



**Percent Organic Content Test
ASTM D 2974**

JOB NO.: 345-016a
CLIENT : PWA
PROJECT: 1546.01

DATE: 12/7/2001
BY: DC

| Boring : Sample : Depth : | 3D | 4B | 4C | 5A | 5B | 6A |
|---------------------------------|------------------------|--------|--------|-------|--------|-------|
| Visual Description: | see sieve report | | | | | |
| Soil, Org & Dish, gm | 122.91 | 104.57 | 101.69 | 93.46 | 102.34 | 101.5 |
| Soil & Dish, gm | 119.74 | 100.72 | 99.17 | 89.49 | 98.92 | 99.45 |
| Dish, gm | 74.82 | 76.08 | 75.75 | 72.98 | 77.25 | 75.8 |
| Soil, gm | 44.92 | 24.64 | 23.42 | 16.51 | 21.67 | 23.65 |
| Soil & Organics, gm | 48.09 | 28.49 | 25.94 | 20.48 | 25.09 | 25.7 |
| Organic Content: % | 6.6 | 13.5 | 9.7 | 19.4 | 13.6 | 8.0 |
| Remarks: | | | | | | |



Percent Organic Content Test
ASTM D 2974

JOB NO.: 345-016b
 CLIENT: PWA
 PROJECT: 1546.01
 DATE: 12/7/2001
 BY: DC

| Boring : | 6A-B | 7A-B | 8B | 4A | |
|----------------------|------------------------|--------|--------|-------|---------|
| Sample : | | | | | |
| Depth : | | | | | |
| Visual Description: | see sieve report | | | | |
| Soil, Org & Dish, gm | 95.38 | 101.26 | 112.32 | 96.18 | |
| Soil & Dish, gm | 92.64 | 97.12 | 107.81 | 93.92 | |
| Dish, gm | 76.07 | 74.35 | 74.93 | 75.78 | |
| Soil, gm | 16.57 | 22.77 | 32.88 | 18.14 | 0 |
| Soil & Organics, gm | 19.31 | 26.91 | 37.39 | 20.4 | 0 |
| Organic Content: % | 14.2 | 15.4 | 12.1 | 11.1 | #DIV/0! |

Remarks:

Moisture-Density-Porosity Report

Cooper Testing Labs, Inc.

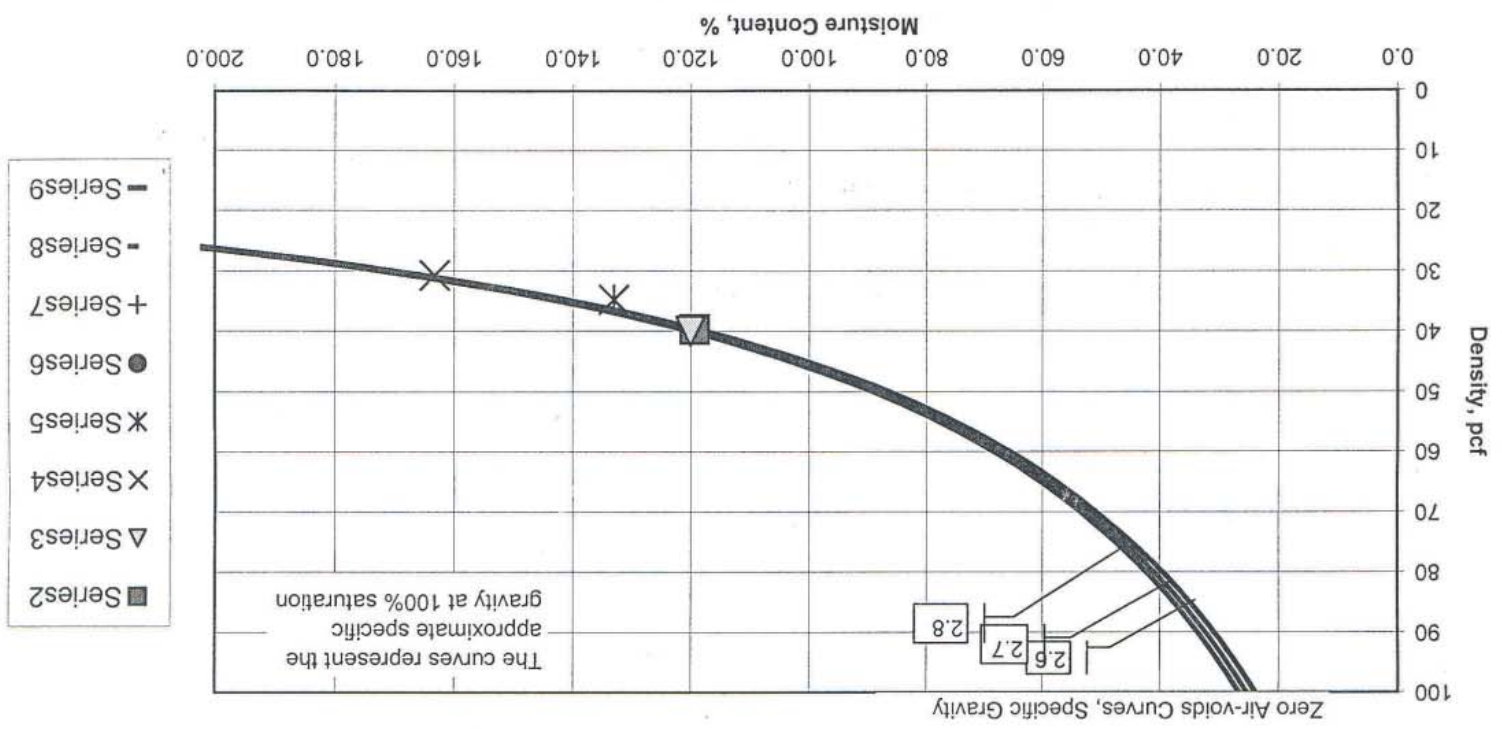


Job No: 345-017
Client: PWA
Project: 546.01 / Napa Sonam
Date: 1/15/2002
By: DC

| Boring: | Sample: | Depth: | Description |
|---------|------------|--------|-------------------------------|
| Sonoma | Mud flat | | black and gray CLAY (Bay Mud) |
| Sonoma | In Channel | | gray CLAY (Bay MUD) |
| Cooley | Marsh | | black gray CLAY (Bay Mud) |
| Napa | Slough | | black brown CLAY (Bay Mud) |

| Series | Actual G _s | Assumed G _s | Moisture, % | Wet Unit, pcf | Dry Unit, pcf | Saturation, % | Porosity, % | Void Ratio |
|--------|-----------------------|------------------------|-------------|---------------|---------------|---------------|-------------|------------|
| 2 | 2.78 | | 119.5 | 86.9 | 39.6 | 98.1 | 77.2 | 3.387 |
| 3 | 2.76 | | 120.1 | 87.9 | 39.9 | 99.9 | 76.8 | 3.317 |
| 4 | 2.66 | | 163.3 | 80.8 | 30.7 | 98.4 | 81.5 | 4.417 |
| 5 | 2.70 | | 133.0 | 81.1 | 34.8 | 93.4 | 79.4 | 3.847 |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |

Moisture-Density



Moisture-Density-Porosity Report

Cooper Testing Labs, Inc.

Job No: 345-016

Client: PWA

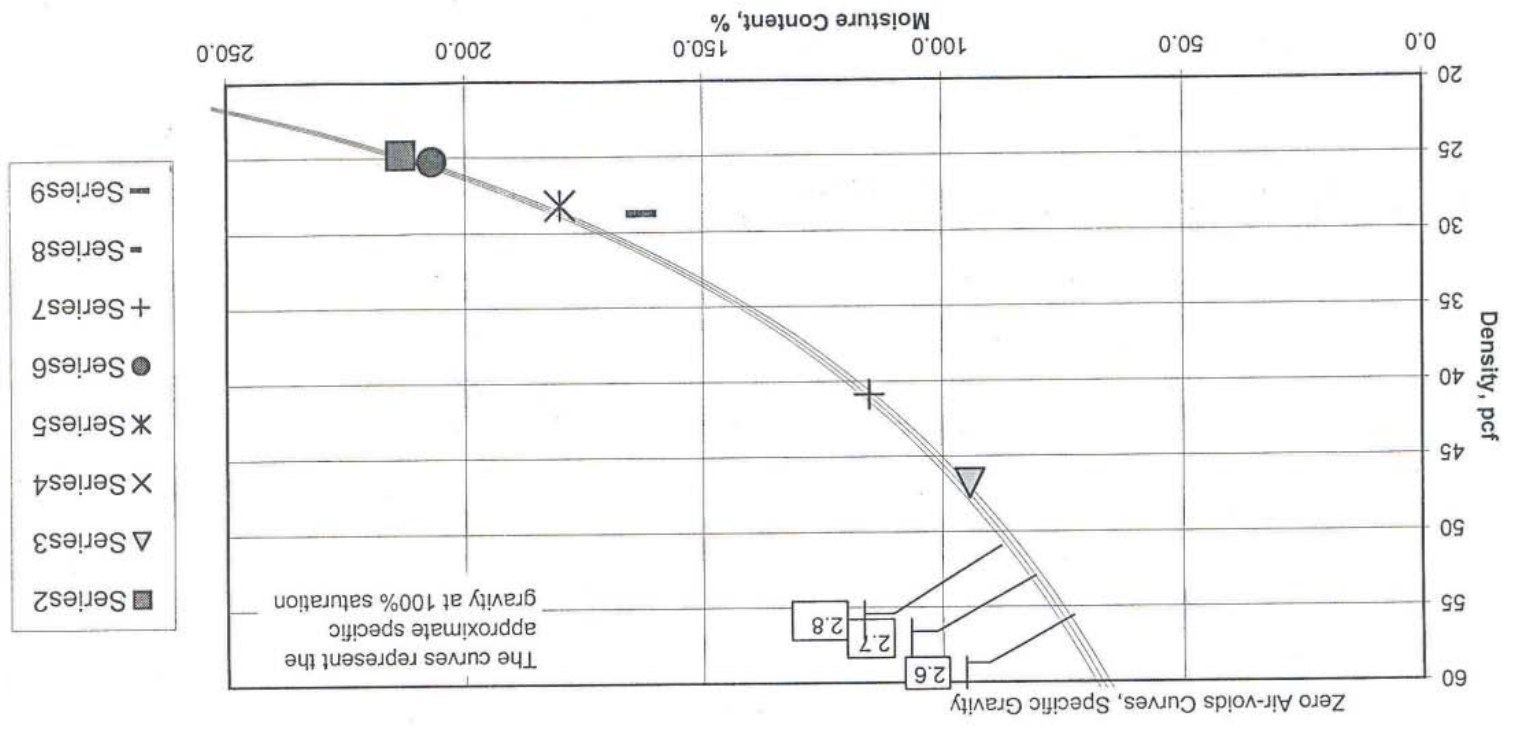
Project: 46.01 / Marsh Restorat

Date: 10/24/2001

By: DC

| Boring | Sample | Depth | Description | Actual G _s | Assumed G _s | Moisture, % | Wet Unit, pcf | Dry Unit, pcf | Saturation, % | Porosity, % | Void Ratio | Series |
|--------|--------|-------|--|-----------------------|------------------------|-------------|---------------|---------------|---------------|-------------|------------|--------|
| 1A-A | .25m | | black clayey MUCK with organics | 2.58 | | 213.5 | 77.6 | 24.8 | 100.0 | 84.6 | 5.510 | 2 |
| 1B-C | .5m | | gray mottled CLAY and black mixed with black | 2.65 | | 94.3 | 90.9 | 46.8 | 98.4 | 71.7 | 2.539 | 3 |
| 2D-G | .25m | | gray mottled CLAY and gray (bay) mud | 2.70 | | 57.0 | 103.6 | 66.0 | 98.9 | 60.9 | 1.557 | 4 |
| 2A-A | .5m | | gray mottled CLAY and brown (bay) mud | 2.46 | | 180.1 | 79.0 | 28.2 | 99.6 | 81.6 | 4.449 | 5 |
| 3A | .5m | | black, brown CLAY and organics | 2.47 | | 207.0 | 77.5 | 25.2 | 100.0 | 83.6 | 5.115 | 6 |
| 3C | .5m | | black, gray CLAY and organics | 2.69 | | 115.3 | 87.9 | 40.8 | 99.6 | 75.7 | 3.114 | 7 |
| 3D | .5m | | black dark gray CLAY with organics | 2.73 | | 57.5 | 104.3 | 66.2 | 99.7 | 61.2 | 1.575 | 8 |
| 4B | .5m | | black clayey MUCK with organics | 2.64 | | 163.0 | 75.5 | 28.7 | 90.7 | 82.6 | 4.743 | 9 |

Moisture-Density



Moisture-Density-Porosity Report

Cooper Testing Labs, Inc.

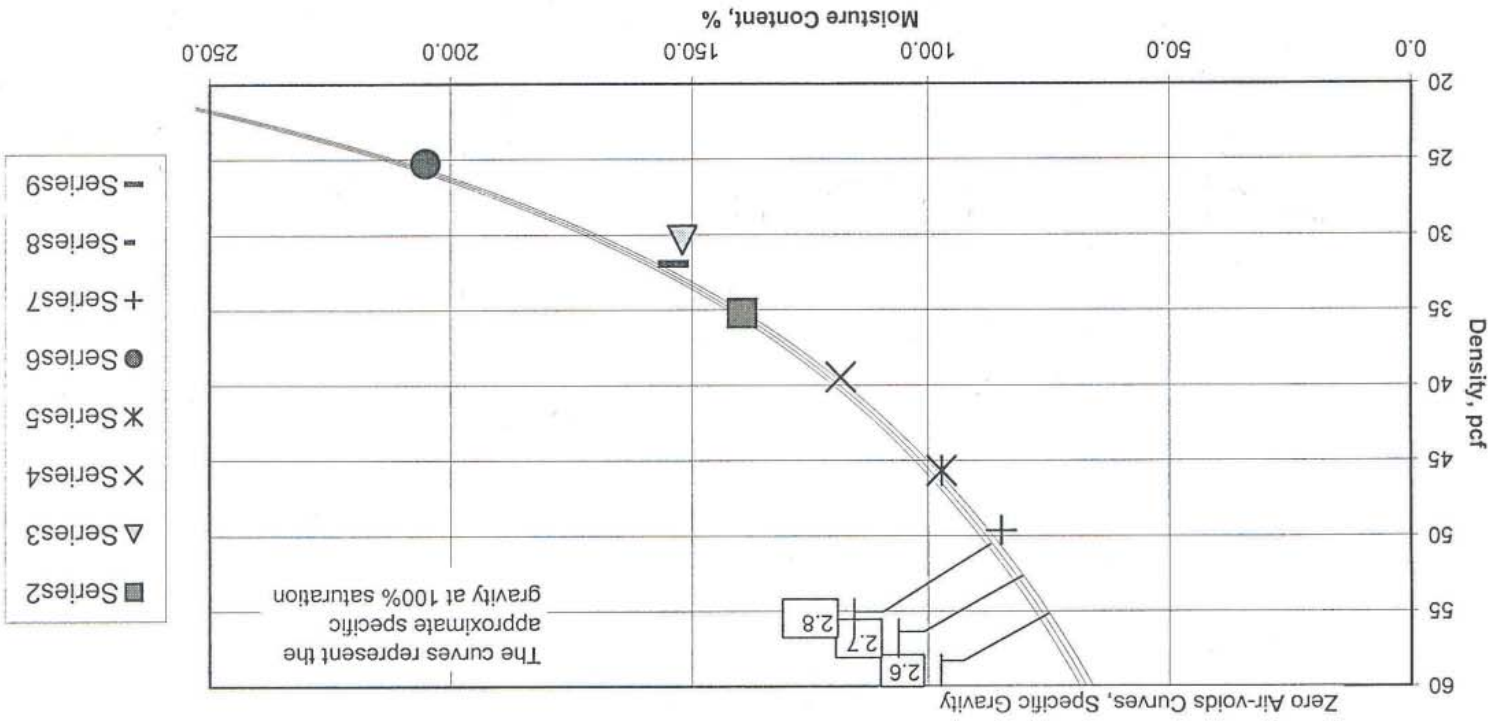
Job No: 345-016A
 Client: PWA
 Project: 1546

Date: 10/24/2001
 By: DC

Boring: 4A
 Sample: 8B
 Depth: 7A-B

| Boring | Sample | Depth | Description | Actual G _s | Assumed G _s | Moisture, % | Wet Unit, pcf | Dry Unit, pcf | Saturation, % | Porosity, % | Void Ratio | Series |
|--------|--------|-------|---|-----------------------|------------------------|-------------|---------------|---------------|---------------|-------------|------------|--------|
| 4A | 8B | 7A-B | black clayey MUCK with organics (Bay Mud) | 2.65 | 2.65 | 139.5 | 84.3 | 35.2 | 99.8 | 78.7 | 3.704 | 2 |
| | | | black clayey MUCK with organics (Bay Mud) | 2.50 | 2.50 | 152.0 | 76.4 | 30.3 | 91.6 | 80.6 | 4.150 | 3 |
| | 5A | | black silty MUCK with peat chunks organics | 2.62 | 2.62 | 118.7 | 86.3 | 39.5 | 98.8 | 75.9 | 3.148 | 4 |
| | 5B | | black gray CLAY (Bay Mud) with organics | 2.79 | 2.79 | 97.1 | 90.1 | 45.7 | 96.3 | 73.8 | 2.816 | 5 |
| | 6A | | black clayey MUCK with organics | 2.74 | 2.74 | 205.2 | 77.0 | 25.2 | 97.2 | 85.3 | 5.784 | 6 |
| | 6A-B | | dark gray-brown CLAY with organics & salt | 2.59 | 2.59 | 84.6 | 91.6 | 49.6 | 97.0 | 69.3 | 2.261 | 7 |
| | 7A-B | | black and brown clayey MUCK with organics (Bay Mud) | 2.74 | 2.74 | 49.6 | 105.2 | 70.3 | 94.7 | 58.9 | 1.434 | 8 |
| | 8B | | black and brown clayey MUCK with organics (Bay Mud) | 2.65 | 2.65 | 153.9 | 81.0 | 31.9 | 97.4 | 80.7 | 4.189 | 9 |

Moisture-Density



COOPER TESTING LABORATORY

LIQUID AND PLASTIC LIMITS TEST REPORT

◆ Source: Sonoma Baylands
 ▼ Source: Sonoma Baylands
 ■ Source: Sonoma Baylands
 ● Source: Sonoma Baylands

Sample No.: Napa Slough
 Sample No.: Cooley Marsh
 Sample No.: In-Channel
 Sample No.: Mudflat

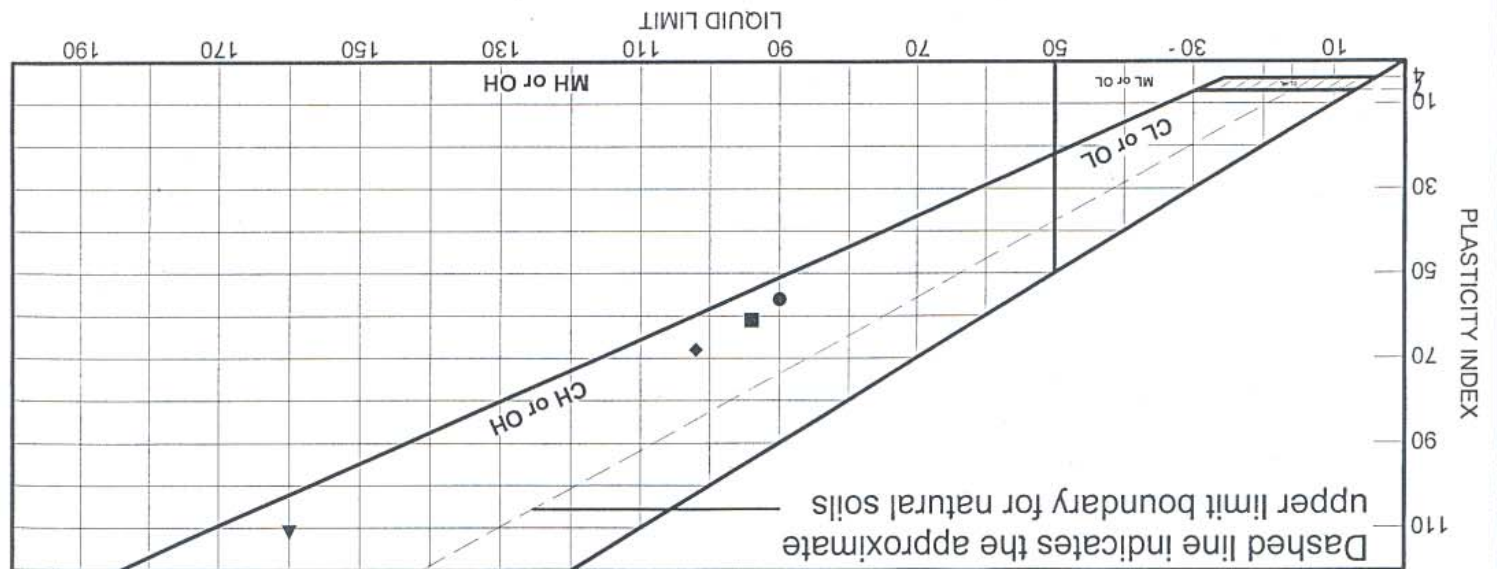
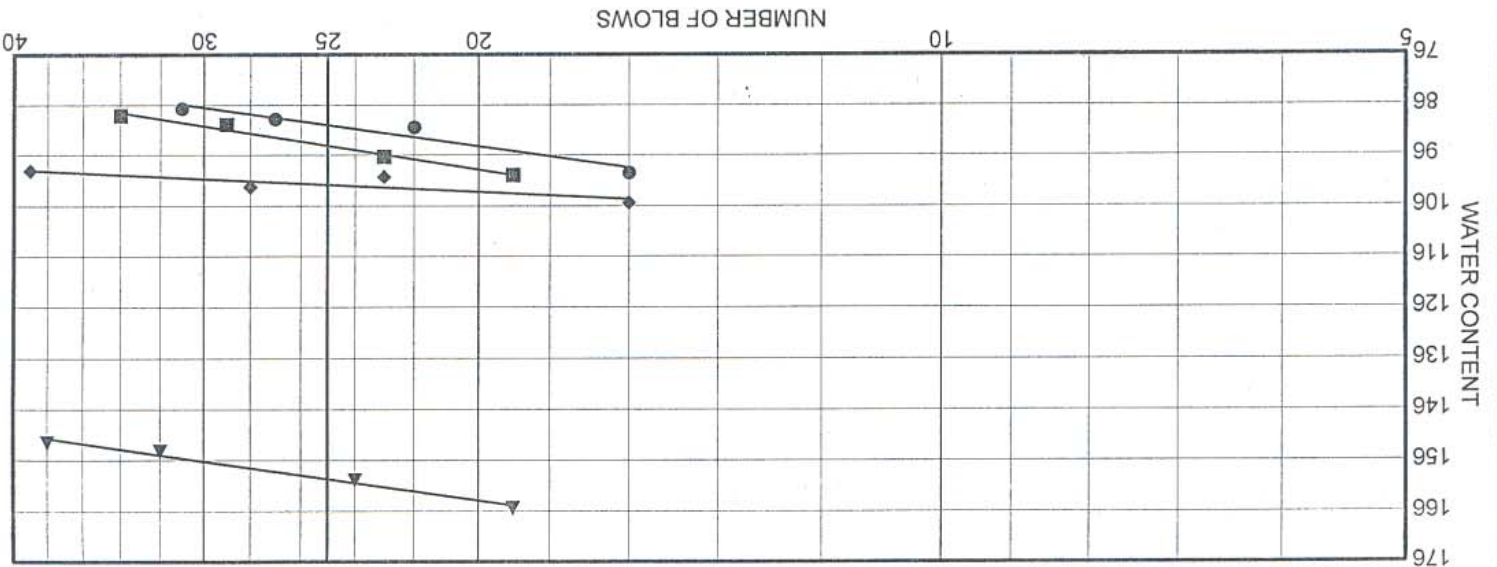
Project: 1546.01 / Napa Sonoma Marsh Restoration

Project No. 345-017 Client: PWA

Remarks:
 ● Method A
 ■ Method A
 ▼ Method A
 ◆ Method A

Plate

| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %>#200 | USCS |
|--------------------------|-----|----|-----|-------|--------|------|
| black and gray fat CLAY | 90 | 34 | 56 | 99.9 | 99.4 | CH |
| gray CLAY fat CLAY | 94 | 33 | 61 | 99.7 | 99.0 | CH |
| black and gray fat CLAY | 160 | 49 | 111 | 99.1 | 94.1 | CH |
| black and brown fat CLAY | 102 | 34 | 68 | 99.5 | 97.8 | CH |



LIQUID AND PLASTIC LIMITS TEST REPORT

Dashed line indicates the approximate upper limit boundary for natural soils

COOPER TESTING LABORATORY

LIQUID AND PLASTIC LIMITS TEST REPORT

▲ Source: 3A

◆ Source: 2D-G

▼ Source: 2A-A

■ Source: 1B-C

● Source: 1A-A

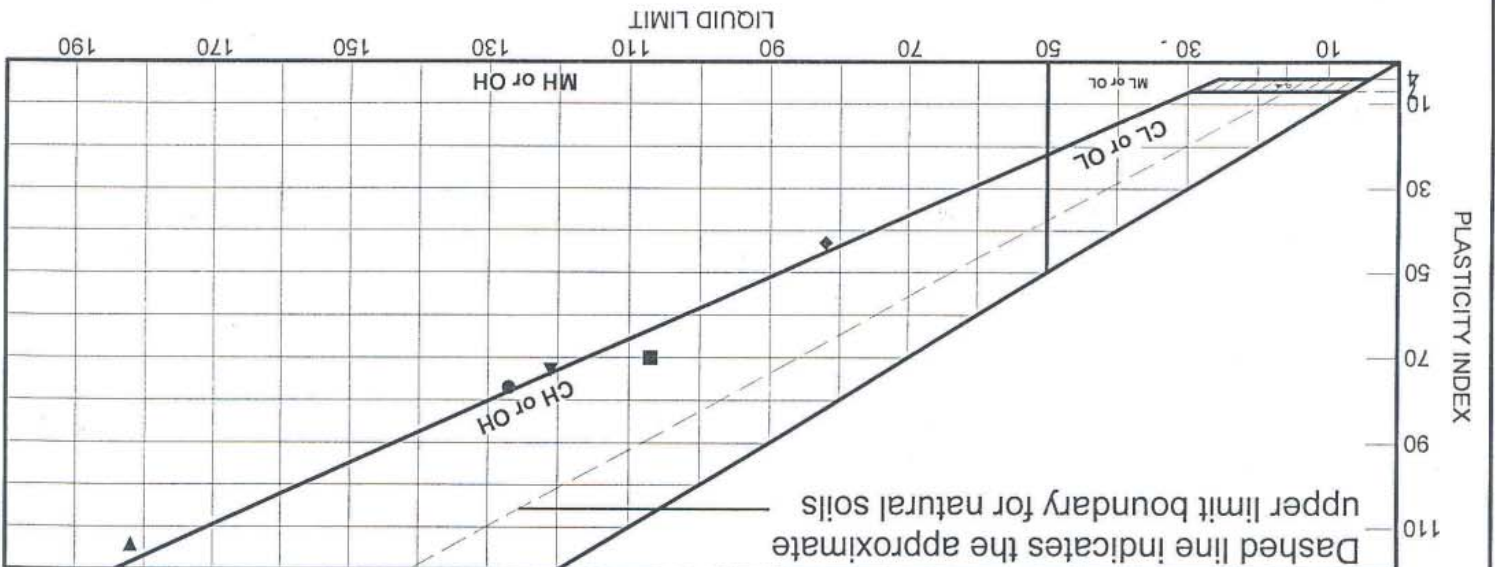
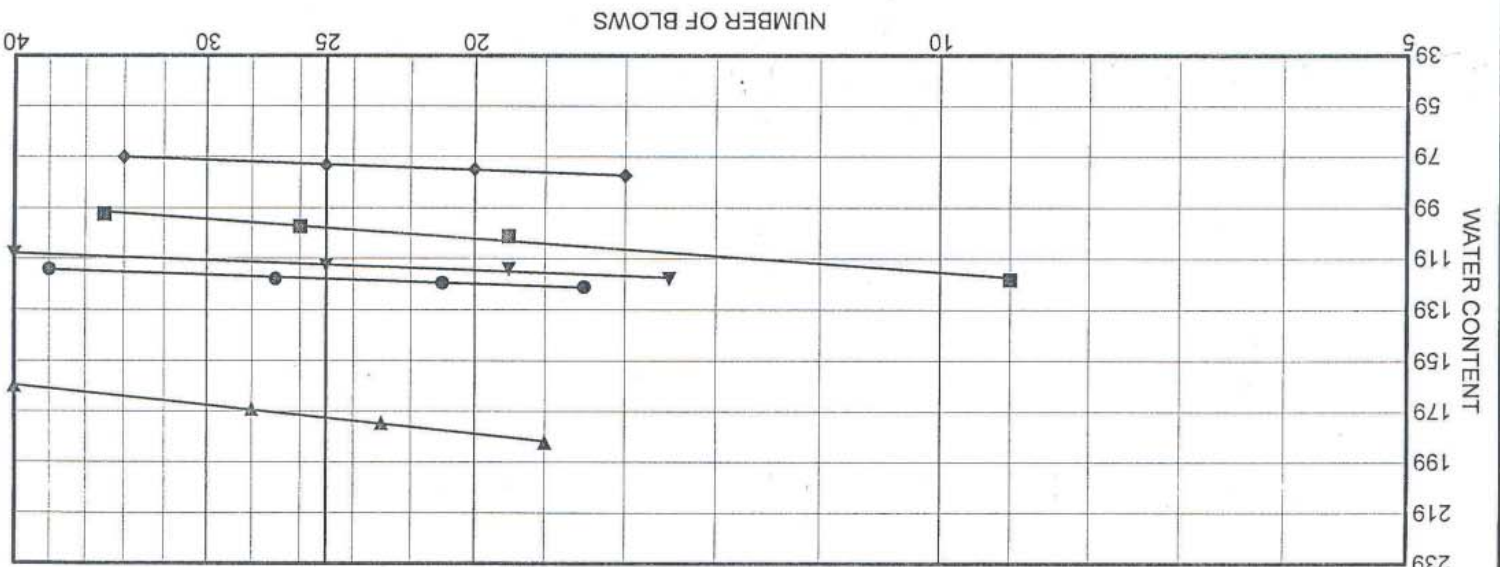
Elev./Depth: .25m
Elev./Depth: .5m
Elev./Depth: .5m
Elev./Depth: .25m

Project: 1546.01 / Napa-Sonoma Marsh Restoration
Client: PWA
Project No. 345-016

Remarks:
● Method A
■ Method A
▼ Method A
◆ Method A
▲

Plate

| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %>#200 | USCS |
|---------------------------------------|-----|----|-----|-------|--------|------|
| ● dark olive gray elastic SILT | 127 | 50 | 77 | 99.9 | 99.3 | MH |
| ■ gray fat CLAY (Bay Mud) | 107 | 37 | 70 | 99.2 | 98.0 | CH |
| ▼ mottled brown and gray elastic SILT | 121 | 48 | 73 | 99.3 | 96.4 | MH |
| ◆ mottled black-gray elastic SILT | 82 | 39 | 43 | 99.9 | 99.2 | MH |
| ▲ black and brown elastic SILT | 182 | 68 | 114 | 95.9 | 87.0 | MH |



LIQUID AND PLASTIC LIMITS TEST REPORT

COOPER TESTING LABORATORY

LIQUID AND PLASTIC LIMITS TEST REPORT

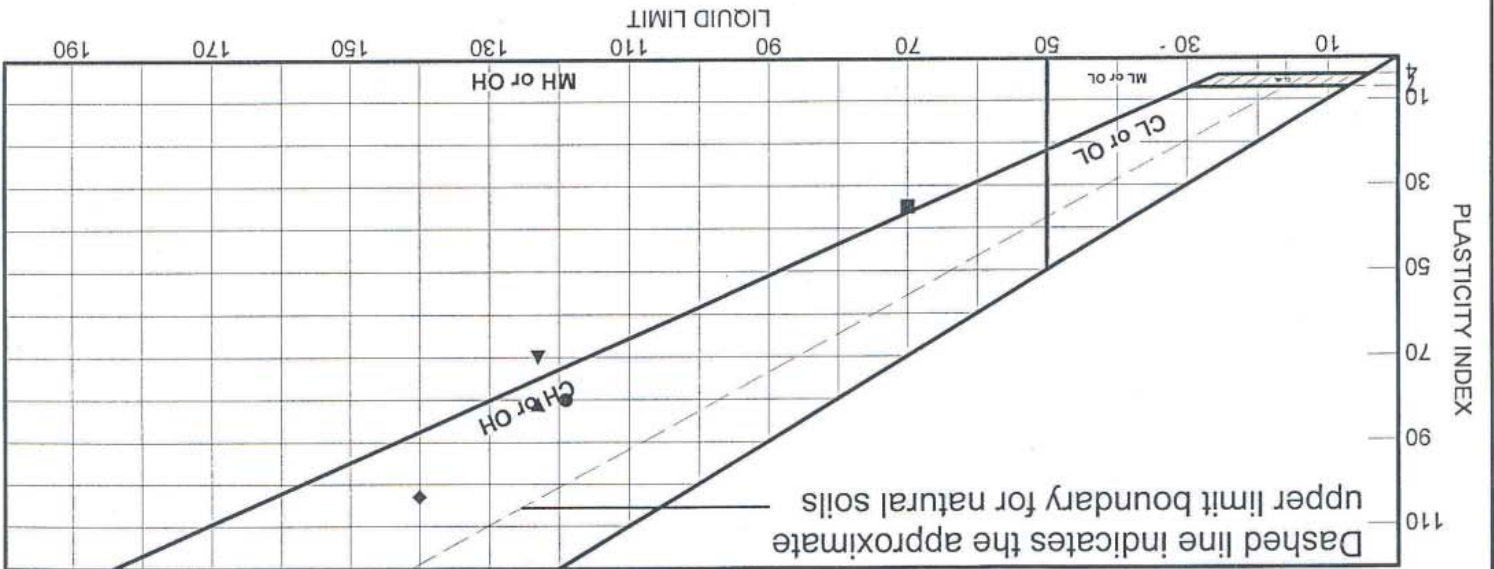
- Source: 3C
- Source: 3D
- ▲ Source: 4A
- ◆ Source: 4B
- ▲ Source: 4C

Project No. 345-016 Client: PWA
 Project: 1546.01 / Napa-Sonoma Marsh Restoration

- Remarks:
- Method A
 - Method A
 - ▲ Method A
 - ◆ Method A

Plate

| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|-----|----|-----|-------|--------|------|
| black and gray fat CLAY | 119 | 39 | 80 | 99.8 | 99.5 | CH |
| black & dark gray elastic SILT | 70 | 35 | 35 | 99.8 | 98.6 | MH |
| black and brown elastic SILT | 123 | 53 | 70 | 97.0 | 91.0 | MH |
| fat CLAY with organics, bay mud muck | 140 | 37 | 103 | 99.1 | 96.3 | CH |
| black fat CLAY (Bay Mud) with organics, Muck | 123 | 42 | 81 | 99.9 | 99.5 | CH |



LIQUID AND PLASTIC LIMITS TEST REPORT

Dashed line indicates the approximate upper limit boundary for natural soils

COOPER TESTING LABORATORY

LIQUID AND PLASTIC LIMITS TEST REPORT

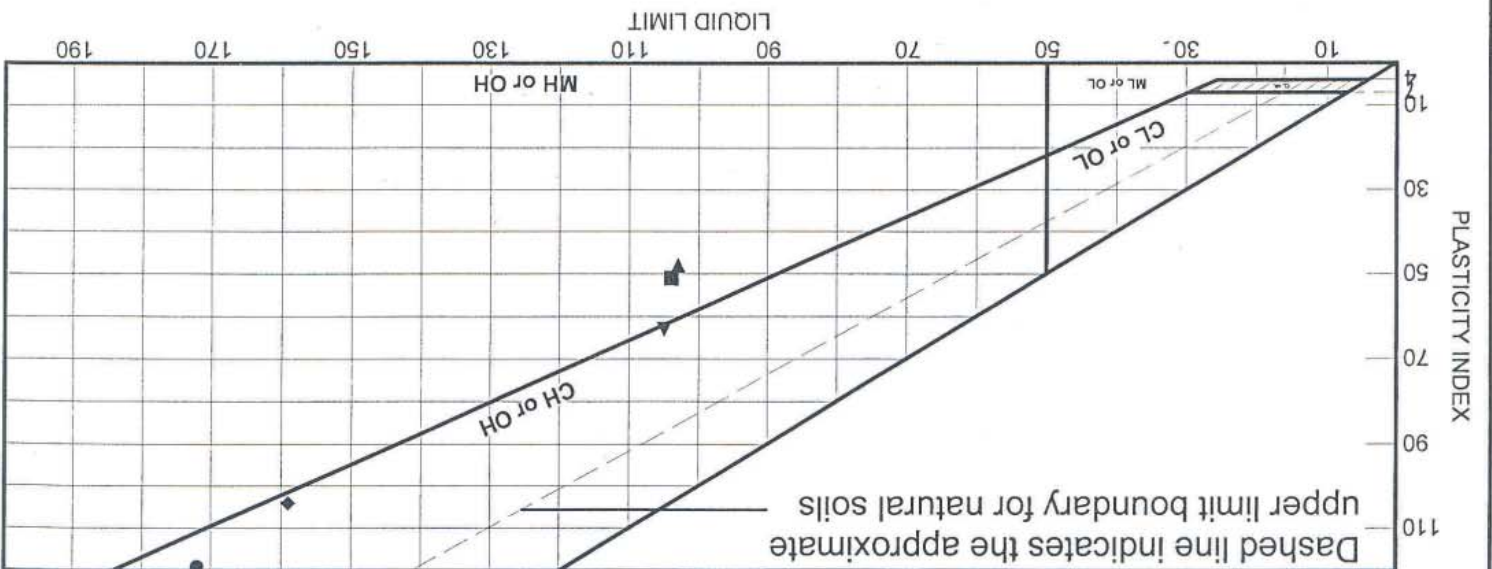
● Source: 5A
 ■ Source: 5B
 ▼ Source: 6A
 ◆ Source: 6AB
 ▲ Source: 7AB

Project No. 345-016 Client: PWA
 Project: 1546.01 / Napa-Sonoma Marsh Restoration

● Method A
 ■ Method A
 ▼ Method A
 ◆ Method A
 ▲ Method A

Plate

| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|-----|----|-----|-------|--------|------|
| black fat CLAY | 172 | 53 | 119 | 100.0 | 99.8 | CH |
| elastic SILT w/organics, & salt, bay mud | 104 | 53 | 51 | 99.6 | 98.6 | MH |
| black and olive gray fat CLAY | 105 | 42 | 63 | 99.6 | 99.1 | CH |
| fat CLAY w/organics, bay mud | 159 | 55 | 104 | 99.9 | 98.2 | CH |
| dark gray-brown elastic SILT with organics | 103 | 55 | 48 | 99.4 | 98.6 | MH |



LIQUID AND PLASTIC LIMITS TEST REPORT

COOPER TESTING LABORATORY

LIQUID AND PLASTIC LIMITS TEST REPORT

● Source: 8B

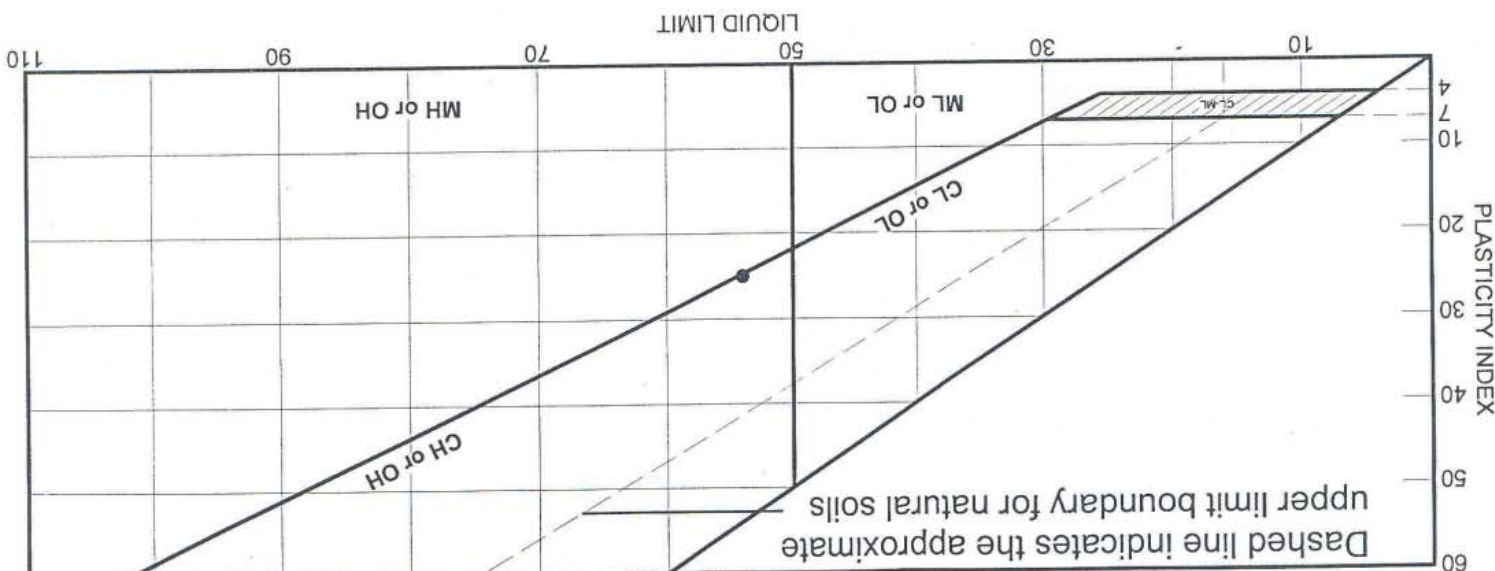
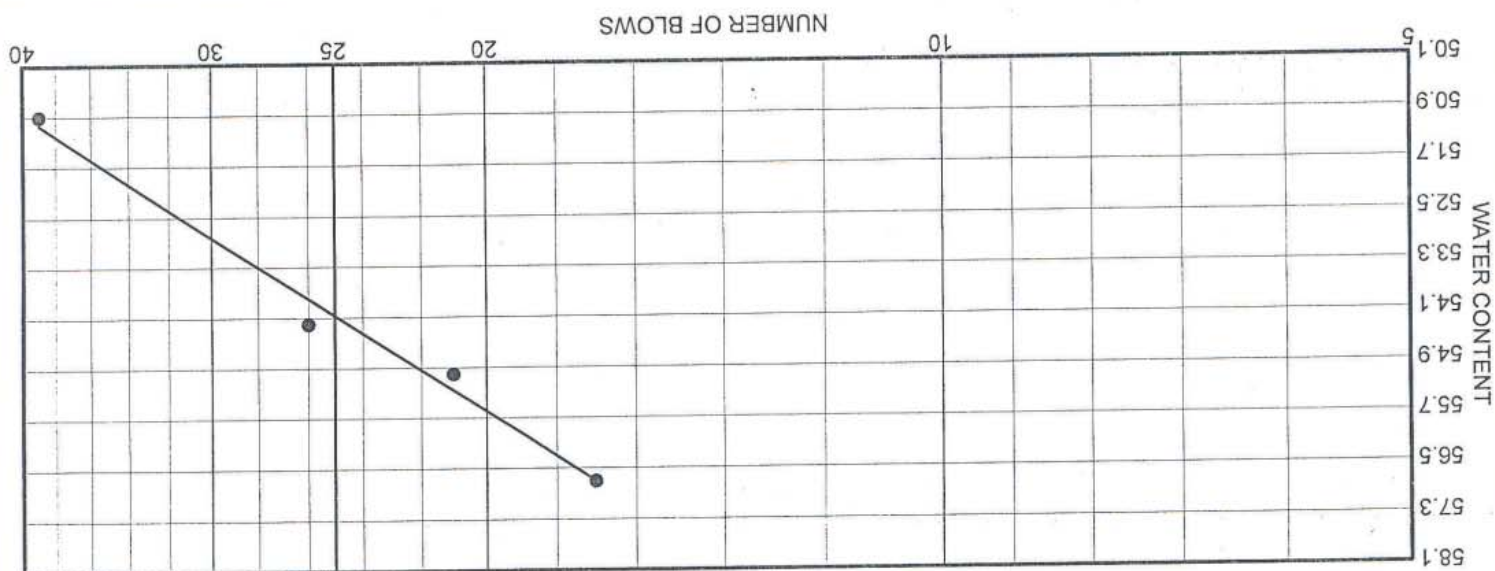
Project: 1546.01 / Napa-Sonoma Marsh Restoration

Project No. 345-016 Client: PWA

● Remarks:
● Method A

Plate

| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %>#200 | USCS |
|--|----|----|----|-------|--------|------|
| ● black and dark gray fat CLAY (Bay Mud) with organics | 54 | 29 | 25 | 99.7 | 99.2 | CH |



LIQUID AND PLASTIC LIMITS TEST REPORT