
Leigh Family

Garry Rasmussen
7
Brian & Cookie Mooney
21
11
James & Kerryn Harris
3
Joe & Margaret McClunie
13
Edgar & Nona Henson
4
Lisa Keppel
Kim Robinson Lochiel
1
Chris & Michele Holloway
14
Gerald & Sharon Fieten
15
20
Graham & Lyn Potter
Antony & Daniela Potter
8
Brian & Judi & Stacey & Jeremy & Sharna Leigh
2
5
Martyn Callaghan
24
Sheona & Dave Watson
6
23
Darryl & Jackie Mercer
Graham Lovegrove Catherine Hore
12
Roger & Glenda Stone
16
James Debenham
17
Gary & Ginny Downs
John & Joanne Fyers
18
Hosking Estate
John Farmer
9
Cynthia Barnard
10
19
Forest Stump Ltd
22
Bothwell Road
Craig Access Road

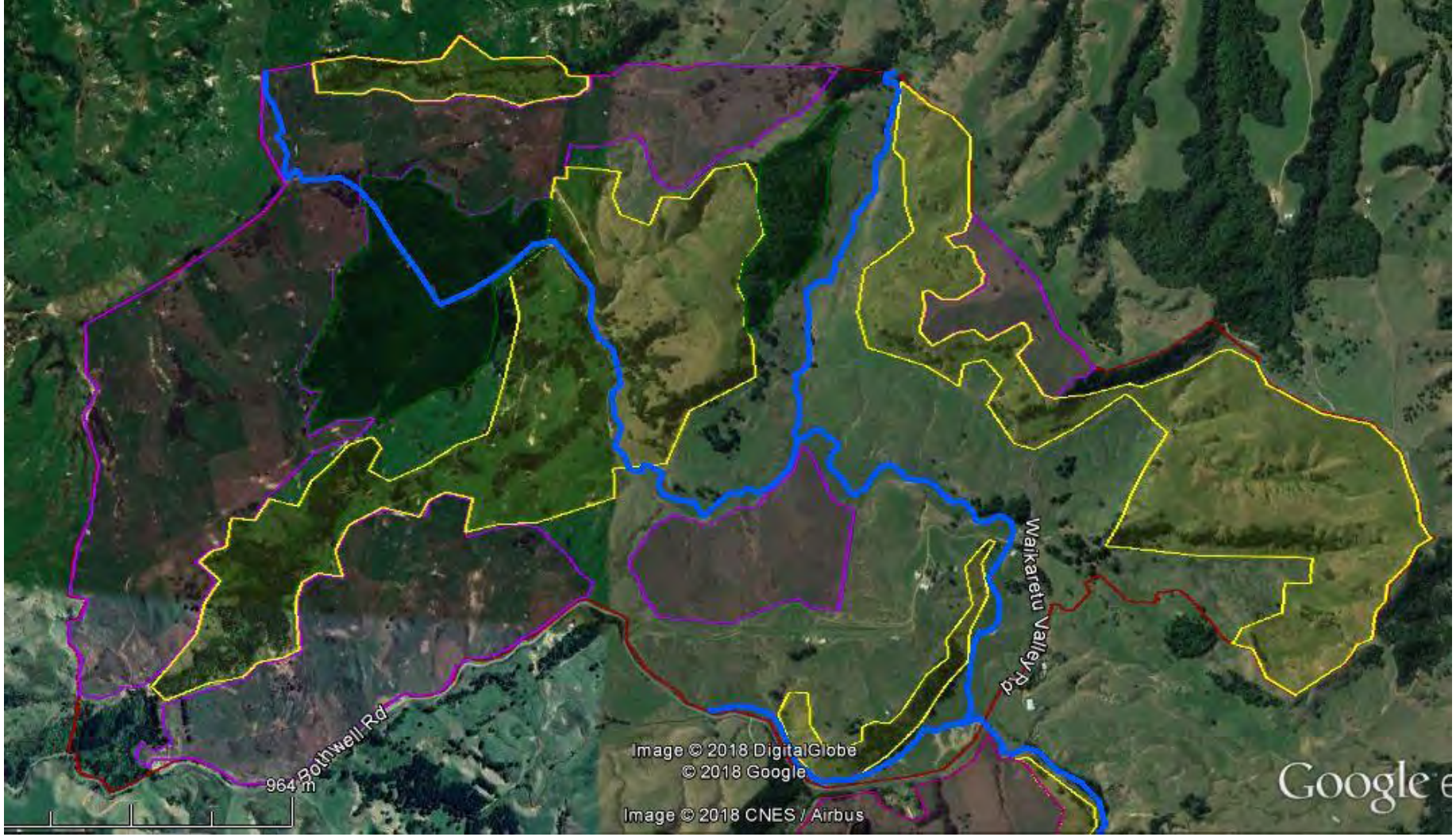
Bothwell Farm

- Purchased 1922 – farmed for 98 years
- Many fences 50-60 years old
- 80 year vision not far away
- Need to get this right!

Bothwell Farm

- 670 ha farm + lease 150 ha farm at base of Upper Maire Sub catchment
- 8km of creek on home farm (not including lease)
- Potentially require fence both sides

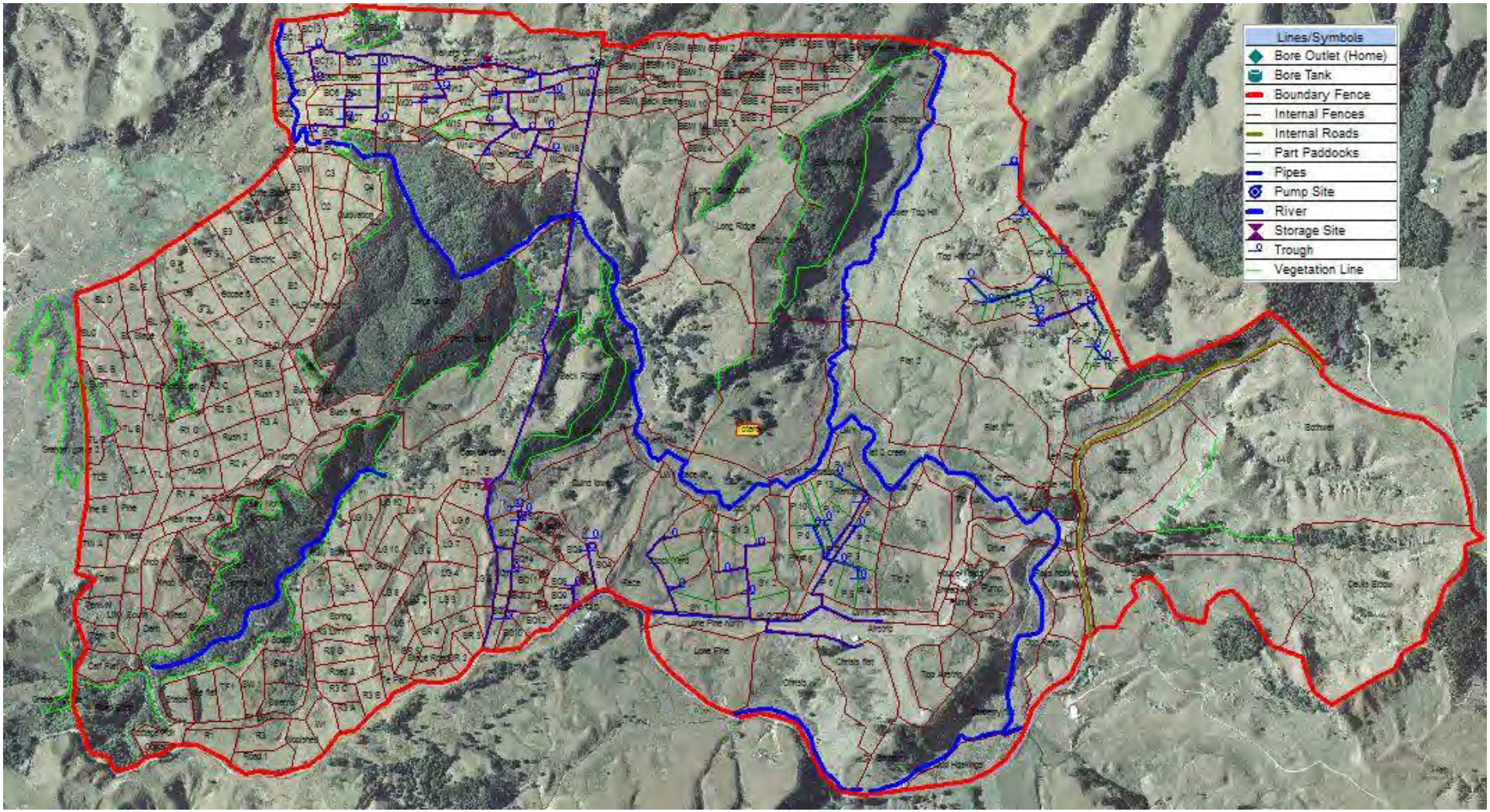
Total SR	Sheep	Cattle	Total	SR	Sheep : Cattle ratio
2015/16	1700	3814	5514	7.9	31:69
2017/18	2235	5053	7288	10.4	33:67



Yellow areas – steep hills Green – native bush

Purple blocks – rolling beef only Blue = creek

Remainder rolling sheep and beef


Lines/Symbols
Bore Outlet (Home)
Bore Tank
Boundary Fence
Internal Fences
Internal Roads
Part Paddocks
Pipes
Pump Site
River
Storage Site
Trough
Vegetation Line

Legacy soil map

N Report Overseer

Block name	Total N lost kg N/yr	N lost to water kg N/ha/yr	N in drainage * ppm	N surplus kg N/ha/yr	Added N ** kg N/ha/yr
Bothwell Steep Hill	1,470	10	N/A	31	0
Bothwell Easy Hill	2,901	15	3.1	65	0
Bothwell Rolling	3,111	16	3.2	91	33
Bothwell Flood Flats	324	22	3.0	74	0
Lease Steep Hill	517	13	N/A	35	0
Lease Rolling	1,085	11	2.3	61	0
Bothwell Native Fenced	174	3	N/A		
Bothwell Native	94	2	N/A		
Lease Native	32	3	N/A		
Other sources	244				
Whole farm	9,953	12			
Less N removed in wetland	0				
Farm output	9,953	12			

P Report Overseer – Inaccurate soil type

Block name	Total P lost	P lost to water	P loss categories		
	kg P/yr	kg P/ha/yr	Soil	Fertiliser	Effluent
Bothwell Steep Hill	1401	9.1	Extreme	Extreme **	N/A
Bothwell Easy Hill	1358	7.0	Extreme	Extreme **	N/A
Bothwell Rolling	1502	7.5	Extreme	Extreme **	N/A
Bothwell Flood Flats	26	1.8	High	Medium	N/A
Lease Steep Hill	52	1.3	Medium	High **	N/A
Lease Rolling	511	5.3	Extreme	Extreme **	N/A
Bothwell Native Fenced	6	0.1	N/A	N/A	N/A
Bothwell Native	5	0.1	N/A	N/A	N/A
Lease Native	1	0.1	N/A	N/A	N/A
Other sources	103				
Whole farm	4965	6.1			

Inaccurate soil data

- Overseer modelling adjusted for
  - Fertiliser type and timing
  - Olsen P
  - Soil ASC (Phosphate retention)
  - Soil type
- Soil type was the only factor that altered this impossible P loss result
- Landcare research has now extensively soil mapped our subcatchment

Stream bank erosion

- Stream banks are layers of silt from flooding events throughout history
- Banks then fall into stream
- Presence of cattle makes no effect
- First photo – bull block
- Second photo – fenced native bush

Bull block with trough water

Fenced native bush – no livestock

Fenced native bush

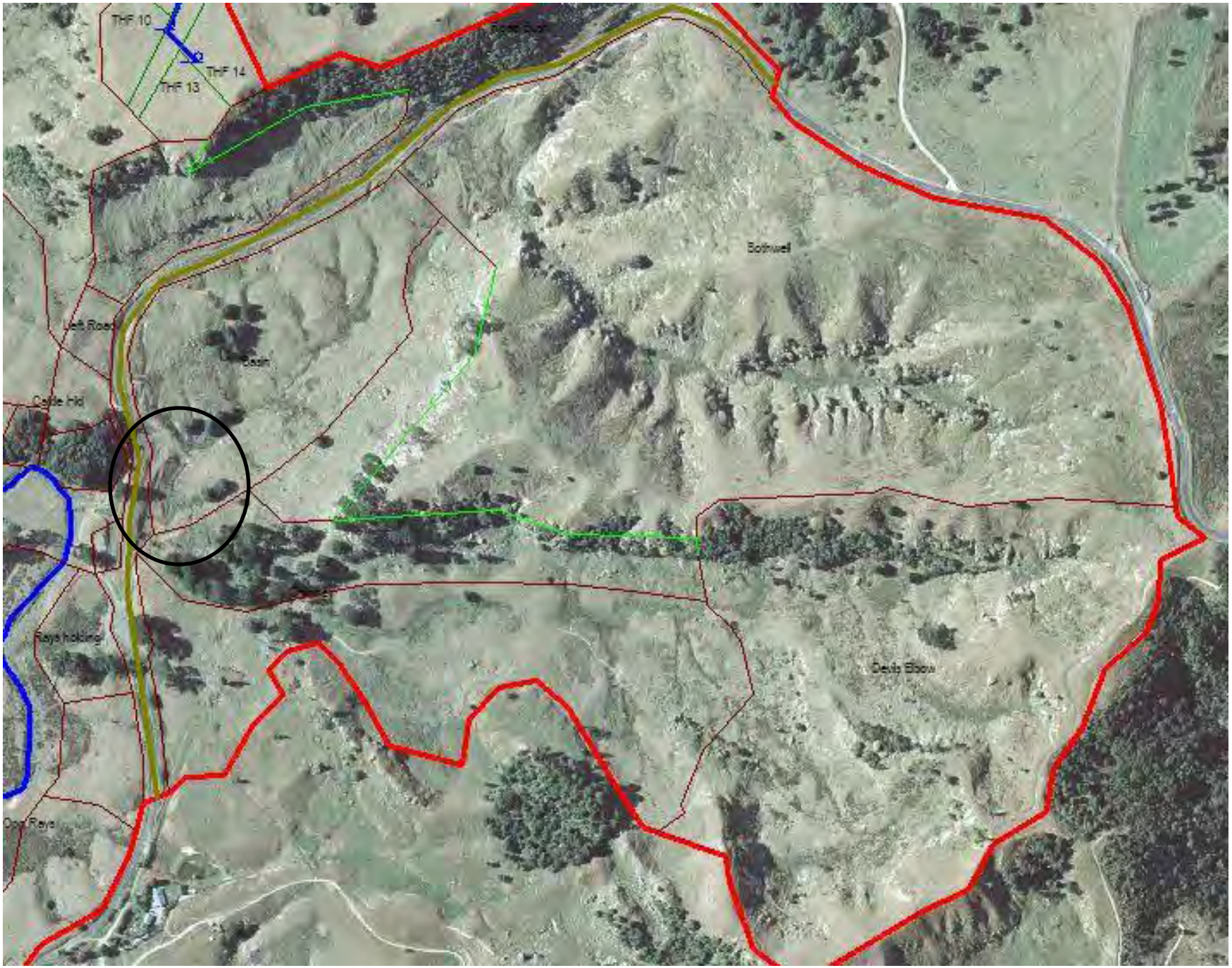
Native bush stream bed

Sheep and beef block

Fencing waterways that flood

Stock exclusion example

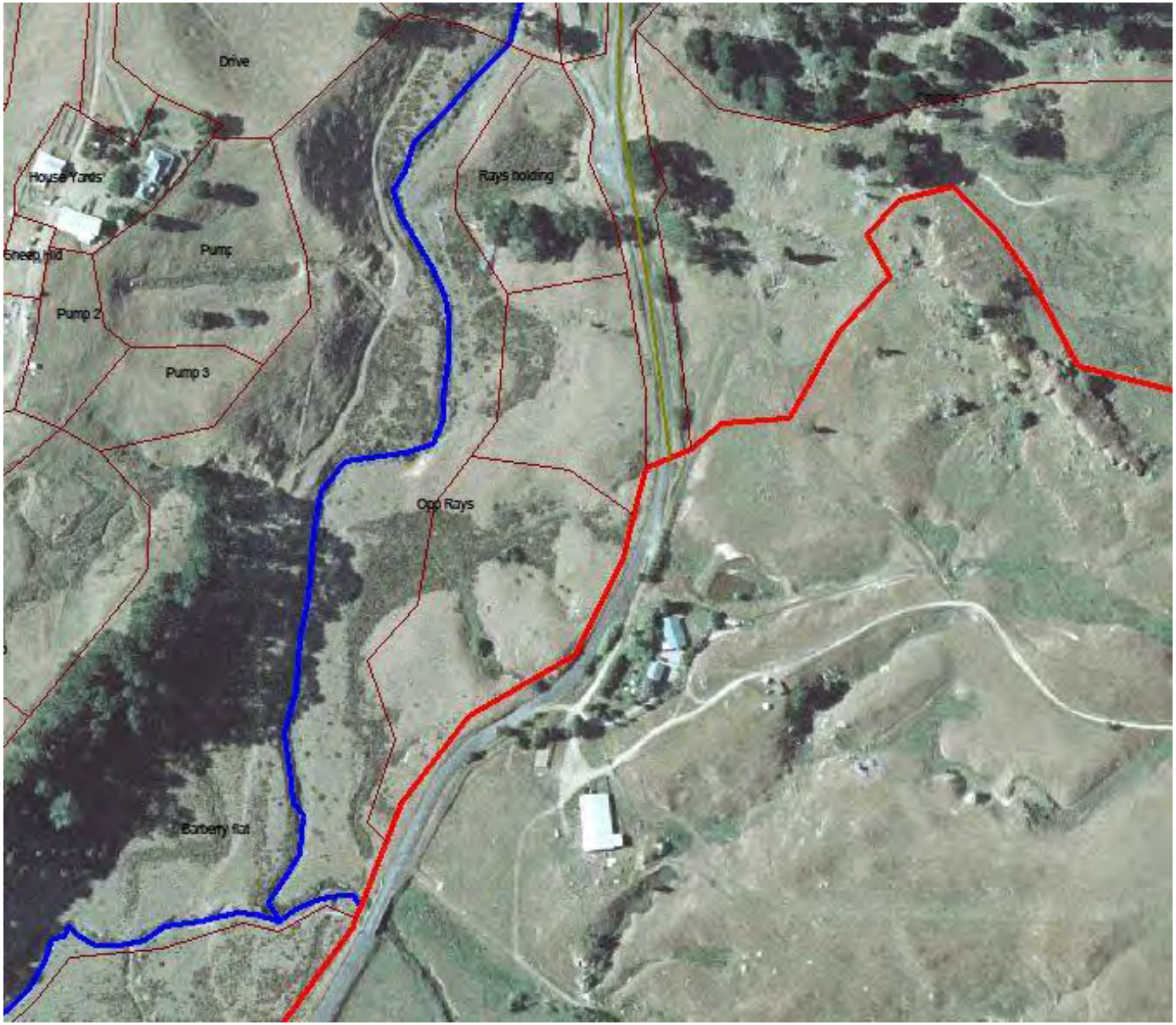
- Hill country water bodies flow from cave and swamp into culvert under road
- Under PC1 this requires fencing for cattle exclusion
- Of the whole 80ha block (4 paddocks) this is the only area with a stream (<200m)
- No power so 2 wire electric with solar? Underground cable for culverts? Floods
- Cattle mostly graze in dry months as very dangerous for cattle when wet


THF 10
THF 14
THF 13
Bothwell
Devils Elbow

Stock exclusion example

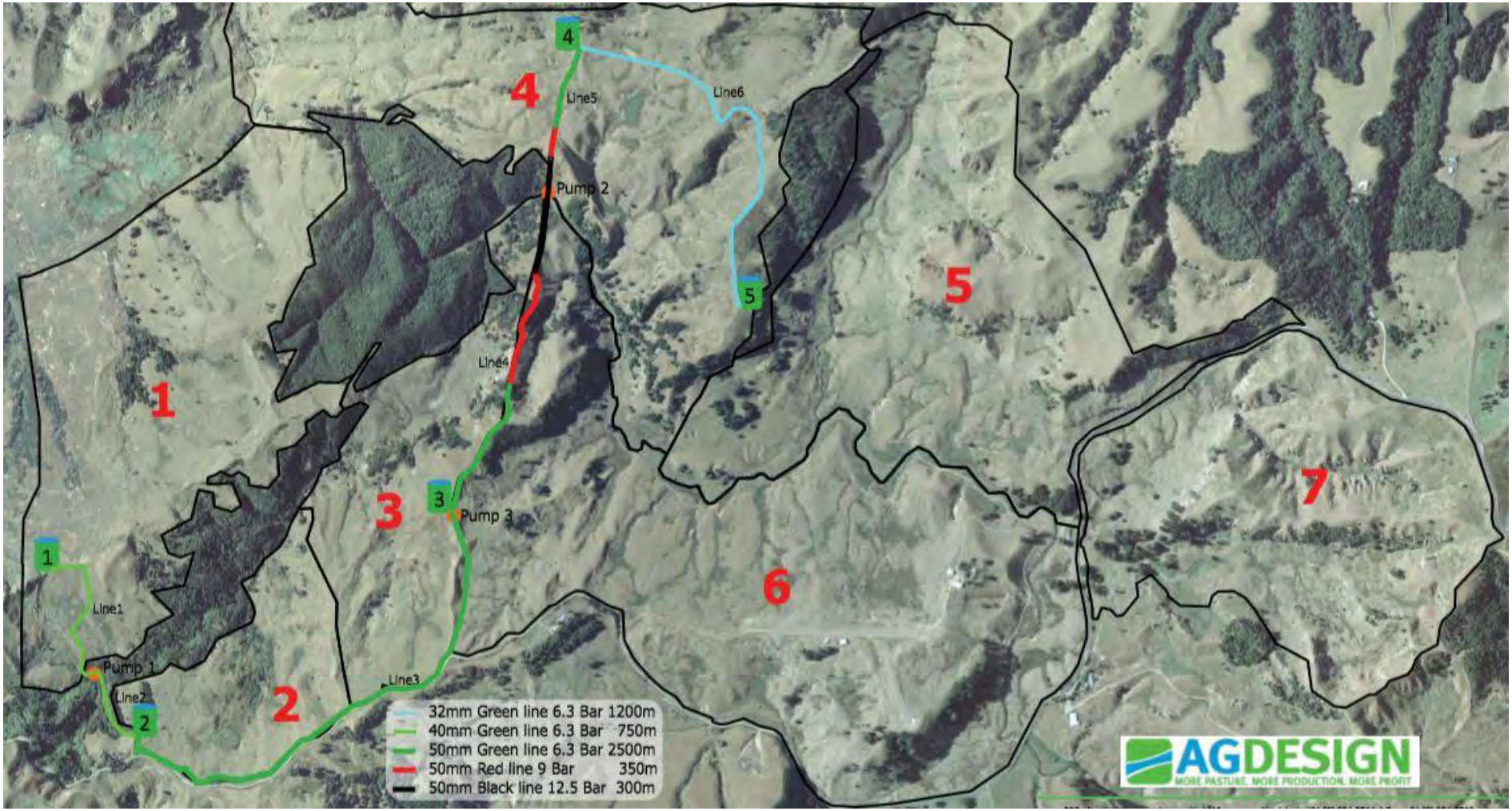
- In summer stream flow very small and troughs in paddocks so cattle don't stand in or drink from (much prefer trough).
- This is the safest exit site for stock onto road and cattle yards directly over road
- When mustering sheep, may be mobs of 200 ewes and 400 lambs in spring. Negotiating 2 wire electric would be dangerous and an animal welfare issue.

Length 560m = $11,200/ 5ha = $2,240/ha



Water reticulation 2014-2018

- Design $3000
- Tanks 5 x $3000
- Water pipe & fittings & troughs $ >45,000
- Water pump diesel $23,000
- Water pump mains & line $14,000
- Labour???
- Total >$100,000 + Labour to install


4
Line5
Line6
Pump 2
5
1
Line4
3
Pump 3
7
6
1
Line1
Pump 1
Line2
2
Line3
2
32mm Green line 6.3 Bar 1200m
40mm Green line 6.3 Bar 750m
50mm Green line 6.3 Bar 2500m
50mm Red line 9 Bar 350m
50mm Black line 12.5 Bar 300m
AGDESIGN
MORE PASTURE, MORE PRODUCTION, MORE PROFIT

Water cost benefit

- Increase stocking rate (NRP cap?)
- Change to livestock policy with higher return
  - Sheep to Friesian bulls

- Ongoing water repairs and maintenance
  - Diesel, pump oil change, breakdowns
  - Hose pipe leaks and fittings break
  - Trough fittings leak / break..

In Summary

- We support the overall vision for our waterways but the blanket rules favour the intensive farmers and towns with high levels of contaminants
- This is unfair on the lower earning extensive hill country drystock farmers that contribute much less contaminants into the waterways.

Thank you for your time
Questions?