

Specialist Memo – Development Engineering

To: Nick Pollard, Consultant on behalf of Auckland Council
Cc: Russell Butchers, Principal Project Lead, Premium Resource Consents
From: John Newsome, Senior Development Engineer, Regulatory Engineering South
Subject: Application for an integrated residential development at 30 & 40 Sandspit Road and 2 & 4 Reydon Place, Cockle Bay, Auckland
References: BUN60356953, LUC60356954, DIS60356955
Date: 11 November 2020

1. Qualification and experience

I hold a BSc (Earth Sciences, University of Waikato) and have previously had 10 years land development experience with a geotechnical consultancy at Foundation Engineering Ltd, for the period 1981 – 1990. I have since been employed for 29 years with Council (Manukau City Council/Auckland Council) from 1991 to present as a Development Engineer. During this timeframe I have worked on a wide range of developments in the Manukau area.

I have lived in Howick for 34 years until very recently and I am also familiar with the previous recent development proposal for this Sandspit Road property.

2. Scope of review

- 2.1 This memorandum provides an engineering subject area review and assessment of the effects of the Box Property Investments Limited (Box Property) proposed integrated residential development at 30 & 40 Sandspit Road and 2 & 4 Reydon Place, Cockle Bay (the Application).
- 2.2 The following documents relevant to the engineering subject area submitted as part of the Application have been reviewed for this report:
 - a) *Assessment of Effects on the Environment and Statutory Assessment* prepared by Mount Hobson Group and dated May 2020 (**the AEE**).
 - b) *Preliminary Site Investigation* reference REP-1063/PSI/JUL17/REV1 prepared by Geosciences Ltd and date 5 February 2020 (the PSI).
 - c) *Lander Geotechnical Report* ref J00828 (Rev C) dated 22 April 2020.
 - d) *Infrastructure Report* prepared by DHC Consulting Ltd, Rev C dated May 2020.
 - e) *Construction Management Plan* prepared by Clearwater Construction.
 - f) *Erosion and Sediment Control Plan* prepared by Southern Skies Environmental Limited.
 - g) *Construction Noise and Vibration Assessment* prepared by Styles Group

3. Proposal

Consent: BUN60356953 (LUC60356954 & DIS60356955)
Address: 30 and 40 Sandspit Road, 2 and 4 Reydon Place, Cockle Bay, Auckland 2014

- 3.1 Box Property Investments Ltd has applied for resource consent to construct a 54-unit integrated residential development on the application site, zoned Residential – Single House zone and undertake associated stormwater discharges and site works.
- 3.2 The proposal seeks to establish 2806.7m² (51.8%) of impermeable area and 2,627m² (48.5%) of building coverage. The development will have a maximum height of 11.31m. The development will be served by a vehicle access on Trelawn Place.
- 3.3 The proposed development includes the following features:
 - 54 residential units across three 3-storey buildings and three 2-storey buildings;
 - An on-site café
 - Proposed communal facilities include a gymnasium, swimming pool, shared amenity space, common room, WC and manager's office;
 - 84 car parks, 56 bicycle parks and a loading space are provided in the basement. A further eight bicycle parks are provided on Sandspit Road.
- 3.4 The application documents have been prepared on the basis that it is a discretionary activity overall. Council's interpretation of the relevant rules is that the activity status of the application is overall a non-complying activity pursuant to an infringement under Rule H3.4.1(A6) for having more than one dwelling per site.

4. Site and locality description

- 4.1 The details of the site description and the surrounding environment is contained in Section 2 of the AEE. The 5,417m² application site, made up of 30 & 40 Sandspit Road and 2 & 4 Reydon Place, is located on the north-eastern side of Sandspit Road in Cockle Bay and extends from Trelawn Place in the north to Reydon Place to the south. Howick College is located on the south-western side of Sandspit Road, opposite the application site, whilst Cockle Bay School is located on the northern corner of Sandspit Road and Trelawn Place, opposite the application site.

5. Earthworks

- 5.1 Earthworks activities within the development will cover an area of approximately 5,417m² and involve 6,348m³ of cut and 350m³ of fill. This will exceed the 500m² area and 250m³ volume thresholds for earthworks within a residential zone specified in the Auckland Unitary Plan, and therefore will need to be specifically considered in this consent.
- 5.2 These works will need to be undertaken in a manner to ensure that there are no dust, soil erosion or siltation effects on the receiving environment. Control measures are also required to ensure that soil or other debris is not deposited on public roads, with notification that any such material will be the consent holder's responsibility. A Construction Management Plan prepared by Clearwater Construction and an Erosion and Sediment Control Plan prepared by Southern Skies Environmental Limited addresses these matters.
- 5.3 There are geotechnical issues that affect this property, such as the steepness of some areas and the occurrence of previous filling activities within the historical gully feature shown on this 1959 photo.



- 5.4 Furthermore there may be some contamination impacts based on the previous service station/workshop activities. However, all these issues can easily be resolved by standard industry techniques as demonstrated by the application.
- 5.5 Excavation depths for the development are up to 3.3m below existing ground level near Sandspit Road to accommodate the basement level, reducing to 0m at the rear boundary of 30 Sandspit Road. I understand permanent support for cuts will be provided by the basement walls. There are extensive deposits of non-engineered fill associated with the historical filling of the valley in the northern area of the property that will preclude the use of shallow foundations there.
- 5.6 A Geotechnical Assessment has been reviewed which reports on soil conditions for the site. This report confirms that ground conditions will be suitable for the development. The maximum depth of excavation will be 3.5m, which is above the groundwater level and thus no dewatering is anticipated to occur.
- 5.7 I have reviewed the earthworks design and supporting information in the context of the site situation and am satisfied that in these circumstances and with appropriate conditions of consent, there will be no adverse effect on any other party.

6. Stormwater

- 6.1 The Council stormwater asset information shows two existing stormwater pipes running through the site, a 300mm diameter public stormwater pipe running through the northern corner of 30 Sandspit Road and a 150mm diameter public stormwater pipe from the existing lower parking terrace to the rear of the site. Due to a potential blockage downstream in the line, (as indicated by the CCTV investigation undertaken of the line) and the potential for capacity issues, stormwater runoff from the development will be conveyed via the existing 150mm diameter public stormwater pipe, which is to be upgraded to a 225mm diameter line as required.
- 6.2 The site is located within a Stormwater Management Area – Flow 2 and accordingly on-site detention and retention is proposed with a total storage volume of 51,000 litres, split across four tanks. The detention component will provide slow release of water from the site and the retention component will retain water for reuse on the property, such as with irrigation of the garden and lawn areas, or be used as non-potable water for toilet flushing.
- 6.3 There is a balance to be made with stormwater disposal in this area. Firstly, it is desirable to remove stormwater as efficiently as possible from the property so that on-site flooding is not experienced. This is why the pipe size is to be confirmed at 225mm diameter minimum to ensure that a secure and adequate service is being provided. On the other hand, such efficient removal can cause undesirable flushing of the receiving environment and it is therefore desirable that water is held back to mitigate against downstream flooding and to protect the vulnerable stream environment further down the valley.

This is where the very restrictive detention/retention measures specified with the Unitary Plan 'stormwater management area' rules will achieve both objectives, by firstly removing water immediately from the development into storage, and secondly by releasing this stormwater in a restricted and controlled manner to both reduce flooding and promote stream health. This management of runoff will satisfy our stormwater requirements for this catchment.

7. Flooding

- 7.1 Being at the top of the local catchment and because of the favourable contour of the site and adjacent roading, it is apparent that the property is not affected by any flooding.



8. Wastewater

- 8.1 The site is currently serviced via a 150mm diameter pipe, with a public wastewater line located along the eastern boundary of 40 Sandspit Road and 2-4 Reydon Place. A 150mm diameter pipe, flowing from the south to north, discharges into the exiting public manhole located in the rear of 40 Sandspit Road. Discharge from the manhole then flows to the east towards another public manhole via a 150mm diameter pipe.
- 8.2 Wastewater servicing for this development has been reviewed in detail by Watercare services Ltd. Watercare has undertaken a monitoring programme and has also removed debris found in the wastewater pipelines. I understand that this has resulted in improved performance of the network and has resolved the overflow issues in the local network. Watercare have advised that the revised capacity calculations indicate that there would be sufficient capacity for the development to proceed. However, these calculations are based on some assumptions of pipe invert levels and pipe internal diameters and so further survey work has been requested by Watercare to confirm the capacity calculations are accurate.
- 8.3 Subject to the survey being completed and the assumptions being correct, any requirement to upgrade the wastewater pipes downstream of the development could be waived.

9. Water supply

- 9.1 The site is serviced by an existing 150mm water supply pipe which runs through the eastern road reserve of Sandspit Road and a 200mm diameter pipe also existing across the road within the road reserve. A connection will be made to either the 150mm main or across Sandspit Road to the 200mm

pipe. Flow tests undertaken confirm the minimum fire flow and fire residual pressure requirements are met for the development.

10. Further comments on issues raised from submissions

10.1 Concerns have been raised on construction disturbance, including;

1. Disruption caused by construction (noise, dust, traffic)
2. Lack of on street parking for contactors
3. Concerns over asbestos and contamination
4. Disruption to schools from noise and dust

10.2 I consider that there will always be some temporary disruption to the local area with any development, and this will be especially the case for such a large site as this. However, this impact can be minimized to acceptable levels by the mitigation measures proposed and is a reasonable imposition on the neighbourhood, especially given the long-term benefits with the future use of the property.

10.3 Ecological/Environmental concerns have also been raised, including;

1. Increased flooding
2. Air quality
3. Sedimentation from earthworks
4. Negative impact upon habitat in the stream

10.4 I consider that all these concerns are being adequately mitigated by the development. Runoff from the site is currently effectively uncontrolled; this will dramatically improve with the proposed works. Sedimentation and air quality can be addressed with standard construction techniques and I consider that stream health will improve in terms of the permanent controlling of stormwater discharges from this site.

10.5 Local concerns have also been raised with the apparent lack of infrastructure in the area, in particular;

1. Increase in permeable surfaces and effect on stormwater systems
2. Poor drainage in area / increased flooding risks
3. Water and wastewater/sewage infrastructure

10.6 These matters are being adequately addressed by the application and the development will meet the Council's requirements for adequate servicing.

11. Recommendations and conclusions

11.1 In summary, I have considered this application from an engineering viewpoint and find that the effects of the proposal on the environment will be less than minor. Should the development be approved, I suggest the following recommended engineering conditions be carried out to the satisfaction of and at no cost to the Council.

12. Suggested conditions

Pre-Commencement Meeting

Prior to the commencement of the earthworks, the consent holder shall hold a pre-start meeting that:

- (a) is located on the subject site.
- (b) is scheduled not less than 5 days before the anticipated commencement of activity.

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- (c) includes Council's Monitoring Team.
- (d) includes the applicant's agent and/or engineer/surveyor responsible for certifying the completion of works in accordance with this resource consent.
- (e) includes representation from the contractors who will undertake the works.

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

- Resource consent conditions
- Approved plans
- Timeframes for key stages of the works authorised under this consent
- Erosion and Sediment Control Plan
- Construction Management Plan

To arrange the pre-start meeting, please contact Council's Southern Monitoring (monitoring@aucklandcouncil.govt.nz)

Construction Management Plan

All activities associated with construction activity on the site shall be in accordance with the Construction Management Plan (CMP) prepared by Clearwater Construction.

Ensure stability of the site/neighbouring sites.

The land modification works shall be undertaken in a manner which ensures that the land within the site and the land on adjoining properties remain stable at all times. In this regard the consent holder shall employ a suitably qualified civil / geotechnical engineer to supervise all excavation works, particularly in close proximity to the property boundaries to ensure that an appropriate design and construction methodology is carried out to maintain the short and long-term stability of the site and surrounds.

Any required retaining walls and/or temporary stabilizing works shall be constructed in a timely manner under engineering design and supervision. The consent holder shall ensure that all necessary approvals for retaining walls are obtained and that sufficient resources are available to construct the required retaining walls as directed by the geotechnical engineer, prior to commencement of any significant excavation works.

General sediment control conditions.

All earthworks shall be managed to minimise any discharge of debris, soil, silt, sediment or sediment-laden water beyond the subject site to either land, stormwater drainage systems, watercourses or receiving waters. In the event that a discharge occurs, works shall cease immediately and the discharge shall be mitigated and/or rectified to the satisfaction of the Council.

Control measures shall be provided to ensure that soil or other debris is not deposited on public roads. Any such material deposited on the road shall be the consent holder's responsibility and shall be removed immediately.

Advice Note

Any public stormwater and wastewater works will require Engineering Plan Approval to be obtained from Auckland Council prior to application for a building consent or connection/extension to any public network.

The Engineering Plan Application forms including lodgement and fees can be found at the following Auckland Council website:

<https://www.aucklandcouncil.govt.nz/building-and-consents/engineering-approvals/Pages/default.aspx>

Electricity and Telecommunications supply

Electricity supply and telecommunications systems shall be installed underground to service the development. The consent holder shall also provide certification that these works have been completed in accordance

with the requirements of the respective network utility operators prior to occupation of the buildings, to the satisfaction of Council's Team Leader Compliance Monitoring South.

Stormwater System

Further investigation of the existing stormwater system is to be carried out to define any remedial works required to provide a satisfactory downstream stormwater service. These works are to be carried out to a design subject to Engineering Plan Approval.

Facilities for the disposal of stormwater utilising on-site detention and retention shall be provided and maintained for the new development to meet the requirements of the Stormwater Management Area - Flow 2. (A Building Consent is required for this private drainage.)

Wastewater

Further investigation of the existing wastewater system is to be carried out to define any remedial works required to provide a satisfactory downstream wastewater service. Upgrading works shall be carried out on the downstream public wastewater system as required and determined by this subsequent survey to ensure sufficient flow capacity is provided for the development. The scope of works will be subject to Watercare Services review and approval at the *Engineering Plan Approval* stage of this development.

Vehicle Crossings and Driveways

The vehicle crossings for the development shall be constructed in accordance with Auckland Transport Code of Practice Standard GD017A-Residential Vehicle Crossing. Any redundant vehicle crossing shall also be re-instated to a standard berm to the Council's "Code Of Practice For Working In The Road." (<https://at.govt.nz/about-us/working-on-the-road/>).

Advice Note:

A vehicle crossing permit is required to be obtained from Auckland Transport prior to the construction of any vehicle crossing on existing public roads. See Auckland Transport's website <https://at.govt.nz/about-us/working-on-the-road/vehicle-crossing-application/> for more information.

Completion of access and manoeuvring

Prior to the occupation of the development all access, parking and manoeuvring areas shall be formed, sealed with an all-weather surface, marked out, sign posted and drained in accordance with the approved plans, to the satisfaction of the Council's Team Leader Compliance Monitoring South.

Memo prepared by:		
Signed:	<i>J Newsome</i>	Date: 11 November 2020