

## **ANALYSIS OF SOIL CONSERVATION WORKS REQUIREMENTS**

### **1. Pasture and Bare Ground by Land Use Capability Unit**

Assessed by Landcare NZ Ltd during 1992 from Landsat satellite data. Approximately one quarter of the GDC land area was "undefined" viz. obscured by cloud, outside of satellite view or omitted due to technical problems. In the absence of substitution by other remote sensing information and ground truthing, this undefined area has been allocated in the interim using local experience and knowledge. Most occurs along the Raukumara range, outside of pastoral farming areas.

Land Use Capability units have been correlated to the Gisborne East Coast Legend (New Zealand Land Inventory Worksheets).

Land Use Capability classes II, III, IV, VI<sub>s</sub>1 and VII<sub>w</sub>1 have not been assessed as effectively no soil conservation measures are required.

<b>Class</b>	<b>Total (ha)</b>	<b>Class</b>	<b>Total (ha)</b>
Vle1	4,255	Vlle5	3,700
Vle2	10,996	Vlle6	17,853
Vle3	49,884	Vlle7	3,645
Vle4	8,084	Vlle8	2,600
Vle5	6,627	Vlle9	32,000
Vle6	41,180	VllE10	1,600
Vle6b	4,150	Vlle11	1,500
Vle7	3,603	Vlle12	4,700
Vle8	32,145	Vlle13	12,400
Vle9	533	Vlle14	11,443
Vle10	10,689	Vlle15	11,300
Vle11	4,600	Vlle16	8,200
Vle12	5,584	Vlle17	1,100
Vle13	6,523	Vlle18	10,500
Vlle1	55,300	Vlle19	416
Vlle2	26,600	Vlle20	3,750
Vlle3	19,600	Vlle21	360
Vlle4	6,500	Vllle	7,033

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**2. Farm Conservation Works**

Satellite resolution is insufficient to detect spaced tree plantings used to rehabilitate and stabilise soil erosion within a pastoral farming land use. Much of the pasture and bareland has been planted in this manner and does not require further soil conservation work.

The 1987 East Coast Project Review estimated 27,000 ha planted, but did not include the Northern Hawkes Bay area, now part of the Gisborne District. Further analysis during 1992, extended out over the relevant land classes to the Council boundary suggest Farm Conservation Works (pole planting, some spring taps) is about 22% complete.

**3. Cost of Soil Conservation Works**

Over the years a relationship between LUC unit and the average optimal soil conservation works requirement has been developed; largely from experience. Techniques and their estimated costs are:

Poles \$9.50 each

Spring taps \$150 each

Afforestation @ 1250 s.p.h. \$735/ha)Includes fencing and

Afforestation @ 1500 s.p.h. \$870/ha)willows in gullies

Retirement fencing \$100/ha

Maram grass \$600/ha

**4. Land Requiring Soil Conservation Work and Estimated Cost**

Both areas and cost have been adjusted for farm conservation works estimated to be complete.

# ANALYSIS OF SOIL CONSERVATION WORKS REQUIREMENTS

	Soil Conservation Requirements	Farm Conservation Works (ha)	Afforestation (ha)	Retirement (ha)	Estimated Total Cost (\$000's)
Vie1	10 poles/ha	3,318.9	-	-	315.3
Vie2	10 poles/ha	8,576.9	-	-	814.8
Vie3	10 poles/ha	38,909.5	-	-	3,696.4
Vie4	30 poles/ha	6,305.5	-	-	1,797.1
Vie5	20 poles/ha 1 S.T./10ha	5,169.1	-	-	1,059.6
Vie6	50 poles/ha	32,120.4	-	-	15,257.2
Vie6b	40 poles/ha	3,237	-	-	1,230.1
Vie7	20 poles/ha	2,810.3	-	-	534.0
Vie8	15 poles/ha	25,073	-	-	3,560.4
Vie9	4 poles/ha	415.7	-	-	15.8
Vie10	20 poles/ha	8,337.4	-	-	1,584.1
Vie11	40 poles/ha 1 S.T./10ha	3,588	-	-	1,417.3
Vie12	60 poles/ha 1 S.T./10ha	4,355.5	-	-	2,548.0
Vie13	15 poles/ha	5,087.9	-	-	722.5
Vlle1	90% 80 poles/ha 10% afforestation	38,821	5,530	-	33,568.2
Vlle2	85% 50 poles/ha 15% afforestation	17,636	3,990	-	11,307.3
Vlle3	72 poles/ha 1 S.T./10ha	15,288	-	-	10,686.3
Vlle4	90% 80 poles/ha 10% afforestation	4,563	650	-	3,945.6

Vlle5	80% 120 poles/ha 20% afforestation	2,309	740	-	3,175.9
Vlle6	50 poles/ha	13,925	-	-	6,614.5
	Soil Conservation Requirements	Farm Conservation Works (ha)	Afforestation (ha)	Retirement (ha)	Estimated Total Cost (\$000's)
Vlle7	80 poles/ha	2,843	-	-	2,160.8
Vlle8	80% 60 poles/ha 20% retirement	1,622	-	520	976.8
Vlle9	20% 60 poles/ha 20% retirement 60% afforestation	2,995	19,200	3,840	17,597.4
Vlle10	20% 60 poles/ha 20% retirement 60% afforestation	250	960	320	879.9
Vlle11	20% 60 poles/ha 20% retirement 60% afforestation	234	900	300	824.9
Vlle12	60% 140 poles/ha 40% afforestation	2,200	1,880	-	4,561.1
Vlle13	10% 400 poles/ha 90% afforestation	5,803	11,160	-	13,384.6
Vlle14	10% 400 poles/ha 990% afforestation	892	10,299	-	12,351.6
Vlle15	5% 100 poles/ha 95% afforestation	441	10,735	-	9,758.1
Vlle16	30% retirement 70% afforestation	-	5,740	2,460	5,239.8
Vlle17	Retirement	-	-	1,100	110
Vlle18	2% 140 poles/ha 98% afforestation	164	10,290	-	9,170.2
Vlle19	Nil	-	-	-	-



**APPENDIX 3**

**ANALYSIS OF SOIL CONSERVATION WORKS REQUIREMENTS**

	Soil Conservation Requirements	Farm Conservation Works (ha)	Afforestation (ha)	Retirement (ha)	Estimated Total Cost (\$000's)
VIIe20	2% 140 poles/ha 98% afforestation	59	3,675	-	3,275.1
VIIe21	10% marram grass revegetation	36	-	-	329.10
VIIIe	10% afforestation 90% retirement	-	703	6,330	1,244.8
		<u>257,386</u>	<u>86,452</u>	<u>14,870</u>	<u>185,715</u>
		Approximately	359,000 ha		\$185 m