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Retrieved from the Queensland Geotechnical Database <http://qgd.org.au/>



Easting: 502294 Northing: 6962974 RL: 24.27 m

Logger: JI/CB Operator: Phil Machine: MC450

Drilling Method		Depth	Graphic	Description	Weathering	Strength Estimated	Defect Spacing	Rec (%)	RQD	Samples and Remarks
TC	WB									
		0.60	[Cross-hatched]	FILL Gravelly CLAY (CH) Stiff to very stiff, high plasticity, brown and grey, fine to medium size gravel, trace of sand and organics.						
		1.0	[Vertical lines]	NATURAL Sandy CLAY (CH) Very stiff to hard, high plasticity, red brown and grey, moist.						
		1.90	[Wavy lines]	PHYLLITE (XW) Very weak, brown grey and white, with bands of hard Gravelly clay and fragmented Quartz.						
		4.70	[Wavy lines]	PHYLLITE, fine grained, light grey mottled light brown and orange, foliated, non-intact.	XW			100	0	12, 27, 21 N=48
		5.00	[Cross-hatched]	CORE LOSS 0.14m (5.00-5.14)	XW - DW			52	0	
		5.14	[Wavy lines]	PHYLLITE, fine grained, light grey mottled light brown and orange, foliated, fragmented, with trace of quartz.	XW - DW			100	20	
		5.31	[Cross-hatched]	CORE LOSS 0.23m (5.31-5.54)	XW - DW			100	0	
		5.54	[Wavy lines]	PHYLLITE, fine grained, light grey mottled light brown and orange, foliated, fragmented, with trace of quartz.	DW			70	16	
		5.61	[Cross-hatched]	CORE LOSS 0.11m (5.61-5.72)	DW			96	0	7.62-9.42 m; F, 40°, P, R, O, L
		5.72	[Wavy lines]	PHYLLITE, fine grained, light grey mottled light brown and orange, foliated, non-intact, non-intact to fragmented, with trace of quartz, with trace of limonite and light grey clay.	DW			90	21	8.87 m; J, 55°, P, S, O, C
		7.00	[Cross-hatched]	CORE LOSS 0.30m (7.00-7.30)						
		7.30	[Wavy lines]	PHYLLITE, fine grained, light grey mottled light brown and orange, foliated, non-intact, with trace of quartz, with trace of limonite and light grey clay.						
		7.56	[Cross-hatched]	CORE LOSS 0.05m (8.12-8.17)						
		8.12	[Wavy lines]	PHYLLITE, fine grained, grey mottled orange, foliated, foliations infilled with limonite, trace thin quartz bands, with closely spaced fractures.						
		8.17	[Cross-hatched]	CORE LOSS 0.05m (8.12-8.17)						
		9.83	[Wavy lines]	PHYLLITE, fine grained, grey mottled orange, foliated, foliations infilled with limonite, trace thin quartz bands, with closely spaced fractures.						9.65 m; F, 40°, P, S, O, L 9.79 m; F, 40°, P, R, O, L 9.89 m; F, 20°, S, R, O, L

Comments:
1) Groundwater not observed. 2) Monitoring well installed to 13.5m on completion.

Defects - 1.54m : F, 60°, P, R, O, C

Depth (m)	Type	Dir (Deg)	Severity	Roughness	Aperture	With
	B - Bedding		C - Curvilinear	L - Slickensides	C - Closed	C - Clay
	C - Clay seam		D - Discontinuous	P - Polished	F - Filled	F - Iron Oxide
	F - Foliation		P - Planar	R - Rough	N - Clean	K - Calcite
	H - Schistosity		S - Subplanar	S - Smooth	O - Open	L - Limonite
	J - Joint		T - Stepped	V - Very rough	S - Stain	O - Quartz
	L - Cleavage		U - Undulating			S - Secondary mineral
	R - Fracture					U - Unidentified mineral
	S - Shear zone					W - Weathered rock
	T - Contact					X - Carbonaceous
	V - Vein					Z - Clean
	Z - Decomposed Zone					
	DI - Drilling induced break					

Weathering Grades

RS - Residual Soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh

Rock Strength

VW - Very weak
W - Weak
MS - Medium strong
S - Strong
VS - Very strong
ES - Extremely strong

Samples

U50 [Bar]

SPT [Bar]

Disturbed Sample [Bar]

Approved: _____
Date: _____

SOIL SURVEYS 00: LIBRARY 2012:05:GLB Log SOIL SURVEY BOREHOLE LOG 111-12936 NEW.GPJ <-DrawingFiles> 21/05/2012 14:35 8.30.002 Developed by Datigel



Easting: 502294 Northing: 6962974 RL: 24.27 m
Logger: JI/CB Operator: Phil Machine: MC450

Drilling Method				Depth	Graphic	Description	Weathering	Strength Estimated	Defect Spacing	Rec (%)	RQD	Samples and Remarks
TC	WB	FR	NW/CL									
				11.0		PHYLLITE, fine grained, dark grey, with orange and white veins, foliated, closely spaced fractures, with veins of quartz and limonite. (continued)	DW - SW			90	21	10.00-10.56 m; F, 20°, P, S, O, L 10.61 m; F, 25°, P, S, O, L 10.73 m; Z, 20°, S, R, O, W 10.84 m; J, 50°, S, R, O, L 10.90 m; J, 10°, T, R, O, L
				12.0						100	37	11.23 m; F, 40°, S, S, O, L 11.30 m; F, 40°, S, S, O, L 11.39 m; F, 40°, S, S, O, L 11.42 m; F, 40°, S, S, O, L
				13.0	13.05					100	25	12.35 m; F, 46°, S, R, O, L 12.49 m; J, 25°, S, R, O, L 12.55 m; J, 85°, S, R, O, L 12.62 m; J, 45°, C, L
				14.0		PHYLLITE, fine grained, dark grey, with white bands, foliated, closely spaced fractures, with some laminated quartz bands and trace pygmatic folding, with thin quartz bands from 18.84m to 18.94m and 20.38m to 20.48m.	SW - FR					13.15 m; F, 55°, S, S, O, L
				15.0						100	32	13.83 m; J, 10°, S, R, O, Z 13.89 m; F, 40°, S, R, O, Z 14.10 m; F, 50°, S, S, O, Z 14.19 m; F, 50°, S, S, O, Z 14.29 m; F, 45°, S, S, O, Z
				16.0			FR					14.94 m; F, 45°, S, S, O, Z 15.17 m; F, 50°, T, S, O, Z 15.21 m; F, 15°, S, R, O, Z 15.39 m; F, 60°, S, R, O, Q 15.47 m; J, 30°, C, V, O, Z
				17.0						100	43	15.72 m; J, 15°, U, S, O, Z 16.29 m; F, 50°, S, R, O, Z
				18.0						100	64	17.32 m; J, 15°, U, R, O, Z 17.56 m; F, 75°, P, S, O, Z 17.82 m; F, 65°, S, S, O, Z
				19.0			SW - FR					18.23-18.50 m; F, 80°, S, R, O, Z 18.78 m; F, 40°, P, R, O, Z 18.81 m; J, 55°, C, R, O, W
				20.0						100	41	19.21 m; F, 50°, P, R, O, Z 19.32 m; F, 55°, P, S, O, Z
										100	46	

Comments:
1) Groundwater not observed. 2) Monitoring well installed to 13.5m on completion.

Defects - 1.54m : F,60°,P,R,O,C

Depth (m)	Type	Dip (Deg)	Planarity	Roughness	Appearance	Notes
	B - Bedding		C - Curvilinear	L - Slickensides	C - Closed	W - Iron Oxide
	C - Clay seam		D - Discontinuous	P - Polished	F - Filled	K - Calcite
	F - Foliation		P - Planar	R - Rough	N - Clean	L - Limonite
	H - Schistosity		S - Subplanar	S - Smooth	O - Open	Q - Quartz
	J - Joint		T - Stepped	V - Very rough	S - Stain	S - Secondary mineral
	L - Cleavage		U - Undulating			U - Unidentified mineral
	R - Fracture					W - Weathered rock
	S - Shear zone					X - Carbonaceous
	T - Contact					Z - Clean
	V - Vein					
	Z - Decomposed Zone					
	DI - Drilling induced break					

Weathering Grades

RS - Residual Soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh

Rock Strength

VW - Very weak
W - Weak
MS - Medium strong
S - Strong
VS - Very strong
ES - Extremely strong

Samples

U50
SPT
Disturbed Sample

Approved: _____
Date: _____

SOIL SURVEYS 00:LIBRARY 2012:05:G.LB Log SOIL SURVEY BOREHOLE LOG 111-12936 NEW.GPJ <<DrawingFiles>> 21/05/2012 14:35 8.30.002 Developed by Dajgeel



Easting: 502294 Northing: 6962974 RL: 24.27 m
Logger: JI/CB Operator: Phil Machine: MC450

Drilling Method				Depth	Graphic	Description	Weathering	Strength Estimated	Defect Spacing	Rec (%)	RQD	Samples and Remarks							
TC	WB	RR	Casing																
				21.0	[Wavy line pattern]	PHYLLITE, fine grained, dark grey, with white bands, foliated, closely spaced fractures, with some laminated quartz bands and trace pygmatic folding, with thin quartz bands from 18.84m to 18.94m and 20.38m to 20.48m. (continued)	SW - FR	[Cross-hatch pattern]	[Vertical dashed lines]	100	46	20.20 m; F, 60°, P, S, O, Z							
																			20.42 m; J, 10°, S, R, O, Z
																			20.70-21.53 m; F, 50°, P, S, O, Z
																			21.93 m; F, 60°, P, R, O, Z
																			22.30 m; J, 50°, S, R, O, Q 22.43 m; F, 62°, S, S, O, Z 22.71 m; J, 30°, P, S, O, W
				24.0															
				25.0															
				25.00		BOREHOLE BH 334 TERMINATED AT 25.00 m													
				26.0															
				27.0															
				28.0															
				29.0															
				30.0															

SOIL SURVEYS 00:LIBRARY 2012:05:G.LB Log SOIL SURVEY BOREHOLE LOG 111-12936 NEW.GPJ <<DrawingFiles>> 21/05/2012 14:35 8.30.002 Developed by Datigel

Comments:
1) Groundwater not observed. 2) Monitoring well installed to 13.5m on completion.

Water First Noted Water Steady Level

Defects - 1.54m : F,60°,P,R,O,C

Type	Dip (Deg)	Planarity	Roughness	Aperture	Width
B - Bedding	C - Curvilinear	L - Slickensides	C - Closed	C - Clay	
D - Discontinuous	P - Polished	F - Filled	F - Iron Oxide	K - Calcite	
H - Schistosity	P - Planar	R - Rough	N - Clean	L - Limonite	
J - Joint	S - Subplanar	S - Smooth	O - Open	Q - Quartz	
L - Cleavage	T - Stepped	V - Very rough	S - Stain	S - Secondary mineral	
R - Fracture	U - Undulating			U - Unidentified mineral	
S - Shear zone				W - Weathered rock	
T - Contact				X - Carbonaceous	
V - Vein				Z - Clean	
Z - Decomposed Zone					
DI - Drilling induced break					

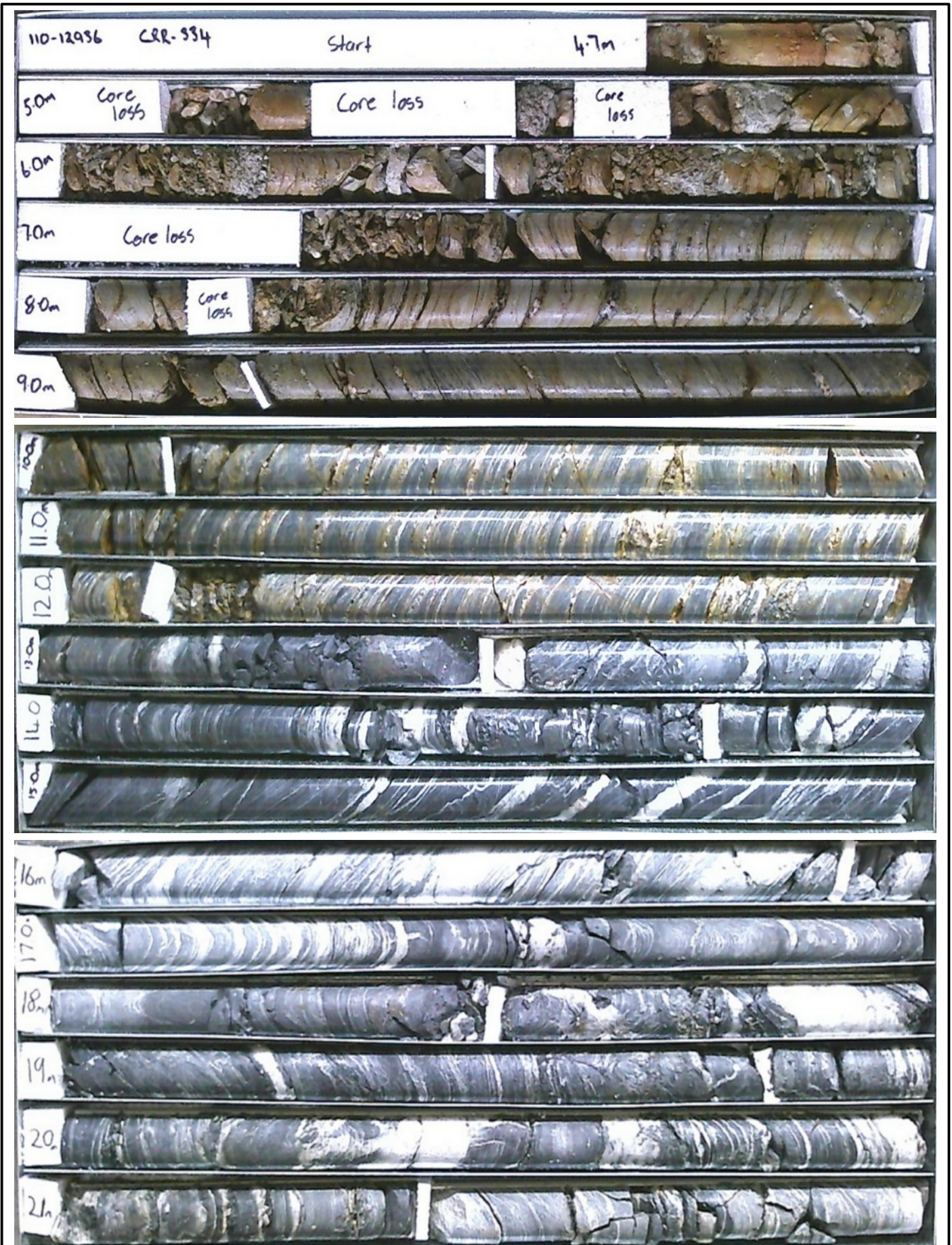
Weathering Grades
RS - Residual Soil
XW - Extremely weathered
DW - Distinctly weathered
SW - Slightly weathered
FR - Fresh

Rock Strength
VW - Very weak
W - Weak
MS - Medium strong
S - Strong
VS - Very strong
ES - Extremely strong

Samples
U50
SPT
Disturbed Sample

Approved: _____
Date: _____

SOIL_SURVEYS_00.LIBRARY.GLB.Grctbl.DG.PHOTO.CORE.PHOTO.4.PER.PAGE.111-12936.NEW.GPJ <<DrawingFile>> 26/04/2012 14:48 8.2.856 Developed by Datgel



TITLE

AECOM
Brisbane
Cross River Rail
Core Photo - BH 334

DRAWN	DT	DATE	26/04/2012
CHECKED	CB	DATE	26/04/2012
SCALE	Not To Scale		A4
PROJECT No	110-12936	FIGURE No	1/1

IN-SITU PACKER PERMEABILITY TEST RESULT

PROJECT: CRR
PROJECT No.: 110-12936

BH No.: 334
Test No.: 1
Date: 6/03/2012

Packer type: Double
Packer pressure: 2000kPa
Gauge pressures measured in: kPa
Tested by: CS

Vertical depth to:

Top of test section (m):	16.00
Base of test section (m):	17.50
Centre of test section(m):	16.75
Base of casing (m):	15.00
Ground water (m)	NR

Depth of centre of test section (m)	16.75
Length of test section (m):	1.50

Gauge Height above ground level	0.00
Hole Diameter in test section (mm)	75

1st period	Time (mins)	0	5	10	15	Average
Gauge Pressure 100	Flow reading	6403.0	6404.5	6405.6	6406.6	Flow (l/min)
	Water Take	0.00	1.50	1.10	1.00	0.240
2nd period	Time (mins)	0	5	10	15	Average
	Flow reading	6408.0	6408.8	5410.1	6410.8	Flow (l/min)
Gauge Pressure 200	Water Take	0.00	0.80	-998.70	1000.70	0.187
	Time (mins)	0	5	10	15	Average
Gauge Pressure 300	Flow reading	6410.9	6411.8	6419.3	6419.9	Flow (l/min)
	Water Take	0.00	0.90	7.50	0.60	0.600
4th period	Time (mins)	0	5	10	15	Average
	Flow reading	6410.4	6410.4	6410.4	6410.4	Flow (l/min)
Gauge Pressure 200	Water Take	0.00	0.00	0.00	0.00	0.000
	Time (mins)	0	5	10	15	Average
Gauge Pressure	Flow reading					Flow (l/min)
	Water Take	0.00	0.00	0.00	0.00	0.000

Period	Flow (q) (l/min)	Gauge Press (kPa)	Gauge Press (m of water)	Friction Loss (m)*		Total Head (m)	Lugeon Value	Perm. (m/s)
				Basic	In extra rods			
1st	0.240	100.00	10.220	0.000	0.000	26.970	0.606	5.80E-08
2nd	0.187	200.00	20.440	0.000	0.000	37.190	0.342	3.27E-08
3rd	0.600	300.00	30.660	0.000	0.000	47.410	0.862	8.24E-08
4th	0.000	200.00	20.440	0.000	0.000	37.190	0.000	0.00E+00
5th	0.000	0.00	0.000	0.000	0.000	16.750	0.000	0.00E+00

*Where friction loss is assumed to be negligible.

N.B. Pressure Conversion: 1 bar = 100 kPa = 14.503 psi

Note - zero flow in period 4 - test ended

IN-SITU PACKER PERMEABILITY TEST RESULT

PROJECT: CRR
PROJECT No.: 110-12936

BH No.: 334
Test No.: 2
Date: 6/03/2012

Packer type: Double
Packer pressure: 2000kPa
Gauge pressures measured in: kPa
Tested by: CS

Vertical depth to:

Top of test section (m):	10.00
Base of test section (m):	11.50
Centre of test section(m):	10.75
Base of casing (m):	9.00
Ground water (m)	NR

Depth of centre of test section (m)	10.75
Length of test section (m):	1.50

Gauge Height above ground level	0.00
Hole Diameter in test section (mm)	75

1st period	Time (mins)	0	5	10	15	Average
Gauge Pressure 100	Flow reading	6422.0	6423.5	6426.0	6427.0	Flow (l/min)
	Water Take	0.00	1.50	2.50	1.00	0.333
2nd period	Time (mins)	0	5	10	15	Average
	Flow reading	6430.0	6432.0	6434.0	6436.1	Flow (l/min)
Gauge Pressure 200	Water Take	0.00	2.00	2.00	2.10	0.407
	Time (mins)	0	5	10	15	Average
Gauge Pressure 300	Flow reading	6437.0	6441.5	6449.0	6456.0	Flow (l/min)
	Water Take	0.00	4.50	7.50	7.00	1.267
4th period	Time (mins)	0	5	10	15	Average
	Flow reading	6456.0	6460.0	6463.0	6469.0	Flow (l/min)
Gauge Pressure 200	Water Take	0.00	4.00	3.00	6.00	0.867
	Time (mins)	0	5	10	15	Average
Gauge Pressure 100	Flow reading	6462.0	6463.5	6465.5	6468.0	Flow (l/min)
	Water Take	0.00	1.50	2.00	2.50	0.400

Period	Flow (q) (l/min)	Gauge Press (kPa)	Gauge Press (m of water)	Friction Loss (m)*		Total Head (m)	Lugeon Value	Perm. (m/s)
				Basic	In extra rods			
1st	0.333	100.00	10.220	0.000	0.000	20.970	1.083	1.04E-07
2nd	0.407	200.00	20.440	0.000	0.000	31.190	0.888	8.49E-08
3rd	1.267	300.00	30.660	0.000	0.000	41.410	2.083	1.99E-07
4th	0.867	200.00	20.440	0.000	0.000	31.190	1.892	1.81E-07
5th	0.400	100.00	10.220	0.000	0.000	20.970	1.299	1.24E-07

*Where friction loss is assumed to be negligible.

N.B. Pressure Conversion: 1 bar = 100 kPa = 14.503 psi