



MACTEC ENGINEERING AND CONSULTING, INC.  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

N.C.D.O.T./AASHTO CLASSIFICATIONS

REPORT ON SAMPLES OF: SOILS FOR QUALITY

MACTEC PROJECT NAME AND NUMBER: Currituck and Knotts Island Ferry Basins (6468-03-0470)

PROJECT: 3.6722.1.1 (F-4700)

COUNTY: Currituck

OWNER: N.C.D.O.T.

DATE SAMPLED: Nov. -Dec. 2003

RECEIVED: 12/08/03

REPORTED BY: MACTEC

SAMPLED FROM: B-1, EB-1

SUBMITTED BY: MACTEC ENGINEERING AND CONSULTING, INC.

1992 STANDARD SPECIFICATIONS

TEST RESULTS

| Lab Sample No.         |     | SS-13 | SS-14 | SS-15 | SS-16 | SS-17 | SS-18 |
|------------------------|-----|-------|-------|-------|-------|-------|-------|
| Retained 4.75 mm Sieve | (%) | 0.0   | 0.6   | 0.0   | 3.3   | 10.5  | 0.0   |
| Passing 2.00 mm Sieve  | (%) | 100.0 | 98.9  | 99.6  | 94.7  | 83.6  | 100.0 |
| Passing 425 µm Sieve   | (%) | 99.8  | 80.7  | 92.0  | 43.2  | 71.8  | 99.8  |
| Passing 75 µm Sieve    | (%) | 97.4  | 20.3  | 9.0   | 8.2   | 12.7  | 92.4  |

MINUS 2.00mm FRACTION

| SOIL MORTAR - 100%       |     |       |       |       |       |       |       |
|--------------------------|-----|-------|-------|-------|-------|-------|-------|
| Coarse Sand Ret - 250 µm | (%) | 0.5   | 36.3  | 11.2  | 58.7  | 32.8  | 0.5   |
| Fine Sand Ret - 53 µm    | (%) | 3.5   | 47.5  | 81.3  | 34.5  | 54.2  | 11.4  |
| Silt 0.05 - 0.005 mm     | (%) | 47.2  | 12.7  | 1.8   | 4.2   | 3.9   | 31.5  |
| Clay < 0.005 mm          | (%) | 48.8  | 3.4   | 5.6   | 2.5   | 9.1   | 56.6  |
|                          |     | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

|                        |     |           |          |     |       |          |           |
|------------------------|-----|-----------|----------|-----|-------|----------|-----------|
| Moisture Content       | (%) | 45.7      | ND       | ND  | ND    | ND       | 81.6      |
| Liquid Limit, L.L.     |     | 54        | 22       | 17  | 19    | 15       | 69        |
| Plasticity Index, P.I. |     | 32        | NP       | NP  | NP    | NP       | 42        |
| AASHTO Classification  |     | A-7-6(35) | A-2-4(0) | A-3 | A-1-b | A-2-4(0) | A-7-6(44) |
| Organic Content        | (%) | ND        | ND       | ND  | ND    | ND       | ND        |

| Boring No. |      | B-1  | EB-1 | EB-1 | EB-1 | EB-1 | EB-1 |
|------------|------|------|------|------|------|------|------|
| Station    |      | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Offset     |      | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Alignment  |      | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Depth (ft) | From | 86.8 | 7.3  | 12.3 | 17.3 | 27.3 | 37.3 |
|            | to   | 88.3 | 8.8  | 13.8 | 18.8 | 28.8 | 38.8 |

REMARKS: N/A=Not Applicable; ND=Not Determined

Reviewed by:

*M. h*



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1992 STANDARD SPECIFICATIONS

TEST RESULTS

| Lab Sample No.         |     | SS-19 | SS-20 | SS-21 | SS-22 | SS-23 | SS-24 |
|------------------------|-----|-------|-------|-------|-------|-------|-------|
| Retained 4.75 mm Sieve | (%) | 0.0   | 2.4   | 1.9   | 3.5   | 0.2   | 6.2   |
| Passing 2.00 mm Sieve  | (%) | 100.0 | 97.3  | 96.5  | 94.4  | 98.9  | 93.7  |
| Passing 425 µm Sieve   | (%) | 99.9  | 85.1  | 93.8  | 93.4  | 87.6  | 92.1  |
| Passing 75 µm Sieve    | (%) | 94.9  | 16.1  | 8.3   | 49.7  | 8.7   | 87.0  |

MINUS 2.00mm FRACTION

| SOIL MORTAR - 100%       |     |       |       |       |       |       |       |
|--------------------------|-----|-------|-------|-------|-------|-------|-------|
| Coarse Sand Ret - 250 µm | (%) | 0.2   | 39.0  | 4.1   | 1.4   | 36.6  | 2.0   |
| Fine Sand Ret - 53 µm    | (%) | 15.7  | 45.5  | 87.4  | 68.4  | 56.2  | 9.0   |
| Silt 0.05 - 0.005 mm     | (%) | 66.5  | 6.7   | 6.3   | 23.8  | 2.5   | 34.3  |
| Clay < 0.005 mm          | (%) | 17.6  | 8.8   | 2.2   | 6.4   | 4.7   | 54.7  |
|                          |     | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

|                        |     |         |          |     |        |     |           |
|------------------------|-----|---------|----------|-----|--------|-----|-----------|
| Moisture Content       | (%) | 72.9    | ND       | ND  | 27.9   | ND  | 86.9      |
| Liquid Limit, L.L.     |     | 41      | 19       | 21  | 22     | 16  | 72        |
| Plasticity Index, P.I. |     | 10      | NP       | NP  | NP     | NP  | 43        |
| AASHTO Classification  |     | A-5(12) | A-2-4(0) | A-3 | A-4(0) | A-3 | A-7-6(42) |
| Organic Content        | (%) | ND      | ND       | ND  | ND     | ND  | ND        |

| Boring No. |      | EB-1 | BH-1 | BH-1 | BH-1 | BH-1 | BH-1 |
|------------|------|------|------|------|------|------|------|
| Station    |      | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Offset     |      | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Alignment  |      | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Depth (ft) | From | 57.3 | 0.0  | 12.4 | 22.4 | 27.4 | 37.4 |
|            | to   | 58.8 | 1.5  | 13.9 | 23.9 | 28.9 | 38.9 |

REMARKS: N/A=Not Applicable; ND=Not Determined

Reviewed by:

*M. h*