Before the Independent Hearings Panel
at Waimakariri District Council

under:	the Resource Management Act 1991
in the matter of:	Proposed private plan change RCP31 to the Operative Waimakariri District Plan
and:	**Rolleston Industrial Developments Limited** *Applicant*

Evidence of Chris Sexton

Dated: 7 July 2023

EVIDENCE OF CHRIS SEXTON

1   My full name is Christopher Philip Sexton. I am a Civil Engineer at Inovo Projects Limited.

2   My qualifications include a Bachelor of Natural Resources Engineering with Honours from the University of Canterbury (BE(Hons) Nat. Res), and I am a member of Engineering New Zealand.

3   I have over 7 years' experience as a Civil Engineer working on a range of Infrastructure and Land Development projects in both the public and private sector. In this capacity, I frequently use Geographic Information Systems to analyse property information as it relates to land development and constraints to development.

4   My previous experience includes 1.5 years working at the Waimakariri District Council as a Graduate Engineer within the Network Planning team. I was involved in network assessments of current capacity and future growth within the districts water and wastewater schemes. Specific projects include an investigation into the Mandeville sewer scheme regarding the 2014 flood events, investigation into the combination of the Pegasus and Woodend water supply schemes and assisting in the design of a recycled water system as part of the Rangiora WWTP headworks upgrades.

5   My experience in the private sector has focused on land development and site development projects within Canterbury and the West Coast of New Zealand.

6   I have assisted in preparing infrastructure assessments for multiple recent plan change requests within the Selwyn District, namely:

    6.1   Lincoln South, Lincoln (PC69);

    6.2   Holmes and Skellerup Block, Rolleston (PC73);

    6.3   Skellerup South Block, Rolleston (PC81); and

    6.4   Two Chain Road Industrial, Rolleston (PC80).

CODE OF CONDUCT

7   Although this is not an Environment Court hearing, I note that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 9 of the Environment Court Practice Note 2023. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where relying on the opinion or evidence of other witnesses. I have not omitted to

consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

8   My evidence will deal with the following:

8.1   Spatial analysis of data available from Environment Canterbury and Waimakariri District Council to produce the development constraint maps for this process.

8.2   Spatial Analysis of the Waimakariri District Council's proposed New Development Areas from the Proposed District Plan.

8.3   Spatial Analysis of Formative's assessment of development capacity in existing urban areas.

9   In preparing my evidence, I have reviewed and considered the following:

9.1   Section 42a Report on Private Plan Change Application 31 prepared by Mr. Andrew Willis on behalf of Waimakariri District Council (*WDC*).

9.2   Formative Ltd. 2023 Waimakariri Capacity for Growth Model 2022.

9.3   The evidence of **Mr Greg Akehurst**, for Rolleston Industrial Developments Limited.

9.4   The evidence of **Mr Tim Walsh**, for Rolleston Industrial Developments Limited.

SUMMARY

10   Using Geographic Information Systems and publicly available data, I prepared a series of development constraint maps that provide a visual representation of what areas of the Waimakariri District are subject to constraints and how many constraints affect each area. These maps are appended to the evidence of **Mr Walsh**.

11   I have reviewed the New Development Areas published by Waimakariri District Council as part of their Proposed District Plan Review. Based upon spatial analysis using exclusions provided by **Mr Walsh**, I have provided analysis that the areas provided in the Proposed District Plan may be significantly reduced based upon the interpretations of the restrictions as set out in **Mr Walsh's** evidence.

12   The Growth Model created by Formative was interrogated and several omissions were found within the model in terms of failure to exclude areas of existing urban land that are unsuitable for development and intensification. Areas such as recreation reserves, utility reserves, Rangiora High School and the Darnley Square water treatment plant in Kaiapoi are a few examples where lots identified by Formative as potential for further residential development could occur, are not realistically possible. Therefore, I consider the Formative growth model has over-estimated the available growth potential within the district's main centres of Kaiapoi, Woodend, Pegasus and Rangiora. Further interpretation is provided in the evidence of **Mr Akehurst**.

DEVELOPMENT CONSTRAINT MAPS

13   The development constraint maps appended to the evidence of **Mr Walsh**, that I prepared, have been assembled by drawing-in open-source data from the Environment Canterbury Open Data Geographic Information System (*GIS*) Portal, Land Information New Zealand (*LINZ*) data service, Waimakariri District Council (*WDC*) GIS data and through digitising the Christchurch International Airport Ltd (*CIAL*) 50dBA Combined Noise Contour from the Marshall Day Report dated May 2023 and published by CIAL in June 2023. All information was collated in QGIS 30.3.

14   The following layers were used in the preparation of the development constraint maps:

14.1   Eastern Canterbury Liquefaction Susceptibility Study (2012) - areas identified at risk of Liquefaction damage as published by Environment Canterbury.

14.2   WDC Flood Hazard Modelling - All Events 1:200 Year Medium and High Flood Hazard areas.

14.3   Canterbury Tsunami Evacuation Zones – Yellow, Orange and Red zones as published by Environment Canterbury.

14.4   Land identified as Highly Productive Land (*HPL*) under the NPS-HPL or as Versatile Soils under the Canterbury Regional Policy Statement (*CRPS*). Land is classified as HPL if it is LUC 1, 2 or 3 within General Rural or Rural Production Zoned land (but I understand not within Rural Lifestyle Zoned land). Versatile soils are defined in the CPRS as soils that meet LUC 1 or 2 regardless of district plan zone. Information was sourced from the New Zealand Land Resource Inventory (*NZLRI*) dataset as published by Environment Canterbury

14.5   WDC Proposed District Plan Zones:

(a) Special Purpose Zone Kainga Nohoanga (*SPZ KN*);

(b) Natural Open Space Zone (*NOSZ*);

(c) Open Space Zone (*OSZ*); and

(d) Sport and Active Recreation Zone (*SARZ*).

14.6 WDC Proposed District Plan - Areas of Cultural Māori Significance:

(a) Ngā Tūranga Tupuna Overlay.

14.7 Noise Contours:

(a) WDC Proposed District Plan Speedway Noise Avoidance Contour;

(b) WDC Proposed District Plan Rangiora Airport Noise Avoidance Contour; and

(c) CIAL Combined 50dBA noise contour (Published May 2023) (Digitised from Marshall Day Report).

15 The final combined constraint map was created using QGIS using the above information that has been classified as a being a constraint. Areas were then highlighted based on the number of overlapping constraints within that area. Constraints were not weighted but are simply represented by the number of constraints.

SPATIAL ANALYSIS OF WDC NEW DEVELOPMENT AREAS

16 I was asked by **Mr Walsh** to test the spatial extent and accuracy of the New Development Areas (*NDAs*) identified in the proposed Waimakariri District Plan (*PWDP*). Specifically, **Mr Walsh** asked me to:

16.1 Measure the spatial extent of the NDAs as set out in the PWDP;

16.2 Identify and quantify any areas within the NDAs that are excluded from the CRPS definition of 'net density', on the basis that such areas are unable to be developed for residential purposes;

16.3 Measure the extent of the spatial area of the High Flood Hazard Area (*HFHA*) within the Kaiapoi NDAs; and,

16.4 Measure the extent of the spatial area of the CIAL Combined 50dBA noise contour within the Kaiapoi NDAs.

17   I understand from **Mr Walsh** that the Waimakariri District Council have identified that the NDAs in the PWDP have a total area of 450 hectares (*Ha*). However, having measured the NDAs using the information on the publicly available WDC GIS database, I have calculated their total area as 455.19 Ha.

18   **Mr Walsh** provided me with a list of areas excluded from the definition of 'net density' in the CRPS that should therefore be excluded from the NDAs when estimating development capacity, as follows:

    18.1   State Highways and major arterial roads;

    18.2   Reserves, other than local (neighbourhood) reserves;

    18.3   Stormwater retention and treatment areas;

    18.4   Geotechnically constrained land (such as land subject to subsidence or inundation);

    18.5   Land set aside to protect significant ecological, cultural, historic heritage or landscape values;

    18.6   Land set aside for esplanade reserves or access strips that form part of larger regional or sub-regional reserve network; and

    18.7   Land for local community services and retail facilities, or for schools, hospitals or other district, regional or sub-regional facilities.

19   My measured figure of 455.19 Ha has been used as the NDAs area as a basis for the further analysis rather than the quoted figure of 450 Ha from the PWDP.

20   I reviewed the land areas and parcels within the NDAs to identify and quantify these exclusions and I note the following points:

    20.1   Vested reserves other than for the purpose of local (neighbourhood) reserves were removed from the NDA's using information from the LINZ Data Service primary parcel information and classifying out reserve parcels based upon the parcel purpose.

    20.2   Stormwater retention and treatment areas were removed from the NDAs if they were classified as stormwater reserve in the previous step, or as classified as a stormwater basin as identified by the WDC 3-Waters GIS.

20.3 Natural open watercourses had the banks mapped using aerial imagery available from the ECAN GIS, with a 5m esplanade buffer applied to each waterway. These areas were then removed from the NDA areas.

20.4 Parcels of land owned by Rangiora High School Board of Trustees and with the purpose of "high school reserves" were manually removed from the NDAs using the LINZ Database Primary Parcel lot boundaries.

20.5 The Lamb and Hayward Funeral Directors' property in Rangiora was removed from the NDAs based upon the lot boundaries from the LINZ Data Service Primary Parcel Boundaries.

20.6 WDC are the current owners of Lot 4 DP 389050 (Reference Title 356168). While there is no legal designation or purpose stated on the title to specifically guide the intended use of the title, the WDC Proposed District Plan labels the Land Use of this lot as being Open Space Reserve in the North East Rangiora Outline Development Plan. This lot was removed from the NDAs based upon the LINZ Data Service Primary Parcel boundaries, as it directly augments and enlarges the existing Regional Sport Fields and Stadium Reserve to the north.

20.7 The area within the CIAL 50dBa combined noise contour over the remaining area within the Kaiapoi NDA was identified to help provide a further assessment within **Mr Walsh's** memo.

20.8 The area of High Flood Hazard as identified by Waimakariri District Councils 0.5% annual exceedance probability (*ARI*) or 1:200 year combined flood hazard model within the Kaiapoi NDAs was identified and measured.

21 The excluded areas described above are detailed in a memorandum appended to **Mr Walsh's** evidence. I have reviewed this memo which uses the results from my analysis, and I agree with its calculations and findings.

SPATIAL ANALYSIS OF FORMATIVE'S ASSESSMENT OF DEVELOPMENT CAPACITY IN EXISTING URBAN AREAS

22 Formative's Waimakariri Capacity for Growth Model 2022 accounts for development capacity within existing urban areas. The raw data from this growth model was made available to the applicant in the form of an Excel spreadsheet and I was asked to review this data and any constraints to intensification that were overlooked. I understand that **Mr Walsh** queried WDC whether there was any report to accompany the Excel model provided by Formative and

was informed that the model consists only of the Excel file and no report has yet been completed providing further detail on the model. The only information we have on the model is that which is included in the Formative report included as part of the WDC S42a report.

23   The Excel spreadsheet provided included fields for an ID, Zone Name, Township, Land Area, Building Count, Medium Term feasible yield, Long Term feasible Yield.

24   The ID field from the Formative dataset matches with the parcel ID's assigned by LINZ. The Formative dataset was referenced into Q-GIS matching the ID fields of the Formative dataset and the LINZ Primary Parcel dataset to provide a spatial representation of the parcels identified by Formative.

25   The Formative Growth Model identified areas available for development under the Medium Density Residential Standards (*MDRS*), along with General Residential, Large Lot Residential and Settlement Zones. All of the MDRS development was focused in Rangiora, Kaiapoi, Woodend/Ravenswood and Pegasus. A small amount of settlement development was allowed for in Ōhoka, Tuahiwi and Waikuku Beach. Large lot residential development was applicable in Mandeville, Ōhoka, Rangiora, Swannanoa and Waikuku.

26   Noting the context above, I undertook analysis of the Formative dataset and its relation to the LINZ cadastral information to highlight areas meeting any of the following criteria (which indicate that residential intensification is unlikely to occur):

    26.1   Parcels whose purpose is for Utility or Local Purpose Reserve;

    26.2   Parcels with a designation by a requiring authority; and

    26.3   Parcels that have areas subject to Esplanade Provisions.

27   A cursory visual assessment was also undertaken to identify other examples of lots that Formative had identified as providing development capacity, where that is unlikely accounting for the parcel shape, land use, natural features such as waterbodies, etc.

28   This analysis highlighted the likes of the upper reaches of the Northbrook Stream being captured in the Formative assessment as land providing development capacity. These overestimations in developable areas are further commented on in the evidence of **Mr Akehurst**.

29   Insufficient time was available to undertake a comprehensive and conclusive spatial assessment of the Formative assessment.

However, in my view, the omissions I identified in the initial assessment (as summarised by **Mr Akehurst**) highlights that there is insufficient robustness in Formative's assessment to conclude how many lots are available within the Waimakariri District in the medium and long term.

30   It is my professional opinion that the Formative assessment of available developable area within the Waimakariri District is too broad to be relied upon to provide a realistic and reliable indication of development capacity with a bias to overestimate the available capacity. Further information on these errors can be found within the evidence of **Mr Akehurst**.

CONCLUSION

31   In summary, the spatial analysis I have carried out has assisted **Mr Walsh** and **Mr Akehurst** in providing further comment on areas of the Waimakariri District that face development constraints, and the current development capacity available within the Waimakariri District.

32   Overall, I agree with the conclusions and comments made within **Mr Walsh's** and **Mr Akehurst's** evidence in regard to current development capacity and areas where development constraints occur.

Dated: 7 July 2023

Chris Sexton