

**Before a Panel Appointed by the
Dunedin City Council**

In the Matter of the Resource Management Act 1991 (**RMA**)

And

In the Matter of Proposed Variation 2 of the Second Generation
Dunedin District Plan – Appeals Version (**2GP**)

Joint Brief of Evidence of
Emma Rayner Peters,
Mark Peter Robert Geddes,
Kurt Alistair Bowen
on behalf of Various Submitters
as Listed in Schedule 1 of this Evidence

Dated 6th December 2021

Background:

1. Ms Peters, Mr Geddes and Mr Bowen (**experts**) have prepared this joint brief of evidence. A statement on each expert's expertise is provided in Appendix A and the reader is referred to those statements.
2. This evidence is based upon the experts' investigations and knowledge of the submissions and Variation 2 of the Dunedin City Second Generation District Plan Appeals Version including Council's s42a report and evidence from Council staff.
3. The experts acknowledge they are not before the Environment Court. However, they have read the Code of Conduct for Expert Witnesses within the Environment Court Consolidated Practice Note 2014 and agree to comply with that Code. This evidence is within their area of expertise, except where they state that they are relying on the evidence of another person. To the best of their knowledge, they have not omitted to consider any material facts known to them that might alter or detract from the opinions expressed in this evidence.
4. This brief of evidence broadly follows the topics as dealt with by the s42a report.

NDMA's on Existing Residential Zoned Areas and RTZ Overlay Zones

5. The Dunedin City Council (**Council**) has proposed applying a *New Development Mapped Area (NDMA)* to a number of existing residential zoned areas and residential transitional zones, many of which have existing structure plans within the 2GP. These areas are either land rezoned residential in 2018 pursuant to the 2GP or land zoned residential prior to that pursuant to the 2006 district plan.
6. A number of submitters have sought the removal of the NDMA from existing residential zoned areas¹.
7. There is no need for an NDMA over these areas given their status as existing residential zones. Council infrastructure with respect to existing residential zones is/should be 'infrastructure ready' as that term is defined

¹ For example, submission of Mr Ken Close in relation to the removal of NDMA02 on the basis that there is an existing structure plan for this area of existing residential zoned land; submission by Giles Wynn-Williams in relation to NDMA03; submission by Tom and Loretta Richardson in relation to NDMA05; submission by Jason Hewlett in relation to NDMA15; submission by Margaret Charles and Marguerita Lazar, Christopher Connor and Tine Prendagast, and Glenelg Street Trust Board, all in relation to NDMA04.

in the *National Policy Statement on Urban Development 2020 (NPS-UD)* and there is, therefore, no need to govern the provision of infrastructure to the same extent.

8. The existing residential zones, where there is little or no potential for additional housing capacity proposed by Variation 2 (and including the RTZ overlay zones), should not be encumbered by provisions that will require more extensive infrastructure assessment and implementation. To do so will in fact impede the speed at which residential development can be expected to occur and potentially reduce the number of allotments/residential units that are produced.
9. It is contrary to the principal purpose of Variation 2, being to enable a greater supply of residential units, to impose development restrictions on land that will not gain the benefit of greater housing potential than already exists.

Infill & Intensification

10. For areas of infill (within existing residential zones) and intensification (GR1 to GR2), the experts recommend simplifying the provisions in relation to provision of infrastructure, particularly stormwater, as these areas are supported by infrastructure deemed 'infrastructure ready' as that term is defined in the NPS-UD.
11. The experts propose that the application, if deemed necessary for a particular area, of the appropriate infrastructure constraint mapped area (wastewater and/or stormwater) and the inclusion of performance standards requiring at the time of development that an attenuation design is provided and/or a standard sized detention tank is utilised.
12. A stormwater constraint mapped area would only apply to those residential zones within the City for which Council has identified a stormwater catchment which has a known constraint – as is the case with the wastewater constraint mapped areas.
13. To achieve the above, Council's 3 Waters staff will need to complete their water modelling work. It is the view of the experts that it would have been much more helpful had this modelling work been completed prior to the notification of Variation 2. However, it is not too late to do this, and

such work will significantly benefit the residential development process in the future.

14. Ultimately, once Council's modelling work is complete, a performance standard requiring attenuation by way of a standardised 'tank' will be the only requirement within the infill and intensification areas within a stormwater constraint mapped area. The performance standard will detail the particular size and design of tank required in any particular stormwater constraint mapped area. This approach has been applied in other New Zealand cities, for example, Hamilton.
15. The major benefits of this approach are that:
 - i) All residential units are captured by this standard not just those associated with new subdivision activities; and
 - ii) The installation of tanks under this system will become a very efficient, cost-effective method which can be managed by a range of participants, including surveyors, building designers, builders, and others.

Standard sized tanks are relatively cheap to purchase and install – often cheaper than the case-by-case assessments which are currently undertaken and which would still be required under the proposed Variation 2 provisions.

16. Finally, the experts are of the opinion that the proposed Variation 2 infrastructure provisions should only take effect in the areas that are being intensified at the time that residential development exceeds the current zone density. Development to the existing density limits should be supported without incurring additional expense or infrastructure. Beyond the current density limits, it is considered a reasonable proposition for improved infrastructure to be required.

New Greenfield Areas Zoned Residential Pursuant to Variation 2

17. The experts agree that for new greenfield sites rezoned pursuant to Variation 2 that an NDMA is an appropriate mechanism to regulate the provision of infrastructure. However, there are a couple of points which the experts wish to raise.

18. The 3 waters NDMA provisions require that prior to development occurring on any one part of land within a NDMA that:
- (a) the agreement of all landowners within the particular NDMA is obtained to the location of infrastructure servicing the entire NDMA²; and
 - (b) that the communal stormwater infrastructure is built prior to development involving more than 60m² of impermeable surfaces³ (all NDMA's) or that any subdivision or development connects to communal wastewater detention infrastructure (specified NDMA's)⁴.
19. There is a clear risk that a reluctant or recalcitrant landowner may pose problematic with respect to: (i) engaging in negotiations regarding infrastructure within the NDMA, (ii) providing consent to location of infrastructure, (iii) engaging in negotiations to resolve responsibility and funding for required upgrades. This is of particular concern where land owned by the reluctant or recalcitrant landowner is the best location for siting of infrastructure.
20. To overcome this risk, Council recommends in the s42a report inclusion of a note to plan user which is to state: *"Where the results of an Integrated Transportation Assessment required by Rule XXX, a stormwater or wastewater management plan, or an assessment of water supply requirements demonstrate the need for either: a. Infrastructure upgrades outside of the site, or b. Infrastructure built to a higher specification because of the need to provide for new growth areas or improve level of service for existing areas. The responsibility and funding for these upgrades will be negotiated between all landowners and the DCC. Where necessary, the DCC will appoint an independent facilitator or mediator to assist in these negotiations."*
21. The experts seek inclusion of additional mechanisms within the advice note such as the compulsory acquisition of land or easements where the development of zoned capacity is being frustrated by a reluctant or recalcitrant landowner.

² See proposed Policy 9.2.1.Y and proposed Rule 9.9.X particularly 9.9.X.3.c.

³ See proposed Rule 9.3.7.AA.

⁴ See proposed Policy 9.2.1.BB.

22. A mechanism for fair distribution of costs is also required where there is multiple ownership within an NDMA. We propose inclusion of a 'claw back provision within the district plan. An example of a claw back provision is:

“Benefit of Previous Works: Where any subdivision and/or development subject to land use consent occurs on land that has access to upgraded infrastructure as a result of an earlier subdivision and/or development, a financial contribution may be levied. The maximum contribution shall be an equitable proportion of the original cost of all works plus indexation based on the Works Construction Cost Index to meet inflationary costs over the intervening period. This rule shall not have effect on a subdivision and/or development that occurs ten years or more after the original infrastructure upgrading work took place. Any contribution made under this rule shall be refunded to the original subdivider and/or developer or Council pro rata to their relative contributions to the original upgrading work.”

23. An integrated stormwater management plan is required prior to any subdivision or development of land within a NDMA. The experts request that the matters listed in Appendix 2 form the information requirements in relation to a stormwater management plan for any particular NDMA and that the matters listed in Appendix 2 are included in the district plan.
24. The genesis of Appendix 2 arises from a mediated outcome on stormwater issues agreed to by the Dunedin City Council, Otago Regional Council and landowners/developers⁵.

Connection of Infrastructure to Adjoining Residential Areas

25. The submitters are not opposed in principle to such infrastructure connections. Their concern arises as a matter of detail in that if an increase in pipe size or a roading upgrade, for example, is required as a consequence of providing for that off-site infrastructure connection, then there needs to be either:
- (a) A corresponding discount with respect to the amount of development contributions required in relation to the development;
- or

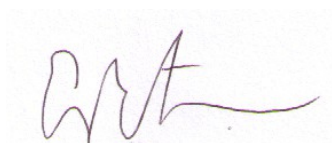
⁵ Reference in the matters in Appendix 2 to 'the Land' has been changed to 'the NDMA' to suit the context currently being considered.

- (b) Council pays for that increase in infrastructure capacity and 'claws back' the cost as the adjoining residential area is developed.

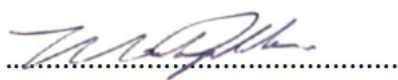
It is unfair to expect a developer to pay for the installation of infrastructure beyond what is required for the particular development/NDMA and/or beyond the growth proportion attributable to that development/NDMA.

26. An example of a clawback provision is provided in paragraph 16 above.

Dated this 6th day of December 2021



Emma Rayner Peters (BA (First Class Honours), MA (Distinction), LLB)



Mark Peter Robert Geddes (BA (Geog) and Bsurv, LCS)



Kurt Alistair Bowen (BSurv, Mplan, RPSurv, LCS)

Schedule 1: List of Submitters on whose behalf this Evidence has been Prepared.

Emma Peters, Sweep Consultancy Limited:

1. CC Otago Limited
2. Cole Bennets
3. DDS Properties Limited
4. Dunedin City Baptist Church
5. Ed Stewardson
6. Gladstone Family Trust
7. Grant Motion
8. Invermark Investments Limited
9. Ken Close
10. Meats of NZ Limited
11. Outram Development Limited
12. Peter Doherty
13. Roger and Janine Southby
14. Ron and Suzanne Balchin
15. Ross McLeary, COF Limited, Scroggs Hill Farm
16. Wendy Campbell
17. Willowcroft Limited

Mark Geddes

1. On behalf of Survey and Spatial NZ Coastal Otago Branch.

Kurt Bowen, Paterson Pitts Group

1. Survey and Spatial New Zealand
2. Paterson Pitts Group
3. Karen Knudson and Ross Brown

4. Margaret Charles and Marguerita Lazar
5. Jason and Margaret Hewlett
6. Tom and Loretta Richardson
7. Glenelg Street Trust Board
8. Christopher Connor and Tina Prendergast

Appendix 1: Statements of Expertise.

Emma Peters:

My name is Emma Rayner Peters. I hold a BA and LLB both from the University of Otago and a First Class Honours degree and MA with Distinction, both from the University of Canterbury. I have worked as a solicitor in the areas of commercial and environmental law. I have been the principal of Sweep Consultancy Limited since 2003 providing resource management advice predominantly in the Dunedin City, Clutha, Waitaki, Queenstown Lakes and Central Otago districts.

Mark Geddes:

My name is Mark Peter Robert Geddes. I hold a BA (Geog) and BSurv both from the University of Otago. I also hold the professional qualification of Licensed Cadastral Surveyor which has competencies relating to planning, surveying and land development engineering. I have been practicing as a professional surveyor since 2000 throughout all of the local authorities from South Canterbury to Southland. I have been the Manager of TL Survey Services since 2017.

Kurt Bowen:

My name is Kurt Bowen. I hold a Bachelor of Surveying degree from the University of Otago (1997) and a Master of Planning degree from the University of Otago (2019). I am a full member of Survey and Spatial New Zealand and a graduate member of New Zealand Planning Institute. I hold the status of Registered Professional Surveyor (administered by Survey and Spatial New Zealand), and I am a Licensed Cadastral Surveyor on the authority of the Cadastral Surveyors Licensing Board. I have over 23 years of surveying and planning experience in the Dunedin City region.

Appendix 2: Matters to be taken into Consideration in a Stormwater Management Plan as Relevant to the Subject Site.

1. The objective of the stormwater infrastructure is to manage stormwater on the NDMA in a way that both within the NDMA and the wider catchment: ensures, for both the current climatic conditions and climatic conditions based on climate change predictions, personal safety, minimises the risk of surface water flooding to acceptable levels, protects public and private property from inundation, resilience of infrastructure, and minimises adverse effects to the environment, including aquatic ecology, from stormwater runoff.
2. The stormwater infrastructure must be designed to ensure that there will be no increase in the NDMA's peak post-development stormwater discharge rate (taking into account climate change) relative to pre-development as a result of additional impermeable or semi-impermeable surfaces expected over the NDMA or through modification of the NDMA's natural drainage regime. This includes ensuring that at post-development stage there is no increase in peak stormwater discharge rates from the NDMA as a result of the development from the NDMA during the 'critical duration' rainfall events and any modified flows will not create adverse effects from stormwater discharge.
3. Any subdivision or development consent application must be accompanied by a stormwater management plan that addresses the whole of the NDMA.
4. The stormwater management plan and the design of the stormwater infrastructure must be prepared by a chartered professional engineer or other suitably qualified person who has (or can call on) experience in hydrology, hydraulics, stormwater design, flood risk management and construction management.
5. The stormwater management plan must include the following information in clauses 6-16 to demonstrate that the system will achieve (1) and (2) above.
6. The stormwater management plan must include an assessment of the difference between pre-development peak flows and post-development peak flows (with and without mitigation) over a range of event durations, taking into account the maximum impermeable surfaces permitted in the District Plan zone for the NDMA (and including any other development restrictions resulting from any other rules in the District Plan or legal instruments registered on the title(s) covered by the NDMA). The assessment of pre-development and post-development flows and detention volumes must be based on the following rainfall events:
 - a) For the 10% and the 1% annual exceedance probability (AEP) events covering durations from the NDMA's own critical duration to the critical duration of the catchment upstream of the point of discharge (unless agreed otherwise with the DCC, for example where direct discharge to the coastal environment is feasible);

- b) For the purposes of this requirement, 'critical duration' means the duration of rainfall event likely to cause the highest peak flows or water levels.
 - c) The design of the stormwater infrastructure shall manage stormwater for the developed land accounting for climate change. The climate change adjustment rainfall shall be sourced from HIRDS version 4 using RCP 8.5 2081-2100 values (or alternative source approved by DCC).
 - d) Where the proposed attenuation system is intended to vest as public infrastructure, the design shall incorporate an adjustable outlet mechanism such that the present day peak discharge flowrate from the NDMA is not exceeded as a result of the development but that the outlet can be progressively adjusted for future climate change discharge rates up to the fully developed stormwater management system design capacity.
 - e) It is not intended that the stormwater management plan will avoid volume increases.
7. The stormwater management plan must include the design and location of 'primary infrastructure'. 'Primary infrastructure' includes both open and closed conduits and must be designed to contain the flows generated by the 10% AEP rainfall event.
 8. The stormwater management plan must include the design and location of 'secondary flow paths', with and without blockage of the primary stormwater system, through the development to the downstream boundary. 'Secondary flow paths' means the flow path over which surface water will flow if the primary flow path becomes overloaded or inoperative and consists of overland flow paths with sufficient capacity to transfer the flows generated by rainfall events up to the 1% AEP event. Secondary flow paths shall be clearly identified, and where possible aligned with natural flow paths and located on public land. If located in private property, 1% AEP secondary flows should be through primary infrastructure unless protected by an easement. The stormwater management plan must demonstrate that secondary flows at the development's upstream and downstream boundaries are not changed or adversely affected.
 9. Stormwater detention infrastructures must be designed to temporarily store and release flows from a generated 1% AEP rainfall event with such that peak pre-development flows are not exceeded in the post-development condition.
 10. The stormwater management infrastructure proposed in the stormwater management plan must be designed to enable safe operation in super-design conditions (for the 0.5% AEP rainfall event, but a greater rainfall event can be used if the developer chooses to do so). Safe operation means without catastrophic, rapid or structural failure. This is to ensure that the proposed stormwater management infrastructure have a fail-safe mechanism. This does not mean the stormwater infrastructure is to be designed to retain the volume of stormwater for a 0.5% AEP rainfall event.

11. The stormwater management plan must include location and design details of stormwater management systems, including detention infrastructure required to achieve (2) above.
12. The stormwater management plan must demonstrate how the integrity of the stormwater mitigation and management measures will not be compromised during and after subdivision (for example ensuring that open drains that form part of the system will not be blocked or altered).
13. Irrespective of (2), the stormwater management plan must include a risk based assessment to determine to what extent measures (if any) are needed to manage flows downstream of the NDMA. The stormwater management plan must demonstrate that the proposed stormwater mitigation and management measures will not create or exacerbate adverse effects that are more than minor off-site. This includes consideration of cumulative effects.
14. If a stormwater management system in accordance with clauses 6-16 cannot be designed for the NDMA, then the Developer must undertake an assessment of the broader catchment to determine whether design solutions external to the NDMA are available to manage the additional stormwater discharges as a result of the development on the NDMA.
15. To ensure effective management of erosion and sedimentation on the site during earthworks and as the site is developed, measures must be taken and devices must be installed, where necessary, to:
 - a) Divert clean runoff away from disturbed ground;
 - b) Control and contain stormwater run-off;
 - c) Avoid sediment laden run-off from the site; and
 - d) Protect existing drainage infrastructure, sumps and drains from sediment run-off.
16. The stormwater management plan must include the design and location of stormwater quality treatment that demonstrates the expected quality of stormwater leaving the specified system and its treatment of at least the 'first flush' volume (90th percentile daily rainfall depth) or flow rate (90th percentile rainfall intensity) in accordance with best practice techniques for at least 75% Total Suspended Solids (TSS) removal on a long-term average basis.
17. The stormwater management plan must be designed to manage the quantity and quality of runoff discharged from the development site in accordance with the mechanisms set out in this document, and must include:
 - a) The use of low-impact (or water-sensitive) design features which may include features such as:
 - i. Grassed/landscaped swales and other vegetation areas;
 - ii. Infiltration trenches/bioretention systems;

- iii. Storage ponds/wetlands/sediment ponds;
 - iv. Rainwater tanks harvesting and reuse;
 - v. Rain gardens, rooftop greening and planting, and
 - vi. Porous surface treatments;
 - vii. Consideration of the existing natural topography and the natural course of water flow (overland flow paths) through the design of the subdivision.
- b) How stormwater management areas can be integrated into reserves and recreation spaces.