

**Before the Hearings Panel
At Porirua City Council**

Under Schedule 1 of the Resource Management Act 1991

In the matter of the Proposed Porirua District Plan

Between **Various**

Submitters

And **Porirua City Council**

Respondent

**Council reply - Benjamin Hugh Fountain – Future Urban Zone (Flood Risk
Management)**

Date: 28 July 2022

INTRODUCTION:

- 1 My full name is Benjamin Hugh Fountain. I am employed as a Principal Advisor – Environment at Porirua City Council.
- 2 I have prepared this Council reply on behalf of the Porirua City Council (Council) in respect of matters raised through Hearing Stream 5.
- 3 Specifically, this statement of evidence relates to flooding hazards within that part of the Proposed Future Urban Zone identified as Judgeford Flats, Pāuatahanui as identified in Part 3 FUZ – Future Urban Zone.
- 4 I am authorised to provide this evidence on behalf of the Council.

QUALIFICATIONS, EXPERIENCE AND CODE OF CONDUCT

- 5 My Statement of Evidence appended to the section 42A report for the Future Urban Zone sets out my qualifications and experience.
- 6 I confirm that I am continuing to abide by the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2014.

SCOPE OF REPLY

- 1 This reply follows Hearing Stream 5 held between 16 May and 6 July 2022.
- 2 Minute 44 from the Panel dated 8 July 2022 allows for Council to submit a written right of reply for the Future Urban Zone chapter by 1pm on 28 July 2022.
- 3 This reply address specific questions 13 (b),(c) and (d) from the Panel through Minutes 44 -Stream 5 Follow Up (2). These questions relate to the flooding risk in the Judgeford Flat Future Urban Zone.

13 (b) Please provide larger scale (A3) maps of the Judgeford Flats FUZ showing cadastral boundaries with a key enabling addresses and landowners to be identified with and without the modelled flood hazard.

Also please advise what percentage of each property is subject to a modelled 1-100 flood risk of greater than 1 metre depth;

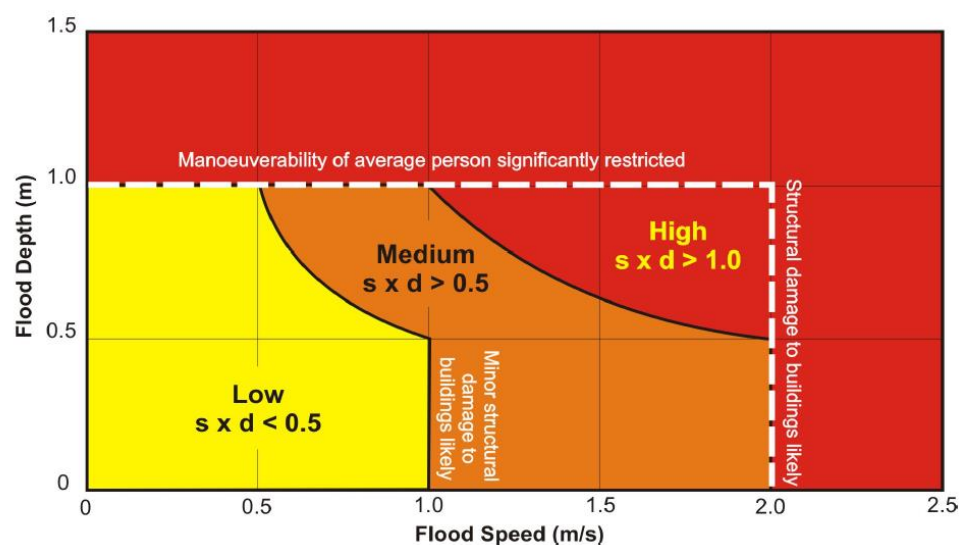
(c) Please comment specifically on the extent of the modelled flood hazard in areas recommended for RLZ zoning, and the appropriateness of that zoning in light of the flood risk;

(d) Please advise the recorded rainfall and peak stream flows in the Judgeford Flats area over the 24 hours to 9am on 9 June 2022 in a table also showing the current assessment of the 1/100AEP for both values.

4 In response to 13 (b) the requested A3 maps of Judgeford Flats FUZ are attached to this evidence.

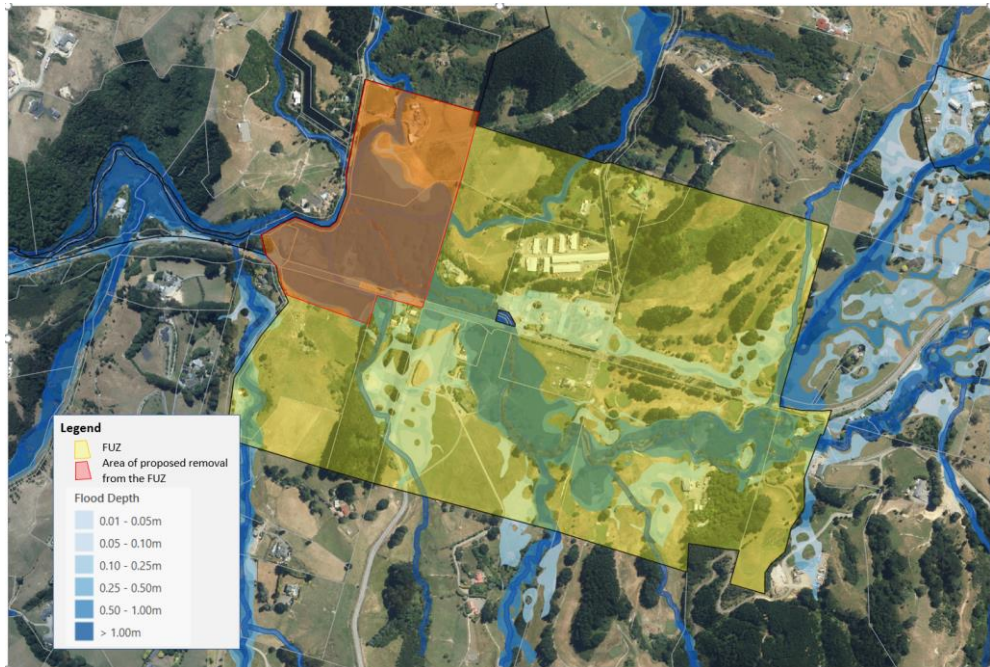
5 In response to 13 (c) there are a range of approaches to assessing flood hazard that vary depending on the source and type flood hazard and what consequence is being assessed. A typical depth/velocity flood hazard comparison is shown below, taken from the Kaeo River Catchment Flood Risk Assessment and Option Analysis undertaken by GHD for Northland Regional Council.

6 While also dependent on the speed of the flow, which will vary over a floodplain, the graph below indicates that depths over 1m can be considered high hazard to life.

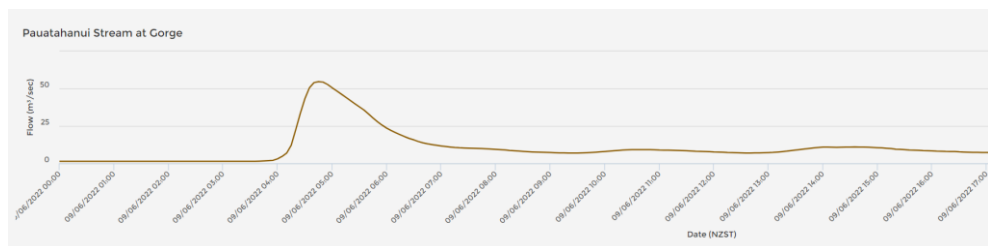


- 7 As per my previous evidence, areas with potential for deep flooding should be avoided to reduce the risk to life. A number of submitters have identified properties that have recently experienced deep flooding including parts of No. 35 and 41 Murphys Road , No. 2 and 50 Flightys Road and No. 237 Paremata Haywards Rd. These properties are located just above the gorge section of Pāuatahanui Stream, see attached maps.
- 8 The flooding in the lower parts of these properties can exceed 1m in depth. It is unlikely that development would be viable in this area of deep flooding as there are significant practical and cost constraints to mitigating the hazard. Future development within the areas of deep flooding should not be encouraged and this area could be excluded from the Future Urban Zone.
- 9 There are also other areas within the Proposed Judgeford Future Urban Zone that are also subject to deep flooding, particularly adjacent to the main channel of the Pāuatahanui Stream that runs east to west through the zone. Development should also not be encouraged in these areas. Given the geographic spread of these locations through the proposed Future Urban Zone, I consider that it may be more practical to restrict development in these high hazard areas through the objectives, policies and rules that are contained in Part 2: District-Wide Matters, Hazards and Risks NH - Natural Hazards and Part 2: District-Wide Matters, Energy, Infrastructure and Transport THWT - Three Waters rather than through zoning. NH-P4 for example requires development of Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities in locations of flood inundation to consider the impacts on adjacent properties and the risk to people's lives and wellbeing. The area of potential removal from the FUZ due to the deep flooding is shown below.

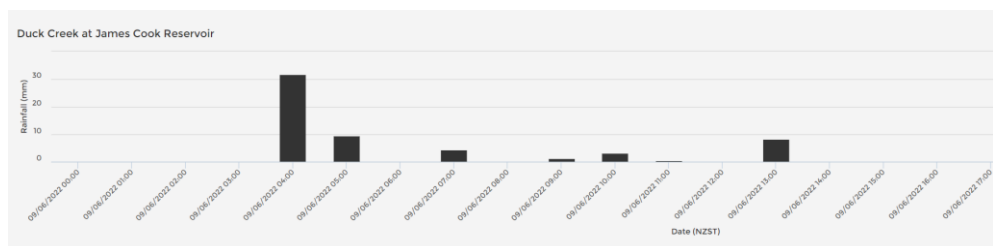
Figure 1 Area of deep and frequent flooding within No. 35 and 41 Murphys Road , No. 2 and 50 Flightys Road and No. 237 Paremata Haywards Rd that could be excluded from the proposed Future Urban Zone.



10 In response to 13 (d) relating to the rainfall and flows in the Pāuatahanui Stream on 9/6/2022. The Pāuatahanui Stream Gauge recordings for this event is shown below (source GWRC Environmental Monitoring and Research website)



11 The closest public rainfall gauge (Duck Creek Whitby) to the catchment recorded the following rainfall in the same event.



- 12 The rain gauge at this location recorded 32mm in 1 hour on 9/06/2022. The NIWA High Intensity Rainfall Design System v4 estimates that for this catchment this rainfall intensity would be expected on average approximately every 20 years. The 100-year intensity over a one hour period is 44.8mm/hr.
- 13 NIWA estimates of Rainfall intensities for the Pāuatahanui Catchment are shown below (source <https://hirds.niwa.co.nz>).

Rainfall intensities (mm/hr) :: Historical Data

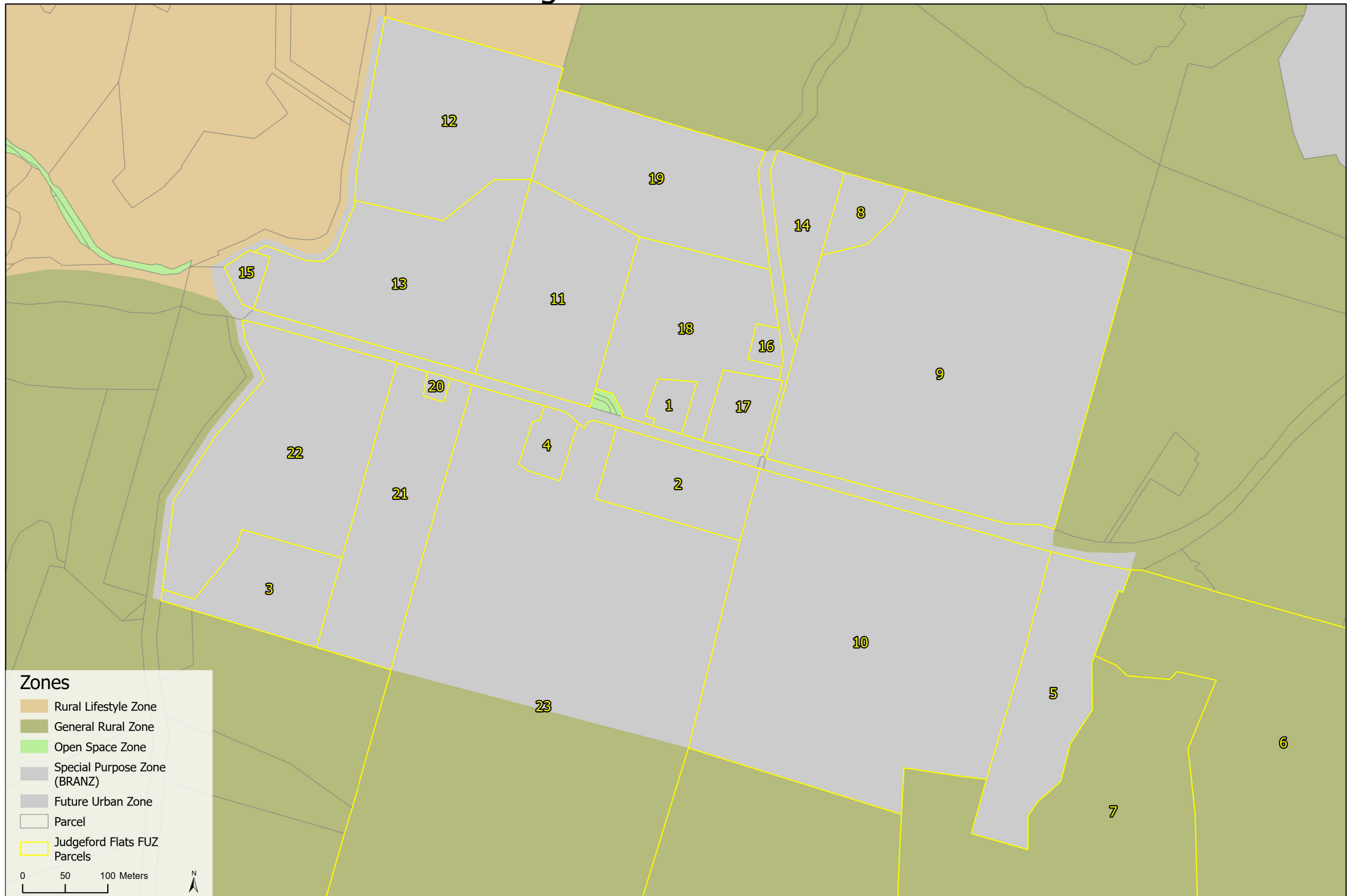
ARI	AEP	10m	20m	30m	1h
1.58	0.633	44.1	31.4	25.6	17.7
2	0.500	48.4	34.5	28.0	19.4
5	0.200	63.2	44.9	36.4	25.2
10	0.100	74.3	52.7	42.7	29.5
20	0.050	85.8	60.8	49.3	33.9
30	0.033	92.8	65.7	53.2	36.6
40	0.025	97.9	69.2	56.0	38.5
50	0.020	102	72.0	58.3	40.0
60	0.017	105	74.2	60.1	41.3
80	0.013	110	77.9	63.0	43.2
100	0.010	114	80.7	65.3	44.8
250	0.004	131	92.4	74.7	51.1

Date: 28/07/2022

Benjamin Hugh Fountain

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Judgeford Flats FUZ Area



Map Key						
Map Key	Legal Description	Address	Owners	Parcel Area (m2)	Flood Area (m2)	Percent Flood Coverage
1	Lot 1 DP 76421	283 Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Christian Aaron Katene, Rahui Reid Katene, Selwyn Katene	3452	0	0.0%
2	Lot 1 DP 25982	278 Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Drapers Earthmoving Limited	20188	4992	24.73%
3	Lot 2 DP 307394	53 Murphys Road,Judgeford, Porirua City	5381 Fyffe Properties Limited	19996	0	0.0%
4	Lot 1 DP 67758	264A Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Gael Lorraine Wootton, Shane John Oldfield	4999	2457	49.14%
5	Lot 1 DP 68407	346B Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Jacqueline Ann Lally	36903	3651	9.89%
6	Lot 2 DP 465337	346C Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Judgeford Heights Ltd	541365	1494	0.28%
7	Lot 1 DP 465337	346A Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Judgeford Heights Ltd	543469	7238	1.33%
8	Lot 1 DP 74113	328 Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Judgeford Investments Limited	7264	0	0.0%
9	Part Section 5 Pauatahanui AG RES	328 Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Judgeford Investments Limited	150915	1143	0.76%
10	Part Section 95 Pauatahanui AG RES	328 Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Judgeford Investments Limited	150483	24490	16.27%
11	Lot 1 DP 28229	275A Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Leanne Sophie Maxey, Hayden Daniel Maxey	40932	7768	18.98%
12	Lot 1 DP 91080	50 Flightys Road,Judgeford, Porirua City	5381 Marie Diane Hawkins, Stephen John Clarke	52029	12342	23.72%
13	Lot 2 DP 91080	237 Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 NZ Transport Agency	54153	46925	86.65%
14	Lot 2 DP 14428	36 Mulhern Road,Judgeford, Porirua City	5381 Paula Elsie Hall, Matthew John Moffit Hall	13772	0	0.0%
15	Part Section 3 Pauatahanui AG RES	2 Flightys Road,Judgeford, Porirua City	5381 Porirua City Council	2771	2767	99.83%
16	Lot 2 DP 74731	13 Mulhern Road,Judgeford, Porirua City	5381 Robyn Patricia Fell, Desmond John Fell	2001	0	0.0%
17	Part Lot 1 DP 14428	287 Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Sandra Anne Draper, Victor Anthony Deal Draper	8309	0	0.0%
18	Lot 2 DP 76421	275B Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Shedlands Limited	39494	197	0.5%
19	Lot 2 DP 28229	29 Mulhern Road,Judgeford, Porirua City	5381 Simon Paul Richardson, Liza Jayne Richardson	46058	1580	3.43%
20	Lot 1 DP 11670	248 Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Stressfactor Investments Limited	1012	0	0.0%
21	Lot 1 DP 24526	250 Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Stressfactor Investments Limited	40518	851	2.1%
22	Lot 1 DP 307394	35 Murphys Road,Judgeford, Porirua City	5381 Wayne Milton Brown	63622	9415	14.8%
23	Lot 1 DP 86208	264B Paremata Haywards Road (SH 58),Judgeford, Porirua City	5381 Willowbank Trustee Limited	300882	25738	8.55%

Judgeford Flats FUZ Area



Judgeford Flats FUZ Area



Parcel
Judgeford Flats FUZ
Parcels

0 50 100 Meters

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