



Hastings District Council

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MODELLING WORK, FURTHER APPLICANT EVIDENCE AND ADDITIONAL EVIDENCE – FROM M KNEEBONE AND LEGAL COUNSEL

COMMISSIONER HEARING NOR HOWARD STREET HEARING

Meeting Date: **Tuesday, 19 February 2019**

Time: **9.00am**

Venue: **Council Chamber
Ground Floor
Civic Administration Building
Lyndon Road East
Hastings**

Hearing Commissioner	Commissioner Paul Cooney
Officer Responsible	Group Manager: Planning & Regulatory Services
Reporting Planner	Senior Environmental Planner (Consents) Michelle Hart
Committee Secretary	Christine Hilton (Extn 5633)

HASTINGS DISTRICT COUNCIL

A COMMISSIONER HEARING WILL BE HELD IN THE COUNCIL
CHAMBER, GROUND FLOOR, CIVIC ADMINISTRATION BUILDING,
LYNDON ROAD EAST, HASTINGS ON
TUESDAY, 19 FEBRUARY 2019 AT 9.00AM.

1. **APOLOGIES**

2. **MODELLING WORK AND FURTHER APPLICANT EVIDENCE HOWARD
STREET HEARING**

**DOCUMENTS CIRCULATED FOR HEARING - COMPILED AS ONE
DOCUMENT**

Document 1 The covering administrative report **Pg 1**

Attachments:

- | | | | |
|---|--|------------|-------|
| 1 | Supplementary evidence from Matt Kneebone with modelling work - circulated on 070219 | 55505#0237 | Pg 3 |
| 2 | Options Plans - Modelling Work from M Kneebone circulated on 070219 | 55505#0281 | Pg 11 |
| 3 | Additional evidence from M Kneebone - Additional Stormwater Roading Information - circulated on 110219 | 55505#0279 | Pg 33 |
| 4 | Additional evidence from Council's Legal Counsel (memo to accompany evidence from M Kneebone) - circulated on 110219 | 55505#0280 | Pg 35 |

REPORT TO: COMMISSIONER HEARING

MEETING DATE: TUESDAY 19 FEBRUARY 2019

**FROM: COMMITTEE SECRETARY
CHRISTINE HILTON**

**SUBJECT: NOR MODELLING WORK AND FURTHER APPLICANT
EVIDENCE HOWARD STREET HEARING - 19 FEBRUARY
2019**

1.0 SUMMARY

- 1.1 The purpose of this report is to have a way to attach the following and to put it onto the Council's website prior to the hearing – as is required by the provisions of the Resource Management Act:
- Modelling Work and Further Applicant evidence (circulated on 7 February 2019, as directed by the Hearings Commissioner).
 - Additional Evidence from M Kneebone and memo from Council's Legal Counsel – which is supplementary to the earlier above modelling work and evidence (circulated on 11 February 2019, as directed by the Hearings Commissioner).

2.0 RECOMMENDATIONS AND REASONS

That the Applicant's pre-circulated modelling work, associated evidence and additional evidence in relation to the NOR Howard Street be put onto the website prior to the hearing commencing on 19 February 2019 so it can be viewed by the submitters and members of the public.

Attachments:

- | | | |
|---|--|------------|
| A | Supplementary evidence from Matt Kneebone with modelling work - circulated on 070219 | 55505#0237 |
| B | Options Plans - Modelling Work from M Kneebone circulated on 070219 | 55505#0281 |
| C | Additional evidence from M Kneebone - Additional Stormwater Roading Information - circulated on 110219 | 55505#0279 |
| D | Additional evidence from Council's Legal Counsel (memo to accompany evidence from M Kneebone) - circulated on 110219 | 55505#0280 |

Before an Independent Commissioner of the Hastings District Council

In the matter of the Resource Management Act 1991 (the Act)

And

In the matter of A Notice of Requirement by the Hastings District Council for a
Road Corridor and Stormwater Corridor for Overland Flow for
the Howard Development Area

Statement of Evidence of Matthew John Kneebone on behalf of the Applicant
Planning Evidence

Dated 7 February 2019

Introduction

1. My full name is Matthew John Kneebone, and I have the qualifications and experience set out in my primary statement of evidence dated 18 January 2019. I confirm that this supplementary evidence has also been prepared in compliance with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014.

Scope / Summary of Evidence

2. My statement of evidence dated 18 January 2019 recorded, at paragraph 19, that the 20% and 2% AEP events will be used to set the road levels. Since my evidence was filed, Council has received modelling which identifies the 20% and 2% AEP event levels, such that the general height of the road can be confirmed. My evidence explains the outcome of the modelling and what it means for the detailed design of the road.
3. In addition, since the filing of primary evidence, Woolworths has raised queries about the statement in paragraph 19 of my evidence that its site may have issues with conveyance back to the proposed internal road network, if the road was constructed at ground level. This supplementary evidence also addresses Woolworths' ability to connect to the proposed reticulated stormwater system. In short, it confirms that there is a viable option, which Council has identified as its preferred option, which involves the road being lowered approximately 790 mm (at Chainage 720m) from current ground level. This essentially resolves the potential issue identified in paragraph 19 of my evidence.

Requirements for Design

4. I consider it is useful to provide some context to what is being sought through the Notice of Requirement (NoR). As set out in the NoR documentation, the designation is being sought by the Council so that it can deliver the require road and related infrastructure in 'one go' instead of relying on individual developers to build parts of the road and servicing as and when they decide to develop.

5. The design of the road is largely dictated by the Hastings District Council Engineering Code of Practice (ECoP)¹. The same requirements to construct the road to ECoP specifications apply whether it is the Council delivering the road, as proposed by the NoR, or the developer was required to deliver it, before vesting in the Council, as would apply if the NoR had not been advanced, or was withdrawn.

6. Relevant aspects of the road and bulk water services design include:

(a) **Road Hierarchy**

HDC ECoP, Table C1: Hastings District Council Road Hierarchy. This defines the function of the road. In this case the internal road has been defined as a 'Local Road' i.e. *"Roads whose primary function is a street for people, public space, meeting, gathering as well as accessing property."*

(b) **Level of Service**

HDC ECoP, Table D2: Required Road Corridor Level of Service for Stormwater Management. For a 'Local Road' the level of service for a 2% AEP (50 year ARI) is defined as *"100 mm [flood] depth on Carriageway Centre line."*

(c) **Road centreline grades**

(i) HDC ECoP, Clause 3.3.21.4 Kerbs and Channels. *"The desirable minimum fall on channels is 1 in 400, with the absolute minimum fall being 1 in 500."*

(ii) NZS4404-2010, Clause 3.3.1.7 [Road] Design requirements. *"Minimum gradient is 0.4% (1 in 250)."*

A 1 in 300 longitudinal grade has been adopted at this concept level to balance between matching into the existing surrounding ground levels, minimise earthworks cut and fill, and allow self-cleaning and sediment transportation within the bulk water services (sewage and stormwater)

¹ Available at <https://www.hastingsdc.govt.nz/assets/Document-Library/Policies/Engineering-Code-of-Conduct/engineering-code-of-practice.pdf>

located below the road. A road centre line grade less than 1 in 300 was deemed to have additional installation costs (due to excessive cover to the underground services) and poor sedimentation transport requiring additional operational and maintenance costs.

(d) **Typical Road cross section**

HDC ECoP, Sealed Urban Road, Typical cross section, drawing number C1

- (i) Minimum dimensions are given in HDC ECoP Table C4: Minimum Road Design Standards – Urban and Rural Roads
- (ii) Minimum grade from back of kerb and channel to the proposed property boundary is 2 %. This provides for free drainage from the property boundary to the kerb and channel without the need for additional infrastructure, and ensures sufficient cross fall for drainage while still preserving walking comfort.

(e) **Location of Public Pipelines and Other Council Infrastructure.**

- (i) Drainage pipes (sewer and stormwater) must be laid in or nearby the carriageway.
- (ii) Design consideration shall be given to providing and maintaining an unobstructed route for any associated secondary flow path, and ensuring that these are located in public open space.
- (iii) Stormwater services shall be extended to each upstream boundary of a subdivision unless otherwise approved, and shall allow for the future potential development of the upstream land

- 7. It is the land owner's responsibility to provide for stormwater from their site, and in almost all cases, this will mean connecting to the public stormwater system.
- 8. All new stormwater systems are to be designed in accordance with the HDC Engineering Code of Practice² and need to comply with the general

² Available at <https://www.hastingsdc.govt.nz/assets/Document-Library/Policies/Engineering-Code-of-Conduct/engineering-code-of-practice.pdf>

requirements and objectives outlined in the Code,³ including the following requirements in Section 4.1 Performance Criteria:

- *Convey the flow by gravity, unless it can be shown that this does not represent the least whole of life cost option*
- *Be compatible with the existing drainage network, and does not impose any adverse effects on the existing system, and on upstream and downstream properties*
- *Not cause undue restriction on the location of any future building or development nor cause undue risk to public health and safety*
- *Enhance the environmental and amenity value of any open channels and flood banks with protection from scouring, erosion or siltation.*

9. The ECoP provides guidance for design of a stormwater system for new developments to ensure that the system provides for “*amenity, land drainage and protecting land and infrastructure against flooding.*” This includes a primary system of pipes and open channels and secondary network of overland flowpaths. Refer to HDC ECoP Section 4.3 Design for further information.

Concept Design Modelling Results

10. As part of Council’s preparations for constructing the road, three road concept designs have been modelled based on a level of service for a 2% AEP (50 year ARI). The ground surface used for the modelling is based on a composite of both topographical survey and LiDAR. The 2% AEP (50 year ARI) flood event is represented as a static analysis in each option. The three options investigated can be summarised as:
 - (a) Option 1 – No flood option. Road level of service set at ‘arterial road’ requirements complete with two full traffic lanes open at 2% AEP (50 year ARI). A 1 in 300 longitudinal grade has then been used to set the centreline levels from the low point at the attenuation basin through to the cul-de-sac.
 - (b) Option 2 – Following existing ground shape as best as possible while facilitating overland drainage from most of the properties within the development and tying into the existing levels at the cul-de-sac. However, it is a general requirement of Section 106 of the Resource

³ As a requirement of approval to discharge stormwater to the Council controlled Network, and potentially as a requirement of subdivision consent condition - see Proposed Hastings District Plan, Policy SLDP7 and SLDP15, and Explanation to those Policies.

Management Act that Councils may refuse consent for subdivisions where there is a significant risk from natural hazards, which would include the risk of inundation. Therefore, properties under the 2 % AEP event (50year ARI) flood level would almost certainly need to be raised as part of any development in any event.

- (c) Option 3 – HDC ECoP Option. Road level of service set at 'local road' requirements complete with 100 mm depth on carriageway centreline at 2% AEP (50 year ARI). A 1 in 300 longitudinal grade has then been used to set the centreline levels from the low point at the attenuation basin through to the cul-de-sac.
- 11. A series of figures for each option modelled are attached to this evidence. Each option drawing set contains seven drawings containing an overall plan, cross sections, and indicative cut/fill extents.
 - 12. General conclusions from the modelling exercise are summarised as follows:
 - (a) Option 1 meets the HDC ECoP, and provides a high level of service by ensuring the road will not be subject to flooding in all rain events up to the 2% AEP event. However it does not provide the ability to drain all properties overland to road or the existing open drain.
 - (b) Option 2 does not meet the HDC ECoP and will not be considered further by HDC.
 - (c) Option 3 meets the ECoP and maximises the ability of properties to drain overland to road or the existing open drain.

Application to Woolworths' Land

- 13. As noted in my evidence in chief, the Woolworths site generally falls away from the location of the road corridor such that if the road was constructed at ground level, the Woolworths site would require either significant filling or some other solution, to dispose of stormwater.
- 14. This scenario would apply under either Options 1 or 2, as these options have the road located closer to existing ground levels. However, under Option 3, the cul-de-sac head has been lowered approximately 790 mm (at Chainage 720m)

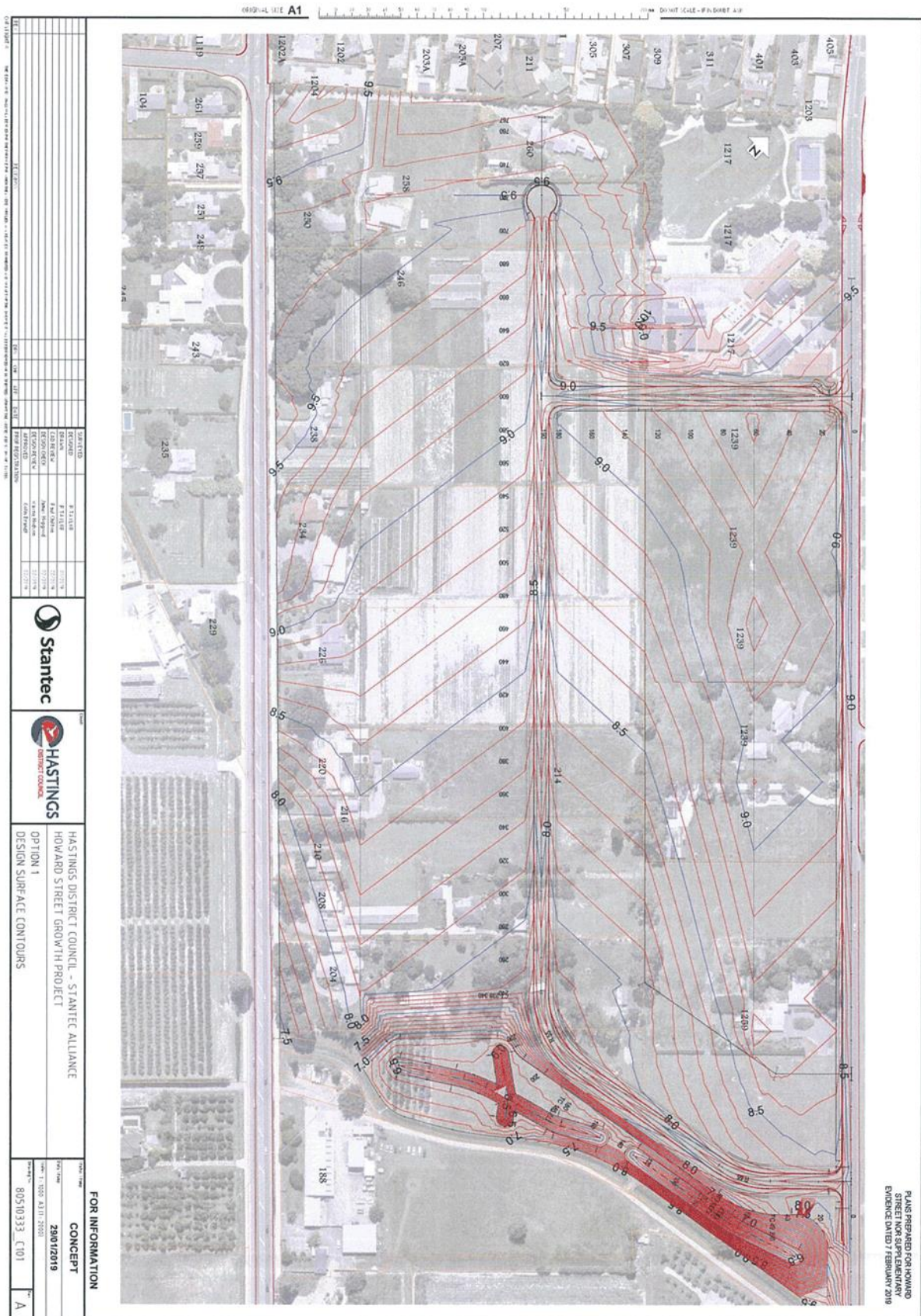
from the existing surface. This results in the road level for the proposed internal road being approximately equal to the surveyed levels located near the corner of Havelock Road and Norton Roads. This removes the servicing constraint previously identified. Option 3 will provide the Woolworths site greater flexibility in terms of how the site is shaped and overland flow is managed.

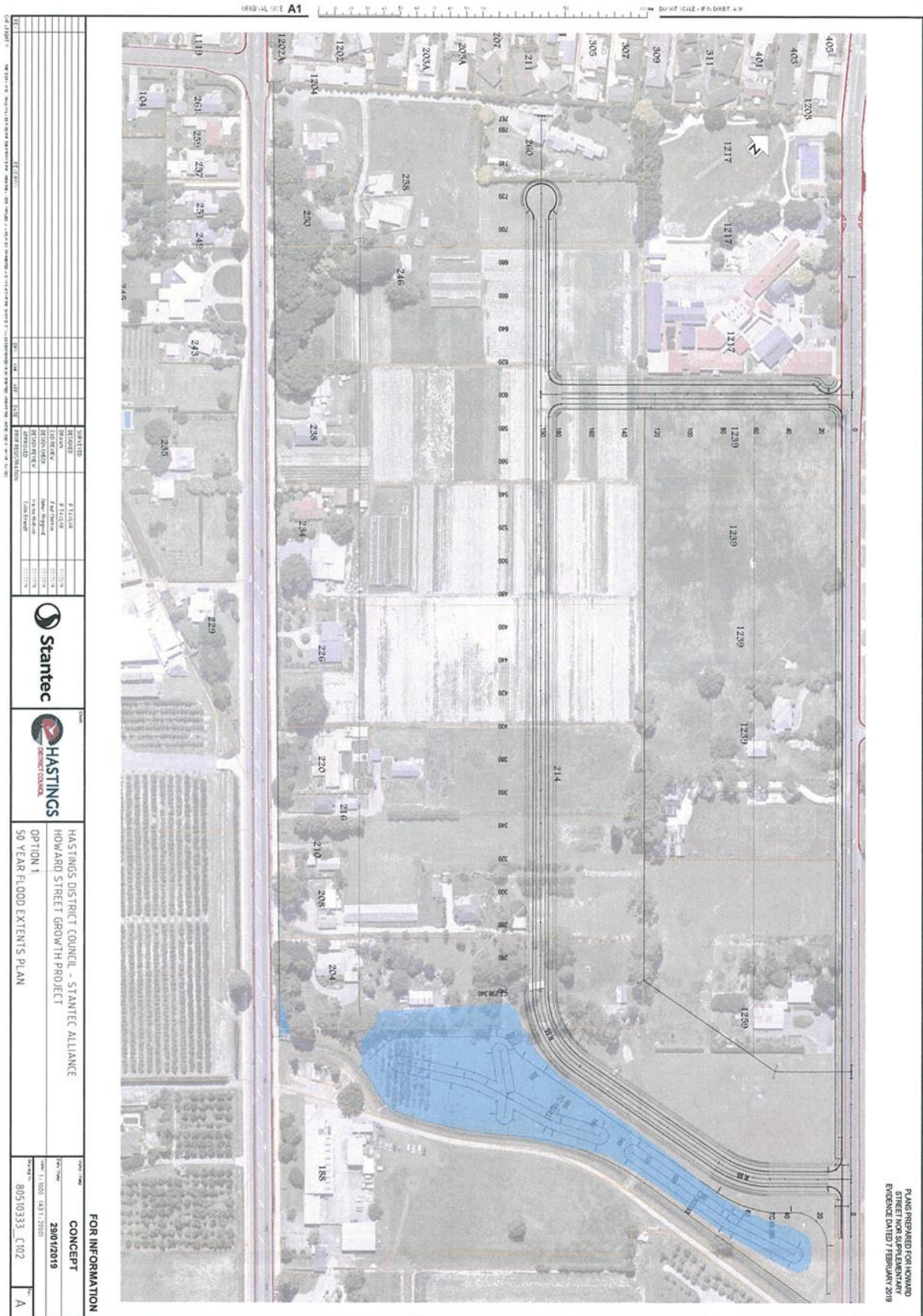
Conclusion

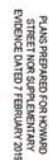
15. Given the results of the modelling, Option 3 has been determined by Council to be the preferred option for construction of the road, as it meets ECoP requirements and maximises the ability of properties within the Howard Street area to dispose of stormwater from residential development via the preferred method of gravity disposal.
16. On the basis that Option 3 is the preferred option, the potential limitations of stormwater disposal on the Woolworths site are no longer an issue.

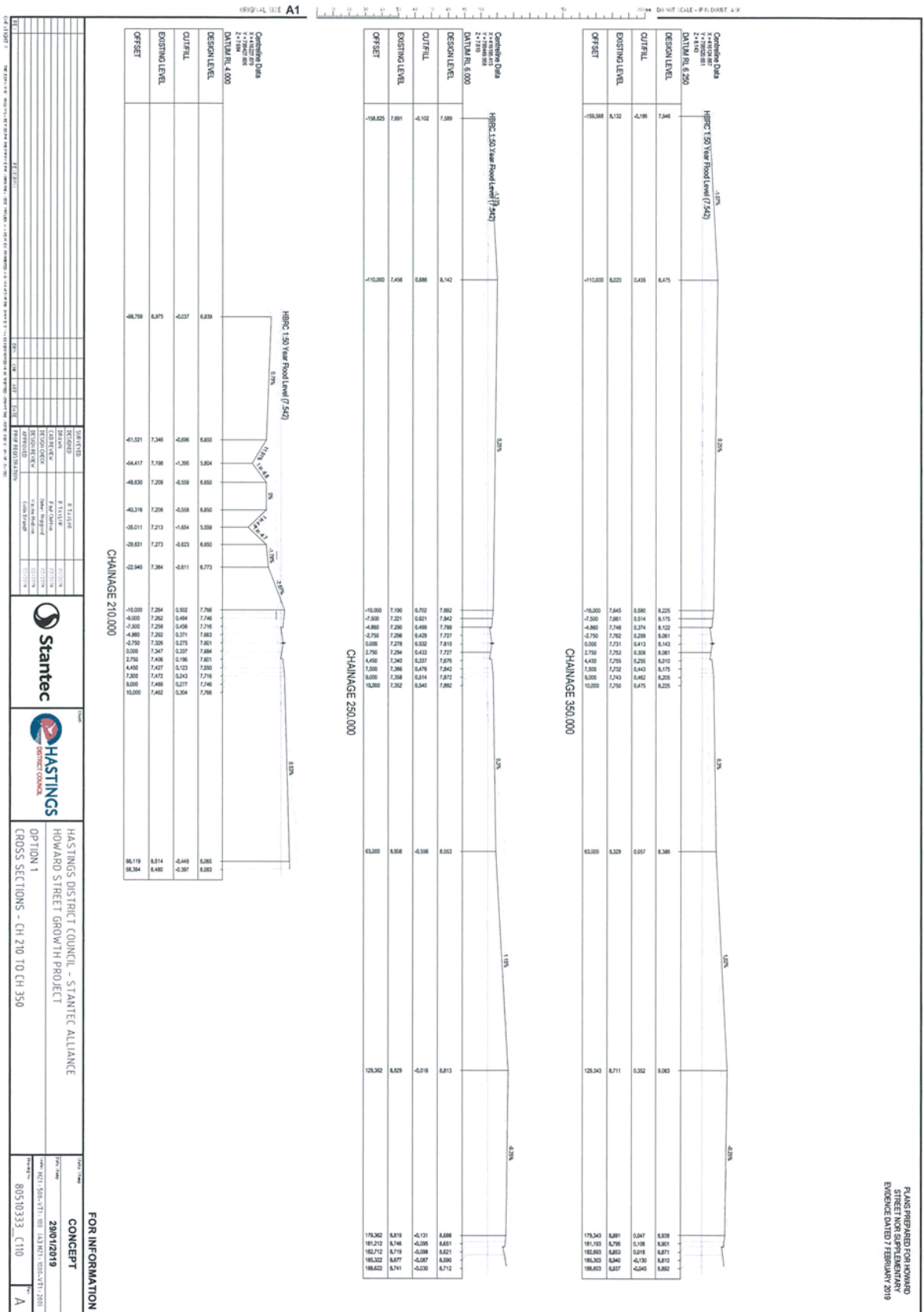


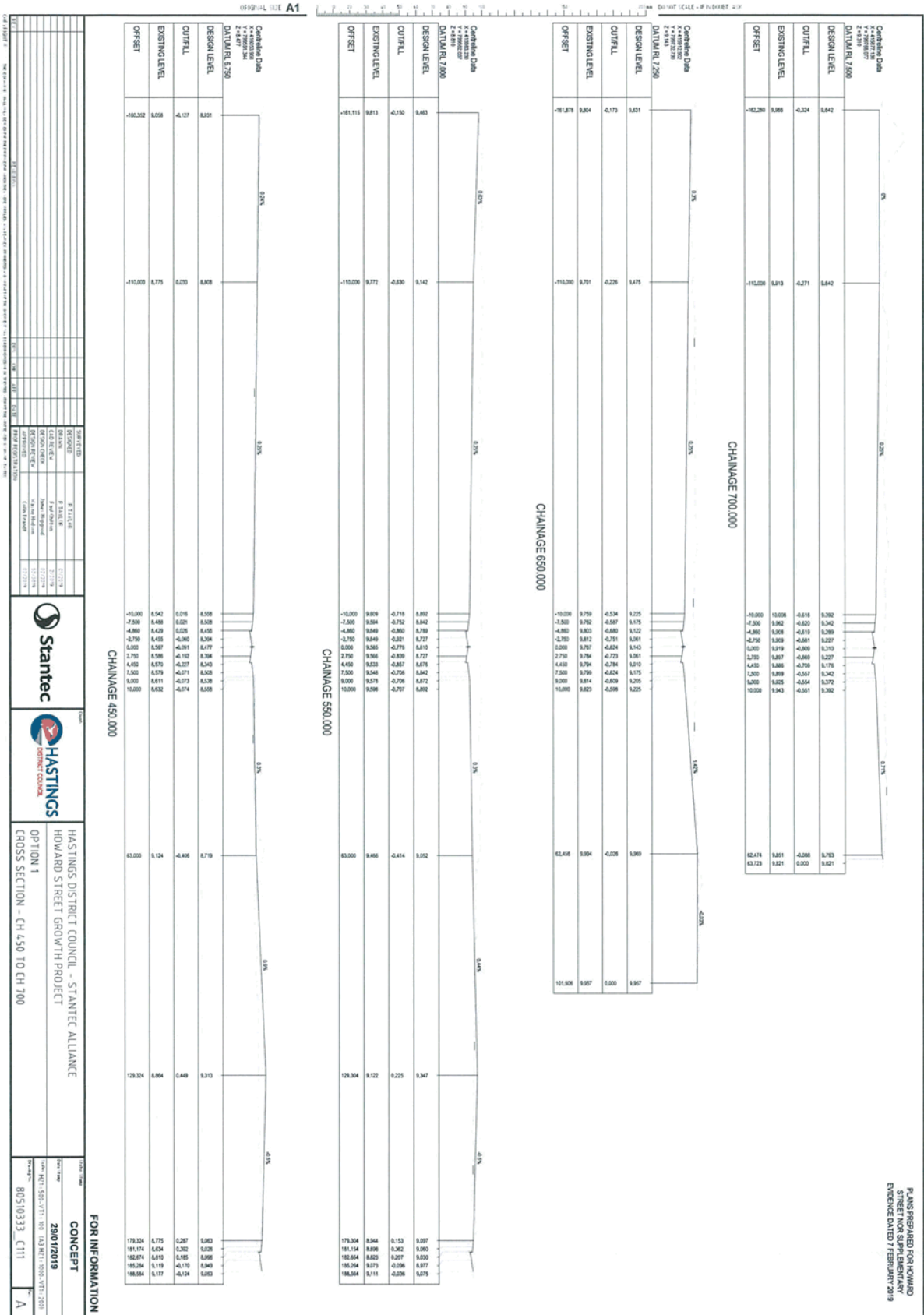
Matthew John Kneebone
7 February 2019

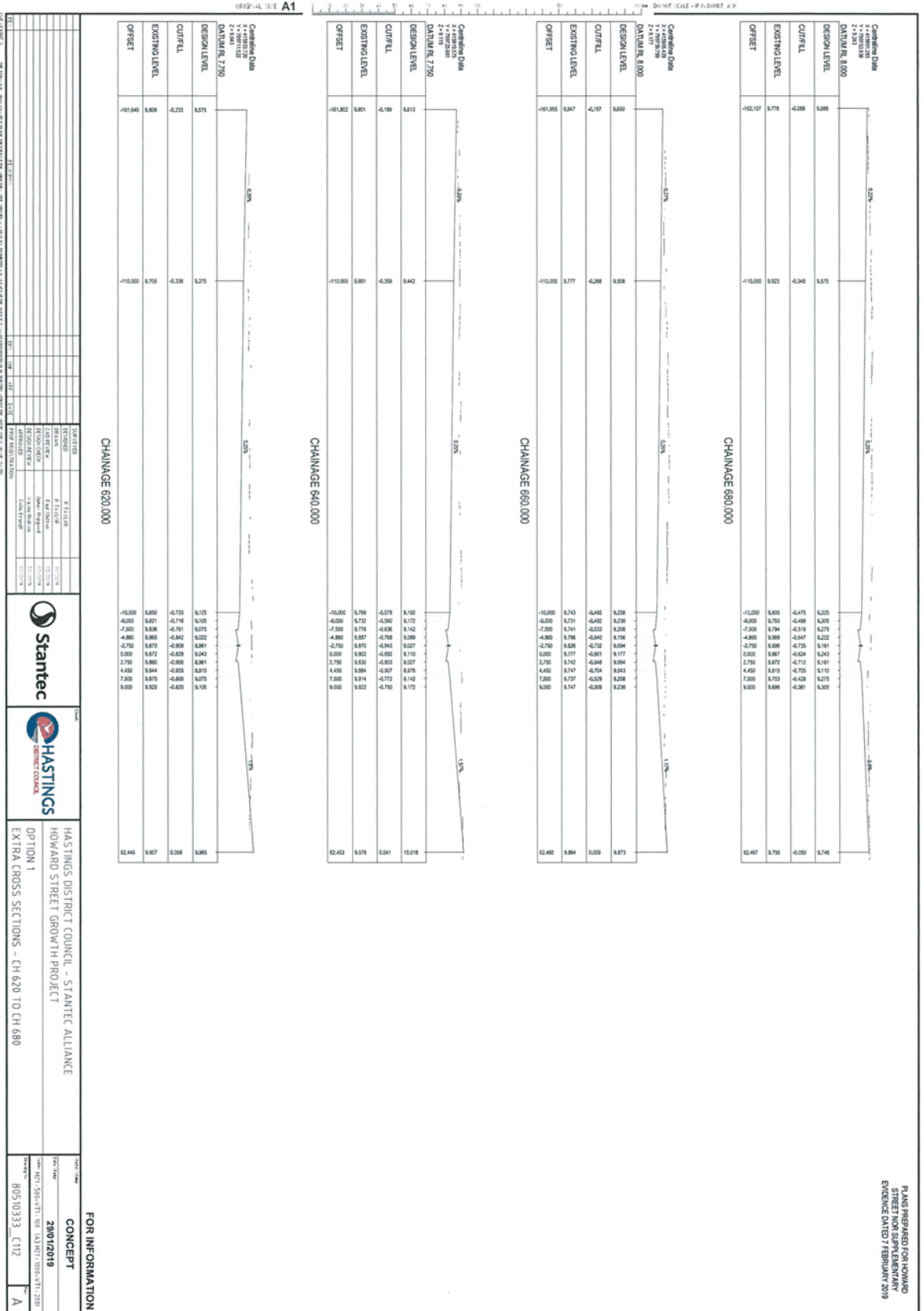




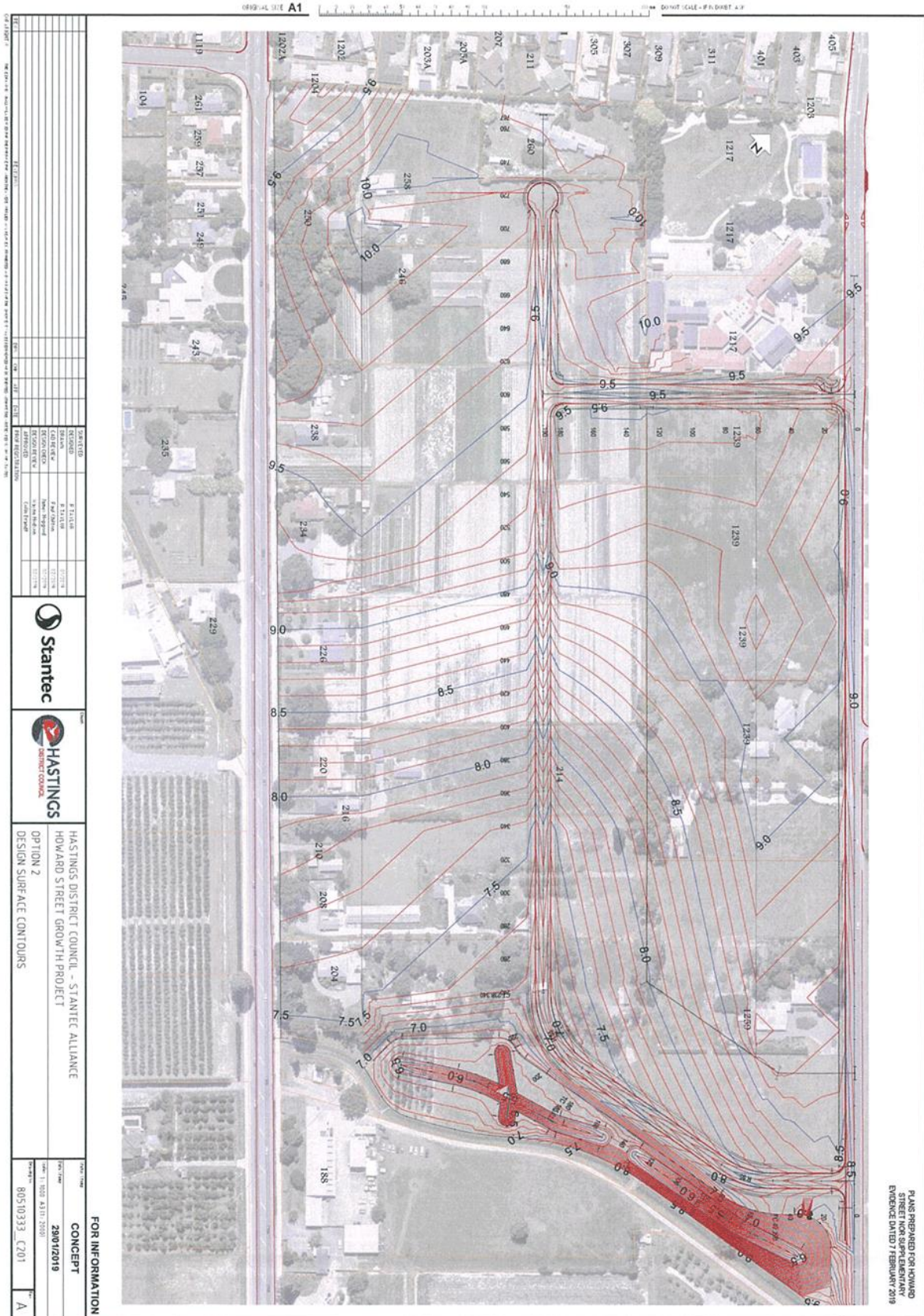


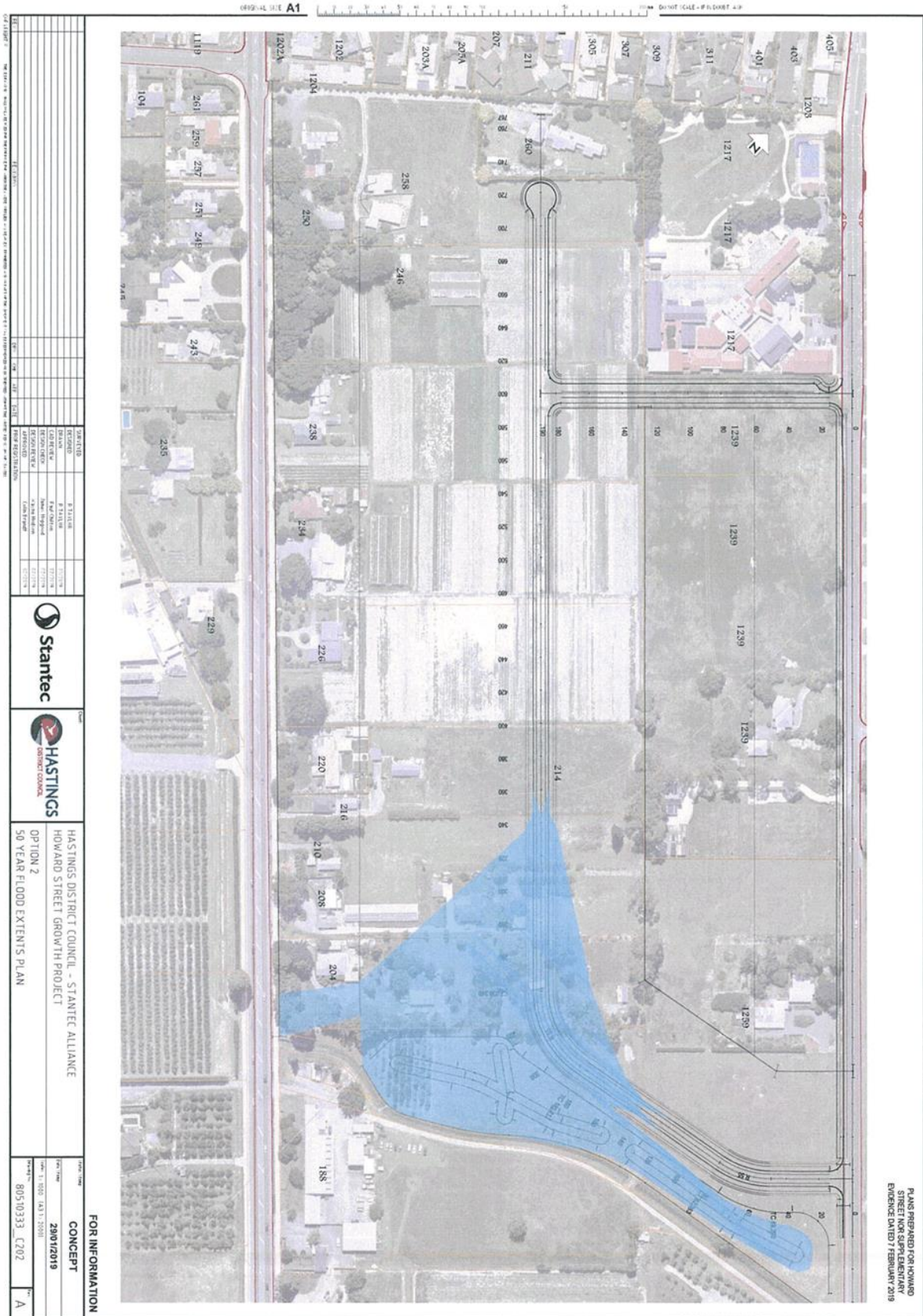


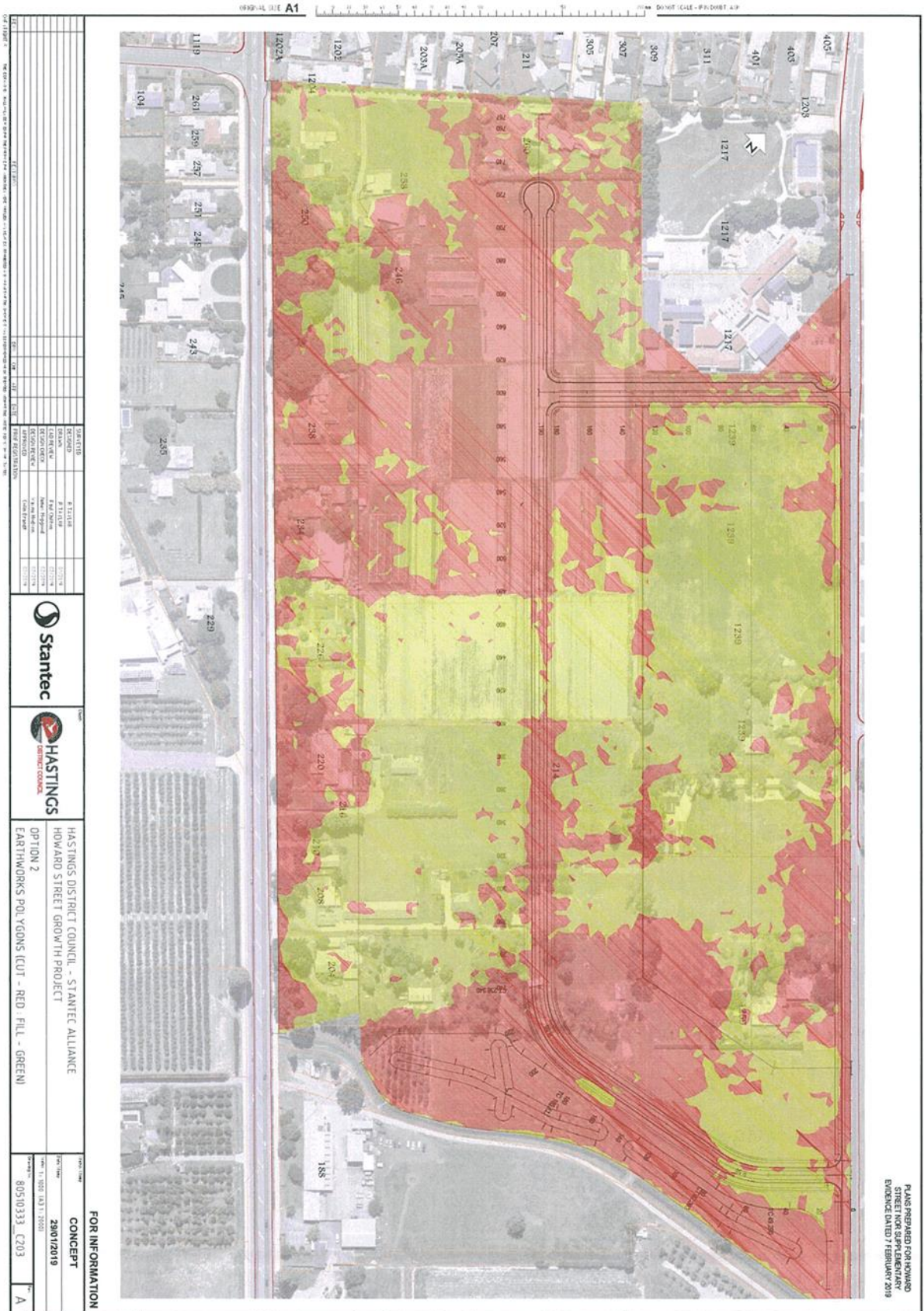








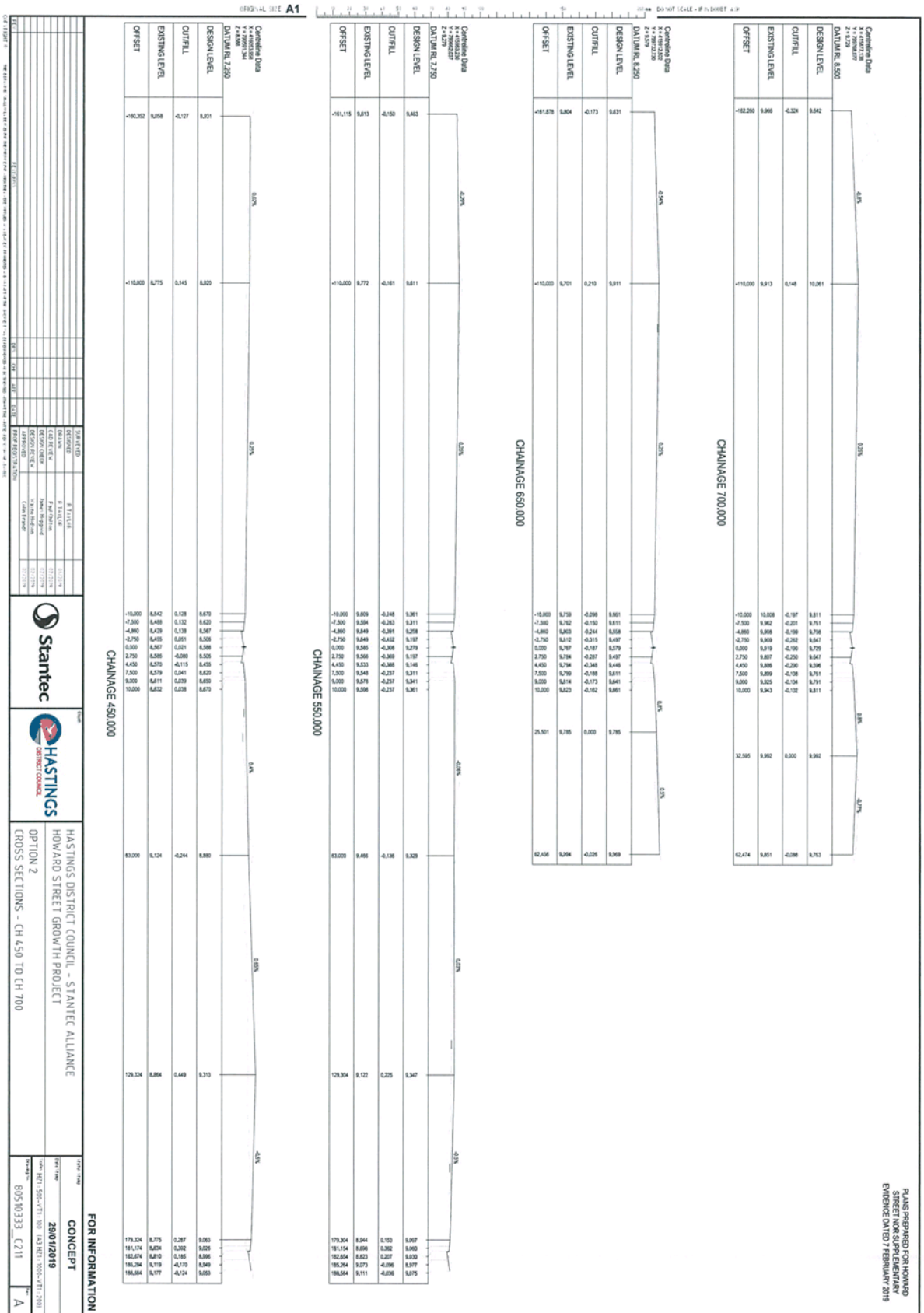




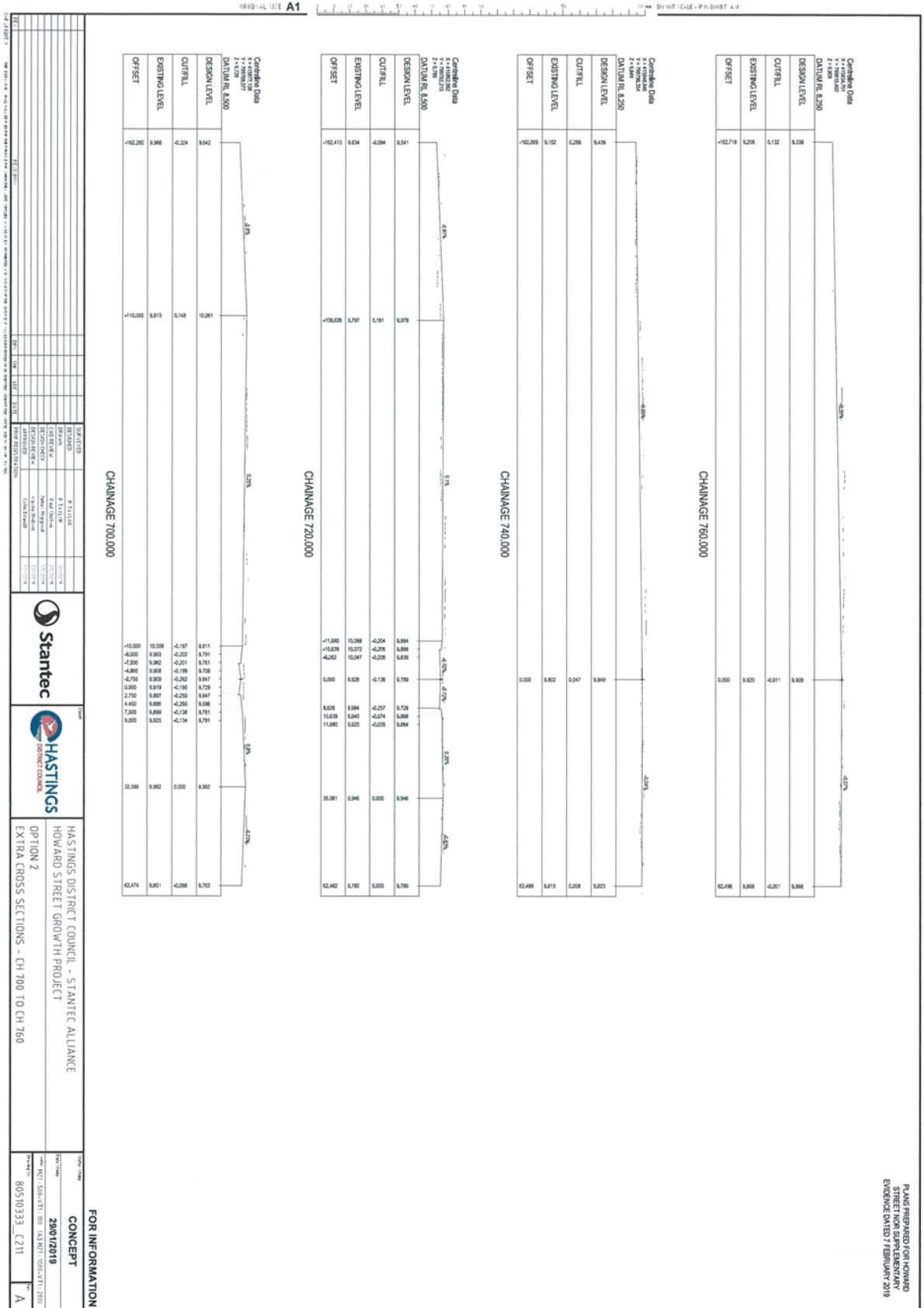


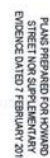
Item 2

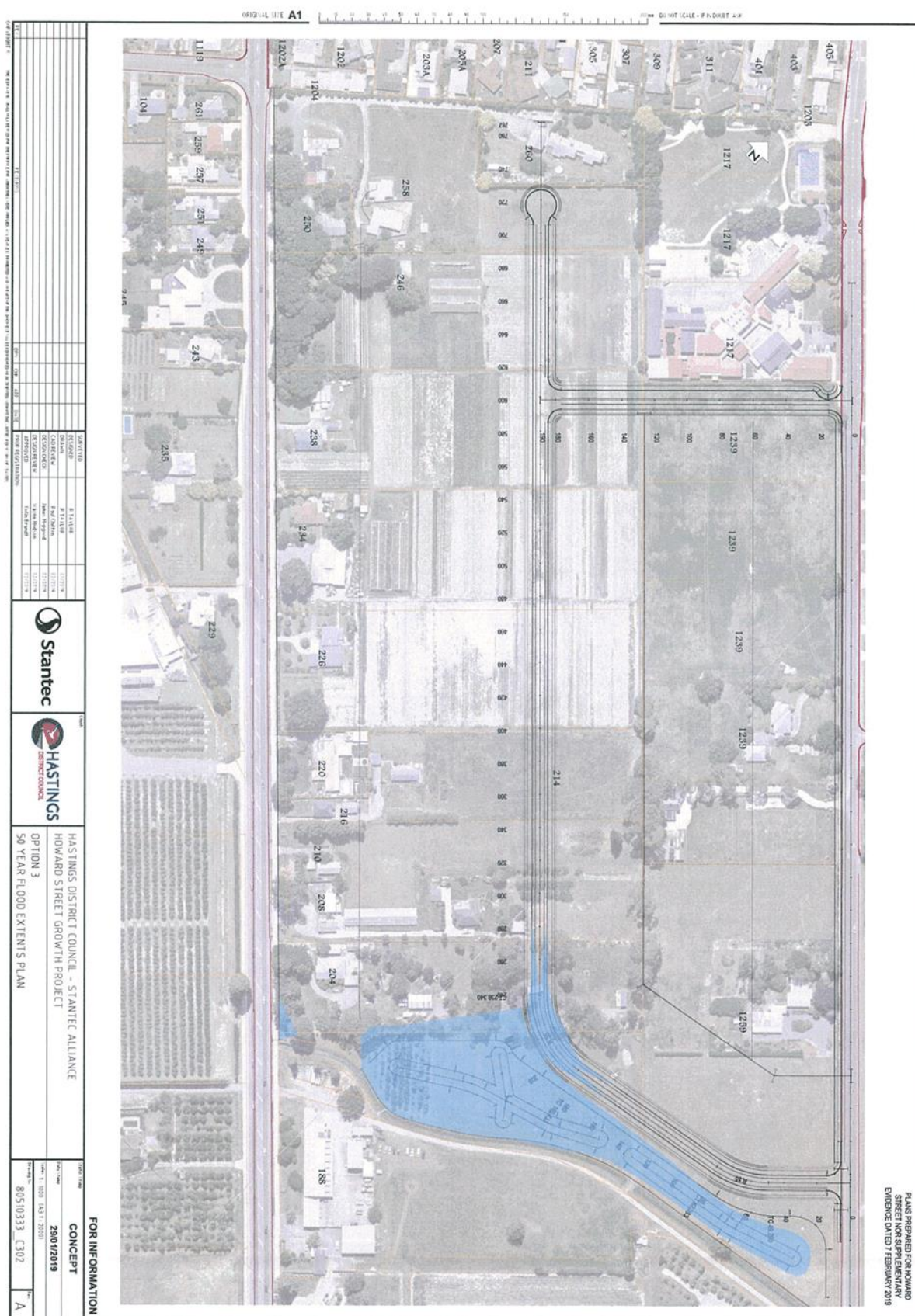
Attachment 2



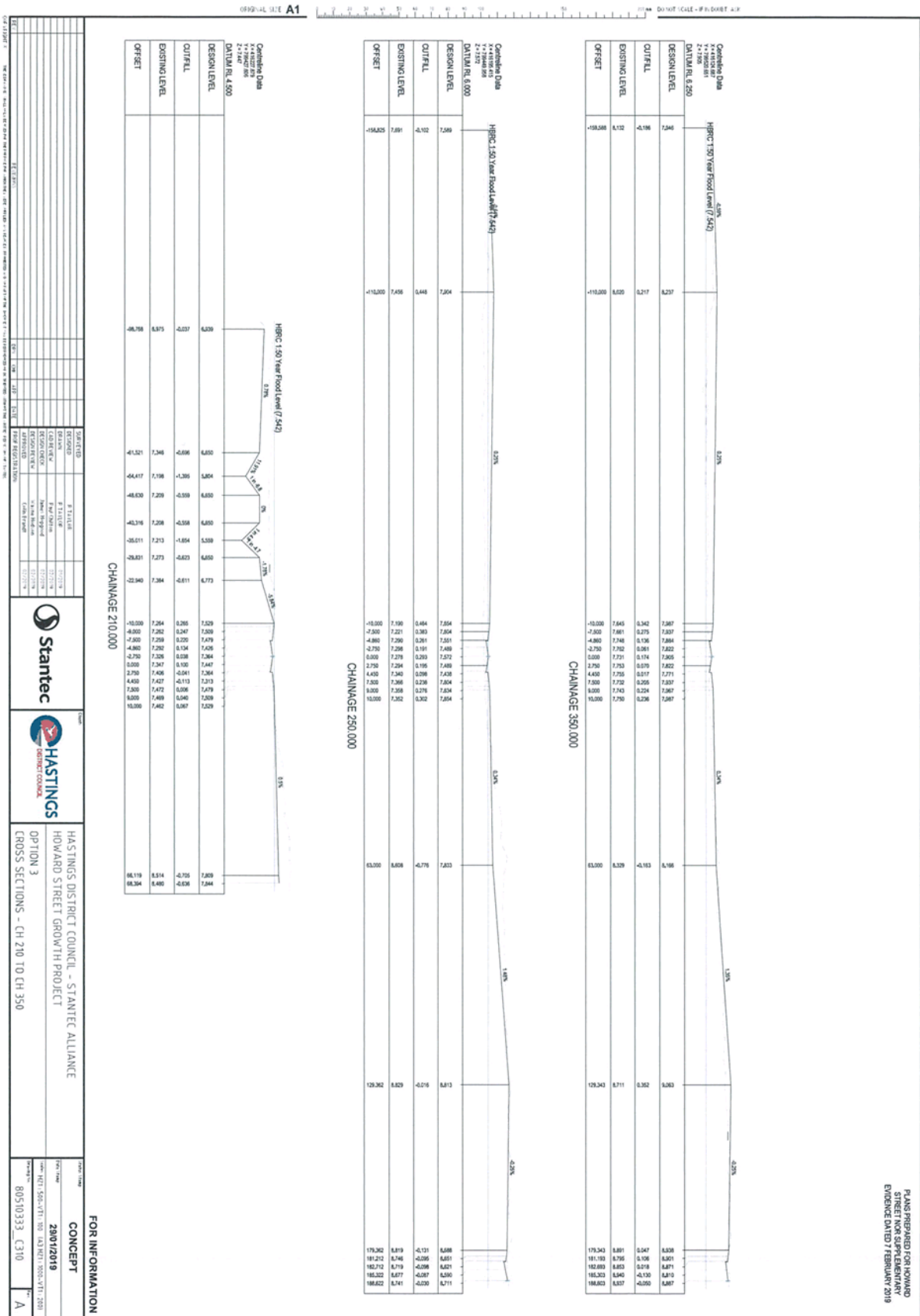


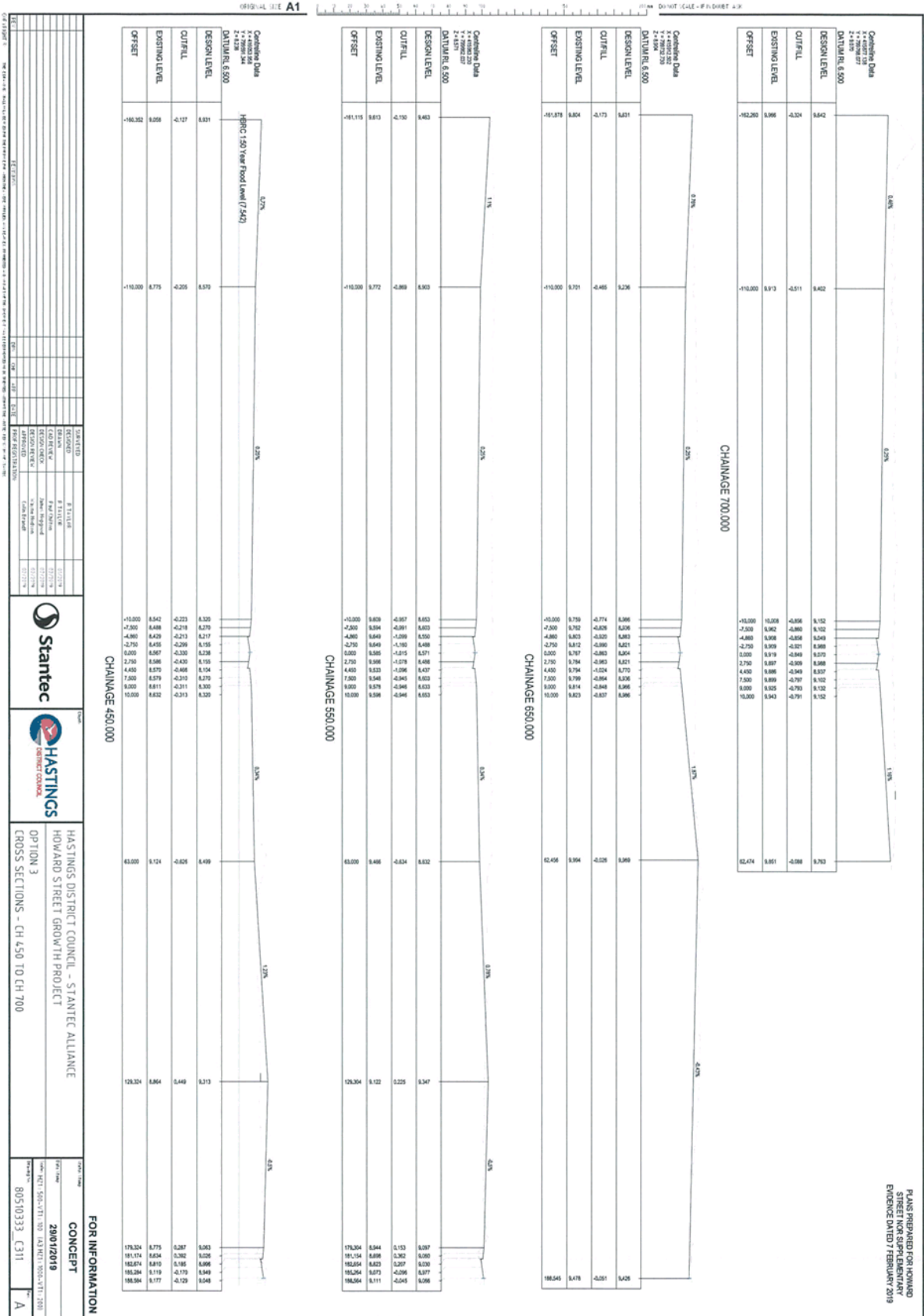








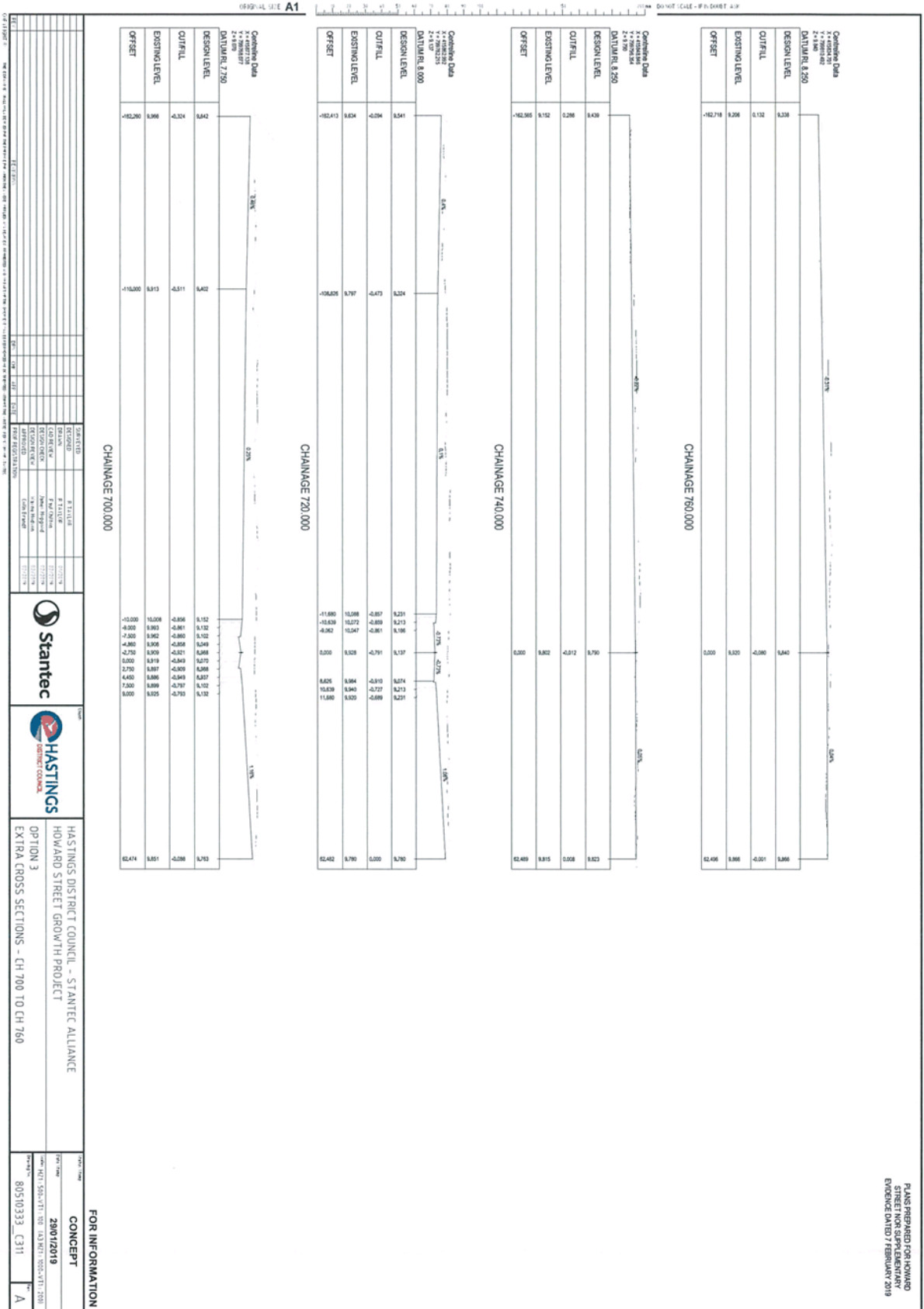






Item 2

Attachment 2





File Ref ENV-9-19-3-19-223

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TE KAUNIHERA O HERETAUNGA

To: Rowan Wallis
From: Matthew Kneebone
Copy to: Asher Davidson
Date: 11 February 2019
Subject: Howard Street - Additional Stormwater/Roding Information

This document has been prepared in response to a direction of the Commissioner dated 8 February 2019 that the Requiring Authority should explain reasons in support of the proposition that the proposed height of the road will provide properties with the ability to obtain reasonable access to the road stormwater drainage system.

The basis for setting the internal road levels for the Howard St rezone area is to maximise the ability for properties within the rezoned land to have access to adequate stormwater services.

Although the topography of the land is fairly flat, there is a general fall towards the Riverslea Drain. This was confirmed in the MWH report titled *Howard Street Stormwater Capacity March 2016*.

Working with the topography of the land, the road is able to be constructed at a single grade falling towards the Riverslea Drain.

In order for land in the Howard Street rezoned area to be developed for residential purposes, some earthworks will be required to enable development. It is from this post-development level that properties will require access to the road for stormwater disposal. In order to assess options for setting the road level, Council assumed a post development ground level which would maximise the ability of properties to discharge to the road. The layout plans attached to my supplementary evidence show the extent of cut and fill required across the rezoned land and cross sections can be used to compare the difference between the existing and proposed ground surfaces.

As described in my supplementary evidence, Option 3 has been identified as Council's preferred option because it maximises the ability of properties to dispose of stormwater to the road via gravity disposal compared to the other options considered. My supplementary evidence focussed on impacts on Woolworths specifically, as that was the site where a potential issue had been identified. In terms of other properties in the area:

- Option 1 would allow for servicing of all properties other than parts of the Woolworths site (see Cross sections 700m – 760m) with a similar level of overall earthworks across the zone. However, the failure to provide for Woolworths' site was seen as a negative outcome.
- Option 2 would involve fewer earthworks across the development area and would service most (but not all) properties. Properties unable to be serviced include Kelly at Chainage 250m, TW/Tremains at Chainage 550m, and Woolworths Chainage at 680m to 760m. This

option would also mean significant areas were prone to flooding, requiring them to be filled to enable development in any event.

- Option 3 puts all properties at a level higher than the road, enabling drainage to the road. Again, this does require properties to undertake earthworks, but the amounts assumed are within what would be expected as part of residential development.

There will always be alternatives to the Council assumed ground profile, depending on location of the property, existing ground levels and intended nature of development. The development of individual land parcels will be evaluated by the landowner/developer and the detailed design for the subdivision layout and specific stormwater solutions will be confirmed as part of any development proposal. However in terms of identifying a general road design level, I am satisfied that Option 3 provides appropriate and reasonable opportunity for all properties to obtain access for their stormwater to the road corridor without needing to undertake unreasonable levels of earthworks, or ones which would be inconsistent with being able to develop the land for residential purposes.

For the avoidance of doubt, these observations also apply to 1259 Howard Street. This property has undulating ground levels meaning both areas of cutting and filling are likely to be required to achieve suitable residential building platforms in any event. There is not anticipated to be any issue with this property being able to achieve stormwater drainage to the road.



Matthew Kneebone

Stormwater Manager
Hastings District Council
11 February 2019

In the matter of the Resource Management Act 1991 (the RMA)

And

In the matter of a Notice of Requirement for Designation RMA20180376

**Memorandum of counsel for Requiring Authority in response to directions dated 8
February 2019**

Dated 11 February 2019

Counsel: Matthew Casey QC / Asher Davidson

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E: matt@casey.co.nz / asher@casey.co.nz

MAY IT PLEASE THE COMMISSIONER:

1. This memorandum is filed on behalf of Hastings District Council as requiring authority (**RA**) in response to directions by the Commissioner on 8 February 2019. The directions were a response to an enquiry by a submitter, Dr Cooper, following the filing of supplementary evidence by Mr Kneebone on stormwater issues.
2. The direction is for the RA to explain its position on the submitter's request and to provide reasons for Mr Kneebone's statement that properties will be able to obtain reasonable access to the road stormwater drainage system.
3. Provided with this memorandum is a statement from Mr Kneebone confirming his opinion that the RA's preferred option for the level of the road will provide all properties with a reasonable ability to obtain access to the proposed road for stormwater disposal, and a further explanation of that position.
4. In terms of the RA's position on Dr Cooper's request, it notes that it has agreed to provide the information sought, consistent with its intention to operate transparently and to make all relevant information available to landowners on request.
5. Having said that, for the record, the RA notes that Dr Cooper's submission is in support of the designation and does not raise issues regarding stormwater disposal that would enable her to call evidence or seek any modifications to the notice of requirement on stormwater grounds. While no suggestion has been made that the hearing should be delayed to allow Dr Cooper or any other party the opportunity to consider this information, for the avoidance of doubt, the RA would oppose such a request.

Dated this 11th of February 2019.



Asher Davidson
Counsel for Hasting District Council

