

## APPENDIX 1 - THE RATING SYSTEMS

The rating system used in this study indicate degrees of limitation to the achievement of the use of objective, e.g. the establishment of a playing field, and in some instances also include limitations to user satisfaction, e.g. the presence of gravel in picnic areas. Where the use may cause a hazard to the land, the key land features involved are also included in the rating system.

The five degrees of limitation indicated the need for appropriate levels of management inputs, - skills, labour, capital, to sustain the use with a minimum of adverse effect to the land or the user.

**Table 6 - Land Capability Rating for Car Parks and Roads**

(Sealed Surfaces for Light Vehicles; Provision of Drainage and Kerbing)

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS				
	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
SLOPE	0 to 3%	>3% to 5%	>5% to 85%	>8% to 15%	>15%
DEPTH TO HARD ROCK	More than 100 cm	<100 cm to 75 cm	<75 cm to 50 cm	<50 cm to 30 cm	Less than 30 cm
UNIFIED SOIL GROUP FOR SUB-GRADE	GP, GW, SW	SM, GC, SC, GM	SP, CL )PI<15)	OL, OH, CH, MH, ML, CL (PI>15)	Pt
SHRINK-SWELL POTENTIAL	0 to 2%	>2% to 10%	>10% to 20%	More than 20%	-
STONES (Fragments 7.5 to 25 cm)	Less than 10% (of soil volume)	>10% to 20%	>20% to 40%	>40% to 60%	More than 60%
BOULDERS (Fragments > 25cm)	Less than 0.02% (of soil surface)	>0.02% to 0.5%	>0.5% to 5%	>5% to 20%	More than 20%
ROCK OUTCROP	None	Less than 0.1% (of soil surface)	>0.1% to 5%	>5% to 20%	More than 20%
SITE DRAINAGE	Excessively Well Drained, Well Drained	Moderately Well Drained	Imperfectly Drained	Poorly Drained	Very Poorly Drained
FLOODING	None	None	Less than once in 25 years	Once Between 25 yrs. & 10 yrs	More than once in 10 years
DEPTH TO WATERTABLE	More than 150 cm	<150 to 120 cm	<120 cm to 90 cm	<90 cm to 50 cm	Less than 50 cm
BEARING CAPACITY OF SUBGRADE (CBR)	More than 10	<10 to 6	<6 to 4	<4 to 2.5	Less than 2.5

**Table 7 - Land Capability Rating for Intensive Uses Areas**

(Picnic Areas, Play Grounds)

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS				
	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
SLOPE	0 to 5%	>5% to 8%	>8% to 15%	>15% to 25%	>25%
FLOODING	None	none	Less than once in 25 yrs	Once between 25 yrs & 10 yrs	More than once in 10 years
SITE DRAINAGE	Well Drained	Excessively Well Drained	Moderately Well Drained	Imperfectly Drained, Poorly Drained	Very Poorly Drained
A HORIZON TEXTURE	Loams, Clay loams, Sandy loams	Loamy Sands	Light Clays, Sands	Medium – Heavy Clays, Heavy Clays	-
DEPTH TO HARD ROCK	Less than 150 cm	<150 cm to 120 cm	<120 cm to 80 cm	<80 cm to 50 cm	Less than 50 cm
GRAVEL (Fragments 0.2 to 7.5 cm)	Less than 10% (of soil volume)	>10% to 20%	>20% to 40%	>40% to 60%	More than 60%
STONES (Fragments 7.5 cm to 25 cm)	Less than 5% (of soil volume)	>5% to 10%	>10% to 25%	>25% to 50%	More than 50%
BOULDERS (Fragments >25 cm)OR ROCK OUTCROPS	Less than 0.05% 9of soil surface)	>0.05% to 0.5%	>0.5% to 5%	>5% to 20%	More than 20%
DISPERSIBLE CLAYS	Less than 6%	>6% to 10%	>10% to 16%	More than 16%	-

**Table 8 - Land Capability Rating for Camp Sites**

(Areas Suitable for Pitching of Small Groups of Tents; Small Quantities of Waste for On-site Disposal; Maintenance of Vegetative Cover)

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS				
	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
SLOPE	2% to 5%	>5% to 8%	>8% to 15%	>15% to 25% Less than 2%	>25%
FLOODING	None	None	None	Less than once in 50 years	More than once in 50 years
SITE DRAINAGE	Well Drained	Well Drained	Moderately well drained, excessively well drained	Imperfectly drained, poorly drained	Very poorly drained
A HORIZON TEXTURE	Loams, Clay loams	Sandy Loams	Light Clays, Loamy sands	Medium-heavy clay, heavy clays, sands	-
DEPTH TO HARD ROCK	More than 150 cm	<150 cm to 120 cm	<120 cm to 80 cm	<80 cm to 45 cm	Less than 45 cm
GRAVEL (Fragments 0.2 to 7.5 cm)	Less than 10% (of soil volume)	>10% to 20%	>20% to 40%	>40% to 60%	More than 60%
STONES (Fragments 7.5 cm to 25 cm)	Less than 5% (of soil volume)	>5% to 10%	>10% to 25%	>25% to 50%	More than 50%
BOULDERS (Fragments >25 cm)OR ROCK OUTCROPS	Less than 0.05%	>0.05% to 0.5%	>0.5% to 5%	>5% to 20%	More than 20%
PROFILE PERMEABILITY*	Between 0.3 and 1.5 ml/cm <sup>2</sup> /hr	<0.3 to 0.2 1.5 ml/cm <sup>2</sup> /hr	<0.2 to 0.1 1.5 ml/cm <sup>2</sup> /hr	Slower than 0.1, faster than 1.5 ml/cm <sup>2</sup> /hr	-
DISPERSIBLE CLAYS	Less than 6^	>6% to 10%	>10% to 16%	More than 16%	-

\*0.1 ml/cm<sup>2</sup>/hr 2 cm/hr drop in head  
 0.2 ml/cm<sup>2</sup>/hr 3 cm/hr drop in head  
 0.2 ml/cm<sup>2</sup>/hr 5 cm/hr drop in head  
 1.5 ml/cm<sup>2</sup>/hr 25cm/hr drop in head

**Table 9 - Land Capability Rating for Paths & Trails**

(Areas Suitable for Walking Trails and Bridle Paths)

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS				
	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
SLOPE	0 to 5%	>5% to 8%	>8% to 15%	>15% to 25%	>25%
FLOODING	None	Less than once in 10 yrs	Once between 10 yrs & 5 yrs	Once between 5 yrs & 1 yr	More than once per year
SITE DRAINAGE	Well Drained	Moderately well drained, excessively well drained	Imperfectly Drained	Poorly Drained	Very Poorly Drained
A HORIZON TEXTURE	Loams, Clay Loams	Sandy Loams	Light Clays, Loamy Sands	Medium – Heavy Clays, Heavy Clays, Sands	-
STONES (Fragments 7.5 cm to 25 cm)	Less than 10%	>10% to 20%	>20% to 30%	>30% to 50%	More than 50%
BOULDERS (Fragments >25 cm)OR ROCK OUTCROPS	Less than 1% (of soil surface)	>1% to 5%	>5% to 15%	>15% to 40%	More than 40%
DISPERSIBLE CLAYS	Less than 6%	>6% to 10%	>10% to 16%	More than 16%	-

**Table 10 - Land Capability Rating for Building Foundations for Light Structures**

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS						
	Special Management	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)	
SLOPE	(A)	Stumps or Strip Footings	0 to 5%	>5% to 8%	>8% to 15%	>15% to 35%	>35%
	(B)	Concrete Slab	0 to 2%	>2% to 5%	>5% to 10%	>10% to 25%	>25%
	(C)	Piles	0 to 5%	>5% to 10%	>10% to 25%	>25% to 45%	>45%
SITE DRAINAGE		Excessively Well Drained, Well Drained	Moderately Well Drained	Imperfectly Drained	Poorly Drained	Very Poorly Drained	
FLOODING		None			Less than once in 100 years	More than once in 100 years	
UNIFIED SOIL GROUP	(A)	Stump, strip Footing or pile	GE, SW, GP, GM	SP, SC, SM CL (PI<15), GC	CL (PI>15), ML	OL, MH, CH, OH	Pt
	(B)	Concrete Slab	GW, SW, GP, GM, SP, SC, SM, GC	CL, CH	ML, OL, MMH	OH	Pt
SHRINK-SWELL POTENTIAL	(A)	Stump, Strip Footing or Pile	0 to 2%	>2% to 10%	>10% to 20%	More than 20%	-
	(B)	Concrete Slab	0 to 10%	>10% to 20%	More than 20%		
DEPTH TO HARD ROCK			More than 120 cm	<120cm to 80 cm	<80 cm to 50 cm	<50 cm to 15 cm	Less than 15 cm
STONES (Fragments 7.5 to 25 cm)	(A)	Stump, Strip Footing or Pile	Less than 5% (of soil volume)	5% to 15%	>15% to 30%	>30% to 50%	More than 50%
	(B)	Concrete Slab	Less than 8% (of soil volume)	8% to 20%	>20% to 35%	>35% to 60%	More than 60%
BOULDERS (Fragments 25 cm)	(A)	Stump, Strip Footing or Pile	Less than 0.02% 9of soil surface)	0.02% to 0.2%	>0.2% to 5%	>5% to 20%	More than 20%
	(B)	Concrete Slab	Less than 0.05% (of soil surface)	0.05% to 0.5%	>0.5% to 10%	>10% to 30%	More than 30%
ROCK OUTCROP			None	0 to 0.2% (of soil surface)	0.25 to 5%	>5% to 20%	More than 20%
DEPTH OF SEASONAL WATERTABLE			Not present, Deeper than 120 cm	120 cm to 80 cm	<80 cm to 50 cm	Shallower than 50 cm	

**Table 11 - Land Capability Rating for on-Site Effluent Disposal**

(Septic Tank Absorption Fields)

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS				
	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
SLOPE	0 to 5%	>5% to 8%	>8% to 15%	>15% to 30%	>30%
SITE DRAINAGE	Excessively Well Drained, Well Drained	Moderately Well Drained	Imperfectly Drained	Poorly Drained	Very Poorly Drained
FLOODING	None	None	Less than once in 100 years	Once between 100yrs & 25 yrs	More than once in 25 years
DEPTH TO SEASONAL WATERTABLE	More than 300 cm	<300 cm to 150 cm	<150 cm to 100 cm	<100 cm to 75 cm	Less than 75 cm
PERMEABILITY	More than 0.4 ml/cm <sup>2</sup> /hr *	< 0.4 to 0.3 ml/cm <sup>2</sup> /hr	< 0.3 to 0.2 ml/cm <sup>2</sup> /hr	<0.2 to 0.1 ml/cm <sup>2</sup> /hr	Less than 0.1 ml/cm <sup>2</sup> /hr
DEPTH TO ROCK OR IMPERVIOUS LAYER	More than 200 cm	<200 to 150 cm	<150 cm to 100 cm	<100 c, to 75 cm	Less than 75 cm
GRAVEL (Fragments 0.2 to 7.5 cm)	Less than 5% (of soil volume)	>5% to 20%	>20% to 40%	>40% to 75%	More than 75%
STONES (Fragments 7.5 to 25 cm)	Less than 2% (of soil volume)	>2% to 10%	>10% to 30%	>30% to 60%	More than 60%
BOULDERS (Fragments >25 cm)	Less than 0.02% (of soil surface)	>0.02% to 0.2%	>0.2% to 5%	>5% to 20%	More than 20%
ROCK OUTCROP	None	0 to 0.1% (of soil surface)	>0.1% to 3%	>3% to 15%	More than 15%
DISPERSIBLE CLAYS	Less than 6%	>6% to 10%	>10% to 16%	More than 16%	-

**Table 12 - Land Capability Rating for Playing Fields**

(Areas Suitable for Development of Ovals and Fields for Organizes sporting Events)

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS				
	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
SLOPE	0 to 2%	>2% to 5%	>5% to 8%	>8% to 15%	>15%
FLOODING	None	none	Less than once in 10 years	Once between 10 yrs & 5 yrs	More than once in 5 years
SITE DRAINAGE	Well Drained	Moderately Well Drained, Excessively Well Drained	Imperfectly Drained	Poorly Drained	Very poorly Drained
DEPTH TO HARD ROCK	More than 150 cm	<150 cm to 120 cm	<120 cm to 80 cm	<80 cm to 50 cm	Less than 50 cm
A HORIZON TEXTURE	Loams, Sandy Loams	Clay Loams, Sands	Light Clays	Medium – Heavy Clays, Heavy clays	-
GRAVEL (Fragments 0.2 to 7.5 cm)	Less than 5% (of soil volume)	>5% to 10%	>10% to 25%	>25% to 40%	More than 40%
STONES (Fragments to 7.5 to 25 cm)	Less than 2% (of soil volume)	>2% to 5%	>5% to 15%	>15% to 30%	More than 30%
BOULDERS (Fragments >25 cm)	Less than 0.02% (of soil volume)	>0.02% to 0.1%	>0.1% to 1%	>1% to 10%	More than 10%
ROCK OUTCROP	None	none	Less than 0.5% (of soil surface)	>0.5% to 5%	More than 5%

**Table 13 - Land Capability Rating for Earthen Dams**

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS				
	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
SLOPE	0 to 2%	>2% to 7%	>7% to 12%	>12% to 25%	>25%
FLOODING (HIGH VELOCITY)	None	none	none	Less than once in 25 years	
UNIFIED SOIL GROUP	GC, GM, SC	SM, CL (PI<15)	CL(PI>15)	OL, MH, OH	SP, SW, GP, GW, Pt
STONES (Fragments 7.5 to 25 cm)	Less than 5% (of soil volume)	>5% to 20%	>20% to 50%	>50% to 90%	More than 90%
BOULDERS (Fragments >25 cm)	Less than 0.02% (of soil surface)	>0.02% to 0.1%	>0.1% to 3%	>3% to 15%	More than 15%
ROCK OUTCROP	None	0 to 0.1% (of soil surface)	>0.1% to 3%	>3% to 15%	More than 15%
PERMEABILITY	Slower than 0.1 ml/cm <sup>2</sup> /hr	Slower than 0.1 ml/cm <sup>2</sup> /hr	>0.1 to 0.2 ml/cm <sup>2</sup> /hr	>0.2 to 1.0 ml/cm <sup>2</sup> /hr	Faster than 1.0 ml/cm <sup>2</sup> /hr
SHRINK-SWELL POTENTIAL	0 to 2%	>2% to 12%	>12% to 20%	More than 20%	-
DEPTH TO HARD ROCK	More than 300cm	<300 cm to 200 cm	<200 cm to 150 cm	<150 cm to 80 cm	Less than 80 cm
DISPERSIBLE CLAY	2% to 6%	>6% to 10%	>10% to 16%	More than 16% or less then 2%	-
DEPTH TO PERMANENT WATERTABLE	More than 300 cm	<300 cm to 200 cm	<200 cm to 150 cm	<150 cm to 100 cm	Less than 100 cm
DEPTH OF TOPSOIL (A Horizon)	>10 cm to 25 cm	>25 cm to 50 cm	>50 cm to 100 cm 0 to 10 cm	>100 cm to 200 cm	More than 200 cm
ORGANIC MATTER	None	0 to 2% (of soil material)	>2% to 15%	>15% to 25%	More than 25%



**Table 14 - Land Capability Rating for Road Fill**

(Material for Below Sub-base)

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS					
	Special Management	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
<u>QUALITY ASPECTS</u>						
UNIFIED SOI GROUP	Excavation & Compaction	GW, SW, GP	GM, GC, SP	SC, SM	CL, ML, OL, MH, CH, OH	Pt
PLACTICITY INDEX	Excavation & Compaction	Less than 5	>5 to 15	>15 to 25	>25 to 45	More than 45
SHRINK-SWELL (fines)	Compaction	Less than 2%	>2 to 5%	>5% to 12%	>12% to 17%	More than 17%
ORGANIC MATTER	Compaction	None		Less tan 2%	2% to 15%	More than 15%
STONES (Fragments 7.5 to 25 cm)	Compaction	Less than 5% (of soil surface)	5% to 20%	>20% to 40%	>40% to 60%	More than 60%
BOULDE(Fragments >25 cm)RS	Avoidance	Less than .01 % (of soil surface)	.01% to 3%	>3% to 10%	>10% to 25%	More than 25%
ROCK OUTCROP	Avoidance	None	Less than 2%	>2% to 10%	>10% to 25%	More than 25%
THICKNESS OF DEPOSIT (Depth to Hard Rock)	Excavation	More than 250 cm	150cm to 250 cm	100cm to 150cm	30cm to 100cm	Less than 30cm
THICKNESS OF OVERBURDEN	Stripping	Absent		Less than 5% of deposit thickness	55 to 15% of the deposit thickness	More than 15% of deposit thickness
<u>ACCESS AND OPERATION</u>						
SLOPE	Pit floor on gradient	Less than 5%	5% to 8%	>8% to 15%	>15% to 25%	More than 25%
	Horizontal pit floor	Less than 8%	8% to 15%	>15% to 20%	>20% to 25%	More than 25%
SITE DRAINAGE		Very well drained	Well Drained	Moderately Well Drained	Imperfect & Poorly Drained	Very poorly Drained
FLOODING	Short term operation	None	1 flood/100+ yr	1/50-100 yrs	1/10-50 yrs	More than 1/25 yr
	Long term operation	None	None	1 flood/100+yrs	1/50-100 yrs	More than 1/10 yr

**Table 15 - Land Capability Rating for source of Topsoil**

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS				
	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
A. HORIZON TEXTURE	Loams, Sandy Loams	Clay Loams	Loamy Sands	Sands, Light Clays	Medium-Heavy Clays, Heavy Clays
A. HORIZON DEPTH	More than 60 cm	60 cm to 50 cm	50cm top 40 cm	40cm to 20cm	Less than 20 cm
pH OF MATERIAL	Between 6.0 & 7.0	6.0 to 5.5 7.0 to 7.5	5.5 to 5.0 7.5 to 8.0	<5.0 >8.0	-
ORGANIC MATTER	More than 5%	5% to 3%	3% to 2%	2% to 1%	Less than 1%
SOLUBLE SALTS (E.C. OF SATN EXTRACT)	Less than 100µs/cm	100-200 µs/cm	200-300 µs/cm	300-600 µs/cm	More than 600 µs/cm
SLOPE	0 to 5%	5 to 8%	8% to 15%	15% to 25%	25%
FLOODING	None	None	Less than once in 25 years	Once between 25 yrs & 10 yrs	More than once in 10 years
SITE DRAINAGE	Well Drained	Moderately well Drained	Imperfectly Drained, excessively Drained	Poorly Drained	Very Poorly Drained
DEPTH TO PERMANENT WATERTABLE	More than 200 cm	200 cm to 120 cm	120 cm to 90 cm	90 cm to 45 cm	Less than 45 cm
GRAVEL (Fragments 0.2 to 7.5 cm)	Less than 5% (of soil volume)	5% to 10%	10% to 20%	20% to 35%	More than 35%
STONES (Fragment 7.5 to 25 cm)	Less than 3% (of soil volume)	2% to 5%	5% to 10%	10% to 25%	More than 25%
BOULDERS (Fragments 25 cm)	Less than 0.05% (of soil surface)	0.05% to 0.2%	0.2% to 2%	2% to 10%	More than 10%
OUTCROP	Less than 0.01%	0.01% to 0.1%	0.1% to 1%	1% to 8%	More than 8%

*Table 16 - Land Capability for source of Sand*

LAND FEATURES AFFECTUNG USE	CAPABILITY CLASS				
	VERY GOOD (1)	GOOD (2)	FAIR (3)	POOR (4)	UNSUITED (5)
UNIFIED SOIL GROUP	SW SP		SM		All other groups
SLOPE	0 to 5%	5% to 8%	8% to 15%	15% to 25%	25%
FLOODING	None	none	Less than once in 25 years	Once between 25 yrs & 10 yrs	More than once in 10 years
SITE DRAINAGE	Excessively Drained, Well Drained	Moderately Well Drained	Imperfectly Drained	Poorly Drained	Very Poorly Drained
DEPTH TO PERMANENT WATERTABLE	More than 200 cm	200 cm to 120 cm	120 cm to 90 cm	90 cm to 45 cm	Less than 45 cm
GRAVEL	Less than 5% (of soil volume)	5% to 10%	10% to 20%	20% to 35%	More than 35%
STONES	Less than 2% (of soil volume)	2% to 5%	5% to 10%	10% to 25%	More than 25%
BOULDERS	Less than 0.05% (of soil surface)	0.05% to 0.2%	0.2% to 2%	2% t 10%	More than 10%
OUTCROP	Less than 0.01% (of soil surface)	0.1% to 0.1%	0.1% to 1%	1% to 8%	More than 8%
THICKNESS OF DEPOSIT	More than 200 cm	300 cm to 150 cm	150 cm to 90 cm	90 cm to 30 cm	Less than 30 cm
THICKNESS OF OVERBURDEN	More than 200 cm	300 cm to 150 cm	150 cm to 90 cm	90 cm to 30 cm	Less than 30 cm
ORGANIC MATTER	Less than 1%	1% to 2%	2% to 10%	10% to 20%	More than 20%
DISPERSIBLE CLAYS	Less than 6%	6% to 10%	10% to 16%	More than 16%	-