

Memorial Bridge Proposed Boring Data

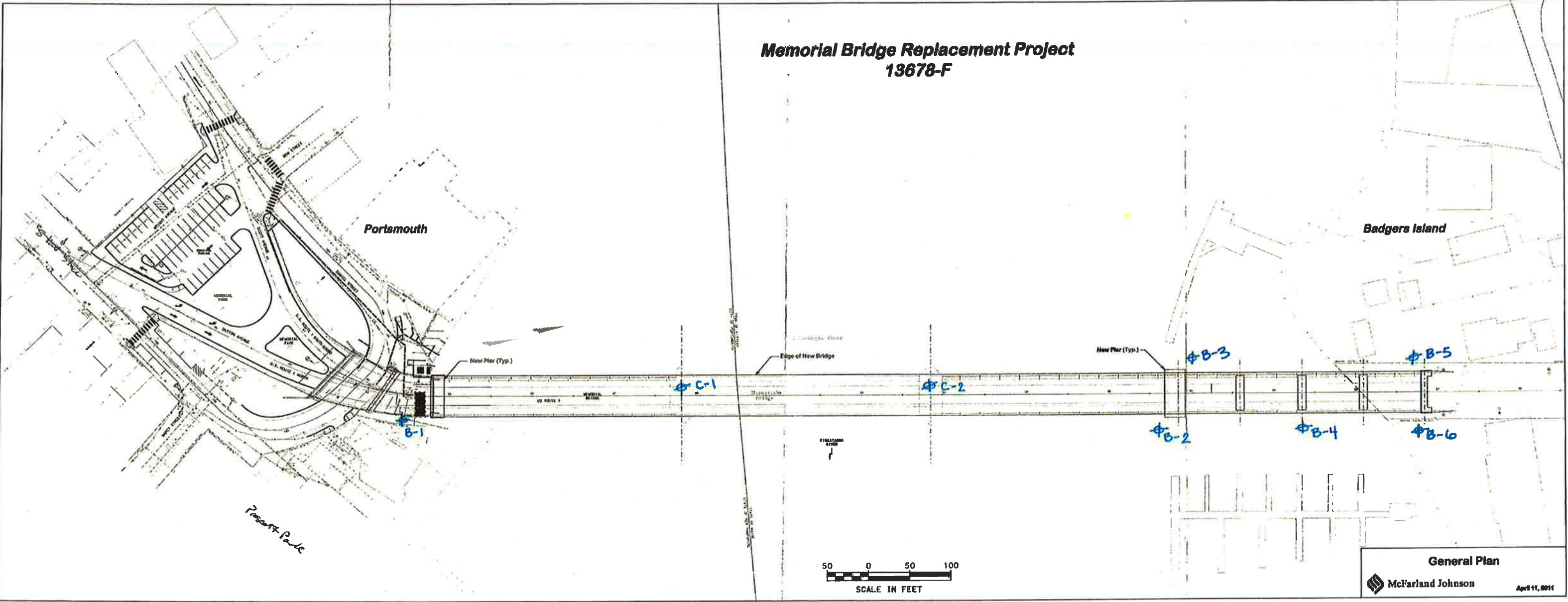
Mean Low Tide Elevation: -3.54
Mean High Tide Elevation: 4.59

| Boring | Approx Top of Soil El. | Approx Depth @ Mean Low Tide | Comment |
|-------------------|------------------------|------------------------------|---------------------|
| Land Boring B-1 | 5.74 | 2.2 | |
| Concrete Core C-1 | -66.04 | 62.5 | Through Bridge Pier |
| Concrete Core C-2 | -58.24 | 54.7 | Through Bridge Pier |
| Water Boring B-2 | -13.74 | 10.2 | |
| Water Boring B-3 | -13.74 | 10.2 | |
| Water Boring B-4 | -2.24 | N/A | In tidal area |
| Land Boring B-5 | 14.26 | N/A | Above MHT |
| Land Boring B-6 | 12.26 | N/A | Above MHT |

Elevations based on NGVD 1929

Cores C-1 and C-2 to be concrete cores of the existing bridge piers. The Memorial Bridge is a truss bridge. It currently is posted for 3 tons. Since it is a truss bridge the overhead clearance is restricted. The pier are approximately 90-95 feet from top of pier to bottom of footing.

Memorial Bridge Replacement Project 13678-F



TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. B1

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. **247-084**
DESCRIPTION **Replacement of US-1 Memorial Bridge**

SHEET NO. 1 OF 2
STA. _____ OFF. _____
BASELINE US-1 CL
ELEVATION (ft) 8.4
START/END 7/15/11 / 7/15/11
DRILLER NHB
INSPECTOR John Soper
CLASSIFIER JKS
EAST/NORTH (ft) 1228373/212058

| GROUNDWATER | | | | | | EQUIPMENT | SAMPLER | CASING | CORE |
|-------------|---------|------------|------------|------------------|----------------|-------------------|---------|------------------------------------|-------|
| DATE | TIME | DEPTH (ft) | ELEV. (ft) | BOTTOM OF CASING | BOTTOM OF HOLE | TYPE: | S | HW | NX |
| 7/15/11 | 2:30 pm | 6.0 | 2.4 | 0 | 38 | SIZE I.D. (in): | 1.375 | 4 | 1.875 |
| | | | | | | HAMMER WT. (lb): | 140 | DRILL RIG Strata Star 15 | |
| | | | | | | HAMMER FALL (in): | 30 | | |
| | | | | | | HAMMER TYPE: | Safety | | |

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|---|----------------------|
| | DEPTH | ELEVATION | | | | | | |
| 0 | | | 6 | | | 0.0 | Dense, grayish brown, silty fine SAND, some medium and coarse sand, trace fine gravel, trace coarse gravel. | [Cross-hatch symbol] |
| | | | 14 13 12 | S1 | 1.1 [55] | 2.0 | | |
| | | | 8 | | | 4.0 | -FILL- | |
| 5 | | | 7 3 | S2 | 0.5 [25] | 6.0 | Similar to S1 except loose. | [Cross-hatch symbol] |
| | | | 18 | | | 9.0 | Medium dense, olive gray, silty fine SAND, some medium and coarse sand, some fine gravel, trace coarse gravel. | [Cross-hatch symbol] |
| 10 | | | 13 5 | S3 | 1.1 [55] | 11.0 | | |
| | | | 9 | | | 14.0 | 12.5' - Red brick and wood fragments observed in wash water while advancing from 9' to 14'. | |
| 15 | | | 13 23 | S4 | 0.8 [40] | 16.0 | Dense, olive gray, silty fine SAND, some fine gravel, little medium and coarse sand, occasional red brick and wood fragments. | [Cross-hatch symbol] |
| | 19.4 | -11.0 | 21 | | | 20.0 | Medium dense, olive brown, silty fine SAND, trace medium and coarse sand. | [Cross-hatch symbol] |
| 20 | | | 12 12 14 | S5 | 1.0 [50] | 22.0 | | |
| | | | 26 | | | 24.0 | -GLACIAL TILL DEPOSIT- | |
| 25 | | | 50/0.2 | S6 | 0.5 [71] | 24.7 | Very dense, olive gray, silty fine SAND, trace medium and coarse sand, trace fine and coarse gravel, occasional cobble. | [Cross-hatch symbol] |
| | 27.5 | -19.1 | | | | 28.0 | -APPROXIMATE BEDROCK SURFACE- | [Cross-hatch symbol] |

| Sampler Identification | COHESIVE SOILS | | NON-COHESIVE SOILS | | Soil Descriptions | Proportion |
|-----------------------------|----------------|--------------|---|--------------|-----------------------|-----------------|
| | Blows/foot | Consistency | Blows/foot | Density | Capitalized Soil Name | Major Component |
| S Standard Split Spoon | 0 - 1 | Very Soft | 0 - 4 | Very Loose | Lower Case Adjective | 35% - 50% |
| SL Large Spoon (O.D.= 3 in) | 2 - 4 | Soft | 5 - 10 | Loose | Some | 20% - 35% |
| T Thin Wall Tube | 5 - 8 | Medium Stiff | 11 - 24 | Medium Dense | Little | 10% - 20% |
| U Undisturbed Piston | 9 - 15 | Stiff | 25 - 50 | Dense | Trace | 1% - 10% |
| O Open End Rod | 16 - 30 | Very Stiff | > 50 | Very Dense | | |
| A Auger Flight | 31 - 60 | Hard | WOR - Weight of Rod WOH - Weight of Hammer | | ENGLISH | |
| C Core Barrel | > 60 | Very Hard | | | | |
| NR Not Recorded | | | | | | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. B1

SHEET NO. 2 OF 2

STA. _____ OFF. _____

BASELINE US-1 CL

ELEVATION (ft) 8.4

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. 247-084

DESCRIPTION Replacement of US-1 Memorial Bridge

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|---|-------------------|
| | DEPTH | ELEVATION | | | | | | |
| 30 | | | | C1 | 5.0 [100] | 33.0 | Moderately hard, fine to medium grained, dark gray CALCAREOUS METASILTSTONE, unweathered to slightly weathered, very closely spaced and moderately dipping foliations, sound to moderately fractured with most fractures occurring along foliations except smooth-faced, steep angled fractures occurring from 31.3' to 31.5', 31.8' to 32.3' (iron stained), and 32.4' to 32.7'. RQD: 3.7 / 5.0 = 74% | [Hatched Pattern] |
| 35 | | | | C2 | 4.4 [88] | 38.0 | Moderately hard, fine to medium grained, dark gray CALCAREOUS METASILTSTONE, unweathered to slightly weathered, very closely spaced and steeply dipping foliation, slightly to extremely fractured with most fractures occurring along foliation except vertical fractures occurring from 34.1' to 34.6' (iron stained). RQD: 1.8 / 5.0 = 36% | [Hatched Pattern] |
| 40 | | | | | | | Bottom of Exploration @ 38.0 ft (El. - 29.6) | |
| 45 | | | | | | | | |
| 50 | | | | | | | | |
| 55 | | | | | | | | |
| 60 | | | | | | | | |
| 65 | | | | | | | | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. B3

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. **247-084**
DESCRIPTION **Replacement of US-1 Memorial Bridge**

SHEET NO. 1 OF 1
STA. _____ OFF. _____
BASELINE US-1 CL
ELEVATION (ft) - 2.4
START/END 7/21/11 / 7/25/11
DRILLER NHB
INSPECTOR John Soper
CLASSIFIER JKS
EAST/NORTH (ft) 1228539/212981

| GROUNDWATER | | | | | | EQUIPMENT | SAMPLER | CASING | CORE |
|-------------|---------|------------|------------|------------------|----------------|-------------------|-----------|----------------------------|-------|
| DATE | TIME | DEPTH (ft) | ELEV. (ft) | BOTTOM OF CASING | BOTTOM OF HOLE | TYPE: | S | NW | NX |
| 7/25/11 | 2:30 pm | 0.0 | - 2.4 | 0 | 14.2 | SIZE I.D. (in): | 1.375 | 3 | 1.875 |
| | | | | | | HAMMER WT. (lb): | 140 | DRILL RIG | |
| | | | | | | HAMMER FALL (in): | 30 | | |
| | | | | | | HAMMER TYPE: | Automatic | Diedrich D-50 Track | |

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|---|----------------|
| | DEPTH | ELEVATION | | | | | | |
| 0 | | | 2 | | | 0.0 | | ▼ |
| | | | 12 | S1 | 0.4 [20] | | Medium dense, gray, fine GRAVEL, little medium and coarse sand, little silt. | ▨ |
| | | | 3 | | | 2.0 | -FILL- | ▨ |
| | 3.5 | -5.9 | 7 | | | | -APPROXIMATE BEDROCK SURFACE- | ▨ |
| 5 | | | | C1 | 4.8 [96] | 5.0 | Hard, fine to medium grained, dark gray BASALT, slightly weathered, slightly to extremely fractured at shallow angles (smooth, iron-stained), steep angled fractures occurring from 6.6' to 6.8' (rough) and 8.7' to 8.9' (smooth). RQD: 2.6 / 5.0 = 52% | ▨ |
| 10 | | | | C2 | 3.5 [83] | 10.0 | Hard to moderately hard, fine to medium grained, dark gray BASALT (10' to 12.8') and METASILTSTONE (12.8' to 14.2'), unweathered to slightly weathered, basalt is moderately to extremely fractured, schist is slightly to extremely fractured. Fractures are shallow angled and iron stained. Quartz intrusion from 12.8' to 13'. RQD: 1.2 / 4.2 = 29% | ▨ |
| | | | | | | 14.2 | Bottom of Exploration @ 14.2 ft (EI. - 16.6) | ▨ |
| 20 | | | | | | | NOTE: Boring completed during low tide within tidal zone. | ▨ |
| 25 | | | | | | | | ▨ |

| Sampler Identification | COHESIVE SOILS | | NON-COHESIVE SOILS | | Soil Descriptions | Proportion |
|-----------------------------|----------------|--------------|---|--------------|-----------------------|-----------------|
| | Blows/foot | Consistency | Blows/foot | Density | Capitalized Soil Name | Major Component |
| S Standard Split Spoon | 0 - 1 | Very Soft | 0 - 4 | Very Loose | Lower Case Adjective | 35% - 50% |
| SL Large Spoon (O.D.= 3 in) | 2 - 4 | Soft | 5 - 10 | Loose | Some | 20% - 35% |
| T Thin Wall Tube | 5 - 8 | Medium Stiff | 11 - 24 | Medium Dense | Little | 10% - 20% |
| U Undisturbed Piston | 9 - 15 | Stiff | 25 - 50 | Dense | Trace | 1% - 10% |
| O Open End Rod | 16 - 30 | Very Stiff | > 50 | Very Dense | | |
| A Auger Flight | 31 - 60 | Hard | WOR - Weight of Rod WOH - Weight of Hammer | | ENGLISH | |
| C Core Barrel | > 60 | Very Hard | | | | |
| NR Not Recorded | | | | | | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. B5

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. **247-084**
DESCRIPTION **Replacement of US-1 Memorial Bridge**

SHEET NO. 1 OF 1
STA. _____ OFF. _____
BASELINE US-1 CL
ELEVATION (ft) 15.4
START/END 7/19/11 / 7/19/11
DRILLER NHB
INSPECTOR John Soper
CLASSIFIER JKS
EAST/NORTH (ft) 1228614/213258

| GROUNDWATER | | | | | | EQUIPMENT | SAMPLER | CASING | CORE |
|-------------|---------|------------|------------|------------------|----------------|-------------------|---------|-----------------------|-------|
| DATE | TIME | DEPTH (ft) | ELEV. (ft) | BOTTOM OF CASING | BOTTOM OF HOLE | TYPE: | S | NW | NX |
| 12/23/99 | 2:30 pm | 10.0 | 5.4 | 0 | 26.8 | SIZE I.D. (in): | 1.375 | 3 | 1.875 |
| | | | | | | HAMMER WT. (lb): | 140 | DRILL RIG | |
| | | | | | | HAMMER FALL (in): | 30 | | |
| | | | | | | HAMMER TYPE: | Safety | Strata Star 15 | |

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|---|------------------------|
| | DEPTH | ELEVATION | | | | | | |
| 0 | | | 3 | | | 0.0 | Medium dense, fine sandy SILT, trace fine gravel, trace medium and coarse sand. | -FILL- |
| | 3.0 | 12.4 | 10 5 | S1 | 1.1 [55] | 2.0 | | |
| | | | 4 | | | | | |
| 5 | | | 4 | | | 4.0 | Loose, olive gray, silty fine SAND, trace fine sand, trace clay, thin layer of silt. | -MARINE DEPOSIT- |
| | 8.9 | 6.5 | 3 3 | S2 | 1.7 [85] | 6.0 | | |
| | | | 5 | | | | | |
| 10 | | | 8 | | | 9.0 | Olive gray, silty fine SAND, trace medium and coarse sand, trace fine gravel, cobble from 9.8 to 10.5't. | -GLACIAL TILL DEPOSIT- |
| | 11.5 | 3.9 | 50/0.3 | S3 | 0.5 [62] | 9.8 | | |
| | | | | | | | | |
| | | | | | | | -APPROXIMATE BEDROCK SURFACE- | |
| 15 | | | | | | 13.0 | Soft to moderately hard, fine grained, dark gray CALCAREOUS METASILTSTONE, slightly to severely weathered, very closely spaced and moderately dipping foliation, extremely fractured with claying, iron-stained fracture faces. RQD: 0.3 / 4.0 = 8% | [Symbol] |
| | | | | C1 | 3.2 [80] | 17.0 | | |
| | | | | | | | | |
| 20 | | | | | | 17.0 | Moderately hard, fine grained, gray CALCAREOUS METASILTSTONE, very slightly to slightly weathered, closely spaced and steeply dipping foliations, smooth-faced fractures occurring along foliations. RQD: 2.8 / 5.0 = 56% | [Symbol] |
| | | | | C2 | 4.5 [90] | 22.0 | | |
| | | | | | | | | |
| 25 | | | | | | 22.0 | Moderately hard, gray, fine grained, CALCAREOUS METASILTSTONE, very slightly to slightly weathered, closely spaced and steeply dipping foliations, sound to extremely fractured, fractures occurring along foliations, some fractured iron-stained. RQD: 3.1 / 4.8 = 65% | [Symbol] |
| | | | | C3 | 4.8 [100] | 26.8 | | |
| | | | | | | | Bottom of Exploration @ 26.8 ft (El. - 11.4) | |

| Sampler Identification | COHESIVE SOILS | | NON-COHESIVE SOILS | | Soil Descriptions | Proportion |
|-----------------------------|----------------|--------------|---|--------------|-----------------------|-----------------|
| | Blows/foot | Consistency | Blows/foot | Density | Capitalized Soil Name | Major Component |
| S Standard Split Spoon | 0 - 1 | Very Soft | 0 - 4 | Very Loose | Lower Case Adjective | 35% - 50% |
| SL Large Spoon (O.D.= 3 in) | 2 - 4 | Soft | 5 - 10 | Loose | Some | 20% - 35% |
| T Thin Wall Tube | 5 - 8 | Medium Stiff | 11 - 24 | Medium Dense | Little | 10% - 20% |
| U Undisturbed Piston | 9 - 15 | Stiff | 25 - 50 | Dense | Trace | 1% - 10% |
| O Open End Rod | 16 - 30 | Very Stiff | > 50 | Very Dense | | |
| A Auger Flight | 31 - 60 | Hard | WOR - Weight of Rod WOH - Weight of Hammer | | ENGLISH | |
| C Core Barrel | > 60 | Very Hard | | | | |
| NR Not Recorded | | | | | | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. B6

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. **247-084**
DESCRIPTION **Replacement of US-1 Memorial Bridge**

SHEET NO. 1 OF 2
STA. _____ OFF. _____
BASELINE US-1 CL
ELEVATION (ft) 25.0
START/END 7/18/11 / 7/18/11
DRILLER NHB
INSPECTOR John Soper
CLASSIFIER JKS
EAST/NORTH (ft) 1228672/213258

| GROUNDWATER | | | | | | EQUIPMENT | SAMPLER | CASING | CORE |
|-------------|---------|------------|------------|------------------|----------------|-------------------|---------|------------------------------------|-------|
| DATE | TIME | DEPTH (ft) | ELEV. (ft) | BOTTOM OF CASING | BOTTOM OF HOLE | TYPE: | S | NW | NX |
| 7/18/11 | 3:30 pm | 13.5 | 11.5 | 0 | 39.4 | SIZE I.D. (in): | 1.375 | 3 | 1.875 |
| | | | | | | HAMMER WT. (lb): | 140 | DRILL RIG Strata Star 15 | |
| | | | | | | HAMMER FALL (in): | 30 | | |
| | | | | | | HAMMER TYPE: | Safety | | |

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|--|----------------|
| | DEPTH | ELEVATION | | | | | | |
| 0 | 0.3 | 24.7 | | | | | -ASPHALT PAVEMENT- | |
| | | | 14 | | | 2.0 | Very dense, dark olive gray, silty fine SAND, some fine gravel, some medium and coarse sand, trace coarse gravel. | |
| | | | 56 30 | S1 | 1.1 [55] | 4.0 | | |
| | | | 16 | | | 4.0 | NO RECOVERY - Stone lodged in tip of sampler. | |
| | | | 12 | | | 6.0 | | |
| 5 | | | 8 9 | S2 | 0.0 [0] | | | |
| | | | 7 | | | | -FILL- | |
| | | | 46 | | | 9.0 | Similar to S1 except very dense. | |
| | | | 33 21 | S3 | 0.9 [45] | 11.0 | | |
| | | | 27 | | | | | |
| | | | 5 | | | 14.0 | Similar to S1. Olive gray, silty fine SAND, little fine gravel, little medium and coarse sand. | |
| 15 | 15.2 | 9.8 | 2 14 | S4 | 0.3 [15] | 16.0 | | |
| | | | 2 | | | | -GLACIAL TILL DEPOSIT- | |
| | | | 5 | | | 19.0 | Very dense, olive gray, silty fine SAND, trace fine gravel, trace medium and coarse sand. | |
| | | | 5 | S5 | 1.2 [100] | 20.2 | | |
| 20 | | | 50/0.2 | | | | | |
| | 23.8 | 1.2 | | | | | -APPROXIMATE BEDROCK SURFACE- | |
| 25 | | | | | | 24.4 | Moderately hard, fine grained, dark gray CALCAREOUS METASILTSTONE, slightly to moderately weathered, very closely spaced and moderately to steeply dipping foliation, moderately to extremely fractured with most fractures occurring along foliations, occasional calcite stringers throughout core sample. RQD: 0.8 / 5.0 = 16% | |
| | | | | C1 | 4.8 [96] | | | |

| Sampler Identification | COHESIVE SOILS | | NON-COHESIVE SOILS | | Soil Descriptions | Proportion |
|-----------------------------|----------------|--------------|------------------------|--------------|-----------------------|-----------------|
| | Blows/foot | Consistency | Blows/foot | Density | Capitalized Soil Name | Major Component |
| S Standard Split Spoon | 0 - 1 | Very Soft | 0 - 4 | Very Loose | Lower Case Adjective | 35% - 50% |
| SL Large Spoon (O.D.= 3 in) | 2 - 4 | Soft | 5 - 10 | Loose | Some | 20% - 35% |
| T Thin Wall Tube | 5 - 8 | Medium Stiff | 11 - 24 | Medium Dense | Little | 10% - 20% |
| U Undisturbed Piston | 9 - 15 | Stiff | 25 - 50 | Dense | Trace | 1% - 10% |
| O Open End Rod | 16 - 30 | Very Stiff | > 50 | Very Dense | | |
| A Auger Flight | 31 - 60 | Hard | WOR - Weight of Rod | | ENGLISH | |
| C Core Barrel | > 60 | Very Hard | WOH - Weight of Hammer | | | |
| NR Not Recorded | | | | | | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. B6

SHEET NO. 2 OF 2

STA. _____ OFF. _____

BASELINE US-1 CL

ELEVATION (ft) 25.0

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. 247-084
DESCRIPTION Replacement of US-1 Memorial Bridge

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|---|----------------|
| | DEPTH | ELEVATION | | | | | | |
| 30 | | | | C2 | 4.8 [96] | 29.4 29.4 | Moderately hard, fine to medium grained, dark gray CALCAREOUS METASILTSTONE, slightly to moderately weathered, very closely spaced and moderately to steeply dipping foliations, slightly to extremely fractured with most fractures occurring along foliations, occasional calcite stringers throughout core sample. RQD: 1.6 / 5.0 = 32% | |
| 35 | | | | C3 | 4.9 [98] | 34.4 34.4 | | |
| 40 | | | | | | 39.4 | Bottom of Exploration @ 39.4 ft (El. - 14.4) | |
| 45 | | | | | | | | |
| 50 | | | | | | | | |
| 55 | | | | | | | | |
| 60 | | | | | | | | |
| 65 | | | | | | | | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. C1

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. **247-084**
DESCRIPTION **Replacement of US-1 Memorial Bridge**

SHEET NO. 1 OF 4
STA. _____ OFF. _____
BASELINE US-1 CL
ELEVATION (ft) 31.2
START/END 8/1/11 / 8/8/11
DRILLER NHB
INSPECTOR John Soper
CLASSIFIER JKS
EAST/NORTH (ft) 1228403/212374

| GROUNDWATER | | | | | | EQUIPMENT | SAMPLER | CASING | CORE |
|-------------|------|------------|------------|------------------|----------------|-------------------|---------|------------------------|-------|
| DATE | TIME | DEPTH (ft) | ELEV. (ft) | BOTTOM OF CASING | BOTTOM OF HOLE | TYPE: | S | NW | NX |
| | | | | | | SIZE I.D. (in): | 1.375 | 3 | 1.875 |
| | | | | | | HAMMER WT. (lb): | 140 | DRILL RIG | |
| | | | | | | HAMMER FALL (in): | 30 | | |
| | | | | | | HAMMER TYPE: | Safety | Mobile Surveyer | |

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|--|----------------|
| | DEPTH | ELEVATION | | | | | | |
| 0 | 0.3 | 30.9 | | | | | -WOODEN SIDEWALK- | |
| 5 | | | | | | | -AIR GAP- | |
| 10 | 11.2 | 20.0 | | | | | -TOP OF PIER- | |
| | | | | C1 | 2.0 [100] | 11.2 - 13.2 | Light brownish gray, CONCRETE, slightly to extremely fractured, with fine and coarse gravel, rounded to subangular in shape. Gravel is a mixture of granite, gneiss, metasiltstone, schist. All fractures are along interface of gravel and cement. RQD: 1.5 / 2.0 = 75% | |
| | | | | C2 | 4.9 [98] | 13.2 - 18.2 | Light brownish gray, CONCRETE, slightly to moderately fractured, with fine and coarse gravel, rounded to subangular in shape. Gravel is a mixture of granite, gneiss, metasiltstone, schist. Pitting around gravel at 14.0 feet. At 15.6, could break concrete with finger pressure. Air pockets/voids throughout core run. All fractures are along interface of gravel and cement. RQD: 3.5 / 5.0 = 70% | |
| | | | | C3 | 5.0 [100] | 18.2 - 23.2 | Light brownish gray, CONCRETE, sound to moderately fractured, with fine and coarse gravel, rounded to subangular in shape, trace angular gravel. Gravel is a mixture of granite, gneiss, metasiltstone and schist. Air pockets/voids throughout core run. Fractures are along interface of gravel and cement. RQD: 4.5 / 5.0 = 90% | |
| | | | | C4 | 5.0 [100] | 23.2 - 28.2 | Light brownish gray, CONCRETE, sound to moderately fractured, with fine gravel, some coarse gravel, rounded to subangular to shape gravel, trace angular gravel. Gravel is a mixture of granite, gneiss, metasiltstone, and schist. Air pockets/voids throughout core run. Fractures are along interface of gravel and cement. RQD: 4.5 / 5.0 = 90% | |

| Sampler Identification | COHESIVE SOILS | | NON-COHESIVE SOILS | | Soil Descriptions | Proportion |
|-----------------------------|----------------|--------------|---|--------------|-----------------------|-----------------|
| | Blows/foot | Consistency | Blows/foot | Density | Capitalized Soil Name | Major Component |
| S Standard Split Spoon | 0 - 1 | Very Soft | 0 - 4 | Very Loose | Lower Case Adjective | 35% - 50% |
| SL Large Spoon (O.D.= 3 in) | 2 - 4 | Soft | 5 - 10 | Loose | Some | 20% - 35% |
| T Thin Wall Tube | 5 - 8 | Medium Stiff | 11 - 24 | Medium Dense | Little | 10% - 20% |
| U Undisturbed Piston | 9 - 15 | Stiff | 25 - 50 | Dense | Trace | 1% - 10% |
| O Open End Rod | 16 - 30 | Very Stiff | > 50 | Very Dense | | |
| A Auger Flight | 31 - 60 | Hard | WOR - Weight of Rod WOH - Weight of Hammer | | ENGLISH | |
| C Core Barrel | > 60 | Very Hard | | | | |
| NR Not Recorded | | | | | | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. C1

SHEET NO. 2 OF 4

STA. _____ OFF. _____

BASELINE US-1 CL

ELEVATION (ft) 31.2

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. 247-084
DESCRIPTION Replacement of US-1 Memorial Bridge

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|--|----------------|
| | DEPTH | ELEVATION | | | | | | |
| 30 | | | | C5 | 5.0 [100] | 33.2 | Light brownish gray, CONCRETE, sound to slightly fractured, with fine gravel, some coarse gravel rounded to subangular in shape, trace angular gravel. Gravel is a mixture of granite, gneiss, metasilstone. Some pitting at 31.6 feet to 32.0 feet. Other areas are most likely air pockets/voids. Fractures are along interface of gravel and cement. RQD: 4.8 / 5.0 = 96% | |
| 35 | | | | C6 | 5.0 [100] | 38.2 | Light brownish gray, CONCRETE, sound to moderately fractured, with fine gravel, some coarse gravel, rounded to subangular in shape, trace angular gravel. Gravel is a mixture of granite, gneiss, metasilstone. At 37.8 feet, pitting around gravel. Other areas show some pitting around gravel. Air pockets/voids throughout core run. Cold joints at 35.5 and 37.3 feet. Fractures are along interface of gravel and cement. RQD: 4.8 / 5.0 = 96% | |
| 40 | | | | C7 | 5.0 [100] | 43.2 | Light brownish gray, CONCRETE, sound to moderately fractured, with fine and coarse gravel, rounded to subangular in shape, trace angular gravel. Gravel is a mixture of granite, gneiss, metasilstone, and schist. From 41.6 to 42.5 feet, pitting around gravel. Wood fiber in concrete at 41.9 feet. At 41.4 feet cold joint. Air pockets/voids throughout core run. Fractures are along interface of gravel and cement. RQD: 4.7 / 5.0 = 94% | |
| 45 | | | | C8 | 4.7 [94] | 48.2 | Light brownish gray, CONCRETE, sound to moderately fractured, with coarse gravel, some fine gravel, rounded to subangular in shape, trace angular gravel. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. From 46.6 to 47.1 feet, severe weathering, concrete is dark gray/black, extremely fracture. Air pockets/voids throughout core run. All fractures are along interface of gravel and cement. RQD: 4.1 / 5.0 = 82% | |
| 50 | | | | C9 | 5.0 [100] | 53.2 | Light brown gray, CONCRETE, sound, with fine and coarse gravel, rounded to subangular in shape, trace angular gravel. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. Some pitting along the interface of gravel and concrete. Other areas are most likely air pockets/voids. Fractures are along interface of gravel and cement. RQD: 4.8 / 5.0 = 96% | |
| 55 | | | | C10 | 5.0 [100] | 58.2 | Light brownish gray, CONCRETE, sound to slightly fractured, with fine and coarse gravel, rounded to subangular in shape, trace angular, trace angular gravel. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. Air pockets/voids throughout core run. At 55.2 feet, hairline fracture across gneiss coarse gravel. All fractures are along interface of gravel and cement. RQD: 4.8 / 5.0 = 96% | |
| 60 | | | | C11 | 5.0 [100] | 63.2 | Light brownish gray, CONCRETE, sound to slightly fractured, with fine and coarse gravel, rounded to subangular in shape, trace angular shape gravel. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. Vugs and pitting around gravel at 58.9 and 59.2 feet. Pitting around gravel from 59.9 to 60.1 feet. Air pockets/voids throughout core run. Fractures are along interface of gravel in the concrete. RQD: 4.9 / 5.0 = 98% | |
| 65 | | | | | | | Light brownish gray, CONCRETE, slightly fractured to sound, with fine and coarse gravel, rounded to subangular in shape, trace angular shape gravel. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. Vugs and | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. C1

SHEET NO. 3 OF 4

STA. _____ OFF. _____

BASELINE US-1 CL

ELEVATION (ft) 31.2

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. 247-084
DESCRIPTION Replacement of US-1 Memorial Bridge

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|--|----------------|
| | DEPTH | ELEVATION | | | | | | |
| 70 | | | | C12 | 3.8 [76] | 68.2 | <p>pitting around gravel and concrete. Fractures are along interface of gravel in the concrete. RQD: 3.8 / 5.0 = 76%</p> | |
| | | | | C13 | 1.5 [30] | 68.2 | <p>Light brownish gray, CONCRETE, moderately to extremely fractured, with fine and coarse gravel, rounded to subangular in shape. Gravel is a mixture of granite, gneiss, metasiltstone, trace schist. Cement around gravel appears to be weathered, concrete is soft. RQD: 0.0 / 5.0 = 0%</p> | |
| 75 | | | | C14 | 4.2 [84] | 73.2 | <p>Light brownish gray, CONCRETE, sound to extremely fractured, with fine and coarse gravel, rounded to subangular in shape, trace angular gravel. Gravel is a mixture of granite, gneiss and metasiltstone, trace schist. Cold joint at 77.6 feet (material was cement, little fine gravel, coarse gravel absent). From 74.4 to 74.7 feet, gravel is clean. Small cavity at 75.4 to 75.7 feet, soft. RQD: 3.3 / 5.0 = 66%</p> | |
| | | | | C15 | 5.3 [110] | 78.2 | <p>Light brownish gray, CONCRETE, sound, with fine gravel, some coarse gravel, rounded to subangular in shape, trace angular shape gravel. Gravel is a mixture of granite, gneiss, metasiltstone, trace schist. Portion of smooth steel bar (apparent 1.5 inches dia.) at 79.0 feet. Fractures are along interface of gravel in the concrete. RQD: 4.7 / 4.8 = 98%</p> | |
| 85 | | | | C16 | 5.0 [100] | 83.0 | <p>Light brownish gray, CONCRETE, sound, with fine and coarse gravel, rounded to subangular in shape, trace angular shape gravel. Gravel is a mixture of granite, gneiss and metasiltstone. Trace amount of coarse gravel are 3 inches in length. Air pockets/voids throughout core run. Fractures are along interface of gravel and cement. RQD: 4.8 / 5.0 = 96%</p> | |
| | | | | C17 | 5.0 [100] | 88.0 | <p>Light brownish gray, CONCRETE, sound to moderately fractured, with fine and coarse gravel, rounded to subangular in shape, trace angular shape gravel. Gravel is a mixture of granite, gneiss and metasiltstone. Trace amount of coarse gravel are 3 inches in length. Air pockets/voids throughout core run. Fractures are along interface of gravel and cement. RQD: 4.8 / 5.0 = 96%</p> | |
| 95 | | | | C18 | 5.0 [100] | 93.0 | <p>Light brownish gray, CONCRETE, sound to slightly fractured, with fine and coarse gravel, rounded to subangular in shape, trace angular shape gravel. Gravel is a mixture of granite, gneiss and metasiltstone. Trace amount of coarse gravel are 3 inches in length. Air pockets/voids throughout core run. Fractures are along interface of gravel and cement. RQD: 4.8 / 5.0 = 96%</p> | |
| | | | | C19 | 5.0 [100] | 98.0 | <p>Light brownish gray, CONCRETE, with fine and coarse gravel, rounded to subangular in shape, trace angular shape gravel. Gravel is a mixture of granite, gneiss and metasiltstone. Trace amount of coarse gravel are 3 inches in length. Air pockets/voids throughout core run. Fractures are along interface of gravel and cement. RQD: 5.0 / 5.0 = 100%</p> | |

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STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. C1

SHEET NO. 4 OF 4

STA. _____ OFF. _____

BASELINE US-1 CL

ELEVATION (ft) 31.2

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. 247-084
DESCRIPTION Replacement of US-1 Memorial Bridge

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|---|-------------------|
| | DEPTH | ELEVATION | | | | | | |
| 105 | | | | C20 | 5.0 [100] | 103.0 103.0 | Light brownish gray, CONCRETE, sound to moderately fractured, with fine gravel and trace coarse gravel, rounded to subangular in shape, trace angular shape gravel. Gravel is a mixture of granite, gneiss, and metasiltstone. Part of steel bar at 103.3 feet. Cold joint at 103.5 feet coated each side with coal tar (black in color, naphthalene-like odor when scratched). From 105.5 to 105.9 feet very little fine gravel. Fractures are along interface of gravel and cement. RQD: 4.7 / 5.0 = 94% | [Concrete Symbol] |
| 110 | 112.2 | -81.0 | | C21 | 5.0 [100] | 108.0 108.0 | Light brownish gray, CONCRETE, sound to moderately fractured, with fine gravel little coarse gravel, rounded to subangular in shape, trace angular shape gravel. Gravel is a mixture of granite, gneiss and metasiltstone. Air pockets/voids throughout core run. Fractures are along interface of gravel and cement. RQD: 4.0 / 5.0 = 80% | [Concrete Symbol] |
| | | | | | | 113.0 113.0 | -APPROXIMATE BEDROCK SURFACE- | [Bedrock Symbol] |
| 115 | | | | C22 | 5.0 [100] | 113.0 113.0 | Moderately hard, sound to moderately fractured, fresh, dark gray, fine grained, CALCAREOUS METASILTSTONE. Foliation is moderately dipping to steep angle. Calcite stringer throughout rock. At 113.4 and 114 feet, and 117.5 feet moderately dipping fractures, smooth, across stringer. RQD: 3.0 / 5.0 = 60% | [Bedrock Symbol] |
| 120 | | | | C23 | 4.2 [84] | 118.0 118.0 | Moderately hard, sound to moderately hard, fresh, dark gray, fine grained, CALCAREOUS METASILTSTONE. Calcite stringer throughout core run. Foliation is moderately to steep angle. Several moderately dipping fractures along the stringers. RQD: 2.3 / 5.0 = 46% | [Bedrock Symbol] |
| 125 | | | | | | 123.0 | Bottom of Exploration @ 123.0 ft (El. - 91.8) | |
| 130 | | | | | | | | |
| 135 | | | | | | | | |

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STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. C2

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. **247-084**
DESCRIPTION **Replacement of US-1 Memorial Bridge**

SHEET NO. 1 OF 4
STA. _____ OFF. _____
BASELINE US-1 CL
ELEVATION (ft) 31.2
START/END 8/10/11 / 8/12/11
DRILLER NHB
INSPECTOR John Soper
CLASSIFIER JKS
EAST/NORTH (ft) 1228490/212695

| GROUNDWATER | | | | | | EQUIPMENT | SAMPLER | CASING | CORE |
|-------------|------|------------|------------|------------------|----------------|-------------------|---------|------------------------|-------|
| DATE | TIME | DEPTH (ft) | ELEV. (ft) | BOTTOM OF CASING | BOTTOM OF HOLE | TYPE: | S | NW | NX |
| | | | | | | SIZE I.D. (in): | 1.375 | 3 | 1.875 |
| | | | | | | HAMMER WT. (lb): | 140 | DRILL RIG | |
| | | | | | | HAMMER FALL (in): | 30 | | |
| | | | | | | HAMMER TYPE: | Safety | Mobile Surveyer | |

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|---|----------------|
| | DEPTH | ELEVATION | | | | | | |
| 0 | 0.3 | 30.9 | | | | | -WOODEN SIDEWALK- | // |
| 5 | | | | | | | -AIR GAP- | |
| 10 | 11.0 | 20.2 | | | | | -TOP OF PIER- | |
| | | | | C1 | 1.5 [100] | 11.0 - 12.5 | Brownish gray/dark gray, CONCRETE, slightly fractured, with fine gravel, angular, trace rounded to subangular. Gravel is mostly metasilstone, trace granite, gneiss, and quartz. Fractures are along interface of gravel and cement. Dark gray from 11.3 to 12.5 feet. RQD: 1.4 / 1.5 = 93% | |
| | | | | C2 | 5.0 [100] | 12.5 - 17.5 | Brownish gray, CONCRETE, sound to moderately fractured. From 12.5 to 13.4 feet, dark gray, fine gravel, angular, trace rounded to subangular. Cold joint at 13.4 feet. From 13.4 feet to 17.5 feet, brownish gray, gravel is coarse, little fine gravel, rounded to subangular, trace angular is shape. Gravel is a mixture of granite, gneiss and metasilstone. Air pockets throughout core run. Fractures are along interface of gravel and cement. RQD: 4.6 / 5.0 = 92% | |
| | | | | C3 | 4.9 [98] | 17.5 - 22.5 | Brownish gray, CONCRETE, sound to slightly fractured, with fine gravel, trace coarse gravel, rounded to subangular in shape. Gravel mixture is granite, some gneiss, trace schist. At 18.9 feet, iron stain around gravel. Air pockets/voids throughout core run. Fractures are along interface of gravel and cement. Portion of steel bar (apparent 1 inch dia.) at 21.8 feet, horizontal to core run. RQD: 4.7 / 5.0 = 94% | |
| | | | | C4 | 5.0 [100] | 22.5 - 27.5 | Brownish gray, CONCRETE, sound to moderately fractured, with fine and coarse gravel, rounded to subangular in shape. Gravel is a mixture of granite, metasilstone, and gneiss. Fractures are along interface of gravel and cement. From 23.1 to 24.0 feet, pitting around gravel, with some gravel showing iron staining. Piece of 1/8 inch thick steel, horizontal to core run, at 24.6 feet. Air pockets/voids throughout. RQD: 4.3 / 5.0 = 86% | |
| | | | | | | 27.5 | | |

| Sampler | Identification | COHESIVE SOILS | | NON-COHESIVE SOILS | | Soil Descriptions | Proportion |
|---------|--------------------------|----------------|--------------|------------------------|--------------|-----------------------|-----------------|
| | | Blows/foot | Consistency | Blows/foot | Density | Capitalized Soil Name | Major Component |
| S | Standard Split Spoon | 0 - 1 | Very Soft | 0 - 4 | Very Loose | Lower Case Adjective | 35% - 50% |
| SL | Large Spoon (O.D.= 3 in) | 2 - 4 | Soft | 5 - 10 | Loose | Some | 20% - 35% |
| T | Thin Wall Tube | 5 - 8 | Medium Stiff | 11 - 24 | Medium Dense | Little | 10% - 20% |
| U | Undisturbed Piston | 9 - 15 | Stiff | 25 - 50 | Dense | Trace | 1% - 10% |
| O | Open End Rod | 16 - 30 | Very Stiff | > 50 | Very Dense | | |
| A | Auger Flight | 31 - 60 | Hard | WOR - Weight of Rod | | ENGLISH | |
| C | Core Barrel | > 60 | Very Hard | WOH - Weight of Hammer | | | |
| NR | Not Recorded | | | | | | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. C2

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. 247-084
DESCRIPTION Replacement of US-1 Memorial Bridge

SHEET NO. 2 OF 4
STA. _____ OFF. _____
BASELINE US-1 CL
ELEVATION (ft) 31.2

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|--|----------------|
| | DEPTH | ELEVATION | | | | | | |
| 30 | | | | C5 | 4.9 [98] | | Brownish gray, CONCRETE, sound, with fine gravel, some coarse gravel, rounded to subangular in shape, trace angular. Gravel is a mixture of granite, gneiss, metasiltstone, trace schist. Fractures are along interface of gravel and cement. A few coarse gravel are 3 inches in size. RQD: 4.8 / 5.0 = 96% | |
| | | | | | | 32.5 | | |
| 35 | | | | C6 | 5.0 [100] | 32.5 | Brownish gray, CONCRETE, sound, with fine gravel, some coarse gravel, rounded to subangular in shape, trace angular. Gravel is a mixture of granite, gneiss, metasiltstone, trace schist. Fractures are along interface of gravel and cement. A few coarse gravel are 3 inches in size. Cold joint at 36.8 feet. Some gravel has iron staining around the edges. RQD: 4.8 / 5.0 = 96% | |
| | | | | | | 37.5 | | |
| 40 | | | | C7 | 5.0 [100] | 37.5 | Brownish gray, CONCRETE, sound to slightly fractured, with fine gravel, some coarse gravel, rounded to subangular in shape. Gravel is a mixture of granite, gneiss, metasiltstone. Air pockets/voids throughout core run. Fractures are along the interface of gravel and cement. RQD: 4.8 / 5.0 = 96% | |
| | | | | | | 42.5 | | |
| 45 | | | | C8 | 5.0 [100] | 42.5 | Brownish gray, CONCRETE, sound to moderately fractured, with fine gravel, some coarse gravel, rounded to subangular in shape. Gravel is a mixture of metasiltstone, granite, and gneiss, trace schist. Some gravel has iron staining. Trace coarse gravel was 3 inches in size. Fractures are along interface of gravel and cement. At 44.2 feet, concrete is iron stained with pitting. Vug at 44.4 feet along gravel and cement interface. Possible cold joint at 46.5 feet. Air pockets/voids throughout core run. RQD: 4.4 / 5.0 = 88% | |
| | | | | | | 47.5 | | |
| 50 | | | | C9 | 5.0 [100] | 47.5 | Brownish gray, CONCRETE, sound to moderately fractured, with fine gravel, trace coarse gravel, rounded to subangular in shape. Gravel is a mixture of metasiltstone, gneiss, granite, and schist. Air pockets/voids throughout core run. At 48.0 feet, pitting around gravel interface with cement. Fractures are along the interface of gravel and cement. RQD: 4.8 / 5.0 = 96% | |
| | | | | | | 52.5 | | |
| 55 | | | | C10 | 5.0 [100] | 52.5 | Brownish gray, CONCRETE, sound to slightly fractured with fine gravel, some coarse gravel, rounded to subangular in shape. Gravel is a mixture of gneiss, granite, metasiltstone and schist. Fractures are along the interface of gravel and cement. Air pockets/voids throughout core run. At 54.5 and 59.8 feet, pitting along the interface of gravel and cement. RQD: 4.8 / 5.0 = 96% | |
| | | | | | | 57.5 | | |
| 60 | | | | C11 | 5.0 [100] | 57.5 | Brownish gray, CONCRETE, sound to slightly fractured, with fine and coarse gravel, rounded to subangular in shape, trace angular. Gravel is a mixture of granite, gneiss, metasiltstone and schist. Air pockets/voids throughout core run. Some gravel and cement contacts are iron stained. Vug at 59.0 feet between cement and gravel. At 60.3 and 61.6 feet, fractures are across gravel. Other fractures are along the interface of gravel and cement. RQD: 4.9 / 5.0 = 98% | |
| | | | | | | 62.5 | | |
| 65 | | | | C12 | 5.0 [100] | 62.5 | Brownish gray, CONCRETE, sound, with fine gravel, little coarse gravel, rounded to subangular in shape. Gravel is a mixture of granite, gneiss, metasiltstone, trace schist. Possible cold joint at 63.6 feet. Fractures are | |

TB-06 S:\GINTW\PROJECTS\PORTSMOUTH\13678F_BORINGS.GPJ 8/19/2011 8:37:19 AM TB-06

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. C2

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. 247-084
DESCRIPTION Replacement of US-1 Memorial Bridge

SHEET NO. 3 OF 4
STA. _____ OFF. _____
BASELINE US-1 CL
ELEVATION (ft) 31.2

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|--|----------------|
| | DEPTH | ELEVATION | | | | | | |
| | | | | | | | along the interface of gravel and cement. RQD: 4.8 / 5.0 = 96% | |
| 70 | | | | C13 | 4.5 [90] | 67.5 | Brownish gray, CONCRETE, sound, with fine gravel, little coarse gravel, rounded to subangular in shape. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. Portion of steel bar (apparent 2 inch dia.) at 69.6 feet. Fractures are along the interface of gravel and cement. RQD: 4.3 / 5.0 = 86% | |
| 75 | | | | C14 | 5.0 [100] | 72.5 | Brownish gray, CONCRETE, sound to moderately fractured, with fine gravel, some coarse gravel, rounded to subangular, trace angular. Gravel is mixture of granite, gneiss, metasilstone, trace schist. Trace of amount of coarse gravel is 3 inches in size. Air pockets/voids throughout core run. Pieces of steel plate at 74.1 and 75.5 feet (3/4 inch thick) parallel and at an approximate 45 degree angle. Fractures are along interface of gravel and cement. RQD: 4.0 / 5.0 = 80% | |
| 80 | | | | C15 | 5.0 [100] | 77.5 | Brownish gray, CONCRETE, sound, with fine gravel, some coarse gravel, rounded to subangular in shape, trace angular. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. Some air pockets/void throughout core run. Some gravel shows iron staining at contact with cement. Vugs and pitting of gravel and cement at 80.7 feet. Trace amount of coarse gravel is 3 inches in size. Fractures are along interface of gravel and cement. RQD: 4.9 / 5.0 = 98% | |
| 85 | | | | C16 | 5.0 [100] | 82.5 | Brownish gray, CONCRETE, sound to slightly fractured, with fine to coarse gravel, rounded to subangular in shape. Gravel is a mixture of granite, metasilstone, trace schist. Cold joints at 85.0 and 88.5 feet. From 83.9 to end of run at 87.5 feet, cold joint, vertical to core run. RQD: 4.9 / 5.0 = 98% | |
| 90 | | | | C17 | 5.0 [100] | 87.5 | Brownish gray, sound to slightly fractured, with fine gravel, some coarse gravel, rounded to subangular in shape, trace angular. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. Some air pockets/void throughout core run. From 87.5 to 90.1 feet, cold joint, vertical to core run. Possible cold joint horizontal to core run at 90.1 feet to 90.8 feet. Vugs at 86.7 feet. From 90.1 to 90.8 feet, area has vugs and pitting around gravel and cement contact. Fractures are along the interface of gravel and cement. RQD: 3.9 / 5.0 = 78% | |
| 95 | | | | C18 | 5.0 [100] | 92.5 | Brownish gray, CONCRETE, sound to slightly fractured, with fine gravel, some coarse gravel, rounded to subangular in shape, trace angular. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. At 93.0 feet, cement is soft, breaks with finger pressure, with vugs. Possible cold joint at 94.5 feet. Fractures are along the interface of gravel and cement. RQD: 4.7 / 5.0 = 94% | |
| 100 | | | | C19 | 5.0 [100] | 97.5 | Brownish gray, CONCRETE, sound, with fine and coarse gravel, rounded to subangular in shape. Gravel is a mixture of granite, gneiss, metasilstone, trace schist. Possible cold joint at 105.0 feet. Fractures are along the interface of gravel and cement. Trace amount of coarse gravel 3 inches in size. RQD: 4.7 / 5.0 = 94% | |

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TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION



BORING NO. C2

SHEET NO. 4 OF 4

STA. _____ OFF. _____

BASELINE US-1 CL

ELEVATION (ft) 31.2

PROJECT NAME **PORTSMOUTH-KITTERY 13678F** BRIDGE NO. 247-084
DESCRIPTION Replacement of US-1 Memorial Bridge

| DEPTH (ft) | STRATUM CHANGE (ft) | | BLOWS PER 0.5 ft | SAMPLE NUMBER | SAMPLER RECOVERY (ft) [%] | DEPTH RANGE (ft) | FIELD CLASSIFICATION AND REMARKS | STRATUM SYMBOL |
|------------|---------------------|-----------|------------------|---------------|---------------------------|------------------|---|----------------|
| | DEPTH | ELEVATION | | | | | | |
| 105 | 103.2 | -72.0 | | C20 | 5.0 [100] | 102.5 | <p style="text-align: center;">-APPROXIMATE BEDROCK SURFACE-</p> <p>Moderately hard, sound to extremely fractured, fresh to slightly weathered, dark gray, CALCAREOUS METASILTSTONE. Calcite stringers throughout core run. Several steep angle fractures along stringers, smooth in core run. Fractures are along moderately dipping foliation. RQD: 2.4 / 5.0 = 48%</p> | |
| | | | | | | 107.5 | | |
| 110 | | | | C21 | 5.0 [100] | 107.5 | <p>Moderately hard, sound to extremely fractured, fresh to slightly weathered, dark gray, CALCAREOUS METASILTSTONE. Calcite stringers throughout core run. Fractures are along calcite stringers. RQD: 3.0 / 5.0 = 60%</p> | |
| 115 | | | | | | 112.5 | Bottom of Exploration @ 112.5 ft (El. - 81.3) | |
| 120 | | | | | | | | |
| 125 | | | | | | | | |
| 130 | | | | | | | | |
| 135 | | | | | | | | |

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