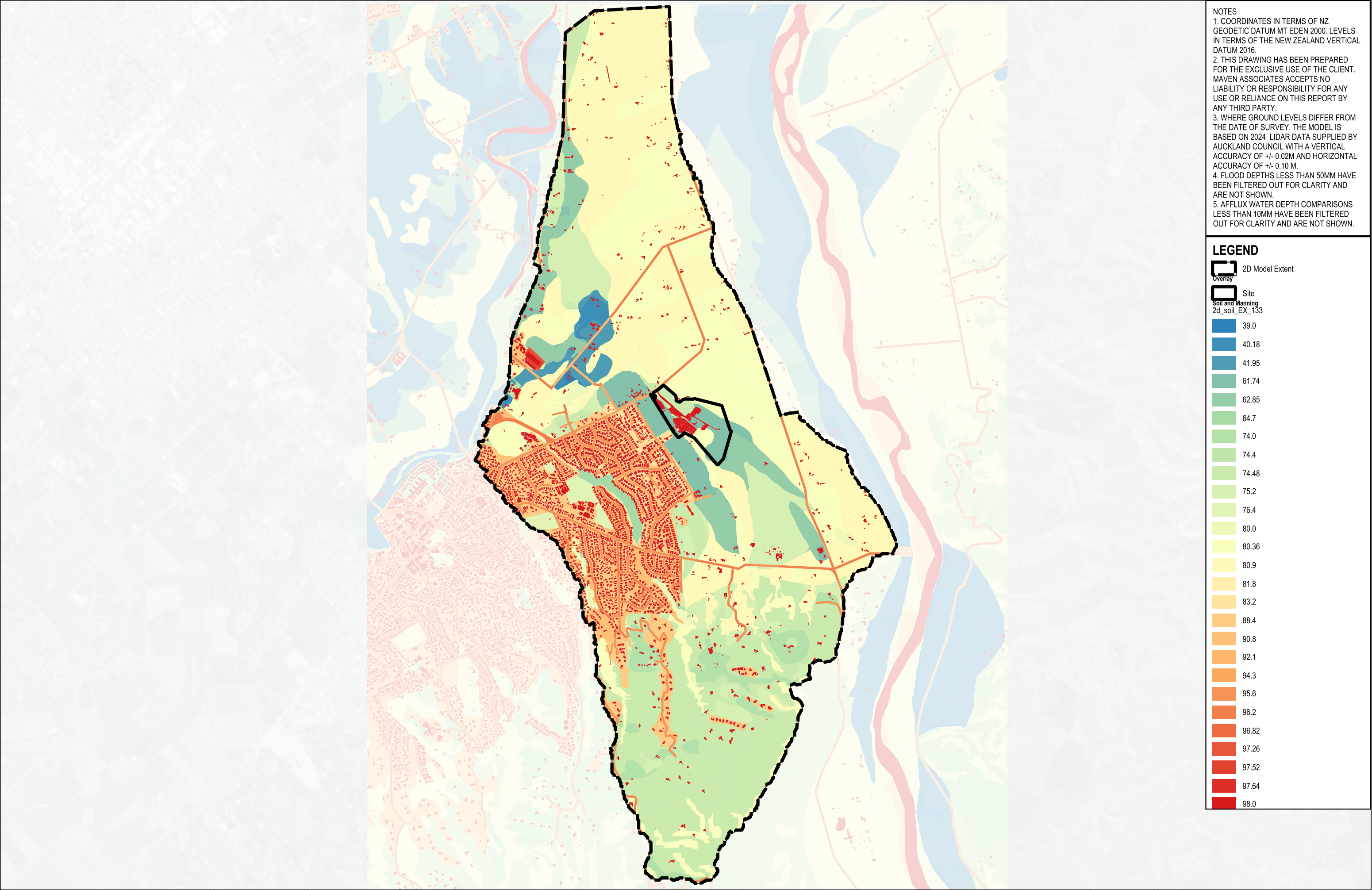




NOTES

1. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.

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3. WHERE GROUND LEVELS DIFFER FROM THE DATE OF SURVEY. THE MODEL IS BASED ON 2024 LIDAR DATA SUPPLIED BY AUCKLAND COUNCIL WITH A VERTICAL ACCURACY OF +/- 0.02M AND HORIZONTAL ACCURACY OF +/- 0.10 M.

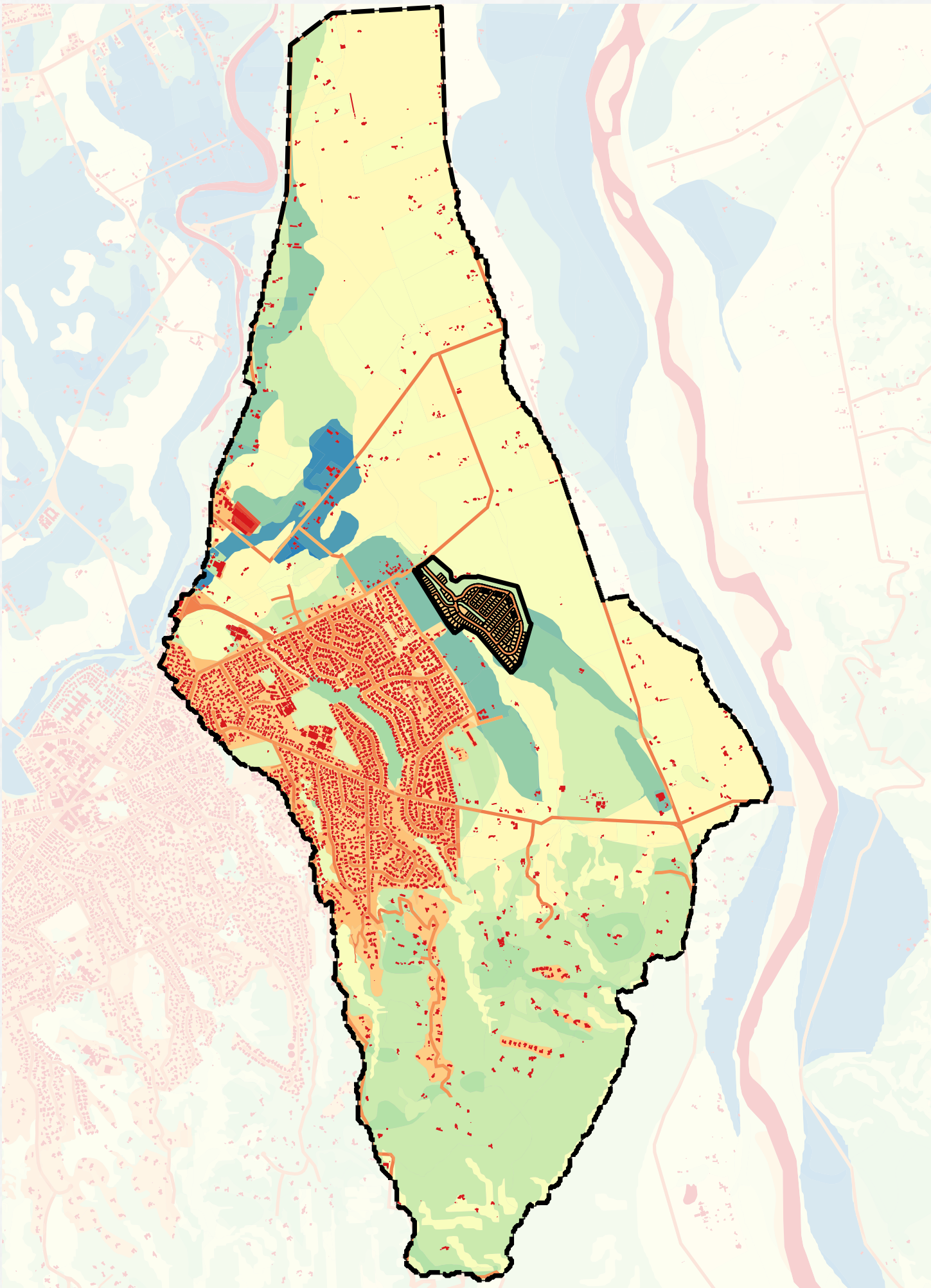
4. FLOOD DEPTHS LESS THAN 50MM HAVE BEEN FILTERED OUT FOR CLARITY AND ARE NOT SHOWN.

5. AFFLUX WATER DEPTH COMPARISONS LESS THAN 10MM HAVE BEEN FILTERED OUT FOR CLARITY AND ARE NOT SHOWN.

LEGEND

-  2D Model Extent
-  Site
-  Soil and Manning
-  2d_soil_EX_133
-  39.0
-  40.18
-  41.95
-  61.74
-  62.85
-  64.7
-  74.0
-  74.4
-  74.48
-  75.2
-  76.4
-  80.0
-  80.36
-  80.9
-  81.8
-  83.2
-  88.4
-  90.8
-  92.1
-  94.3
-  95.6
-  96.2
-  96.82
-  97.26
-  97.52
-  97.64
-  98.0

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Infiltration - Existing Sheet 1		STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW					SCALE	1:30,000	A
				Draft	YW							
				Checked	TM					SHEET	135041-FL-500000	



NOTES

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LEGEND

2D Model Extent
Overlay Proposed

Pr Lot Boundaries

Overlay

Site

Soil and Manning

2d_soil_PR_133

39.0

40.18

41.95

61.74

62.85

64.7

74.0

74.4

74.48

75.2

76.4

80.0

80.36

80.9

81.8

83.2

88.4

90.8

92.1

94.3

95.6

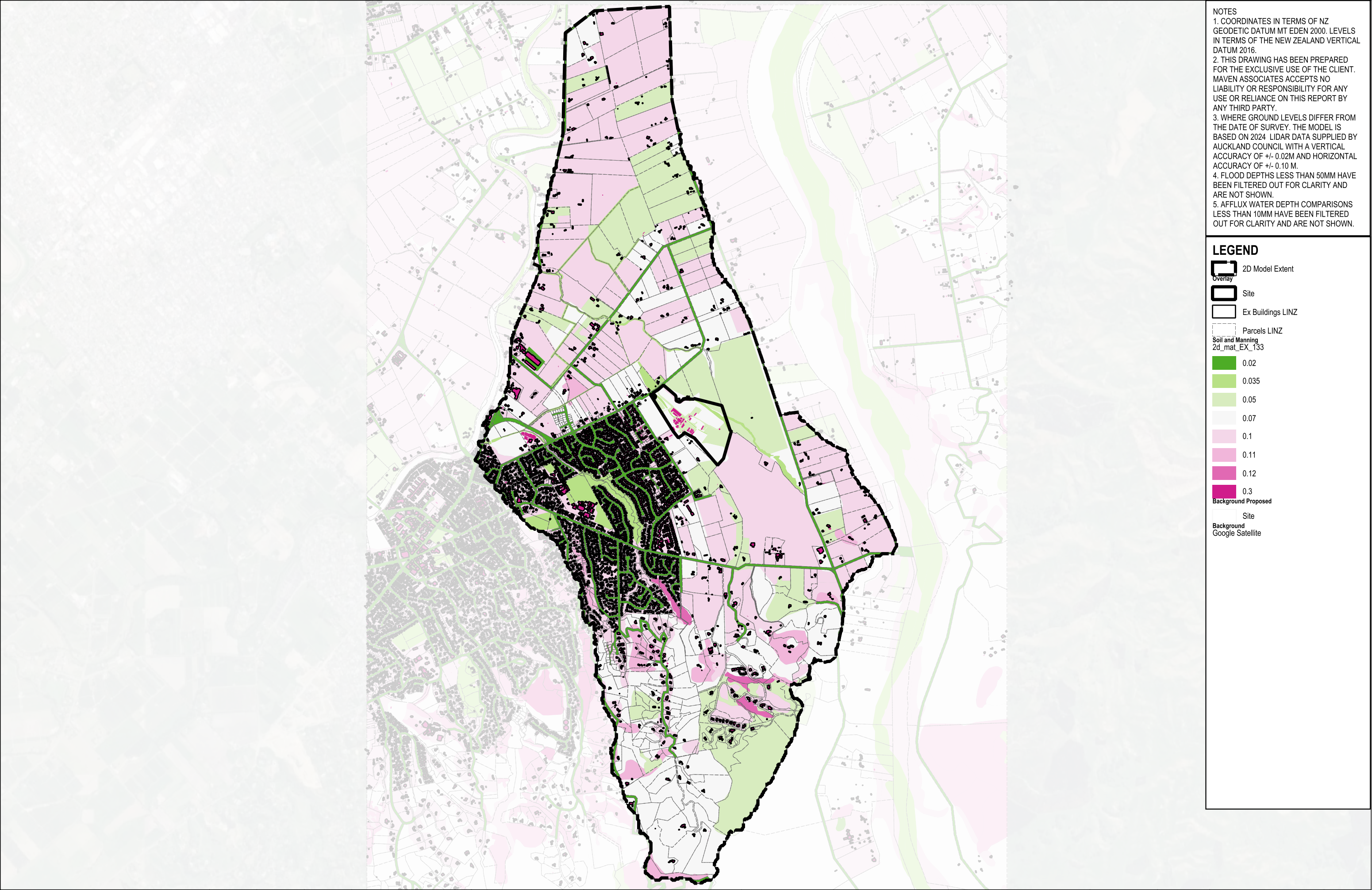
96.2

96.82

97.26

97.52

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Infiltration - Proposed Sheet 1		STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW					SCALE	1:30,000	A
				Draft	YW							
				Checked	TM					SHEET	135041-FL-500001	



NOTES

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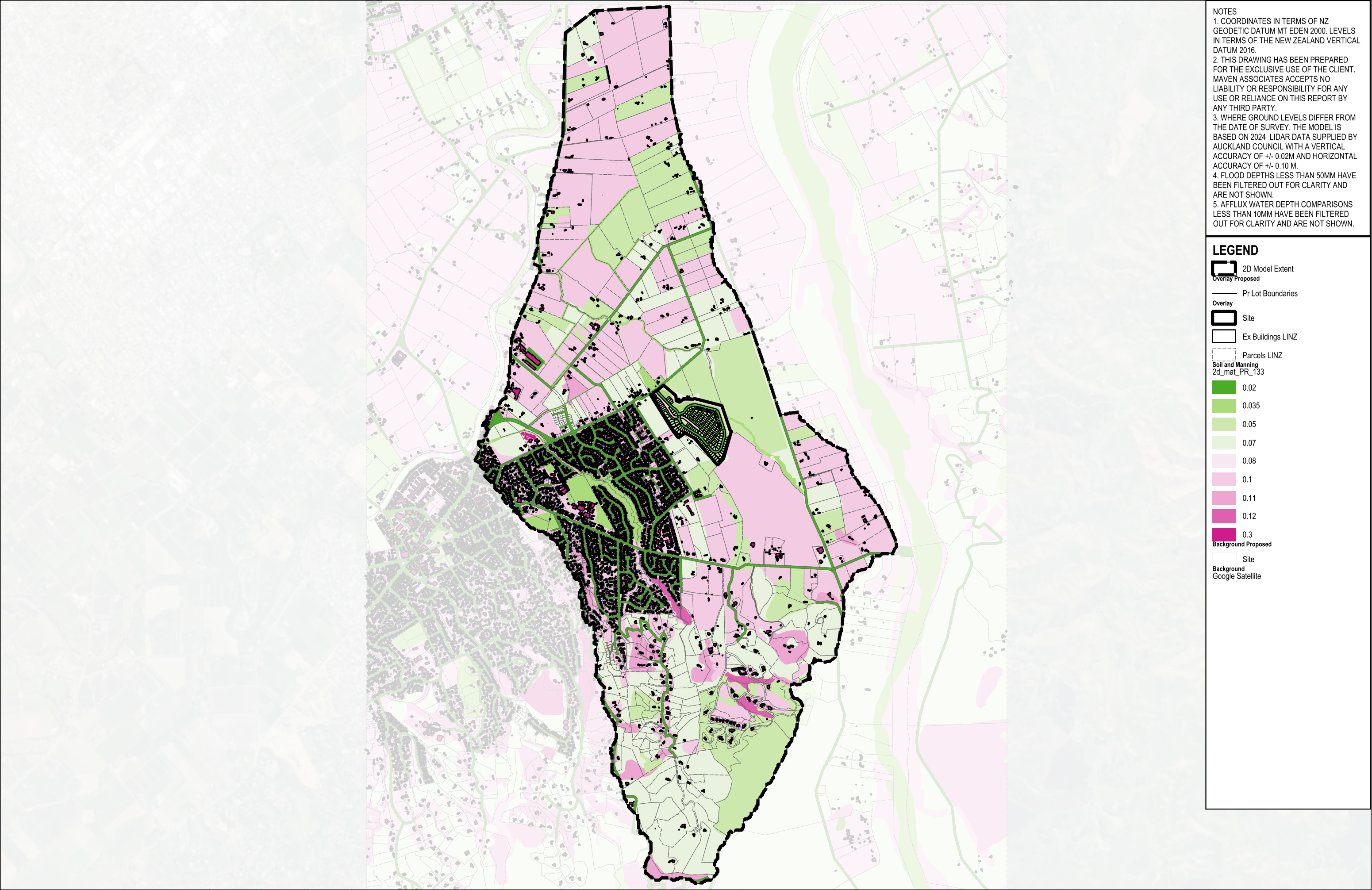
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LEGEND

- 2D Model Extent
Overlay
- Site
- Ex Buildings LINZ
- Parcels LINZ
- Soil and Manning
2d_mat_EX_133
- 0.02
- 0.035
- 0.05
- 0.07
- 0.1
- 0.11
- 0.12
- 0.3
- Background Proposed
- Site
- Background
Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Manning - Existing Sheet 1			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:30,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500008	



NOTES

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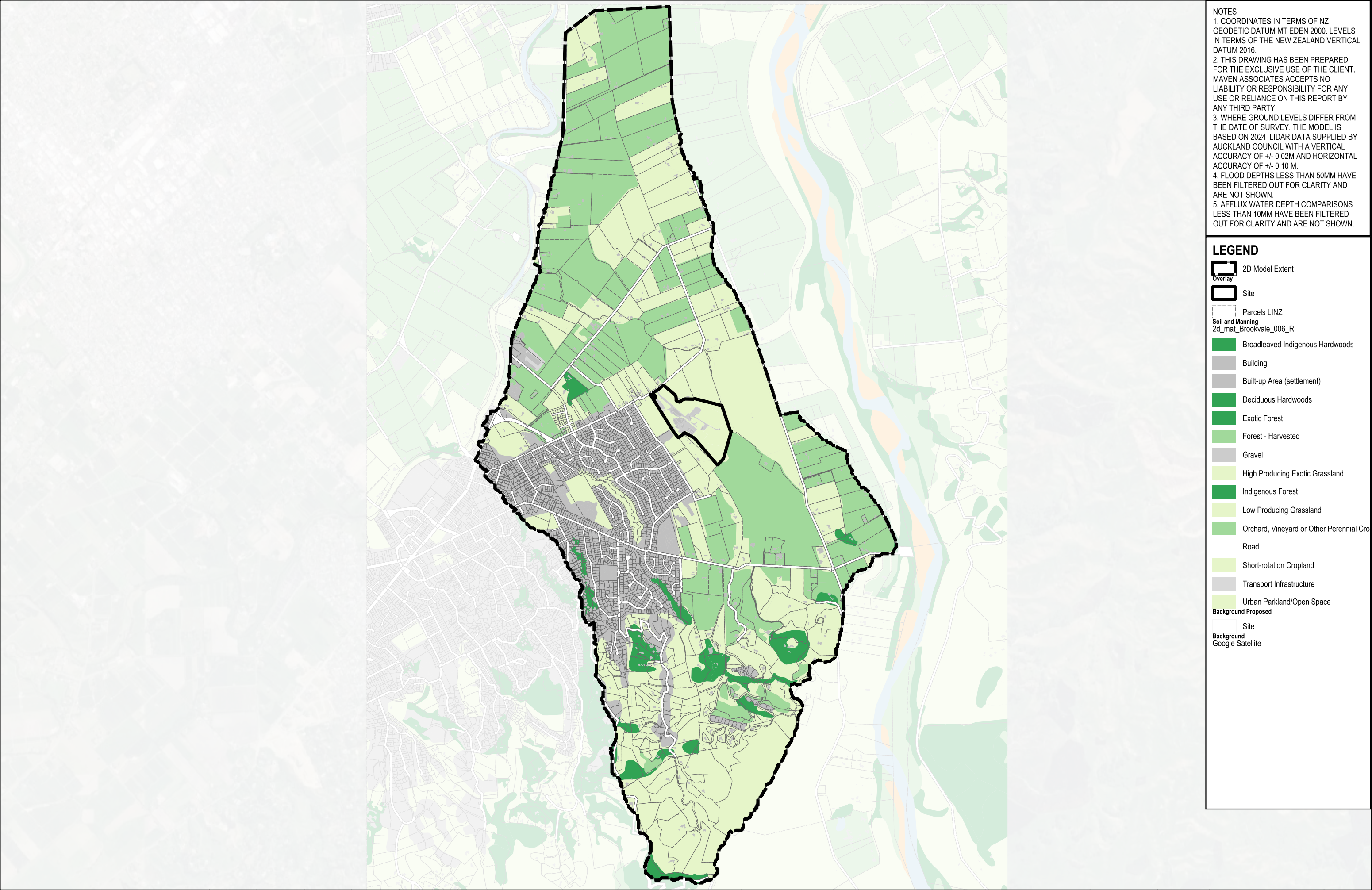
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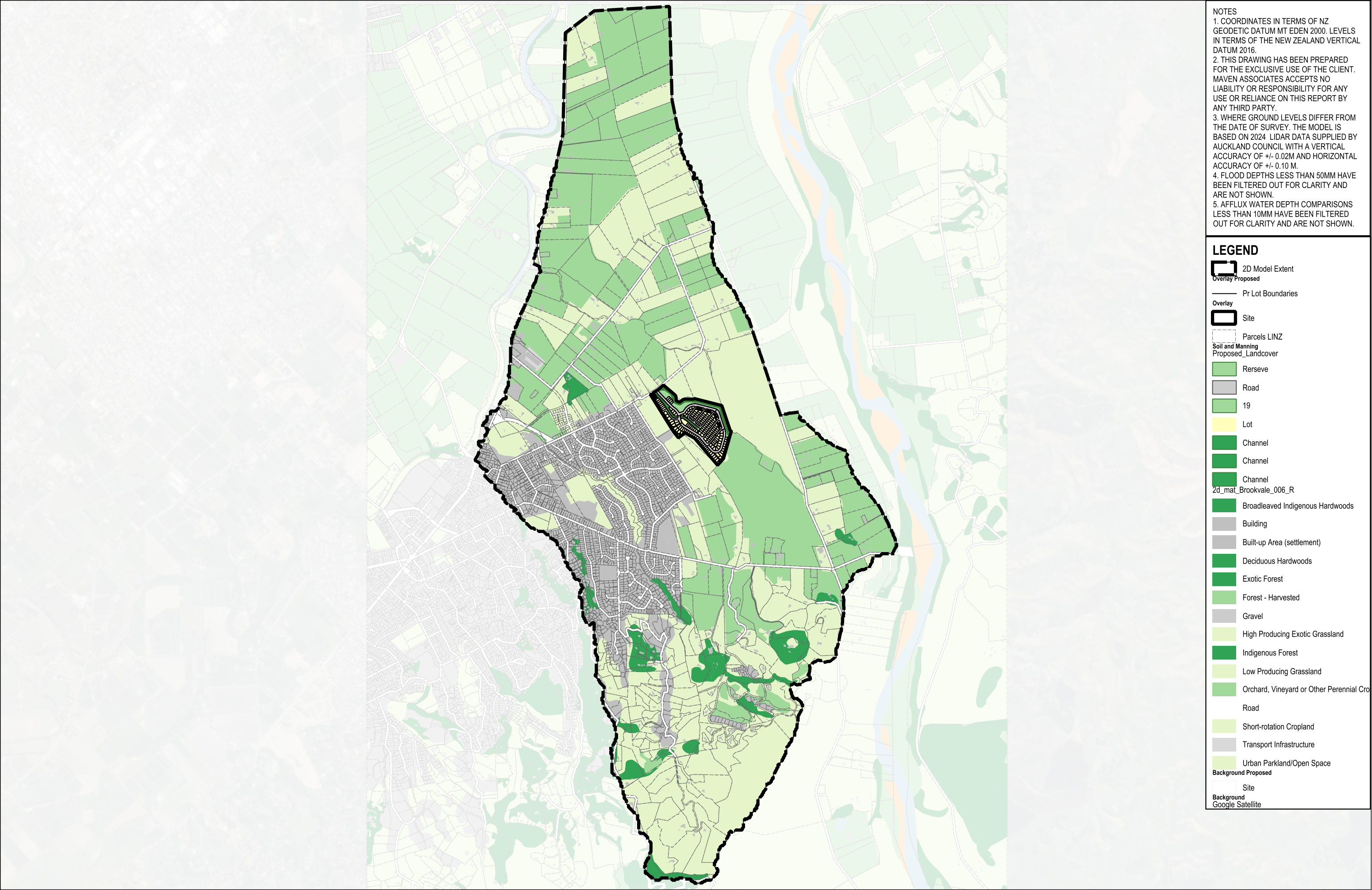
LEGEND

- 2D Model Extent
- Overlay Proposed
- Pr Lot Boundaries
- Overlay
- Site
- Ex Buildings LINZ
- Parcels LINZ
- Soil and Manning 2d_mat_PR_133
- 0.02
- 0.035
- 0.05
- 0.07
- 0.08
- 0.1
- 0.11
- 0.12
- 0.3
- Background Proposed
- Site
- Background Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Manning - Proposed Sheet 1			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:30,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500009	



Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Landcover - Existing Sheet 1		STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW					SCALE	1:30,000	A
				Draft	YW							
				Checked	TM					SHEET	135041-FL-500012	



NOTES

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LEGEND

- 2D Model Extent
- Overlay Proposed
- Pr Lot Boundaries
- Overlay
- Site
- Parcels LINZ
- Soil and Manning
- Proposed_Landcover
- Rerseve
- Road
- 19
- Lot
- Channel
- Channel
- Channel
- 2d_mat_Brookvale_006_R
- Broadleaved Indigenous Hardwoods
- Building
- Built-up Area (settlement)
- Deciduous Hardwoods
- Exotic Forest
- Forest - Harvested
- Gravel
- High Producing Exotic Grassland
- Indigenous Forest
- Low Producing Grassland
- Orchard, Vineyard or Other Perennial Cro
- Road
- Short-rotation Cropland
- Transport Infrastructure
- Urban Parkland/Open Space
- Background Proposed
- Site
- Background
- Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Landcover - Proposed Sheet 1			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:30,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500014	



NOTES

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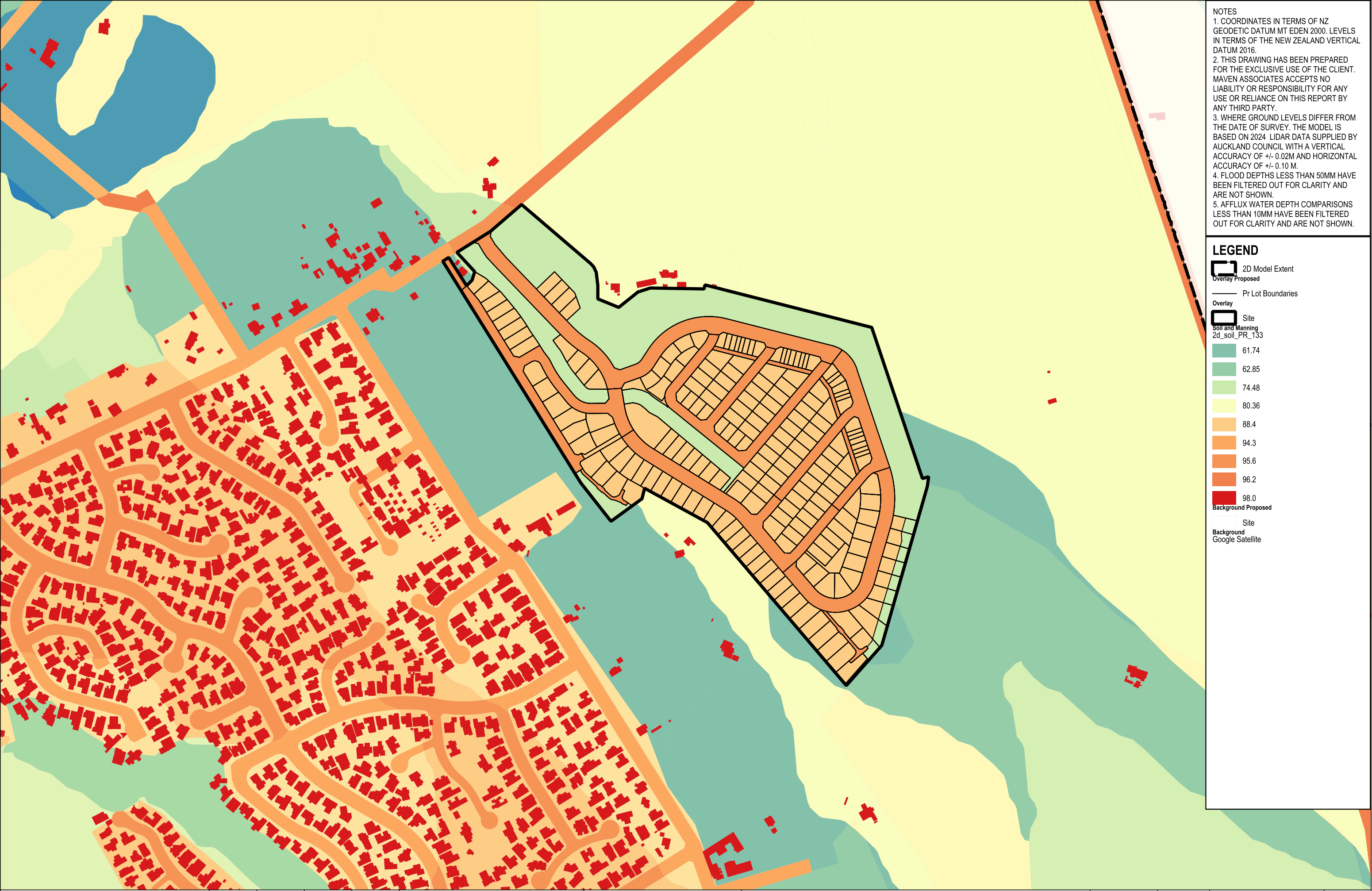
4. FLOOD DEPTHS LESS THAN 50MM HAVE BEEN FILTERED OUT FOR CLARITY AND ARE NOT SHOWN.

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LEGEND

- 2D Model Extent
- Site
- Soil and Manning
2d_soil_EX_133
- | |
|-------|
| 61.74 |
| 62.85 |
| 74.48 |
| 80.36 |
| 94.3 |
| 95.6 |
| 96.2 |
| 98.0 |
- Background
Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Infiltration - Existing Sheet 2			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:5,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500002	



NOTES

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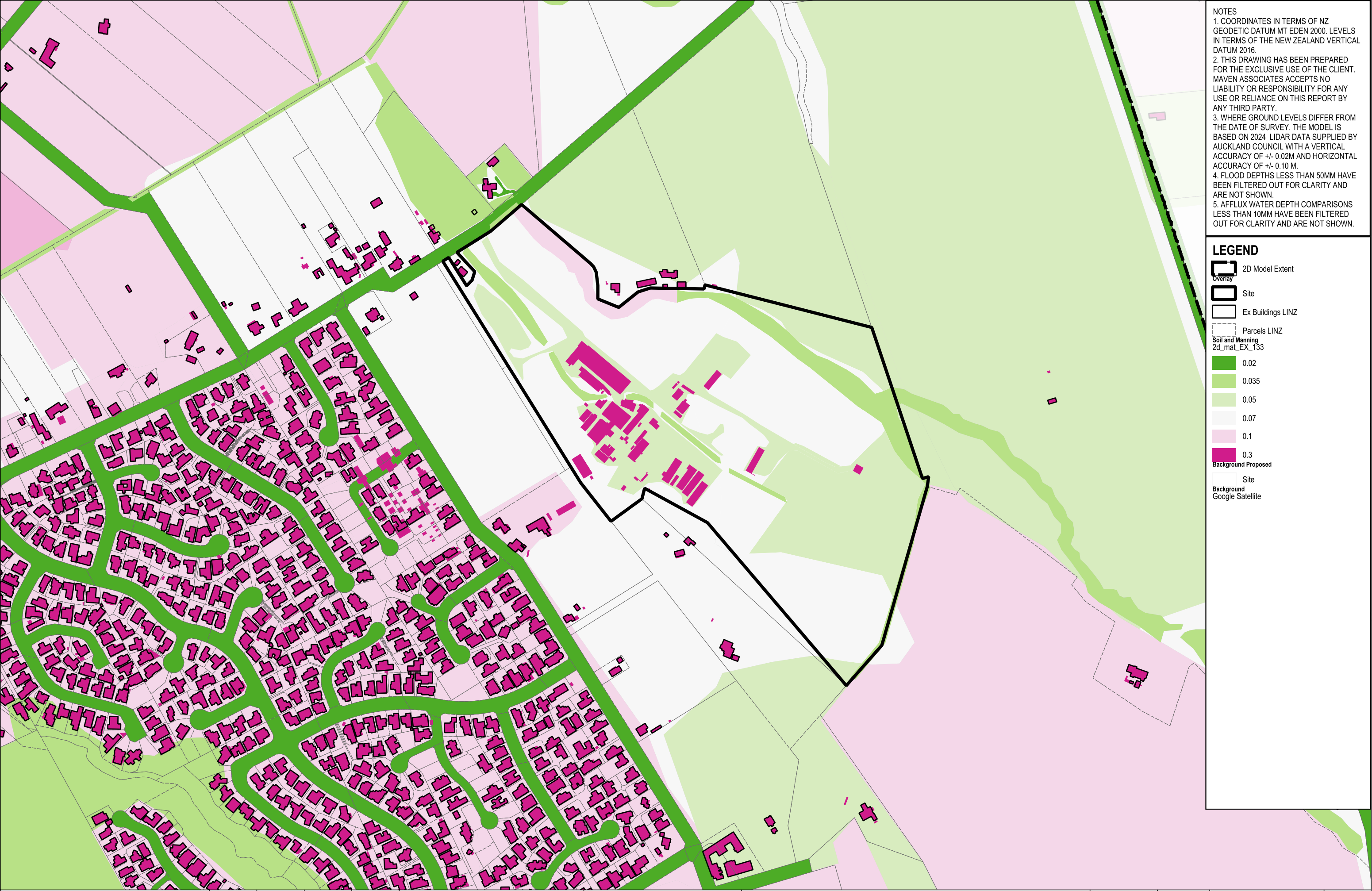
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5. AFFLUX WATER DEPTH COMPARISONS LESS THAN 10MM HAVE BEEN FILTERED OUT FOR CLARITY AND ARE NOT SHOWN.

LEGEND

- 2D Model Extent
- Pr Lot Boundaries
- Overlay
- Site
- Soil and Manning
2d_soil_PR_133
- 61.74
- 62.85
- 74.48
- 80.36
- 88.4
- 94.3
- 95.6
- 96.2
- 98.0
- Background Proposed
- Site
- Background
Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Infiltration - Proposed Sheet 2		STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW					SCALE	1:5,000	A
				Draft	YW							
				Checked	TM					SHEET	135041-FL-500003	



NOTES

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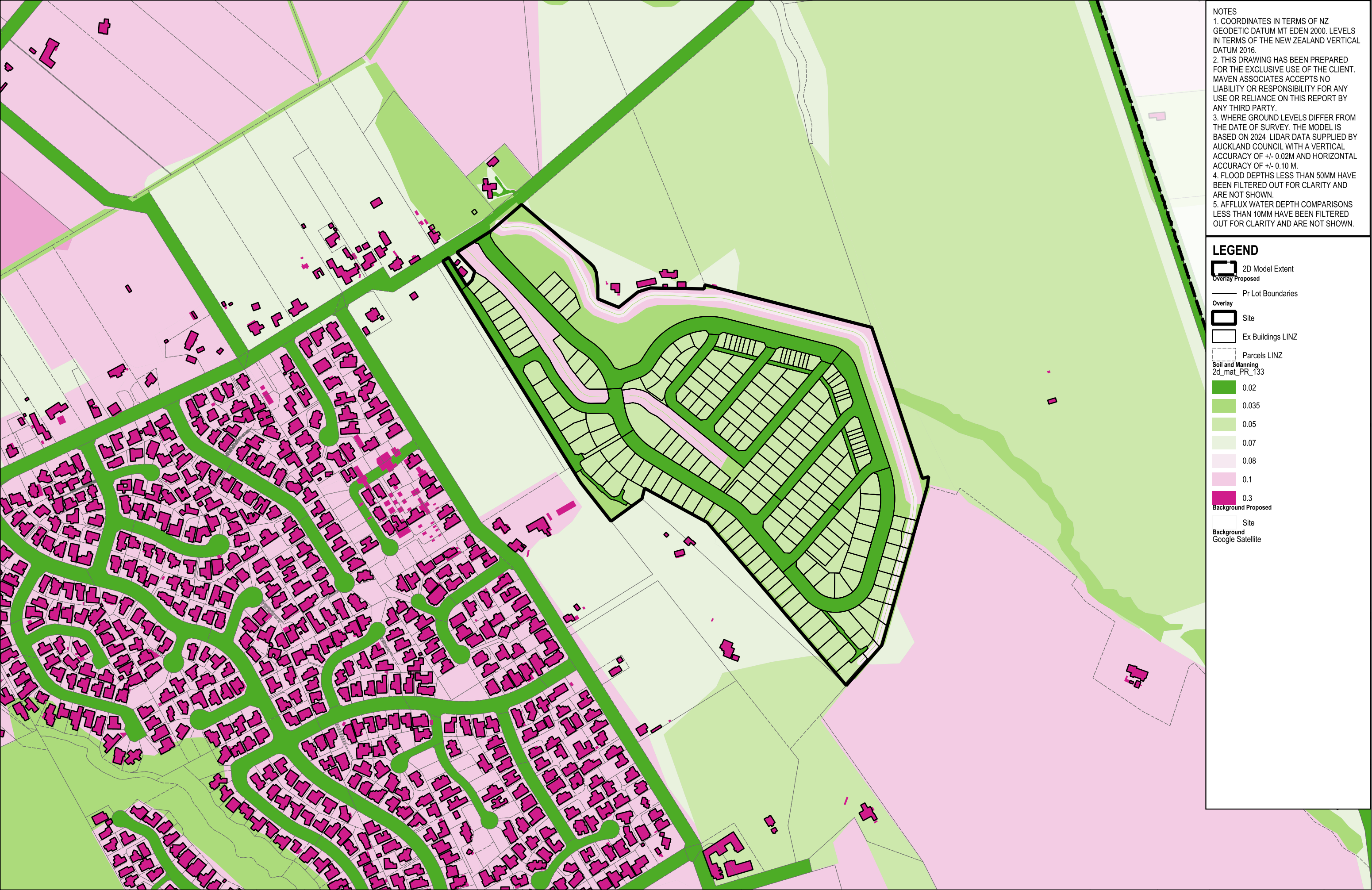
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LEGEND

- 2D Model Extent
- Site
- Ex Buildings LINZ
- Parcels LINZ
- Soil and Manning 2d_mat_EX_133
- 0.02
- 0.035
- 0.05
- 0.07
- 0.1
- 0.3
- Background Proposed
- Site
- Background Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Manning - Existing Sheet 2			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:5,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500010	



NOTES

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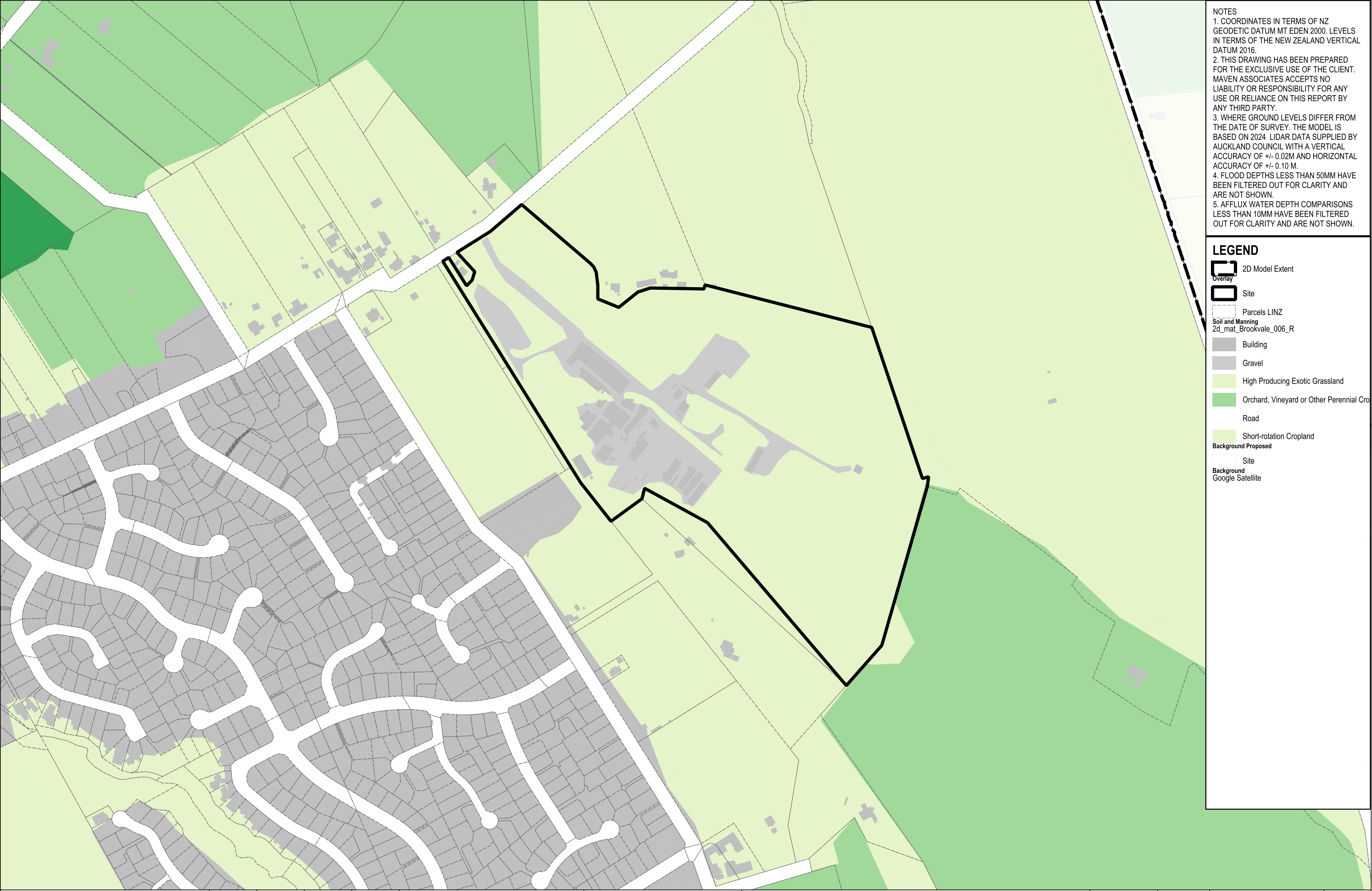
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LEGEND

- 2D Model Extent
- Overlay Proposed
- Pr Lot Boundaries
- Site
- Ex Buildings LINZ
- Parcels LINZ
- Soil and Manning
2d_mat_PR_133
- 0.02
- 0.035
- 0.05
- 0.07
- 0.08
- 0.1
- 0.3
- Background Proposed
- Site
- Background
Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Manning - Proposed Sheet 2			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:5,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500011	



NOTES

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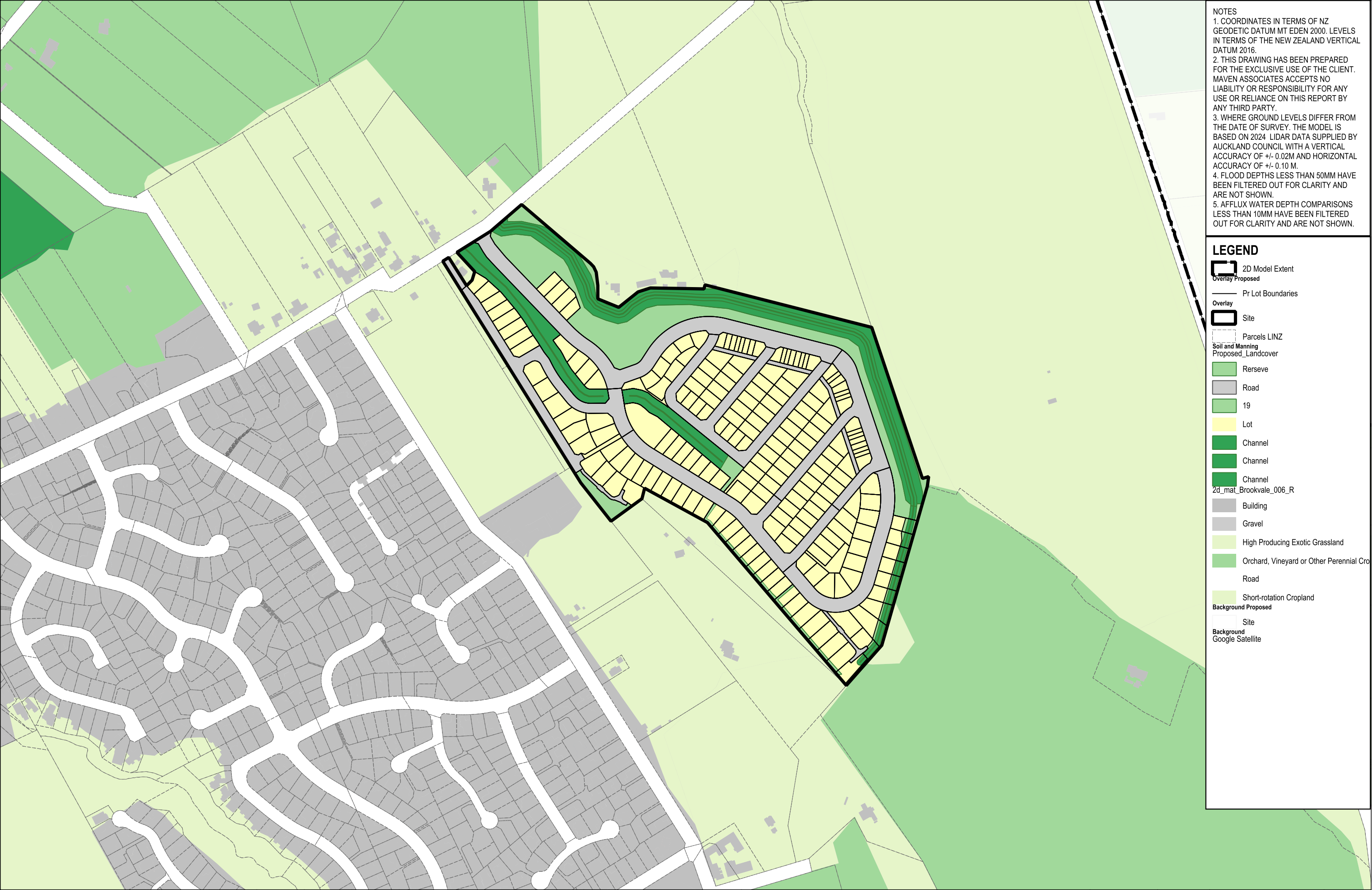
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LEGEND

- 2D Model Extent
- Site
- Parcels LINZ
- Soil and Manning
- 2d_mat_Brookvale_006_R
- Building
- Gravel
- High Producing Exotic Grassland
- Orchard, Vineyard or Other Perennial Cro
- Road
- Short-rotation Cropland
- Background Proposed
- Site
- Background
- Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Landcover - Existing Sheet 2		STATUS	FOR INFORMATION	Rev	
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:5,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500013	



NOTES

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LEGEND

2D Model Extent

Pr Lot Boundaries

Overlay

Site

Parcels LINZ

Soil and Manning

Proposed_Landcover

Reserve

Road

19

Lot

Channel

Channel

Channel

2d_mat_Brookvale_006_R

Building

Gravel

High Producing Exotic Grassland

Orchard, Vineyard or Other Perennial Cro

Road

Short-rotation Cropland

Background Proposed

Site

Background

Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Landcover - Proposed Sheet 2			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:5,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500015	



- NOTES
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LEGEND

- 2D Model Extent Overlay
- Site
- Ex Buildings LINZ
- Parcels LINZ
- Ex Drainage
1d_nwkb_Brookvale_Ex_Cvt_001_L
- Existing Pipes (EX)
1d_nwkb_Downstream_CVT_Ex_001_L
- Existing Pipes (EX)
- Background
Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Drainage - Existing Sheet 1			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:10,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500004	

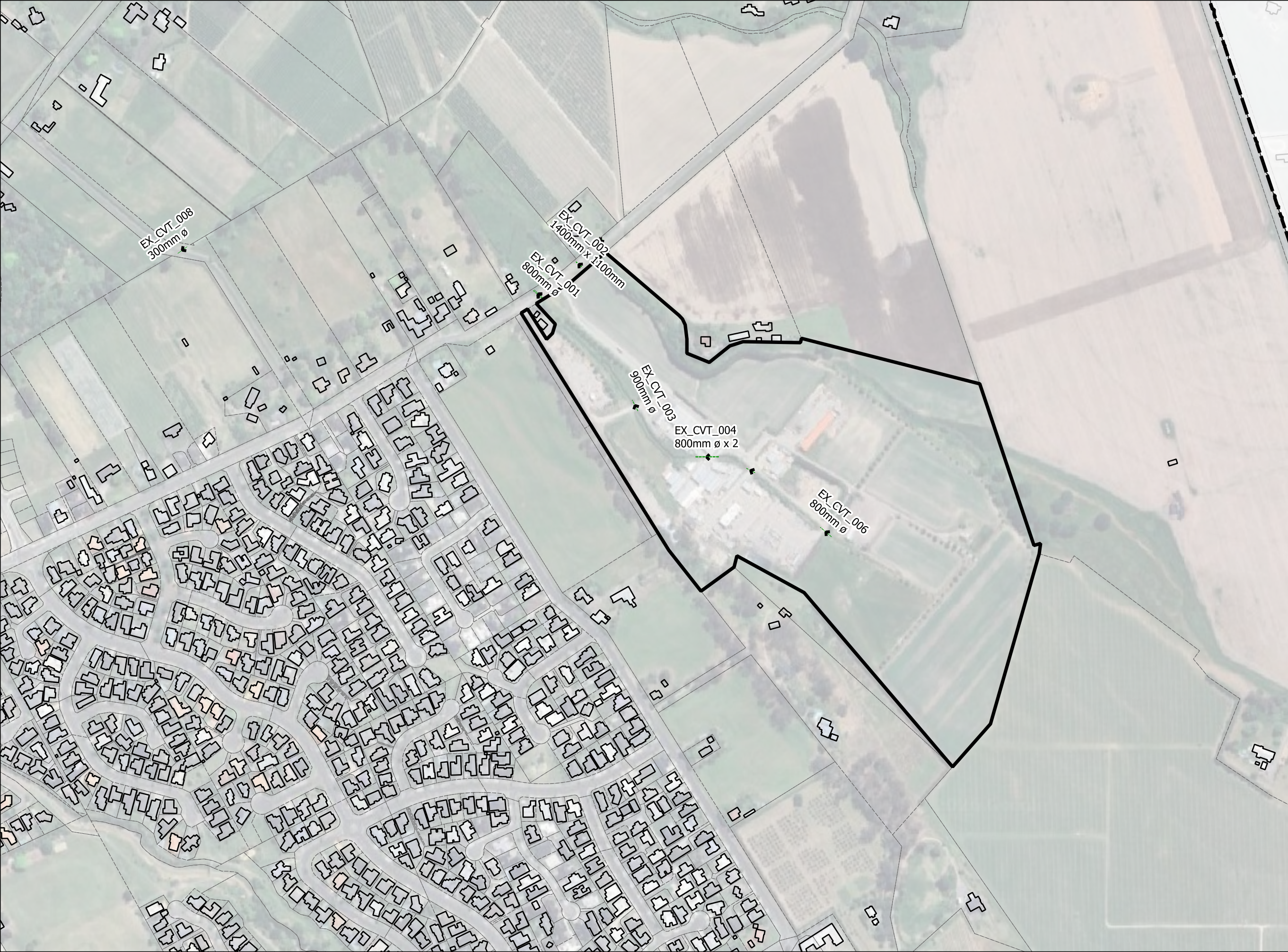


- NOTES
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LEGEND

- 2D Model Extent
- Overlay Proposed
- Pr Lot Boundaries
- Overlay
- Site
- Ex Buildings LINZ
- Parcels LINZ
- Ex Drainage
- Ex Drainage downstream
- Existing Pipes (EX)
- Pr Drainage
- Ex Drainage downstream
- Existing Pipes (EX)
- Pr_Drainage
- Existing Pipes (EX)
- Proposed Pipes (PR)
- Background Proposed
- Site
- Background
- Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Drainage - Proposed Sheet 1			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:10,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500005	



- NOTES
1. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
 2. THIS DRAWING HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. MAVEN ASSOCIATES ACCEPTS NO LIABILITY OR RESPONSIBILITY FOR ANY USE OR RELIANCE ON THIS REPORT BY ANY THIRD PARTY.
 3. WHERE GROUND LEVELS DIFFER FROM THE DATE OF SURVEY. THE MODEL IS BASED ON 2024 LIDAR DATA SUPPLIED BY AUCKLAND COUNCIL WITH A VERTICAL ACCURACY OF +/- 0.02M AND HORIZONTAL ACCURACY OF +/- 0.10 M.
 4. FLOOD DEPTHS LESS THAN 50MM HAVE BEEN FILTERED OUT FOR CLARITY AND ARE NOT SHOWN.
 5. AFFLUX WATER DEPTH COMPARISONS LESS THAN 10MM HAVE BEEN FILTERED OUT FOR CLARITY AND ARE NOT SHOWN.

LEGEND

- 2D Model Extent Overlay
- Site
- Ex Buildings LINZ
- Parcels LINZ
- Ex Drainage 1d_nwkb_Brookvale_Ex_Cvt_001_L
- Existing Pipes (EX)
- Background Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Drainage - Existing Sheet 2			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:5,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500006	



- NOTES
1. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
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 4. FLOOD DEPTHS LESS THAN 50MM HAVE BEEN FILTERED OUT FOR CLARITY AND ARE NOT SHOWN.
 5. AFFLUX WATER DEPTH COMPARISONS LESS THAN 10MM HAVE BEEN FILTERED OUT FOR CLARITY AND ARE NOT SHOWN.

LEGEND

- 2D Model Extent
- Overlay Proposed
- Pr Lot Boundaries
- Overlay
- Site
- Ex Buildings LINZ
- Parcels LINZ
- Pr Drainage
- Pr_Drainage
- Existing Pipes (EX)
- Proposed Pipes (PR)
- Background Proposed
- Site
- Background
- Google Satellite

Revision Details		BY	Date	Survey		BROOKVALE GREEN HAVELOCK NORTH FOR VERMONT STREET PARTNERS NO. 4 LIMITED	 Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023	Drainage - Proposed Sheet 2			STATUS	FOR INFORMATION	Rev
A	SUBSTANTIVE APPLICATION	YW	2026-06-24	Model	YW						SCALE	1:5,000	A
				Draft	YW								
				Checked	TM						SHEET	135041-FL-500007	

HIRDS V4 Depth-Duration-Frequency Results

Sitename: Custom Location

Coordinate system: WGS84

Longitude: 176.9026

Latitude: -39.657

DDF Model Parameters: c d e f g h i
 Values: -0.01304 0.52939 -0.00618 -0.00307 0.306404 -0.01187 2.597526
 Example: Duration (h ARI (yrs) x y Rainfall Depth (mm)
 24 100 3.178054 4.600149 161.826

Rainfall depths (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	5.19	7.48	9.28	13.4	19.3	33.4	45.9	61.5	79.5	90.7	98.7	105
2	0.5	5.85	8.4	10.4	15	21.5	37	50.7	67.7	87.2	99.3	108	115
5	0.2	8.29	11.8	14.5	20.7	29.4	49.7	67.5	89.1	114	129	139	147
10	0.1	10.3	14.5	17.8	25.2	35.5	59.5	80.2	105	133	150	162	171
20	0.05	12.4	17.5	21.3	30	42.1	69.7	93.4	122	153	172	185	195
30	0.033	13.8	19.3	23.6	33.1	46.1	76	101	132	165	185	199	209
40	0.025	14.9	20.7	25.2	35.3	49.1	80.5	107	139	174	194	209	219
50	0.02	15.7	21.8	26.5	37.1	51.4	84.1	112	144	180	201	216	227
60	0.017	16.4	22.8	27.6	38.5	53.4	87.1	115	149	186	207	222	233
80	0.013	17.5	24.3	29.4	40.9	56.5	91.8	121	156	194	217	232	243
100	0.01	18.4	25.4	30.8	42.8	59	95.5	126	162	201	224	239	251
250	0.004	22.3	30.6	36.9	50.8	69.4	111	145	185	227	252	269	281

Rainfall depths (mm) :: RCP8.5 for the period 2081-2100

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	6.78	9.77	12.1	17.5	24.9	41.5	55.4	72.6	91.4	103	111	117
2	0.5	7.69	11	13.7	19.7	28	46.3	61.9	80.2	101	113	122	129
5	0.2	11	15.7	19.3	27.5	38.7	63.2	83.5	107	133	149	160	168
10	0.1	13.7	19.4	23.8	33.7	47	76	99.8	127	157	175	187	196
20	0.05	16.7	23.5	28.7	40.4	55.9	89.7	117	147	182	201	215	224
30	0.033	18.6	26	31.7	44.5	61.4	97.9	127	160	196	217	231	241
40	0.025	20	27.9	33.9	47.5	65.4	104	135	169	206	228	242	253
50	0.02	21.2	29.4	35.8	50	68.7	109	140	176	215	237	252	262
60	0.017	22.1	30.7	37.3	51.9	71.3	113	145	182	221	244	259	269
80	0.013	23.6	32.8	39.7	55.2	75.6	119	153	190	232	255	270	281
100	0.01	24.9	34.4	41.6	57.8	78.9	124	159	198	240	263	279	290
250	0.004	30.1	41.3	49.8	68.6	92.9	144	183	226	271	297	314	325