Attachment 3

Information used to guide High Resolution Core Location Selection Including:

Sedimentation Rates

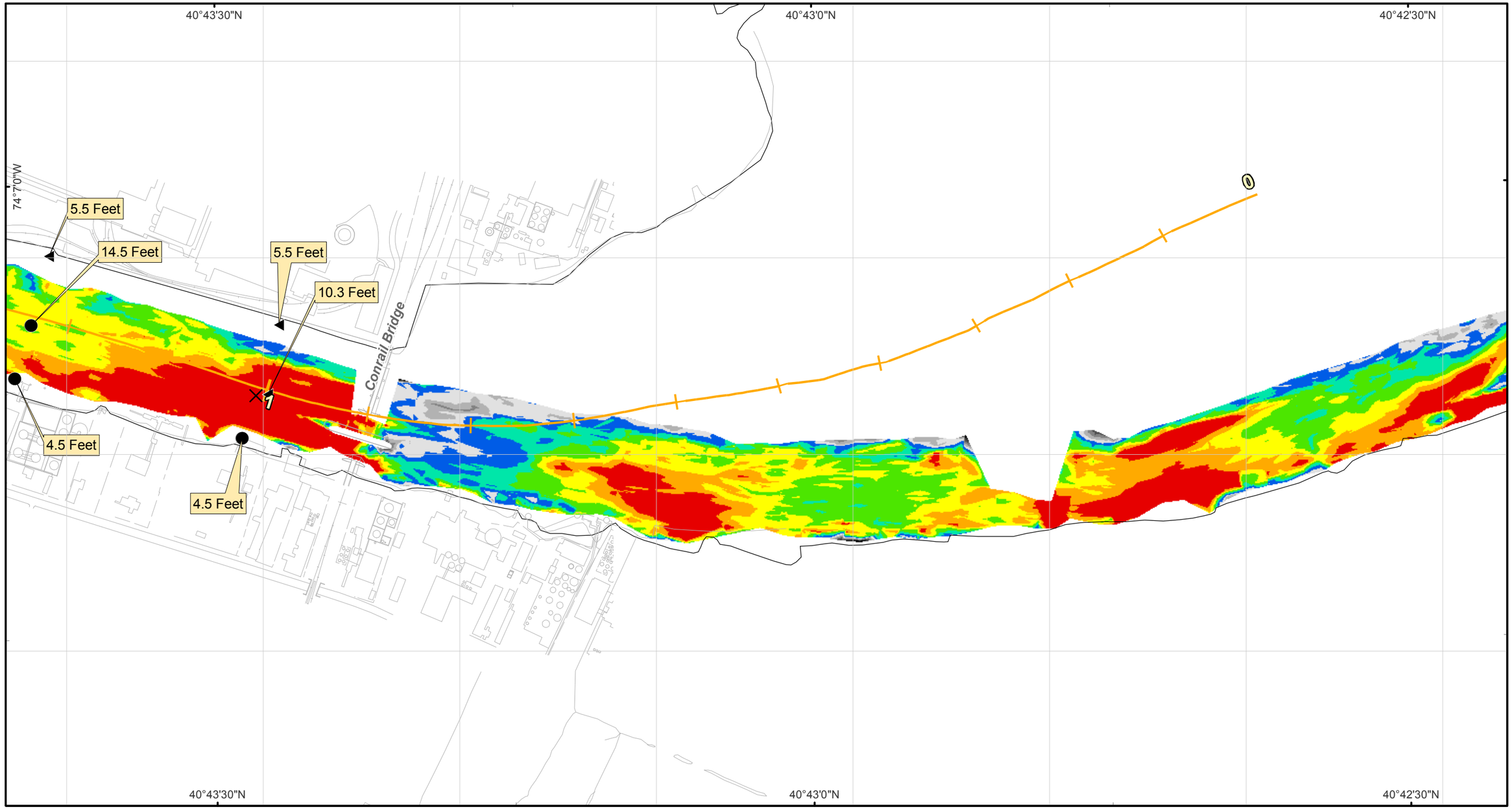
Surface Sediment Texture

Fence Diagrams

2005 Sediment Sampling and Radiological Results

Sedimentation Rates

One-mile-per-plate map book containing (1) sedimentation rates calculated using the 1989 and 2004 bathymetric surveys [refer to Attachment B of the Work Plan (Malcolm Pirnie, Inc. 2005a) for more details on method] and (2) depth of total DDT contamination calculated using the Tierra Solutions, Inc. 1995 data set [refer to Section 4.2.2 of the Field Sampling Plan Volume 1 (Malcolm Pirnie, Inc. 2005b) for more details on method]. Note that sedimentation data extend to RM 15 and total DDT data extend to RM 6.7.



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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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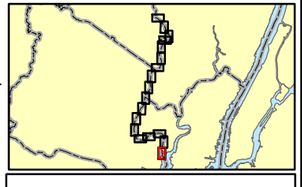
Bathymetric Control Data:
Benchmark: X 71 (NGS PID: KV0256)
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 0 to 1

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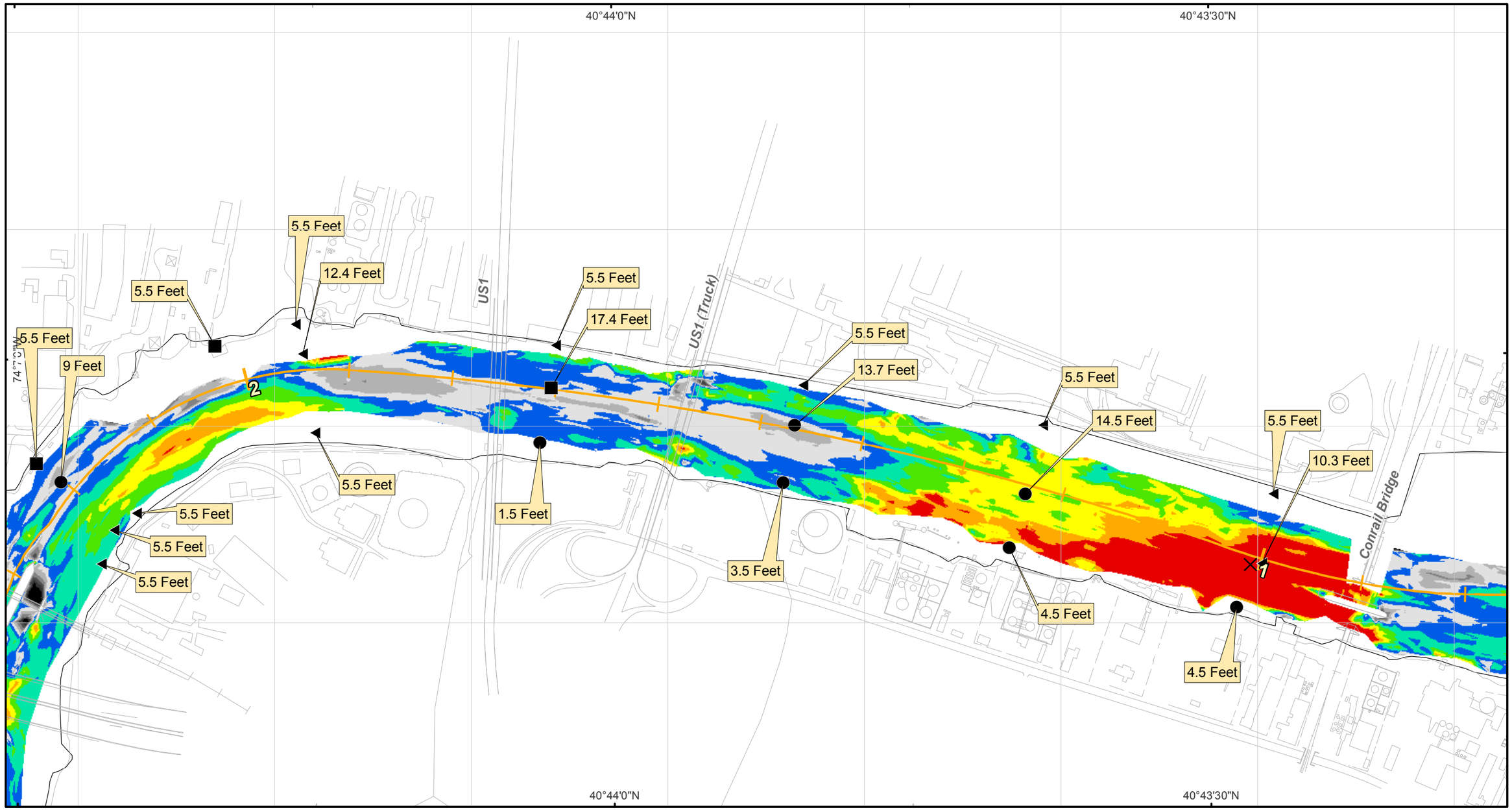

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

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- Incomplete Declining Core
- No Data

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River Mile Post

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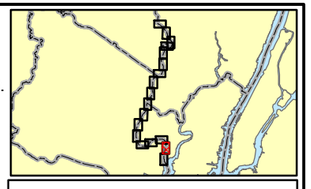

Mile 1 to 2

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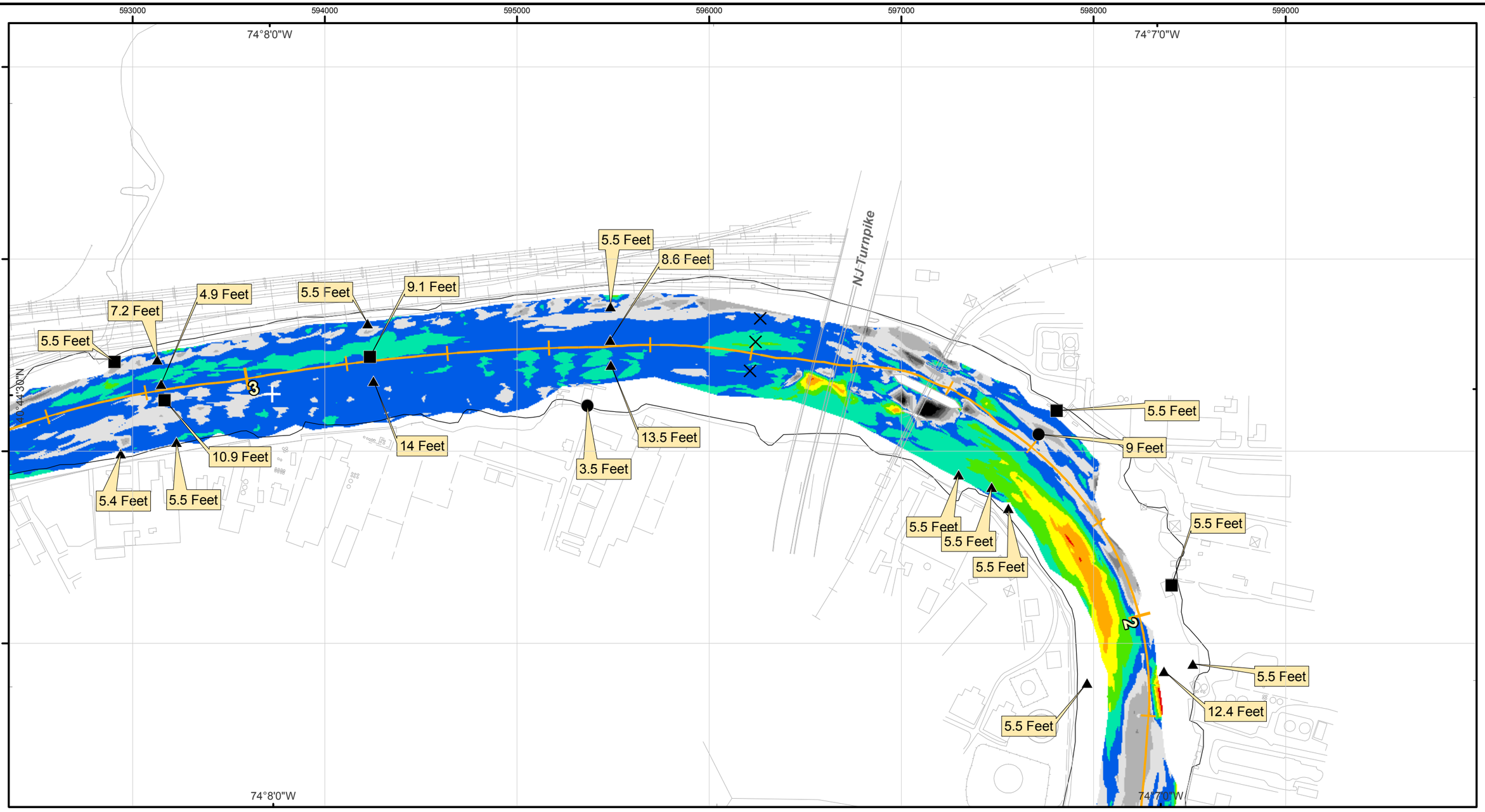

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

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- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

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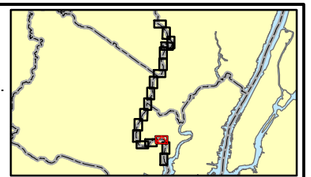

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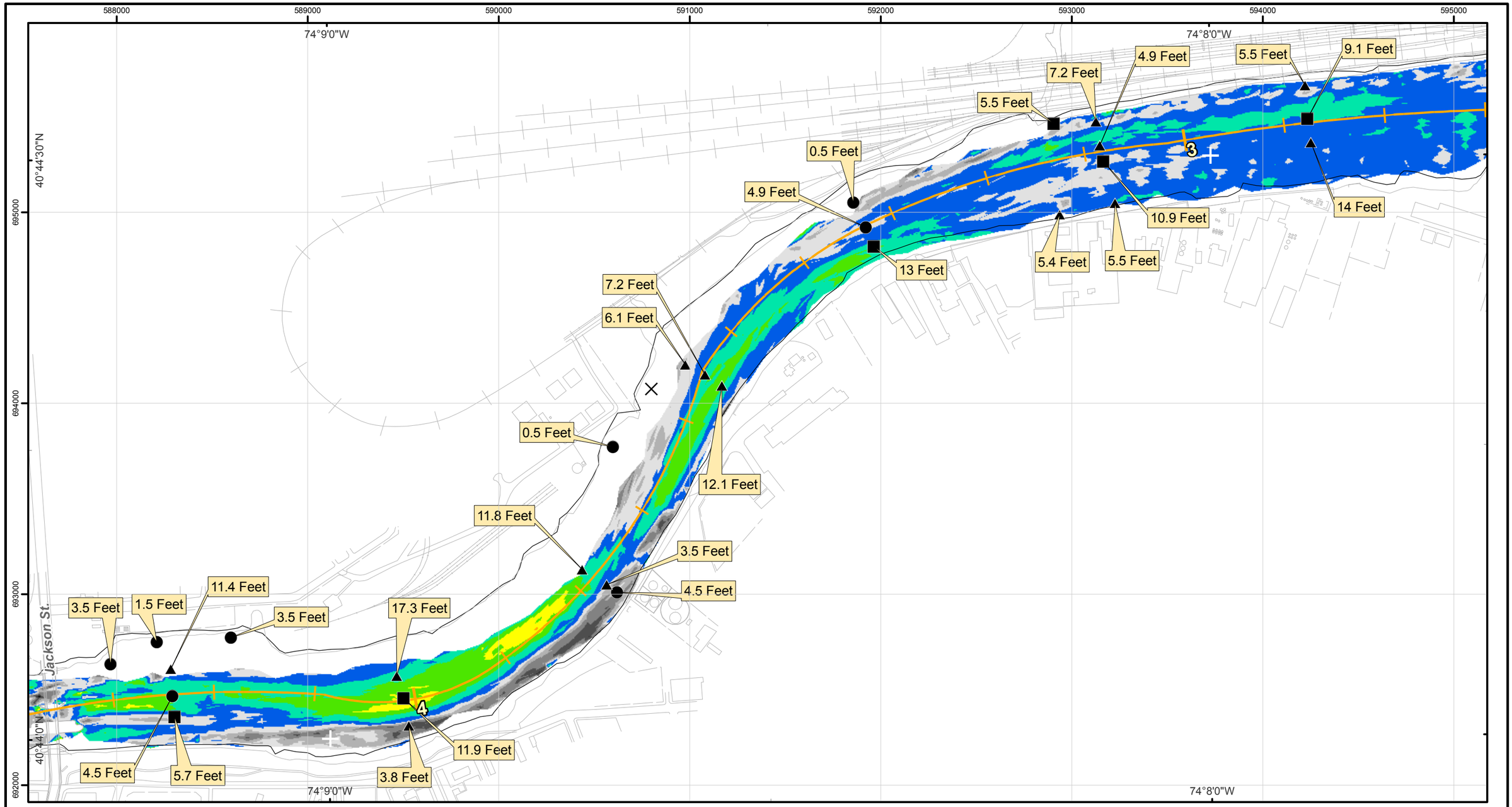

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

< -5	0 to 1
-5 to -4	1 to 2
-4 to -3	2 to 3
-3 to -2	3 to 4
-2 to -1	4 to 5
-1 to 0	> 5

Total DDT Coring Location
- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

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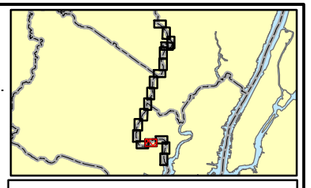

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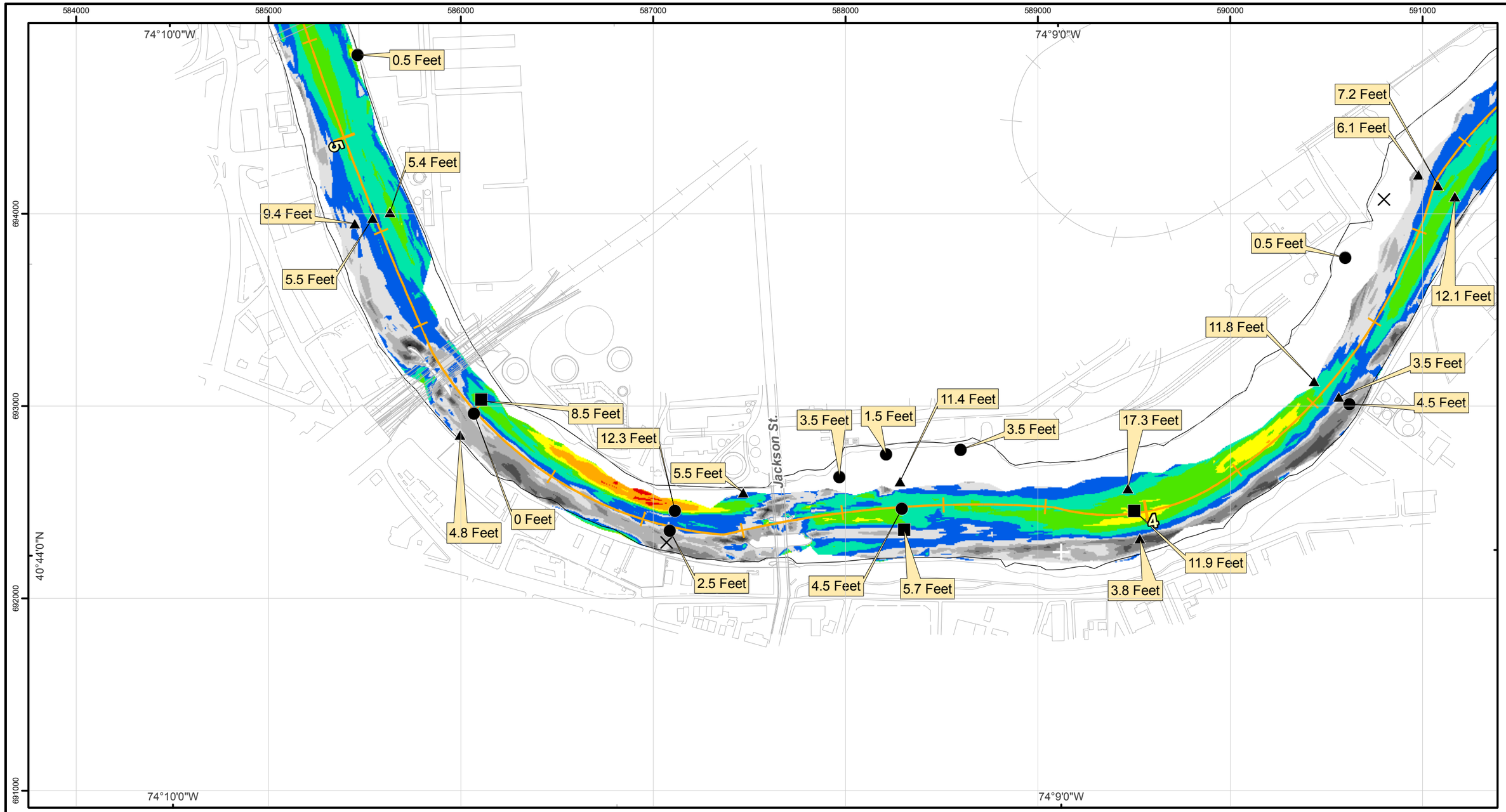

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

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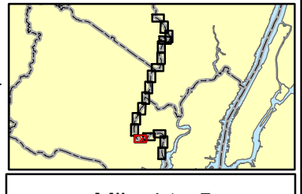

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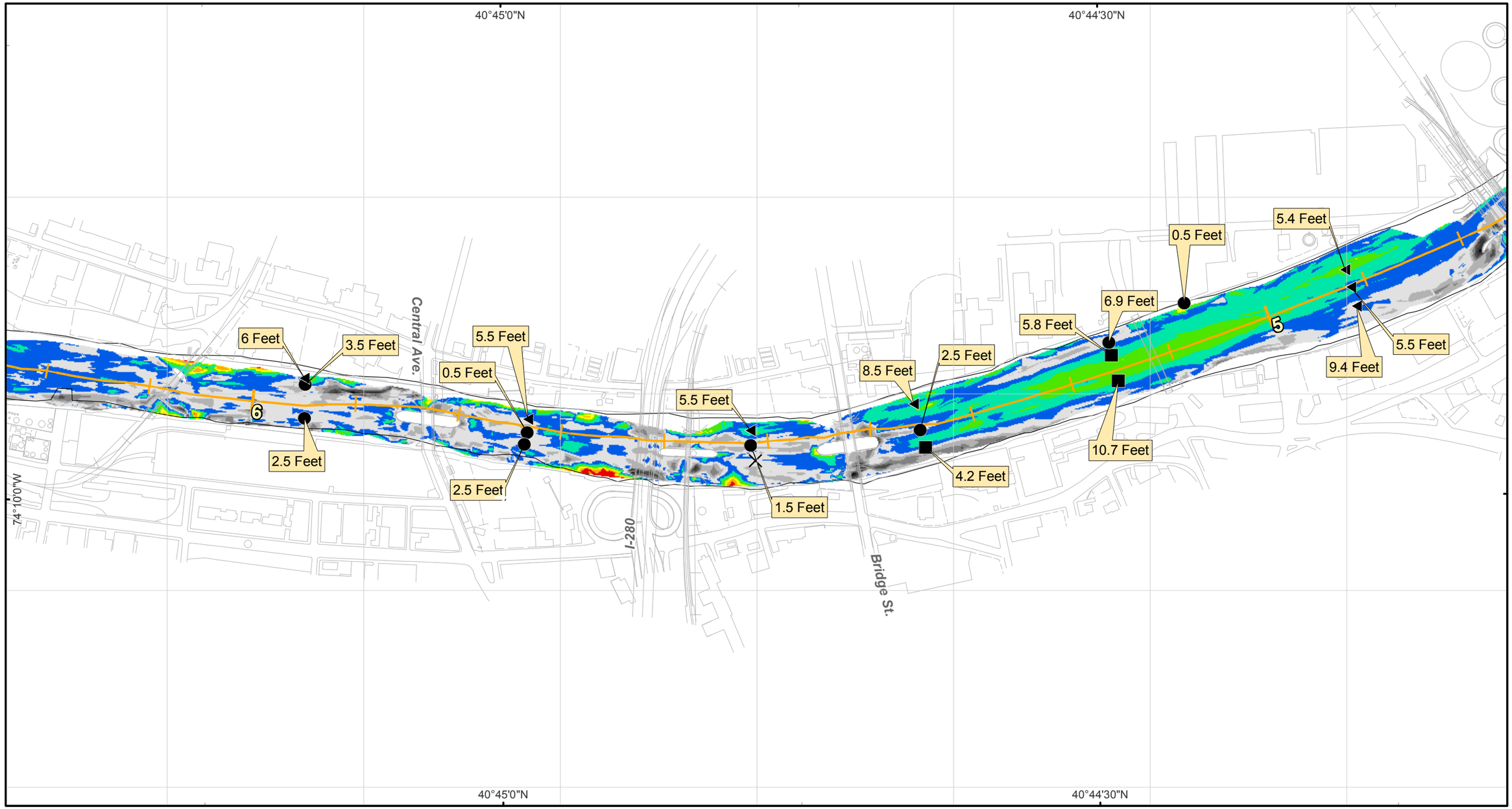

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

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Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

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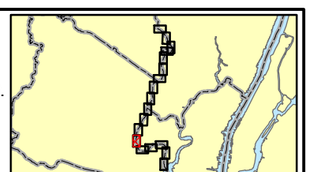

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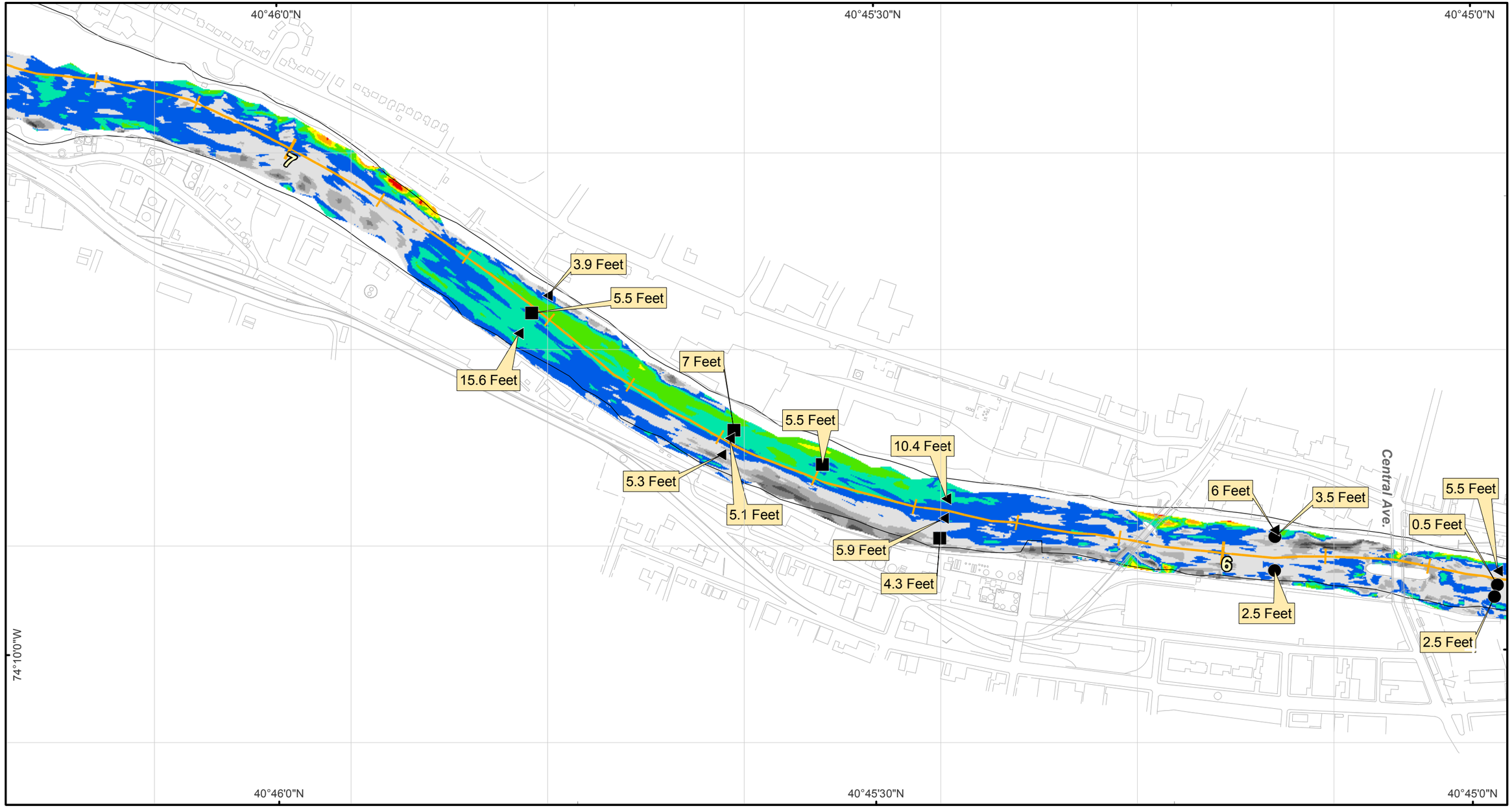

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

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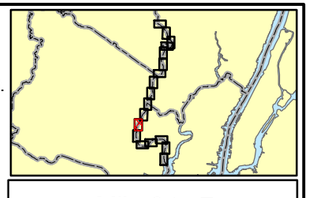

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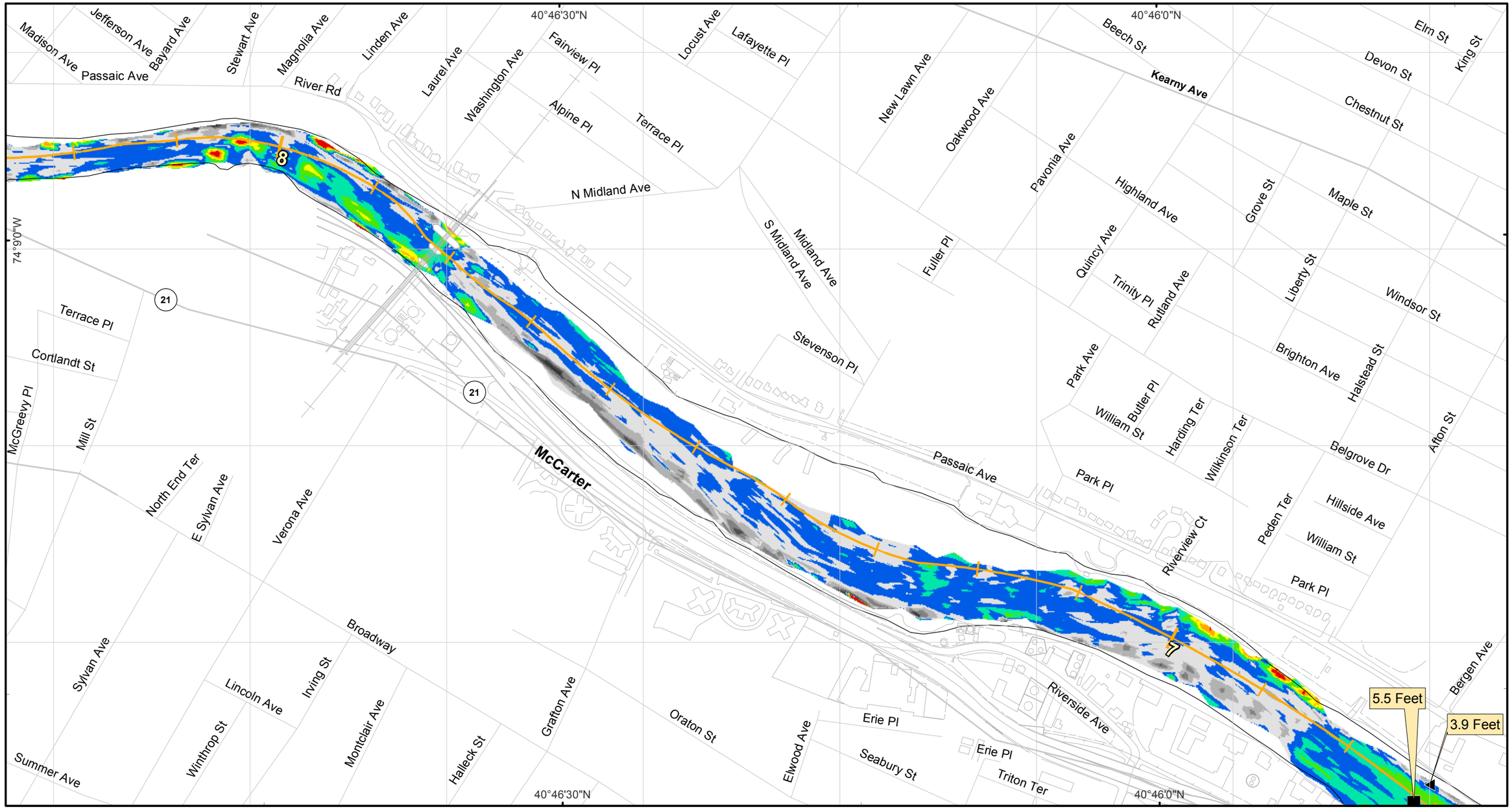

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

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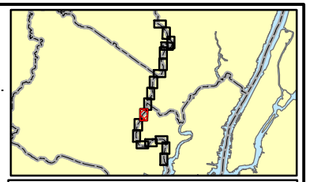

Mile 7 to 8

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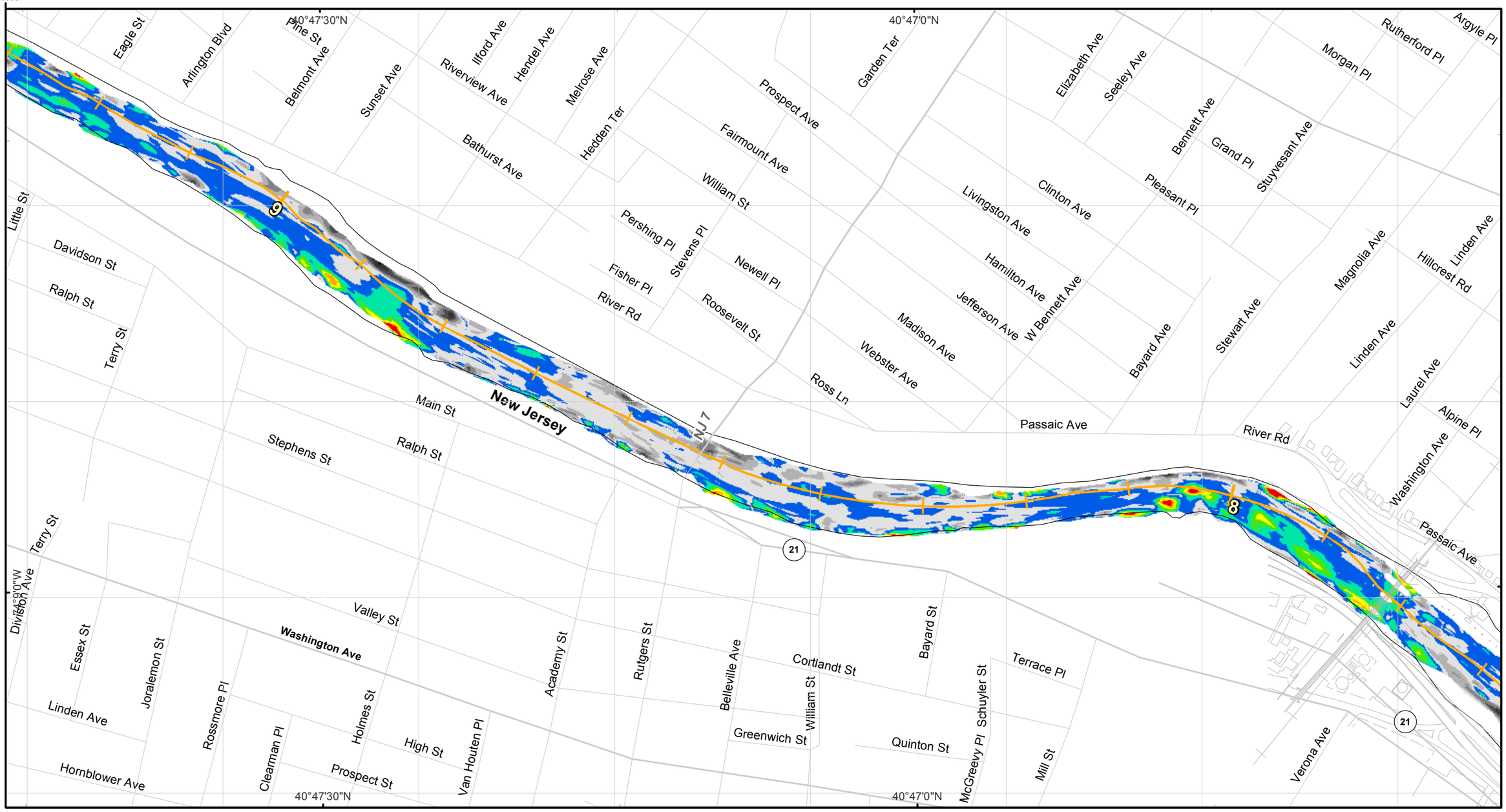

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

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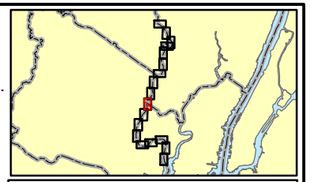

Mile 8 to 9

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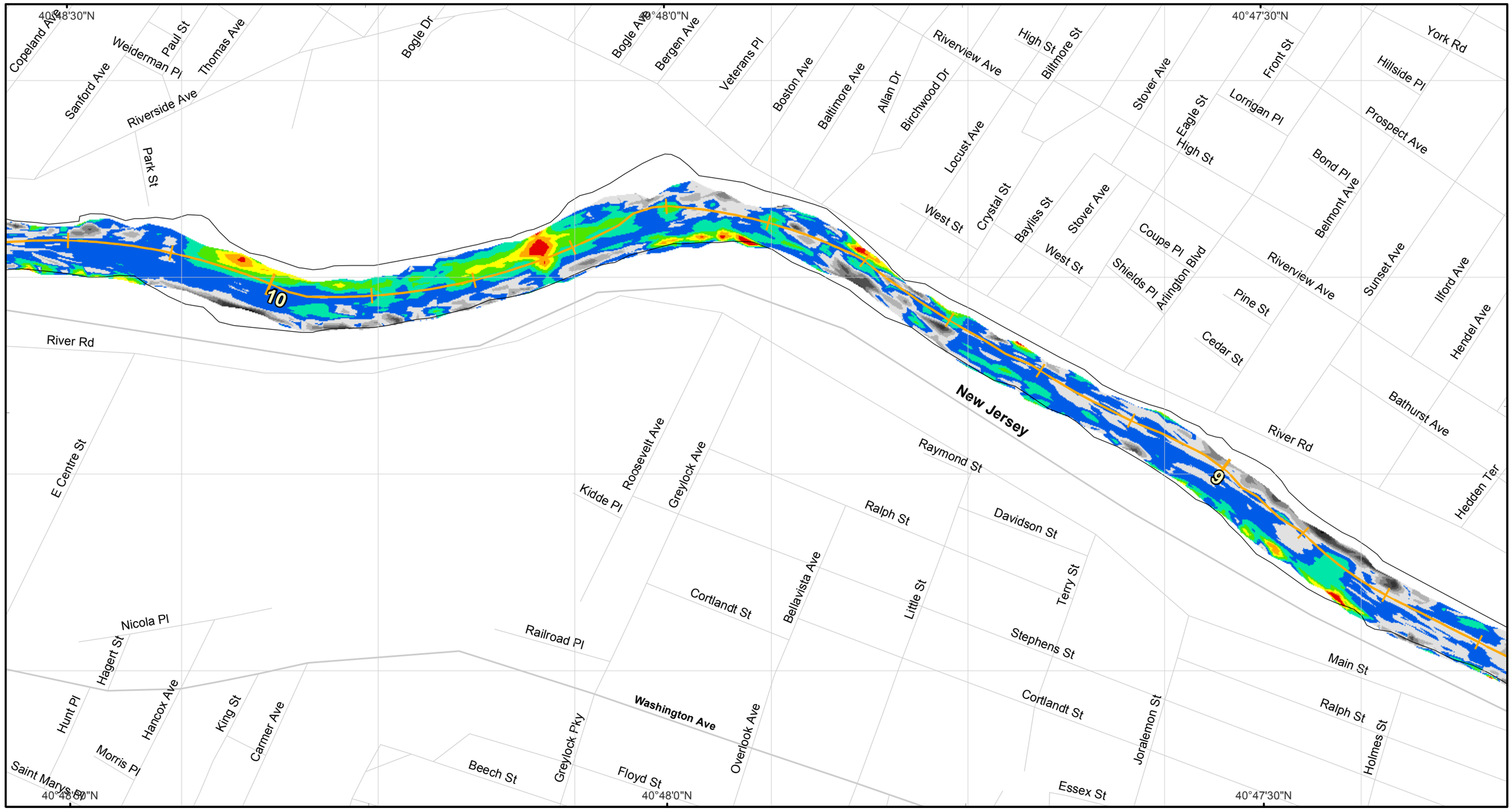

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
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- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

- River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

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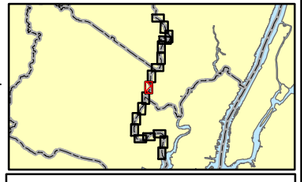

Mile 9 to 10

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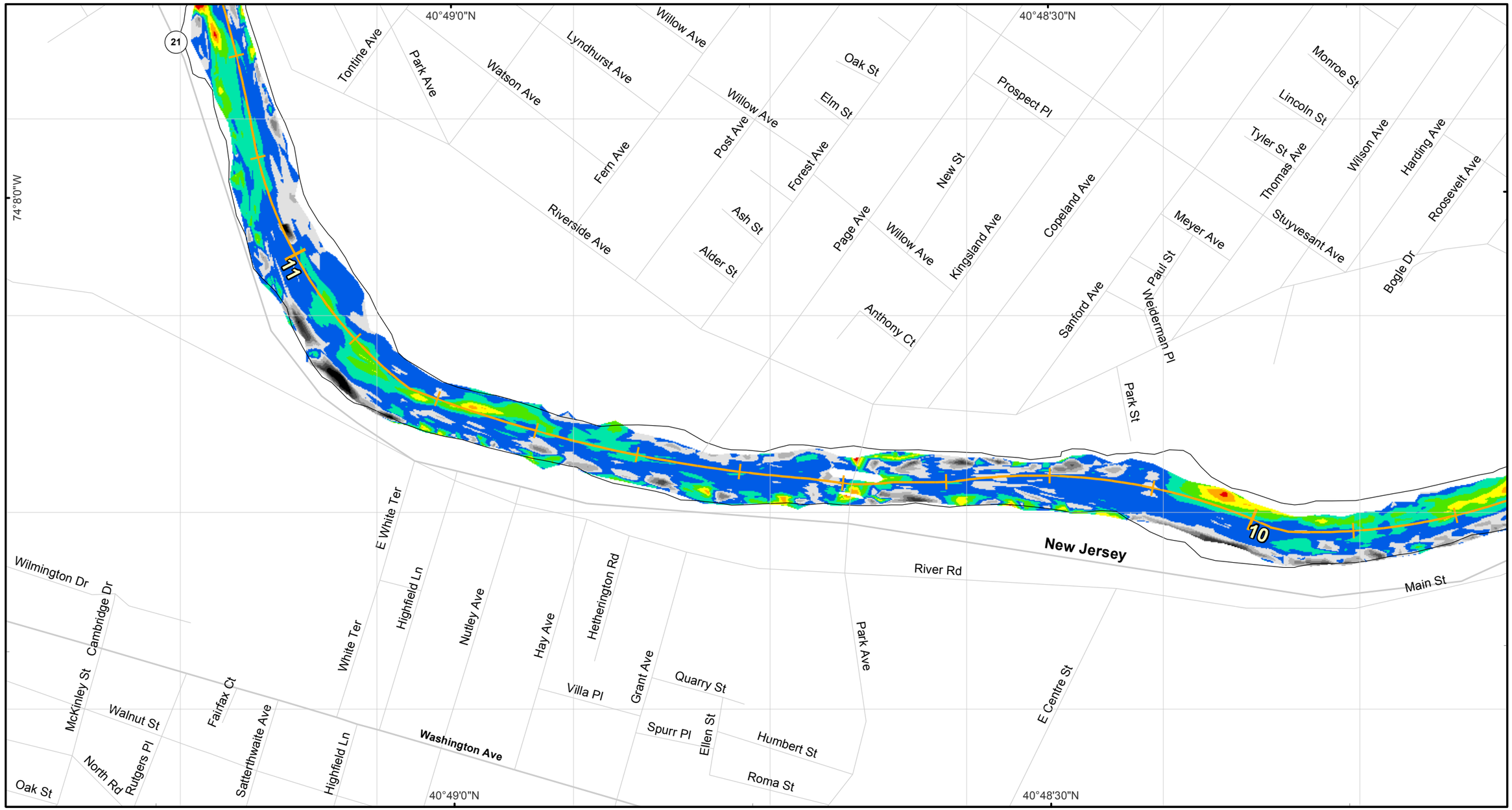

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Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

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- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

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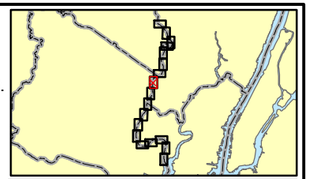

Mile 10 to 11

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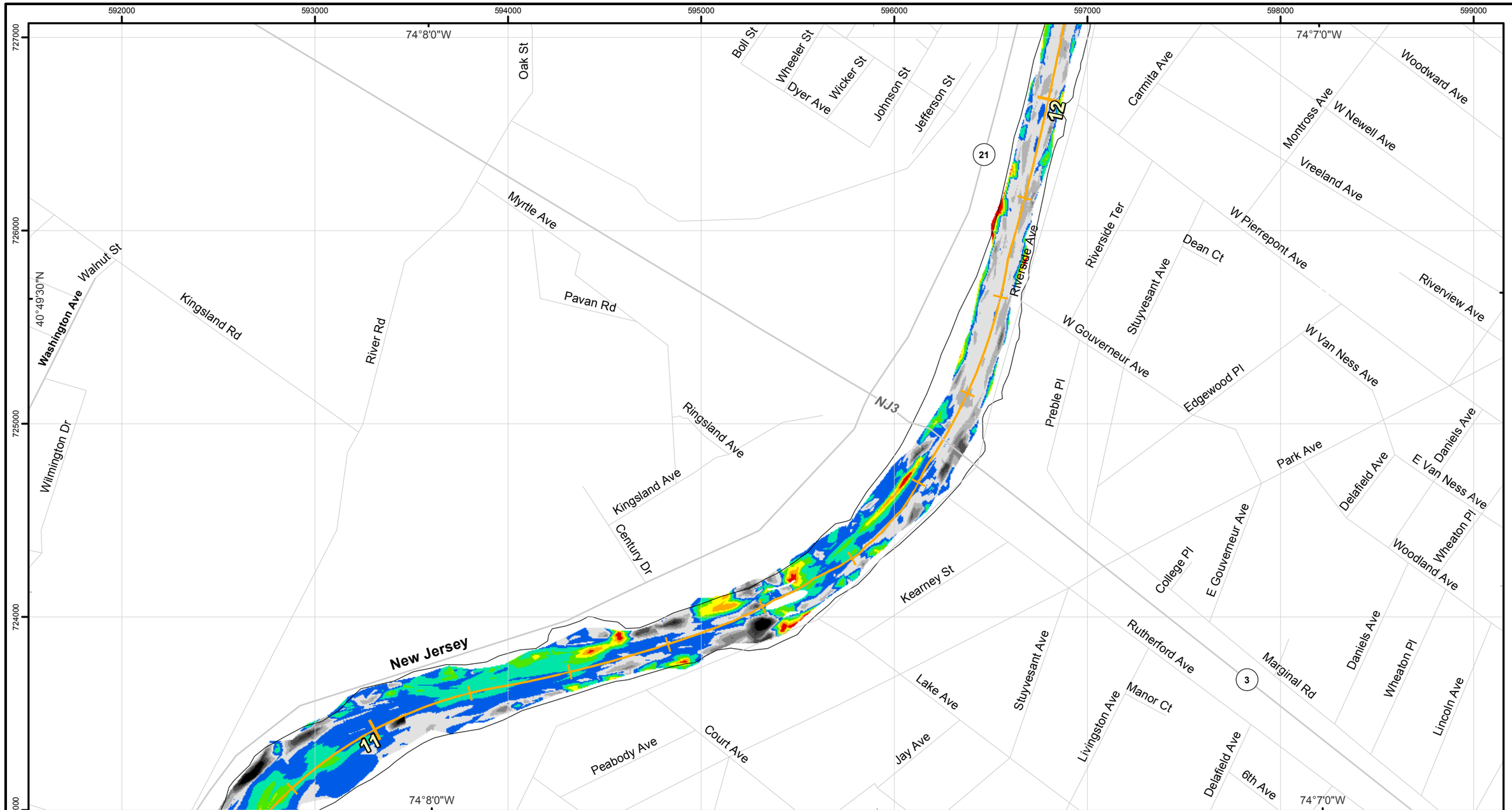

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Sedimentation Rate
Inches per Year

- < -5
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- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

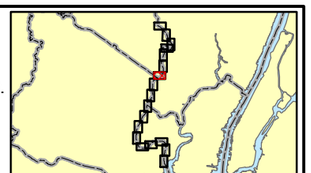
0 250 500 1,000

1 " equals 500 '

A Triangulated Irregular Network (TIN) was derived from the survey points using ESRI's 3-D Analyst in ArcGIS. Contours were interpolated from the TIN, also in 3-D Analyst.

Bathymetric Control Data:
Benchmark: X 71 (NGS PID: KV0256)
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 11 to 12

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sedimentation_Rate_GeochemEval_November_2005.mxd)
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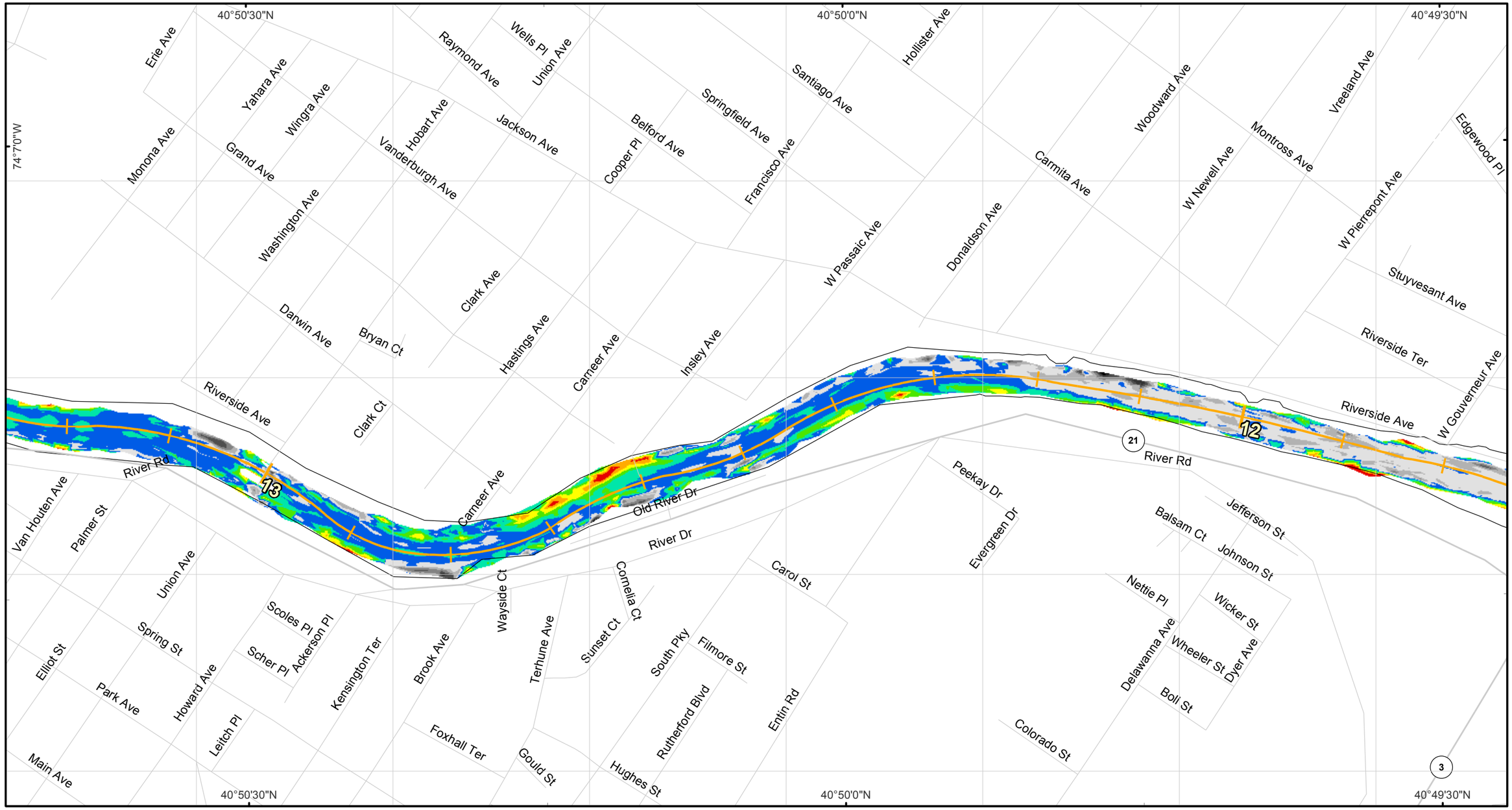


US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

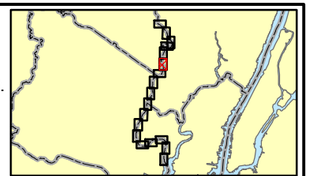
0 250 500 1,000

1 " equals 500 '

A Triangulated Irregular Network (TIN) was derived from the survey points using ESRI's 3-D Analyst in ArcGIS. Contours were interpolated from the TIN, also in 3-D Analyst.

Bathymetric Control Data:
Benchmark: X 71 (NGS PID: KV0256)
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 12 to 13

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sedimentation_Rate_GeochemEval_November_2005.mxd)
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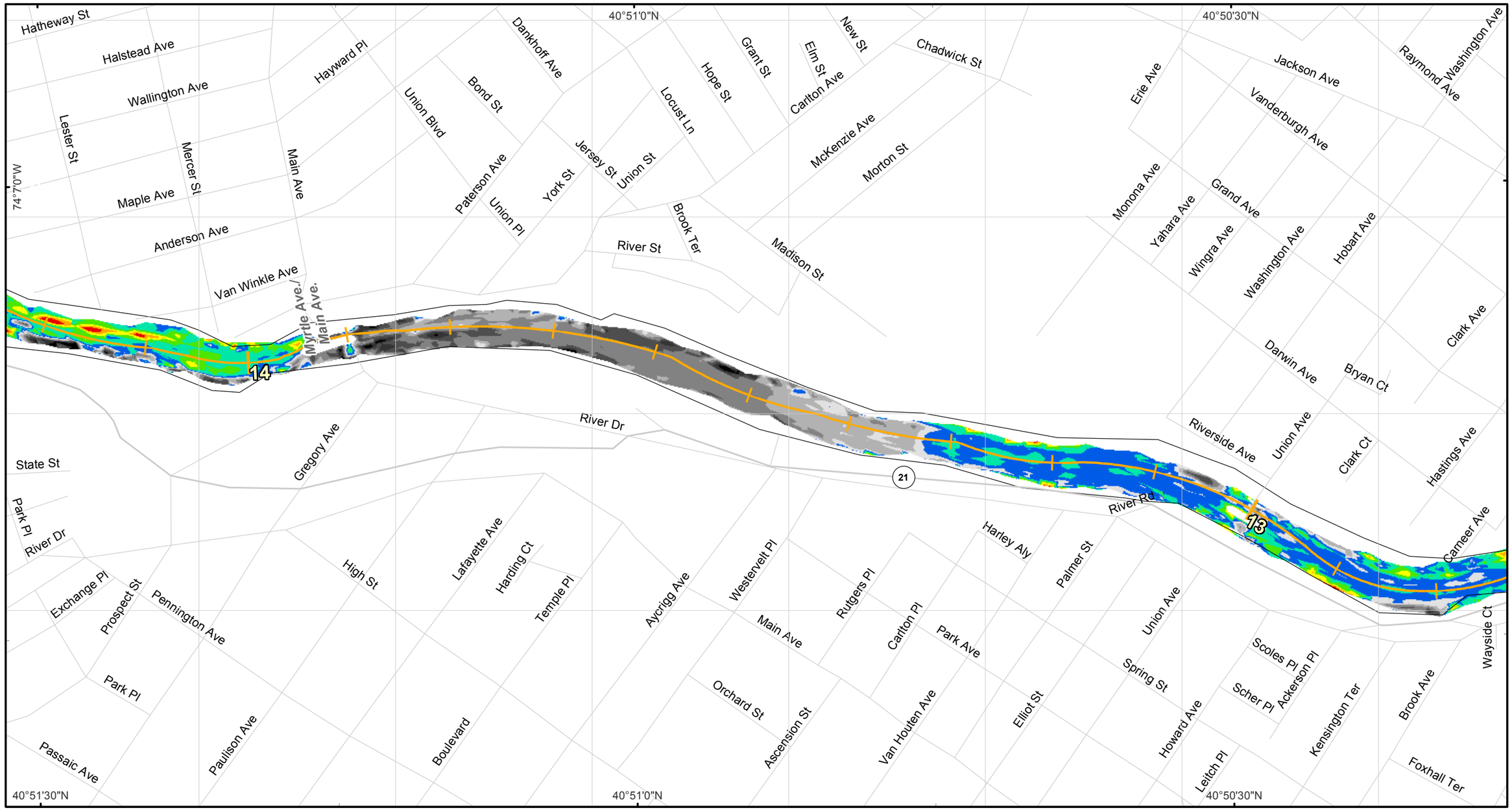

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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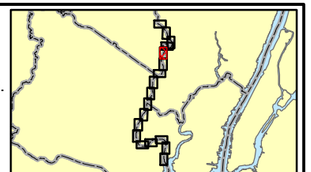
Bathymetric Control Data:
Benchmark: X 71 (NGS PID: KV0256)
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 13 to 14

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sedimentation_Rate_GeochemEval_November_2005.mxd)
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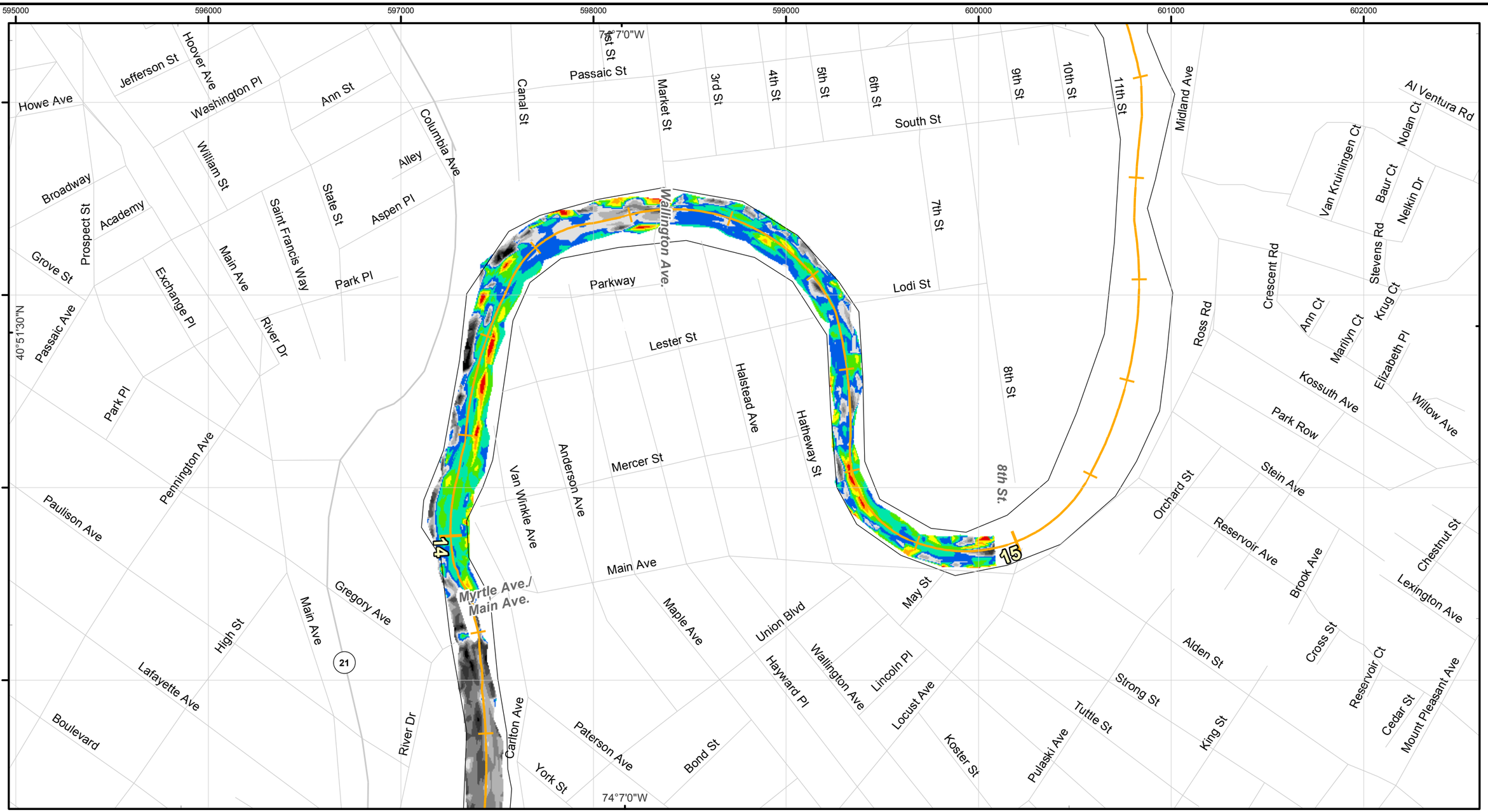

US Army Corps of Engineers

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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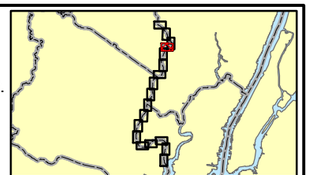
Bathymetric Control Data:
Benchmark: X 71 (NGS PID: KV0256)
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 14 to 15

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sedimentation_Rate_GeochemEval_November_2005.mxd)
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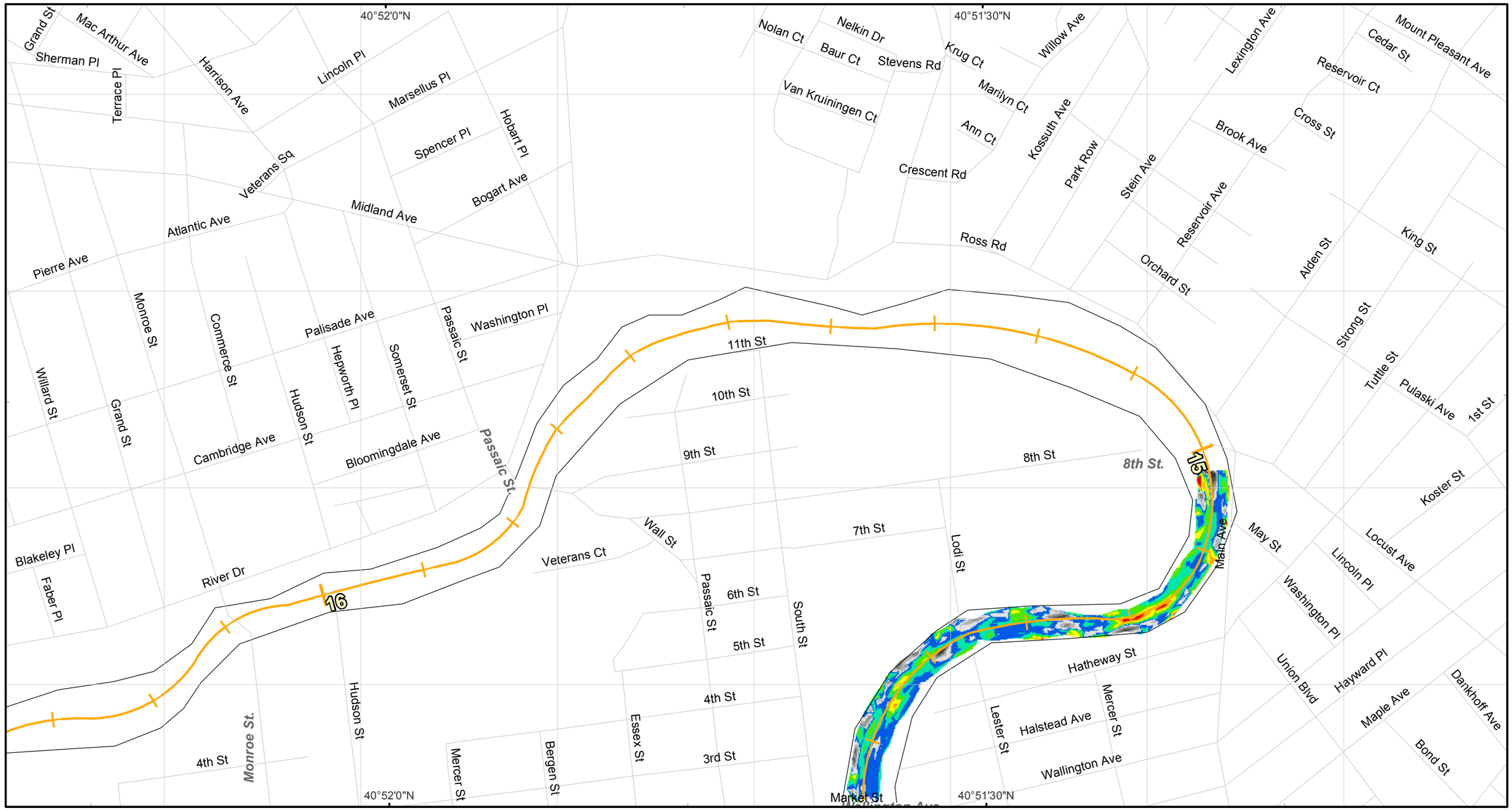

US Army Corps of Engineers

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

< -5	0 to 1
-5 to -4	1 to 2
-4 to -3	2 to 3
-3 to -2	3 to 4
-2 to -1	4 to 5
-1 to 0	> 5

Total DDT Coring Location
- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

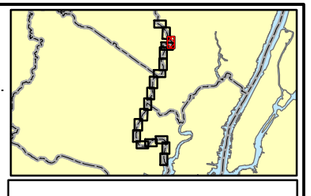
0 250 500 1,000

1 " equals 500 '

A Triangulated Irregular Network (TIN) was derived from the survey points using ESRI's 3-D Analyst in ArcGIS. Contours were interpolated from the TIN, also in 3-D Analyst.

Bathymetric Control Data:
Benchmark: X 71 (NGS PID: KV0256)
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 15 to 16

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sedimentation_Rate_GeochemEval_November_2005.mxd)
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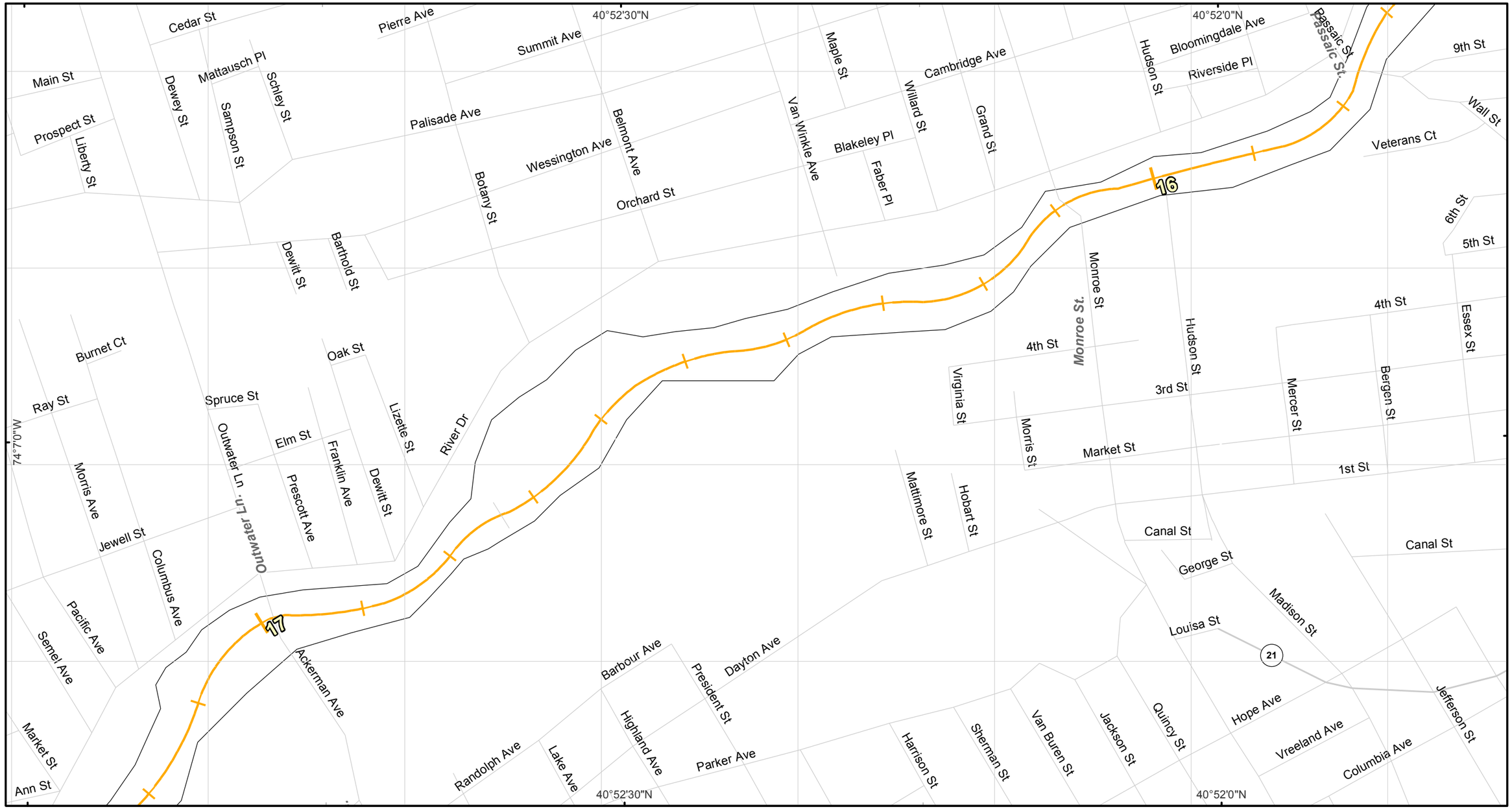

US Army Corps of Engineers

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

A Triangulated Irregular Network (TIN) was derived from the survey points using ESRI's 3-D Analyst in ArcGIS. Contours were interpolated from the TIN, also in 3-D Analyst.

Bathymetric Control Data:
Benchmark: X 71 (NGS PID: KV0256)
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)

Mile 16 to 17

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sedimentation_Rate_GeochemEval_November_2005.mxd)
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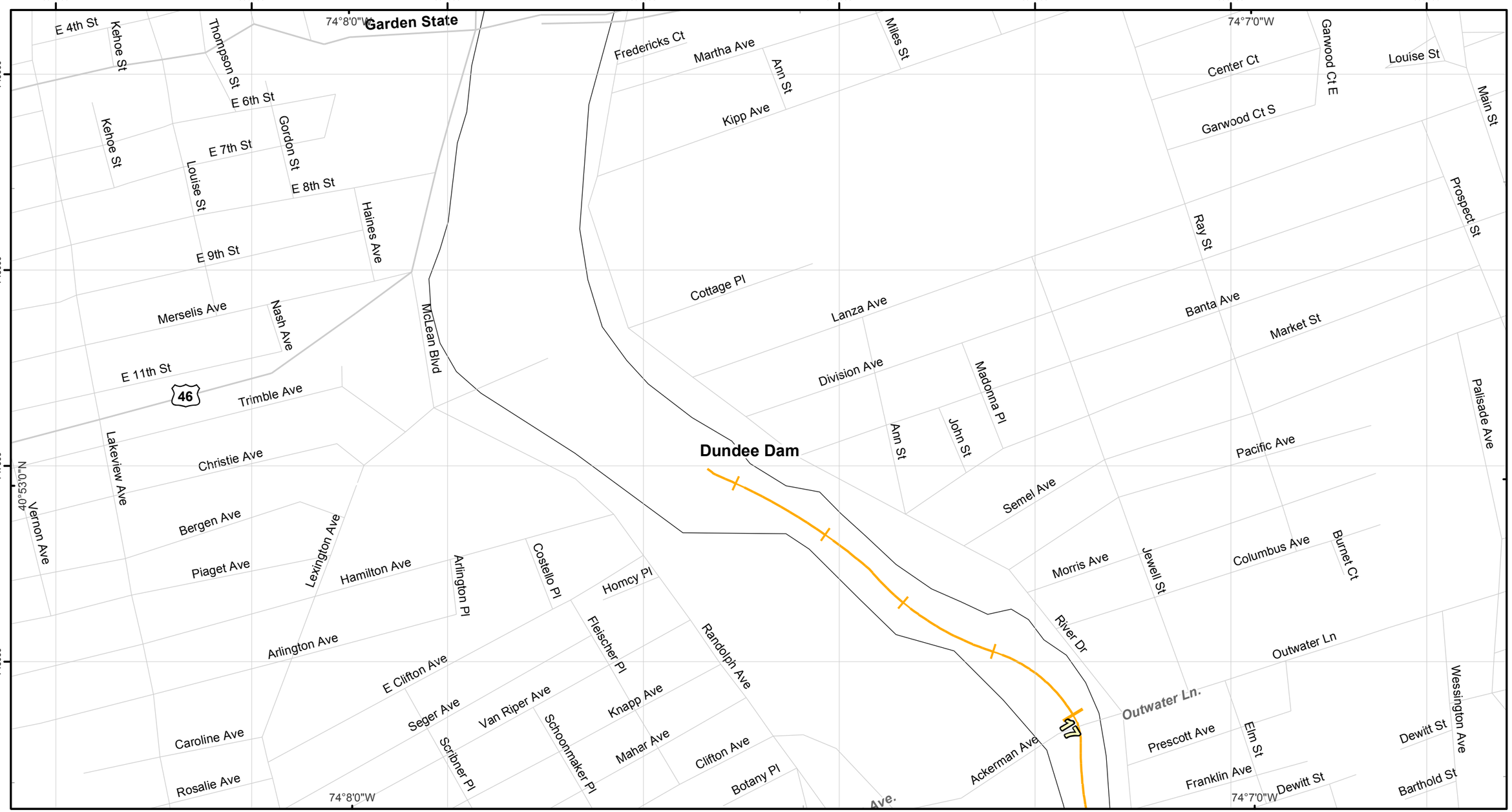

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004) & Depth of Total DDT Contamination

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

Total DDT Coring Location

- Complete Core
- Incomplete Rising Core
- Incomplete Declining Core
- No Data

Depth of Contamination (Feet) marked in call-out boxes.

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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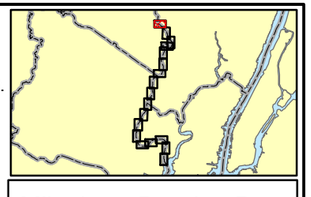
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)

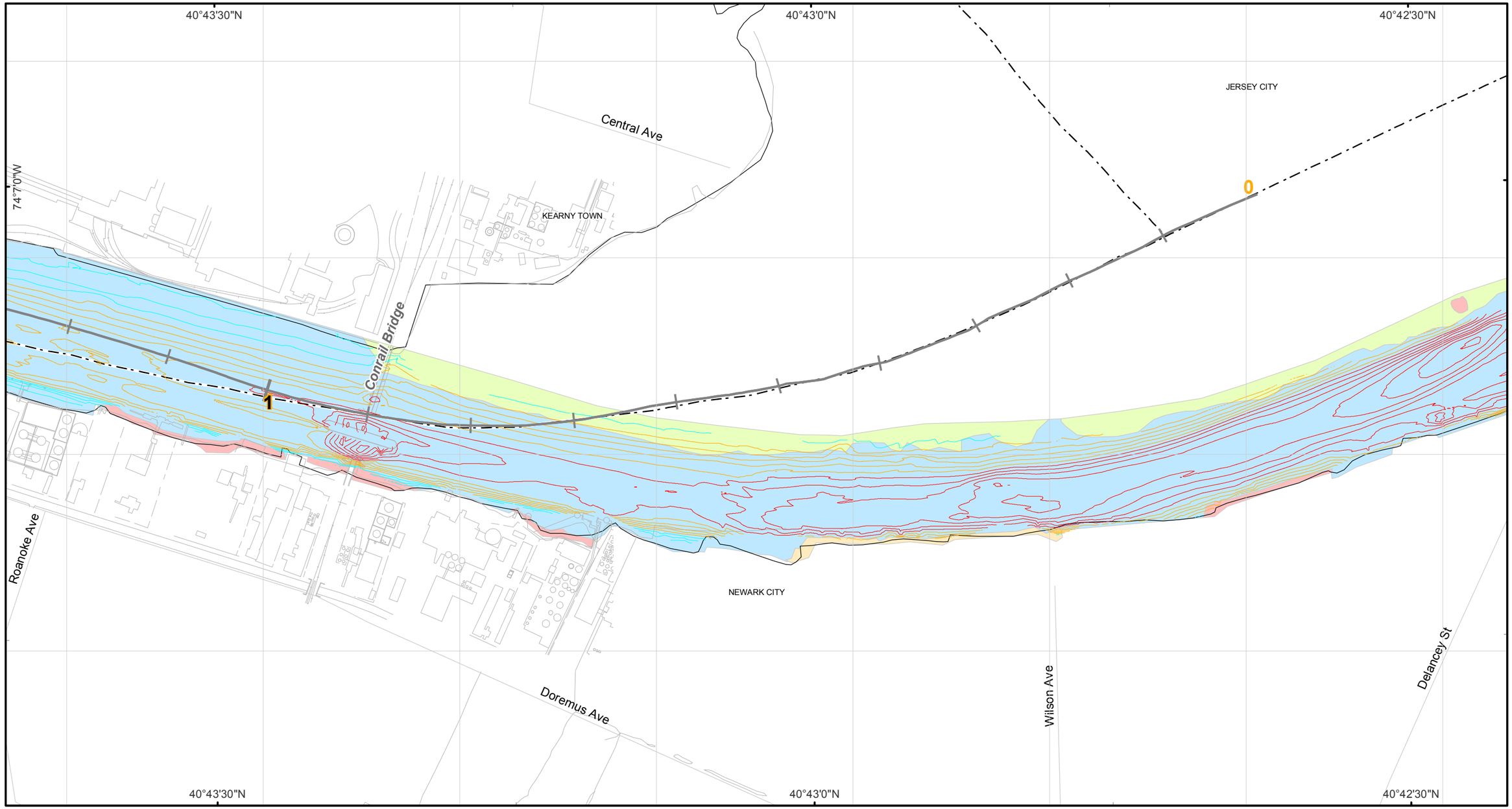


Mile 17 to Dundee Dam

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sedimentation_Rate_GeochemEval_November_2005.mxd)
10/26/2005 -- 1:08:41 PM

Surficial Sediment Texture

One-mile-per-plate map book containing (1) surficial sediment texture as interpreted by Aqua Survey, Inc. during their June 2005 geophysical survey [refer to the Draft Technical Report: Geophysical Survey (Aqua Survey, Inc., 2005) for more information] and (2) the 2004 USACE bathymetric survey displayed as elevation (feet) relative to NGVD29. Note that the sediment texture data extend to RM 16.1 and the elevation data extend to the Dundee Dam at RM 17.4.



US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

Legend

- Rock and Coarse gravel
- Gravel and Sand
- Sand
- Silt and Sand
- Silt
- River Mile Post

2004 USACE Bathymetric Survey

Elevation (Feet) Relative to NGVD29

- -30 to -20
- -18 to -10
- -8 to 0
- 2 to 10

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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Bathymetric Control Data:
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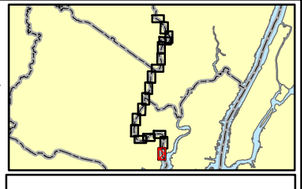
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 0 to 1

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sediment_Texture_Geophysical_Memo_October_2005.mxd)
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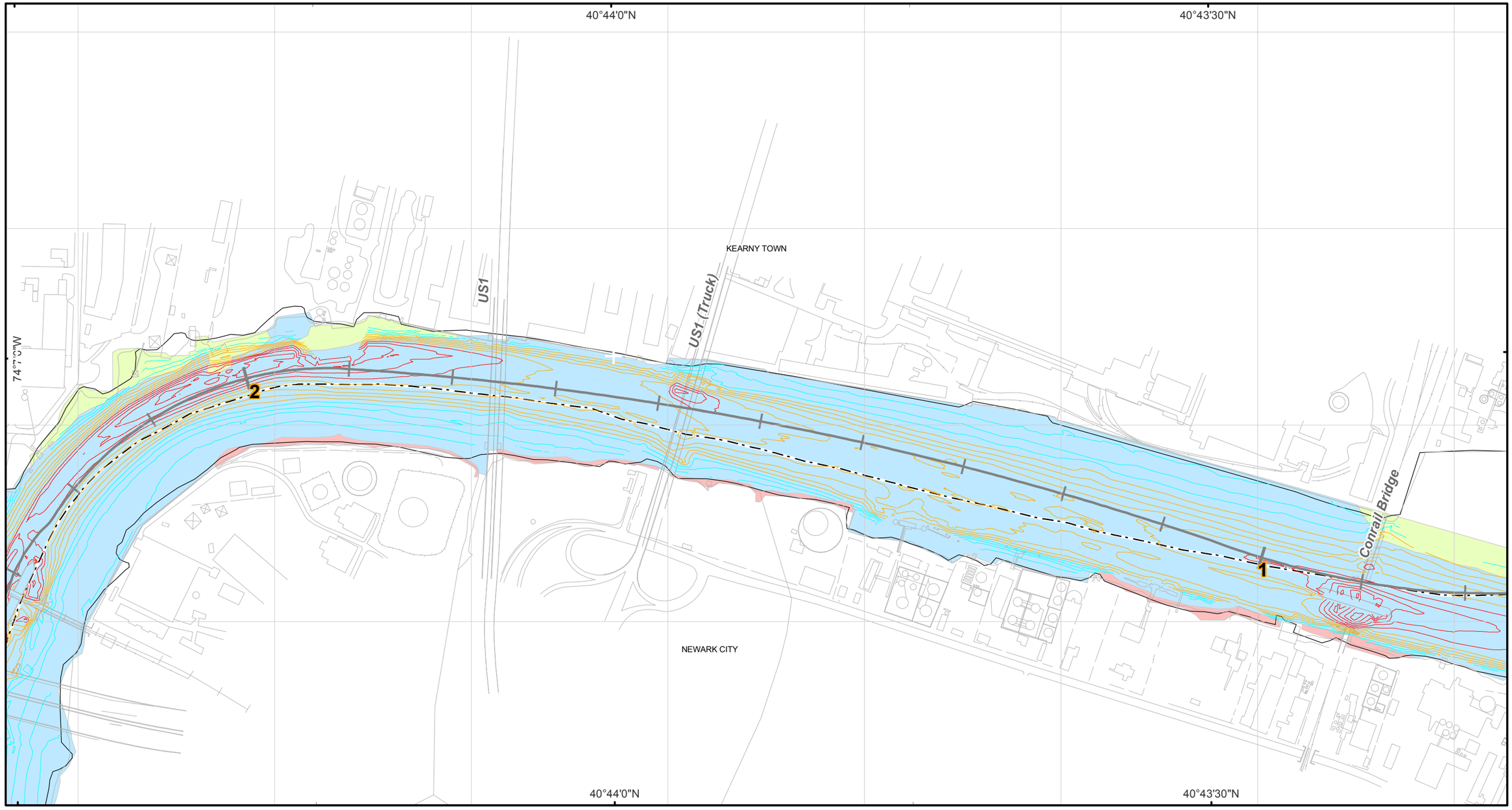

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

Legend

- Rock and Coarse gravel
- Gravel and Sand
- Sand
- Silt and Sand
- Silt
- River Mile Post

2004 USACE Bathymetric Survey

Elevation (Feet) Relative to NGVD29

- -30 to -20
- -18 to -10
- -8 to 0
- 2 to 10

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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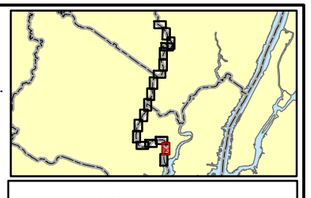
Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 1 to 2

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sediment_Texture_Geophysical_Memo_October_2005.mxd)
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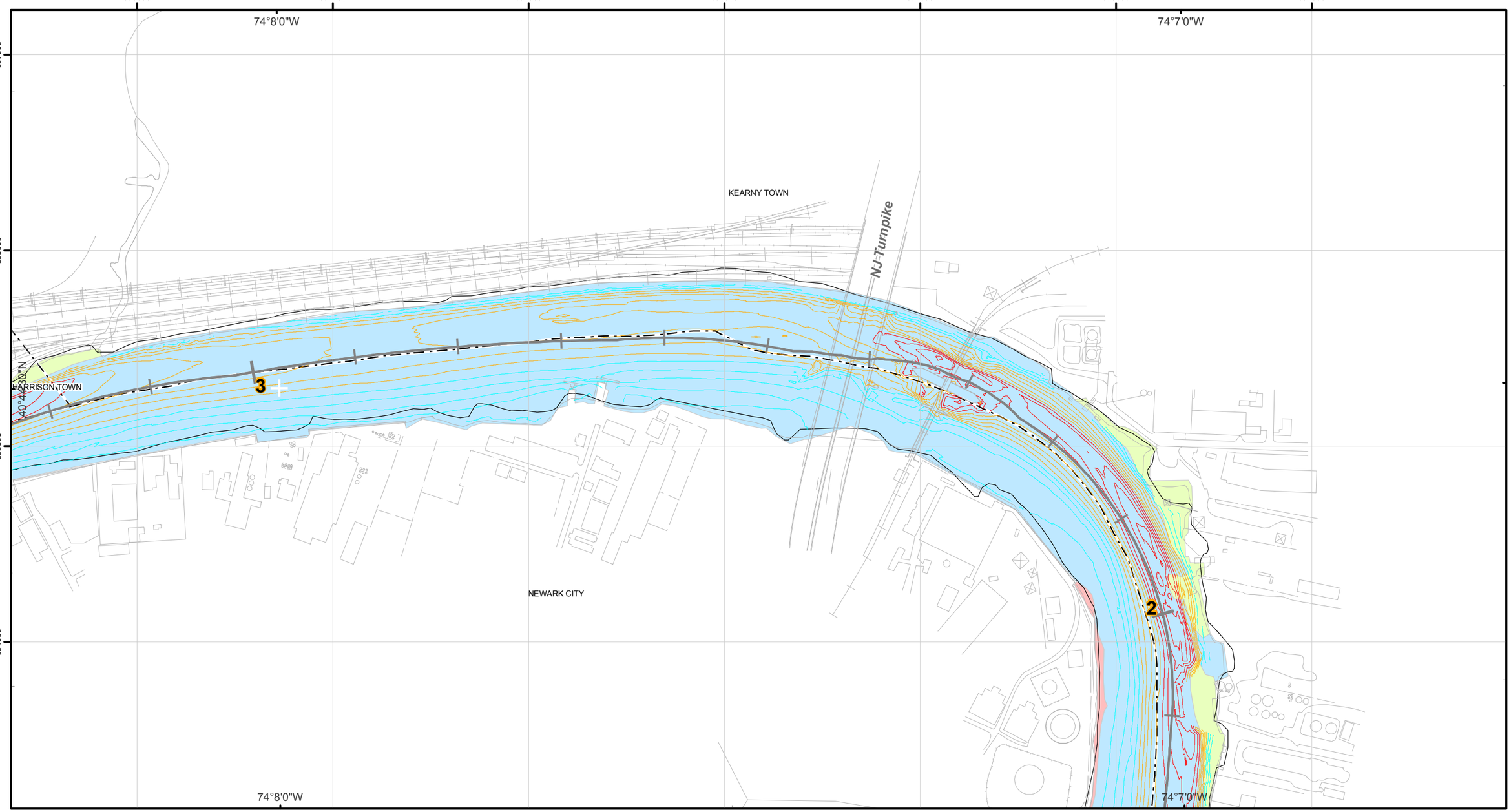

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

US Army Corps of Engineers

MALCOLM PIRNIE

Legend

- Rock and Coarse gravel
- Gravel and Sand
- Sand
- Silt and Sand
- Silt
- River Mile Post

2004 USACE Bathymetric Survey

Elevation (Feet) Relative to NGVD29

- -30 to -20
- -18 to -10
- -8 to 0
- 2 to 10

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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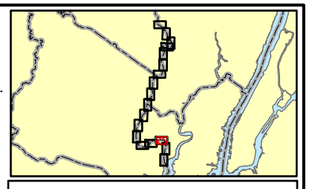
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 2 to 3

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sediment_Texture_Geophysical_Memo_October_2005.mxd)
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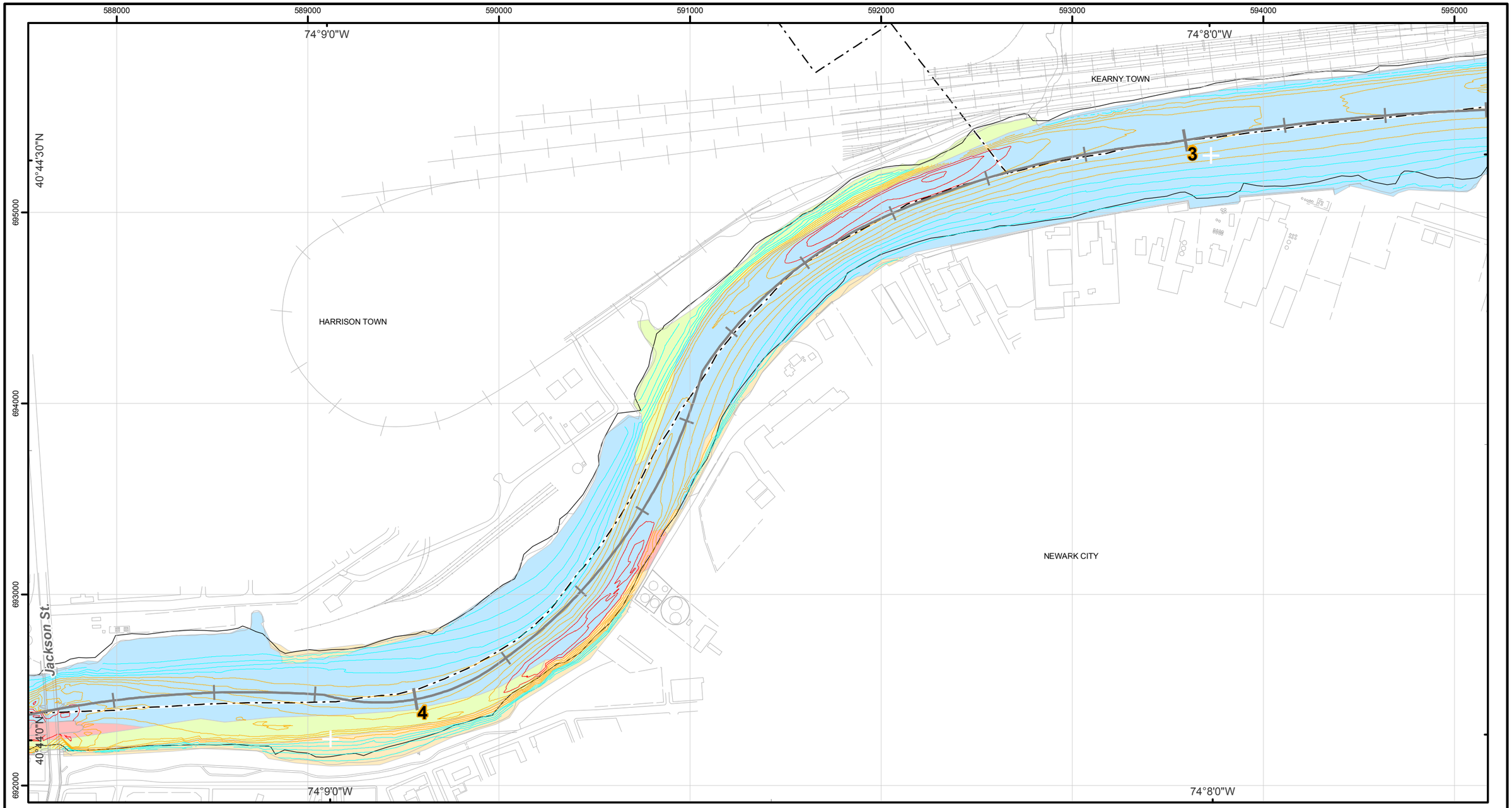

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

US Army Corps of Engineers

MALCOLM PIRNIE

Legend

- Rock and Coarse gravel
- Gravel and Sand
- Sand
- Silt and Sand
- Silt
- River Mile Post

2004 USACE Bathymetric Survey

Elevation (Feet) Relative to NGVD29

- -30 to -20
- -18 to -10
- -8 to 0
- 2 to 10

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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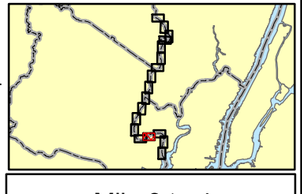
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 3 to 4

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sediment_Texture_Geophysical_Memo_October_2005.mxd)
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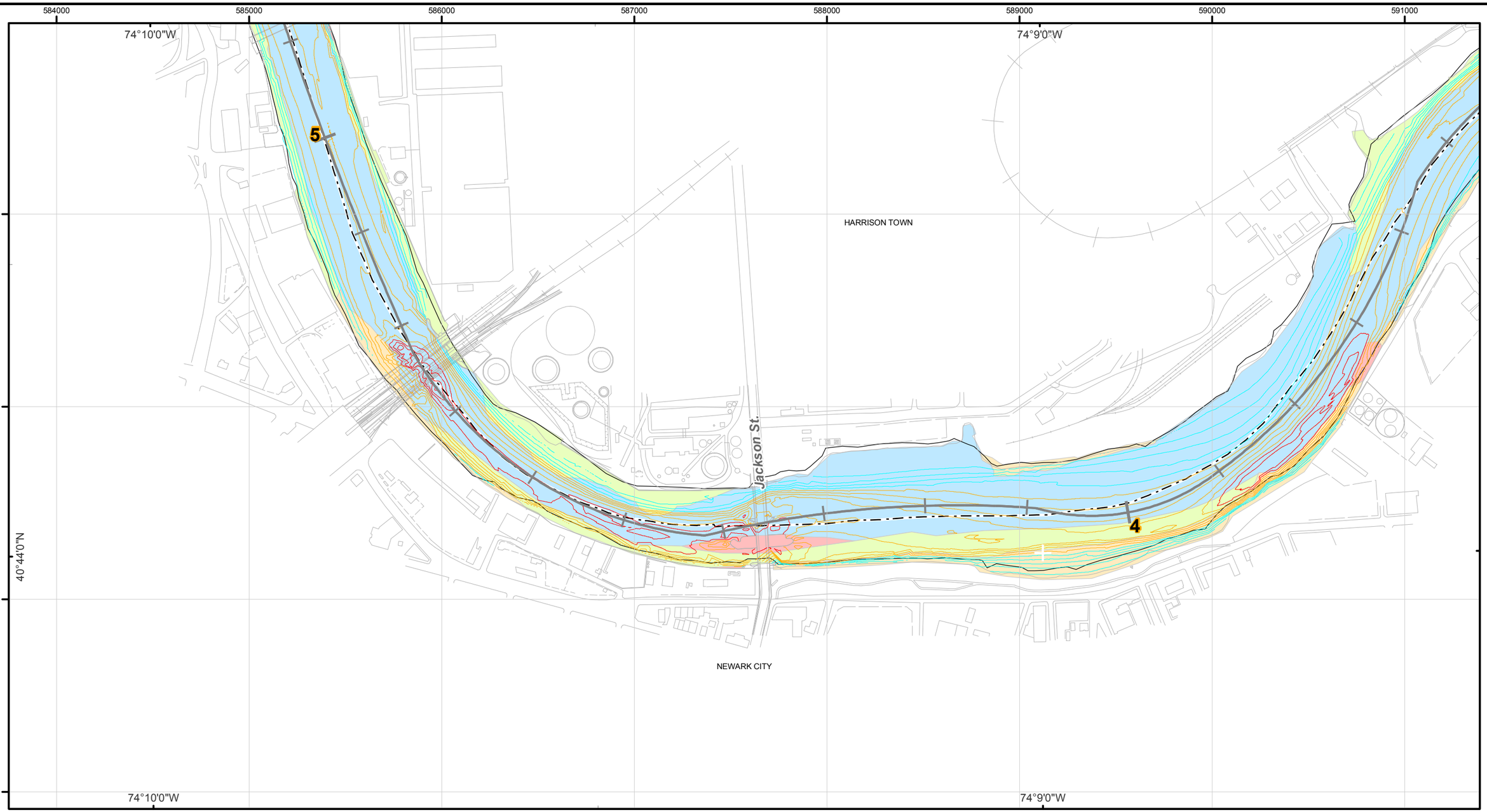

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

Legend

- Rock and Coarse gravel
- Gravel and Sand
- Sand
- Silt and Sand
- Silt
- River Mile Post

2004 USACE Bathymetric Survey

Elevation (Feet) Relative to NGVD29

- -30 to -20
- -18 to -10
- -8 to 0
- 2 to 10

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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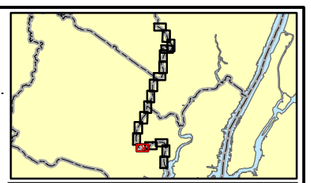
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 4 to 5

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sediment_Texture_Geophysical_Memo_October_2005.mxd)
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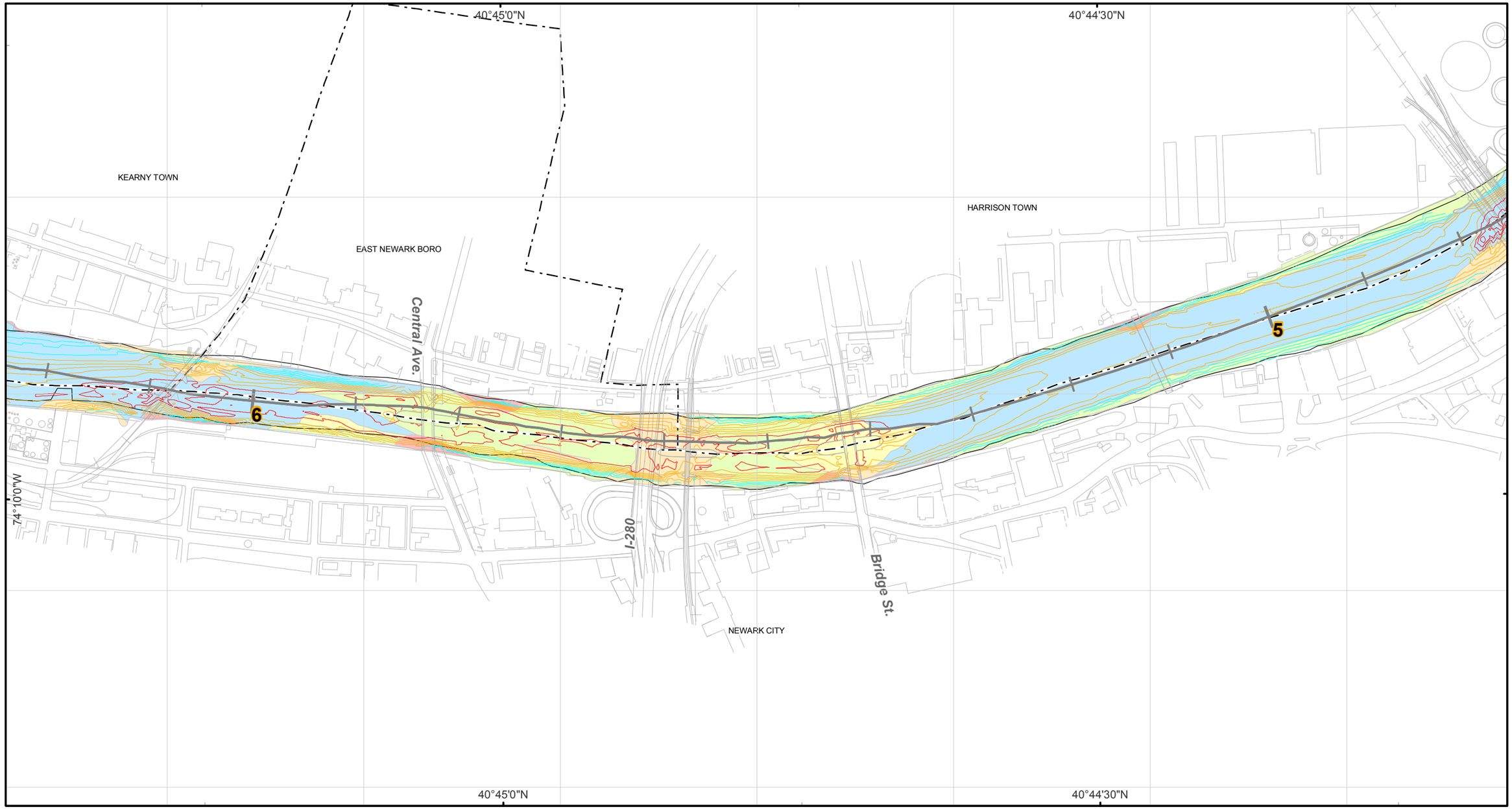


US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

Legend

- Rock and Coarse gravel
- Gravel and Sand
- Sand
- Silt and Sand
- Silt
- River Mile Post

2004 USACE Bathymetric Survey

Elevation (Feet) Relative to NGVD29

- -30 to -20
- -18 to -10
- -8 to 0
- 2 to 10

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

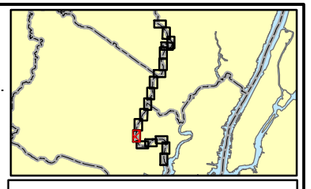
0 250 500 1,000

1 " equals 500 '

A Triangulated Irregular Network (TIN) was derived from the survey points using ESRI's 3-D Analyst in ArcGIS. Contours were interpolated from the TIN, also in 3-D Analyst.

Bathymetric Control Data:
Benchmark: X 71 (NGS PID: KV0256)
Elevation: 15.12 FEET (NGVD 29)

Benchmark: V 71 (NGS PID: KV0254)
Elevation: 15.76 FEET (NGVD 29)



Mile 5 to 6

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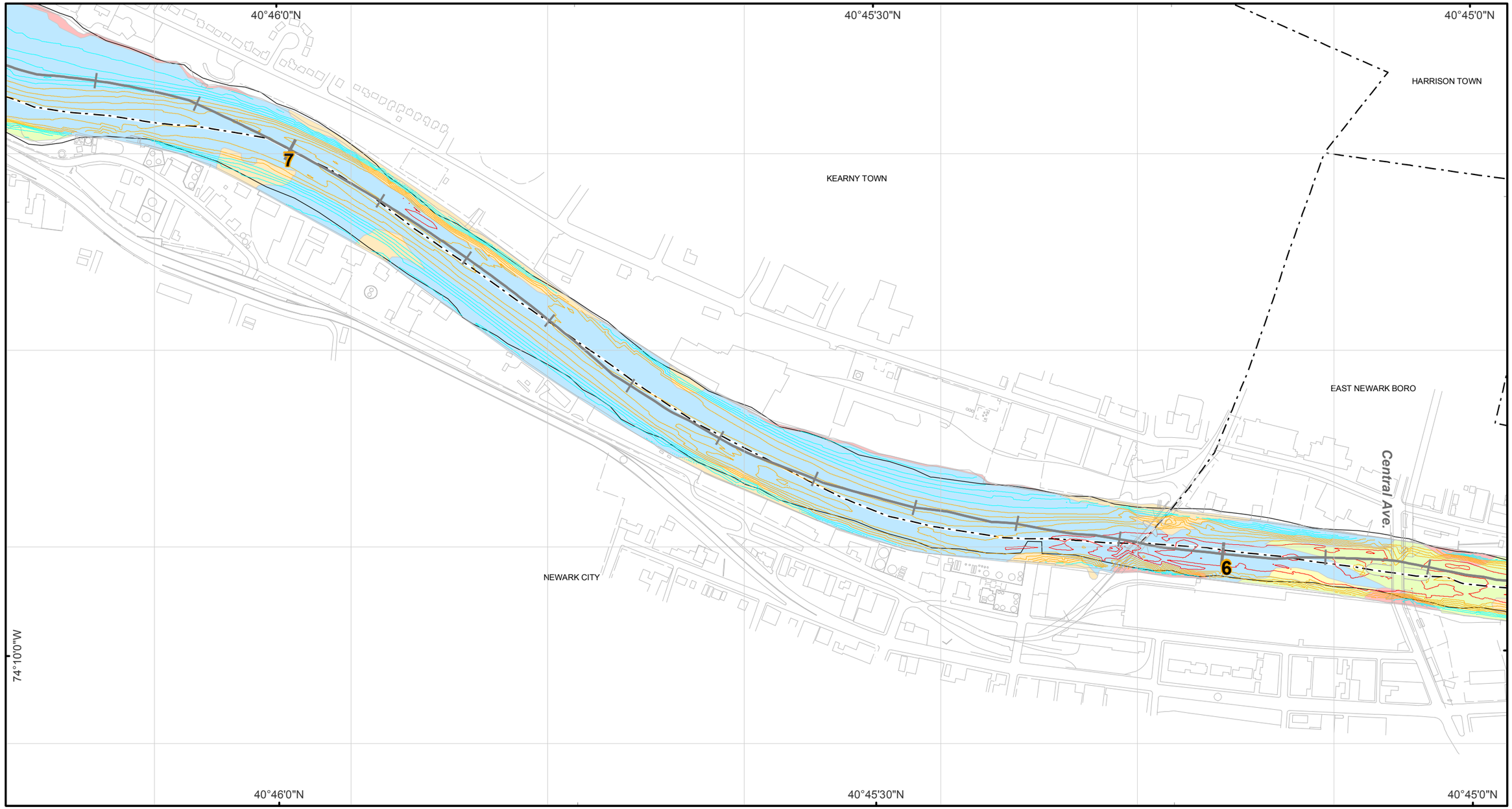

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

Legend

- Rock and Coarse gravel
- Gravel and Sand
- Sand
- Silt and Sand
- Silt
- River Mile Post

2004 USACE Bathymetric Survey

Elevation (Feet) Relative to NGVD29

- -30 to -20
- -18 to -10
- -8 to 0
- 2 to 10

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

N

0 250 500 1,000

1 " equals 500 '

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Elevation: 15.12 FEET (NGVD 29)

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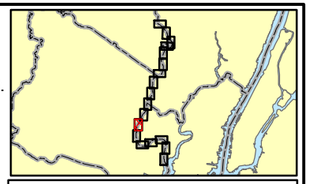

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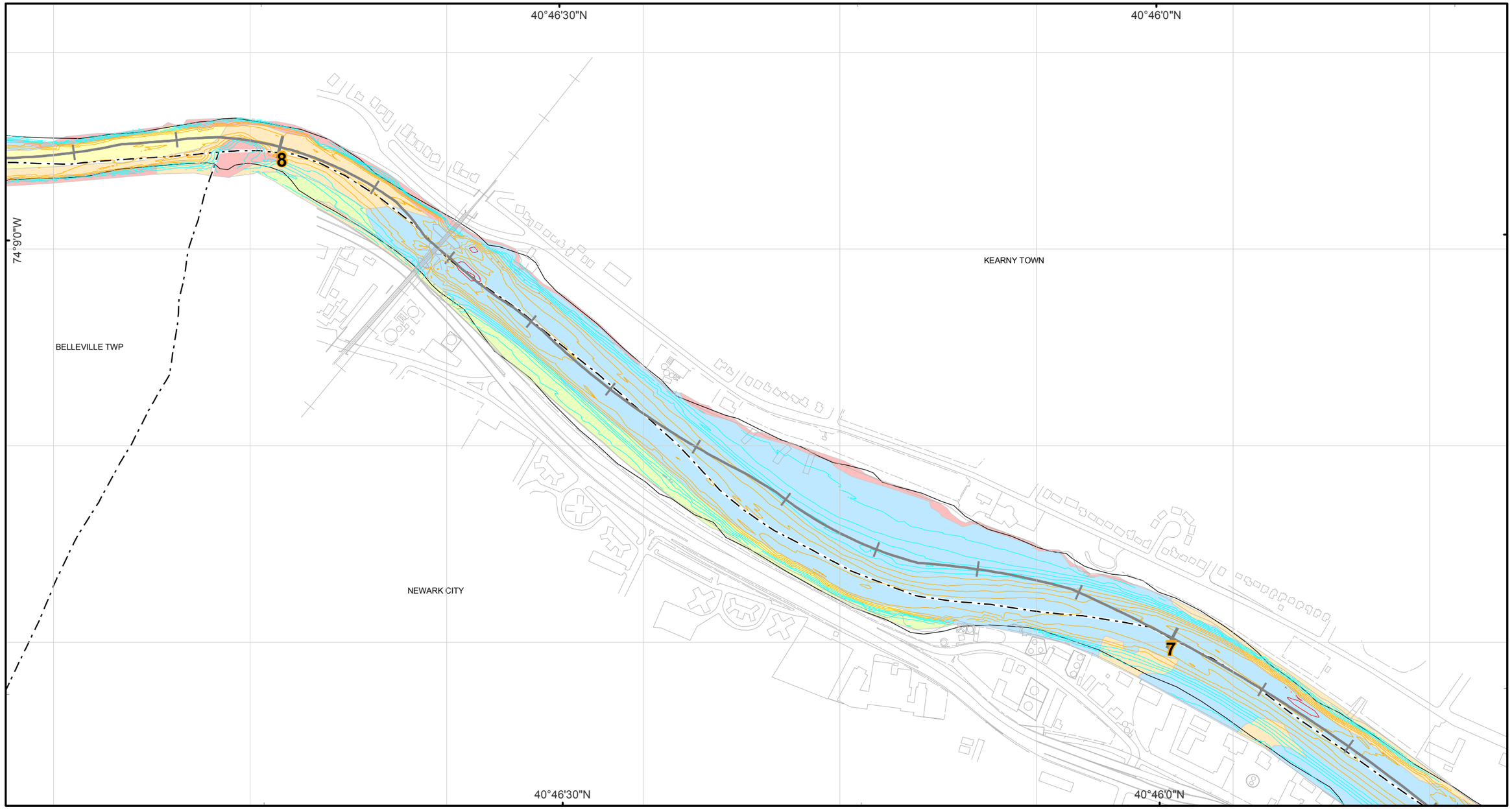

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

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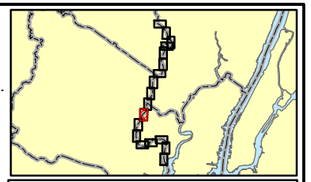

Mile 7 to 8

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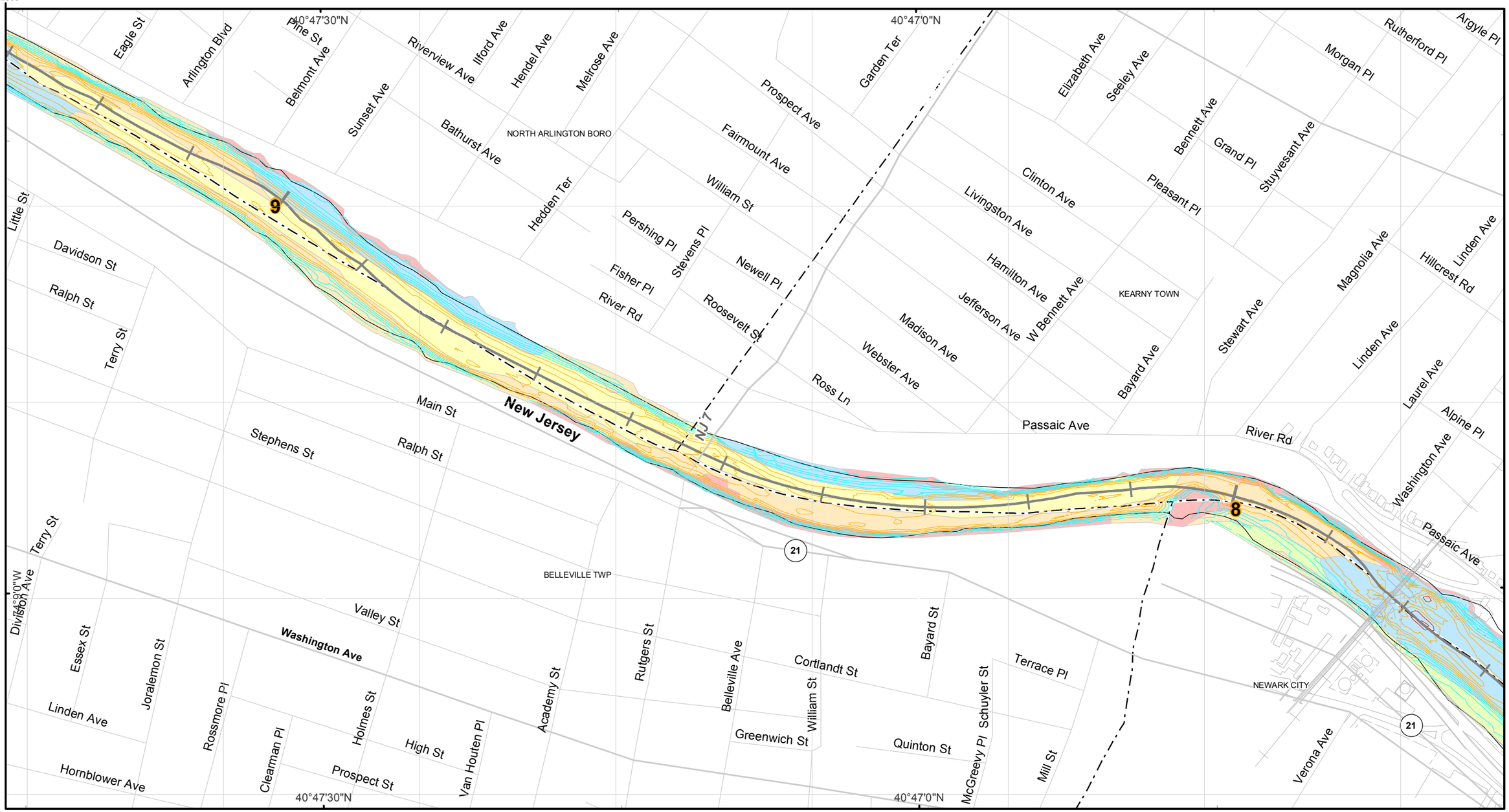

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

Legend

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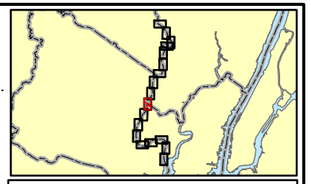

Mile 8 to 9

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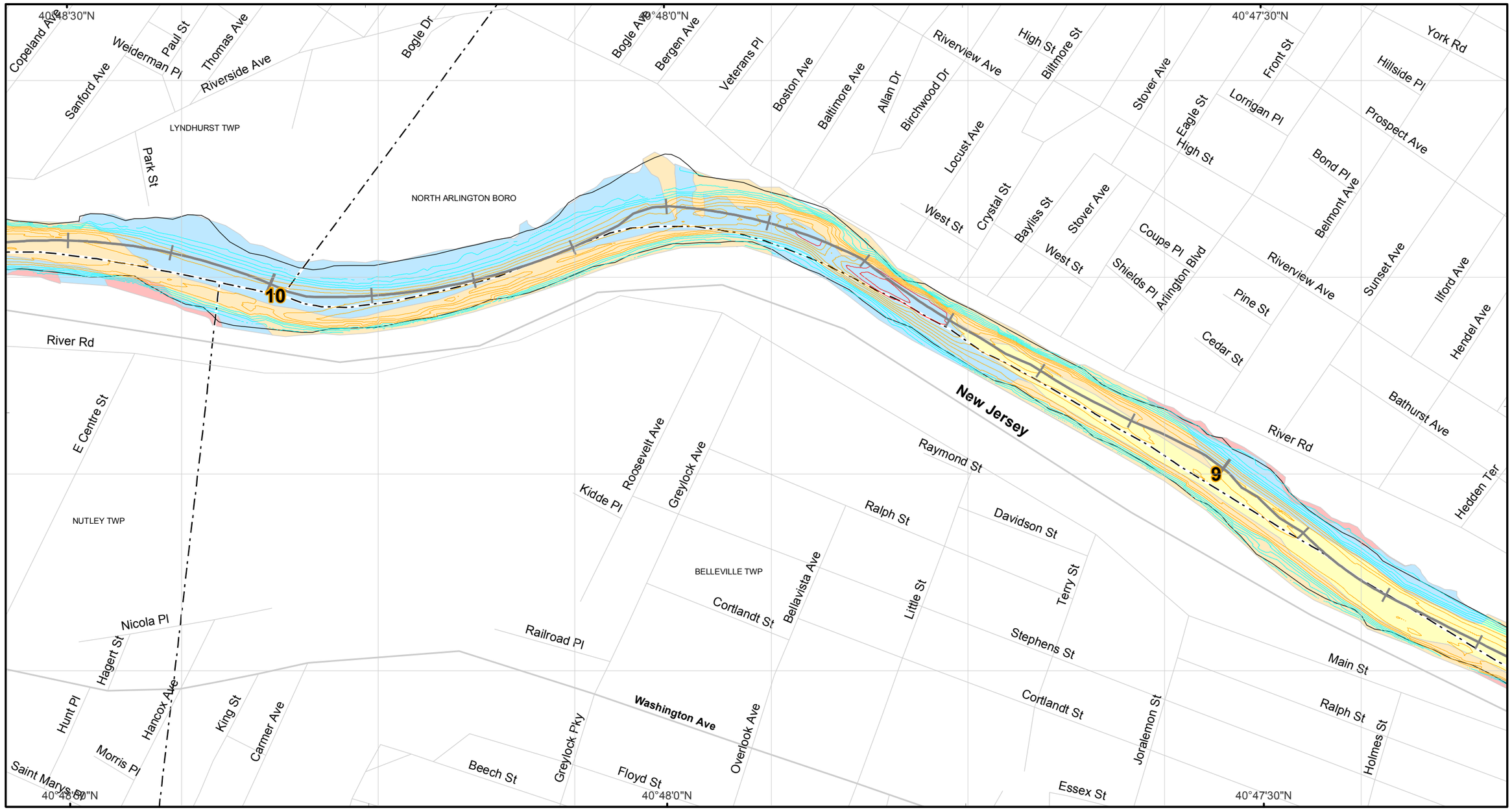

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

Legend

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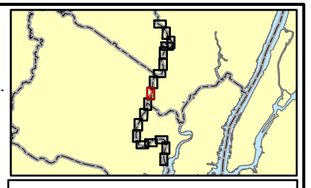

Mile 9 to 10

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US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

Legend

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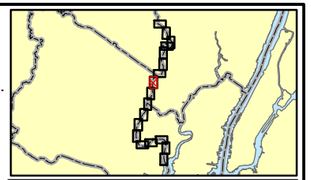

Mile 10 to 11

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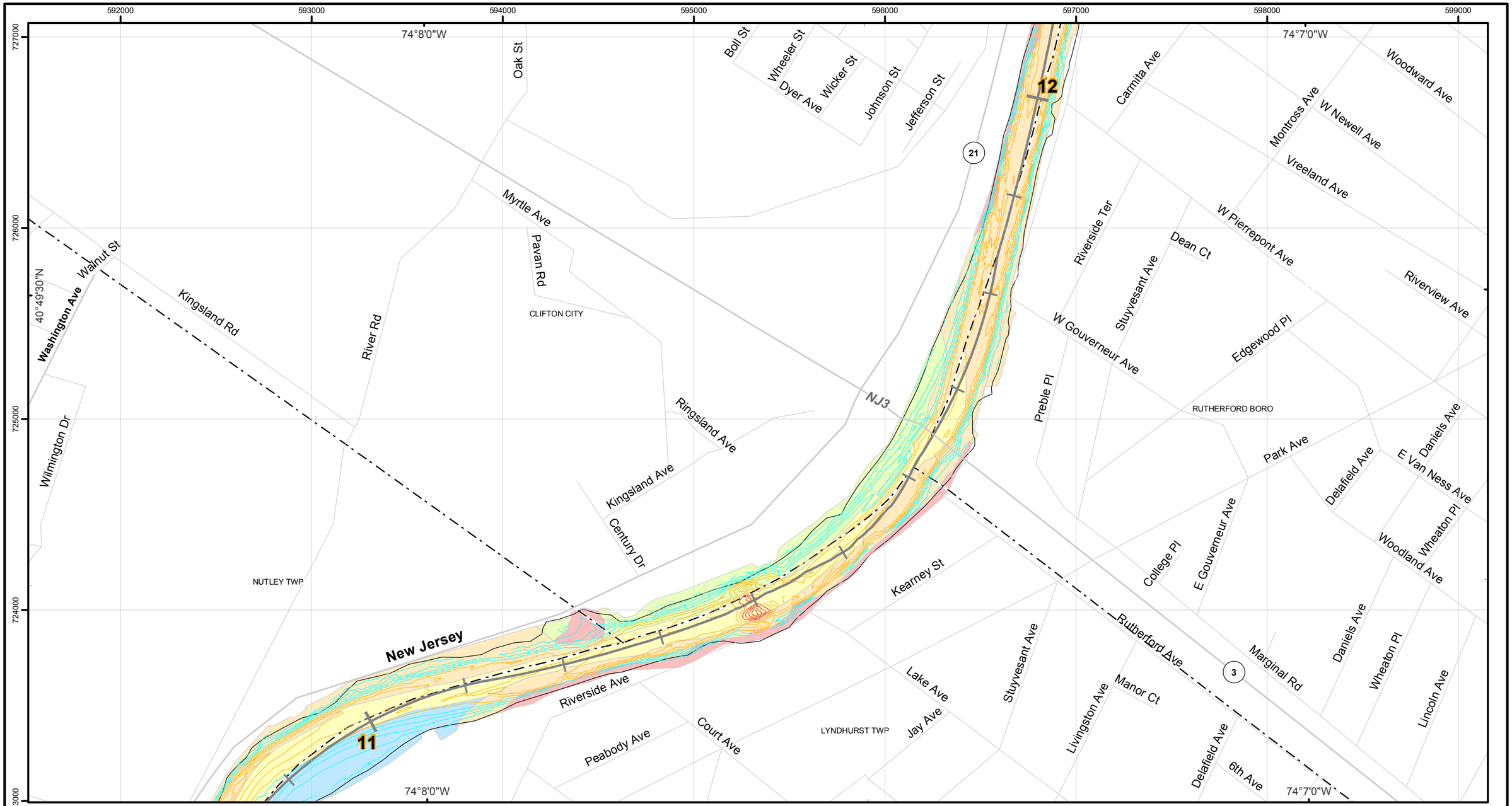

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

Legend

- Rock and Coarse gravel
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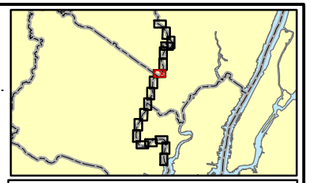

Mile 11 to 12

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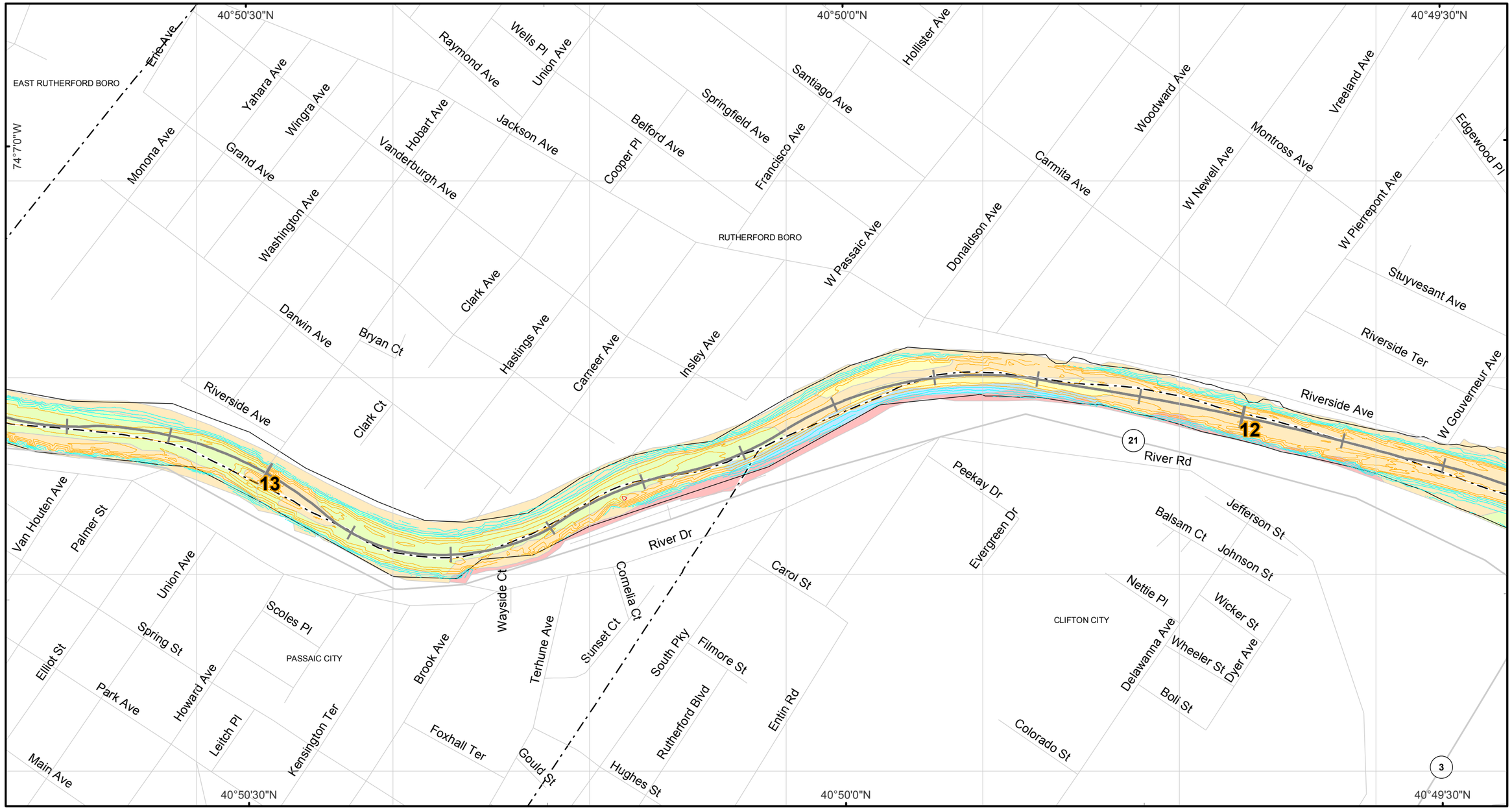

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

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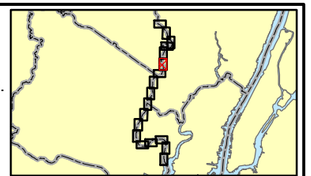

Mile 12 to 13

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sediment_Texture_Geophysical_Memo_October_2005.mxd)
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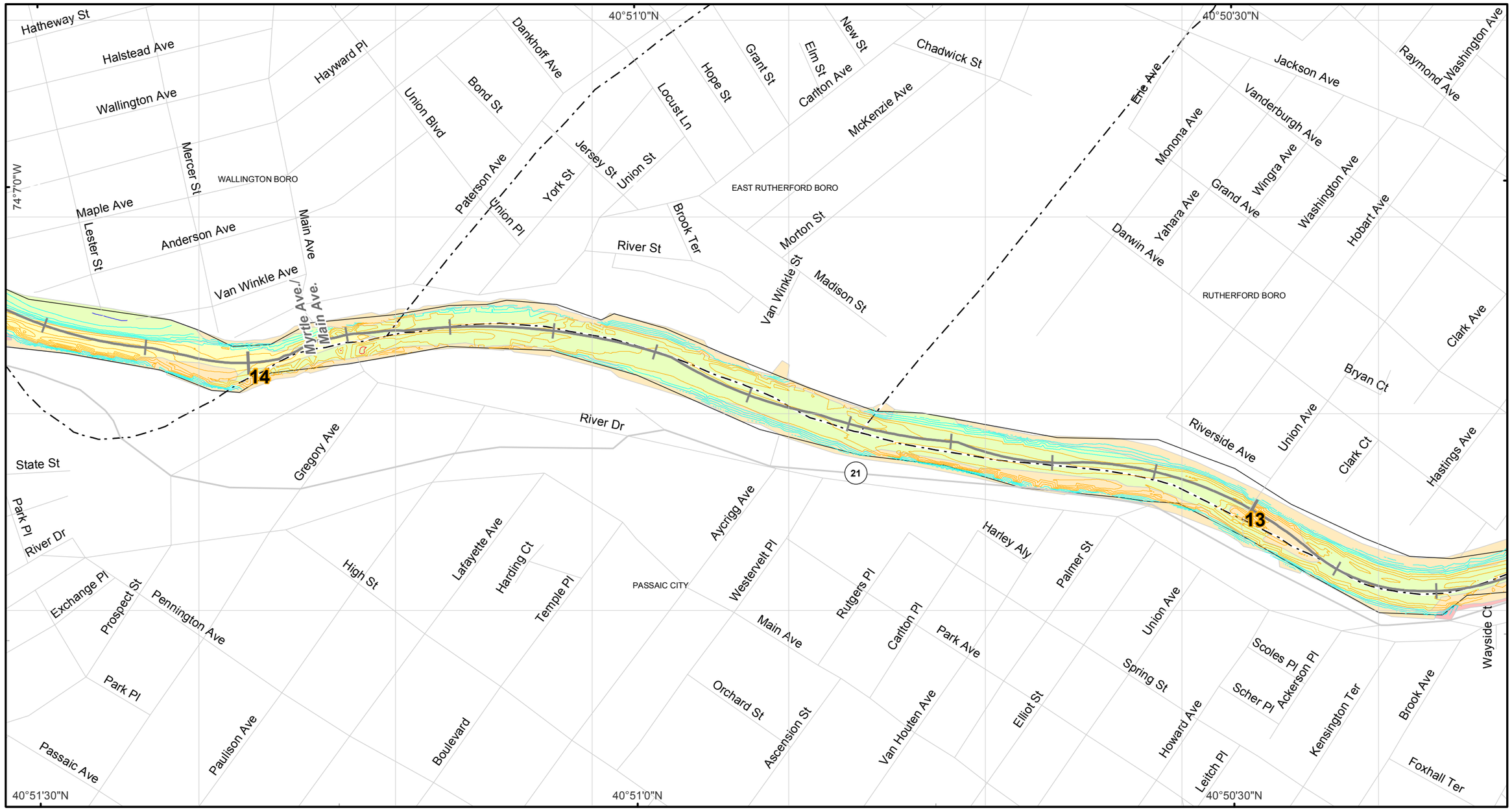

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sediment Texture Map

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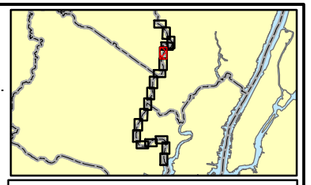

Mile 13 to 14

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sediment_Texture_Geophysical_Memo_October_2005.mxd)
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US Army Corps of Engineers

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Lower Passaic River Restoration Project New Jersey

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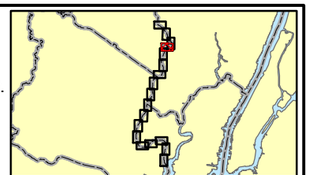

Mile 14 to 15

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sediment_Texture_Geophysical_Memo_October_2005.mxd)
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US Army Corps of Engineers

MALCOLM PIRNIE

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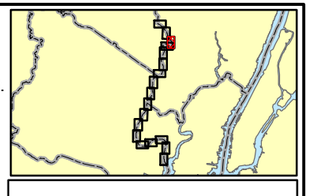

Mile 15 to 16

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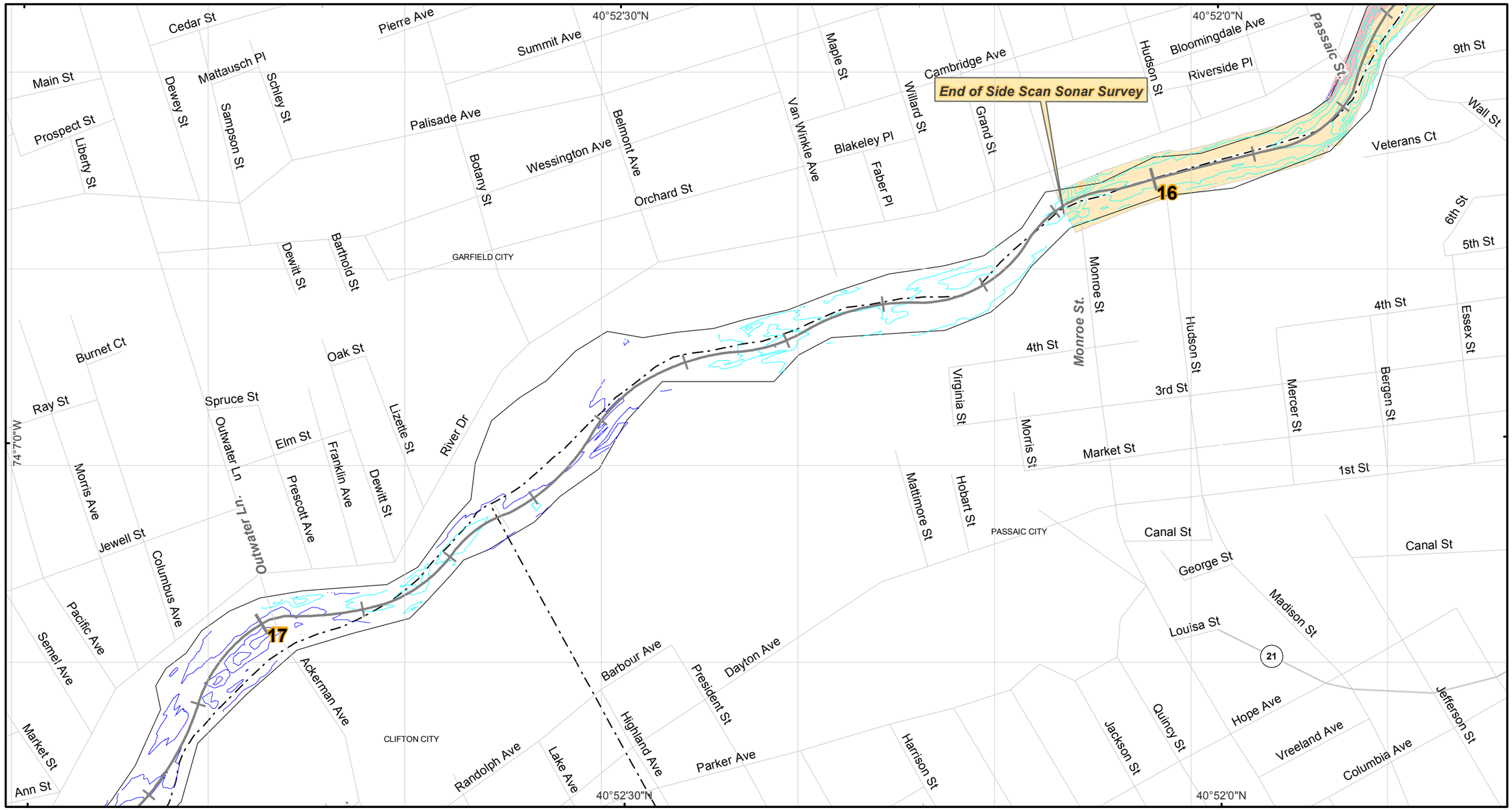

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

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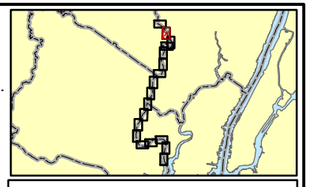

Mile 16 to 17

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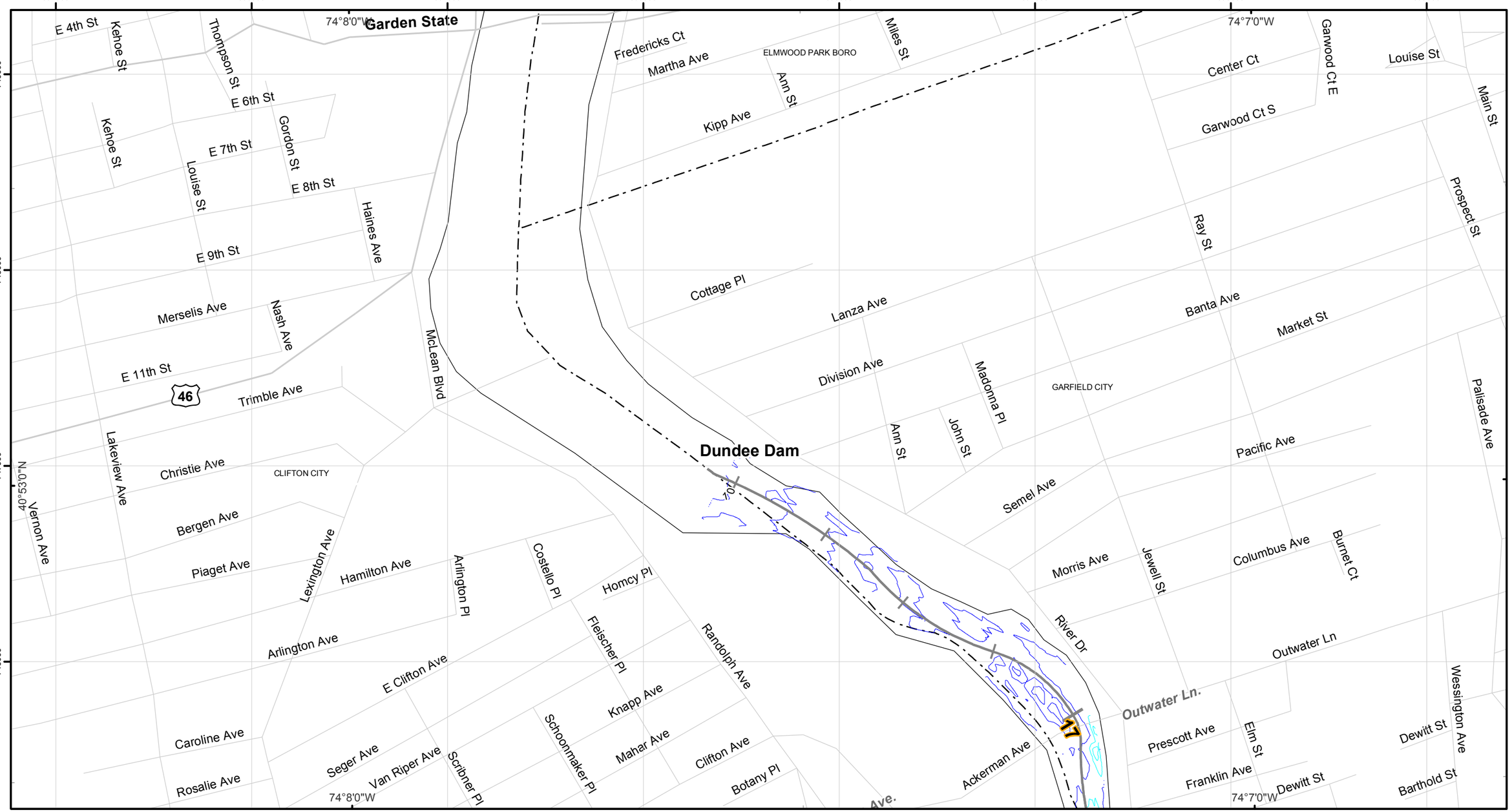

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

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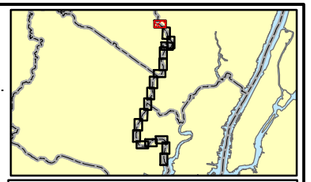

Mile 17 to Dundee Dam

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Sediment_Texture_Geophysical_Memo_October_2005.mxd)
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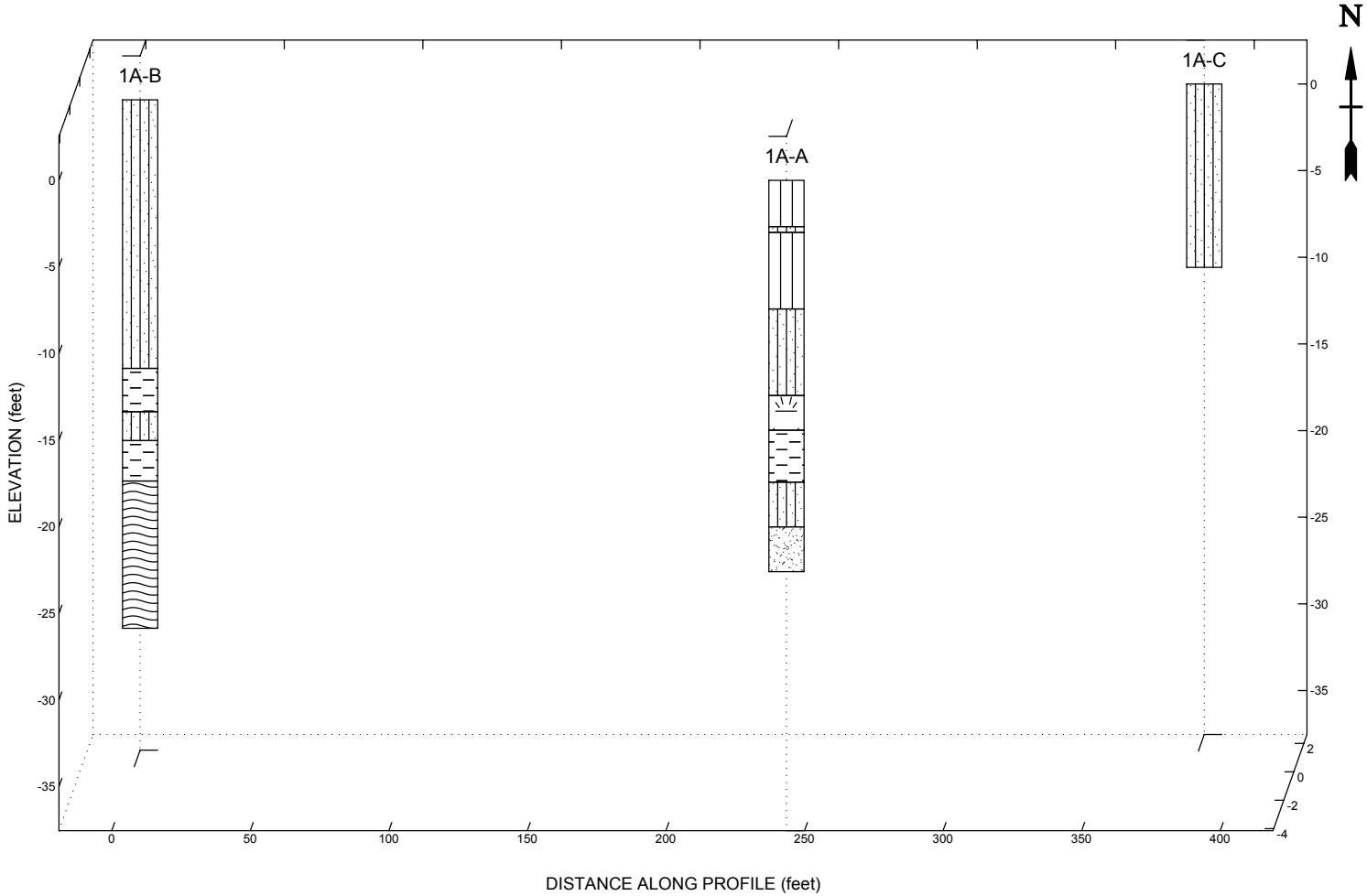
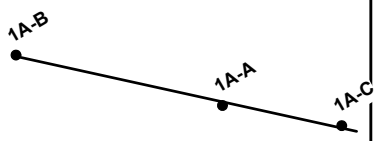
Fence Diagrams

Fence diagrams displaying sub-bottom geological units from geotechnical borings collected during the June 2005 geophysical survey and classified by Malcolm Pirnie, Inc. using the United Soil Classification System (USCS) [refer to the Draft Technical Report: Geophysical Survey (Aqua Survey, Inc., 2005) for more information]. Note that the fence diagrams extend to RM 16.



Lithology Graphics

- Silt
- Sandy Silt
- Silty Sand or Silt and Sand
- Peat
- Low plasticity clay
- Fine to Medium Sand
- High plasticity clay



Site Map Scale 1 inch equals 220 feet

Explanation

1A-A — Borehole Number

Borehole Lithology

Water Level Reading at time of drilling.

Water Level Reading after drilling.

0 — 63

Horizontal Scale (feet)

Vertical Exaggeration: 6.5x

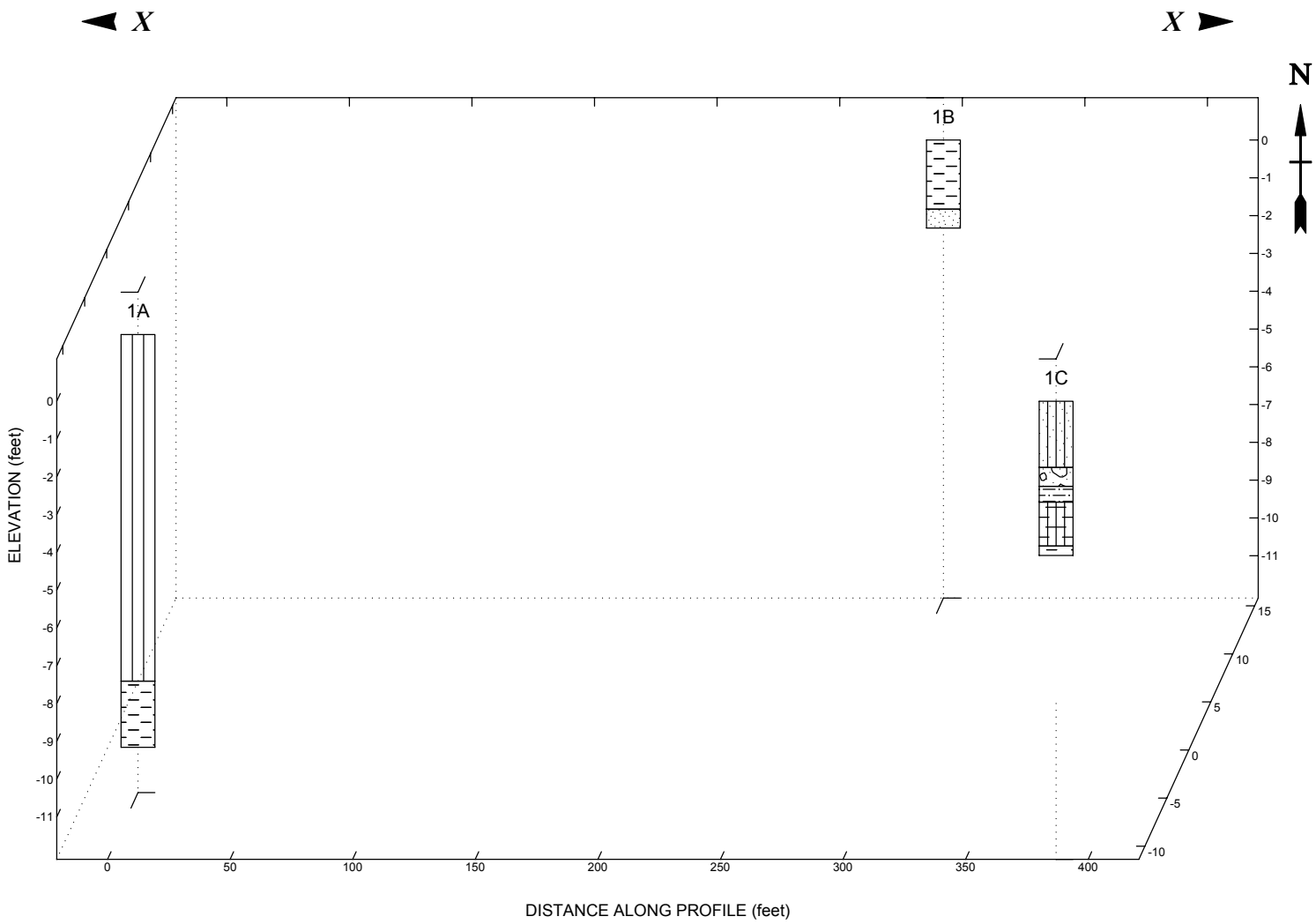
Malcolm Pirnie, Inc.

Location : Mile 0

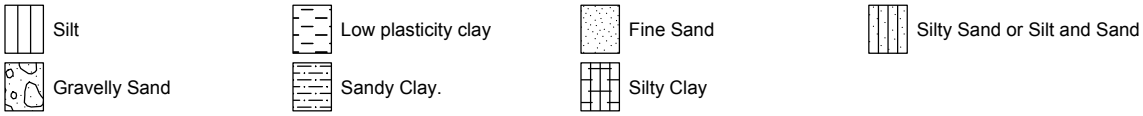
MALCOLM PIRNIE

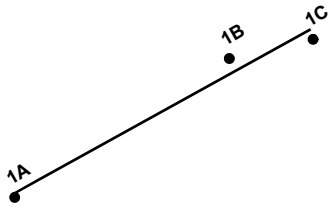
Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	1A-A - 1A-C



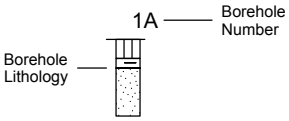
Lithology Graphics





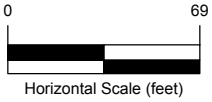
Site Map Scale 1 inch equals 220 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 15.5x

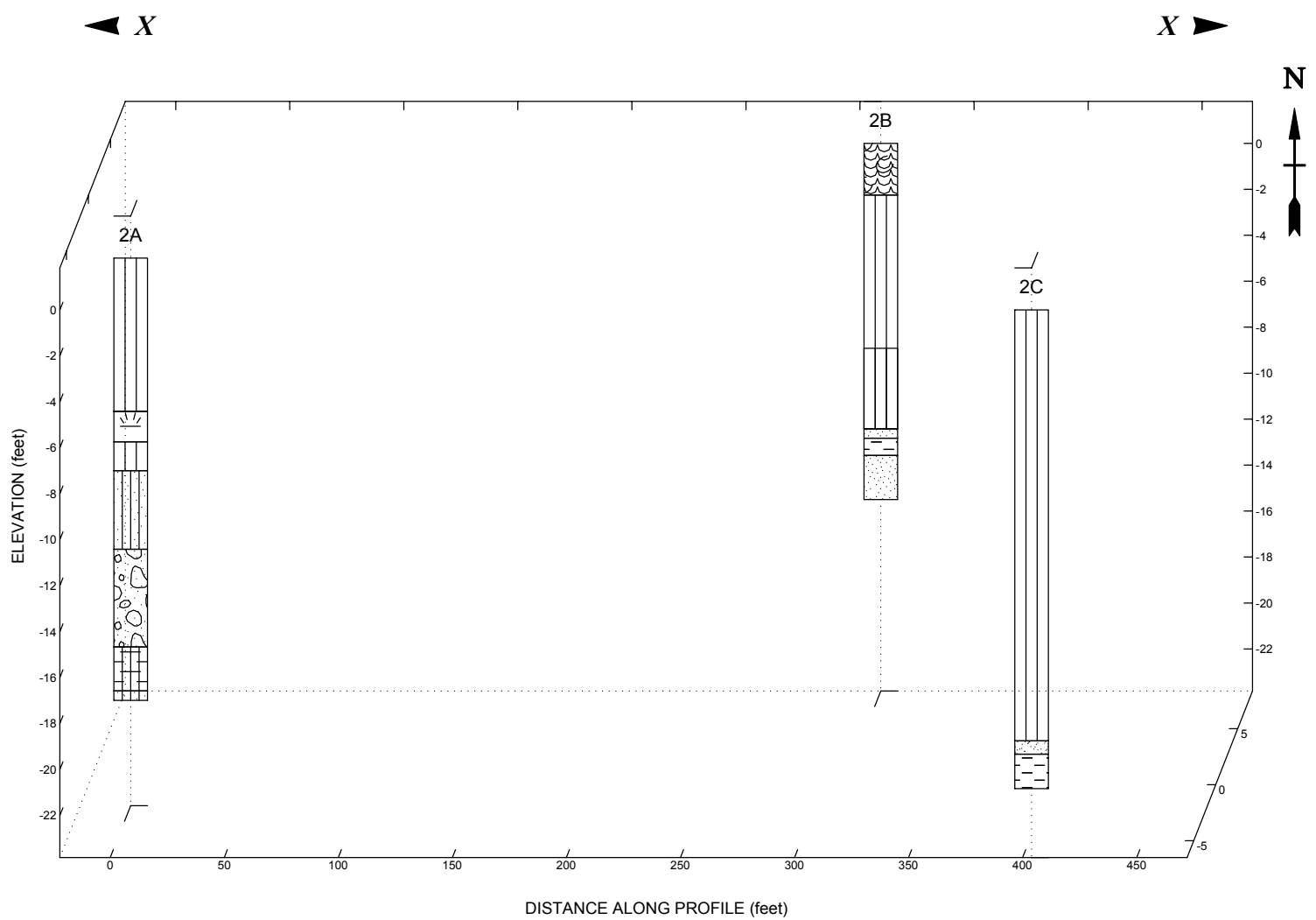
Malcolm Pirnie, Inc.

Location : Mile 1

MALCOLM PIRNIE

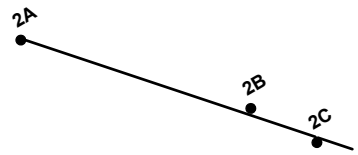
Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	1A - 1C



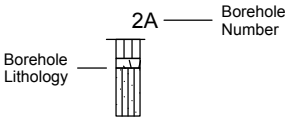
Lithology Graphics

- Silt
- Silty Clay
- Fine to Medium Sand
- Peat
- Organic silt or clay with shells
- Silty Sand or Silt and Sand
- Fine Sand
- Gravelly Sand
- Low plasticity clay



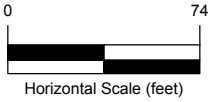
Site Map Scale 1 inch equals 250 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 10x

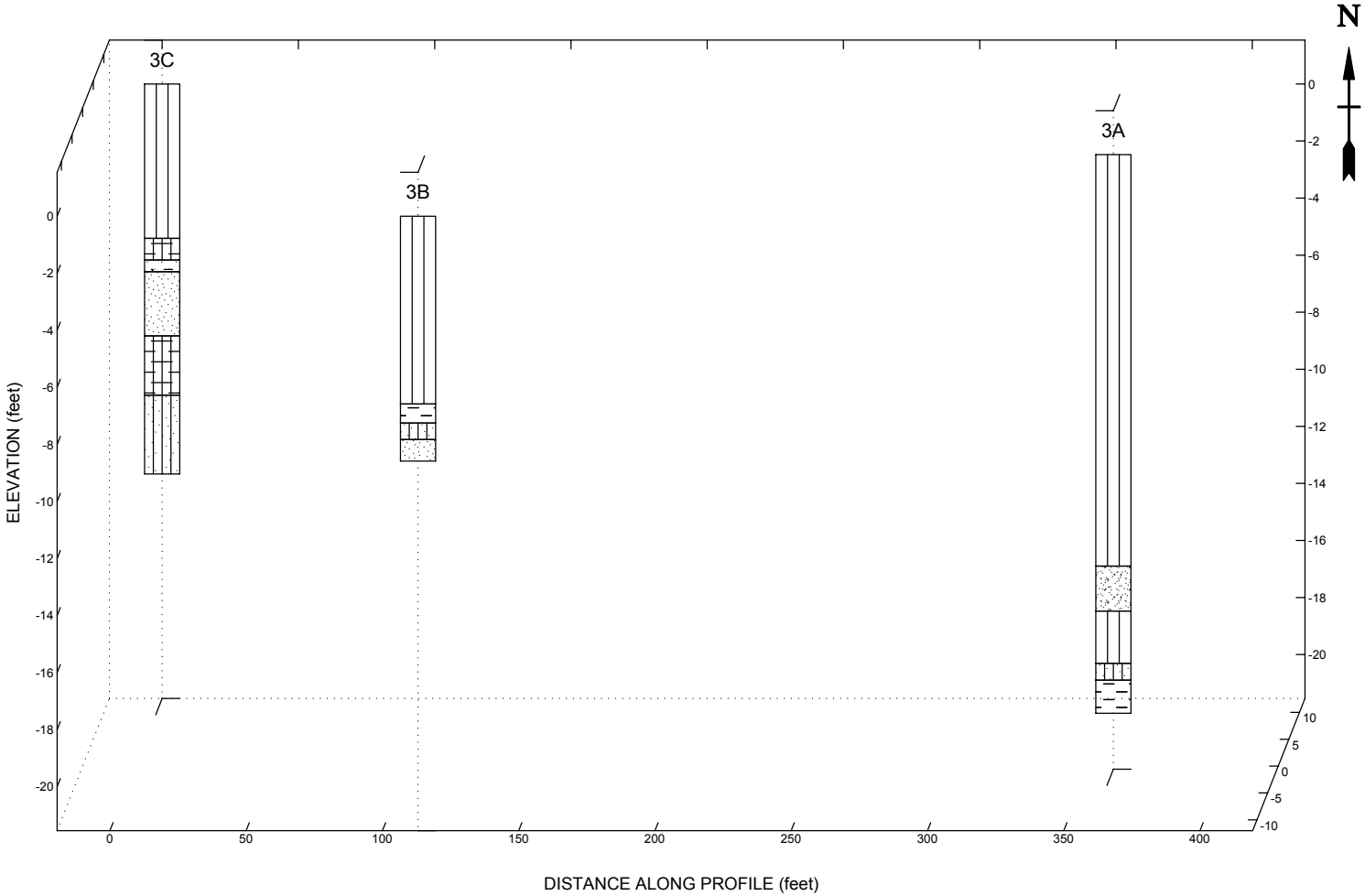
Malcolm Pirnie, Inc.

Location : Mile 2

MALCOLM PIRNIE

Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	2A - 2C

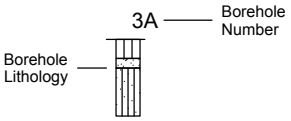


Lithology Graphics

- Silt
- Fine Sand
- Medium Sand
- Silty Clay
- Silty Sand or Silt and Sand
- Clayey Sand or Sand and Clay
- Low plasticity clay

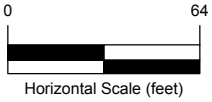
Site Map Scale 1 inch equals 220 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 10.5x

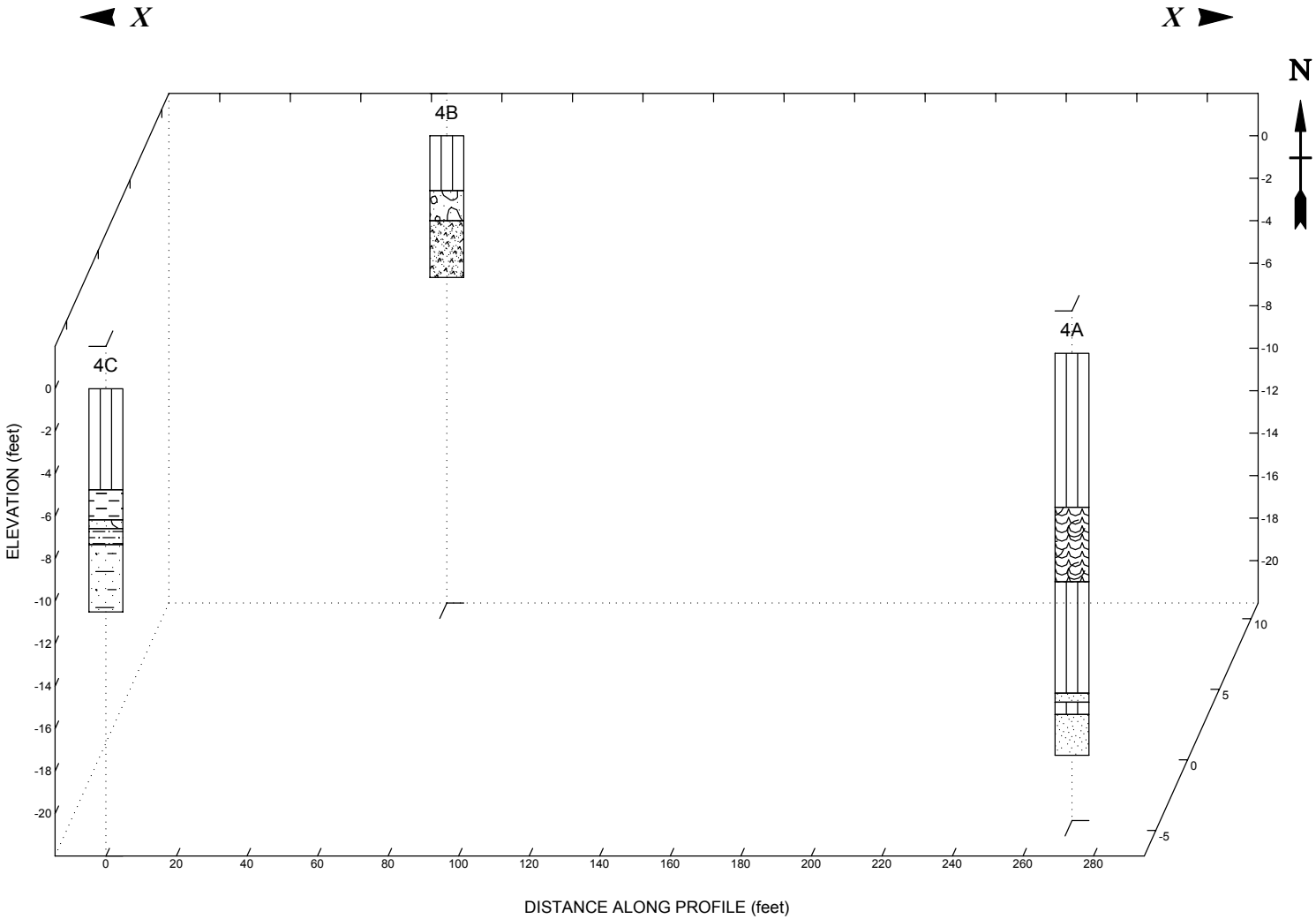
Malcolm Pirnie, Inc.

Location: Mile 3

MALCOLM PIRNIE

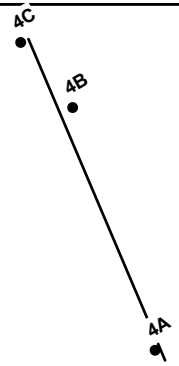
Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	3A-3C



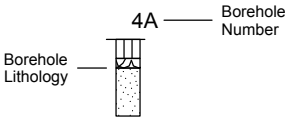
Lithology Graphics

- Silt
- Organic silt or clay with shells
- Fine Sand
- Gravelly Sand
- Medium - Coarse Sand
- Low plasticity clay
- Sandy Gravel
- Sandy Clay.
- Clayey Sand or Sand and Clay



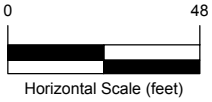
Site Map Scale 1 inch equals 155 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 6x

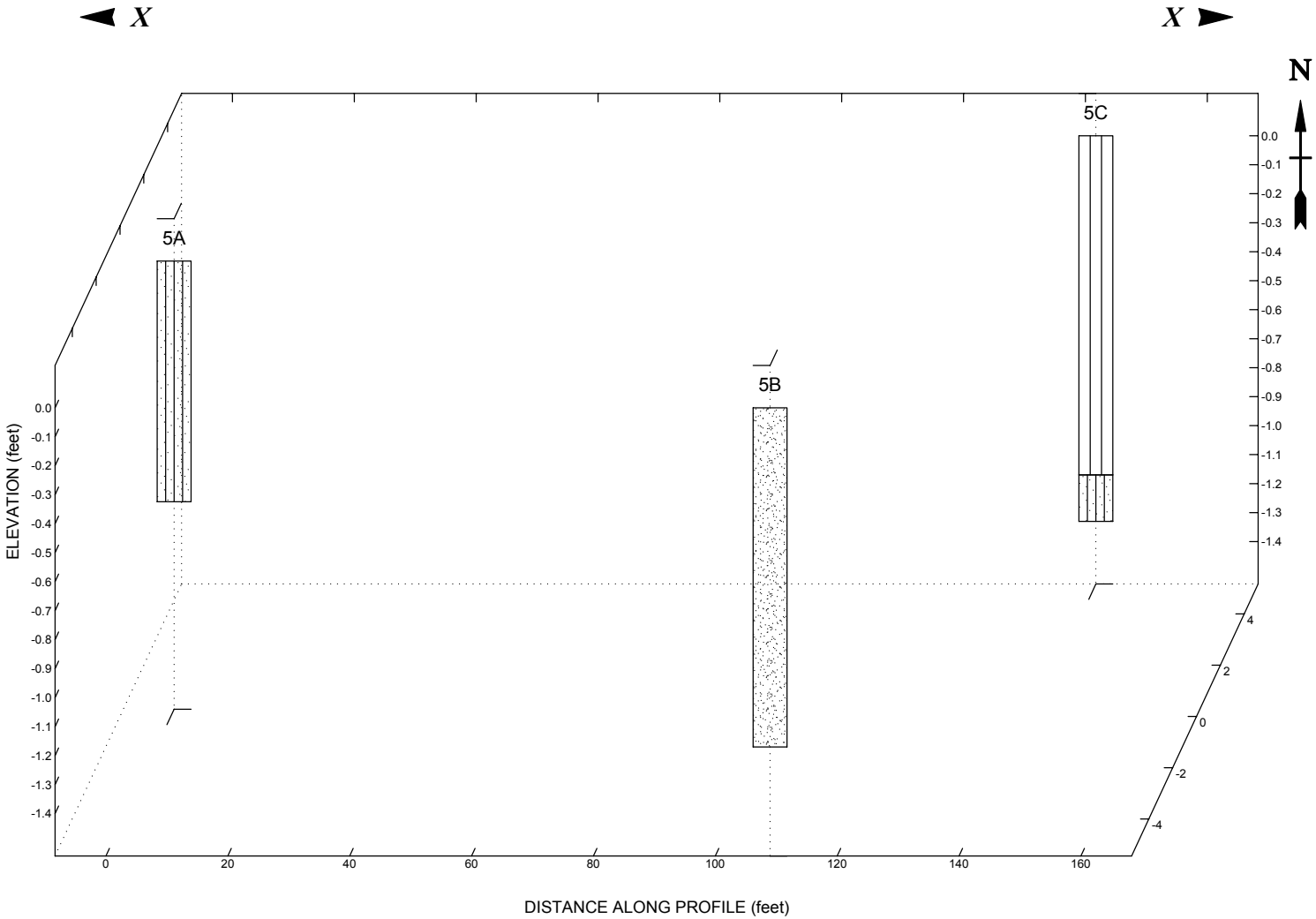
Malcolm Pirnie, Inc.

Location : Mile 4

MALCOLM PIRNIE

Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	4A - 4C



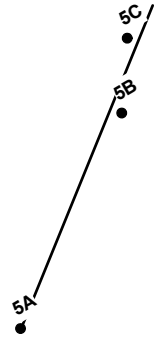
Lithology Graphics

Sandy Silt

Fine to Medium Sand

Silt

Silty Sand or Silt and Sand



Site Map Scale 1 inch equals 90 feet

Explanation

5A — Borehole Number

Borehole Lithology

Water Level Reading at time of drilling.

Water Level Reading after drilling.

0 28

Horizontal Scale (feet)

Vertical Exaggeration: 47.5x

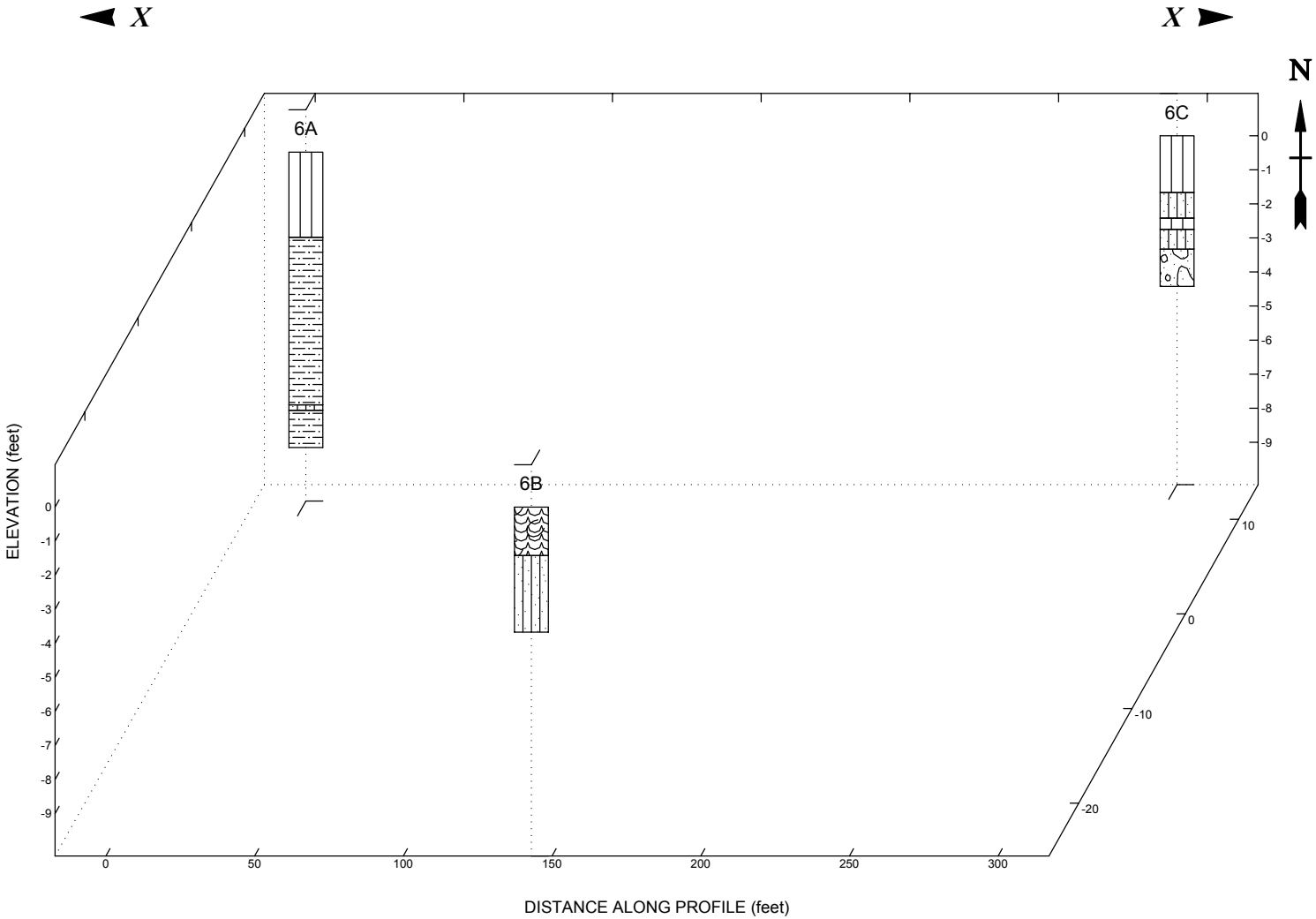
Malcolm Pirnie, Inc.

Location : Mile 5

MALCOLM PIRNIE

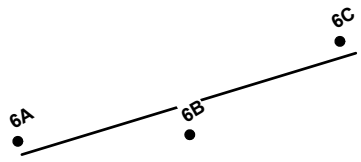
Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	5A - 5C



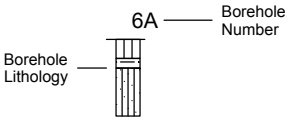
Lithology Graphics

- Silt
- Sandy Clay.
- Sandy Silt
- Organic silt or clay with shells
- Gravelly Sand



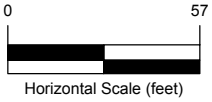
Site Map Scale 1 inch equals 165 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 11.5x

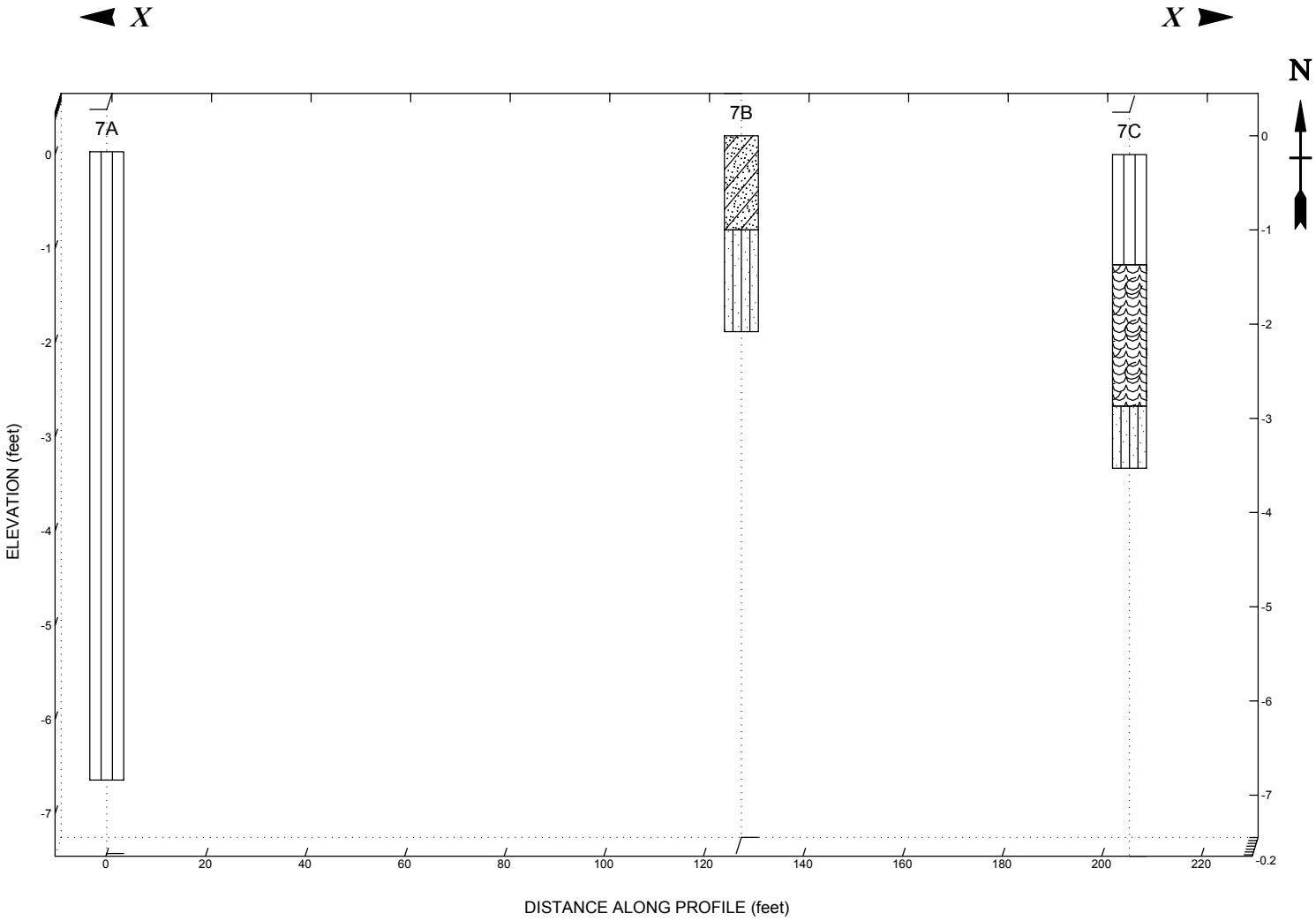
Malcolm Pirnie, Inc.

Location : Mile 6

MALCOLM PIRNIE

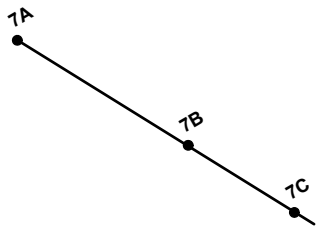
Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	6A - 6C



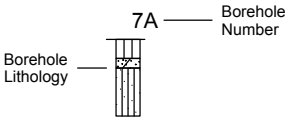
Lithology Graphics

- Silt
- Silty sand/Silt mix
- Silty Sand or Silt and Sand
- Organic silt or clay with shells



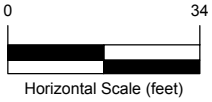
Site Map Scale 1 inch equals 120 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 19x

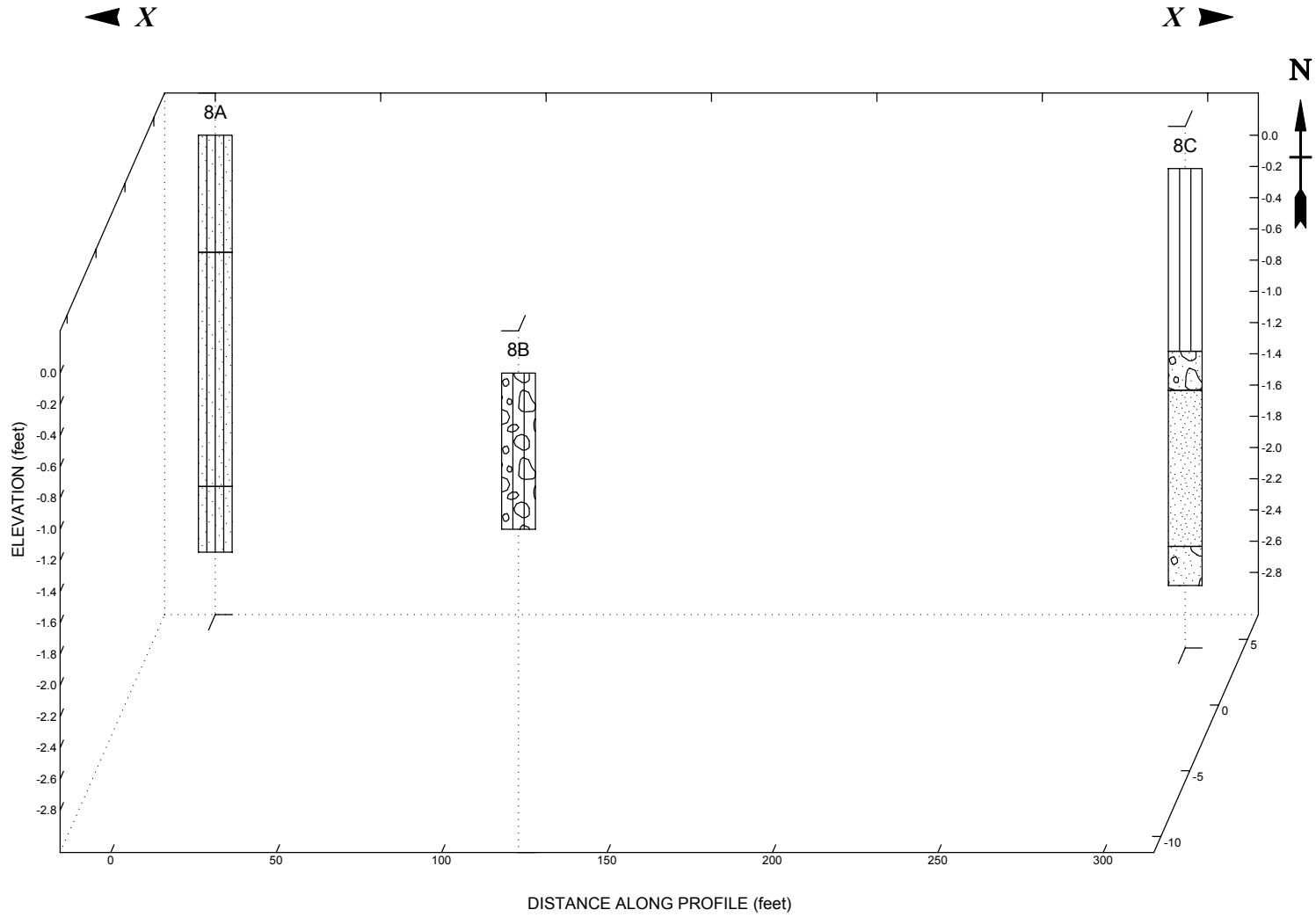
Malcolm Pirnie, Inc.

Location : Mile 7

MALCOLM PIRNIE

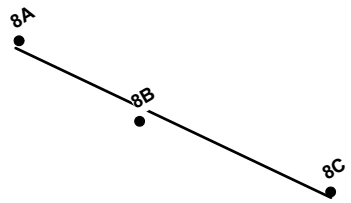
Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	7A - 7C



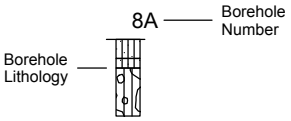
Lithology Graphics

- Silty Sand or Silt and Sand
- Sandy Silt
- Silty Gravel
- Silt
- Gravelly Sand
- Fine Sand
- Sandy Gravel



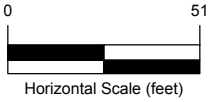
Site Map Scale 1 inch equals 165 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 47x

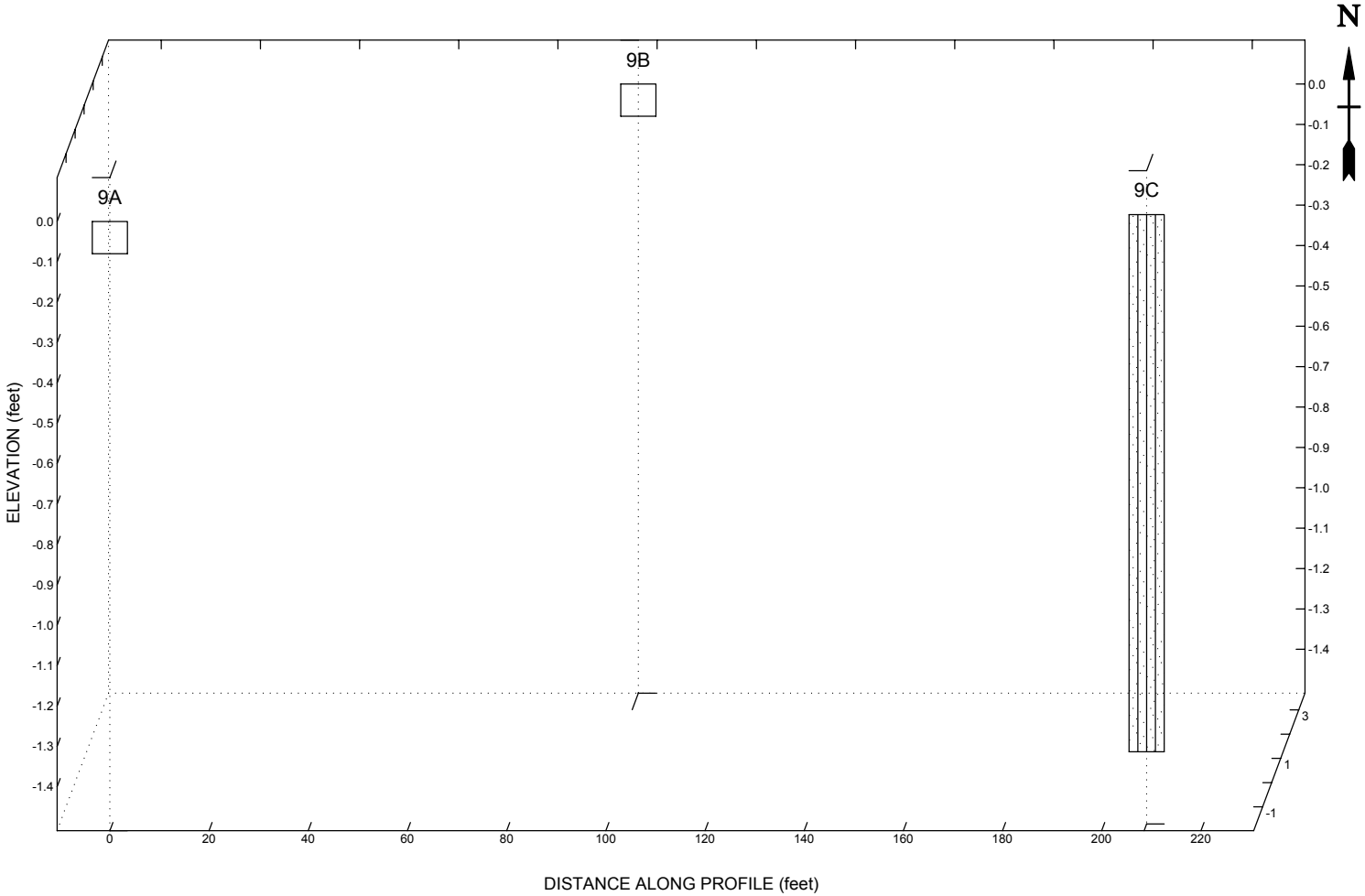
Malcolm Pirnie, Inc.

Location : Mile 8

MALCOLM PIRNIE

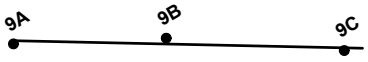
Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	8A - 8C



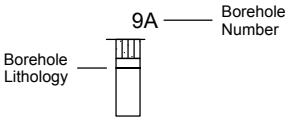
Lithology Graphics

Silty Sand or Silt and Sand



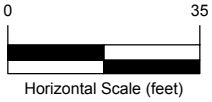
Site Map Scale 1 inch equals 120 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 81.5x

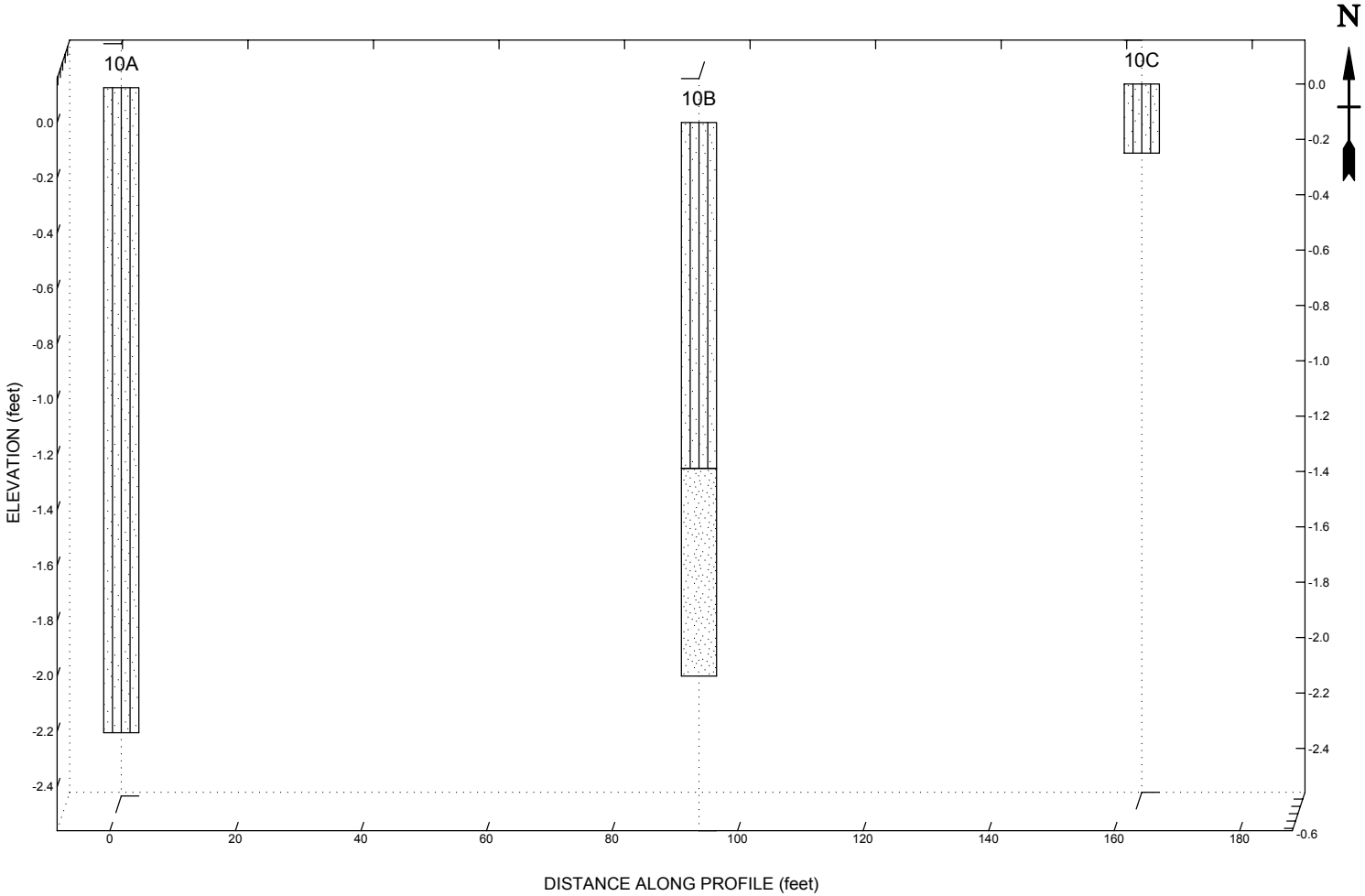
Malcolm Pirnie, Inc.

Location : Mile 9

MALCOLM PIRNIE

Lower Passaic River
New Jersey

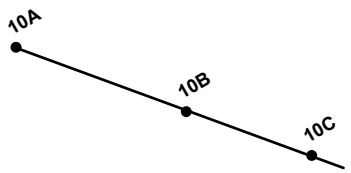
JOB NUMBER	TRANSECT NUMBER
3473007	9A - 9C



Lithology Graphics

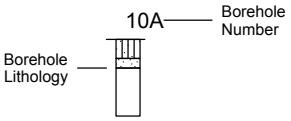
Silty Sand or Silt and Sand

Fine Sand



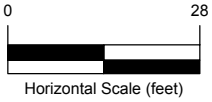
Site Map Scale 1 inch equals 100 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 44x

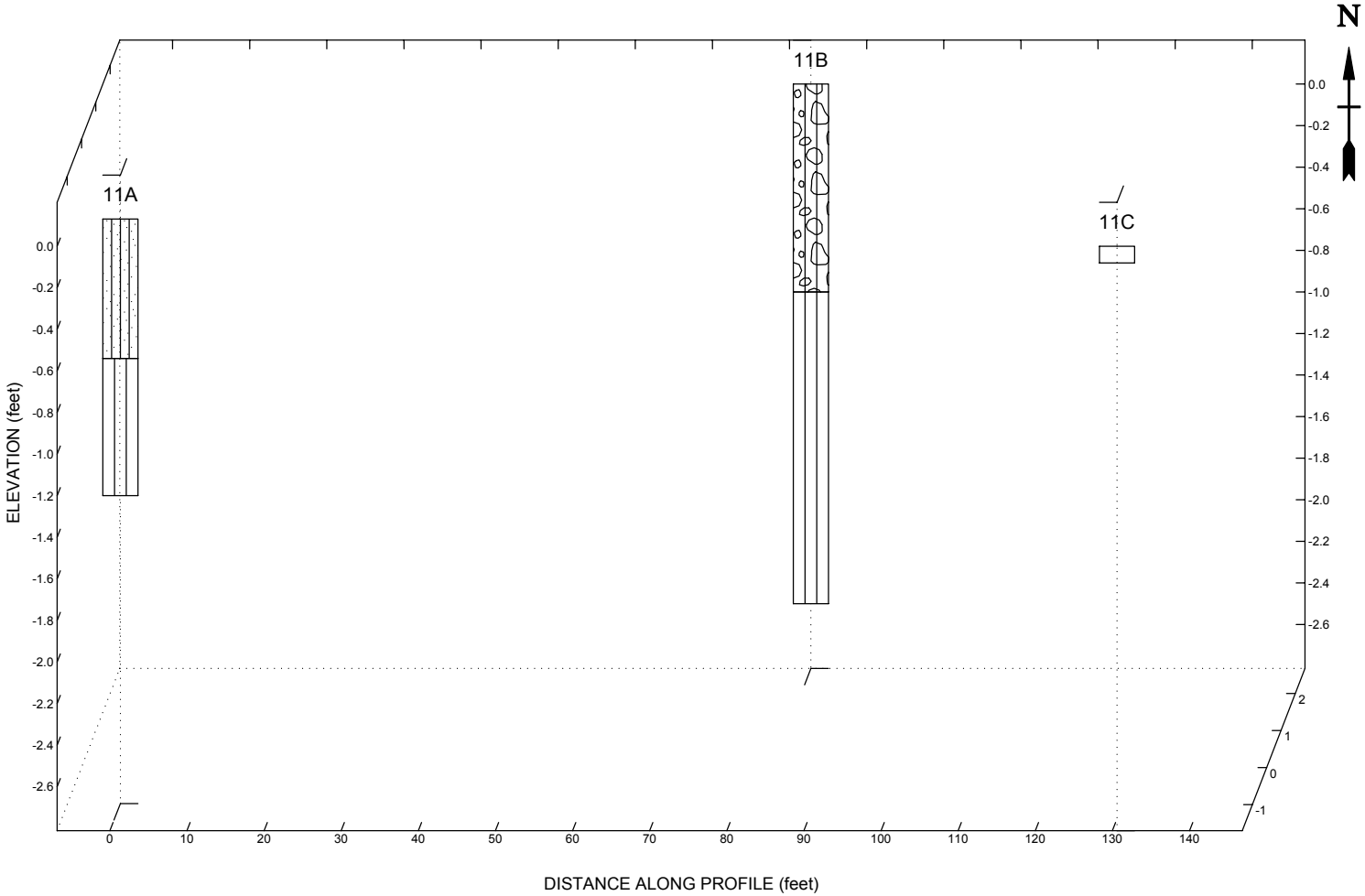
Malcolm Pirnie, Inc.

Location : Mile 10

MALCOLM PIRNIE

Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	10A - 10C

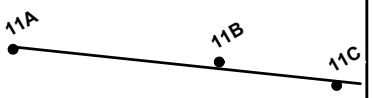


Lithology Graphics

Silty Sand or Silt and Sand

Silt

Silty Gravel



Site Map Scale 1 inch equals 75 feet

Explanation

11A — Borehole Number

Borehole Lithology

Water Level Reading at time of drilling.

Water Level Reading after drilling.

0 23

Horizontal Scale (feet)

Vertical Exaggeration: 27x

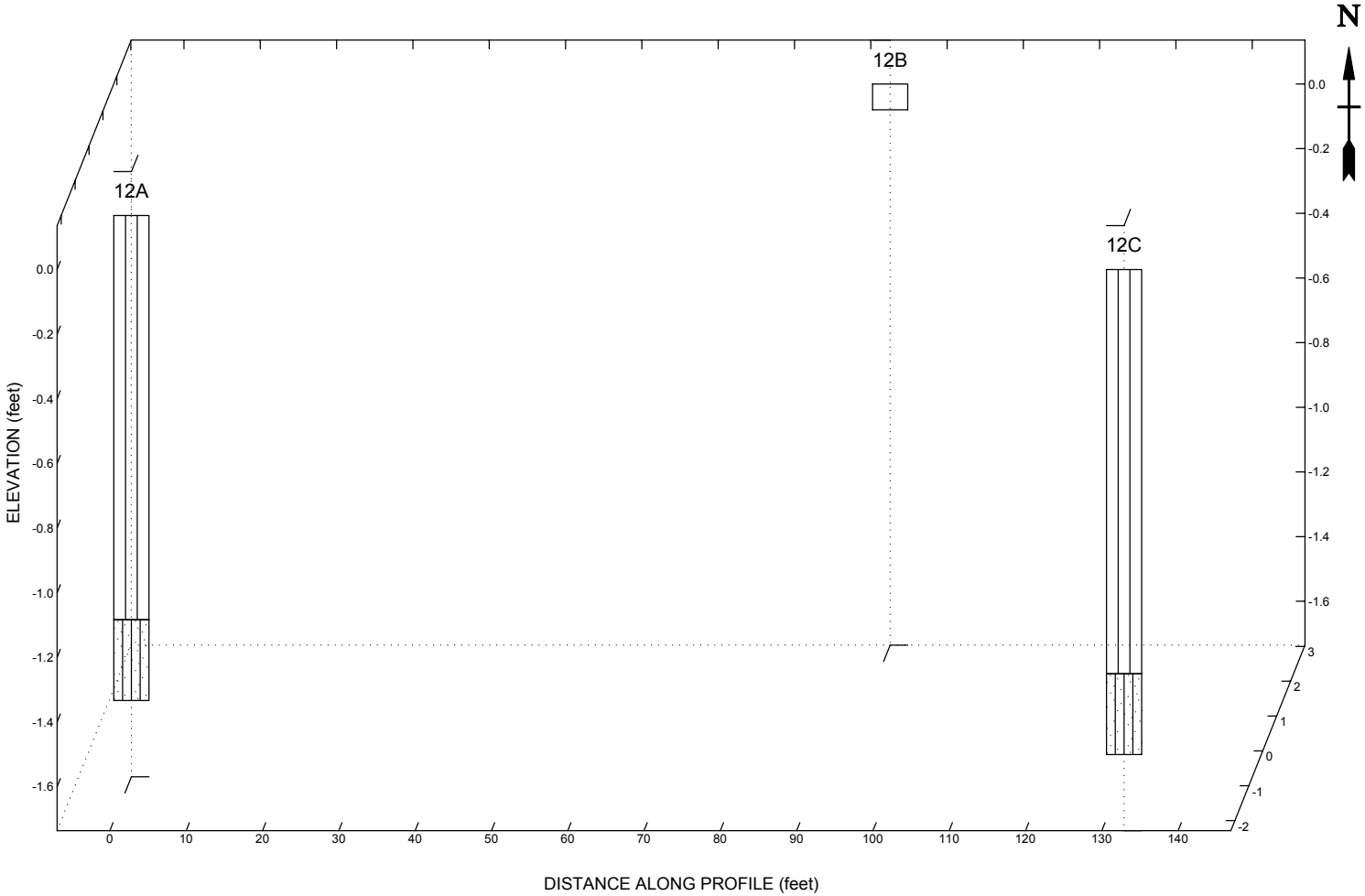
Malcolm Pirnie, Inc.

Location : Mile 11

MALCOLM PIRNIE

Lower Passaic River
New Jersey

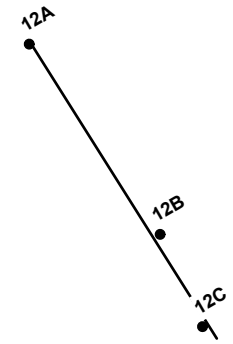
JOB NUMBER	TRANSECT NUMBER
3473007	11A - 11C



Lithology Graphics

Silt

Silty Sand or Silt and Sand



Site Map Scale 1 inch equals 75 feet

Explanation

12A — Borehole Number

Borehole Lithology

Water Level Reading at time of drilling.

Water Level Reading after drilling.

0 — 23

Horizontal Scale (feet)

Vertical Exaggeration: 42.5x

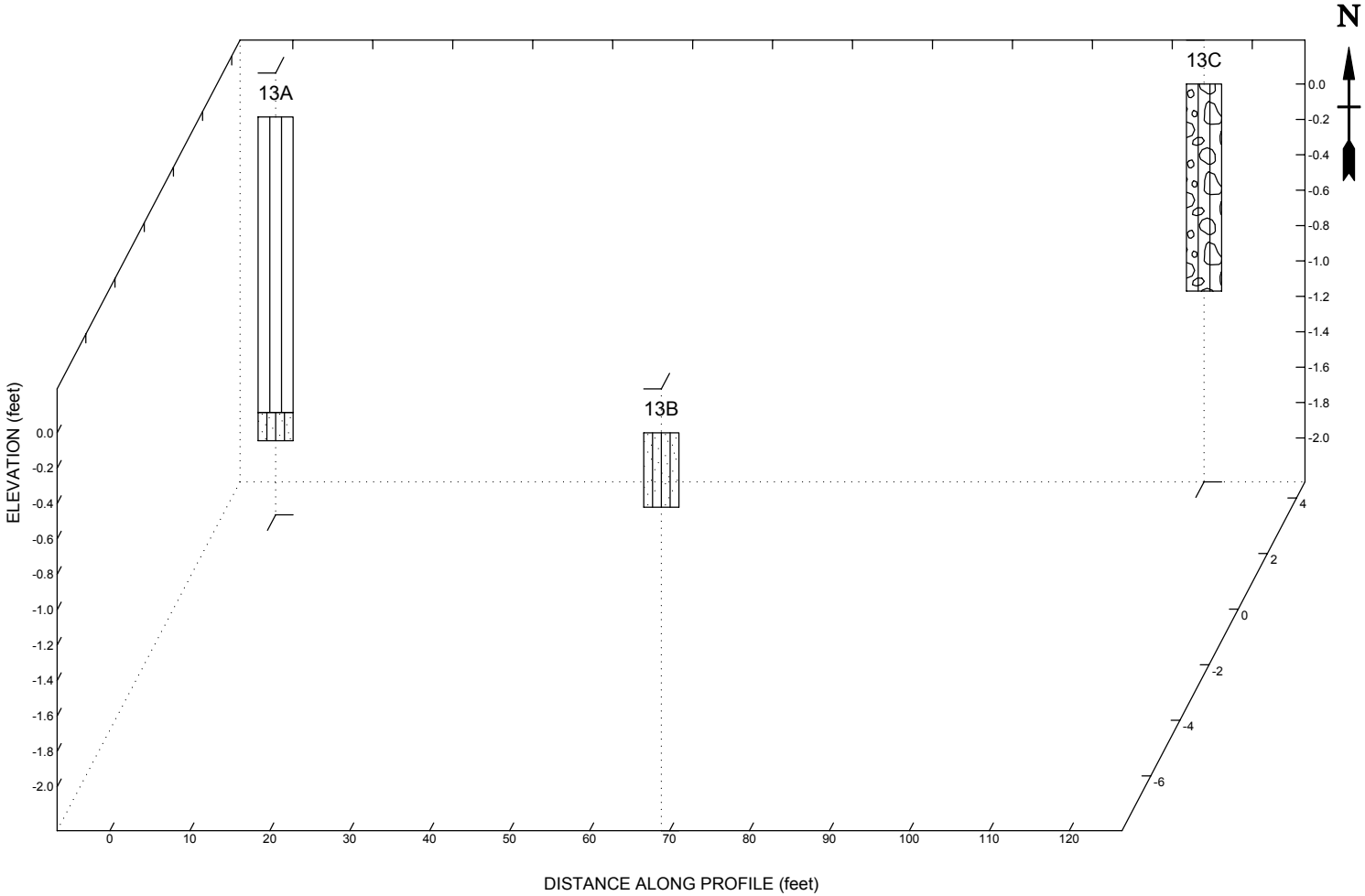
Malcolm Pirnie, Inc.

Location : Mile 12

MALCOLM PIRNIE

Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	12A - 12C

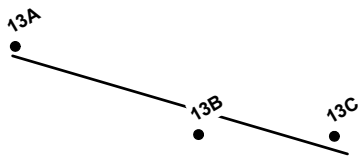


Lithology Graphics

Silt

Silty Sand or Silt and Sand

Silty Gravel



Site Map Scale 1 inch equals 65 feet

Explanation

13A — Borehole Number

Borehole Lithology

Water Level Reading at time of drilling.

Water Level Reading after drilling.

0 22

Horizontal Scale (feet)

Vertical Exaggeration: 22x

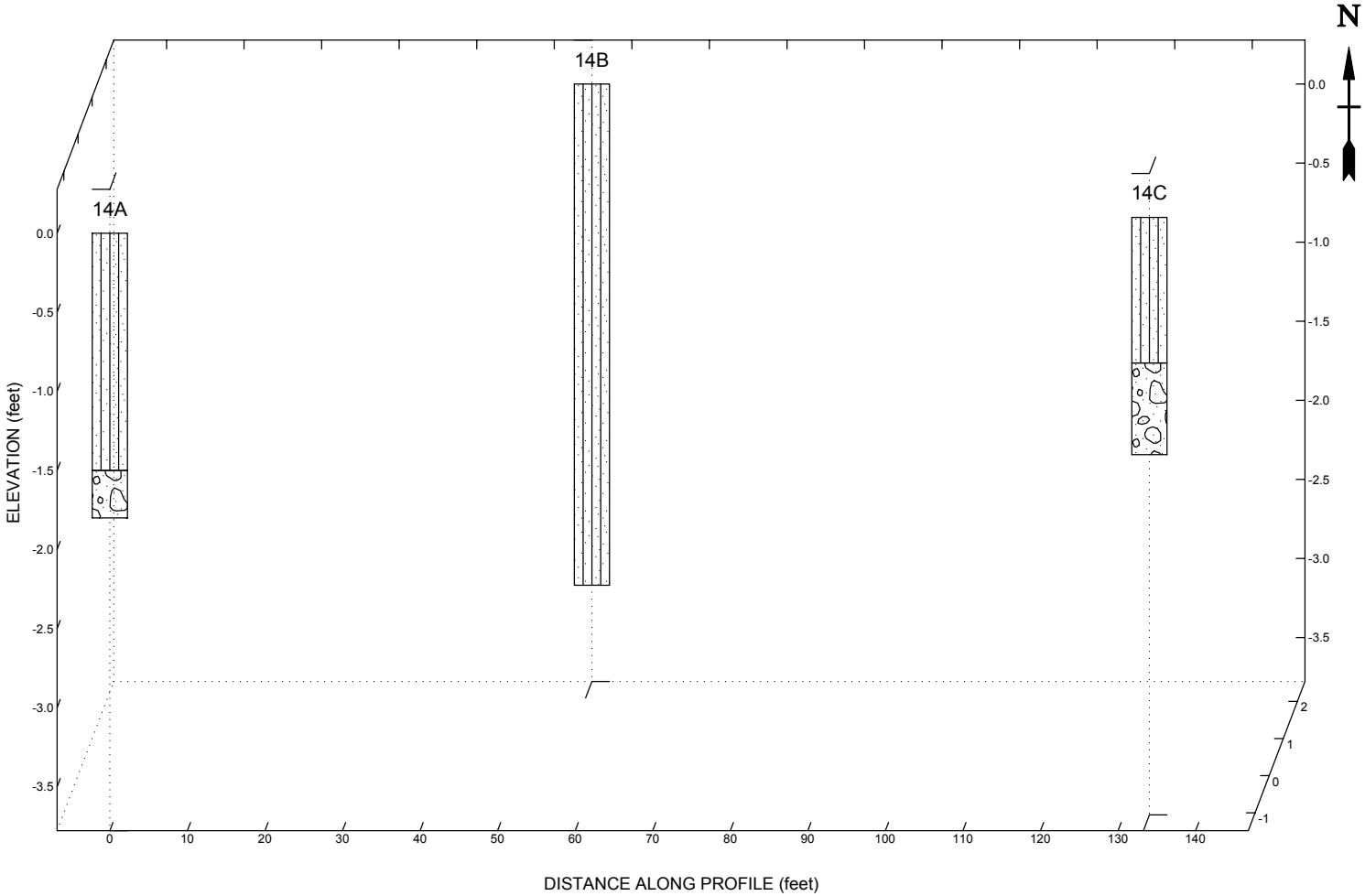
Malcolm Pirnie, Inc.

Location : Mile 13

MALCOLM PIRNIE

Lower Passaic River
New Jersey

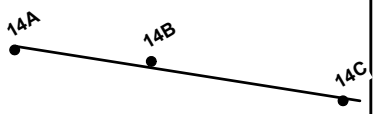
JOB NUMBER	TRANSECT NUMBER
3473007	13A - 13C



Lithology Graphics

Silty Sand or Silt and Sand

Gravelly Sand



Site Map Scale 1 inch equals 75 feet

Explanation

14A — Borehole Number

Borehole Lithology

Water Level Reading at time of drilling.

Water Level Reading after drilling.

0 23

Horizontal Scale (feet)

Vertical Exaggeration: 20.5x

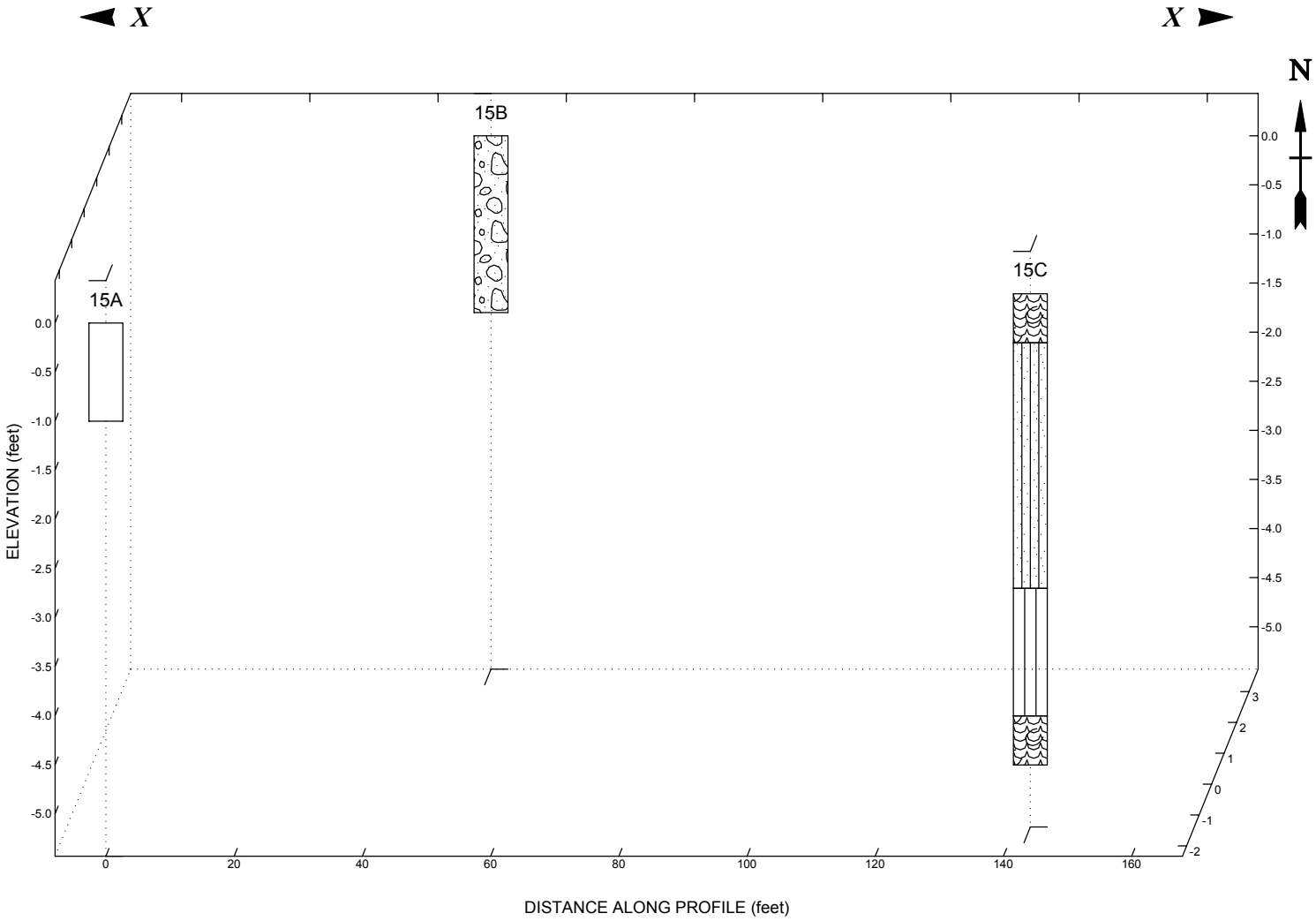
Malcolm Pirnie, Inc.

Location : Mile 14

MALCOLM PIRNIE

Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	14A - 14C



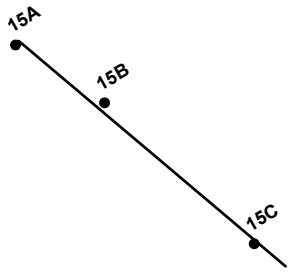
Lithology Graphics

Gravelly Sand

Organic silt or clay with shells

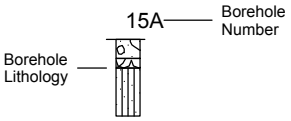
Silty Sand or Silt and Sand

Silt



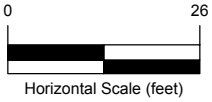
Site Map Scale 1 inch equals 90 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 15.5x

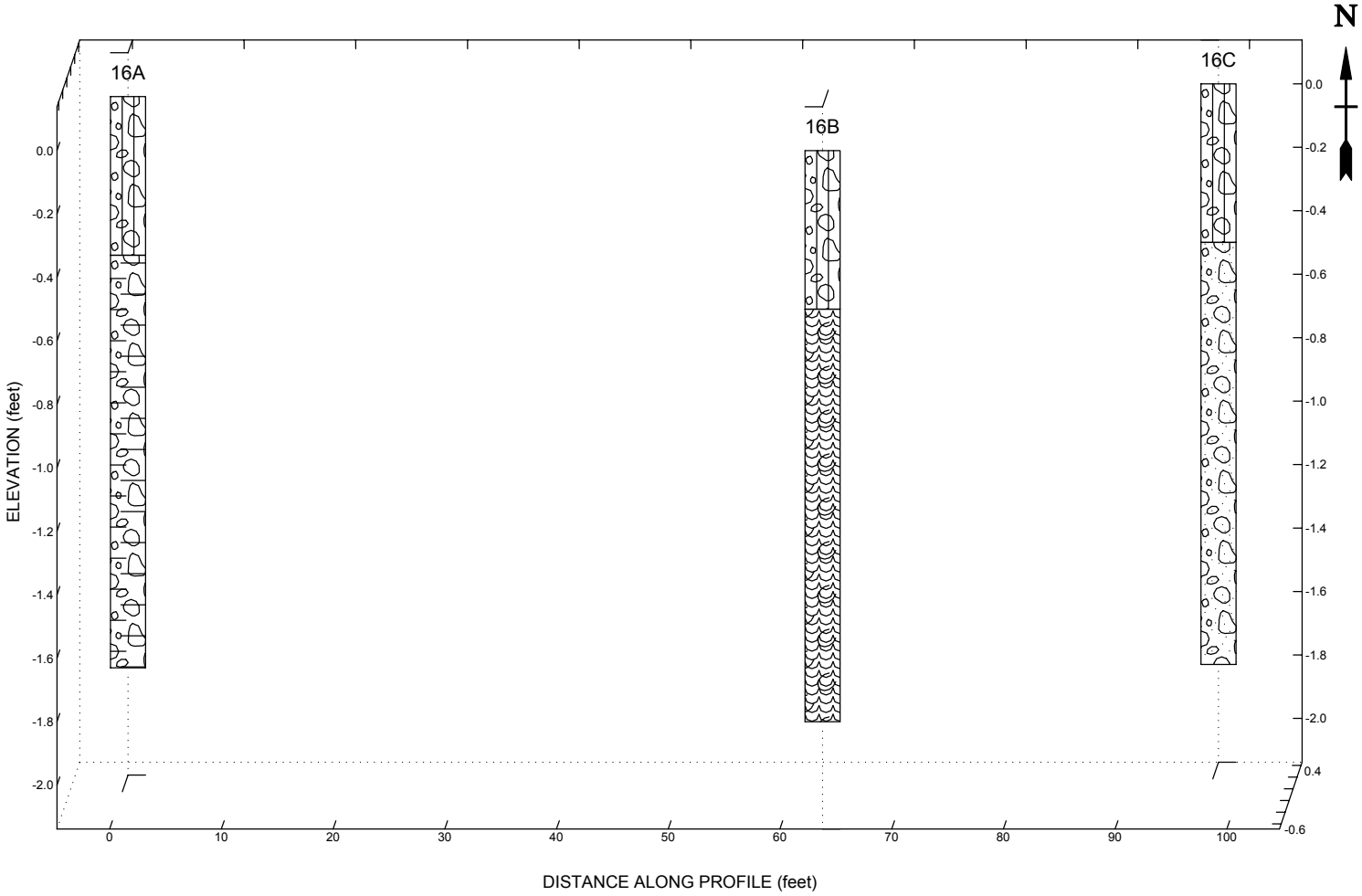
Malcolm Pirnie, Inc.

Location : Mile 15

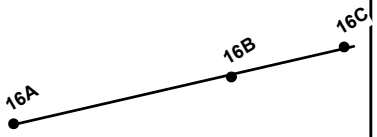
MALCOLM PIRNIE

Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	15A - 15C

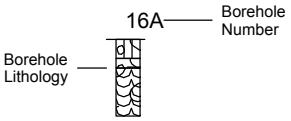


Lithology Graphics



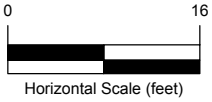
Site Map Scale 1 inch equals 55 feet

Explanation



Water Level Reading at time of drilling.

Water Level Reading after drilling.



Vertical Exaggeration: 28.5x

Malcolm Pirnie, Inc.

Location : Mile 16

MALCOLM PIRNIE

Lower Passaic River
New Jersey

JOB NUMBER	TRANSECT NUMBER
3473007	16A - 16C

2005 Sediment Sampling and Radiological Results

Malcolm Pirnie, Inc. report summarizing sediment samples collected in August and September 2005 from the Lower Passaic River and analyzed for radiological data, including beryllium-7 and cesium-137. This attachment includes tables and a one-mile-per-plate map book. Note that the map book only includes select river miles where samples were collected: RM 0-1, RM 1-2, RM 2-3, RM 3-4, RM 4-5, RM 6-7, RM 7-8, RM 9-10, RM 10-11, RM 12-13, RM 13-14, and RM 17-18.

1.0 INTRODUCTION

Surface sediment samples from the Lower Passaic River and Dundee Lake were collected and analyzed for Beryllium-7 (Be^7) to aid in selecting high resolution coring locations. This report describes the Be^7 sampling methodology, the results of the sediment analysis, and the subsequent high resolution coring location selection based on the Be^7 data, as well as other information.

Be^7 analysis is a common tool used to indicate recent sediment deposition since this radionuclide has a 54-day half-life. If Be^7 is detected in surface sediments, then it is likely that those sediments were deposited within the last 6 months, indicating that the site is depositional at the time of sample collection. Recent deposition was considered along with indicators of historic deposition in the selection of high resolution coring locations. As part of the Be^7 sampling effort, samples were also analyzed for Cesium-137 (Cs^{137}), whose concentration is an important component of the high resolution core dating process. Sites for Be^7 sample collection were identified from historical sediment core data, bathymetric surveys, the side scan sonar survey, and field observations.

2.0 METHODOLOGY

Surface sediment samples were collected from a depth of approximately 0-1 cm with an Eckman dredge that was equipped with a custom built Plexiglas liner, designed to prevent "slump" in the collected sediment sample. Sampling sites were located in 12 different target areas (TA) located between river mile (RM) 0 and RM 16 and from above Dundee Dam. [These target areas were previously identified in Figure 4-2 of the Field Sampling Plan Volume 1 (Malcolm Pirnie, Inc., 2005). Note that while 13 areas are presented in this figure, no surface sediment samples were collected from TA 12 due to coarse or rocky bottom.] Approximately three samples were collected from each target area (one sample from each of three sites per target area). Additional samples were obtained from other locations outside target areas where field conditions or existing data suggested a good high resolution coring location. The data sets used in identifying target areas and individual sampling sites included:

- Sediment texture information based on the side scan sonar survey.
- Sedimentation rates calculated using historical bathymetric data.
- Location of previously collected core samples with an interpretable Cs^{137} profile (e.g., Tierra Solution, Inc. 1995 historic dated cores).

Table 1 lists the surface sediment samples collected for analysis. These samples were analyzed for Be^7, Cs^{137}, and percent moisture. If during sampling, the site conditions were not found to be suitable for future core collection, sediment samples were not collected or retained for analysis. The most common reasons to abandon a site were:

- Coarse-grained sediment unlikely to be depositional.
- Sediment layer too thin to yield a good core.

- Leafy or other debris present at the sediment surface.

Table 2 is a listing of the locations that were occupied and subsequently abandoned during surface sediment sampling and the rationale behind abandonment.

3.0 DISCUSSION OF RESULTS

Be^7 concentrations from the surface samples ranged from non-detect to 9.71 picocuries per gram (pCi/g). The maximum concentration was obtained from Sample ID 001, near RM 12.3. Relatively high Be^7 concentrations were typically located north of RM 8 while relatively lower concentrations were typically located south of RM 8.

Cs^{137} concentrations from the surface samples ranged from non-detect to 0.714 pCi/g. The maximum concentration was obtained from Sample ID 031, located above Dundee Dam. Cs^{137} concentrations from samples collected above RM 15 tended to be lower than those samples collected below RM 15.

Percent moisture in the samples ranged from 42% in the sample collected from Sample ID 008 (located at RM 2) to 81% in the sample collected from Sample ID 029 (located at RM 9).

Analytical results are presented in Table 1. These results were evaluated in conjunction with sediment texture and calculated sedimentation rates. High resolution coring locations were then selected based on the most favorable combination of sediment texture, depositional rate, and recent radiological results. The desired attributes for each criterion included:

- Positive Be^7 detection and local concentration maxima.
- Cs^{137} concentration consistent with recent deposition (approximately 0.4 pCi/g or less).
- Classification as a fine sediment texture, preferably silt.
- Sediment deposition rate greater than 0 inches per year, but less than 5 inches per year because areas with a relatively high deposition rate were more likely to have been recently dredged.

Of these criteria, a high Be^7 concentration and the appropriate sediment type were the most important, followed by the desired calculated deposition rate, and an appropriate Cs^{137} concentration. Table 3 lists the surface sediment sample locations selected as final high resolution coring locations. Sampling locations are plotted on the attached sedimentation-rate maps. Note that each map sheet represents one river mile; sections of the river that do not contain a sampling location are not provided.

4.0 LOCATION CLASSIFICATION

Sediment sampling sites were classified into four categories, which are discussed below:

- High Resolution Coring Locations.
- Potential High Resolution Coring Locations.
- Additional Core Top Sampling Locations.
- No additional sample collection.

The rationale behind the selection of each location is described in the below sections.

4.1 HIGH RESOLUTION CORING LOCATIONS

4.1.1 Sample ID 005 at RM 1.05

Sample ID 005 is located in the northeastern section of TA 1 and in sediment classified as silt. Of the three samples collected in TA 1, Sample ID 005 had the highest Be^7 concentration (0.74 pCi/g) and was located in an area with a deposition rate of 2-3 inches per year. The detected Cs^{137} concentration in this sample (0.1 pCi/g) was also indicative of recently deposited sediments.

4.1.2 Sample ID 007 at RM 1.4

Sample ID 007 (associated with Tierra Solutions, Inc. location number BBL 209) is located towards the eastern river bank between TA 1 and TA 2 and sediment classified as silt with a deposition rate of 2-3 inches per year. Be^7 results for the sample (1.04 pCi/g) suggest recent deposition, and the detected Cs^{137} concentration (0.17 pCi/g) is also indicative of recently deposited sediments.

4.1.3 Sample ID 009 at RM 2.2

Sample ID 009 is located in the northwestern part of TA 2 in sediment that is classified as silt. This site is located on the border of two depositional areas with the average rate of 3 inches per year. Of the two samples collected in TA 2, Sample ID 009 had the highest Be^7 concentration (1.39 pCi/g), and the detected Cs^{137} concentration (0.12 pCi/g) is also indicative of recently deposited sediments.

4.1.4 Sample ID 010 at RM 2.6

Sample ID 010 (associated with Tierra Solutions, Inc. location number BBL 222) is located in the southern part of the navigation channel between TA 2 and TA 3 in sediment classified as silt with a deposition rate of 1-2 inches per year. Be^7 results for the sample (0.85 pCi/g) and the detected Cs^{137} concentration (0.12 pCi/g) indicate that sediments were recently deposited.

4.1.5 Sample ID 017 at RM 3.5

Sample ID 017 (associated with Tierra Solutions, Inc. location number BBL 235) is located in the northern part of the navigation channel between TA 3 and TA 4 in

sediment classified as silt and at the edge of an area with a deposition rate of 0-1 inches per year. The detected Be^7 concentration (0.64 pCi/g) in Sample ID 017 was the highest of the three samples collected in TA 3, and the Cs^{137} concentration (0.19 pCi/g), is indicative of recently deposited sediments.

4.1.6 Sample ID 018 at RM 4.1

Sample ID 018 is located in the northwestern part of TA 4 in sediment classified as silt. A deposition rate could not be calculated from the historical data for this specific location, but the sampling point is at the edge of an area with a deposition rate of 0-1 inches per year. The detected Be^7 concentration (1.34 pCi/g) in Sample ID 018 was the highest of the three samples collected in TA 4, and the Cs^{137} concentration (0.19 pCi/g) is indicative of recent deposition.

4.1.7 Sample ID 024 at RM 6.4

Sample ID 024 is located in the southwestern part of TA 6 in sediment classified as silt with a deposition rate of 1-2 inches per year. The detected Be^7 (0.818 pCi/g) and the Cs^{137} (0.13 pCi/g) concentrations are indicative of recent deposition.

4.1.8 Sample ID 026 at RM 7.8

Sample ID 026 is located in the middle of TA 7 in sediment classified as silt. A deposition rate could not be calculated from the historical data for that specific location, but the sampling point is at the edge of an area with a deposition rate of 0-1 inches per year. The detected Be^7 (2.47 pCi/g) and Cs^{137} (0.2 pCi/g) concentrations are indicative of recent deposition.

4.1.9 Sample ID 013 at RM 10.0

Sample ID 013 is located in the northern part of TA 8 in an area classified as silt with a deposition rate of 2-3 inches per year. The detected Be^7 concentration (5.85 pCi/g) was the highest of the three samples collected in TA 8, and the detected Cs^{137} concentration (0.22) is also indicative of recent deposition.

4.1.10 Sample ID 028 at RM10.8

Sample ID 028 is located just outside of the TA 9 border to the south, between TA 8 and TA 9, in an area classified as silt with a deposition rate of 0-1 inches per year. The detected Be^7 (4.82 pCi/g) and Cs^{137} (0.241 pCi/g) concentrations are indicative of recent deposition.

4.1.11 Sample ID 029 at RM 11.0

Sample ID 029 is located in the southwestern part of TA 9 in an area classified as silt. While the historical deposition rate calculated for this area is -1 to 0 inches per year, the detected Be^7 (5.88 pCi/g) and Cs^{137} (0.306 pCi/g) concentrations are indicative of recent deposition. Note that the site is also located on the edge of an area with a deposition rate of 0-1 inches per year.

4.1.12 Sample ID 001 at RM 12.3

Sample ID 001 is located on the southern border of TA 10 in sediment classified as silt with a deposition rate of 2-3 inches per year. The detected Be^7 concentration (9.71 pCi/g) was the highest of the three samples collected in the TA 10 area, and the detected Cs^{137} (0.29 pCi/g) concentration is also indicative of recent deposition.

4.1.13 Sample ID 032 at RM 12.6

Sample ID 032 is located in the middle of TA 10 in sediment with a deposition rate of 0-1 inches per year. Historical classification suggests that the area is composed of rock and coarse gravel, but field observation of the sample collected indicated that the material consisted of sandy silt with approximately 20% sand. The detected Be^7 concentration (3.01 pCi/g) was the second highest of the three samples collected in the TA 10 area, and the detected Cs^{137} concentration (0.132 pCi/g) is consistent with recent deposition.

4.1.14 Sample ID 037 at RM 18.0

Sample ID 037 is located above the Dundee Dam near approximately RM 18. No historical information is available for this site, but field observation of the collected material indicated that the sediment consisted of silt with 15-20% fine sand. The detected Be^7 concentration (1.6 pCi.g) was the highest of the five samples collected above Dundee Dam. The detected Cs^{137} concentration (0.089 pCi/g) is consistent with recent deposition.

4.1.15 Sample ID 035 at RM 17.0

Sample ID 035 is also located above the Dundee Dam, southwest of Sample ID 037. No historical information is available for this site, but field observations of the collected material indicated that the sediment consisted of sandy silt with approximately 10-15% fine sand and 10-15% organic debris. The detected Be^7 concentration (0.89 pCi/g) was the second highest of the five samples collected above Dundee Dam, and the detected Cs^{137} concentration (0.148 pCi/g) is consistent with recent deposition.

4.2 POTENTIAL HIGH RESOLUTION CORING LOCATIONS

The following four sampling sites were identified as potential high resolution coring locations. These potential locations were established to serve as “back-up locations” in the event that a high-resolution core was not successfully obtained from the 15 primary coring locations. Potential locations would only be used to replace a local coring site (*e.g.*, Sample ID 006 might replace Sample ID 005). Information pertaining to these sites is summarized in the table below.

Sample ID	River Mile	Target Area	Sedimentation Rate (in/year)	Be-7 (pCi/g)	Cs-137 (pCi/g)	Notes
006	1.2	1	Border of 4-5 and >5	0.73	0.10	Recent deposition
020	3.8	4	0-1	0.54	0.12	Recent deposition
012	9.9	8	2-3	4.39	0.19	Recent deposition
031	12.5	10	Border of (-1)-0 and 0-1	3.13	0.71	Not continuously depositional

While in the field, a center channel station was also defined in TA 1 as a potential sampling location in the event that a successful high resolution core could not be collected from Sample ID 005 or Sample ID 006. No surface sediment core was collected from this area during the Be^7 program. This site was selected base on field observations and deposition rate calculations.

4.3 ADDITIONAL CORE TOP SAMPLING

4.3.1 Sample ID 002 at RM 14.0

Sample ID 002 is located in the eastern part of TA 11 in sediment classified as silt and sand with a deposition rate of 1-2 inches per year. While the detected Be^7 level (5.08 pCi/g) was relatively high, the Cs^{137} level (0.07 pCi/g) was considered too low to be indicative of a site with continuous deposition. Sample ID 002 was not identified as a potential high resolution coring location; however, this site was identified for future core top sampling. Core top samples (0-1 cm) will be analyzed for a suite of chemicals to determine the contamination concentration in recently deposited sediments.

4.4 LOCATIONS NOT SELECTED FOR ADDITIONAL SAMPLING

The following sample locations were not selected for additional sample collection:

- Sample ID 003
- Sample ID 004
- Sample ID 008
- Sample ID 011
- Sample ID 014
- Sample ID 015
- Sample ID 016
- Sample ID 019
- Sample ID 021
- Sample ID 022
- Sample ID 023
- Sample ID 034
- Sample ID 036
- Sample ID 036 dup
- Sample ID 038

Table 1

Be^7 Sampling Locations

Field Sample ID	PREmis Sample ID	Date Collected	Time Collected	Water Depth (ft)	Probe Depth (ft)	Northing	Easting	Be-7 (pCi/g)	Be-7 error (+/-) (pCi/g)	Cs-137 (pCi/g)	Cs-137 error (+/-) (pCi/g)	Percent Moisture (%)	River Mile	Target Area	Associated BBL location	Description and Comments
001	LPRP-SCSS-PSR-000020	08/29/2005	03:15:00PM	8	4.5	728363.9	596911.9	9.71	2.75	0.29	0.038	62.80	12.3	10		Gray silt with trace fine sand
002	LPRP-SCSS-PSR-000021	08/29/2005	04:30:00PM	11.5	6	737051.2	597369.9	5.08	1.43	0.07	0.026	64.20	14.0	11		Dark brown, low plasticity silt with approx. 30% fine sand
003	LPRP-SCSS-PSR-000022	08/30/2005	10:05:00AM	9.5		688848.4	597504.8	0.531	0.240	0.133	0.018	48.10	1.00	1		Brownish gray low plasticity silt with trace fine sand
004	LPRP-SCSS-PSR-000023	08/30/2005	10:15:00AM	9		689076.8	597585.6	0.409	0.123	0.097	0.016	61.20	1.03	1		Brownish gray low plasticity silt with trace fine sand
005	LPRP-SCSS-PSR-000024	08/30/2005	10:50:00AM	8		689423.9	597694.4	0.738	0.244	0.148	0.017	64.60	1.05	1		Brownish gray low plasticity silt with trace fine sand; organic material observed
006	LPRP-SCSS-PSR-000025	08/30/2005	11:05:00AM	8	> 8	689974.3	597313.8	0.729	0.239	0.100	0.016	59.10	1.2	1		Brownish gray low plasticity silt with trace fine sand
007	LPRP-SCSS-PSR-000027	08/30/2005	11:30:00AM	9 to 10		691134.5	598082.7	1.04	0.325	0.169	0.069	64.20	1.4	bet 1, 2	209	Brown-gray silt with approx. 15% fine sand and trace organics; strong sewage odor
008	LPRP-SCSS-PSR-000028	08/30/2005	12:00:00PM	11	5	693995.4	598123.4	0.443	0.244	0.094	0.011	42.10	2.0			Brown-gray silt with approx. 15% fine sand and trace organics; strong sewage odor
009	LPRP-SCSS-PSR-000029	08/30/2005	12:20:00PM	4	> 7.5	694855.0	597581.8	1.39	0.401	0.124	0.029	76.20	2.2	2		Dark brown silt with approx. 15% fine sand and 10-20% organic debris
010	LPRP-SCSS-PSR-000030	08/30/2005	01:05:00PM	12	> 6	695468.4	595394.1	0.852	0.252	0.120	0.014	61.90	2.6	bet 2,4	222	Brownish gray silt with trace fine sand and approx 15% organic debris; hard crust felt during probing
011	LPRP-SCSS-PSR-000031	08/30/2005	03:55:00PM	7	> 6	717395.0	592093.0	1.020	0.293	0.106	0.010	50.30	9.8	8		Brownish gray silt with 30% fine sand
012	LPRP-SCSS-PSR-000032	08/30/2005	04:15:00PM	5		718091.0	591954.0	4.390	1.230	0.189	0.053	75.80	9.9	8		Brownish green low plasticity silt with trace fine sand; high water content
013	LPRP-SCSS-PSR-000033	08/30/2005	04:30:00PM	7	> 8	718844.0	592139.0	5.850	1.630	0.224	0.018	78.80	10.0	8		Brownish green low plasticity silt with trave fine sand; high water content; probe tight at bottom
014	LPRP-SCSS-PSR-000034	09/01/2005	11:00:00AM	19	> 4	695347.0	593116.0	0.276	0.077	0.203	0.020	67.40	3.1	3	230	Gray-black, low plasticity silt with trace clay; slight odor
015	LPRP-SCSS-PSR-000035	09/01/2005	11:40:00AM	12	> 6	695235.0	593232.0	0.210	0.095	0.135	0.013	55.20	3.1	3	228	Dark brown-black silt with trace clay; significant organic matter (leaves, twigs, roots) retrieved with samples
016	LPRP-SCSS-PSR-000036	09/01/2005	12:05:00PM	15	> 3 to 4	695521.0	393692.0	0.225	0.077	0.173	0.011	63.80	2.9	3		Brownish silt with trace clay and 10-20 % sand
017	LPRP-SCSS-PSR-000037	09/01/2005	01:00:00PM	15	> 4	694335.0	591088.0	0.637	0.193	0.350	0.033	63.80	3.5	bet 3,4	235	Grayish-black silt with little sand, trace clay, and trace organic debris
018	LPRP-SCSS-PSR-000038	09/01/2005	01:35:00PM	6	8	692630.0	589232.0	1.340	0.374	0.185	0.015	42.50	4.1	4	241 (ballpark)	Brownish black silt with trace clay and trace to little leaf litter
019	LPRP-SCSS-PSR-000039	09/01/2005	02:10:00PM	18	soft	692312.0	589331.0	0.139	0.039	0.104	0.018	46.30	4.1	4		Brownish black silt with trace clay, little fine sand, and little coarse sand
020	LPRP-SCSS-PSR-000040	09/01/2005	02:35:00PM	17	soft	692949.0	590463.0	0.541	0.169	0.124	0.014	49.10	3.8	4		Grayish brown silt
021	LPRP-SCSS-PSR-000041	09/01/2005	03:15:00PM	8	soft	692971.0	586227.0	0.011	0.008	0.142	0.026	60.20	4.7	5	251	Dark brownish black silt with trace clay and little to trace sand
022	LPRP-SCSS-PSR-000042	09/06/2005	09:40:00AM	16	> 4	694051.1	585621.2	0.217	0.095	0.134	0.020	55.00	4.9	5		Brown-gray silt with approx. 10% fine sand
023	LPRP-SCSS-PSR-000043	09/02/2005	10:10:00AM	17.5	> 3	694785.9	585416.3	0.376	0.140	0.123	0.013	51.10	5.1	5		Grayish-black silt with approx. 10% fine sand; sulfur (rotten eggs) odor
024	LPRP-SCSS-PSR-000044	09/02/2005	11:05:00AM	13	4	701755.2	585490.1	0.818	0.235	0.130	0.140	45.20	6.4	6		Silt with at least 30% sand
026*	LPRP-SCSS-PSR-000045	09/02/2005	12:35:00PM	12	3	708047.0	588852.0	2.470	0.698	0.200	0.020	66.20	7.8	7		Dartk brown silt with trace fine sand
028	LPRP-SCSS-PSR-000046	09/02/2005	01:55:00PM	5	> 4	722786.7	592666.5	4.820	1.340	0.241	0.024	75.80	10.8	9		Greenish brown low plasticity silt with trace fine sand
029	LPRP-SCSS-PSR-000047	09/02/2005	02:45:00PM	4.5	> 5	723366.3	593419.6	5.880	1.630	0.306	0.029	80.50	11.0	9		Greenish brown low plasticity silt with trace fine sand
031	LPRP-SCSS-PSR-000048	09/02/2005	03:20:00PM	8.5	4	729263.2	596532.5	3.130	0.883	0.714	0.050	70.00	12.5	10		Brownish green low plasticity silt with trace fine sand and trace clay
032	LPRP-SCSS-PSR-000049	09/02/2005	03:55:00PM	6	soft silt	729624.2	596399.6	3.010	0.842	0.132	0.011	61.80	12.6	10		Brownish sandy silt with 20% fine sand; sample collected in 3 feet of water
034	LPRP-SCSS-PSR-000050	09/06/2005	03:10:00PM	5	> 3	747318.0	594381.0	0.001	0.001	0.009	0.005	59.50	17.0	above DD		Dark brown sandy silt with approx. 30% fine sand and trace organic debris
035	LPRP-SCSS-PSR-000051	09/06/2005	03:40:00PM	4	> 5	747930.0	594041.0	0.890	0.257	0.148	0.012	61.60	17.0	above DD	01A	Dark brown sandy silt with approx. 10-15% fine sand and approx. 10-15% organic debris
036	LPRP-SCSS-PSR-000052	09/06/2005	04:40:00PM	1	3	747660.0	594325.0	0.169	0.094	0.122	0.021	45.10	17.0	above DD		Dark brown silt with approx. 30% fine sand
036 dup	LPRP-SCSS-PSR-000053	09/06/2005	04:45:00PM	1	3	747660.0	594325.0	0.348	0.107	0.084	0.015	42.60	17.0	above DD		Dark brown silt with approx. 30% fine sand
037	LPRP-SCSS-PSR-000055	09/08/2005	09:35:00AM	6	> 3 to 4	750527.0	594773.0	1.600	0.451	0.089	0.008	59.10	18.0	above DD		Brown silt with 15-20% fine sand; petroleum odor
038	LPRP-SCSS-PSR-000056	09/08/2005	09:55:00AM	5	4	750910.0	594653.0	0.464	0.161	0.043	0.007	46.00	18.0	above DD		Brown silt with 10-20% fine sand; petroleum odor (slightly stronger than that at 037)

Note:

* GPS not working, coordinates are approximate

Table 2
Abandoned Potential Be^7 Sampling Locations

Field ID	Date	Time	Water Depth (ft)	Probe Depth (ft)	Northing	Easting	Target Area	Sample/Probe	Reason for Abandonment
008	8/30/2005	11:45	5		698772.7	598104.9		sample	Too much organic material to collect a silt sample
018	9/1/2005	13:15	8	> 7	692573.0	589490.0	4	sample	Leaf litter obtained; silt could not be collected
019	9/1/2005	13:45	5	> 6	692695.0	589859.0	4	sample	Leaf litter obtained; silt could not be collected
021A	9/2/2005	10:00	16	> 4	694061.0	585634.9	5	probe	Silt over sandy bottom
024A	9/2/2005	10:30	10	4	701000	585250	6	sample	Was not able to retrieve sediment
024	9/2/2005	10:40	9	4	701255.84	585364.57	6	probe	< than three feet of mud
025	9/2/2005	11:20		< 3	703700	586511		probe	< than three feet of mud
025	9/2/2005		18		704028.56	586971.82		probe	18 ft of water and gravel
025	9/2/2005	11:35	10	4	704537.08	587224.4		probe	Boat drifted
025	9/2/2005	11:51	7	3	704712.65	587303.88		probe	Spotty mud
026	9/2/2005				708200	589000	7	probe	Sandy
027	9/2/2005	12:45	3.5	3.5	707460.56	588320.63		probe	Silt underlain by sand
027	9/2/2005				707416	588323		probe	Hard bottom
029	9/2/2005		4.5	5	723427.6	593351	8	probe	Sandy bottom
030	9/2/2005				723558.6	593861.73		probe	Sand
030	9/2/2005				723505.9	53382.75		probe	2.5 ft of mud
033	9/2/2005	16:20			737600	597392	11	probe	sand
033	9/2/2005		3.5	1	737817	597498	11	probe	only 1' silt
033	9/2/2005				738184	597689	11	probe	sand
033	9/2/2005				738268.58	597916.5	11	probe	sand
033	9/2/2005				738310	598793	11	probe	Sand
033	9/2/2005		approx 3		737353.27	599360.63	11	probe	Sand with a little bit of silt
036A	9/6/2005	16:00	2	> 4 silt	748178	594317	above DD	sample	Sandy material retrieved
036B	9/6/2005	16:10	1	> 2	747990	594345	above DD	sample	Sandy material retrieved
036C	9/6/2005	16:15		sand	749158	594500	above DD	probe	Sandy material retrieved
036D	9/6/2005	16:20	> 10	sand	749078	594773	above DD	probe	Sandy material retrieved
037A	9/7/2005	9:05	2	4 soft	749477	594432	above DD	sample	First drop didn't release properly; second yielded sand
037B	9/7/2005	9:10	> 2	sand	749454	594795	above DD	probe	Sand
037C	9/7/2005	9:15	deep	sand	749521	594857	above DD	probe	Sand
037D	9/7/2005	9:20	8	sand	749770	594720	above DD	probe	Sand
039	9/7/2005	10:00		cs	750940	594397	above DD	probe	Coarse sand
040A	9/7/2005	14:30	3.5	cs, gr, rock	742348	598920	12	probe	Coarse sand, gravel, and rock
040B	9/7/2005	14:35	3	rock, gr	742077	598817	12	probe	Rock and gravel
040C	9/7/2005	14:40	4	rock, gr	741987	598998	12	probe	Rock and gravel
040D	9/7/2005	14:43	4	rock	741803	599203	12	probe	Rock
040E	9/7/2005	14:44	5	rock	741726	399175	12	probe	Rock
040F	9/7/2005	14:46	9	rock, gr	741474	599440	12	probe	Rock and gravel
040G	9/7/2005	14:47	5	rock	741411	599358	12	probe	Rock
040H	9/7/2005	14:48	4.5	rock	741119	599422	12	probe	Rock
040I	9/7/2005	14:49	5.5	rock	741097	599551	12	probe	Rock
040J	9/7/2005	14:53	5.5	rock	740436	599623	12	probe	Rock
040K	9/7/2005	14:55	5.5	gr, rock	740259	599866	12	probe	Gravel and rock
040L	9/7/2005	14:56			740060	600114	12	probe	Too deep to probe
040M	9/7/2005	14:48	6.5	rock	740059	600263	12	probe	Rock
040N	9/7/2005	15:00	5	rock	739657	600538	12	probe	Rock
040O	9/7/2005	15:02	3.5	rock	739643	600699	12	probe	Rock

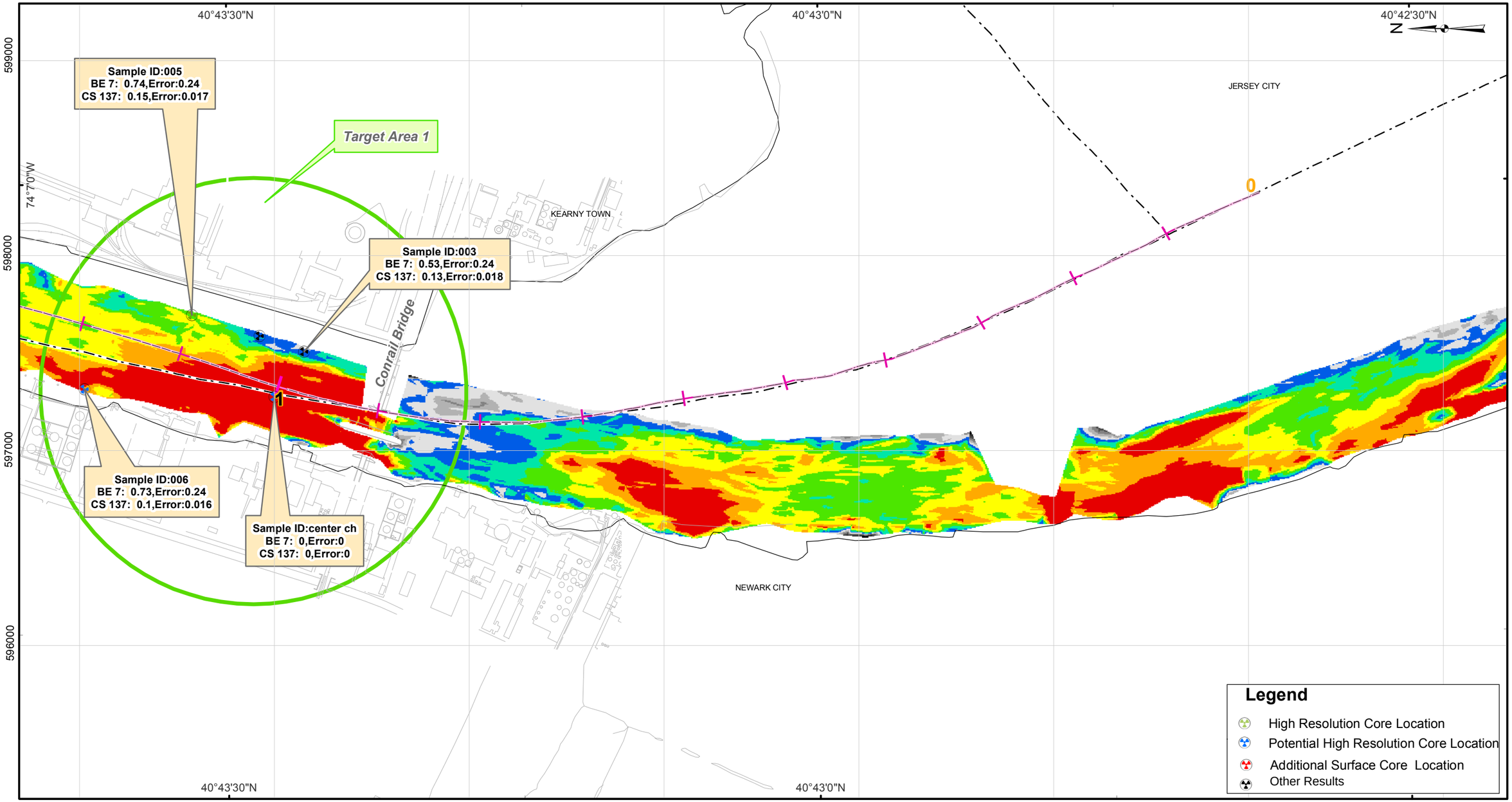
Total abandoned locations = 47

Table 3
High Resolution Core Sites

Sample Type	Field Sample ID	Water Depth (ft)	Probe Depth (ft)	Northing	Easting	Be-7 (pCi/g)	Be-7 error (+/-) (pCi/g)	Cs-137 (pCi/g)	Cs-137 error (+/-) (pCi/g)	Percent Moisture (%)	River Mile	Target Area	Associated BBL location	Description and Comments
core	**005**	**8**		**689423.9**	**597694.4**	**0.738**	**0.244**	**0.148**	**0.017**	**64.60**	**1.05**	**1**		Brownish gray low plasticity silt with trace fine sand; organic material observed
potential location	006	8	> 8	689974.3	597313.8	0.729	0.239	0.100	0.016	59.10	1.2	1		Brownish gray low plasticity silt with trace fine sand
potential location	center channel			689000.0	597275.0							1		Center channed station not sampled during the Be-7 program.
core	**007***	**9 to 10**		**691134.5**	**598082.7**	**1.04**	**0.325**	**0.169**	**0.069**	**64.20**	**1.4**	**bet 1, 2**	**209**	Brown-gray silt with approx. 15% fine sand and trace organics; strong sewage odor
core	**009**	**4**	**> 7.5**	**694855.0**	**597581.8**	**1.39**	**0.401**	**0.124**	**0.029**	**76.20**	**2.2**	**2**		Dark brown silt with approx. 15% fine sand and 10-20% organic debris
core	**010***	**12**	**> 6**	**695468.4**	**595394.1**	**0.852**	**0.252**	**0.120**	**0.014**	**61.90**	**2.6**	**bet 2,3**	**222**	Brownish gray silt with trace fine sand and approx 15% organic debris; hard crust felt during probing
core	**017***	**15**	**> 4**	**694335.0**	**591088.0**	**0.637**	**0.193**	**0.350**	**0.033**	**63.80**	**3.5**	**bet 3,4**	**235**	Grayish-black silt with little sand, trace clay, and trace organic debris
core	**018***	**6**	**8**	**692630.0**	**589232.0**	**1.340**	**0.374**	**0.185**	**0.015**	**42.50**	**4.1**	**4**	**241**	Brownish black silt with trace clay and trace to little leaf litter
potential location	020	17	soft	692949.0	590463.0	0.541	0.169	0.124	0.014	49.10	3.8	4		Grayish brown silt
core	**024**	**13**	**4**	**701755.2**	**585490.1**	**0.818**	**0.235**	**0.130**	**0.140**	**45.20**	**6.4**	**6**		**Silt with at least 30% sand**
core	**026***	**12**	**3**	**708047.0**	**588852.0**	**2.470**	**0.698**	**0.200**	**0.020**	**66.20**	**7.8**	**7**		**Dartk brown silt with trace fine sand**
core	**013**	**7**	**> 8**	**718844.0**	**592139.0**	**5.850**	**1.630**	**0.224**	**0.018**	**78.80**	**10.0**	**8**		Brownish green low plasticity silt with trave fine sand; high water content; probe tight at bottom
potential location	012	5		718091.0	591954.0	4.390	1.230	0.189	0.053	75.80	9.9	8		Brownish green low plasticity silt with trace fine sand; high water content
core	**028**	**5**	**> 4**	**722786.7**	**592666.5**	**4.820**	**1.340**	**0.241**	**0.024**	**75.80**	**10.8**	**9**		**Greenish brown low plasticity silt with trace fine sand**
core	**029**	**4.5**	**> 5**	**723366.3**	**593419.6**	**5.880**	**1.630**	**0.306**	**0.029**	**80.50**	**11.0**	**9**		**Greenish brown low plasticity silt with trace fine sand**
core	**001**	**8**	**4.5**	**728363.9**	**596911.9**	**9.71**	**2.75**	**0.29**	**0.038**	**62.80**	**12.3**	**10**		Gray silt with trace fine sand
core	**032**	**6**	**soft silt**	**729624.2**	**596399.6**	**3.010**	**0.842**	**0.132**	**0.011**	**61.80**	**12.6**	**10**		**Brownish sandy silt with 20% fine sand; sample collected in 3 feet of water**
potential location	031	8.5	4	729263.2	596532.5	3.130	0.883	0.714	0.050	70.00	12.5	10		Brownish green low plasticity silt with trace fine sand and trace clay
core top	002	11.5	6	737051.2	597369.9	5.08	1.43	0.07	0.026	64.20	14.0	11		Dark brown, low plasticity silt with approx. 30% fine sand
core	**035**	**4**	**> 5**	**747930.0**	**594041.0**	**0.890**	**0.257**	**0.148**	**0.012**	**61.60**	**17.0**	**above DD**	**01A**	**Dark brown sandy silt with approx. 10-15% fine sand and approx. 10-15% organic debris**
core	**037**	**6**	**> 3 to 4**	**750527.0**	**594773.0**	**1.600**	**0.451**	**0.089**	**0.008**	**59.10**	**18.0**	**above DD**		**Brown silt with 15-20% fine sand; petroleum odor**

NOTES:
Potential locations are alternate spots to collect a sample if the defined core location cannot be successfully sampled.
DoC = depth of contamination

Field Sample ID	Note
007	Near BBL ID 209. Cs-137 extends to 5 ft. Anticipated DoC of 10 ft.
010	Near BBL ID 222. Cs-137 extends to 11.5 ft. Anticipated DoC of 23 ft.
017	Near BBL ID 235. Cs-137 extends to 6.5 ft. Anticipated DoC of 13 ft.
018	Near BBL ID 241. Cs-137 extends to 8.5 ft. Anticipated DoC of 16 ft.
01A	



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MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

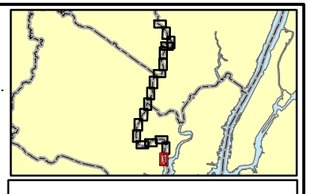
+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

0 250 500 1,000

1 " equals 500 '



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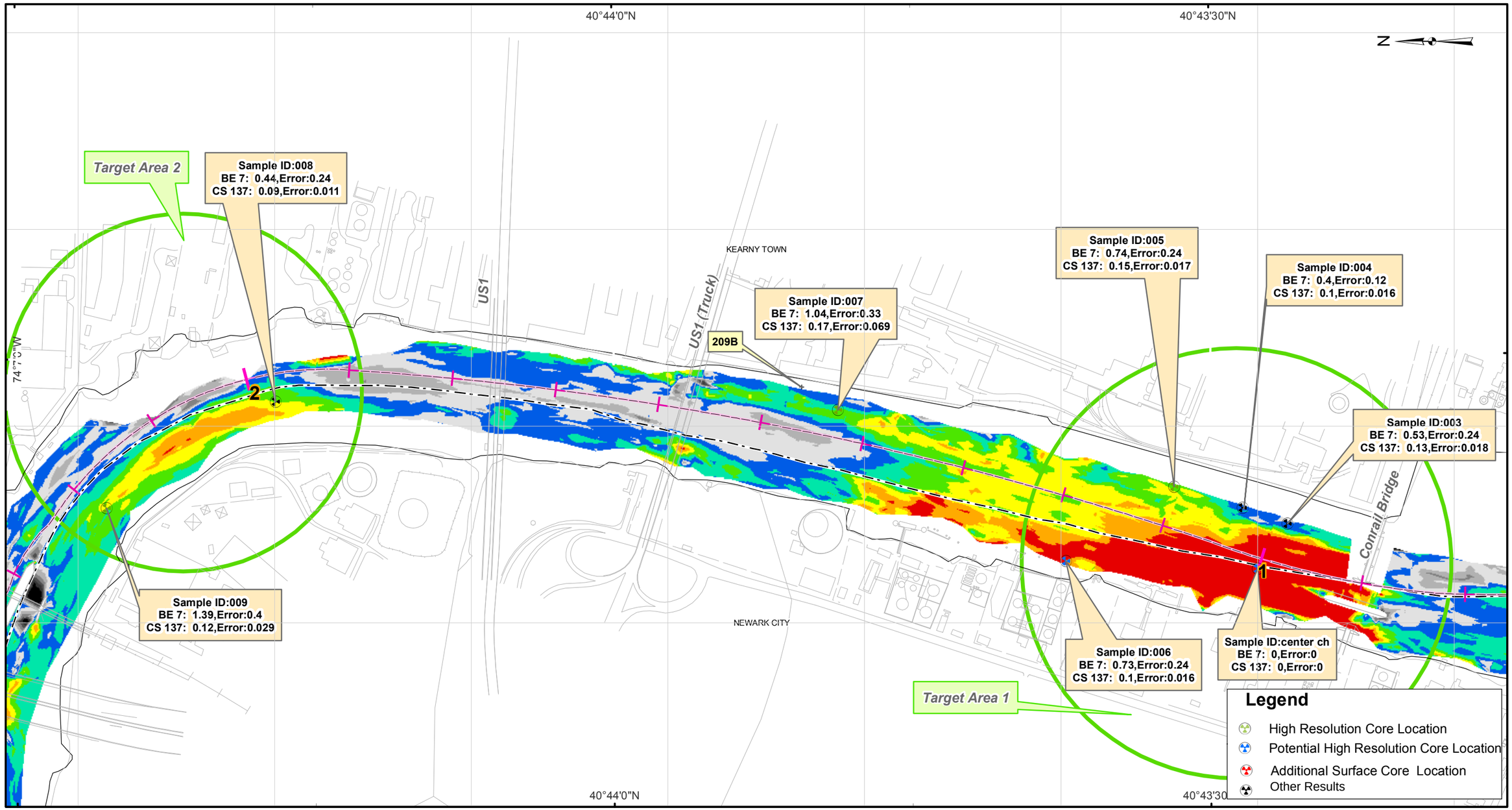

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

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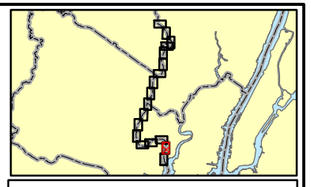

Mile 1 to 2

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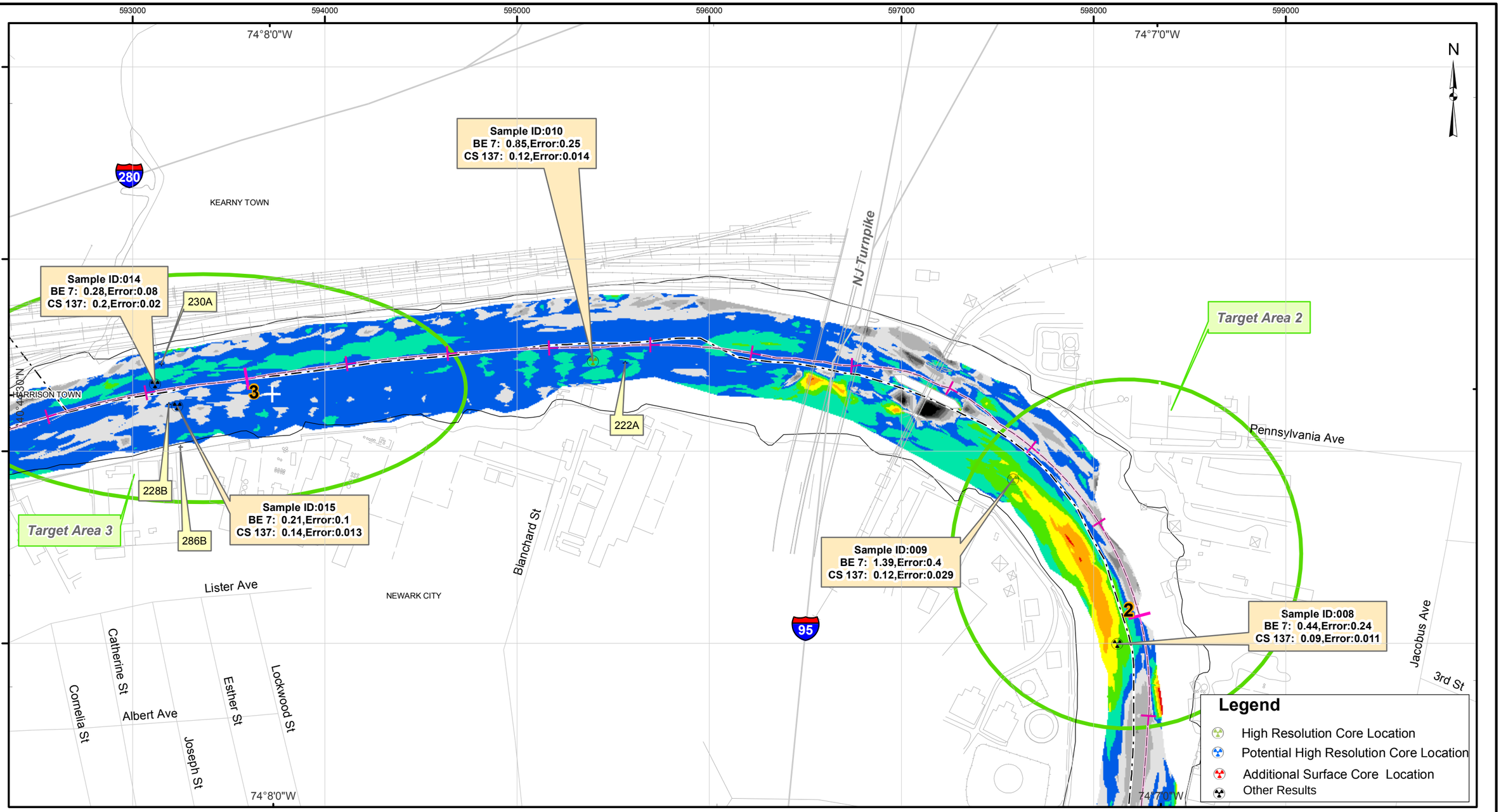

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

0 250 500 1,000

1 " equals 500 '

Mile 2 to 3

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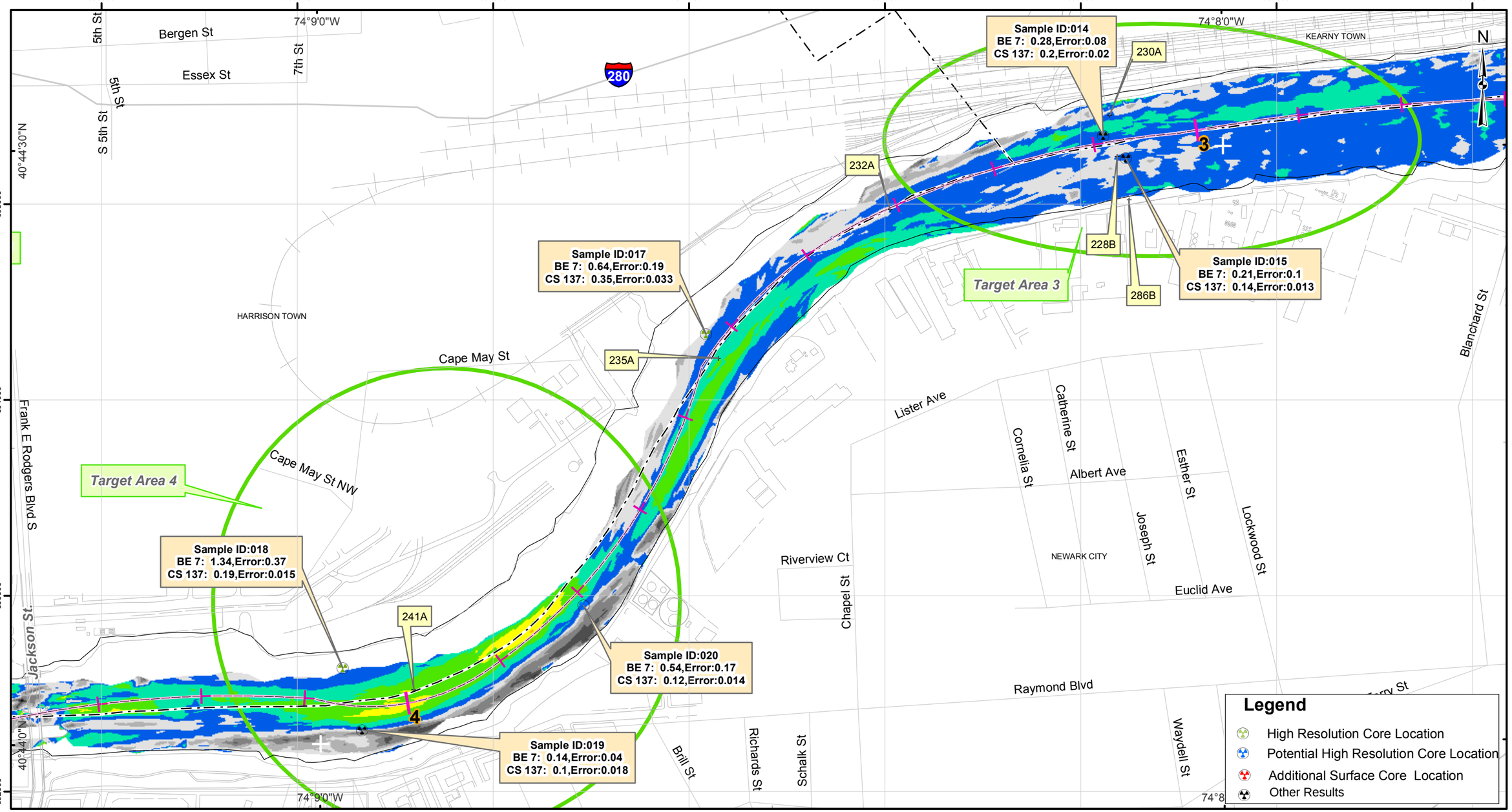

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

< -5	0 to 1
-5 to -4	1 to 2
-4 to -3	2 to 3
-3 to -2	3 to 4
-2 to -1	4 to 5
-1 to 0	> 5

+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

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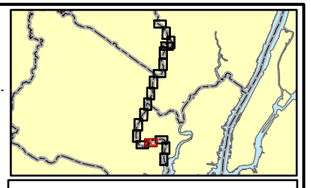
1 " equals 500 '



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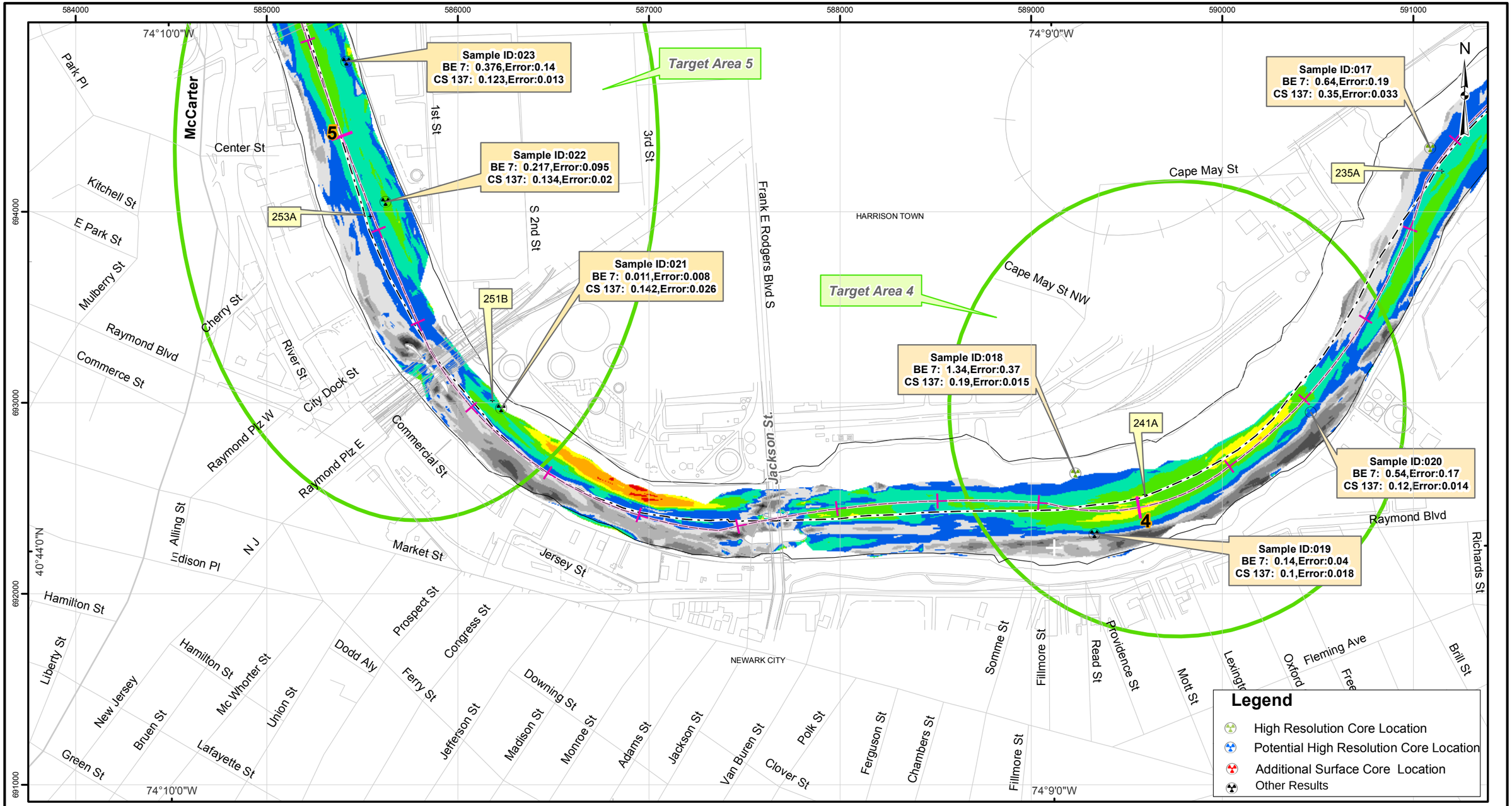

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

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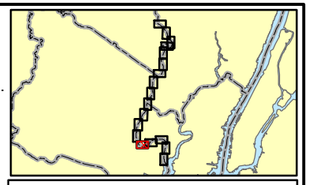
1 " equals 500 '



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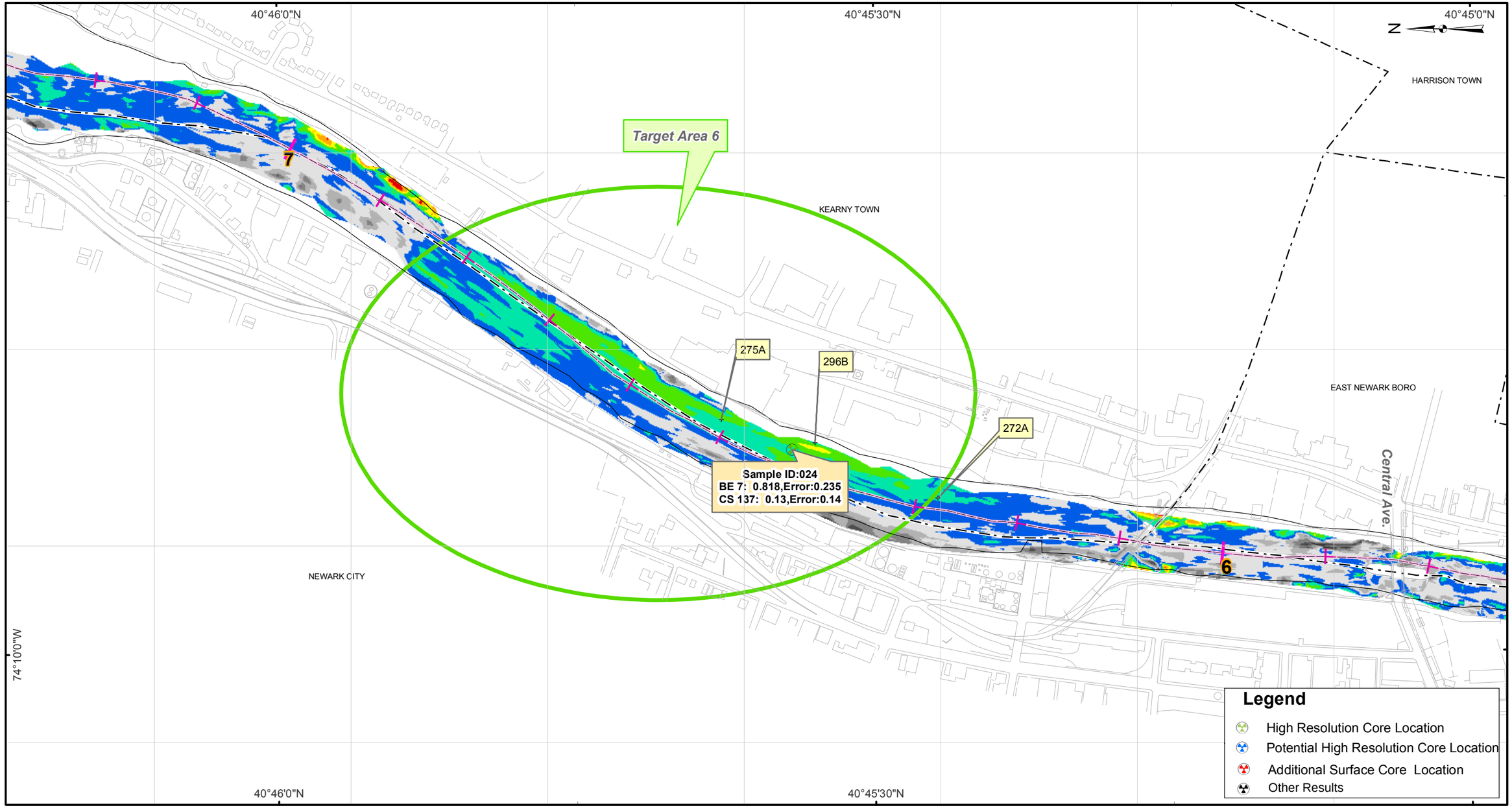

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

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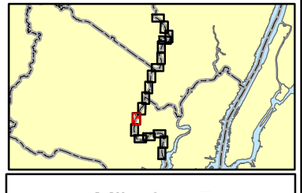
1 " equals 500 '



Mile 6 to 7

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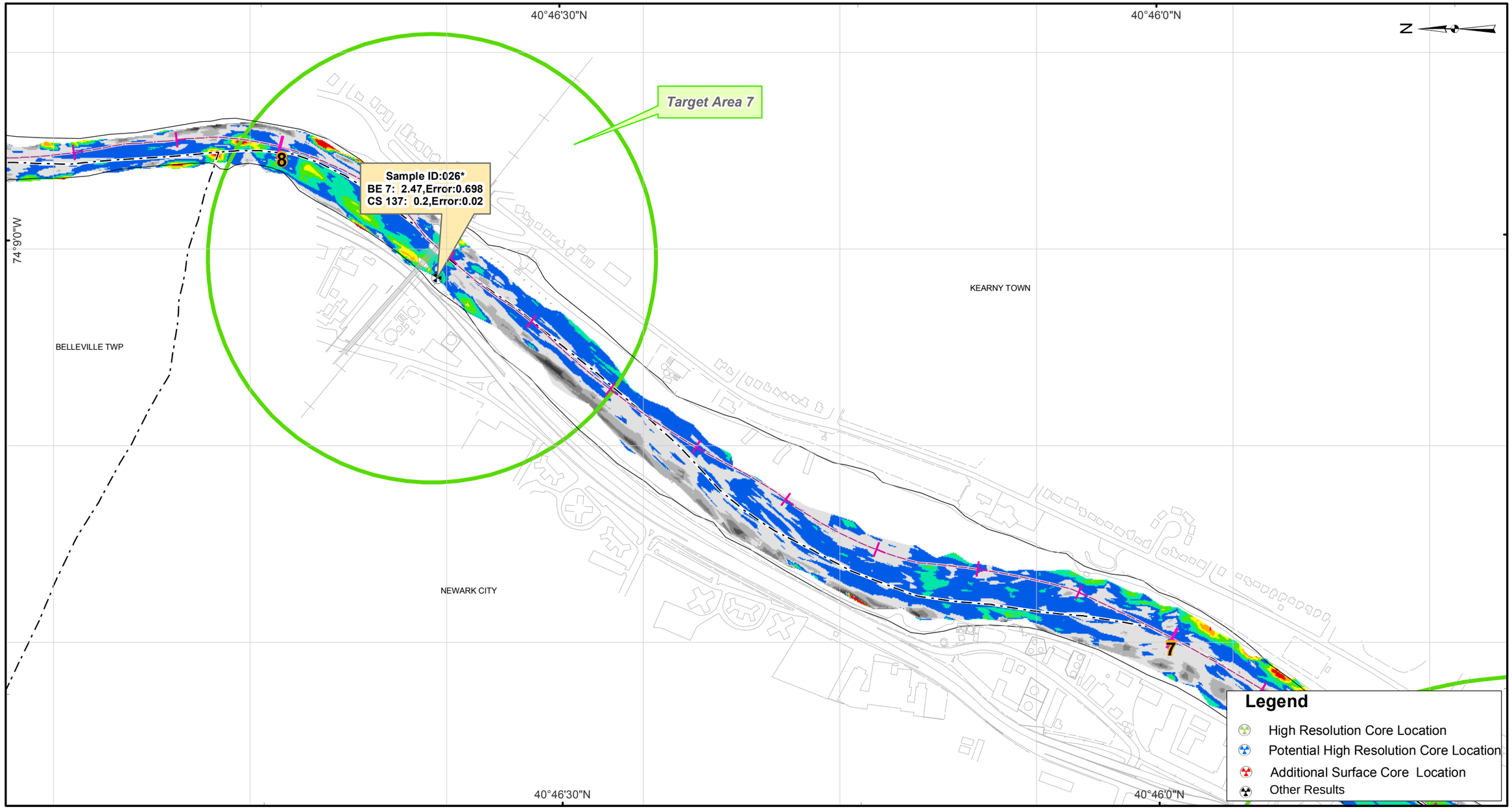

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
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Units: Feet

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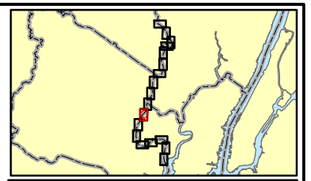
1 " equals 500 '



Mile 7 to 8

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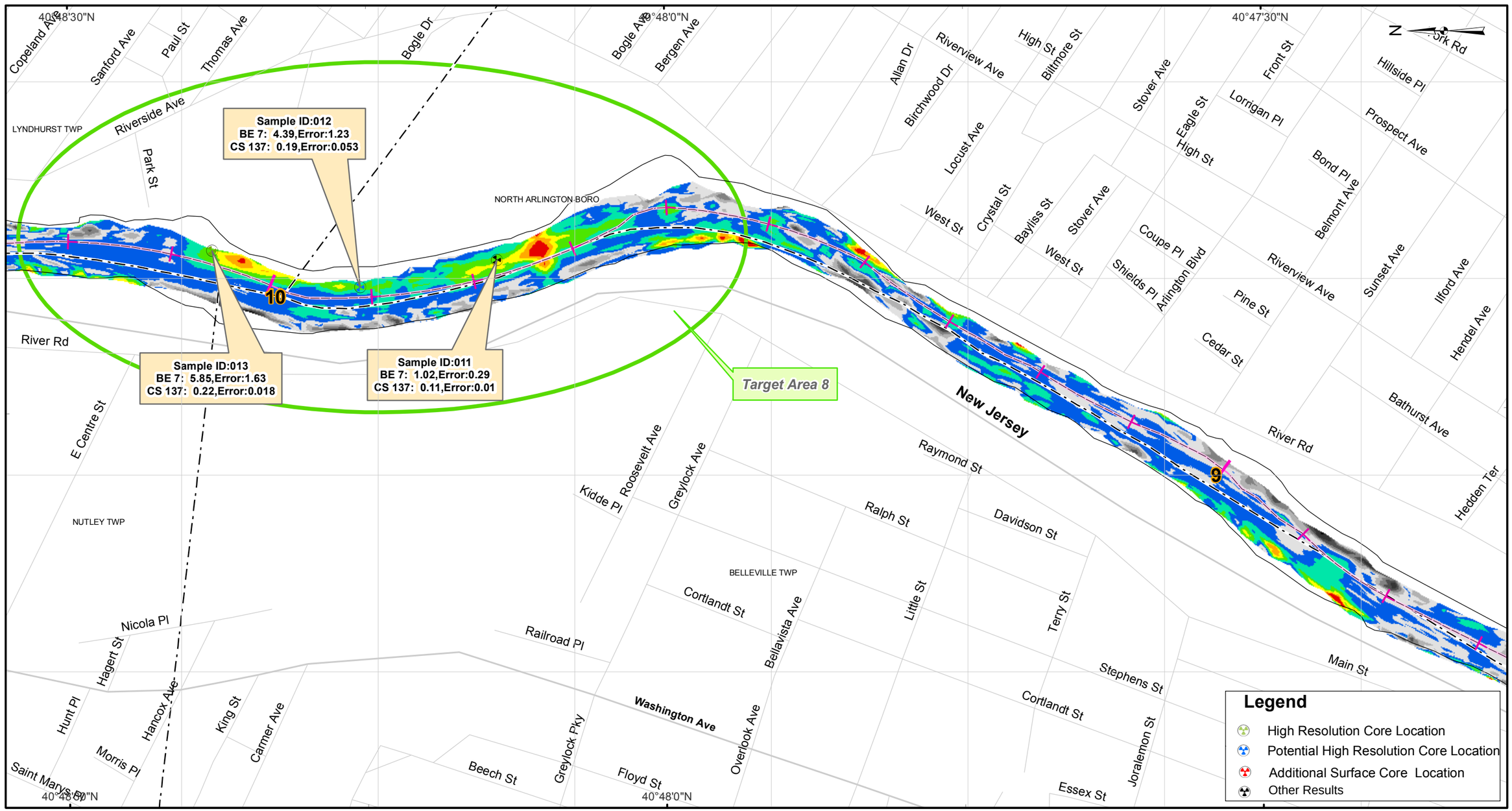

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

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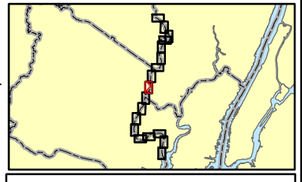

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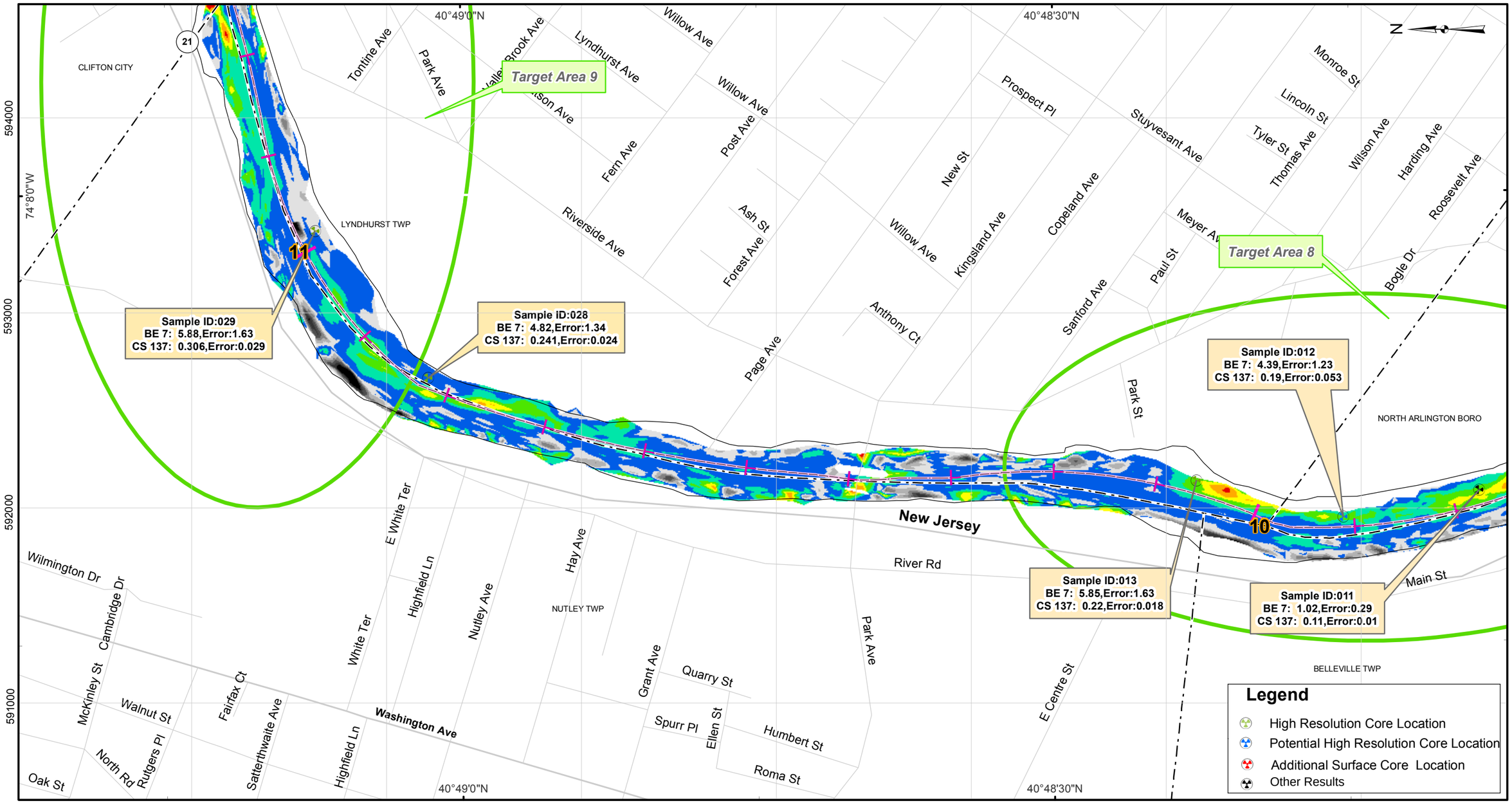

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Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

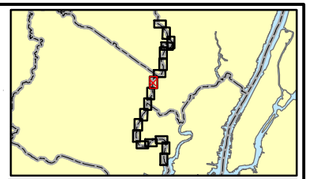
+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

0 250 500 1,000

1 " equals 500 '



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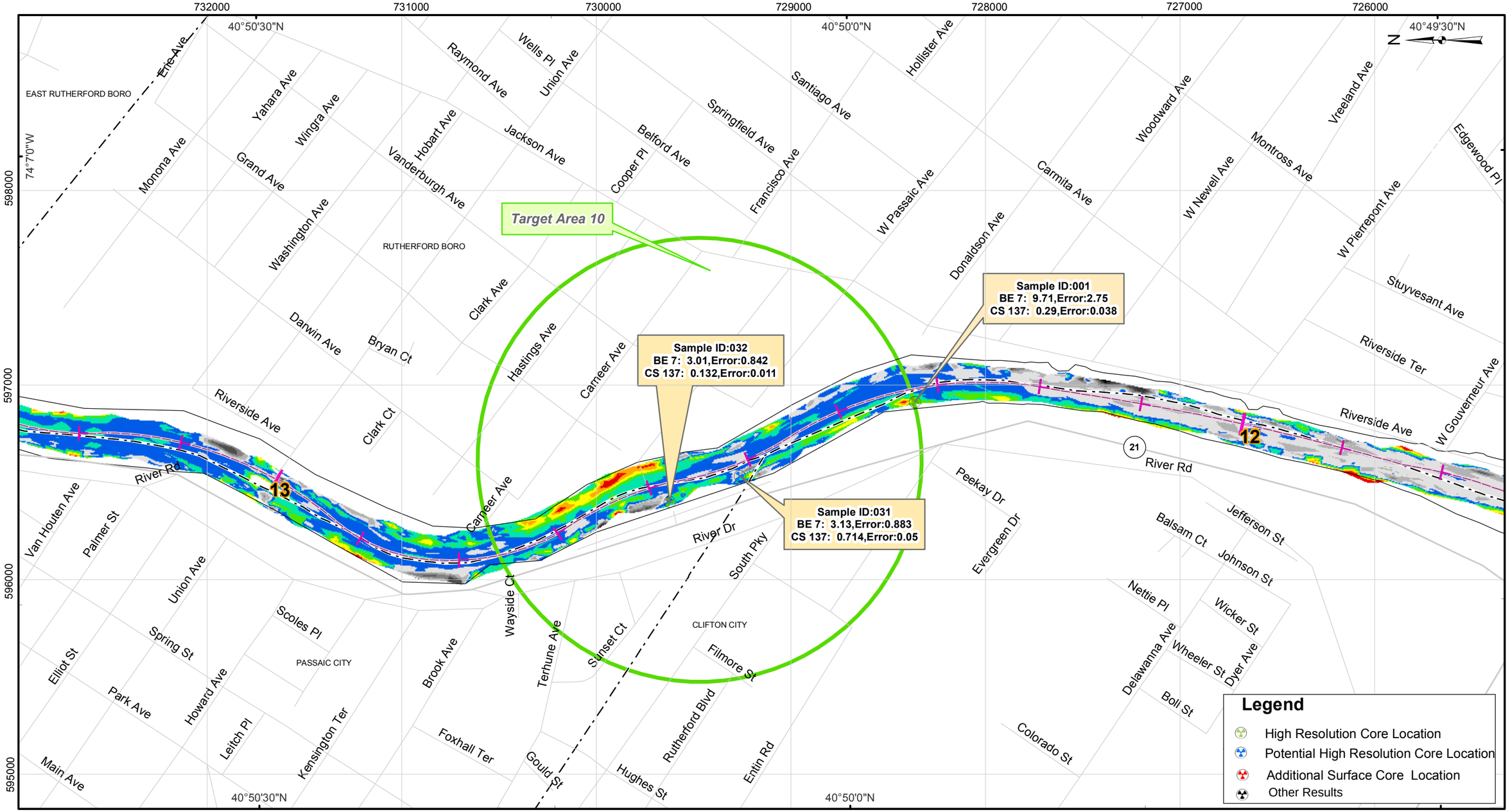

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MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

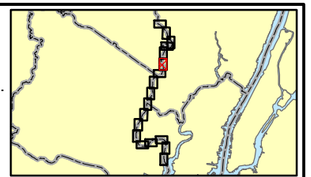
+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

0 250 500 1,000

1 " equals 500 '



Mile 12 to 13

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Individual_Maps\Mile_12_13_Portrait.mxd)
11/29/2005 -- 3:49:08 PM

US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

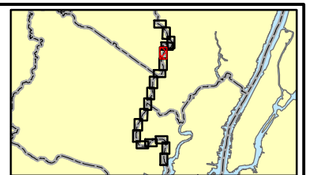
+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

0 250 500 1,000

1 " equals 500 '



Mile 13 to 14

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Individual_Maps\Mile_13_14_Portrait.mxd)
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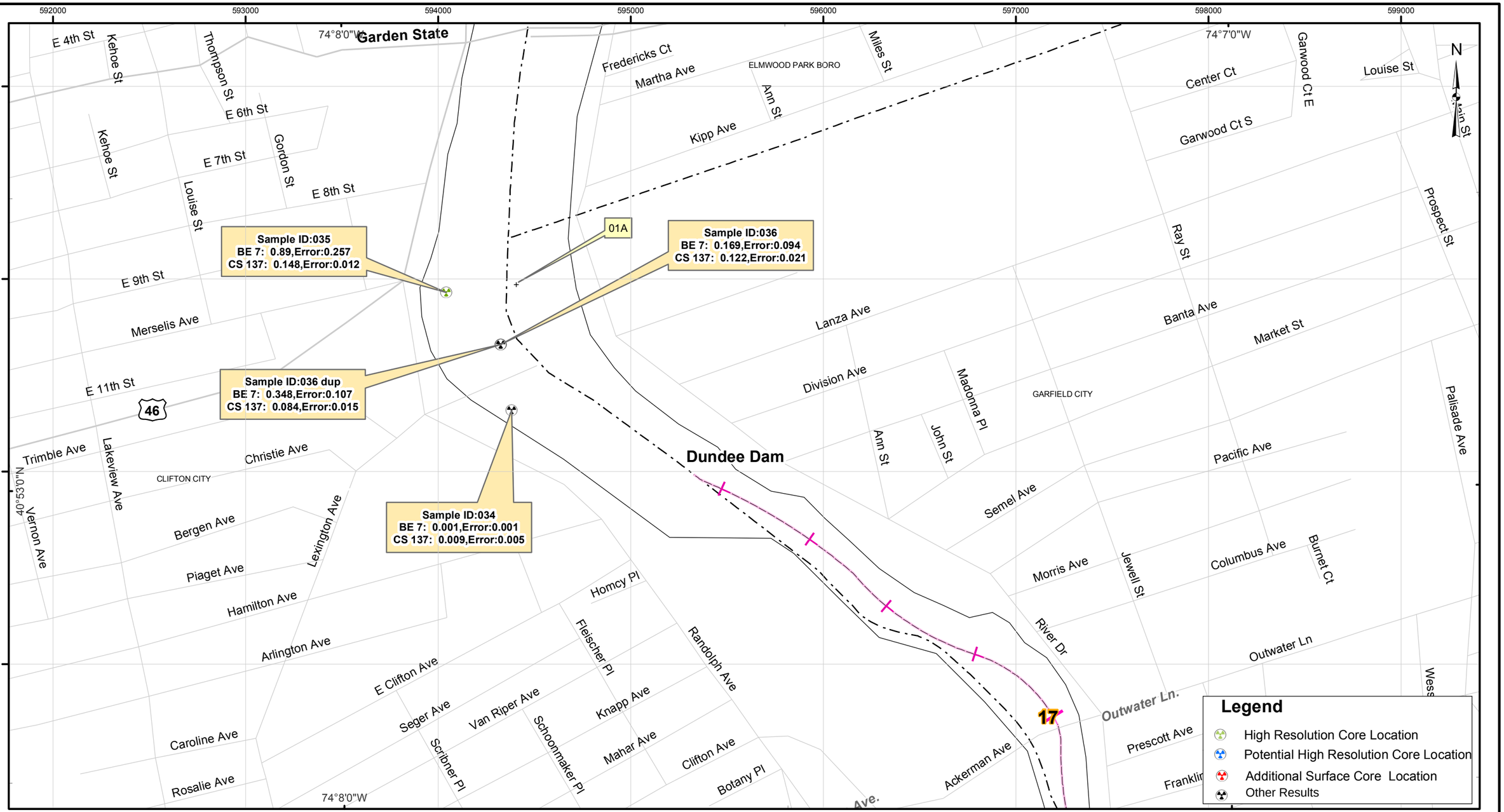


US Army Corps of Engineers

MALCOLM PIRNIE

Lower Passaic River Restoration Project New Jersey

Sedimentation Rate (1989-2004)

Legend

Sedimentation Rate
Inches per Year

- < -5
- -5 to -4
- -4 to -3
- -3 to -2
- -2 to -1
- -1 to 0
- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- > 5

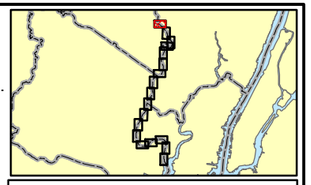
+ BBL Data

River Mile Post

Coordinate System: State Plane New Jersey
Datum: NAD 83
Units: Feet

0 250 500 1,000

1 " equals 500 '



Mile 17 to Dundee Dam

Map Document: (S:\Projects\PASSAIC\MapDocuments\Proposed Sediments\Coring_Field_Work\Individual_Maps\7_Landscape_Maps.mxd)
11/30/2005 -- 9:00:58 AM