

CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION

GRAIN SIZE DEFINITIONS

Fraction	Type	Subdivision	Size (mm)
Oversize	BOULDERS		>200
	COBBLES		60-200
Coarse grained	GRAVEL	Coarse	20-60
		Medium	6-20
		Fine	2-6
	SAND	Coarse	0.60-2.00
		Medium	0.20-0.60
		Fine	0.06-0.20
Fine grained	SILT		0.002-0.060
	CLAY		<0.002

GRAPHIC LOG

	PEAT		TOPSOIL
	CLAY		FILL
	SILT		BASALT
	SAND		GREYWACKE
	GRAVEL		SILTSTONE
	COBBLES		SHELLS
	BOULDERS		

MOISTURE CONDITION

Term	Description
Dry (D)	- Looks and feels dry
Moist (M)	- Feels cool, darkened in colour. - Tends to cohere, but no free water.
Wet (W)	- Feels cool, darkened in colour. - Tends to cohere, free water forms when handling.
Saturated (S)	- Feels cool, darkened in colour and free water is present on the sample

USCS SOIL CLASSIFICATION CODES

GW - well graded gravel	ML - silt, low plasticity
GP - poorly graded gravel	CL - clay, low plasticity
GM - silty gravel	OL - organic silt / organic clay, low plasticity
GC - clayey gravel	MH - silt, high plasticity
SW - well graded sand	CH - clay, high plasticity
SP - poorly graded sand	OH - organic silt / organic clay, high plasticity
SM - silty sand	Pt - peat
SC - clayey sand	

CONSISTENCY TERMS

Term	Field guide to consistency	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	Exudes between the fingers when squeezed	<12
Soft (S)	Easily indented by fingers	12 - 25
Firm (F)	Indented by strong finger pressure and can be indented by thumb pressure	25 - 50
Stiff (St)	Cannot be indented by thumb pressure	50 - 100
Very Stiff (VSt)	Can be indented	100 - 200
Hard (H)	Difficult to indent	>200

RELATIVE DENSITY

Term	Density Index %
Very dense	> 85
Dense	65 - 85
Medium Dense	35 - 65
Loose	15 - 35
Very Loose	< 15

WATER

	- Level (date observed)
	- Inflow
	- Outflow
	- Complete Loss

PLASTICITY (fine grained soil)

Term	Range of liquid limit for silt	Range of liquid limit for clay
Dilatant	Not applicable	Not applicable
Non-Plastic (NP)	Not applicable	Not applicable
Low Plasticity (LP)	≤50	≤35
Medium Plasticity (MP)	Not applicable	35 and ≤50
High Plasticity (HP)	>50	>50

GRADING (Gravel & Sands)

Term	Description	
Well Graded (WG)	Having good representation of all particle sizes from the largest to the smallest.	
Poorly Graded (PG)	With one or more intermediate sizes poorly represented.	
	Uniform	Essentially of one size.
	Gap Graded	With one or more intermediate sizes absent.

Core Penetration Test (CPT)

LIQUEFACTION POTENTIAL INDEX (LPI)

	Very High Risk
	High Risk
	Low Risk

SOIL BEHAVIOUR TYPE (SBT) - ROBERTSON ET AL. 1986

0	Undefined	5	Sand mixtures: silty sand to sandy silt
1	Sensitive fine-grained	6	Sands: clean sands to silty sands
2	Clay - organic soil	7	Dense sand to gravelly sand
3	Clays: clay to silty clay	8	Stiff sand to clayey sand
4	Silt mixtures: clayey silt & silty clay	9	Stiff fine-grained

Notes

Terms and values based off of the New Zealand Geotechnical Society Soil and Rock Field Guide

CLASSIFICATION SYMBOLS AND ROCK DESCRIPTION

STRENGTH

Term	Uniaxial Compressive Strength MPa	Point Load Strength Index $I_s(50)$ MPa
Extremely Strong	> 250	> 10
Very Strong	100 - 250	50 - 10
Strong	50 - 100	2 - 5
Moderately Strong	20 - 50	1 - 2
Weak	5 - 20	< 1
Very Weak	1 - 5	
Extremely Weak	< 1	

MASS WEATHERING

UW - Unweathered (fresh rock)
 SW - Slightly Weathered
 MW - Moderately Weathered
 HW - Highly Weathered
 CW - Completely Weathered
 RS - Residual Soil

ALTERATION

XA - Extremely Altered
 HA - Highly Altered
 MA - Moderately Altered
 DA - Distinctly Altered
 SA - Slightly Altered

BEDDING INCLINATION

Term	Inclination (from horizontal)
Sub-horizontal	0° - 5°
Gently inclined	6° - 15°
Moderately inclined	16° - 30°
Steeply inclined	31° - 61°
Very steeply inclined	61° - 80°
Sub-vertical	81° - 90°

BEDDING THICKNESS

Term	Bed Thickness
Thinly Laminated	< 2 mm
Laminated	2 mm - 6 mm
Very thin	6 mm - 20 mm
Thin	20 mm - 60 mm
Moderately thin	60 mm - 200 mm
Moderately thick	0.2 m - 0.6 m
Thick	0.6 m - 2 m
Very Thick	> 2 m

APERTURE OF DISCONTINUITY SURFACE

Term	Aperture (mm)	Description
Tight	Nil	Closed
Very Narrow	> 0 - 2	
Narrow	2 - 6	
Moderately Narrow	6 - 20	Gapped
Moderately Wide	20 - 60	
Wide	60 - 200	
Very Wide	> 200	Open

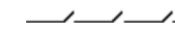
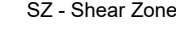
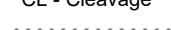
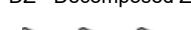
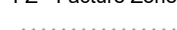
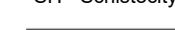
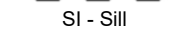
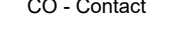
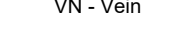
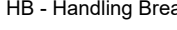
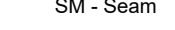
SURFACE SHAPE

PR *Planar* The defect does not vary in orientation.
 UN *Undulating* The defect has a wavy surface.
 ST *Stepped* The defect has one or more well defined steps.

SURFACE ROUGHNESS

RF *Rough* Many small surface irregularities (amplitude generally less than 1mm). Feels like fine to coarse sand paper.
 S *Smooth* Smooth to touch. Few or no surface irregularities.
 SL *Slickensided* Grooved or striated surface, usually polished.

DISCONTINUITY SYMBOLS

 BD - Bedding	 CS - Crushed Seam	 DK - Dyke	 FC - Fracture	 JT - Joint	 SZ - Shear Zone
 CL - Cleavage	 DZ - Decomposed Zone	 FL - Fault	 FZ - Fracture Zone	 SH - Schistosity	 SI - Sill
 CO - Contact	 DB - Drilling Break	 VN - Vein	 HB - Handling Break	 SM - Seam	 VO - Void
 CZ - Crush Zone	 DL - Drilling Lift	 FL - Foliation	 IS - Infilled Seam	 SS - Shear Seam	

Notes

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CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION - DRILLING

BACKFILL TYPES

☐ Bituminous Material (BITUBKFL)	☐ Sand (SANDBKFL)	☐ Cuttings (CUTTBKFL)
☐ Concrete (CONCBKFL)	☐ Bentonite (BENTBKFL)	☐ Gravel (GRAVBKFL)
		☐ Grout (GROUBKFL)

SAMPLES & TESTS

☐ AMAL - Amalgamated Sample	☐ G - Gas Sample
☐ B - Bulk Disturbed Sample	☐ LB - Large Bulk Disturbed Sample (earthworks testing)
☐ BLK - Block Sample	☐ M - Mazier Type Sample
☐ C - Core Sample (general)	☐ P - Piston Sample
☐ CBR - CBR Mould Sample	☐ U - Undisturbed Sample - Open Drive
☐ D - Small Disturbed Sample	☐ W - Water Sample
☐ ES - Soil Sample for Environmental Testing	☐ SPTLS - Standard Penetration Test - Liner
☐ EW - Water Sample for Environmental Testing	☐ TW - Thin Walled Push in Sample
☐ L - Lost	☐ SB - Shear Box Sample
	☐ SPT - Standard penetration Test - No Liner

TEST TYPE

CP - Cable Percussion (shell and auger)	HA + DCP - Hand Auger with Dynamic Cone Penetrometer	RO - Rotary Open Hole
ABS - Automatic Ballast Sampler	IDEN - In Situ Density Test	SCP - Static Cone Penetrometer
CH - Slope Surface Protection Stripping	INST - Instrument	SH - Shaft
RC - Rotary Cored	IP - Inspection Pit	TP - Trial pit/trench
DCP - Dynamic Cone Penetrometer	IRDX - In Situ Redox Test	TRAV - Linear Logging, Traverse, or Scanline Survey
DP - Dynamic Probe Sampling	IRES - In Situ Resistivity	VC - Vibrocore
EXP - Logged Exposure	IVAN - In Situ Vane Test	W - Wash Boring
GCOP - GCO Probe	OP - Observation pit/trench	WLS - Dynamic (windowless) Sampler
HA - Hand Auger	PM - Pressuremeter Test Hole	WS - Window Sampler
ICBR - In Situ CBR Test	RCG - Rotary Drilled in Common Ground	SL - Sampling Location
SNC - Sonic Core Drilling	EH - Exploratory Hole	HSA - Hollow Stem Auger
		ISPT - In Situ SPT Test

TOTAL CORE RECOVERY*

Total core recovery (TCR) is defined as:

$$TCR = \frac{\text{Length of core recovered}}{\text{Length of core run}} \times 100\%$$

PIEZOMETER TYPE

EPIE - Electronic Piezometer	SP - Standpipe
HPIE - Hydraulic Piezometer	VWP - Vibrating Wire Piezometer
PPIE - Pneumatic Piezometer	SPIE - Standpipe Piezometer

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