



# BNN DESIGN AND CONSULTANT CO.,LTD.

Soil Boring and Testing , Surveying , Geotechnical Structure and Slope Protection Design

## SUMMARY OF TEST RESULT

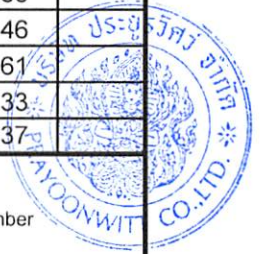
Project : ก่อสร้างถนน กาญจนภิเษก-พุทธมณฑล สาย2

Date of Boring : 18 พฤศจิกายน 2561

Location : พุทธมณฑล สาย2 เขตทวีวัฒนา กรุงเทพมหานคร

Boring : BH - 3 Page : 1

SAMPLE NUMBER	DEPTH (m.)		PHYSICAL PROPERTIES							ATTERBERG LIMITS			SOIL CLASSIFICATION	ENGINEERING PROPERTIES				
	FROM	TO	Wn (%)	$\gamma$ (t/m <sup>3</sup> )	% Passing					LL (%)	PL (%)	PI (%)		UCS (tsm.)	Qur (tsm.)	Qp (tsm.)	N (blows/ft)	Vs (tsm.)
					#4	#10	#40	#100	#200									
ST-1	1.50	2.00			FILL MATERIAL													
ST-2	3.00	3.50	78.87	1.65	100.00	100.00	99.76	99.54	99.30	84.18	36.29	47.89	CH	2.78				
ST-3	4.50	5.00	75.63	1.57	100.00	100.00	99.88	99.72	99.61	81.95	39.07	42.87	CH	1.67				
ST-4	6.00	6.50	72.29	1.59	100.00	100.00	99.87	99.62	99.35	82.90	41.14	41.76	CH	1.71				
ST-5	7.50	8.00	64.63	1.61	100.00	100.00	99.91	99.80	99.72	88.79	33.33	55.46	CH	1.86				
ST-6	9.00	9.50	64.81	1.63	100.00	100.00	99.78	99.63	99.48	70.85	22.66	48.19	CH	2.54				
ST-7	10.50	11.00	58.44	1.71	100.00	100.00	99.88	99.72	99.63	59.83	24.90	34.93	CH	3.54				
ST-8	12.00	12.50	64.17	1.73	100.00	100.00	99.69	99.25	98.48	67.99	32.34	35.65	CH	3.63				
ST-9	13.50	14.00	57.14	1.75	100.00	100.00	99.70	99.33	99.01	62.38	29.20	33.18	CH	6.05				
ST-10	15.00	15.45	47.27	1.78	100.00	100.00	83.45	50.17	37.29	44.11	28.96	15.15	SC	6.44				
SS-1	16.50	16.95			NO RECOVERY													16
SS-2	18.00	18.45	27.19		100.00	100.00	99.23	86.33	71.23	39.00	19.29	19.71	CL					22
SS-3	19.50	19.95	20.72		100.00	100.00	98.10	30.98	9.71		NP		SM					41
SS-4	21.00	21.45	19.01		100.00	100.00	98.76	20.38	8.37		NP		SP-SM					57
SS-5	22.50	22.95	22.16		100.00	99.38	69.00	8.63	3.65		NP		SP					70
SS-6	24.00	24.45	13.48		100.00	98.00	54.83	18.98	8.63		NP		SP-SM					65
SS-7	25.50	25.95			NO RECOVERY													46
SS-8	27.00	27.45			NO RECOVERY													61
SS-9	28.50	28.95	16.68		100.00	98.83	24.10	7.95	2.75		NP		SP					33
SS-10	30.00	30.45	16.56		100.00	93.50	43.77	10.25	4.60		NP		SP					37



**PHYSICAL PROPERTIES**

Wn = Natural Water Content

$\gamma$  = Bulk Unit Weight

**ATTERBERG LIMITS**

LL = Liquid Limit

PL = Plastic Limit

PI = Plasticity Index

**ENGINEERING PROPERTIES**

UCS = Unconfined Compressive Strength N = Standard Penetration Number

Qur = Remolded Shear Strength Vs = Vane Shear Strength

Qp = Pocket Penetrometer



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## SUMMARY OF TEST RESULT

Project : ก่อสร้างถนน กาญจนภิเษก-พุทธมณฑล สาย2

Date of Boring : 18 พฤศจิกายน 2561

Location : พุทธมณฑล สาย2 เขตทวีวัฒนา กรุงเทพมหานคร

Boring : BH - 3 Page : 2

SAMPLE NUMBER	DEPTH (m.)		PHYSICAL PROPERTIES							ATTERBERG LIMITS			SOIL CLASSIFICATION	ENGINEERING PROPERTIES					
	FROM	TO	Wn (%)	$\gamma$ ( $U/m^3$ )	% Passing					LL (%)	PL (%)	PI (%)		UCS (tsm.)	Qur (tsm.)	Qp (tsm.)	N (blows/ft)	Vs (tsm.)	
					#4	#10	#40	#100	#200										
SS-11	31.50	31.95	20.53		100.00	98.12	66.45	12.33	4.81		NP		SP				40		
SS-12	33.00	33.45	18.98		100.00	97.82	32.87	9.33	3.72		NP		SP				30		
SS-13	34.50	34.95	14.92		100.00	96.01	44.60	13.30	4.99		NP		SP				50		
SS-14	36.00	36.45	15.35		100.00	94.45	43.21	12.10	4.35		NP		SP				55		
SS-15	37.50	37.95	23.82		100.00	99.84	92.93	16.94	6.23		NP		SP-SM				85/5"		
SS-16	39.00	39.45	18.19		100.00	90.00	52.89	11.78	5.07		NP		SP-SM				55		
SS-17	40.50	40.95	16.35		100.00	94.71	49.59	13.00	6.33		NP		SP-SM				56		
SS-18	42.00	42.45	22.18		90.00	73.11	60.23	36.21	16.89	26.38	14.85	11.53	SC				58		
SS-19	43.50	43.95	17.18		100.00	92.03	38.39	9.21	3.42		NP		SP				90/6"		
SS-20	45.00	45.45	16.05		100.00	98.07	50.72	16.21	7.31		NP		SP-SM				92/5"		
SS-21	46.50	46.95	19.15		100.00	93.56	37.59	7.76	2.96		NP		SP				65		
SS-22	48.00	48.45	18.60		100.00	98.46	48.41	13.25	5.71		NP		SP-SM				68		
SS-23	49.50	49.95	14.83		100.00	92.05	32.99	9.69	4.35		NP		SP				60		
SS-24	51.00	51.45	13.58		100.00	91.34	45.56	15.90	7.45		NP		SP-SM				52		
SS-25	52.50	52.95	19.64		100.00	100.00	99.34	86.30	64.26	35.44	19.03	16.41	CL				54		
SS-26	54.00	54.45	26.01		100.00	100.00	99.39	71.96	68.78	26.00	15.28	10.72	CL				25		
SS-27	55.50	55.95	20.51		100.00	97.82	76.08	21.65	6.90		NP		SP-SM				65		
SS-28	57.00	57.45	19.85		100.00	96.97	49.43	10.86	4.48		NP		SP				50/6"		
SS-29	58.50	58.95																50/4"	
SS-30	60.00	60.45	16.21		100.00	97.75	50.84	13.34	5.75		NP		SP-SM				50/5"		

### PHYSICAL PROPERTIES

Wn = Natural Water Content

$\gamma$  = Bulk Unit Weight

### ATTERBERG LIMITS

LL = Liquid Limit

PL = Plastic Limit

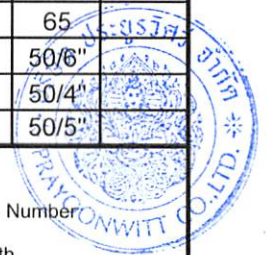
PI = Plasticity Index

### ENGINEERING PROPERTIES

UCS = Unconfined Compressive Strength N = Standard Penetration Number

Qur = Remolded Shear Strength Vs = Vane Shear Strength

Qp = Pocket Penetrometer







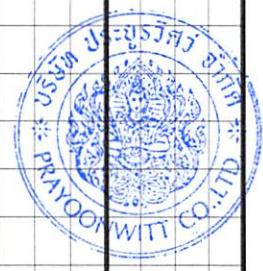
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## LOG OF BORING

Project : ก่อสร้างถนน กาญจนภิเษก-พุทธมณฑล สาย2 Boring No. BH - 3 Tested by N.Winit Page 1  
 Location : พุทธมณฑล สาย2 เขตทวีวัฒนา กรุงเทพมหานคร Started 18 พฤศจิกายน 2561 Checked by W.Jakrabhan  
 N 1,520,856 E 650,906 Finished 19 พฤศจิกายน 2561 GWL. -2.50 m

Depth (m)	Sample No.	Type Of Sample	Sample Distance	Recovery	Soil Description	Graphic Log	Water Content (%)			SPT - N (Blows/ft)			Soil Shear Strength			Total Density (t/m <sup>3</sup> )				
							o	x	+	20	40	60	80	100	25	50	75	o	□	FVT
1		WO			FILL MATERIAL															
2	1	ST																		
3		WO																		
4	2	ST			Very Soft to Soft CLAY, grey (CH)		X		G+										▲	
5	3	ST					X		O+											▲
6		WO					X		O+											▲
7	4	ST					X		O+											▲
8		WO					X		O+											▲
9	5	ST			Soft to Medium CLAY, grey (CH)		X		O+										▲	
10	6	ST					X		O+											▲
11		WO					X		O+											▲
12	7	ST					X		O+											▲
13		WO					X		O+											▲
14	8	ST			Medium Dense Clayey SAND, brown (SC)		X		O+										▲	
15		WO					X		O+											▲
16	10	ST					X		O+											▲
17		WO					X		O+											▲
18	1	SS		No Recovery			Dense to Very Dense Poorly-graded Silty SAND, brown (SM), (SP-SM), (SP)													
19	2	SS																		▲
20		WO																		▲
21	3	SS																		▲
22		WO																		▲
23	4	SS																		▲
24		WO																		▲
25	5	SS																		▲
26		WO																		▲
27	6	SS		No Recovery																▲
28		WO																▲		
29	7	SS		No Recovery														▲		
30		WO																▲		
31	8	SS		No Recovery														▲		
32		WO																▲		
33	9	SS																▲		
34		WO																▲		
35	10	SS																▲		

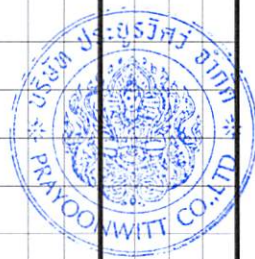




## LOG OF BORING

Project : ก่อสร้างถนน กาญจนภิเษก-พุทธมณฑล สาย2      Boring No. BH - 3      Tested by N.Winit      Page 2  
 Location : พุทธมณฑล สาย2 เขตทวีวัฒนา กรุงเทพมหานคร      Started 18 พฤศจิกายน 2561      Checked by W.Jakrabhan  
 N 1,520,856      E 650,906      Finished 19 พฤศจิกายน 2561      GWL. -2.50 m

Depth (m)	Sample No.	Type Of Sample	Sample Distance	Recovery	Soil Description	Graphic Log	Water Content (%)		SPT - N		Soil Shear Strength			Total Density								
							o	x	(Blows/ft)	o UCS	□ FVT	X PP	△ TV	(t/m <sup>3</sup> )								
							20	40	60	80	100	25	50	75	3	6	9	1.4	1.8	2.2		
10	10	SS			(Same as Above) Dense to Very Dense Poorly-graded Silty SAND, brown (SM), (SP-SM), (SP)							◇ 37										
31		WO																				
32	11	SS												◇ 40								
33		WO																				
34	12	SS												◇ 30								
35		WO																				
36	13	SS												◇ 50								
37		WO																				
38	14	SS												◇ 55								
39		WO																				
40	15	SS												85/5"◇								
41		WO																				
42	16	SS												◇ 55								
43		WO																				
44	17	SS			Very Dense Clayey SAND with gravel, brown (SC)							◇ 58										
45		WO																				
46	19	SS			Very Dense Poorly-graded Silty SAND, brown (SP), (SP-SM)							90/6"◇										
47		WO																				
48	20	SS												92/5"◇								
49		WO																				
50	21	SS												◇ 65								
51		WO																				
52	22	SS												◇ 68								
53		WO																				
54	23	SS			Very Stiff to Hard Sandy CLAY, brown (CL)							◇ 60										
55		WO																				
56	24	SS												◇ 52								
57		WO																				
58	25	SS										◇ 54										
59		WO																				
60	26	SS										◇ 25										
61		WO																				
62	27	SS										◇ 65										
63		WO																				
64	28	SS			Very Dense Poorly-graded Silty SAND, brown (SP-SM), (SP)							◇ 50/6"										
65		WO																				
66	29	SS		No Recovery										◇ 50/4"								
67		WO																				
68	30	SS										◇ 50/5"										



END OF BORING (60.45) m