

**BEFORE THE ENVIRONMENT COURT
IN AUCKLAND**

Decision No. [2017] NZEnvC 127

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of a direct application under section 87G of
the Act for a direct referral for 31-lot
residential subdivision at 84 Laurel Oak
Drive, Albany

BETWEEN 3RD FAIRWAY DEVELOPMENTS
LIMITED

(ENV-2017-AKL-007)

Applicant

AND AUCKLAND COUNCIL

Unitary Authority

Court: Environment Judge JA Smith
Environment Commissioner RM Dunlop

Appearances: JC Brabant for 3RD Fairway Developments Limited (Applicant)
AF Buchanan for Auckland Council (Unitary Authority)

Date of Decision: 17 August 2017

Date of Issue: **17 AUG 2017**

DECISION OF THE ENVIRONMENT COURT

- A: The conditions of consent are in a format which is acceptable to the Court and clarify matters raised at the hearing and in the Court's Minute of 18 May.
- B: The consent conditions and attached diagrams constitute the consent in this case and are annexed hereto as B.
- C: The Court confirms that the consent can appropriately be granted on those conditions.
- D: Costs applications are not encouraged. Any applications must be filed within five working days or costs lie where they fall.

3RD FAIRWAY DEVELOPMENTS LIMITED v AUCKLAND COUNCIL



REASONS

Introduction

[1] This matter was set down for hearing on 18 May 2017. Part of the area had been the subject of earlier consent order by the Court [2015] NZEnvC 123. The latest application sought extension and modification of the area to be subdivided and developed.

[2] The full details are set out in a Minute of the Court issued upon the conclusion of that hearing, and is annexed to this decision as **A**. As can be seen from the Minute of 18 May, the Court was largely satisfied that the consent could be granted, but considered that there needed to be more attention paid to the conditions of consent.

[3] To aid the finalisation of these, the parties agreed to have Commissioner Dunlop conduct a workshop with the parties with a view to providing a consensus as to conditions. The parties also agreed that if a further was required, the Court could reconvene with Commissioner Dunlop.

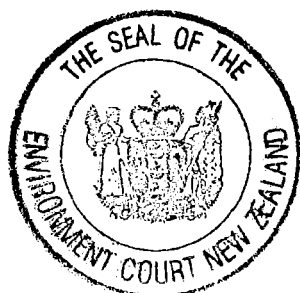
[4] The Court also made a direction that the original objectors should also be advised of this Minute and have the opportunity if they wished to participate in the conditions and meetings. Mr Milicich did take this opportunity and discussions included him, although he is not a formal party to these proceedings.

Progress

[5] Commissioner Dunlop has put a significant amount of time in this matter and the Court and parties are grateful for his assistance.

[6] As a result of the meetings that took place, the parties collaborated to produce a final set of conditions which have been produced to this Court and are annexed hereto as Appendix B. The parties have also produced a track change version to the Court so it is able to ascertain the changes that have taken place.

[7] It would be fair to say that the major issue addressed through the further caucusing has been certainty, clarity, and consistency in wording in the conditions of consent. Additional words have been added in relation to Dust Management (condition 20) and in relation to Stormwater (condition 71). There has also been some clarification of lot boundaries and the addition of widened flares in relation to a new vehicle crossing



at 80 Laurel Oak Drive.

Resident issues

[8] Mr Milicich attended the workshop in an unofficial capacity. In addition to the change to the flares which have now been completed by the developer, the driveway access is now physically complete.

[9] The main issue concerning Mr Milicich was the maintenance costs in respect of that drive. The position for the Applicant is that it is a matter outside the scope of this application, but the developer has made an offer to Mr Milicich. That letter has been produced to the Court, but would require Mr Milicich's agreement and a change to the existing easement documentation.

[10] Overall, I have concluded that the issue relating to maintenance is a matter beyond the scope of this hearing and is covered by an existing easement. It is of course up to the parties if they wish to enter into a variation to that easement. It is not a matter for this Court.

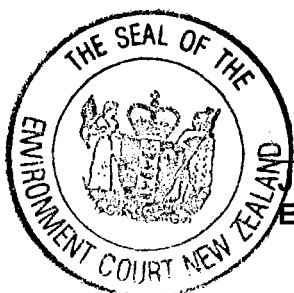
Evaluation

[11] I therefore confirm that the conditions of consent are in a format which is acceptable to the Court and clarify matters raised at the hearing and in the Court's Minute of 18 May.

[12] The consent conditions and attached diagrams constitute the consent in this case and are annexed hereto as **B**. The Court confirms that the consent can appropriately be granted on those conditions.

[13] No party has raised any issue as to costs. This does not appear to be an appropriate case for costs, unless an application is filed within five working days. Costs should lie where they fall.

For the court:




A Smith
Environment Judge

A

BEFORE THE ENVIRONMENT COURT

IN THE MATTER of the Resource Management Act 1991

AND of an application under section 87G of the Act for a direct referral

AND of an application for resource consent for 31-lot residential subdivision at 84 Laurel Oak Drive, Albany

BY 3rd Fairway Developments Limited
(ENV-2017-AKL-007)
Applicant

AND AUCKLAND COUNCIL
Unitary Authority

Court: Judge JA Smith, Environment Judge
Environment Commissioner RM Dunlop

Hearing: at Auckland on 16 May 2017

Appearances: Mr JC Brabant for 3rd Fairway Developments Limited (Applicant)
Ms AF Buchanan for Auckland Council (Unitary Authority)

MINUTE AND DIRECTIONS OF THE ENVIRONMENT COURT

(18 May 2017)

Introduction

[1] This matter was set down for a formal hearing in relation to an application for resource consents to enable further development at 84 Laurel Oak Drive, Albany. The matter had been the subject of previous consent orders of the Environment Court in [2015] NZEnvC 123, and subsequently a direct referral [2015] NZEnvC 193.



[2] The consent application sought to consolidate the existing consents with those enabling an extension of the area to be subdivided and developed. This involved boundary adjustments with the North Shore Golf Club and involved an area of the golf club lands, including the 3rd fairway.

[3] The application was filed in June 2016, but works have continued in the meantime in reliance upon the earlier consents granted. As such, most of the basic earthworks involving the original land have been completed, and some at least preliminary works in relation to the land more recently acquired.

[4] A direct referral was sought to obtain the resource consents necessary to enable all of the works, including replacing the existing consents and permitting the reconfiguration of the development to include the additional land.

[5] No parties appeared in opposition, and a joint witness statement had been filed by Council and applicant witnesses. Although confirming initial reports, this affidavit did not go into any detail as to the matters raised as concerns by any of the expert witnesses reports, or objections filed on the original notification. No parties in opposition appeared.

The application

[6] The application for consents is identified in the s 87F reports, but the expert witnesses focussed on conditions of consent. There is no expression in that document as to what consents are granted.

[7] As the hearing proceeded, this failure became increasingly evident. The application itself does not contain this information and one must move to the AEE to see the proposal, which is identified at 1.4 of the AEE as involving:

- (a) 31 residential lots into subdivision stages;
- (b) private road; four access lots from Laurel Oak Drive;
- (c) reserve to vest (lot 500 1.1ha);
- (d) earthworks (illustrated elsewhere);
- (e) vegetation removal (much of which had already been completed);
- (f) works in a water course to establish culverts (already approved) and



(g) lots and dwelling setbacks in proximity to Vector overhead power lines.

[8] A comparison with the earlier consents, issued in 2015, shows that this does not cover all the matters covered in those consents, notably discharge consents. By the time of the s 87F report, the Council officer suggested that the applications related to the following:

- Rule E3.4 (A44) – culvert across the stream,
- Rule E3.4.1 (A32) – proposed culvert and E3.4.1 (A39) – proposed stormwater outfall,
- Rule E10.4.1 (A3) – consent as it is located within a stormwater management area flow,
- Rule E11.4 – earthworks under a regional plan rule,
- Rule E12 (A6) and (A10) – earthworks under district plan rules,
- Rule E15 – works within the SEA (already completed) and resource consent vegetation removal in proximity to the coast,
- Rule 38.4.1 (A8) and (A10) – reduction in esplanade reserve,
- Rule 38.4.1 (A11) – subdivision on a site subject to 1% AEP, coastal storm inundation and potential land instability,
- Rule 38.4.1 (A18) – does not comply with standard E38.8.3.1(4) – makes the application for subdivision non-complying,
- Rule 38.4.2 (A22) – subdivision containing SEA, failing to meet standard E38.8.2.5, non-complying (E38.4.2 (A23)),
- Rule 38.4.1 (A30) and (A31) – not meeting standards E38.6 and E38.8, subdivision not meeting standard,
- Another restricted discretionary activity was under the National Environmental Standard for assessing and managing contaminants in soil to protect human health, HAIL activity under 5.7(b), and a change of use is occurring, therefore requires a restricted discretionary consent.

The s 87F report concludes that, overall, the application is non-complying.



[9] In conclusion, it is unclear what applications are being sought and intended to be granted by this current application. Reference to the conditions shows that the relevant consents have been completely omitted. Furthermore, there are references suggested in the conditions to general conformance with many different plans and reports, some of which are conflicting and some of which are no longer relevant given that matters have progressed. Others employ language that creates potential compliance enforcement challenges.

[10] Given these difficulties, the Court is unable to advance the matter greatly until the applicant has clarified what particular consents it seeks and what particular design is intended. We note that the format for consents and conditions was covered in some exhaustive detail in the first of our decisions in 2015, which set out a format for the decision at that time to clarify these matters. It is regrettable that the applicant did not feel it necessary to utilise that format in preparing this application and for hearing.

Matters that have already been determined

[11] There are a number of matters that have already been determined and remain largely unaffected by the change in the application before this Court. These particularly relate to the areas that are reserved for SEA or are protected areas. We can only assume that this must now also include the esplanade reserve issues, although no witness seems to address that matter in any particular detail.

[12] This leads on to the conditions of the original resource consents, which have largely been performed. Some have been included within the new proposed conditions of consent in order to satisfy the requirements on 223 of the Act when titles are sought to be issued. Nevertheless, ecological conditions relating to bat surveys, bird nesting and herpetofauna were already completed at the time the application was filed, and appear to include the areas involved in the additional land acquisition. Ms Myers gave evidence to this effect. That being the case, the conditions are now impossible of fulfilment.

[13] Our view is that conditions that have been fulfilled should be annexed as an appendix to the conditions of consent to record that they were part of the original consent but have been performed in full. There are, however, many enduring conditions of consent from the earlier consents that involve not only aspects that have been achieved, but ongoing requirements, ie erosion and sediment control, planting etc.



Structural concerns with the conditions of consent

[14] This leads on to the question as to how the consent could properly be structured. Firstly, a proper identification of the consents which are granted gives a framework in which the various conditions can be addressed. Inevitably there are a series of conditions that have general application, and these are generally contained within the first portion of an omnibus consent. Thereafter, the general format would be for each particular consent to have any conditions that attach solely to that consent annexed, or where certain consents have conditions that only apply to some of those consents but not all there is often a cross-identification without repetition of the full conditions. Whatever approach is adopted, it is essential that the consent or consents to which each condition applies is identified.

[15] Such a structure would make the conditions of consent more manageable, and enforceable. We note also that there is a significant lack of clarity within the conditions as currently expressed. We suggest the following three rules for drafting of conditions:

- (a) Clarity;
- (b) certainty; and
- (c) enforceability.

[16] In respect of standards, we note that many of the conditions requiring management plans do not set the outcomes to be achieved by them, or the minimum contents. This applies to not only such things as the homeowner association, the remediation action plan, the planting plan, the weed control plan and pest management plan, but to other plans that might apply during the construction period, some of which we assume are already in place. We would expect actual or draft plans to be included – even if this only identified the matters to be contained within the plan, with overall outcomes and critical standards to be set in conditions.

Particular issues

[17] Some issues have been identified by expert witnesses and others in objections filed to the original application. The Court spent some time going through these issues with the various witnesses and we do not intend to repeat all of the matters covered. Nevertheless, several key issues will be identified briefly:



Roading ownership

[18] As a private road there are a significant number of consequences, which flow not only in relation to the maintenance and accessibility of the road, but also in respect of infrastructural issues. There needs to be clarity around who is responsible for the roads, in what proportions, and how they will be funded. The conditions of consent do not need to set out the detail, but do need to set out essentially what arrangements must be met, ie those above we have just set out or others.

[19] We understand that electricity, telecommunication, water, stormwater and sewer are all intended to be contained within these private road lots. The question as to who is responsible for the maintenance and access to those needs to be clarified.

[20] Although there is intended to be an easement in gross for roading purposes, it is not clear what the arrangements are in respect of the balance of the infrastructure, ie whether it will be over the whole of the road or only part; whether it will be in generalities or to particular suppliers, who will own the assets (given the land is privately owned). Given the continuing issues generally in New Zealand arising in relation to these matters, we are surprised that the parties have not sought to deal with it as part of the conditions of consent. As a minimum, it would seem desirable there be a condition requiring this detail on the s.223 survey plan.

Safety and access to lots 80 and 82 Laurel Oak Drive

[21] A number of objectors were concerned at safety aspects of the private road. As this is not a public road it does not meet local road standards. We are told, however, that it meets standards of Auckland Transport (AT) and the Council for a private road, although the portion of road as it approaches Laurel Oak Drive is near the maximum slope permissible. The road climbs at close to a 1:5 slope through a horizontal curve on a vertical curve, and then straightens as it passes 82 and 80 Laurel Oak Drive before exiting on a vertical curve into Laurel Oak Drive.

[22] The crest of the slope is within several metres of Laurel Oak Drive itself. This connection is at a cul-de-sac head with a footpath and berm, and PAUP requirements would require a safety platform of at least four metres.



[23] Mr Rutherford, the traffic engineer for the Council, suggested it should be closer to six metres. Mr Gardiner, the civil engineer for the applicant, explained that Mr Milicich, the owner of number 80, did not want to alter his driveway/interface with the private road, and this then constrained the slope that could be adopted towards Laurel Oak Drive. It is intended that the road in this area be some six metres wide, with a total private road width of ten metres, including a 1.5 metre footpath. Mr Gardiner identified that they had worked to balance safety issues by looking at both the horizontal and vertical views, as well as the ability to stop a vehicle and maintain clear visibility.

[24] Mr Gardiner considered that the proposed arrangement was appropriate, and advised the Court that the matter had been investigated. However, no particulars were given as to the calculations used, and the Court remains concerned to ensure sufficient safety for, particularly, children who may be playing on the road or footpath area to see and be seen by vehicles travelling towards Laurel Oak Drive on the private road.

Directions

[25] Given the range of concerns that the Court has, we questioned the various witnesses on the matters contained particularly in the conditions of consents, reports and objections of parties. In the end we were satisfied that most of these issues are ones that have been considered, at least by the experts, but are not fully encapsulated within the conditions of consent. Furthermore, we were of the view that it should be possible to finalise the conditions of consent to address these issues in a transparent and enforceable manner. To that end, the Court offered the services of Commissioner Dunlop to assist with a review of the conditions and whether they can be improved by consent.

[26] The applicant advised that they would be able to circulate amended conditions to the parties within the next few weeks. However we give until **16 June 2017** for that to occur. Thereafter, Commissioner Dunlop will conduct a workshop with the parties with a view to providing a memorandum to the Court by mid-July or earlier, if consensus can be reached.

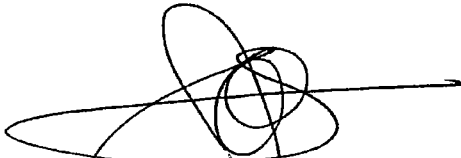
[27] The Court would then make a decision on whether to re-convene the hearing. The parties were specifically asked whether they consented to Commissioner Dunlop sitting with the Court again if necessary, and this was agreed. Accordingly, if a further hearing is required then the Court would re-convene with Commissioner Dunlop.



Notification

[28] On reflection, this Minute and directions should be forwarded to all of the parties who were objectors to the original decision. If any of them wish to participate in the further discussions and receive a copy of the amended decisions they should advise the Registrar within five working days. In the event that a party does not advise that they wish to participate, the conditions and meetings will not be notified to those parties who have not participated in this hearing to date.

For the Court:



JA Smith
Environment Judge

Issued: **18 MAY 2017**



Appendix 2

Proposal

To undertake a subdivision of Lot 1 and 2 DP433188 to create 31 residential lots (Lots 1 to 31) in two stages, an esplanade reserve (Lot 500) and joint owned access lots, with associated earthworks, vegetation clearance, and construction of wastewater, stormwater and water supply services, installation of a stream culvert and wastewater pipe bridge and construction of a new private road.

Resource consents

The activity requires the following resource consent under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011:

Section 9(1) land use consent (SUB60032472)

- Regulation 10(1) – to disturb land where HAIL activities have been undertaken (being bulk storage and/or persistent use of pesticides, and uncertified fill) and where contaminant concentrations exceed applicable NES soil contaminant standards in Regulation 7 (being the standard for residential use) as a restricted discretionary activity.

The activity requires the following resource consents under the Auckland Unitary Plan (Operative in Part):

Section 9(2) land use consents (SUB60032472)

- Rule E11.4.1(A9) – to undertake earthworks over more than 2,500 m² within a Sediment Control Protection Area, as a restricted discretionary activity.
- Rule E11.4.3(A28) – to undertake earthworks over more 5 m² within a Significant Ecological Area, as a restricted discretionary activity.
- Rule E11.4.3(A30) – to undertake more than 5 m³ of earthworks within a Significant Ecological Area, as a restricted discretionary activity.
- Rule E10.4.1(A3) – to create more than 50 m³ of new impervious surface within a Stormwater Management Area Flow 2 and that complies with Standards E10.6.1 and E10.6.4.1, as a restricted discretionary activity.

Section 9(3) land use consents (SUB60032472)

- Rule E12.4.1(A6) – to undertake earthworks over more than 2,500 m² in a residential zone, as a restricted discretionary activity.
- Rule E12.4.1(A10) – to undertake more than 2,500 m³ of earthworks in a residential zone, as a restricted discretionary activity.

Section 13 and 14 streamworks consent (LUS60066611)

- Rule E3.4(A44) – to construct a 14.4 m long culvert crossing with associated inlet and outlet protection, and a stormwater outfall with associated outlet protection, as discretionary activities.



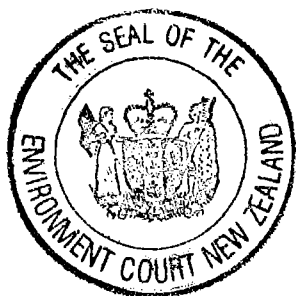
Section 11 subdivision consents (SUB60032472)

- Rule E38.4.1(A8) – to undertake a subdivision that establishes an esplanade reserve, as a restricted discretionary activity.
- Rule E38.4.1(A10) – to undertake a subdivision that seeks a reduction in the width of an esplanade reserve, as a discretionary activity.
- Rule E38.4.1(A10) – to undertake a subdivision of land within the 1% AEP, coastal storm inundation and potential land instability (natural hazard areas) as a restricted discretionary activity.
- Rule E38.4.1(A13) – to undertake a subdivision that will not meet the following standards as set out below, as a discretionary activity:
 - Standard E38.7.3.2(1) – esplanade reserve land will not be at least 20 m in all places.
 - Standard E38.7.3.3(1)(a) – building areas for the lots will not be outside land subject to instability and therefore not comply with Standard E38.8.1.1(d).
 - Standard E38.7.3.4(1)(a) – building areas for the lots will not be outside land subject to instability and therefore not comply with Standard E38.8.1.1(d).
- Rule E38.4.2(A19) – to undertake a vacant sites subdivision on a parent lot that is larger than 1 hectare and not comply with Standard E38.8.3.1 due to the maximum average net site area being greater than 720 m² (Standard E38.8.3.1(4)) and 31 lots being created as rear lots (Standard E38.8.3.1(5)) as a non-complying activity.
- Rule E38.4.2(A22) – to undertake a subdivision involving indigenous vegetation scheduled in a Significant Ecological Area overlay and not complying with Standard E38.8.2.5 due to the lots not being located entirely within areas available for subdivision (Standard E38.8.2.5(2)(b)) as a non-complying activity.
- Rules E38.4.2(A30) and (A31) – to undertake a subdivision not meeting Standard E38.6 due to the building areas not being outside land subject to instability (Standard E38.8.1.1(d)) and the private road serving more than 10 sites and being more than 100 m long (Standard E38.8.1.2) as a discretionary activity.

For clarity, construction of the wastewater pipe bridge does not require a resource consent. It is considered to be a permitted activity under rule E3.4.1(A39) as it will comply with the standards in E3.6.1.16.

Conditions applicable to all resource consents

These conditions apply to all resource consents. However, as the subdivision consent is to be implemented in two stages, for the purposes of obtaining a 224C completion certificate under the Resource Management Act 1991 these 'general conditions' 1 to 40 shall be completed to the extent to which they serve either stage 1 or 2 for the purpose of obtaining a completion certificate for that stage.



Plans and information

1. The subdivision and land use activities shall be carried out in accordance with the plans and all information submitted with the application, detailed below, and all referenced by the council as consent numbers SUB60032472 & LUS60066611
 - a. Application Form, and Assessment of Environmental Effects prepared by Tollemache Consultants Limited entitled 'Resource Consents for a 31 Lot residential subdivision and associated earthworks, vegetation removal and infrastructure development' for 84 Laurel Oak Drive and 51 Appleby Road, Albany dated June 2016, the Section 92 response from Tollemache Consultants Limited dated 15 November 2016 and the following information and plans:
 - b. The following drawings all prepared by Candor3 Limited and referenced as Project No: 1007A

Title & Reference	Revision	Date
Overall Scheme Plan – Drawing: 01 – 100	B	09-08-2017
Scheme Plan – Stage 1 – Drawing: 01 – 101	B	09-08-2017
Scheme Plan – Stage 2 – Drawing: 01 – 102	B	09-08-2017
Existing Vector 110kV Line – Drawings: 01 – 130 & 131 (2 Sheets)	A	16-11-2016
Contour Plans – Drawings: 02 – 100 & 101	A	03-11-2016
Cut and Fill Plan - Drawing: 02 – 102	A	03-11-2016
Engineers Earth Fill Embankments Plan – Drawing: 02 – 300	A	03-11-2016
Retaining Walls Long Sections – Drawings 02 – 301, 302, 303 & 304 (4 sheets)	A	03-11-2016
Sediment Control Plan Overall – Drawing 02 – 500	A	03-11-2016
Roading Plans – Drawings 03 – 100, 101 & 102 (3 sheets)	A	03-11-2016 (sheets 100 & 102) 16-11-2016 (Sheet 101)
Proposed Entrance Works – Drawing 03 – 200	B	09-08-2017
Intersection details - Drawings 03 – 300, 301, 302 & 303 (4 sheets)	A	03-11-2016 (sheets 300 & 303) 16-11-2016 (Sheets 301 & 302)
Roading Long Sections – Drawings – 03 – 400, 401 & 402 (3 Sheets)	A (sheet 400 Revision B)	03-11-2016
Roading Long Section – Drawing – 03 - 403	-	08-06-2017
Roading Typical Cross Sections – Drawings 03 – 500, 501 & 502 (3 Sheets)	A – Sheets 500 & 501	03-11-2016
Drainage Plans – Drawings 04 – 100, 101 & 102 (3 Sheets)	A	16-11-2016
Drainage Wastewater Connection – Drawing 04 – 103	A	16-11-2016
Overland Flow Path Plans and Details – Drawings 04 – 300, 301, 302, 303, 304, 305 & 306 (7 Sheets)	A – Sheet 300 (No revisions to rest of drawings)	03-11-2016
Drainage – Stormwater Outlet and Culvert Plans – Drawings 04 – 500, 501 & 502 (3 Sheets)	A	03-11-2016
Wastewater catchments – Drawing 05-300	A	16-11-2016
Water Supply layout Plan - Drawing 06-100	B	27-03-2017
Utilities Plan – Drawing 08 – 100	A	16-11-2016

The report entitled 'Preliminary Ecological Assessment for Proposed Subdivision at Laurel Oak Drive, Albany', dated 13 January 2012 and prepared by Wildland Consultants Ltd.



- d. The report entitled 'Ecological Restoration Plan and Fish Rescue Plan for Proposed Subdivision at Laurel Oak Drive, Albany', dated 28 November 2011 and prepared by Wildland Consultants Ltd.
- e. The report entitled 'Assessment of Ecological Effects of Stage 2 Subdivision – 84 laurel Oak Drive, Albany' dated 13 April 2016 and prepared by Shona Myers.
- f. The report entitled ' Covenant Management Plan, Weed Control Plan, Pest Management Control Plan and Planting Plan for 84 Laurel Oak Drive, Albany dated 28 April 2016 and prepared by Shona Myers.
- g. The report entitled 'Arboricultural Report, 84 Laurel Oak Drive, Albany', dated 26 May 2011 and prepared by Tree Fellas Ltd.
- h. The report entitled 'Proposed Subdivision – Laurel Oak Drive, Schnapper Rock, Albany, Auckland: Archaeological Assessment', dated January 2016 and prepared by Clough and Associates Ltd.
- i. Geotechnical Reports entitled 'Geotechnical Investigation Report for 31 Lot Subdivision Scheme at 82 and 84 Laurel Oak Drive, Albany' and 'Land Development Geotechnical Works Specification for: 82 & 84 Laurel Oak Drive, Albany' both dated 29 April 2016 and prepared by CMW Geosciences (NZ) Ltd.
- j. The report entitled 'Detailed Site Investigation, Remediation Action Plan & Assessment of Environmental Effects – 84 Laurel Oak Drive, Schnapper Rock Auckland' dated September 2016 prepared by Focus Environmental Services Ltd.
- k. The report entitled 'Culvert Replacement Construction Methodology and Management Statement' dated 10 November 2016 prepared by March Cato Limited.
- l. The report entitled 'Engineering Report in Support of a Subdivision Application to Auckland Council dated April 2016 and prepared by Candor³ Ltd.
- m. Water Supply Pressure Calculations Sheets (2) dated 3-Nov-16 prepared by Candor³ Limited.
- n. The report entitled 'Assessment of Landscape and Visual Effects' dated May 2016 and prepared by LA4 Ltd.
- o. The report entitled 'Traffic Impact Assessment – Proposed Land Subdivision Stage 2' dated 19 January 2016 and prepared by Traffic Solutions Limited.

Lapse

- 2. Pursuant to section 125 of the RMA, the land use consents shall lapse five years after the date they are granted unless:
 - a. the consents are given effect to; or
 - b. the Council extends the period after which the consents lapse.

The subdivision resource consent will expire five years after the date of commencement of consent unless:

- a Survey Plan is presented to Council for approval under Section 223 of the Resource Management Act 1991 and that plan is deposited within three years of the approval date, or



- d. upon an application made prior to the expiry of consent period, the statutory considerations which apply to extensions are set out in Section 125(1)(b) of the Resource Management Act 1991.

Charges

3. The consent holder must, pursuant to section 36 of the Resource Management Act 1991, pay all administrative charges, being the Council's actual and reasonable costs incurred in processing this application, to be charged as follows:
 - a. The consent holder must pay to the Council an administrative charge for the carrying out by the Council of its functions in relation to receiving, processing and granting this subdivision consent.
 - b. The consent holder must pay to the Council administrative charges for the carrying out by the Council of its functions in relation to the administration, monitoring and supervision of this consent.
 - c. The charges payable under (a) and (b) of this condition must be paid within 20 days of the date of the invoice or debit note and before any request for a certificate under section 224(c) of the Resource Management Act.

Advice note: the consent holder is advised that under section 134 of the Resource Management Act 1991 that where the land changes ownership the consent holder will continue to be responsible for processing costs until such time as written notice of authority is given to the Council.

Design Drawings

4. The consent holder shall ensure complete engineering drawings, accompanied with a design certificate in the form of Schedule 1A of NZS 4404:2010, detailing all proposed construction works including details of proposed silt detention and erosion control measures, are prepared in accordance with the Auckland Council's Code of Practice for Land Development and Subdivision (CoP) and the legacy North Shore City Council "Infrastructure Design Standards" Manual Issue 10, January 2009 (IDS) and are submitted for assessment and written approval by the Development Engineer before the commencement of any works unless otherwise specified within this consent.

Chapters 2 (Earthworks and geotechnical requirements), 3 (Auckland Transport Code of Practice), 4 (Stormwater) and 5 & 6 (Water and Wastewater) of the CoP have priority where there is conflict between the CoP and the IDS except for private transport assets where the IDS shall have priority.

5. The consent holder shall arrange for inspections in accordance with Auckland Council's Development Engineering Quality Assurance Manual Version 1.0, April 2012 ("QAM") to be carried out by a suitably qualified person during construction of all works on the site to ensure that those works are constructed in accordance with the approved engineering drawings or any approved amendments to those drawings, Council's standard requirements for the construction of subdivisional engineering works, and sound engineering practice.
6. The consent holder shall ensure that inspections undertaken in accordance with Condition 5 above are recorded in the "QAM". The manual, including the Statement of Certification (Appendix A, of Development Engineering As-built requirements, Version 1.2, September 2012



(DEAR)), is to be completed and forwarded to the Development Engineer at the completion of construction of all works. If a public service (wastewater reticulation) is to become operational prior to the completion of all works then a Statement of Certification for that service must be completed and forwarded to the Development Engineer dealing with the consent prior to that public service becoming operational.

Advice note: the pdf copy of the full Manual is available on request. It gives guidance on the scope of completion documentation required, which as well as as-built plans may include operation and maintenance manuals, relevant project reports and also digital images of works in progress.

7. Accurate as-built plans must be submitted for contours of final topography at 0.5m intervals where bulk earthworks are undertaken and all Public and Private Services (water supply reticulation and stormwater), including underground services showing every lot connection, roading, street lighting and landscaping, in accordance with the Development Engineering As-Built requirements Version 1.2 September 2012. The as-built plans must be confirmed by the Development Engineer as compliant prior to the Public Service becoming operational or the issue of a Section 224(c) Certificate under the Resource Management Act 1991, whichever is the earlier.

Advice note: the Water and Wastewater Code of Practice for Land Development and Subdivision refers to the "lot connection" as "Point of Supply"

8. As part of any engineering approval set, the consent holder shall provide an integrated set of Landscape and Paving (Privateway treatment) Plans for the Lots 102, 201 and 202 prepared by a suitably qualified landscape architect firm to the Council (Resource Consent Monitoring Team Leader – Northern) for approval in liaison with urban design staff and the Council's Development Engineer.

The purpose of the landscape and paving plans is to provide sufficient detail as to the soft (vegetation) and hard (paving and other impervious surfaces) landscaping elements forming part of the access lots to ensure a high standard of visual amenity is achieved while also maintaining the function and safety of these private access ways.

The plans shall include:

- a. landscape concept plan and specifications;
- b. planting schedule, detailing the specific planting species, the number of plants provided, locations, heights/Pb sizes; planting a regular pattern of street trees of a species that will grow vigorously to a reasonable height.
- c. paving plan and specifications, detailing materials, texture and colour throughout the development site;
- d. vehicle crossing locations and standard cross-sections
- e. annotated sections with key dimensions to illustrate that adequate widths & depths are provided for tree pits / planter boxes.

The approved landscape and paving plans for the private access ways must be implemented prior to the issues of the 224C completion certificate for the stage within which the private access way is located. (Conditions 38 and 49 shall also apply to this planting).



9. Prior to submitting any vehicle crossing applications for new vehicle crossings the consent holder shall submit finalised design details of the footpath and vehicle crossing interface to the Council (Resource Consent Monitoring) for review by the nominated Auckland Council urban design specialist.

Construction Management Plan

10. As part of the Engineering Approval set out in Condition 4 and not less than two weeks prior to commencing any works on the site, the consent holder shall provide a Construction Management Plan (CMP) to the Council for approval.

The purpose of the Construction Management Plan is to identify all aspects of the proposed construction works and the potential effects that may arise from these. The Plans must then set out methods to avoid or mitigate those effects on the environment and those persons within it, particularly those adjacent to the construction site, and contain sufficient information to clearly outline the processes, standards and thresholds for avoidance and mitigation of construction outputs as well as avenues for consultation between those undertaking the works and persons within the surrounding environment.

The CMP shall be prepared in sections and include:

- a. general provisions;
- b. a Construction Traffic Management Plan;
- c. a Construction Noise Management Plan;
- d. earthworks;
- e. geotechnical requirements;
- f. roading;
- g. retaining structures;
- h. wastewater;
- i. water supply;
- j. stormwater; and
- k. power and street lighting; and network utilities.

The contents of these sections are subject to other conditions 11 to 15 inclusive of this consent. Auckland Transport is also the authority that receives, reviews and approves construction traffic management plans (CMP and TMP), if any is required.

11. The general provisions section of the CMP required by Condition 10 shall include specific details relating to the construction and management of all works associated with this development, and include:
- a. The site address to which the consent relates
 - b. Details of the site manager, including their contact details (Phone, email, postal address). A telephone number for after-hours emergencies shall also be supplied

Specific staff responsibilities for site management and for implementing this plan



- d. Commencement date and duration of each stage of subdivision development
 - e. Description of site work activities and equipment that is likely to generate noise, vibration and dust at each stage of the development.
 - f. Assessment of the noise, dust and vibration impacts against the requirement of the Unitary Plan as outlined in condition 14..
 - g. Detailed monitoring programme and mitigation measures to control the noise, dust and vibration associated with the site works and to demonstrate compliance with condition 14.
 - h. A complaint response system comprised of a complaint register and investigation procedures.
 - i. The location of a notice board on the site that clearly identifies the name, telephone number and address for service of the site manager.
 - j. Any means, such as a restriction on the size of construction vehicles and machinery accessing the site, required to ensure that no damage occurs to protected trees to remain on the site (or adjacent to the site), throughout the construction period.
 - k. Any means of protection of services such as pipes and water mains within Laurel Oak Drive.
 - l. Measures to be adopted to maintain the site in a tidy condition in terms of disposal of materials, storage of rubbish, storage and unloading of building materials and similar construction activities.
 - m. Location of works' conveniences (e.g. portaloos).
 - n. Procedures for controlling sediment run off, dust and the removal of soil, debris and construction materials from public roads or places (including identifying the location of wheel wash facilities) as set out in the approved erosion and sediment control measures described in conditions 83 to 103.
 - o. Hours of work on the site. These shall be within the limits imposed by condition 16 below).
 - p. Location of vehicle and construction machinery access during the period of site works.
 - q. Measures and means to minimise disruption of access to neighbouring properties at 80 and 82 Laurel Oak Drive (lots 31 and 30 DP 394386 respectively) for residents and visitors, including a programme/timetable of work for finishing the vehicle access to keep the period of disruption as short as possible. Works associated with the construction of the vehicle access on the shared driveway which provides access to neighbouring properties at 80 and 82 Laurel Oak Drive shall be completed within a maximum of 8 weeks.
12. The approved CMP required by Condition 10 shall be implemented and maintained throughout the entire period of the works.

Construction Traffic Management Plan

13. The Construction Traffic Management Plan required by Condition 10 shall include specific details relating to vehicle and pedestrian movements and safety during the demolition, construction and management of all works associated with this development, and include:



- a. any means, such as a restriction on the size of construction vehicles and machinery accessing the site, required to ensure that no damage occurs to the Laurel Oak Drive or adjacent properties throughout the construction period;
- b. measures to be adopted to ensure that pedestrian access past the site on the public footpaths is safe and not obstructed during construction works;
- c. the proposed numbers and timing of truck movements throughout the day and the proposed routes to and from the site;
- d. location of vehicle and construction machinery access during the period of site works.
- e. measures to ensure that loading and unloading of vehicles is undertaken on site at all times so that no reverse manoeuvring occurs off site;
- f. vehicle parking for site works and sub-contractors to be provided on site; and
- g. measures and means to minimise disruption of access to neighbouring properties at 80 and 82 Laurel Oak Drive (lots 31 and 30 DP 394386 respectively) for residents and visitors.

Auckland Transport is also the authority that receives, reviews and approves construction traffic management plans (CMP and TMP), if any is required.

Construction Noise Management Plan

14. The Construction Noise Management Plan required by Condition 10 shall include specific details relating to construction noise effects associated with all construction aspects of the development, and shall include methods to achieve compliance with the construction noise limits set out in rule E25.6.27 'Construction noise levels in all zones except the Business – City' of the Auckland Unitary Plan.
15. The approved Construction Noise Management Plan shall be implemented and maintained throughout the entire construction period.

Construction activities

16. Construction activities shall be restricted to between the hours of 7.30am and 6.00pm, Monday to Friday and 9.00 am to 5.00 pm Saturdays, with no work to occur on Sundays or public holidays.

Earthworks

17. The consent holder must ensure site works, including any earthworks, are carried out, subject to the erosion and sediment control requirements of this consent (conditions 80 to 95), in accordance with the approved earthworks plan and approved engineering drawings (conditions 1 and 4) and the requirements of the Auckland Council's legacy North Shore City Council "Infrastructure Design Standards" manual Issue 10, January 2009.
18. Bulk earthworks design shall provide for all building platforms and access to those platforms within the proposed private lots to be at a grade not exceeding 1 vertical to 5 horizontal.
19. With the exception of work necessary for the installation of subdivision infrastructure (i.e. roads and utility services) and for vegetation removal authorised by 2015 NZEnvC 123 and 2015 NZEnvC 193 no earthwork activity shall take place within the Unitary Plan's Significant Ecological Area, the esplanade reserve area (Lot 500) or covenant areas D, E, F, G, H, I, J, K



and L identified on the consented scheme plan of subdivision, prepared by Candor3 Ltd, reference 1007A, Sheet 01-100 revision A.

Dust nuisance

20. There shall be no airborne or deposited dust beyond the subject site as a result of the earthworks or tree felling activities that in the opinion of the Team Leader Northern Monitoring is noxious, offensive or objectionable. In assessing whether the effects are noxious, offensive or objectionable, the following factors will be considered:
- a. The frequency of dust nuisance events
 - b. The intensity of events, as indicated by dust quantity and the degree of nuisance
 - c. The duration of each dust nuisance event
 - d. The offensiveness of the discharge, having regard to the nature of the dust
 - e. The location of the dust nuisance, having regard to the sensitivity of the receiving environment.

Advice note: in order to manage dust on the site consideration should be given to adopting the following management techniques:

- o *stopping of works during high winds*
- o *watering of haul roads, stockpiles and manoeuvring areas during dry periods*
- o *installation and maintenance of wind fences and vegetated strips*
- o *grassing or covering of stockpiles*
- o *positioning of haul roads, manoeuvring areas and stockpiles or the staging of works (in relation to sensitive receptors such as dwellings)*

It is recommended that potential measures as discussed with the council's monitoring officer who will guide you on the most appropriate approach to take. Please contact the Team Leader Northern Monitoring on monitoring@aucklandcouncil.govt.nz for more details. Alternatively, please refer to the Ministry for the Environment publication "Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions".

Geotechnical requirements

21. The consent holder must ensure all earthworks are carried out in such a manner consistent with Condition 10 so as to protect land not forming part of the subdivision against erosion, subsidence and slippage arising or likely to arise as a result of the subdivision.

Advice notes:

- o *If earthworks are to be carried out on land not forming part of the subdivision then such earthworks cannot commence until written permission has been obtained from all affected landowners.*
- o *Structures supporting the completed land form are required to have a design service life exceeding 100 years.*
- o *Stability analysis and design should take account of IDS 2.5.1.*

22. The consent holder must ensure that on completion of the subdivision a report prepared by a suitably experienced chartered professional engineer, and who has professional indemnity and



public liability insurance each with a minimum limit of indemnity of \$2,000,000, confirming compliance with the requirements of the legacy North Shore City Council "Infrastructure Design Standards" manual Issue 10, January 2009 shall be provided to the Council attesting to the suitability of all lots, including roads and reserves, for their intended purpose. Two bound copies and one pdf copy of this report are to be submitted to the Council prior to the release of the s224c certificate.

23. Where the report provides that any area of the land relating to the subdivision possesses development limitations, the consent holder shall rework that area to remove the limitations if required to do so by the Council's Team Leader Resource Consents. Alternatively, the Council may require a consent notice to be registered giving notice of the limitations or specific development requirements related to that land.

Archaeological features

24. If any archaeological remains (including human remains) or artefacts that may be of value to Mana Whenua are exposed during the works period then the following procedures shall apply:
- a. If it becomes apparent that archaeological remains or artefacts have been exposed, all site works in the subject area shall cease; and
 - b. The affected area shall immediately be secured in a way that ensures that any remains or artefacts are untouched; and
 - c. The consent holder shall notify the Council's Team Leader Northern Monitoring, Heritage New Zealand and the Iwi of Te Kawerau, Ngati Tai ki Tamaki and Ngati Whatua Orakei and in the case of human remains, the Police, that archaeological remains or artefacts have been exposed so that appropriate action can be taken. No works may recommence in the affected area until written approval to do so has been provided from the Council's Team Leader Northern Monitoring

Advice note: 'Archaeological features' may in practice include shell middens, hangi or ovens, pit depressions, defensive ditches, artefacts, or koiwi tangata (human skeletal remains). If any archaeological features are uncovered on the site, Heritage New Zealand can be contacted on 09 307 9920. It is also recommended that you contact the local iwi immediately.

Vibration control

25. Where earthworks machinery on the site are creating vibrations that, in the opinion of the Development Engineer Takapuna, constitute an unreasonable disturbance beyond the boundaries of the subject site, the consent holder shall cease works until a suitably qualified expert has been engaged to undertake monitoring and provide confirmation that peak particle velocities measured on any foundation or uppermost full storey of any building not located on the subject site, do not exceed the limits set out in Table 1 of German Standard DIN 4150 Part 3:1986 "Structural Vibration in Buildings – Effects on Structures" (Rule E25.6.30 of the Auckland Unitary Plan).

Quality of fill

26. Any fill shall conform to NZS 4431:1989 'Code Of Practice for Earth Fill for Residential Development'.



27. Following the completion of earthworks and prior to the release of the s224c certificate, the suitably qualified engineering professional responsible for supervising the works shall provide to the Development Engineer Takapuna, written evidence that all fill used on the subject site has the characteristics set out in condition 26. Written evidence shall be in the form of a statement in the Geotechnical Completion Report, producer statement or similar.

Staged Earthworks

28. The site shall be progressively stabilised against erosion at all stages of the earthwork activity.

Advice note: please refer to the legacy Auckland Regional Council Technical Publication No. 90, Erosion & Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region

Topsoil

29. The consent holder must not disturb topsoil other than where earthworks are essential and shall reinstate topsoil over all lots to a minimum loose depth of 100mm.

Bonding

30. In terms of s108A of the Resource Management Act 1991, a general lot performance bond shall be provided equal to \$400 per lot excluding any road lots and paid in cash prior to the issue of the related 224(c) certificate under the Resource Management Act 1991. This shall be held for a period of twelve months following the issue of the related 224(c) certificate, or until work required under any consent condition has been completed to the Council's satisfaction, or until any adverse effect that became apparent during or within twelve months after the expiry of the consent is mitigated.

Certification

31. For each subdivision stage the consent holder must ensure the wastewater drainage, stormwater drainage and water supply systems:
- In the case of wastewater and water supply connected to existing public reticulation systems;
 - In the case of stormwater, discharges to the outfalls as per the approved engineering drawings;
 - tested and approved by the Council; and
 - made fully operative before a section 224(c) certificate will be issued by the Council.

Power and street lighting

32. For each subdivision stage the consent holder must provide and install to the satisfaction of the Council and an appropriate electricity network utility operator:
- The reticulation of electric power underground, including the installation of ducts beneath any proposed street (private/public) within the subdivision and beneath any existing street adjacent thereto where required by the utility operator and;
 - the installation of street lights to serve the subdivision and



- c. the installation of lighting to serve privateways or common areas where the conditions of this consent so require.

The consent holder is fully responsible for design, construction and commissioning of all street lighting and any lighting of public accessways necessary for this subdivision prior to the issue of s224(c).

33. The consent holder must submit complete design drawings for each subdivision stage for written approval of the Development Engineer Takapuna before the commencement of street lighting works. The design shall comply with the Auckland Council's legacy North Shore City Council "Infrastructure Design Standards" manual, issue 10, and the works constructed and commissioned in compliance with those standards and the written approval. An as-built plan shall be submitted upon completion of the works.
34. The consent holder must provide to the Council's Development Engineer Takapuna a Clearance Certificate for the completed power and street lighting work from the network utility operator for each subdivision stage.

Advice note: the network utility operator is responsible to specify the capacity of new works or upgrading works necessary to serve the subdivision. The council requires a clearance certificate that connections can be made available and is not responsible for the business decisions of any network utility operator nor require that any particular level of service is available.

Existing services

35. The consent holder must locate all existing services affected by the proposed construction work and notify the utility operators of the details of construction prior to the commencement of the work. Any work necessary for the protection or relocation of such services shall be undertaken at the consent holder's expense and to the satisfaction of the Council and to the satisfaction of the authority responsible for that service.

Survey plan

36. The consent holder shall submit a survey plan for each subdivision stage in accordance with the consented scheme plan of subdivision.

Ecology

37. The consent holder shall fully implement the weed control and pest management requirements of the "Covenant Management Plan, Weed Control Plan, Pest Management Control Plan and Planting Plan for 84 Laurel Oak Drive, Albany" dated 28 April 2016 for each subdivision stage before the completion certificate pursuant to section 224(c) of the Resource Management Act 1991 is issued for that stage.
38. The consent holder shall fully implement the Planting Plan contained in the "Covenant Management Plan, Weed Control Plan, Pest Management Control Plan and Planting Plan for 84 Laurel Oak Drive, Albany" dated 28 April 2016 before the completion certificate pursuant to section 224(c) of the Resource Management Act 1991 is issued.
39. In order to ensure that the weed and pest control required by condition 37 and planting required by conditions 8 and 38 are completed to a satisfactory standard, the consent holder shall enter into a bond agreement with the Auckland Council for the supply, installation and on-going



maintenance of all the landscaping works within the subject site and which relate to this consent.

This bond is required to cover any outstanding works as well as maintenance of the plantings for THREE years from the completion of planting. The maintenance value will be the entire cost of planting and will be additional to any outstanding works. After the THREE year period the consent holder may apply to Council for release of the planting bond, though a release of the bond will be subject to an assessment of the planting by Auckland Council. Auckland Council's solicitor, at the consent holders request and expense, will prepare the bond document.

Residents association: management of commonly owned infrastructure

40. A residents' association (or equivalent) shall be legally established, the members of which shall be the current owners of Lots 1 to 31. The purposes of the residents' association shall include provision of effective and efficient management of rubbish collection and the commonly owned infrastructure, including the joint owned access lots (private way), and lighting, landscaping and stormwater infrastructure contained within the joint owned access lots. Documentation for the formation, objectives and operation of the residents' association shall be provided to the Council's solicitor for review and approval prior to s224c, at the Consent Holder's expense.

Covenants binding the owners will be required under the Property Law Act 2007 (PLA) to the satisfaction of Council, registered against Lots 1 to 31 as to the establishment, authority, operation, maintenance, and funding of the residents' association and its obligation to comply on behalf of the landowners with the conditions of consent, including assurances that the residents' association is capable of operating indefinitely.

The consent holder shall pay all costs incurred by Council's solicitor in relation to confirming the appropriateness of all covenants.

Such covenants under the PLA shall require:

- a. Each owner to maintain membership of the residents' association, duly and punctually fulfilling and observing:
 - i. All obligations of such membership at all times; and
 - ii. All decisions of that Association.
- b. Each owner to participate fully and effectively in the residents' association so as to ensure that good management, performance and operation of that Association at all times.
- c. Each owner not to take any action that directly or indirectly could result in the residents' association being wound up or liquidated, or the decisions of the Association frustrated.

The Owners shall observe, fulfil and comply with their obligations set out in PLA covenants registered against the title to the land.

**Conditions specific to Stage 1 of subdivision consent
SUB60032472**

Conditions 41 to 55 apply to stage 1 of the subdivision consent referenced as SUB60032472)



Ecology

41. The consent holder shall prepare a Covenant Management Plan (CMP) by an experienced qualified ecologist based on the "Covenant Management Plan, Weed Control Plan, Pest Management Control Plan and Planting Plan for 84 Laurel Oak Drive, Albany" dated 28 April 2016 and to be certified by council's ecologist for the proposed stream and bush covenant area (I, J and K) located in Lots 18 to 20. The CMP will identify:
- weed control and animal pest management to be undertaken by landowners after the issue of title.
 - monitoring of ecosystem health.

The objective of the CMP is to describe the weeds and pests present in the proposed stream and bush covenant area located in Lots 18 to 20, and to provide a management programme to provide for the long-term protection of the native vegetation within the covenant area.

The plan shall be prepared with reference to the Auckland Regional Pest Management Strategy 2007-2012, which provides the framework for the management of plant and animal pests within the Auckland region.

The CMP shall form part of the consent notice to be registered on the certificate of title protecting vegetated areas for these lots.

Common privateways and private roads

42. The consent holder must form and construct the private roads within Lot 100 & 101 including engineered earth fill embankment (where required) to the Council's standards making adequate provision for the drainage of surface water. Works shall include the provision of any ducts required for power, communications, stormwater, gas and water mains complete with a suitably placed fire hydrant to the satisfaction of the Council. The privateway shall be lit over the entire length in accordance with AS/1158.3.1:1999, lighting category P5, luminaire classification Type 4 with upward waste light ratio not exceeding 6%.
43. The consent holder shall submit a detailed design of all private transport assets (joint owned access lots) for approval of the Council. The private road within Lots 100 and 101 shall:
- not exceed a grade of 1 in 5 anywhere along its length;
 - be designed to address pedestrian safety, including the provision of a safety platform as per Candor3 drawing 1007A-03-403 where it connects to Laurel Oak Drive to the satisfaction of the council's traffic engineer in order to ensure safe ingress and exit from the development;
 - be designed to retain the 1% AEP overland flow path wholly within Lot 100 where it runs adjacent to the properties at 76, 82, 80 and 78 Laurel Oak Drive (lots 29, 30, 31 and 32 DP 394386 respectively); this information can be shown in the information required by condition 52 of this consent;
 - be designed to continue to provide for safe and convenient pedestrian and vehicle access to neighbouring properties at 80 and 82 Laurel Oak Drive (lots 31 and 30 DP 394386 respectively); and



- e. be designed and constructed so that all supporting structures including any necessary retaining walls and earth fill embankment walls do not encroach into the esplanade reserve (lot 500).
- f. have signage identifying a 30km/hr speed limit in both directions.
- g. identify no car parking restrictions where appropriate.

Advice note: when the design drawings are submitted the Council may require minor variations to the roading design as indicated on the scheme plan in order to ensure compliance with the Council's roading standards.

44. Any works within the Laurel Oak Drive road reserve require the prior approval of Auckland Transport, this includes vehicle crossings, reinstating verges and temporary occupation of the berm / verge during construction; this is typically covered by a Corridor Access Request (CAR).

Advice note: the consent holder is advised to contact Auckland Transport as early as possible to discuss design elements, e.g. road markings / signs, reinstatement of verge, retaining walls, that may be required; any installation of road markings may require formal resolution and gazetting in accordance with the Traffic Control Devices rules; any preparation of documentation or consultation required with the installation and gazetting of road marking is to be the responsibility of the consent holder

Road name

45. The consent holder must, before the survey plan of subdivision is approved under Section 223 of the Act, provide a name for each new public road and/or common private way or private road serving six or more lots and shall provide evidence that the proposed names are not duplicated within the Auckland Region before submitting the names to the Council Subdivision Team (Northern Consenting) for reporting to the Local Board for approval. In giving its approval the Local Board will require to be satisfied that each road name is relevant to the locality, or is otherwise appropriate. Once approved by the Local Board the consent holder must provide and install the appropriate street signs to the standards set out in the Auckland Transport Code of Practice, Chapter 10: Traffic Signs and Road Markings.

Wastewater

46. The consent holder must provide and install a complete wastewater system to serve Lots 11 - 20 to the Council's and Watercare Services' public wastewater standards.
47. The consent holder must provide and install wastewater connections to serve Lots 11 - 20 to the Watercare Services' standards for drainage.

Advice note: a building consent may be required if a 100mm line from the point of supply (refer Watercare definition) exceeds 6m on private land and an easement will be required.

Stormwater

48. The consent holder must provide and install a complete stormwater drainage system, consistent with condition 1, to serve all lots, roads and catchments upstream of the subject land to the Council's public stormwater standards to the satisfaction of the Council. Stormwater connections shall be provided within the boundary of each lot. Adequate overland flow paths



catering for a 1% annual exceedance probability (AEP) storm event shall be provided. As-built plans shall be provided for overland flow paths. Where ever practical, overland flow paths shall be along roadways or reserve areas and where such flow paths are required to be through residential lots minimum floor levels shall be established and plans detailing overland flow paths provided for inclusion in any consent notices for registration on the respective titles at the time of s224(c). Easements shall be created for overland flow paths.

49. The consent holder shall ensure that the construction of the culvert on Plan 1007A 04-500 Revision A dated 03-11-16 (Revision Date) incorporates the fish passage as shown.

Water supply

50. The consent holder must provide and install a complete water supply reticulation system to serve lots 11 to 20 to the satisfaction of the Council.

Legalities

51. The consent holder shall vest Lot 500 in the Council as Esplanade Reserve.
52. The right of way easements over lot 100 and 101 and any services easements (for example telecommunications, gas, power) over parts of the Lots 11 to 20 and Lot 200 must be included in a memorandum of easements endorsed on the Survey Plan and shall be granted or reserved. For the purposes hereof the rights of way are hereby approved pursuant to section 348 of the Local Government Act 1974.

Amalgamation conditions

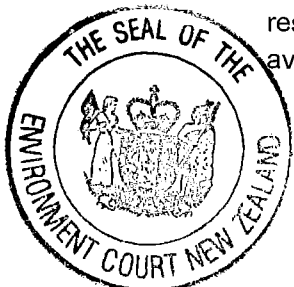
53. That Lot 100 hereon (legal access) be held as to ten undivided one thirty-first shares by the owners of Lots 11 - 20 hereon and as to twenty one undivided one thirty-first shares by Lot 200 as tenants in common in the said shares and individual Computer Registers shall be issued.
54. That Lot 101 hereon (legal access) be held as to ten undivided one tenth shares by the owners of Lots 11 - 20 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

Consent notices

55. Pursuant to Section 221 of the Resource Management Act, the consent holder shall cause to have registered on the Certificates of Title to be issued for Lots 11 to 20 and 200 a consent notice containing the following text:

In relation to Lots 11 – 20 and 200:

- a. All lot development including any redevelopment and any temporary works must take full account of the recommendations and limitations set out in the geotechnical completion report to be submitted pursuant to Condition 22 of this consent
- b. No vehicle crossings to any of the lots shall remove any on-street parking spaces within the subdivision.
- c. Lots 11 – 20 shall not be further subdivided and any development of the lot shall be restricted to the construction of a single residential dwelling and ancillary buildings. For the avoidance of doubt no lot shall accommodate a minor residential dwelling.



(The reason for the restriction of a single dwelling/household per lot is the limitations arising from the design of the private roads serving the subdivision, which are not deemed appropriate to serve greater volumes of traffic than has been consented as part of this subdivision.)

- d. The owners of Lots 11-20 & 200 and their successors in title shall be responsible for the ongoing operation and maintenance of the privateways, street lighting and retaining structures within Lot 100 in accordance with condition 41.

In relation to Lots 11 – 20

- e. The owners of Lots 11-20 and their successors in title shall be responsible for the ongoing operation and maintenance of the privateways, street lighting and retaining structures within Lot 101 in accordance with condition 40.

In relation to Lots 18 to 20

- f. The owner must not cut, damage, fell, wilfully injure or destroy the native trees (including roots), or execute work in the vicinity of the native trees (which includes a prohibition on excavation, construction, storage of material or debris, or removal of non-native trees where this will damage native trees) within the areas endorsed G,I,J,K,L and M on the plan of subdivision to be deposited as number DP ____ without the prior consent of Council in writing.
- g. The owner/s of the allotment shall be responsible for the maintenance and enhancement of the covenanted areas by means of the implementation and ongoing application of the approved Covenant Management Plan required by Condition 41 of this consent.

Conditions specific to Stage 2 of subdivision consent and section 9(1) land use consent

Conditions 56 to 78 apply to stage 2 of the subdivision consent and the section 9(1) land use consent for earthworks related to the national environmental standard, both referenced as SUB60032472.

Approved Management Plans (Environmental Management Plan / Contamination Monitoring and Management Plans / Remedial Action Plan)

56. The remediation works shall be carried out in accordance with the approved Remediation Action Plan contained in Detailed Site Investigation, Remediation Action Plan & Assessment of Environmental Effects, 84 Laurel Oak Drive, Schnapper Rock, Auckland, Focus Environmental Limited, September 2016 as referenced in condition 1(i), and any variations to the approved Remediation Action Plan shall be approved in writing by the Team Leader Northern Monitoring, Auckland Council.

Supervision and certification of contamination sampling

57. All sampling and testing of contamination on the site shall be overseen by a suitably qualified contaminated land professional. All sampling shall be undertaken in accordance with the Ministry for the Environment Contaminated Land Management Guidelines No. 5 Site Investigation and Analysis of Soils (Revised 2011)



Certification that fill removed to appropriate disposal site.

58. Excess soil or waste materials removed from the subject site shall be deposited at a disposal site that holds a consent to accept the relevant level of contamination.

Certification of imported fill

59. The contamination levels of any imported soil/fill shall comply with Auckland Council's clean fill criteria as defined by Chapter J of the Auckland Unitary Plan.

Contingency for unexpected material

60. Where contaminants are identified that have not been anticipated by the application, works in the area containing the unexpected contamination shall cease until the contingency measures outlined in the approved Remediation Action Plan have been implemented, and have been notified to the Team Leader Northern Monitoring, Auckland Council.

Advice note: in accordance with this condition any unexpected contamination, may include contaminated soil (including asbestos contaminated soil), perched water, groundwater, or underground tanks. The consent holder is advised that where unexpected contamination is significantly different in extent and concentration from that anticipated in the original site investigations, handling the contamination may be outside the scope of this consent. Advice should be sought from the Team Leader Northern Monitoring, Auckland Council, prior to carrying out any further work in the area of the unexpected contamination to ensure this is within scope of this consent.

Ensure dust does not cause adverse effects.

61. To protect the health of people within the vicinity of the site during excavations, works shall be managed to minimise the generation of dust on the site and be carried out in accordance with the approved Remediation Action Plan;

Advice note: in accordance with this condition the following management techniques should be considered:

- o *Having sufficient water available to dampen exposed soils;*
- o *Access to dust suppression measures such as coverings.*

In addition, all work should comply with the Ministry for the Environment publication "Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions".

Requirement for a Site Validation Report

62. Within 3 months of the completion of earthworks on the site and prior to the issue of a 224C Certificate for Stage 2, a Site Validation Report shall be provided to the Team Leader Northern Monitoring, Auckland Council. The Site Validation Report shall be prepared by a suitably qualified and experienced contaminated land professional in accordance with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.
63. The Site Validation Report shall meet the requirements of the Ministry for the Environment Contaminated Land Management Guidelines No.1, Reporting on Contaminated Sites in New Zealand (Revised 2011).



64. A suitably qualified and experienced contaminated land professional shall provide a statement certifying that all works have been carried out in accordance with the requirements of the consent.

Advice note: the Site Validation Report required by this condition 62 should contain sufficient detail to address the following matters:

- o *a summary of the works undertaken, including a statement confirming whether the earthworks have been completed in accordance with the approved Remediation Action Plan*
- o *the location and dimensions of the excavations carried out, the volume of soil excavated, including a relevant site plan*
- o *details and results of any testing, including validation testing, undertaken and interpretation of the results in the context of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*
- o *copies of the disposal dockets for the material removed from the site*
- o *records of any unexpected contamination encountered during the works and actions taken, if applicable*
- o *details regarding any complaints and/or breaches of the procedures set out in the Remediation Action Plan and the conditions of this consent.*

Ecology

65. The consent holder shall prepare a Covenant Management Plan (CMP) by an experienced qualified ecologist based on the "Covenant Management Plan, Weed Control Plan, Pest Management Control Plan and Planting Plan for 84 Laurel Oak Drive, Albany" dated 28 April 2016 and to be certified by council's ecologist for the proposed stream and bush covenant area located in Lots 21, 22 and 23. The CMP will identify:

- a. weed control and animal pest management to be undertaken by landowners after the issue of title.
- b. monitoring of ecosystem health.

The objective of the CMP is to describe the weeds and pests present in the proposed stream and bush covenant area located in Lots 21, 22 and 23 and to provide a management programme to provide for the long-term protection of the native vegetation within the covenant area.

The plan shall be prepared with reference to the Auckland Regional Pest Management Strategy 2007-2012, which provides the framework for the management of plant and animal pests within the Auckland region.

The CMP shall form part of the consent notice to be registered on the certificate of title protecting vegetated areas for these lots.

Common privateways and private roads

66. The consent holder must form and construct the private roads within Lot 102, 202 & 201 including engineered earth fill embankment (where required) to the Council's standards making adequate provision for the drainage of surface water. Works shall include the provision of any ducts required for power, communications, stormwater, gas and water mains complete with a



suitably placed fire hydrant to the satisfaction of the Council. The private way shall be lit over the entire length in accordance with AS/1158.3.1:1999, lighting category P5, luminaire classification Type 4 with upward waste light ratio not exceeding 6%.

67. The consent holder shall submit a detailed design of all private transport assets (joint owned access lots) for approval of the Council. The private road within Lot 102, 201 and 202 shall not exceed a grade of 1 in 5 anywhere along its length, have signage identifying a 30km/hr speed limit and identify no car parking restrictions where appropriate.

Advice notes: when the design drawings are submitted the Council may require minor variations to the roading design as indicated on the scheme plan in order to ensure compliance with the Council's roading standards.

Any works within the road reserve require the prior approval of Auckland Transport, this includes vehicle crossings, reinstating verges and temporary occupation of the berm / verge during construction; this is typically covered by a Corridor Access Request (CAR).

The consent holder is advised to contact Auckland Transport as early as possible to discuss design elements, e.g. road markings / signs, reinstatement of verge, retaining walls, that may be required; any installation of road markings may require formal resolution and gazetting in accordance with the Traffic Control Devices rules; any preparation of documentation or consultation required with the installation and gazetting of road marking is to be the responsibility of the consent holder.

Auckland Transport is also the authority that receives, reviews and approves construction traffic management plans (CMP and TMP), if any is required.

Road name

68. The consent holder must, before the survey plan of subdivision is approved under Section 223 of the Act, provide a name for each new public road and/or common private way or private road serving six or more lots and shall provide evidence that the proposed names are not duplicated within the Auckland Region before submitting the names to the Council Subdivision Team (Northern Consenting) for reporting to the Local Board for approval. In giving its approval the Local Board will require to be satisfied that each road name is relevant to the locality, or is otherwise appropriate. Once approved by the Local Board the consent holder must provide and install the appropriate street signs to the standards set out in the Auckland Transport Code of Practice, Chapter 10: Traffic Signs and Road Markings.

Wastewater

69. The consent holder must provide and install a complete wastewater system to serve Lots 1-10, 21 - 31 to the Council's and Watercare Services' public wastewater standards.
70. The consent holder must provide and install wastewater connections to serve Lots 1-10, 21 - 31 to the Watercare Services' standards for drainage. Easements shall be created and granted or reserved over any private drains traversing lots other than those being served.

Stormwater

71. The consent holder must provide and install a complete stormwater drainage system, consistent with condition 1, to serve all lots, roads and catchments upstream of the subject land to the



Council's public stormwater standards to the satisfaction of the Council. Stormwater connections shall be provided within the boundary of each lot. Adequate overland flow paths catering for a 1% annual exceedance probability (AEP) storm event shall be provided. As-built plans shall be provided for overland flow paths. Where ever practical, overland flow paths shall be along roadways or reserve areas and where such flow paths are required to be through residential lots minimum floor levels shall be established and plans detailing overland flow paths provided for inclusion in any consent notices for registration on the respective titles at the time of s224(c). Easements shall be created for overland flow paths.

Water supply

72. The consent holder must provide and install a complete water supply reticulation system to serve lots 1-10 and 21-31 to the satisfaction of the Council.

Legalities

73. The right of way easements over lot 102, 201 & 202 and any services easements (for example telecommunications, gas, power) over parts of the Lot 1-10, 21 - 31 must be included in a memorandum of easements endorsed on the Survey Plan and shall be granted or reserved. For the purposes hereof the rights of way are hereby approved pursuant to section 348 of the Local Government Act 1974.

Amalgamation conditions

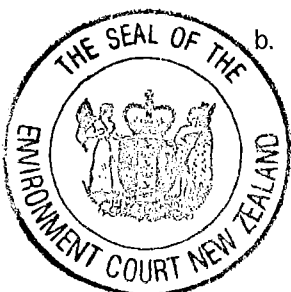
74. That Lot 100 DP_____ Stage 1 (legal access) be held as to twenty one undivided one twenty first shares by the owners of Lots 1 - 10 and 21 -31 hereon as tenants common in the said shares and individual Computer Registers shall be issued.
75. That Lot 201 hereon (legal access) be held as to five undivided one fifth shares by the owners of Lots 21 - 23 and 26 - 27 hereon as tenants in common in the said shares and individual Computer Registers shall be issued.
76. That Lot 202 hereon (legal access) be held as to four undivided one quarter shares by the owners of Lots 24, 25, 30 and 31 hereon as tenants in common in the said shares and individual Computer Registers shall be issued.
77. That Lot 102 hereon (legal access) be held as to fifteen undivided one fifteenth shares by the owners of Lots 1 - 9, 24 - 25, 28 - 31 hereon as tenants in common in the said shares and individual Computer Registers shall be issued.

Consent notices

78. Pursuant to Section 221 of the Resource Management Act, the consent holder shall cause to have registered on the Certificates of Title to be issued for Lots 1 – 10 & 21 – 31 a consent notice containing the following text:

In relation to Lots 1-10, 21 - 31:

- a. All lot development including any redevelopment and any temporary works must take full account of the recommendations and limitations set out in the geotechnical completion report to be submitted pursuant to Condition 22 of this consent.
- b. No vehicle crossings to any of the lots shall remove any on-street parking spaces within the subdivision.



- c. No Lot shall be further subdivided and any development of the lot shall be restricted to the construction of a single residential dwelling and ancillary buildings. For the avoidance of doubt no lot shall accommodate a minor residential dwelling.
- d. (The reason for the restriction of a single dwelling/household per lot is the limitations arising from the design of the private roads serving the subdivision, which are not deemed appropriate to serve greater volumes of traffic than has been consented as part of this subdivision.)
- e. The owners of Lots 1-10, 21 - 31 and their successors in title shall be responsible for the ongoing operation and maintenance of the privateways, street lighting and retaining structures within Lot 100 in accordance with condition 66.

In relation to lots 1 - 9, 24 - 25, 28 – 31

- f. The owners of Lots 1 - 9, 24 - 25, 28 – 31 and their successors in title shall be responsible for the ongoing operation and maintenance of the privateways, street lighting and retaining structures within Lot 102 in accordance with condition 66.

In relation to 21 - 23 and 26 – 27

- g. The owners of Lots 21 - 23 and 26 – 27 and their successors in title shall be responsible for the ongoing operation and maintenance of the privateways, street lighting and retaining structures within Lot 201 in accordance with condition 66.

In relation to Lots 24, 25, 30 and 31

- h. The owners of Lots 24, 25, 30 and 31 and their successors in title shall be responsible for the ongoing operation and maintenance of the privateways, street lighting and retaining structures within Lot 202 in accordance with condition 66.

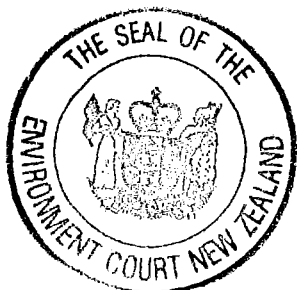
In relation to Lots 21 - 23

- i. The owner must not cut, damage, fell, wilfully injure or destroy the native trees (including roots), or execute work in the vicinity of the native trees (which includes a prohibition on excavation, construction, storage of material or debris, or removal of non-native trees where this will damage native trees) within the areas endorsed D,E,F & H on the plan of subdivision to be deposited as number DP ____ without the prior consent of Council in writing.

The owner/s of the allotment shall be responsible for the maintenance and enhancement of the covenanted areas by means of the implementation and ongoing application of the approved Covenant Management Plan required by Condition 65 of this consent.

Conditions specific to sections 9(2) and 9(3) land use consents for earthworks

Conditions 79 to 88 shall apply to the section 9(2) and 9(3) district and regional land use consents for earthworks.



Bulk earthworks duration

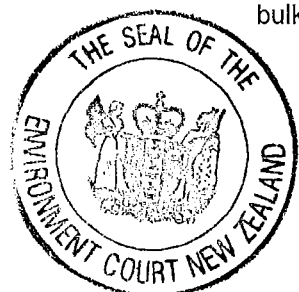
79. The section 9(2) land use consents for earthworks (referenced as SUB60032472) shall expire 5 years from the date they are granted unless they have been surrendered or cancelled at an earlier date pursuant to the RMA.

Erosion and sediment controls

80. Prior to bulk earthworks commencing, a certificate signed by an appropriately qualified and experienced person shall be submitted to the Team Leader – Northern Monitoring, to certify that the erosion and sediment controls have been constructed in accordance with the erosion and sediment control plans as specified in Condition 1 of this consent.

Certified controls shall include sediment retention pond, any decanting earth bunds, super silt fences, silt fences and diversion channels/bunds. The certification for these measures shall be supplied immediately upon completion of construction of those measures. Information supplied if applicable shall include:

- a. Contributing catchment area;
 - b. Shape of structure (dimensions of structure);
 - c. Position of inlets/outlets; and
 - d. Stabilisation of the structure.
81. Notwithstanding Condition 1, erosion and sediment control measures shall be constructed and maintained in accordance with TP90 and any amendments to this document, except where a higher standard is detailed in the documents referred to in Condition 1, in which case the higher standard shall apply.
82. Prior to the commencement of bulk earthworks at the site, a Chemical Treatment Management Plan (CTMP) shall be submitted for the certification of the Team Leader – Northern Monitoring. The plan shall include as a minimum:
- a. Specific design details of the chemical treatment system based on a rainfall activated methodology for the site's sediment retention pond and a batch dosing methodology for the decanting earth bunds;
 - b. Monitoring, maintenance (including post storm) and contingency programme (including a record sheet);
 - c. Details of optimum dosage (including assumptions);
 - d. Results of initial chemical treatment trial;
 - e. A spill contingency plan; and
 - f. Details of the person or bodies that will hold responsibility for long term operation and maintenance of the chemical treatment system and the organisational structure which will support this system.
83. The CTMP referred to under Condition 82 above, shall be implemented prior to the start of any bulk earthworks at the site.



84. Any amendments to the CTMP shall be submitted in writing for certification to the Team Leader – Northern Monitoring, prior to implementation.
85. Perimeter controls shall be operational before works commence. All 'cleanwater' runoff from stabilised surfaces including catchment areas above the site shall be diverted away from works areas via a stabilised system, so as to prevent surface erosion.
86. All earthworks shall be managed to ensure that no debris, soil, silt, sediment or sediment-laden water is discharged in an uncontrolled manner beyond the subject site to either land, stormwater drainage systems, watercourses or receiving waters. In the event that an uncontrolled discharge occurs, works shall cease immediately and the discharge shall be mitigated and/or rectified as instructed by the Team Leader – Northern Monitoring.
87. There shall be no deposition of earth, mud, dirt or other debris on any public road or footpath resulting from earthworks activity on the subject site. In the event that such deposition does occur, it shall immediately be removed. In no instance shall roads or footpaths be washed down with water without appropriate erosion and sediment control measures in place to prevent contamination of the stormwater drainage system, watercourses or receiving waters.

Advice note: in order to prevent sediment laden water entering waterways from the road, the following methods may be adopted to prevent or address discharges should they occur:

- *provision of a stabilised entry and exit(s) point for vehicles;*
- *provision of wheel wash facilities;*
- *ceasing of vehicle movement until materials are removed;*
- *cleaning of road surfaces using street-sweepers;*
- *silt and sediment traps; or,*
- *catchpit / cesspit protection.*

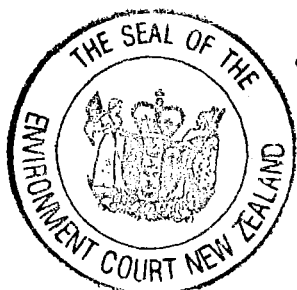
Under no circumstances is the washing of deposited materials into drains advised or otherwise condoned.

It is recommended that you discuss any potential measures with the Council's monitoring officer who may be able to provide further guidance on the most appropriate approach to take. Please contact the Team Leader – Northern Monitoring for more details. Alternatively, please refer to Auckland Regional Council, Technical Publication No. 90, Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region.

88. Upon abandonment or completion of earthworks on the subject site all areas of bare earth shall be permanently stabilised against erosion to the satisfaction of the Team Leader – Northern Monitoring.

Advice note: should the earthworks be completed or abandoned, bare areas of earth shall be permanently stabilised against erosion. Measures may include:

- *the use of mulching;*
- *top-soiling, seeding and mulching of otherwise bare areas of earth;*
- *aggregate or vegetative cover that has obtained a density of more than 80% of a normal pasture sward or,*
- *any other method which achieves appropriate stabilisation against erosion.*



The on-going monitoring of these measures is the responsibility of the consent holder. It is recommended that you discuss any potential measures with the Council's monitoring officer who will guide you on the most appropriate approach to take. Please contact the Team Leader – Northern Monitoring for more details. Alternatively, please refer to Auckland Regional Council, Technical Publication No. 90, Erosion & Sediment Control: Guidelines for Land Disturbing Activities in the Auckland Region.

Conditions specific to sections 9(2) and 9(3) land use consents for earthworks and to sections 13 and 14 streamworks consent

Conditions 89 to 95 shall apply to the section 9(3) district and regional land use consents for earthworks and to the section 13 and 14 'streamworks' consents.

89. The Team Leader – Northern Monitoring, shall be notified at least five working days prior to earthworks and / or streamworks activities commencing on the subject site.

Advice note: please contact the Team Leader – Northern Monitoring on monitoring@aucklandcouncil.govt.nz.

90. Prior to the commencement of the earthworks or streamworks activity, the consent holder shall hold a pre-start meeting that:
- is located on the subject site;
 - is scheduled not less than five days before the anticipated commencement of earthworks;
 - includes a Auckland Council Monitoring Advisor(s); and,
 - includes representation from the contractors who will undertake the works.

The meeting shall discuss the erosion and sediment control measures, the earthworks and streamworks methodologies and shall ensure all relevant parties (Consent holder, contractor(s) and Council) are aware of and familiar with the necessary conditions of this consent.

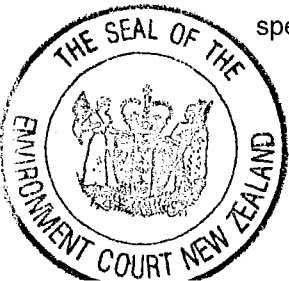
The following information shall be made available at the pre-start meeting:

- Timeframes for key stages of the works authorised under this consent;
- Resource consent conditions; and,
- The Erosion and Sediment Control Plan.

A pre-start meeting shall be held prior to the commencement of the earthworks or streamworks in each period between October 1 and April 30 that this consent is exercised.

Advice note: to arrange the pre-start meeting required by this condition please contact the Team Leader – Northern Monitoring at monitoring@aucklandcouncil.govt.nz The conditions of consent should be discussed at this meeting. All additional information required by the Council should be provided 2 days prior to the meeting.

91. The operational effectiveness and efficiency of all erosion and sediment control measures specifically required as a condition of resource consent or by the Erosion and Sediment Control



Plan referred to in Condition 1 shall be maintained throughout the duration of earthworks activity, or until the site is permanently stabilised against erosion. A record of any maintenance work shall be kept and be supplied to the Team Leader – Northern Monitoring on request.

92. Notice shall be provided to the Team Leader – Northern Monitoring, at least two (2) working days prior to the removal of any erosion and sediment control works specifically required as a condition of resource consent.
93. The site shall be progressively stabilised against erosion at all stages of the earthwork activity in accordance with Erosion and Sediment Control Plan.

Advice note: in accordance with this condition interim stabilisation measures may include:

- o *the use of waterproof covers, geotextiles, or mulching;*
- o *aggregate or vegetative cover that has obtained a density of more than 80% of a normal pasture sward; or*
- o *any other method which achieve appropriate stabilisation.*

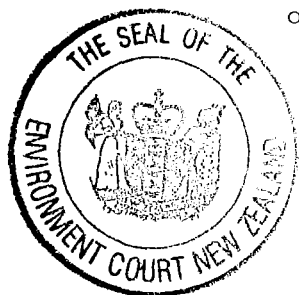
It is recommended that you discuss any potential measures with the Council's monitoring officer who may be able to provide further guidance on the most appropriate approach to take. Please contact the Team Leader – Northern Monitoring for more details. Alternatively, please refer to Auckland Regional Council, Technical Publication No. 90, Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region.

Seasonal restrictions

94. No earthworks or streamworks on the subject site shall be undertaken between 30 April and 1 October in any year, without the written approval of the Team Leader – Northern Monitoring.

Advice note: any 'Request for winter works' submitted in accordance with this condition will be assessed against criteria in line with the information required to assess a comprehensive application. Principally that will focus on the level of risk, the propensity to manage that risk with contingency planning and a 'track record' of good compliance with consent conditions. Each 'Request for winter works' submitted, should include the following:

- o *Description of works proposed to be undertaken between 30 April and 1 October and the duration of those works;*
- o *Details of proposed measures to prevent sediment discharge from these specific works, particularly during periods of heavy rainfall;*
- o *Details of area(s) already stabilised;*
- o *Revised erosion and sediment control plan detailing stabilisation to date and time line/staging boundaries showing proposed progression of stabilisation;*
- o *Contact details for contractor who will undertake stabilisation of the site including date(s) expected on site;*
- o *Alternatives/contingencies proposed if the contractor referred to above becomes unavailable;*
- o *Details of site responsibilities, specifically who is responsible for erosion and sediment controls and stabilisation processes over the specified period.*



95. Revegetation/stabilisation is to be completed by 30 April in the year of bulk earthworks in accordance with measures detailed in TP90 and any amendments to this document, unless a later date is approved in writing by the Team Leader – Northern Monitoring, at least two weeks before 30 April.

Condition specific to section 13 and 14 streamworks consent

Conditions 96 shall apply to the section 13 and 14 streamworks consent.

Duration

96. The section 13 and 14 streamworks consent (referenced as LUS60066611) shall expire 35 years from the date it is granted unless it has been surrendered or been cancelled at an earlier date pursuant to the RMA.



Appendix 1

Conditions in 2015 NZEnvC 123 and 2015 NZEnvC 193 given effect to

Consent numbers from each respective decision.

Arboriculture

42/24. All works associated with this proposal shall be undertaken in accordance with and shall not deviate from the guidance and methodologies relating to tree management and protection embodied within the following document:

Arboricultural Report prepared by Mr. Seth Thompson on behalf of Tree Fellas Ltd (Job No: 20110526A / Dated: 26/05/2011).

Tree protection methodologies and measures set out in the above report shall be applied to all areas of "bush enhancement and protection area to be covenanted" and "proposed bush protection area to be covenanted" shown on the approved scheme plan of subdivision referred to in Condition 1 and includes all covenant areas and the proposed esplanade reserve in lot 500.

The tree protection measures shall be implemented prior to any earthwork activity taking place on the site, shall remain in place for the duration of earthwork and construction work on the site, or as otherwise directed by the Council's and consent holder's arborists.

Subject to the following matters, the pine trees shall be removed from proposed Lot 500 and proposed covenant areas D, E,F,G,H,I,J,K,L and M:

- i. A meeting shall be undertaken between the Council's Resource Consents Department arborist, the Council's Parks Department arborist, the consent holder's arborist and tree removal contractor on site prior to the removal of the pine trees to confirm the methodology for the removal of pine trees from within the area of significant native vegetation. If in the view of the Council's and consent holder's arborists the removal of identified pine trees would result in more than minor damage to significant native vegetation and/or there is no practical access to remove identified pine trees then, subject to agreement between the arborists that the identified pine trees are healthy and not unstable in a manner which would adversely affect persons or property, those identified pine tree(s) can remain. This means where damage to significant native vegetation from removal of pine trees within Lot 500 is not more than minor in the opinion of the Council's and consent holder's arborists then the pine trees should be removed.
- ii. In considering i) above, methods for removing pine trees within Lot 500 and proposed covenant areas D, E,F,G,H,I,J,K,L and M shall include dismantling the trees and leaving the cut pieces in situ as opposed to directional felling and dragging the trees out of the areas of significant native vegetation.
- iii. If the Council's and consent holder's arborists conclude the removal of some pine trees will result in any remaining pine trees failing because of exposure to edge effects then these pine trees shall be removed.



Ecology

- 43/25. The consent holder shall ensure that a native lizard survey is to be undertaken for both terrestrial and arboreal species at least eight weeks prior to any earth works or vegetation clearances occurring. The survey shall not commence before August or after May as seasonal weather periods can seriously impact the presence and movements of lizards e.g. cold and wet periods. Should any native lizards be trapped, then a Lizard Management Plan (LMP) shall be developed which will identify a rescue methodology, a release site, restoration and enhancement of lizard habitat at the release site together with post monitoring and pest management for at least 3 continuous years. The lizard survey and development of the LMP is to be undertaken by a reputable and DOC permitted herpetologist and to be approved by councils ecologist.
- 44/26. The herpetologist will communicate with and work in conjunction with the vegetation clearance contractor at all times to maximise the capture and rescue effort of native lizards including agreement on vegetation clearance methodology to mitigate harm or death of native lizards. All felled kanuka and other tall woody trees and shrubs located within the kanuka forest (excluding the pine plantation forest and bamboo grove), shall be inspected by a reputable and DOC-permitted herpetologist prior to mulching to maximise capture and escape of arboreal Auckland green and forest geckos (both "At Risk" species).
- 45/27. The consent holder shall ensure that a native bird nesting survey is undertaken immediately prior to clearance of any vegetation should this occur from early September through to the end of February. Should any native bird be observed nesting, then a buffer of vegetation of at least 10 metres (radius) is retained around the nest until such time as the chicks have fledged and left the site.
- 46/28. The consent holder shall ensure that a repeat bat survey is undertaken by a qualified ecologist experienced in the use of bat detectors (to record presence when flying bats covert their echolocation ultrasound calls) during favourable weather conditions and at a time of year appropriate for bat survey work and at least four continuous weeks prior to any vegetation clearances or removal of any large trees. Should presence of bats be recorded, all efforts shall be made to confirm if they are roosting within vegetation or trees located on the site. A repeat bat survey is necessary as bats utilize different roosts at different sites over different times of the year.
- 47/29. The consent holder shall undertake a rescue and translocation of fish and crustaceans (koura), by a reputable fresh-water ecologist using the methodology set out in sections 9 (9.1 and 9.2), 10.1 and 10.3 of the "Ecological Restoration Plan and Fish Rescue Plan For Proposed Subdivision, Laurel Oak Drive, Albany" prepared by Wildlands Consultants Ltd, dated 13 January 2012, when works occur within streams with flowing or pooled water e.g. culvert in-bedding and removal of derelict culvert and road access works.

Fish relocation shall be undertaken in summer to maximise fish capture success and minimise disruption (via relocation and potential silt effects) to fish spawning and migration activities.

Advice note: the fish relocation plan should provide for the release of fish downstream of culvert works, or justify why they must be translocated to another catchment. Translocation to another catchment is not recommended and would also require authorisation from the Department of Conservation.

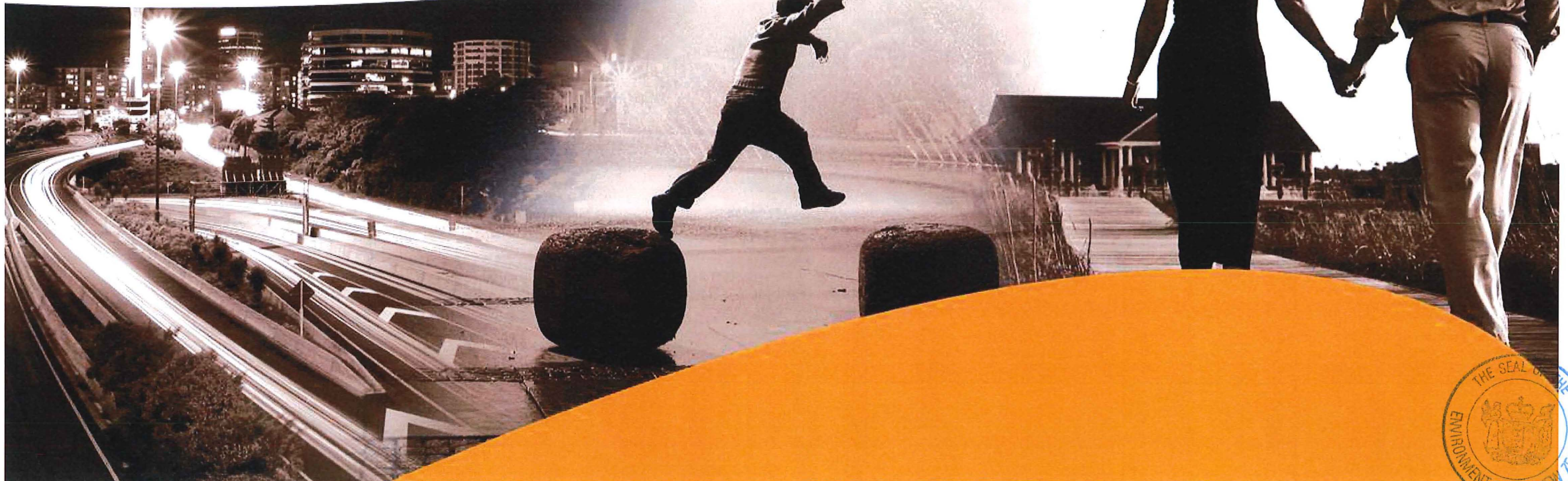


- 48/30. Prior to the commencement of any site development works relating to this consent, the consent holder shall submit to the council a Weed Control Plan (the WCP) prepared by a suitably qualified ecologist for certification by the council's Team Leader Northern Monitoring (in relation to areas outside Lot 500) and the council's Park's Department arborist (in relation to areas within Lot 500). The WCP shall be based on the plan and recommendations contain in the "Ecological Restoration Plan and Fish Rescue Plan For Proposed Subdivision, Laurel Oak Drive, Albany", prepared by Wildlands Consultants Ltd, dated 13 January 1012, the WCP shall reflect the consented subdivision layout and areas identified for protection and enhancement as shown on the scheme plan for subdivision prepared Candor3 Ltd, reference 1007A, Sheet 01-100 revision A. The WCP shall include areas within Lot 500 adjacent to the private road where vegetation has been removed for construction and/or giving effect to the development, including retaining walls and the private road.
37. The streambed disturbance works authorised by these consents shall be undertaken only during a period when all flows can be diverted around the area of works, throughout the duration of the works.
38. Prior to the commencement of the streamworks activities authorised by these consents, a statement outlining the methodology for undertaking the streamworks authorised by the granting of this consent, shall be provided for certification by the Team Leader – Northern Monitoring. This method statement shall include, but not be limited to, the works methodology which is to be utilised during installation of the structures authorised for installation by this consent.



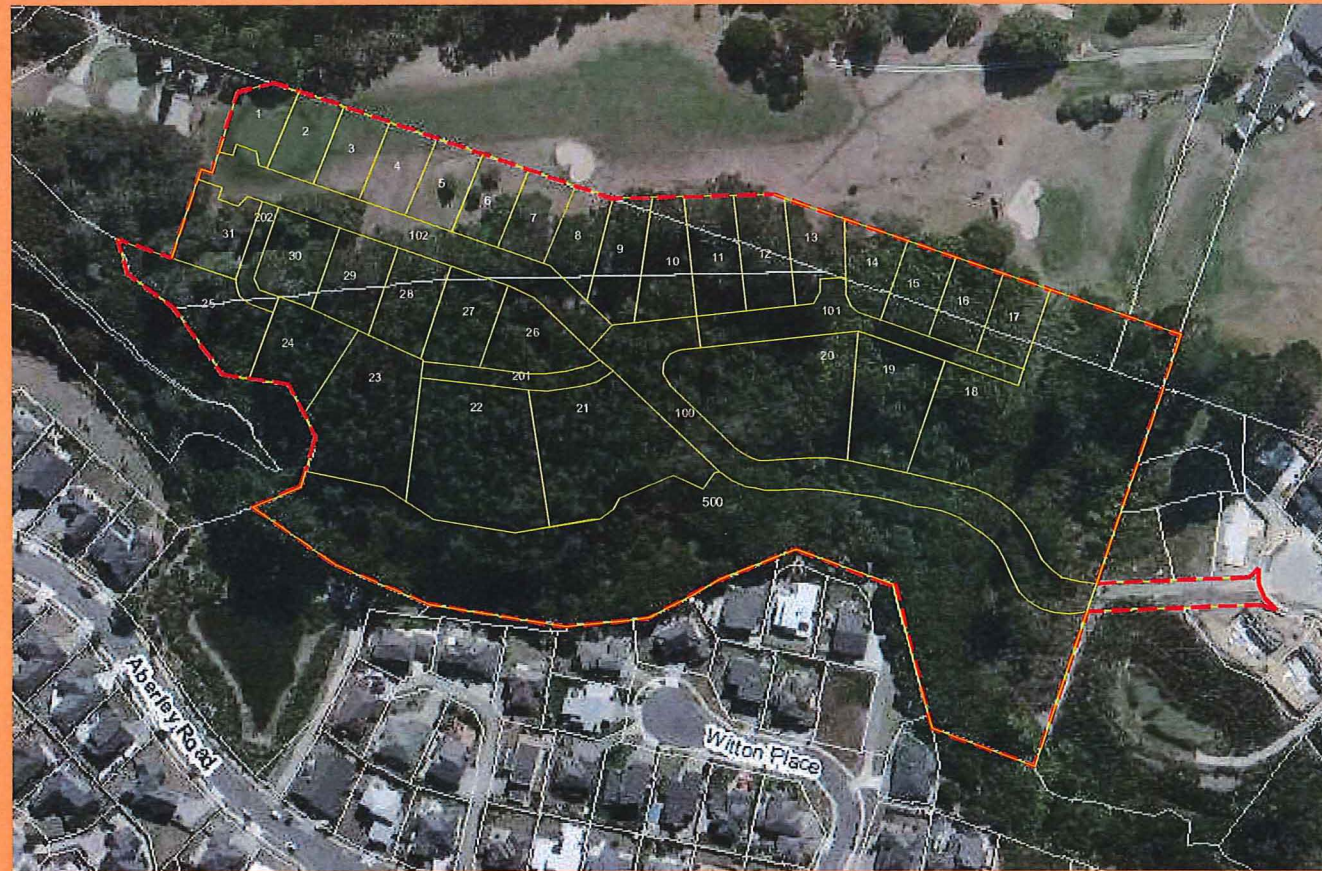
**PROJECT ENGINEERING DRAWINGS
84 LAUREL OAK DRIVE (FOR 31 LOTS)
3rd FAIRWAY DEVELOPMENTS LTD**

**ISSUED FOR ENVIRONMENT COURT
AUGUST 2017**



84 LAUREL OAK DRIVE ENGINEERING DRAWINGS FOR ENVIRONMENT COURT

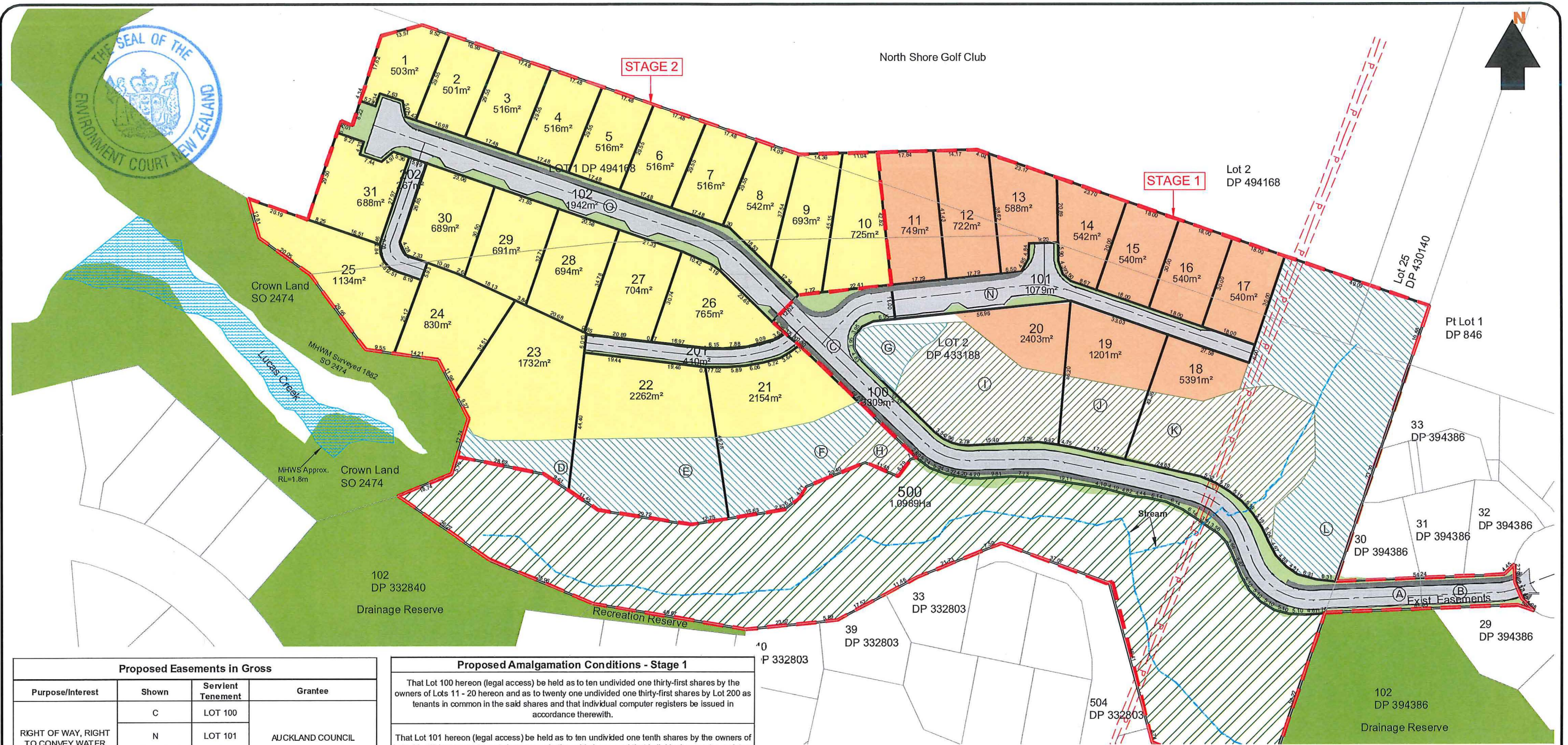
DRAWING INDEX



SITE LOCATION
NOT TO SCALE

<u>DWG NO.</u>	<u>DRAWING TITLE</u>
01 100's	SCHEME PLAN - PROPOSED SUBDIVISION
01 030's	VECTOR OVERHEAD LINE PLANS
02 101	EXISTING CONTOURS PLAN
02 102	DESIGN CONTOURS PLAN
02 103	CUT/FILL CONTOURS PLAN
02 300	ENGINEERED EARTH FILL EMBANKMENT PLAN
02 301's	ENGINEERED EARTH FILL EMBANKMENT LONGSECTIONS
02 304	ENGINEERED EARTH FILL EMBANKMENT TYPICAL DETAIL
02 500	EROSION AND SEDIMENT CONTROL PLAN
03 100's	ROADING PLANS
03 200	80 LAUREL OAK DRIVE DRIVEWAY DETAILS
03 300's	INTERSECTION DETAILS
03 400's	ROAD LONG SECTIONS
03 500's	TYPICAL ROAD CROSS SECTIONS
04 100's	DRAINAGE PLANS
04 200	STORMWATER CATCHMENT PLAN (NOT INCLUDED)
04 300's	OVERLAND FLOW PATH PLANS
04 400's	STORMWATER LONGSECTIONS (NOT INCLUDED)
04 500	STORMWATER CULVERT PLAN
05 200's	WASTEWATER LONGSECTIONS (NOT INCLUDED)
05 300	WASTEWATER CATCHMENT PLAN
05 400	WASTEWATER PIPE BRIDGE DETAIL (NOT INCLUDED)
06 100	WATER SUPPLY LAYOUT PLAN
08 100	UTILITY LAYOUT PLAN
09 100's	STANDARD DETAILS (NOT INCLUDED)





Proposed Easements in Gross			
Purpose/Interest	Shown	Servient Tenement	Grantee
RIGHT OF WAY, RIGHT TO CONVEY WATER	C	LOT 100	AUCKLAND COUNCIL
	N	LOT 101	
	O	LOT 102	

Schedule of Existing Easements			
Purpose	Shown	Servient Tenement	Document Number
RIGHT OF WAY	A B	LOT 2 DP 433188	EI 7645588.8

Schedule of Existing Easements in Gross			
Purpose	Shown	Servient Tenement	Created By
WASTEWATER DRAINAGE	A B	LOT 2 DP 433188	EI 7645588.9

Proposed Land Covenants
Areas shown D - M are subject to a restrictive covenant.

Proposed Amalgamation Conditions - Stage 1

That Lot 100 hereon (legal access) be held as to ten undivided one thirty-first shares by the owners of Lots 11 - 20 hereon and as to twenty one undivided one thirty-first shares by Lot 200 as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

That Lot 101 hereon (legal access) be held as to ten undivided one tenth shares by the owners of Lots 11 - 20 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

Proposed Amalgamation Conditions - Stage 2

That Lot 100 DP _____ Stage 1 (legal access) be held as to twenty one undivided one twenty-first shares by the owners of Lots 1 - 10 and 21 - 31 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

That Lot 102 hereon (legal access) be held as to fifteen undivided one fifteenth shares by the owners of Lots 1 - 9, 24 - 25, 28 - 31 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

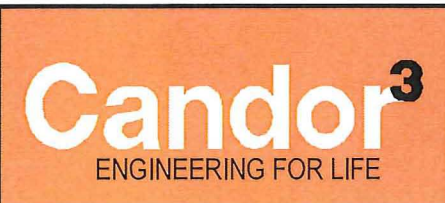
That Lot 201 hereon (legal access) be held as to five undivided one fifth shares by the owners of Lots 21 - 23 and 26 - 27 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

That Lot 202 hereon (legal access) be held as to four undivided one quarter shares by the owners of Lots 24, 25, 30 and 31 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

LEGEND

- SITE EXTENT/STAGE BOUNDARY
- EXISTING BOUNDARIES (XML)
- EXISTING OVERHEAD POWER LINES
- PROPOSED CENTRELINES
- PROPOSED LOT BOUNDARIES
- EXISTING STREAM
- RESIDENTIAL LOTS - STAGE 1
- RESIDENTIAL LOTS - STAGE 2
- BALANCE LOT
- PROPOSED BUSH ENHANCEMENT & PROTECTION AREAS TO BE COVENANTED (SHOWN ON PLAN AS D, E, F, G, L)
- PROPOSED BUSH PROTECTION AREA TO BE COVENANTED (SHOWN ON PLAN AS H, I, J, K)
- PROPOSED LOCAL PURPOSE RESERVE (ESPLANE LOT 500)
- EXISTING RECREATION RESERVE AND DRAINAGE RESERVE AREA

REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16
B	PLAN AND NOTES UPDATED FOR COURT	SK	09-08-17



PROJECT
3RD FAIRWAY DEVELOPMENTS
84 LAUREL OAK DRIVE, ALBANY
SCHEME PLAN

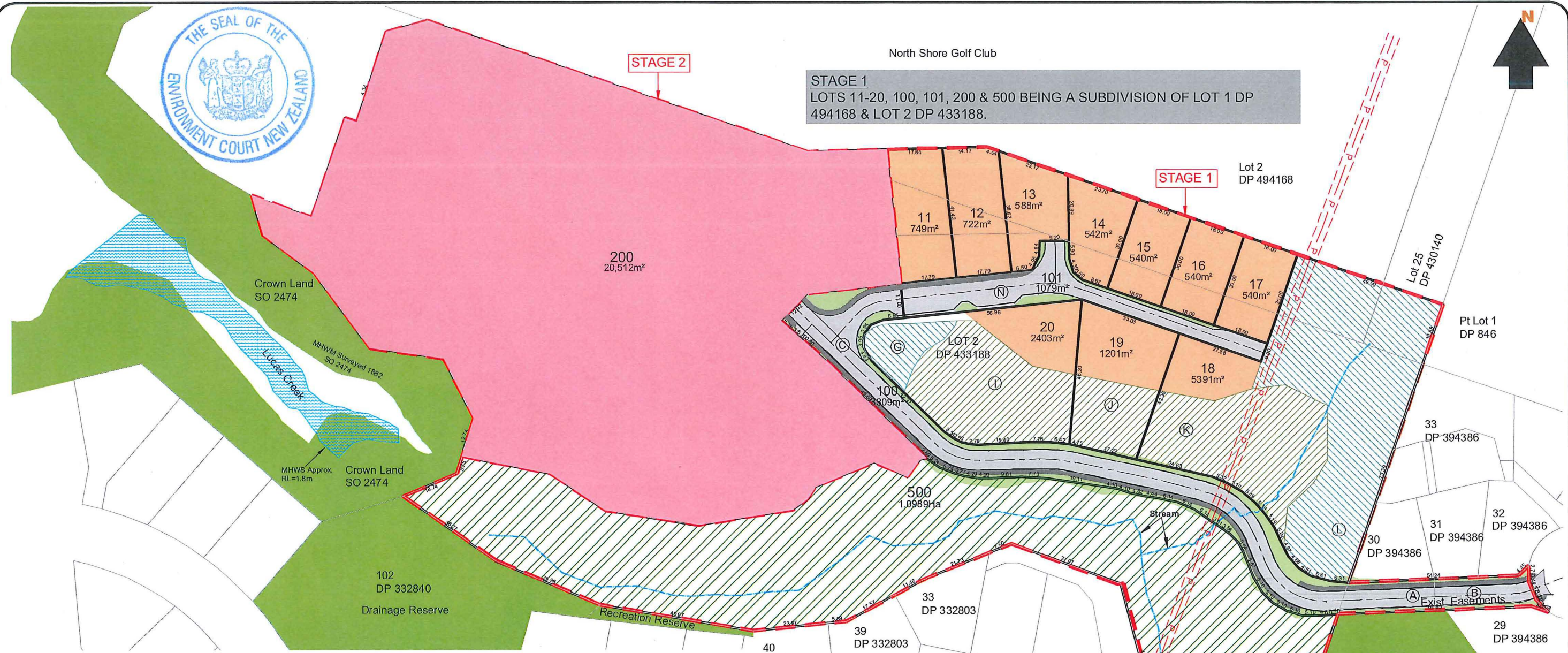
CLIENT
3RD FAIRWAY DEVELOPMENTS LTD

DESIGN	WW	SCALE	DATE ISSUED
DRAWN	WW	1:1250 @ A3	MAY 2016
CHECK	-		
APPV'D	-		
PROJECT NO.	DRAWING NO.	REVISION	
1007A	01-100	(B)	



North Shore Golf Club

STAGE 1
 LOTS 11-20, 100, 101, 200 & 500 BEING A SUBDIVISION OF LOT 1 DP 494168 & LOT 2 DP 433188.



Proposed Easements in Gross			
Purpose/Interest	Shown	Servient Tenement	Grantee
RIGHT OF WAY, RIGHT TO CONVEY WATER	C	LOT 100	AUCKLAND COUNCIL
	N	LOT 101	
	O	LOT 102	

Schedule of Existing Easements			
Purpose	Shown	Servient Tenement	Document Number
RIGHT OF WAY	A B	LOT 2 DP 433188	EI 7645588.8

Schedule of Existing Easements in Gross			
Purpose	Shown	Servient Tenement	Created By
WASTEWATER DRAINAGE	A B	LOT 2 DP 433188	EI 7645588.9

Proposed Land Covenants
 Areas shown D - M are subject to a restrictive covenant

Proposed Amalgamation Conditions - Stage 1

That Lot 100 hereon (legal access) be held as to ten undivided one thirty-first shares by the owners of Lots 11 - 20 hereon and as to twenty one undivided one thirty-first shares by Lot 200 as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

That Lot 101 hereon (legal access) be held as to ten undivided one tenth shares by the owners of Lots 11 - 20 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

Proposed Amalgamation Conditions - Stage 2

That Lot 100 DP Stage 1 (legal access) be held as to twenty one undivided one twenty-first shares by the owners of Lots 1 - 10 and 21 - 31 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

That Lot 102 hereon (legal access) be held as to fifteen undivided one fifteenth shares by the owners of Lots 1 - 9, 24 - 25, 28 - 31 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

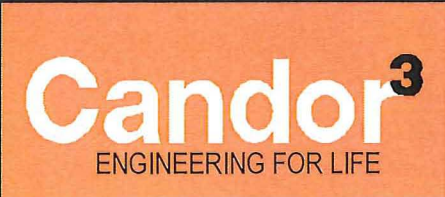
That Lot 201 hereon (legal access) be held as to five undivided one fifth shares by the owners of Lots 21 - 23 and 26 - 27 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

That Lot 202 hereon (legal access) be held as to four undivided one quarter shares by the owners of Lots 24, 25, 30 and 31 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

LEGEND

- SITE EXTENT/STAGE BOUNDARY
- EXISTING BOUNDARIES (XML)
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- PROPOSED LOT BOUNDARIES
- EXISTING STREAM
- RESIDENTIAL LOTS - STAGE 1
- RESIDENTIAL LOTS - STAGE 2
- BALANCE LOT
- PROPOSED BUSH ENHANCEMENT & PROTECTION AREAS TO BE COVENANTED (SHOWN ON PLAN AS D, E, F, G, L)
- PROPOSED BUSH PROTECTION AREA TO BE COVENANTED (SHOWN ON PLAN AS H, I, J, K)
- PROPOSED LOCAL PURPOSE RESERVE (ESPLANADE LOT 500)
- EXISTING RECREATION RESERVE AND DRAINAGE RESERVE AREA

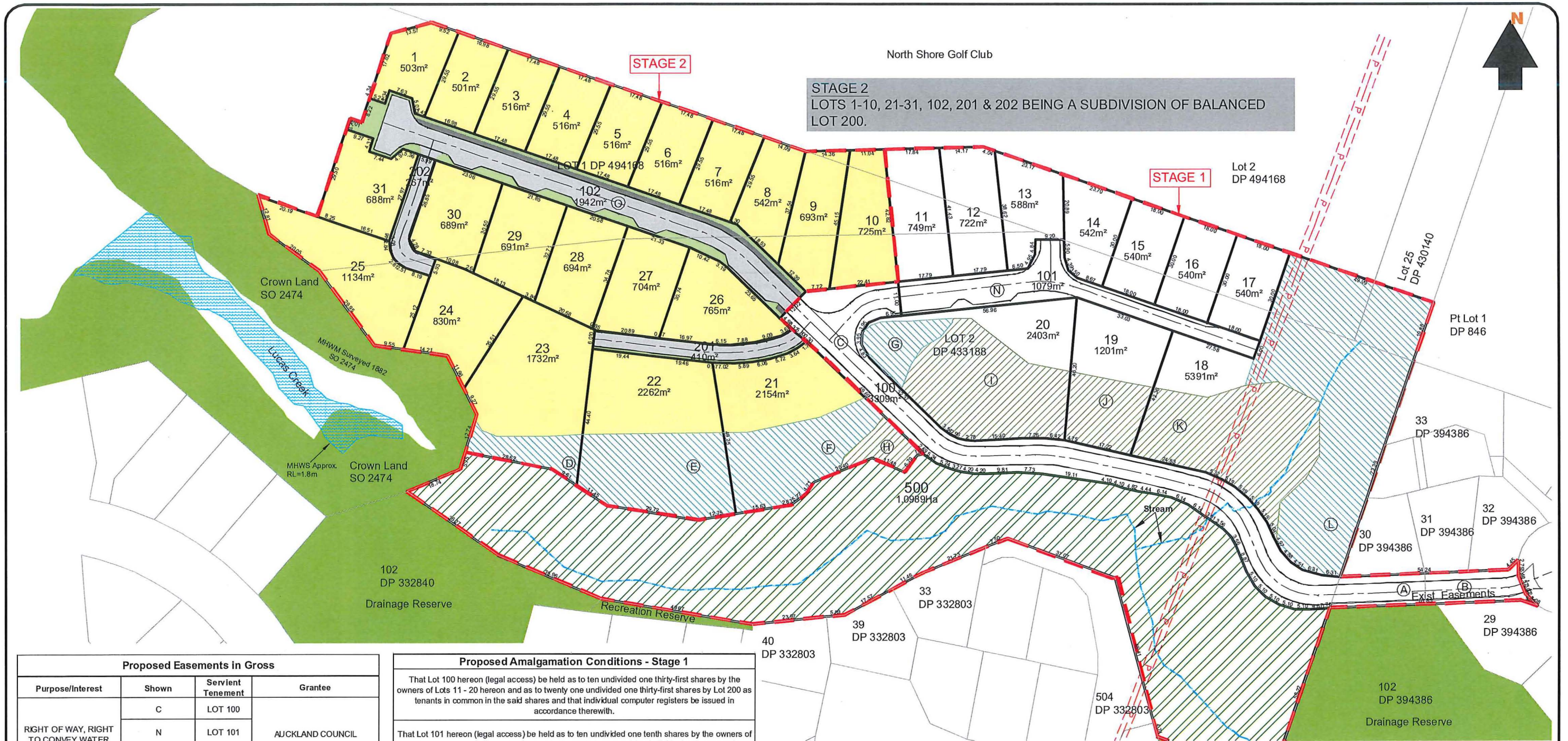
REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16
B	PLAN AND NOTES UPDATED FOR COURT	SK	09-08-17



PROJECT
3RD FAIRWAY DEVELOPMENTS
 84 LAUREL OAK DRIVE, ALBANY
 SCHEME PLAN STAGE 1

CLIENT
3RD FAIRWAY DEVELOPMENTS LTD

DESIGN	WW	SCALE	DATE ISSUED
DRAWN	WW	1:1250 @ A3	MAY 2016
CHECK	-		
APP'D	-		
PROJECT NO.	DRAWING NO.	REVISION	
1007A	01-101	(B)	



STAGE 2
 LOTS 1-10, 21-31, 102, 201 & 202 BEING A SUBDIVISION OF BALANCED LOT 200.

STAGE 1

Proposed Easements in Gross			
Purpose/Interest	Shown	Servient Tenement	Grantee
RIGHT OF WAY, RIGHT TO CONVEY WATER	C	LOT 100	AUCKLAND COUNCIL
	N	LOT 101	
	O	LOT 102	

Schedule of Existing Easements			
Purpose	Shown	Servient Tenement	Document Number
RIGHT OF WAY	A B	LOT 2 DP 433188	EI 7645588.8

Schedule of Existing Easements in Gross			
Purpose	Shown	Servient Tenement	Created By
WASTEWATER DRAINAGE	A B	LOT 2 DP 433188	EI 7645588.9

Proposed Land Covenants
 Areas shown D - M are subject to a restrictive covenant

Proposed Amalgamation Conditions - Stage 1

That Lot 100 hereon (legal access) be held as to ten undivided one thirty-first shares by the owners of Lots 11 - 20 hereon and as to twenty one undivided one thirty-first shares by Lot 200 as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

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Proposed Amalgamation Conditions - Stage 2

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That Lot 201 hereon (legal access) be held as to five undivided one fifth shares by the owners of Lots 21 - 23 and 26 - 27 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.

That Lot 202 hereon (legal access) be held as to four undivided one quarter shares by the owners of Lots 24, 25, 30 and 31 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith.



LEGEND

- SITE EXTENT/STAGE BOUNDARY
- EXISTING BOUNDARIES (XML)
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- PROPOSED LOT BOUNDARIES
- EXISTING STREAM
- RESIDENTIAL LOTS - STAGE 1
- RESIDENTIAL LOTS - STAGE 2
- BALANCE LOT
- PROPOSED BUSH ENHANCEMENT & PROTECTION AREAS TO BE COVENANTED (SHOWN ON PLAN AS D, E, F, G, L)
- PROPOSED BUSH PROTECTION AREA TO BE COVENANTED (SHOWN ON PLAN AS H, I, J, K)
- PROPOSED LOCAL PURPOSE RESERVE (ESPLANADE LOT 500)
- EXISTING RECREATION RESERVE AND DRAINAGE RESERVE AREA

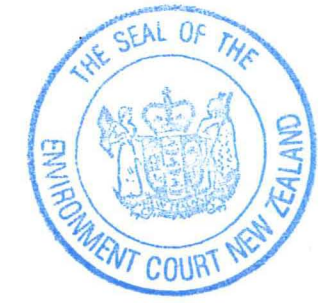
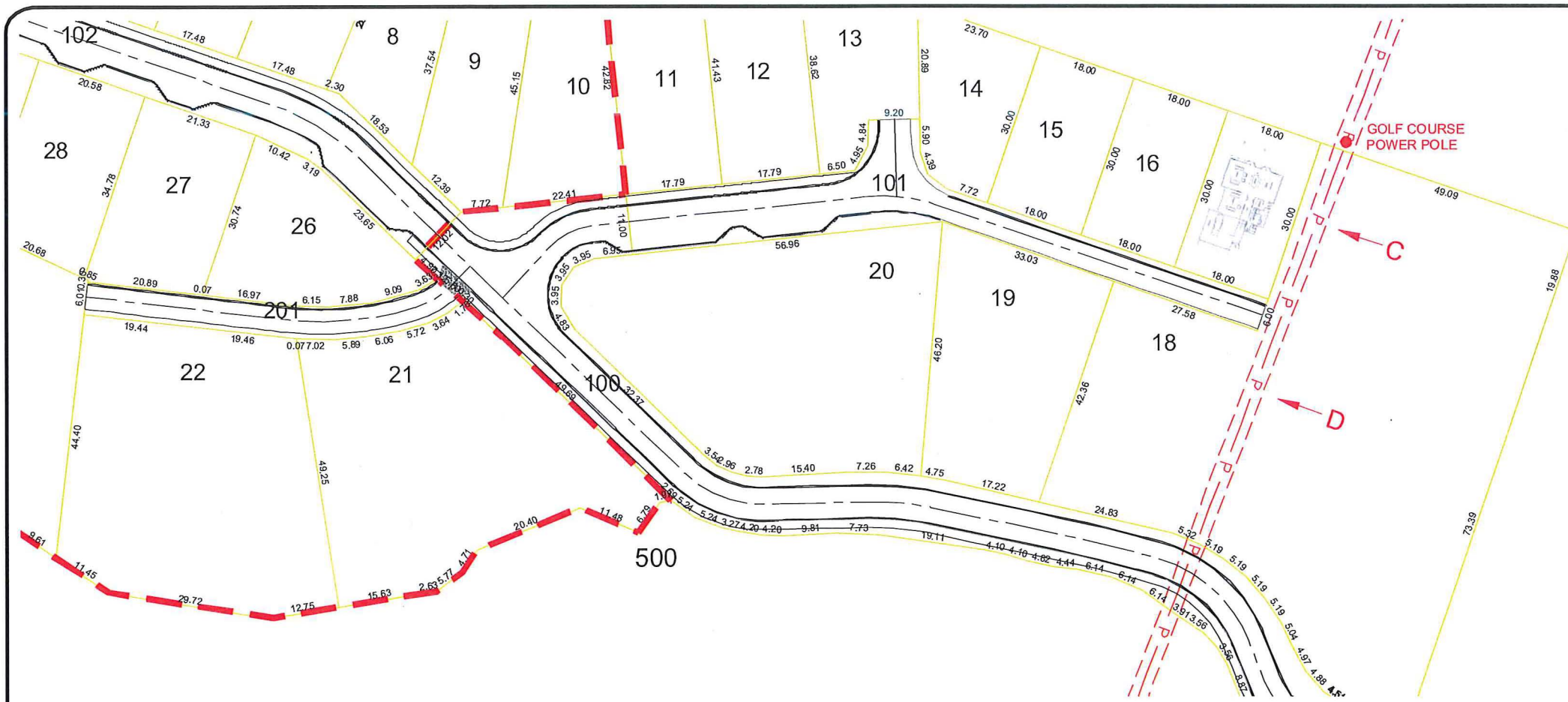
REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16
B	PLAN AND NOTES UPDATED FOR COURT	SK	09-08-17



PROJECT
3RD FAIRWAY DEVELOPMENTS
 84 LAUREL OAK DRIVE, ALBANY
 SCHEME PLAN STAGE 2

CLIENT
3RD FAIRWAY DEVELOPMENTS LTD

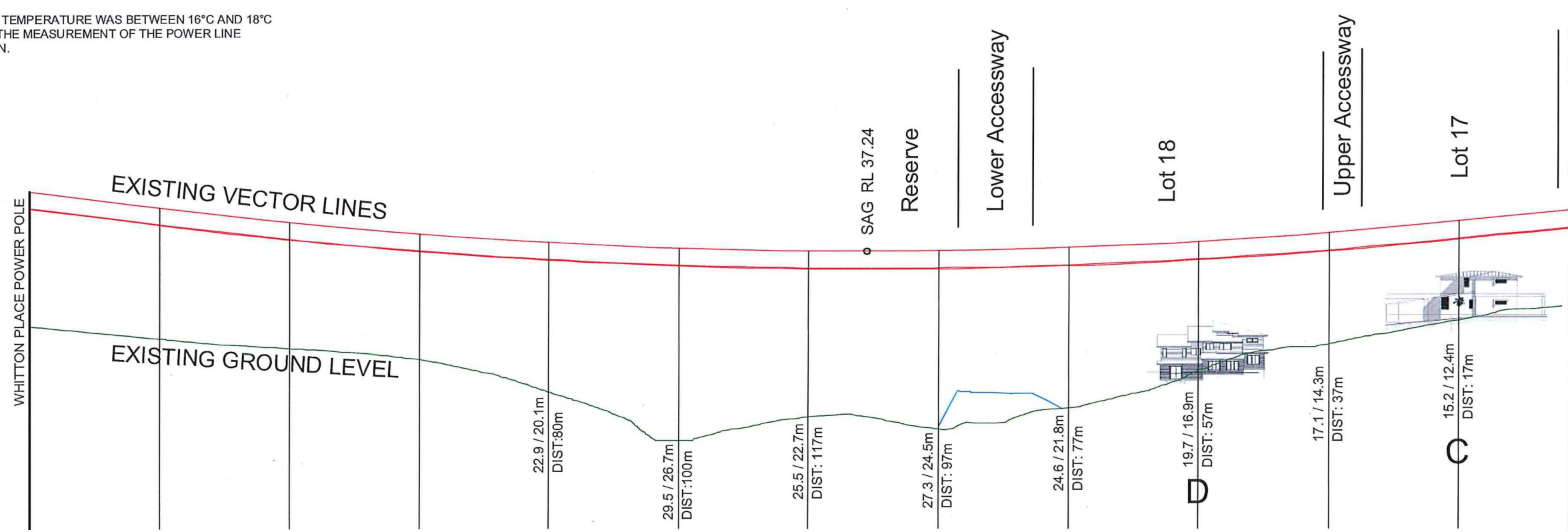
DESIGN	WW	SCALE	DATE ISSUED
DRAWN	WW	1:1250 @ A3	MAY 2016
CHECK	-		
APP'VD	-		
PROJECT NO.	DRAWING NO.	REVISION	
1007A	01-102	(B)	



1:1000 @A3

EXISTING VECTOR LINE LONGITUDINAL SECTION

- NOTES:
1. THE POWER LINES WERE POSITIONED BY SURVEY (ON THE 17 FEBRUARY 2012) AND A PARABOLA FITTED WITH AN ACCURACY OF +/-100mm.
 2. LOCAL TEMPERATURE WAS BETWEEN 16°C AND 18°C DURING THE MEASUREMENT OF THE POWER LINE LOCATION.



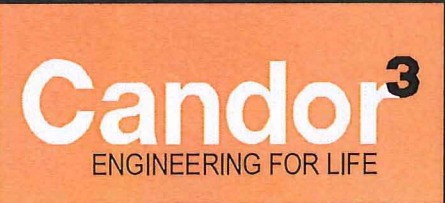
KEY:

17.1 / 14.3m DENOTES THE DISTANCE ABOVE THE GROUND LEVEL OF THE HIGHEST AND LOWEST CONDUCTOR.

DIST:17m DENOTES THE DISTANCE FROM THE CLOSEST POWER POLE.

1:750 @A3

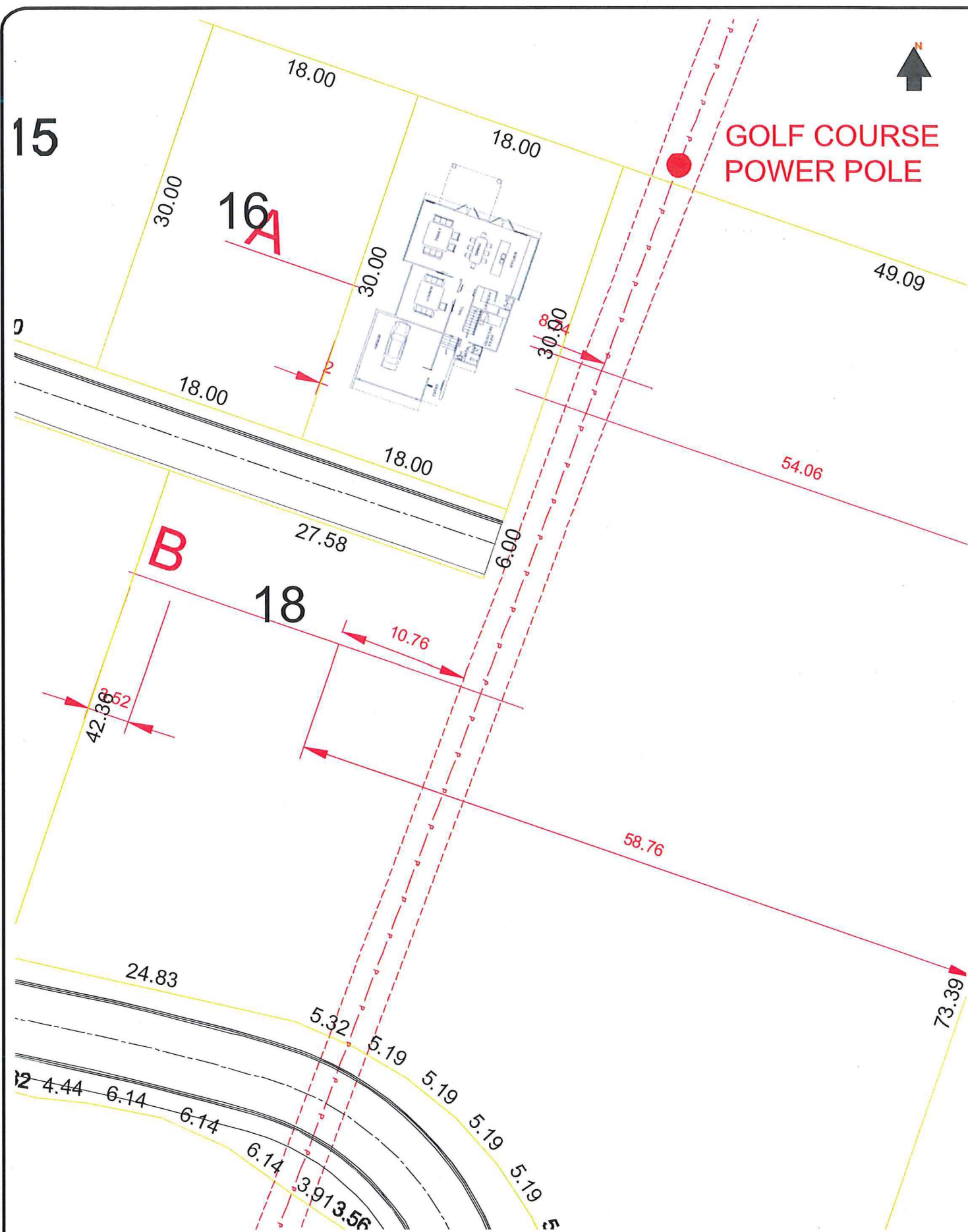
REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	CCC 02-05-16
A	ISSUED FOR S92	SK 16-11-16



PROJECT
**3rd FAIRWAY DEVELOPMENTS
 EXISTING VECTOR
 110KV LINE**

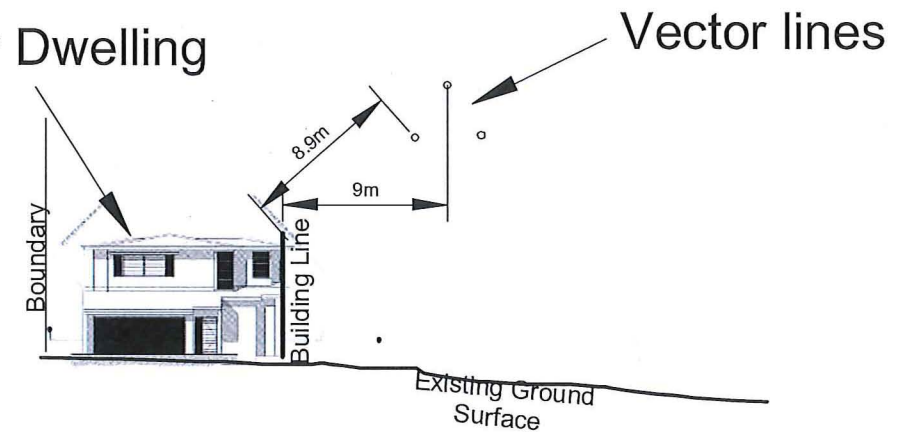
CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN CCC	SCALE AS SHOWN	DATE ISSUED MAY 2016
DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A 01-130	DRAWING NO.	REVISION (A)



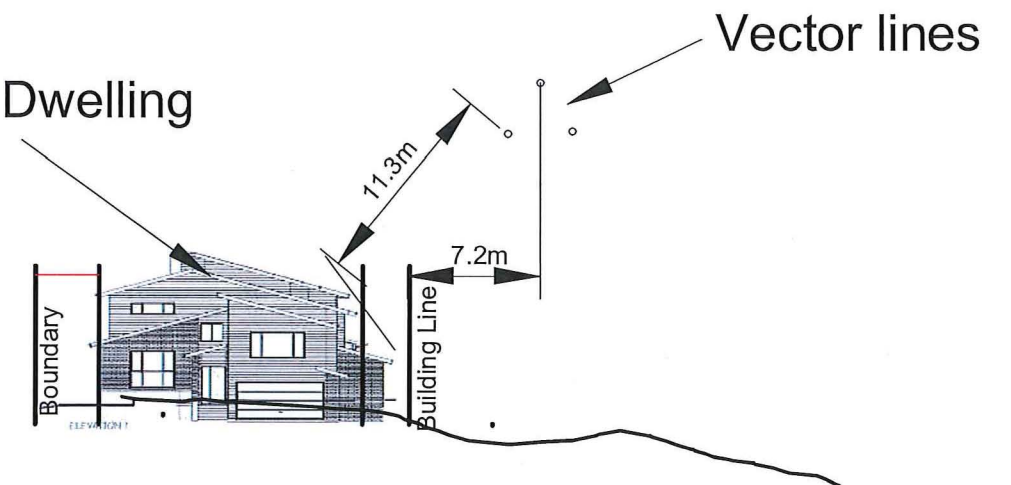
LOT 17 - SECTION A - A'
(18.1m FROM POWER POLE)

Two Storey Dwelling



LOT 18 - SECTION B - B'
(56.2m FROM POWER POLE)

Two Storey Dwelling



NOTES:

1. THE POWER LINES WERE POSITIONED BY SURVEY (ON THE 17 FEBRUARY 2012) AND A PARABOLA FITTED WITH AN ACCURACY OF +/-100mm.
2. LOCAL TEMPERATURE WAS BETWEEN 16°C AND 18°C DURING THE MEASUREMENT OF THE POWER LINE LOCATION.



REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	ISSUED FOR S92	16-11-16

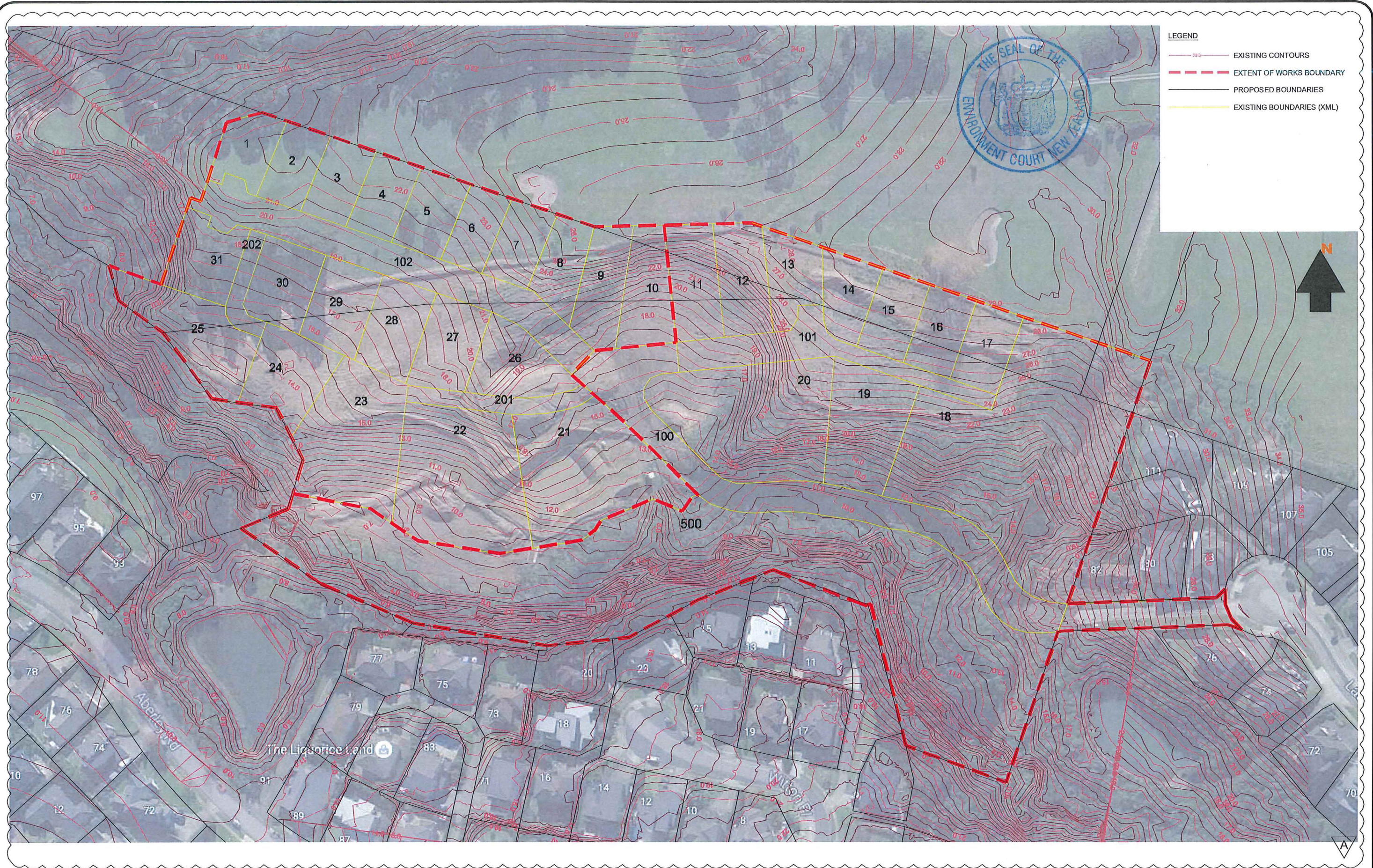


PROJECT
**3rd FAIRWAY DEVELOPMENTS
EXISTING VECTOR
110KV LINE**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:400 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		

PROJECT NO.	DRAWING NO.	REVISION
1007A	01-131	(A)



REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16

APPR'D	DATE
CCC	02-05-16
SK	03-11-16



PROJECT

3RD FAIRWAY DEVELOPMENT
EARTHWORKS
EXISTING CONTOURS PLAN









CLIENT

3RD FAIRWAY
DEVELOPMENT LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	NJM	1:1250 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		

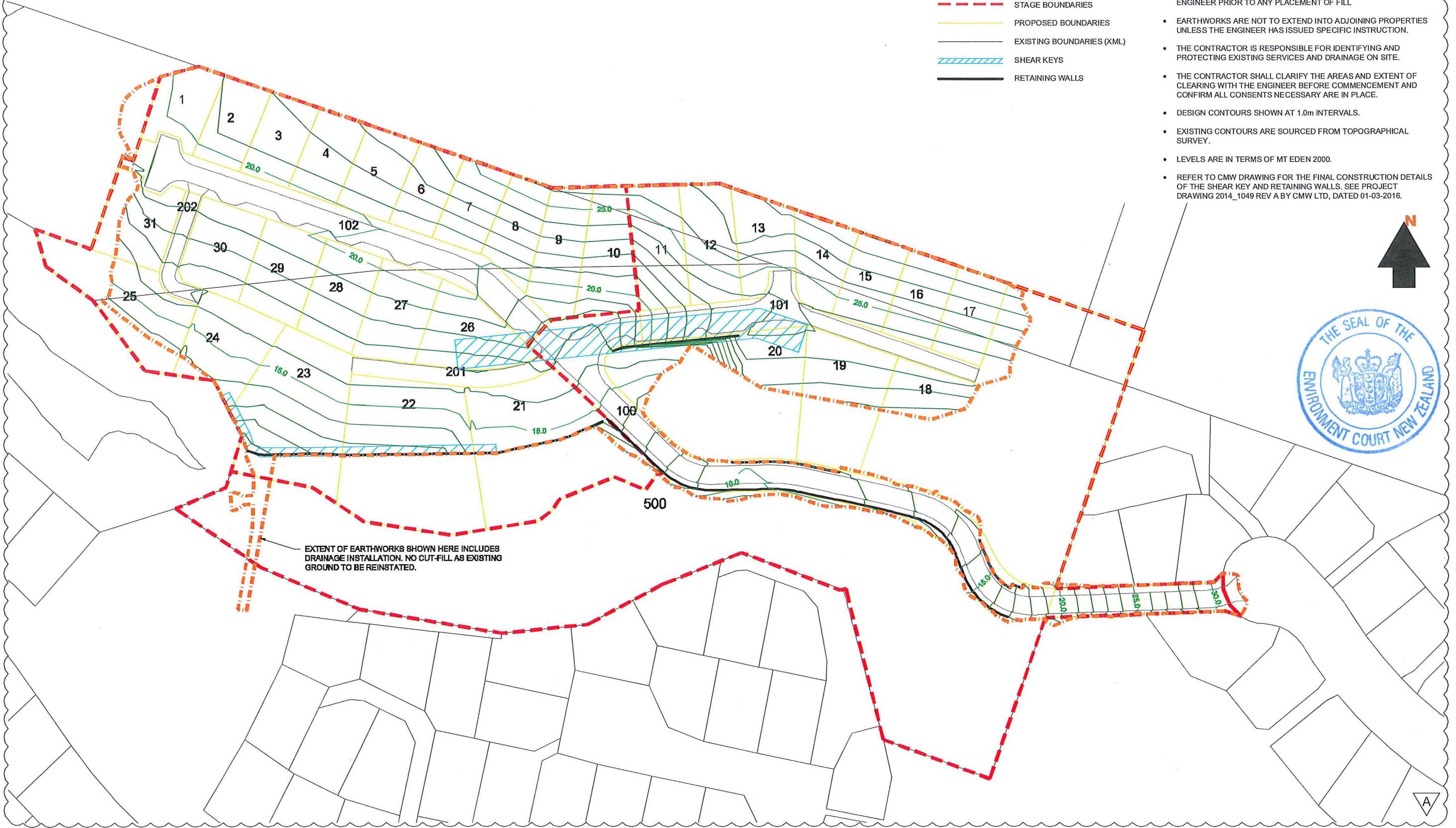
PROJECT NO.	DRAWING NO.	REVISION
1007A	02-100	(A)

LEGEND

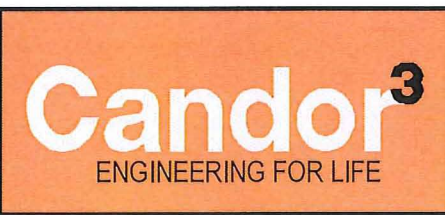
-  EXISTING CONTOURS
-  DESIGN CONTOURS
-  EXTENT OF EARTHWORKS
-  STAGE BOUNDARIES
-  PROPOSED BOUNDARIES
-  EXISTING BOUNDARIES (XML)
-  SHEAR KEYS
-  RETAINING WALLS

NOTES

- UNDERFILL DRAINAGE IS TO BE INSTALLED AT THE DIRECTION OF THE ENGINEER. IF THE CONTRACTOR ENCOUNTERS SPRINGS OR OTHER SOURCES OF WATER, THEY ARE TO NOTIFY THE ENGINEER.
- ALL UNSUITABLE MATERIAL AS DEFINED IN THE SPECIFICATION IS TO BE REMOVED AND THE STRIPPED SURFACE INSPECTED BY THE ENGINEER PRIOR TO ANY PLACEMENT OF FILL.
- EARTHWORKS ARE NOT TO EXTEND INTO ADJOINING PROPERTIES UNLESS THE ENGINEER HAS ISSUED SPECIFIC INSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND PROTECTING EXISTING SERVICES AND DRAINAGE ON SITE.
- THE CONTRACTOR SHALL CLARIFY THE AREAS AND EXTENT OF CLEARING WITH THE ENGINEER BEFORE COMMENCEMENT AND CONFIRM ALL CONSENTS NECESSARY ARE IN PLACE.
- DESIGN CONTOURS SHOWN AT 1.0m INTERVALS.
- EXISTING CONTOURS ARE SOURCED FROM TOPOGRAPHICAL SURVEY.
- LEVELS ARE IN TERMS OF MT EDEN 2000.
- REFER TO CMW DRAWING FOR THE FINAL CONSTRUCTION DETAILS OF THE SHEAR KEY AND RETAINING WALLS. SEE PROJECT DRAWING 2014_1049 REV A BY CMW LTD, DATED 01-03-2016.



REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16


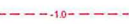





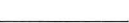


PROJECT
3RD FAIRWAY DEVELOPMENTS
 84 LAUREL OAK DRIVE, ALBANY
 DESIGN CONTOURS PLAN

CLIENT
3RD FAIRWAY DEVELOPMENTS LTD

DESIGN CCC	SCALE 1:1250 @ A3	DATE ISSUED MAY 2016
DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A	DRAWING NO. 02-101	REVISION (A)

LEGEND

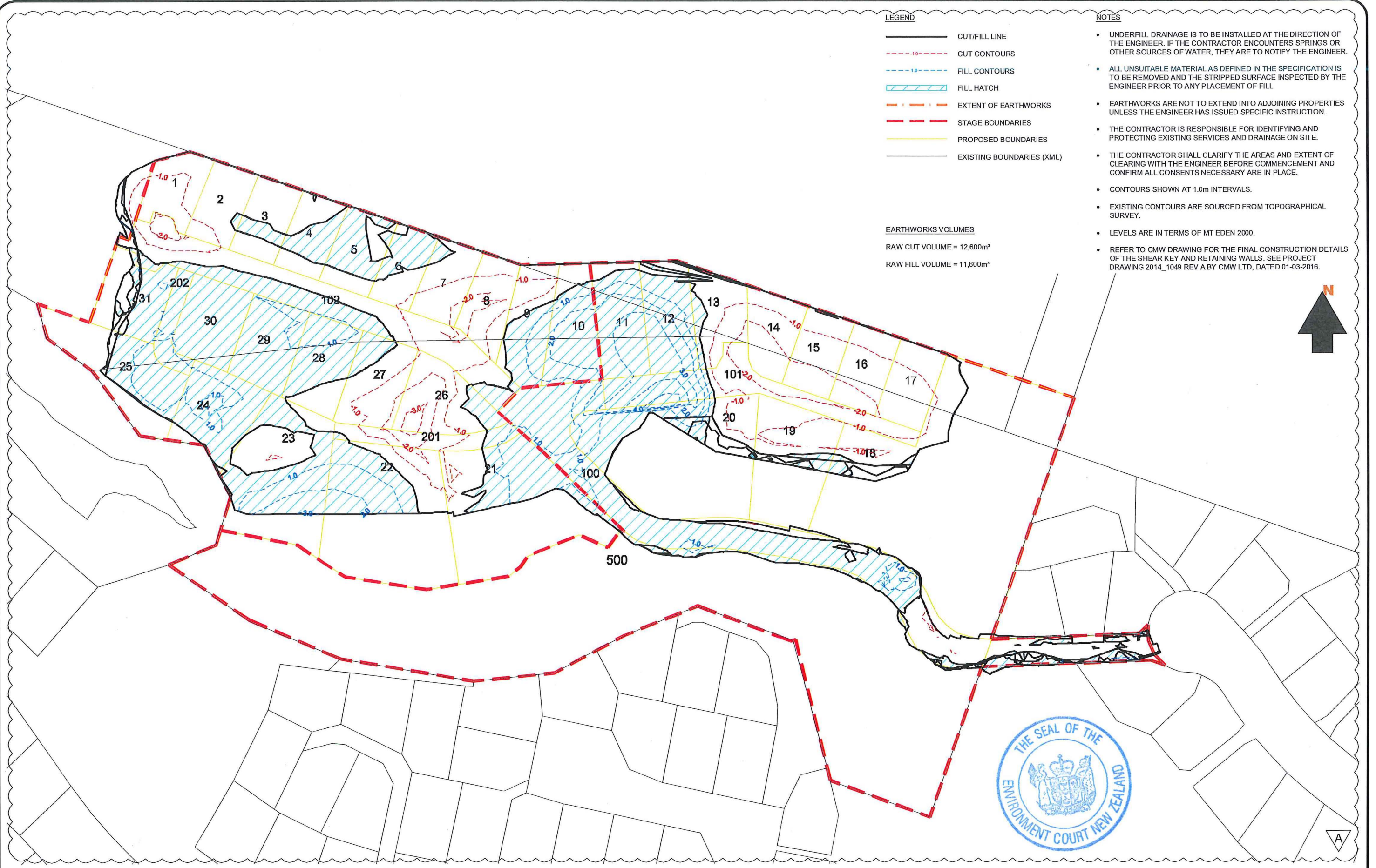
-  CUT/FILL LINE
-  CUT CONTOURS
-  FILL CONTOURS
-  FILL HATCH
-  EXTENT OF EARTHWORKS
-  STAGE BOUNDARIES
-  PROPOSED BOUNDARIES
-  EXISTING BOUNDARIES (XML)

NOTES

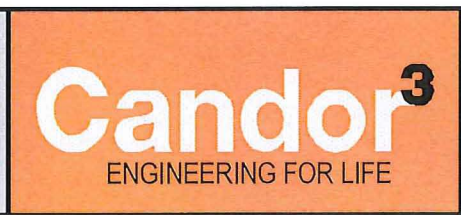
- UNDERFILL DRAINAGE IS TO BE INSTALLED AT THE DIRECTION OF THE ENGINEER. IF THE CONTRACTOR ENCOUNTERS SPRINGS OR OTHER SOURCES OF WATER, THEY ARE TO NOTIFY THE ENGINEER.
- ALL UNSUITABLE MATERIAL AS DEFINED IN THE SPECIFICATION IS TO BE REMOVED AND THE STRIPPED SURFACE INSPECTED BY THE ENGINEER PRIOR TO ANY PLACEMENT OF FILL
- EARTHWORKS ARE NOT TO EXTEND INTO ADJOINING PROPERTIES UNLESS THE ENGINEER HAS ISSUED SPECIFIC INSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND PROTECTING EXISTING SERVICES AND DRAINAGE ON SITE.
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- CONTOURS SHOWN AT 1.0m INTERVALS.
- EXISTING CONTOURS ARE SOURCED FROM TOPOGRAPHICAL SURVEY.
- LEVELS ARE IN TERMS OF MT EDEN 2000.
- REFER TO CMW DRAWING FOR THE FINAL CONSTRUCTION DETAILS OF THE SHEAR KEY AND RETAINING WALLS. SEE PROJECT DRAWING 2014_1049 REV A BY CMW LTD, DATED 01-03-2016.

EARTHWORKS VOLUMES

RAW CUT VOLUME = 12,600m³
 RAW FILL VOLUME = 11,600m³



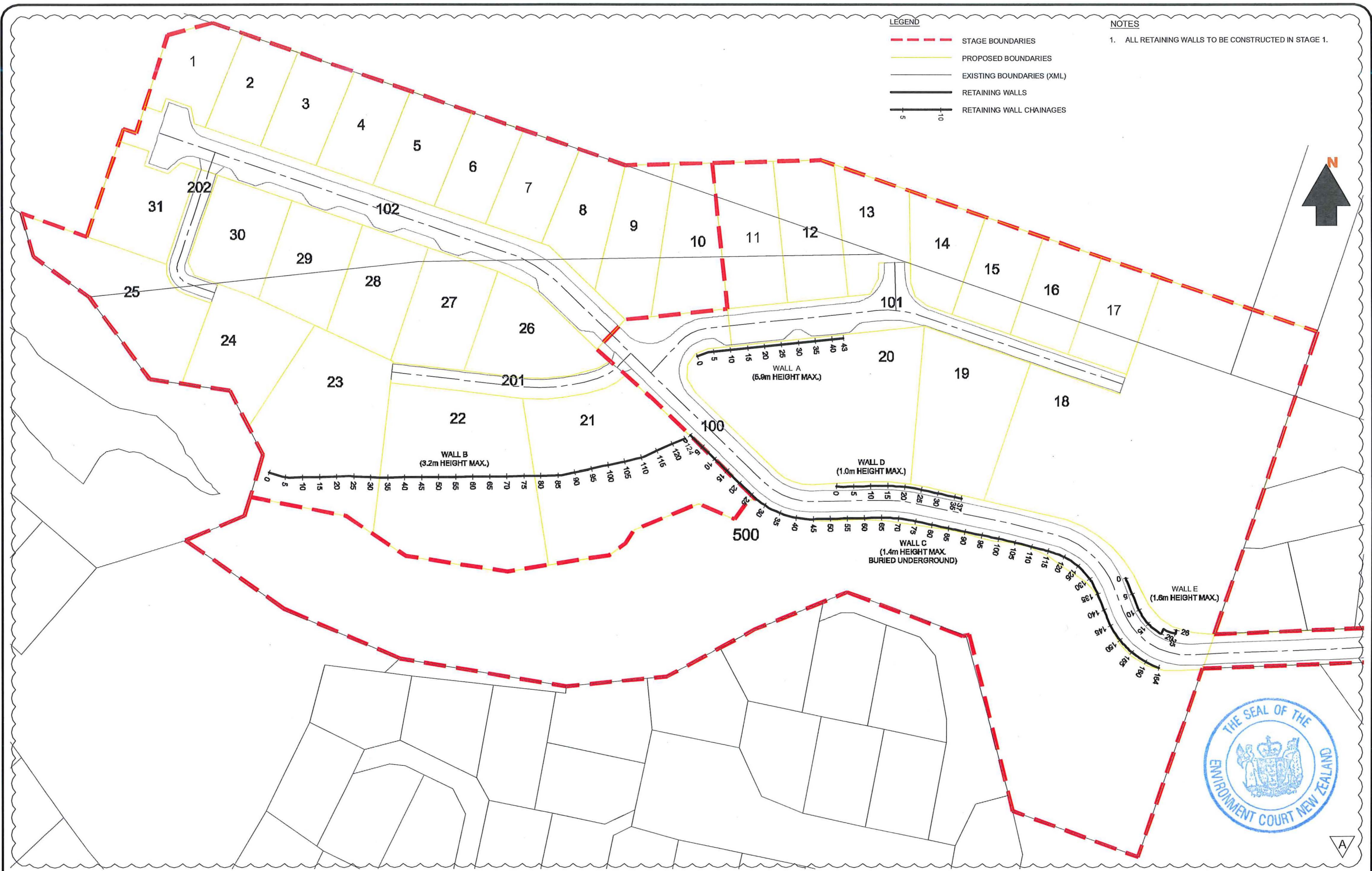
REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16



PROJECT
**3rd FAIRWAY DEVELOPMENTS
 EARTHWORKS
 CUT FILL PLAN**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN CCC	SCALE 1:1250 @ A3	DATE ISSUED MAY 2016
DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A	DRAWING NO. 02-102	REVISION (A)



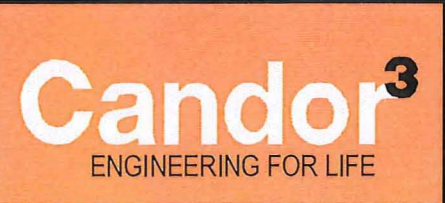
LEGEND

- - - STAGE BOUNDARIES
- - - PROPOSED BOUNDARIES
- EXISTING BOUNDARIES (XML)
- RETAINING WALLS
- RETAINING WALL CHAINAGES

NOTES

1. ALL RETAINING WALLS TO BE CONSTRUCTED IN STAGE 1.

REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16



PROJECT
3rd FAIRWAY DEVELOPMENTS
 EARTHWORKS - ENGINEERED EARTH FILL
 EMBANKMENTS PLAN

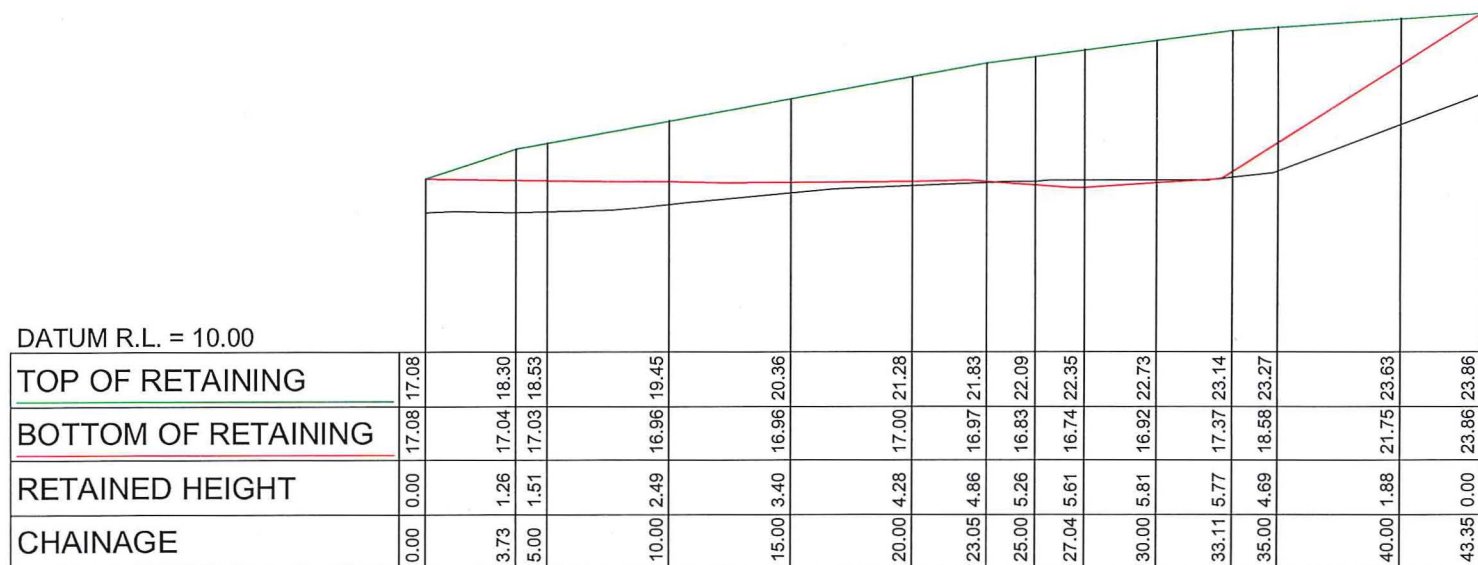
CLIENT
 3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:1000 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		

PROJECT NO. DRAWING NO. REVISION
 1007A 02-300 (A)

LEGEND

- TOP OF WALL
- BOTTOM OF WALL
- EXISTING GROUND



DATUM R.L. = 10.00



RETAINING WALL A LONG SECTION

REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16

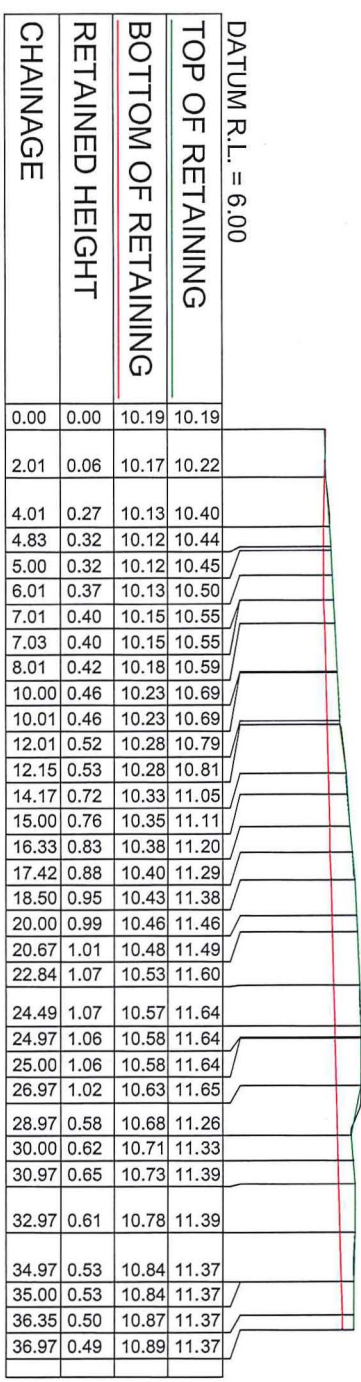


PROJECT
**3rd FAIRWAY DEVELOPMENTS
 RETAINING WALLS
 LONG SECTIONS (SHEET 1 OF 4)**

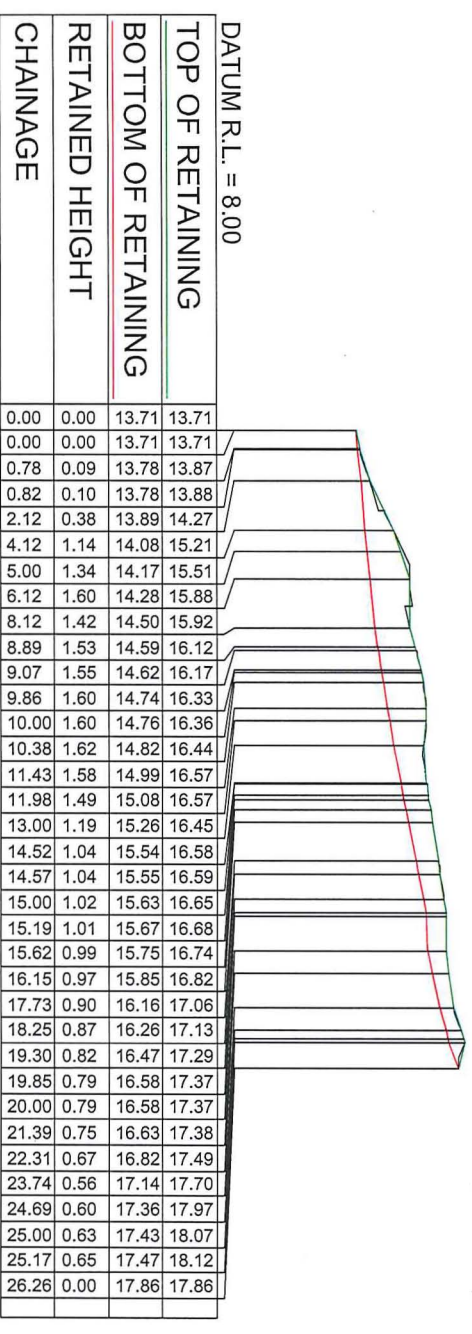
CLIENT
3rd FAIRWAY DEVELOPMENTS

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:300 @ A3 H	MAY 2016
CHECK	CCC	1:300 @ A3 V	
APPV'D	CCC		
PROJECT NO.	DRAWING NO.	REVISION	
1007A	02-301	(A)	

LEGEND
 — TOP OF WALL
 — BOTTOM OF WALL
 — EXISTING GROUND



RETAINING WALL D LONG SECTION



RETAINING WALL E LONG SECTION



A

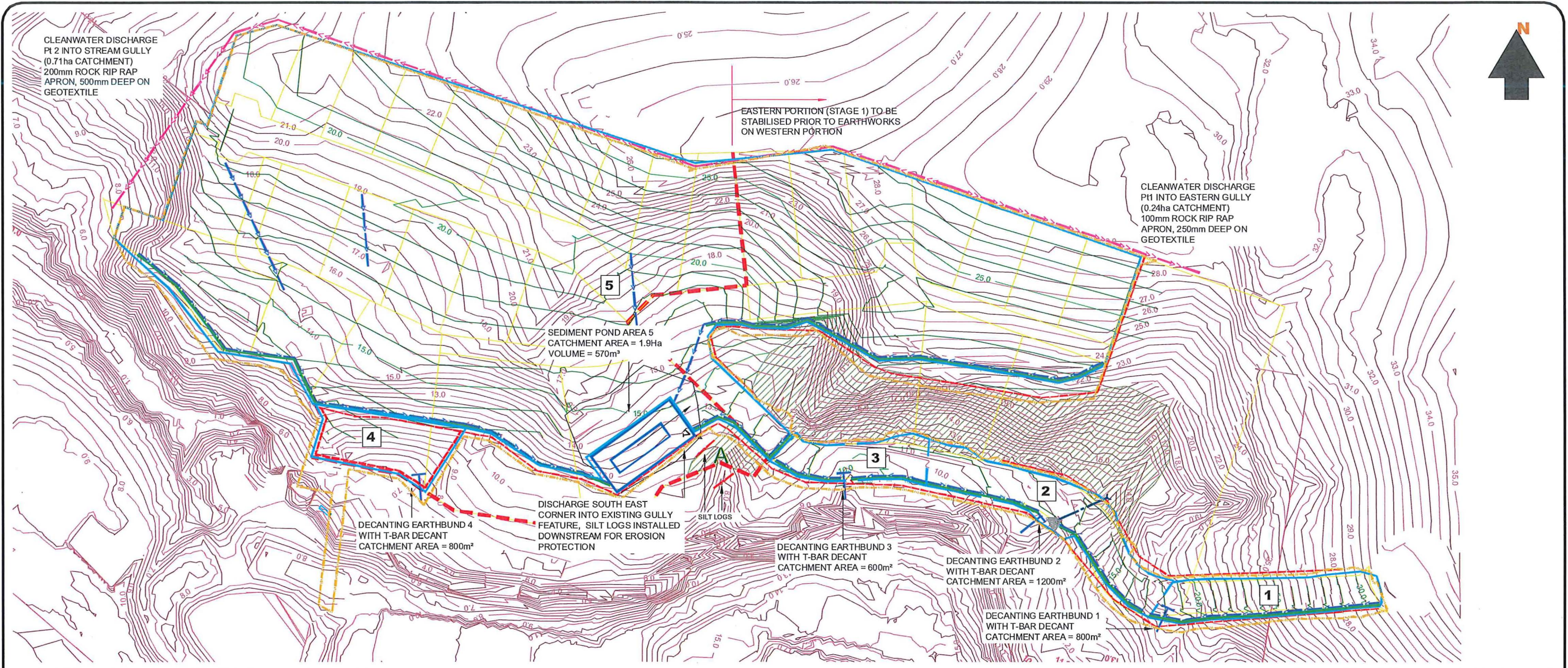
REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16



PROJECT
 3rd FAIRWAY DEVELOPMENTS
 RETAINING WALLS
 LONG SECTIONS (SHEET 4 OF 4)

CLIENT
 3rd FAIRWAY DEVELOPMENTS

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:300 @ A3 H	MAY 2016
CHECK	CCC	1:300 @ A3 V	
AP/PVD	CCC		
PROJECT NO.	1007A	DRAWING NO.	02-304
REVISION	A		



LEGEND

- CATCHMENT BOUNDARY
- EARTH BUND
- T-BAR DECANT
- CLEAN WATER DIVERSION
- CUT OFF / CONTOUR DRAIN
- SUPER SILT FENCE
- EXTENT OF EARTHWORKS
- COMBINED DESIGN EXISTING CONTOURS
- BUSH PROTECTION AREA
- CATCHMENT NUMBER

METHODOLOGY ESTABLISHMENT

- PRIOR TO ANY WORKS BEING UNDERTAKEN, INCLUDING CLEARING, INSTALLATION OF A SUPER SILT FENCE IS TO BE PROVIDED FOR ALONG THE EXTENTS OF THE STREAM TO PROVIDE A SECONDARY PROTECTION FOR THE SITE DUE TO IT'S PROXIMITY TO THE STREAM.
- ALL CLEARING VEGETATION AND FENCE WORKS ARE TO BE UNDERTAKEN, ONCE THE SUPER SILT FENCE HAS BEEN INSTALLED AND INSPECTED BY THE ENGINEER, AND A COUNCIL NATURAL RESOURCES REPRESENTATIVE.
- UPON COMPLETION OF SITE CLEARING, THE AREA FOR THE SEDIMENT RETENTION POND AND INITIAL FILL AREA IS TO BE STRIPPED, AND CUT TO FILL TO BE UNDERTAKEN TO INSTALL THE SILT POND AND FLOCCULATION SHED.
- DURING THIS TIME, INSTALLATION OF THE EASTERN T-BAR DECANTING EARTH BUND CAN ALSO TAKE PLACE.
- ONCE BULK SILT CONTROL DEVICES HAVE BEEN CONSTRUCTED, AS-BUILT AND SIGNED OFF BY BOTH THE ENGINEER AND A COUNCIL NATURAL RESOURCES REPRESENTATIVE, TOPSOIL STRIPPING OF THE REMAINING SITE MAY PROCEED
- POTENTIAL STOCKPILING OF TOPSOIL IS ANTICIPATED WITHIN THE GOLF COURSE LAND, THESE STOCKPILES WILL BE FULLY BUNDED AND TREATED INDEPENDENTLY OF THE SITE

METHODOLOGY DURING CONSTRUCTION

- CUT OFF DRAINS ARE TO BE INSTALLED TO ENSURE RUNOFF FROM THE SITE IS DIRECTED TO THE DEVICES.
- DURING EARTHWORKS, CONTOUR DRAINS ARE TO BE INSTALLED AT THE END OF EACH DAY, AND WHEN FORECAST RAIN.
- EVERY FORCAST RAIN EVENT AND AT THE END OF EACH WEEK, ALL SILT CONTROL DEVICES SHALL BE CHECKED, AND FLOC LEVELS CONFIRMED.

METHODOLOGY SHUT DOWN

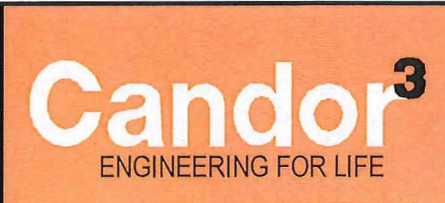
- UPON COMPLETION OF BULK EARTHWORKS, ALL LOT AREAS ARE TO BE IMMEDIATELY STABILIZED WITH TOPSOIL, AND BUNDS INSTALLED TO CONTAIN RUNOFF.
- ONCE ALL LOTS HAVE BEEN TOPSOILED, AND ROADS EXCAVATED FOR CONSTRUCTION, IT IS ANTICIPATED THAT THE SEDIMENT RETENTION POND WILL BE DIS-ESTABLISHED.
- THE SUPER SILT FENCE WILL ONLY BE DE-COMMISSIONED ONCE ALL CATCHMENTS HAVE BEEN

SEDIMENT POND DESIGN CALCULATIONS

CATCHMENT AREA = 1.9ha
 POND VOL. = 570m³
 CREST RL: 11.00
 FLOOR RL: 8.75
 LEVEL SPREADER RL: 10.85
 EMERGENCY SPILLWAY RL: 10.70
 DECANTS: 2
 450Ø OUTLET PIPE



REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	ISSUED FOR S92	SK	16-11-16











PROJECT
**3rd FAIRWAY DEVELOPMENTS
 EARTHWORKS
 SEDIMENT CONTROL PLAN OVERALL**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

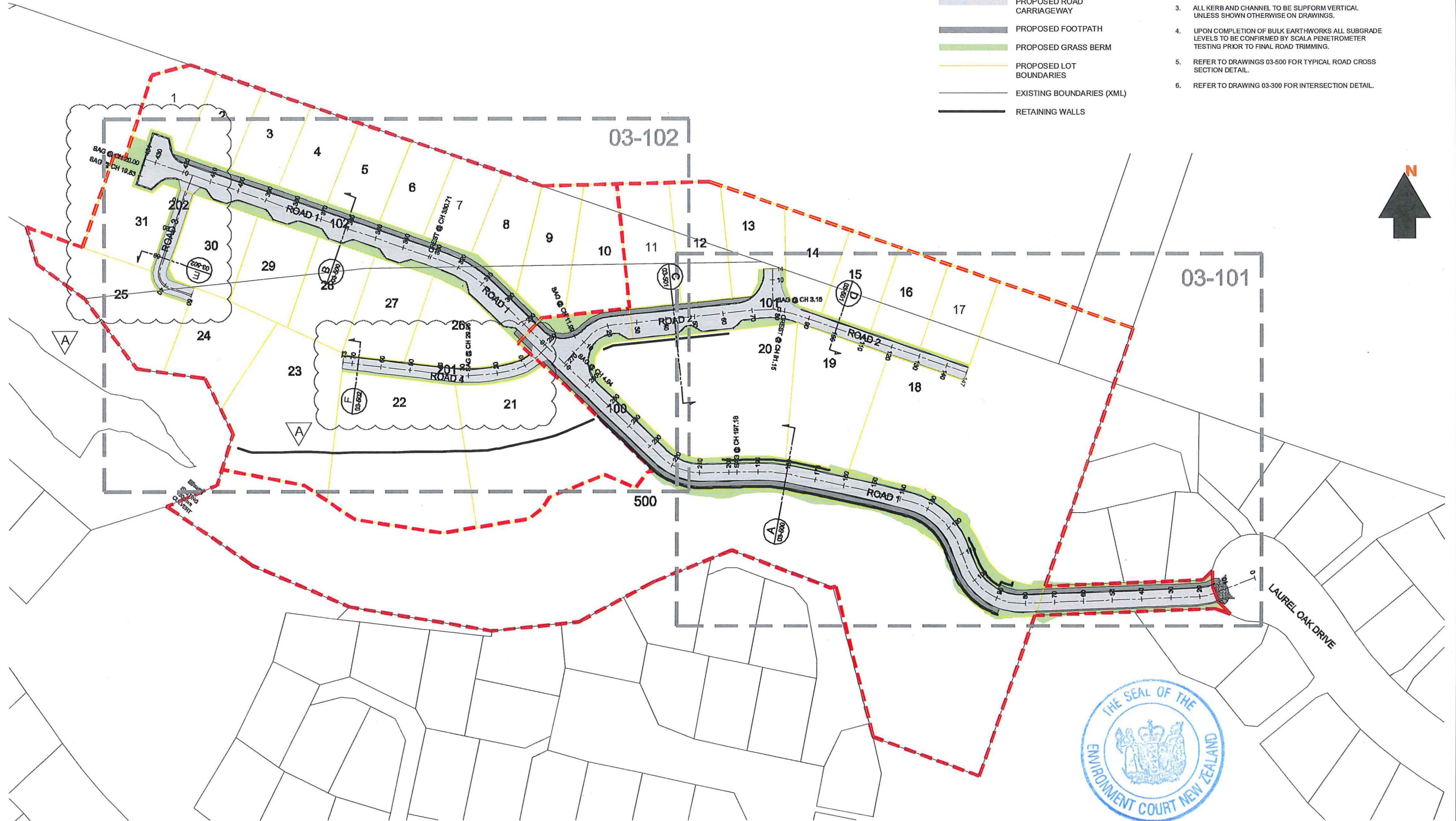
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DRAWN	WW	1:1250 @ A3	MAY 2016
CHECK	CCC		
APPVD	CCC		
PROJECT NO.	DRAWING NO.	REVISION	
1007A	02-500	(A)	

LEGEND

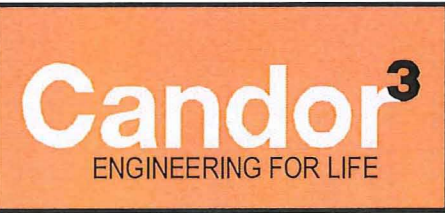
-  SITE EXTENT
-  PROPOSED ROAD CENTRELINE AND CHAINAGE
-  PROPOSED ROAD CARRIAGEWAY
-  PROPOSED FOOTPATH
-  PROPOSED GRASS BERM
-  PROPOSED LOT BOUNDARIES
-  EXISTING BOUNDARIES (XML)
-  RETAINING WALLS

NOTES

1. ALL ROADS WILL NOT BE VESTED TO COUNCIL/AT.
2. ALL WORK AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL STANDARDS. ANY AMBIGUITY BETWEEN DRAWINGS AND COUNCIL STANDARDS TO BE REPORTED TO THE ENGINEER FOR CLARIFICATION.
3. ALL KERB AND CHANNEL TO BE SUPPLY VERTICAL UNLESS SHOWN OTHERWISE ON DRAWINGS.
4. UPON COMPLETION OF BULK EARTHWORKS ALL SUBGRADE LEVELS TO BE CONFIRMED BY SCALA PENETROMETER TESTING PRIOR TO FINAL ROAD TRIMMING.
5. REFER TO DRAWINGS 03-500 FOR TYPICAL ROAD CROSS SECTION DETAIL.
6. REFER TO DRAWING 03-300 FOR INTERSECTION DETAIL.



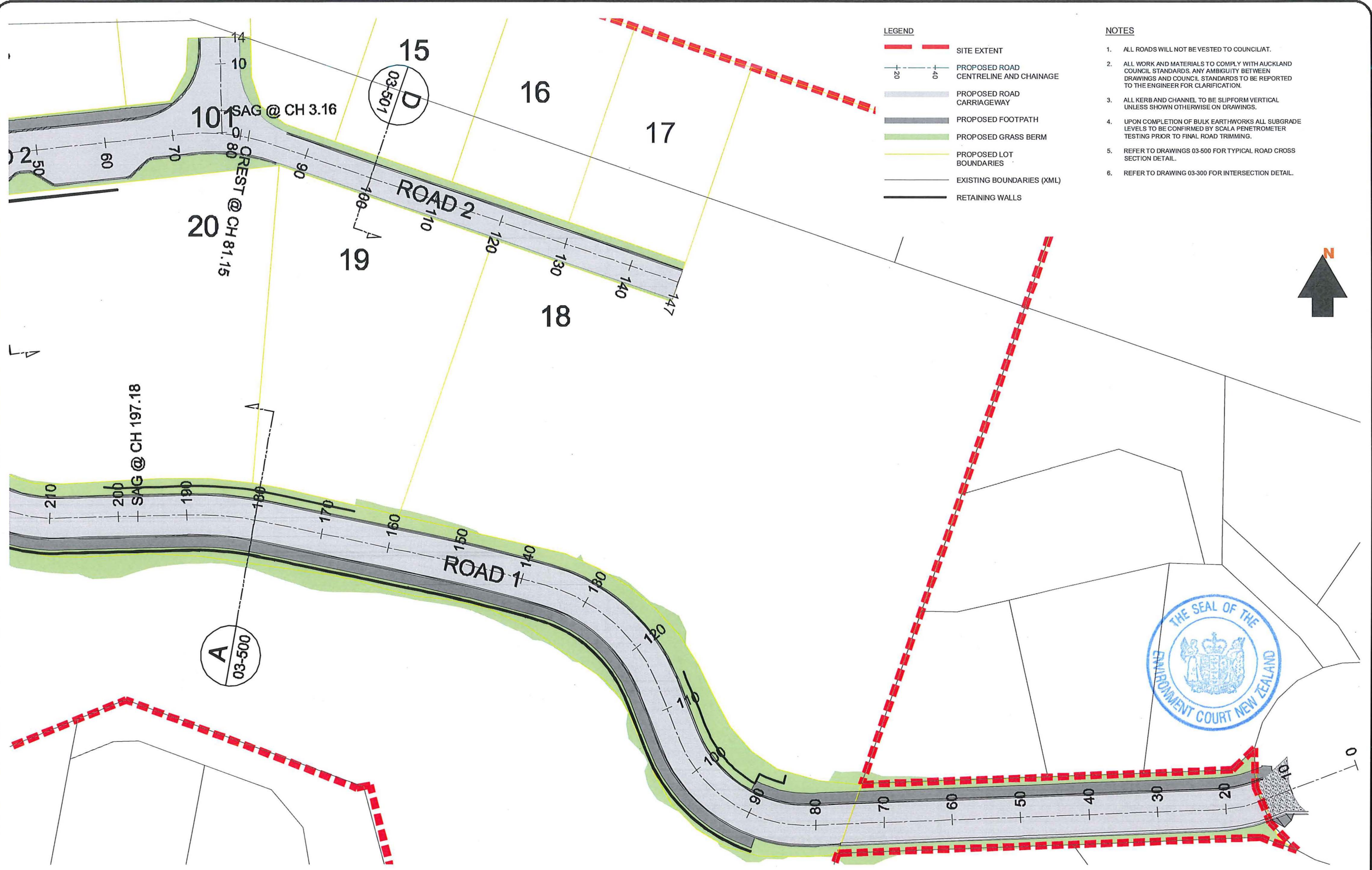
REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	03-11-16



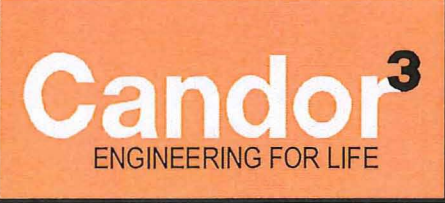
PROJECT
**3rd FAIRWAY DEVELOPMENTS
 ROADING PLAN
 OVERALL (SHEET 1 OF 3)**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	1:1250 @ A3	DATE ISSUED	MAY 2016
DRAWN	WW				
CHECK	CCC				
APPV'D	CCC				
PROJECT NO.	DRAWING NO.		REVISION		
1007A	03-100		(A)		



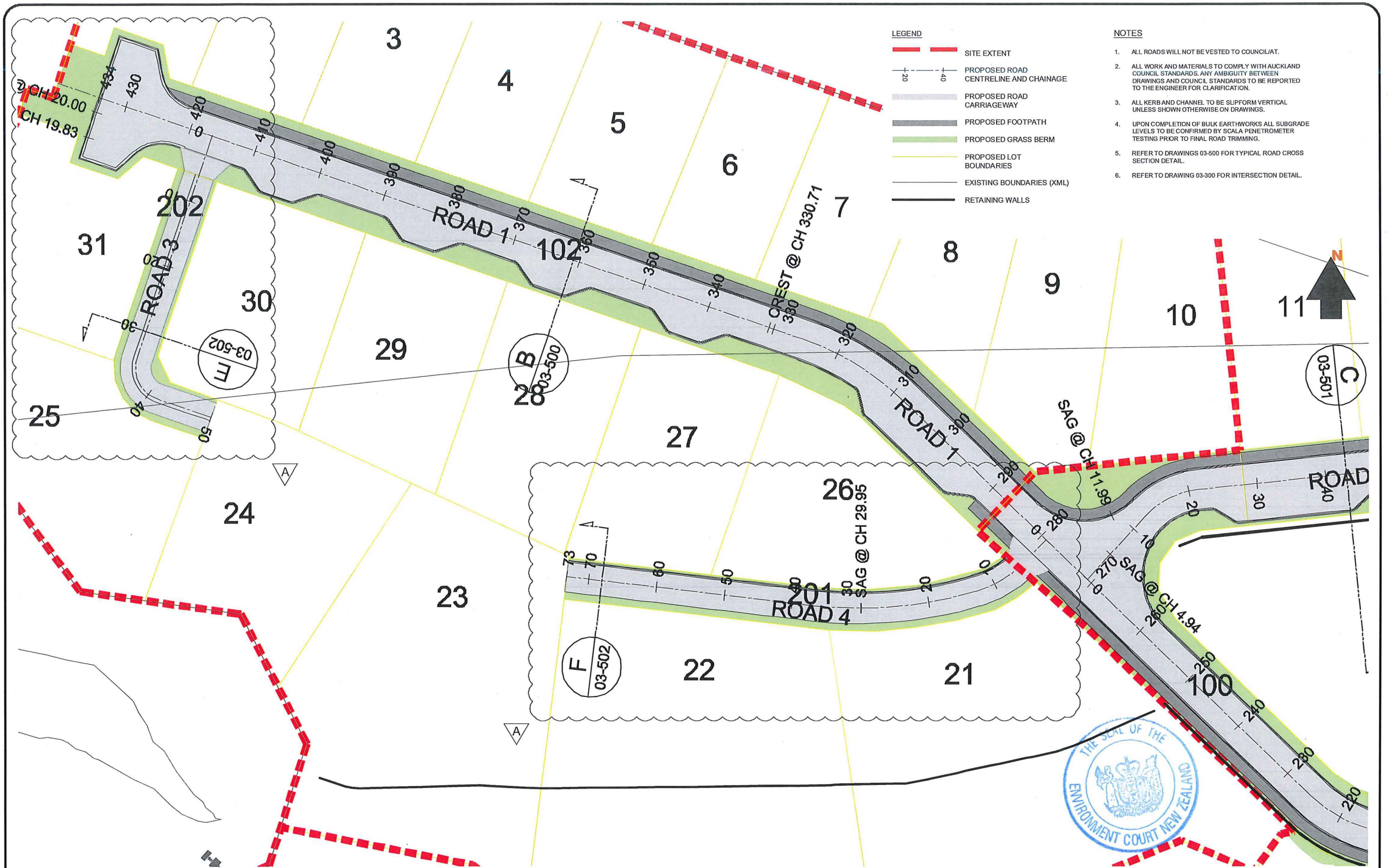
REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	ISSUED FOR S92	16-11-16



PROJECT
**3rd FAIRWAY DEVELOPMENTS
 ROADING PLAN
 OVERALL (SHEET 2 OF 3)**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	1:500 @ A3	DATE ISSUED	MAY 2016
DRAWN	WW				
CHECK	CCC				
APPV'D	CCC				
PROJECT NO.	DRAWING NO.	REVISION			
1007A	03-101	(A)			



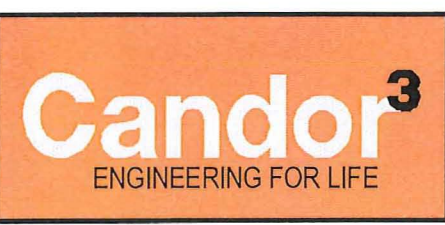
LEGEND

- SITE EXTENT
- PROPOSED ROAD CENTRELINE AND CHAINAGE
- PROPOSED ROAD CARRIAGEWAY
- PROPOSED FOOTPATH
- PROPOSED GRASS BERM
- PROPOSED LOT BOUNDARIES
- EXISTING BOUNDARIES (XML)
- RETAINING WALLS

- NOTES**
1. ALL ROADS WILL NOT BE VESTED TO COUNCIL/AT.
 2. ALL WORK AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL STANDARDS. ANY AMBIGUITY BETWEEN DRAWINGS AND COUNCIL STANDARDS TO BE REPORTED TO THE ENGINEER FOR CLARIFICATION.
 3. ALL KERB AND CHANNEL TO BE SUPFORM VERTICAL UNLESS SHOWN OTHERWISE ON DRAWINGS.
 4. UPON COMPLETION OF BULK EARTHWORKS ALL SUBGRADE LEVELS TO BE CONFIRMED BY SCALA PENETROMETER TESTING PRIOR TO FINAL ROAD TRIMMING.
 5. REFER TO DRAWINGS 03-500 FOR TYPICAL ROAD CROSS SECTION DETAIL.
 6. REFER TO DRAWING 03-300 FOR INTERSECTION DETAIL.



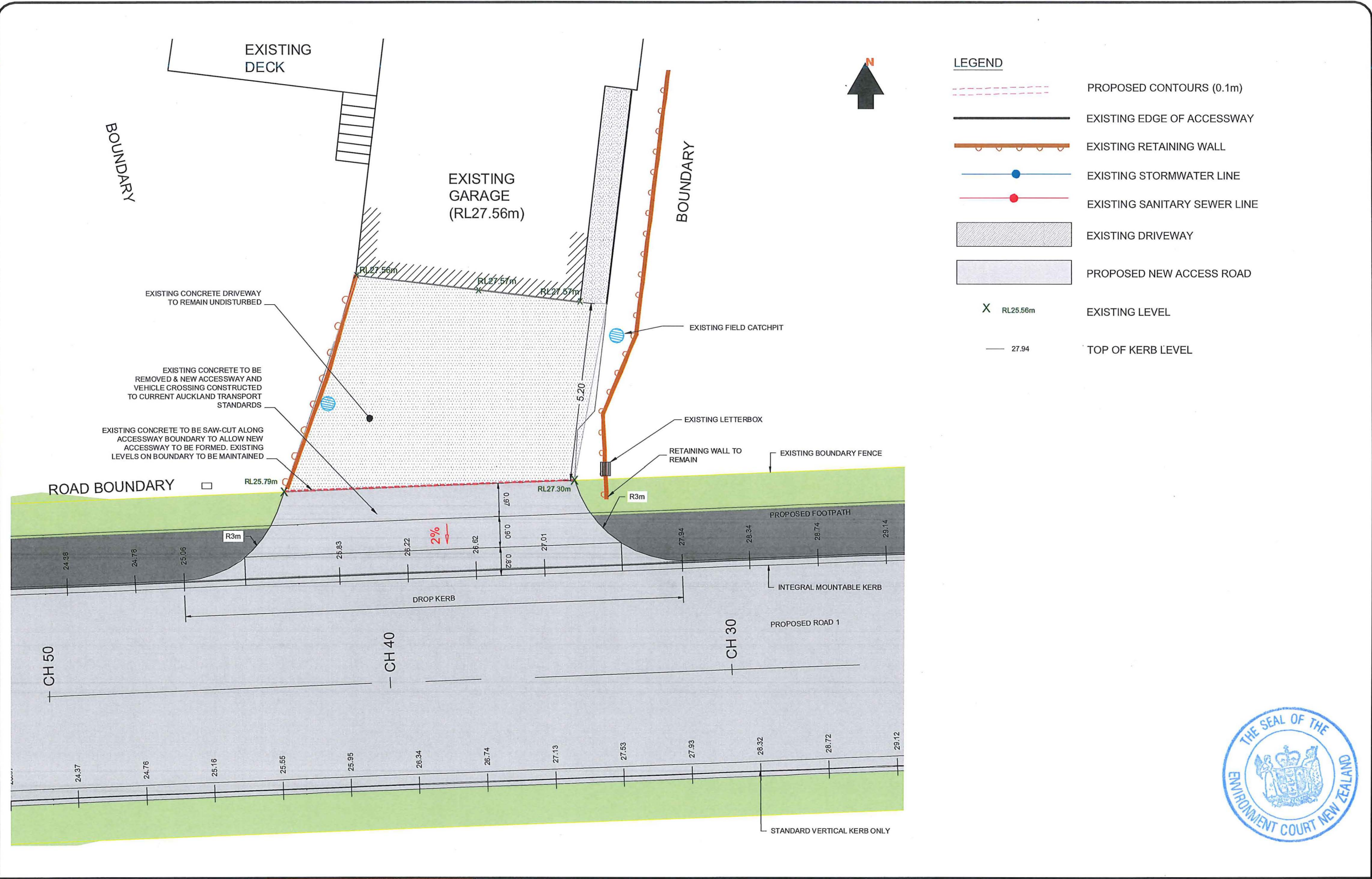
REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16



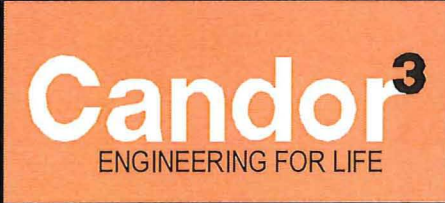
PROJECT
**3rd FAIRWAY DEVELOPMENTS
 ROADING PLAN
 OVERALL (SHEET 3 OF 3)**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN CCC	SCALE 1:500 @ A3	DATE ISSUED MAY 2016
DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A	DRAWING NO. 03-102	REVISION (A)



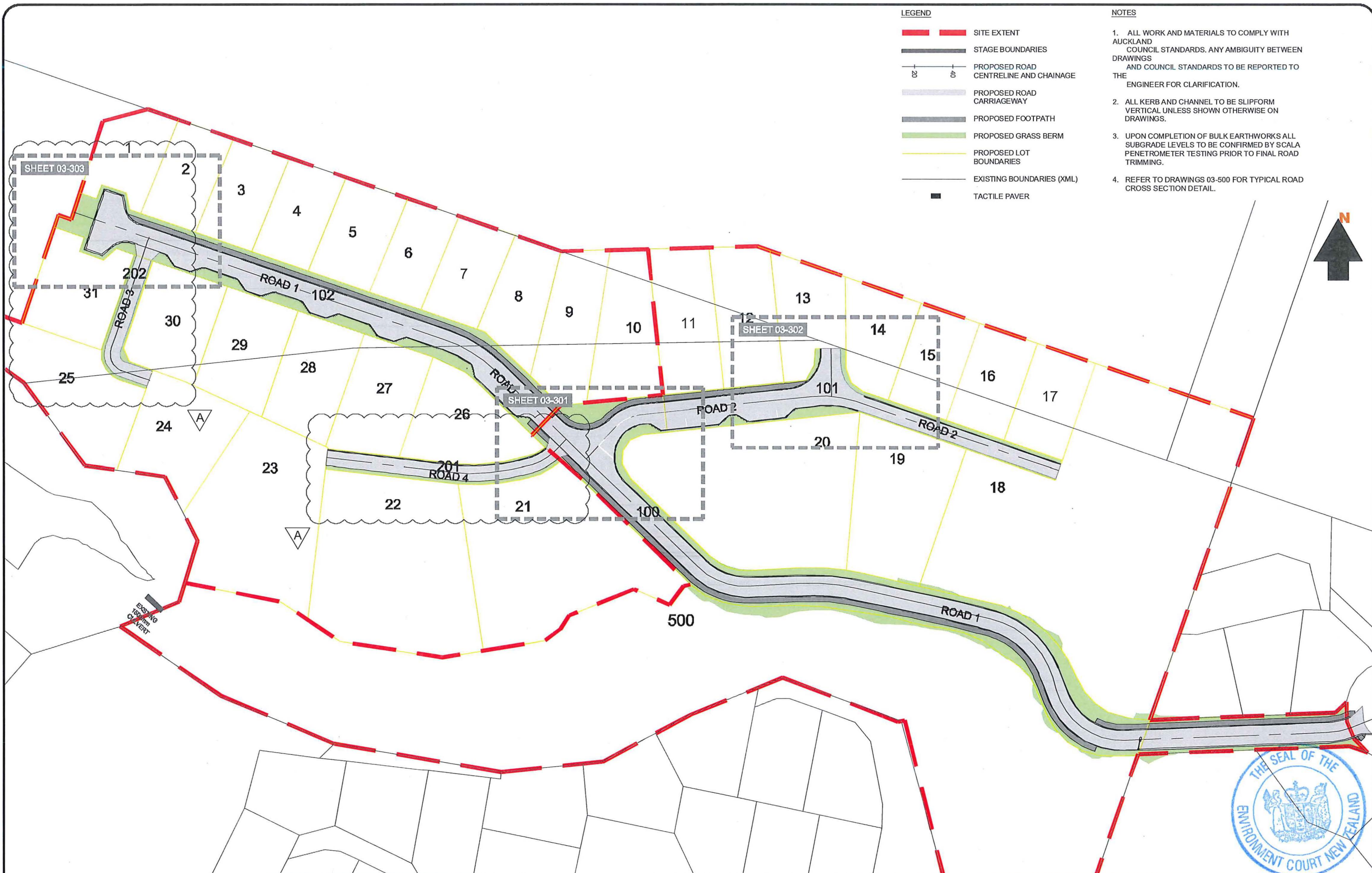
REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	ISSUED FOR S92	SK	16-11-16
B	UPDATED FOR COURT	SK	09-08-17



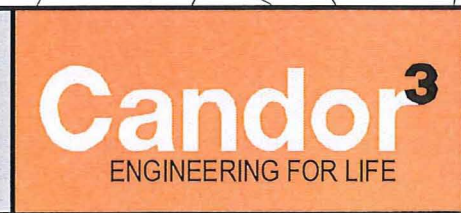
PROJECT
3RD FARIWAY DEVELOPMENT
80 LAUREL OAK DRIVE
PROPOSED ENTRANCE WORKS

CLIENT
3RD FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:100 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		
PROJECT NO.	DRAWING NO.	REVISION	
1007A	03-200	(B)	



REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16

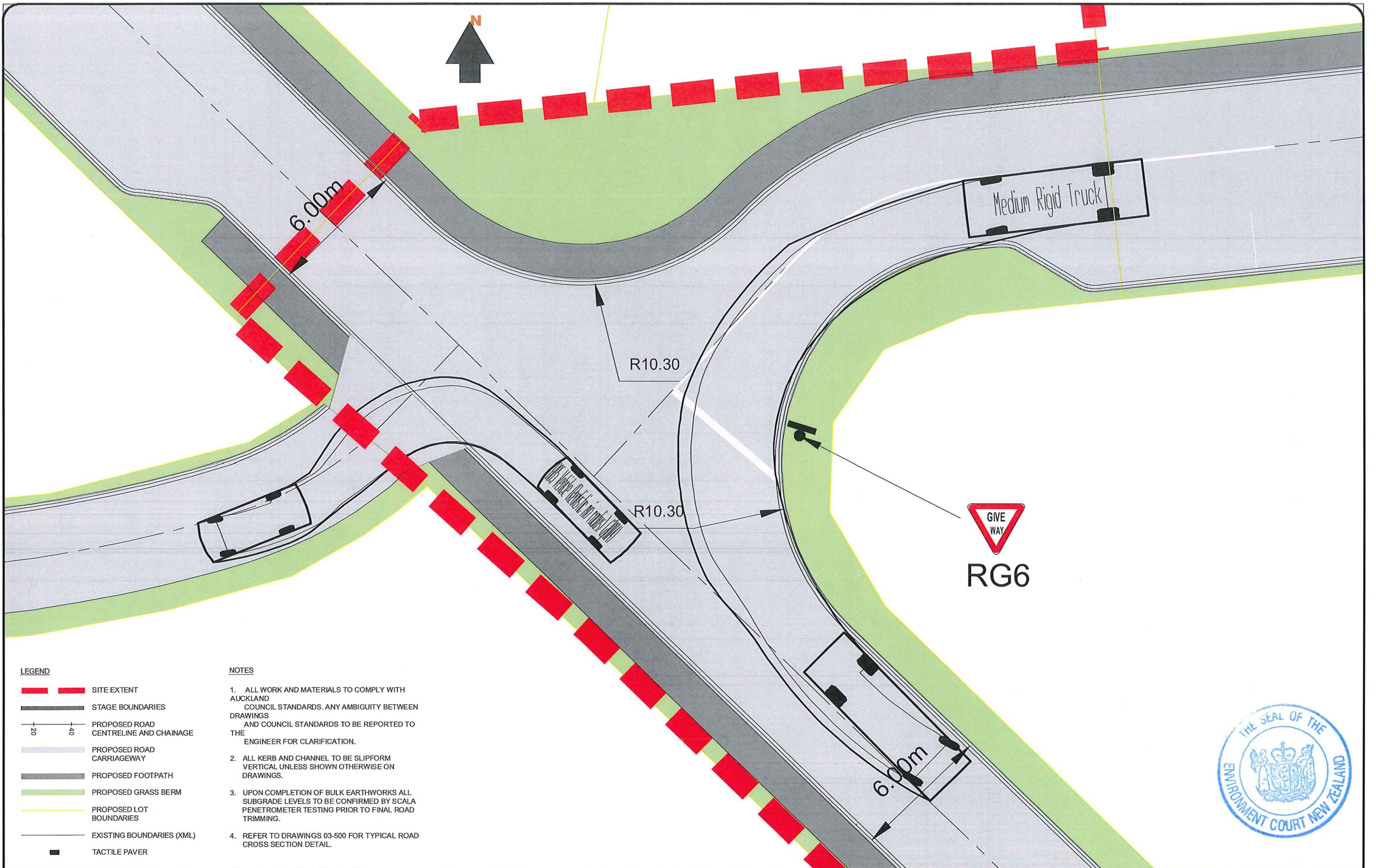


PROJECT
**3RD FAIRWAY DEVELOPMENTS
 ROADING
 INTERSECTION DETAILS**

CLIENT
**3RD FAIRWAY
 DEVELOPMENTS LTD**

DESIGN CCC	SCALE 1:1000 @ A3	DATE ISSUED MAY 2016
DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A	DRAWING NO. 03-300	REVISION (A)





- LEGEND**
- SITE EXTENT
 - STAGE BOUNDARIES
 - PROPOSED ROAD CENTRELINE AND CHAINAGE
 - PROPOSED ROAD CARRIAGEWAY
 - PROPOSED FOOTPATH
 - PROPOSED GRASS BERM
 - PROPOSED LOT BOUNDARIES
 - EXISTING BOUNDARIES (XML)
 - TACTILE PAVER

- NOTES**
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 4. REFER TO DRAWINGS 03-500 FOR TYPICAL ROAD CROSS SECTION DETAIL.

REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	ISSUED FOR S92	16-11-16



PROJECT
**3RD FAIRWAY DEVELOPMENTS
 ROADING
 INTERSECTION DETAILS**

CLIENT
**3RD FAIRWAY
 DEVELOPMENTS LTD**

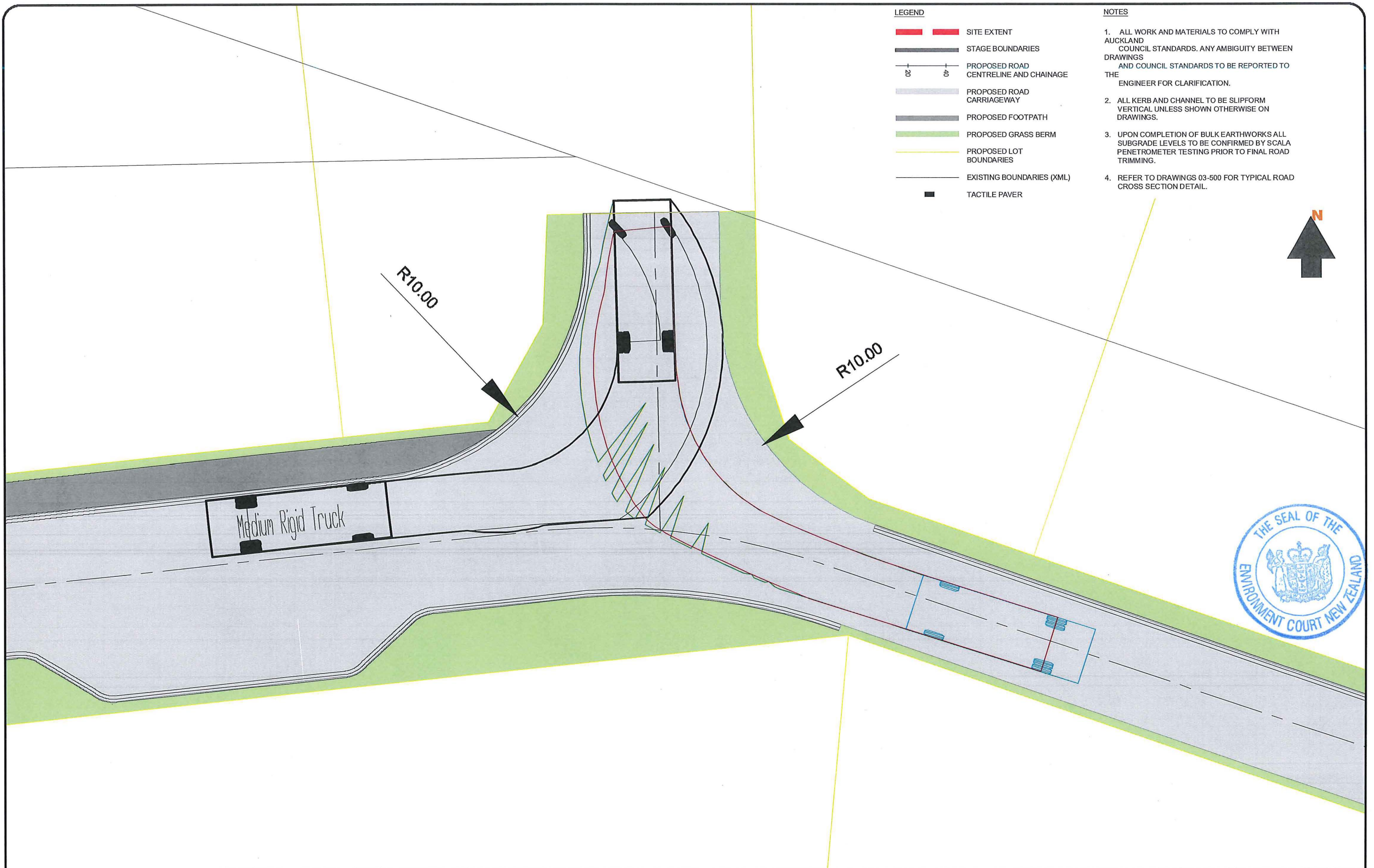
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DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A	DRAWING NO. 03-301	REVISION (A)

LEGEND

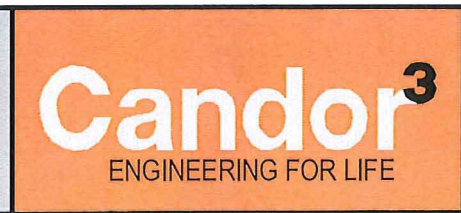
- SITE EXTENT
- STAGE BOUNDARIES
- PROPOSED ROAD CENTRELINE AND CHAINAGE
- PROPOSED ROAD CARRIAGEWAY
- PROPOSED FOOTPATH
- PROPOSED GRASS BERM
- PROPOSED LOT BOUNDARIES
- EXISTING BOUNDARIES (XML)
- TACTILE PAVER

NOTES

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4. REFER TO DRAWINGS 03-500 FOR TYPICAL ROAD CROSS SECTION DETAIL.



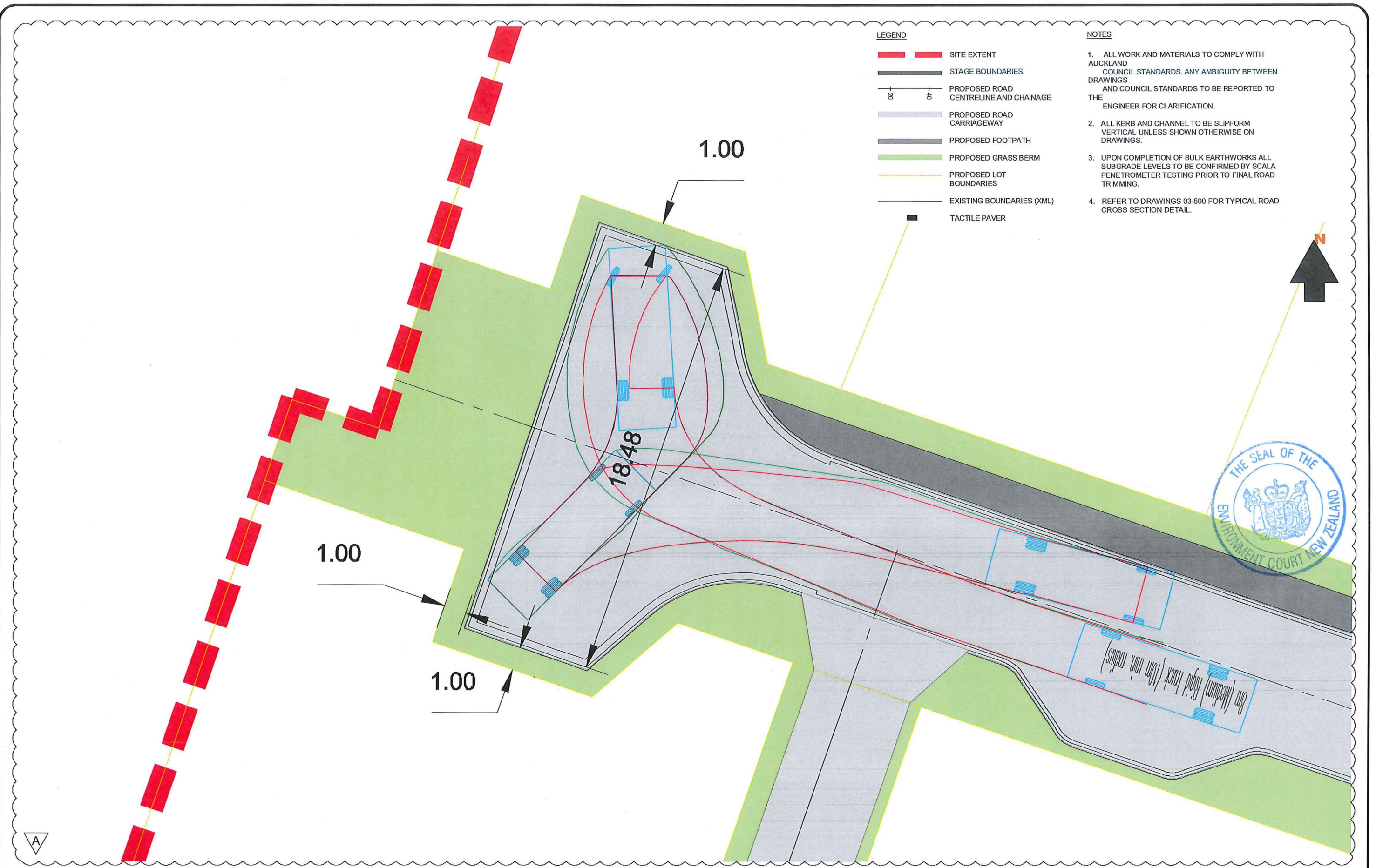
REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	ISSUED FOR S92	SK	16-11-16



PROJECT
3RD FAIRWAY DEVELOPMENTS
ROADING
INTERSECTION DETAILS

CLIENT
3RD FAIRWAY DEVELOPMENTS LTD

DESIGN CCC	SCALE 1:150 @ A3	DATE ISSUED MAY 2016
DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A	DRAWING NO. 03-302	REVISION (A)

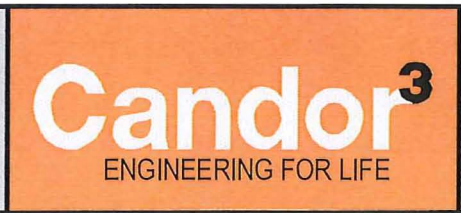


- LEGEND**
- SITE EXTENT
 - STAGE BOUNDARIES
 - PROPOSED ROAD CENTRELINE AND CHAINAGE
 - PROPOSED ROAD CARRIAGEWAY
 - PROPOSED FOOTPATH
 - PROPOSED GRASS BERM
 - PROPOSED LOT BOUNDARIES
 - EXISTING BOUNDARIES (XML)
 - TACTILE PAVER

- NOTES**
1. ALL WORK AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL STANDARDS. ANY AMBIGUITY BETWEEN DRAWINGS AND COUNCIL STANDARDS TO BE REPORTED TO THE ENGINEER FOR CLARIFICATION.
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 4. REFER TO DRAWINGS 03-500 FOR TYPICAL ROAD CROSS SECTION DETAIL.



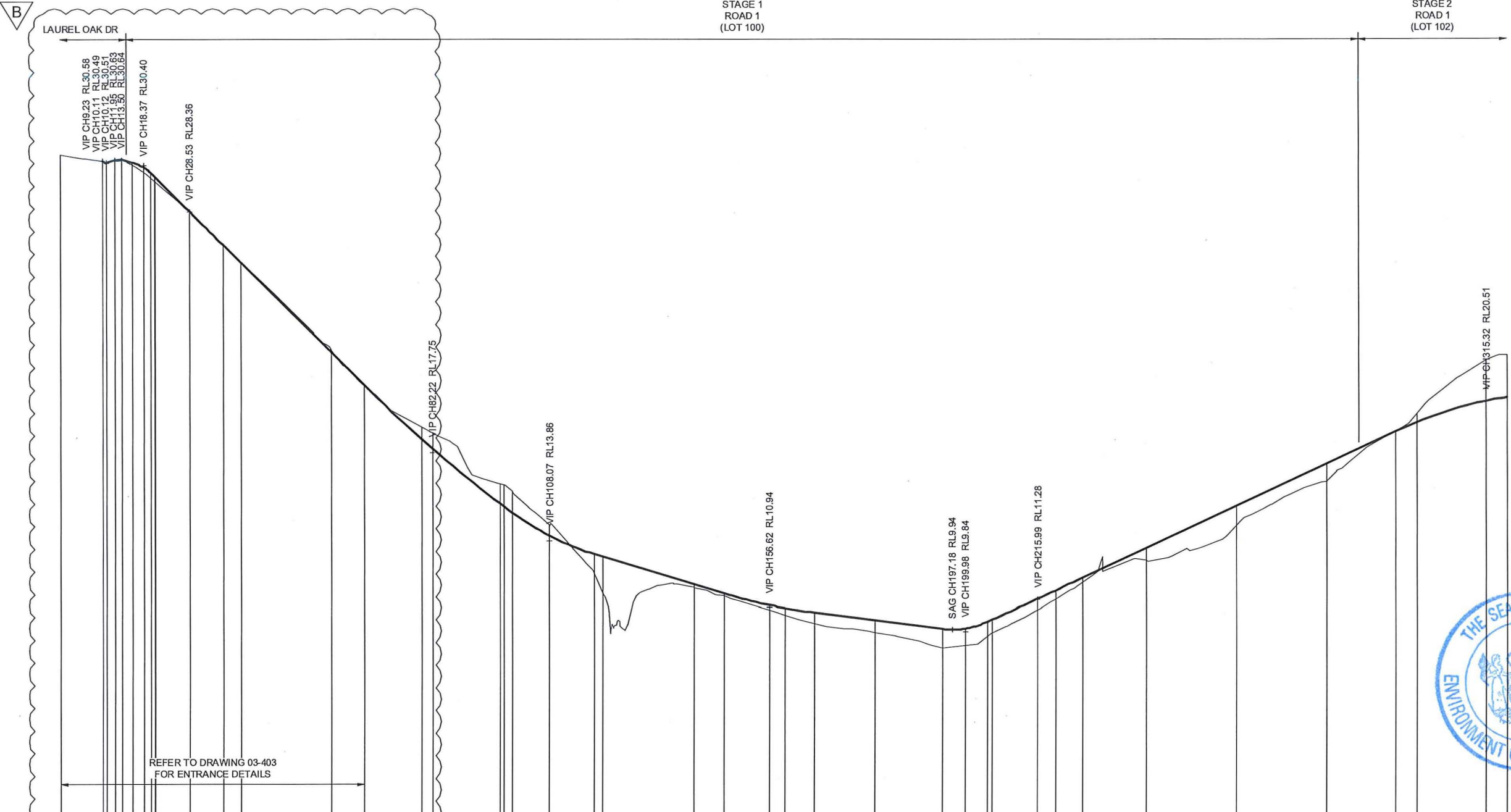
REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16



PROJECT
**3RD FAIRWAY DEVELOPMENTS
ROADING
INTERSECTION DETAILS**

CLIENT
**3RD FAIRWAY
DEVELOPMENTS LTD**

DESIGN	CCC	SCALE	1:150 @ A3	DATE ISSUED	MAY 2016
DRAWN	WW				
CHECK	CCC				
APPV'D	CCC				
PROJECT NO.	1007A	DRAWING NO.	03-303	REVISION	(A)



DATUM RL = 1.00

HORZ. CURVE LENGTH	20 R	20 R	25 R	250 R	50 R	20 R	40 R	
ROAD VERT. GEOMETRY GRADE / LENGTH	-3.08% 9.23m L	-3.44% 10.11m L	20% 10.12m L	-15.03% 25.85m L	-6.02% 48.55m L	-2.53% 43.36m L	9.3% 99.32m L	-1.21% 105.91m L
ROAD VERT. CURVES LENGTH / K VALUE	5m VC K = 0.33	15m VC K = 66.77	30m VC K = 6.33	20m VC K = 2.22	20m VC K = 5.74	10m VC K = 0.87	20m VC K = 67.4	40m VC K = 3.81
DESIGN LEVELS	30.87	30.58	30.49	30.51	30.63	30.64	30.30	30.30
EXISTING LEVELS	30.87	30.58	30.49	30.51	30.63	30.64	30.30	30.30
CUT / FILL DEPTH	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
CHAINAGE	0.00	9.23	10.11	10.12	11.95	13.50	15.87	20.00

ROAD 1 LONG SECTION

REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16
B	REVISED FOR COURT	SK	08-06-17



PROJECT
**3rd FAIRWAY DEVELOPMENTS (31 LOTS)
 ROADING
 LONG SECTIONS (SHEET 1 OF 3)**

CLIENT
**3rd FAIRWAY
 DEVELOPMENTS LTD**

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	PLS	1:1000 @ A3 H	MAY 2016
CHECK	SK	1:200 @ A3 V	
APPV'D	SK		

PROJECT NO.	DRAWING NO.	REVISION
1007A	03-400	(B)

DATUM RL = 11.00

HORZ. CURVE LENGTH	← 40 R →																									
ROAD VERT. GEOMETRY GRADE / LENGTH	9.3%				-1.21%																					
ROAD VERT. CURVES LENGTH / K VALUE	99.32m L				105.91m L																					
	40m VC																									
	K = 3.81																									
DESIGN LEVELS	300.00	19.06	315.32	19.99	320.00	20.15	335.32	20.27	340.00	20.22	360.00	19.97	380.00	19.73	400.00	19.49	416.23	19.29	420.00	19.24	421.23	19.23	426.23	19.15	433.88	19.01
EXISTING LEVELS	300.00	19.44	315.32	21.76	320.00	22.00	335.32	20.99	340.00	20.56	360.00	19.85	380.00	19.57	400.00	19.51	416.23	19.92	420.00	20.11	421.23	20.19	426.23	20.39	433.88	20.33
CUT / FILL DEPTH	0.00	-0.38	315.32	-1.77	320.00	-1.86	335.32	-0.71	340.00	-0.35	360.00	0.13	380.00	0.16	400.00	-0.02	416.23	-0.63	420.00	-0.87	421.23	-0.96	426.23	-1.24	433.88	-1.31
CHAINAGE	300.00		315.32		320.00		335.32		340.00		360.00		380.00		400.00		416.23		420.00		421.23		426.23		433.88	

ROAD 1 LONG SECTION

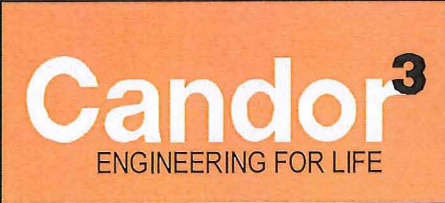
DATUM RL = 8.00

HORZ. CURVE LENGTH	← 12.5 R →										← 30 R →																			
ROAD VERT. GEOMETRY GRADE / LENGTH	-2%				18.2%						5.85%										-1.43%									
ROAD VERT. CURVES LENGTH / K VALUE	10.85m L				36.52m L						23.7m L										76.28m L									
	20m VC										20m VC										25m VC									
	K = 0.99										K = 1.62										K = 3.44									
DESIGN LEVELS	0.00	0.61	10.85	16.37	20.00	17.83	37.37	20.98	40.00	21.44	47.37	22.50	57.37	23.39	60.00	23.54	71.07	23.96	80.00	24.04	83.57	24.01	100.00	23.78	120.00	23.49	140.00	23.21	147.34	23.10
EXISTING LEVELS	0.85	15.76	10.85	16.36	20.00	17.83	37.37	20.98	40.00	21.44	47.37	22.50	57.37	23.39	60.00	23.54	71.07	23.96	80.00	24.04	83.57	24.01	100.00	23.78	120.00	23.49	140.00	23.21	147.34	23.10
CUT / FILL DEPTH	0.00	0.61	10.85	0.48	20.00	1.27	37.37	3.31	40.00	3.58	47.37	4.32	57.37	3.81	60.00	3.07	71.07	-1.28	80.00	-1.64	83.57	-1.90	100.00	-2.02	120.00	-1.60	140.00	-1.41	147.34	-0.86
CHAINAGE	0.00		10.85		20.00		37.37		40.00		47.37		57.37		60.00		71.07		80.00		83.57		100.00		120.00		140.00		147.34	

ROAD 2 LONG SECTION



REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16

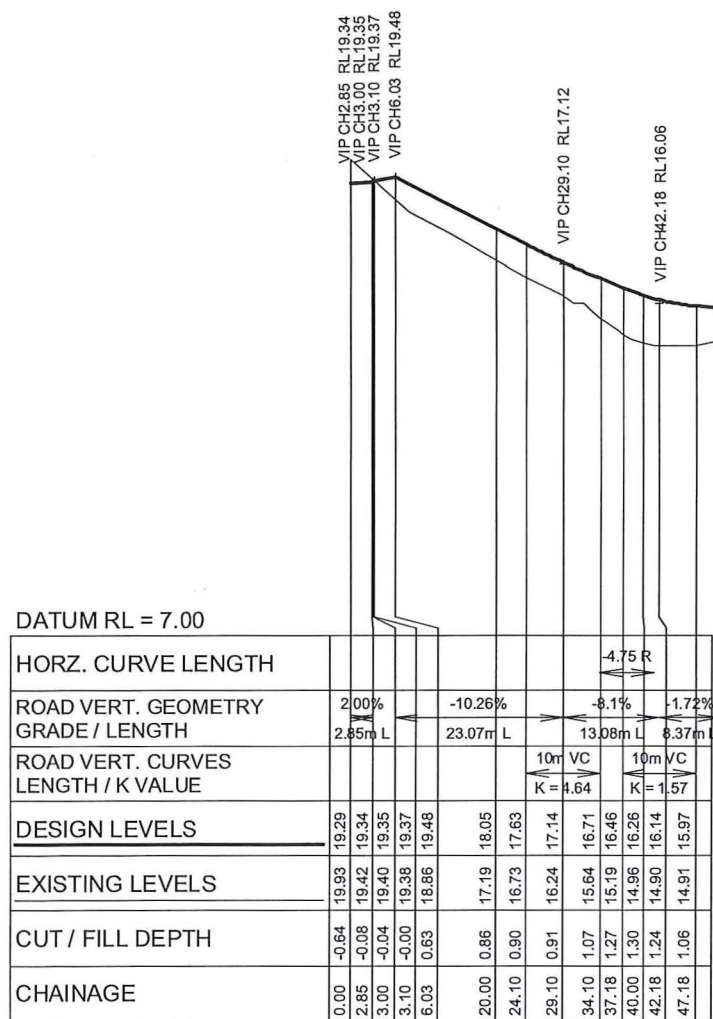


PROJECT
3RD FAIRWAY DEVELOPMENTS
ROADING
LONG SECTIONS (SHEET 2 OF 3)

CLIENT
3RD FAIRWAY
DEVELOPMENTS LTD

DESIGN	CCC	SCALE	1:1000 @ A3 H	DATE ISSUED	MAY 2016
DRAWN	WW	CHECK	1:200 @ A3 V		
APPV'D	CCC				

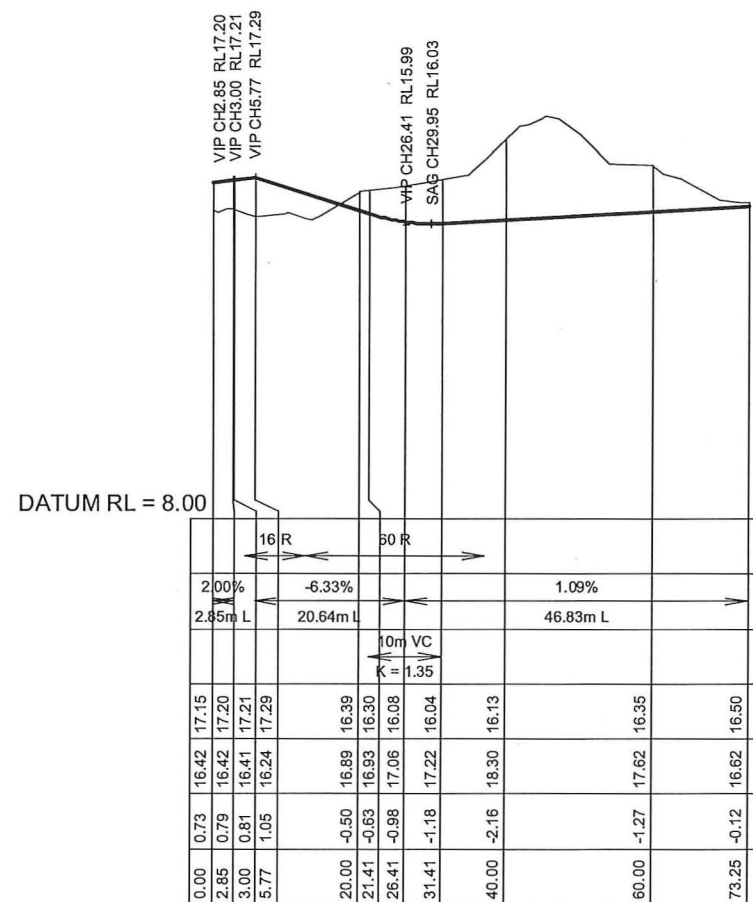
PROJECT NO.	DRAWING NO.	REVISION
1007A	03-401	A



DATUM RL = 7.00

HORZ. CURVE LENGTH				4.75 R
ROAD VERT. GEOMETRY GRADE / LENGTH	2.00%	-10.26%	-8.1%	-1.72%
ROAD VERT. CURVES LENGTH / K VALUE	2.85m L	23.07m L	13.08m L	8.37m L
DESIGN LEVELS			10m VC K = 4.64	10m VC K = 1.57
EXISTING LEVELS				
CUT / FILL DEPTH				

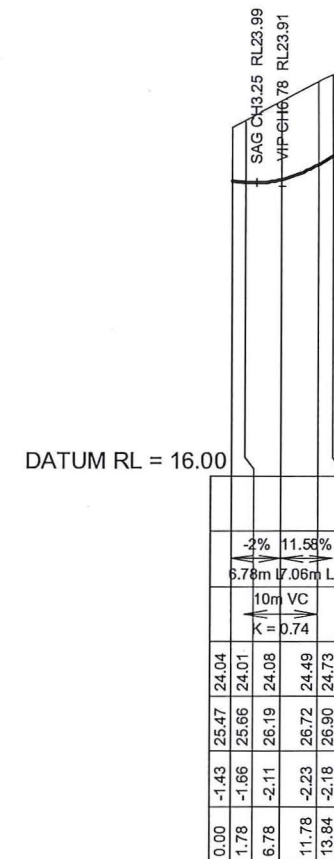
ROAD 3 LONG SECTION



DATUM RL = 8.00

HORZ. CURVE LENGTH				16 R	30 R
ROAD VERT. GEOMETRY GRADE / LENGTH	2.00%	-6.33%			1.09%
ROAD VERT. CURVES LENGTH / K VALUE	2.85m L	20.64m L		10m VC K = 1.35	46.83m L
DESIGN LEVELS					
EXISTING LEVELS					
CUT / FILL DEPTH					

ROAD 4 LONG SECTION



DATUM RL = 16.00

HORZ. CURVE LENGTH				
ROAD VERT. GEOMETRY GRADE / LENGTH	-2%	11.56%		
ROAD VERT. CURVES LENGTH / K VALUE	6.78m L	7.06m L		
DESIGN LEVELS			10m VC K = 0.74	
EXISTING LEVELS				
CUT / FILL DEPTH				

ROAD 6 LONG SECTION



REV	DESCRIPTION	APPR'D	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16



PROJECT
**3RD FAIRWAY DEVELOPMENTS
 ROADING
 LONG SECTIONS (SHEET 3 OF 3)**

CLIENT
**3RD FAIRWAY
 DEVELOPMENTS LTD**

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:1000 @ A3 H	MAY 2016
CHECK	CCC	1:200 @ A3 V	
APP'VD	CCC		

PROJECT NO.	DRAWING NO.	REVISION
1007A	03-402	(A)

LAUREL OAK DR

VIP CH9.23 RL30.58
VIP CH10.11 RL30.49
VIP CH10.12 RL30.51

VIP CH11.95 RL30.63
VIP CH13.50 RL30.64

VIP CH18.37 RL30.40

VIP CH28.53 RL28.36

DATUM RL = 1.00

HORZ. CURVE LENGTH			200%		20 R														
ROAD VERT. GEOMETRY GRADE / LENGTH		-3.08%	-10.44%	6.53%	0.4%	-4.94%				-20%								-19.78%	
ROAD VERT. CURVES LENGTH / K VALUE		9.23m L	0.88m L	1.93m L	1.55m L	4.87m L			5m VC K = 0.33	15m VC K = 66.77								53.69m L	
DESIGN LEVELS	0.00	0.00	30.87																
EXISTING LEVELS	0.00	0.00	30.87	30.58	30.49	30.51	30.63	30.64	30.52	30.30	30.06	29.90	29.86	28.32	26.89	26.88	26.10	26.13	22.14
CUT / FILL DEPTH	0.00	0.00	0.00	-0.00	0.02	0.05	0.03	0.12	0.22	0.23	0.22	0.21	0.05	-0.01	-0.03	-0.03	-0.10	-0.10	0.02
CHAINAGE	0.00	9.23	10.11	10.12	11.95	13.50	15.87	18.37	20.00	20.87	21.03	28.53	36.03	40.00	60.00				67.22



ROAD 1 ENTRANCE LONG SECTION

REV DESCRIPTION APPR'D DATE
- FOR COURT SK 08-06-17



PROJECT
3rd FAIRWAY DEVELOPMENTS (31 LOTS)
ROADING
ROAD 1 ENTRANCE LONG SECTION

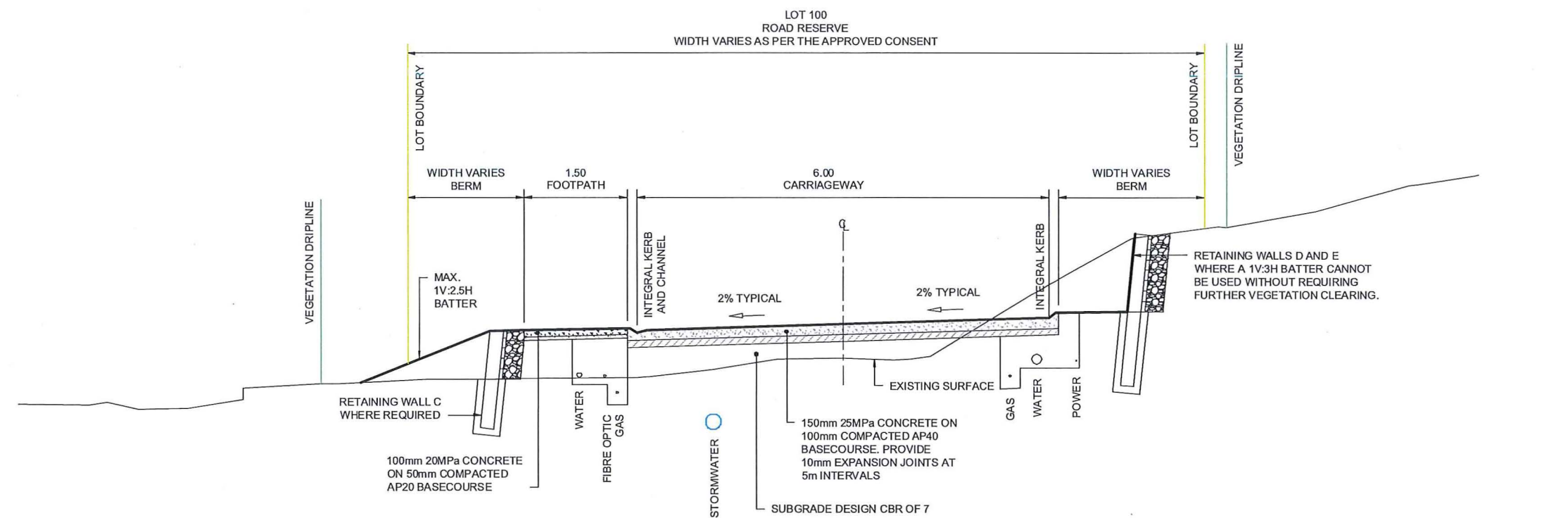
CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN SK SCALE DATE ISSUED
DRAWN SK 1:200 @ A3 H 08/06/2017
CHECK APPV'D 1:200 @ A3 V

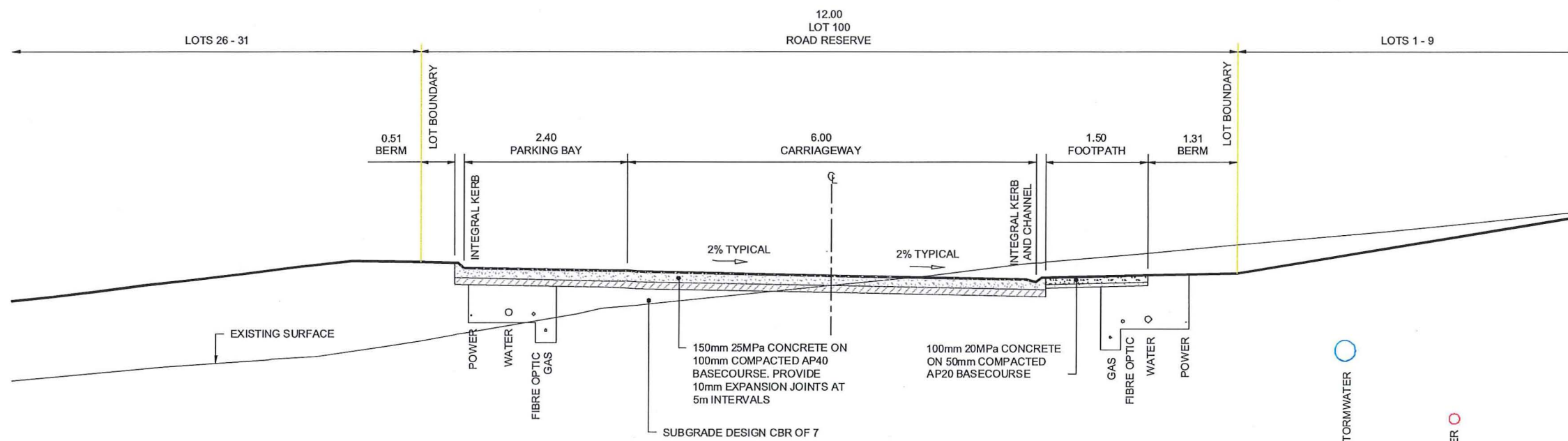
PROJECT NO. DRAWING NO. REVISION
1007A 03-403 -

NOTES

MINIMUM SUBGRADE STRENGTH CBR 7 REQUIRED. THIS IS TO BE CONFIRMED BY SCALA PENETROMETER TESTING AT 10.0m INTERVALS BOTH LANES. IF CBR 7 IS NOT ACHIEVED, ENGINEER WILL DETAIL EXTENT AND METHOD OF SUBGRADE IMPROVEMENT. i.e. LIME STABILISING OR UNDERCUT AND REPLACE WITH BLACK SAND.



A ROAD 1 TYPICAL SECTION 03-101



B ROAD 1 WITH PARKING BAY TYPICAL SECTION 03-102



REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	03-11-16



PROJECT
3rd FAIRWAY DEVELOPMENTS
ROADING
TYPICAL CROSS SECTIONS

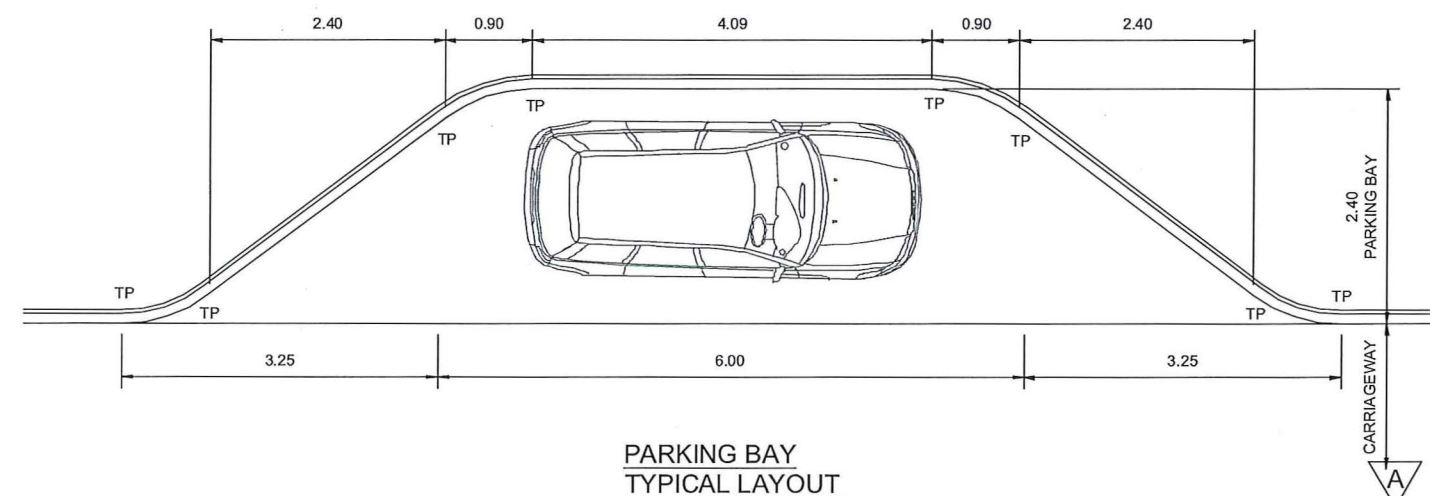
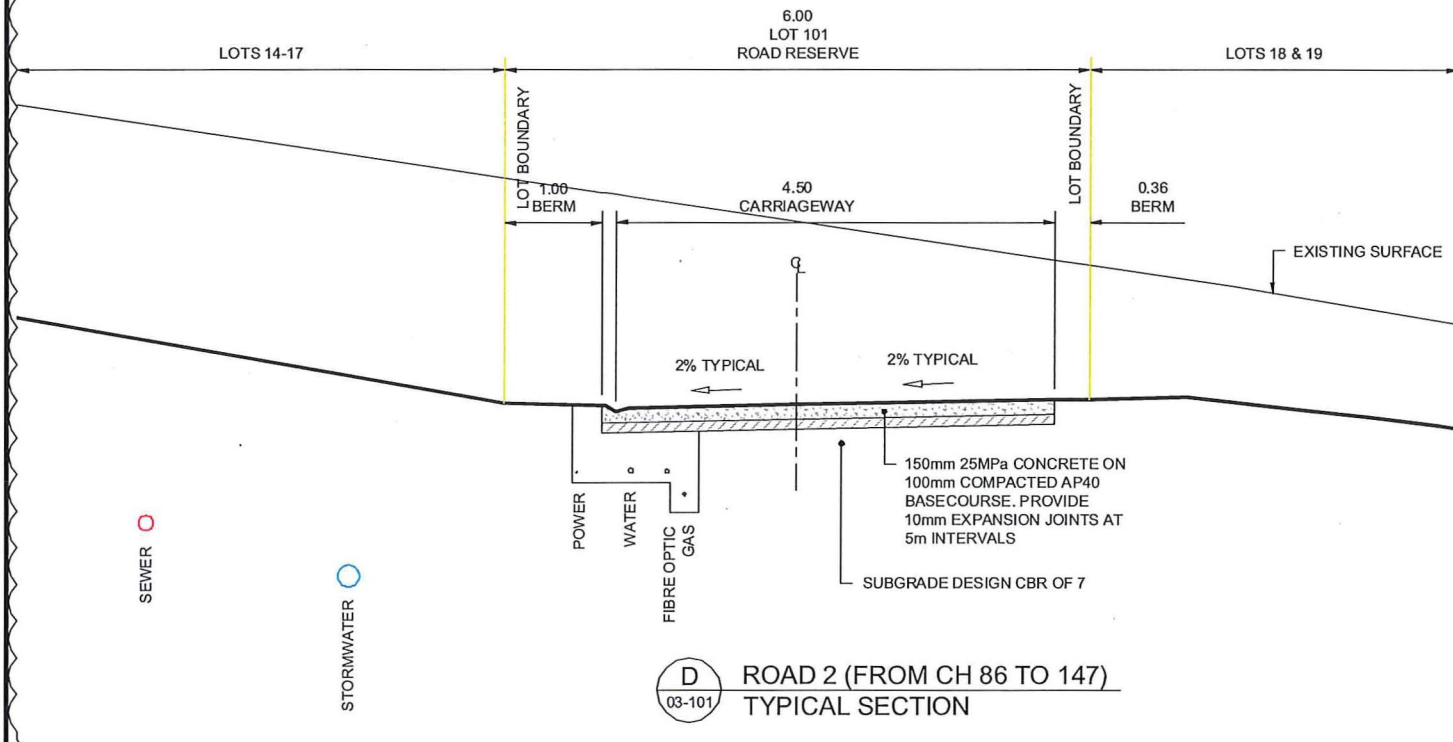
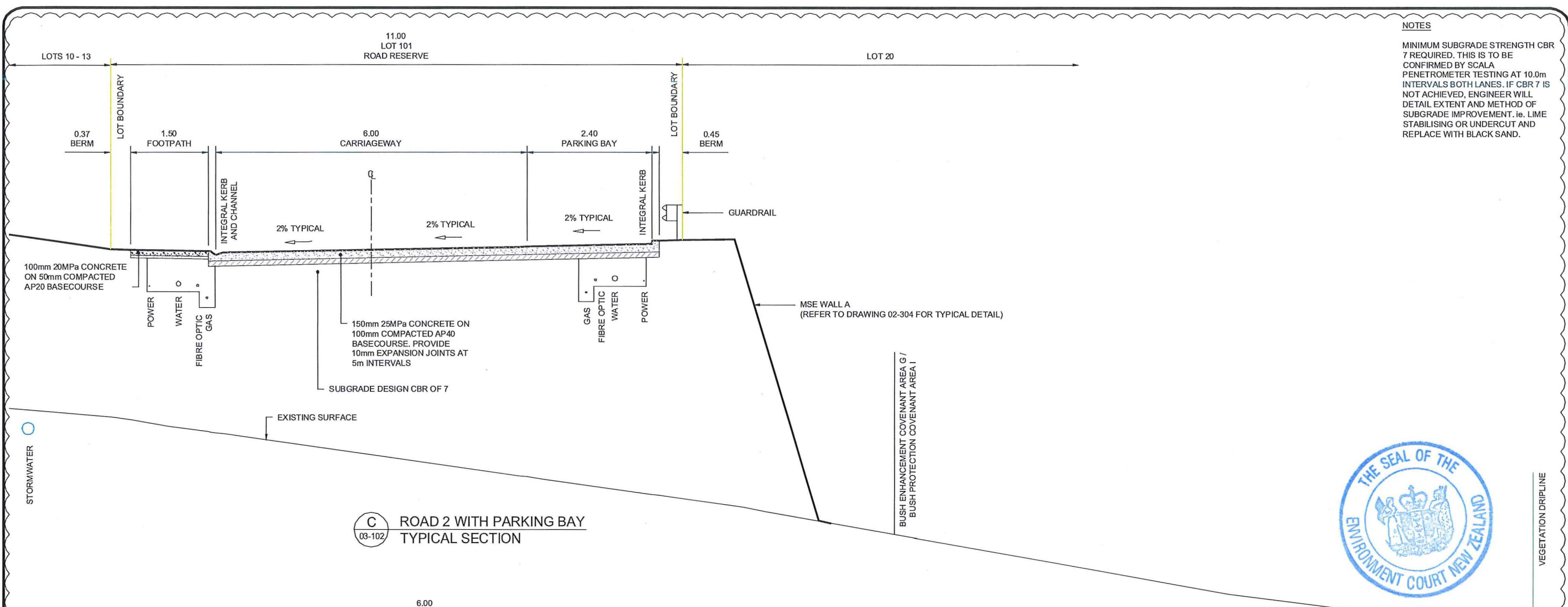
CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:75 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		

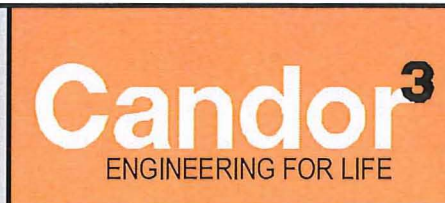
PROJECT NO.	DRAWING NO.	REVISION
1007A	03-500	A

NOTES

MINIMUM SUBGRADE STRENGTH CBR 7 REQUIRED. THIS IS TO BE CONFIRMED BY SCALA PENETROMETER TESTING AT 10.0m INTERVALS BOTH LANES. IF CBR 7 IS NOT ACHIEVED, ENGINEER WILL DETAIL EXTENT AND METHOD OF SUBGRADE IMPROVEMENT. ie. LIME STABILISING OR UNDERCUT AND REPLACE WITH BLACK SAND.



REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	03-11-16

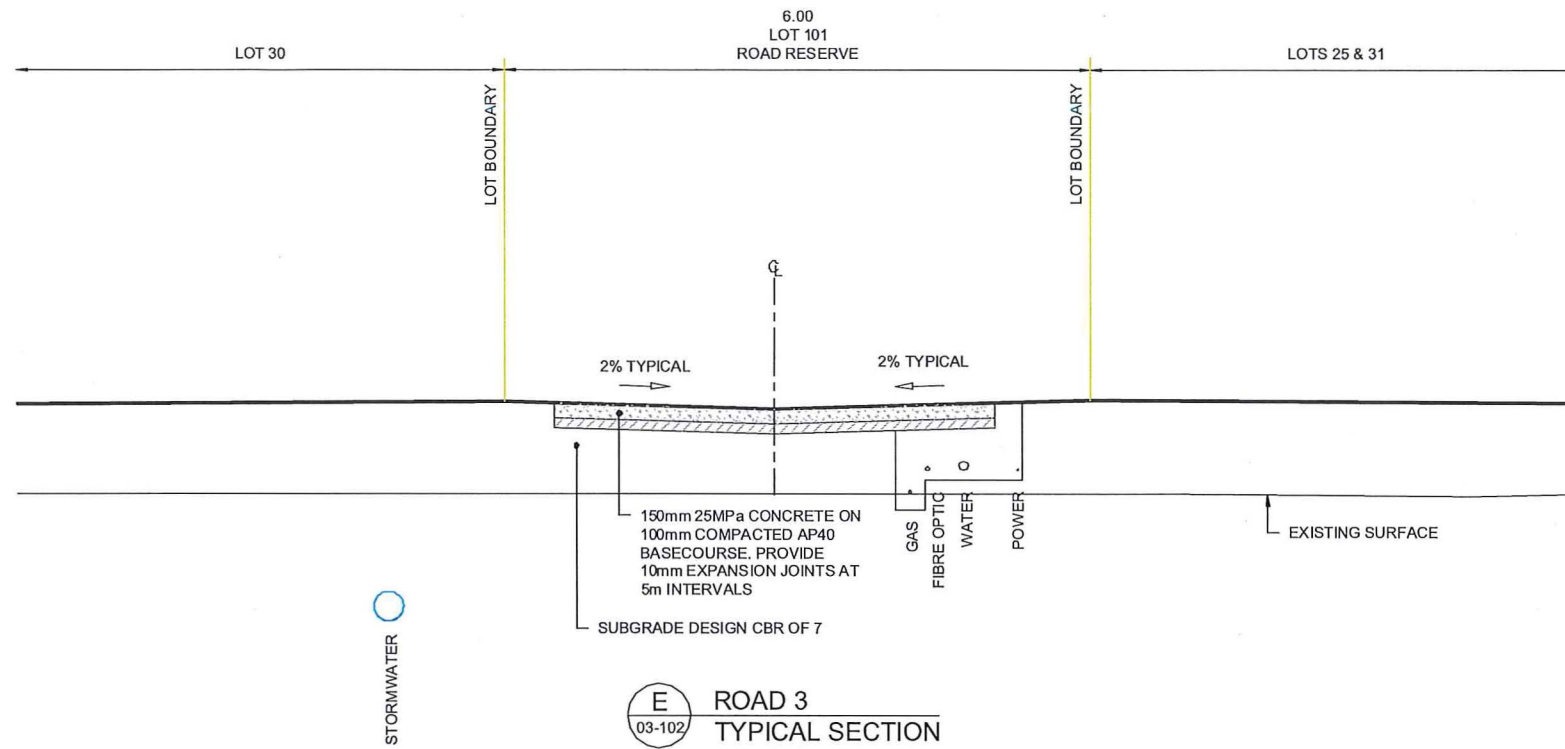


PROJECT
3rd FAIRWAY DEVELOPMENTS
 ROADING
 TYPICAL CROSS SECTIONS

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

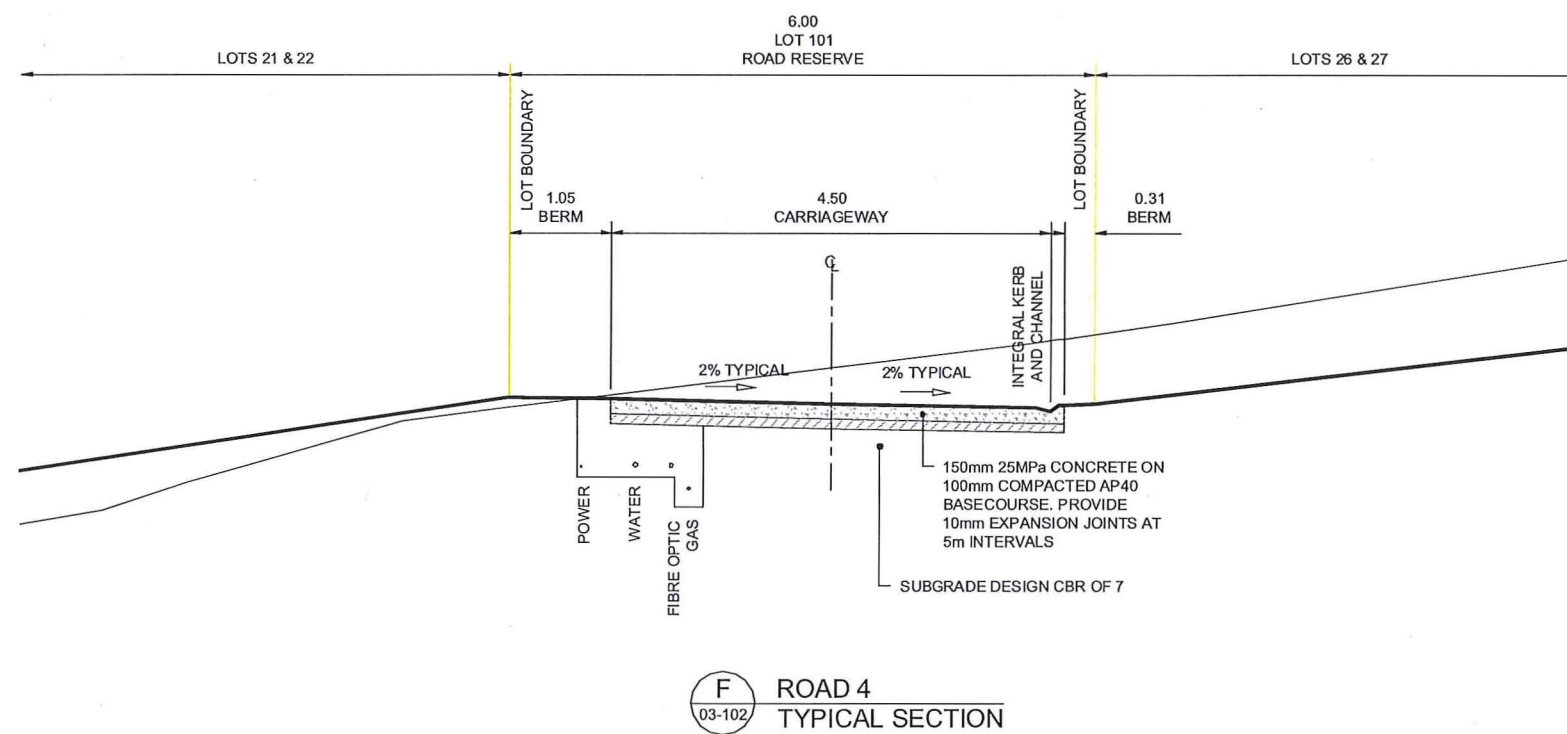
DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:75 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		

PROJECT NO.	DRAWING NO.	REVISION
1007A	03-501	A



NOTES

MINIMUM SUBGRADE STRENGTH CBR 7 REQUIRED. THIS IS TO BE CONFIRMED BY SCALA PENETROMETER TESTING AT 10.0m INTERVALS BOTH LANES. IF CBR 7 IS NOT ACHIEVED, ENGINEER WILL DETAIL EXTENT AND METHOD OF SUBGRADE IMPROVEMENT. ie. LIME STABILISING OR UNDERCUT AND REPLACE WITH BLACK SAND.



REV	DESCRIPTION	DATE
A	ISSUED FOR S92	03-11-16



PROJECT
3rd FAIRWAY DEVELOPMENTS
ROADING
TYPICAL CROSS SECTIONS

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN SK	SCALE	DATE ISSUED
DRAWN SK	1:75 @ A3	03/11/2016
CHECK		
APPV'D		

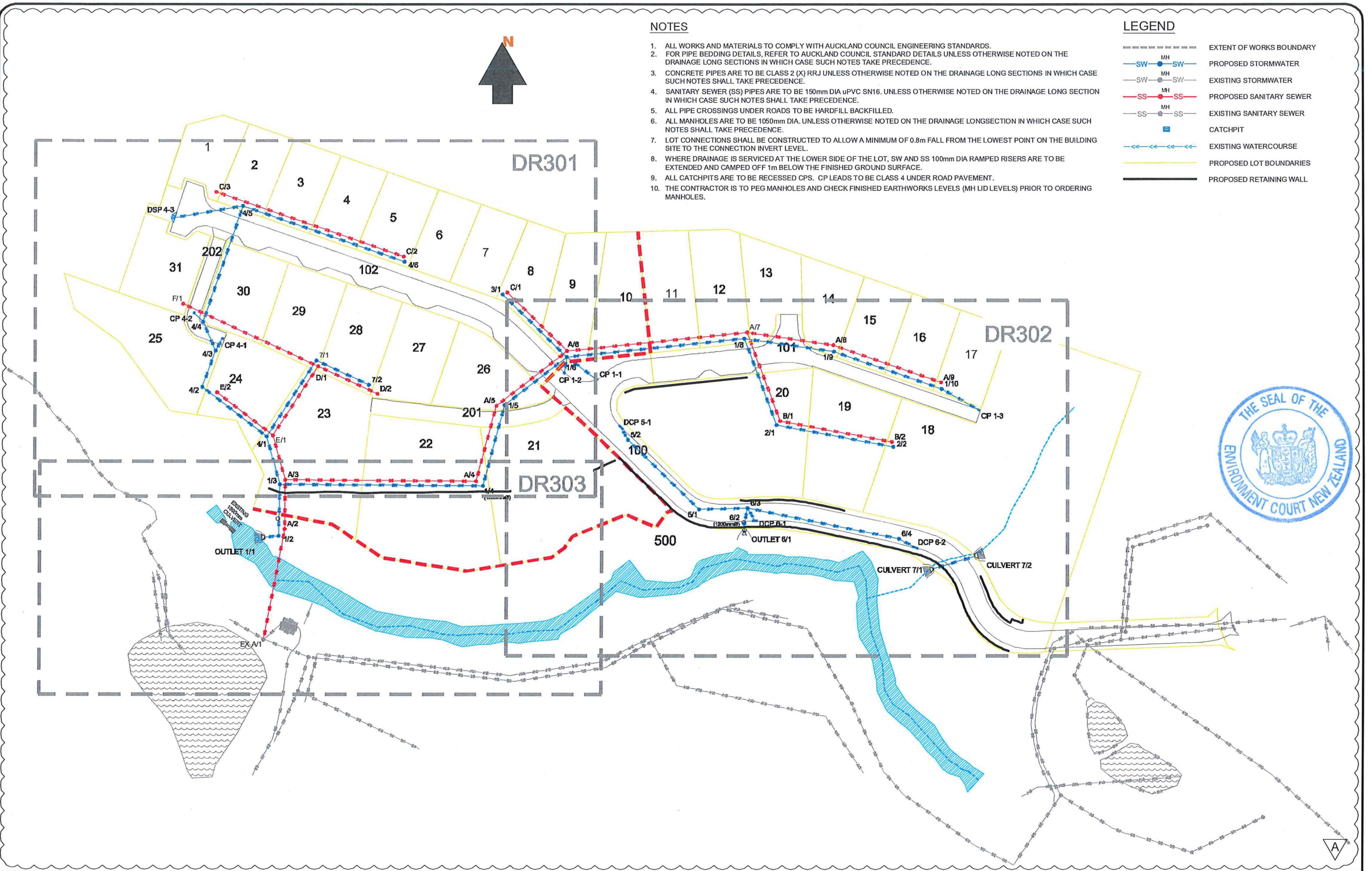
PROJECT NO.	DRAWING NO.	REVISION
1007A	03-502	-

NOTES

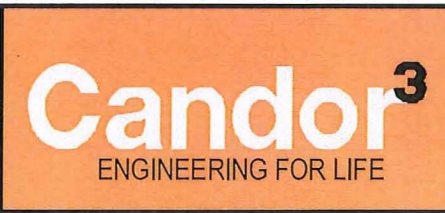
1. ALL WORKS AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL ENGINEERING STANDARDS.
2. FOR PIPE BEDDING DETAILS, REFER TO AUCKLAND COUNCIL STANDARD DETAILS UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTIONS IN WHICH CASE SUCH NOTES TAKE PRECEDENCE.
3. CONCRETE PIPES ARE TO BE CLASS 2 (X) RRJ UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTIONS IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
4. SANITARY SEWER (SS) PIPES ARE TO BE 150mm DIA uPVC SN16. UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTION IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
5. ALL PIPE CROSSINGS UNDER ROADS TO BE HARDFILL BACKFILLED.
6. ALL MANHOLES ARE TO BE 1050mm DIA. UNLESS OTHERWISE NOTED ON THE DRAINAGE LONGSECTION IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
7. LOT CONNECTIONS SHALL BE CONSTRUCTED TO ALLOW A MINIMUM OF 0.8m FALL FROM THE LOWEST POINT ON THE BUILDING SITE TO THE CONNECTION INVERT LEVEL.
8. WHERE DRAINAGE IS SERVICED AT THE LOWER SIDE OF THE LOT, SW AND SS 100mm DIA RAMPED RISERS ARE TO BE EXTENDED AND CAMPED OFF 1m BELOW THE FINISHED GROUND SURFACE.
9. ALL CATCHPITS ARE TO BE RECESSED CPS. CP LEADS TO BE CLASS 4 UNDER ROAD PAVEMENT.
10. THE CONTRACTOR IS TO PEG MANHOLES AND CHECK FINISHED EARTHWORKS LEVELS (MH LID LEVELS) PRIOR TO ORDERING MANHOLES.

LEGEND

- EXTENT OF WORKS BOUNDARY
- SW — MH — SW — PROPOSED STORMWATER
- SW — MH — SW — EXISTING STORMWATER
- SS — MH — SS — PROPOSED SANITARY SEWER
- SS — MH — SS — EXISTING SANITARY SEWER
- CATCHPIT
- ←←←←← EXISTING WATERCOURSE
- PROPOSED LOT BOUNDARIES
- PROPOSED RETAINING WALL



REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	16-11-16



PROJECT
**3rd FAIRWAY DEVELOPMENTS
 DRAINAGE
 OVERALL DRAINAGE PLAN**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

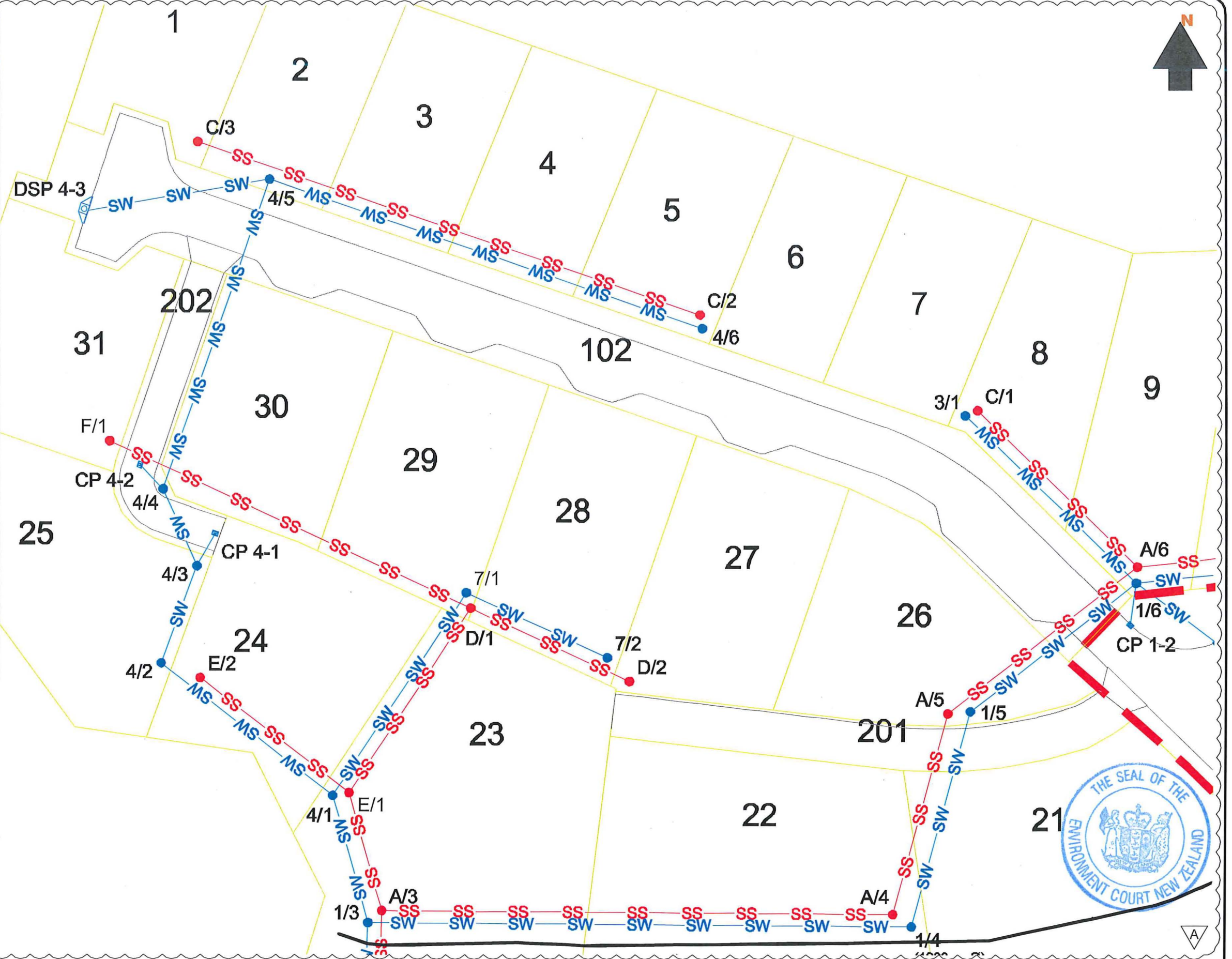
DESIGN CCC	SCALE 1:1200 @ A3	DATE ISSUED MAY 2016
DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A	DRAWING NO. 04-100	REVISION (A)

NOTES

1. ALL WORKS AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL ENGINEERING STANDARDS.
2. FOR PIPE BEDDING DETAILS, REFER TO AUCKLAND COUNCIL STANDARD DETAILS UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTIONS IN WHICH CASE SUCH NOTES TAKE PRECEDENCE.
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9. ALL CATCHPITS ARE TO BE RECESSED CPS. CP LEADS TO BE CLASS 4 UNDER ROAD PAVEMENT.
10. THE CONTRACTOR IS TO PEG MANHOLES AND CHECK FINISHED EARTHWORKS LEVELS (MHLID LEVELS) PRIOR TO ORDERING MANHOLES.

LEGEND

- EXTENT OF WORKS BOUNDARY
- SW—MH—SW— PROPOSED STORMWATER
- SW—MH—SW— EXISTING STORMWATER
- SS—MH—SS— PROPOSED SANITARY SEWER
- SS—MH—SS— EXISTING SANITARY SEWER
- CATCHPIT
- ←←←←← EXISTING WATERCOURSE
- PROPOSED LOT BOUNDARIES
- PROPOSED REINFORCED EARTH SLOPE



REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	16-11-16

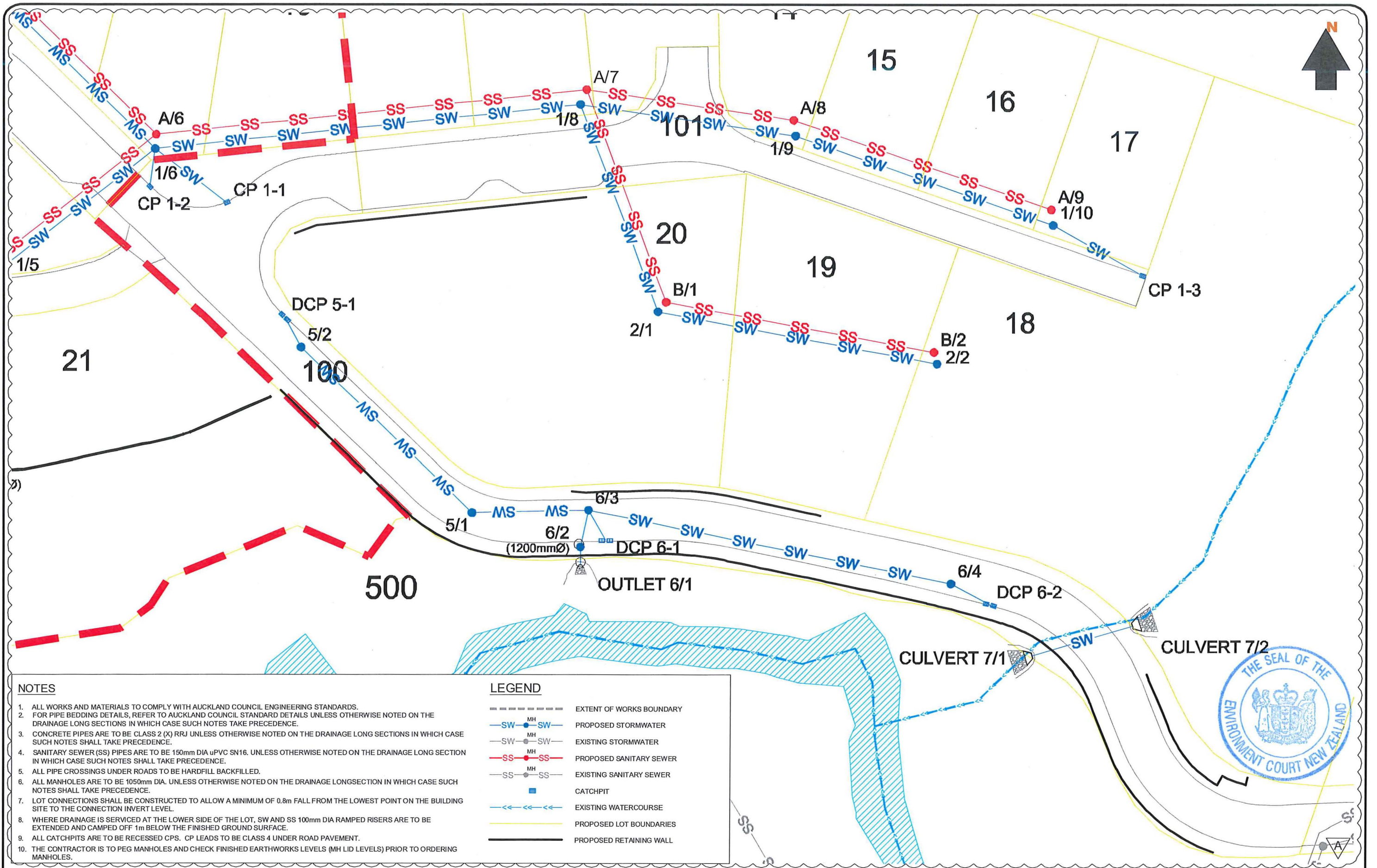


PROJECT
**3rd FAIRWAY DEVELOPMENTS
 DRAINAGE PLANS
 SHEET 1 OF 2**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:500 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		

PROJECT NO.	DRAWING NO.	REVISION
1007A	04-101	A



NOTES

1. ALL WORKS AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL ENGINEERING STANDARDS.
2. FOR PIPE BEDDING DETAILS, REFER TO AUCKLAND COUNCIL STANDARD DETAILS UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTIONS IN WHICH CASE SUCH NOTES TAKE PRECEDENCE.
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9. ALL CATCHPITS ARE TO BE RECESSED CPS. CP LEADS TO BE CLASS 4 UNDER ROAD PAVEMENT.
10. THE CONTRACTOR IS TO PEG MANHOLES AND CHECK FINISHED EARTHWORKS LEVELS (MH LID LEVELS) PRIOR TO ORDERING MANHOLES.

LEGEND

- EXTENT OF WORKS BOUNDARY
- SW—MH—SW— PROPOSED STORMWATER
- SW—MH—SW— EXISTING STORMWATER
- SS—MH—SS— PROPOSED SANITARY SEWER
- SS—MH—SS— EXISTING SANITARY SEWER
- CATCHPIT
- EXISTING WATERCOURSE
- PROPOSED LOT BOUNDARIES
- PROPOSED RETAINING WALL



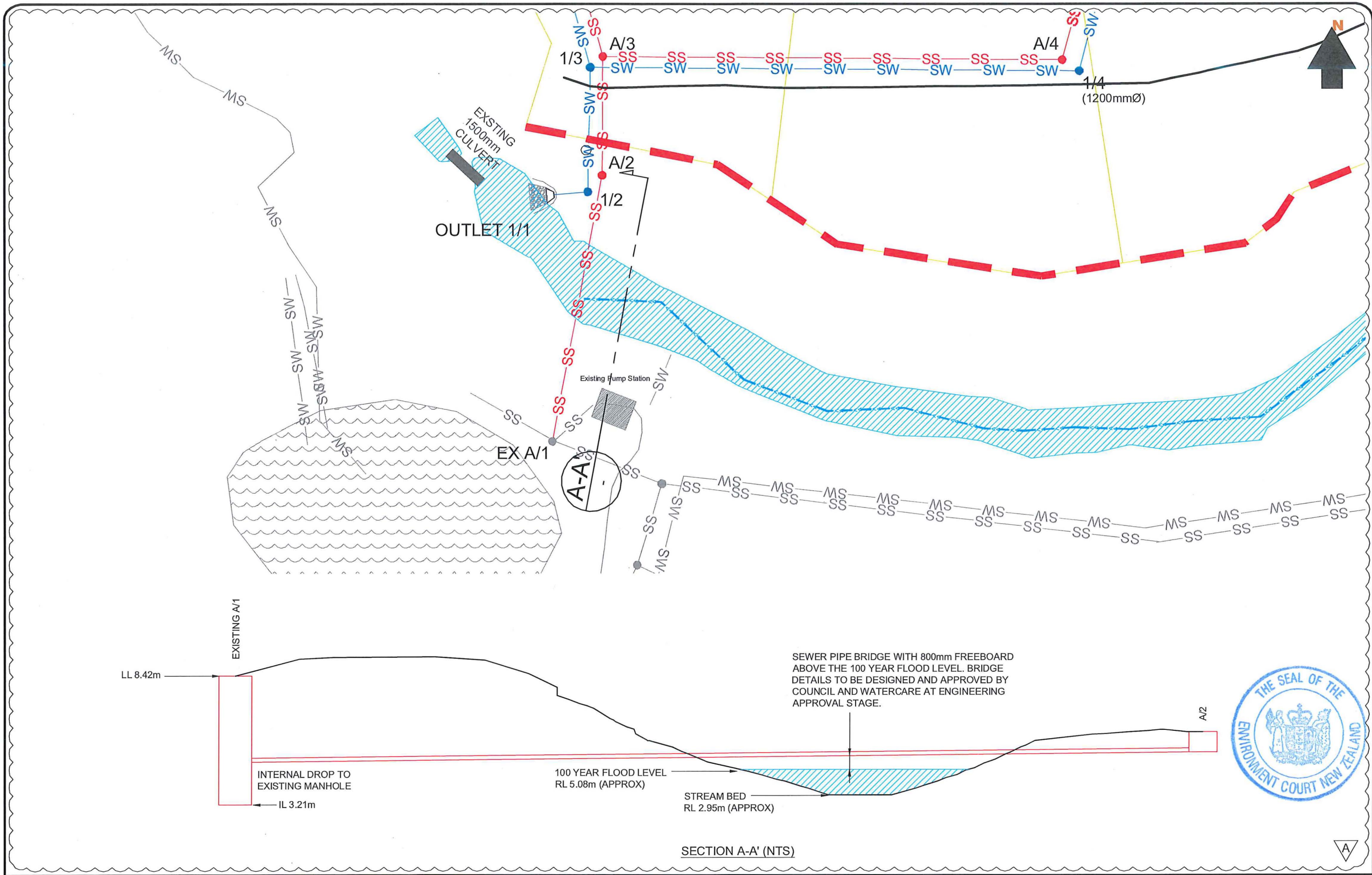
REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	16-11-16



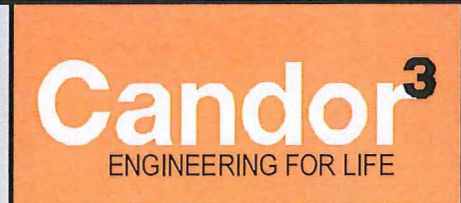
PROJECT
**3rd FAIRWAY DEVELOPMENTS
 DRAINAGE PLANS
 SHEET 2 OF 2**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:500 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		
PROJECT NO.	DRAWING NO.	REVISION	
1007A	04-102	(A)	



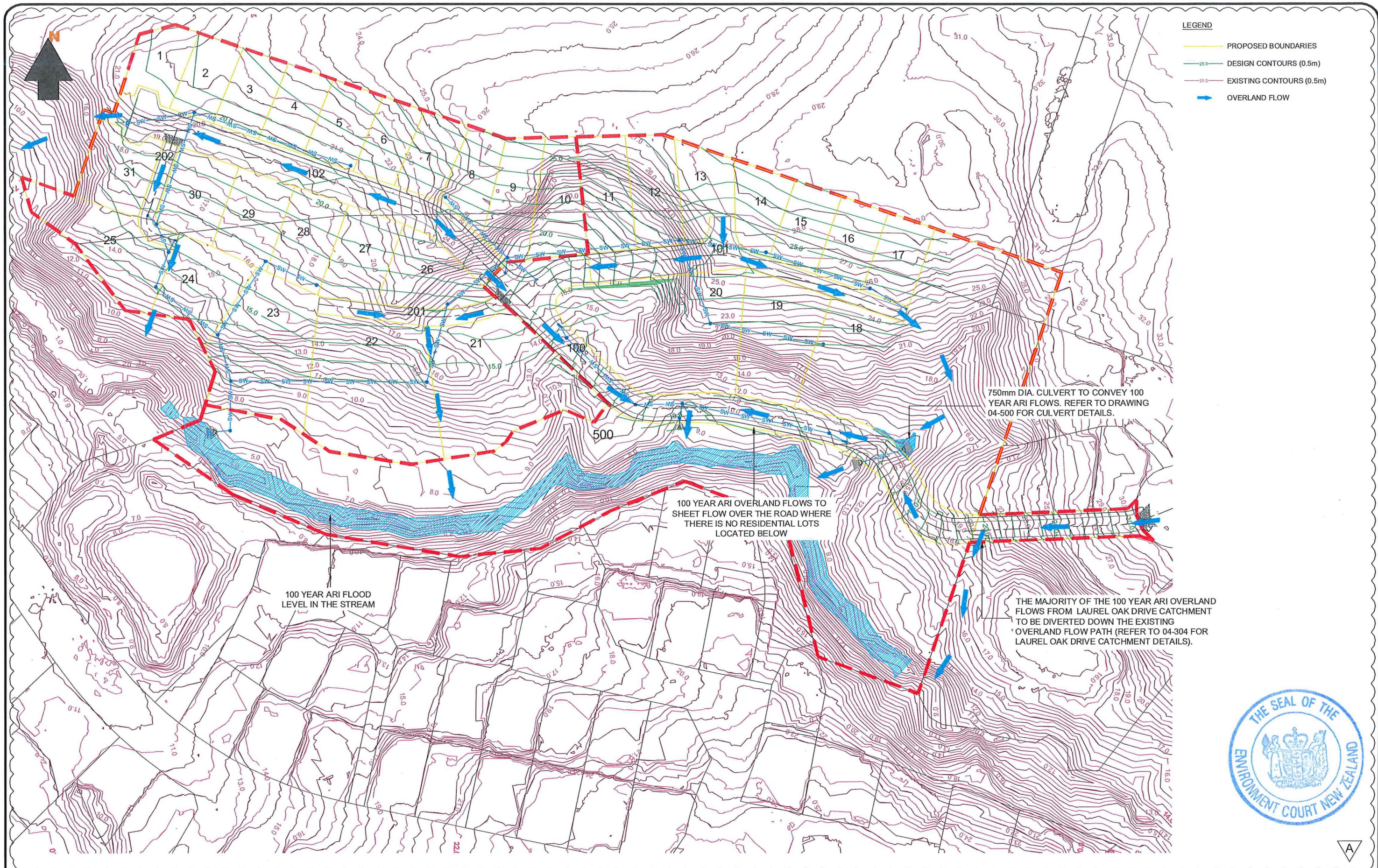
REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	16-11-16



PROJECT
**3rd FAIRWAY DEVELOPMENTS
 DRAINAGE
 WASTEWATER CONNECTION**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:500 @ A3	MAY 2016
CHECK	CCC		
APP'VD	CCC		
PROJECT NO.	DRAWING NO.	REVISION	
1007A	04-103	A	



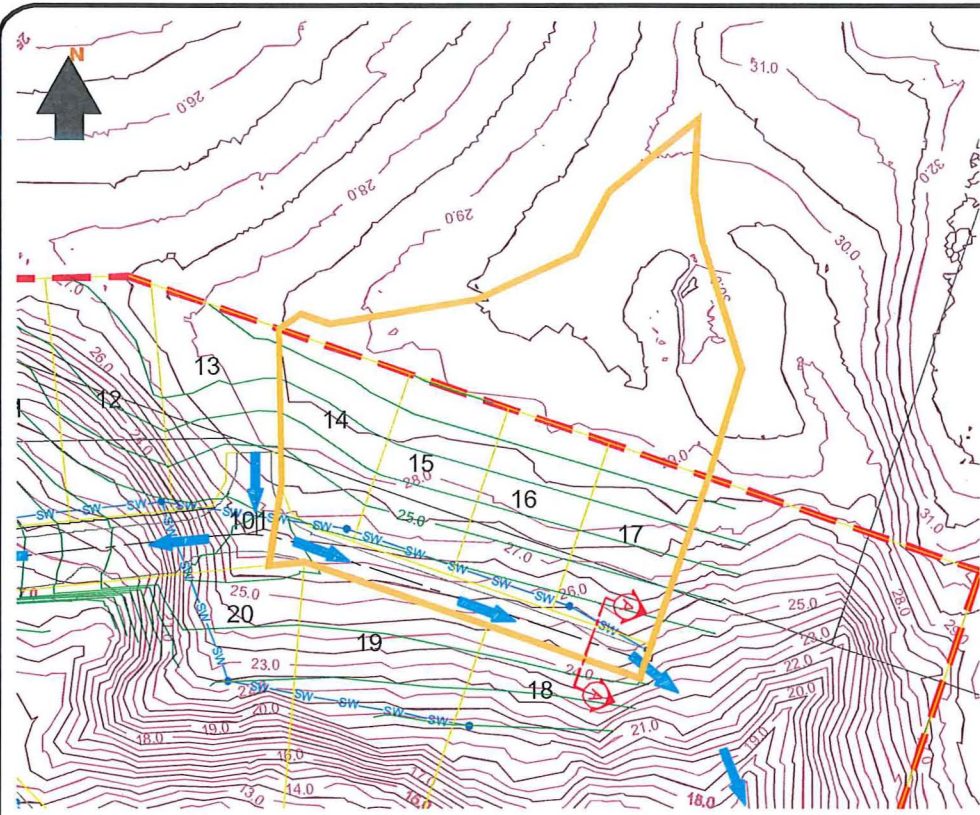
REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	03-11-16



PROJECT
**3rd FAIRWAY DEVELOPMENTS
 DRAINAGE
 OVERLAND FLOW PATH OVERALL PLAN**

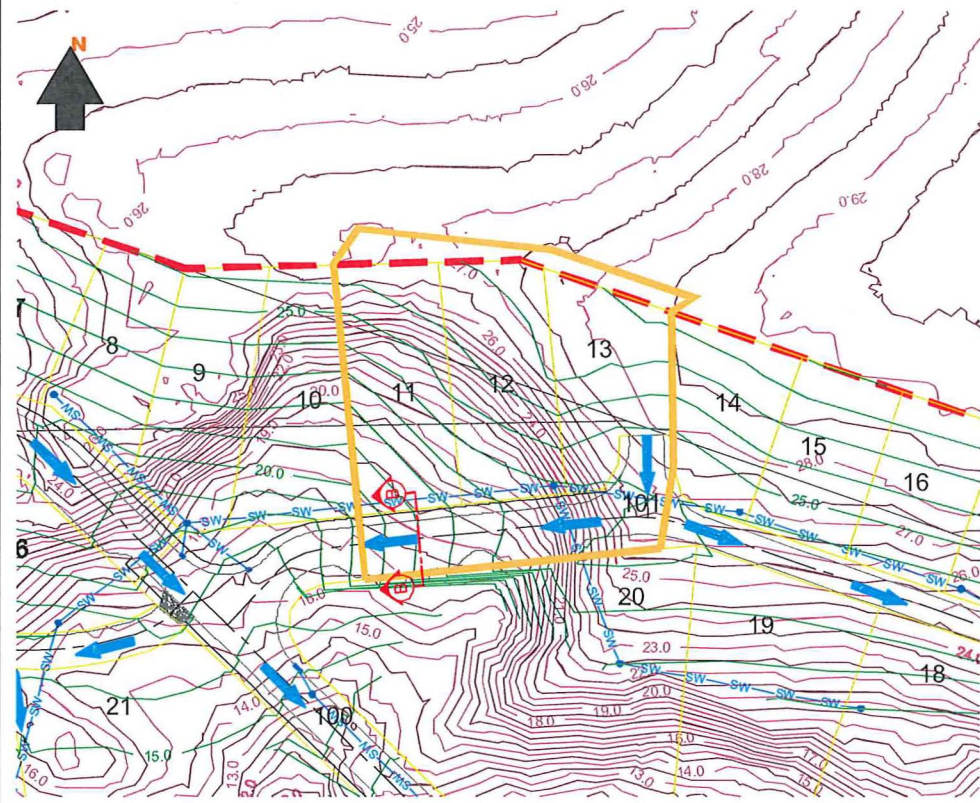
CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN SK	SCALE	DATE ISSUED
DRAWN DS	1:1250 @ A3	03/11/2016
CHECK MAS		
APPV'D MAS		
PROJECT NO.	DRAWING NO.	REVISION
1007A	04-300	A



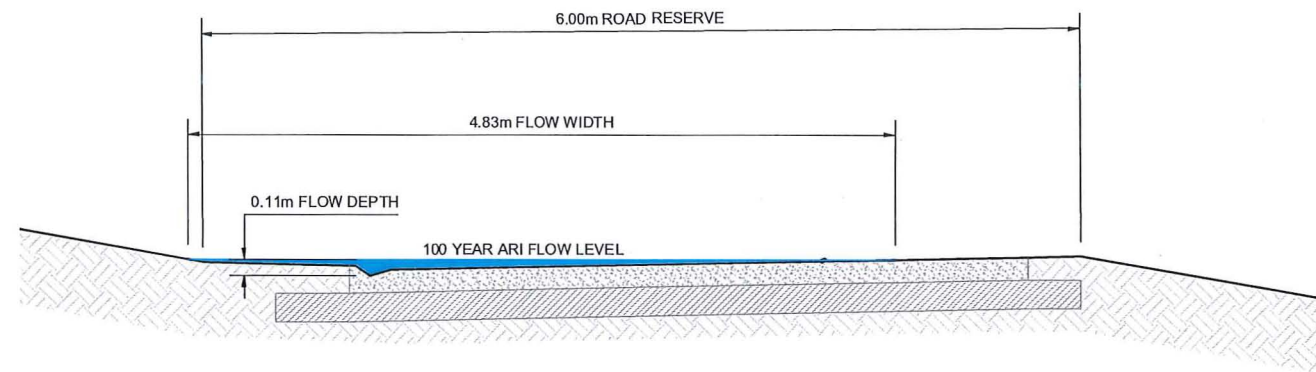
CATCHMENT A - PLAN DETAIL

SCALE 1:1250 (A3)



CATCHMENT B - PLAN DETAIL

SCALE 1:1250 (A3)

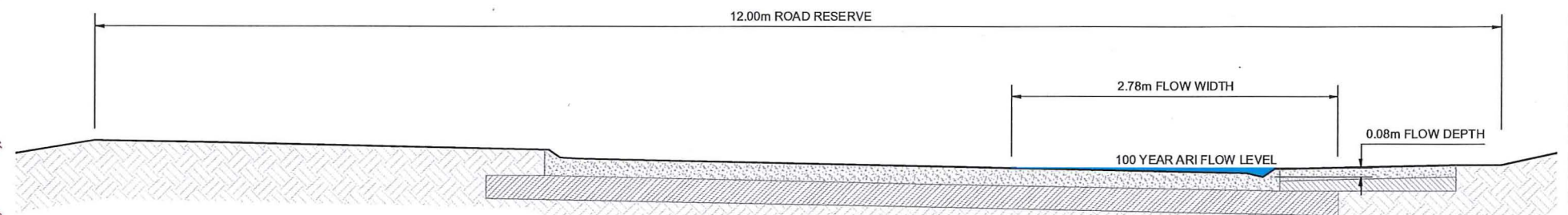


SECTION A - A

SCALE 1:50 (A3)

STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	1654 m ²
PERVIOUS CATCHMENT AREA	2761 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	4415 m ²
TOTAL RUNOFF COEFFICIENT	0.67
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	140 l/s

ROAD PARAMETERS	
LONGITUDINAL SLOPE	0.014 m/m
100yr ARI PEAK FLOW	140 l/s
MAXIMUM DEPTH	0.11 m
MANNING'S COEFFICIENT	0.013
FLOW AREA	0.14 m ²
WETTED PERIMETER	3.72 m
HYDRAULIC RADIUS	0.04 m
FLOW VELOCITY	1.03 m/s
DEPTH x VELOCITY	0.11 m ² /s
CAPACITY AT FLOW DEPTH	143 l/s



SECTION B - B

SCALE 1:50 (A3)

STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	1763 m ²
PERVIOUS CATCHMENT AREA	1180 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	2943 m ²
TOTAL RUNOFF COEFFICIENT	0.77
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	107 l/s

ROAD PARAMETERS	
LONGITUDINAL SLOPE	0.136 m/m
100yr ARI PEAK FLOW	107 l/s
MAXIMUM DEPTH	0.08 m
MANNING'S COEFFICIENT	0.013
FLOW AREA	0.06 m ²
WETTED PERIMETER	2.80 m
HYDRAULIC RADIUS	0.02 m
FLOW VELOCITY	2.09 m/s
DEPTH x VELOCITY	0.17 m ² /s
CAPACITY AT FLOW DEPTH	117 l/s



REV	DESCRIPTION	SK	DATE
-	ISSUED FOR S92	SK	03-11-16

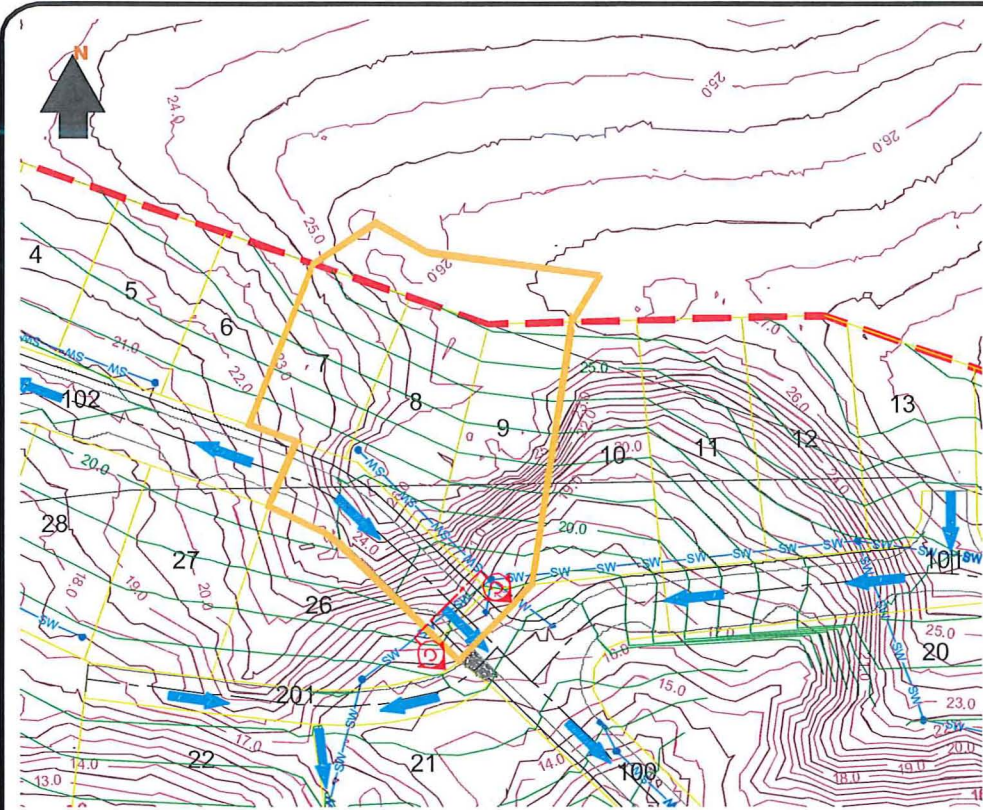


PROJECT
3rd FAIRWAY DEVELOPMENTS
DRAINAGE
OVERLAND FLOW PATH DETAILS

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

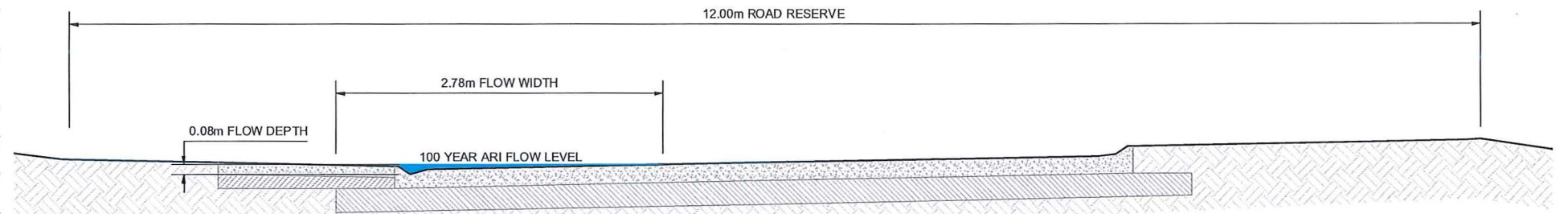
DESIGN	SK	SCALE	DATE ISSUED
DRAWN	DS	AS SHOWN	03/11/2016
CHECK	MAS		
APPV'D	MAS		

PROJECT NO.	DRAWING NO.	REVISION
1007A	04-301	-



CATCHMENT C - PLAN DETAIL

SCALE 1:1250 (A3)

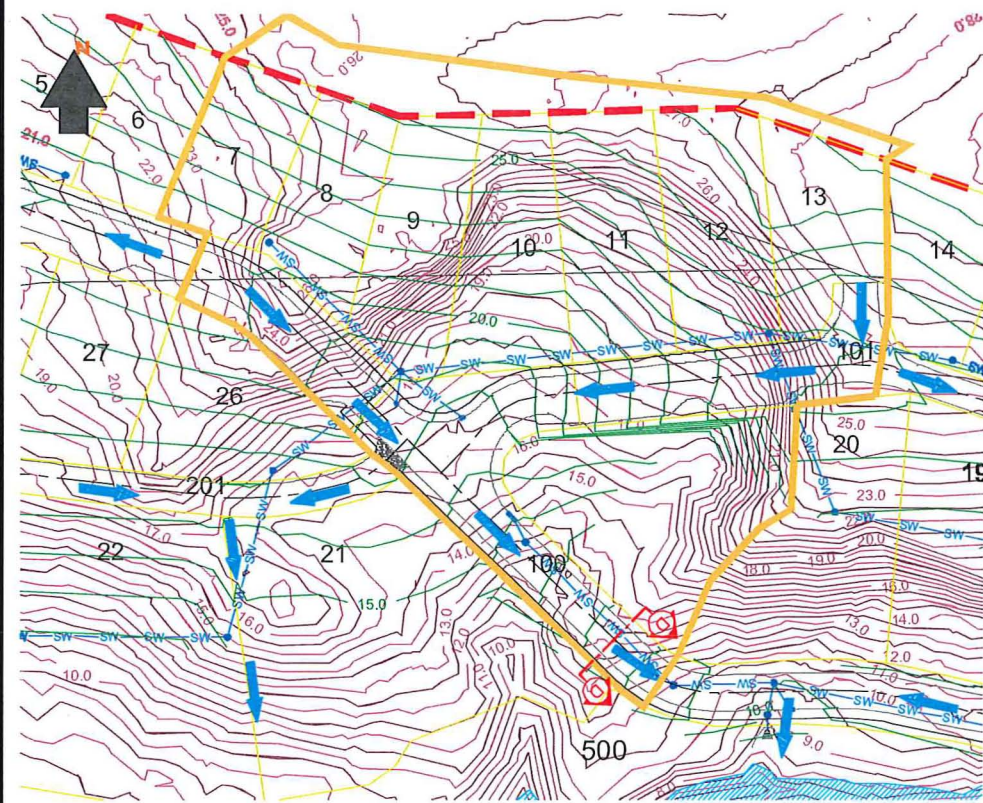


SECTION C - C

SCALE 1:50 (A3)

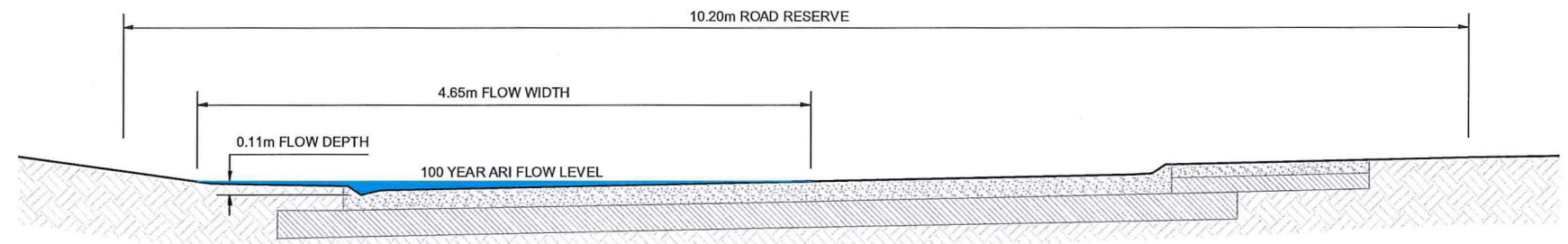
STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	1499 m ²
PERVIOUS CATCHMENT AREA	1213 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	2712 m ²
TOTAL RUNOFF COEFFICIENT	0.75
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	96 l/s

ROAD PARAMETERS	
LONGITUDINAL SLOPE	0.100 m/m
100yr ARI PEAK FLOW	96 l/s
MAXIMUM DEPTH	0.08 m
MANNING'S COEFFICIENT	0.013
FLOW AREA	0.06 m ²
WETTED PERIMETER	2.80 m
HYDRAULIC RADIUS	0.02 m
FLOW VELOCITY	1.79 m/s
DEPTH x VELOCITY	0.14 m ² /s
CAPACITY AT FLOW DEPTH	100 l/s



CATCHMENT D - PLAN DETAIL

SCALE 1:1250 (A3)



SECTION D - D

SCALE 1:50 (A3)

STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	4980 m ²
PERVIOUS CATCHMENT AREA	4237 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	9217 m ²
TOTAL RUNOFF COEFFICIENT	0.74
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	324 l/s

ROAD PARAMETERS	
LONGITUDINAL SLOPE	0.100 m/m
100yr ARI PEAK FLOW	324 l/s
MAXIMUM DEPTH	0.11 m
MANNING'S COEFFICIENT	0.013
FLOW AREA	0.13 m ²
WETTED PERIMETER	3.53 m
HYDRAULIC RADIUS	0.04 m
FLOW VELOCITY	2.62 m/s
DEPTH x VELOCITY	0.28 m ² /s
CAPACITY AT FLOW DEPTH	328 l/s



REV	DESCRIPTION	SK	DATE
-	ISSUED FOR S92	SK	03-11-16

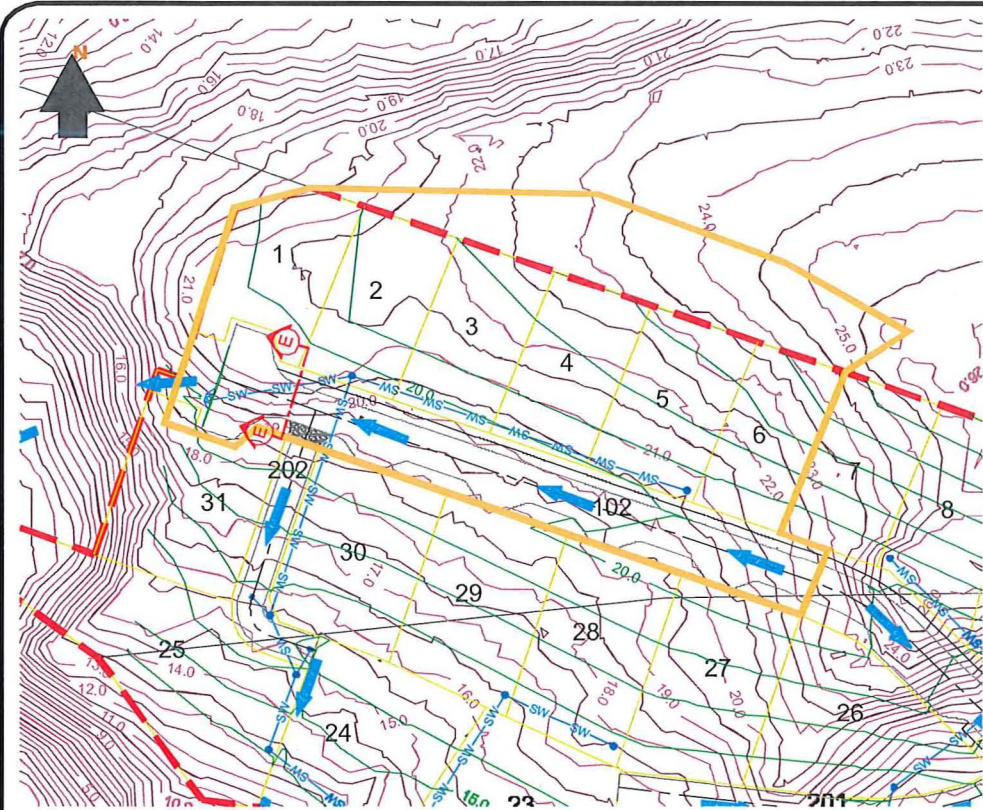


PROJECT
3rd FAIRWAY DEVELOPMENTS
DRAINAGE
OVERLAND FLOW PATH DETAILS

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

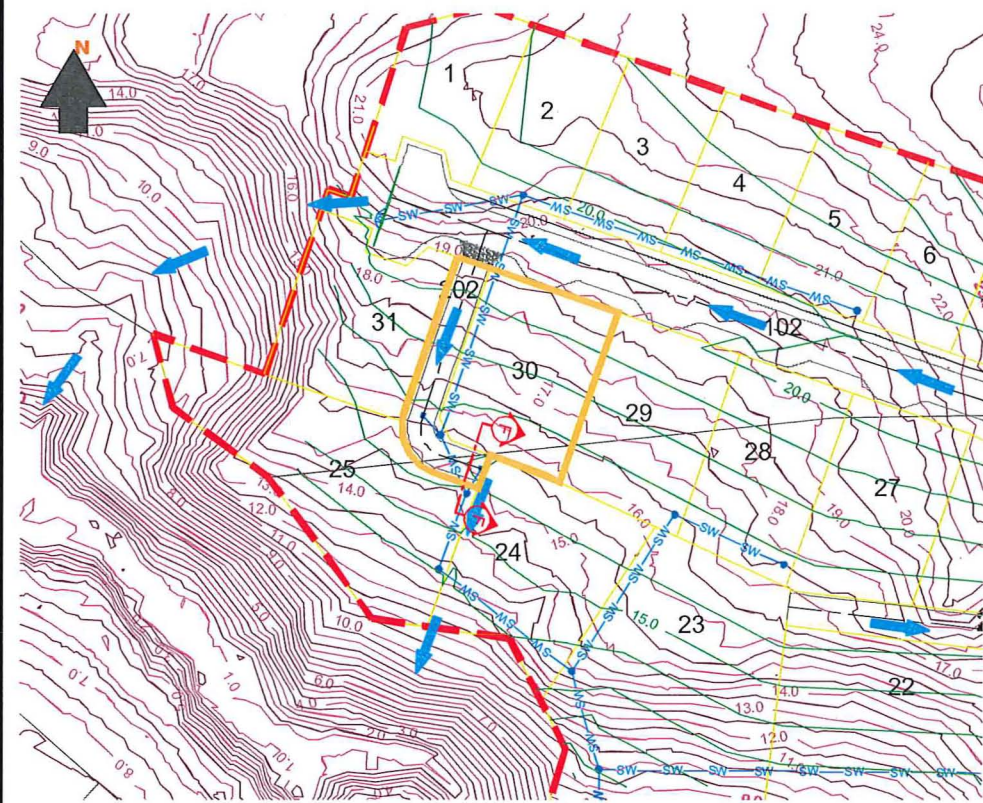
DESIGN	SK	SCALE	DATE ISSUED
DRAWN	DS	AS SHOWN	03/11/2016
CHECK	MAS		
APPV'D	MAS		

PROJECT NO.	DRAWING NO.	REVISION
1007A	04-302	-



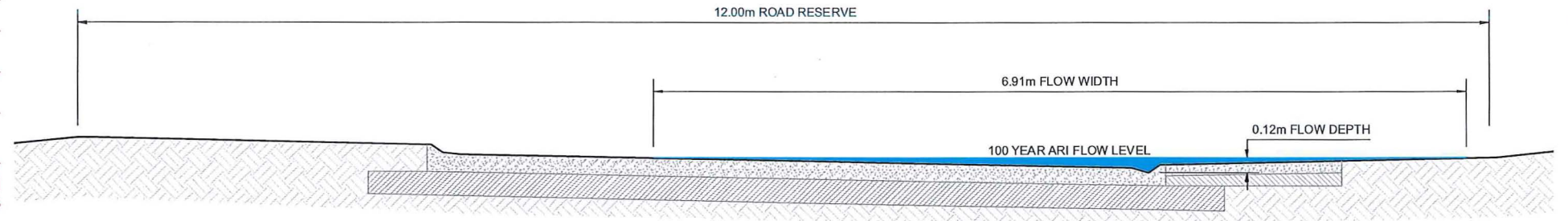
CATCHMENT E - PLAN DETAIL

SCALE 1:1250 (A3)



CATCHMENT F - PLAN DETAIL

SCALE 1:1250 (A3)

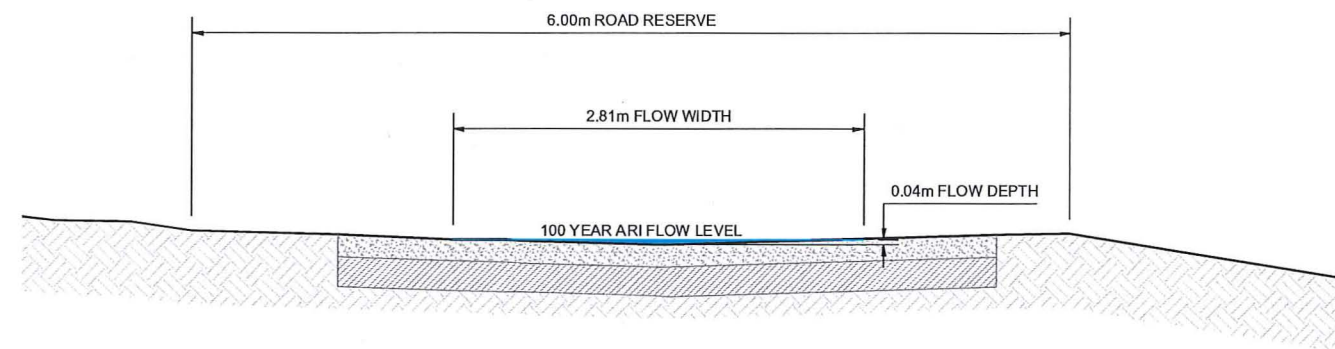


SECTION E - E

SCALE 1:50 (A3)

STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	2994 m ²
PERVIOUS CATCHMENT AREA	2605 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	5599 m ²
TOTAL RUNOFF COEFFICIENT	0.74
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	196 l/s

ROAD PARAMETERS	
LONGITUDINAL SLOPE	0.012 m/m
100yr ARI PEAK FLOW	196 l/s
MAXIMUM DEPTH	0.12 m
MANNING'S COEFFICIENT	0.013
FLOW AREA	0.19 m ²
WETTED PERIMETER	4.38 m
HYDRAULIC RADIUS	0.04 m
FLOW VELOCITY	1.05 m/s
DEPTH x VELOCITY	0.13 m ² /s
CAPACITY AT FLOW DEPTH	200 l/s



SECTION F - F

SCALE 1:50 (A3)

STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	627 m ²
PERVIOUS CATCHMENT AREA	329 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	956 m ²
TOTAL RUNOFF COEFFICIENT	0.80
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	36 l/s

ROAD PARAMETERS	
LONGITUDINAL SLOPE	0.017 m/m
100yr ARI PEAK FLOW	36 l/s
MAXIMUM DEPTH	0.04 m
MANNING'S COEFFICIENT	0.013
FLOW AREA	0.06 m ²
WETTED PERIMETER	2.81 m
HYDRAULIC RADIUS	0.02 m
FLOW VELOCITY	0.74 m/s
DEPTH x VELOCITY	0.03 m ² /s
CAPACITY AT FLOW DEPTH	42 l/s



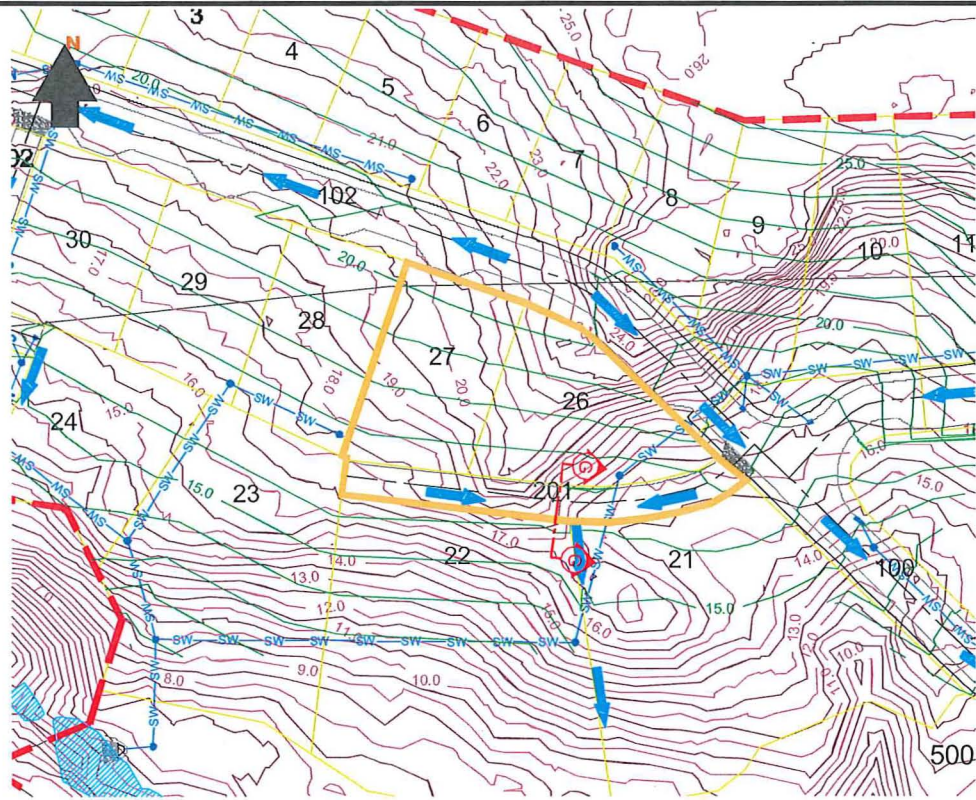
REV	DESCRIPTION	SK	DATE
-	ISSUED FOR S92	SK	03-11-16

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PROJECT
3rd FAIRWAY DEVELOPMENTS
DRAINAGE
OVERLAND FLOW PATH DETAILS

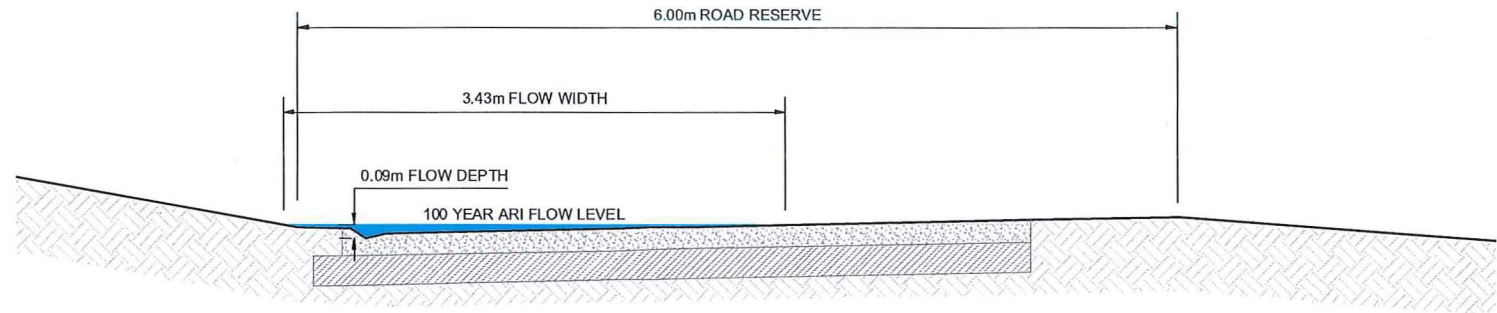
CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN SK	SCALE	DATE ISSUED
DRAWN DS	AS SHOWN	03/11/2016
CHECK MAS		
APPV'D MAS		
PROJECT NO.	DRAWING NO.	REVISION
1007A	04-303	-



CATCHMENT G - PLAN DETAIL

SCALE 1:1250 (A3)

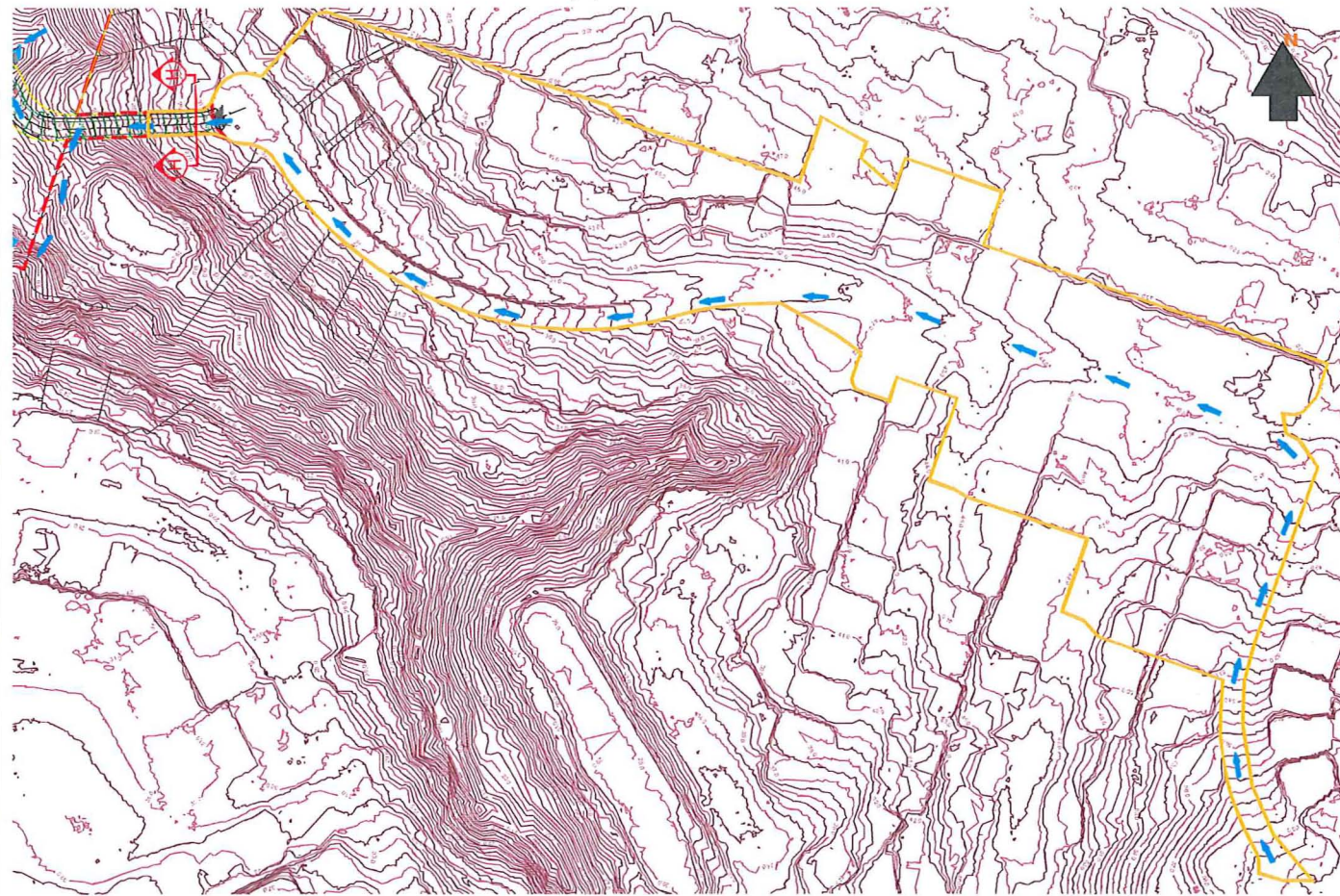


SECTION G - G

SCALE 1:50 (A3)

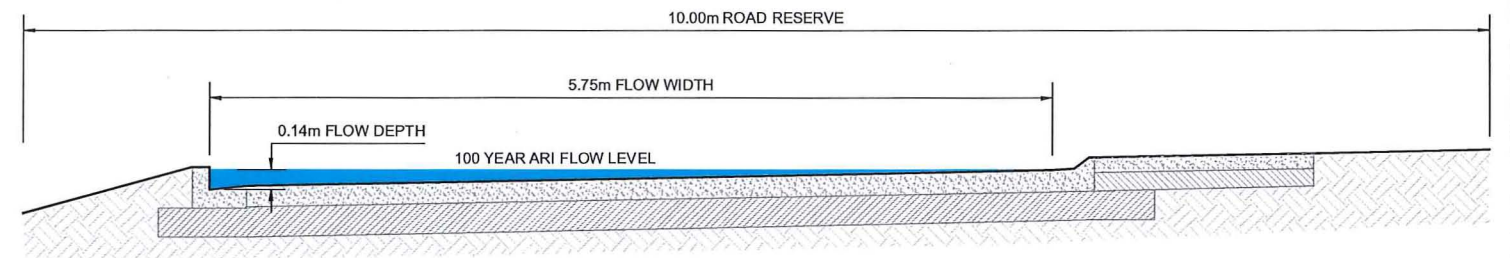
STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	1209 m ²
PERVIOUS CATCHMENT AREA	669 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	1878 m ²
TOTAL RUNOFF COEFFICIENT	0.79
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	70 l/s

ROAD PARAMETERS	
LONGITUDINAL SLOPE	0.011 m/m
100yr ARI PEAK FLOW	70 l/s
MAXIMUM DEPTH	0.09 m
MANNING'S COEFFICIENT	0.013
FLOW AREA	0.10 m ²
WETTED PERIMETER	3.46 m
HYDRAULIC RADIUS	0.03 m
FLOW VELOCITY	0.76 m/s
DEPTH x VELOCITY	0.07 m ² /s
CAPACITY AT FLOW DEPTH	76 l/s



CATCHMENT H - PLAN DETAIL

SCALE 1:3000 (A3)



SECTION H - H

SCALE 1:50 (A3)

STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	31803 m ²
PERVIOUS CATCHMENT AREA	15348 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	47151 m ²
TOTAL RUNOFF COEFFICIENT	0.80
TIME OF CONCENTRATION	13 min
RAINFALL INTENSITY	102.2 mm/hr
TOTAL PEAK FLOW	1076 l/s

ROAD PARAMETERS	
LONGITUDINAL SLOPE	0.090 m/m
100yr ARI PEAK FLOW	1076 l/s
MAXIMUM DEPTH	0.14 m
MANNING'S COEFFICIENT	0.013
FLOW AREA	0.32 m ²
WETTED PERIMETER	5.78 m
HYDRAULIC RADIUS	0.06 m
FLOW VELOCITY	3.37 m/s
DEPTH x VELOCITY	0.47 m ² /s
CAPACITY AT FLOW DEPTH	1084 l/s



REV	DESCRIPTION	SK	DATE
-	ISSUED FOR S92	SK	03-11-16

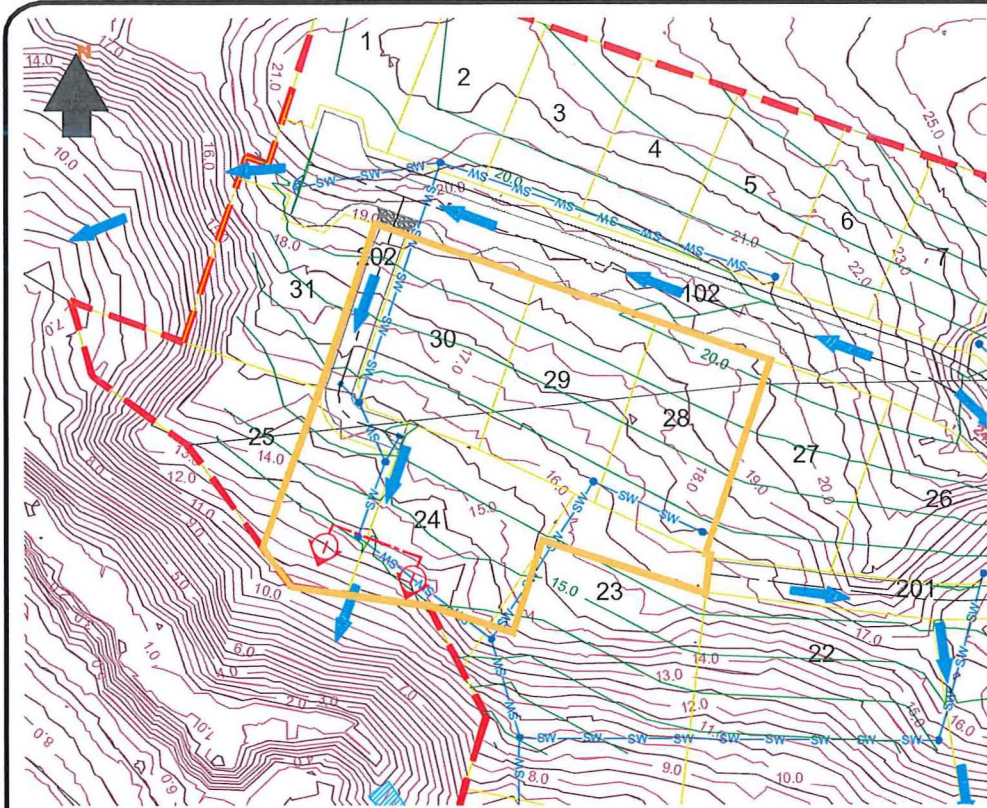


PROJECT
3rd FAIRWAY DEVELOPMENTS
DRAINAGE
OVERLAND FLOW PATH DETAILS

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

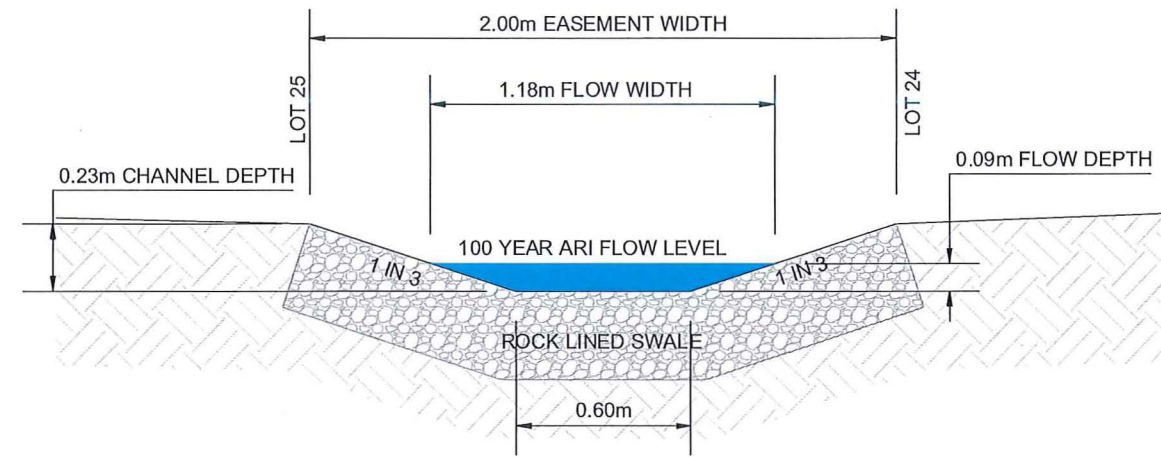
DESIGN	SK	SCALE	DATE ISSUED
DRAWN	DS	AS SHOWN	03/11/2016
CHECK	MAS		
APPV'D	MAS		

PROJECT NO.	DRAWING NO.	REVISION
1007A	04-304	-



CATCHMENT I - PLAN DETAIL

SCALE 1:1250 (A3)

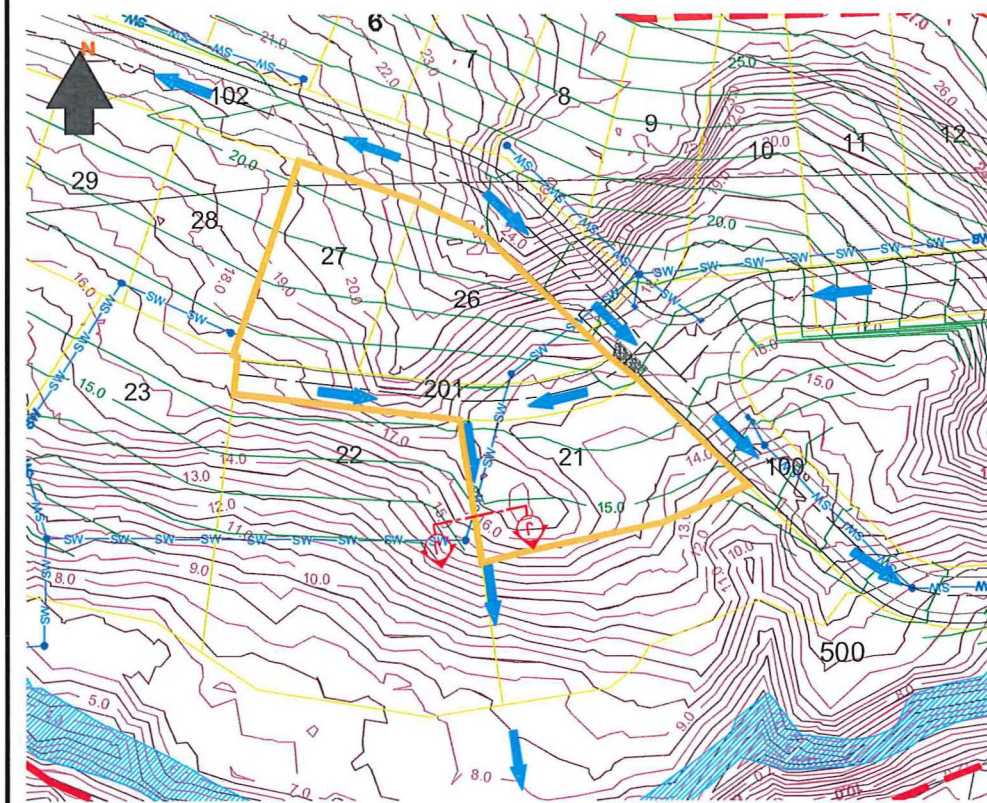


SECTION I - I

SCALE 1:25 (A3)

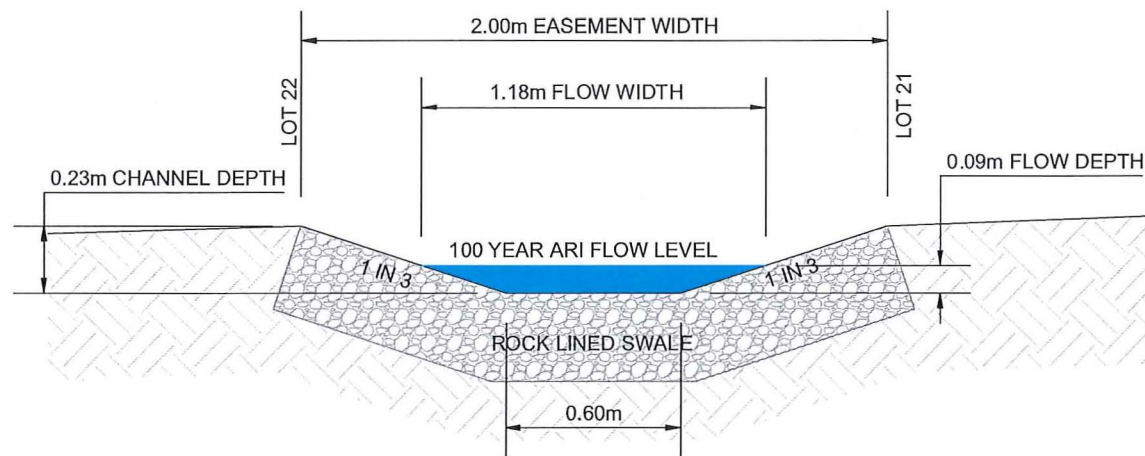
STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	2329 m ²
PERVIOUS CATCHMENT AREA	1464 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	3793 m ²
TOTAL RUNOFF COEFFICIENT	0.78
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	139 l/s

SWALE PARAMETERS	
LONGITUDINAL SLOPE	0.127 m/m
100yr ARI PEAK FLOW	139 l/s
MAXIMUM DEPTH	0.09 m
MANNING'S COEFFICIENT	0.035
FLOW AREA	0.08 m ²
WETTED PERIMETER	1.20 m
HYDRAULIC RADIUS	0.07 m
FLOW VELOCITY	1.72 m/s
DEPTH x VELOCITY	0.16 m ² /s
CAPACITY AT FLOW DEPTH	143 l/s



CATCHMENT J - PLAN DETAIL

SCALE 1:1250 (A3)



SECTION J - J

SCALE 1:25 (A3)

STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	1756 m ²
PERVIOUS CATCHMENT AREA	1034 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	2790 m ²
TOTAL RUNOFF COEFFICIENT	0.78
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	103 l/s

SWALE PARAMETERS	
LONGITUDINAL SLOPE	0.079 m/m
100yr ARI PEAK FLOW	103 l/s
MAXIMUM DEPTH	0.09 m
MANNING'S COEFFICIENT	0.035
FLOW AREA	0.08 m ²
WETTED PERIMETER	1.20 m
HYDRAULIC RADIUS	0.07 m
FLOW VELOCITY	1.36 m/s
DEPTH x VELOCITY	0.13 m ² /s
CAPACITY AT FLOW DEPTH	113 l/s



REV	DESCRIPTION	DATE
-	ISSUED FOR S92	03-11-16



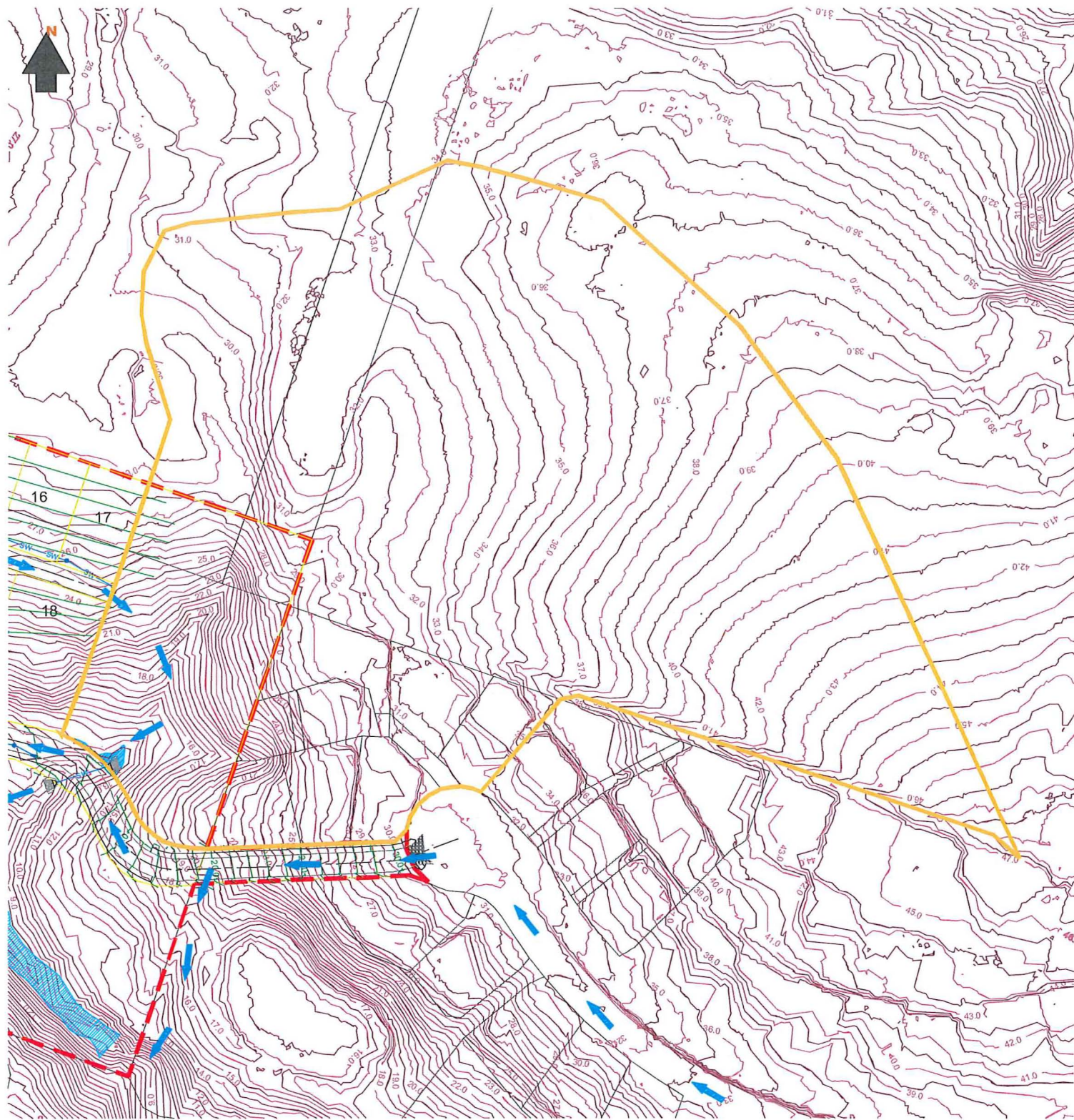
PROJECT
3rd FAIRWAY DEVELOPMENTS
DRAINAGE
OVERLAND FLOW PATH DETAILS

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	SCALE	DATE ISSUED
DS	AS SHOWN	03/11/2016

CHECK	APPV'D
MAS	MAS

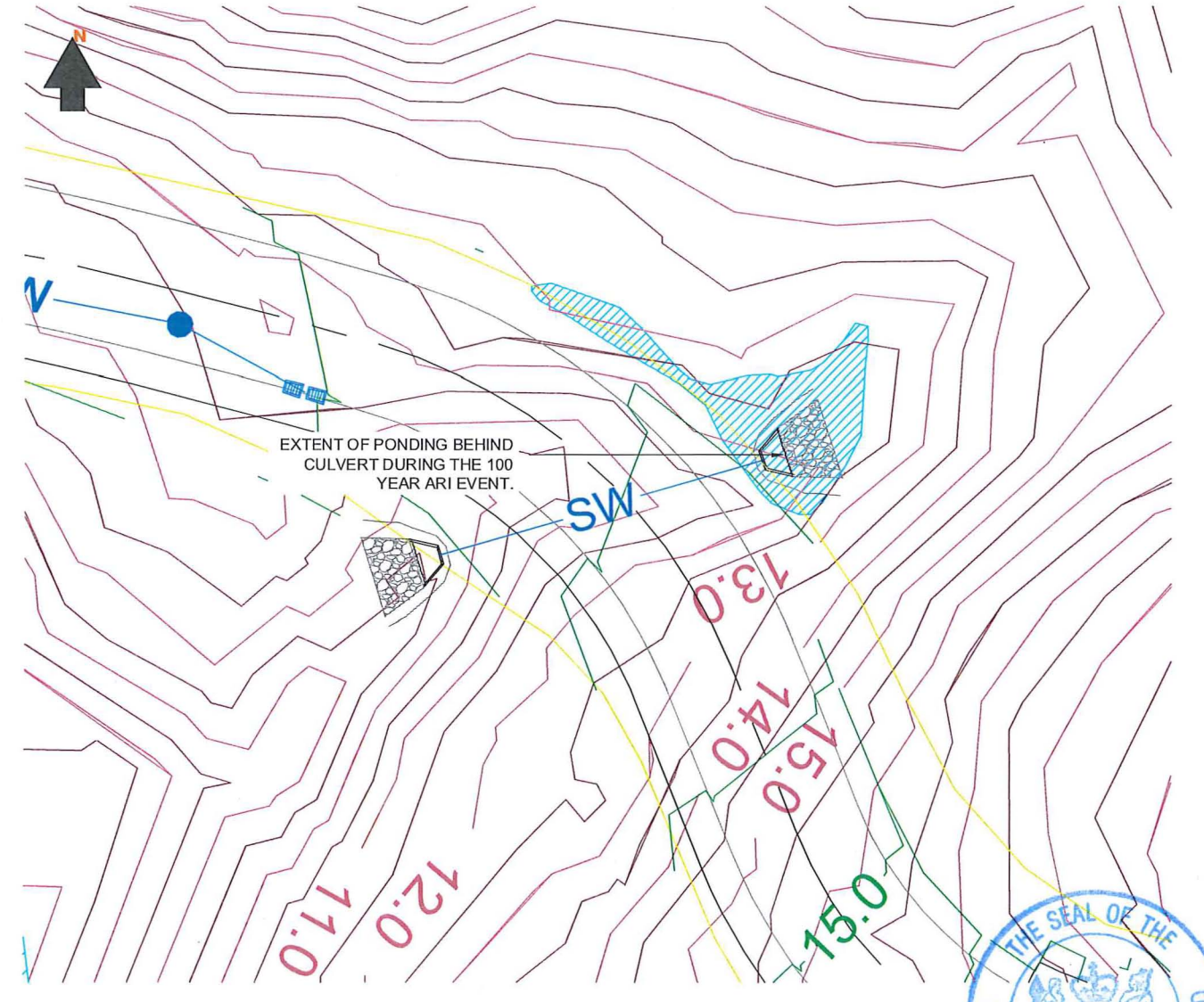
PROJECT NO.	DRAWING NO.	REVISION
1007A	04-305	-



CULVERT CATCHMENT - PLAN DETAIL
SCALE 1:1500 (A3)

STORMWATER RUNOFF - 100 YEAR ARI	
IMPERVIOUS CATCHMENT AREA	5829 m ²
PERVIOUS CATCHMENT AREA	32747 m ²
IMPERVIOUS RUNOFF COEFFICIENT	0.95
PERVIOUS RUNOFF COEFFICIENT	0.50
TOTAL AREA	38576 m ²
TOTAL RUNOFF COEFFICIENT	0.57
TIME OF CONCENTRATION	10 min
RAINFALL INTENSITY	170.2 mm/hr
TOTAL PEAK FLOW	1036 l/s

*BRANSBY-WILLIAMS FORMULA USED TO CALCULATE THE TIME OF CONCENTRATION



CULVERT 100 YEAR ARI PONDING EXTENT
SCALE 1:300 (A3)



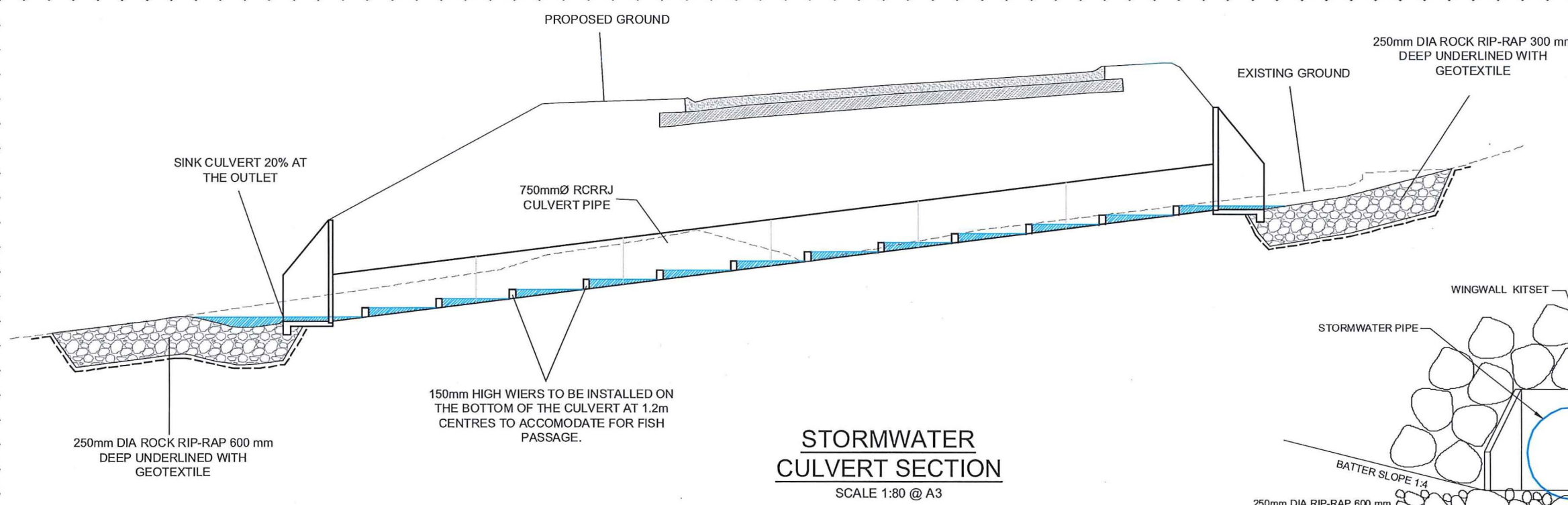
REV	DESCRIPTION	DATE
-	ISSUED FOR S92	03-11-16



PROJECT
**3rd FAIRWAY DEVELOPMENTS
DRAINAGE
OVERLAND FLOW PATH DETAILS**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

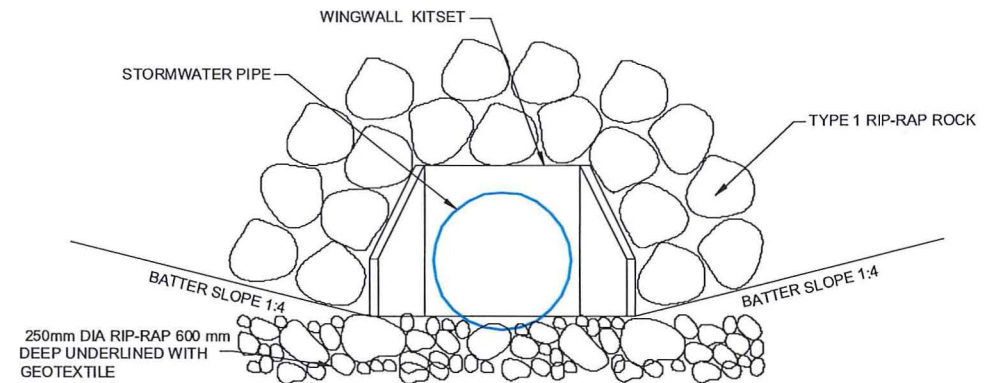
DESIGN	SCALE	DATE ISSUED
DS	AS SHOWN	03/11/2016
DRAWN DS		
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APPV'D MAS		
PROJECT NO.	DRAWING NO.	REVISION
1007A	04-306	-



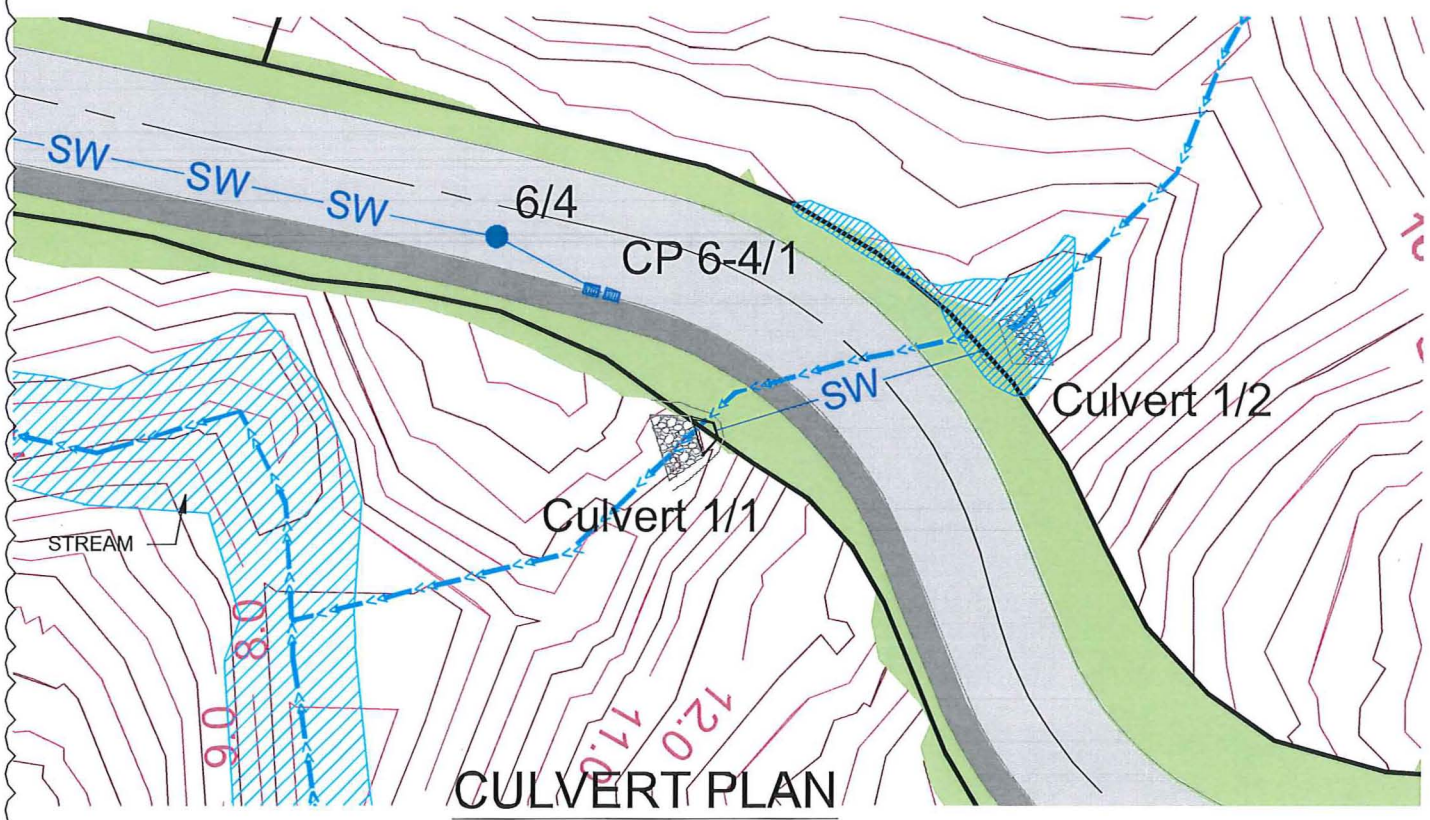
STORMWATER CULVERT SECTION
SCALE 1:80 @ A3

CULVERT PARAMETERS	
100yr ARI PEAK FLOW (TOTAL FLOW)	1.04 m ³ /s
CULVERT LENGTH	14.40 m
CULVERT GRADIENT	12.50%
CULVERT DIAMETER	750 mm
TAILWATER DEPTH	0.30 m
HEADWATER DEPTH	1.13 m
*CULVERT @ INLET CONTROLLED	

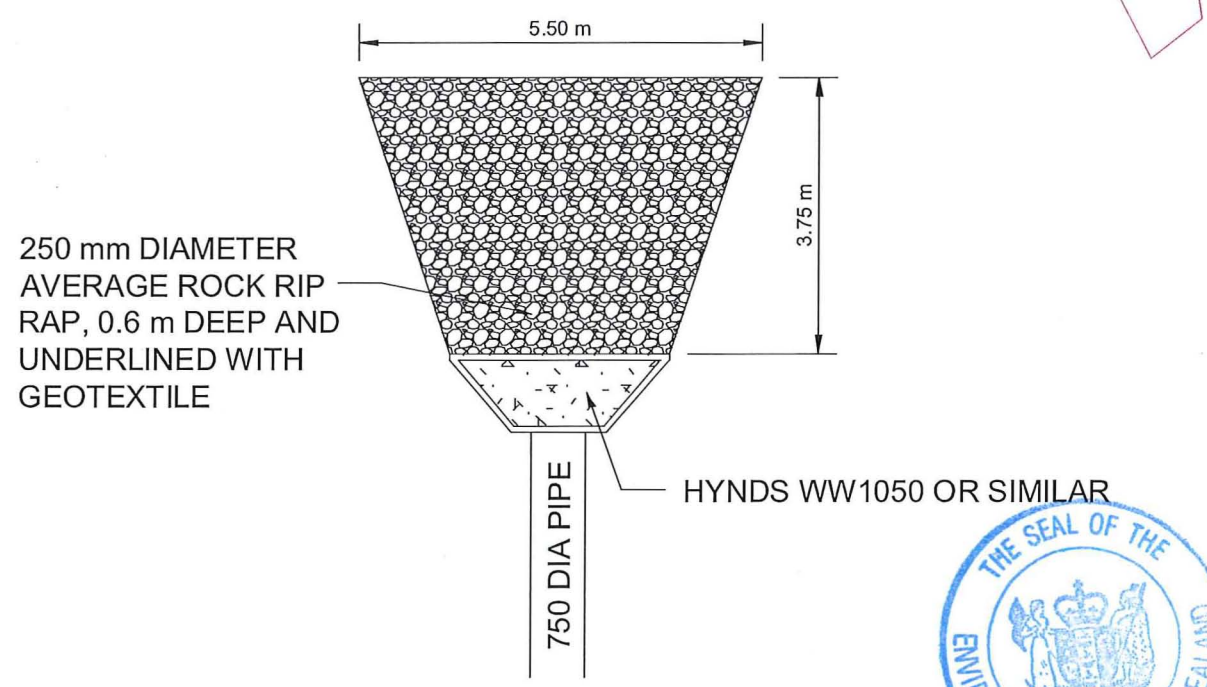
ROCK RIPRAP PARAMETERS	
RIPRAP SIZE D ₅₀ REQUIRED	224 mm
RIPRAP SIZE D ₁₀₀ DESIGN	250 mm
RIPRAP CLASS	3
RIPRAP LENGTH	3.75 m
APRON DEPTH	0.60 m



CULVERT ELEVATION
SCALE 1:40 @ A3



CULVERT PLAN
SCALE 1:400 @ A3



CULVERT RIP RAP PLAN DETAIL
SCALE 1:100 @ A3



REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	03-11-16

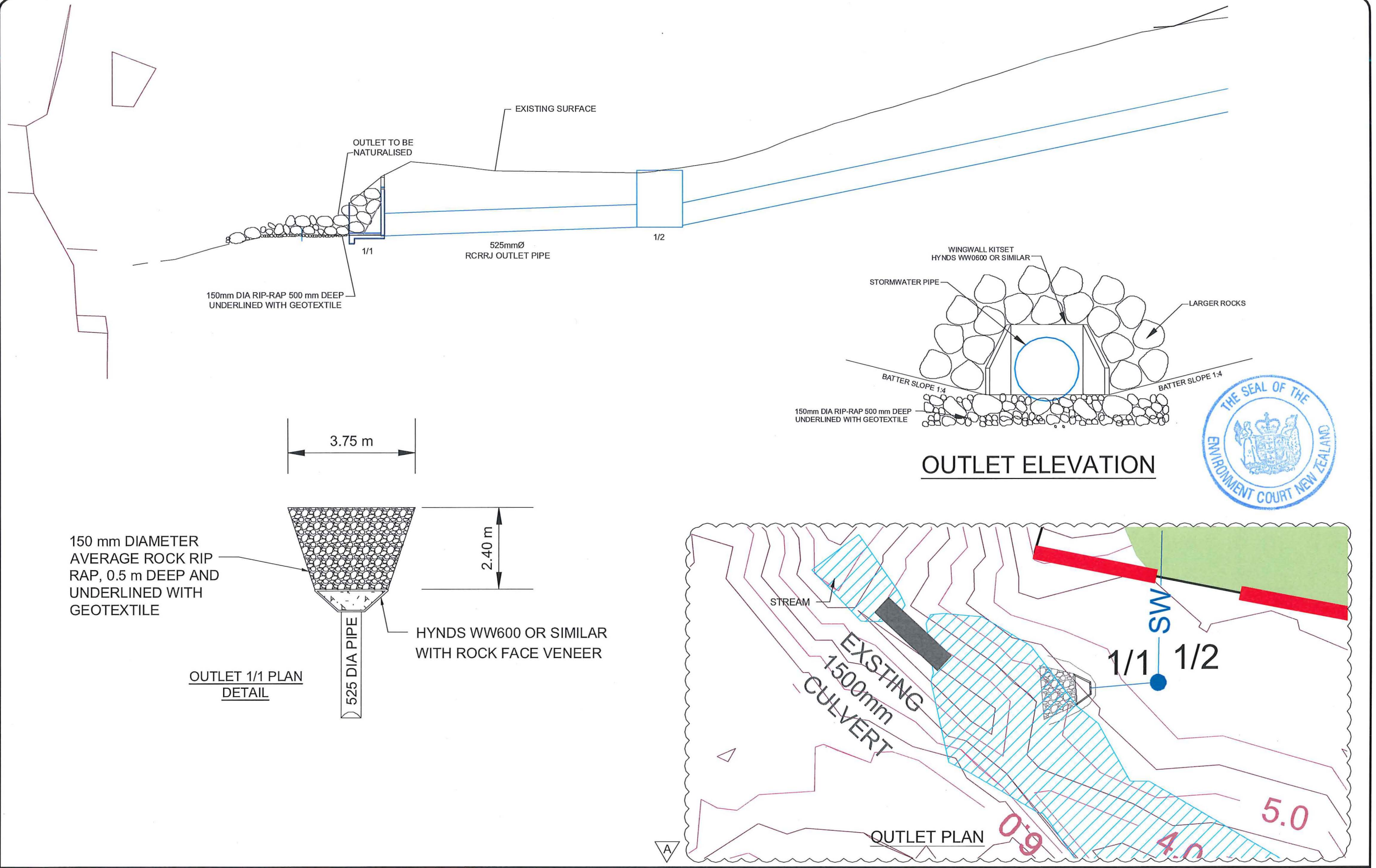


PROJECT
3rd FAIRWAY DEVELOPMENTS DRAINAGE - STORMWATER OUTLET AND CULVERT PLAN

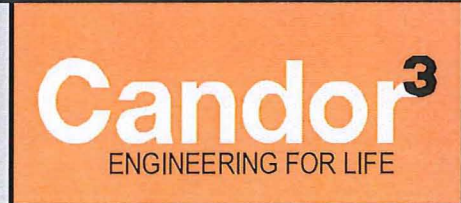
CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	AS SHOWN	MAY 2016
CHECK	CCC		
APPV'D	CCC		

PROJECT NO.	DRAWING NO.	REVISION
1007A	04-500	A



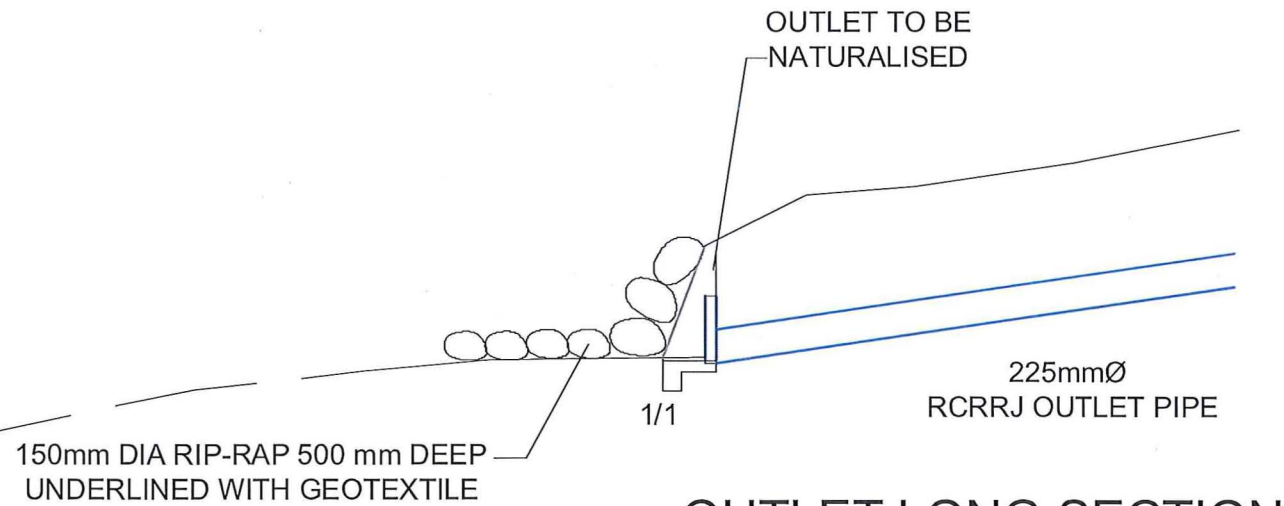
REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	03-11-16



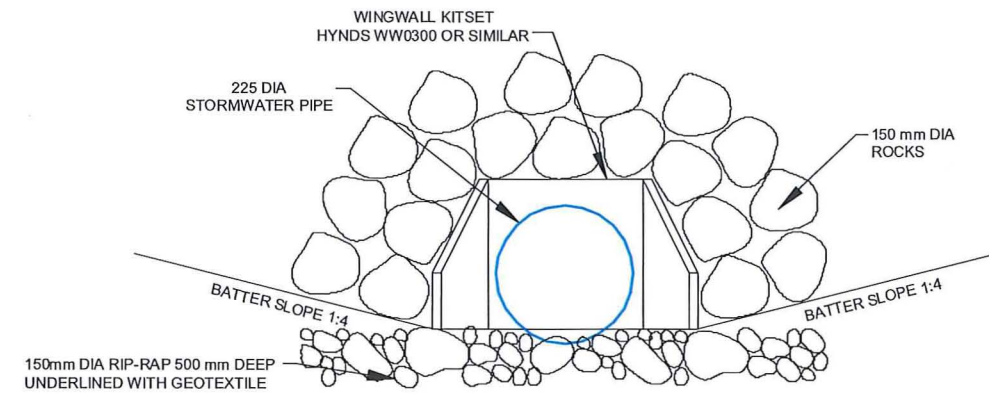
PROJECT
**3rd FAIRWAY DEVELOPMENTS
 DRAINAGE - STORMWATER OUTLET
 AND CULVERT PLAN**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

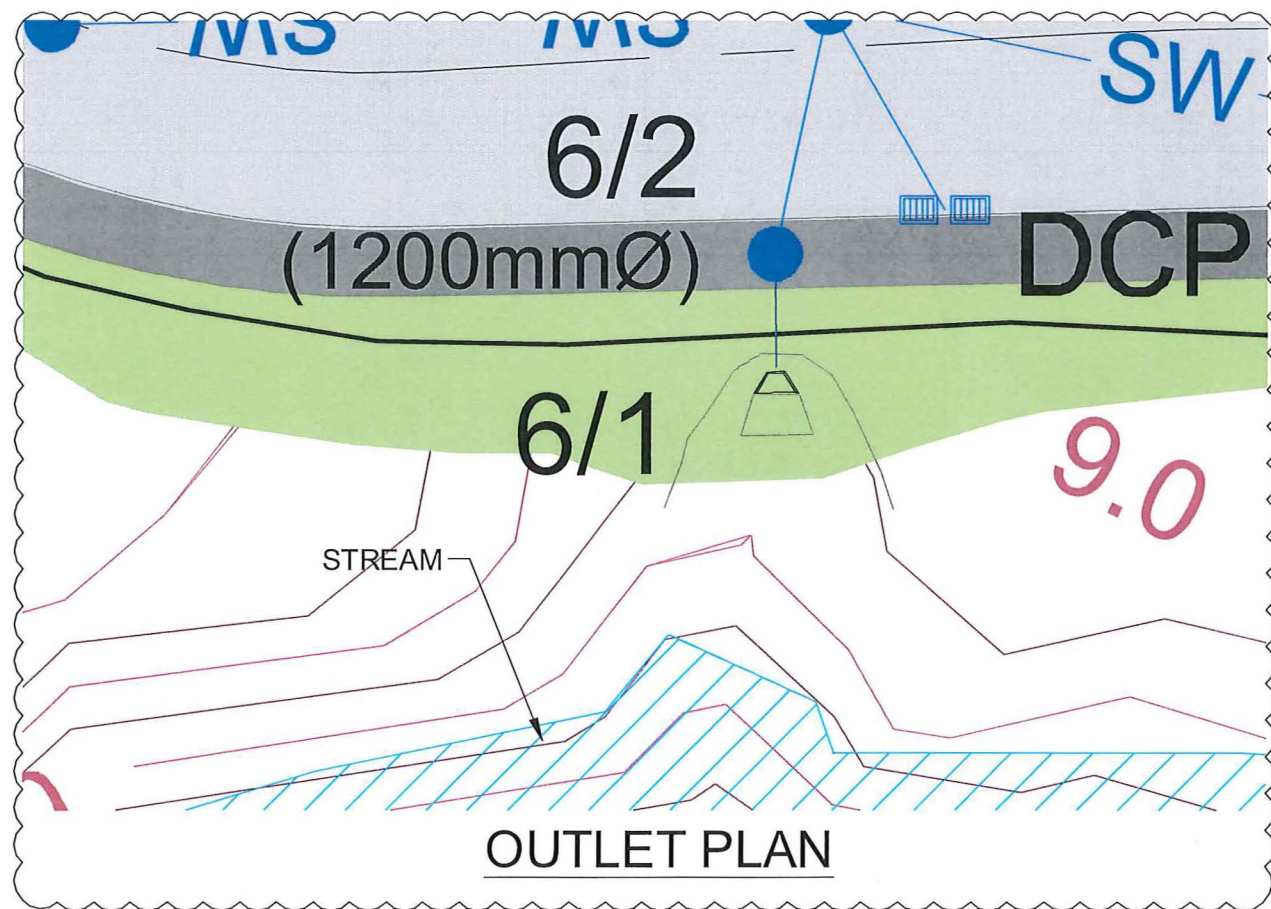
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CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A	DRAWING NO. 04-501	REVISION (A)



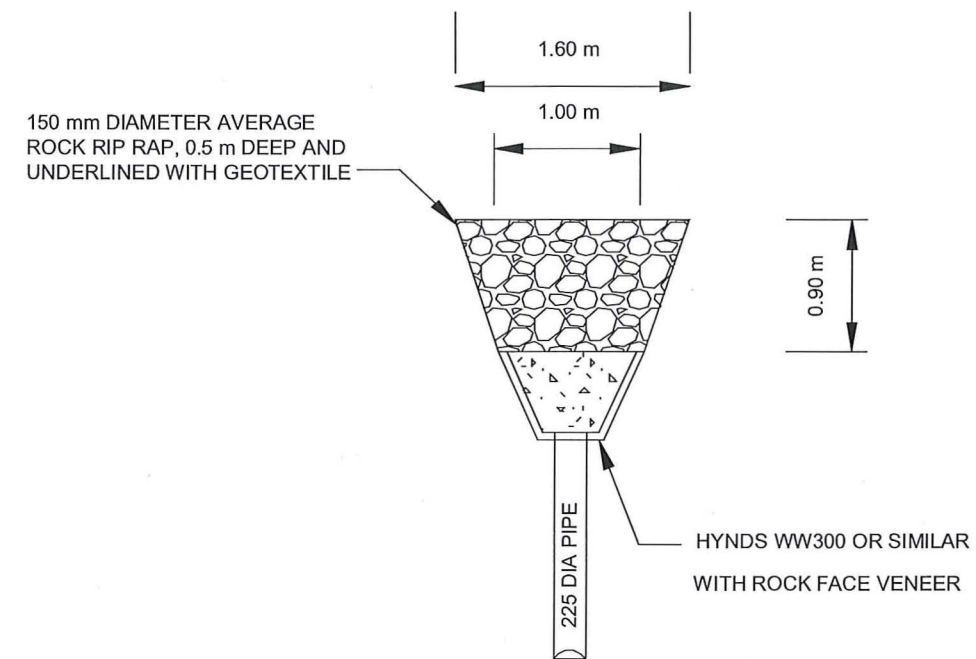
OUTLET LONG SECTION



OUTLET ELEVATION



OUTLET PLAN



OUTLET RIP RAP PLAN DETAIL



REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	03-11-16

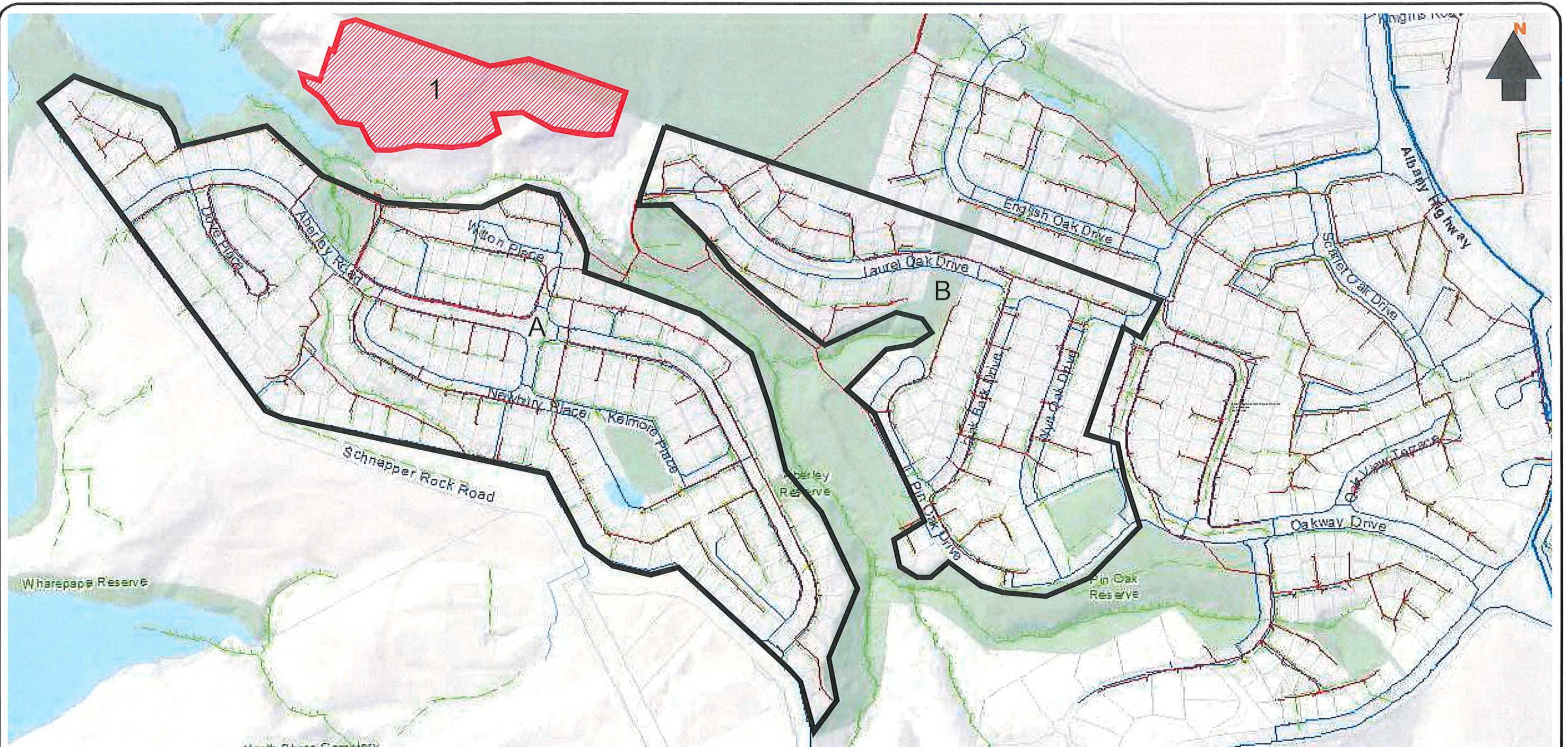
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PROJECT
3rd FAIRWAY DEVELOPMENTS
DRAINAGE - STORMWATER OUTLET
AND CULVERT PLAN

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:400 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		

PROJECT NO.	DRAWING NO.	REVISION
1007A	04-502	(A)



WASTEWATER CATCHMENT ASSESSMENT

EXISTING WASTEWATER CATCHMENT A

GROSS AREA 19HA
 NUMBER OF RESIDENCES APPROX. 220
 AVERAGE FLOW 2.5 L/SEC
 PEAK FLOW 13 L/SEC

EXISTING WASTEWATER CATCHMENT B

GROSS AREA 11.3HA
 NUMBER OF RESIDENCES APPROX. 135
 AVERAGE FLOW 1.5 L/SEC
 PEAK FLOW 8 L/SEC

COMBINED WASTEWATER CATCHMENTS A & B

GROSS AREA 30.3HA
 NUMBER OF RESIDENCES APPROX. 355
 AVERAGE FLOW 4 L/SEC
 PEAK FLOW 21 L/SEC

PROPOSED WASTEWATER CATCHMENT 1

GROSS AREA 2.5HA
 NUMBER OF RESIDENCES 31
 AVERAGE FLOW 0.5 L/SEC
 PEAK FLOW 1.6 L/SEC



REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	ISSUED FOR S92	SK	16-11-16

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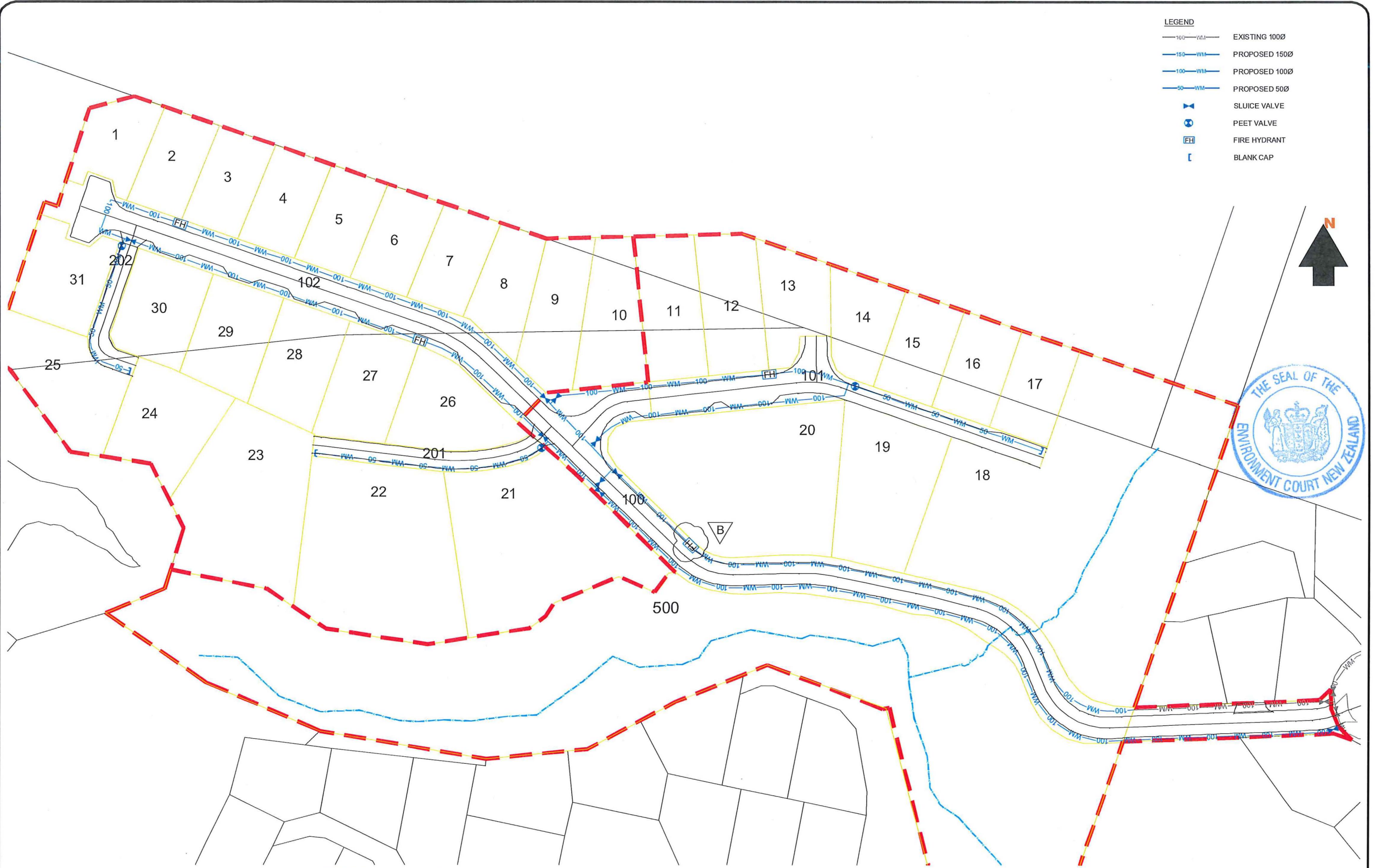
PROJECT
 3rd FAIRWAY DEVELOPMENTS
 DRAINAGE
 WASTEWATER CATCHMENTS

CLIENT
 3rd FAIRWAY DEVELOPMENTS LTD

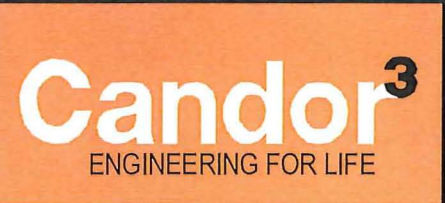
DESIGN	CCC	SCALE	DATE ISSUED
DRAWN	WW	1:4000 @ A3	MAY 2016
CHECK	CCC		
APPV'D	CCC		

PROJECT NO.	DRAWING NO.	REVISION
1007A	05-300	(A)

- LEGEND**
- 100 — WM — EXISTING 100Ø
 - 150 — WM — PROPOSED 150Ø
 - 100 — WM — PROPOSED 100Ø
 - 50 — WM — PROPOSED 50Ø
 - ⊗ SLUICE VALVE
 - ⊙ PEET VALVE
 - EH FIRE HYDRANT
 - [] BLANK CAP



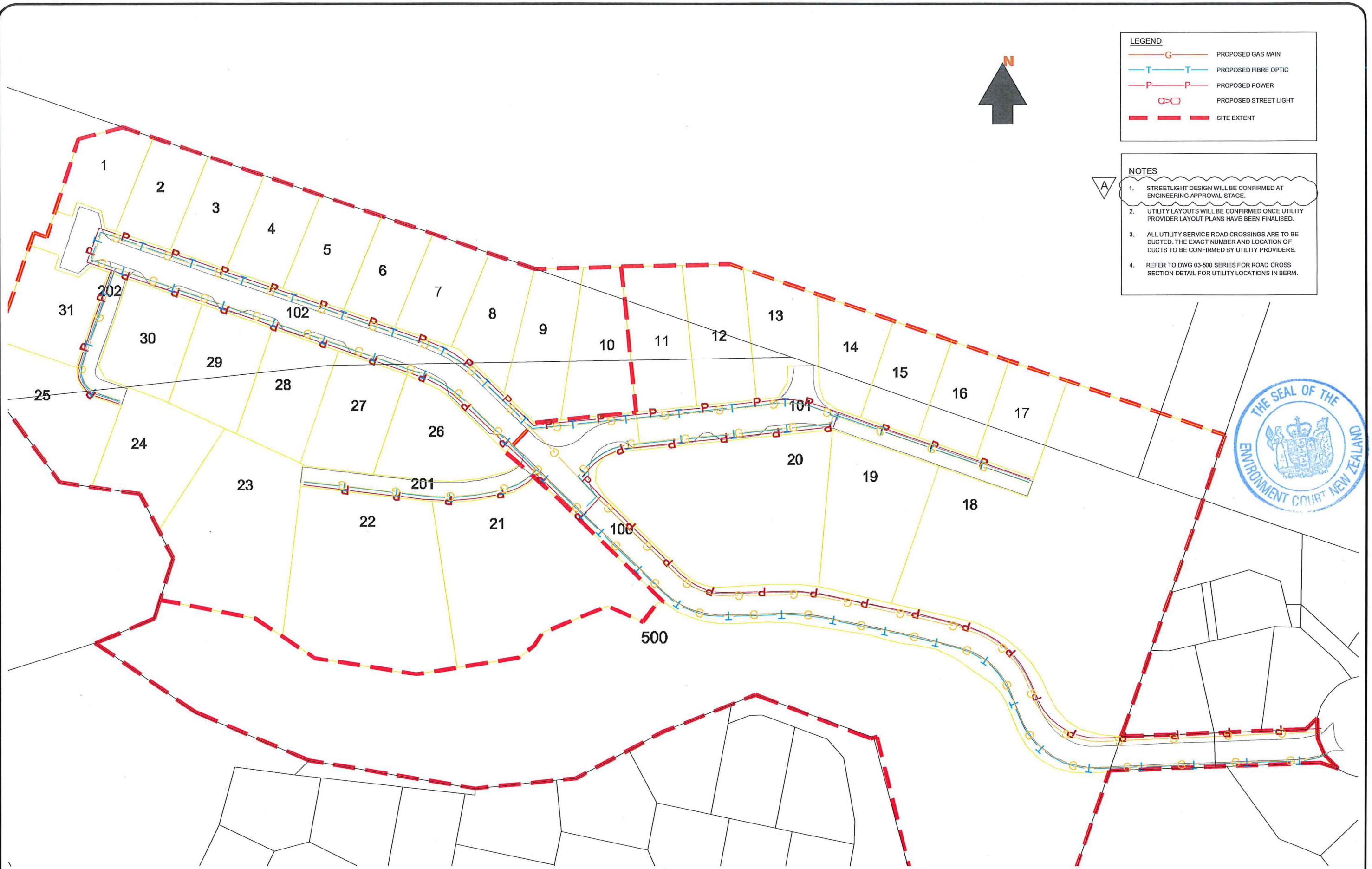
REV	DESCRIPTION	DATE
-	ISSUED FOR CONSENT	02-05-16
A	REVISED FOR S92	03-11-16
B	ONE EXTRA HYDRANT ADDED	27-03-17



PROJECT
**3rd FAIRWAY DEVELOPMENTS
 WATER SUPPLY
 WATERMAIN LAYOUT PLAN**

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN CCC	SCALE 1:1000 @ A3	DATE ISSUED MAY 2016
DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A 06-100	DRAWING NO.	REVISION B

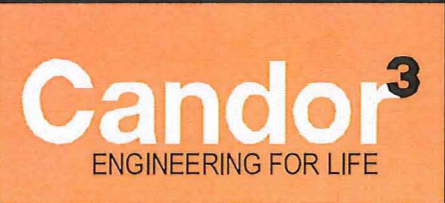


LEGEND

	PROPOSED GAS MAIN
	PROPOSED FIBRE OPTIC
	PROPOSED POWER
	PROPOSED STREET LIGHT
	SITE EXTENT

- NOTES**
- STREETLIGHT DESIGN WILL BE CONFIRMED AT ENGINEERING APPROVAL STAGE.
 - UTILITY LAYOUTS WILL BE CONFIRMED ONCE UTILITY PROVIDER LAYOUT PLANS HAVE BEEN FINALISED.
 - ALL UTILITY SERVICE ROAD CROSSINGS ARE TO BE DUCTED. THE EXACT NUMBER AND LOCATION OF DUCTS TO BE CONFIRMED BY UTILITY PROVIDERS.
 - REFER TO DWG 03-500 SERIES FOR ROAD CROSS SECTION DETAIL FOR UTILITY LOCATIONS IN BERM.

REV	DESCRIPTION	CCC	DATE
-	ISSUED FOR CONSENT	CCC	02-05-16
A	REVISED FOR S92	SK	16-11-16



PROJECT
3rd FAIRWAY DEVELOPMENTS UTILITIES PLAN

CLIENT
3rd FAIRWAY DEVELOPMENTS LTD

DESIGN CCC	SCALE 1:1000 @ A3	DATE ISSUED MAY 2016
DRAWN WW		
CHECK CCC		
APPV'D CCC		
PROJECT NO. 1007A 08-100	DRAWING NO.	REVISION (A)

**'Engineering for life' isn't just a line.
It's a philosophy.**

We believe the most commercially successful projects are the ones that are built for people. At Candor³ we make better use of resources to deliver quality outcomes and to address the immediate needs of clients and the community, without constraining future opportunities.

This holistic, people-focussed approach isn't just about feeling good - it also makes business sense. Outcomes that enhance the lives of people attract attention, accolades, and support in the market place.

Candor³'s team includes some of the industry's most experienced people. This wealth of expertise, strong commercial focus and a passion for performance means we go further to find the best solutions to the challenges of planning rules, budgets and time.

We cut through the complexity and distill each project down to its fundamentals for lasting, cost-effective solutions that truly add to people's quality of life.

**At Candor³, we build for people
- that's engineering for life.**

Candor³
ENGINEERING FOR LIFE

P +84 9 579 5505 F +84 9 579 5506
E info@candor3.co.nz www.candor3.co.nz

