APPENDIX L. 1980s TO 2012 MIDDLE SUSITNA RIVER SEGMENT TURNOVER

Susitna-Watana Hydroelectric Project
(FERC No. 14241)

Geomorphology Study (6.5)

Mapping of Geomorphic Features and Turnover within the Middle and Lower Susitna River Segments from 1950s, 1980s, and Current Aerials Technical Memorandum

Prepared for

Alaska Energy Authority

SUSITNA-WATANA HYDRO
Clean, reliable energy for the next 100 years.

Prepared by

Tetra Tech Inc.

September 2014

150°W
149°30'W
149°W
148°30'W
62°50'N
62°40'N
62°30'N

Indian River
Portage Creek
Devil Creek
Tsusena Creek
Susitna River
Chulitna River
Talkeetna River

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Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
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Sheet 33
Sheet 34

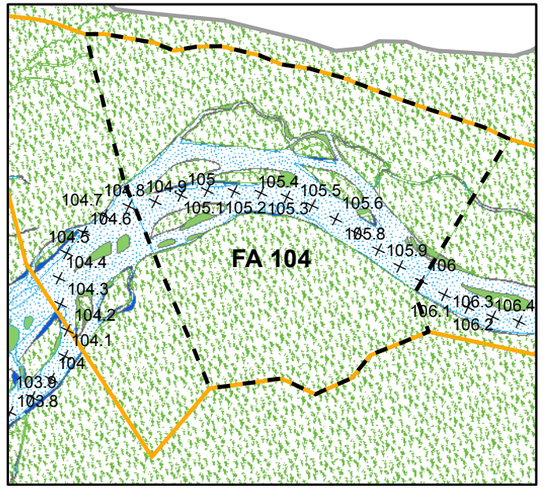
Legend for Individual Mapbook Pages

- Project River Miles
- Geomorphic Reach Breaks
- Geomorphic Assessment Area Extents
- Focus Area Extents
- Analysis Extent Boundary

Turnover 1983 to 2012

- 1983 Floodplain to 2012 Channel
- 1983 Channel to 2012 Floodplain
- Channel in both 1983 and 2012
- Floodplain in both 1983 and 2012

Example Data from Sheets



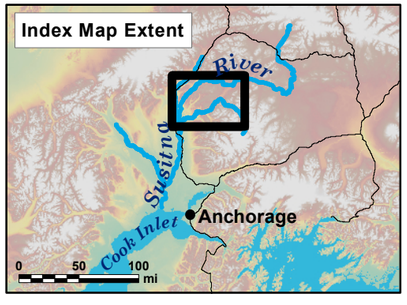
ALASKA ENERGY AUTHORITY

MIDDLE SUSITNA RIVER SEGMENT TURNOVER ANALYSIS 1983 to 2012

Legend

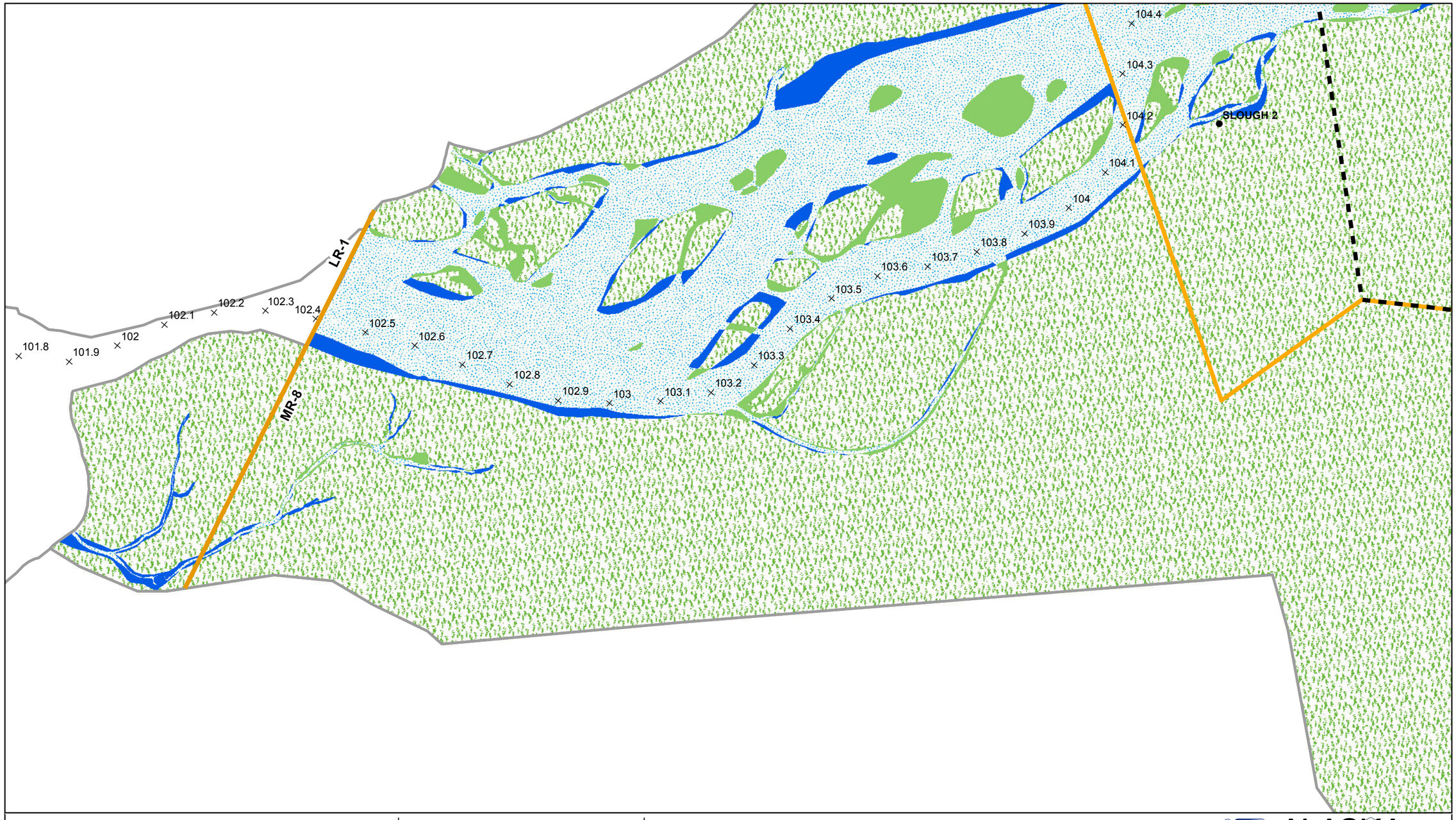
- Proposed Watana Dam Site
- Sheet Extents
- Roads
- Railroads
- Rivers and Streams
- Waterbodies

Data Sources: See Map References



0 5 10 mi

Projection: NAD83 State Plane Alaska 4 FIPS 5004 (ft)
Date Created: 9/18/2014
Map Author: Tetra Tech
File: MR_1980sto2012_v2_20140204_Turnover_Cover.mxd



0 1,000 2,000 Feet

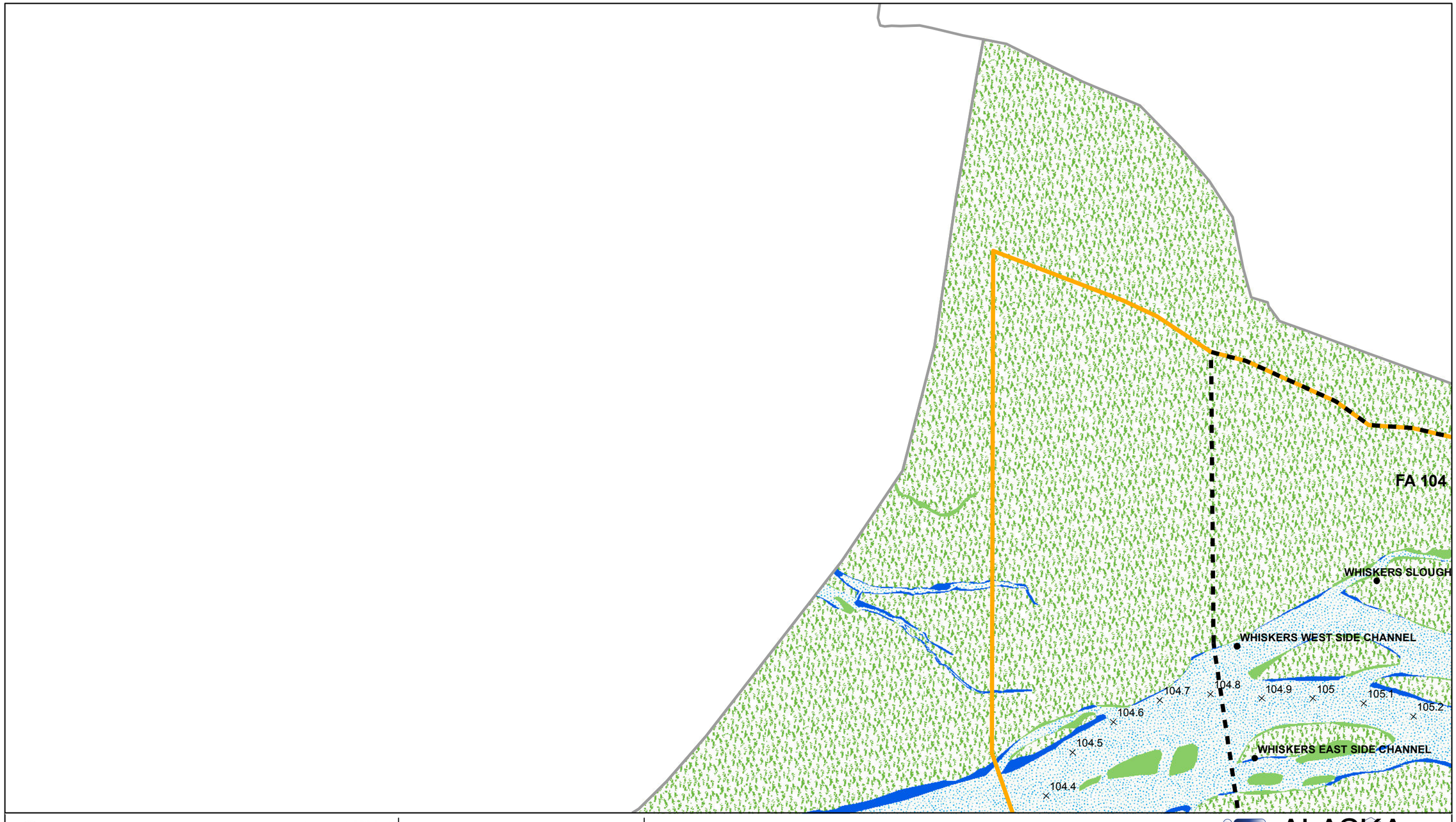
See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

See index page for legend and additional data information.

1 inch = 1,000 feet

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FA 104

WHISKERS CREEK

WHISKERS SLOUGH

Whisker's

SLOUGH 3B

WHISKERS WEST SIDE CHANNEL

SLOUGH 3A

WHISKERS EAST SIDE CHANNEL

SLOUGH 2

FA 104

104.8 104.9 105 105.1 105.2 105.3 105.4 105.5 105.6 105.7 105.8 105.9 106

104.7 104.6 104.5 104.4 104.3 104.2 104.1 104 103.9 103.8 103.7 103.6 103.5 103.4 103.3 103.2 103.1 103 102.9 102.8 102.7 102.6

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See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
1983 to 2012 TURNOVER ANALYSIS

ALASKA ENERGY AUTHORITY

FA 104

WHISKERS CREEK

WHISKERS SLOUGH

Whiskers Creek

SLOUGH 3B

SLOUGH 3A

105.1

105.2

105.3

105.4

105.5

105.6

105.7

105.8

105.9

106

106.1

MR-8

MR-7

0 1,000 2,000 Feet

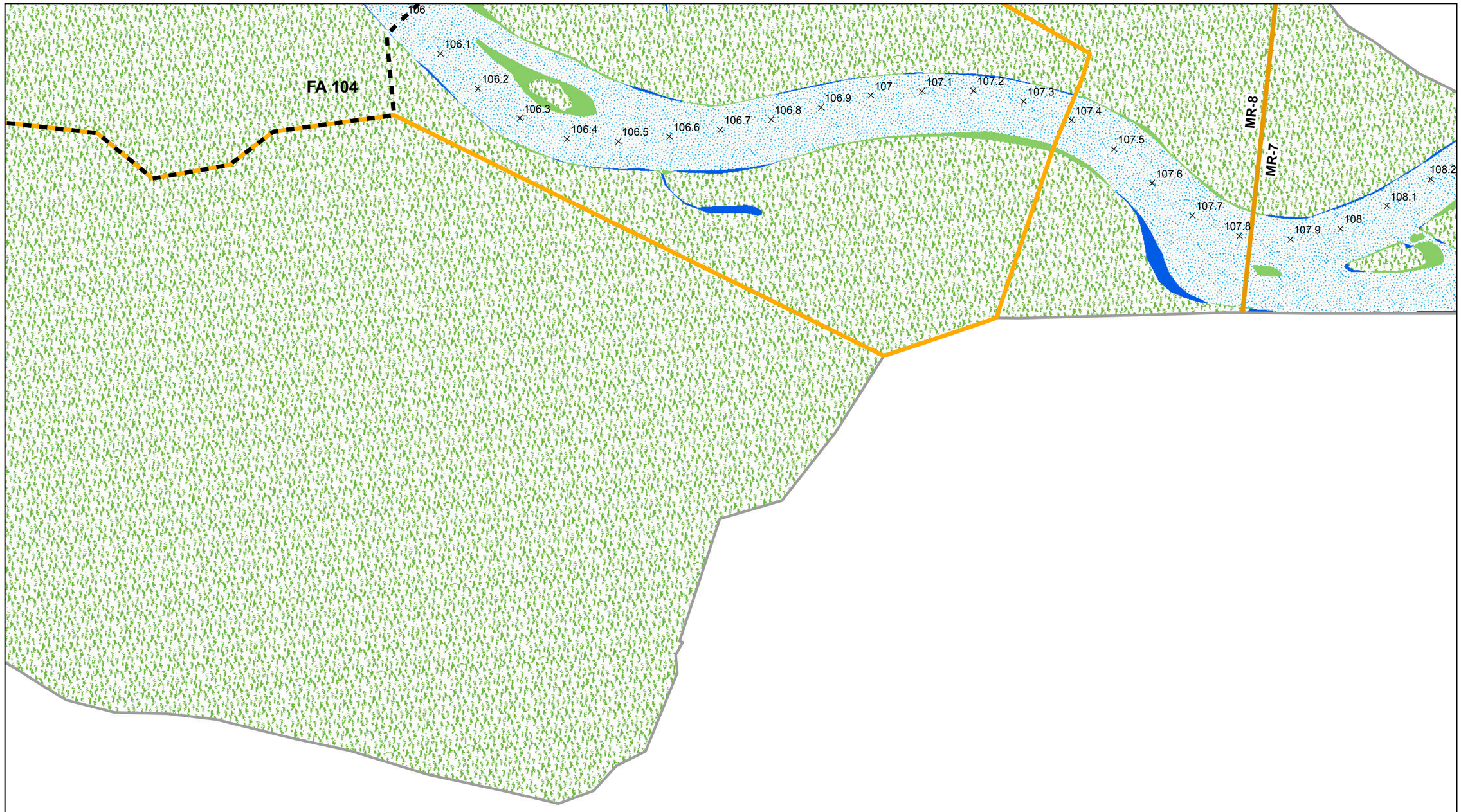
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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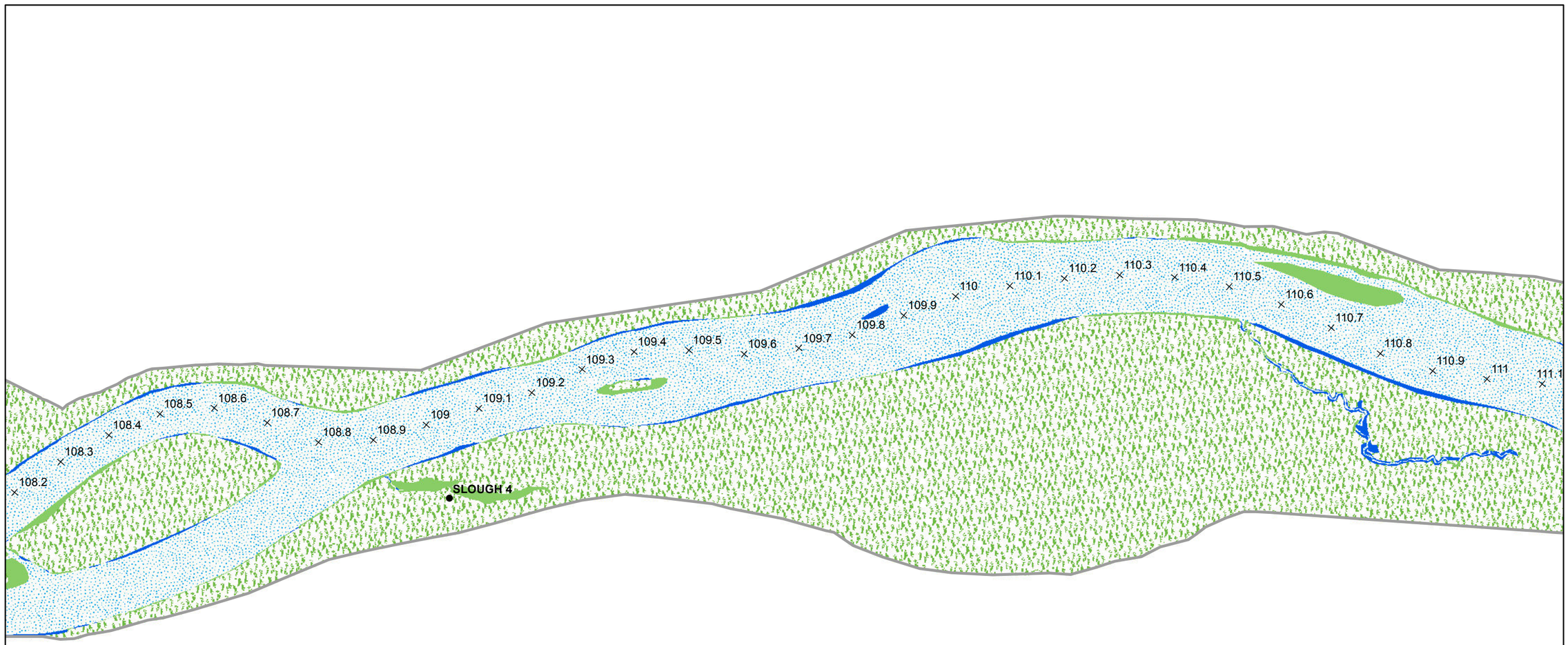
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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SLOUGH 5

111

111.1

111.2

111.3

111.4

111.5

111.6

111.7

111.8

CHASE CREEK

SLOUGH 6

111.9

112

112.1

112.2

112.3

112.4

112.5

112.6

112.7

112.8

112.9

113

113.1

113.2

113.3

113.4

113.5

113.6

113.7

113.8

113.9

FA 113

UNNAMED CREEK at PRM 113.7

0 1,000 2,000 Feet

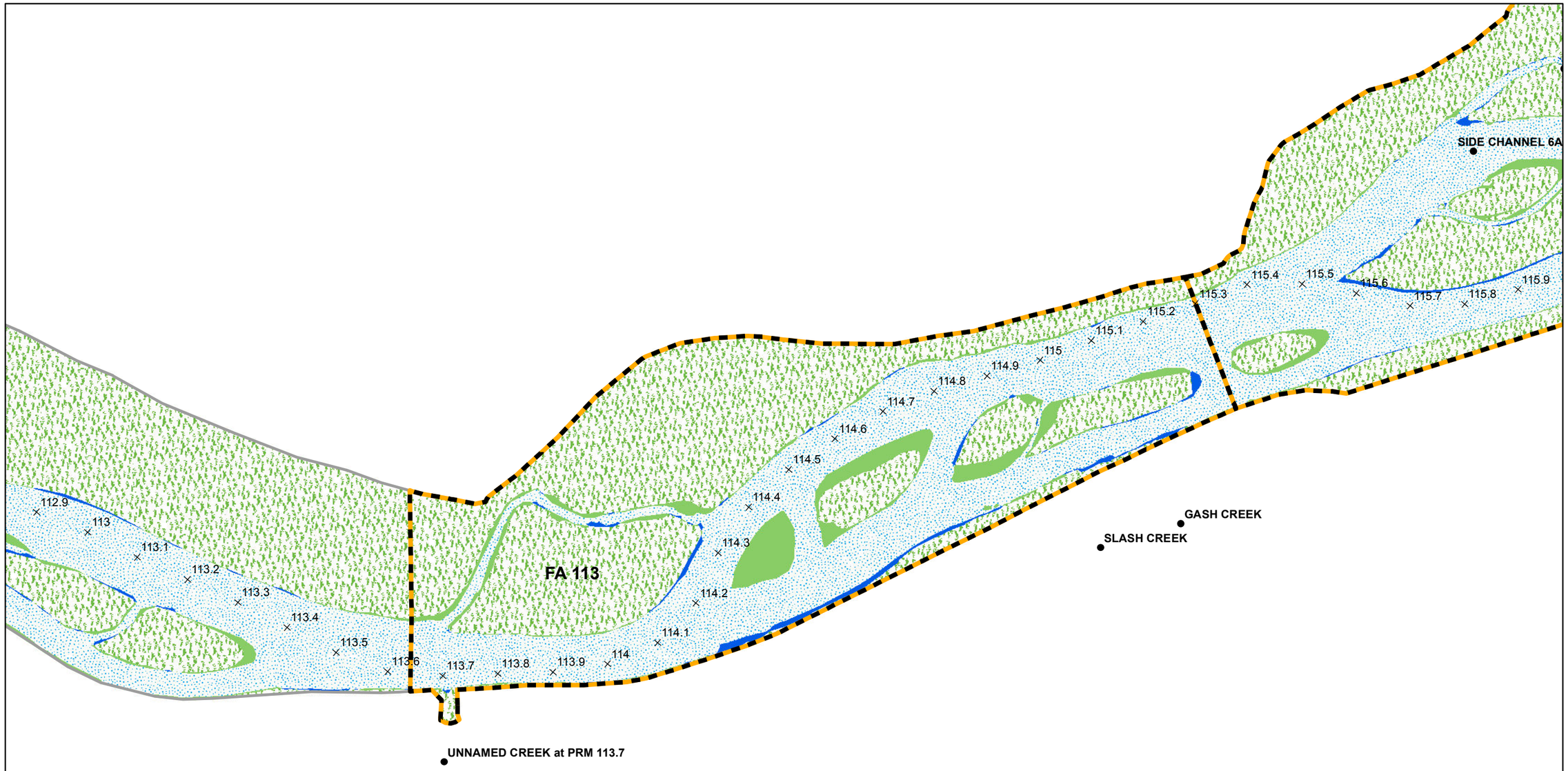
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
1983 to 2012 TURNOVER ANALYSIS

ALASKA ENERGY AUTHORITY

SLOUGH 6A

SIDE CHANNEL 6A

FA 115

SLOUGH 7

LANE CREEK

Lane Creek

SLOUGH 8 OR LANE CREEK SLOUGH

GASH CREEK

SLASH CREEK

114.5 114.6 114.7 114.8 114.9 115 115.1 115.2 115.3 115.4 115.5 115.6 115.7 115.8 115.9 116 116.1 116.2 116.3 116.4 116.5 116.6 116.7 116.8 116.9 117 117.1 117.2 117.3

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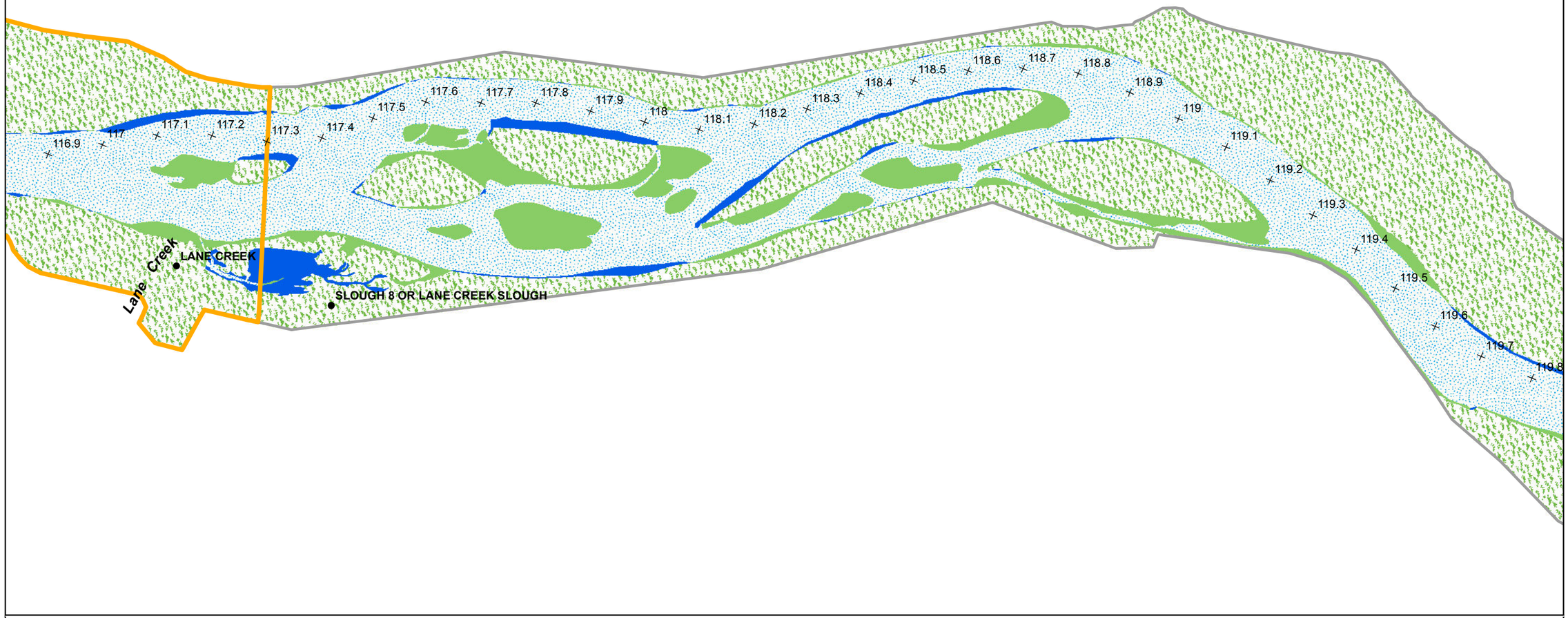
See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
1983 to 2012 TURNOVER ANALYSIS

ALASKA ENERGY AUTHORITY



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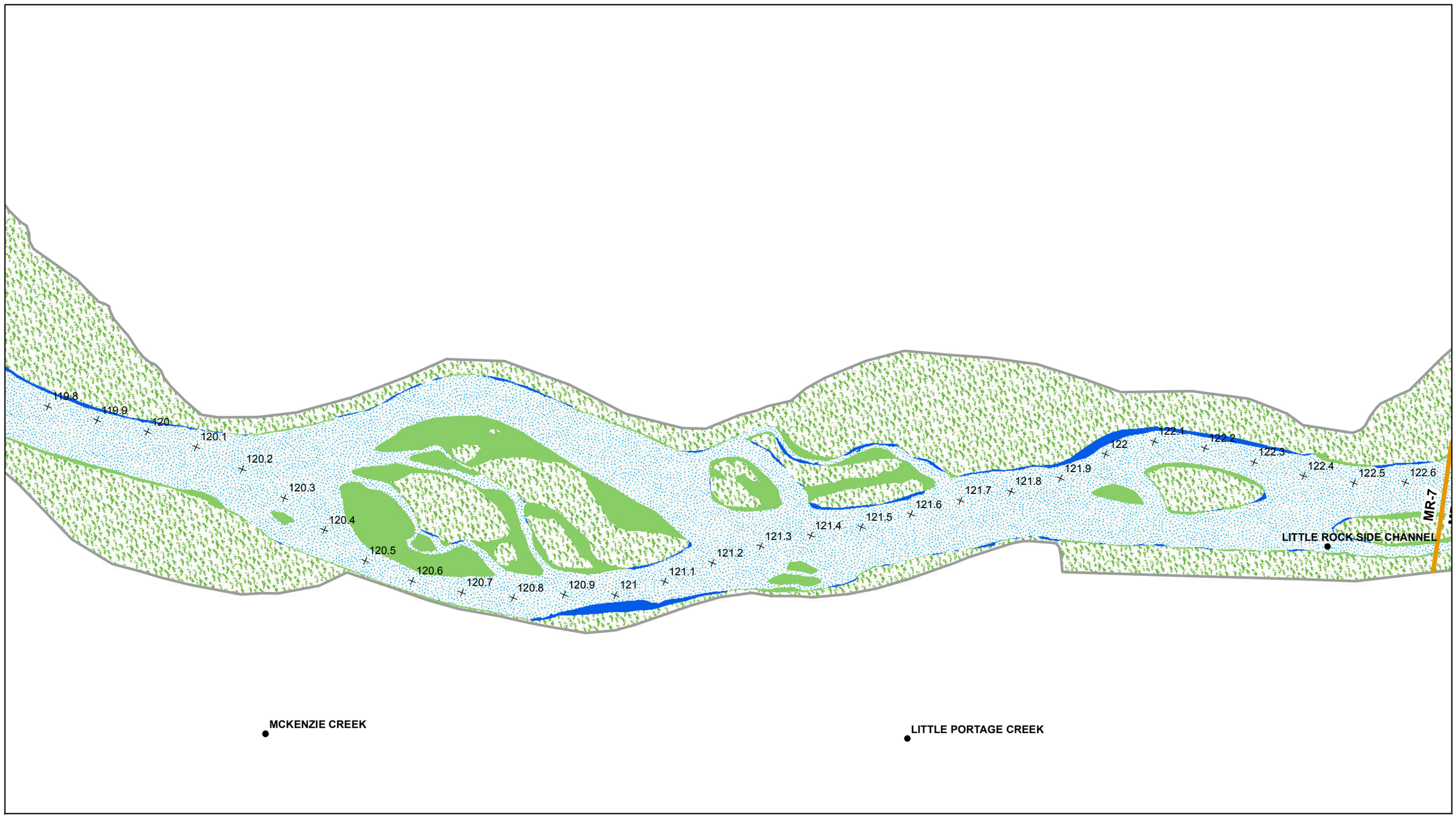
See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
1983 to 2012 TURNOVER ANALYSIS

ALASKA ENERGY AUTHORITY



0 1,000 2,000 Feet

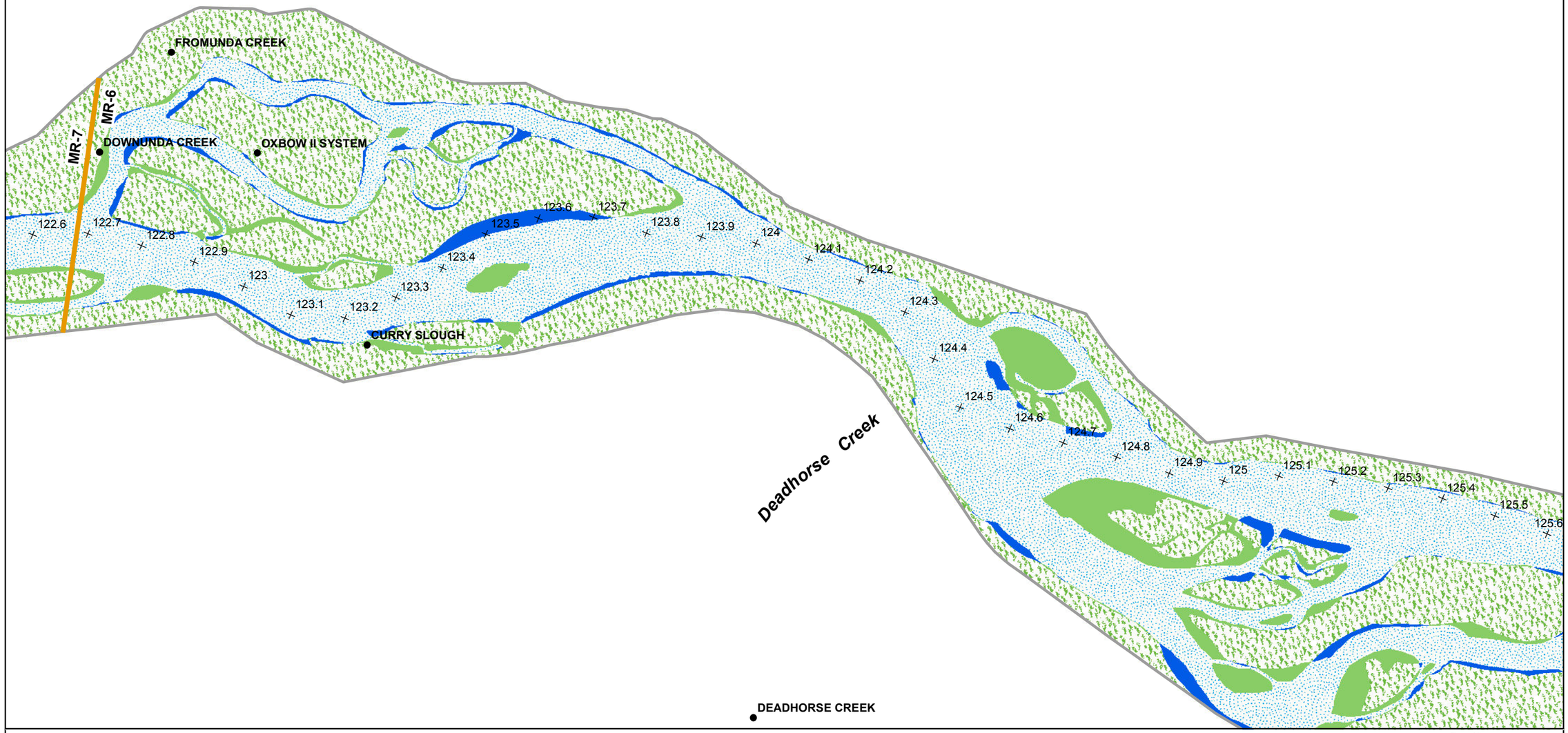
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
1983 to 2012 TURNOVER ANALYSIS

ALASKA ENERGY AUTHORITY



0 1,000 2,000 Feet

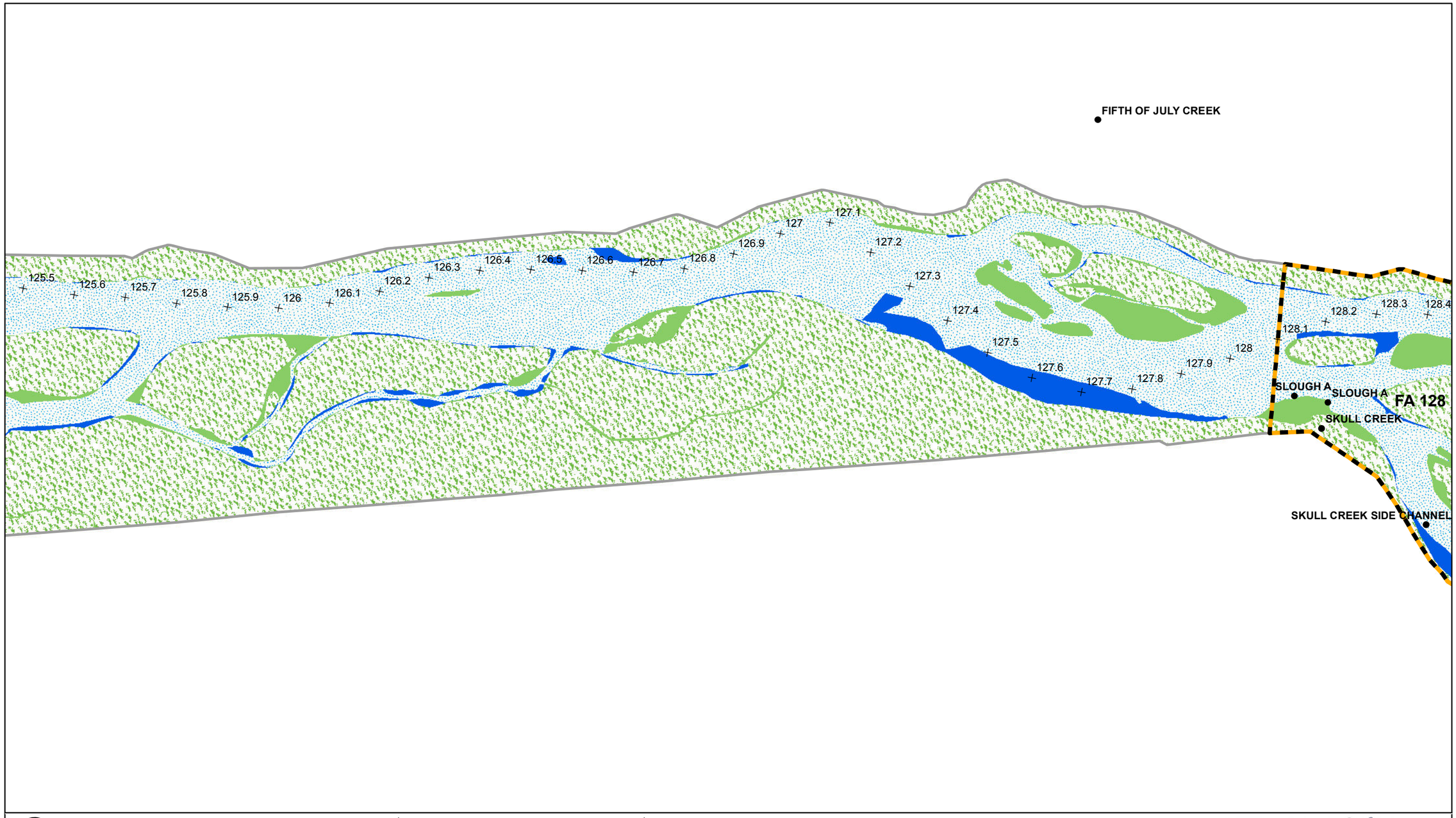
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

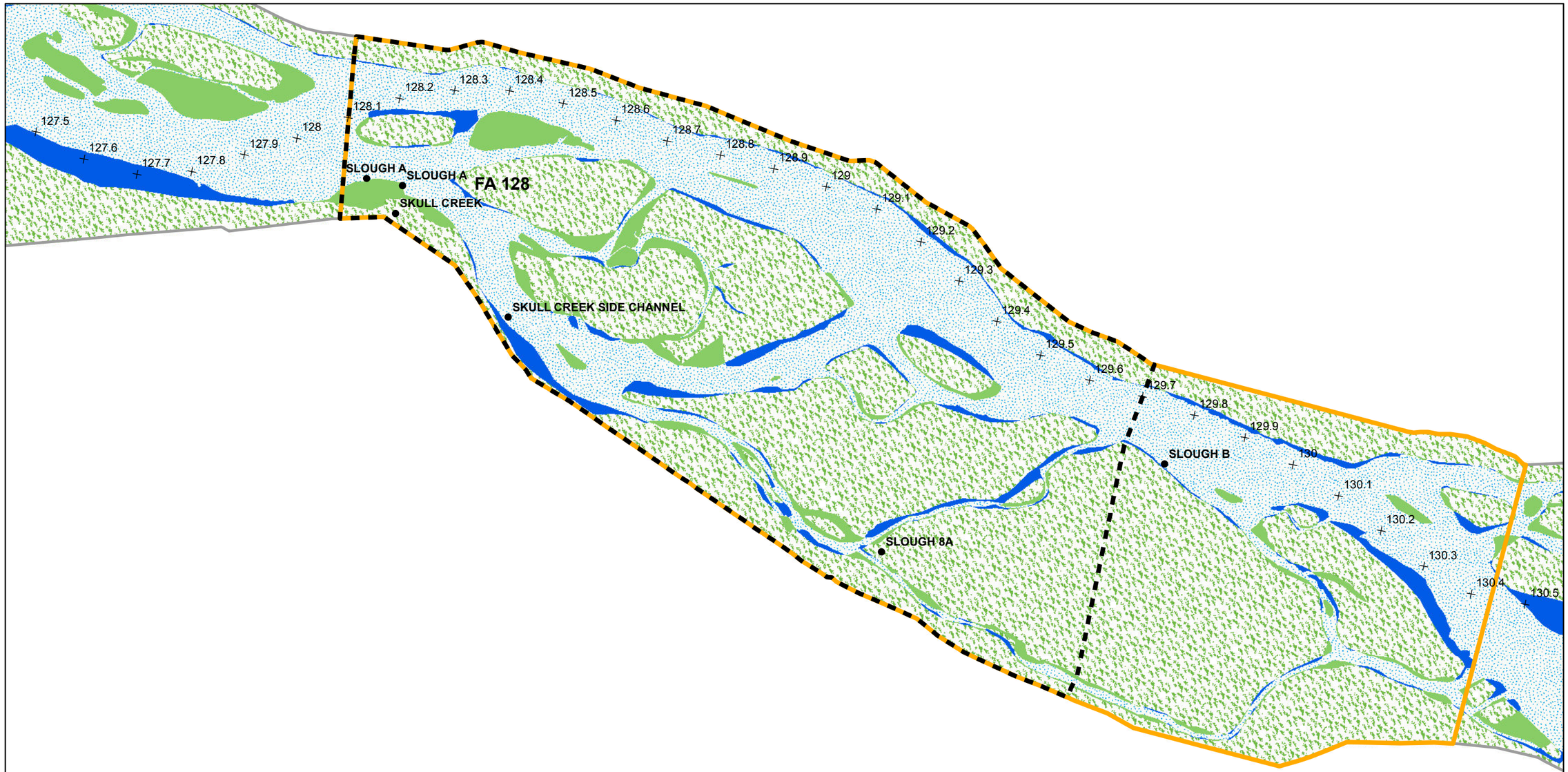
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
1983 to 2012 TURNOVER ANALYSIS

ALASKA ENERGY AUTHORITY



0 1,000 2,000 Feet

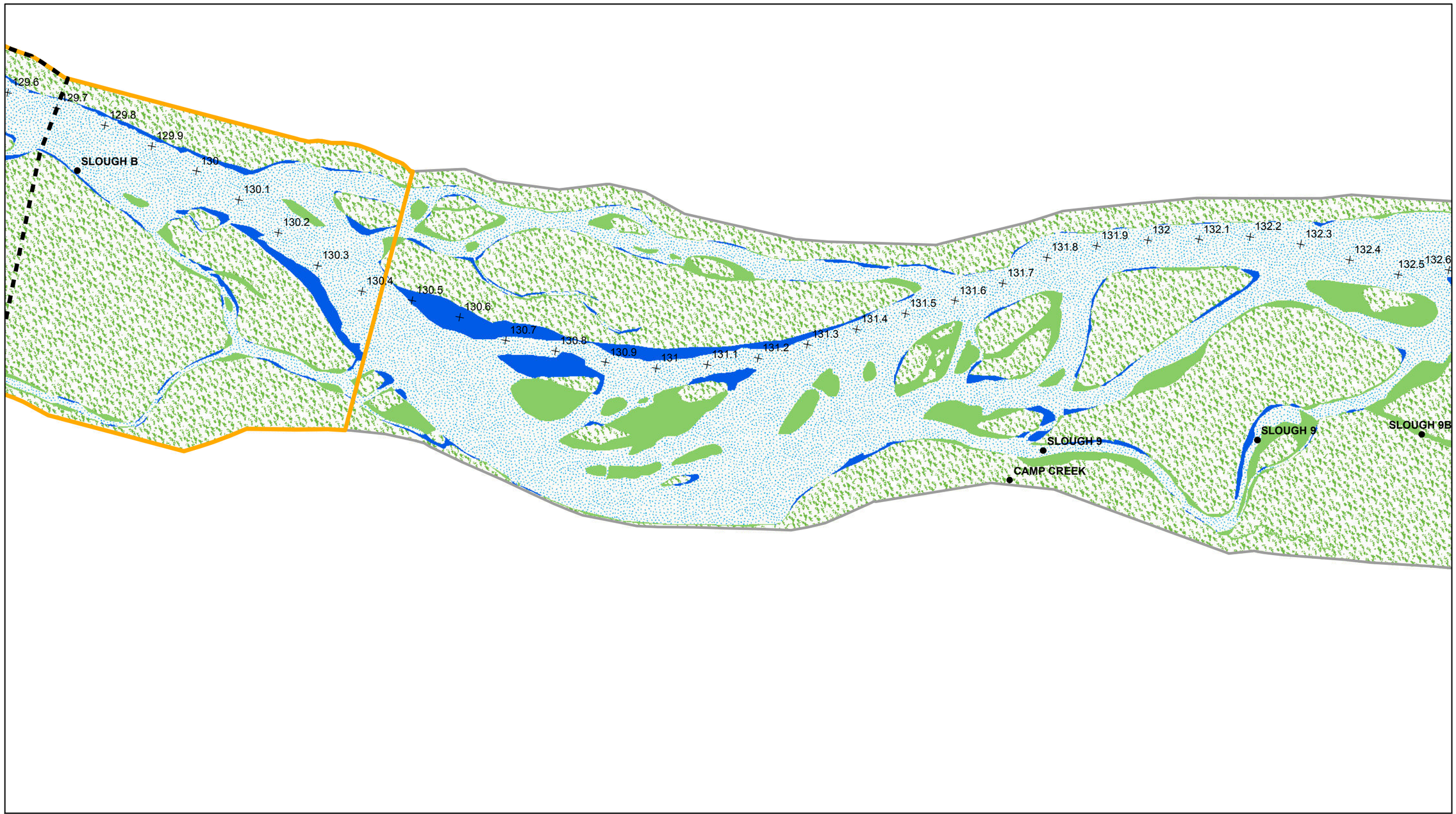
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See index page for legend and additional data information.

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0 1,000 2,000 Feet

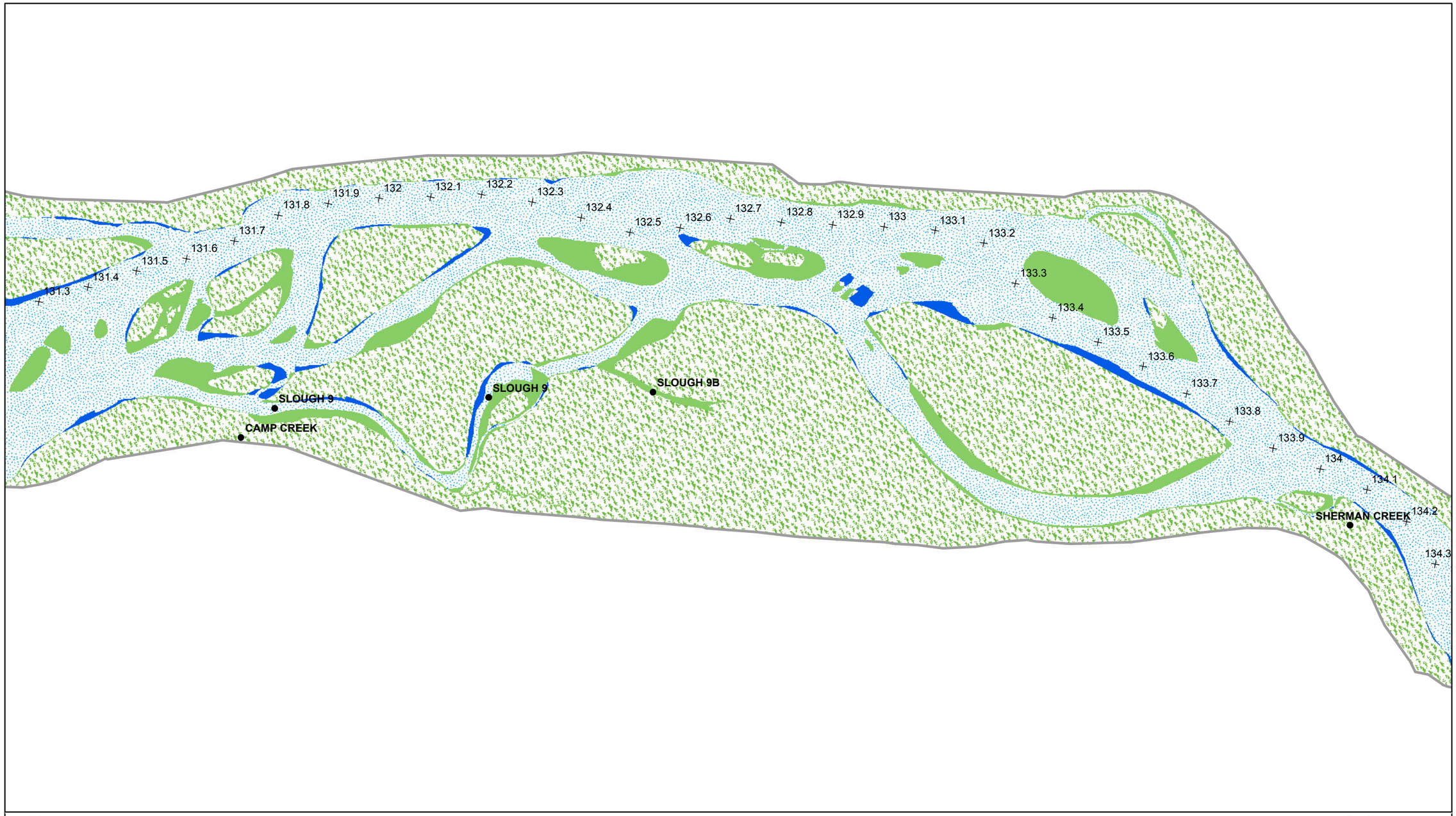
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

See index page for legend and additional data information.

1 inch = 1,000 feet

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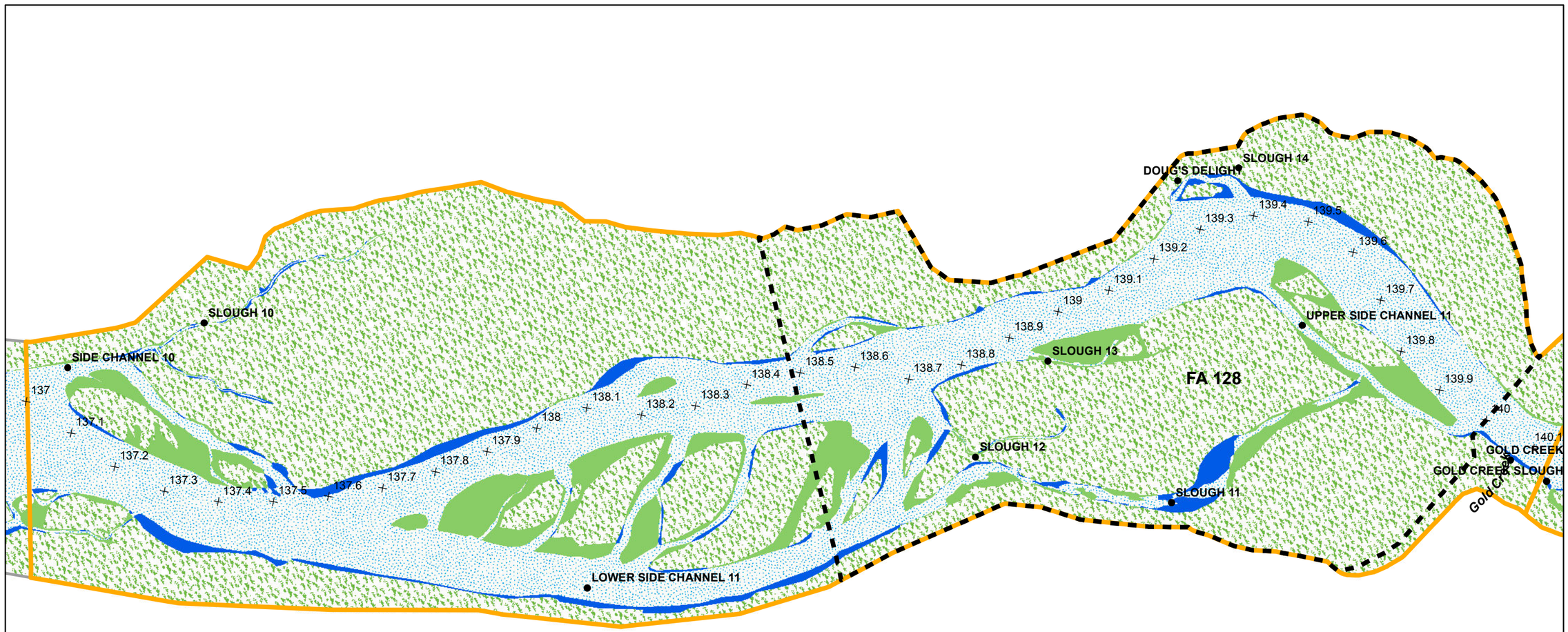
See index page for legend and additional data information.

1 inch = 1,000 feet

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0 1,000 2,000 Feet

See index page for legend and additional data information.

1 inch = 1,000 feet

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ALASKA ENERGY AUTHORITY

SLOUGH 15
SLOUGH 16
SLOUGH 15B
Indian River
INDIAN RIVER
FA 141
SLOUGH 17
SLOUGH 18
SLOUGH 19
GOLD CREEK SLOUGH
140.1
140.2
140.3
140.4
140.5
140.6
140.7
140.8
140.9
141
141.1
141.2
141.3
141.4
141.5
141.6
141.7
141.8
141.9
142
142.1
142.2
142.3
142.4
142.5
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142.8
142.9
143
143.1
143.2
143.3
143.4

0 1,000 2,000 Feet

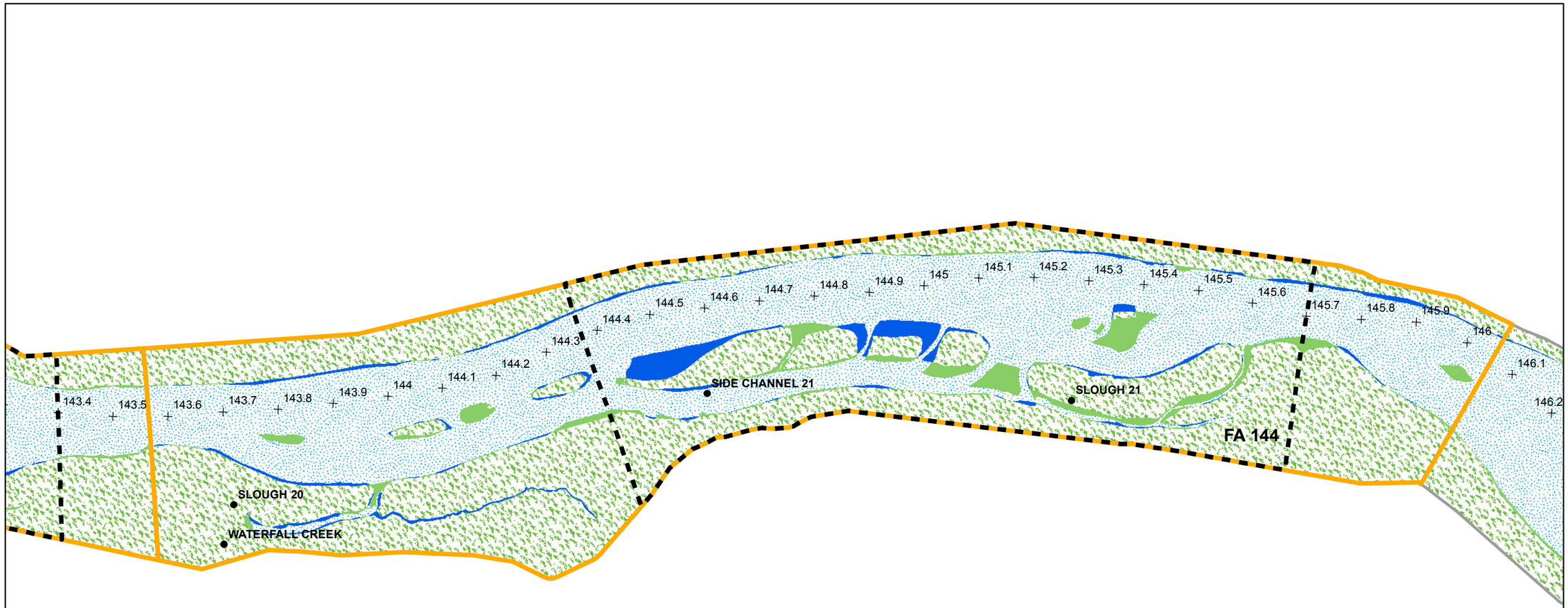
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1 inch = 1,000 feet

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0 1,000 2,000 Feet

See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
1983 to 2012 TURNOVER ANALYSIS

ALASKA ENERGY AUTHORITY

146.1
146.2
146.3
146.4
146.5
146.6
146.7
146.8
146.9
147
147.1
147.2
147.3
147.4
147.5
147.6
147.7
147.8
147.9
148
148.1
148.2
148.3
148.4
148.5
148.6
148.7
148.8
148.9
SLOUGH 22
MR-6
MR-5
JACK LONG CREEK
SLOUGH 21A

0 1,000 2,000 Feet

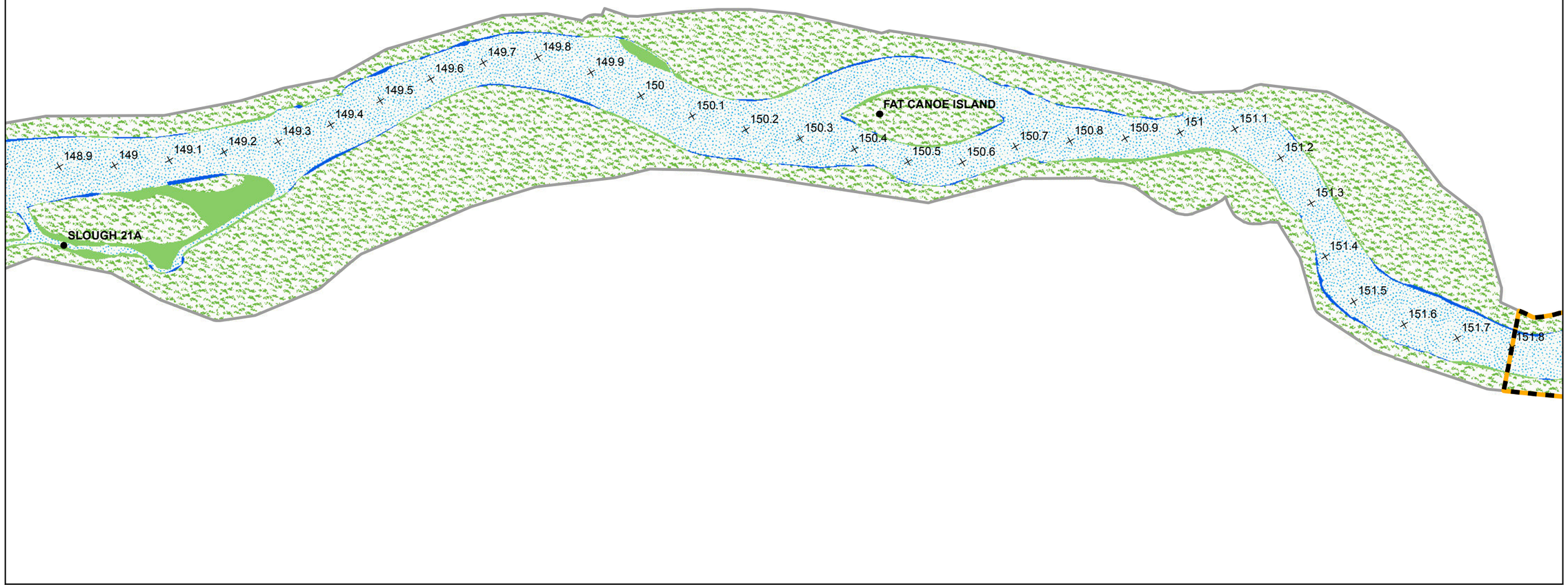
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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Portage Creek

PORTAGE CREEK

FA 151

151.8
151.9
152
152.1
152.2
152.3
152.4
152.5
152.6
152.7
152.8
152.9
153
153.1
153.2
153.3
153.4
153.5
153.6
153.7
153.8
154
154.1
154.2
154.3
154.4
154.5
154.6
154.7
154.8
154.9

MR-4
MR-5

0 1,000 2,000 Feet

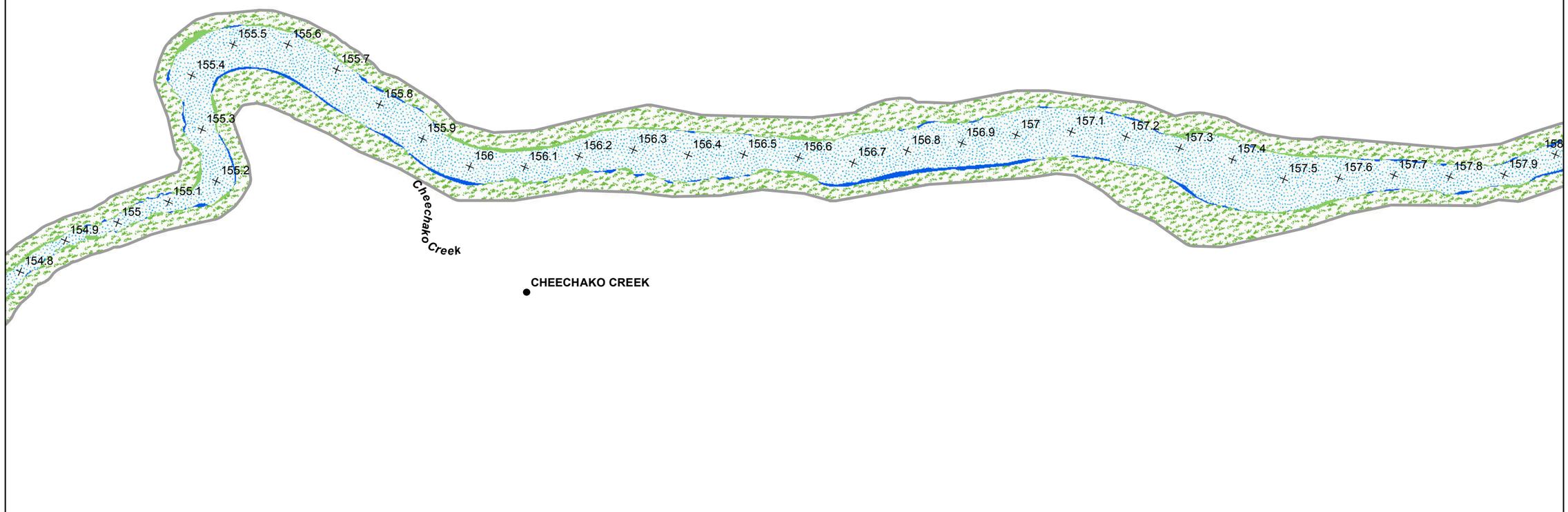
See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

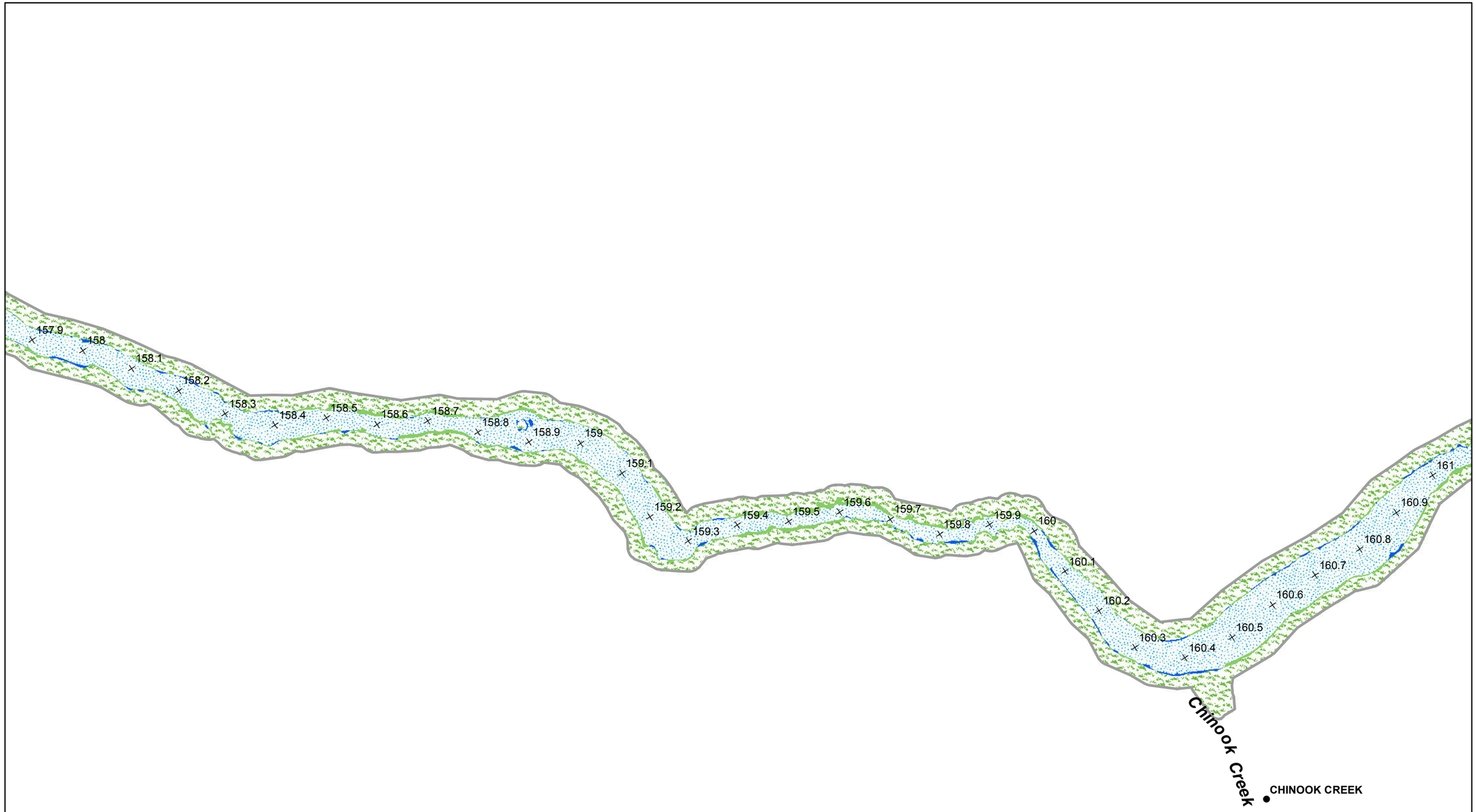
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

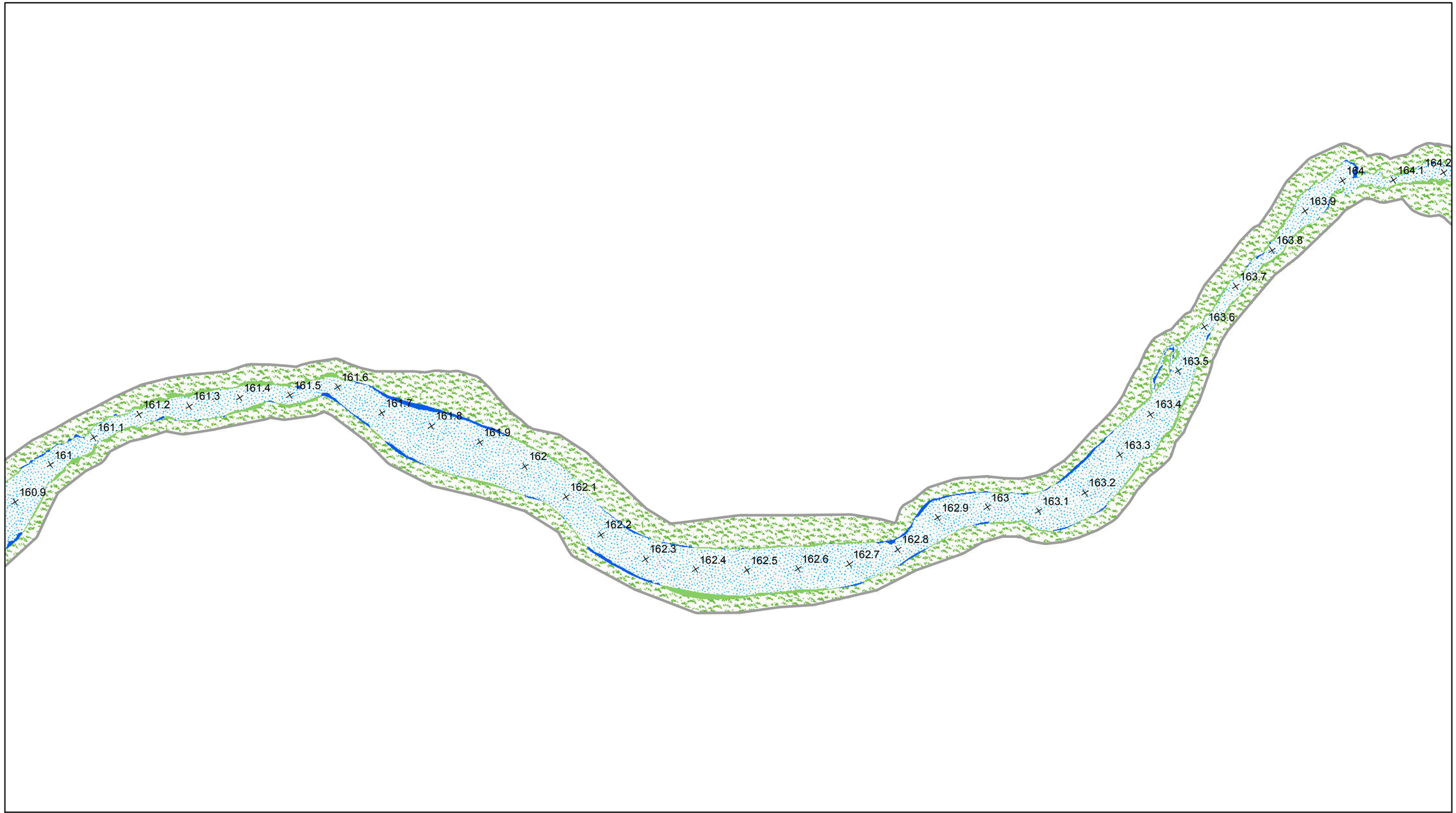
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

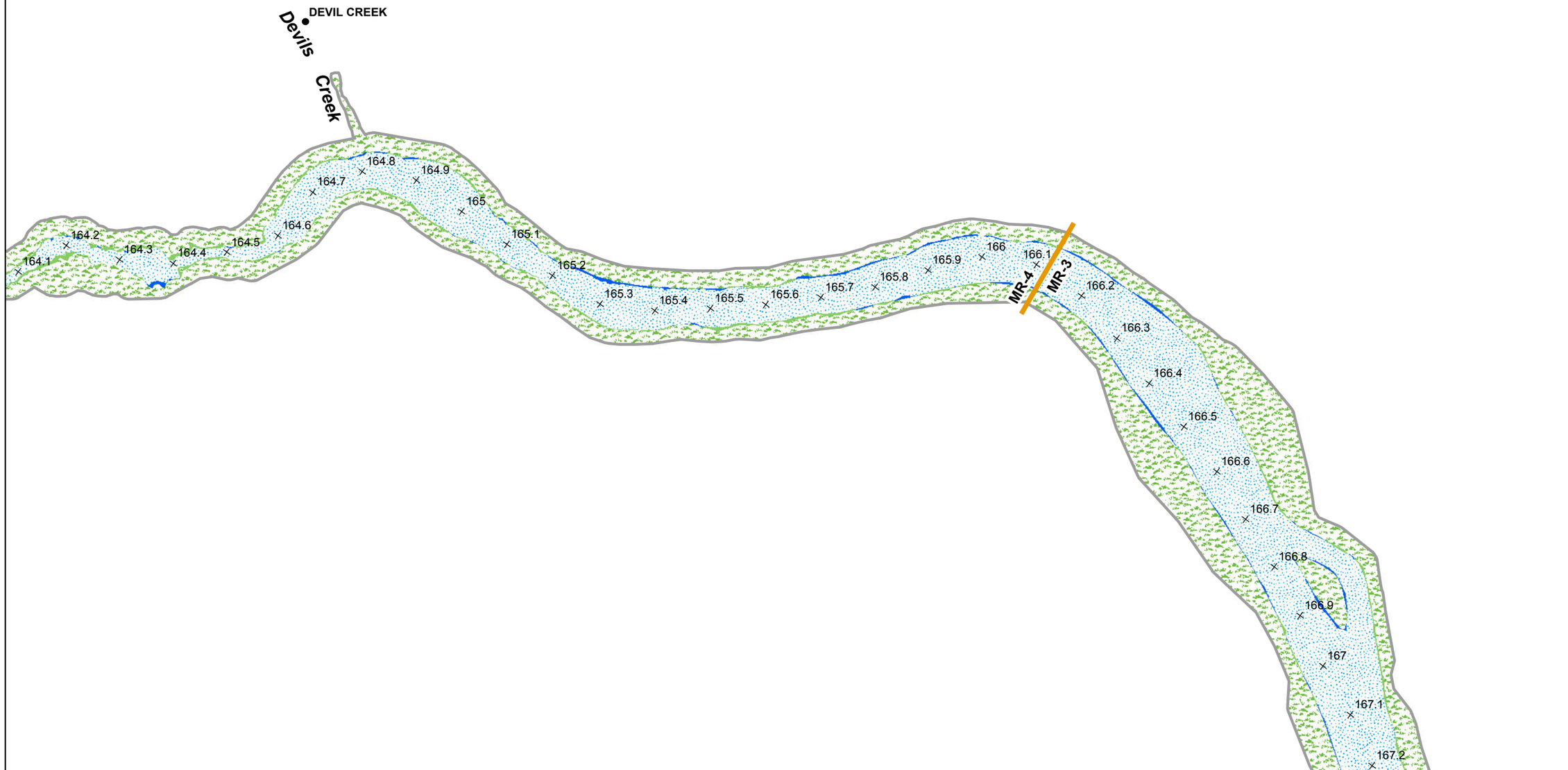
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

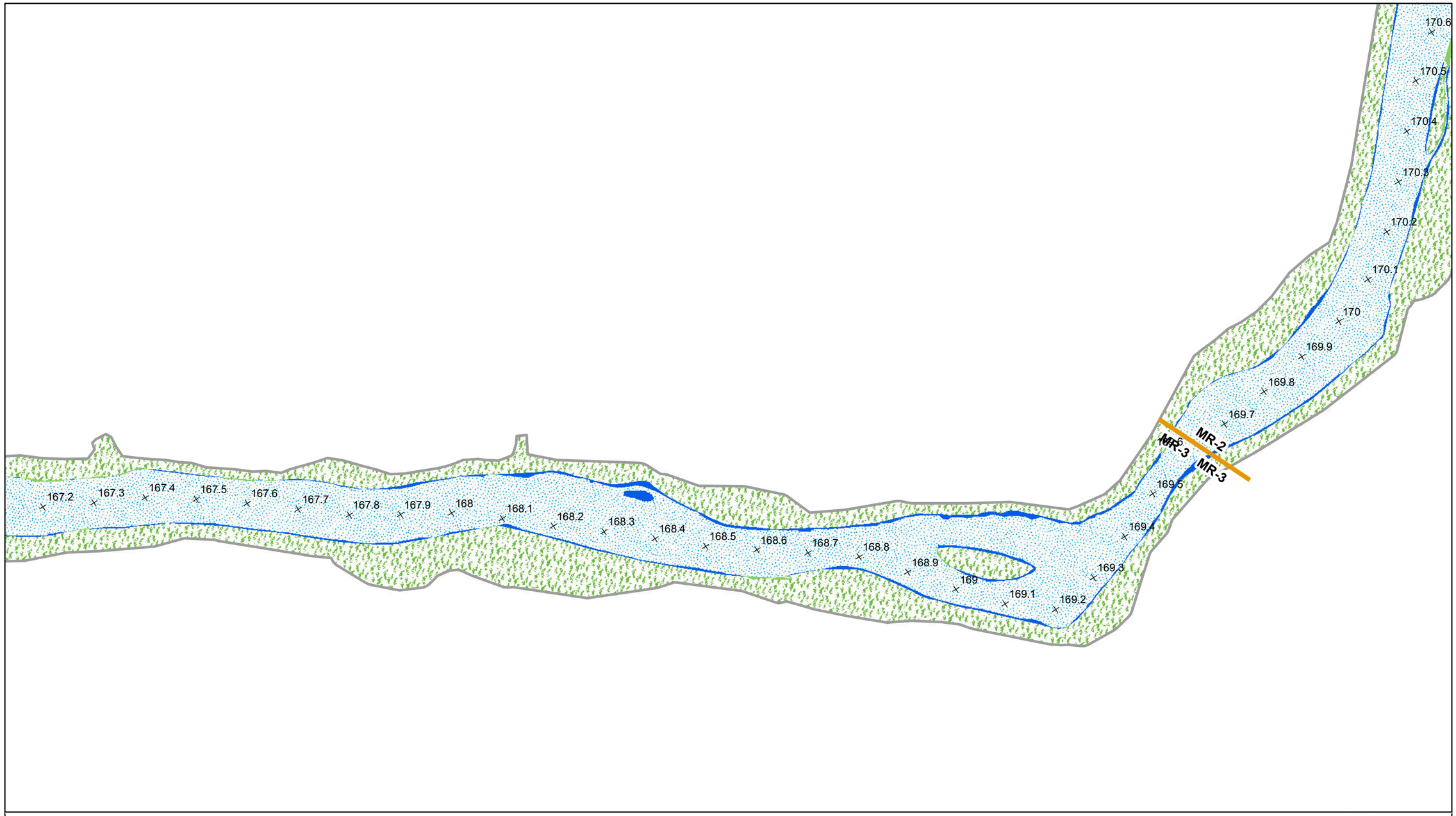
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

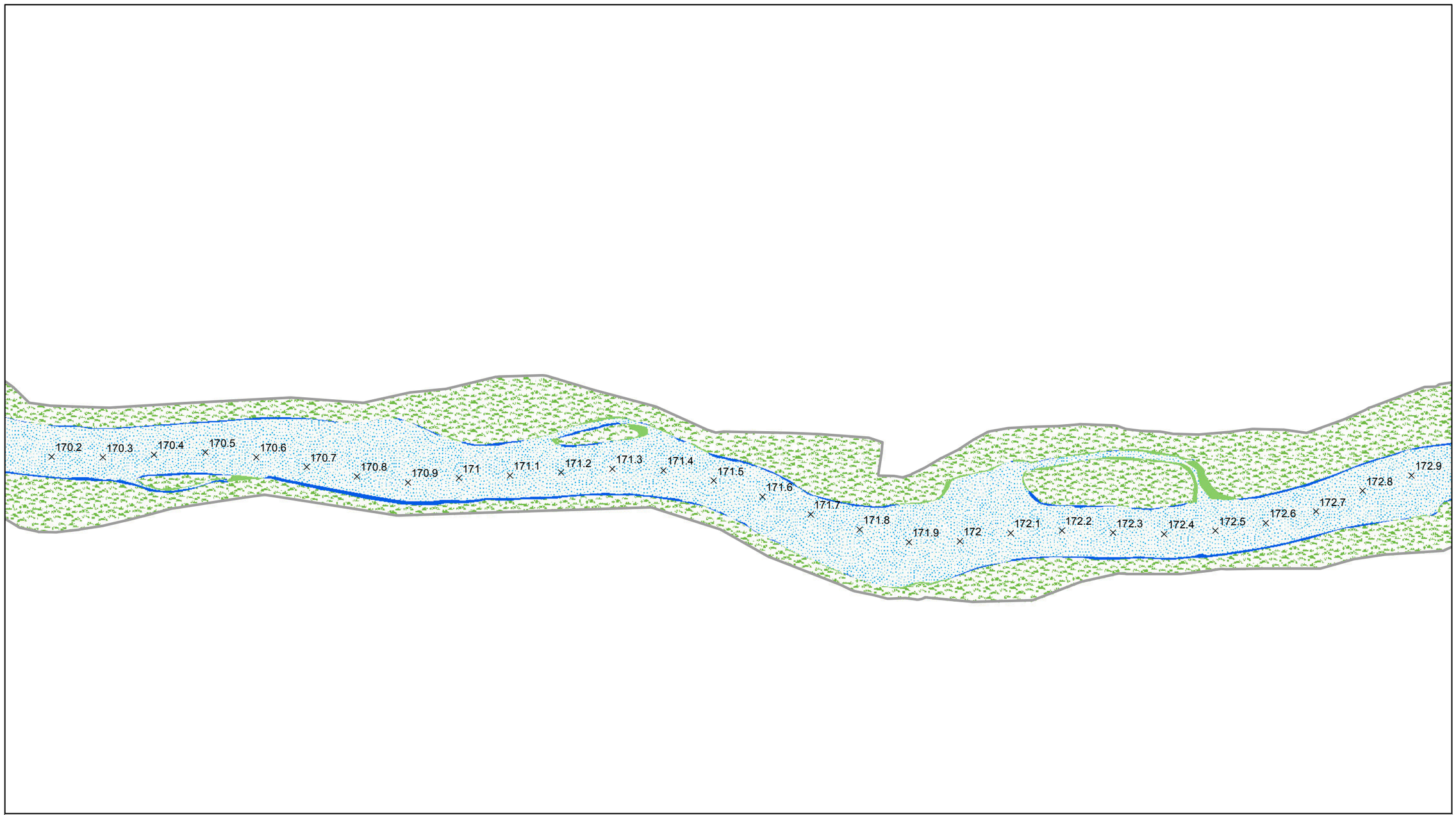
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

See index page for legend and additional data information.

1 inch = 1,000 feet

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UNNAMED CREEK at PRM 173.8

FA 173

172.9 173 173.1 173.2 173.3 173.4 173.5 173.6 173.7 173.8 173.9 174 174.1 174.2 174.3 174.4 174.5 174.6 174.7 174.8 174.9 175 175.1 175.2 175.3 175.4 175.5 175.6 175.7

UNNAMED CREEK at PRM 174.3

0 1,000 2,000 Feet

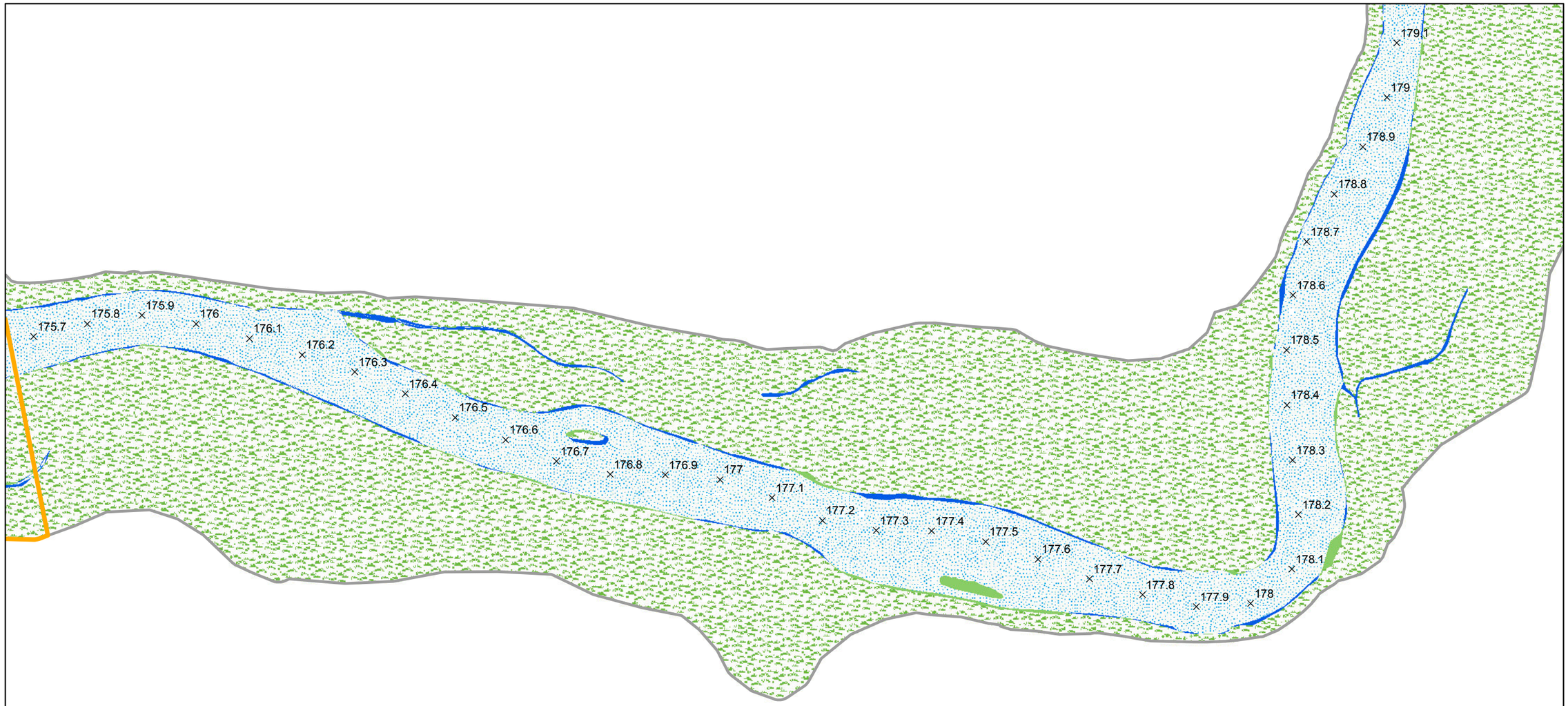
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
1983 to 2012 TURNOVER ANALYSIS

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0 1,000 2,000 Feet

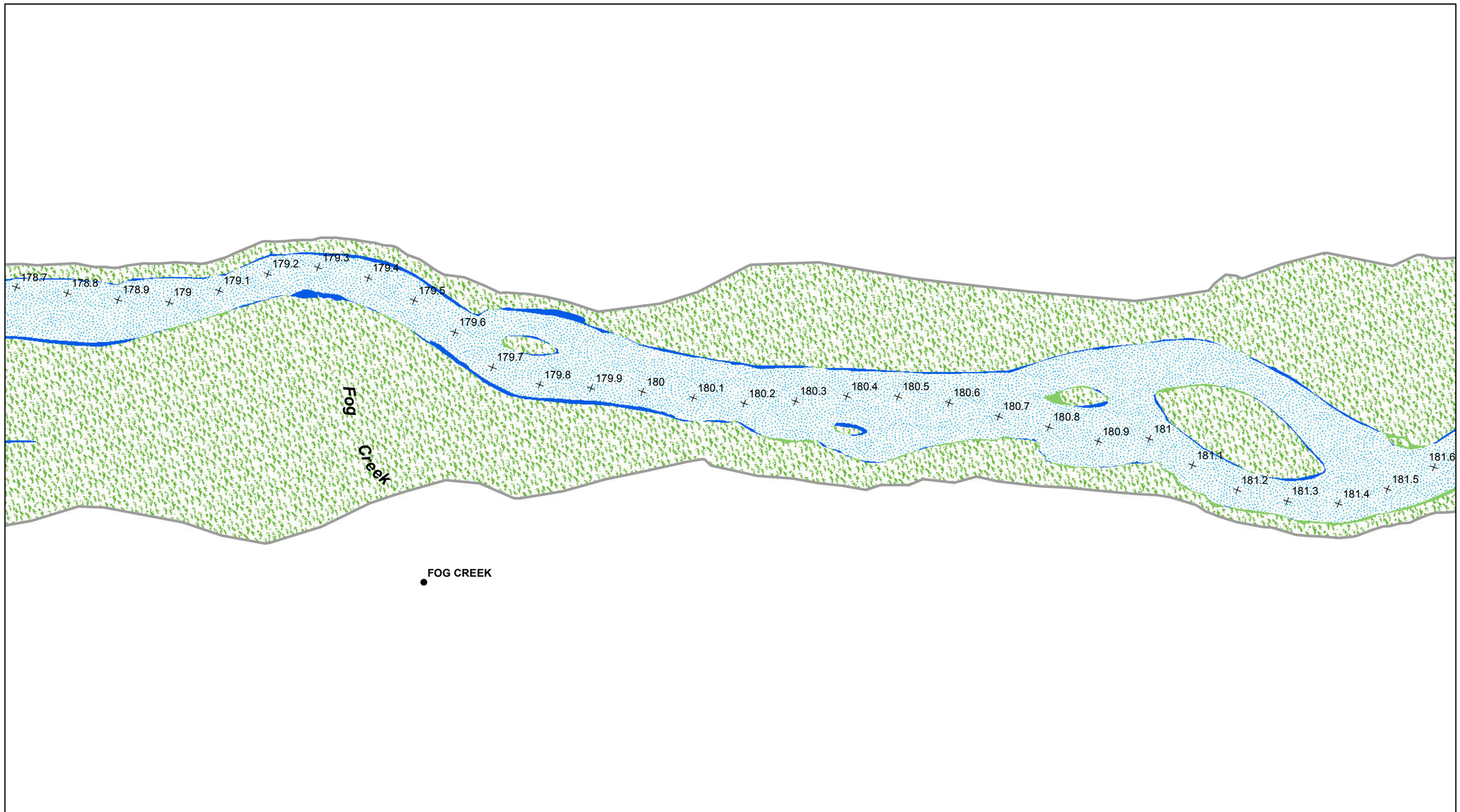
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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ALASKA ENERGY AUTHORITY



0 1,000 2,000 Feet

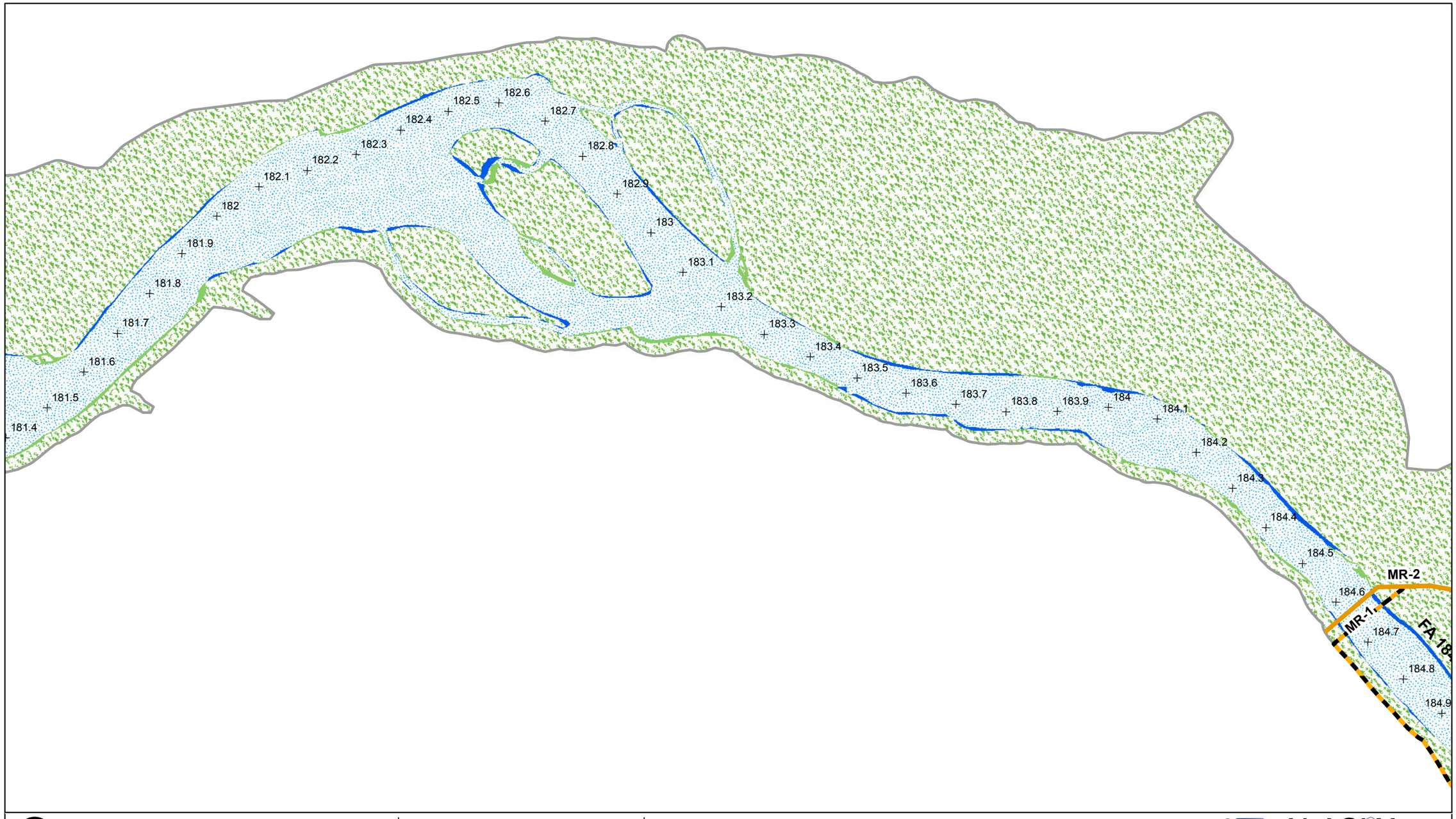
See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

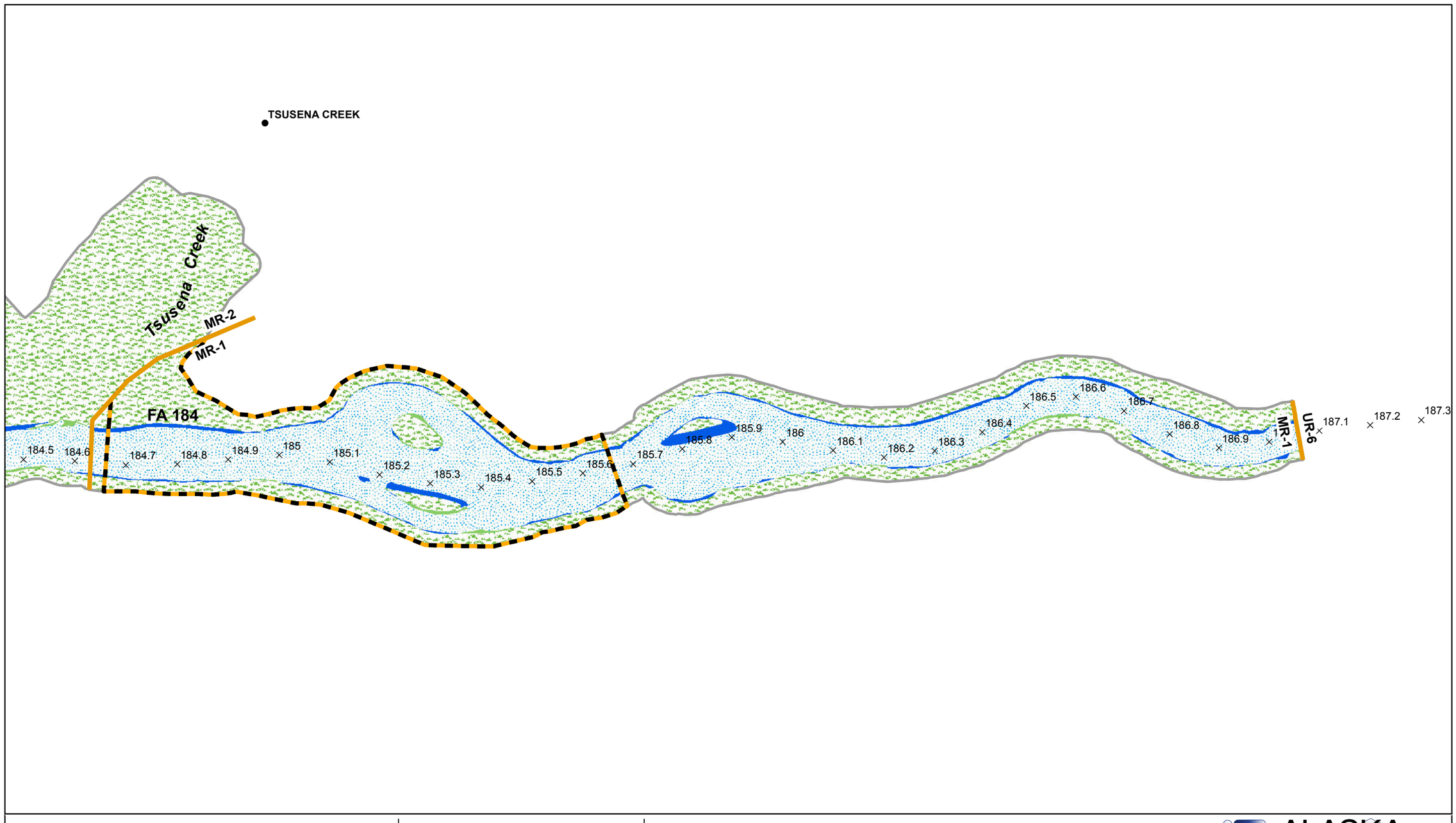
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1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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0 1,000 2,000 Feet

See index page for legend and additional data information.

1 inch = 1,000 feet

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MIDDLE SUSITNA RIVER SEGMENT
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