WORKING SHEETS OF WATER PRESSURE TEST

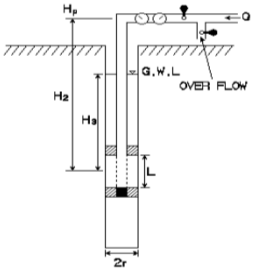
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-14
HOLE NO.	GR-66	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	10.0 to 15.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.49
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.594	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1110	346.20	346.20	0.00	0	0.00	0.00E+00
5	10	5	2	5	2110	347.80	379.80	32.00	6400	0.00	7.85E-05
10	15	5	3	5	3110	381.60	445.60	64.00	12800	0.00	1.06E-04
15	20	5	4	5	4110	447.70	523.70	76.00	15200	0.00	9.57E-05
20	25	5	5	5	5110	525.30	623.30	98.00	19600	0.00	9.92E-05
25	30	5	4	5	4110	625.50	703.50	78.00	15600	0.00	9.82E-05
30	35	5	3	5	3110	705.20	771.20	66.00	13200	0.00	1.10E-04
35	40	5	2	5	2110	772.80	816.80	44.00	8800	0.00	1.08E-04
40	45	5	1	5	1110	818.50	840.50	22.00	4400	0.00	1.03E-04
										K =	8.87E-05

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

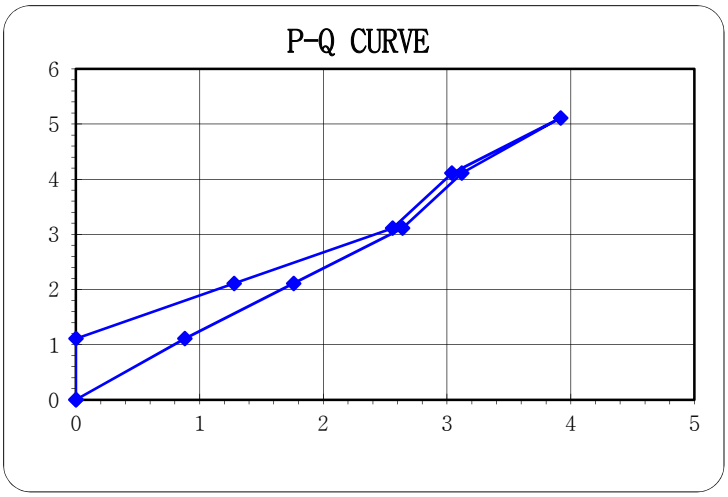
$H = Hp - Ha$

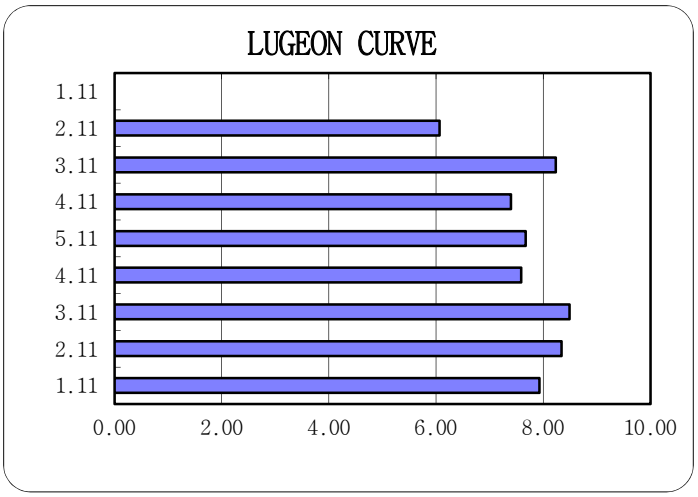
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.11	0.000	0.000	
2.11	1.280	6.066	
3.11	2.560	8.232	
4.11	3.040	7.397	
5.11	3.920	7.671	
4.11	3.120	7.591	
3.11	2.640	8.489	
2.11	1.760	8.341	
1.11	0.880	7.928	
		LU = 6.8572	





WORKING SHEETS OF WATER PRESSURE TEST

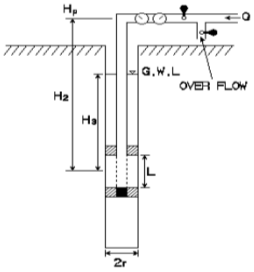
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-14
HOLE NO.	GR-66	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	15.0 to 20.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.49
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.594	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1110	842.30	842.30	0.00	0	0.00	0.00E+00
5	10	5	2	5	2110	843.90	867.90	24.00	4800	0.00	5.89E-05
10	15	5	3	5	3110	869.70	914.90	45.20	9040	0.00	7.52E-05
15	20	5	4	5	4110	917.00	973.00	56.00	11200	0.00	7.05E-05
20	25	5	5	5	5110	974.60	1036.40	61.80	12360	0.00	6.26E-05
25	30	5	4	5	4110	1038.60	1092.60	54.00	10800	0.00	6.80E-05
30	35	5	3	5	3110	1094.30	1139.30	45.00	9000	0.00	7.49E-05
35	40	5	2	5	2110	1140.90	1166.90	26.00	5200	0.00	6.38E-05
40	45	5	1	5	1110	1168.60	1186.60	18.00	3600	0.00	8.39E-05
										K =	6.20E-05

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

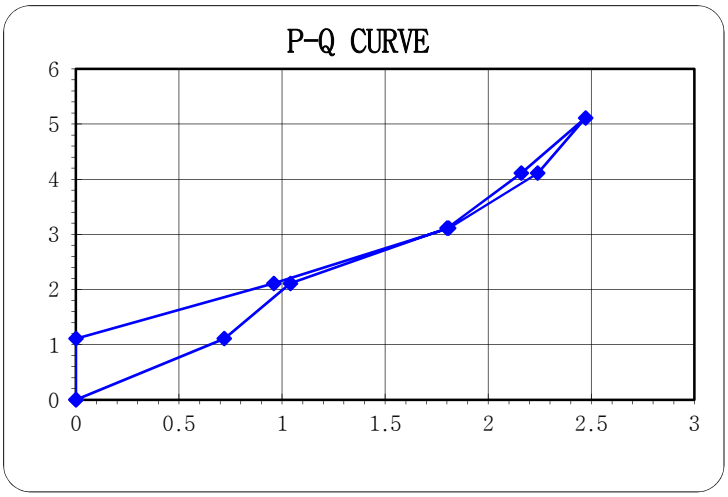
$H = Hp - Ha$

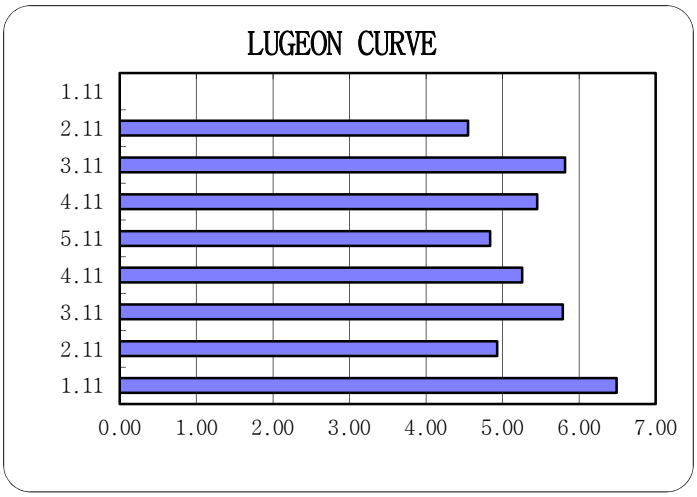
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.11	0.000	0.000	
2.11	0.960	4.550	
3.11	1.808	5.814	
4.11	2.240	5.450	
5.11	2.472	4.838	
4.11	2.160	5.255	
3.11	1.800	5.788	
2.11	1.040	4.929	
1.11	0.720	6.486	
		LU = 4.7900	





WORKING SHEETS OF WATER PRESSURE TEST

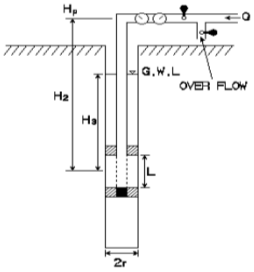
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-14
HOLE NO.	GR-66	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	20.0 to 25.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.49
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.594	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1110	192.60	212.60	20.00	4000	0.00	9.32E-05
5	10	5	2	5	2110	214.20	246.20	32.00	6400	0.00	7.85E-05
10	15	5	3	5	3110	248.00	295.00	47.00	9400	0.00	7.82E-05
15	20	5	4	5	4110	297.10	345.10	48.00	9600	0.00	6.04E-05
20	25	5	5	5	5110	346.70	397.20	50.50	10100	0.00	5.11E-05
25	30	5	4	5	4110	399.40	444.40	45.00	9000	0.00	5.67E-05
30	35	5	3	5	3110	446.10	486.40	40.30	8060	0.00	6.70E-05
35	40	5	2	5	2110	488.00	511.00	23.00	4600	0.00	5.64E-05
40	45	5	1	5	1110	512.70	524.70	12.00	2400	0.00	5.59E-05
										K =	6.64E-05

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

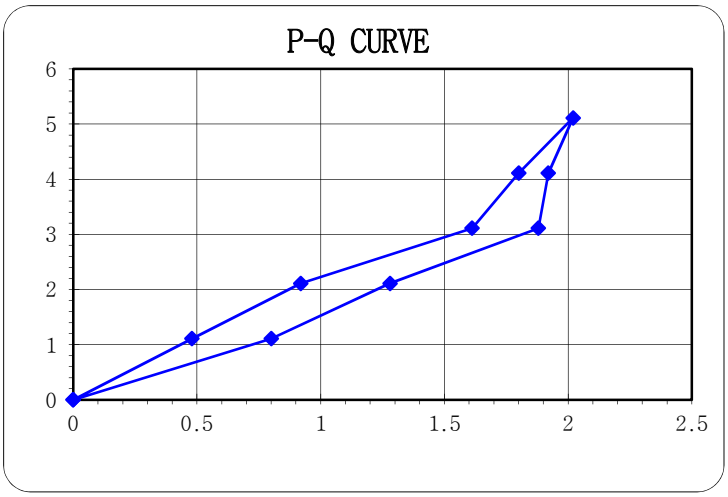
$H = Hp - Ha$

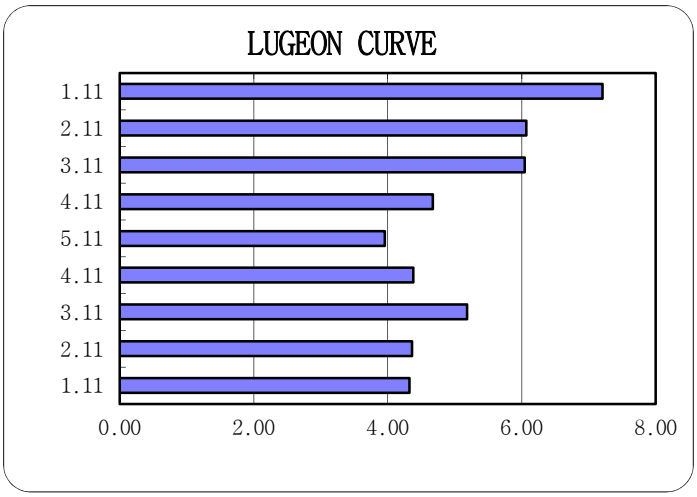
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.11	0.800	7.207	
2.11	1.280	6.066	
3.11	1.880	6.045	
4.11	1.920	4.672	
5.11	2.020	3.953	
4.11	1.800	4.380	
3.11	1.612	5.183	
2.11	0.920	4.360	
1.11	0.480	4.324	
		LU = 5.1323	





WORKING SHEETS OF WATER PRESSURE TEST

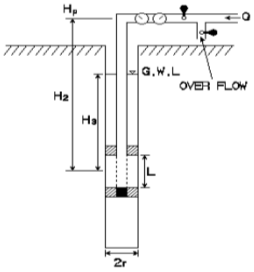
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-14
HOLE NO.	GR-66	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	25.0 to 30.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.49
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.594	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1110	530.60	551.00	20.40	4080	0.00	9.51E-05
5	10	5	2	5	2110	552.60	584.60	32.00	6400	0.00	7.85E-05
10	15	5	3	5	3110	586.40	627.90	41.50	8300	0.00	6.90E-05
15	20	5	4	5	4110	630.00	676.00	46.00	9200	0.00	5.79E-05
20	25	5	5	5	5110	677.60	734.60	57.00	11400	0.00	5.77E-05
25	30	5	4	5	4110	736.80	780.80	44.00	8800	0.00	5.54E-05
30	35	5	3	5	3110	782.50	823.00	40.50	8100	0.00	6.74E-05
35	40	5	2	5	2110	824.60	856.60	32.00	6400	0.00	7.85E-05
40	45	5	1	5	1110	858.30	882.30	24.00	4800	0.00	1.12E-04
										K =	7.46E-05

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

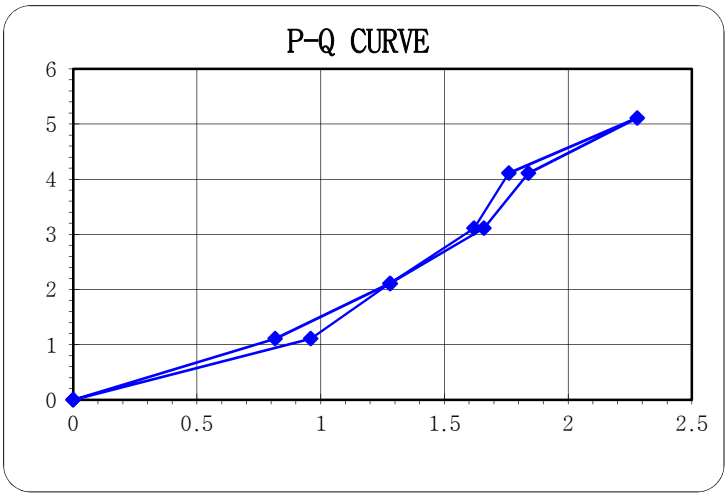
$H = Hp - Ha$

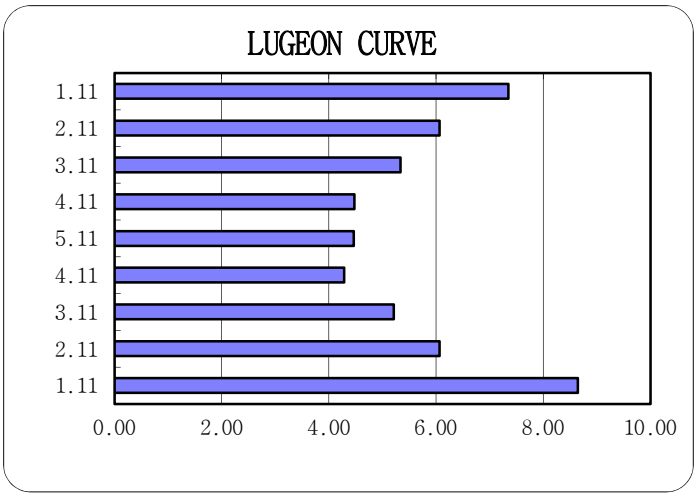
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.11	0.816	7.351	
2.11	1.280	6.066	
3.11	1.660	5.338	
4.11	1.840	4.477	
5.11	2.280	4.462	
4.11	1.760	4.282	
3.11	1.620	5.209	
2.11	1.280	6.066	
1.11	0.960	8.649	
		LU = 5.7667	





WORKING SHEETS OF WATER PRESSURE TEST

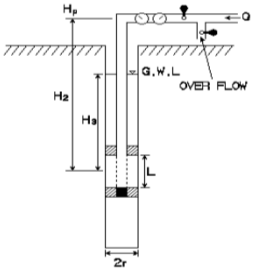
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-14
HOLE NO.	GR-67	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	10.0 to 15.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	9.46
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.455	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1000	364.50	370.90	6.40	1280	0.00	3.31E-05
5	10	5	2	5	2000	372.50	386.80	14.30	2860	0.00	3.70E-05
10	15	5	3	5	3000	389.00	411.70	22.70	4540	0.00	3.92E-05
15	20	5	4	5	4000	413.50	448.10	34.60	6920	0.00	4.48E-05
20	25	5	5	5	5000	449.80	492.10	42.30	8460	0.00	4.38E-05
25	30	5	4	5	4000	494.60	527.00	32.40	6480	0.00	4.19E-05
30	35	5	3	5	3000	528.60	548.40	19.80	3960	0.00	3.41E-05
35	40	5	2	5	2000	549.90	562.20	12.30	2460	0.00	3.18E-05
40	45	5	1	5	1000	564.10	570.90	6.80	1360	0.00	3.52E-05
										K =	3.79E-05

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

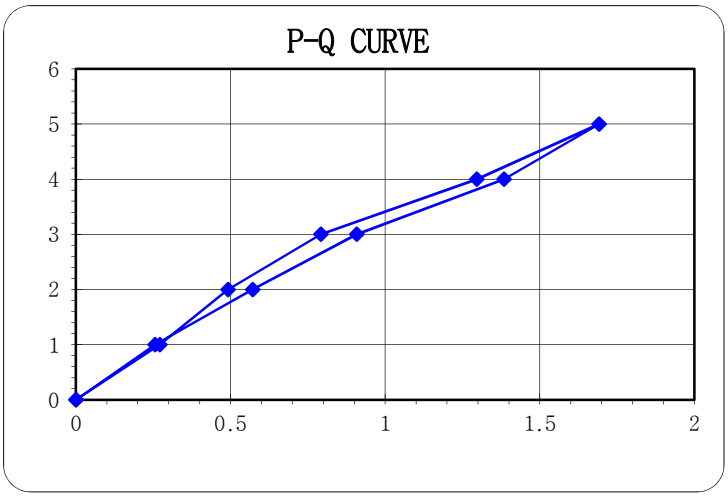
$H = Hp - Ha$

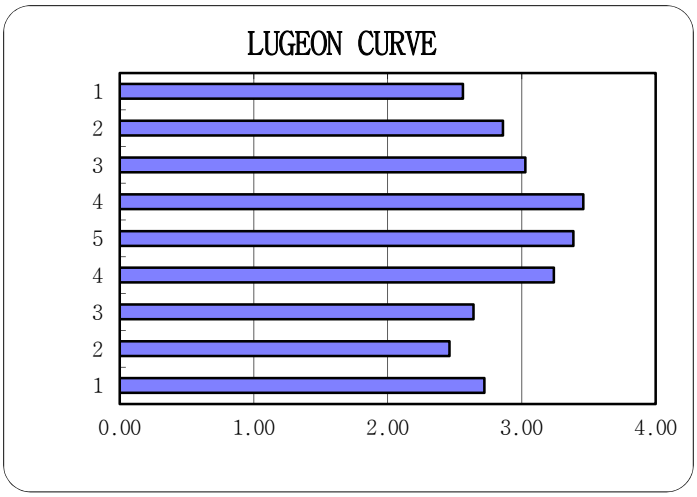
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1	0.256	2.560	
2	0.572	2.860	
3	0.908	3.027	
4	1.384	3.460	
5	1.692	3.384	
4	1.296	3.240	
3	0.792	2.640	
2	0.492	2.460	
1	0.272	2.720	
		LU = 2.9279	





WORKING SHEETS OF WATER PRESSURE TEST

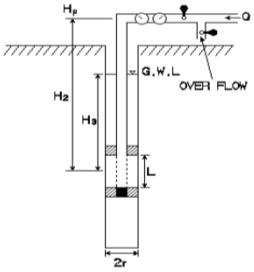
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-14
HOLE NO.	GR-67	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	15.0 to 20.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	9.46
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.455	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1000	575.30	576.50	1.20	240	0.00	6.21E-06
5	10	5	2	5	2000	578.10	580.90	2.80	560	0.00	7.24E-06
10	15	5	3	5	3000	583.10	587.30	4.20	840	0.00	7.24E-06
15	20	5	4	5	4000	589.10	594.70	5.60	1120	0.00	7.24E-06
20	25	5	5	5	5000	596.40	602.80	6.40	1280	0.00	6.62E-06
25	30	5	4	5	4000	605.30	610.10	4.80	960	0.00	6.21E-06
30	35	5	3	5	3000	611.70	615.30	3.60	720	0.00	6.21E-06
35	40	5	2	5	2000	616.80	619.20	2.40	480	0.00	6.21E-06
40	45	5	1	5	1000	621.10	621.90	0.80	160	0.00	4.14E-06
										K =	6.37E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)

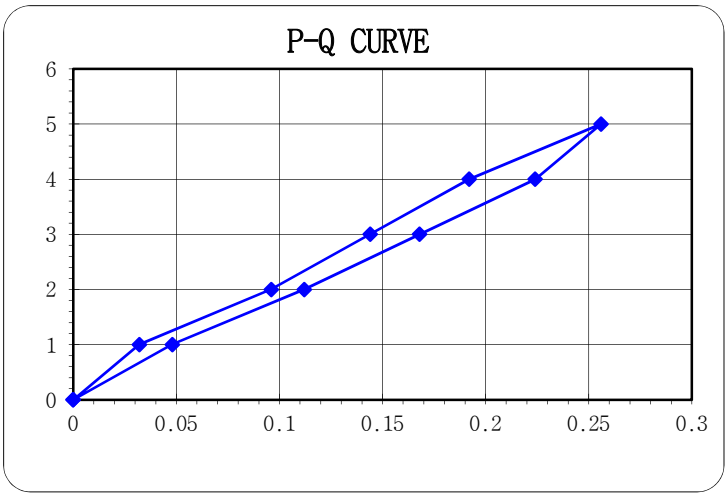


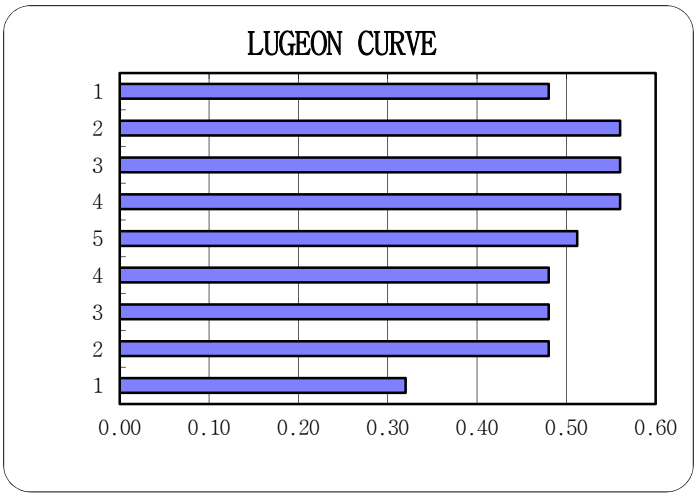
K = (2.3×Q/2πLH)×log (L/r)
H = Hp-Ha
Lu = (10×Q)/(P×L)

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1	0.048	0.480	
2	0.112	0.560	
3	0.168	0.560	
4	0.224	0.560	
5	0.256	0.512	
4	0.192	0.480	
3	0.144	0.480	
2	0.096	0.480	
1	0.032	0.320	
		LU = 0.4924	





WORKING SHEETS OF WATER PRESSURE TEST

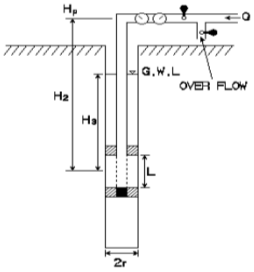
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-14
HOLE NO.	GR-67	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	20.0 to 25.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	9.46
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.455	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1000	624.30	624.30	0.00	0	0.00	0.00E+00
5	10	5	2	5	2000	625.90	627.10	1.20	240	0.00	3.10E-06
10	15	5	3	5	3000	629.30	631.70	2.40	480	0.00	4.14E-06
15	20	5	4	5	4000	633.50	637.10	3.60	720	0.00	4.66E-06
20	25	5	5	5	5000	638.80	643.20	4.40	880	0.00	4.55E-06
25	30	5	4	5	4000	645.70	649.50	3.80	760	0.00	4.92E-06
30	35	5	3	5	3000	651.10	653.70	2.60	520	0.00	4.48E-06
35	40	5	2	5	2000	655.20	656.80	1.60	320	0.00	4.14E-06
40	45	5	1	5	1000	658.70	659.50	0.80	160	0.00	4.14E-06
										K =	3.79E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

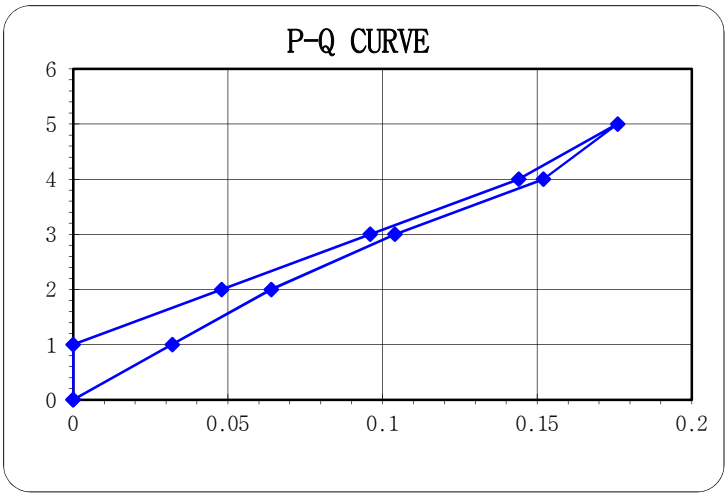
$H = Hp - Ha$

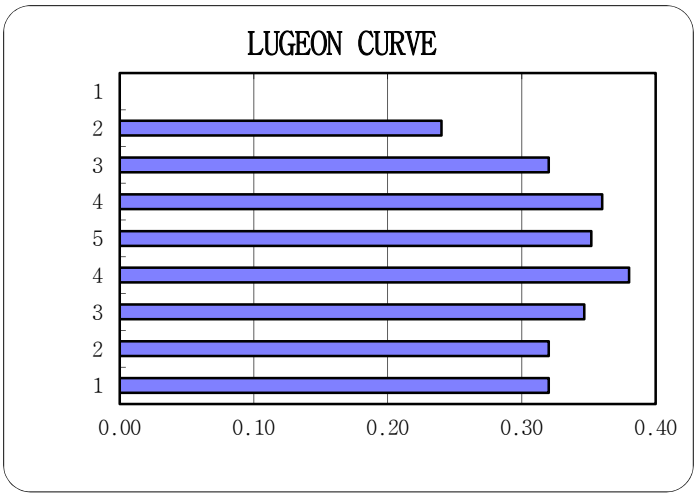
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1	0.000	0.000	
2	0.048	0.240	
3	0.096	0.320	
4	0.144	0.360	
5	0.176	0.352	
4	0.152	0.380	
3	0.104	0.347	
2	0.064	0.320	
1	0.032	0.320	
		LU = 0.2932	





WORKING SHEETS OF WATER PRESSURE TEST

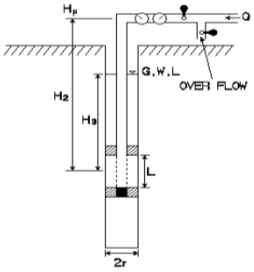
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-14
HOLE NO.	GR-67	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	25.0 to 30.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	9.46
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.455	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1000	662.30	662.30	0.00	0	0.00	0.00E+00
5	10	5	2	5	2000	663.90	663.90	0.00	0	0.00	0.00E+00
10	15	5	3	5	3000	666.10	666.50	0.40	80	0.00	6.90E-07
15	20	5	4	5	4000	668.30	669.10	0.80	160	0.00	1.03E-06
20	25	5	5	5	5000	670.80	672.20	1.40	280	0.00	1.45E-06
25	30	5	4	5	4000	674.70	675.70	1.00	200	0.00	1.29E-06
30	35	5	3	5	3000	677.30	678.10	0.80	160	0.00	1.38E-06
35	40	5	2	5	2000	679.60	680.00	0.40	80	0.00	1.03E-06
40	45	5	1	5	1000	681.90	681.90	0.00	0	0.00	0.00E+00
										K =	7.65E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

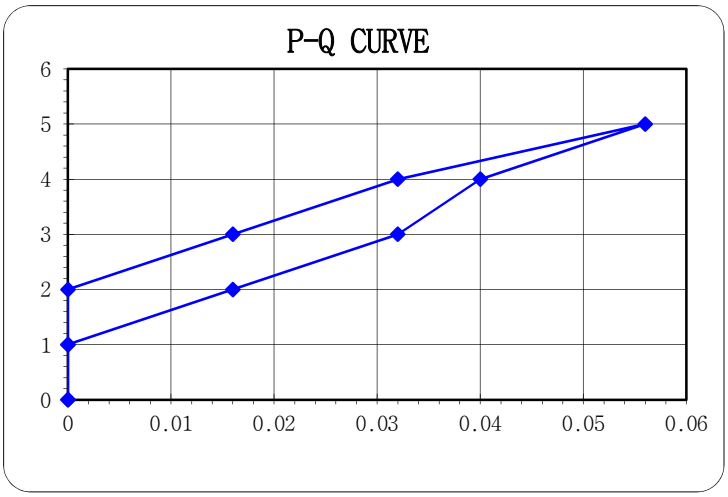
$H = Hp - Ha$

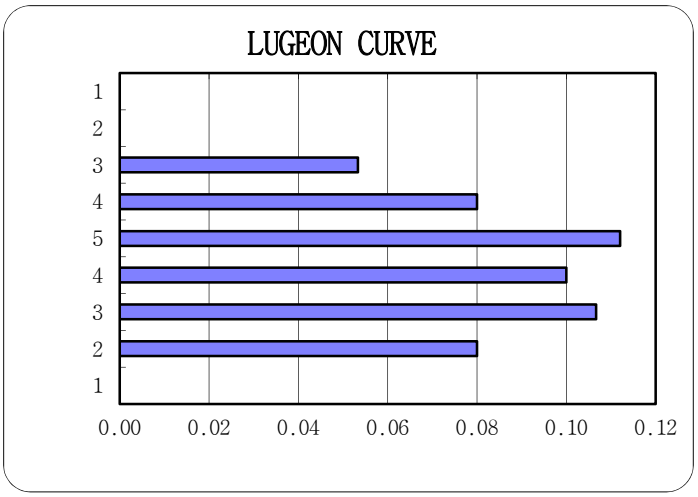
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1	0.000	0.000	
2	0.000	0.000	
3	0.016	0.053	
4	0.032	0.080	
5	0.056	0.112	
4	0.040	0.100	
3	0.032	0.107	
2	0.016	0.080	
1	0.000	0.000	
		LU = 0.0591	





WORKING SHEETS OF WATER PRESSURE TEST

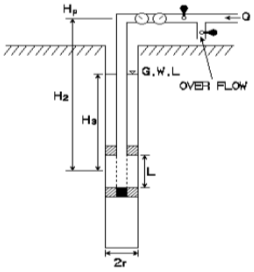
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-71	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	5.0 to 10.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	9.26
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.456	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1020	267.80	267.80	0.00	0	0.00	0.00E+00
5	10	5	2	5	2020	269.40	269.40	0.00	0	0.00	0.00E+00
10	15	5	3	5	3020	271.20	271.40	0.20	40	0.00	3.43E-07
15	20	5	4	5	4020	273.50	273.70	0.20	40	0.00	2.57E-07
20	25	5	5	5	5020	275.30	275.70	0.40	80	0.00	4.12E-07
25	30	5	4	5	4020	277.90	278.10	0.20	40	0.00	2.57E-07
30	35	5	3	5	3020	279.80	279.80	0.00	0	0.00	0.00E+00
35	40	5	2	5	2020	281.40	281.40	0.00	0	0.00	0.00E+00
40	45	5	1	5	1020	283.10	283.10	0.00	0	0.00	0.00E+00
										K =	1.41E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

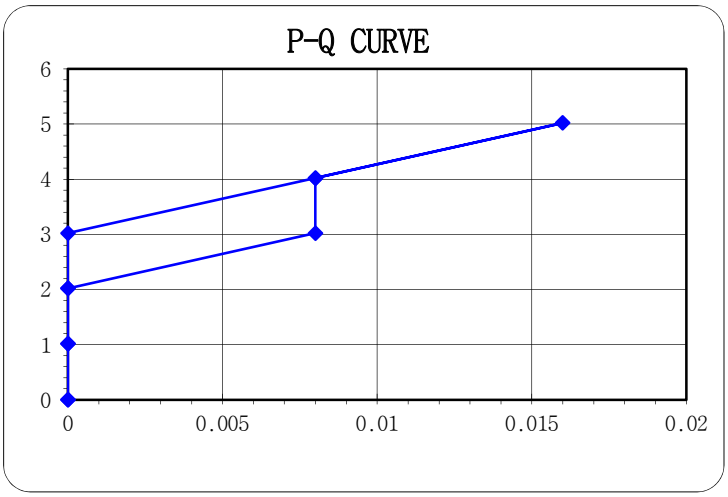
$H = Hp - Ha$

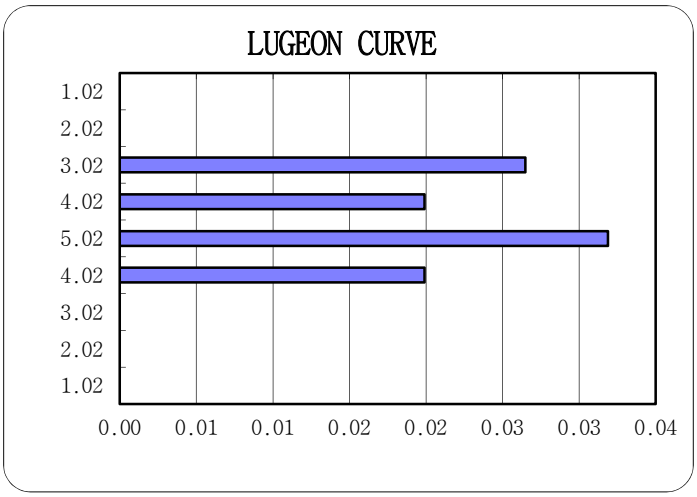
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.02	0.000	0.000	
2.02	0.000	0.000	
3.02	0.008	0.026	
4.02	0.008	0.020	
5.02	0.016	0.032	
4.02	0.008	0.020	
3.02	0.000	0.000	
2.02	0.000	0.000	
1.02	0.000	0.000	
		LU = 0.0109	





WORKING SHEETS OF WATER PRESSURE TEST

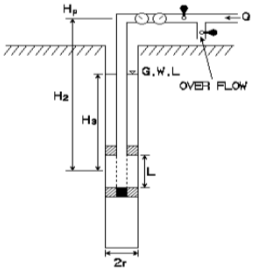
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-71	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	10.0 to 15.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	9.26
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.456	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1020	285.60	285.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2020	287.20	287.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3020	289.00	289.00	0.00	0	0.00	0.00E+00
15	20	5	4	5	4020	291.10	291.30	0.20	40	0.00	2.57E-07
20	25	5	5	5	5020	292.90	293.10	0.20	40	0.00	2.06E-07
25	30	5	4	5	4020	295.30	295.30	0.00	0	0.00	0.00E+00
30	35	5	3	5	3020	297.00	297.00	0.00	0	0.00	0.00E+00
35	40	5	2	5	2020	298.60	298.60	0.00	0	0.00	0.00E+00
40	45	5	1	5	1020	300.30	300.30	0.00	0	0.00	0.00E+00
										K =	5.15E-08

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

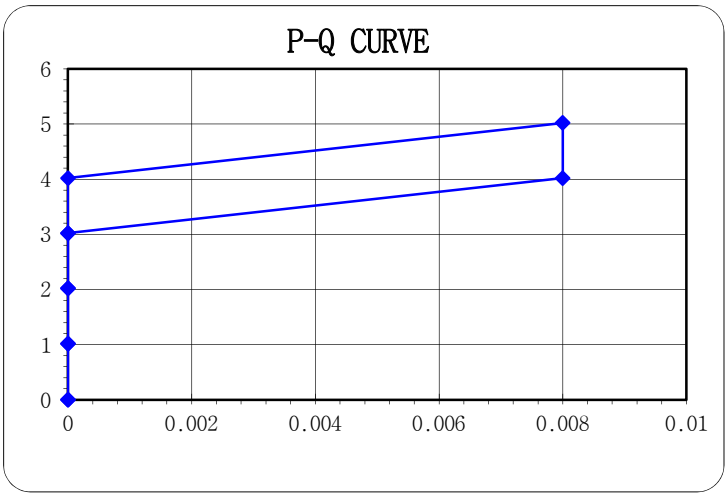
$H = Hp - Ha$

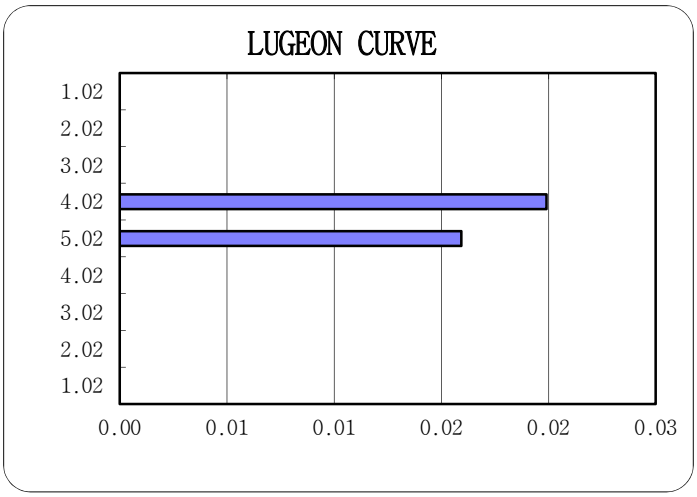
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.02	0.000	0.000	
2.02	0.000	0.000	
3.02	0.000	0.000	
4.02	0.008	0.020	
5.02	0.008	0.016	
4.02	0.000	0.000	
3.02	0.000	0.000	
2.02	0.000	0.000	
1.02	0.000	0.000	
		LU = 0.0040	





WORKING SHEETS OF WATER PRESSURE TEST

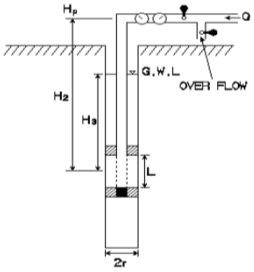
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-71	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	15.0 to 20.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	9.26
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.456	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1020	302.50	302.50	0.00	0	0.00	0.00E+00
5	10	5	2	5	2020	304.10	304.10	0.00	0	0.00	0.00E+00
10	15	5	3	5	3020	305.90	305.90	0.00	0	0.00	0.00E+00
15	20	5	4	5	4020	308.00	308.00	0.00	0	0.00	0.00E+00
20	25	5	5	5	5020	309.60	309.60	0.00	0	0.00	0.00E+00
25	30	5	4	5	4020	311.80	311.80	0.00	0	0.00	0.00E+00
30	35	5	3	5	3020	313.50	313.50	0.00	0	0.00	0.00E+00
35	40	5	2	5	2020	315.10	315.10	0.00	0	0.00	0.00E+00
40	45	5	1	5	1020	316.80	316.80	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

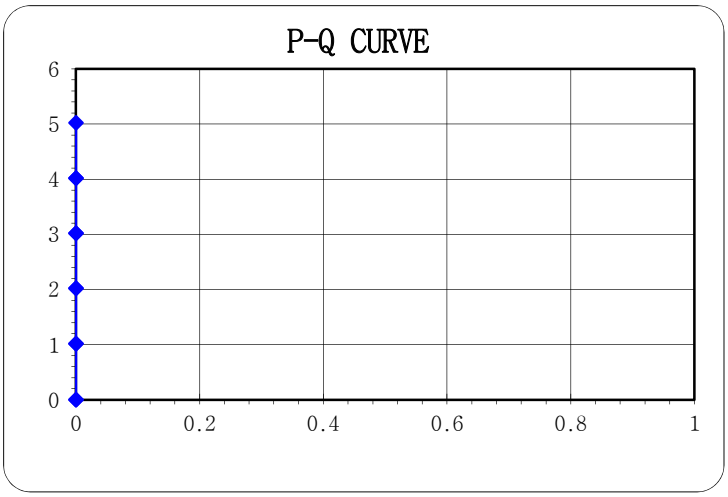
$H = Hp - Ha$

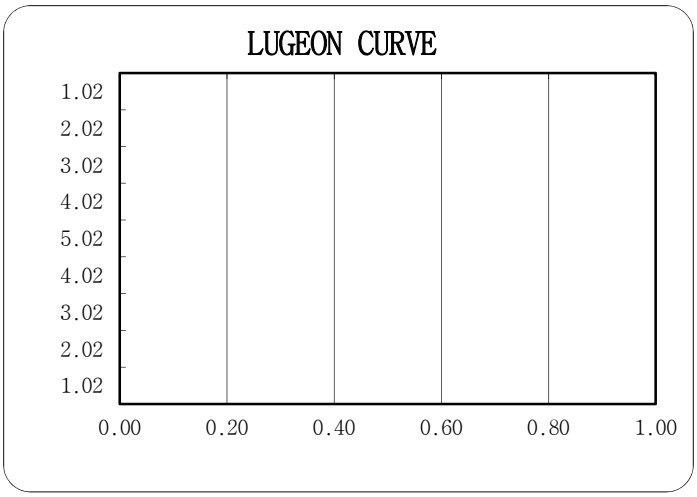
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.02	0.000	0.000	
2.02	0.000	0.000	
3.02	0.000	0.000	
4.02	0.000	0.000	
5.02	0.000	0.000	
4.02	0.000	0.000	
3.02	0.000	0.000	
2.02	0.000	0.000	
1.02	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

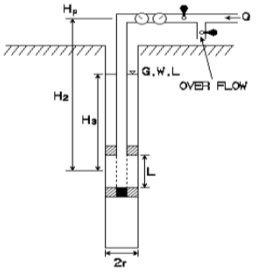
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-71	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	20.0 to 25.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	9.26
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.456	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1020	318.50	318.50	0.00	0	0.00	0.00E+00
5	10	5	2	5	2020	320.10	320.10	0.00	0	0.00	0.00E+00
10	15	5	3	5	3020	321.90	321.90	0.00	0	0.00	0.00E+00
15	20	5	4	5	4020	324.00	324.20	0.20	40	0.00	2.57E-07
20	25	5	5	5	5020	325.80	326.20	0.40	80	0.00	4.12E-07
25	30	5	4	5	4020	328.40	328.60	0.20	40	0.00	2.57E-07
30	35	5	3	5	3020	330.30	330.30	0.00	0	0.00	0.00E+00
35	40	5	2	5	2020	331.90	331.90	0.00	0	0.00	0.00E+00
40	45	5	1	5	1020	333.60	333.60	0.00	0	0.00	0.00E+00
										K =	1.03E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

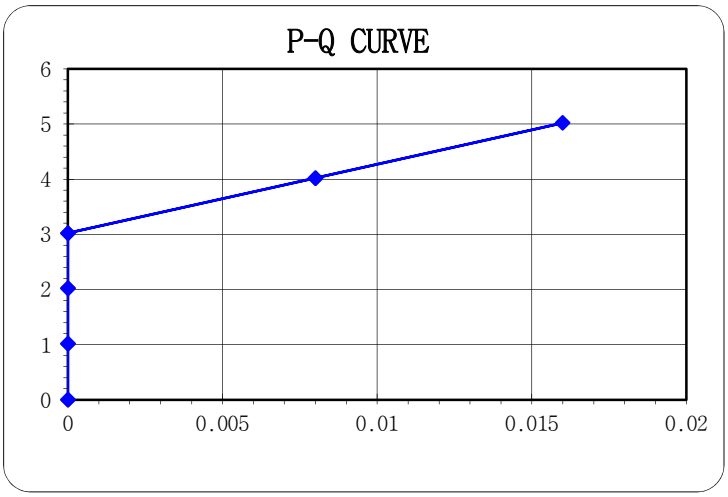
$H = Hp - Ha$

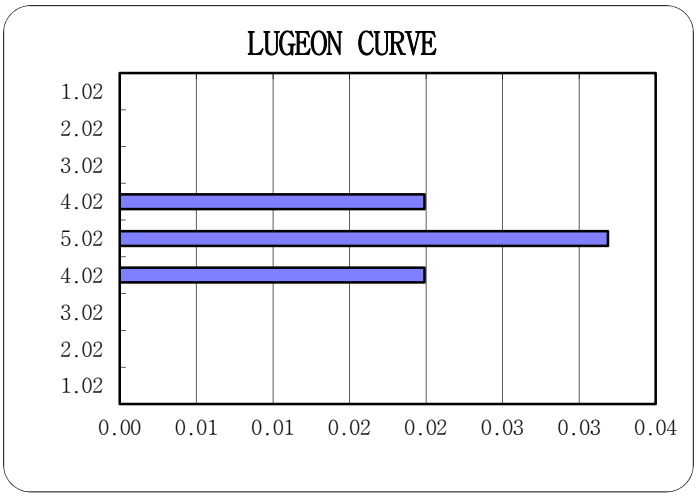
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.02	0.000	0.000	
2.02	0.000	0.000	
3.02	0.000	0.000	
4.02	0.008	0.020	
5.02	0.016	0.032	
4.02	0.008	0.020	
3.02	0.000	0.000	
2.02	0.000	0.000	
1.02	0.000	0.000	
		LU = 0.0080	





WORKING SHEETS OF WATER PRESSURE TEST

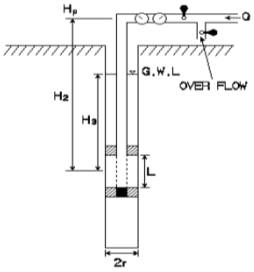
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-71	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	25.0 to 30.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	9.26
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.456	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1020	335.60	335.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2020	337.20	337.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3020	339.00	339.20	0.20	40	0.00	3.43E-07
15	20	5	4	5	4020	341.30	341.70	0.40	80	0.00	5.15E-07
20	25	5	5	5	5020	343.30	343.90	0.60	120	0.00	6.18E-07
25	30	5	4	5	4020	346.10	346.30	0.20	40	0.00	2.57E-07
30	35	5	3	5	3020	348.00	348.20	0.20	40	0.00	3.43E-07
35	40	5	2	5	2020	349.80	349.80	0.00	0	0.00	0.00E+00
40	45	5	1	5	1020	351.50	351.50	0.00	0	0.00	0.00E+00
										K =	2.31E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

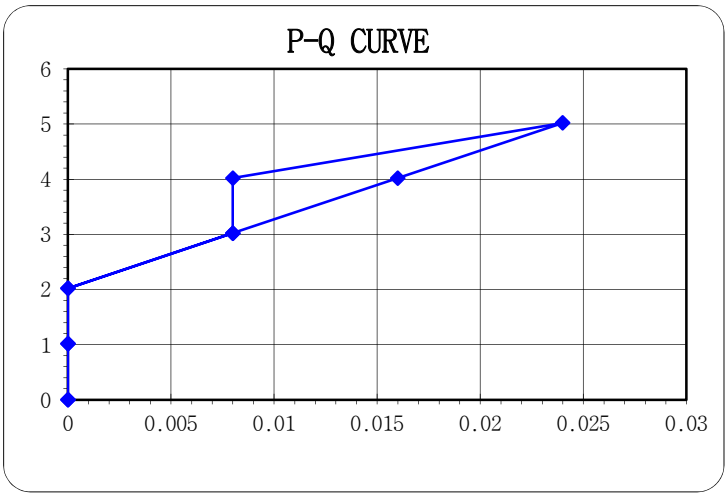
$H = Hp - Ha$

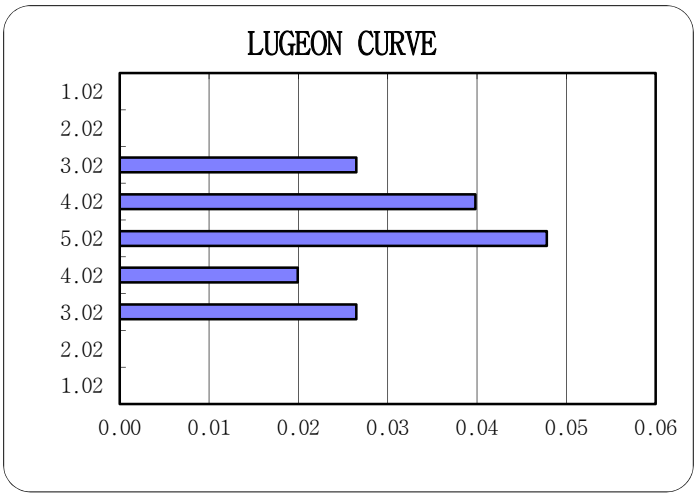
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.02	0.000	0.000	
2.02	0.000	0.000	
3.02	0.008	0.026	
4.02	0.016	0.040	
5.02	0.024	0.048	
4.02	0.008	0.020	
3.02	0.008	0.026	
2.02	0.000	0.000	
1.02	0.000	0.000	
		LU = 0.0178	





WORKING SHEETS OF WATER PRESSURE TEST

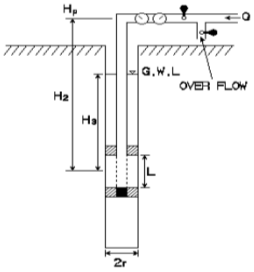
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-15
HOLE NO.	GR-72	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	5.0 to 10.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	7.56
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.508	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1195	316.40	316.65	0.25	50	0.00	1.08E-06
5	10	5	2	5	2195	316.80	317.90	1.10	220	0.00	2.59E-06
10	15	5	3	5	3195	318.20	320.70	2.50	500	0.00	4.05E-06
15	20	5	4	5	4195	321.10	324.90	3.80	760	0.00	4.69E-06
20	25	5	5	5	5195	325.30	330.10	4.80	960	0.00	4.78E-06
25	30	5	4	5	4195	330.50	334.10	3.60	720	0.00	4.44E-06
30	35	5	3	5	3195	334.30	337.00	2.70	540	0.00	4.37E-06
35	40	5	2	5	2195	337.20	338.70	1.50	300	0.00	3.54E-06
40	45	5	1	5	1195	338.80	339.20	0.40	80	0.00	1.73E-06
										AVG =	3.47E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

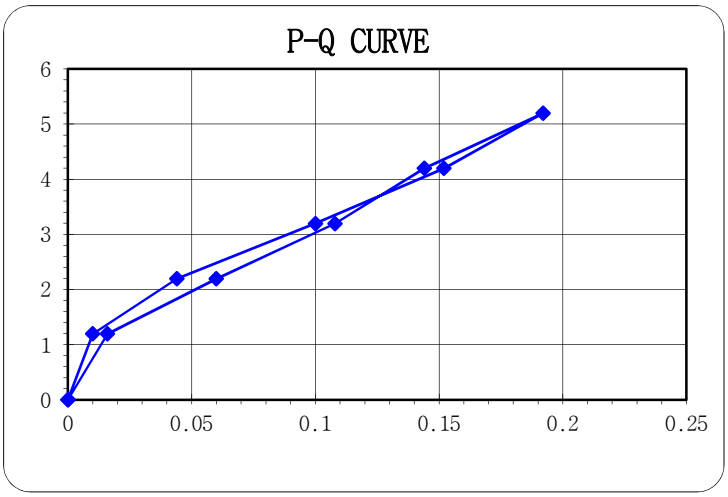
$H = Hp - Ha$

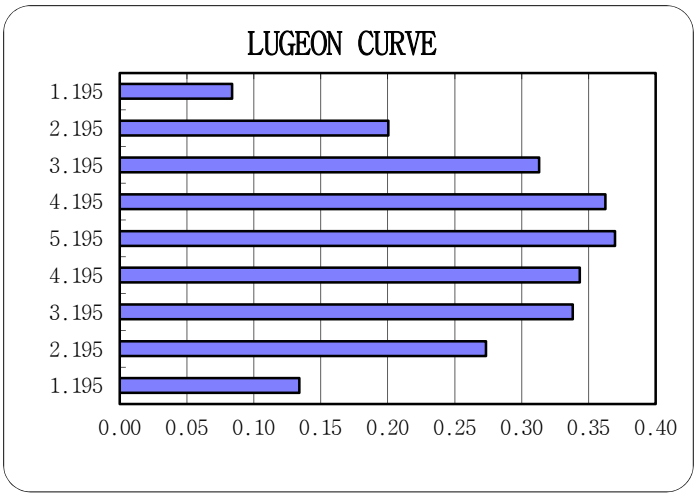
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.195	0.010	0.084	
2.195	0.044	0.200	
3.195	0.100	0.313	
4.195	0.152	0.362	
5.195	0.192	0.370	
4.195	0.144	0.343	
3.195	0.108	0.338	
2.195	0.060	0.273	
1.195	0.016	0.134	
		LU = 0.269	





WORKING SHEETS OF WATER PRESSURE TEST

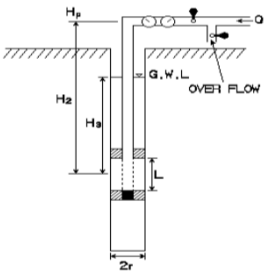
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-15
HOLE NO.	GR-72	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	10.0 to 15.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	7.56
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.508	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1195	305.00	305.00	0.00	0	0.00	0.00E+00
5	10	5	2	5	2195	305.00	305.00	0.00	0	0.00	0.00E+00
10	15	5	3	5	3195	305.10	305.10	0.00	0	0.00	0.00E+00
15	20	5	4	5	4195	305.20	305.40	0.20	40	0.00	2.47E-07
20	25	5	5	5	5195	305.50	305.81	0.31	62	0.00	3.09E-07
25	30	5	4	5	4195	305.90	305.96	0.06	12	0.00	7.40E-08
30	35	5	3	5	3195	306.00	306.00	0.00	0	0.00	0.00E+00
35	40	5	2	5	2195	306.00	306.00	0.00	0	0.00	0.00E+00
40	45	5	1	5	1195	306.00	306.00	0.00	0	0.00	0.00E+00
										AVG =	6.99E-08

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

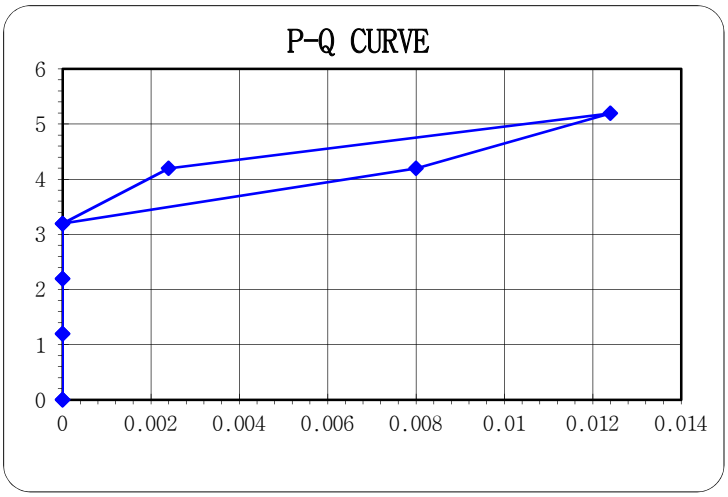
$H = Hp - Ha$

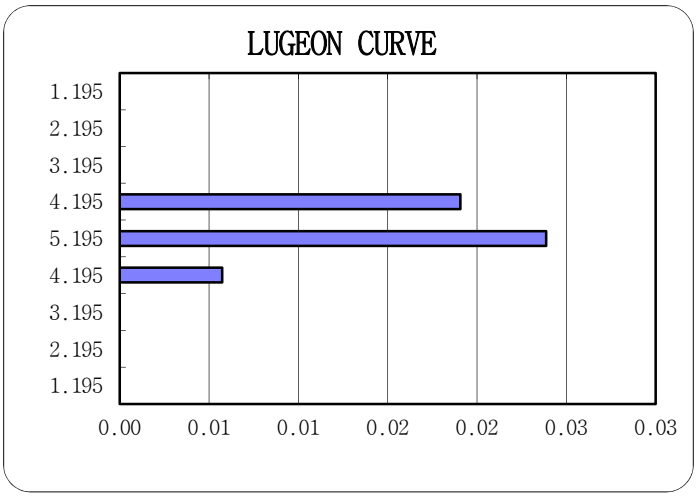
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.195	0.000	0.000	
2.195	0.000	0.000	
3.195	0.000	0.000	
4.195	0.008	0.019	
5.195	0.012	0.024	
4.195	0.002	0.006	
3.195	0.000	0.000	
2.195	0.000	0.000	
1.195	0.000	0.000	
		LU = 0.005	





WORKING SHEETS OF WATER PRESSURE TEST

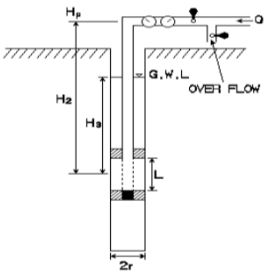
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-15
HOLE NO.	GR-72	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	15.0 to 20.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	7.56
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.508	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1195	92.90	99.00	6.10	1220	0.00	2.64E-05
5	10	5	2	5	2195	101.00	117.75	16.75	3350	0.00	3.95E-05
10	15	5	3	5	3195	121.70	143.50	21.80	4360	0.00	3.53E-05
15	20	5	4	5	4195	147.70	175.10	27.40	5480	0.00	3.38E-05
20	25	5	5	5	5195	180.40	212.40	32.00	6400	0.00	3.19E-05
25	30	5	4	5	4195	216.80	242.40	25.60	5120	0.00	3.16E-05
30	35	5	3	5	3195	245.70	266.90	21.20	4240	0.00	3.43E-05
35	40	5	2	5	2195	269.90	284.80	14.90	2980	0.00	3.51E-05
40	45	5	1	5	1195	286.90	294.60	7.70	1540	0.00	3.33E-05
										AVG =	3.35E-05

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log (L/r)$

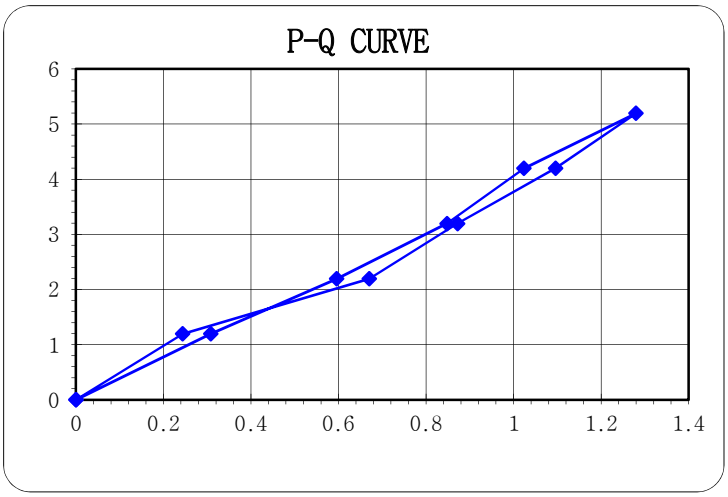
$H = Hp - Ha$

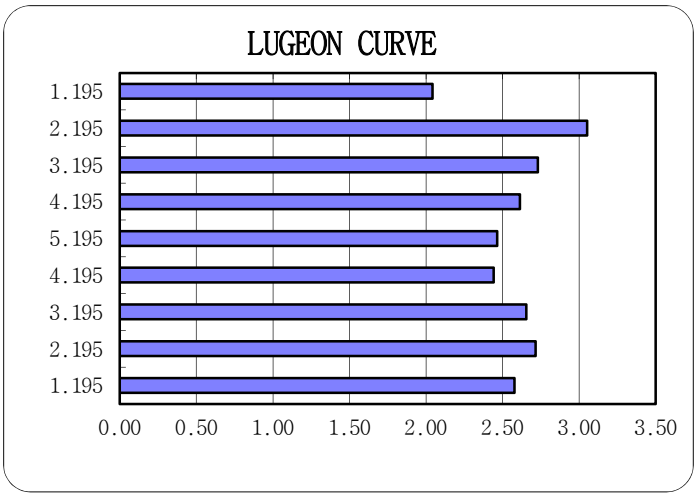
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.195	0.244	2.042	
2.195	0.670	3.052	
3.195	0.872	2.729	
4.195	1.096	2.613	
5.195	1.280	2.464	
4.195	1.024	2.441	
3.195	0.848	2.654	
2.195	0.596	2.715	
1.195	0.308	2.577	
		LU = 2.588	





WORKING SHEETS OF WATER PRESSURE TEST

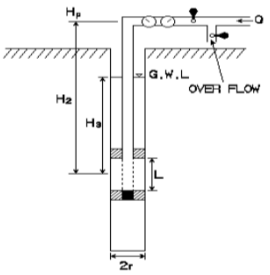
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-15
HOLE NO.	GR-72	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	20.0 to 25.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	7.56
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.508	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1195	72.60	72.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2195	74.30	74.30	0.00	0	0.00	0.00E+00
10	15	5	3	5	3195	74.90	74.90	0.00	0	0.00	0.00E+00
15	20	5	4	5	4195	75.80	75.92	0.12	24	0.00	1.48E-07
20	25	5	5	5	5195	76.42	76.67	0.25	50	0.00	2.49E-07
25	30	5	4	5	4195	76.70	76.70	0.00	0	0.00	0.00E+00
30	35	5	3	5	3195	76.70	76.70	0.00	0	0.00	0.00E+00
35	40	5	2	5	2195	76.70	76.70	0.00	0	0.00	0.00E+00
40	45	5	1	5	1195	76.70	76.70	0.00	0	0.00	0.00E+00
										AVG =	4.41E-08

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log (L/r)$

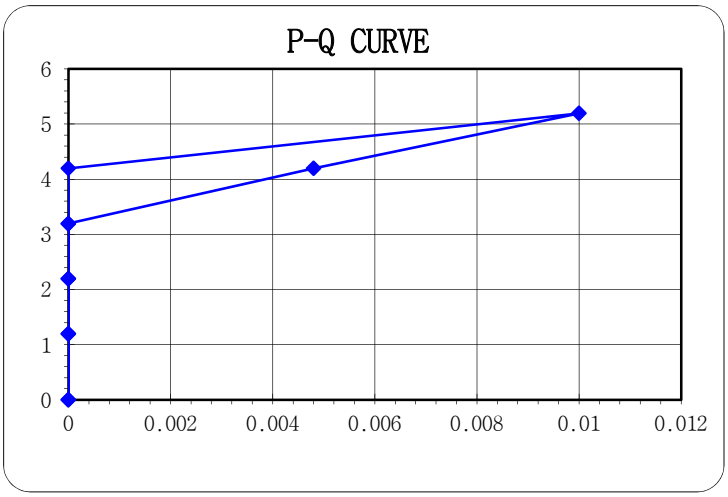
$H = Hp - Ha$

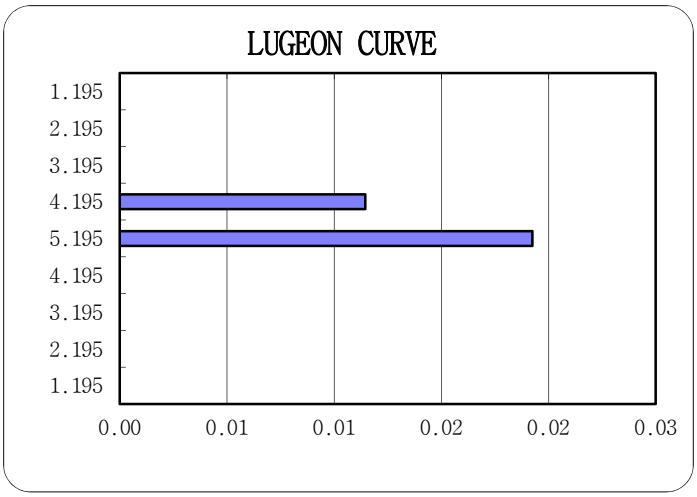
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.195	0.000	0.000	
2.195	0.000	0.000	
3.195	0.000	0.000	
4.195	0.005	0.011	
5.195	0.010	0.019	
4.195	0.000	0.000	
3.195	0.000	0.000	
2.195	0.000	0.000	
1.195	0.000	0.000	
		LU = 0.003	





WORKING SHEETS OF WATER PRESSURE TEST

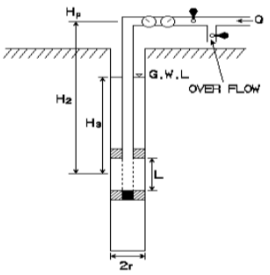
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-15
HOLE NO.	GR-72	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	25.0 to 30.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	7.56
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.508	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1195	56.60	56.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2195	57.50	57.50	0.00	0	0.00	0.00E+00
10	15	5	3	5	3195	58.40	58.40	0.00	0	0.00	0.00E+00
15	20	5	4	5	4195	59.10	59.10	0.00	0	0.00	0.00E+00
20	25	5	5	5	5195	59.60	59.60	0.00	0	0.00	0.00E+00
25	30	5	4	5	4195	59.60	59.60	0.00	0	0.00	0.00E+00
30	35	5	3	5	3195	59.60	59.60	0.00	0	0.00	0.00E+00
35	40	5	2	5	2195	59.60	59.60	0.00	0	0.00	0.00E+00
40	45	5	1	5	1195	59.60	59.60	0.00	0	0.00	0.00E+00
										AVG =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

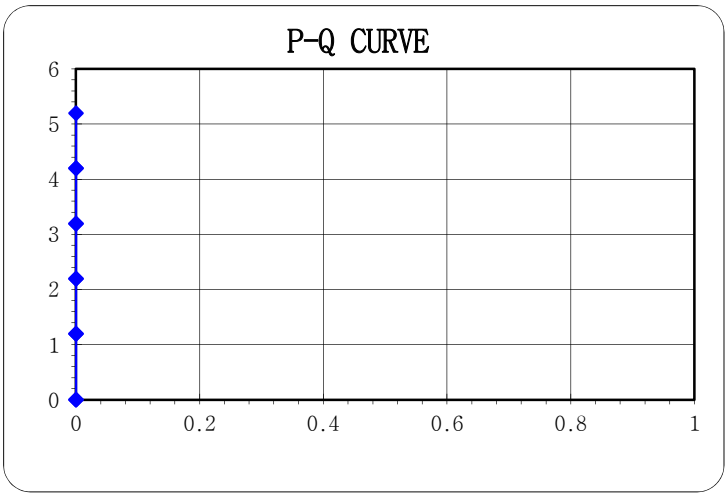
$H = Hp - Ha$

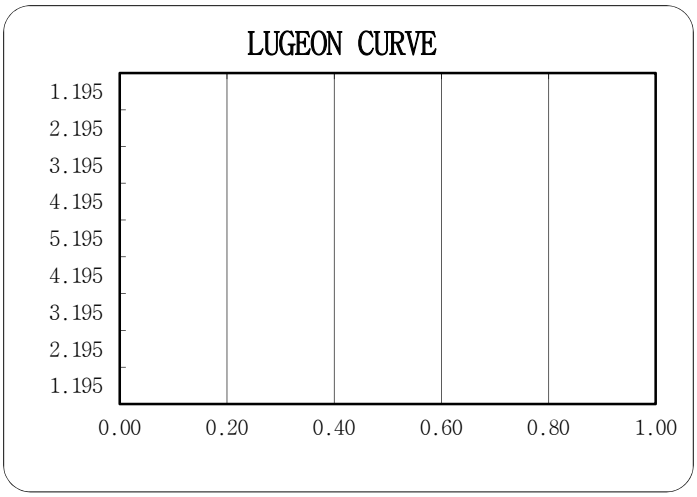
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.195	0.000	0.000	
2.195	0.000	0.000	
3.195	0.000	0.000	
4.195	0.000	0.000	
5.195	0.000	0.000	
4.195	0.000	0.000	
3.195	0.000	0.000	
2.195	0.000	0.000	
1.195	0.000	0.000	
		LU = 0.000	





WORKING SHEETS OF WATER PRESSURE TEST

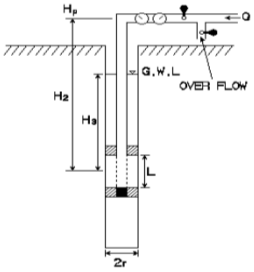
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-16
HOLE NO.	GR-73	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	6.0 to 11.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.45
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	12.247	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1380	485.90	486.20	0.30	60	0.00	1.12E-06
5	10	5	2	5	2380	486.40	487.90	1.50	300	0.00	3.26E-06
10	15	5	3	5	3380	488.10	491.00	2.90	580	0.00	4.44E-06
15	20	5	4	5	4380	491.50	495.55	4.05	810	0.00	4.78E-06
20	25	5	5	5	5380	496.20	502.90	6.70	1340	0.00	6.44E-06
25	30	5	4	5	4380	503.50	509.00	5.50	1100	0.00	6.50E-06
30	35	5	3	5	3380	509.50	513.75	4.25	850	0.00	6.51E-06
35	40	5	2	5	2380	514.00	517.00	3.00	600	0.00	6.52E-06
40	45	5	1	5	1380	517.20	518.25	1.05	210	0.00	3.94E-06
										AVG =	4.84E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

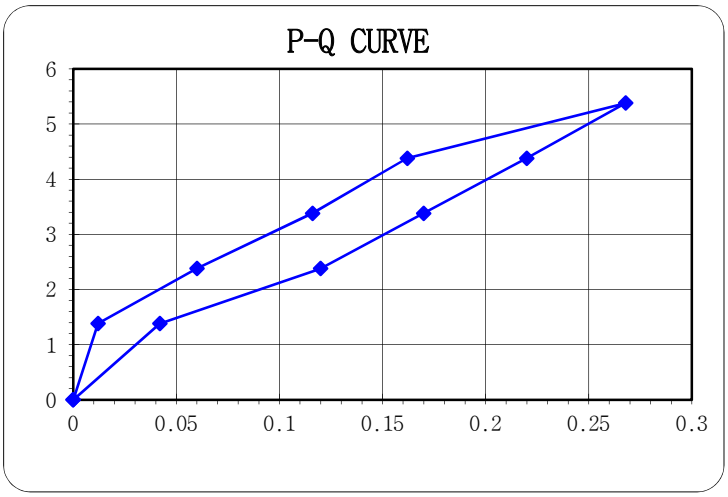
$H = Hp - Ha$

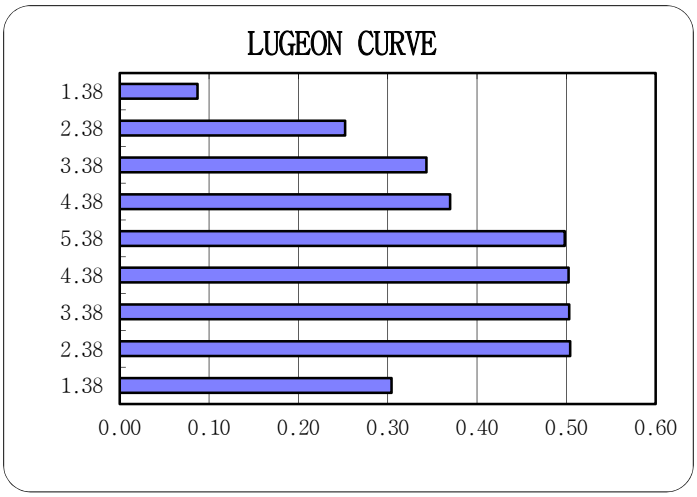
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.38	0.012	0.087	
2.38	0.060	0.252	
3.38	0.116	0.343	
4.38	0.162	0.370	
5.38	0.268	0.498	
4.38	0.220	0.502	
3.38	0.170	0.503	
2.38	0.120	0.504	
1.38	0.042	0.304	
		LU = 0.374	





WORKING SHEETS OF WATER PRESSURE TEST

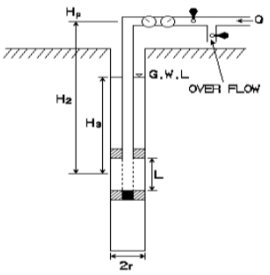
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-16
HOLE NO.	GR-73	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	8.0 to 13.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.45
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	12.247	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1380	449.20	449.50	0.30	60	0.00	1.12E-06
5	10	5	2	5	2380	449.60	450.85	1.25	250	0.00	2.72E-06
10	15	5	3	5	3380	451.10	453.80	2.70	540	0.00	4.13E-06
15	20	5	4	5	4380	454.10	458.00	3.90	780	0.00	4.61E-06
20	25	5	5	5	5380	458.40	463.30	4.90	980	0.00	4.71E-06
25	30	5	4	5	4380	463.70	467.70	4.00	800	0.00	4.73E-06
30	35	5	3	5	3380	468.00	470.75	2.75	550	0.00	4.21E-06
35	40	5	2	5	2380	471.00	472.50	1.50	300	0.00	3.26E-06
40	45	5	1	5	1380	472.60	472.60	0.00	0	0.00	0.00E+00
										AVG =	3.28E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log (L/r)$

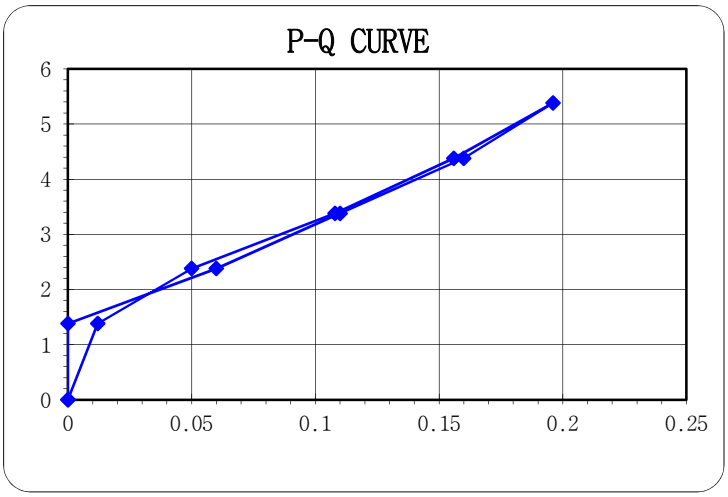
$H = Hp - Ha$

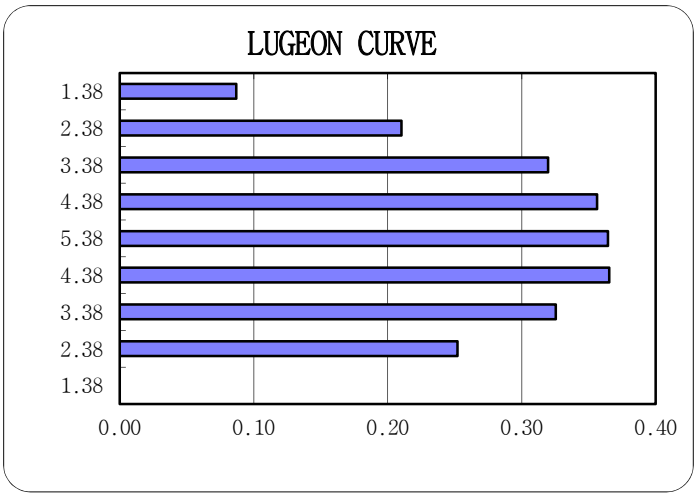
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.38	0.012	0.087	
2.38	0.050	0.210	
3.38	0.108	0.320	
4.38	0.156	0.356	
5.38	0.196	0.364	
4.38	0.160	0.365	
3.38	0.110	0.325	
2.38	0.060	0.252	
1.38	0.000	0.000	
		LU = 0.253	





WORKING SHEETS OF WATER PRESSURE TEST

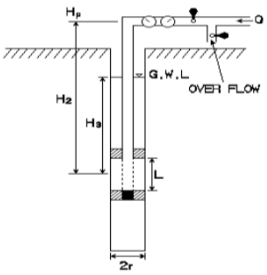
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-16
HOLE NO.	GR-73	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	13.0 to 18.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.45
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	12.247	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1380	317.90	323.45	5.55	1110	0.00	2.08E-05
5	10	5	2	5	2380	325.60	337.85	12.25	2450	0.00	2.66E-05
10	15	5	3	5	3380	340.20	357.20	17.00	3400	0.00	2.60E-05
15	20	5	4	5	4380	360.00	380.00	20.00	4000	0.00	2.36E-05
20	25	5	5	5	5380	383.80	409.50	25.70	5140	0.00	2.47E-05
25	30	5	4	5	4380	411.80	423.90	12.10	2420	0.00	1.43E-05
30	35	5	3	5	3380	425.80	432.10	6.30	1260	0.00	9.64E-06
35	40	5	2	5	2380	433.80	437.50	3.70	740	0.00	8.04E-06
40	45	5	1	5	1380	438.80	438.80	0.00	0	0.00	0.00E+00
										AVG =	1.71E-05

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log (L/r)$

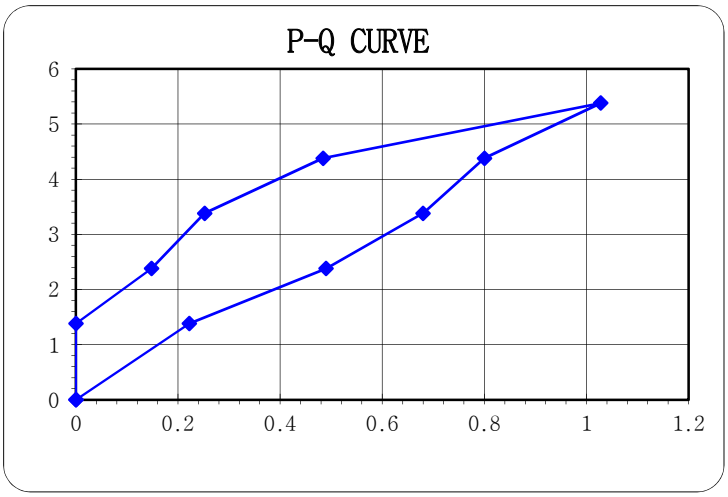
$H = Hp - Ha$

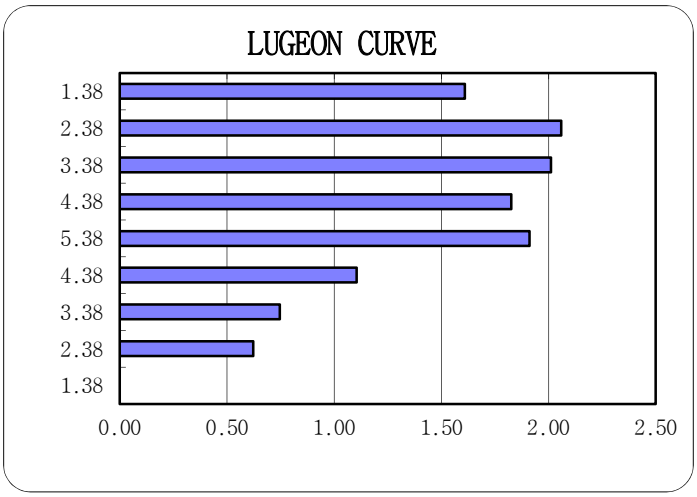
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.38	0.222	1.609	
2.38	0.490	2.059	
3.38	0.680	2.012	
4.38	0.800	1.826	
5.38	1.028	1.911	
4.38	0.484	1.105	
3.38	0.252	0.746	
2.38	0.148	0.622	
1.38	0.000	0.000	
		LU = 1.321	





WORKING SHEETS OF WATER PRESSURE TEST

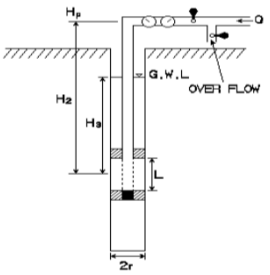
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-16
HOLE NO.	GR-73	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	18.0 to 23.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.45
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	12.247	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1380	307.50	307.50	0.00	0	0.00	0.00E+00
5	10	5	2	5	2380	307.50	307.50	0.00	0	0.00	0.00E+00
10	15	5	3	5	3380	307.50	307.50	0.00	0	0.00	0.00E+00
15	20	5	4	5	4380	307.50	307.50	0.00	0	0.00	0.00E+00
20	25	5	5	5	5380	307.50	307.50	0.00	0	0.00	0.00E+00
25	30	5	4	5	4380	307.50	307.50	0.00	0	0.00	0.00E+00
30	35	5	3	5	3380	307.50	307.50	0.00	0	0.00	0.00E+00
35	40	5	2	5	2380	307.50	307.50	0.00	0	0.00	0.00E+00
40	45	5	1	5	1380	307.50	307.50	0.00	0	0.00	0.00E+00
										AVG =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

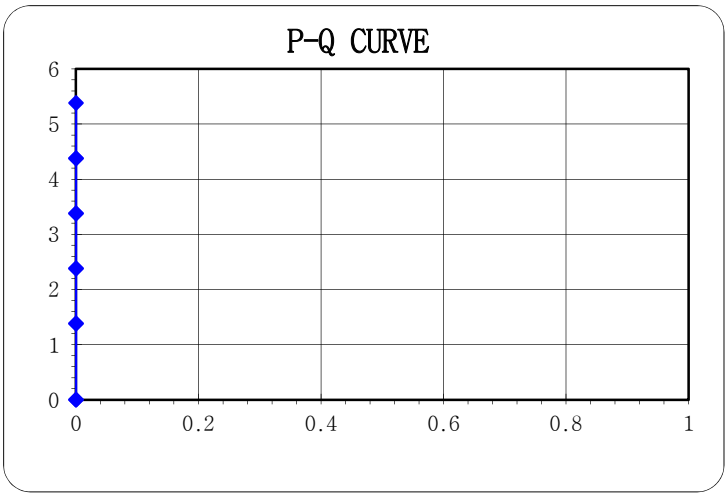
$H = Hp - Ha$

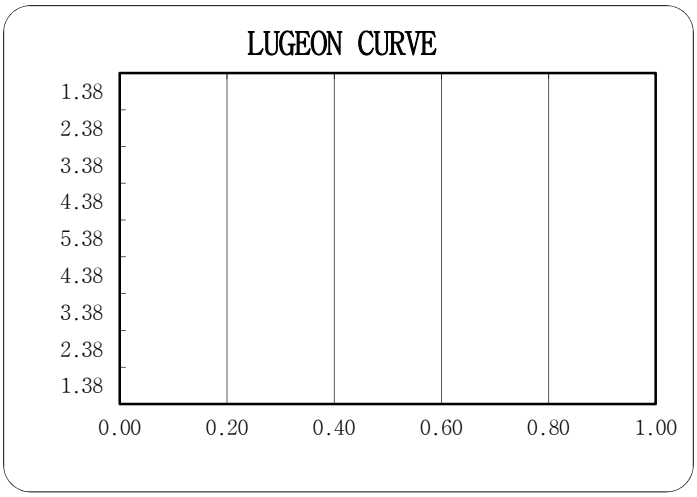
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.38	0.000	0.000	
2.38	0.000	0.000	
3.38	0.000	0.000	
4.38	0.000	0.000	
5.38	0.000	0.000	
4.38	0.000	0.000	
3.38	0.000	0.000	
2.38	0.000	0.000	
1.38	0.000	0.000	
		LU = 0.000	





WORKING SHEETS OF WATER PRESSURE TEST

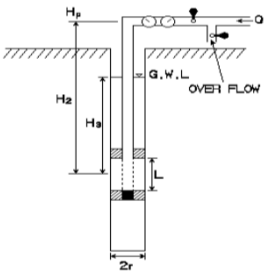
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-16
HOLE NO.	GR-73	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	23.0 to 28.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	10.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	12.247	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1160	291.10	291.10	0.00	0	0.00	0.00E+00
5	10	5	2	5	2160	291.10	291.10	0.00	0	0.00	0.00E+00
10	15	5	3	5	3160	291.20	291.20	0.00	0	0.00	0.00E+00
15	20	5	4	5	4160	291.20	291.20	0.00	0	0.00	0.00E+00
20	25	5	5	5	5160	291.30	291.30	0.00	0	0.00	0.00E+00
25	30	5	4	5	4160	291.30	291.30	0.00	0	0.00	0.00E+00
30	35	5	3	5	3160	291.30	291.30	0.00	0	0.00	0.00E+00
35	40	5	2	5	2160	291.30	291.30	0.00	0	0.00	0.00E+00
40	45	5	1	5	1160	291.30	291.30	0.00	0	0.00	0.00E+00
										AVG =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

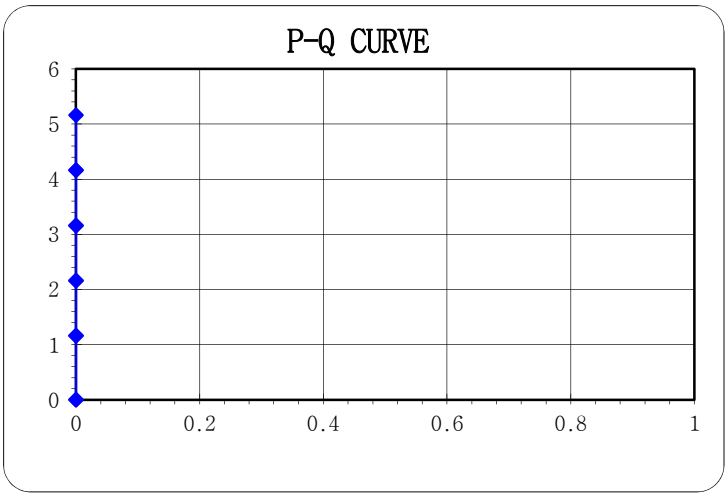
$H = Hp - Ha$

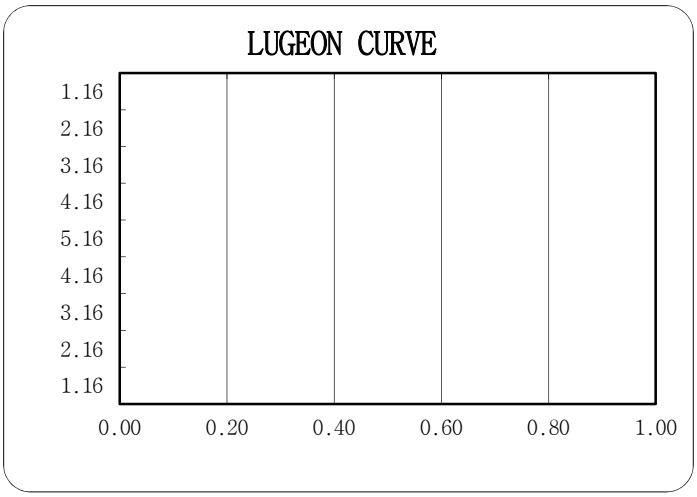
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.16	0.000	0.000	
2.16	0.000	0.000	
3.16	0.000	0.000	
4.16	0.000	0.000	
5.16	0.000	0.000	
4.16	0.000	0.000	
3.16	0.000	0.000	
2.16	0.000	0.000	
1.16	0.000	0.000	
		LU = 0.000	





WORKING SHEETS OF WATER PRESSURE TEST

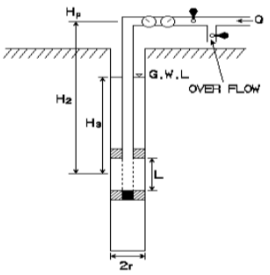
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2010-12-16
HOLE NO.	GR-73	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	28.0 to 33.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.45
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	12.247	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1380	278.00	278.00	0.00	0	0.00	0.00E+00
5	10	5	2	5	2380	278.10	278.10	0.00	0	0.00	0.00E+00
10	15	5	3	5	3380	278.10	278.10	0.00	0	0.00	0.00E+00
15	20	5	4	5	4380	278.10	278.10	0.00	0	0.00	0.00E+00
20	25	5	5	5	5380	278.10	278.10	0.00	0	0.00	0.00E+00
25	30	5	4	5	4380	278.10	278.10	0.00	0	0.00	0.00E+00
30	35	5	3	5	3380	278.10	278.10	0.00	0	0.00	0.00E+00
35	40	5	2	5	2380	278.10	278.10	0.00	0	0.00	0.00E+00
40	45	5	1	5	1380	278.10	278.10	0.00	0	0.00	0.00E+00
										AVG =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

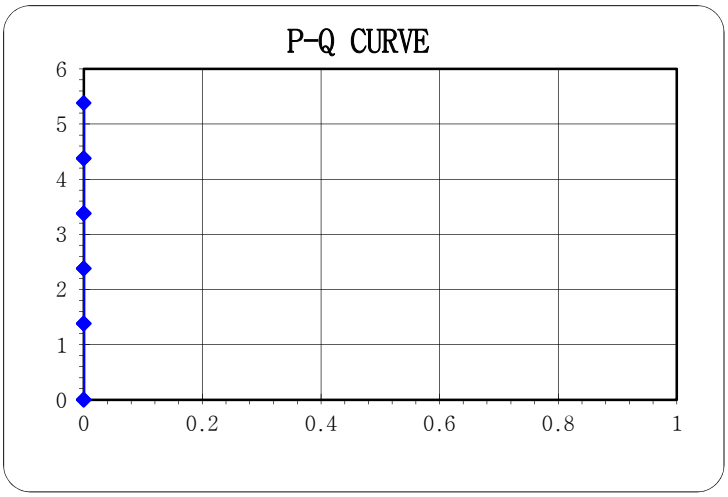
$H = Hp - Ha$

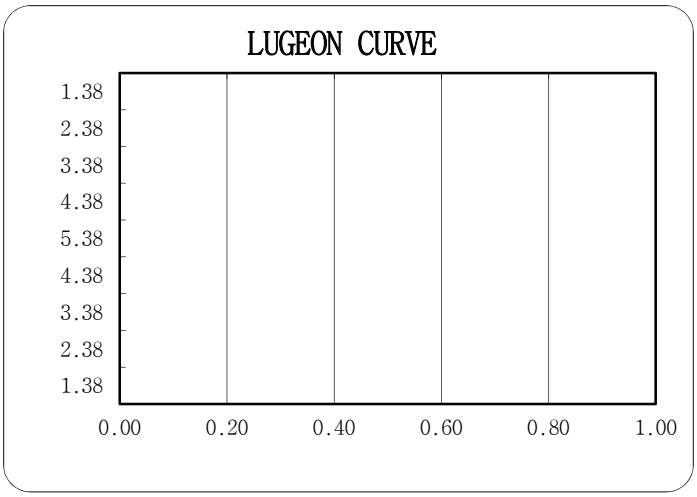
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.38	0.000	0.000	
2.38	0.000	0.000	
3.38	0.000	0.000	
4.38	0.000	0.000	
5.38	0.000	0.000	
4.38	0.000	0.000	
3.38	0.000	0.000	
2.38	0.000	0.000	
1.38	0.000	0.000	
		LU = 0.000	





WORKING SHEETS OF WATER PRESSURE TEST

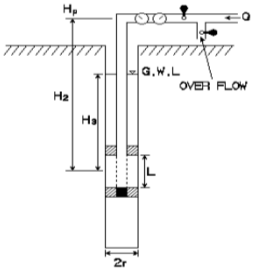
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	15.0 to 20.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	87.50	88.70	1.20	240	0.00	4.78E-06
5	10	5	2	5	2300	90.30	93.10	2.80	560	0.00	6.30E-06
10	15	5	3	5	3300	95.30	98.90	3.60	720	0.00	5.64E-06
15	20	5	4	5	4300	100.70	105.50	4.80	960	0.00	5.78E-06
20	25	5	5	5	5300	107.20	113.40	6.20	1240	0.00	6.05E-06
25	30	5	4	5	4300	115.90	120.70	4.80	960	0.00	5.78E-06
30	35	5	3	5	3300	122.30	125.70	3.40	680	0.00	5.33E-06
35	40	5	2	5	2300	127.20	129.60	2.40	480	0.00	5.40E-06
40	45	5	1	5	1300	131.50	132.30	0.80	160	0.00	3.18E-06
										K =	5.36E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

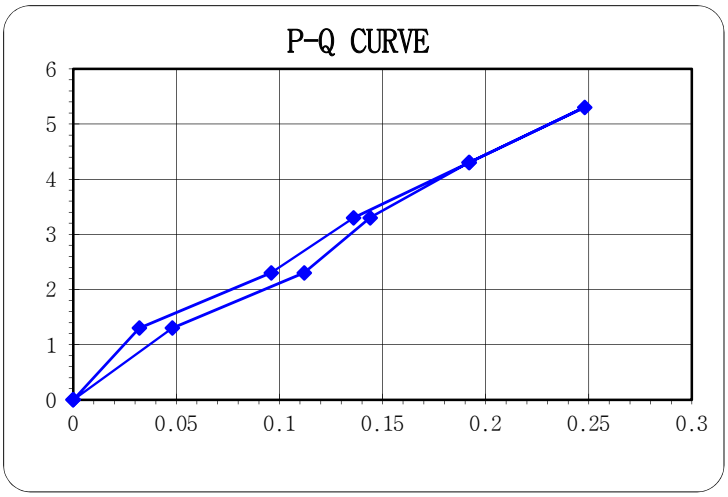
$H = Hp - Ha$

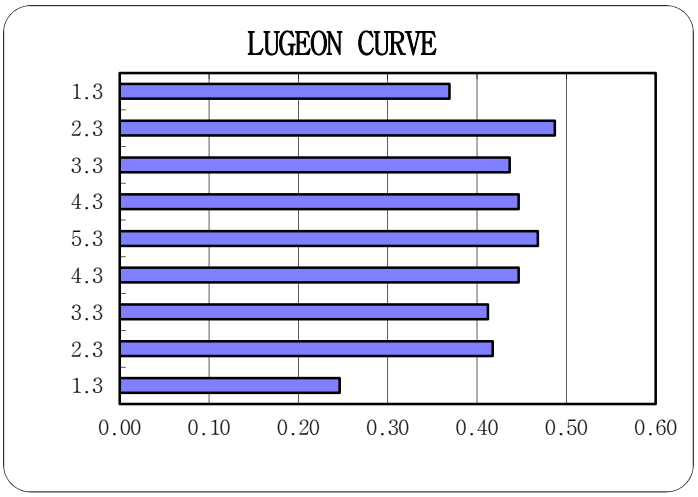
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.048	0.369	
2.3	0.112	0.487	
3.3	0.144	0.436	
4.3	0.192	0.447	
5.3	0.248	0.468	
4.3	0.192	0.447	
3.3	0.136	0.412	
2.3	0.096	0.417	
1.3	0.032	0.246	
		LU = 0.4144	





WORKING SHEETS OF WATER PRESSURE TEST

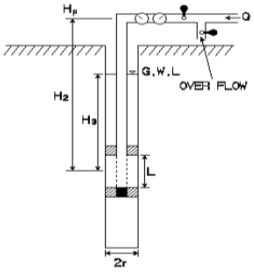
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	15.0 to 20.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	134.60	135.20	0.60	120	0.00	2.39E-06
5	10	5	2	5	2300	136.80	139.00	2.20	440	0.00	4.95E-06
10	15	5	3	5	3300	141.20	144.60	3.40	680	0.00	5.33E-06
15	20	5	4	5	4300	146.40	151.40	5.00	1000	0.00	6.02E-06
20	25	5	5	5	5300	153.10	158.90	5.80	1160	0.00	5.66E-06
25	30	5	4	5	4300	161.40	165.80	4.40	880	0.00	5.29E-06
30	35	5	3	5	3300	167.40	170.60	3.20	640	0.00	5.02E-06
35	40	5	2	5	2300	172.10	174.10	2.00	400	0.00	4.50E-06
40	45	5	1	5	1300	176.00	176.00	0.00	0	0.00	0.00E+00
										K =	4.35E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

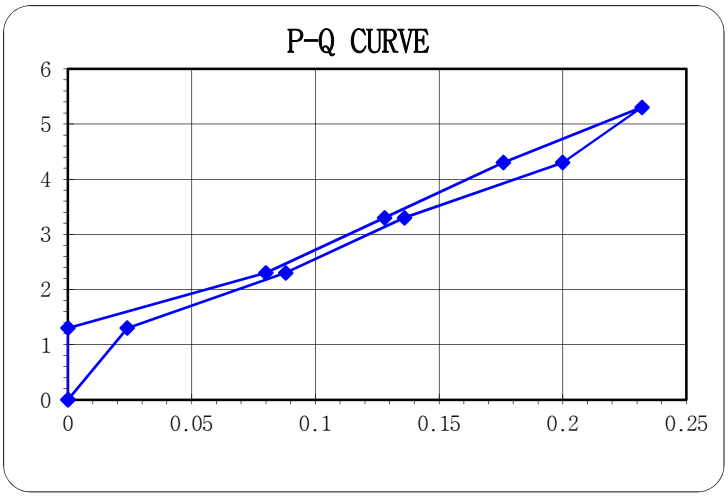
$H = Hp - Ha$

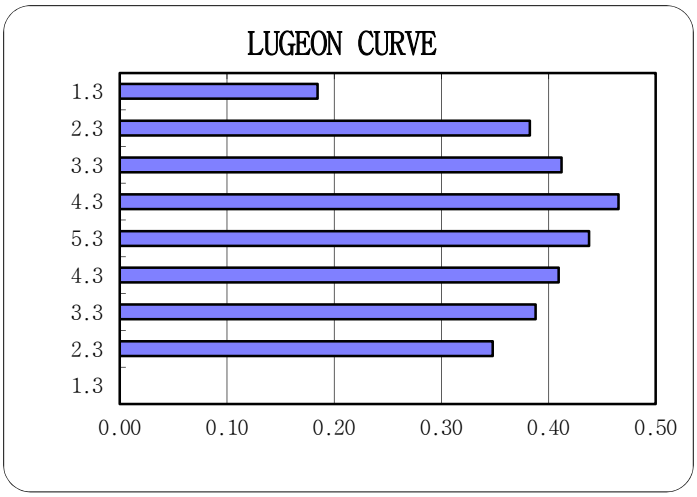
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.024	0.185	
2.3	0.088	0.383	
3.3	0.136	0.412	
4.3	0.200	0.465	
5.3	0.232	0.438	
4.3	0.176	0.409	
3.3	0.128	0.388	
2.3	0.080	0.348	
1.3	0.000	0.000	
		LU = 0.3364	





WORKING SHEETS OF WATER PRESSURE TEST

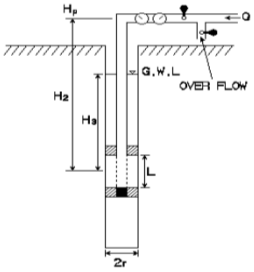
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	20.0 to 25.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	178.60	178.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	180.20	180.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	182.40	182.90	0.50	100	0.00	7.84E-07
15	20	5	4	5	4300	184.70	185.40	0.70	140	0.00	8.42E-07
20	25	5	5	5	5300	187.10	188.50	1.40	280	0.00	1.37E-06
25	30	5	4	5	4300	191.00	191.80	0.80	160	0.00	9.63E-07
30	35	5	3	5	3300	193.40	193.80	0.40	80	0.00	6.27E-07
35	40	5	2	5	2300	195.30	195.30	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	197.20	197.20	0.00	0	0.00	0.00E+00
										K =	5.09E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)

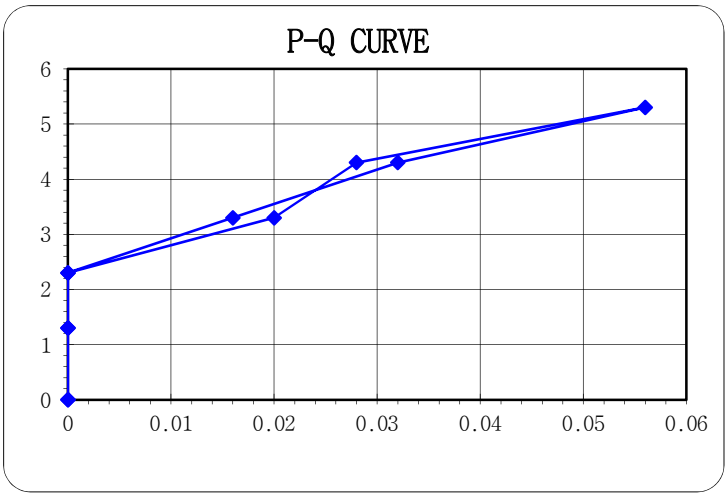


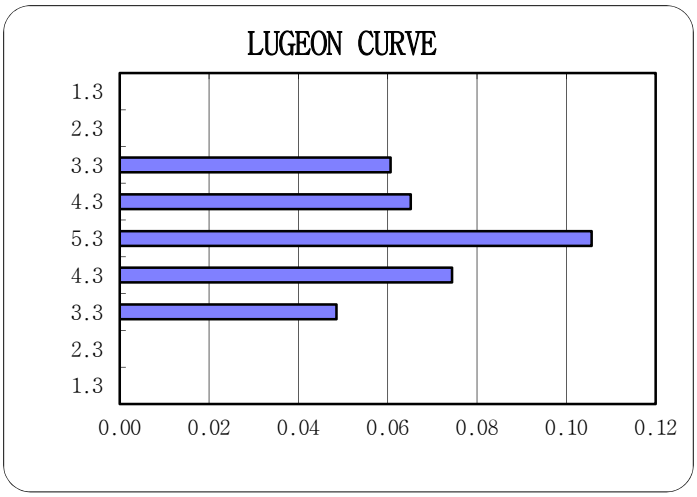
K = (2.3×Q/2πLH)×log (L/r)
H = Hp-Ha
Lu = (10×Q)/(P×L)

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.020	0.061	
4.3	0.028	0.065	
5.3	0.056	0.106	
4.3	0.032	0.074	
3.3	0.016	0.048	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0394	





WORKING SHEETS OF WATER PRESSURE TEST

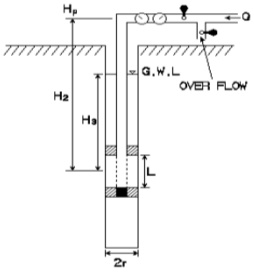
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	25.0 to 30.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	201.30	201.30	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	202.90	202.90	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	205.10	205.30	0.20	40	0.00	3.14E-07
15	20	5	4	5	4300	207.10	207.50	0.40	80	0.00	4.81E-07
20	25	5	5	5	5300	209.20	210.00	0.80	160	0.00	7.81E-07
25	30	5	4	5	4300	212.50	212.90	0.40	80	0.00	4.81E-07
30	35	5	3	5	3300	214.50	214.70	0.20	40	0.00	3.14E-07
35	40	5	2	5	2300	216.20	216.20	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	218.10	218.10	0.00	0	0.00	0.00E+00
										K =	2.63E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

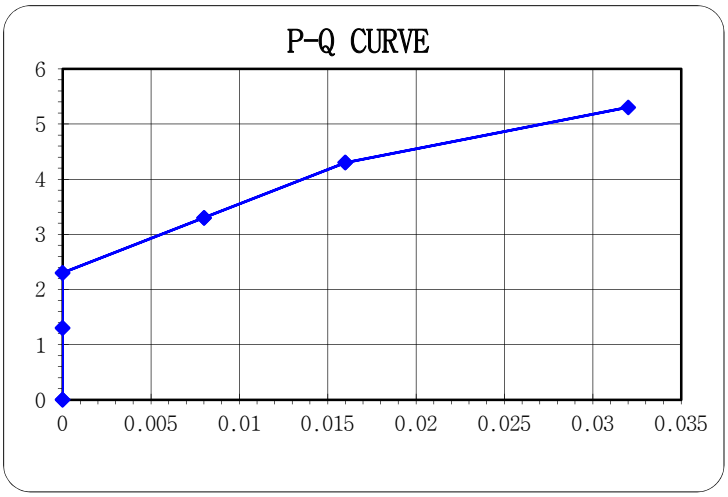
$H = Hp - Ha$

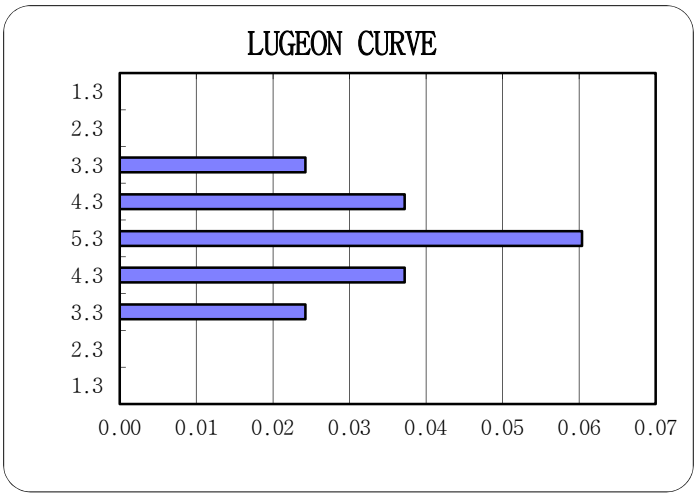
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.008	0.024	
4.3	0.016	0.037	
5.3	0.032	0.060	
4.3	0.016	0.037	
3.3	0.008	0.024	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0204	





WORKING SHEETS OF WATER PRESSURE TEST

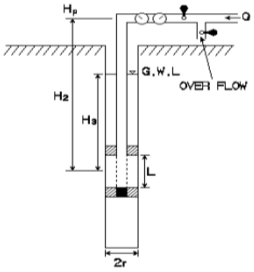
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	30.0 to 35.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	220.50	220.50	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	222.10	222.10	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	224.30	224.30	0.00	0	0.00	0.00E+00
15	20	5	4	5	4300	226.10	226.10	0.00	0	0.00	0.00E+00
20	25	5	5	5	5300	227.80	227.80	0.00	0	0.00	0.00E+00
25	30	5	4	5	4300	230.30	230.30	0.00	0	0.00	0.00E+00
30	35	5	3	5	3300	231.90	231.90	0.00	0	0.00	0.00E+00
35	40	5	2	5	2300	233.40	233.40	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	235.30	235.30	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

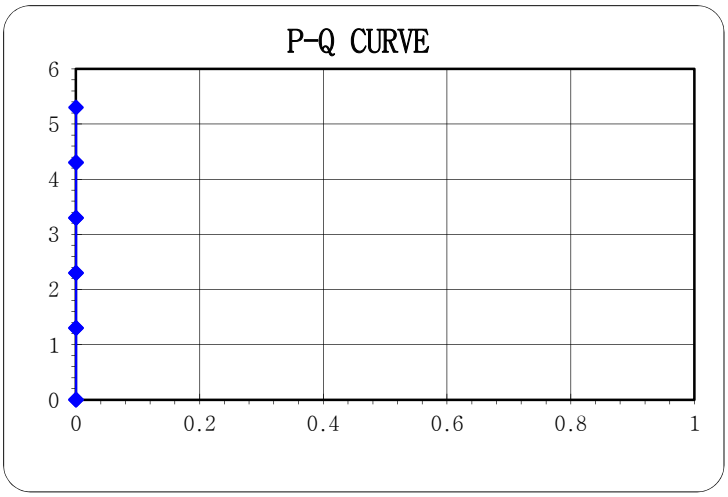
$H = Hp - Ha$

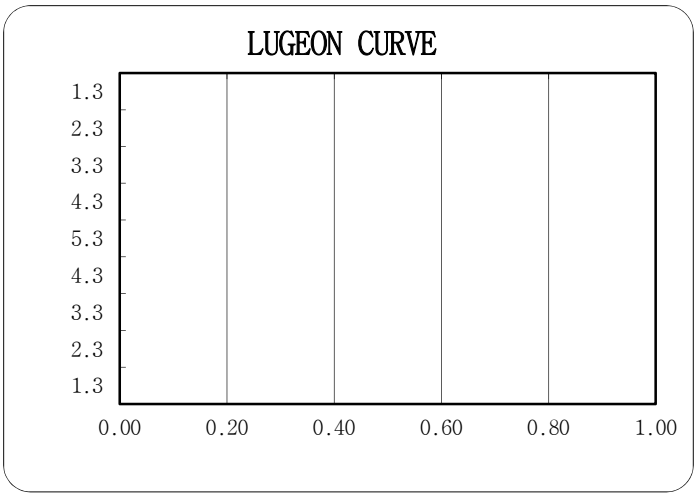
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.000	0.000	
4.3	0.000	0.000	
5.3	0.000	0.000	
4.3	0.000	0.000	
3.3	0.000	0.000	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

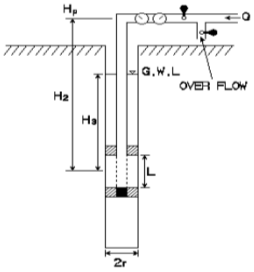
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	35.0 to 40.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	238.50	238.50	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	240.10	240.10	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	242.30	242.30	0.00	0	0.00	0.00E+00
15	20	5	4	5	4300	244.10	244.40	0.30	60	0.00	3.61E-07
20	25	5	5	5	5300	246.10	246.70	0.60	120	0.00	5.86E-07
25	30	5	4	5	4300	249.20	249.60	0.40	80	0.00	4.81E-07
30	35	5	3	5	3300	251.20	251.20	0.00	0	0.00	0.00E+00
35	40	5	2	5	2300	252.70	252.70	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	254.60	254.60	0.00	0	0.00	0.00E+00
										K =	1.59E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

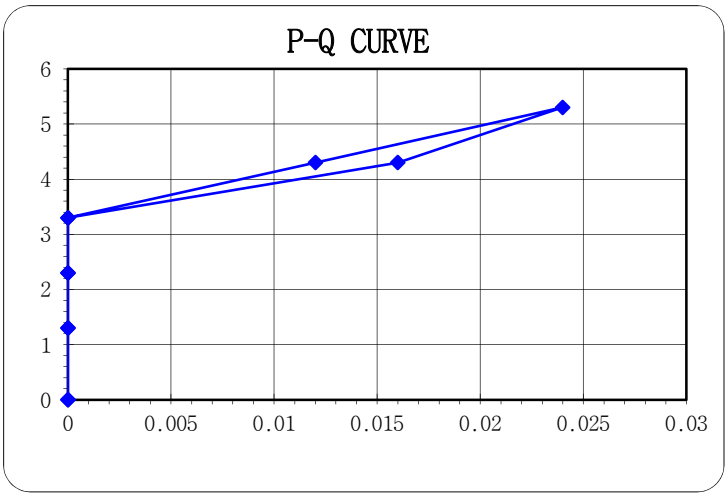
$H = Hp - Ha$

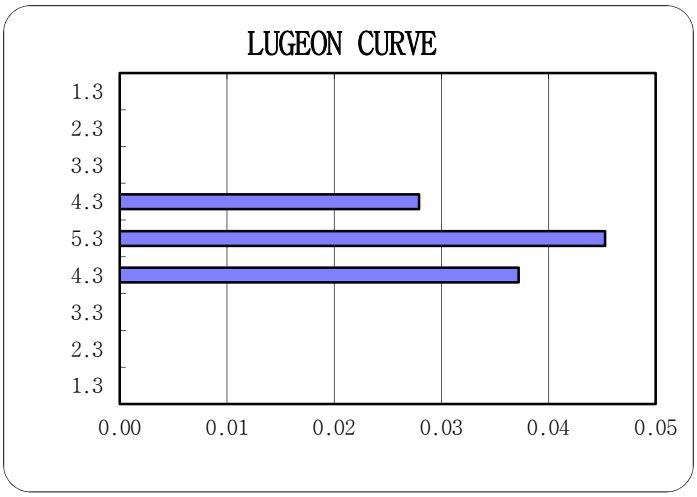
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.000	0.000	
4.3	0.012	0.028	
5.3	0.024	0.045	
4.3	0.016	0.037	
3.3	0.000	0.000	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0123	





WORKING SHEETS OF WATER PRESSURE TEST

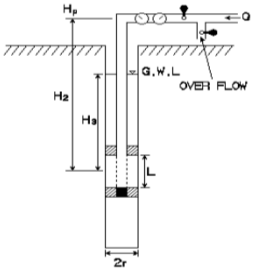
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	40.0 to 45.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	257.80	257.80	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	259.40	259.40	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	261.60	261.60	0.00	0	0.00	0.00E+00
15	20	5	4	5	4300	263.40	263.40	0.00	0	0.00	0.00E+00
20	25	5	5	5	5300	265.10	265.10	0.00	0	0.00	0.00E+00
25	30	5	4	5	4300	267.60	267.60	0.00	0	0.00	0.00E+00
30	35	5	3	5	3300	269.20	269.20	0.00	0	0.00	0.00E+00
35	40	5	2	5	2300	270.70	270.70	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	272.60	272.60	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

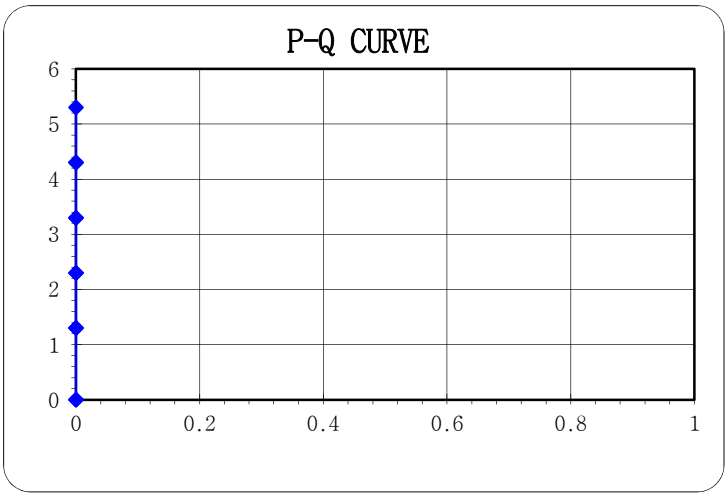
$H = Hp - Ha$

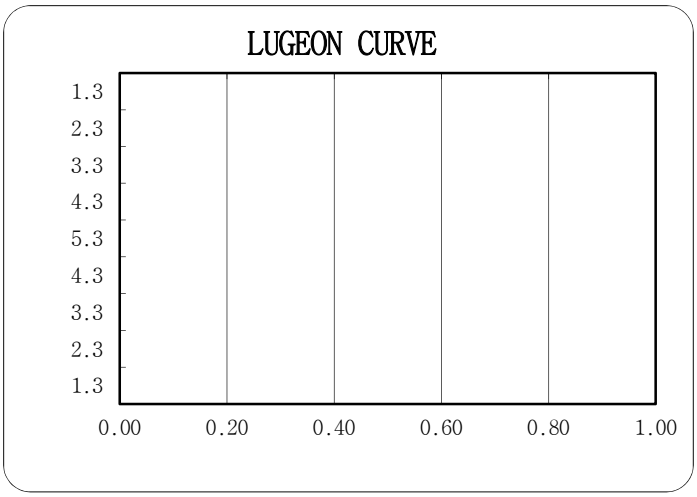
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.000	0.000	
4.3	0.000	0.000	
5.3	0.000	0.000	
4.3	0.000	0.000	
3.3	0.000	0.000	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

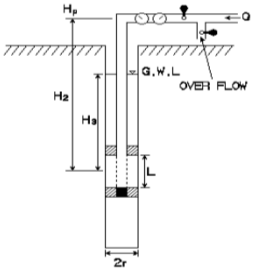
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	45.0 to 50.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	275.60	275.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	277.20	277.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	279.40	279.40	0.00	0	0.00	0.00E+00
15	20	5	4	5	4300	281.20	281.20	0.00	0	0.00	0.00E+00
20	25	5	5	5	5300	282.90	282.90	0.00	0	0.00	0.00E+00
25	30	5	4	5	4300	285.40	285.40	0.00	0	0.00	0.00E+00
30	35	5	3	5	3300	287.00	287.00	0.00	0	0.00	0.00E+00
35	40	5	2	5	2300	288.50	288.50	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	290.40	290.40	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

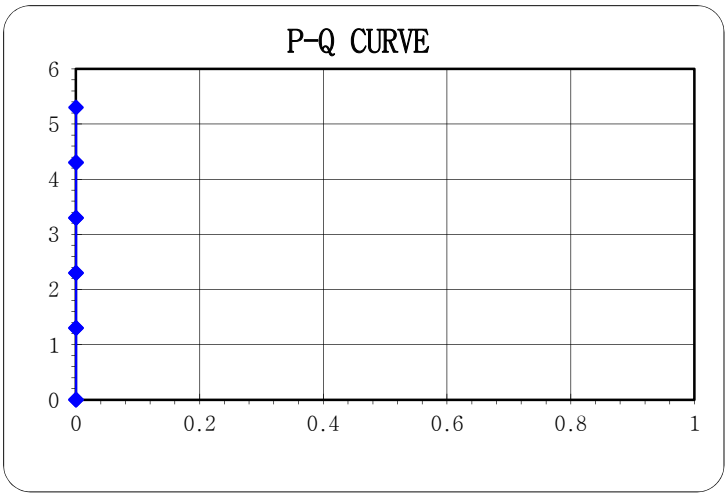
$H = Hp - Ha$

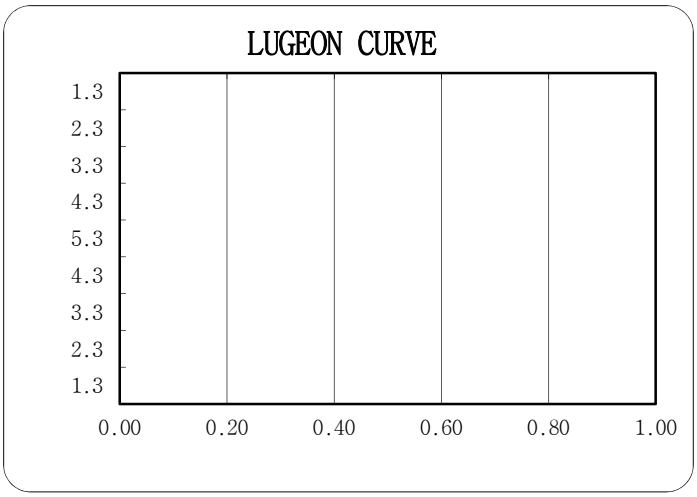
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.000	0.000	
4.3	0.000	0.000	
5.3	0.000	0.000	
4.3	0.000	0.000	
3.3	0.000	0.000	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

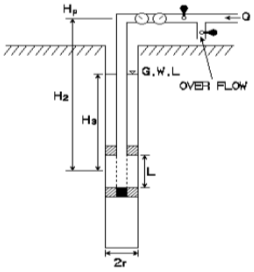
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	50.0 to 55.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	295.40	295.40	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	297.00	297.00	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	299.20	299.20	0.00	0	0.00	0.00E+00
15	20	5	4	5	4300	301.00	301.00	0.00	0	0.00	0.00E+00
20	25	5	5	5	5300	302.70	302.70	0.00	0	0.00	0.00E+00
25	30	5	4	5	4300	305.20	305.20	0.00	0	0.00	0.00E+00
30	35	5	3	5	3300	306.80	306.80	0.00	0	0.00	0.00E+00
35	40	5	2	5	2300	308.30	308.30	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	310.20	310.20	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

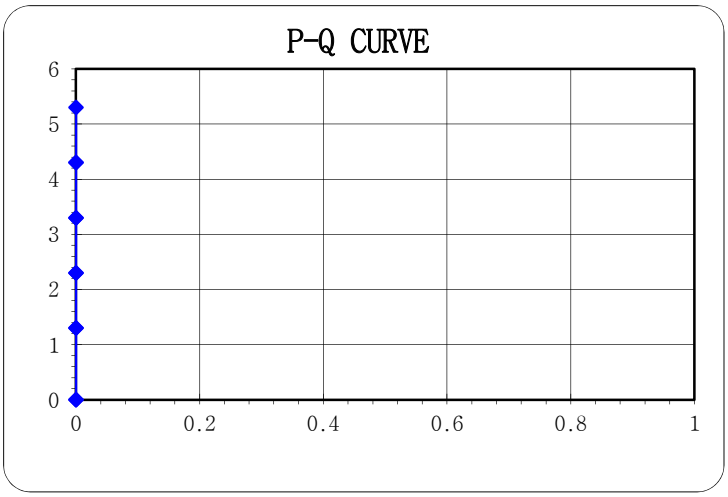
$H = Hp - Ha$

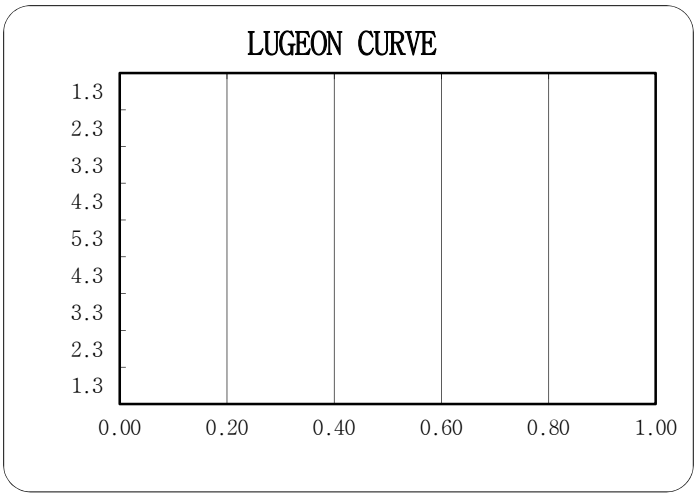
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.000	0.000	
4.3	0.000	0.000	
5.3	0.000	0.000	
4.3	0.000	0.000	
3.3	0.000	0.000	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

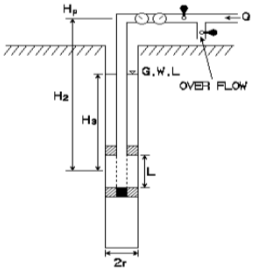
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	55.0 to 60.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	312.50	312.50	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	314.10	315.50	1.40	280	0.00	3.15E-06
10	15	5	3	5	3300	317.70	320.30	2.60	520	0.00	4.08E-06
15	20	5	4	5	4300	322.10	325.30	3.20	640	0.00	3.85E-06
20	25	5	5	5	5300	327.00	330.40	3.40	680	0.00	3.32E-06
25	30	5	4	5	4300	332.90	335.30	2.40	480	0.00	2.89E-06
30	35	5	3	5	3300	336.90	338.10	1.20	240	0.00	1.88E-06
35	40	5	2	5	2300	339.60	340.40	0.80	160	0.00	1.80E-06
40	45	5	1	5	1300	342.30	342.30	0.00	0	0.00	0.00E+00
										K =	2.33E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)

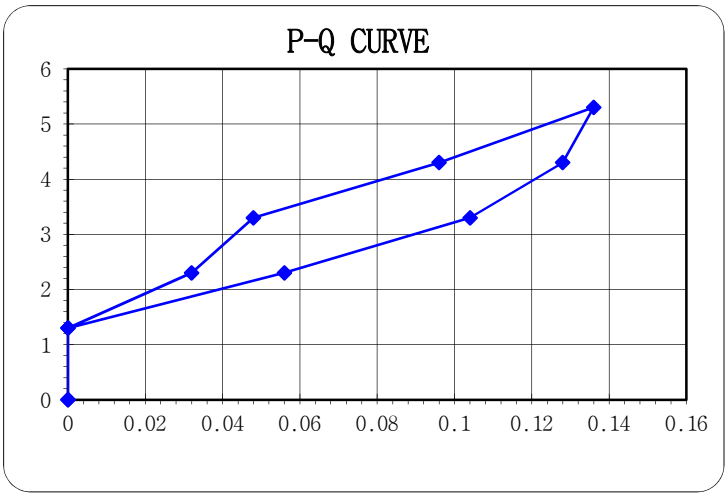


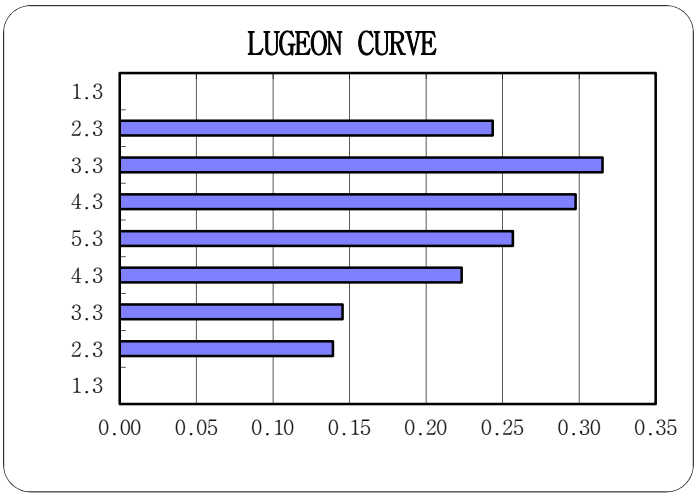
K = (2.3×Q/2πLH)×log (L/r)
H = Hp-Ha
Lu = (10×Q)/(P×L)

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.056	0.243	
3.3	0.104	0.315	
4.3	0.128	0.298	
5.3	0.136	0.257	
4.3	0.096	0.223	
3.3	0.048	0.145	
2.3	0.032	0.139	
1.3	0.000	0.000	
		LU = 0.1801	





WORKING SHEETS OF WATER PRESSURE TEST

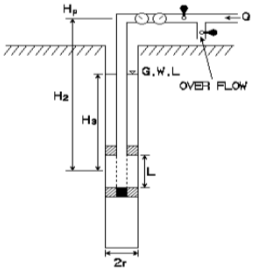
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	60.0 to 65.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	345.70	345.70	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	347.30	347.90	0.60	120	0.00	1.35E-06
10	15	5	3	5	3300	350.10	351.50	1.40	280	0.00	2.20E-06
15	20	5	4	5	4300	353.30	355.10	1.80	360	0.00	2.17E-06
20	25	5	5	5	5300	356.80	360.00	3.20	640	0.00	3.12E-06
25	30	5	4	5	4300	362.50	364.90	2.40	480	0.00	2.89E-06
30	35	5	3	5	3300	366.50	367.90	1.40	280	0.00	2.20E-06
35	40	5	2	5	2300	369.40	370.20	0.80	160	0.00	1.80E-06
40	45	5	1	5	1300	372.10	372.10	0.00	0	0.00	0.00E+00
										K =	1.75E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

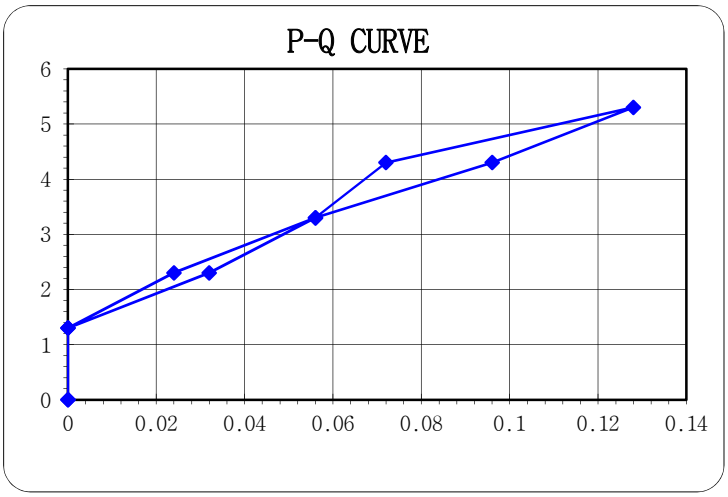
$H = Hp - Ha$

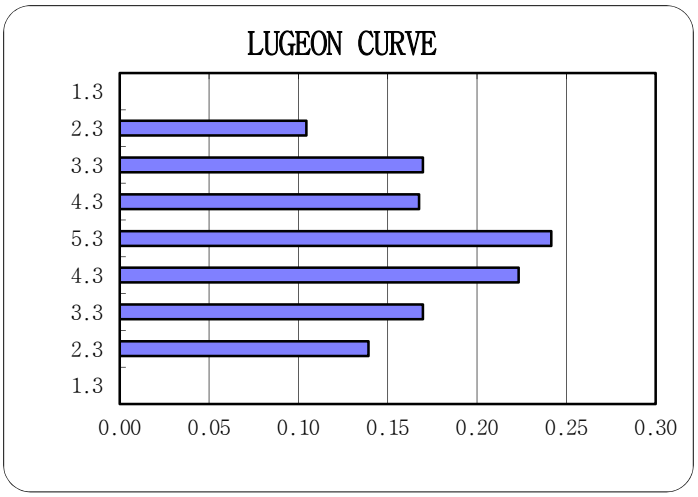
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.024	0.104	
3.3	0.056	0.170	
4.3	0.072	0.167	
5.3	0.128	0.242	
4.3	0.096	0.223	
3.3	0.056	0.170	
2.3	0.032	0.139	
1.3	0.000	0.000	
		LU = 0.1350	





WORKING SHEETS OF WATER PRESSURE TEST

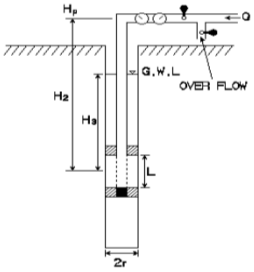
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	65.0 to 70.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	375.60	375.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	377.20	377.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	379.40	380.00	0.60	120	0.00	9.41E-07
15	20	5	4	5	4300	381.80	382.60	0.80	160	0.00	9.63E-07
20	25	5	5	5	5300	384.30	385.30	1.00	200	0.00	9.76E-07
25	30	5	4	5	4300	387.80	388.60	0.80	160	0.00	9.63E-07
30	35	5	3	5	3300	390.20	390.60	0.40	80	0.00	6.27E-07
35	40	5	2	5	2300	392.10	392.10	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	394.00	394.00	0.00	0	0.00	0.00E+00
										K =	4.97E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

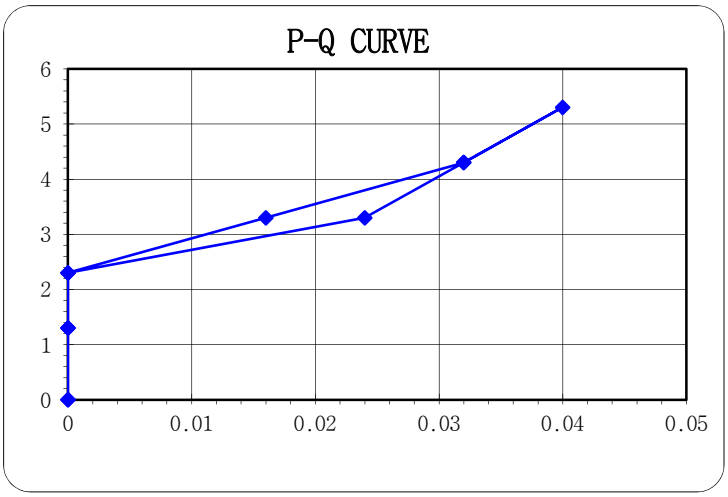
$H = Hp - Ha$

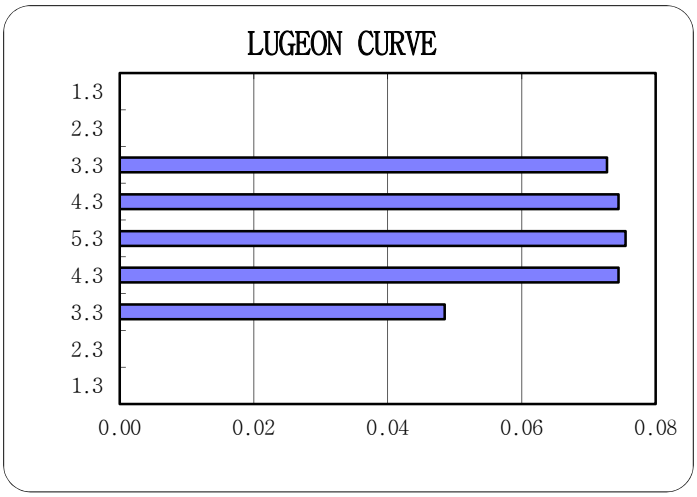
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.024	0.073	
4.3	0.032	0.074	
5.3	0.040	0.075	
4.3	0.032	0.074	
3.3	0.016	0.048	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0384	





WORKING SHEETS OF WATER PRESSURE TEST

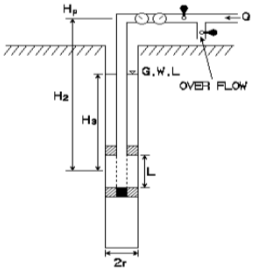
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	70.0 to 75.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	397.50	397.50	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	399.10	399.10	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	401.30	401.70	0.40	80	0.00	6.27E-07
15	20	5	4	5	4300	403.50	404.10	0.60	120	0.00	7.22E-07
20	25	5	5	5	5300	405.80	406.60	0.80	160	0.00	7.81E-07
25	30	5	4	5	4300	409.10	409.90	0.80	160	0.00	9.63E-07
30	35	5	3	5	3300	411.50	412.10	0.60	120	0.00	9.41E-07
35	40	5	2	5	2300	413.60	414.00	0.40	80	0.00	9.00E-07
40	45	5	1	5	1300	415.90	415.90	0.00	0	0.00	0.00E+00
										K =	5.48E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

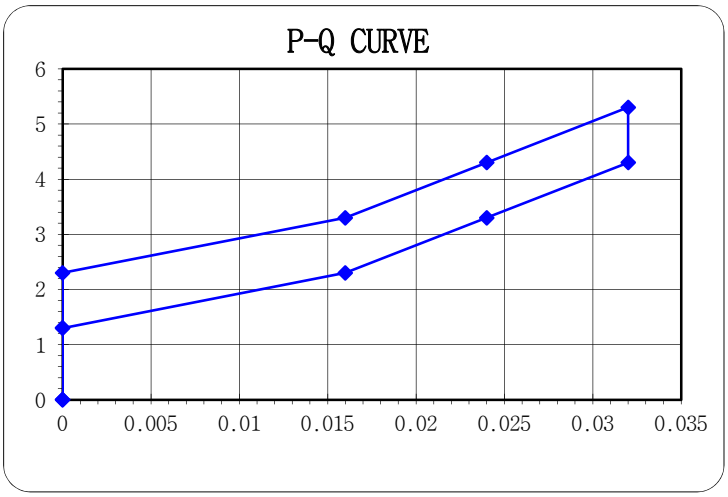
$H = Hp - Ha$

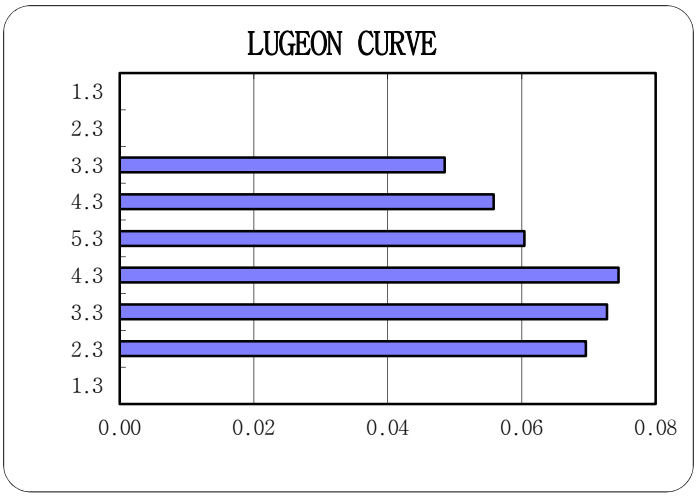
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.016	0.048	
4.3	0.024	0.056	
5.3	0.032	0.060	
4.3	0.032	0.074	
3.3	0.024	0.073	
2.3	0.016	0.070	
1.3	0.000	0.000	
		LU = 0.0424	





WORKING SHEETS OF WATER PRESSURE TEST

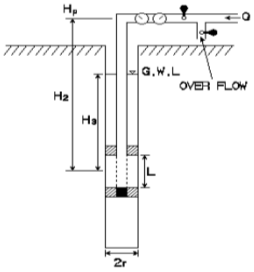
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	75.0 to 80.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	418.60	418.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	420.20	420.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	422.40	422.40	0.00	0	0.00	0.00E+00
15	20	5	4	5	4300	424.20	424.40	0.20	40	0.00	2.41E-07
20	25	5	5	5	5300	426.10	426.60	0.50	100	0.00	4.88E-07
25	30	5	4	5	4300	429.10	429.10	0.00	0	0.00	0.00E+00
30	35	5	3	5	3300	430.70	430.70	0.00	0	0.00	0.00E+00
35	40	5	2	5	2300	432.20	432.20	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	434.10	434.10	0.00	0	0.00	0.00E+00
										K =	8.10E-08

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log (L/r)$

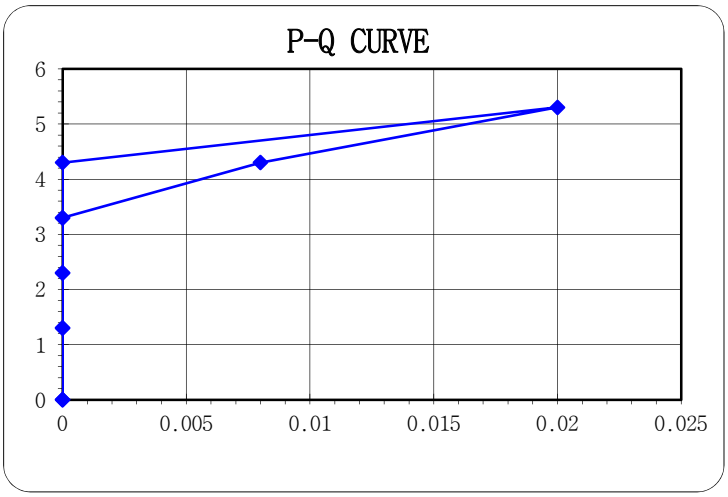
$H = Hp - Ha$

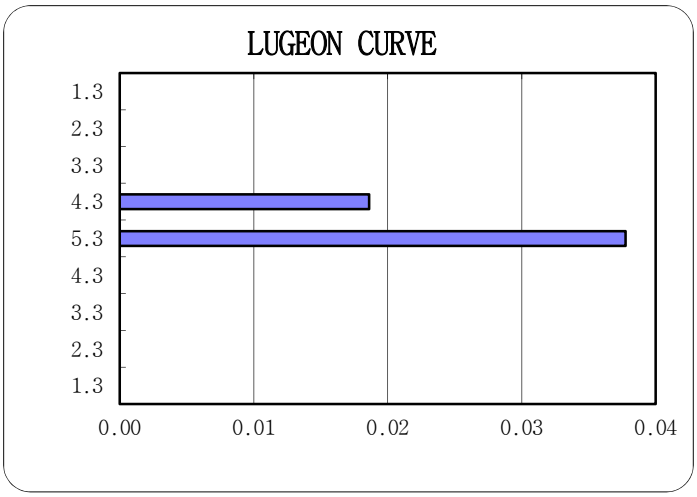
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.000	0.000	
4.3	0.008	0.019	
5.3	0.020	0.038	
4.3	0.000	0.000	
3.3	0.000	0.000	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0063	





WORKING SHEETS OF WATER PRESSURE TEST

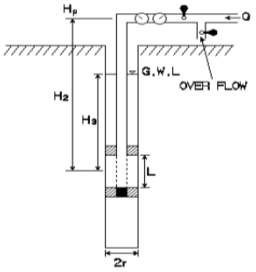
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-13
HOLE NO.	GR-74	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	80.0 to 85.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	6.65
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	9.647	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1300	437.20	437.20	0.00	0	0.00	0.00E+00
5	10	5	2	5	2300	438.80	438.80	0.00	0	0.00	0.00E+00
10	15	5	3	5	3300	441.00	441.00	0.00	0	0.00	0.00E+00
15	20	5	4	5	4300	442.80	442.80	0.00	0	0.00	0.00E+00
20	25	5	5	5	5300	444.50	444.50	0.00	0	0.00	0.00E+00
25	30	5	4	5	4300	447.00	447.00	0.00	0	0.00	0.00E+00
30	35	5	3	5	3300	448.60	448.60	0.00	0	0.00	0.00E+00
35	40	5	2	5	2300	450.10	450.10	0.00	0	0.00	0.00E+00
40	45	5	1	5	1300	452.00	452.00	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

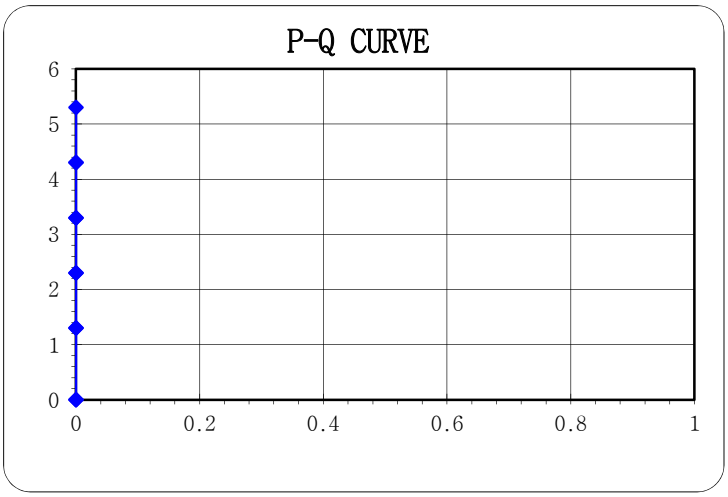
$H = Hp - Ha$

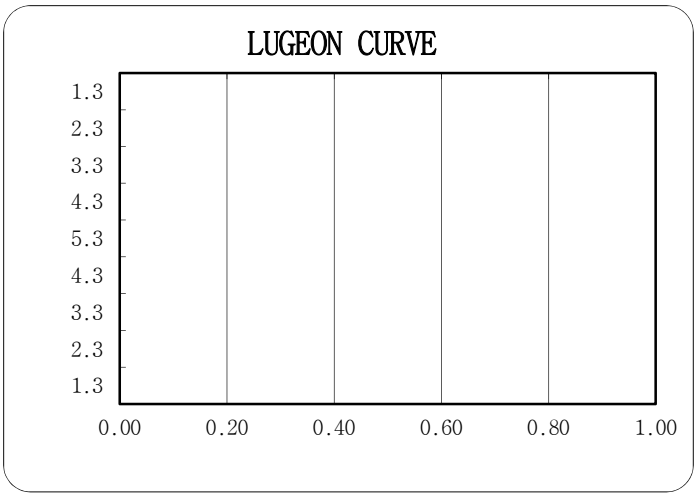
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.3	0.000	0.000	
2.3	0.000	0.000	
3.3	0.000	0.000	
4.3	0.000	0.000	
5.3	0.000	0.000	
4.3	0.000	0.000	
3.3	0.000	0.000	
2.3	0.000	0.000	
1.3	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

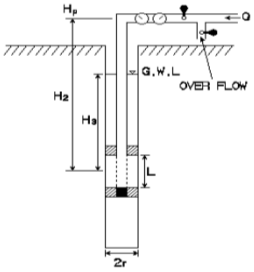
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	15.0 to 20.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	238.40	239.20	0.80	160	0.00	2.74E-06
5	10	5	2	5	2510	240.80	243.20	2.40	480	0.00	4.95E-06
10	15	5	3	5	3510	245.40	249.00	3.60	720	0.00	5.31E-06
15	20	5	4	5	4510	250.80	256.00	5.20	1040	0.00	5.97E-06
20	25	5	5	5	5510	257.70	263.90	6.20	1240	0.00	5.82E-06
25	30	5	4	5	4510	266.40	271.20	4.80	960	0.00	5.51E-06
30	35	5	3	5	3510	272.80	276.40	3.60	720	0.00	5.31E-06
35	40	5	2	5	2510	277.90	280.10	2.20	440	0.00	4.54E-06
40	45	5	1	5	1510	282.00	282.00	0.00	0	0.00	0.00E+00
										K =	4.46E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

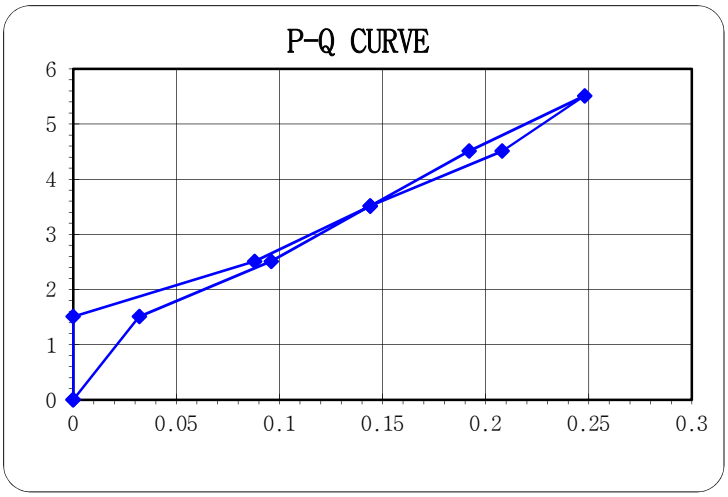
$H = Hp - Ha$

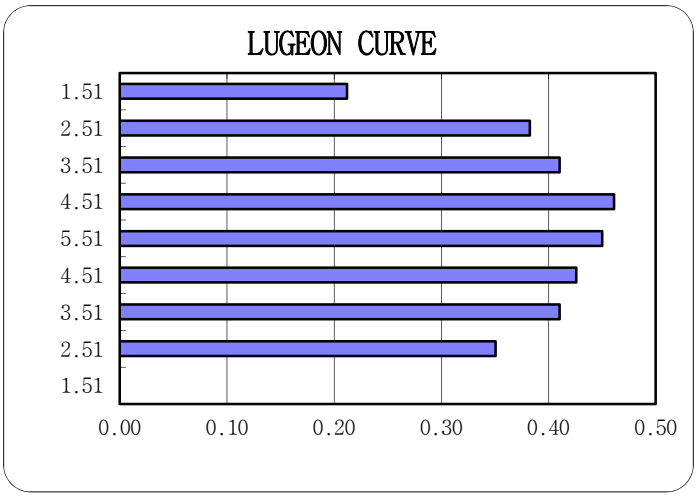
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.032	0.212	
2.51	0.096	0.382	
3.51	0.144	0.410	
4.51	0.208	0.461	
5.51	0.248	0.450	
4.51	0.192	0.426	
3.51	0.144	0.410	
2.51	0.088	0.351	
1.51	0.000	0.000	
		LU = 0.3447	





WORKING SHEETS OF WATER PRESSURE TEST

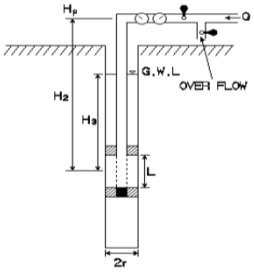
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	20.0 to 25.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	284.50	284.50	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	286.10	286.10	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	288.30	288.70	0.40	80	0.00	5.90E-07
15	20	5	4	5	4510	290.50	291.10	0.60	120	0.00	6.88E-07
20	25	5	5	5	5510	292.80	294.00	1.20	240	0.00	1.13E-06
25	30	5	4	5	4510	296.50	297.30	0.80	160	0.00	9.18E-07
30	35	5	3	5	3510	298.90	299.30	0.40	80	0.00	5.90E-07
35	40	5	2	5	2510	300.80	300.80	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	302.70	302.70	0.00	0	0.00	0.00E+00
										K =	4.35E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

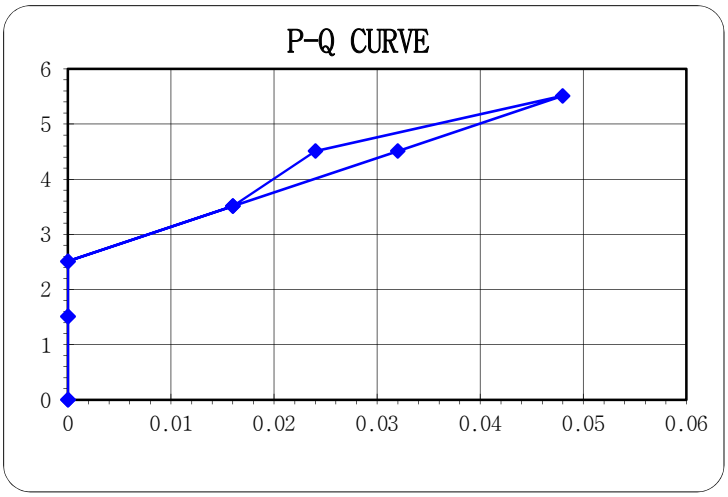
$H = Hp - Ha$

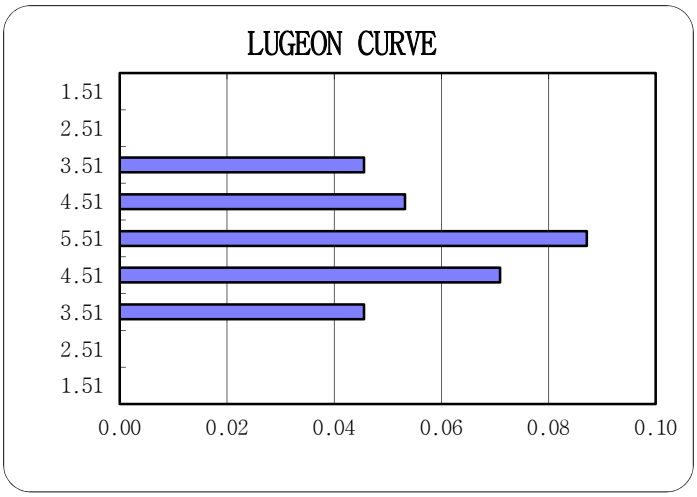
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.016	0.046	
4.51	0.024	0.053	
5.51	0.048	0.087	
4.51	0.032	0.071	
3.51	0.016	0.046	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0336	





WORKING SHEETS OF WATER PRESSURE TEST

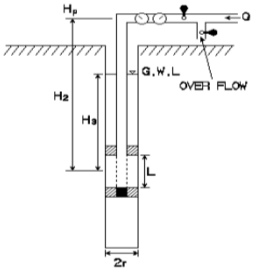
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	25.0 to 30.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	305.20	305.20	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	306.80	306.80	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	309.00	309.20	0.20	40	0.00	2.95E-07
15	20	5	4	5	4510	311.00	311.20	0.20	40	0.00	2.29E-07
20	25	5	5	5	5510	312.90	313.50	0.60	120	0.00	5.63E-07
25	30	5	4	5	4510	316.00	316.40	0.40	80	0.00	4.59E-07
30	35	5	3	5	3510	318.00	318.00	0.00	0	0.00	0.00E+00
35	40	5	2	5	2510	319.50	319.50	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	321.40	321.40	0.00	0	0.00	0.00E+00
										K =	1.72E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

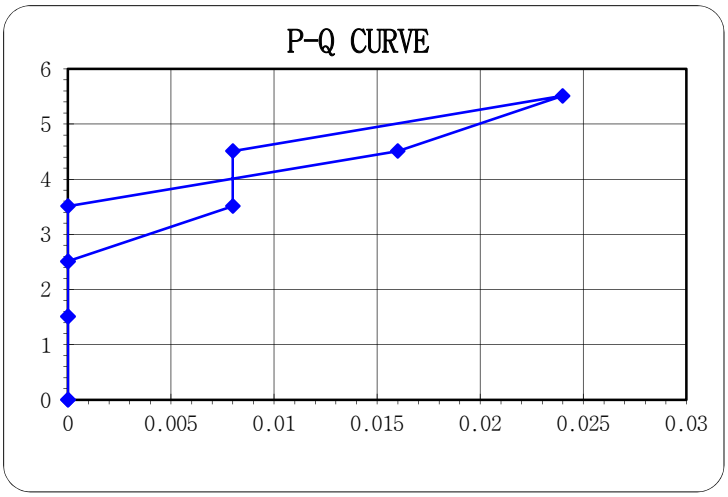
$H = Hp - Ha$

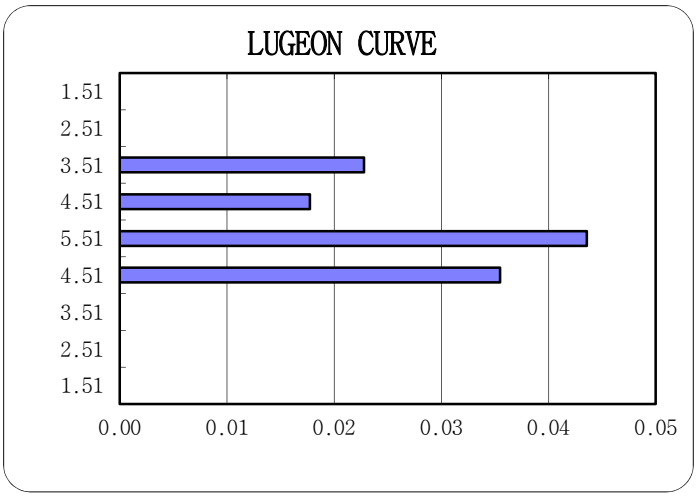
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.008	0.023	
4.51	0.008	0.018	
5.51	0.024	0.044	
4.51	0.016	0.035	
3.51	0.000	0.000	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0133	





WORKING SHEETS OF WATER PRESSURE TEST

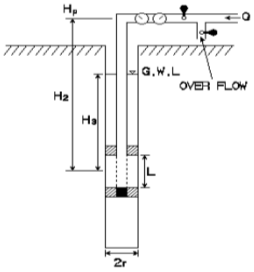
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	30.0 to 35.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	324.60	324.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	326.20	326.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	328.40	328.40	0.00	0	0.00	0.00E+00
15	20	5	4	5	4510	330.20	330.20	0.00	0	0.00	0.00E+00
20	25	5	5	5	5510	331.90	331.90	0.00	0	0.00	0.00E+00
25	30	5	4	5	4510	334.40	334.40	0.00	0	0.00	0.00E+00
30	35	5	3	5	3510	336.00	336.00	0.00	0	0.00	0.00E+00
35	40	5	2	5	2510	337.50	337.50	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	339.40	339.40	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

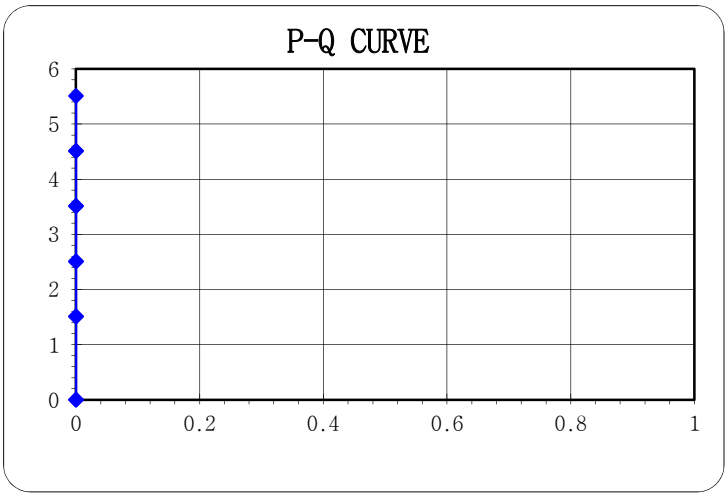
$H = Hp - Ha$

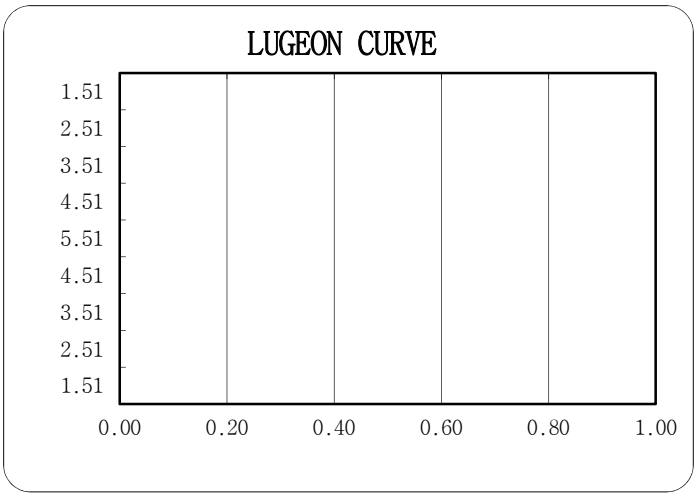
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.000	0.000	
4.51	0.000	0.000	
5.51	0.000	0.000	
4.51	0.000	0.000	
3.51	0.000	0.000	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

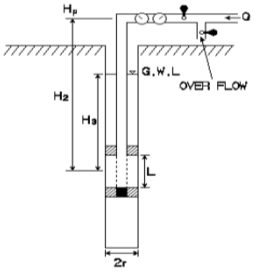
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	35.0 to 40.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	342.60	342.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	344.20	344.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	346.40	346.40	0.00	0	0.00	0.00E+00
15	20	5	4	5	4510	348.20	348.40	0.20	40	0.00	2.29E-07
20	25	5	5	5	5510	350.10	350.50	0.40	80	0.00	3.76E-07
25	30	5	4	5	4510	353.00	353.00	0.00	0	0.00	0.00E+00
30	35	5	3	5	3510	354.60	354.60	0.00	0	0.00	0.00E+00
35	40	5	2	5	2510	356.10	356.10	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	358.00	358.00	0.00	0	0.00	0.00E+00
										K =	6.72E-08

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

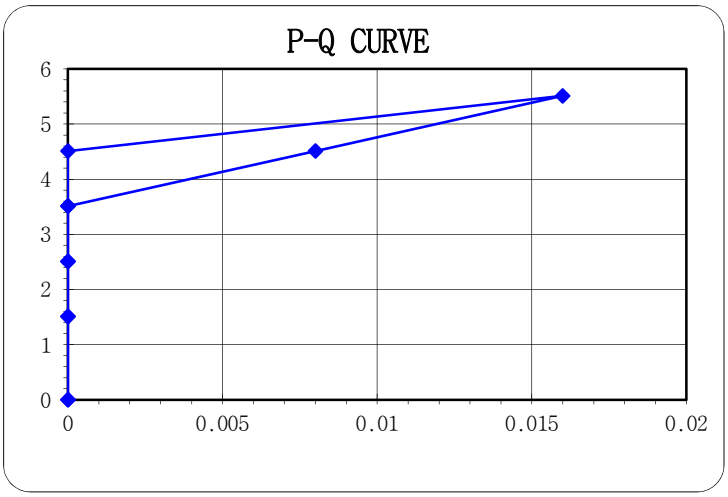
$H = Hp - Ha$

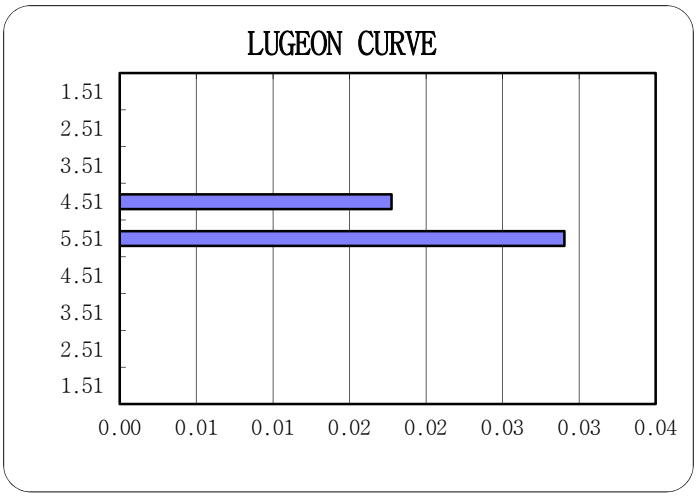
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.000	0.000	
4.51	0.008	0.018	
5.51	0.016	0.029	
4.51	0.000	0.000	
3.51	0.000	0.000	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0052	





WORKING SHEETS OF WATER PRESSURE TEST

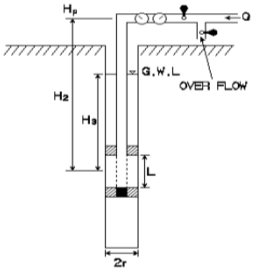
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	40.0 to 45.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	361.20	361.20	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	362.80	362.80	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	365.00	365.00	0.00	0	0.00	0.00E+00
15	20	5	4	5	4510	366.80	366.80	0.00	0	0.00	0.00E+00
20	25	5	5	5	5510	368.50	368.50	0.00	0	0.00	0.00E+00
25	30	5	4	5	4510	371.00	371.00	0.00	0	0.00	0.00E+00
30	35	5	3	5	3510	372.60	372.60	0.00	0	0.00	0.00E+00
35	40	5	2	5	2510	374.10	374.10	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	376.00	376.00	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

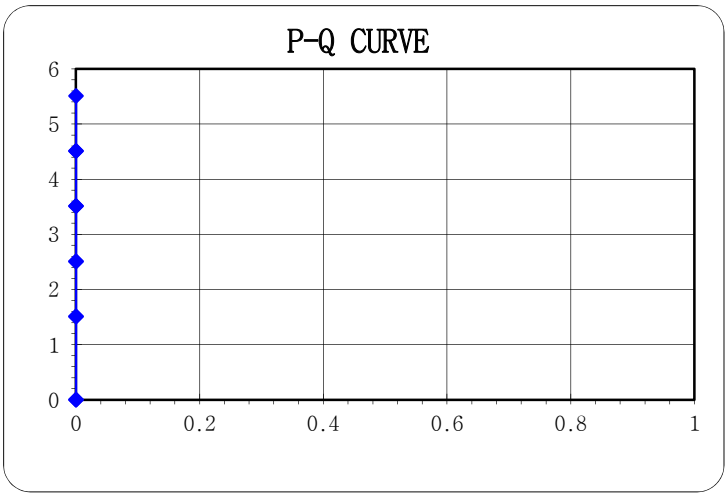
$H = Hp - Ha$

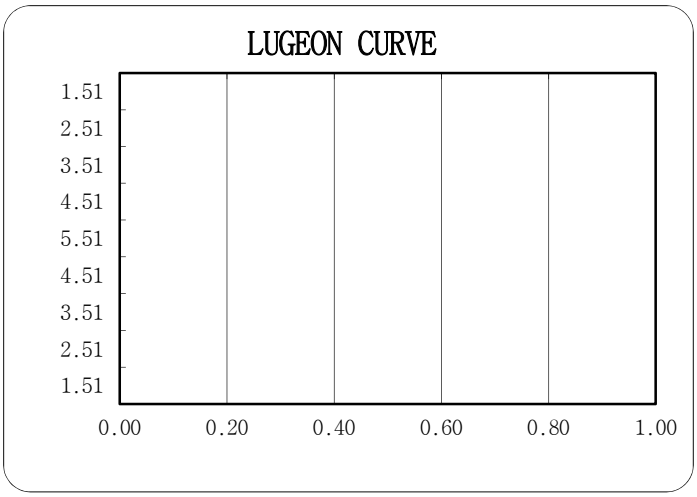
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.000	0.000	
4.51	0.000	0.000	
5.51	0.000	0.000	
4.51	0.000	0.000	
3.51	0.000	0.000	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

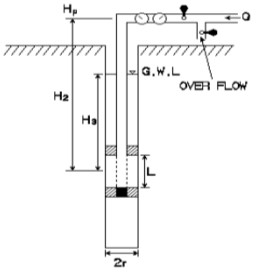
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	45.0 to 50.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	378.60	378.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	380.20	380.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	382.40	382.40	0.00	0	0.00	0.00E+00
15	20	5	4	5	4510	384.20	384.20	0.00	0	0.00	0.00E+00
20	25	5	5	5	5510	385.90	385.90	0.00	0	0.00	0.00E+00
25	30	5	4	5	4510	388.40	388.40	0.00	0	0.00	0.00E+00
30	35	5	3	5	3510	390.00	390.00	0.00	0	0.00	0.00E+00
35	40	5	2	5	2510	391.50	391.50	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	393.40	393.40	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

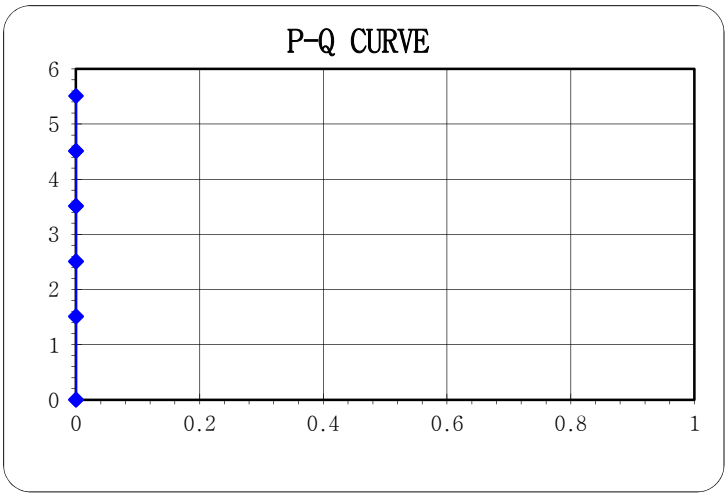
$H = Hp - Ha$

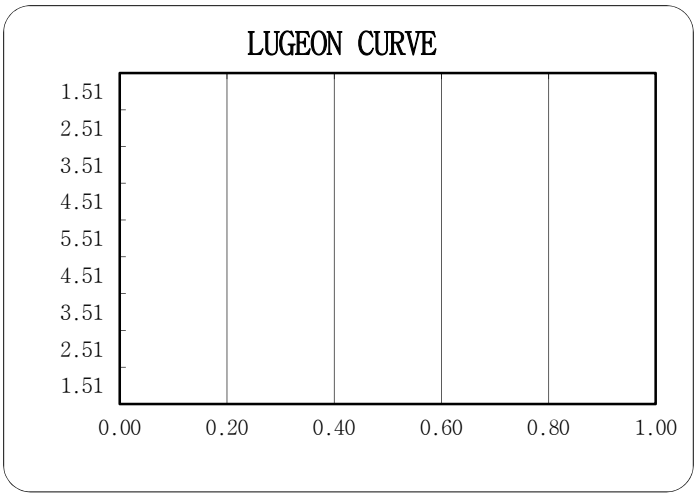
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.000	0.000	
4.51	0.000	0.000	
5.51	0.000	0.000	
4.51	0.000	0.000	
3.51	0.000	0.000	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

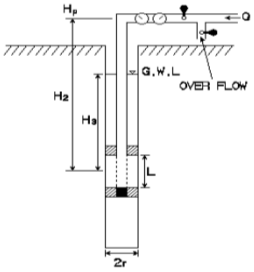
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	50.0 to 55.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	396.40	397.20	0.80	160	0.00	2.74E-06
5	10	5	2	5	2510	398.80	400.60	1.80	360	0.00	3.71E-06
10	15	5	3	5	3510	402.80	405.40	2.60	520	0.00	3.83E-06
15	20	5	4	5	4510	407.20	410.60	3.40	680	0.00	3.90E-06
20	25	5	5	5	5510	412.30	417.10	4.80	960	0.00	4.51E-06
25	30	5	4	5	4510	419.60	423.20	3.60	720	0.00	4.13E-06
30	35	5	3	5	3510	424.80	427.20	2.40	480	0.00	3.54E-06
35	40	5	2	5	2510	428.70	430.10	1.40	280	0.00	2.89E-06
40	45	5	1	5	1510	432.00	432.00	0.00	0	0.00	0.00E+00
										K =	3.25E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

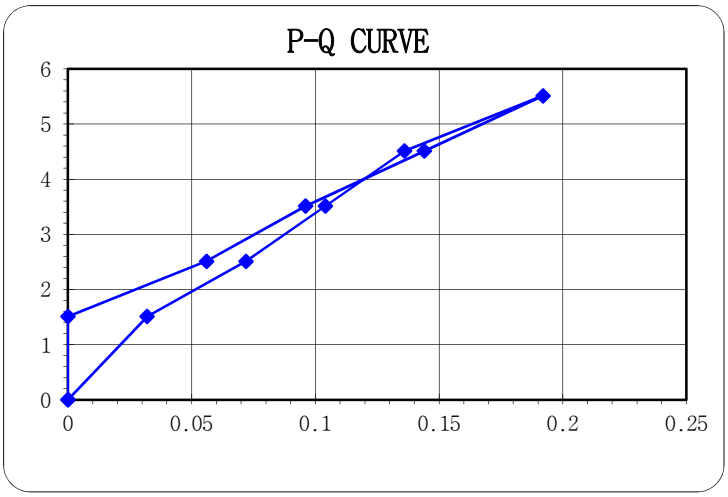
$H = Hp - Ha$

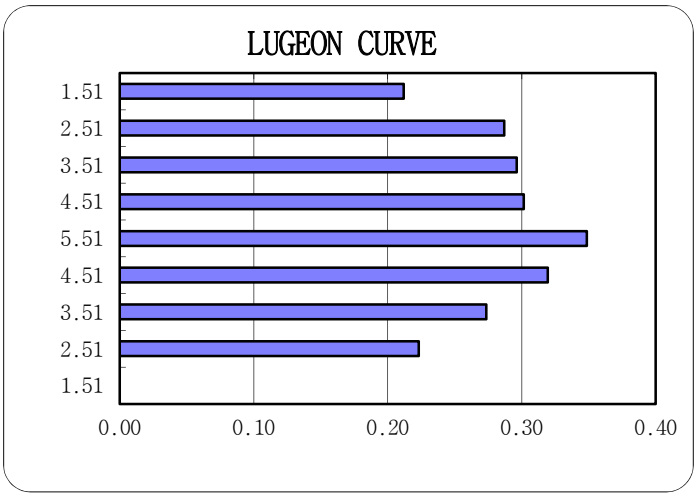
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.032	0.212	
2.51	0.072	0.287	
3.51	0.104	0.296	
4.51	0.136	0.302	
5.51	0.192	0.348	
4.51	0.144	0.319	
3.51	0.096	0.274	
2.51	0.056	0.223	
1.51	0.000	0.000	
		LU = 0.2512	





WORKING SHEETS OF WATER PRESSURE TEST

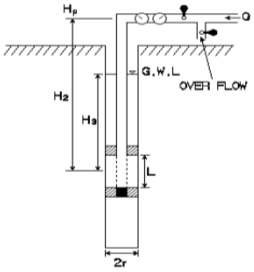
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	55.0 to 60.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	435.80	435.80	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	437.40	438.60	1.20	240	0.00	2.47E-06
10	15	5	3	5	3510	440.80	443.20	2.40	480	0.00	3.54E-06
15	20	5	4	5	4510	445.00	447.80	2.80	560	0.00	3.21E-06
20	25	5	5	5	5510	449.50	453.30	3.80	760	0.00	3.57E-06
25	30	5	4	5	4510	455.80	458.40	2.60	520	0.00	2.98E-06
30	35	5	3	5	3510	460.00	461.40	1.40	280	0.00	2.06E-06
35	40	5	2	5	2510	462.90	463.50	0.60	120	0.00	1.24E-06
40	45	5	1	5	1510	465.40	465.40	0.00	0	0.00	0.00E+00
										K =	2.12E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

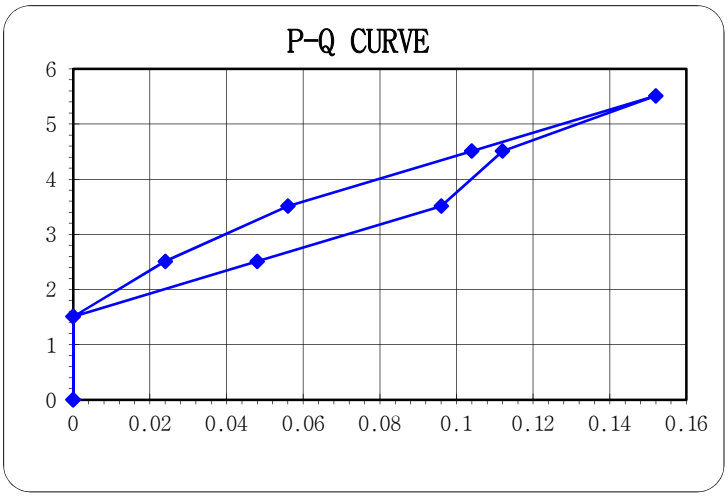
$H = Hp - Ha$

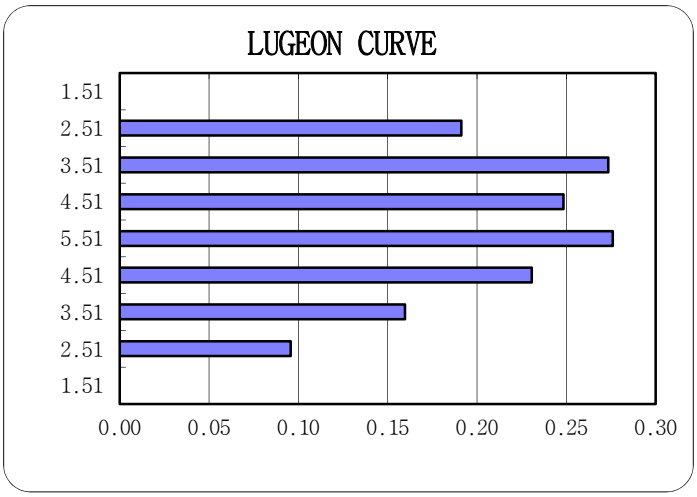
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.048	0.191	
3.51	0.096	0.274	
4.51	0.112	0.248	
5.51	0.152	0.276	
4.51	0.104	0.231	
3.51	0.056	0.160	
2.51	0.024	0.096	
1.51	0.000	0.000	
		LU = 0.1639	





WORKING SHEETS OF WATER PRESSURE TEST

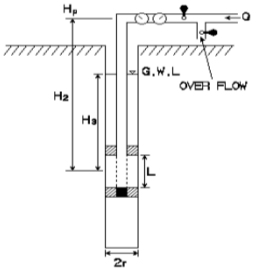
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	60.0 to 65.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	468.30	468.30	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	469.90	470.50	0.60	120	0.00	1.24E-06
10	15	5	3	5	3510	472.70	473.90	1.20	240	0.00	1.77E-06
15	20	5	4	5	4510	475.70	477.10	1.40	280	0.00	1.61E-06
20	25	5	5	5	5510	478.80	482.00	3.20	640	0.00	3.00E-06
25	30	5	4	5	4510	484.50	486.70	2.20	440	0.00	2.52E-06
30	35	5	3	5	3510	488.30	489.90	1.60	320	0.00	2.36E-06
35	40	5	2	5	2510	491.40	492.20	0.80	160	0.00	1.65E-06
40	45	5	1	5	1510	494.10	494.10	0.00	0	0.00	0.00E+00
										K =	1.57E-06

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

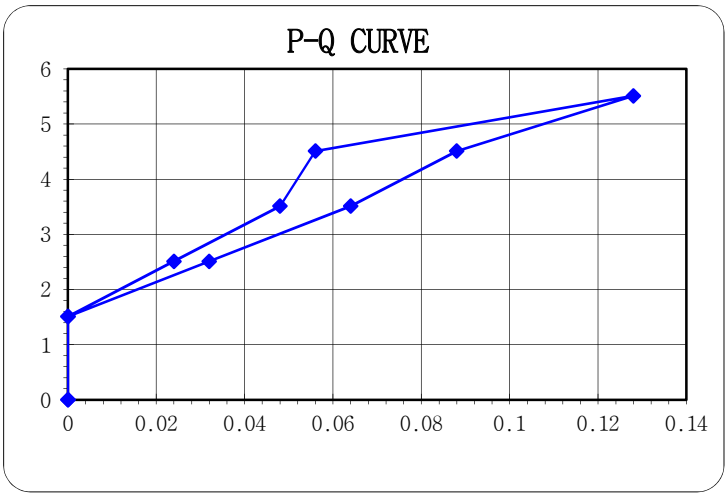
$H = Hp - Ha$

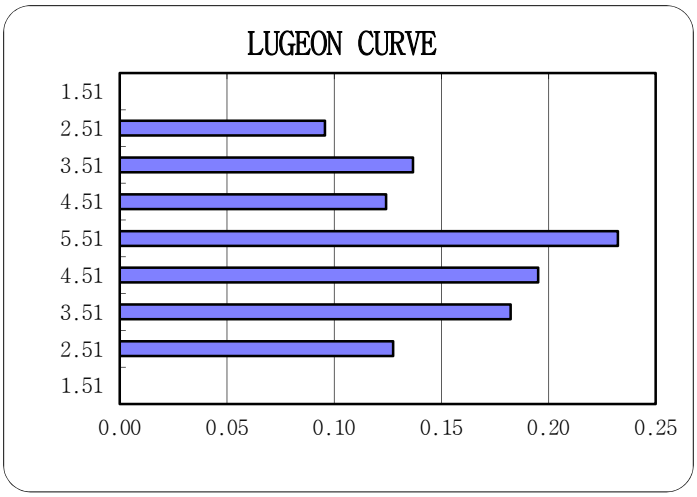
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.024	0.096	
3.51	0.048	0.137	
4.51	0.056	0.124	
5.51	0.128	0.232	
4.51	0.088	0.195	
3.51	0.064	0.182	
2.51	0.032	0.127	
1.51	0.000	0.000	
		LU = 0.1215	





WORKING SHEETS OF WATER PRESSURE TEST

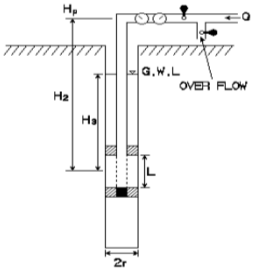
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	65.0 to 70.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	502.80	502.80	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	504.40	504.40	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	506.60	507.00	0.40	80	0.00	5.90E-07
15	20	5	4	5	4510	508.80	509.60	0.80	160	0.00	9.18E-07
20	25	5	5	5	5510	511.30	512.50	1.20	240	0.00	1.13E-06
25	30	5	4	5	4510	515.00	515.60	0.60	120	0.00	6.88E-07
30	35	5	3	5	3510	517.20	517.60	0.40	80	0.00	5.90E-07
35	40	5	2	5	2510	519.10	519.10	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	521.00	521.00	0.00	0	0.00	0.00E+00
										K =	4.35E-07

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

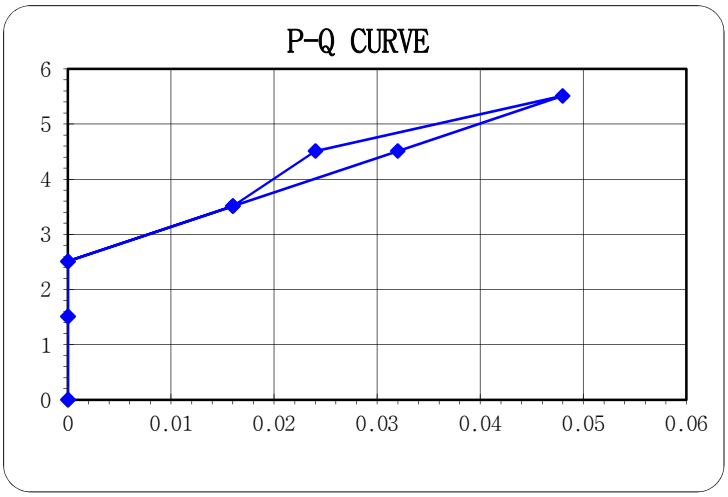
$H = Hp - Ha$

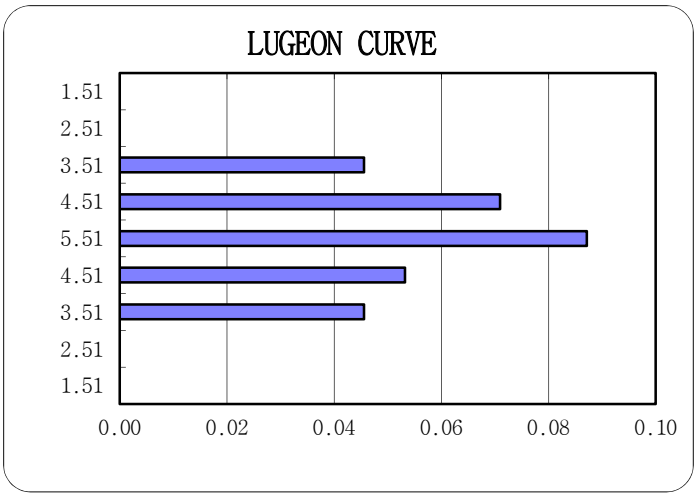
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.016	0.046	
4.51	0.032	0.071	
5.51	0.048	0.087	
4.51	0.024	0.053	
3.51	0.016	0.046	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0336	





WORKING SHEETS OF WATER PRESSURE TEST

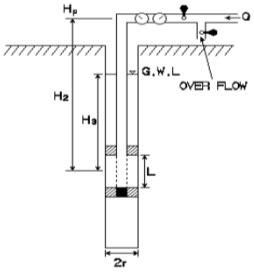
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	70.0 to 75.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	524.80	524.80	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	526.40	526.40	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	528.60	528.60	0.00	0	0.00	0.00E+00
15	20	5	4	5	4510	530.40	530.40	0.00	0	0.00	0.00E+00
20	25	5	5	5	5510	532.10	532.10	0.00	0	0.00	0.00E+00
25	30	5	4	5	4510	534.60	534.60	0.00	0	0.00	0.00E+00
30	35	5	3	5	3510	536.20	536.20	0.00	0	0.00	0.00E+00
35	40	5	2	5	2510	537.70	537.70	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	539.60	539.60	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

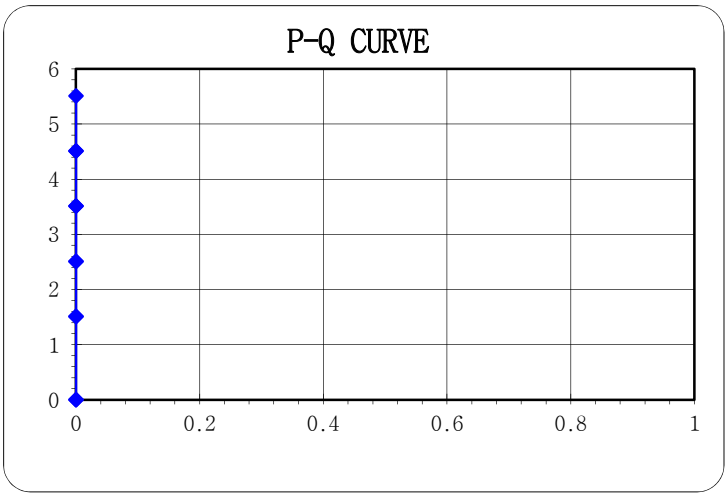
$H = Hp - Ha$

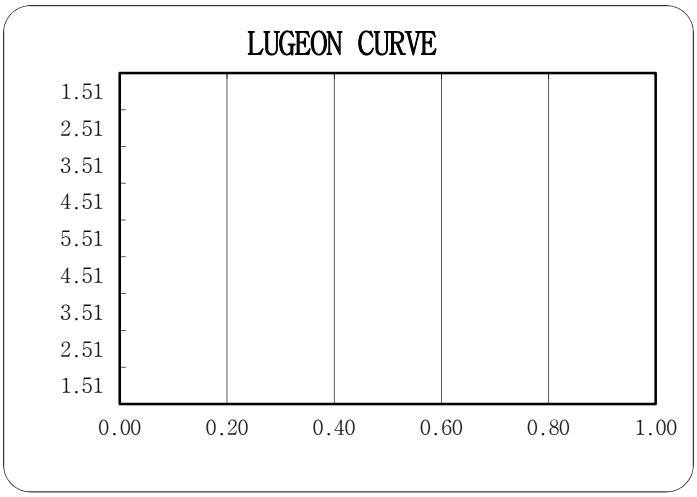
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.000	0.000	
4.51	0.000	0.000	
5.51	0.000	0.000	
4.51	0.000	0.000	
3.51	0.000	0.000	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0000	





WORKING SHEETS OF WATER PRESSURE TEST

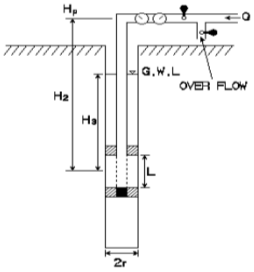
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	75.0 to 80.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	541.20	541.20	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	542.80	542.80	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	545.00	545.00	0.00	0	0.00	0.00E+00
15	20	5	4	5	4510	546.80	547.10	0.30	60	0.00	3.44E-07
20	25	5	5	5	5510	548.80	549.30	0.50	100	0.00	4.70E-07
25	30	5	4	5	4510	551.80	551.80	0.00	0	0.00	0.00E+00
30	35	5	3	5	3510	553.40	553.40	0.00	0	0.00	0.00E+00
35	40	5	2	5	2510	554.90	554.90	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	556.80	556.80	0.00	0	0.00	0.00E+00
										K =	9.04E-08

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

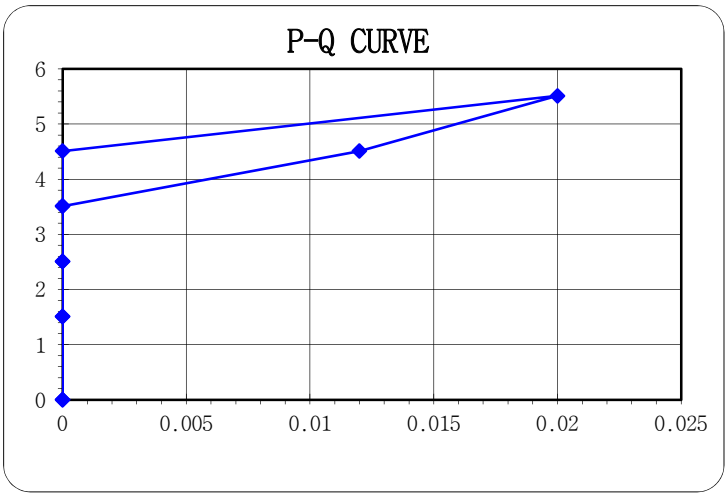
$H = Hp - Ha$

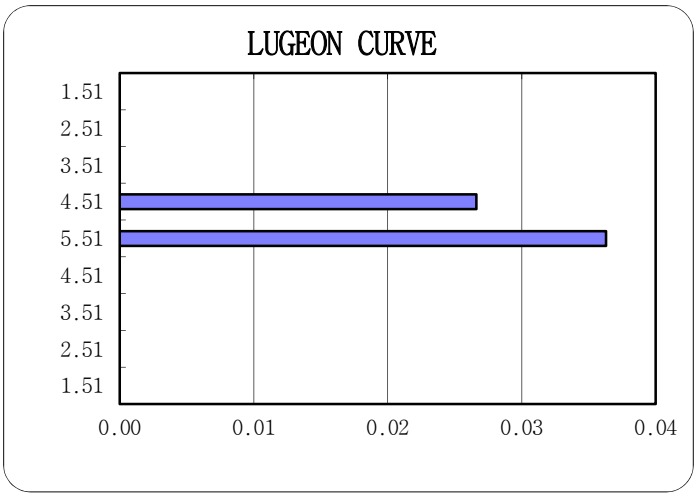
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.000	0.000	
4.51	0.012	0.027	
5.51	0.020	0.036	
4.51	0.000	0.000	
3.51	0.000	0.000	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0070	





WORKING SHEETS OF WATER PRESSURE TEST

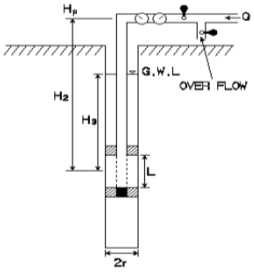
PROJECT NAME	신고리 5,6호기 부지세부조사	GEOLOGY	Granite	DATE	2016-01-09
HOLE NO.	GR-75	HOLE DIA(Cm)	7.6	PACKER	Double
TEST SECTION	80.0 to 85.0 m	INTERVAL(m)	5.00	G.W.D(EL.m)	8.94
INJECTED PRES.	1-2-3-4-5-4-3-2-1	SITE EL.(m)	14.037	CHECKED BY	Y.H.Kim

INJECTION TIME(min)			WATER PRESSURE	INTERVAL (m)	TOTAL HEAD	FLOW METER (l)			WATER CONSUMED	MANO-METER	K(Cm/sec)
FROM	TO	TIME SPENT	(Kg/Cm²)		(Cm)	FROM	TO	Q'ty	(Cm³/min)	H.(m)	
0	5	5	1	5	1510	559.60	559.60	0.00	0	0.00	0.00E+00
5	10	5	2	5	2510	561.20	561.20	0.00	0	0.00	0.00E+00
10	15	5	3	5	3510	563.40	563.40	0.00	0	0.00	0.00E+00
15	20	5	4	5	4510	565.20	565.20	0.00	0	0.00	0.00E+00
20	25	5	5	5	5510	566.90	566.90	0.00	0	0.00	0.00E+00
25	30	5	4	5	4510	569.40	569.40	0.00	0	0.00	0.00E+00
30	35	5	3	5	3510	571.00	571.00	0.00	0	0.00	0.00E+00
35	40	5	2	5	2510	572.50	572.50	0.00	0	0.00	0.00E+00
40	45	5	1	5	1510	574.40	574.40	0.00	0	0.00	0.00E+00
										K =	0.00E+00

NOTE.

1. When the ground water level reveals above the upper packer the sign of H_3 is minus(-)

2. When the ground water level reveals below the lower packer the sign of H_3 is zero(0)



$K = (2.3 \times Q/2\pi LH) \times \log(L/r)$

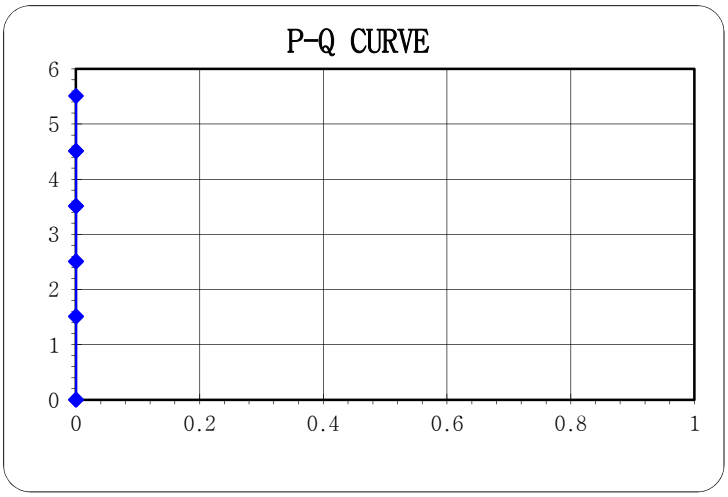
$H = Hp - Ha$

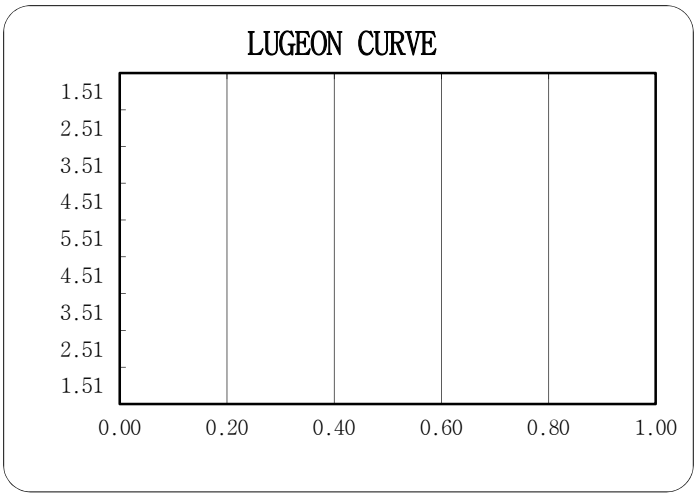
$Lu = (10 \times Q)/(P \times L)$

여기서
K : 투수계수(Cm/sec)
H : 총 수두(Cm)
Q : 주입수량(Cm³ /sec)
r : 공 반경(Cm)
L : 시험구간(Cm)
Lu : Lugeon (1 Lu ≒ 1.3E+05Cm/sec)
Q : 주입수량 (l/min)

LUGEON TEST

PRESSURE (Kg/Cm²)	INJECTED WATER (l/m/min)	VALUE OF LUGEON	REMARK
1.51	0.000	0.000	
2.51	0.000	0.000	
3.51	0.000	0.000	
4.51	0.000	0.000	
5.51	0.000	0.000	
4.51	0.000	0.000	
3.51	0.000	0.000	
2.51	0.000	0.000	
1.51	0.000	0.000	
		LU = 0.0000	





부록 2.5C

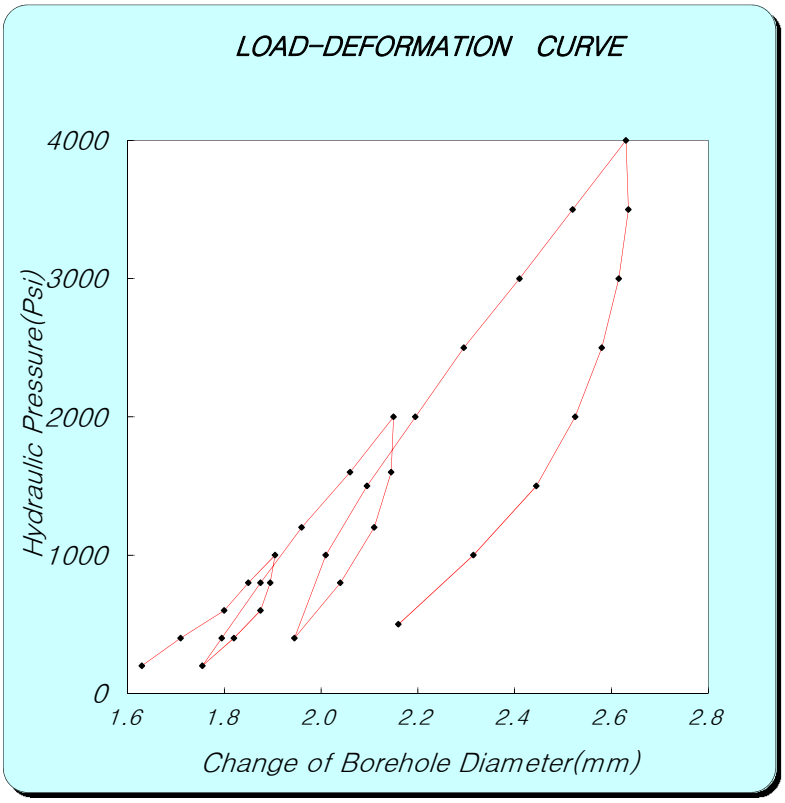
공내변형시험 성과표

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	11.5m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/57	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.64	1.62	1.630
400	1.70	1.72	1.710
600	1.78	1.82	1.800
800	1.83	1.87	1.850
1000	1.88	1.93	1.905
800	1.88	1.91	1.895
600	1.86	1.89	1.875
400	1.82	1.82	1.820
200	1.78	1.73	1.755
400	1.80	1.79	1.795
800	1.86	1.89	1.875
1200	1.94	1.98	1.960
1600	2.04	2.08	2.060
2000	2.13	2.17	2.150
1600	2.13	2.16	2.145
1200	2.10	2.12	2.110
800	2.04	2.04	2.040
400	1.96	1.93	1.945
1000	2.01	2.01	2.010
1500	2.08	2.11	2.095
2000	2.18	2.21	2.195
2500	2.29	2.30	2.295
3000	2.41	2.41	2.410
3500	2.53	2.51	2.520
4000	2.64	2.62	2.630
3500	2.65	2.62	2.635
3000	2.63	2.60	2.615
2500	2.60	2.56	2.580
2000	2.55	2.50	2.525
1500	2.47	2.42	2.445
1000	2.35	2.28	2.315
500	2.21	2.11	2.160



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.905 D_2 (mm) 2.630

Dc (psi) = 3.63E+05 **Dt = 3.63E+05** psi

2.55E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3500

ΔD : D_1 (mm) 2.010 D_2 (mm) 2.520

Ec (psi) = 4.30E+05 **Et = 4.30E+05** psi

3.02E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

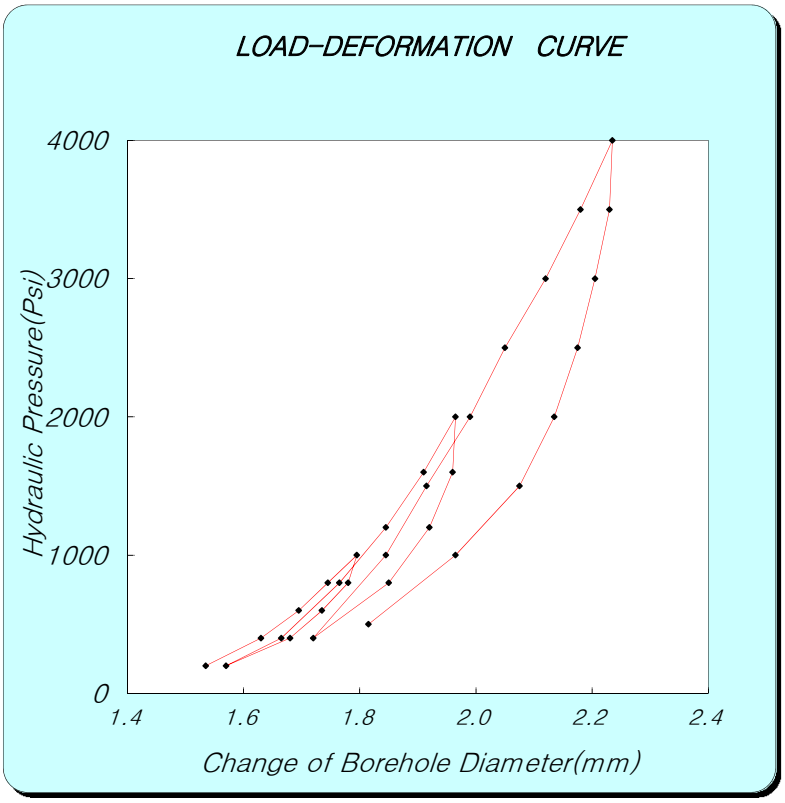
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	20.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/92	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.46	1.61	1.535
400	1.52	1.74	1.630
600	1.57	1.82	1.695
800	1.61	1.88	1.745
1000	1.65	1.94	1.795
800	1.64	1.92	1.780
600	1.60	1.87	1.735
400	1.55	1.81	1.680
200	1.49	1.65	1.570
400	1.55	1.78	1.665
800	1.63	1.90	1.765
1200	1.71	1.98	1.845
1600	1.77	2.05	1.910
2000	1.82	2.11	1.965
1600	1.81	2.11	1.960
1200	1.76	2.08	1.920
800	1.70	2.00	1.850
400	1.58	1.86	1.720
1000	1.70	1.99	1.845
1500	1.77	2.06	1.915
2000	1.84	2.14	1.990
2500	1.90	2.20	2.050
3000	1.96	2.28	2.120
3500	2.01	2.35	2.180
4000	2.06	2.41	2.235
3500	2.05	2.41	2.230
3000	2.01	2.40	2.205
2500	1.98	2.37	2.175
2000	1.92	2.35	2.135
1500	1.86	2.29	2.075
1000	1.77	2.16	1.965
500	1.65	1.98	1.815



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.795 D_2 (mm) 2.235

Dc (psi) = 5.98E+05 **Dt = 5.98E+05** psi

4.20E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.845 D_2 (mm) 2.180

Ec (psi) = 6.54E+05 **Et = 6.54E+05** psi

4.60E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

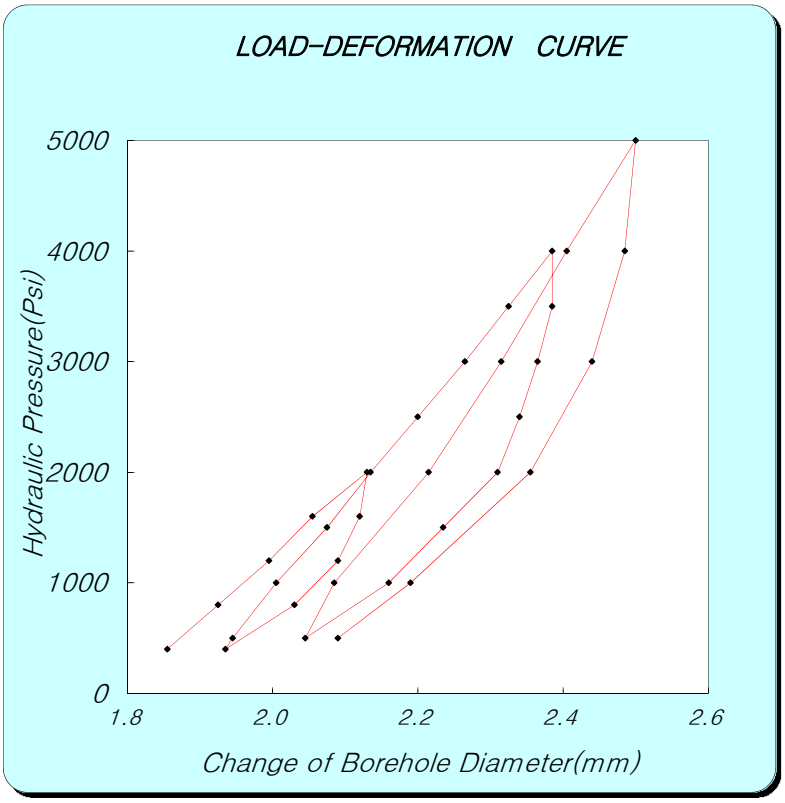
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	28.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/93	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	1.67	2.04	1.855
800	1.74	2.11	1.925
1200	1.81	2.18	1.995
1600	1.87	2.24	2.055
2000	1.94	2.32	2.130
1600	1.93	2.31	2.120
1200	1.90	2.28	2.090
800	1.84	2.22	2.030
400	1.74	2.13	1.935
500	1.75	2.14	1.945
1000	1.81	2.20	2.005
1500	1.88	2.27	2.075
2000	1.94	2.33	2.135
2500	2.00	2.40	2.200
3000	2.06	2.47	2.265
3500	2.11	2.54	2.325
4000	2.16	2.61	2.385
3500	2.16	2.61	2.385
3000	2.13	2.60	2.365
2500	2.10	2.58	2.340
2000	2.07	2.55	2.310
1500	2.00	2.47	2.235
1000	1.93	2.39	2.160
500	1.82	2.27	2.045
1000	1.86	2.31	2.085
2000	1.99	2.44	2.215
3000	2.09	2.54	2.315
4000	2.17	2.64	2.405
5000	2.25	2.75	2.500
4000	2.23	2.74	2.485
3000	2.17	2.71	2.440
2000	2.08	2.63	2.355
1000	1.94	2.44	2.190
500	1.84	2.34	2.090



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 2.130 D_2 (mm) 2.500

Dc (psi) = 7.11E+05 **Dt = 7.11E+05** psi

5.00E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 4000

ΔD : D_1 (mm) 2.215 D_2 (mm) 2.405

Ec (psi) = 9.23E+05 **Et = 1.03E+06** psi

7.24E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

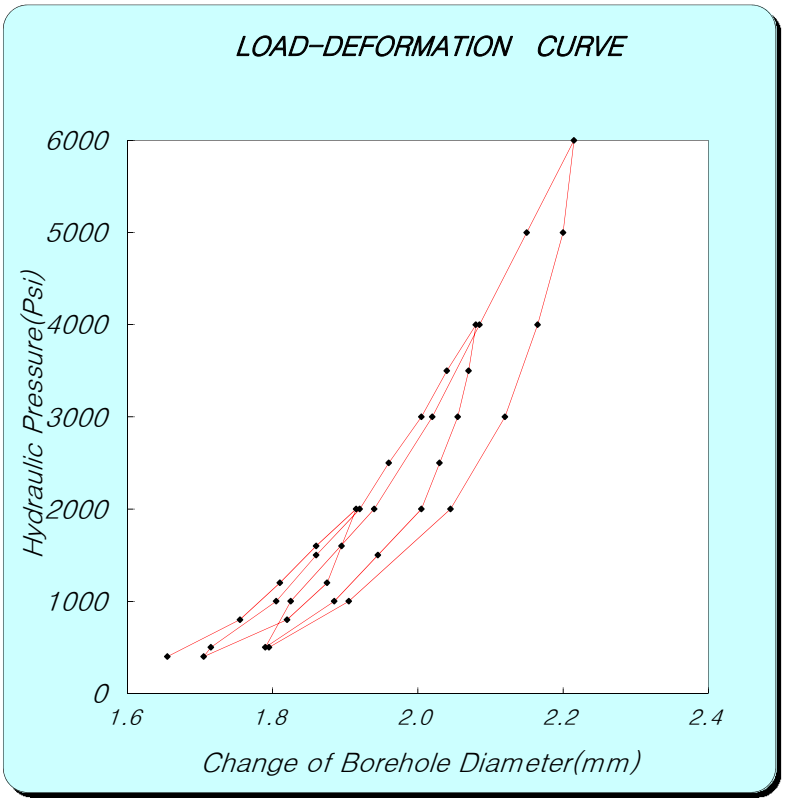
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	36.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/92	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	1.69	1.62	1.655
800	1.79	1.72	1.755
1200	1.83	1.79	1.810
1600	1.89	1.83	1.860
2000	1.95	1.88	1.915
1600	1.92	1.87	1.895
1200	1.89	1.86	1.875
800	1.83	1.81	1.820
400	1.71	1.70	1.705
500	1.72	1.71	1.715
1000	1.83	1.78	1.805
1500	1.89	1.83	1.860
2000	1.96	1.88	1.920
2500	2.00	1.92	1.960
3000	2.04	1.97	2.005
3500	2.08	2.00	2.040
4000	2.12	2.04	2.080
3500	2.10	2.04	2.070
3000	2.08	2.03	2.055
2500	2.04	2.02	2.030
2000	2.01	2.00	2.005
1500	1.95	1.94	1.945
1000	1.90	1.87	1.885
500	1.82	1.76	1.790
1000	1.86	1.79	1.825
2000	1.98	1.90	1.940
3000	2.06	1.98	2.020
4000	2.12	2.05	2.085
5000	2.18	2.12	2.150
6000	2.24	2.19	2.215
5000	2.22	2.18	2.200
4000	2.17	2.16	2.165
3000	2.11	2.13	2.120
2000	2.04	2.05	2.045
1000	1.92	1.89	1.905
500	1.83	1.76	1.795



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.915 D_2 (mm) 2.215

Dc (psi) = 1.17E+06 **Dt = 1.32E+06** psi

9.28E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.940 D_2 (mm) 2.150

Ec (psi) = 1.25E+06 **Et = 1.46E+06** psi

1.02E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

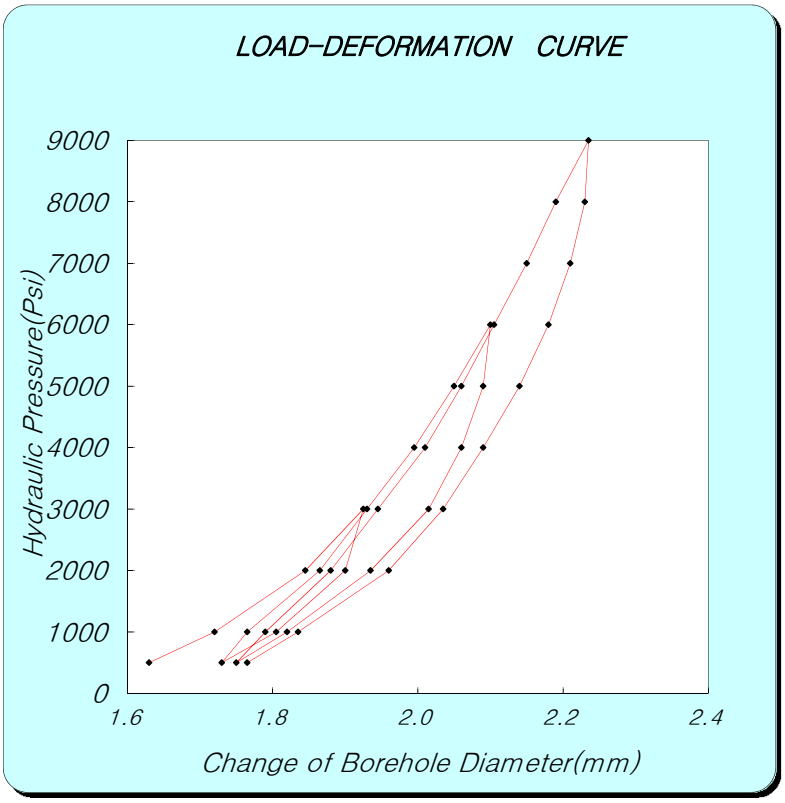
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	44.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.62	1.64	1.630
1000	1.69	1.75	1.720
2000	1.80	1.89	1.845
3000	1.87	1.98	1.925
2000	1.83	1.97	1.900
1000	1.75	1.86	1.805
500	1.69	1.77	1.730
1000	1.72	1.81	1.765
2000	1.81	1.92	1.865
3000	1.87	1.99	1.930
4000	1.93	2.06	1.995
5000	1.98	2.12	2.050
6000	2.03	2.17	2.100
5000	2.01	2.17	2.090
4000	1.98	2.14	2.060
3000	1.92	2.11	2.015
2000	1.85	2.02	1.935
1000	1.76	1.88	1.820
500	1.71	1.79	1.750
1000	1.74	1.84	1.790
2000	1.82	1.94	1.880
3000	1.88	2.01	1.945
4000	1.94	2.08	2.010
5000	1.99	2.13	2.060
6000	2.03	2.18	2.105
7000	2.07	2.23	2.150
8000	2.11	2.27	2.190
9000	2.15	2.32	2.235
8000	2.14	2.32	2.230
7000	2.12	2.30	2.210
6000	2.08	2.28	2.180
5000	2.03	2.25	2.140
4000	1.97	2.21	2.090
3000	1.92	2.15	2.035
2000	1.87	2.05	1.960
1000	1.77	1.90	1.835
500	1.72	1.81	1.765



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	1.925	D_2 (mm)	2.235		
	Dc (psi) =	**1.70E+06**	**Dt =**	**2.45E+06**	psi	
				1.72E+05	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	1.880	D_2 (mm)	2.190		
	Ec (psi) =	**1.70E+06**	**Et =**	**2.45E+06**	psi	
				1.72E+05	kgf/㎠	

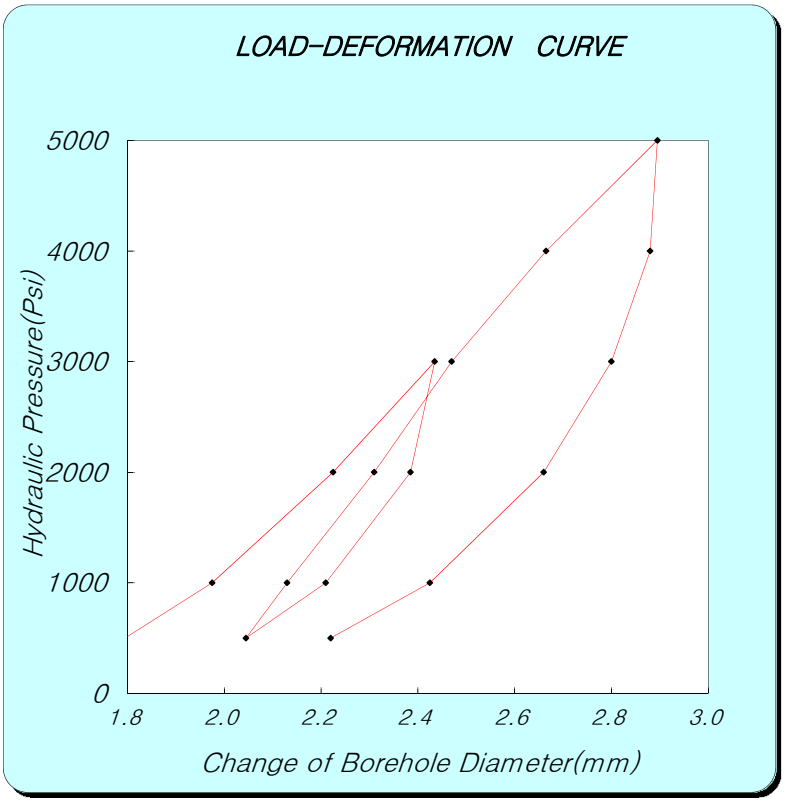
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	52.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/84	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.70	1.89	1.795
1000	1.88	2.07	1.975
2000	2.19	2.26	2.225
3000	2.45	2.42	2.435
2000	2.40	2.37	2.385
1000	2.21	2.21	2.210
500	2.03	2.06	2.045
1000	2.12	2.14	2.130
2000	2.32	2.30	2.310
3000	2.50	2.44	2.470
4000	2.74	2.59	2.665
5000	3.02	2.77	2.895
4000	3.01	2.75	2.880
3000	2.93	2.67	2.800
2000	2.78	2.54	2.660
1000	2.52	2.33	2.425
500	2.28	2.16	2.220



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	5000		
ΔD :	D_1 (mm)	2.435	D_2 (mm)	2.895		
	Dc (psi) =	**3.81E+05**	**Dt =**	**3.81E+05**	psi	
				2.68E+04	kgf/㎠	

ΔP :	P_1 (Psi)	1000	P_2 (Psi)	4000		
ΔD :	D_1 (mm)	2.130	D_2 (mm)	2.665		
	Ec (psi) =	**4.91E+05**	**Et =**	**4.91E+05**	psi	
				3.46E+04	kgf/㎠	

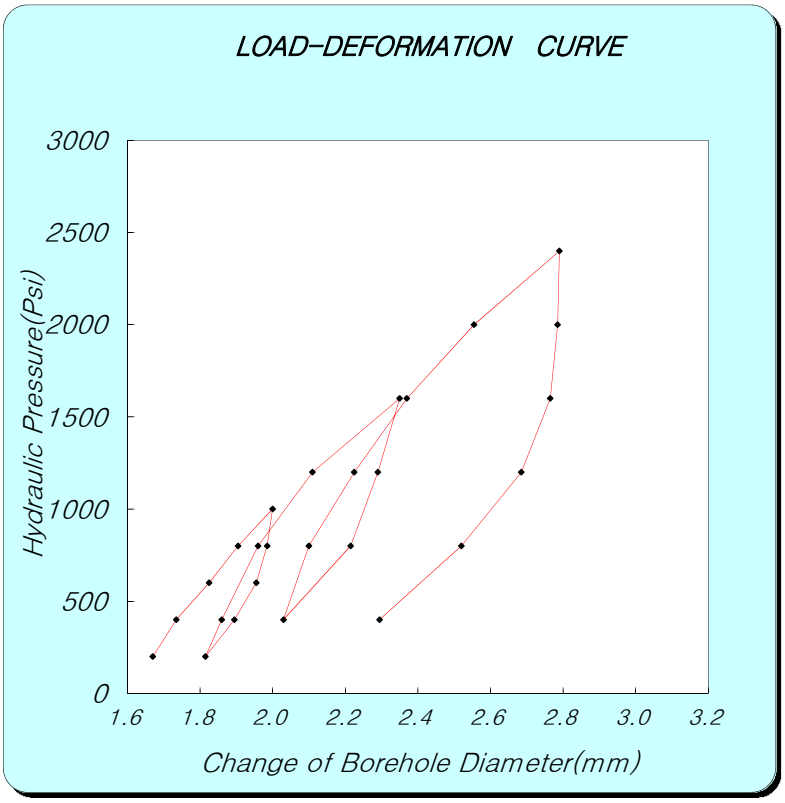
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	59.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/50	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.63	1.71	1.670
400	1.69	1.78	1.735
600	1.77	1.88	1.825
800	1.86	1.95	1.905
1000	1.92	2.08	2.000
800	1.91	2.06	1.985
600	1.89	2.02	1.955
400	1.83	1.96	1.895
200	1.77	1.86	1.815
400	1.82	1.90	1.860
800	1.93	1.99	1.960
1200	2.14	2.08	2.110
1600	2.26	2.44	2.350
1200	2.22	2.36	2.290
800	2.16	2.27	2.215
400	2.02	2.04	2.030
800	2.11	2.09	2.100
1200	2.22	2.23	2.225
1600	2.36	2.38	2.370
2000	2.48	2.63	2.555
2400	2.76	2.82	2.790
2000	2.76	2.81	2.785
1600	2.74	2.79	2.765
1200	2.66	2.71	2.685
800	2.51	2.53	2.520
400	2.31	2.28	2.295



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 2400

ΔD : D_1 (mm) 2.000 D_2 (mm) 2.790

Dc (psi) = 1.55E+05 **Dt = 1.55E+05** psi

1.09E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2000

ΔD : D_1 (mm) 2.100 D_2 (mm) 2.555

Ec (psi) = 2.31E+05 **Et = 2.31E+05** psi

1.63E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

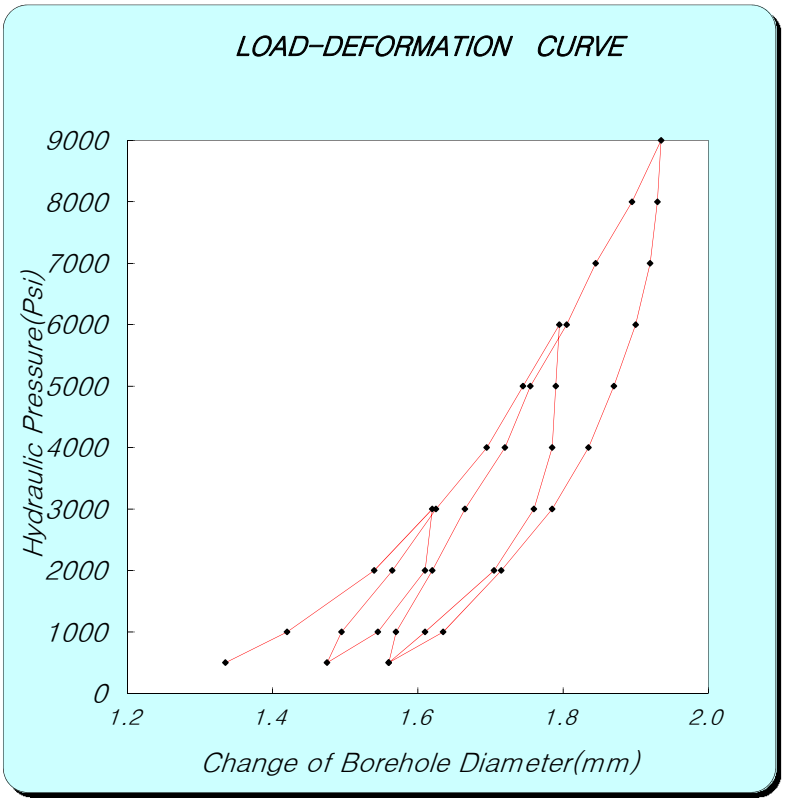
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	68.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/85	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.55	1.12	1.335
1000	1.64	1.20	1.420
2000	1.75	1.33	1.540
3000	1.82	1.42	1.620
2000	1.80	1.42	1.610
1000	1.70	1.39	1.545
500	1.61	1.34	1.475
1000	1.65	1.34	1.495
2000	1.75	1.38	1.565
3000	1.82	1.43	1.625
4000	1.88	1.51	1.695
5000	1.92	1.57	1.745
6000	1.96	1.63	1.795
5000	1.96	1.62	1.790
4000	1.95	1.62	1.785
3000	1.92	1.60	1.760
2000	1.83	1.58	1.705
1000	1.73	1.49	1.610
500	1.69	1.43	1.560
1000	1.70	1.44	1.570
2000	1.78	1.46	1.620
3000	1.84	1.49	1.665
4000	1.90	1.54	1.720
5000	1.93	1.58	1.755
6000	1.97	1.64	1.805
7000	2.00	1.69	1.845
8000	2.05	1.74	1.895
9000	2.09	1.78	1.935
8000	2.09	1.77	1.930
7000	2.08	1.76	1.920
6000	2.06	1.74	1.900
5000	2.03	1.71	1.870
4000	1.99	1.68	1.835
3000	1.94	1.63	1.785
2000	1.90	1.53	1.715
1000	1.83	1.44	1.635
500	1.76	1.36	1.560



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.620 D_2 (mm) 1.935

Dc (psi) = 1.67E+06 **Dt = 2.38E+06** psi

1.67E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.620 D_2 (mm) 1.895

Ec (psi) = 1.91E+06 **Et = 3.06E+06** psi

2.15E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

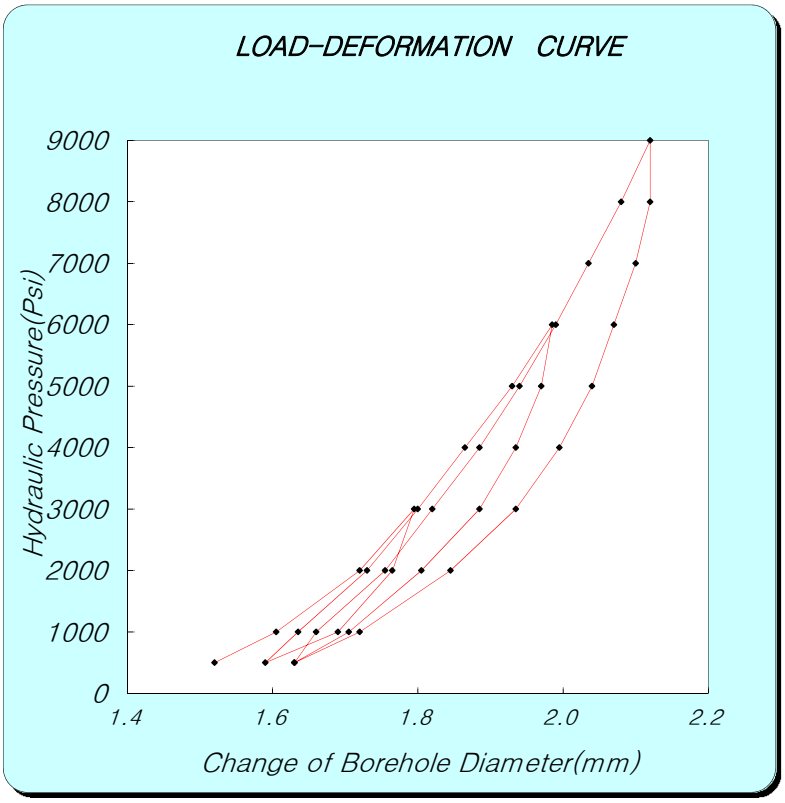
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	76.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/91	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.53	1.51	1.520
1000	1.59	1.62	1.605
2000	1.69	1.75	1.720
3000	1.76	1.83	1.795
2000	1.73	1.80	1.765
1000	1.63	1.75	1.690
500	1.58	1.60	1.590
1000	1.62	1.65	1.635
2000	1.70	1.76	1.730
3000	1.76	1.84	1.800
4000	1.82	1.91	1.865
5000	1.88	1.98	1.930
6000	1.93	2.04	1.985
5000	1.91	2.03	1.970
4000	1.86	2.01	1.935
3000	1.80	1.97	1.885
2000	1.75	1.86	1.805
1000	1.66	1.75	1.705
500	1.61	1.65	1.630
1000	1.64	1.68	1.660
2000	1.72	1.79	1.755
3000	1.78	1.86	1.820
4000	1.84	1.93	1.885
5000	1.89	1.99	1.940
6000	1.93	2.05	1.990
7000	1.97	2.10	2.035
8000	2.01	2.15	2.080
9000	2.04	2.20	2.120
8000	2.04	2.20	2.120
7000	2.02	2.18	2.100
6000	1.99	2.15	2.070
5000	1.95	2.13	2.040
4000	1.90	2.09	1.995
3000	1.84	2.03	1.935
2000	1.77	1.92	1.845
1000	1.68	1.76	1.720
500	1.62	1.64	1.630



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.795 D_2 (mm) 2.120

Dc (psi) = 1.62E+06 **Dt = 2.25E+06** psi

1.58E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.755 D_2 (mm) 2.080

Ec (psi) = 1.62E+06 **Et = 2.25E+06** psi

1.58E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

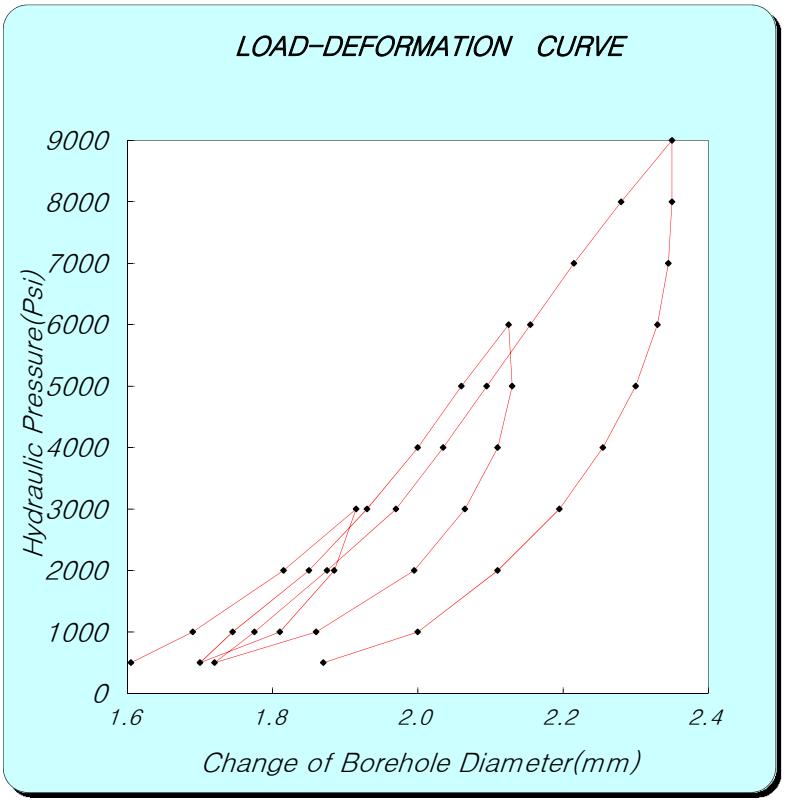
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	84.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/88	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.55	1.66	1.605
1000	1.65	1.73	1.690
2000	1.80	1.83	1.815
3000	1.91	1.92	1.915
2000	1.86	1.91	1.885
1000	1.76	1.86	1.810
500	1.66	1.74	1.700
1000	1.73	1.76	1.745
2000	1.85	1.85	1.850
3000	1.93	1.93	1.930
4000	1.99	2.01	2.000
5000	2.04	2.08	2.060
6000	2.12	2.13	2.125
5000	2.13	2.13	2.130
4000	2.10	2.12	2.110
3000	2.03	2.10	2.065
2000	1.93	2.06	1.995
1000	1.80	1.92	1.860
500	1.68	1.76	1.720
1000	1.76	1.79	1.775
2000	1.88	1.87	1.875
3000	1.98	1.96	1.970
4000	2.04	2.03	2.035
5000	2.10	2.09	2.095
6000	2.16	2.15	2.155
7000	2.21	2.22	2.215
8000	2.29	2.27	2.280
9000	2.37	2.33	2.350
8000	2.37	2.33	2.350
7000	2.36	2.33	2.345
6000	2.34	2.32	2.330
5000	2.31	2.29	2.300
4000	2.25	2.26	2.255
3000	2.18	2.21	2.195
2000	2.08	2.14	2.110
1000	1.96	2.04	2.000
500	1.83	1.91	1.870



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000	
ΔD :	D_1 (mm)	1.915	D_2 (mm)	2.350	
	Dc (psi) =	**1.21E+06**	**Dt =**	**1.38E+06**	psi
				9.73E+04	kgf/㎠

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000	
ΔD :	D_1 (mm)	1.875	D_2 (mm)	2.280	
	Ec (psi) =	**1.30E+06**	**Et =**	**1.54E+06**	psi
				1.08E+05	kgf/㎠

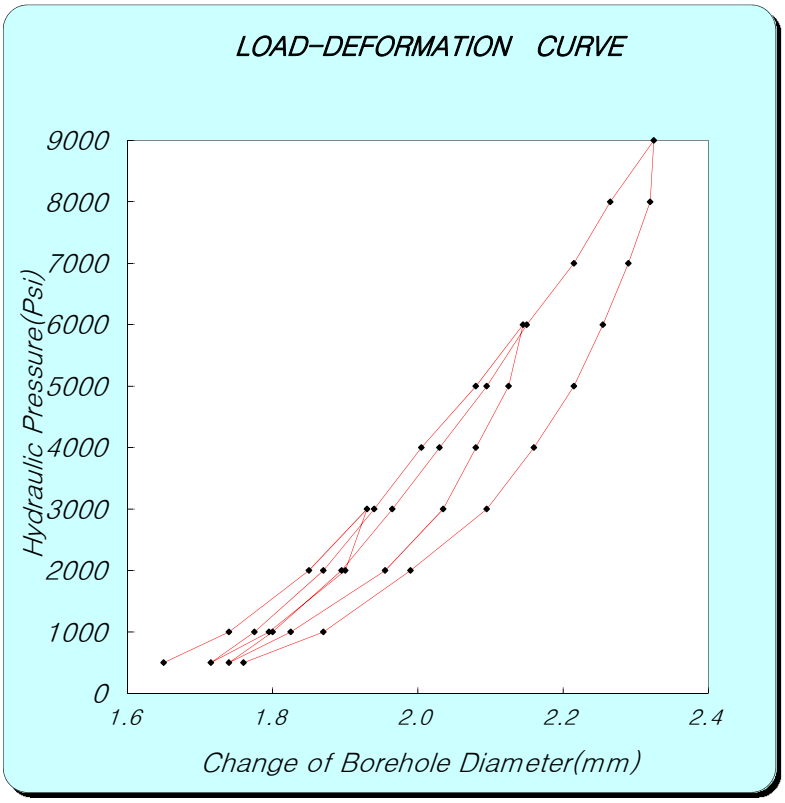
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-1	Rock Name :	GRANITE	Test Date :	2015. 12. 15
Depth :	92.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.9m	TCR/RQD(%) :	100/95	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.58	1.72	1.650
1000	1.66	1.82	1.740
2000	1.77	1.93	1.850
3000	1.85	2.01	1.930
2000	1.81	1.99	1.900
1000	1.72	1.87	1.795
500	1.65	1.78	1.715
1000	1.70	1.85	1.775
2000	1.79	1.95	1.870
3000	1.86	2.02	1.940
4000	1.93	2.08	2.005
5000	2.01	2.15	2.080
6000	2.08	2.21	2.145
5000	2.05	2.20	2.125
4000	1.99	2.17	2.080
3000	1.93	2.14	2.035
2000	1.86	2.05	1.955
1000	1.75	1.90	1.825
500	1.68	1.80	1.740
1000	1.73	1.87	1.800
2000	1.82	1.97	1.895
3000	1.89	2.04	1.965
4000	1.96	2.10	2.030
5000	2.03	2.16	2.095
6000	2.08	2.22	2.150
7000	2.15	2.28	2.215
8000	2.20	2.33	2.265
9000	2.26	2.39	2.325
8000	2.25	2.39	2.320
7000	2.22	2.36	2.290
6000	2.17	2.34	2.255
5000	2.12	2.31	2.215
4000	2.05	2.27	2.160
3000	1.99	2.20	2.095
2000	1.90	2.08	1.990
1000	1.80	1.94	1.870
500	1.71	1.81	1.760



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	1.930	D_2 (mm)	2.325		
	Dc (psi) =	**1.33E+06**	**Dt =**	**1.60E+06**	psi	
				1.13E+05	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	1.895	D_2 (mm)	2.265		
	Ec (psi) =	**1.42E+06**	**Et =**	**1.79E+06**	psi	
				1.26E+05	kgf/㎠	

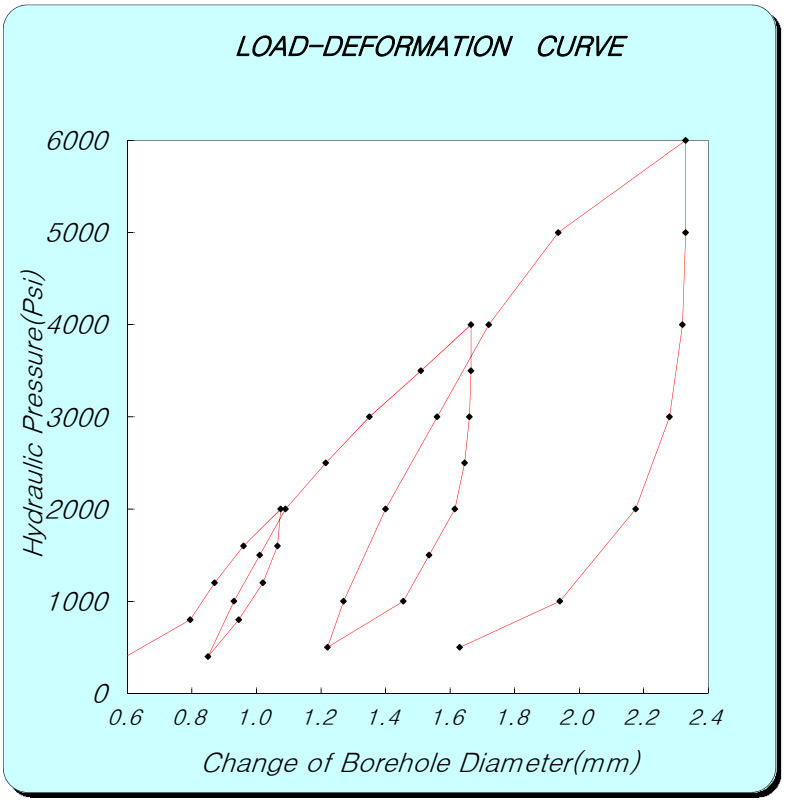
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	12.0m	Rock Weathering :	HW~MW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/33	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.53	0.66	0.595
800	0.68	0.91	0.795
1200	0.77	0.97	0.870
1600	0.87	1.05	0.960
2000	0.99	1.16	1.075
1600	0.98	1.15	1.065
1200	0.92	1.12	1.020
800	0.85	1.04	0.945
400	0.76	0.94	0.850
1000	0.86	1.00	0.930
1500	0.93	1.09	1.010
2000	1.02	1.16	1.090
2500	1.21	1.22	1.215
3000	1.40	1.30	1.350
3500	1.58	1.44	1.510
4000	1.80	1.53	1.665
3500	1.80	1.53	1.665
3000	1.80	1.52	1.660
2500	1.78	1.51	1.645
2000	1.74	1.49	1.615
1500	1.62	1.45	1.535
1000	1.51	1.40	1.455
500	1.23	1.21	1.220
1000	1.32	1.22	1.270
2000	1.52	1.28	1.400
3000	1.70	1.42	1.560
4000	1.87	1.57	1.720
5000	2.11	1.76	1.935
6000	2.52	2.14	2.330
5000	2.52	2.14	2.330
4000	2.52	2.12	2.320
3000	2.48	2.08	2.280
2000	2.37	1.98	2.175
1000	2.09	1.79	1.940
500	1.69	1.57	1.630



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	5000	
ΔD :	D_1 (mm)	1.075	D_2 (mm)	1.935	
	Dc (psi) =	**3.06E+05**	**Dt =**	**3.06E+05**	psi
				2.15E+04	kgf/㎠

ΔP :	P_1 (Psi)	1000	P_2 (Psi)	4000	
ΔD :	D_1 (mm)	1.270	D_2 (mm)	1.720	
	Ec (psi) =	**5.84E+05**	**Et =**	**5.84E+05**	psi
				4.11E+04	kgf/㎠

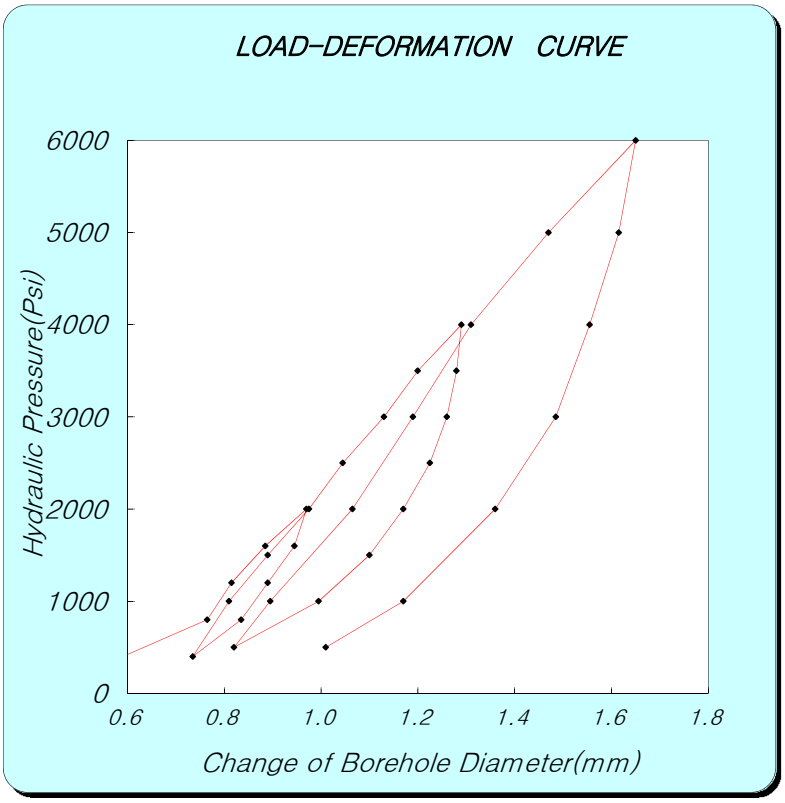
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	20.0m	Rock Weathering :	MW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/92	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.54	0.64	0.590
800	0.69	0.84	0.765
1200	0.73	0.90	0.815
1600	0.80	0.97	0.885
2000	0.86	1.08	0.970
1600	0.83	1.06	0.945
1200	0.77	1.01	0.890
800	0.69	0.98	0.835
400	0.62	0.85	0.735
1000	0.71	0.91	0.810
1500	0.78	1.00	0.890
2000	0.86	1.09	0.975
2500	0.93	1.16	1.045
3000	1.00	1.26	1.130
3500	1.05	1.35	1.200
4000	1.16	1.42	1.290
3500	1.15	1.41	1.280
3000	1.12	1.40	1.260
2500	1.08	1.37	1.225
2000	0.99	1.35	1.170
1500	0.92	1.28	1.100
1000	0.84	1.15	0.995
500	0.68	0.96	0.820
1000	0.77	1.02	0.895
2000	0.93	1.20	1.065
3000	1.05	1.33	1.190
4000	1.19	1.43	1.310
5000	1.35	1.59	1.470
6000	1.55	1.75	1.650
5000	1.48	1.75	1.615
4000	1.40	1.71	1.555
3000	1.30	1.67	1.485
2000	1.19	1.53	1.360
1000	1.02	1.32	1.170
500	0.89	1.13	1.010



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	6000		
ΔD :	D_1 (mm)	0.970	D_2 (mm)	1.650		
	Dc (psi) =	**5.16E+05**	**Dt =**	**5.16E+05**	psi	
				3.62E+04	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	5000		
ΔD :	D_1 (mm)	1.065	D_2 (mm)	1.470		
	Ec (psi) =	**6.49E+05**	**Et =**	**6.49E+05**	psi	
				4.56E+04	kgf/㎠	

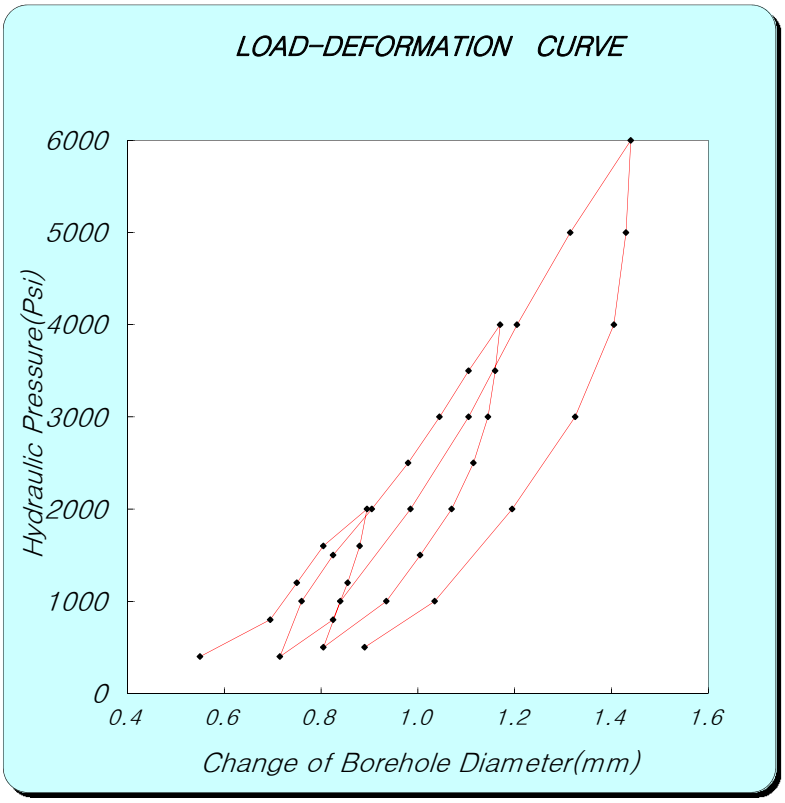
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	28.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/90	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.49	0.61	0.550
800	0.60	0.79	0.695
1200	0.64	0.86	0.750
1600	0.68	0.93	0.805
2000	0.75	1.04	0.895
1600	0.72	1.04	0.880
1200	0.69	1.02	0.855
800	0.66	0.99	0.825
400	0.57	0.86	0.715
1000	0.63	0.89	0.760
1500	0.69	0.96	0.825
2000	0.75	1.06	0.905
2500	0.81	1.15	0.980
3000	0.86	1.23	1.045
3500	0.91	1.30	1.105
4000	0.97	1.37	1.170
3500	0.95	1.37	1.160
3000	0.93	1.36	1.145
2500	0.90	1.33	1.115
2000	0.85	1.29	1.070
1500	0.80	1.21	1.005
1000	0.74	1.13	0.935
500	0.64	0.97	0.805
1000	0.67	1.01	0.840
2000	0.79	1.18	0.985
3000	0.90	1.31	1.105
4000	1.01	1.40	1.205
5000	1.11	1.52	1.315
6000	1.22	1.66	1.440
5000	1.21	1.65	1.430
4000	1.18	1.63	1.405
3000	1.10	1.55	1.325
2000	0.98	1.41	1.195
1000	0.82	1.25	1.035
500	0.70	1.08	0.890



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.895 D_2 (mm) 1.440

Dc (psi) = 6.43E+05 **Dt = 6.43E+05** psi

4.52E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.985 D_2 (mm) 1.315

Ec (psi) = 7.97E+05 **Et = 7.97E+05** psi

5.60E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

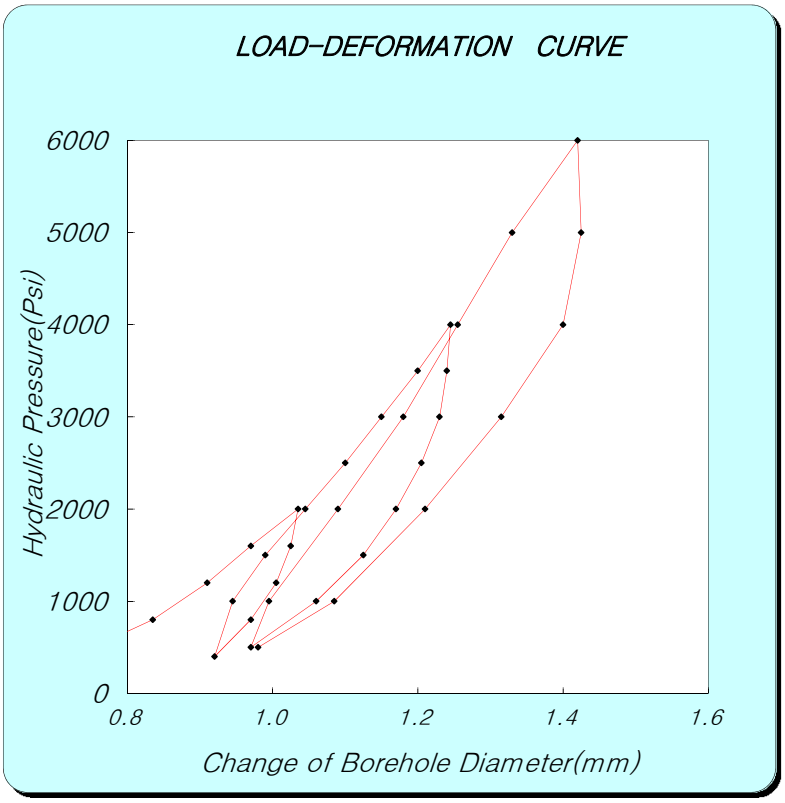
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	36.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/98	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.66	0.79	0.725
800	0.76	0.91	0.835
1200	0.83	0.99	0.910
1600	0.88	1.06	0.970
2000	0.94	1.13	1.035
1600	0.93	1.12	1.025
1200	0.91	1.10	1.005
800	0.88	1.06	0.970
400	0.82	1.02	0.920
1000	0.86	1.03	0.945
1500	0.90	1.08	0.990
2000	0.94	1.15	1.045
2500	0.99	1.21	1.100
3000	1.04	1.26	1.150
3500	1.10	1.30	1.200
4000	1.14	1.35	1.245
3500	1.14	1.34	1.240
3000	1.12	1.34	1.230
2500	1.09	1.32	1.205
2000	1.05	1.29	1.170
1500	1.01	1.24	1.125
1000	0.94	1.18	1.060
500	0.86	1.08	0.970
1000	0.89	1.10	0.995
2000	0.99	1.19	1.090
3000	1.08	1.28	1.180
4000	1.15	1.36	1.255
5000	1.22	1.44	1.330
6000	1.30	1.54	1.420
5000	1.31	1.54	1.425
4000	1.28	1.52	1.400
3000	1.18	1.45	1.315
2000	1.08	1.34	1.210
1000	0.96	1.21	1.085
500	0.87	1.09	0.980



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.035 D_2 (mm) 1.420

Dc (psi) = 9.11E+05 **Dt = 1.02E+06** psi

7.18E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.090 D_2 (mm) 1.330

Ec (psi) = 1.10E+06 **Et = 1.21E+06** psi

8.53E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

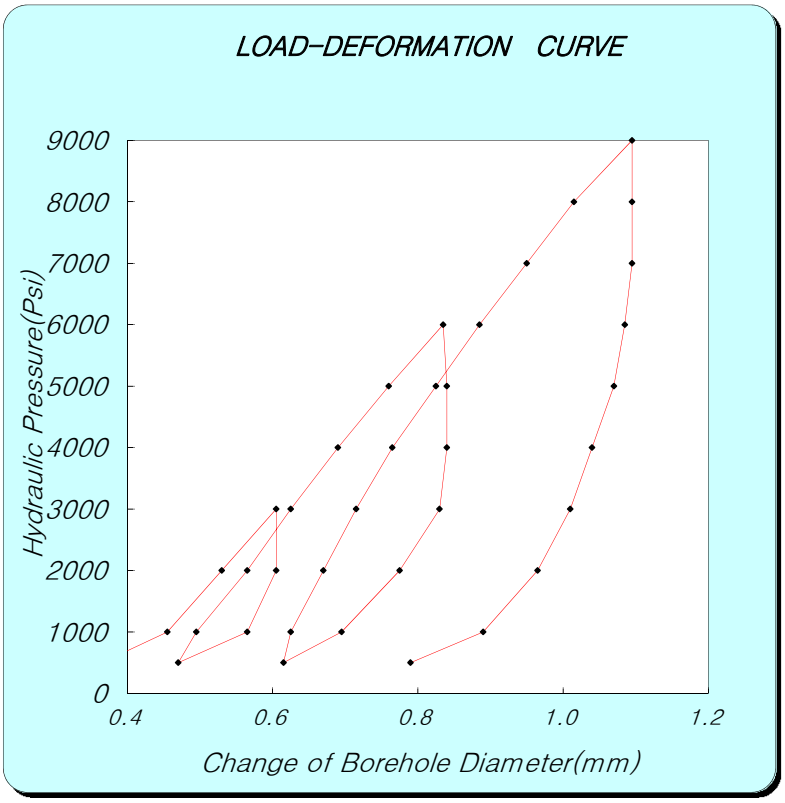
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	44.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.57	0.16	0.365
1000	0.68	0.23	0.455
2000	0.80	0.26	0.530
3000	0.86	0.35	0.605
2000	0.86	0.35	0.605
1000	0.82	0.31	0.565
500	0.73	0.21	0.470
1000	0.73	0.26	0.495
2000	0.81	0.32	0.565
3000	0.87	0.38	0.625
4000	0.91	0.47	0.690
5000	0.95	0.57	0.760
6000	0.98	0.69	0.835
5000	0.99	0.69	0.840
4000	0.99	0.69	0.840
3000	0.99	0.67	0.830
2000	0.95	0.60	0.775
1000	0.84	0.55	0.695
500	0.77	0.46	0.615
1000	0.77	0.48	0.625
2000	0.83	0.51	0.670
3000	0.88	0.55	0.715
4000	0.92	0.61	0.765
5000	0.96	0.69	0.825
6000	1.00	0.77	0.885
7000	1.02	0.88	0.950
8000	1.05	0.98	1.015
9000	1.12	1.07	1.095
8000	1.12	1.07	1.095
7000	1.12	1.07	1.095
6000	1.11	1.06	1.085
5000	1.10	1.04	1.070
4000	1.09	0.99	1.040
3000	1.06	0.96	1.010
2000	1.01	0.92	0.965
1000	0.87	0.91	0.890
500	0.81	0.77	0.790



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	0.605	D_2 (mm)	1.095		
	Dc (psi) =	**1.07E+06**	**Dt =**	**1.18E+06**	psi	
				8.33E+04	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	0.670	D_2 (mm)	1.015		
	Ec (psi) =	**1.52E+06**	**Et =**	**2.02E+06**	psi	
				1.42E+05	kgf/㎠	

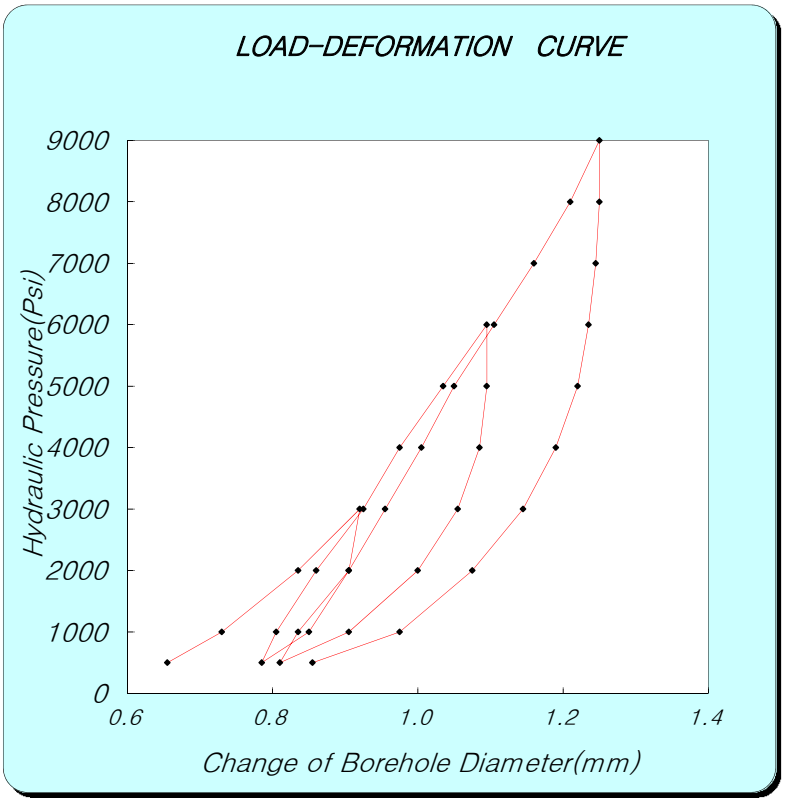
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	52.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/97	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.65	0.66	0.655
1000	0.74	0.72	0.730
2000	0.85	0.82	0.835
3000	0.93	0.91	0.920
2000	0.90	0.91	0.905
1000	0.81	0.89	0.850
500	0.73	0.84	0.785
1000	0.76	0.85	0.805
2000	0.83	0.89	0.860
3000	0.91	0.94	0.925
4000	0.97	0.98	0.975
5000	1.05	1.02	1.035
6000	1.10	1.09	1.095
5000	1.10	1.09	1.095
4000	1.09	1.08	1.085
3000	1.03	1.08	1.055
2000	0.92	1.08	1.000
1000	0.82	0.99	0.905
500	0.75	0.87	0.810
1000	0.79	0.88	0.835
2000	0.88	0.93	0.905
3000	0.94	0.97	0.955
4000	1.01	1.00	1.005
5000	1.04	1.06	1.050
6000	1.10	1.11	1.105
7000	1.17	1.15	1.160
8000	1.23	1.19	1.210
9000	1.27	1.23	1.250
8000	1.27	1.23	1.250
7000	1.26	1.23	1.245
6000	1.25	1.22	1.235
5000	1.23	1.21	1.220
4000	1.19	1.19	1.190
3000	1.12	1.17	1.145
2000	1.03	1.12	1.075
1000	0.91	1.04	0.975
500	0.83	0.88	0.855



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	0.920	D_2 (mm)	1.250		
	Dc (psi) =	**1.59E+06**	**Dt =**	**2.19E+06**	psi	
				1.54E+05	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	0.905	D_2 (mm)	1.210		
	Ec (psi) =	**1.72E+06**	**Et =**	**2.52E+06**	psi	
				1.78E+05	kgf/㎠	

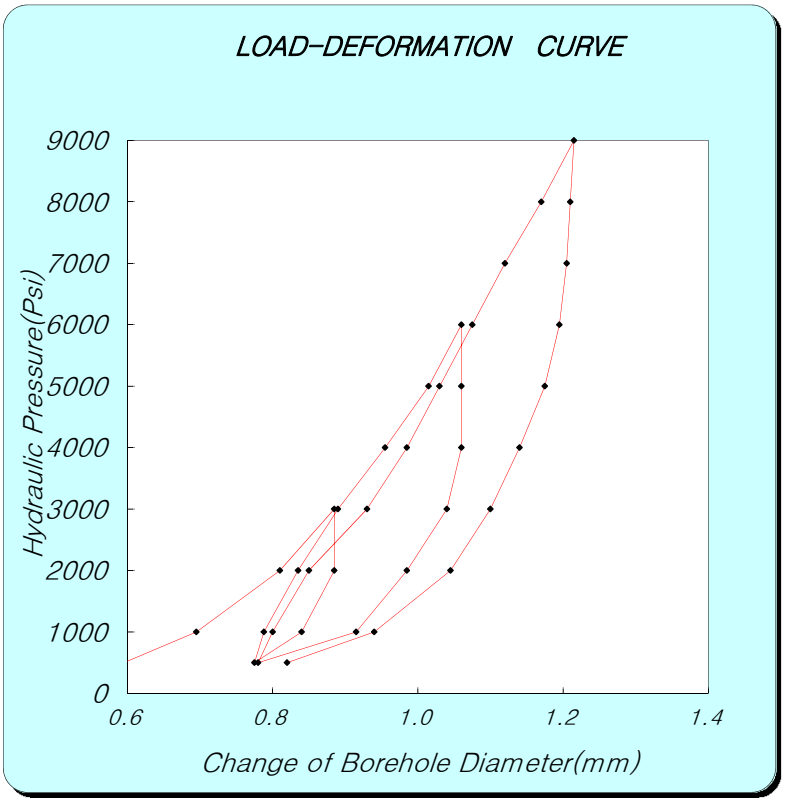
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	60.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/97	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.54	0.65	0.595
1000	0.62	0.77	0.695
2000	0.72	0.90	0.810
3000	0.78	0.99	0.885
2000	0.78	0.99	0.885
1000	0.71	0.97	0.840
500	0.64	0.91	0.775
1000	0.66	0.92	0.788
2000	0.72	0.95	0.835
3000	0.78	1.00	0.890
4000	0.84	1.07	0.955
5000	0.89	1.14	1.015
6000	0.93	1.19	1.060
5000	0.93	1.19	1.060
4000	0.93	1.19	1.060
3000	0.90	1.18	1.040
2000	0.86	1.11	0.985
1000	0.81	1.02	0.915
500	0.68	0.88	0.780
1000	0.70	0.90	0.800
2000	0.74	0.96	0.850
3000	0.81	1.05	0.930
4000	0.86	1.11	0.985
5000	0.90	1.16	1.030
6000	0.94	1.21	1.075
7000	0.98	1.26	1.120
8000	1.02	1.32	1.170
9000	1.06	1.37	1.215
8000	1.06	1.36	1.210
7000	1.06	1.35	1.205
6000	1.05	1.34	1.195
5000	1.02	1.33	1.175
4000	0.99	1.29	1.140
3000	0.93	1.27	1.100
2000	0.86	1.23	1.045
1000	0.77	1.11	0.940
500	0.68	0.96	0.820



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	0.885	D_2 (mm)	1.215		
	Dc (psi) =	**1.59E+06**	**Dt =**	**2.19E+06**	psi	
				1.54E+05	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	0.850	D_2 (mm)	1.170		
	Ec (psi) =	**1.64E+06**	**Et =**	**2.31E+06**	psi	
				1.63E+05	kgf/㎠	

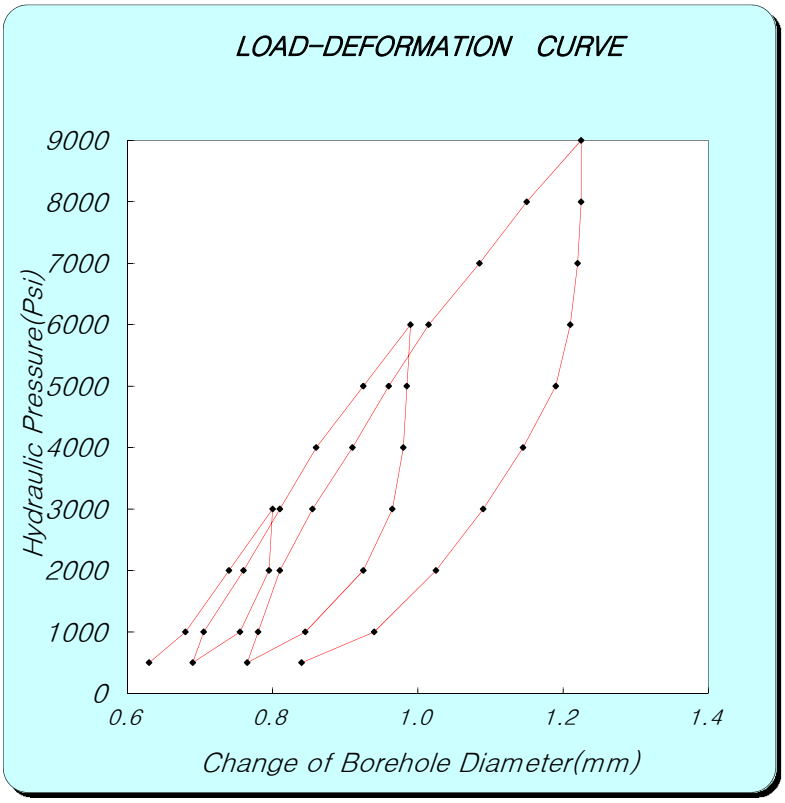
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	68.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	90/98	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.52	0.74	0.630
1000	0.58	0.78	0.680
2000	0.63	0.85	0.740
3000	0.68	0.92	0.800
2000	0.67	0.92	0.795
1000	0.62	0.89	0.755
500	0.56	0.82	0.690
1000	0.58	0.83	0.705
2000	0.61	0.91	0.760
3000	0.65	0.97	0.810
4000	0.71	1.01	0.860
5000	0.77	1.08	0.925
6000	0.84	1.14	0.990
5000	0.83	1.14	0.985
4000	0.83	1.13	0.980
3000	0.82	1.11	0.965
2000	0.80	1.05	0.925
1000	0.75	0.94	0.845
500	0.67	0.86	0.765
1000	0.68	0.88	0.780
2000	0.71	0.91	0.810
3000	0.77	0.94	0.855
4000	0.84	0.98	0.910
5000	0.92	1.00	0.960
6000	1.00	1.03	1.015
7000	1.09	1.08	1.085
8000	1.17	1.13	1.150
9000	1.26	1.19	1.225
8000	1.26	1.19	1.225
7000	1.26	1.18	1.220
6000	1.25	1.17	1.210
5000	1.22	1.16	1.190
4000	1.16	1.13	1.145
3000	1.09	1.09	1.090
2000	1.01	1.04	1.025
1000	0.91	0.97	0.940
500	0.79	0.89	0.840



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.800 D_2 (mm) 1.225

Dc (psi) = 1.24E+06 **Dt = 1.43E+06** psi

1.01E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.810 D_2 (mm) 1.150

Ec (psi) = 1.55E+06 **Et = 2.07E+06** psi

1.46E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

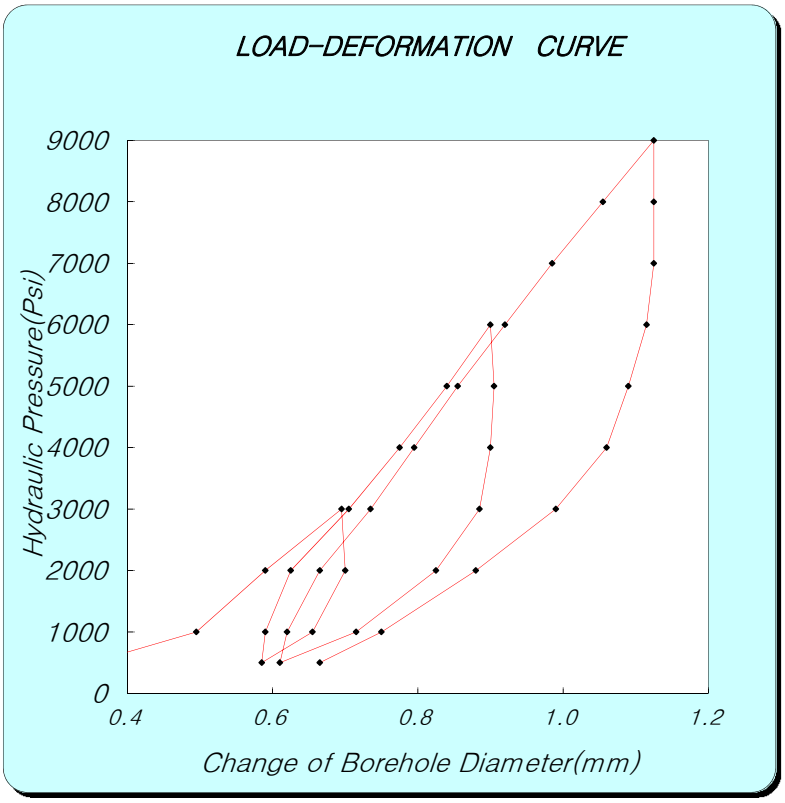
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	76.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.12	0.58	0.350
1000	0.35	0.64	0.495
2000	0.49	0.69	0.590
3000	0.62	0.77	0.695
2000	0.63	0.77	0.700
1000	0.57	0.74	0.655
500	0.49	0.68	0.585
1000	0.49	0.69	0.590
2000	0.52	0.73	0.625
3000	0.63	0.78	0.705
4000	0.71	0.84	0.775
5000	0.76	0.92	0.840
6000	0.82	0.98	0.900
5000	0.83	0.98	0.905
4000	0.83	0.97	0.900
3000	0.81	0.96	0.885
2000	0.73	0.92	0.825
1000	0.61	0.82	0.715
500	0.49	0.73	0.610
1000	0.50	0.74	0.620
2000	0.56	0.77	0.665
3000	0.64	0.83	0.735
4000	0.70	0.89	0.795
5000	0.77	0.94	0.855
6000	0.84	1.00	0.920
7000	0.91	1.06	0.985
8000	0.99	1.12	1.055
9000	1.07	1.18	1.125
8000	1.08	1.17	1.125
7000	1.08	1.17	1.125
6000	1.07	1.16	1.115
5000	1.04	1.14	1.090
4000	1.00	1.12	1.060
3000	0.90	1.08	0.990
2000	0.76	1.00	0.880
1000	0.62	0.88	0.750
500	0.55	0.78	0.665



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.695 D_2 (mm) 1.125

Dc (psi) = 1.22E+06 **Dt = 1.41E+06** psi

9.89E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.665 D_2 (mm) 1.055

Ec (psi) = 1.35E+06 **Et = 1.64E+06** psi

1.15E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

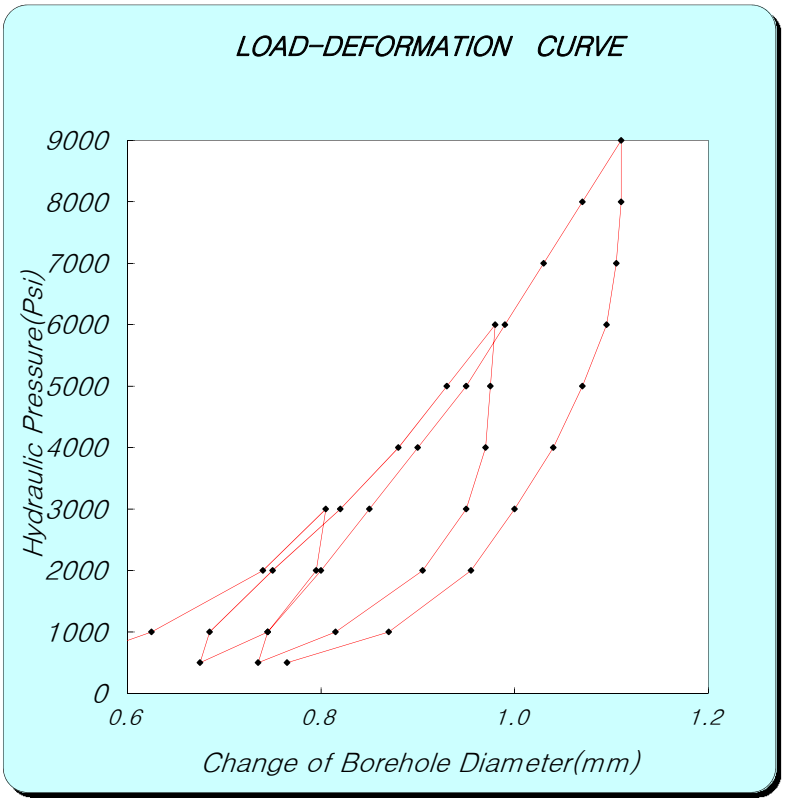
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	84.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.58	0.49	0.535
1000	0.66	0.59	0.625
2000	0.75	0.73	0.740
3000	0.81	0.80	0.805
2000	0.79	0.80	0.795
1000	0.72	0.77	0.745
500	0.65	0.70	0.675
1000	0.67	0.70	0.685
2000	0.75	0.75	0.750
3000	0.82	0.82	0.820
4000	0.87	0.89	0.880
5000	0.91	0.95	0.930
6000	0.95	1.01	0.980
5000	0.95	1.00	0.975
4000	0.94	1.00	0.970
3000	0.90	1.00	0.950
2000	0.84	0.97	0.905
1000	0.75	0.88	0.815
500	0.69	0.78	0.735
1000	0.71	0.78	0.745
2000	0.78	0.82	0.800
3000	0.84	0.86	0.850
4000	0.89	0.91	0.900
5000	0.93	0.97	0.950
6000	0.97	1.01	0.990
7000	1.00	1.06	1.030
8000	1.03	1.11	1.070
9000	1.06	1.16	1.110
8000	1.06	1.16	1.110
7000	1.05	1.16	1.105
6000	1.04	1.15	1.095
5000	1.03	1.11	1.070
4000	0.99	1.09	1.040
3000	0.94	1.06	1.000
2000	0.88	1.03	0.955
1000	0.82	0.92	0.870
500	0.73	0.80	0.765



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	0.805	D_2 (mm)	1.110		
	Dc (psi) =	**1.72E+06**	**Dt =**	**2.52E+06**	psi	
				1.78E+05	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	0.800	D_2 (mm)	1.070		
	Ec (psi) =	**1.95E+06**	**Et =**	**3.17E+06**	psi	
				2.23E+05	kgf/㎠	

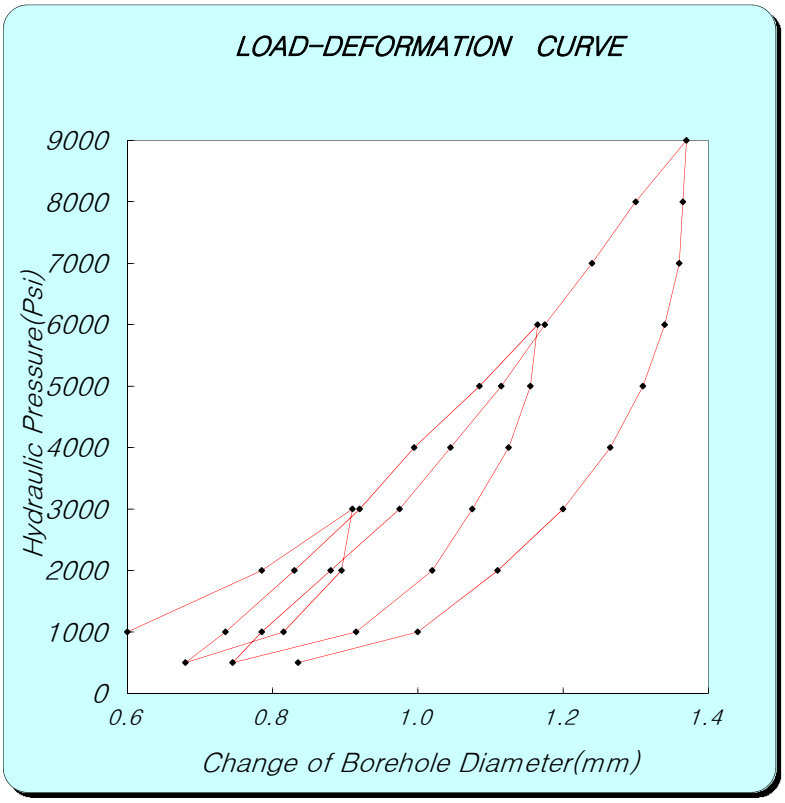
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-4	Rock Name :	GRANITE	Test Date :	2016. 1. 12
Depth :	92.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.6m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.54	0.40	0.470
1000	0.67	0.53	0.600
2000	0.84	0.73	0.785
3000	0.94	0.88	0.910
2000	0.91	0.88	0.895
1000	0.79	0.84	0.815
500	0.65	0.71	0.680
1000	0.73	0.74	0.735
2000	0.86	0.80	0.830
3000	0.95	0.89	0.920
4000	1.02	0.97	0.995
5000	1.09	1.08	1.085
6000	1.17	1.16	1.165
5000	1.16	1.15	1.155
4000	1.10	1.15	1.125
3000	1.03	1.12	1.075
2000	0.96	1.08	1.020
1000	0.83	1.00	0.915
500	0.68	0.81	0.745
1000	0.74	0.83	0.785
2000	0.87	0.89	0.880
3000	0.97	0.98	0.975
4000	1.04	1.05	1.045
5000	1.11	1.12	1.115
6000	1.18	1.17	1.175
7000	1.25	1.23	1.240
8000	1.31	1.29	1.300
9000	1.37	1.37	1.370
8000	1.36	1.37	1.365
7000	1.35	1.37	1.360
6000	1.32	1.36	1.340
5000	1.28	1.34	1.310
4000	1.22	1.31	1.265
3000	1.13	1.27	1.200
2000	1.00	1.22	1.110
1000	0.88	1.12	1.000
500	0.71	0.96	0.835



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	0.910	D_2 (mm)	1.370		
	Dc (psi) =	**1.14E+06**	**Dt =**	**1.28E+06**	psi	
				9.01E+04	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	0.880	D_2 (mm)	1.300		
	Ec (psi) =	**1.25E+06**	**Et =**	**1.46E+06**	psi	
				1.02E+05	kgf/㎠	

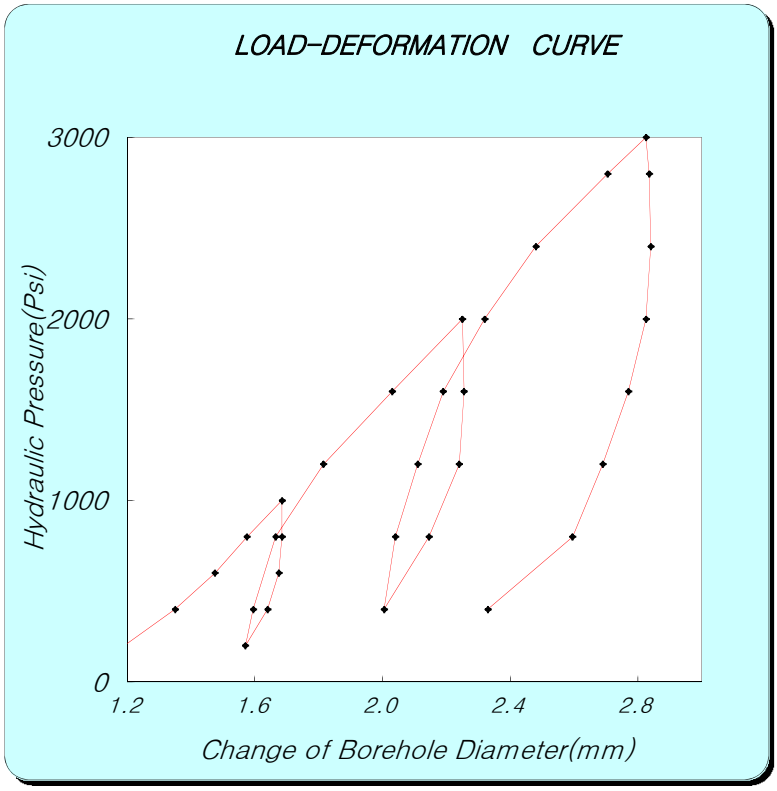
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	12.0m	Rock Class :	100/53	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	HW	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.45	0.93	1.190
400	1.57	1.13	1.350
600	1.70	1.25	1.475
800	1.81	1.34	1.575
1000	1.92	1.45	1.685
800	1.92	1.45	1.685
600	1.92	1.43	1.675
400	1.91	1.37	1.640
200	1.87	1.27	1.570
400	1.88	1.31	1.595
800	1.92	1.41	1.665
1200	2.05	1.58	1.815
1600	2.27	1.79	2.030
2000	2.48	2.02	2.250
1600	2.49	2.02	2.255
1200	2.48	2.00	2.240
800	2.43	1.86	2.145
400	2.33	1.68	2.005
800	2.34	1.74	2.040
1200	2.38	1.84	2.110
1600	2.44	1.94	2.190
2000	2.55	2.09	2.320
2400	2.71	2.25	2.480
2800	2.94	2.47	2.705
3000	3.07	2.58	2.825
2800	3.08	2.59	2.835
2400	3.08	2.60	2.840
2000	3.07	2.58	2.825
1600	3.04	2.50	2.770
1200	2.99	2.39	2.690
800	2.88	2.31	2.595
400	2.68	1.98	2.330



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3000

ΔD : D_1 (mm) 1.685 D_2 (mm) 2.825

Dc (psi) = 1.54E+05 **Dt = 1.54E+05** psi

1.08E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2400

ΔD : D_1 (mm) 2.040 D_2 (mm) 2.480

Ec (psi) = 3.19E+05 **Et = 3.19E+05** psi

2.24E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

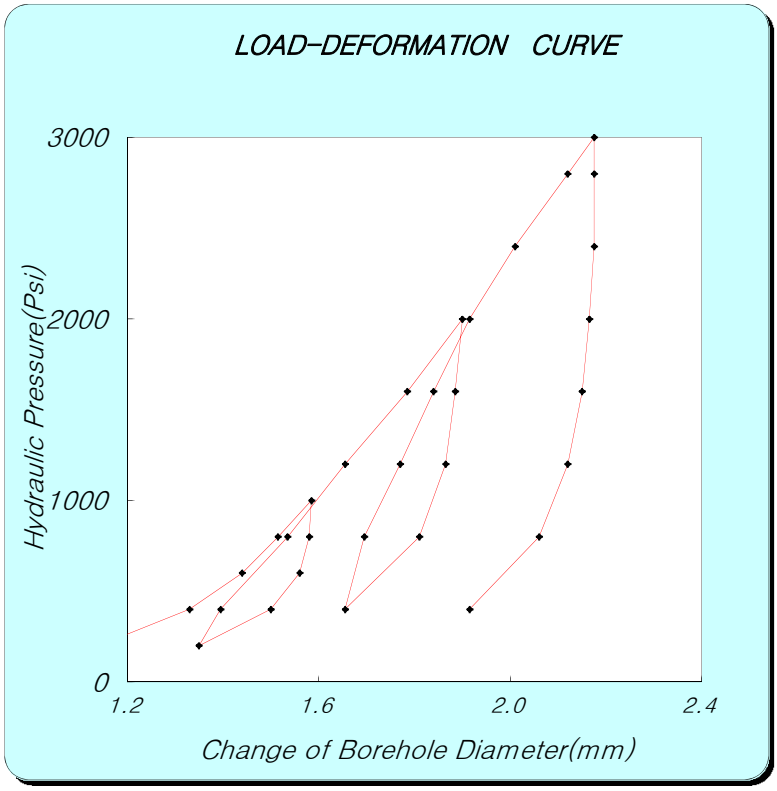
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	20.0m	Rock Class :	97/54	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	HW	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.64	0.64	1.140
400	1.73	0.93	1.330
600	1.79	1.09	1.440
800	1.82	1.21	1.515
1000	1.85	1.32	1.585
800	1.85	1.31	1.580
600	1.84	1.28	1.560
400	1.82	1.18	1.500
200	1.75	0.95	1.350
400	1.76	1.03	1.395
800	1.80	1.27	1.535
1200	1.83	1.48	1.655
1600	1.95	1.62	1.785
2000	2.00	1.80	1.900
1600	2.00	1.77	1.885
1200	1.99	1.74	1.865
800	1.97	1.65	1.810
400	1.91	1.40	1.655
800	1.93	1.46	1.695
1200	1.95	1.59	1.770
1600	1.98	1.70	1.840
2000	2.02	1.81	1.915
2400	2.07	1.95	2.010
2800	2.13	2.11	2.120
3000	2.16	2.19	2.175
2800	2.16	2.19	2.175
2400	2.16	2.19	2.175
2000	2.15	2.18	2.165
1600	2.14	2.16	2.150
1200	2.12	2.12	2.120
800	2.06	2.06	2.060
400	2.04	1.79	1.915



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3000

ΔD : D_1 (mm) 1.585 D_2 (mm) 2.175

Dc (psi) = 2.97E+05 **Dt = 2.97E+05** psi

2.09E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2400

ΔD : D_1 (mm) 1.695 D_2 (mm) 2.010

Ec (psi) = 4.45E+05 **Et = 4.45E+05** psi

3.13E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

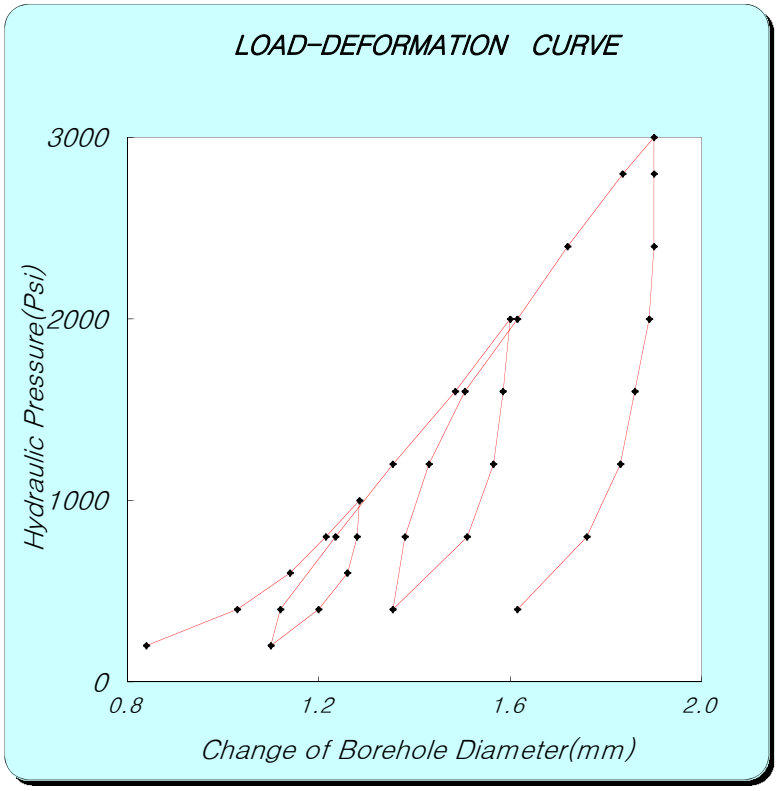
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	28.0m	Rock Class :	100/59	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	MW	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.34	0.34	0.840
400	1.43	0.63	1.030
600	1.49	0.79	1.140
800	1.52	0.91	1.215
1000	1.55	1.02	1.285
800	1.55	1.01	1.280
600	1.54	0.98	1.260
400	1.52	0.88	1.200
200	1.45	0.75	1.100
400	1.46	0.78	1.120
800	1.50	0.97	1.235
1200	1.53	1.18	1.355
1600	1.65	1.32	1.485
2000	1.70	1.50	1.600
1600	1.70	1.47	1.585
1200	1.69	1.44	1.565
800	1.67	1.35	1.510
400	1.61	1.10	1.355
800	1.62	1.14	1.380
1200	1.65	1.21	1.430
1600	1.68	1.33	1.505
2000	1.72	1.51	1.615
2400	1.77	1.67	1.720
2800	1.83	1.84	1.835
3000	1.86	1.94	1.900
2800	1.86	1.94	1.900
2400	1.86	1.94	1.900
2000	1.85	1.93	1.890
1600	1.84	1.88	1.860
1200	1.82	1.84	1.830
800	1.76	1.76	1.760
400	1.74	1.49	1.615



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3000

ΔD : D_1 (mm) 1.285 D_2 (mm) 1.900

Dc (psi) = 2.85E+05 **Dt = 2.85E+05** psi

2.00E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2400

ΔD : D_1 (mm) 1.380 D_2 (mm) 1.720

Ec (psi) = 4.12E+05 **Et = 4.12E+05** psi

2.90E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

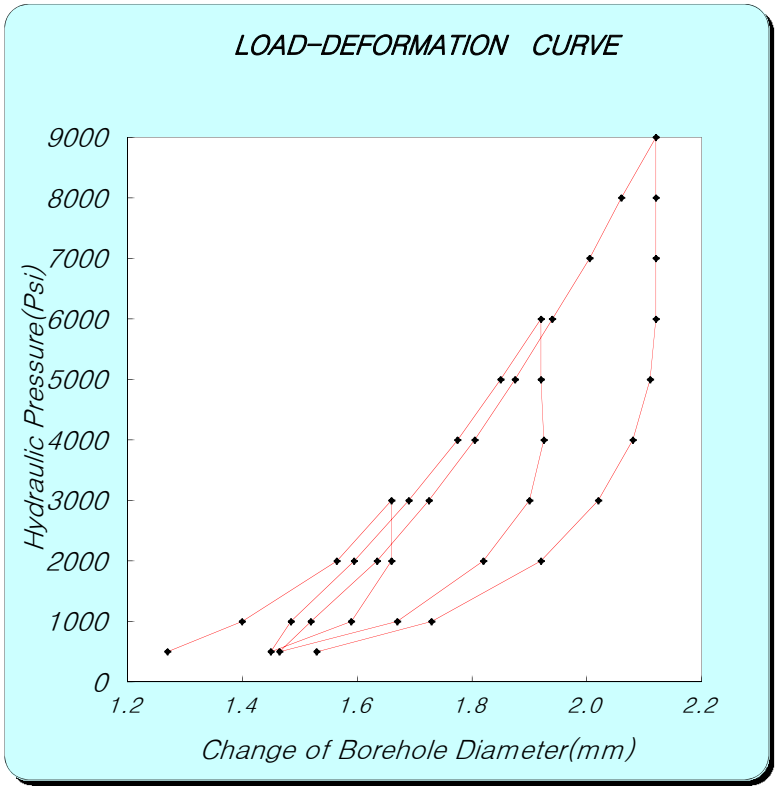
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	36.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	100/55	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.21	1.33	1.270
1000	1.23	1.57	1.400
2000	1.29	1.84	1.565
3000	1.33	1.99	1.660
2000	1.33	1.99	1.660
1000	1.32	1.86	1.590
500	1.29	1.61	1.450
1000	1.30	1.67	1.485
2000	1.32	1.87	1.595
3000	1.38	2.00	1.690
4000	1.46	2.09	1.775
5000	1.51	2.19	1.850
6000	1.58	2.26	1.920
5000	1.58	2.26	1.920
4000	1.58	2.27	1.925
3000	1.56	2.24	1.900
2000	1.46	2.18	1.820
1000	1.39	1.95	1.670
500	1.33	1.60	1.465
1000	1.34	1.70	1.520
2000	1.36	1.91	1.635
3000	1.41	2.04	1.725
4000	1.48	2.13	1.805
5000	1.53	2.22	1.875
6000	1.62	2.26	1.940
7000	1.67	2.34	2.005
8000	1.71	2.41	2.060
9000	1.77	2.47	2.120
8000	1.77	2.47	2.120
7000	1.77	2.47	2.120
6000	1.77	2.47	2.120
5000	1.76	2.46	2.110
4000	1.73	2.43	2.080
3000	1.66	2.38	2.020
2000	1.52	2.32	1.920
1000	1.43	2.03	1.730
500	1.37	1.69	1.530



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.660 D_2 (mm) 2.120

Dc (psi) = 1.14E+06 **Dt = 1.28E+06** psi

9.01E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.635 D_2 (mm) 1.940

Ec (psi) = 1.15E+06 **Et = 1.29E+06** psi

9.07E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

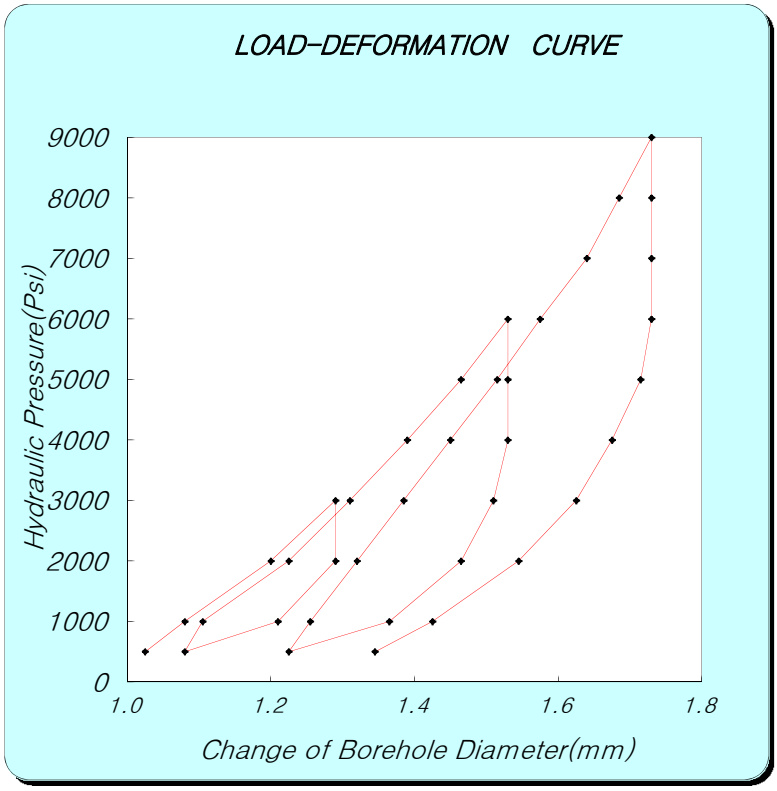
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	44.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.76	1.29	1.025
1000	0.84	1.32	1.080
2000	0.96	1.44	1.200
3000	1.07	1.51	1.290
2000	1.07	1.51	1.290
1000	0.99	1.43	1.210
500	0.84	1.32	1.080
1000	0.85	1.36	1.105
2000	0.99	1.46	1.225
3000	1.10	1.52	1.310
4000	1.22	1.56	1.390
5000	1.32	1.61	1.465
6000	1.41	1.65	1.530
5000	1.41	1.65	1.530
4000	1.41	1.65	1.530
3000	1.39	1.63	1.510
2000	1.36	1.57	1.465
1000	1.29	1.44	1.365
500	1.14	1.31	1.225
1000	1.14	1.37	1.255
2000	1.17	1.47	1.320
3000	1.24	1.53	1.385
4000	1.32	1.58	1.450
5000	1.41	1.62	1.515
6000	1.49	1.66	1.575
7000	1.59	1.69	1.640
8000	1.63	1.74	1.685
9000	1.68	1.78	1.730
8000	1.68	1.78	1.730
7000	1.68	1.78	1.730
6000	1.68	1.78	1.730
5000	1.67	1.76	1.715
4000	1.62	1.73	1.675
3000	1.56	1.69	1.625
2000	1.50	1.59	1.545
1000	1.40	1.45	1.425
500	1.36	1.33	1.345



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.290 D_2 (mm) 1.730

Dc (psi) = 1.20E+06 **Dt = 1.36E+06** psi

9.57E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.320 D_2 (mm) 1.575

Ec (psi) = 1.37E+06 **Et = 1.69E+06** psi

1.19E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

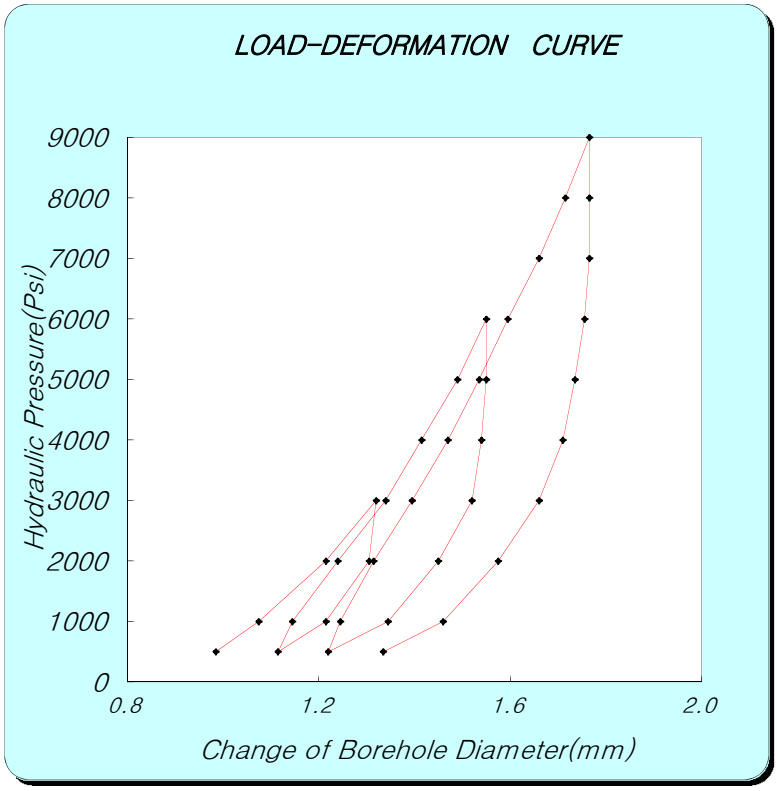
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	52.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.74	1.23	0.985
1000	0.90	1.25	1.075
2000	1.06	1.37	1.215
3000	1.17	1.47	1.320
2000	1.16	1.45	1.305
1000	1.10	1.33	1.215
500	0.99	1.24	1.115
1000	1.03	1.26	1.145
2000	1.11	1.37	1.240
3000	1.21	1.47	1.340
4000	1.30	1.53	1.415
5000	1.40	1.58	1.490
6000	1.48	1.62	1.550
5000	1.48	1.62	1.550
4000	1.48	1.60	1.540
3000	1.47	1.57	1.520
2000	1.42	1.48	1.450
1000	1.35	1.34	1.345
500	1.21	1.23	1.220
1000	1.22	1.27	1.245
2000	1.25	1.38	1.315
3000	1.32	1.47	1.395
4000	1.40	1.54	1.470
5000	1.49	1.58	1.535
6000	1.57	1.62	1.595
7000	1.66	1.66	1.660
8000	1.73	1.70	1.715
9000	1.79	1.74	1.765
8000	1.79	1.74	1.765
7000	1.79	1.74	1.765
6000	1.79	1.72	1.755
5000	1.78	1.69	1.735
4000	1.76	1.66	1.710
3000	1.73	1.59	1.660
2000	1.68	1.47	1.575
1000	1.59	1.33	1.460
500	1.44	1.23	1.335



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.320 D_2 (mm) 1.765

Dc (psi) = 1.18E+06 **Dt = 1.34E+06** psi

9.42E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.315 D_2 (mm) 1.595

Ec (psi) = 1.25E+06 **Et = 1.46E+06** psi

1.02E+05 kgf/㎠

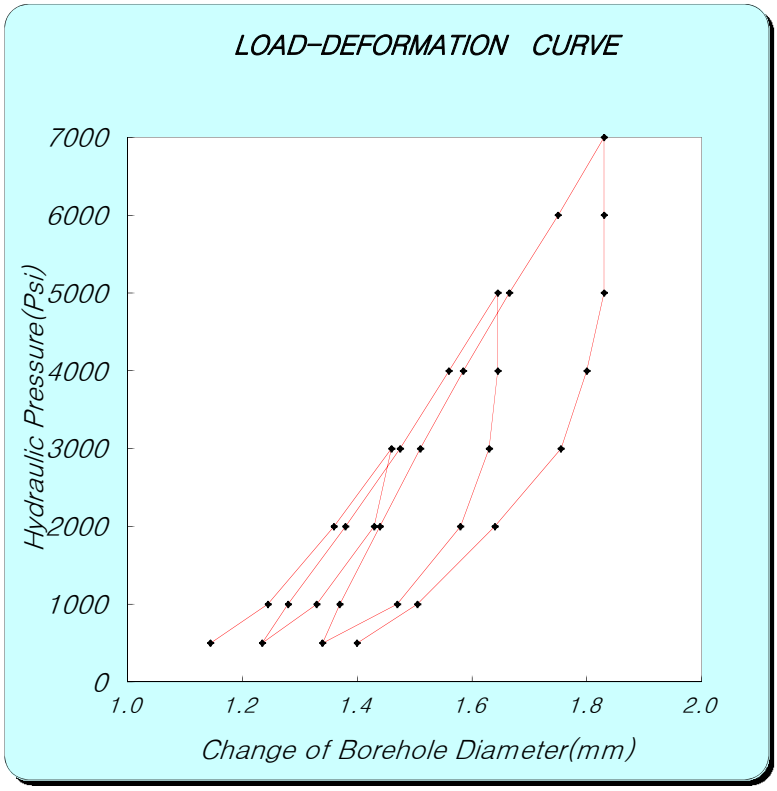
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	60.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	100/97	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.95	1.34	1.145
1000	1.05	1.44	1.245
2000	1.16	1.56	1.360
3000	1.26	1.66	1.460
2000	1.23	1.63	1.430
1000	1.16	1.50	1.330
500	1.07	1.40	1.235
1000	1.11	1.45	1.280
2000	1.18	1.58	1.380
3000	1.29	1.66	1.475
4000	1.40	1.72	1.560
5000	1.53	1.76	1.645
4000	1.53	1.76	1.645
3000	1.53	1.73	1.630
2000	1.52	1.64	1.580
1000	1.43	1.51	1.470
500	1.28	1.40	1.340
1000	1.28	1.46	1.370
2000	1.30	1.58	1.440
3000	1.35	1.67	1.510
4000	1.44	1.73	1.585
5000	1.56	1.77	1.665
6000	1.69	1.81	1.750
7000	1.80	1.86	1.830
6000	1.80	1.86	1.830
5000	1.80	1.86	1.830
4000	1.78	1.82	1.800
3000	1.73	1.78	1.755
2000	1.62	1.66	1.640
1000	1.50	1.51	1.505
500	1.38	1.42	1.400



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 1.460 D_2 (mm) 1.830

Dc (psi) = 9.47E+05 **Dt = 1.05E+06** psi

7.38E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.440 D_2 (mm) 1.665

Ec (psi) = 1.17E+06 **Et = 1.32E+06** psi

9.28E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

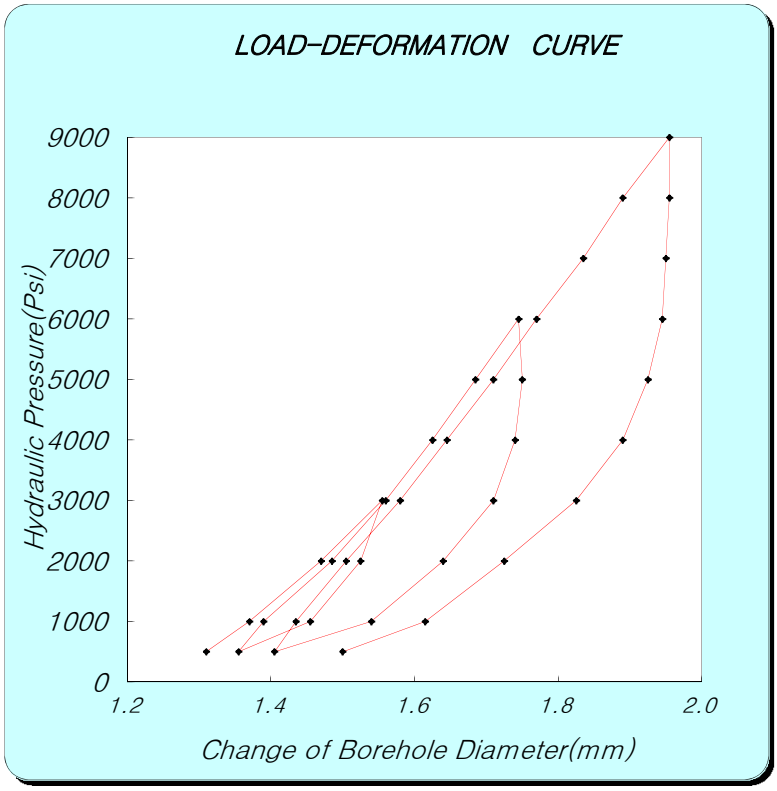
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	68.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	100/88	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.10	1.52	1.310
1000	1.16	1.58	1.370
2000	1.26	1.68	1.470
3000	1.34	1.77	1.555
2000	1.32	1.73	1.525
1000	1.28	1.63	1.455
500	1.15	1.56	1.355
1000	1.18	1.60	1.390
2000	1.27	1.70	1.485
3000	1.34	1.78	1.560
4000	1.42	1.83	1.625
5000	1.50	1.87	1.685
6000	1.58	1.91	1.745
5000	1.58	1.92	1.750
4000	1.58	1.90	1.740
3000	1.56	1.86	1.710
2000	1.53	1.75	1.640
1000	1.44	1.64	1.540
500	1.25	1.56	1.405
1000	1.26	1.61	1.435
2000	1.30	1.71	1.505
3000	1.37	1.79	1.580
4000	1.45	1.84	1.645
5000	1.54	1.88	1.710
6000	1.62	1.92	1.770
7000	1.68	1.99	1.835
8000	1.76	2.02	1.890
9000	1.83	2.08	1.955
8000	1.83	2.08	1.955
7000	1.83	2.07	1.950
6000	1.82	2.07	1.945
5000	1.80	2.05	1.925
4000	1.77	2.01	1.890
3000	1.72	1.93	1.825
2000	1.63	1.82	1.725
1000	1.52	1.71	1.615
500	1.40	1.60	1.500



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.555 D_2 (mm) 1.955

Dc (psi) = 1.31E+06 **Dt = 1.57E+06** psi

1.11E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.505 D_2 (mm) 1.770

Ec (psi) = 1.32E+06 **Et = 1.59E+06** psi

1.12E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

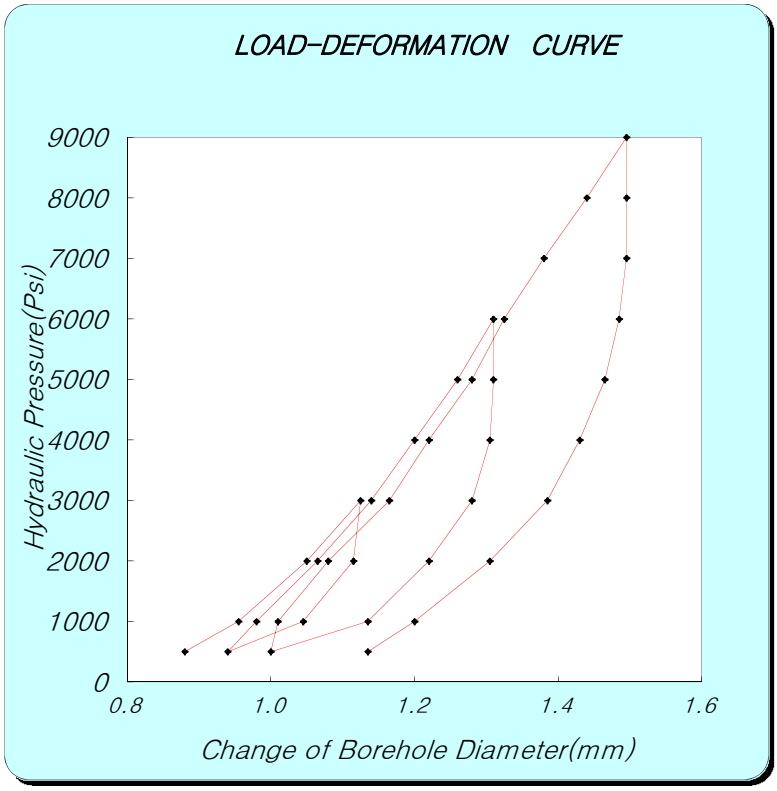
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	76.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	100/95	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.60	1.16	0.880
1000	0.72	1.19	0.955
2000	0.81	1.29	1.050
3000	0.87	1.38	1.125
2000	0.88	1.35	1.115
1000	0.84	1.25	1.045
500	0.70	1.18	0.940
1000	0.76	1.20	0.980
2000	0.84	1.29	1.065
3000	0.89	1.39	1.140
4000	0.96	1.44	1.200
5000	1.05	1.47	1.260
6000	1.11	1.51	1.310
5000	1.11	1.51	1.310
4000	1.11	1.50	1.305
3000	1.09	1.47	1.280
2000	1.05	1.39	1.220
1000	0.99	1.28	1.135
500	0.80	1.20	1.000
1000	0.81	1.21	1.010
2000	0.83	1.33	1.080
3000	0.92	1.41	1.165
4000	0.98	1.46	1.220
5000	1.06	1.50	1.280
6000	1.12	1.53	1.325
7000	1.19	1.57	1.380
8000	1.27	1.61	1.440
9000	1.33	1.66	1.495
8000	1.33	1.66	1.495
7000	1.33	1.66	1.495
6000	1.33	1.64	1.485
5000	1.31	1.62	1.465
4000	1.28	1.58	1.430
3000	1.23	1.54	1.385
2000	1.16	1.45	1.305
1000	1.08	1.32	1.200
500	1.02	1.25	1.135



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.125 D_2 (mm) 1.495

Dc (psi) = 1.42E+06 **Dt = 1.79E+06** psi

1.26E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.080 D_2 (mm) 1.325

Ec (psi) = 1.43E+06 **Et = 1.81E+06** psi

1.27E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

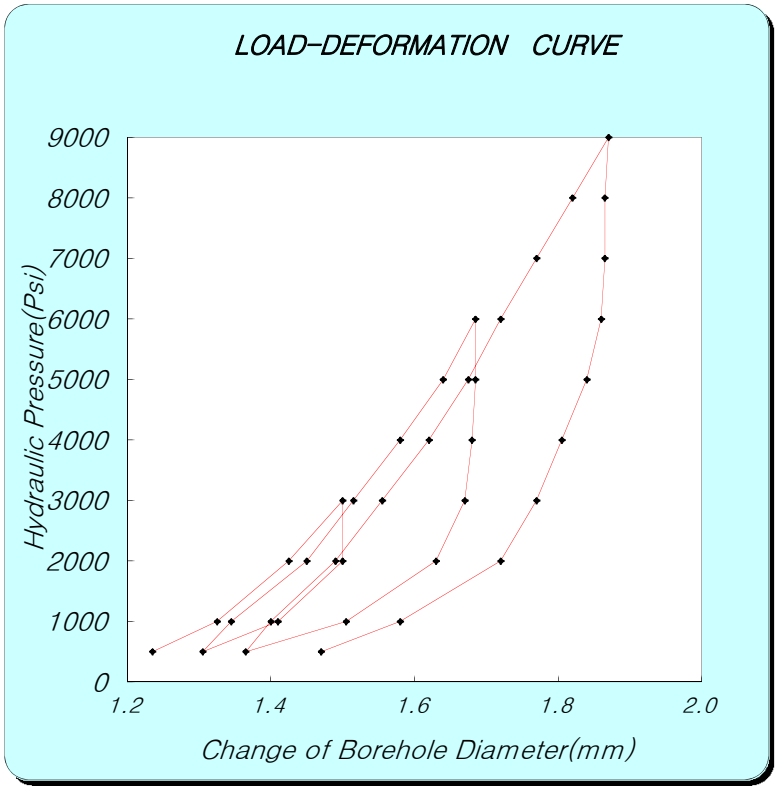
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	84.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.20	1.27	1.235
1000	1.28	1.37	1.325
2000	1.35	1.50	1.425
3000	1.43	1.57	1.500
2000	1.43	1.57	1.500
1000	1.35	1.47	1.410
500	1.32	1.29	1.305
1000	1.35	1.34	1.345
2000	1.39	1.51	1.450
3000	1.45	1.58	1.515
4000	1.52	1.64	1.580
5000	1.59	1.69	1.640
6000	1.64	1.73	1.685
5000	1.64	1.73	1.685
4000	1.64	1.72	1.680
3000	1.63	1.71	1.670
2000	1.59	1.67	1.630
1000	1.53	1.48	1.505
500	1.43	1.30	1.365
1000	1.44	1.36	1.400
2000	1.47	1.51	1.490
3000	1.52	1.59	1.555
4000	1.59	1.65	1.620
5000	1.65	1.70	1.675
6000	1.70	1.74	1.720
7000	1.76	1.78	1.770
8000	1.82	1.82	1.820
9000	1.89	1.85	1.870
8000	1.89	1.84	1.865
7000	1.89	1.84	1.865
6000	1.88	1.84	1.860
5000	1.85	1.83	1.840
4000	1.81	1.80	1.805
3000	1.76	1.78	1.770
2000	1.70	1.74	1.720
1000	1.63	1.53	1.580
500	1.59	1.35	1.470



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.500 D_2 (mm) 1.870

Dc (psi) = 1.42E+06 **Dt = 1.79E+06** psi

1.26E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.490 D_2 (mm) 1.720

Ec (psi) = 1.52E+06 **Et = 2.02E+06** psi

1.42E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

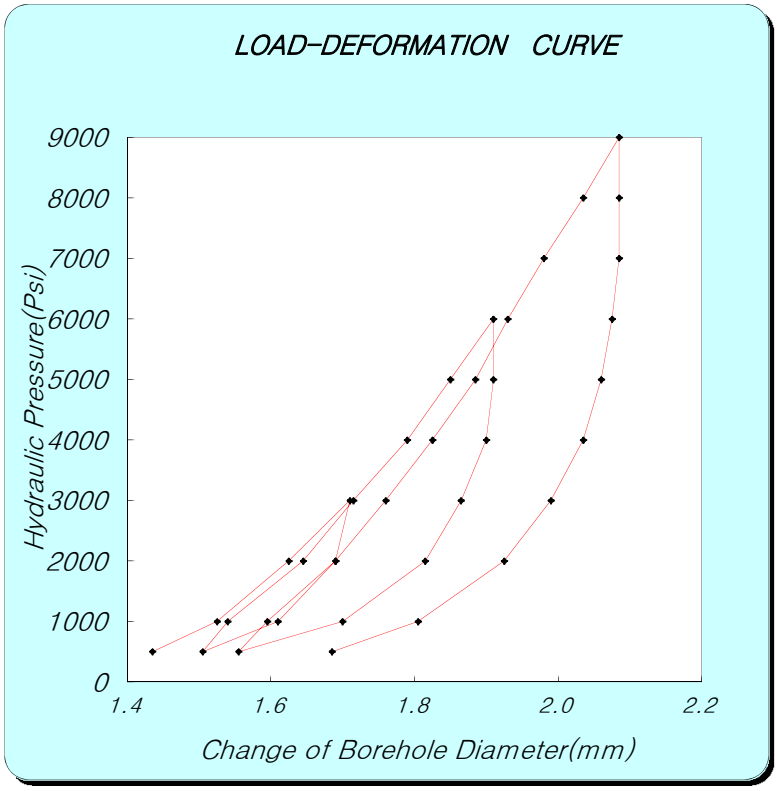
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-5	Rock Name :	GRANITE	Test Date :	2011. 12. 24
Depth :	92.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.0	TCR/RQD(%) :	100/96	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.50	1.37	1.435
1000	1.58	1.47	1.525
2000	1.65	1.60	1.625
3000	1.74	1.68	1.710
2000	1.71	1.67	1.690
1000	1.64	1.58	1.610
500	1.62	1.39	1.505
1000	1.64	1.44	1.540
2000	1.68	1.61	1.645
3000	1.74	1.69	1.715
4000	1.83	1.75	1.790
5000	1.90	1.80	1.850
6000	1.96	1.86	1.910
5000	1.96	1.86	1.910
4000	1.95	1.85	1.900
3000	1.91	1.82	1.865
2000	1.86	1.77	1.815
1000	1.82	1.58	1.700
500	1.71	1.40	1.555
1000	1.72	1.47	1.595
2000	1.76	1.62	1.690
3000	1.82	1.70	1.760
4000	1.89	1.76	1.825
5000	1.95	1.82	1.885
6000	2.00	1.86	1.930
7000	2.06	1.90	1.980
8000	2.12	1.95	2.035
9000	2.20	1.97	2.085
8000	2.20	1.97	2.085
7000	2.20	1.97	2.085
6000	2.18	1.97	2.075
5000	2.16	1.96	2.060
4000	2.13	1.94	2.035
3000	2.06	1.92	1.990
2000	1.99	1.86	1.925
1000	1.95	1.66	1.805
500	1.89	1.48	1.685



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.710 D_2 (mm) 2.085

Dc (psi) = 1.40E+06 **Dt = 1.75E+06** psi

1.23E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.690 D_2 (mm) 1.930

Ec (psi) = 1.46E+06 **Et = 1.87E+06** psi

1.32E+05 kgf/㎠

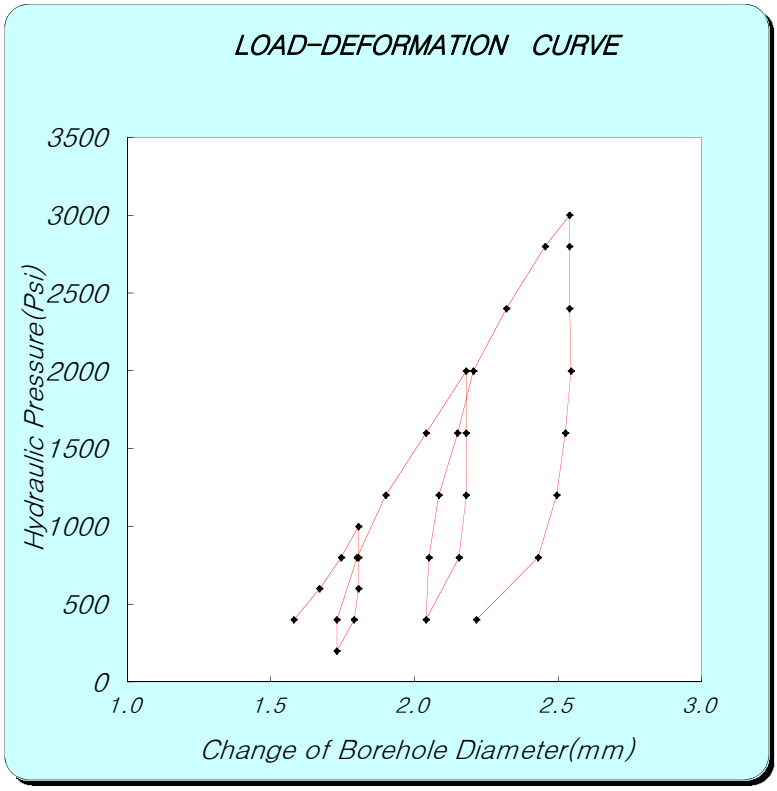
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	10.0m	Rock Class :	HW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/78	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.72	1.20	1.460
400	1.73	1.43	1.580
600	1.76	1.58	1.670
800	1.79	1.70	1.745
1000	1.83	1.78	1.805
800	1.83	1.78	1.805
600	1.83	1.78	1.805
400	1.83	1.75	1.790
200	1.82	1.64	1.730
400	1.82	1.64	1.730
800	1.84	1.76	1.800
1200	1.90	1.90	1.900
1600	2.02	2.06	2.040
2000	2.14	2.22	2.180
1600	2.14	2.22	2.180
1200	2.14	2.22	2.180
800	2.13	2.18	2.155
400	2.06	2.02	2.040
800	2.06	2.04	2.050
1200	2.08	2.09	2.085
1600	2.11	2.19	2.150
2000	2.14	2.27	2.205
2400	2.23	2.41	2.320
2800	2.34	2.57	2.455
3000	2.40	2.68	2.540
2800	2.40	2.68	2.540
2400	2.40	2.68	2.540
2000	2.40	2.69	2.545
1600	2.40	2.65	2.525
1200	2.38	2.61	2.495
800	2.34	2.52	2.430
400	2.19	2.24	2.215



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3000

ΔD : D_1 (mm) 1.805 D_2 (mm) 2.540

Dc (psi) = 2.38E+05 **Dt = 2.38E+05** psi

1.68E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2000

ΔD : D_1 (mm) 2.050 D_2 (mm) 2.205

Ec (psi) = 6.78E+05 **Et = 6.78E+05** psi

4.77E+04 kgf/㎠

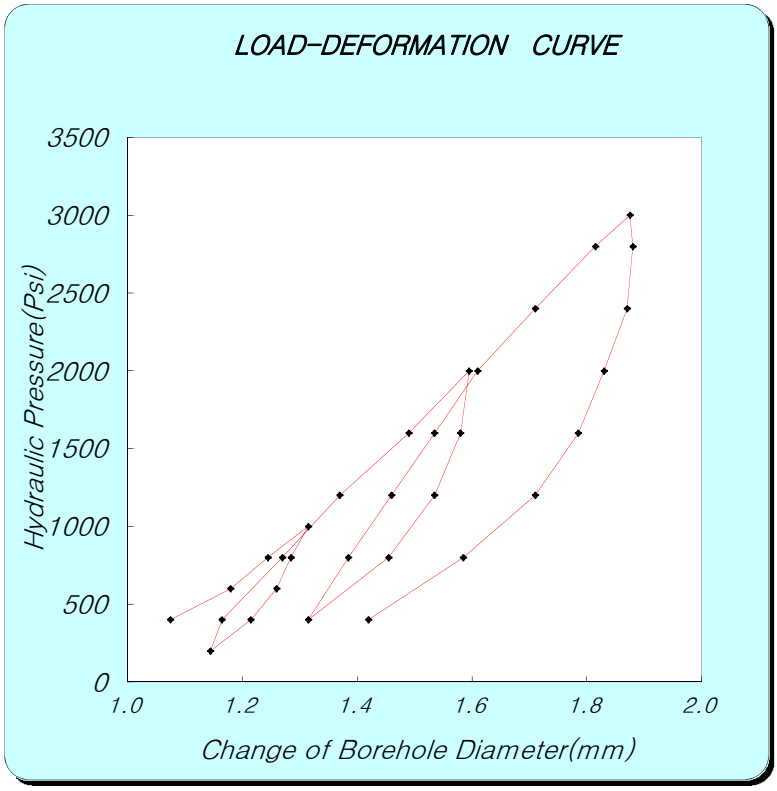
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	16.0m	Rock Class :	HW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/75	Checked By :	Y.H.Kim

PRESSURE (Psi)	ACEMENT READING (mm) NEAR	FAR	ΔAVG
200	1.33	0.61	0.970
400	1.42	0.73	1.075
600	1.52	0.84	1.180
800	1.58	0.91	1.245
1000	1.64	0.99	1.315
800	1.60	0.97	1.285
600	1.57	0.95	1.260
400	1.53	0.90	1.215
200	1.49	0.80	1.145
400	1.50	0.83	1.165
800	1.60	0.94	1.270
1200	1.69	1.05	1.370
1600	1.79	1.19	1.490
2000	1.88	1.31	1.595
1600	1.86	1.30	1.580
1200	1.80	1.27	1.535
800	1.70	1.21	1.455
400	1.60	1.03	1.315
800	1.68	1.09	1.385
1200	1.75	1.17	1.460
1600	1.82	1.25	1.535
2000	1.89	1.33	1.610
2400	1.98	1.44	1.710
2800	2.07	1.56	1.815
3000	2.12	1.63	1.875
2800	2.13	1.63	1.880
2400	2.11	1.63	1.870
2000	2.06	1.60	1.830
1600	2.00	1.57	1.785
1200	1.91	1.51	1.710
800	1.81	1.36	1.585
400	1.68	1.16	1.420



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3000

ΔD : D_1 (mm) 1.315 D_2 (mm) 1.875

Dc (psi) = 3.13E+05 **Dt = 3.13E+05** psi

2.20E+04 kgf/㎠

ΔP : P_1 (Psi) 1200 P_2 (Psi) 2400

ΔD : D_1 (mm) 1.460 D_2 (mm) 1.710

Ec (psi) = 4.21E+05 **Et = 4.21E+05** psi

2.96E+04 kgf/㎠

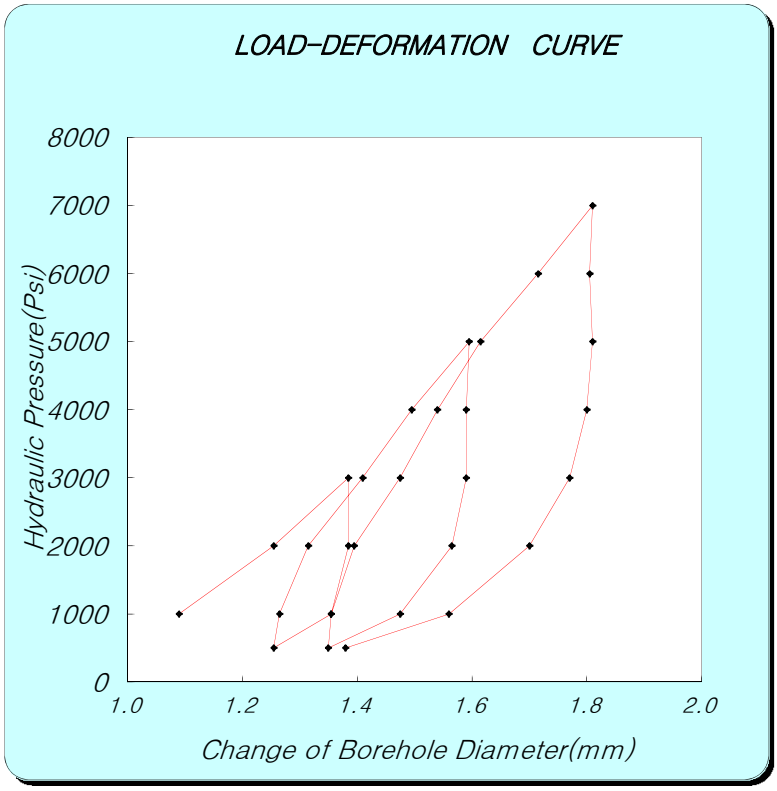
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	22.5m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/89	Checked By :	Y.H.Kim

PRESSURE (Psi)	ACEMENT READING (mm) NEAR	FAR	ΔAVG
500	1.30	0.64	0.970
1000	1.42	0.76	1.090
2000	1.56	0.95	1.255
3000	1.68	1.09	1.385
2000	1.68	1.09	1.385
1000	1.66	1.05	1.355
500	1.55	0.96	1.255
1000	1.56	0.97	1.265
2000	1.60	1.03	1.315
3000	1.68	1.14	1.410
4000	1.76	1.23	1.495
5000	1.87	1.32	1.595
4000	1.87	1.31	1.590
3000	1.87	1.31	1.590
2000	1.84	1.29	1.565
1000	1.74	1.21	1.475
500	1.63	1.07	1.350
1000	1.63	1.08	1.355
2000	1.66	1.13	1.395
3000	1.73	1.22	1.475
4000	1.80	1.28	1.540
5000	1.88	1.35	1.615
6000	1.98	1.45	1.715
7000	2.09	1.53	1.810
6000	2.08	1.53	1.805
5000	2.09	1.53	1.810
4000	2.07	1.53	1.800
3000	2.05	1.49	1.770
2000	1.96	1.44	1.700
1000	1.81	1.31	1.560
500	1.66	1.10	1.380



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.410 D_2 (mm) 1.810

Dc (psi) = 4.38E+05 **Dt = 4.38E+05** psi

3.08E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.355 D_2 (mm) 1.715

Ec (psi) = 1.22E+06 **Et = 1.40E+06** psi

9.83E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

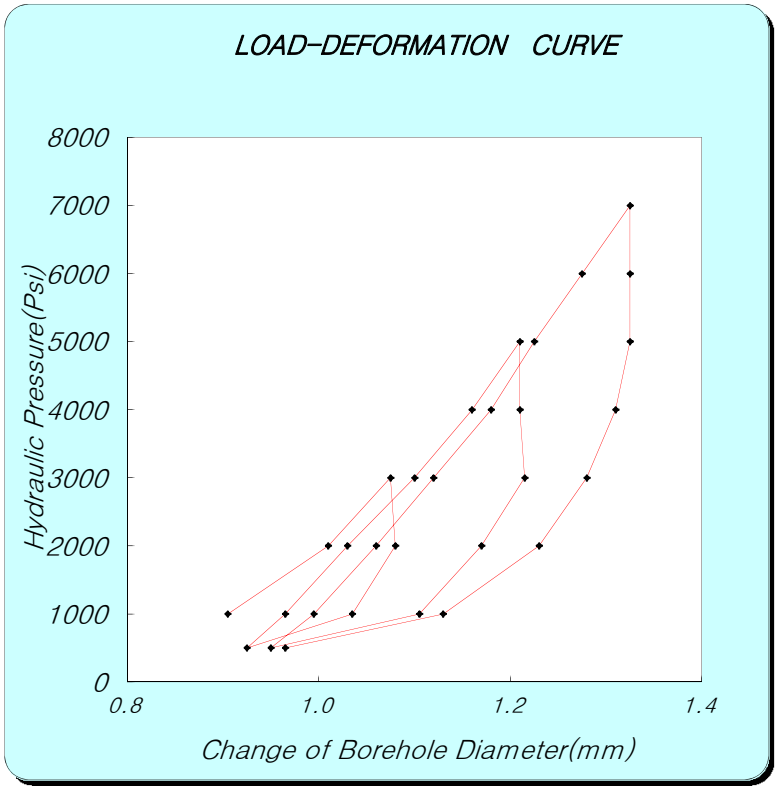
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	30.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/89	Checked By :	Y.H.Kim

PRESSURE (Psi)	ACEMENT READING (mm) NEAR	FAR	ΔAVG
500	1.10	0.52	0.810
1000	1.19	0.62	0.905
2000	1.30	0.72	1.010
3000	1.36	0.79	1.075
2000	1.37	0.79	1.080
1000	1.33	0.74	1.035
500	1.24	0.61	0.925
1000	1.26	0.67	0.965
2000	1.32	0.74	1.030
3000	1.39	0.81	1.100
4000	1.44	0.88	1.160
5000	1.49	0.93	1.210
4000	1.49	0.93	1.210
3000	1.49	0.94	1.215
2000	1.45	0.89	1.170
1000	1.38	0.83	1.105
500	1.26	0.64	0.950
1000	1.28	0.71	0.995
2000	1.35	0.77	1.060
3000	1.41	0.83	1.120
4000	1.46	0.90	1.180
5000	1.50	0.95	1.225
6000	1.55	1.00	1.275
7000	1.60	1.05	1.325
6000	1.60	1.05	1.325
5000	1.61	1.04	1.325
4000	1.60	1.02	1.310
3000	1.57	0.99	1.280
2000	1.52	0.94	1.230
1000	1.40	0.86	1.130
500	1.27	0.66	0.965



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 1.075 D_2 (mm) 1.325

Dc (psi) = 1.40E+06 **Dt = 1.75E+06** psi

1.23E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.060 D_2 (mm) 1.275

Ec (psi) = 1.63E+06 **Et = 2.28E+06** psi

1.60E+05 kgf/㎠

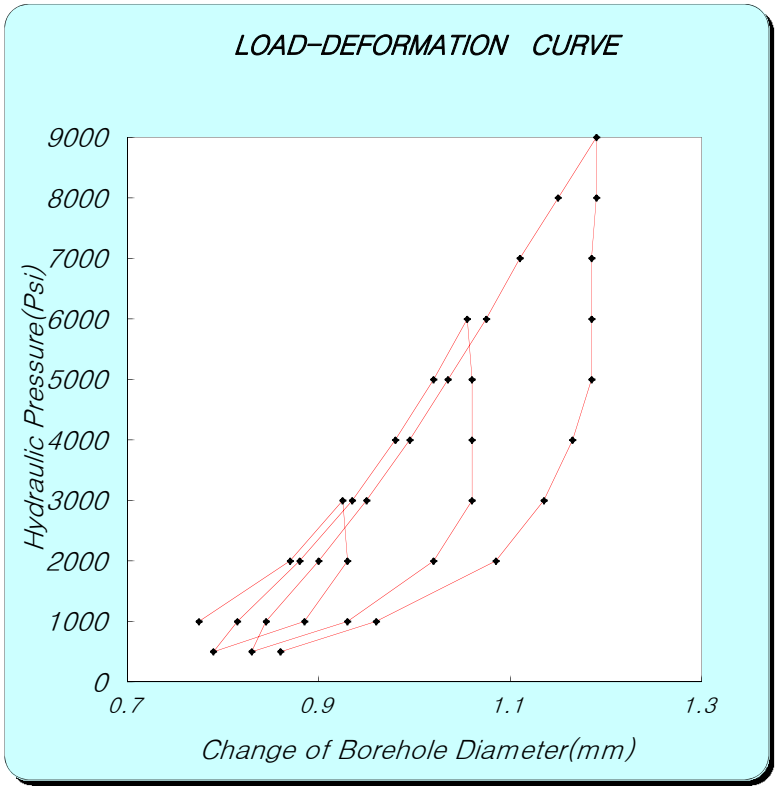
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	38.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/87	Checked By :	Y.H.Kim

PRESSURE (Psi)	ACEMENT READING (mm) NEAR	FAR	ΔAVG
500	0.93	0.44	0.685
1000	1.04	0.51	0.775
2000	1.16	0.58	0.870
3000	1.22	0.63	0.925
2000	1.23	0.63	0.930
1000	1.18	0.59	0.885
500	1.09	0.49	0.790
1000	1.09	0.54	0.815
2000	1.17	0.59	0.880
3000	1.23	0.64	0.935
4000	1.27	0.69	0.980
5000	1.31	0.73	1.020
6000	1.34	0.77	1.055
5000	1.35	0.77	1.060
4000	1.35	0.77	1.060
3000	1.35	0.77	1.060
2000	1.31	0.73	1.020
1000	1.20	0.66	0.930
500	1.13	0.53	0.830
1000	1.13	0.56	0.845
2000	1.19	0.61	0.900
3000	1.24	0.66	0.950
4000	1.28	0.71	0.995
5000	1.32	0.75	1.035
6000	1.36	0.79	1.075
7000	1.39	0.83	1.110
8000	1.43	0.87	1.150
9000	1.47	0.91	1.190
8000	1.47	0.91	1.190
7000	1.47	0.90	1.185
6000	1.47	0.90	1.185
5000	1.47	0.90	1.185
4000	1.45	0.88	1.165
3000	1.42	0.85	1.135
2000	1.37	0.80	1.085
1000	1.23	0.69	0.960
500	1.17	0.55	0.860



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.925 D_2 (mm) 1.190

Dc (psi) = 1.98E+06 **Dt = 3.28E+06** psi

2.31E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.900 D_2 (mm) 1.075

Ec (psi) = 2.00E+06 **Et = 3.34E+06** psi

2.35E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

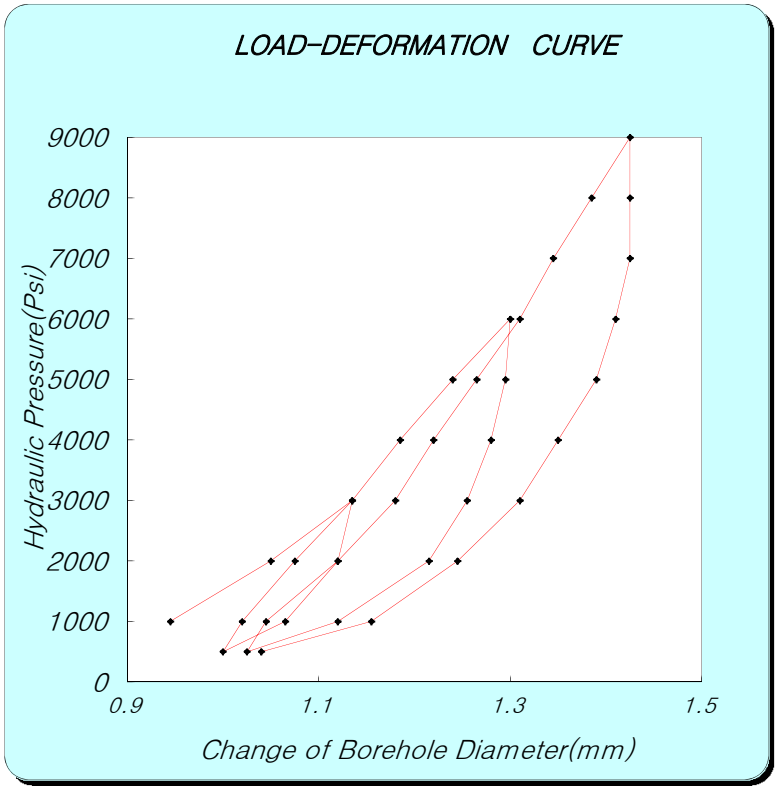
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	46.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/95	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.27	0.47	0.870
1000	1.36	0.53	0.945
2000	1.47	0.63	1.050
3000	1.55	0.72	1.135
2000	1.52	0.72	1.120
1000	1.43	0.70	1.065
500	1.35	0.65	1.000
1000	1.38	0.66	1.020
2000	1.45	0.70	1.075
3000	1.52	0.75	1.135
4000	1.58	0.79	1.185
5000	1.65	0.83	1.240
6000	1.70	0.90	1.300
5000	1.69	0.90	1.295
4000	1.67	0.89	1.280
3000	1.62	0.89	1.255
2000	1.54	0.89	1.215
1000	1.44	0.80	1.120
500	1.37	0.68	1.025
1000	1.40	0.69	1.045
2000	1.50	0.74	1.120
3000	1.58	0.78	1.180
4000	1.63	0.81	1.220
5000	1.66	0.87	1.265
6000	1.70	0.92	1.310
7000	1.73	0.96	1.345
8000	1.77	1.00	1.385
9000	1.81	1.04	1.425
8000	1.81	1.04	1.425
7000	1.81	1.04	1.425
6000	1.79	1.03	1.410
5000	1.76	1.02	1.390
4000	1.70	1.00	1.350
3000	1.64	0.98	1.310
2000	1.56	0.93	1.245
1000	1.46	0.85	1.155
500	1.39	0.69	1.040



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.135 D_2 (mm) 1.425

Dc (psi) = 1.81E+06 **Dt = 2.77E+06** psi

1.95E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.120 D_2 (mm) 1.310

Ec (psi) = 1.85E+06 **Et = 2.86E+06** psi

2.01E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

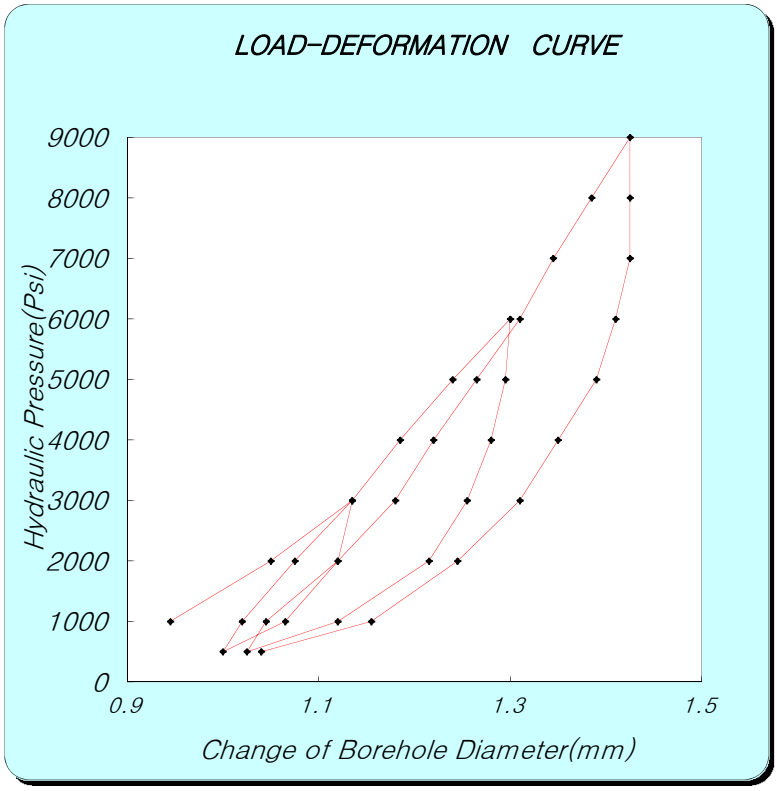
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	54.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/95	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.27	0.47	0.870
1000	1.36	0.53	0.945
2000	1.47	0.63	1.050
3000	1.55	0.72	1.135
2000	1.52	0.72	1.120
1000	1.43	0.70	1.065
500	1.35	0.65	1.000
1000	1.38	0.66	1.020
2000	1.45	0.70	1.075
3000	1.52	0.75	1.135
4000	1.58	0.79	1.185
5000	1.65	0.83	1.240
6000	1.70	0.90	1.300
5000	1.69	0.90	1.295
4000	1.67	0.89	1.280
3000	1.62	0.89	1.255
2000	1.54	0.89	1.215
1000	1.44	0.80	1.120
500	1.37	0.68	1.025
1000	1.40	0.69	1.045
2000	1.50	0.74	1.120
3000	1.58	0.78	1.180
4000	1.63	0.81	1.220
5000	1.66	0.87	1.265
6000	1.70	0.92	1.310
7000	1.73	0.96	1.345
8000	1.77	1.00	1.385
9000	1.81	1.04	1.425
8000	1.81	1.04	1.425
7000	1.81	1.04	1.425
6000	1.79	1.03	1.410
5000	1.76	1.02	1.390
4000	1.70	1.00	1.350
3000	1.64	0.98	1.310
2000	1.56	0.93	1.245
1000	1.46	0.85	1.155
500	1.39	0.69	1.040



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.135 D_2 (mm) 1.425

Dc (psi) = 1.81E+06 **Dt = 2.77E+06** psi

1.95E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.120 D_2 (mm) 1.310

Ec (psi) = 1.85E+06 **Et = 2.86E+06** psi

2.01E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

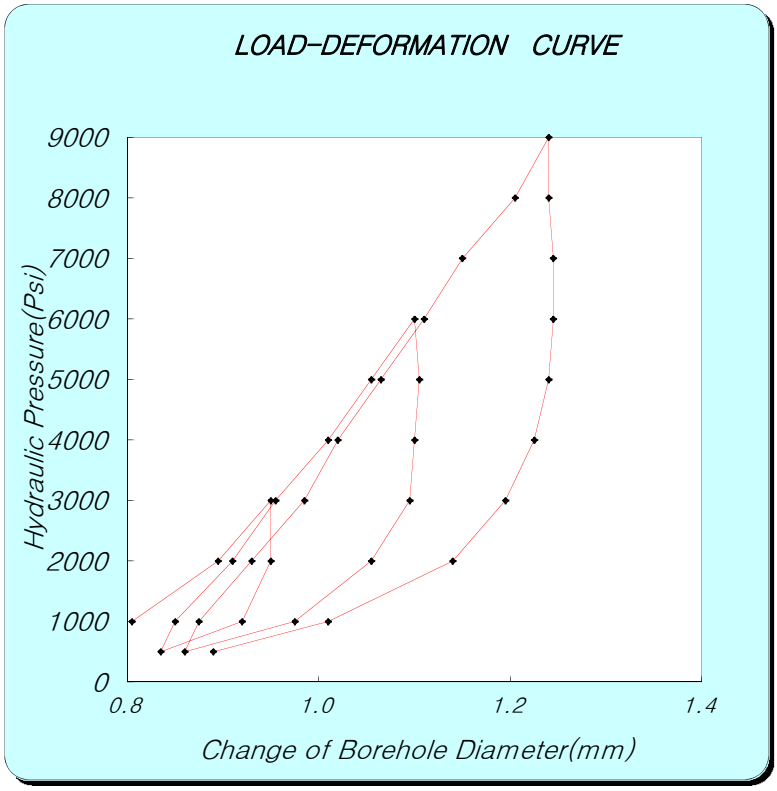
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	62.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/90	Checked By :	Y.H.Kim

PRESSURE (Psi)	ACEMENT READING (mm) NEAR	FAR	ΔAVG
500	0.92	0.45	0.685
1000	1.07	0.54	0.805
2000	1.18	0.61	0.895
3000	1.25	0.65	0.950
2000	1.25	0.65	0.950
1000	1.23	0.61	0.920
500	1.14	0.53	0.835
1000	1.14	0.56	0.850
2000	1.20	0.62	0.910
3000	1.25	0.66	0.955
4000	1.30	0.72	1.010
5000	1.34	0.77	1.055
6000	1.39	0.81	1.100
5000	1.40	0.81	1.105
4000	1.40	0.80	1.100
3000	1.41	0.78	1.095
2000	1.37	0.74	1.055
1000	1.28	0.67	0.975
500	1.17	0.55	0.860
1000	1.17	0.58	0.875
2000	1.22	0.64	0.930
3000	1.27	0.70	0.985
4000	1.31	0.73	1.020
5000	1.36	0.77	1.065
6000	1.40	0.82	1.110
7000	1.44	0.86	1.150
8000	1.49	0.92	1.205
9000	1.54	0.94	1.240
8000	1.54	0.94	1.240
7000	1.55	0.94	1.245
6000	1.55	0.94	1.245
5000	1.55	0.93	1.240
4000	1.54	0.91	1.225
3000	1.51	0.88	1.195
2000	1.44	0.84	1.140
1000	1.31	0.71	1.010
500	1.20	0.58	0.890



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.950 D_2 (mm) 1.240

Dc (psi) = 1.81E+06 **Dt = 2.77E+06** psi

1.95E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.930 D_2 (mm) 1.110

Ec (psi) = 1.95E+06 **Et = 3.17E+06** psi

2.23E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

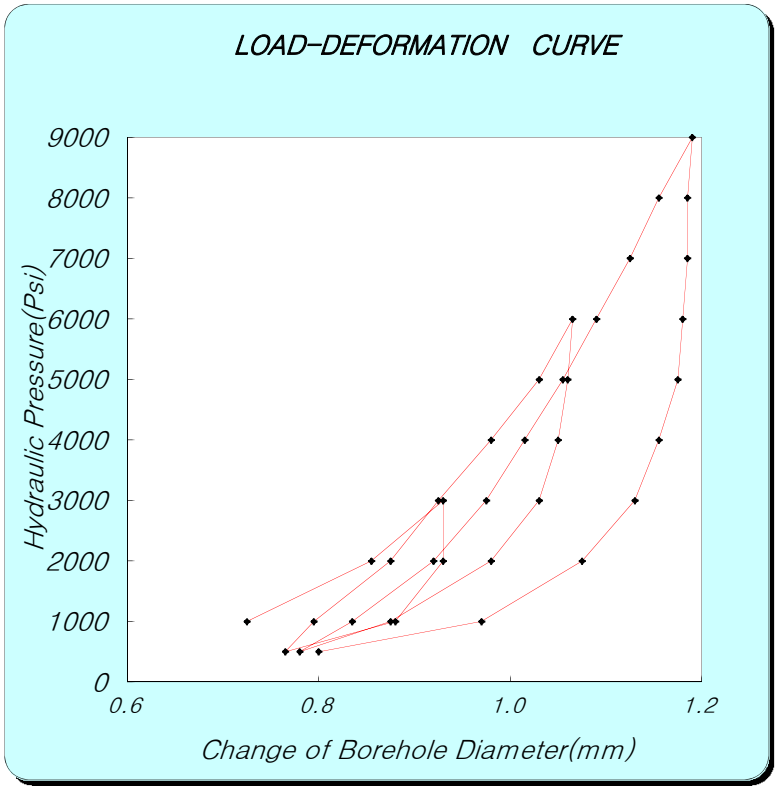
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	70.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	ACEMENT READING (mm) NEAR	FAR	ΔAVG
500	0.85	0.40	0.625
1000	1.00	0.45	0.725
2000	1.18	0.53	0.855
3000	1.24	0.62	0.930
2000	1.25	0.61	0.930
1000	1.20	0.56	0.880
500	1.04	0.49	0.765
1000	1.08	0.51	0.795
2000	1.19	0.56	0.875
3000	1.25	0.60	0.925
4000	1.30	0.66	0.980
5000	1.34	0.72	1.030
6000	1.38	0.75	1.065
5000	1.38	0.74	1.060
4000	1.38	0.72	1.050
3000	1.37	0.69	1.030
2000	1.34	0.62	0.980
1000	1.26	0.49	0.875
500	1.04	0.52	0.780
1000	1.10	0.57	0.835
2000	1.20	0.64	0.920
3000	1.26	0.69	0.975
4000	1.31	0.72	1.015
5000	1.35	0.76	1.055
6000	1.38	0.80	1.090
7000	1.41	0.84	1.125
8000	1.46	0.85	1.155
9000	1.52	0.86	1.190
8000	1.52	0.85	1.185
7000	1.52	0.85	1.185
6000	1.52	0.84	1.180
5000	1.52	0.83	1.175
4000	1.50	0.81	1.155
3000	1.48	0.78	1.130
2000	1.41	0.74	1.075
1000	1.27	0.67	0.970
500	1.08	0.52	0.800



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.930 D_2 (mm) 1.190

Dc (psi) = 2.02E+06 **Dt = 3.40E+06** psi

2.39E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.920 D_2 (mm) 1.090

Ec (psi) = 2.06E+06 **Et = 3.53E+06** psi

2.48E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

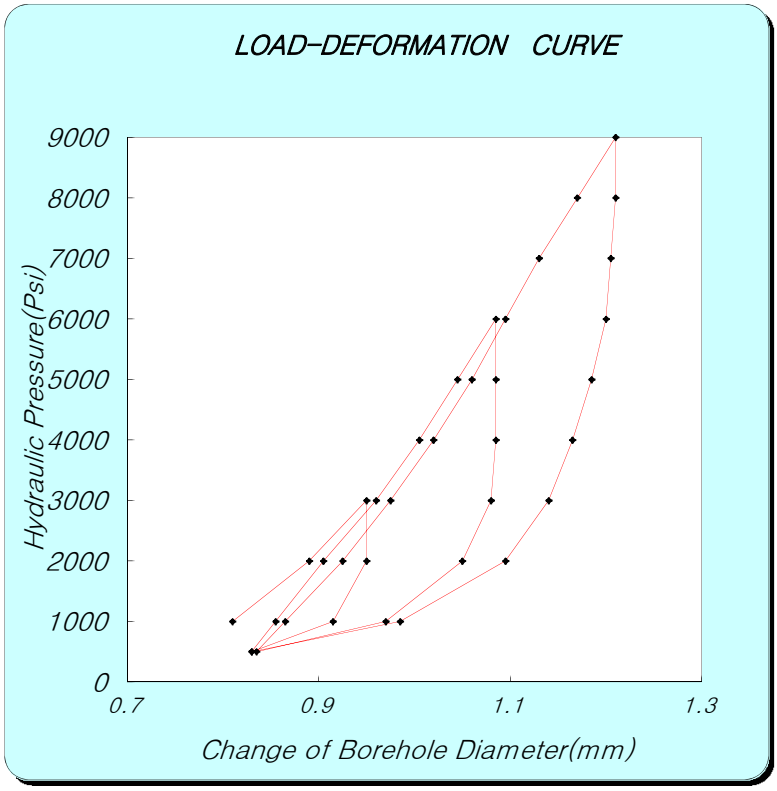
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	78.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	ACEMENT READING (mm) NEAR	FAR	ΔAVG
500	0.99	0.47	0.730
1000	1.08	0.54	0.810
2000	1.17	0.61	0.890
3000	1.24	0.66	0.950
2000	1.24	0.66	0.950
1000	1.21	0.62	0.915
500	1.12	0.54	0.830
1000	1.13	0.58	0.855
2000	1.19	0.62	0.905
3000	1.25	0.67	0.960
4000	1.29	0.72	1.005
5000	1.32	0.77	1.045
6000	1.36	0.81	1.085
5000	1.36	0.81	1.085
4000	1.36	0.81	1.085
3000	1.36	0.80	1.080
2000	1.33	0.77	1.050
1000	1.24	0.70	0.970
500	1.13	0.54	0.835
1000	1.14	0.59	0.865
2000	1.21	0.64	0.925
3000	1.26	0.69	0.975
4000	1.30	0.74	1.020
5000	1.33	0.79	1.060
6000	1.36	0.83	1.095
7000	1.41	0.85	1.130
8000	1.44	0.90	1.170
9000	1.47	0.95	1.210
8000	1.47	0.95	1.210
7000	1.47	0.94	1.205
6000	1.47	0.93	1.200
5000	1.47	0.90	1.185
4000	1.45	0.88	1.165
3000	1.43	0.85	1.140
2000	1.38	0.81	1.095
1000	1.28	0.69	0.985
500	1.13	0.53	0.830



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.950 D_2 (mm) 1.210

Dc (psi) = 2.02E+06 **Dt = 3.40E+06** psi

2.39E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.925 D_2 (mm) 1.095

Ec (psi) = 2.06E+06 **Et = 3.53E+06** psi

2.48E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

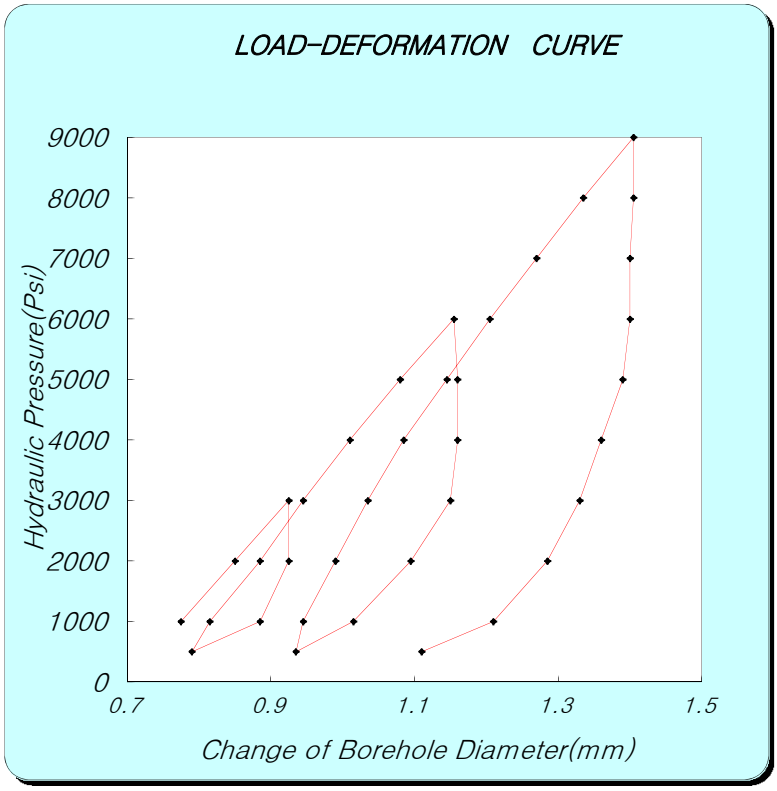
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-6	Rock Name :	GRANITE	Test Date :	2010. 12. 29
Depth :	86.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	1.2	TCR/RQD(%) :	100/58	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.93	0.44	0.685
1000	1.04	0.51	0.775
2000	1.16	0.54	0.850
3000	1.22	0.63	0.925
2000	1.22	0.63	0.925
1000	1.18	0.59	0.885
500	1.09	0.49	0.790
1000	1.09	0.54	0.815
2000	1.17	0.60	0.885
3000	1.23	0.66	0.945
4000	1.27	0.75	1.010
5000	1.31	0.85	1.080
6000	1.34	0.97	1.155
5000	1.35	0.97	1.160
4000	1.35	0.97	1.160
3000	1.35	0.95	1.150
2000	1.31	0.88	1.095
1000	1.20	0.83	1.015
500	1.13	0.74	0.935
1000	1.13	0.76	0.945
2000	1.19	0.79	0.990
3000	1.24	0.83	1.035
4000	1.28	0.89	1.085
5000	1.32	0.97	1.145
6000	1.36	1.05	1.205
7000	1.38	1.16	1.270
8000	1.41	1.26	1.335
9000	1.46	1.35	1.405
8000	1.46	1.35	1.405
7000	1.46	1.34	1.400
6000	1.46	1.34	1.400
5000	1.46	1.32	1.390
4000	1.45	1.27	1.360
3000	1.42	1.24	1.330
2000	1.37	1.20	1.285
1000	1.23	1.19	1.210
500	1.17	1.05	1.110



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.925 D_2 (mm) 1.405

Dc (psi) = 1.10E+06 **Dt = 1.21E+06** psi

8.53E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.990 D_2 (mm) 1.205

Ec (psi) = 1.63E+06 **Et = 2.28E+06** psi

1.60E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

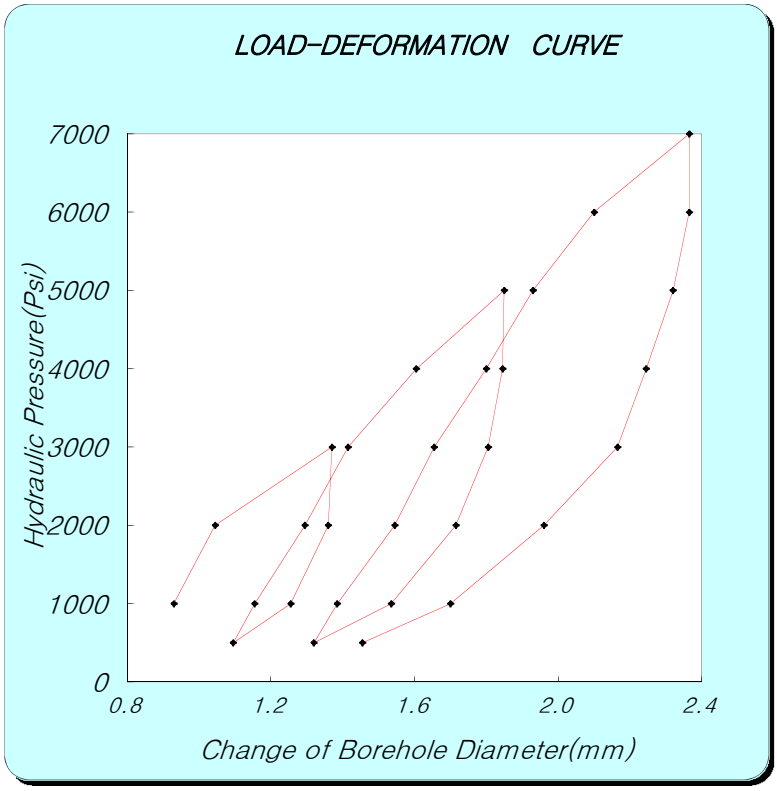
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	10.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.97	0.62	0.795
1000	1.12	0.74	0.930
2000	1.14	0.95	1.045
3000	1.56	1.18	1.370
2000	1.54	1.18	1.360
1000	1.40	1.11	1.255
500	1.24	0.95	1.095
1000	1.34	0.97	1.155
2000	1.50	1.09	1.295
3000	1.62	1.21	1.415
4000	1.82	1.39	1.605
5000	2.07	1.63	1.850
4000	2.06	1.63	1.845
3000	1.99	1.62	1.805
2000	1.86	1.57	1.715
1000	1.67	1.40	1.535
500	1.49	1.15	1.320
1000	1.58	1.19	1.385
2000	1.73	1.36	1.545
3000	1.88	1.43	1.655
4000	2.02	1.58	1.800
5000	2.16	1.70	1.930
6000	2.35	1.85	2.100
7000	2.63	2.10	2.365
6000	2.64	2.09	2.365
5000	2.58	2.06	2.320
4000	2.48	2.01	2.245
3000	2.38	1.95	2.165
2000	2.24	1.68	1.960
1000	2.02	1.38	1.700
500	1.79	1.12	1.455



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.370 D_2 (mm) 2.100

Dc (psi) = 3.60E+05 **Dt = 3.60E+05** psi

2.53E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.545 D_2 (mm) 1.930

Ec (psi) = 6.83E+05 **Et = 6.83E+05** psi

4.80E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

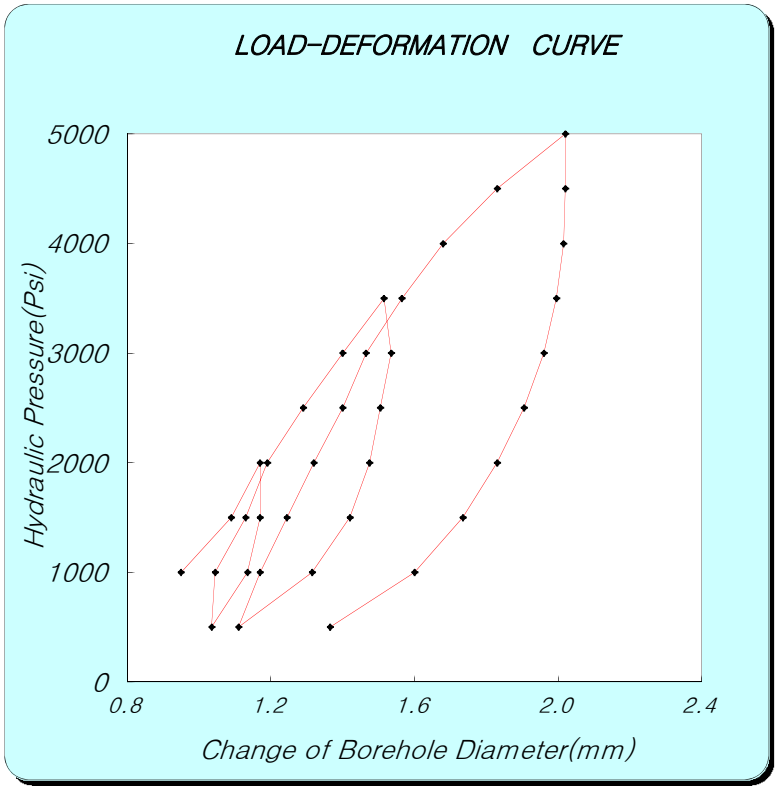
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	14.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.95	0.39	0.670
1000	1.13	0.77	0.950
1500	1.27	0.91	1.090
2000	1.36	0.98	1.170
1500	1.35	0.99	1.170
1000	1.30	0.97	1.135
500	1.22	0.85	1.035
1000	1.23	0.86	1.045
1500	1.32	0.94	1.130
2000	1.38	1.00	1.190
2500	1.49	1.09	1.290
3000	1.62	1.18	1.400
3500	1.75	1.28	1.515
3000	1.78	1.29	1.535
2500	1.73	1.28	1.505
2000	1.68	1.27	1.475
1500	1.60	1.24	1.420
1000	1.50	1.13	1.315
500	1.27	0.95	1.110
1000	1.37	0.97	1.170
1500	1.45	1.04	1.245
2000	1.53	1.11	1.320
2500	1.62	1.18	1.400
3000	1.69	1.24	1.465
3500	1.82	1.31	1.565
4000	1.95	1.41	1.680
4500	2.14	1.52	1.830
5000	2.37	1.67	2.020
4500	2.37	1.67	2.020
4000	2.36	1.67	2.015
3500	2.33	1.66	1.995
3000	2.28	1.64	1.960
2500	2.19	1.62	1.905
2000	2.14	1.52	1.830
1500	2.06	1.41	1.735
1000	1.88	1.32	1.600
500	1.65	1.08	1.365



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.170 D_2 (mm) 1.680

Dc (psi) = 3.44E+05 **Dt = 3.44E+05** psi

2.42E+04 kgf/㎠

ΔP : P_1 (Psi) 1500 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.245 D_2 (mm) 1.565

Ec (psi) = 5.48E+05 **Et = 5.48E+05** psi

3.85E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

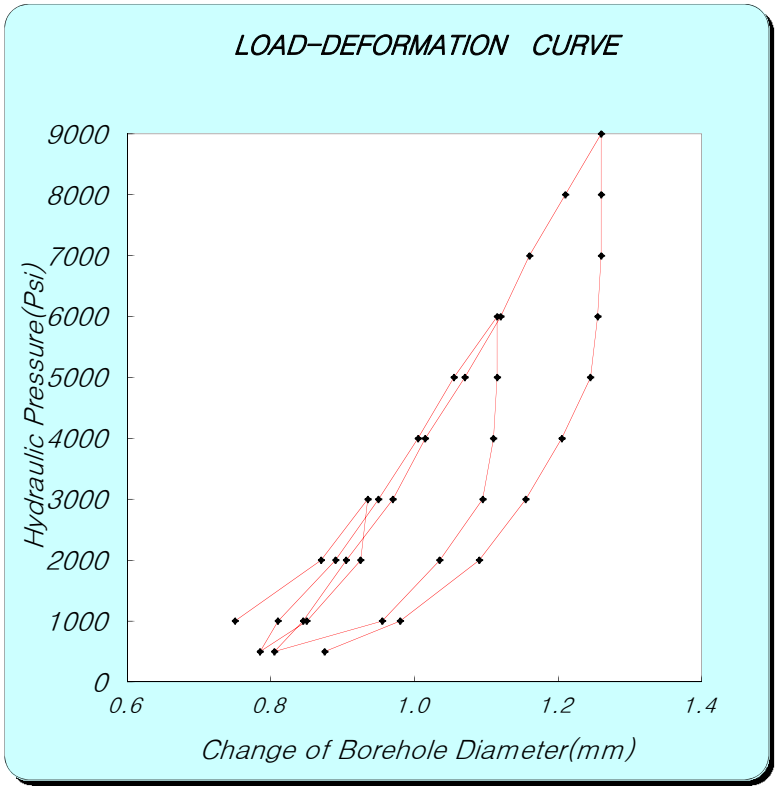
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	18.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.93	0.38	0.655
1000	1.00	0.50	0.750
2000	1.10	0.64	0.870
3000	1.15	0.72	0.935
2000	1.13	0.72	0.925
1000	1.06	0.64	0.850
500	0.97	0.60	0.785
1000	1.01	0.61	0.810
2000	1.11	0.67	0.890
3000	1.16	0.74	0.950
4000	1.20	0.81	1.005
5000	1.23	0.88	1.055
6000	1.28	0.95	1.115
5000	1.28	0.95	1.115
4000	1.27	0.95	1.110
3000	1.25	0.94	1.095
2000	1.17	0.90	1.035
1000	1.07	0.84	0.955
500	0.97	0.64	0.805
1000	1.02	0.67	0.845
2000	1.12	0.69	0.905
3000	1.17	0.77	0.970
4000	1.20	0.83	1.015
5000	1.25	0.89	1.070
6000	1.29	0.95	1.120
7000	1.32	1.00	1.160
8000	1.34	1.08	1.210
9000	1.38	1.14	1.260
8000	1.38	1.14	1.260
7000	1.38	1.14	1.260
6000	1.38	1.13	1.255
5000	1.36	1.13	1.245
4000	1.33	1.08	1.205
3000	1.26	1.05	1.155
2000	1.18	1.00	1.090
1000	1.08	0.88	0.980
500	1.00	0.75	0.875



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.935 D_2 (mm) 1.260

Dc (psi) = 1.62E+06 **Dt = 2.25E+06** psi

1.58E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.905 D_2 (mm) 1.120

Ec (psi) = 1.63E+06 **Et = 2.28E+06** psi

1.60E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

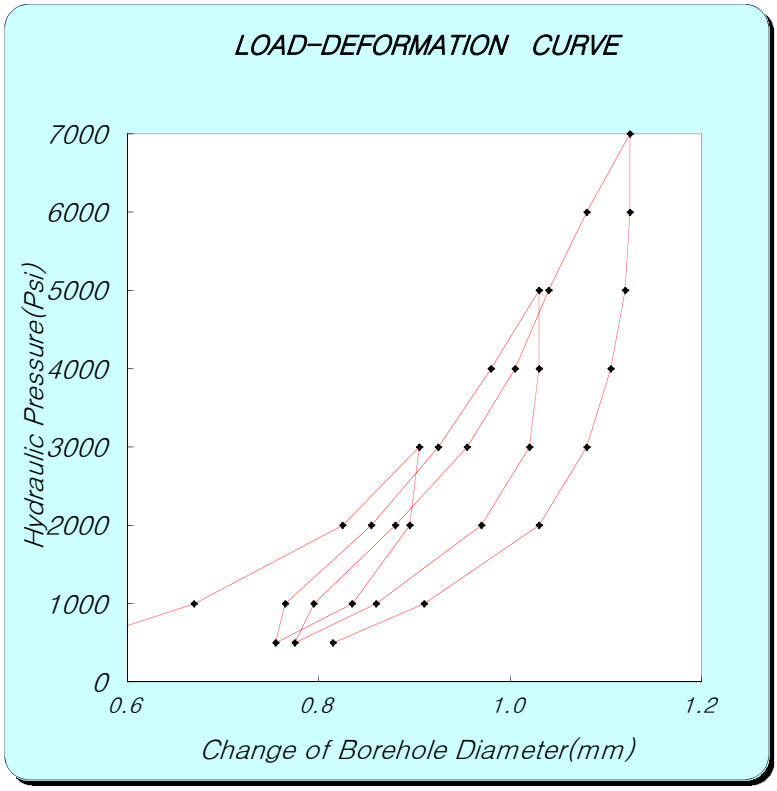
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	22.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.55	0.54	0.545
1000	0.73	0.61	0.670
2000	0.91	0.74	0.825
3000	0.99	0.82	0.905
2000	1.00	0.79	0.895
1000	0.96	0.71	0.835
500	0.87	0.64	0.755
1000	0.87	0.66	0.765
2000	0.95	0.76	0.855
3000	1.02	0.83	0.925
4000	1.08	0.88	0.980
5000	1.13	0.93	1.030
4000	1.14	0.92	1.030
3000	1.14	0.90	1.020
2000	1.10	0.84	0.970
1000	0.95	0.77	0.860
500	0.90	0.65	0.775
1000	0.92	0.67	0.795
2000	0.98	0.78	0.880
3000	1.06	0.85	0.955
4000	1.11	0.90	1.005
5000	1.15	0.93	1.040
6000	1.19	0.97	1.080
7000	1.23	1.02	1.125
6000	1.23	1.02	1.125
5000	1.23	1.01	1.120
4000	1.23	0.98	1.105
3000	1.22	0.94	1.080
2000	1.19	0.87	1.030
1000	1.05	0.77	0.910
500	0.95	0.68	0.815



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.905 D_2 (mm) 1.125

Dc (psi) = 1.59E+06 **Dt = 2.19E+06** psi

1.54E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.880 D_2 (mm) 1.040

Ec (psi) = 1.64E+06 **Et = 2.31E+06** psi

1.63E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

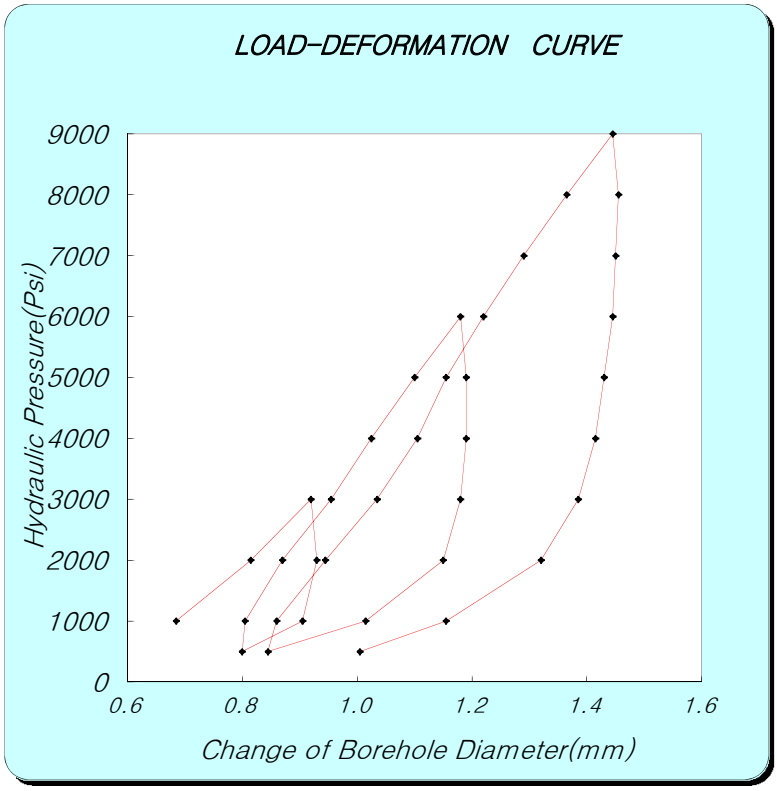
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	26.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.91	0.28	0.595
1000	0.93	0.44	0.685
2000	1.00	0.63	0.815
3000	1.05	0.79	0.920
2000	1.06	0.80	0.930
1000	1.02	0.79	0.905
500	0.92	0.68	0.800
1000	0.93	0.68	0.805
2000	0.99	0.75	0.870
3000	1.04	0.87	0.955
4000	1.08	0.97	1.025
5000	1.12	1.08	1.100
6000	1.15	1.21	1.180
5000	1.16	1.22	1.190
4000	1.16	1.22	1.190
3000	1.15	1.21	1.180
2000	1.11	1.19	1.150
1000	1.02	1.01	1.015
500	0.91	0.78	0.845
1000	0.92	0.80	0.860
2000	0.97	0.92	0.945
3000	1.03	1.04	1.035
4000	1.07	1.14	1.105
5000	1.11	1.20	1.155
6000	1.14	1.30	1.220
7000	1.18	1.40	1.290
8000	1.22	1.51	1.365
9000	1.26	1.63	1.445
8000	1.27	1.64	1.455
7000	1.27	1.63	1.450
6000	1.26	1.63	1.445
5000	1.24	1.62	1.430
4000	1.22	1.61	1.415
3000	1.19	1.58	1.385
2000	1.12	1.52	1.320
1000	1.03	1.28	1.155
500	0.93	1.08	1.005



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

V(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.920 D_2 (mm) 1.445

Dc (psi) = 1.00E+06 **Dt = 1.10E+06** psi

7.75E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.945 D_2 (mm) 1.220

Ec (psi) = 1.27E+06 **Et = 1.50E+06** psi

1.05E+05 kgf/㎠

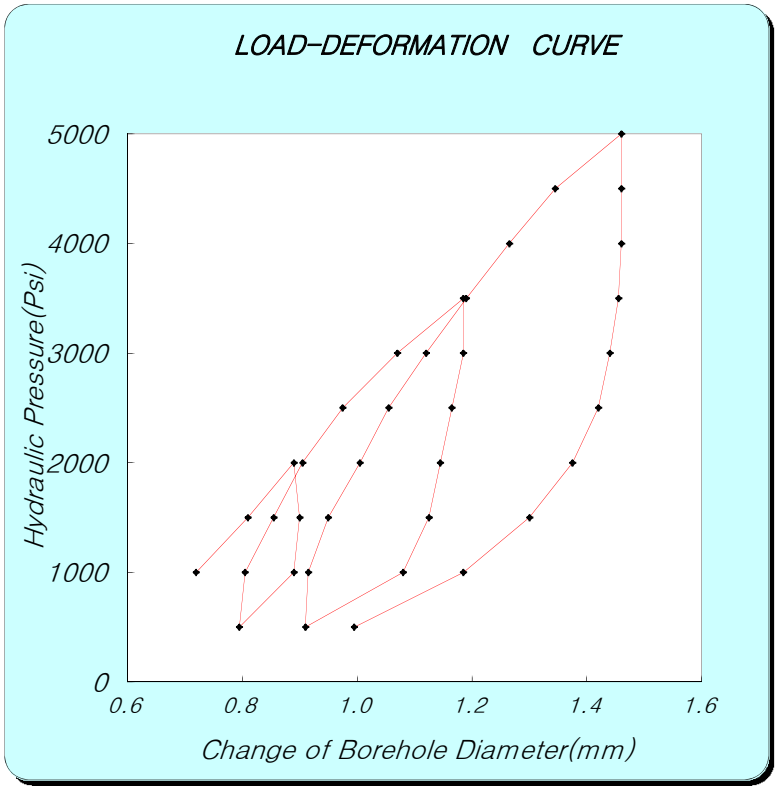
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	34.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.99	0.17	0.580
1000	1.00	0.44	0.720
1500	1.05	0.57	0.810
2000	1.10	0.68	0.890
1500	1.11	0.69	0.900
1000	1.09	0.69	0.890
500	0.99	0.60	0.795
1000	1.00	0.61	0.805
1500	1.05	0.66	0.855
2000	1.09	0.72	0.905
2500	1.14	0.81	0.975
3000	1.19	0.95	1.070
3500	1.27	1.10	1.185
3000	1.27	1.10	1.185
2500	1.26	1.07	1.165
2000	1.25	1.04	1.145
1500	1.22	1.03	1.125
1000	1.15	1.01	1.080
500	1.03	0.79	0.910
1000	1.04	0.79	0.915
1500	1.08	0.82	0.950
2000	1.13	0.88	1.005
2500	1.17	0.94	1.055
3000	1.22	1.02	1.120
3500	1.26	1.12	1.190
4000	1.31	1.22	1.265
4500	1.36	1.33	1.345
5000	1.43	1.49	1.460
4500	1.43	1.49	1.460
4000	1.43	1.49	1.460
3500	1.42	1.49	1.455
3000	1.40	1.48	1.440
2500	1.39	1.45	1.420
2000	1.33	1.42	1.375
1500	1.26	1.34	1.300
1000	1.18	1.19	1.185
500	1.05	0.94	0.995



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 4500

ΔD : D_1 (mm) 0.890 D_2 (mm) 1.345

Dc (psi) = 4.82E+05 **Dt = 4.82E+05** psi

3.39E+04 kgf/㎠

ΔP : P_1 (Psi) 1500 P_2 (Psi) 3500

ΔD : D_1 (mm) 0.950 D_2 (mm) 1.190

Ec (psi) = 7.30E+05 **Et = 7.30E+05** psi

5.13E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

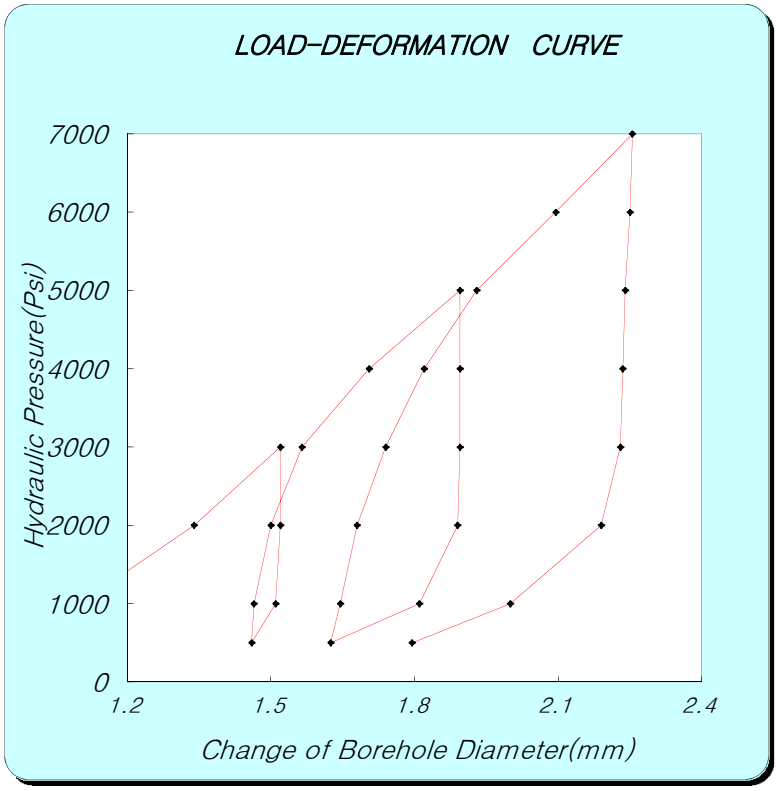
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	42.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.14	0.85	0.995
1000	1.16	1.04	1.100
2000	1.37	1.31	1.340
3000	1.57	1.47	1.520
2000	1.57	1.47	1.520
1000	1.57	1.45	1.510
500	1.50	1.42	1.460
1000	1.50	1.43	1.465
2000	1.53	1.47	1.500
3000	1.58	1.55	1.565
4000	1.72	1.69	1.705
5000	1.92	1.87	1.895
4000	1.92	1.87	1.895
3000	1.92	1.87	1.895
2000	1.92	1.86	1.890
1000	1.83	1.79	1.810
500	1.68	1.57	1.625
1000	1.69	1.60	1.645
2000	1.71	1.65	1.680
3000	1.76	1.72	1.740
4000	1.83	1.81	1.820
5000	1.94	1.92	1.930
6000	2.10	2.09	2.095
7000	2.25	2.26	2.255
6000	2.25	2.25	2.250
5000	2.24	2.24	2.240
4000	2.23	2.24	2.235
3000	2.23	2.23	2.230
2000	2.17	2.21	2.190
1000	1.99	2.01	2.000
500	1.83	1.76	1.795



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 1.520 D_2 (mm) 2.255

Dc (psi) = 4.77E+05 **Dt = 4.77E+05** psi

3.35E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.680 D_2 (mm) 1.930

Ec (psi) = 1.05E+06 **Et = 1.16E+06** psi

8.14E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

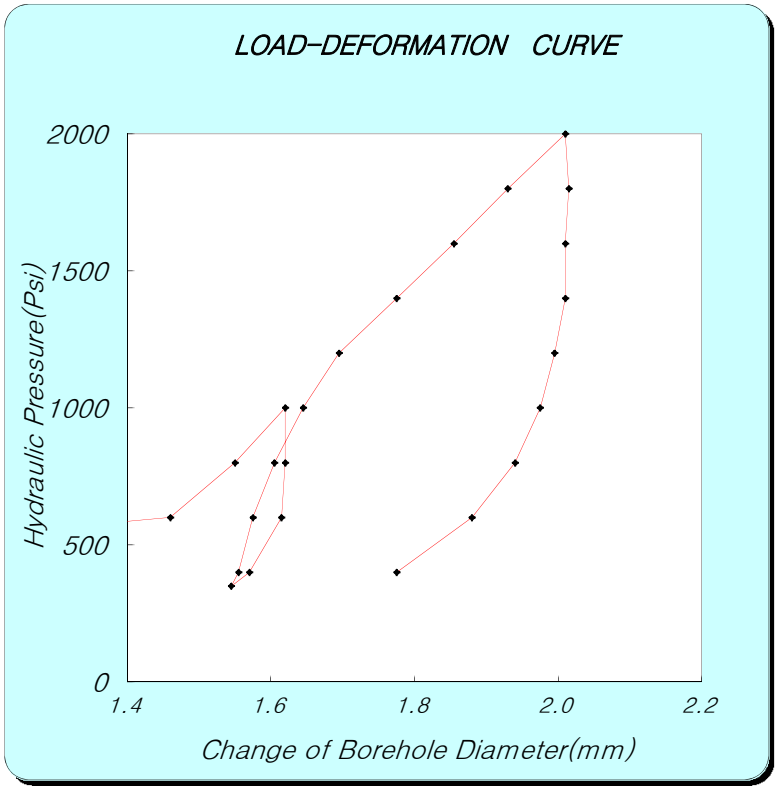
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	53.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	-3.17	0.12	-1.525
400	1.06	0.19	0.625
600	1.88	1.04	1.460
800	1.98	1.12	1.550
1000	2.07	1.17	1.620
800	2.06	1.18	1.620
600	2.06	1.17	1.615
400	1.98	1.16	1.570
350	1.95	1.14	1.545
400	1.95	1.16	1.555
600	1.99	1.16	1.575
800	2.04	1.17	1.605
1000	2.08	1.21	1.645
1200	2.12	1.27	1.695
1400	2.24	1.31	1.775
1600	2.35	1.36	1.855
1800	2.45	1.41	1.930
2000	2.55	1.47	2.010
1800	2.56	1.47	2.015
1600	2.55	1.47	2.010
1400	2.55	1.47	2.010
1200	2.52	1.47	1.995
1000	2.48	1.47	1.975
800	2.43	1.45	1.940
600	2.35	1.41	1.880
400	2.23	1.32	1.775



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 2000

ΔD : D_1 (mm) 1.620 D_2 (mm) 2.010

Dc (psi) = 2.25E+05 **Dt = 2.25E+05** psi

1.58E+04 kgf/㎠

ΔP : P_1 (Psi) 600 P_2 (Psi) 1200

ΔD : D_1 (mm) 1.575 D_2 (mm) 1.695

Ec (psi) = 4.38E+05 **Et = 4.38E+05** psi

3.08E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

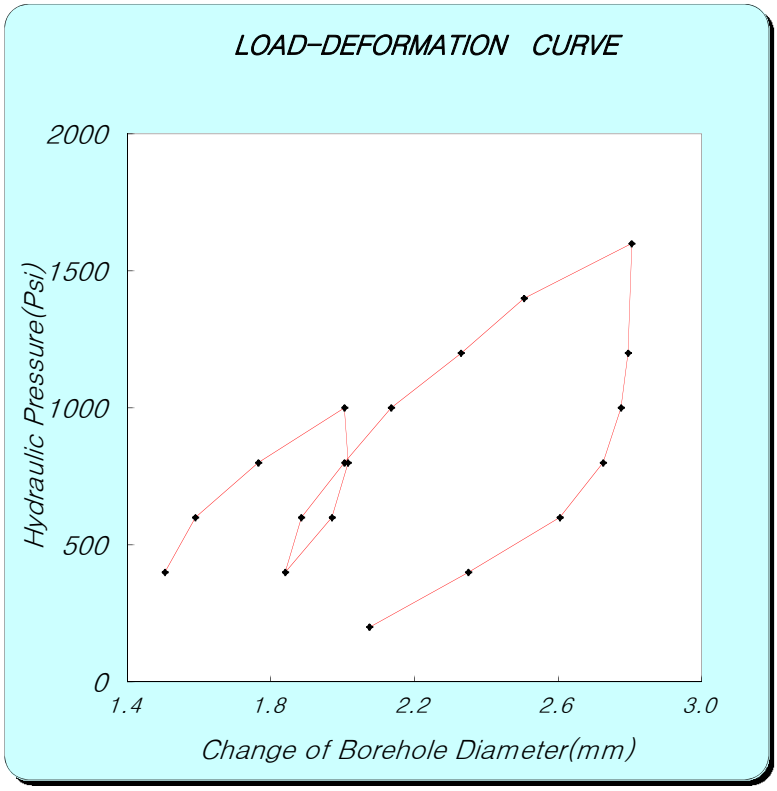
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	58.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.17	-3.37	-1.100
400	1.83	1.18	1.505
600	1.93	1.25	1.590
800	2.06	1.47	1.765
1000	2.18	1.83	2.005
800	2.20	1.83	2.015
600	2.19	1.75	1.970
400	2.10	1.58	1.840
600	2.16	1.61	1.885
800	2.30	1.71	2.005
1000	2.44	1.83	2.135
1200	2.47	2.19	2.330
1400	2.69	2.32	2.505
1600	3.14	2.47	2.805
1200	3.14	2.45	2.795
1000	3.12	2.43	2.775
800	3.07	2.38	2.725
600	2.99	2.22	2.605
400	2.81	1.89	2.350
200	2.48	1.67	2.075



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 1400

ΔD : D_1 (mm) 2.005 D_2 (mm) 2.505

Dc (psi) = 7.01E+04 **Dt = 7.01E+04** psi

4.93E+03 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 1200

ΔD : D_1 (mm) 2.005 D_2 (mm) 2.330

Ec (psi) = 1.08E+05 **Et = 1.08E+05** psi

7.58E+03 kgf/㎠

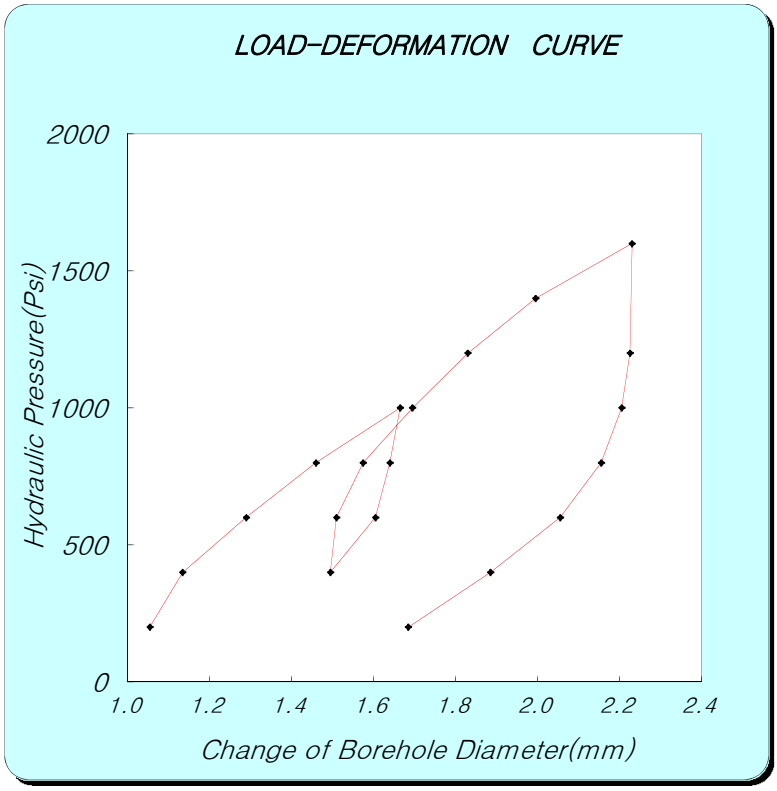
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	63.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.23	0.88	1.055
400	1.33	0.94	1.135
600	1.49	1.09	1.290
800	1.63	1.29	1.460
1000	1.86	1.47	1.665
800	1.84	1.44	1.640
600	1.81	1.40	1.605
400	1.71	1.28	1.495
600	1.72	1.30	1.510
800	1.79	1.36	1.575
1000	1.93	1.46	1.695
1200	2.04	1.62	1.830
1400	2.18	1.81	1.995
1600	2.43	2.03	2.230
1200	2.42	2.03	2.225
1000	2.40	2.01	2.205
800	2.36	1.95	2.155
600	2.28	1.83	2.055
400	2.06	1.71	1.885
200	1.86	1.51	1.685



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 1400

ΔD : D_1 (mm) 1.665 D_2 (mm) 1.995

Dc (psi) = 1.06E+05 **Dt = 1.06E+05** psi

7.47E+03 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 1200

ΔD : D_1 (mm) 1.575 D_2 (mm) 1.830

Ec (psi) = 1.37E+05 **Et = 1.37E+05** psi

9.67E+03 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

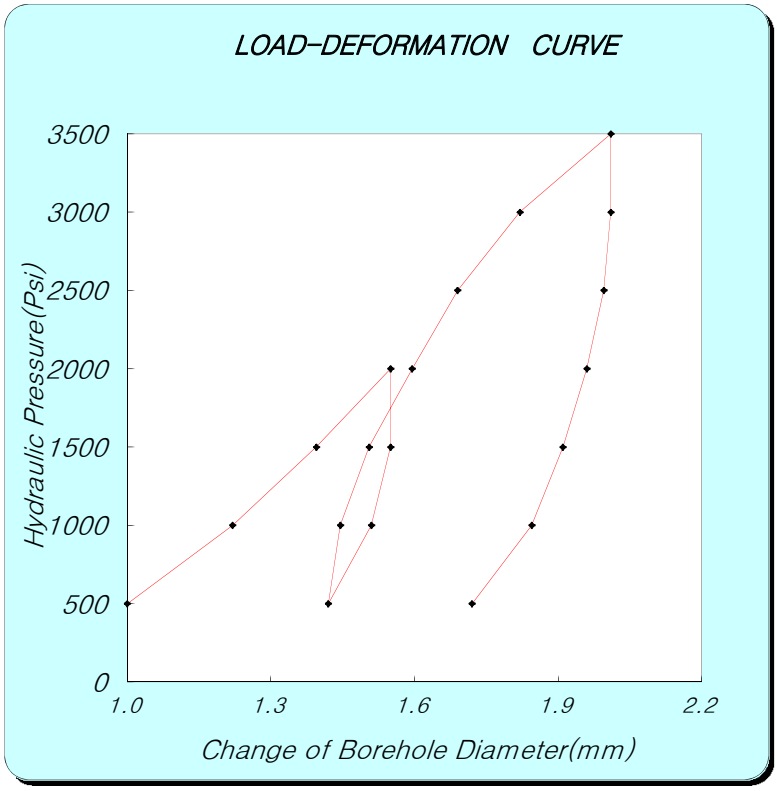
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-7	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	74.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.94	1.06	1.000
1000	1.32	1.12	1.220
1500	1.60	1.19	1.395
2000	1.83	1.27	1.550
1500	1.83	1.27	1.550
1000	1.80	1.22	1.510
500	1.70	1.14	1.420
1000	1.72	1.17	1.445
1500	1.76	1.25	1.505
2000	1.89	1.30	1.595
2500	2.02	1.36	1.690
3000	2.19	1.45	1.820
3500	2.41	1.61	2.010
3000	2.41	1.61	2.010
2500	2.39	1.60	1.995
2000	2.36	1.56	1.960
1500	2.30	1.52	1.910
1000	2.23	1.46	1.845
500	2.11	1.33	1.720



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 3000

ΔD : D_1 (mm) 1.550 D_2 (mm) 1.820

Dc (psi) = 3.25E+05 **Dt = 3.25E+05** psi

2.28E+04 kgf/㎠

ΔP : P_1 (Psi) 1500 P_2 (Psi) 2500

ΔD : D_1 (mm) 1.505 D_2 (mm) 1.690

Ec (psi) = 4.74E+05 **Et = 4.74E+05** psi

3.33E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

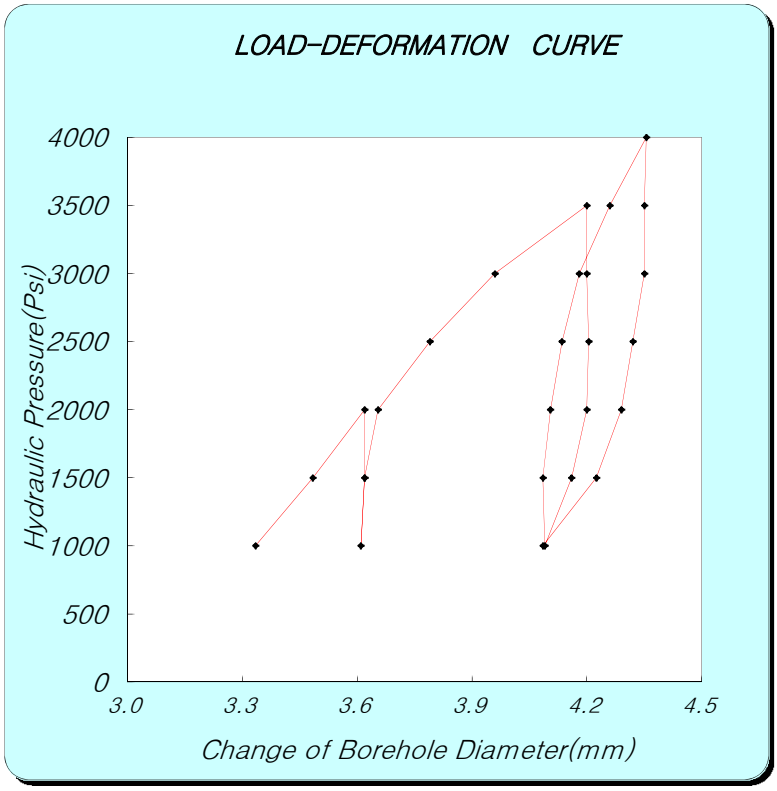
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-8	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	8.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	0.95	TCR/RQD(%) :	83/41	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	3.35	2.94	3.145
1000	3.50	3.17	3.335
1500	3.63	3.34	3.485
2000	3.78	3.46	3.620
1500	3.78	3.46	3.620
1000	3.78	3.44	3.610
1500	3.79	3.45	3.620
2000	3.82	3.49	3.655
2500	3.97	3.61	3.790
3000	4.19	3.73	3.960
3500	4.48	3.92	4.200
3000	4.48	3.92	4.200
2500	4.48	3.93	4.205
2000	4.49	3.91	4.200
1500	4.46	3.86	4.160
1000	4.37	3.81	4.090
1500	4.36	3.81	4.085
2000	4.37	3.84	4.105
2500	4.40	3.87	4.135
3000	4.45	3.91	4.180
3500	4.55	3.97	4.260
4000	4.62	4.09	4.355
3500	4.62	4.08	4.350
3000	4.62	4.08	4.350
2500	4.59	4.05	4.320
2000	4.55	4.03	4.290
1500	4.48	3.97	4.225
1000	4.34	3.83	4.085



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 4000

ΔD : D_1 (mm) 3.620 D_2 (mm) 4.355

Dc (psi) = 2.38E+05 **Dt = 2.38E+05** psi

1.68E+04 kgf/㎠

ΔP : P_1 (Psi) 1500 P_2 (Psi) 3000

ΔD : D_1 (mm) 4.085 D_2 (mm) 4.180

Ec (psi) = 1.38E+06 **Et = 1.71E+06** psi

1.20E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

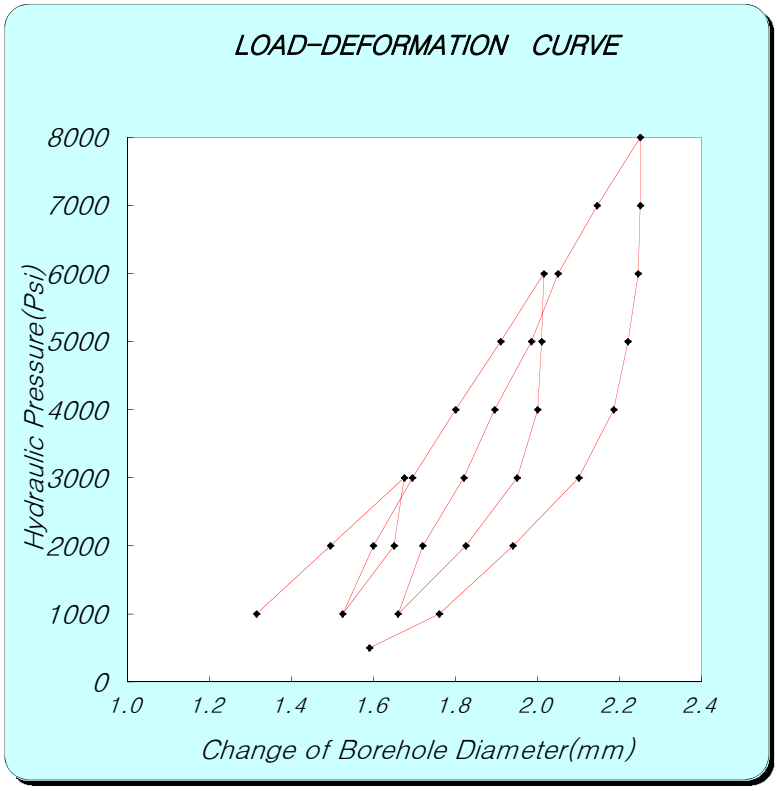
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기부지 세부조사

Hole No. :	GR-8	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	16.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	0.95	TCR/RQD(%) :	93/55	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.14	1.11	1.125
1000	1.36	1.27	1.315
2000	1.47	1.52	1.495
3000	1.54	1.81	1.675
2000	1.53	1.77	1.650
1000	1.48	1.57	1.525
2000	1.51	1.69	1.600
3000	1.55	1.84	1.695
4000	1.59	2.01	1.800
5000	1.63	2.19	1.910
6000	1.68	2.35	2.015
5000	1.68	2.34	2.010
4000	1.66	2.34	2.000
3000	1.61	2.29	1.950
2000	1.57	2.08	1.825
1000	1.51	1.81	1.660
2000	1.53	1.91	1.720
3000	1.57	2.07	1.820
4000	1.62	2.17	1.895
5000	1.66	2.31	1.985
6000	1.69	2.41	2.050
7000	1.74	2.55	2.145
8000	1.79	2.71	2.250
7000	1.79	2.71	2.250
6000	1.78	2.71	2.245
5000	1.74	2.70	2.220
4000	1.69	2.68	2.185
3000	1.64	2.56	2.100
2000	1.59	2.29	1.940
1000	1.54	1.98	1.760
500	1.49	1.69	1.590



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.675 D_2 (mm) 2.250

Dc (psi) = 7.62E+05 **Dt = 7.62E+05** psi

5.36E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.720 D_2 (mm) 2.050

Ec (psi) = 1.06E+06 **Et = 1.17E+06** psi

8.23E+04 kgf/㎠

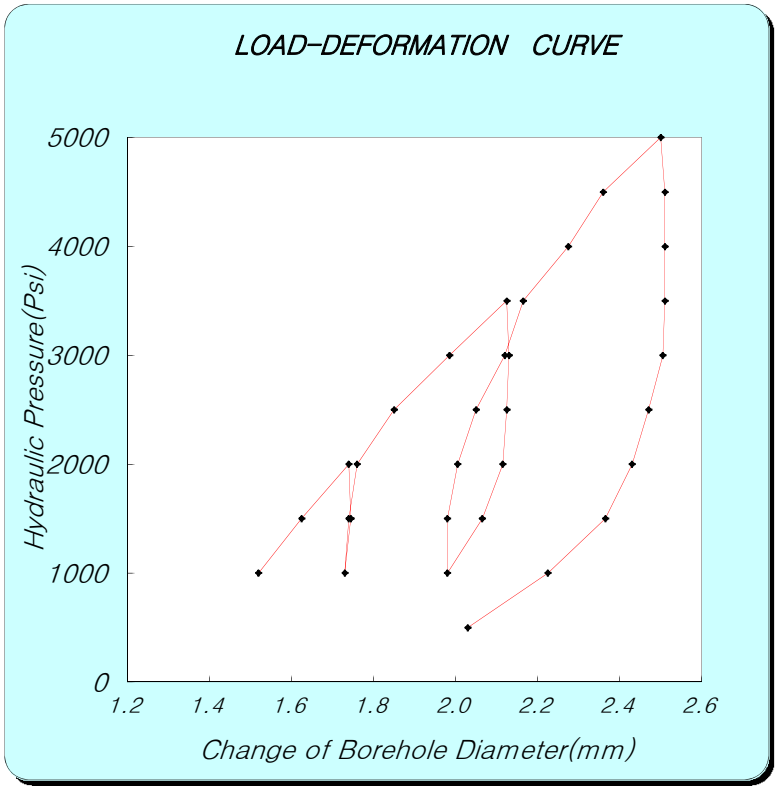
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기부지 세부조사

Hole No. :	GR-8	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	25.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	0.95	TCR/RQD(%) :	100/79	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.26	1.47	1.365
1000	1.36	1.68	1.520
1500	1.44	1.81	1.625
2000	1.54	1.94	1.740
1500	1.55	1.94	1.745
1000	1.54	1.92	1.730
1500	1.56	1.92	1.740
2000	1.56	1.96	1.760
2500	1.64	2.06	1.850
3000	1.76	2.21	1.985
3500	1.89	2.36	2.125
3000	1.90	2.36	2.130
2500	1.89	2.36	2.125
2000	1.88	2.35	2.115
1500	1.81	2.32	2.065
1000	1.70	2.26	1.980
1500	1.70	2.26	1.980
2000	1.73	2.28	2.005
2500	1.79	2.31	2.050
3000	1.89	2.35	2.120
3500	1.94	2.39	2.165
4000	2.07	2.48	2.275
4500	2.12	2.60	2.360
5000	2.27	2.73	2.500
4500	2.28	2.74	2.510
4000	2.28	2.74	2.510
3500	2.28	2.74	2.510
3000	2.28	2.73	2.505
2500	2.25	2.69	2.470
2000	2.19	2.67	2.430
1500	2.10	2.63	2.365
1000	1.96	2.49	2.225
500	1.77	2.29	2.030



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 4500

ΔD : D_1 (mm) 1.740 D_2 (mm) 2.360

Dc (psi) = 3.53E+05 **Dt = 3.53E+05** psi

2.48E+04 kgf/㎠

ΔP : P_1 (Psi) 1500 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.980 D_2 (mm) 2.165

Ec (psi) = 9.47E+05 **Et = 1.05E+06** psi

7.38E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

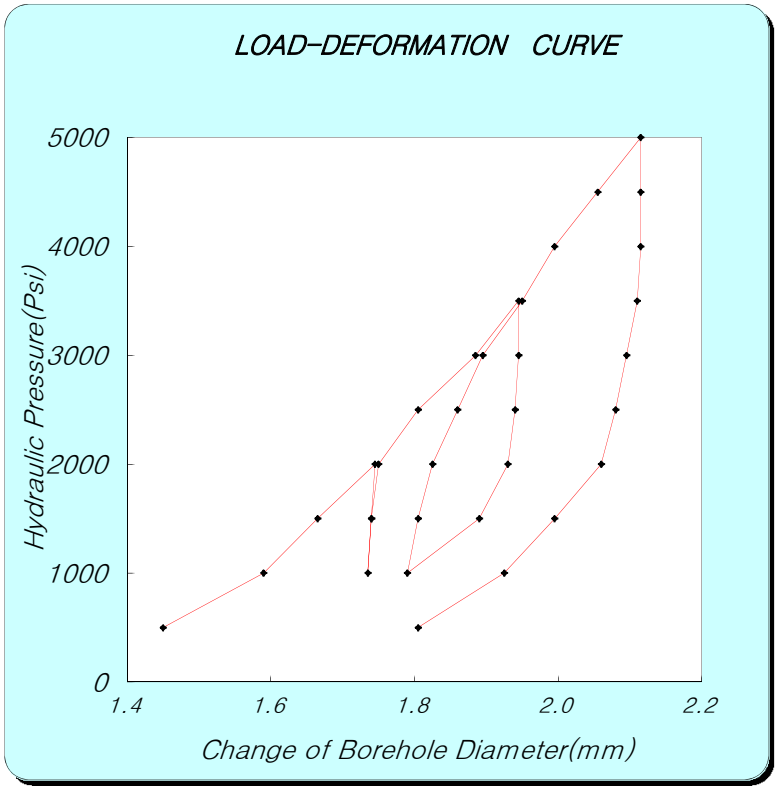
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기부지 세부조사

Hole No. :	GR-8	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	30.0m	Rock Class :	HW	Record By :	S.H.Lee
G.W.L :	0.95	TCR/RQD(%) :	90/14	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.98	0.92	1.450
1000	2.00	1.18	1.590
1500	2.02	1.31	1.665
2000	2.06	1.43	1.745
1500	2.06	1.42	1.740
1000	2.05	1.42	1.735
1500	2.06	1.42	1.740
2000	2.06	1.44	1.750
2500	2.10	1.51	1.805
3000	2.15	1.62	1.885
3500	2.20	1.69	1.945
3000	2.20	1.69	1.945
2500	2.19	1.69	1.940
2000	2.19	1.67	1.930
1500	2.14	1.64	1.890
1000	2.05	1.53	1.790
1500	2.06	1.55	1.805
2000	2.08	1.57	1.825
2500	2.11	1.61	1.860
3000	2.14	1.65	1.895
3500	2.19	1.71	1.950
4000	2.23	1.76	1.995
4500	2.28	1.83	2.055
5000	2.34	1.89	2.115
4500	2.34	1.89	2.115
4000	2.34	1.89	2.115
3500	2.33	1.89	2.110
3000	2.30	1.89	2.095
2500	2.29	1.87	2.080
2000	2.27	1.85	2.060
1500	2.21	1.78	1.995
1000	2.17	1.68	1.925
500	2.10	1.51	1.805



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.745 D_2 (mm) 2.115

Dc (psi) = 7.11E+05 **Dt = 7.11E+05** psi

5.00E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.825 D_2 (mm) 1.995

Ec (psi) = 1.03E+06 **Et = 1.13E+06** psi

7.97E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

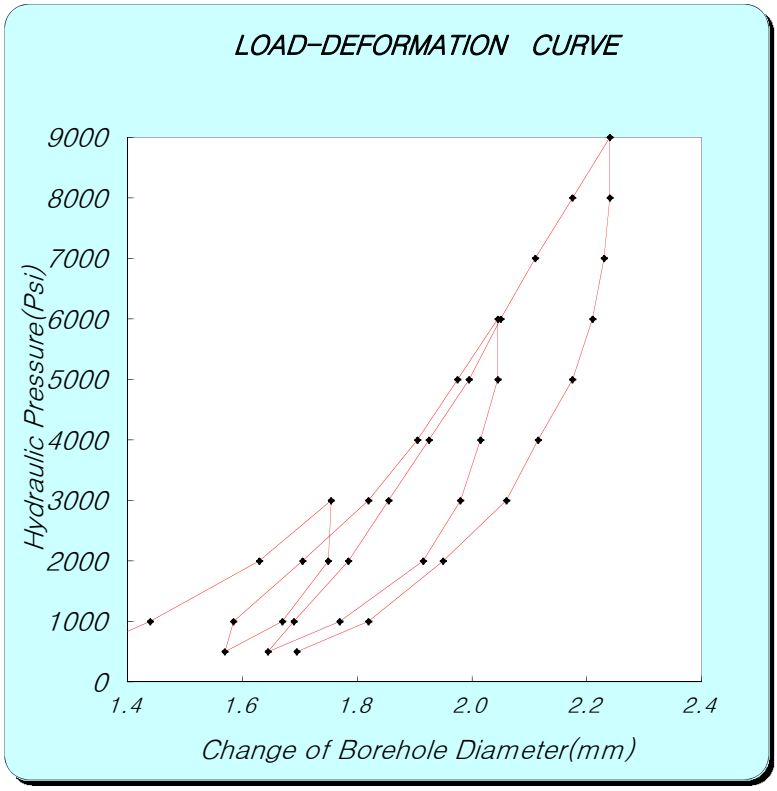
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기부지 세부조사

Hole No. :	GR-8	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	40.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	0.95	TCR/RQD(%) :	100/97	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.10	1.54	1.320
1000	1.26	1.62	1.440
2000	1.43	1.83	1.630
3000	1.55	1.96	1.755
2000	1.54	1.96	1.750
1000	1.45	1.89	1.670
500	1.35	1.79	1.570
1000	1.37	1.80	1.585
2000	1.50	1.91	1.705
3000	1.62	2.02	1.820
4000	1.73	2.08	1.905
5000	1.82	2.13	1.975
6000	1.91	2.18	2.045
5000	1.91	2.18	2.045
4000	1.86	2.17	2.015
3000	1.80	2.16	1.980
2000	1.71	2.12	1.915
1000	1.56	1.98	1.770
500	1.48	1.81	1.645
1000	1.50	1.88	1.690
2000	1.57	2.00	1.785
3000	1.66	2.05	1.855
4000	1.76	2.09	1.925
5000	1.85	2.14	1.995
6000	1.92	2.18	2.050
7000	1.99	2.23	2.110
8000	2.07	2.28	2.175
9000	2.15	2.33	2.240
8000	2.15	2.33	2.240
7000	2.14	2.32	2.230
6000	2.11	2.31	2.210
5000	2.05	2.30	2.175
4000	1.96	2.27	2.115
3000	1.88	2.24	2.060
2000	1.72	2.18	1.950
1000	1.61	2.03	1.820
500	1.50	1.89	1.695



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.755 D_2 (mm) 2.240

Dc (psi) = 1.08E+06 **Dt = 1.20E+06** psi

8.43E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.785 D_2 (mm) 2.050

Ec (psi) = 1.32E+06 **Et = 1.59E+06** psi

1.12E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

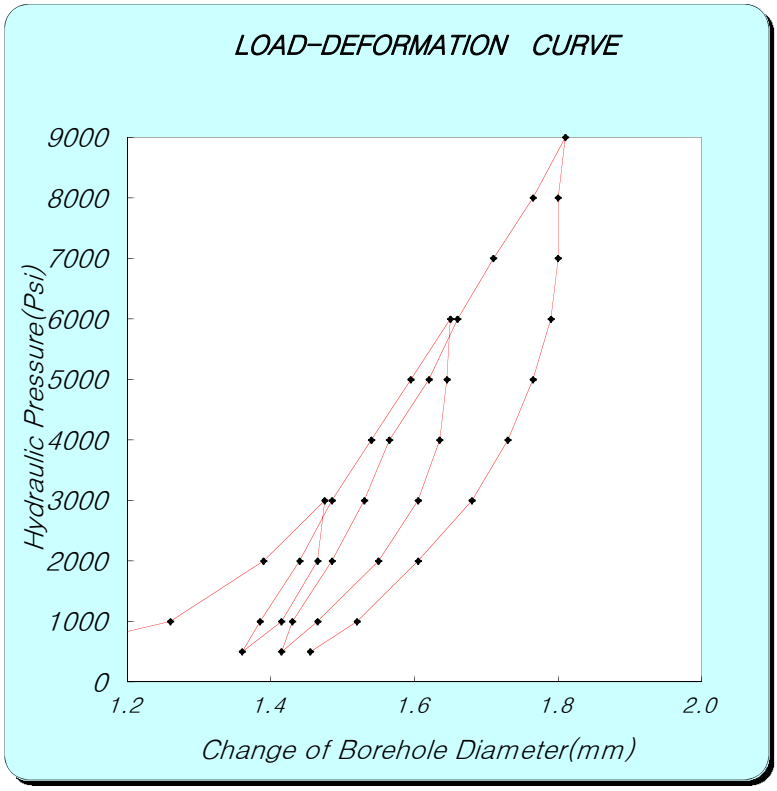
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기부지 세부조사

Hole No. :	GR-8	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	48.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	0.95	TCR/RQD(%) :	100/89	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.34	0.82	1.080
1000	1.39	1.13	1.260
2000	1.46	1.32	1.390
3000	1.53	1.42	1.475
2000	1.51	1.42	1.465
1000	1.45	1.38	1.415
500	1.40	1.32	1.360
1000	1.43	1.34	1.385
2000	1.49	1.39	1.440
3000	1.54	1.43	1.485
4000	1.59	1.49	1.540
5000	1.64	1.55	1.595
6000	1.69	1.61	1.650
5000	1.68	1.61	1.645
4000	1.67	1.60	1.635
3000	1.63	1.58	1.605
2000	1.56	1.54	1.550
1000	1.49	1.44	1.465
500	1.44	1.39	1.415
1000	1.45	1.41	1.430
2000	1.52	1.45	1.485
3000	1.57	1.49	1.530
4000	1.61	1.52	1.565
5000	1.66	1.58	1.620
6000	1.69	1.63	1.660
7000	1.74	1.68	1.710
8000	1.79	1.74	1.765
9000	1.83	1.79	1.810
8000	1.82	1.78	1.800
7000	1.82	1.78	1.800
6000	1.81	1.77	1.790
5000	1.78	1.75	1.765
4000	1.74	1.72	1.730
3000	1.68	1.68	1.680
2000	1.61	1.60	1.605
1000	1.55	1.49	1.520
500	1.49	1.42	1.455



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.475 D_2 (mm) 1.810

Dc (psi) = 1.57E+06 **Dt = 2.13E+06** psi

1.50E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.485 D_2 (mm) 1.660

Ec (psi) = 2.00E+06 **Et = 3.34E+06** psi

2.35E+05 kgf/㎠

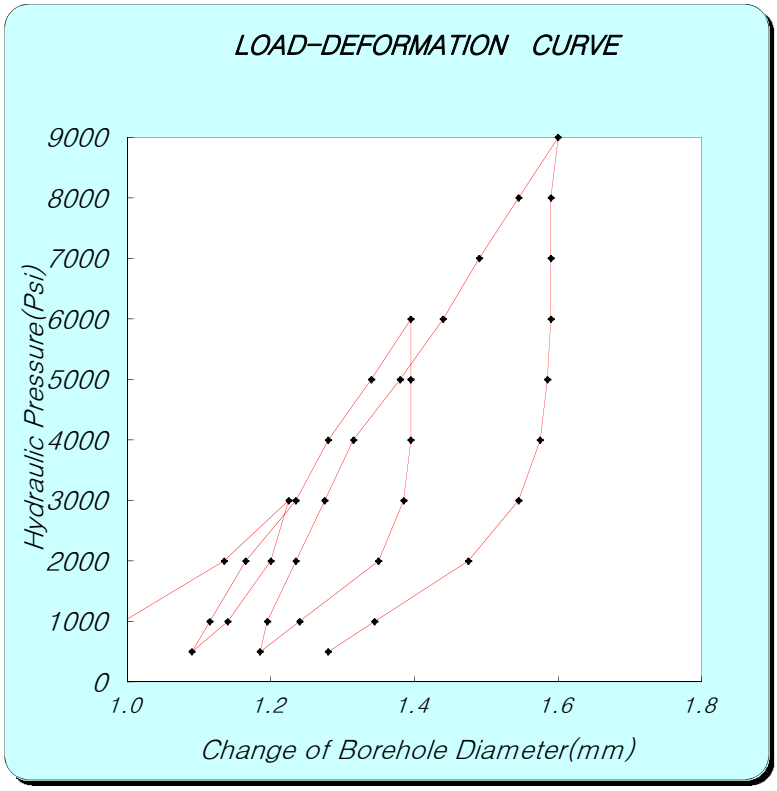
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기부지 세부조사

Hole No. :	GR-8	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	56.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	0.95	TCR/RQD(%) :	100/97	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.04	0.67	0.855
1000	1.11	0.88	0.995
2000	1.21	1.06	1.135
3000	1.27	1.18	1.225
2000	1.23	1.17	1.200
1000	1.16	1.12	1.140
500	1.10	1.08	1.090
1000	1.13	1.10	1.115
2000	1.20	1.13	1.165
3000	1.27	1.20	1.235
4000	1.30	1.26	1.280
5000	1.33	1.35	1.340
6000	1.40	1.39	1.395
5000	1.40	1.39	1.395
4000	1.40	1.39	1.395
3000	1.39	1.38	1.385
2000	1.38	1.32	1.350
1000	1.32	1.16	1.240
500	1.26	1.11	1.185
1000	1.26	1.13	1.195
2000	1.29	1.18	1.235
3000	1.32	1.23	1.275
4000	1.36	1.27	1.315
5000	1.40	1.36	1.380
6000	1.45	1.43	1.440
7000	1.52	1.46	1.490
8000	1.58	1.51	1.545
9000	1.65	1.55	1.600
8000	1.65	1.53	1.590
7000	1.65	1.53	1.590
6000	1.65	1.53	1.590
5000	1.64	1.53	1.585
4000	1.62	1.53	1.575
3000	1.59	1.50	1.545
2000	1.55	1.40	1.475
1000	1.49	1.20	1.345
500	1.43	1.13	1.280



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.225 D_2 (mm) 1.600

Dc (psi) = 1.40E+06 **Dt = 1.75E+06** psi

1.23E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.235 D_2 (mm) 1.440

Ec (psi) = 1.71E+06 **Et = 2.49E+06** psi

1.75E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

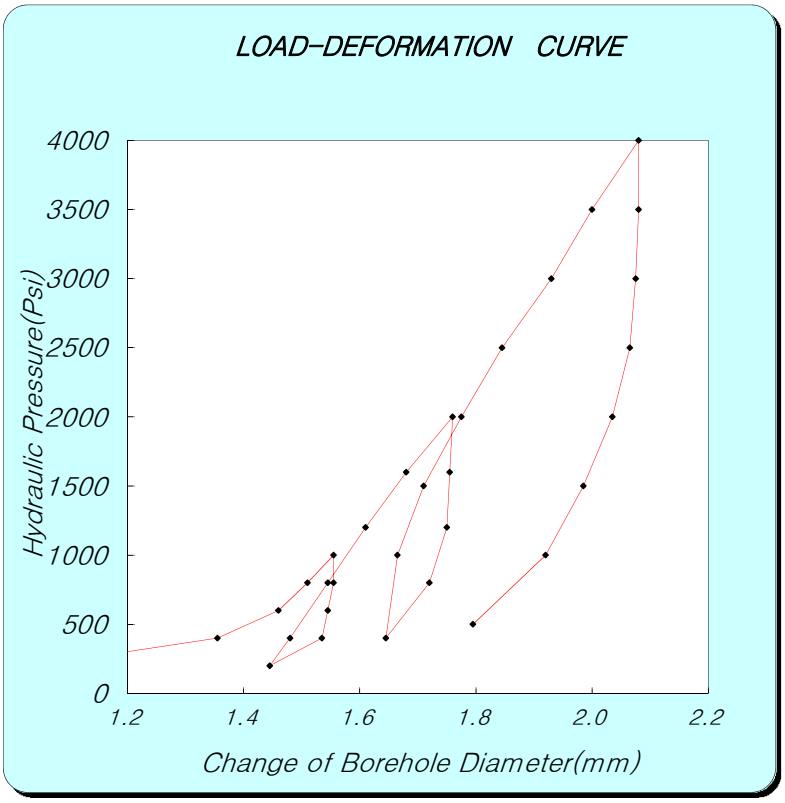
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-10	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	12.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	93/64	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	0.57	1.51	1.040
400	1.17	1.54	1.355
600	1.30	1.62	1.460
800	1.35	1.67	1.510
1000	1.40	1.71	1.555
800	1.40	1.71	1.555
600	1.40	1.69	1.545
400	1.40	1.67	1.535
200	1.38	1.51	1.445
400	1.39	1.57	1.480
800	1.41	1.68	1.545
1200	1.46	1.76	1.610
1600	1.53	1.83	1.680
2000	1.61	1.91	1.760
1600	1.61	1.90	1.755
1200	1.61	1.89	1.750
800	1.59	1.85	1.720
400	1.54	1.75	1.645
1000	1.54	1.79	1.665
1500	1.57	1.85	1.710
2000	1.63	1.92	1.775
2500	1.69	2.00	1.845
3000	1.79	2.07	1.930
3500	1.86	2.14	2.000
4000	1.95	2.21	2.080
3500	1.95	2.21	2.080
3000	1.95	2.20	2.075
2500	1.94	2.19	2.065
2000	1.92	2.15	2.035
1500	1.87	2.10	1.985
1000	1.81	2.03	1.920
500	1.70	1.89	1.795



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.555 D_2 (mm) 2.080

Dc (psi) = 5.01E+05 **Dt = 5.01E+05** psi

3.52E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.665 D_2 (mm) 2.000

Ec (psi) = 6.54E+05 **Et = 6.54E+05** psi

4.60E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

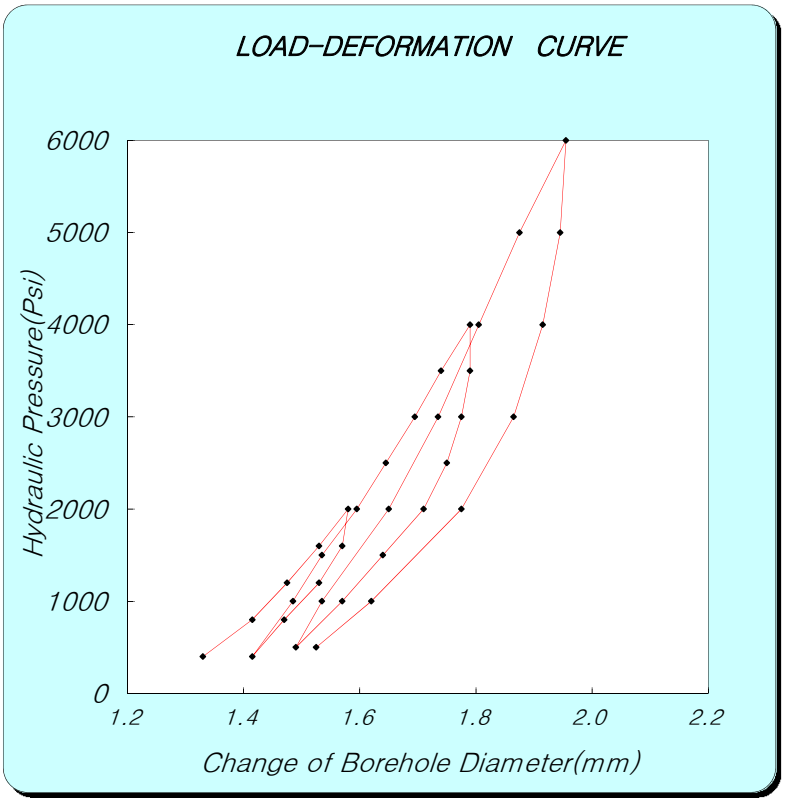
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-10	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	18.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/77	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	1.16	1.50	1.330
800	1.24	1.59	1.415
1200	1.30	1.65	1.475
1600	1.35	1.71	1.530
2000	1.40	1.76	1.580
1600	1.39	1.75	1.570
1200	1.35	1.71	1.530
800	1.30	1.64	1.470
400	1.26	1.57	1.415
1000	1.31	1.66	1.485
1500	1.36	1.71	1.535
2000	1.42	1.77	1.595
2500	1.47	1.82	1.645
3000	1.52	1.87	1.695
3500	1.56	1.92	1.740
4000	1.60	1.98	1.790
3500	1.60	1.98	1.790
3000	1.59	1.96	1.775
2500	1.56	1.94	1.750
2000	1.52	1.90	1.710
1500	1.45	1.83	1.640
1000	1.39	1.75	1.570
500	1.32	1.66	1.490
1000	1.36	1.71	1.535
2000	1.47	1.83	1.650
3000	1.56	1.91	1.735
4000	1.62	1.99	1.805
5000	1.67	2.08	1.875
6000	1.74	2.17	1.955
5000	1.73	2.16	1.945
4000	1.70	2.13	1.915
3000	1.66	2.07	1.865
2000	1.57	1.98	1.775
1000	1.43	1.81	1.620
500	1.35	1.70	1.525



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.580 D_2 (mm) 1.955

Dc (psi) = 9.35E+05 **Dt = 1.04E+06** psi

7.31E+04 kgf/㎠

ΔP : P_1 (Psi) 2500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.750 D_2 (mm) 1.535

Ec (psi) = 6.11E+05 **Et = 6.11E+05** psi

4.30E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

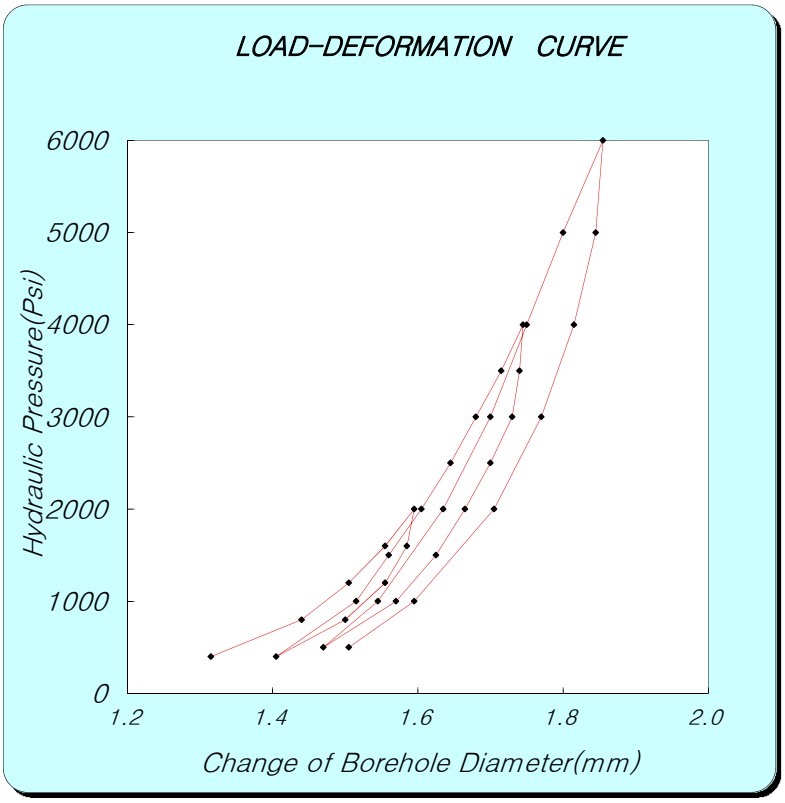
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-10	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	24.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/59	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	1.20	1.43	1.315
800	1.31	1.57	1.440
1200	1.38	1.63	1.505
1600	1.44	1.67	1.555
2000	1.49	1.70	1.595
1600	1.49	1.68	1.585
1200	1.47	1.64	1.555
800	1.42	1.58	1.500
400	1.34	1.47	1.405
1000	1.42	1.61	1.515
1500	1.46	1.66	1.560
2000	1.51	1.70	1.605
2500	1.55	1.74	1.645
3000	1.59	1.77	1.680
3500	1.62	1.81	1.715
4000	1.65	1.84	1.745
3500	1.65	1.83	1.740
3000	1.65	1.81	1.730
2500	1.64	1.76	1.700
2000	1.61	1.72	1.665
1500	1.57	1.68	1.625
1000	1.51	1.63	1.570
500	1.41	1.53	1.470
1000	1.47	1.62	1.545
2000	1.55	1.72	1.635
3000	1.61	1.79	1.700
4000	1.66	1.84	1.750
5000	1.70	1.90	1.800
6000	1.75	1.96	1.855
5000	1.75	1.94	1.845
4000	1.75	1.88	1.815
3000	1.72	1.82	1.770
2000	1.66	1.75	1.705
1000	1.54	1.65	1.595
500	1.45	1.56	1.505



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.595 D_2 (mm) 1.855

Dc (psi) = 1.35E+06 **Dt = 1.64E+06** psi

1.15E+05 kgf/㎠

ΔP : P_1 (Psi) 2500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.700 D_2 (mm) 1.545

Ec (psi) = 8.48E+05 **Et = 8.48E+05** psi

5.96E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

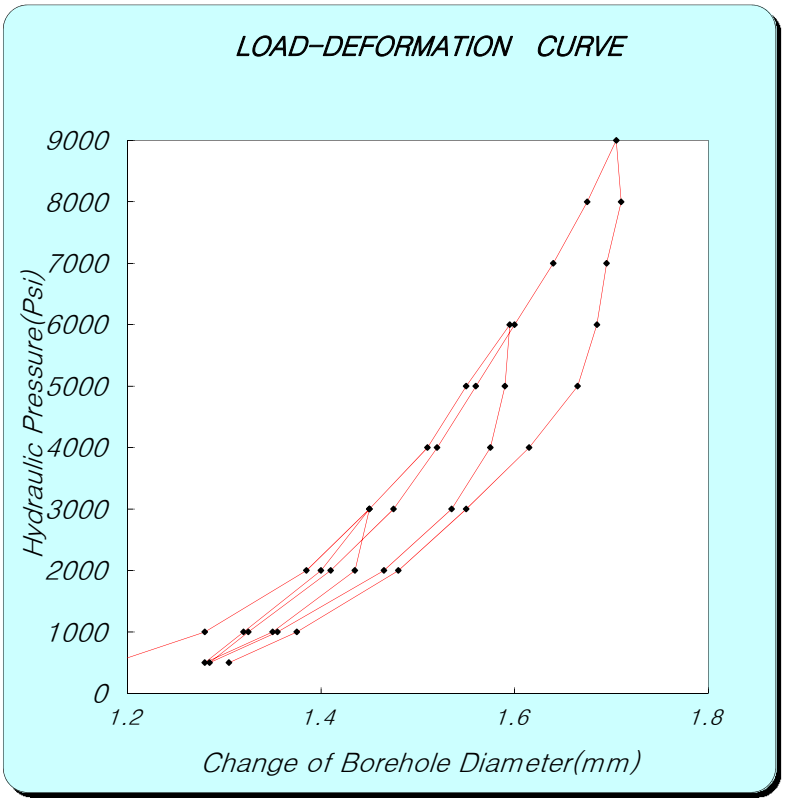
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-10	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	32.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/94	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	1.04	1.33	1.185
1000	1.15	1.41	1.280
2000	1.25	1.52	1.385
3000	1.31	1.59	1.450
2000	1.31	1.56	1.435
1000	1.23	1.47	1.350
500	1.15	1.41	1.280
1000	1.20	1.44	1.320
2000	1.27	1.53	1.400
3000	1.31	1.59	1.450
4000	1.36	1.66	1.510
5000	1.40	1.70	1.550
6000	1.44	1.75	1.595
5000	1.44	1.74	1.590
4000	1.44	1.71	1.575
3000	1.42	1.65	1.535
2000	1.36	1.57	1.465
1000	1.24	1.47	1.355
500	1.17	1.40	1.285
1000	1.21	1.44	1.325
2000	1.29	1.53	1.410
3000	1.34	1.61	1.475
4000	1.38	1.66	1.520
5000	1.41	1.71	1.560
6000	1.45	1.75	1.600
7000	1.49	1.79	1.640
8000	1.53	1.82	1.675
9000	1.56	1.85	1.705
8000	1.57	1.85	1.710
7000	1.56	1.83	1.695
6000	1.55	1.82	1.685
5000	1.54	1.79	1.665
4000	1.51	1.72	1.615
3000	1.45	1.65	1.550
2000	1.38	1.58	1.480
1000	1.27	1.48	1.375
500	1.19	1.42	1.305



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.450 D_2 (mm) 1.705

Dc (psi) = 2.06E+06 **Dt = 3.53E+06** psi

2.48E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.410 D_2 (mm) 1.675

Ec (psi) = 1.98E+06 **Et = 3.28E+06** psi

2.31E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

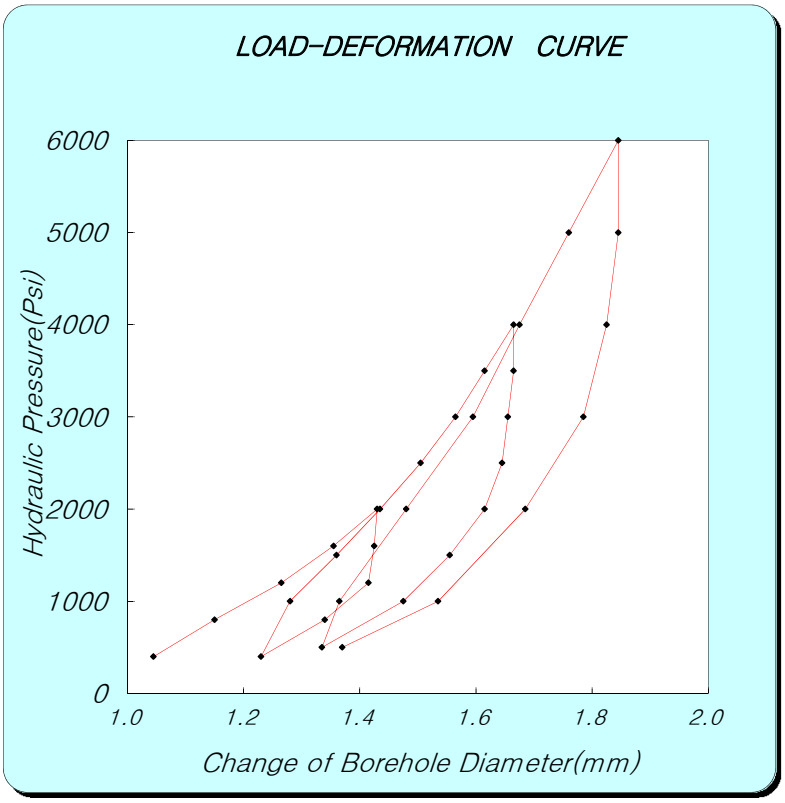
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-10	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	41.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/88	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.62	1.47	1.045
800	0.78	1.52	1.150
1200	0.95	1.58	1.265
1600	1.09	1.62	1.355
2000	1.19	1.67	1.430
1600	1.19	1.66	1.425
1200	1.18	1.65	1.415
800	1.08	1.60	1.340
400	0.92	1.54	1.230
1000	0.99	1.57	1.280
1500	1.10	1.62	1.360
2000	1.20	1.67	1.435
2500	1.29	1.72	1.505
3000	1.36	1.77	1.565
3500	1.42	1.81	1.615
4000	1.47	1.86	1.665
3500	1.48	1.85	1.665
3000	1.47	1.84	1.655
2500	1.47	1.82	1.645
2000	1.45	1.78	1.615
1500	1.38	1.73	1.555
1000	1.28	1.67	1.475
500	1.07	1.60	1.335
1000	1.11	1.62	1.365
2000	1.26	1.70	1.480
3000	1.40	1.79	1.595
4000	1.49	1.86	1.675
5000	1.58	1.94	1.760
6000	1.67	2.02	1.845
5000	1.67	2.02	1.845
4000	1.66	1.99	1.825
3000	1.65	1.92	1.785
2000	1.54	1.83	1.685
1000	1.35	1.72	1.535
500	1.12	1.62	1.370
			0.000
			0.000



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.430 D_2 (mm) 1.845

Dc (psi) = 8.45E+05 **Dt = 8.45E+05** psi

5.94E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.365 D_2 (mm) 1.760

Ec (psi) = 8.87E+05 **Et = 1.00E+06** psi

7.06E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

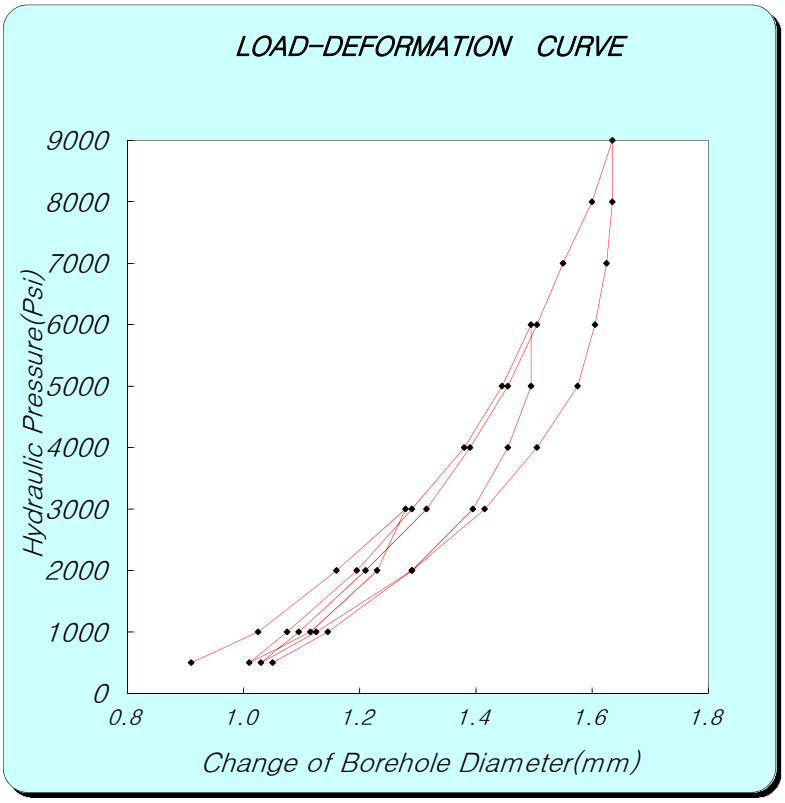
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-10	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	48.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.94	0.88	0.910
1000	1.01	1.04	1.025
2000	1.10	1.22	1.160
3000	1.18	1.38	1.279
2000	1.17	1.29	1.230
1000	1.08	1.15	1.115
500	1.00	1.02	1.010
1000	1.05	1.10	1.075
2000	1.13	1.26	1.195
3000	1.19	1.39	1.290
4000	1.26	1.50	1.380
5000	1.31	1.58	1.445
6000	1.36	1.63	1.495
5000	1.36	1.63	1.495
4000	1.35	1.56	1.455
3000	1.32	1.47	1.395
2000	1.24	1.34	1.290
1000	1.09	1.16	1.125
500	1.01	1.05	1.030
1000	1.07	1.12	1.095
2000	1.15	1.27	1.210
3000	1.22	1.41	1.315
4000	1.27	1.51	1.390
5000	1.32	1.59	1.455
6000	1.37	1.64	1.505
7000	1.41	1.69	1.550
8000	1.46	1.74	1.600
9000	1.49	1.78	1.635
8000	1.49	1.78	1.635
7000	1.49	1.76	1.625
6000	1.48	1.73	1.605
5000	1.47	1.68	1.575
4000	1.43	1.58	1.505
3000	1.35	1.48	1.415
2000	1.24	1.34	1.290
1000	1.11	1.18	1.145
500	1.03	1.07	1.050



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.279 D_2 (mm) 1.635

Dc (psi) = 1.48E+06 **Dt = 1.91E+06** psi

1.34E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.210 D_2 (mm) 1.600

Ec (psi) = 1.35E+06 **Et = 1.64E+06** psi

1.15E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

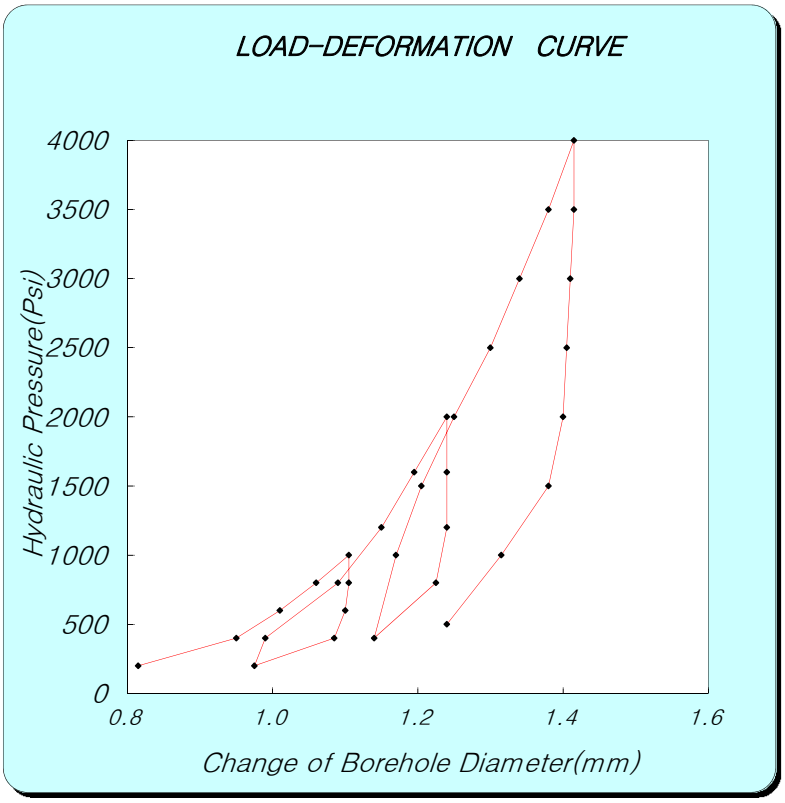
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-10	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	57.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	0.58	1.05	0.815
400	0.71	1.19	0.950
600	0.81	1.21	1.010
800	0.87	1.25	1.060
1000	0.93	1.28	1.105
800	0.93	1.28	1.105
600	0.93	1.27	1.100
400	0.92	1.25	1.085
200	0.89	1.06	0.975
400	0.89	1.09	0.990
800	0.92	1.26	1.090
1200	0.99	1.31	1.150
1600	1.04	1.35	1.195
2000	1.10	1.38	1.240
1600	1.10	1.38	1.240
1200	1.10	1.38	1.240
800	1.09	1.36	1.225
400	1.02	1.26	1.140
1000	1.03	1.31	1.170
1500	1.06	1.35	1.205
2000	1.11	1.39	1.250
2500	1.17	1.43	1.300
3000	1.21	1.47	1.340
3500	1.26	1.50	1.380
4000	1.29	1.54	1.415
3500	1.29	1.54	1.415
3000	1.29	1.53	1.410
2500	1.29	1.52	1.405
2000	1.29	1.51	1.400
1500	1.27	1.49	1.380
1000	1.21	1.42	1.315
500	1.13	1.35	1.240



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.105 D_2 (mm) 1.415

Dc (psi) = 8.48E+05 **Dt = 8.48E+05** psi

5.96E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.170 D_2 (mm) 1.380

Ec (psi) = 1.04E+06 **Et = 1.15E+06** psi

8.07E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

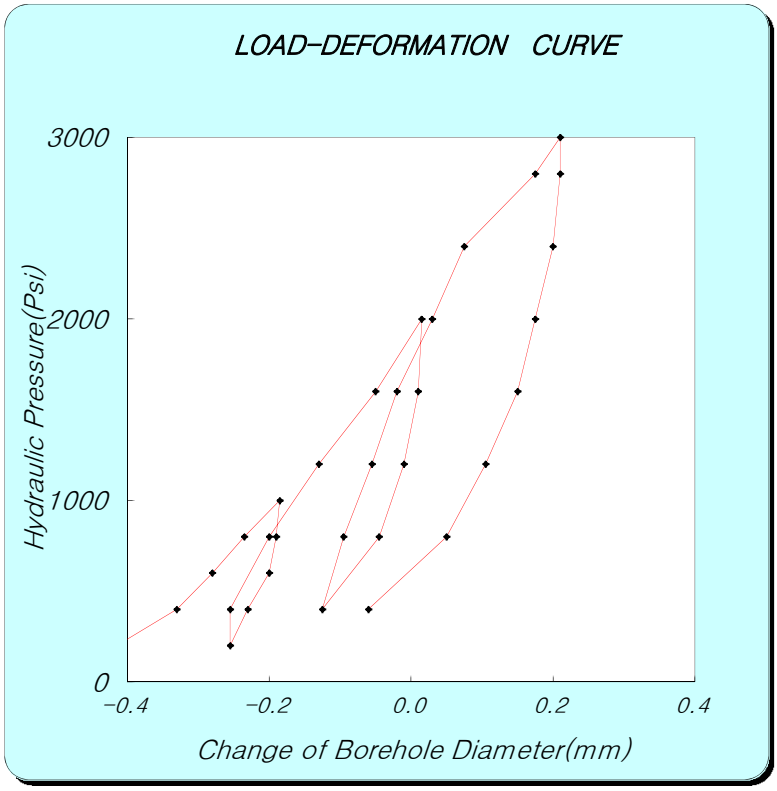
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-12	Rock Name :	GRANITE	Test Date :	2011. 1. 1
Depth :	12.0m	Rock Class :	HW	Record By :	S.H.Lee
G.W.L :	3.95	TCR/RQD(%) :	100/82	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	-0.27	-0.56	-0.415
400	-0.21	-0.45	-0.330
600	-0.17	-0.39	-0.280
800	-0.13	-0.34	-0.235
1000	-0.09	-0.28	-0.185
800	-0.10	-0.28	-0.190
600	-0.12	-0.28	-0.200
400	-0.17	-0.29	-0.230
200	-0.20	-0.31	-0.255
400	-0.19	-0.32	-0.255
800	-0.11	-0.29	-0.200
1200	-0.04	-0.22	-0.130
1600	0.03	-0.13	-0.050
2000	0.09	-0.06	0.015
1600	0.08	-0.06	0.010
1200	0.03	-0.05	-0.010
800	-0.02	-0.07	-0.045
400	-0.11	-0.14	-0.125
800	-0.06	-0.13	-0.095
1200	-0.01	-0.10	-0.055
1600	0.04	-0.08	-0.020
2000	0.10	-0.04	0.030
2400	0.17	-0.02	0.075
2800	0.25	0.10	0.175
3000	0.29	0.13	0.210
2800	0.29	0.13	0.210
2400	0.27	0.13	0.200
2000	0.22	0.13	0.175
1600	0.18	0.12	0.150
1200	0.12	0.09	0.105
800	0.04	0.06	0.050
400	-0.06	-0.06	-0.060



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 2400

ΔD : D_1 (mm) -0.185 D_2 (mm) 0.075

Dc (psi) = 4.72E+05 **Dt = 4.72E+05** psi

3.32E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2000

ΔD : D_1 (mm) -0.095 D_2 (mm) 0.030

Ec (psi) = 8.41E+05 **Et = 8.41E+05** psi

5.92E+04 kgf/㎠

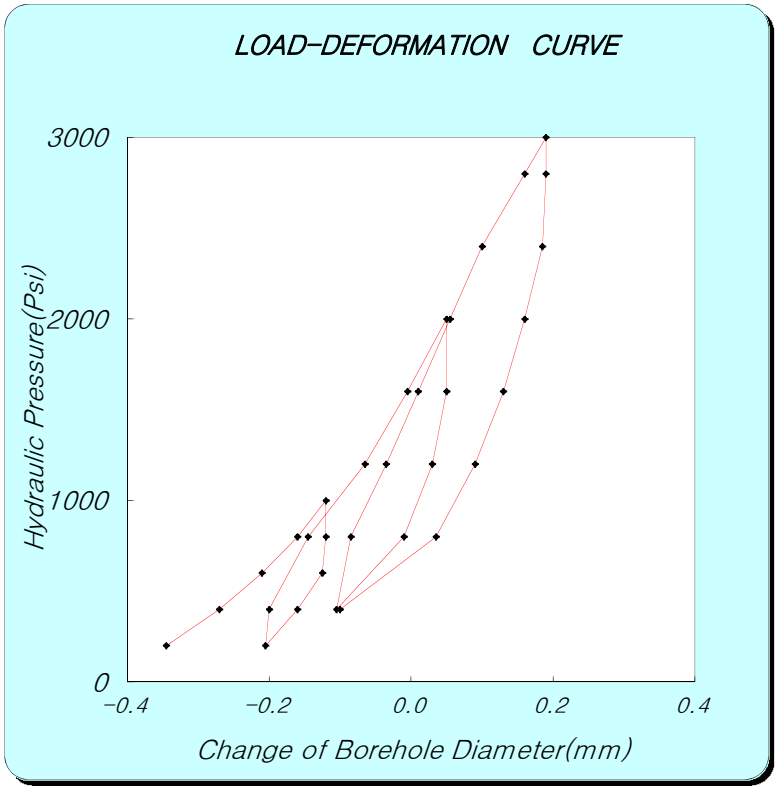
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-12	Rock Name :	GRANITE	Test Date :	2011. 1. 1
Depth :	16.0m	Rock Class :	HW	Record By :	S.H.Lee
G.W.L :	3.95	TCR/RQD(%) :	100/79	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	-0.37	-0.32	-0.345
400	-0.29	-0.25	-0.270
600	-0.23	-0.19	-0.210
800	-0.18	-0.14	-0.160
1000	-0.14	-0.10	-0.120
800	-0.15	-0.09	-0.120
600	-0.16	-0.09	-0.125
400	-0.20	-0.12	-0.160
200	-0.24	-0.17	-0.205
400	-0.24	-0.16	-0.200
800	-0.17	-0.12	-0.145
1200	-0.09	-0.04	-0.065
1600	-0.03	0.02	-0.005
2000	0.02	0.08	0.050
1600	0.01	0.09	0.050
1200	-0.02	0.08	0.030
800	-0.08	0.06	-0.010
400	-0.17	-0.04	-0.105
800	-0.14	-0.03	-0.085
1200	-0.07	0.00	-0.035
1600	-0.02	0.04	0.010
2000	0.02	0.09	0.055
2400	0.07	0.13	0.100
2800	0.13	0.19	0.160
3000	0.16	0.22	0.190
2800	0.16	0.22	0.190
2400	0.15	0.22	0.185
2000	0.11	0.21	0.160
1600	0.06	0.20	0.130
1200	0.01	0.17	0.090
800	-0.05	0.12	0.035
400	-0.16	-0.04	-0.100



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3000

ΔD : D_1 (mm) -0.120 D_2 (mm) 0.190

Dc (psi) = 5.65E+05 **Dt = 5.65E+05** psi

3.98E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2400

ΔD : D_1 (mm) -0.085 D_2 (mm) 0.100

Ec (psi) = 7.58E+05 **Et = 7.58E+05** psi

5.33E+04 kgf/㎠

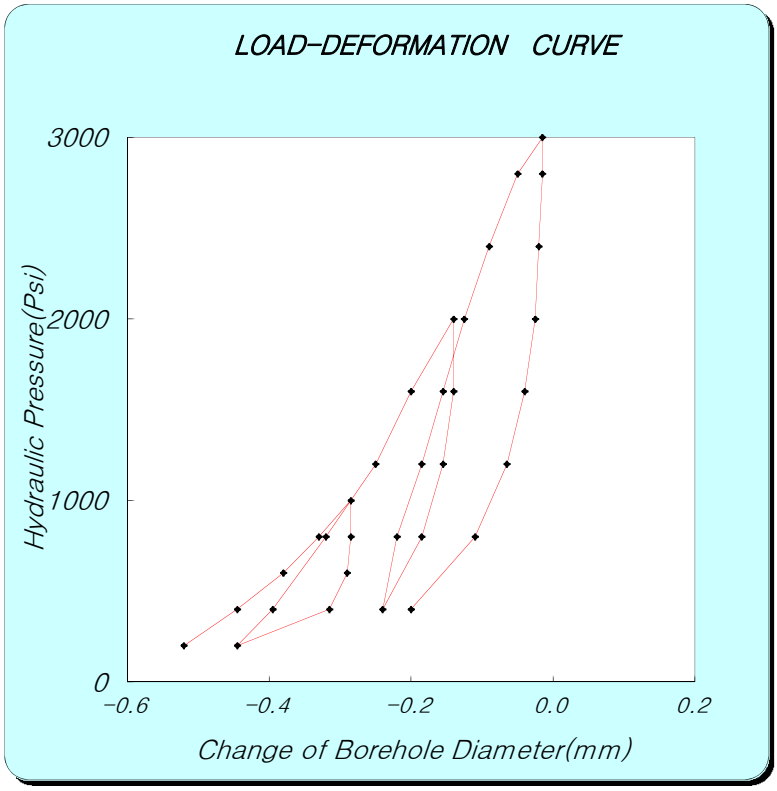
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-12	Rock Name :	GRANITE	Test Date :	2011. 1. 1
Depth :	20.0m	Rock Class :	HW	Record By :	S.H.Lee
G.W.L :	3.95	TCR/RQD(%) :	100/61	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	-0.31	-0.73	-0.520
400	-0.28	-0.61	-0.445
600	-0.23	-0.53	-0.380
800	-0.20	-0.46	-0.330
1000	-0.17	-0.40	-0.285
800	-0.17	-0.40	-0.285
600	-0.18	-0.40	-0.290
400	-0.23	-0.40	-0.315
200	-0.37	-0.52	-0.445
400	-0.29	-0.50	-0.395
800	-0.20	-0.44	-0.320
1200	-0.15	-0.35	-0.250
1600	-0.11	-0.29	-0.200
2000	-0.07	-0.21	-0.140
1600	-0.07	-0.21	-0.140
1200	-0.09	-0.22	-0.155
800	-0.14	-0.23	-0.185
400	-0.23	-0.25	-0.240
800	-0.19	-0.25	-0.220
1200	-0.14	-0.23	-0.185
1600	-0.10	-0.21	-0.155
2000	-0.07	-0.18	-0.125
2400	-0.03	-0.15	-0.090
2800	0.00	-0.10	-0.050
3000	0.02	-0.05	-0.015
2800	0.02	-0.05	-0.015
2400	0.01	-0.05	-0.020
2000	0.00	-0.05	-0.025
1600	-0.03	-0.05	-0.040
1200	-0.08	-0.05	-0.065
800	-0.13	-0.09	-0.110
400	-0.20	-0.20	-0.200



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 2800

ΔD : D_1 (mm) -0.285 D_2 (mm) -0.050

Dc (psi) = 6.71E+05 **Dt = 6.71E+05** psi

4.72E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2400

ΔD : D_1 (mm) -0.220 D_2 (mm) -0.090

Ec (psi) = 1.08E+06 **Et = 1.19E+06** psi

8.38E+04 kgf/㎠

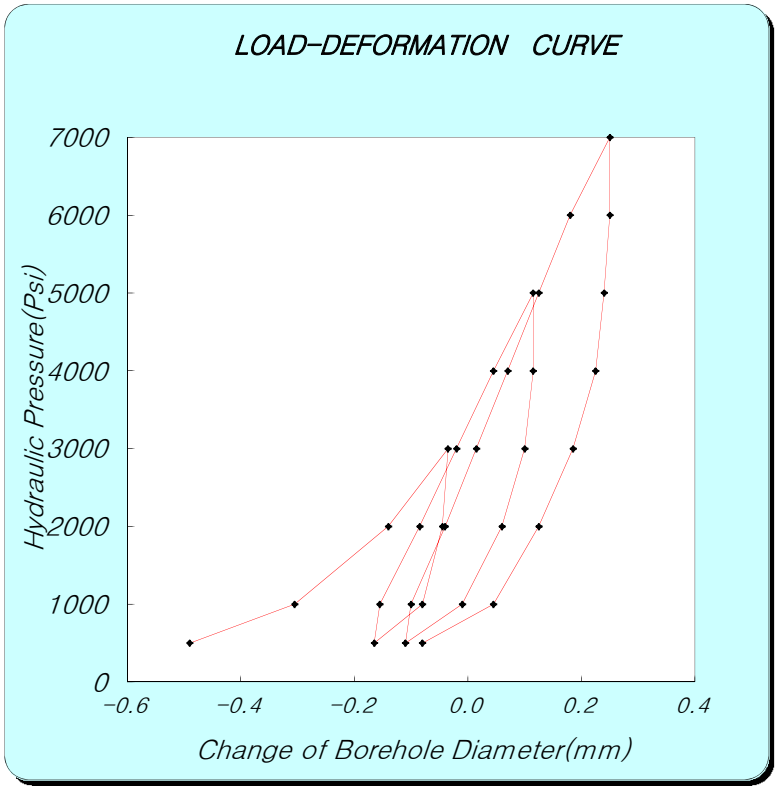
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-12	Rock Name :	GRANITE	Test Date :	2011. 1. 1
Depth :	28.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	3.95	TCR/RQD(%) :	100/99	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.33	-0.65	-0.490
1000	-0.22	-0.39	-0.305
2000	-0.10	-0.18	-0.140
3000	0.00	-0.07	-0.035
2000	-0.02	-0.07	-0.045
1000	-0.09	-0.07	-0.080
500	-0.18	-0.15	-0.165
1000	-0.17	-0.14	-0.155
2000	-0.08	-0.09	-0.085
3000	0.00	-0.04	-0.020
4000	0.07	0.02	0.045
5000	0.14	0.09	0.115
4000	0.14	0.09	0.115
3000	0.11	0.09	0.100
2000	0.04	0.08	0.060
1000	-0.05	0.03	-0.010
500	-0.14	-0.08	-0.110
1000	-0.13	-0.07	-0.100
2000	-0.05	-0.03	-0.040
3000	0.02	0.01	0.015
4000	0.09	0.05	0.070
5000	0.15	0.10	0.125
6000	0.20	0.16	0.180
7000	0.27	0.23	0.250
6000	0.27	0.23	0.250
5000	0.26	0.22	0.240
4000	0.23	0.22	0.225
3000	0.17	0.20	0.185
2000	0.08	0.17	0.125
1000	-0.02	0.11	0.045
500	-0.11	-0.05	-0.080



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) -0.035 D_2 (mm) 0.250

Dc (psi) = 1.23E+06 **Dt = 1.42E+06** psi

9.98E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) -0.040 D_2 (mm) 0.125

Ec (psi) = 1.59E+06 **Et = 2.19E+06** psi

1.54E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

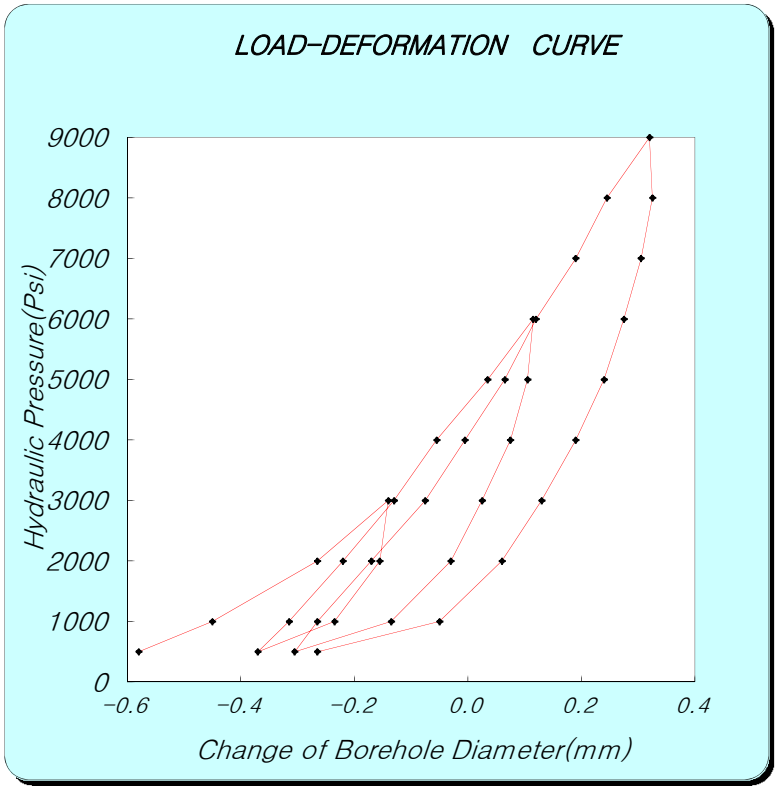
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-12	Rock Name :	GRANITE	Test Date :	2011. 1. 1
Depth :	36.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	3.95	TCR/RQD(%) :	100/72	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.48	-0.68	-0.580
1000	-0.35	-0.55	-0.450
2000	-0.18	-0.35	-0.265
3000	-0.08	-0.20	-0.140
2000	-0.11	-0.20	-0.155
1000	-0.23	-0.24	-0.235
500	-0.37	-0.37	-0.370
1000	-0.29	-0.34	-0.315
2000	-0.16	-0.28	-0.220
3000	-0.07	-0.19	-0.130
4000	0.00	-0.11	-0.055
5000	0.07	0.00	0.035
6000	0.15	0.08	0.115
5000	0.14	0.07	0.105
4000	0.08	0.07	0.075
3000	0.01	0.04	0.025
2000	-0.06	0.00	-0.030
1000	-0.19	-0.08	-0.135
500	-0.34	-0.27	-0.305
1000	-0.28	-0.25	-0.265
2000	-0.15	-0.19	-0.170
3000	-0.05	-0.10	-0.075
4000	0.02	-0.03	-0.005
5000	0.09	0.04	0.065
6000	0.15	0.09	0.120
7000	0.23	0.15	0.190
8000	0.29	0.20	0.245
9000	0.35	0.29	0.320
8000	0.36	0.29	0.325
7000	0.32	0.29	0.305
6000	0.27	0.28	0.275
5000	0.22	0.26	0.240
4000	0.15	0.23	0.190
3000	0.07	0.19	0.130
2000	-0.02	0.14	0.060
1000	-0.14	0.04	-0.050
500	-0.31	-0.22	-0.265



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) -0.140 D_2 (mm) 0.320

Dc (psi) = 1.14E+06 **Dt = 1.28E+06** psi

9.01E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) -0.170 D_2 (mm) 0.120

Ec (psi) = 1.21E+06 **Et = 1.38E+06** psi

9.73E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

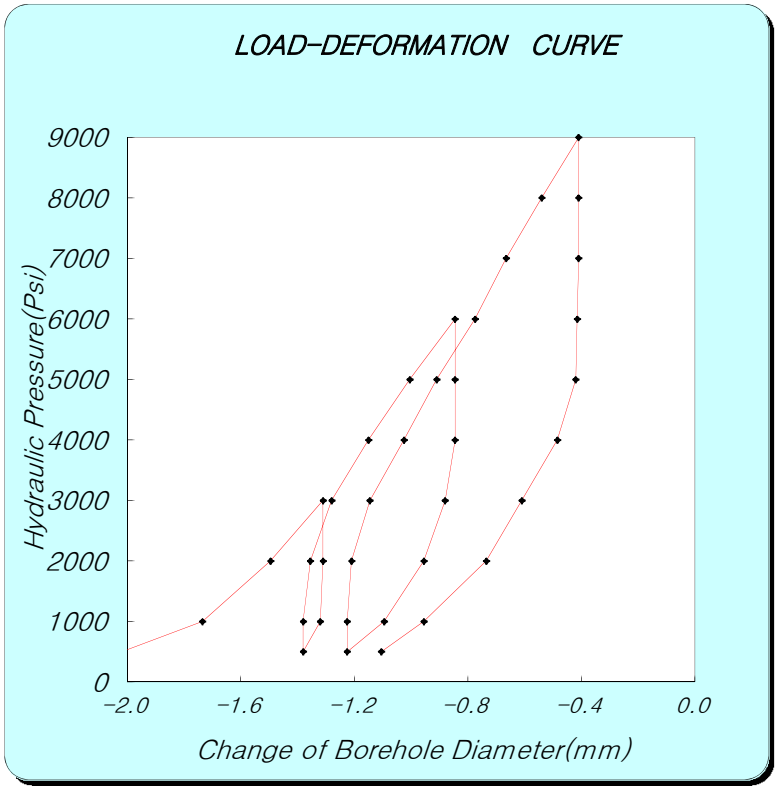
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-12	Rock Name :	GRANITE	Test Date :	2011. 1. 1
Depth :	43.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	3.95	TCR/RQD(%) :	100/98	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-2.87	-1.17	-2.020
1000	-2.48	-0.99	-1.735
2000	-2.11	-0.88	-1.495
3000	-1.82	-0.80	-1.310
2000	-1.82	-0.80	-1.310
1000	-1.86	-0.78	-1.320
500	-1.97	-0.79	-1.380
1000	-1.97	-0.79	-1.380
2000	-1.94	-0.77	-1.355
3000	-1.82	-0.74	-1.280
4000	-1.60	-0.70	-1.150
5000	-1.36	-0.65	-1.005
6000	-1.12	-0.57	-0.845
5000	-1.12	-0.57	-0.845
4000	-1.12	-0.57	-0.845
3000	-1.19	-0.57	-0.880
2000	-1.34	-0.57	-0.955
1000	-1.58	-0.61	-1.095
500	-1.75	-0.70	-1.225
1000	-1.75	-0.70	-1.225
2000	-1.74	-0.68	-1.210
3000	-1.64	-0.65	-1.145
4000	-1.44	-0.61	-1.025
5000	-1.24	-0.58	-0.910
6000	-1.04	-0.51	-0.775
7000	-0.88	-0.45	-0.665
8000	-0.70	-0.38	-0.540
9000	-0.49	-0.33	-0.410
8000	-0.49	-0.33	-0.410
7000	-0.49	-0.33	-0.410
6000	-0.50	-0.33	-0.415
5000	-0.51	-0.33	-0.420
4000	-0.64	-0.33	-0.485
3000	-0.87	-0.35	-0.610
2000	-1.08	-0.39	-0.735
1000	-1.39	-0.52	-0.955
500	-1.54	-0.67	-1.105



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) -1.310 D_2 (mm) -0.410

Dc (psi) = 5.84E+05 **Dt = 5.84E+05** psi

4.11E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) -1.210 D_2 (mm) -0.775

Ec (psi) = 8.06E+05 **Et = 8.06E+05** psi

5.67E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

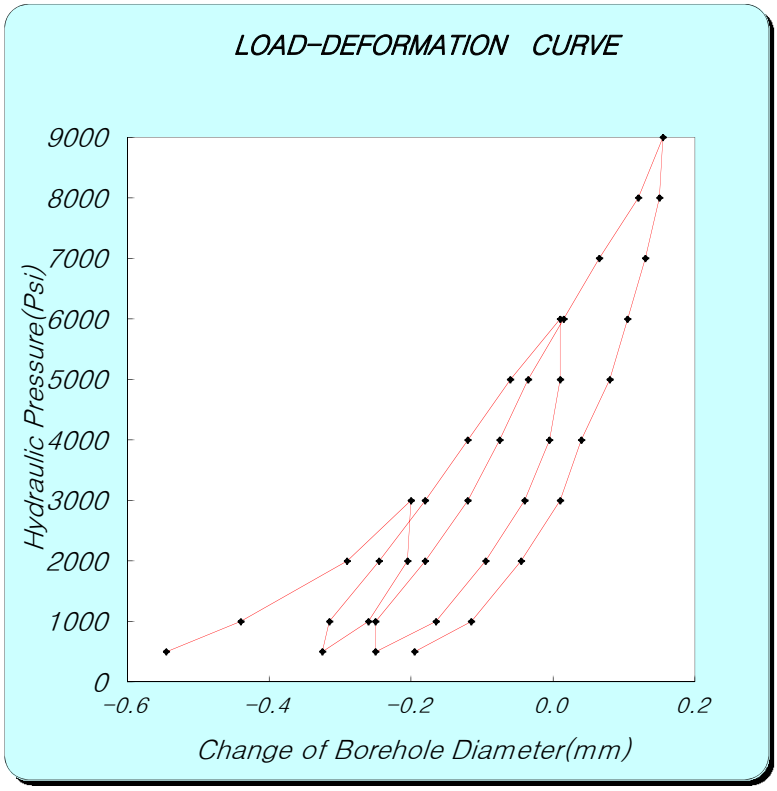
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-12	Rock Name :	GRANITE	Test Date :	2011. 1. 1
Depth :	43.0m	Rock Class :	FR	Record By :	S.H.Lee
G.W.L :	3.95	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.49	-0.60	-0.545
1000	-0.38	-0.50	-0.440
2000	-0.24	-0.34	-0.290
3000	-0.15	-0.25	-0.200
2000	-0.16	-0.25	-0.205
1000	-0.25	-0.27	-0.260
500	-0.32	-0.33	-0.325
1000	-0.31	-0.32	-0.315
2000	-0.22	-0.27	-0.245
3000	-0.14	-0.22	-0.180
4000	-0.08	-0.16	-0.120
5000	-0.01	-0.11	-0.060
6000	0.05	-0.03	0.010
5000	0.05	-0.03	0.010
4000	0.03	-0.04	-0.005
3000	-0.04	-0.04	-0.040
2000	-0.12	-0.07	-0.095
1000	-0.20	-0.13	-0.165
500	-0.29	-0.21	-0.250
1000	-0.29	-0.21	-0.250
2000	-0.19	-0.17	-0.180
3000	-0.11	-0.13	-0.120
4000	-0.05	-0.10	-0.075
5000	0.00	-0.07	-0.035
6000	0.06	-0.03	0.015
7000	0.12	0.01	0.065
8000	0.19	0.05	0.120
9000	0.23	0.08	0.155
8000	0.23	0.07	0.150
7000	0.20	0.06	0.130
6000	0.15	0.06	0.105
5000	0.10	0.06	0.080
4000	0.04	0.04	0.040
3000	0.00	0.02	0.010
2000	-0.08	-0.01	-0.045
1000	-0.17	-0.06	-0.115
500	-0.24	-0.15	-0.195



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) -0.200 D_2 (mm) 0.155

Dc (psi) = 1.48E+06 **Dt = 1.92E+06** psi

1.35E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) -0.180 D_2 (mm) 0.015

Ec (psi) = 1.80E+06 **Et = 2.73E+06** psi

1.92E+05 kgf/㎠

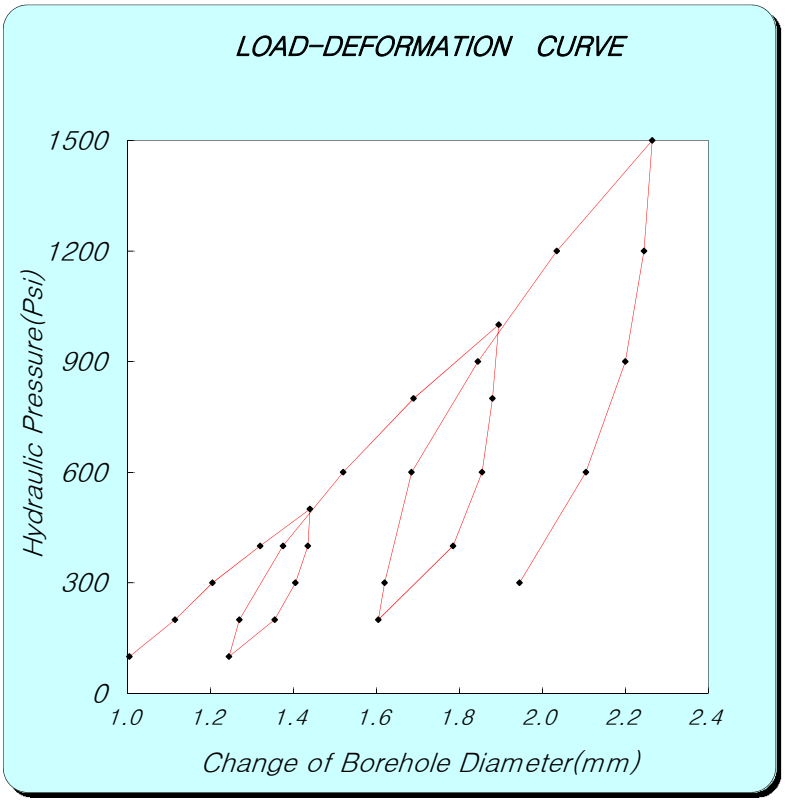
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	MAFIC DYKE	Test Date :	2016. 1. 10
Depth :	11.0m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	0.98	1.03	1.005
200	1.08	1.15	1.115
300	1.15	1.26	1.205
400	1.19	1.45	1.320
500	1.29	1.59	1.440
400	1.29	1.58	1.435
300	1.26	1.55	1.405
200	1.22	1.49	1.355
100	1.11	1.38	1.245
200	1.13	1.41	1.270
400	1.23	1.52	1.375
600	1.35	1.69	1.520
800	1.55	1.83	1.690
1000	1.73	2.06	1.895
800	1.72	2.04	1.880
600	1.70	2.01	1.855
400	1.63	1.94	1.785
200	1.43	1.78	1.605
300	1.45	1.79	1.620
600	1.49	1.88	1.685
900	1.63	2.06	1.845
1200	1.83	2.24	2.035
1500	2.11	2.42	2.265
1200	2.09	2.40	2.245
900	2.05	2.35	2.200
600	1.96	2.25	2.105
300	1.85	2.04	1.945



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1500

ΔD : D_1 (mm) 1.440 D_2 (mm) 2.265

Dc (psi) = 1.06E+05 **Dt = 1.06E+05** psi

7.47E+03 kgf/㎠

ΔP : P_1 (Psi) 600 P_2 (Psi) 1200

ΔD : D_1 (mm) 1.685 D_2 (mm) 2.035

Ec (psi) = 1.50E+05 **Et = 1.50E+05** psi

1.06E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

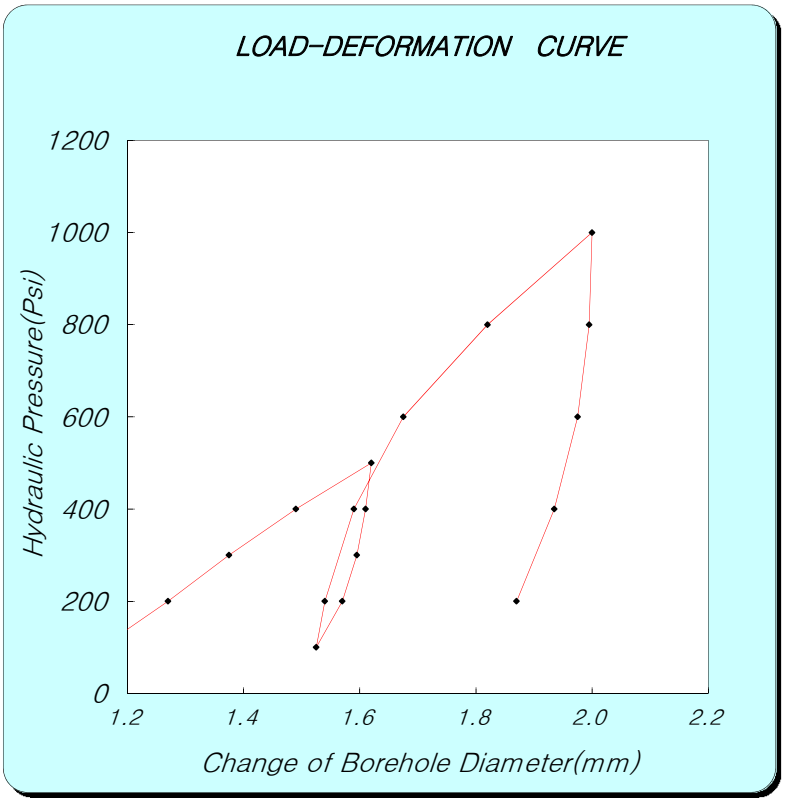
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	MAFIC DYKE	Test Date :	2016. 1. 10
Depth :	20.0m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	73/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	1.33	0.98	1.155
200	1.42	1.12	1.270
300	1.52	1.23	1.375
400	1.66	1.32	1.490
500	1.82	1.42	1.620
400	1.81	1.41	1.610
300	1.80	1.39	1.595
200	1.77	1.37	1.570
100	1.73	1.32	1.525
200	1.75	1.33	1.540
400	1.80	1.38	1.590
600	1.88	1.47	1.675
800	2.02	1.62	1.820
1000	2.17	1.83	2.000
800	2.16	1.83	1.995
600	2.15	1.80	1.975
400	2.11	1.76	1.935
200	2.04	1.70	1.870



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	500	P_2 (Psi)	1000		
ΔD :	D_1 (mm)	1.620	D_2 (mm)	2.000		
	Dc (psi) =	**1.15E+05**	**Dt =**	**1.15E+05**	psi	
				8.11E+03	kgf/㎠	

ΔP :	P_1 (Psi)	400	P_2 (Psi)	800		
ΔD :	D_1 (mm)	1.590	D_2 (mm)	1.820		
	Ec (psi) =	**1.52E+05**	**Et =**	**1.52E+05**	psi	
				1.07E+04	kgf/㎠	

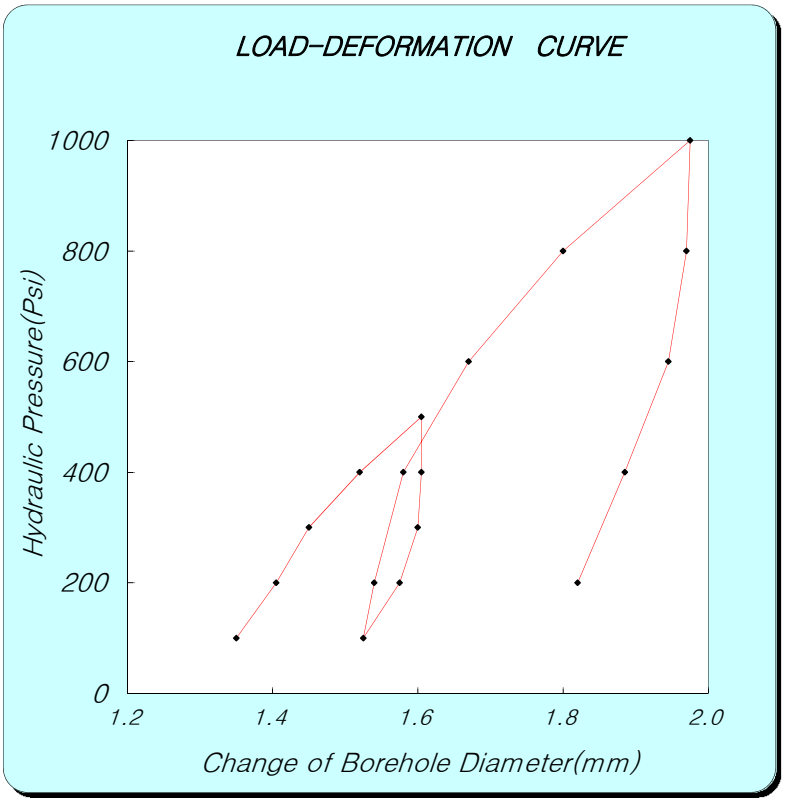
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	GRANITE	Test Date :	2016. 1. 10
Depth :	28.5m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	1.12	1.58	1.350
200	1.18	1.63	1.405
300	1.22	1.68	1.450
400	1.29	1.75	1.520
500	1.35	1.86	1.605
400	1.35	1.86	1.605
300	1.35	1.85	1.600
200	1.33	1.82	1.575
100	1.29	1.76	1.525
200	1.30	1.78	1.540
400	1.35	1.81	1.580
600	1.39	1.95	1.670
800	1.47	2.13	1.800
1000	1.52	2.43	1.975
800	1.52	2.42	1.970
600	1.50	2.39	1.945
400	1.46	2.31	1.885
200	1.40	2.24	1.820



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 800

ΔD : D_1 (mm) 1.605 D_2 (mm) 1.800

Dc (psi) = 1.35E+05 **Dt = 1.35E+05** psi

9.48E+03 kgf/㎠

ΔP : P_1 (Psi) 400 P_2 (Psi) 600

ΔD : D_1 (mm) 1.580 D_2 (mm) 1.670

Ec (psi) = 1.95E+05 **Et = 1.95E+05** psi

1.37E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

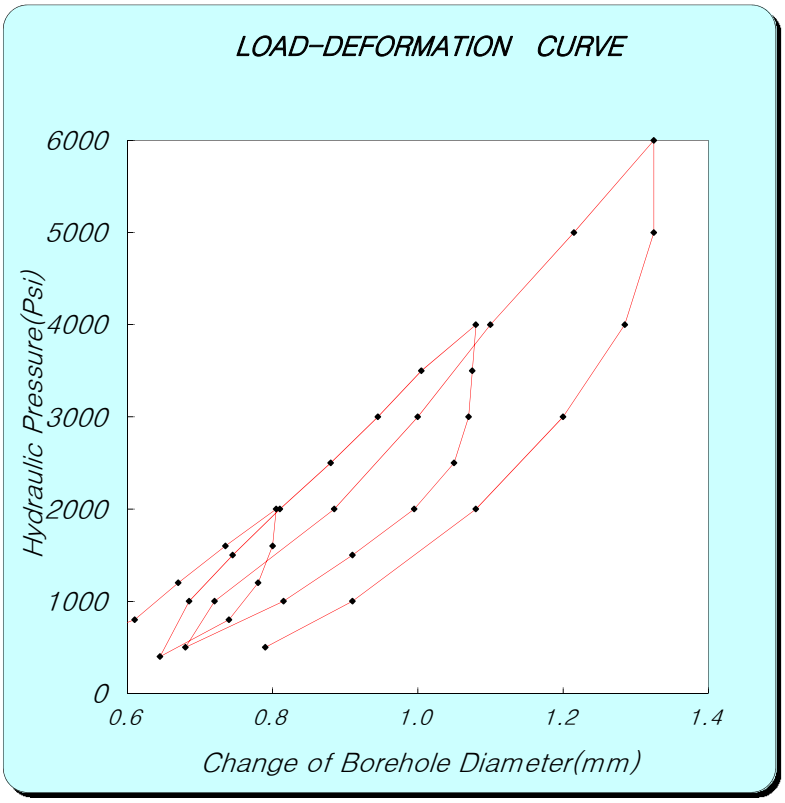
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	GRANITE	Test Date :	2016. 1. 10
Depth :	36.0m	Rock Weathering :	HW~MW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/75	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.48	0.47	0.475
800	0.62	0.60	0.610
1200	0.68	0.66	0.670
1600	0.75	0.72	0.735
2000	0.81	0.80	0.805
1600	0.81	0.79	0.800
1200	0.79	0.77	0.780
800	0.75	0.73	0.740
400	0.66	0.63	0.645
1000	0.72	0.65	0.685
1500	0.76	0.73	0.745
2000	0.82	0.80	0.810
2500	0.88	0.88	0.880
3000	0.94	0.95	0.945
3500	0.99	1.02	1.005
4000	1.07	1.09	1.080
3500	1.07	1.08	1.075
3000	1.07	1.07	1.070
2500	1.05	1.05	1.050
2000	1.00	0.99	0.995
1500	0.92	0.90	0.910
1000	0.83	0.80	0.815
500	0.70	0.66	0.680
1000	0.75	0.69	0.720
2000	0.90	0.87	0.885
3000	1.00	1.00	1.000
4000	1.09	1.11	1.100
5000	1.20	1.23	1.215
6000	1.32	1.33	1.325
5000	1.32	1.33	1.325
4000	1.29	1.28	1.285
3000	1.21	1.19	1.200
2000	1.09	1.07	1.080
1000	0.93	0.89	0.910
500	0.81	0.77	0.790



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.805 D_2 (mm) 1.325

Dc (psi) = 6.74E+05 **Dt = 6.74E+05** psi

4.74E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.885 D_2 (mm) 1.215

Ec (psi) = 7.97E+05 **Et = 7.97E+05** psi

5.60E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

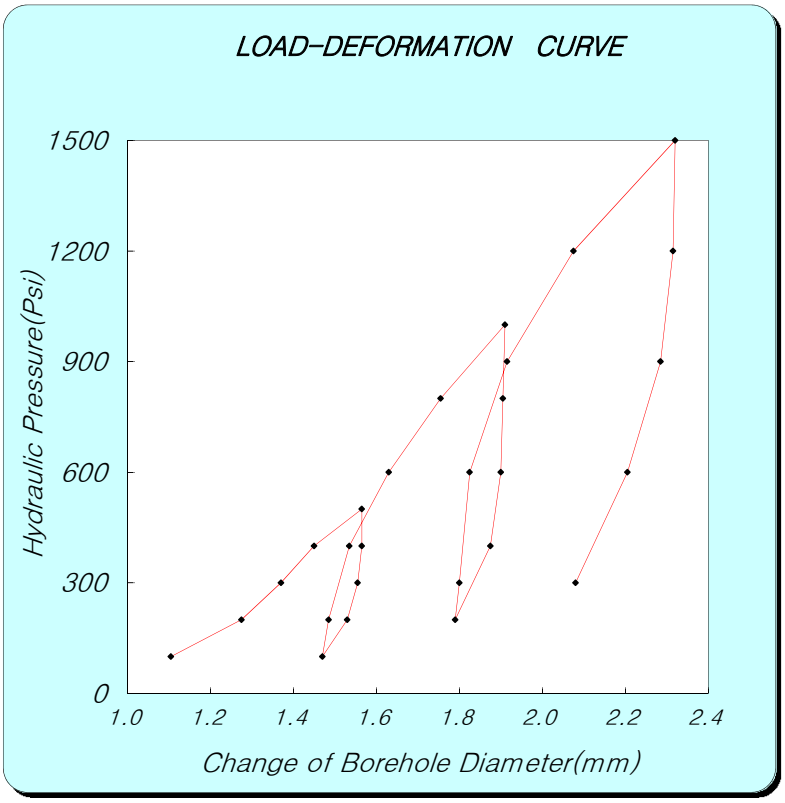
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	GRANITE	Test Date :	2016. 1. 10
Depth :	43.0m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	1.02	1.19	1.105
200	1.18	1.37	1.275
300	1.27	1.47	1.370
400	1.35	1.55	1.450
500	1.44	1.69	1.565
400	1.44	1.69	1.565
300	1.43	1.68	1.555
200	1.41	1.65	1.530
100	1.34	1.60	1.470
200	1.35	1.62	1.485
400	1.39	1.68	1.535
600	1.47	1.79	1.630
800	1.59	1.92	1.755
1000	1.71	2.11	1.910
800	1.70	2.11	1.905
600	1.70	2.10	1.900
400	1.68	2.07	1.875
200	1.60	1.98	1.790
300	1.61	1.99	1.800
600	1.64	2.01	1.825
900	1.72	2.11	1.915
1200	1.86	2.29	2.075
1500	1.96	2.68	2.320
1200	1.96	2.67	2.315
900	1.94	2.63	2.285
600	1.86	2.55	2.205
300	1.75	2.41	2.080



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1500

ΔD : D_1 (mm) 1.565 D_2 (mm) 2.320

Dc (psi) = 1.16E+05 **Dt = 1.16E+05** psi

8.16E+03 kgf/㎠

ΔP : P_1 (Psi) 600 P_2 (Psi) 1200

ΔD : D_1 (mm) 1.825 D_2 (mm) 2.075

Ec (psi) = 2.10E+05 **Et = 2.10E+05** psi

1.48E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

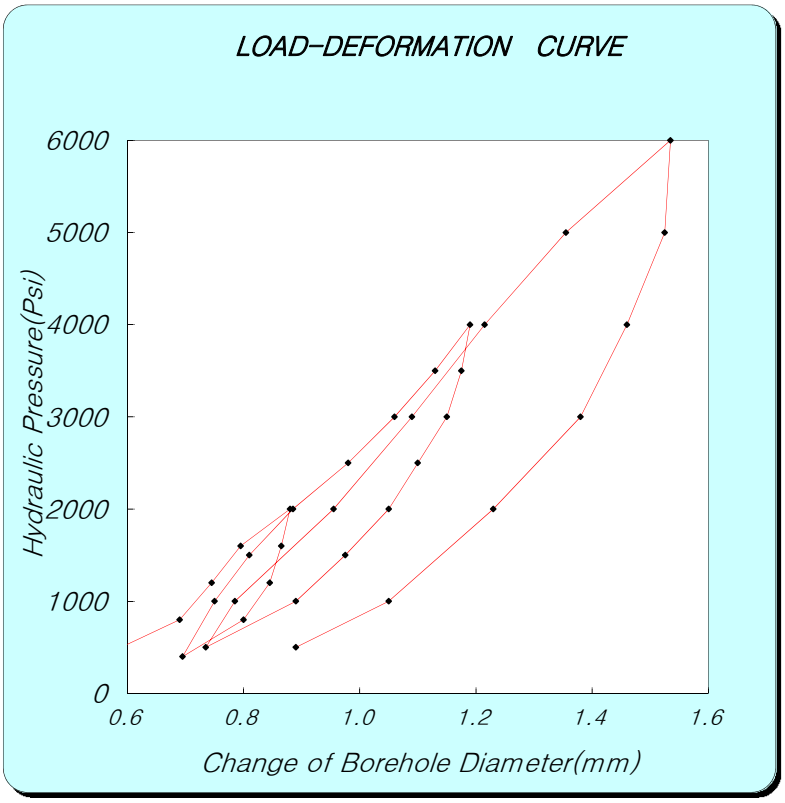
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	GRANITE	Test Date :	2016. 1. 10
Depth :	51.5m	Rock Weathering :	HW~MW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/47	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.50	0.61	0.555
800	0.60	0.78	0.690
1200	0.63	0.86	0.745
1600	0.67	0.92	0.795
2000	0.71	1.05	0.880
1600	0.69	1.04	0.865
1200	0.66	1.03	0.845
800	0.59	1.01	0.800
400	0.52	0.87	0.695
1000	0.59	0.91	0.750
1500	0.64	0.98	0.810
2000	0.70	1.07	0.885
2500	0.74	1.22	0.980
3000	0.77	1.35	1.060
3500	0.80	1.46	1.130
4000	0.83	1.55	1.190
3500	0.81	1.54	1.175
3000	0.77	1.53	1.150
2500	0.72	1.48	1.100
2000	0.66	1.44	1.050
1500	0.57	1.38	0.975
1000	0.53	1.25	0.890
500	0.45	1.02	0.735
1000	0.51	1.06	0.785
2000	0.63	1.28	0.955
3000	0.73	1.45	1.090
4000	0.82	1.61	1.215
5000	0.89	1.82	1.355
6000	0.98	2.09	1.535
5000	0.96	2.09	1.525
4000	0.87	2.05	1.460
3000	0.77	1.99	1.380
2000	0.65	1.81	1.230
1000	0.52	1.58	1.050
500	0.44	1.34	0.890



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	6000		
ΔD :	D_1 (mm)	0.880	D_2 (mm)	1.535		
	Dc (psi) =	**5.35E+05**	**Dt =**	**5.35E+05**	psi	
				3.76E+04	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	5000		
ΔD :	D_1 (mm)	0.955	D_2 (mm)	1.355		
	Ec (psi) =	**6.57E+05**	**Et =**	**6.57E+05**	psi	
				4.62E+04	kgf/㎠	

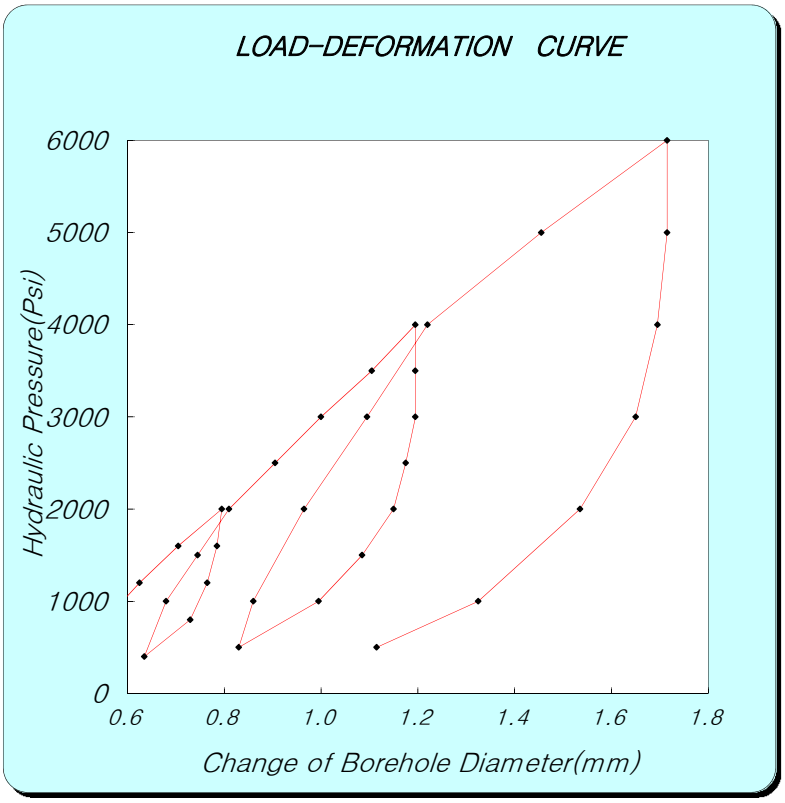
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	GRANITE	Test Date :	2016. 1. 10
Depth :	59.5m	Rock Weathering :	HW~MW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/27	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.41	0.43	0.420
800	0.46	0.65	0.555
1200	0.55	0.70	0.625
1600	0.62	0.79	0.705
2000	0.70	0.89	0.795
1600	0.69	0.88	0.785
1200	0.67	0.86	0.765
800	0.64	0.82	0.730
400	0.54	0.73	0.635
1000	0.59	0.77	0.680
1500	0.65	0.84	0.745
2000	0.72	0.90	0.810
2500	0.80	1.01	0.905
3000	0.90	1.10	1.000
3500	0.99	1.22	1.105
4000	1.08	1.31	1.195
3500	1.08	1.31	1.195
3000	1.08	1.31	1.195
2500	1.06	1.29	1.175
2000	1.04	1.26	1.150
1500	0.96	1.21	1.085
1000	0.85	1.14	0.995
500	0.72	0.94	0.830
1000	0.75	0.97	0.860
2000	0.87	1.06	0.965
3000	0.99	1.20	1.095
4000	1.10	1.34	1.220
5000	1.32	1.59	1.455
6000	1.57	1.86	1.715
5000	1.57	1.86	1.715
4000	1.57	1.82	1.695
3000	1.53	1.77	1.650
2000	1.39	1.68	1.535
1000	1.17	1.48	1.325
500	0.98	1.25	1.115



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1.519	1.474	1.438	1.397	1.366	1.289	1.151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 4000

ΔD : D_1 (mm) 0.795 D_2 (mm) 1.220

Dc (psi) = 4.12E+05 **Dt = 4.12E+05** psi

2.90E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3000

ΔD : D_1 (mm) 0.860 D_2 (mm) 1.095

Ec (psi) = 7.46E+05 **Et = 7.46E+05** psi

5.24E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

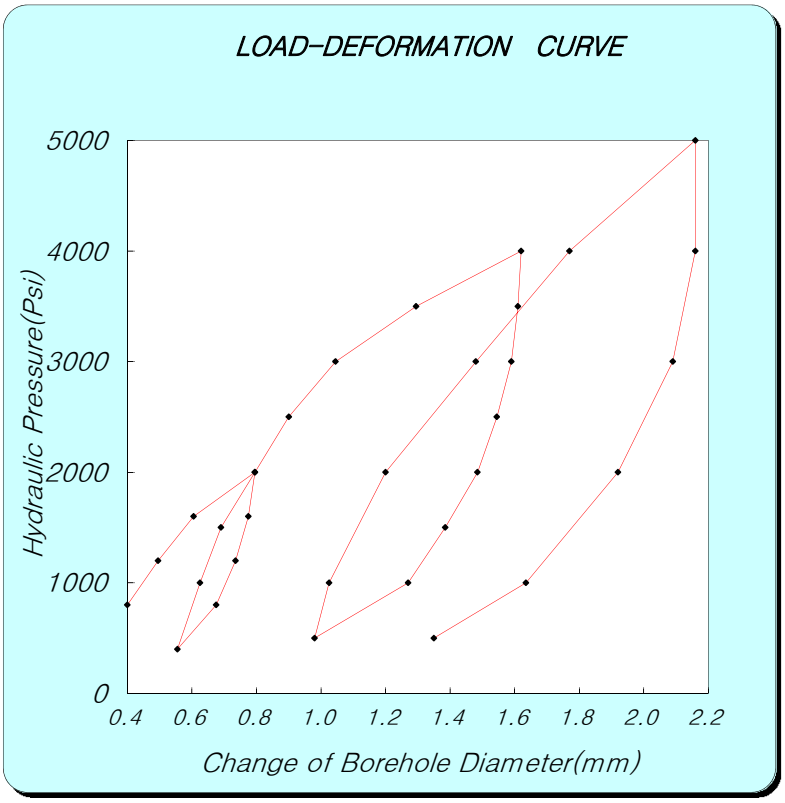
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	GRANITE	Test Date :	2016. 1. 10
Depth :	68.5m	Rock Weathering :	HW~MW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/68	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.19	0.28	0.235
800	0.33	0.47	0.400
1200	0.46	0.53	0.495
1600	0.53	0.68	0.605
2000	0.73	0.86	0.795
1600	0.69	0.86	0.775
1200	0.63	0.84	0.735
800	0.57	0.78	0.675
400	0.39	0.72	0.555
1000	0.52	0.73	0.625
1500	0.60	0.78	0.690
2000	0.71	0.88	0.795
2500	0.78	1.02	0.900
3000	0.86	1.23	1.045
3500	1.23	1.36	1.295
4000	1.54	1.70	1.620
3500	1.52	1.70	1.610
3000	1.48	1.70	1.590
2500	1.40	1.69	1.545
2000	1.28	1.69	1.485
1500	1.14	1.63	1.385
1000	0.98	1.56	1.270
500	0.69	1.27	0.980
1000	0.78	1.27	1.025
2000	1.02	1.38	1.200
3000	1.32	1.64	1.480
4000	1.57	1.97	1.770
5000	1.80	2.52	2.160
4000	1.80	2.52	2.160
3000	1.68	2.50	2.090
2000	1.46	2.38	1.920
1000	1.15	2.12	1.635
500	0.87	1.83	1.350



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 3000

ΔD : D_1 (mm) 0.795 D_2 (mm) 1.045

Dc (psi) = 3.51E+05 **Dt = 3.51E+05** psi

2.46E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 2500

ΔD : D_1 (mm) 0.625 D_2 (mm) 0.900

Ec (psi) = 4.78E+05 **Et = 4.78E+05** psi

3.36E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

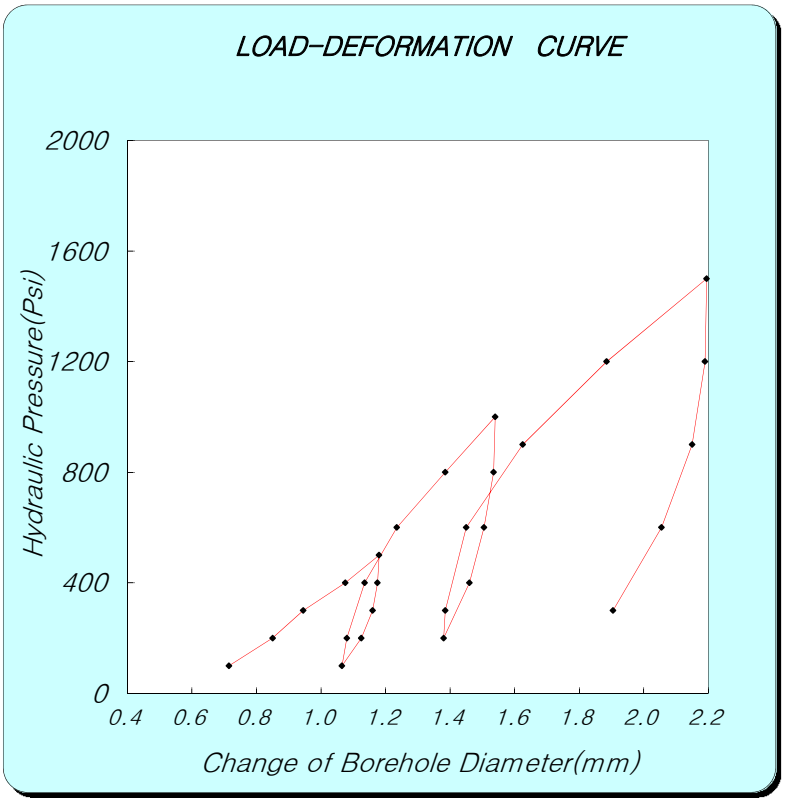
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	GRANITE	Test Date :	2016. 1. 10
Depth :	77.0m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	0.62	0.81	0.715
200	0.77	0.93	0.850
300	0.86	1.03	0.945
400	0.95	1.20	1.075
500	1.04	1.32	1.180
400	1.03	1.32	1.175
300	1.02	1.30	1.160
200	0.98	1.27	1.125
100	0.93	1.20	1.065
200	0.94	1.22	1.080
400	0.98	1.29	1.135
600	1.08	1.39	1.235
800	1.18	1.59	1.385
1000	1.29	1.79	1.540
800	1.29	1.78	1.535
600	1.25	1.76	1.505
400	1.20	1.72	1.460
200	1.13	1.63	1.380
300	1.13	1.64	1.385
600	1.18	1.72	1.450
900	1.32	1.93	1.625
1200	1.54	2.23	1.885
1500	1.86	2.53	2.195
1200	1.86	2.52	2.190
900	1.83	2.47	2.150
600	1.73	2.38	2.055
300	1.58	2.23	1.905



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.180 D_2 (mm) 1.540

Dc (psi) = 1.22E+05 **Dt = 1.22E+05** psi

8.56E+03 kgf/㎠

ΔP : P_1 (Psi) 400 P_2 (Psi) 800

ΔD : D_1 (mm) 1.135 D_2 (mm) 1.385

Ec (psi) = 1.40E+05 **Et = 1.40E+05** psi

9.86E+03 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

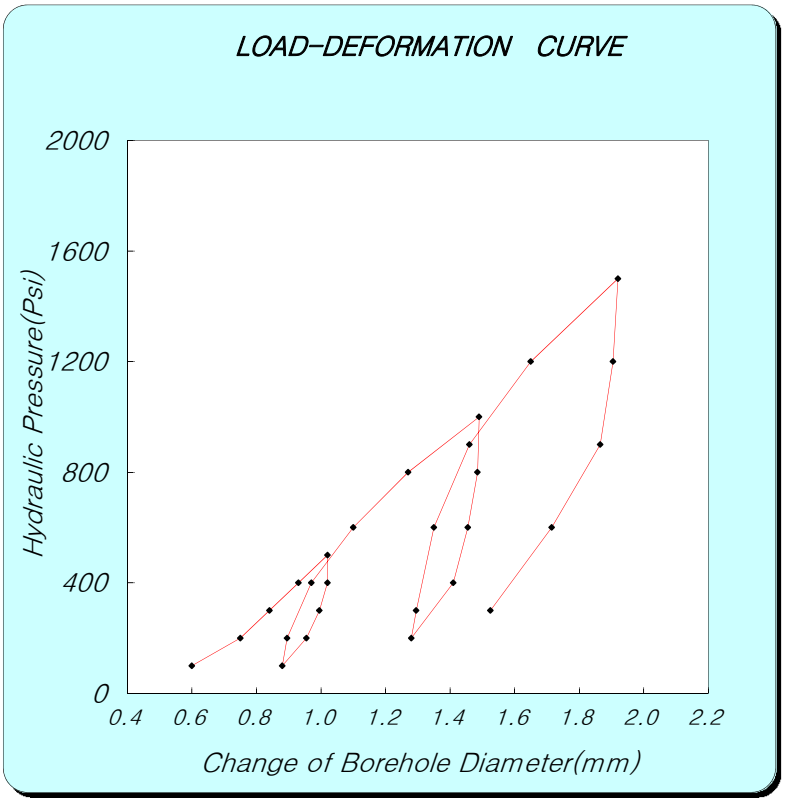
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	GRANITE	Test Date :	2016. 1. 10
Depth :	84.0m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	0.51	0.69	0.600
200	0.67	0.83	0.750
300	0.72	0.96	0.840
400	0.80	1.06	0.930
500	0.86	1.18	1.020
400	0.86	1.18	1.020
300	0.84	1.15	0.995
200	0.80	1.11	0.955
100	0.73	1.03	0.880
200	0.74	1.05	0.895
400	0.80	1.14	0.970
600	0.92	1.28	1.100
800	1.06	1.48	1.270
1000	1.29	1.69	1.490
800	1.29	1.68	1.485
600	1.26	1.65	1.455
400	1.23	1.59	1.410
200	1.13	1.43	1.280
300	1.15	1.44	1.295
600	1.20	1.50	1.350
900	1.29	1.63	1.460
1200	1.40	1.90	1.650
1500	1.52	2.32	1.920
1200	1.51	2.30	1.905
900	1.48	2.25	1.865
600	1.40	2.03	1.715
300	1.24	1.81	1.525



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1500

ΔD : D_1 (mm) 1.020 D_2 (mm) 1.920

Dc (psi) = 9.74E+04 **Dt = 9.74E+04** psi

6.85E+03 kgf/㎠

ΔP : P_1 (Psi) 600 P_2 (Psi) 1200

ΔD : D_1 (mm) 1.350 D_2 (mm) 1.650

Ec (psi) = 1.75E+05 **Et = 1.75E+05** psi

1.23E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

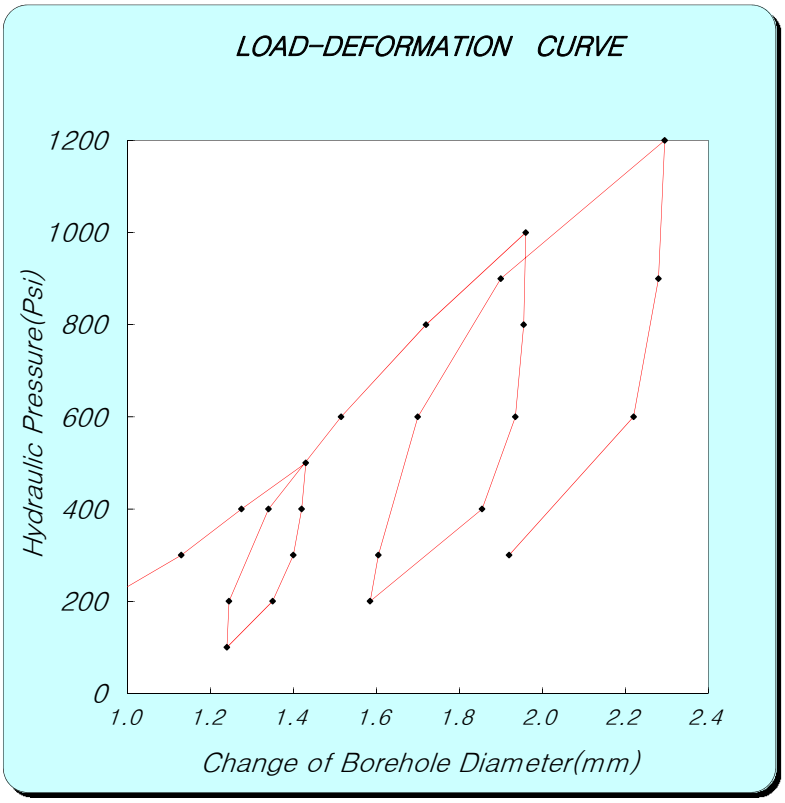
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-15	Rock Name :	GRANITE	Test Date :	2016. 1. 10
Depth :	92.0m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	2.1m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	0.93	0.71	0.820
200	1.02	0.86	0.940
300	1.23	1.03	1.130
400	1.38	1.17	1.275
500	1.61	1.25	1.430
400	1.60	1.24	1.420
300	1.58	1.22	1.400
200	1.53	1.17	1.350
100	1.43	1.05	1.240
200	1.44	1.05	1.245
400	1.55	1.13	1.340
600	1.78	1.25	1.515
800	1.99	1.45	1.720
1000	2.36	1.56	1.960
800	2.35	1.56	1.955
600	2.34	1.53	1.935
400	2.28	1.43	1.855
200	1.93	1.24	1.585
300	1.95	1.26	1.605
600	2.04	1.36	1.700
900	2.28	1.52	1.900
1200	2.83	1.76	2.295
900	2.82	1.74	2.280
600	2.76	1.68	2.220
300	2.32	1.52	1.920



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.430 D_2 (mm) 1.960

Dc (psi) = 8.27E+04 **Dt = 8.27E+04** psi

5.81E+03 kgf/㎠

ΔP : P_1 (Psi) 400 P_2 (Psi) 800

ΔD : D_1 (mm) 1.340 D_2 (mm) 1.720

Ec (psi) = 9.23E+04 **Et = 9.23E+04** psi

6.49E+03 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

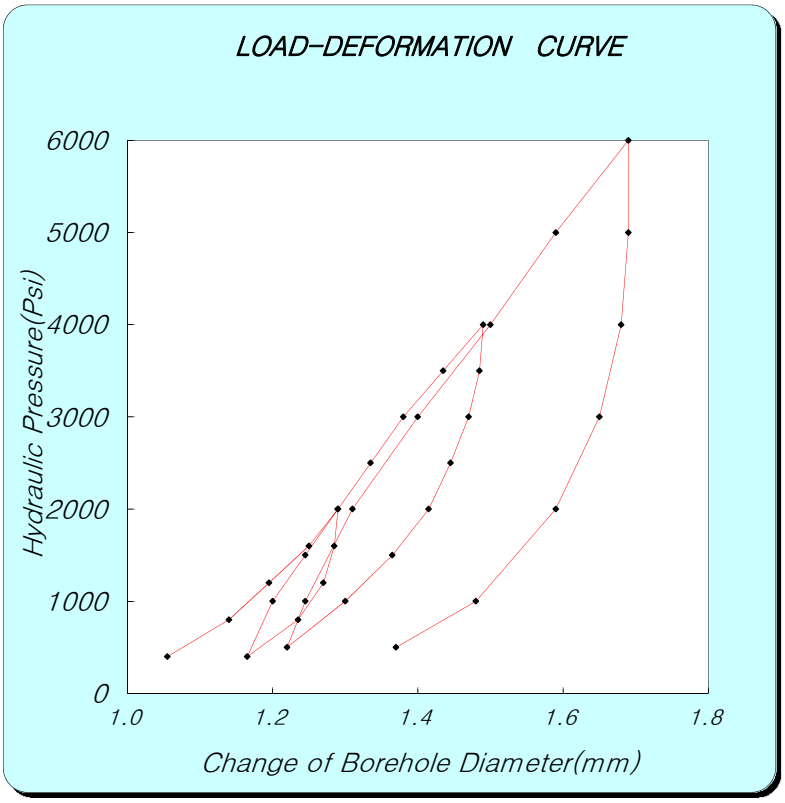
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	GRANITE	Test Date :	2015. 12. 25
Depth :	12.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/90	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.99	1.12	1.055
800	1.08	1.20	1.140
1200	1.13	1.26	1.195
1600	1.18	1.32	1.250
2000	1.22	1.36	1.290
1600	1.22	1.35	1.285
1200	1.20	1.34	1.270
800	1.16	1.31	1.235
400	1.10	1.23	1.165
1000	1.14	1.26	1.200
1500	1.19	1.30	1.245
2000	1.23	1.35	1.290
2500	1.28	1.39	1.335
3000	1.32	1.44	1.380
3500	1.38	1.49	1.435
4000	1.43	1.55	1.490
3500	1.43	1.54	1.485
3000	1.42	1.52	1.470
2500	1.39	1.50	1.445
2000	1.36	1.47	1.415
1500	1.31	1.42	1.365
1000	1.25	1.35	1.300
500	1.18	1.26	1.220
1000	1.20	1.29	1.245
2000	1.27	1.35	1.310
3000	1.35	1.45	1.400
4000	1.44	1.56	1.500
5000	1.56	1.62	1.590
6000	1.67	1.71	1.690
5000	1.67	1.71	1.690
4000	1.66	1.70	1.680
3000	1.65	1.65	1.650
2000	1.58	1.60	1.590
1000	1.48	1.48	1.480
500	1.38	1.36	1.370



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.290 D_2 (mm) 1.690

Dc (psi) = 8.76E+05 **Dt = 8.76E+05** psi

6.16E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.310 D_2 (mm) 1.590

Ec (psi) = 9.39E+05 **Et = 1.04E+06** psi

7.33E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

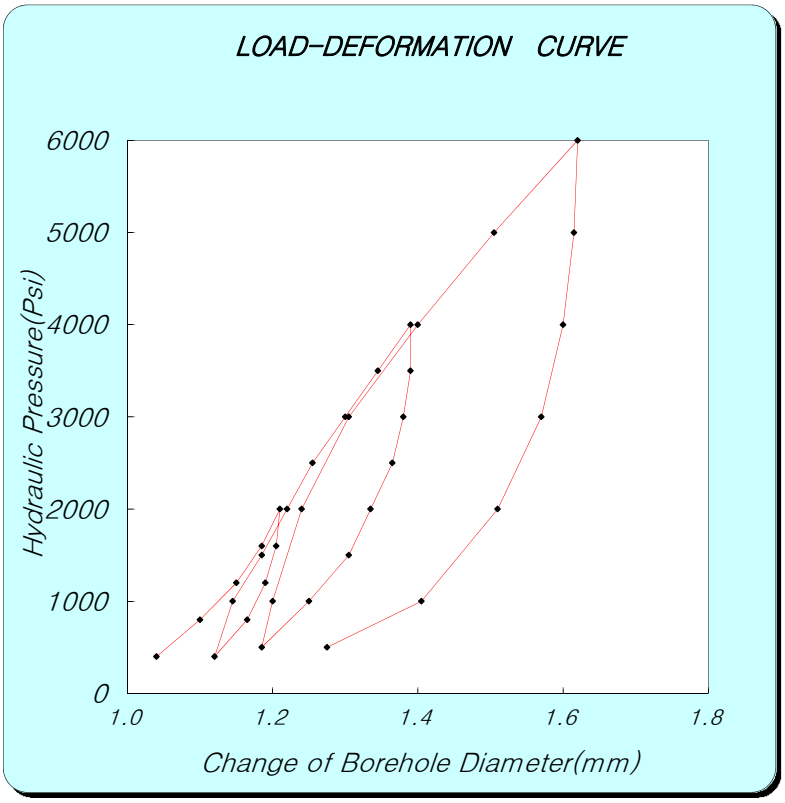
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	GRANITE	Test Date :	2015. 12. 25
Depth :	20.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/80	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	1.00	1.08	1.040
800	1.05	1.15	1.100
1200	1.09	1.21	1.150
1600	1.12	1.25	1.185
2000	1.14	1.28	1.210
1600	1.14	1.27	1.205
1200	1.12	1.26	1.190
800	1.10	1.23	1.165
400	1.06	1.18	1.120
1000	1.09	1.20	1.145
1500	1.13	1.24	1.185
2000	1.17	1.27	1.220
2500	1.20	1.31	1.255
3000	1.24	1.36	1.300
3500	1.29	1.40	1.345
4000	1.33	1.45	1.390
3500	1.33	1.45	1.390
3000	1.32	1.44	1.380
2500	1.31	1.42	1.365
2000	1.29	1.38	1.335
1500	1.26	1.35	1.305
1000	1.20	1.30	1.250
500	1.14	1.23	1.185
1000	1.15	1.25	1.200
2000	1.19	1.29	1.240
3000	1.25	1.36	1.305
4000	1.36	1.44	1.400
5000	1.46	1.55	1.505
6000	1.59	1.65	1.620
5000	1.59	1.64	1.615
4000	1.58	1.62	1.600
3000	1.55	1.59	1.570
2000	1.50	1.52	1.510
1000	1.39	1.42	1.405
500	1.24	1.31	1.275



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.210 D_2 (mm) 1.620

Dc (psi) = 8.55E+05 **Dt = 8.55E+05** psi

6.01E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.240 D_2 (mm) 1.505

Ec (psi) = 9.92E+05 **Et = 1.09E+06** psi

7.68E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

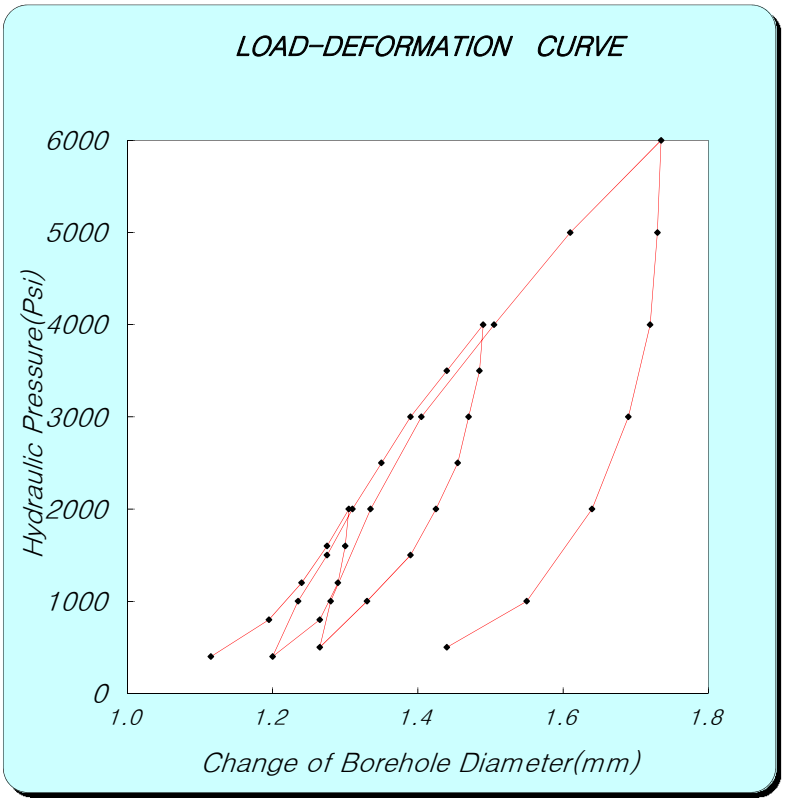
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	GRANITE	Test Date :	2015. 12. 25
Depth :	28.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/92	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	1.06	1.17	1.115
800	1.14	1.25	1.195
1200	1.18	1.30	1.240
1600	1.22	1.33	1.275
2000	1.25	1.36	1.305
1600	1.25	1.35	1.300
1200	1.24	1.34	1.290
800	1.22	1.31	1.265
400	1.16	1.24	1.200
1000	1.18	1.29	1.235
1500	1.21	1.34	1.275
2000	1.24	1.38	1.310
2500	1.28	1.42	1.350
3000	1.32	1.46	1.390
3500	1.38	1.50	1.440
4000	1.43	1.55	1.490
3500	1.43	1.54	1.485
3000	1.42	1.52	1.470
2500	1.41	1.50	1.455
2000	1.39	1.46	1.425
1500	1.36	1.42	1.390
1000	1.30	1.36	1.330
500	1.24	1.29	1.265
1000	1.26	1.30	1.280
2000	1.31	1.36	1.335
3000	1.35	1.46	1.405
4000	1.42	1.59	1.505
5000	1.60	1.62	1.610
6000	1.69	1.78	1.735
5000	1.69	1.77	1.730
4000	1.68	1.76	1.720
3000	1.65	1.73	1.690
2000	1.60	1.68	1.640
1000	1.52	1.58	1.550
500	1.41	1.47	1.440



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.305 D_2 (mm) 1.735

Dc (psi) = 8.15E+05 **Dt = 8.15E+05** psi

5.73E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.335 D_2 (mm) 1.610

Ec (psi) = 9.56E+05 **Et = 1.06E+06** psi

7.44E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

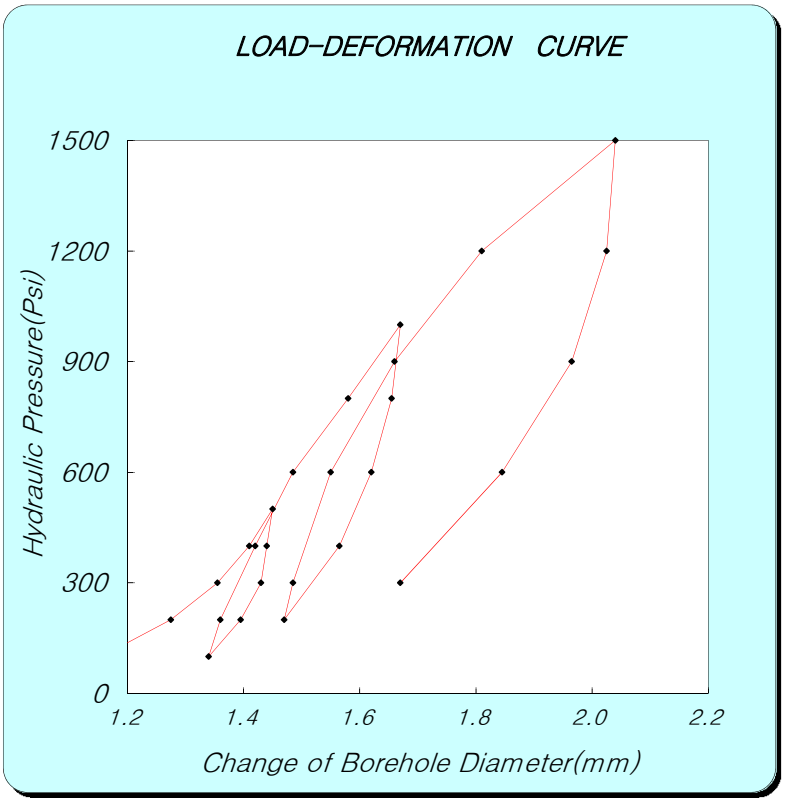
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	GRANITE	Test Date :	2015. 12. 25
Depth :	36.5m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/85	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	1.08	1.23	1.155
200	1.18	1.37	1.275
300	1.26	1.45	1.355
400	1.32	1.50	1.410
500	1.36	1.54	1.450
400	1.35	1.53	1.440
300	1.34	1.52	1.430
200	1.30	1.49	1.395
100	1.25	1.43	1.340
200	1.26	1.46	1.360
400	1.33	1.51	1.420
600	1.39	1.58	1.485
800	1.48	1.68	1.580
1000	1.55	1.79	1.670
800	1.54	1.77	1.655
600	1.51	1.73	1.620
400	1.46	1.67	1.565
200	1.36	1.58	1.470
300	1.38	1.59	1.485
600	1.45	1.65	1.550
900	1.54	1.78	1.660
1200	1.69	1.93	1.810
1500	1.87	2.21	2.040
1200	1.86	2.19	2.025
900	1.82	2.11	1.965
600	1.68	2.01	1.845
300	1.52	1.82	1.670



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1200

ΔD : D_1 (mm) 1.450 D_2 (mm) 1.810

Dc (psi) = 1.70E+05 **Dt = 1.70E+05** psi

1.20E+04 kgf/㎠

ΔP : P_1 (Psi) 600 P_2 (Psi) 900

ΔD : D_1 (mm) 1.550 D_2 (mm) 1.660

Ec (psi) = 2.39E+05 **Et = 2.39E+05** psi

1.68E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

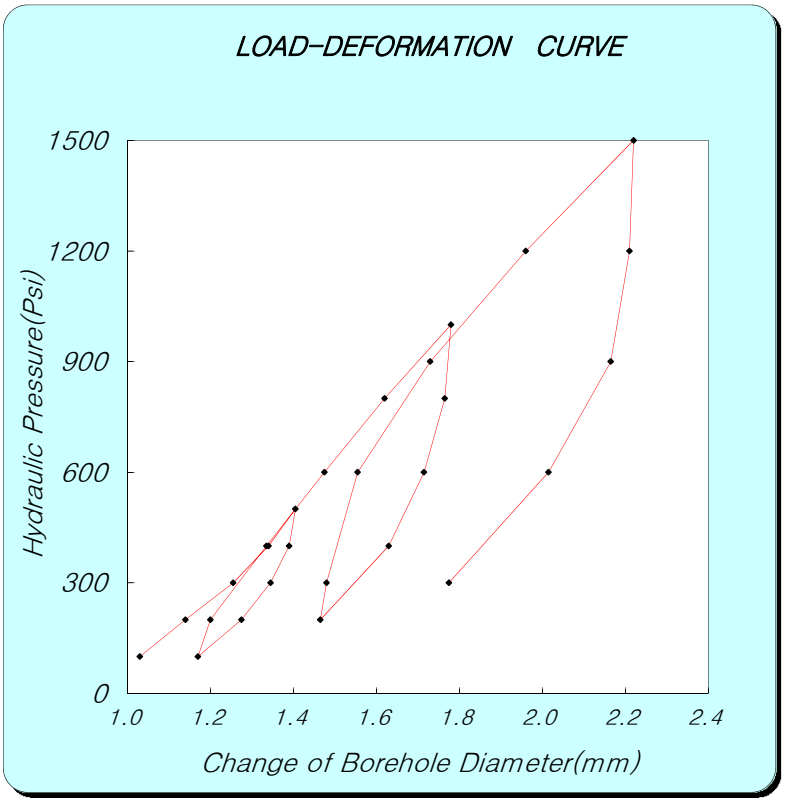
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	GRANITE	Test Date :	2015. 12. 25
Depth :	44.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/94	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	0.98	1.08	1.030
200	1.10	1.18	1.140
300	1.20	1.31	1.255
400	1.28	1.40	1.340
500	1.35	1.46	1.405
400	1.34	1.44	1.390
300	1.30	1.39	1.345
200	1.24	1.31	1.275
100	1.14	1.20	1.170
200	1.17	1.23	1.200
400	1.29	1.38	1.335
600	1.42	1.53	1.475
800	1.55	1.69	1.620
1000	1.71	1.85	1.780
800	1.70	1.83	1.765
600	1.66	1.77	1.715
400	1.58	1.68	1.630
200	1.42	1.51	1.465
300	1.43	1.53	1.480
600	1.49	1.62	1.555
900	1.63	1.83	1.730
1200	1.88	2.04	1.960
1500	2.08	2.36	2.220
1200	2.06	2.36	2.210
900	2.02	2.31	2.165
600	1.86	2.17	2.015
300	1.69	1.86	1.775



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1500

ΔD : D_1 (mm) 1.405 D_2 (mm) 2.220

Dc (psi) = 1.08E+05 **Dt = 1.08E+05** psi

7.56E+03 kgf/㎠

ΔP : P_1 (Psi) 600 P_2 (Psi) 1200

ΔD : D_1 (mm) 1.555 D_2 (mm) 1.960

Ec (psi) = 1.30E+05 **Et = 1.30E+05** psi

9.13E+03 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

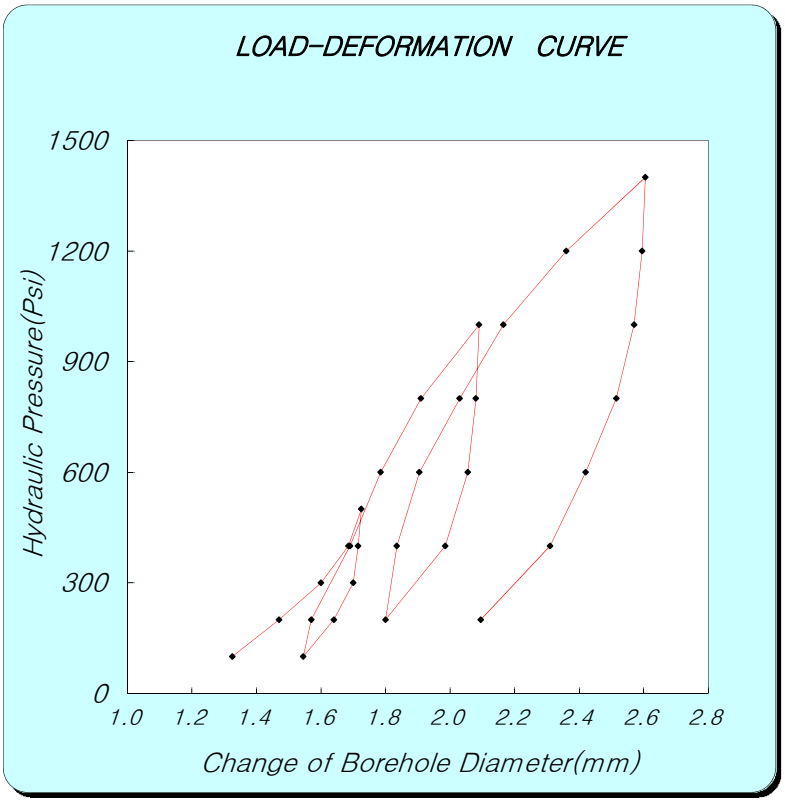
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	GRANITE	Test Date :	2015. 12. 25
Depth :	51.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/87	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	1.22	1.43	1.325
200	1.38	1.56	1.470
300	1.50	1.70	1.600
400	1.58	1.79	1.685
500	1.63	1.82	1.725
400	1.62	1.81	1.715
300	1.60	1.80	1.700
200	1.54	1.74	1.640
100	1.46	1.63	1.545
200	1.48	1.66	1.570
400	1.62	1.76	1.690
600	1.73	1.84	1.785
800	1.86	1.96	1.910
1000	2.03	2.15	2.090
800	2.02	2.14	2.080
600	2.00	2.11	2.055
400	1.93	2.04	1.985
200	1.81	1.79	1.800
400	1.83	1.84	1.835
600	1.89	1.92	1.905
800	1.99	2.07	2.030
1000	2.09	2.24	2.165
1200	2.18	2.54	2.360
1400	2.38	2.83	2.605
1200	2.37	2.82	2.595
1000	2.35	2.79	2.570
800	2.30	2.73	2.515
600	2.23	2.61	2.420
400	2.14	2.48	2.310
200	1.98	2.21	2.095



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.725 D_2 (mm) 2.090

Dc (psi) = 1.20E+05 **Dt = 1.20E+05** psi

8.44E+03 kgf/㎠

ΔP : P_1 (Psi) 200 P_2 (Psi) 800

ΔD : D_1 (mm) 1.570 D_2 (mm) 1.910

Ec (psi) = 1.55E+05 **Et = 1.55E+05** psi

1.09E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

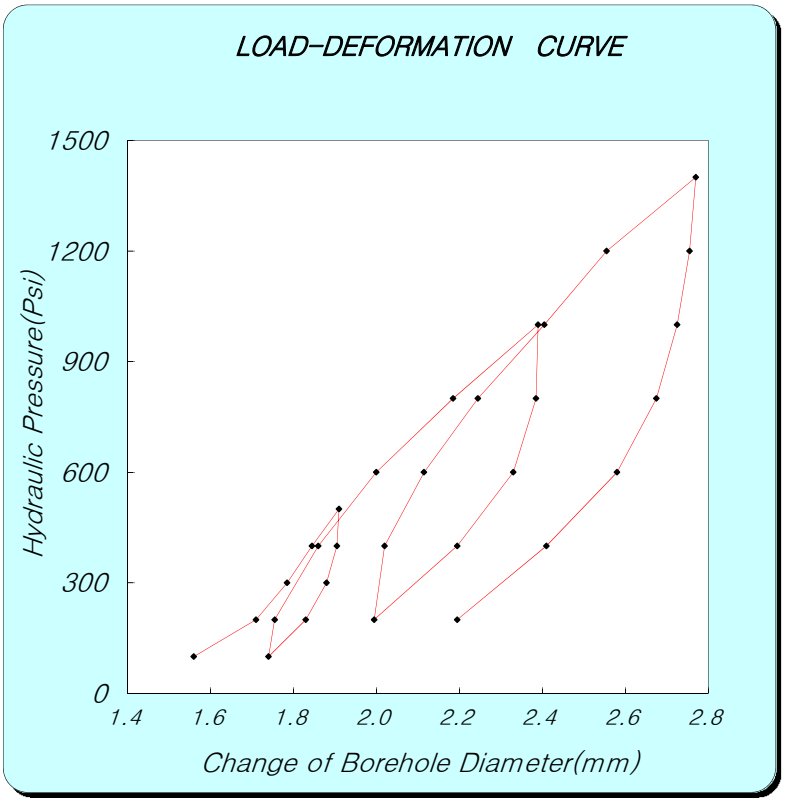
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	GRANITE	Test Date :	2015. 12. 25
Depth :	60.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/53	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	1.48	1.64	1.560
200	1.61	1.81	1.710
300	1.69	1.88	1.785
400	1.75	1.94	1.845
500	1.79	2.03	1.910
400	1.78	2.03	1.905
300	1.76	2.00	1.880
200	1.72	1.94	1.830
100	1.63	1.85	1.740
200	1.64	1.87	1.755
400	1.73	1.99	1.860
600	1.89	2.11	2.000
800	2.05	2.32	2.185
1000	2.24	2.54	2.390
800	2.24	2.53	2.385
600	2.20	2.46	2.330
400	2.08	2.31	2.195
200	1.88	2.11	1.995
400	1.90	2.14	2.020
600	1.98	2.25	2.115
800	2.07	2.42	2.245
1000	2.22	2.59	2.405
1200	2.38	2.73	2.555
1400	2.59	2.95	2.770
1200	2.58	2.93	2.755
1000	2.56	2.89	2.725
800	2.52	2.83	2.675
600	2.46	2.70	2.580
400	2.31	2.51	2.410
200	2.11	2.28	2.195



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1400

ΔD : D_1 (mm) 1.910 D_2 (mm) 2.770

Dc (psi) = 9.17E+04 **Dt = 9.17E+04** psi

6.45E+03 kgf/㎠

ΔP : P_1 (Psi) 600 P_2 (Psi) 1200

ΔD : D_1 (mm) 2.115 D_2 (mm) 2.555

Ec (psi) = 1.20E+05 **Et = 1.20E+05** psi

8.40E+03 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

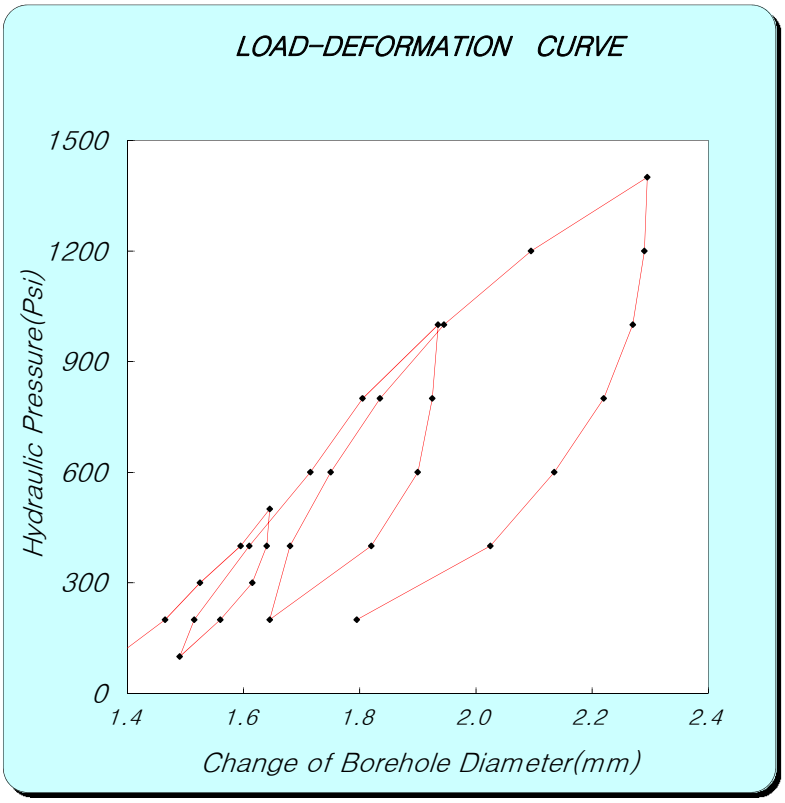
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	MAFIC DYKE	Test Date :	2015. 12. 25
Depth :	68.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/20	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	1.27	1.49	1.380
200	1.35	1.58	1.465
300	1.42	1.63	1.525
400	1.48	1.71	1.595
500	1.53	1.76	1.645
400	1.52	1.76	1.640
300	1.50	1.73	1.615
200	1.46	1.66	1.560
100	1.40	1.58	1.490
200	1.43	1.60	1.515
400	1.48	1.74	1.610
600	1.57	1.86	1.715
800	1.69	1.92	1.805
1000	1.80	2.07	1.935
800	1.80	2.05	1.925
600	1.79	2.01	1.900
400	1.70	1.94	1.820
200	1.52	1.77	1.645
400	1.55	1.81	1.680
600	1.62	1.88	1.750
800	1.71	1.96	1.835
1000	1.84	2.05	1.945
1200	2.05	2.14	2.095
1400	2.21	2.38	2.295
1200	2.20	2.38	2.290
1000	2.18	2.36	2.270
800	2.14	2.30	2.220
600	2.06	2.21	2.135
400	1.92	2.13	2.025
200	1.73	1.86	1.795



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.645 D_2 (mm) 1.935

Dc (psi) = 1.51E+05 **Dt = 1.51E+05** psi

1.06E+04 kgf/㎠

ΔP : P_1 (Psi) 400 P_2 (Psi) 800

ΔD : D_1 (mm) 1.610 D_2 (mm) 1.805

Ec (psi) = 1.80E+05 **Et = 1.80E+05** psi

1.26E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

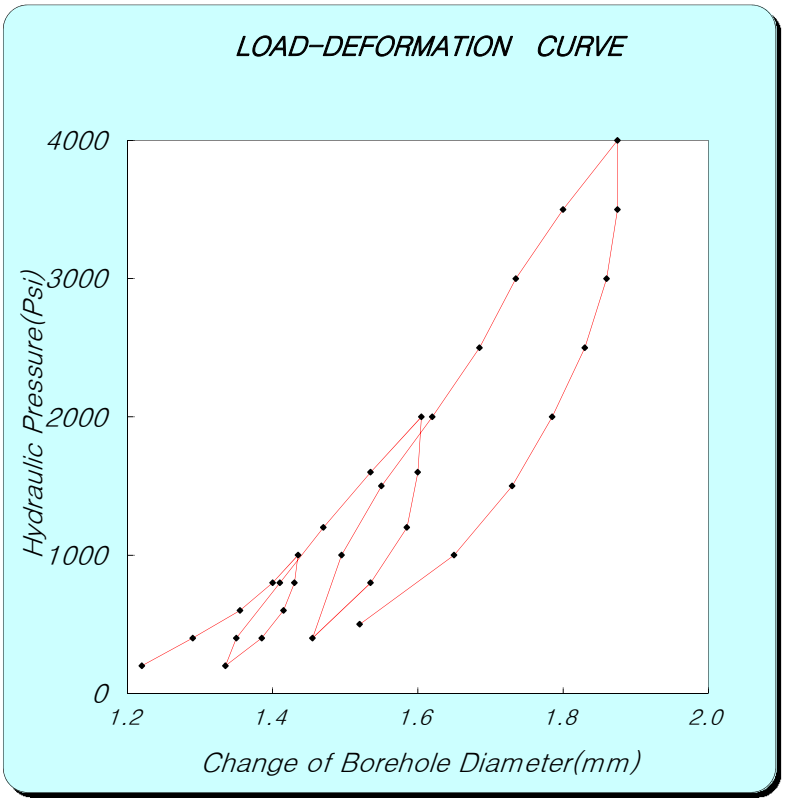
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	GRANITE	Test Date :	2015. 12. 25
Depth :	76.5m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/88	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.13	1.31	1.220
400	1.20	1.38	1.290
600	1.26	1.45	1.355
800	1.31	1.49	1.400
1000	1.34	1.53	1.435
800	1.33	1.53	1.430
600	1.31	1.52	1.415
400	1.28	1.49	1.385
200	1.24	1.43	1.335
400	1.26	1.44	1.350
800	1.31	1.51	1.410
1200	1.37	1.57	1.470
1600	1.44	1.63	1.535
2000	1.51	1.70	1.605
1600	1.50	1.70	1.600
1200	1.49	1.68	1.585
800	1.45	1.62	1.535
400	1.38	1.53	1.455
1000	1.42	1.57	1.495
1500	1.47	1.63	1.550
2000	1.52	1.72	1.620
2500	1.59	1.78	1.685
3000	1.64	1.83	1.735
3500	1.72	1.88	1.800
4000	1.79	1.96	1.875
3500	1.79	1.96	1.875
3000	1.78	1.94	1.860
2500	1.75	1.91	1.830
2000	1.72	1.85	1.785
1500	1.67	1.79	1.730
1000	1.60	1.70	1.650
500	1.48	1.56	1.520



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.435 D_2 (mm) 1.875

Dc (psi) = 5.98E+05 **Dt = 5.98E+05** psi

4.20E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.495 D_2 (mm) 1.800

Ec (psi) = 7.18E+05 **Et = 7.18E+05** psi

5.05E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

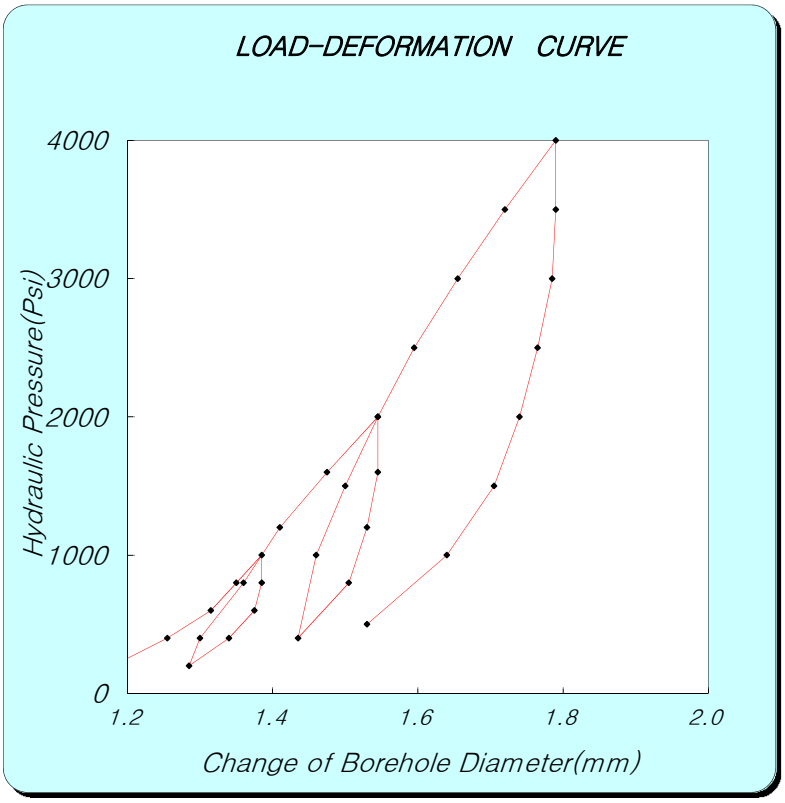
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	MAFIC DYKE	Test Date :	2015. 12. 25
Depth :	85.5m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/90	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.10	1.26	1.180
400	1.16	1.35	1.255
600	1.22	1.41	1.315
800	1.26	1.44	1.350
1000	1.29	1.48	1.385
800	1.29	1.48	1.385
600	1.28	1.47	1.375
400	1.25	1.43	1.340
200	1.19	1.38	1.285
400	1.20	1.40	1.300
800	1.25	1.47	1.360
1200	1.30	1.52	1.410
1600	1.37	1.58	1.475
2000	1.44	1.65	1.545
1600	1.44	1.65	1.545
1200	1.42	1.64	1.530
800	1.40	1.61	1.505
400	1.34	1.53	1.435
1000	1.36	1.56	1.460
1500	1.40	1.60	1.500
2000	1.46	1.63	1.545
2500	1.51	1.68	1.595
3000	1.56	1.75	1.655
3500	1.62	1.82	1.720
4000	1.68	1.90	1.790
3500	1.68	1.90	1.790
3000	1.68	1.89	1.785
2500	1.66	1.87	1.765
2000	1.63	1.85	1.740
1500	1.60	1.81	1.705
1000	1.53	1.75	1.640
500	1.43	1.63	1.530



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.385 D_2 (mm) 1.790

Dc (psi) = 6.49E+05 **Dt = 6.49E+05** psi

4.56E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.460 D_2 (mm) 1.720

Ec (psi) = 8.43E+05 **Et = 8.43E+05** psi

5.92E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

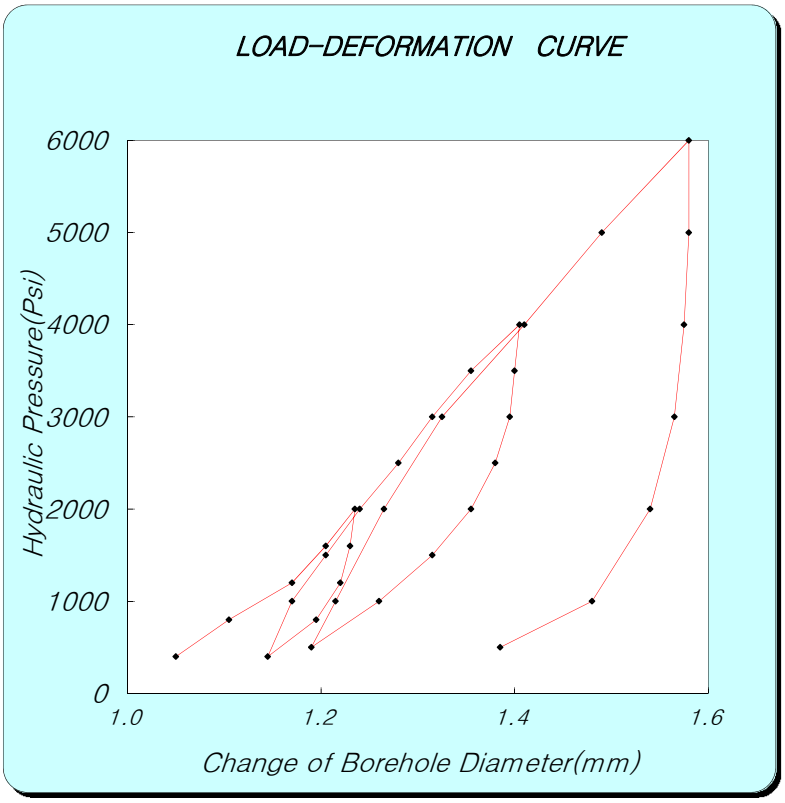
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-16	Rock Name :	GRANITE	Test Date :	2015. 12. 25
Depth :	92.5m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	0.5m	TCR/RQD(%) :	100/61	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	1.16	0.94	1.050
800	1.20	1.01	1.105
1200	1.26	1.08	1.170
1600	1.29	1.12	1.205
2000	1.33	1.14	1.235
1600	1.32	1.14	1.230
1200	1.30	1.14	1.220
800	1.27	1.12	1.195
400	1.21	1.08	1.145
1000	1.23	1.11	1.170
1500	1.26	1.15	1.205
2000	1.30	1.18	1.240
2500	1.34	1.22	1.280
3000	1.38	1.25	1.315
3500	1.41	1.30	1.355
4000	1.45	1.36	1.405
3500	1.45	1.35	1.400
3000	1.44	1.35	1.395
2500	1.43	1.33	1.380
2000	1.41	1.30	1.355
1500	1.37	1.26	1.315
1000	1.32	1.20	1.260
500	1.25	1.13	1.190
1000	1.27	1.16	1.215
2000	1.31	1.22	1.265
3000	1.35	1.30	1.325
4000	1.43	1.39	1.410
5000	1.48	1.50	1.490
6000	1.55	1.61	1.580
5000	1.55	1.61	1.580
4000	1.54	1.61	1.575
3000	1.53	1.60	1.565
2000	1.50	1.58	1.540
1000	1.45	1.51	1.480
500	1.35	1.42	1.385



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.235 D_2 (mm) 1.580

Dc (psi) = 1.02E+06 **Dt = 1.12E+06** psi

7.86E+04 kgf/㎠

ΔP : P_1 (Psi) 2500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.380 D_2 (mm) 1.215

Ec (psi) = 7.97E+05 **Et = 7.97E+05** psi

5.60E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

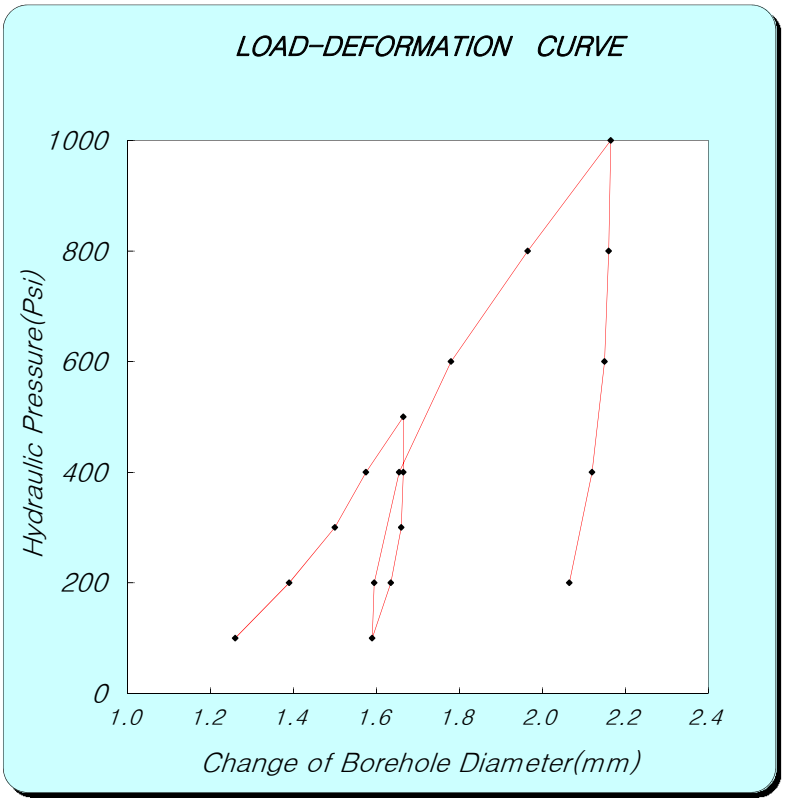
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	GRANITE	Test Date :	2016. 1. 07
Depth :	11.0m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	1.14	1.38	1.260
200	1.25	1.53	1.390
300	1.37	1.63	1.500
400	1.43	1.72	1.575
500	1.53	1.80	1.665
400	1.53	1.80	1.665
300	1.52	1.80	1.660
200	1.50	1.77	1.635
100	1.45	1.73	1.590
200	1.46	1.73	1.595
400	1.52	1.79	1.655
600	1.60	1.96	1.780
800	1.69	2.24	1.965
1000	1.80	2.53	2.165
800	1.80	2.52	2.160
600	1.80	2.50	2.150
400	1.78	2.46	2.120
200	1.73	2.40	2.065



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.665 D_2 (mm) 2.165

Dc (psi) = 8.76E+04 **Dt = 8.76E+04** psi

6.16E+03 kgf/㎠

ΔP : P_1 (Psi) 400 P_2 (Psi) 800

ΔD : D_1 (mm) 1.655 D_2 (mm) 1.965

Ec (psi) = 1.13E+05 **Et = 1.13E+05** psi

7.95E+03 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

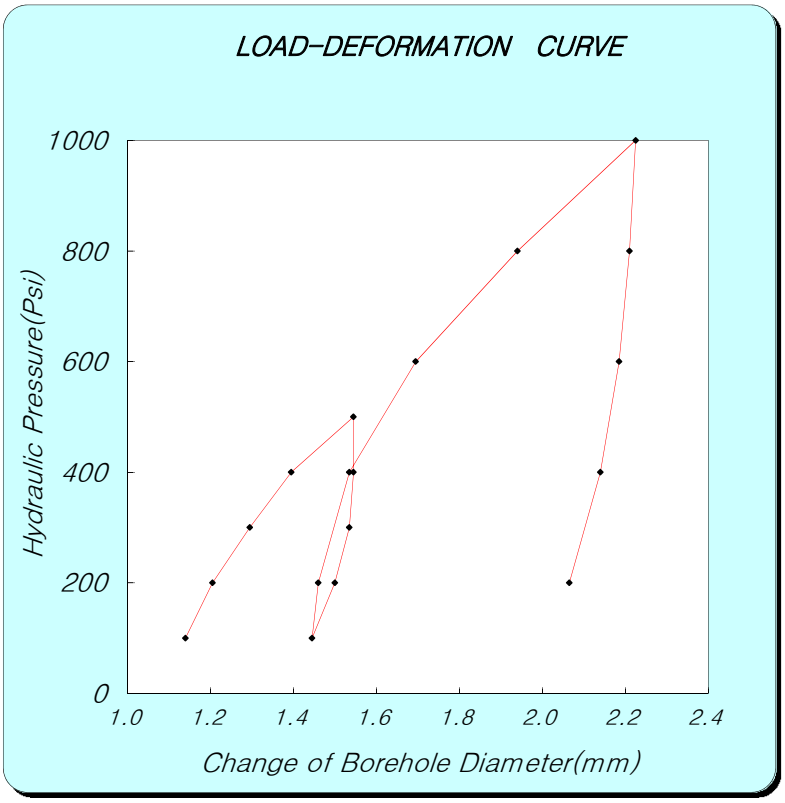
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	GRANITE	Test Date :	2016. 1. 07
Depth :	20.0m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	83/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	0.99	1.29	1.140
200	1.04	1.37	1.205
300	1.15	1.44	1.295
400	1.23	1.56	1.395
500	1.33	1.76	1.545
400	1.33	1.76	1.545
300	1.32	1.75	1.535
200	1.29	1.71	1.500
100	1.25	1.64	1.445
200	1.26	1.66	1.460
400	1.32	1.75	1.535
600	1.43	1.96	1.695
800	1.61	2.27	1.940
1000	1.78	2.67	2.225
800	1.77	2.65	2.210
600	1.75	2.62	2.185
400	1.71	2.57	2.140
200	1.65	2.48	2.065



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.545 D_2 (mm) 2.225

Dc (psi) = 6.44E+04 **Dt = 6.44E+04** psi

4.53E+03 kgf/㎠

ΔP : P_1 (Psi) 400 P_2 (Psi) 800

ΔD : D_1 (mm) 1.535 D_2 (mm) 1.940

Ec (psi) = 8.66E+04 **Et = 8.66E+04** psi

6.09E+03 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

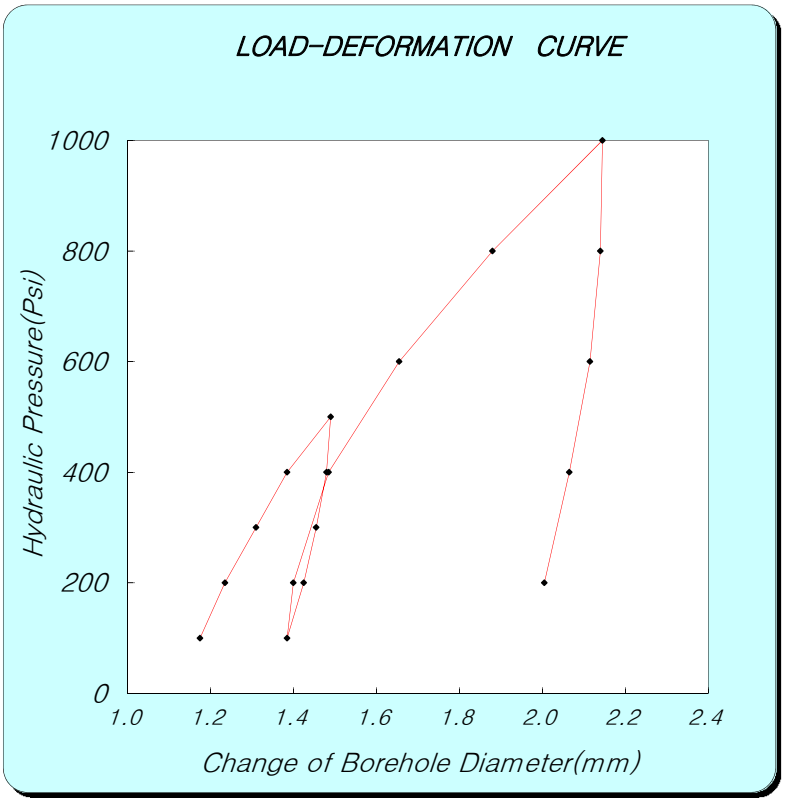
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	GRANITE	Test Date :	2016. 1. 07
Depth :	28.5m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	1.32	1.03	1.175
200	1.37	1.10	1.235
300	1.44	1.18	1.310
400	1.50	1.27	1.385
500	1.61	1.37	1.490
400	1.60	1.36	1.480
300	1.58	1.33	1.455
200	1.55	1.30	1.425
100	1.52	1.25	1.385
200	1.53	1.27	1.400
400	1.63	1.34	1.485
600	1.82	1.49	1.655
800	2.14	1.62	1.880
1000	2.48	1.81	2.145
800	2.48	1.80	2.140
600	2.46	1.77	2.115
400	2.42	1.71	2.065
200	2.36	1.65	2.005



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1000

ΔD : D_1 (mm) 1.490 D_2 (mm) 2.145

Dc (psi) = 6.69E+04 **Dt = 6.69E+04** psi

4.70E+03 kgf/㎠

ΔP : P_1 (Psi) 400 P_2 (Psi) 800

ΔD : D_1 (mm) 1.485 D_2 (mm) 1.880

Ec (psi) = 8.87E+04 **Et = 8.87E+04** psi

6.24E+03 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

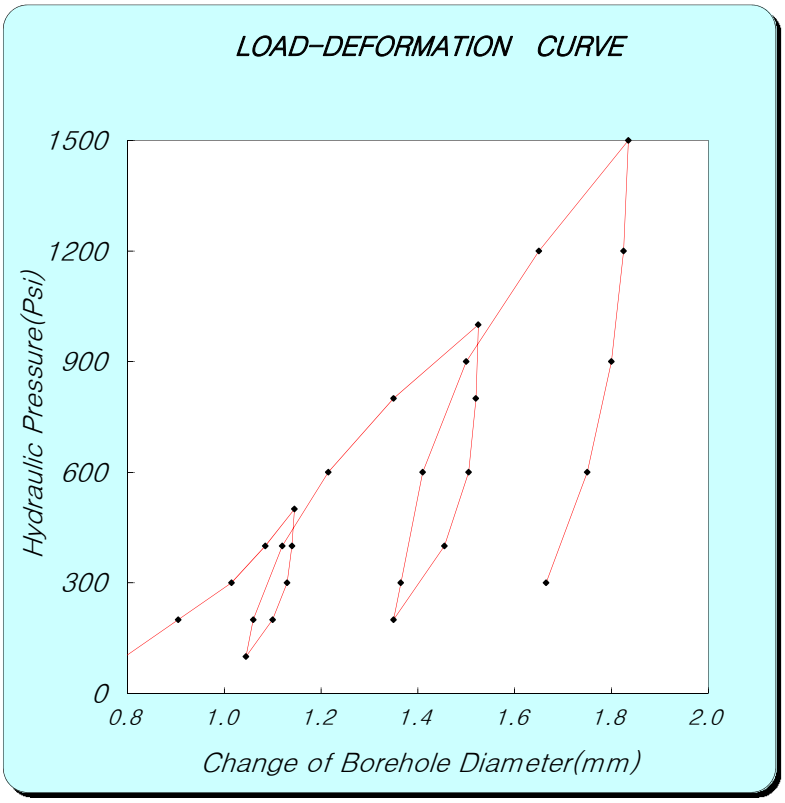
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	MAFIC DYKE	Test Date :	2016. 1. 07
Depth :	35.5m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
100	0.88	0.71	0.795
200	0.98	0.83	0.905
300	1.08	0.95	1.015
400	1.15	1.02	1.085
500	1.21	1.08	1.145
400	1.20	1.08	1.140
300	1.19	1.07	1.130
200	1.16	1.04	1.100
100	1.11	0.98	1.045
200	1.13	0.99	1.060
400	1.20	1.04	1.120
600	1.33	1.10	1.215
800	1.52	1.18	1.350
1000	1.73	1.32	1.525
800	1.72	1.32	1.520
600	1.71	1.30	1.505
400	1.66	1.25	1.455
200	1.56	1.14	1.350
300	1.58	1.15	1.365
600	1.63	1.19	1.410
900	1.72	1.28	1.500
1200	1.89	1.41	1.650
1500	2.05	1.62	1.835
1200	2.04	1.61	1.825
900	2.02	1.58	1.800
600	1.98	1.52	1.750
300	1.90	1.43	1.665



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 500 P_2 (Psi) 1500

ΔD : D_1 (mm) 1.145 D_2 (mm) 1.835

Dc (psi) = 1.27E+05 **Dt = 1.27E+05** psi

8.93E+03 kgf/㎠

ΔP : P_1 (Psi) 600 P_2 (Psi) 1200

ΔD : D_1 (mm) 1.410 D_2 (mm) 1.650

Ec (psi) = 2.19E+05 **Et = 2.19E+05** psi

1.54E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

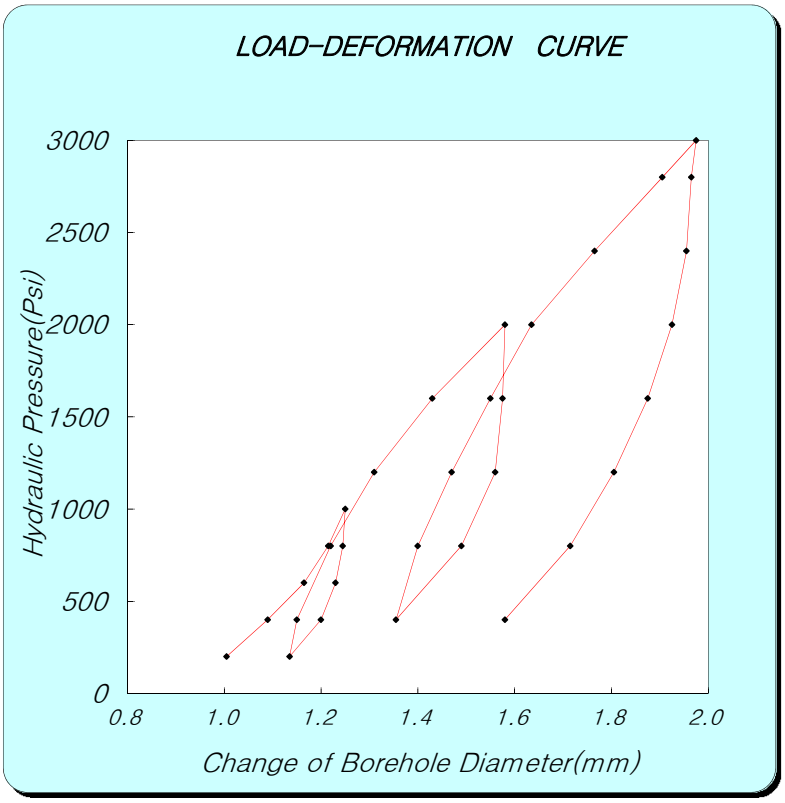
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	MAFIC DYKE	Test Date :	2016. 1. 07
Depth :	44.0m	Rock Weathering :	HW~MW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	0.90	1.11	1.005
400	0.98	1.20	1.090
600	1.06	1.27	1.165
800	1.11	1.32	1.215
1000	1.15	1.35	1.250
800	1.14	1.35	1.245
600	1.13	1.33	1.230
400	1.10	1.30	1.200
200	1.04	1.23	1.135
400	1.05	1.25	1.150
800	1.11	1.33	1.220
1200	1.20	1.42	1.310
1600	1.29	1.57	1.430
2000	1.43	1.73	1.580
1600	1.43	1.72	1.575
1200	1.42	1.70	1.560
800	1.36	1.62	1.490
400	1.20	1.51	1.355
800	1.24	1.56	1.400
1200	1.30	1.64	1.470
1600	1.38	1.72	1.550
2000	1.44	1.83	1.635
2400	1.55	1.98	1.765
2800	1.67	2.14	1.905
3000	1.72	2.23	1.975
2800	1.71	2.22	1.965
2400	1.70	2.21	1.955
2000	1.68	2.17	1.925
1600	1.64	2.11	1.875
1200	1.58	2.03	1.805
800	1.50	1.93	1.715
400	1.38	1.78	1.580



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3000

ΔD : D_1 (mm) 1.250 D_2 (mm) 1.975

Dc (psi) = 2.42E+05 **Dt = 2.42E+05** psi

1.70E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2800

ΔD : D_1 (mm) 1.400 D_2 (mm) 1.905

Ec (psi) = 3.47E+05 **Et = 3.47E+05** psi

2.44E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

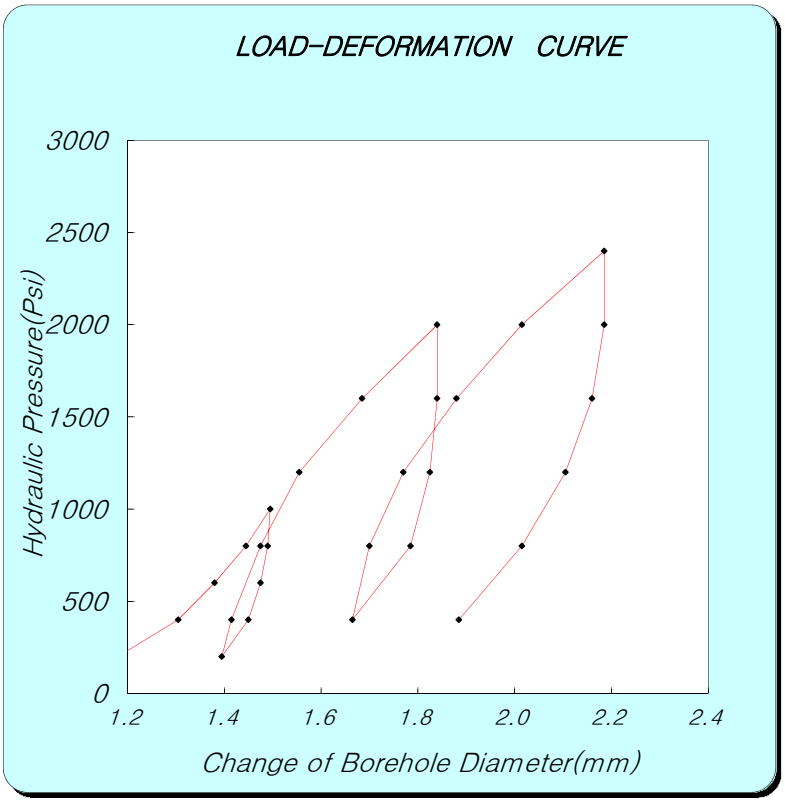
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	GRANITE	Test Date :	2016. 1. 07
Depth :	55.3m	Rock Weathering :	HW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.03	1.33	1.180
400	1.18	1.43	1.305
600	1.25	1.51	1.380
800	1.31	1.58	1.445
1000	1.36	1.63	1.495
800	1.36	1.62	1.490
600	1.35	1.60	1.475
400	1.33	1.57	1.450
200	1.28	1.51	1.395
400	1.30	1.53	1.415
800	1.33	1.62	1.475
1200	1.38	1.73	1.555
1600	1.51	1.86	1.685
2000	1.62	2.06	1.840
1600	1.62	2.06	1.840
1200	1.61	2.04	1.825
800	1.57	2.00	1.785
400	1.50	1.83	1.665
800	1.54	1.86	1.700
1200	1.60	1.94	1.770
1600	1.68	2.08	1.880
2000	1.77	2.26	2.015
2400	1.90	2.47	2.185
2000	1.90	2.47	2.185
1600	1.88	2.44	2.160
1200	1.83	2.38	2.105
800	1.77	2.26	2.015
400	1.63	2.14	1.885



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 2000

ΔD : D_1 (mm) 1.495 D_2 (mm) 1.840

Dc (psi) = 2.54E+05 **Dt = 2.54E+05** psi

1.79E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 1600

ΔD : D_1 (mm) 1.475 D_2 (mm) 1.685

Ec (psi) = 3.34E+05 **Et = 3.34E+05** psi

2.35E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

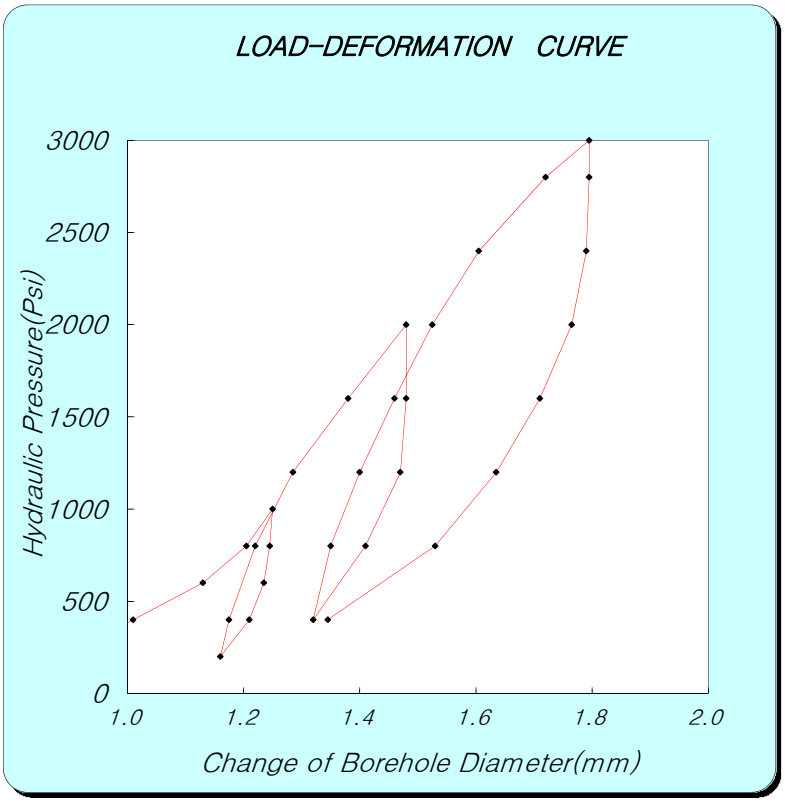
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	MAFIC DYKE	Test Date :	2016. 1. 07
Depth :	65.0m	Rock Weathering :	HW~MW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	100/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	0.80	0.99	0.895
400	0.91	1.11	1.010
600	1.03	1.23	1.130
800	1.10	1.31	1.205
1000	1.14	1.36	1.250
800	1.14	1.35	1.245
600	1.13	1.34	1.235
400	1.11	1.31	1.210
200	1.06	1.26	1.160
400	1.08	1.27	1.175
800	1.11	1.33	1.220
1200	1.15	1.42	1.285
1600	1.22	1.54	1.380
2000	1.30	1.66	1.480
1600	1.30	1.66	1.480
1200	1.29	1.65	1.470
800	1.24	1.58	1.410
400	1.16	1.48	1.320
800	1.17	1.53	1.350
1200	1.21	1.59	1.400
1600	1.26	1.66	1.460
2000	1.32	1.73	1.525
2400	1.39	1.82	1.605
2800	1.48	1.96	1.720
3000	1.53	2.06	1.795
2800	1.53	2.06	1.795
2400	1.53	2.05	1.790
2000	1.51	2.02	1.765
1600	1.46	1.96	1.710
1200	1.39	1.88	1.635
800	1.30	1.76	1.530
400	1.16	1.53	1.345



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 2400

ΔD : D_1 (mm) 1.250 D_2 (mm) 1.605

Dc (psi) = 3.46E+05 **Dt = 3.46E+05** psi

2.43E+04 kgf/㎠

ΔP : P_1 (Psi) 800 P_2 (Psi) 2000

ΔD : D_1 (mm) 1.350 D_2 (mm) 1.525

Ec (psi) = 6.01E+05 **Et = 6.01E+05** psi

4.23E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

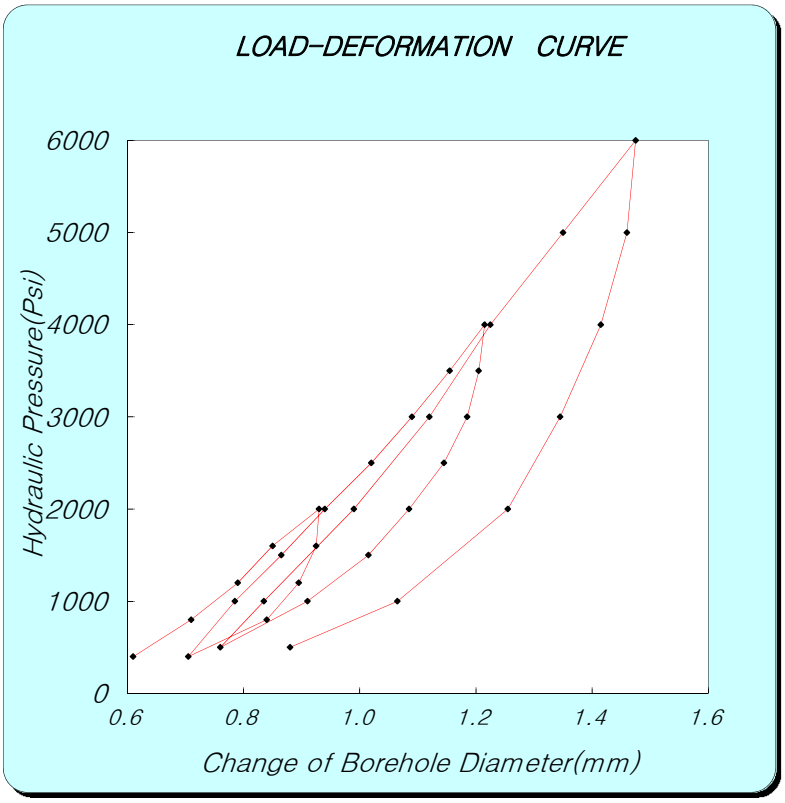
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	GRANITE	Test Date :	2016. 1. 07
Depth :	70.5m	Rock Weathering :	HW~MW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	90/0	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.59	0.63	0.610
800	0.69	0.73	0.710
1200	0.72	0.86	0.790
1600	0.78	0.92	0.850
2000	0.86	1.00	0.930
1600	0.85	1.00	0.925
1200	0.82	0.97	0.895
800	0.73	0.95	0.840
400	0.62	0.79	0.705
1000	0.71	0.86	0.785
1500	0.78	0.95	0.865
2000	0.85	1.03	0.940
2500	0.92	1.12	1.020
3000	0.98	1.20	1.090
3500	1.04	1.27	1.155
4000	1.09	1.34	1.215
3500	1.09	1.32	1.205
3000	1.06	1.31	1.185
2500	1.02	1.27	1.145
2000	0.95	1.22	1.085
1500	0.88	1.15	1.015
1000	0.77	1.05	0.910
500	0.65	0.87	0.760
1000	0.73	0.94	0.835
2000	0.87	1.11	0.990
3000	0.99	1.25	1.120
4000	1.09	1.36	1.225
5000	1.20	1.50	1.350
6000	1.29	1.66	1.475
5000	1.28	1.64	1.460
4000	1.25	1.58	1.415
3000	1.20	1.49	1.345
2000	1.13	1.38	1.255
1000	0.95	1.18	1.065
500	0.77	0.99	0.880



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.930 D_2 (mm) 1.475

Dc (psi) = 6.43E+05 **Dt = 6.43E+05** psi

4.52E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.835 D_2 (mm) 1.350

Ec (psi) = 6.81E+05 **Et = 6.81E+05** psi

4.79E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

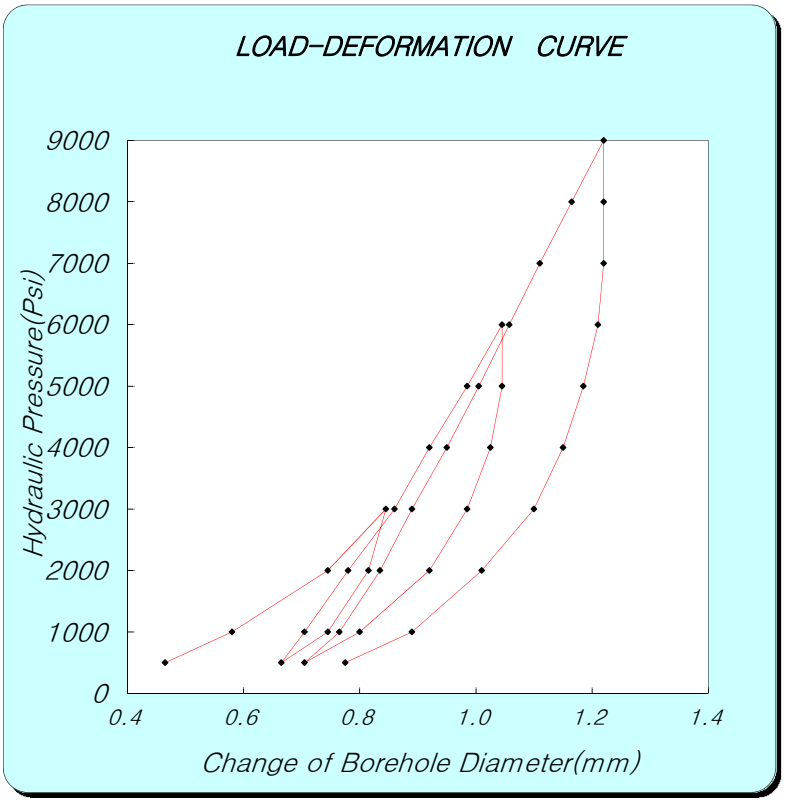
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	GRANITE	Test Date :	2016. 1. 07
Depth :	78.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	100/50	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.61	0.32	0.465
1000	0.77	0.39	0.580
2000	0.86	0.63	0.745
3000	0.94	0.75	0.845
2000	0.90	0.73	0.815
1000	0.86	0.63	0.745
500	0.75	0.58	0.665
1000	0.78	0.63	0.705
2000	0.84	0.72	0.780
3000	0.91	0.81	0.860
4000	0.96	0.88	0.920
5000	0.99	0.98	0.985
6000	1.03	1.06	1.045
5000	1.03	1.06	1.045
4000	1.02	1.03	1.025
3000	1.01	0.96	0.985
2000	0.96	0.88	0.920
1000	0.82	0.78	0.800
500	0.73	0.68	0.705
1000	0.80	0.73	0.765
2000	0.87	0.80	0.835
3000	0.92	0.86	0.890
4000	0.97	0.93	0.950
5000	1.01	1.00	1.005
6000	1.06	1.06	1.058
7000	1.10	1.12	1.110
8000	1.15	1.18	1.165
9000	1.20	1.24	1.220
8000	1.20	1.24	1.220
7000	1.20	1.24	1.220
6000	1.19	1.23	1.210
5000	1.16	1.21	1.185
4000	1.13	1.17	1.150
3000	1.08	1.12	1.100
2000	0.98	1.04	1.010
1000	0.85	0.93	0.890
500	0.75	0.80	0.775



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1.519	1.474	1.438	1.397	1.366	1.289	1.151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.845 D_2 (mm) 1.220

Dc (psi) = 1.40E+06 **Dt = 1.75E+06** psi

1.23E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.835 D_2 (mm) 1.165

Ec (psi) = 1.59E+06 **Et = 2.19E+06** psi

1.54E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

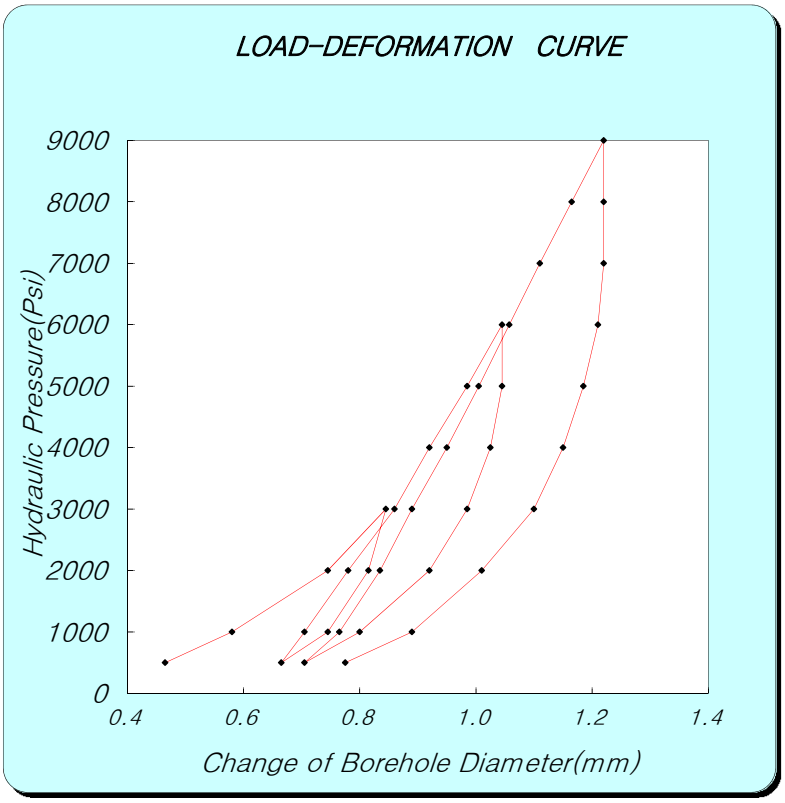
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	GRANITE	Test Date :	2016. 1. 07
Depth :	86.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	100/93	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.61	0.32	0.465
1000	0.77	0.39	0.580
2000	0.86	0.63	0.745
3000	0.94	0.75	0.845
2000	0.90	0.73	0.815
1000	0.86	0.63	0.745
500	0.75	0.58	0.665
1000	0.78	0.63	0.705
2000	0.84	0.72	0.780
3000	0.91	0.81	0.860
4000	0.96	0.88	0.920
5000	0.99	0.98	0.985
6000	1.03	1.06	1.045
5000	1.03	1.06	1.045
4000	1.02	1.03	1.025
3000	1.01	0.96	0.985
2000	0.96	0.88	0.920
1000	0.82	0.78	0.800
500	0.73	0.68	0.705
1000	0.80	0.73	0.765
2000	0.87	0.80	0.835
3000	0.92	0.86	0.890
4000	0.97	0.93	0.950
5000	1.01	1.00	1.005
6000	1.06	1.06	1.058
7000	1.10	1.12	1.110
8000	1.15	1.18	1.165
9000	1.20	1.24	1.220
8000	1.20	1.24	1.220
7000	1.20	1.24	1.220
6000	1.19	1.23	1.210
5000	1.16	1.21	1.185
4000	1.13	1.17	1.150
3000	1.08	1.12	1.100
2000	0.98	1.04	1.010
1000	0.85	0.93	0.890
500	0.75	0.80	0.775



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1.519	1.474	1.438	1.397	1.366	1.289	1.151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.845 D_2 (mm) 1.220

Dc (psi) = 1.40E+06 **Dt = 1.75E+06** psi

1.23E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.835 D_2 (mm) 1.165

Ec (psi) = 1.59E+06 **Et = 2.19E+06** psi

1.54E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

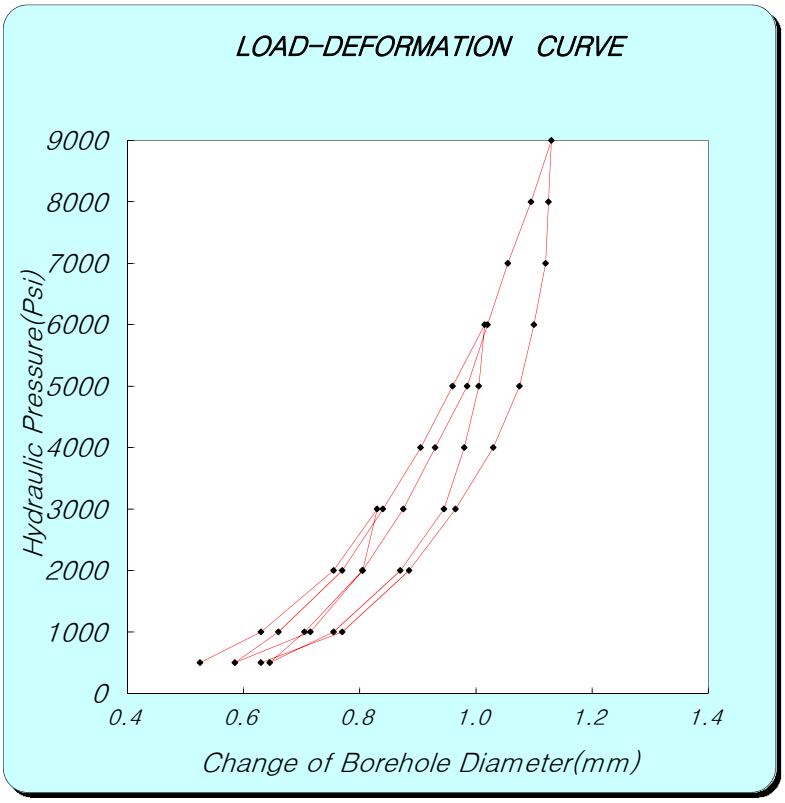
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-19	Rock Name :	GRANITE	Test Date :	2016. 1. 07
Depth :	92.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.0m	TCR/RQD(%) :	100/98	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.51	0.54	0.525
1000	0.61	0.65	0.630
2000	0.73	0.78	0.755
3000	0.80	0.86	0.830
2000	0.76	0.85	0.805
1000	0.67	0.76	0.715
500	0.53	0.64	0.585
1000	0.63	0.69	0.660
2000	0.74	0.80	0.770
3000	0.81	0.87	0.840
4000	0.87	0.94	0.905
5000	0.92	1.00	0.960
6000	0.97	1.06	1.015
5000	0.96	1.05	1.005
4000	0.93	1.03	0.980
3000	0.88	1.01	0.945
2000	0.80	0.94	0.870
1000	0.70	0.81	0.755
500	0.59	0.70	0.645
1000	0.67	0.74	0.705
2000	0.77	0.84	0.805
3000	0.84	0.91	0.875
4000	0.89	0.97	0.930
5000	0.94	1.03	0.985
6000	0.97	1.07	1.020
7000	1.00	1.11	1.055
8000	1.04	1.15	1.095
9000	1.08	1.18	1.130
8000	1.08	1.17	1.125
7000	1.07	1.17	1.120
6000	1.05	1.15	1.100
5000	1.02	1.13	1.075
4000	0.97	1.09	1.030
3000	0.89	1.04	0.965
2000	0.81	0.96	0.885
1000	0.71	0.83	0.770
500	0.57	0.69	0.630



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	0.830	D_2 (mm)	1.130		
	Dc (psi) =	**1.75E+06**	**Dt =**	**2.60E+06**	psi	
				1.83E+05	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	0.805	D_2 (mm)	1.095		
	Ec (psi) =	**1.81E+06**	**Et =**	**2.77E+06**	psi	
				1.95E+05	kgf/㎠	

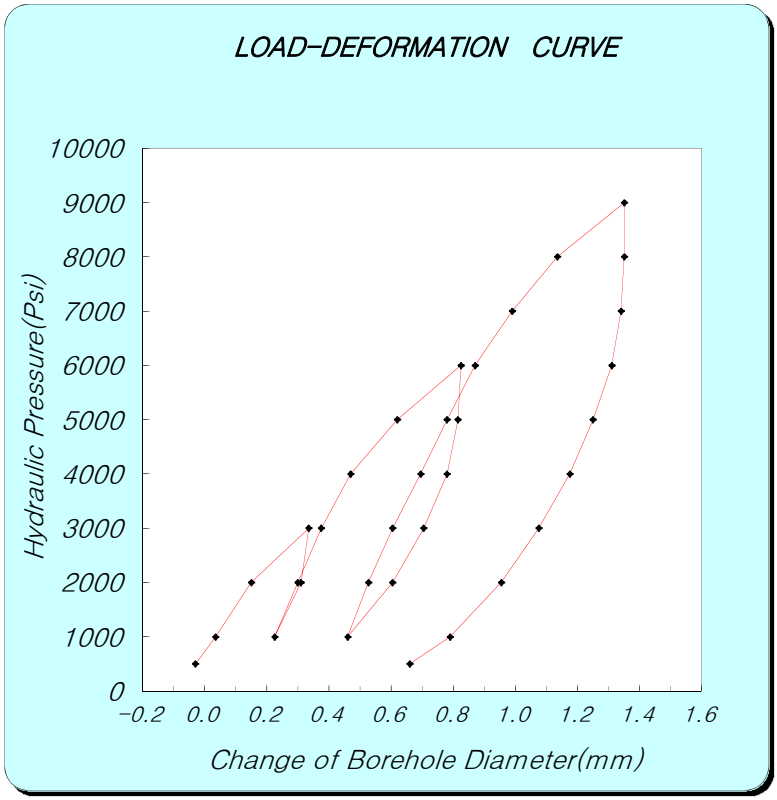
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	48.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	100/77	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.41	-1.07	-1.240
500	0.20	-0.26	-0.030
1000	0.32	-0.25	0.035
2000	0.45	-0.15	0.150
3000	0.55	0.12	0.335
2000	0.52	0.10	0.310
1000	0.44	0.01	0.225
2000	0.49	0.11	0.300
3000	0.56	0.19	0.375
4000	0.65	0.29	0.470
5000	0.79	0.45	0.620
6000	0.97	0.68	0.825
5000	0.96	0.67	0.815
4000	0.93	0.63	0.780
3000	0.87	0.54	0.705
2000	0.78	0.43	0.605
1000	0.66	0.26	0.460
2000	0.67	0.38	0.527
3000	0.77	0.44	0.605
4000	0.85	0.54	0.695
5000	0.93	0.63	0.780
6000	1.02	0.72	0.870
7000	1.14	0.84	0.990
8000	1.28	0.99	1.135
9000	1.47	1.23	1.350
8000	1.47	1.23	1.350
7000	1.45	1.23	1.340
6000	1.41	1.21	1.310
5000	1.35	1.15	1.250
4000	1.28	1.07	1.175
3000	1.20	0.95	1.075
2000	1.10	0.81	0.955
1000	0.96	0.62	0.790
500	0.85	0.47	0.660
0	0.66	-0.63	0.015



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.335 D_2 (mm) 1.350

Dc (psi) = 5.18E+05 **Dt = 5.18E+05** psi

3.64E+04 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.605 D_2 (mm) 0.870

Ec (psi) = 9.92E+05 **Et = 1.09E+06** psi

7.68E+04 kgf/㎠

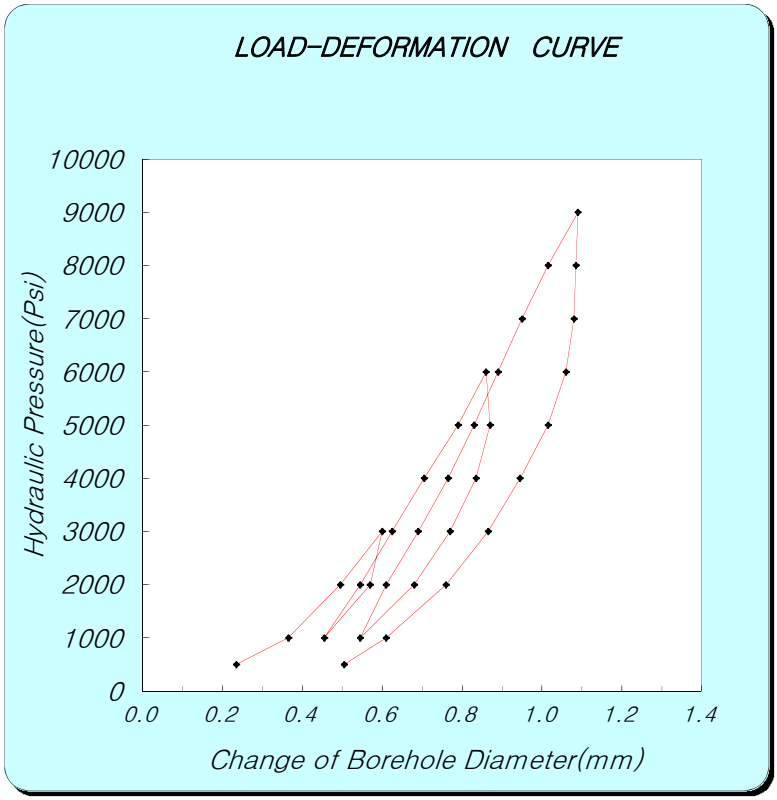
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	56.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	100/65	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.20	0.80	0.500
500	0.58	-0.11	0.235
1000	0.69	0.04	0.365
2000	0.79	0.20	0.495
3000	0.87	0.33	0.600
2000	0.84	0.30	0.570
1000	0.72	0.19	0.455
2000	0.80	0.29	0.545
3000	0.88	0.37	0.625
4000	0.95	0.46	0.705
5000	1.01	0.57	0.790
6000	1.06	0.66	0.860
5000	1.06	0.68	0.870
4000	1.00	0.67	0.835
3000	0.92	0.62	0.770
2000	0.84	0.52	0.680
1000	0.72	0.37	0.545
2000	0.79	0.43	0.610
3000	0.87	0.51	0.690
4000	0.94	0.59	0.765
5000	1.01	0.65	0.830
6000	1.06	0.72	0.890
7000	1.11	0.79	0.950
8000	1.16	0.87	1.015
9000	1.21	0.97	1.090
8000	1.20	0.97	1.085
7000	1.20	0.96	1.080
6000	1.16	0.96	1.060
5000	1.09	0.94	1.015
4000	1.02	0.87	0.945
3000	0.95	0.78	0.865
2000	0.86	0.66	0.760
1000	0.73	0.49	0.610
500	0.64	0.37	0.505
0	0.52	0.30	0.410



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.600 D_2 (mm) 1.090

Dc (psi) = 1.07E+06 **Dt = 1.18E+06** psi

8.33E+04 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.830 D_2 (mm) 0.950

Ec (psi) = 1.46E+06 **Et = 1.87E+06** psi

1.32E+05 kgf/㎠

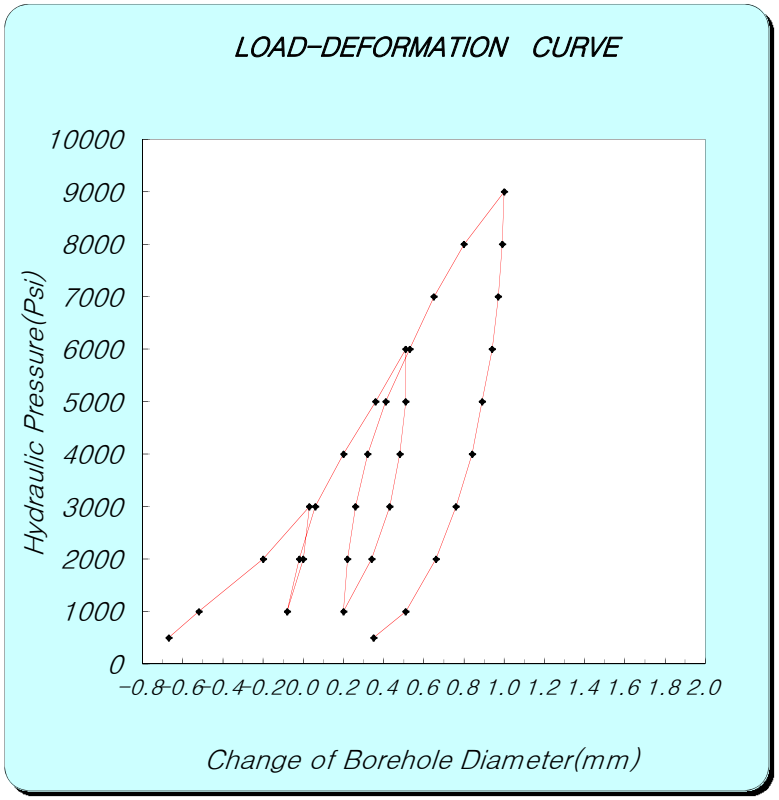
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	64.0m	Rock Class :	MW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	97/45	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.41	-0.85	-0.220
500	0.75	-0.67	0.040
1000	0.81	-0.52	0.145
2000	0.94	-0.20	0.370
3000	1.13	0.03	0.580
2000	1.11	0.00	0.555
1000	1.04	-0.08	0.480
2000	1.09	-0.02	0.535
3000	1.15	0.06	0.605
4000	1.26	0.20	0.730
5000	1.39	0.36	0.875
6000	1.53	0.51	1.020
5000	1.53	0.51	1.020
4000	1.51	0.48	0.995
3000	1.48	0.43	0.955
2000	1.42	0.34	0.880
1000	1.35	0.20	0.775
2000	1.37	0.22	0.795
3000	1.40	0.26	0.830
4000	1.44	0.32	0.880
5000	1.49	0.41	0.950
6000	1.56	0.53	1.045
7000	1.64	0.65	1.145
8000	1.74	0.80	1.270
9000	1.86	1.00	1.430
8000	1.86	0.99	1.425
7000	1.86	0.97	1.415
6000	1.84	0.94	1.390
5000	1.81	0.89	1.350
4000	1.77	0.84	1.305
3000	1.71	0.76	1.235
2000	1.64	0.66	1.150
1000	1.57	0.51	1.040
500	1.49	0.35	0.920
0	1.54	0.20	0.870



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.580 D_2 (mm) 1.430

Dc (psi) = 6.19E+05 **Dt = 6.19E+05** psi

4.35E+04 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.950 D_2 (mm) 1.145

Ec (psi) = 8.99E+05 **Et = 1.01E+06** psi

7.12E+04 kgf/㎠

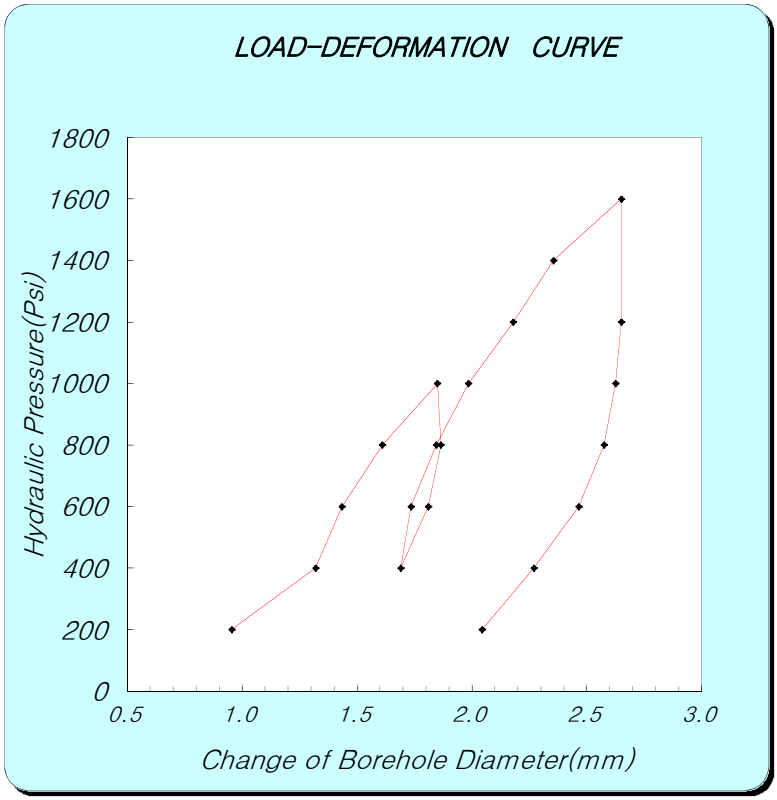
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	72.0m	Rock Class :	HW-CW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	94/44	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.26	0.52	0.390
200	1.01	0.90	0.955
400	1.67	0.97	1.320
600	1.76	1.11	1.435
800	1.90	1.32	1.610
1000	2.01	1.69	1.850
800	2.04	1.69	1.865
600	2.03	1.59	1.810
400	1.94	1.44	1.690
600	2.00	1.47	1.735
800	2.14	1.55	1.845
1000	2.28	1.69	1.985
1200	2.31	2.05	2.180
1400	2.53	2.18	2.355
1600	2.97	2.33	2.650
1200	2.97	2.33	2.650
1000	2.96	2.29	2.625
800	2.91	2.24	2.575
600	2.85	2.08	2.465
400	2.65	1.89	2.270
200	2.34	1.75	2.045
0	2.10	1.29	1.695



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 1600

ΔD : D_1 (mm) 1.850 D_2 (mm) 2.650

Dc (psi) = 6.57E+04 **Dt = 6.57E+04** psi

4.62E+03 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 1400

ΔD : D_1 (mm) 1.985 D_2 (mm) 2.355

Ec (psi) = 9.47E+04 **Et = 9.47E+04** psi

6.66E+03 kgf/㎠

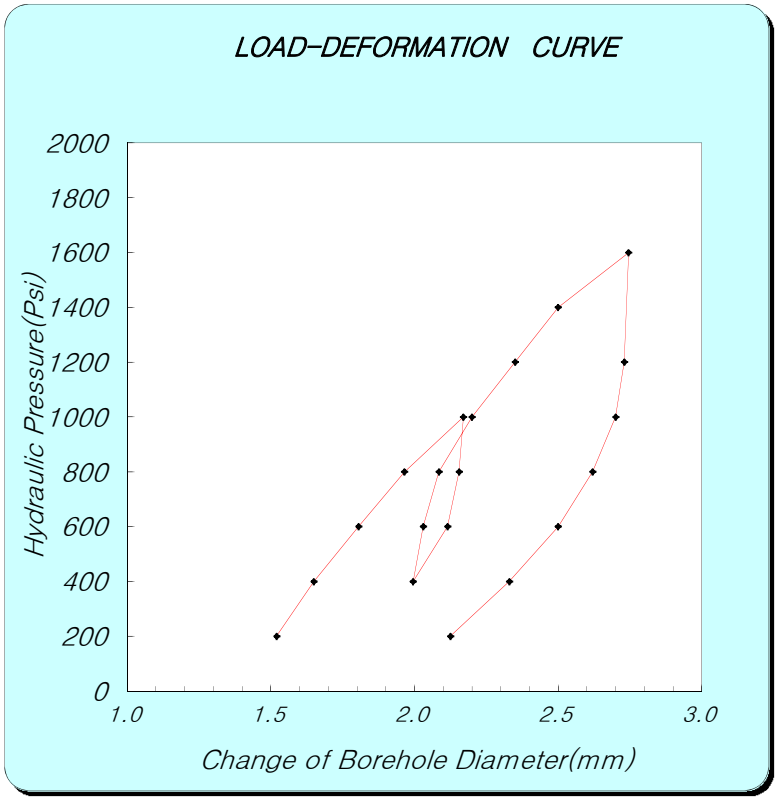
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	80.0m	Rock Class :	HW-CW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	95/0	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	1.03	0.70	0.865
200	1.74	1.30	1.520
400	1.84	1.46	1.650
600	2.00	1.61	1.805
800	2.12	1.81	1.965
1000	2.35	1.99	2.170
800	2.34	1.97	2.155
600	2.30	1.93	2.115
400	2.20	1.79	1.995
600	2.23	1.83	2.030
800	2.30	1.87	2.085
1000	2.42	1.98	2.200
1200	2.55	2.15	2.350
1400	2.69	2.31	2.500
1600	2.94	2.55	2.745
1200	2.93	2.53	2.730
1000	2.89	2.51	2.700
800	2.85	2.39	2.620
600	2.77	2.23	2.500
400	2.55	2.11	2.330
200	2.35	1.90	2.125



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 1600

ΔD : D_1 (mm) 2.170 D_2 (mm) 2.745

Dc (psi) = 9.14E+04 **Dt = 9.14E+04** psi

6.43E+03 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 1400

ΔD : D_1 (mm) 2.200 D_2 (mm) 2.500

Ec (psi) = 1.17E+05 **Et = 1.17E+05** psi

8.22E+03 kgf/㎠

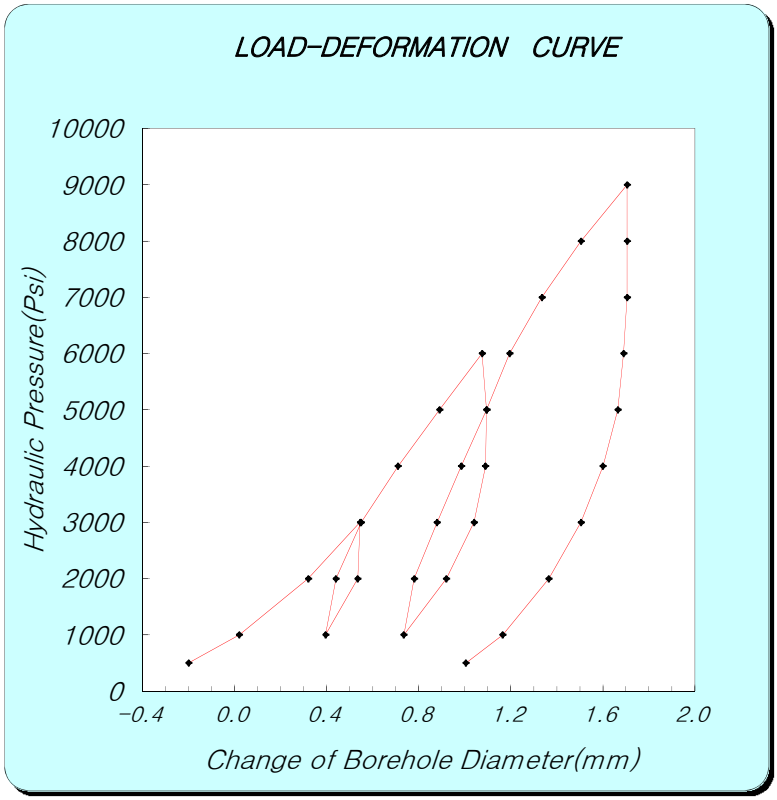
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	88.0m	Rock Class :	SW-MW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	95/59	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.28	-1.57	-1.425
500	-0.15	-0.25	-0.200
1000	0.05	-0.01	0.020
2000	0.29	0.35	0.320
3000	0.48	0.61	0.545
2000	0.47	0.60	0.535
1000	0.35	0.44	0.395
2000	0.39	0.49	0.440
3000	0.50	0.60	0.550
4000	0.63	0.79	0.710
5000	0.78	1.00	0.890
6000	0.90	1.25	1.075
5000	0.89	1.30	1.095
4000	0.87	1.31	1.090
3000	0.83	1.25	1.040
2000	0.72	1.12	0.920
1000	0.57	0.90	0.735
2000	0.60	0.96	0.780
3000	0.67	1.09	0.880
4000	0.76	1.21	0.985
5000	0.86	1.33	1.095
6000	0.95	1.44	1.195
7000	1.07	1.60	1.335
8000	1.21	1.80	1.505
9000	1.40	2.01	1.705
8000	1.40	2.01	1.705
7000	1.40	2.01	1.705
6000	1.39	1.99	1.690
5000	1.36	1.97	1.665
4000	1.29	1.91	1.600
3000	1.19	1.82	1.505
2000	1.05	1.68	1.365
1000	0.87	1.46	1.165
500	0.74	1.27	1.005
0	0.61	1.08	0.845



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.545 D_2 (mm) 1.705

Dc (psi) = 4.53E+05 **Dt = 4.53E+05** psi

3.19E+04 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.880 D_2 (mm) 1.195

Ec (psi) = 8.35E+05 **Et = 8.35E+05** psi

5.87E+04 kgf/㎠

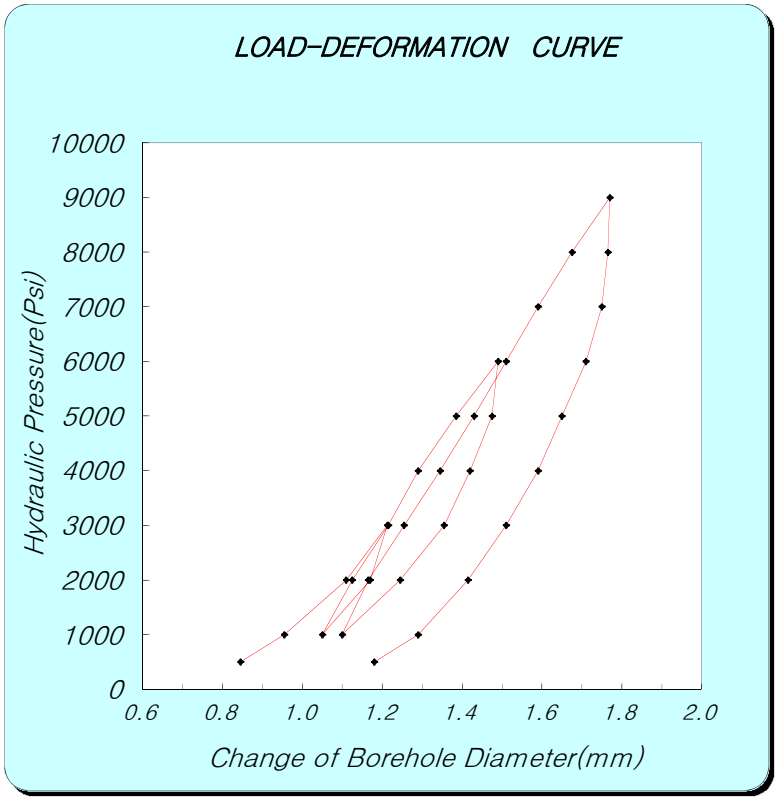
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	96.0m	Rock Class :	SW-MW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	100/93	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.75	0.66	0.705
500	0.87	0.82	0.845
1000	0.98	0.93	0.955
2000	1.15	1.07	1.110
3000	1.26	1.17	1.213
2000	1.22	1.12	1.170
1000	1.10	1.00	1.050
2000	1.18	1.07	1.125
3000	1.27	1.16	1.215
4000	1.36	1.22	1.290
5000	1.47	1.30	1.385
6000	1.60	1.38	1.490
5000	1.59	1.36	1.475
4000	1.54	1.30	1.420
3000	1.47	1.24	1.355
2000	1.36	1.13	1.245
1000	1.20	1.00	1.100
2000	1.26	1.07	1.165
3000	1.37	1.14	1.255
4000	1.46	1.23	1.345
5000	1.55	1.31	1.430
6000	1.62	1.40	1.510
7000	1.72	1.46	1.590
8000	1.82	1.53	1.675
9000	1.95	1.59	1.770
8000	1.94	1.59	1.765
7000	1.92	1.58	1.750
6000	1.88	1.54	1.710
5000	1.81	1.49	1.650
4000	1.74	1.44	1.590
3000	1.64	1.38	1.510
2000	1.52	1.31	1.415
1000	1.35	1.23	1.290
500	1.21	1.15	1.180
0	0.92	0.31	0.615



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.213 D_2 (mm) 1.770

Dc (psi) = 9.44E+05 **Dt = 1.05E+06** psi

7.36E+04 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 7000

ΔD : D_1 (mm) 1.345 D_2 (mm) 1.590

Ec (psi) = 1.07E+06 **Et = 1.18E+06** psi

8.33E+04 kgf/㎠

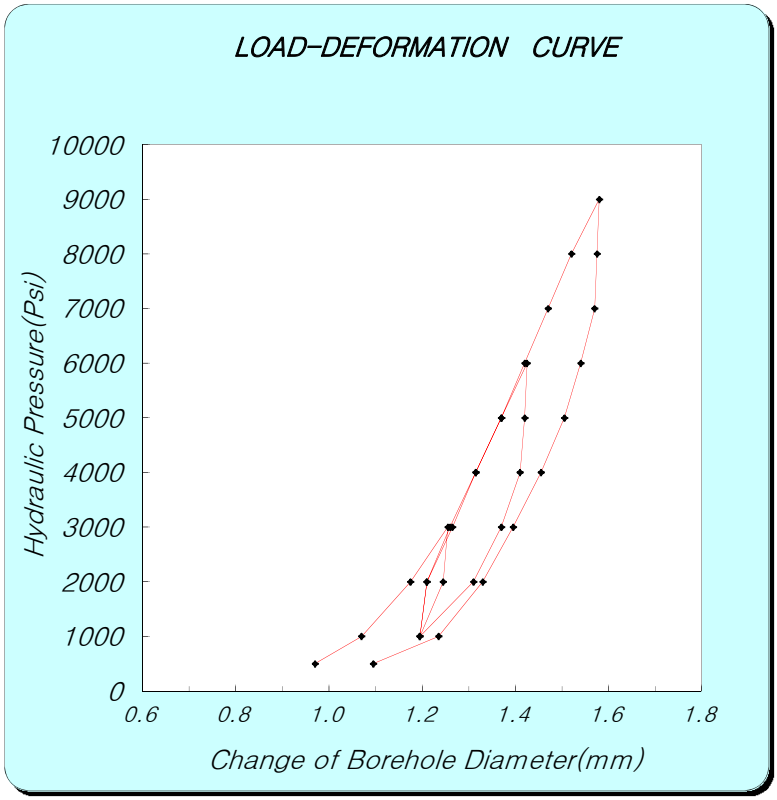
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	104.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	100/78	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.80	-0.21	0.295
500	1.23	0.71	0.970
1000	1.32	0.82	1.070
2000	1.45	0.90	1.175
3000	1.54	0.97	1.255
2000	1.53	0.96	1.245
1000	1.49	0.90	1.195
2000	1.50	0.92	1.210
3000	1.54	0.99	1.265
4000	1.60	1.03	1.315
5000	1.66	1.08	1.370
6000	1.74	1.11	1.425
5000	1.74	1.10	1.420
4000	1.72	1.10	1.410
3000	1.69	1.05	1.370
2000	1.63	0.99	1.310
1000	1.51	0.88	1.195
2000	1.52	0.90	1.210
3000	1.57	0.95	1.260
4000	1.63	1.00	1.315
5000	1.69	1.05	1.370
6000	1.75	1.09	1.420
7000	1.81	1.13	1.470
8000	1.87	1.17	1.520
9000	1.94	1.22	1.580
8000	1.93	1.22	1.575
7000	1.92	1.22	1.570
6000	1.89	1.19	1.540
5000	1.86	1.15	1.505
4000	1.80	1.11	1.455
3000	1.73	1.06	1.395
2000	1.66	1.00	1.330
1000	1.56	0.91	1.235
500	1.38	0.81	1.095
0	1.29	0.75	1.020



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.255 D_2 (mm) 1.580

Dc (psi) = 1.62E+06 **Dt = 2.25E+06** psi

1.58E+05 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.370 D_2 (mm) 1.520

Ec (psi) = 1.75E+06 **Et = 2.60E+06** psi

1.83E+05 kgf/㎠

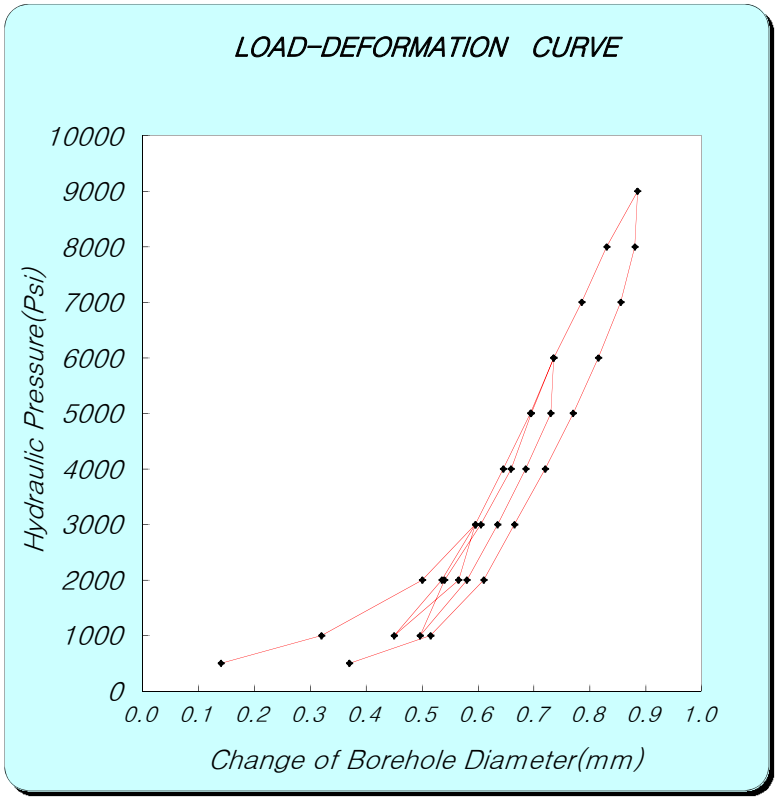
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	112.0m	Rock Class :	FR-SW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.50	-0.88	-0.690
500	0.28	0.00	0.140
1000	0.51	0.13	0.320
2000	0.74	0.26	0.500
3000	0.80	0.39	0.595
2000	0.78	0.35	0.565
1000	0.70	0.20	0.450
2000	0.75	0.32	0.535
3000	0.80	0.39	0.595
4000	0.85	0.44	0.645
5000	0.90	0.49	0.694
6000	0.94	0.53	0.735
5000	0.94	0.52	0.730
4000	0.90	0.47	0.685
3000	0.85	0.42	0.635
2000	0.80	0.36	0.580
1000	0.76	0.23	0.497
2000	0.77	0.31	0.540
3000	0.82	0.39	0.605
4000	0.88	0.44	0.659
5000	0.91	0.48	0.695
6000	0.95	0.52	0.735
7000	1.00	0.57	0.785
8000	1.05	0.61	0.830
9000	1.10	0.67	0.885
8000	1.10	0.66	0.880
7000	1.08	0.63	0.855
6000	1.04	0.59	0.815
5000	0.99	0.55	0.770
4000	0.94	0.50	0.720
3000	0.89	0.44	0.665
2000	0.84	0.38	0.610
1000	0.76	0.27	0.515
500	0.66	0.08	0.370
0	0.55	-0.01	0.270



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.595 D_2 (mm) 0.885

Dc (psi) = 1.81E+06 **Dt = 2.77E+06** psi

1.95E+05 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.735 D_2 (mm) 0.830

Ec (psi) = 1.85E+06 **Et = 2.86E+06** psi

2.01E+05 kgf/㎠

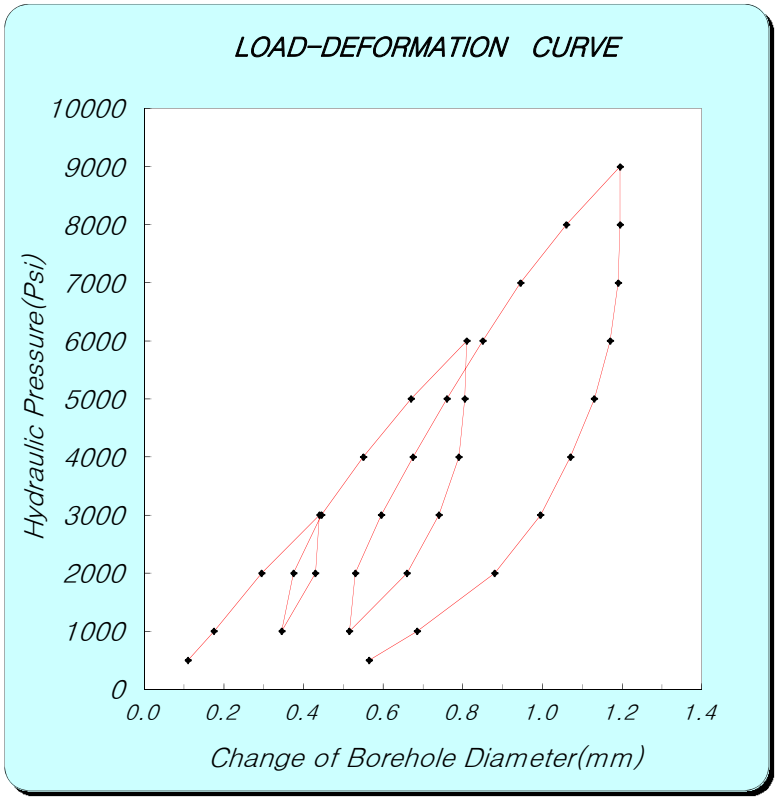
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	120.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	100/95	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.50	-0.90	-1.200
500	0.22	0.00	0.110
1000	0.32	0.03	0.175
2000	0.46	0.13	0.295
3000	0.57	0.31	0.440
2000	0.56	0.30	0.430
1000	0.50	0.19	0.345
2000	0.52	0.23	0.375
3000	0.56	0.33	0.445
4000	0.64	0.46	0.550
5000	0.74	0.60	0.670
6000	0.84	0.78	0.810
5000	0.84	0.77	0.805
4000	0.82	0.76	0.790
3000	0.79	0.69	0.740
2000	0.74	0.58	0.660
1000	0.60	0.43	0.515
2000	0.62	0.44	0.530
3000	0.66	0.53	0.595
4000	0.72	0.63	0.675
5000	0.79	0.73	0.760
6000	0.86	0.84	0.850
7000	0.94	0.95	0.945
8000	1.04	1.08	1.060
9000	1.15	1.24	1.195
8000	1.15	1.24	1.195
7000	1.15	1.23	1.190
6000	1.13	1.21	1.170
5000	1.11	1.15	1.130
4000	1.07	1.07	1.070
3000	1.02	0.97	0.995
2000	0.91	0.85	0.880
1000	0.72	0.65	0.685
500	0.61	0.52	0.565
0	0.49	0.38	0.435



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000	
ΔD :	D_1 (mm)	0.440	D_2 (mm)	1.195	
	Dc (psi) =	**6.96E+05**	**Dt =**	**6.96E+05**	psi
				4.90E+04	kgf/㎠

ΔP :	P_1 (Psi)	5000	P_2 (Psi)	7000	
ΔD :	D_1 (mm)	0.760	D_2 (mm)	0.945	
	Ec (psi) =	**9.47E+05**	**Et =**	**1.05E+06**	psi
				7.38E+04	kgf/㎠

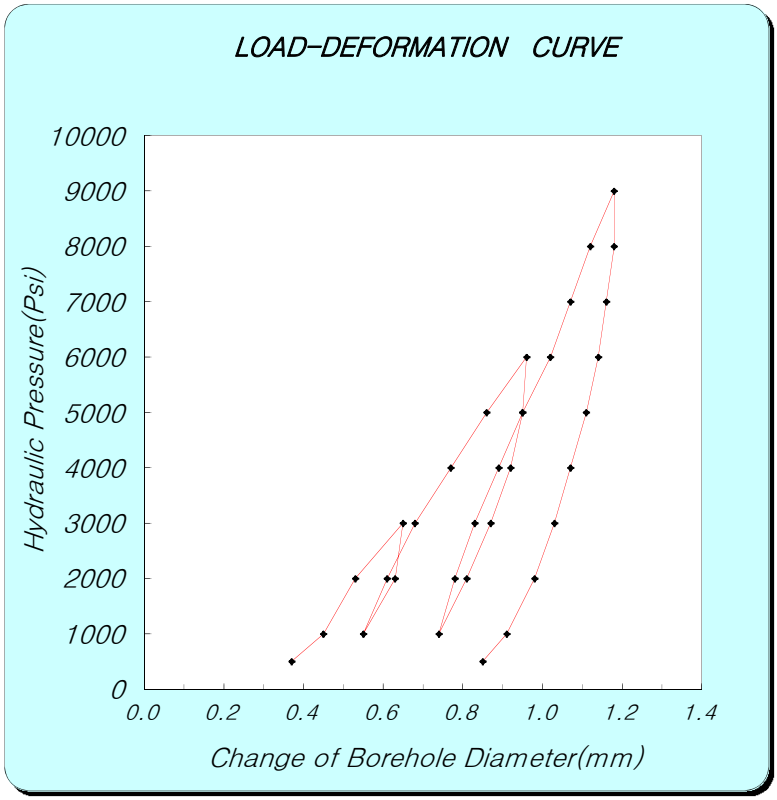
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-20	Rock Name :	GRANITE	Test Date :	2011. 5. 5
Depth :	128.0m	Rock Class :	SW-MW	Record By :	Y.G.Shin
G.W.L :	33.3m	TCR/RQD(%) :	100/63	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.85	-0.53	-0.690
500	0.37	0.15	0.260
1000	0.45	0.29	0.370
2000	0.53	0.41	0.470
3000	0.65	0.53	0.590
2000	0.63	0.48	0.555
1000	0.55	0.34	0.445
2000	0.61	0.47	0.540
3000	0.68	0.56	0.620
4000	0.77	0.64	0.705
5000	0.86	0.71	0.785
6000	0.96	0.78	0.870
5000	0.95	0.78	0.865
4000	0.92	0.79	0.855
3000	0.87	0.76	0.815
2000	0.81	0.72	0.765
1000	0.74	0.65	0.695
2000	0.78	0.68	0.730
3000	0.83	0.71	0.770
4000	0.89	0.76	0.825
5000	0.95	0.80	0.875
6000	1.02	0.84	0.930
7000	1.07	0.88	0.975
8000	1.12	0.93	1.025
9000	1.18	0.97	1.075
8000	1.18	0.97	1.075
7000	1.16	0.97	1.065
6000	1.14	0.95	1.045
5000	1.11	0.93	1.020
4000	1.07	0.91	0.990
3000	1.03	0.87	0.950
2000	0.98	0.81	0.895
1000	0.91	0.76	0.835
500	0.85	0.74	0.795
0	0.85	0.79	0.820



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.590 D_2 (mm) 1.075

Dc (psi) = 1.08E+06 **Dt = 1.20E+06** psi

8.43E+04 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.930 D_2 (mm) 1.025

Ec (psi) = 1.85E+06 **Et = 2.86E+06** psi

2.01E+05 kgf/㎠

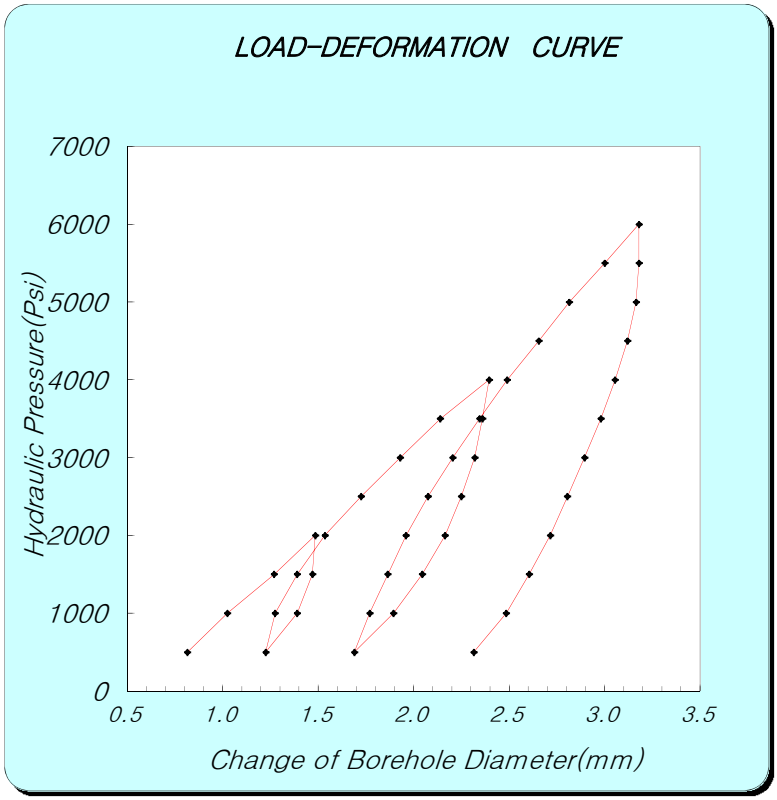
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	MAFIC DYKE	Test Date :	2011. 4. 19
Depth :	42.5m	Rock Class :	HW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	96/34	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	1.16	0.89	1.025
500	1.01	0.62	0.815
1000	1.16	0.89	1.025
1500	1.41	1.13	1.270
2000	1.64	1.33	1.485
1500	1.63	1.31	1.470
1000	1.54	1.24	1.390
500	1.37	1.08	1.225
1000	1.44	1.11	1.275
1500	1.56	1.22	1.390
2000	1.71	1.36	1.535
2500	1.91	1.54	1.725
3000	2.11	1.75	1.930
3500	2.32	1.96	2.140
4000	2.59	2.20	2.395
3500	2.53	2.19	2.360
3000	2.48	2.16	2.320
2500	2.40	2.10	2.250
2000	2.31	2.02	2.165
1500	2.19	1.90	2.045
1000	2.04	1.75	1.895
500	1.86	1.52	1.690
1000	1.96	1.58	1.770
1500	2.07	1.66	1.865
2000	2.18	1.74	1.960
2500	2.30	1.85	2.075
3000	2.42	1.99	2.205
3500	2.55	2.14	2.345
4000	2.70	2.28	2.490
4500	2.86	2.45	2.655
5000	3.01	2.62	2.815
5500	3.17	2.83	3.000
6000	3.33	3.03	3.180
5500	3.33	3.03	3.180
5000	3.31	3.02	3.165
4500	3.26	2.98	3.120
4000	3.19	2.92	3.055
3500	3.11	2.85	2.980
3000	3.02	2.77	2.895
2500	2.92	2.69	2.805
2000	2.83	2.60	2.715
1500	2.70	2.51	2.605
1000	2.58	2.39	2.485
500	2.41	2.22	2.315
0	2.23	2.02	2.125



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.485 D_2 (mm) 3.180

Dc (psi) = 2.07E+05 **Dt = 2.07E+05** psi

1.45E+04 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 5000

ΔD : D_1 (mm) 2.490 D_2 (mm) 2.815

Ec (psi) = 2.70E+05 **Et = 2.70E+05** psi

1.90E+04 kgf/㎠

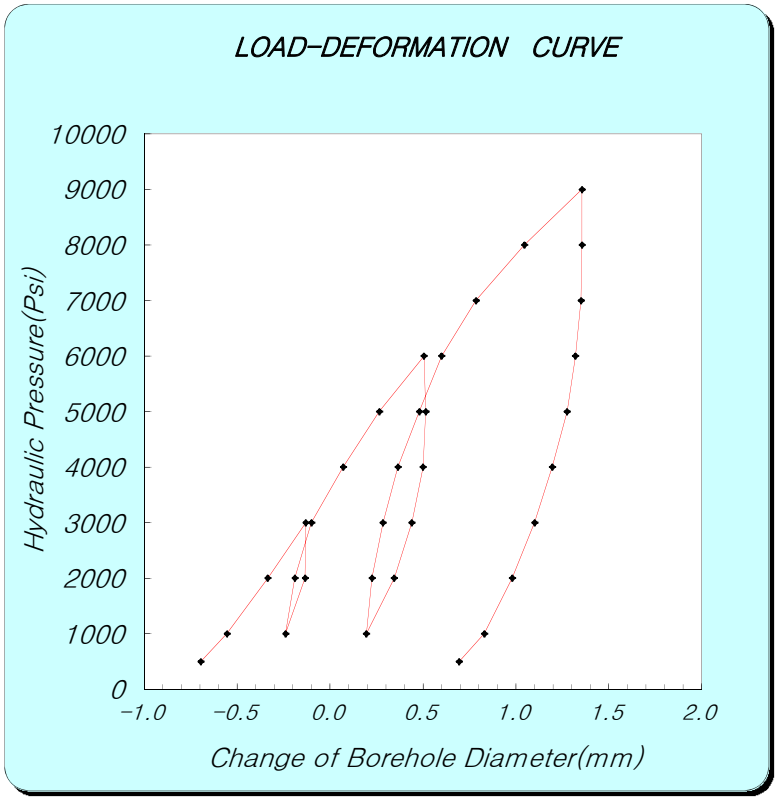
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	MAFIC DYKE	Test Date :	2011. 4. 19
Depth :	52.0m	Rock Class :	HW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/88	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.79	-0.58	-1.185
500	-0.54	-0.85	-0.695
1000	-0.34	-0.77	-0.555
2000	-0.05	-0.62	-0.335
3000	0.20	-0.46	-0.130
2000	0.19	-0.46	-0.135
1000	0.08	-0.56	-0.240
2000	0.16	-0.54	-0.190
3000	0.24	-0.44	-0.100
4000	0.40	-0.26	0.070
5000	0.58	-0.05	0.265
6000	0.78	0.23	0.505
5000	0.78	0.25	0.515
4000	0.77	0.23	0.500
3000	0.73	0.15	0.440
2000	0.65	0.04	0.345
1000	0.51	-0.12	0.195
2000	0.53	-0.08	0.225
3000	0.58	-0.01	0.285
4000	0.65	0.08	0.365
5000	0.75	0.21	0.480
6000	0.84	0.36	0.600
7000	0.99	0.58	0.785
8000	1.18	0.91	1.045
9000	1.39	1.32	1.355
8000	1.39	1.32	1.355
7000	1.39	1.31	1.350
6000	1.36	1.28	1.320
5000	1.31	1.24	1.275
4000	1.24	1.15	1.195
3000	1.17	1.03	1.100
2000	1.07	0.89	0.980
1000	0.94	0.72	0.830
500	0.81	0.58	0.695
0	0.97	0.45	0.710



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) -0.130 D_2 (mm) 1.355

Dc (psi) = 3.54E+05 **Dt = 3.54E+05** psi

2.49E+04 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.365 D_2 (mm) 0.600

Ec (psi) = 7.46E+05 **Et = 7.46E+05** psi

5.24E+04 kgf/㎠

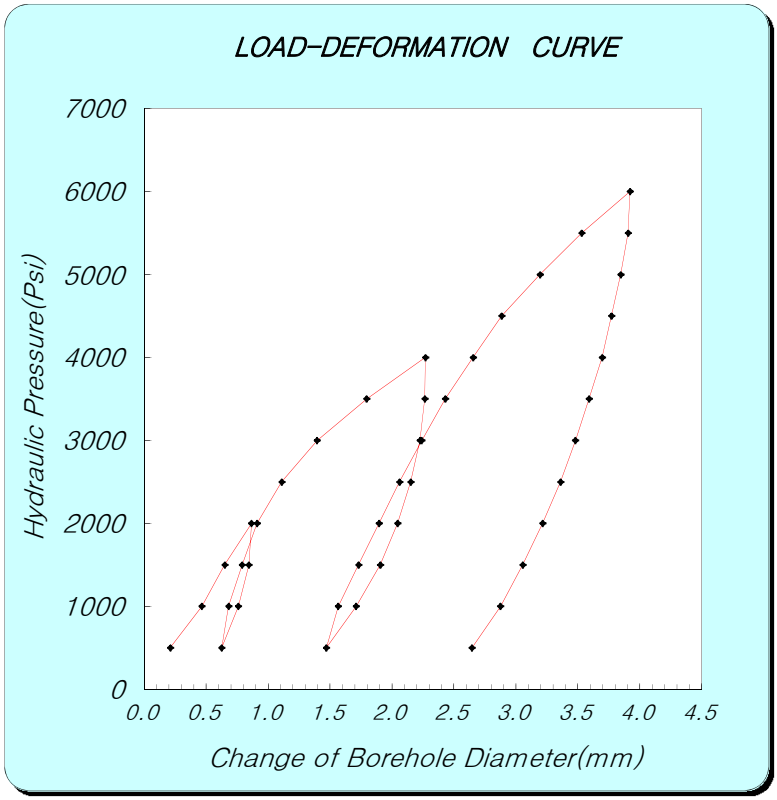
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	MAFIC DYKE	Test Date :	2011. 4. 19
Depth :	60.0m	Rock Class :	MW-HW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/47	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.46	-1.33	-0.895
500	0.30	0.12	0.210
1000	0.53	0.40	0.465
1500	0.68	0.62	0.650
2000	0.86	0.87	0.865
1500	0.83	0.86	0.845
1000	0.75	0.77	0.760
500	0.62	0.63	0.625
1000	0.69	0.67	0.680
1500	0.79	0.79	0.790
2000	0.89	0.93	0.910
2500	1.05	1.17	1.110
3000	1.28	1.51	1.395
3500	1.63	1.96	1.795
4000	2.07	2.47	2.270
3500	2.06	2.47	2.265
3000	2.01	2.44	2.225
2500	1.94	2.36	2.150
2000	1.82	2.27	2.045
1500	1.68	2.13	1.905
1000	1.46	1.96	1.710
500	1.26	1.68	1.470
1000	1.39	1.74	1.565
1500	1.58	1.88	1.730
2000	1.76	2.03	1.895
2500	1.94	2.18	2.060
3000	2.13	2.35	2.240
3500	2.30	2.56	2.430
4000	2.54	2.77	2.655
4500	2.75	3.02	2.885
5000	3.07	3.32	3.195
5500	3.42	3.64	3.530
6000	3.79	4.05	3.920
5500	3.79	4.02	3.905
5000	3.75	3.94	3.845
4500	3.68	3.86	3.770
4000	3.61	3.78	3.695
3500	3.52	3.66	3.590
3000	3.44	3.52	3.480
2500	3.34	3.38	3.360
2000	3.20	3.23	3.215
1500	3.08	3.03	3.055
1000	2.94	2.81	2.875
500	2.74	2.55	2.645
0	2.62	2.70	2.660



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.865 D_2 (mm) 3.920

Dc (psi) = 1.15E+05 **Dt = 1.15E+05** psi

8.07E+03 kgf/㎠

ΔP : P_1 (Psi) 1500 P_2 (Psi) 3000

ΔD : D_1 (mm) 1.730 D_2 (mm) 2.240

Ec (psi) = 2.58E+05 **Et = 2.58E+05** psi

1.81E+04 kgf/㎠

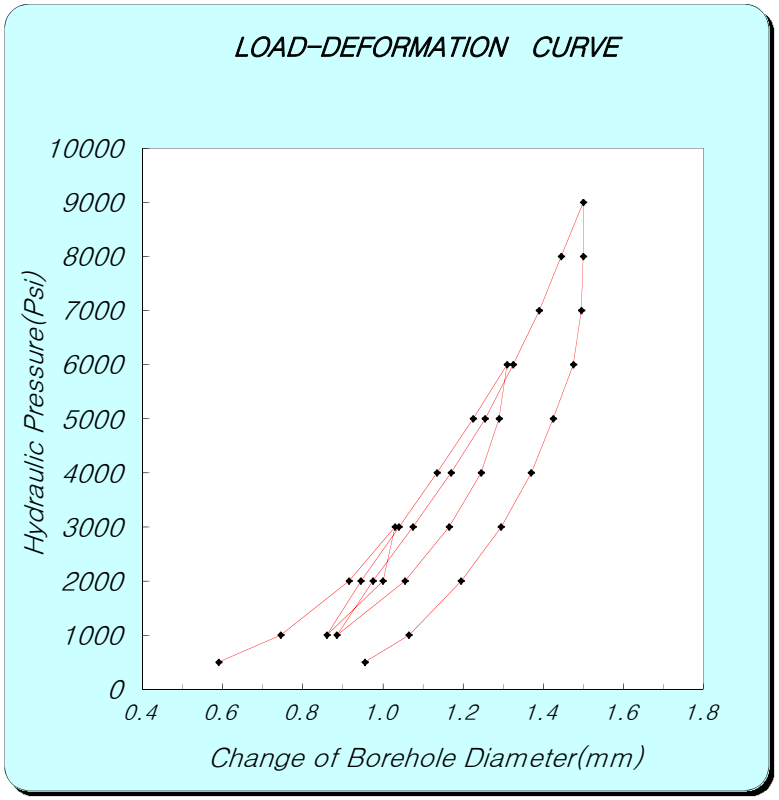
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	68.0m	Rock Class :	MW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/60	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.90	-2.37	-1.635
500	0.40	0.78	0.590
1000	0.52	0.97	0.745
2000	0.67	1.16	0.915
3000	0.78	1.28	1.030
2000	0.75	1.25	1.000
1000	0.63	1.09	0.860
2000	0.69	1.20	0.945
3000	0.78	1.30	1.040
4000	0.87	1.40	1.135
5000	0.95	1.50	1.225
6000	1.03	1.59	1.310
5000	1.03	1.55	1.290
4000	0.99	1.50	1.245
3000	0.92	1.41	1.165
2000	0.84	1.27	1.055
1000	0.68	1.09	0.885
2000	0.73	1.22	0.975
3000	0.81	1.34	1.075
4000	0.89	1.45	1.170
5000	0.97	1.54	1.255
6000	1.04	1.61	1.325
7000	1.10	1.68	1.390
8000	1.15	1.74	1.445
9000	1.19	1.81	1.500
8000	1.19	1.81	1.500
7000	1.18	1.81	1.495
6000	1.16	1.79	1.475
5000	1.11	1.74	1.425
4000	1.06	1.68	1.370
3000	1.00	1.59	1.295
2000	0.91	1.48	1.195
1000	0.82	1.31	1.065
500	0.75	1.16	0.955
0	0.68	1.05	0.865



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.030 D_2 (mm) 1.500

Dc (psi) = 1.12E+06 **Dt = 1.25E+06** psi

8.76E+04 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 7000

ΔD : D_1 (mm) 1.255 D_2 (mm) 1.390

Ec (psi) = 1.30E+06 **Et = 1.54E+06** psi

1.08E+05 kgf/㎠

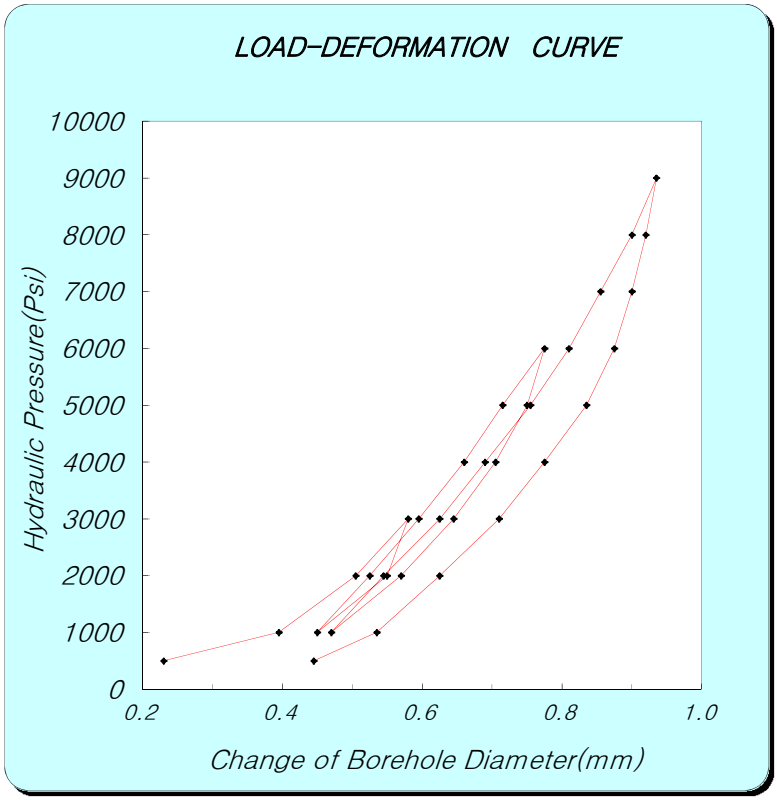
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	76.5m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/72	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.51	-0.89	-0.700
500	0.43	0.03	0.230
1000	0.62	0.17	0.395
2000	0.72	0.29	0.505
3000	0.79	0.37	0.580
2000	0.77	0.33	0.550
1000	0.69	0.21	0.450
2000	0.74	0.31	0.525
3000	0.80	0.39	0.595
4000	0.85	0.47	0.660
5000	0.88	0.55	0.715
6000	0.93	0.62	0.775
5000	0.90	0.60	0.750
4000	0.88	0.53	0.705
3000	0.85	0.44	0.645
2000	0.79	0.35	0.570
1000	0.71	0.23	0.470
2000	0.76	0.33	0.545
3000	0.84	0.41	0.625
4000	0.90	0.48	0.690
5000	0.96	0.55	0.755
6000	1.01	0.61	0.810
7000	1.05	0.66	0.855
8000	1.08	0.72	0.900
9000	1.11	0.76	0.935
8000	1.11	0.73	0.920
7000	1.09	0.71	0.900
6000	1.07	0.68	0.875
5000	1.03	0.64	0.835
4000	0.98	0.57	0.775
3000	0.92	0.50	0.710
2000	0.84	0.41	0.625
1000	0.76	0.31	0.535
500	0.68	0.21	0.445
0	0.54	-0.02	0.260



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.580 D_2 (mm) 0.935

Dc (psi) = 1.48E+06 **Dt = 1.92E+06** psi

1.35E+05 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.810 D_2 (mm) 0.900

Ec (psi) = 1.95E+06 **Et = 3.17E+06** psi

2.23E+05 kgf/㎠

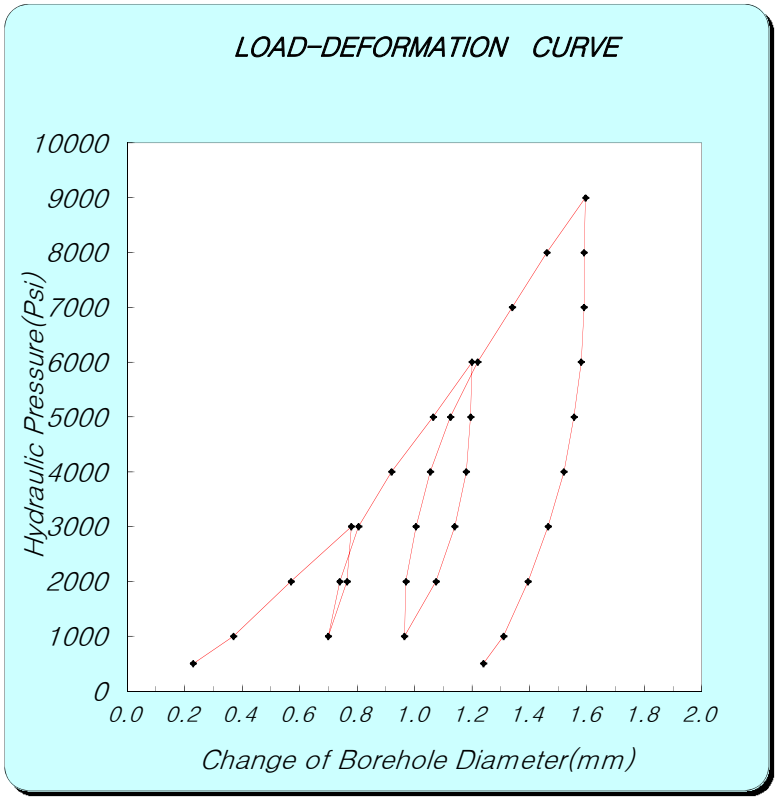
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	84.0m	Rock Class :	HW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/65	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.60	-0.66	-0.030
500	0.74	-0.28	0.230
1000	0.87	-0.13	0.370
2000	1.13	0.01	0.570
3000	1.32	0.24	0.780
2000	1.32	0.21	0.765
1000	1.30	0.10	0.700
2000	1.31	0.17	0.740
3000	1.34	0.27	0.805
4000	1.45	0.39	0.920
5000	1.58	0.55	1.065
6000	1.70	0.70	1.200
5000	1.70	0.69	1.195
4000	1.70	0.66	1.180
3000	1.68	0.60	1.140
2000	1.64	0.51	1.075
1000	1.54	0.39	0.965
2000	1.55	0.39	0.970
3000	1.57	0.44	1.005
4000	1.60	0.51	1.055
5000	1.65	0.60	1.125
6000	1.72	0.72	1.220
7000	1.82	0.86	1.340
8000	1.91	1.01	1.460
9000	2.08	1.11	1.595
8000	2.07	1.11	1.590
7000	2.07	1.11	1.590
6000	2.07	1.09	1.580
5000	2.06	1.05	1.555
4000	2.05	0.99	1.520
3000	2.01	0.92	1.465
2000	1.95	0.84	1.395
1000	1.86	0.76	1.310
500	1.80	0.68	1.240
0	1.73	0.39	1.060



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.780 D_2 (mm) 1.595

Dc (psi) = 6.45E+05 **Dt = 6.45E+05** psi

4.54E+04 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.220 D_2 (mm) 1.460

Ec (psi) = 7.30E+05 **Et = 7.30E+05** psi

5.13E+04 kgf/㎠

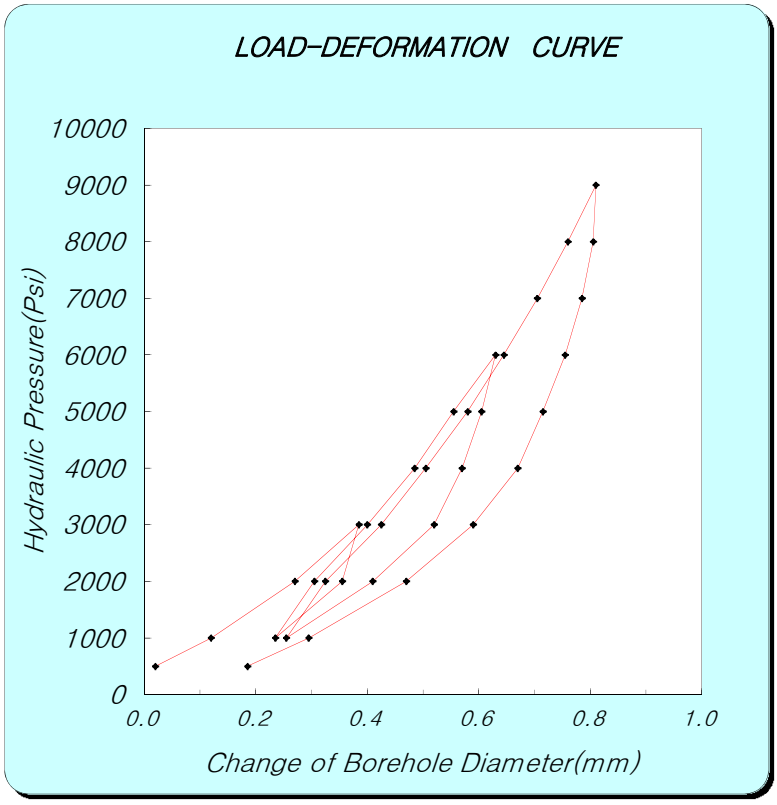
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	GRANITE	Test Date :	2011. 4. 18
Depth :	91.5m	Rock Class :	SW-MW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/60	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.15	-0.98	-0.565
500	0.02	0.02	0.020
1000	0.12	0.12	0.120
2000	0.31	0.23	0.270
3000	0.46	0.31	0.385
2000	0.43	0.28	0.355
1000	0.26	0.21	0.235
2000	0.33	0.28	0.305
3000	0.46	0.34	0.400
4000	0.56	0.41	0.485
5000	0.64	0.47	0.555
6000	0.71	0.55	0.630
5000	0.71	0.50	0.605
4000	0.69	0.45	0.570
3000	0.65	0.39	0.520
2000	0.52	0.30	0.410
1000	0.31	0.20	0.255
2000	0.36	0.29	0.325
3000	0.48	0.37	0.425
4000	0.57	0.44	0.505
5000	0.65	0.51	0.580
6000	0.71	0.58	0.645
7000	0.78	0.63	0.705
8000	0.84	0.68	0.760
9000	0.90	0.72	0.810
8000	0.90	0.71	0.805
7000	0.89	0.68	0.785
6000	0.87	0.64	0.755
5000	0.84	0.59	0.715
4000	0.81	0.53	0.670
3000	0.73	0.45	0.590
2000	0.58	0.36	0.470
1000	0.35	0.24	0.295
500	0.21	0.16	0.185
0	0.12	0.07	0.095



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1.519	1.474	1.438	1.397	1.366	1.289	1.151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.385 D_2 (mm) 0.810

Dc (psi) = 1.24E+06 **Dt = 1.43E+06** psi

1.01E+05 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.645 D_2 (mm) 0.760

Ec (psi) = 1.52E+06 **Et = 2.02E+06** psi

1.42E+05 kgf/㎠

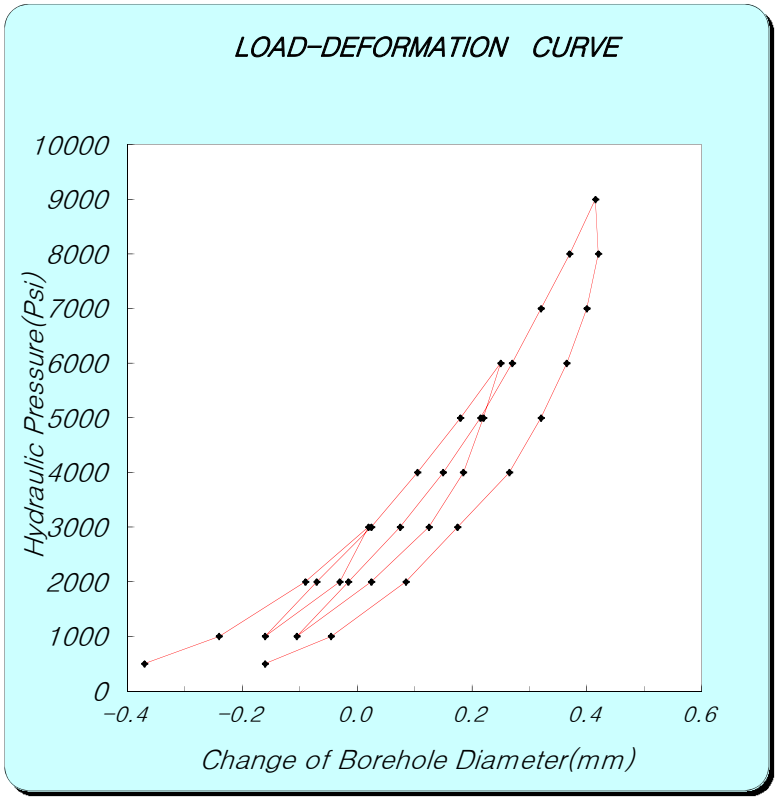
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	GRANITE	Test Date :	2011. 4. 18
Depth :	100.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/87	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.70	-1.44	-1.070
500	-0.19	-0.55	-0.370
1000	-0.06	-0.42	-0.240
2000	0.08	-0.26	-0.090
3000	0.19	-0.15	0.020
2000	0.14	-0.20	-0.030
1000	0.02	-0.34	-0.160
2000	0.11	-0.25	-0.070
3000	0.19	-0.14	0.025
4000	0.23	-0.02	0.105
5000	0.34	0.02	0.180
6000	0.41	0.09	0.250
5000	0.38	0.06	0.220
4000	0.36	0.01	0.185
3000	0.28	-0.03	0.125
2000	0.19	-0.14	0.025
1000	0.07	-0.28	-0.105
2000	0.15	-0.18	-0.015
3000	0.24	-0.09	0.075
4000	0.31	-0.01	0.150
5000	0.37	0.06	0.215
6000	0.43	0.11	0.270
7000	0.49	0.15	0.320
8000	0.55	0.19	0.370
9000	0.62	0.21	0.415
8000	0.62	0.22	0.420
7000	0.60	0.20	0.400
6000	0.56	0.17	0.365
5000	0.50	0.14	0.320
4000	0.43	0.10	0.265
3000	0.34	0.01	0.175
2000	0.25	-0.08	0.085
1000	0.12	-0.21	-0.045
500	0.02	-0.34	-0.160
0	-0.13	-0.46	-0.295
			0.000



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.020 D_2 (mm) 0.415

Dc (psi) = 1.33E+06 **Dt = 1.60E+06** psi

1.13E+05 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.215 D_2 (mm) 0.370

Ec (psi) = 1.70E+06 **Et = 2.45E+06** psi

1.72E+05 kgf/㎠

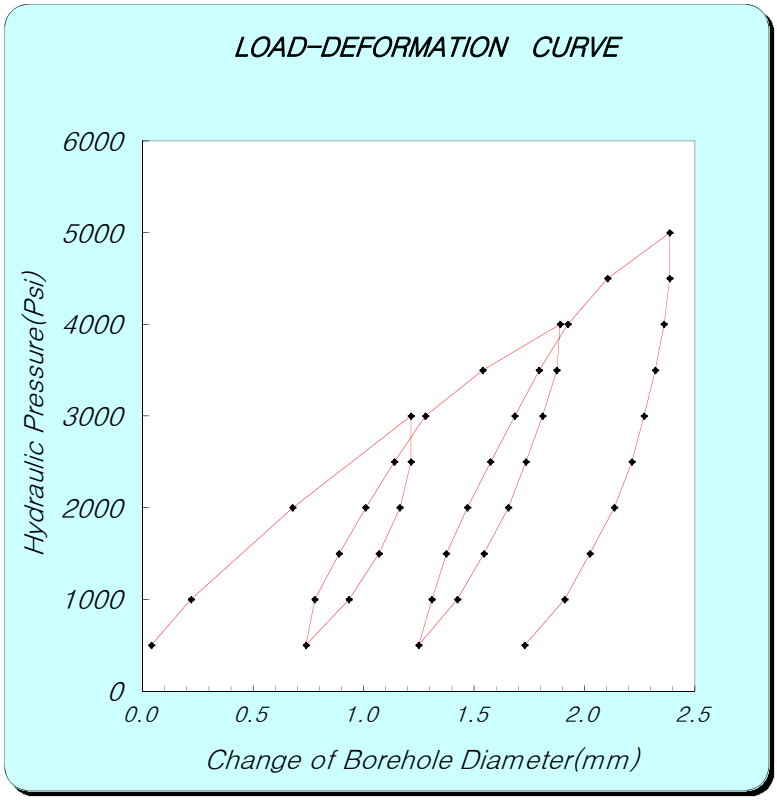
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	GRANITE	Test Date :	2011. 4. 18
Depth :	108.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/68	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.85	-0.53	-0.425
500	-0.12	-0.04	0.040
1000	0.08	0.17	0.220
2000	0.45	0.71	0.680
3000	0.91	1.52	1.215
2500	0.90	1.53	1.215
2000	0.86	1.47	1.165
1500	0.76	1.38	1.070
1000	0.63	1.24	0.935
500	0.45	1.03	0.740
1000	0.48	1.08	0.780
1500	0.58	1.20	0.890
2000	0.69	1.33	1.010
2500	0.81	1.47	1.140
3000	0.92	1.64	1.280
3500	1.13	1.95	1.540
4000	1.43	2.42	1.890
3500	1.43	2.43	1.875
3000	1.40	2.41	1.810
2500	1.35	2.36	1.735
2000	1.29	2.28	1.655
1500	1.19	2.17	1.545
1000	1.06	2.02	1.425
500	0.85	1.77	1.250
1000	0.87	1.83	1.310
1500	0.92	1.93	1.375
2000	1.01	2.00	1.470
2500	1.11	2.16	1.575
3000	1.21	2.28	1.685
3500	1.31	2.40	1.795
4000	1.45	2.56	1.925
4500	1.65	2.80	2.105
5000	1.97	3.14	2.385
4500	1.97	3.13	2.385
4000	1.95	3.13	2.360
3500	1.92	3.11	2.320
3000	1.88	3.08	2.270
2500	1.84	3.03	2.215
2000	1.77	2.97	2.135
1500	1.66	2.87	2.025
1000	1.54	2.72	1.911
500	1.29	2.48	1.730
0	1.10	2.20	1.650



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.215 D_2 (mm) 2.385

Dc (psi) = 1.50E+05 **Dt = 1.50E+05** psi

1.05E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.470 D_2 (mm) 1.795

Ec (psi) = 4.04E+05 **Et = 4.04E+05** psi

2.84E+04 kgf/㎠

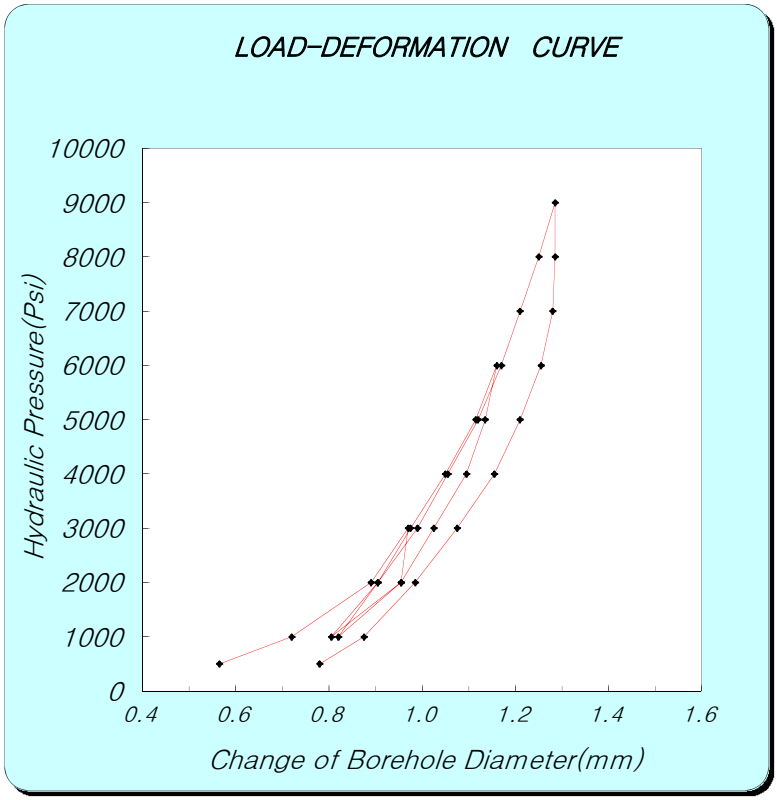
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	GRANITE	Test Date :	2011. 4. 18
Depth :	116.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/82	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.49	0.16	0.325
500	0.72	0.41	0.565
1000	0.84	0.60	0.720
2000	0.99	0.79	0.891
3000	1.05	0.89	0.970
2000	1.05	0.86	0.955
1000	0.91	0.70	0.805
2000	0.99	0.82	0.905
3000	1.06	0.89	0.975
4000	1.13	0.97	1.050
5000	1.19	1.04	1.115
6000	1.23	1.09	1.160
5000	1.21	1.06	1.135
4000	1.17	1.02	1.095
3000	1.10	0.95	1.025
2000	1.04	0.87	0.955
1000	0.93	0.71	0.820
2000	0.99	0.82	0.905
3000	1.07	0.91	0.990
4000	1.13	0.98	1.055
5000	1.19	1.05	1.120
6000	1.24	1.10	1.170
7000	1.28	1.14	1.210
8000	1.32	1.18	1.250
9000	1.36	1.21	1.285
8000	1.36	1.21	1.285
7000	1.35	1.21	1.280
6000	1.32	1.19	1.255
5000	1.27	1.15	1.210
4000	1.23	1.08	1.155
3000	1.13	1.02	1.075
2000	1.06	0.91	0.985
1000	0.95	0.80	0.875
500	0.86	0.70	0.780
0	0.74	0.54	0.640



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.970 D_2 (mm) 1.285

Dc (psi) = 1.67E+06 **Dt = 2.38E+06** psi

1.67E+05 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.170 D_2 (mm) 1.250

Ec (psi) = 2.19E+06 **Et = 3.97E+06** psi

2.79E+05 kgf/㎠

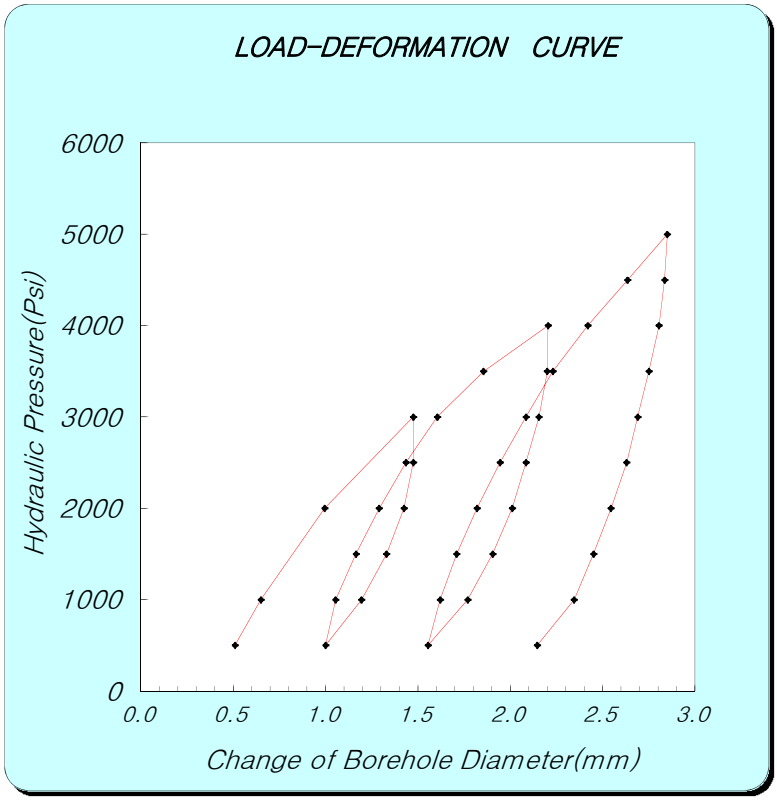
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-21	Rock Name :	GRANITE	Test Date :	2011. 4. 18
Depth :	124.0m	Rock Class :	MW-HW	Record By :	Y.G.Shin
G.W.L :	28.2m	TCR/RQD(%) :	100/37	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.59	-0.27	-0.430
500	0.27	0.75	0.510
1000	0.38	0.92	0.650
2000	0.60	1.39	0.995
3000	1.17	1.78	1.475
2500	1.16	1.79	1.475
2000	1.12	1.73	1.425
1500	1.02	1.64	1.330
1000	0.89	1.50	1.195
500	0.71	1.29	1.000
1000	0.77	1.34	1.055
1500	0.87	1.46	1.165
2000	0.99	1.59	1.290
2500	1.12	1.75	1.435
3000	1.26	1.95	1.605
3500	1.47	2.24	1.855
4000	1.74	2.67	2.205
3500	1.73	2.67	2.200
3000	1.68	2.63	2.155
2500	1.61	2.56	2.085
2000	1.55	2.47	2.010
1500	1.45	2.36	1.905
1000	1.32	2.22	1.770
500	1.11	2.00	1.555
1000	1.15	2.09	1.620
1500	1.23	2.19	1.710
2000	1.33	2.31	1.820
2500	1.45	2.44	1.945
3000	1.57	2.60	2.085
3500	1.71	2.75	2.230
4000	1.89	2.95	2.420
4500	2.10	3.17	2.635
5000	2.24	3.46	2.850
4500	2.24	3.43	2.835
4000	2.21	3.40	2.805
3500	2.18	3.32	2.750
3000	2.14	3.24	2.690
2500	2.10	3.16	2.630
2000	2.03	3.06	2.545
1500	1.92	2.98	2.450
1000	1.80	2.89	2.346
500	1.55	2.74	2.145
0	1.36	2.46	1.910



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.475 D_2 (mm) 2.850

Dc (psi) = 1.27E+05 **Dt = 1.27E+05** psi

8.96E+03 kgf/㎠

ΔP : P_1 (Psi) 1500 P_2 (Psi) 2500

ΔD : D_1 (mm) 1.710 D_2 (mm) 1.945

Ec (psi) = 3.73E+05 **Et = 3.73E+05** psi

2.62E+04 kgf/㎠

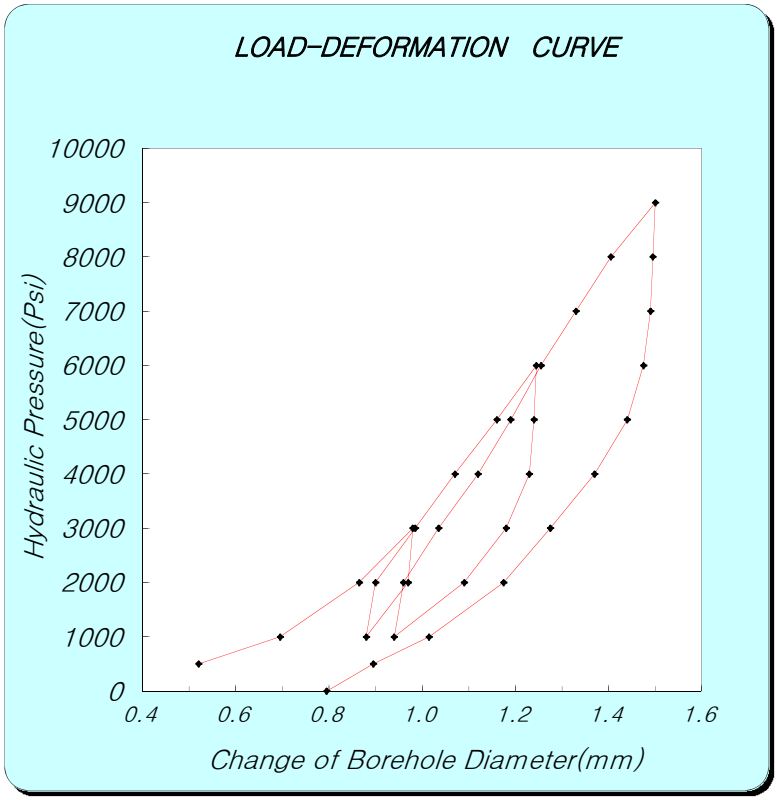
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 28
Depth :	48.0m	Rock Class :	MW	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	97/83	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.55	-0.57	-0.010
500	0.89	0.15	0.520
1000	0.97	0.42	0.695
2000	1.10	0.63	0.865
3000	1.20	0.76	0.980
2000	1.19	0.75	0.970
1000	1.12	0.64	0.880
2000	1.14	0.66	0.900
3000	1.21	0.76	0.985
4000	1.29	0.85	1.070
5000	1.39	0.93	1.160
6000	1.48	1.01	1.245
5000	1.48	1.00	1.240
4000	1.46	1.00	1.230
3000	1.40	0.96	1.180
2000	1.32	0.86	1.090
1000	1.20	0.68	0.940
2000	1.22	0.70	0.960
3000	1.29	0.78	1.035
4000	1.37	0.87	1.120
5000	1.43	0.95	1.190
6000	1.50	1.01	1.255
7000	1.58	1.08	1.330
8000	1.67	1.14	1.405
9000	1.79	1.21	1.500
8000	1.79	1.20	1.495
7000	1.78	1.20	1.490
6000	1.76	1.19	1.475
5000	1.71	1.17	1.440
4000	1.64	1.10	1.370
3000	1.54	1.01	1.275
2000	1.45	0.90	1.175
1000	1.32	0.71	1.015
500	1.23	0.56	0.895
0	1.14	0.45	0.795



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.980 D_2 (mm) 1.500

Dc (psi) = 1.01E+06 **Dt = 1.11E+06** psi

7.82E+04 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.255 D_2 (mm) 1.405

Ec (psi) = 1.17E+06 **Et = 1.32E+06** psi

9.28E+04 kgf/㎠

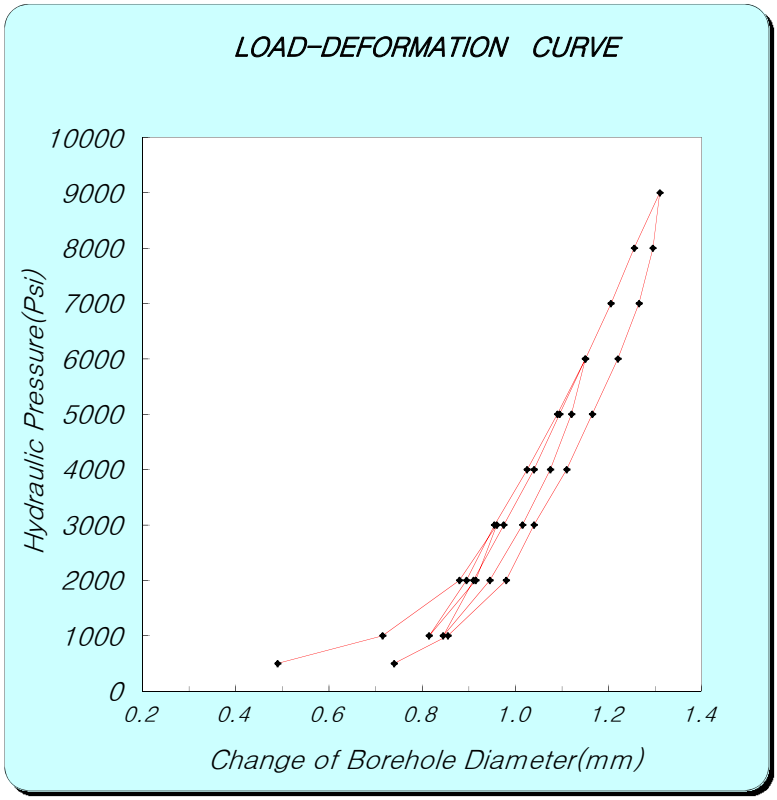
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 28
Depth :	56.0m	Rock Class :	FR-SW	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/98	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.02	-0.21	-0.095
500	0.45	0.53	0.490
1000	0.70	0.73	0.715
2000	0.91	0.85	0.880
3000	0.99	0.93	0.960
2000	0.95	0.88	0.915
1000	0.85	0.78	0.815
2000	0.93	0.86	0.895
3000	0.99	0.92	0.955
4000	1.06	0.99	1.025
5000	1.13	1.05	1.090
6000	1.19	1.11	1.150
5000	1.17	1.07	1.120
4000	1.12	1.03	1.075
3000	1.06	0.97	1.015
2000	0.99	0.90	0.945
1000	0.90	0.79	0.845
2000	0.95	0.87	0.910
3000	1.01	0.94	0.975
4000	1.08	1.00	1.040
5000	1.13	1.06	1.095
6000	1.19	1.11	1.150
7000	1.25	1.16	1.205
8000	1.30	1.21	1.255
9000	1.36	1.26	1.310
8000	1.35	1.24	1.295
7000	1.33	1.20	1.265
6000	1.29	1.15	1.220
5000	1.23	1.10	1.165
4000	1.17	1.05	1.110
3000	1.10	0.98	1.040
2000	1.05	0.91	0.980
1000	0.92	0.79	0.855
500	0.80	0.68	0.740
0	0.72	0.57	0.645



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.960 D_2 (mm) 1.310

Dc (psi) = 1.50E+06 **Dt = 1.97E+06** psi

1.38E+05 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 7000

ΔD : D_1 (mm) 1.040 D_2 (mm) 1.205

Ec (psi) = 1.59E+06 **Et = 2.19E+06** psi

1.54E+05 kgf/㎠

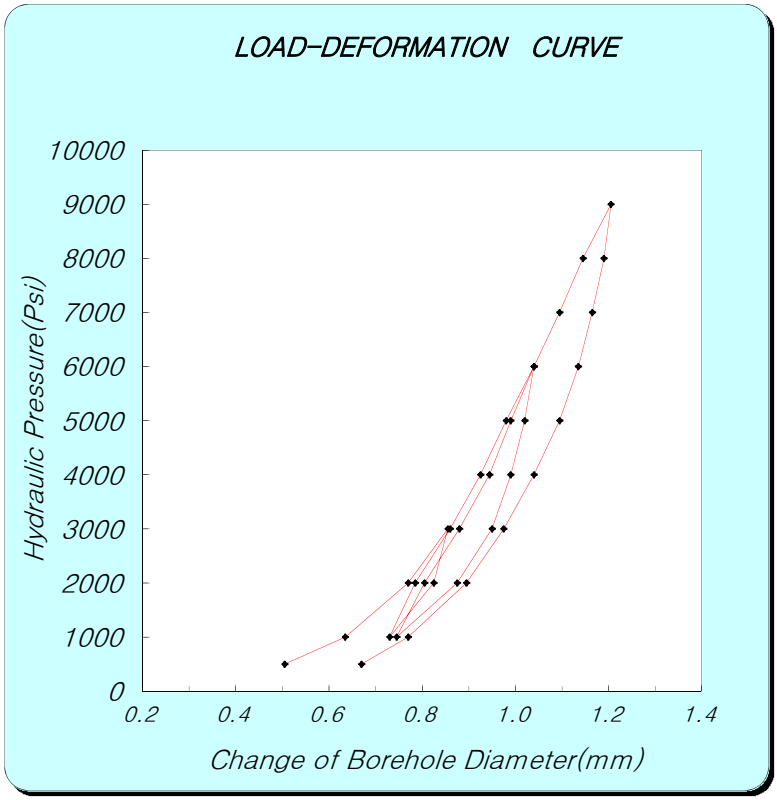
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 28
Depth :	64.0m	Rock Class :	FR-SW	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/82	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.35	-0.32	0.015
500	0.66	0.35	0.505
1000	0.74	0.53	0.635
2000	0.83	0.71	0.770
3000	0.90	0.81	0.855
2000	0.90	0.75	0.825
1000	0.83	0.63	0.730
2000	0.85	0.72	0.785
3000	0.90	0.82	0.860
4000	0.96	0.89	0.925
5000	1.00	0.96	0.980
6000	1.06	1.02	1.040
5000	1.06	0.98	1.020
4000	1.05	0.93	0.990
3000	1.03	0.87	0.950
2000	0.96	0.79	0.875
1000	0.84	0.65	0.745
2000	0.87	0.74	0.805
3000	0.93	0.83	0.880
4000	0.99	0.90	0.945
5000	1.02	0.96	0.990
6000	1.07	1.01	1.040
7000	1.12	1.07	1.095
8000	1.16	1.13	1.145
9000	1.22	1.19	1.205
8000	1.21	1.17	1.190
7000	1.21	1.12	1.165
6000	1.20	1.07	1.135
5000	1.17	1.02	1.095
4000	1.12	0.96	1.040
3000	1.06	0.89	0.975
2000	0.98	0.81	0.895
1000	0.86	0.68	0.770
500	0.78	0.56	0.670
0	0.70	0.47	0.585



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.855 D_2 (mm) 1.205

Dc (psi) = 1.50E+06 **Dt = 1.97E+06** psi

1.38E+05 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.990 D_2 (mm) 1.145

Ec (psi) = 1.70E+06 **Et = 2.45E+06** psi

1.72E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

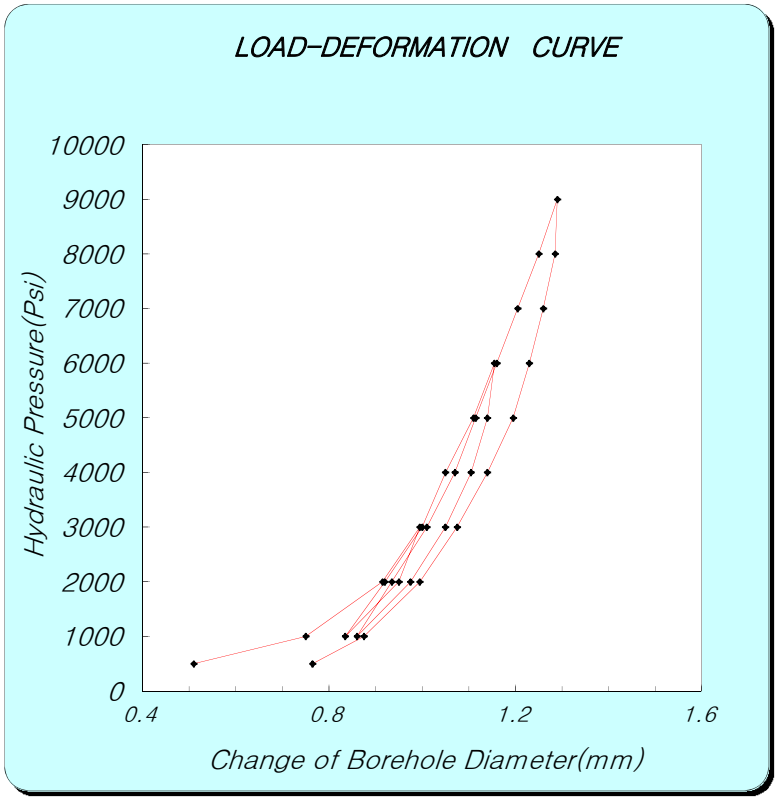
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 28
Depth :	72.0m	Rock Class :	FR	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.35	0.12	0.235
500	0.52	0.50	0.510
1000	0.85	0.65	0.750
2000	1.02	0.81	0.915
3000	1.09	0.90	0.995
2000	1.07	0.83	0.950
1000	0.99	0.68	0.835
2000	1.04	0.80	0.920
3000	1.10	0.90	1.000
4000	1.14	0.96	1.050
5000	1.19	1.03	1.110
6000	1.23	1.08	1.155
5000	1.23	1.05	1.140
4000	1.21	1.00	1.105
3000	1.17	0.93	1.050
2000	1.11	0.84	0.975
1000	1.02	0.70	0.860
2000	1.06	0.81	0.935
3000	1.12	0.90	1.010
4000	1.16	0.98	1.070
5000	1.20	1.03	1.115
6000	1.24	1.08	1.160
7000	1.28	1.13	1.205
8000	1.32	1.18	1.250
9000	1.36	1.22	1.290
8000	1.36	1.21	1.285
7000	1.35	1.17	1.260
6000	1.33	1.13	1.230
5000	1.31	1.08	1.195
4000	1.26	1.02	1.140
3000	1.20	0.95	1.075
2000	1.13	0.86	0.995
1000	1.04	0.71	0.875
500	0.95	0.58	0.765
0	0.88	0.49	0.685



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.995 D_2 (mm) 1.290

Dc (psi) = 1.78E+06 **Dt = 2.69E+06** psi

1.89E+05 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.070 D_2 (mm) 1.250

Ec (psi) = 1.95E+06 **Et = 3.17E+06** psi

2.23E+05 kgf/㎠

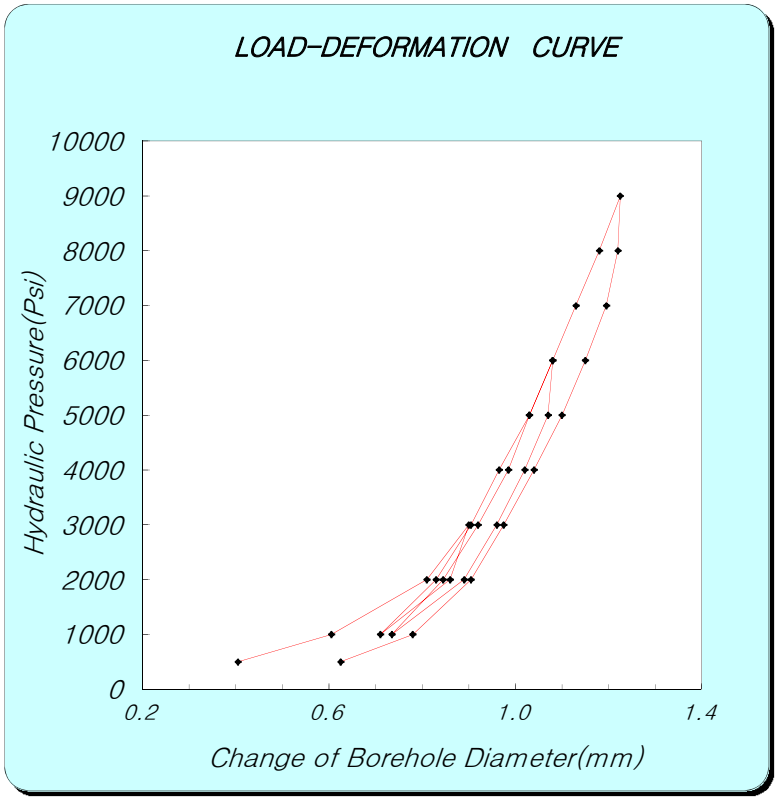
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 28
Depth :	80.0m	Rock Class :	FR-SW	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/96	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.10	-0.21	-0.055
500	0.32	0.49	0.405
1000	0.60	0.61	0.605
2000	0.89	0.73	0.810
3000	0.98	0.82	0.900
2000	0.95	0.77	0.860
1000	0.77	0.65	0.710
2000	0.92	0.74	0.830
3000	0.99	0.82	0.905
4000	1.05	0.88	0.965
5000	1.11	0.95	1.030
6000	1.16	1.00	1.080
5000	1.15	0.99	1.070
4000	1.10	0.94	1.020
3000	1.05	0.87	0.960
2000	0.99	0.79	0.890
1000	0.81	0.66	0.735
2000	0.94	0.75	0.845
3000	1.01	0.83	0.920
4000	1.07	0.90	0.985
5000	1.11	0.95	1.030
6000	1.16	1.00	1.080
7000	1.21	1.05	1.130
8000	1.25	1.11	1.180
9000	1.29	1.16	1.225
8000	1.29	1.15	1.220
7000	1.27	1.12	1.195
6000	1.23	1.07	1.150
5000	1.18	1.02	1.100
4000	1.13	0.95	1.040
3000	1.07	0.88	0.975
2000	1.00	0.81	0.905
1000	0.86	0.70	0.780
500	0.62	0.63	0.625
0	0.54	0.57	0.555



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.900 D_2 (mm) 1.225

Dc (psi) = 1.62E+06 **Dt = 2.25E+06** psi

1.58E+05 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.985 D_2 (mm) 1.180

Ec (psi) = 1.80E+06 **Et = 2.73E+06** psi

1.92E+05 kgf/㎠

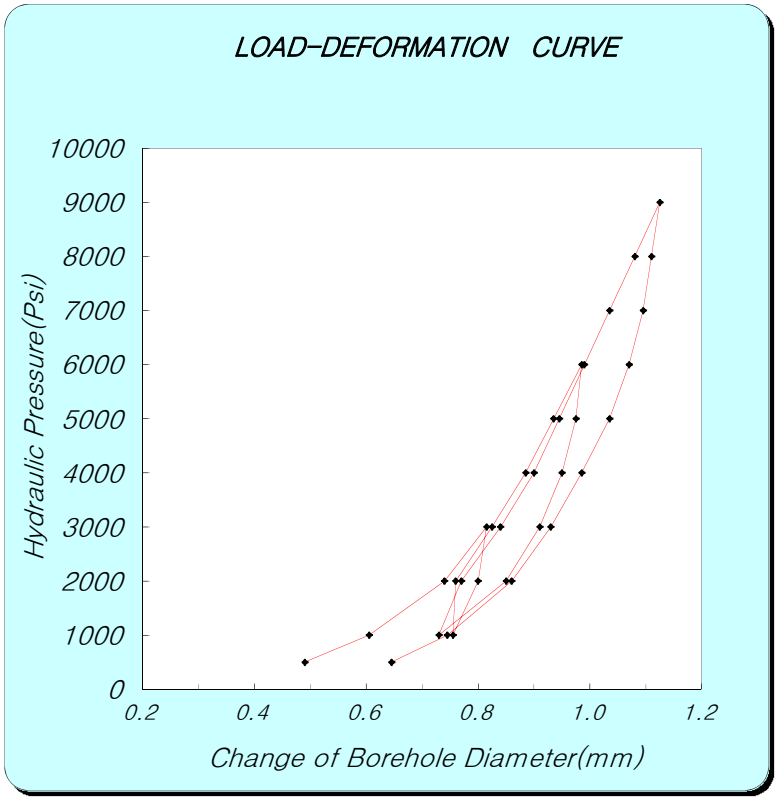
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 27
Depth :	88.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/98	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.10	-0.32	-0.110
500	0.56	0.42	0.490
1000	0.64	0.57	0.605
2000	0.75	0.73	0.740
3000	0.83	0.80	0.815
2000	0.83	0.77	0.800
1000	0.84	0.67	0.755
2000	0.78	0.74	0.760
3000	0.84	0.81	0.825
4000	0.91	0.86	0.885
5000	0.96	0.91	0.935
6000	1.01	0.96	0.985
5000	1.01	0.94	0.975
4000	1.00	0.90	0.950
3000	0.96	0.86	0.910
2000	0.90	0.80	0.850
1000	0.77	0.69	0.730
2000	0.80	0.74	0.770
3000	0.87	0.81	0.840
4000	0.93	0.87	0.900
5000	0.98	0.91	0.945
6000	1.02	0.96	0.990
7000	1.07	1.00	1.035
8000	1.11	1.05	1.080
9000	1.16	1.09	1.125
8000	1.15	1.07	1.110
7000	1.15	1.04	1.095
6000	1.14	1.00	1.070
5000	1.11	0.96	1.035
4000	1.06	0.91	0.985
3000	1.00	0.86	0.930
2000	0.92	0.80	0.860
1000	0.79	0.70	0.745
500	0.70	0.59	0.645
0	0.62	0.51	0.565



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.815 D_2 (mm) 1.125

Dc (psi) = 1.70E+06 **Dt = 2.45E+06** psi

1.72E+05 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.900 D_2 (mm) 1.080

Ec (psi) = 1.95E+06 **Et = 3.17E+06** psi

2.23E+05 kgf/㎠

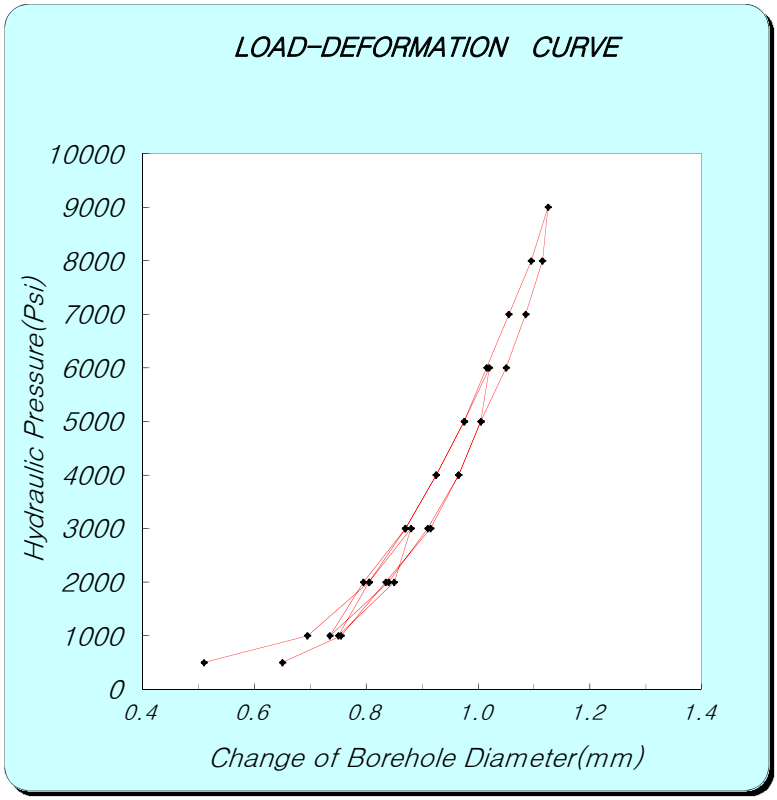
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 27
Depth :	96.0m	Rock Class :	FR-SW	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.21	-0.39	-0.090
500	0.68	0.34	0.510
1000	0.84	0.55	0.695
2000	0.92	0.69	0.805
3000	0.98	0.78	0.880
2000	0.95	0.75	0.850
1000	0.88	0.62	0.750
2000	0.92	0.69	0.805
3000	0.97	0.77	0.870
4000	1.02	0.83	0.925
5000	1.07	0.88	0.975
6000	1.12	0.92	1.020
5000	1.11	0.90	1.005
4000	1.07	0.86	0.965
3000	1.02	0.80	0.910
2000	0.96	0.72	0.840
1000	0.88	0.59	0.735
2000	0.92	0.67	0.795
3000	0.99	0.75	0.870
4000	1.04	0.81	0.925
5000	1.09	0.86	0.975
6000	1.14	0.89	1.015
7000	1.18	0.93	1.055
8000	1.22	0.97	1.095
9000	1.24	1.01	1.125
8000	1.23	1.00	1.115
7000	1.22	0.95	1.085
6000	1.19	0.91	1.050
5000	1.14	0.87	1.005
4000	1.11	0.82	0.965
3000	1.06	0.77	0.915
2000	0.97	0.70	0.835
1000	0.88	0.63	0.755
500	0.80	0.50	0.650
0	0.72	0.42	0.570



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.880 D_2 (mm) 1.125

Dc (psi) = 2.15E+06 **Dt = 3.81E+06** psi

2.68E+05 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.975 D_2 (mm) 1.095

Ec (psi) = 2.19E+06 **Et = 3.97E+06** psi

2.79E+05 kgf/㎠

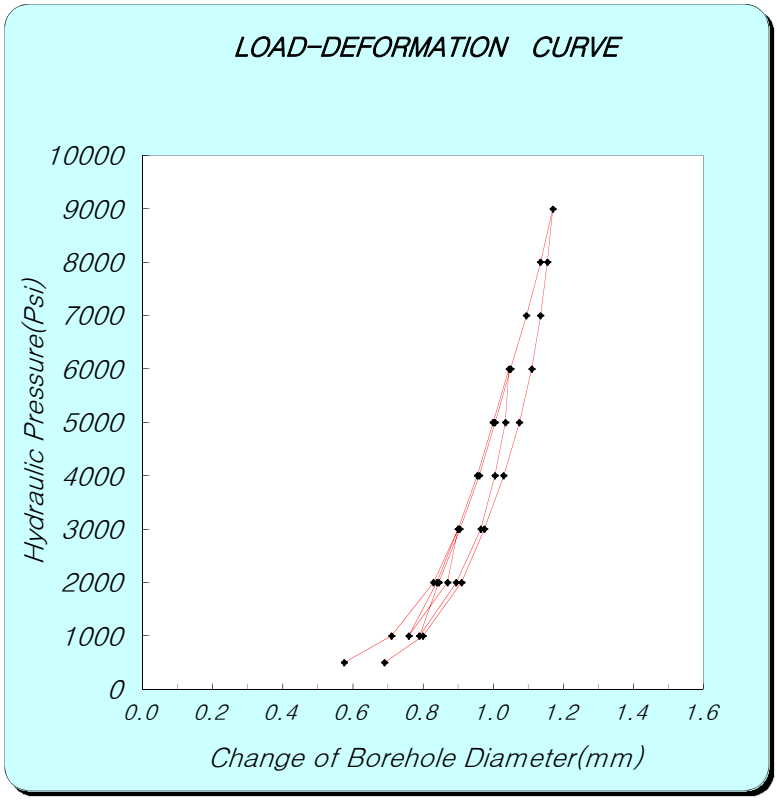
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 27
Depth :	104.0m	Rock Class :	FR	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.31	-0.51	-0.100
500	0.76	0.39	0.575
1000	0.81	0.61	0.710
2000	0.89	0.77	0.830
3000	0.95	0.85	0.900
2000	0.94	0.80	0.870
1000	0.88	0.64	0.760
2000	0.90	0.78	0.840
3000	0.95	0.85	0.900
4000	1.00	0.91	0.955
5000	1.04	0.96	1.000
6000	1.08	1.01	1.045
5000	1.08	0.99	1.035
4000	1.07	0.94	1.005
3000	1.04	0.89	0.965
2000	0.97	0.82	0.895
1000	0.88	0.70	0.790
2000	0.90	0.79	0.845
3000	0.95	0.86	0.905
4000	1.00	0.92	0.960
5000	1.04	0.97	1.006
6000	1.08	1.02	1.050
7000	1.13	1.06	1.095
8000	1.16	1.11	1.135
9000	1.19	1.15	1.170
8000	1.19	1.12	1.155
7000	1.18	1.09	1.135
6000	1.17	1.05	1.110
5000	1.15	1.00	1.075
4000	1.11	0.95	1.030
3000	1.05	0.90	0.975
2000	0.99	0.83	0.910
1000	0.89	0.71	0.800
500	0.81	0.57	0.690
0	0.73	0.49	0.610



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.900 D_2 (mm) 1.170

Dc (psi) = 1.95E+06 **Dt = 3.17E+06** psi

2.23E+05 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.960 D_2 (mm) 1.135

Ec (psi) = 2.00E+06 **Et = 3.34E+06** psi

2.35E+05 kgf/㎠

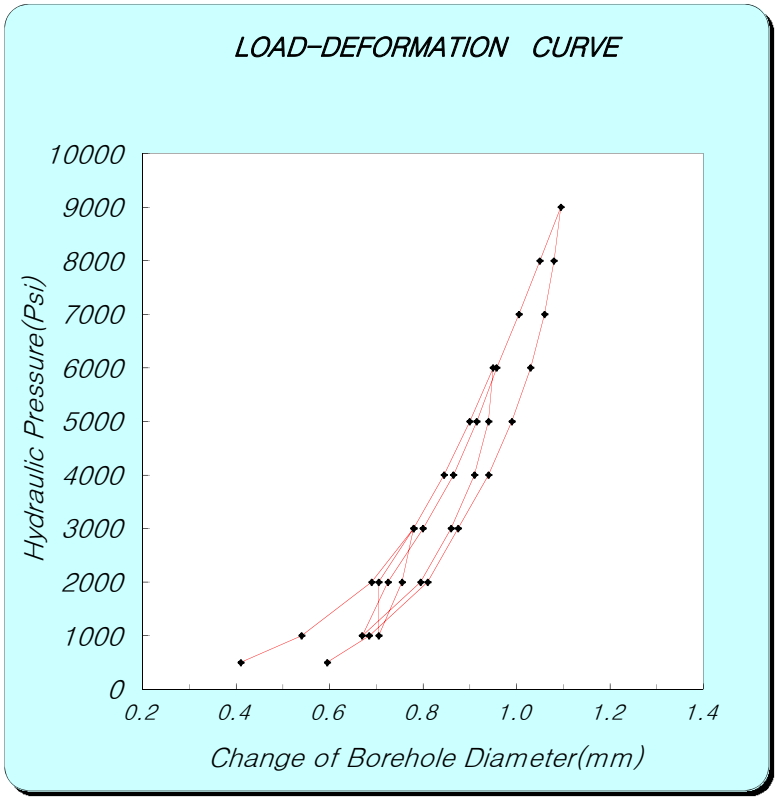
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 27
Depth :	112.0m	Rock Class :	FR-SW	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.23	-0.89	-0.560
500	0.52	0.30	0.410
1000	0.62	0.46	0.540
2000	0.74	0.64	0.690
3000	0.82	0.74	0.780
2000	0.81	0.70	0.755
1000	0.82	0.59	0.705
2000	0.76	0.65	0.705
3000	0.82	0.74	0.780
4000	0.88	0.81	0.845
5000	0.93	0.87	0.900
6000	0.97	0.93	0.950
5000	0.97	0.91	0.940
4000	0.96	0.86	0.910
3000	0.92	0.80	0.860
2000	0.86	0.73	0.795
1000	0.75	0.59	0.670
2000	0.79	0.66	0.725
3000	0.85	0.75	0.800
4000	0.90	0.83	0.865
5000	0.95	0.88	0.915
6000	0.99	0.93	0.958
7000	1.02	0.99	1.005
8000	1.06	1.04	1.050
9000	1.10	1.09	1.095
8000	1.10	1.06	1.080
7000	1.09	1.03	1.060
6000	1.08	0.98	1.030
5000	1.05	0.93	0.990
4000	1.00	0.88	0.940
3000	0.95	0.80	0.875
2000	0.88	0.74	0.810
1000	0.77	0.60	0.685
500	0.68	0.51	0.595
0	0.59	0.43	0.510



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.780 D_2 (mm) 1.095

Dc (psi) = 1.67E+06 **Dt = 2.38E+06** psi

1.67E+05 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.915 D_2 (mm) 1.050

Ec (psi) = 1.95E+06 **Et = 3.17E+06** psi

2.23E+05 kgf/㎠

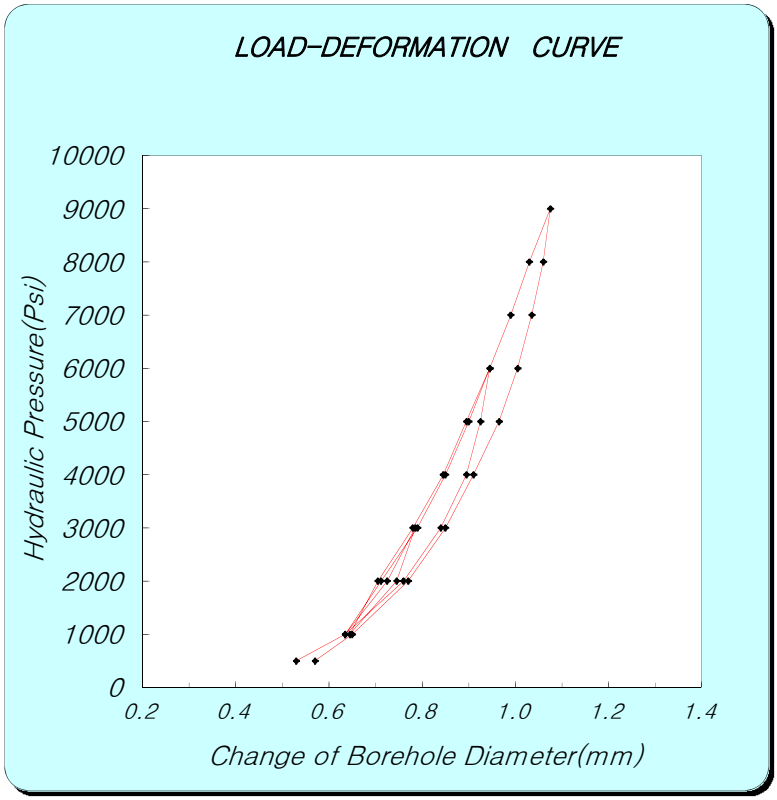
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 27
Depth :	120.0m	Rock Class :	FR-SW	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.58	-1.20	-0.890
500	0.64	0.42	0.530
1000	0.75	0.52	0.635
2000	0.83	0.62	0.725
3000	0.88	0.69	0.785
2000	0.85	0.64	0.745
1000	0.75	0.54	0.645
2000	0.81	0.60	0.705
3000	0.87	0.69	0.780
4000	0.93	0.76	0.845
5000	0.98	0.81	0.895
6000	1.03	0.86	0.945
5000	1.02	0.83	0.925
4000	1.01	0.78	0.895
3000	0.95	0.73	0.840
2000	0.87	0.65	0.760
1000	0.76	0.51	0.635
2000	0.81	0.61	0.712
3000	0.88	0.70	0.790
4000	0.94	0.76	0.850
5000	0.99	0.81	0.900
6000	1.03	0.86	0.945
7000	1.07	0.91	0.990
8000	1.11	0.95	1.030
9000	1.15	1.00	1.075
8000	1.15	0.97	1.060
7000	1.14	0.93	1.035
6000	1.12	0.89	1.005
5000	1.09	0.84	0.965
4000	1.03	0.79	0.910
3000	0.97	0.73	0.850
2000	0.88	0.66	0.770
1000	0.78	0.52	0.650
500	0.70	0.44	0.570
0	0.59	0.31	0.450



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.785 D_2 (mm) 1.075

Dc (psi) = 1.81E+06 **Dt = 2.77E+06** psi

1.95E+05 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.945 D_2 (mm) 1.030

Ec (psi) = 2.06E+06 **Et = 3.53E+06** psi

2.48E+05 kgf/㎠

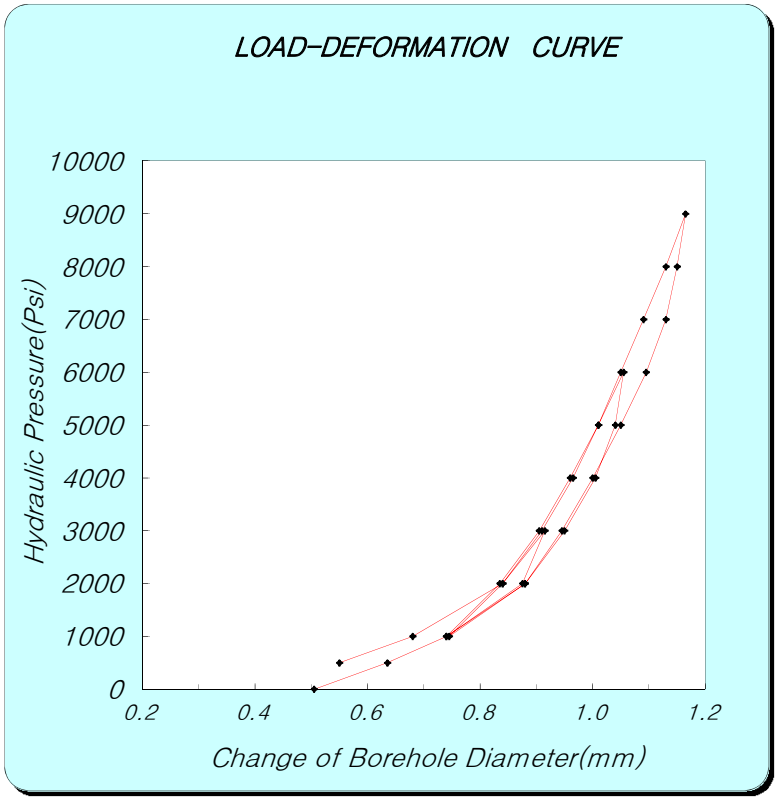
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-22	Rock Name :	GRANITE	Test Date :	2011. 4. 27
Depth :	128.0m	Rock Class :	FR-SW	Record By :	Y.G.Shin
G.W.L :	40.4m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.20	-0.53	-0.165
500	0.73	0.37	0.550
1000	0.82	0.54	0.680
2000	0.94	0.74	0.840
3000	1.01	0.82	0.915
2000	0.97	0.78	0.875
1000	0.86	0.62	0.740
2000	0.93	0.74	0.835
3000	1.00	0.81	0.905
4000	1.05	0.87	0.960
5000	1.10	0.92	1.010
6000	1.14	0.97	1.055
5000	1.14	0.94	1.040
4000	1.11	0.90	1.005
3000	1.05	0.85	0.950
2000	0.98	0.78	0.880
1000	0.87	0.62	0.745
2000	0.94	0.74	0.840
3000	1.01	0.81	0.910
4000	1.06	0.87	0.965
5000	1.10	0.92	1.010
6000	1.14	0.96	1.050
7000	1.17	1.01	1.090
8000	1.21	1.05	1.130
9000	1.24	1.09	1.165
8000	1.24	1.06	1.150
7000	1.23	1.03	1.130
6000	1.20	0.99	1.095
5000	1.16	0.94	1.050
4000	1.11	0.89	1.000
3000	1.05	0.84	0.945
2000	0.98	0.78	0.880
1000	0.87	0.61	0.740
500	0.78	0.49	0.635
0	0.70	0.31	0.505



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.915 D_2 (mm) 1.165

Dc (psi) = 2.10E+06 **Dt = 3.67E+06** psi

2.58E+05 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.050 D_2 (mm) 1.130

Ec (psi) = 2.19E+06 **Et = 3.97E+06** psi

2.79E+05 kgf/㎠

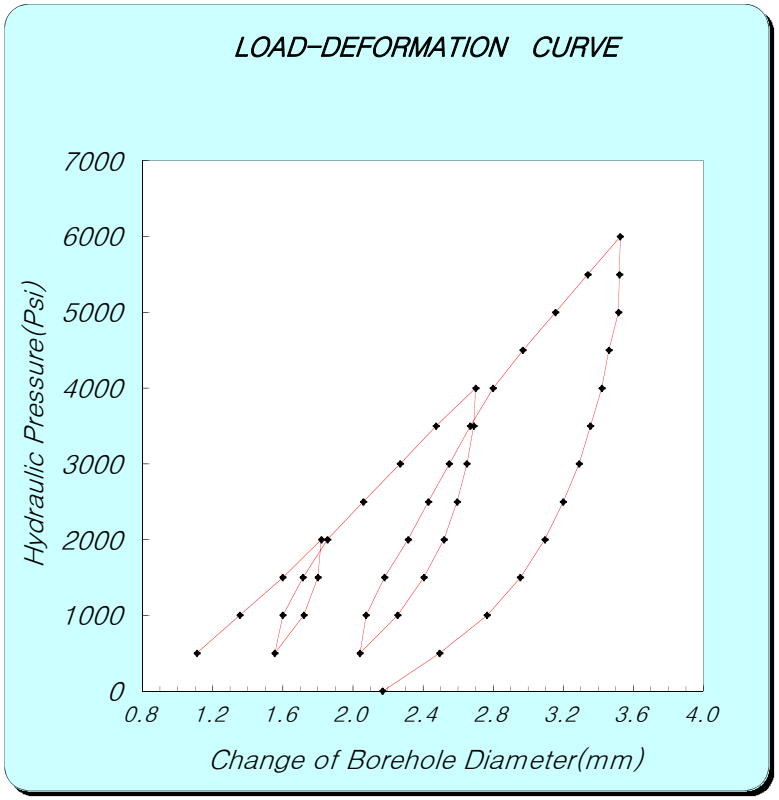
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-23	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	38.5m	RockRock Weathering :	MW-HW	Record By :	Y.G.Shin
G.W.L :	27.0m	TCR/RQD(%) :	100/33	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.18	-0.97	-0.395
500	1.26	0.96	1.110
1000	1.49	1.22	1.355
1500	1.74	1.46	1.600
2000	1.97	1.67	1.820
1500	1.96	1.64	1.800
1000	1.87	1.57	1.720
500	1.70	1.41	1.555
1000	1.76	1.44	1.600
1500	1.89	1.54	1.715
2000	2.03	1.68	1.855
2500	2.23	1.89	2.060
3000	2.43	2.11	2.270
3500	2.63	2.32	2.475
4000	2.87	2.53	2.700
3500	2.86	2.52	2.690
3000	2.81	2.49	2.650
2500	2.76	2.43	2.595
2000	2.69	2.35	2.520
1500	2.58	2.23	2.405
1000	2.43	2.08	2.255
500	2.23	1.85	2.040
1000	2.28	1.87	2.075
1500	2.40	1.96	2.180
2000	2.53	2.10	2.315
2500	2.63	2.23	2.430
3000	2.75	2.35	2.550
3500	2.86	2.48	2.670
4000	2.98	2.62	2.800
4500	3.15	2.79	2.970
5000	3.33	2.98	3.155
5500	3.50	3.18	3.340
6000	3.68	3.37	3.525
5500	3.67	3.37	3.520
5000	3.67	3.36	3.515
4500	3.61	3.31	3.460
4000	3.57	3.27	3.420
3500	3.51	3.20	3.355
3000	3.45	3.13	3.290
2500	3.36	3.04	3.200
2000	3.26	2.93	3.095
1500	3.12	2.79	2.955
1000	2.94	2.59	2.765
500	2.68	2.31	2.495
0	2.30	2.04	2.170



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.820 D_2 (mm) 3.525

Dc (psi) = 2.06E+05 **Dt = 2.06E+05** psi

1.45E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 3500

ΔD : D_1 (mm) 2.315 D_2 (mm) 2.670

Ec (psi) = 3.70E+05 **Et = 3.70E+05** psi

2.60E+04 kgf/㎠

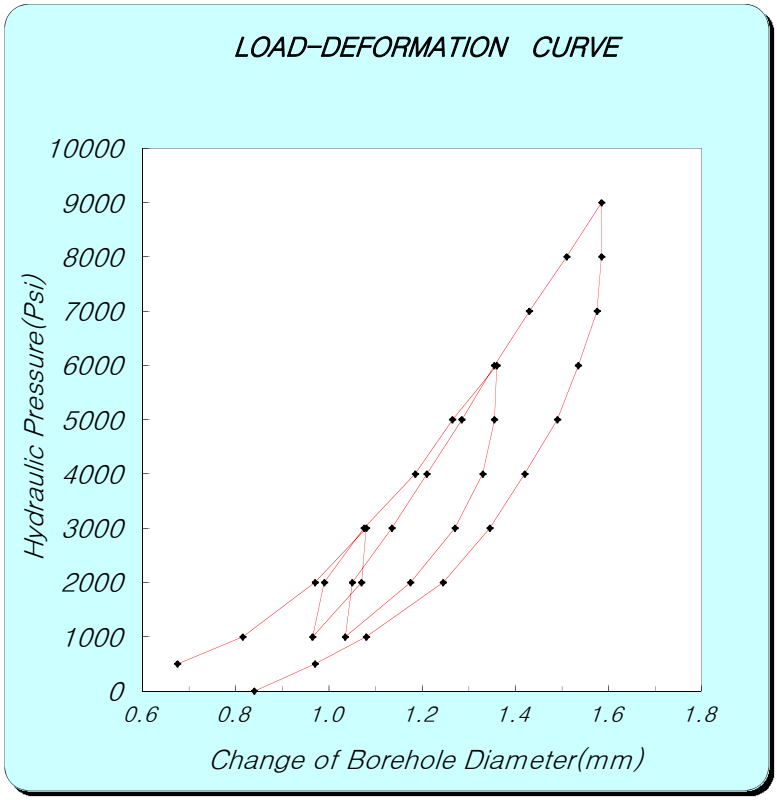
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-23	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	46.0m	Rock Class :	SW-MW	Record By :	Y.G.Shin
G.W.L :	27.0m	TCR/RQD(%) :	100/95	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.41	-1.53	-0.560
500	0.69	0.66	0.675
1000	0.79	0.84	0.815
2000	0.91	1.03	0.970
3000	1.01	1.15	1.080
2000	0.99	1.15	1.070
1000	0.90	1.03	0.965
2000	0.92	1.06	0.990
3000	0.99	1.16	1.075
4000	1.09	1.28	1.185
5000	1.16	1.37	1.265
6000	1.25	1.47	1.360
5000	1.25	1.46	1.355
4000	1.23	1.43	1.330
3000	1.19	1.35	1.270
2000	1.10	1.25	1.175
1000	0.97	1.10	1.035
2000	0.98	1.12	1.050
3000	1.05	1.22	1.135
4000	1.12	1.30	1.210
5000	1.18	1.39	1.285
6000	1.24	1.47	1.355
7000	1.31	1.55	1.430
8000	1.38	1.64	1.510
9000	1.45	1.72	1.585
8000	1.45	1.72	1.585
7000	1.44	1.71	1.575
6000	1.42	1.65	1.535
5000	1.40	1.58	1.490
4000	1.34	1.50	1.420
3000	1.27	1.42	1.345
2000	1.17	1.32	1.245
1000	1.01	1.15	1.080
500	0.92	1.02	0.970
0	0.81	0.87	0.840



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.080 D_2 (mm) 1.585

Dc (psi) = 1.04E+06 **Dt = 1.15E+06** psi

8.06E+04 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 7000

ΔD : D_1 (mm) 1.210 D_2 (mm) 1.430

Ec (psi) = 1.20E+06 **Et = 1.36E+06** psi

9.57E+04 kgf/㎠

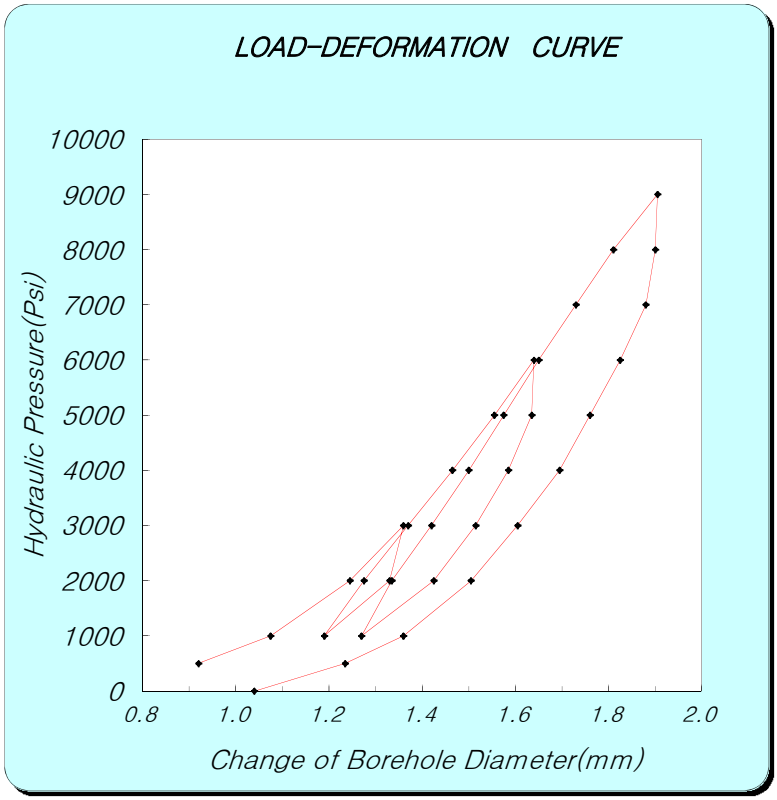
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-23	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	54.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	27.0m	TCR/RQD(%) :	100/92	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.57	-2.04	-1.305
500	0.73	1.11	0.920
1000	0.85	1.30	1.075
2000	1.00	1.49	1.245
3000	1.11	1.61	1.360
2000	1.08	1.58	1.330
1000	0.96	1.42	1.190
2000	1.02	1.53	1.275
3000	1.11	1.63	1.370
4000	1.20	1.73	1.465
5000	1.28	1.83	1.555
6000	1.36	1.92	1.640
5000	1.36	1.91	1.635
4000	1.32	1.85	1.585
3000	1.25	1.78	1.515
2000	1.17	1.68	1.425
1000	1.03	1.51	1.270
2000	1.07	1.60	1.335
3000	1.15	1.69	1.420
4000	1.22	1.78	1.500
5000	1.29	1.86	1.575
6000	1.36	1.94	1.650
7000	1.43	2.03	1.730
8000	1.50	2.12	1.810
9000	1.58	2.23	1.905
8000	1.57	2.23	1.900
7000	1.56	2.20	1.880
6000	1.51	2.14	1.825
5000	1.45	2.07	1.760
4000	1.39	2.00	1.695
3000	1.31	1.90	1.605
2000	1.22	1.79	1.505
1000	1.10	1.62	1.360
500	1.00	1.47	1.235
0	0.76	1.32	1.040



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.360 D_2 (mm) 1.905

Dc (psi) = 9.65E+05 **Dt = 1.07E+06** psi

7.49E+04 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.420 D_2 (mm) 1.650

Ec (psi) = 1.14E+06 **Et = 1.28E+06** psi

9.01E+04 kgf/㎠

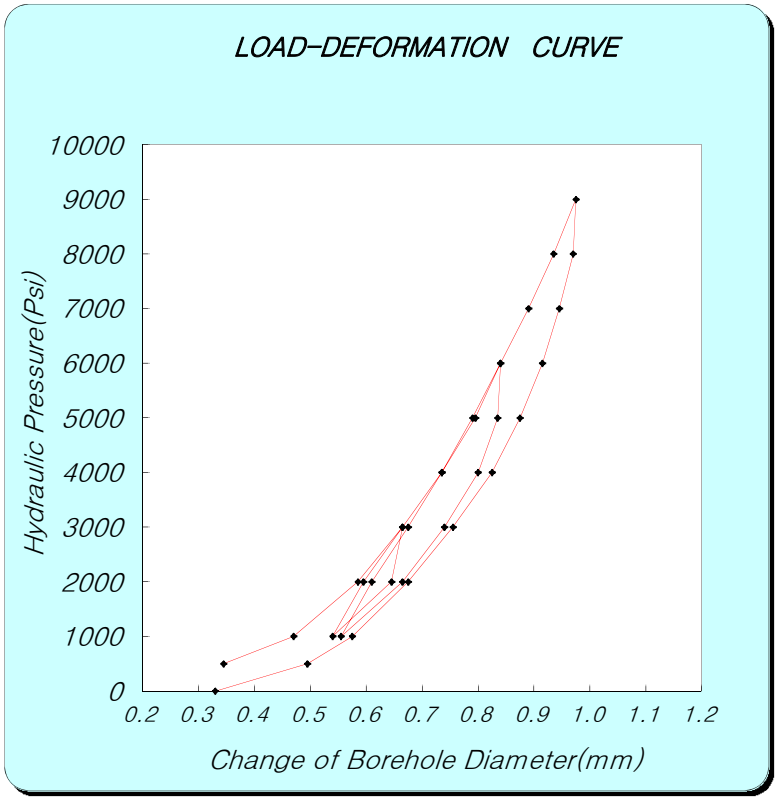
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-23	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	62.0m	Rock Class :	FR	Record By :	Y.G.Shin
G.W.L :	27.0m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.08	-2.27	-1.675
500	0.30	0.39	0.345
1000	0.39	0.55	0.470
2000	0.48	0.69	0.585
3000	0.55	0.78	0.665
2000	0.53	0.76	0.645
1000	0.43	0.65	0.540
2000	0.48	0.71	0.595
3000	0.55	0.78	0.665
4000	0.62	0.85	0.735
5000	0.67	0.91	0.790
6000	0.71	0.97	0.840
5000	0.71	0.96	0.835
4000	0.69	0.91	0.800
3000	0.64	0.84	0.740
2000	0.56	0.77	0.665
1000	0.45	0.66	0.555
2000	0.50	0.72	0.610
3000	0.56	0.79	0.675
4000	0.62	0.85	0.735
5000	0.67	0.92	0.795
6000	0.71	0.97	0.840
7000	0.75	1.03	0.890
8000	0.79	1.08	0.935
9000	0.82	1.13	0.975
8000	0.82	1.12	0.970
7000	0.81	1.08	0.945
6000	0.80	1.03	0.915
5000	0.77	0.98	0.875
4000	0.73	0.92	0.825
3000	0.66	0.85	0.755
2000	0.57	0.78	0.675
1000	0.47	0.68	0.575
500	0.40	0.59	0.495
0	0.24	0.42	0.330



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.665 D_2 (mm) 0.975

Dc (psi) = 1.70E+06 **Dt = 2.45E+06** psi

1.72E+05 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.795 D_2 (mm) 0.935

Ec (psi) = 1.88E+06 **Et = 2.96E+06** psi

2.08E+05 kgf/㎠

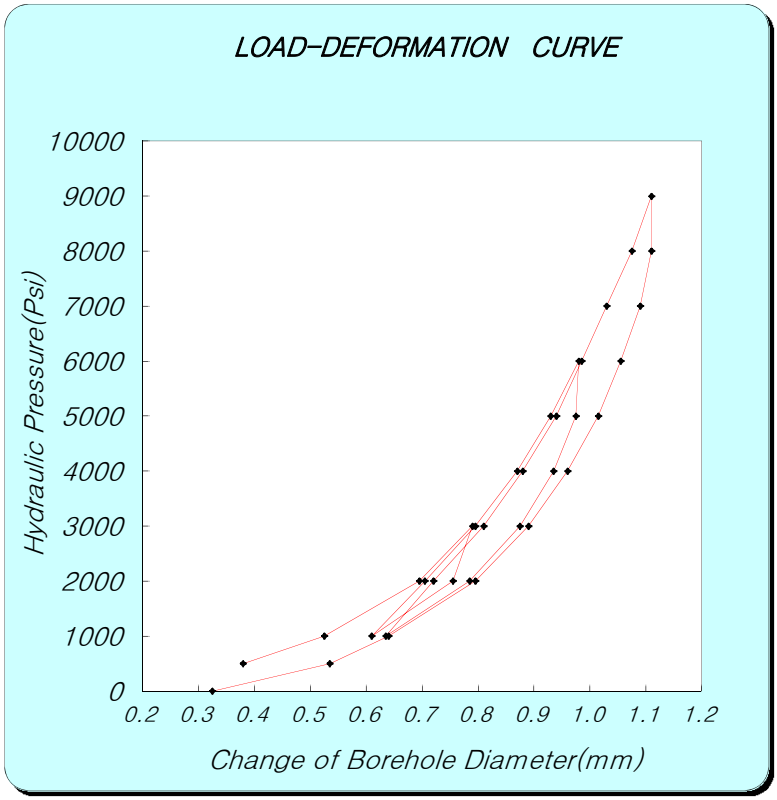
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-23	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	70.0m	Rock Class :	FR	Record By :	Y.G.Shin
G.W.L :	27.0m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.10	-1.91	-1.005
500	0.37	0.39	0.380
1000	0.46	0.59	0.525
2000	0.60	0.79	0.695
3000	0.68	0.90	0.790
2000	0.65	0.86	0.755
1000	0.52	0.70	0.610
2000	0.60	0.81	0.705
3000	0.68	0.91	0.795
4000	0.74	1.00	0.870
5000	0.79	1.07	0.930
6000	0.83	1.13	0.980
5000	0.83	1.12	0.975
4000	0.81	1.06	0.935
3000	0.76	0.99	0.875
2000	0.68	0.89	0.785
1000	0.54	0.73	0.635
2000	0.61	0.83	0.720
3000	0.69	0.93	0.810
4000	0.75	1.01	0.880
5000	0.80	1.08	0.940
6000	0.84	1.13	0.985
7000	0.88	1.18	1.030
8000	0.92	1.23	1.075
9000	0.95	1.27	1.110
8000	0.95	1.27	1.110
7000	0.94	1.24	1.090
6000	0.92	1.19	1.055
5000	0.89	1.14	1.015
4000	0.84	1.08	0.960
3000	0.78	1.00	0.890
2000	0.69	0.90	0.795
1000	0.55	0.73	0.640
500	0.47	0.60	0.535
0	0.20	0.45	0.325



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.790 D_2 (mm) 1.110

Dc (psi) = 1.64E+06 **Dt = 2.31E+06** psi

1.63E+05 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.940 D_2 (mm) 1.075

Ec (psi) = 1.95E+06 **Et = 3.17E+06** psi

2.23E+05 kgf/㎠

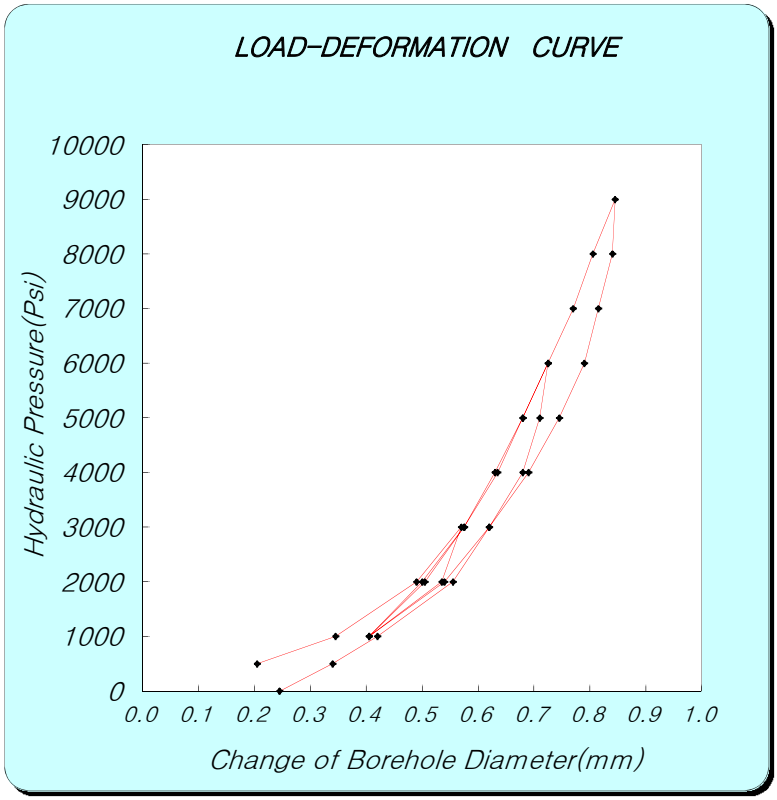
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-23	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	78.0m	Rock Class :	FR	Record By :	Y.G.Shin
G.W.L :	27.0m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-2.72	-2.37	-2.545
500	0.25	0.16	0.205
1000	0.32	0.37	0.345
2000	0.42	0.56	0.490
3000	0.48	0.66	0.570
2000	0.45	0.62	0.535
1000	0.35	0.46	0.405
2000	0.42	0.58	0.500
3000	0.48	0.67	0.575
4000	0.53	0.73	0.630
5000	0.57	0.79	0.680
6000	0.61	0.84	0.725
5000	0.60	0.82	0.710
4000	0.58	0.78	0.680
3000	0.52	0.72	0.620
2000	0.45	0.63	0.540
1000	0.35	0.46	0.405
2000	0.42	0.59	0.505
3000	0.48	0.67	0.575
4000	0.53	0.74	0.635
5000	0.57	0.79	0.680
6000	0.61	0.84	0.725
7000	0.65	0.89	0.770
8000	0.68	0.93	0.805
9000	0.72	0.97	0.845
8000	0.71	0.97	0.840
7000	0.70	0.93	0.815
6000	0.69	0.89	0.790
5000	0.64	0.85	0.745
4000	0.59	0.79	0.690
3000	0.52	0.72	0.620
2000	0.46	0.65	0.555
1000	0.36	0.48	0.420
500	0.29	0.39	0.340
0	0.20	0.29	0.245



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.570 D_2 (mm) 0.845

Dc (psi) = 1.91E+06 **Dt = 3.06E+06** psi

2.15E+05 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.635 D_2 (mm) 0.770

Ec (psi) = 1.95E+06 **Et = 3.17E+06** psi

2.23E+05 kgf/㎠

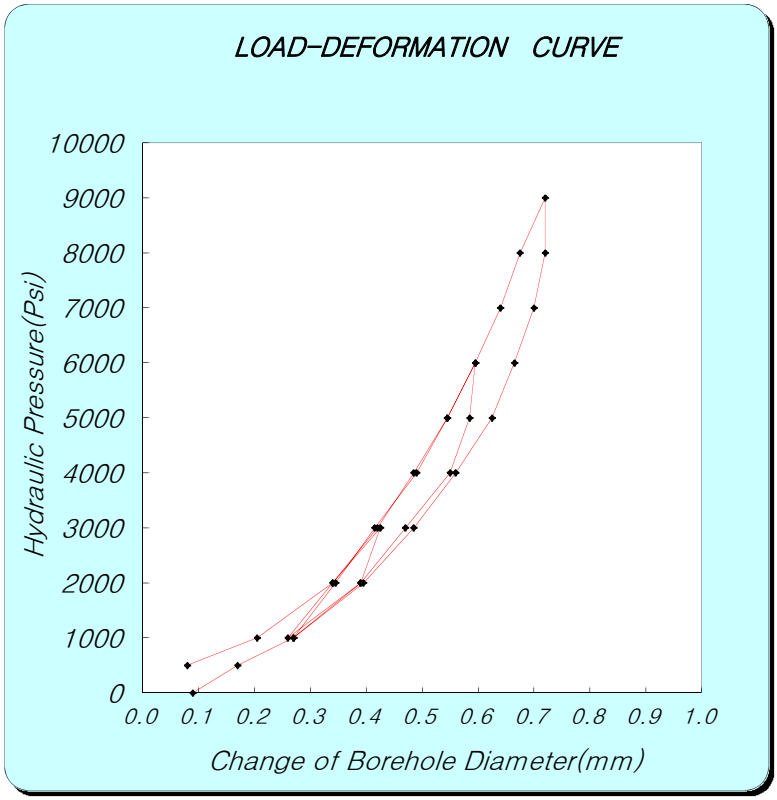
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-23	Rock Name :	GRANITE	Test Date :	2011. 4. 19
Depth :	86.0m	Rock Class :	FR	Record By :	Y.G.Shin
G.W.L :	27.0m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.75	-2.10	-1.925
500	0.11	0.05	0.080
1000	0.18	0.23	0.205
2000	0.27	0.41	0.340
3000	0.33	0.52	0.425
2000	0.30	0.48	0.390
1000	0.21	0.33	0.270
2000	0.27	0.42	0.345
3000	0.32	0.51	0.415
4000	0.37	0.61	0.490
5000	0.40	0.69	0.545
6000	0.44	0.75	0.595
5000	0.43	0.74	0.585
4000	0.42	0.68	0.550
3000	0.36	0.58	0.470
2000	0.30	0.48	0.390
1000	0.20	0.32	0.260
2000	0.26	0.42	0.340
3000	0.32	0.52	0.420
4000	0.36	0.61	0.485
5000	0.40	0.69	0.545
6000	0.44	0.75	0.595
7000	0.47	0.81	0.640
8000	0.50	0.85	0.675
9000	0.54	0.90	0.720
8000	0.54	0.90	0.720
7000	0.53	0.87	0.700
6000	0.51	0.82	0.665
5000	0.48	0.77	0.625
4000	0.43	0.69	0.560
3000	0.37	0.60	0.485
2000	0.30	0.49	0.395
1000	0.21	0.33	0.270
500	0.12	0.22	0.170
0	0.03	0.15	0.090



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.425 D_2 (mm) 0.720

Dc (psi) = 1.78E+06 **Dt = 2.69E+06** psi

1.89E+05 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.545 D_2 (mm) 0.640

Ec (psi) = 1.85E+06 **Et = 2.86E+06** psi

2.01E+05 kgf/㎠

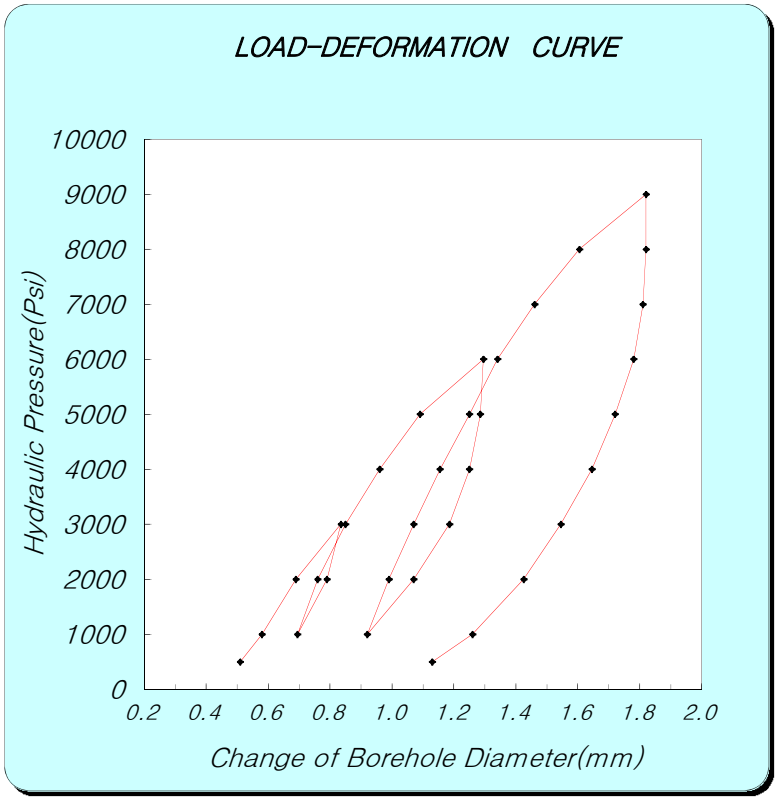
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-24	Rock Name :	GRANITE	Test Date :	2011. 4. 1
Depth :	35.0m	Rock Class :	MW-HW	Record By :	Y.G.Shin
G.W.L :	27.7m	TCR/RQD(%) :	100/52	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.94	-0.60	-0.770
500	0.67	0.35	0.510
1000	0.79	0.37	0.580
2000	0.92	0.46	0.690
3000	1.02	0.65	0.835
2000	0.99	0.59	0.790
1000	0.91	0.48	0.695
2000	0.96	0.56	0.760
3000	1.03	0.67	0.850
4000	1.12	0.80	0.960
5000	1.26	0.92	1.090
6000	1.44	1.15	1.295
5000	1.43	1.14	1.285
4000	1.40	1.10	1.250
3000	1.34	1.03	1.185
2000	1.25	0.89	1.070
1000	1.09	0.75	0.920
2000	1.11	0.87	0.990
3000	1.20	0.94	1.070
4000	1.30	1.01	1.155
5000	1.40	1.10	1.250
6000	1.49	1.19	1.340
7000	1.61	1.31	1.460
8000	1.75	1.46	1.605
9000	1.94	1.70	1.820
8000	1.94	1.70	1.820
7000	1.92	1.70	1.810
6000	1.88	1.68	1.780
5000	1.82	1.62	1.720
4000	1.75	1.54	1.645
3000	1.67	1.42	1.545
2000	1.57	1.28	1.425
1000	1.43	1.09	1.260
500	1.32	0.94	1.130
0	1.13	-0.16	0.485



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.835 D_2 (mm) 1.820

Dc (psi) = 5.34E+05 **Dt = 5.34E+05** psi

3.75E+04 kgf/㎠

ΔP : P_1 (Psi) 4000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.155 D_2 (mm) 1.340

Ec (psi) = 9.47E+05 **Et = 1.05E+06** psi

7.38E+04 kgf/㎠

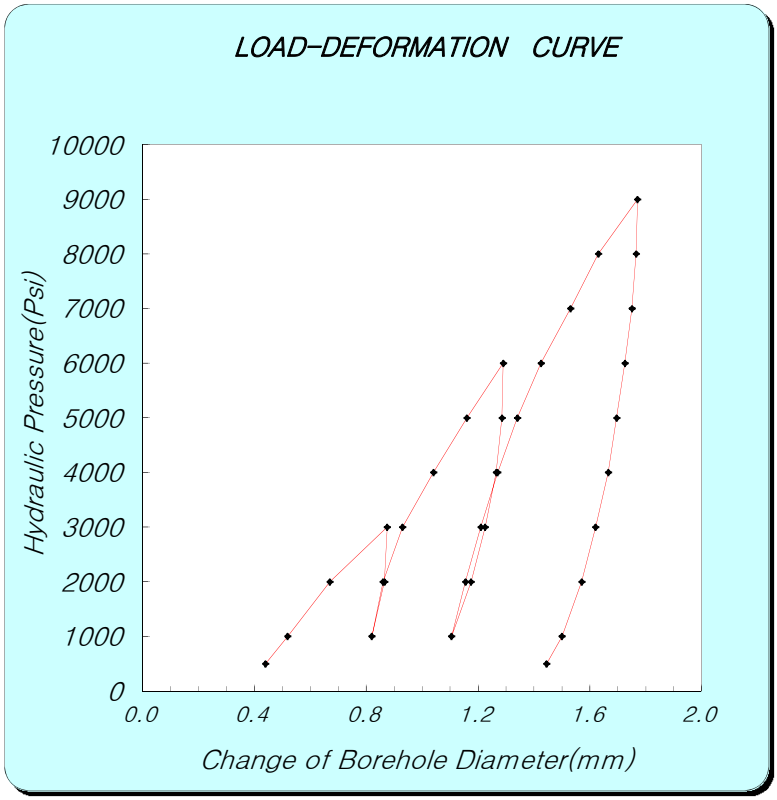
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-24	Rock Name :	GRANITE	Test Date :	2011. 4. 1
Depth :	40.0m	Rock Class :	MW-HW	Record By :	Y.G.Shin
G.W.L :	27.7m	TCR/RQD(%) :	95/67	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.66	-0.50	0.080
500	0.80	0.08	0.440
1000	0.93	0.11	0.519
2000	1.19	0.15	0.670
3000	1.38	0.37	0.875
2000	1.38	0.35	0.865
1000	1.36	0.28	0.820
2000	1.37	0.35	0.860
3000	1.40	0.46	0.930
4000	1.51	0.57	1.040
5000	1.64	0.68	1.160
6000	1.76	0.82	1.290
5000	1.76	0.81	1.285
4000	1.76	0.77	1.265
3000	1.74	0.71	1.225
2000	1.70	0.65	1.175
1000	1.60	0.61	1.105
2000	1.61	0.70	1.155
3000	1.63	0.79	1.210
4000	1.66	0.88	1.270
5000	1.71	0.97	1.340
6000	1.78	1.07	1.425
7000	1.88	1.18	1.530
8000	1.97	1.29	1.630
9000	2.14	1.40	1.770
8000	2.13	1.40	1.765
7000	2.13	1.37	1.750
6000	2.13	1.32	1.725
5000	2.12	1.27	1.695
4000	2.11	1.22	1.665
3000	2.07	1.17	1.620
2000	2.01	1.13	1.570
1000	1.92	1.08	1.500
500	1.86	1.03	1.445
0	1.79	0.75	1.270



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.875 D_2 (mm) 1.770

Dc (psi) = 5.88E+05 **Dt = 5.88E+05** psi

4.13E+04 kgf/㎠

ΔP : P_1 (Psi) 6000 P_2 (Psi) 8000

ΔD : D_1 (mm) 1.425 D_2 (mm) 1.630

Ec (psi) = 8.55E+05 **Et = 8.55E+05** psi

6.01E+04 kgf/㎠

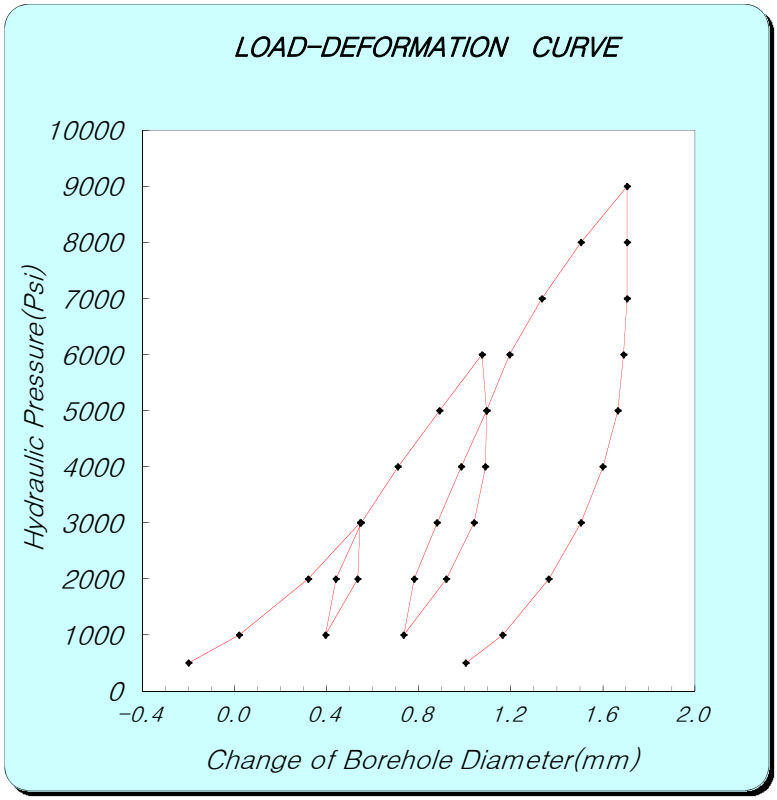
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-24	Rock Name :	GRANITE	Test Date :	2011. 4. 1
Depth :	47.0m	Rock Class :	MW-HW	Record By :	Y.G.Shin
G.W.L :	27.7m	TCR/RQD(%) :	90/47	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.28	-1.57	-1.425
500	-0.15	-0.25	-0.200
1000	0.05	-0.01	0.020
2000	0.29	0.35	0.320
3000	0.48	0.61	0.545
2000	0.47	0.60	0.535
1000	0.35	0.44	0.395
2000	0.39	0.49	0.440
3000	0.50	0.60	0.550
4000	0.63	0.79	0.710
5000	0.78	1.00	0.890
6000	0.90	1.25	1.075
5000	0.89	1.30	1.095
4000	0.87	1.31	1.090
3000	0.83	1.25	1.040
2000	0.72	1.12	0.920
1000	0.57	0.90	0.735
2000	0.60	0.96	0.780
3000	0.67	1.09	0.880
4000	0.76	1.21	0.985
5000	0.86	1.33	1.095
6000	0.95	1.44	1.195
7000	1.07	1.60	1.335
8000	1.21	1.80	1.505
9000	1.40	2.01	1.705
8000	1.40	2.01	1.705
7000	1.40	2.01	1.705
6000	1.39	1.99	1.690
5000	1.36	1.97	1.665
4000	1.29	1.91	1.600
3000	1.19	1.82	1.505
2000	1.05	1.68	1.365
1000	0.87	1.46	1.165
500	0.74	1.27	1.005
0	0.61	1.08	0.845



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.545 D_2 (mm) 1.705

Dc (psi) = 4.53E+05 **Dt = 4.53E+05** psi

3.19E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.780 D_2 (mm) 1.195

Ec (psi) = 8.45E+05 **Et = 8.45E+05** psi

5.94E+04 kgf/㎠

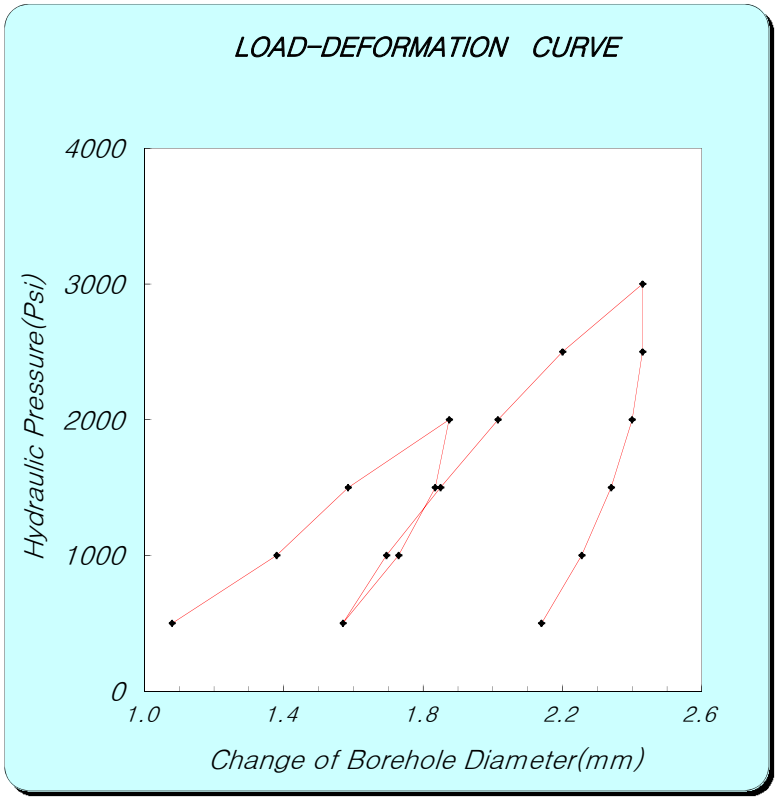
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-24	Rock Name :	MAFIC DYKE	Test Date :	2011. 4. 1
Depth :	58.0m	Rock Class :	MW-HW	Record By :	Y.G.Shin
G.W.L :	27.7m	TCR/RQD(%) :	85/19	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.19	-0.37	-0.280
500	1.02	1.14	1.080
1000	1.32	1.44	1.380
1500	1.43	1.74	1.585
2000	1.54	2.21	1.875
1500	1.52	2.15	1.835
1000	1.45	2.01	1.730
500	1.35	1.79	1.570
1000	1.42	1.97	1.695
1500	1.52	2.18	1.850
2000	1.64	2.39	2.015
2500	1.75	2.65	2.200
3000	1.86	3.00	2.430
2500	1.84	2.96	2.430
2000	1.79	2.89	2.400
1500	1.72	2.79	2.340
1000	1.62	2.66	2.255
500	1.49	2.49	2.140
0	1.35	2.36	1.990



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 3000

ΔD : D_1 (mm) 1.875 D_2 (mm) 2.430

Dc (psi) = 1.58E+05 **Dt = 1.58E+05** psi

1.11E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 2000

ΔD : D_1 (mm) 1.695 D_2 (mm) 2.015

Ec (psi) = 2.74E+05 **Et = 2.74E+05** psi

1.93E+04 kgf/㎠

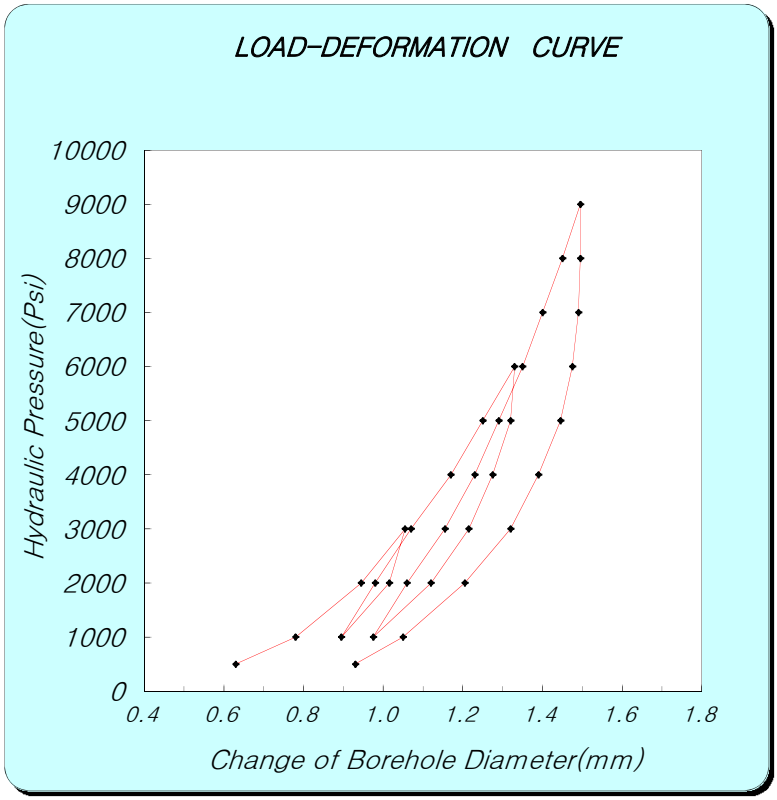
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-24	Rock Name :	GRANITE	Test Date :	2011. 4. 1
Depth :	64.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	27.7m	TCR/RQD(%) :	100/98	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.87	-2.34	-1.605
500	0.45	0.81	0.630
1000	0.56	1.00	0.780
2000	0.70	1.19	0.945
3000	0.80	1.31	1.055
2000	0.75	1.28	1.015
1000	0.67	1.12	0.895
2000	0.73	1.23	0.980
3000	0.82	1.32	1.070
4000	0.91	1.43	1.170
5000	0.98	1.52	1.250
6000	1.07	1.59	1.330
5000	1.06	1.58	1.320
4000	1.02	1.53	1.275
3000	0.95	1.48	1.215
2000	0.87	1.37	1.120
1000	0.73	1.22	0.975
2000	0.77	1.35	1.060
3000	0.85	1.46	1.155
4000	0.91	1.55	1.230
5000	0.97	1.61	1.290
6000	1.03	1.67	1.350
7000	1.08	1.72	1.400
8000	1.13	1.77	1.450
9000	1.17	1.82	1.495
8000	1.17	1.82	1.495
7000	1.16	1.82	1.490
6000	1.14	1.81	1.475
5000	1.11	1.78	1.445
4000	1.07	1.71	1.390
3000	1.01	1.63	1.320
2000	0.92	1.49	1.205
1000	0.80	1.30	1.050
500	0.72	1.14	0.930
0	0.57	1.05	0.810
			0.000



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 1.055 D_2 (mm) 1.495

Dc (psi) = 1.20E+06 **Dt = 1.36E+06** psi

9.57E+04 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 7000

ΔD : D_1 (mm) 1.290 D_2 (mm) 1.400

Ec (psi) = 1.59E+06 **Et = 2.19E+06** psi

1.54E+05 kgf/㎠

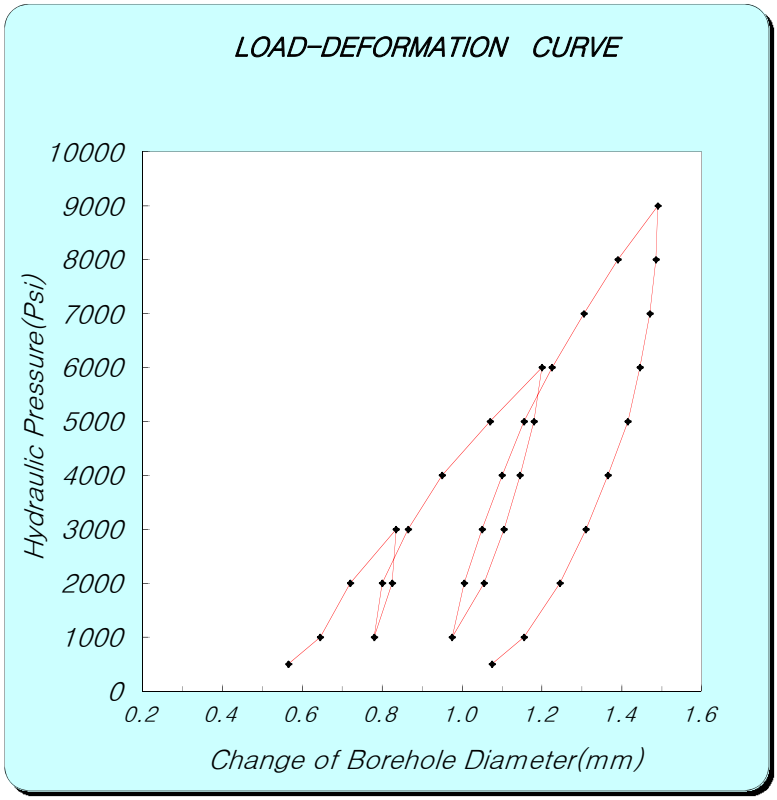
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-24	Rock Name :	GRANITE	Test Date :	2011. 4. 1
Depth :	72.0m	Rock Class :	SW-MW	Record By :	Y.G.Shin
G.W.L :	27.7m	TCR/RQD(%) :	100/72	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.66	-0.60	0.030
500	1.01	0.12	0.565
1000	1.11	0.18	0.645
2000	1.19	0.25	0.720
3000	1.38	0.29	0.835
2000	1.38	0.27	0.825
1000	1.36	0.20	0.780
2000	1.37	0.23	0.800
3000	1.40	0.33	0.865
4000	1.51	0.39	0.950
5000	1.64	0.50	1.070
6000	1.76	0.64	1.200
5000	1.76	0.60	1.180
4000	1.76	0.53	1.145
3000	1.74	0.47	1.105
2000	1.70	0.41	1.055
1000	1.60	0.35	0.975
2000	1.61	0.40	1.005
3000	1.63	0.47	1.050
4000	1.66	0.54	1.100
5000	1.71	0.60	1.155
6000	1.78	0.67	1.225
7000	1.87	0.74	1.305
8000	1.97	0.81	1.390
9000	2.08	0.90	1.490
8000	2.08	0.89	1.485
7000	2.08	0.86	1.470
6000	2.08	0.81	1.445
5000	2.05	0.78	1.415
4000	2.00	0.73	1.365
3000	1.96	0.66	1.310
2000	1.89	0.60	1.245
1000	1.77	0.54	1.155
500	1.67	0.48	1.075
0	1.46	0.54	1.000



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000	
ΔD :	D_1 (mm)	0.835	D_2 (mm)	1.490	
	Dc (psi) =	**8.03E+05**	**Dt =**	**8.03E+05**	psi
				5.64E+04	kgf/㎠

ΔP :	P_1 (Psi)	6000	P_2 (Psi)	8000	
ΔD :	D_1 (mm)	1.225	D_2 (mm)	1.390	
	Ec (psi) =	**1.06E+06**	**Et =**	**1.17E+06**	psi
				8.23E+04	kgf/㎠

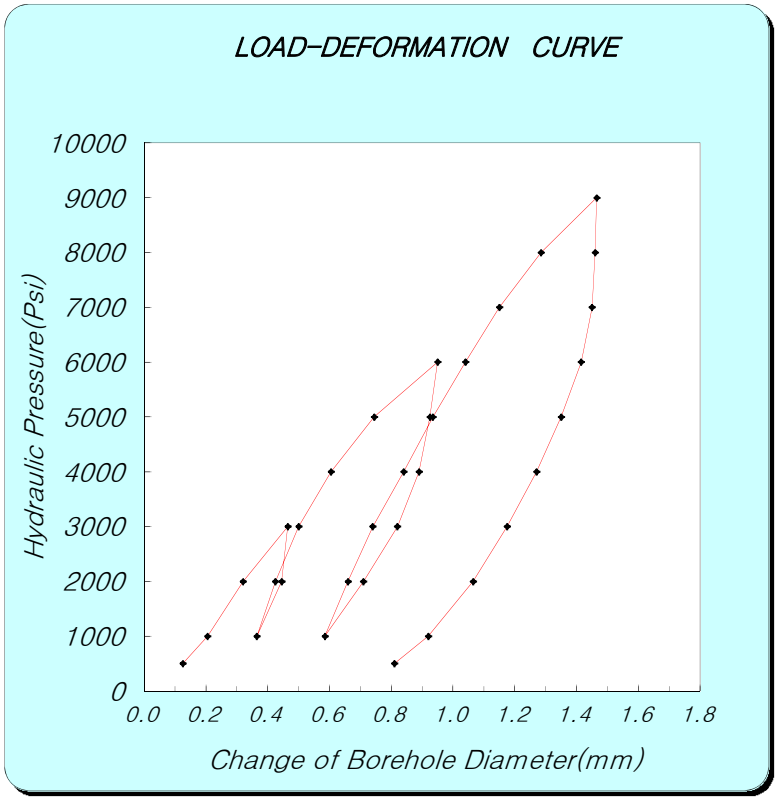
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-24	Rock Name :	GRANITE	Test Date :	2011. 4. 1
Depth :	80.0m	Rock Class :	MW	Record By :	Y.G.Shin
G.W.L :	27.7m	TCR/RQD(%) :	100/38	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.41	-0.82	-1.240
500	0.20	0.05	0.125
1000	0.32	0.09	0.205
2000	0.45	0.19	0.320
3000	0.55	0.38	0.465
2000	0.52	0.37	0.445
1000	0.44	0.29	0.365
2000	0.49	0.36	0.425
3000	0.56	0.44	0.500
4000	0.67	0.54	0.605
5000	0.79	0.70	0.745
6000	0.97	0.93	0.950
5000	0.96	0.89	0.925
4000	0.93	0.85	0.890
3000	0.87	0.77	0.820
2000	0.78	0.64	0.710
1000	0.66	0.51	0.585
2000	0.69	0.63	0.660
3000	0.79	0.69	0.740
4000	0.89	0.79	0.840
5000	0.99	0.88	0.935
6000	1.10	0.98	1.040
7000	1.21	1.09	1.150
8000	1.33	1.24	1.285
9000	1.45	1.48	1.465
8000	1.44	1.48	1.460
7000	1.43	1.47	1.450
6000	1.38	1.45	1.415
5000	1.30	1.40	1.350
4000	1.22	1.32	1.270
3000	1.15	1.20	1.175
2000	1.07	1.06	1.065
1000	0.97	0.87	0.920
500	0.90	0.72	0.810
0	0.82	-0.63	0.095
			0.000



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.465 D_2 (mm) 1.465

Dc (psi) = 5.26E+05 **Dt = 5.26E+05** psi

3.70E+04 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.935 D_2 (mm) 1.150

Ec (psi) = 8.15E+05 **Et = 8.15E+05** psi

5.73E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

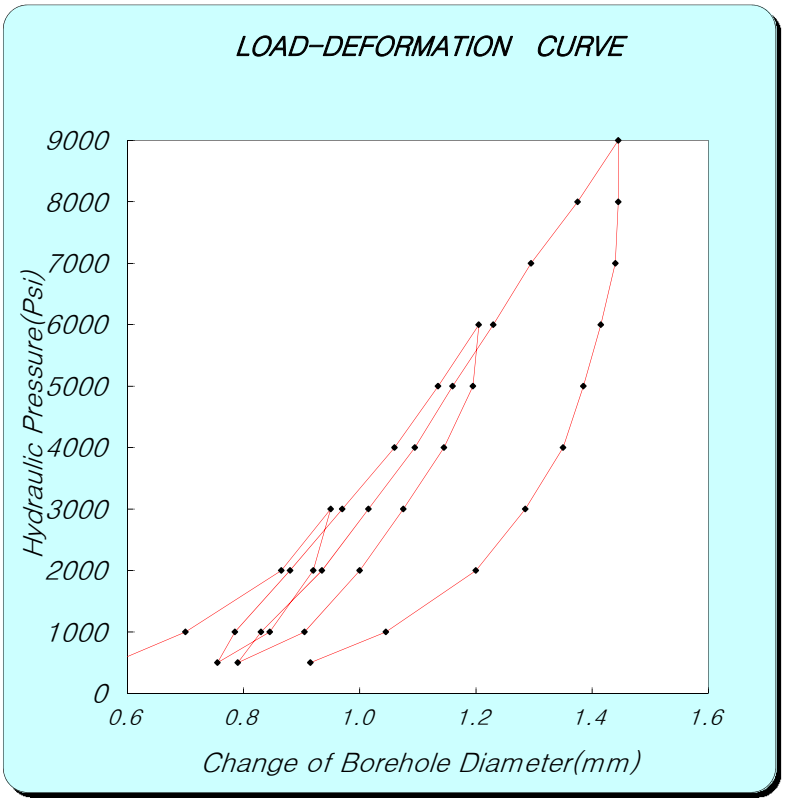
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-25	Rock Name :	GRANITE	Test Date :	2016. 1. 8
Depth :	5.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.0m	TCR/RQD(%) :	100/93	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.58	0.57	0.575
1000	0.66	0.74	0.700
2000	0.79	0.94	0.865
3000	0.87	1.03	0.950
2000	0.83	1.01	0.920
1000	0.76	0.93	0.845
500	0.70	0.81	0.755
1000	0.73	0.84	0.785
2000	0.81	0.95	0.880
3000	0.89	1.05	0.970
4000	0.97	1.15	1.060
5000	1.04	1.23	1.135
6000	1.10	1.31	1.205
5000	1.09	1.30	1.195
4000	1.04	1.25	1.145
3000	0.97	1.18	1.075
2000	0.90	1.10	1.000
1000	0.82	0.99	0.905
500	0.74	0.84	0.790
1000	0.79	0.87	0.830
2000	0.87	1.00	0.935
3000	0.94	1.09	1.015
4000	1.01	1.18	1.095
5000	1.07	1.25	1.160
6000	1.12	1.34	1.230
7000	1.17	1.42	1.295
8000	1.23	1.52	1.375
9000	1.29	1.60	1.445
8000	1.29	1.60	1.445
7000	1.29	1.59	1.440
6000	1.27	1.56	1.415
5000	1.25	1.52	1.385
4000	1.22	1.48	1.350
3000	1.15	1.42	1.285
2000	1.10	1.30	1.200
1000	0.91	1.18	1.045
500	0.81	1.02	0.915



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	0.950	D_2 (mm)	1.445		
	Dc (psi) =	**1.06E+06**	**Dt =**	**1.17E+06**	psi	
				8.23E+04	kgf/㎠	

ΔP :	P_1 (Psi)	1000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	0.830	D_2 (mm)	1.375		
	Ec (psi) =	**1.13E+06**	**Et =**	**1.26E+06**	psi	
				8.83E+04	kgf/㎠	

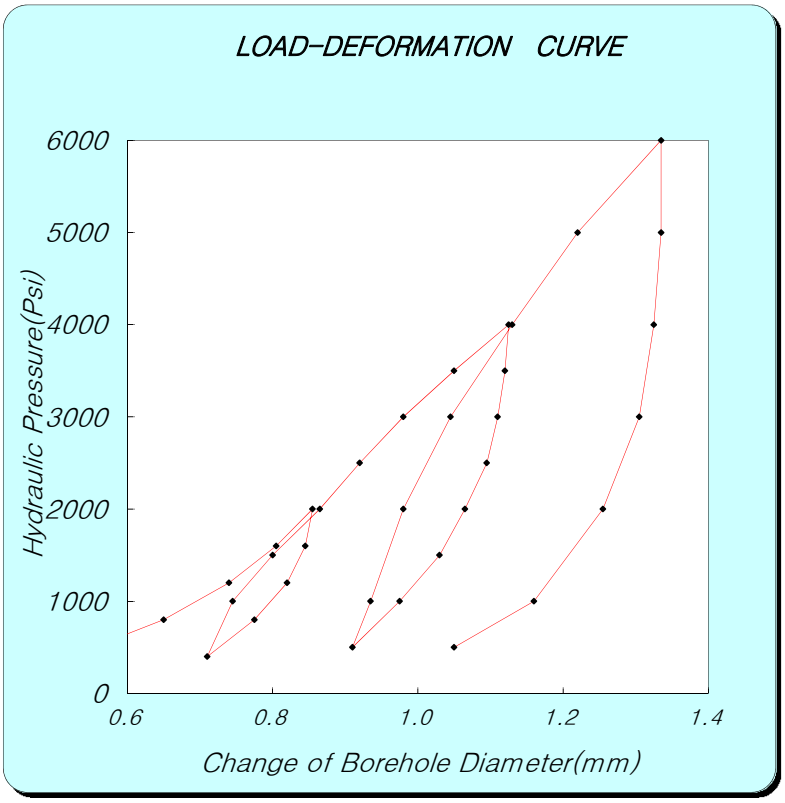
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-25	Rock Name :	GRANITE	Test Date :	2016. 1. 8
Depth :	13.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.0m	TCR/RQD(%) :	100/70	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.60	0.44	0.520
800	0.72	0.58	0.650
1200	0.83	0.65	0.740
1600	0.90	0.71	0.805
2000	0.96	0.75	0.855
1600	0.95	0.74	0.845
1200	0.92	0.72	0.820
800	0.88	0.67	0.775
400	0.82	0.60	0.710
1000	0.86	0.63	0.745
1500	0.92	0.68	0.800
2000	0.98	0.75	0.865
2500	1.03	0.81	0.920
3000	1.09	0.87	0.980
3500	1.15	0.95	1.050
4000	1.20	1.05	1.125
3500	1.20	1.04	1.120
3000	1.19	1.03	1.110
2500	1.17	1.02	1.095
2000	1.14	0.99	1.065
1500	1.11	0.95	1.030
1000	1.06	0.89	0.975
500	1.00	0.82	0.910
1000	1.02	0.85	0.935
2000	1.07	0.89	0.980
3000	1.11	0.98	1.045
4000	1.18	1.08	1.130
5000	1.26	1.18	1.220
6000	1.38	1.29	1.335
5000	1.38	1.29	1.335
4000	1.37	1.28	1.325
3000	1.35	1.26	1.305
2000	1.29	1.22	1.255
1000	1.20	1.12	1.160
500	1.08	1.02	1.050



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.855 D_2 (mm) 1.335

Dc (psi) = 7.30E+05 **Dt = 7.30E+05** psi

5.13E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.935 D_2 (mm) 1.220

Ec (psi) = 1.23E+06 **Et = 1.42E+06** psi

9.98E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

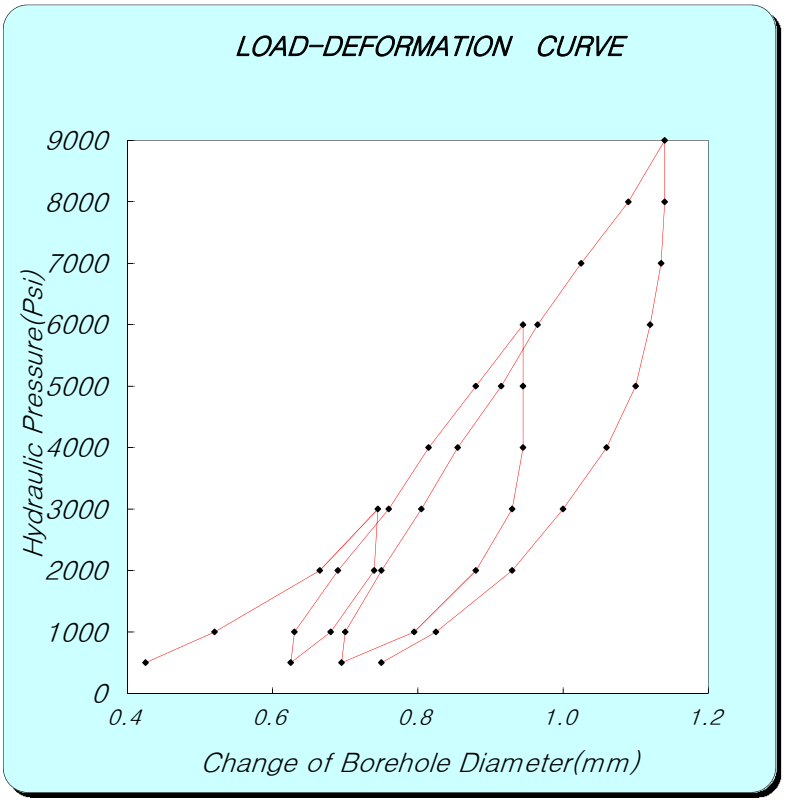
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-25	Rock Name :	GRANITE	Test Date :	2016. 1. 8
Depth :	21.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.0m	TCR/RQD(%) :	100/91	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.66	0.19	0.425
1000	0.73	0.31	0.520
2000	0.85	0.48	0.665
3000	0.92	0.57	0.745
2000	0.91	0.57	0.740
1000	0.82	0.54	0.680
500	0.76	0.49	0.625
1000	0.77	0.49	0.630
2000	0.85	0.53	0.690
3000	0.93	0.59	0.760
4000	0.97	0.66	0.815
5000	1.02	0.74	0.880
6000	1.07	0.82	0.945
5000	1.07	0.82	0.945
4000	1.07	0.82	0.945
3000	1.05	0.81	0.930
2000	0.98	0.78	0.880
1000	0.89	0.70	0.795
500	0.81	0.58	0.695
1000	0.81	0.59	0.700
2000	0.88	0.62	0.750
3000	0.95	0.66	0.805
4000	1.00	0.71	0.855
5000	1.06	0.77	0.915
6000	1.10	0.83	0.965
7000	1.16	0.89	1.025
8000	1.22	0.96	1.090
9000	1.26	1.02	1.140
8000	1.26	1.02	1.140
7000	1.25	1.02	1.135
6000	1.24	1.00	1.120
5000	1.22	0.98	1.100
4000	1.18	0.94	1.060
3000	1.09	0.91	1.000
2000	1.00	0.86	0.930
1000	0.92	0.73	0.825
500	0.85	0.65	0.750



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.745 D_2 (mm) 1.140

Dc (psi) = 1.33E+06 **Dt = 1.60E+06** psi

1.13E+05 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.700 D_2 (mm) 1.090

Ec (psi) = 1.57E+06 **Et = 2.14E+06** psi

1.50E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

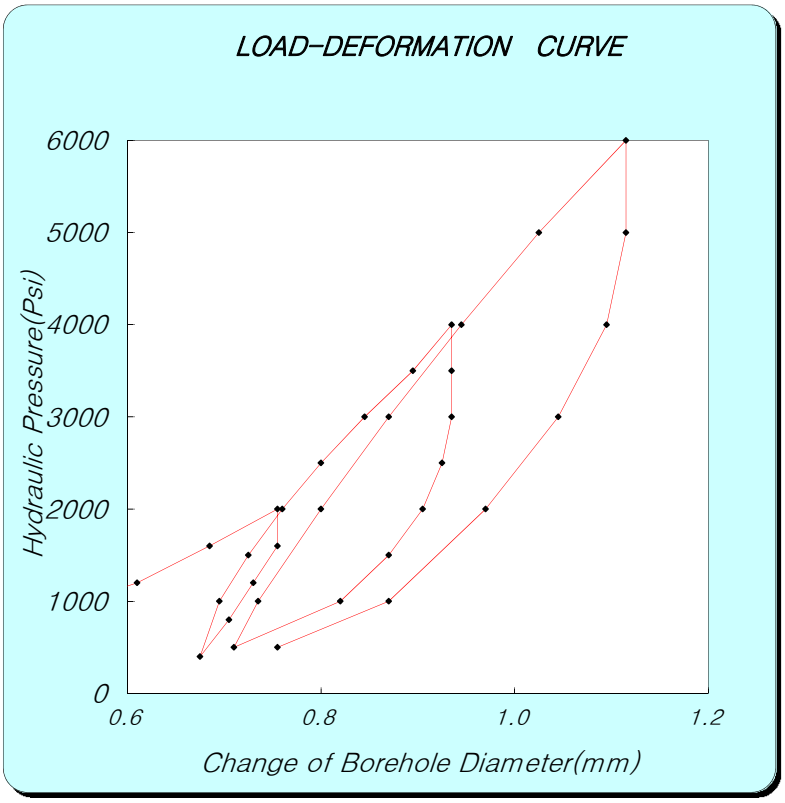
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-25	Rock Name :	GRANITE	Test Date :	2016. 1. 8
Depth :	29.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.0m	TCR/RQD(%) :	100/90	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.68	0.08	0.380
800	0.77	0.22	0.495
1200	0.84	0.38	0.610
1600	0.89	0.48	0.685
2000	0.94	0.57	0.755
1600	0.94	0.57	0.755
1200	0.92	0.54	0.730
800	0.89	0.52	0.705
400	0.86	0.49	0.675
1000	0.88	0.51	0.695
1500	0.91	0.54	0.725
2000	0.94	0.58	0.760
2500	0.97	0.63	0.800
3000	1.01	0.68	0.845
3500	1.04	0.75	0.895
4000	1.07	0.80	0.935
3500	1.07	0.80	0.935
3000	1.07	0.80	0.935
2500	1.06	0.79	0.925
2000	1.05	0.76	0.905
1500	1.01	0.73	0.870
1000	0.97	0.67	0.820
500	0.89	0.53	0.710
1000	0.91	0.56	0.735
2000	0.98	0.62	0.800
3000	1.03	0.71	0.870
4000	1.07	0.82	0.945
5000	1.14	0.91	1.025
6000	1.23	1.00	1.115
5000	1.23	1.00	1.115
4000	1.22	0.97	1.095
3000	1.17	0.92	1.045
2000	1.09	0.85	0.970
1000	1.01	0.73	0.870
500	0.93	0.58	0.755



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.755 D_2 (mm) 1.115

Dc (psi) = 9.74E+05 **Dt = 1.07E+06** psi

7.55E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.735 D_2 (mm) 1.025

Ec (psi) = 1.21E+06 **Et = 1.38E+06** psi

9.73E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

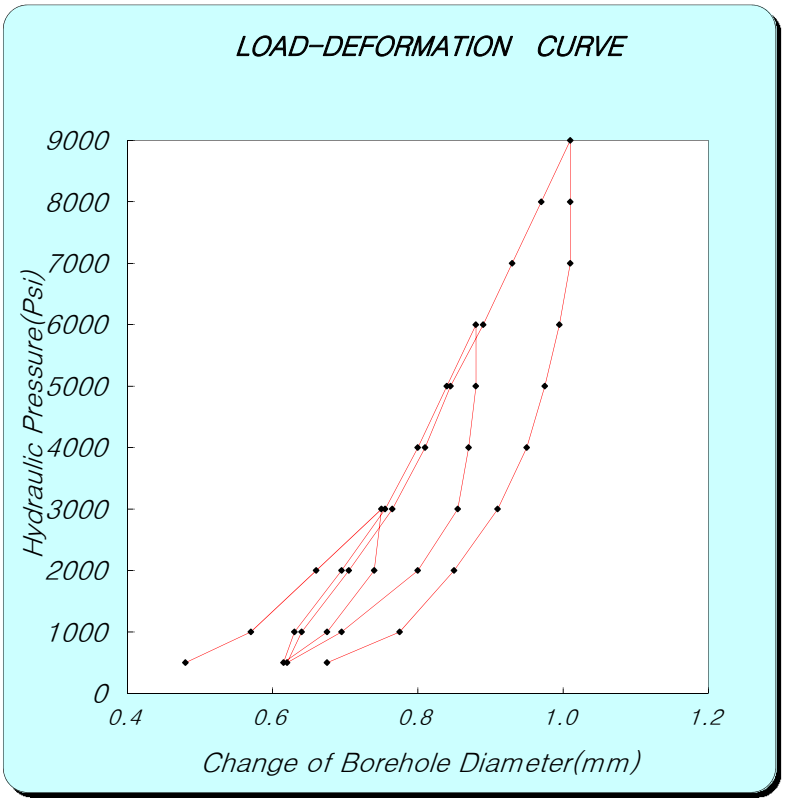
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-25	Rock Name :	GRANITE	Test Date :	2016. 1. 8
Depth :	37.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.0m	TCR/RQD(%) :	100/98	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.64	0.32	0.480
1000	0.72	0.42	0.570
2000	0.80	0.52	0.660
3000	0.88	0.62	0.750
2000	0.86	0.62	0.740
1000	0.76	0.59	0.675
500	0.70	0.53	0.615
1000	0.73	0.53	0.630
2000	0.82	0.57	0.695
3000	0.87	0.64	0.755
4000	0.91	0.69	0.800
5000	0.94	0.74	0.840
6000	0.97	0.79	0.880
5000	0.97	0.79	0.880
4000	0.96	0.78	0.870
3000	0.95	0.76	0.855
2000	0.87	0.73	0.800
1000	0.77	0.62	0.695
500	0.70	0.54	0.620
1000	0.74	0.54	0.640
2000	0.83	0.58	0.705
3000	0.88	0.65	0.765
4000	0.91	0.71	0.810
5000	0.94	0.75	0.845
6000	0.98	0.80	0.890
7000	1.02	0.84	0.930
8000	1.06	0.88	0.970
9000	1.09	0.93	1.010
8000	1.09	0.93	1.010
7000	1.09	0.93	1.010
6000	1.07	0.92	0.995
5000	1.05	0.90	0.975
4000	1.03	0.87	0.950
3000	0.99	0.83	0.910
2000	0.92	0.78	0.850
1000	0.85	0.70	0.775
500	0.75	0.60	0.675



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.750 D_2 (mm) 1.010

Dc (psi) = 2.02E+06 **Dt = 3.40E+06** psi

2.39E+05 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.640 D_2 (mm) 0.970

Ec (psi) = 1.86E+06 **Et = 2.90E+06** psi

2.04E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

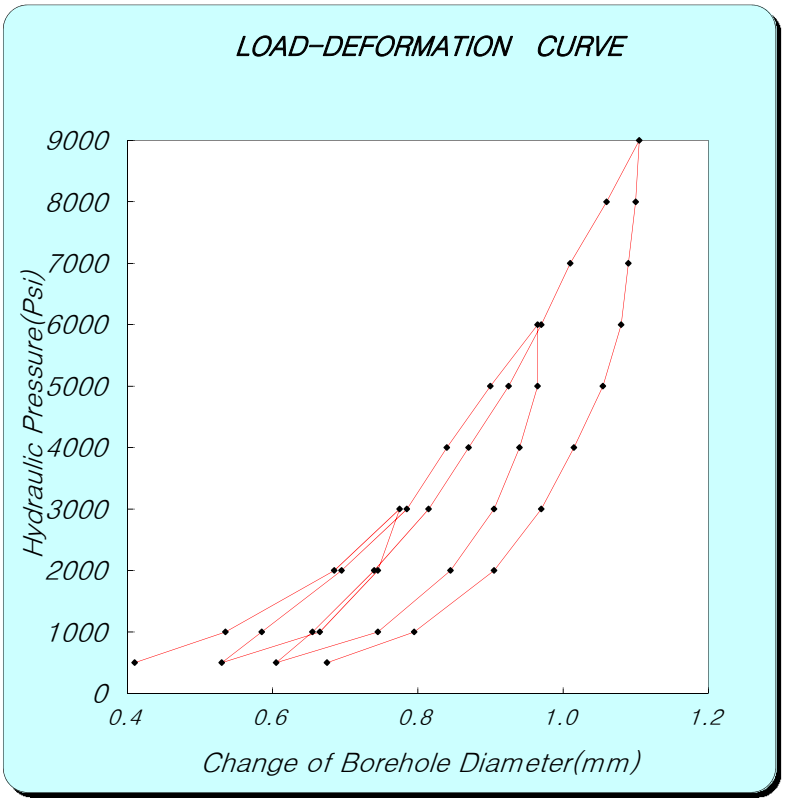
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-25	Rock Name :	GRANITE	Test Date :	2016. 1. 8
Depth :	45.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.0m	TCR/RQD(%) :	100/99	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.52	0.30	0.410
1000	0.63	0.44	0.535
2000	0.77	0.60	0.685
3000	0.85	0.70	0.775
2000	0.79	0.70	0.745
1000	0.69	0.64	0.665
500	0.58	0.48	0.530
1000	0.66	0.51	0.585
2000	0.77	0.62	0.695
3000	0.85	0.72	0.785
4000	0.91	0.77	0.840
5000	0.96	0.84	0.900
6000	1.01	0.92	0.965
5000	1.01	0.92	0.965
4000	0.97	0.91	0.940
3000	0.92	0.89	0.905
2000	0.84	0.85	0.845
1000	0.75	0.74	0.745
500	0.64	0.57	0.605
1000	0.71	0.60	0.655
2000	0.81	0.67	0.740
3000	0.88	0.75	0.815
4000	0.93	0.81	0.870
5000	0.98	0.87	0.925
6000	1.01	0.93	0.970
7000	1.04	0.98	1.010
8000	1.08	1.04	1.060
9000	1.12	1.09	1.105
8000	1.12	1.08	1.100
7000	1.11	1.07	1.090
6000	1.10	1.06	1.080
5000	1.08	1.03	1.055
4000	1.04	0.99	1.015
3000	0.98	0.96	0.970
2000	0.91	0.90	0.905
1000	0.83	0.76	0.795
500	0.73	0.62	0.675



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.775 D_2 (mm) 1.105

Dc (psi) = 1.59E+06 **Dt = 2.19E+06** psi

1.54E+05 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.655 D_2 (mm) 1.060

Ec (psi) = 1.51E+06 **Et = 2.00E+06** psi

1.40E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

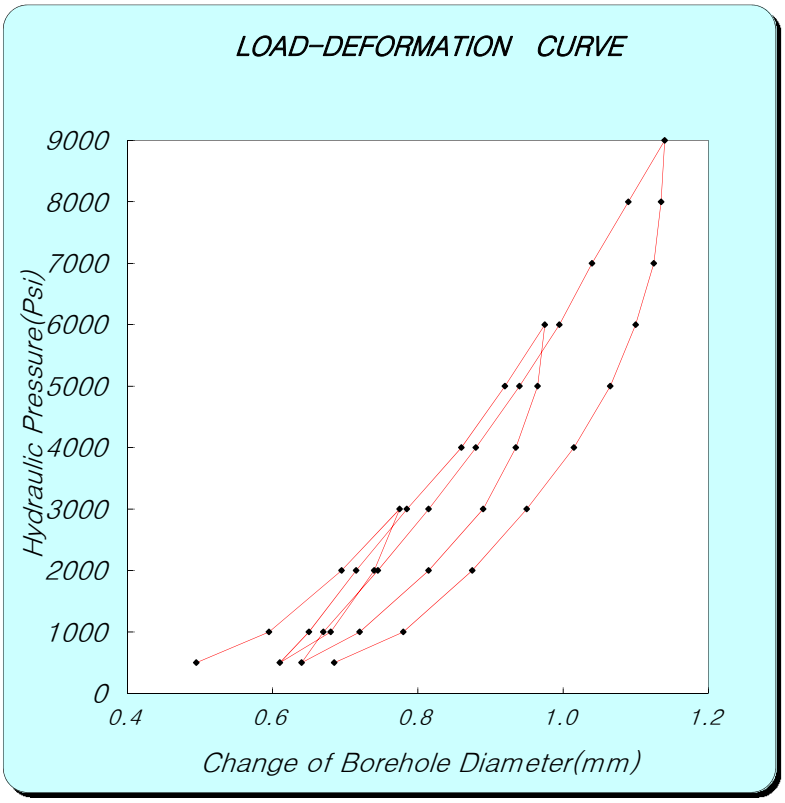
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-25	Rock Name :	GRANITE	Test Date :	2016. 1. 8
Depth :	53.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	0.0m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.62	0.37	0.495
1000	0.72	0.47	0.595
2000	0.82	0.57	0.695
3000	0.90	0.65	0.775
2000	0.85	0.63	0.740
1000	0.77	0.59	0.680
500	0.70	0.52	0.610
1000	0.76	0.54	0.650
2000	0.84	0.59	0.715
3000	0.91	0.66	0.785
4000	0.98	0.74	0.860
5000	1.04	0.80	0.920
6000	1.09	0.86	0.975
5000	1.07	0.86	0.965
4000	1.04	0.83	0.935
3000	0.97	0.81	0.890
2000	0.89	0.74	0.815
1000	0.80	0.64	0.720
500	0.72	0.56	0.640
1000	0.77	0.57	0.670
2000	0.87	0.62	0.745
3000	0.95	0.68	0.815
4000	1.00	0.76	0.880
5000	1.06	0.82	0.940
6000	1.11	0.88	0.995
7000	1.14	0.94	1.040
8000	1.18	1.00	1.090
9000	1.23	1.05	1.140
8000	1.23	1.04	1.135
7000	1.22	1.03	1.125
6000	1.20	1.00	1.100
5000	1.17	0.96	1.065
4000	1.11	0.92	1.015
3000	1.04	0.86	0.950
2000	0.96	0.79	0.875
1000	0.86	0.70	0.780
500	0.74	0.63	0.685



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1.519	1.474	1.438	1.397	1.366	1.289	1.151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.775 D_2 (mm) 1.140

Dc (psi) = 1.44E+06 **Dt = 1.83E+06** psi

1.29E+05 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.670 D_2 (mm) 1.090

Ec (psi) = 1.46E+06 **Et = 1.87E+06** psi

1.32E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

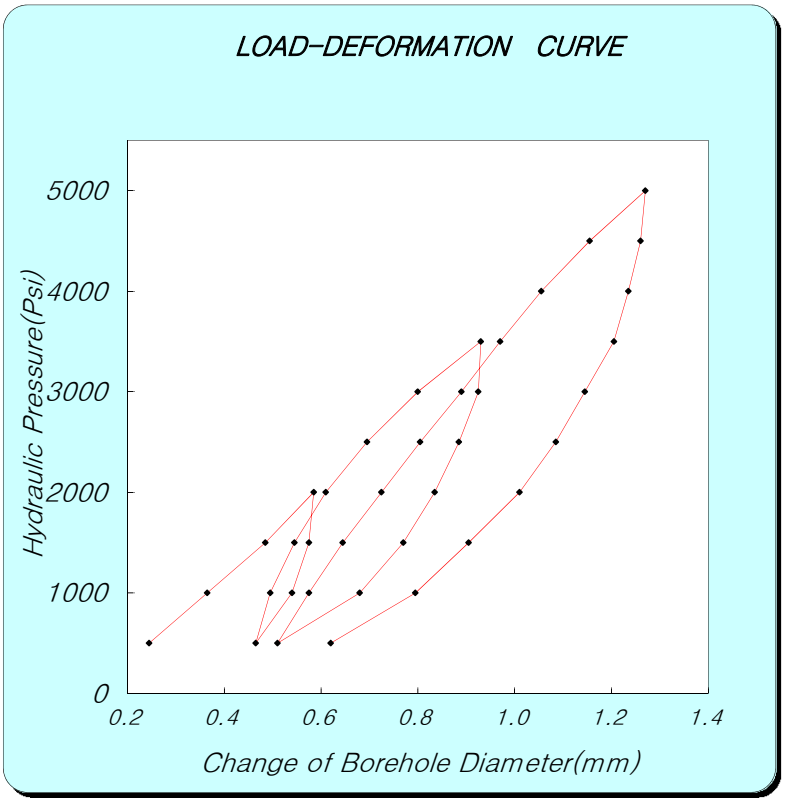
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-27	Rock Name :	GRANITE	Test Date :	2011. 03. 16
Depth :	27.0m	Rock Weathering :	HW	Record By :	S.H.Lee
G.W.L(-) :	1.2m	TCR/RQD(%) :	100/74	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.33	0.16	0.245
1000	0.44	0.29	0.365
1500	0.56	0.41	0.485
2000	0.67	0.50	0.585
1500	0.66	0.49	0.575
1000	0.65	0.43	0.540
500	0.47	0.46	0.465
1000	0.53	0.46	0.495
1500	0.61	0.48	0.545
2000	0.68	0.54	0.610
2500	0.78	0.61	0.695
3000	0.89	0.71	0.800
3500	1.03	0.83	0.930
3000	1.03	0.82	0.925
2500	0.97	0.80	0.885
2000	0.91	0.76	0.835
1500	0.84	0.70	0.770
1000	0.76	0.60	0.680
500	0.61	0.41	0.510
1000	0.67	0.48	0.575
1500	0.74	0.55	0.645
2000	0.82	0.63	0.725
2500	0.90	0.71	0.805
3000	0.95	0.83	0.890
3500	1.04	0.90	0.970
4000	1.14	0.97	1.055
4500	1.27	1.04	1.155
5000	1.38	1.16	1.270
4500	1.38	1.14	1.260
4000	1.35	1.12	1.235
3500	1.31	1.10	1.205
3000	1.24	1.05	1.145
2500	1.18	0.99	1.085
2000	1.11	0.91	1.010
1500	1.01	0.80	0.905
1000	0.90	0.69	0.795
500	0.75	0.49	0.620



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.585 D_2 (mm) 1.270

Dc (psi) = 3.84E+05 **Dt = 3.84E+05** psi

2.70E+04 kgf/㎠

ΔP : P_1 (Psi) 1500 P_2 (Psi) 4000

ΔD : D_1 (mm) 0.645 D_2 (mm) 1.055

Ec (psi) = 5.34E+05 **Et = 5.34E+05** psi

3.76E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

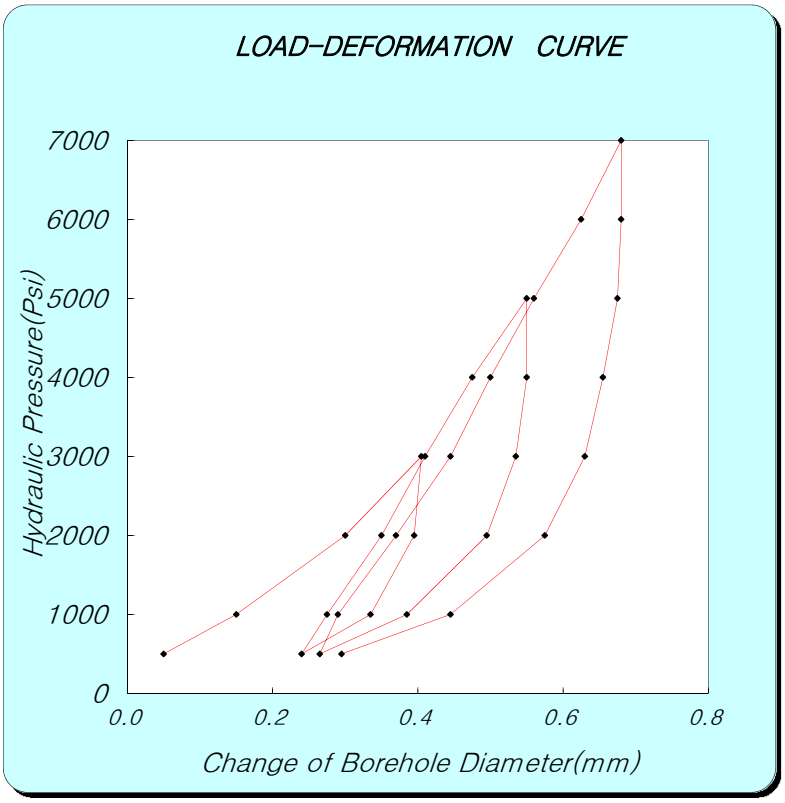
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-27	Rock Name :	GRANITE	Test Date :	2011. 03. 16
Depth :	35.0m	Rock Weathering :	MW	Record By :	S.H.Lee
G.W.L(-) :	1.2m	TCR/RQD(%) :	100/93	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.04	0.06	0.050
1000	0.15	0.15	0.150
2000	0.32	0.28	0.300
3000	0.44	0.37	0.405
2000	0.43	0.36	0.395
1000	0.35	0.32	0.335
500	0.22	0.26	0.240
1000	0.27	0.28	0.275
2000	0.37	0.33	0.350
3000	0.44	0.38	0.410
4000	0.51	0.44	0.475
5000	0.59	0.51	0.550
4000	0.59	0.51	0.550
3000	0.58	0.49	0.535
2000	0.54	0.45	0.495
1000	0.37	0.40	0.385
500	0.26	0.27	0.265
1000	0.29	0.29	0.290
2000	0.40	0.34	0.370
3000	0.48	0.41	0.445
4000	0.54	0.46	0.500
5000	0.60	0.52	0.560
6000	0.67	0.58	0.625
7000	0.73	0.63	0.680
6000	0.73	0.63	0.680
5000	0.73	0.62	0.675
4000	0.71	0.60	0.655
3000	0.68	0.58	0.630
2000	0.61	0.54	0.575
1000	0.43	0.46	0.445
500	0.28	0.31	0.295



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.405 D_2 (mm) 0.680

Dc (psi) = 1.27E+06 **Dt = 1.50E+06** psi

1.05E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.370 D_2 (mm) 0.560

Ec (psi) = 1.38E+06 **Et = 1.71E+06** psi

1.20E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

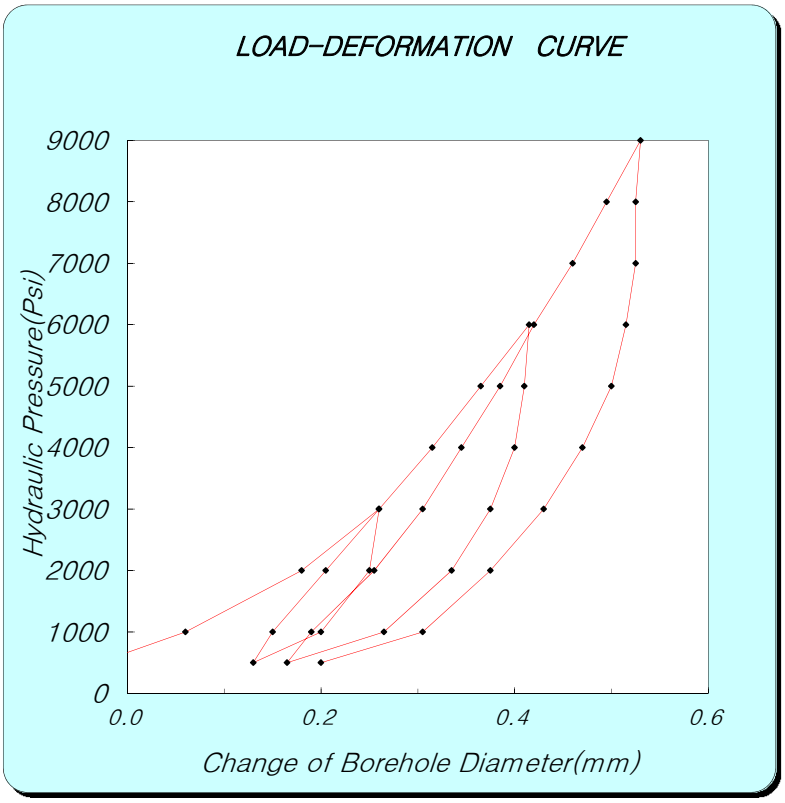
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-27	Rock Name :	GRANITE	Test Date :	2011. 03. 16
Depth :	43.0m	Rock Weathering :	SW	Record By :	S.H.Lee
G.W.L(-) :	1.2m	TCR/RQD(%) :	100/93	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.09	-0.15	-0.030
1000	0.18	-0.06	0.060
2000	0.30	0.06	0.180
3000	0.36	0.16	0.260
2000	0.35	0.15	0.250
1000	0.27	0.13	0.200
500	0.18	0.08	0.130
1000	0.21	0.09	0.150
2000	0.28	0.13	0.205
3000	0.36	0.16	0.260
4000	0.41	0.22	0.315
5000	0.46	0.27	0.365
6000	0.49	0.34	0.415
5000	0.49	0.33	0.410
4000	0.47	0.33	0.400
3000	0.43	0.32	0.375
2000	0.38	0.29	0.335
1000	0.29	0.24	0.265
500	0.18	0.15	0.165
1000	0.22	0.16	0.190
2000	0.31	0.20	0.255
3000	0.38	0.23	0.305
4000	0.43	0.26	0.345
5000	0.48	0.29	0.385
6000	0.51	0.33	0.420
7000	0.54	0.38	0.460
8000	0.58	0.41	0.495
9000	0.60	0.46	0.530
8000	0.60	0.45	0.525
7000	0.60	0.45	0.525
6000	0.59	0.44	0.515
5000	0.56	0.44	0.500
4000	0.52	0.42	0.470
3000	0.46	0.40	0.430
2000	0.39	0.36	0.375
1000	0.30	0.31	0.305
500	0.20	0.20	0.200



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.260 D_2 (mm) 0.530

Dc (psi) = 1.95E+06 **Dt = 3.17E+06** psi

2.23E+05 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.305 D_2 (mm) 0.460

Ec (psi) = 2.26E+06 **Et = 4.22E+06** psi

2.97E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

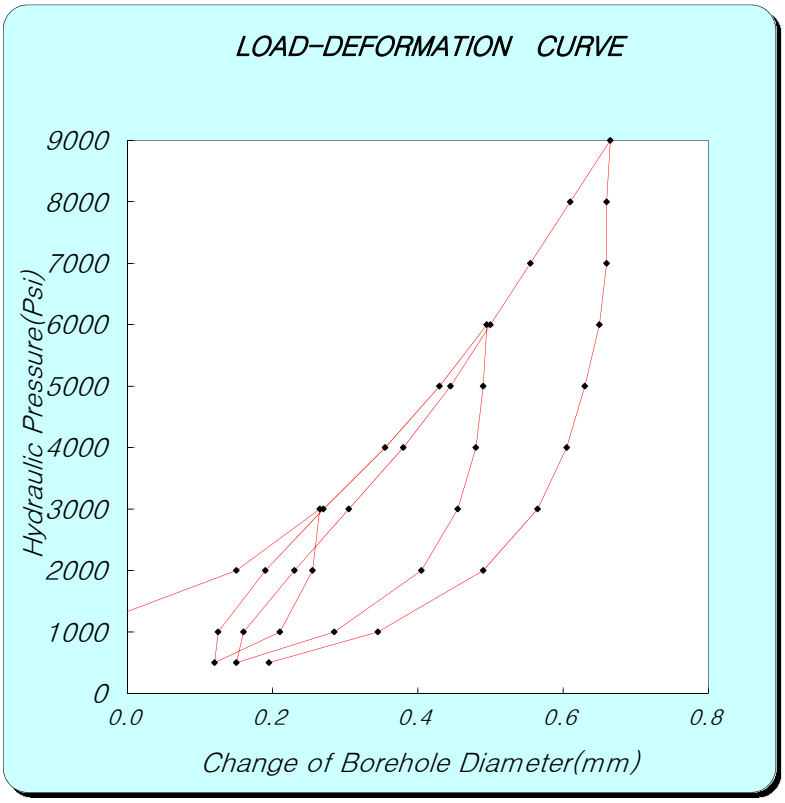
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-27	Rock Name :	GRANITE	Test Date :	2011. 03. 16
Depth :	51.0m	Rock Weathering :	SW	Record By :	S.H.Lee
G.W.L(-) :	1.2m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.16	-0.26	-0.210
1000	-0.01	-0.14	-0.075
2000	0.20	0.10	0.150
3000	0.30	0.23	0.265
2000	0.29	0.22	0.255
1000	0.24	0.18	0.210
500	0.16	0.08	0.120
1000	0.16	0.09	0.125
2000	0.23	0.15	0.190
3000	0.30	0.24	0.270
4000	0.37	0.34	0.355
5000	0.44	0.42	0.430
6000	0.49	0.50	0.495
5000	0.48	0.50	0.490
4000	0.47	0.49	0.480
3000	0.44	0.47	0.455
2000	0.38	0.43	0.405
1000	0.27	0.30	0.285
500	0.18	0.12	0.150
1000	0.18	0.14	0.160
2000	0.25	0.21	0.230
3000	0.33	0.28	0.305
4000	0.39	0.37	0.380
5000	0.45	0.44	0.445
6000	0.49	0.51	0.500
7000	0.53	0.58	0.555
8000	0.57	0.65	0.610
9000	0.61	0.72	0.665
8000	0.61	0.71	0.660
7000	0.61	0.71	0.660
6000	0.60	0.70	0.650
5000	0.58	0.68	0.630
4000	0.55	0.66	0.605
3000	0.50	0.63	0.565
2000	0.42	0.56	0.490
1000	0.32	0.37	0.345
500	0.23	0.16	0.195



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.265 D_2 (mm) 0.665

Dc (psi) = 1.31E+06 **Dt = 1.57E+06** psi

1.11E+05 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.305 D_2 (mm) 0.555

Ec (psi) = 1.40E+06 **Et = 1.75E+06** psi

1.23E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

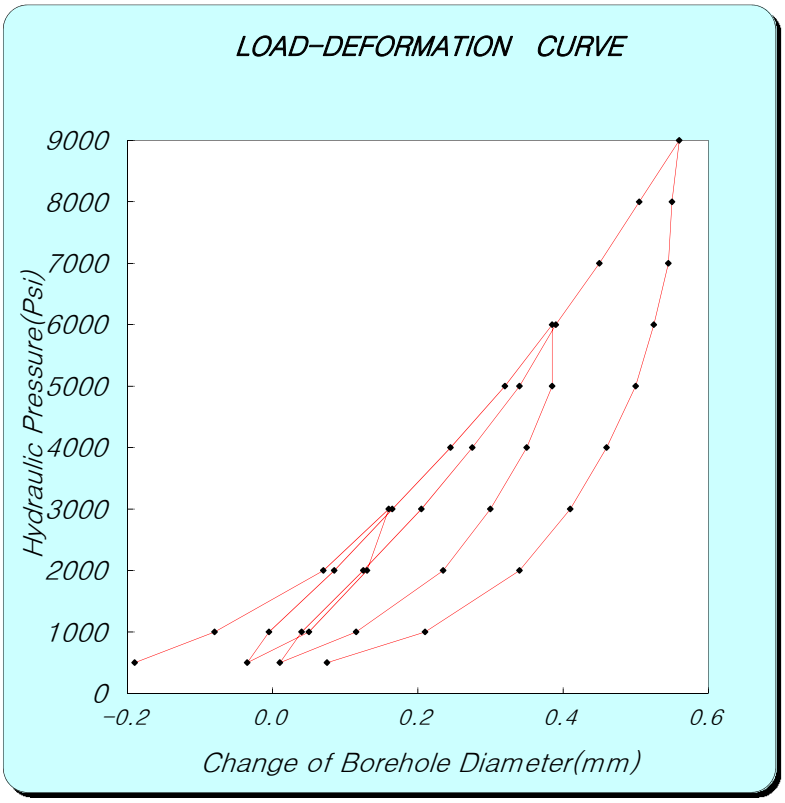
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-27	Rock Name :	GRANITE	Test Date :	2011. 03. 16
Depth :	59.0m	Rock Weathering :	SW	Record By :	S.H.Lee
G.W.L(-) :	1.2m	TCR/RQD(%) :	100/99	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	−0.30	−0.08	−0.190
1000	−0.13	−0.03	−0.080
2000	0.09	0.05	0.070
3000	0.17	0.15	0.160
2000	0.12	0.14	0.130
1000	0.00	0.10	0.050
500	−0.13	0.06	−0.035
1000	−0.09	0.08	−0.005
2000	0.05	0.12	0.085
3000	0.17	0.16	0.165
4000	0.24	0.25	0.245
5000	0.31	0.33	0.320
6000	0.37	0.40	0.385
5000	0.37	0.40	0.385
4000	0.31	0.39	0.350
3000	0.24	0.36	0.300
2000	0.15	0.32	0.235
1000	−0.01	0.24	0.115
500	−0.13	0.15	0.010
1000	−0.08	0.16	0.040
2000	0.05	0.20	0.125
3000	0.17	0.24	0.205
4000	0.25	0.30	0.275
5000	0.32	0.36	0.340
6000	0.38	0.40	0.390
7000	0.44	0.46	0.450
8000	0.49	0.52	0.505
9000	0.55	0.57	0.560
8000	0.54	0.56	0.550
7000	0.53	0.56	0.545
6000	0.50	0.55	0.525
5000	0.47	0.53	0.500
4000	0.42	0.50	0.460
3000	0.36	0.46	0.410
2000	0.28	0.40	0.340
1000	0.15	0.27	0.210
500	0.02	0.13	0.075



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.160 D_2 (mm) 0.560

Dc (psi) = 1.31E+06 **Dt = 1.57E+06** psi

1.11E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.125 D_2 (mm) 0.390

Ec (psi) = 1.32E+06 **Et = 1.59E+06** psi

1.12E+05 kgf/㎠

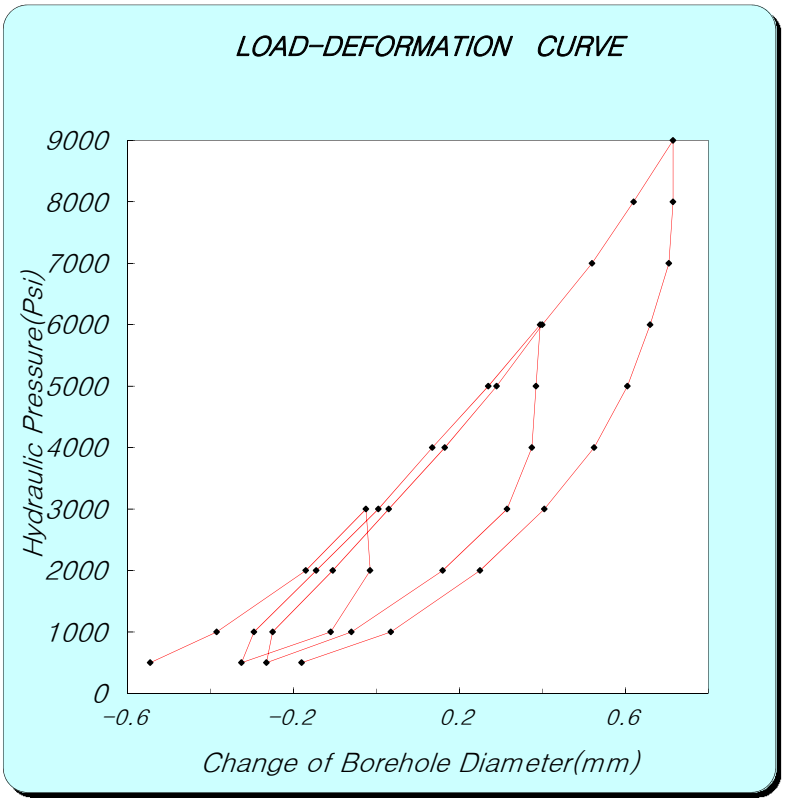
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-27	Rock Name :	GRANITE	Test Date :	2011. 03. 16
Depth :	67.0m	Rock Weathering :	SW	Record By :	S.H.Lee
G.W.L(-) :	1.2m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.53	-0.56	-0.545
1000	-0.42	-0.35	-0.385
2000	-0.24	-0.10	-0.170
3000	-0.08	0.03	-0.025
2000	-0.06	0.03	-0.015
1000	-0.19	-0.03	-0.110
500	-0.33	-0.32	-0.325
1000	-0.31	-0.28	-0.295
2000	-0.20	-0.09	-0.145
3000	-0.04	0.05	0.005
4000	0.09	0.18	0.135
5000	0.23	0.31	0.270
6000	0.36	0.43	0.395
5000	0.35	0.42	0.385
4000	0.34	0.41	0.375
3000	0.26	0.37	0.315
2000	0.09	0.23	0.160
1000	-0.12	0.00	-0.060
500	-0.28	-0.25	-0.265
1000	-0.28	-0.22	-0.250
2000	-0.16	-0.05	-0.105
3000	-0.02	0.08	0.030
4000	0.12	0.21	0.165
5000	0.26	0.32	0.290
6000	0.37	0.43	0.400
7000	0.49	0.55	0.520
8000	0.60	0.64	0.620
9000	0.70	0.73	0.715
8000	0.70	0.73	0.715
7000	0.69	0.72	0.705
6000	0.65	0.67	0.660
5000	0.57	0.64	0.605
4000	0.47	0.58	0.525
3000	0.39	0.42	0.405
2000	0.26	0.24	0.250
1000	0.06	0.01	0.035
500	-0.11	-0.25	-0.180



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) -0.025 D_2 (mm) 0.715

Dc (psi) = 7.11E+05 **Dt = 7.11E+05** psi

5.00E+04 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.030 D_2 (mm) 0.520

Ec (psi) = 7.15E+05 **Et = 7.15E+05** psi

5.03E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

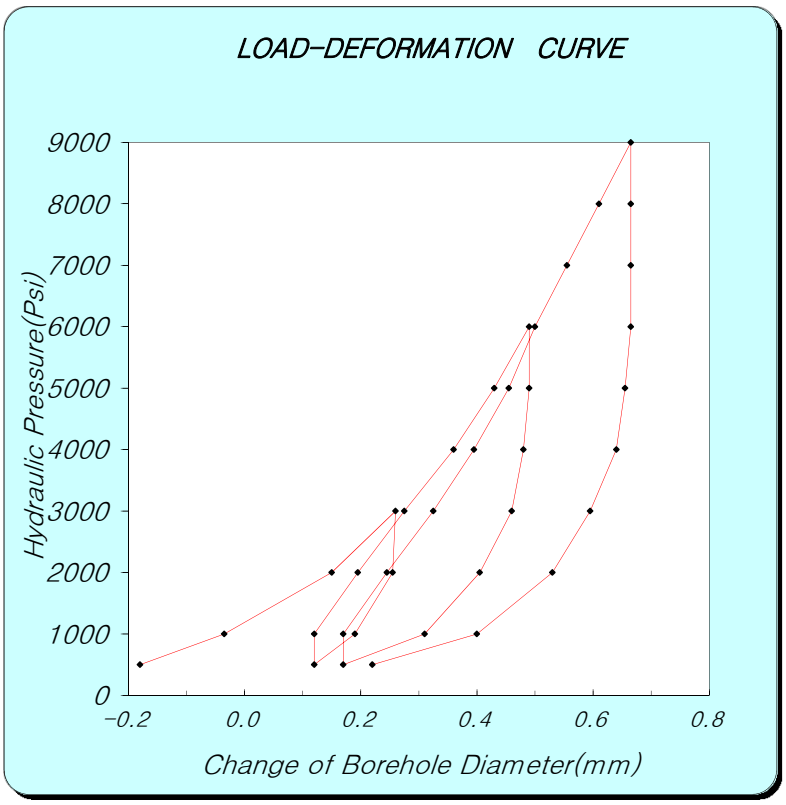
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-27	Rock Name :	GRANITE	Test Date :	2011. 03. 16
Depth :	75.0m	Rock Weathering :	FR	Record By :	S.H.Lee
G.W.L(-) :	1.2m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.09	-0.27	-0.180
1000	0.08	-0.15	-0.035
2000	0.25	0.05	0.150
3000	0.35	0.17	0.260
2000	0.33	0.18	0.255
1000	0.24	0.14	0.190
500	0.19	0.05	0.120
1000	0.18	0.06	0.120
2000	0.27	0.12	0.195
3000	0.36	0.19	0.275
4000	0.40	0.32	0.360
5000	0.45	0.41	0.430
6000	0.50	0.48	0.490
5000	0.50	0.48	0.490
4000	0.48	0.48	0.480
3000	0.45	0.47	0.460
2000	0.37	0.44	0.405
1000	0.26	0.36	0.310
500	0.20	0.14	0.170
1000	0.20	0.14	0.170
2000	0.29	0.20	0.245
3000	0.38	0.27	0.325
4000	0.42	0.37	0.395
5000	0.47	0.44	0.455
6000	0.50	0.50	0.500
7000	0.53	0.58	0.555
8000	0.55	0.67	0.610
9000	0.58	0.75	0.665
8000	0.58	0.75	0.665
7000	0.58	0.75	0.665
6000	0.58	0.75	0.665
5000	0.56	0.75	0.655
4000	0.53	0.75	0.640
3000	0.47	0.72	0.595
2000	0.38	0.68	0.530
1000	0.27	0.53	0.400
500	0.22	0.22	0.220



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.260 D_2 (mm) 0.665

Dc (psi) = 1.30E+06 **Dt = 1.54E+06** psi

1.08E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.245 D_2 (mm) 0.500

Ec (psi) = 1.37E+06 **Et = 1.69E+06** psi

1.19E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

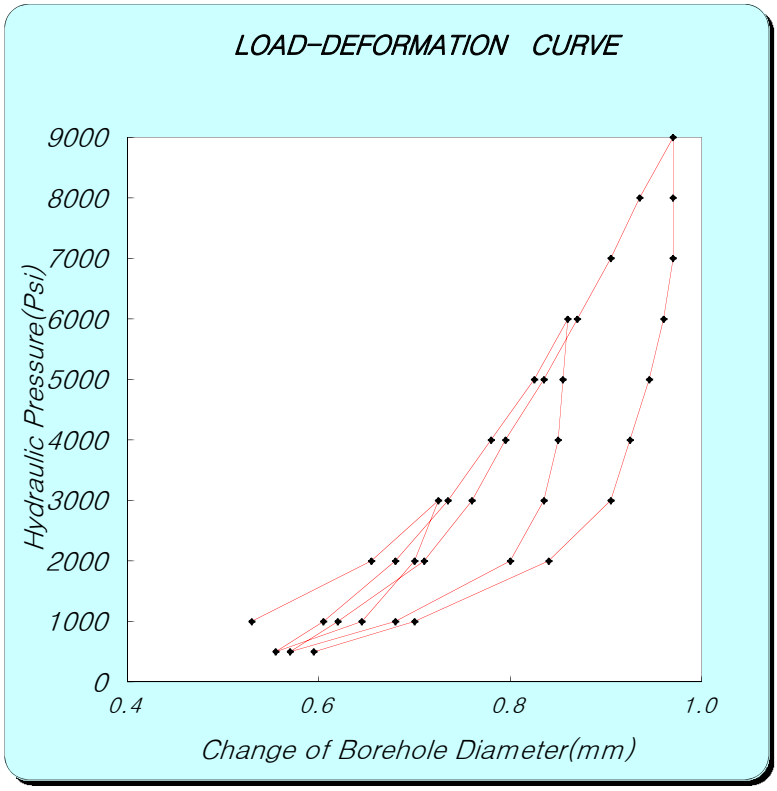
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-30	Rock Name :	GRANITE	Test Date :	2011. 1. 1
Depth :	12.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	2.1	TCR/RQD(%) :	100/98	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.33	0.52	0.425
1000	0.41	0.65	0.530
2000	0.52	0.79	0.655
3000	0.58	0.87	0.725
2000	0.57	0.83	0.700
1000	0.56	0.73	0.645
500	0.51	0.60	0.555
1000	0.52	0.69	0.605
2000	0.55	0.81	0.680
3000	0.60	0.87	0.735
4000	0.64	0.92	0.780
5000	0.68	0.97	0.825
6000	0.72	1.00	0.860
5000	0.72	0.99	0.855
4000	0.72	0.98	0.850
3000	0.71	0.96	0.835
2000	0.68	0.92	0.800
1000	0.62	0.74	0.680
500	0.51	0.63	0.570
1000	0.53	0.71	0.620
2000	0.57	0.85	0.710
3000	0.61	0.91	0.760
4000	0.65	0.94	0.795
5000	0.69	0.98	0.835
6000	0.73	1.01	0.870
7000	0.77	1.04	0.905
8000	0.80	1.07	0.935
9000	0.84	1.10	0.970
8000	0.84	1.10	0.970
7000	0.84	1.10	0.970
6000	0.83	1.09	0.960
5000	0.82	1.07	0.945
4000	0.80	1.05	0.925
3000	0.78	1.03	0.905
2000	0.73	0.95	0.840
1000	0.64	0.76	0.700
500	0.56	0.63	0.595



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.725 D_2 (mm) 0.970

Dc (psi) = 2.15E+06 **Dt = 3.81E+06** psi

2.68E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.710 D_2 (mm) 0.870

Ec (psi) = 2.19E+06 **Et = 3.97E+06** psi

2.79E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

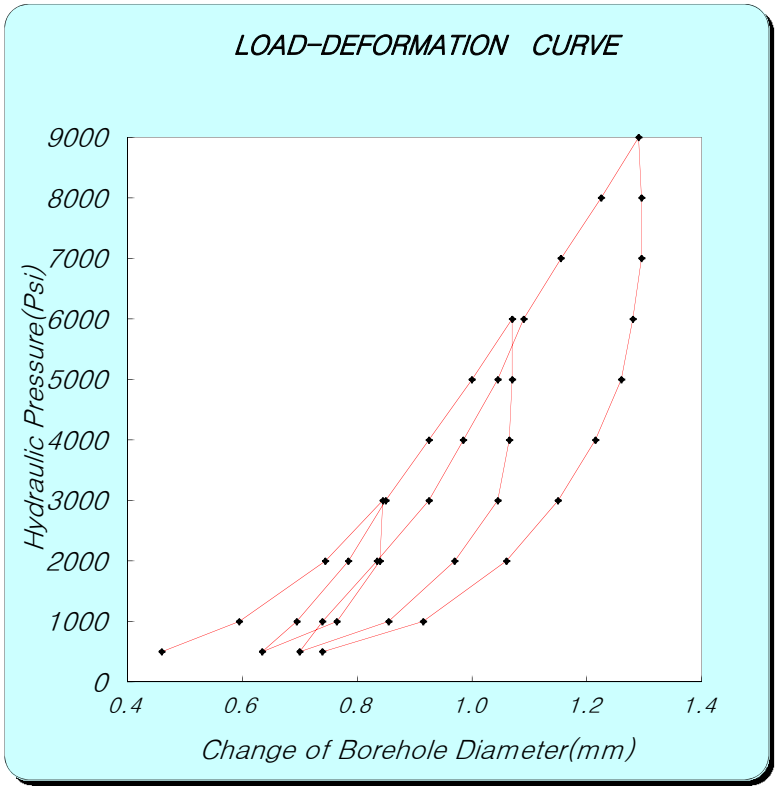
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-30	Rock Name :	MAFIC DYKE	Test Date :	2011. 1. 1
Depth :	20.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	2.1	TCR/RQD(%) :	100/54	Checked By :	Y.H.Kim

PRESSURE (Psi)	ACEMENT READING (mm) NEAR	FAR	ΔAVG
500	0.41	0.51	0.460
1000	0.56	0.63	0.595
2000	0.74	0.75	0.745
3000	0.84	0.85	0.845
2000	0.84	0.84	0.840
1000	0.75	0.78	0.765
500	0.54	0.73	0.635
1000	0.64	0.75	0.695
2000	0.77	0.80	0.785
3000	0.85	0.85	0.850
4000	0.93	0.92	0.925
5000	1.01	0.99	1.000
6000	1.08	1.06	1.070
5000	1.08	1.06	1.070
4000	1.06	1.07	1.065
3000	1.02	1.07	1.045
2000	0.91	1.03	0.970
1000	0.75	0.96	0.855
500	0.61	0.79	0.700
1000	0.68	0.80	0.740
2000	0.82	0.85	0.835
3000	0.92	0.93	0.925
4000	0.98	0.99	0.985
5000	1.04	1.05	1.045
6000	1.10	1.08	1.090
7000	1.17	1.14	1.155
8000	1.24	1.21	1.225
9000	1.31	1.27	1.290
8000	1.32	1.27	1.295
7000	1.31	1.28	1.295
6000	1.29	1.27	1.280
5000	1.26	1.26	1.260
4000	1.20	1.23	1.215
3000	1.10	1.20	1.150
2000	0.97	1.15	1.060
1000	0.81	1.02	0.915
500	0.67	0.81	0.740



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.845 D_2 (mm) 1.290

Dc (psi) = 1.18E+06 **Dt = 1.34E+06** psi

9.42E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.835 D_2 (mm) 1.090

Ec (psi) = 1.37E+06 **Et = 1.69E+06** psi

1.19E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

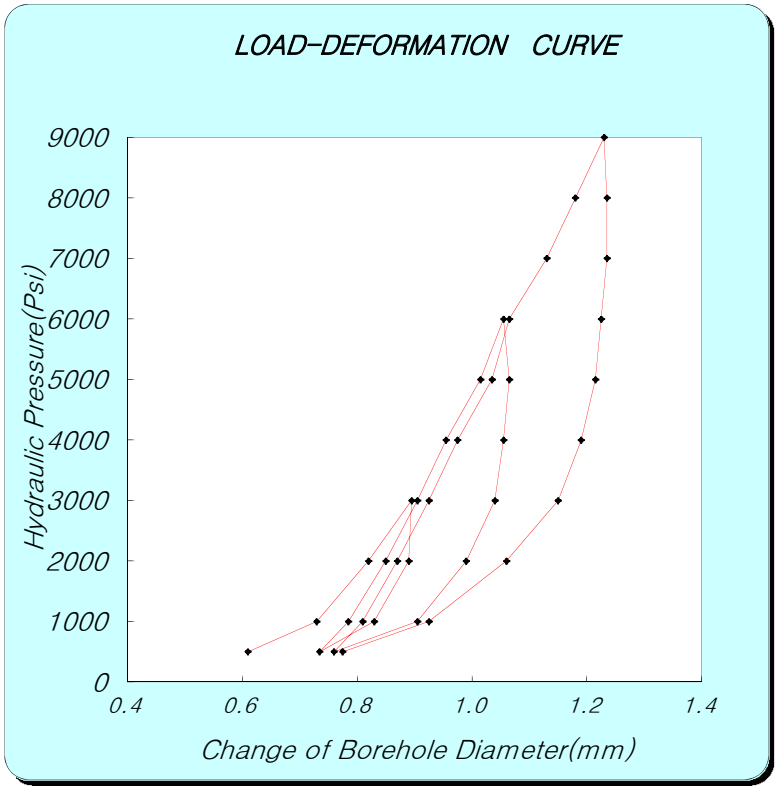
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-30	Rock Name :	MAFIC DYKE	Test Date :	2011. 1. 1
Depth :	28.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	2.1	TCR/RQD(%) :	100/86	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.60	0.62	0.610
1000	0.72	0.74	0.730
2000	0.82	0.82	0.820
3000	0.88	0.91	0.895
2000	0.87	0.91	0.890
1000	0.78	0.88	0.830
500	0.68	0.79	0.735
1000	0.75	0.82	0.785
2000	0.84	0.86	0.850
3000	0.89	0.92	0.905
4000	0.94	0.97	0.955
5000	0.99	1.04	1.015
6000	1.04	1.07	1.055
5000	1.05	1.08	1.065
4000	1.03	1.08	1.055
3000	1.00	1.08	1.040
2000	0.94	1.04	0.990
1000	0.82	0.99	0.905
500	0.71	0.81	0.760
1000	0.78	0.84	0.810
2000	0.86	0.88	0.870
3000	0.92	0.93	0.925
4000	0.96	0.99	0.975
5000	1.01	1.06	1.035
6000	1.05	1.08	1.065
7000	1.11	1.15	1.130
8000	1.16	1.20	1.180
9000	1.21	1.25	1.230
8000	1.22	1.25	1.235
7000	1.22	1.25	1.235
6000	1.20	1.25	1.225
5000	1.18	1.25	1.215
4000	1.15	1.23	1.190
3000	1.10	1.20	1.150
2000	0.97	1.15	1.060
1000	0.83	1.02	0.925
500	0.74	0.81	0.775



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.895 D_2 (mm) 1.230

Dc (psi) = 1.57E+06 **Dt = 2.13E+06** psi

1.50E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.870 D_2 (mm) 1.065

Ec (psi) = 1.80E+06 **Et = 2.73E+06** psi

1.92E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

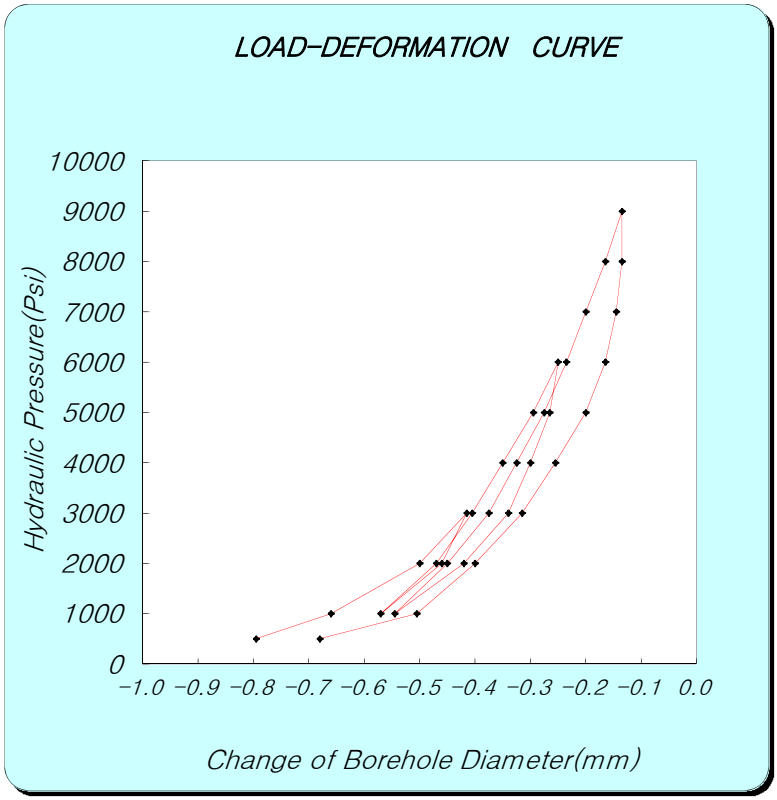
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-34	Rock Name :	GRANITE	Test Date :	2010. 12. 15
Depth :	12.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	2.4m	TCR/RQD(%) :	80/68	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.37	-2.12	-1.745
500	-0.69	-0.90	-0.795
1000	-0.58	-0.74	-0.660
2000	-0.45	-0.55	-0.500
3000	-0.38	-0.45	-0.415
2000	-0.42	-0.50	-0.460
1000	-0.51	-0.63	-0.570
2000	-0.42	-0.52	-0.470
3000	-0.37	-0.44	-0.405
4000	-0.31	-0.39	-0.350
5000	-0.28	-0.31	-0.295
6000	-0.23	-0.27	-0.250
5000	-0.24	-0.29	-0.265
4000	-0.29	-0.31	-0.300
3000	-0.32	-0.36	-0.340
2000	-0.38	-0.46	-0.420
1000	-0.49	-0.60	-0.545
2000	-0.40	-0.50	-0.450
3000	-0.34	-0.41	-0.375
4000	-0.29	-0.36	-0.325
5000	-0.25	-0.30	-0.275
6000	-0.21	-0.26	-0.235
7000	-0.18	-0.22	-0.200
8000	-0.15	-0.18	-0.165
9000	-0.12	-0.15	-0.135
8000	-0.12	-0.15	-0.135
7000	-0.13	-0.16	-0.145
6000	-0.15	-0.18	-0.165
5000	-0.20	-0.20	-0.200
4000	-0.25	-0.26	-0.255
3000	-0.29	-0.34	-0.315
2000	-0.36	-0.44	-0.400
1000	-0.45	-0.56	-0.505
500	-0.60	-0.76	-0.680



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) -0.415 D_2 (mm) -0.135

Dc (psi) = 1.88E+06 **Dt = 2.96E+06** psi

2.08E+05 kgf/㎠

ΔP : P_1 (Psi) 5000 P_2 (Psi) 8000

ΔD : D_1 (mm) -0.275 D_2 (mm) -0.165

Ec (psi) = 2.39E+06 **Et = 4.70E+06** psi

3.31E+05 kgf/㎠

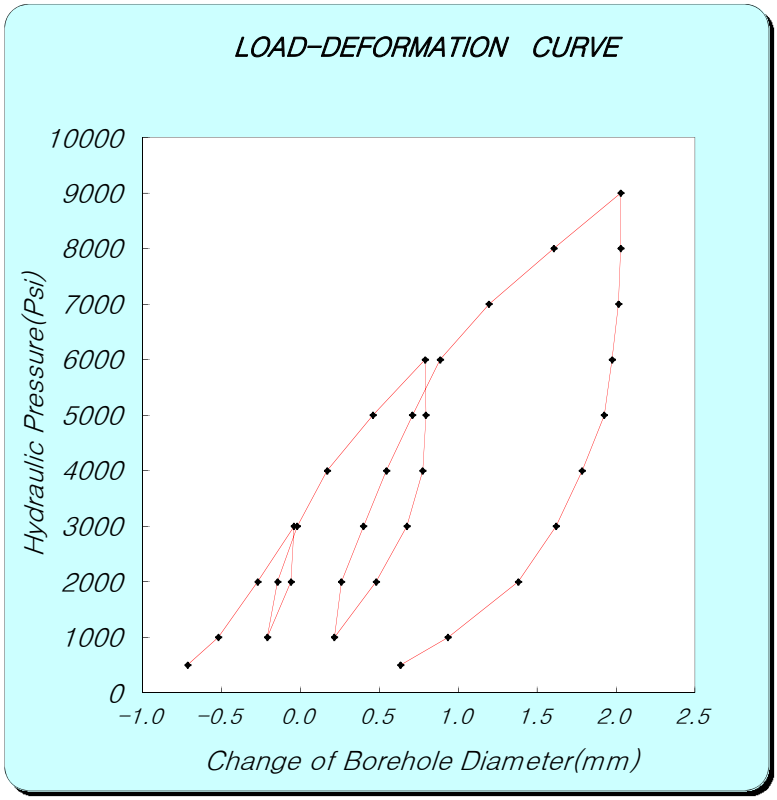
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-34	Rock Name :	GRANITE	Test Date :	2010. 12. 15
Depth :	22.0m	Rock Class :	MW	Record By :	Y.G.Shin
G.W.L :	2.4m	TCR/RQD(%) :	100/92	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-1.45	-2.05	-1.748
500	-0.60	-0.83	-0.715
1000	-0.45	-0.59	-0.520
2000	-0.25	-0.29	-0.270
3000	-0.06	-0.02	-0.040
2000	-0.08	-0.04	-0.060
1000	-0.20	-0.22	-0.210
2000	-0.14	-0.15	-0.145
3000	-0.04	0.00	-0.020
4000	0.11	0.23	0.170
5000	0.35	0.57	0.460
6000	0.64	0.94	0.790
5000	0.64	0.95	0.795
4000	0.63	0.92	0.775
3000	0.55	0.80	0.675
2000	0.39	0.57	0.480
1000	0.18	0.25	0.215
2000	0.20	0.32	0.260
3000	0.31	0.49	0.400
4000	0.43	0.66	0.545
5000	0.57	0.85	0.710
6000	0.72	1.05	0.885
7000	1.00	1.39	1.195
8000	1.37	1.84	1.605
9000	1.75	2.31	2.030
8000	1.75	2.31	2.030
7000	1.73	2.30	2.015
6000	1.70	2.25	1.975
5000	1.64	2.21	1.925
4000	1.57	2.00	1.785
3000	1.45	1.79	1.620
2000	1.22	1.54	1.380
1000	0.83	1.04	0.935
500	0.77	0.50	0.635



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) -0.040 D_2 (mm) 2.030

Dc (psi) = 2.54E+05 **Dt = 2.54E+05** psi

1.79E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.260 D_2 (mm) 0.885

Ec (psi) = 5.61E+05 **Et = 5.61E+05** psi

3.94E+04 kgf/㎠

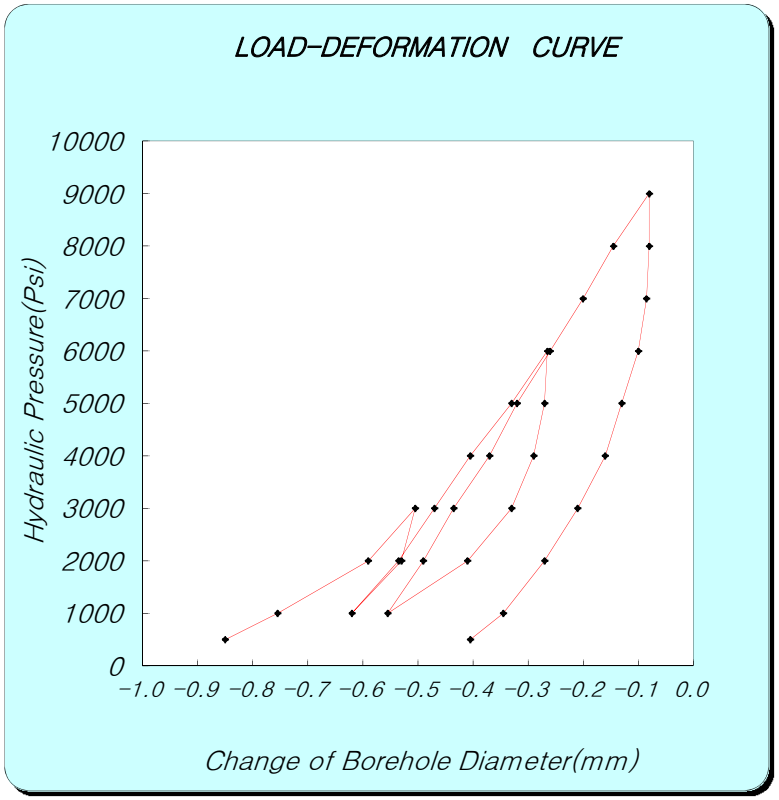
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-34	Rock Name :	GRANITE	Test Date :	2010. 12. 15
Depth :	27.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	2.4m	TCR/RQD(%) :	100/98	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-3.98	-2.50	-3.240
500	-0.70	-1.00	-0.850
1000	-0.59	-0.92	-0.755
2000	-0.50	-0.68	-0.590
3000	-0.43	-0.58	-0.505
2000	-0.45	-0.61	-0.530
1000	-0.51	-0.73	-0.620
2000	-0.48	-0.59	-0.535
3000	-0.43	-0.51	-0.470
4000	-0.38	-0.43	-0.405
5000	-0.33	-0.33	-0.330
6000	-0.28	-0.25	-0.265
5000	-0.28	-0.26	-0.270
4000	-0.29	-0.29	-0.290
3000	-0.32	-0.34	-0.330
2000	-0.38	-0.44	-0.410
1000	-0.49	-0.62	-0.555
2000	-0.46	-0.52	-0.490
3000	-0.41	-0.46	-0.435
4000	-0.36	-0.38	-0.370
5000	-0.32	-0.32	-0.320
6000	-0.27	-0.25	-0.260
7000	-0.23	-0.17	-0.200
8000	-0.18	-0.11	-0.145
9000	-0.13	-0.03	-0.080
8000	-0.13	-0.03	-0.080
7000	-0.13	-0.04	-0.085
6000	-0.14	-0.06	-0.100
5000	-0.17	-0.09	-0.130
4000	-0.20	-0.12	-0.160
3000	-0.25	-0.17	-0.210
2000	-0.35	-0.19	-0.270
1000	-0.48	-0.21	-0.345
500	-0.57	-0.24	-0.405



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) -0.505 D_2 (mm) -0.080

Dc (psi) = 1.24E+06 **Dt = 1.43E+06** psi

1.01E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) -0.490 D_2 (mm) -0.145

Ec (psi) = 1.52E+06 **Et = 2.02E+06** psi

1.42E+05 kgf/㎠

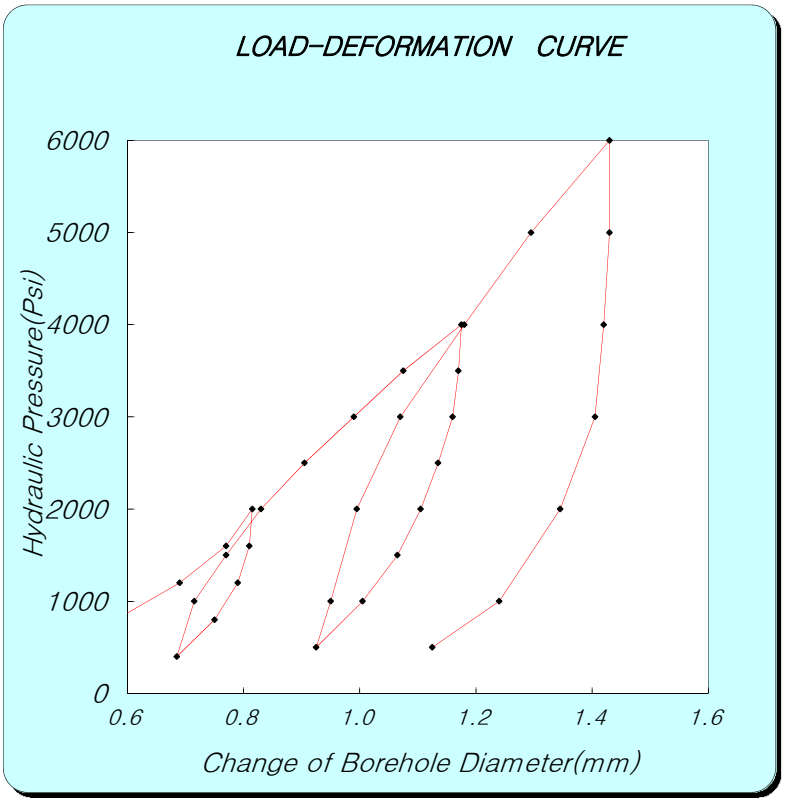
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-35	Rock Name :	GRANITE	Test Date :	2016. 1. 15
Depth :	12.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/62	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.41	0.50	0.455
800	0.53	0.63	0.580
1200	0.63	0.75	0.690
1600	0.71	0.83	0.770
2000	0.75	0.88	0.815
1600	0.75	0.87	0.810
1200	0.73	0.85	0.790
800	0.69	0.81	0.750
400	0.63	0.74	0.685
1000	0.66	0.77	0.715
1500	0.71	0.83	0.770
2000	0.77	0.89	0.830
2500	0.85	0.96	0.905
3000	0.93	1.05	0.990
3500	1.03	1.12	1.075
4000	1.10	1.25	1.175
3500	1.10	1.24	1.170
3000	1.09	1.23	1.160
2500	1.07	1.20	1.135
2000	1.05	1.16	1.105
1500	1.01	1.12	1.065
1000	0.95	1.06	1.005
500	0.88	0.97	0.925
1000	0.90	1.00	0.950
2000	0.94	1.05	0.995
3000	0.99	1.15	1.070
4000	1.07	1.29	1.180
5000	1.19	1.40	1.295
6000	1.33	1.53	1.430
5000	1.33	1.53	1.430
4000	1.32	1.52	1.420
3000	1.31	1.50	1.405
2000	1.26	1.43	1.345
1000	1.13	1.35	1.240
500	1.03	1.22	1.125



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	6000		
ΔD :	D_1 (mm)	0.815	D_2 (mm)	1.430		
	Dc (psi) =	**5.70E+05**	**Dt =**	**5.70E+05**	psi	
				4.01E+04	kgf/㎠	

ΔP :	P_1 (Psi)	1000	P_2 (Psi)	5000		
ΔD :	D_1 (mm)	0.950	D_2 (mm)	1.295		
	Ec (psi) =	**1.02E+06**	**Et =**	**1.12E+06**	psi	
				7.86E+04	kgf/㎠	

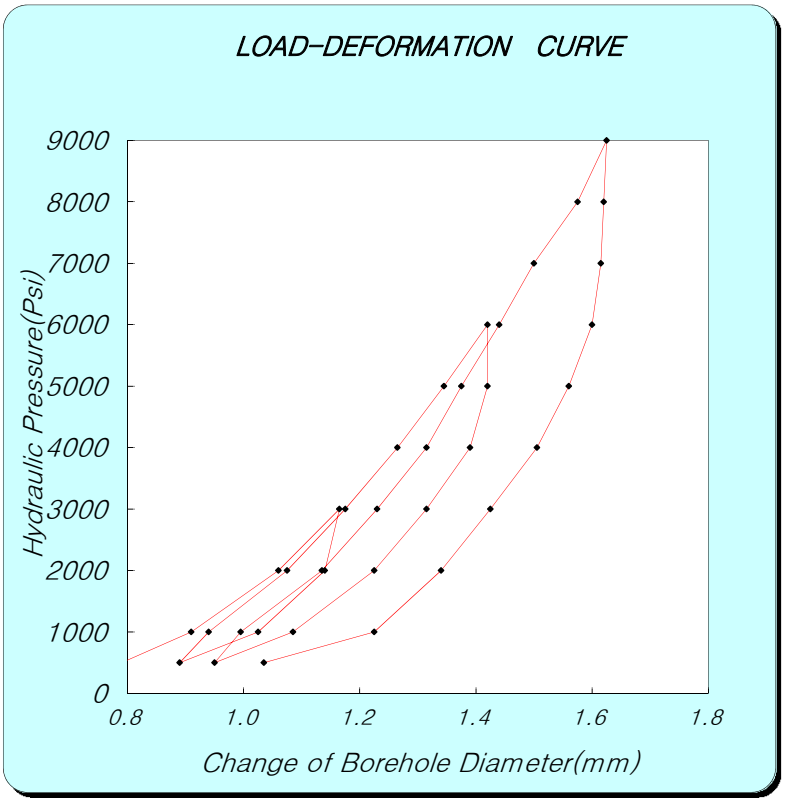
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-35	Rock Name :	GRANITE	Test Date :	2016. 1. 15
Depth :	20.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.77	0.81	0.790
1000	0.88	0.94	0.910
2000	1.02	1.10	1.060
3000	1.13	1.20	1.165
2000	1.09	1.19	1.140
1000	0.98	1.07	1.025
500	0.85	0.93	0.890
1000	0.92	0.96	0.940
2000	1.04	1.11	1.075
3000	1.14	1.21	1.175
4000	1.23	1.30	1.265
5000	1.31	1.38	1.345
6000	1.38	1.46	1.420
5000	1.38	1.46	1.420
4000	1.35	1.43	1.390
3000	1.27	1.36	1.315
2000	1.17	1.28	1.225
1000	1.04	1.13	1.085
500	0.92	0.98	0.950
1000	0.98	1.01	0.995
2000	1.11	1.16	1.135
3000	1.21	1.25	1.230
4000	1.29	1.34	1.315
5000	1.35	1.40	1.375
6000	1.41	1.47	1.440
7000	1.46	1.54	1.500
8000	1.53	1.62	1.575
9000	1.57	1.68	1.625
8000	1.57	1.67	1.620
7000	1.56	1.67	1.615
6000	1.55	1.65	1.600
5000	1.52	1.60	1.560
4000	1.48	1.53	1.505
3000	1.40	1.45	1.425
2000	1.33	1.35	1.340
1000	1.23	1.22	1.225
500	1.06	1.01	1.035



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	1.165	D_2 (mm)	1.625		
	Dc (psi) =	**1.14E+06**	**Dt =**	**1.28E+06**	psi	
				9.01E+04	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	1.135	D_2 (mm)	1.575		
	Ec (psi) =	**1.20E+06**	**Et =**	**1.36E+06**	psi	
				9.57E+04	kgf/㎠	

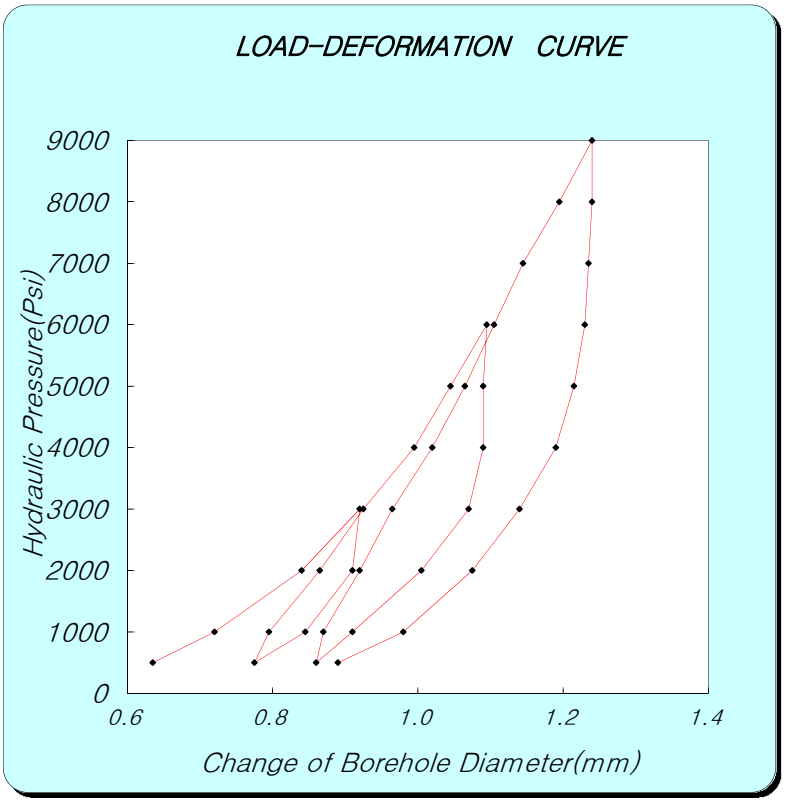
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-35	Rock Name :	GRANITE	Test Date :	2016. 1. 15
Depth :	28.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.85	0.42	0.635
1000	0.94	0.50	0.720
2000	1.05	0.63	0.840
3000	1.12	0.72	0.920
2000	1.10	0.72	0.910
1000	1.00	0.69	0.845
500	0.91	0.64	0.775
1000	0.95	0.64	0.795
2000	1.05	0.68	0.865
3000	1.12	0.73	0.925
4000	1.18	0.81	0.995
5000	1.22	0.87	1.045
6000	1.26	0.93	1.095
5000	1.26	0.92	1.090
4000	1.26	0.92	1.090
3000	1.22	0.92	1.070
2000	1.13	0.88	1.005
1000	1.03	0.79	0.910
500	0.99	0.73	0.860
1000	1.00	0.74	0.870
2000	1.08	0.76	0.920
3000	1.14	0.79	0.965
4000	1.20	0.84	1.020
5000	1.25	0.88	1.065
6000	1.27	0.94	1.105
7000	1.30	0.99	1.145
8000	1.35	1.04	1.195
9000	1.39	1.09	1.240
8000	1.39	1.09	1.240
7000	1.38	1.09	1.235
6000	1.37	1.09	1.230
5000	1.35	1.08	1.215
4000	1.33	1.05	1.190
3000	1.28	1.00	1.140
2000	1.20	0.95	1.075
1000	1.13	0.83	0.980
500	1.03	0.75	0.890



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.920 D_2 (mm) 1.240

Dc (psi) = 1.64E+06 **Dt = 2.31E+06** psi

1.63E+05 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.870 D_2 (mm) 1.195

Ec (psi) = 1.89E+06 **Et = 2.99E+06** psi

2.10E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

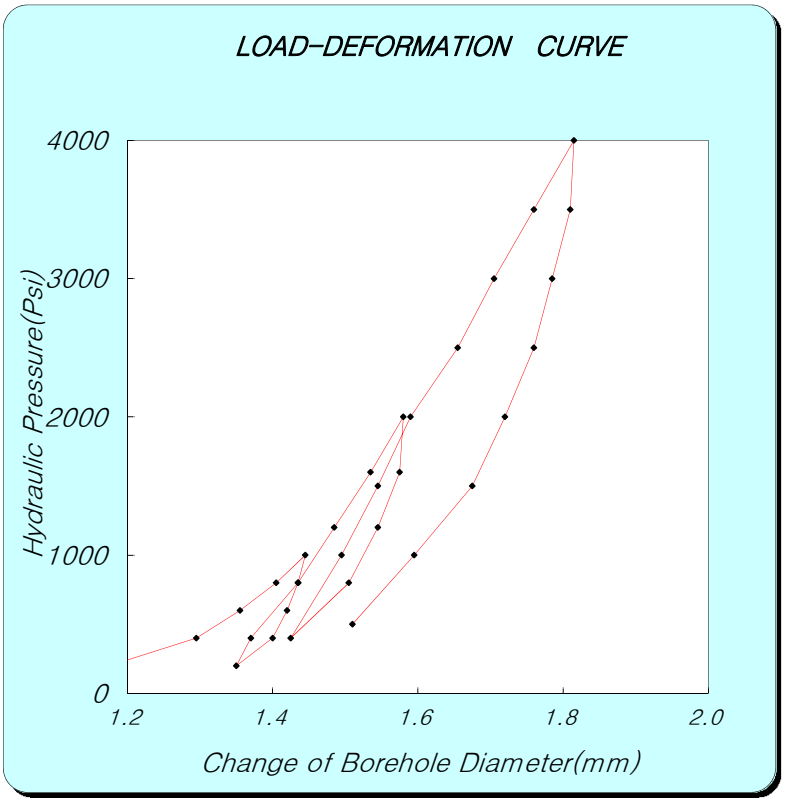
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-36	Rock Name :	GRANITE	Test Date :	2016. 1. 5
Depth :	12.0m	Rock Weathering :	MW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/90	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.09	1.26	1.175
400	1.22	1.37	1.295
600	1.28	1.43	1.355
800	1.32	1.49	1.405
1000	1.36	1.53	1.445
800	1.35	1.52	1.435
600	1.34	1.50	1.420
400	1.32	1.48	1.400
200	1.28	1.42	1.350
400	1.29	1.45	1.370
800	1.35	1.52	1.435
1200	1.39	1.58	1.485
1600	1.44	1.63	1.535
2000	1.48	1.68	1.580
1600	1.48	1.67	1.575
1200	1.45	1.64	1.545
800	1.42	1.59	1.505
400	1.35	1.50	1.425
1000	1.41	1.58	1.495
1500	1.45	1.64	1.545
2000	1.49	1.69	1.590
2500	1.55	1.76	1.655
3000	1.60	1.81	1.705
3500	1.65	1.87	1.760
4000	1.70	1.93	1.815
3500	1.70	1.92	1.810
3000	1.68	1.89	1.785
2500	1.66	1.86	1.760
2000	1.62	1.82	1.720
1500	1.58	1.77	1.675
1000	1.51	1.68	1.595
500	1.43	1.59	1.510



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	1000	P_2 (Psi)	4000		
ΔD :	D_1 (mm)	1.445	D_2 (mm)	1.815		
	Dc (psi) =	**7.11E+05**	**Dt =**	**7.11E+05**	psi	
				5.00E+04	kgf/㎠	

ΔP :	P_1 (Psi)	1000	P_2 (Psi)	3500		
ΔD :	D_1 (mm)	1.495	D_2 (mm)	1.760		
	Ec (psi) =	**8.27E+05**	**Et =**	**8.27E+05**	psi	
				5.81E+04	kgf/㎠	

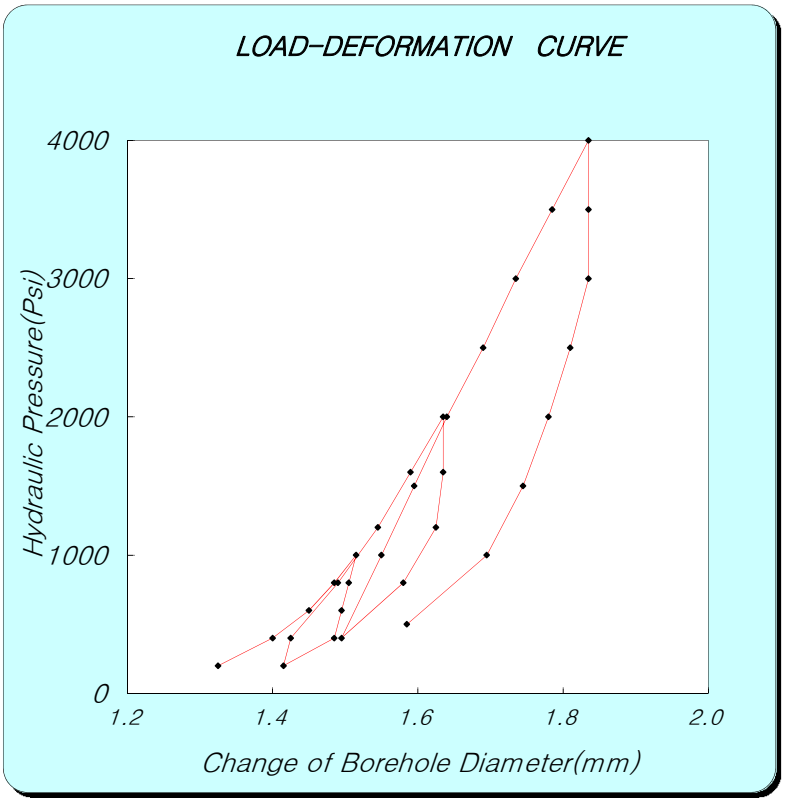
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-36	Rock Name :	GRANITE	Test Date :	2016. 1. 5
Depth :	20.0m	Rock Weathering :	MW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.17	1.48	1.325
400	1.24	1.56	1.400
600	1.29	1.61	1.450
800	1.33	1.64	1.485
1000	1.36	1.67	1.515
800	1.35	1.66	1.505
600	1.34	1.65	1.495
400	1.33	1.64	1.485
200	1.29	1.54	1.415
400	1.29	1.56	1.425
800	1.34	1.64	1.490
1200	1.39	1.70	1.545
1600	1.43	1.75	1.590
2000	1.48	1.79	1.635
1600	1.48	1.79	1.635
1200	1.47	1.78	1.625
800	1.43	1.73	1.580
400	1.36	1.63	1.495
1000	1.40	1.70	1.550
1500	1.44	1.75	1.595
2000	1.49	1.79	1.640
2500	1.54	1.84	1.690
3000	1.59	1.88	1.735
3500	1.64	1.93	1.785
4000	1.69	1.98	1.835
3500	1.69	1.98	1.835
3000	1.69	1.98	1.835
2500	1.66	1.96	1.810
2000	1.62	1.94	1.780
1500	1.59	1.90	1.745
1000	1.54	1.85	1.695
500	1.45	1.72	1.585



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.515 D_2 (mm) 1.835

Dc (psi) = 8.22E+05 **Dt = 8.22E+05** psi

5.78E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.550 D_2 (mm) 1.785

Ec (psi) = 9.32E+05 **Et = 1.04E+06** psi

7.29E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

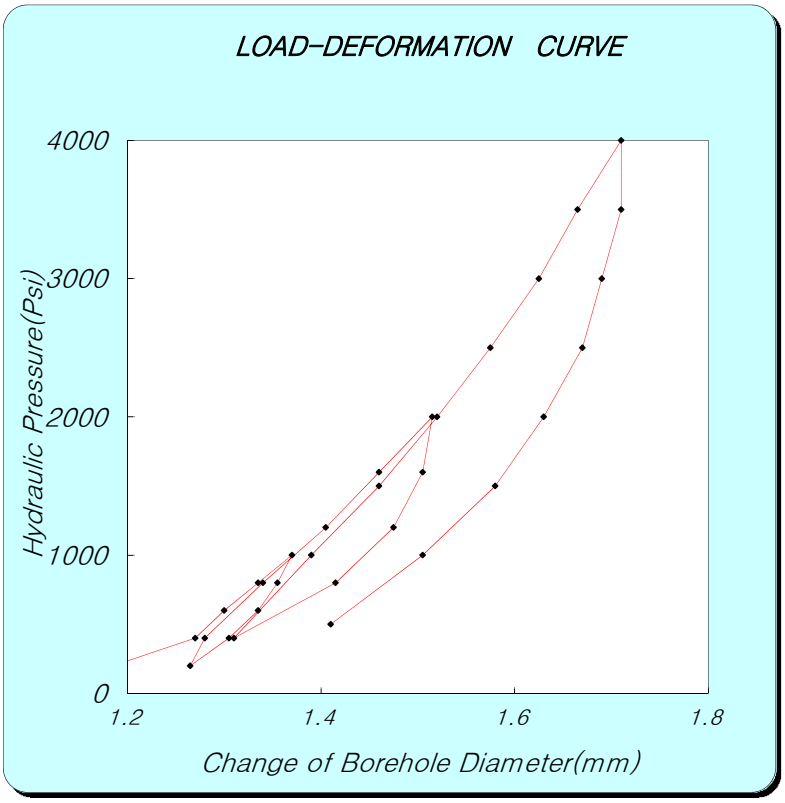
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-36	Rock Name :	GRANITE	Test Date :	2016. 1. 5
Depth :	28.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	1.8m	TCR/RQD(%) :	100/96	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	1.09	1.28	1.185
400	1.22	1.32	1.270
600	1.26	1.34	1.300
800	1.30	1.37	1.335
1000	1.33	1.41	1.370
800	1.32	1.39	1.355
600	1.31	1.36	1.335
400	1.29	1.32	1.305
200	1.26	1.27	1.265
400	1.26	1.30	1.280
800	1.30	1.38	1.340
1200	1.36	1.45	1.405
1600	1.41	1.51	1.460
2000	1.46	1.57	1.515
1600	1.45	1.56	1.505
1200	1.42	1.53	1.475
800	1.37	1.46	1.415
400	1.29	1.33	1.310
1000	1.35	1.43	1.390
1500	1.41	1.51	1.460
2000	1.46	1.58	1.520
2500	1.51	1.64	1.575
3000	1.56	1.69	1.625
3500	1.61	1.72	1.665
4000	1.67	1.75	1.710
3500	1.67	1.75	1.710
3000	1.64	1.74	1.690
2500	1.61	1.73	1.670
2000	1.56	1.70	1.630
1500	1.52	1.64	1.580
1000	1.47	1.54	1.505
500	1.39	1.43	1.410



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.370 D_2 (mm) 1.710

Dc (psi) = 7.73E+05 **Dt = 7.73E+05** psi

5.44E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.390 D_2 (mm) 1.665

Ec (psi) = 7.97E+05 **Et = 7.97E+05** psi

5.60E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

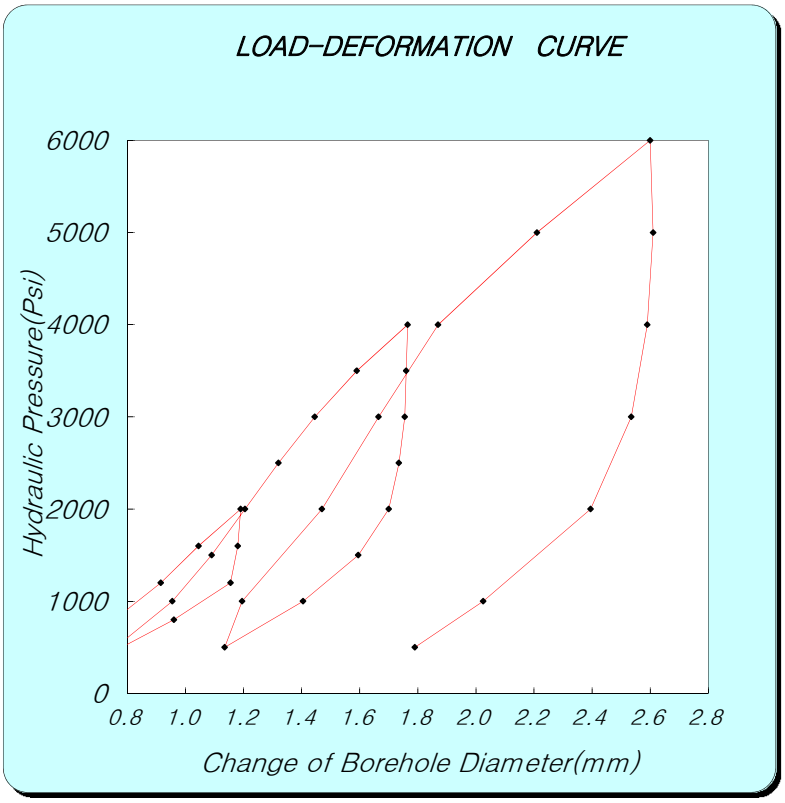
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-37	Rock Name :	GRANITE	Test Date :	2015. 12. 18
Depth :	12.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	3.7m	TCR/RQD(%) :	100/18	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.53	0.55	0.540
800	0.75	0.76	0.755
1200	0.91	0.92	0.915
1600	1.05	1.04	1.045
2000	1.22	1.16	1.190
1600	1.21	1.15	1.180
1200	1.18	1.13	1.155
800	1.00	0.92	0.960
400	0.80	0.64	0.720
1000	0.99	0.92	0.955
1500	1.12	1.06	1.090
2000	1.21	1.20	1.205
2500	1.36	1.28	1.320
3000	1.49	1.40	1.445
3500	1.63	1.55	1.590
4000	1.80	1.73	1.765
3500	1.79	1.73	1.760
3000	1.78	1.73	1.755
2500	1.76	1.71	1.735
2000	1.75	1.65	1.700
1500	1.62	1.57	1.595
1000	1.41	1.40	1.405
500	1.20	1.07	1.135
1000	1.28	1.11	1.195
2000	1.54	1.40	1.470
3000	1.71	1.62	1.665
4000	1.90	1.84	1.870
5000	2.18	2.24	2.210
6000	2.51	2.69	2.600
5000	2.52	2.70	2.610
4000	2.50	2.68	2.590
3000	2.44	2.63	2.535
2000	2.29	2.50	2.395
1000	1.96	2.09	2.025
500	1.74	1.84	1.790



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1.519	1.474	1.438	1.397	1.366	1.289	1.151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 4000

ΔD : D_1 (mm) 1.190 D_2 (mm) 1.765

Dc (psi) = 3.05E+05 **Dt = 3.05E+05** psi

2.14E+04 kgf/㎠

ΔP : P_1 (Psi) 1500 P_2 (Psi) 3500

ΔD : D_1 (mm) 1.090 D_2 (mm) 1.590

Ec (psi) = 3.51E+05 **Et = 3.51E+05** psi

2.46E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

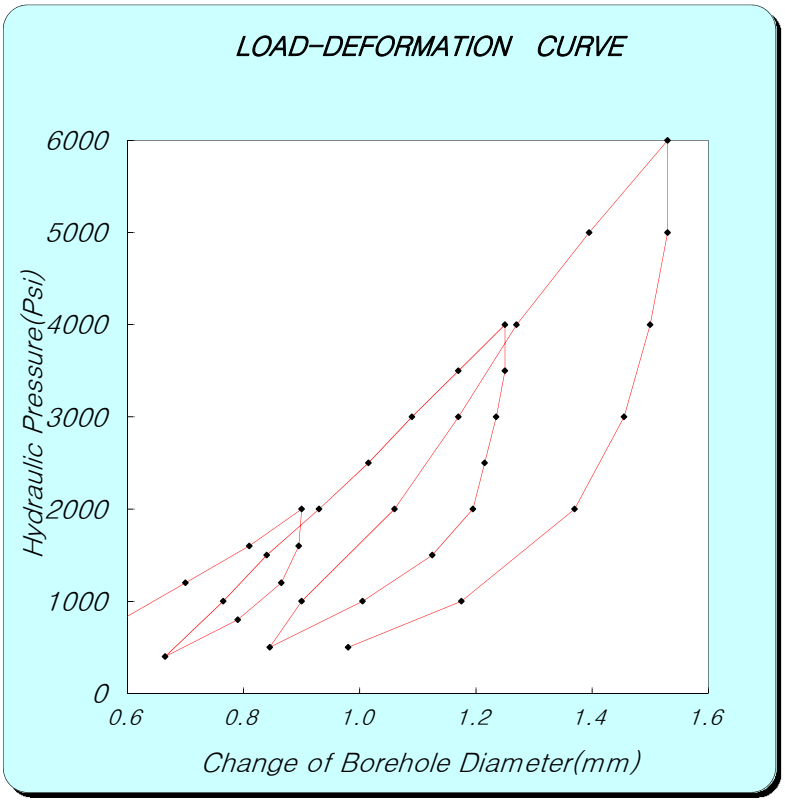
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-37	Rock Name :	GRANITE	Test Date :	2015. 12. 18
Depth :	20.0m	Rock Weathering :	MW~SW	Record By :	JI.G.J
G.W.L(-) :	3.7m	TCR/RQD(%) :	90/63	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.17	0.79	0.480
800	0.32	0.86	0.590
1200	0.48	0.92	0.700
1600	0.63	0.99	0.810
2000	0.74	1.06	0.900
1600	0.74	1.05	0.895
1200	0.69	1.04	0.865
800	0.59	0.99	0.790
400	0.43	0.90	0.665
1000	0.57	0.96	0.765
1500	0.67	1.01	0.840
2000	0.78	1.08	0.930
2500	0.86	1.17	1.015
3000	0.93	1.25	1.090
3500	1.00	1.34	1.170
4000	1.06	1.44	1.250
3500	1.06	1.44	1.250
3000	1.04	1.43	1.235
2500	1.01	1.42	1.215
2000	0.99	1.40	1.195
1500	0.92	1.33	1.125
1000	0.79	1.22	1.005
500	0.60	1.09	0.845
1000	0.69	1.11	0.900
2000	0.88	1.24	1.060
3000	0.98	1.36	1.170
4000	1.06	1.48	1.270
5000	1.16	1.63	1.395
6000	1.26	1.80	1.530
5000	1.25	1.81	1.530
4000	1.21	1.79	1.500
3000	1.16	1.75	1.455
2000	1.09	1.65	1.370
1000	0.92	1.43	1.175
500	0.70	1.26	0.980



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.900 D_2 (mm) 1.530

Dc (psi) = 5.56E+05 **Dt = 5.56E+05** psi

3.91E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.900 D_2 (mm) 1.395

Ec (psi) = 7.08E+05 **Et = 7.08E+05** psi

4.98E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

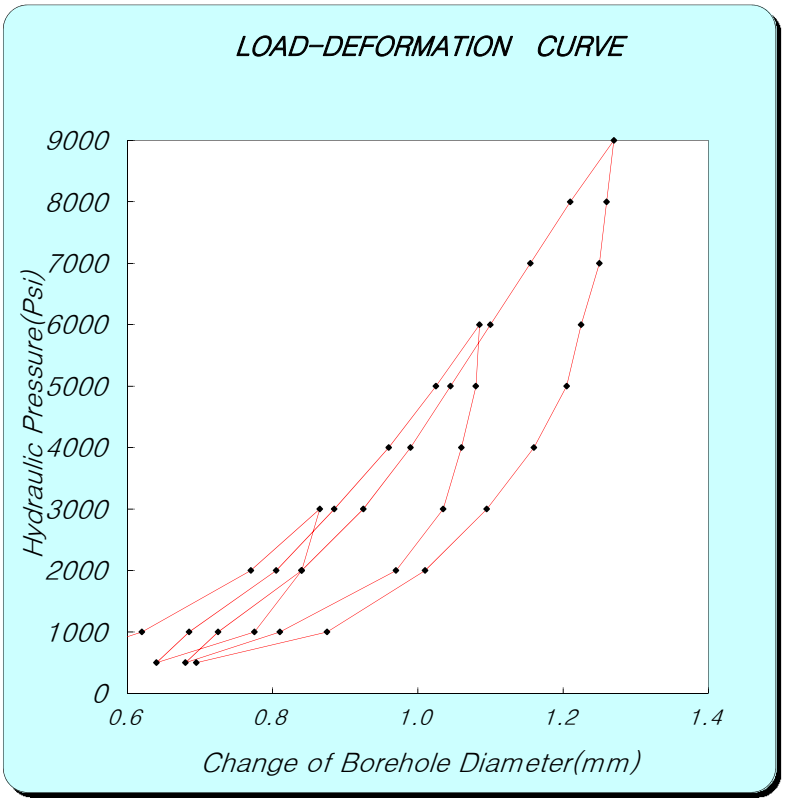
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-37	Rock Name :	GRANITE	Test Date :	2015. 12. 18
Depth :	28.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	3.7m	TCR/RQD(%) :	100/90	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.54	0.44	0.490
1000	0.60	0.64	0.620
2000	0.69	0.85	0.770
3000	0.78	0.95	0.865
2000	0.76	0.92	0.840
1000	0.69	0.86	0.775
500	0.61	0.67	0.640
1000	0.65	0.72	0.685
2000	0.72	0.89	0.805
3000	0.80	0.97	0.885
4000	0.88	1.04	0.960
5000	0.95	1.10	1.025
6000	1.01	1.16	1.085
5000	1.01	1.15	1.080
4000	0.99	1.13	1.060
3000	0.97	1.10	1.035
2000	0.89	1.05	0.970
1000	0.74	0.88	0.810
500	0.66	0.70	0.680
1000	0.69	0.76	0.725
2000	0.77	0.91	0.840
3000	0.85	1.00	0.925
4000	0.92	1.06	0.990
5000	0.97	1.12	1.045
6000	1.03	1.17	1.100
7000	1.08	1.23	1.155
8000	1.14	1.28	1.210
9000	1.21	1.33	1.270
8000	1.20	1.32	1.260
7000	1.19	1.31	1.250
6000	1.17	1.28	1.225
5000	1.15	1.26	1.205
4000	1.10	1.22	1.160
3000	1.03	1.16	1.095
2000	0.95	1.07	1.010
1000	0.82	0.93	0.875
500	0.70	0.69	0.695



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.865 D_2 (mm) 1.270

Dc (psi) = 1.30E+06 **Dt = 1.54E+06** psi

1.08E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.840 D_2 (mm) 1.210

Ec (psi) = 1.42E+06 **Et = 1.79E+06** psi

1.26E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

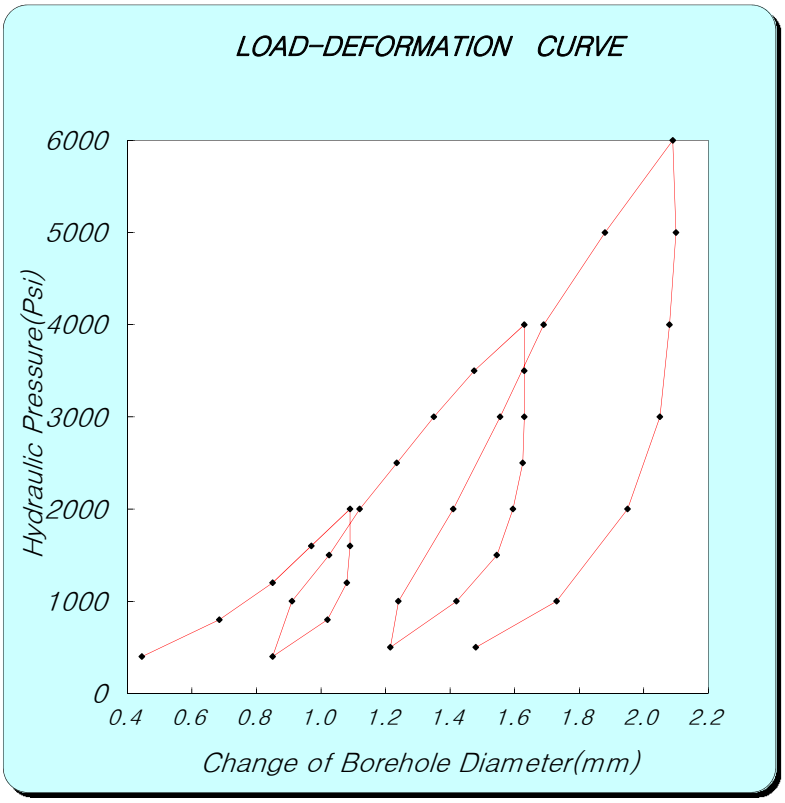
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-38	Rock Name :	GRANITE	Test Date :	2015. 12. 18
Depth :	12.0m	Rock Weathering :	HW~MW	Record By :	JI.G.J
G.W.L(-) :	5.3m	TCR/RQD(%) :	83/16	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.14	0.75	0.445
800	0.43	0.94	0.685
1200	0.62	1.08	0.850
1600	0.74	1.20	0.970
2000	0.87	1.31	1.090
1600	0.87	1.31	1.090
1200	0.87	1.29	1.080
800	0.82	1.22	1.020
400	0.67	1.03	0.850
1000	0.72	1.10	0.910
1500	0.82	1.23	1.025
2000	0.90	1.34	1.120
2500	1.02	1.45	1.235
3000	1.15	1.55	1.350
3500	1.28	1.67	1.475
4000	1.44	1.82	1.630
3500	1.44	1.82	1.630
3000	1.44	1.82	1.630
2500	1.44	1.81	1.625
2000	1.41	1.78	1.595
1500	1.37	1.72	1.545
1000	1.28	1.56	1.420
500	1.10	1.33	1.215
1000	1.12	1.36	1.240
2000	1.22	1.60	1.410
3000	1.36	1.75	1.555
4000	1.50	1.88	1.690
5000	1.69	2.07	1.880
6000	1.91	2.27	2.090
5000	1.92	2.28	2.100
4000	1.91	2.25	2.080
3000	1.88	2.22	2.050
2000	1.79	2.11	1.950
1000	1.61	1.85	1.730
500	1.40	1.56	1.480



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 1.090 D_2 (mm) 2.090

Dc (psi) = 3.51E+05 **Dt = 3.51E+05** psi

2.46E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 5000

ΔD : D_1 (mm) 1.240 D_2 (mm) 1.880

Ec (psi) = 5.48E+05 **Et = 5.48E+05** psi

3.85E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

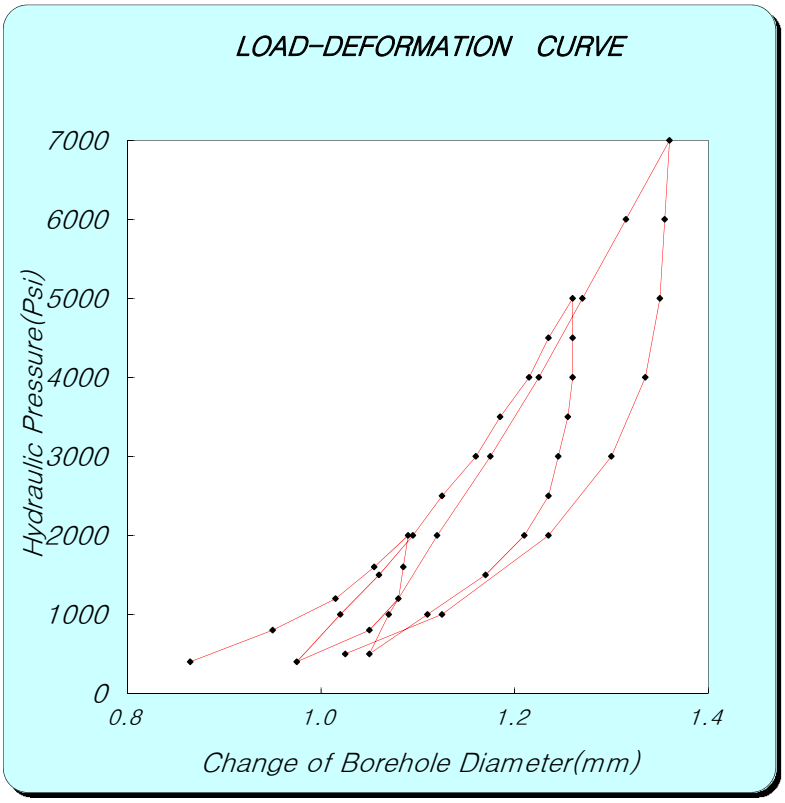
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-38	Rock Name :	GRANITE	Test Date :	2015. 12. 18
Depth :	20.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	5.3m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.76	0.97	0.865
800	0.84	1.06	0.950
1200	0.90	1.13	1.015
1600	0.93	1.18	1.055
2000	0.96	1.22	1.090
1600	0.96	1.21	1.085
1200	0.96	1.20	1.080
800	0.94	1.16	1.050
400	0.89	1.06	0.975
1000	0.91	1.13	1.020
1500	0.94	1.18	1.060
2000	0.97	1.22	1.095
2500	1.00	1.25	1.125
3000	1.03	1.29	1.160
3500	1.05	1.32	1.185
4000	1.08	1.35	1.215
4500	1.10	1.37	1.235
5000	1.13	1.39	1.260
4500	1.13	1.39	1.260
4000	1.13	1.39	1.260
3500	1.13	1.38	1.255
3000	1.12	1.37	1.245
2500	1.11	1.36	1.235
2000	1.09	1.33	1.210
1500	1.06	1.28	1.170
1000	1.01	1.21	1.110
500	0.94	1.16	1.050
1000	0.96	1.18	1.070
2000	1.00	1.24	1.120
3000	1.05	1.30	1.175
4000	1.10	1.35	1.225
5000	1.14	1.40	1.270
6000	1.19	1.44	1.315
7000	1.23	1.49	1.360
6000	1.23	1.48	1.355
5000	1.23	1.47	1.350
4000	1.22	1.45	1.335
3000	1.18	1.42	1.300
2000	1.13	1.34	1.235
1000	1.03	1.22	1.125
500	0.95	1.10	1.025



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	7000		
ΔD :	D_1 (mm)	1.090	D_2 (mm)	1.360		
	Dc (psi) =	**1.62E+06**	**Dt =**	**2.26E+06**	psi	
				1.59E+05	kgf/㎠	

ΔP :	P_1 (Psi)	1000	P_2 (Psi)	6000		
ΔD :	D_1 (mm)	1.070	D_2 (mm)	1.315		
	Ec (psi) =	**1.79E+06**	**Et =**	**2.70E+06**	psi	
				1.90E+05	kgf/㎠	

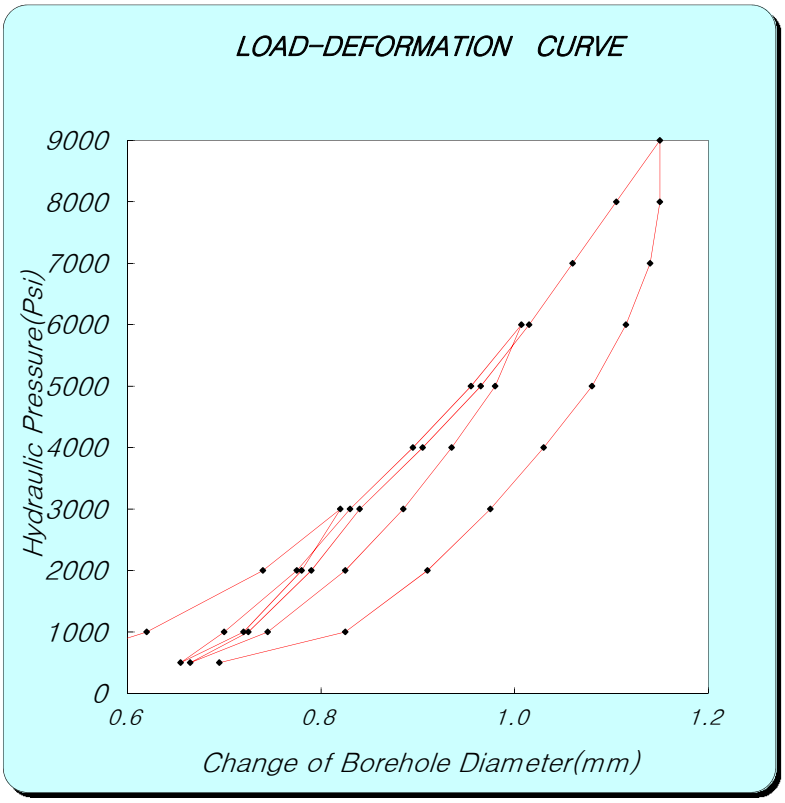
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-38	Rock Name :	GRANITE	Test Date :	2015. 12. 18
Depth :	28.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	5.3m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.77	0.27	0.520
1000	0.86	0.38	0.620
2000	1.02	0.46	0.740
3000	1.11	0.53	0.820
2000	1.04	0.52	0.780
1000	0.98	0.46	0.720
500	0.92	0.39	0.655
1000	0.97	0.43	0.700
2000	1.05	0.50	0.775
3000	1.09	0.57	0.830
4000	1.18	0.61	0.895
5000	1.25	0.66	0.955
6000	1.32	0.69	1.007
5000	1.27	0.69	0.980
4000	1.20	0.67	0.935
3000	1.16	0.61	0.885
2000	1.10	0.55	0.825
1000	1.05	0.44	0.745
500	0.97	0.36	0.665
1000	1.01	0.44	0.725
2000	1.09	0.49	0.790
3000	1.15	0.53	0.840
4000	1.22	0.59	0.905
5000	1.29	0.64	0.965
6000	1.35	0.68	1.015
7000	1.40	0.72	1.060
8000	1.45	0.76	1.105
9000	1.47	0.83	1.150
8000	1.48	0.82	1.150
7000	1.47	0.81	1.140
6000	1.45	0.78	1.115
5000	1.42	0.74	1.080
4000	1.36	0.70	1.030
3000	1.29	0.66	0.975
2000	1.22	0.60	0.910
1000	1.12	0.53	0.825
500	0.94	0.45	0.695



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.820 D_2 (mm) 1.150

Dc (psi) = 1.59E+06 **Dt = 2.19E+06** psi

1.54E+05 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.725 D_2 (mm) 1.105

Ec (psi) = 1.61E+06 **Et = 2.24E+06** psi

1.57E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

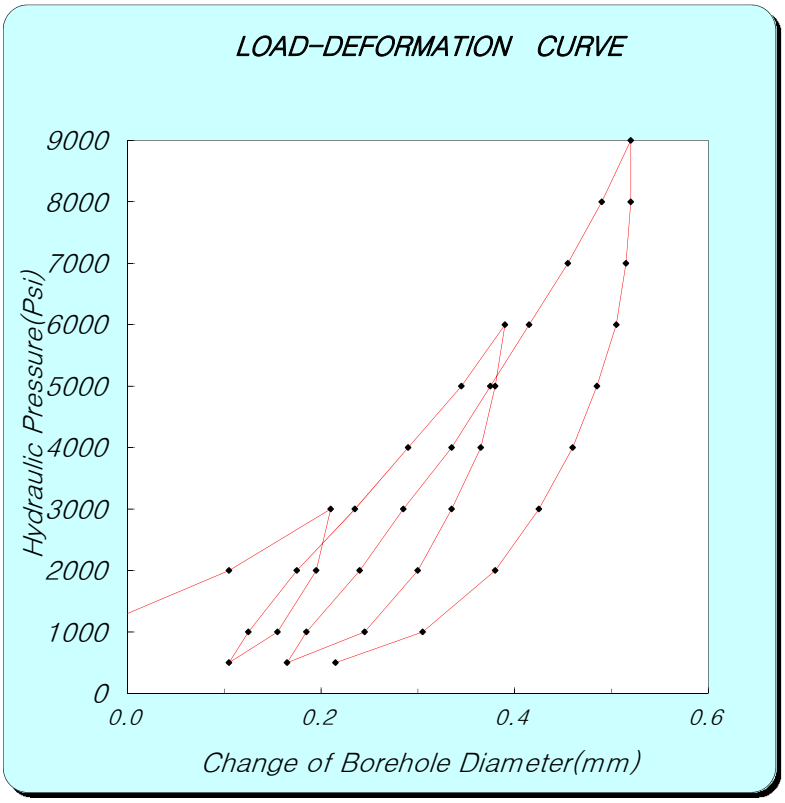
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-40	Rock Name :	GRANITE	Test Date :	2011. 03. 04
Depth :	20.0m	Rock Weathering :	SW	Record By :	S.H.Lee
G.W.L(-) :	1.95m	TCR/RQD(%) :	100/83	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.47	0.07	-0.200
1000	-0.32	0.23	-0.045
2000	-0.18	0.39	0.105
3000	-0.08	0.50	0.210
2000	-0.11	0.50	0.195
1000	-0.15	0.46	0.155
500	-0.19	0.40	0.105
1000	-0.18	0.43	0.125
2000	-0.12	0.47	0.175
3000	-0.06	0.53	0.235
4000	0.00	0.58	0.290
5000	0.05	0.64	0.345
6000	0.10	0.68	0.390
5000	0.07	0.69	0.380
4000	0.05	0.68	0.365
3000	0.01	0.66	0.335
2000	-0.03	0.63	0.300
1000	-0.09	0.58	0.245
500	-0.14	0.47	0.165
1000	-0.12	0.49	0.185
2000	-0.05	0.53	0.240
3000	0.00	0.57	0.285
4000	0.04	0.63	0.335
5000	0.09	0.66	0.375
6000	0.13	0.70	0.415
7000	0.17	0.74	0.455
8000	0.19	0.79	0.490
9000	0.23	0.81	0.520
8000	0.23	0.81	0.520
7000	0.23	0.80	0.515
6000	0.23	0.78	0.505
5000	0.22	0.75	0.485
4000	0.19	0.73	0.460
3000	0.14	0.71	0.425
2000	0.08	0.68	0.380
1000	0.00	0.61	0.305
500	-0.08	0.51	0.215



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.210 D_2 (mm) 0.520

Dc (psi) = 1.70E+06 **Dt = 2.45E+06** psi

1.72E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.240 D_2 (mm) 0.415

Ec (psi) = 2.00E+06 **Et = 3.34E+06** psi

2.35E+05 kgf/㎠

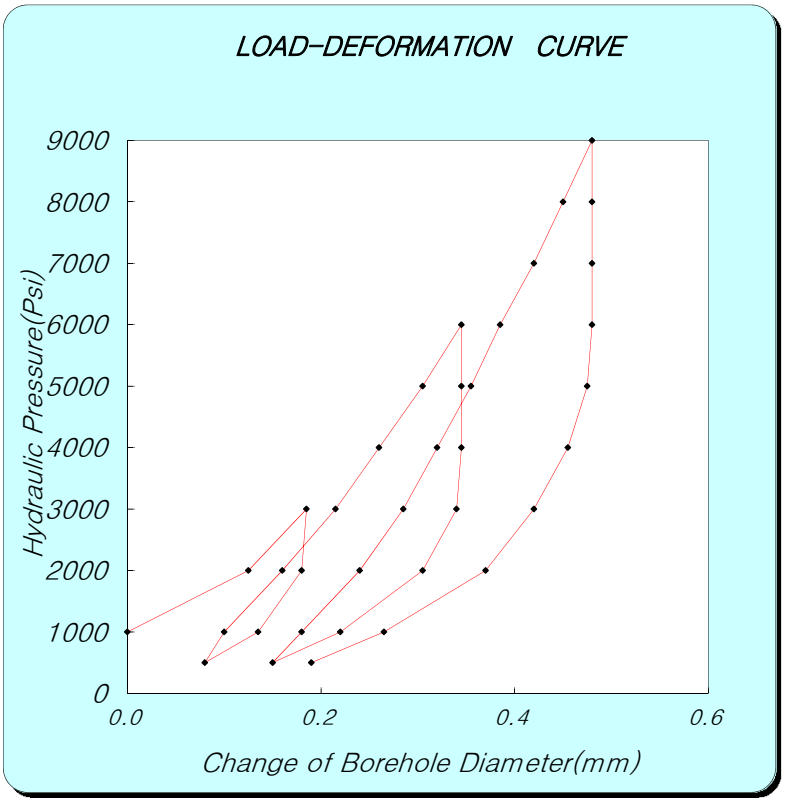
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-40	Rock Name :	GRANITE	Test Date :	2011. 03. 04
Depth :	28.0m	Rock Weathering :	SW	Record By :	S.H.Lee
G.W.L(-) :	1.95m	TCR/RQD(%) :	100/95	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.08	-0.11	-0.095
1000	0.06	-0.06	0.000
2000	0.22	0.03	0.125
3000	0.29	0.08	0.185
2000	0.28	0.08	0.180
1000	0.20	0.07	0.135
500	0.11	0.05	0.080
1000	0.13	0.07	0.100
2000	0.22	0.10	0.160
3000	0.30	0.13	0.215
4000	0.36	0.16	0.260
5000	0.42	0.19	0.305
6000	0.45	0.24	0.345
5000	0.45	0.24	0.345
4000	0.45	0.24	0.345
3000	0.44	0.24	0.340
2000	0.40	0.21	0.305
1000	0.25	0.19	0.220
500	0.14	0.16	0.150
1000	0.18	0.18	0.180
2000	0.28	0.20	0.240
3000	0.35	0.22	0.285
4000	0.40	0.24	0.320
5000	0.44	0.27	0.355
6000	0.48	0.29	0.385
7000	0.53	0.31	0.420
8000	0.54	0.36	0.450
9000	0.58	0.38	0.480
8000	0.58	0.38	0.480
7000	0.58	0.38	0.480
6000	0.58	0.38	0.480
5000	0.57	0.38	0.475
4000	0.55	0.36	0.455
3000	0.51	0.33	0.420
2000	0.43	0.31	0.370
1000	0.27	0.26	0.265
500	0.16	0.22	0.190



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.185 D_2 (mm) 0.480

Dc (psi) = 1.78E+06 **Dt = 2.69E+06** psi

1.89E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.240 D_2 (mm) 0.385

Ec (psi) = 2.42E+06 **Et = 4.81E+06** psi

3.38E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

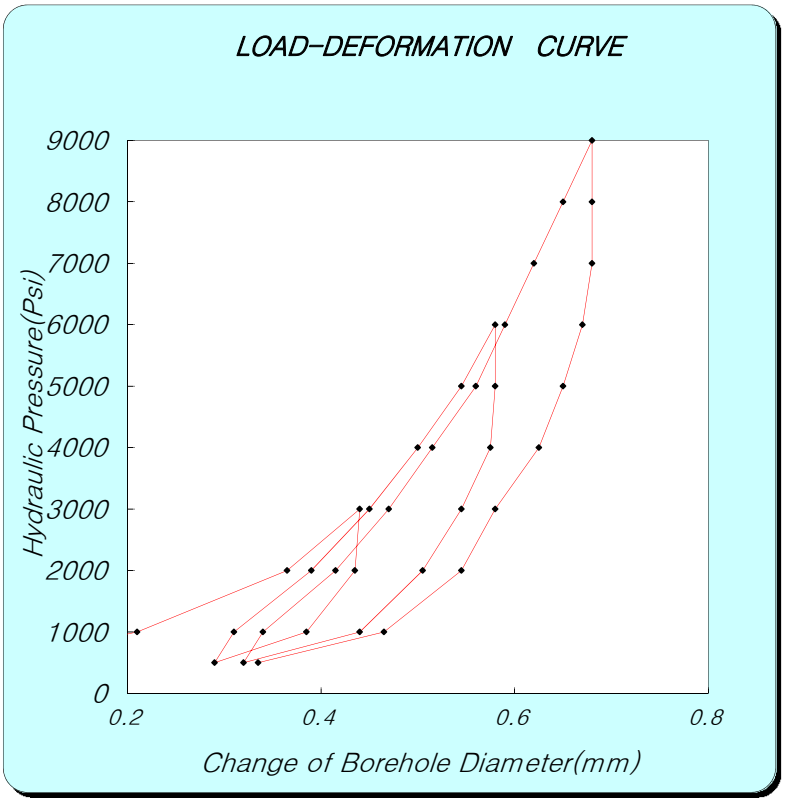
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-40	Rock Name :	GRANITE	Test Date :	2011. 03. 04
Depth :	36.0m	Rock Weathering :	SW	Record By :	S.H.Lee
G.W.L(-) :	1.95m	TCR/RQD(%) :	100/95	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.25	0.37	0.060
1000	-0.05	0.47	0.210
2000	0.11	0.62	0.365
3000	0.20	0.68	0.440
2000	0.19	0.68	0.435
1000	0.13	0.64	0.385
500	0.03	0.55	0.290
1000	0.05	0.57	0.310
2000	0.15	0.63	0.390
3000	0.22	0.68	0.450
4000	0.27	0.73	0.500
5000	0.31	0.78	0.545
6000	0.35	0.81	0.580
5000	0.35	0.81	0.580
4000	0.34	0.81	0.575
3000	0.30	0.79	0.545
2000	0.25	0.76	0.505
1000	0.17	0.71	0.440
500	0.06	0.58	0.320
1000	0.08	0.60	0.340
2000	0.18	0.65	0.415
3000	0.25	0.69	0.470
4000	0.30	0.73	0.515
5000	0.34	0.78	0.560
6000	0.37	0.81	0.590
7000	0.40	0.84	0.620
8000	0.43	0.87	0.650
9000	0.45	0.91	0.680
8000	0.45	0.91	0.680
7000	0.45	0.91	0.680
6000	0.44	0.90	0.670
5000	0.42	0.88	0.650
4000	0.38	0.87	0.625
3000	0.32	0.84	0.580
2000	0.27	0.82	0.545
1000	0.19	0.74	0.465
500	0.08	0.59	0.335



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.440 D_2 (mm) 0.680

Dc (psi) = 2.19E+06 **Dt = 3.97E+06** psi

2.79E+05 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.470 D_2 (mm) 0.620

Ec (psi) = 2.34E+06 **Et = 4.50E+06** psi

3.16E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

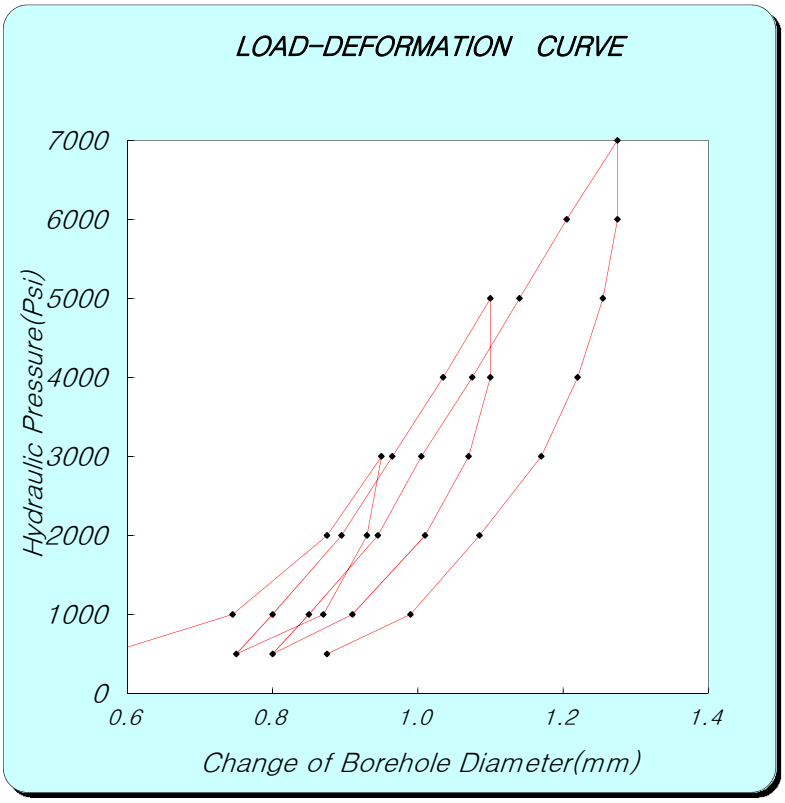
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-41	Rock Name :	GRANITE	Test Date :	2011. 03. 04
Depth :	18.0m	Rock Weathering :	MW	Record By :	S.H.Lee
G.W.L(-) :	1.95m	TCR/RQD(%) :	100/92	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.46	0.68	0.570
1000	0.52	0.97	0.745
2000	0.62	1.13	0.875
3000	0.69	1.21	0.950
2000	0.66	1.20	0.930
1000	0.59	1.15	0.870
500	0.50	1.00	0.750
1000	0.54	1.06	0.800
2000	0.63	1.16	0.895
3000	0.70	1.23	0.965
4000	0.76	1.31	1.035
5000	0.82	1.38	1.100
4000	0.82	1.38	1.100
3000	0.77	1.37	1.070
2000	0.71	1.31	1.010
1000	0.62	1.20	0.910
500	0.54	1.06	0.800
1000	0.58	1.12	0.850
2000	0.67	1.22	0.945
3000	0.73	1.28	1.005
4000	0.80	1.35	1.075
5000	0.85	1.43	1.140
6000	0.91	1.50	1.205
7000	0.97	1.58	1.275
6000	0.97	1.58	1.275
5000	0.94	1.57	1.255
4000	0.88	1.56	1.220
3000	0.83	1.51	1.170
2000	0.75	1.42	1.085
1000	0.67	1.31	0.990
500	0.58	1.17	0.875



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.950 D_2 (mm) 1.275

Dc (psi) = 1.08E+06 **Dt = 1.19E+06** psi

8.38E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.945 D_2 (mm) 1.140

Ec (psi) = 1.35E+06 **Et = 1.64E+06** psi

1.15E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

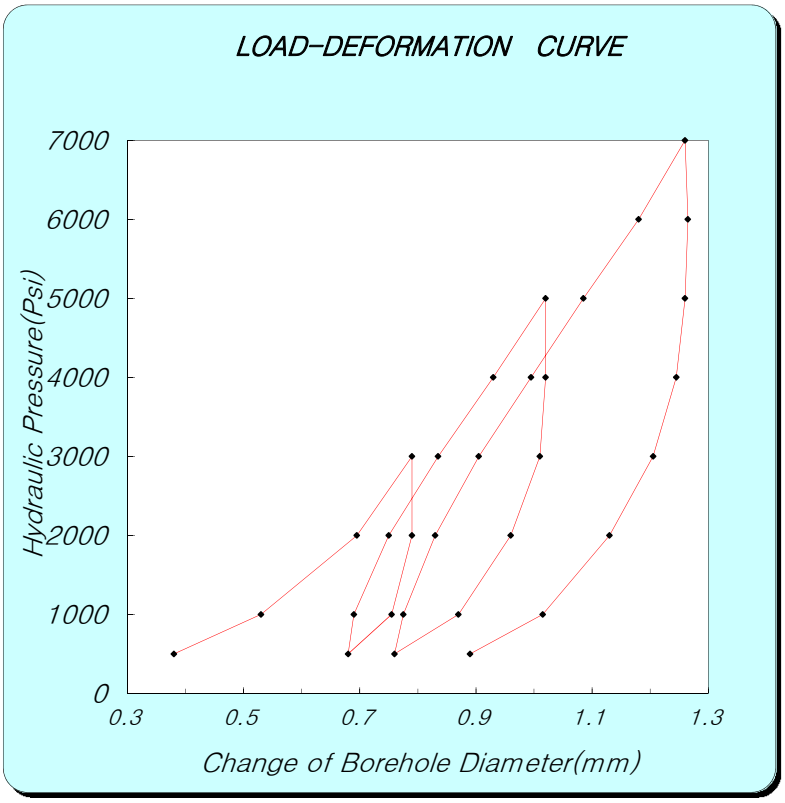
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-41	Rock Name :	GRANITE	Test Date :	2011. 03. 04
Depth :	26.0m	Rock Weathering :	MW	Record By :	S.H.Lee
G.W.L(-) :	1.95m	TCR/RQD(%) :	100/91	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.53	0.23	0.380
1000	0.68	0.38	0.530
2000	0.83	0.56	0.695
3000	0.94	0.64	0.790
2000	0.94	0.64	0.790
1000	0.88	0.63	0.755
500	0.81	0.55	0.680
1000	0.82	0.56	0.690
2000	0.89	0.61	0.750
3000	0.97	0.70	0.835
4000	1.08	0.78	0.930
5000	1.22	0.82	1.020
4000	1.22	0.82	1.020
3000	1.19	0.83	1.010
2000	1.12	0.80	0.960
1000	1.07	0.67	0.870
500	1.00	0.52	0.760
1000	1.01	0.54	0.775
2000	1.06	0.60	0.830
3000	1.13	0.68	0.905
4000	1.18	0.81	0.995
5000	1.27	0.90	1.085
6000	1.33	1.03	1.180
7000	1.40	1.12	1.260
6000	1.41	1.12	1.265
5000	1.41	1.11	1.260
4000	1.40	1.09	1.245
3000	1.40	1.01	1.205
2000	1.36	0.90	1.130
1000	1.27	0.76	1.015
500	1.09	0.69	0.890



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.790 D_2 (mm) 1.260

Dc (psi) = 7.46E+05 **Dt = 7.46E+05** psi

5.24E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.830 D_2 (mm) 1.085

Ec (psi) = 1.03E+06 **Et = 1.13E+06** psi

7.97E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

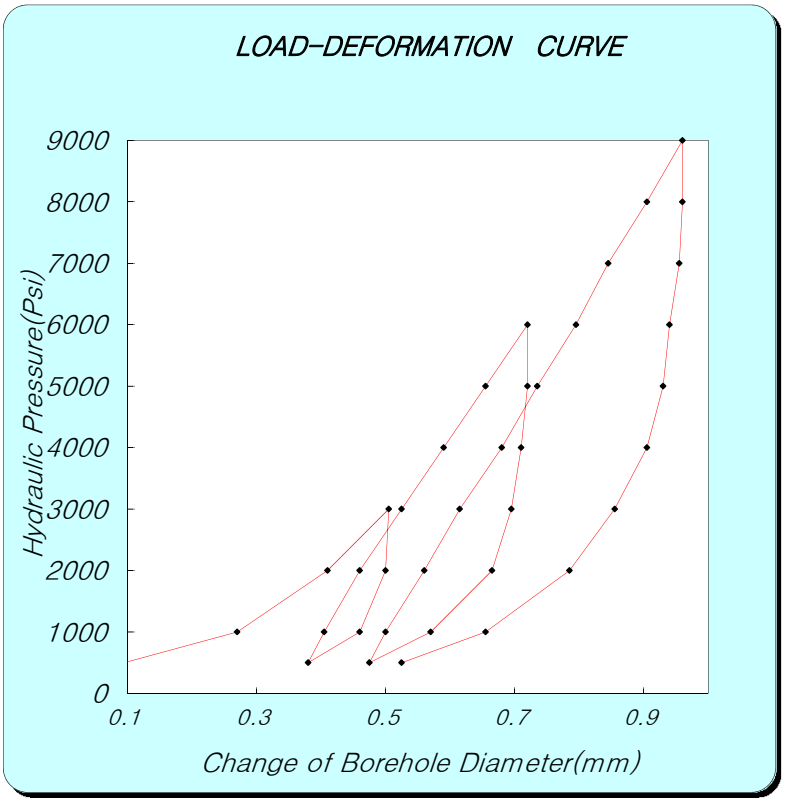
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-41	Rock Name :	GRANITE	Test Date :	2011. 03. 04
Depth :	34.0m	Rock Weathering :	SW	Record By :	S.H.Lee
G.W.L(-) :	1.95m	TCR/RQD(%) :	100/91	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.05	0.14	0.095
1000	0.26	0.28	0.270
2000	0.36	0.46	0.410
3000	0.45	0.56	0.505
2000	0.44	0.56	0.500
1000	0.40	0.52	0.460
500	0.32	0.44	0.380
1000	0.36	0.45	0.405
2000	0.41	0.51	0.460
3000	0.46	0.59	0.525
4000	0.54	0.64	0.590
5000	0.60	0.71	0.655
6000	0.66	0.78	0.720
5000	0.66	0.78	0.720
4000	0.65	0.77	0.710
3000	0.64	0.75	0.695
2000	0.62	0.71	0.665
1000	0.52	0.62	0.570
500	0.50	0.45	0.475
1000	0.53	0.47	0.500
2000	0.60	0.52	0.560
3000	0.64	0.59	0.615
4000	0.70	0.66	0.680
5000	0.74	0.73	0.735
6000	0.80	0.79	0.795
7000	0.85	0.84	0.845
8000	0.90	0.91	0.905
9000	0.95	0.97	0.960
8000	0.95	0.97	0.960
7000	0.95	0.96	0.955
6000	0.93	0.95	0.940
5000	0.91	0.95	0.930
4000	0.87	0.94	0.905
3000	0.80	0.91	0.855
2000	0.70	0.87	0.785
1000	0.63	0.68	0.655
500	0.54	0.51	0.525



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.505 D_2 (mm) 0.960

Dc (psi) = 1.16E+06 **Dt = 1.30E+06** psi

9.14E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.560 D_2 (mm) 0.795

Ec (psi) = 1.49E+06 **Et = 1.94E+06** psi

1.37E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

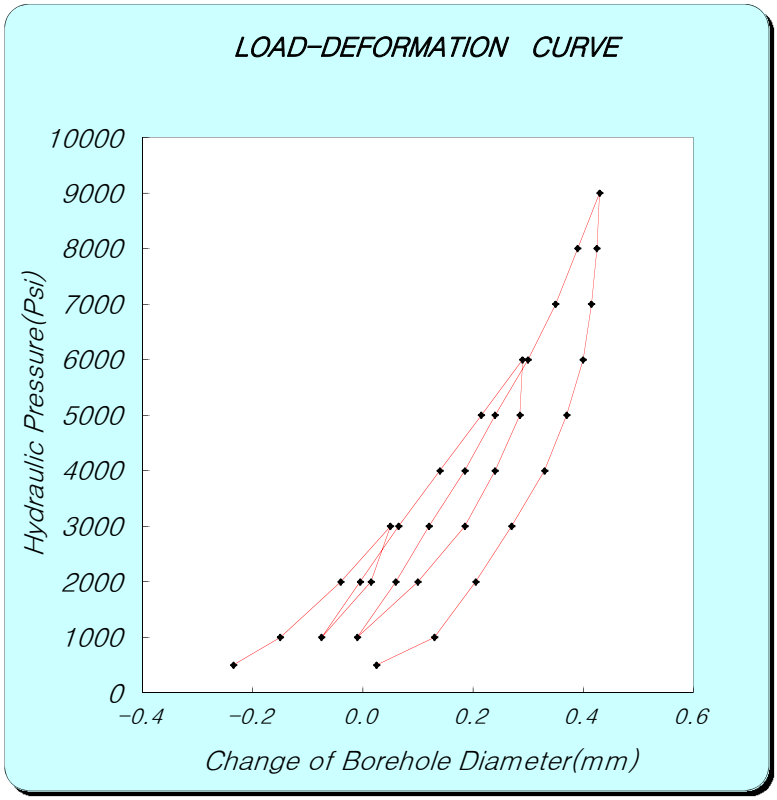
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-42	Rock Name :	GRANITE	Test Date :	2010. 12. 21
Depth :	7.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	1.0m	TCR/RQD(%) :	100/70	Checked By :	Y.K.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.40	-0.75	-0.575
500	-0.15	-0.32	-0.235
1000	-0.07	-0.23	-0.150
2000	0.03	-0.11	-0.040
3000	0.11	-0.01	0.050
2000	0.09	-0.06	0.015
1000	0.01	-0.16	-0.075
2000	0.07	-0.08	-0.005
3000	0.13	0.00	0.065
4000	0.20	0.08	0.140
5000	0.27	0.16	0.215
6000	0.33	0.25	0.290
5000	0.33	0.24	0.285
4000	0.29	0.19	0.240
3000	0.25	0.12	0.185
2000	0.17	0.03	0.100
1000	0.07	-0.09	-0.010
2000	0.12	0.00	0.060
3000	0.19	0.05	0.120
4000	0.26	0.11	0.185
5000	0.31	0.17	0.240
6000	0.40	0.20	0.300
7000	0.47	0.23	0.350
8000	0.50	0.28	0.390
9000	0.53	0.33	0.430
8000	0.51	0.34	0.425
7000	0.49	0.34	0.415
6000	0.46	0.34	0.400
5000	0.41	0.33	0.370
4000	0.36	0.30	0.330
3000	0.28	0.26	0.270
2000	0.16	0.25	0.205
1000	0.09	0.17	0.130
500	-0.05	0.10	0.025



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.050 D_2 (mm) 0.430

Dc (psi) = 1.38E+06 **Dt = 1.71E+06** psi

1.20E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.060 D_2 (mm) 0.350

Ec (psi) = 1.51E+06 **Et = 1.99E+06** psi

1.40E+05 kgf/㎠

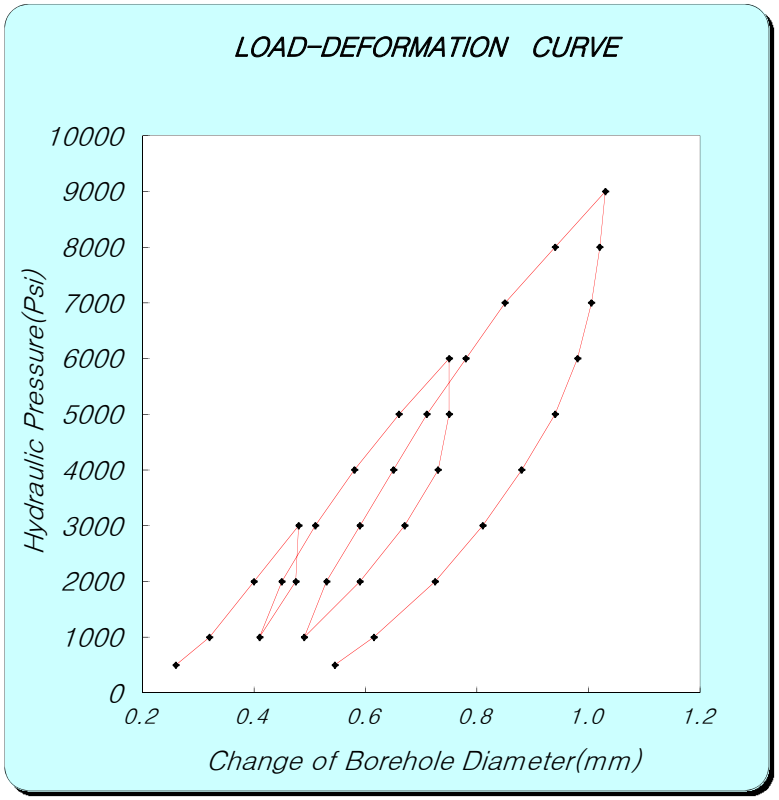
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-42	Rock Name :	GRANITE	Test Date :	2010. 12. 21
Depth :	15.0m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	1.0m	TCR/RQD(%) :	100/90	Checked By :	Y.K.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	0.00	0.30	0.150
500	0.06	0.46	0.260
1000	0.12	0.52	0.320
2000	0.20	0.60	0.400
3000	0.28	0.68	0.480
2000	0.28	0.67	0.475
1000	0.21	0.61	0.410
2000	0.25	0.65	0.450
3000	0.31	0.71	0.510
4000	0.38	0.78	0.580
5000	0.46	0.86	0.660
6000	0.55	0.95	0.750
5000	0.56	0.94	0.750
4000	0.53	0.93	0.730
3000	0.47	0.87	0.670
2000	0.39	0.79	0.590
1000	0.29	0.69	0.490
2000	0.33	0.73	0.530
3000	0.39	0.79	0.590
4000	0.45	0.85	0.650
5000	0.51	0.91	0.710
6000	0.58	0.98	0.780
7000	0.65	1.05	0.850
8000	0.78	1.10	0.940
9000	0.89	1.17	1.030
8000	0.88	1.16	1.020
7000	0.87	1.14	1.005
6000	0.86	1.10	0.980
5000	0.81	1.07	0.940
4000	0.75	1.01	0.880
3000	0.67	0.95	0.810
2000	0.56	0.89	0.725
1000	0.45	0.78	0.615
500	0.37	0.72	0.545



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.480 D_2 (mm) 1.030

Dc (psi) = 9.56E+05 **Dt = 1.06E+06** psi

7.44E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.530 D_2 (mm) 0.850

Ec (psi) = 1.37E+06 **Et = 1.68E+06** psi

1.18E+05 kgf/㎠

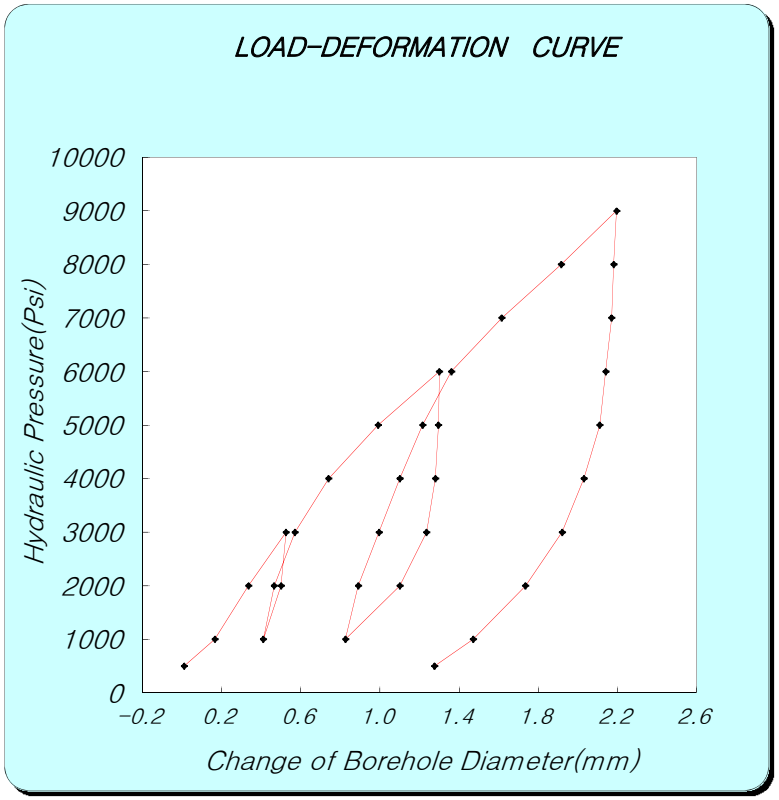
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지 세부조사

Hole No. :	GR-42	Rock Name :	GRANITE	Test Date :	2010. 12. 21
Depth :	23.0m	Rock Class :	MW	Record By :	Y.G.Shin
G.W.L :	1.0m	TCR/RQD(%) :	100/100	Checked By :	Y.K.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.70	-0.25	-0.475
500	0.00	0.02	0.010
1000	0.23	0.10	0.165
2000	0.42	0.25	0.335
3000	0.61	0.44	0.525
2000	0.60	0.40	0.500
1000	0.50	0.32	0.410
2000	0.54	0.39	0.465
3000	0.66	0.48	0.570
4000	0.83	0.65	0.740
5000	1.08	0.90	0.990
6000	1.39	1.21	1.300
5000	1.39	1.20	1.295
4000	1.37	1.19	1.280
3000	1.32	1.15	1.235
2000	1.19	1.01	1.100
1000	0.85	0.80	0.825
2000	0.97	0.81	0.890
3000	1.06	0.93	0.995
4000	1.19	1.01	1.100
5000	1.31	1.12	1.215
6000	1.45	1.27	1.360
7000	1.68	1.55	1.615
8000	1.95	1.88	1.915
9000	2.24	2.15	2.195
8000	2.27	2.09	2.180
7000	2.26	2.08	2.170
6000	2.23	2.05	2.140
5000	2.20	2.02	2.110
4000	2.12	1.94	2.030
3000	2.01	1.83	1.920
2000	1.84	1.63	1.735
1000	1.54	1.40	1.470
500	1.35	1.20	1.275



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.525 D_2 (mm) 2.195

Dc (psi) = 3.15E+05 **Dt = 3.15E+05** psi

2.21E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.890 D_2 (mm) 1.215

Ec (psi) = 8.09E+05 **Et = 8.09E+05** psi

5.69E+04 kgf/㎠

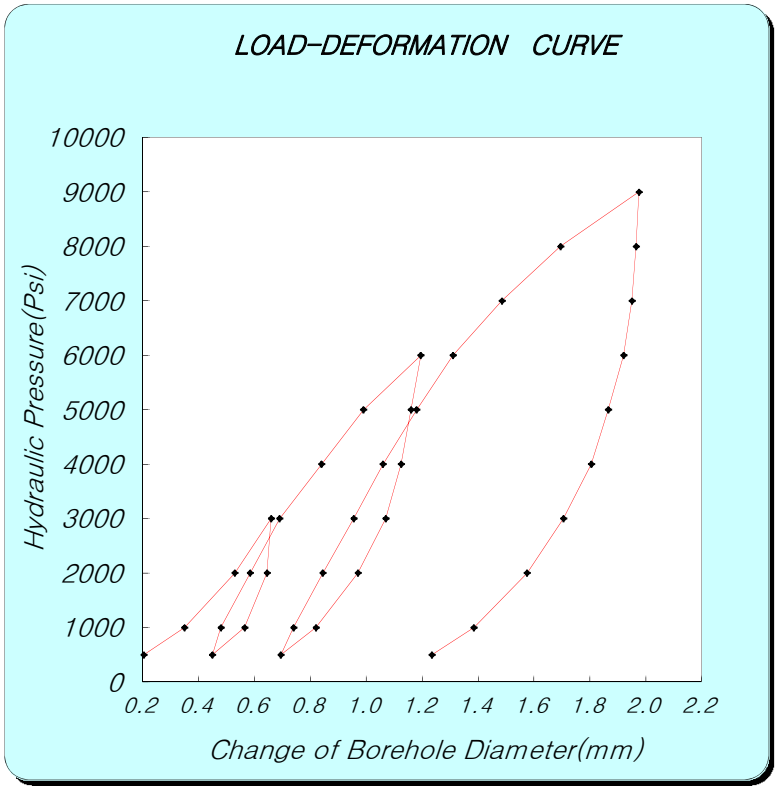
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기부지 세부조사

Hole No. :	GR-44	Rock Name :	GRANITE	Test Date :	2011. 1. 6
Depth :	8.0m	Rock Class :	MW	Record By :	Y.G.Shin
G.W.L :	1.7m	TCR/RQD(%) :	100/92	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0	-0.7	-0.5	
500	0.28	0.13	0.205
1000	0.43	0.27	0.350
2000	0.60	0.46	0.530
3000	0.73	0.59	0.660
2000	0.72	0.57	0.645
1000	0.58	0.55	0.565
500	0.48	0.42	0.450
1000	0.52	0.44	0.480
2000	0.65	0.52	0.585
3000	0.76	0.62	0.690
4000	0.91	0.77	0.840
5000	1.08	0.90	0.990
6000	1.26	1.13	1.195
5000	1.23	1.09	1.160
4000	1.20	1.05	1.125
3000	1.16	0.98	1.070
2000	1.07	0.87	0.970
1000	0.90	0.74	0.820
500	0.77	0.62	0.695
1000	0.80	0.68	0.740
2000	0.91	0.78	0.845
3000	1.02	0.89	0.955
4000	1.14	0.98	1.060
5000	1.24	1.12	1.180
6000	1.35	1.27	1.310
7000	1.55	1.42	1.485
8000	1.82	1.57	1.695
9000	2.08	1.87	1.975
8000	2.07	1.86	1.965
7000	2.06	1.84	1.950
6000	2.03	1.81	1.920
5000	1.96	1.77	1.865
4000	1.88	1.73	1.805
3000	1.78	1.63	1.705
2000	1.65	1.50	1.575
1000	1.46	1.31	1.385
500	1.29	1.18	1.235



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.660 D_2 (mm) 1.975

Dc (psi) = 4.00E+05 **Dt = 4.00E+05** psi

2.81E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.845 D_2 (mm) 1.310

Ec (psi) = 7.54E+05 **Et = 7.54E+05** psi

5.30E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

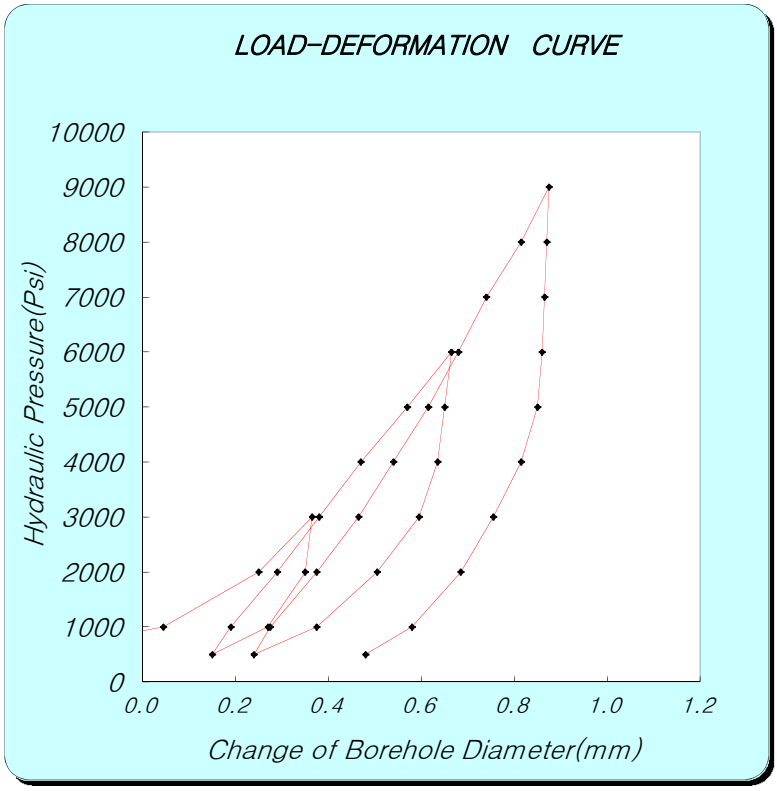
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기부지 세부조사

Hole No. :	GR-44	Rock Name :	GRANITE	Test Date :	2011. 1. 6
Depth :	17.0m	Rock Class :	MW	Record By :	Y.G.Shin
G.W.L :	1.7m	TCR/RQD(%) :	100/88	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.06	-0.60	-0.270
1000	0.21	-0.12	0.045
2000	0.39	0.11	0.250
3000	0.50	0.23	0.365
2000	0.48	0.22	0.350
1000	0.41	0.13	0.270
500	0.28	0.02	0.150
1000	0.31	0.07	0.190
2000	0.43	0.15	0.290
3000	0.52	0.24	0.380
4000	0.61	0.33	0.470
5000	0.70	0.44	0.570
6000	0.78	0.55	0.665
5000	0.77	0.53	0.650
4000	0.77	0.50	0.635
3000	0.76	0.43	0.595
2000	0.66	0.35	0.505
1000	0.51	0.24	0.375
500	0.37	0.11	0.240
1000	0.39	0.16	0.275
2000	0.50	0.25	0.375
3000	0.59	0.34	0.465
4000	0.67	0.41	0.540
5000	0.75	0.48	0.615
6000	0.81	0.55	0.680
7000	0.85	0.63	0.740
8000	0.94	0.69	0.815
9000	1.01	0.74	0.875
8000	1.00	0.74	0.870
7000	0.99	0.74	0.865
6000	0.99	0.73	0.860
5000	0.98	0.72	0.850
4000	0.95	0.68	0.815
3000	0.90	0.61	0.755
2000	0.86	0.51	0.685
1000	0.72	0.44	0.580
500	0.61	0.35	0.480



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.365 D_2 (mm) 0.875

Dc (psi) = 1.03E+06 **Dt = 1.13E+06** psi

7.97E+04 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 8000

ΔD : D_1 (mm) 0.465 D_2 (mm) 0.815

Ec (psi) = 1.25E+06 **Et = 1.46E+06** psi

1.02E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

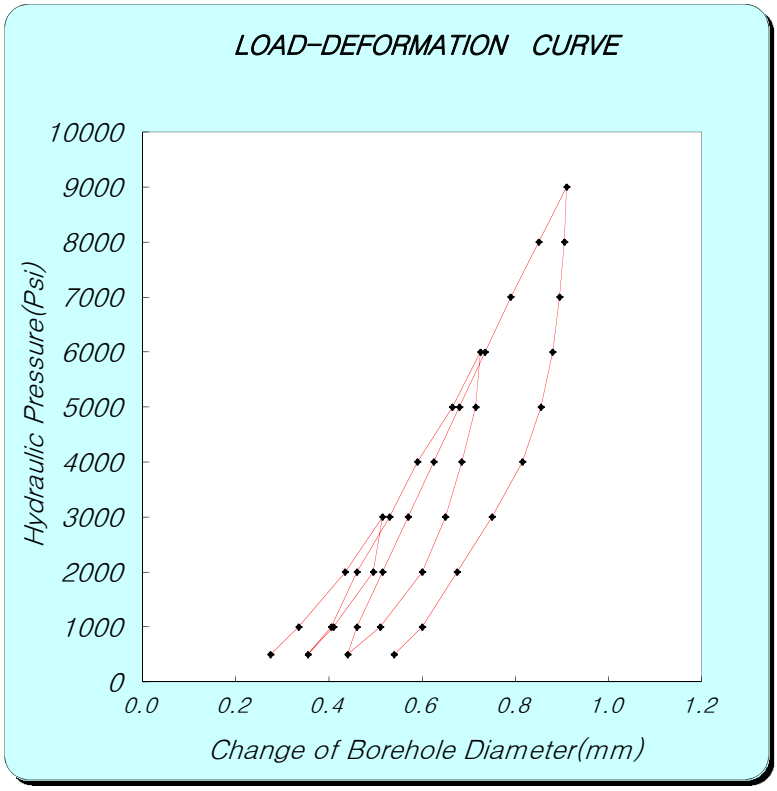
* If Ec >1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기부지 세부조사

Hole No. :	GR-44	Rock Name :	GRANITE	Test Date :	2011. 1. 6
Depth :	26.5m	Rock Class :	SW	Record By :	Y.G.Shin
G.W.L :	1.7m	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
0			
500	0.45	0.10	0.275
1000	0.51	0.16	0.335
2000	0.60	0.27	0.435
3000	0.68	0.35	0.515
2000	0.66	0.33	0.495
1000	0.57	0.25	0.410
500	0.52	0.19	0.355
1000	0.57	0.24	0.405
2000	0.63	0.29	0.460
3000	0.69	0.37	0.530
4000	0.76	0.42	0.590
5000	0.83	0.50	0.665
6000	0.90	0.55	0.725
5000	0.89	0.54	0.715
4000	0.85	0.52	0.685
3000	0.83	0.47	0.650
2000	0.79	0.41	0.600
1000	0.67	0.35	0.510
500	0.61	0.27	0.440
1000	0.63	0.29	0.460
2000	0.68	0.35	0.515
3000	0.73	0.41	0.570
4000	0.79	0.46	0.625
5000	0.85	0.51	0.680
6000	0.91	0.56	0.735
7000	0.96	0.62	0.790
8000	1.02	0.68	0.850
9000	1.07	0.75	0.910
8000	1.06	0.75	0.905
7000	1.06	0.73	0.895
6000	1.05	0.71	0.880
5000	1.04	0.67	0.855
4000	0.99	0.64	0.815
3000	0.91	0.59	0.750
2000	0.83	0.52	0.675
1000	0.73	0.47	0.600
500	0.68	0.40	0.540



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.515 D_2 (mm) 0.910

Dc (psi) = 1.33E+06 **Dt = 1.60E+06** psi

1.13E+05 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.460 D_2 (mm) 0.790

Ec (psi) = 1.59E+06 **Et = 2.19E+06** psi

1.54E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

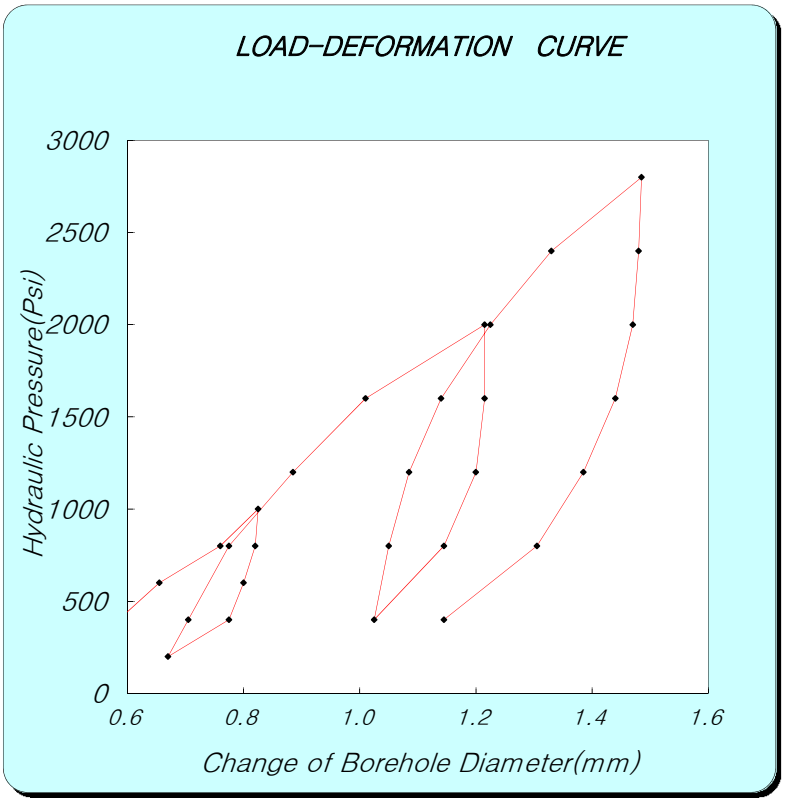
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-46	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	9.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	5.4m	TCR/RQD(%) :	76/67	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
200	0.33	0.72	0.525
400	0.39	0.78	0.585
600	0.47	0.84	0.655
800	0.64	0.88	0.760
1000	0.72	0.93	0.825
800	0.71	0.93	0.820
600	0.68	0.92	0.800
400	0.65	0.90	0.775
200	0.53	0.81	0.670
400	0.57	0.84	0.705
800	0.63	0.92	0.775
1200	0.73	1.04	0.885
1600	0.88	1.14	1.010
2000	1.08	1.35	1.215
1600	1.08	1.35	1.215
1200	1.06	1.34	1.200
800	1.01	1.28	1.145
400	0.92	1.13	1.025
800	0.94	1.16	1.050
1200	0.97	1.20	1.085
1600	1.02	1.26	1.140
2000	1.10	1.35	1.225
2400	1.20	1.46	1.330
2800	1.35	1.62	1.485
2400	1.35	1.61	1.480
2000	1.34	1.60	1.470
1600	1.31	1.57	1.440
1200	1.26	1.51	1.385
800	1.18	1.43	1.305
400	1.02	1.27	1.145



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 1000 P_2 (Psi) 2800

ΔD : D_1 (mm) 0.825 D_2 (mm) 1.485

Dc (psi) = 2.39E+05 **Dt = 2.39E+05** psi

1.68E+04 kgf/㎠

ΔP : P_1 (Psi) 1200 P_2 (Psi) 2400

ΔD : D_1 (mm) 1.085 D_2 (mm) 1.330

Ec (psi) = 4.29E+05 **Et = 4.29E+05** psi

3.02E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

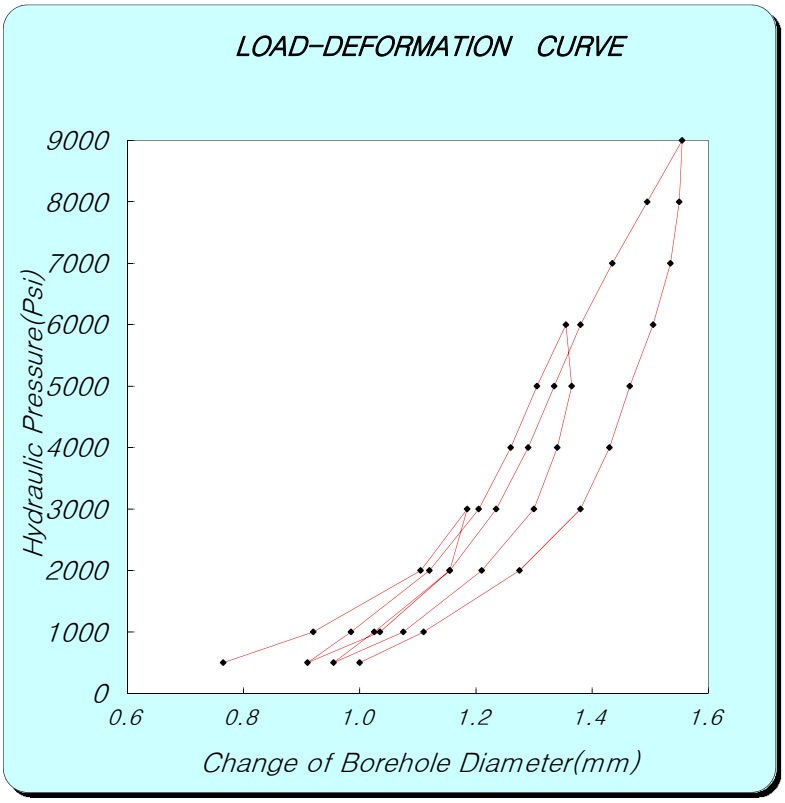
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-46	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	17.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	5.4m	TCR/RQD(%) :	100/91	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.58	0.95	0.765
1000	0.73	1.11	0.920
2000	0.91	1.30	1.105
3000	1.01	1.36	1.185
2000	0.98	1.33	1.155
1000	0.86	1.21	1.035
500	0.77	1.05	0.910
1000	0.83	1.14	0.985
2000	0.95	1.29	1.120
3000	1.04	1.37	1.205
4000	1.11	1.41	1.260
5000	1.16	1.45	1.305
6000	1.21	1.50	1.355
5000	1.23	1.50	1.365
4000	1.23	1.45	1.340
3000	1.20	1.40	1.300
2000	1.09	1.33	1.210
1000	0.94	1.21	1.075
500	0.85	1.06	0.955
1000	0.90	1.15	1.025
2000	1.01	1.30	1.155
3000	1.10	1.37	1.235
4000	1.16	1.42	1.290
5000	1.20	1.47	1.335
6000	1.25	1.51	1.380
7000	1.31	1.56	1.435
8000	1.38	1.61	1.495
9000	1.45	1.66	1.555
8000	1.45	1.65	1.550
7000	1.45	1.62	1.535
6000	1.43	1.58	1.505
5000	1.40	1.53	1.465
4000	1.38	1.48	1.430
3000	1.35	1.41	1.380
2000	1.21	1.34	1.275
1000	1.01	1.21	1.110
500	0.91	1.09	1.000



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	1.185	D_2 (mm)	1.555		
	Dc (psi) =	**1.42E+06**	**Dt =**	**1.79E+06**	psi	
				1.26E+05	kgf/㎠	

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	1.155	D_2 (mm)	1.495		
	Ec (psi) =	**1.55E+06**	**Et =**	**2.07E+06**	psi	
				1.46E+05	kgf/㎠	

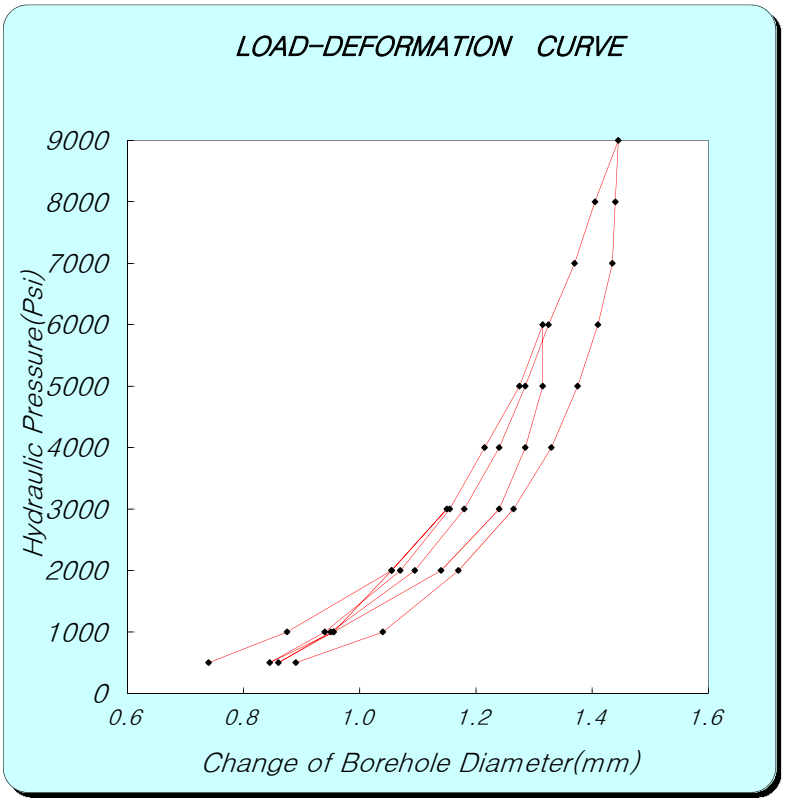
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-46	Rock Name :	GRANITE	Test Date :	2016. 1. 6
Depth :	25.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	5.4m	TCR/RQD(%) :	100/92	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.51	0.97	0.740
1000	0.67	1.08	0.875
2000	0.90	1.21	1.055
3000	1.02	1.28	1.150
2000	0.91	1.20	1.055
1000	0.79	1.12	0.955
500	0.66	1.03	0.845
1000	0.77	1.11	0.940
2000	0.93	1.21	1.070
3000	1.03	1.28	1.155
4000	1.10	1.33	1.215
5000	1.17	1.38	1.275
6000	1.21	1.42	1.315
5000	1.21	1.42	1.315
4000	1.17	1.40	1.285
3000	1.11	1.37	1.240
2000	1.01	1.27	1.140
1000	0.80	1.11	0.955
500	0.69	1.03	0.860
1000	0.79	1.11	0.950
2000	0.96	1.23	1.095
3000	1.06	1.30	1.180
4000	1.13	1.35	1.240
5000	1.18	1.39	1.285
6000	1.22	1.43	1.325
7000	1.27	1.47	1.370
8000	1.31	1.50	1.405
9000	1.35	1.54	1.445
8000	1.34	1.54	1.440
7000	1.34	1.53	1.435
6000	1.31	1.51	1.410
5000	1.26	1.49	1.375
4000	1.20	1.46	1.330
3000	1.14	1.39	1.265
2000	1.04	1.30	1.170
1000	0.91	1.17	1.040
500	0.73	1.05	0.890



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1.519	1.474	1.438	1.397	1.366	1.289	1.151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000	
ΔD :	D_1 (mm)	1.150	D_2 (mm)	1.445	
	Dc (psi) =	**1.78E+06**	**Dt =**	**2.69E+06**	psi
				1.89E+05	kgf/㎠

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	8000	
ΔD :	D_1 (mm)	1.095	D_2 (mm)	1.405	
	Ec (psi) =	**1.70E+06**	**Et =**	**2.45E+06**	psi
				1.72E+05	kgf/㎠

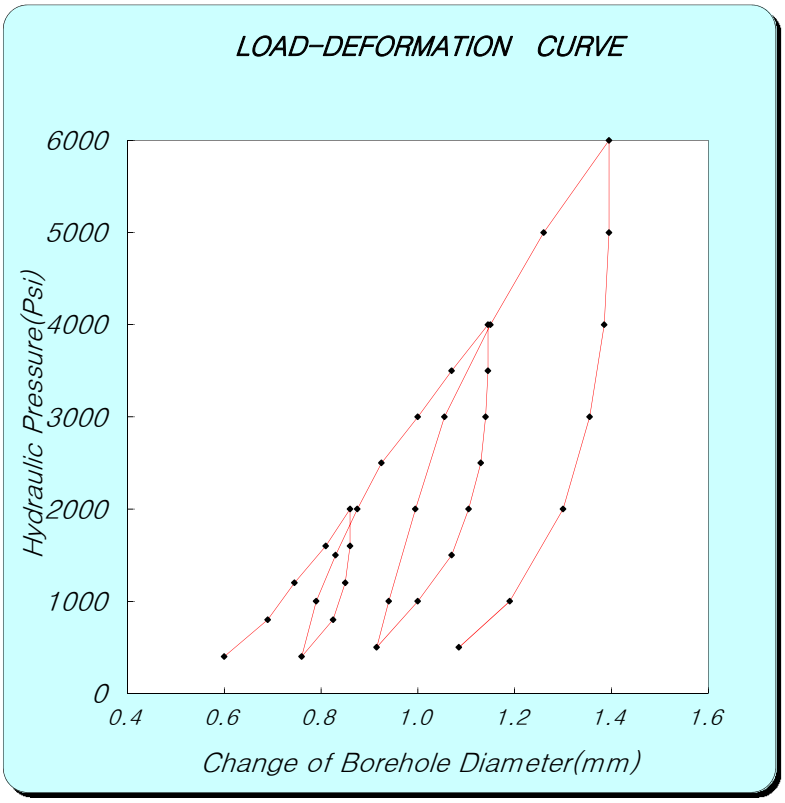
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-47	Rock Name :	GRANITE	Test Date :	2016. 1. 7
Depth :	12.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	6.0m	TCR/RQD(%) :	100/100	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.57	0.63	0.600
800	0.66	0.72	0.690
1200	0.70	0.79	0.745
1600	0.76	0.86	0.810
2000	0.82	0.90	0.860
1600	0.82	0.90	0.860
1200	0.81	0.89	0.850
800	0.79	0.86	0.825
400	0.73	0.79	0.760
1000	0.75	0.83	0.790
1500	0.79	0.87	0.830
2000	0.83	0.92	0.875
2500	0.88	0.97	0.925
3000	0.96	1.04	1.000
3500	1.01	1.13	1.070
4000	1.06	1.23	1.145
3500	1.06	1.23	1.145
3000	1.05	1.23	1.140
2500	1.04	1.22	1.130
2000	1.02	1.19	1.105
1500	0.99	1.15	1.070
1000	0.94	1.06	1.000
500	0.88	0.95	0.915
1000	0.90	0.98	0.940
2000	0.95	1.04	0.995
3000	1.01	1.10	1.055
4000	1.08	1.22	1.150
5000	1.14	1.38	1.260
6000	1.28	1.51	1.395
5000	1.28	1.51	1.395
4000	1.27	1.50	1.385
3000	1.25	1.46	1.355
2000	1.20	1.40	1.300
1000	1.12	1.26	1.190
500	1.02	1.15	1.085



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	2000	P_2 (Psi)	6000		
ΔD :	D_1 (mm)	0.860	D_2 (mm)	1.395		
	Dc (psi) =	**6.55E+05**	**Dt =**	**6.55E+05**	psi	
				4.61E+04	kgf/㎠	

ΔP :	P_1 (Psi)	1000	P_2 (Psi)	5000		
ΔD :	D_1 (mm)	0.940	D_2 (mm)	1.260		
	Ec (psi) =	**1.10E+06**	**Et =**	**1.21E+06**	psi	
				8.53E+04	kgf/㎠	

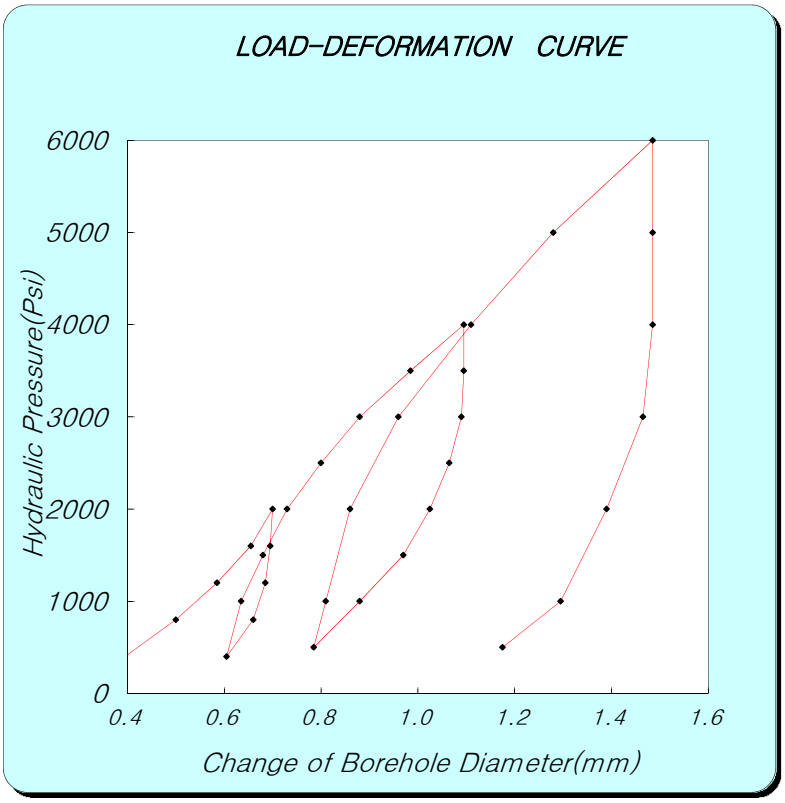
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-47	Rock Name :	GRANITE	Test Date :	2016. 1. 7
Depth :	20.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	6.0m	TCR/RQD(%) :	100/92	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
400	0.38	0.41	0.395
800	0.43	0.57	0.500
1200	0.51	0.66	0.585
1600	0.59	0.72	0.655
2000	0.63	0.77	0.700
1600	0.63	0.76	0.695
1200	0.62	0.75	0.685
800	0.60	0.72	0.660
400	0.55	0.66	0.605
1000	0.58	0.69	0.635
1500	0.63	0.73	0.680
2000	0.68	0.78	0.730
2500	0.74	0.86	0.800
3000	0.84	0.92	0.880
3500	0.93	1.04	0.985
4000	1.05	1.14	1.095
3500	1.05	1.14	1.095
3000	1.05	1.13	1.090
2500	1.03	1.10	1.065
2000	1.00	1.05	1.025
1500	0.95	0.99	0.970
1000	0.86	0.90	0.880
500	0.76	0.81	0.785
1000	0.79	0.83	0.810
2000	0.83	0.89	0.860
3000	0.89	1.03	0.960
4000	1.02	1.20	1.110
5000	1.23	1.33	1.280
6000	1.44	1.53	1.485
5000	1.44	1.53	1.485
4000	1.44	1.53	1.485
3000	1.42	1.51	1.465
2000	1.35	1.43	1.390
1000	1.26	1.33	1.295
500	1.13	1.22	1.175



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.700 D_2 (mm) 1.485

Dc (psi) = 4.47E+05 **Dt = 4.47E+05** psi

3.14E+04 kgf/㎠

ΔP : P_1 (Psi) 1000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.810 D_2 (mm) 1.280

Ec (psi) = 7.46E+05 **Et = 7.46E+05** psi

5.24E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

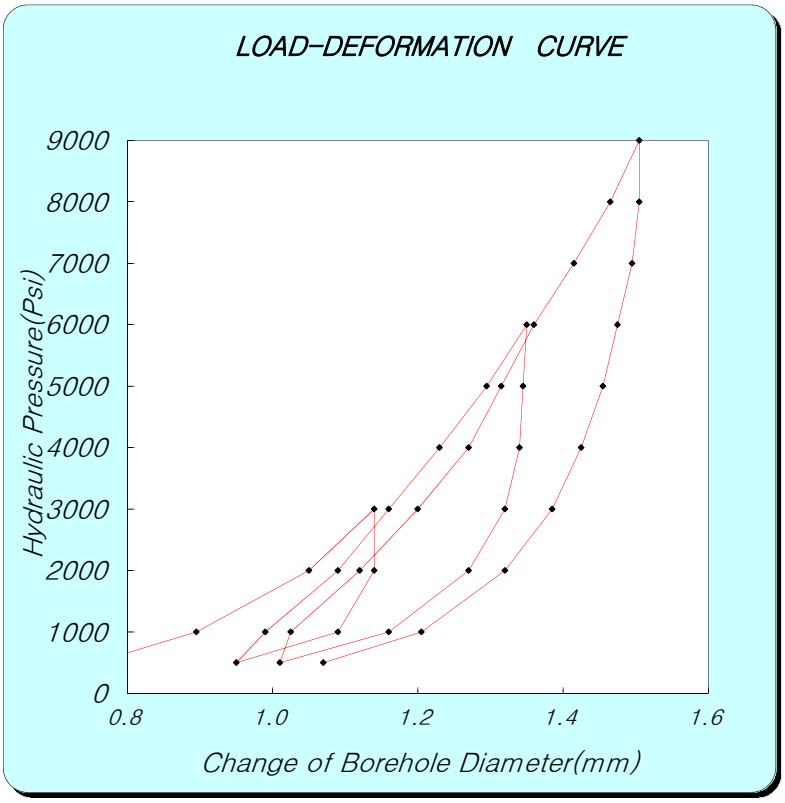
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-47	Rock Name :	GRANITE	Test Date :	2016. 1. 7
Depth :	28.0m	Rock Weathering :	SW	Record By :	JI.G.J
G.W.L(-) :	6.0m	TCR/RQD(%) :	100/98	Checked By :	KIM.Y.H

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.90	0.61	0.755
1000	1.03	0.76	0.895
2000	1.18	0.92	1.050
3000	1.26	1.02	1.140
2000	1.26	1.02	1.140
1000	1.21	0.97	1.090
500	1.11	0.79	0.950
1000	1.14	0.84	0.990
2000	1.23	0.95	1.090
3000	1.29	1.03	1.160
4000	1.36	1.10	1.230
5000	1.43	1.16	1.295
6000	1.48	1.22	1.350
5000	1.47	1.22	1.345
4000	1.46	1.22	1.340
3000	1.43	1.21	1.320
2000	1.37	1.17	1.270
1000	1.27	1.05	1.160
500	1.17	0.85	1.010
1000	1.18	0.87	1.025
2000	1.27	0.97	1.120
3000	1.34	1.06	1.200
4000	1.41	1.13	1.270
5000	1.45	1.18	1.315
6000	1.50	1.22	1.360
7000	1.56	1.27	1.415
8000	1.61	1.32	1.465
9000	1.65	1.36	1.505
8000	1.65	1.36	1.505
7000	1.64	1.35	1.495
6000	1.62	1.33	1.475
5000	1.59	1.32	1.455
4000	1.55	1.30	1.425
3000	1.50	1.27	1.385
2000	1.40	1.24	1.320
1000	1.30	1.11	1.205
500	1.19	0.95	1.070



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP :	P_1 (Psi)	3000	P_2 (Psi)	9000		
ΔD :	D_1 (mm)	1.140	D_2 (mm)	1.505		
	Dc (psi) =	**1.44E+06**	**Dt =**	**1.83E+06**	psi	
				1.29E+05	kgf/㎠	

ΔP :	P_1 (Psi)	1000	P_2 (Psi)	8000		
ΔD :	D_1 (mm)	1.025	D_2 (mm)	1.465		
	Ec (psi) =	**1.39E+06**	**Et =**	**1.73E+06**	psi	
				1.22E+05	kgf/㎠	

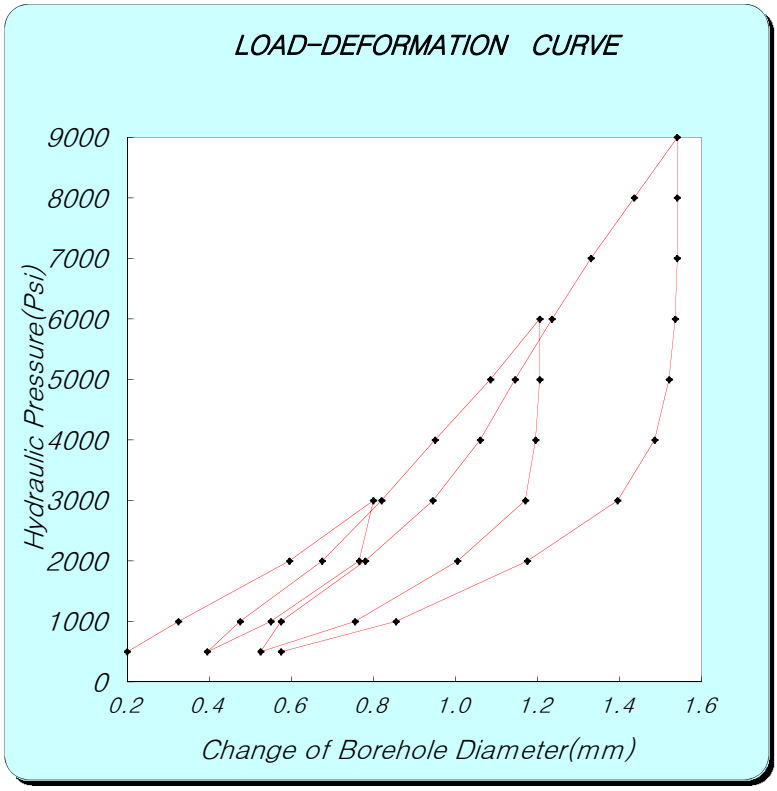
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-72	Rock Name :	GRANITE	Test Date :	2010. 12. 15
Depth :	8.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	1.95	TCR/RQD(%) :	100/83	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.03	0.37	0.200
1000	0.14	0.51	0.325
2000	0.44	0.75	0.595
3000	0.66	0.94	0.800
2000	0.59	0.94	0.765
1000	0.23	0.87	0.550
500	0.10	0.69	0.395
1000	0.23	0.72	0.475
2000	0.50	0.85	0.675
3000	0.67	0.97	0.820
4000	0.81	1.09	0.950
5000	0.96	1.21	1.085
6000	1.10	1.31	1.205
5000	1.10	1.31	1.205
4000	1.08	1.31	1.195
3000	1.05	1.29	1.170
2000	0.78	1.23	1.005
1000	0.42	1.09	0.755
500	0.22	0.83	0.525
1000	0.31	0.84	0.575
2000	0.62	0.94	0.780
3000	0.80	1.09	0.945
4000	0.94	1.18	1.060
5000	1.03	1.26	1.145
6000	1.13	1.34	1.235
7000	1.24	1.42	1.330
8000	1.35	1.52	1.435
9000	1.47	1.61	1.540
8000	1.47	1.61	1.540
7000	1.47	1.61	1.540
6000	1.46	1.61	1.535
5000	1.43	1.61	1.520
4000	1.40	1.57	1.485
3000	1.27	1.52	1.395
2000	0.90	1.45	1.175
1000	0.51	1.20	0.855
500	0.26	0.89	0.575



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.800 D_2 (mm) 1.540

Dc (psi) = 7.11E+05 **Dt = 7.11E+05** psi

5.00E+04 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.780 D_2 (mm) 1.235

Ec (psi) = 7.70E+05 **Et = 7.70E+05** psi

5.42E+04 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

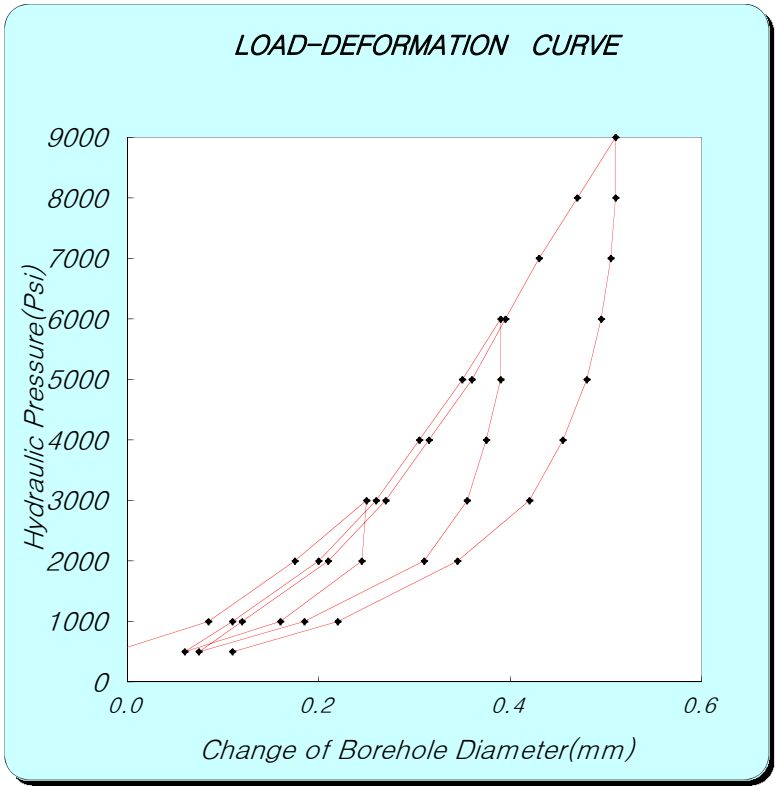
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-72	Rock Name :	GRANITE	Test Date :	2010. 12. 15
Depth :	16.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	1.95	TCR/RQD(%) :	100/95	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	0.04	-0.07	-0.015
1000	0.13	0.04	0.085
2000	0.22	0.13	0.175
3000	0.27	0.23	0.250
2000	0.27	0.22	0.245
1000	0.21	0.11	0.160
500	0.12	0.00	0.060
1000	0.15	0.07	0.110
2000	0.23	0.17	0.200
3000	0.28	0.24	0.260
4000	0.32	0.29	0.305
5000	0.36	0.34	0.350
6000	0.40	0.38	0.390
5000	0.40	0.38	0.390
4000	0.38	0.37	0.375
3000	0.37	0.34	0.355
2000	0.33	0.29	0.310
1000	0.21	0.16	0.185
500	0.12	0.03	0.075
1000	0.16	0.08	0.120
2000	0.23	0.19	0.210
3000	0.29	0.25	0.270
4000	0.33	0.30	0.315
5000	0.37	0.35	0.360
6000	0.40	0.39	0.395
7000	0.44	0.42	0.430
8000	0.48	0.46	0.470
9000	0.52	0.50	0.510
8000	0.52	0.50	0.510
7000	0.51	0.50	0.505
6000	0.50	0.49	0.495
5000	0.48	0.48	0.480
4000	0.46	0.45	0.455
3000	0.43	0.41	0.420
2000	0.37	0.32	0.345
1000	0.26	0.18	0.220
500	0.14	0.08	0.110



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.250 D_2 (mm) 0.510

Dc (psi) = 2.02E+06 **Dt = 3.40E+06** psi

2.39E+05 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.270 D_2 (mm) 0.395

Ec (psi) = 2.10E+06 **Et = 3.67E+06** psi

2.58E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

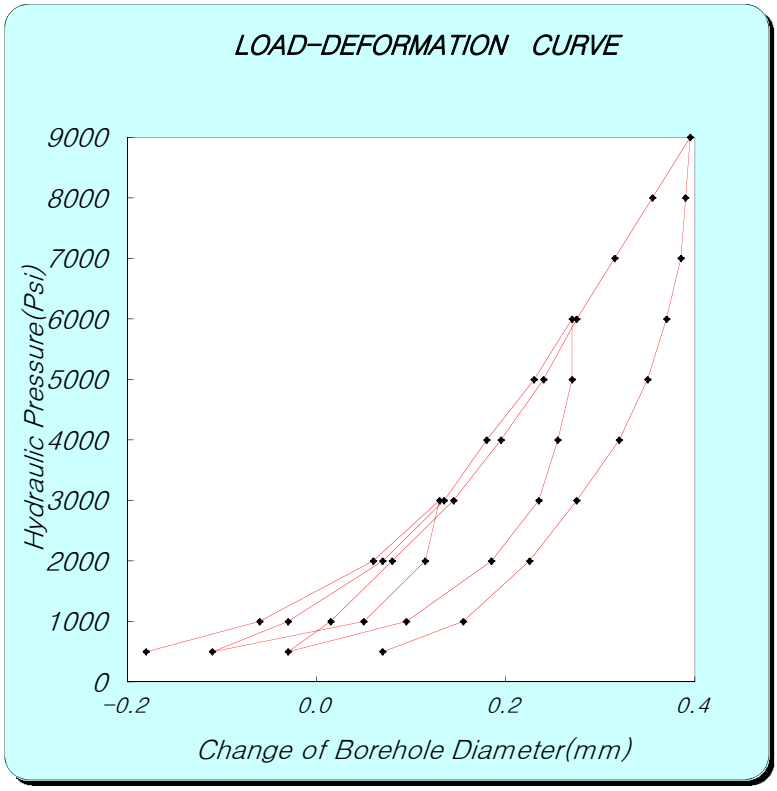
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-72	Rock Name :	GRANITE	Test Date :	2010. 12. 15
Depth :	24.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	1.95	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.06	-0.30	-0.180
1000	0.05	-0.17	-0.060
2000	0.15	-0.03	0.060
3000	0.20	0.06	0.130
2000	0.19	0.04	0.115
1000	0.12	-0.02	0.050
500	0.01	-0.23	-0.110
1000	0.07	-0.13	-0.030
2000	0.16	-0.02	0.070
3000	0.21	0.06	0.135
4000	0.24	0.12	0.180
5000	0.28	0.18	0.230
6000	0.31	0.23	0.270
5000	0.31	0.23	0.270
4000	0.29	0.22	0.255
3000	0.28	0.19	0.235
2000	0.22	0.15	0.185
1000	0.13	0.06	0.095
500	0.02	-0.08	-0.030
1000	0.08	-0.05	0.015
2000	0.16	0.00	0.080
3000	0.21	0.08	0.145
4000	0.25	0.14	0.195
5000	0.28	0.20	0.240
6000	0.31	0.24	0.275
7000	0.35	0.28	0.315
8000	0.39	0.32	0.355
9000	0.43	0.36	0.395
8000	0.43	0.35	0.390
7000	0.42	0.35	0.385
6000	0.41	0.33	0.370
5000	0.38	0.32	0.350
4000	0.35	0.29	0.320
3000	0.30	0.25	0.275
2000	0.25	0.20	0.225
1000	0.16	0.15	0.155
500	0.08	0.06	0.070



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.130 D_2 (mm) 0.395

Dc (psi) = 1.98E+06 **Dt = 3.28E+06** psi

2.31E+05 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.145 D_2 (mm) 0.275

Ec (psi) = 2.02E+06 **Et = 3.40E+06** psi

2.39E+05 kgf/㎠

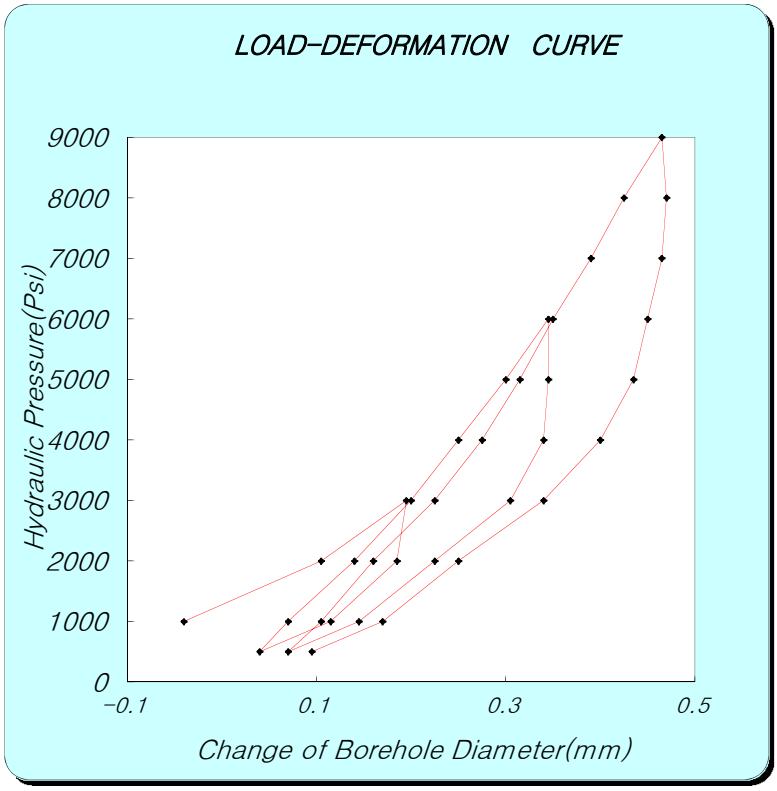
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-73	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	8.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/100	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.28	-0.04	-0.160
1000	-0.13	0.05	-0.040
2000	0.04	0.17	0.105
3000	0.13	0.26	0.195
2000	0.12	0.25	0.185
1000	0.08	0.15	0.115
500	0.00	0.08	0.040
1000	0.03	0.11	0.070
2000	0.07	0.21	0.140
3000	0.13	0.27	0.200
4000	0.19	0.31	0.250
5000	0.25	0.35	0.300
6000	0.31	0.38	0.345
5000	0.31	0.38	0.345
4000	0.30	0.38	0.340
3000	0.26	0.35	0.305
2000	0.18	0.27	0.225
1000	0.08	0.21	0.145
500	0.01	0.13	0.070
1000	0.04	0.17	0.105
2000	0.11	0.21	0.160
3000	0.17	0.28	0.225
4000	0.22	0.33	0.275
5000	0.27	0.36	0.315
6000	0.31	0.39	0.350
7000	0.35	0.43	0.390
8000	0.39	0.46	0.425
9000	0.43	0.50	0.465
8000	0.44	0.50	0.470
7000	0.44	0.49	0.465
6000	0.42	0.48	0.450
5000	0.41	0.46	0.435
4000	0.37	0.43	0.400
3000	0.30	0.38	0.340
2000	0.20	0.30	0.250
1000	0.13	0.21	0.170
500	0.06	0.13	0.095



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.195 D_2 (mm) 0.465

Dc (psi) = 1.95E+06 **Dt = 3.17E+06** psi

2.23E+05 kgf/㎠

ΔP : P_1 (Psi) 3000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.225 D_2 (mm) 0.350

Ec (psi) = 2.10E+06 **Et = 3.67E+06** psi

2.58E+05 kgf/㎠

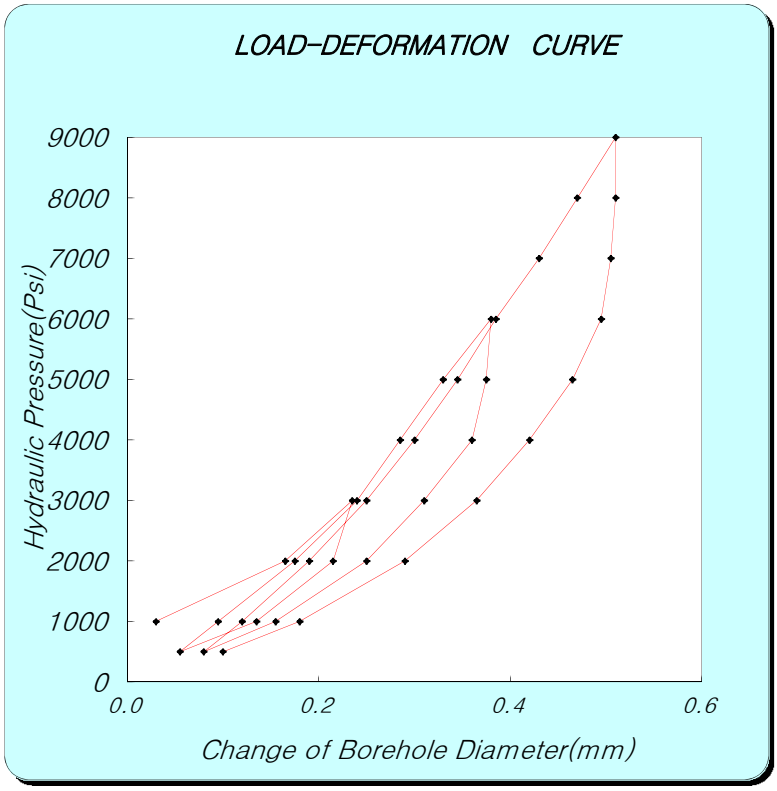
* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-73	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	16.0m	Rock Class :	MW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/84	Checked By :	Y.H.Kim

PRESSURE (Psi)	LVDT DISPLACEMENT READING (mm)		
	NEAR	FAR	ΔAVG
500	-0.18	-0.02	-0.100
1000	-0.03	0.09	0.030
2000	0.13	0.20	0.165
3000	0.20	0.27	0.235
2000	0.18	0.25	0.215
1000	0.13	0.14	0.135
500	0.06	0.05	0.055
1000	0.10	0.09	0.095
2000	0.14	0.21	0.175
3000	0.21	0.27	0.240
4000	0.25	0.32	0.285
5000	0.30	0.36	0.330
6000	0.36	0.40	0.380
5000	0.35	0.40	0.375
4000	0.34	0.38	0.360
3000	0.29	0.33	0.310
2000	0.24	0.26	0.250
1000	0.16	0.15	0.155
500	0.07	0.09	0.080
1000	0.11	0.13	0.120
2000	0.16	0.22	0.190
3000	0.22	0.28	0.250
4000	0.27	0.33	0.300
5000	0.32	0.37	0.345
6000	0.37	0.40	0.385
7000	0.42	0.44	0.430
8000	0.47	0.47	0.470
9000	0.53	0.49	0.510
8000	0.53	0.49	0.510
7000	0.52	0.49	0.505
6000	0.52	0.47	0.495
5000	0.48	0.45	0.465
4000	0.44	0.40	0.420
3000	0.37	0.36	0.365
2000	0.29	0.29	0.290
1000	0.17	0.19	0.180
500	0.09	0.11	0.100



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 9000

ΔD : D_1 (mm) 0.235 D_2 (mm) 0.510

Dc (psi) = 1.91E+06 **Dt = 3.06E+06** psi

2.15E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 6000

ΔD : D_1 (mm) 0.190 D_2 (mm) 0.385

Ec (psi) = 1.80E+06 **Et = 2.73E+06** psi

1.92E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus

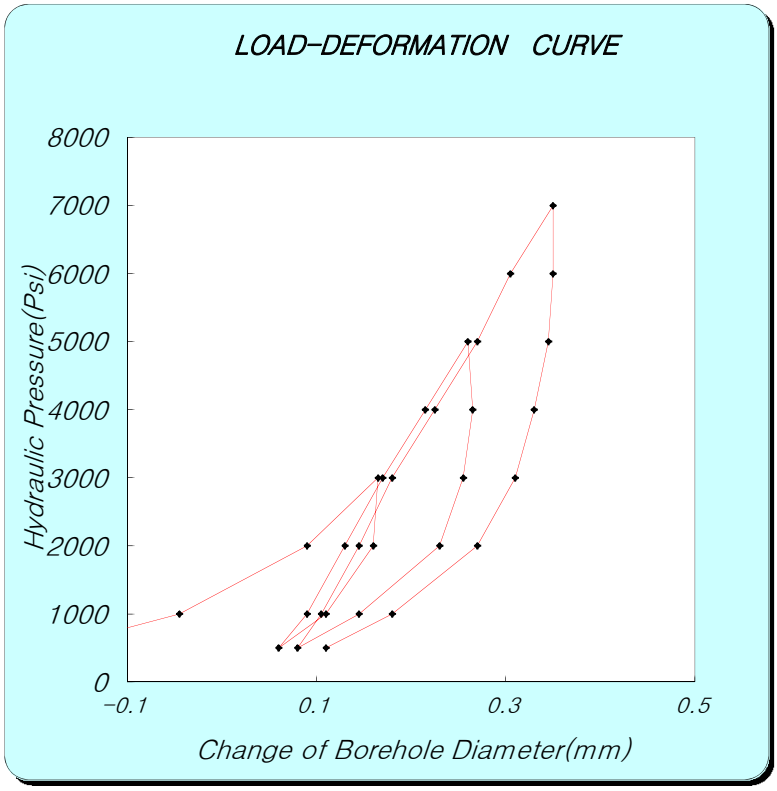
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

GOODMAN-JACK TEST SHEET

Project Name : 신고리 5,6호기 부지세부조사

Hole No. :	GR-73	Rock Name :	GRANITE	Test Date :	2010. 12. 16
Depth :	21.0m	Rock Class :	SW	Record By :	S.H.Lee
G.W.L :	3.8	TCR/RQD(%) :	100/89	Checked By :	Y.H.Kim

PRESSURE (Psi)	ACEMENT READING (mm) NEAR	FAR	ΔAVG
500	-0.29	-0.07	-0.180
1000	-0.11	0.02	-0.045
2000	0.02	0.16	0.090
3000	0.09	0.24	0.165
2000	0.09	0.23	0.160
1000	0.05	0.17	0.110
500	0.00	0.12	0.060
1000	0.03	0.15	0.090
2000	0.07	0.19	0.130
3000	0.10	0.24	0.170
4000	0.14	0.29	0.215
5000	0.19	0.33	0.260
4000	0.19	0.34	0.265
3000	0.18	0.33	0.255
2000	0.15	0.31	0.230
1000	0.07	0.22	0.145
500	0.03	0.13	0.080
1000	0.04	0.17	0.105
2000	0.08	0.21	0.145
3000	0.11	0.25	0.180
4000	0.15	0.30	0.225
5000	0.19	0.35	0.270
6000	0.23	0.38	0.305
7000	0.27	0.43	0.350
6000	0.27	0.43	0.350
5000	0.27	0.42	0.345
4000	0.25	0.41	0.330
3000	0.23	0.39	0.310
2000	0.19	0.35	0.270
1000	0.11	0.25	0.180
500	0.05	0.17	0.110



Ec = 0.86×e×D×(ΔP/ΔD)×T*

e : efficiency of jack's hydraulic system 0.93

D : jack operating point 76.2 (mm)

[coefficient dependent on poission's ratio]

Poisson's ratio	0.1	0.2	0.25	0.3	0.33	0.4	0.5
T*	1519	1474	1438	1397	1366	1289	1151

ν(Poisson's ratio) : 0.25 T* = 1.438

[보정곡선을 이용한 보정표 (if Ec>1E+06, correction data (Et-Ec graph) use)]

Ec	0	1	2	3	4	5	6	7	8	9
0	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.2	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.1
2	3.4	3.7	4.0	4.3	4.7	5.1	5.6	6.0	6.5	7.0
3	7.6	8.2	9.0	9.7	10.6	11.5	12.5	13.4	14.3	15.3

ΔP : P_1 (Psi) 3000 P_2 (Psi) 7000

ΔD : D_1 (mm) 0.165 D_2 (mm) 0.350

Dc (psi) = 1.89E+06 **Dt = 3.01E+06** psi

2.12E+05 kgf/㎠

ΔP : P_1 (Psi) 2000 P_2 (Psi) 5000

ΔD : D_1 (mm) 0.145 D_2 (mm) 0.270

Ec (psi) = 2.10E+06 **Et = 3.67E+06** psi

2.58E+05 kgf/㎠

* Ec: Calculation Elastic Modulus, Et: True Elastic Modulus
Dc: Calculation Deformation Modulus, Dt: True Deformation Modulus
* If Ec ＞1E+06, correction data(Et-Ec graph) use!

부록 2.5D

암석실내시험 성과표

Sample number	Depth(m)		Rock type	Weathering degree	Density (g/cm^3)	Specific gravity	Porosity (%)	Absorption ratio(%)	velocity (m/sec)		Compressive strength (kg/cm^2)	E ($x10^5$ kg/cm^2)	poisson's ratio	Remark
	From	To							Vp	Vs		static	static	
GR-1-1	12.5	12.7	Granite	HW	2.52	2.54	5.75	2.27	1,129	684	213	0.51	0.37	
GR-1-2	30.8	32.0	Granite	MW	2.66	2.67	1.67	0.62	2,251	1,393	922	2.58	0.33	
GR-1-3	64.1	64.5	Granite	SW	2.71	2.71	0.34	0.12	5,160	2,997	2,114	5.65	0.30	
GR-1-4	88.3	88.6	Granite	SW	2.71	2.72	0.23	0.09	5,337	3,135	1,935	6.70	0.29	
GR-4-1	20.6	20.7	Granite	MW	2.56	2.57	4.88	1.90	1,135	597	422	0.36	0.31	
GR-4-2	44.0	44.2	Granite	SW	2.67	2.67	1.64	0.61	3,816	2,259	1,284	5.18	0.24	
GR-4-3	68.1	68.3	Granite	SW	2.70	2.70	0.65	0.24	5,186	2,889	2,138	6.78	0.30	
GR-4-4	92.0	92.2	Granite	SW	2.64	2.65	1.21	0.46	4,647	2,743	1,370	5.13	0.30	
GR-5-1	22.4	22.6	Granite	SW	2.64	2.65	2.34	0.88	2,929	1,585	491	2.10	0.28	
GR-5-2	44.2	44.4	Granite	SW	2.72	2.71	0.48	0.18	5,032	2,610	2,064	6.77	0.28	
GR-5-3	51.7	51.9	Granite	FR	2.71	2.71	0.50	0.18	5,338	2,536	2,256	7.22	0.37	
GR-5-4	75.9	76.1	Granite	SW	2.72	2.73	0.32	0.12	5,682	2,674	2,138	7.34	0.36	
GR-6-1	22.4	22.6	Granite	MW	2.63	2.64	2.70	1.02	1,251	815	654	1.63	0.38	
GR-6-2	45.9	46.1	Granite	SW	2.70	2.70	1.09	0.40	3,972	2,241	1,494	4.97	0.33	
GR-7-1	43.6	43.7	Mafic dyke	MW	2.55	2.56	5.22	2.04	3,662	2,072	328	3.11	0.13	
GR-7-2	63.5	63.7	Granite	HW	2.16	2.18	13.83	6.33	828	552	141	0.36	0.38	

Sample number	Depth(m)		Rock type	Weathering degree	Density (g/cm^3)	Specific gravity	Porosity (%)	Absorption ratio(%)	velocity (m/sec)		Compressive strength (kg/cm^2)	E ($x10^5$ kg/cm^2)	poisson's ratio	Remark
	From	To							Vp	Vs		static	static	
GR-8-1	16.1	16.5	Granite	SW	2.68	2.68	0.46	0.17	5,418	2,769	1,875	6.57	0.26	
GR-8-2	33.5	33.7	Granite	SW	2.67	2.70	0.81	0.30	4,791	2,548	1,490	5.52	0.30	
GR-8-3	48.5	48.7	Granite	SW	2.70	2.71	0.63	0.23	5,124	2,653	1,337	6.98	0.22	
GR-10-1	12.0	12.2	Granite	MW	2.55	2.55	4.92	1.93	1,306	777	485	0.58	0.33	
GR-10-2	32.7	32.9	Granite	SW	2.69	2.69	0.84	0.31	4,716	2,834	2,052	5.21	0.32	
GR-10-3	56.6	56.7	Granite	SW	2.68	2.69	0.93	0.35	5,167	2,918	1,619	5.53	0.28	
GR-12-1	10.2	10.4	Granite	HW	2.46	2.51	7.23	2.88	339	229	136	0.13	0.42	
GR-12-2	24.2	24.4	Granite	HW	2.31	2.32	11.04	4.75	1,249	762	207	0.50	0.24	
GR-12-3	35.7	36.0	Granite	SW	2.64	2.66	2.05	0.77	2,797	1,572	802	2.35	0.22	
GR-15-1	36.0	36.2	Granite	MW	2.57	2.59	2.60	1.00	4,081	2,328	494	3.42	0.33	
GR-15-2	51.2	51.3	Granite	HW	2.58	2.59	3.13	1.21	4,188	2,305	267	3.08	0.33	
GR-15-3	67.0	67.2	Granite	HW	2.52	2.53	4.51	1.78	3,452	2,129	329	0.90	0.30	
GR-16-1	8.0	8.3	Granite	HW	2.40	2.43	6.24	2.98	1,111	662	169	0.65	0.36	
GR-16-2	16.8	17.1	Granite	MW	2.62	2.63	2.73	0.66	2,955	1,769	878	2.36	0.30	
GR-16-3	37.7	38.0	Granite	SW	2.71	2.71	0.32	0.11	5,080	2,997	1,879	5.44	0.29	
GR-16-4	77.3	77.6	Granite	SW	2.71	2.71	0.25	0.10	5,117	3,025	1,965	6.28	0.27	

Sample number	Depth(m)		Rock type	Weathering degree	Density (g/cm^3)	Specific gravity	Porosity (%)	Absorption ratio(%)	velocity (m/sec)		Compressive strength (kg/cm^2)	E ($x10^5$ kg/cm^2)	poisson's ratio	Remark
	From	To							Vp	Vs		static	static	
GR-19-1	35.2	35.5	Mafic Dyke	MW	2.28	2.28	15.15	6.65	1,491	907	213	0.40	0.15	
GR-19-2	44.7	44.8	Mafic Dyke	HW	1.80	1.83	30.94	16.90	1,289	797	127	0.30	0.19	
GR-19-3	64.8	65.0	Mafic Dyke	MW	2.50	2.51	7.45	2.96	2,352	1,429	306	1.32	0.15	
GR-19-4	92.2	92.4	Granite	SW	2.69	2.69	0.76	0.28	4,869	2,688	880	3.35	0.31	
GR-20-1	47.7	47.9	Granite	SW	2.67	2.68	0.51	0.19	5,306	2,567	1,621	5.57	0.35	
GR-20-2	57.0	57.4	Granite	SW	2.59	2.59	2.58	0.99	4,606	2,463	529	3.54	0.35	
GR-20-3	62.8	63.0	Granite	SW	2.61	2.61	2.00	0.76	4,365	2,338	495	2.98	0.21	
GR-20-4	96.3	96.5	Granite	MW	2.60	2.61	2.56	0.98	4,231	2,357	506	3.59	0.16	
GR-21-1	61.4	61.6	Granite	SW	2.66	2.67	0.55	0.21	5,398	2,699	1,163	6.67	0.19	
GR-21-2	115.9	116.1	Granite	SW	2.68	2.68	0.61	0.23	5,490	2,745	1,531	4.98	0.26	
GR-22-1	48.8	49.0	Granite	SW	2.68	2.68	0.52	0.19	5,353	2,753	2,027	5.89	0.31	
GR-22-2	63.8	64.0	Granite	FR	2.68	2.69	0.55	0.20	5,404	2,657	2,022	6.33	0.27	
GR-24-1	35.7	35.8	Granite	HW	2.26	2.32	13.31	5.75	399	267	30	0.11	0.41	
GR-24-2	63.9	64.1	Granite	SW	2.62	2.63	2.04	0.78	4,274	2,303	320	2.43	0.19	
GR-25-1	5.2	5.4	Granite	SW	2.65	2.66	0.35	0.13	5,672	3,106	2,669	6.25	0.28	
GR-25-2	36.7	36.9	Granite	SW	2.65	2.65	0.40	0.15	5,739	3,103	2,673	6.90	0.30	
GR-25-3	53.0	53.2	Granite	SW	2.66	2.66	1.03	0.39	5,053	2,841	1,961	5.33	0.31	

Sample number	Depth(m)		Rock type	Weathering degree	Density (g/cm^3)	Specific gravity	Porosity (%)	Absorption ratio(%)	velocity (m/sec)		Compressive strength (kg/cm^2)	E ($x10^5$ kg/cm^2)	poisson's ratio	Remark
	From	To							Vp	Vs		static	static	
GR-27-1	27.2	27.4	Granite	HW	2.57	2.57	4.08	1.58	1,111	730	424	0.58	0.42	
GR-27-2	35.0	35.2	Granite	MW	2.66	2.67	1.59	0.60	3,439	1,981	823	3.54	0.37	
GR-27-3	42.9	43.2	Granite	SW	2.69	2.70	0.27	0.10	5,635	2,825	2,000	6.76	0.31	
GR-30-1	21.3	21.5	Mafic dyke	SW	2.64	2.65	2.71	1.02	4,457	2,310	1,458	2.51	0.30	
GR-34-1	12.0	12.2	Granite	SW	2.68	2.69	0.72	0.27	4,695	2,482	2,156	5.60	0.34	
GR-35-1	19.9	20.1	Granite	SW	2.68	2.68	0.71	0.27	5,204	2,978	1,742	5.50	0.31	
GR-36-1	19.9	20.0	Granite	HW	2.58	2.59	2.93	1.13	3,861	2,221	542	1.43	0.32	
GR-37-1	28.0	28.2	Granite	SW	2.67	2.68	0.67	0.25	4,578	2,727	1,834	6.25	0.31	
GR-38-1	19.8	19.9	Granite	SW	2.68	2.69	0.56	0.21	5,488	3,145	1,375	6.60	0.28	
GR-40-1	20.0	20.2	Granite	FR	2.70	2.70	0.54	0.20	4,653	2,573	2,198	6.70	0.35	
GR-41-1	19.0	19.3	Granite	MW	2.61	2.61	1.17	0.45	4,987	2,601	494	3.46	0.16	
GR-42-1	24.0	24.2	Granite	SW	2.42	2.43	6.93	2.85	2,371	1,363	255	1.38	0.16	
GR-44-1	18.1	18.3	Granite	SW	2.56	2.57	1.79	0.70	4,432	2,397	542	3.85	0.27	
GR-46-1	24.8	25.0	Granite	SW	2.67	2.67	1.00	0.37	5,069	2,858	1,738	4.72	0.30	
GR-47-1	21.8	22.0	Granite	MW	2.40	2.43	8.42	3.47	2,888	1,642	208	1.28	0.35	
GR-72-1	7.1	7.4	Granite	SW	2.67	2.67	0.46	0.17	5,302	2,747	2,353	6.60	0.30	
GR-73-1	21.2	21.4	Granite	FR	2.66	2.66	0.82	0.31	4,965	2,597	800	6.00	0.23	

시 험 성 적 서

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성적서 번호 : 2011-073

1. 의 뢰 자

- 기 관 명 : ㈜동아컨설턴트
- 주 소 : 서울특별시 서초구 방배동 795-25 방배빌딩 4층 및 지층
- 의뢰 일자 : 2011년 06월 09일

2. 시험성적서의 용도

신고리 5,6호기 부지 세부조사 실내시험

3. 시험대상품목/물질/시료명

시추코어 암석

4. 시험기간

2011년 6월 9일 ~ 2011년 6월 14일

5. 시험항목 및 방법

비중, 흡수율, 공극률, 밀도 : **ASTM C97 / C97M – 09** Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
탄성파속도 : **ASTM D2845-08** Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
일축압축강도, 탄성상수 : **ASTM D7012-10** Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

6. 시험환경

온도 : (25 ± 2) ℃ , 상대습도 : (50 ± 5) % R.H.

7. 시험결과

시험 결과표 참조

이 성적서는 의뢰자가 제공한 시료에 대한 시험결과이며 용도이외의 사용을 금합니다.

확인	시험원 성명 : 풍 보 현 (서명)	기술책임자 성명 : 장 현 식 (서명)

2011년 06월 15일

㈜ 지오메카닉스 대표이사 (인)

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물성/일축압축시험 시험결과 요약표 (SUMMARY TABLE) 2011-073

시료 (Specimen)			시험결과 (Test Result)									
시추공번 Borehole I.D.	심도 Depth (m)	상태 Condition	건조밀도 Dry Density (g/㎤)	비중 Specific Gravity	공극율 Porosity (%)	흡수율 Absorption (%)	초음파속도 Ultrasonic Velocity (m/s)		압축강도 UCS (kgf/㎠)	영률 Young's Modulus ($\times 10^5$ kgf/㎠)	포아송비 Poisson's Ratio	신뢰도 Reliability
							P파	S파				
GR-5	22.4-22.6	Normal	2.64	2.65	2.34	0.88	2,929	1,585	491	2.10	0.28	High
GR-5	44.2-44.4	Normal	2.71	2.71	0.48	0.18	5,032	2,610	2,064	6.77	0.28	High
GR-5	51.7-51.9	Normal	2.71	2.71	0.50	0.18	5,338	2,536	2,256	7.22	0.37	High
GR-5	75.9-76.1	Normal	2.72	2.73	0.32	0.12	5,682	2,674	2,138	7.34	0.36	High
GR-6	22.4-22.6	Normal	2.63	2.64	2.70	1.02	1,251	815	654	1.63	0.38	Medium
GR-6	45.9-46.1	Normal	2.70	2.70	1.09	0.40	3,972	2,241	1,494	4.97	0.33	High
GR-7	43.6-43.75	Normal	2.55	2.56	5.22	2.04	3,662	2,072	328	3.11	0.13	Medium
GR-7	63.5-63.7	Bad	2.16	2.18	13.83	6.33	828	552	141	0.36	0.38	Medium
GR-8	16.1-16.5	Normal	2.68	2.68	0.46	0.17	5,418	2,769	1,875	6.57	0.26	High
GR-8	33.5-33.7	Normal	2.67	2.70	0.81	0.30	4,791	2,548	1,490	5.52	0.30	High
GR-8	48.5-48.7	Normal	2.70	2.71	0.63	0.23	5,124	2,653	1,337	6.98	0.22	Medium
GR-12	10.2-10.4	Bad	2.46	2.51	7.23	2.88	339	229	136	0.13	0.42	Medium
GR-12	24.2-24.4	Bad	2.31	2.32	11.04	4.75	1,249	762	207	0.50	0.24	Medium
GR-12	35.7-36.0	Normal	2.64	2.66	2.05	0.77	2,797	1,572	802	2.35	0.22	High
GR-20	47.7-47.9	Normal	2.67	2.68	0.51	0.19	5,306	2,567	1,621	5.57	0.35	High
GR-20	57.0-57.4	Normal	2.59	2.59	2.58	0.99	4,606	2,463	529	3.54	0.35	Medium
GR-20	62.8-63.0	Normal	2.61	2.61	2.00	0.76	4,365	2,338	495	2.98	0.21	Medium
GR-20	96.3-96.5	Normal	2.60	2.61	2.56	0.98	4,231	2,357	506	3.59	0.16	Medium
GR-21	61.4-61.6	Normal	2.66	2.67	0.55	0.21	5,398	2,699	1,163	6.67	0.19	Medium
GR-21	115.9-116.1	Normal	2.68	2.68	0.61	0.23	5,490	2,745	1,531	4.98	0.26	High

Client	㈜동아컨설턴트	**Affirmation**	
Test Date	2011년 6월 9일 ~ 2011년 6월 14일	Tested by 풍 보 현	Technical Manager 장 현 식

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물성/일축압축시험 시험결과 요약표 (SUMMARY TABLE) 2011-073

시료 (Specimen)			시험결과 (Test Result)									
시추공번 Borehole I.D.	심도 Depth (m)	상태 Condition	건조밀도 Dry Density (g/㎤)	비중 Specific Gravity	공극율 Porosity (%)	흡수율 Absorption (%)	초음파속도 Ultrasonic Velocity (m/s)		압축강도 UCS (kgf/㎠)	영률 Young's Modulus ($\times 10^5$ kgf/㎠)	포아송비 Poisson's Ratio	신뢰도 Reliability
							P파	S파				
GR-22	48.8-49.0	Normal	2.68	2.68	0.52	0.19	5,353	2,753	2,027	5.89	0.31	High
GR-22	63.8-64.0	Normal	2.68	2.69	0.55	0.20	5,404	2,657	2,022	6.33	0.27	High
GR-24	35.7-35.85	Bad	2.26	2.32	13.31	5.75	399	267	30	0.11	0.41	Medium
GR-24	63.9-64.1	Normal	2.62	2.63	2.04	0.78	4,274	2,303	320	2.43	0.19	Medium
GR-27	27.2-27.4	Normal	2.57	2.57	4.08	1.58	1,111	730	424	0.58	0.42	Medium
GR-27	35.0-35.2	Normal	2.66	2.67	1.59	0.60	3,439	1,981	823	3.54	0.37	High
GR-27	42.9-43.2	Normal	2.69	2.70	0.27	0.10	5,635	2,825	2,000	6.76	0.31	High
GR-30	21.3-21.5	Normal	2.64	2.65	2.71	1.02	4,457	2,310	1,458	2.51	0.30	High
GR-34	12.0-12.2	Normal	2.68	2.69	0.72	0.27	4,695	2,482	2,156	5.60	0.34	High
GR-40	20.0-20.2	Normal	2.70	2.70	0.54	0.20	4,653	2,573	2,198	6.70	0.35	High
GR-41	19.0-19.3	Normal	2.61	2.61	1.17	0.45	4,987	2,601	494	3.46	0.16	Medium
GR-42	24.0-24.2	Normal	2.42	2.43	6.93	2.85	2,371	1,363	255	1.38	0.16	Medium
GR-44	18.1-18.3	Normal	2.56	2.57	1.79	0.70	4,432	2,397	542	3.85	0.27	Medium
GR-72	7.1-7.4	Normal	2.67	2.67	0.46	0.17	5,302	2,747	2,353	6.60	0.30	High
GR-73	21.2-21.4	Normal	2.66	2.66	0.82	0.31	4,965	2,597	800	6.00	0.23	Medium
		제출 시료에 한함					이 하 여 백					

Client	㈜동아컨설턴트	Affirmation	
Test Date	2011년 6월 9일 ~ 2011년 6월 14일	Tested by 풍 보 현	Technical Manager 장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-5**
Depth	22.4-22.6 m
Lithology	
Diameter / Length	5.03 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

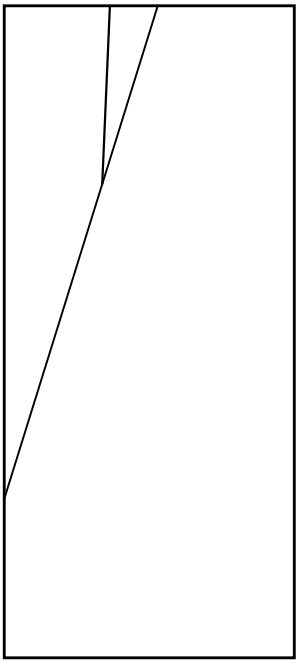
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

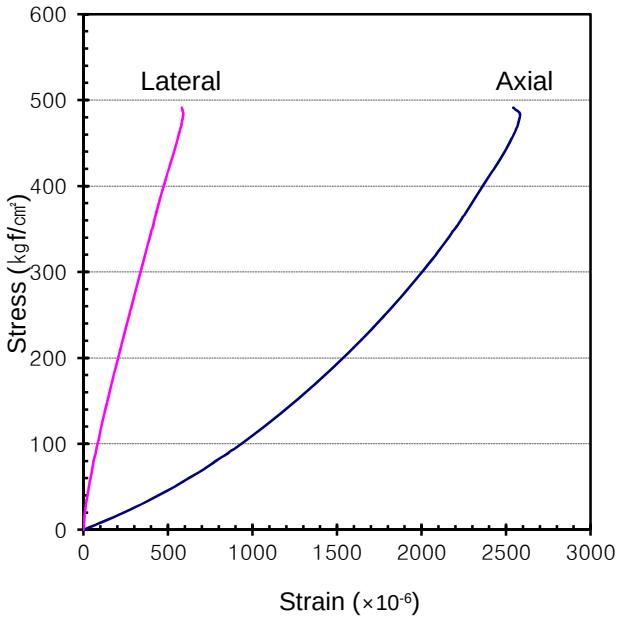
Dry Density	**2.64**	g/㎤	(Medium)
Specific Gravity	**2.65**		(High)
Porosity	**2.34**	%	(High)
Absorption	**0.88**	%	(High)
P-wave Velocity	**2,929**	m/s	(High)
S-wave Velocity	**1,585**	m/s	(Medium)
Young's Modulus	**2.10**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.28**		(Medium)
Uni. Comp. Strength	**491**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Medium strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-5**
Depth	44.2-44.4 m
Lithology	
Diameter / Length	5.03 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

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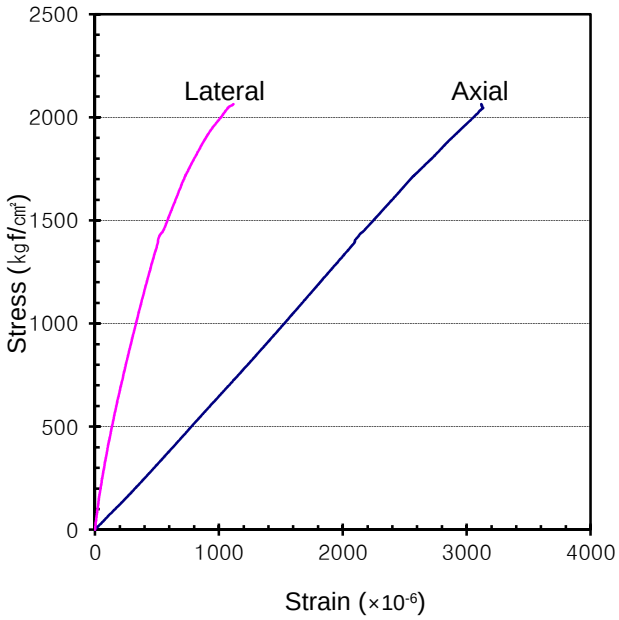
Test Result (Reliability)

Dry Density	**2.71**	g/㎤	(Medium)
Specific Gravity	**2.71**		(High)
Porosity	**0.48**	%	(High)
Absorption	**0.18**	%	(High)
P-wave Velocity	**5,032**	m/s	(High)
S-wave Velocity	**2,610**	m/s	(Medium)
Young's Modulus	**6.77**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.28**		(Medium)
Uni. Comp. Strength	**2,064**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description

Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-5**
Depth	51.7-51.9 m
Lithology	
Diameter / Length	5.02 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

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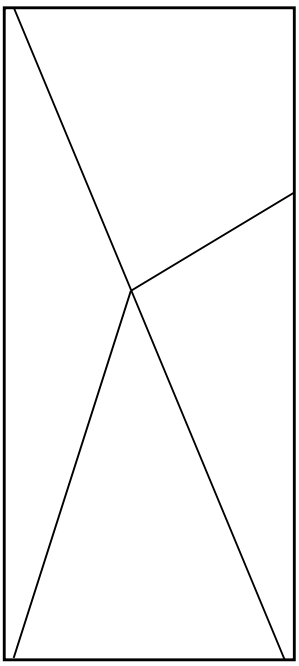
Test Result (Reliability)

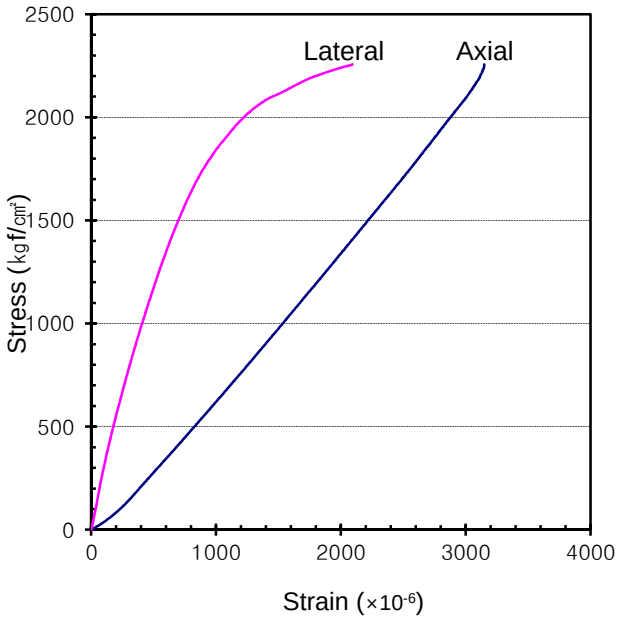
Dry Density	**2.71**	g/㎤	(Medium)
Specific Gravity	**2.71**		(High)
Porosity	**0.50**	%	(High)
Absorption	**0.18**	%	(High)
P-wave Velocity	**5,338**	m/s	(High)
S-wave Velocity	**2,536**	m/s	(Medium)
Young's Modulus	**7.22**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.37**		(Medium)
Uni. Comp. Strength	**2,256**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-5**
Depth	75.9-76.1 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

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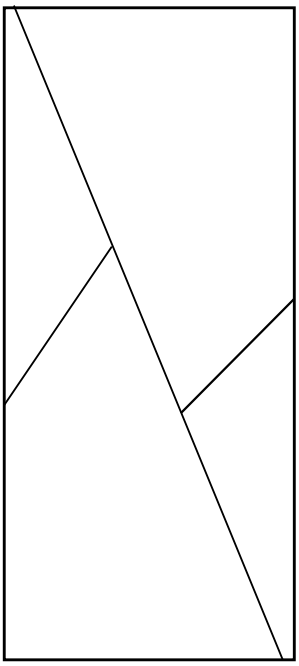
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

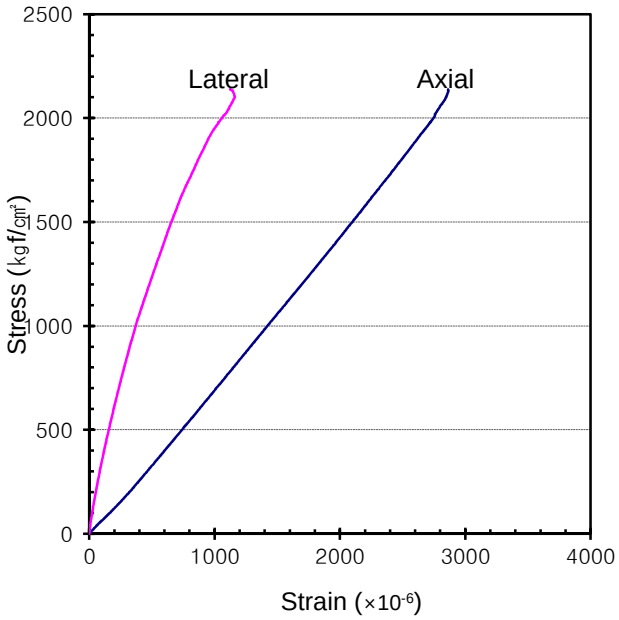
Dry Density	**2.72**	g/㎤	(Medium)
Specific Gravity	**2.73**		(High)
Porosity	**0.32**	%	(High)
Absorption	**0.12**	%	(High)
P-wave Velocity	**5,682**	m/s	(High)
S-wave Velocity	**2,674**	m/s	(Medium)
Young's Modulus	**7.34**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.36**		(Medium)
Uni. Comp. Strength	**2,138**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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KOLAS 인정기관 | 강원대학교 실험실 벤처기업
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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-6**
Depth	22.4-22.6 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Normal (풍화)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

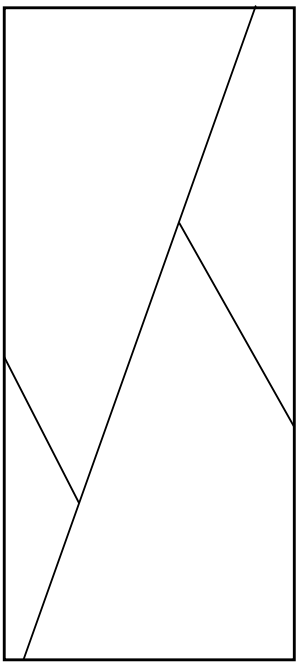
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

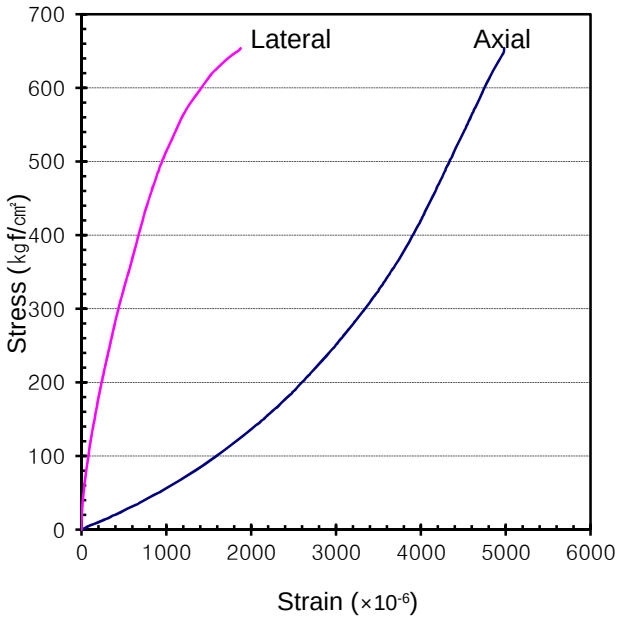
Dry Density	**2.63**	g/㎤	(Medium)
Specific Gravity	**2.64**		(High)
Porosity	**2.70**	%	(High)
Absorption	**1.02**	%	(High)
P-wave Velocity	**1,251**	m/s	(Medium)
S-wave Velocity	**815**	m/s	(Low)
Young's Modulus	**1.63**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.38**		(Medium)
Uni. Comp. Strength	**654**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-6**
Depth	45.9-46.1 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

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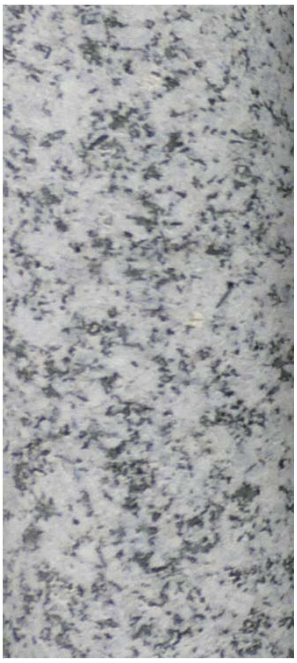
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

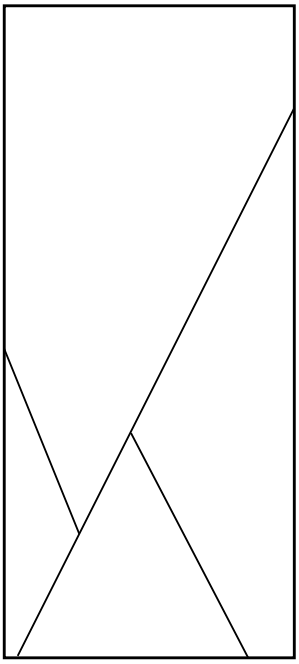
Test Result (Reliability)

Dry Density	**2.70**	g/㎤	(Medium)
Specific Gravity	**2.70**		(High)
Porosity	**1.09**	%	(High)
Absorption	**0.40**	%	(High)
P-wave Velocity	**3,972**	m/s	(High)
S-wave Velocity	**2,241**	m/s	(Medium)
Young's Modulus	**4.97**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.33**		(Medium)
Uni. Comp. Strength	**1,494**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

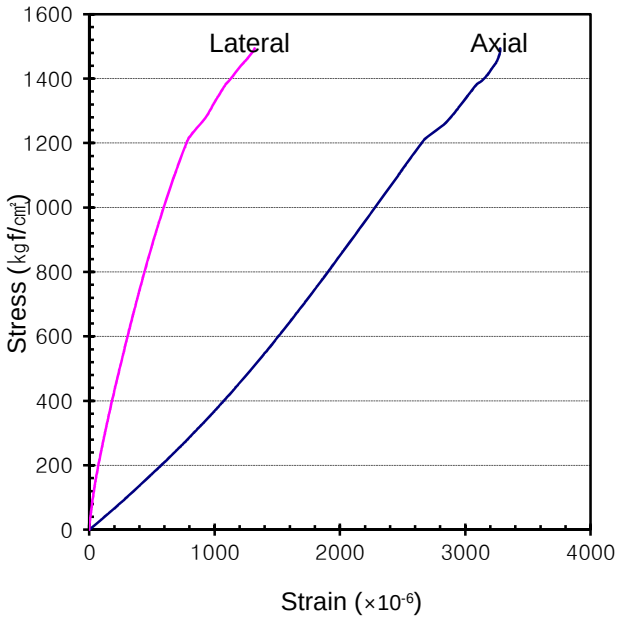
Pictures of Specimen



Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-7**
Depth	43.6-43.75 m
Lithology	
Diameter / Length	5.03 ##### cm
Condition	Normal (vein)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
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ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

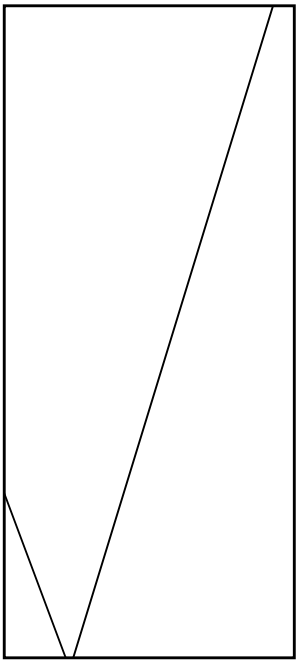
Dry Density	**2.55**	g/㎤	(Medium)
Specific Gravity	**2.56**		(High)
Porosity	**5.22**	%	(High)
Absorption	**2.04**	%	(High)
P-wave Velocity	**3,662**	m/s	(High)
S-wave Velocity	**2,072**	m/s	(Medium)
Young's Modulus	**3.11**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.13**		(Medium)
Uni. Comp. Strength	**328**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Medium strong rock		

Remark

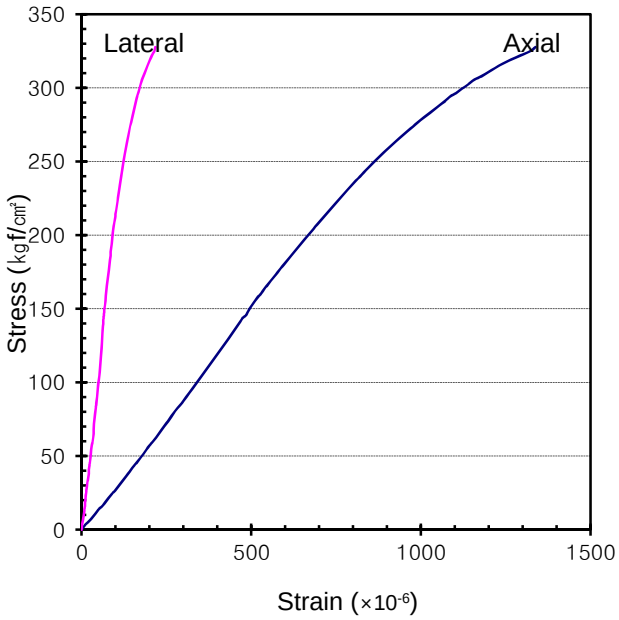
vein면을 따라 파괴

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-7**
Depth	63.5-63.7 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Bad (풍화,균열)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
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ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

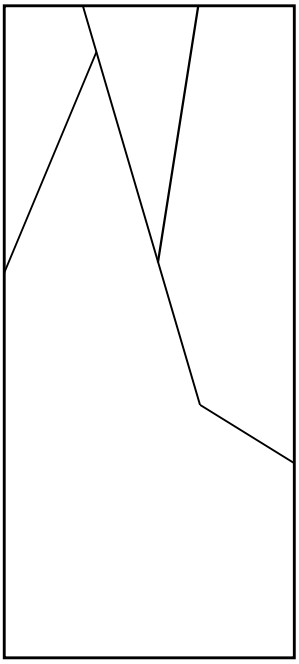
Dry Density	**2.16**	g/㎤	(Medium)
Specific Gravity	**2.18**		(High)
Porosity	**13.83**	%	(High)
Absorption	**6.33**	%	(High)
P-wave Velocity	**828**	m/s	(Medium)
S-wave Velocity	**552**	m/s	(Low)
Young's Modulus	**0.36**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.38**		(Medium)
Uni. Comp. Strength	**141**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Weak rock		

Remark

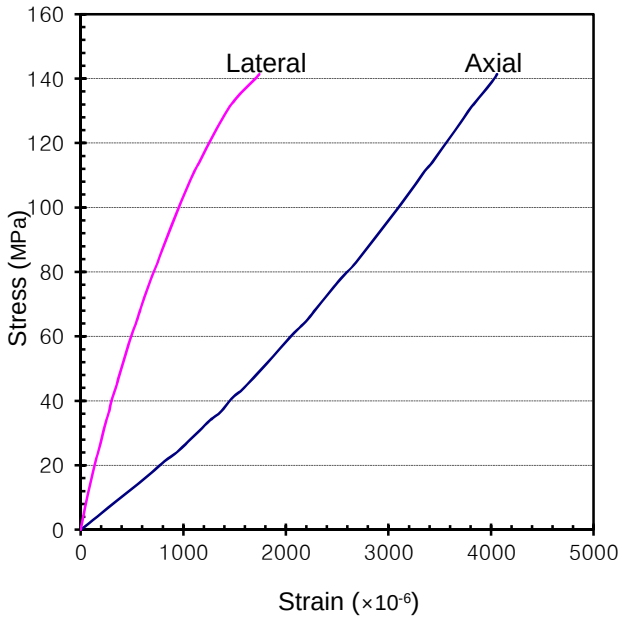
균열면을 따라 파괴

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-8**
Depth	16.1-16.5 m
Lithology	
Diameter / Length	5.01 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

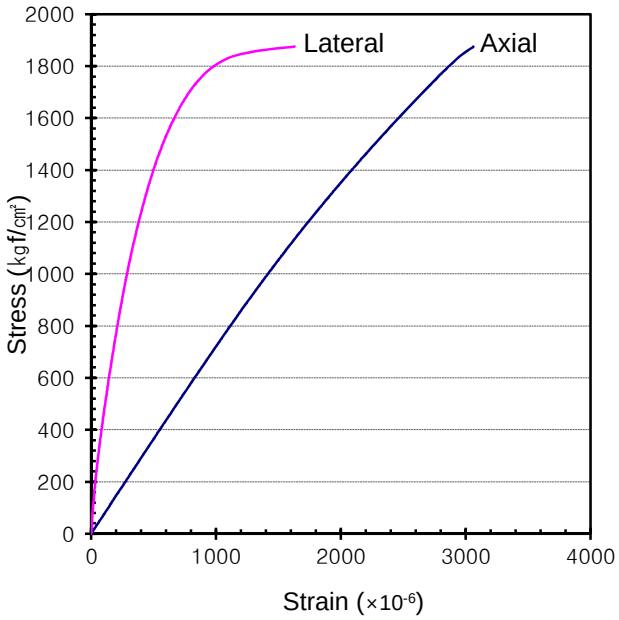
Test Result (Reliability)

Dry Density	**2.68**	g/㎤	(Medium)
Specific Gravity	**2.68**		(High)
Porosity	**0.46**	%	(High)
Absorption	**0.17**	%	(High)
P-wave Velocity	**5,418**	m/s	(High)
S-wave Velocity	**2,769**	m/s	(Medium)
Young's Modulus	**6.57**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.26**		(Medium)
Uni. Comp. Strength	**1,875**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description

Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

지오메카닉스 GEO MECHANICS
KOLAS 인정기관 | 강원대학교 실험실 벤처기업
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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-8**
Depth	33.5-33.7 m
Lithology	
Diameter / Length	5.02 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

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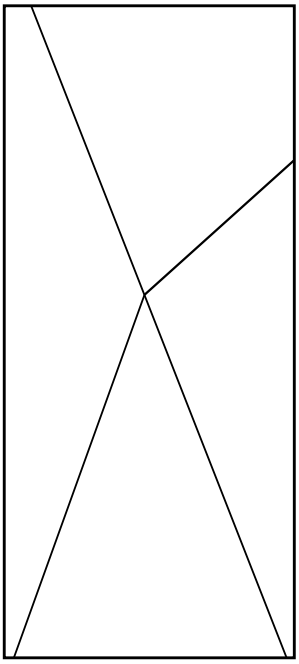
Test Result (Reliability)

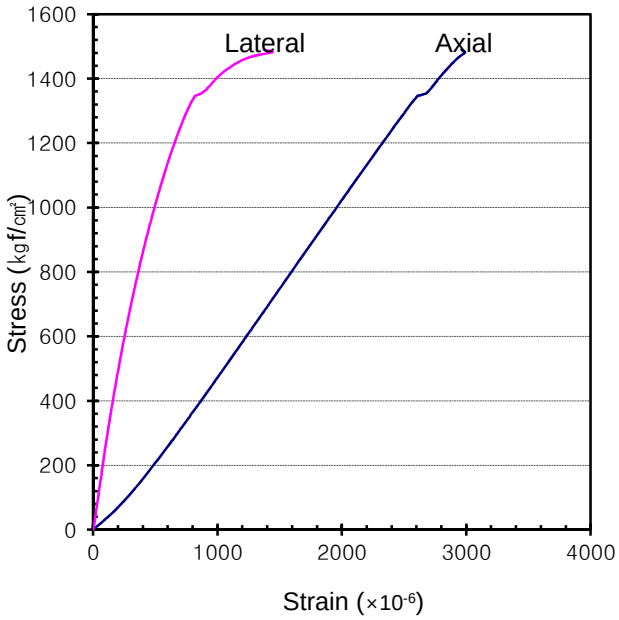
Dry Density	**2.67**	g/㎤	(Medium)
Specific Gravity	**2.70**		(High)
Porosity	**0.81**	%	(High)
Absorption	**0.30**	%	(High)
P-wave Velocity	**4,791**	m/s	(High)
S-wave Velocity	**2,548**	m/s	(Medium)
Young's Modulus	**5.52**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.30**		(Medium)
Uni. Comp. Strength	**1,490**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

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Technical Manager	장 현 식

지오메카닉스 GEO MECHANICS
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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-8**
Depth	48.5-48.7 m
Lithology	
Diameter / Length	5.05 ##### cm
Condition	Normal (균열 내포)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

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Test Result (Reliability)

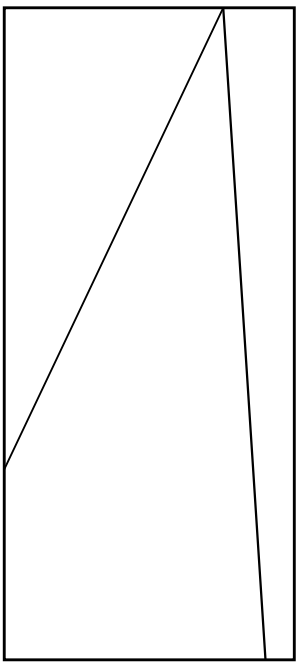
Dry Density	**2.70**	g/㎤	(Medium)
Specific Gravity	**2.71**		(High)
Porosity	**0.63**	%	(High)
Absorption	**0.23**	%	(High)
P-wave Velocity	**5,124**	m/s	(High)
S-wave Velocity	**2,653**	m/s	(Medium)
Young's Modulus	**6.98**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.22**		(Medium)
Uni. Comp. Strength	**1,337**	kgf/㎠	(Medium)
Rock Strength Classification (ISRM)	Very strong rock		

Remark

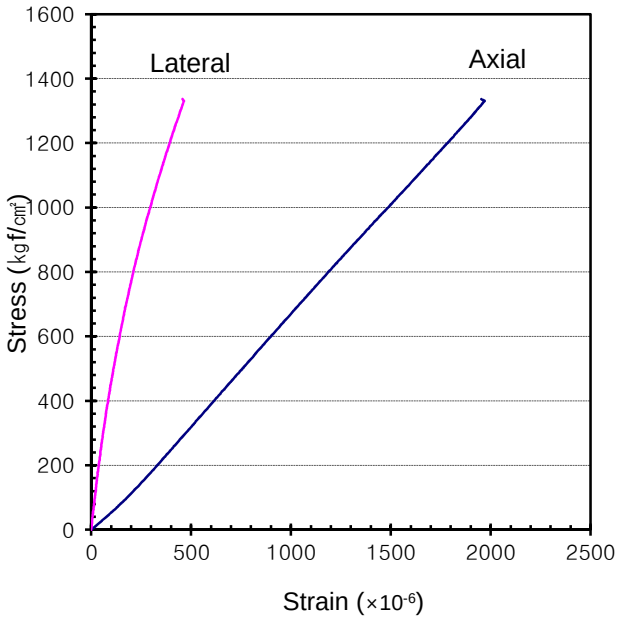
균열면을 따라 파괴

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

지오메카닉스 GEO MECHANICS
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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-12**
Depth	10.2-10.4 m
Lithology	
Diameter / Length	5.06 ##### cm
Condition	Bad (풍화,균열)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

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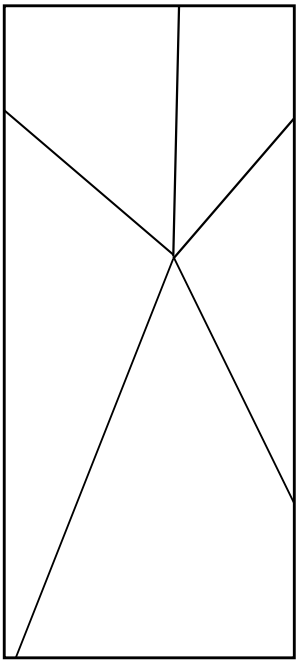
Test Result (Reliability)

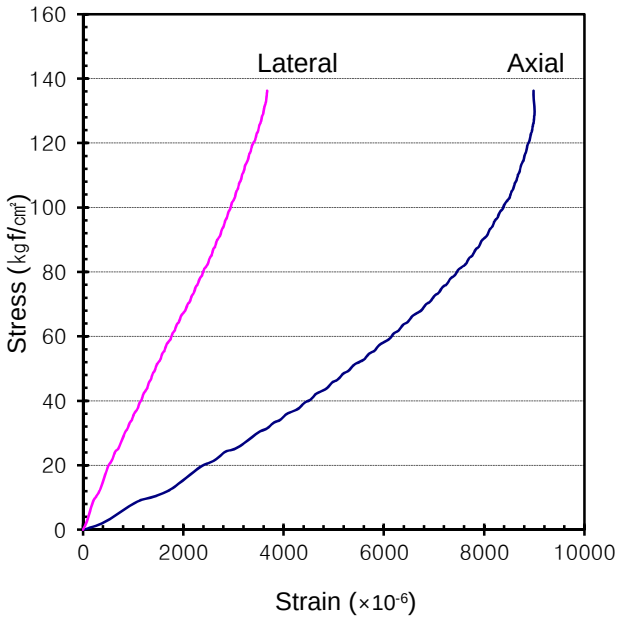
Dry Density	**2.46**	g/㎤	(Medium)
Specific Gravity	**2.51**		(High)
Porosity	**7.23**	%	(High)
Absorption	**2.88**	%	(High)
P-wave Velocity	**339**	m/s	(Medium)
S-wave Velocity	**229**	m/s	(Low)
Young's Modulus	**0.13**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.42**		(Medium)
Uni. Comp. Strength	**136**	kgf/㎠	(Medium)
Rock Strength Classification (ISRM)	Weak rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-12**
Depth	24.2-24.4 m
Lithology	
Diameter / Length	5.07 ##### cm
Condition	Bad (풍화,균열,vein)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

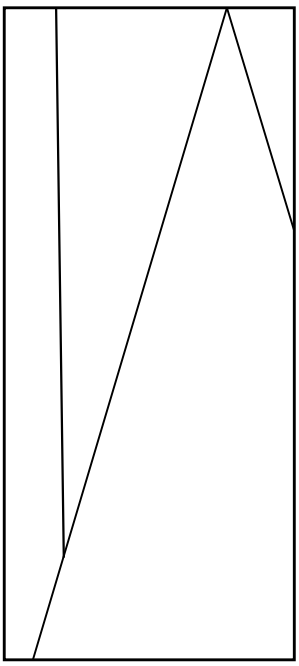
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

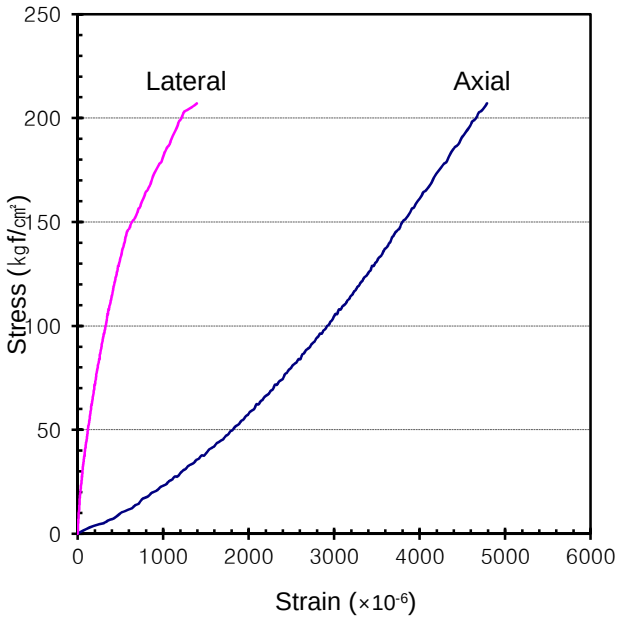
Dry Density	**2.31**	g/㎤	(Medium)
Specific Gravity	**2.32**		(High)
Porosity	**11.04**	%	(High)
Absorption	**4.75**	%	(High)
P-wave Velocity	**1,249**	m/s	(Medium)
S-wave Velocity	**762**	m/s	(Low)
Young's Modulus	**0.50**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.24**		(Medium)
Uni. Comp. Strength	**207**	kgf/㎠	(Medium)
Rock Strength Classification (ISRM)	Weak rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-12**
Depth	35.7-36.0 m
Lithology	
Diameter / Length	5.05 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

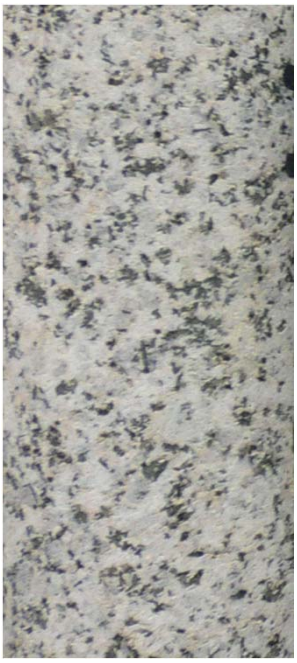
Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

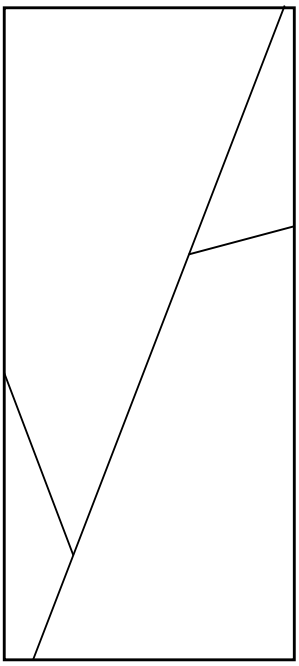
Test Result (Reliability)

Dry Density	**2.64**	g/㎤	(Medium)
Specific Gravity	**2.66**		(High)
Porosity	**2.05**	%	(High)
Absorption	**0.77**	%	(High)
P-wave Velocity	**2,797**	m/s	(High)
S-wave Velocity	**1,572**	m/s	(Medium)
Young's Modulus	**2.35**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.22**		(Medium)
Uni. Comp. Strength	**802**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Strong rock		
Remark			

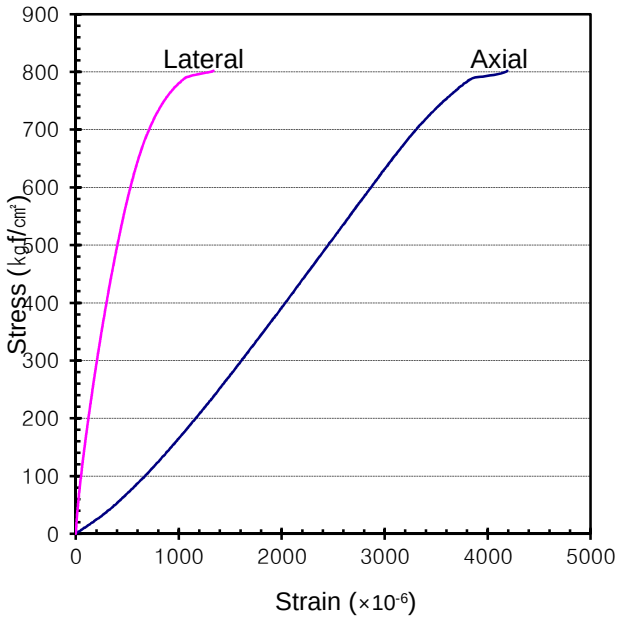
Pictures of Specimen



Failure Description



Stress vs. Strain Curve



Affirmation

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Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-20**
Depth	47.7-47.9 m
Lithology	
Diameter / Length	5.03 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

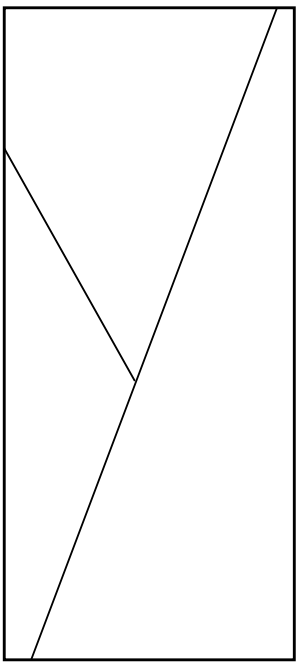
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

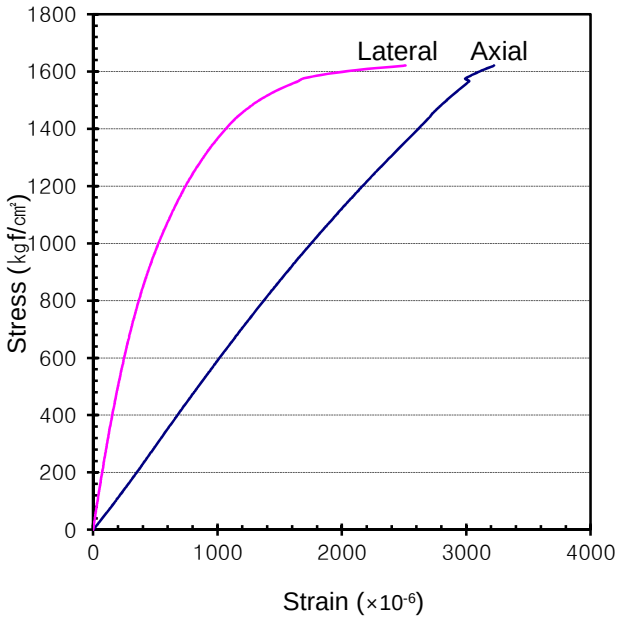
Dry Density	**2.67**	g/㎤	(Medium)
Specific Gravity	**2.68**		(High)
Porosity	**0.51**	%	(High)
Absorption	**0.19**	%	(High)
P-wave Velocity	**5,306**	m/s	(High)
S-wave Velocity	**2,567**	m/s	(Medium)
Young's Modulus	**5.57**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.35**		(Medium)
Uni. Comp. Strength	**1,621**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

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Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-20**
Depth	57.0-57.4 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Normal (균열내포)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

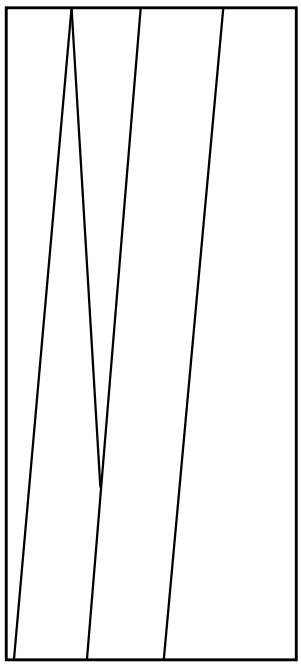
Dry Density	**2.59**	g/㎤	(Medium)
Specific Gravity	**2.59**		(High)
Porosity	**2.58**	%	(High)
Absorption	**0.99**	%	(High)
P-wave Velocity	**4,606**	m/s	(High)
S-wave Velocity	**2,463**	m/s	(Medium)
Young's Modulus	**3.54**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.35**		(Medium)
Uni. Comp. Strength	**529**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Strong rock		

Remark

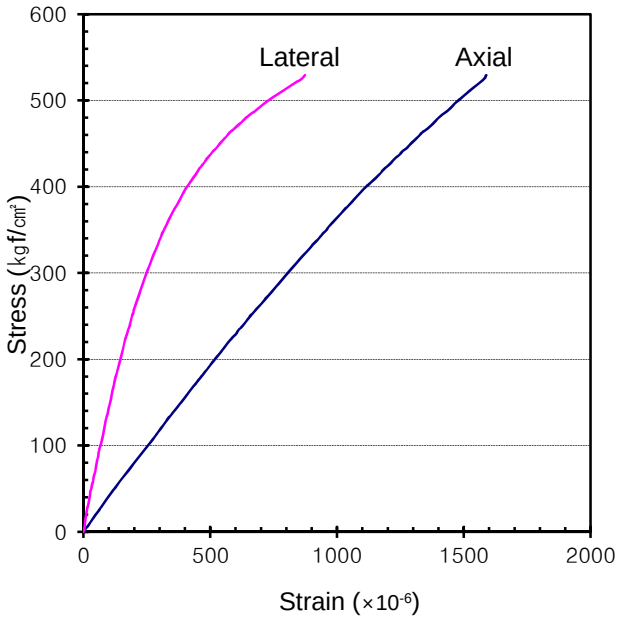
균열면을 따라 파괴

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-20**
Depth	62.8-63.0 m
Lithology	
Diameter / Length	5.05 ##### cm
Condition	Normal (균열내포)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

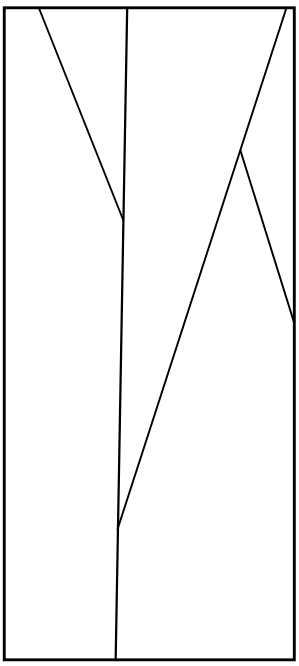
Dry Density	**2.61**	g/㎤	(Medium)
Specific Gravity	**2.61**		(High)
Porosity	**2.00**	%	(High)
Absorption	**0.76**	%	(High)
P-wave Velocity	**4,365**	m/s	(High)
S-wave Velocity	**2,338**	m/s	(Medium)
Young's Modulus	**2.98**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.21**		(Medium)
Uni. Comp. Strength	**495**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Medium strong rock		

Remark

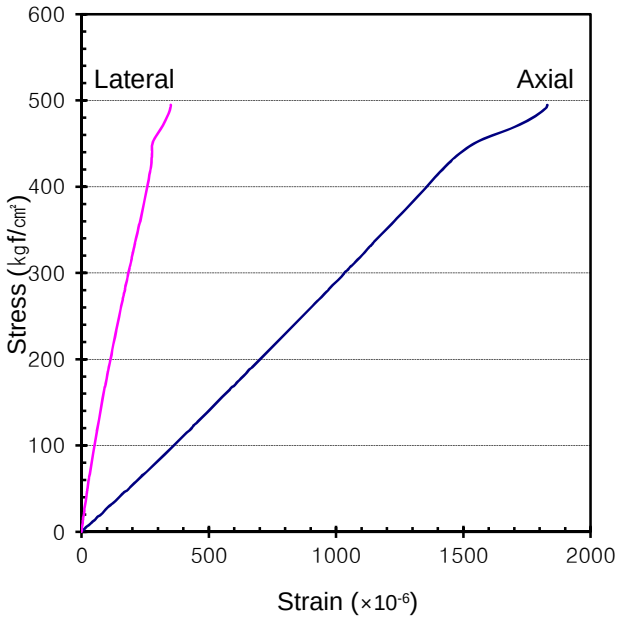
균열면을 따라 파괴

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

지오메카닉스 GEO MECHANICS
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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-20**
Depth	96.3-96.5 m
Lithology	
Diameter / Length	5.07 ##### cm
Condition	Normal (균열내포)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
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ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

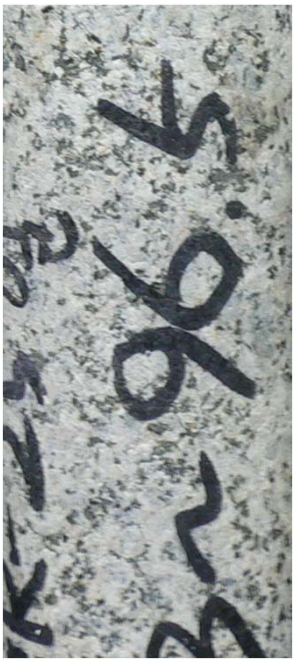
Test Result (Reliability)

Dry Density	**2.60**	g/㎤	(Medium)
Specific Gravity	**2.61**		(High)
Porosity	**2.56**	%	(High)
Absorption	**0.98**	%	(High)
P-wave Velocity	**4,231**	m/s	(High)
S-wave Velocity	**2,357**	m/s	(Medium)
Young's Modulus	**3.59**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.16**		(Medium)
Uni. Comp. Strength	**506**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Medium strong rock		

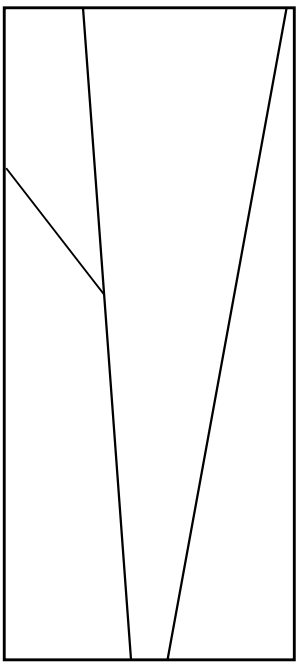
Remark

균열면을 따라 파괴

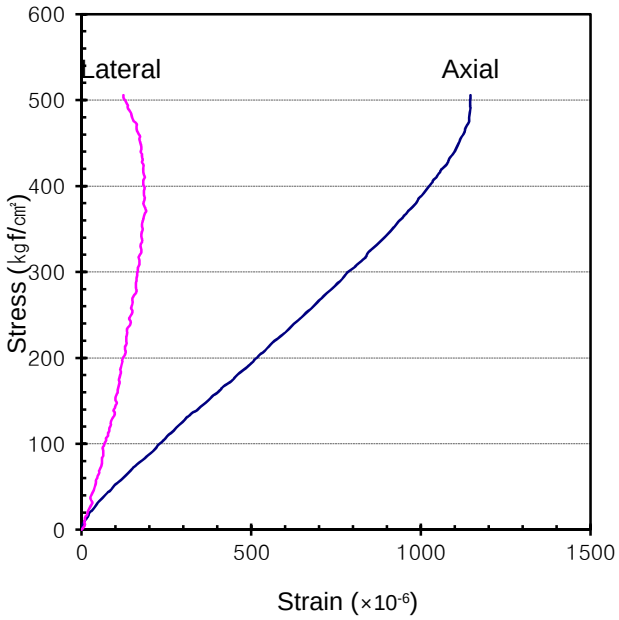
Pictures of Specimen



Failure Description



Stress vs. Strain Curve



Affirmation

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Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-21**
Depth	61.4-61.6 m
Lithology	
Diameter / Length	5.05 ##### cm
Condition	Normal (균열내포)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
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ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

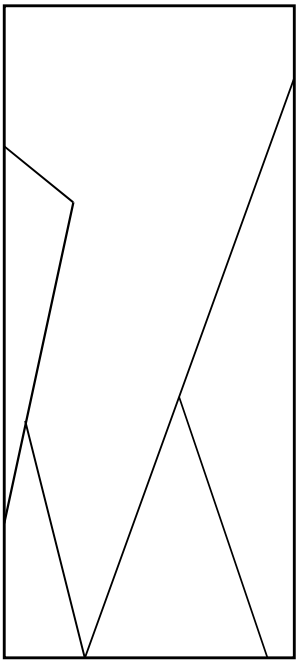
Dry Density	**2.66**	g/㎤	(Medium)
Specific Gravity	**2.67**		(High)
Porosity	**0.55**	%	(High)
Absorption	**0.21**	%	(High)
P-wave Velocity	**5,398**	m/s	(High)
S-wave Velocity	**2,699**	m/s	(Medium)
Young's Modulus	**6.67**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.19**		(Medium)
Uni. Comp. Strength	**1,163**	kgf/㎠	(Medium)
Rock Strength Classification (ISRM)	Very strong rock		

Remark

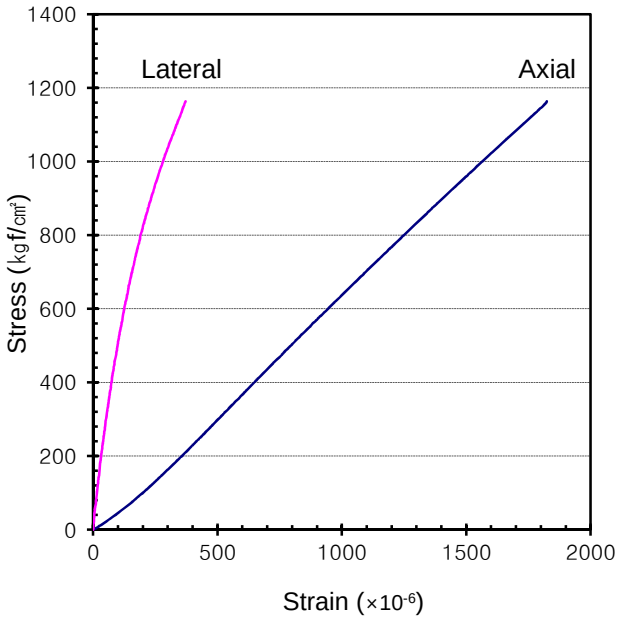
균열면을 따라 파괴

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-21**
Depth	115.9-116.1 m
Lithology	
Diameter / Length	5.03 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
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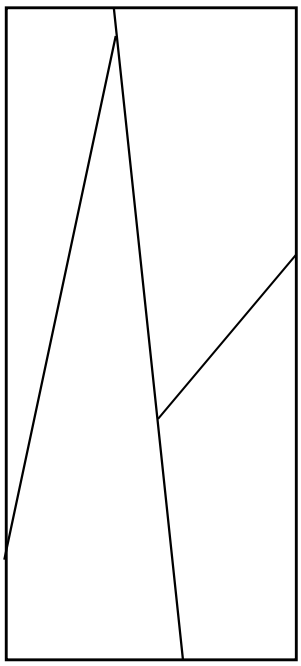
Test Result (Reliability)

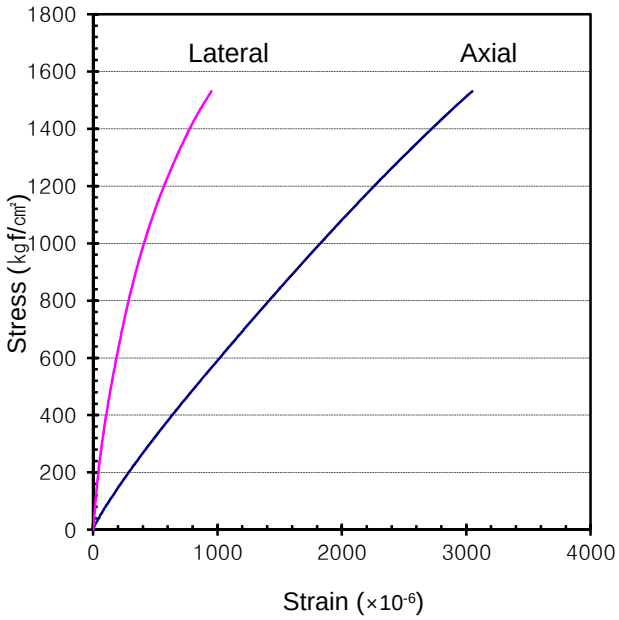
Dry Density	**2.68**	g/㎤	(Medium)
Specific Gravity	**2.68**		(High)
Porosity	**0.61**	%	(High)
Absorption	**0.23**	%	(High)
P-wave Velocity	**5,490**	m/s	(High)
S-wave Velocity	**2,745**	m/s	(Medium)
Young's Modulus	**4.98**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.26**		(Medium)
Uni. Comp. Strength	**1,531**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-22**
Depth	48.8-49.0 m
Lithology	
Diameter / Length	5.05 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

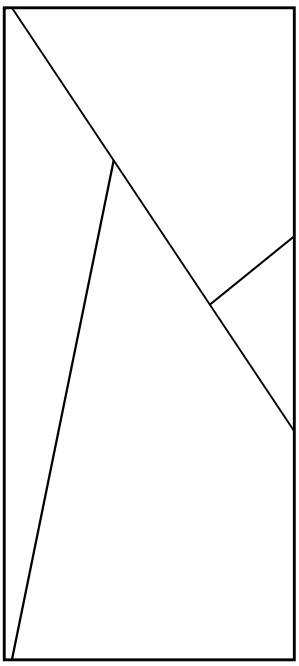
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

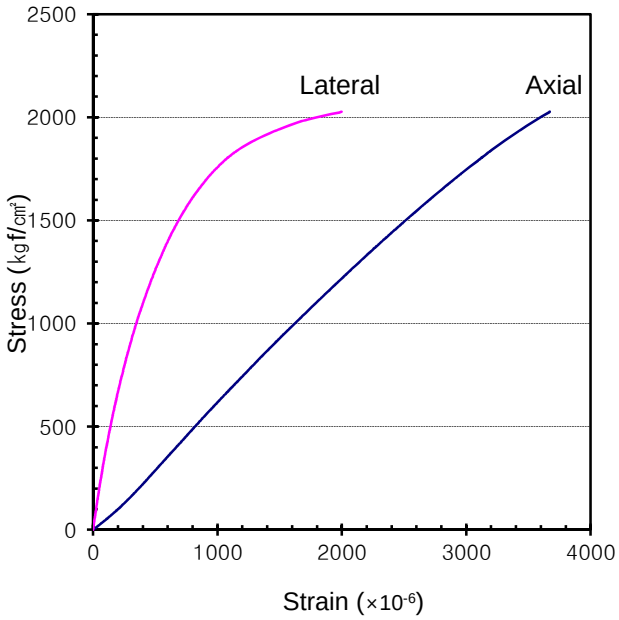
Dry Density	**2.68**	g/㎤	(Medium)
Specific Gravity	**2.68**		(High)
Porosity	**0.52**	%	(High)
Absorption	**0.19**	%	(High)
P-wave Velocity	**5,353**	m/s	(High)
S-wave Velocity	**2,753**	m/s	(Medium)
Young's Modulus	**5.89**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.31**		(Medium)
Uni. Comp. Strength	**2,027**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

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Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-22**
Depth	63.8-64.0 m
Lithology	
Diameter / Length	5.05 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

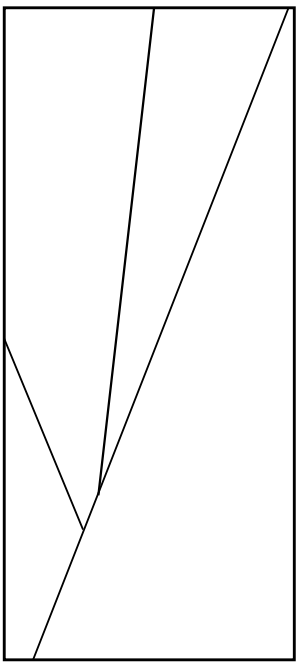
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

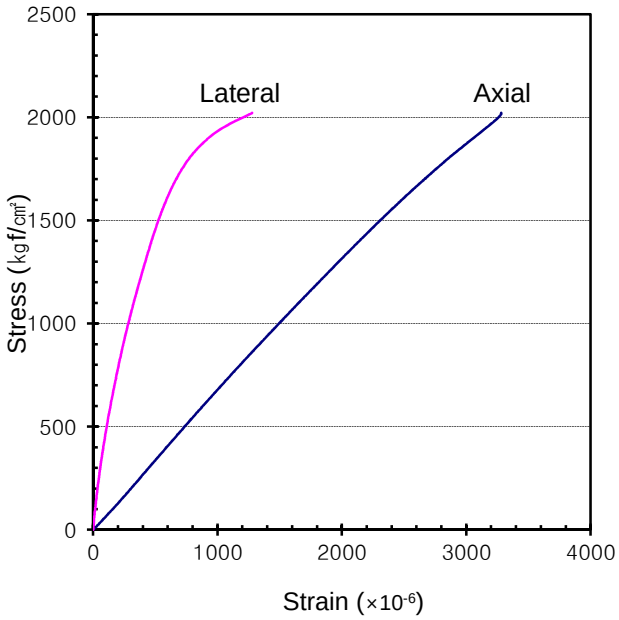
Dry Density	**2.68**	g/㎤	(Medium)
Specific Gravity	**2.69**		(High)
Porosity	**0.55**	%	(High)
Absorption	**0.20**	%	(High)
P-wave Velocity	**5,404**	m/s	(High)
S-wave Velocity	**2,657**	m/s	(Medium)
Young's Modulus	**6.33**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.27**		(Medium)
Uni. Comp. Strength	**2,022**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

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Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-24**
Depth	35.7-35.85 m
Lithology	
Diameter / Length	4.71 / 9.74 cm
Condition	Bad

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

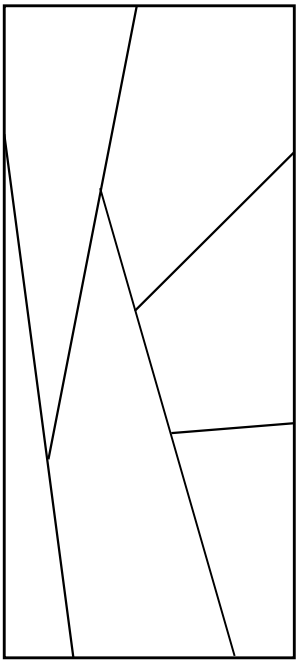
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

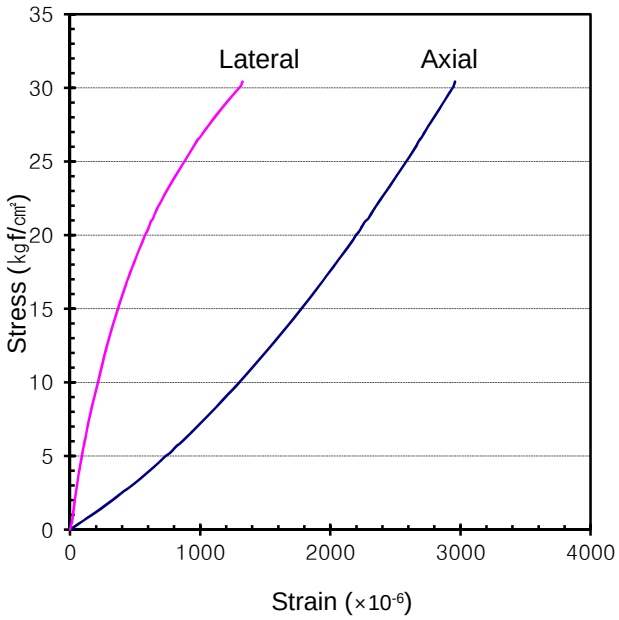
Dry Density	**2.26**	g/㎤	(Medium)
Specific Gravity	**2.32**		(High)
Porosity	**13.31**	%	(High)
Absorption	**5.75**	%	(High)
P-wave Velocity	**399**	m/s	(Medium)
S-wave Velocity	**267**	m/s	(Low)
Young's Modulus	**0.11**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.41**		(Low)
Uni. Comp. Strength	**30**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Very weak rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

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Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-24**
Depth	63.9-64.1 m
Lithology	
Diameter / Length	4.98 ##### cm
Condition	Normal (균열내포)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
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ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

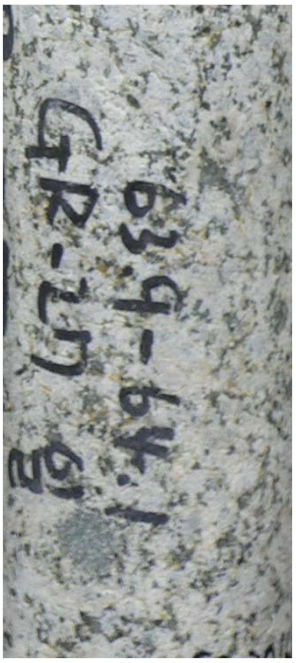
Test Result (Reliability)

Dry Density	**2.62**	g/㎤	(Medium)
Specific Gravity	**2.63**		(High)
Porosity	**2.04**	%	(High)
Absorption	**0.78**	%	(High)
P-wave Velocity	**4,274**	m/s	(High)
S-wave Velocity	**2,303**	m/s	(Medium)
Young's Modulus	**2.43**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.19**		(Medium)
Uni. Comp. Strength	**320**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Medium strong rock		

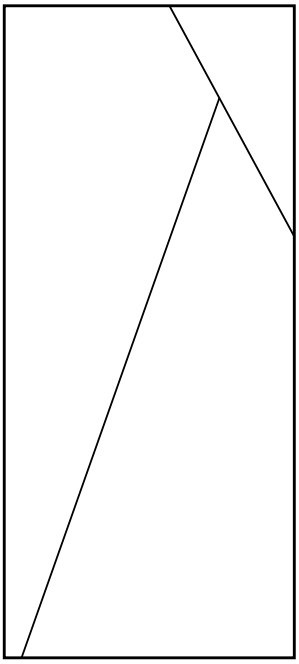
Remark

균열면을 따라 파괴

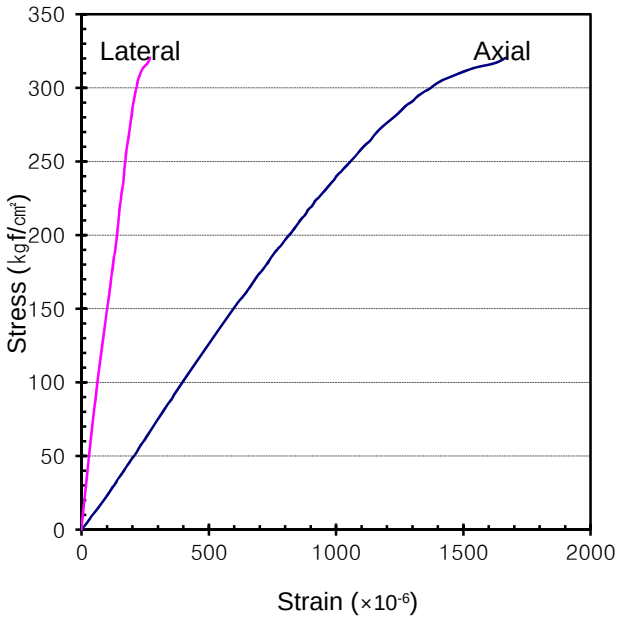
Pictures of Specimen



Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

지오메카닉스 GEO MECHANICS
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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-27**
Depth	27.2-27.4 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Normal (균열)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

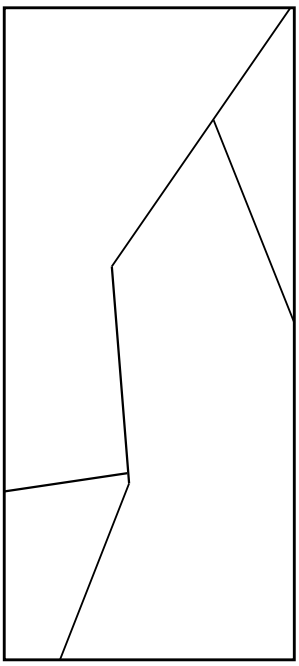
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

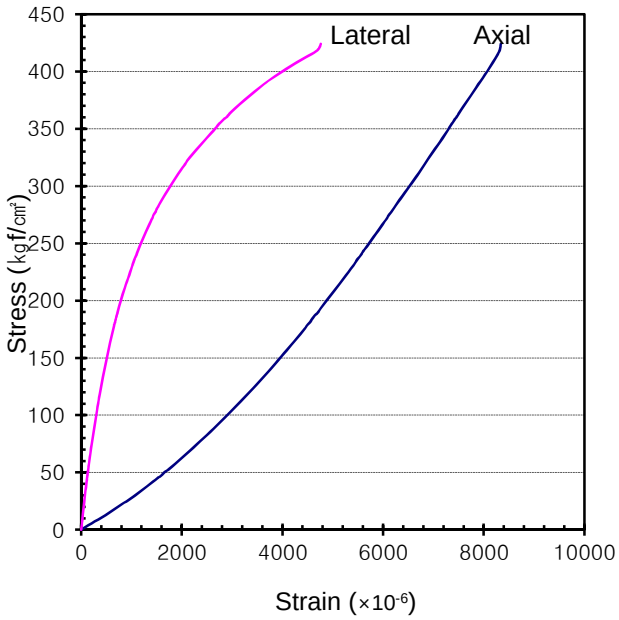
Dry Density	**2.57**	g/㎤	(Medium)
Specific Gravity	**2.57**		(High)
Porosity	**4.08**	%	(High)
Absorption	**1.58**	%	(High)
P-wave Velocity	**1,111**	m/s	(Medium)
S-wave Velocity	**730**	m/s	(Low)
Young's Modulus	**0.58**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.42**		(Medium)
Uni. Comp. Strength	**424**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Medium strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-27**
Depth	35.0-35.2 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
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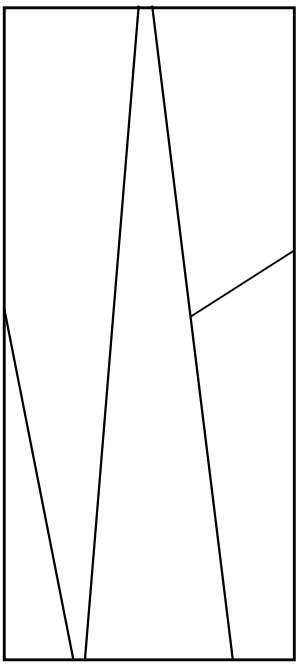
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

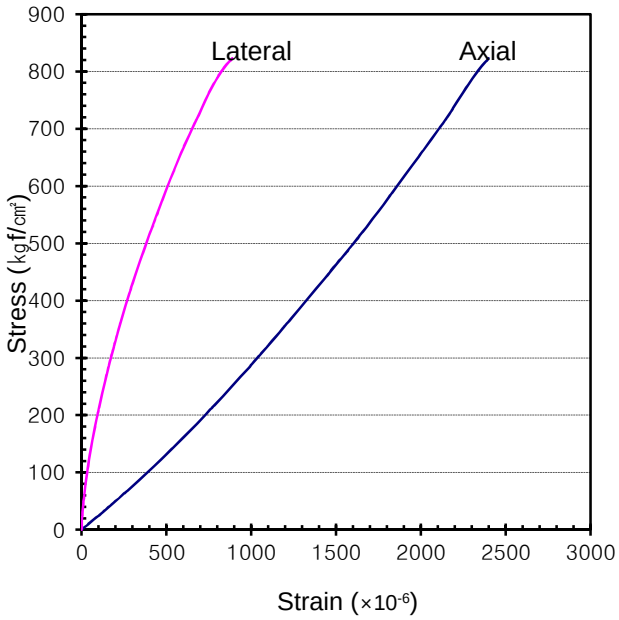
Dry Density	**2.66**	g/㎤	(Medium)
Specific Gravity	**2.67**		(High)
Porosity	**1.59**	%	(High)
Absorption	**0.60**	%	(High)
P-wave Velocity	**3,439**	m/s	(High)
S-wave Velocity	**1,981**	m/s	(Medium)
Young's Modulus	**3.54**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.37**		(Medium)
Uni. Comp. Strength	**823**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-27**
Depth	42.9-43.2 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
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ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

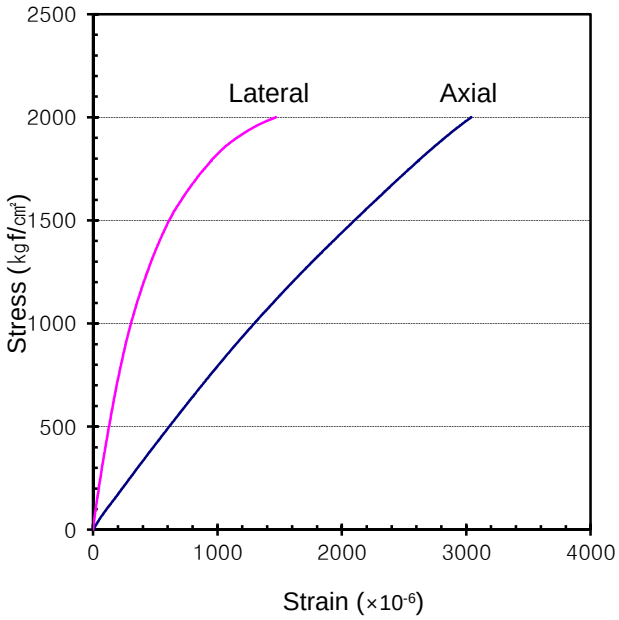
Test Result (Reliability)

Dry Density	**2.69**	g/㎤	(Medium)
Specific Gravity	**2.70**		(High)
Porosity	**0.27**	%	(High)
Absorption	**0.10**	%	(High)
P-wave Velocity	**5,635**	m/s	(High)
S-wave Velocity	**2,825**	m/s	(Medium)
Young's Modulus	**6.76**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.31**		(Medium)
Uni. Comp. Strength	**2,000**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description

Stress vs. Strain Curve



Affirmation

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Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-30**
Depth	21.3-21.5 m
Lithology	
Diameter / Length	5.02 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

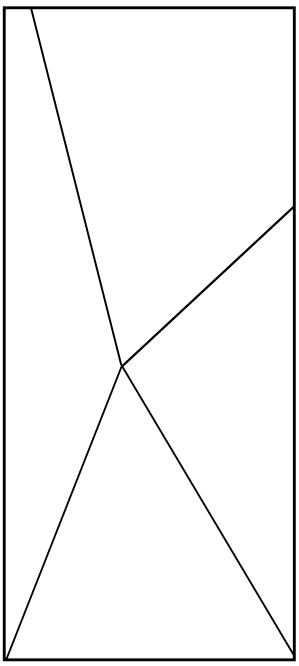
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

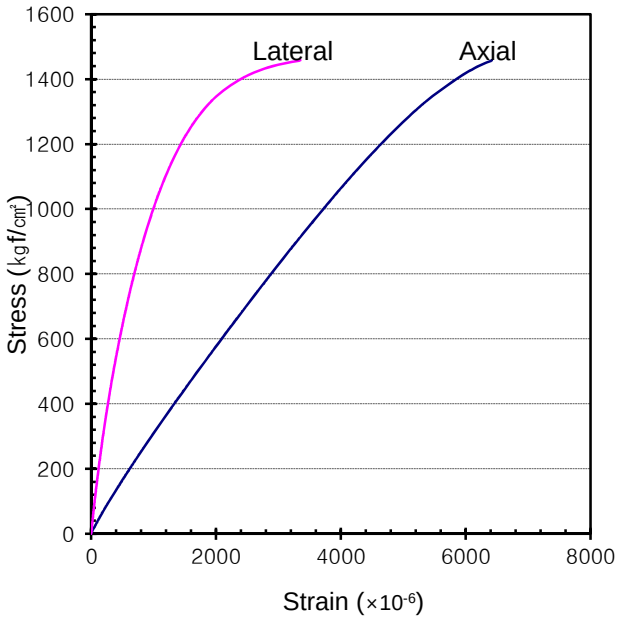
Dry Density	**2.64**	g/㎤	(Medium)
Specific Gravity	**2.65**		(High)
Porosity	**2.71**	%	(High)
Absorption	**1.02**	%	(High)
P-wave Velocity	**4,457**	m/s	(High)
S-wave Velocity	**2,310**	m/s	(Medium)
Young's Modulus	**2.51**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.30**		(Medium)
Uni. Comp. Strength	**1,458**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-34**
Depth	12.0-12.2 m
Lithology	
Diameter / Length	5.05 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

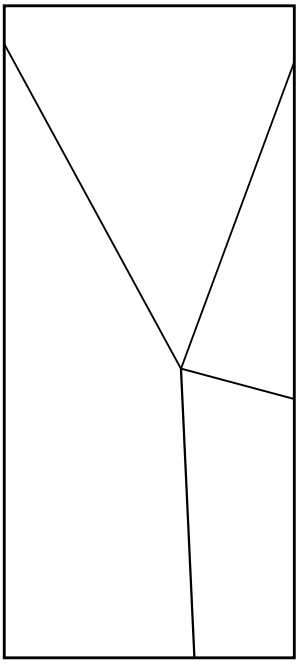
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

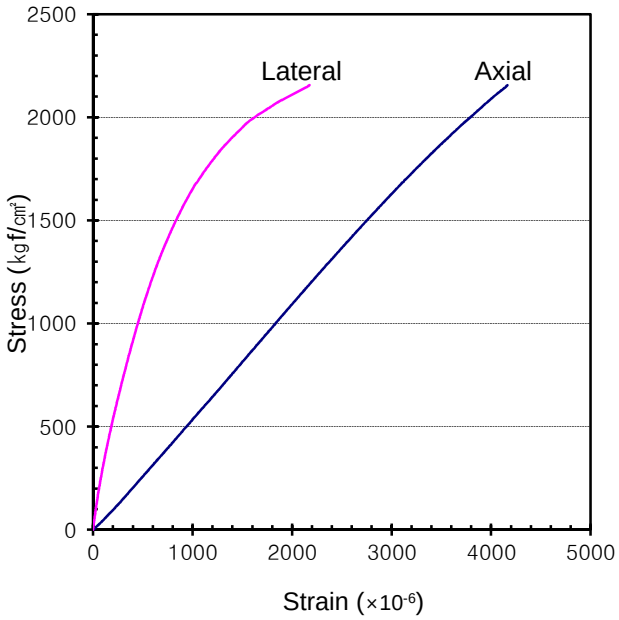
Dry Density	**2.68**	g/㎤	(Medium)
Specific Gravity	**2.69**		(High)
Porosity	**0.72**	%	(High)
Absorption	**0.27**	%	(High)
P-wave Velocity	**4,695**	m/s	(High)
S-wave Velocity	**2,482**	m/s	(Medium)
Young's Modulus	**5.60**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.34**		(Medium)
Uni. Comp. Strength	**2,156**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-40**
Depth	20.0-20.2 m
Lithology	
Diameter / Length	5.02 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

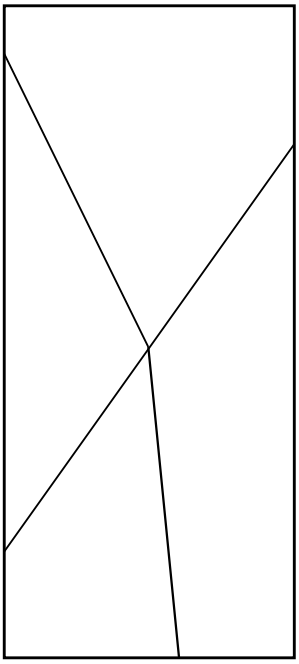
ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

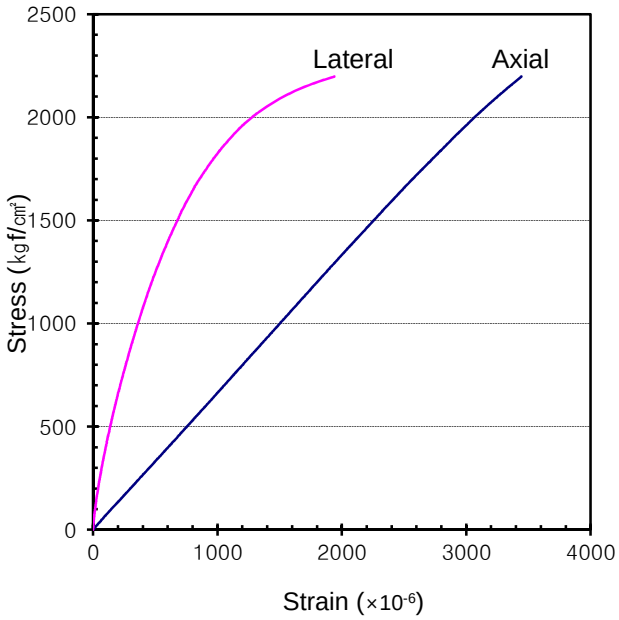
Dry Density	**2.70**	g/㎤	(Medium)
Specific Gravity	**2.70**		(High)
Porosity	**0.54**	%	(High)
Absorption	**0.20**	%	(High)
P-wave Velocity	**4,653**	m/s	(High)
S-wave Velocity	**2,573**	m/s	(Medium)
Young's Modulus	**6.70**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.35**		(Medium)
Uni. Comp. Strength	**2,198**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-41**
Depth	19.0-19.3 m
Lithology	
Diameter / Length	5.05 ##### cm
Condition	Normal (균열내포)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

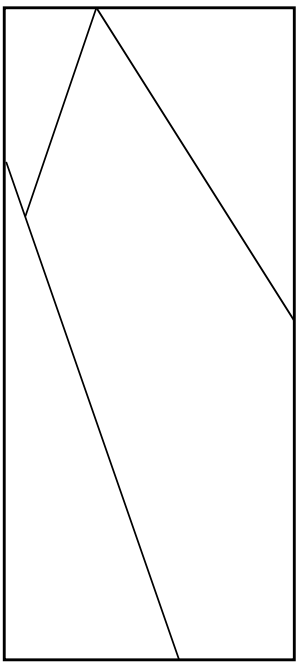
Dry Density	**2.61**	g/㎤	(Medium)
Specific Gravity	**2.61**		(High)
Porosity	**1.17**	%	(High)
Absorption	**0.45**	%	(High)
P-wave Velocity	**4,987**	m/s	(High)
S-wave Velocity	**2,601**	m/s	(Medium)
Young's Modulus	**3.46**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.16**		(Medium)
Uni. Comp. Strength	**494**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Medium strong rock		

Remark

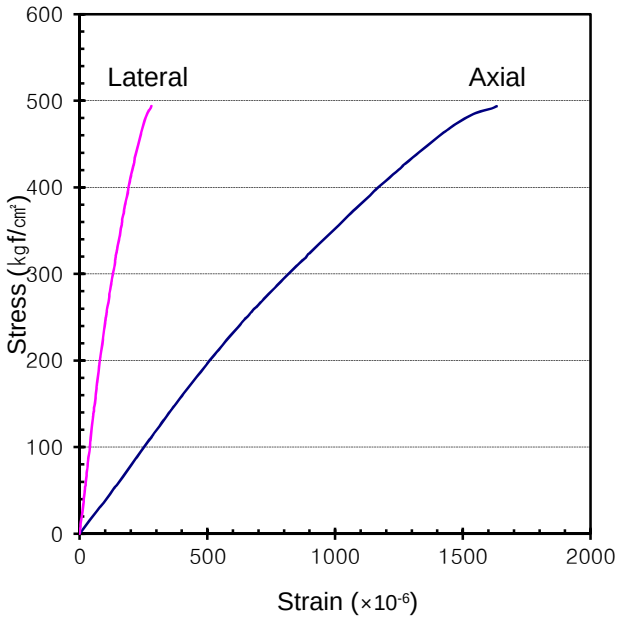
균열면을 따라 파괴

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-42**
Depth	24.0-24.2 m
Lithology	
Diameter / Length	5.06 ##### cm
Condition	Normal (vein)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
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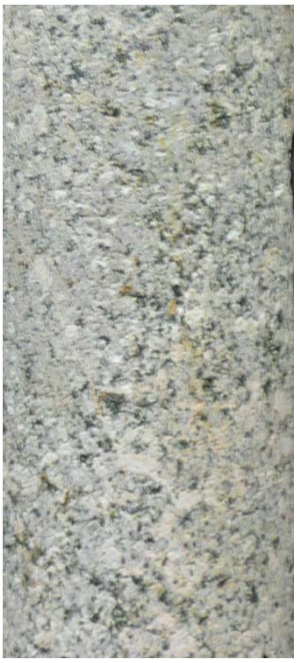
Test Result (Reliability)

Dry Density	**2.42**	g/㎤	(Medium)
Specific Gravity	**2.43**		(High)
Porosity	**6.93**	%	(High)
Absorption	**2.85**	%	(High)
P-wave Velocity	**2,371**	m/s	(High)
S-wave Velocity	**1,363**	m/s	(Medium)
Young's Modulus	**1.38**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.16**		(Medium)
Uni. Comp. Strength	**255**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Medium strong rock		

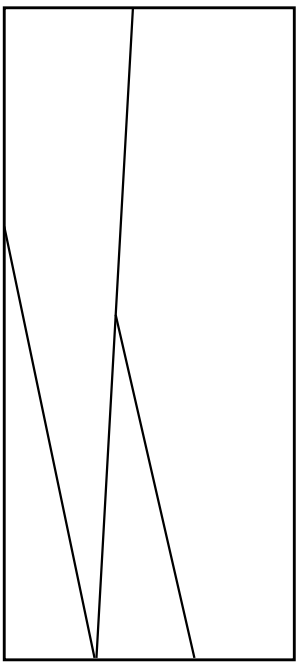
Remark

vein면을 따라 파괴

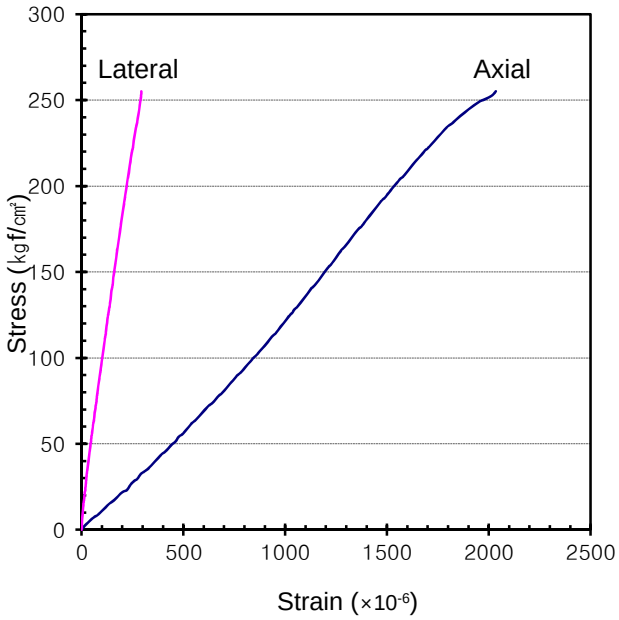
Pictures of Specimen



Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-44**
Depth	18.1-18.3 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Normal (vein)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

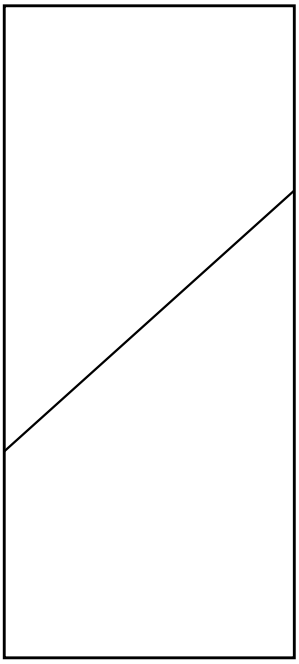
Dry Density	**2.56**	g/㎤	(Medium)
Specific Gravity	**2.57**		(High)
Porosity	**1.79**	%	(High)
Absorption	**0.70**	%	(High)
P-wave Velocity	**4,432**	m/s	(High)
S-wave Velocity	**2,397**	m/s	(Medium)
Young's Modulus	**3.85**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.27**		(Medium)
Uni. Comp. Strength	**542**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Strong rock		

Remark

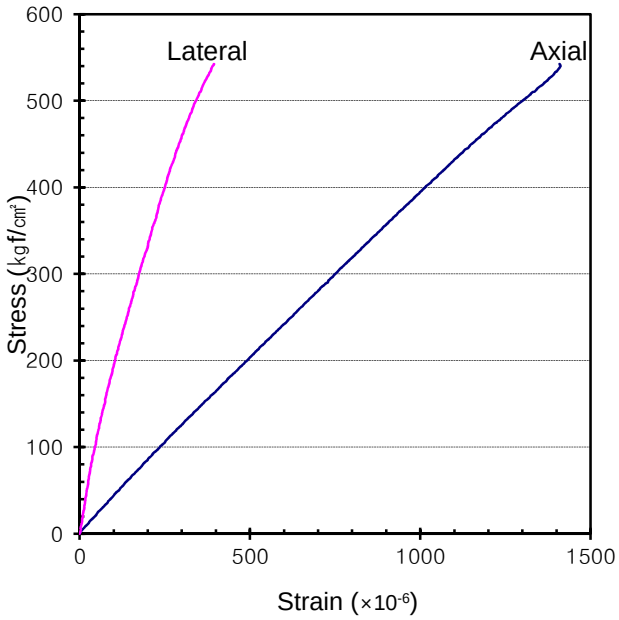
vein면을 따라 파괴

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-72**
Depth	7.1-7.4 m
Lithology	
Diameter / Length	5.04 ##### cm
Condition	Normal

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

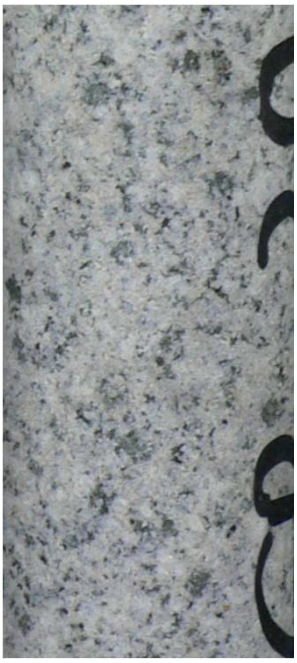
Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

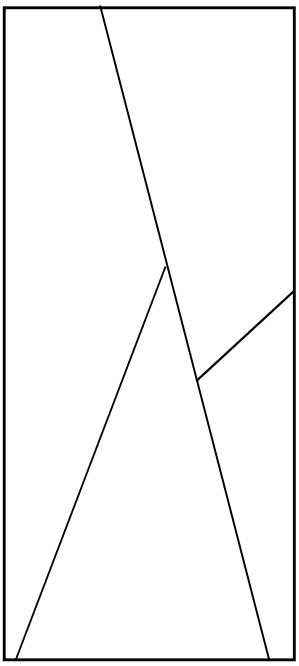
Test Result (Reliability)

Dry Density	**2.67**	g/㎤	(Medium)
Specific Gravity	**2.67**		(High)
Porosity	**0.46**	%	(High)
Absorption	**0.17**	%	(High)
P-wave Velocity	**5,302**	m/s	(High)
S-wave Velocity	**2,747**	m/s	(Medium)
Young's Modulus	**6.60**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.30**		(Medium)
Uni. Comp. Strength	**2,353**	kgf/㎠	(High)
Rock Strength Classification (ISRM)	Very strong rock		
Remark			

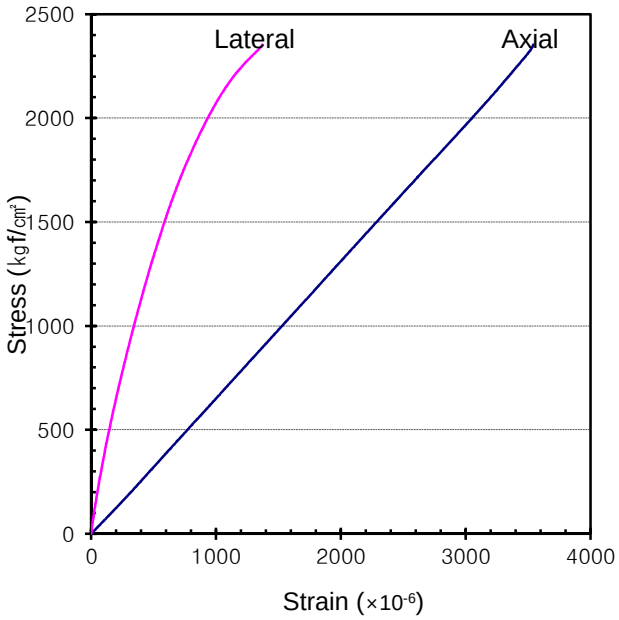
Pictures of Specimen



Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

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물성/일축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-73**
Depth	21.2-21.4 m
Lithology	
Diameter / Length	5.00 ##### cm
Condition	Normal (균열내포)

Test Condition

Test Date	2011. 6. 14.
Testing Machine	KDU-100 / UCAM20-PC
Stress Rate	0.5 MPa/sec

Test Method

ASTM C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
ASTM D2845-08 Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock
ASTM D7012-10 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

Test Result (Reliability)

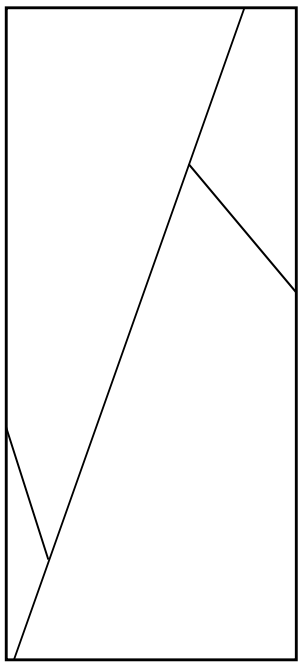
Dry Density	**2.66**	g/㎤	(Medium)
Specific Gravity	**2.66**		(High)
Porosity	**0.82**	%	(High)
Absorption	**0.31**	%	(High)
P-wave Velocity	**4,965**	m/s	(High)
S-wave Velocity	**2,597**	m/s	(Medium)
Young's Modulus	**6.00**	$\times 10^5$ kgf/㎠	
Poisson's Ratio	**0.23**		(Medium)
Uni. Comp. Strength	**800**	kgf/㎠	(Low)
Rock Strength Classification (ISRM)	Strong rock		

Remark

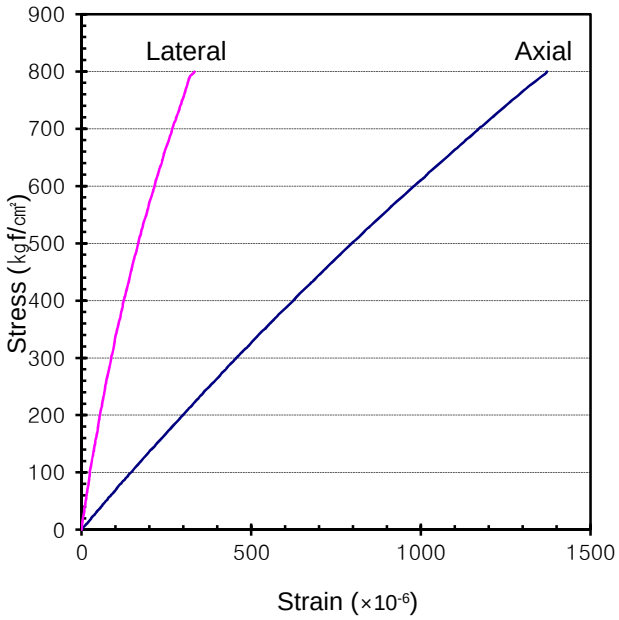
균열면을 따라 파괴

Pictures of Specimen

Failure Description



Stress vs. Strain Curve



Affirmation

Tested by	풍 보 현
Technical Manager	장 현 식

시 험 성 적 서

강원도 춘천시 효자동 192 강원대학교
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성적서 번호 : 2011-073

1. 의 뢰 자
   - 기 관 명 : ㈜동아컨설턴트
   - 주 소 : 서울특별시 서초구 방배동 795-25 방배빌딩 4층 및 지층
   - 의뢰 일자 : 2011년 06월 09일

2. 시험성적서의 용도
   신고리 5,6호기 부지 세부조사 실내시험

3. 시험대상품목/물질/시료명
   시추코어 암석

4. 시험기간
   2011년 6월 9일 ~ 2011년 6월 14일

5. 시험항목 및 방법
   삼축압축시험 : ASTM D7012-07 Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures

6. 시험환경
   온도 : (21 ± 2) ℃ , 상대습도 : (50 ± 5) % R.H.

7. 시험결과
   시험 결과표 참조

이 성적서는 의뢰자가 제공한 시료에 대한 시험결과이며 용도이외의 사용을 금합니다.

확인	시험원 성명 : 풍 보 현 (서명)	기술책임자 성명 : 장 현 식 (서명)

2011년 06월 15일

㈜ 지오메카닉스 대표이사 (인)

㈜ 지오메카닉스
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TEL : 033) 244-9275 FAX : 033) 244-9276

삼축압축시험 **시험결과 요약표 (SUMMARY TABLE)** 2011-073

시료 (Specimen)			시험결과 (Test Result)								
시추공번 Borehole I.D.	심도 Depth (m)	상태 Condition	인장강도 Tensile Strength (kgf/㎠)	일축강도 Uni. Comp. Strength (kgf/㎠)	구속압력 Conf. Pres. (kgf/㎠)	최대축응력 Max. Stress (kgf/㎠)	Mohr-Coulomb Criterion		Hoek-Brown Criterion		신뢰도 Reliability
							점착력 Cohesion (kgf/㎠)	내부마찰각 Int. Fri. Angle(°)	m	s	
GR-24	36.0-36.5	Bad Bad Bad		190	51 102 153	390 593 791	49	36.2	12.81	0.39	Medium
제출 시료에 한함						이 하 여 백					

Client	㈜동아컨설턴트	**Affirmation**	
Test Date	2011년 6월 9일 ~ 2011년 6월 14일	Tested by 풍 보 현	Technical Manager 장 현 식

지오메카닉스 GEO MECHANICS
KOLAS 인정기관 | 강원대학교 실험실 벤처기업
강원도 춘천시 효자동 192 강원대학교
자연과학대학 3호관 305호
TEL : 033) 244-9275 | FAX : 033) 244-9276
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KNU 강원대학교

삼축압축시험

시험결과 (Test Result)

2011-073

Specimen

Borehole ID	**GR-24**	Size (cm)	No.	Diameter/Length	Condition
Depth	36.0-36.5 m		1	4.87 / 10.03	Bad
Lithology			2	4.87 / 9.78	Bad
			3	4.86 / 9.71	Bad

Test Condition / Method

Client	㈜동아컨설턴트	Test Date	#REF!
Testing Machine	KDU-100 / KDU-200	Stress Rate	0.5 MPa/sec
Test Method	**ASTM D7012-07** Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures		

Test Result (Reliability)

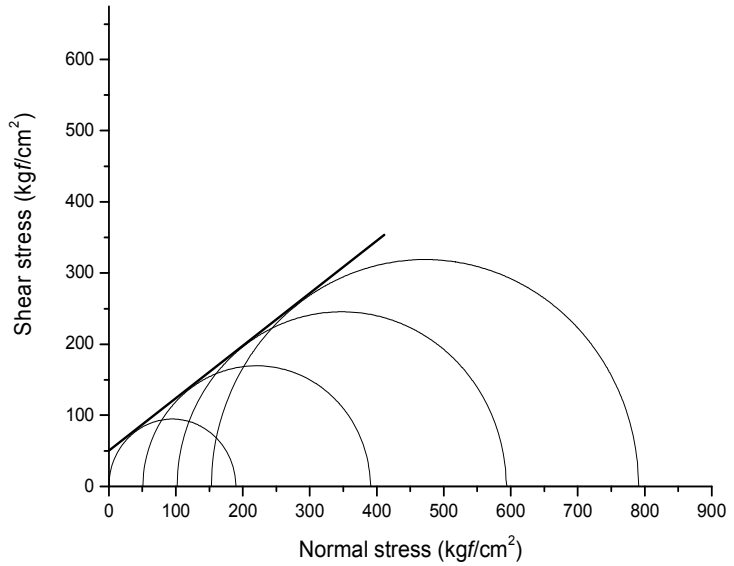
Uni. Comp. Strength	190	kgf/㎠	Tensile Strength	kgf/㎠

Triaxial Compression Test

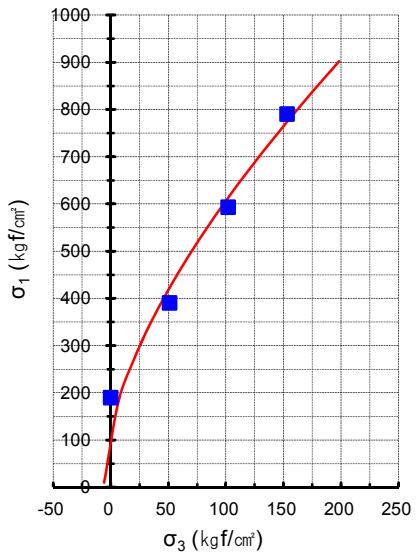
No.	Conf. Pres. (kgf/㎠)	Max. Stress (kgf/㎠)	Reliability
1	51	390	(Medium)
2	102	593	(Medium)
3	153	791	(Medium)

Mohr-Coulomb Failure Criterion			($\tau = c + \sigma\tan\Phi$)
Cohesion (c)	**49**	kgf/㎠	(Medium)
Int. Fri. Angle (φ)	**36.2**	°	(Medium)
Hoek-Brown Failure Criterion			($\sigma_1=\sigma_3+(m\sigma_c\sigma_3+s\sigma_c^2)^{0.5}$)
m	**12.81**		(Medium)
S	**0.39**		(Medium)

Triaxial Strength Envelope



Mohr-Coulomb Criterion



Heok-Brown criterion

Remark	Affirmation	
풍화 및 균열 발달	Tested by	풍 보 현
	Technical Manager	장 현 식

시 험 성 적 서

지/오/메/카/닉/스 KOLAS II Rock Mechanics Laboratories 우200-701 강원도 춘천시 강원대학길1 305 (강원대학교 자연대학3호관) (TEL: 033 244 9275, FAX: 033 244 9276)	성적서번호 : 2015-G-101 페이지 (1) / (총14)	KNU 강원대학교 KANGWON NATIONAL UNIVERSITY

1. 의 뢰 자
   - 기 관 명 : ㈜지오포스
   - 주 소 : 경기도 성남시 분당구 야탑동 150 분당테크노파크 A-709

2. 시험성적서의 용도
   신고리 5,6호기 부지세부조사

3. 시험대상품목 / 규격
   시추코어 암석 / NX

4. 시험기간
   2015년 12월 21일~2016년 1월 21일

5. 시험항목 및 방법
   밀도, 비중, 공극률, 흡수율 : ASTM C97/C97M-09

6. 시험결과
   참조1. 시험결과 (밀도,비중,공극률,흡수율)
   참조2. 시험분석 (밀도,비중,공극률,흡수율)

   이 시험결과는 의뢰자가 제시한 시료 및 시료명에만 한정됩니다.

확인	작성자 성명 : 풍 보 현 서명	기술책임자 성명 : 장 현 식 서명

2016년 01월 22일

강원대학교 실험실벤처기업 ㈜지오메카닉스 대표이사 (인)

GeoMc-QPF-26-03

시 험 결 과 (밀도,비중,공극률,흡수율)	성적서번호 : 2015-G-101 페이지 (2) / (총14)	지오메카닉스

1. 시험조건 (Test Condition)

시험일자 (Test date) 2015년 12월 21일~2016년 1월 21일

시험기기 (Testing machine) 디지탈캘리퍼스 (Mitutoyo / 08274628)
전자식지시저울 (CAS / D453510712)
건조기 (유유계기 / Mechanical convection oven)
진공 함침기 (자체제작 / Vacuum chamber)

2. 시험결과 (Test Result)

시추공명 Borehole I.D.	시추심도 Depth m	시료상태 Condition	밀도 Density g/cm^3	비중 Specific Gravity	공극률 Porosity (%)	흡수율 Absorption (%)
GR-1-1	12.5~12.7	Bad	**2.518**	**2.537**	**5.750**	**2.266**
GR-1-2	30.8~32.0	Normal	**2.663**	**2.672**	**1.667**	**0.624**
GR-1-3	64.1~64.5	Good	**2.708**	**2.715**	**0.337**	**0.124**
GR-1-4	88.3~88.6	Good	**2.715**	**2.722**	**0.232**	**0.085**
GR-4-1	20.6	Normal	**2.564**	**2.571**	**4.880**	**1.898**
GR-4-2	44.0	Normal	**2.666**	**2.670**	**1.641**	**0.614**
GR-4-3	68.1	Normal	**2.697**	**2.703**	**0.654**	**0.242**
GR-4-4	92.0	Normal	**2.645**	**2.654**	**1.210**	**0.456**
GR-10-1	12.0	Normal	**2.548**	**2.553**	**4.917**	**1.926**
GR-10-2	32.7	Normal	**2.689**	**2.691**	**0.844**	**0.313**
GR-10-3	56.6	Normal	**2.681**	**2.690**	**0.930**	**0.346**
GR-15-1	36.0	Normal	**2.574**	**2.589**	**2.596**	**1.003**
GR-15-2	51.2	Normal	**2.577**	**2.588**	**3.132**	**1.210**
GR-15-3	67.0	Normal	**2.517**	**2.534**	**4.505**	**1.778**
GR-16-1	8.0~8.3	Bad	**2.396**	**2.433**	**7.243**	**2.976**
GR-16-2	16.8~17.1	Normal	**2.624**	**2.631**	**1.726**	**0.656**
GR-16-3	37.7~38.0	Good	**2.706**	**2.713**	**0.310**	**0.114**
GR-16-4	77.3~77.6	Good	**2.707**	**2.714**	**0.259**	**0.095**
GR-19-1	35.2	Bad	**2.278**	**2.279**	**15.148**	**6.647**
GR-19-2	44.7	Bad	**1.802**	**1.831**	**30.935**	**16.900**
GR-19-3	64.8	Bad	**2.504**	**2.512**	**7.448**	**2.965**

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

GeoMc-QPF-26-04

2. 시험결과 (Test Result) – 계속

시추공명 Borehole I.D.	시추심도 Depth m	시료상태 Condition	밀도 Density g/cm^3	비중 Specific Gravity	공극률 Porosity (%)	흡수율 Absorption (%)
GR-19-4	92.2	Normal	**2.688**	**2.692**	**0.757**	**0.281**
GR-25-1	5.2	Normal	**2.651**	**2.656**	**0.348**	**0.131**
GR-25-2	36.7	Normal	**2.649**	**2.652**	**0.395**	**0.149**
GR-25-3	53.0	Normal	**2.657**	**2.664**	**1.035**	**0.388**
GR-35-1	19.9	Normal	**2.681**	**2.680**	**0.711**	**0.265**
GR-36-1	19.9	Normal	**2.580**	**2.587**	**2.926**	**1.131**
GR-37-1	28.0	Normal	**2.671**	**2.676**	**0.670**	**0.250**
GR-38-1	19.8	Normal	**2.683**	**2.689**	**0.560**	**0.208**
GR-46-1	24.8	Normal	**2.667**	**2.672**	**0.997**	**0.373**
GR-47-1	21.8	Normal	**2.397**	**2.428**	**8.423**	**3.469**

---------- 이하 여백 (End of Document) ----------

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석 (밀도,비중,공극률,흡수율)	성적서번호 : **2015-G-101** 페이지 (4) / (총14)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-1-1		시추심도	12.5~12.7 m
암 종	Granite		시료상태	Bad (HW)
시험일자	2015-12-22			
측정 및 분석결과				
시료크기	직경	5.04 cm	건조중량	565.78 g
	길이	11.29 cm	포화중량	578.60 g
밀 도	**2.518** g/㎤		수중중량	355.63 g
비 중	**2.537**		비 고	
공 극 률	**5.750** %			
흡 수 율	**2.266** %			

시추공명	GR-1-2		시추심도	30.8~32.0 m
암 종	Granite		시료상태	Normal (MW)
시험일자	2015-12-22			
측정 및 분석결과				
시료크기	직경	5.05 cm	건조중량	593.04 g
	길이	11.12 cm	포화중량	596.74 g
밀 도	**2.663** g/㎤		수중중량	374.78 g
비 중	**2.672**		비 고	
공 극 률	**1.667** %			
흡 수 율	**0.624** %			

시추공명	GR-1-3		시추심도	64.1~64.5 m
암 종	Granite		시료상태	Good (SW)
시험일자	2015-12-22			
측정 및 분석결과				
시료크기	직경	5.06 cm	건조중량	595.83 g
	길이	10.94 cm	포화중량	596.57 g
밀 도	**2.708** g/㎤		수중중량	377.10 g
비 중	**2.715**		비 고	
공 극 률	**0.337** %			
흡 수 율	**0.124** %			

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

GeoMc-QPF-26-06

시 험 분 석 (밀도,비중,공극률,흡수율)	성적서번호 : **2015-G-101** 페이지 (5) / (총14)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-1-4		시추심도	88.3~88.6 m
암 종	Granite		시료상태	Good (SW)
시험일자	2015-12-22			
측정 및 분석결과				
시료크기	직경	5.06 cm	건조중량	597.21 g
	길이	10.94 cm	포화중량	597.72 g
밀 도	**2.715** g/㎤		수중중량	378.32 g
비 중	**2.722**		비 고	
공 극 률	**0.232** %			
흡 수 율	**0.085** %			

시추공명	GR-4-1		시추심도	20.6 m
암 종	Granite		시료상태	Normal (MW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.01 cm	건조중량	573.77 g
	길이	11.35 cm	포화중량	584.66 g
밀 도	**2.564** g/㎤		수중중량	361.49 g
비 중	**2.571**		비 고	
공 극 률	**4.880** %			
흡 수 율	**1.898** %			

시추공명	GR-4-2		시추심도	44.0 m
암 종	Granite		시료상태	Normal (SW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.02 cm	건조중량	602.16 g
	길이	11.41 cm	포화중량	605.86 g
밀 도	**2.666** g/㎤		수중중량	380.33 g
비 중	**2.670**		비 고	
공 극 률	**1.641** %			
흡 수 율	**0.614** %			

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

GeoMc-QPF-26-06

시 험 분 석 (밀도,비중,공극률,흡수율)	성적서번호 : **2015-G-101** 페이지 (6) / (총14)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-4-3		시추심도	68.1 m	
암 종	Granite		시료상태	Normal (SW)	
시험일자	2016-01-20				
측정 및 분석결과					
시료크기	직경	5.03 cm	건조중량	611.41 g	
	길이	11.41 cm	포화중량	612.89 g	
밀 도	**2.697** g/㎤		수중중량	386.72 g	
비 중	**2.703**		비 고		
공 극 률	**0.654** %				
흡 수 율	**0.242** %				

시추공명	GR-4-4		시추심도	92.0 m	
암 종	Granite		시료상태	Normal (SW)	
시험일자	2016-01-20				
측정 및 분석결과					
시료크기	직경	5.01 cm	건조중량	592.36 g	
	길이	11.39 cm	포화중량	595.06 g	
밀 도	**2.645** g/㎤		수중중량	371.85 g	
비 중	**2.654**		비 고		
공 극 률	**1.210** %				
흡 수 율	**0.456** %				

시추공명	GR-10-1		시추심도	12.0 m	
암 종	Granite		시료상태	Normal (MW)	
시험일자	2016-01-20				
측정 및 분석결과					
시료크기	직경	5.06 cm	건조중량	584.15 g	
	길이	11.40 cm	포화중량	595.40 g	
밀 도	**2.548** g/㎤		수중중량	366.61 g	
비 중	**2.553**		비 고		
공 극 률	**4.917** %				
흡 수 율	**1.926** %				

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

GeoMc-QPF-26-06

시 험 분 석
(밀도,비중,공극률,흡수율)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-10-2	시추심도	32.7 m
암 종	Granite	시료상태	Normal (SW)
시험일자	2016-01-20		
측정 및 분석결과			
시료크기	직경 5.07 cm	건조중량	615.75 g
	길이 11.37 cm	포화중량	617.68 g
밀 도	**2.689** g/㎤	수중중량	388.89 g
비 중	**2.691**	비 고	
공 극 률	**0.844** %		
흡 수 율	**0.313** %		

시추공명	GR-10-3	시추심도	56.6 m
암 종	Granite	시료상태	Normal (SW)
시험일자	2016-01-20		
측정 및 분석결과			
시료크기	직경 5.06 cm	건조중량	607.42 g
	길이 11.27 cm	포화중량	609.52 g
밀 도	**2.681** g/㎤	수중중량	383.71 g
비 중	**2.690**	비 고	
공 극 률	**0.930** %		
흡 수 율	**0.346** %		

시추공명	GR-15-1	시추심도	36.0 m
암 종	Granite	시료상태	Normal (MW)
시험일자	2016-01-20		
측정 및 분석결과			
시료크기	직경 5.03 cm	건조중량	581.25 g
	길이 11.39 cm	포화중량	587.08 g
밀 도	**2.574** g/㎤	수중중량	362.54 g
비 중	**2.589**	비 고	
공 극 률	**2.596** %		
흡 수 율	**1.003** %		

확 인	작성자	**풍 보 현**	서명	기술책임자	**장 현 식**	서명

GeoMc-QPF-26-06

시 험 분 석
(밀도,비중,공극률,흡수율)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-15-2	시추심도	51.2 m
암 종	Granite	시료상태	Normal (HW)
시험일자	2016-01-20		
측정 및 분석결과			
시료크기	직경 5.03 cm	건조중량	514.71 g
	길이 10.05 cm	포화중량	520.94 g
밀 도	**2.577** g/㎤	수중중량	322.02 g
비 중	**2.588**	비 고	시료내에 균열 내포
공 극 률	**3.132** %		
흡 수 율	**1.210** %		

시추공명	GR-15-3	시추심도	67.0 m
암 종	Granite	시료상태	Normal (HW)
시험일자	2016-01-20		
측정 및 분석결과			
시료크기	직경 5.03 cm	건조중량	569.75 g
	길이 11.39 cm	포화중량	579.88 g
밀 도	**2.517** g/㎤	수중중량	355.03 g
비 중	**2.534**	비 고	풍화 심함
공 극 률	**4.505** %		
흡 수 율	**1.778** %		

시추공명	GR-16-1	시추심도	8.0~8.3 m
암 종	Granite	시료상태	Bad (HW)
시험일자	2015-12-22		
측정 및 분석결과			
시료크기	직경 5.04 cm	건조중량	538.22 g
	길이 11.26 cm	포화중량	554.24 g
밀 도	**2.396** g/㎤	수중중량	333.06 g
비 중	**2.433**	비 고	시료내에 균열 내포
공 극 률	**7.243** %		
흡 수 율	**2.976** %		

확 인	작성자	**풍 보 현**	서명	기술책임자 **장 현 식** 서명

GeoMc-QPF-26-06

시 험 분 석 (밀도,비중,공극률,흡수율)	성적서번호 : 2015-G-101 페이지 (9) / (총14)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-16-2		시추심도	16.8~17.1 m
암 종	Granite		시료상태	Normal (MW)
시험일자	2015-12-22			
측정 및 분석결과				
시료크기	직경	5.06 cm	건조중량	601.57 g
	길이	11.40 cm	포화중량	605.52 g
밀 도		**2.624** g/㎤	수중중량	376.91 g
비 중		**2.631**	비 고	
공 극 률		**1.726** %		
흡 수 율		**0.656** %		

시추공명	GR-16-3		시추심도	37.7~38.0 m
암 종	Granite		시료상태	Good (SW)
시험일자	2015-12-22			
측정 및 분석결과				
시료크기	직경	5.04 cm	건조중량	523.60 g
	길이	9.70 cm	포화중량	524.19 g
밀 도		**2.706** g/㎤	수중중량	331.17 g
비 중		**2.713**	비 고	
공 극 률		**0.310** %		
흡 수 율		**0.114** %		

시추공명	GR-16-4		시추심도	77.3~77.6 m
암 종	Granite		시료상태	Good (SW)
시험일자	2015-12-22			
측정 및 분석결과				
시료크기	직경	5.10 cm	건조중량	623.69 g
	길이	11.28 cm	포화중량	624.29 g
밀 도		**2.707** g/㎤	수중중량	394.51 g
비 중		**2.714**	비 고	
공 극 률		**0.259** %		
흡 수 율		**0.095** %		

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

GeoMc-QPF-26-06

시 험 분 석 (밀도,비중,공극률,흡수율)	성적서번호 : 2015-G-101 페이지 (10) / (총14)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-19-1		시추심도	35.2 m
암 종	Dyke		시료상태	Bad (HW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.01 cm	건조중량	508.95 g
	길이	11.34 cm	포화중량	542.78 g
밀 도		**2.278** g/㎤	수중중량	319.45 g
비 중		**2.279**	비 고	
공 극 률		**15.148** %		
흡 수 율		**6.647** %		

시추공명	GR-19-2		시추심도	44.7 m
암 종	Dyke		시료상태	Bad (HW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.01 cm	건조중량	389.30 g
	길이	10.96 cm	포화중량	455.09 g
밀 도		**1.802** g/㎤	수중중량	242.42 g
비 중		**1.831**	비 고	
공 극 률		**30.935** %		
흡 수 율		**16.900** %		

시추공명	GR-19-3		시추심도	64.8 m
암 종	Dyke		시료상태	Bad (MW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.02 cm	건조중량	559.60 g
	길이	11.29 cm	포화중량	576.19 g
밀 도		**2.504** g/㎤	수중중량	353.45 g
비 중		**2.512**	비 고	
공 극 률		**7.448** %		
흡 수 율		**2.965** %		

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

시 험 분 석 (밀도,비중,공극률,흡수율)	성적서번호 : **2015-G-101** 페이지 (11) / (총14)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-19-4		시추심도	92.2 m
암 종	Granite		시료상태	Normal (SW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.03 cm	건조중량	604.75 g
	길이	11.35 cm	포화중량	606.45 g
밀 도	**2.688** g/㎤		수중중량	381.79 g
비 중	**2.692**		비 고	
공 극 률	**0.757** %			
흡 수 율	**0.281** %			

시추공명	GR-25-1		시추심도	5.2 m
암 종	Granite		시료상태	Normal (SW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.07 cm	건조중량	610.10 g
	길이	11.40 cm	포화중량	610.90 g
밀 도	**2.651** g/㎤		수중중량	381.17 g
비 중	**2.656**		비 고	
공 극 률	**0.348** %			
흡 수 율	**0.131** %			

시추공명	GR-25-2		시추심도	36.7 m
암 종	Granite		시료상태	Normal (SW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.07 cm	건조중량	610.63 g
	길이	11.42 cm	포화중량	611.54 g
밀 도	**2.649** g/㎤		수중중량	381.32 g
비 중	**2.652**		비 고	
공 극 률	**0.395** %			
흡 수 율	**0.149** %			

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

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시 험 분 석 (밀도,비중,공극률,흡수율)	성적서번호 : **2015-G-101** 페이지 (12) / (총14)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-25-3		시추심도	53.0 m
암 종	Granite		시료상태	Normal (SW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.07 cm	건조중량	612.65 g
	길이	11.42 cm	포화중량	615.03 g
밀 도	**2.657** g/㎤		수중중량	385.03 g
비 중	**2.664**		비 고	시료내에 균열 내포
공 극 률	**1.035** %			
흡 수 율	**0.388** %			

시추공명	GR-35-1		시추심도	19.9 m
암 종	Granite		시료상태	Normal (SW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.04 cm	건조중량	606.78 g
	길이	11.35 cm	포화중량	608.39 g
밀 도	**2.681** g/㎤		수중중량	381.99 g
비 중	**2.680**		비 고	풍화 심함
공 극 률	**0.711** %			
흡 수 율	**0.265** %			

시추공명	GR-36-1		시추심도	19.9 m
암 종	Granite		시료상태	Normal (HW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.06 cm	건조중량	588.83 g
	길이	11.35 cm	포화중량	595.49 g
밀 도	**2.580** g/㎤		수중중량	367.85 g
비 중	**2.587**		비 고	시료내에 균열 내포
공 극 률	**2.926** %			
흡 수 율	**1.131** %			

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

GeoMc-QPF-26-06

시 험 분 석 (밀도,비중,공극률,흡수율)	성적서번호 : 2015-G-101 페이지 (13) / (총14)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-37-1		시추심도	28.0 m
암 종	Granite		시료상태	Normal (SW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.07 cm	건조중량	614.79 g
	길이	11.40 cm	포화중량	616.33 g
밀 도		**2.671** g/㎤	수중중량	386.63 g
비 중		**2.676**	비 고	
공 극 률		**0.670** %		
흡 수 율		**0.250** %		

시추공명	GR-38-1		시추심도	19.8 m
암 종	Granite		시료상태	Normal (SW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.06 cm	건조중량	614.67 g
	길이	11.42 cm	포화중량	615.95 g
밀 도		**2.683** g/㎤	수중중량	387.39 g
비 중		**2.689**	비 고	
공 극 률		**0.560** %		
흡 수 율		**0.208** %		

시추공명	GR-46-1		시추심도	24.8 m
암 종	Granite		시료상태	Normal (SW)
시험일자	2016-01-20			
측정 및 분석결과				
시료크기	직경	5.03 cm	건조중량	603.20 g
	길이	11.41 cm	포화중량	605.45 g
밀 도		**2.667** g/㎤	수중중량	379.66 g
비 중		**2.672**	비 고	
공 극 률		**0.997** %		
흡 수 율		**0.373** %		

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

GeoMc-QPF-26-06

시 험 분 석
(밀도,비중,공극률,흡수율)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-47-1	시추심도	21.8 m
암 종	Granite	시료상태	Normal (MW)
시험일자	2016-01-20		
측정 및 분석결과			
시료크기	직경 5.02 cm	건조중량	534.39 g
	길이 11.27 cm	포화중량	552.93 g
밀 도	**2.397** g/㎤	수중중량	332.82 g
비 중	**2.428**	비 고	
공 극 률	**8.423** %		
흡 수 율	**3.469** %		

끝.

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

시 험 성 적 서

지/오/메/카/닉/스 KOLAS II Rock Mechanics Laboratories	성적서번호 : 2015-G-101	KNU 강원대학교 KANGWON NATIONAL UNIVERSITY
우200-701 강원도 춘천시 강원대학길1 305 (강원대학교 자연대학3호관) (TEL: 033 244 9275, FAX: 033 244 9276)	페이지 (1) / (총14)	

1. 의 뢰 자
   - 기 관 명 : ㈜지오포스
   - 주 소 : 경기도 성남시 분당구 야탑동 150 분당테크노파크 A-709

2. 시험성적서의 용도
   신고리 5,6호기 부지세부조사

3. 시험대상품목 / 규격
   시추코어 암석 / NX

4. 시험기간
   2015년 12월 21일~2016년 1월 21일

5. 시험항목 및 방법
   초음파속도 : ASTM D2845-08

6. 시험결과
   참조1. 시험결과 (초음파속도)
   참조2. 시험분석 (초음파속도)

   이 시험결과는 의뢰자가 제시한 시료 및 시료명에만 한정됩니다.

확인	작성자	기술책임자
	성명 : 풍 보 현 서명	성명 : 장 현 식 서명

2016년 01월 22일

강원대학교 실험실벤처기업 ㈜지오메카닉스 대표이사 (인)

GeoMc-QPF-26-03

시 험 결 과 (초음파속도)	성적서번호 : 2015-G-101 페이지 (2) / (총14)	지오메카닉스

1. 시험조건 (Test Condition)

시험일자 (Test date) 2015년 12월 21일~2016년 1월 21일

시험기기 (Testing machine) 초음파속도시험기 (SBEL / SA200E)
오실로스코프 (Tektronix / TDS-210 / B1243331)
디지탈캘리퍼스 (Mitutoyo / 08274628)
전자식지시저울 (CAS / D453510712)

송/수신기 공진주파수 (Resonance frequency) 1 MHz

2. 시험결과 (Test Result)

시추공명 Borehole I.D.	시추심도 Depth m	시료상태 Condition	P파 속도 P-wave Velocity m/s	S파 속도 S-wave Velocity m/s	초음파 탄성상수		비고 Remark
					E_u GPa	ν_u	
GR-1-1	12.5~12.7	Bad	**1 129**	**684**	**2.85**	**0.210**	
GR-1-2	30.8~32.0	Normal	**2 251**	**1 393**	**12.30**	**0.189**	
GR-1-3	64.1~64.5	Good	**5 160**	**2 997**	**60.61**	**0.245**	
GR-1-4	88.3~88.6	Good	**5 337**	**3 135**	**65.97**	**0.237**	
GR-4-1	20.6	Normal	**1 135**	**597**	**2.39**	**0.308**	
GR-4-2	44.0	Normal	**3 816**	**2 259**	**33.49**	**0.230**	
GR-4-3	68.1	Normal	**5 186**	**2 889**	**57.38**	**0.275**	
GR-4-4	92.0	Normal	**4 647**	**2 743**	**49.06**	**0.233**	
GR-10-1	12.0	Normal	**1 306**	**777**	**3.77**	**0.226**	
GR-10-2	32.7	Normal	**4 716**	**2 834**	**52.58**	**0.217**	
GR-10-3	56.6	Normal	**5 167**	**2 918**	**57.82**	**0.266**	
GR-15-1	36.0	Normal	**4 081**	**2 328**	**35.13**	**0.259**	
GR-15-2	51.2	Normal	**4 188**	**2 305**	**35.13**	**0.283**	
GR-15-3	67.0	Normal	**3 452**	**2 129**	**27.22**	**0.193**	
GR-16-1	8.0~8.3	Bad	**1 111**	**662**	**2.57**	**0.224**	
GR-16-2	16.8~17.1	Normal	**2 955**	**1 769**	**20.05**	**0.221**	
GR-16-3	37.7~38.0	Good	**5 080**	**2 997**	**59.94**	**0.233**	
GR-16-4	77.3~77.6	Good	**5 117**	**3 025**	**61.00**	**0.231**	
GR-19-1	35.2	Bad	**1 491**	**907**	**4.52**	**0.207**	
GR-19-2	44.7	Bad	**1 289**	**797**	**2.73**	**0.191**	
GR-19-3	64.8	Bad	**2 352**	**1 429**	**12.35**	**0.207**	

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

2. 시험결과 (Test Result) – 계속

시추공명 Borehole I.D.	시추심도 Depth m	시료상태 Condition	P파 속도 P-wave Velocity m/s	S파 속도 S-wave Velocity m/s	초음파 탄성상수 E_u GPa	초음파 탄성상수 ν_u	비고 Remark
GR-19-4	92.2	Normal	**4 869**	**2 688**	**49.76**	**0.281**	
GR-25-1	5.2	Normal	**5 672**	**3 106**	**65.77**	**0.286**	
GR-25-2	36.7	Normal	**5 739**	**3 103**	**65.98**	**0.293**	
GR-25-3	53.0	Normal	**5 053**	**2 841**	**54.42**	**0.269**	
GR-35-1	19.9	Normal	**5 204**	**2 978**	**59.74**	**0.257**	
GR-36-1	19.9	Normal	**3 861**	**2 221**	**31.89**	**0.253**	
GR-37-1	28.0	Normal	**4 578**	**2 727**	**48.68**	**0.225**	
GR-38-1	19.8	Normal	**5 488**	**3 145**	**66.63**	**0.256**	
GR-46-1	24.8	Normal	**5 069**	**2 858**	**55.21**	**0.267**	
GR-47-1	21.8	Normal	**2 888**	**1 642**	**16.30**	**0.261**	

---------- 이하 여백 (End of Document) ----------

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명		GR-1-1		시추심도		12.5~12.7 m
암 종		Granite		시료상태		Bad (HW)
시험일자		2015-12-22				
측정 및 분석결과						
시료길이		L	11.29 cm	시료의 밀도		2.518 g/cm^3
초음파 이동시간	P파	T_{p0}	0.0 μs	P파 속도		**1 129** m/s
		T_{p1}	100.0 μs	S파 속도		**684** m/s
	S파	T_{s0}	0.0 μs	초음파 탄성상수	E_u	**2.85** GPa
		T_{s1}	165.0 μs		ν_u	**0.210**
비 고						

시추공명		GR-1-2		시추심도		30.8~32.0 m
암 종		Granite		시료상태		Normal (MW)
시험일자		2015-12-22				
측정 및 분석결과						
시료길이		L	11.12 cm	시료의 밀도		2.663 g/cm^3
초음파 이동시간	P파	T_{p0}	16.5 μs	P파 속도		**2 251** m/s
		T_{p1}	65.9 μs	S파 속도		**1 393** m/s
	S파	T_{s0}	58.0 μs	초음파 탄성상수	E_u	**12.30** GPa
		T_{s1}	137.8 μs		ν_u	**0.189**
비 고						

시추공명		GR-1-3		시추심도		64.1~64.5 m
암 종		Granite		시료상태		Good (SW)
시험일자		2015-12-22				
측정 및 분석결과						
시료길이		L	10.94 cm	시료의 밀도		2.708 g/cm^3
초음파 이동시간	P파	T_{p0}	16.5 μs	P파 속도		**5 160** m/s
		T_{p1}	37.7 μs	S파 속도		**2 997** m/s
	S파	T_{s0}	58.0 μs	초음파 탄성상수	E_u	**60.61** GPa
		T_{s1}	94.5 μs		ν_u	**0.245**
비 고						

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명		GR-1-4		시추심도		88.3~88.6 m
암 종		Granite		시료상태		Good (SW)
시험일자		2015-12-22				
측정 및 분석결과						
시료길이		L	10.94 cm	시료의 밀도		2.715 g/cm^3
초음파 이동시간	P파	T_{p0}	16.5 μs	P파 속도		**5 337** m/s
		T_{p1}	37.0 μs	S파 속도		**3 135** m/s
	S파	T_{s0}	58.0 μs	초음파 탄성상수	E_u	**65.97** GPa
		T_{s1}	92.9 μs		ν_u	**0.237**
비 고						

시추공명		GR-4-1		시추심도		20.6 m
암 종		Granite		시료상태		Normal (MW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.35 cm	시료의 밀도		2.564 g/cm^3
초음파 이동시간	P파	T_{p0}	0.0 μs	P파 속도		**1 135** m/s
		T_{p1}	100.0 μs	S파 속도		**597** m/s
	S파	T_{s0}	0.0 μs	초음파 탄성상수	E_u	**2.39** GPa
		T_{s1}	190.0 μs		ν_u	**0.308**
비 고						

시추공명		GR-4-2		시추심도		44.0 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.41 cm	시료의 밀도		2.666 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**3 816** m/s
		T_{p1}	46.6 μs	S파 속도		**2 259** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**33.49** GPa
		T_{s1}	82.7 μs		ν_u	**0.230**
비 고						

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명		GR-4-3		시추심도		68.1 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.41 cm	시료의 밀도		2.697 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**5 186** m/s
		T_{p1}	38.7 μs	S파 속도		**2 889** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**57.38** GPa
		T_{s1}	71.7 μs		ν_u	**0.275**
비 고						

시추공명		GR-4-4		시추심도		92.0 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.39 cm	시료의 밀도		2.645 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**4 647** m/s
		T_{p1}	41.2 μs	S파 속도		**2 743** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**49.06** GPa
		T_{s1}	73.7 μs		ν_u	**0.233**
비 고						

시추공명		GR-10-1		시추심도		12.0 m
암 종		Granite		시료상태		Normal (MW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.40 cm	시료의 밀도		2.548 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**1 306** m/s
		T_{p1}	104.0 μs	S파 속도		**777** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**3.77** GPa
		T_{s1}	179.0 μs		ν_u	**0.226**
비 고						

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명		GR-10-2		시추심도		32.7 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.37 cm	시료의 밀도		2.689 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**4 716** m/s
		T_{p1}	40.8 μs	S파 속도		**2 834** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**52.58** GPa
		T_{s1}	72.3 μs		ν_u	**0.217**
비 고						

시추공명		GR-10-3		시추심도		56.6 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.27 cm	시료의 밀도		2.681 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**5 167** m/s
		T_{p1}	38.5 μs	S파 속도		**2 918** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**57.82** GPa
		T_{s1}	70.8 μs		ν_u	**0.266**
비 고						

시추공명		GR-15-1		시추심도		36.0 m
암 종		Granite		시료상태		Normal (MW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.39 cm	시료의 밀도		2.574 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**4 081** m/s
		T_{p1}	44.6 μs	S파 속도		**2 328** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**35.13** GPa
		T_{s1}	81.1 μs		ν_u	**0.259**
비 고						

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명		GR-15-2		시추심도		51.2 m
암 종		Granite		시료상태		Normal (HW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	10.05 cm	시료의 밀도		2.577 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**4 188** m/s
		T_{p1}	40.7 μs	S파 속도		**2 305** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**35.13** GPa
		T_{s1}	75.8 μs		ν_u	**0.283**
비 고		시료내에 균열 내포				

시추공명		GR-15-3		시추심도		67.0 m
암 종		Granite		시료상태		Normal (HW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.39 cm	시료의 밀도		2.517 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**3 452** m/s
		T_{p1}	49.7 μs	S파 속도		**2 129** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**27.22** GPa
		T_{s1}	85.7 μs		ν_u	**0.193**
비 고		풍화 심함				

시추공명		GR-16-1		시추심도		8.0~8.3 m
암 종		Granite		시료상태		Bad (HW)
시험일자		2015-12-22				
측정 및 분석결과						
시료길이		L	11.26 cm	시료의 밀도		2.396 g/cm^3
초음파 이동시간	P파	T_{p0}	0.0 μs	P파 속도		**1 111** m/s
		T_{p1}	101.3 μs	S파 속도		**662** m/s
	S파	T_{s0}	0.0 μs	초음파 탄성상수	E_u	**2.57** GPa
		T_{s1}	170.0 μs		ν_u	**0.224**
비 고		시료내에 균열 내포				

확 인	작성자	**풍 보 현**	서명	기술책임자 **장 현 식** 서명

GeoMc-QPF-26-06

시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-16-2			시추심도		16.8~17.1 m
암 종	Granite			시료상태		Normal (MW)
시험일자	2015-12-22					
측정 및 분석결과						
시료길이		L	11.40 cm	시료의 밀도		2.624 g/cm^3
초음파 이동시간	P파	T_{p0}	0.0 μs	P파 속도		**2 955** m/s
		T_{p1}	38.6 μs	S파 속도		**1 769** m/s
	S파	T_{s0}	0.0 μs	초음파 탄성상수	E_u	**20.05** GPa
		T_{s1}	64.4 μs		ν_u	**0.221**
비 고						

시추공명	GR-16-3			시추심도		37.7~38.0 m
암 종	Granite			시료상태		Good (SW)
시험일자	2015-12-22					
측정 및 분석결과						
시료길이		L	9.70 cm	시료의 밀도		2.706 g/cm^3
초음파 이동시간	P파	T_{p0}	0.0 μs	P파 속도		**5 080** m/s
		T_{p1}	19.1 μs	S파 속도		**2 997** m/s
	S파	T_{s0}	0.0 μs	초음파 탄성상수	E_u	**59.94** GPa
		T_{s1}	32.4 μs		ν_u	**0.233**
비 고						

시추공명	GR-16-4			시추심도		77.3~77.6 m
암 종	Granite			시료상태		Good (SW)
시험일자	2015-12-22					
측정 및 분석결과						
시료길이		L	11.28 cm	시료의 밀도		2.707 g/cm^3
초음파 이동시간	P파	T_{p0}	0.0 μs	P파 속도		**5 117** m/s
		T_{p1}	22.0 μs	S파 속도		**3 025** m/s
	S파	T_{s0}	0.0 μs	초음파 탄성상수	E_u	**61.00** GPa
		T_{s1}	37.3 μs		ν_u	**0.231**
비 고						

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명		GR-19-1		시추심도		35.2 m
암 종		Dyke		시료상태		Bad (HW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.34 cm	시료의 밀도		2.278 g/cm^3
초음파 이동시간	P파	T_{p0}	0.0 μs	P파 속도		**1 491** m/s
		T_{p1}	76.0 μs	S파 속도		**907** m/s
	S파	T_{s0}	0.0 μs	초음파 탄성상수	E_u	**4.52** GPa
		T_{s1}	125.0 μs		ν_u	**0.207**
비 고						

시추공명		GR-19-2		시추심도		44.7 m
암 종		Dyke		시료상태		Bad (HW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	10.96 cm	시료의 밀도		1.802 g/cm^3
초음파 이동시간	P파	T_{p0}	0.0 μs	P파 속도		**1 289** m/s
		T_{p1}	85.0 μs	S파 속도		**797** m/s
	S파	T_{s0}	0.0 μs	초음파 탄성상수	E_u	**2.73** GPa
		T_{s1}	137.5 μs		ν_u	**0.191**
비 고						

시추공명		GR-19-3		시추심도		64.8 m
암 종		Dyke		시료상태		Bad (MW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.29 cm	시료의 밀도		2.504 g/cm^3
초음파 이동시간	P파	T_{p0}	0.0 μs	P파 속도		**2 352** m/s
		T_{p1}	48.0 μs	S파 속도		**1 429** m/s
	S파	T_{s0}	0.0 μs	초음파 탄성상수	E_u	**12.35** GPa
		T_{s1}	79.0 μs		ν_u	**0.207**
비 고						

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명		GR-19-4		시추심도		92.2 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.35 cm	시료의 밀도		2.688 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**4 869** m/s
		T_{p1}	40.0 μs	S파 속도		**2 688** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**49.76** GPa
		T_{s1}	74.4 μs		ν_u	**0.281**
비 고						

시추공명		GR-25-1		시추심도		5.2 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.40 cm	시료의 밀도		2.651 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**5 672** m/s
		T_{p1}	36.8 μs	S파 속도		**3 106** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**65.77** GPa
		T_{s1}	68.9 μs		ν_u	**0.286**
비 고						

시추공명		GR-25-2		시추심도		36.7 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.42 cm	시료의 밀도		2.649 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**5 739** m/s
		T_{p1}	36.6 μs	S파 속도		**3 103** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**65.98** GPa
		T_{s1}	69.0 μs		ν_u	**0.293**
비 고						

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

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시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명		GR-25-3		시추심도		53.0 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.42 cm	시료의 밀도		2.657 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**5 053** m/s
		T_{p1}	39.3 μs	S파 속도		**2 841** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**54.42** GPa
		T_{s1}	72.4 μs		ν_u	**0.269**
비 고						

시추공명		GR-35-1		시추심도		19.9 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.35 cm	시료의 밀도		2.681 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**5 204** m/s
		T_{p1}	38.5 μs	S파 속도		**2 978** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**59.74** GPa
		T_{s1}	70.3 μs		ν_u	**0.257**
비 고						

시추공명		GR-36-1		시추심도		19.9 m
암 종		Granite		시료상태		Normal (HW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.35 cm	시료의 밀도		2.580 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**3 861** m/s
		T_{p1}	46.1 μs	S파 속도		**2 221** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**31.89** GPa
		T_{s1}	83.3 μs		ν_u	**0.253**
비 고						

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(초음파속도)

성적서번호 : **2015-G-101**

GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명		GR-37-1		시추심도		28.0 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.40 cm	시료의 밀도		2.671 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**4 578** m/s
		T_{p1}	41.6 μs	S파 속도		**2 727** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**48.68** GPa
		T_{s1}	74.0 μs		ν_u	**0.225**
비 고						

시추공명		GR-38-1		시추심도		19.8 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.42 cm	시료의 밀도		2.683 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**5 488** m/s
		T_{p1}	37.5 μs	S파 속도		**3 145** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**66.63** GPa
		T_{s1}	68.5 μs		ν_u	**0.256**
비 고						

시추공명		GR-46-1		시추심도		24.8 m
암 종		Granite		시료상태		Normal (SW)
시험일자		2016-01-20				
측정 및 분석결과						
시료길이		L	11.41 cm	시료의 밀도		2.667 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**5 069** m/s
		T_{p1}	39.2 μs	S파 속도		**2 858** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**55.21** GPa
		T_{s1}	72.1 μs		ν_u	**0.267**
비 고						

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석 (초음파속도)	성적서번호 : **2015-G-101** 페이지 (14) / (총14)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

시추공명	GR-47-1			시추심도		21.8 m
암 종	Granite			시료상태		Normal (MW)
시험일자	2016-01-20					
측정 및 분석결과						
시료길이		L	11.27 cm	시료의 밀도		2.397 g/cm^3
초음파 이동시간	P파	T_{p0}	16.7 μs	P파 속도		**2 888** m/s
		T_{p1}	55.7 μs	S파 속도		**1 642** m/s
	S파	T_{s0}	32.2 μs	초음파 탄성상수	E_u	**16.30** GPa
		T_{s1}	100.8 μs		ν_u	**0.261**
비 고						

끝.

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

시 험 성 적 서

지/오/메/카/닉/스 KOLAS II Rock Mechanics Laboratories 우200-701 강원도 춘천시 강원대학길1 305 (강원대학교 자연대학3호관) (TEL: 033 244 9275, FAX: 033 244 9276)	성적서번호 : 2015-G-101 페이지 (1) / (총34)	KNU 강원대학교 KANGWON NATIONAL UNIVERSITY

1. 의 뢰 자
   - 기 관 명 : ㈜지오포스
   - 주 소 : 경기도 성남시 분당구 야탑동 150 분당테크노파크 A-709

2. 시험성적서의 용도
   신고리 5,6호기 부지세부조사

3. 시험대상품목 / 규격
   시추코어 암석 / NX

4. 시험기간
   2015년 12월 21일~2016년 1월 21일

5. 시험항목 및 방법
   일축압축강도 및 탄성상수 측정 : ASTM D7012-14

6. 시험결과
   참조1. 시험결과 (일축압축시험)
   참조2. 시험분석 (일축압축시험)

   이 시험결과는 의뢰자가 제시한 시료 및 시료명에만 한정됩니다.

확인	작성자 성명 : 풍 보 현 서명	기술책임자 성명 : 장 현 식 서명

2016년 01월 22일

강원대학교 실험실벤처기업 ㈜지오메카닉스 대표이사 (인)

GeoMc-QPF-26-03

시 험 결 과 (일축압축시험)	성적서번호 : 2015-G-101 페이지 (2) / (총34)	GEO MECHANICS 지오메카닉스 KOLAS 인정기관 | 강원대학교 실험실 벤처기업

1. 시험조건 (Test Condition)

시험일자 (Test date) 2015년 12월 21일~2016년 1월 21일

시험기기 (Testing machine) 압축시험기 (경도 / KDC9409-20)
디지탈캘리퍼스 (Mitutoyo / 08274628)
전자식지시저울 (CAS / D453510712)
자료수집장치 (KYOWA / UCAM-550A)
변형율 게이지 (CAS / AP-11-TS50N-120-EC)

가압속도 (Stress rate) 0.5 MPa/s

탄성계수 계산방법 (Method for Calculationg Young's Modulus) UCS 50% 구간에서의 접선의 기울기 (Tangent modulus)

2. 시험결과 (Test Result)

시추공명 Borehole I.D.	시추심도 Depth m	시료상태 Condition	밀도 Density g/cm^3	압축강도 U.C.S. MPa	탄성계수 Young's Modulus GPa	포아송비 Poisson's Ratio	경연분류 ISRM Classification
GR-1-1	12.5~12.7	Bad	2.518	**20.9**	**5.03**	**0.371**	R2
GR-1-2	30.8~32.0	Normal	2.663	**90.4**	**25.35**	**0.333**	R4
GR-1-3	64.1~64.5	Good	2.708	**207.3**	**55.36**	**0.300**	R5
GR-1-4	88.3~88.6	Good	2.715	**189.8**	**65.66**	**0.293**	R5
GR-4-1	20.6	Normal	2.564	**41.4**	**3.56**	**0.307**	R3
GR-4-2	44.0	Normal	2.666	**125.9**	**50.78**	**0.242**	R5
GR-4-3	68.1	Normal	2.697	**209.7**	**66.47**	**0.302**	R5
GR-4-4	92.0	Normal	2.645	**134.3**	**50.31**	**0.297**	R5
GR-10-1	12.0	Normal	2.548	**47.6**	**5.69**	**0.333**	R3
GR-10-2	32.7	Normal	2.689	**201.2**	**51.10**	**0.322**	R5
GR-10-3	56.6	Normal	2.681	**158.8**	**54.24**	**0.281**	R5
GR-15-1	36.0	Normal	2.574	**48.5**	**33.57**	**0.332**	R3
GR-15-2	51.2	Normal	2.577	**26.2**	**30.17**	**0.332**	R3
GR-15-3	67.0	Normal	2.517	**32.3**	**8.86**	**0.305**	R3
GR-16-1	8.0~8.3	Bad	2.396	**16.6**	**6.35**	**0.360**	R2
GR-16-2	16.8~17.1	Normal	2.624	**86.1**	**23.12**	**0.296**	R4
GR-16-3	37.7~38.0	Good	2.706	**184.2**	**53.33**	**0.289**	R5
GR-16-4	77.3~77.6	Good	2.707	**192.7**	**61.62**	**0.273**	R5

확 인	작성자 **풍 보 현** 서명	기술책임자 **장 현 식** 서명

2. 시험결과 (Test Result) – 계속

시추공명 Borehole I.D.	시추심도 Depth m	시료상태 Condition	밀도 Density g/cm^3	압축강도 U.C.S. MPa	탄성계수 Young's Modulus GPa	포아송비 Poisson's Ratio	경연분류 ISRM Classification
GR-19-1	35.2	Bad	2.278	**20.9**	**3.88**	**0.149**	R2
GR-19-2	44.7	Bad	1.802	**12.4**	**2.98**	**0.190**	R2
GR-19-3	64.8	Bad	2.504	**30.0**	**12.94**	**0.146**	R3
GR-19-4	92.2	Normal	2.688	**86.3**	**32.82**	**0.313**	R4
GR-25-1	5.2	Normal	2.651	**261.7**	**61.32**	**0.285**	R6
GR-25-2	36.7	Normal	2.649	**262.2**	**67.66**	**0.302**	R6
GR-25-3	53.0	Normal	2.657	**192.3**	**52.29**	**0.312**	R5
GR-35-1	19.9	Normal	2.681	**170.8**	**53.98**	**0.307**	R5
GR-36-1	19.9	Normal	2.580	**53.2**	**13.98**	**0.318**	R4
GR-37-1	28.0	Normal	2.671	**179.8**	**61.27**	**0.309**	R5
GR-38-1	19.8	Normal	2.683	**134.8**	**64.74**	**0.284**	R5
GR-46-1	24.8	Normal	2.667	**170.4**	**46.33**	**0.304**	R5
GR-47-1	21.8	Normal	2.397	**20.4**	**12.59**	**0.346**	R2

---------- 이하 여백 (End of Document) ----------

확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

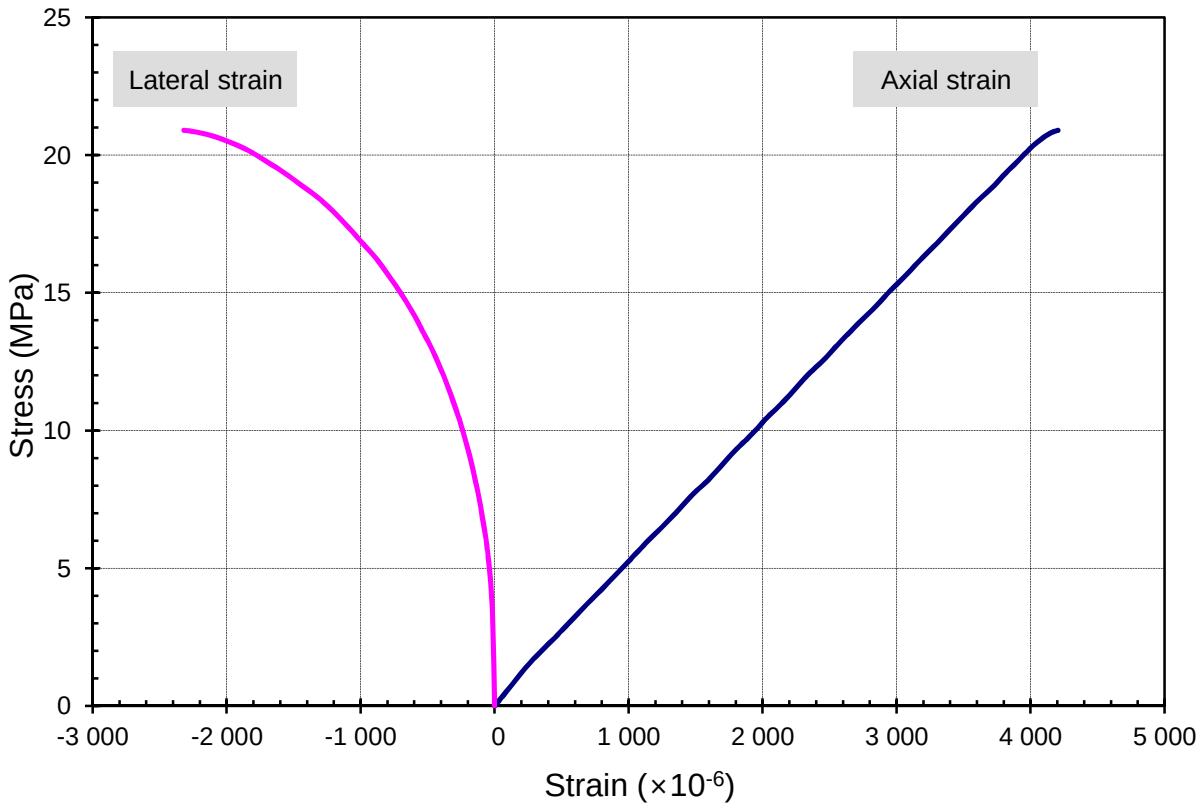
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-1-1	시추심도	12.5~12.7 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Bad (Bad)		
시험일자	2015-12-22				
측정 및 분석결과					
시료크기	직경 5.04 cm	최대하중	41.65 kN		
	높이 11.29 cm	압축강도	**20.9** MPa		
건조중량	565.78 g	탄성계수	**5.03** GPa		
건조밀도	2.518 g/cm^3	포아송비	**0.371**		
파괴코드	XB	경연분류	R2 (Weak)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)

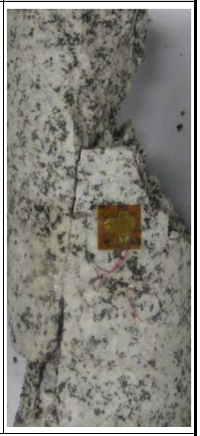


확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

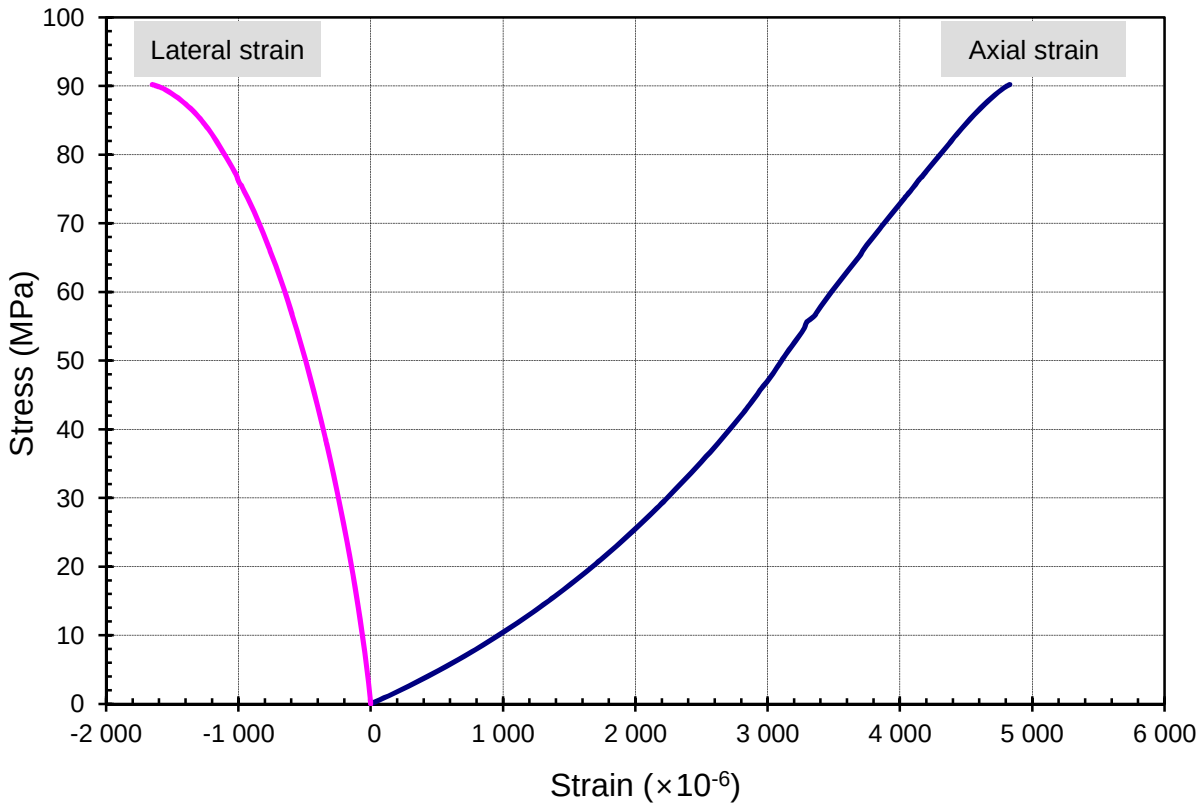
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-1-2	시추심도	30.8~32.0 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (Normal)		
시험일자	2015-12-22				
측정 및 분석결과					
시료크기	직경 5.05 cm	최대하중	181.01 kN		
	높이 11.12 cm	압축강도	**90.4** MPa		
건조중량	593.04 g	탄성계수	**25.35** GPa		
건조밀도	2.663 g/cm^3	포아송비	**0.333**		
파괴코드	XA	경연분류	R4 (strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



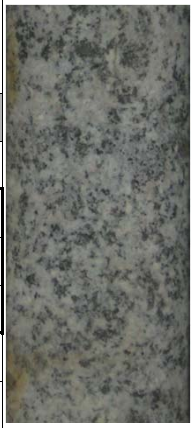
확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

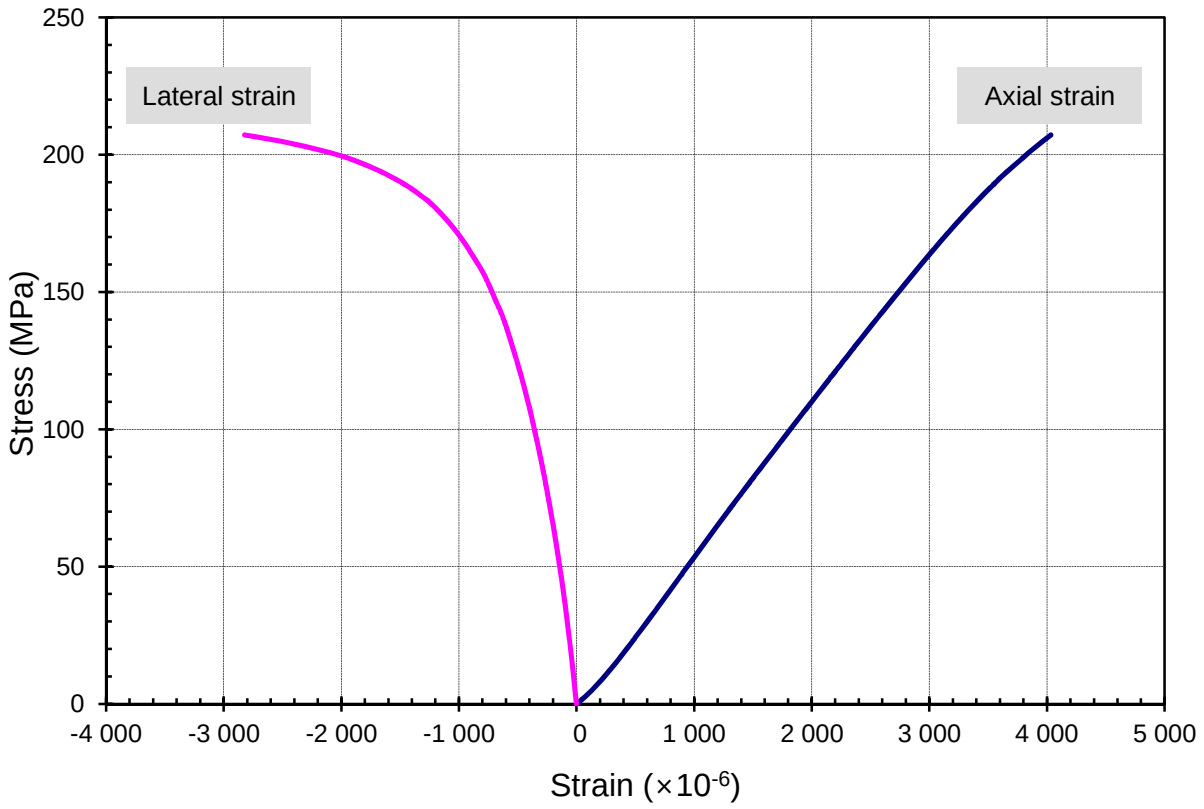
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-1-3	시추심도	64.1~64.5 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Good (Good)		
시험일자	2015-12-22				
측정 및 분석결과					
시료크기	직경 5.06 cm	최대하중	416.79 kN		
	높이 10.94 cm	압축강도	**207.3** MPa		
건조중량	595.83 g	탄성계수	**55.36** GPa		
건조밀도	2.708 g/cm^3	포아송비	**0.300**		
파괴코드	XA	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(일축압축시험)

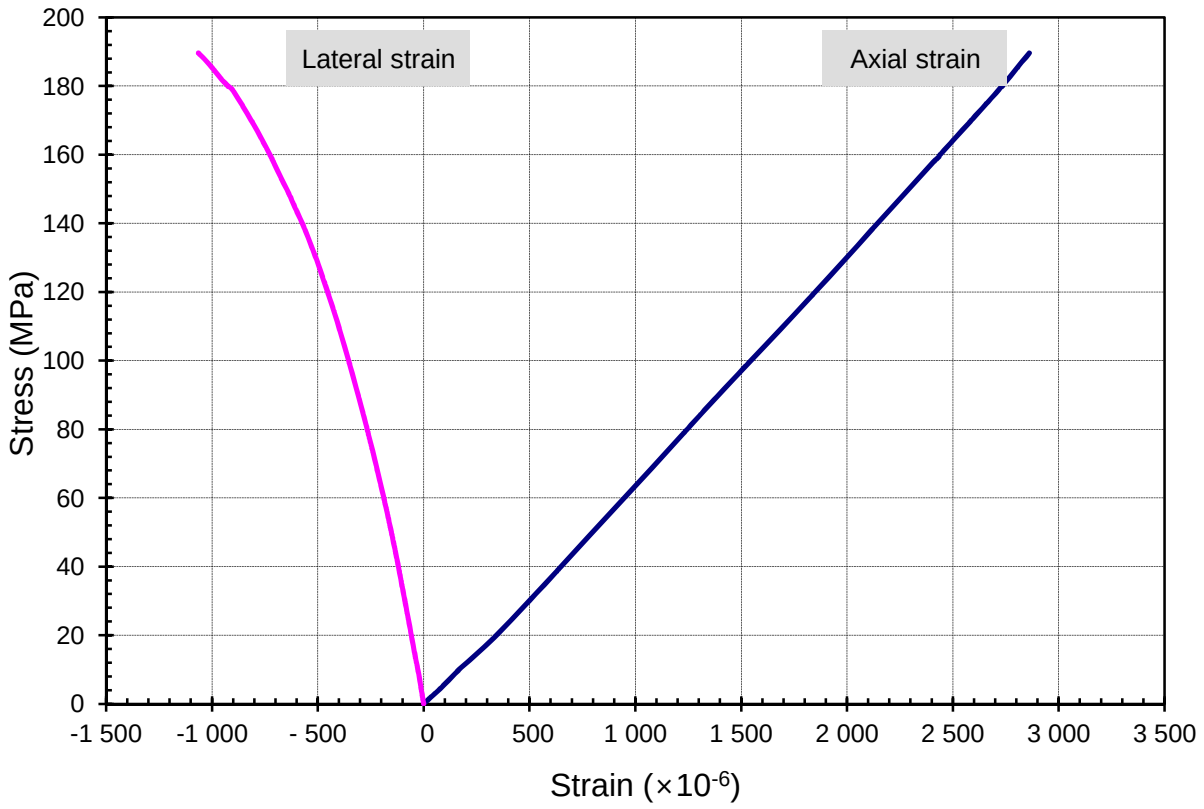
성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-1-4	시추심도	88.3~88.6 m
암 종	Granite	시료상태	Good (Good)
시험일자	2015-12-22		
측정 및 분석결과			
시료크기	직경 5.06 cm	최대하중	381.61 kN
	높이 10.94 cm	압축강도	**189.8** MPa
건조중량	597.21 g	탄성계수	**65.66** GPa
건조밀도	2.715 g/cm^3	포아송비	**0.293**
파괴코드	XA	경연분류	R5 (Very strong)
비 고			

시료사진	파괴후 사진
	

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

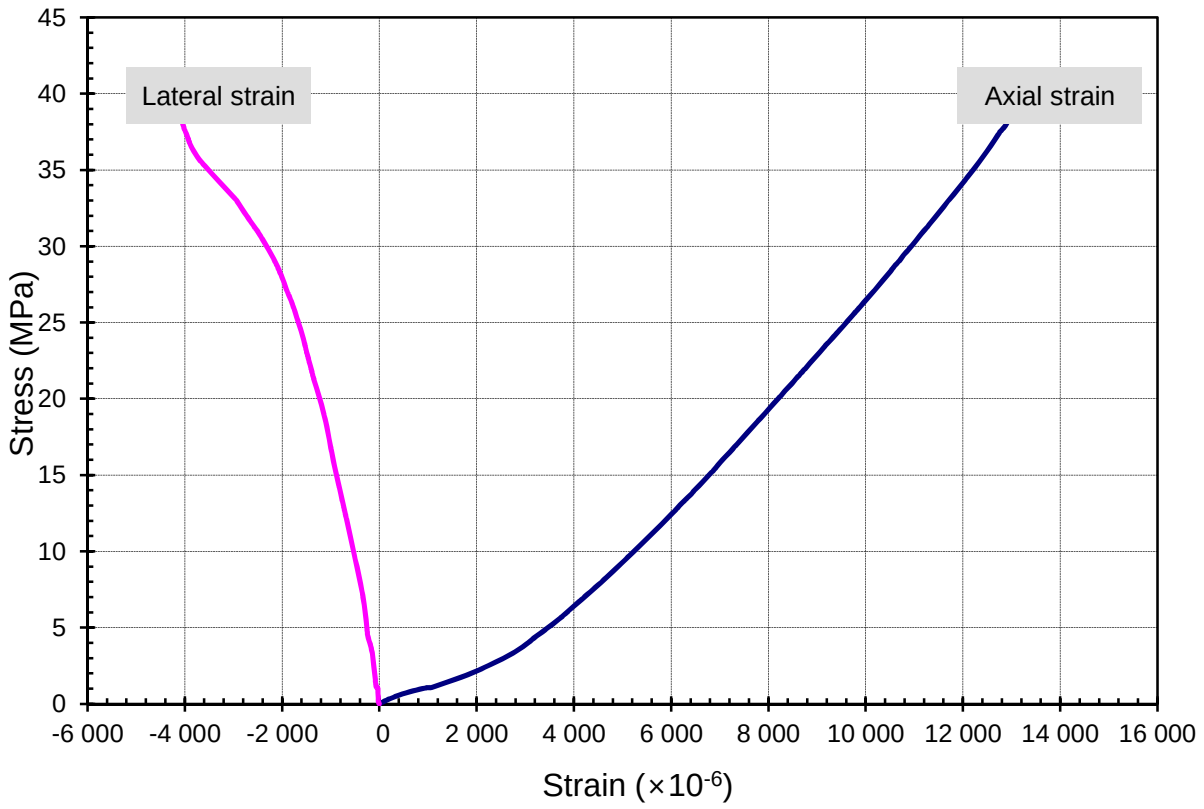
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-4-1	시추심도	20.6 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (MW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.01 cm	최대하중	81.54 kN		
	높이 11.35 cm	압축강도	**41.4** MPa		
건조중량	573.77 g	탄성계수	**3.56** GPa		
건조밀도	2.564 g/cm^3	포아송비	**0.307**		
파괴코드	XA	경연분류	R3 (Medium strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

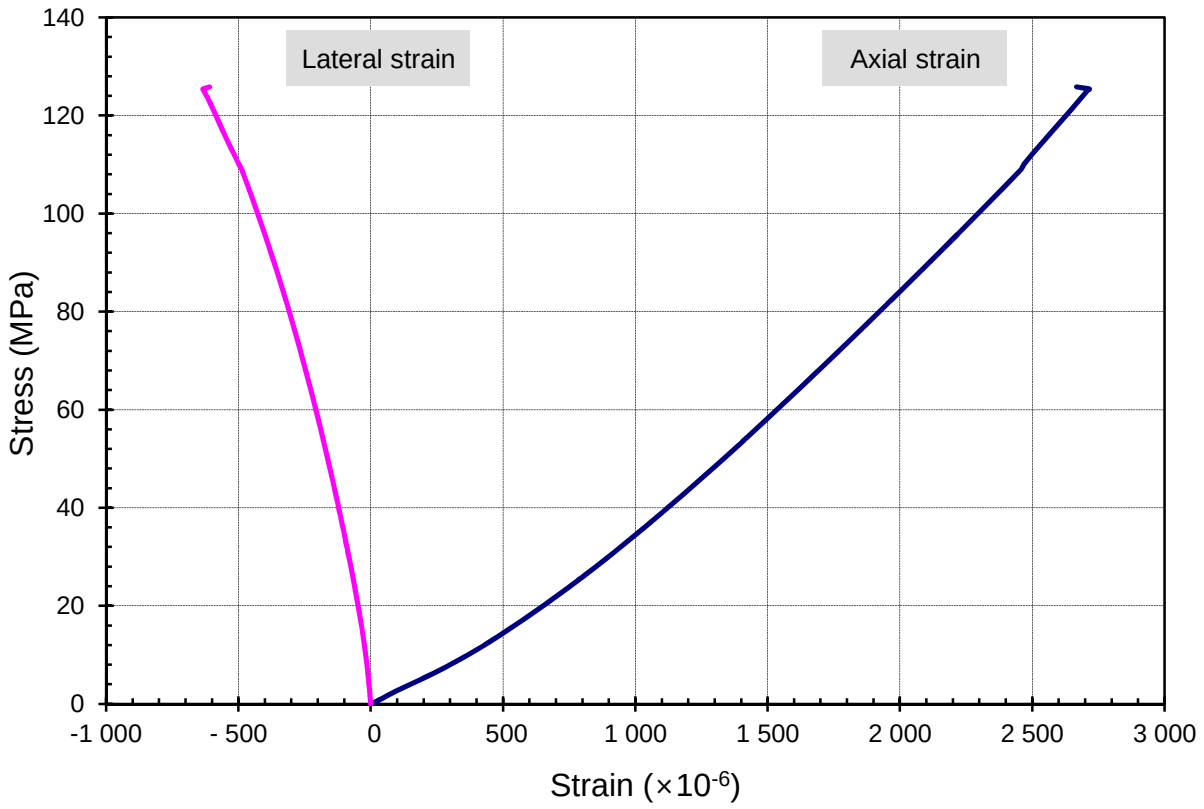
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-4-2	시추심도	44.0 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.02 cm	최대하중	249.21 kN		
	높이 11.41 cm	압축강도	**125.9** MPa		
건조중량	602.16 g	탄성계수	**50.78** GPa		
건조밀도	2.666 g/cm^3	포아송비	**0.242**		
파괴코드	XA	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

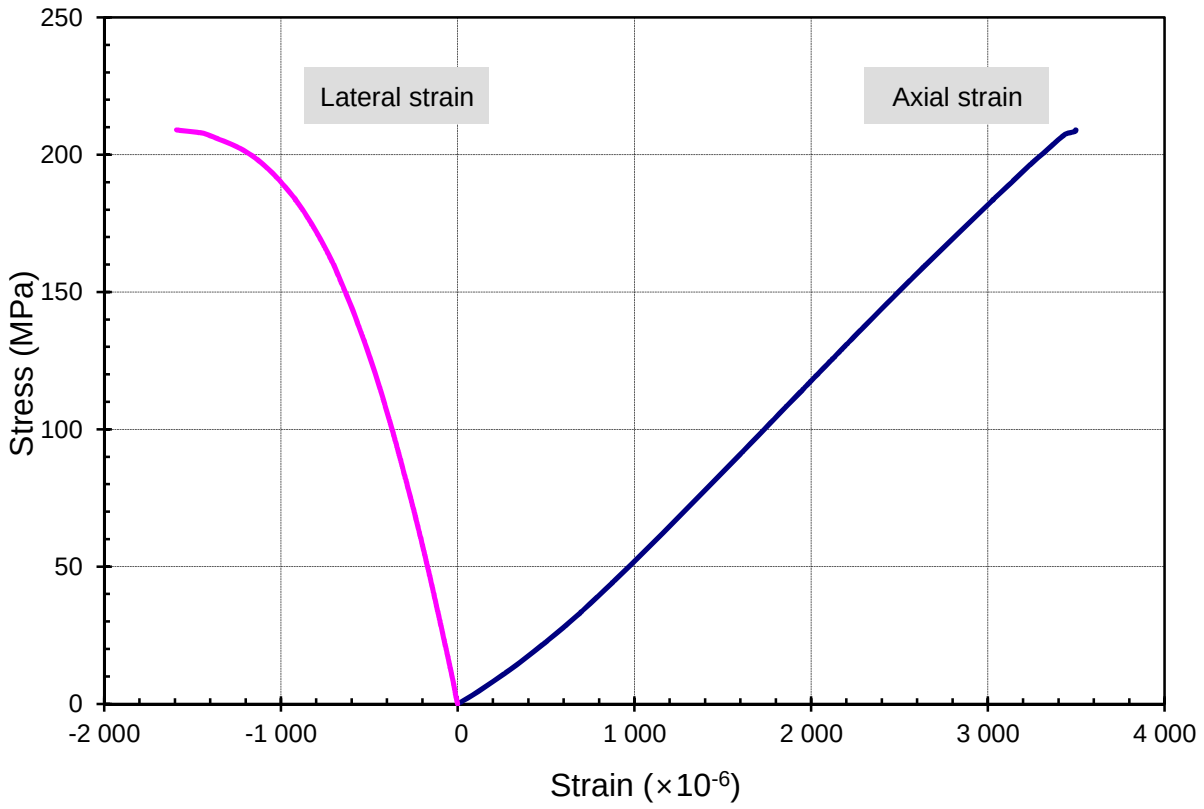
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-4-3	시추심도	68.1 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.03 cm	최대하중	416.70 kN		
	높이 11.41 cm	압축강도	**209.7** MPa		
건조중량	611.41 g	탄성계수	**66.47** GPa		
건조밀도	2.697 g/cm^3	포아송비	**0.302**		
파괴코드	XA	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



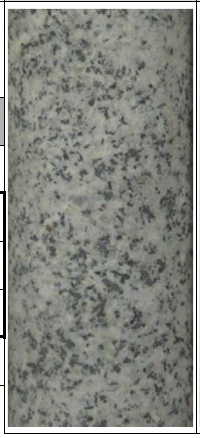
확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

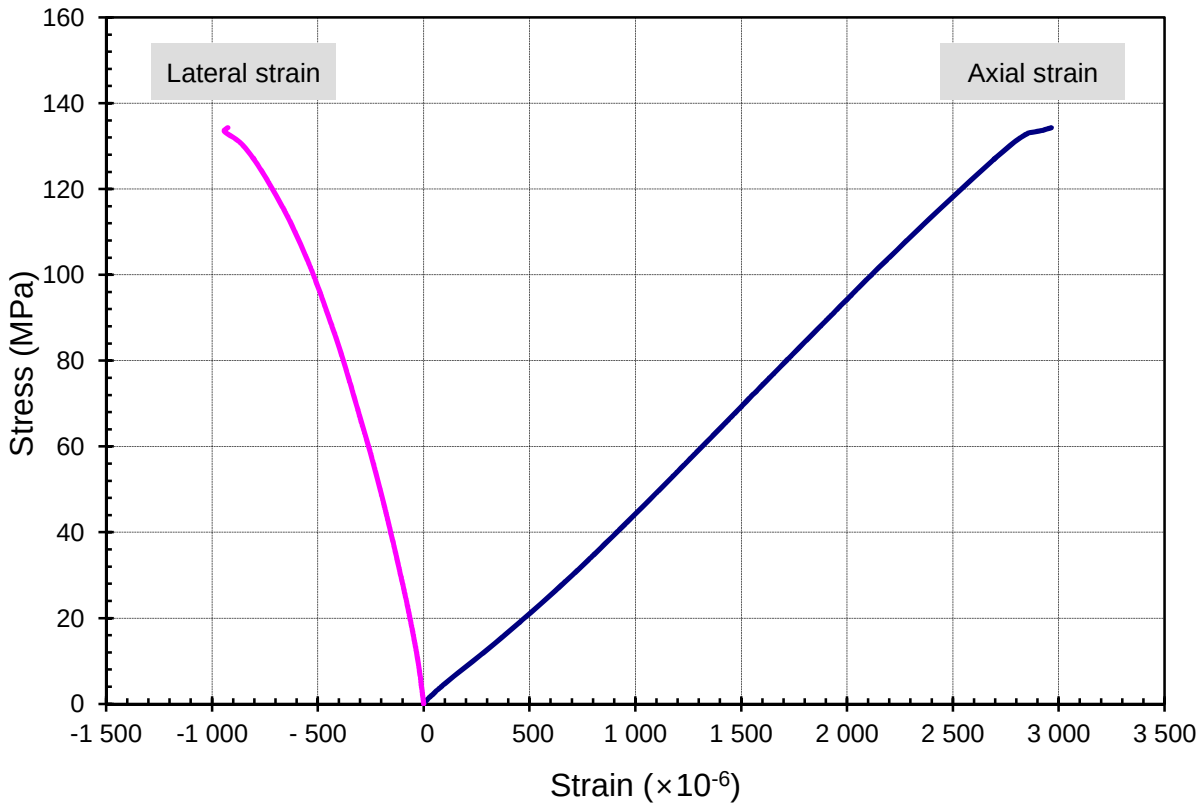
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-4-4	시추심도	92.0 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.01 cm	최대하중	264.31 kN		
	높이 11.39 cm	압축강도	**134.3** MPa		
건조중량	592.36 g	탄성계수	**50.31** GPa		
건조밀도	2.645 g/cm^3	포아송비	**0.297**		
파괴코드	YA	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

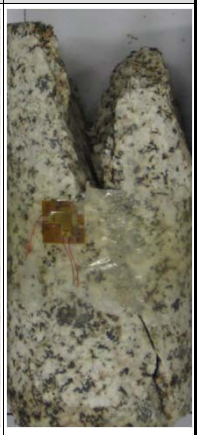
GeoMc-QPF-26-06

시 험 분 석
(일축압축시험)

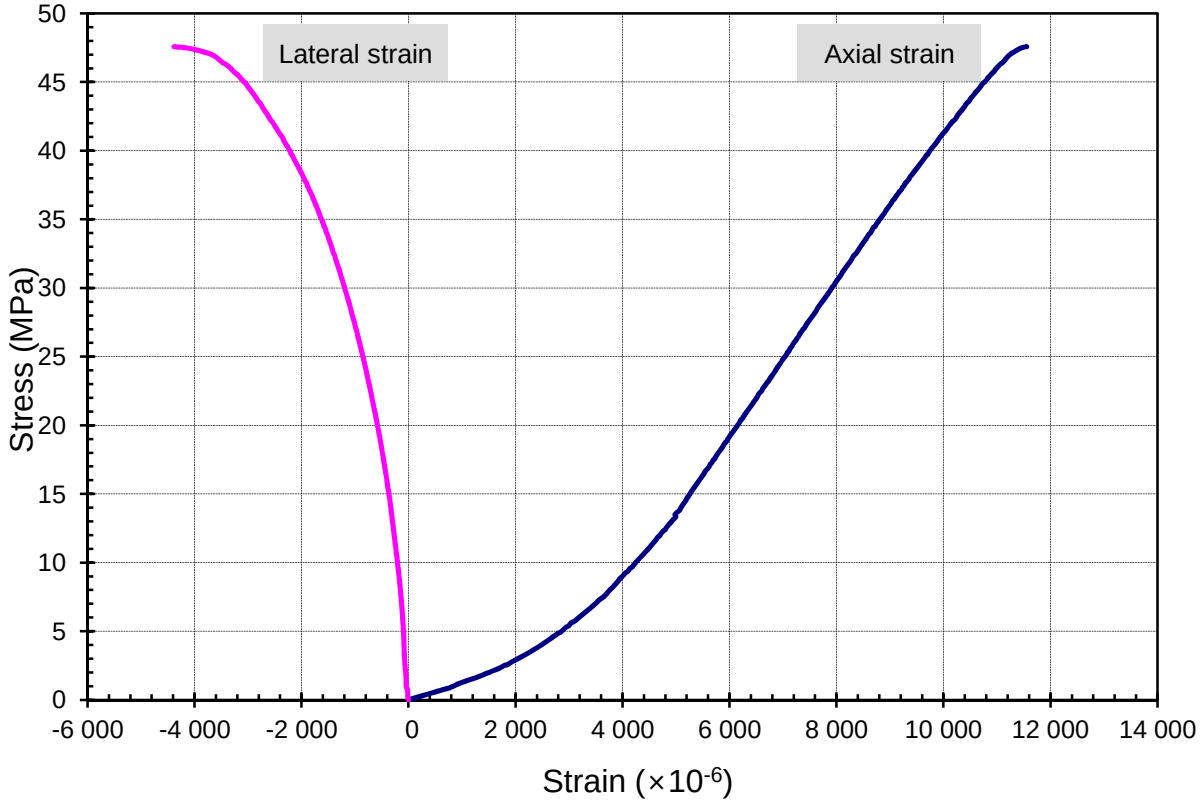
성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-10-1	시추심도	12.0 m
암 종	Granite	시료상태	Normal (MW)
시험일자	2016-01-21		
측정 및 분석결과			
시료크기	직경 5.06 cm	최대하중	95.65 kN
	높이 11.40 cm	압축강도	**47.6** MPa
건조중량	584.15 g	탄성계수	**5.69** GPa
건조밀도	2.548 g/cm^3	포아송비	**0.333**
파괴코드	XA	경연분류	R3 (Medium strong)
비 고			

시료사진	파괴후 사진
	

응력-변형률 곡선 (Stress-Strain Curve)

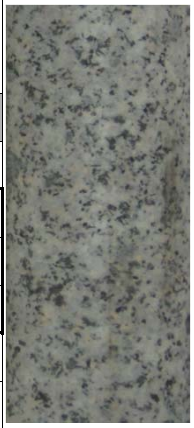


확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

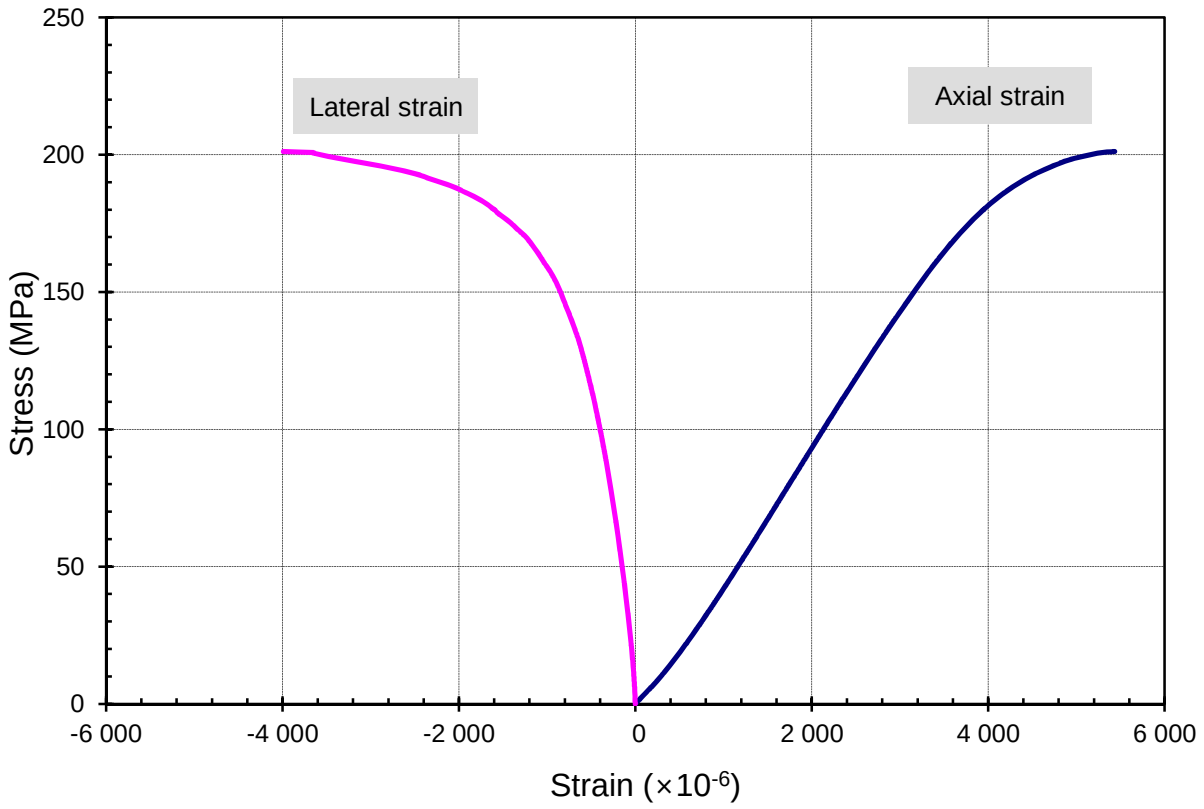
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-10-2	시추심도	32.7 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.07 cm	최대하중	405.43 kN		
	높이 11.37 cm	압축강도	**201.2** MPa		
건조중량	615.75 g	탄성계수	**51.10** GPa		
건조밀도	2.689 g/cm^3	포아송비	**0.322**		
파괴코드	XA	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



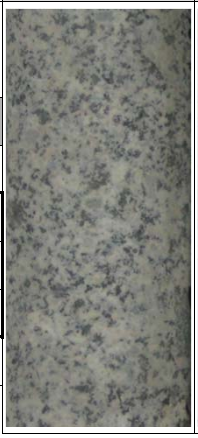
확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

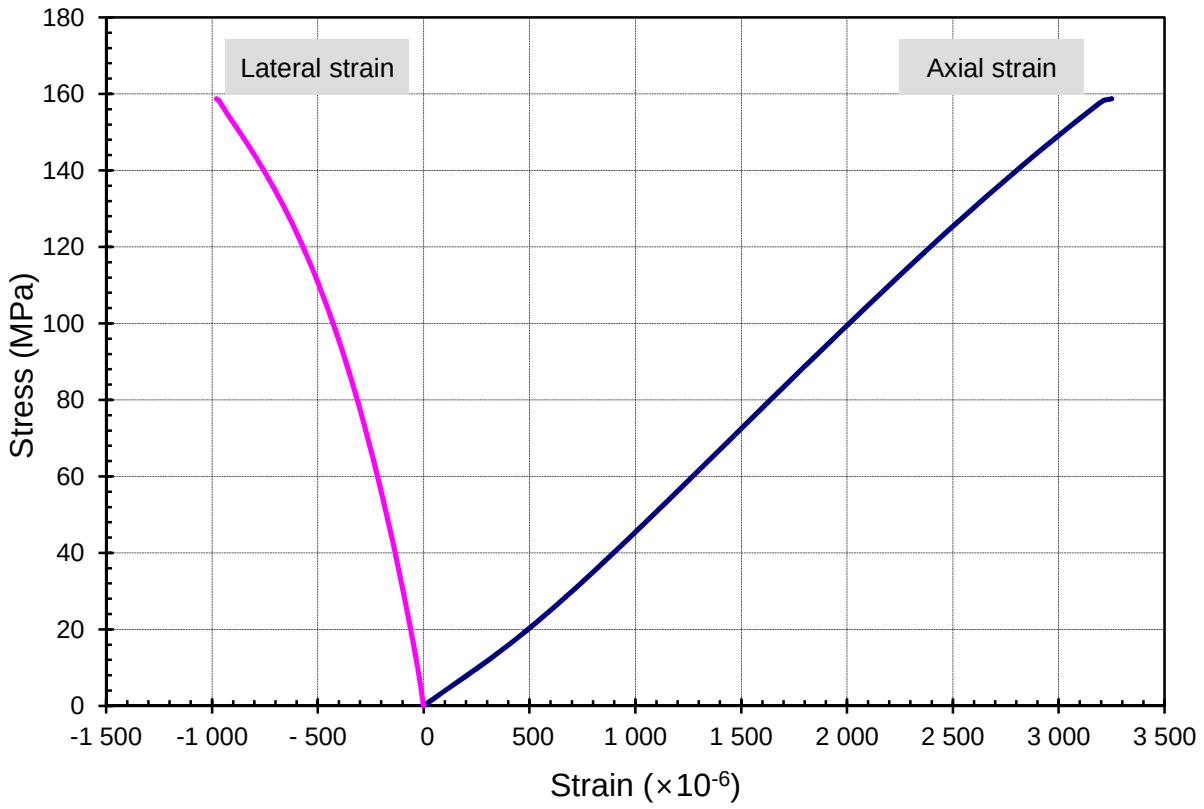
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-10-3	시추심도	56.6 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.06 cm	최대하중	319.28 kN		
	높이 11.27 cm	압축강도	**158.8** MPa		
건조중량	607.42 g	탄성계수	**54.24** GPa		
건조밀도	2.681 g/cm^3	포아송비	**0.281**		
파괴코드	XA	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

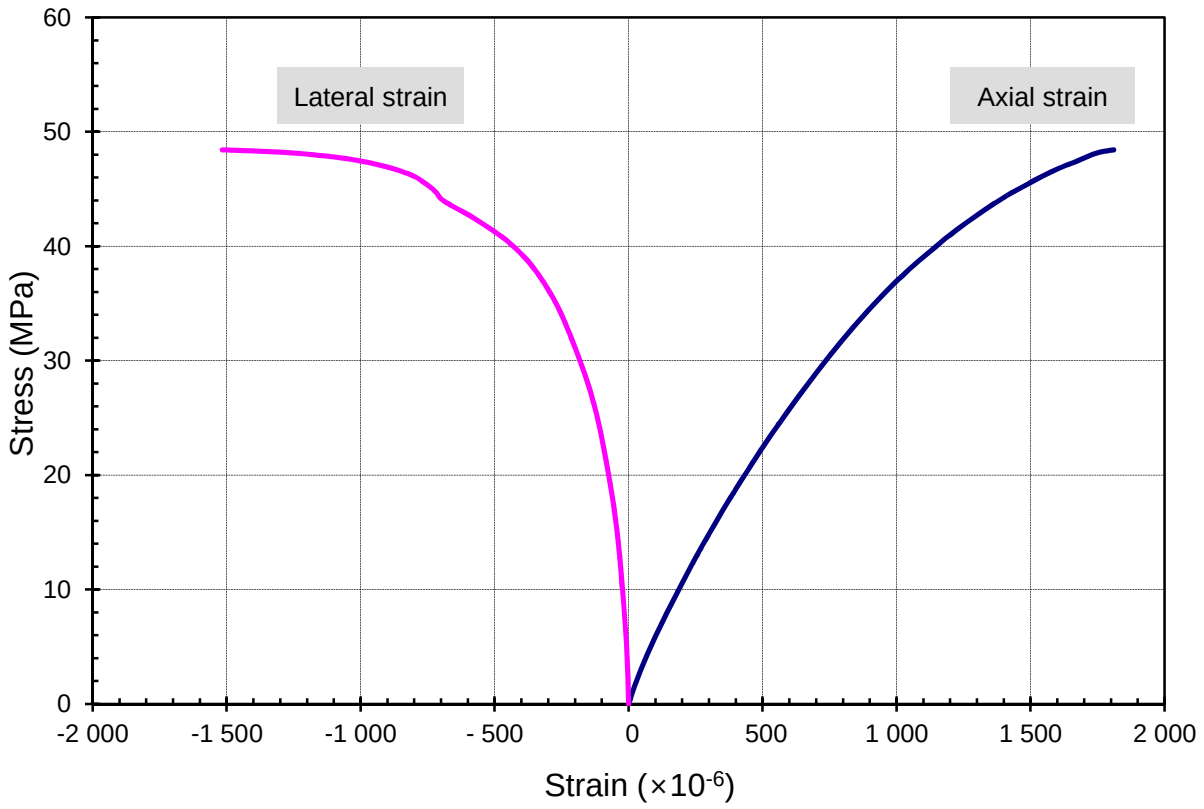
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-15-1	시추심도	36.0 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (MW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.03 cm	최대하중	96.14 kN		
	높이 11.39 cm	압축강도	**48.5** MPa		
건조중량	581.25 g	탄성계수	**33.57** GPa		
건조밀도	2.574 g/cm^3	포아송비	**0.332**		
파괴코드	XA	경연분류	R3 (Medium strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



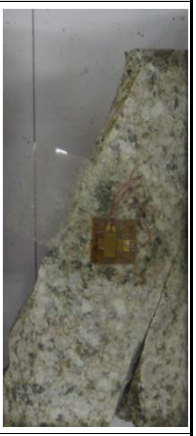
확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

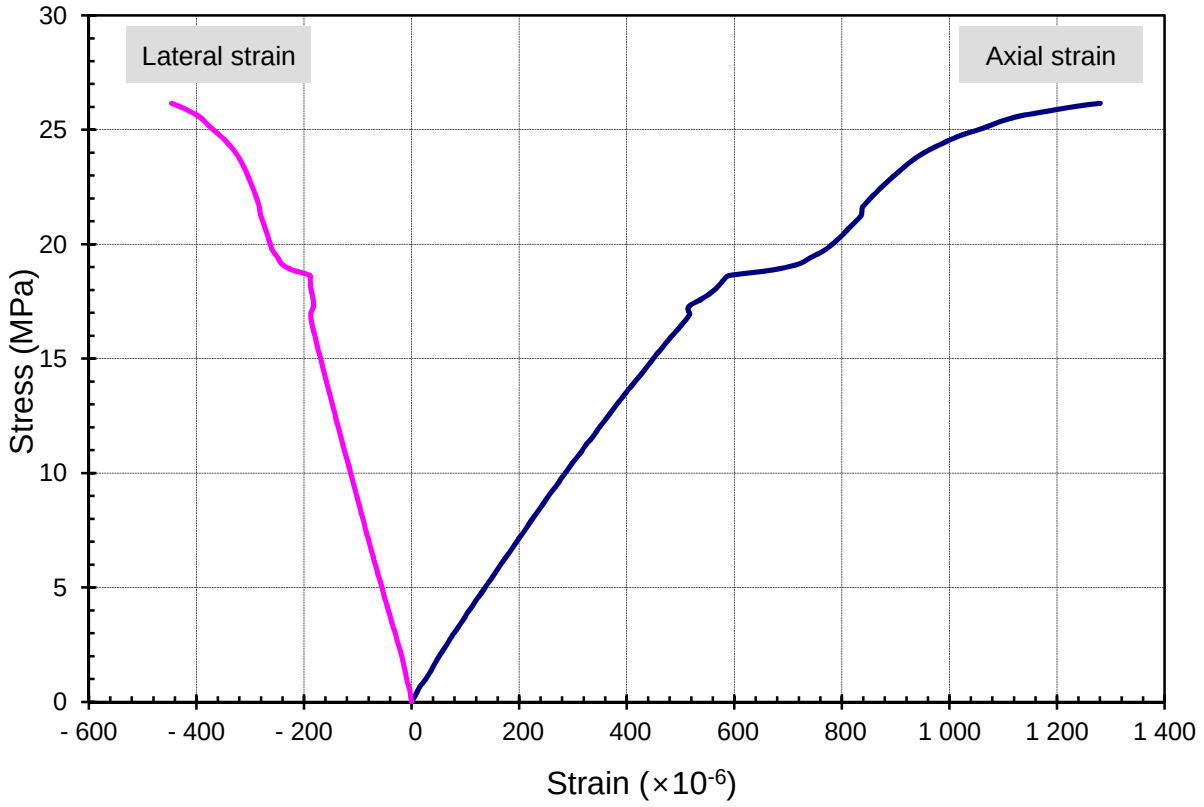
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-15-2	시추심도	51.2 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (HW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.03 cm	최대하중	52.04 kN		
	높이 10.05 cm	압축강도	**26.2** MPa		
건조중량	514.71 g	탄성계수	**30.17** GPa		
건조밀도	2.577 g/cm^3	포아송비	**0.332**		
파괴코드	XA	경연분류	R3 (Medium strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(일축압축시험)

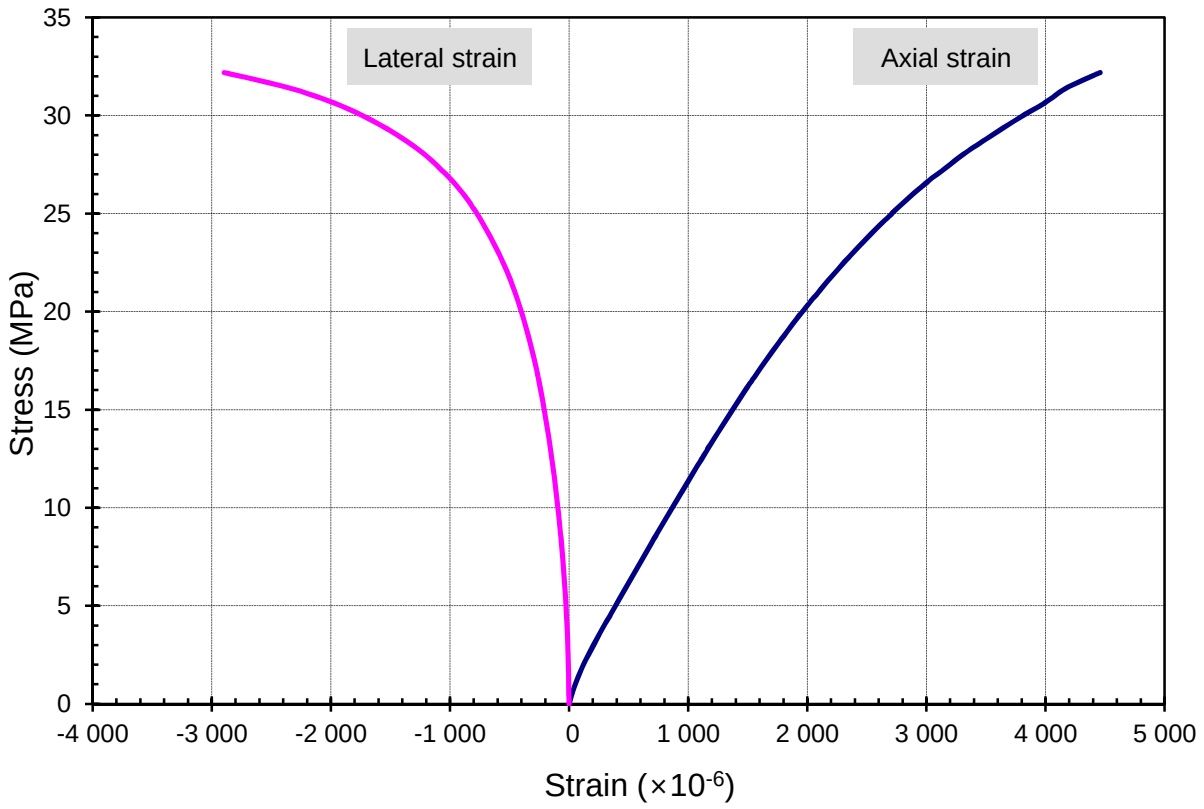
성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-15-3	시추심도	67.0 m
암 종	Granite	시료상태	Normal (HW)
시험일자	2016-01-21		
측정 및 분석결과			
시료크기	직경 5.03 cm	최대하중	64.19 kN
	높이 11.39 cm	압축강도	**32.3** MPa
건조중량	569.75 g	탄성계수	**8.86** GPa
건조밀도	2.517 g/cm^3	포아송비	**0.305**
파괴코드	XA	경연분류	R3 (Medium strong)
비 고			

시료사진	파괴후 사진
	

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

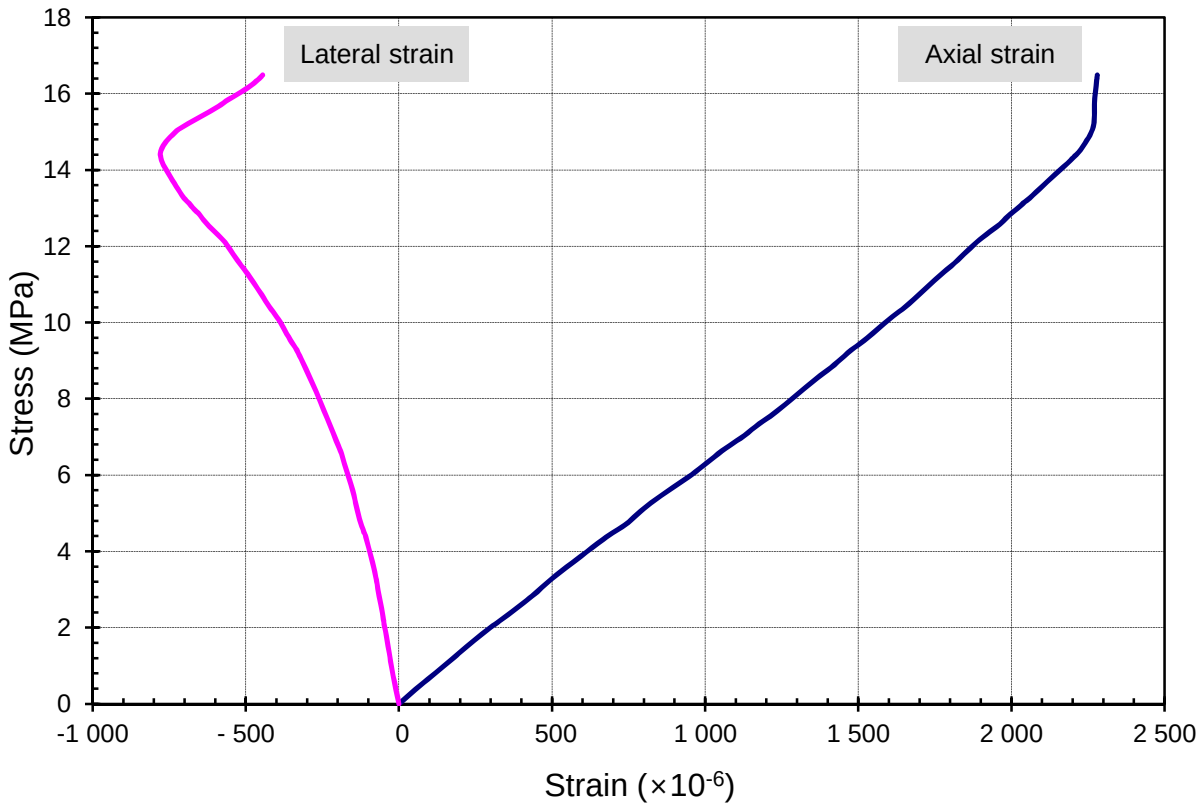
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-16-1	시추심도	8.0~8.3 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Bad (Bad)		
시험일자	2015-12-22				
측정 및 분석결과					
시료크기	직경 5.04 cm	최대하중	33.03 kN		
	높이 11.26 cm	압축강도	**16.6** MPa		
건조중량	538.22 g	탄성계수	**6.35** GPa		
건조밀도	2.396 g/cm^3	포아송비	**0.360**		
파괴코드	XA	경연분류	R2 (Weak)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

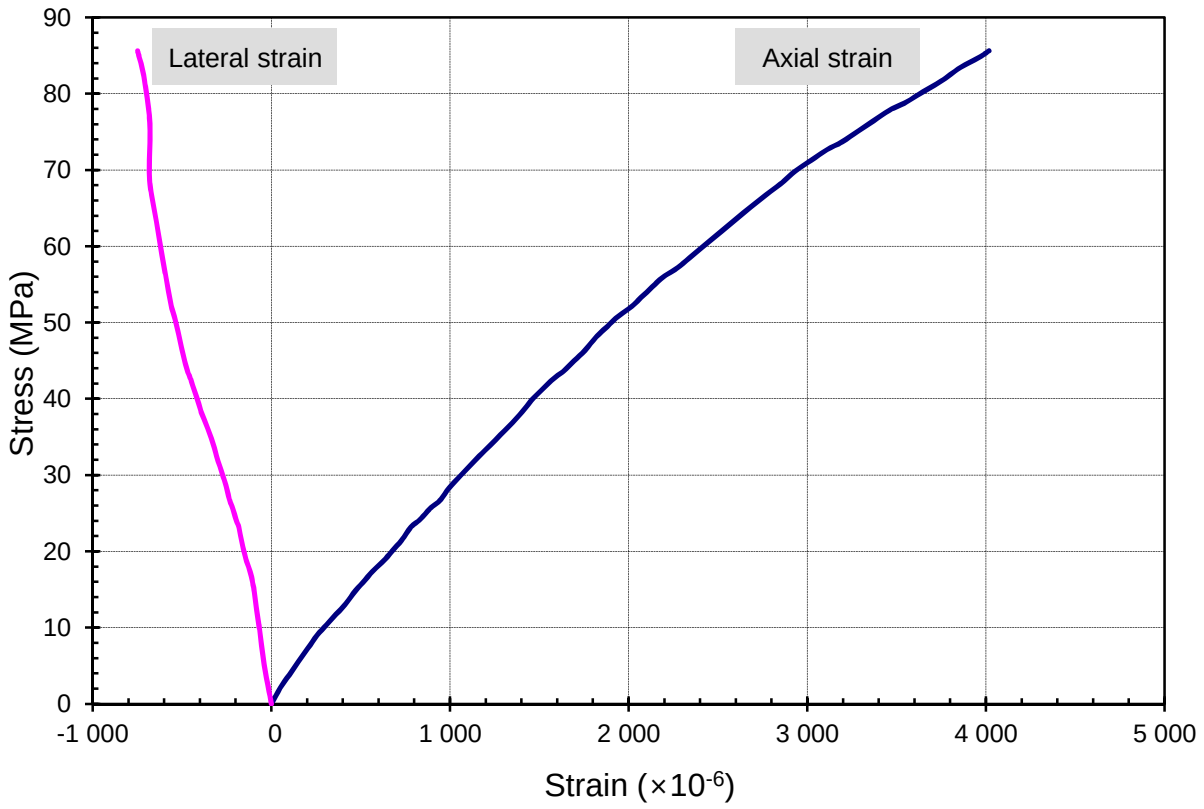
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-16-2	시추심도	16.8~17.1 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (Normal)		
시험일자	2015-12-22				
측정 및 분석결과					
시료크기	직경 5.06 cm	최대하중	173.21 kN		
	높이 11.40 cm	압축강도	**86.1** MPa		
건조중량	601.57 g	탄성계수	**23.12** GPa		
건조밀도	2.624 g/cm^3	포아송비	**0.296**		
파괴코드	YA	경연분류	R4 (strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

시 험 분 석
(일축압축시험)

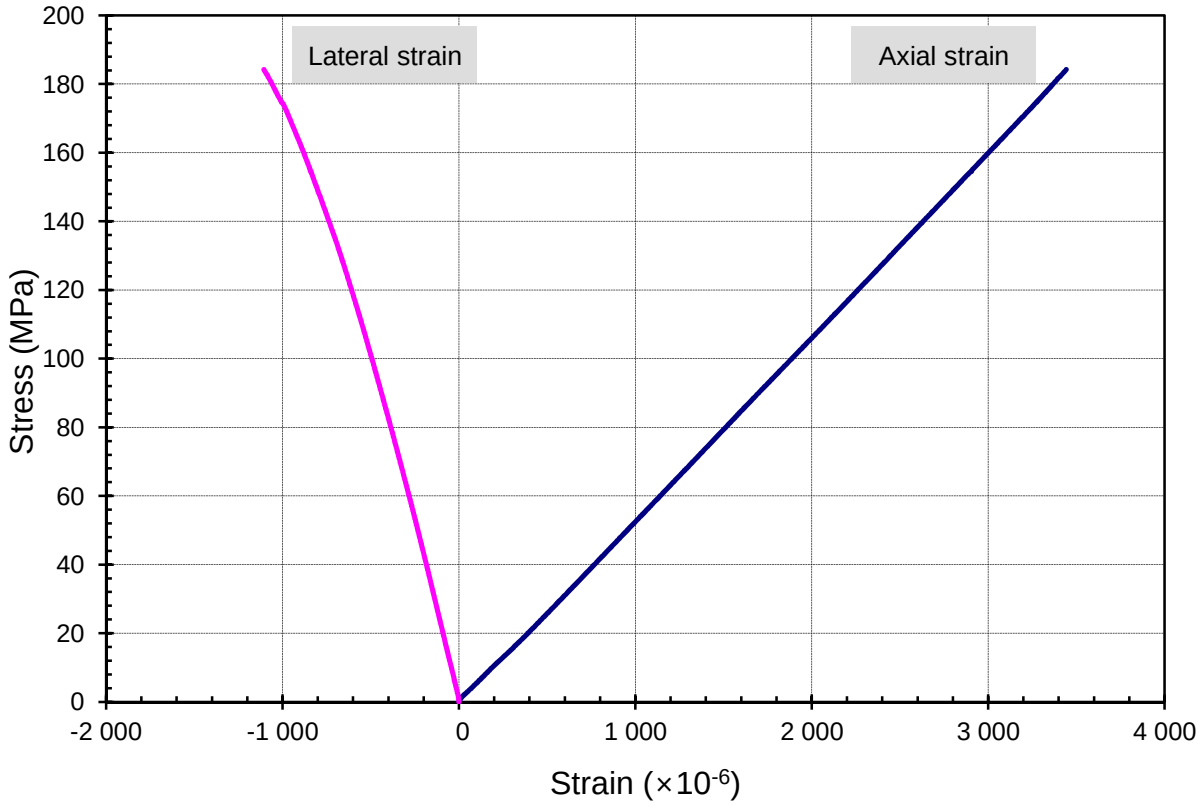
성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-16-3	시추심도	37.7~38.0 m
암 종	Granite	시료상태	Good (Good)
시험일자	2015-12-22		
측정 및 분석결과			
시료크기	직경 5.04 cm	최대하중	367.56 kN
	높이 9.70 cm	압축강도	**184.2** MPa
건조중량	523.60 g	탄성계수	**53.33** GPa
건조밀도	2.706 g/cm^3	포아송비	**0.289**
파괴코드	XA	경연분류	R5 (Very strong)
비 고			

시료사진	파괴후 사진
	

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

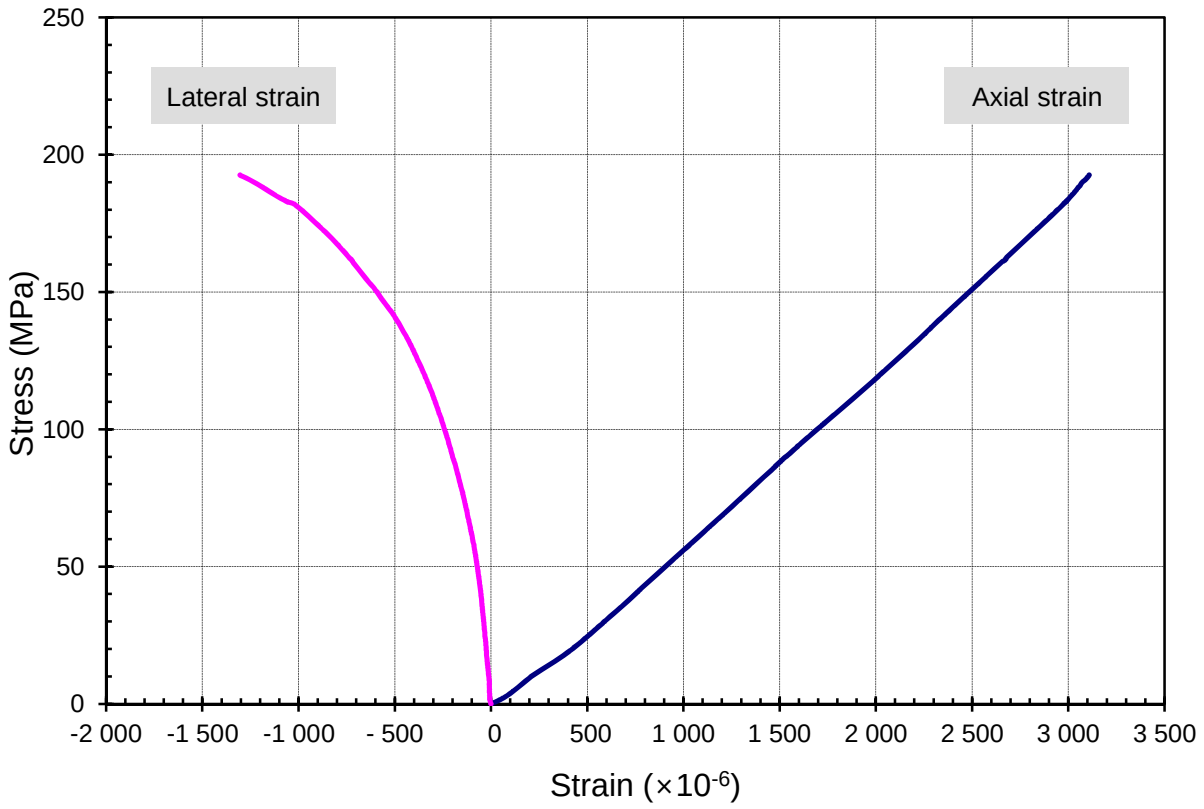
지오메카닉스

시추공명	GR-16-4	시추심도	77.3~77.6 m
암 종	Granite	시료상태	Good (Good)
시험일자	2015-12-22		

측정 및 분석결과			
시료크기	직경 5.10 cm	최대하중	393.75 kN
	높이 11.28 cm	압축강도	**192.7** MPa
건조중량	623.69 g	탄성계수	**61.62** GPa
건조밀도	2.707 g/cm^3	포아송비	**0.273**
파괴코드	XA	경연분류	R5 (Very strong)
비 고			

시료사진	파괴후 사진
	

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

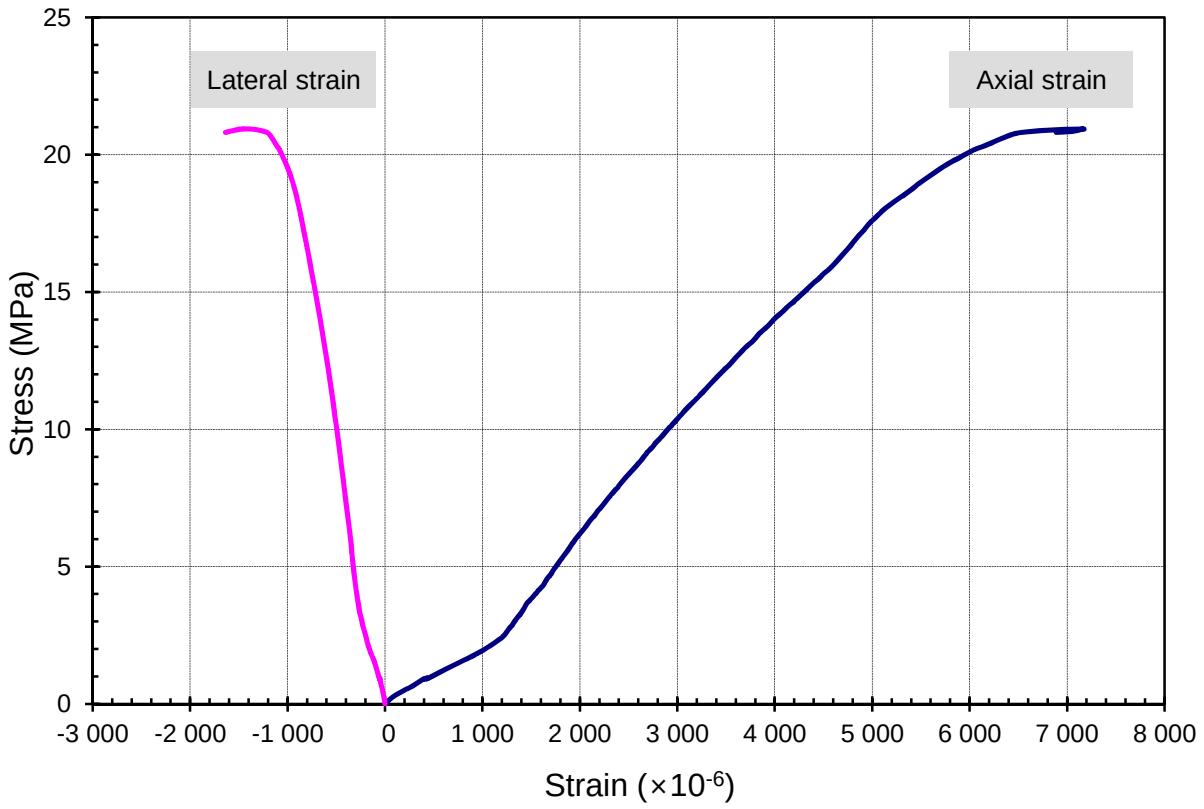
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-19-1	시추심도	35.2 m	시료사진	파괴후 사진
암 종	Dyke	시료상태	Bad (HW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.01 cm	최대하중	41.26 kN		
	높이 11.34 cm	압축강도	**20.9** MPa		
건조중량	508.95 g	탄성계수	**3.88** GPa		
건조밀도	2.278 g/cm^3	포아송비	**0.149**		
파괴코드	4A	경연분류	R2 (Weak)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



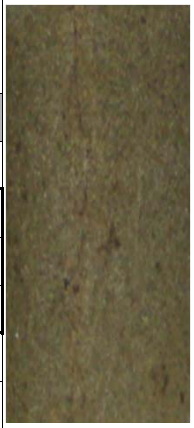
확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

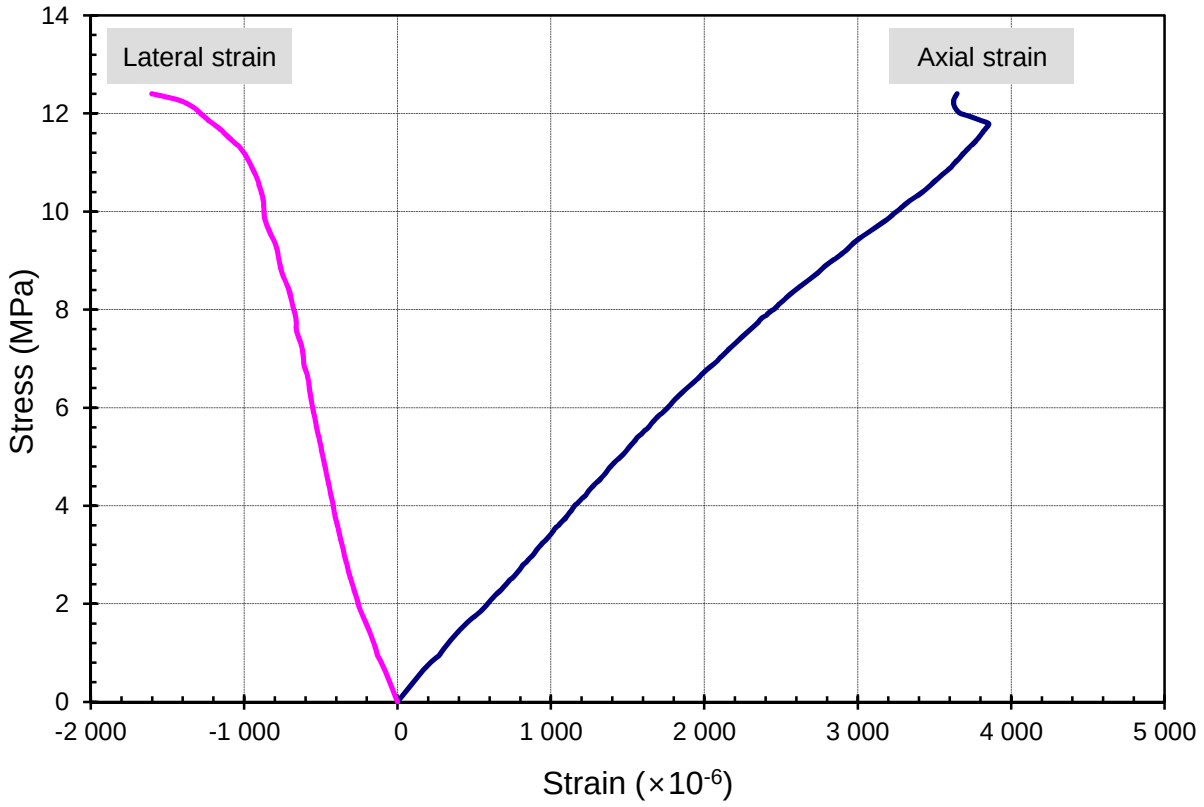
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-19-2	시추심도	44.7 m	시료사진	파괴후 사진
암 종	Dyke	시료상태	Bad (HW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.01 cm	최대하중	24.50 kN		
	높이 10.96 cm	압축강도	**12.4** MPa		
건조중량	389.30 g	탄성계수	**2.98** GPa		
건조밀도	1.802 g/cm^3	포아송비	**0.190**		
파괴코드	XA	경연분류	R2 (Weak)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(일축압축시험)

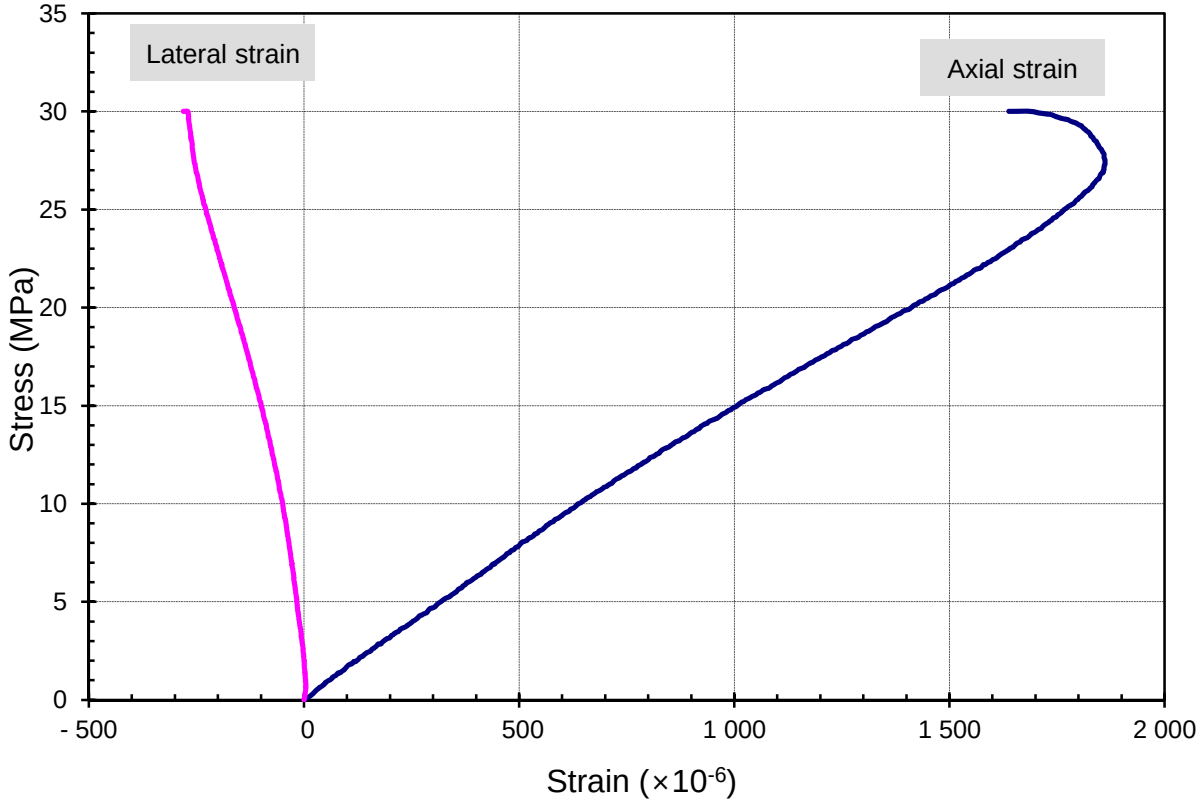
성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-19-3	시추심도	64.8 m
암 종	Dyke	시료상태	Bad (MW)
시험일자	2016-01-21		
측정 및 분석결과			
시료크기	직경 5.02 cm	최대하중	59.39 kN
	높이 11.29 cm	압축강도	**30.0** MPa
건조중량	559.60 g	탄성계수	**12.94** GPa
건조밀도	2.504 g/cm^3	포아송비	**0.146**
파괴코드	4A	경연분류	R3 (Medium strong)
비 고			

시료사진	파괴후 사진
	

응력-변형률 곡선 (Stress-Strain Curve)



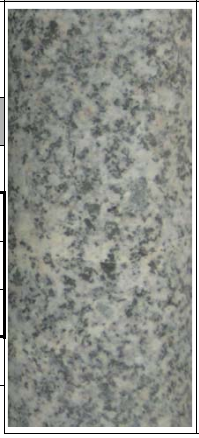
확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

시 험 분 석
(일축압축시험)

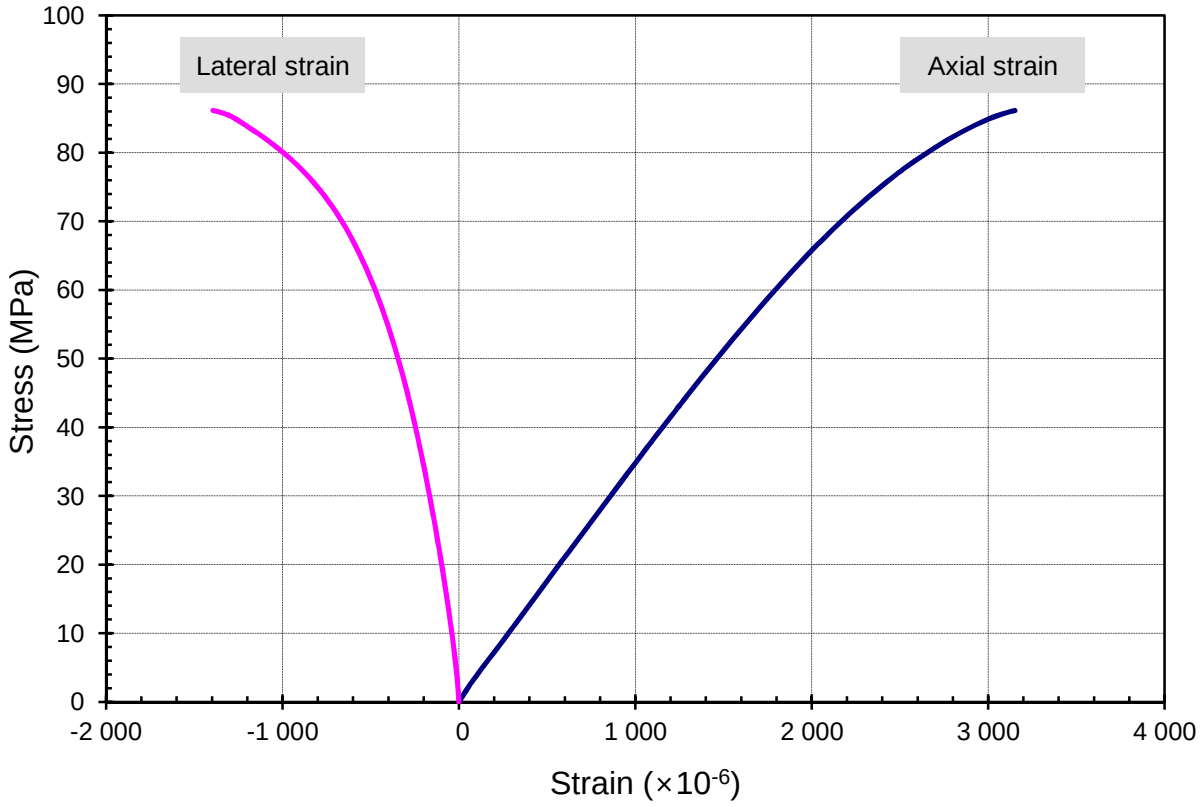
성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-19-4	시추심도	92.2 m
암 종	Granite	시료상태	Normal (SW)
시험일자	2016-01-21		
측정 및 분석결과			
시료크기	직경 5.03 cm	최대하중	171.21 kN
	높이 11.35 cm	압축강도	**86.3** MPa
건조중량	604.75 g	탄성계수	**32.82** GPa
건조밀도	2.688 g/cm^3	포아송비	**0.313**
파괴코드	XA	경연분류	R4 (strong)
비 고			

시료사진	파괴후 사진
	

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

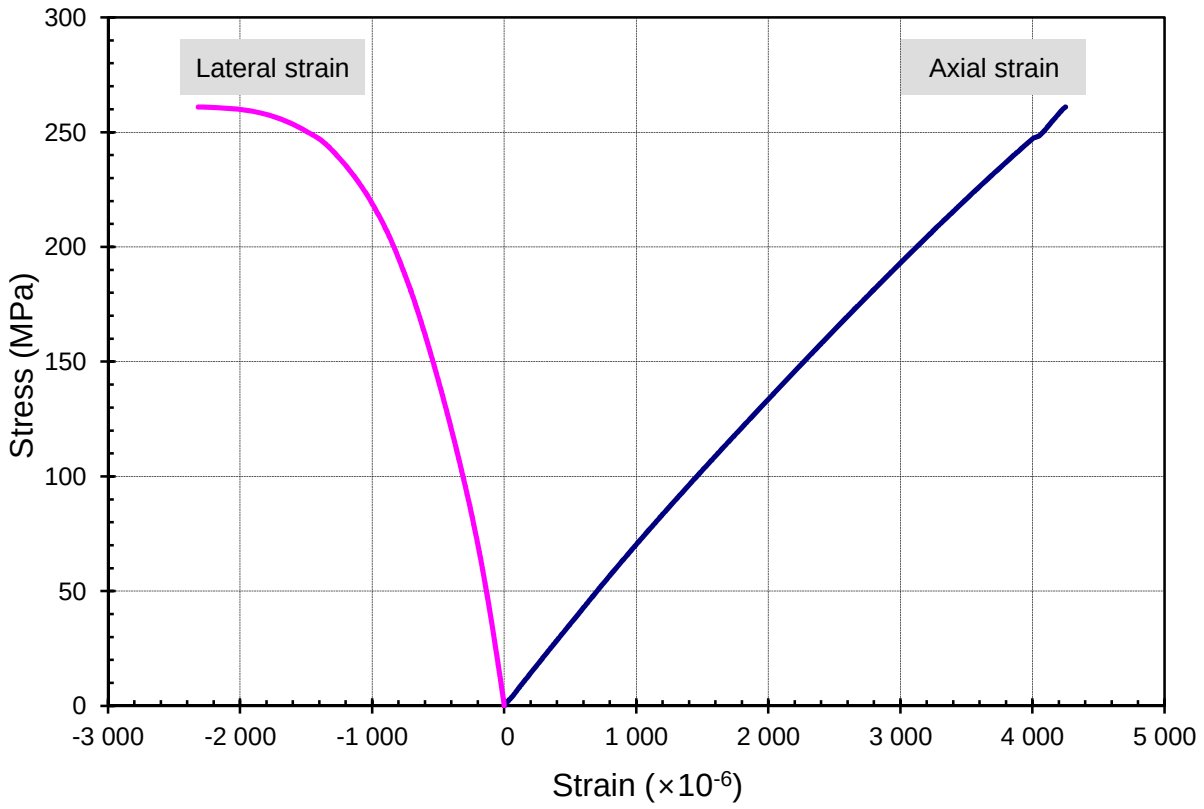
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-25-1	시추심도	5.2 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.07 cm	최대하중	528.32 kN		
	높이 11.40 cm	압축강도	**261.7** MPa		
건조중량	610.10 g	탄성계수	**61.32** GPa		
건조밀도	2.651 g/cm^3	포아송비	**0.285**		
파괴코드	XA	경연분류	R6 (Extremely strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

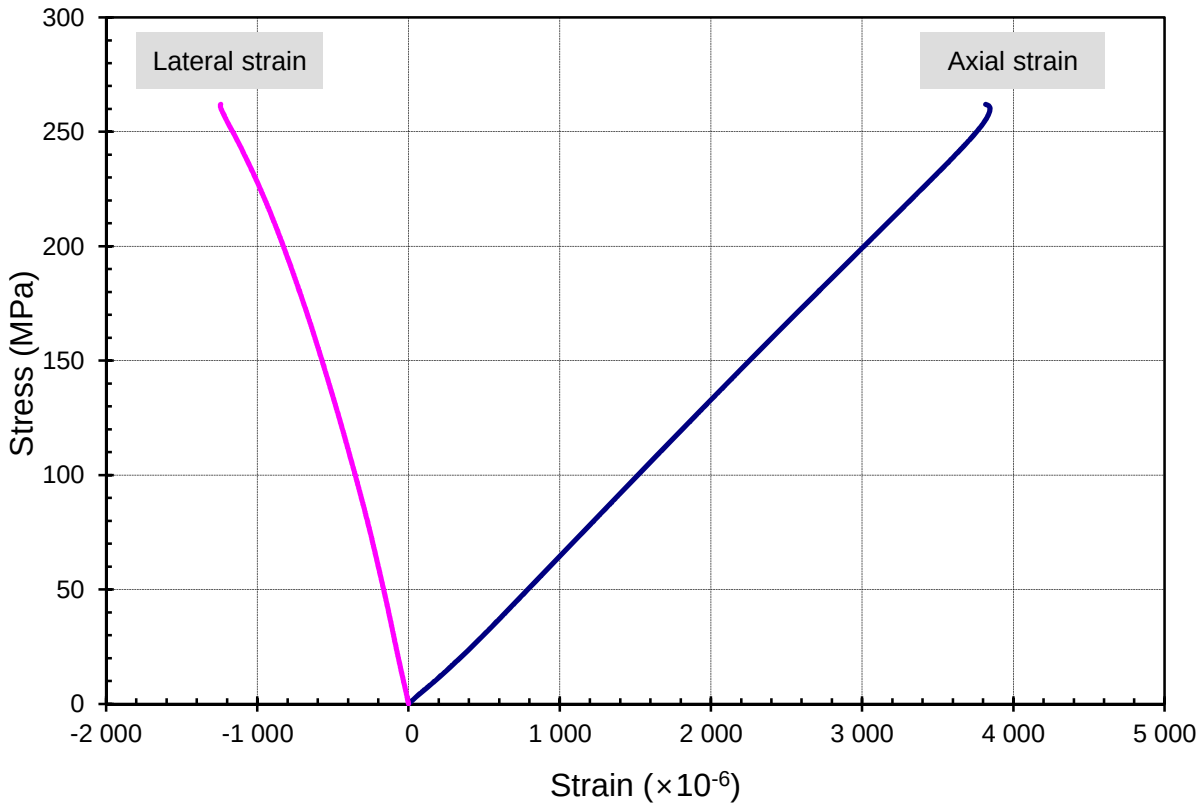
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-25-2	시추심도	36.7 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.07 cm	최대하중	529.30 kN		
	높이 11.42 cm	압축강도	**262.2** MPa		
건조중량	610.63 g	탄성계수	**67.66** GPa		
건조밀도	2.649 g/cm^3	포아송비	**0.302**		
파괴코드	XB	경연분류	R6 (Extremely strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

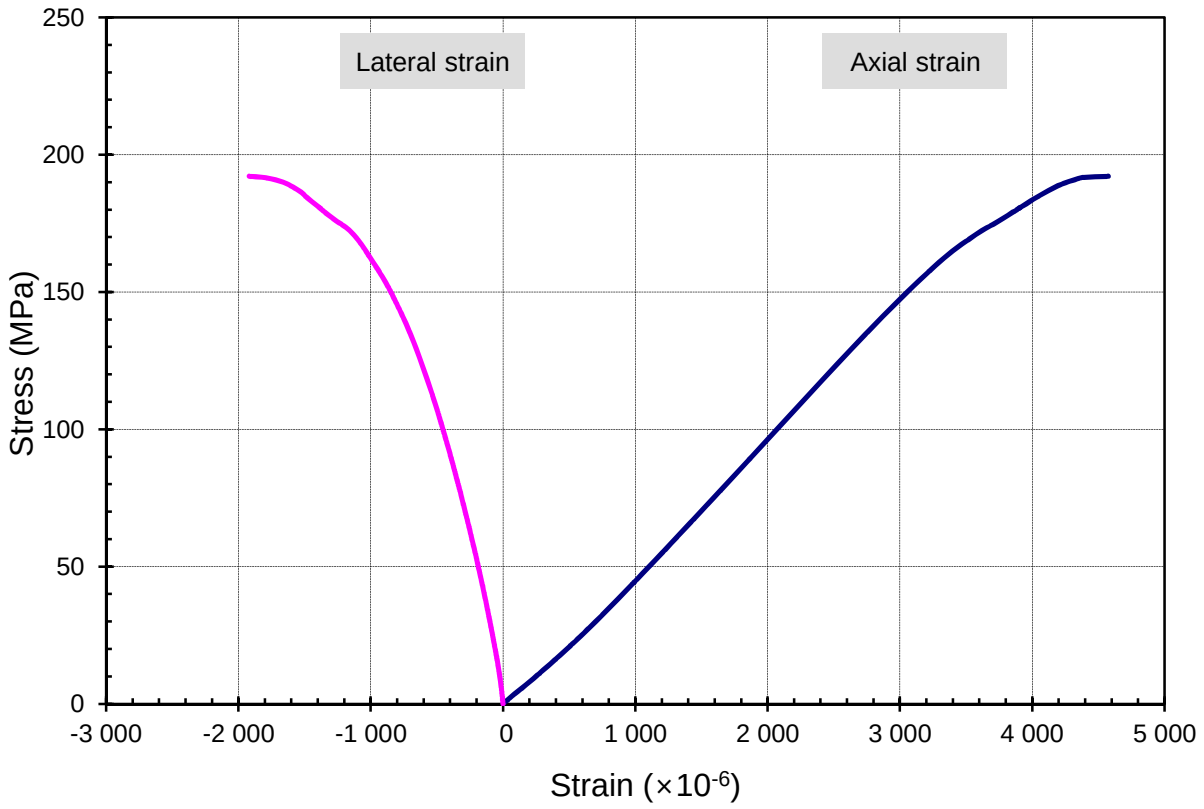
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-25-3	시추심도	53.0 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.07 cm	최대하중	388.28 kN		
	높이 11.42 cm	압축강도	**192.3** MPa		
건조중량	612.65 g	탄성계수	**52.29** GPa		
건조밀도	2.657 g/cm^3	포아송비	**0.312**		
파괴코드	XB	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

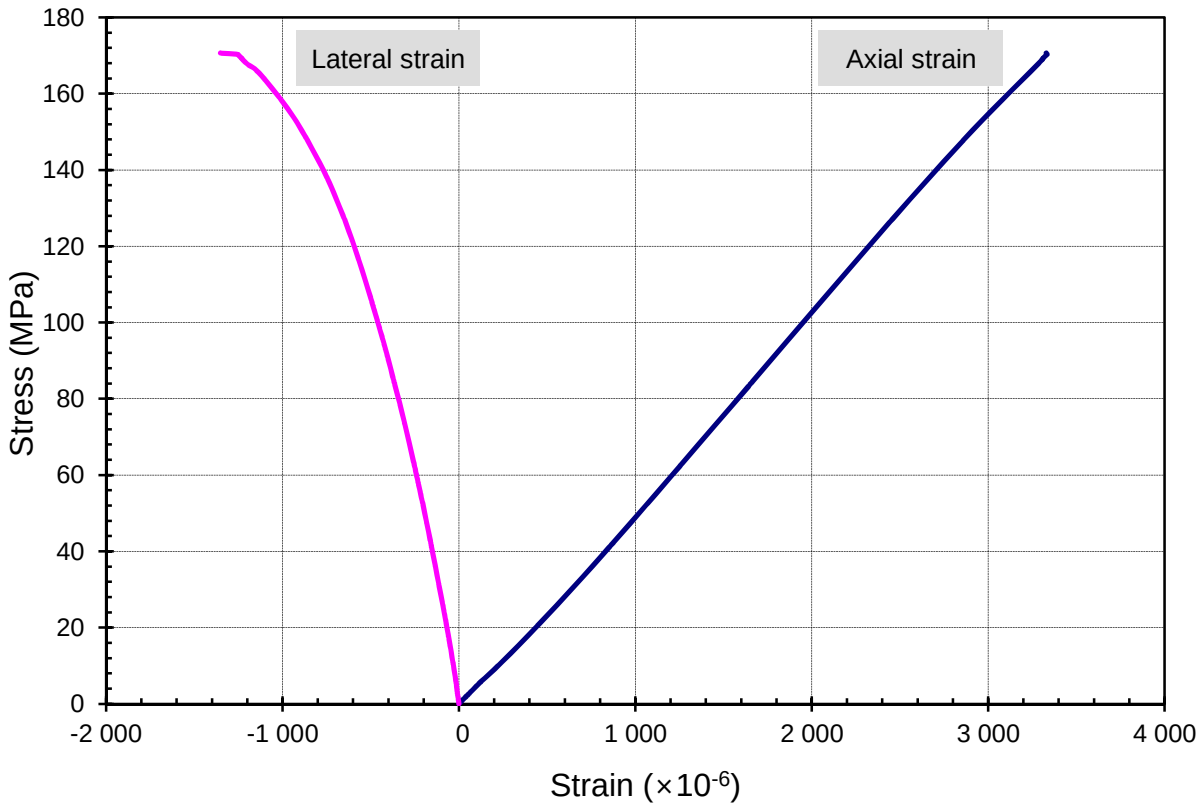
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-35-1	시추심도	19.9 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.04 cm	최대하중	340.75 kN		
	높이 11.35 cm	압축강도	**170.8** MPa		
건조중량	606.78 g	탄성계수	**53.98** GPa		
건조밀도	2.681 g/cm^3	포아송비	**0.307**		
파괴코드	XA	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



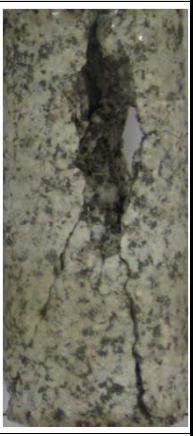
확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

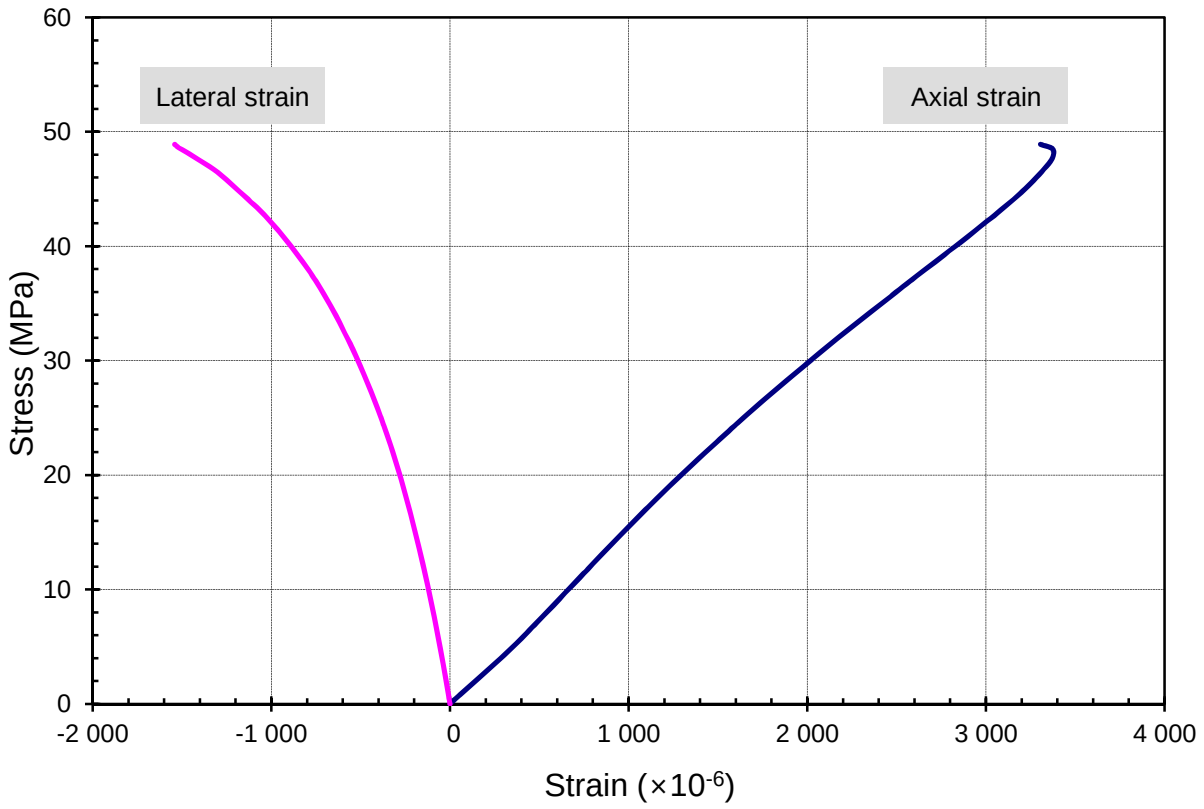
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-36-1	시추심도	19.9 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (HW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.06 cm	최대하중	106.92 kN		
	높이 11.35 cm	압축강도	**53.2** MPa		
건조중량	588.83 g	탄성계수	**13.98** GPa		
건조밀도	2.580 g/cm^3	포아송비	**0.318**		
파괴코드	YA	경연분류	R4 (strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

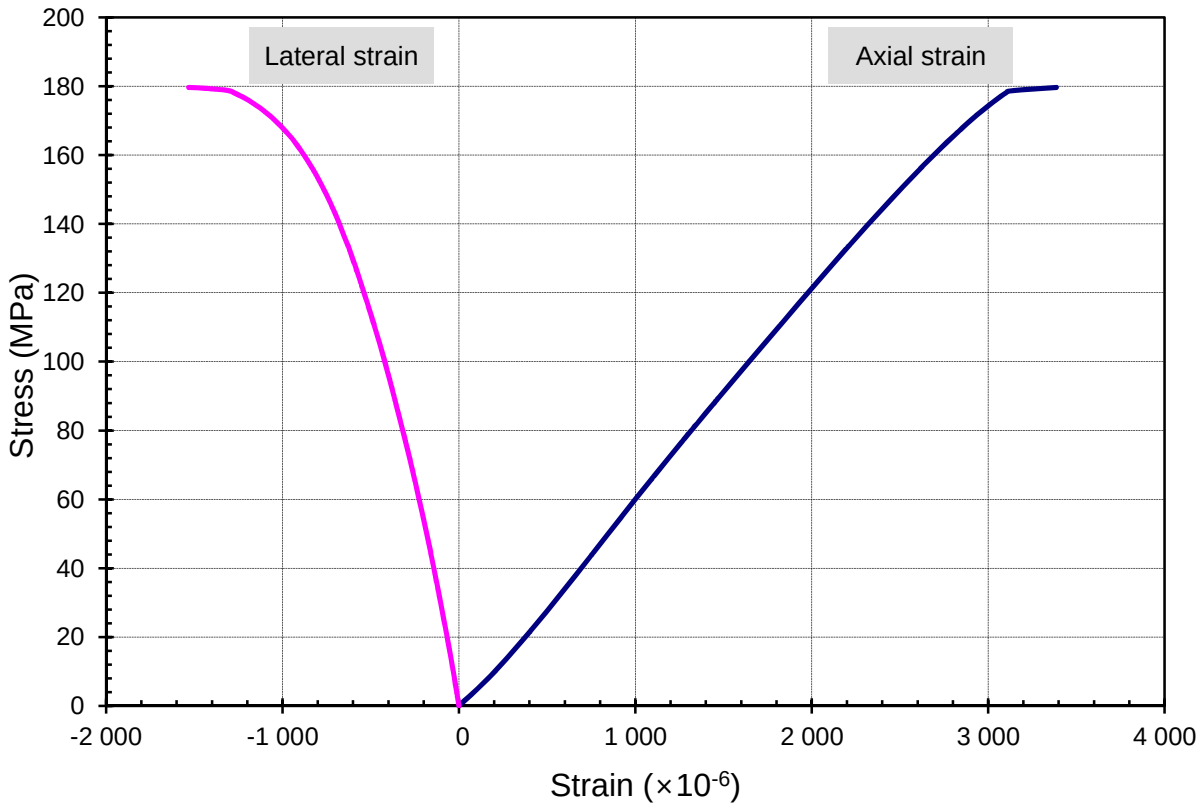
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-37-1	시추심도	28.0 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.07 cm	최대하중	363.09 kN		
	높이 11.40 cm	압축강도	**179.8** MPa		
건조중량	614.79 g	탄성계수	**61.27** GPa		
건조밀도	2.671 g/cm^3	포아송비	**0.309**		
파괴코드	YA	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



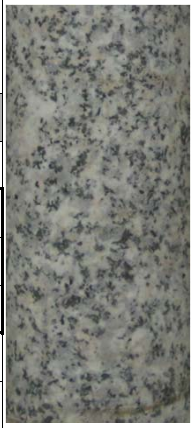
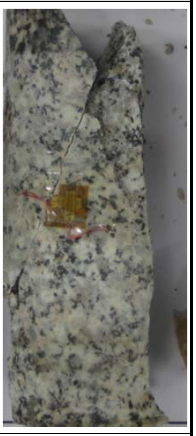
확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

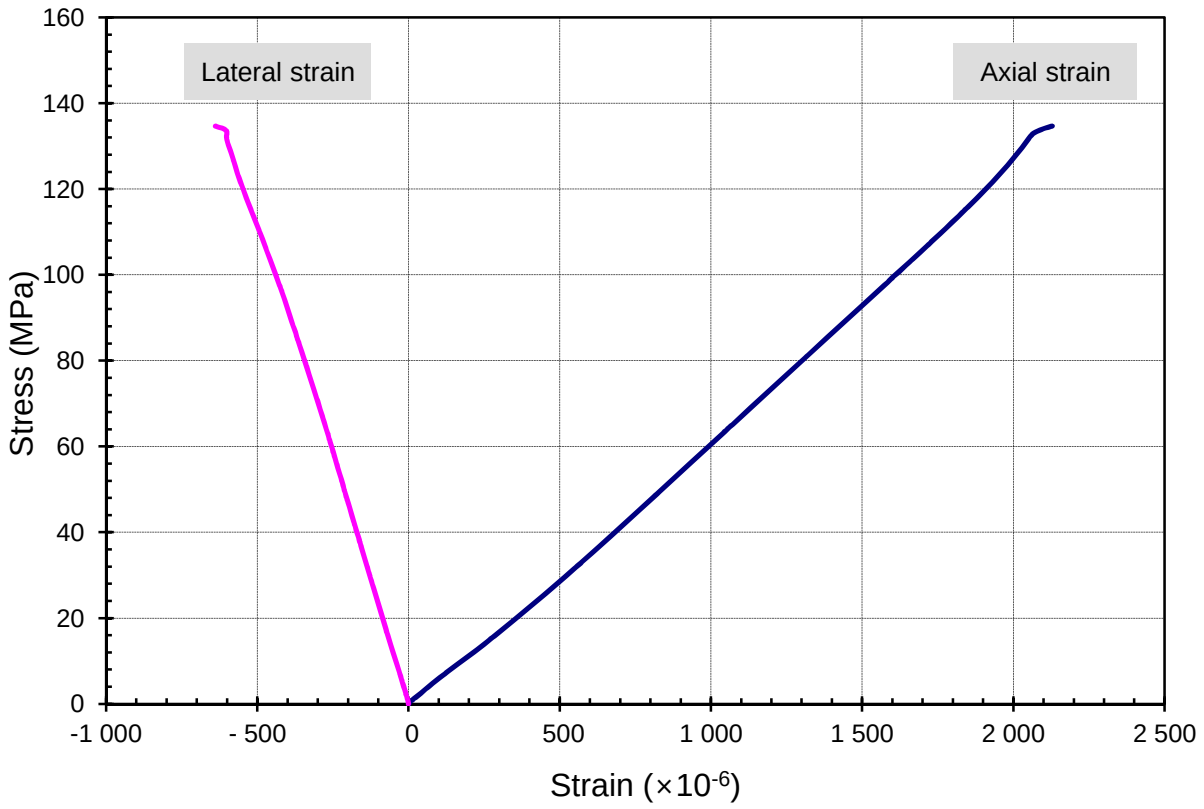
시 험 분 석
(일축압축시험)

성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-38-1	시추심도	19.8 m	시료사진	파괴후 사진
암 종	Granite	시료상태	Normal (SW)		
시험일자	2016-01-21				
측정 및 분석결과					
시료크기	직경 5.06 cm	최대하중	270.58 kN		
	높이 11.42 cm	압축강도	**134.8** MPa		
건조중량	614.67 g	탄성계수	**64.74** GPa		
건조밀도	2.683 g/cm^3	포아송비	**0.284**		
파괴코드	XA	경연분류	R5 (Very strong)		
비 고					

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

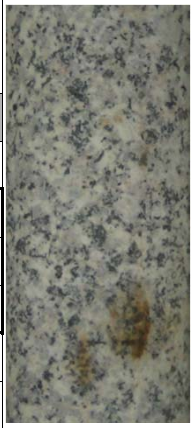
GeoMc-QPF-26-06

시 험 분 석
(일축압축시험)

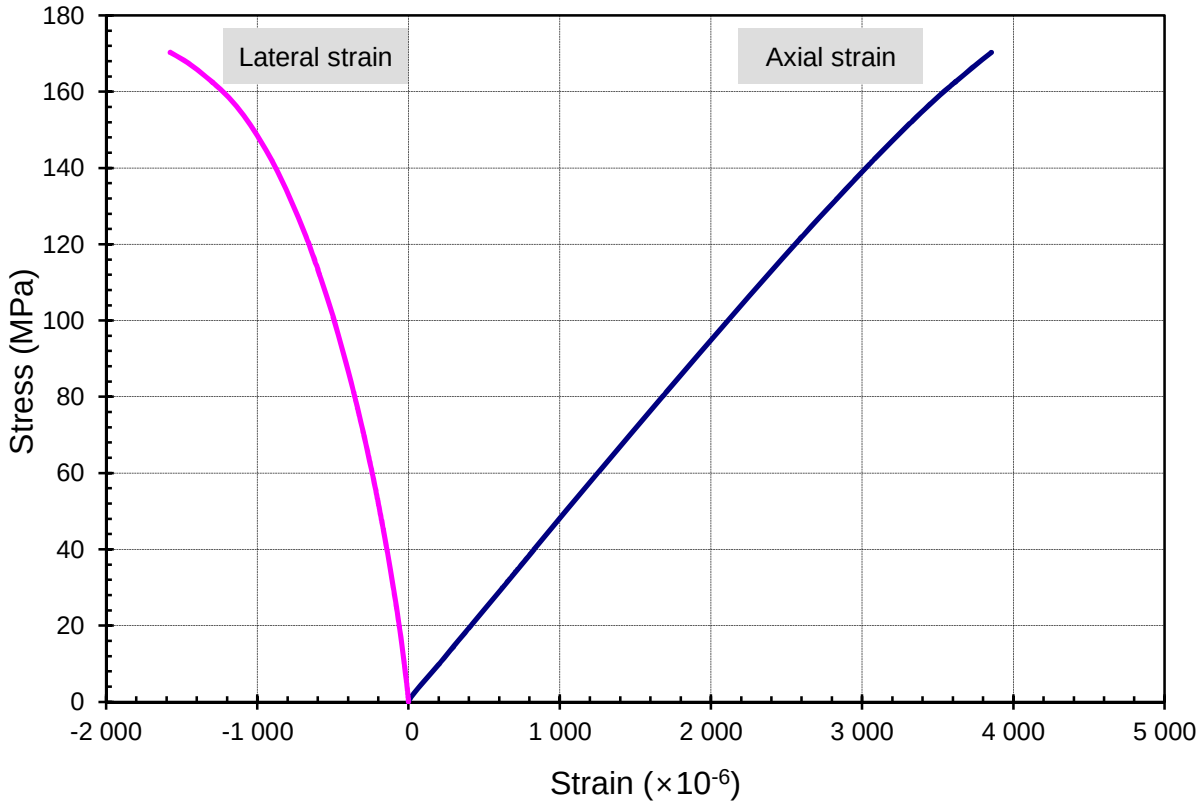
성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-46-1	시추심도	24.8 m
암 종	Granite	시료상태	Normal (SW)
시험일자	2016-01-21		
측정 및 분석결과			
시료크기	직경 5.03 cm	최대하중	338.00 kN
	높이 11.41 cm	압축강도	**170.4** MPa
건조중량	603.20 g	탄성계수	**46.33** GPa
건조밀도	2.667 g/cm^3	포아송비	**0.304**
파괴코드	XA	경연분류	R5 (Very strong)
비 고			

시료사진	파괴후 사진
	

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

시 험 분 석
(일축압축시험)

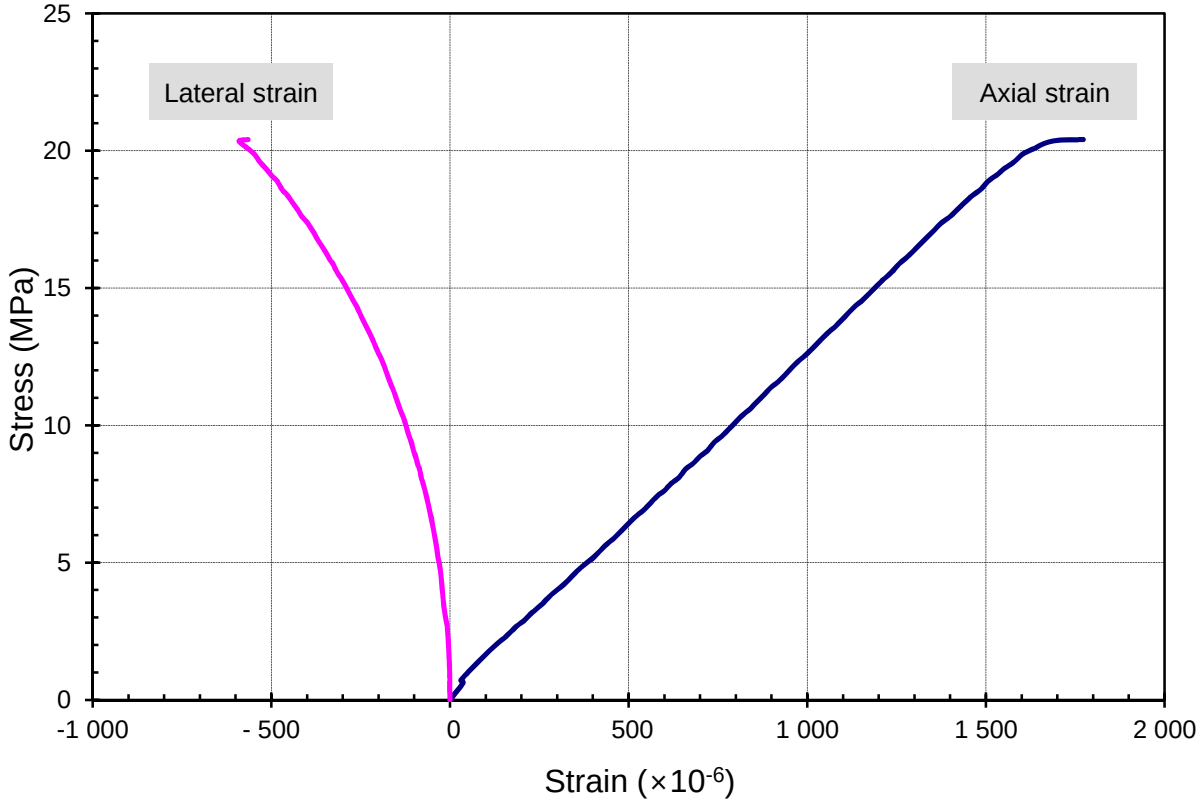
성적서번호 : **2015-G-101**

지오메카닉스

시추공명	GR-47-1	시추심도	21.8 m
암 종	Granite	시료상태	Normal (MW)
시험일자	2016-01-21		
측정 및 분석결과			
시료크기	직경 5.02 cm	최대하중	40.38 kN
	높이 11.27 cm	압축강도	**20.4** MPa
건조중량	534.39 g	탄성계수	**12.59** GPa
건조밀도	2.397 g/cm^3	포아송비	**0.346**
파괴코드	YA	경연분류	R2 (Weak)
비 고			

시료사진	파괴후 사진
	

응력-변형률 곡선 (Stress-Strain Curve)



확 인	작성자	풍 보 현	서명	기술책임자	장 현 식	서명

GeoMc-QPF-26-06

APPENDIX

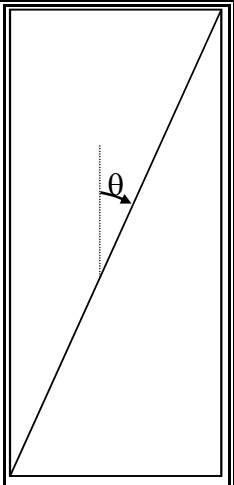
CLASSIFICATION OF ROCK SPECIMEN FAILURE MODE

FAILURE NOT INFLUENCED BY DISCONTINUITIES (INTACT)

TYPE CODE	DESCRIPTION OF SUB CODES	
	A	B
X	Single or multi sliding shear failure	Complete cone development
Y	Splitting	

FAILURE INFLUENCED BY DISCONTINUITIES

TYPE CODE	DESCRIPTION OF SUB CODES	
	A	B
	Partial failure on discontinuity	Failure completely on discontinuity
1	at 0-10˚ to axis	at 0-10˚ to axis
2	at 11-20˚ to axis	at 11-20˚ to axis
3	at 21-30˚ to axis	at 21-30˚ to axis
4	at 31-40˚ to axis	at 31-40˚ to axis
5	at 41-50˚ to axis	at 41-50˚ to axis
6	at 51-70˚ to axis	at 51-70˚ to axis
7	at 71-90˚ to axis	at 71-90˚ to axis
0	Multiple Discontinuities	Multiple Discontinuities



Example : Failure Type **3B** : Failure completely on discontinuity with an orientation of between 21˚ and 30˚ to the specimen axis.

CLASSIFICATION OF ROCK STRENGTH (ISRM)

GRADE	DESCRIPTION	APPROX. RANGE OF UCS (MPa)
R0	Extremely weak rock	0.25-1.0
R1	Very weak rock	1.0-5.0
R2	Weak rock	5.0-25
R3	Medium strong rock	25-50
R4	strong rock	50-100
R5	Very strong rock	100-250
R6	Extremely strong rock	> 250

부록 2.5E

점하중강도시험 성과표

공번	심도 (G.L -m)	암종	풍화지수	하중방향	시료두께 D(cm)	두께 제곱값 (D_e^2)	게이지 하중값 σ(N)	환산 하중값 (kgf)	점하중 강도지수 I_s	보정 계수 F	보정 점하중강도지수 $I_{s(50)}$ (kg/cm^2)	Remark
GR-4	20.6	Granite	MW	Dia	5.010	25.1	2,050	209	0.82	1.00	8.35	
GR-4	44.0	Granite	SW	Dia	5.020	25.2	13,280	1,355	5.27	1.00	53.82	
GR-4	68.1	Granite	SW	Dia	5.040	25.4	21,770	2,221	8.57	1.00	87.70	
GR-4	92.0	Granite	SW	Dia	5.000	25.0	15,550	1,586	6.22	1.00	63.44	
GR-5	22.7	Granite	SW	Dia	5.045	25.5	5,765	588	23.10	1.00	23.20	
GR-5	44.1	Granite	SW	Dia	5.065	25.7	14,335	1,462	56.98	1.01	57.35	
GR-5	44.5	Granite	SW	Dia	5.060	25.6	23,340	2,380	92.96	1.01	93.51	
GR-5	51.6	Granite	FR	Dia	5.035	25.4	28,585	2,915	114.98	1.00	115.38	
GR-5	52.0	Granite	FR	Dia	5.050	25.5	23,250	2,371	92.96	1.00	93.43	
GR-5	75.8	Granite	SW	Dia	5.070	25.7	27,770	2,832	110.16	1.01	110.93	
GR-5	76.2	Granite	SW	Dia	5.080	25.8	24,990	2,548	98.75	1.01	99.53	
GR-6	22.3	Granite	MW	Dia	5.060	25.6	3,260	332	12.98	1.01	13.06	
GR-6	22.7	Granite	MW	Dia	5.060	25.6	4,105	419	16.35	1.01	16.45	
GR-6	45.8	Granite	SW	Dia	5.060	25.6	19,250	1,963	76.67	1.01	77.13	
GR-6	46.2	Granite	SW	Dia	5.060	25.6	16,235	1,656	64.66	1.01	65.05	
GR-7	43.3	Granite	MW	Dia	5.050	25.5	585	60	2.34	1.00	2.35	
GR-7	43.8	Granite	MW	Dia	5.050	25.5	540	55	2.16	1.00	2.17	
GR-7	63.8	Granite	HW	Dia	5.060	25.6	1,610	164	6.41	1.01	6.45	
GR-7	64.6	Granite	HW	Dia	5.055	25.6	1,000	102	3.99	1.01	4.01	
GR-8	16.0	Granite	SW	Dia	5.030	25.3	23,200	2,366	93.50	1.00	93.78	

공번	심도 (G.L -m)	암종	풍화지수	하중방향	시료두께 D(cm)	두께 제곱값 (D_e^2)	게이지 하중값 σ(N)	환산 하중값 (kgf)	점하중 강도지수 I_s	보정 계수 F	보정 점하중강도지수 $I_{s(50)}$ (kg/cm^2)	Remark
GR-8	16.7	Granite	SW	Dia	5.030	25.3	29,275	2,985	117.99	1.00	118.34	
GR-8	33.4	Granite	SW	Dia	5.040	25.4	17,200	1,754	69.05	1.00	69.32	
GR-8	33.8	Granite	SW	Dia	5.040	25.4	25,360	2,586	101.80	1.00	102.21	
GR-8	48.4	Granite	SW	Dia	5.070	25.7	22,905	2,336	90.86	1.01	91.50	
GR-8	48.8	Granite	SW	Dia	5.075	25.8	18,800	1,917	74.43	1.01	74.99	
GR-9	22.2	Granite	MW	Dia	5.045	25.5	7,010	715	28.09	1.00	28.21	
GR-10	12.0	Granite	MW	Dia	5.070	25.7	3,290	336	1.28	1.01	13.14	
GR-10	32.7	Granite	SW	Dia	5.070	25.7	23,600	2,407	9.18	1.01	94.20	
GR-10	56.6	Granite	SW	Dia	5.070	25.7	11,650	1,188	4.54	1.01	46.52	
GR-12	10.1	Granite	HW	Dia	5.065	25.7	415	42	1.65	1.01	1.66	
GR-12	10.5	Granite	HW	Dia	5.070	25.7	595	61	2.36	1.01	2.38	
GR-12	24.1	Granite	HW	Dia	5.065	25.7	2,530	258	10.06	1.01	10.12	
GR-12	24.5	Granite	HW	Dia	5.065	25.7	765	78	3.04	1.01	3.06	
GR-12	35.6	Granite	SW	Dia	5.065	25.7	7,756	791	30.83	1.01	31.03	
GR-12	36.1	Granite	SW	Dia	5.095	26.0	6,425	655	25.24	1.01	25.48	
GR-15	36.0	Granite	MW	Dia	5.025	25.3	5,780	590	2.29	1.00	23.41	
GR-15	51.2	Granite	HW	Dia	5.030	25.3	5,140	524	2.03	1.00	20.78	
GR-15	67.0	Granite	HW	Dia	5.040	25.4	4,860	496	1.91	1.00	19.56	
GR-19	35.2	Mafic Dyke	MW	Dia	5.000	25.0	2,540	259	1.02	1.00	10.37	
GR-19	44.7	Mafic Dyke	HW	Dia	4.990	24.9	1,620	165	0.65	1.00	6.62	

공번	심도 (G.L -m)	암종	풍화지수	하중방향	시료두께 D(cm)	두께 제곱값 (D_e^2)	게이지 하중값 σ(N)	환산 하중값 (kgf)	점하중 강도지수 I_s	보정 계수 F	보정 점하중강도지수 $I_{s(50)}$ (kg/cm^2)	Remark
GR-19	64.8	Mafic Dyke	MW	Dia	5.020	25.2	3,290	336	1.30	1.00	13.32	
GR-19	92.2	Granite	SW	Dia	5.030	25.3	10,950	1,117	4.33	1.00	44.26	
GR-20	47.5	Granite	SW	Dia	5.040	25.4	31,106	3,172	124.87	1.00	125.37	
GR-20	48.0	Granite	SW	Dia	5.050	25.5	26,760	2,729	107.00	1.00	107.53	
GR-20	56.9	Granite	SW	Dia	5.090	25.9	11,400	1,162	44.87	1.01	45.27	
GR-20	57.5	Granite	SW	Dia	5.065	25.7	17,155	1,749	68.19	1.01	68.63	
GR-20	62.7	Granite	SW	Dia	5.070	25.7	14,530	1,482	57.64	1.01	58.04	
GR-20	63.4	Granite	MW	Dia	5.075	25.8	9,055	923	35.85	1.01	36.12	
GR-20	96.2	Granite	MW	Dia	5.070	25.7	15,980	1,630	63.39	1.01	63.84	
GR-20	96.6	Granite	MW	Dia	5.090	25.9	6,395	652	25.17	1.01	25.40	
GR-21	61.3	Granite	MW	Dia	5.065	25.7	18,750	1,912	74.53	1.01	75.01	
GR-21	61.7	Granite	SW	Dia	5.065	25.7	24,830	2,532	98.70	1.01	99.33	
GR-21	115.8	Granite	SW	Dia	5.045	25.5	18,765	1,913	75.18	1.00	75.52	
GR-21	116.2	Granite	SW	Dia	5.045	25.5	21,365	2,179	85.60	1.00	85.98	
GR-22	48.7	Granite	SW	Dia	5.070	25.7	22,375	2,282	88.76	1.01	89.38	
GR-22	49.1	Granite	SW	Dia	5.070	25.7	32,820	3,347	130.20	1.01	131.11	
GR-22	63.9	Granite	FR	Dia	5.070	25.7	24,550	2,503	97.39	1.01	98.07	
GR-22	64.3	Granite	FR	Dia	5.070	25.7	24,935	2,543	98.92	1.01	99.61	
GR-24	34.6	Granite	HW	Dia	4.675	21.9	605	62	2.82	0.97	2.73	
GR-24	35.2	Granite	HW	Dia	4.930	24.3	118	12	0.50	0.99	0.49	

공번	심도 (G.L -m)	암종	풍화지수	하중방향	시료두께 D(cm)	두께 제곱값 (D_e^2)	게이지 하중값 σ(N)	환산 하중값 (kgf)	점하중 강도지수 I_s	보정 계수 F	보정 점하중강도지수 $I_{s(50)}$ (kg/cm^2)	Remark
GR-24	35.9	Granite	HW	Dia	4.920	24.2	305	31	1.28	0.99	1.27	
GR-24	37.0	Granite	MW	Dia	4.900	24.0	80	8	0.34	0.99	0.34	
GR-24	63.8	Granite	SW	Dia	5.000	25.0	2,290	234	9.34	1.00	9.34	
GR-24	64.2	Granite	SW	Dia	5.010	25.1	10,030	1,023	40.75	1.00	40.79	
GR-25	5.2	Granite	SW	Dia	5.070	25.7	29,700	3,029	11.56	1.01	118.56	
GR-25	36.7	Granite	SW	Dia	5.070	25.7	29,860	3,046	11.62	1.01	119.20	
GR-25	53.0	Granite	SW	Dia	5.070	25.7	22,160	2,260	8.62	1.01	88.46	
GR-27	27.1	Granite	HW	Dia	5.060	25.6	1,875	191	7.47	1.01	7.51	
GR-27	27.5	Granite	HW	Dia	5.060	25.6	300	31	1.19	1.01	1.20	
GR-27	34.9	Granite	MW	Dia	5.060	25.6	9,885	1,008	39.37	1.01	39.60	
GR-27	35.3	Granite	MW	Dia	5.060	25.6	11,330	1,155	45.12	1.01	45.39	
GR-27	42.8	Granite	SW	Dia	5.060	25.6	30,330	3,093	120.80	1.01	121.52	
GR-27	43.3	Granite	SW	Dia	5.060	25.6	30,520	3,112	121.55	1.01	122.28	
GR-30	21.2	Granite	SW	Dia	5.060	25.6	14,890	1,518	59.30	1.01	59.66	
GR-30	21.6	Granite	SW	Dia	5.060	25.6	14,106	1,438	56.18	1.01	56.52	
GR-34	11.9	Granite	SW	Dia	5.070	25.7	20,520	2,092	81.40	1.01	81.97	
GR-34	12.3	Granite	SW	Dia	5.065	25.7	21,905	2,234	87.07	1.01	87.63	
GR-35	19.9	Granite	SW	Dia	5.060	25.6	23,490	2,396	9.18	1.01	94.05	
GR-36	19.9	Granite	HW	Dia	5.070	25.7	7,690	784	2.99	1.01	30.68	
GR-37	28.0	Granite	SW	Dia	5.075	25.8	17,710	1,806	6.87	1.01	70.58	

공번	심도 (G.L -m)	암종	풍화지수	하중방향	시료두께 D(cm)	두께 제곱값 (D_e^2)	게이지 하중값 σ(N)	환산 하중값 (kgf)	점하중 강도지수 I_s	보정 계수 F	보정 점하중강도지수 $I_{s(50)}$ (kg/cm^2)	Remark
GR-38	19.8	Granite	SW	Dia	5.060	25.6	21,330	2,176	8.34	1.01	85.43	
GR-40	19.9	Granite	FR	Dia	5.040	25.4	26,195	2,671	105.16	1.00	105.58	
GR-40	20.3	Granite	FR	Dia	5.045	25.5	25,505	2,601	102.18	1.00	102.64	
GR-41	18.9	Granite	MW	Dia	5.065	25.7	16,515	1,684	65.64	1.01	66.07	
GR-41	19.4	Granite	MW	Dia	5.065	25.7	9,770	996	38.83	1.01	39.09	
GR-42	23.9	Granite	SW	Dia	5.055	25.6	4,780	487	19.08	1.01	19.18	
GR-42	24.3	Granite	SW	Dia	5.065	25.7	3,805	388	15.12	1.01	15.22	
GR-44	18.0	Granite	SW	Dia	5.075	25.8	8,580	875	33.97	1.01	34.22	
GR-44	18.4	Granite	SW	Dia	5.055	25.6	7,315	746	29.19	1.01	29.35	
GR-46	24.8	Granite	SW	Dia	5.025	25.3	17,300	1,765	6.85	1.00	70.01	
GR-47	21.8	Granite	MW	Dia	5.015	25.2	3,960	404	1.58	1.00	16.09	
GR-60	16.0	Granite	MW	Dia	5.065	25.7	2,135	218	8.49	1.01	8.54	
GR-60	23.0	Granite	SW	Dia	5.060	25.6	5,720	583	22.78	1.01	22.92	
GR-60	66.0	Granite	SW	Dia	5.030	25.3	17,465	1,781	70.39	1.00	70.60	
GR-63	39.0	Granite	SW	Dia	5.050	25.5	22,545	2,299	90.15	1.00	90.60	
GR-63	60.6	Granite	SW	Dia	5.045	25.5	22,200	2,264	88.94	1.00	89.34	
GR-63	79.2	Granite	HW	Dia	5.055	25.6	11,905	1,214	47.51	1.01	47.77	
GR-72	7.0	Granite	SW	Dia	5.060	25.6	30,660	3,126	122.11	1.01	122.84	
GR-72	7.5	Granite	MW	Dia	5.060	25.6	16,335	1,666	65.06	1.01	65.45	
GR-73	21.1	Granite	SW	Dia	5.020	25.2	12,875	1,313	52.10	1.00	52.20	