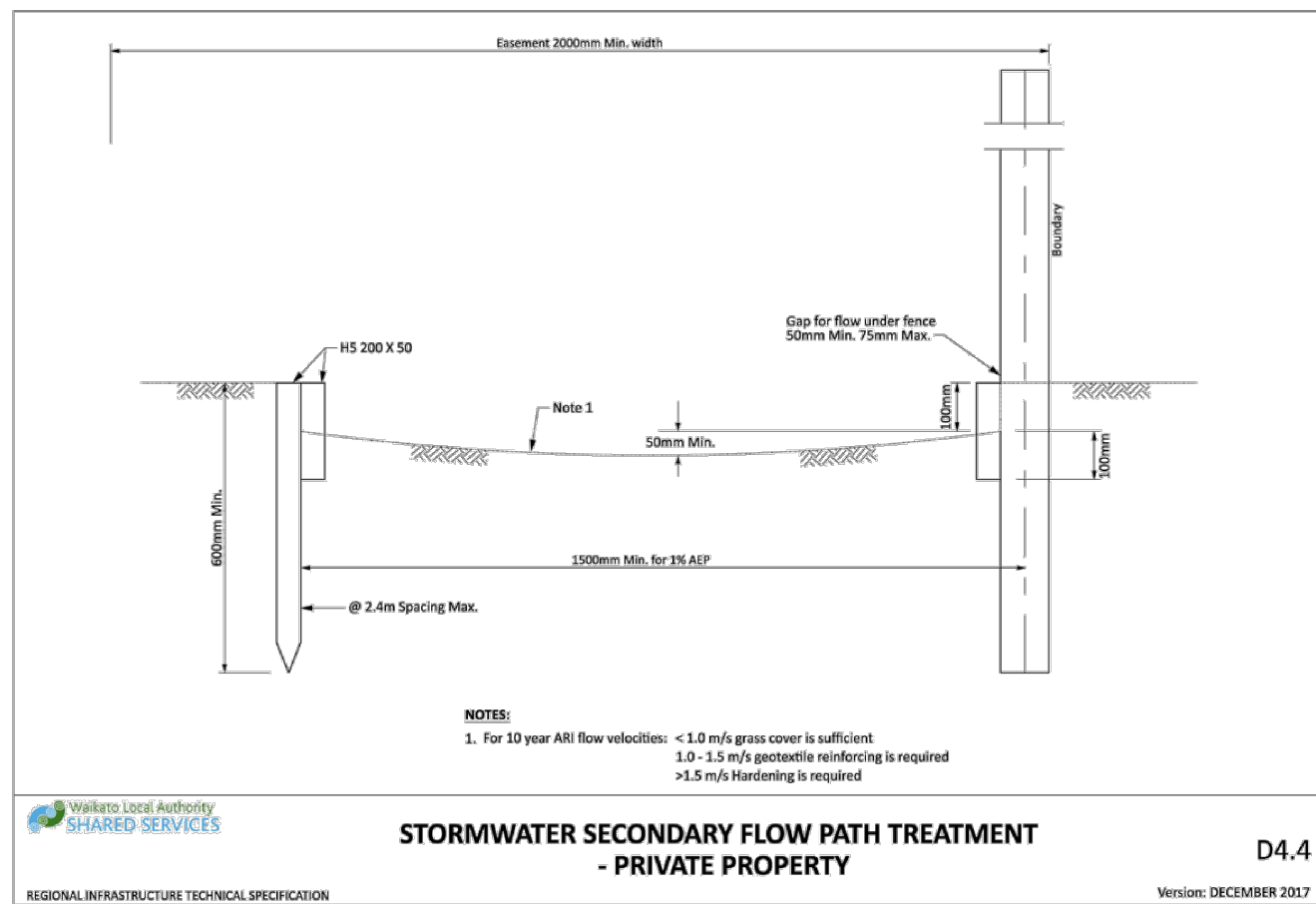
DRAWING TITLE UTILITY SERVICES LONGITUDINAL SECTIONS SHEET 1
--



DRAWING SCALE AS SHOWN	REVISION No. B
DISCIPLINE CIVIL ENGINEERING	
DRAWING No. 17001-C-0836	



LONGITUDINAL SECTION – OVERLAND FLOW PATH
HORIZONTAL SCALE=1:200; VERTICAL SCALE=1:100



- NOTES**
- ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (RITS) UNLESS OTHERWISE SPECIFIED
 - CONTRACTOR TO PROVIDE GRADING CURVE OF PROPOSED BEDDING MATERIAL TO ENGINEER FOR APPROVAL
 - ALL DIMENSIONS ARE MINIMUM AND MAY BE INCREASED ON SITE
 - STANDARD DETAIL SHOWN BELOW HAS BEEN REPRODUCED FROM THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (MAY 2018) AND HAS NOT BEEN ALTERED

C	FOR INFORMATION – FFL UPDATE	LPM	03.08.23
B	FOR INFORMATION – OLFP UPDATED	LPM	14.12.22
A	FOR INFORMATION	GCJ	29.08.22
REV	DESCRIPTION	BY	DATE

APPROVAL STATUS		FOR INFORMATION	
DESIGNED BY	L. MCCAFFREY	DATE	29.08.22
DRAWN BY	G. JONES	DATE	29.08.22
APPROVED BY	—	DATE	—

CLIENT NAME

PROJECT NAME

3MS KELLY ROAD DEVELOPMENT

CIVIL WORKS

DRAWING TITLE

STORMWATER TYPICAL DETAILS

SHEET 1

PRODUCED BY

DATE PRINTED: 3 August 2023

DRAWING SCALE

AS SHOWN

DISCIPLINE

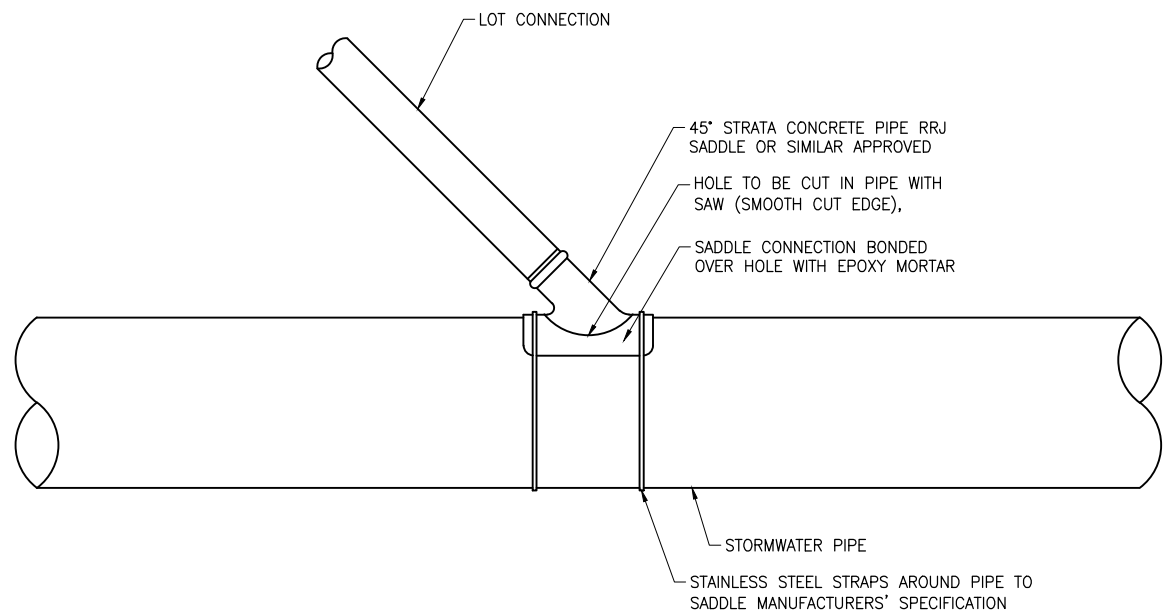
CIVIL ENGINEERING

DRAWING No.

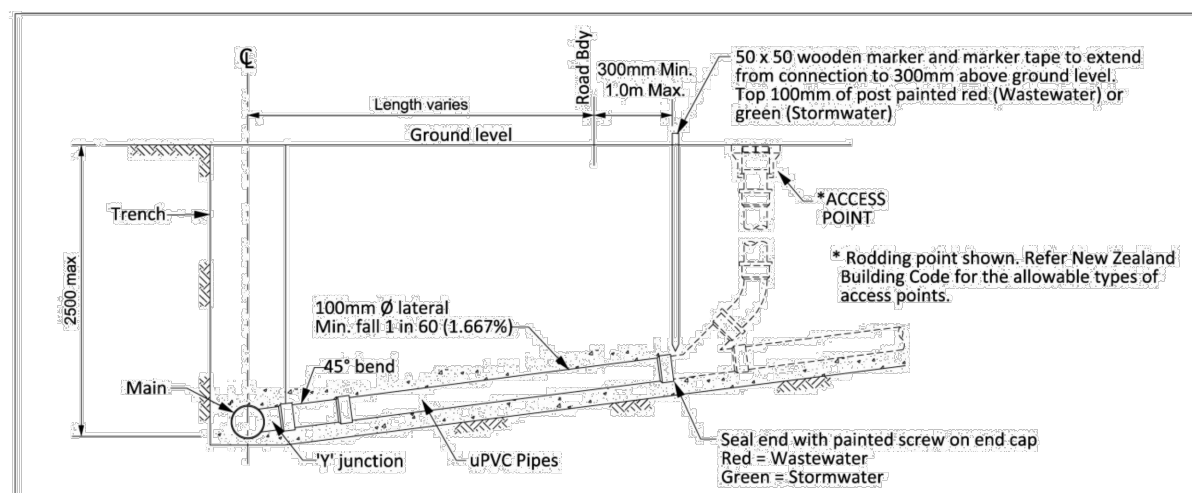
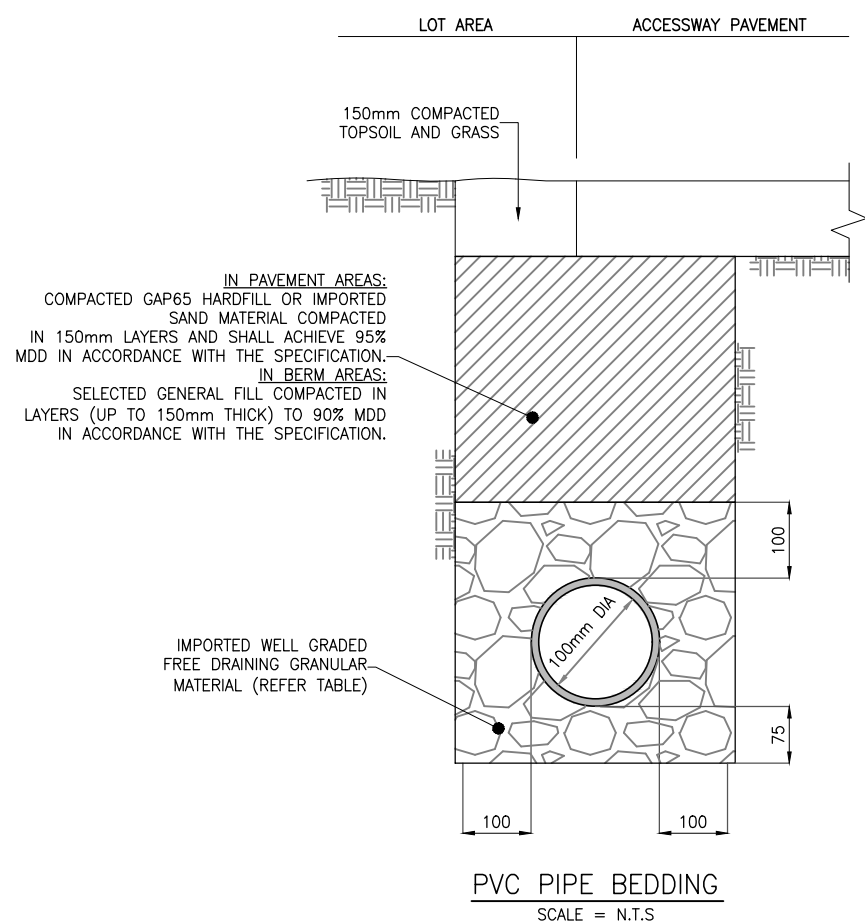
17001-C-0837

REVISION No.

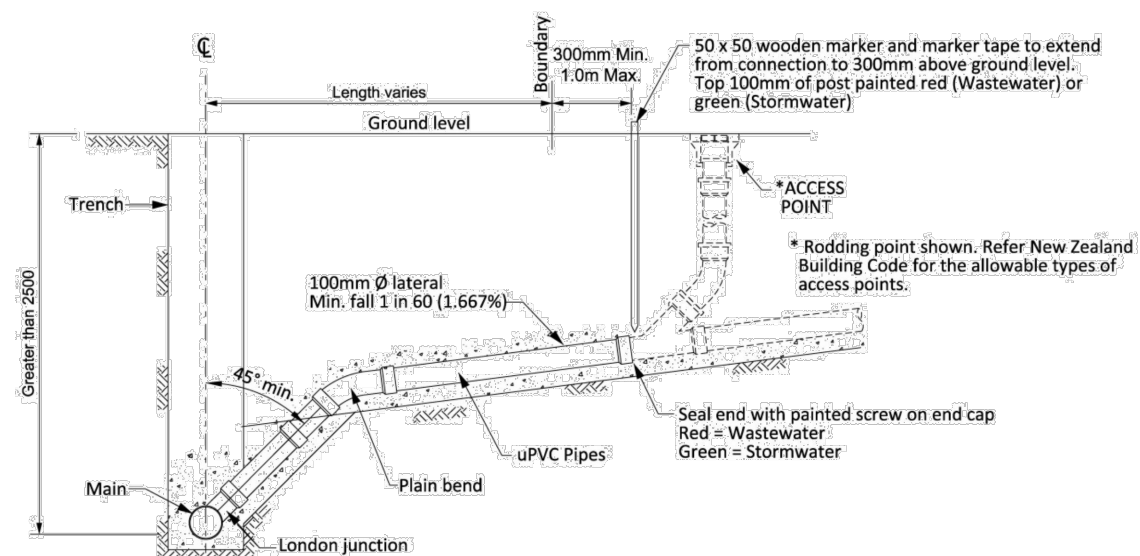
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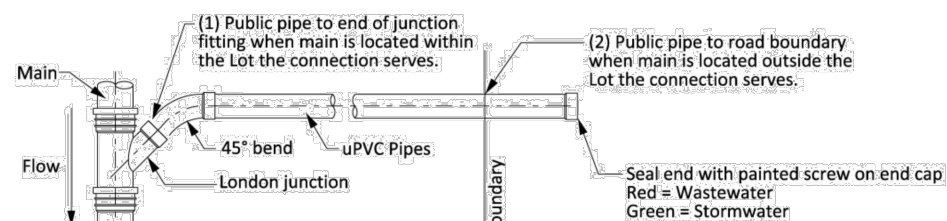
STORMWATER SADDLE CONNECTION DETAIL
SCALE = N.T.S



STANDARD CONNECTION WITH A DEPTH TO INVERT LESS THAN 2500mm - SECTION



RAMP RISER CONNECTION WITH A DEPTH TO INVERT GREATER THAN 2500mm - SECTION



POINT OF DISCHARGE: PUBLIC AND PRIVATE INFRASTRUCTURE



LATERAL CONNECTION

D5.4

REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: AUGUST 2016

NOTES

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (RITS) UNLESS OTHERWISE SPECIFIED
2. CONTRACTOR TO PROVIDE GRADING CURVE OF PROPOSED BEDDING MATERIAL TO ENGINEER FOR APPROVAL
3. ALL DIMENSIONS ARE MINIMUM AND MAY BE INCREASED ON SITE
4. STANDARD DETAIL SHOWN BELOW HAS BEEN REPRODUCED FROM THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (MAY 2018) AND HAS NOT BEEN ALTERED

REV	DESCRIPTION	BY	DATE
B	FOR INFORMATION - FFL UPDATE	LPM	03.08.23
A	FOR INFORMATION	GCJ	29.08.22

APPROVAL STATUS			
FOR INFORMATION			
DESIGNED BY	DATE	APPROVED BY	DATE
L. MCCAFFREY	29.08.22	G. JONES	29.08.22

CLIENT NAME
3MS

PROJECT NAME
3MS KELLY ROAD DEVELOPMENT
CIVIL WORKS

DRAWING TITLE
STORMWATER TYPICAL DETAILS
SHEET 2

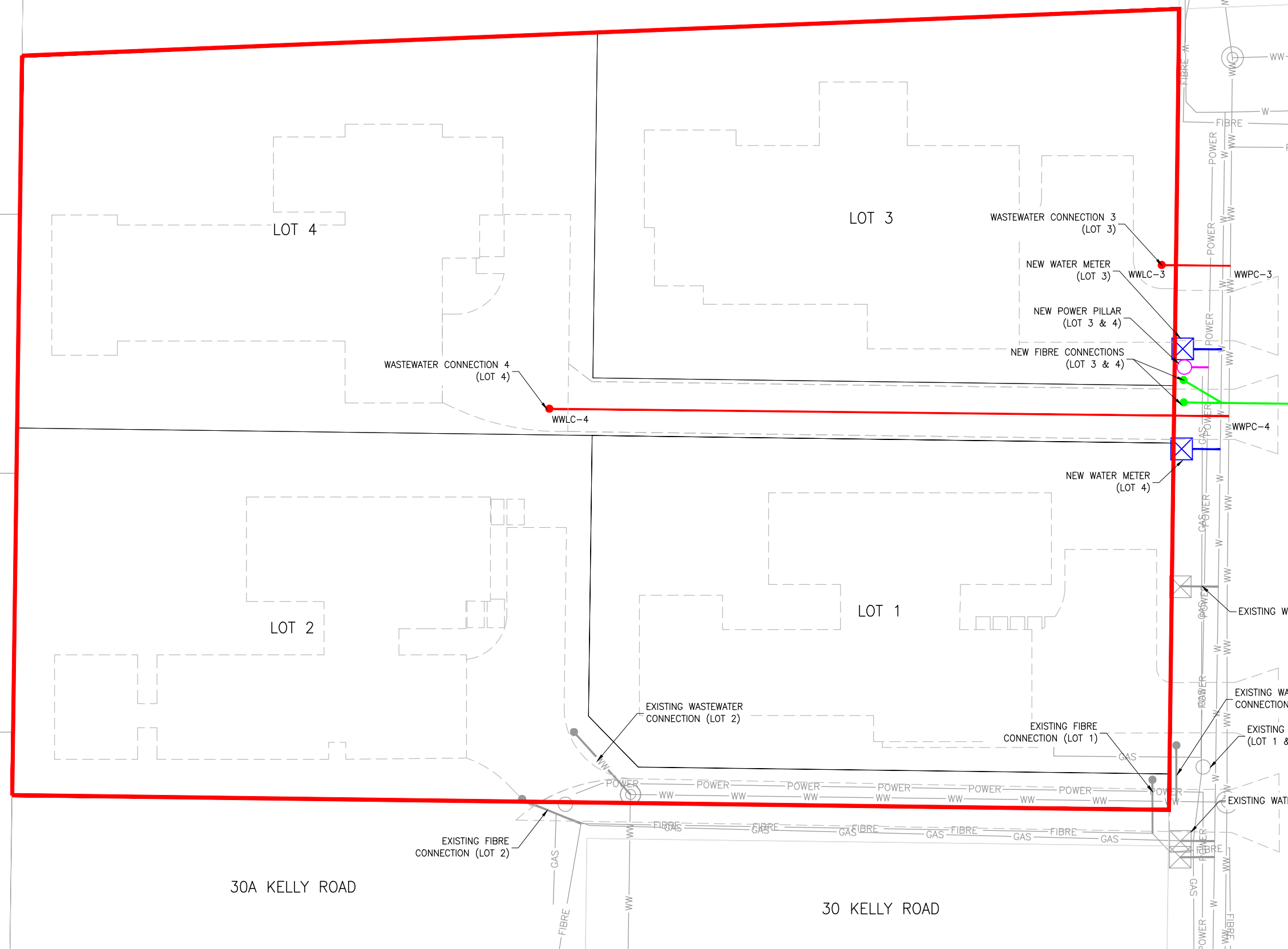
PRODUCED BY
mac
McCaffrey and Cable Consultants

DRAWING SCALE
AS SHOWN
DISCIPLINE
CIVIL ENGINEERING
DRAWING No.
17001-C-0838
REVISION No.
B

DRAWING SCALE BAR (IN METRES): 0 0.5 1 2 3 4 5 6 8 10 12 14 16 18 20 22 24 26 28 30



44 KELLY ROAD



LEGEND

- SITE BOUNDARY
- EXISTING SERVICES**
- WW — WASTEWATER PIPE
- W — WATER PIPE
- POWER — POWER CABLE
- POWER — GAS PIPE
- FIBRE — FIBRE OPTIC CABLE
- SERVICE CONNECTION
- ⊙ MANHOLE
- ⊞ CATCHPIT
- ⊠ WATER METER
- NEW SERVICES**
- WASTEWATER CONNECTION
- WATER CONNECTION & METER
- POWER CONNECTION & PILLAR
- FIBRE CONNECTION

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (RITS) UNLESS OTHERWISE SPECIFIED
2. CONTRACTOR IS RESPONSIBLE THE LOCATION AND PROTECTION OF ALL EXISTING SERVICES DURING CONSTRUCTION
3. POWER AND FIBRE CONNECTIONS SHOWN ARE INDICATIVE ONLY (TO BE CONFIRMED BY UTILITY PROVIDERS)

30A KELLY ROAD

30 KELLY ROAD

KELLY ROAD

REV	DESCRIPTION	BY	DATE
C	FOR INFORMATION -- FFL UPDATE	LPM	03.08.23
B	FOR INFORMATION	GCJ	29.08.22
A	FOR INFORMATION	GCJ	17.08.22

FOR INFORMATION

DESIGNED BY	L. MCCAFFREY	DATE	17.08.22
DRAWN BY	G. JONES	DATE	17.08.22
APPROVED BY	—	DATE	—

CLIENT NAME

PROJECT NAME

3MS KELLY ROAD DEVELOPMENT

CIVIL WORKS

DRAWING TITLE

UTILITY SERVICES

LAYOUT PLAN

PRODUCED BY

DATE PRINTED: 3 August 2023

DRAWING SCALE

1:300

DISCIPLINE

CIVIL ENGINEERING

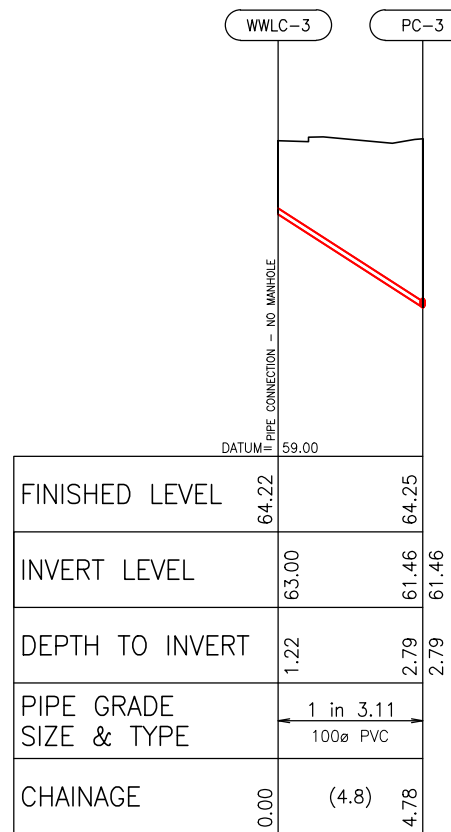
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17001-C-0841

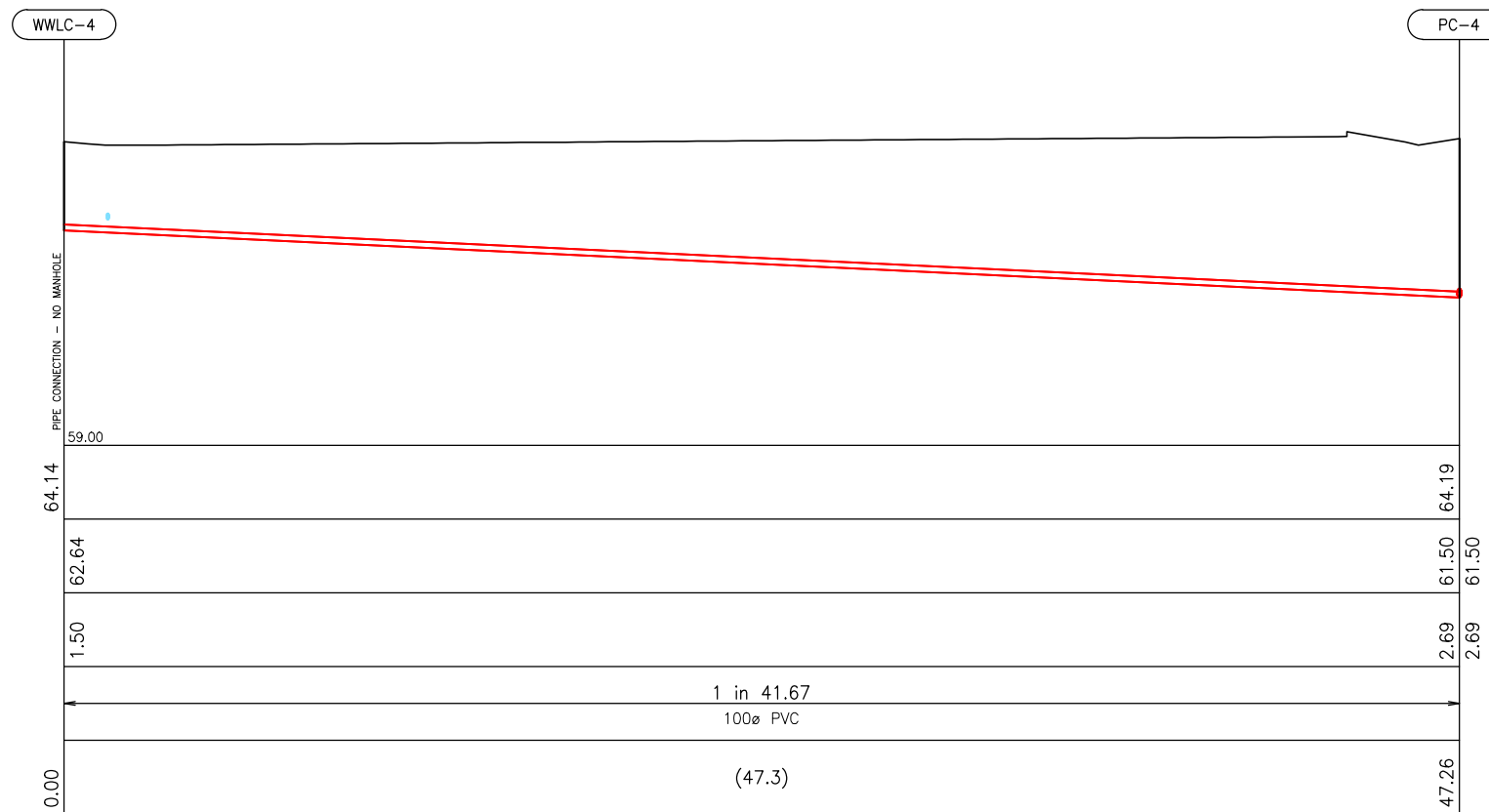
REVISION No.

C

FILE NAME: 17001-C-0841.dwg



WW LOT CONNECTION 3



WW LOT CONNECTION 4

PIT ID	EASTING	NORTHING
WWLC-3	460531.35	688081.52
WWLC-4	460488.77	688071.53

SETOUT TABLE – LOT CONNECTIONS

NOTES

1. ALL SETOUT TO BE CONFIRMED ON SITE BY THE ENGINEER PRIOR TO CONSTRUCTION
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3. IN THE EVENT THERE ARE ANY DISCREPANCIES BETWEEN THE DRAWINGS AND ELECTRONIC DATA THE DRAWINGS SHALL TAKE PRECEDENCE

LONGITUDINAL SECTION SCALE – 1:250 HORIZONTAL / 1:125 VERTICAL

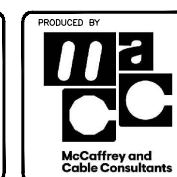
REV	DESCRIPTION	BY	DATE
C	FOR INFORMATION – FFL UPDATE	LPM	03.08.23
B	FOR INFORMATION	GCJ	29.08.22
A	FOR INFORMATION	GCJ	17.08.22

APPROVAL STATUS		FOR INFORMATION	
DESIGNED BY	L. MCCAFFREY	DATE	17.08.22
DRAWN BY	G. JONES	DATE	17.08.22
APPROVED BY	—	DATE	—

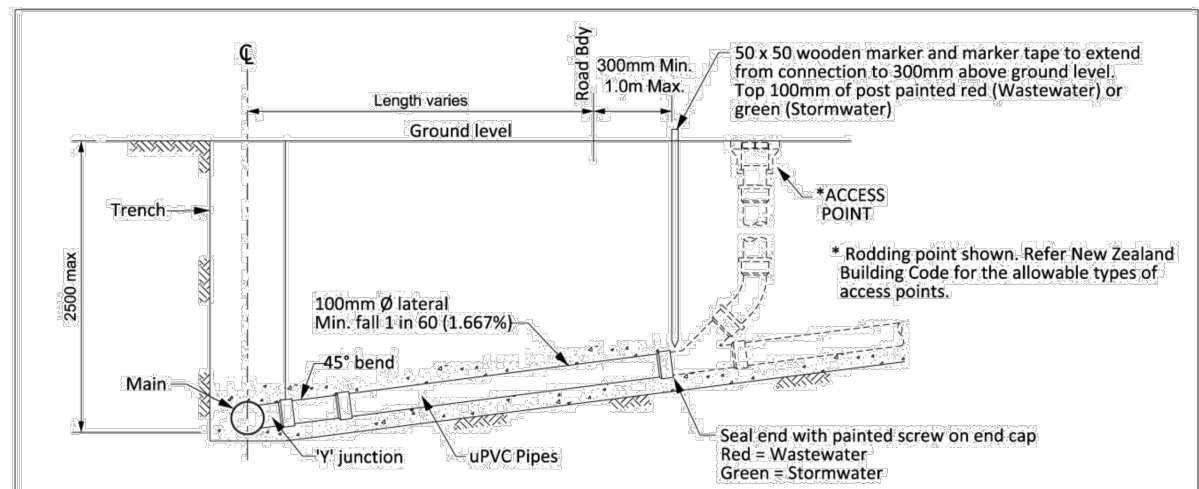


PROJECT NAME
3MS KELLY ROAD DEVELOPMENT
CIVIL WORKS

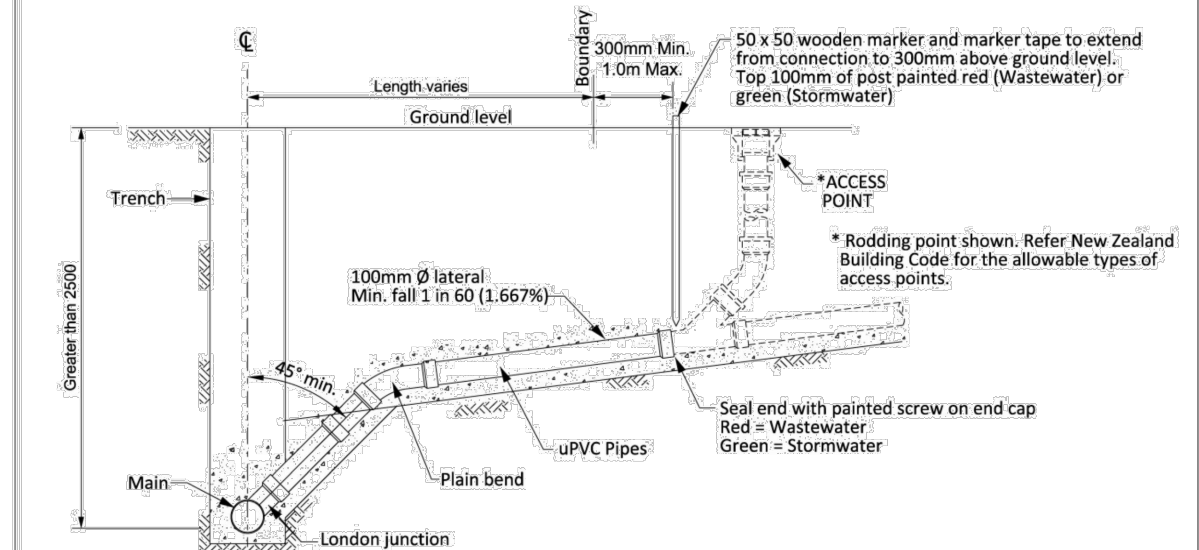
DRAWING TITLE
UTILITY SERVICES LONGITUDINAL SECTIONS
SHEET 1



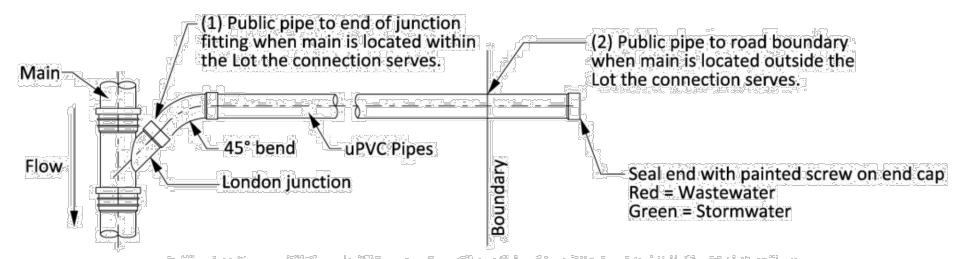
DRAWING SCALE	AS SHOWN	REVISION No.	C
DISCIPLINE	CIVIL ENGINEERING		
DRAWING No.	17001-C-0842		



STANDARD CONNECTION WITH A DEPTH TO INVERT LESS THAN 2500mm - SECTION



RAMP RISER CONNECTION WITH A DEPTH TO INVERT GREATER THAN 2500mm - SECTION



POINT OF DISCHARGE: PUBLIC AND PRIVATE INFRASTRUCTURE

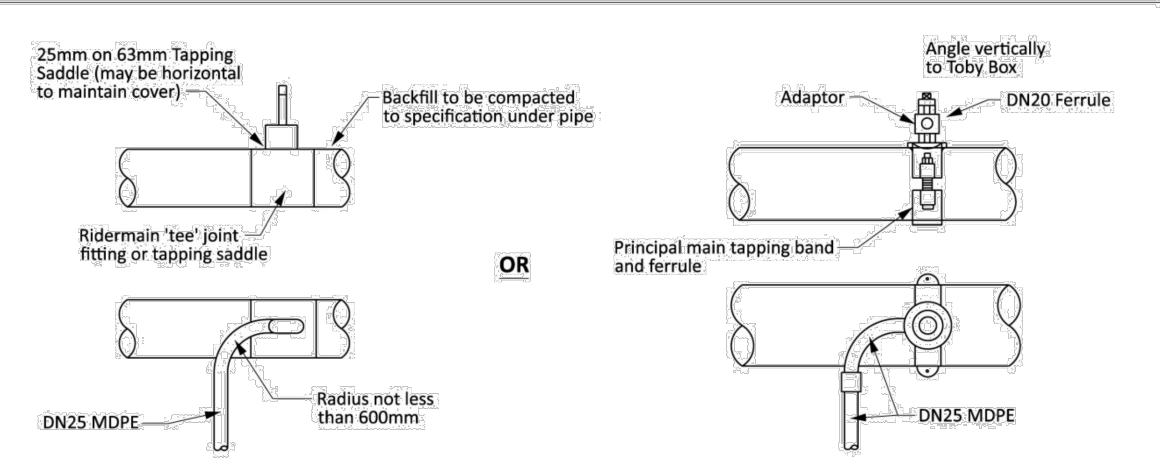


LATERAL CONNECTION

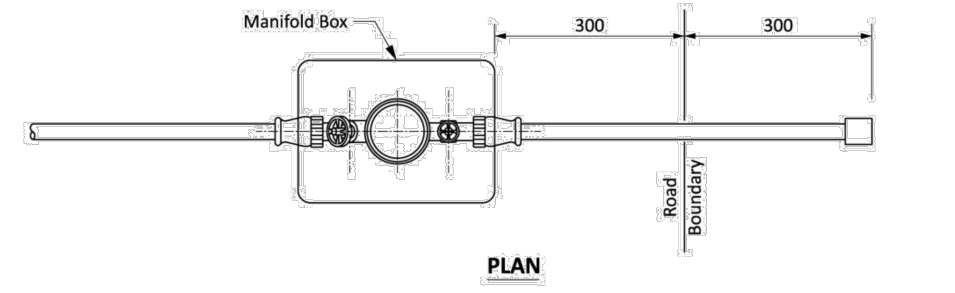
D5.4

REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION

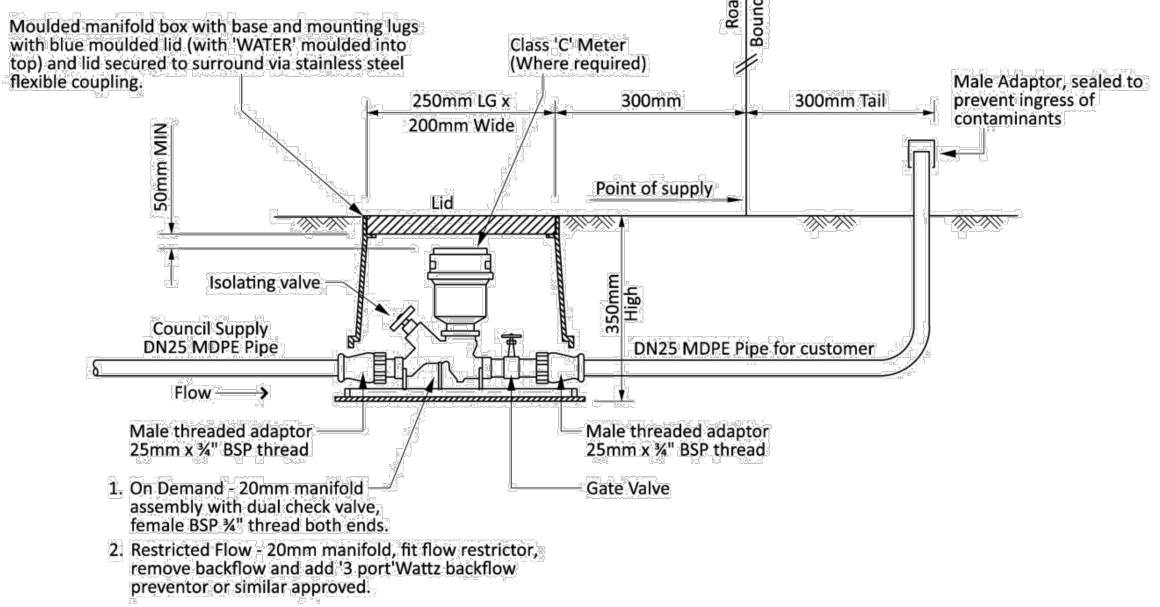
Version: AUGUST 2016



OR



PLAN



1. On Demand - 20mm manifold assembly with dual check valve, female BSP 1/4" thread both ends.
2. Restricted Flow - 20mm manifold, fit flow restrictor, remove backflow and add '3 port' Wattz backflow preventor or similar approved.

NOTE:

1. When a connection is made to an existing watermain, a gunmetal self-tapping ferrule shall be installed directly on the tapping saddle prior to the installation of other fittings.

NOT TO SCALE



20mm METERED AND UNMETERED SERVICE CONNECTIONS - ON DEMAND AND RESTRICTED FLOW SUPPLIES

D6.6

REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: MARCH 2018

NOTES

1. STANDARD DETAILS SHOWN IN THIS DRAWINGS HAVE BEEN REPRODUCED FROM THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATION (MAY 2018) AND HAVE NOT BEEN ALTERED

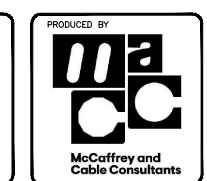
C	FOR INFORMATION - FFL UPDATE	LPM	03.08.23
B	FOR INFORMATION	GCJ	29.08.22
A	FOR INFORMATION	GCJ	17.08.22
REV	DESCRIPTION	BY	DATE

APPROVAL STATUS	FOR INFORMATION		
DESIGNED BY	L. MCCAFFREY	DATE	17.08.22
DRAWN BY	G. JONES	DATE	17.08.22
APPROVED BY		DATE	



PROJECT NAME	3MS KELLY ROAD DEVELOPMENT
CIVIL WORKS	

DRAWING TITLE	UTILITY SERVICES TYPICAL DETAILS
SHEET 1	



DRAWING SCALE	N.T.S.	REVISION No.	C
DISCIPLINE	CIVIL ENGINEERING		
DRAWING No.	17001-C-0843		