

Sample Details

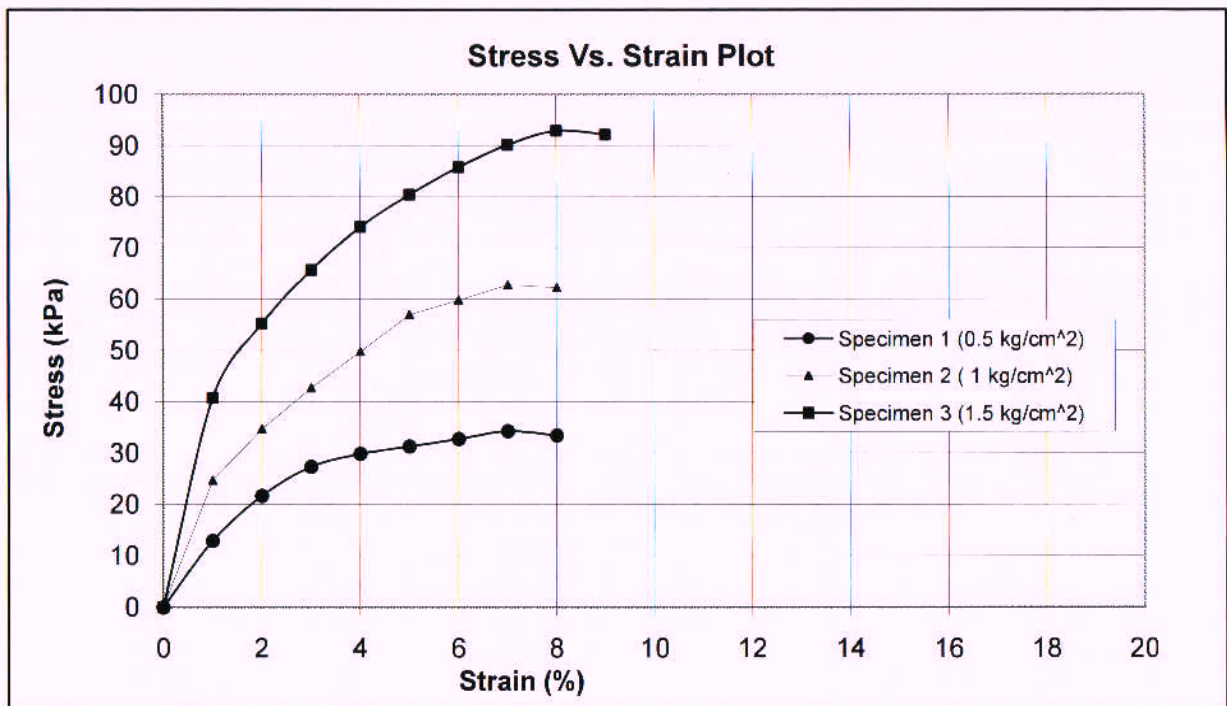
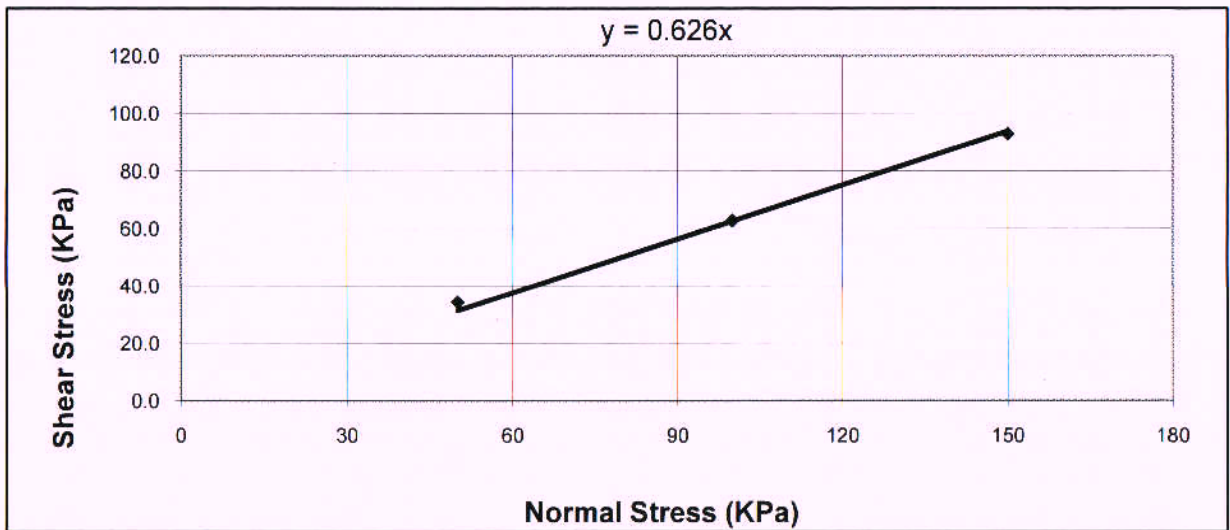
Dry-density, (mg/m³) = 1.60
Brownish Silty SAND(SM)

Test Result

c = 0.0 kPa
φ = 30.0 °

BH No: 1	Chainage 35+549	Sample No.: UDS-1	Depth (m): 2.00
Site Ref: Hapur - Meerut Section		Job No : 1342	
Test Report No: XPL/2015-16/02			

Tested by: <i>[Signature]</i>	Checked by: <i>[Signature]</i>	Authorised Signatory: <i>[Signature]</i>
Date: 29/11/16	Date: 22/2/16	Date: 22/2/16



Sample Details

Dry-density, (mg/m³) = 1.64
Brownish Silty SAND(SM)

Test Result

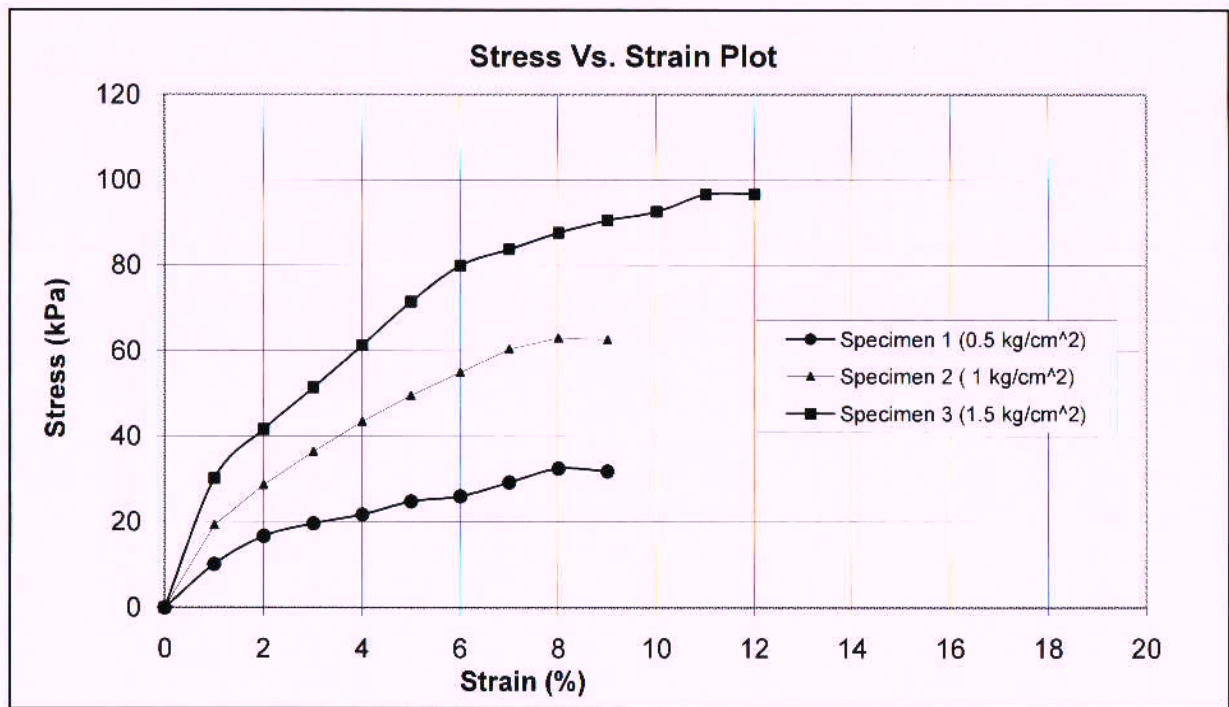
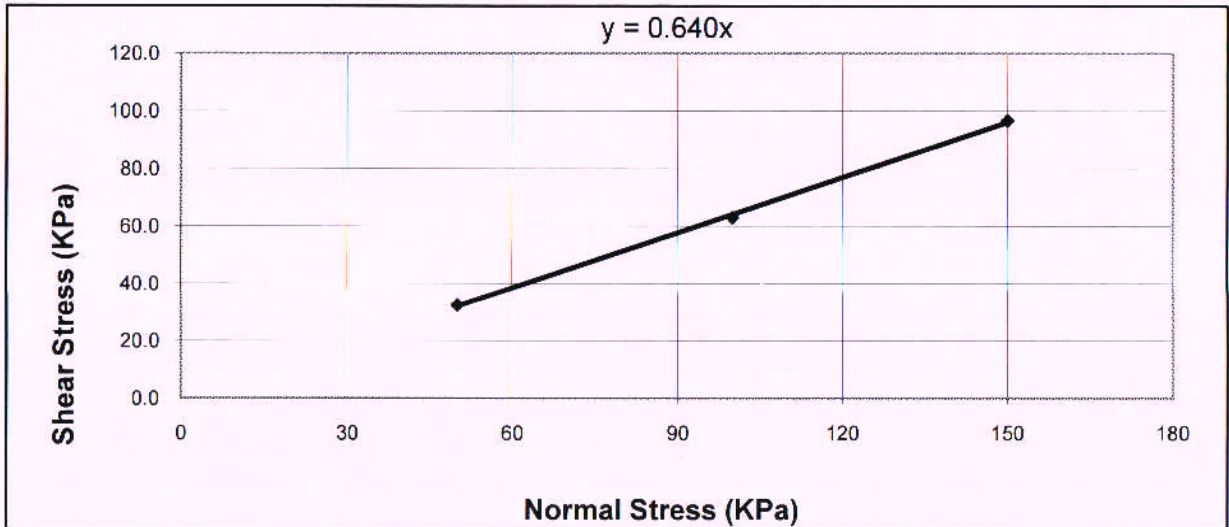
c = 0.0 kPa
φ = 32.0 °

BH No: 1	Chainage 35+549	Sample No.: SPT-5	Depth (m): 7.50
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Site Ref: Hapur - Meerut Section	Job No : 1342
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Test Report No: XPL/2015-16/02

Tested by: <i>Bhimsingh</i>	Checked by: <i>[Signature]</i>	Authorised Signatory: <i>[Signature]</i>
Date: 29/11/16	Date: 22/2/16	Date: 22/2/16



Sample Details

Dry-density, (mg/m³) = 1.70
 Brownish Sandy SILT (ML)

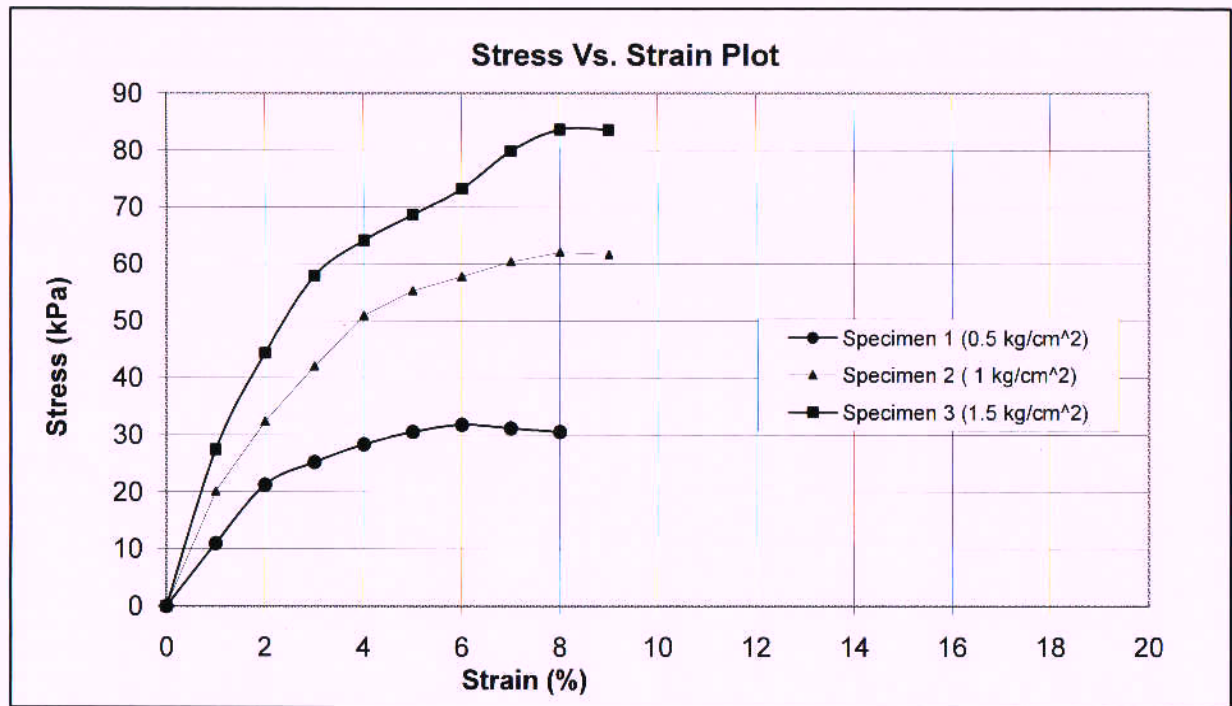
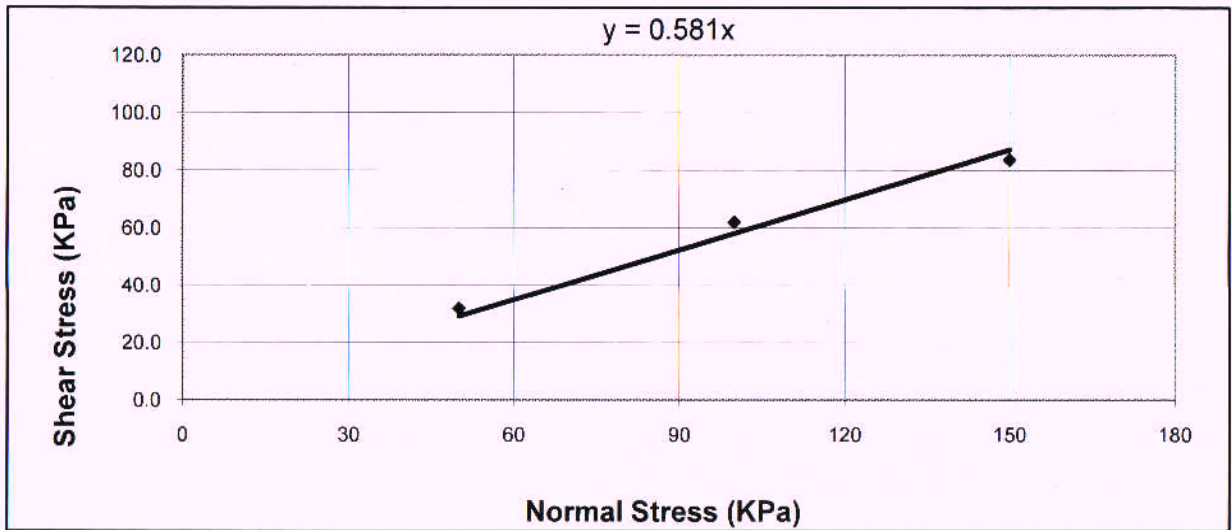
Test Result

$c = 0.0$ kPa
 $\phi = 32.6^\circ$

BH No: 1	Chainage 35+549	Sample No.: SPT-12	Depth (m): 18.00
Site Ref: Hapur - Meerut Section		Job No : 1342	
Test Report No: XPL/2015-16/02			

Tested by: <i>Bhim Singh</i>	Checked by: <i>RE</i>	Authorised Signatory: <i>[Signature]</i>
Date: 29/1/16	Date: 22/2/16	Date: 24/2/16

DIRECT SHEAR TEST RESULT
I.S.: 2720 : PART XIII



Sample Details

Dry-density, (mg/m³) = 1.57
 Brownish Sandy SILT (ML)

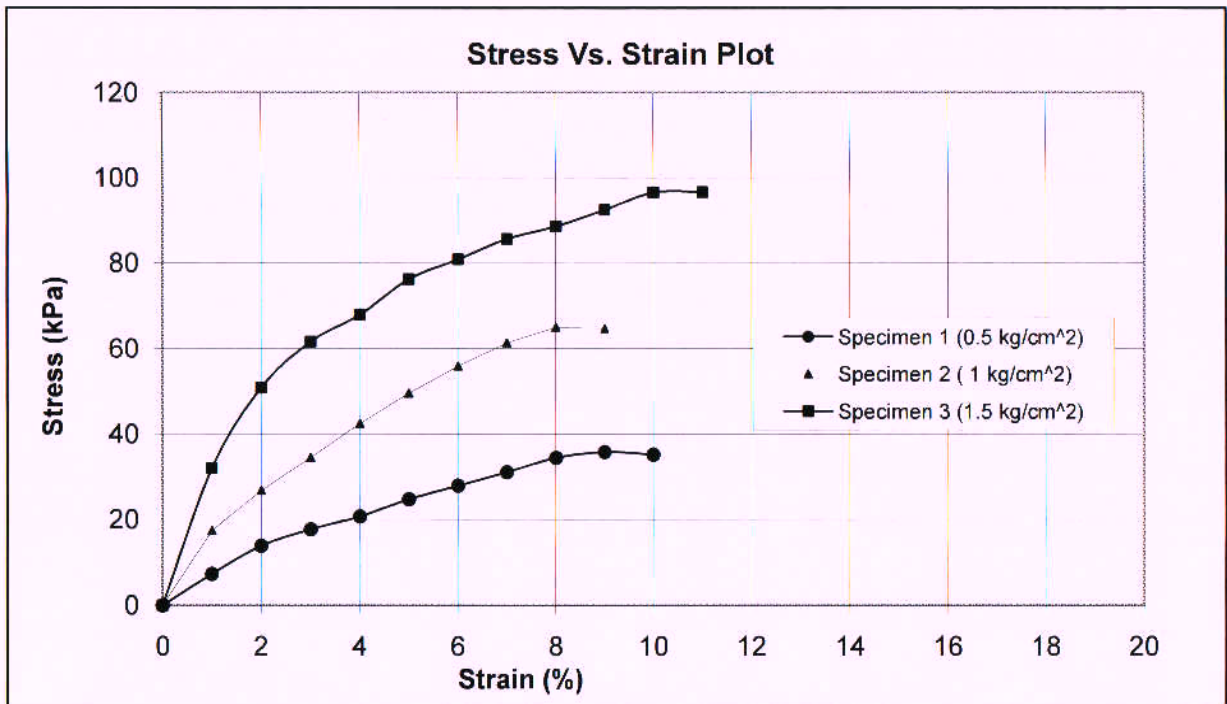
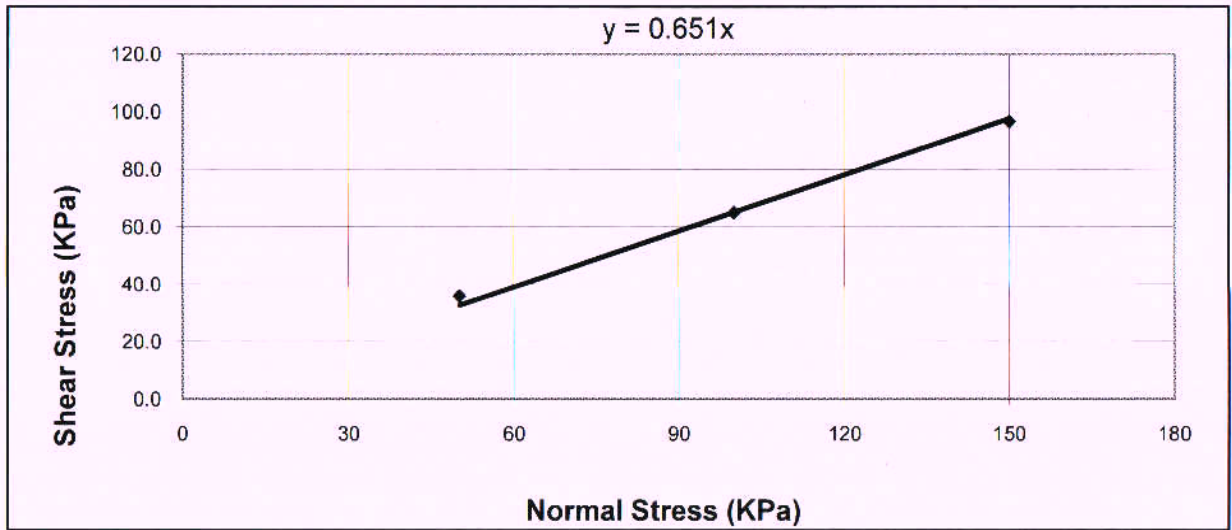
Test Result

$c = 0.0$ kPa
 $\phi = 30.1^\circ$

BH No: 2	Chainage 35+549	Sample No.: SPT-1	Depth (m): 1.50
Site Ref: Hapur - Meerut Section		Job No : 1342	
Test Report No: XPL/2015-16/02			

Tested by: <i>B. Singh</i>	Checked by: <i>[Signature]</i>	Authorised Signatory: <i>[Signature]</i>
Date: 30/1/16	Date: 22/2/16	Date: 22/2/16

DIRECT SHEAR TEST RESULT
I.S.: 2720 : PART XIII





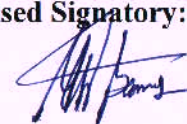
Sample Details

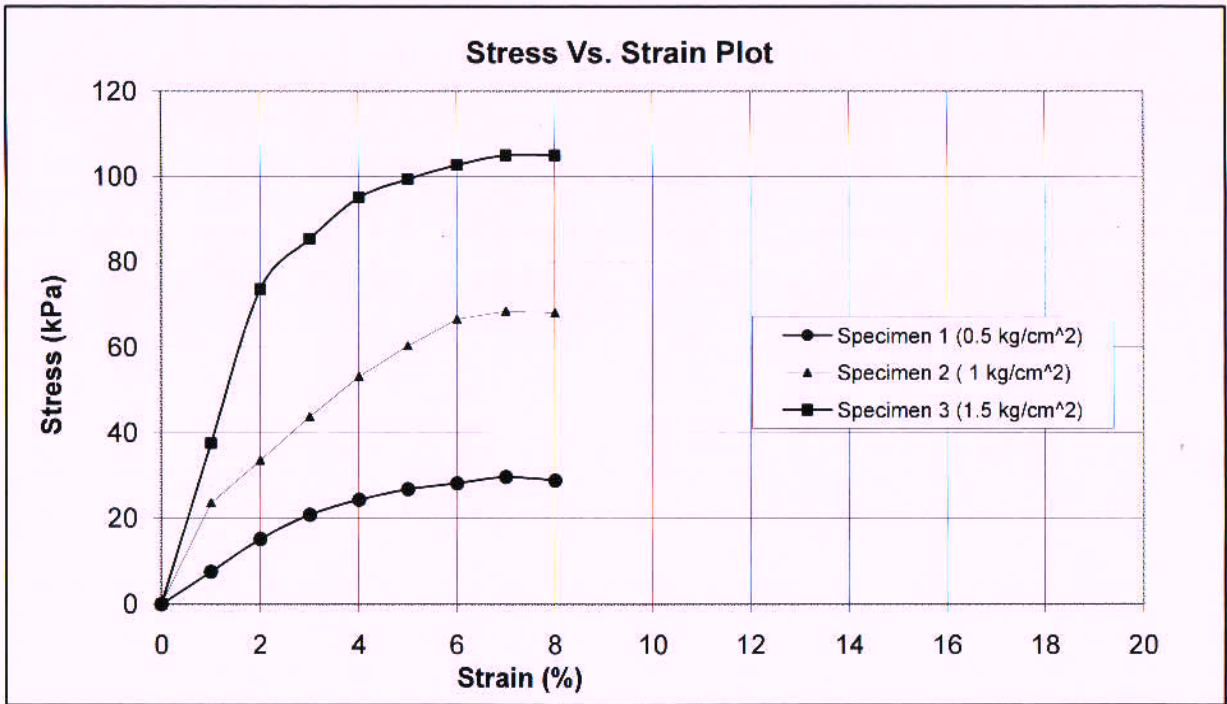
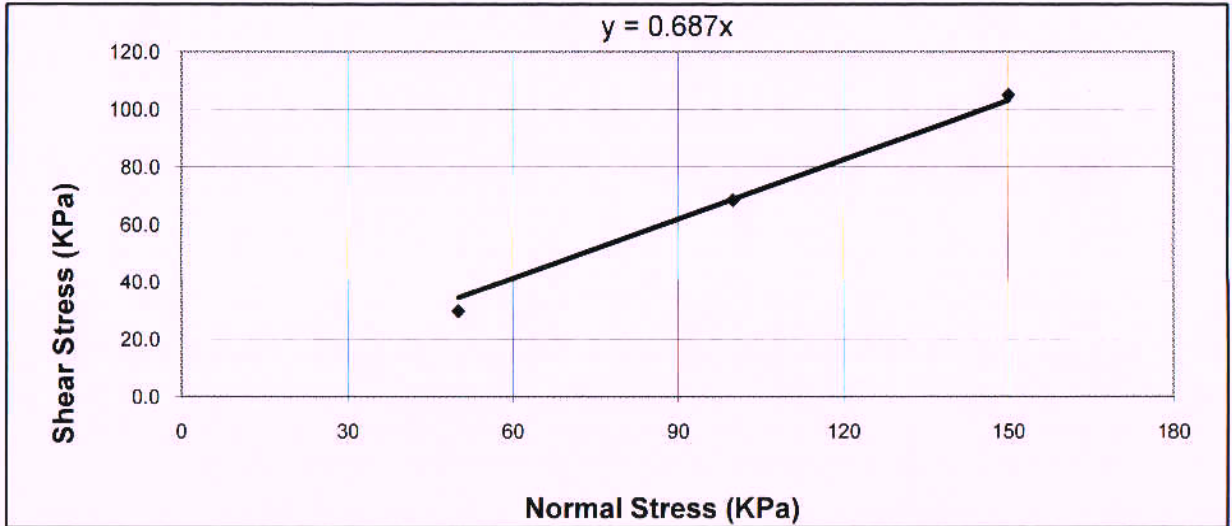
Dry-density, (mg/m³) = 1.57
 Poorly Graded SAND (SP)

Test Result

$c = 0.0$ kPa
 $\phi = 33.1^\circ$

BH No: 2	Chainage 35+549	Sample No.: SPT-5	Depth (m): 7.50
Site Ref: Hapur - Meerut Section	Job No : 1342		Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory: 
Date: 27/1/16	Date: 22/2/16	Date: 22/2/16



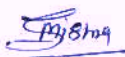

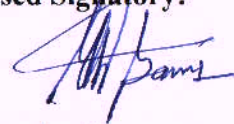
Sample Details

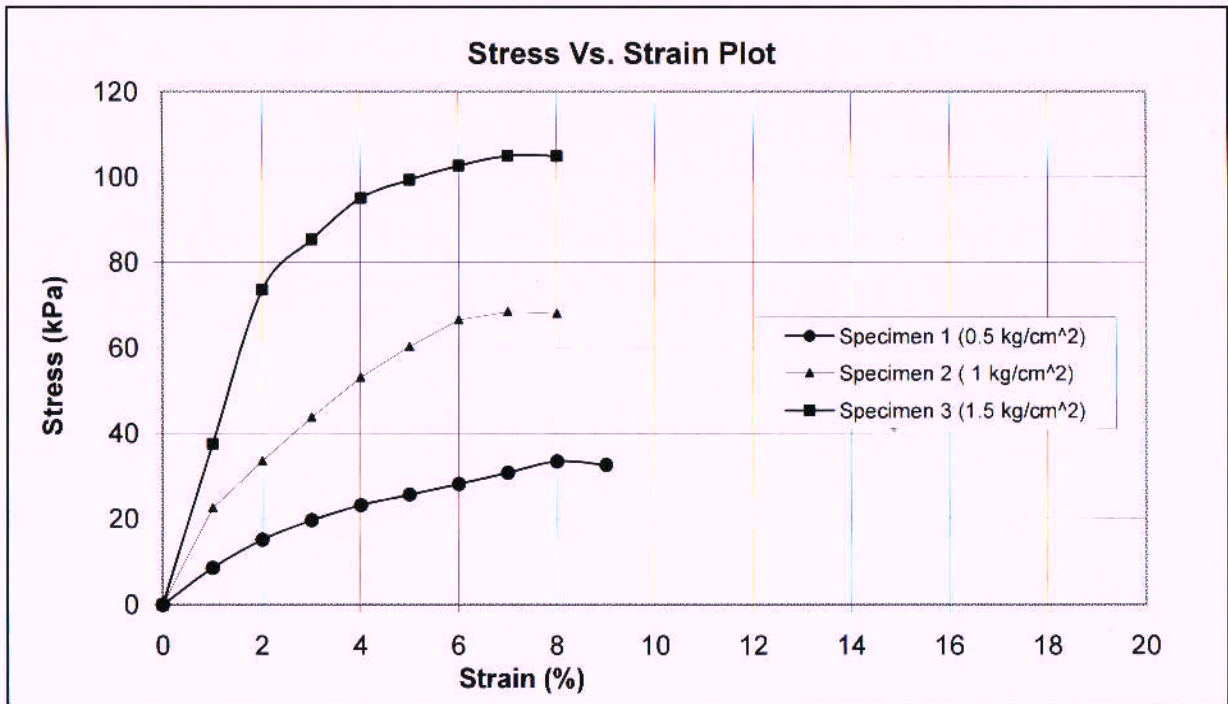
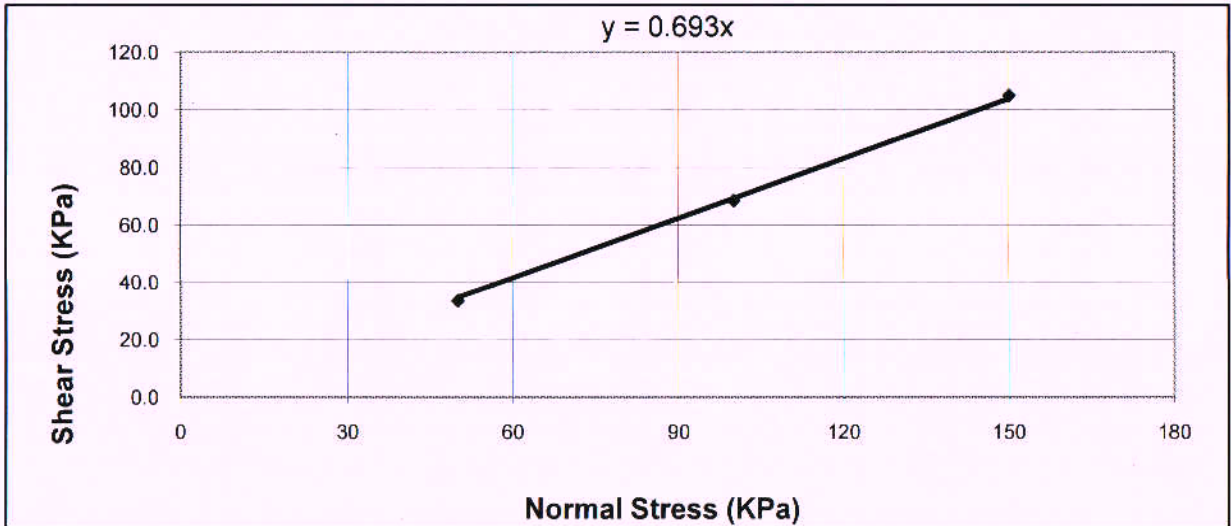
Dry-density, (mg/m³) = 1.71
 Poorly Graded SAND(SP)

Test Result

$c = 0.0$ kPa
 $\phi = 34.5^\circ$

BH No: 2	Chainage 35+549	Sample No.: SPT-12	Depth (m): 18.00
Site Ref: Harpur - Meerut Section	Job No : 1342		Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory: 
Date: 27/11/16	Date: 22/2/16	Date: 22/2/16



Sample Details

Dry-density, (mg/m³) = 1.74
Poorly Graded SAND(SP)

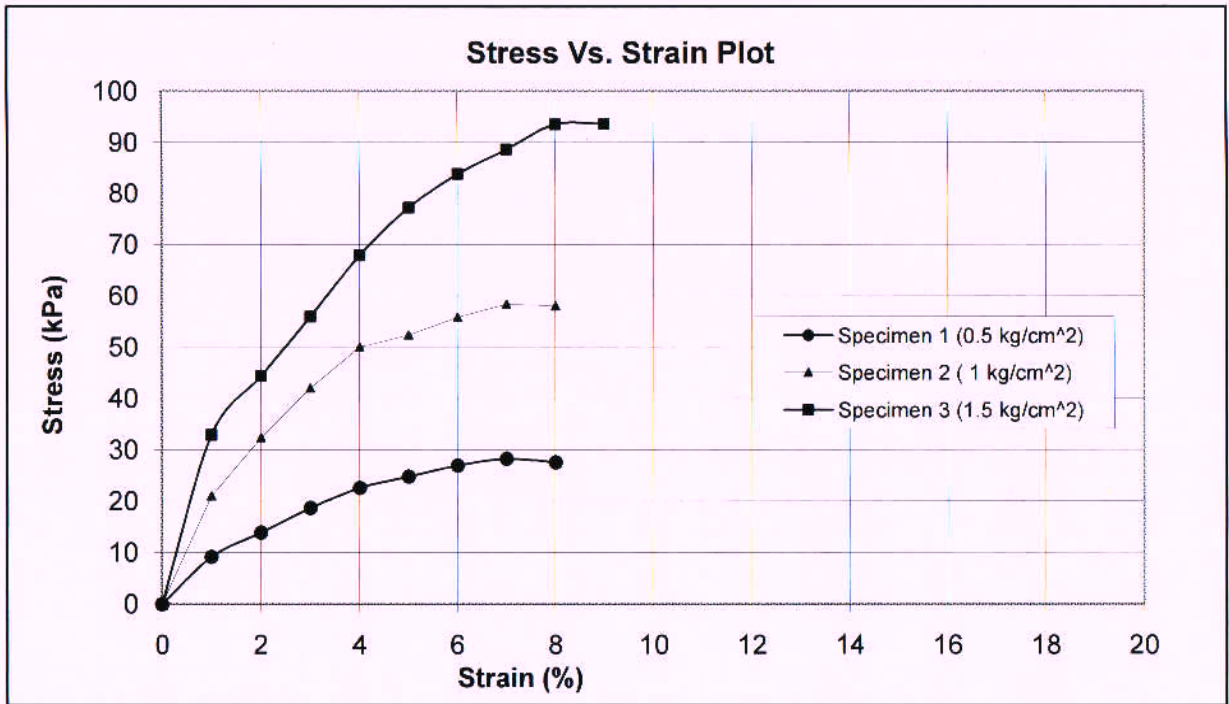
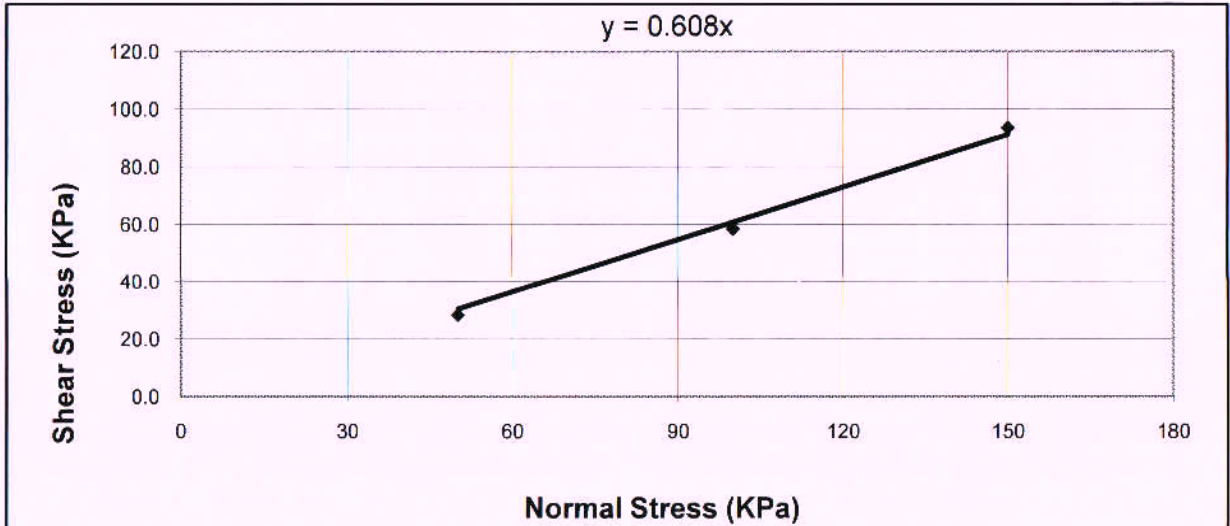
Test Result

$c = 0.0$ kPa
 $\phi = 34.7^\circ$

BH No: 2	Chainage 35+549	Sample No.: SPT-19	Depth (m): 28.50
Site Ref: Hapur - Meerut Section	Job No : 1342		Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory:
Date: 27/11/16	Date: 22/2/16	Date: 22/2/16

DIRECT SHEAR TEST RESULT
I.S.: 2720 : PART XIII



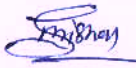

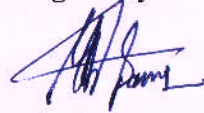
Sample Details

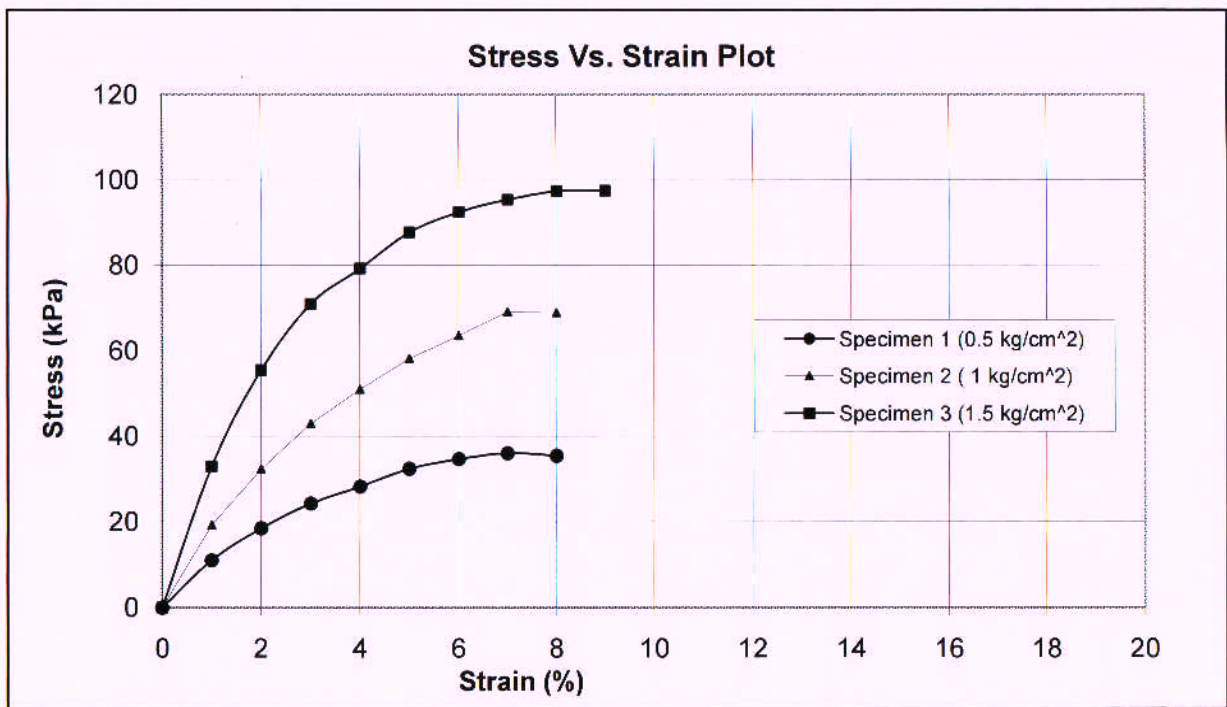
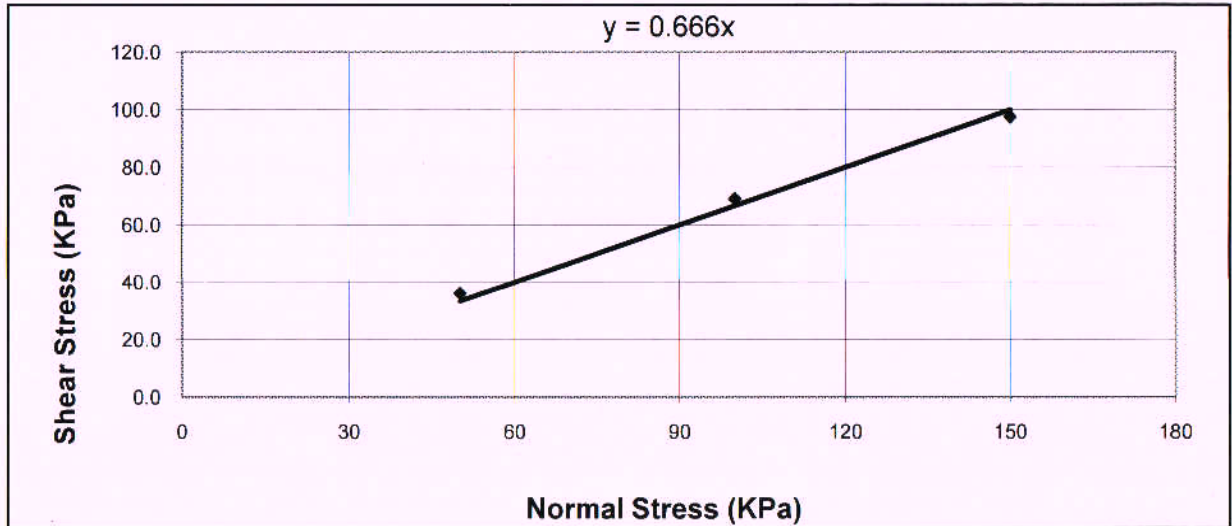
Dry-density, (mg/m³) = 1.56
 Brownish Silty SAND(SM)

Test Result

$c = 0.0$ kPa
 $\phi = 31.3^\circ$

BH No: 1	Chainage 37+360	Sample No.: UDS-1	Depth (m): 2.00
Site Ref:	Hapur - Meerut Section		Job No : 1342
			Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory: 
Date: 27/11/16	Date: 22/12/16	Date: 22/12/16



Sample Details

Dry-density, (mg/m³) = 1.75
Brownish Silty SAND (SW-SM)

Test Result

$c = 0.0$ kPa
 $\phi = 33.7^\circ$

BH No: 1	Chainage 37+360	Sample No.: SPT-4	Depth (m): 6.00
Site Ref: Hapur - Meerut Section	Job No : 1342		Test Report No: XPL/2015-16/02

Tested by:

[Signature]

Date: 27/10/16

Checked by:

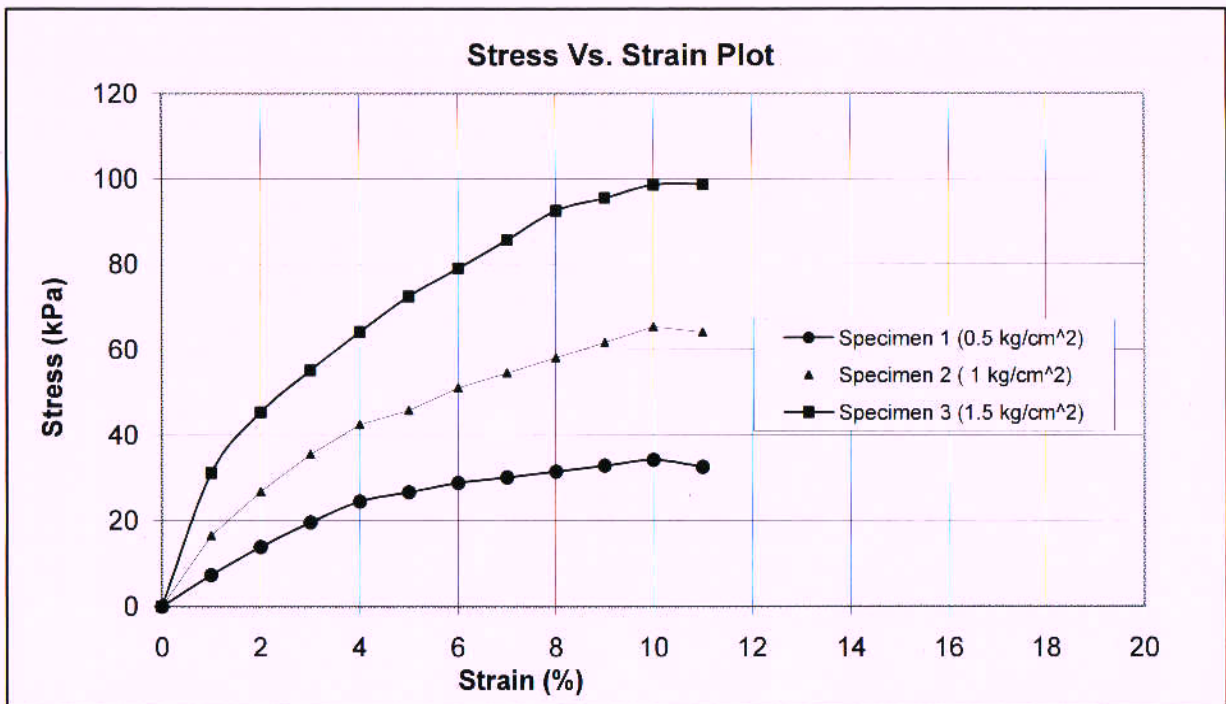
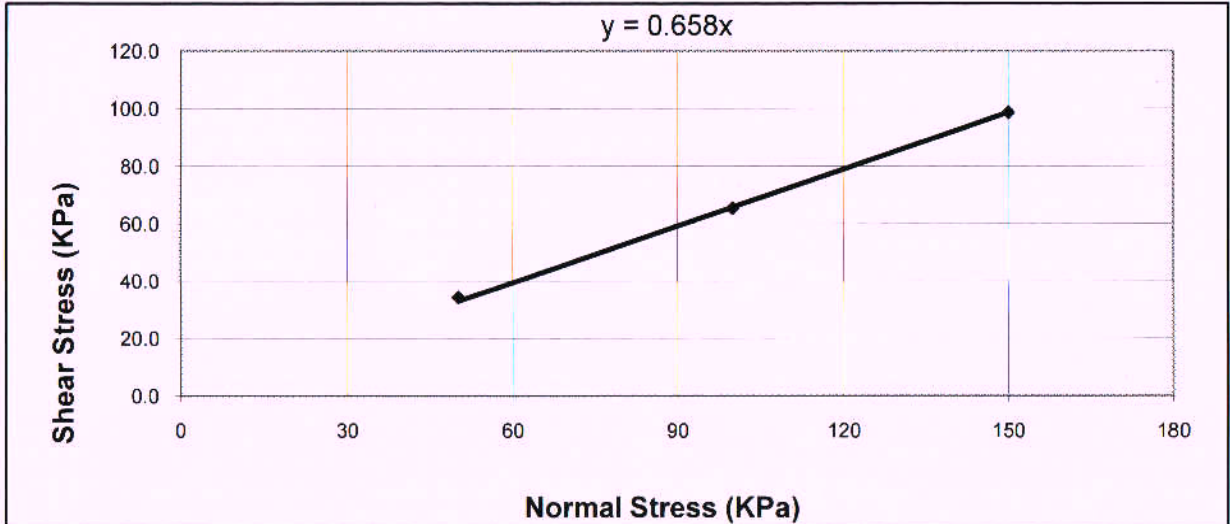
[Signature]

Date: 22/2/16

Authorised Signatory:

[Signature]

Date: 22/2/16



Sample Details

Dry-density, (mg/m³) = 1.76
Brownish Silty SAND(SM)

Test Result

c = 0.0 kPa
φ = 33.3 °

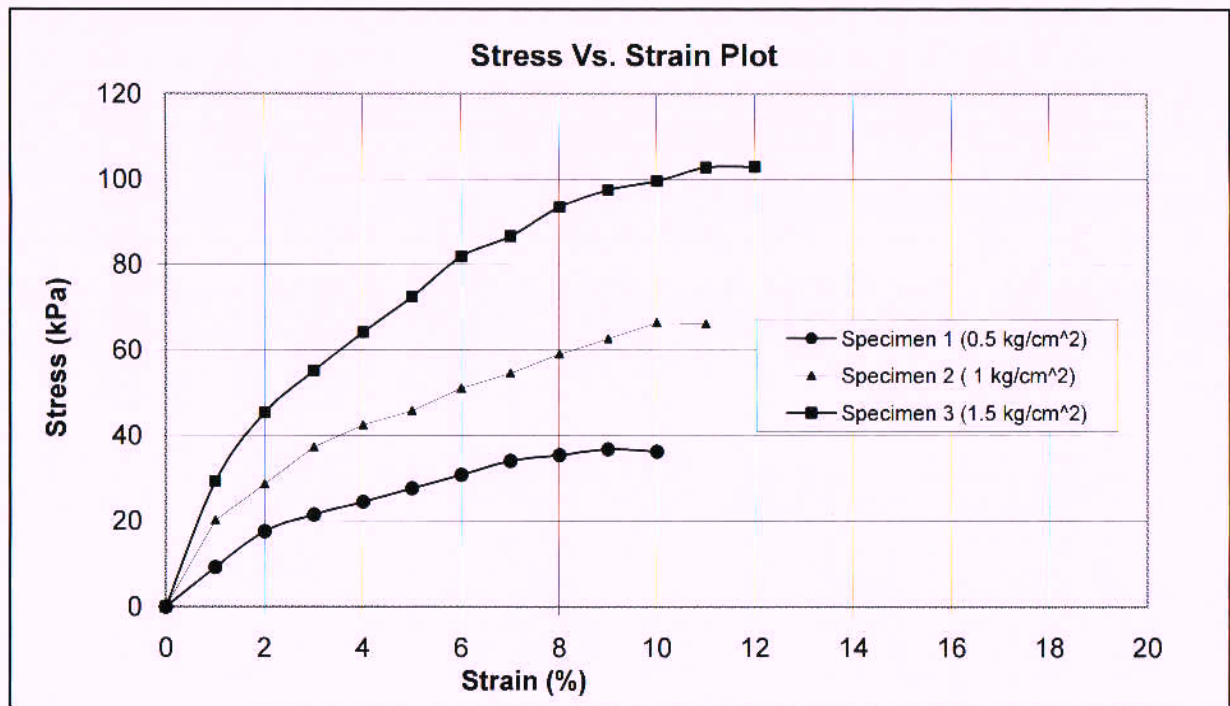
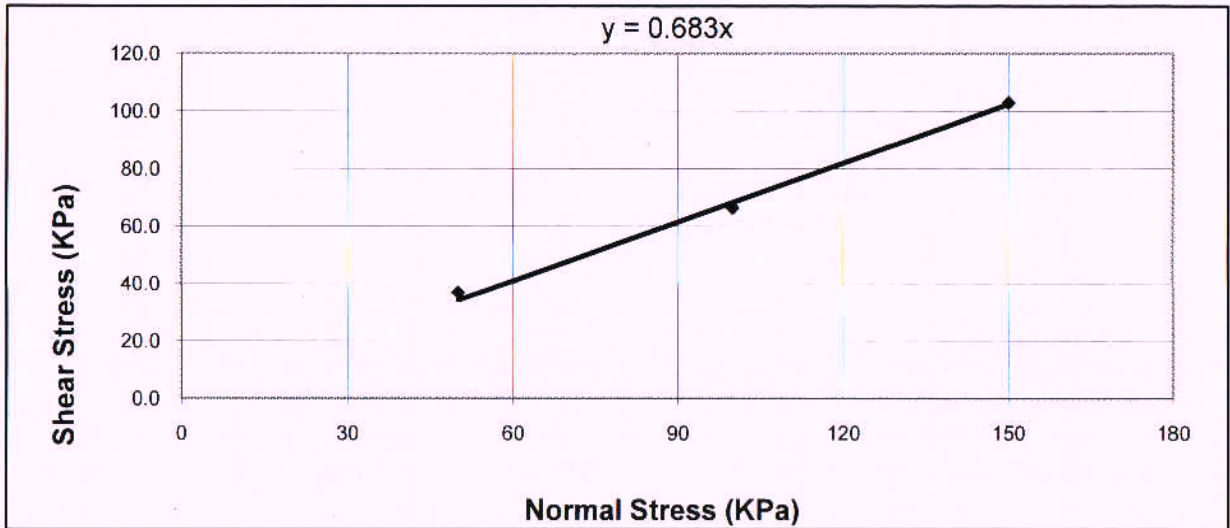
BH No: 1	Chainage 37+360	Sample No.: SPT-6	Depth (m): 9.00
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Site Ref: Hapur - Meerut Section	Job No : 1342
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Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory:
Date: 20/1/16	Date: 22/2/16	Date: 22/2/16

DIRECT SHEAR TEST RESULT
I.S.: 2720 : PART XIII



Sample Details

Dry-density, (mg/m³) = 1.77
 Brownish Silty SAND (SW-SM)

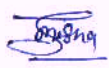

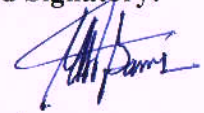
Test Result

c = 0.0 kPa
 $\phi = 34.3^\circ$

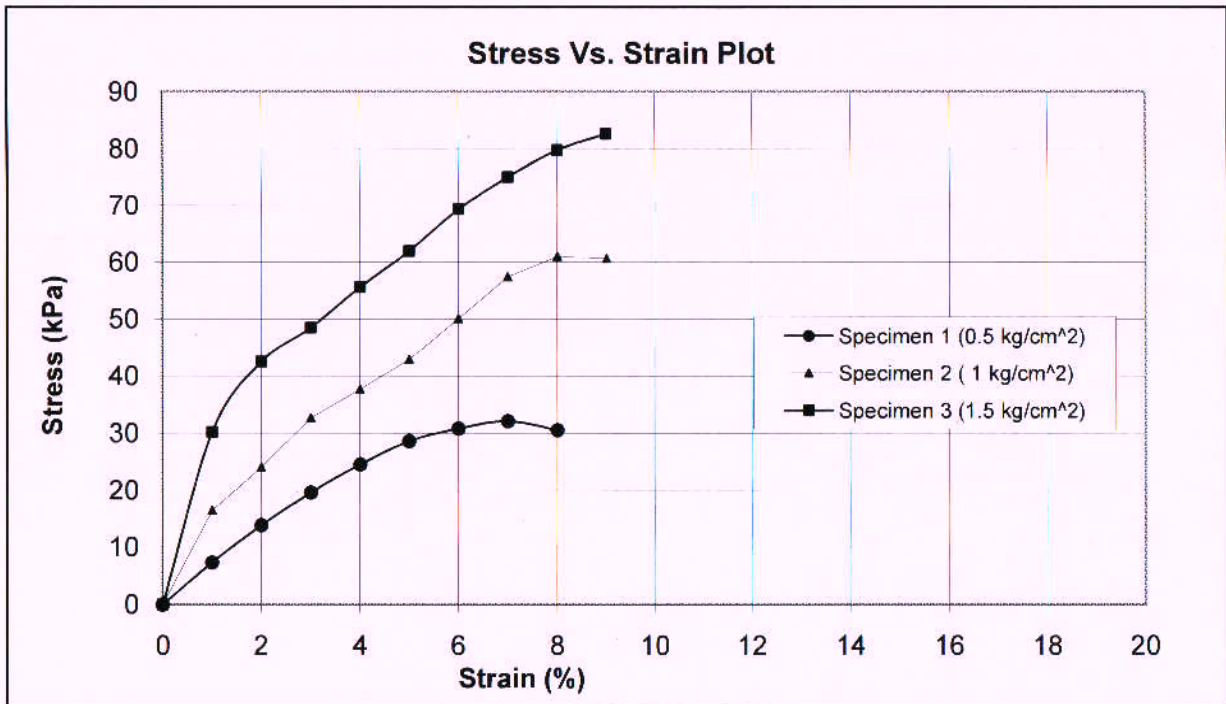
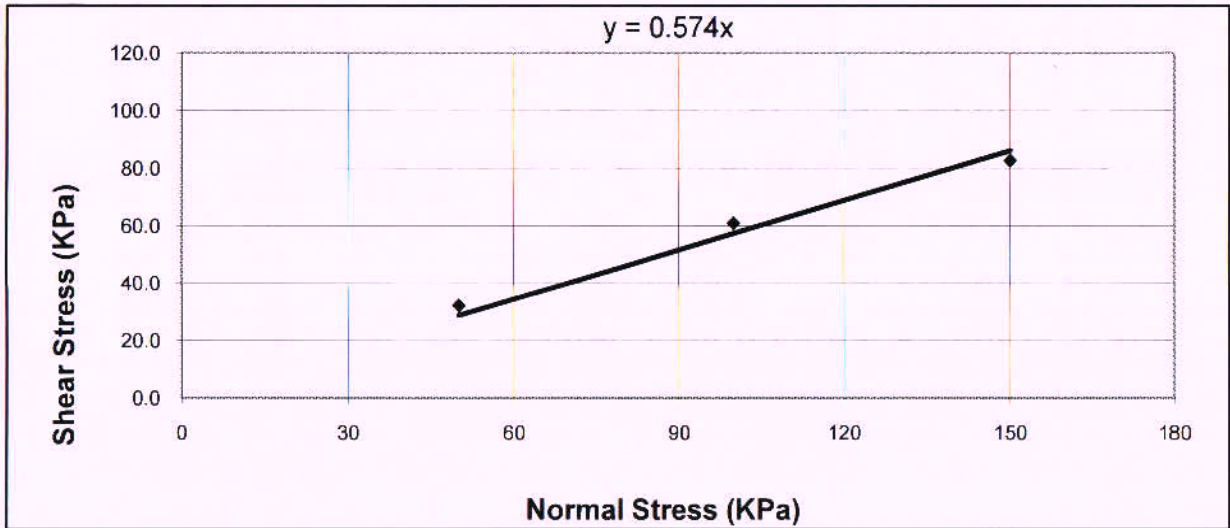
BH No: 1	Chainage 37+360	Sample No.: SPT-8	Depth (m): 12.00
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Site Ref: Hapur - Meerut Section	Job No: 1342
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Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory: 
Date: 28/11/16	Date: 22/2/16	Date: 22/2/16

DIRECT SHEAR TEST RESULT
I.S.: 2720 : PART XIII



Sample Details

Dry-density, (mg/m³) = 1.57
 Brownish Silty SAND(SM)

Test Result

c = 0.0 kPa
 $\phi = 29.8^\circ$

BH No: 1	Chainage 38+580	Sample No.: UDS-1	Depth (m): 2.00
Site Ref: Hapur - Meerut Section			Job No : 1342
			Test Report No: XPL/2015-16/02

Tested by:

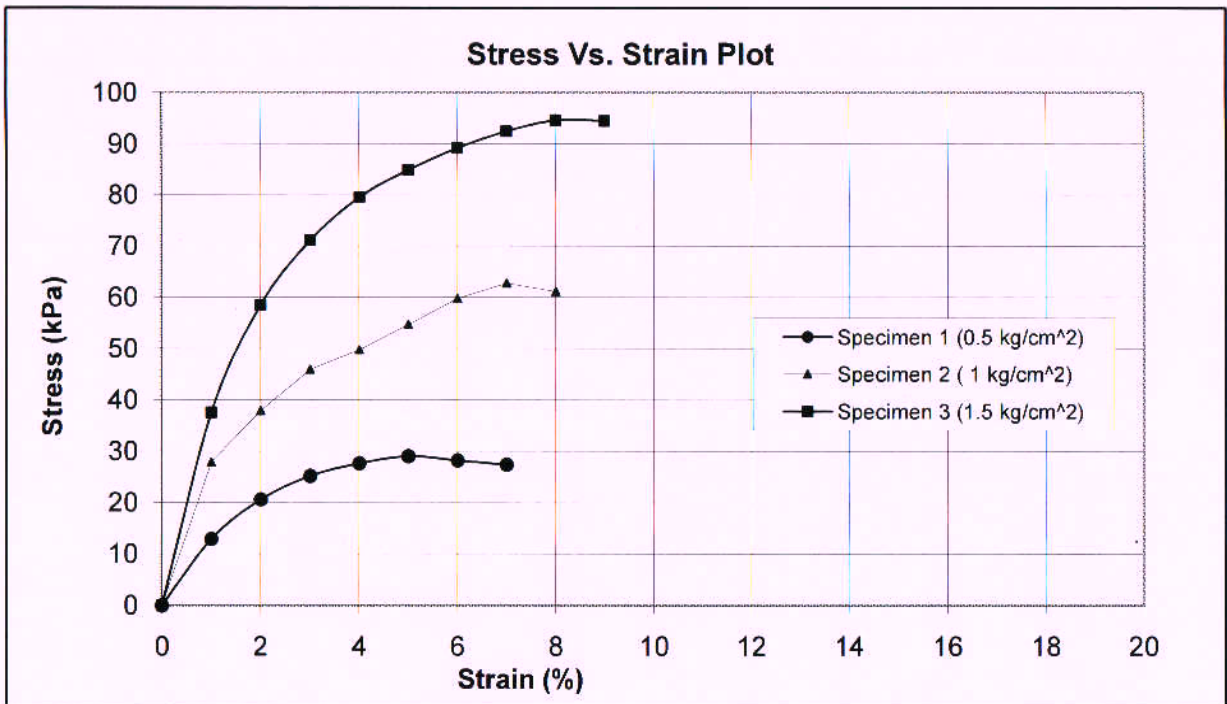
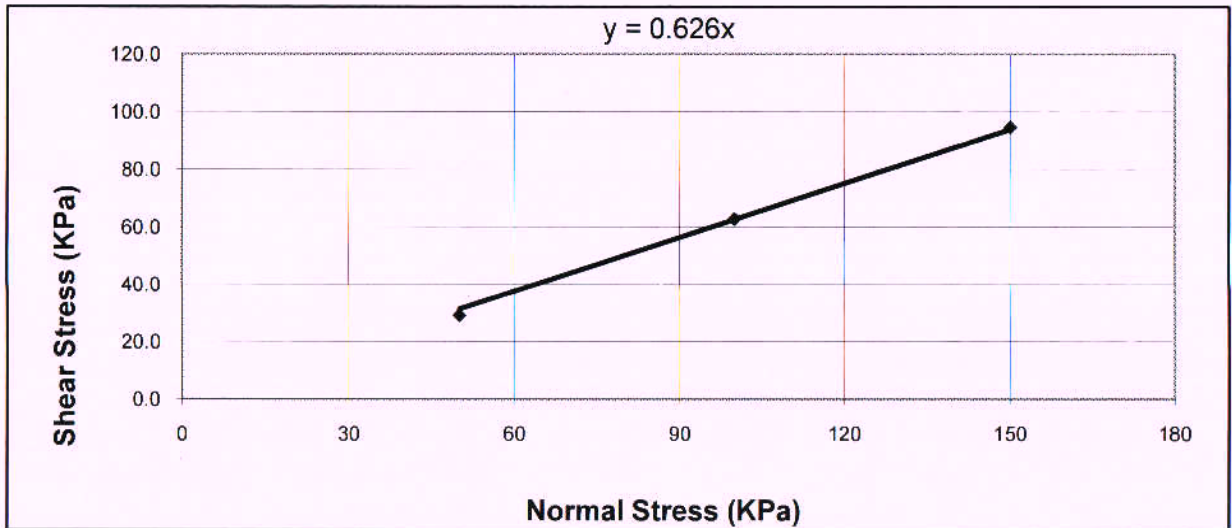
Date: 28/11/16

Checked by:

Date: 22/2/16

Authorised Signatory:

Date: 22/2/16





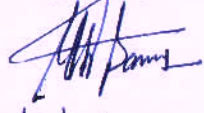
Sample Details

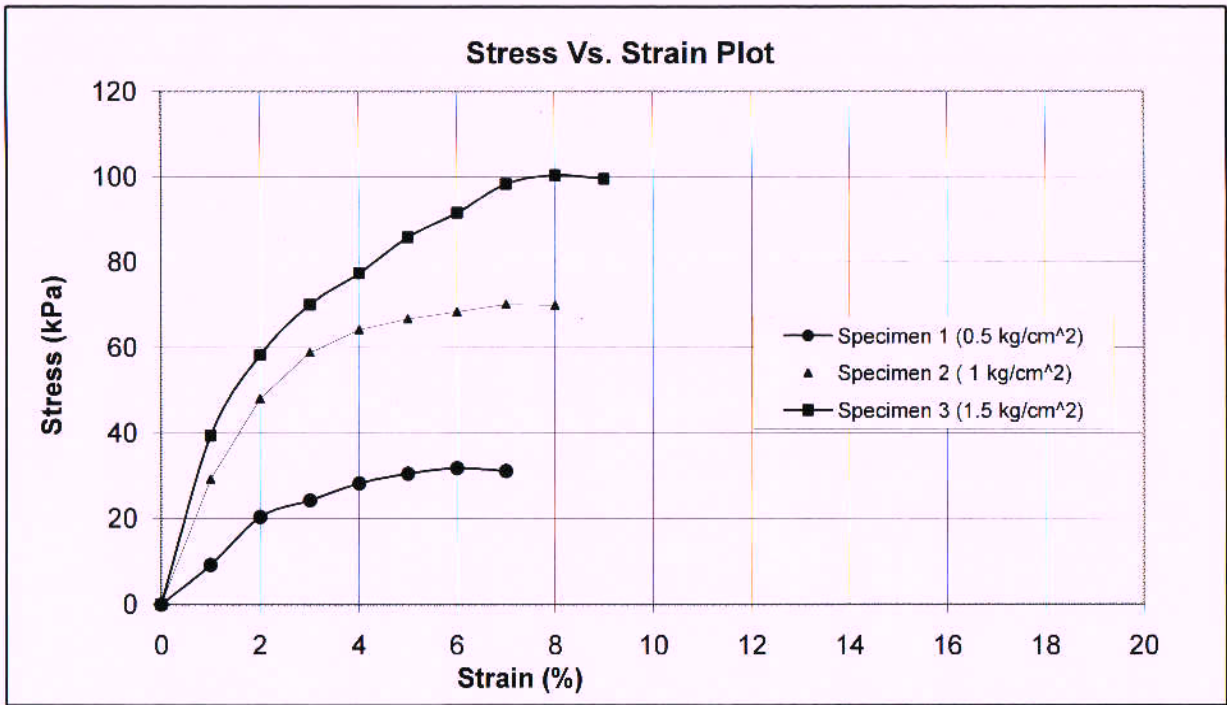
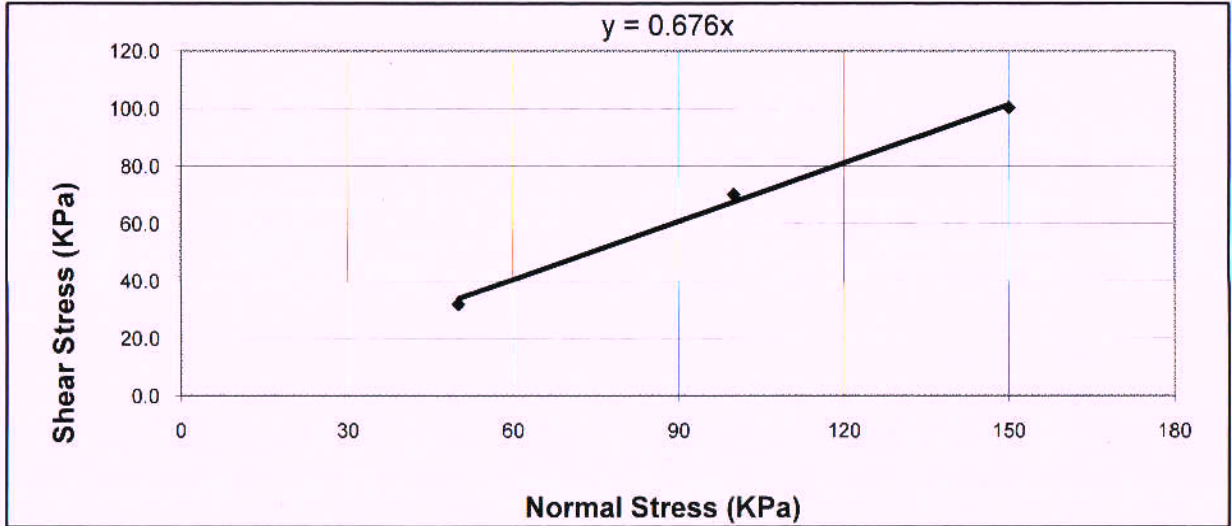
Dry-density, (mg/m³) = 1.63
Poorly Graded SAND(SP)

Test Result

c = 0.0 kPa
φ = 32.0 °

BH No: 1	Chainage 38+580	Sample No.: SPT-5	Depth (m): 7.50
Site Ref: Hapur - Meerut Section		Job No : 1342	
Test Report No: XPL/2015-16/02			

Tested by: 	Checked by: 	Authorised Signatory: 
Date: 29/10/16	Date: 22/2/16	Date: 22/2/16



Sample Details

Dry-density, (mg/m³) = 1.64
Poorly Graded SAND(SP)

Test Result

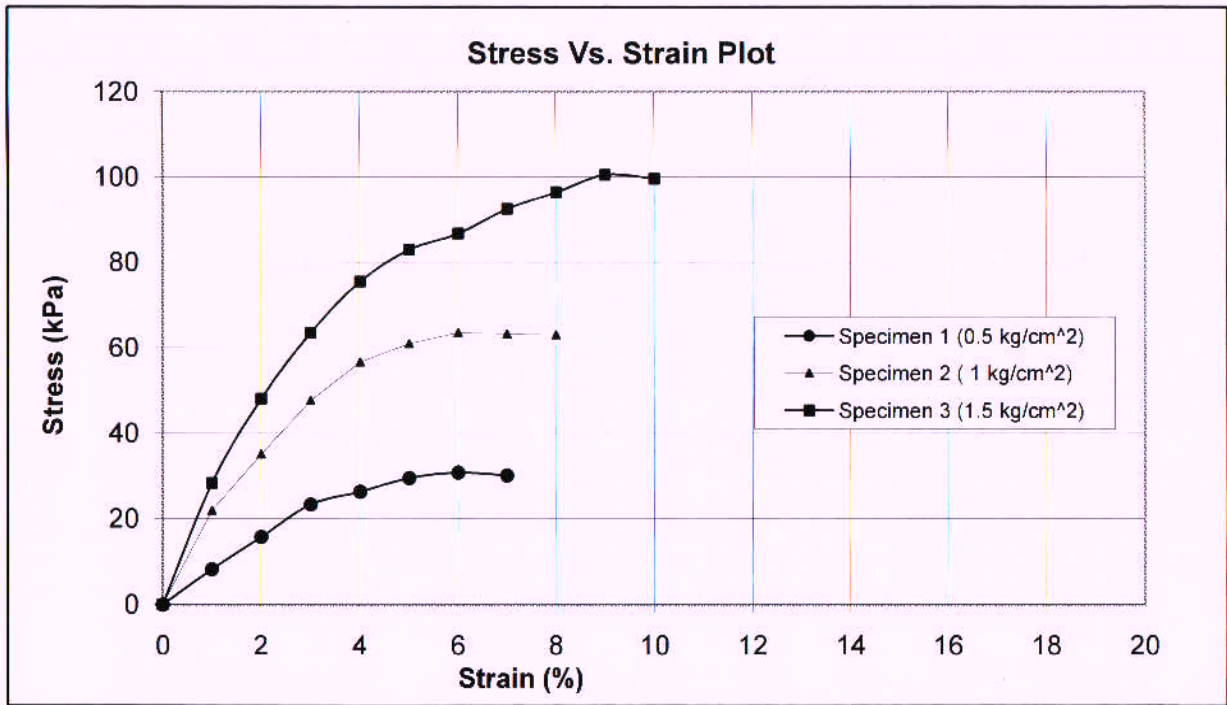
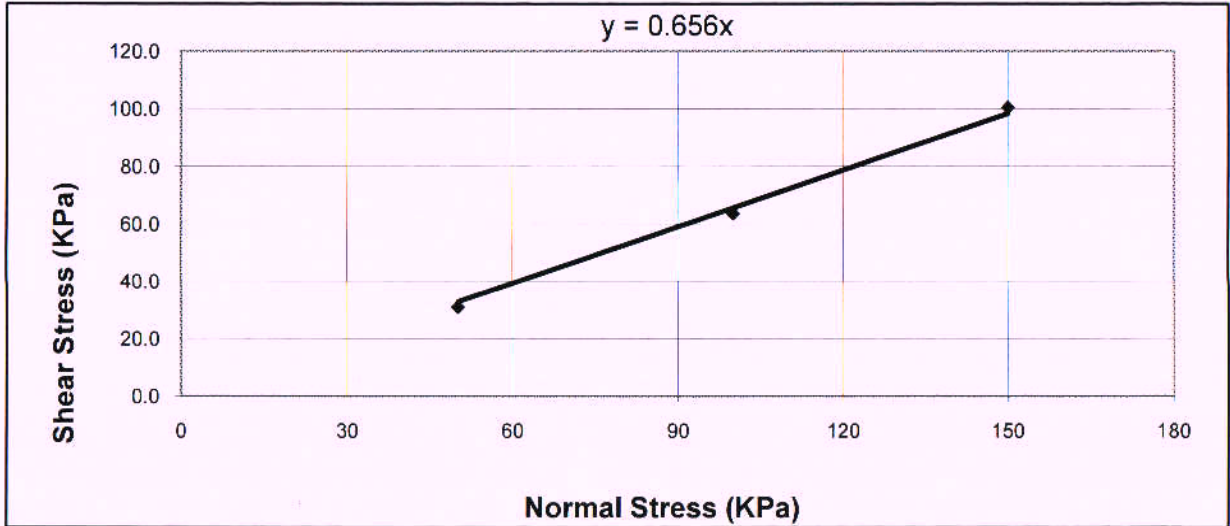
c = 0.0 kPa
φ = 34.0°

BH No: 1	Chainage 38+580	Sample No.: SPT-9	Depth (m): 13.50
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Site Ref: Hapur - Meerut Section	Job No : 1342
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Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory:
Date: 29/11/16	Date: 22/2/16	Date: 22/2/16



Sample Details

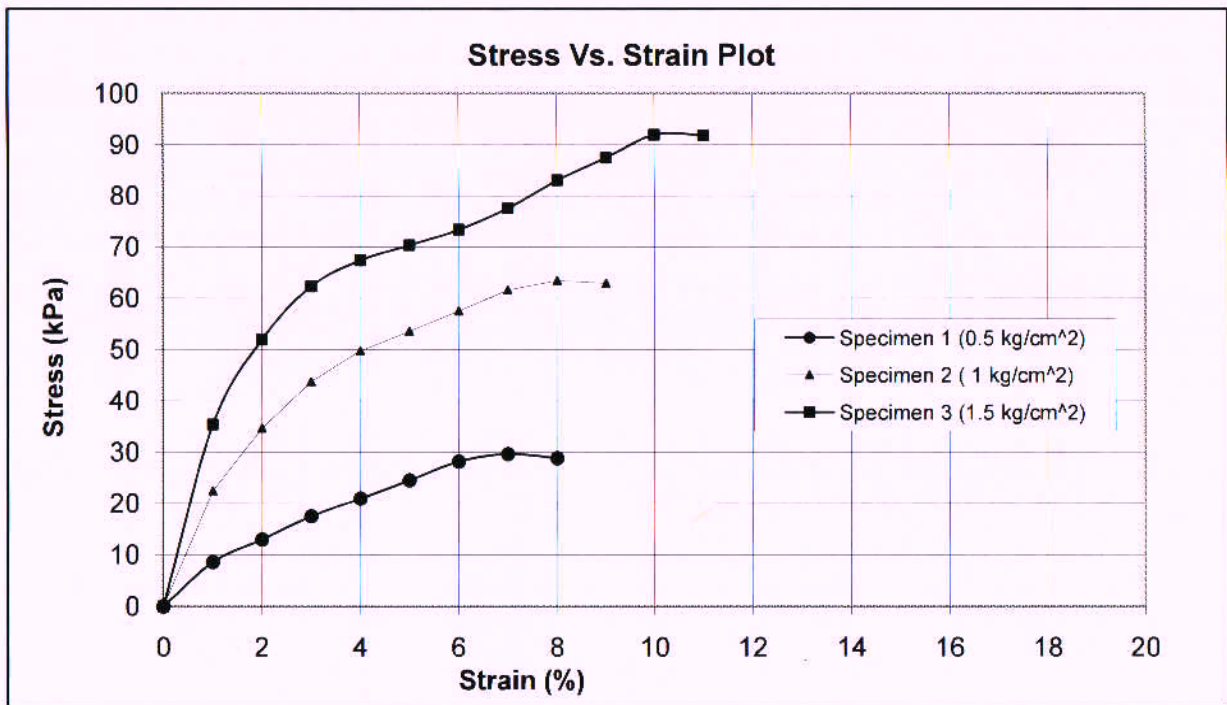
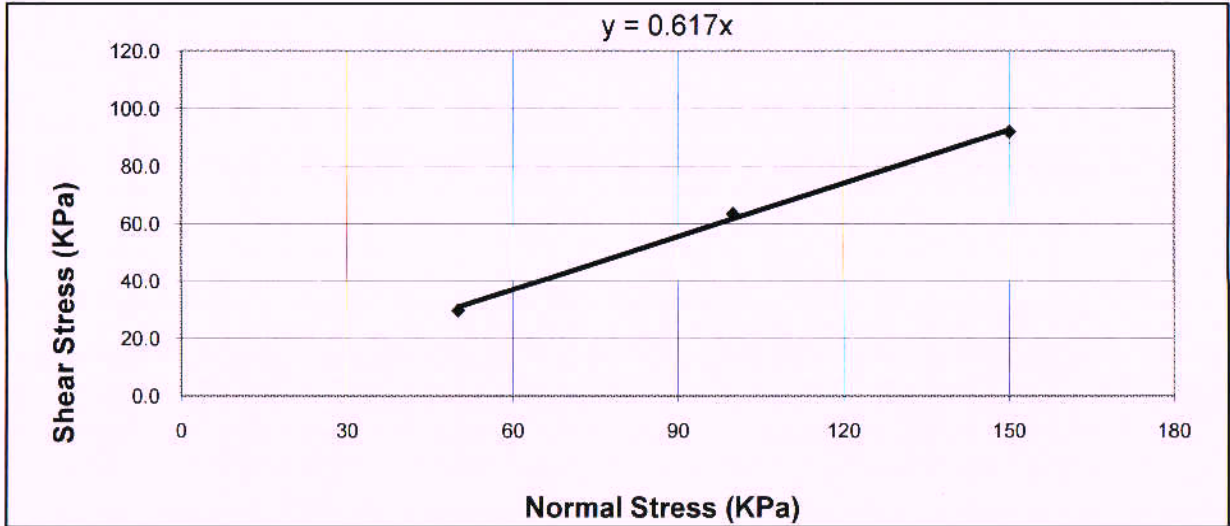
Dry-density, (mg/m³) = 1.68
Poorly Graded SAND(SP)

Test Result

c = 0.0 kPa
φ = 33.3 °

BH No: 1	Chainage 38+580	Sample No.: SPT-16	Depth (m): 24.00
Site Ref: Hapur - Meerut Section	Job No : 1342		Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory:
Date: 29/11/16	Date: 22/2/16	Date: 22/2/16



Sample Details

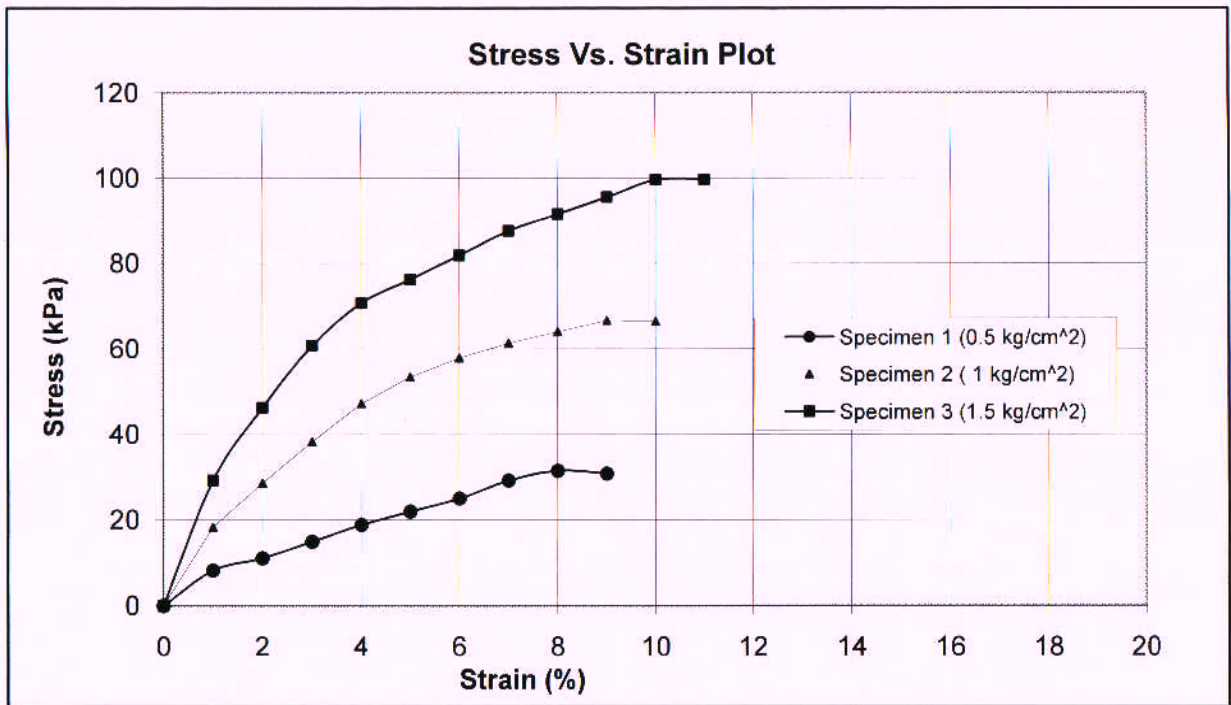
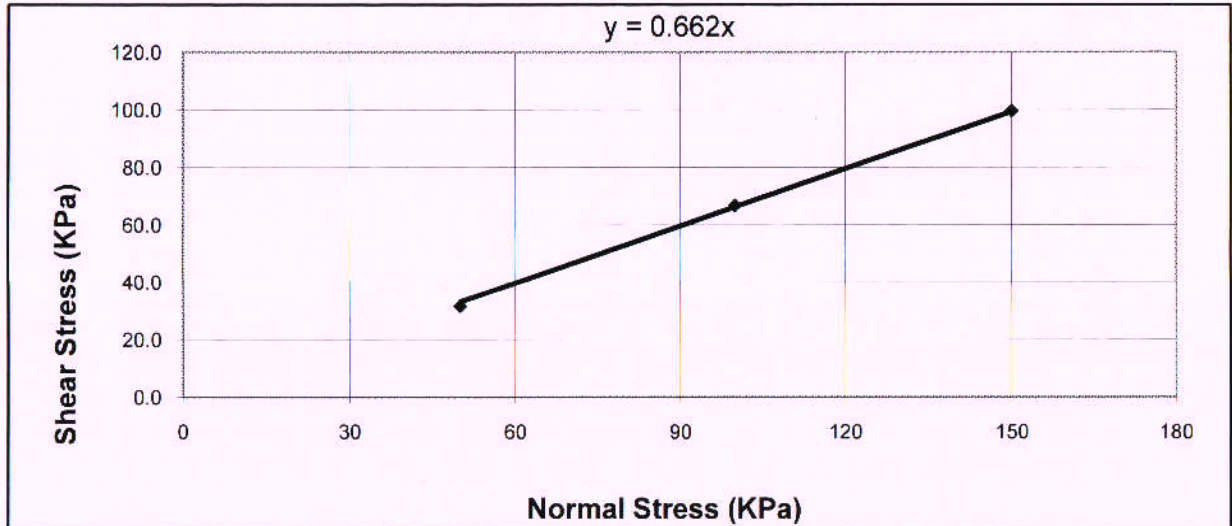
Dry-density, (mg/m³) = 1.57
Poorly Graded SAND(SP)

Test Result

c = 0.0 kPa
φ = 31.7°

BH No: 1	Chainage 39+120	Sample No.: SPT-1	Depth (m): 1.50
Site Ref: Hapur - Meerut Section	Job No : 1342		Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory:
Date: 29/1/16	Date: 22/2/16	Date: 22/2/16



Sample Details

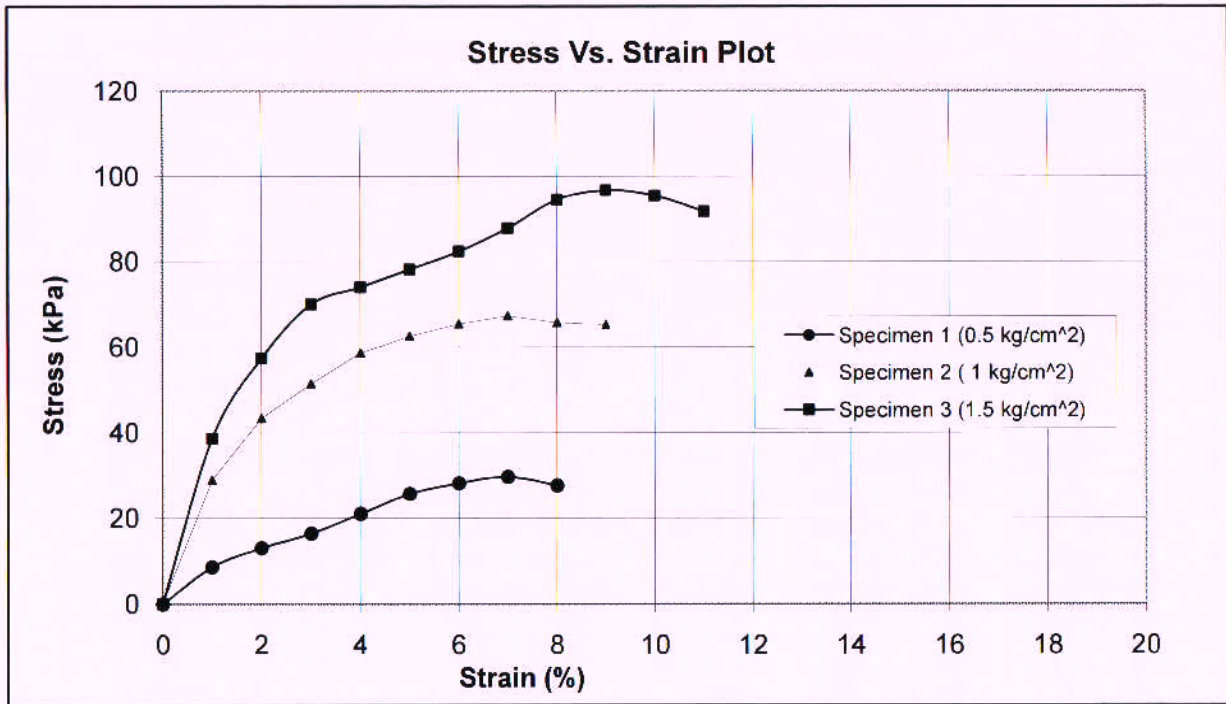
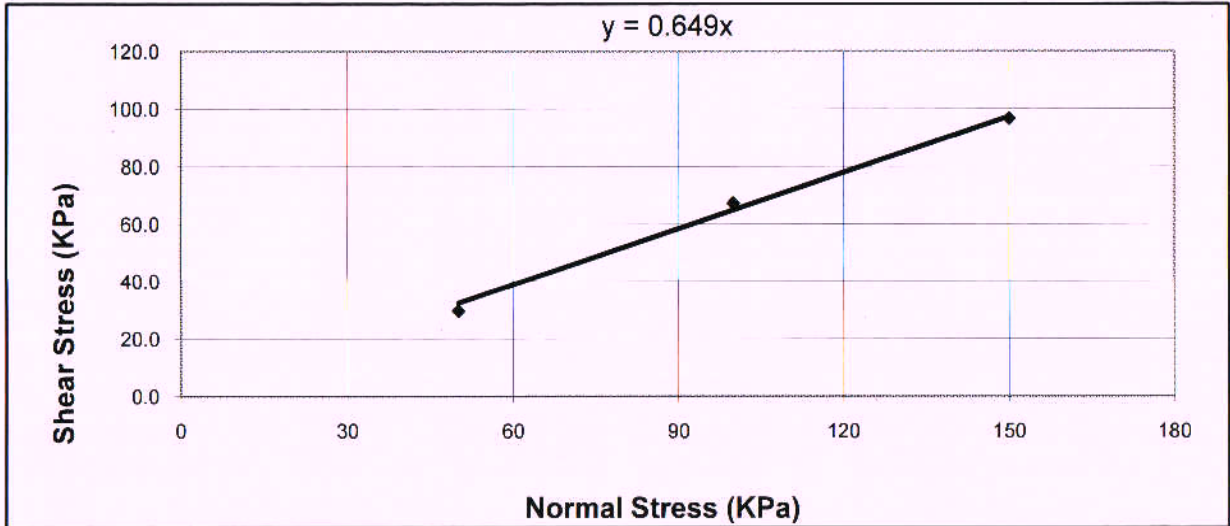
Dry-density, (mg/m³) = 1.69
Brownish Sandy SILT (ML)

Test Result

c = 0.0 kPa
φ = 33.5 °

BH No: 1	Chainage 39+120	Sample No.: SPT-4	Depth (m): 6.00
Site Ref: Hapur - Meerut Section	Job No : 1342		Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory:
Date: 29/11/16	Date: 22/2/16	Date: 22/2/16



Sample Details

Dry-density, (mg/m³) = 1.70
Poorly Graded SAND(SP)

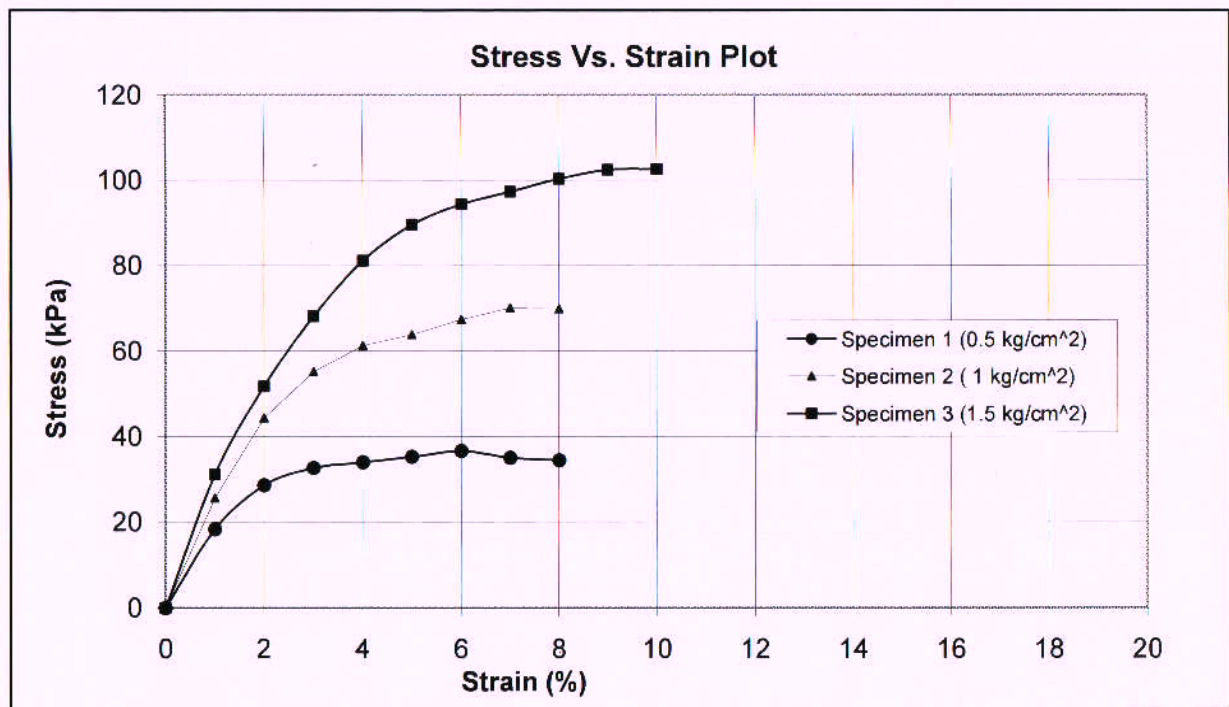
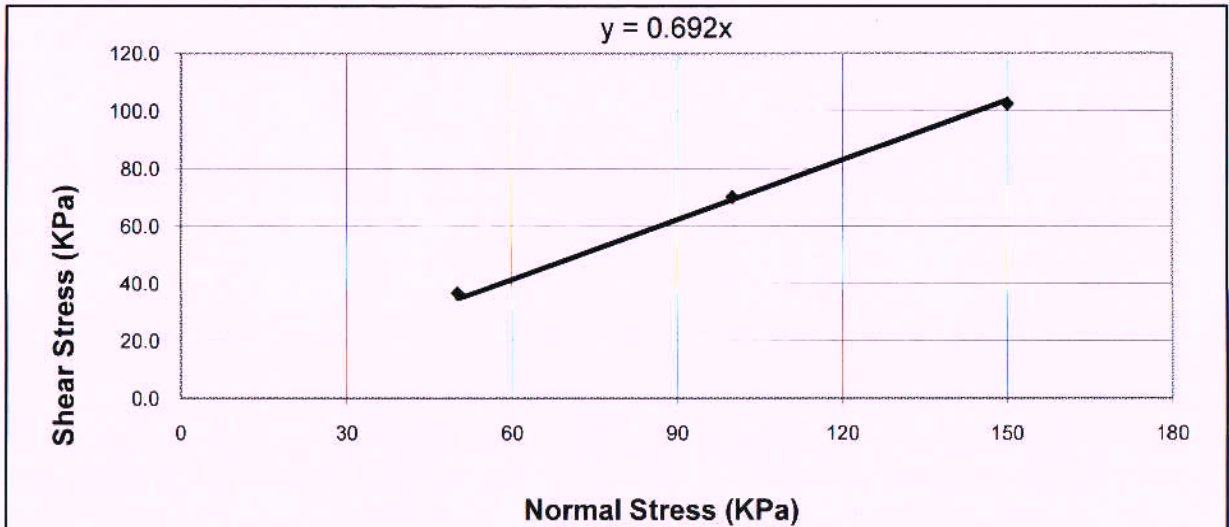
Test Result

c = 0.0 kPa
φ = 33.0 °

BH No: 1	Chainage 39+120	Sample No.: SPT-8	Depth (m): 12.00
Site Ref: Hapur - Meerut Section	Job No : 1342		Test Report No: XPL/2015-16/02

Tested by: 	Checked by: 	Authorised Signatory:
Date: 30/11/16	Date: 22/2/16	Date: 22/2/16

DIRECT SHEAR TEST RESULT
I.S.: 2720 : PART XIII



Sample Details

Dry-density, (mg/m³) = 1.73
Poorly Graded SAND(SP)

Test Result

c = 0.0 kPa
 $\phi = 34.7^\circ$

BH No.: 1	Chainage 39+120	Sample No.: SPT-19	Depth (m): 28.50
Site Ref: Hapur - Meerut Section	Job No: 1342		Test Report No: XPL/2015-16/02

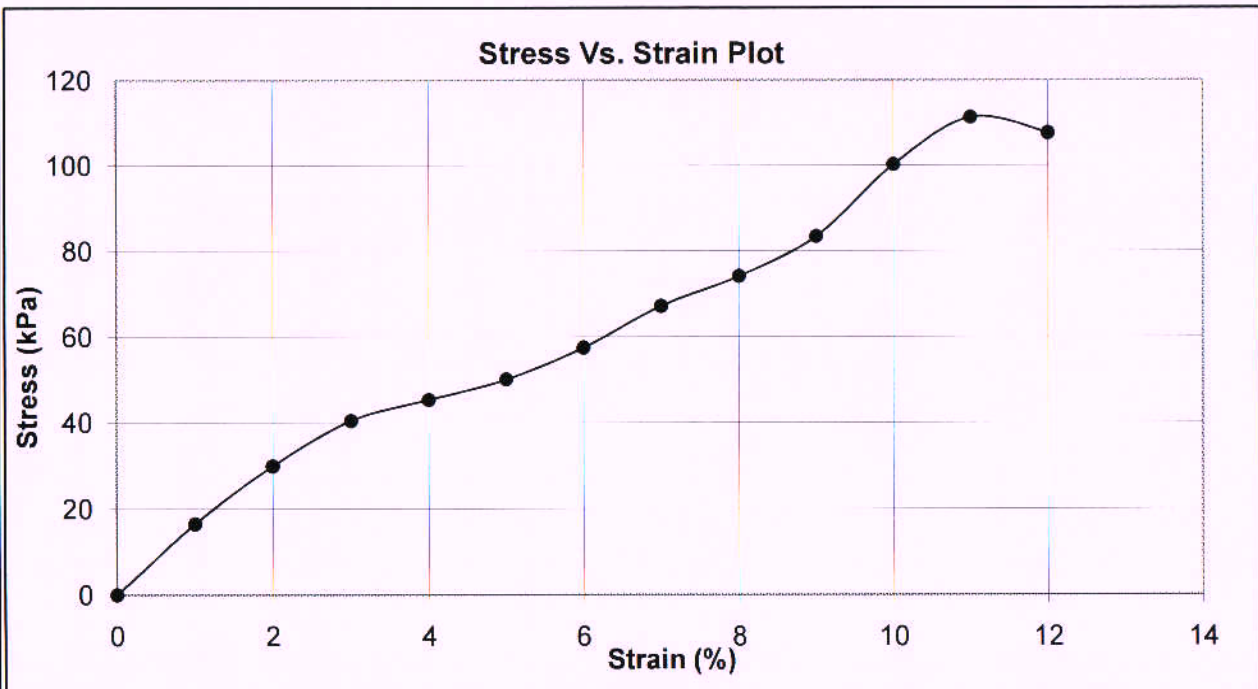
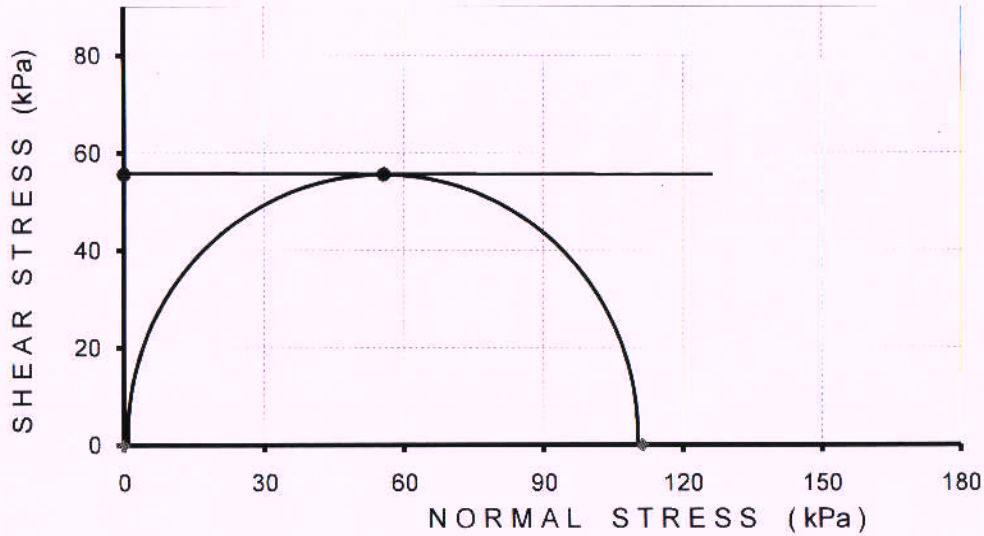
Tested by: 	Checked by: 	Authorised Signatory:
Date: 20/1/16	Date: 22/2/16	Date: 22/2/16

IS: 2720 , PART-10

Bulk Density gm/cc	Dry Density gm/cc	Moisture Content %
1.99	1.72	15.80

c value kPa	ϕ Value Degree
56	0.0

Type of Sample : Undisturbed
Type of Soil : Sandy SILT (ML)



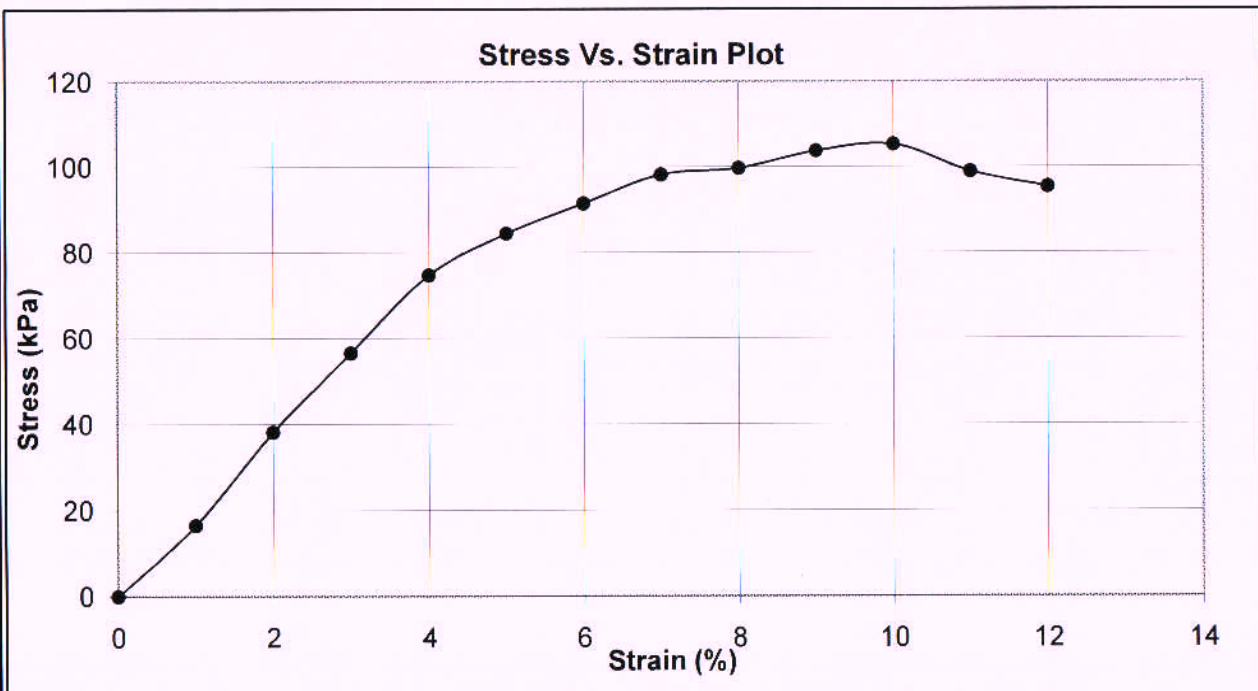
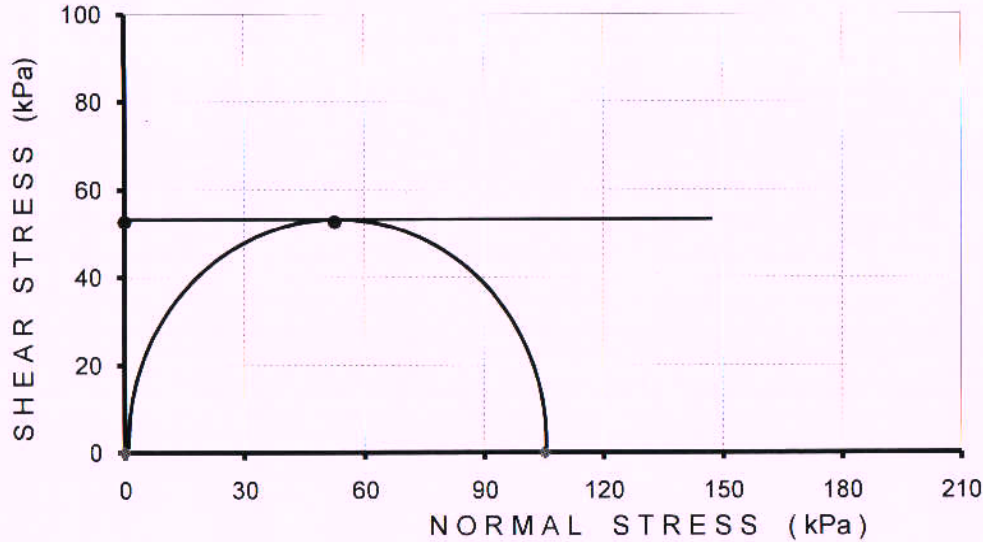
Borehole No: 1/28+880	Sample No: UDS-1	Depth (m) : 2.00
XPLORER	Site Ref: Hapur - Meerut Section	Job No : 1342
Operator : <i>B. Singh</i>	Checked : <i>RS</i>	Test Report No: XPL/2015-16/02
Date : 25/1/16	Date: 22/2/16	Authorised Signatory: <i>[Signature]</i>
		Date: 22/2/16

IS: 2720 , PART-10

Bulk Density gm/cc	Dry Density gm/cc	Moisture Content %
1.85	1.45	28.20

c value kPa	ϕ Value Degree
53	0.0

Type of Sample : Undisturbed
Type of Soil : Sandy SILT (ML)



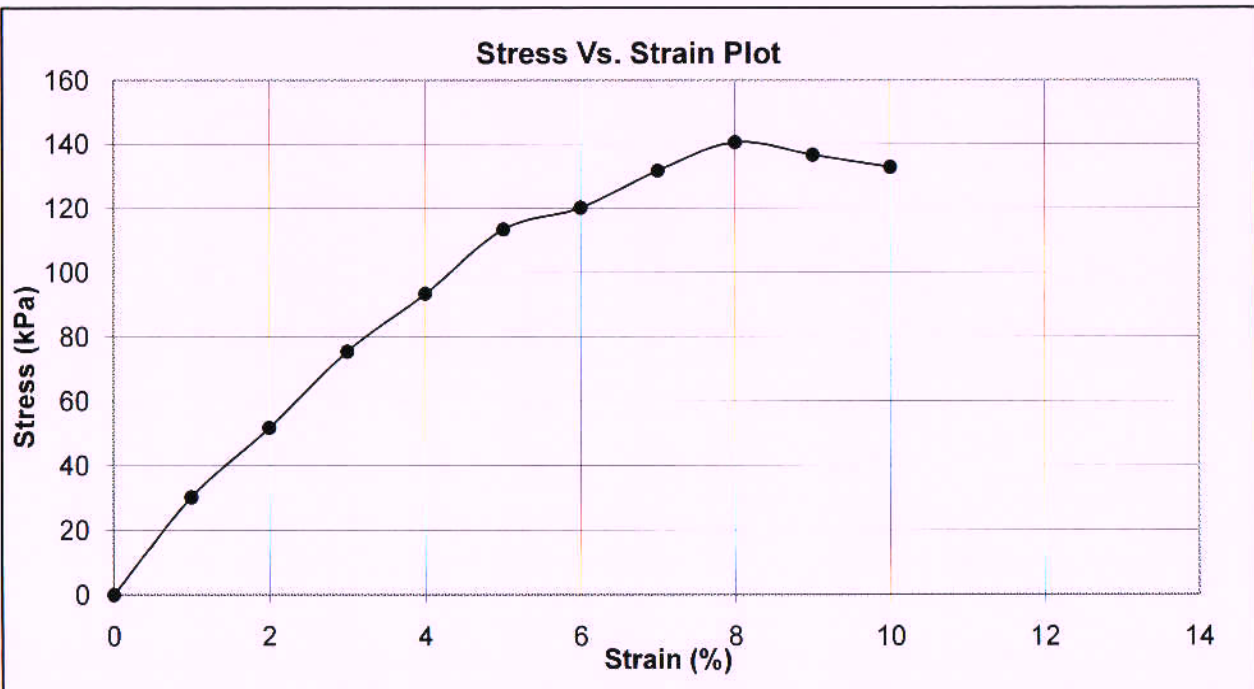
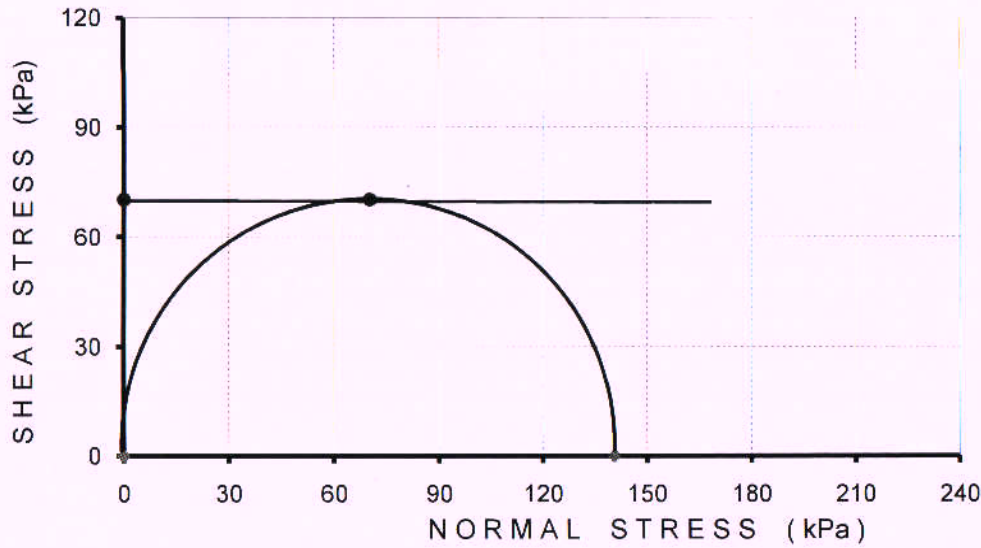
Borehole No: 1/28+880	Sample No: UDS-4	Depth (m): 11.00
XPLORER	Site Ref: Hapur - Meerut Section	Job No: 1342
Operator: <i>Brij Singh</i>	Checked: <i>[Signature]</i>	Test Report No: XPL/2015-16/02
Date: 25/1/16	Date: 22/2/16	Authorised Signatory: <i>[Signature]</i>
		Date: 22/2/16

IS: 2720 , PART-10

Bulk Density gm/cc	Dry Density gm/cc	Moisture Content %
2.00	1.75	14.60

c value kPa	ϕ Value Degree
70	0.0

Type of Sample : Undisturbed
Type of Soil : Sandy SILT (ML)



Borehole No: 1 / 30+780	Sample No: UDS-1	Depth (m) : 2.00
XPLORER	Site Ref: Hapur - Meerut Section	Job No: 1342
Operator :	Checked :	Test Report No: XPL/2015-16/02
<i>Brij Singh</i>	<i>RT</i>	Authorised Signatory: <i>[Signature]</i>
Date: 25/11/2016	Date: 22/2/16	Date: 22/2/16

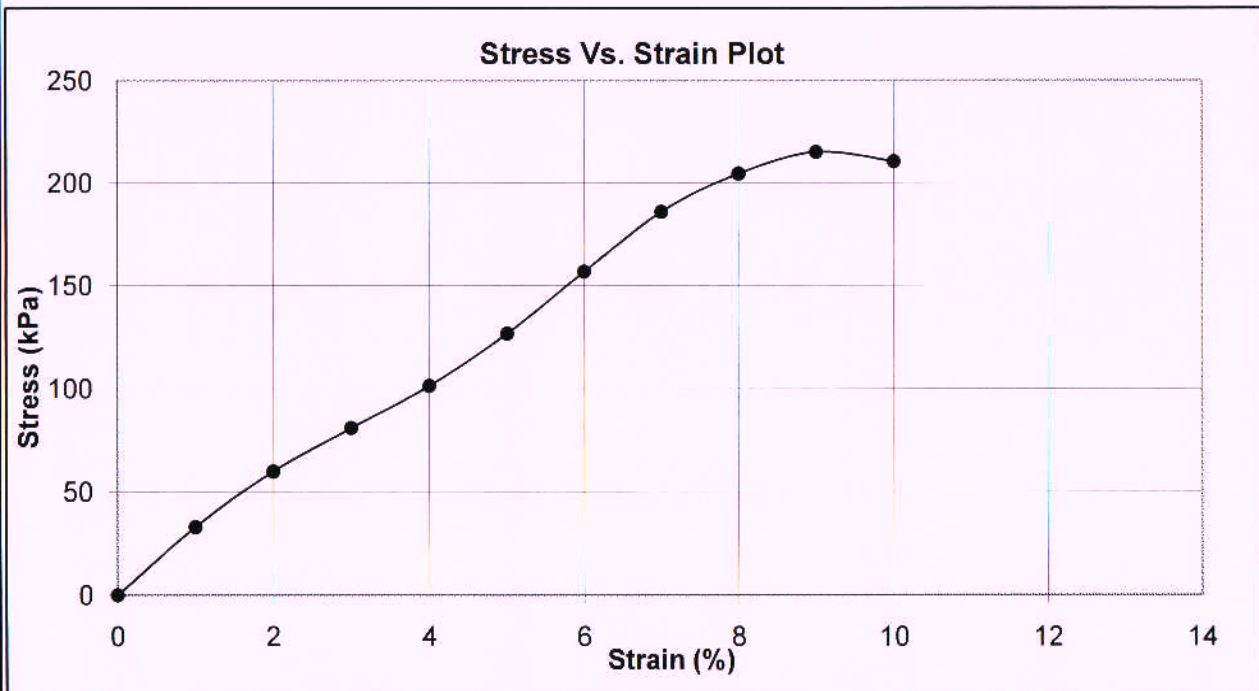
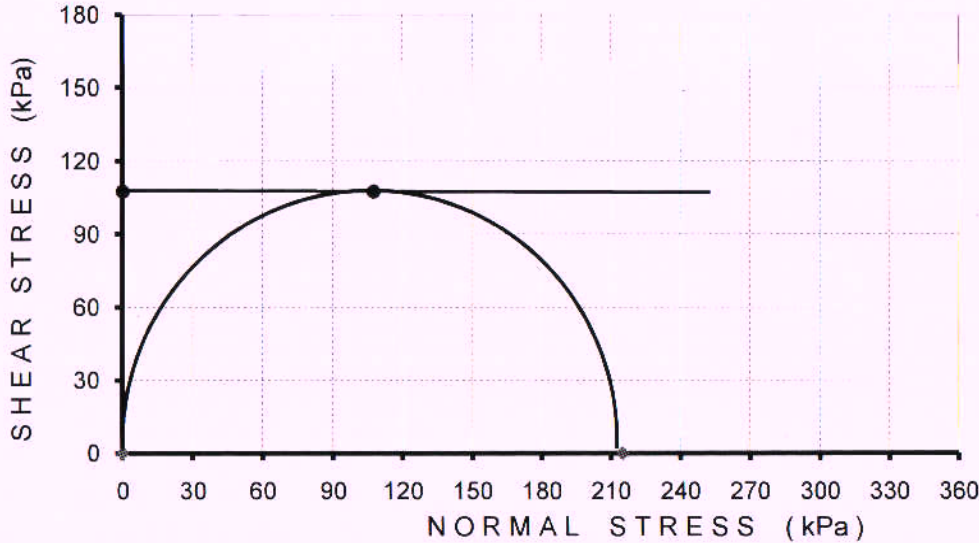
UNCONFINED COMPRESSIVE STRENGTH TEST

IS: 2720 , PART-10

Bulk Density gm/cc	Dry Density gm/cc	Moisture Content %
2.08	1.71	21.50

c value kPa	ϕ Value Degree
108	0.0

Type of Sample : Undisturbed
 Type of Soil : Sandy SILT(ML)



Borehole No: 1 / 30+780	Sample No: UDS-2	Depth (m) : 5.00	
XPLORER	Site Ref: Hapur - Meerut Section	Job No : 1342	Test Report No: XPL/2015-16/02
Operator : <i>Brind Singh</i>	Checked : <i>RE</i>	Authorised Signatory: <i>[Signature]</i>	
Date : 25/1/16	Date: 22/2/16	Date: 22/2/16	

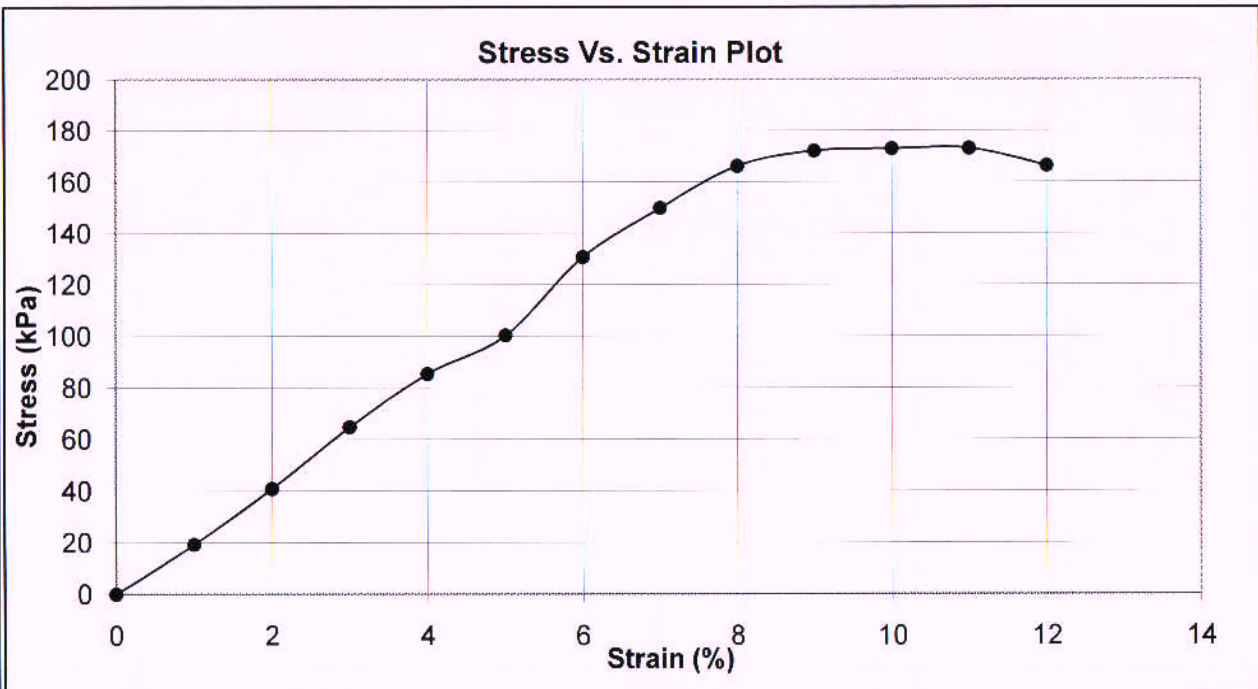
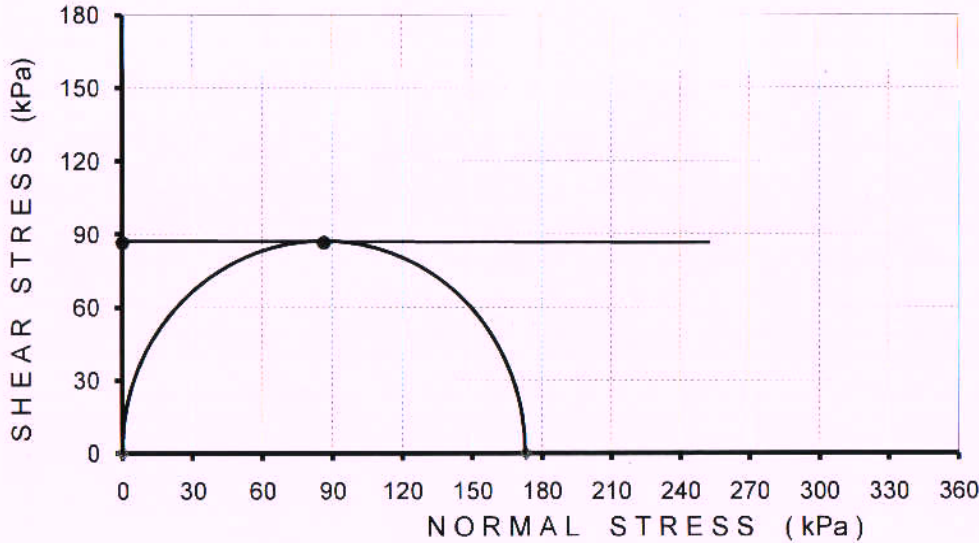
UNCONFINED COMPRESSIVE STRENGTH TEST

IS: 2720 , PART-10

Bulk Density gm/cc	Dry Density gm/cc	Moisture Content %
1.94	1.66	16.80

c value kPa	ϕ Value Degree
87	0.0

Type of Sample : Undisturbed
Type of Soil : Sandy SILT (ML)



Borehole No: 1 / 33+050

Sample No: UDS-1

Depth (m) : 2.00

XPLORER

Site Ref: Hapur - Meerut Section

Job No : 1342

Test Report No: XPL/2015-16/02

Operator :

Brinsingh

Checked :

pr

Authorised Signatory:

[Signature]

Date : 25/1/16

Date: 22/2/16

Date: 22/2/16



DETERMINATION OF TOTAL SOLUBLE SULPHATE OF SOIL
IS 2720: (PART-27) -1977

CLIENT / CONSULTANT: SKYLARK DESIGNER AND ENGINEERS (P) LTD

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut

JOB No: 1342

SITE REF: Hapur - Meerut Section

Test Report No: XPL/2015-16/02

Location :

S. No.	Description of Data	Borehole No: 1 / 28+880	Borehole No: 1 / 30+780
		Sample No : UDS-1	Sample No : UDS-1
		Depth (m): 2.00	Depth (m): 2.00
1	Mass of soil sample taken (gm)	100	100
2	Volume of Distilled water added (ml)	200	200
3	Volume of soil water Extract taken ml	100	100
4	Weight of Empty crucible gm (W_1)	NA	NA
5	Weight of crucible + Barium Sulphate gm (W_2)	No ppt	No ppt
6	Sulphate (as SO_3) gm/l	NIL	NIL

S. No.	Description of Data	Borehole No: 1 / 33+050	Borehole No: 2 / 34+986
		Sample No : UDS-1	Sample No : UDS-1
		Depth (m): 2.00	Depth (m): 2.00
1	Mass of soil sample taken (gm)	100	100
2	Volume of Distilled water added (ml)	200	200
3	Volume of soil water Extract taken ml	100	100
4	Weight of Empty crucible gm (W_1)	NA	NA
5	Weight of crucible + Barium Sulphate gm (W_2)	No ppt	No ppt
6	Sulphate (as SO_3) gm/l	NIL	NIL

Tested By:

Checked By:

Authorised Signatory:

Date: 3/2/16

Date: 22/2/16

Date: 22/2/16



DETERMINATION OF TOTAL SOLUBLE SULPHATE OF SOIL
IS 2720: (PART-27) -1977

CLIENT / CONSULTANT: SKYLARK DESIGNER AND ENGINEERS (P) LTD

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut

JOB No: 1342

SITE REF: Hapur - Meerut Section

Test Report No: XPL/2015-16/02

Location :

S. No.	Description of Data	Borehole No: 1 / 35+549	Borehole No: 2 / 35+549
		Sample No : UDS-1	Sample No : SPT-1
		Depth (m): 2.00	Depth (m): 1.50
1	Mass of soil sample taken (gm)	100	100
2	Volume of Distilled water added (ml)	200	200
3	Volume of soil water Extract taken ml	100	100
4	Weight of Empty crucible gm (W_1)	NA	NA
5	Weight of crucible + Barium Sulphate gm (W_2)	No ppt	No ppt
6	Sulphate (as SO_3) gm/l	NIL	NIL

S. No.	Description of Data	Borehole No: 1 / 37+360	Borehole No: 1 / 38+580
		Sample No : UDS-1	Sample No : SPT-5
		Depth (m): 2.00	Depth (m): 7.50
1	Mass of soil sample taken (gm)	100	100
2	Volume of Distilled water added (ml)	200	200
3	Volume of soil water Extract taken ml	100	100
4	Weight of Empty crucible gm (W_1)	NA	NA
5	Weight of crucible + Barium Sulphate gm (W_2)	No ppt	No ppt
6	Sulphate (as SO_3) gm/l	NIL	NIL

Tested By:

Checked By:

Authorised Signatory:

Date: 23/12/16

Date: 23/12/16

Date: 23/12/16



DETERMINATION OF TOTAL SOLUBLE SULPHATE OF SOIL
IS 2720: (PART-27) -1977

CLIENT / CONSULTANT: SKYLARK DESIGNER AND ENGINEERS (P) LTD

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut

JOB No: 1342

SITE REF: Hapur - Meerut Section

Test Report No: XPL/2015-16/02

Location :

S. No.	Description of Data	Borehole No: 1 / 39+120	Borehole No:
		Sample No : SPT-4	Sample No :
		Depth (m): 6.00	Depth (m):
1	Mass of soil sample taken (gm)	100	
2	Volume of Distilled water added (ml)	200	
3	Volume of soil water Extract taken ml	100	
4	Weight of Empty crucible gm (W ₁)	NA	
5	Weight of crucible + Barium Sulphate gm (W ₂)	No ppt	
6	Sulphate (as SO ₃) gm/l	NIL	

S. No.	Description of Data	Borehole No:	Borehole No:
		Sample No :	Sample No :
		Depth (m):	Depth (m):
1	Mass of soil sample taken (gm)		
2	Volume of Distilled water added (ml)		
3	Volume of soil water Extract taken ml		
4	Weight of Empty crucible gm (W ₁)		
5	Weight of crucible + Barium Sulphate gm (W ₂)		
6	Sulphate (as SO ₃) gm/l		

Tested By:

Checked By:

Authorised Signatory:

Date: 22/2/16

Date: 22/2/16

Date: 22/2/16



DETERMINATION OF TOTAL SOLUBLE CHLORIDE OF SOIL
Vogel's Text Book of Quantitative Chemical Analysis

CLIENT / CONSULTANT: SKYLARK DESIGNER AND ENGINEERS (P) LTD	JOB No.: 1342
PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut	Test Report No. XPL/2015-16/02
SITE REF: Hapur - Meerut Section	

S. No.	Description of Data	Borehole No: 1 / 28+880	Borehole No: 1 / 30+780	Borehole No: 1 / 33+050
		Sample No : UDS-1	Sample No : UDS-1	Sample No : UDS-1
		Depth (m): 2.00	Depth (m): 2.00	Depth (m): 2.00
1	Mass of soil sample taken (gm)	40	40	40
2	Volume of Distilled water added (ml)	200	200	200
3	Normality of AgNO ₃	0.014N	0.014N	0.014N
4	Volume of soil water extract taken for titration (ml)	25	25	25
5	Initial burette reading V ₁	0	1.7	3.0
6	Final burette reading V ₂	1.7	3.0	4.5
7	Chloride (mg/l or ppm), Y	33.76	25.81	29.79
8	Total Chlorides in soil sample (mg/l or ppm)	168.79	129.07	148.93

S. No.	Description of Data	Borehole No: 2 / 34+986	Borehole No: 1 / 35+549	Borehole No: 2 / 35+549
		Sample No : UDS-1	Sample No : UDS-1	Sample No : SPT-1
		Depth (m): 2.00	Depth (m): 2.00	Depth (m): 1.50
1	Mass of soil sample taken (gm)	40	40	40
2	Volume of Distilled water added (ml)	200	200	200
3	Normality of AgNO ₃	0.014N	0.014N	0.014N
4	Volume of soil water extract taken for titration (ml)	25	25	25
5	Initial burette reading V ₁	4.5	5.7	0.0
6	Final burette reading V ₂	5.7	7.0	1.4
7	Chloride (mg/l or ppm), Y	23.83	25.81	27.80
8	Total Chlorides in soil sample (mg/l or ppm)	119.15	129.07	139.00

Tested By:	Checked By:	Authorised Signatory:
Date: 4/2/16	Date: 22/2/16	Date: 22/2/16



DETERMINATION OF TOTAL SOLUBLE CHLORIDE OF SOIL
Vogel's Text Book of Quantitative Chemical Analysis

CLIENT / CONSULTANT: SKYLARK DESIGNER AND ENGINEERS (P) LTD	JOB No.: 1342
PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut	Test Report No. XPL/2015-16/02
SITE REF: Hapur - Meerut Section	

S. No.	Description of Data	Borehole No: 1 / 37+360	Borehole No: 1 / 38+580	Borehole No: 1 / 39+120
		Sample No : UDS-1	Sample No : SPT-5	Sample No : SPT-4
		Depth (m): 2.00	Depth (m): 7.5	Depth (m): 6.00
1	Mass of soil sample taken (gm)	40	40	40
2	Volume of Distilled water added (ml)	200	200	200
3	Normality of AgNO ₃	0.014N	0.014N	0.014N
4	Volume of soil water extract taken for titration (ml)	25	25	25
5	Initial burette reading V ₁	7.0	9.7	8.4
6	Final burette reading V ₂	8.4	11.0	9.7
7	Chloride (mg/l or ppm), Y	27.80	25.81	25.81
8	Total Chlorides in soil sample (mg/l or ppm)	139.00	129.07	129.07

S. No.	Description of Data	Borehole No:	Borehole No:	Borehole No:
		Sample No :	Sample No :	Sample No :
		Depth (m):	Depth (m):	Depth (m):
1	Mass of soil sample taken (gm)			
2	Volume of Distilled water added (ml)			
3	Normality of AgNO ₃			
4	Volume of soil water extract taken for titration (ml)			
5	Initial burette reading V ₁			
6	Final burette reading V ₂			
7	Chloride (mg/l or ppm), Y			
8	Total Chlorides in soil sample (mg/l or ppm)			

Tested By: 	Checked By: 	Authorised Signatory:
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Date: 4/2/16	Date: 22/2/16	Date: 22/2/16
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DETERMINATION OF pH VALUE OF SOIL

IS 2720: (PART-26) -1987

CLIENT / CONSULTANT: SKYLARK DESIGNER AND ENGINEERS (P) LTD

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut

JOB No: 1342

SITE REF: Hapur - Meerut Section

Test Report No: XPL/2015-16/02

S. No.	Description of Data	Borehole No: 1 / 28+880	Borehole No: 1 / 30+780
		Sample No: UDS-1	Sample No: UDS-1
		Depth (m): 2.00	Depth (m): 2.00
1	Soil Identification	Sandy SILT	Sandy SILT
2	Sample Passing Sieve Size (μ)	425	425
3	Wt. of Soil sample Taken (gm)	40	40
4	Volume of Distilled water added (ml)	100	100
5	Temperature ($^{\circ}$ C)	20.9	20.7
6	pH meter reading	7.60	7.68

S. No.	Description of Data	Borehole No: 1 / 33+050	Borehole No: 2/ 34+986
		Sample No: UDS-1	Sample No: UDS-1
		Depth (m): 2.00	Depth (m): 2.00
1	Soil Identification	Sandy SILT	Silty SAND
2	Sample Passing Sieve Size (μ)	425	425
3	Wt. of Soil sample Taken (gm)	40	40
4	Volume of Distilled water added (ml)	100	100
5	Temperature ($^{\circ}$ C)	20.4	20.4
6	pH meter reading	7.31	7.33

S. No.	Description of Data	Borehole No: 1 / 35+549	Borehole No: 2 / 35+549
		Sample No: UDS-1	Sample No: SPT-1
		Depth (m): 2.00	Depth (m): 1.50
1	Soil Identification	Silty SAND	Sandy SILT
2	Sample Passing Sieve Size (μ)	425	425
3	Wt. of Soil sample Taken (gm)	40	40
4	Volume of Distilled water added (ml)	100	100
5	Temperature ($^{\circ}$ C)	20.8	20.9
6	pH meter reading	7.25	7.30

Tested By:

Checked By:

Authorised Signatory:

Date: 22/2/16

Date: 22/2/16

Date: 22/2/16



DETERMINATION OF pH VALUE OF SOIL

IS 2720: (PART-26) -1987

CLIENT / CONSULTANT: SKYLARK DESIGNER AND ENGINEERS (P) LTD

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut

JOB No: 1342


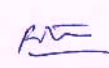
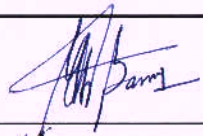
SITE REF: Hapur - Meerut Section

Test Report No: XPL/2015-16/02

S. No.	Description of Data	Borehole No: 1 / 37+360	Borehole No: 1 / 38+580
		Sample No : UDS-1	Sample No : SPT-5
		Depth (m): 2.00	Depth (m): 7.50
1	Soil Identification	Silty SAND	Poorly Graded SAND
2	Sample Passing Sieve Size (μ)	425	425
3	Wt. of Soil sample Taken (gm)	40	40
4	Volume of Distilled water added (ml)	100	100
5	Temperature ($^{\circ}$ C)	20.2	19.9
6	pH meter reading	7.20	7.26

S. No.	Description of Data	Borehole No: 1 / 39+120	Borehole No:
		Sample No : SPT-4	Sample No :
		Depth (m): 6.00	Depth (m):
1	Soil Identification	Sandy SILT	
2	Sample Passing Sieve Size (μ)	425	
3	Wt. of Soil sample Taken (gm)	40	
4	Volume of Distilled water added (ml)	100	
5	Temperature ($^{\circ}$ C)	20.4	
6	pH meter reading	7.31	

S. No.	Description of Data	Borehole No:	Borehole No:
		Sample No :	Sample No :
		Depth (m):	Depth (m):
1	Soil Identification		
2	Sample Passing Sieve Size (μ)		
3	Wt. of Soil sample Taken (gm)		
4	Volume of Distilled water added (ml)		
5	Temperature ($^{\circ}$ C)		
6	pH meter reading		

Tested By: 	Checked By: 	Authorised Signatory: 
Date: 22/2/16	Date: 22/2/16	Date: 22/2/16



MOISTURE CONTENT & DENSITY TEST OF SOIL
IS: 2720-1973(Part-II) (Reaffirmed 2007)



PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut JOB NO: 1342
 SITE REF: Hapur - Meerut Section Test Report No: XPL/2015-16/02

MOISTURE CONTENT	41+916				
Borehole No./Pit no.	BH-1				
Sample No.	UDS-1	UDS-3	UDS-4	UDS-5	UDS-7
Depth (m)	2.00	8.00	11.00	14.00	20.00
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06
Soil Type	Silty CLAY	Silty CLAY	Silty CLAY	Sandy SILT	Silty CLAY
Container No.	ST-3	ST-2	ST-85	ST-37	ST-223
Wt.Can. W1,g	24.61	24.65	20.38	24.00	23.55
Wt.Can.+ Wet Soil,(W2),g	55.11	57.65	65.95	70.49	67.95
Wt.Can.+ Dry Soil,(W3),g	49.68	52.51	57.70	57.92	60.30
Wt. Water (W2-W3),g	5.43	5.14	8.25	12.57	7.65
Wt.Dry Soil (W3-W1),g	25.07	27.86	37.32	33.92	36.75
Water Content, w, % = $\{(W2-W3)/(W3-W1)\} \times 100$	21.7	18.4	22.1	37.1	20.8

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1
Container No.	B-149	B-178	B-18	B-188	B-309
Wt. Tube+Soil, g	10153	12111	6254	8533	10579
Wt.of Tube	5695	7826	3942	5888	6289
Dia of Tube, g(Average) cm	10	10	8	10	10
Length of sample, cm	29.5	27.0	23.0	17.0	28.0
Wt Soil (W)	4458	4285	2312	2645	4290
Vol. Soil (V), cm ³	2318	2121	1157	1336	2200
In-Situ Density, $g_t = (W/V)$ g/cm ³	1.92	2.02	2.00	1.98	1.95
Dry Density, $\gamma_d = [g_t/(1+w)]$ g/cm ³	1.58	1.71	1.64	1.44	1.61

Tested by <i>Bikim</i> Date: 5/2/06	Checked By <i>[Signature]</i> Date: 14/3/16	Authorised Signatory <i>[Signature]</i> Date: 14/3/16
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PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut

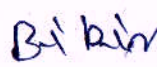

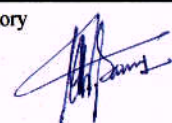
JOB NO: 1342

SITE REF: Hapur - Meerut Section

Test Report No: XPL/2015-16/02

MOISTURE CONTENT	41+916	43+900			
	BH-1	BH-1			
Borehole No./Pit no.	BH-1	BH-1			
Sample No.	UDS-8	UDS-1	UDS-2	UDS-3	UDS-4
Depth (m)	23.00	2.00	5.00	8.00	11.00
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06
Soil Type	Sandy SILT	Silty CLAY	Sandy SILT	Silty CLAY	Silty CLAY
Container No.	ST-49	ST-43	ST-136	ST-63	ST-3
Wt. Can. W1,g	21.56	20.10	20.95	24.97	24.61
Wt. Can. + Wet Soil, (W2),g	61.57	49.33	51.49	72.21	69.17
Wt. Can. + Dry Soil, (W3),g	55.16	45.82	48.38	64.65	61.18
Wt. Water (W2-W3),g	6.41	3.51	3.11	7.56	7.99
Wt. Dry Soil (W3-W1),g	33.60	25.72	27.43	39.68	36.57
Water Content, w, % = $\{(W2-W3)/(W3-W1)\} \times 100$	19.1	13.6	11.3	19.1	21.8

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1
Container No.	B-154	B-215	B-292	B-216	B-119
Wt. Tube+Soil, g	8959	10170	10635	10140	6999
Wt. of Tube	4894	5403	5889	5360	4510
Dia of Tube, g(Average) cm	10	10.5	10	10	8
Length of sample, cm	26.0	32.0	36.0	32.0	24.0
Wt Soil (W)	4065	4767	4746	4780	2489
Vol. Soil (V), cm ³	2043	2772	2829	2514	1207
In-Situ Density, $\gamma_g = (W/V)$ g/cm ³	1.99	1.72	1.68	1.90	2.06
Dry Density, $\gamma_d = [\gamma_g / (1+w)]$ g/cm ³	1.67	1.51	1.51	1.60	1.69

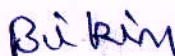


Tested by  Date: 5/2/16	Choked By  Date: 14/3/16	Authorised Signatory  Date: 14/3/16
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MOISTURE CONTENT & DENSITY TEST OF SOIL
IS: 2720-1973(Part-II) (Reaffirmed 2007)

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut JOB NO: 1342
 SITE REF: Hapur - Meerut Section Test Report No: XPL/2015-16/02

MOISTURE CONTENT	46+362				
Borehole No./Pit no.	BH-1				
Sample No.	UDS-1	UDS-2	UDS-3	UDS-4	UDS-5
Depth (m)	2.00	5.00	8.00	11.00	14.00
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06
Soil Type	Sandy SILT	Silty CLAY	Silty CLAY	Silty CLAY	Silty CLAY
Container No.	ST-140	ST-85	ST-111	ST-62	ST-37
Wt. Can. W1,g	23.59	20.36	23.51	19.35	24.17
Wt. Can.+ Wet Soil,(W2),g	55.19	60.05	60.32	51.50	82.45
Wt. Can.+ Dry Soil,(W3),g	51.41	53.57	53.87	45.98	70.31
Wt. Water (W2-W3),g	3.78	6.48	6.45	5.52	12.14
Wt. Dry Soil (W3-W1),g	27.82	33.21	30.36	26.63	46.14
Water Content, w, % = $\{(W2-W3)/(W3-W1)\} \times 100$	13.6	19.5	21.2	20.7	26.3

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1
Container No.	B-270	B-128	B-165	B-288	B-23
Wt. Tube+Soil, g	10867	9053	7869	5200	6180
Wt. of Tube	5455	6381	3003	2908	3148
Dia of Tube, g(Average) cm	10	10	10	7	8.5
Length of sample, cm	33.0	18.0	29.0	30.0	28.0
Wt Soil (W)	5412	2672	4866	2292	3032
Vol. Soil (V), cm ³	2593	1414	2279	1155	1590
In-Situ Density, $\rho_g = (W/V)$ g/cm ³	2.09	1.89	2.14	1.98	1.91
Dry Density, $\rho_d = [g/(1+w)]$ g/cm ³	1.84	1.58	1.76	1.64	1.51

Tested by  Date: 5/2/16	Cheked By  Date: 14/3/16	Authorised Signatory  Date: 14/3/16
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MOISTURE CONTENT & DENSITY TEST OF SOIL
IS: 2720-1973(Part-II) (Reaffirmed 2007)

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut JOB NO: 1342
 SITE REF: Hapur - Meerut Section Test Report No: XPL/2015-16/02

MOISTURE CONTENT	46+362			48+122	
	BH-1			BH-1	
Borehole No./Pit no.					
Sample No.	UDS-6	UDS-7	UDS-8	UDS-1	UDS-4
Depth (m)	17.00	20.00	23.00	2.00	11.00
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06
Soil Type	Silty CLAY	Silty CLAY	Silty CLAY	Silty CLAY	Sandy SILT
Container No.	ST-89	ST-138	ST-115	ST-2	ST-107
Wt.Can. W1,g	25.30	25.33	20.73	24.65	20.21
Wt.Can.+ Wet Soil,(W2),g	75.16	63.92	71.81	69.94	73.95
Wt.Can.+ Dry Soil,(W3),g	65.26	57.64	62.03	62.28	64.23
Wt. Water (W2-W3),g	9.90	6.28	9.78	7.66	9.72
Wt.Dry Soil (W3-W1),g	39.96	32.31	41.30	37.63	44.02
Water Content, w, % = $\frac{(W2-W3)}{(W3-W1)} \times 100$	24.8	19.4	23.7	20.4	22.1

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1
Container No.	B-91	B-211	B-210	B-130	B-341
Wt. Tube+Soil, g	5642	5281	7675	5021	9417
Wt. of Tube	3993	3177	2775	2831	5664
Dia of Tube, g(Average) cm	8	8	10.5	7	10
Length of sample, cm	16.0	20.5	28.0	29.0	24.0
Wt Soil (W)	1649	2104	4900	2190	3753
Vol. Soil (V), cm ³	805	1031	2426	1117	1886
In-Situ Density, $\gamma_t = (W/V)$ g/cm ³	2.05	2.04	2.02	1.96	1.99
Dry Density, $\gamma_d = [\frac{\gamma_t}{(1+w)}]$ g/cm ³	1.64	1.71	1.63	1.63	1.63

Tested by <i>Bikram</i>	Checked By <i>RE</i>	Authorised Signatory <i>[Signature]</i>
Date: 7/2/16	Date: 14/3/16	Date: 14/3/16

MOISTURE CONTENT & DENSITY TEST OF SOIL
IS: 2720-1973(Part-II) (Reaffirmed 2007)

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut

JOB NO: 1342

SITE REF: Hapur - Meerut Section

Test Report No: XPL/2015-16/02

MOISTURE CONTENT	48+122				
Borehole No./Pit no.	BH-1				
Sample No.	UDS-5	UDS-6	UDS-7	UDS-8	
Depth (m)	14.00	17.00	20.00	23.00	
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	
Soil Type	Sandy SILT	Silty CLAY	Silty CLAY	Sandy SILT	
Container No.	ST-228	ST-228	ST-223	ST-138	
Wt.Can. W1,g	24.27	24.24	23.54	25.30	
Wt.Can.+ Wet Soil,(W2),g	61.16	69.6	72.79	78.75	
Wt.Can.+ Dry Soil,(W3),g	55.83	61.48	65.06	69.00	
Wt. Water (W2-W3),g	5.33	8.12	7.73	9.75	
Wt.Dry Soil (W3-W1),g	31.56	37.24	41.52	43.70	
Water Content, w, % = $\{(W2-W3)/(W3-W1)\} \times 100$	16.9	21.8	18.6	22.3	

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	
Container No.	B-137	B-257	B-189	B-164	
Wt. Tube+Soil, g	9681	5684	5977	7506	
Wt.of Tube	6067	3508	3119	3422	
Dia of Tube, g(Average) cm	10	8	8	10.5	
Length of sample, cm	23.0	21.0	28.0	22.0	
Wt Soil (W)	3614	2176	2858	4084	
Vol. Soil (V), cm ³	1807	1056	1408	1906	
In-Situ Density, $\rho_s = (W/V)$ g/cm ³	2.00	2.06	2.03	2.14	
Dry Density, $\rho_d = [\rho_s / (1+w)]$ g/cm ³	1.71	1.69	1.71	1.75	

Tested by <i>Bikim</i> Date: 7/2/16	Checked By <i>RE</i> Date: 14/3/16	Authorised Signatory <i>[Signature]</i> Date: 14/3/16
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MOISTURE CONTENT & DENSITY TEST OF SOIL
IS: 2720-1973(Part-II) (Reaffirmed 2007)

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut JOB NO: 1342
 SITE REF: Hapur - Meerut Section Test Report No: XPL/2015-16/02

MOISTURE CONTENT	48+510				
Borehole No./Pit no.	BH-1				
Sample No.	UDS-1	UDS-3	UDS-4	UDS-5	UDS-6
Depth (m)	2.00	8.00	11.00	14.00	17.00
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06
Soil Type	Silty SAND	Sandy SILT	Silty CLAY	Sandy SILT	Sandy SILT
Container No.	ST-12	ST-89	ST-37	ST-63	ST-138
Wt.Can. W1,g	20.58	25.33	19.82	24.95	25.33
Wt.Can.+ Wet Soil,(W2),g	46.32	66.58	66.61	65.91	71.95
Wt.Can.+ Dry Soil,(W3),g	44.46	59.97	57.41	58.00	64.07
Wt. Water (W2-W3),g	1.86	6.61	9.20	7.91	7.88
Wt.Dry Soil (W3-W1),g	23.88	34.64	37.59	33.05	38.74
Water Content, w, % = $\{(W2-W3)/(W3-W1)\} \times 100$	7.8	19.1	24.5	23.9	20.3

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1
Container No.	B-129	B-204	B-205	B-317	B-232
Wt. Tube+Soil, g	9582	10618	10096	6997	11017
Wt.of Tube	5800	5826	6078	3981	6161
Dia of Tube, g(Average) cm	10	10	10	8	10
Length of sample, cm	26.0	30.0	24.0	30.0	30.0
Wt Soil (W)	3782	4792	4018	3016	4856
Vol. Soil (V), cm ³	2043	2357	1886	1509	2357
In-Situ Density, $\rho_s = (W/V)$ g/cm ³	1.85	2.03	2.13	2.00	2.06
Dry Density, $\gamma_d = [gt/(1+w)]$ g/cm ³	1.72	1.71	1.71	1.61	1.71

Tested by <i>Be Kim</i> Date: 8/2/16	Checked By <i>RE</i> Date: 14/3/16	Authorised Signatory <i>[Signature]</i> Date: 14/3/16
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MOISTURE CONTENT & DENSITY TEST OF SOIL
IS: 2720-1973(Part-II) (Reaffirmed 2007)



PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut JOB NO: 1342
 SITE REF: Hapur - Meerut Section Test Report No: XPL/2015-16/02

MOISTURE CONTENT	48+510		54+825		55+850
Borehole No./Pit no.	BH-1		BH-1		BH-1
Sample No.	UDS-7	UDS-8	UDS-1	UDS-9	UDS-1
Depth (m)	20.00	23.00	2.00	26.00	2.00
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06
Soil Type	Sandy SILT	Sandy SILT	Sandy SILT	Sandy SILT	Sandy SILT
Container No.	ST-85	ST-3	ST-140	ST-143	ST-66
Wt.Can. W1,g	20.38	24.61	23.60	20.11	25.12
Wt.Can.+ Wet Soil,(W2),g	67.98	70.57	50.79	74.44	50.76
Wt.Can.+ Dry Soil,(W3),g	59.27	62.35	46.36	64.46	48.14
Wt. Water (W2-W3),g	8.71	8.22	4.43	9.98	2.62
Wt.Dry Soil (W3-W1),g	38.89	37.74	22.76	44.35	23.02
Water Content, w, % = $\{(W2-W3)/(W3-W1)\} \times 100$	22.4	21.8	19.5	22.5	11.4

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1
Container No.	B-407	B-238	B-285	B-255	B-199
Wt. Tube+Soil, g	10908	9061	4179	6253	4296
Wt.of Tube	6960	4894	2305	2640	2884
Dia of Tube, g(Average) cm	10	10	8	10	7
Length of sample, cm	25.0	26.0	18.0	22.0	20.0
Wt Soil (W)	3948	4167	1874	3613	1412
Vol. Soil (V), cm ³	1964	2043	905	1729	770
In-Situ Density, $g_i = (W/V)$ g/cm ³	2.01	2.04	2.07	2.09	1.83
Dry Density, $\gamma_d = [gt/(1+w)]$ g/cm ³	1.64	1.67	1.73	1.71	1.65

Tested by <i>Bu Kim</i> Date: 8/2/16	Checked By <i>[Signature]</i> Date: 14/3/16	Authorised Signatory <i>[Signature]</i> Date: 14/3/16
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MOISTURE CONTENT & DENSITY TEST OF SOIL
IS: 2720-1973(Part-II) (Reaffirmed 2007)

PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut JOB NO: 1342
 SITE REF: Hapur - Meerut Section Test Report No: XPL/2015-16/02

MOISTURE CONTENT	56+780	57+555		58+400	
Borehole No./Pit no.	BH-1	BH-1		BH-1	
Sample No.	UDS-5	UDS-1	UDS-2	UDS-1	UDS-4
Depth (m)	14.00	2.00	5.00	2.00	11.00
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06
Soil Type	Sandy SILT	Sandy SILT	Sandy SILT	Silty CLAY	Sandy SILT
Container No.	ST-37	ST-89	ST-136	ST-3	ST-85
Wt.Can. W1,g	24.17	25.32	20.95	24.61	20.38
Wt.Can. + Wet Soil,(W2),g	66.12	62.89	57.65	67.30	71.40
Wt.Can. + Dry Soil,(W3),g	58.11	57.63	52.71	60.87	63.02
Wt. Water (W2-W3),g	8.01	5.26	4.94	6.43	8.38
Wt.Dry Soil (W3-W1),g	33.94	32.31	31.76	36.26	42.64
Water Content, w, % = $\{(W2-W3)/(W3-W1)\} \times 100$	23.6	16.3	15.6	17.7	19.7

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1
Container No.	B-50	B-284	B-242	B-76	B-51
Wt. Tube+Soil, g	10823	5706	6577	6977	6623
Wt.of Tube	6198	2406	3705	2827	2846
Dia of Tube, g(Average) cm	10	10	10	10.5	10
Length of sample, cm	27.0	20.0	21.0	22.0	23.0
Wt Soil (W)	4625	3300	2872	4150	3777
Vol. Soil (V), cm ³	2121	1571	1650	1906	1807
In-Situ Density, $g_s = (W/V)$ g/cm ³	2.18	2.10	1.74	2.18	2.09
Dry Density, $\gamma_d = [gt/(1+w)]$ g/cm ³	1.76	1.81	1.51	1.85	1.75

Tested by <i>Bu Kim</i>	Checked By <i>RT</i>	Authorised Signatory <i>[Signature]</i>
Date: 8/7/16	Date: 17/3/16	Date: 14/3/16



MOISTURE CONTENT & DENSITY TEST OF SOIL
IS: 2720-1973(Part-II) (Reaffirmed 2007)



PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut JOB NO: 1342
 SITE REF: Hapur - Meerut Section Test Report No: XPL/2015-16/02

MOISTURE CONTENT	58+400	59+305			62+160
Borehole No./Pit no.	BH-1	BH-1			BH-1
Sample No.	UDS-5	UDS-1	UDS-3	UDS-4	UDS-3
Depth (m)	14.00	2.00	8.00	11.00	8.00
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06
Soil Type	Sandy SILT	Silty CLAY	Silty CLAY	Silty CLAY	Sandy SILT
Container No.	ST-49	ST-7	ST-143	ST-115	ST-37
Wt.Can. W1,g	21.56	20.21	20.11	20.75	24.17
Wt.Can.+ Wet Soil,(W2),g	57.31	54.88	51.93	51.77	66.83
Wt.Can.+ Dry Soil,(W3),g	51.68	48.70	43.04	48.27	59.37
Wt. Water (W2-W3),g	5.63	6.18	8.89	3.50	7.46
Wt.Dry Soil (W3-W1),g	30.12	28.49	22.93	27.52	35.20
Water Content, w, % = $\{(W2-W3)/(W3-W1)\} \times 100$	18.7	21.7	38.8	12.7	21.2

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1
Container No.	B-162	B-233	B-403	B-278	B-41
Wt. Tube+Soil, g	6514	5368	5936	4456	7252
Wt.of Tube	4021	3093	3670	3013	3444
Dia of Tube, g(Average) cm	8	8	8	8	10.5
Length of sample, cm	24.0	22.0	24.0	15.0	21.0
Wt Soil (W)	2493	2275	2266	1443	3808
Vol. Soil (V), cm ³	1207	1106	1207	754	1819
In-Situ Density, $g_s = (W/V)$ g/cm ³	2.07	2.06	1.88	1.91	2.09
Dry Density, $\gamma_d = [g_s/(1+w)]$ g/cm ³	1.74	1.69	1.35	1.70	1.73

Tested by <i>Bekim</i>	Checked By <i>[Signature]</i>	Authorised Signatory <i>[Signature]</i>
Date: 9/2/016	Date: 14/3/16	Date: 14/3/16

MOISTURE CONTENT & DENSITY TEST OF SOIL
IS: 2720-1973(Part-II) (Reaffirmed 2007)

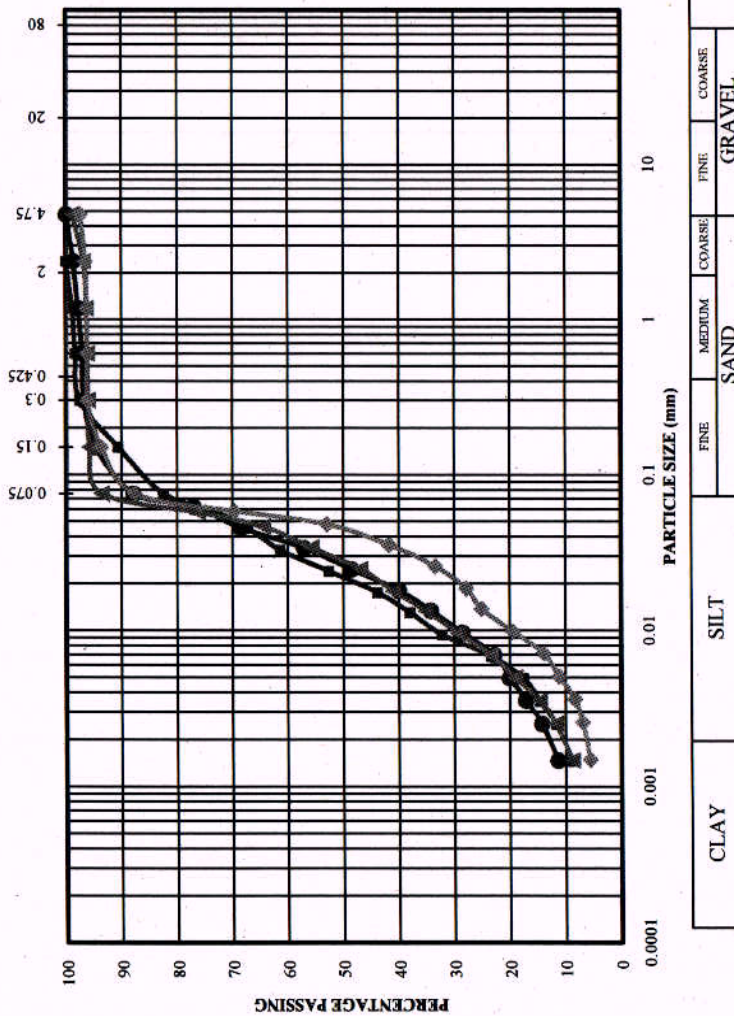
PROJECT: Geotechnical Investigation Works For Hapur - Meerut Section of DFCC Meerut JOB NO: 1342
 SITE REF: Hapur - Meerut Section Test Report No: XPL/2015-16/02

MOISTURE CONTENT	62+160	63+570	64+270	65+740	
Borehole No./Pit no.	BH-1	BH-1	BH-1	BH-1	
Sample No.	UDS-4	UDS-1	UDS-4	UDS-1	UDS-4
Depth (m)	11.00	2.00	11.00	2.00	11.00
Oven No.	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2	XPL/OV-2
Sample Extruder No.	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1	XPL/SE-1
Balance No.	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06	XPL/EB-06
Soil Type	Sandy SILT	Silty CLAY	Sandy SILT	Sandy SILT	Silty CLAY
Container No.	ST-309	ST-138	ST-89	ST-41	ST-152
Wt.Can. W1,g	21.70	25.33	25.30	22.70	22.31
Wt.Can.+ Wet Soil,(W2),g	66.2	63.77	67.64	58.80	51.93
Wt.Can.+ Dry Soil,(W3),g	59.18	57.11	60.11	53.23	44.88
Wt.Water (W2-W3),g	7.02	6.66	7.53	5.57	7.05
Wt.Dry Soil (W3-W1),g	37.48	31.78	34.81	30.53	22.57
Water Content, w, % = $\frac{(W2-W3)}{(W3-W1)} \times 100$	18.7	21.0	21.6	18.2	31.2

IN-SITU DENSITY					
Balance No.	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04	XPL/EB-04
Vernier Calliper No.	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1	XPL/VC-1
Steel Tape No.	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1	XPL/ST-1
Container No.	B-297	B-107	B-101	B-193	B-167
Wt. Tube+Soil, g	5619	9481	7558	4223	5326
Wt.of Tube	3080	5758	3721	2046	3135
Dia of Tube, g(Average) cm	8	10	10.5	8.5	8
Length of sample, cm	24.0	23.0	21.0	20.0	22.0
Wt Soil (W)	2539	3723	3837	2177	2191
Vol. Soil (V), cm ³	1207	1807	1819	1135	1106
In-Situ Density, $\rho_g = \frac{W}{V}$ g/cm ³	2.10	2.06	2.11	1.92	1.98
Dry Density, $\gamma_d = \frac{gt}{(1+w)}$ g/cm ³	1.77	1.70	1.73	1.62	1.51

Tested by <i>Bikem</i>	Checked By <i>RE</i>	Authorised Signatory <i>[Signature]</i>
Date: 9/2/16	Date: 14/3/16	Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV

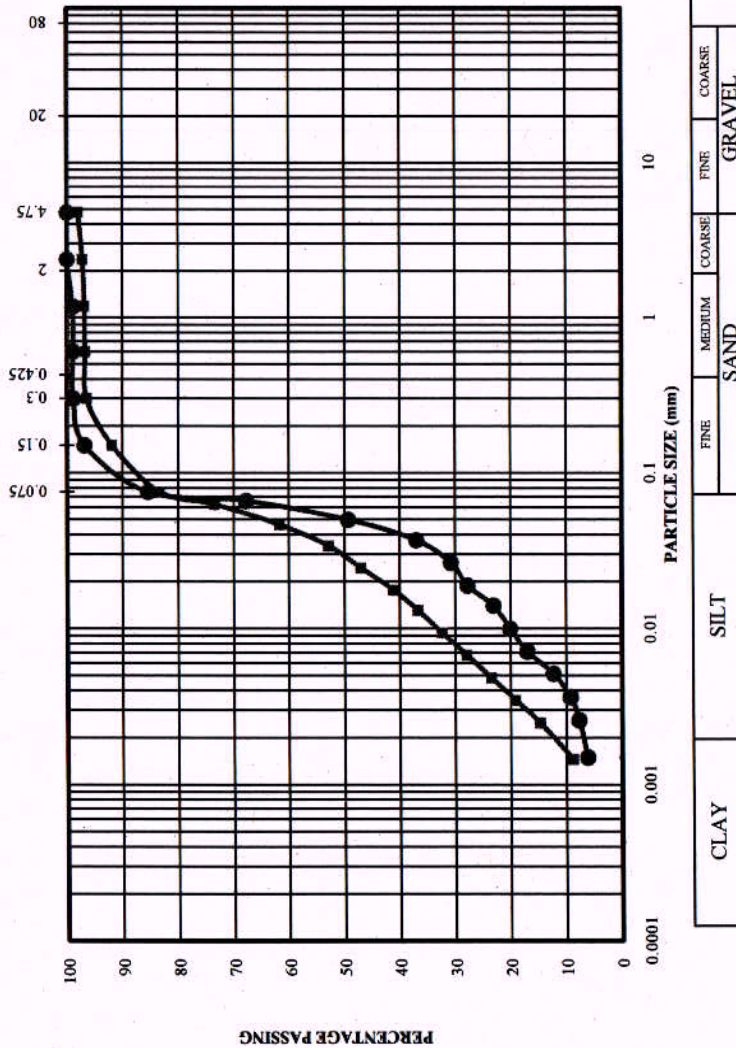


S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/41+916	UDS-1	2.00	Brownish Silty CLAY (CL)	0	18	70	12
2	●	BH-1/41+916	UDS-3	8.00	Brownish Silty CLAY (CL)	0	12	74	14
3	▲	BH-1/41+916	UDS-4	11.00	Brownish Silty CLAY (CL)	1	5	82	12
4	◆	BH-1/41+916	UDS-5	16.50	Brownish Sandy SILT (ML)	3	10	82	6

Site Ref: Hapur - Meerut Section
 Test Report No: XPL/2015-16/02
 Job No: 1342

Operator: 1112/016 Date: 14/3/16
 Checked: [Signature] Date: 14/3/16
 Authorised Signatory: [Signature] Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/41+916	UDS-7	20.00	Brownish Silty CLAY (CL)	2	15	68	15
2	●	BH-1/41+916	UDS-8	23.00	Brownish Sandy SILT (ML)	0	15	77	8

Job No: 1342
Test Report No: XPL/2015-16/02

Authorised Signatory


Date: 14/3/16

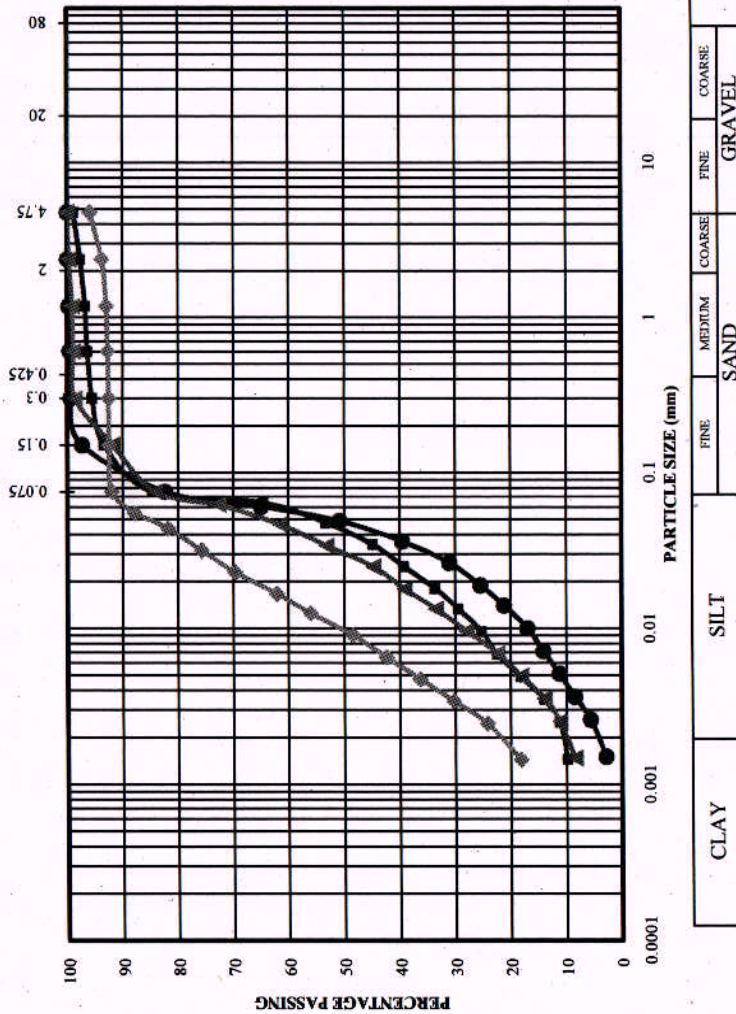
Site Ref: Hapur - Meerut Section



Checked:

Operator: P.12-016
Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL		SAND %	SILT %	CLAY %
						COARSE	FINE			
1	■	BH-1/43+900	UDS-1	2.00	Brownish Silty CLAY(CL)	1	14	74	11	
2	●	BH-1/43+900	UDS-2	5.00	Brownish Sandy SILT (ML)	0	18	76	6	
3	▲	BH-1/43+900	UDS-3	8.00	Brownish Silty CLAY(CL)	0	16	73	11	
4	◆	BH-1/43+900	UDS-4	11.00	Brownish Silty CLAY(CL)	4	4	68	24	

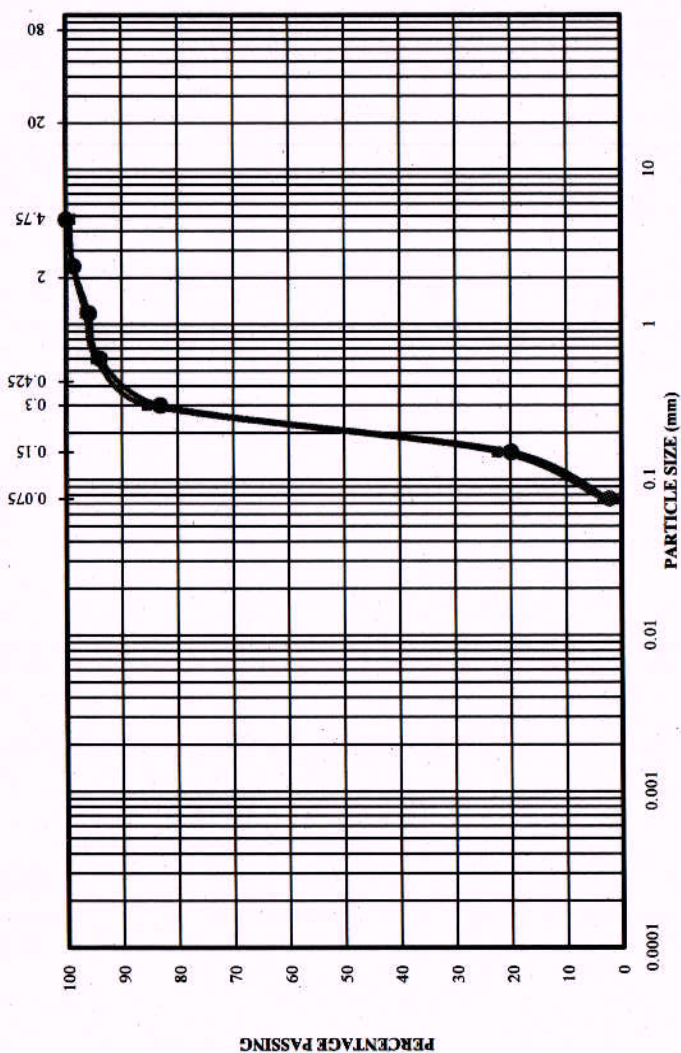
Job No: 1342
Test Report No: XPL/2015-16/02

Authorized Signatory: *[Signature]*
Date: 14/3/16

Site Ref: Hapur - Meerut Section

Operator: *[Signature]* Date: 11/2/2016
Checked: *[Signature]* Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



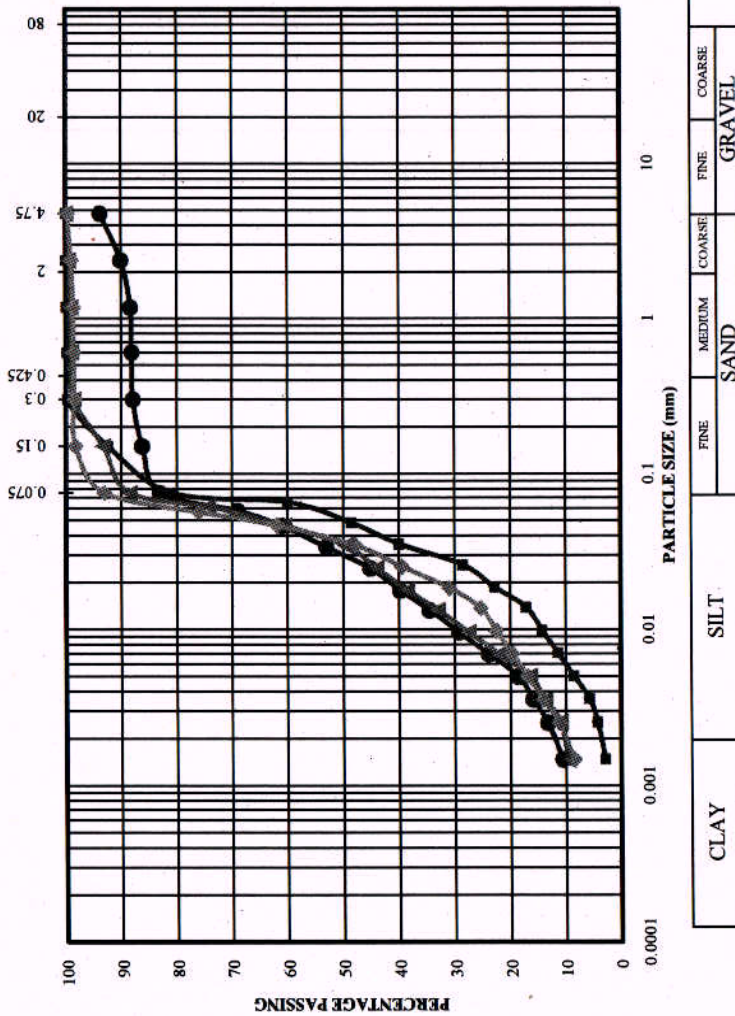
CLAY	SILT	SAND		GRAVEL		C
		FINE	MEDIUM	COARSE	FINE	COARSE

S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/43+900	SPT-12	18.00	Poorly Graded SAND(SP)	1	96	3	
2	●	BH-1/43+900	SPT-17	25.00	Poorly Graded SAND(SP)	0	98	2	

Site Ref: Hapur - Meerut Section
 Job No: 1342
 Test Report No: XPL/2015-16/02

Operator: 17/2/0/6 Date: 17/2/0/6
 Checked: [Signature] Date: 17/3/16
 Authorised Signatory: [Signature] Date: 17/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/46+362	UDS-1	2.00	Brownish Sandy SILT (ML)	0	19	77	4
2	●	BH-1/46+362	UDS-2	5.00	Brownish Silty CLAY(CL)	6	11	70	13
3	▲	BH-1/46+362	UDS-3	8.00	Brownish Silty CLAY(CL)	0	11	78	11
4	◆	BH-1/46+362	UDS-4	11.00	Brownish Silty CLAY(CL)	0	7	82	11

Site Ref: Hapur - Meerut Section

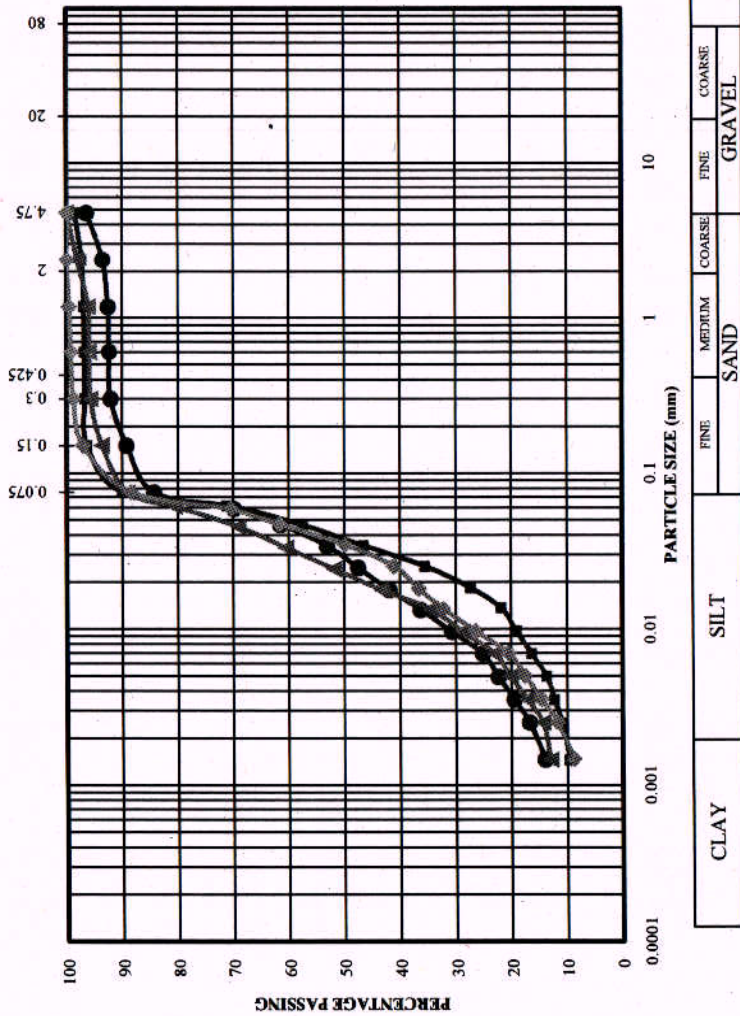
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Checked: *[Signature]* Date: 12/3/16

Test Report No: *[Signature]* Authorised Signatory

Job No: 1342
XPL/2015-16/02
Date: 12/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/46+362	UDS-5	14.00	Brownish Silty CLAY(CL)	2	8	79	11
2	●	BH-1/46+362	UDS-6	17.00	Brownish Silty CLAY(CL)	4	12	67	17
3	▲	BH-1/46+362	UDS-7	20.00	Brownish Silty CLAY(CL)	0	11	75	14
4	◆	BH-1/46+362	UDS-8	23.00	Brownish Silty CLAY(CL)	0	12	76	12

Site Ref: Hapur - Meerut Section

Job No: 1342

Test Report No: XPL/2015-16/02

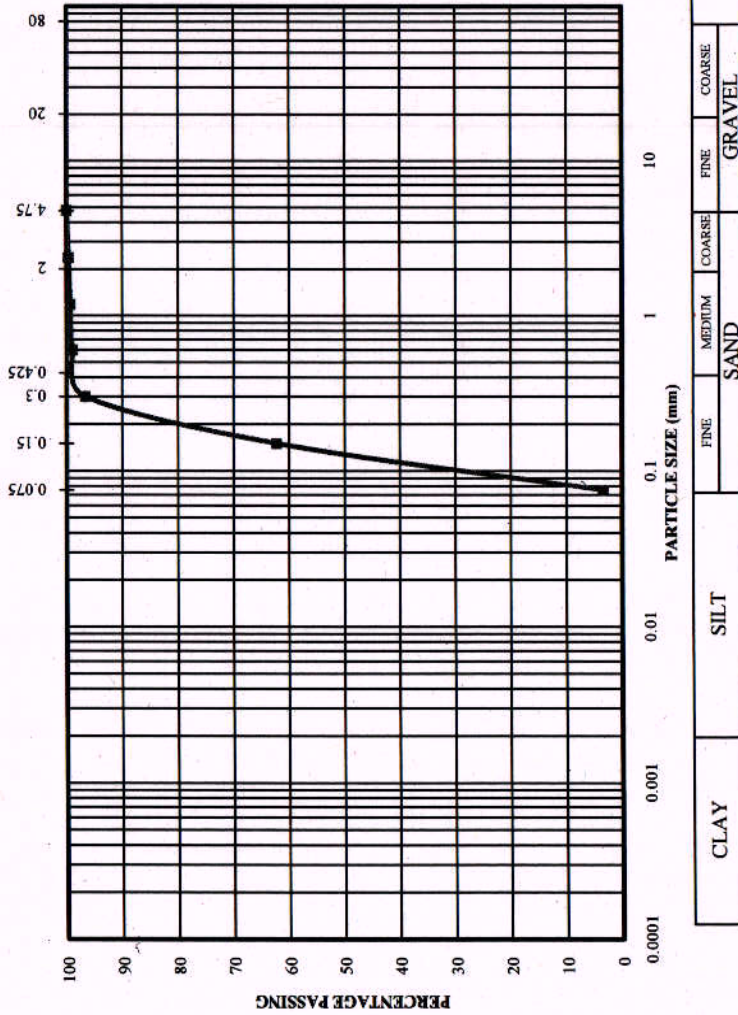
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Checked: *[Signature]* Date: 14/3/16

Authorised Signatory: *[Signature]* Date: 14/3/16

GRAIN SIZE ANALYSIS (IS : 2720 : PART IV)

GRADING CURVE BASED ON IS : 2720 : PART IV





S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/46+362	SPT-18	27.00	Poorly Graded SAND (SP)	0	97	3	3


Site Ref: Hapur - Meerut Section

Job No: 1342

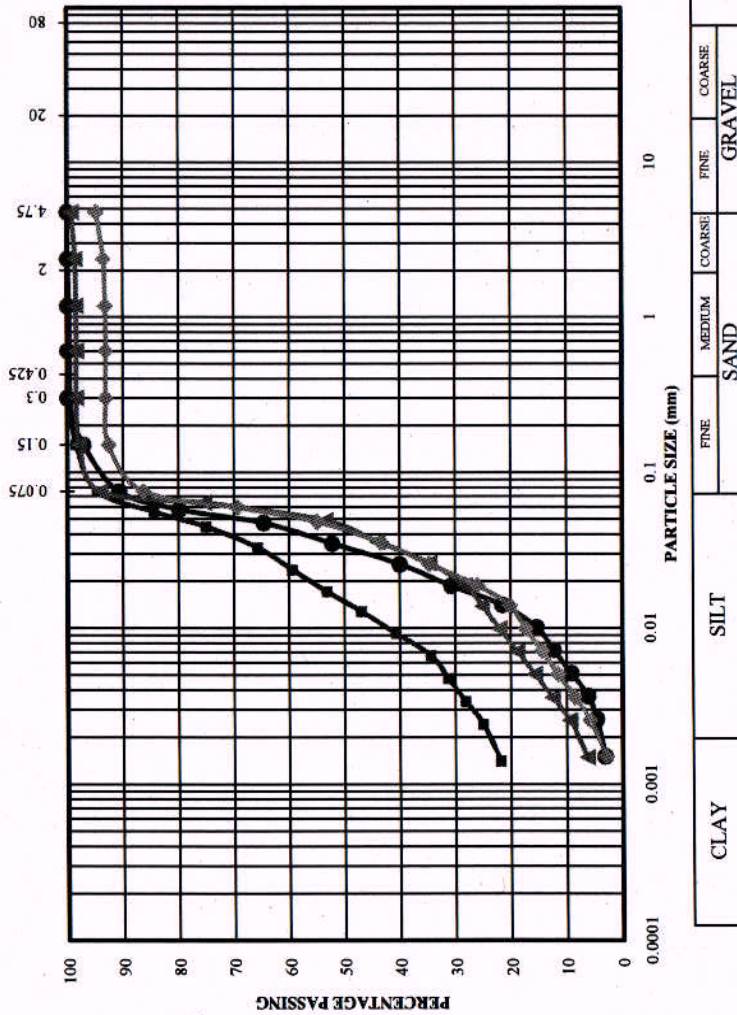
Test Report No: XPL/2015-16/02

Operator:  Date: 14/2/2016

Checked:  Date: 14/3/16

Authorized Signatory:  Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/48+122	UDS-1	2.00	Brownish Silty CLAY (CI)	0	5	70	25
2	●	BH-1/48+122	SPT-4	6.00	Brownish Sandy SILT (ML)	0	9	86	5
3	▲	BH-1/48+122	UDS-4	11.00	Brownish Sandy SILT (ML)	1	5	85	9
4	◆	BH-1/48+122	UDS-5	14.00	Brownish Sandy SILT (ML)	5	9	80	6

Job No: 1342
XPL/2015-16/02

Test Report No:
Authorised Signatory

Date: 17/3/16

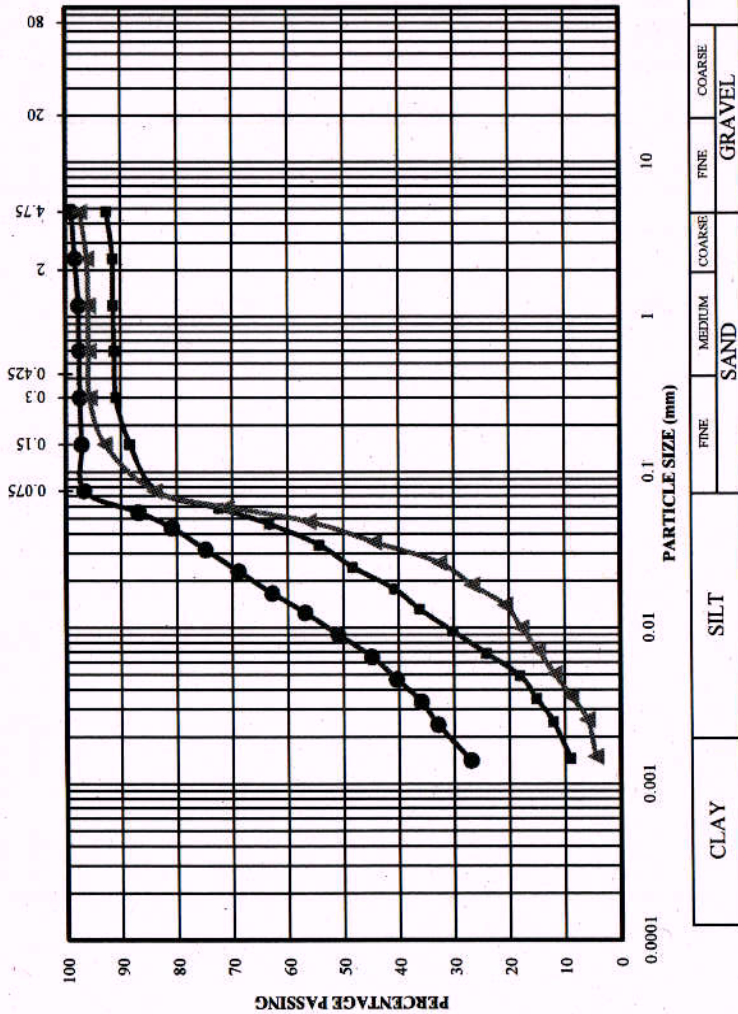
Site Ref: Hapur - Meerut Section

Operator: 17/3/16

Checked:

Date: 17/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL		SAND	SILT	CLAY
						GRAVEL %	GRAVEL			
1	■	BH-1/48+122	UDS-6	17.00	Brownish Silty CLAY (CL)	7	9	72	12	
2	●	BH-1/48+122	UDS-7	20.00	Brownish Silty CLAY (CL)	1	2	64	33	
3	▲	BH-1/48+122	UDS-8	23.00	Brownish Sandy SILT (ML)	3	13	78	6	

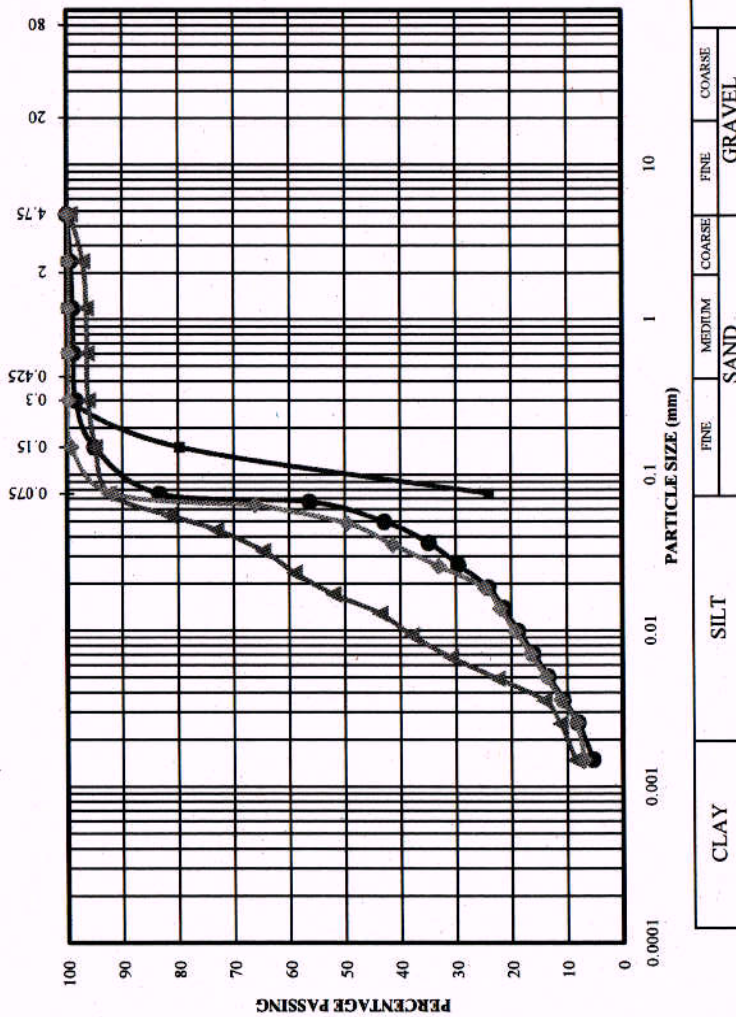
Job No: 1342
Test Report No: XPL/2015-16/02

Date: 14/3/16
Authorised Signatory

Site Ref: Hapur - Meerut Section

Operator: 14/2/16 Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/48+510	UDS-1	2.00	Brownish Silty SAND(SM)	0	76	24	
2	●	BH-1/48+510	UDS-3	8.00	Brownish Silty SILT (ML)	0	17	75	8
3	▲	BH-1/48+510	UDS-4	11.00	Brownish Silty CLAY (CL)	1	7	81	11
4	◆	BH-1/48+510	UDS-5	14.00	Brownish Silty SILT (ML)	0	8	84	8

Job No: 1342
Test Report No: XPL/2015-16/02

14/3/16

Authorised Signatory

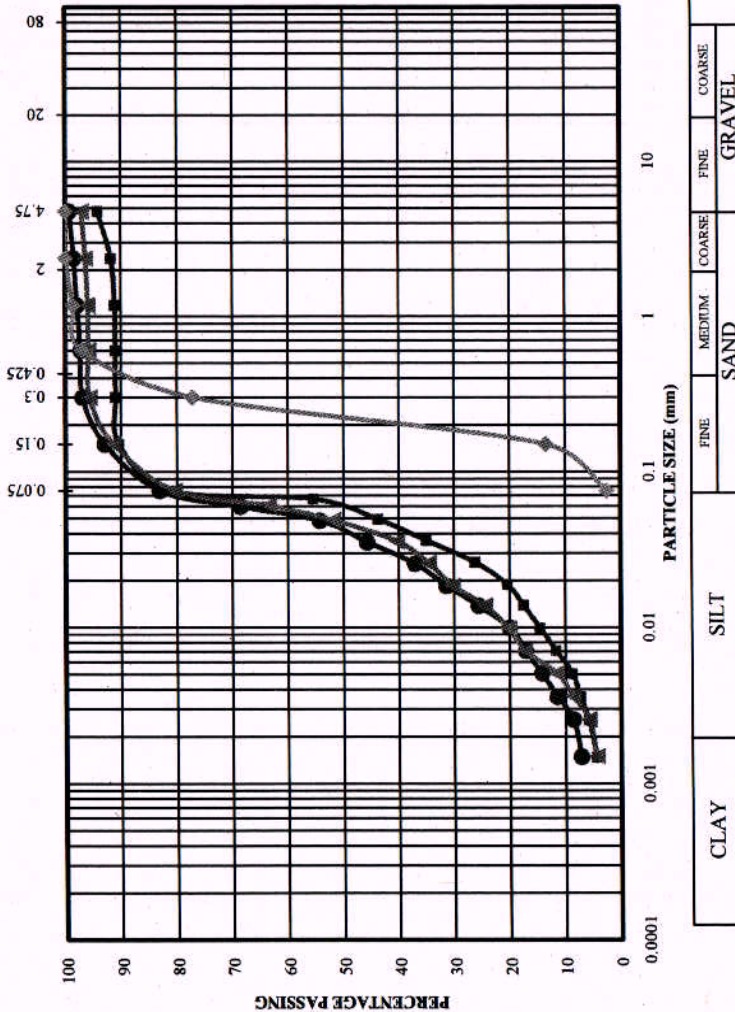
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Site Ref: Hapur - Meerut Section

Operator: 15/2/16 Date:

Checked:

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/48+510	UDS-6	17.00	Brownish Sandy SILT (ML)	6	13	75	6
2	●	BH-1/48+510	UDS-7	20.00	Brownish Sandy SILT (ML)	1	16	74	9
3	▲	BH-1/48+510	UDS-8	23.00	Brownish Sandy SILT (ML)	3	17	74	6
4	◆	BH-1/48+510	SPT-18	27.00	Poorly Graded SAND(SP)	0	98	2	

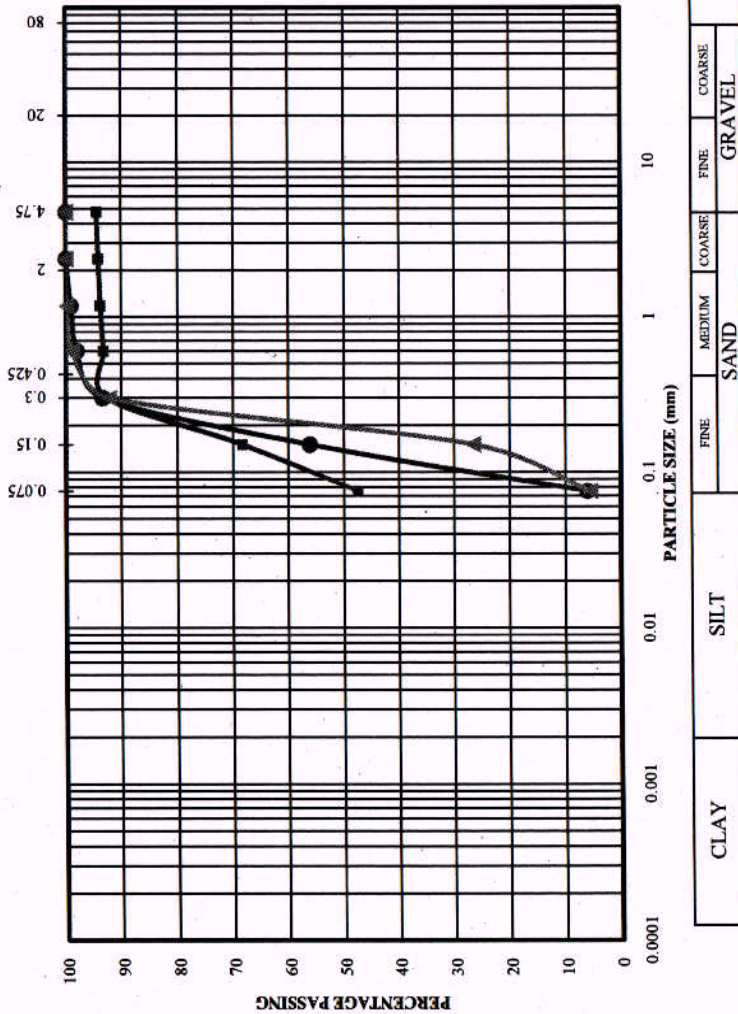
Job No: 1342
Test Report No: XPL/2015-16/02

Date: 14/3/16
Authorised Signatory

Site Ref: Hapur - Meerut Section

Operator: 16/2/06 Date: 14/3/16
Checked: 

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/51+000	SPT-1	1.50	Brownish Silty SAND(SM)	6	47	47	
2	●	BH-1/51+000	SPT-4	6.00	Brownish Silty SAND(SW-SM)	0	94	6	
3	▲	BH-1/51+000	SPT-7	10.50	Brownish Silty SAND(SW-SM)	0	94	6	

Job No: 1342
Test Report No: XPL/2015-16/02

Date: 14/3/16
Authorised Signatory: *AKM*

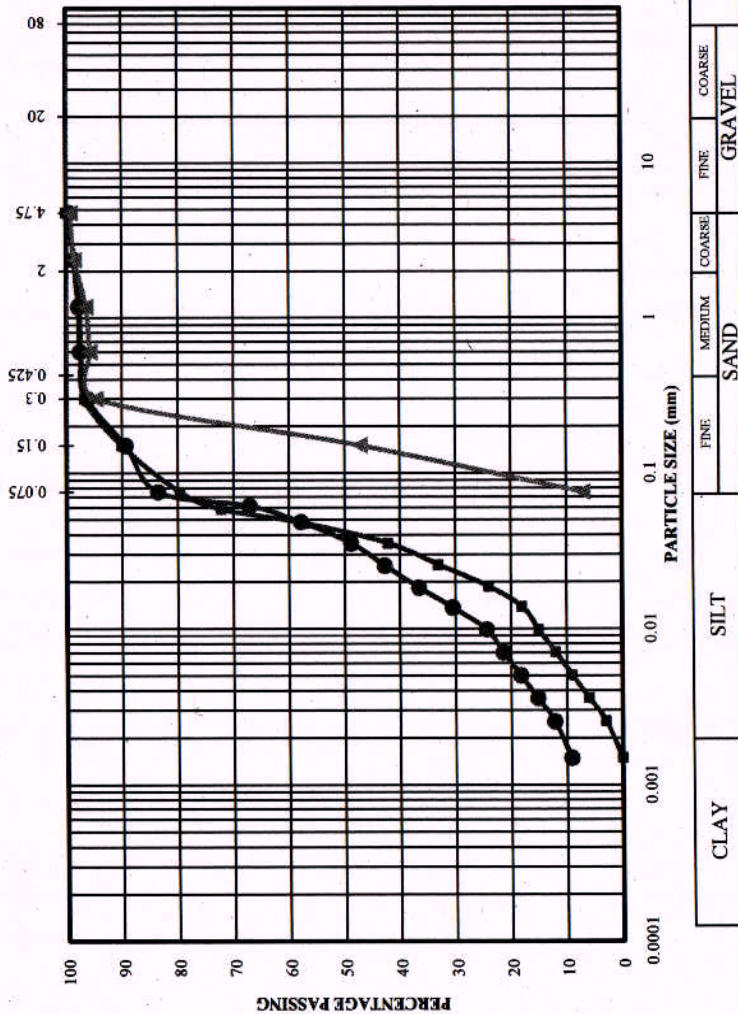
Date: 14/3/16

Checked: *AKM*

Operator: *AKM* Date: 17/12/16

Site Ref: Hapur - Meerut Section

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/52+640	SPT-1	1.50	Brownish Sandy SILT (ML)	0	20	77	3
2	●	BH-1/52+640	SPT-4	6.00	Brownish Sandy SILT (ML)	1	16	71	12
3	▲	BH-1/52+640	SPT-7	10.50	Brownish Silty SAND(SW-SM)	1	92	7	7

Job No: 1342
Test Report No: XPL/2015-16/02

Date: 14/3/16
Authorised Signatory

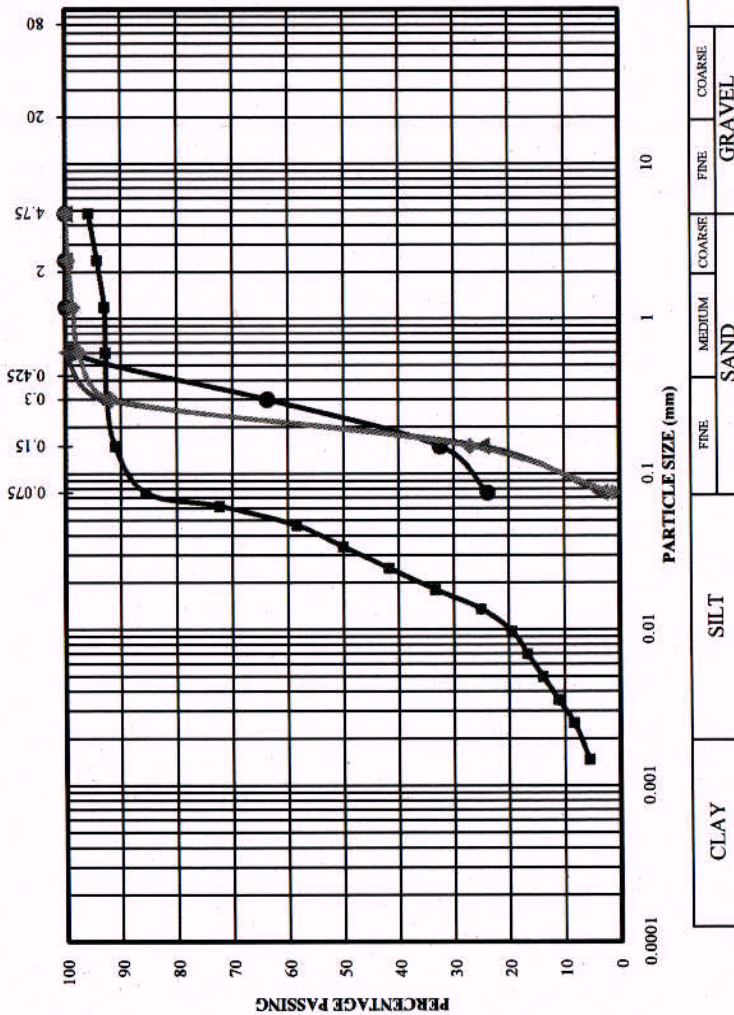
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Operator: 17/2/16 Date: 17/2/16

Site Ref: Hapur - Meerut Section

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/54+825	UDS-1	2.00	Brownish Sandy SILT (ML)	4	10	78	8
2	●	BH-1/54+825	SPT-5	7.50	Brownish Silty SAND(SM)	0	76	24	
3	▲	BH-1/54+825	SPT-8	12.00	Poorly Graded SAND(SP)	0	97	3	
4	◆	BH-1/54+825	SPT-12	18.00	Poorly Graded SAND(SP)	0	99	1	

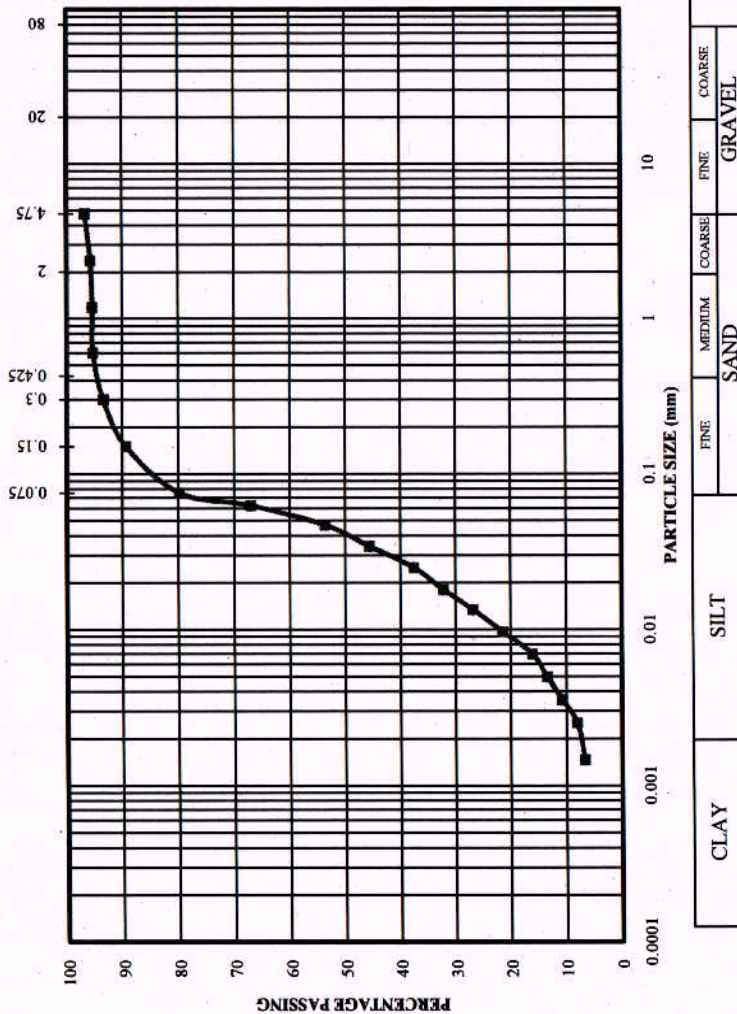
Job No: 1342
Test Report No: XPL/2015-16/02

Date: 14/3/16
Authorised Signatory

Site Ref: Hapur - Meerut Section

Operator: 18/2/06
Date: 14/3/16
Checked:

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/54+82.5	UDS-9	26.00	Brownish Sandy SILT (ML)	3	17	72	8

Job No: 1342
Test Report No: XPL/2015-16/02

14/3/16

[Signature]
Authorised Signatory

Date: 14/3/16

[Signature]

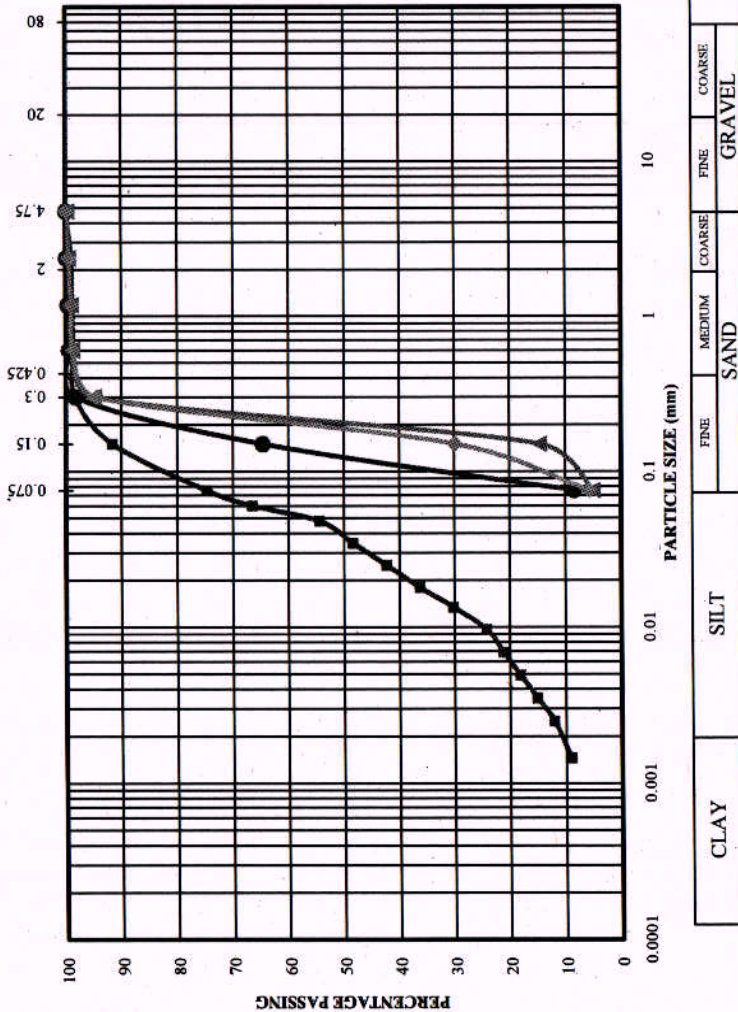
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Date:

Operator: 18/12/16

Site Ref: Hapur - Meerut Section

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/55+850	UDS-1	2.00	Brownish Sandy SILT (ML)	0	25	63	12
2	●	BH-1/55+850	SPT-5	7.50	Brownish Silty SAND(SW-SM)	0	92	8	
3	▲	BH-1/55+850	SPT-9	13.50	Poorly Graded SAND(SP)	0	95	5	
4	◆	BH-1/55+850	SPT-13	18.00	Poorly Graded SAND(SP)	0	94	6	

Site Ref: Hapur - Meerut Section

Operator: 19/12/2016 Date: 14/3/16

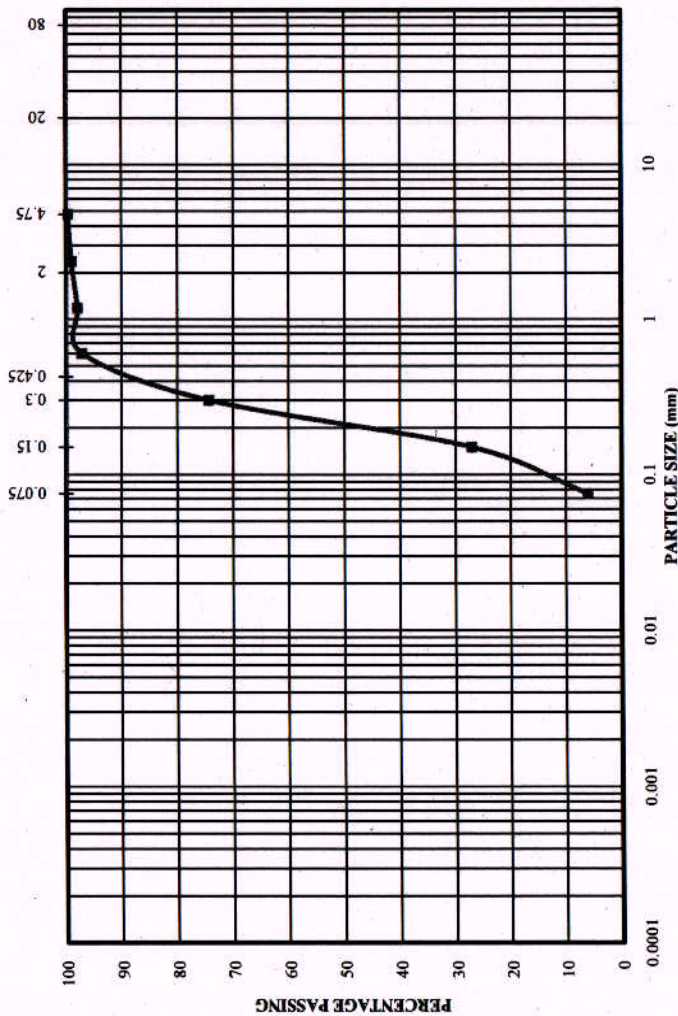
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Test Report No: XPL/2015-16/02

Job No: 1342

Authorised Signatory: [Signature] Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



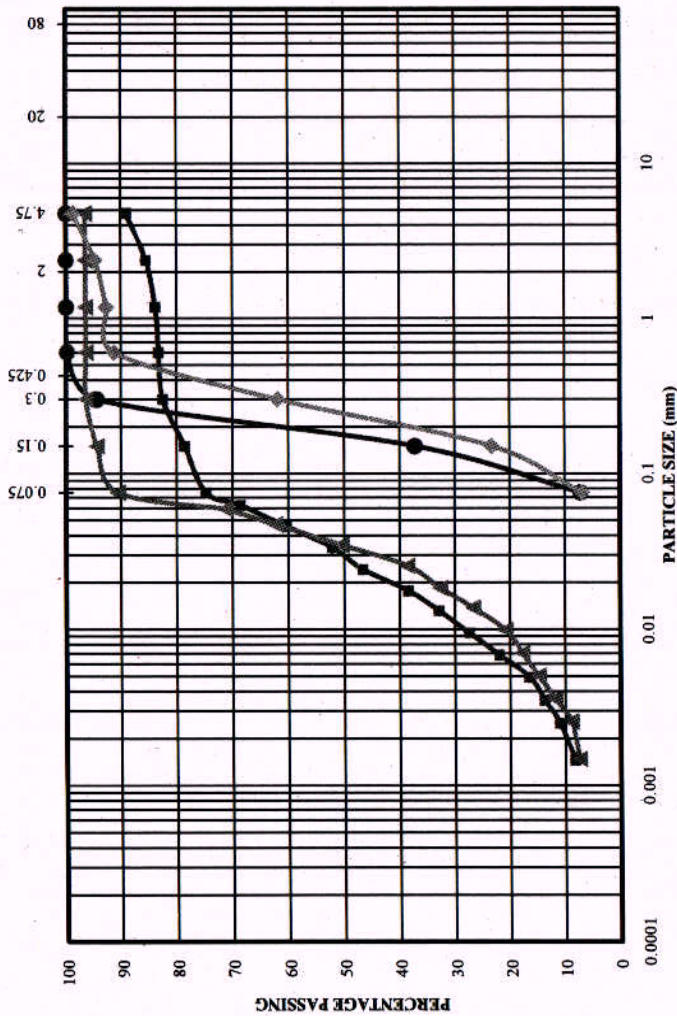
CLAY	SILT	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL	C
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S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/55+850	SPT-18	27.00	Poorly Graded SAND(SP)	0	94	6	6

Site Ref: Hapur - Meerut Section
 Job No: 1342
 Test Report No: XPL/2015-16/02

Operator: *[Signature]* Date: 20/2/16
 Checked: *[Signature]* Date: 17/3/16
 Authorised Signatory: *[Signature]* Date: 14/1/16

GRADING CURVE BASED ON IS : 2720 : PART IV



CLAY		SILT		SAND		GRAVEL		C	
FINE	COARSE	FINE	COARSE	FINE	COARSE	FINE	COARSE		

S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/56+780	SPT-1	1.50	Brownish Sandy SILT (ML)	11	14	64	11
2	●	BH-1/56+780	SPT-5	7.50	Poorly Graded SAND(SP)	0	93	7	
3	▲	BH-1/56+780	UDS-5	14.00	Brownish Sandy SILT (ML)	3	6	82	9
4	◆	BH-1/56+780	SPT-14	21.00	Brownish Silty SAND(SW-SM)	1	92	7	

Site Ref: Hapur - Meerut Section

Operator: *[Signature]* Date: 20/2/06

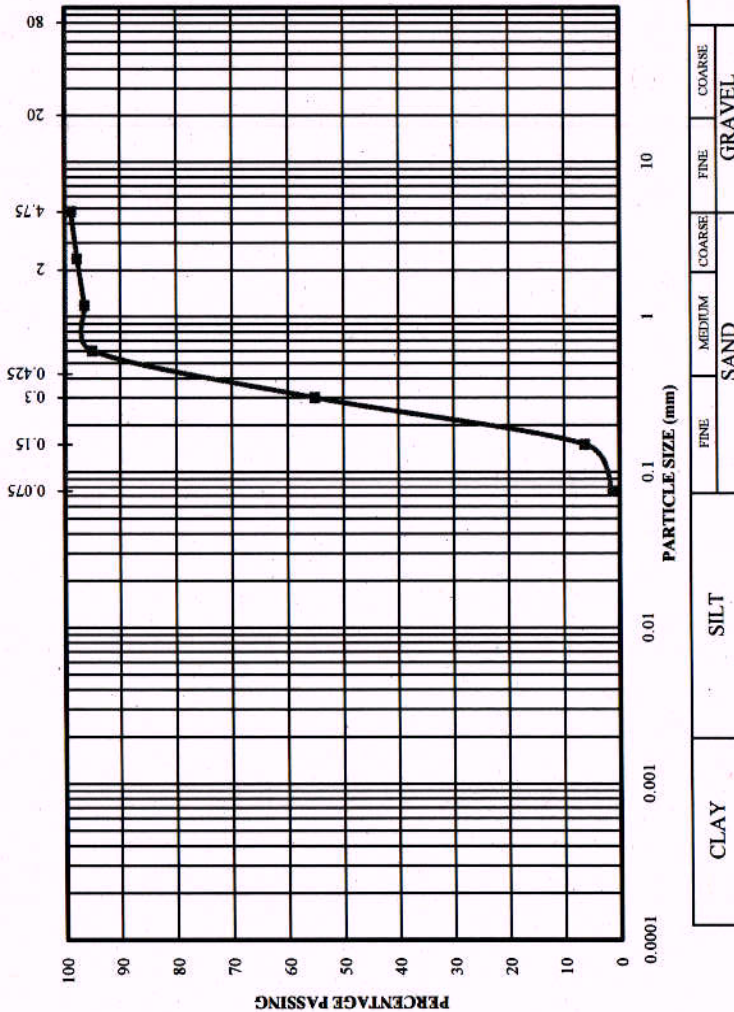
Checked: *[Signature]* Date: 14/3/18

Authorised Signatory: *[Signature]* Date: 14/3/18

Test Report No: XPL/2015-16/02

Job No: 1342

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/56+780	SPT-18	27.00	Poorly Graded SAND(SP)	1	98	1	1

Site Ref: Hapur - Meerut Section

Job No: 1342

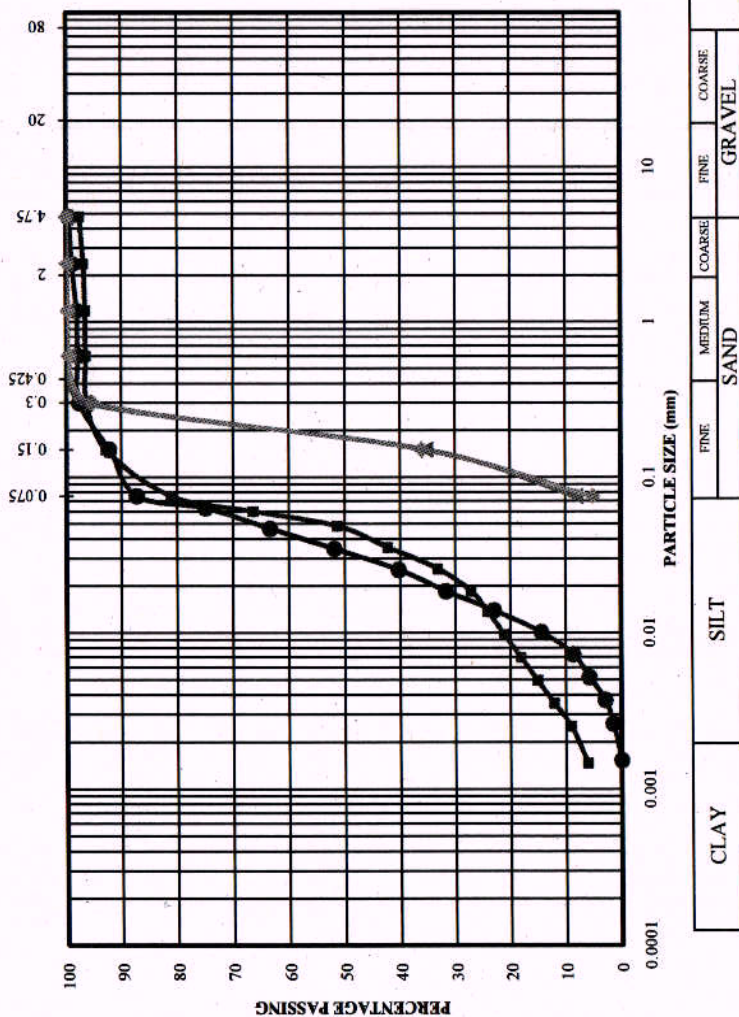
Test Report No: XPL/2015-16/02

Operator: *[Signature]* Date: 2-12-2016

Checked: *[Signature]* Date: 17/3/16

Authorised Signatory: *[Signature]* Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/57+555	UDS-1	2.00	Brownish Sandy SILT (ML)	2	17	72	9
2	●	BH-1/57+555	UDS-2	5.00	Brownish Sandy SILT (ML)	1	12	86	1
3	▲	BH-1/57+555	SPT-6	9.00	Brownish Silty SAND(SW-SM)	0	92	8	
4	◆	BH-1/57+555	SPT-10	15.00	Brownish Silty SAND(SW-SM)	0	95	5	

Job No: 1342
Test Report No: XPL/2015-16/02

Date: 14/3/16
Authorised Signatory

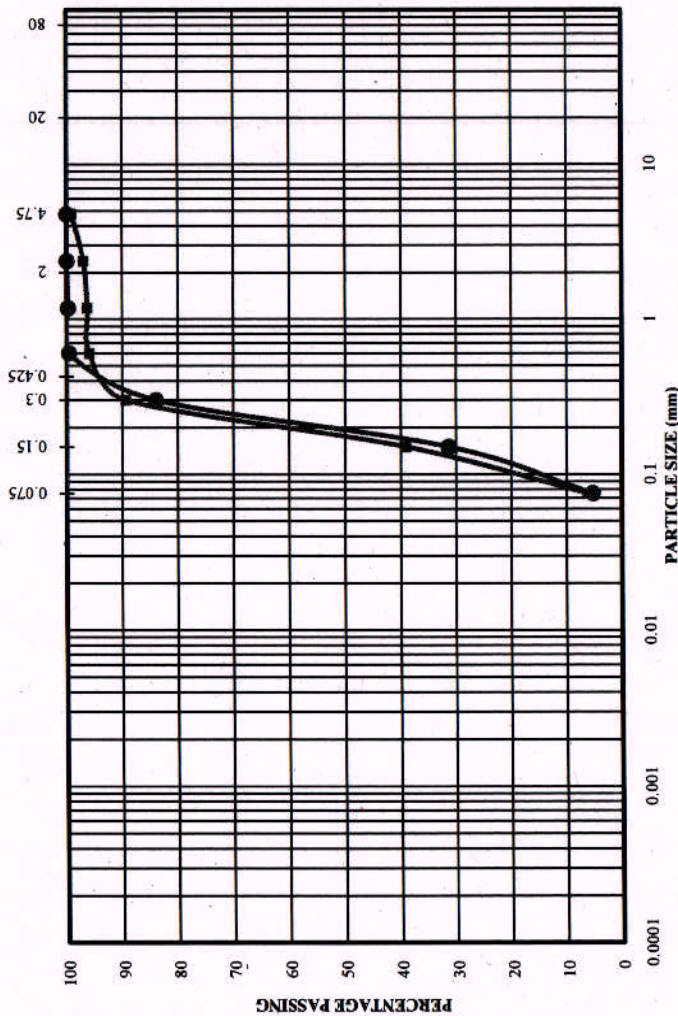
Date: 14/3/16

Site Ref: Hapur - Meerut Section

Checked: [Signature]

Date: 24/2/16
Operator: [Signature]

GRADING CURVE BASED ON IS : 2720 : PART IV




CLAY	SILT	SAND		GRAVEL		C
		FINE	MEDIUM	COARSE	GRAVEL	


S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/57+555	SPT-14	21.00	Brownish Silty SAND(SW-SM)	1	93	6	6
2	●	BH-1/57+555	SPT-18	27.00	Brownish Silty SAND(SW-SM)	0	95	5	5


Site Ref: Hapur - Meerut Section

Job No: 1342

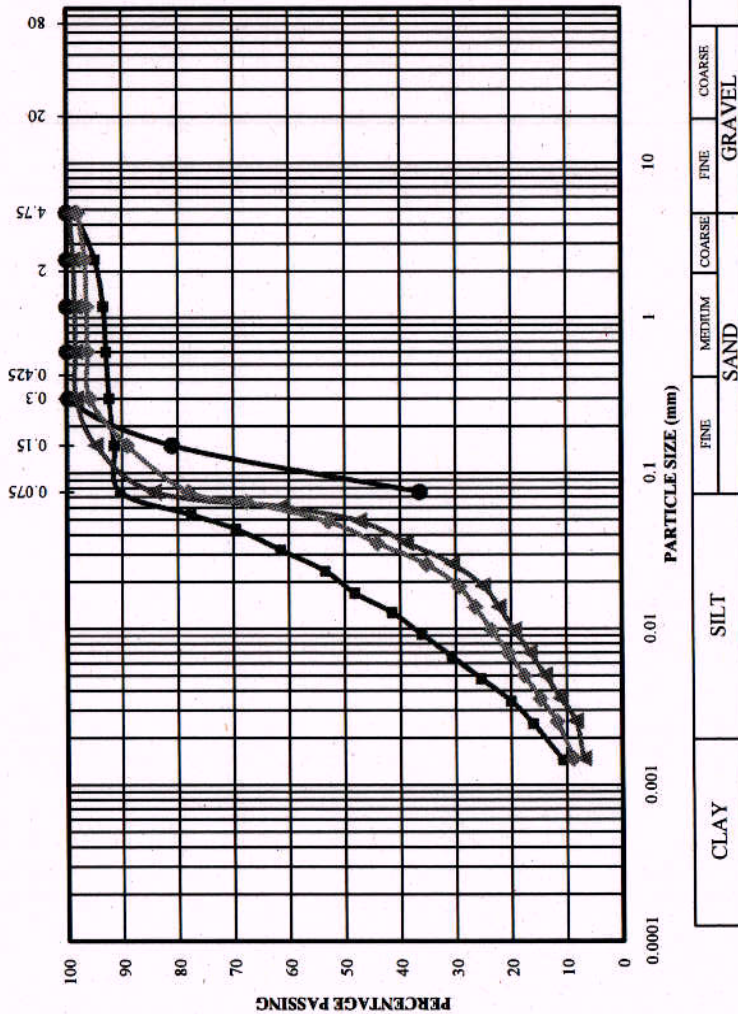
Test Report No: XPL/2015-16/02

Operator:  Date: 22/2/16

Checked:  Date: 14/3/16

Authorised Signatory:  Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL		SAND %	SILT %	CLAY %
						FINE	COARSE			
1	■	BH-1/58+400	UDS-1	2.00	Brownish Silty CLAY(CL)	2	0	8	74	16
2	●	BH-1/58+400	SPT-5	7.50	Brownish Silty SAND(SM)	0	0	64	36	
3	▲	BH-1/58+400	UDS-4	11.00	Brownish Sandy SILT (ML)	1	0	15	76	8
4	◆	BH-1/58+400	UDS-5	14.00	Brownish Sandy SILT (ML)	2	0	20	66	12

Site Ref: Hapur - Meerut Section

Job No: 1342

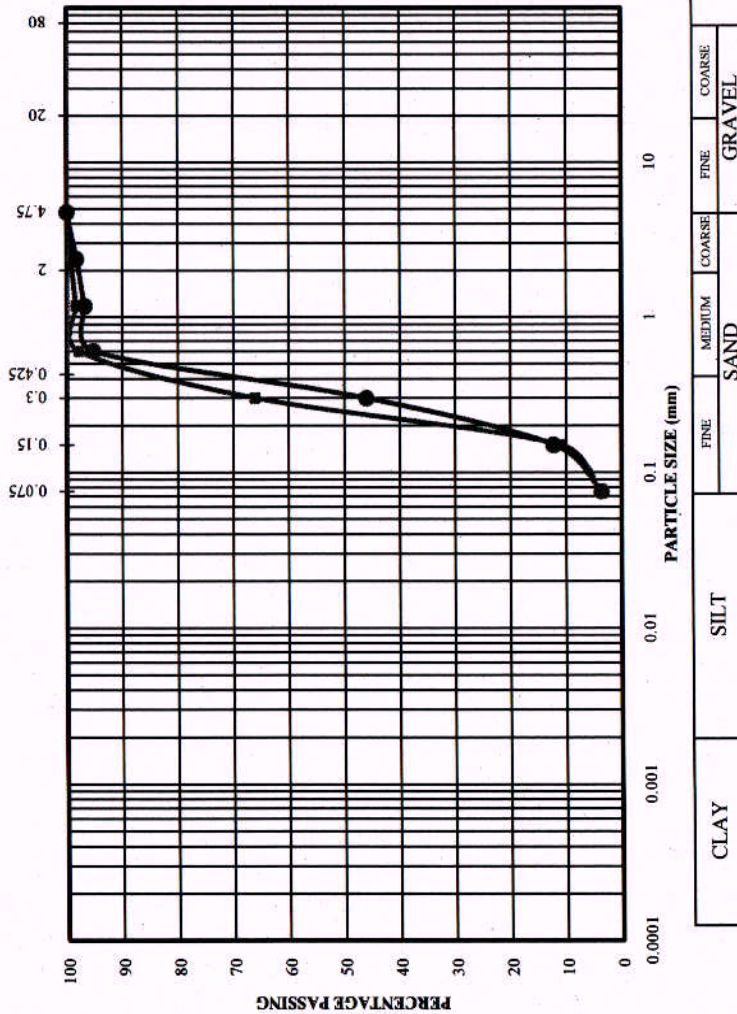
Test Report No: XPL/2015-16/02

Operator: *[Signature]* Date: 22/2/06

Checked: *[Signature]* Date: 14/3/16

Authorised Signatory: *[Signature]* Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/58+400	SPT-14	21.00	Poorly Graded SAND(SP)	0	96	4	4
2	●	BH-1/58+400	SPT-18	27.00	Poorly Graded SAND(SP)	0	96	4	4

Site Ref: Hapur - Meerut Section

Job No: 1342

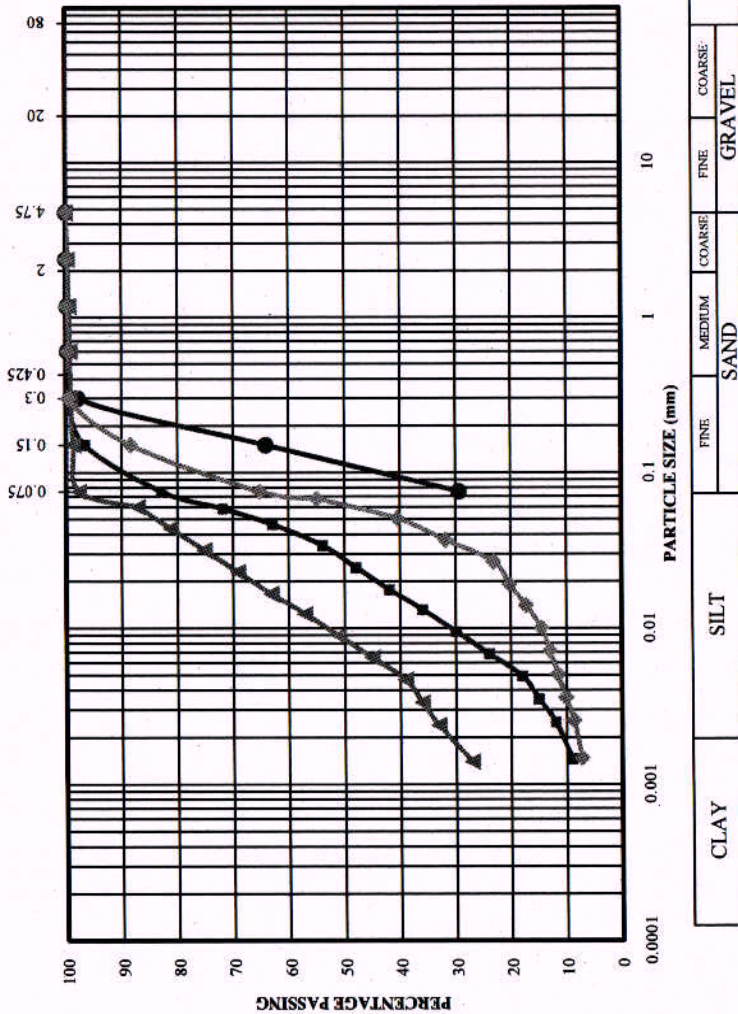
Test Report No: XPL/2015-16/02

Operator: *[Signature]* Date: 23/10/16

Checked: *[Signature]* Date: 14/3/16

Authorised Signatory: *[Signature]* Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/59+305	UDS-1	2.00	Brownish Silty CLAY(CL)	0	17	71	12
2	●	BH-1/59+305	SPT-3	4.50	Brownish Silty SAND(SM)	0	71	29	
3	▲	BH-1/59+305	UDS-3	8.00	Brownish Silty CLAY(CI)	0	2	65	33
4	◆	BH-1/59+305	UDS-4	11.00	Brownish Silty CLAY(CL)	0	35	56	9

Site Ref: Hapur - Meerut Section

Operator: *[Signature]* Date: 23/2/16

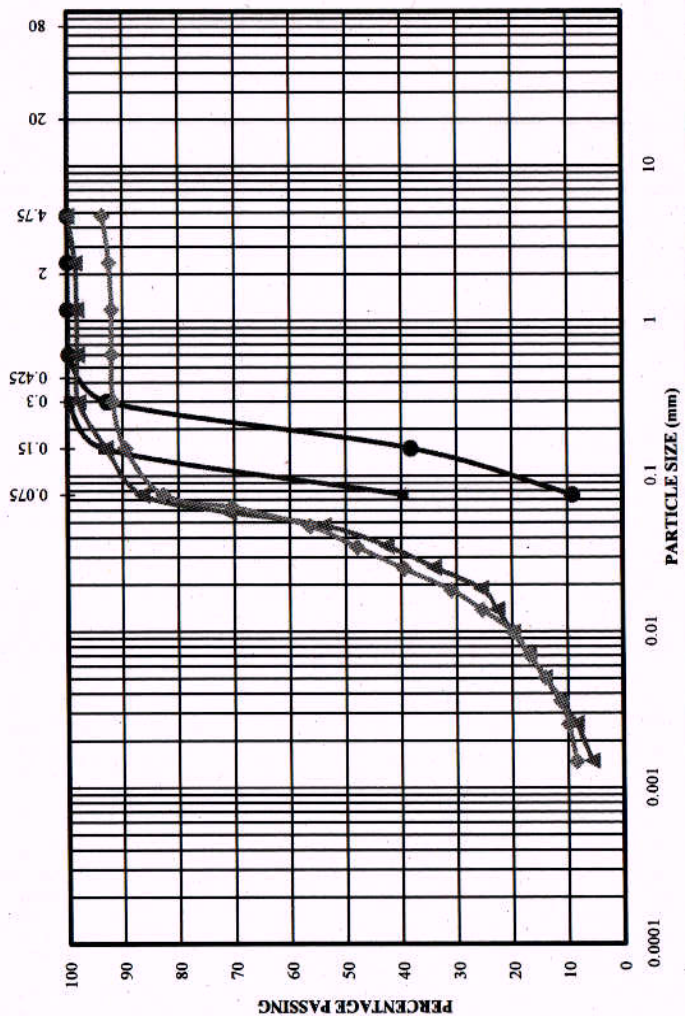
Checked: *[Signature]* Date: 14/3/16

Authorised Signatory: *[Signature]* Date: 14/2/16

Test Report No: XPL/2015-16/02

Job No: 1342


GRADING CURVE BASED ON IS : 2720 : PART IV




CLAY	SILT	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL	C
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S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/62+160	SPT-1	1.50	Brownish Sandy SILT (ML)	0	60	40	
2	●	BH-1/62+160	SPT-3	4.50	Brownish Silty SAND(SW-SM)	0	91	9	
3	▲	BH-1/62+160	UDS-3	8.00	Brownish Sandy SILT (ML)	0	13	78	9
4	◆	BH-1/62+160	UDS-4	11.00	Brownish Sandy SILT (ML)	6	11	73	10

Site Ref: Hapur - Meerut Section


Operator:  Date: 26/12/16

Checked: 

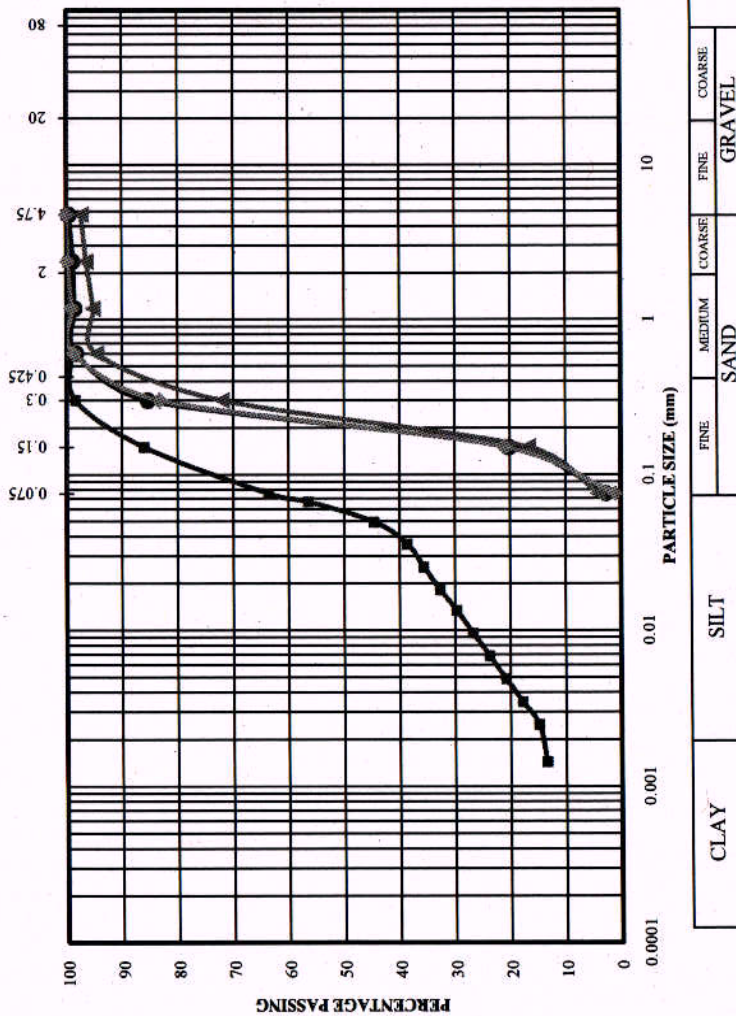
Test Report No: XPL/2015-16/02

Job No: 1342

Date: 14/1/16

Authorised Signatory:  Date: 14/1/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/63+570	UDS-1	2.00	Brownish Silty CLAY(CL)	0	36	49	15
2	●	BH-1/63+570	SPT-5	7.50	Poorly Graded SAND(SP)	0	97	3	
3	▲	BH-1/63+570	SPT-9	13.50	Poorly Graded SAND(SP)	3	93	4	
4	◆	BH-1/63+570	SPT-13	19.50	Poorly Graded SAND(SP)	0	99	1	

Job No: 1342
Test Report No: XPL/2015-16/02

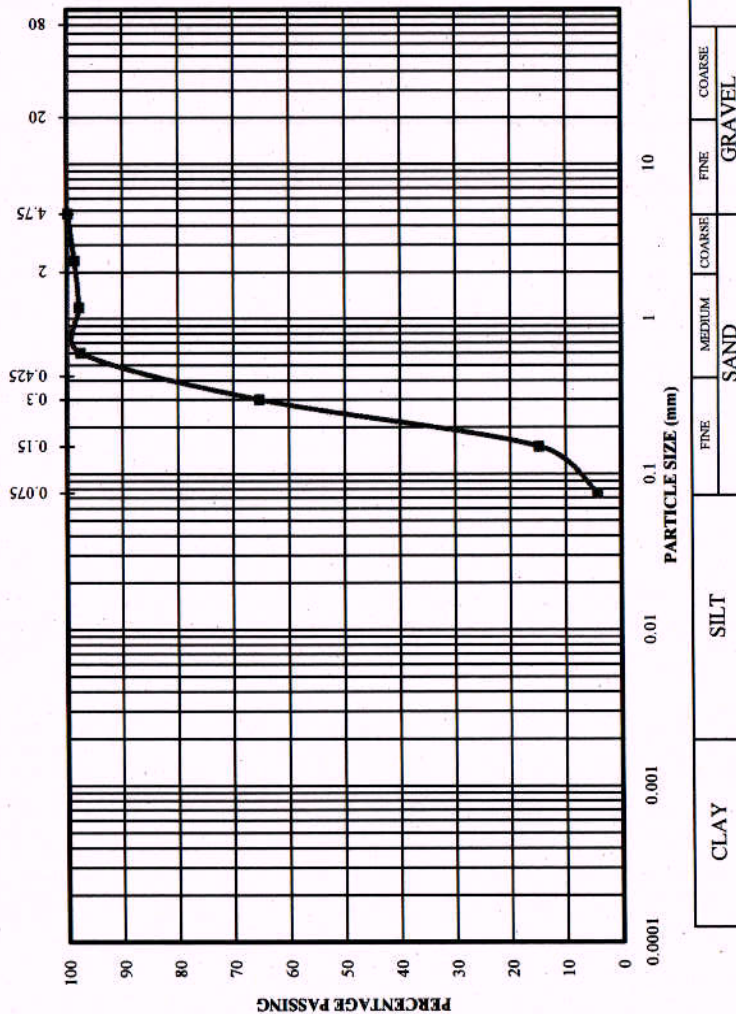
Date: 14/3/16
Authorised Signatory

Date: 17/3/16

Site Ref: Hapur - Meerut Section

Operator: 24/2/06
Date: 24/2/06


GRADING CURVE BASED ON IS : 2720 : PART IV




S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■—■	BH-1/63+570	SPT-17	25.50	Poorly Graded SAND(SP)	0	96	4	0


CLAY	SILT	SAND			GRAVEL				
		FINE	MEDIUM	COARSE	FINE	COARSE			
									C

Site Ref: Hapur - Meerut Section

Operator:  Date: 24/12/16

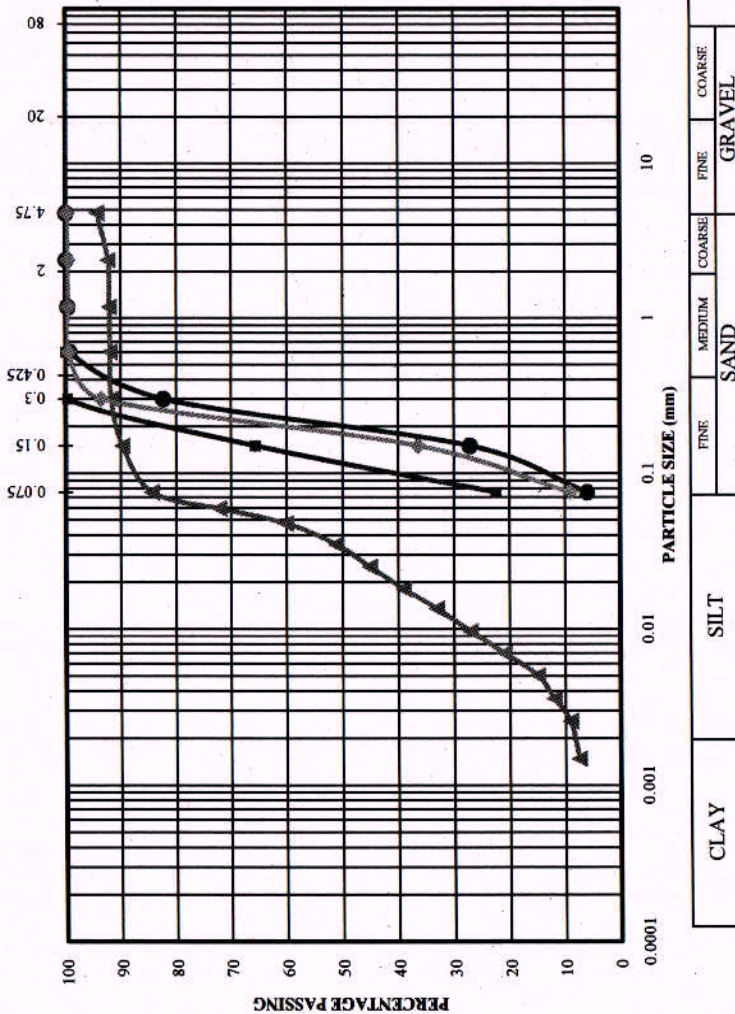
Checked:  Date: 14/3/16

Test Report No: XPL/2015-16/02

Authorized Signatory:  Date: 14/3/16

Job No: 1342

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL		SAND	SILT	CLAY
						GRAVEL %	GRAVEL %			
1	■	BH-1/64+270	SPT-1	1.50	Brownish Silty SAND(SM)	0	0	78	22	
2	●	BH-1/64+270	SPT-4	6.00	Brownish Silty SAND(SW-SM)	0	0	94	6	
3	▲	BH-1/64+270	UDS-4	11.00	Brownish Sandy SILT (ML)	6	6	10	75	9
4	◆	BH-1/64+270	SPT-13	19.50	Brownish Silty SAND(SW-SM)	0	0	91	9	

Job No: 1342
Test Report No: XPL/2015-16/02

Date: 14/2/16
Authorised Signatory

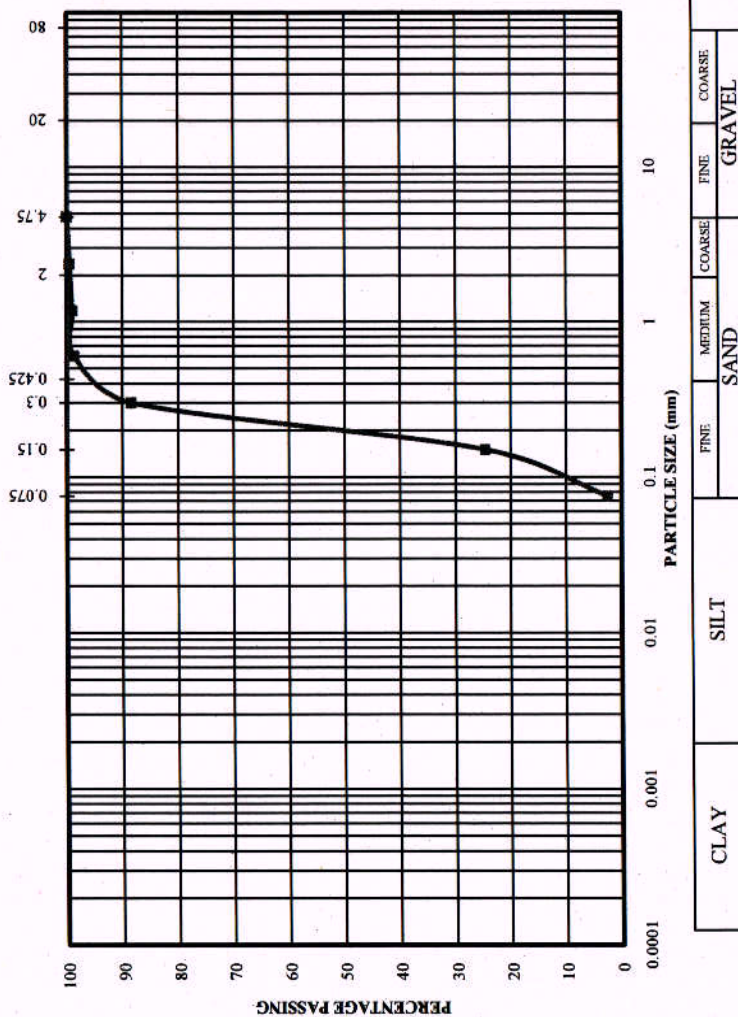
Date: 18/3/16

Checked:

Operator: 2572/016 Date:

Site Ref: Hapur - Meerut Section

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/64+270	SPT-17	25.50	Poorly Graded SAND(SP)	0	98	2	2

Job No: 1342
Test Report No: XPL/2015-16/02

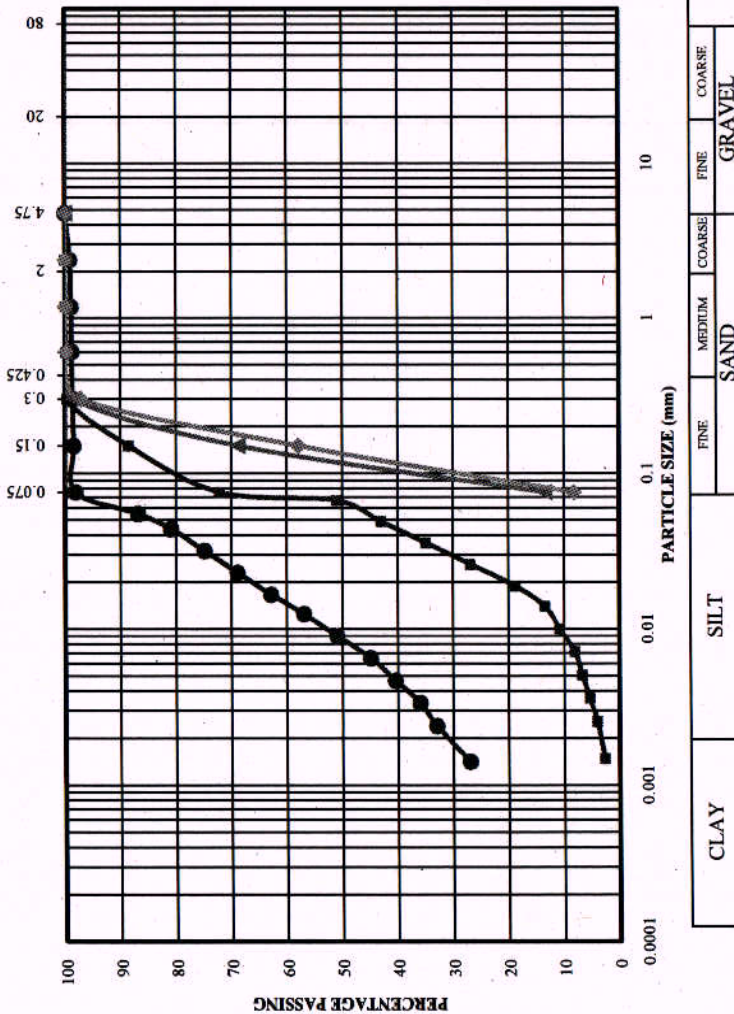
14/3/16
Date: 14/3/16
Authorised Signatory

Site Ref: Hapur - Meerut Section

Checked: RAE
Date: 14/3/16

Operator: 2572/0/6
Date: 14/3/16

GRADING CURVE BASED ON IS : 2720 : PART IV



S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/65+740	UDS-1	2.00	Brownish Sandy SILT (ML)	0	28	68	4
2	●	BH-1/65+740	UDS-4	11.00	Brownish Silty CLAY (CI)	0	2	65	33
3	▲	BH-1/65+740	SPT-11	16.50	Brownish Silty SAND (SM)	0	87	13	
4	◆	BH-1/65+740	SPT-15	22.50	Brownish Silty SAND (SW-SM)	0	92	8	

Job No: 1342
Test Report No: XPL/2015-16/02

14/21/16

Authorised Signatory

Date: 17/3/16

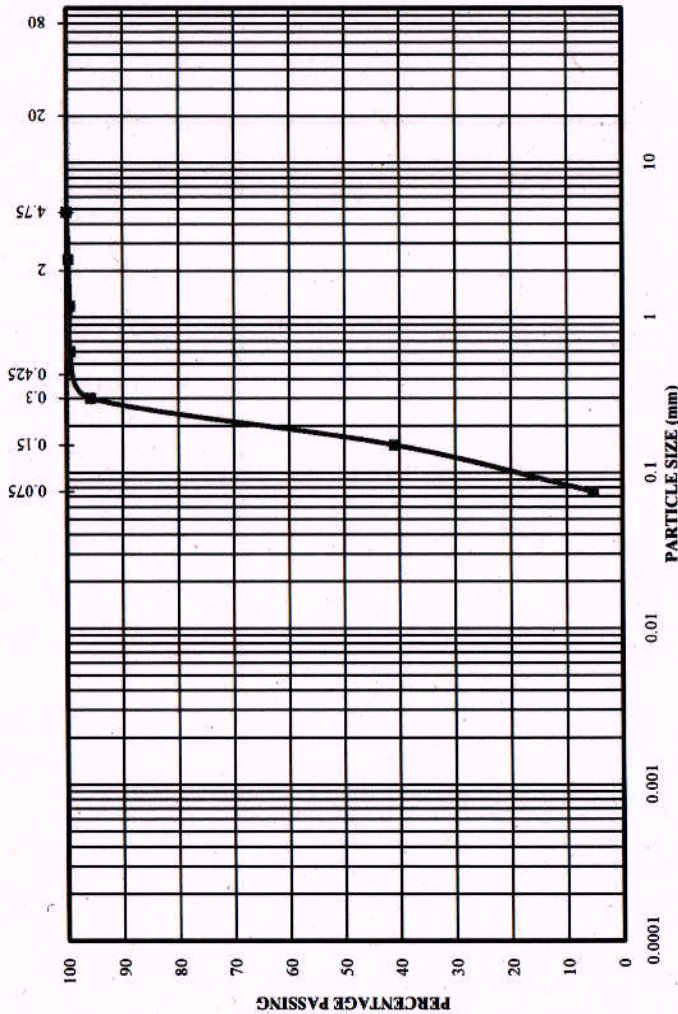
Site Ref: Hapur - Meerut Section

Checked: *[Signature]*

Operator: *[Signature]* Date: 25/2/06

GRAIN SIZE ANALYSIS (IS : 2720 : PART IV)

GRADING CURVE BASED ON IS : 2720 : PART IV



CLAY	SILT	FINE	MEDIUM	COARSE	FINE	COARSE	C
		SAND		GRAVEL		GRAVEL	

S.NO.	SYMBOL	BH NO./CHAINAGE	SAMPLE NO	DEPTH (M)	DESCRIPTION	GRAVEL %	SAND %	SILT %	CLAY %
1	■	BH-1/65+740	SPT-19	28.50	Brownish Silty SAND(SW-SM)	0	95	5	5

Site Ref: Hapur - Meerut Section

Job No: 1342

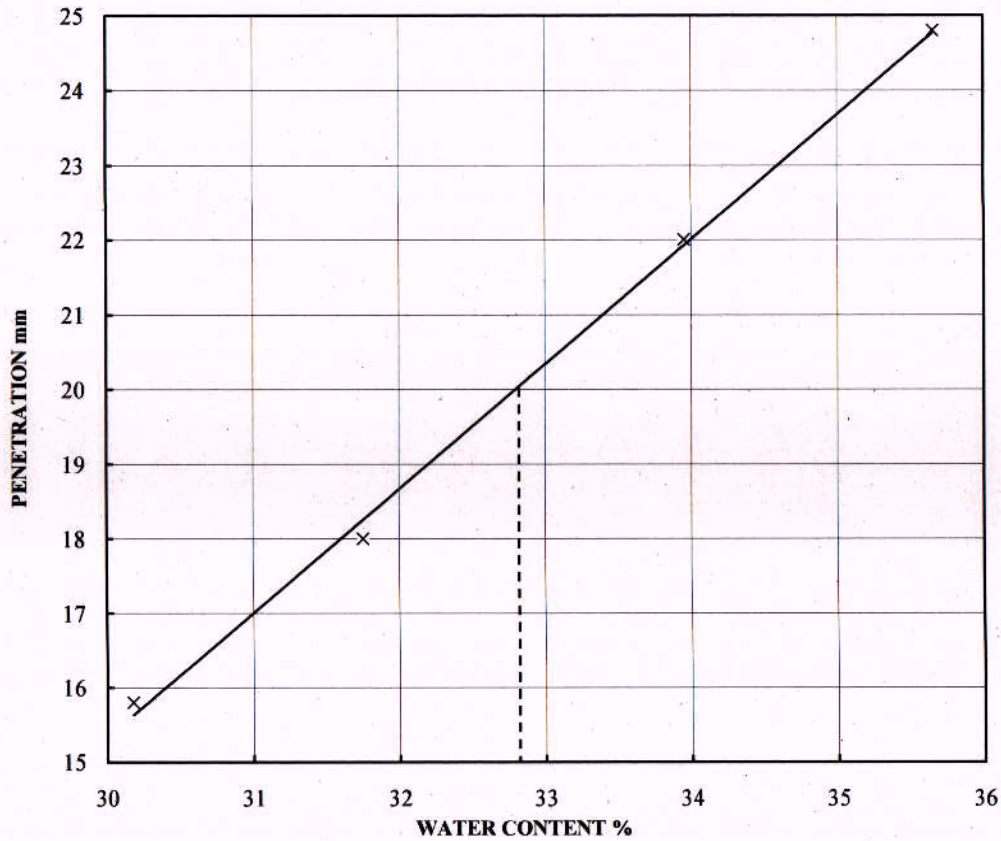
Test Report No: XPL/2015-16/02

Operator: *[Signature]* Date: 06/12/06

Checked: *[Signature]* Date: 14/3/16

Authorised Signatory: *[Signature]* Date: 14/3/16

I.S. : 2720 : PART 5



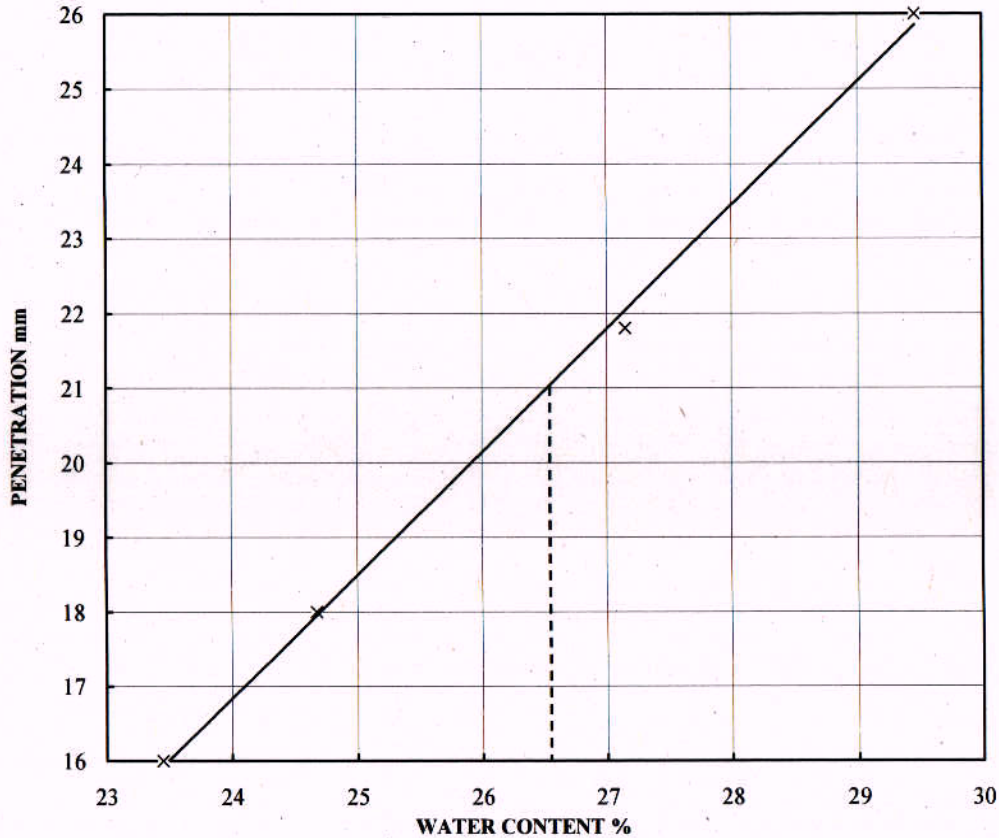
HISTORY OF SAMPLE :

Percentage of passing 0.425mm B.S.Sieve = 93%

	LIQUID LIMIT %				PLASTIC LIMIT %	
Wet Weight + Tare (g)	26.48	27.23	29.21	31.03	19.75	18.35
Dry Weight + Tare (g)	22.59	23.15	24.46	25.66	17.94	16.76
Tare Weight (g)	9.70	10.30	10.47	10.60	8.21	7.98
Water Content (%)	30.18	31.75	33.95	35.66	18.60	18.11
Penetration (mm)	15.80	18.00	22.00	24.80		
LIQUID LIMIT (%)		33				
PLASTIC LIMIT (%)		18				
PLASTICITY INDEX (%)		15				

Sample Type : UDS	
Borehole No. 1/41+916	Sample No: UDS-1
Depth (m): 2.00	
XPLORER	Site Ref: Hapur - Meerut Section
Job No: 1342	
Test Report No: XPL/2015-16/02	
Operator : <i>Bikram</i>	Checked : <i>[Signature]</i>
Authorised Signatory <i>[Signature]</i>	
Date: <i>27/9/16</i>	Date: <i>14/3/16</i>
Date: <i>14/2/18</i>	

I.S. : 2720 : PART 5



HISTORY OF SAMPLE :

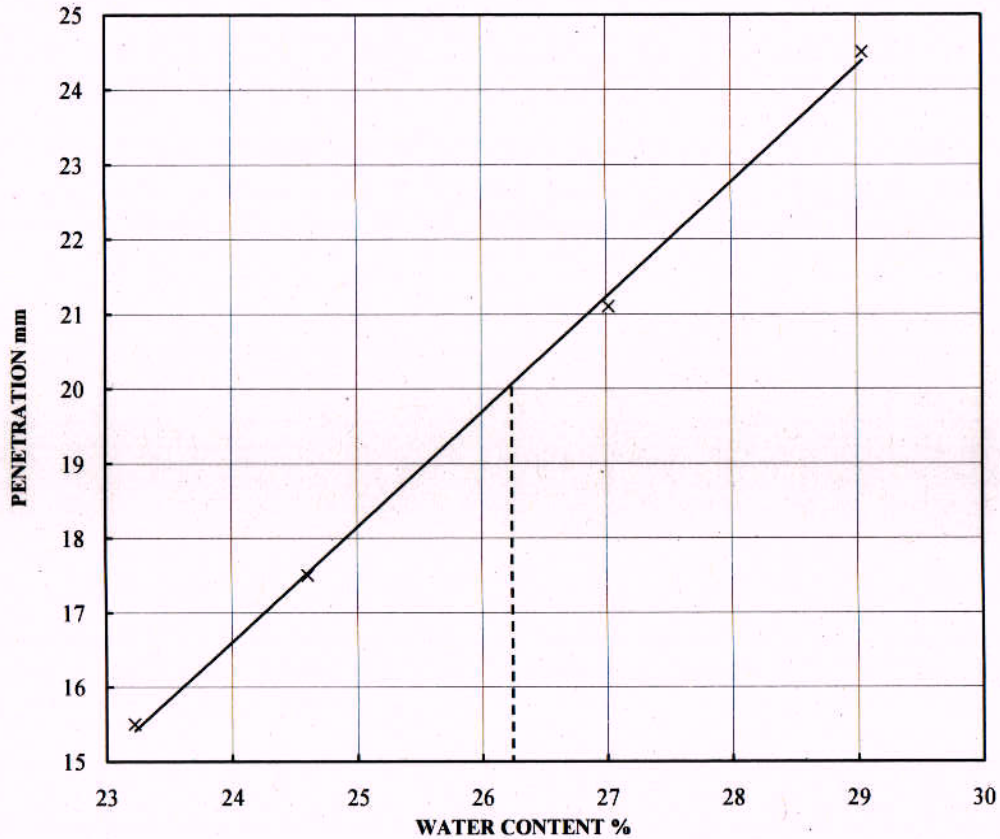
Percentage of passing 0.425mm B.S.Sieve = 89%

	LIQUID LIMIT %				PLASTIC LIMIT %	
	31.69	28.26	29.40	30.80	22.33	20.07
Wet Weight + Tare (g)	31.69	28.26	29.40	30.80	22.33	20.07
Dry Weight + Tare (g)	27.57	24.63	25.36	26.06	20.48	18.30
Tare Weight (g)	10.00	9.92	10.48	9.97	10.52	8.74
Water Content (%)	23.45	24.68	27.15	29.46	18.57	18.51
Penetration (mm)	16.00	18.00	21.80	26.00		

LIQUID LIMIT (%) 27
 PLASTIC LIMIT (%) 19
 PLASTICITY INDEX (%) 8

Sample Type : UDS		Borehole No. 1/41+916		Sample No: UDS-3		Depth (m): 8.00	
XPLORER		Site Ref: Hapur - Meerut Section		Job No : 1342		Test Report No: XPL/2015-16/02	
Operator : <i>Bikim</i>		Checked : <i>RE</i>		Authorised Signatory <i>[Signature]</i>			
Date : 27/2/16		Date: 17/3/16		Date: 14/3/16			

I.S. : 2720 : PART 5



HISTORY OF SAMPLE :

Percentage of passing 0.425mm B.S.Sieve = 92%

	LIQUID LIMIT %				PLASTIC LIMIT %	
	24.95	24.91	27.80	25.55	22.33	20.07
Wet Weight + Tare (g)	24.95	24.91	27.80	25.55	22.33	20.07
Dry Weight + Tare (g)	22.07	21.95	23.99	21.73	20.48	18.30
Tare Weight (g)	9.67	9.92	9.89	8.58	10.52	8.74
Water Content (%)	23.23	24.61	27.02	29.05	18.57	18.51
Penetration (mm)	15.50	17.50	21.10	24.50		

LIQUID LIMIT (%) 26
 PLASTIC LIMIT (%) 19
 PLASTICITY INDEX (%) 7

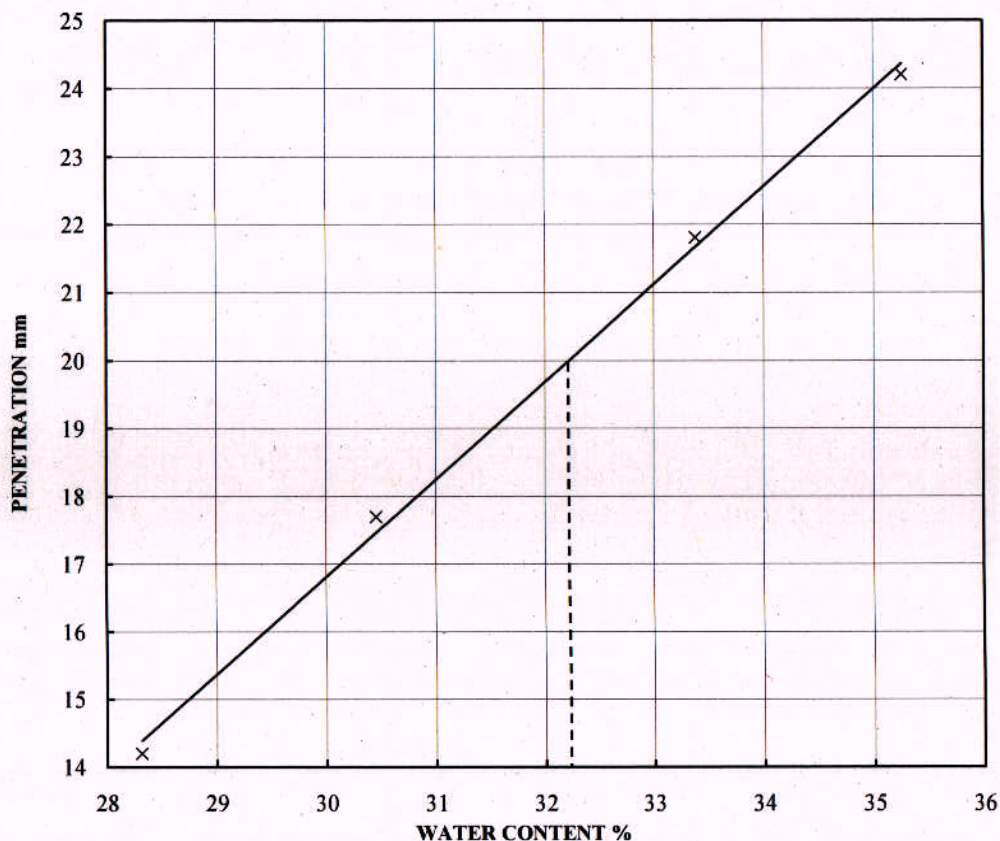
Sample Type : UDS

Borehole No. 1/41+916 Sample No: UDS-4 Depth (m): 11.00

XPLORER Site Ref: Hapur - Meerut Section Job No : 1342
 Test Report No: XPL/2015-16/02

Operator : <i>Bu Kim</i>	Checked : <i>Atk</i>	Authorised Signatory <i>[Signature]</i>
Date : 27/2/06	Date: 14/2/16	Date: 14/3/08

I.S. : 2720 : PART 5



HISTORY OF SAMPLE :

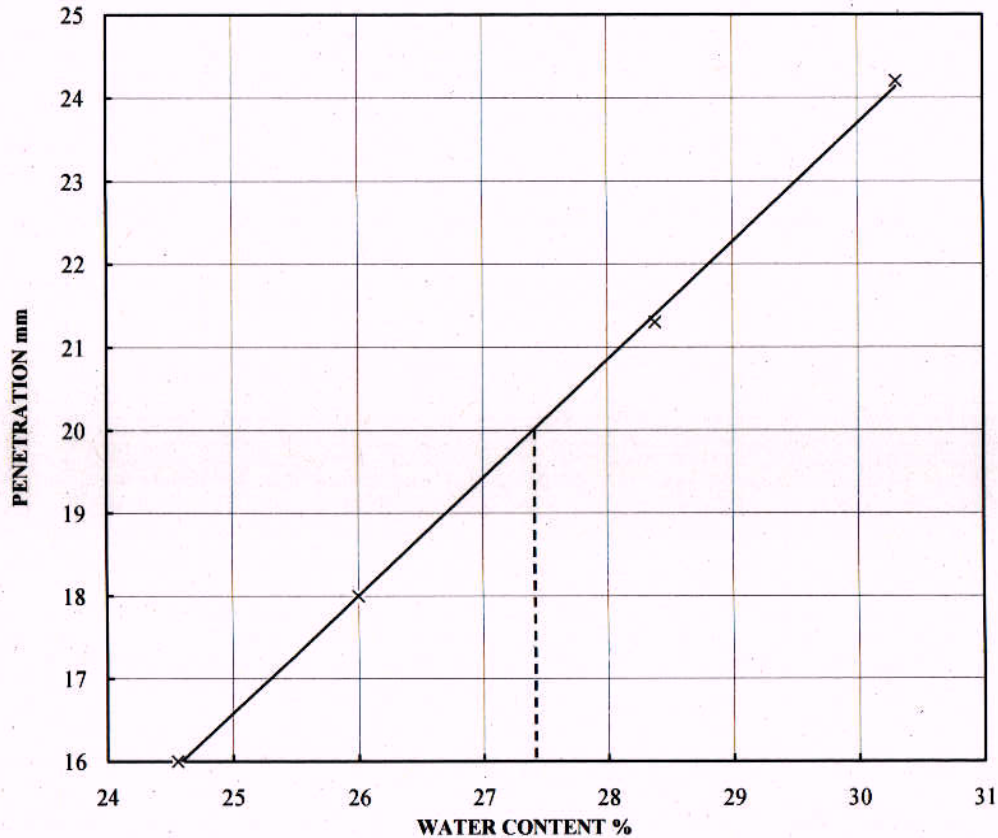
Percentage of passing 0.425mm B.S.Sieve = 83%

	LIQUID LIMIT %				PLASTIC LIMIT %
Wet Weight + Tare (g)	29.32	25.83	26.11	27.37	
Dry Weight + Tare (g)	25.03	21.70	21.80	22.47	NP
Tare Weight (g)	9.88	8.14	8.89	8.59	
Water Content (%)	28.32	30.46	33.38	35.26	
Penetration (mm)	14.20	17.70	21.80	24.20	

LIQUID LIMIT (%) 32
 PLASTIC LIMIT (%) NP
 PLASTICITY INDEX (%) NP

Sample Type : UDS			
Borehole No. 1/41+916	Sample No: UDS-5	Depth (m): 14.00	
XPLORER	Site Ref: Hapur - Meerut Section	Job No : 1342	
		Test Report No: XPL/2015-16/02	
Operator : <i>Bilalim</i>	Checked : <i>[Signature]</i>	Authorised Signatory <i>[Signature]</i>	
Date : 27/2/16	Date: 14/3/16	Date: 14/3/16	

I.S. : 2720 : PART 5



HISTORY OF SAMPLE :

Percentage of passing 0.425mm B.S.Sieve = Natural

	LIQUID LIMIT %				PLASTIC LIMIT %	
	26.14	26.22	27.18	25.42	22.33	20.07
Wet Weight + Tare (g)	22.86	22.52	23.07	21.88	20.44	18.25
Dry Weight + Tare (g)	9.50	8.29	8.59	10.20	10.52	8.74
Tare Weight (g)	24.56	26.00	28.38	30.31	19.05	19.14
Water Content (%)	16.00	18.00	21.30	24.20		
Penetration (mm)						

LIQUID LIMIT (%) 27
 PLASTIC LIMIT (%) 19
 PLASTICITY INDEX (%) 8

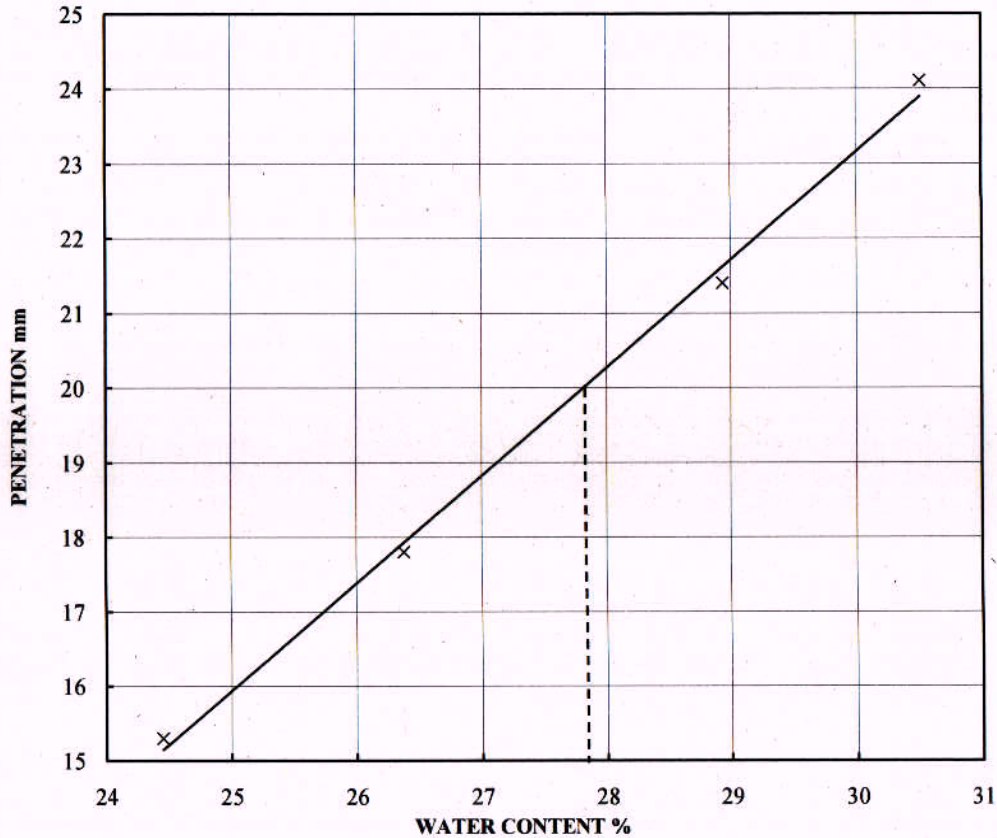
Sample Type : UDS

Borehole No. 1/41+916 Sample No: UDS-7 Depth (m): 20.00

XPLORER Site Ref: Hapur - Meerut Section Job No: 1342
 Test Report No: XPL/2015-16/02

Operator: <i>Be Kim</i>	Checked: <i>[Signature]</i>	Authorised Signatory: <i>[Signature]</i>
Date: 27/2/16	Date: 14/3/16	Date: 14/3/16

I.S. : 2720 : PART 5



HISTORY OF SAMPLE :

Percentage of passing 0.425mm B.S.Sieve = Natural

	LIQUID LIMIT %				PLASTIC LIMIT %
Wet Weight + Tare (g)	26.05	25.98	25.90	24.93	
Dry Weight + Tare (g)	22.70	22.35	21.95	21.47	NP
Tare Weight (g)	9.00	8.59	8.30	10.13	
Water Content (%)	24.45	26.38	28.94	30.51	
Penetration (mm)	15.30	17.80	21.40	24.10	

LIQUID LIMIT (%) 28
 PLASTIC LIMIT (%) NP
 PLASTICITY INDEX (%) NP

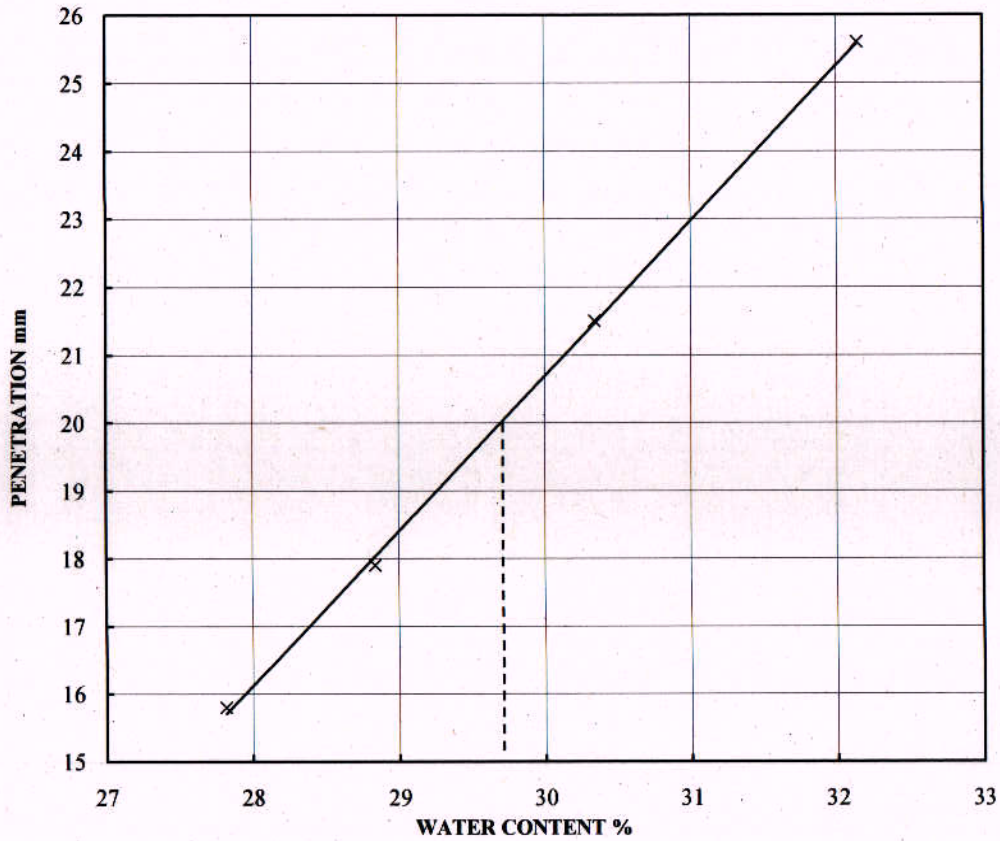
Sample Type : UDS

Borehole No. 1/41+916 Sample No: UDS-8 Depth (m): 23.00

XPLORER Site Ref: Hapur - Meerut Section Job No : 1342
 Test Report No: XPL/2015-16/02

Operator : <i>Bikim</i>	Checked : <i>RE</i>	Authorised Signatory : <i>[Signature]</i>
Date : 27/2/016	Date: 14/3/16	Date: 14/3/16

I.S. : 2720 : PART 5



HISTORY OF SAMPLE :

Percentage of passing 0.425mm B.S.Sieve = 92%

	LIQUID LIMIT %				PLASTIC LIMIT %	
	24.60	29.16	27.07	27.93	22.38	22.25
Wet Weight + Tare (g)	24.60	29.16	27.07	27.93	22.38	22.25
Dry Weight + Tare (g)	21.12	24.99	23.18	23.24	20.48	20.46
Tare Weight (g)	8.61	10.53	10.36	8.65	10.00	10.40
Water Content (%)	27.82	28.84	30.34	32.15	18.13	17.79
Penetration (mm)	15.80	17.90	21.50	25.60		

LIQUID LIMIT (%)	30
PLASTIC LIMIT (%)	18
PLASTICITY INDEX (%)	12

Sample Type : UDS			
Borehole No. 1/43+900	Sample No: UDS-1	Depth (m): 2.00	
XPLORER	Site-Ref: Hapur - Meerut Section	Job No : 1342	
		Test Report No: XPL/2015-16/02	
Operator : <i>Bulkin</i>	Checked : <i>RAE</i>	Authorised Signatory <i>Am</i>	
Date : 27/2/06	Date: 14/3/16	Date: 14/3/16	