MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED POROUS MATERIALS
USING A FLEXIBLE WALL PERMEAMETER
ASTM D 5084 - 03 METHOD C TEST WITH INCREASING TAILWATER LEVEL
FLUID: DEAIRED TAP WATER WITH 0.005 N CaSO4

PROJECT NAME:	GeoPro, Inc. - 2016 Laboratory Testing	PROJECT NUMBER:	02156304.0014
SAMPLE ID:	GeoPro's TG Select 45	DATE:	8/10/2016
	BENTONITE - 30.00%	PANEL IDENTIFICATION:	Lenexa Perm Board
	DEIONIZED WATER - 70.00%	BURETTE AREA:	0.312 cm^2
		BURETTE INCREMENT LENGTH:	1.000 cm
	Sample tested after a 24 hour curing period.	VOLUME PER INCREMENT:	0.312 cm^3

INITIAL

MOISTURE%		DENSITY			
W & T, g	NA	WET WT, g	92.1		
D & T, g	NA	DIA, in	2.421	6.15	cm
T, g	NA	HT, in	1.004	2.55	cm
		AREA		29.70	cm^2
MOIST-		DENSITY:	75.9	PCF WET	
URE, %	**NA**	DENSITY:	**NA**	PCF DRY	

ADDITIONAL DATA

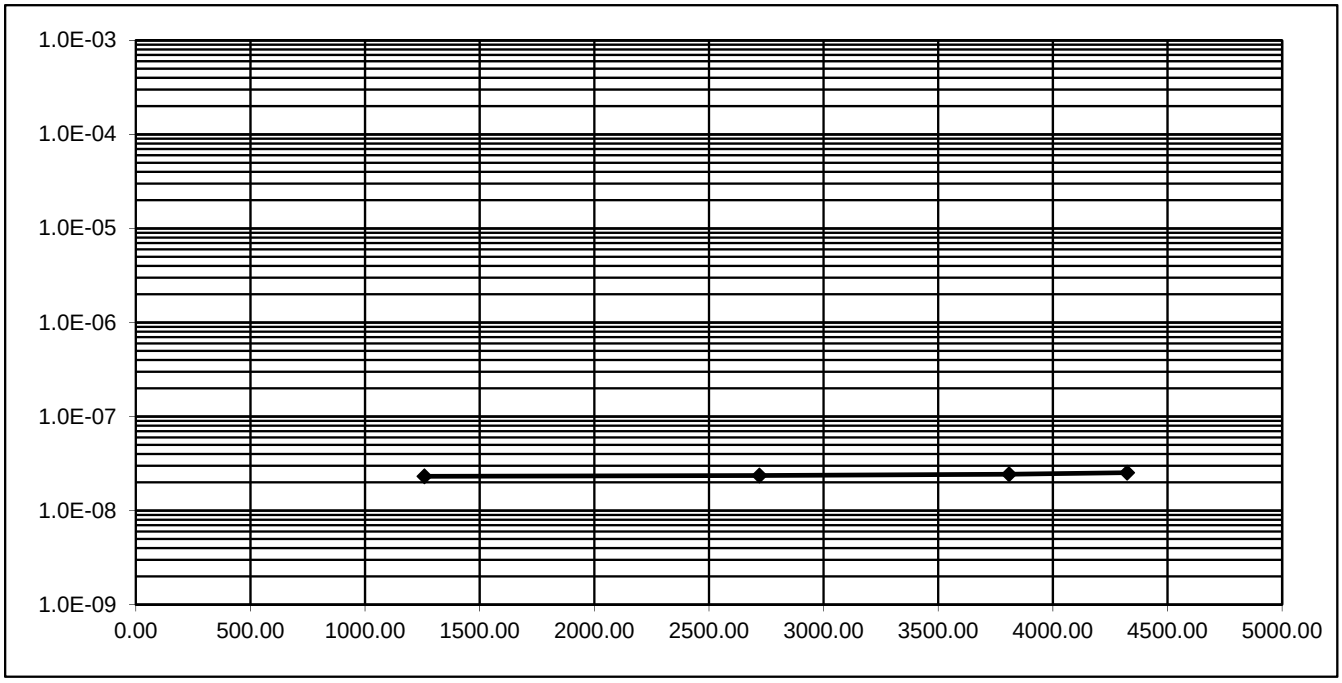
SPECIFIC GRAVITY:	2.70	RECOMPACTED?:	YES
SPECIFIC GRAVITY:	ASSUMED	PROCTOR, pcf:	NA
POROSITY, %:	NA	OPTIMUM, %:	NA
SATURATION, %:	NA	COMPACTION, %:	NA
VOID RATIO:	NA	OVER OPTIMUM, %:	NA

SATURATION:	LATERAL PRESS.:	104.0	psi	BACK PRESSURE (=UPPER=LOWER):	100.0	psi	
DURING TEST:	LATERAL PRESS.:	104.0	psi	H2: 100.0 psi	H1:	100.0	psi
				BIAS PRESSURE (=H1-H2)		0.0	psi

H1 VALUE	H2 VALUE	ELAPSED TIME, min	DELTA H cm	Ln H1/H2	HYD CON k, cm/sec	OUT FLOW cm^3	IN FLOW cm^3	OUT/IN RATIO	HYD GRAD	% FROM MEAN k	TEMP.: C	TEMP. CORR.:
9.7	65.2	0.00	55.5									
13.3	61.4	1259.00	48.1	0.143101	2.32E-08	1.12	1.19	0.95	18.9	4	23.9	0.912
17.0	57.6	2720.00	40.6	0.169514	2.36E-08	1.16	1.19	0.97	15.9	2	23.9	0.912
19.5	55.3	3809.00	35.8	0.125820	2.44E-08	0.78	0.72	1.09	14.0	1	22.4	0.944
20.6	54.2	4324.00	33.6	0.063422	2.53E-08	0.34	0.34	1.00	13.2	5	23.5	0.920

HYDRAULIC CONDUCTIVITY (k_{20}) = **AVERAGE 2.4E-08 cm/sec**

MAXIMUM	1.0E-03 TO 1.0E-04	2	0.75<	30	% < 25 AT
HYDRAULIC	1.0E-04 TO 1.0E-05	5	RATIO	MAX	> 1.0E-8
GRADIENT	1.0E-05 TO 1.0E-06	10	<1.25	HYDRAULIC	OR
	1.0E-06 TO 1.0E-07	20		GRADIENT	% < 50 AT
	less than 1.0E-07	30		ALLOWED	< 1.0E-8



Terracon

MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED POROUS MATERIALS
USING A FLEXIBLE WALL PERMEAMETER
ASTM D 5084 - 03 METHOD C TEST WITH INCREASING TAILWATER LEVEL
FLUID: DEAIRED TAP WATER WITH 0.005 N CaSO4

PROJECT NAME:	GeoPro, Inc. - 2016 Laboratory Testing	PROJECT NUMBER:	02156304.0018
SAMPLE ID:	GeoPro's TG Select / SS 120	DATE:	8/10/2016
	BENTONITE - 7.93%	PANEL IDENTIFICATION:	Lenexa Perm Board
	SILICA SAND - 63.48%	BURETTE AREA:	0.312 cm^2
	DEIONIZED WATER - 28.59%	BURETTE INCREMENT LENGTH:	1.000 cm
	Sample tested after a 24 hour curing period.	VOLUME PER INCREMENT:	0.312 cm^3

INITIAL

MOISTURE%		DENSITY			
W & T, g	NA	WET WT, g	140.8		
D & T, g	NA	DIA, in	2.421	6.15	cm
T, g	NA	HT, in	0.998	2.54	cm
		AREA		29.70	cm^2
MOIST-		DENSITY:	116.7	PCF WET	
URE, %	**NA**	DENSITY:	**NA**	PCF DRY	

ADDITIONAL DATA

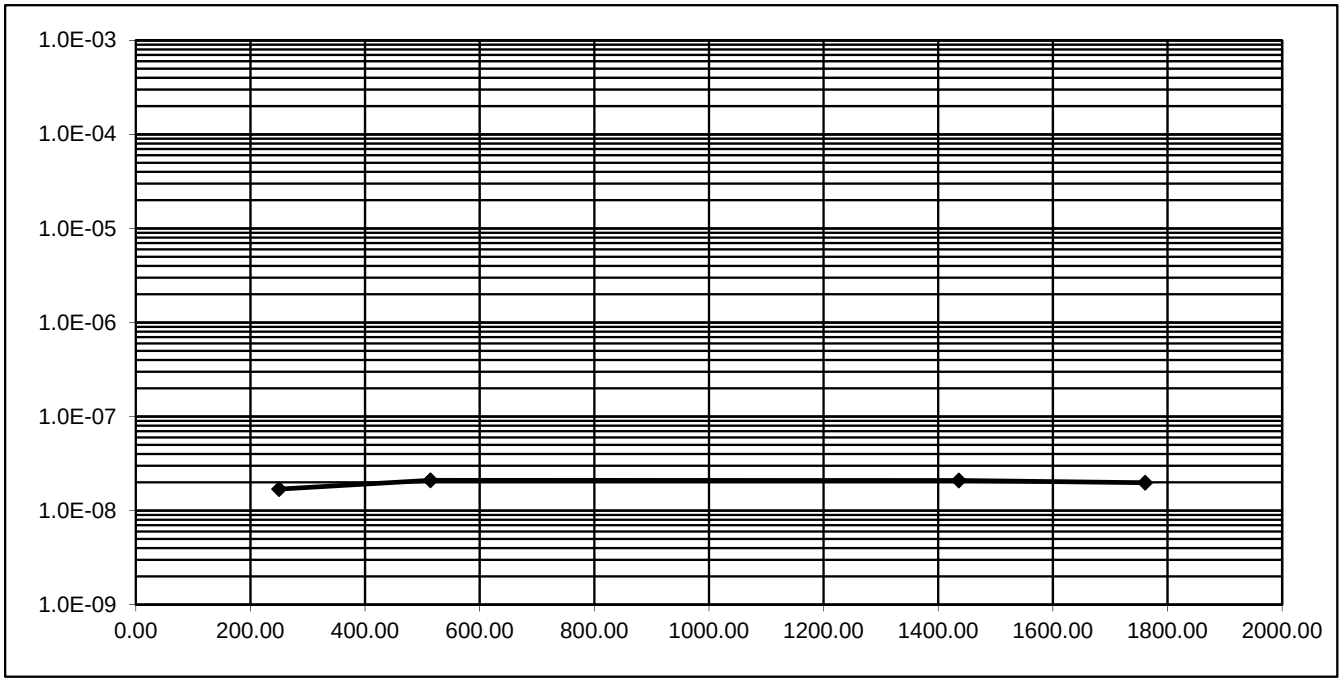
SPECIFIC GRAVITY:	2.70	RECOMPACTED?:	YES
SPECIFIC GRAVITY:	ASSUMED	PROCTOR, pcf:	NA
POROSITY, %:	NA	OPTIMUM, %:	NA
SATURATION, %:	NA	COMPACTION, %:	NA
VOID RATIO:	NA	OVER OPTIMUM, %:	NA

SATURATION:	LATERAL PRESS.:	104.0	psi	BACK PRESSURE (=UPPER=LOWER):	100.0	psi	
DURING TEST:	LATERAL PRESS.:	104.0	psi	H2: 100.0 psi	H1:	100.0	psi
				BIAS PRESSURE (=H1-H2)		0.0	psi

H1 VALUE	H2 VALUE	ELAPSED TIME, min	DELTA H cm	Ln H1/H2	HYD CON k, cm/sec	OUT FLOW cm^3	IN FLOW cm^3	OUT/IN RATIO	HYD GRAD	% FROM MEAN k	TEMP.: C	TEMP. CORR.:
13.0	61.9	0.00	48.9									
13.5	61.4	250.00	47.9	0.020662	1.69E-08	0.16	0.16	1.00	18.9	14	23.4	0.923
14.1	60.7	514.00	46.6	0.027515	2.10E-08	0.19	0.22	0.86	18.4	7	24.1	0.908
16.3	58.8	1436.00	42.5	0.092096	2.09E-08	0.69	0.59	1.16	16.8	6	22.5	0.942
17.0	58.2	1761.00	41.2	0.031066	1.98E-08	0.22	0.19	1.17	16.2	1	22.9	0.933

HYDRAULIC CONDUCTIVITY (k_{20}) = **AVERAGE 2.0E-08 cm/sec**

MAXIMUM	1.0E-03 TO	1.0E-04	2	0.75<	30	% < 25 AT
HYDRAULIC	1.0E-04 TO	1.0E-05	5	RATIO	MAX	> 1.0E-8
GRADIENT	1.0E-05 TO	1.0E-06	10	<1.25	HYDRAULIC	OR
	1.0E-06 TO	1.0E-07	20		GRADIENT	% < 50 AT
	less than	1.0E-07	30		ALLOWED	< 1.0E-8



Terracon