

- Honeywell NPL Site
- Non-Honeywell NPL Site



FIGURE 1.1

Honeywell Onondaga Lake
Syracuse, New York

Site Location

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- Wastebed
- Sediment Management Unit (SMU) Boundary
- NYSDEC Wetlands
- Delineated Wetlands

Notes:
 1. Wetland boundary delineations were performed during various upland site investigation programs. Some of the delineations are currently under NYSDEC review.

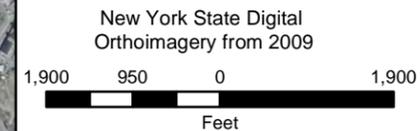


FIGURE 1.2

Honeywell Onondaga Lake
Syracuse, New York

Vicinity Wetlands and Wastebeds

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- Remediation Area Boundary
- Sediment Management Unit (SMU) Boundary
- Extent of ILWD in Littoral Zone
- Willis/Semet IRM Barrier Wall
- West Wall Portion of the WB-B/HB IRM
- East Wall Portion of the WB-B/HB IRM

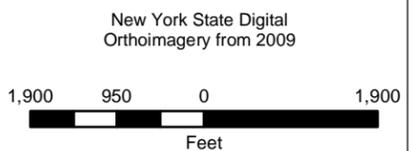


FIGURE 3.1

Honeywell Onondaga Lake
Syracuse, New York

SMU Boundaries and
Remediation Areas

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- Delineated Wetland Boundaries
- Remediation Area Boundary
- Isolation Cap Area
- Dredge Area
- Sediment Management Unit (SMU) Boundary

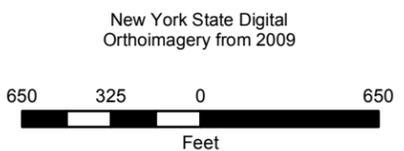
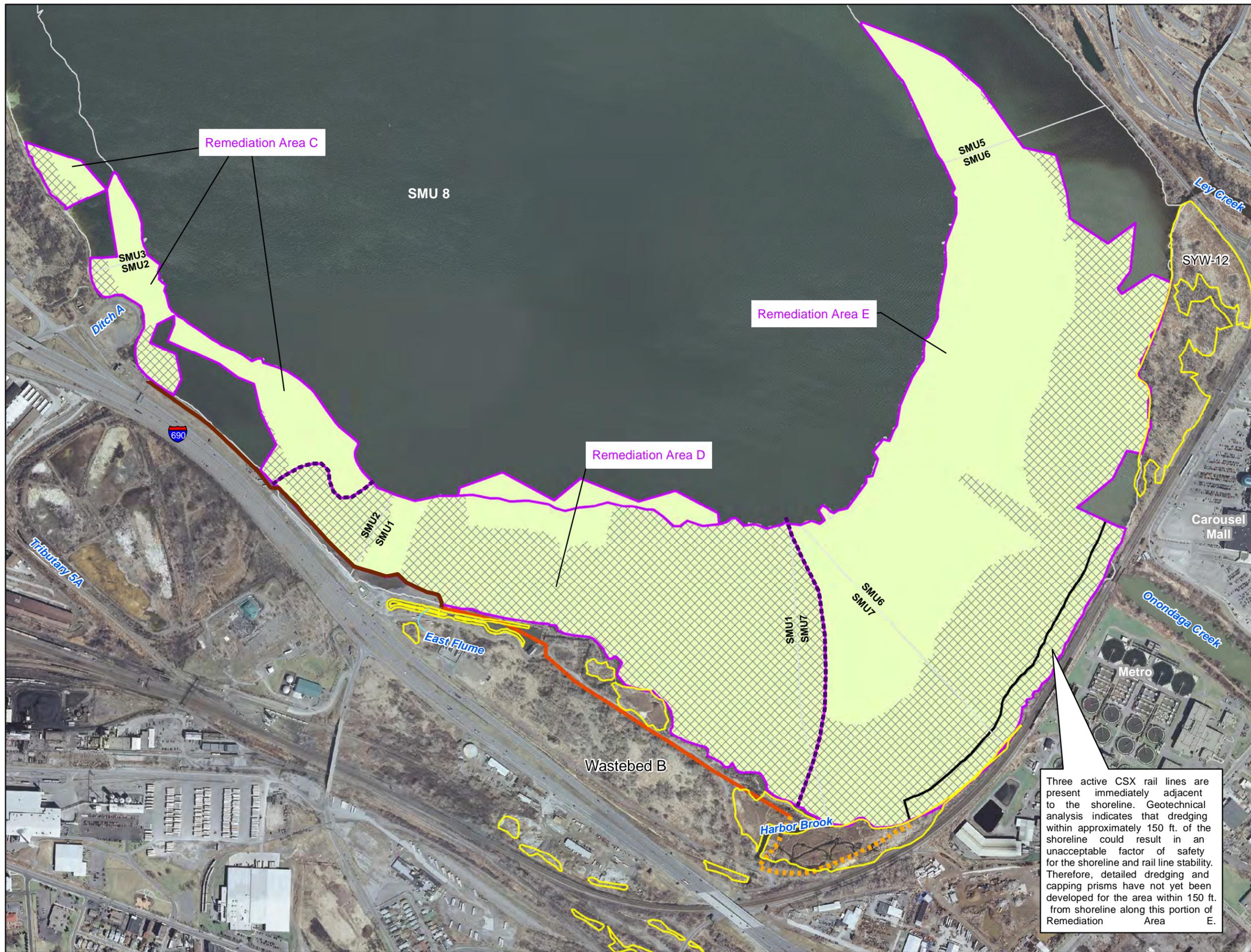


FIGURE 3.2

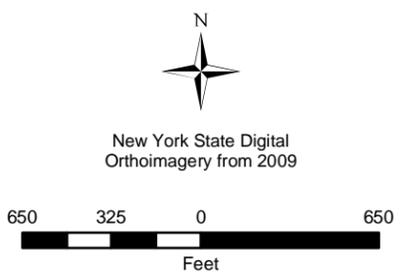
Honeywell Onondaga Lake
Syracuse, New York

Remediation Areas A & B
Dredge and Cap Areas

PARSONS
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- Remediation Area Boundary
- Isolation Cap Area
- Dredge Area
- Delineated Wetland Boundaries
- Sediment Management Unit (SMU) Boundary
- Extent of ILWD in Littoral Zone
- Willis/Semet IRM Barrier Wall
- West Wall Portion of the WB-B/HB IRM
- East Wall Portion of the WB-B/HB IRM



Three active CSX rail lines are present immediately adjacent to the shoreline. Geotechnical analysis indicates that dredging within approximately 150 ft. of the shoreline could result in an unacceptable factor of safety for the shoreline and rail line stability. Therefore, detailed dredging and capping prisms have not yet been developed for the area within 150 ft. from shoreline along this portion of Remediation Area E.

FIGURE 3.3

Honeywell Onondaga Lake
Syracuse, New York

Remediation Areas C, D, & E
Dredge & Cap Areas

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-  Remediation Area Boundary
-  Sediment Management Unit (SMU) Boundary
-  Delineated Wetland Boundaries
-  Isolation Cap Area



New York State Digital Orthoimagery from 2009

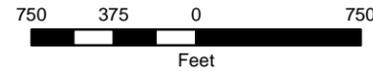


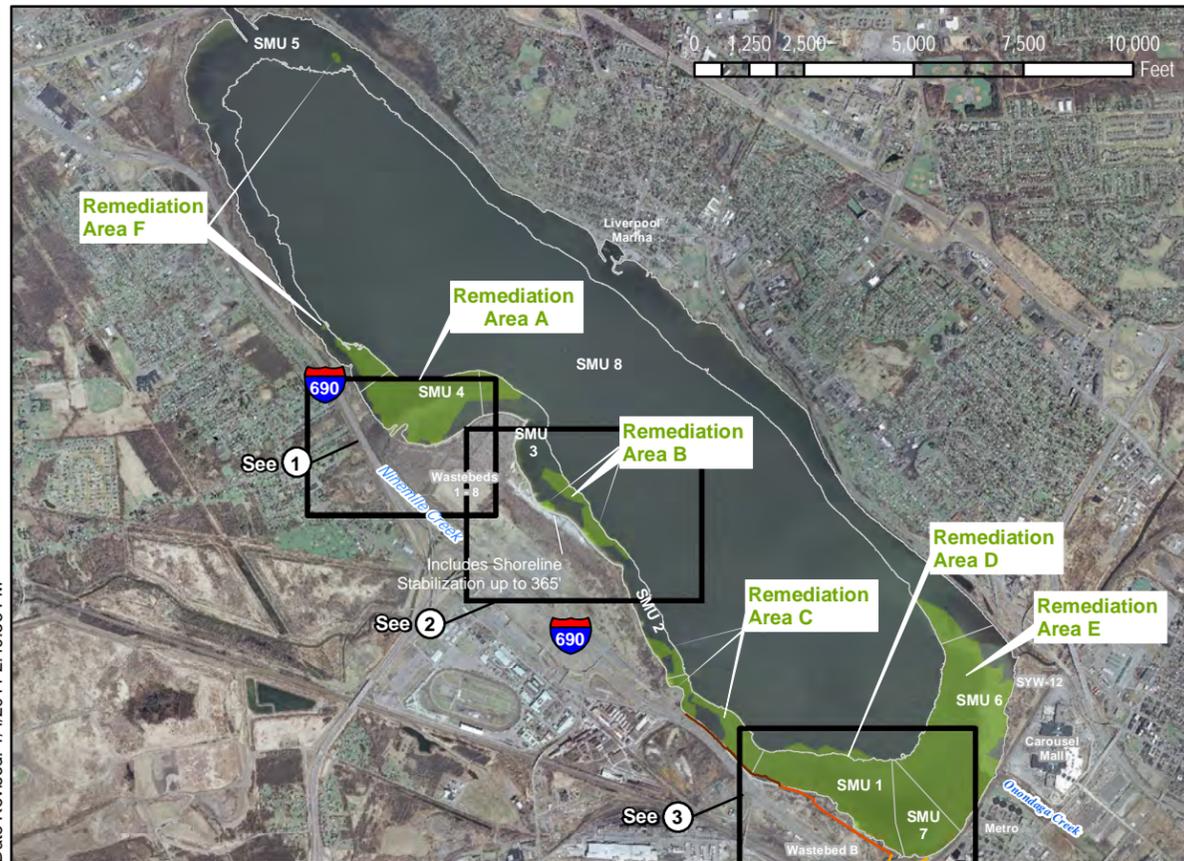
FIGURE 3.4

Honeywell Onondaga Lake
Syracuse, New York

Remediation Area F
Cap Area

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Onondaga Lake Overall Site Plan



1 Ninemile Creek Spits



2 Wastebeds 1-8 Connected Wetlands



3 Wastebed B/ Harbor Brook Outboard Area

-  Sediment Management Unit (SMU) Boundary
-  Remediation Area (Parsons, 2010)
-  Wetland Areas to be included in the Onondaga Lake Design
-  Willis/Semet IRM Barrier Wall
-  West Wall Portion of the WB-B/HB IRM
-  East Wall Portion of the WB-B/HB IRM



New York State Digital Orthoimagery from 2009

FIGURE 3.5

Honeywell Onondaga Lake
Syracuse, New York

Adjacent Areas
Included in Design

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0 to 3 ft of water

Habitat Medium Sand 1.5' min.
Habitat / Erosion Protection Coarse Gravel 0.5' min.
Chemical Isolation/Carbon Medium Sand 0.75' min.
Chemical Isolation/Siderite Medium Sand 0.25'
Mixing /Siderite Medium Sand 0.25'

3 to 7 ft of water

Habitat / Erosion Protection Fine Gravel 1.5' min.
Chemical Isolation/Carbon Medium Sand 0.75' min.
Chemical Isolation/Siderite Medium Sand 0.25'
Mixing /Siderite Medium Sand 0.25'

*7-10 FT of Water
Fine Gravel

7 to 20 ft of water

Habitat / Erosion Protection Medium Sand* 1.0' min.
Chemical Isolation/Carbon Medium Sand 0.75' min.
Chemical Isolation/Siderite Medium Sand 0.25'
Mixing /Siderite Medium Sand 0.25'

0 to 3 ft of water

Habitat Medium Sand 1.5' min.
Habitat / Erosion Protection Coarse Gravel 0.5' min.
Chemical Isolation Medium Sand 1.0' min.
Mixing Medium Sand 0.25'

3 to 7 ft of water

Habitat / Erosion Protection Fine Gravel 1.5' min.
Chemical Isolation Medium Sand 1.0' min.
Mixing Medium Sand 0.25'

7 to 10 ft of water

Habitat / Erosion Protection Fine Gravel 1.0' min.
Chemical Isolation Medium Sand 1.0' min.
Mixing Medium Sand 0.25'

10 to 20 ft of water

Habitat / Erosion Protection Medium Sand 1.0' min.
Chemical Isolation Medium Sand 1.0' min.
Mixing Medium Sand 0.25'

20 to 30 ft of water

Habitat / Erosion Protection Medium Sand 1.0' min.
Chemical Isolation Medium Sand 0.5' min.
Mixing Medium Sand 0.25'

Cap Model Area A2

Cap Model Area A1

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- Legend**
- Remediation Area Boundary
 - SMU Boundary
 - Model Area Boundary
 - Estimated Post Remediation Bathymetry on 1-ft intervals

- Estimated Post Cap Water Depths**
- 0 - 3 ft of Water
 - 3 - 7 ft of Water
 - 10 - 20 ft of Water
 - 20 - 30 ft of Water

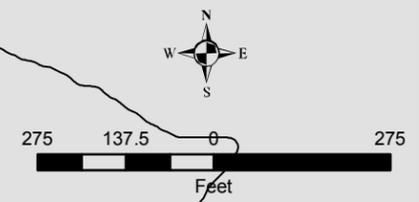
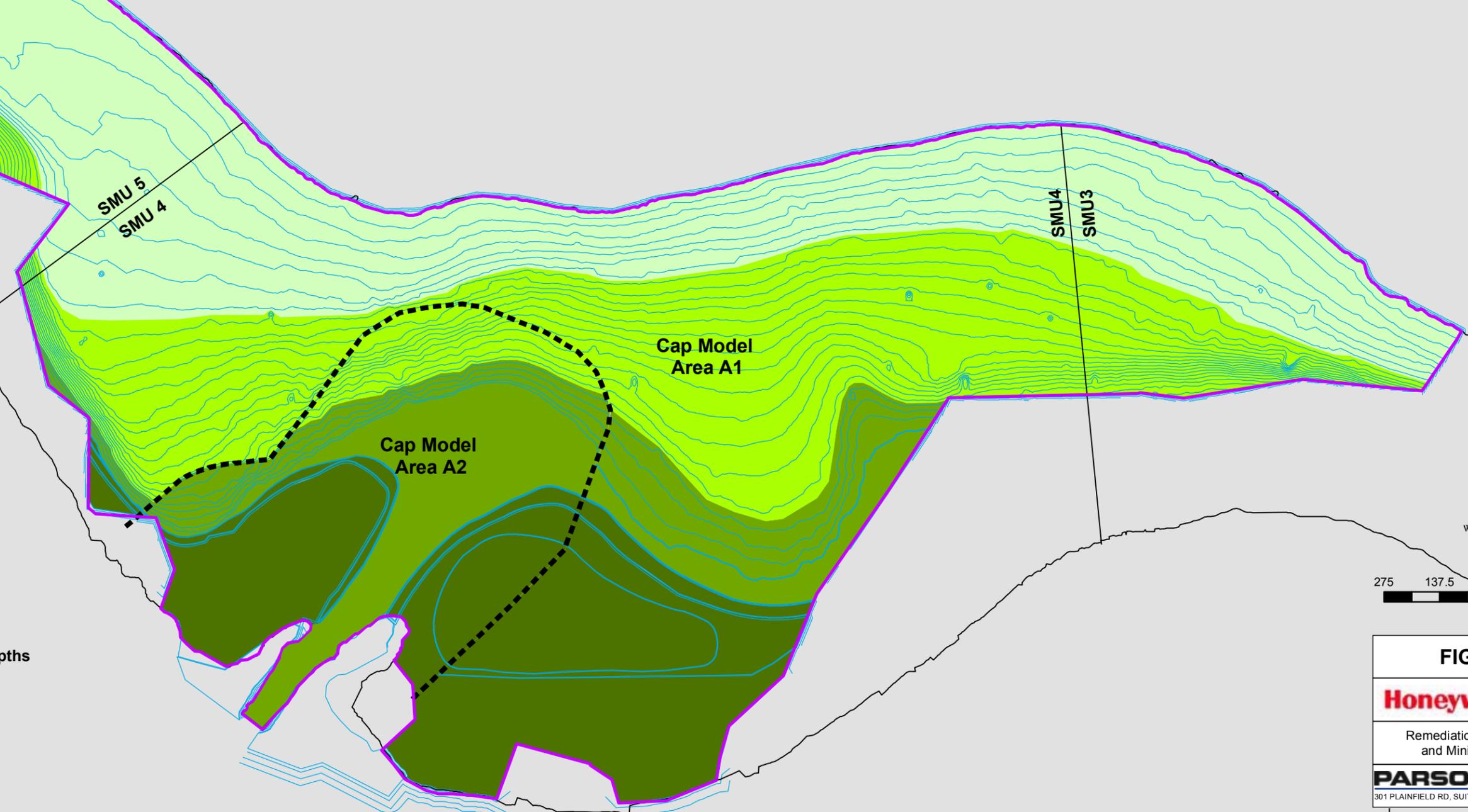


FIGURE 4.1

Honeywell Onondaga Lake
Syracuse, New York

Remediation Area A Cap Areas
and Minimum Thicknesses

PARSONS
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0 to 3 ft of water

Habitat Fine Gravel 1.5' min.	
Habitat / Erosion Protection Coarse Gravel 0.5' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'

3 to 4 ft of water

Habitat Fine Gravel 1.0' min.	
Habitat / Erosion Protection Coarse Gravel 0.5' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'

4 to 7 ft of water

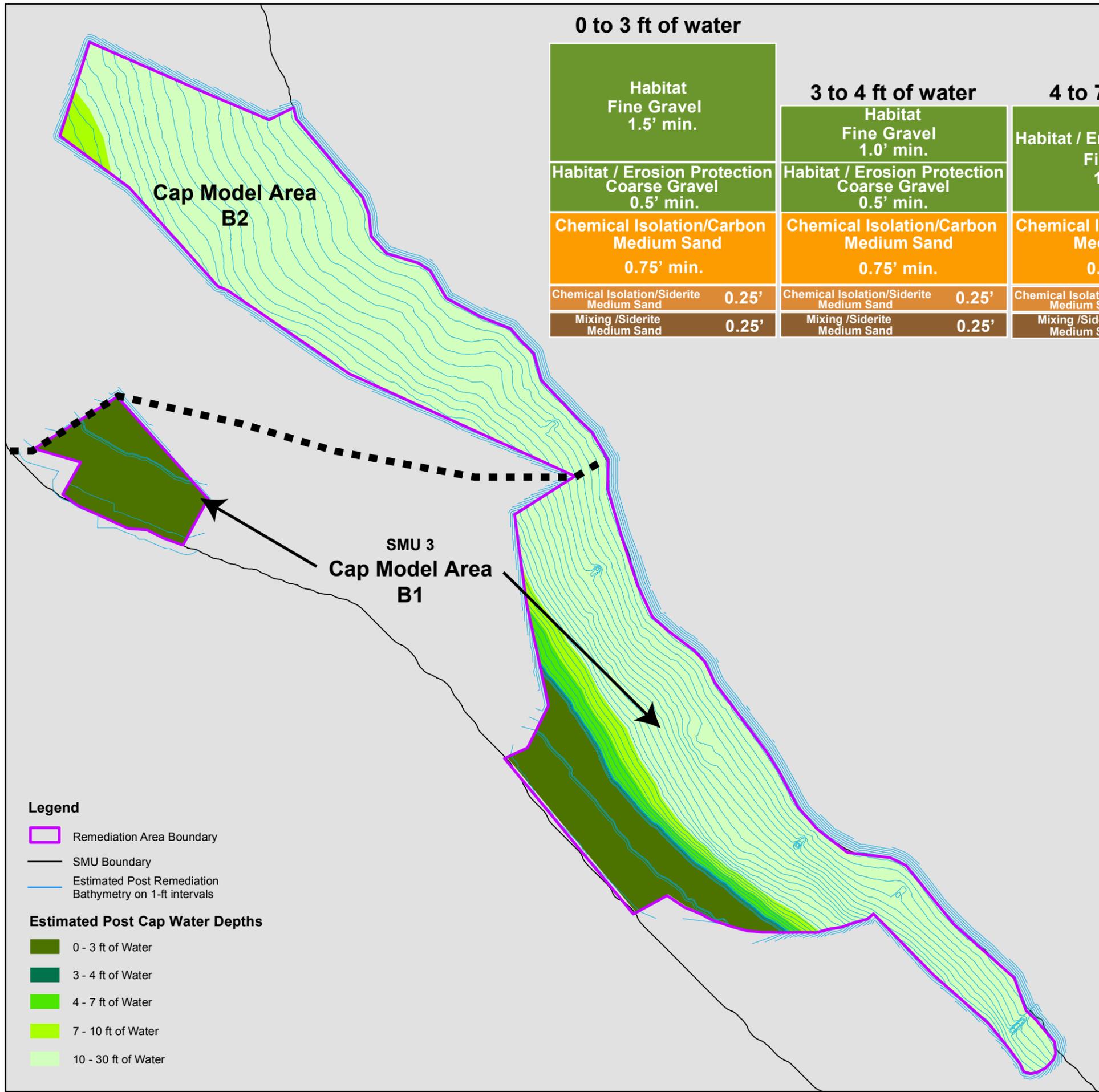
Habitat / Erosion Protection Fine Gravel 1.5' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'

7 to 10 ft of water

Habitat / Erosion Protection Coarse Sand 1.0' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'

10 to 30 ft of water

Habitat / Erosion Protection Medium Sand 1.0' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'



Legend

- Remediation Area Boundary
- SMU Boundary
- Estimated Post Remediation Bathymetry on 1-ft intervals

Estimated Post Cap Water Depths

- 0 - 3 ft of Water
- 3 - 4 ft of Water
- 4 - 7 ft of Water
- 7 - 10 ft of Water
- 10 - 30 ft of Water



FIGURE 4.2

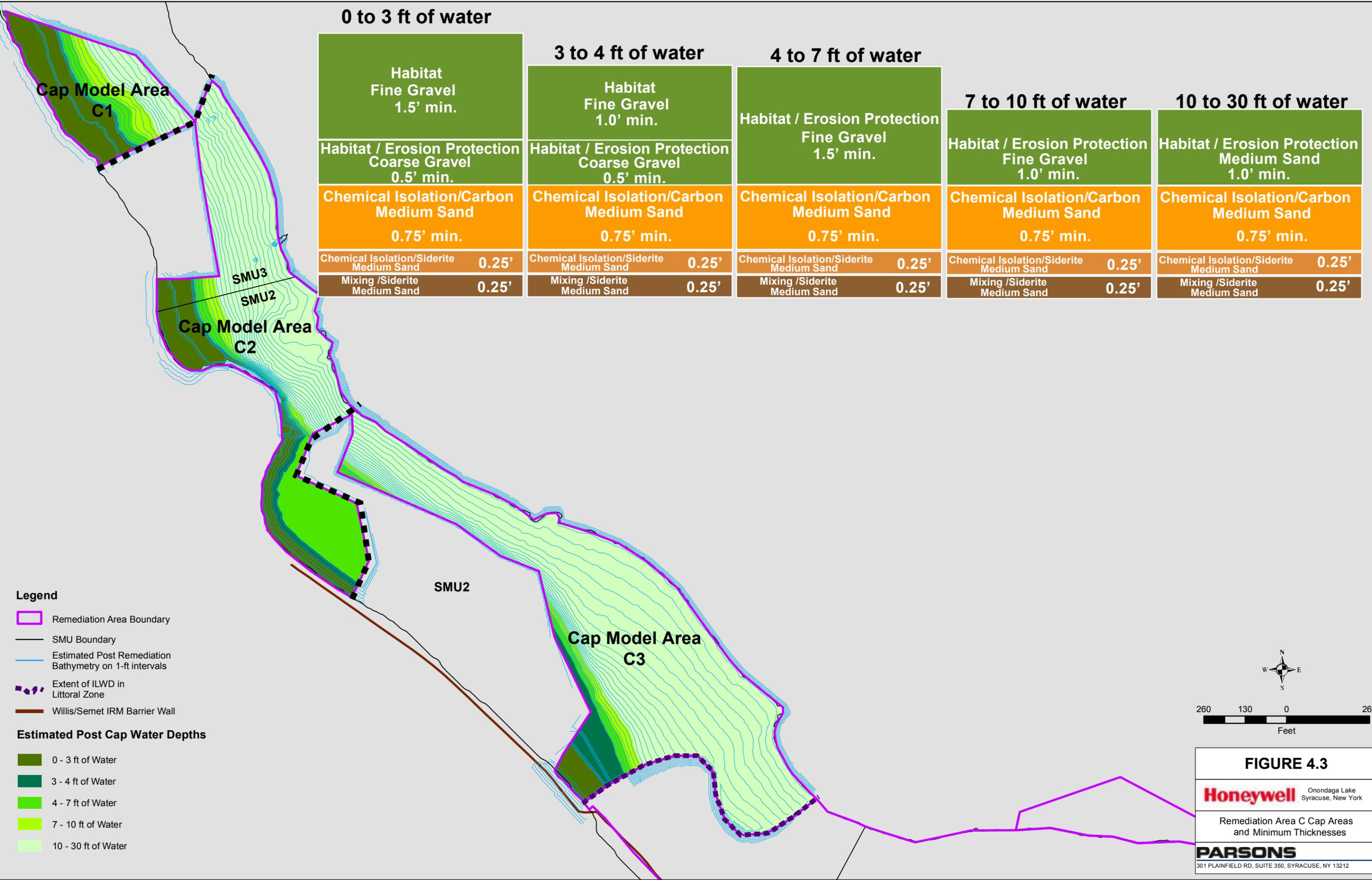
Honeywell Onondaga Lake
Syracuse, New York

Remediation Area B Cap Areas
and Minimum Thicknesses

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

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0 to 3 ft of water

Habitat Fine Gravel 1.5' min.	
Habitat / Erosion Protection Coarse Gravel 0.5' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'

3 to 4 ft of water

Habitat Fine Gravel 1.0' min.	
Habitat / Erosion Protection Coarse Gravel 0.5' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'

4 to 7 ft of water

Habitat / Erosion Protection Fine Gravel 1.5' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'

7 to 10 ft of water

Habitat / Erosion Protection Fine Gravel 1.0' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'

10 to 30 ft of water

Habitat / Erosion Protection Medium Sand 1.0' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'

Legend

- Remediation Area Boundary
- SMU Boundary
- Estimated Post Remediation Bathymetry on 1-ft intervals
- Extent of ILWD in Littoral Zone
- Willis/Semet IRM Barrier Wall

Estimated Post Cap Water Depths

- 0 - 3 ft of Water
- 3 - 4 ft of Water
- 4 - 7 ft of Water
- 7 - 10 ft of Water
- 10 - 30 ft of Water

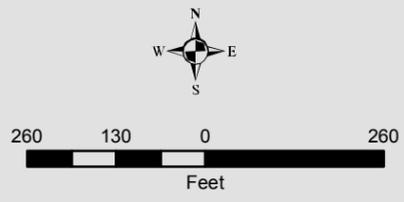


FIGURE 4.3

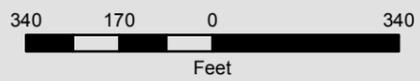
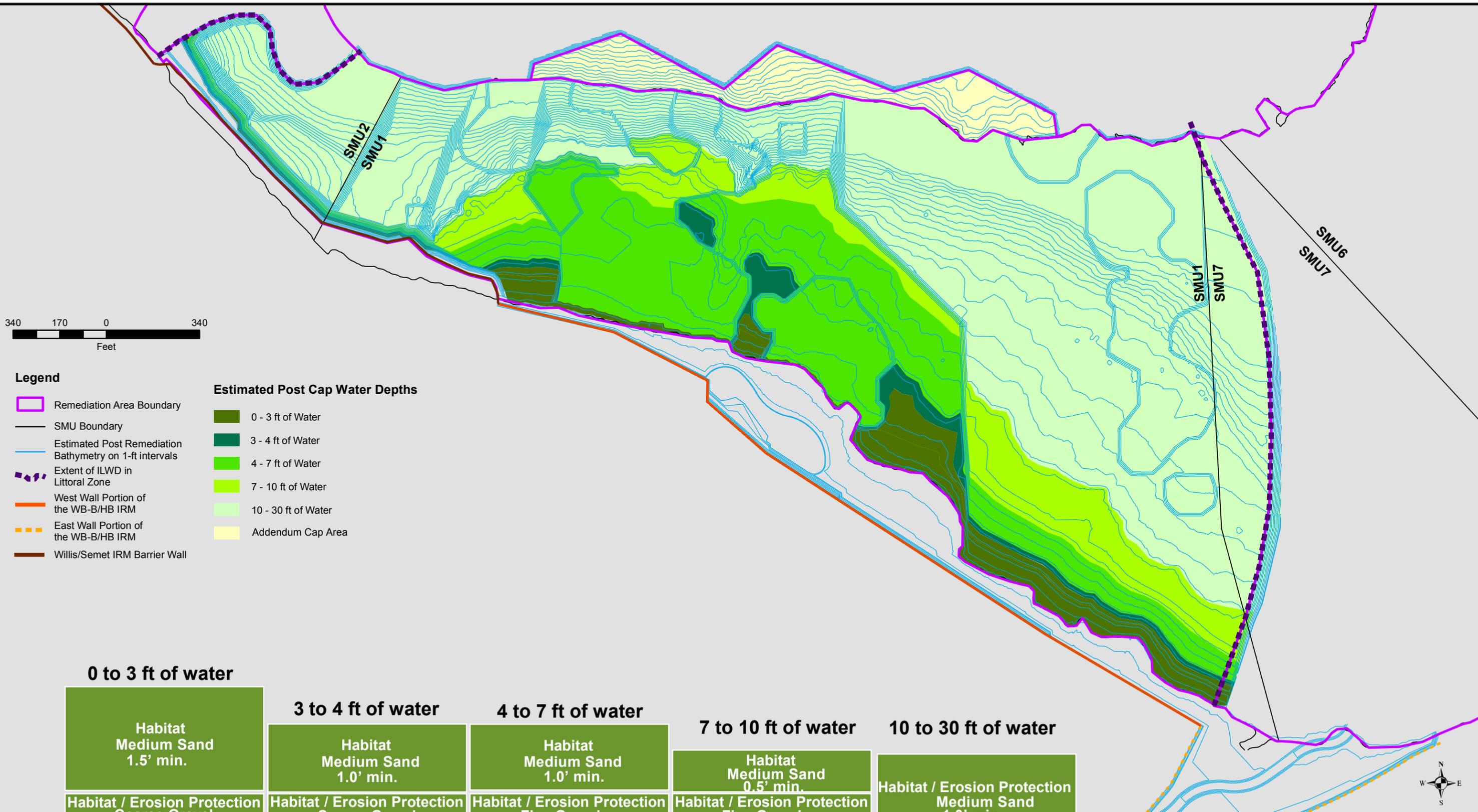
Honeywell Onondaga Lake
Syracuse, New York

Remediation Area C Cap Areas
and Minimum Thicknesses

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- Legend**
- Remediation Area Boundary
 - SMU Boundary
 - Estimated Post Remediation Bathymetry on 1-ft intervals
 - Extent of ILWD in Littoral Zone
 - West Wall Portion of the WB-B/HB IRM
 - East Wall Portion of the WB-B/HB IRM
 - Willis/Semet IRM Barrier Wall

- Estimated Post Cap Water Depths**
- 0 - 3 ft of Water
 - 3 - 4 ft of Water
 - 4 - 7 ft of Water
 - 7 - 10 ft of Water
 - 10 - 30 ft of Water
 - Addendum Cap Area

0 to 3 ft of water		3 to 4 ft of water		4 to 7 ft of water		7 to 10 ft of water		10 to 30 ft of water	
Habitat Medium Sand 1.5' min.		Habitat Medium Sand 1.0' min.		Habitat Medium Sand 1.0' min.		Habitat Medium Sand 0.5' min.		Habitat / Erosion Protection Medium Sand 1.0' min.	
Habitat / Erosion Protection Coarse Gravel 0.5' min.		Habitat / Erosion Protection Coarse Gravel 0.5' min.		Habitat / Erosion Protection Fine Gravel 0.5' min.		Habitat / Erosion Protection Fine Gravel 0.5' min.		Habitat / Erosion Protection Medium Sand 1.0' min.	
Chemical Isolation/Carbon Medium Sand 0.75' min.		Chemical Isolation/Carbon Medium Sand 0.75' min.		Chemical Isolation/Carbon Medium Sand 0.75' min.		Chemical Isolation/Carbon Medium Sand 0.75' min.		Chemical Isolation/Carbon Medium Sand 0.75' min.	
Chemical Isolation/Siderite Medium Sand	0.25'	Chemical Isolation/Siderite Medium Sand	0.25'	Chemical Isolation/Siderite Medium Sand	0.25'	Chemical Isolation/Siderite Medium Sand	0.25'	Chemical Isolation/Siderite Medium Sand	0.25'
Mixing /Siderite Medium Sand	0.25'	Mixing /Siderite Medium Sand	0.25'	Mixing /Siderite Medium Sand	0.25'	Mixing /Siderite Medium Sand	0.25'	Mixing /Siderite Medium Sand	0.25'

FIGURE 4.4

Honeywell Onondaga Lake
Syracuse, New York

Remediation Area D Cap Areas
and Minimum Thicknesses

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Legend

- Remediation Area Boundary
- SMU Boundary
- Model Area Boundary
- Estimated Post Remediation Bathymetry on 1-ft intervals
- Extent of ILWD in Littoral Zone
- West Wall Portion of the WB-B/HB IRM
- East Wall Portion of the WB-B/HB IRM

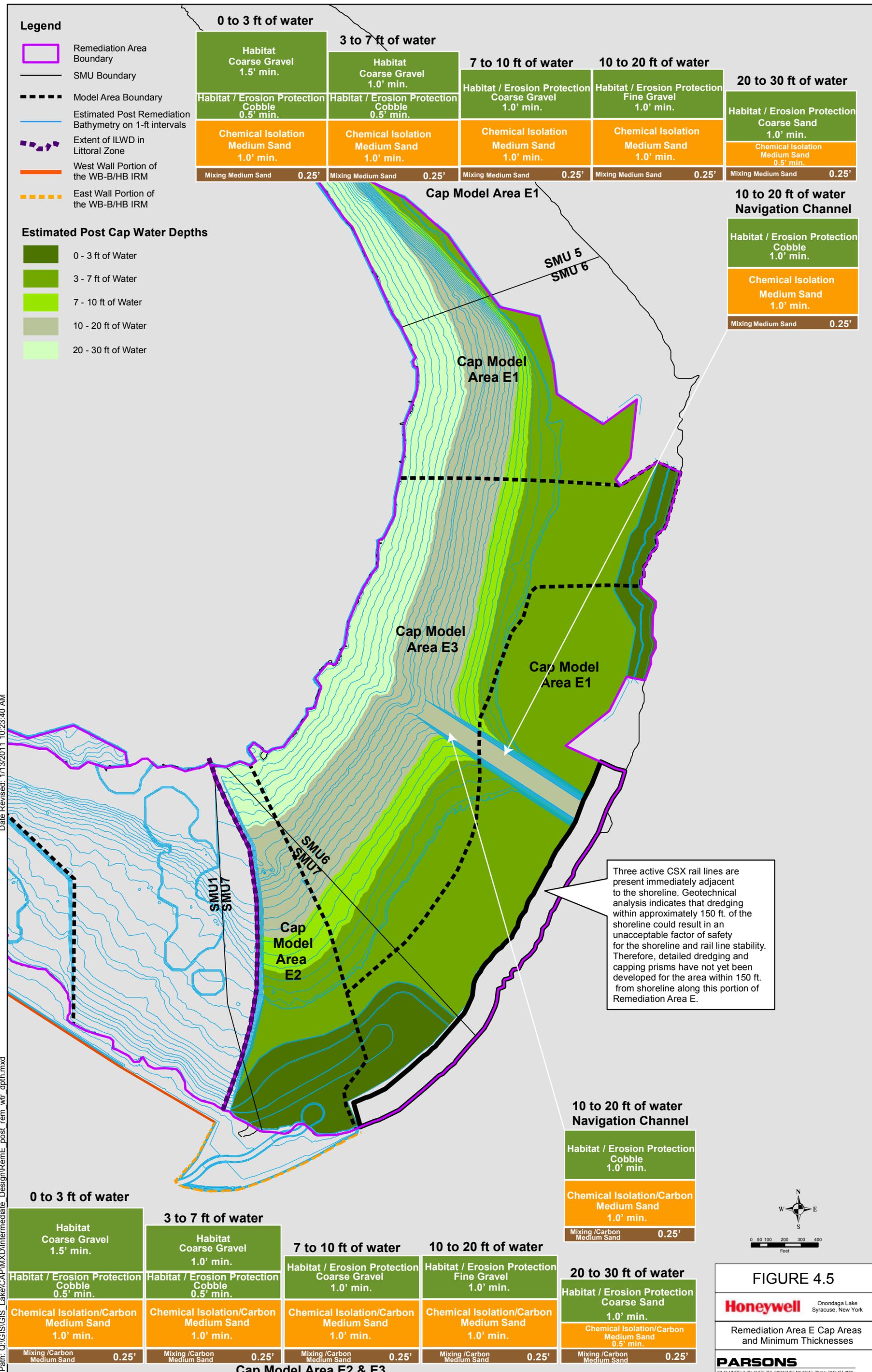
Estimated Post Cap Water Depths

- 0 - 3 ft of Water
- 3 - 7 ft of Water
- 7 - 10 ft of Water
- 10 - 20 ft of Water
- 20 - 30 ft of Water

0 to 3 ft of water		3 to 7 ft of water		7 to 10 ft of water		10 to 20 ft of water		20 to 30 ft of water	
Habitat Coarse Gravel 1.5' min.		Habitat Coarse Gravel 1.0' min.		Habitat / Erosion Protection Coarse Gravel 1.0' min.		Habitat / Erosion Protection Fine Gravel 1.0' min.		Habitat / Erosion Protection Coarse Sand 1.0' min.	
Habitat / Erosion Protection Cobble 0.5' min.		Habitat / Erosion Protection Cobble 0.5' min.		Chemical Isolation Medium Sand 1.0' min.		Chemical Isolation Medium Sand 1.0' min.		Chemical Isolation Medium Sand 0.5' min.	
Chemical Isolation Medium Sand 1.0' min.		Chemical Isolation Medium Sand 1.0' min.		Chemical Isolation Medium Sand 1.0' min.		Chemical Isolation Medium Sand 1.0' min.		Chemical Isolation Medium Sand 0.5' min.	
Mixing Medium Sand 0.25'		Mixing Medium Sand 0.25'		Mixing Medium Sand 0.25'		Mixing Medium Sand 0.25'		Mixing Medium Sand 0.25'	

10 to 20 ft of water Navigation Channel

Habitat / Erosion Protection Cobble 1.0' min.	
Chemical Isolation Medium Sand 1.0' min.	
Mixing Medium Sand 0.25'	



Three active CSX rail lines are present immediately adjacent to the shoreline. Geotechnical analysis indicates that dredging within approximately 150 ft. of the shoreline could result in an unacceptable factor of safety for the shoreline and rail line stability. Therefore, detailed dredging and capping prisms have not yet been developed for the area within 150 ft. from shoreline along this portion of Remediation Area E.

10 to 20 ft of water Navigation Channel

Habitat / Erosion Protection Cobble 1.0' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	

0 to 3 ft of water

Habitat Coarse Gravel 1.5' min.	
Habitat / Erosion Protection Cobble 0.5' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	

3 to 7 ft of water

Habitat Coarse Gravel 1.0' min.	
Habitat / Erosion Protection Cobble 0.5' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	

7 to 10 ft of water

Habitat / Erosion Protection Coarse Gravel 1.0' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	

10 to 20 ft of water

Habitat / Erosion Protection Fine Gravel 1.0' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	

20 to 30 ft of water

Habitat / Erosion Protection Coarse Sand 1.0' min.	
Chemical Isolation/Carbon Medium Sand 0.5' min.	
Mixing /Carbon Medium Sand 0.25'	

Cap Model Area E2 & E3

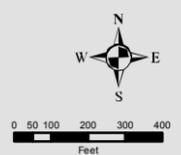


FIGURE 4.5

Honeywell Onondaga Lake Syracuse, New York

Remediation Area E Cap Areas and Minimum Thicknesses

PARSONS
301 PLAINFIELD RD., SUITE 350, SYRACUSE NY 13212 Phone: (315) 451-9560

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Legend

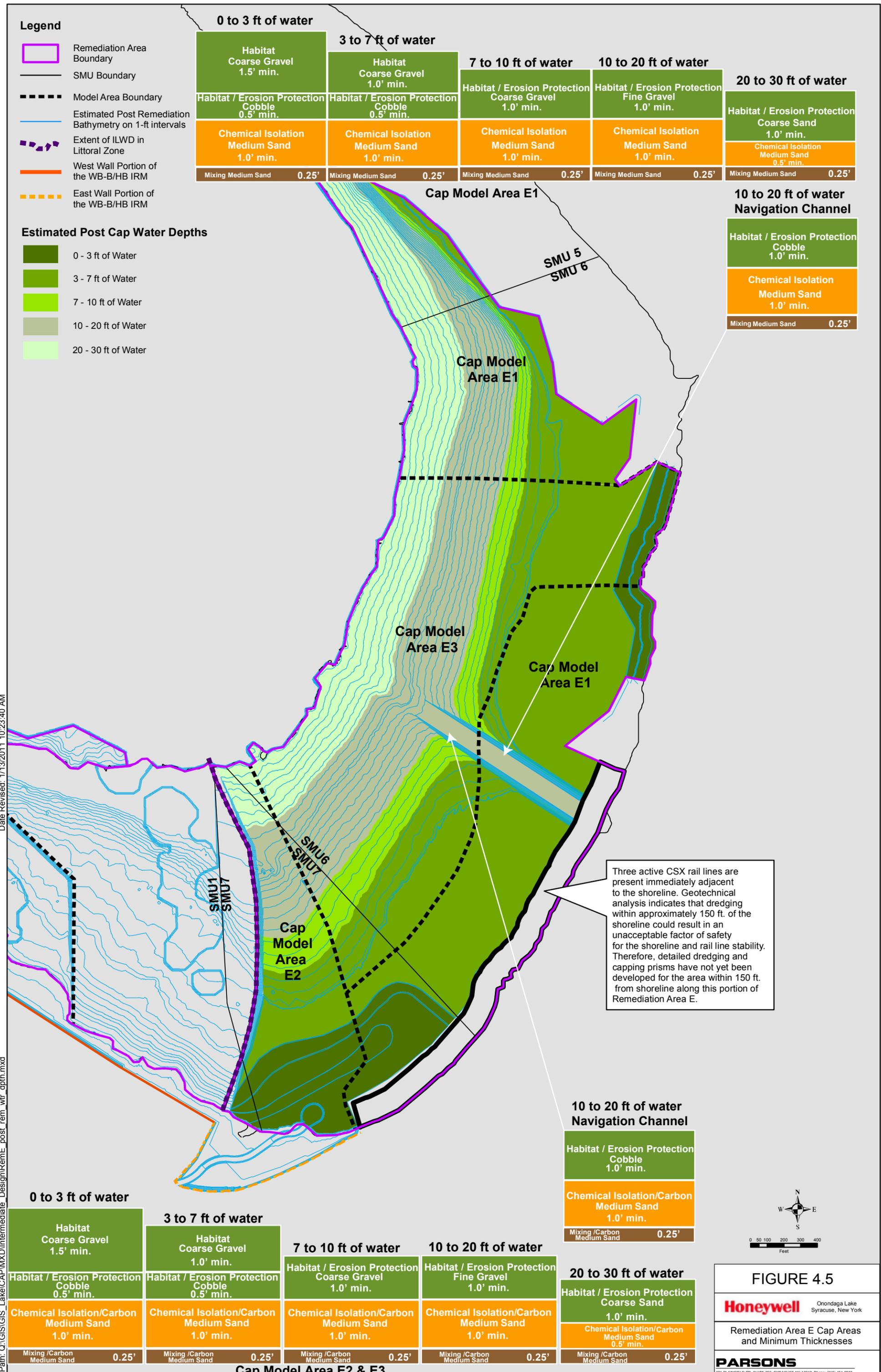
-  Remediation Area Boundary
-  SMU Boundary
-  Model Area Boundary
-  Estimated Post Remediation Bathymetry on 1-ft intervals
-  Extent of ILWD in Littoral Zone
-  West Wall Portion of the WB-B/HB IRM
-  East Wall Portion of the WB-B/HB IRM

Estimated Post Cap Water Depths

-  0 - 3 ft of Water
-  3 - 7 ft of Water
-  7 - 10 ft of Water
-  10 - 20 ft of Water
-  20 - 30 ft of Water

0 to 3 ft of water		3 to 7 ft of water		7 to 10 ft of water	10 to 20 ft of water	20 to 30 ft of water	
Habitat Coarse Gravel 1.5' min.		Habitat Coarse Gravel 1.0' min.		Habitat / Erosion Protection Coarse Gravel 1.0' min.	Habitat / Erosion Protection Fine Gravel 1.0' min.	Habitat / Erosion Protection Coarse Sand 1.0' min.	
Habitat / Erosion Protection Cobble 0.5' min.		Habitat / Erosion Protection Cobble 0.5' min.		Chemical Isolation Medium Sand 1.0' min.	Chemical Isolation Medium Sand 1.0' min.	Chemical Isolation Medium Sand 0.5' min.	
Mixing Medium Sand 0.25'		Mixing Medium Sand 0.25'		Mixing Medium Sand 0.25'	Mixing Medium Sand 0.25'	Mixing Medium Sand 0.25'	

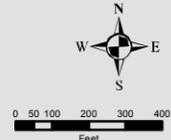
10 to 20 ft of water Navigation Channel	
Habitat / Erosion Protection Cobble 1.0' min.	
Chemical Isolation Medium Sand 1.0' min.	
Mixing Medium Sand 0.25'	



Three active CSX rail lines are present immediately adjacent to the shoreline. Geotechnical analysis indicates that dredging within approximately 150 ft. of the shoreline could result in an unacceptable factor of safety for the shoreline and rail line stability. Therefore, detailed dredging and capping prisms have not yet been developed for the area within 150 ft. from shoreline along this portion of Remediation Area E.

10 to 20 ft of water Navigation Channel

Habitat / Erosion Protection Cobble 1.0' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	



0 to 3 ft of water

Habitat Coarse Gravel 1.5' min.	
Habitat / Erosion Protection Cobble 0.5' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	

3 to 7 ft of water	
Habitat Coarse Gravel 1.0' min.	
Habitat / Erosion Protection Cobble 0.5' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	

7 to 10 ft of water	
Habitat / Erosion Protection Coarse Gravel 1.0' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	

10 to 20 ft of water	
Habitat / Erosion Protection Fine Gravel 1.0' min.	
Chemical Isolation/Carbon Medium Sand 1.0' min.	
Mixing /Carbon Medium Sand 0.25'	

20 to 30 ft of water	
Habitat / Erosion Protection Coarse Sand 1.0' min.	
Chemical Isolation/Carbon Medium Sand 0.5' min.	
Mixing /Carbon Medium Sand 0.25'	

Cap Model Area E2 & E3

FIGURE 4.5

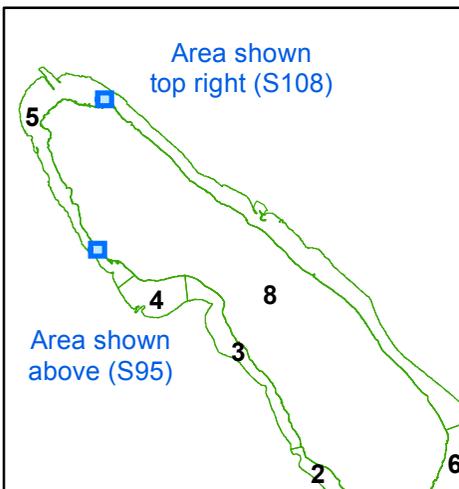
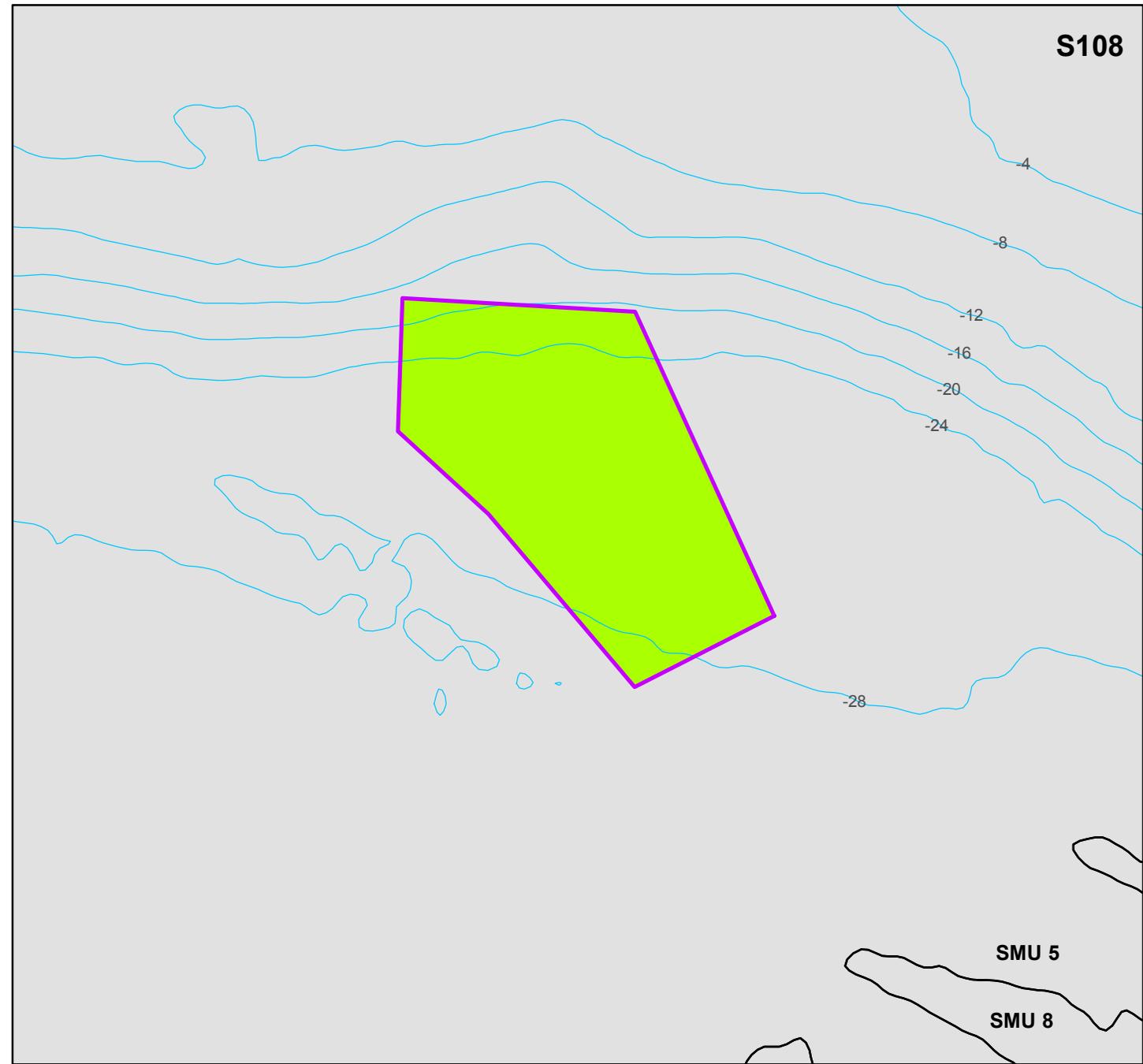
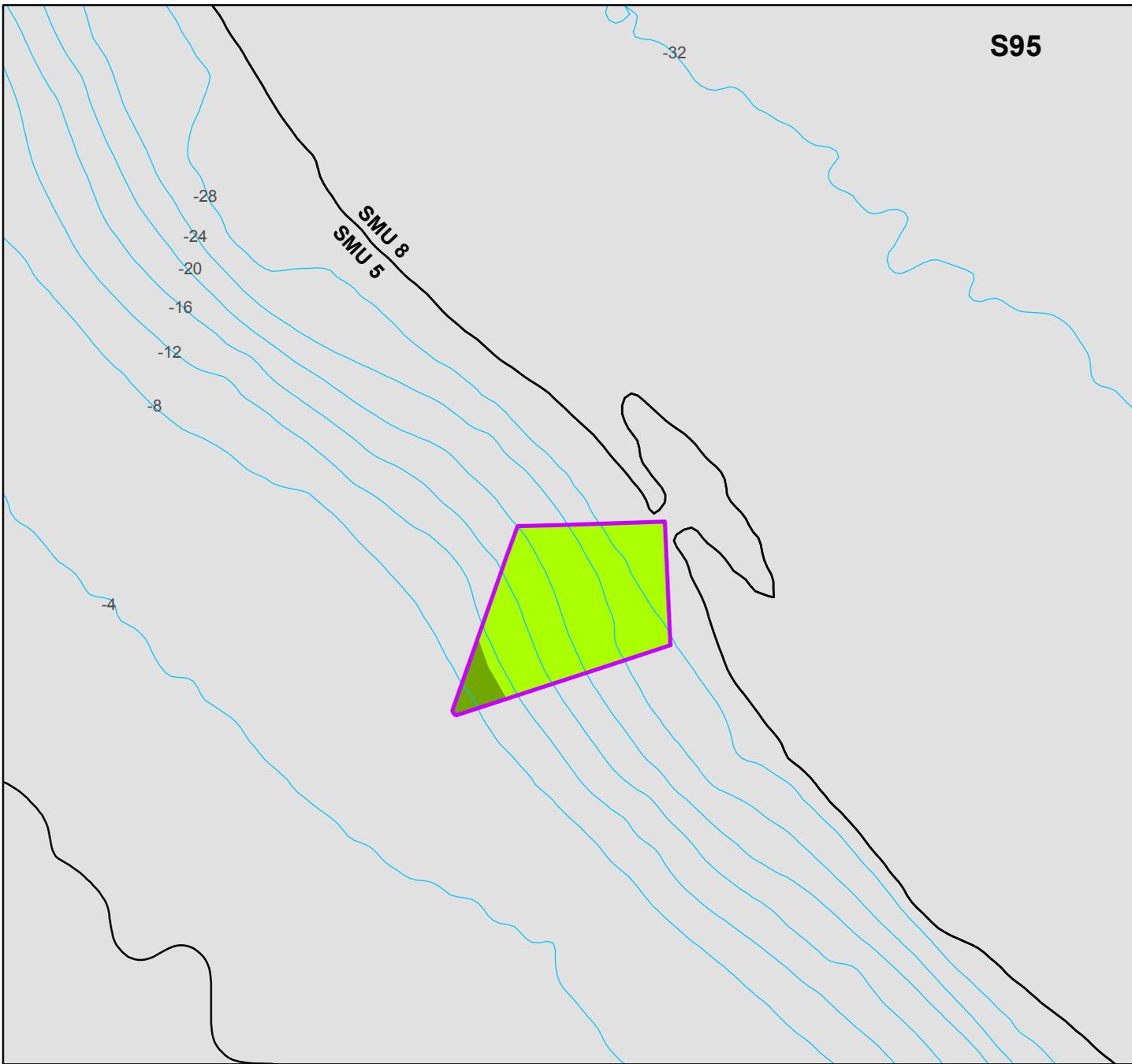
Honeywell Onondaga Lake Syracuse, New York

Remediation Area E Cap Areas and Minimum Thicknesses

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE NY 13212 Phone: (315) 451-9660

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Legend

- Remediation Area Boundary
- SMU Boundary
- Current Bathymetry in 4 ft. Intervals

Estimated Post Cap Water Depths

- 3 - 7 ft of Water
- 7 - 20 ft of Water

3 to 7 ft of water

Habitat/Erosion Protection Fine Gravel 1.5' min.	
Chemical Isolation Medium Sand 1.0' min.	
Medium Sand	0.25'

7 to 20 ft of water

Habitat/Erosion Protection Medium Sand 1.0' min.	
Chemical Isolation Medium Sand 1.0' min.	
Medium Sand	0.25'

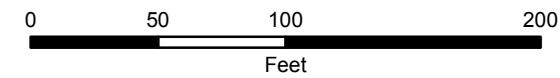
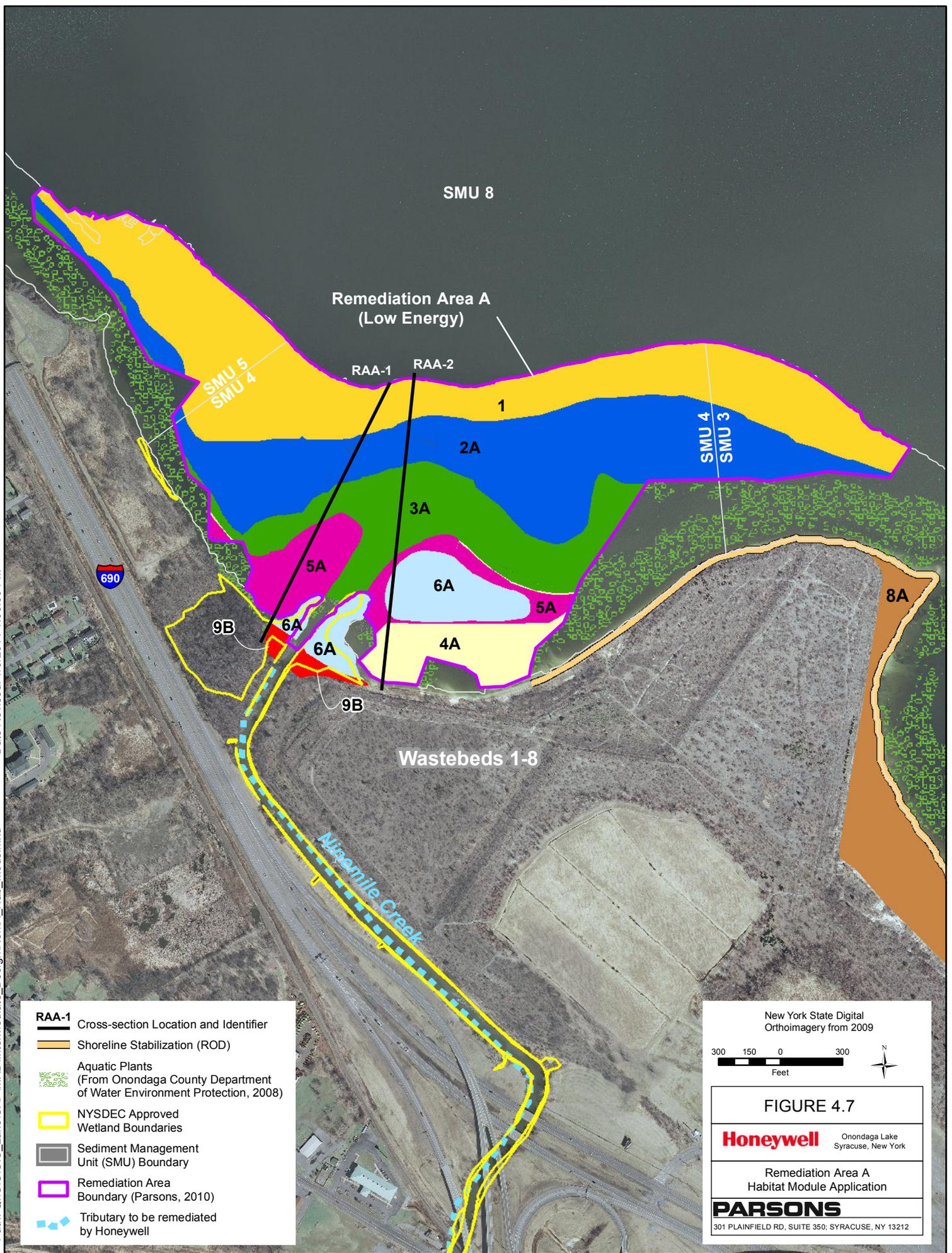


FIGURE 4.6

Honeywell Onondaga Lake
Syracuse, New York

Remediation Area F Cap Area
And Minimum Thicknesses

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212



- RAA-1** Cross-section Location and Identifier
- Shoreline Stabilization (ROD)
- Aquatic Plants (From Onondaga County Department of Water Environment Protection, 2008)
- NYSDEC Approved Wetland Boundaries
- Sediment Management Unit (SMU) Boundary
- Remediation Area Boundary (Parsons, 2010)
- Tributary to be remediated by Honeywell

New York State Digital Orthoimagery from 2009

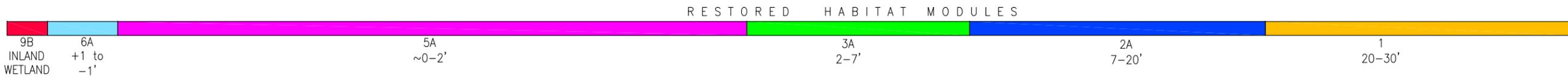
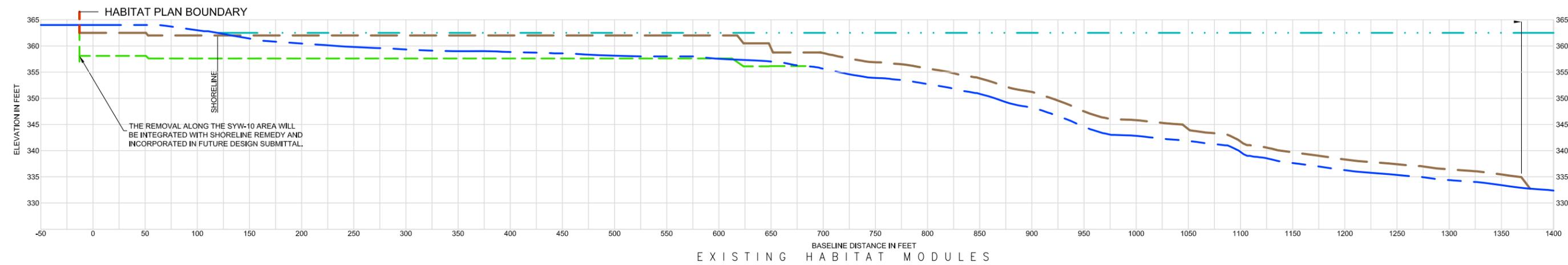
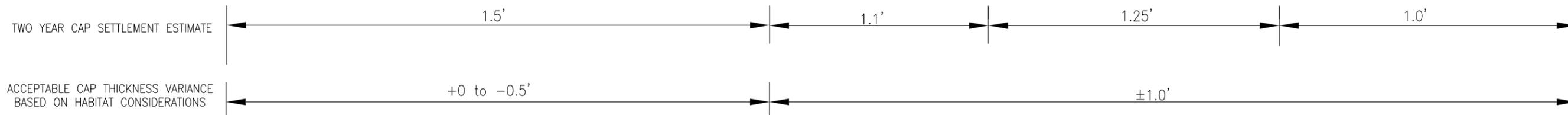
300 150 0 300
Feet

FIGURE 4.7

Honeywell Onondaga Lake
Syracuse, New York

Remediation Area A
Habitat Module Application

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212



REMEDATION AREA A – SECTION RAA-1
 Vertical: 1"=20'-0"
 Horizontal: 1"-100'-0"

****NOTE**
 1. VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
 2. THESE ANTICIPATED TYPICAL CAP THICKNESS VARIANCES ARE BASED ON HABITAT CONSIDERATIONS AND MAY NOT BE CONSISTENT WITH VALUES IN TABLE 4.1
 3. CAPPED AREAS WILL MEET THE MINIMUM CAP THICKNESSES SHOWN IN TABLE 4.1

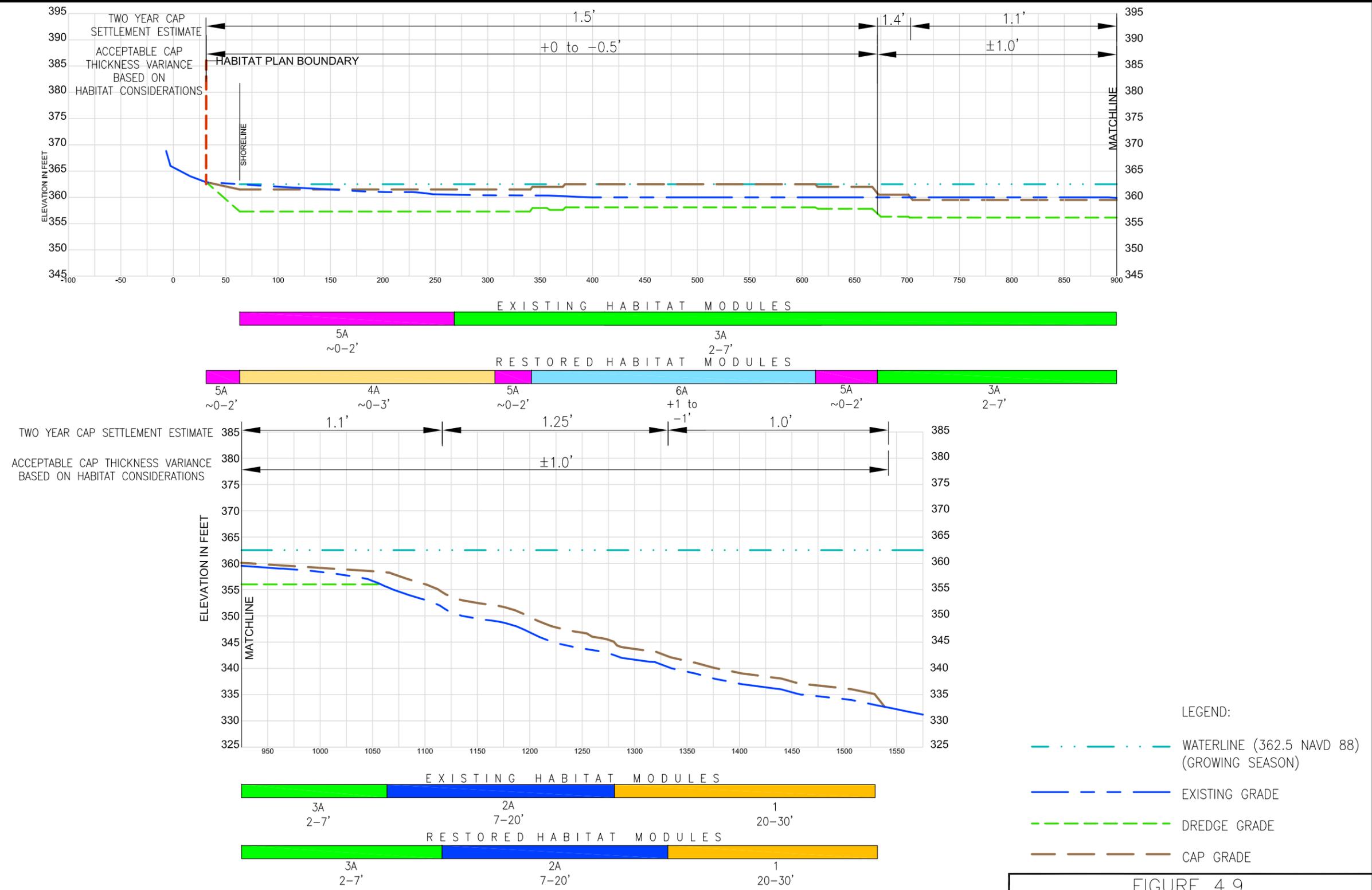
- LEGEND:
- . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
 - - - - EXISTING GRADE
 - - - - DREDGE GRADE
 - - - - CAP GRADE

FIGURE 4.8

Honeywell

CONCEPTUAL CROSS SECTION
 REMEDIATION AREA A (SMU 4)
 SECTION RAA-1

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 OFFICES IN PRINCIPAL CITIES



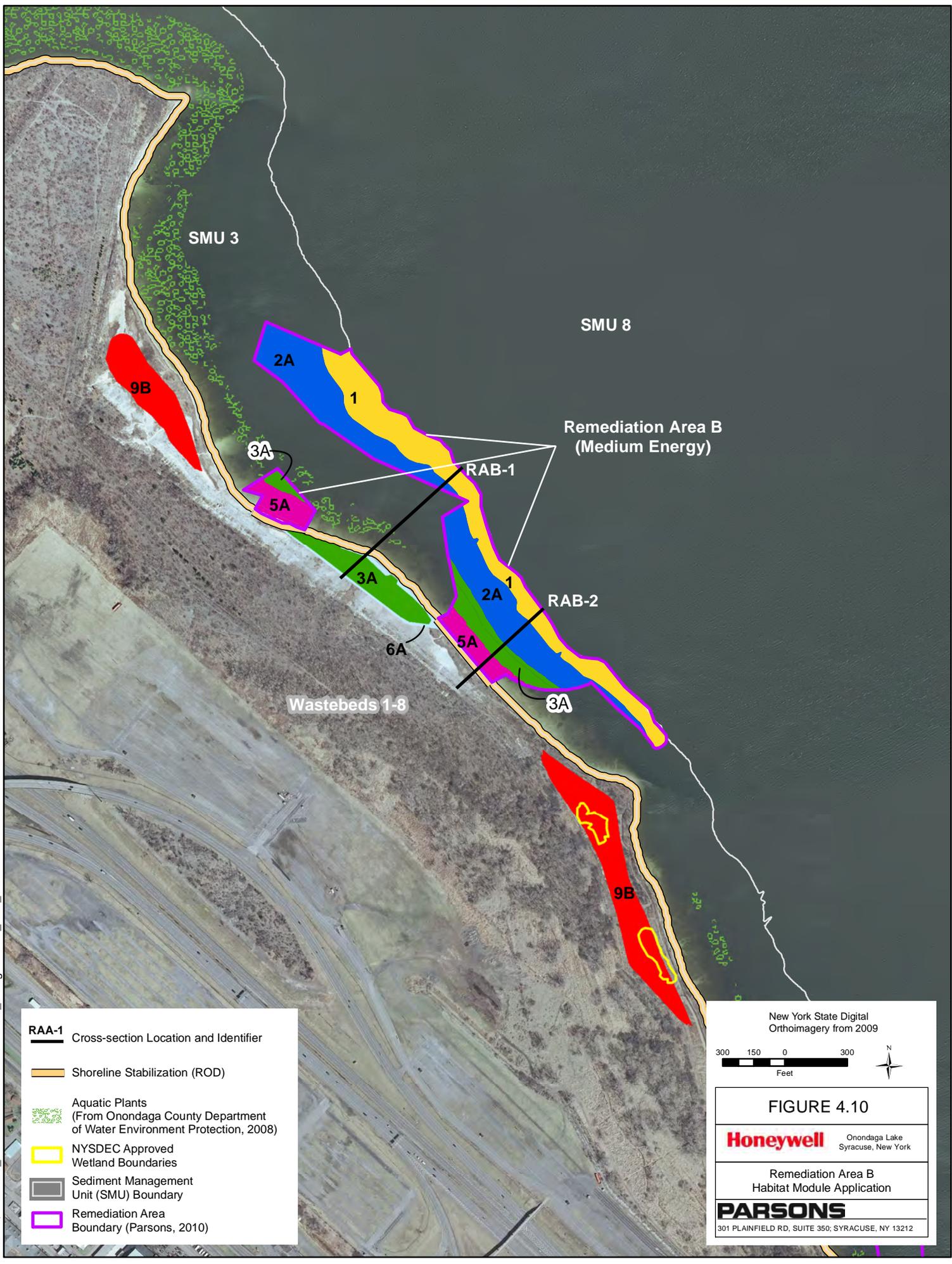
****NOTE**

- VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
- THESE ANTICIPATED TYPICAL CAP THICKNESS VARIANCES ARE BASED ON HABITAT CONSIDERATIONS AND MAY NOT BE CONSISTENT WITH VALUES IN TABLE 4.1
- CAPPED AREAS WILL MEET THE MINIMUM CAP THICKNESSES SHOWN IN TABLE 4.1

REMEDIATION AREA A – SECTION RAA-2

Vertical: 1"=20'-0"
Horizontal: 1"=100'-0"

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RAA-1 Cross-section Location and Identifier

-  Shoreline Stabilization (ROD)
-  Aquatic Plants
(From Onondaga County Department of Water Environment Protection, 2008)
-  NYSDEC Approved Wetland Boundaries
-  Sediment Management Unit (SMU) Boundary
-  Remediation Area Boundary (Parsons, 2010)

New York State Digital Orthoimagery from 2009

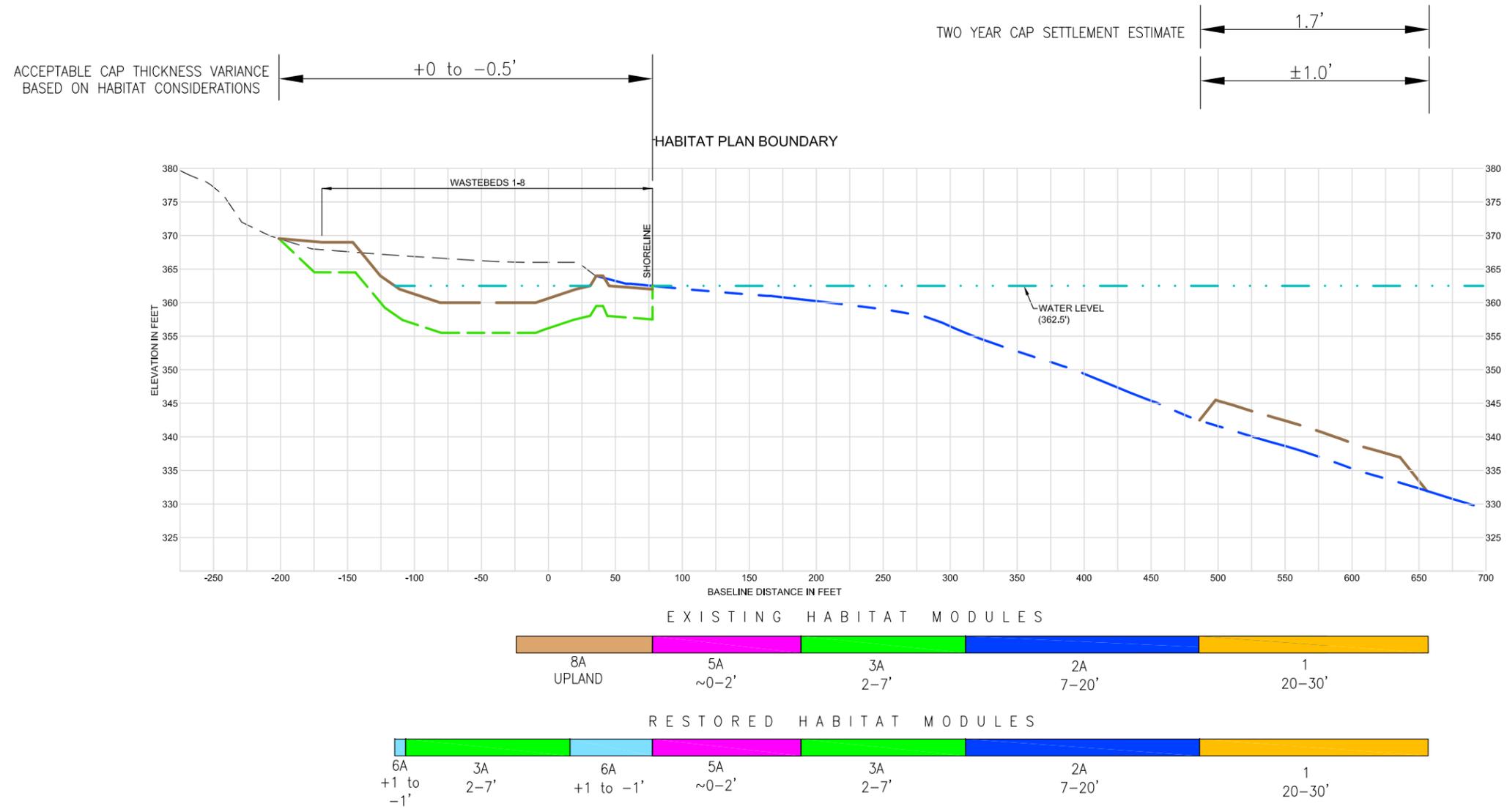
300 150 0 300
Feet

FIGURE 4.10

Honeywell Onondaga Lake
Syracuse, New York

Remediation Area B
Habitat Module Application

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212



****NOTE**

- VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN
- THESE ANTICIPATED TYPICAL CAP THICKNESS VARIANCES AREA BASED ON HABITAT CONSIDERATIONS AND MAY NOT BE CONSISTENT WITH VALUES IN TABLE 4.1
- CAPPED AREAS WILL MEET THE MINIMUM CAP THICKNESSES SHOWN IN TABLE 4.1
- THE CONCEPTUAL CONNECTED WETLAND DESIGN LOCATED ON WASTEBEDS 1-8 IS DEPICTED ABOVE. FURTHER DETAILS PERTAINING TO THE FINAL AREAL EXTENT, TIE INTO THE LAKE BATHYMETRY, TIE INTO THE UPLAND TOPOGRAPHY, ALIGNMENT AT THE COLLECTION TRENCH, LAKESIDE BERM LOCATION, AND OTHER DESIGN DETAILS WILL BE PROGRESSED IN FURTHER DESIGN SUBMITTALS.

REMEDIATION AREA B – SECTION RAB-1

Vertical: 1"=20'-0"
Horizontal: 1"=100'-0"

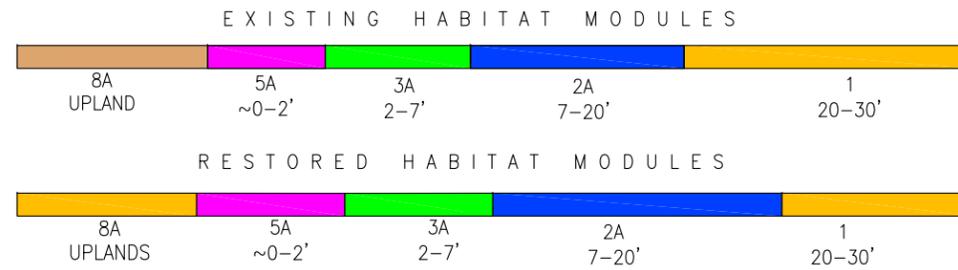
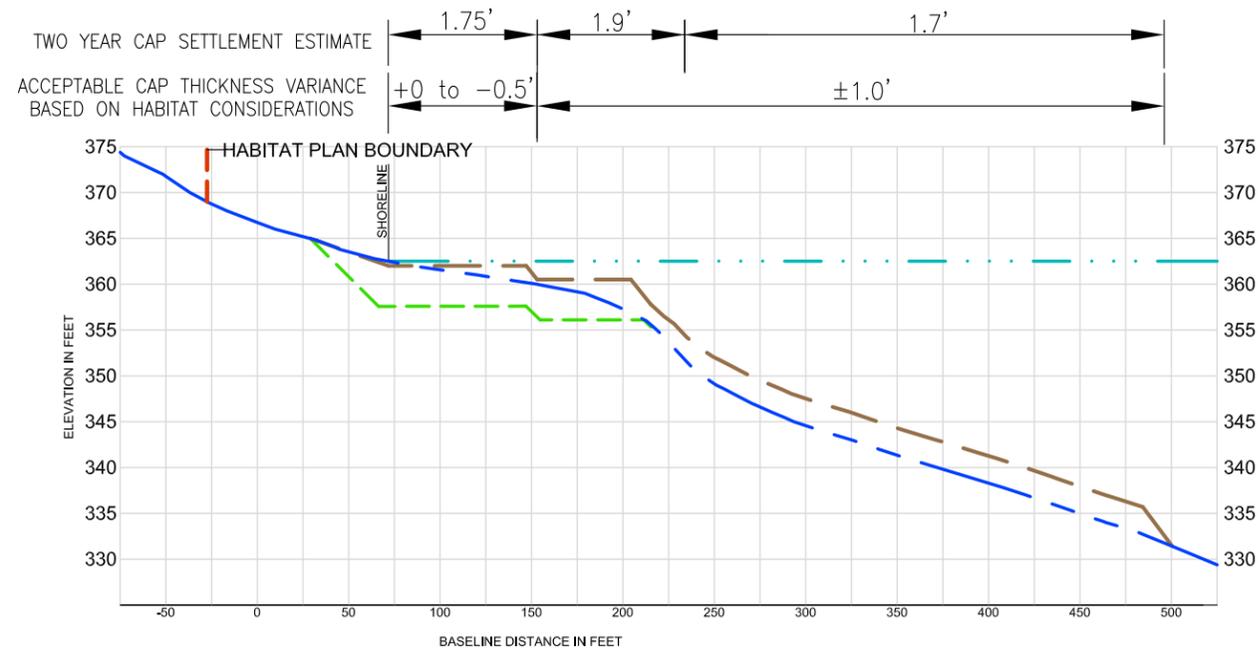
- LEGEND:
- . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
 - - - - EXISTING GRADE
 - - - - DREDGE GRADE
 - - - - CAP GRADE

FIGURE 4.11

Honeywell

CONCEPTUAL CROSS SECTION
REMEDIATION AREA B (SMU 3)
SECTION RAB-1

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REMEDIATION AREA B – SECTION RAB-2

Vertical: 1"=20'-0"
 Horizontal: 1"=100'-0"

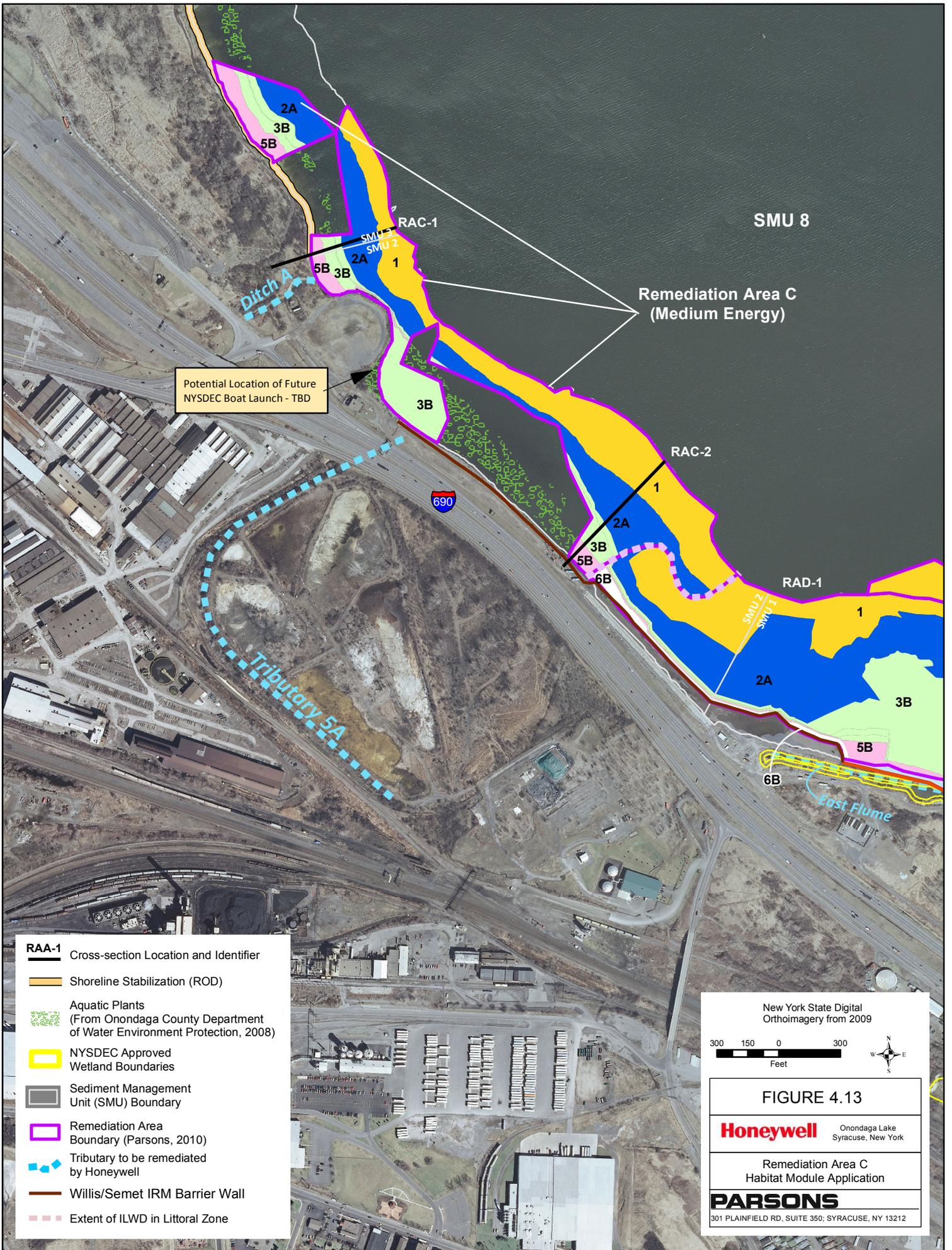
****NOTE**
 1. VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
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 3. CAPPED AREAS WILL MEET THE MINIMUM CAP THICKNESSES SHOWN IN TABLE 4.1

- LEGEND:
- . . . - . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
 - - - - EXISTING GRADE
 - - - - DREDGE GRADE
 - - - - CAP GRADE

FIGURE 4.12

Honeywell
 CONCEPTUAL CROSS SECTION
 REMEDIATION AREA B (SMU 3)
 SECTION RAB-2

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- RAA-1** Cross-section Location and Identifier
- Shoreline Stabilization (ROD)
- Aquatic Plants
(From Onondaga County Department of Water Environment Protection, 2008)
- NYSDEC Approved Wetland Boundaries
- Sediment Management Unit (SMU) Boundary
- Remediation Area Boundary (Parsons, 2010)
- Tributary to be remediated by Honeywell
- Willis/Semet IRM Barrier Wall
- Extent of ILWD in Littoral Zone

New York State Digital Orthoimagery from 2009

300 150 0 300
Feet

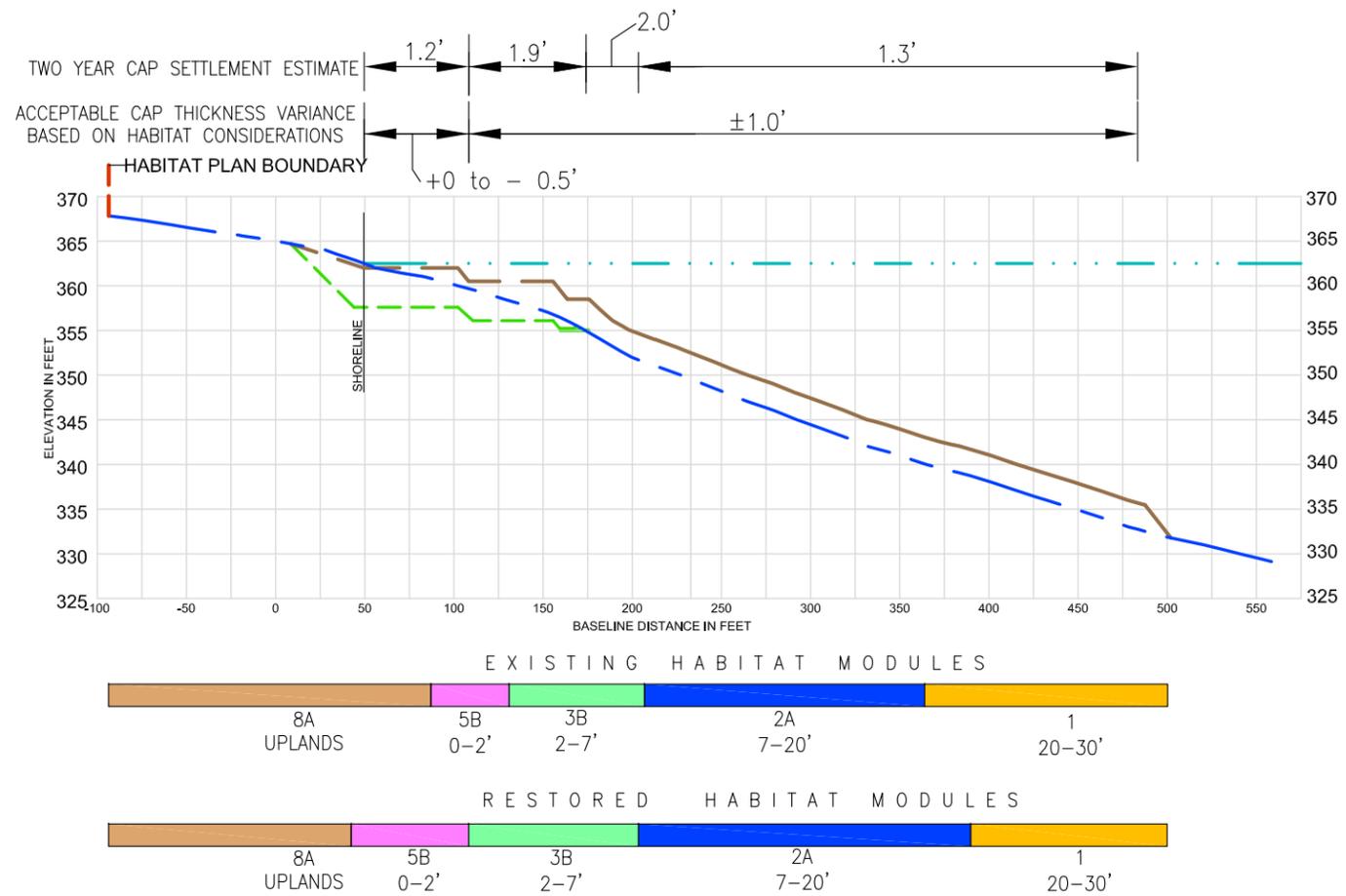
N
W E
S

FIGURE 4.13

Honeywell Onondaga Lake
Syracuse, New York

Remediation Area C
Habitat Module Application

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212



REMEDIATION AREA C – SECTION RAC-1

Vertical: 1"=20'-0"
 Horizontal: 1"=100'-0"

****NOTE**

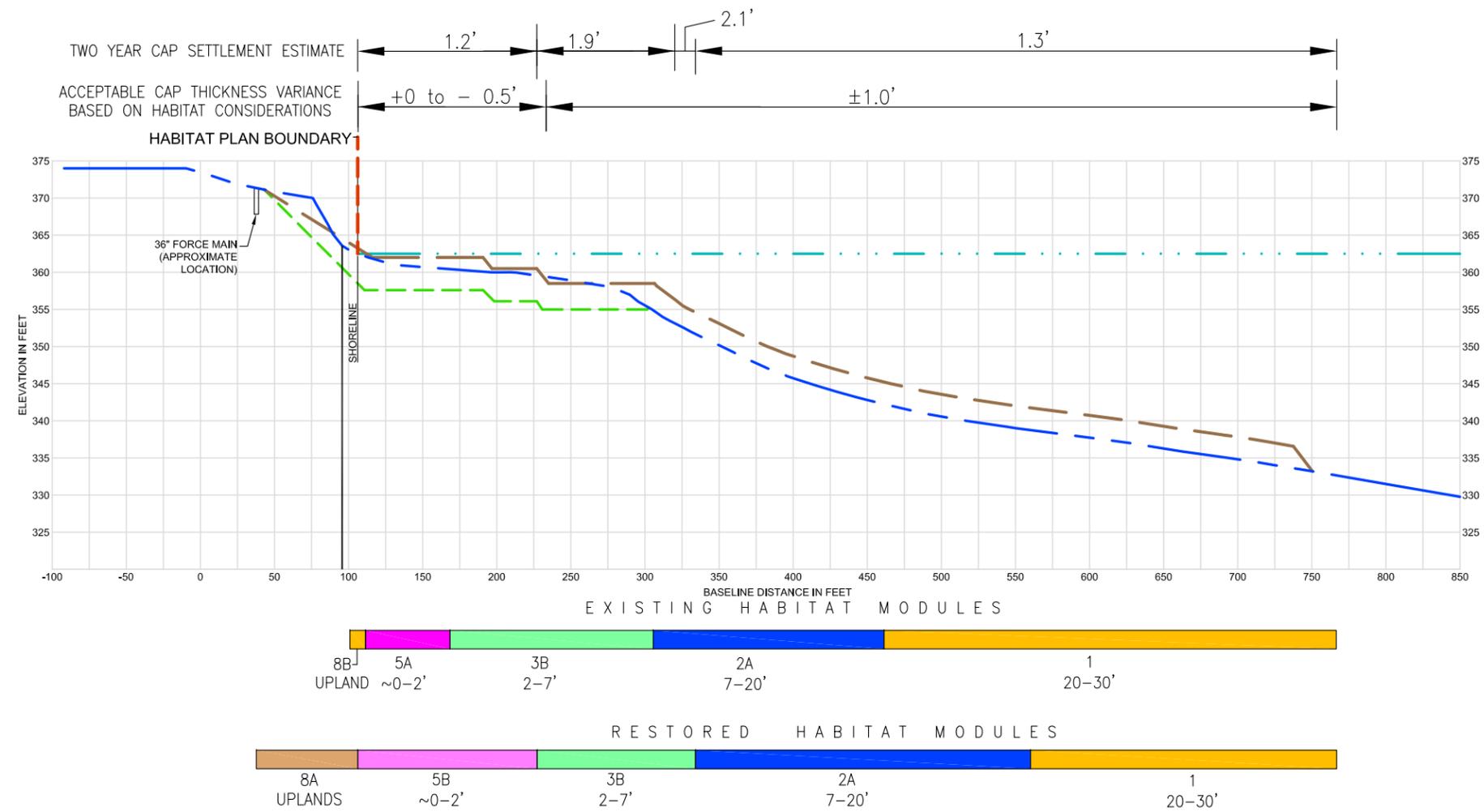
1. VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
2. THESE ANTICIPATED TYPICAL CAP THICKNESS VARIANCES ARE BASED ON HABITAT CONSIDERATIONS AND MAY NOT BE CONSISTENT WITH VALUES IN TABLE 4.1
3. CAPPED AREAS WILL MEET THE MINIMUM CAP THICKNESSES SHOWN IN TABLE 4.1

LEGEND:

- . . . - . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
- - - - EXISTING GRADE
- - - - DREDGE GRADE
- - - - CAP GRADE

FIGURE 4.14

Honeywell
 CONCEPTUAL CROSS SECTION
 REMEDIATION AREA C (SMU 2)
 SECTION RAC-1



REMEDIATION AREA C – SECTION RAC-2

Vertical: 1"=20'-0"
 Horizontal: 1"=100'-0"

**NOTE

- VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
- THESE ANTICIPATED TYPICAL CAP THICKNESS VARIANCES ARE BASED ON HABITAT CONSIDERATIONS AND MAY NOT BE CONSISTENT WITH VALUES IN TABLE 4.1
- CAPPED AREAS WILL MEET THE MINIMUM CAP THICKNESSES SHOWN IN TABLE 4.1

LEGEND:

- . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
- - - - EXISTING GRADE
- - - - DREDGE GRADE
- - - - CAP GRADE

FIGURE 4.15

Honeywell

CONCEPTUAL CROSS SECTION
 REMEDIATION AREA C (SMU 2)
 SECTION RAC-2

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SMU 8



- RAA-1** Cross-section Location and Identifier
- Aquatic Plants (From Onondaga County Department of Water Environment Protection, 2008)
 - NYSDEC Approved Wetland Boundaries
 - Sediment Management Unit (SMU) Boundary
 - Remediation Area Boundary (Parsons, 2010)
 - Tributary to be remediated by Honeywell
 - Willis/Semet IRM Barrier Wall
 - West Wall Portion of the WB-B/HB IRM Barrier Wall
 - East Wall Portion of the WB-B/HB IRM Barrier Wall
 - Extent of ILWD in Littoral Zone

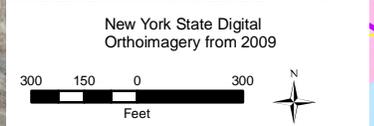
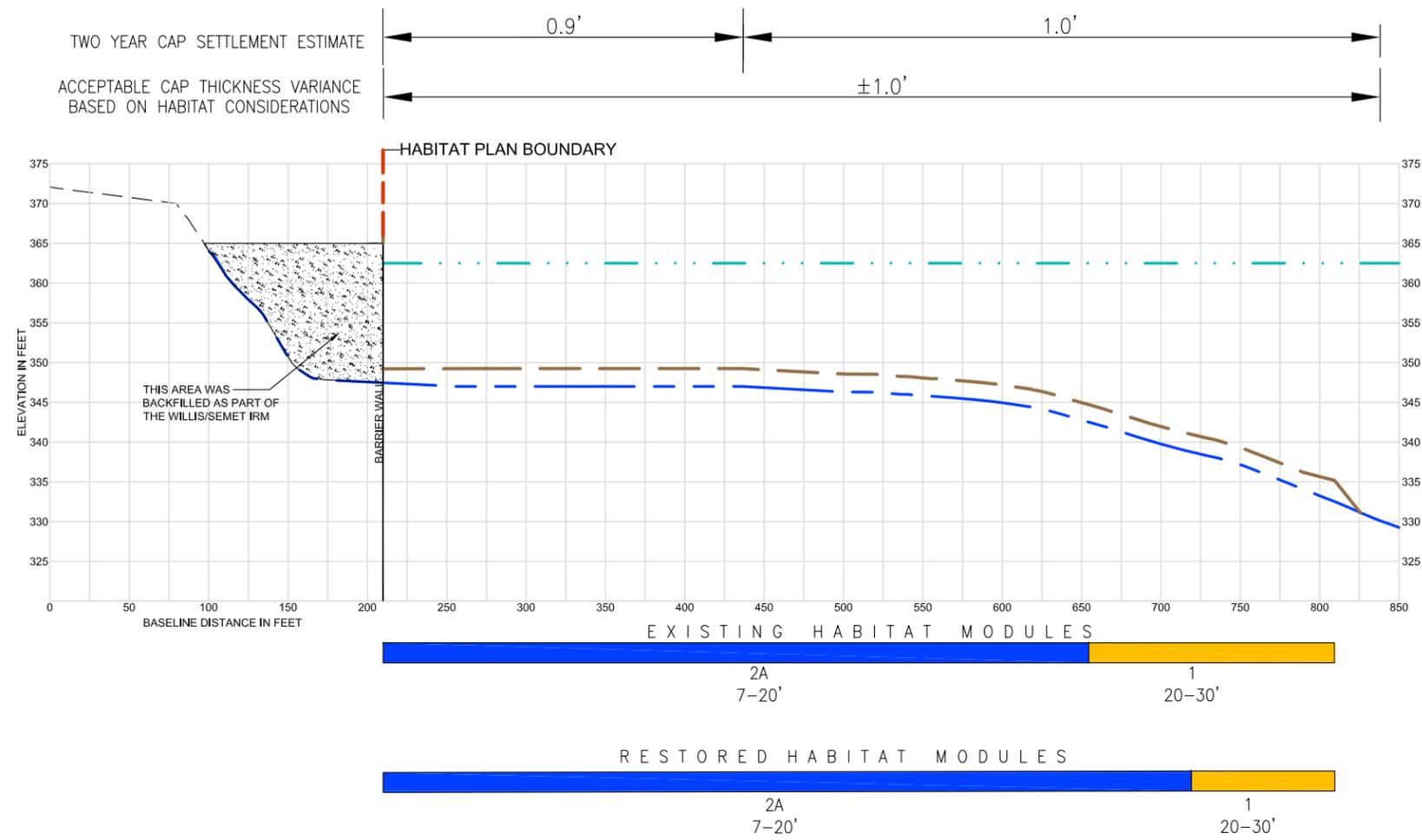


FIGURE 4.16

Honeywell Onondaga Lake
Syracuse, New York

Remediation Area D
Habitat Module Application

PARSONS
301 PLAINFIELD RD, SUITE 350; SYRACUSE, NY 13212



REMEDIATION AREA D – SECTION RAD-1
 Vertical: 1"=20'-0"
 Horizontal: 1"=100'-0"

****NOTE**
 1. VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
 2. THESE ANTICIPATED TYPICAL CAP THICKNESS VARIANCES ARE BASED ON HABITAT CONSIDERATIONS AND MAY NOT BE CONSISTENT WITH VALUES IN TABLE 4.1
 3. CAPPED AREAS WILL MEET THE MINIMUM CAP THICKNESSES SHOWN IN TABLE 4.1

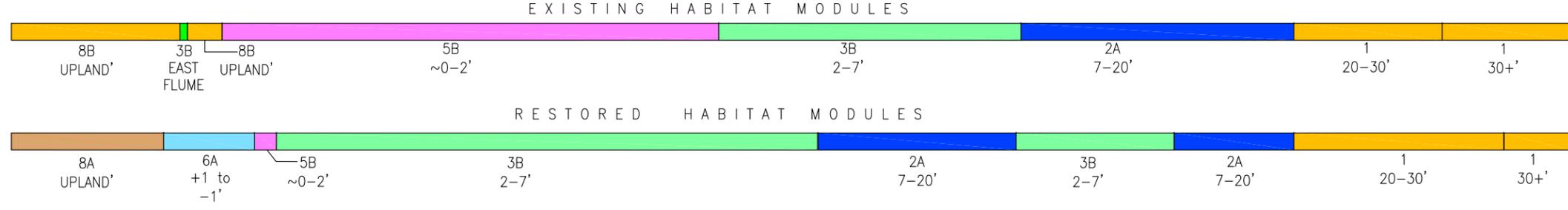
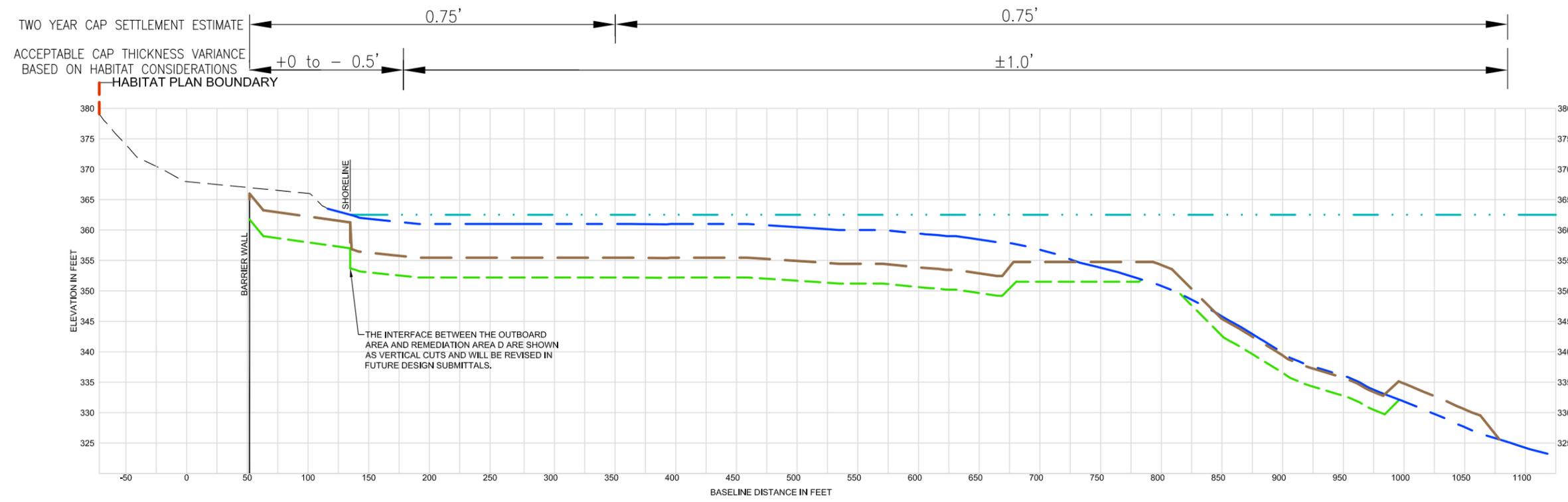
- LEGEND:
- . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
 - - - - EXISTING GRADE
 - - - - DREDGE GRADE
 - - - - CAP GRADE

FIGURE 4.17

Honeywell

CONCEPTUAL CROSS SECTION
 REMEDIATION AREA D (SMU 1)
 SECTION RAD-1

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REMEDATION AREA D – SECTION RAD-2
 Vertical: 1"=20'-0"
 Horizontal: 1"=100'-0"

****NOTE**
 1. VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
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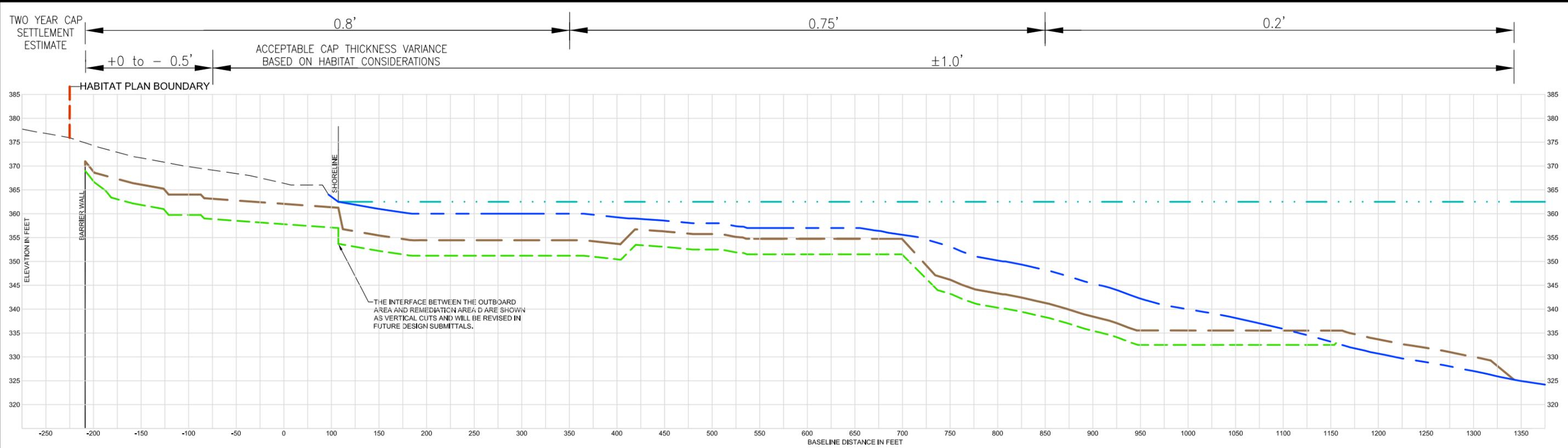
- LEGEND:
- . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
 - - - - EXISTING GRADE
 - - - - DREDGE GRADE
 - - - - CAP GRADE

FIGURE 4.18

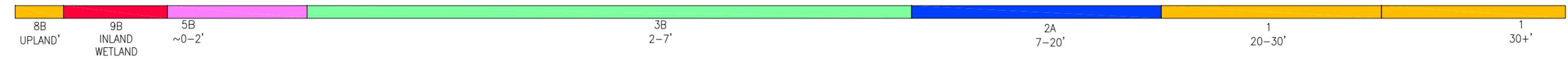
Honeywell

CONCEPTUAL CROSS SECTION
 REMEDIATION AREA D (SMU 1)
 SECTION RAD-2

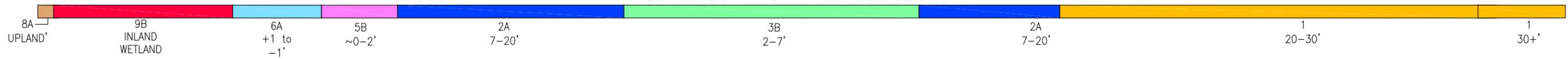
PARSONS
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 OFFICES IN PRINCIPAL CITIES



EXISTING HABITAT MODULES



RESTORED HABITAT MODULES



REMEDIATION AREA D – SECTION RAD-3

Vertical: 1"=20'-0"
 Horizontal: 1"-100'-0"

****NOTE**
 1. VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
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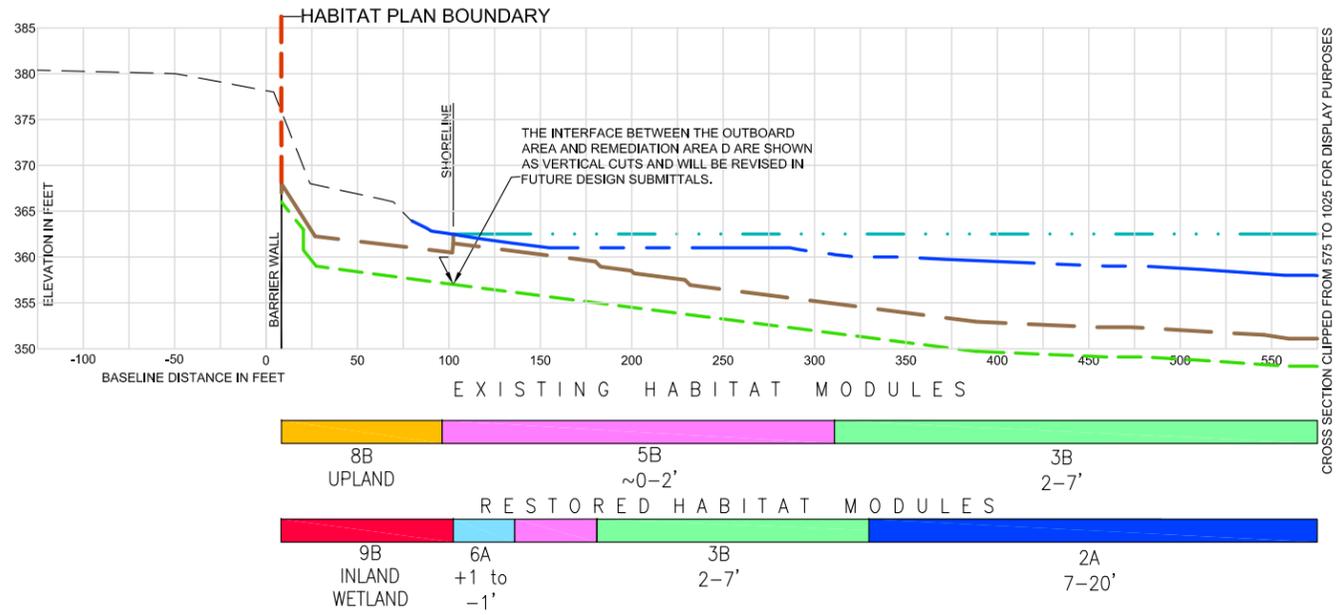
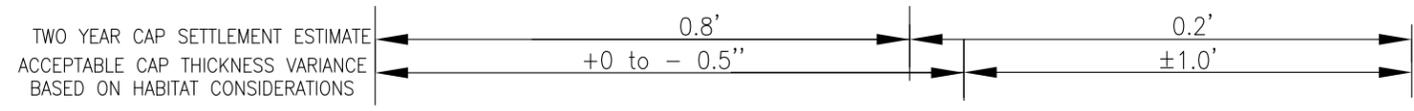
- LEGEND:
- . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
 - - - - EXISTING GRADE
 - - - - DREDGE GRADE
 - - - - CAP GRADE

FIGURE 4.19

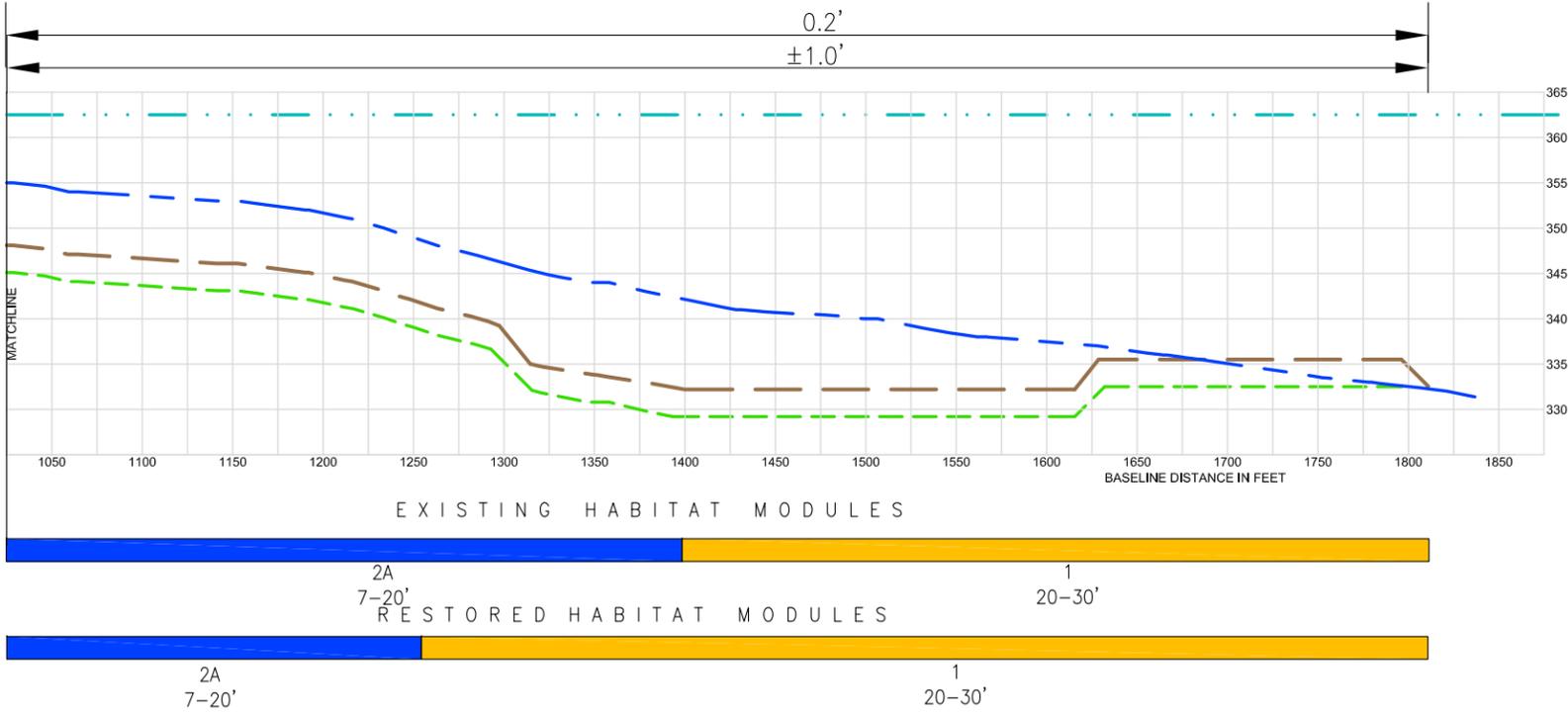
Honeywell

CONCEPTUAL CROSS SECTION
 REMEDIATION AREA D (SMU 1)
 SECTION RAD-3

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 OFFICES IN PRINCIPAL CITIES



TWO YEAR CAP SETTLEMENT ESTIMATE
ACCEPTABLE CAP THICKNESS VARIANCE
BASED ON HABITAT CONSIDERATIONS



- LEGEND:
- WATERLINE (362.5 NAVD 88) (GROWING SEASON)
 - - - EXISTING GRADE
 - - - DREDGE GRADE
 - - - CAP GRADE

****NOTE**

1. VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
2. THESE ANTICIPATED TYPICAL CAP THICKNESS VARIANCES ARE BASED ON HABITAT CONSIDERATIONS AND MAY NOT BE CONSISTENT WITH VALUES IN TABLE 4.1
3. CAPPED AREAS WILL MEET THE MINIMUM CAP THICKNESSES SHOWN IN TABLE 4.1

REMEDIATION AREA D – SECTION RAD-4

Vertical: 1"=20'-0"
Horizontal: 1"=100'-0"

FIGURE 4.20

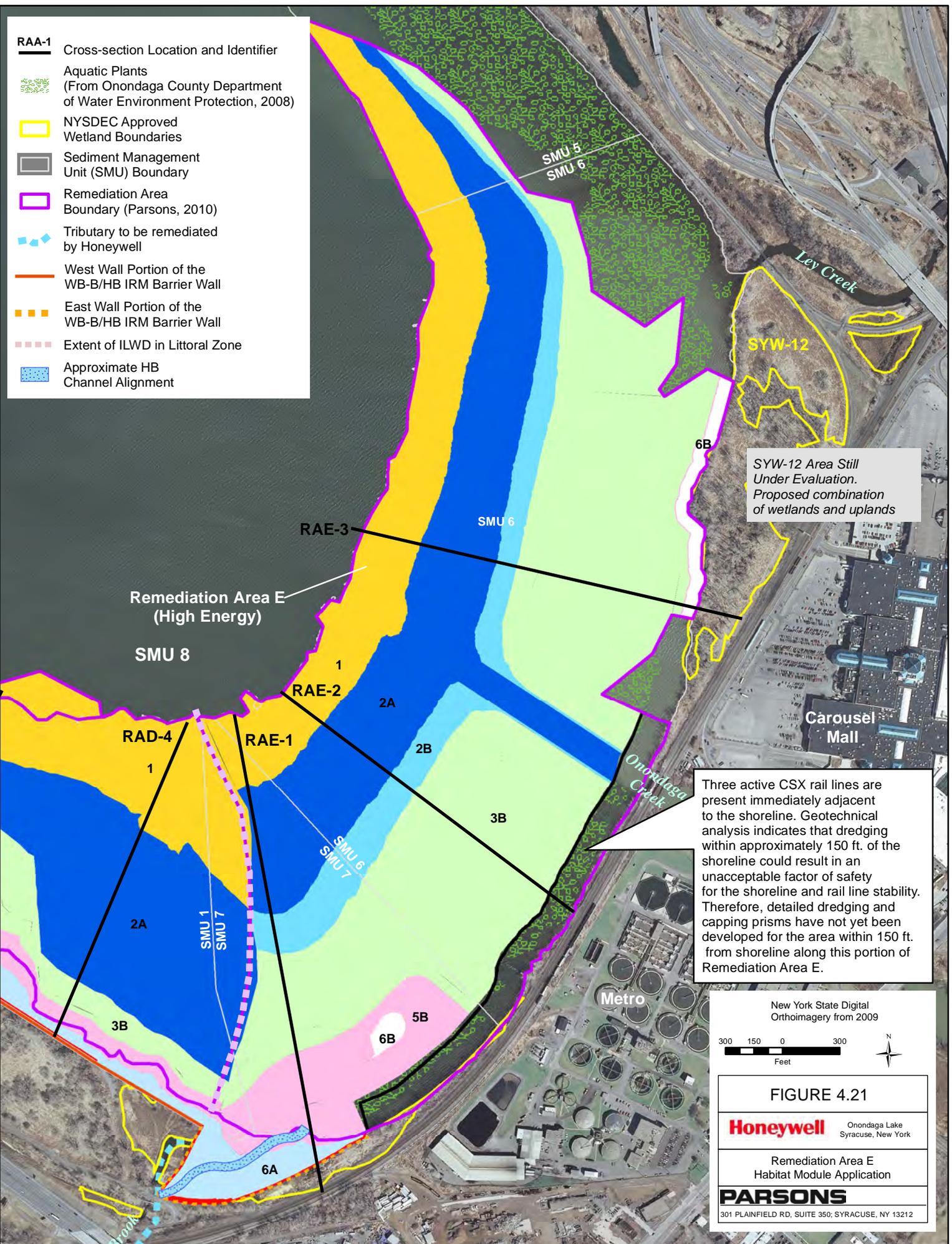
Honeywell

CONCEPTUAL CROSS SECTION
REMEDIATION AREA D (SMU 1)
SECTION RAD-4

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Date Revised: 1/10/2011 12:49:20 PM
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- RAA-1** Cross-section Location and Identifier
-  Aquatic Plants (From Onondaga County Department of Water Environment Protection, 2008)
 -  NYSDEC Approved Wetland Boundaries
 -  Sediment Management Unit (SMU) Boundary
 -  Remediation Area Boundary (Parsons, 2010)
 -  Tributary to be remediated by Honeywell
 -  West Wall Portion of the WB-B/HB IRM Barrier Wall
 -  East Wall Portion of the WB-B/HB IRM Barrier Wall
 -  Extent of ILWD in Littoral Zone
 -  Approximate HB Channel Alignment



SYW-12 Area Still Under Evaluation. Proposed combination of wetlands and uplands

Three active CSX rail lines are present immediately adjacent to the shoreline. Geotechnical analysis indicates that dredging within approximately 150 ft. of the shoreline could result in an unacceptable factor of safety for the shoreline and rail line stability. Therefore, detailed dredging and capping prisms have not yet been developed for the area within 150 ft. from shoreline along this portion of Remediation Area E.

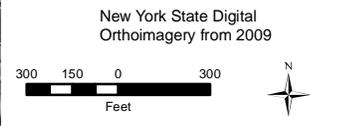
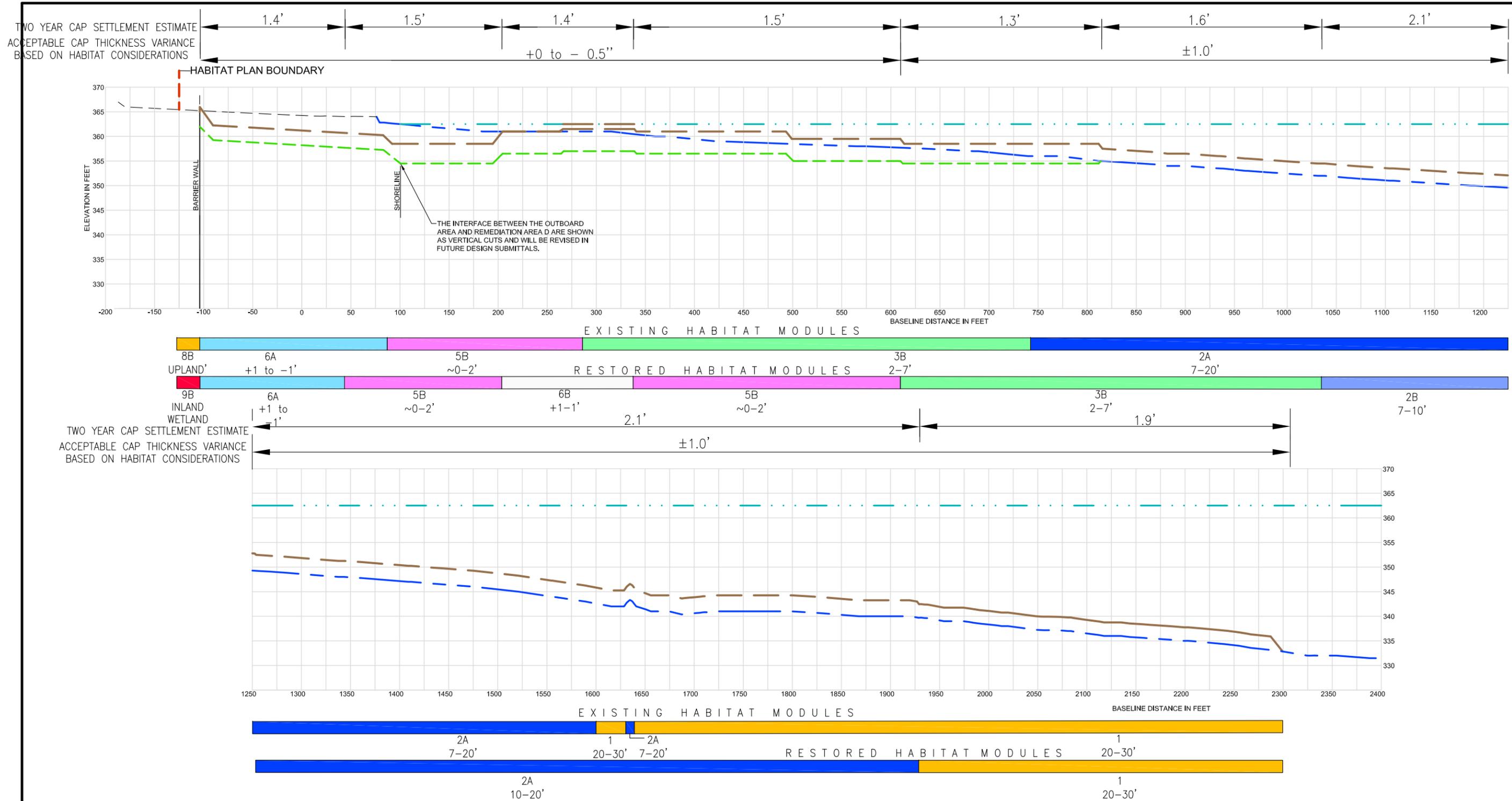


FIGURE 4.21

Honeywell Onondaga Lake
Syracuse, New York

Remediation Area E
Habitat Module Application

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212



REMEDIATION AREA E – SECTION RAE-1

Vertical: 1"=20'-0"
 Horizontal: 1"=100'-0"

LEGEND:

- . . . - . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
- - - - - EXISTING GRADE
- - - - - DREDGE GRADE
- - - - - CAP GRADE

****NOTE**

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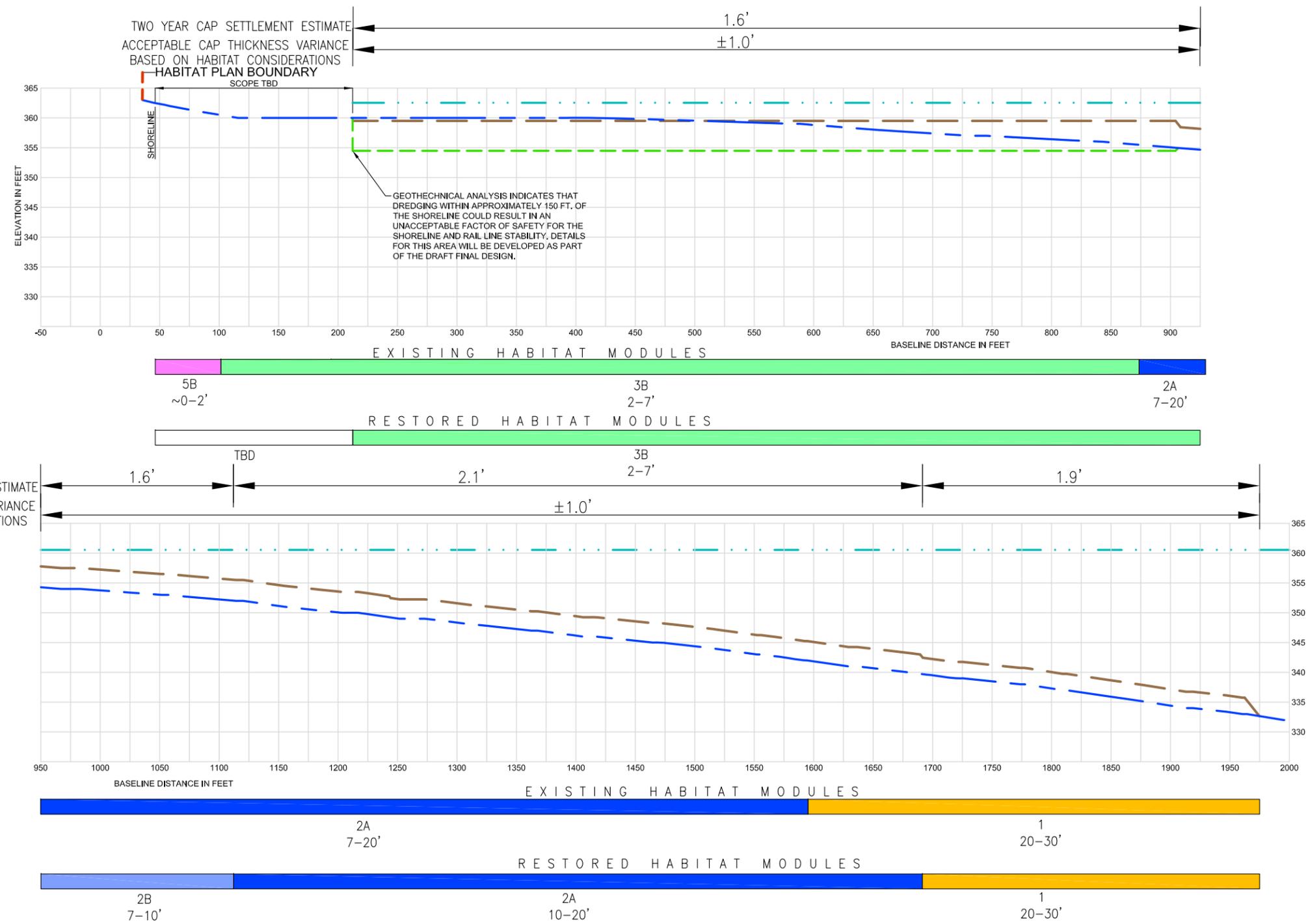
FIGURE 4.22



CONCEPTUAL CROSS SECTION
 REMEDIATION AREA E (SMU 7)
 SECTION RAE-1



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REMEDIATION AREA E – SECTION RAE-2

Vertical: 1"=20'-0"
 Horizontal: 1"=100'-0"

- LEGEND:
- . . . - . . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
 - - - - EXISTING GRADE
 - - - - DREDGE GRADE
 - - - - CAP GRADE

****NOTE**

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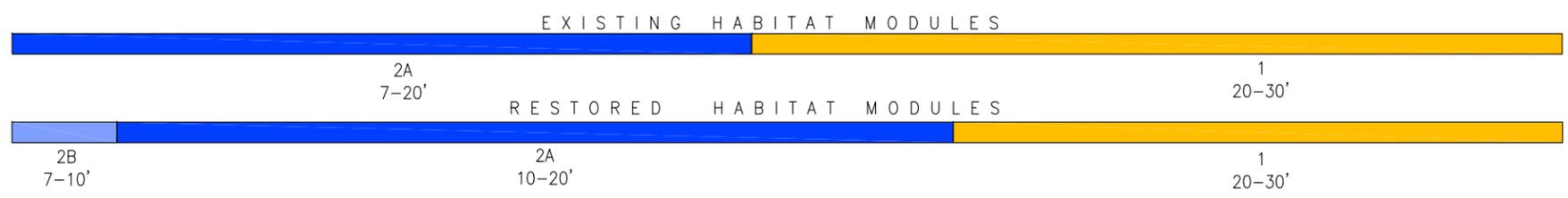
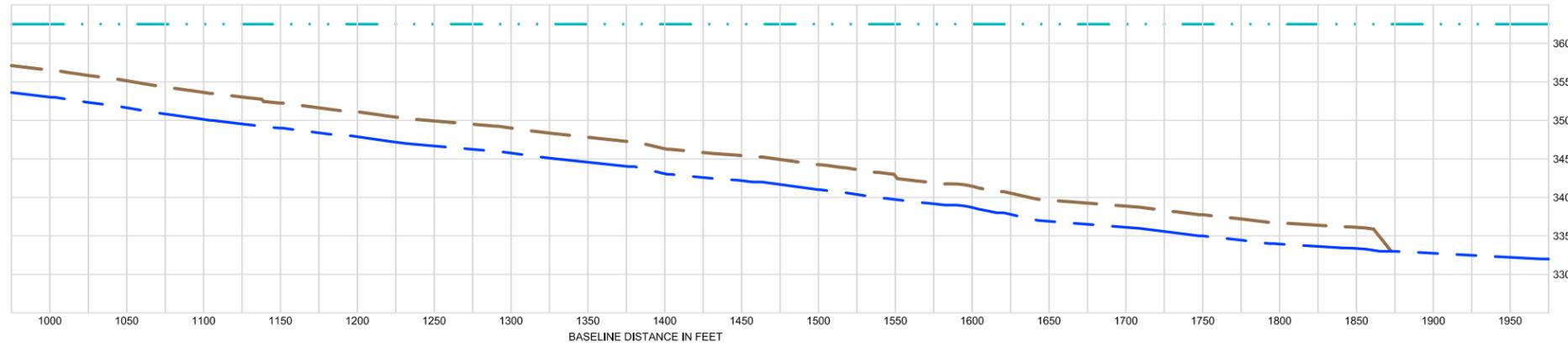
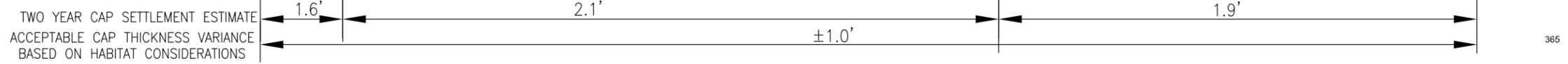
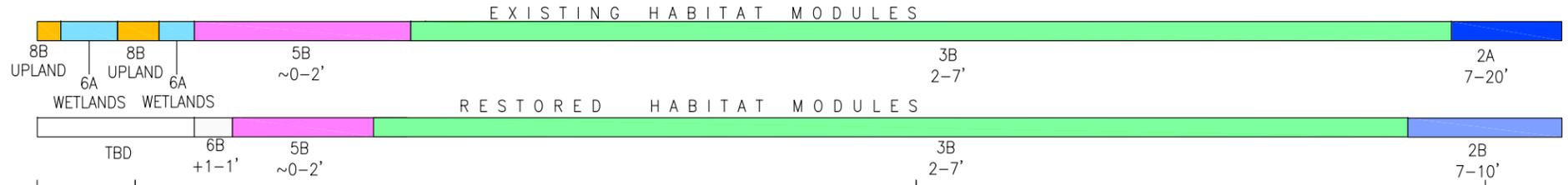
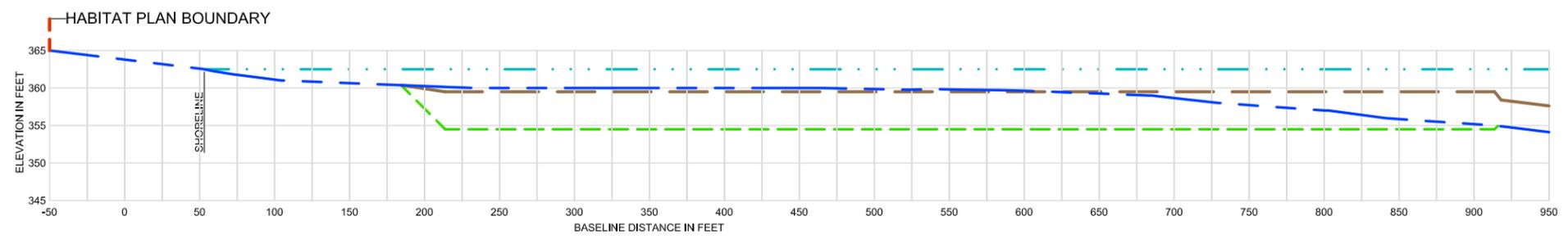
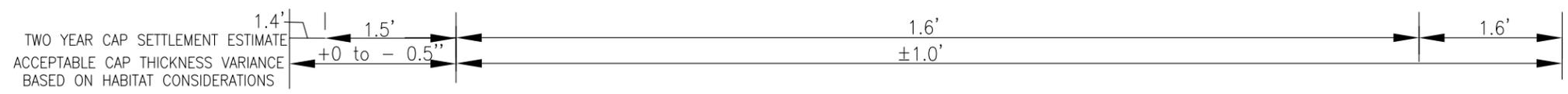
FIGURE 4.23

Honeywell

CONCEPTUAL CROSS SECTION
 REMEDIATION AREA E (SMU 6/7)
 SECTION RAE-2

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REMEDIATION AREA E – SECTION RAE-3

Vertical: 1"=20'-0"
Horizontal: 1"=100'-0"

- LEGEND:
- . . - . . - WATERLINE (362.5 NAVD 88) (GROWING SEASON)
 - - - - - EXISTING GRADE
 - - - - - DREDGE GRADE
 - - - - - CAP GRADE

****NOTE**
 1. VARIANCE MAY EXCEED THE ACCEPTABLE CAP THICKNESS VARIANCE BASED ON HABITAT CONSIDERATIONS IN SOME AREAS. PLACEMENT TOLERANCES WILL BE DEVELOPED AS PART OF THE FINAL DESIGN.
 2. THESE ANTICIPATED TYPICAL CAP THICKNESS VARIANCES ARE BASED ON HABITAT CONSIDERATIONS AND MAY NOT BE CONSISTENT WITH VALUES IN TABLE 4.1
 3. CAPPED AREAS WILL MEET THE MINIMUM CAP THICKNESSES SHOWN IN TABLE 4.1

FIGURE 4.24

Honeywell
 CONCEPTUAL CROSS SECTION
 REMEDIATION AREA E (SMU 6/7)
 SECTION RAE-3

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Water Surface Elevation Statistics by Day of Year - March 15th through April 7th - 1998 to 2009



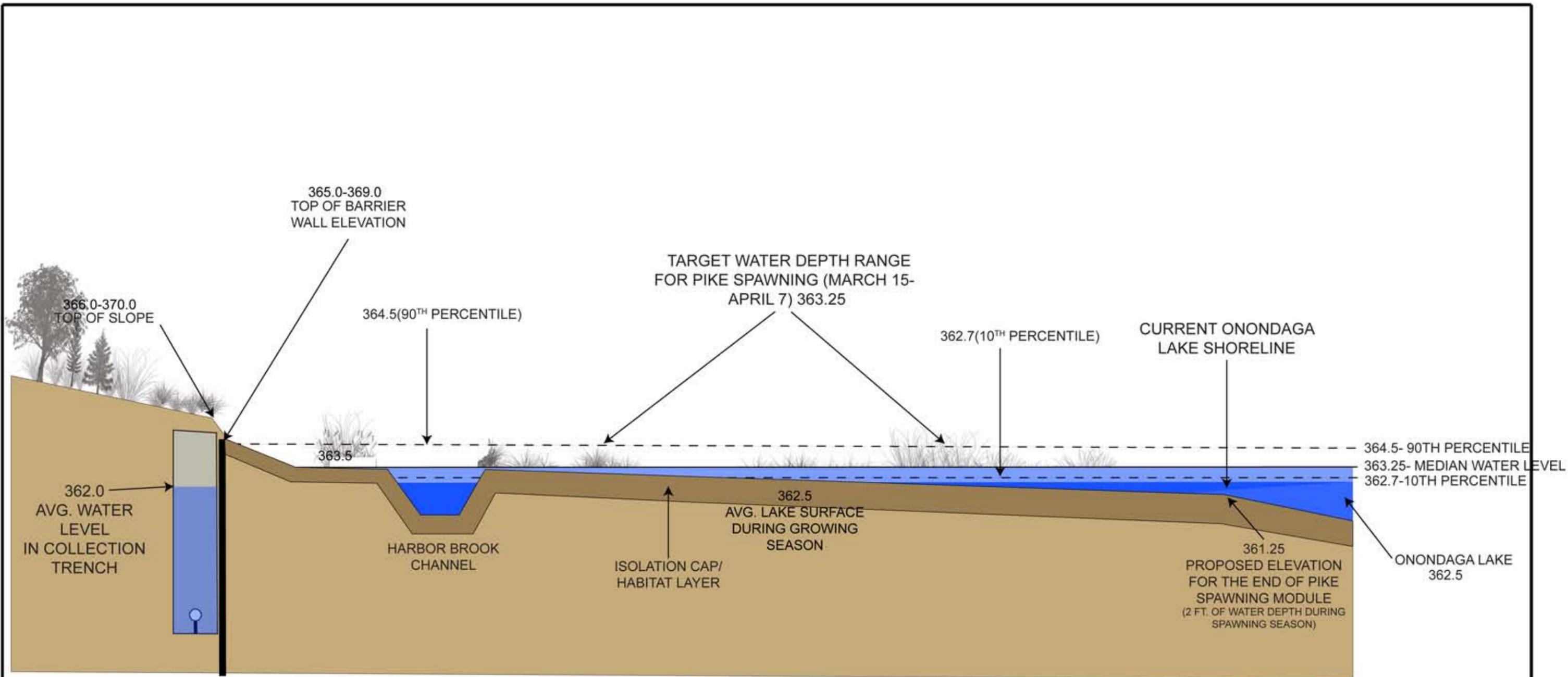
* NOTE:
May-October
Median water
level during
growing season
362.5 NVGD 88

FIGURE 4.25

Honeywell ONONDAGA LAKE
SYRACUSE, NEW YORK

Onondaga Lake Water Levels-
Harbor Brook Outboard Area Pike
Spawning Design Data

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MEDIAN LAKE LEVEL DURING PIKE SPAWNING SEASON



MEDIAN LAKE LEVEL DURING GROWING SEASON

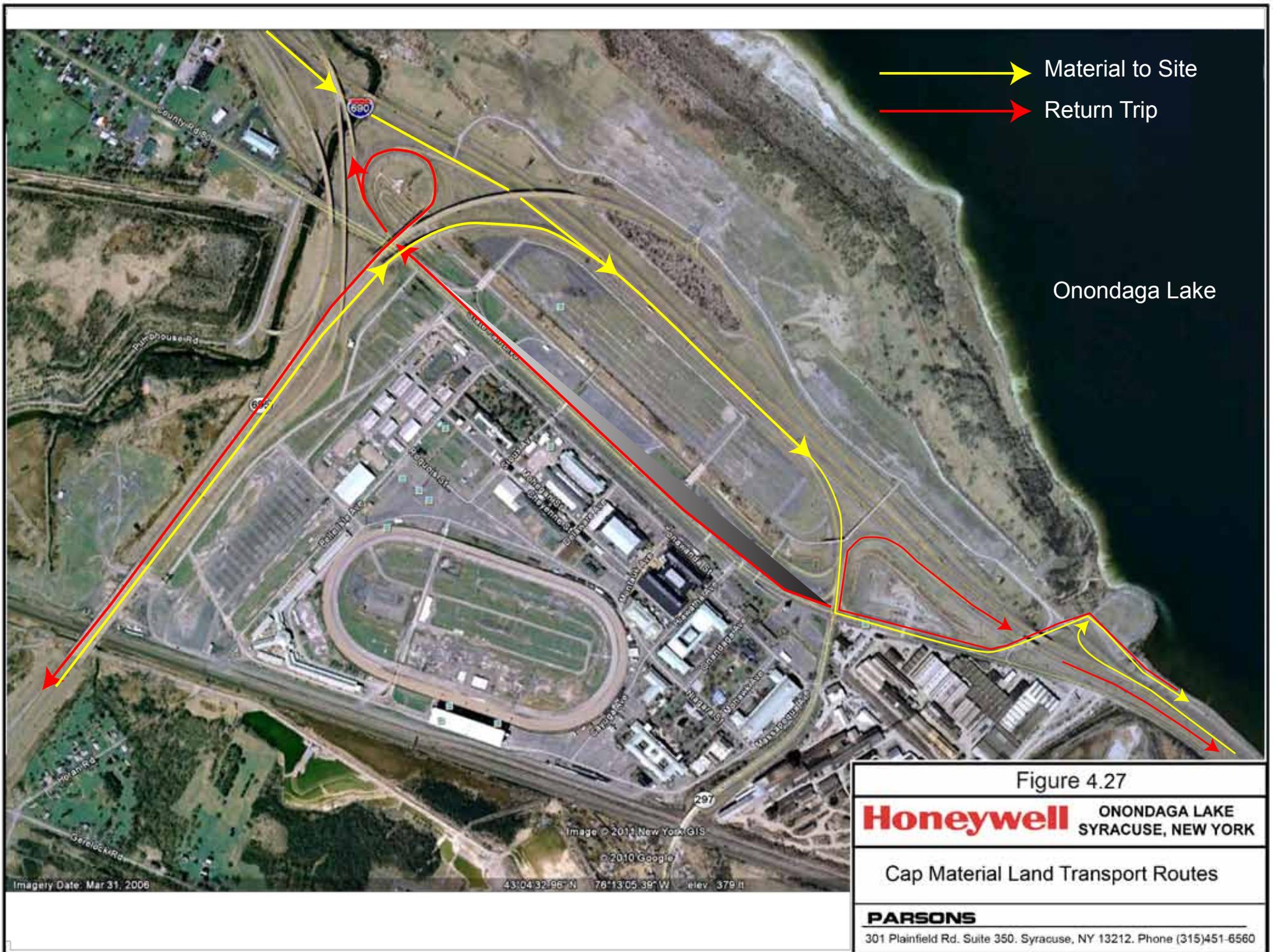
NOT TO SCALE

FIGURE 4.26

Honeywell Onondaga Lake
Syracuse, New York

Conceptual Cross Section Harbor Brook
Outboard Area Pike Spawning

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→ Material to Site
→ Return Trip

Onondaga Lake

Figure 4.27

Honeywell ONONDAGA LAKE
SYRACUSE, NEW YORK

Cap Material Land Transport Routes

PARSONS

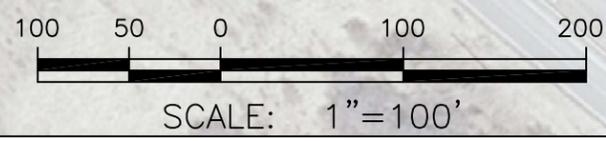
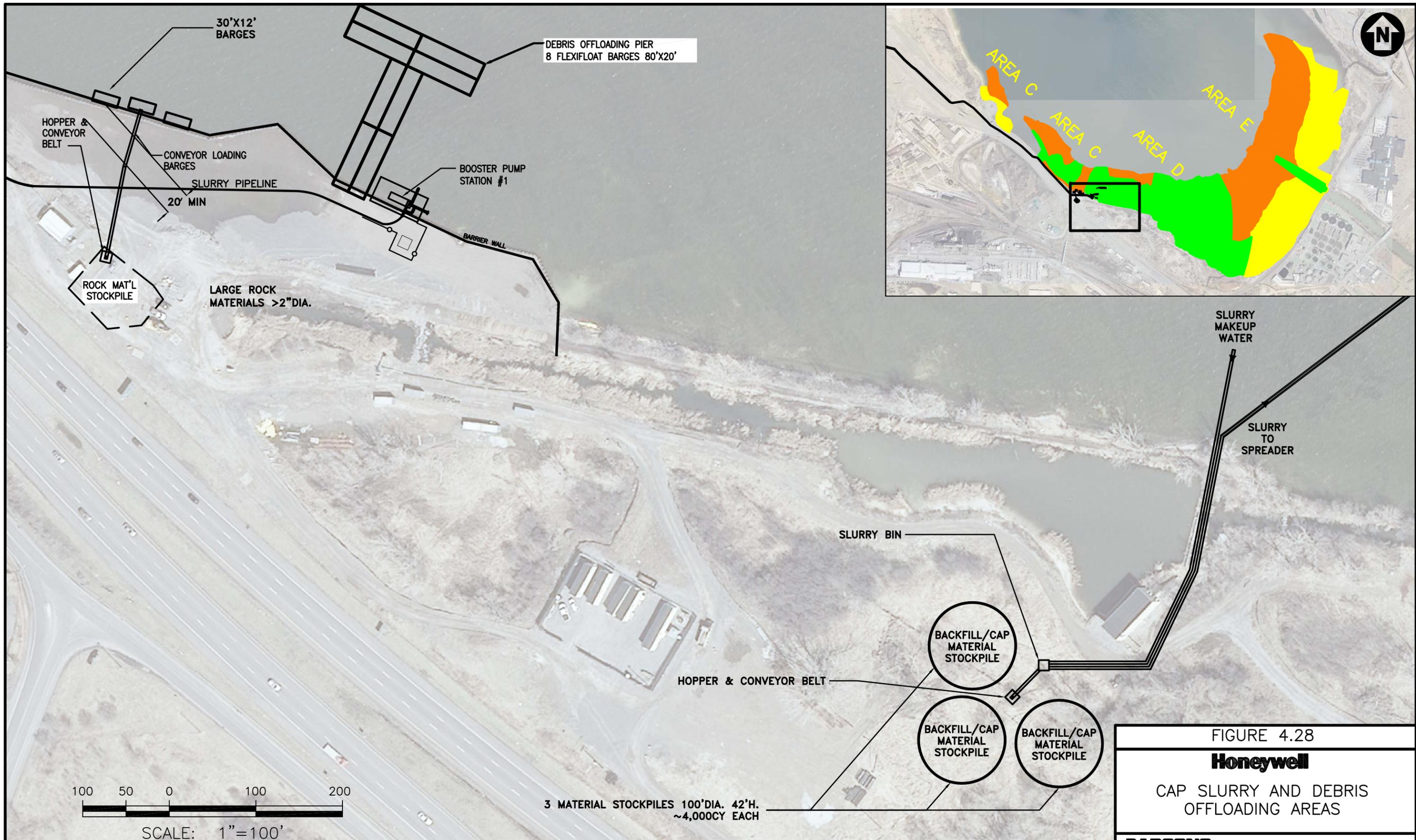
301 Plainfield Rd. Suite 350. Syracuse, NY 13212. Phone (315)451-6560

Imagery Date: Mar 31, 2008

Image © 2011 New York GIS

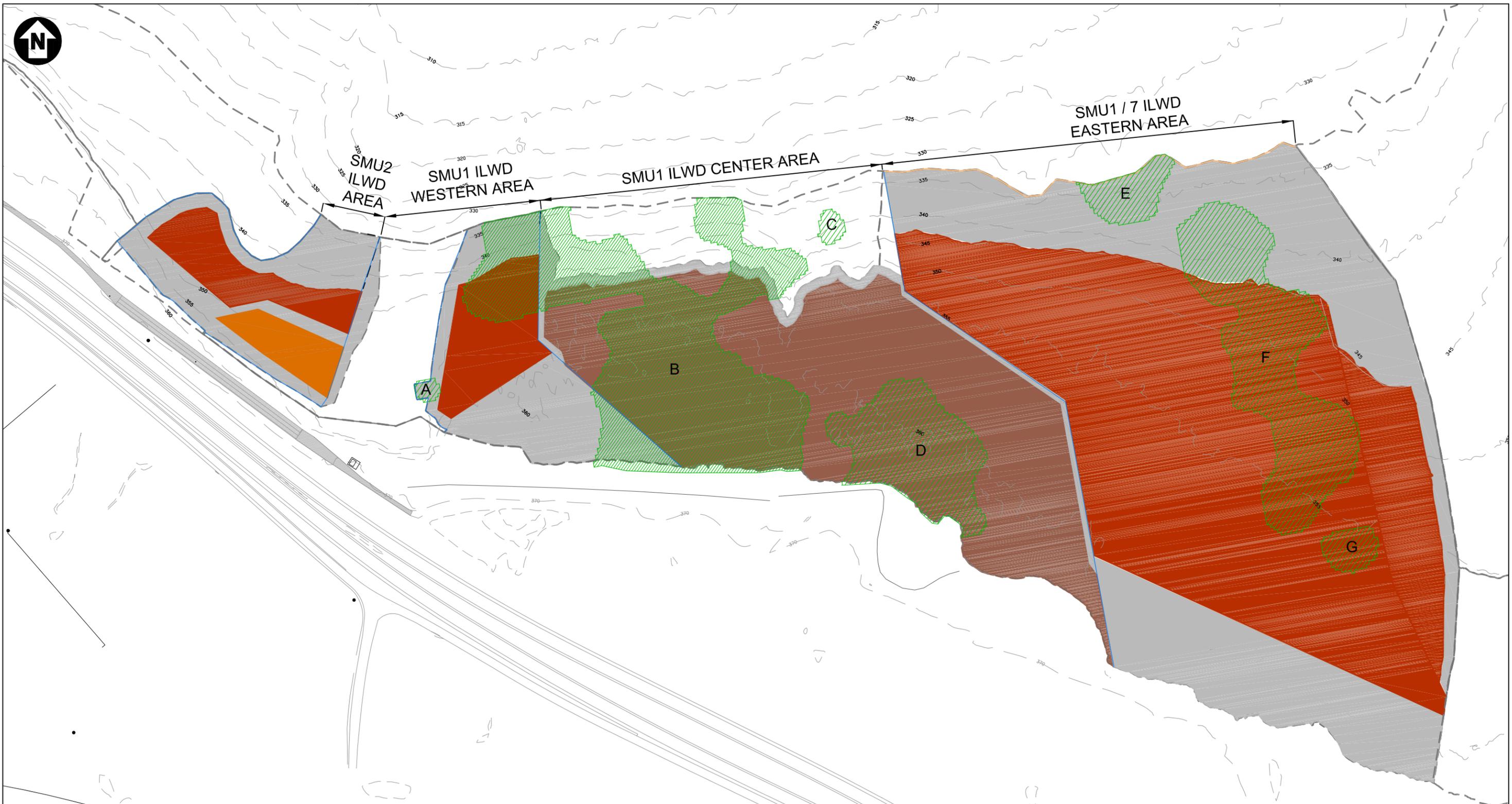
© 2010 Google

43°04'32.96" N 76°13'05.39" W elev 379 ft



3 MATERIAL STOCKPILES 100'DIA. 42'H.
~4,000CY EACH

FIGURE 4.28
Honeywell
CAP SLURRY AND DEBRIS
OFFLOADING AREAS



SCALE: 1"=300'

LEGEND:

- 2M REMOVAL DEPTH
- 3M REMOVAL DEPTH
- 1.7M REMOVAL DEPTH
- TRANSITION ZONE
- HOT SPOT

NOTES:

1. Areas designated as hot spots will be dredged one additional meter.

FIGURE 5.1



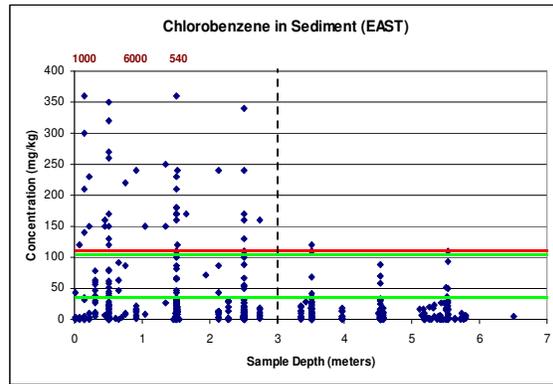
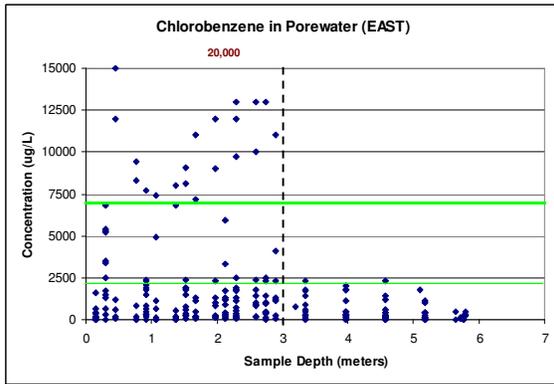
ONONDAGA LAKE
SYRACUSE, NEW YORK

ILWD Removal Depths – 2 Meter
Average Removal Plus Hot Spots

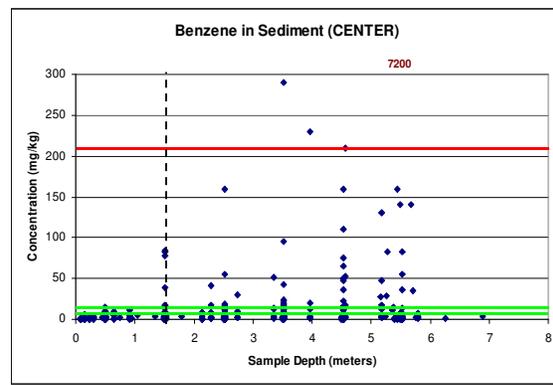
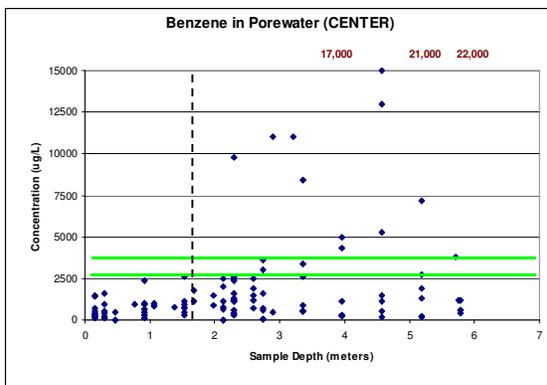


301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 PHONE: 315-451-9560

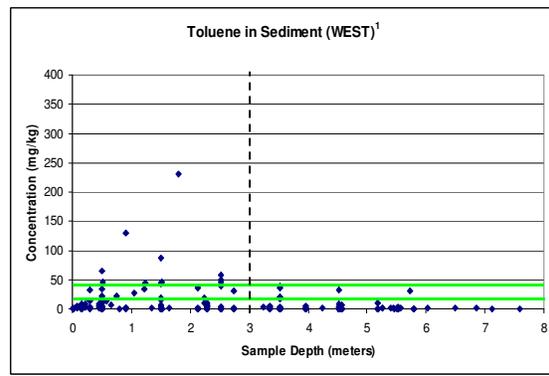
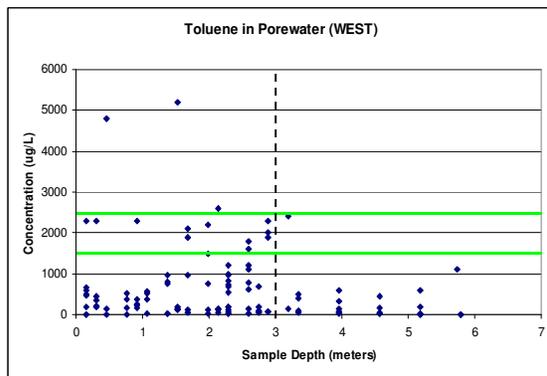
SMU1/SMU7 ILWD Eastern Area



SMU1 ILWD Center Area



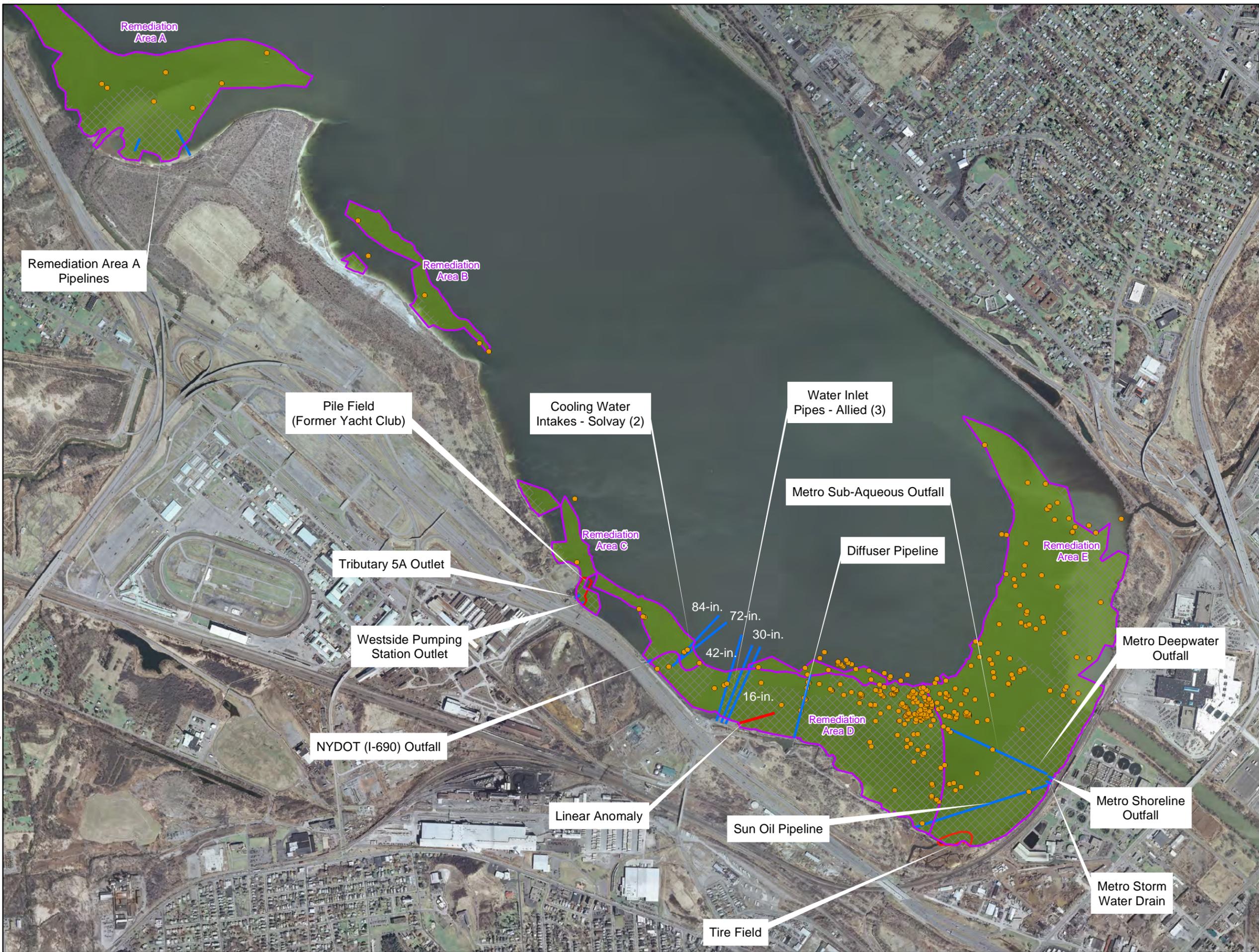
SMU1 ILWD Western Area



Data Presentation:

- Plots incorporate data from RI and PDI Phases I through V.
 - Red lines indicate hot spot criteria for sediment as listed in the ROD.
 - Dashed lines represent the proposed removal depth. This removal depth will not be achieved everywhere due to issues such as required sloping from shoreline down to the maximum removal depth. Therefore, not all data points shown above the removal depth will be removed.
 - Green lines indicate 90th and 95th percentile concentrations.
 - Numbers in red denote concentrations beyond the range of the scatterplots.
- Notes: (1) Hot spot criteria for toluene above the range of plots.

FIGURE 5.2
Honeywell
 Example ILWD Contaminant Concentration Versus Depth Plots
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- Side-scan Sonar Target
 - Debris (greater than 5' in any dimension)
- Digitized Anomalies from Magnetometer Data and Historical Records (locations/lengths are approximate)
 -
- Remediation Area Boundary
 -
- Isolation Cap Area
 -
- Dredge Area
 - ▨



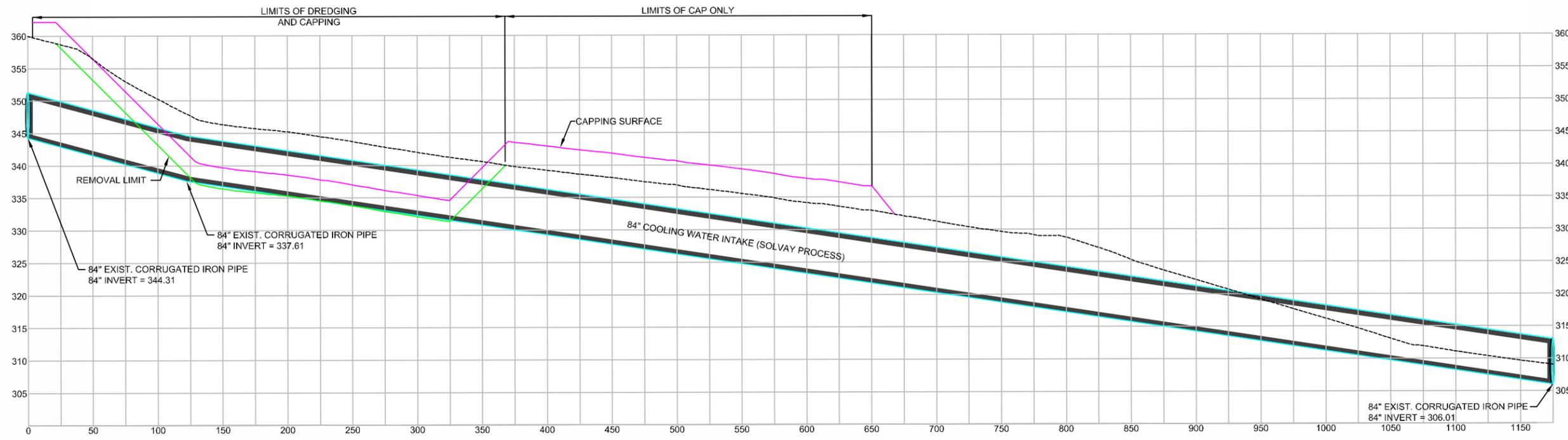
Note: 2009 Aerial Photos obtained from NYS GIS Clearinghouse

FIGURE 6.1

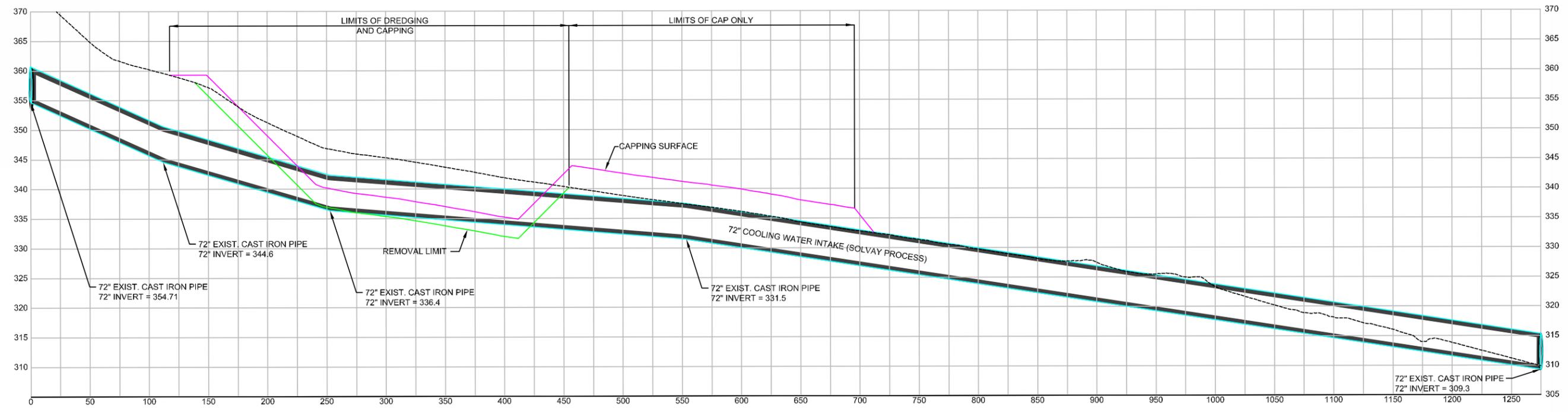
Honeywell Onondaga Lake
Syracuse, New York

Remediation Areas
Debris & Utilities

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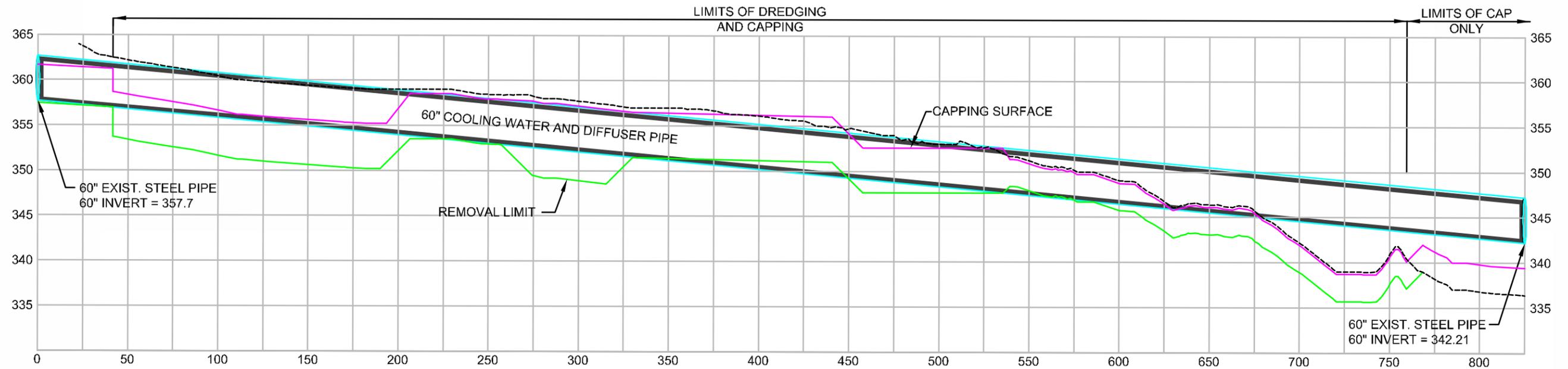
U6 222+65.25
 -
 HORIZ. SCALE: 1"=80'
 VERT. SCALE: 1"=10'



U7 222+93.36
 -
 HORIZ. SCALE: 1"=80'
 VERT. SCALE: 1"=10'

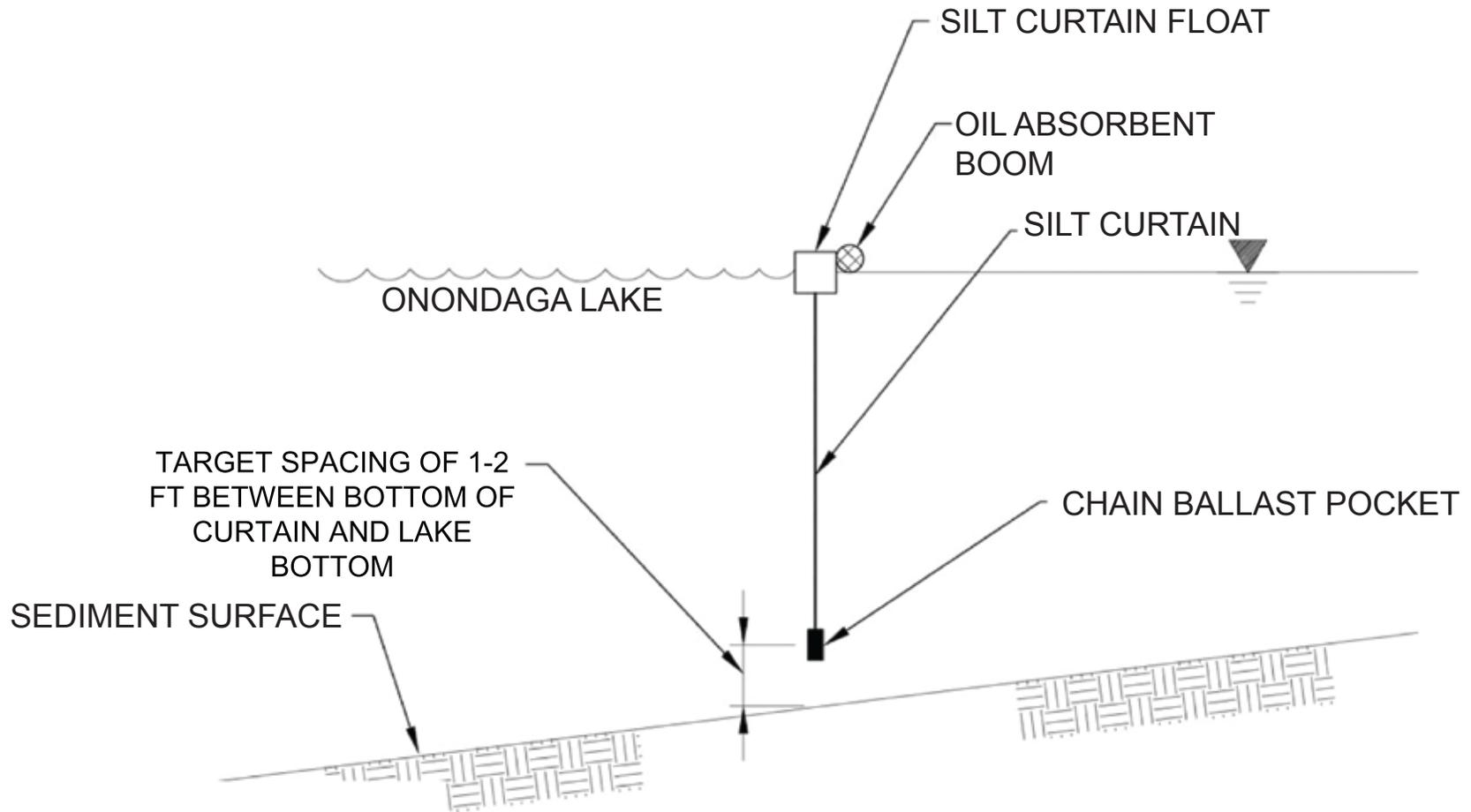
FIGURE 6.2
Honeywell
 COOLING WATER INTAKES
 (SOLVAY PROCESS)

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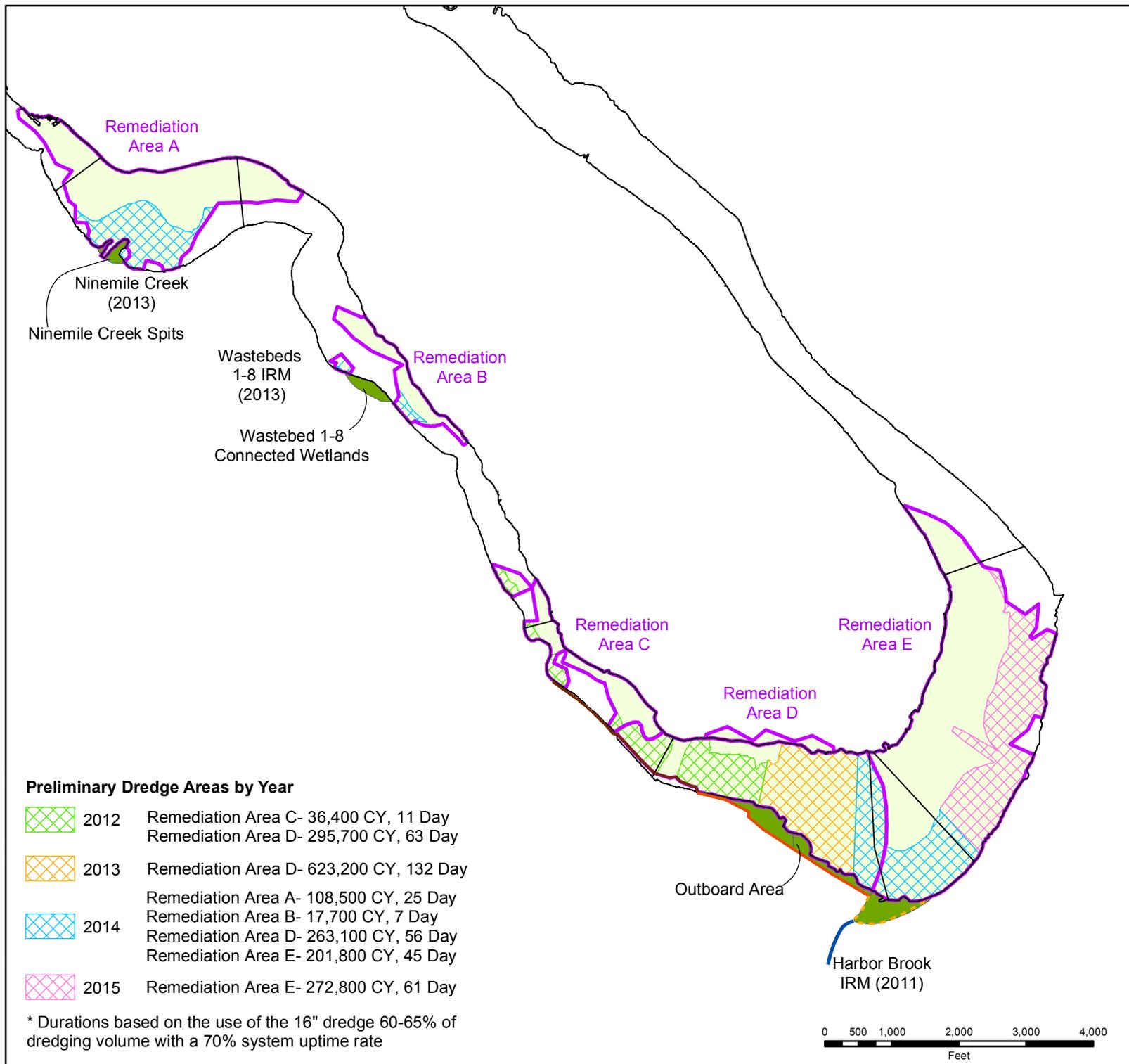
U11 244+39.90
 -
 HORIZ. SCALE: 1"=80'
 VERT. SCALE: 1"=10'

FIGURE 6.3
Honeywell
 Diffuser Pipeline
PARSONS
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 OFFICES IN PRINCIPAL CITIES



NOTE:
 SILT CURTAIN ANCHORS ARE NOT SHOWN
 AND WILL BE DESIGNED AS PART OF THE
 FINAL DESIGN

Figure 7.1	
Honeywell	ONONDAGA LAKE SYRACUSE, NEW YORK
Typical Silt Curtain Detail	
PARSONS	
301 PLAINFIELD RD, SUITE 350; SYRACUSE, NY 13212	



Legend

-  East Wall Portion of the WB-B/HB IRM
-  West Wall Portion of the WB-B/HB IRM
-  Willis/Semet IRM Barrier Wall
-  Remediation Area Boundary
-  SMU Boundary
-  Isolation Cap Area
-  Adjacent Removal Area

Preliminary Dredge Areas by Year

-  2012 Remediation Area C- 36,400 CY, 11 Day
Remediation Area D- 295,700 CY, 63 Day
-  2013 Remediation Area D- 623,200 CY, 132 Day
Remediation Area A- 108,500 CY, 25 Day
Remediation Area B- 17,700 CY, 7 Day
-  2014 Remediation Area D- 263,100 CY, 56 Day
Remediation Area E- 201,800 CY, 45 Day
-  2015 Remediation Area E- 272,800 CY, 61 Day

* Durations based on the use of the 16" dredge 60-65% of dredging volume with a 70% system uptime rate

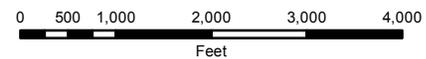


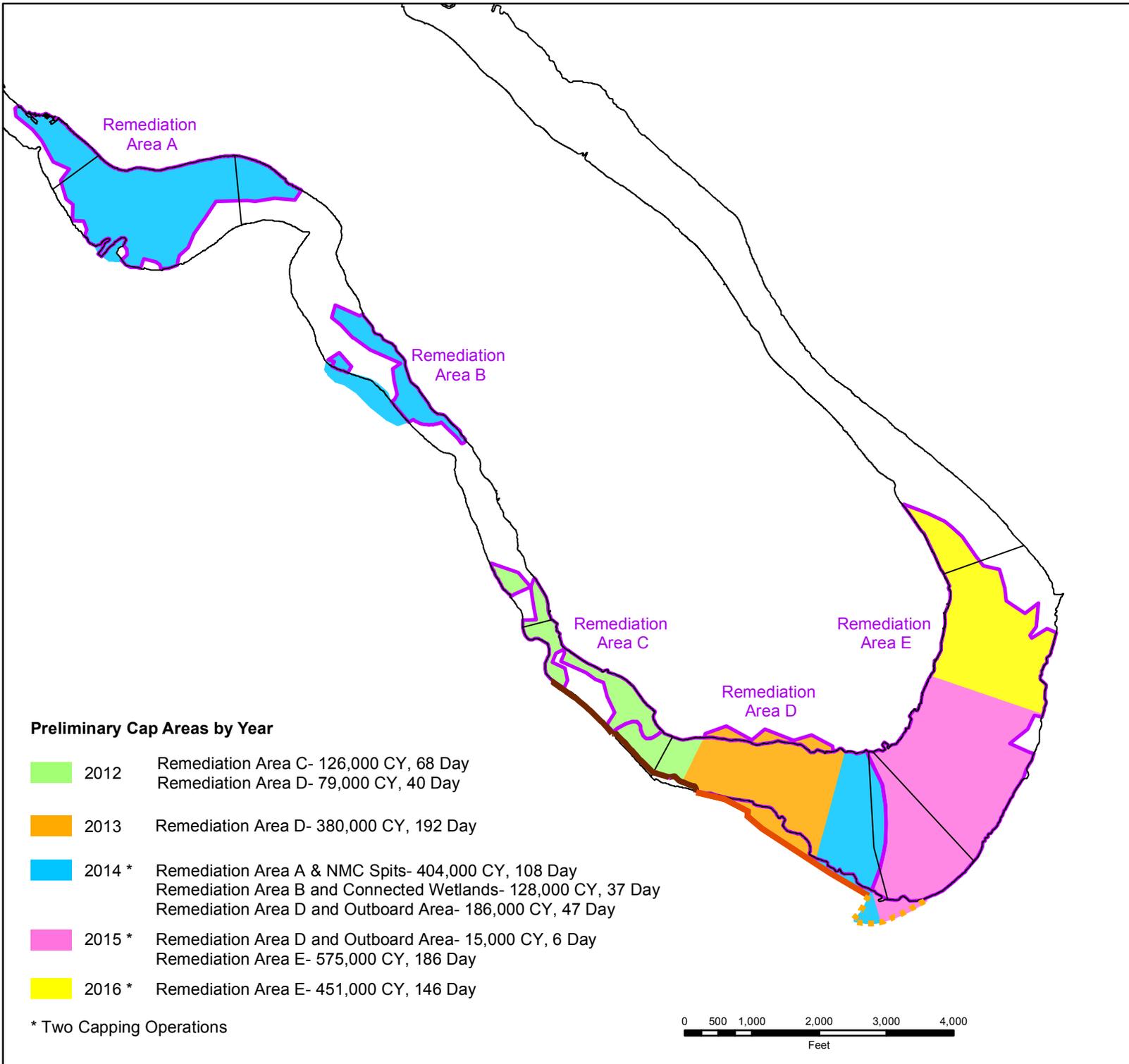
FIGURE 8.1

Honeywell Onondaga Lake
Syracuse, New York

Preliminary Dredge
Sequence

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Legend

-  East Wall Portion of the WB-B/HB IRM
-  West Wall Portion of the WB-B/HB IRM
-  Willis/Semet IRM Barrier Wall
-  Remediation Area Boundary
-  SMU Boundary

Preliminary Cap Areas by Year

-  2012 Remediation Area C- 126,000 CY, 68 Day
Remediation Area D- 79,000 CY, 40 Day
-  2013 Remediation Area D- 380,000 CY, 192 Day
-  2014 * Remediation Area A & NMC Spits- 404,000 CY, 108 Day
Remediation Area B and Connected Wetlands- 128,000 CY, 37 Day
Remediation Area D and Outboard Area- 186,000 CY, 47 Day
-  2015 * Remediation Area D and Outboard Area- 15,000 CY, 6 Day
Remediation Area E- 575,000 CY, 186 Day
-  2016 * Remediation Area E- 451,000 CY, 146 Day

* Two Capping Operations

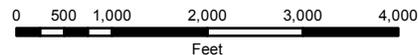


FIGURE 8.2

Honeywell Onondaga Lake
Syracuse, New York

Preliminary Cap Sequence

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