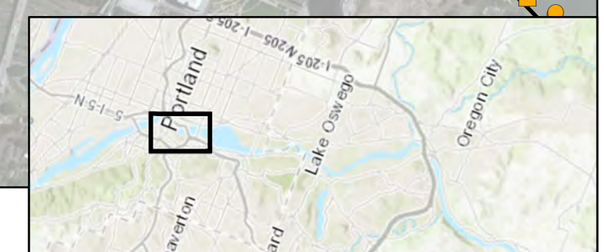
PRIVILEGED AND CONFIDENTIAL / JOINT DEFENSE COMMUNICATION / ATTORNEY CLIENT WORK PRODUCT



Legend

Hand Probe Bottom Condition
- Soft
- Medium
- Hard

Sonar Probe Bottom Condition
- Soft
- Medium
- Hard

Historic Fines Percentage
- ≤ 35%
- > 35%

- River Mile Marker
- Approximate River Centerline
- Buffer Based On Hard Bottom Designation
- Sample Placement Analysis Extent

Notes:
1. Aerial Imagery provided by ESRI Basemaps 2017.
2. Historic fines data from 2004 RI/FS dataset.
3. RM - river mile.
4, Biosonar ® transducer used for mudline bottom hardness screening, followed by 18' long hand push probe, and visial confirmation using a ponar grab at soft sediment areas.
5. Survey data provided in WGS 84.

N

1,000 500 0 1,000 2,000 Feet

Upriver 2018 Soft Sediment Probing Data
RM 11.8 to 14

Portland Harbor Superfund Site
PDI Surface Sediment FSP

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Figure **1a**

Path: P:\GIS\PortlandHarbor\2018 Soft Sediment Probing Study\Figure 1a_PH Sonar Data Analysis.mxd

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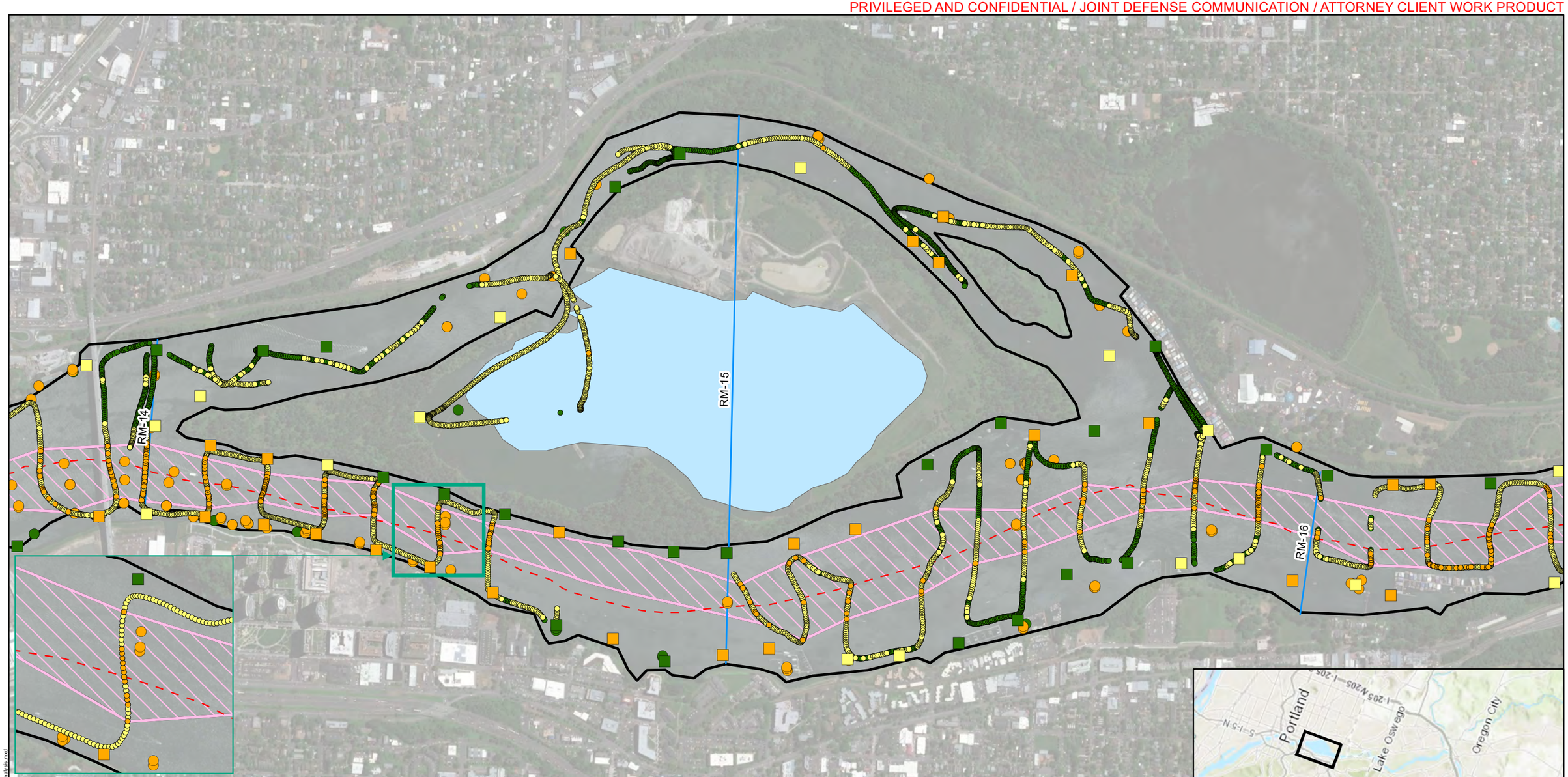

Legend

Hand Probe Bottom Condition
- Soft
- Medium
- Hard

Sonar Probe Bottom Condition
- Soft
- Medium
- Hard

Historic Fines Percentage
- ≤ 35%
- > 35%

- River Mile Marker
- Approximate River Centerline
- Capped Area (Existing)
- Buffer Based On Hard Bottom Designation
- Sample Placement Analysis Extent

Notes:
1. Aerial Imagery provided by ESRI Basemaps 2017.
2. Historic fines data from 2004 RI/FS dataset.
3. RM - river mile.
4, Biosonar ® transducer used for mudline bottom hardness screening, followed by 18' long hand push probe, and visial confirmation using a ponar grab at soft sediment areas.
5. Survey data provided in WGS 84.

N

1,000 500 0 1,000 2,000 Feet

Upriver 2018 Soft Sediment Probing Data
RM 14 to 16

Portland Harbor Superfund Site
PDI Surface Sediment FSP

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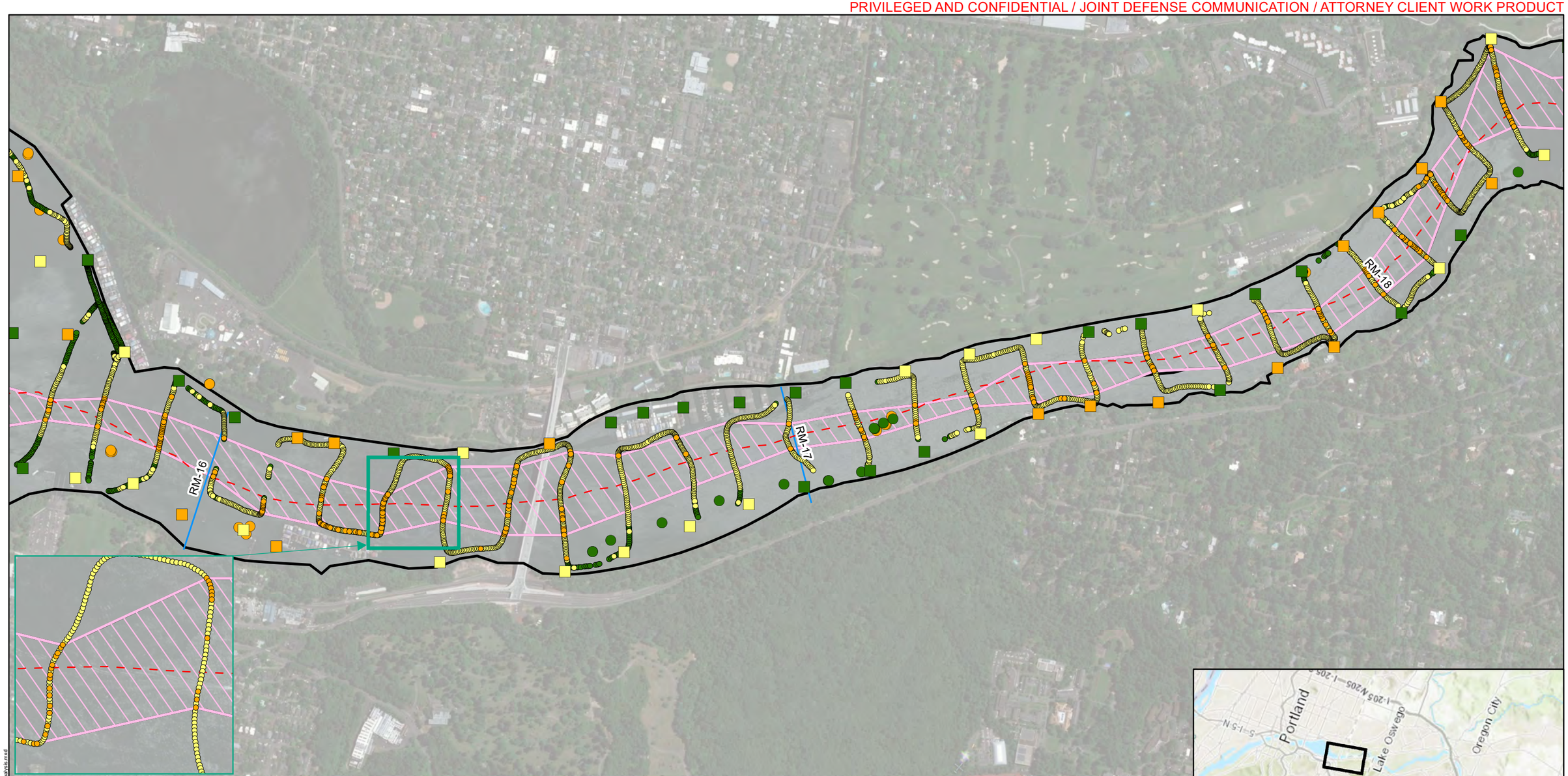
Figure **1b**

Path: P:\GIS\PortlandHarbor\2018 Soft Sediment Probing Study\Figure 1b PH Sonar Data Analysis.mxd



Legend

Hand Probe Bottom Condition
- Soft
- Medium
- Hard

Sonar Probe Bottom Condition
- Soft
- Medium
- Hard

Historic Fines Percentage
- ≤ 35%
- > 35%

- River Mile Marker
- Approximate River Centerline
- Buffer Based On Hard Bottom Designation
- Sample Placement Analysis Extent

Notes:
1. Aerial Imagery provided by ESRI Basemaps 2017.
2. Historic fines data from 2004 RI/FS dataset.
3. RM - river mile.
4, Biosonar ® transducer used for mudline bottom hardness screening, followed by 18' long hand push probe, and visial confirmation using a ponar grab at soft sediment areas.
5. Survey data provided in WGS 84.

N

1,000 500 0 1,000 2,000 Feet

Upriver 2018 Soft Sediment Probing Data
RM 16 to 18

Portland Harbor Superfund Site
PDI Surface Sediment FSP

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Figure **1c**

Path: P:\GIS\PortlandHarbor\2018 Soft Sediment Probing Study\Figure 1c_PH Sonar Data Analysis.mxd

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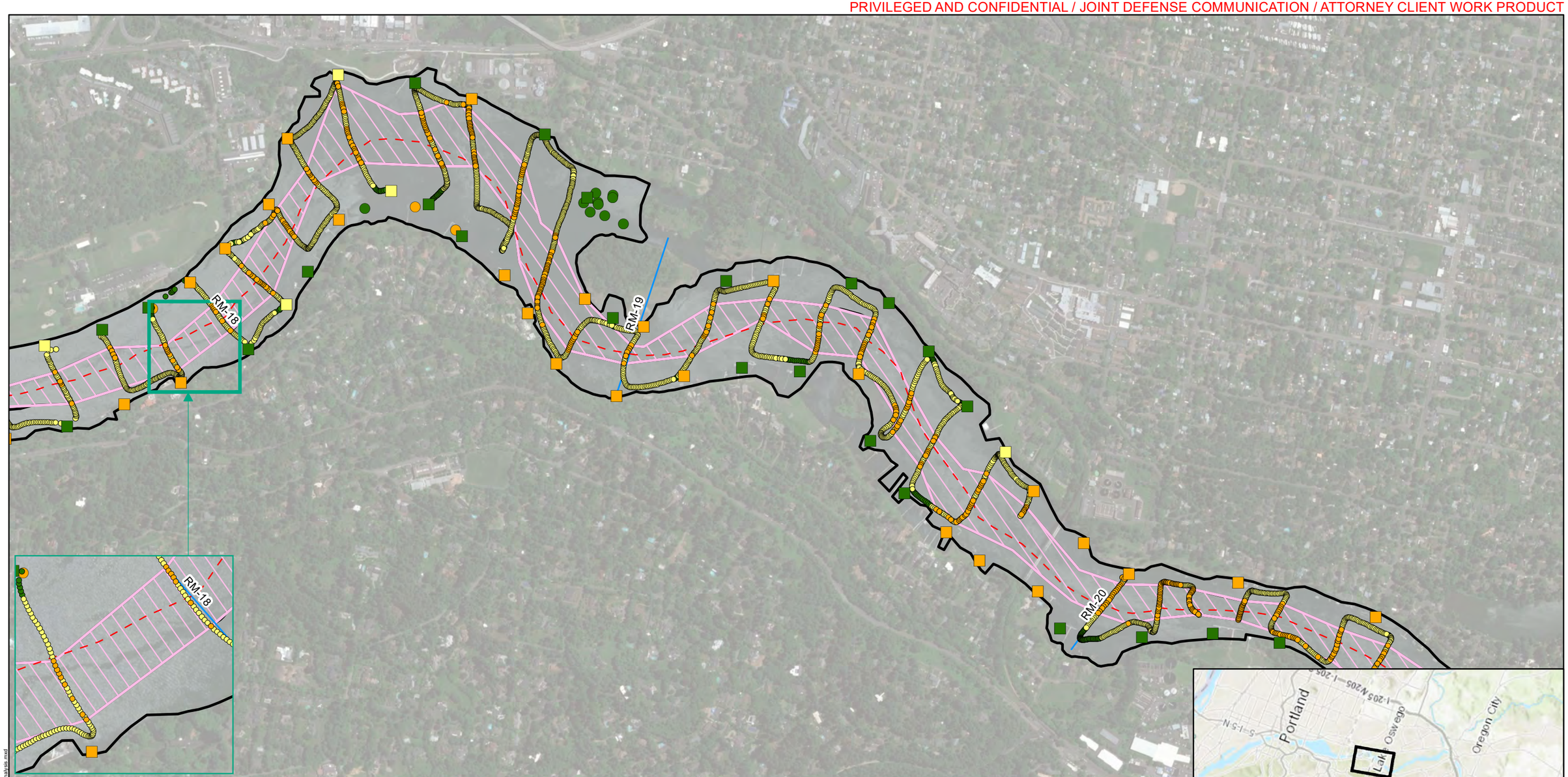

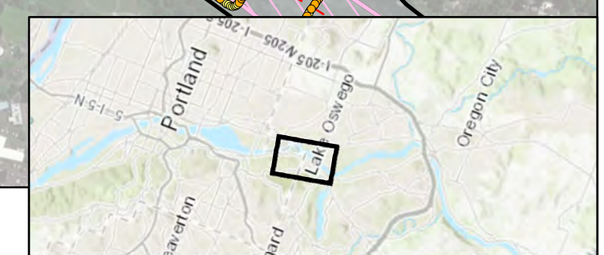

Legend

Hand Probe Bottom Condition
- Soft
- Medium
- Hard

Sonar Probe Bottom Condition
- Soft
- Medium
- Hard

Historic Fines Percentage
- ≤ 35%
- > 35%

- River Mile Marker
- Approximate River Centerline
- Buffer Based On Hard Bottom Designation
- Sample Placement Analysis Extent

Notes:
1. Aerial Imagery provided by ESRI Basemaps 2017.
2. Historic fines data from 2004 RI/FS dataset.
3. RM - river mile.
4. Biosonar ® transducer used for mudline bottom hardness screening, followed by 18' long hand push probe, and visial confirmation using a ponar grab at soft sediment areas.
5. Survey data provided in WGS 84.

N

1,000 500 0 1,000 2,000 Feet

Upriver 2018 Soft Sediment Probing Data
RM 18 to 20

Portland Harbor Superfund Site
PDI Surface Sediment FSP

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Figure **1d**

Path: P:\GIS\PortlandHarbor\2018 Soft Sediment Probing Study\Figure 1d PH Sonar Data Analysis.mxd

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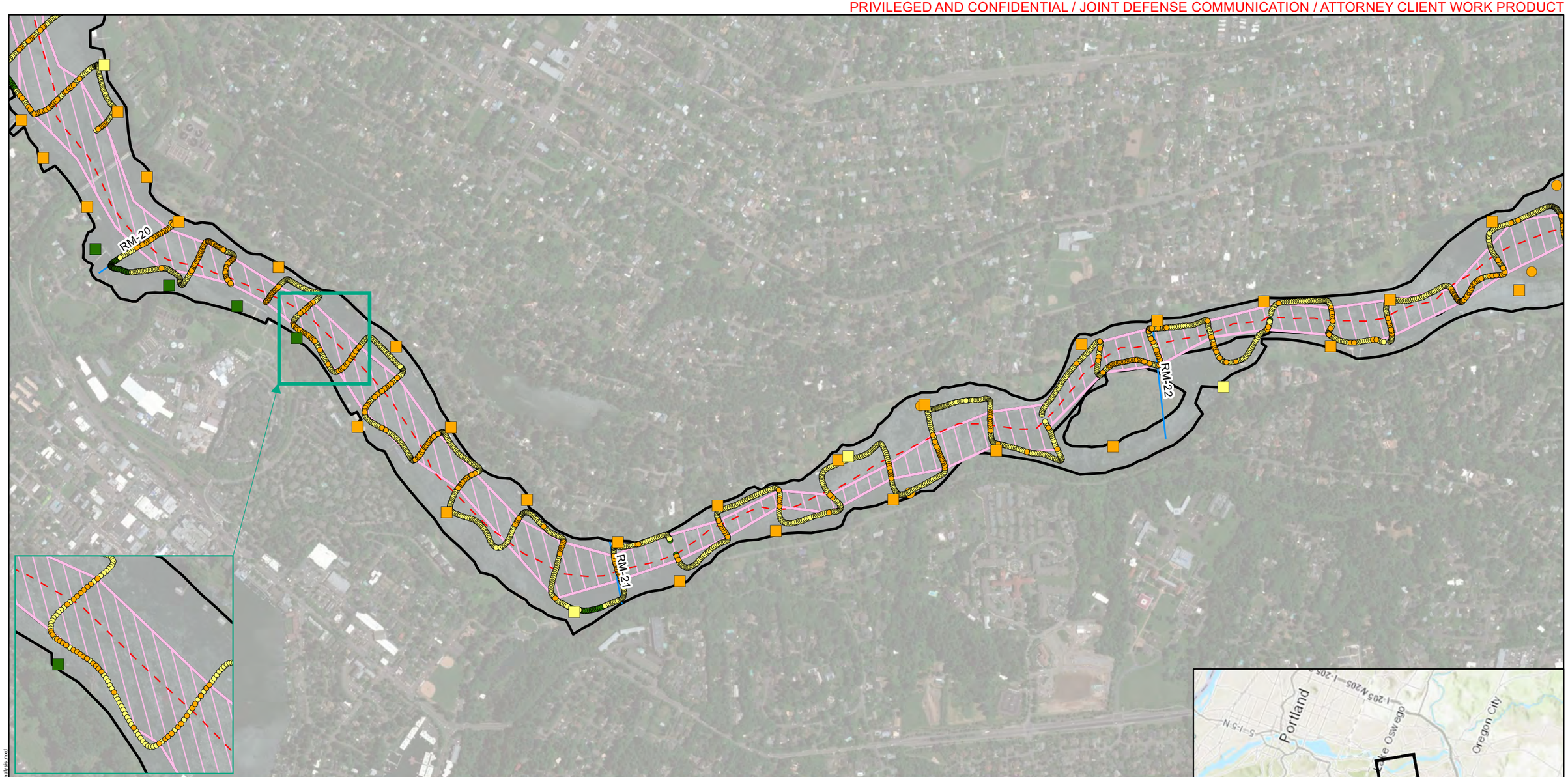

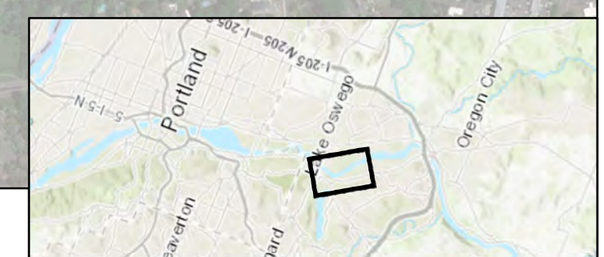

Legend

Hand Probe Bottom Condition
- Soft
- Medium
- Hard

Sonar Probe Bottom Condition
- Soft
- Medium
- Hard

Historic Fines Percentage
- ≤ 35%
- > 35%

- River Mile Marker
- Approximate River Centerline
- Buffer Based On Hard Bottom Designation
- Sample Placement Analysis Extent

Notes:
1. Aerial Imagery provided by ESRI Basemaps 2017.
2. Historic fines data from 2004 RI/FS dataset.
3. RM - river mile.
4, Biosonar ® transducer used for mudline bottom hardness screening, followed by 18' long hand push probe, and visial confirmation using a ponar grab at soft sediment areas.
5. Survey data provided in WGS 84.

N

1,000 500 0 1,000 2,000 Feet

Upriver 2018 Soft Sediment Probing Data
RM 20 to 22

Portland Harbor Superfund Site
PDI Surface Sediment FSP

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Figure **1e**

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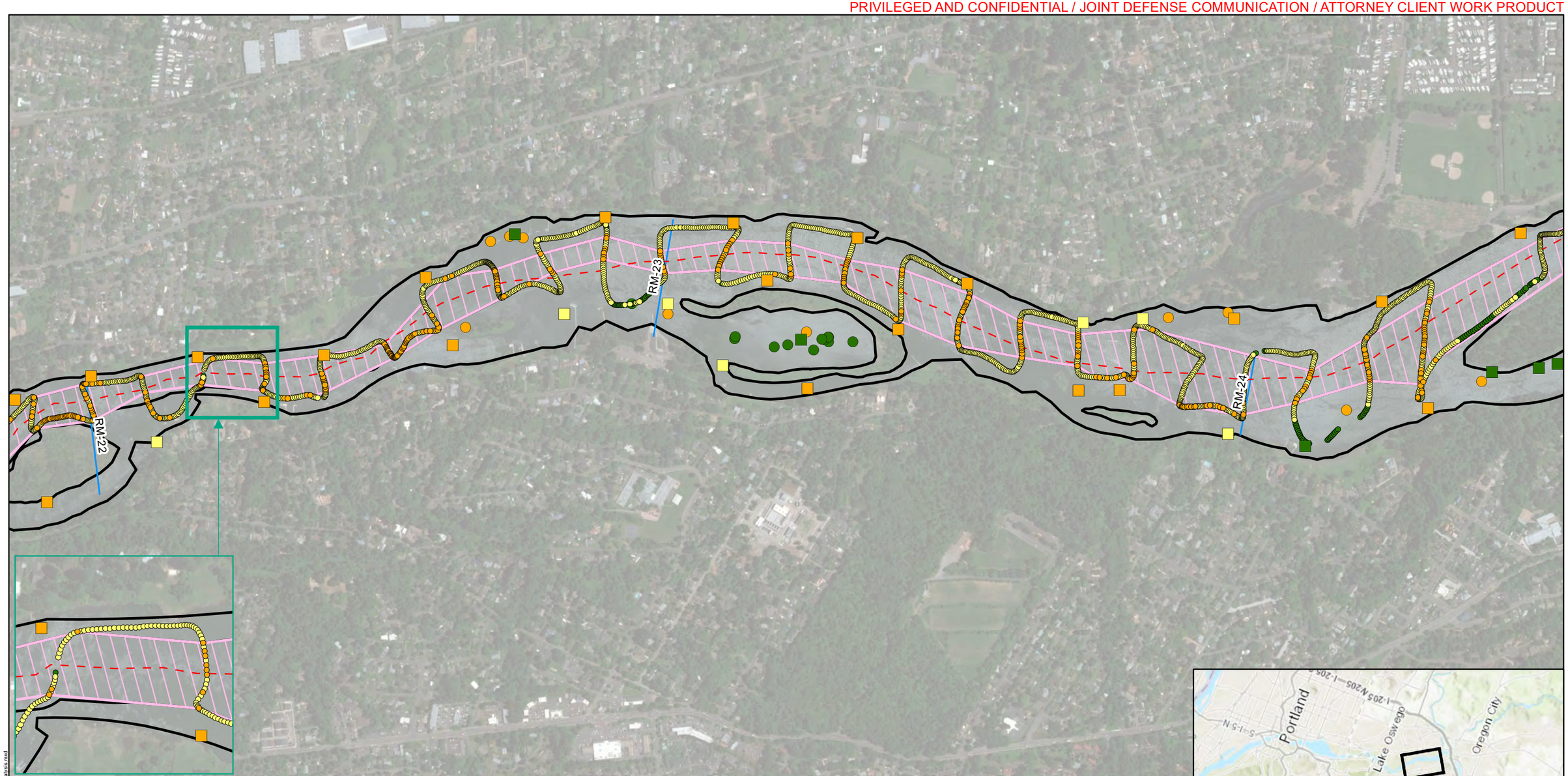

Legend

Hand Probe Bottom Condition
- Soft
- Medium
- Hard

Sonar Probe Bottom Condition
- Soft
- Medium
- Hard

Historic Fines Percentage
- ≤ 35%
- > 35%

- River Mile Marker
- Approximate River Centerline
- Buffer Based On Hard Bottom Designation
- Sample Placement Analysis Extent

Notes:
1. Aerial Imagery provided by ESRI Basemaps 2017.
2. Historic fines data from 2004 RI/FS dataset.
3. RM - river mile.
4, Biosonar ® transducer used for mudline bottom hardness screening, followed by 18' long hand push probe, and visial confirmation using a ponar grab at soft sediment areas.
5. Survey data provided in WGS 84.

N

1,000 500 0 1,000 2,000 Feet

Upriver 2018 Soft Sediment Probing Data
RM 22 to 24

Portland Harbor Superfund Site
PDI Surface Sediment FSP

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Figure **1f**

Path: P:\GIS\Portlandharbor\2018 Soft Sediment Probing Study\Figure 1f_PH_Sonar Data Analysis.mxd

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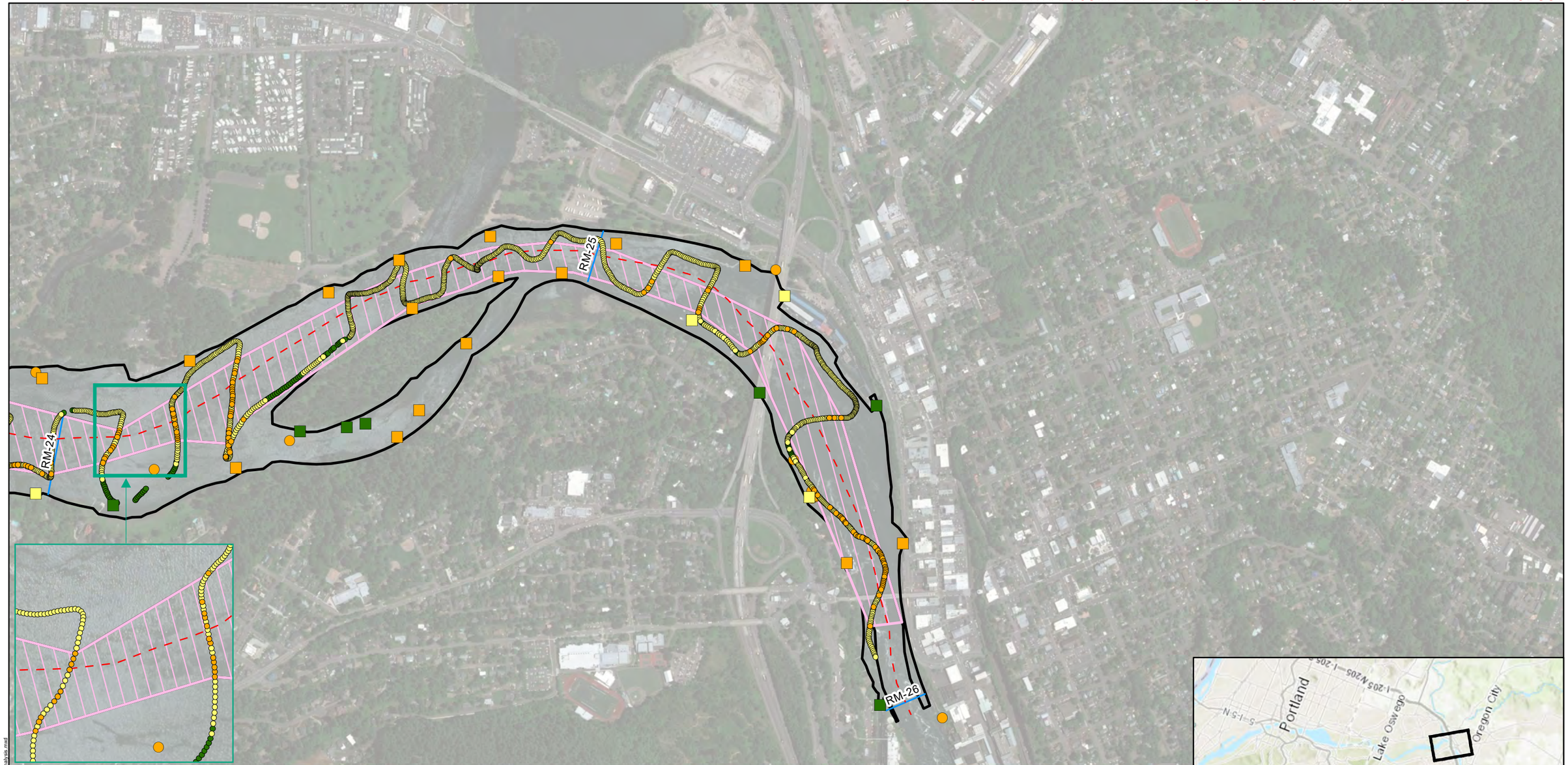

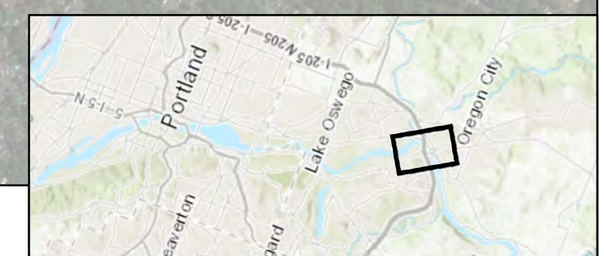

Legend

Hand Probe Bottom Condition
- Soft
- Medium
- Hard

Sonar Probe Bottom Condition
- Soft
- Medium
- Hard

Historic Fines Percentage
- ≤ 35%
- > 35%

- River Mile Marker
- Approximate River Centerline
- Buffer Based On Hard Bottom Designation
- Sample Placement Analysis Extent

Notes:
1. Aerial Imagery provided by ESRI Basemaps 2017.
2. Historic fines data from 2004 RI/FS dataset.
3. RM - river mile.
4, Biosonar ® transducer used for mudline bottom hardness screening, followed by 18' long hand push probe, and visial confirmation using a ponar grab at soft sediment areas.
5. Survey data provided in WGS 84.

N

1,000 500 0 1,000 2,000 Feet

Upriver 2018 Soft Sediment Probing Data
RM 24 to 26

Portland Harbor Superfund Site
PDI Surface Sediment FSP

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Figure **1g**

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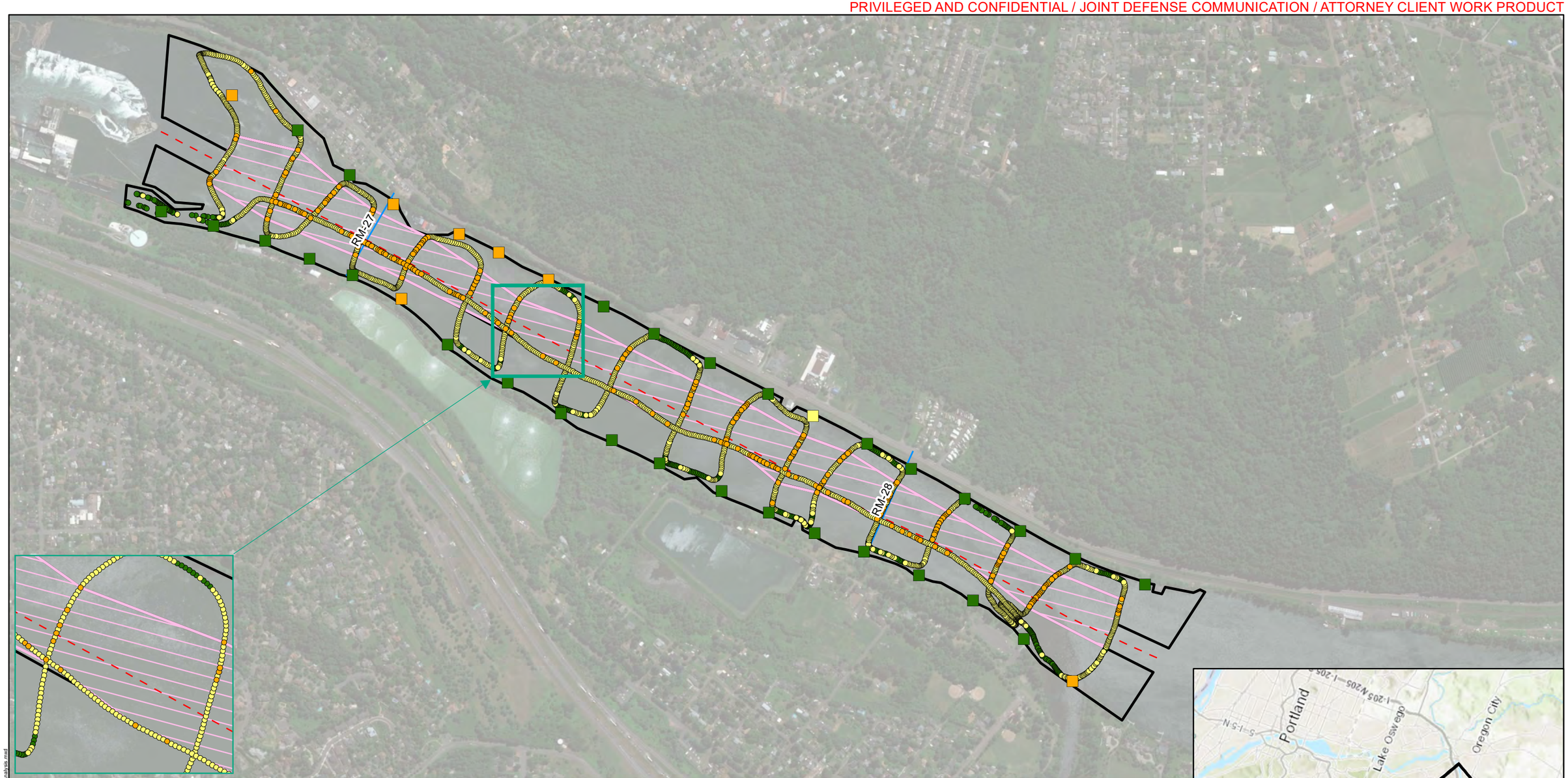

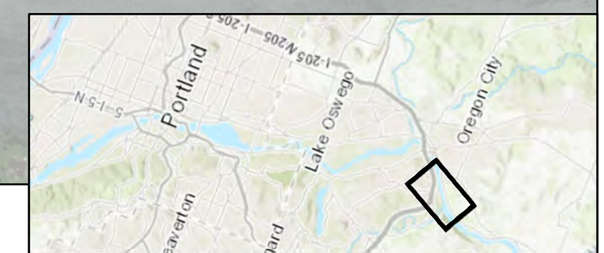

Legend

Hand Probe Bottom Condition

- Soft
- Medium
- Hard

Sonar Probe Bottom Condition

- Soft
- Medium
- Hard

Historic Fines Percentage

- ≤ 35%
- > 35%

- River Mile Marker
- Approximate River Centerline
- Buffer Based On Hard Bottom Designation
- Sample Placement Analysis Extent

Notes:
1. Aerial Imagery provided by ESRI Basemaps 2017.
2. Historic fines data from 2004 RI/FS dataset.
3. RM - river mile.
4, Biosonar ® transducer used for mudline bottom hardness screening, followed by 18' long hand push probe, and visial confirmation using a ponar grab at soft sediment areas.
5. Survey data provided in WGS 84.

N

1,000 500 0 1,000 2,000 Feet

Upriver 2018 Soft Sediment Probing Data
RM 27 to 28.6

Portland Harbor Superfund Site
PDI Surface Sediment FSP

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Figure **1h**

Path: P:\GIS\PortlandHarbor\2018 Soft Sediment Probing Stud\Figure 1h_PH Sonar Data Analysis.mxd