# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

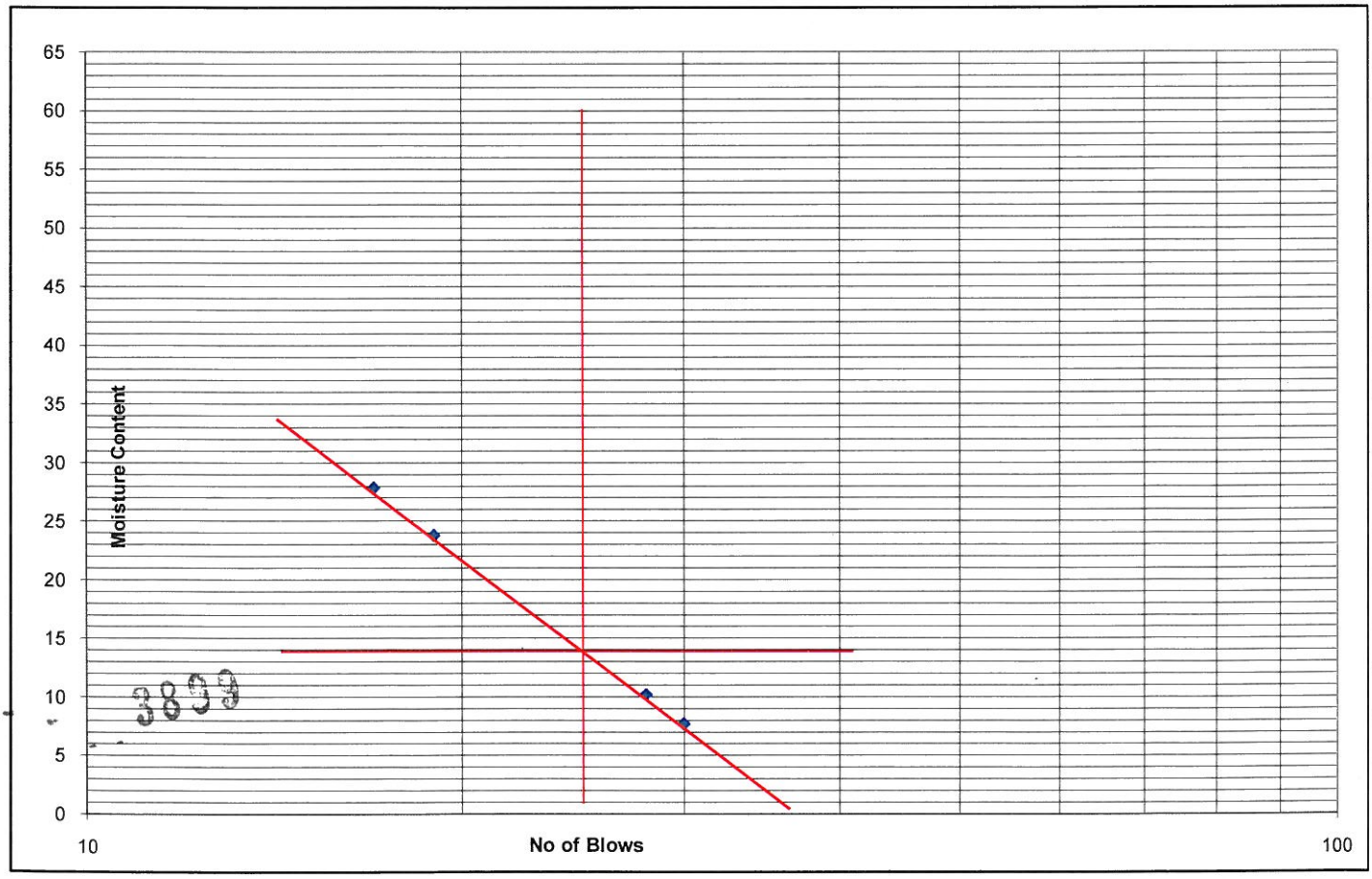
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 12.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 3.0m | Tested by | : | D.Mohanty |

| Number of Blows | 30 | 28 | 19 | 17 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | E13 | E14 | E15 | E16 | NP | |
| Container Weight (gm) (W1) | 32.58 | 37.21 | 33.14 | 35.42 | | |
| Container + Wt. of wet soil (gm) (W2) | 81.30 | 94.03 | 98.78 | 101.61 | | |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 77.82 | 88.76 | 86.17 | 87.20 | | |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 3.48 | 5.26 | 12.61 | 14.42 | | |
| Wt. of oven dry soil (gm) (W3-W1) | 45.24 | 51.55 | 53.03 | 51.78 | | |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **7.69** | **10.21** | **23.77** | **27.84** | | |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 14 | % |
| Plastic Limit (Wp) | _ | % |
| Plasticity Index (Ip) | _ | % |



# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

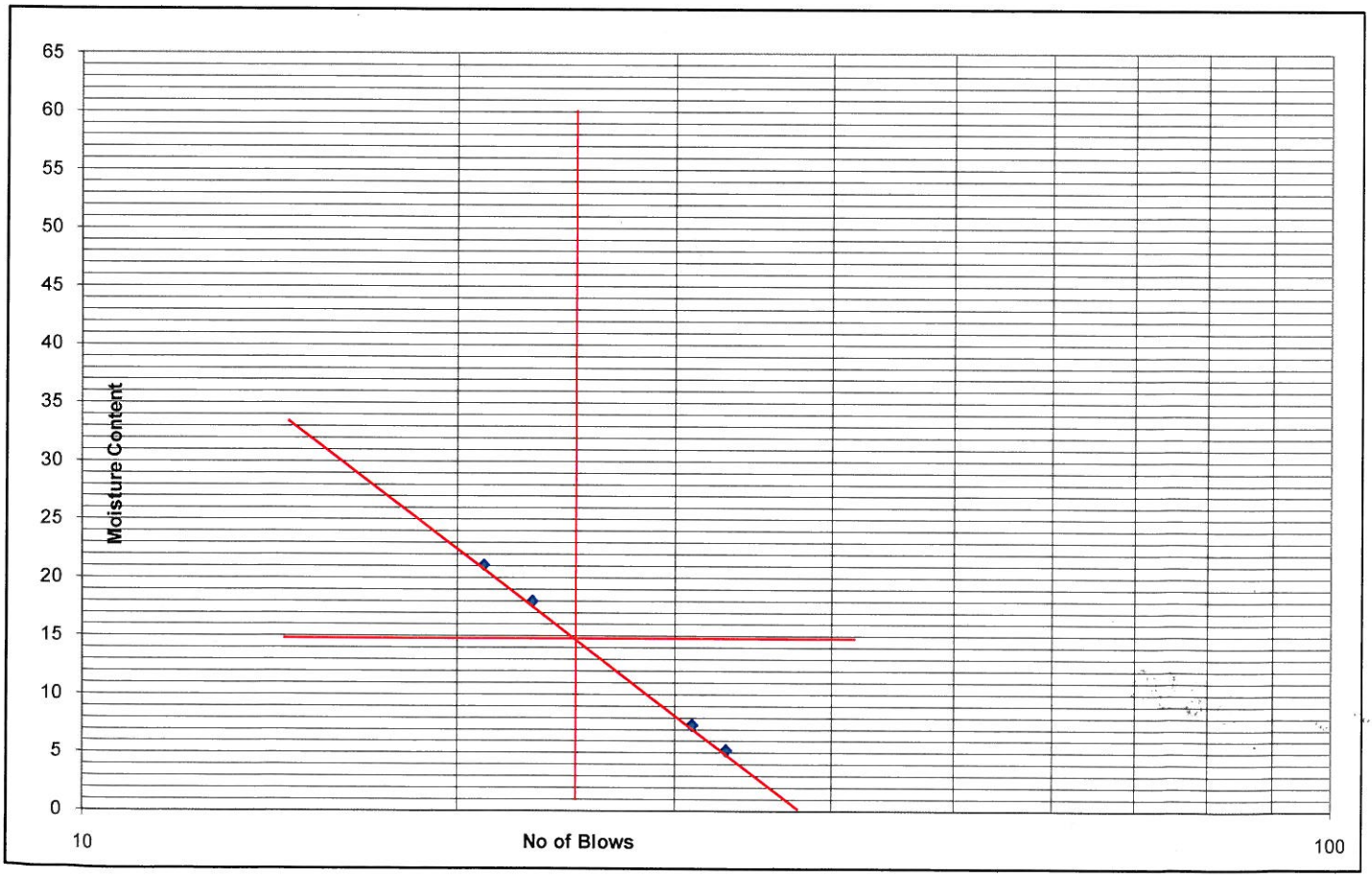
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 12.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 4.5m | Tested by | : | D.Mohanty |

| Number of Blows | 33 | 31 | 23 | 21 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | E25 | E26 | E27 | E28 | NP | |
| Container Weight (gm) (W1) | 33.6 | 34.2 | 36.7 | 32.65 | | |
| Container + Wt. of wet soil (gm) (W2) | 80.28 | 92.94 | 94.70 | 98.84 | | |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 77.97 | 88.89 | 85.87 | 87.30 | | |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 2.31 | 4.05 | 8.83 | 11.54 | | |
| Wt. of oven dry soil (gm) (W3-W1) | 44.37 | 54.69 | 49.17 | 54.65 | | |
| Moisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100 | **5.21** | **7.40** | **17.96** | **21.11** | | |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 15 | % |
| Plastic Limit (Wp) | _ | % |
| Plasticity Index (Ip) | _ | % |

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# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

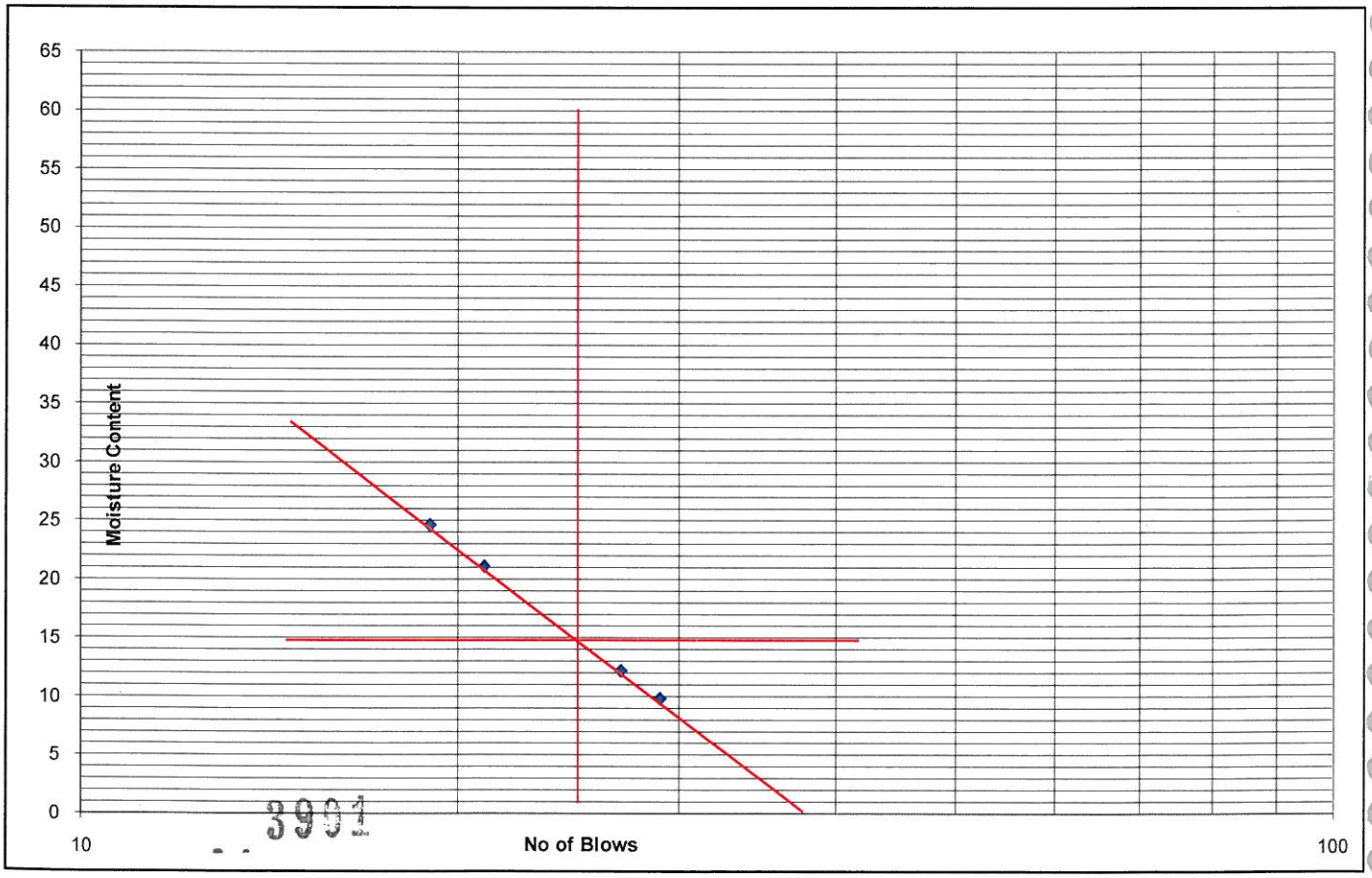
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 12.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 6.0m | Tested by | : | D.Mohanty |

| Number of Blows | 29 | 27 | 21 | 19 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | E7 | E8 | E9 | E10 | NP | |
| Container Weight (gm) (W1) | 30.44 | 36.34 | 37.83 | 32.28 | | |
| Container + Wt. of wet soil (gm) (W2) | 82.69 | 95.40 | 96.20 | 101.27 | | |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.02 | 88.97 | 86.04 | 87.63 | | |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 4.67 | 6.42 | 10.16 | 13.63 | | |
| Wt. of oven dry soil (gm) (W3-W1) | 47.58 | 52.63 | 48.21 | 55.35 | | |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **9.81** | **12.20** | **21.08** | **24.63** | | |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 15 | % |
| Plastic Limit (Wp) | _ | % |
| Plasticity Index (Ip) | _ | % |

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# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

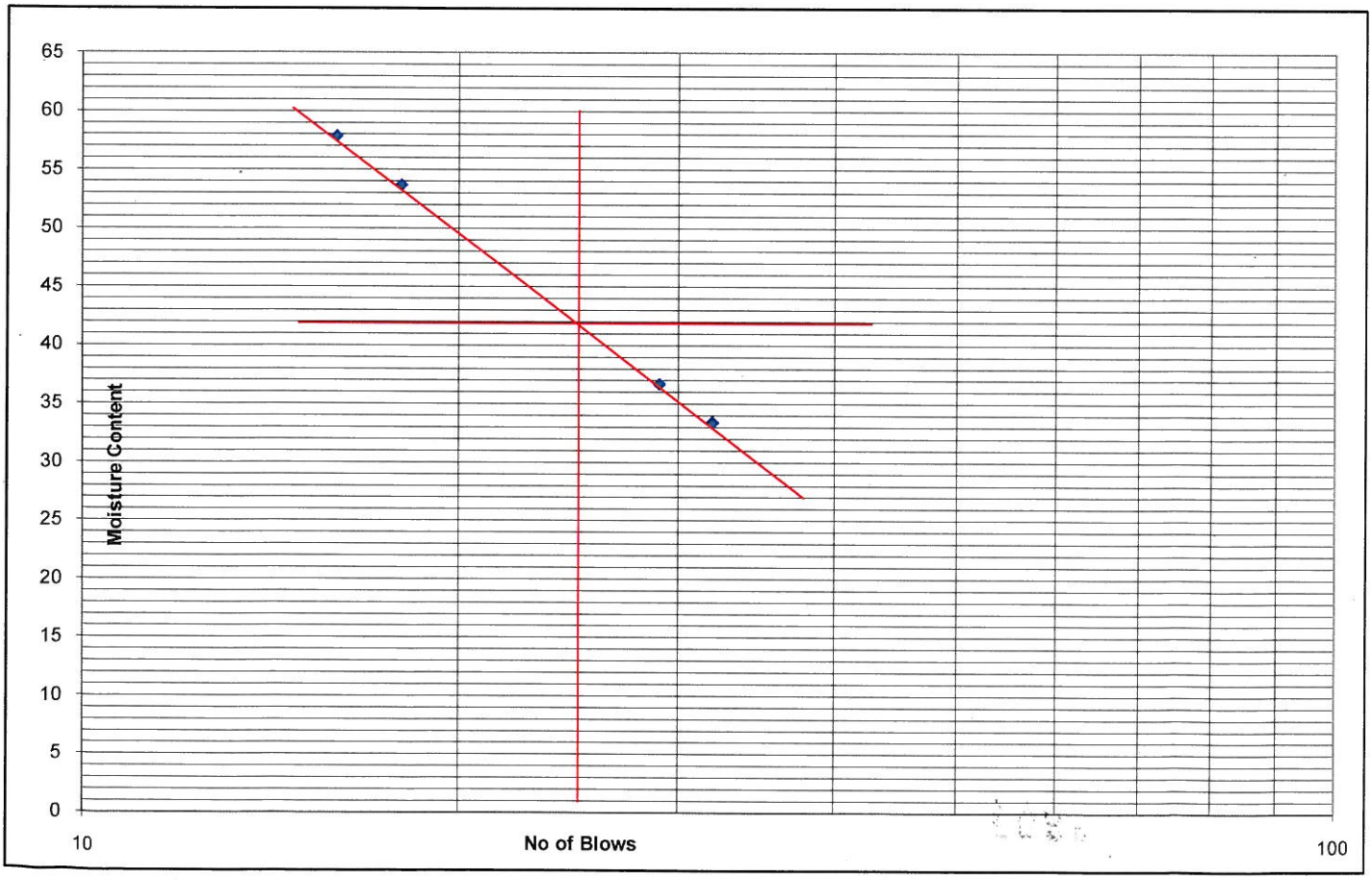
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 12.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 9.0m | Tested by | : | D.Mohanty |

| Number of Blows | 32 | 29 | 18 | 16 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | E31 | E32 | E33 | E34 | E35 | E36 |
| Container Weight (gm) (W1) | 30.8 | 35.09 | 32.47 | 31.56 | 36.29 | 30.99 |
| Container + Wt. of wet soil (gm) (W2) | 93.86 | 108.55 | 115.33 | 120.63 | 98.87 | 93.12 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.08 | 88.83 | 86.39 | 87.99 | 88.38 | 82.84 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 15.79 | 19.72 | 28.94 | 32.64 | 10.49 | 10.28 |
| Wt. of oven dry soil (gm) (W3-W1) | 47.28 | 53.74 | 53.92 | 56.43 | 52.09 | 51.85 |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **33.39** | **36.70** | **53.67** | **57.84** | **20.13** | **19.83** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 42 | % |
| Plastic Limit (Wp) | 20 | % |
| Plasticity Index (Ip) | 22 | % |




3902

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

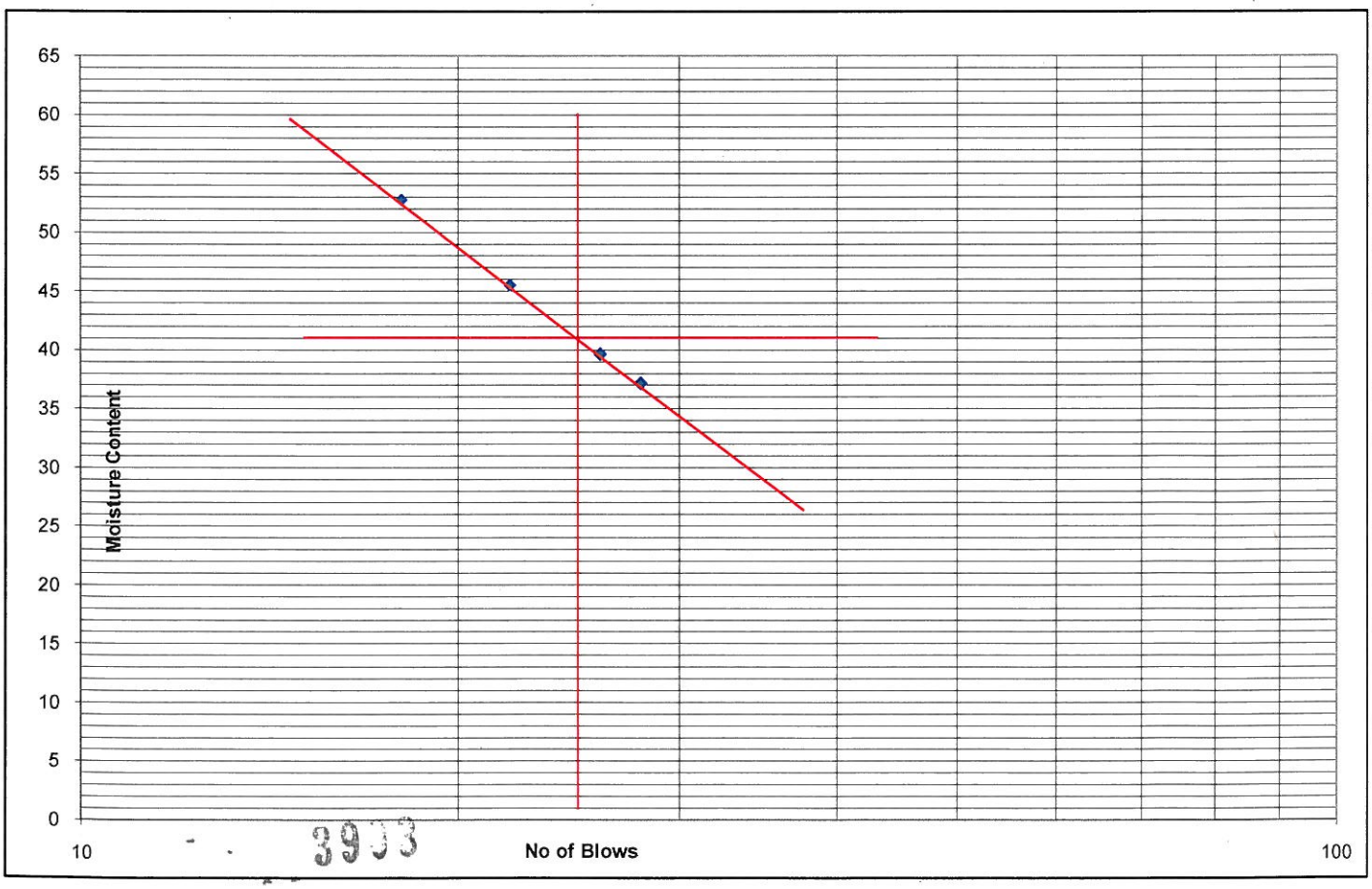
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 12.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 10.5m | Tested by | : | D.Mohanty |

| Number of Blows | 28 | 26 | 22 | 18 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | E19 | E20 | E21 | E22 | E23 | E24 |
| Container Weight (gm) (W1) | 31.69 | 35.24 | 37.88 | 34.61 | 35.8 | 32.51 |
| Container + Wt. of wet soil (gm) (W2) | 95.46 | 110.15 | 109.55 | 115.96 | 98.31 | 92.77 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.19 | 88.89 | 87.13 | 87.86 | 88.35 | 83.31 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 17.28 | 21.26 | 22.42 | 28.10 | 9.95 | 9.46 |
| Wt. of oven dry soil (gm) (W3-W1) | 46.50 | 53.65 | 49.25 | 53.25 | 52.55 | 50.80 |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **37.16** | **39.62** | **45.52** | **52.77** | **18.94** | **18.62** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 41 | % |
| Plastic Limit (Wp) | 19 | % |
| Plasticity Index (Ip) | 22 | % |



# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

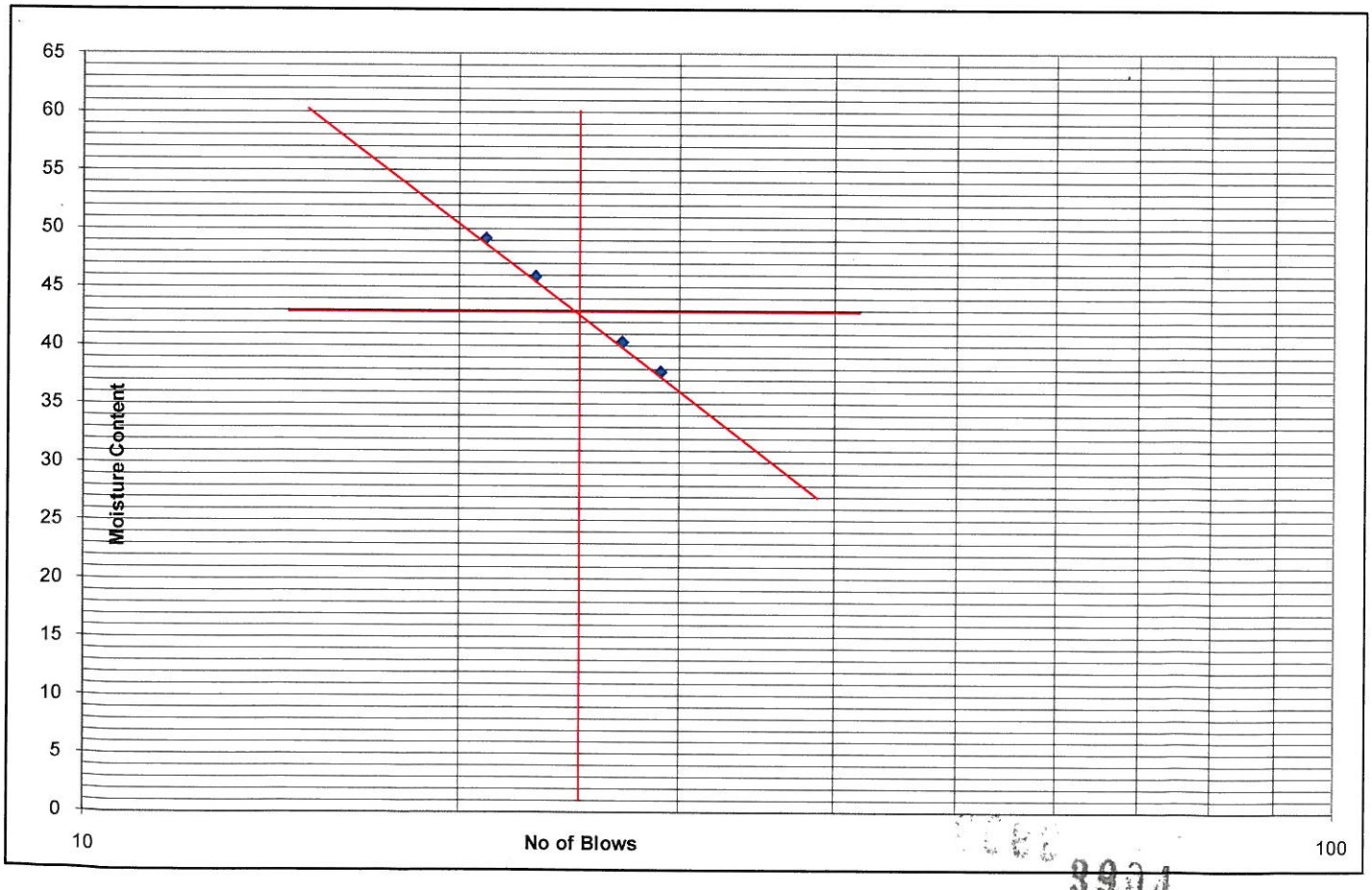
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 12.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 13.5m | Tested by | : | D.Mohanty |

| Number of Blows | 29 | 27 | 23 | 21 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | E5 | E6 | E17 | E18 | E29 | E30 |
| Container Weight (gm) (W1) | 35.8 | 32.51 | 31.85 | 36.97 | 31.26 | 30.12 |
| Container + Wt. of wet soil (gm) (W2) | 94.21 | 111.78 | 112.77 | 113.05 | 100.67 | 91.96 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.21 | 89.03 | 87.33 | 87.97 | 88.32 | 82.35 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 16.00 | 22.75 | 25.44 | 25.08 | 12.34 | 9.61 |
| Wt. of oven dry soil (gm) (W3-W1) | 42.41 | 56.52 | 55.48 | 51.00 | 57.06 | 52.23 |
| Moisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100 | **37.72** | **40.26** | **45.86** | **49.18** | **21.63** | **18.40** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 43 | % |
| Plastic Limit (Wp) | 20 | % |
| Plasticity Index (Ip) | 23 | % |




3904

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

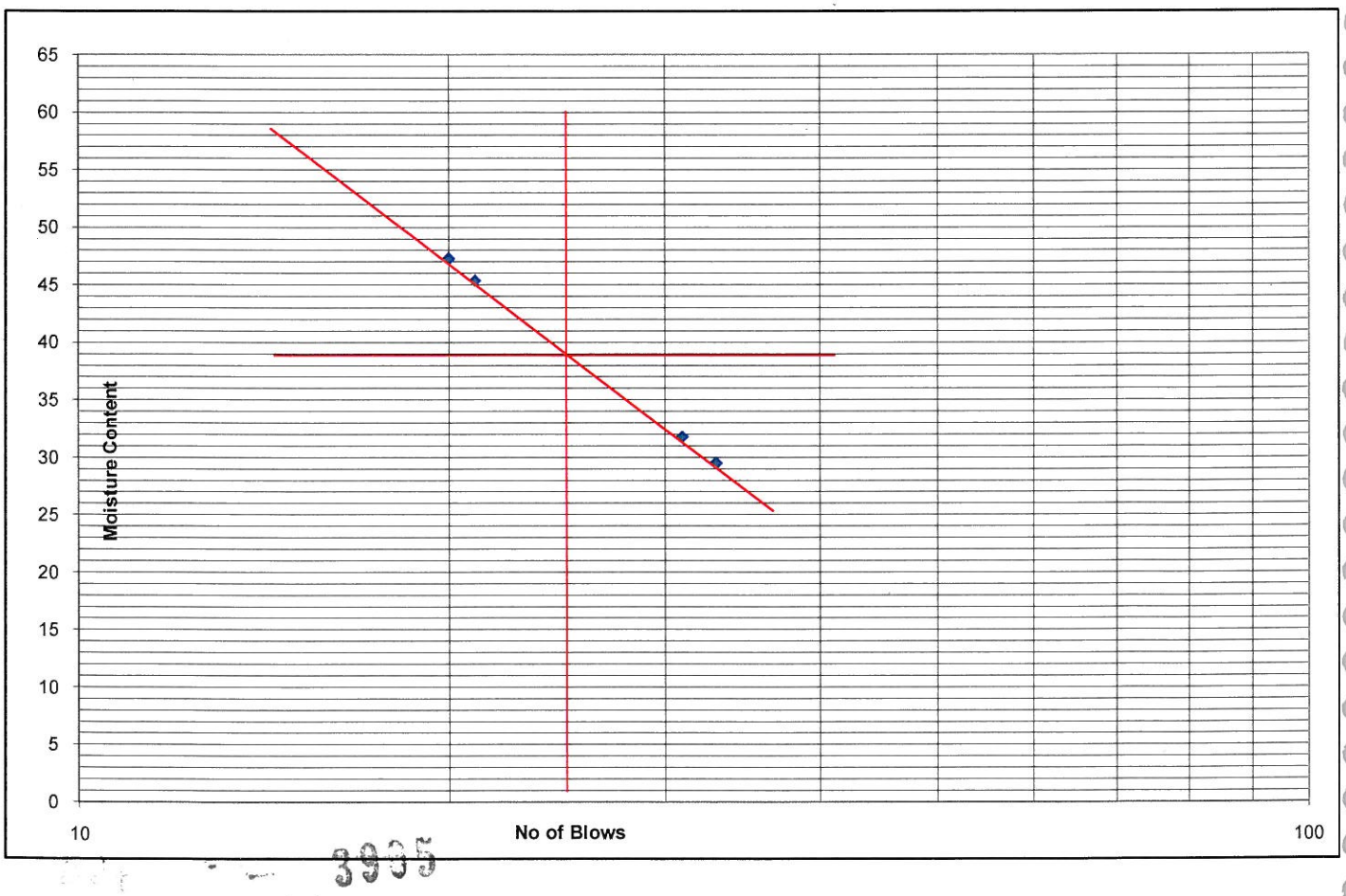
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 12.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 16.5m | Tested by | : | D.Mohanty |

| Number of Blows | 33 | 31 | 21 | 20 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | B13 | B14 | B15 | B16 | B17 | B18 |
| Container Weight (gm) (W1) | 34.46 | 33.59 | 32.1 | 31.29 | 30.59 | 32.24 |
| Container + Wt. of wet soil (gm) (W2) | 91.08 | 106.50 | 112.48 | 114.72 | 99.53 | 92.31 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.19 | 88.92 | 87.39 | 87.95 | 87.92 | 82.83 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 12.89 | 17.59 | 25.09 | 26.77 | 11.61 | 9.48 |
| Wt. of oven dry soil (gm) (W3-W1) | 43.73 | 55.33 | 55.29 | 56.66 | 57.33 | 50.59 |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **29.48** | **31.79** | **45.38** | **47.24** | **20.25** | **18.73** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 39 | % |
| Plastic Limit (Wp) | 19 | % |
| Plasticity Index (Ip) | 20 | % |




3935

# Arki Techno Consultants (India) Pvt.Ltd

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

### IS : 2720 (Part -5)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : SPT

Location : BH-5(Markanda River-Saharanpur)

Depth : 18.0m

Date Of Testing : 12.10.12

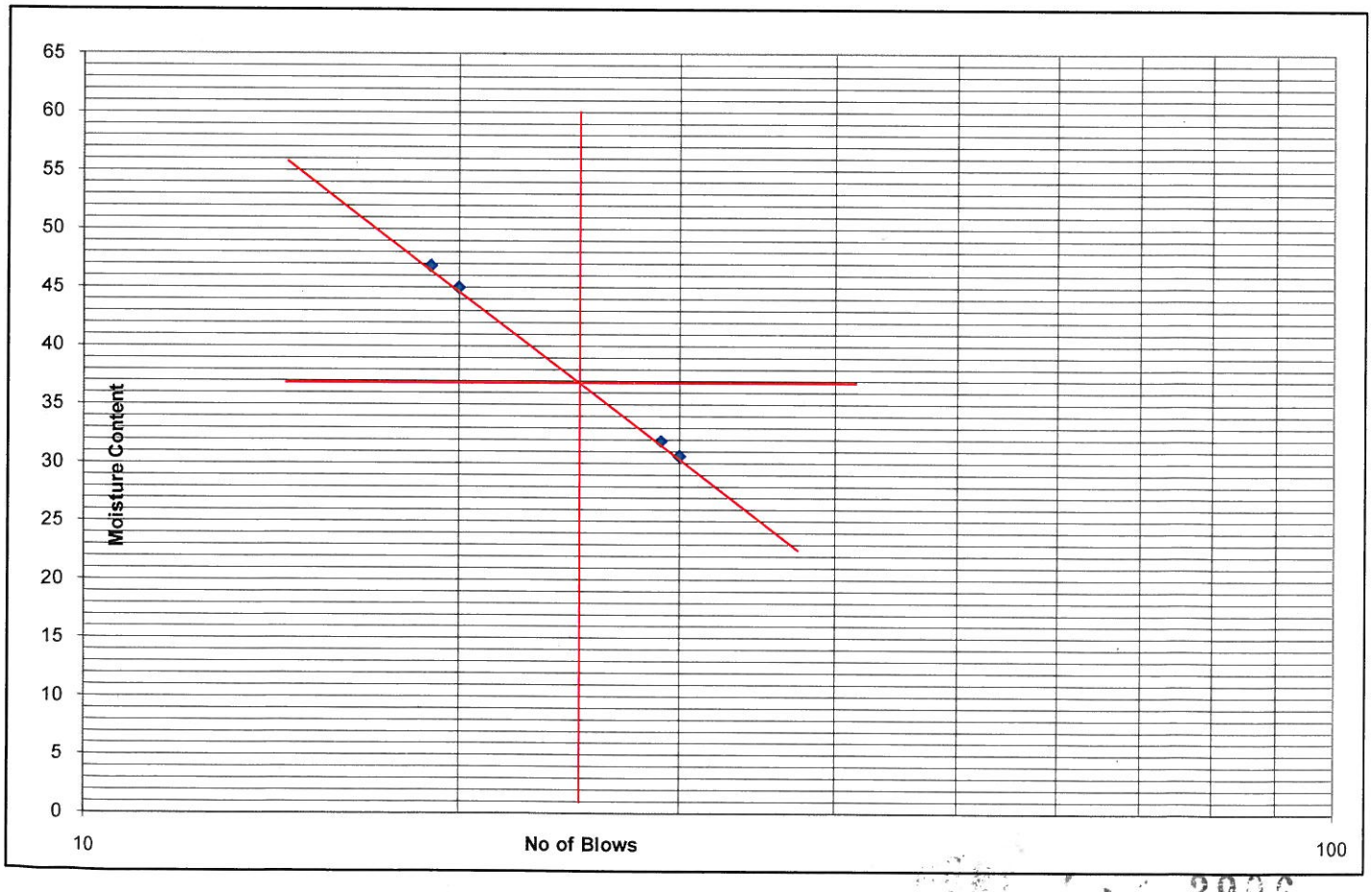
Sampled by : T.K.Das

Tested by : D.Mohanty

| Number of Blows | 30 | 29 | 20 | 19 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | B25 | B26 | B27 | B28 | B29 | B30 |
| Container Weight (gm) (W1) | 35.22 | 33.36 | 31.2 | 39.42 | 34.86 | 30.76 |
| Container + Wt. of wet soil (gm) (W2) | 91.26 | 106.58 | 112.58 | 110.47 | 97.66 | 92.41 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.13 | 88.88 | 87.33 | 87.81 | 87.84 | 82.82 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 13.13 | 17.70 | 25.25 | 22.66 | 9.81 | 9.59 |
| Wt. of oven dry soil (gm) (W3-W1) | 42.91 | 55.52 | 56.13 | 48.39 | 52.98 | 52.06 |
| Moisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100 | **30.59** | **31.88** | **44.98** | **46.83** | **18.52** | **18.42** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 37 | % |
| Plastic Limit (Wp) | 18 | % |
| Plasticity Index (Ip) | 19 | % |




3906

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

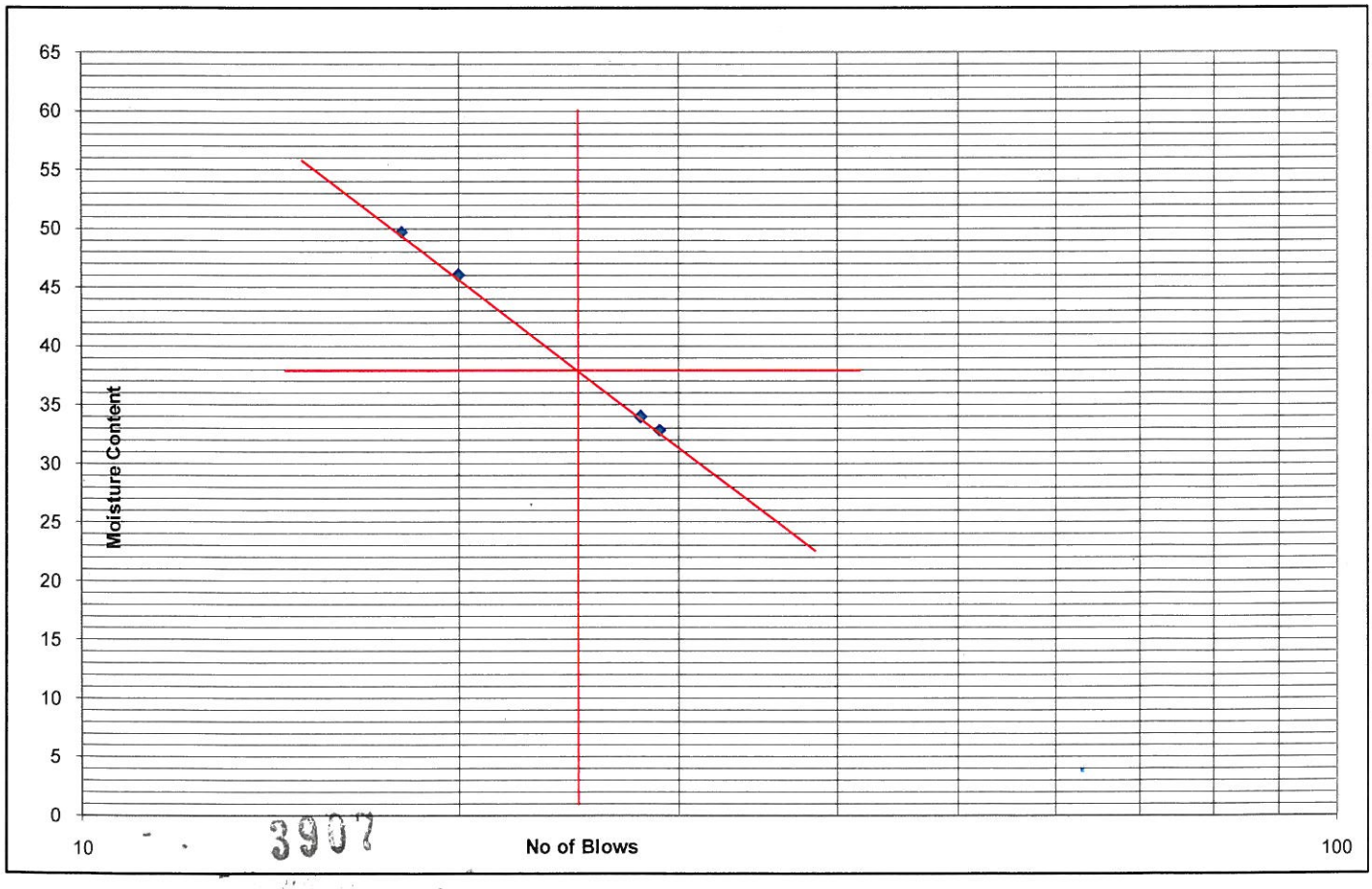
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 12.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 19.5m | Tested by | : | D.Mohanty |

| Number of Blows | 29 | 28 | 20 | 18 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | B1 | B2 | B3 | B4 | B5 | B6 |
| Container Weight (gm) (W1) | 34.29 | 33.64 | 36.7 | 32.65 | 31.26 | 30.57 |
| Container + Wt. of wet soil (gm) (W2) | 92.43 | 107.83 | 110.81 | 115.36 | 98.57 | 92.47 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.05 | 89.01 | 87.45 | 87.90 | 87.84 | 82.64 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 14.38 | 18.81 | 23.36 | 27.46 | 10.73 | 9.83 |
| Wt. of oven dry soil (gm) (W3-W1) | 43.76 | 55.37 | 50.75 | 55.25 | 56.58 | 52.07 |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **32.85** | **33.98** | **46.02** | **49.71** | **18.96** | **18.88** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 38 | % |
| Plastic Limit (Wp) | 19 | % |
| Plasticity Index (Ip) | 19 | % |




3907

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

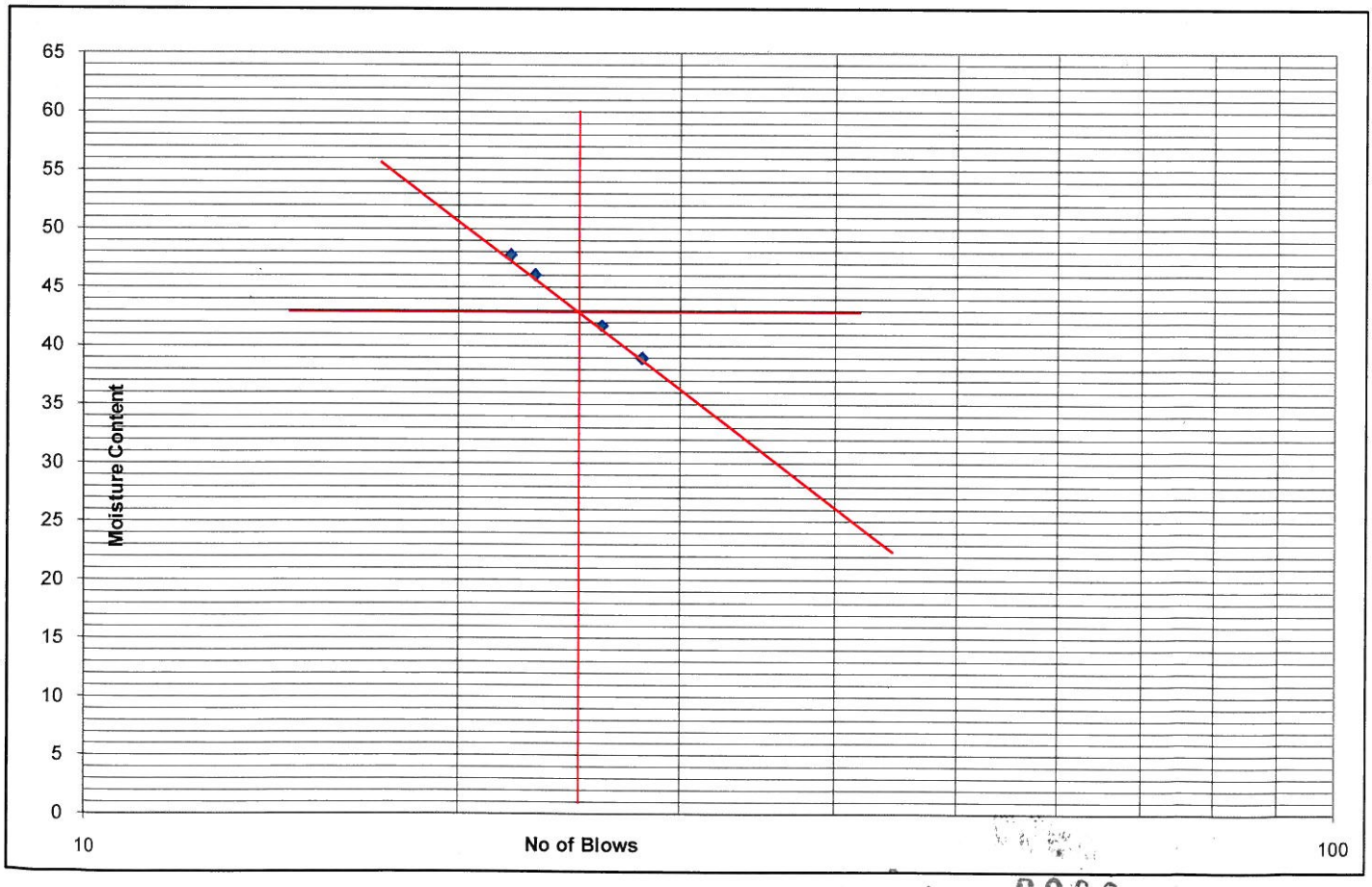
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 12.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 21.0m | Tested by | : | D.Mohanty |

| Number of Blows | 28 | 26 | 23 | 22 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | B19 | B20 | B21 | B22 | B23 | B24 |
| Container Weight (gm) (W1) | 31.66 | 35.46 | 33.74 | 34.61 | 36.87 | 32.54 |
| Container + Wt. of wet soil (gm) (W2) | 96.49 | 111.35 | 112.24 | 113.34 | 98.97 | 93.37 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.31 | 89.01 | 87.49 | 87.91 | 87.78 | 82.84 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 18.18 | 22.34 | 24.75 | 25.43 | 11.19 | 10.54 |
| Wt. of oven dry soil (gm) (W3-W1) | 46.65 | 53.55 | 53.75 | 53.30 | 50.91 | 50.30 |
| Moisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100 | **38.96** | **41.72** | **46.04** | **47.72** | **21.98** | **20.95** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 43 | % |
| Plastic Limit (Wp) | 21 | % |
| Plasticity Index (Ip) | 22 | % |




3908

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

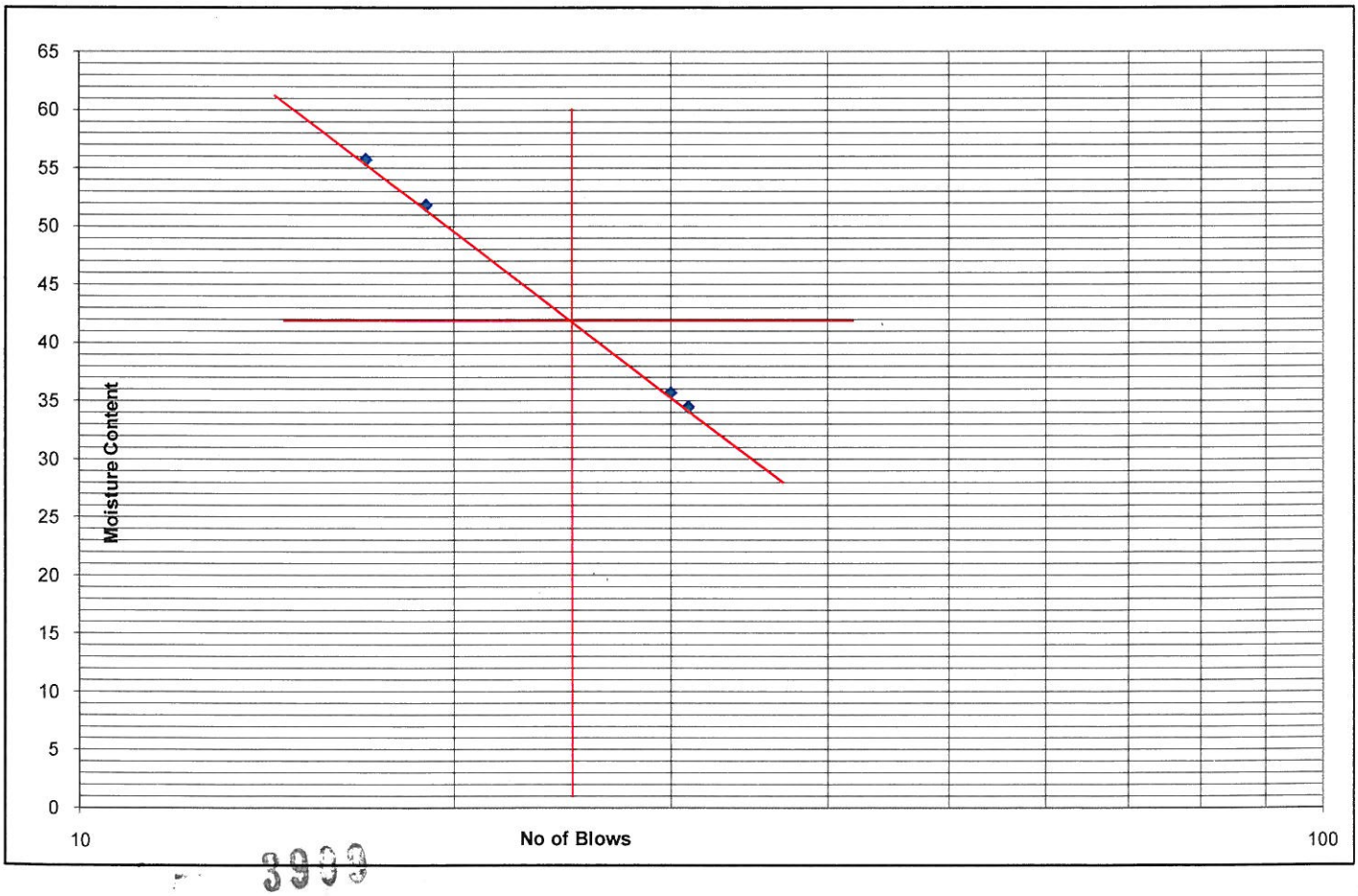
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 13.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 22.5m | Tested by | : | D.Mohanty |

| Number of Blows | 31 | 30 | 19 | 17 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | B7 | B8 | B9 | B10 | B11 | B12 |
| Container Weight (gm) (W1) | 36.85 | 32.71 | 31.43 | 34.52 | 35.81 | 33.24 |
| Container + Wt. of wet soil (gm) (W2) | 92.60 | 109.26 | 116.71 | 117.56 | 99.04 | 93.50 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.31 | 89.12 | 87.61 | 87.85 | 87.84 | 82.91 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 14.28 | 20.13 | 29.10 | 29.71 | 11.20 | 10.60 |
| Wt. of oven dry soil (gm) (W3-W1) | 41.46 | 56.41 | 56.18 | 53.33 | 52.03 | 49.67 |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **34.45** | **35.69** | **51.80** | **55.72** | **21.53** | **21.34** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 42 | % |
| Plastic Limit (Wp) | 21 | % |
| Plasticity Index (Ip) | 21 | % |




3999

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

### IS : 2720 (Part -5)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : UDS

Location : BH-5(Markanda River-Saharanpur)

Depth : 25.5m

Date Of Testing : 13.10.12

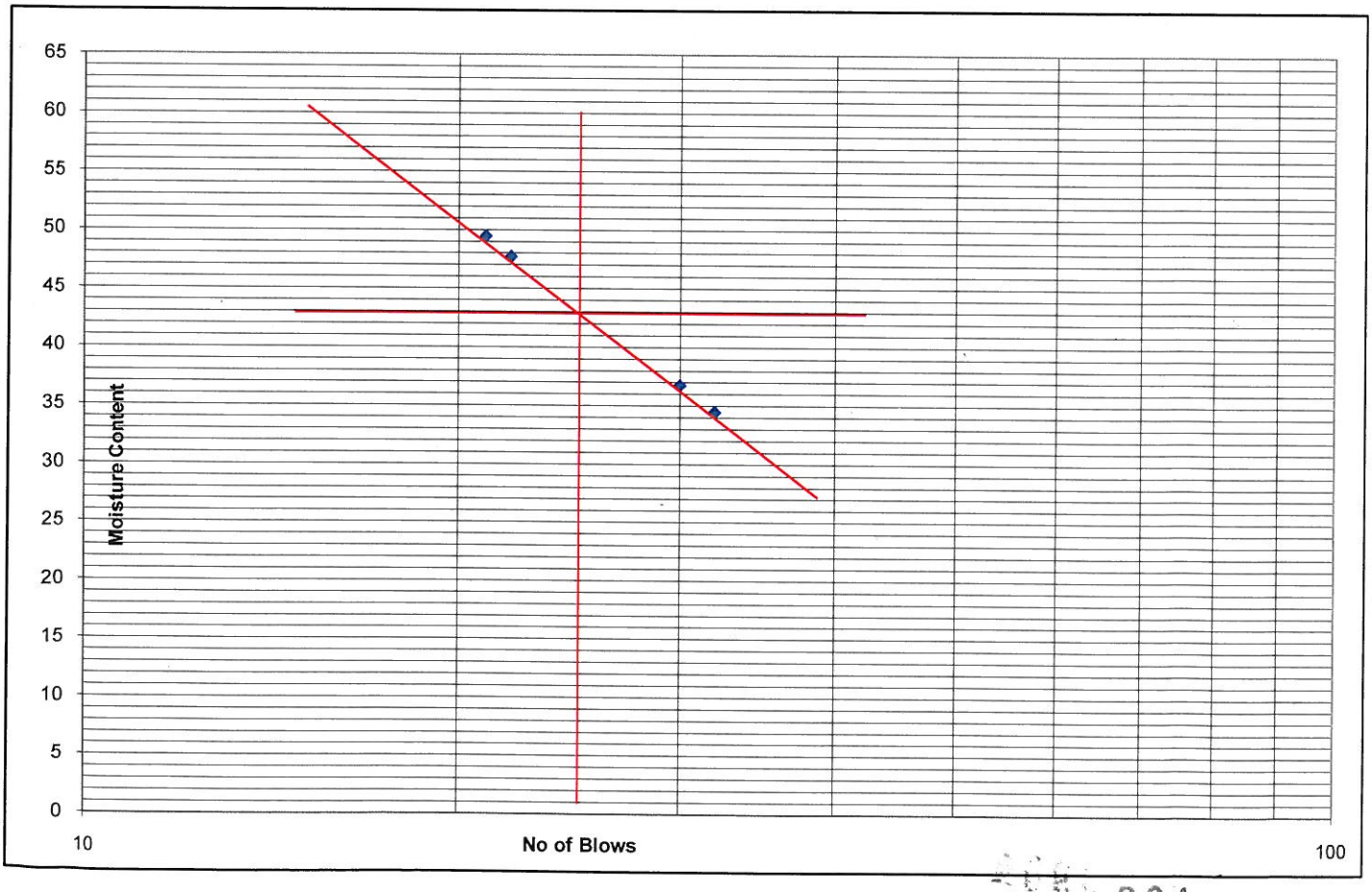
Sampled by : T.K.Das

Tested by : D.Mohanty

| Number of Blows | 32 | 30 | 22 | 21 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | B37 | B38 | B39 | B40 | B41 | B42 |
| Container Weight (gm) (W1) | 33.26 | 32.74 | 31.98 | 30.5 | 34.67 | 35.55 |
| Container + Wt. of wet soil (gm) (W2) | 93.86 | 109.90 | 113.88 | 116.25 | 98.77 | 90.67 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.33 | 89.16 | 87.44 | 87.89 | 87.98 | 81.55 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 15.53 | 20.74 | 26.44 | 28.36 | 10.79 | 9.12 |
| Wt. of oven dry soil (gm) (W3-W1) | 45.07 | 56.42 | 55.46 | 57.39 | 53.31 | 46.00 |
| Moisture Content (%)= ((W2-W1)-(W3-W1)]/(W3-W1) X 100 | **34.46** | **36.75** | **47.67** | **49.41** | **20.24** | **19.83** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 43 | % |
| Plastic Limit (Wp) | 20 | % |
| Plasticity Index (Ip) | 23 | % |




3910

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

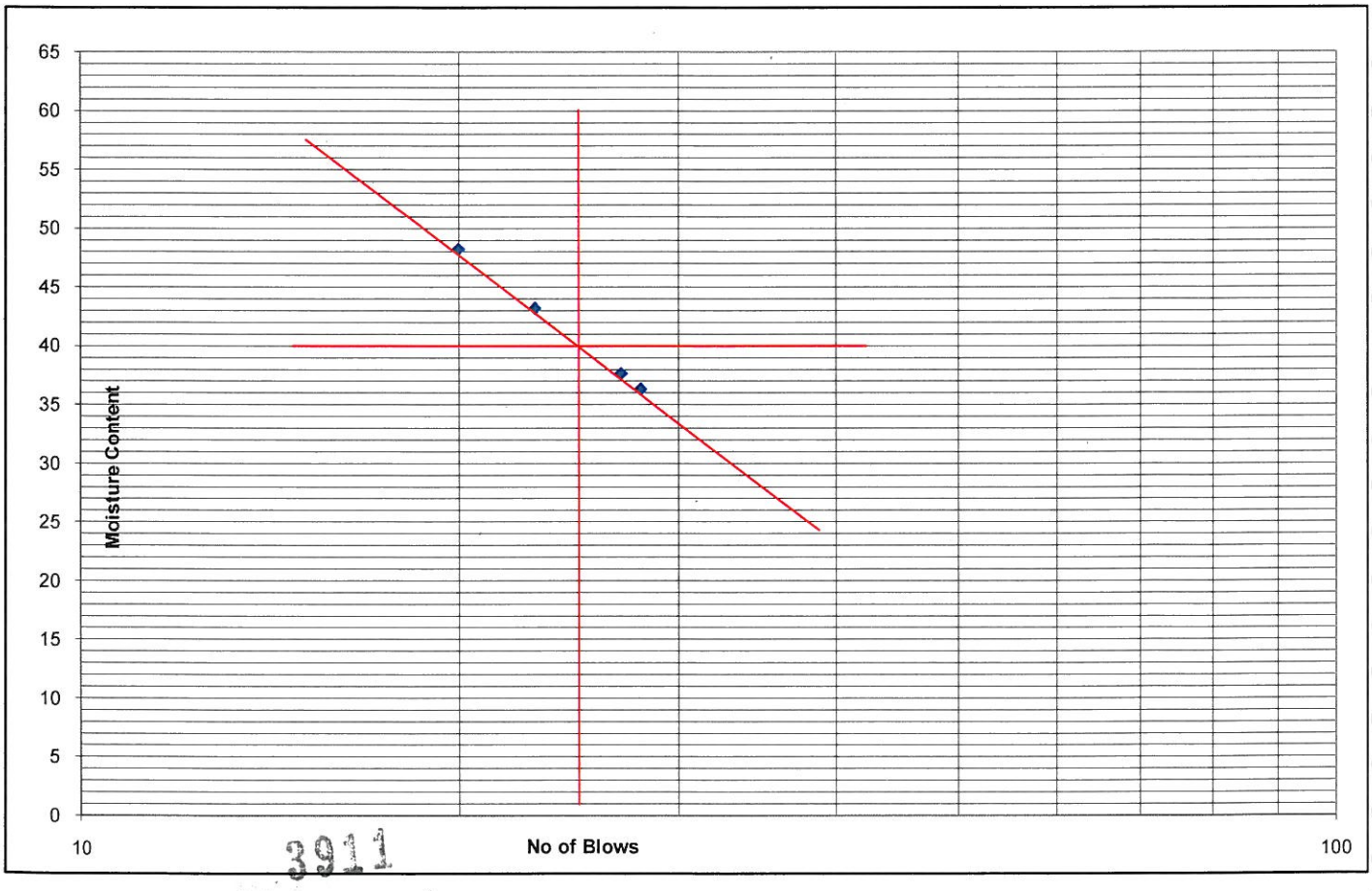
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 13.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 28.5m | Tested by | : | D.Mohanty |

| Number of Blows | 28 | 27 | 23 | 20 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | B31 | B32 | B33 | B34 | B35 | B36 |
| Container Weight (gm) (W1) | 30.8 | 34.1 | 32.47 | 31.56 | 35.65 | 30.99 |
| Container + Wt. of wet soil (gm) (W2) | 95.70 | 109.90 | 111.36 | 114.58 | 97.80 | 91.02 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.41 | 89.16 | 87.57 | 87.57 | 87.87 | 81.45 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 17.29 | 20.74 | 23.79 | 27.01 | 9.93 | 9.57 |
| Wt. of oven dry soil (gm) (W3-W1) | 47.61 | 55.06 | 55.10 | 56.01 | 52.22 | 50.46 |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **36.31** | **37.66** | **43.18** | **48.23** | **19.02** | **18.96** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 40 | % |
| Plastic Limit (Wp) | 19 | % |
| Plasticity Index (Ip) | 21 | % |




3911

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

### IS : 2720 (Part -5)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : SPT

Location : BH-5(Markanda River-Saharanpur)

Depth : 30.0m

Date Of Testing : 13.10.12

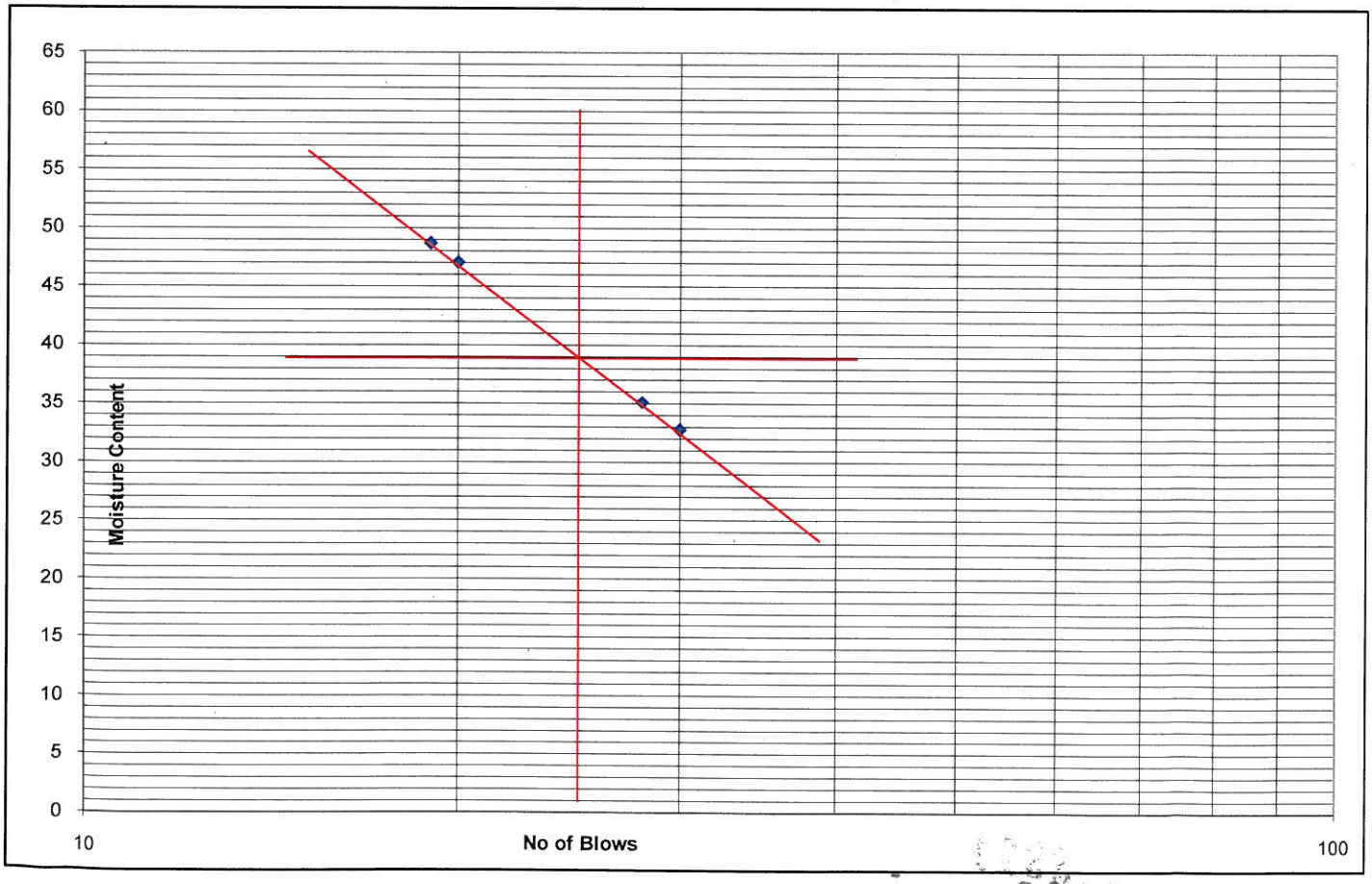
Sampled by : T.K.Das

Tested by : D.Mohanty

| Number of Blows | 30 | 28 | 20 | 19 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | D13 | D14 | D15 | D16 | D17 | D18 |
| Container Weight (gm) (W1) | 34.4 | 33.46 | 32.41 | 35.31 | 30.56 | 31.49 |
| Container + Wt. of wet soil (gm) (W2) | 92.67 | 109.02 | 113.67 | 113.00 | 99.36 | 98.14 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.30 | 89.38 | 87.68 | 87.57 | 88.07 | 87.56 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 14.38 | 19.64 | 26.00 | 25.43 | 11.29 | 10.58 |
| Wt. of oven dry soil (gm) (W3-W1) | 43.90 | 55.92 | 55.27 | 52.26 | 57.51 | 56.07 |
| Moisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100 | **32.75** | **35.12** | **47.04** | **48.67** | **19.63** | **18.86** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 39 | % |
| Plastic Limit (Wp) | 19 | % |
| Plasticity Index (Ip) | 20 | % |




3912

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

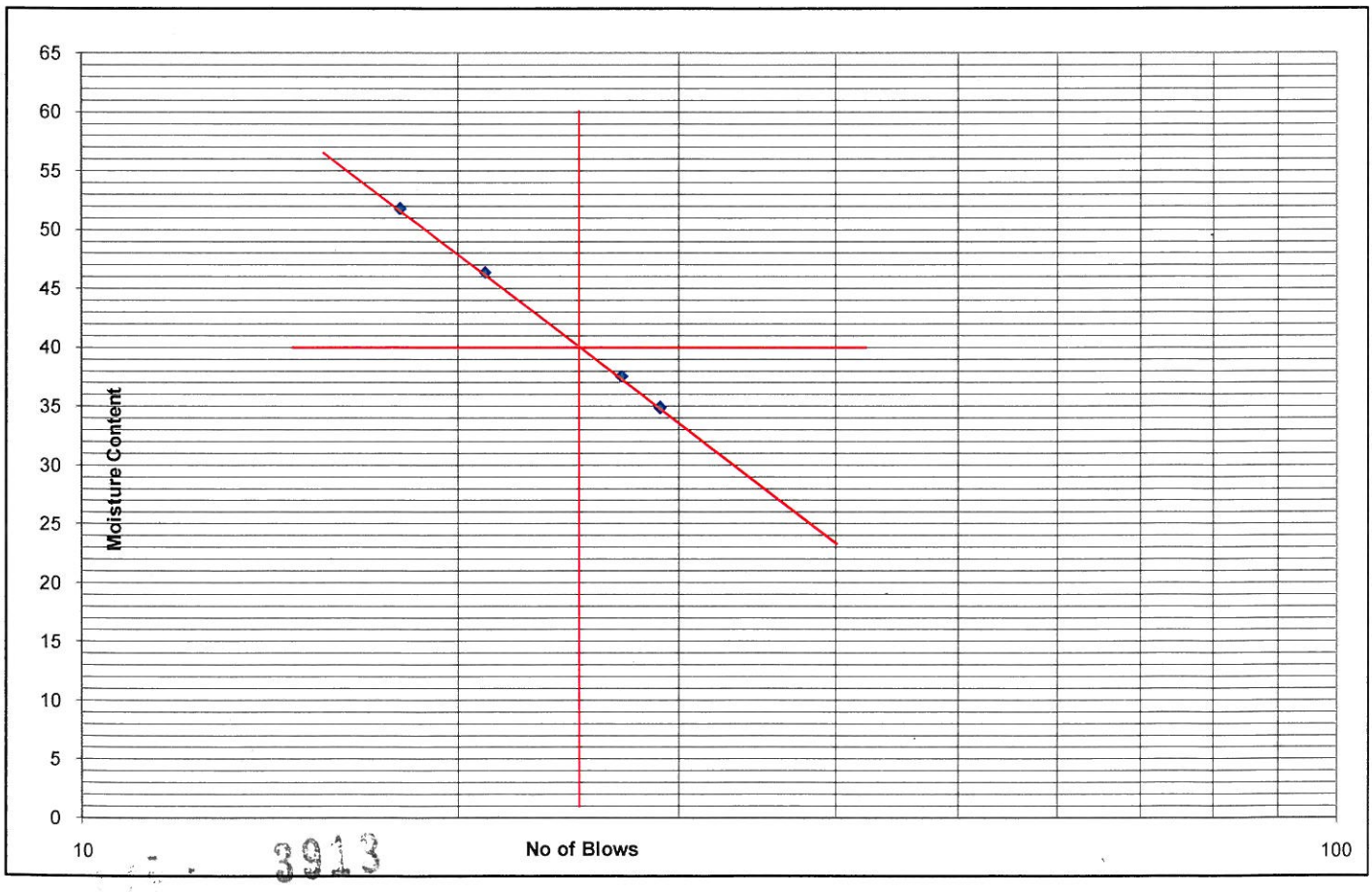
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 13.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 31.5m | Tested by | : | D.Mohanty |

| Number of Blows | 29 | 27 | 21 | 18 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | D37 | D38 | D39 | D40 | D41 | D42 |
| Container Weight (gm) (W1) | 36.57 | 32.26 | 31.04 | 30.5 | 34.97 | 35.55 |
| Container + Wt. of wet soil (gm) (W2) | 92.78 | 111.52 | 114.14 | 117.41 | 98.91 | 98.14 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.24 | 89.88 | 87.82 | 87.77 | 87.80 | 87.75 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 14.54 | 21.64 | 26.33 | 29.63 | 11.12 | 10.39 |
| Wt. of oven dry soil (gm) (W3-W1) | 41.67 | 57.62 | 56.78 | 57.27 | 52.83 | 52.20 |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **34.88** | **37.55** | **46.37** | **51.74** | **21.04** | **19.91** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 40 | % |
| Plastic Limit (Wp) | 20 | % |
| Plasticity Index (Ip) | 20 | % |




3913

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

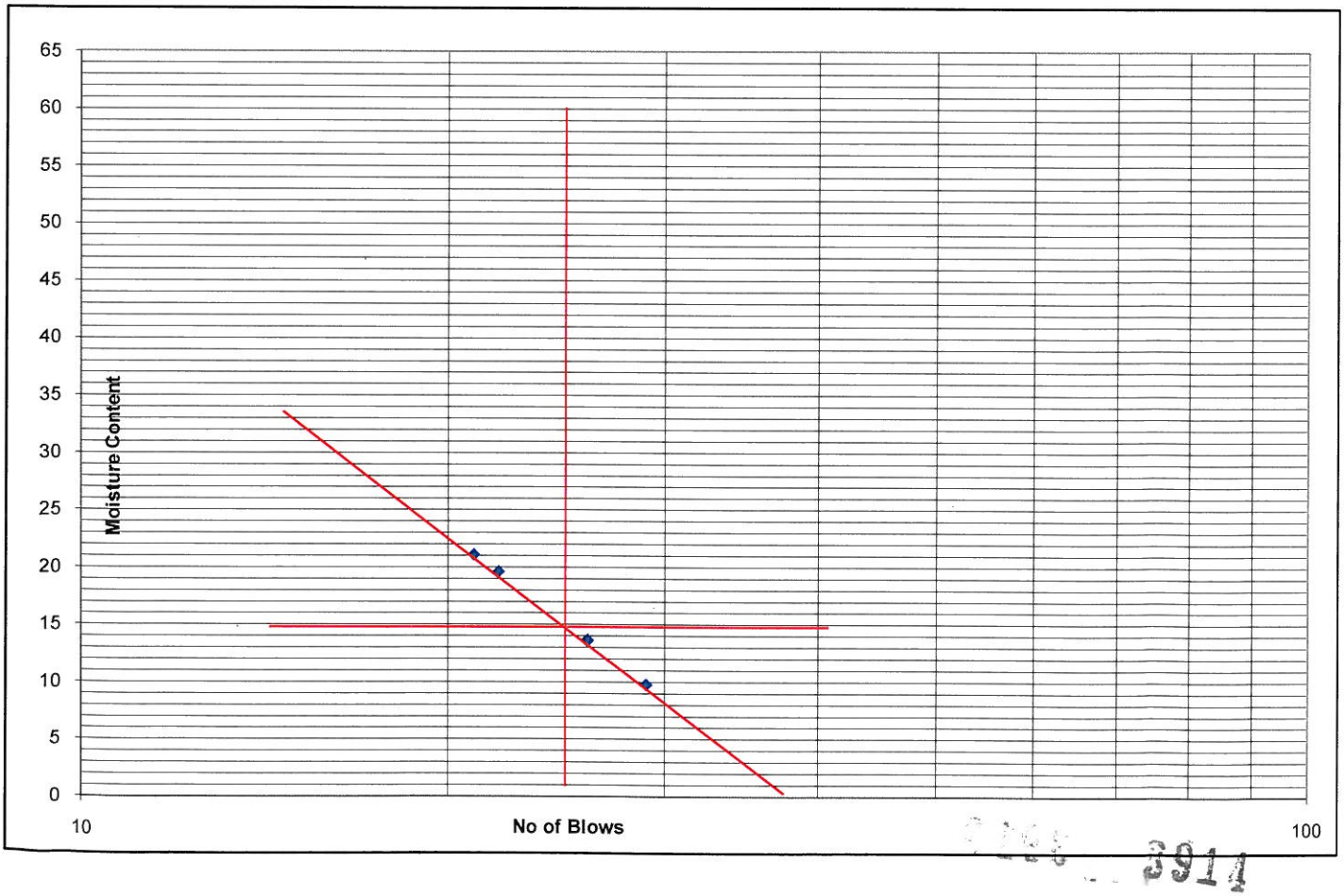
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 13.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 33.0m | Tested by | : | D.Mohanty |

| Number of Blows | 29 | 26 | 22 | 21 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | D7 | D8 | D9 | D10 | NP | |
| Container Weight (gm) (W1) | 35.82 | 31.27 | 34.13 | 32.45 | | |
| Container + Wt. of wet soil (gm) (W2) | 82.53 | 98.37 | 98.35 | 99.71 | | |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.36 | 90.33 | 87.82 | 87.99 | | |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 4.16 | 8.04 | 10.54 | 11.72 | | |
| Wt. of oven dry soil (gm) (W3-W1) | 42.54 | 59.06 | 53.69 | 55.54 | | |
| Moisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100 | **9.79** | **13.61** | **19.63** | **21.11** | | |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 15 | % |
| Plastic Limit (Wp) | _ | % |
| Plasticity Index (Ip) | _ | % |




3911

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

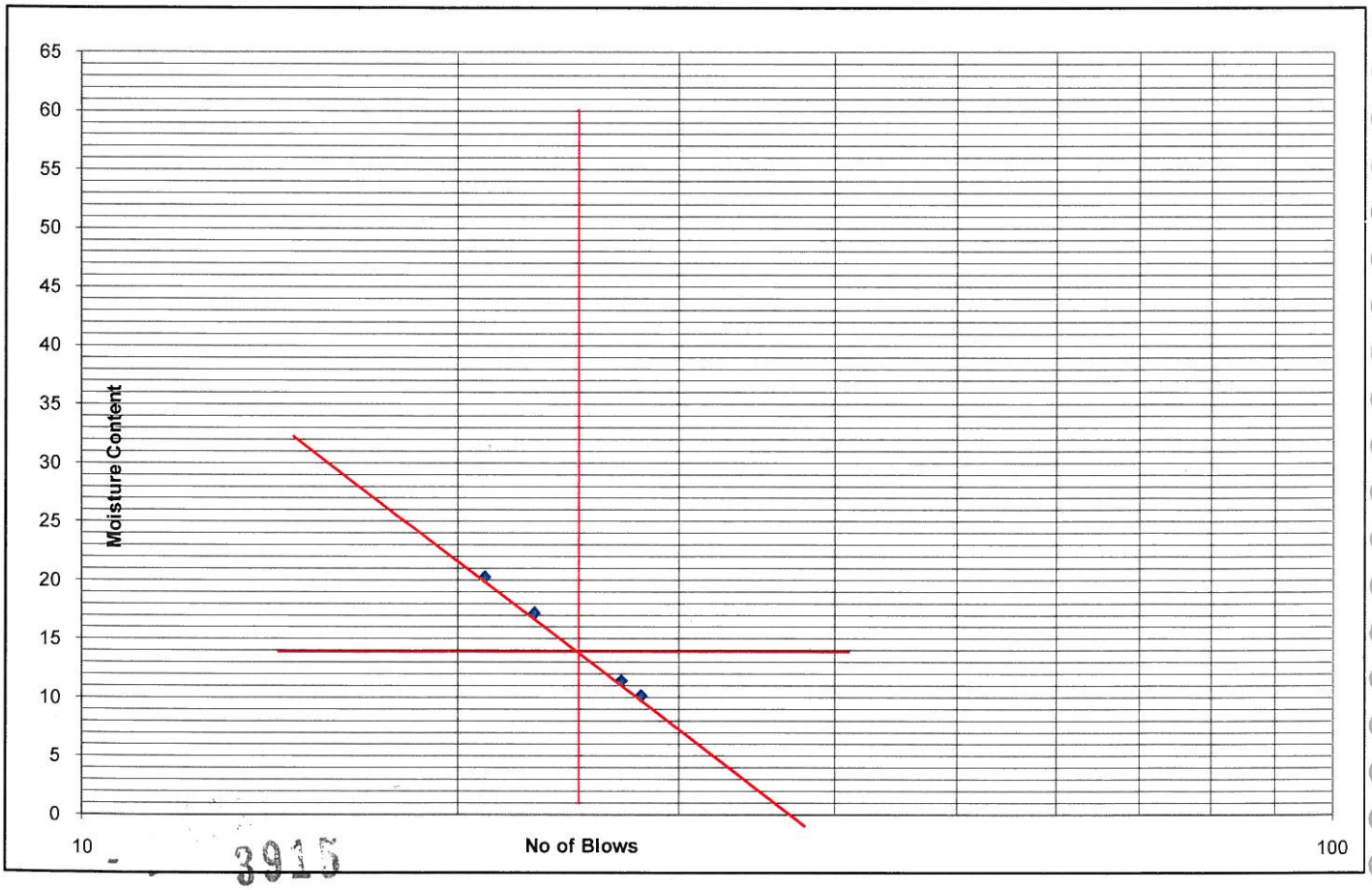
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 13.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 36.0m | Tested by | : | D.Mohanty |

| Number of Blows | 28 | 27 | 23 | 21 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | D25 | D26 | D29 | D31 | NP | |
| Container Weight (gm) (W1) | 33.58 | 34.18 | 36.84 | 31.87 | | |
| Container + Wt. of wet soil (gm) (W2) | 83.03 | 96.75 | 96.46 | 99.44 | | |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.48 | 90.33 | 87.73 | 88.07 | | |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 4.55 | 6.42 | 8.73 | 11.37 | | |
| Wt. of oven dry soil (gm) (W3-W1) | 44.90 | 56.15 | 50.89 | 56.20 | | |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **10.13** | **11.43** | **17.16** | **20.24** | | |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 14 | % |
| Plastic Limit (Wp) | _ | % |
| Plasticity Index (Ip) | _ | % |




3915

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

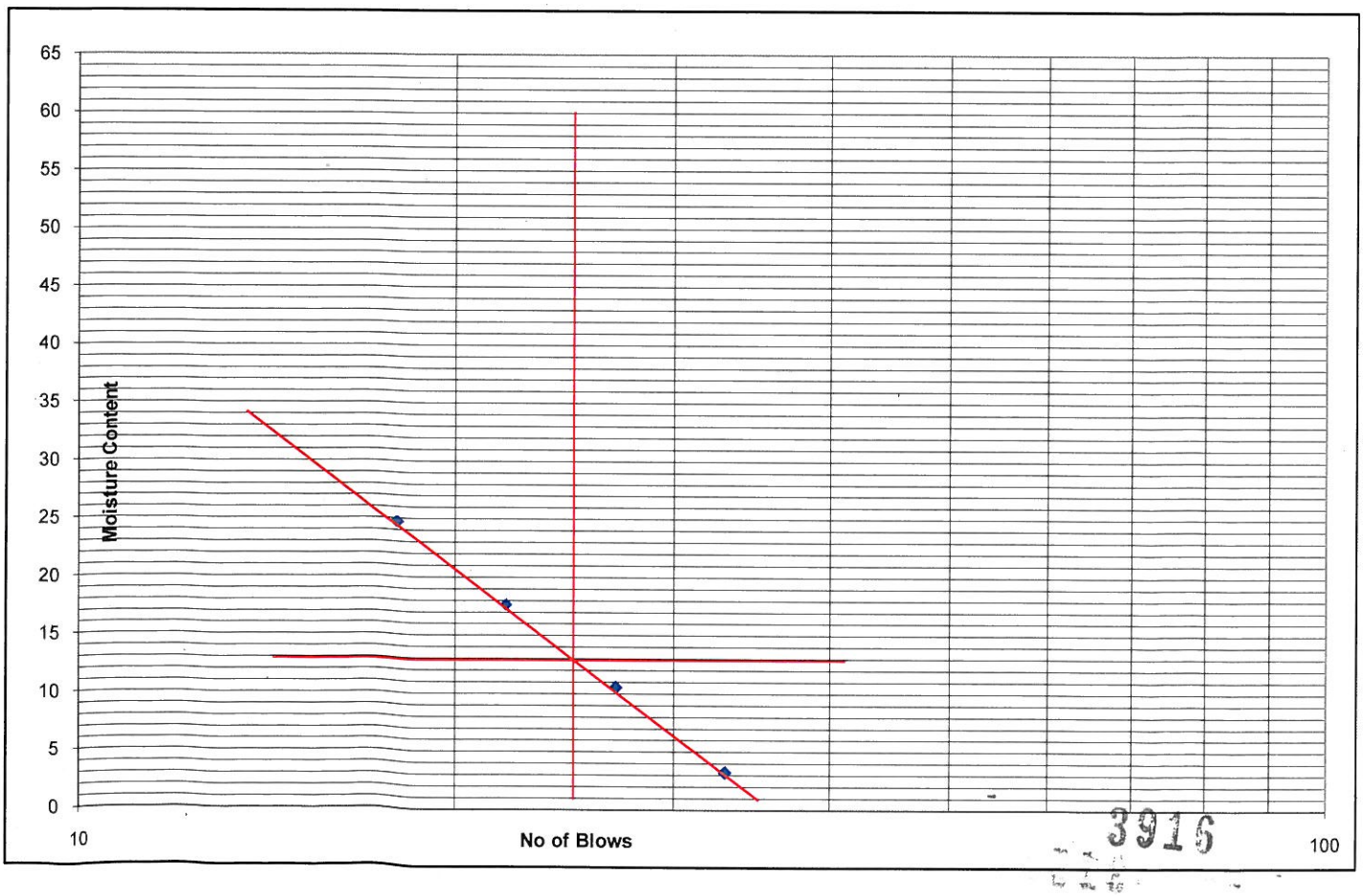
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 13.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 37.5m | Tested by | : | D.Mohanty |

| Number of Blows | 33 | 27 | 22 | 18 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | D23 | D24 | D5 | D6 | NP | |
| Container Weight (gm) (W1) | 33.72 | 34.86 | 34.68 | 35.29 | | |
| Container + Wt. of wet soil (gm) (W2) | 80.08 | 96.19 | 97.04 | 101.10 | | |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.61 | 90.33 | 87.67 | 88.04 | | |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 1.47 | 5.86 | 9.37 | 13.06 | | |
| Wt. of oven dry soil (gm) (W3-W1) | 44.89 | 55.47 | 52.99 | 52.75 | | |
| Moisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100 | **3.27** | **10.57** | **17.68** | **24.76** | | |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 13 | % |
| Plastic Limit (Wp) | _ | % |
| Plasticity Index (Ip) | _ | % |




3916

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS : 2720 (Part -5)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : SPT

Location : BH-5(Markanda River-Saharanpur)

Depth : 40.5m

Date Of Testing : 13.10.12

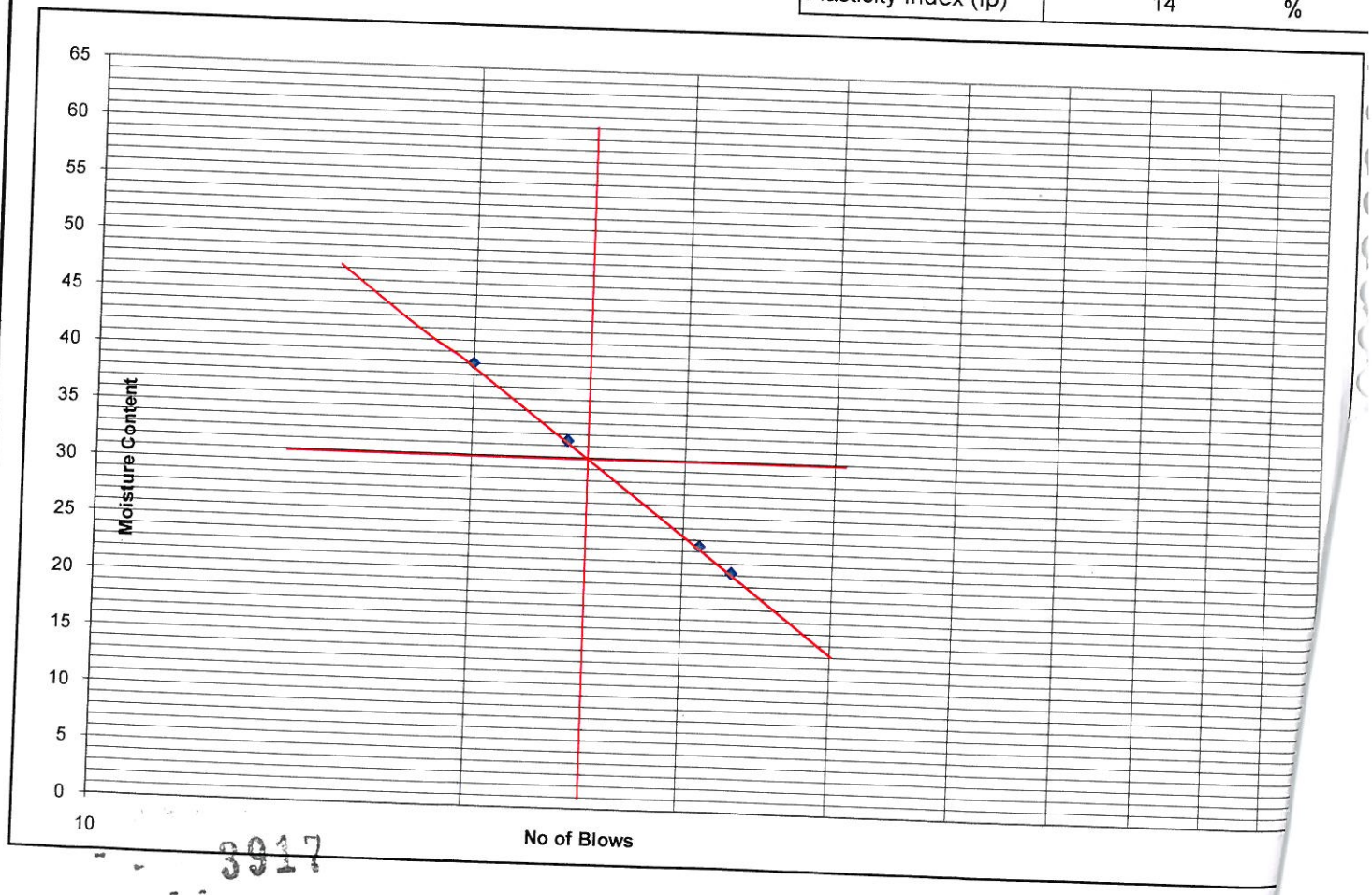
Sampled by : T.K.Das

Tested by : D.Mohanty

| Number of Blows | 33 | 31 | 24 | 20 | Plastic Limi | |
|---|---|---|---|---|---|---|
| Container No. | D39 | D40 | D5 | D6 | D11 | D12 |
| Container Weight (gm) (W1) | 31.04 | 30.5 | 34.68 | 35.29 | 36.48 | 37.96 |
| Container + Wt. of wet soil (gm) (W2) | 88.39 | 104.51 | 105.06 | 108.33 | 97.20 | 96.34 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.36 | 90.43 | 87.82 | 87.83 | 87.64 | 88.15 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 10.03 | 14.08 | 17.25 | 20.50 | 9.56 | 8.18 |
| Wt. of oven dry soil (gm) (W3-W1) | 47.32 | 59.93 | 53.14 | 52.54 | 51.16 | 50.19 |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **21.19** | **23.49** | **32.46** | **39.02** | **18.69** | **16.30** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 31 | % |
| Plastic Limit (Wp) | 17 | % |
| Plasticity Index (Ip) | 14 | % |




3917

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

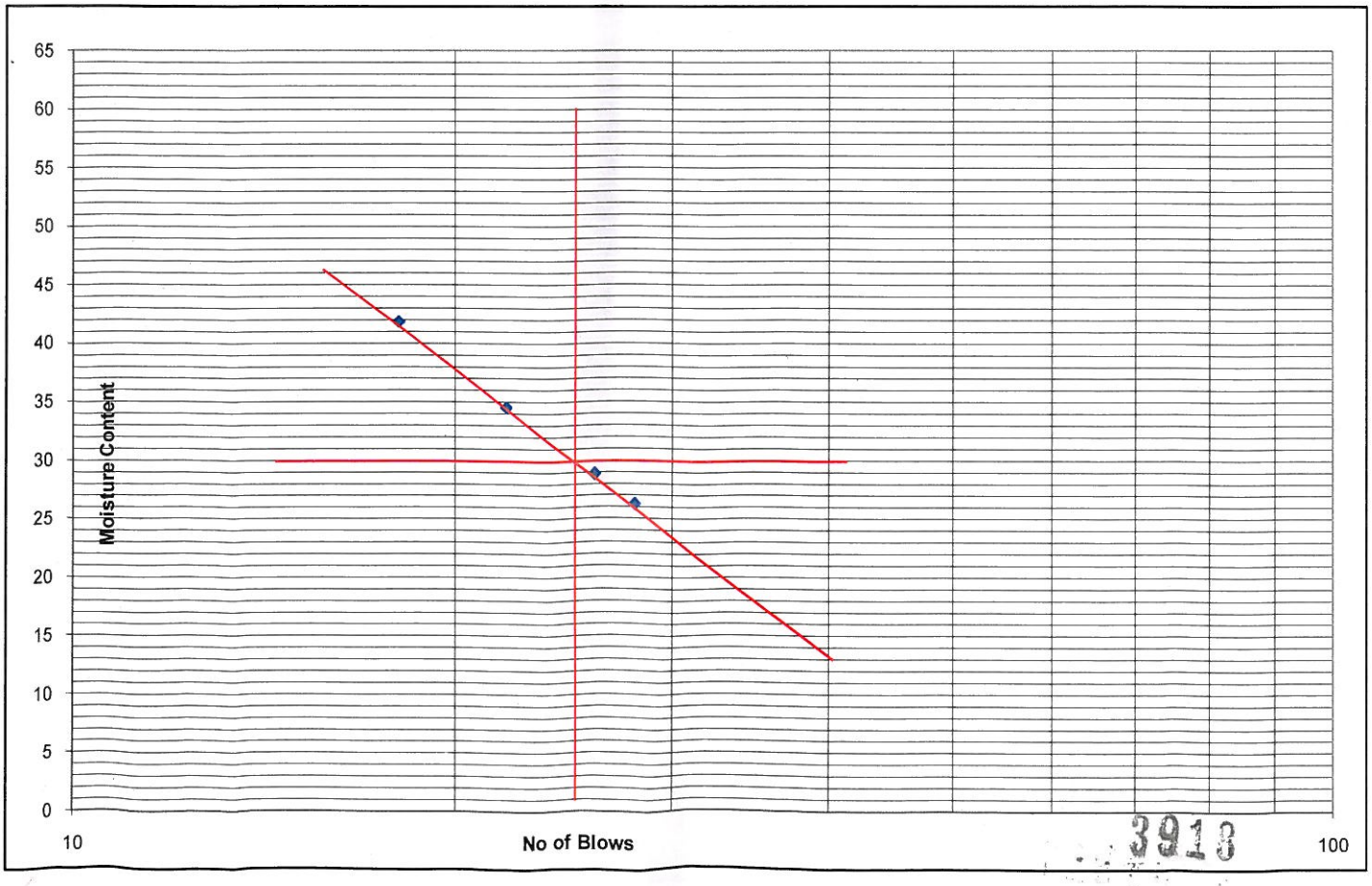
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 13.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 46.5m | Tested by | : | D.Mohanty |

| Number of Blows | 28 | 26 | 22 | 18 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | E19 | E20 | E21 | E22 | E23 | E24 |
| Container Weight (gm) (W1) | 31.69 | 35.24 | 37.88 | 34.61 | 35.8 | 32.51 |
| Container + Wt. of wet soil (gm) (W2) | 90.75 | 106.36 | 105.06 | 110.23 | 95.83 | 96.38 |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.47 | 90.43 | 87.82 | 87.93 | 87.42 | 88.19 |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 12.28 | 15.93 | 17.25 | 22.31 | 8.40 | 8.19 |
| Wt. of oven dry soil (gm) (W3-W1) | 46.78 | 55.19 | 49.94 | 53.32 | 51.62 | 55.68 |
| Moisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100 | **26.26** | **28.86** | **34.54** | **41.84** | **16.28** | **14.71** |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 30 | % |
| Plastic Limit (Wp) | 15 | % |
| Plasticity Index (Ip) | 15 | % |




3918

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

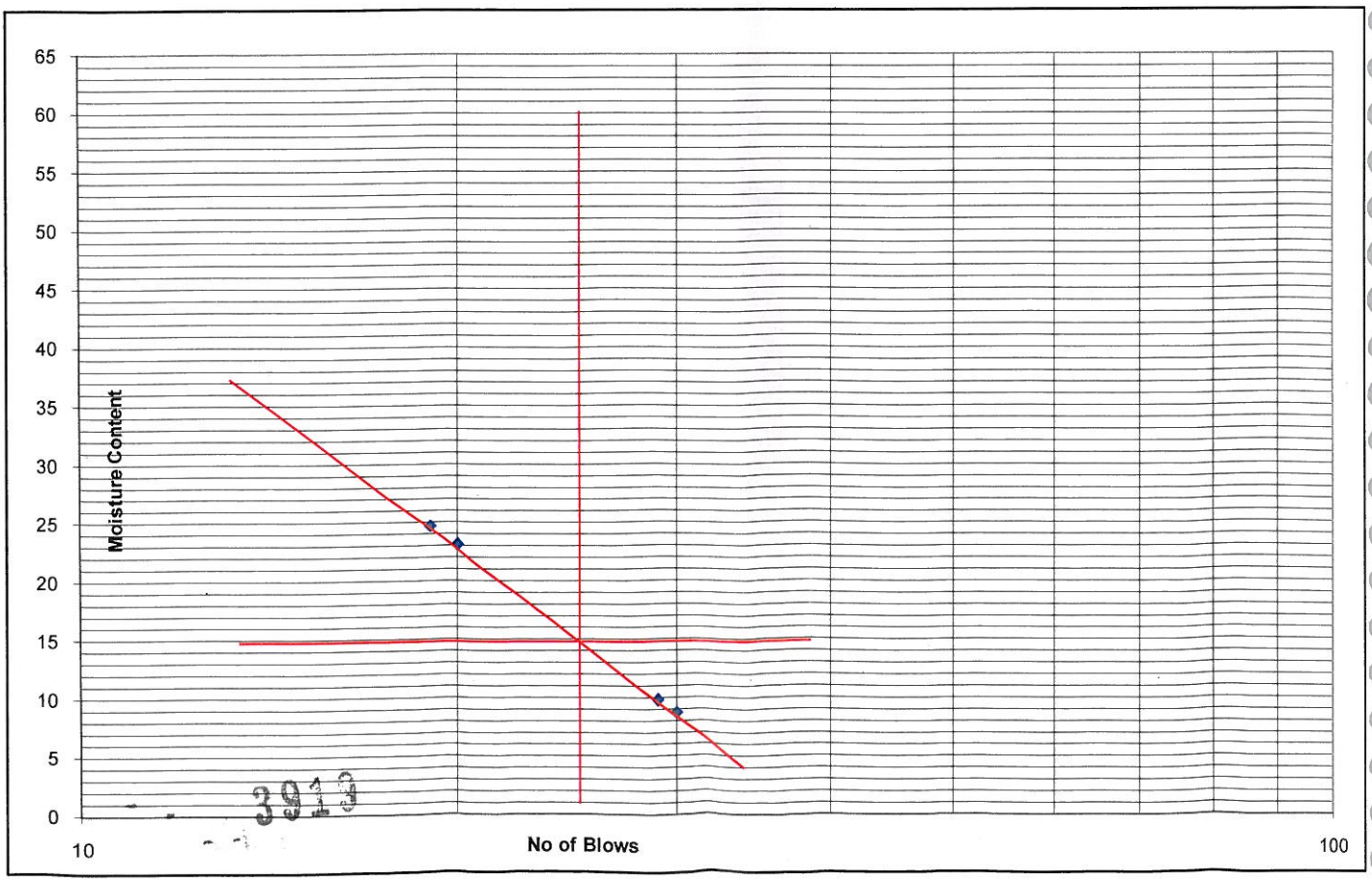
### IS : 2720 (Part -5)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 13.10.12 |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 48.0m | Tested by | : | D.Mohanty |

| Number of Blows | 30 | 29 | 20 | 19 | Plastic Limit | |
|---|---|---|---|---|---|---|
| Container No. | B25 | B26 | B27 | B28 | NP | |
| Container Weight (gm) (W1) | 35.22 | 33.36 | 31.2 | 39.42 | | |
| Container + Wt. of wet soil (gm) (W2) | 82.31 | 96.37 | 101.06 | 100.04 | | |
| Wt of Container + Wt. of oven dry soil (gm) (W3) | 78.52 | 90.73 | 87.95 | 88.03 | | |
| Wt. Of water (gm) (W2-W1)-(W3-W1) | 3.78 | 5.63 | 13.11 | 12.01 | | |
| Wt. of oven dry soil (gm) (W3-W1) | 43.30 | 57.37 | 56.75 | 48.61 | | |
| Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100 | **8.74** | **9.82** | **23.10** | **24.71** | | |

**Result Summary**

| | | |
|---|---|---|
| Liquid Limit (WL) | 15 | % |
| Plastic Limit (Wp) | _ | % |
| Plasticity Index (Ip) | _ | % |



# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : | SPT | Tested by | : | D.Mohanty |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 9.0m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 13.3 | 3.30 | 33 | 26 | 50% |
| 2 | 10 | 12.5 | 2.50 | 25 | | |
| 3 | 10 | 12.0 | 2.00 | 20 | | |

**Remarks:**

Lab Manager

Checked By:

3920

# Arki Techno Consultants (India) Pvt.Ltd

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : | UDS | Tested by | : | D.Mohanty |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 10.5m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 13.5 | 3.50 | 35 | 25 | 50% |
| 2 | 10 | 12.5 | 2.50 | 25 | | |
| 3 | 10 | 11.5 | 1.50 | 15 | | |

**Remarks:**

Lab Manager

Checked By:

3921

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : DFCC | | | | |
| Project Name | : G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 | |
| Type of Sample | : UDS | Tested by | : | D.Mohanty | |
| Location | : BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das | |
| Depth | : 13.5m | Weight of Sample | : | 10gm | |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 14.0 | 4.00 | 40 | 26 | 50% |
| 2 | 10 | 12.3 | 2.30 | 23 | | |
| 3 | 10 | 11.5 | 1.50 | 15 | | |

**Remarks:**

Lab Manager

Checked By:

3922

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : | UDS | Tested by | : | D.Mohanty |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 16.5m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 12.5 | 2.50 | 25 | 13 | 50% |
| 2 | 10 | 11.0 | 1.00 | 10 | | |
| 3 | 10 | 10.5 | 0.50 | 5 | | |

**Remarks:**

Lab Manager

Checked By:

3923

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : DFCC | | | | |
| Project Name | : G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : SPT | Tested by | : | D.Mohanty |
| Location | : BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : 18.0m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 12.0 | 2.00 | 20 | 14 | 50% |
| 2 | 10 | 11.2 | 1.20 | 12 | | |
| 3 | 10 | 11.0 | 1.00 | 10 | | |

**Remarks:**

Lab Manager

Checked By:

3924

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : DFCC | | | | |
| Project Name | : G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : UDS | Tested by | : | D.Mohanty |
| Location | : BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : 19.5m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 11.5 | 1.50 | 15 | 13 | 50% |
| 2 | 10 | 11.5 | 1.50 | 15 | | |
| 3 | 10 | 11.0 | 1.00 | 10 | | |

**Remarks:**

Lab Manager

Checked By:

3925

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : DFCC | | | | |
| Project Name | : G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : SPT | Tested by | : | D.Mohanty |
| Location | : BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : 21.0m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 13.0 | 3.00 | 30 | 26 | 50% |
| 2 | 10 | 12.8 | 2.80 | 28 | | |
| 3 | 10 | 12.0 | 2.00 | 20 | | |

**Remarks:**

Lab Manager

Checked By:

3926

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : DFCC | | | | |
| Project Name | : G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : UDS | Tested by | : | D.Mohanty |
| Location | : BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : 22.5m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 13.0 | 3.00 | 30 | 25 | 50% |
| 2 | 10 | 12.5 | 2.50 | 25 | | |
| 3 | 10 | 12.0 | 2.00 | 20 | | |

**Remarks:**

Lab Manager

Checked By:

3927

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : UDS

Location : BH-5(Markanda River-Saharanpur)

Depth : 25.5m

Date Of Testing : 11.10.12

Tested by : D.Mohanty

Sampled by : T.K.Das

Weight of Sample : 10gm

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 13.5 | 3.50 | 35 | 24 | 50% |
| 2 | 10 | 12.5 | 2.50 | 25 | | |
| 3 | 10 | 11.2 | 1.20 | 12 | | |

**Remarks:**

Lab Manager

Checked By:

3928

# Arki Techno Consultants (India) Pvt.Ltd

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : DFCC | | | | |
| Project Name | : G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 | |
| Type of Sample | : UDS | Tested by | : | D.Mohanty | |
| Location | : BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das | |
| Depth | : 28.5m | Weight of Sample | : | 10gm | |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 13.5 | 3.50 | 35 | 25 | 50% |
| 2 | 10 | 12.5 | 2.50 | 25 | | |
| 3 | 10 | 11.5 | 1.50 | 15 | | |

**Remarks:**

Lab Manager

Checked By:

3929

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : DFCC | | | | |
| Project Name | : G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 | |
| Type of Sample | : SPT | Tested by | : | D.Mohanty | |
| Location | : BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das | |
| Depth | : 30.0m | Weight of Sample | : | 10gm | |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 14.0 | 4.00 | 40 | 27 | 50% |
| 2 | 10 | 12.5 | 2.50 | 25 | | |
| 3 | 10 | 11.5 | 1.50 | 15 | | |

**Remarks:**

Lab Manager

Checked By:

3930

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : | UDS | Tested by | : | D.Mohanty |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 31.5m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 14.0 | 4.00 | 40 | 26 | 50% |
| 2 | 10 | 12.0 | 2.00 | 20 | | |
| 3 | 10 | 11.8 | 1.80 | 18 | | |

**Remarks:**

Lab Manager

Checked By:

3931

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : | SPT | Tested by | : | D.Mohanty |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 40.5m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 11.5 | 1.50 | 15 | 9 | 50% |
| 2 | 10 | 10.7 | 0.70 | 7 | | |
| 3 | 10 | 10.5 | 0.50 | 5 | | |

**Remarks:**

Lab Manager

Checked By:

3932

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO

## N 3/91, IRC Village, Bhubaneswar

### DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

### AS PER IS: 2720 (PART - 40)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | Date Of Testing | : | 11.10.12 |
| Type of Sample | : | SPT | Tested by | : | D.Mohanty |
| Location | : | BH-5(Markanda River-Saharanpur) | Sampled by | : | T.K.Das |
| Depth | : | 46.5m | Weight of Sample | : | 10gm |

| SAMPLE NO. | VOLUME IN KEROSIN OIL Vk | VOLUME IN WATER Vd | SWELL (Vd-Vk) | SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%) | AVERAGE SWELL % | SPECIFIC LIMIT |
|---|---|---|---|---|---|---|
| 1 | 10 | 11.0 | 1.00 | 10 | 8 | 50% |
| 2 | 10 | 11.0 | 1.00 | 10 | | |
| 3 | 10 | 10.5 | 0.50 | 5 | | |

**Remarks:**

Lab Manager

Checked By:

3933

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 1.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.81 | |
| 3 | Weight of bottle with soil and water W3 in gm | 136.38 | |
| 4 | Weight of bottle full of water W4 in gm | 132.47 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.29 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.38 | |
| 7 | Specific Gravity G = (5) / (6) | 2.64 | |

Lab Manager

Checked By

3931

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 3.0m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.81 | |
| 3 | Weight of bottle with soil and water W3 in gm | 136.38 | |
| 4 | Weight of bottle full of water W4 in gm | 132.47 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.29 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.38 | |
| 7 | Specific Gravity G = (5) / (6) | 2.64 | |

Lab Manager

Checked By

3935

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 4.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.81 | |
| 3 | Weight of bottle with soil and water W3 in gm | 136.38 | |
| 4 | Weight of bottle full of water W4 in gm | 132.47 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.29 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.38 | |
| 7 | Specific Gravity G = (5) / (6) | 2.64 | |

Lab Manager

Checked By

3936

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 6.0m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.81 | |
| 3 | Weight of bottle with soil and water W3 in gm | 136.38 | |
| 4 | Weight of bottle full of water W4 in gm | 132.47 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.29 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.38 | |
| 7 | Specific Gravity G = (5) / (6) | 2.64 | |

Lab Manager

Checked By

3937 . . 93

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 9.0m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.23 | |
| 3 | Weight of bottle with soil and water W3 in gm | 137.23 | |
| 4 | Weight of bottle full of water W4 in gm | 133.67 | |
| 5 | Weight of dry soil (W2-W1)in gm | 5.71 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.15 | |
| 7 | Specific Gravity G = (5) / (6) | 2.66 | |

Lab Manager

Checked By

3938

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 10.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 36.48 | |
| 3 | Weight of bottle with soil and water W3 in gm | 137.25 | |
| 4 | Weight of bottle full of water W4 in gm | 134.15 | |
| 5 | Weight of dry soil (W2-W1)in gm | 4.96 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 1.86 | |
| 7 | Specific Gravity G = (5) / (6) | 2.67 | |

Lab Manager

Checked By

3939

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 13.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.06 | |
| 3 | Weight of bottle with soil and water W3 in gm | 136.83 | |
| 4 | Weight of bottle full of water W4 in gm | 133.37 | |
| 5 | Weight of dry soil (W2-W1)in gm | 5.54 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.08 | |
| 7 | Specific Gravity G = (5) / (6) | 2.66 | |

Lab Manager

Checked By

3940

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 16.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 36.97 | |
| 3 | Weight of bottle with soil and water W3 in gm | 138.19 | |
| 4 | Weight of bottle full of water W4 in gm | 134.79 | |
| 5 | Weight of dry soil (W2-W1)in gm | 5.45 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.05 | |
| 7 | Specific Gravity G = (5) / (6) | 2.66 | |

Lab Manager

Checked By

3911

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 18.0m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.43 | |
| 3 | Weight of bottle with soil and water W3 in gm | 137.92 | |
| 4 | Weight of bottle full of water W4 in gm | 134.23 | |
| 5 | Weight of dry soil (W2-W1)in gm | 5.91 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.22 | |
| 7 | Specific Gravity G = (5) / (6) | 2.66 | |

Lab Manager

Checked By

3912

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 19.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 38.21 | |
| 3 | Weight of bottle with soil and water W3 in gm | 137.46 | |
| 4 | Weight of bottle full of water W4 in gm | 133.29 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.69 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.52 | |
| 7 | Specific Gravity G = (5) / (6) | 2.65 | |

Lab Manager

Checked By

3913

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 21.0m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 38.21 | |
| 3 | Weight of bottle with soil and water W3 in gm | 138.26 | |
| 4 | Weight of bottle full of water W4 in gm | 134.08 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.69 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.51 | |
| 7 | Specific Gravity G = (5) / (6) | 2.67 | |

Lab Manager

Checked By

3944

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 22.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 36.21 | |
| 3 | Weight of bottle with soil and water W3 in gm | 136.89 | |
| 4 | Weight of bottle full of water W4 in gm | 133.96 | |
| 5 | Weight of dry soil (W2-W1)in gm | 4.69 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 1.76 | |
| 7 | Specific Gravity G = (5) / (6) | 2.66 | |

Lab Manager

Checked By

3943

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 25.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.53 | |
| 3 | Weight of bottle with soil and water W3 in gm | 138.20 | |
| 4 | Weight of bottle full of water W4 in gm | 134.45 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.01 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.26 | |
| 7 | Specific Gravity G = (5) / (6) | 2.66 | |

Lab Manager

Checked By

3946

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 28.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 38.03 | |
| 3 | Weight of bottle with soil and water W3 in gm | 137.41 | |
| 4 | Weight of bottle full of water W4 in gm | 133.34 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.51 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.44 | |
| 7 | Specific Gravity G = (5) / (6) | 2.67 | |

Lab Manager

Checked By

3947

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 30.0m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.61 | |
| 3 | Weight of bottle with soil and water W3 in gm | 137.58 | |
| 4 | Weight of bottle full of water W4 in gm | 133.76 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.09 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.27 | |
| 7 | Specific Gravity G = (5) / (6) | 2.68 | |

Lab Manager

Checked By

3948

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 31.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 38.35 | |
| 3 | Weight of bottle with soil and water W3 in gm | 138.34 | |
| 4 | Weight of bottle full of water W4 in gm | 134.07 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.83 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.56 | |
| 7 | Specific Gravity G = (5) / (6) | 2.67 | |

Lab Manager

Checked By

394

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 33.0m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 36.95 | |
| 3 | Weight of bottle with soil and water W3 in gm | 136.73 | |
| 4 | Weight of bottle full of water W4 in gm | 133.36 | |
| 5 | Weight of dry soil (W2-W1)in gm | 5.43 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.06 | |
| 7 | Specific Gravity G = (5) / (6) | 2.64 | |

Lab Manager

Checked By

3950

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 36.0m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.45 | |
| 3 | Weight of bottle with soil and water W3 in gm | 137.43 | |
| 4 | Weight of bottle full of water W4 in gm | 133.74 | |
| 5 | Weight of dry soil (W2-W1)in gm | 5.93 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.24 | |
| 7 | Specific Gravity G = (5) / (6) | 2.65 | |

Lab Manager

Checked By

3951

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 37.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 37.59 | |
| 3 | Weight of bottle with soil and water W3 in gm | 137.49 | |
| 4 | Weight of bottle full of water W4 in gm | 133.72 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.07 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.30 | |
| 7 | Specific Gravity G = (5) / (6) | 2.64 | |

Lab Manager

Checked By

3952

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 40.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 36.86 | |
| 3 | Weight of bottle with soil and water W3 in gm | 138.23 | |
| 4 | Weight of bottle full of water W4 in gm | 134.90 | |
| 5 | Weight of dry soil (W2-W1)in gm | 5.34 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.01 | |
| 7 | Specific Gravity G = (5) / (6) | 2.66 | |

Lab Manager

Checked By

3953

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 46.5m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 38.67 | |
| 3 | Weight of bottle with soil and water W3 in gm | 138.23 | |
| 4 | Weight of bottle full of water W4 in gm | 133.76 | |
| 5 | Weight of dry soil (W2-W1)in gm | 7.15 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.68 | |
| 7 | Specific Gravity G = (5) / (6) | 2.67 | |

Lab Manager

Checked By

3954

# Arki Techno Consultants (India) Pvt.Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS : 2386 (Part -2)

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date Of Testing | : | 11.10.12 |
| Location | : | BH-5(Markanda River-Ambala) | Sampled by | : | T.K.Das |
| Depth | : | 48.0m | Tested by | : | D.Mohanty |

| Sl. No. | Observations | 1 | Remarks |
|---|---|---|---|
| 1 | Weight of density bottle W1 in gm | 31.52 | |
| 2 | Weight of bottle with dry soil in W2 gm | 38.19 | |
| 3 | Weight of bottle with soil and water W3 in gm | 138.81 | |
| 4 | Weight of bottle full of water W4 in gm | 134.67 | |
| 5 | Weight of dry soil (W2-W1)in gm | 6.67 | |
| 6 | Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm | 2.53 | |
| 7 | Specific Gravity G = (5) / (6) | 2.64 | |

Lab Manager

Checked By

3955

# ARKI TECHNO CONSULTANTS (I) PVT. LTD.

N 3/91, IRC Village, Bhubaneswar

## DETERMINATION OF BULK DENSITY & MOISTURE CONTENT OF SOIL SAMPLE

**Client** : DFCC

**Project Name** : G.I For 3 Nos. Important Bridges

**Location** : BH-5(Markanda River-Saharanpur)

| Sl No. | BH No. | Depth in m | Type of Sample | Date of Testing | Weight of Container in gm | Diameter of Sample in cm | Length of Sample in cm | Volume of Sample in cc | Weight of Container + Wet Soil in gm | Weight of Container + Dry soil in gm | Weight of Dry soil in gm | Weight of water in gm | Moisture Content in % | Bulk Density in gm/cc | Dry Density in gm/cc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BH-5(Markanda River-Saharanpur) | 1.5 | SPT | 11.10.12 | 62.34 | 3.8 | 7 | 79.39 | 206.83 | 191.86 | 129.52 | 14.97 | 11.56 | 1.82 | 1.63 |
| 2 | | 3.0 | SPT | 11.10.12 | 61.82 | 3.8 | 7 | 79.39 | 207.10 | 192.37 | 130.55 | 14.74 | 11.29 | 1.83 | 1.64 |
| 3 | | 4.5 | SPT | 11.10.12 | 60.71 | 3.8 | 7 | 79.39 | 206.79 | 191.76 | 131.05 | 15.03 | 11.47 | 1.84 | 1.65 |
| 4 | | 6.0 | SPT | 11.10.12 | 63.49 | 3.8 | 7 | 79.39 | 210.36 | 194.46 | 130.97 | 15.90 | 12.14 | 1.85 | 1.65 |
| 5 | | 9.0 | SPT | 11.10.12 | 60.77 | 3.8 | 7 | 79.39 | 211.61 | 185.63 | 124.86 | 25.98 | 20.81 | 1.90 | 1.57 |
| 6 | | 10.5 | UDS | 11.10.12 | 64.84 | 3.8 | 7 | 79.39 | 217.27 | 191.46 | 126.62 | 25.80 | 20.38 | 1.92 | 1.59 |
| 7 | | 13.5 | UDS | 11.10.12 | 65.31 | 3.8 | 7 | 79.39 | 219.33 | 194.17 | 128.86 | 25.15 | 19.52 | 1.94 | 1.62 |
| 8 | | 16.5 | UDS | 11.10.12 | 60.5 | 3.8 | 7 | 79.39 | 213.72 | 190.16 | 129.66 | 23.56 | 18.17 | 1.93 | 1.63 |
| 9 | | 18.0 | SPT | 11.10.12 | 61.31 | 3.8 | 7 | 79.39 | 216.91 | 191.64 | 130.33 | 25.27 | 19.39 | 1.96 | 1.64 |
| 10 | | 19.5 | UDS | 11.10.12 | 62.29 | 3.8 | 7 | 79.39 | 217.89 | 193.14 | 130.85 | 24.76 | 18.92 | 1.96 | 1.65 |
| 11 | | 21.0 | SPT | 11.10.12 | 63.12 | 3.8 | 7 | 79.39 | 219.52 | 192.10 | 128.98 | 27.42 | 21.26 | 1.97 | 1.62 |
| 12 | | 22.5 | UDS | 11.10.12 | 62.74 | 3.8 | 7 | 79.39 | 224.70 | 198.35 | 135.61 | 26.35 | 19.43 | 2.04 | 1.71 |
| 13 | | 25.5 | UDS | 11.10.12 | 61.09 | 3.8 | 7 | 79.39 | 224.63 | 196.69 | 135.60 | 27.95 | 20.61 | 2.06 | 1.71 |
| 14 | | 28.5 | UDS | 11.10.12 | 64.38 | 3.8 | 7 | 79.39 | 228.72 | 200.14 | 135.76 | 28.58 | 21.05 | 2.07 | 1.71 |
| 15 | | 30.0 | SPT | 11.10.12 | 63.10 | 3.8 | 7 | 79.39 | 236.17 | 207.66 | 144.56 | 28.51 | 19.72 | 2.18 | 1.82 |
| 16 | | 31.5 | UDS | 11.10.12 | 62.96 | 3.8 | 7 | 79.39 | 229.68 | 201.73 | 138.77 | 27.95 | 20.14 | 2.10 | 1.75 |
| 17 | | 33.0 | SPT | 11.10.12 | 63.02 | 3.8 | 7 | 79.39 | 224.98 | 207.16 | 144.14 | 17.82 | 12.36 | 2.04 | 1.82 |
| 18 | | 36.0 | SPT | 11.10.12 | 62.43 | 3.8 | 7 | 79.39 | 223.59 | 207.11 | 144.68 | 16.48 | 11.39 | 2.03 | 1.82 |
| 19 | | 37.5 | SPT | 11.10.12 | 63.13 | 3.8 | 7 | 79.39 | 233.82 | 215.75 | 152.62 | 18.07 | 11.84 | 2.15 | 1.92 |
| 20 | | 40.5 | SPT | 11.10.12 | 63.57 | 3.8 | 7 | 79.39 | 234.26 | 210.40 | 146.83 | 23.86 | 16.25 | 2.15 | 1.85 |
| 21 | | 46.5 | SPT | 11.10.12 | 61.07 | 3.8 | 7 | 79.39 | 233.35 | 208.90 | 147.83 | 24.45 | 16.54 | 2.17 | 1.86 |
| 22 | | 48.0 | SPT | 11.10.12 | 60.94 | 3.8 | 7 | 79.39 | 232.42 | 214.39 | 153.45 | 18.03 | 11.75 | 2.16 | 1.93 |

# Arki Techno Consultants (India ) Pvt. Ltd

ARKITECHNO CONSULTANTS INDIA PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date of Testing | : | 10.10.12 |
| Location | : | BH-6(Markanda River-Saharanpur) | Sampled by | : | T. K. Das |
| Depth | : | 1.5m | Tested by | : | K.C.Sahoo |

Weight of oven dried sample before washing (gm) :- 100.00

Weight of oven dried sample after washing (gm) :- 55.62

| Sieve Size mm | Individual Weight Retained in gm. | Individual Wt. Retained In % | Cummulative Wt Retained In % | Cummulative Wt Passing In % |
|---|---|---|---|---|
| 75 | 0 | 0.00 | 0.00 | 100.00 |
| 50 | 0 | 0.00 | 0.00 | 100.00 |
| 37.5 | 0 | 0.00 | 0.00 | 100.00 |
| 19 | 0 | 0.00 | 0.00 | 100.00 |
| 4.75 | 0.00 | 0.00 | 0.00 | 100.00 |
| 2.00 | 25.97 | 25.97 | 25.97 | 74.03 |
| 0.425 | 21.63 | 21.63 | 47.60 | 52.40 |
| 0.075 | 8.03 | 8.03 | 55.63 | 44.37 |
| Total | 100.00 | | | |

**Gravel Content (%)=** **0.00**

**Sand Content (% ) =** 55.63 **Silt and clay %** 44.37

**Remarks :-**

3957

Lab Manager

Checked By

# Arki Techno Consultants (India ) Pvt. Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date of Testing | : | 10.10.12 |
| Location | : | BH-6(Markanda River-Saharanpur) | Sampled by | : | T. K. Das |
| Depth | : | 3.0m | Tested by | : | K.C.Sahoo |

Weight of oven dried sample before washing (gm) :- 100.00

Weight of oven dried sample after washing (gm) :- 58.21

| Sieve Size mm | Individual Weight Retained in gm. | Individual Wt. Retained In % | Cummulative Wt Retained In % | Cummulative Wt Passing In % |
|---|---|---|---|---|
| 75 | 0 | 0.00 | 0.00 | 100.00 |
| 50 | 0 | 0.00 | 0.00 | 100.00 |
| 37.5 | 0 | 0.00 | 0.00 | 100.00 |
| 19 | 0 | 0.00 | 0.00 | 100.00 |
| 4.75 | 0.00 | 0.00 | 0.00 | 100.00 |
| 2.00 | 26.26 | 26.26 | 26.26 | 73.74 |
| 0.425 | 22.09 | 22.09 | 48.35 | 51.65 |
| 0.075 | 9.86 | 9.86 | 58.21 | 41.79 |
| Total | 100.00 | | | |

**Gravel Content (%)=** **0.00**

**Sand Content (% ) =** 58.21 **Silt and clay %** 41.79

**Remarks :-**

3958

Lab Manager

Checked By

# Arki Techno Consultants (India ) Pvt. Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date of Testing | : | 10.10.12 |
| Location | : | BH-6(Markanda River-Saharanpur) | Sampled by | : | T. K. Das |
| Depth | : | 4.5m | Tested by | : | K.C.Sahoo |

Weight of oven dried sample before washing (gm) :- 100.00

Weight of oven dried sample after washing (gm) :- 57.68

| Sieve Size mm | Individual Weight Retained in gm. | Individual Wt. Retained In % | Cummulative Wt Retained In % | Cummulative Wt Passing In % |
|---|---|---|---|---|
| 75 | 0 | 0.00 | 0.00 | 100.00 |
| 50 | 0 | 0.00 | 0.00 | 100.00 |
| 37.5 | 0 | 0.00 | 0.00 | 100.00 |
| 19 | 0 | 0.00 | 0.00 | 100.00 |
| 4.75 | 0.00 | 0.00 | 0.00 | 100.00 |
| 2.00 | 25.36 | 25.36 | 25.36 | 74.64 |
| 0.425 | 22.09 | 22.09 | 47.45 | 52.55 |
| 0.075 | 10.24 | 10.24 | 57.69 | 42.31 |
| Total | 100.00 | | | |

**Gravel Content (%)=** **0.00**

**Sand Content (% ) =** 57.69 **Silt and clay %** 42.31

**Remarks :-**

3959

Lab Manager Checked By

# Arki Techno Consultants (India ) Pvt. Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date of Testing | : | 10.10.12 |
| Location | : | BH-6(Markanda River-Saharanpur) | Sampled by | : | T. K. Das |
| Depth | : | 6.0m | Tested by | : | K.C.Sahoo |

Weight of oven dried sample before washing (gm) :- 100.00

Weight of oven dried sample after washing (gm) :- 76.92

| Sieve Size mm | Individual Weight Retained in gm. | Individual Wt. Retained In % | Cummulative Wt Retained In % | Cummulative Wt Passing In % |
|---|---|---|---|---|
| 75 | 0 | 0.00 | 0.00 | 100.00 |
| 50 | 0 | 0.00 | 0.00 | 100.00 |
| 37.5 | 0 | 0.00 | 0.00 | 100.00 |
| 19 | 0 | 0.00 | 0.00 | 100.00 |
| 4.75 | 0.00 | 0.00 | 0.00 | 100.00 |
| 2.00 | 33.74 | 33.74 | 33.74 | 66.26 |
| 0.425 | 29.96 | 29.96 | 63.70 | 36.30 |
| 0.075 | 13.22 | 13.22 | 76.92 | 23.08 |
| Total | 100.00 | | | |

**Gravel Content (%)=** **0.00**

**Sand Content (% ) =** 76.92 **Silt and clay %** 23.08

**Remarks :-**

3960

Lab Manager Checked By

# Arki Techno Consultants (India ) Pvt. Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date of Testing | : | 10.10.12 |
| Location | : | BH-6(Markanda River-Saharanpur) | Sampled by | : | T. K. Das |
| Depth | : | 7.5m | Tested by | : | K.C.Sahoo |

Weight of oven dried sample before washing (gm) :- 100.00

Weight of oven dried sample after washing (gm) :- 78.66

| Sieve Size mm | Individual Weight Retained in gm. | Individual Wt. Retained In % | Cummulative Wt Retained In % | Cummulative Wt Passing In % |
|---|---|---|---|---|
| 75 | 0 | 0.00 | 0.00 | 100.00 |
| 50 | 0 | 0.00 | 0.00 | 100.00 |
| 37.5 | 0 | 0.00 | 0.00 | 100.00 |
| 19 | 0 | 0.00 | 0.00 | 100.00 |
| 4.75 | 0.00 | 0.00 | 0.00 | 100.00 |
| 2.00 | 35.03 | 35.03 | 35.03 | 64.97 |
| 0.425 | 30.94 | 30.94 | 65.97 | 34.03 |
| 0.075 | 12.69 | 12.69 | 78.66 | 21.34 |
| Total | 100.00 | | | |

**Gravel Content (%)=** **0.00**

**Sand Content (% ) =** 78.66 **Silt and clay %** 21.34

**Remarks :-**

3961

Lab Manager Checked By

# Arki Techno Consultants (India ) Pvt. Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date of Testing | : | 10.10.12 |
| Location | : | BH-6(Markanda River-Saharanpur) | Sampled by | : | T. K. Das |
| Depth | : | 10.5m | Tested by | : | K.C.Sahoo |

Weight of oven dried sample before washing (gm) :- 100.00

Weight of oven dried sample after washing (gm) :- 1.27

| Sieve Size mm | Individual Weight Retained in gm. | Individual Wt. Retained In % | Cummulative Wt Retained In % | Cummulative Wt Passing In % |
|---|---|---|---|---|
| 75 | 0 | 0.00 | 0.00 | 100.00 |
| 50 | 0 | 0.00 | 0.00 | 100.00 |
| 37.5 | 0 | 0.00 | 0.00 | 100.00 |
| 19 | 0 | 0.00 | 0.00 | 100.00 |
| 4.75 | 0.00 | 0.00 | 0.00 | 100.00 |
| 2.00 | 0.67 | 0.67 | 0.67 | 99.33 |
| 0.425 | 0.49 | 0.49 | 1.16 | 98.84 |
| 0.075 | 0.12 | 0.12 | 1.28 | 98.72 |
| Total | 100.00 | | | |

**Gravel Content (%)=** **0.00**

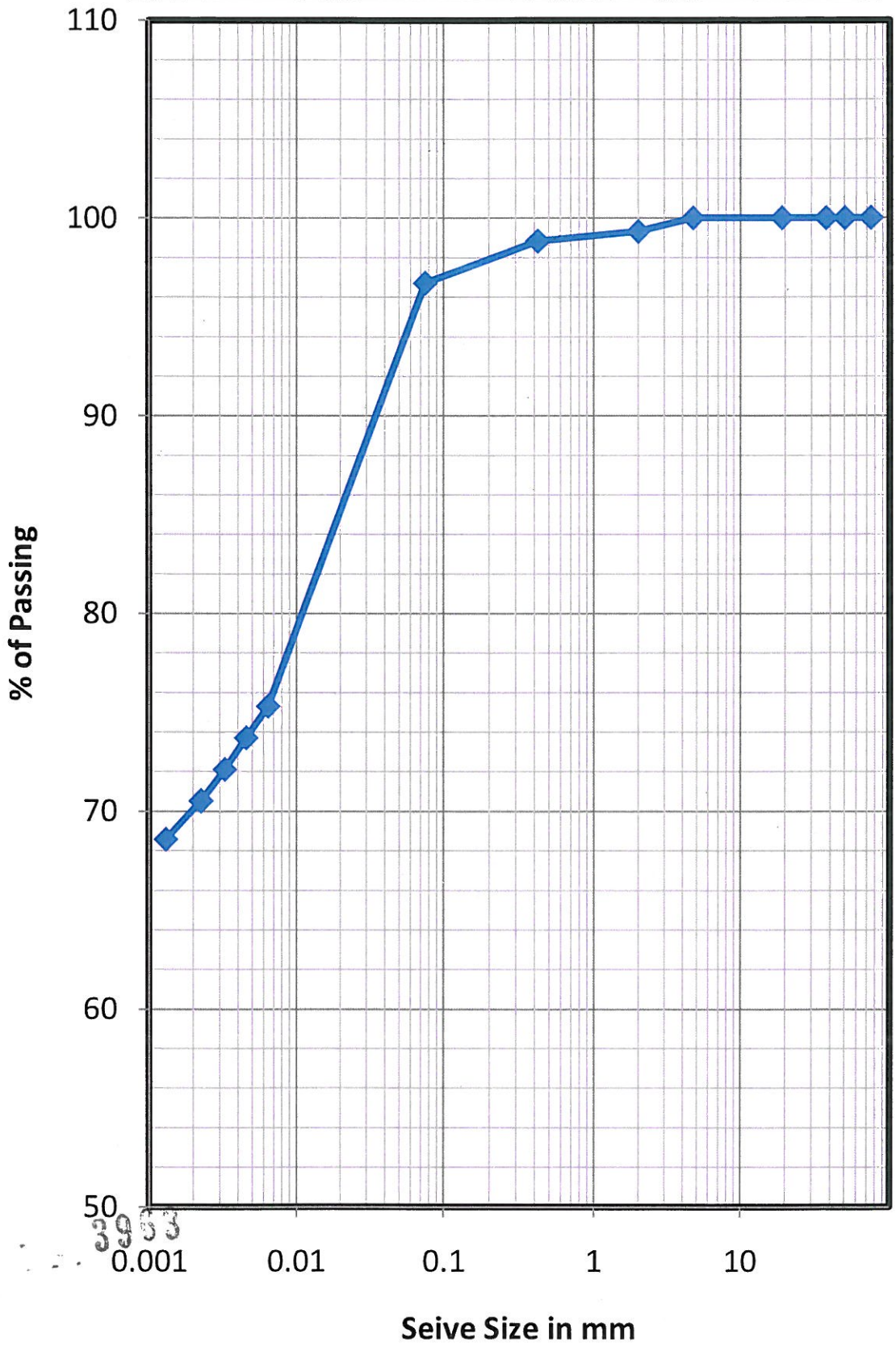
**Sand Content (% ) =** 1.28 **Silt and clay %** 98.72

**Remarks :-**

3962

Lab Manager Checked By

# Grain Size Distribution Curve
# BH-6,D-10.5m



# Arki Techno Consultants (India ) Pvt. Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | SPT | Date of Testing | : | 10.10.12 |
| Location | : | BH-6(Markanda River-Saharanpur) | Sampled by | : | T. K. Das |
| Depth | : | 12.0m | Tested by | : | K.C.Sahoo |

Weight of oven dried sample before washing (gm) :- 100.00

Weight of oven dried sample after washing (gm) :- 1.46

| Sieve Size mm | Individual Weight Retained in gm. | Individual Wt. Retained In % | Cummulative Wt Retained In % | Cummulative Wt Passing In % |
|---|---|---|---|---|
| 75 | 0 | 0.00 | 0.00 | 100.00 |
| 50 | 0 | 0.00 | 0.00 | 100.00 |
| 37.5 | 0 | 0.00 | 0.00 | 100.00 |
| 19 | 0 | 0.00 | 0.00 | 100.00 |
| 4.75 | 0.00 | 0.00 | 0.00 | 100.00 |
| 2.00 | 0.72 | 0.72 | 0.72 | 99.28 |
| 0.425 | 0.53 | 0.53 | 1.25 | 98.75 |
| 0.075 | 0.21 | 0.21 | 1.46 | 98.54 |
| Total | 100.00 | | | |

**Gravel Content (%)=** **0.00**

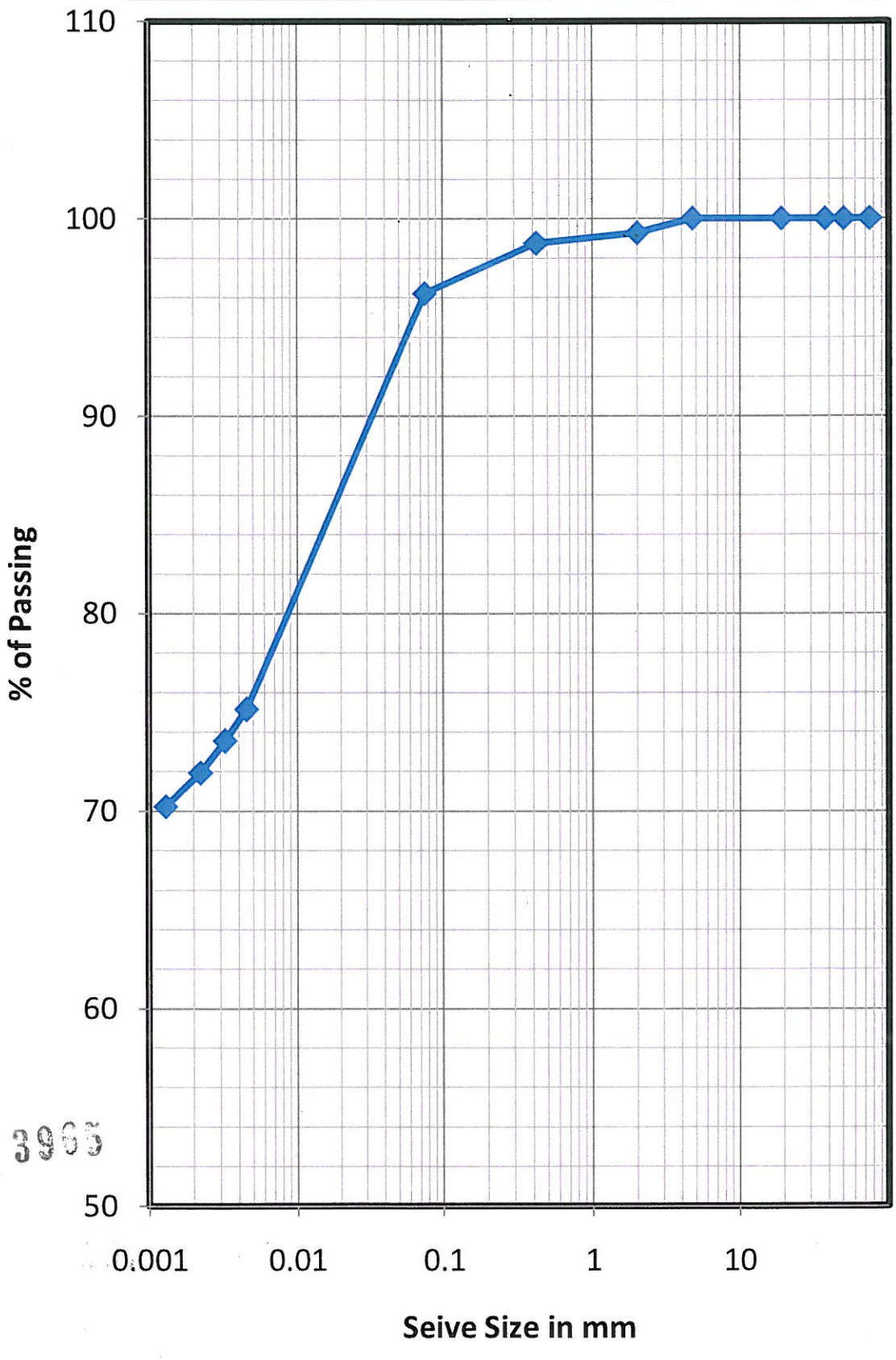
**Sand Content (% ) =** 1.46 **Silt and clay %** 98.54

**Remarks :-**

3961

Lab Manager Checked By

# Grain Size Distribution Curve
# BH-6,D-12.0m



# Arki Techno Consultants (India ) Pvt. Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

**N 3/91, IRC Village, Bhubaneswar**

## GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date of Testing | : | 10.10.12 |
| Location | : | BH-6(Markanda River-Saharanpur) | Sampled by | : | T. K. Das |
| Depth | : | 13.5m | Tested by | : | K.C.Sahoo |

Weight of oven dried sample before washing (gm) :- 100.00

Weight of oven dried sample after washing (gm) :- 1.75

| Sieve Size mm | Individual Weight Retained in gm. | Individual Wt. Retained In % | Cummulative Wt Retained In % | Cummulative Wt Passing In % |
|---|---|---|---|---|
| 75 | 0 | 0.00 | 0.00 | 100.00 |
| 50 | 0 | 0.00 | 0.00 | 100.00 |
| 37.5 | 0 | 0.00 | 0.00 | 100.00 |
| 19 | 0 | 0.00 | 0.00 | 100.00 |
| 4.75 | 0.00 | 0.00 | 0.00 | 100.00 |
| 2.00 | 0.80 | 0.80 | 0.80 | 99.20 |
| 0.425 | 0.67 | 0.67 | 1.47 | 98.53 |
| 0.075 | 0.28 | 0.28 | 1.75 | 98.25 |
| Total | 100.00 | | | |

**Gravel Content (%)=** **0.00**

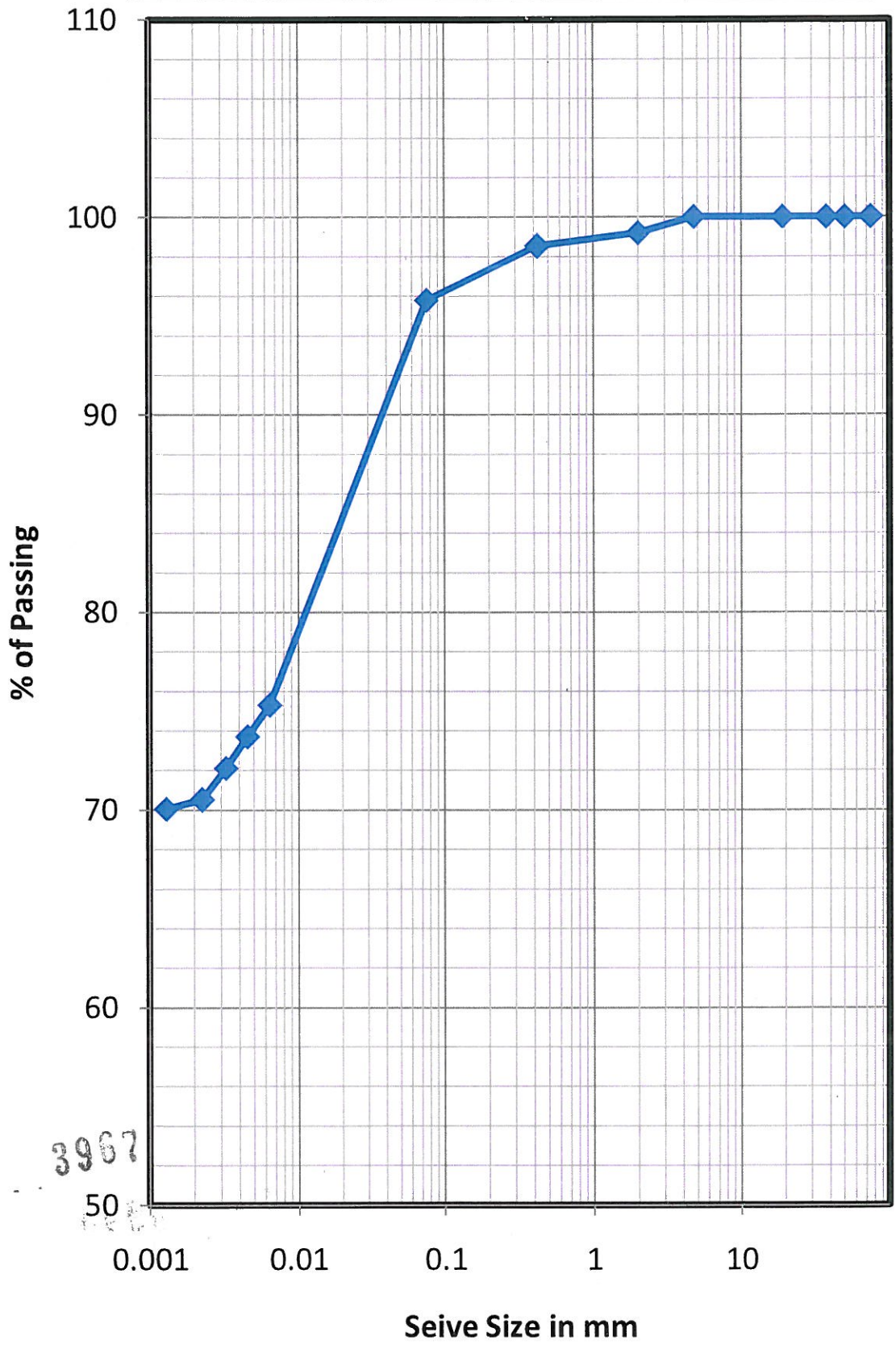
**Sand Content (% ) =** 1.75 **Silt and clay %** 98.25

**Remarks :-**

3966

Lab Manager Checked By

# Grain Size Distribution Curve
# BH-6,D-13.5m




3967

# Arki Techno Consultants (India ) Pvt. Ltd

ARKITECHNO CONSULTANTS (INDIA) PVT. LTD.

N 3/91, IRC Village, Bhubaneswar

## GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )

| | | | | | |
|---|---|---|---|---|---|
| Client | : | DFCC | | | |
| Project Name | : | G.I For 3 Nos. Important Bridges | | | |
| Type of Sample | : | UDS | Date of Testing | : | 10.10.12 |
| Location | : | BH-6(Markanda River-Saharanpur) | Sampled by | : | T. K. Das |
| Depth | : | 16.5m | Tested by | : | K.C.Sahoo |

Weight of oven dried sample before washing (gm) :- 100.00

Weight of oven dried sample after washing (gm) :- 1.82

| Sieve Size mm | Individual Weight Retained in gm. | Individual Wt. Retained In % | Cummulative Wt Retained In % | Cummulative Wt Passing In % |
|---|---|---|---|---|
| 75 | 0 | 0.00 | 0.00 | 100.00 |
| 50 | 0 | 0.00 | 0.00 | 100.00 |
| 37.5 | 0 | 0.00 | 0.00 | 100.00 |
| 19 | 0 | 0.00 | 0.00 | 100.00 |
| 4.75 | 0.00 | 0.00 | 0.00 | 100.00 |
| 2.00 | 0.86 | 0.86 | 0.86 | 99.14 |
| 0.425 | 0.66 | 0.66 | 1.52 | 98.48 |
| 0.075 | 0.30 | 0.30 | 1.82 | 98.18 |
| Total | 100.00 | | | |

**Gravel Content (%)=** **0.00**

**Sand Content (% ) =** 1.82 **Silt and clay %** 98.18

**Remarks :-**

3963

Lab Manager

Checked By