Before the Commissioner appointed by the Selwyn District Council

Under	the Resource Management Act 1991
In the matter of	Resource consent application for Foodstuffs (South Island) Properties Limited to establish and operate a PAK'nSAVE supermarket and associated access, loading, car parking, signage, earthworks and landscaping at 157 Levi Road, Rolleston (RC216016)

Statement of evidence of Keegan Geoffrey Brogden

18 July 2022

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Qualifications and experience

1 My full name is Keegan Geoffrey Brogden

2 My qualification is Bachelor of Engineering (BE) (Hons.) attained from the University of Canterbury in 2006.

3 I am currently employed by Powell Fenwick as a civil engineer and have held that position since 2008.

4 My previous work experience includes siteworks and drainage design of numerous site developments of the scale of this project, including for Foodstuffs (South Island) Properties Limited's (**Foodstuffs**): Durham New World, Papanui PAK'nSAVE, Prestons New World, Queenstown PAK'nSAVE, and Wainoni PAK'nSAVE. Within the Rolleston area I have completed civil engineering design for a commercial development in Farringdon Boulevard, and the Moffat factory in the Izone Industrial Park.

5 My role in relation to Foodstuffs application to establish and operate a PAK'nSAVE supermarket (the **Supermarket**) and associated access, loading, car parking, signage, earthworks and landscaping at 157 Levi Road, Rolleston (**Proposal and Site**) has been to provide advice in relation to siteworks, and sewer and stormwater design. I drafted the Civil Design Advice Memorandum and Erosion and Sediment Control Plan report to the Assessment of Environment Effects (**AEE**) accompanying the Application, which appears at Appendix G of the AEE.

6 My assessment is based upon the proposal description attached to the evidence of Mr Mark Allan as **Appendix 1**.

7 In preparing this statement of evidence I have considered the following documents:

(a) the AEE accompanying the Application;

(b) submissions relevant to my area of expertise;

(c) the Memorandum on Regional Consenting Requirements prepared by Fiona Ambury and Statement of Evidence of Ms Ambury; and

(d) section 42A report.

8 I am familiar with the Application Site and visited the area in October 2021 specifically for the Proposal.

Code of Conduct for Expert Witnesses

9 While this is not a hearing before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of

New Zealand Practice Note 2014 and that I have complied with it when preparing my evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of evidence

10 I have prepared evidence in relation to:

(a) the existing environment;

(b) the serviceability of the proposed development for stormwater and sewer infrastructure;

(c) the key findings of my Civil Design Advice Memorandum (the **Memorandum**);

(d) matters raised in the Selwyn District Council's (**SDC**) report (report issued under s42A of the RMA);

(e) matters raised by submitters to the Application; and

(f) proposed conditions of consent.

The existing environment & serviceability of the Site

11 The Site is a greenfield site, comprised of predominantly grassed farmland with tree shelter belts, located south-east of the main Rolleston township. The Site falls approximately 2m naturally from Northeast to Southwest.

12 The Site is well serviced for sewer and water with deep gravity sewer infrastructure available in Levi Road. Water supply to serve the development is available at both Levi Road and Lincoln Rolleston Road.

Key findings of my Civil Design Advice Memorandum

13 An overland flow path for the 1:200 year flood event crosses the site. The Proposal will result in a minor change to the secondary flow route coming from Beaumont Drive across Levi Road and through the Site.

14 The anticipated risk to the Supermarket and operations due to 1:200-year flooding is considered low for the following reasons:

(a) The proposed location of the Supermarket building is out of the zone of the modelled secondary flow path. The interim Finished Floor Level (preliminary FFL=48.20) will be set to ensure that any effects of flooding will not impact the Supermarket building.

(b) The flood flow path will be moved to the large, landscaped area instead of flowing into the site directly opposite Beaumont Drive as it does currently;

(c) Flow velocity of 1:200 flood event is expected to be very low given the flat terrain;

(d) In the event of a flooding event only two of five vehicle accesses to the site (the southwest access to Levi Road and West access to Lincoln Rolleston Road) will be affected and 7% of the proposed carparks. The supermarket can continue to operate with those accesses and parks available.

15 Earthworks disturbance (cut & fill) for the site is estimated to be 30,800m³. This estimate includes the building platform, carpark areas and soakpits. This work will occur under Erosion and Sediment Control requirements to be set by conditions and construction documentation requirements, ensuring dust and sediment laden stormwater runoff is fully managed.

16 Stormwater generated on the Site will be fully managed within the Site for up to the 2% Annual exceedance probability (1:50 year) 24-hour event. Underlying free draining gravels and the deep watertable (8m below ground level) are favourable for stormwater management and disposal to ground in soak pits.

17 Overland stormwater flow from a rain event greater than 1:50 yr 24 hr that cannot be contained on Site will be appropriately managed through discharge to Lincoln Rolleston Road at the southwest end of the Site.

18 Sewer infrastructure is available in Levi Road for the Proposal. Pumping of sewer from the Site into the SDC infrastructure will be required due to the distances involved but there are no capacity issues in the SDC sewer system so this is not an impediment to granting consent.

19 Finally I record that there is an error in my Memorandum at section 5: Stormwater Management; the units describing roof and hardstand areas discharging stormwater to the three proposed soakpits should be m² and not m³.

Officer's Report

20 The Officer's Report (**OR**) records that Mr Daniel Meehan, Surface Water Engineer of SDC, agrees that there is a 1:200 year storm secondary flow path 200 – 400mm deep running through the site. However, it acknowledges that the AEE provides a detailed assessment of the anticipated risk to supermarket building and operations and determines that the risk is low. The OR notes that the responsibility for managing the stormwater hardstand areas within the Site sits with the developer and that the Applicant has advised that a resource consent for the discharge of stormwater will be sought from Environment Canterbury.

21 The OR considers that matters relating to waste can be addressed by way of a condition of consent requiring a waste management plan to be submitted to Council for approval prior to the supermarket becoming operational.

22 Based on the Council's Development Engineering manager's assessment, the OR concludes that subject to a number of conditions of consent the Site can be adequately serviced.

23 The OR considers that any adverse effects associated with dust and sediment can be adequately mitigated by consent conditions.

Matters raised by submitters

24 Matters related to civil design (siteworks and drainage) raised by Submitters 7, 24, 38, 43 and 44 concern:

(a) Flooding due to altered secondary flow paths;

(b) Erosion and sediment control;

(c) Displacement of stormwater; and

(d) Infrastructure capacity.

Secondary flow paths

25 After review of the submissions, I have looked more closely at potential changes due to the Proposal on secondary flow paths, and their impact on surrounding properties in Levi Road and Lincoln Rolleston Road. My assessment of effects for properties in Levi Road is as follows.

(a) There will be little to no change to the levels and route of the existing modelled 1:200 flooding event change, which may affect properties in Levi Road.

(b) ECan modelling of the 1:200 year flooding event showed the deepest ponding into the Site (up to 500mm) would occur directly opposite Beaumont Drive (refer figure 4 of the OR).

(c) My Memorandum discussed redirecting secondary flow from Beaumont Drive down Levi Road. Redirection was raised due to revised levels in the Site, and new 100mm high kerb and channel to be installed on the Supermarket side of Levi Road.

(d) The new carpark levels directly opposite Beaumont Drive will either be similar or lower than existing ground levels within the Site.

(e) This means the majority of the 1:200 year flooding, stormwater that over-tops new Levi Road kerb and channel will continue to cross the boundary of the Site in the location currently modelled. Changes to the current modelled route of the secondary flow path affecting Levi Road residences occur mainly within the Site. There is little to no change to the current flood model route and height when the Proposal is taken into consideration.

(f) This means that there is no increased risk of flooding on Levi Road as a result of the Proposal.

26 My assessment of effects for properties on Lincoln Rolleston Road concerning secondary flow paths, is that they will also not be impacted by the Proposal.

(a) Particular concerns have been raised in relation to 341 and 1-3/351 Lincoln Rolleston Road (Submitters 43 and 44). Parts of these properties, particularly 341 Lincoln Rolleston Road, are already located within the deepest modelled 1:200 flood flow path, with flow depths up to 500mm deep.

(b) Design options will ensure the capacity of the existing secondary flow path in Lincoln Rolleston Road is maintained and is not pushed southwest further across the road and into the residential properties as a result of the Proposal. Design options include:

(i) cutting to a lower level, or minimising finished carpark height increases in the area of the existing secondary flow path closest to Lincoln Rolleston Road, while maintaining the requirement for safe trolley movement through the Site;

(ii) creating a depression or swale in the 6m wide landscaped area between the carpark and Lincoln Rolleston Road boundary;

(iii) having a large diameter pipework running beneath the carpark in the area of the existing secondary flow path closest to Lincoln Rolleston Road to provide a piped route for flood flow; and

(iv) a combination of the above. Final resolution will occur during the design process.

(c) There will be no altering of modelled secondary flow paths further into Lincoln Rolleston Road as a result of the Proposal.

(d) Therefore, I consider 341,1-3/351 Lincoln Rolleston Road properties will not be affected by the Proposal as the flow path of the 1:200 year flood across Lincoln Rolleston Road will not alter.

27 I have proposed a condition of consent to ensure that development will not increase the extent of the secondary flow path for the 1: 200-year flood event on any residential property from the Proposal.

Erosion and sediment control

28 341 and 1-3/351 Lincoln Rolleston Road are downstream of the Site so potentially impacted by both water and wind caused elements of erosion and sediment control. Refer to Figure 1 below.

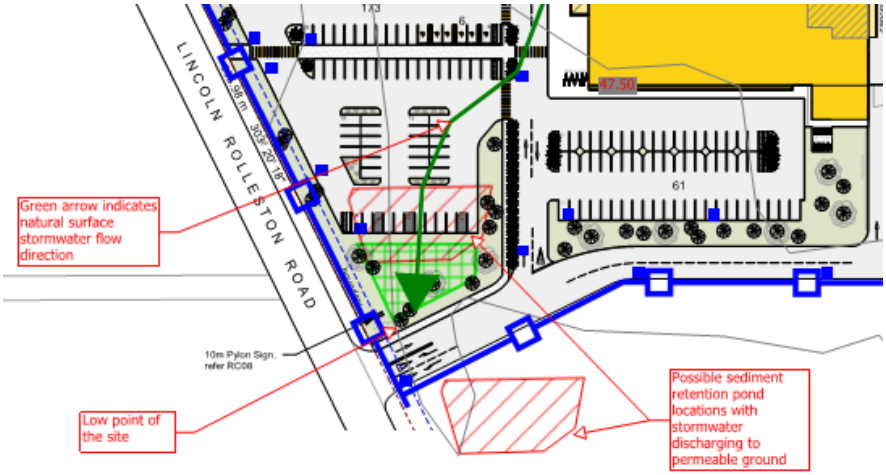

Figure 1

29 Figure 1 shows the low point of the Site. This is where overland stormwater would naturally flow from the Site to the road. Silt fences in this low spot will be required to control silt laden stormwater. My Memorandum discussed the use of sediment retention basins to control sediment in that area. The need and size of this basin will be determined during detailed design.

30 Measures will be in place to control windblown dust during construction including wetting stockpiles and minimising exposed open ground as detailed in an Erosion and Sediment Control Plan, which will also form part of the construction documentation.

31 The erosion and sediment control management will be in accordance with local and regional guidelines. The measures proposed will mitigate the effects of sediment laden stormwater runoff.

Stormwater

32 Stormwater management from the hardstand areas will be managed on Site up to and including the 1:5 0year 24 hour event. Any secondary flow will be from the Site directly to Lincoln Rolleston Road, and not to other properties.

Infrastructure capacity

33 The Site is well serviced and the OR agrees that there are no issues with servicing this Proposal.

Proposed Conditions of Consent

34 The OR presents draft consent conditions and notes to the consent holder. I have reviewed those relevant to Construction (Erosion and sediment control), General Engineering requirement, Water Supply Stormwater and Sewer, Site Stability and Siteworks (limited to civil scope, not Geotechnical considerations). I note that many of the conditions proposed in the OR affecting siteworks and drainage are not relevant for this Proposal and appear to be conditions typically imposed on residential subdivision consents. My comments on matters relevant to civil design raised in the OR are set out below.

35 I recommend the following changes to the draft consent conditions:

(a) Conditions 24-35 regarding General Engineering Requirements.

Delete as more applicable to construction of a residential subdivision

(b) Condition 38 regarding Sewer.

Delete as sewer reticulation within the Site will not be vested in SDC

(c) Condition 40 regarding Stormwater.

Delete because engineering approval is only required if the stormwater system will be transferred to SDC ownership

(d) Condition 44 regarding Stormwater.

Delete because this only applies if the stormwater consent will be transferred to the SDC

(e) Condition 45 regarding Stormwater.

Delete because this only applies if the stormwater consent will be transferred to the SDC

(f) Condition 46 regarding Stormwater.

Delete because this only applies if the stormwater system will be transferred to SDC ownership

(g) Condition 48 regarding site stability and Site Works.

Delete as this assumes a residential subdivision

(h) Conditions 49 and 50 regarding site ground conditions and earth fill:

Delete as this assumes a residential subdivision.

(i) Conditions 51.

Delete as refers to earth fill for residential developments

36 I recommend following changes to the notes to the consent holder:

Note (f): Delete as the level of Engineering Approval required under this note is for a residential subdivision, and will in any event be presented as part of the subsequent Building Consent process.

Notes (n-r): Delete because these only apply if the stormwater system will be transferred to SDC ownership.

Note (s): Delete because the site will have its own stormwater consent.

37 I propose the following new consent condition be included:

(a) The development shall not increase the extent of the secondary flow path for the 1: 200-year flood event (as modelled in Selwyn's flooding and coastal hazards (canterburymaps.govt.nz) as at July 2022) on any residential property.

Conclusion

38 The Site is well-serviced for sewer and water. The OR records that Council's Development Engineering Manager has confirmed that the Proposal can be adequately serviced.

39 Stormwater will be adequately managed on site.

40 Proposed erosion and sediment control measures will adequately mitigate potential effects (sediment laden run off and dust) on surrounding properties.

41 The minor changes to the 1:200 flood secondary flow path will not increase any risk to neighbours of increased flooding, and I have recommended a condition of consent to ensure this is included in detailed design.

42 For these reasons I am satisfied that there is no impediment to the grant of consent for the Application.

Keegan Geoffrey Brogden

Dated this 18th day of July 2022