

Summary of Test Results (page 1 of 2)

| Sample No. |       | Depth (m) | W <sub>n</sub> (%) | Atterberg Limits (%) |      |      | Sieve Analysis % Passing (US Standard Sieve) |      |      |             |     | USCS Group <sup>a</sup> | Soil Strength (kN/m <sup>2</sup> ) |      | Unit <sup>d</sup> Weight (kN/m <sup>3</sup> ) | SPT-N <sup>e</sup> (Blows/ 300 mm) | Land mark    |
|------------|-------|-----------|--------------------|----------------------|------|------|----------------------------------------------|------|------|-------------|-----|-------------------------|------------------------------------|------|-----------------------------------------------|------------------------------------|--------------|
|            |       |           |                    |                      |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    |              |
|            |       |           |                    | LL                   | PL   | PI   | 1" 3/4"                                      | 1/2" | 3/8" | #4          | #10 | #40                     | #100                               | #200 |                                               |                                    |              |
| ST-1       | 1.00  | 2.00      |                    |                      |      |      |                                              |      |      | No Recovery |     |                         |                                    |      |                                               |                                    |              |
| ST-2       | 3.00  | 3.50      |                    |                      |      |      |                                              |      |      | No Recovery |     |                         |                                    |      |                                               |                                    |              |
| ST-3       | 4.50  | 5.00      |                    |                      |      |      |                                              |      |      | No Recovery |     |                         |                                    |      |                                               |                                    |              |
| ST-4       | 6.00  | 6.50      |                    |                      |      |      |                                              |      |      | No Recovery |     |                         |                                    |      |                                               |                                    |              |
| ST-5       | 7.50  | 8.00      |                    |                      |      |      |                                              |      |      | No Recovery |     |                         |                                    |      |                                               |                                    |              |
| ST-6       | 9.00  | 9.50      | 75.9               | 78.9                 | 30.2 | 48.7 |                                              |      |      |             |     | 100                     | 99                                 | 98   | 0.0                                           | 20.0                               | 15.2         |
| ST-7       | 10.50 | 11.00     | 79.2               | 77.0                 | 34.2 | 42.8 |                                              |      |      |             |     | 100                     | 99                                 |      | 0.0                                           | 20.0                               | 14.8         |
| ST-8       | 12.00 | 12.50     | 70.7               | 72.7                 | 31.6 | 41.1 |                                              |      |      |             |     | 100                     | 99                                 |      | 0.0                                           | 28.0                               | 16.1         |
| ST-9       | 13.50 | 14.00     | 62.3               | 77.1                 | 34.1 | 43.0 |                                              |      |      |             |     | 100                     | 99                                 |      | 0.0                                           | 30.0                               | 16.2         |
| ST-10      | 15.00 | 15.50     |                    |                      |      |      |                                              |      |      | No Recovery |     |                         |                                    |      |                                               |                                    |              |
| SS-1       | 15.50 | 15.95     | 33.8               | Insufficient Sample  |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 28           |
| SS-2       | 16.50 | 16.95     | 31.9               | 56.0                 | 28.6 | 27.4 |                                              |      |      |             |     | 100                     | 99                                 | 98   |                                               |                                    | 35           |
| SS-3       | 18.00 | 18.45     | 22.0               | Insufficient Sample  |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 36           |
| SS-4       | 19.50 | 19.95     | 22.1               | 63.8                 | 30.4 | 33.4 |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 20           |
| SS-5       | 21.00 | 21.45     | 19.8               | 28.9                 | 17.7 | 11.2 |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 25           |
| SS-6       | 22.50 | 22.95     | 15.9               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 45           |
| SS-7       | 24.00 | 24.45     | 14.4               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 56           |
| SS-8       | 25.50 | 25.95     | 15.7               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 65           |
| SS-9       | 27.00 | 27.45     | 13.5               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 50           |
| SS-10      | 28.50 | 28.95     | 15.5               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 65           |
| SS-11      | 30.00 | 30.45     | 13.2               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 59           |
| SS-12      | 31.50 | 31.95     | 29.0               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 73           |
| SS-13      | 33.00 | 33.45     | 21.0               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 79           |
| SS-14      | 34.50 | 34.95     | 16.6               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 65           |
| SS-15      | 36.00 | 36.45     | 15.8               | Non Plastic          |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 35,50/150, - |
| SS-16      | 37.30 | 37.75     | 20.4               | 39.6                 | 18.6 | 21.0 |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 54           |
| SS-17      | 39.00 | 39.45     | 18.3               | Insufficient Sample  |      |      |                                              |      |      |             |     |                         |                                    |      |                                               |                                    | 59           |

Notes:

<sup>a</sup> USCS groups provided in parenthesis are from visual classification

<sup>b</sup> P<sub>uc</sub> = Pocket Penetrometer Resistance

<sup>c</sup> S<sub>uc</sub> = q<sub>u</sub>/2, where q<sub>u</sub> is Unconfined Compressive Strength from Unconfined Compression Test

<sup>d</sup> Unit Weight provided for split spoon samples (SS) are for disturbed samples from SPT tests.

<sup>e</sup> If the sampler is driven less than 450 mm, the number of blows per each complete and partial (less than or equal to 150 mm) increments were recorded.

Summary of Test Results (page 2 of 2)

Land mark

BH-11

| Sample No. | Depth (m) | W <sub>n</sub> (%) | Atterberg Limits |                     |      | Sieve Analysis                |      |      |      |    |     |     | USCS Group <sup>a</sup> | Soil Strength        |                                      | Unit <sup>d</sup> Weight (kN/m <sup>3</sup> ) | SPT-N <sup>e</sup> (Blows/ 300 mm) |                              |
|------------|-----------|--------------------|------------------|---------------------|------|-------------------------------|------|------|------|----|-----|-----|-------------------------|----------------------|--------------------------------------|-----------------------------------------------|------------------------------------|------------------------------|
|            |           |                    | (%)              |                     |      | % Passing (US Standard Sieve) |      |      |      |    |     |     |                         | (kN/m <sup>2</sup> ) | P <sub>uc</sub> <sup>b</sup> Torvane |                                               |                                    | S <sub>uc</sub> <sup>c</sup> |
|            |           |                    | LL               | PL                  | PI   | 1"                            | 3/4" | 1/2" | 3/8" | #4 | #10 | #40 |                         |                      |                                      |                                               |                                    |                              |
| SS- 18     | 40.50     | 40.95              | 18.0             | 32.0                | 17.6 | 14.4                          |      |      |      |    |     |     | 100                     | 98                   | 91                                   | 20.3                                          | 69                                 |                              |
| SS- 19     | 42.00     | 42.45              | 19.5             | 30.6                | 16.5 | 14.1                          |      |      |      |    |     |     | 100                     | 98                   |                                      | -                                             | 57                                 |                              |
| SS- 20     | 43.50     | 43.95              | 19.8             | Non Plastic         |      |                               |      |      |      |    |     |     | 100                     | 55                   | 36                                   | -                                             | 43                                 |                              |
| SS- 21     | 45.00     | 45.45              | 21.2             | Non Plastic         |      |                               |      |      |      |    |     |     | 100                     | 23                   | 18                                   | -                                             | 50/150, -, -                       |                              |
| SS- 22     | 46.50     | 46.95              | 25.6             | Non Plastic         |      |                               |      |      |      |    |     |     | 100                     | 13                   | 12                                   | -                                             | 50/100, -, -                       |                              |
| SS- 23     | 48.00     | 48.45              | 13.8             | Non Plastic         |      |                               |      |      |      |    |     | 100 | 90                      | 31                   | 24                                   | -                                             | 50/150, -, -                       |                              |
| SS- 24     | 49.50     | 49.95              | 11.6             | Non Plastic         |      |                               |      |      |      |    |     | 100 | 73                      | 33                   | 25                                   | -                                             | 50/125, -, -                       |                              |
| SS- 25     | 51.00     | 51.45              | 21.8             | 47.3                | 23.1 | 24.2                          |      |      |      |    |     | 100 | 98                      | 96                   |                                      | 20.0                                          | 68                                 |                              |
| SS- 26     | 52.50     | 52.95              | 19.1             | Insufficient Sample |      |                               |      |      |      |    |     | 100 | 76                      | 60                   |                                      | -                                             | 50/150, -, -                       |                              |
| SS- 27     | 54.00     | 54.45              | 16.0             | 27.9                | 19.2 | 8.7                           |      |      |      |    |     | 100 | 99                      | 69                   | 54                                   | 20.8                                          | 50/125, -, -                       |                              |
| SS- 28     | 55.50     | 55.95              | 20.5             | Insufficient Sample |      |                               |      |      |      |    |     | 100 | 99                      | 84                   | 70                                   | -                                             | 50/75, -, -                        |                              |
| SS- 29     | 57.00     | 57.45              | 17.6             | Non Plastic         |      |                               |      |      |      |    |     | 100 | 99                      | 84                   | 18                                   | 13                                            | -                                  | 50/50, -, -                  |
| SS- 30     | 58.50     | 58.95              | 20.1             | Non Plastic         |      |                               |      |      |      |    |     | 100 | 99                      | 68                   | 18                                   | 14                                            | -                                  | 50/150, -, -                 |
| SS- 31     | 60.00     | 60.45              | 17.8             | Non Plastic         |      |                               |      |      |      |    |     | 100 | 98                      | 72                   | 18                                   | 13                                            | -                                  | 50/75, -, -                  |

Notes:

<sup>a</sup> USCS groups provided in parenthesis are from visual classification

<sup>b</sup> P<sub>uc</sub> = Pocket Penetrometer Resistance

<sup>c</sup> S<sub>uc</sub> = q<sub>u</sub>/2; where q<sub>u</sub> is Unconfined Compressive Strength from Unconfined Compression Test

<sup>d</sup> Unit Weight provided for split spoon samples (SS) are for disturbed samples from SPT tests.

<sup>e</sup> If the sampler is driven less than 450 mm, the number of blows per each complete and partial (less than or equal to 150 mm) increments were recorded.



# Borehole Number : BH-11

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**Project :** โครงการสำรวจออกแบบและจัดทำแผนแม่บทเพื่อพัฒนาริมฝั่งแม่น้ำเจ้าพระยา

**Site Location :** วัดแก้วฟ้าจุฬามณี

**Latitude (N) :** 13.79852

**Ground Elevation (m) :**

**Longitude (E) :** 100.51765

**G.W.L (m) :** 2.00

**Date Started :** 14/5/2559

**Total Depth (m) :** 60.45

**Date Finished :** 17/5/2559

| Depth | SAMPLE |      |                                                                                  | SUBSURFACE PROFILE |        | Atterberg Limits<br>(%)<br>20 40 60 80 100 | Unit Weight<br>5 15 | Suc<br>(kN/m^2)<br>▲ 20 40 60 80 ▲      |  |
|-------|--------|------|----------------------------------------------------------------------------------|--------------------|--------|--------------------------------------------|---------------------|-----------------------------------------|--|
|       | Symbol | Type | Number                                                                           | Description        | Symbol |                                            |                     | SPT-N<br>□(Blows/300mm)□<br>20 40 60 80 |  |
|       |        |      |                                                                                  |                    |        |                                            |                     |                                         |  |
| 32    | SS     | 12   | Dense to very dense silty SAND, grey and brown, very fine to medium grained (SM) |                    | □      |                                            |                     | 73                                      |  |
| 33    | SS     | 13   | Dense to very dense silty SAND, grey and brown, very fine to medium grained (SM) |                    | □      |                                            |                     | 79                                      |  |
| 34    | SS     | 14   |                                                                                  |                    | □      |                                            |                     | 65                                      |  |
| 35    | SS     | 15   |                                                                                  |                    | □      |                                            |                     | 50/150                                  |  |
| 36    | SS     | 15   |                                                                                  |                    | □      |                                            |                     |                                         |  |
| 37    | SS     | 16   | Hard silty CLAY, brownish grey, low plasticity (CL)                              | 37.00              | ▬      |                                            |                     | 54                                      |  |
| 38    | SS     | 17   |                                                                                  |                    | □      |                                            |                     | 59                                      |  |
| 39    | SS     | 18   |                                                                                  |                    | ▬      |                                            | ●                   | 69                                      |  |
| 40    | SS     | 19   |                                                                                  |                    | ▬      |                                            |                     | 57                                      |  |
| 41    | SS     | 20   | Very dense silty SAND, grey, fine to medium grained (SM, SP-SM)                  | 43.00              | □      |                                            |                     | 43                                      |  |
| 42    | SS     | 21   |                                                                                  |                    | □      |                                            |                     | 50/150                                  |  |
| 43    | SS     | 22   |                                                                                  |                    | □      |                                            |                     | 50/100                                  |  |
| 44    | SS     | 23   |                                                                                  |                    | □      |                                            |                     | 50/150                                  |  |
| 45    | SS     | 24   |                                                                                  |                    | □      |                                            |                     | 50/125                                  |  |
| 46    | SS     | 25   | Hard silty CLAY, grey, low plasticity (CL)                                       | 50.50              | ▬      |                                            | ●                   | 68                                      |  |
| 47    | SS     | 26   |                                                                                  |                    | □      |                                            |                     | 50/150                                  |  |
| 48    | SS     | 27   |                                                                                  |                    | ▬      |                                            | ●                   | 50/125                                  |  |
| 49    | SS     | 28   |                                                                                  |                    | □      |                                            |                     | 50/75                                   |  |
| 50    | SS     | 29   | Very dense silty SAND, brown, fine to medium grained (SM)                        | 56.50              | □      |                                            |                     | 50/50                                   |  |
| 51    | SS     | 30   |                                                                                  |                    | □      |                                            |                     | 50/150                                  |  |
| 52    | SS     | 31   |                                                                                  |                    | □      |                                            |                     | 50/75                                   |  |
| 53    | SS     | 31   | End of Borehole                                                                  | 60.45              |        |                                            |                     |                                         |  |
| 54    | SS     | 31   |                                                                                  |                    |        |                                            |                     |                                         |  |
| 55    | SS     | 31   |                                                                                  |                    |        |                                            |                     |                                         |  |
| 56    | SS     | 31   |                                                                                  |                    |        |                                            |                     |                                         |  |
| 57    | SS     | 31   |                                                                                  |                    |        |                                            |                     |                                         |  |
| 58    | SS     | 31   |                                                                                  |                    |        |                                            |                     |                                         |  |
| 59    | SS     | 31   |                                                                                  |                    |        |                                            |                     |                                         |  |
| 60    | SS     | 31   |                                                                                  |                    |        |                                            |                     |                                         |  |
| 61    | SS     | 31   |                                                                                  |                    |        |                                            |                     |                                         |  |
| 62    | SS     | 31   |                                                                                  |                    |        |                                            |                     |                                         |  |

Thin wall tube

Split spoon

Rock core

Wash

Auger

PL

Wn

LL

Atterberg Limits :

Suc : Undrained shear strength from UC test

Thin wall tube  
Split spoon  
Rock core  
Wash  
Auger

Atterberg Limits : PL Wn LL

Suc : Undrained shear strength from UC test

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