CU-03

Form 2

CU Certification of Completion

CU BACKFILL/ENGINEERED CAP COMPLETION APPROVAL - FORM 2

Reporting Date	11/19/2009			**Placement Start Date**	10/15/2009
CU Number	3			**Placement End Date**	11/10/2009
Approximate CU Centroid	**Northing**	1614048	**Easting**	736253	NY State NAD 83
CU Size	4.87	Acres			
Backfill Area	3.55	Acres*			
Cap Area	1.32	Acres			

Backfill Surface Mean Tri+ PCBs Concentration (when required)	NA	**mg/kg**
Number of nodes sampled	NA	**mg/kg**

Backfill	**Type of Backfill**	**Reference to appropriate drawings attached to Approval Form 1**
X	Type 1, Type 2, Nearshore, 15%	CU3 Backfill and Cap Plan, 10/13/09
Cap	**Type of Cap**	**Reference to appropriate drawings attached to Approval Form 1**
X	Type "A" Low Velocity Cap and Type "A" Medium to High Velocity Cap	CU3 Backfill and Cap Plan, 10/13/09

CU Checklist	**Indicate one of the following**			**Reviewer Initial Acceptance**		
Item	**Attached**	**Not Applicable**		**GE**		**EPA**
Drawing of Installed Backfill/Cap (with record details, thickness and sample locations [when backfill/cap are placed])	x					
Where applicable in backfill areas provide the following: Sample locations (coordinates), depths, Aroclor and Tri+ PCB concentrations collected including analytical data, field observations, (hard copy and electronic copies [in database format or equivalent]		x				

Comments

Refer to attached Narrative Backfill and Capping Summary and CU 3 Backfill and Cap Drawings.
*Backfill Area does not include 15% backfill material placed over Cap Area.

Upon signing this document, GE certifies that the backfill/cap has been installed satisfactorily and that no further backfill placement or capping is required for this CU. These remedial activities exclude long term operation, monitoring, maintenance and adaptive management at the CU. EPA accepts this certification.

Signature of GE Representative	**Signature of EPA Representative**
Signature	Signature
Name	Name
Date	Date

Narrative

CU 3

Narrative Summary of Backfill and Capping and
EPA Backfill and Capping Agreements

1.0 Cap Placement

A Type "A" Medium to High Velocity Cap and a Type "A" Low Velocity Cap was placed in accordance with the CU 3 Backfill and Capping Plan Drawing, dated October 13, 2009, which was provided to EPA as part of the CU 3 Form 1 package. A multi-beam bathymetric survey of the CU 3 cap was performed after final cap placement on October 28 and November 8, 2009, as shown on the attached CU 3 Type "A" Cap Acceptance Survey, dated November 17, 2009. The surveyed cap thickness on a 5' x 5' grid is shown for all cap areas. Cap thicknesses for the Type "A" Low Velocity Cap at the shoreline near station 33+00 is not shown, as the cap was installed within the near shore boundary where multi-beam data could not be obtained. Type 1 near shore material was placed over this cap.

2.0 Backfill Placement

Backfill materials were placed in accordance with the CU 3 Backfill and Capping Plan Drawing, dated October 13, 2009, provided to EPA as part of the CU 3 Form 1 package. Multi-beam bathymetric surveys for CU 3 were performed after backfill placement on November 8 and November 12, 2009, as shown on the attached CU 3 Backfill Placement Acceptance Drawing, dated November 17, 2009. The difference to backfill prism on a 10' x 10' grid is shown for all backfill areas. The elevations within the Navigation Channel on a 10' x 10' grid are shown on the attached CU3 Navigation Channel Elevations, dated November 17, 2009.

3.0 EPA Field Agreements Specific to CU 3 Backfill and Capping

1. During the 4:00 PM meeting on October 12, 2009, EPA agreed that acceptance surveys of partial areas of a CU may be performed and used for acceptance once placement of backfill or cap in those areas is complete.

2. The plan used to place backfill and cap in CU 3 was approved by EPA on October 13, 2009 as part of the CU 3 Acceptance Form 1 package. Changes were made to the CU 3 Backfill and Cap Plan on November 10, 2009 to show the near shore set points, and the 5' offset of the cap extending into compliant areas (see CU 3 Backfill and Cap Record Drawing, dated November 19, 2009).

3. During a 3:00 PM meeting with EPA on November 12, 2009, GE presented acceptance surveys of the difference to backfill prisms on a 10' x 10' grid in CU3. GE also presented the

Cap Acceptance Survey Drawing during the meeting of November 12, 2009. EPA accepted that the top of cap and backfill elevations were acceptable (see attached e-mail, dated November 14, 2009). The CU3 Type "A" Cap Acceptance Survey Drawing, dated November 17, 2009 is included in this package.

Tables

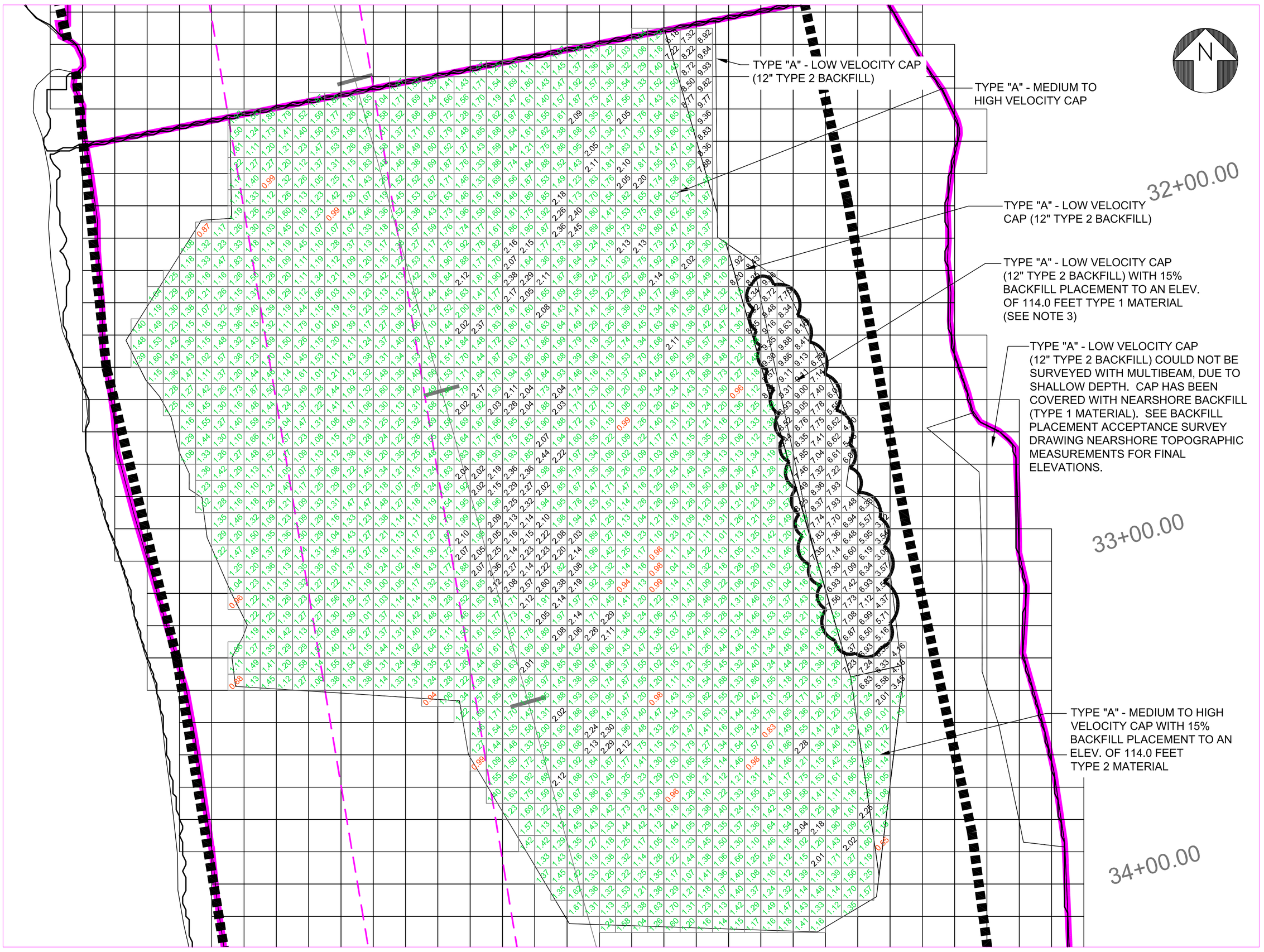
Table 1. CU-3 - All Near-Shore Topographic Measurements

Published Near-Shore Border Set Points				Near-Shore Topographic Measurements				
Name	Easting	Northing	Target Elevation	Easting	Northing	Check Elevation	Horz. Dist	Vert Diff.
3-1	736,296.72	1,614,412.28	117.5	736,296.73	1,614,411.95	117.59	0.33	0.09
3-2	736,314.60	1,614,313.18	117.5	736,314.73	1,614,313.15	116.51	0.13	-0.99
				736,314.37	1,614,312.36	116.37	0.85	-1.13
				736,316.98	1,614,313.70	116.84	2.43	-0.66
				736,319.50	**1,614,313.66**	**117.35**	**4.92**	**-0.15**
				736,322.56	1,614,313.83	118.37	7.99	0.86
				736,325.84	1,614,314.08	118.86	11.28	1.36
				736,328.03	1,614,314.38	118.77	13.48	1.27
				736,328.14	1,614,315.89	118.95	13.80	1.45
3-3	736,335.34	1,614,216.00	117.5	736,335.37	1,614,215.73	117.11	0.27	-0.39
3-4	736,348.58	1,614,117.42	117.5	736,348.62	1,614,117.38	117.68	0.05	0.18
3-5	736,366.73	1,614,018.36	117.5	736,366.94	1,614,018.36	117.41	0.21	-0.09
3-6	736,381.73	1,613,919.61	117.5	736,381.81	1,613,919.38	117.25	0.24	-0.25
3-7	736,389.45	1,613,819.80	117.5	736,389.59	1,613,819.96	117.04	0.21	-0.46
3-8	736,398.73	1,613,763.17	117.5	736,398.51	1,613,763.06	116.17	0.25	-1.33
				736,400.46	1,613,764.06	116.99	1.94	-0.51
				736,401.69	**1,613,764.17**	**117.43**	**3.13**	**-0.07**
				736,395.60	1,613,763.06	115.77	3.13	-1.73
				736,404.77	1,613,764.37	117.68	6.16	0.17
				736,406.37	1,613,762.89	117.87	7.64	0.37
				736,411.18	1,613,761.72	118.17	12.54	0.67
				736,413.98	1,613,761.12	118.20	15.39	0.70
				736,415.53	1,613,761.02	118.22	16.93	0.72
				736,418.58	1,613,761.12	118.62	19.95	1.12
				736,420.27	1,613,760.65	119.04	21.69	1.54
3-9	736,397.62	1,613,663.54	117.5	736,397.32	1,613,663.40	117.19	0.33	-0.31
3-10	736,067.36	1,614,359.93	117.5	736,067.34	1,614,360.13	118.50	0.20	1.00
				736,064.88	1,614,359.71	118.86	0.22	1.36
				736,067.03	1,614,360.21	118.45	0.28	0.95
				736,064.88	1,614,359.23	118.93	0.70	1.43
				736,069.99	**1,614,360.84**	**117.22**	**0.91**	**-0.28**
				736,072.16	1,614,361.69	116.22	1.76	-1.28
3-11	736,089.25	1,614,269.50	117.5	736,089.45	1,614,269.49	117.84	0.20	0.34
3-12	736,104.12	1,614,178.18	117.5	736,104.08	1,614,178.11	118.56	0.08	1.06
				736,103.94	1,614,178.13	118.90	0.19	1.40
				736,106.28	**1,614,178.71**	**117.82**	**2.22**	**0.32**
3-13	736,121.03	1,614,087.37	117.5	736,120.92	1,614,087.30	119.05	0.13	1.55
				736,121.36	1,614,087.65	118.78	0.44	1.28
				736,123.01	1,614,087.32	118.49	1.98	0.99
				736,124.19	**1,614,087.57**	**117.66**	**3.16**	**0.16**
				736,126.18	1,614,088.21	116.69	5.22	-0.81
3-14	736,137.26	1,614,010.52	117.5	736,136.89	1,614,010.58	119.12	0.38	1.61
				736,138.77	1,614,010.54	118.41	1.51	0.91
				736,140.61	**1,614,010.76**	**117.28**	**3.36**	**-0.22**
				736,142.93	1,614,010.74	116.33	5.67	-1.17
3-15	736,148.76	1,613,914.92	117.5	736,148.31	1,613,914.84	118.89	0.46	1.39
				736,145.99	1,613,914.31	119.14	2.84	1.64
				736,151.94	**1,613,916.13**	**117.43**	**3.41**	**-0.07**
3-16	736,163.48	1,613,828.29	117.5	736,163.57	1,613,828.41	118.42	0.15	0.92
				736,165.18	**1,613,828.68**	**117.23**	**1.74**	**-0.27**
				736,158.75	1,613,828.03	119.09	4.74	1.59
3-17	736,179.04	1,613,731.04	117.5	736,178.80	1,613,731.32	116.06	0.37	-1.44
				736,176.93	1,613,731.29	116.58	2.12	-0.92
				736,175.21	**1,613,731.24**	**117.59**	**3.83**	**0.09**
				736,172.47	1,613,730.53	118.83	6.59	1.33
				736,169.81	1,613,730.57	119.17	9.24	1.67
3-18	736,188.70	1,613,634.17	117.5	736,188.82	1,613,633.70	117.96	0.48	0.46

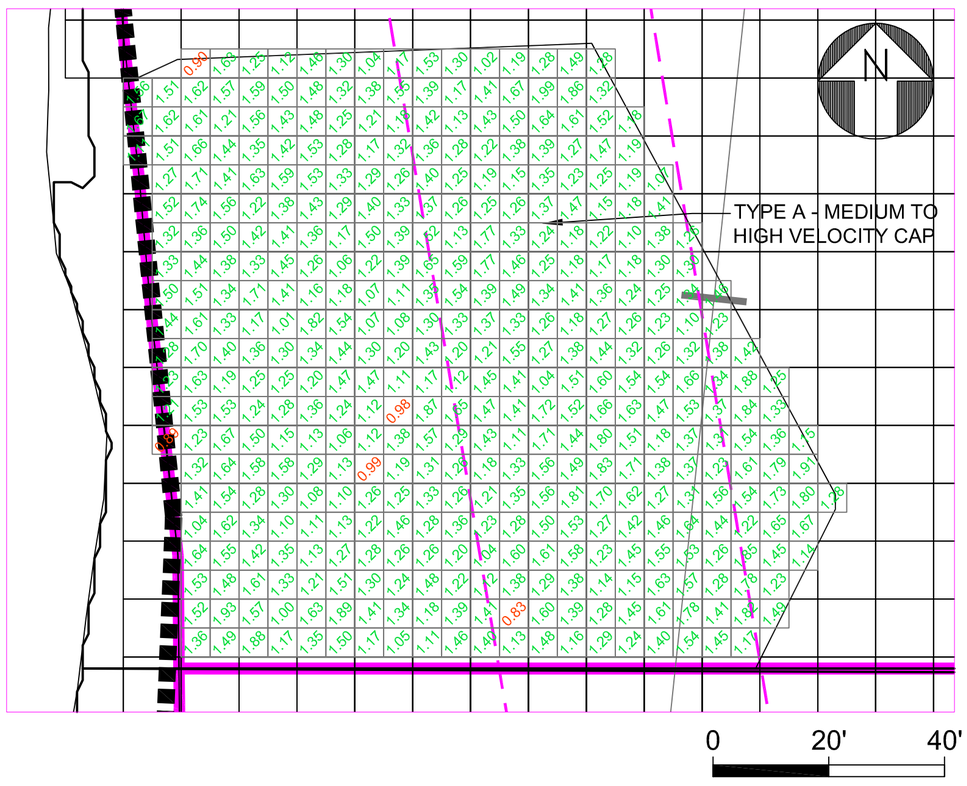
Notes:

1. Measurements Collected on the 11th and 12th of November 2009 using standard land survey methods
2. At near shore set point locations where the set point elevation was not at tolerance, additional measurments were taken at nearby locations to provide additional information.

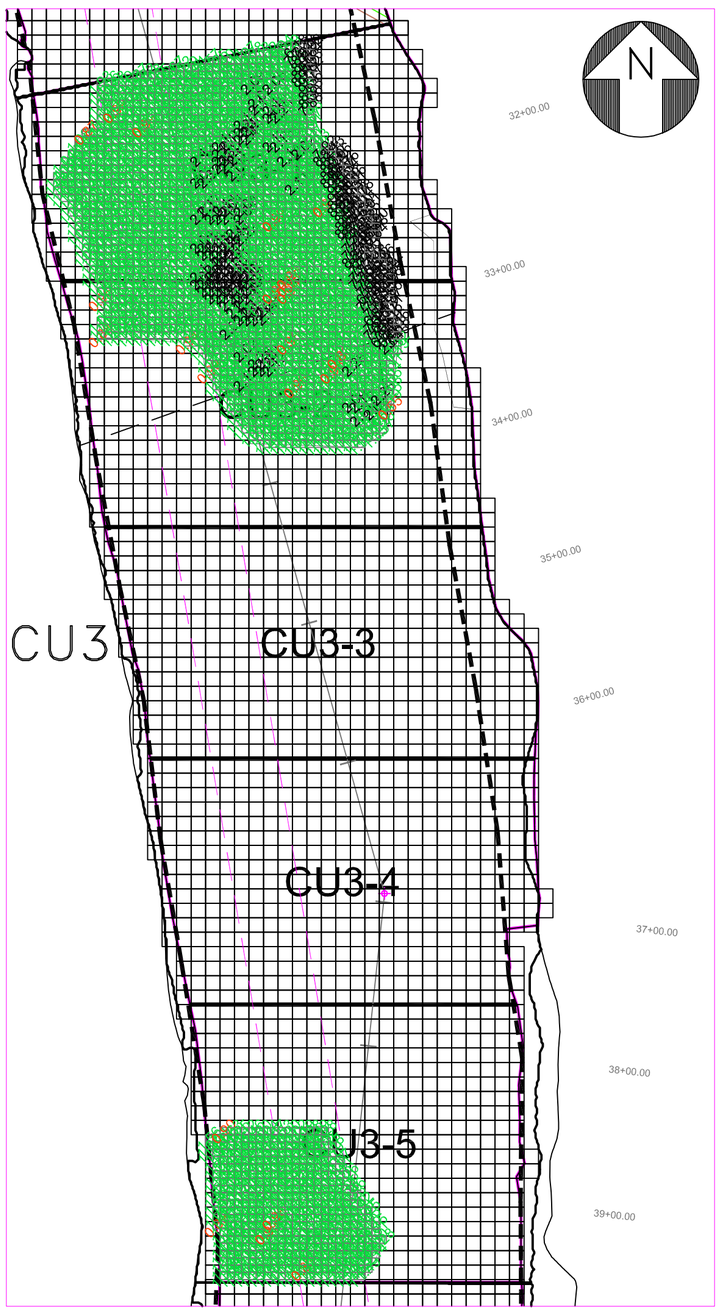
Figures



CU3 TYPE "A" CAP PLACEMENT



CU3 TYPE "A" CAP PLACEMENT



CU3 TYPE "A" CAP LOCATION

LEGEND

- -0.03 — 5x5 GRID WITHIN DESIGN GUIDELINES
- -0.77 — 5x5 GRID LESS THAN DESIGN GUIDELINES
- 1.11 — 5x5 GRID ABOVE DESIGN GUIDELINES
- ROCK/REFUSAL ENCOUNTERED VIA INVENTORY 1 DREDGING AS OF (JULY 2009)
- NEARSHORE BOUNDARY
- CU BOUNDARY
- CU SUBUNIT BOUNDARY

NOTES:

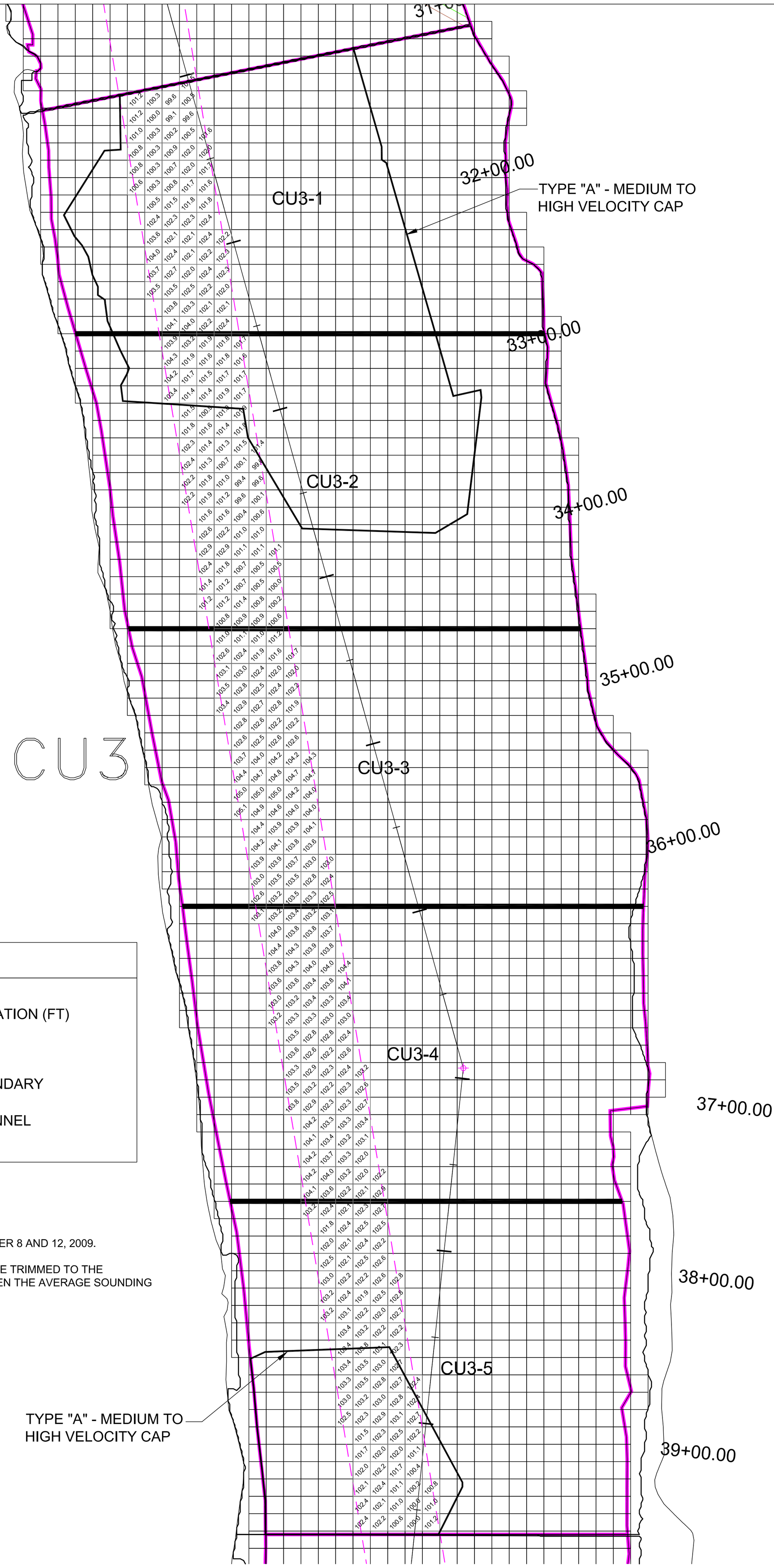
1. OSI MULTIBEAM SURVEYS ON OCTOBER 28 AND NOVEMBER 8, 2009.
2. CAP THICKNESS IS LISTED IN 5'x5' GRIDS.
3. TYPE "A" LOW VELOCITY CAP THICKNESS ALSO INCLUDES PLACEMENT OF 15% BACKFILL MATERIAL.

CU3
TYPE "A" CAP
ACCEPTANCE SURVEY

PARSONS
COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40–1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746–5311

DRAWING TITLE			
CU3 TYPE "A" CAP ACCEPTANCE SURVEY			
DRAWN BY: JHG	CHECKED BY: MG	DRAWING NO.: CU3–1	SCALE: AS SHOWN
DATE: 11/17/09	APPROVED BY: MG		JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\CAP TYPE A – LOW(5X5)\CU3–1 CAP TYPE A – 5X5 (MED–HIGH).DWG
PLOT DATE: 11/17/2009 11:30 AM PLOTTED BY: 48606



LEGEND

- 104.5 — 10'x10' GRID ELEVATION (FT)
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- NAVIGATION CHANNEL

NOTES:

1. OSI MULTIBEAM SURVEYS ON NOVEMBER 8 AND 12, 2009.
2. NAVIGATION CHANNEL ELEVATIONS ARE TRIMMED TO THE NAVIGATION CHANNEL BOUNDARY, THEN THE AVERAGE SOUNDING IN EACH 10'x10' GRID CELL IS SHOWN.

0 30' 60'

CU3
NAVIGATIONAL CHANNEL ELEVATIONS POST BACKFILL AND CAP PLACEMENT

PARSONS
COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40-1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746-5311

DRAWN BY: JHG	CHECKED BY: MG	DRAWING NO.: CU3-3	SCALE: AS SHOWN
DATE: 11/17/09	APPROVED BY: MG		JOB: 442209.01401

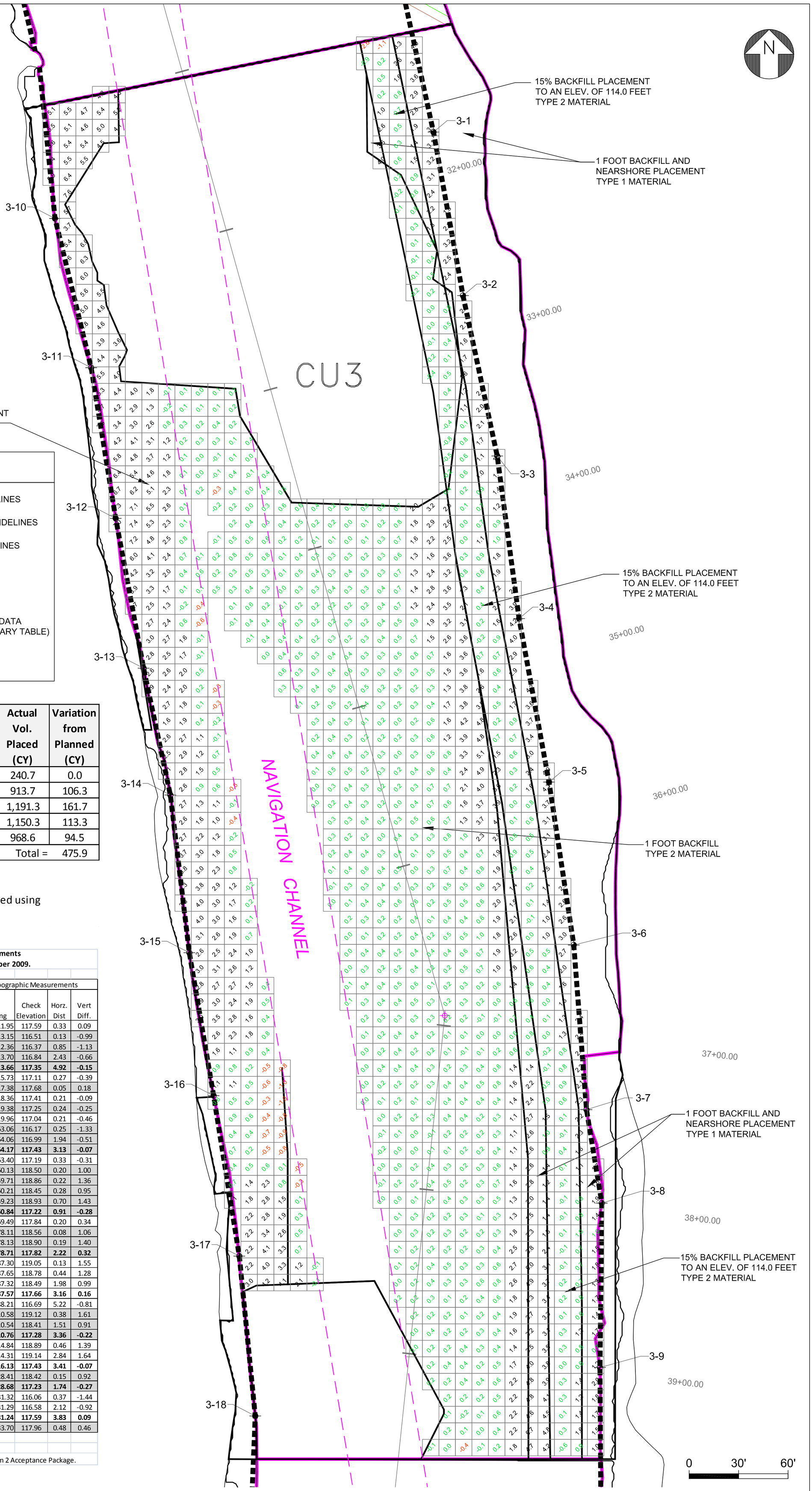
DRAWING TITLE: CU3 NAV CHANNEL ELEVATIONS POST BACKFILL AND CAP PLACEMENT

FILE NAME: E:\FORT EDWARD\PARSONS\BACKFILL ACCEPTANCE\1FT BKFL 10X10 CU3-3 NAV CHANNEL ELEV.DWG
PLOT DATE: 11/17/2009 11:35 AM PLOTTED BY: 48606

15% Volume Table

Area	15% Volume Placed (CY)
CU-3 15%	4,504

Notes.
1. Volume calculations are based on data collected through the 11th of November 2009.
2. Volumes were computed using 1' x 1' cell center average data sets. In areas where the near-shore prism slope did not extend underneath the 15% backfill areas, additional slopes were added.
3. Volumes were computed using HYPACK, Inc. 2008 TIN to TIN method.
4. The volume information presented in this table are the results of multibeam surveys performed by Ocean Surveys, Inc. on the survey dates indicated and can only be considered representative of the conditions existing during that time.



LEGEND

- 10x10 GRID WITHIN DESIGN GUIDELINES (-0.03)
- 10x10 GRID LESS THAN DESIGN GUIDELINES (-0.77)
- 10x10 GRID ABOVE DESIGN GUIDELINES (1.11)
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- 3-11 NEARSHORE BORDER SET POINT (DATA CONTAINED IN NEARSHORE SUMMARY TABLE)
- NEARSHORE BORDER (117.5 FEET)

Subunit	Average Thickness (ft)	Approx. Area (acre)	Intended Vol. Placed (CY)	Actual Vol. Placed (CY)	Variation from Planned (CY)
CU3-1	1.00	0.15	240.7	240.7	0.0
CU3-2	1.13	0.50	807.4	913.7	106.3
CU3-3	1.16	0.64	1,029.6	1,191.3	161.7
CU3-4	1.11	0.64	1,037.0	1,150.3	113.3
CU3-5	1.11	0.54	874.1	968.6	94.5
				Total =	475.9

Notes:
Average thickness and volumes were computed using 10x10 cell center average data sets.

CU-3 Near-Shore Topographic Measurements
Collected on the 11th and 12th of November 2009.

Published Near-Shore Border Set Points				Near-Shore Topographic Measurements				
Name	Easting	Northing	Target Elevation	Easting	Northing	Check Elevation	Horz. Dist	Vert Diff.
3-1	736,296.72	1,614,412.28	117.5	736,296.73	1,614,411.95	117.59	0.33	0.09
3-2	736,314.60	1,614,313.18	117.5	736,314.73	1,614,313.15	116.51	0.13	-0.99
				736,314.37	1,614,312.36	116.37	0.85	-1.13
				736,316.98	1,614,313.70	116.84	2.43	-0.66
				736,319.50	**1,614,313.66**	**117.35**	**4.92**	**-0.15**
3-3	736,335.34	1,614,216.00	117.5	736,335.37	1,614,215.73	117.11	0.27	-0.39
3-4	736,348.58	1,614,117.42	117.5	736,348.62	1,614,117.38	117.68	0.05	0.18
3-5	736,366.73	1,614,018.36	117.5	736,366.94	1,614,018.36	117.41	0.21	-0.09
3-6	736,381.73	1,613,919.61	117.5	736,381.81	1,613,919.38	117.25	0.24	-0.25
3-7	736,389.45	1,613,819.80	117.5	736,389.59	1,613,819.96	117.04	0.21	-0.46
3-8	736,398.73	1,613,763.17	117.5	736,398.51	1,613,763.06	116.17	0.25	-1.33
				736,400.46	1,613,764.06	116.99	1.94	-0.51
				736,401.69	**1,613,764.17**	**117.43**	**3.13**	**-0.07**
3-9	736,397.62	1,613,663.54	117.5	736,397.32	1,613,663.40	117.19	0.33	-0.31
3-10	736,067.36	1,614,359.93	117.5	736,067.34	1,614,360.13	118.50	0.20	1.00
				736,064.88	1,614,359.71	118.86	0.22	1.36
				736,067.03	1,614,360.21	118.45	0.28	0.95
				736,064.88	1,614,359.23	118.93	0.70	1.43
				736,069.99	**1,614,360.84**	**117.22**	**0.91**	**-0.28**
3-11	736,089.25	1,614,269.50	117.5	736,089.45	1,614,269.49	117.84	0.20	0.34
3-12	736,104.12	1,614,178.18	117.5	736,104.08	1,614,178.11	118.56	0.08	1.06
				736,103.94	1,614,178.13	118.90	0.19	1.40
				736,106.28	**1,614,178.71**	**117.82**	**2.22**	**0.32**
3-13	736,121.03	1,614,087.37	117.5	736,120.92	1,614,087.30	119.05	0.13	1.55
				736,121.36	1,614,087.65	118.78	0.44	1.28
				736,123.01	1,614,087.32	118.49	1.98	0.99
				736,124.19	**1,614,087.57**	**117.66**	**3.16**	**0.16**
				736,126.18	1,614,088.21	116.69	5.22	-0.81
3-14	736,137.26	1,614,010.52	117.5	736,136.89	1,614,010.58	119.12	0.38	1.61
				736,138.77	1,614,010.54	118.41	1.51	0.91
				736,140.61	**1,614,010.76**	**117.28**	**3.36**	**-0.22**
3-15	736,148.76	1,613,914.92	117.5	736,148.31	1,613,914.84	118.89	0.46	1.39
				736,145.99	1,613,914.31	119.14	2.84	1.64
				736,151.94	**1,613,916.13**	**117.43**	**3.41**	**-0.07**
3-16	736,163.48	1,613,828.29	117.5	736,163.57	1,613,828.41	118.42	0.15	0.92
				736,165.18	**1,613,828.68**	**117.23**	**1.74**	**-0.27**
3-17	736,179.04	1,613,731.04	117.5	736,178.80	1,613,731.32	116.06	0.37	-1.44
				736,176.93	1,613,731.29	116.58	2.12	-0.92
				736,175.21	**1,613,731.24**	**117.59**	**3.83**	**0.09**
3-18	736,188.70	1,613,634.17	117.5	736,188.82	1,613,633.70	117.96	0.48	0.46

Notes.
Additional Topographic Measurements provided as part of CU3 Form 2 Acceptance Package.

NOTES:

1. OSI MULTIBEAM SURVEYS ON NOVEMBER 8 AND 12, 2009.

CU3
1 FOOT BACKFILL, 15% BACKFILL, AND NEARSHORE PLACEMENT ACCEPTANCE SURVEY

PARSONS
COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40-1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746-5311

DRAWING TITLE			
CU3 BACKFILL PLACEMENT ACCEPTANCE SURVEY			
DRAWN BY: JHG	CHECKED BY: MG	DRAWING NO.: CU3-2	VERSION: A
DATE: 11/17/09	APPROVED BY: MG	SCALE: AS SHOWN	JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\BACKFILL ACCEPTANCE\1FT BKFL 10X10 CU3-2.DWG
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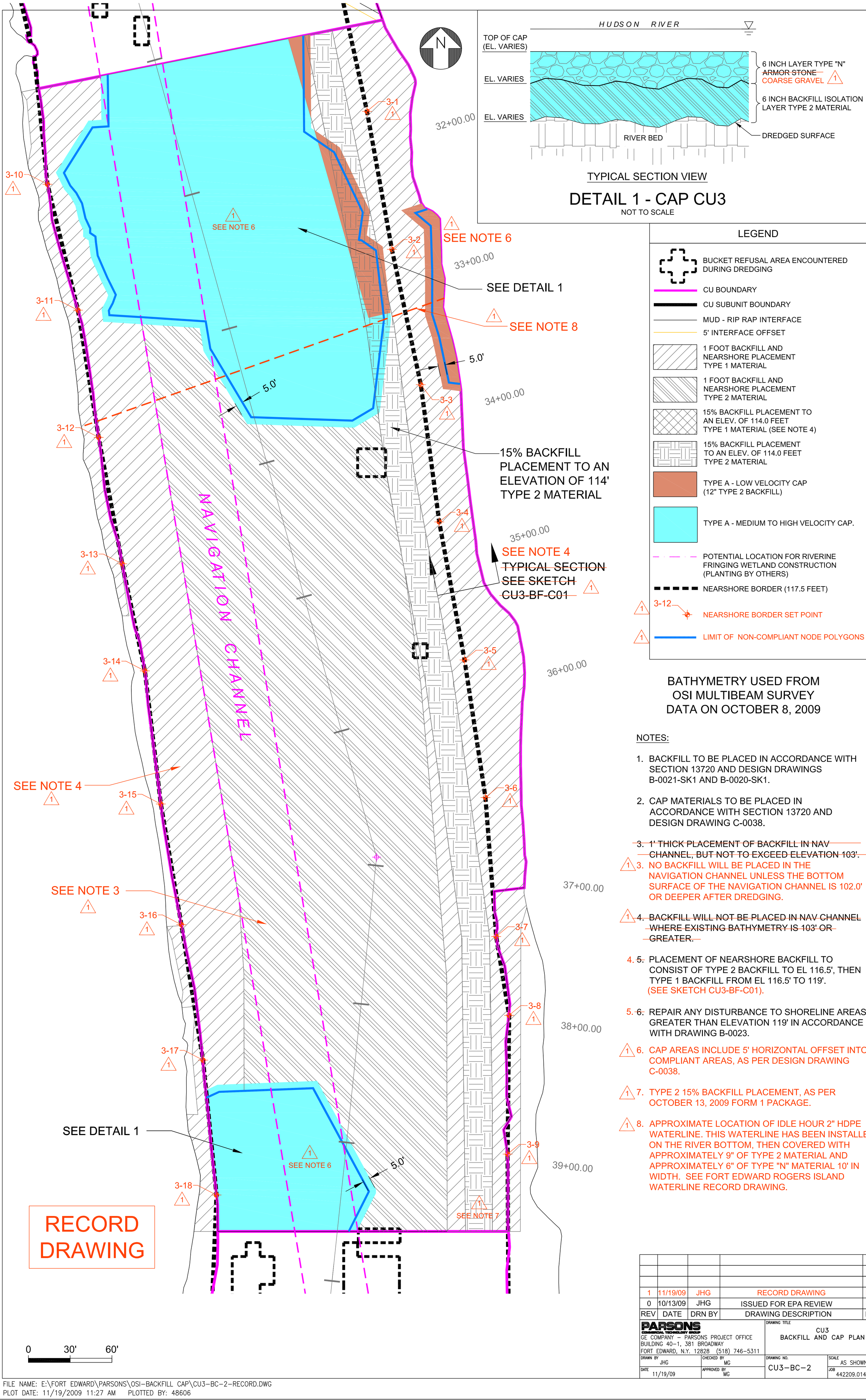


TYPICAL SECTION VIEW

DETAIL 1 - CAP CU3

NOT TO SCALE

LEGEND

- BUCKET REFUSAL AREA ENCOUNTERED DURING DREDGING
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET
- 1 FOOT BACKFILL AND NEARSHORE PLACEMENT TYPE 1 MATERIAL
- 1 FOOT BACKFILL AND NEARSHORE PLACEMENT TYPE 2 MATERIAL
- 15% BACKFILL PLACEMENT TO AN ELEV. OF 114.0 FEET TYPE 1 MATERIAL (SEE NOTE 4)
- 15% BACKFILL PLACEMENT TO AN ELEV. OF 114.0 FEET TYPE 2 MATERIAL
- TYPE A - LOW VELOCITY CAP (12" TYPE 2 BACKFILL)
- TYPE A - MEDIUM TO HIGH VELOCITY CAP.
- POTENTIAL LOCATION FOR RIVERINE FRINGING WETLAND CONSTRUCTION (PLANTING BY OTHERS)
- NEARSHORE BORDER (117.5 FEET)
- 1 3-12 NEARSHORE BORDER SET POINT
- 1 LIMIT OF NON-COMPLIANT NODE POLYGONS

BATHYMETRY USED FROM OSI MULTIBEAM SURVEY DATA ON OCTOBER 8, 2009

NOTES:

1. BACKFILL TO BE PLACED IN ACCORDANCE WITH SECTION 13720 AND DESIGN DRAWINGS B-0021-SK1 AND B-0020-SK1.
2. CAP MATERIALS TO BE PLACED IN ACCORDANCE WITH SECTION 13720 AND DESIGN DRAWING C-0038.
3. ~~1' THICK PLACEMENT OF BACKFILL IN NAV CHANNEL, BUT NOT TO EXCEED ELEVATION 103'.~~
1 3. NO BACKFILL WILL BE PLACED IN THE NAVIGATION CHANNEL UNLESS THE BOTTOM SURFACE OF THE NAVIGATION CHANNEL IS 102.0' OR DEEPER AFTER DREDGING.
1 4. ~~BACKFILL WILL NOT BE PLACED IN NAV CHANNEL WHERE EXISTING BATHYMETRY IS 103' OR GREATER.~~
4. ~~5.~~ PLACEMENT OF NEARSHORE BACKFILL TO CONSIST OF TYPE 2 BACKFILL TO EL 116.5', THEN TYPE 1 BACKFILL FROM EL 116.5' TO 119'. (SEE SKETCH CU3-BF-C01).
5. ~~6.~~ REPAIR ANY DISTURBANCE TO SHORELINE AREAS GREATER THAN ELEVATION 119' IN ACCORDANCE WITH DRAWING B-0023.
1 6. CAP AREAS INCLUDE 5' HORIZONTAL OFFSET INTO COMPLIANT AREAS, AS PER DESIGN DRAWING C-0038.
1 7. TYPE 2 15% BACKFILL PLACEMENT, AS PER OCTOBER 13, 2009 FORM 1 PACKAGE.
1 8. APPROXIMATE LOCATION OF IDLE HOUR 2" HDPE WATERLINE. THIS WATERLINE HAS BEEN INSTALLED ON THE RIVER BOTTOM, THEN COVERED WITH APPROXIMATELY 9" OF TYPE 2 MATERIAL AND APPROXIMATELY 6" OF TYPE "N" MATERIAL 10' IN WIDTH. SEE FORT EDWARD ROGERS ISLAND WATERLINE RECORD DRAWING.

RECORD DRAWING

0 30' 60'

REV	DATE	DRN BY	DRAWING DESCRIPTION	PM
1	11/19/09	JHG	RECORD DRAWING	MG
0	10/13/09	JHG	ISSUED FOR EPA REVIEW	MG

PARSONS COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40–1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746–5311

DRAWING TITLE: CU3 BACKFILL AND CAP PLAN

DRAWN BY	CHECKED BY	DRAWING NO.	SCALE
JHG	MG	CU3–BC–2	AS SHOWN
DATE: 11/19/09	APPROVED BY: MG		JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\OSI–BACKFILL CAP\CU3–BC–2–RECORD.DWG
PLOT DATE: 11/19/2009 11:27 AM PLOTTED BY: 48606

CU2-4

CU2-5

30+00

RM 194

CU3-1

CU3-2

CU_3

CU3-3

35+00

RM 193.9

CU3-4

PI 36+94.02

CU3-5

40+00

CU4-1

CU4-2

RM 193.8

45+00

CU4-3

PI 42+94.02

LEGEND

107.1 ELEVATION OF RIVER BOTTOM

SHORELINE

CHANNEL

CU_XX CERTIFICATION UNIT (TYP)

CERTIFICATION SUBUNIT

RM 190 RIVER MILE

250+00 BASELINE WITH STATIONING

DEPTH OF WATER BELOW 119' NAVD88 (FEET)

0
2
4
6
8
10
12
14
16
18
20+

NOTES

1. GRID SYSTEM IS THE NEW YORK EAST STATE PLANE COORDINATE SYSTEM, NAD 83.
2. ELEVATIONS ARE IN FEET AND ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88) BASED ON BENCHMARK "GE-HR-07R" HAVING AN ELEVATION OF 131.89' NAVD88 AS PROVIDED BY PARSONS. "GE-HR-07R" IS A CHISELED "X" ON AN ALUMINUM CAP AT LOCK 7.
3. COLORIZED DEPTH MAP IMAGERY WAS CREATED FROM A GRID OF 1' BY 1' CELLS POSTED WITH THE AVERAGE DEPTH AT THE CELL CENTER X,Y LOCATION.
4. ELEVATIONS REPRESENT THE AVERAGE ELEVATION IN A 10' BY 10' CELL AND ARE POSTED IN THE CENTER OF THE CELL. 10' BY 10' GRID ORIGINS WERE PROVIDED BY PARSONS.
5. BASEMAP FEATURES ARE APPROXIMATE AND WERE OBTAINED FROM DRAWINGS PROVIDED BY ARCADIS.
6. ORTHOPHOTO IMAGERY IS NATURAL COLOR ORTHOPHOTOGRAPHY FLOWN IN 2003 AND WAS PROVIDED BY QEA.
7. DREDGING OPERATION INFORMATION WAS PROVIDED BY CASHMAN DREDGING AND MARINE CONSTRUCTION CO., LLC.
8. REFER TO PREVIOUSLY PROVIDED DREDGE PRISM FOR TARGET ELEVATIONS.
9. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY OCEAN SURVEYS, INC. ON OR BEFORE THE DATE ON THIS DRAWING AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THOSE TIMES. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO OSI.

SURVEY VESSEL:	DEPTH SOUNDER:
R/V ECHO	RESON SEABAT 8125

NAVIGATION SYSTEM: APPLANIX POS MV IN REAL TIME KINEMATIC MODE

SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2008

SURVEY PROCESSING SOFTWARE: HYPACK MULTIBEAM EDITOR VERSION 2008

SCALE IN FEET

50 0 50 100 150

CHECK GRAPHIC SCALE BEFORE USING

OCEAN SURVEYS, INC.

OLD SAYBROOK, CONNECTICUT

(860) 388-4631

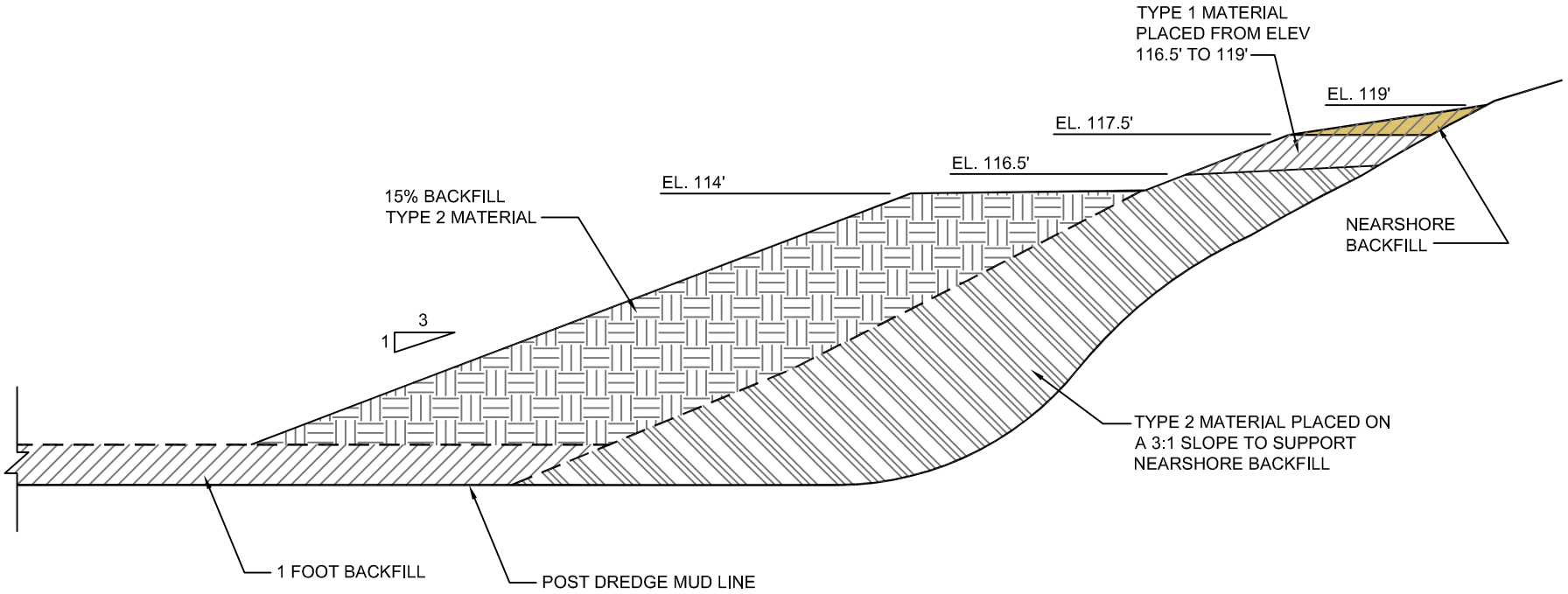
www.oceansurveys.com

CU03 - POST BACKFILL PLACEMENT

HUDSON RIVER, NEW YORK

HUDSON RIVER SEDIMENT REMEDIATION PHASE 1 PROJECT

OSI PROJECT NUMBER:	CURRENT THROUGH SURVEY DATE:	DRAWING:	ISSUE NO.:
09ES022	12 NOVEMBER 2009	PBP-CU03	1



CU3 NEAR SHORE BACKFILL WITH 15% BACKFILL TO ELEV 114' PLACEMENT DETAIL

TYPICAL SECTION NOT TO SCALE

RECORD DRAWING

PARSONS
COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40–1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746–5311

DRAWING TITLE: CU3 NEAR SHORE BACKFILL WITH 15% BACKFILL PLACEMENT DETAIL			
DRAWN BY: JHG	CHECKED BY: MG	DRAWING NO.: CU3–BF–C01	SCALE: NOT TO SCALE
DATE: 10/13/09	APPROVED BY: MG		JOB: 442209

FILE NAME: E:\FORT EDWARD\PARSONS\OSI–BACKFILL CAP\CU3–BC–2–RECORD.DWG
PLOT DATE: 11/19/2009 10:23 AM PLOTTED BY: 48606

Correspondence

(Letters and Emails)

Galbraith, Michael

From: King.David@epamail.epa.gov
Sent: Saturday, November 14, 2009 9:36 AM
To: Andrew Inglis
Cc: Michael J. Johnson; Timothy Kruppenbacher; Galbraith, Michael; Bryan Minor; Gary Klawinski; Joseph Moloughney
Subject: Re: Discussions regarding CU Backfill and Cap placement

Andrew, I agree with summary.
Dave
Sent by EPA Wireless E-Mail Services

From: "Inglis, Andrew A (GE, Corporate)" [andrew.inglis@ge.com]
Sent: 11/13/2009 05:13 PM EST
To: David King
Cc: <MJohnson@louisberger.com>; "Kruppenbacher, Timothy A (GE, Corporate)" <timothy.kruppenbacher@ge.com>; <michael.galbraith@parsons.com>; <USACE_HRFO@roadrunner.com>; <GKlawinski@ene.com>; "Joseph Moloughney" <Joseph_Moloughney@canals.state.ny.us>
Subject: Discussions regarding CU Backfill and Cap placement

Dave,
Today and yesterday we met and reviewed progress surveys of cap and backfill placement in CUs 1, 2, 3, 4, 7 and 18. This email confirms decisions made during the meeting based on reviews of the maps presented during the meeting.

CU1.
In CU1 it was agreed that sufficient thickness of isolation layer material has been placed while providing enough room to place armor stone below the 105.2' elevation in the navigation channel. It was agreed that placement of armor stone can begin.

CU2.
In CU2 it was agreed that the top of cap and backfill elevations were acceptable. GE will prepare a Form 2 package for EPA review.

CU3 .
In CU3 it was agreed that the top of cap and backfill elevations were acceptable, it was discussed that GE was in the process of placing backfill in an area of the navigation channel where the post dredge elevations were below 102' elevation. Once GE has surveyed that additional backfill location GE will prepare a Form 2 package for EPA review.

CU4.
In CU4 it was agreed that the top of cap elevations in the north east quarter of the CU was acceptable and that backfill placment in that area may begin.

CU7.
In CU7 it was agreed that the top of cap and backfill elevations were acceptable. GE will prepare a Form 2 package for EPA review.

CU18
In CU18 it was agreed that the top of cap elevations were acceptable in both of the cap locations in that CU.

Please let me know if I missed anything.

Thanks,

Andrew A. Inglis
Dredging Task Leader
GE

T +1 518-746-5256

381 Broadway
Building 40-2
Fort Edward, NY 12828
GE Corporate Environmental Programs

GE Imagination at Work

CU-04

Form 2

CU Certification of Completion

CU BACKFILL/ENGINEERED CAP COMPLETION APPROVAL - FORM 2

Reporting Date	11/24/2009			**Placement Start Date**	11/4/2009
CU Number	4			**Placement End Date**	11/21/2009
Approximate CU Centroid	**Northing**	1613165.797	**Easting**	736117.609	NY State NAD 83
CU Size	4.51	Acres			
Backfill Area	0.98	Acres*			
Cap Area	3.53	Acres			

Backfill Surface Mean Tri+ PCBs Concentration (when required)	NA	**mg/kg**
Number of nodes sampled	NA	**mg/kg**

Backfill	**Type of Backfill**	**Reference to appropriate drawings attached to Approval Form 1**
X	Type 1, Type 2, Nearshore, 15%	CU4 Backfill and Cap Plan, 11/3/09
Cap	**Type of Cap**	**Reference to appropriate drawings attached to Approval Form 1**
X	Type "A" Medium-High Velocity Cap Tye "A" Low Velocity Cap Type "B" High Velocity Cap Type "B" Medium Velocity Cap Type "B" Low Velocity Cap	CU4 Backfill and Cap Plan, 11/3/09

CU Checklist	**Indicate one of the following**		**Reviewer Initial Acceptance**			
Item	**Attached**	**Not Applicable**		**GE**		**EPA**
Drawing of Installed Backfill/Cap (with record details, thickness and sample locations [when backfill/cap are placed])	X					
Where applicable in backfill areas provide the following: Sample locations (coordinates), depths, Aroclor and Tri+ PCB concentrations collected including analytical data, field observations, (hard copy and electronic copies [in database format or equivalent]		X				

Comments

Refer to CU4 Narrative Summary of Backfill and Capping and CU4 Backfill Placement Drawings.
*Backfill Area does not include 15% backfill material placed over Cap Area.

Upon signing this document, GE certifies that the backfill/cap has been installed satisfactorily and that no further backfill placement or capping is required for this CU. These remedial activities exclude long term operation, monitoring, maintenance and adaptive management at the CU. EPA accepts this certification.

Signature of GE Representative	**Signature of EPA Representative**
Signature	Signature
Name	Name
Date	Date

Narrative

CU 4

Narrative Summary of Backfill and Capping and

EPA Backfill and Capping Agreements

1.0 Cap Placement

Type "A" Medium to High Velocity, Type "A" Low Velocity, Type "B" High Velocity, Type "B" Medium Velocity and Type "B" Low Velocity Caps were placed in accordance with the CU 4 Backfill and Cap Plan drawing, dated November 3, 2009, which was provided to EPA as part of the CU 4 Form 1 package. Final multi-beam bathymetric surveys of the Type "A" Caps was performed on November 18, 2009, as shown on the attached CU 4 Type "A" Cap Acceptance Survey map, dated November 23, 2009. The surveyed cap thickness on a 5'x5' grid is shown for all areas of Type "A" Caps. Final multi-beam bathymetric surveys of the Type "B" isolation layers were performed on November 12 and 13, 2009, as shown on the attached CU 4 Type "B" Cap Isolation Layer Acceptance Survey map, dated November 23, 2009. The surveyed isolation layer thickness on a 10' x 10' grid is shown for the High Velocity and Medium Velocity Caps and on a 5'x5' grid for the Low Velocity Cap. A multi-beam survey of the armor stone layer of the Type "B" High Velocity and Medium Velocity cap areas was completed on November 13, 16, and 20, 2009, as shown on the attached CU 4 Type "B" Cap Armor Layer Acceptance Survey maps, dated November 23, 2009. The surveyed armor layer thickness on a 5' x 5' grid is shown for the High and Medium Velocity Type "B" cap areas.

2.0 Backfill Placement

In accordance with the CU 4 Backfill and Cap Plan Drawing, dated November 3, 2009, which was provided to EPA as part of the CU 4 Form 1 package, 1-foot Backfill, Nearshore Backfill and 15% Additional Backfill were placed in CU 4. Final multi-beam bathymetric surveys of the backfill materials were performed on November 12 and 19, 2009 as shown on the attached CU 4 Backfill Placement Acceptance Survey map, dated November 23, 2009. The difference to target thickness of the final backfill surface is shown on a 10'x10' grid for the 1-foot Backfill and the 15% Additional Backfill. For Nearshore Backfill, the elevations of the nearshore set points are provided in the table on the attached CU 4 Backfill Placement Acceptance Survey map, dated November 23, 2009.

3.0 EPA Field Agreements Specific to CU 4 Backfill and Capping

1. During the 4:00 PM meeting with EPA on October 12, 2009, EPA agreed that acceptance surveys of partial areas of a CU may be performed and used for acceptance once placement of backfill or cap in those areas is complete.

2. During a meeting with EPA on November 13, 2009, GE presented surveys of the CU 4 Type "A" Caps in the north-east quarter of the CU. It was agreed that the Type "A" Cap placement in that area of CU 4 was acceptable, as shown. (See attached email dated, November 14, 2009.)

3. On November 14, 2009, GE provided surveys of the CU 4 Type "A" Caps in Subunits CU 4-1, 4-2 and 4-3 to EPA via email. In addition, on November 14, 2009 GE provided surveys of the CU 4 Type "B" low velocity cap and isolation layers of the Type "B" medium and high velocity caps to EPA via email. On November 20, 2009, GE provided surveys of the CU 4 Type "A" Caps in all of the CU to EPA via email. EPA informed GE on November 21, 2009, via email, that the cap areas were acceptable. (See attached e-mail dated November 21, 2009.)

4. Final backfill and armor layer placement surveys for CU 4 Type B Caps were provided to EPA on November 23, 2009. EPA agreed that the final backfill and cap surveys were acceptable, as shown, on November 24, 2009.

Figures

CU-04 Near-Shore Topographic Soundings Collected 2009-11-23.

Published Near-Shore Locations				Near-Shore Confirmation				
Name	Easting	Northing	Target Elevation	Easting	Northing	Check Elevation	Horz. Dist	Vert Diff.
4-1	736,398.25	1,613,563.00	117.50	736,398.34	1,613,562.67	117.41	0.34	-0.09
4-2	736,400.13	1,613,464.17	117.50	736,399.74	1,613,463.95	116.37	0.45	-1.13
				736,407.03	**1,613,461.59**	**117.83**	**7.36**	**0.33**
4-3	736,394.27	1,613,365.58	117.50	736,394.05	1,613,365.45	114.46	0.25	-3.05
				736,397.21	**1,613,363.64**	**117.30**	**3.52**	**-0.20**
4-4	736,385.15	1,613,331.81	117.50	736,385.48	1,613,331.64	117.67	0.38	0.17
4-5	736,362.48	1,613,285.52	117.50	736,362.33	1,613,285.32	117.60	0.25	0.10
4-6	736,325.00	1,613,232.00	117.50	736,324.83	1,613,232.38	117.24	0.41	-0.26
4-7	736,287.53	1,613,184.32	117.50	736,287.27	1,613,184.08	117.30	0.35	-0.20
4-8	736,221.80	1,613,107.44	117.50	736,221.51	1,613,107.19	117.33	0.39	-0.17
4-12	736,185.06	1,613,546.06	117.50	736,185.17	1,613,545.98	117.55	0.14	0.05
4-13	736,172.78	1,613,447.00	117.50	736,172.60	1,613,446.94	117.83	0.19	0.33
4-14	736,150.49	1,613,360.51	117.50	736,150.43	1,613,360.35	117.36	0.17	-0.14
4-15	736,115.74	1,613,259.37	117.50	736,116.10	1,613,259.51	117.37	0.39	-0.13
4-16	736,072.13	1,613,192.91	117.50	736,072.11	1,613,193.11	117.74	0.20	0.24
4-17	736,014.57	1,613,114.43	117.50	736,014.81	1,613,114.29	118.77	0.28	1.27
				736,016.44	**1,613,111.02**	**117.64**	**3.89**	**0.14**
4-18	735,962.44	1,613,046.56	117.50	735,962.29	1,613,046.36	117.60	0.25	0.10
4-19	735,908.71	1,612,979.85	117.50	735,908.81	1,612,980.14	117.64	0.30	0.14
4-20	735,853.70	1,612,911.00	117.50	735853.555	1612911.161	117.62	0.22	0.12
4-21	735,800.06	1,612,845.64	117.50	735800.328	1612845.578	118.38	0.28	0.88
				735801.223	**1612845.391**	**117.51**	**1.19**	**0.01**
4-22	735,750.91	1,612,797.09	117.50	735751.342	1612796.858	116.48	0.49	-1.03
				735750.703	**1612799.802**	**117.26**	**2.72**	**-0.24**

CU4 AVERAGE THICKNESS, 1-FOOT BACKFILL

Subunit	Average Thickness (ft)	Approx. Area (acre)	Intended Vol. Placed (CY)	Actual Vol. Placed (CY)	Variation from Planned (CY)
CU-4	1.19	0.89	1433.3	1714.9	281.5

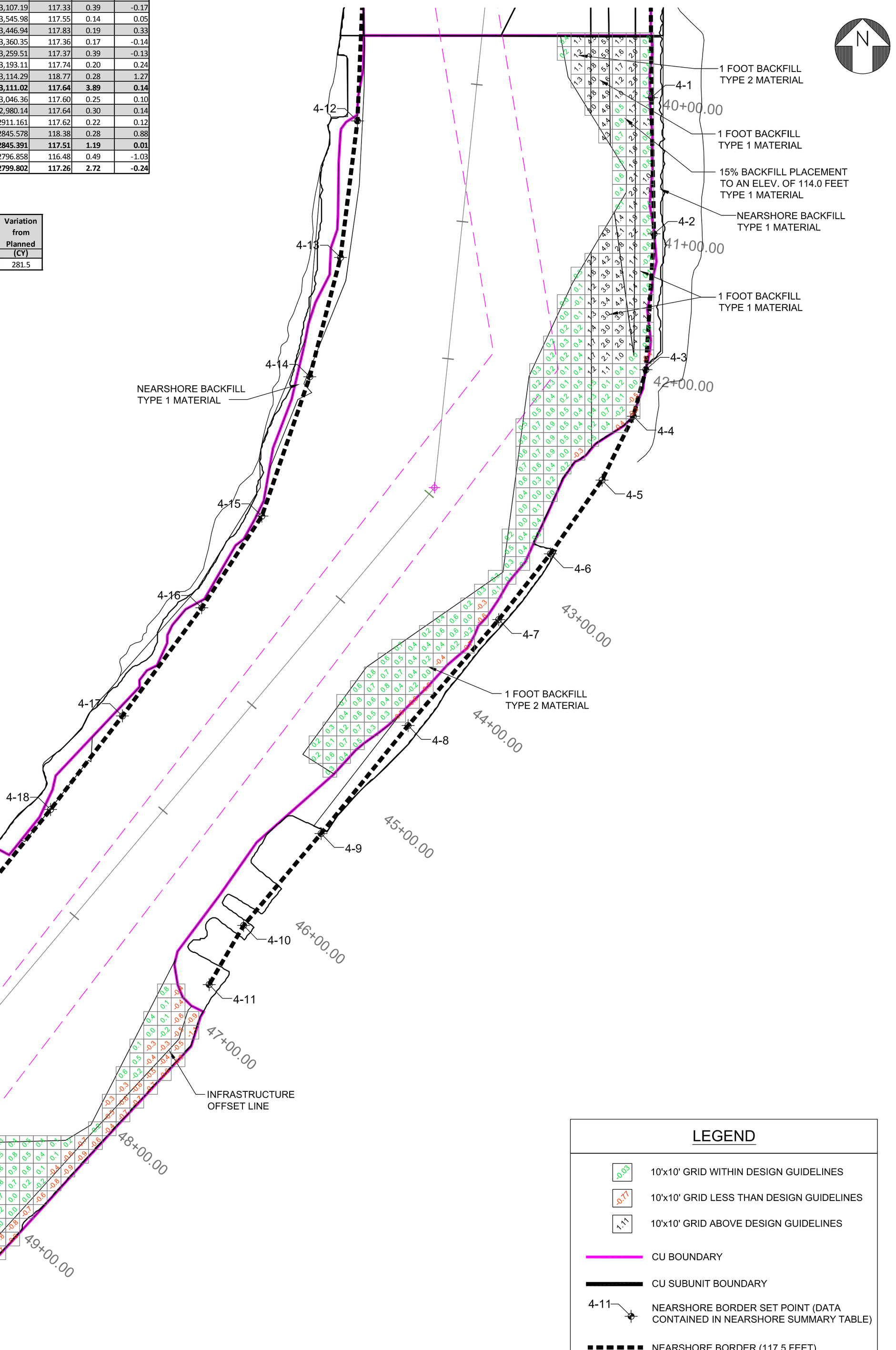
Notes:
Average thickness and volumes were computed using 10x10 cell center average data sets.

CU4-15% Backfill Volume Table

Area	15% Volume Placed
CU-4 15%	1,268

Notes:

1. Volume calculations are based on data collected through the 20th of November 2009.
2. Volumes were computed using 1' x 1' cell center average data sets.
3. Volumes were computed using HYPACK, Inc. 2008 TIN to TIN method.
4. The volume information presented in this table are the results of multibeam surveys performed by Ocean Surveys, Inc. on the survey dates indicated and can only be considered representative of the conditions existing during that time.



LEGEND

- 10'x10' GRID WITHIN DESIGN GUIDELINES (-0.03)
- 10'x10' GRID LESS THAN DESIGN GUIDELINES (-0.77)
- 10'x10' GRID ABOVE DESIGN GUIDELINES (1.11)
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- 4-11 NEARSHORE BORDER SET POINT (DATA CONTAINED IN NEARSHORE SUMMARY TABLE)
- NEARSHORE BORDER (117.5 FEET)

0 40' 80'

NOTES:

1. OSI MULTIBEAM SURVEYS ON NOVEMBER 12 AND 19, 2009.
2. NUMERIC VALUES IN 10'x10' GRID REPRESENT DIFFERENCE TO TARGET THICKNESS (POSITIVE NUMBERS REFLECT THICKNESS ABOVE TARGET THICKNESS). COLORS DETERMINED USING DIFFERENT BACKFILL TOLERANCES DESCRIBED IN SPEC SECTION 13720.

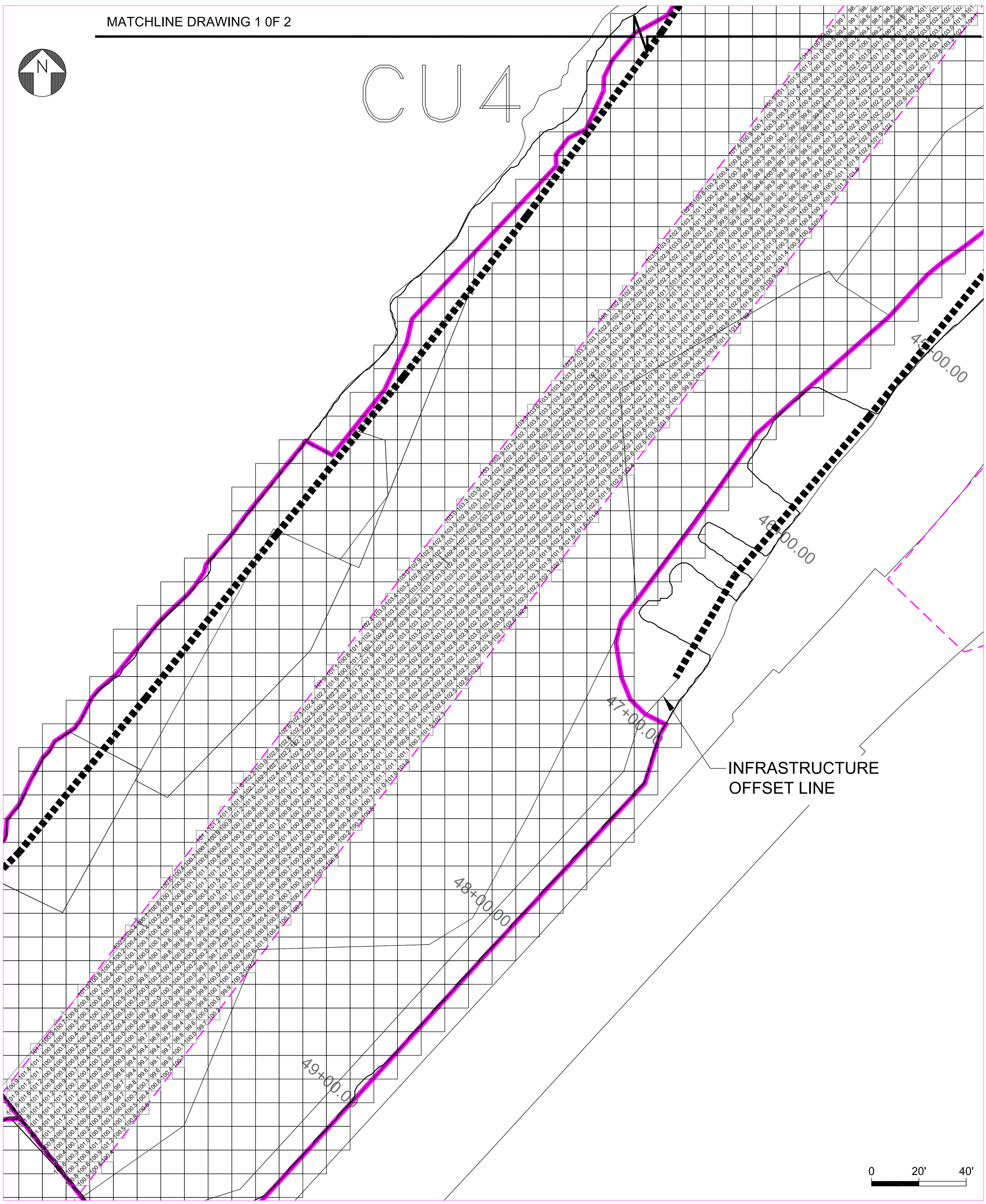
CU4
1 FOOT BACKFILL, 15% BACKFILL, AND NEARSHORE PLACEMENT ACCEPTANCE SURVEY

PARSONS COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40–1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746–5311

DRAWING TITLE			
CU4 BACKFILL PLACEMENT ACCEPTANCE SURVEY			
DRAWN BY: JHG	CHECKED BY: MG	DRAWING NO.: CU4–1A	SCALE: AS SHOWN
DATE: 11/23/09	APPROVED BY: MG		JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\BACKFILL ACCEPTANCE\1FT BKFL 10X10 CU4–1A.DWG
PLOT DATE: 11/23/2009 5:50 PM PLOTTED BY: 48606

MATCHLINE DRAWING 1 0F 2



CU4 POST BACKFILL/CAPPING
NAVIGATION CHANNEL ELEVATIONS

LEGEND

- 104.5 — 5'x5' GRID ELEVATION (FT.) (/NAVD88)
- NEARSHORE BOUNDARY
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET

NOTES:

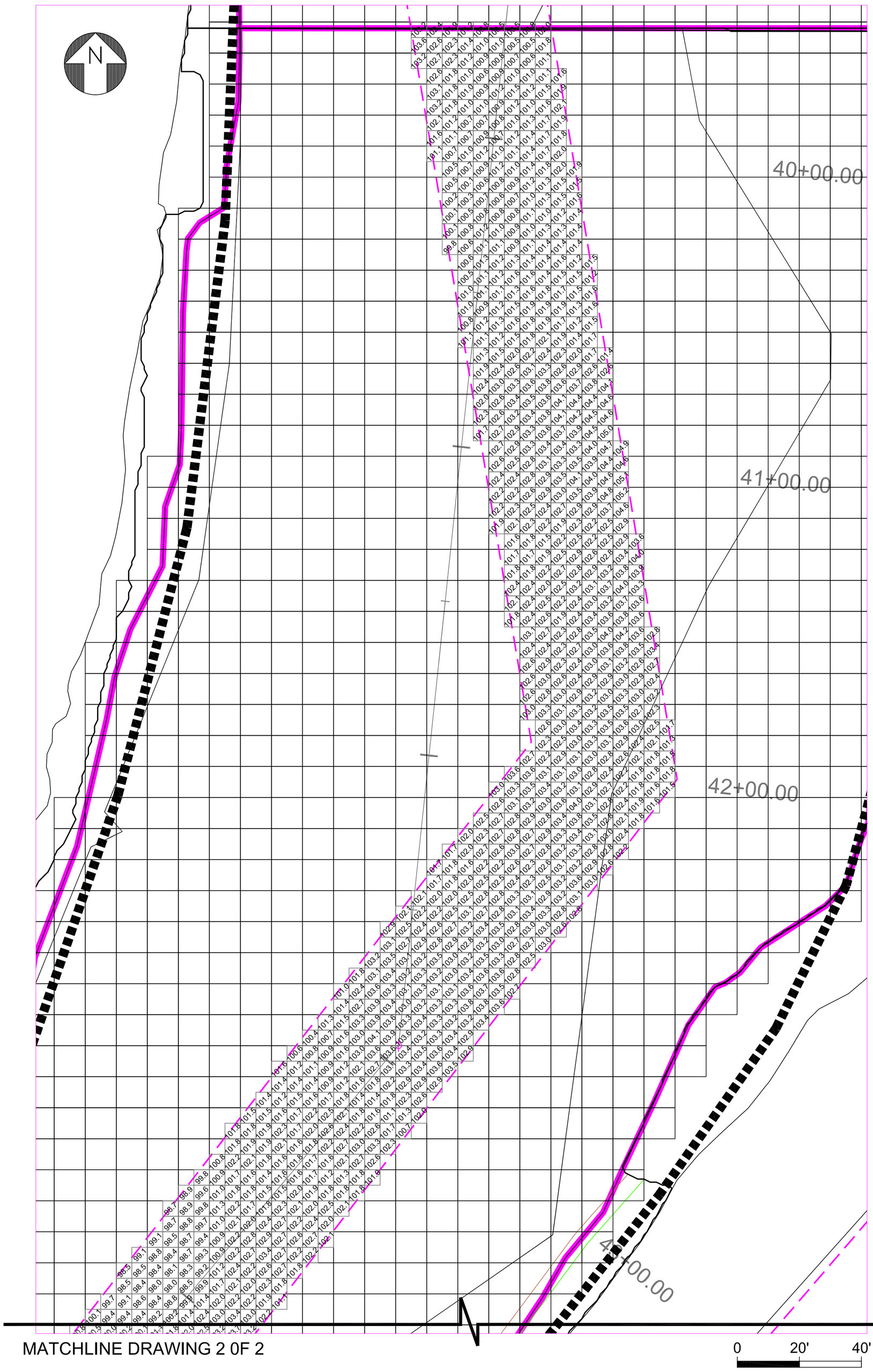
1. OSI MULTIBEAM SURVEY ON NOVEMBER 18, 2009.
2. NAVIGATION CHANNEL ELEVATIONS ARE SHOWN ON 5'x5' GRIDS.

DRAWING 2 OF 2

PARSONS
COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40–1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746–5311

DRAWING TITLE			
CU4 NAVIGATION CHANNEL ELEVATIONS			
DRAWN BY: JHG	CHECKED BY: MG	DRAWING NO.: CU4–1–2	VERSION: A
DATE: 11/23/09	APPROVED BY: MG	SCALE: AS SHOWN	JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\ACC_DWG\CU4–1 NAV CHANNEL.DWG
PLOT DATE: 11/23/2009 5:41 PM PLOTTED BY: 48606



CU4 POST BACKFILL/CAPPING
NAVIGATION CHANNEL ELEVATIONS

NOTES:

1. OSI MULTIBEAM SURVEY ON NOVEMBER 18, 2009.
2. NAVIGATION CHANNEL ELEVATIONS ARE SHOWN ON 5'x5' GRIDS.

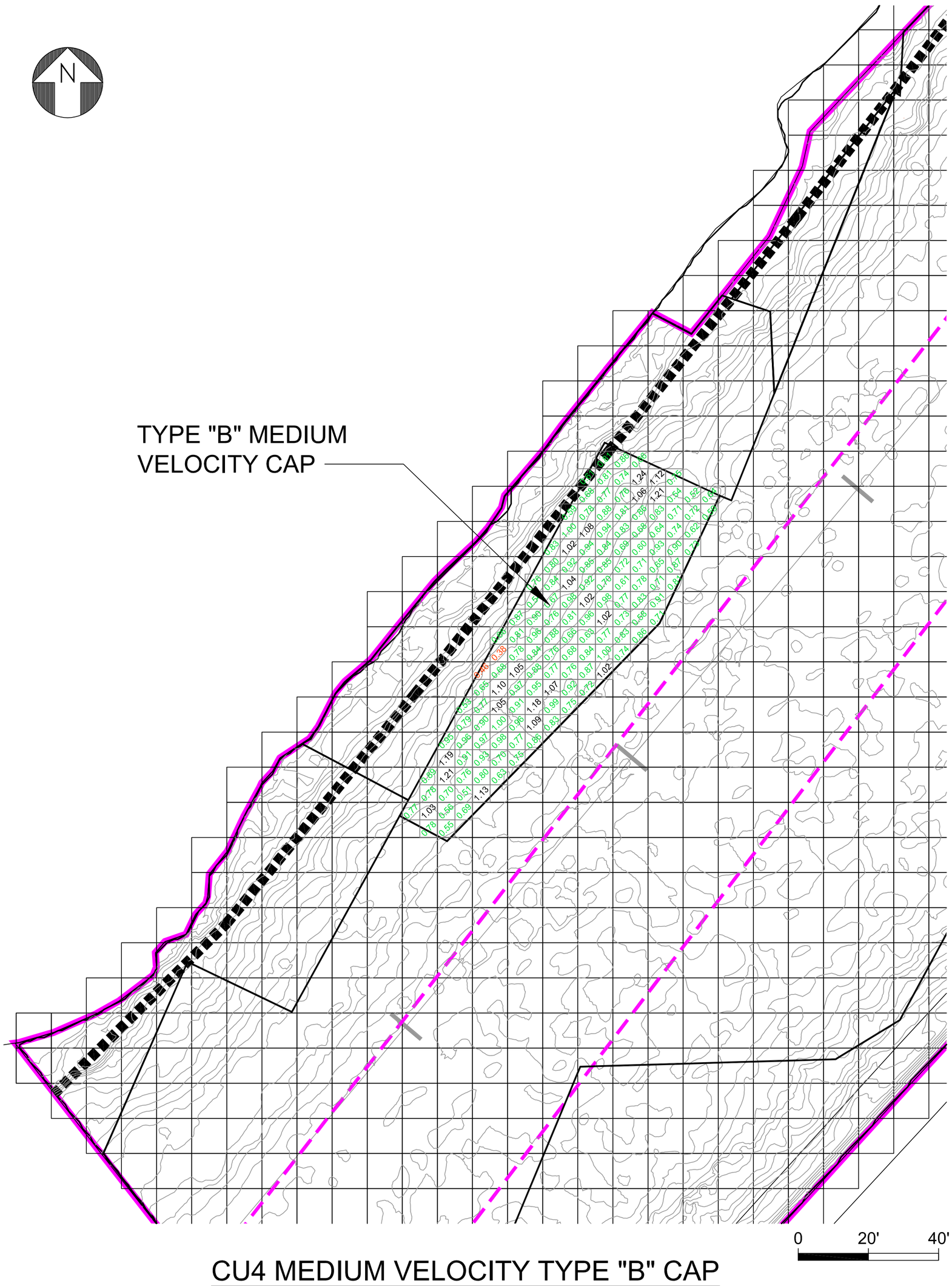
LEGEND	
104.5	5'x5' GRID ELEVATION (FT.) (/NAVD88)
	NEARSHORE BOUNDARY
	CU BOUNDARY
	CU SUBUNIT BOUNDARY
	MUD - RIP RAP INTERFACE
	5' INTERFACE OFFSET

DRAWING 1 OF 2

PARSONS
COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40–1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746–5311

DRAWING TITLE			
CU4 NAVIGATION CHANNEL ELEVATIONS			
DRAWN BY: JHG	CHECKED BY: MG	DRAWING NO.: CU4–1–1	SCALE: AS SHOWN
DATE: 11/23/09	APPROVED BY: MG		JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\ACC_DWG\CU4–1 NAV CHANNEL.DWG
PLOT DATE: 11/23/2009 5:45 PM PLOTTED BY: 48606



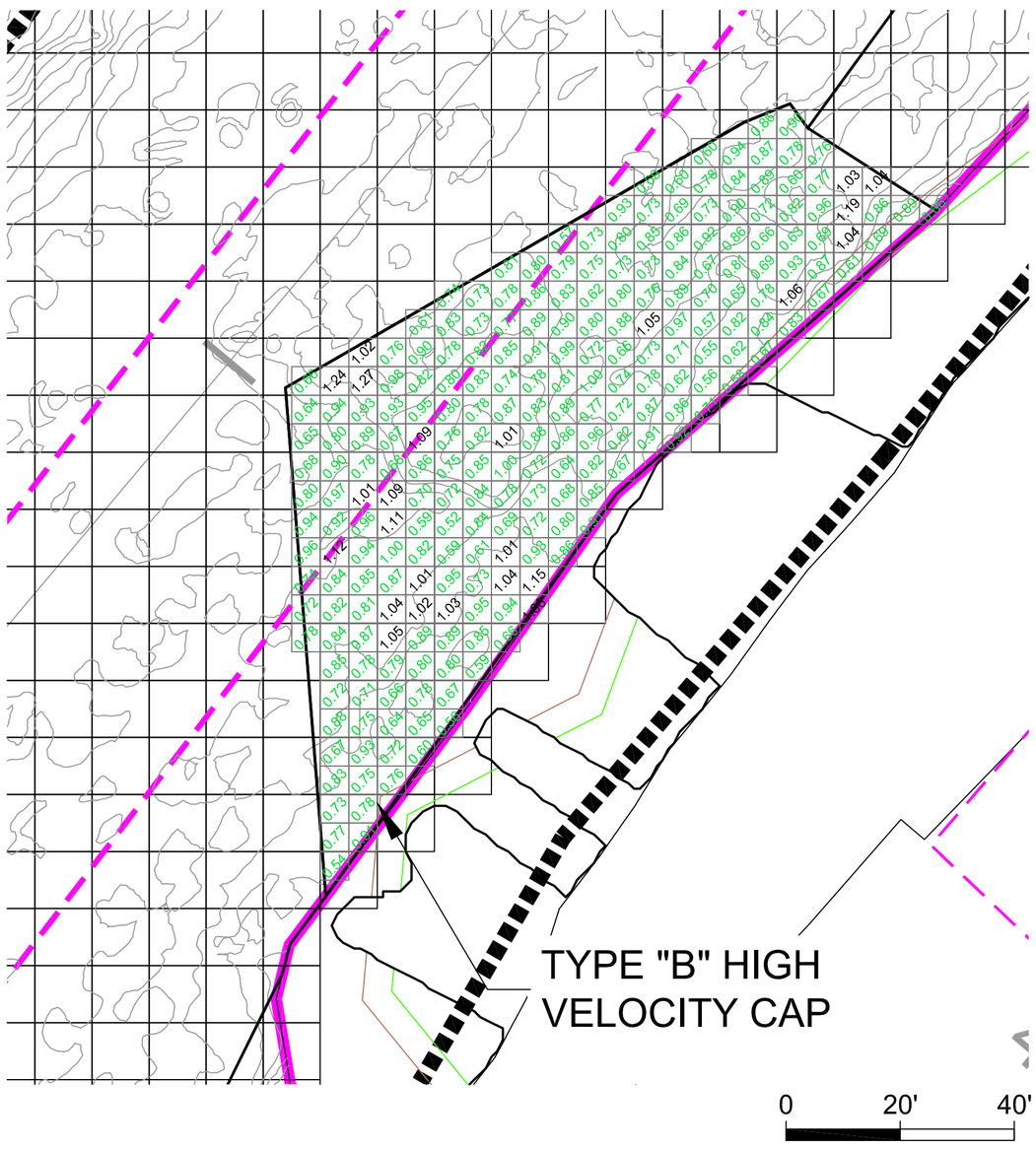
LEGEND

- 0.58 — 5'x5' GRID WITHIN DESIGN GUIDELINES
- 0.21 — 5'x5' GRID LESS THAN DESIGN GUIDELINES
- 1.11 — 5'x5' GRID ABOVE DESIGN GUIDELINES
- NEARSHORE BOUNDARY
- CU BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET

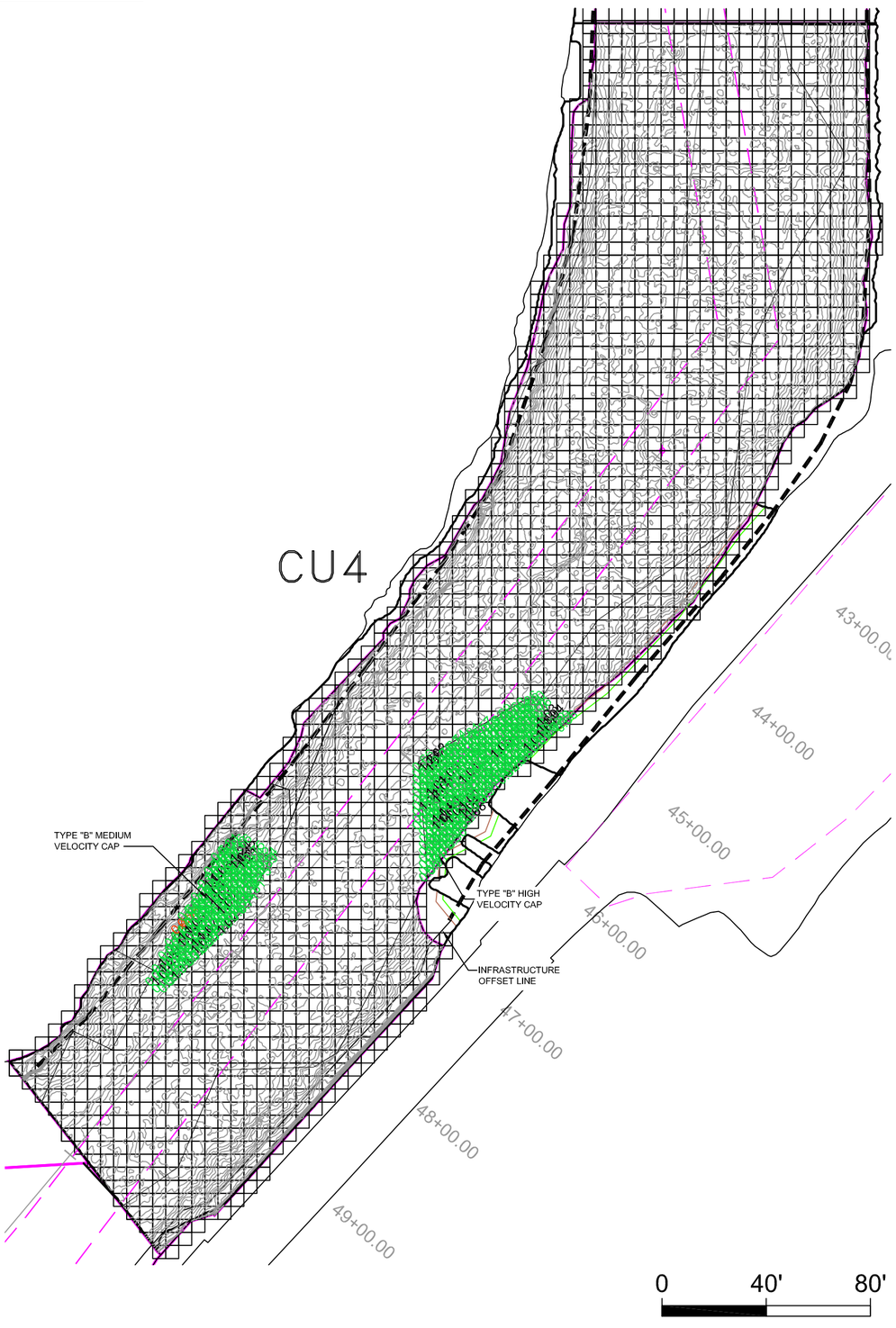
NOTES:

1. OSI MULTIBEAM SURVEY ON NOVEMBER 13, 16, AND 20, 2009.
2. ARMOR LAYER THICKNESS IS LISTED IN 5'x5' GRIDS.

CU4 MEDIUM VELOCITY TYPE "B" CAP
TYPE "N" COARSE GRAVEL THICKNESS (FT.)



CU4 HIGH VELOCITY TYPE "B" CAP
TYPE "O" COBBLE ARMOR THICKNESS (FT.)



CU4 LOCATION PLAN

PARSONS COMMERCIAL TECHNOLOGY GROUP GE COMPANY – PARSONS PROJECT OFFICE BUILDING 40–1, 381 BROADWAY FORT EDWARD, N.Y. 12828 (518) 746–5311		DRAWING TITLE CU4 TYPE "B" CAP ARMOR LAYER ACCEPTANCE SURVEY	
DRAWN BY JHG	CHECKED BY MG	DRAWING NO. CU4–1	SCALE AS SHOWN
DATE 11/23/09	APPROVED BY MG		JOB 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\ACC_DWG\CU4-1 CAP-B- ARMOR.DWG
PLOT DATE: 11/23/2009 5:35 PM PLOTTED BY: 48606

LEGEND

- 0.80 — GRID WITHIN DESIGN GUIDELINES
- 0.65 — GRID LESS THAN DESIGN GUIDELINES
- 1.60 — GRID GREATER THAN DESIGN GUIDELINES
- CU BOUNDARY
- MUD - RIP RAP INTERFACE
- 5 FOOT INTERFACE OFFSET
- 1 FOOT CONTOURS, POST DREDGE SURFACE

N

CU4

TYPE "B" LOW VELOCITY CAP THICKNESS (FT.) (5'x5' GRID)

TYPE "B" MEDIUM VELOCITY CAP - ISOLATION LAYER THICKNESS (FT.) (10'x10' GRID)

TYPE "B" HIGH VELOCITY CAP - ISOLATION LAYER THICKNESS (FT.) (10'x10' GRID)

INFRASTRUCTURE OFFSET LINE

46+00.00

48+00.00

49+00.00

NOTES:

1. OSI MULTIBEAM SURVEY ON NOVEMBER 12 & 13, 2009.
2. THICKNESS OF ISOLATION LAYER IS LISTED ON A 10'X10' GRID FOR HIGH AND MEDIUM VELOCITY TYPE "B" CAPS.
3. THICKNESS OF CAP IS LISTED ON A 5'x5' GRID FOR LOW VELOCITY TYPE "B" CAP.

0 20' 40'

PARSONS
COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40–1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746–5311

DRAWING TITLE: CU4 TYPE "B" CAP ISOLATION LAYER ACCEPTANCE SURVEY			
DRAWN BY: JHG	CHECKED BY: MG	DRAWING NO.: CU4–1	SCALE: AS SHOWN
DATE: 11/23/09	APPROVED BY: MG		JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\ACC_DWG\CU4–1_TYPE–B_ISO.DWG
PLOT DATE: 11/24/2009 2:43 PM PLOTTED BY: 48606

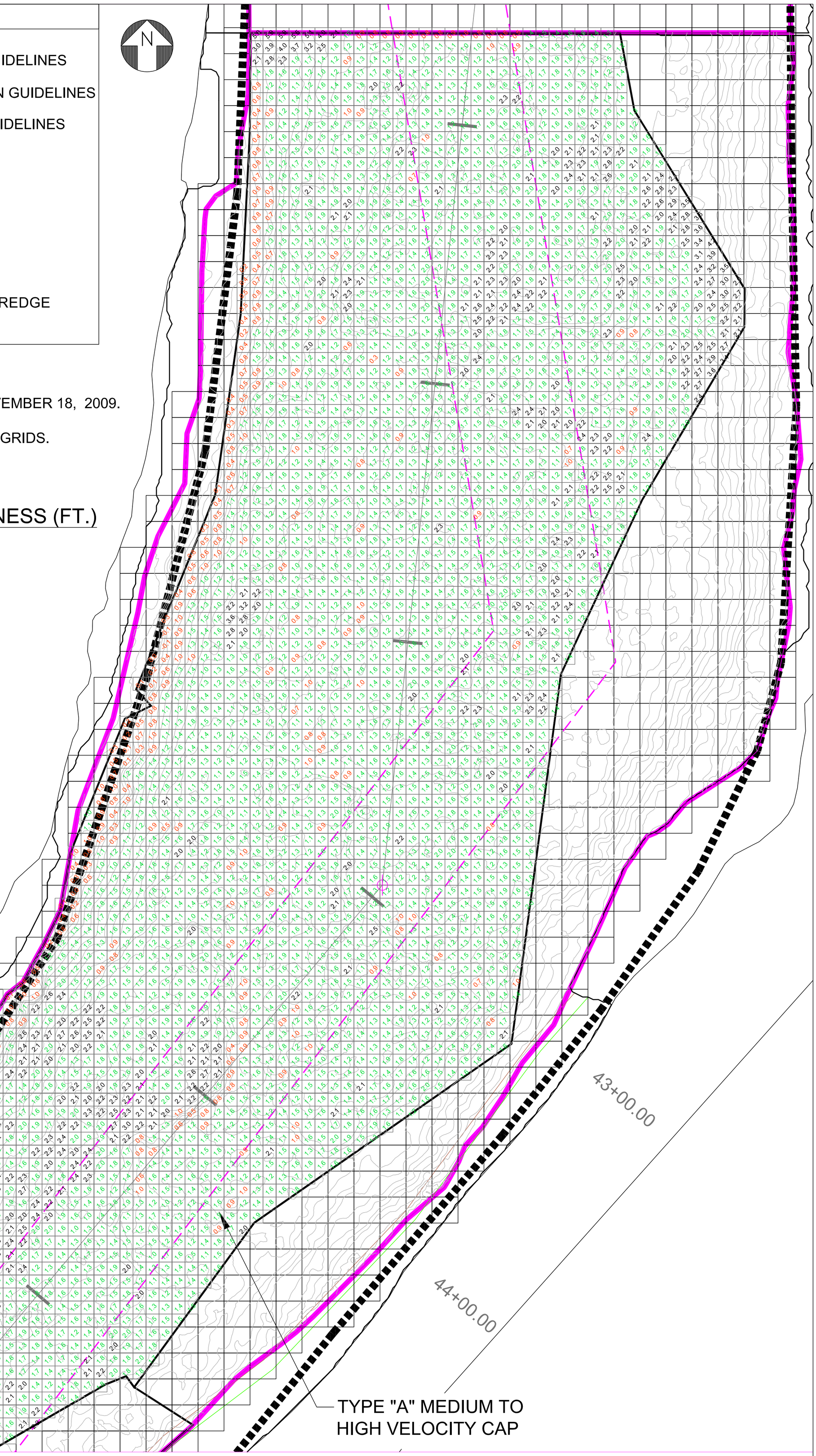
LEGEND

- 1.8 — 5'x5' GRID WITHIN DESIGN GUIDELINES
- 0.7 — 5'x5' GRID LESS THAN DESIGN GUIDELINES
- 2.22 — 5'x5' GRID ABOVE DESIGN GUIDELINES
- NEARSHORE BOUNDARY
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET
- 1 FOOT CONTOURS, POST DREDGE SURFACE

NOTES:

1. OSI MULTIBEAM SURVESY ON NOVEMBER 18, 2009.
2. CAP THICKNESS IS LISTED IN 5'X5' GRIDS.

CU4 TYPE "A" CAP THICKNESS (FT.) NORTH END



0 20' 40'

DRAWING 1 OF 2

PARSONS COMMERCIAL TECHNOLOGY GROUP GE COMPANY – PARSONS PROJECT OFFICE BUILDING 40–1, 381 BROADWAY FORT EDWARD, N.Y. 12828 (518) 746–5311	DRAWING TITLE CU4 TYPE "A" CAP ACCEPTANCE SURVEY
DRAWN BY: JHG; CHECKED BY: MG	DRAWING NO.: CU4–3–1; SCALE: AS SHOWN
DATE: 11/23/09; APPROVED BY: MG	JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\ACC_DWG\CU4–3 CAP TYPE A.DWG
PLOT DATE: 11/23/2009 4:42 PM PLOTTED BY: 48606

LEGEND

- 1.8 — 5'x5' GRID WITHIN DESIGN GUIDELINES
- 0.7 — 5'x5' GRID LESS THAN DESIGN GUIDELINES
- 2.22 — 5'x5' GRID ABOVE DESIGN GUIDELINES
- NEARSHORE BOUNDARY
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET
- 1 FOOT CONTOURS, POST DREDGE SURFACE

NOTES:

1. OSI MULTIBEAM SURVEYS ON NOVEMBER 18, 2009.
2. CAP THICKNESS IS LISTED IN 5'X5' GRIDS.

CU4 TYPE "A" CAP THICKNESS (FT.)
SOUTH END

CU4

TYPE "A" LOW VELOCITY CAP

TYPE "A" LOW VELOCITY CAP

INFRASTRUCTURE OFFSET LINE

TYPE "A" MEDIUM TO HIGH VELOCITY CAP

46+00.00

47+00.00

48+00.00

49+00.00

0 20' 40'

DRAWING 2 OF 2

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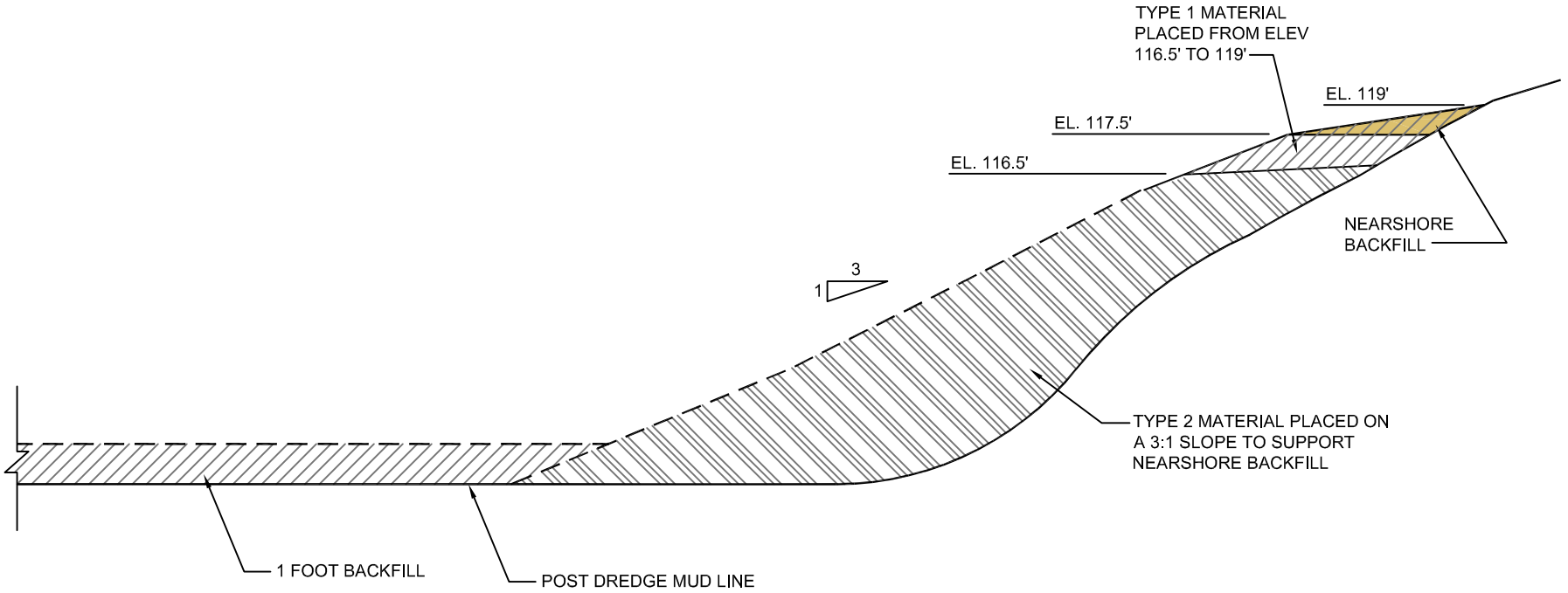
COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40–1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746–5311

DRAWING TITLE: CU4 TYPE "A" CAP ACCEPTANCE SURVEY

DRAWN BY	CHECKED BY	DRAWING NO.	SCALE
JHG	MG	CU4–3–2	AS SHOWN
DATE: 11/23/09	APPROVED BY: MG		JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\ACC_DWG\CU4–3 CAP TYPE A.DWG
PLOT DATE: 11/23/2009 4:30 PM PLOTTED BY: 48606



NEAR SHORE BACKFILL PLACEMENT DETAIL

TYPICAL SECTION NOT TO SCALE

RECORD DRAWING

PARSONS COMMERCIAL TECHNOLOGY GROUP GE COMPANY – PARSONS PROJECT OFFICE BUILDING 40–1, 381 BROADWAY FORT EDWARD, N.Y. 12828 (518) 746–5311		DRAWING TITLE CU4 NEAR SHORE BACKFILL PLACEMENT DETAIL	
DRAWN BY JHG	CHECKED BY MG	DRAWING NO. C04–BF–C01	SCALE NOT TO SCALE
DATE 11/03/09	APPROVED BY MG		JOB 442209

FILE NAME: E:\FORT EDWARD\PARSONS\OSI–BACKFILL CAP\CU4–BC–2–RECORD.DWG
PLOT DATE: 11/5/2009 1:56 PM PLOTTED BY: 48606

TYPICAL SECTION VIEW

DETAIL 1 - TYPE "B" LOW VELOCITY CAP CU4

NOT TO SCALE

TYPICAL SECTION VIEW

DETAIL 2 - TYPE "B" MEDIUM VELOCITY CAP CU4

NOT TO SCALE

TYPICAL SECTION VIEW

DETAIL 3 - TYPE "B" HIGH VELOCITY CAP CU4

NOT TO SCALE

TYPICAL SECTION VIEW

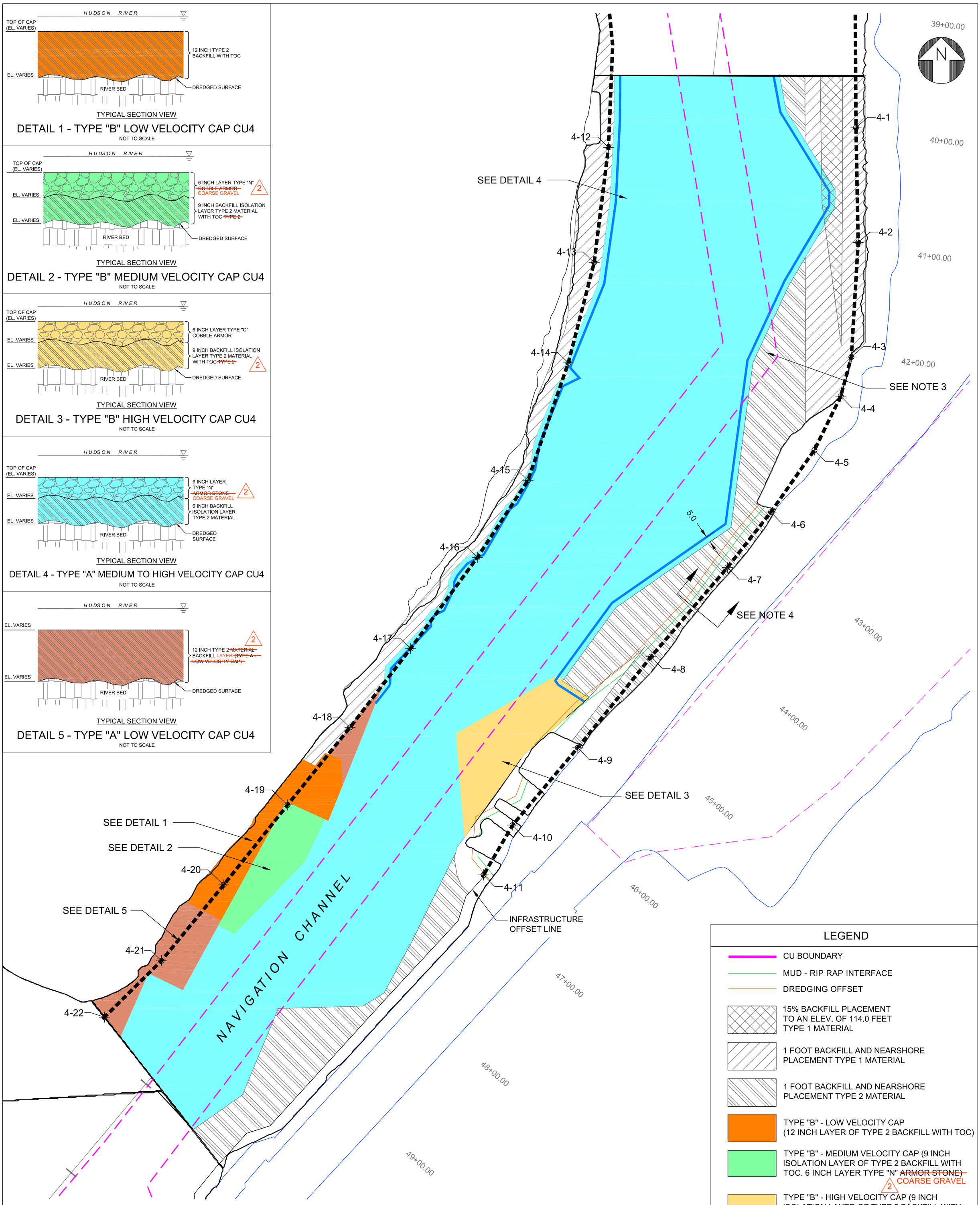
DETAIL 4 - TYPE "A" MEDIUM TO HIGH VELOCITY CAP CU4

NOT TO SCALE

TYPICAL SECTION VIEW

DETAIL 5 - TYPE "A" LOW VELOCITY CAP CU4

NOT TO SCALE



LEGEND

- CU BOUNDARY
- MUD - RIP RAP INTERFACE
- DREDGING OFFSET
- 15% BACKFILL PLACEMENT TO AN ELEV. OF 114.0 FEET TYPE 1 MATERIAL
- 1 FOOT BACKFILL AND NEARSHORE PLACEMENT TYPE 1 MATERIAL
- 1 FOOT BACKFILL AND NEARSHORE PLACEMENT TYPE 2 MATERIAL
- TYPE "B" - LOW VELOCITY CAP (12 INCH LAYER OF TYPE 2 BACKFILL WITH TOC)
- TYPE "B" - MEDIUM VELOCITY CAP (9 INCH ISOLATION LAYER OF TYPE 2 BACKFILL WITH TOC. 6 INCH LAYER TYPE "N" ~~ARMOR STONE~~ COARSE GRAVEL) 2
- TYPE "B" - HIGH VELOCITY CAP (9 INCH ISOLATION LAYER OF TYPE 2 BACKFILL WITH TOC. 6 INCH LAYER TYPE "O" COBBLE ARMOR)
- TYPE "A" - MEDIUM TO HIGH VELOCITY CAP (6" LAYER OF TYPE 2 BACKFILL & 6" LAYER OF TYPE "N" ~~STONE~~ COARSE GRAVEL) 2
- TYPE "A" - LOW VELOCITY CAP (12" TYPE 2 BACKFILL)
- 4-1 NEARSHORE BORDER SET POINT
- NEARSHORE BORDER (117.5 FEET)
- LIMIT OF NON-COMPLIANT NODE POLYGONS
- SHORELINE BOUNDARY ELEV. 119'

NOTES:

1. BACKFILL TO BE PLACED IN ACCORDANCE WITH SECTION 13720 AND DESIGN DRAWINGS B-0021-SK1 AND B-0020-SK1.
2. CAP MATERIALS TO BE PLACED IN ACCORDANCE WITH SECTION 13720 AND DESIGN DRAWING C-0038.
3. ~~BACKFILL WILL NOT BE PLACED IN NAVIGATION CHANNEL WHERE EXISTING BATHYMETRY IS 103' OR GREATER.~~ (2)
   NO BACKFILL WILL BE PLACED IN THE NAVIGATION CHANNEL UNLESS THE BOTTOM SURFACE OF THE NAVIGATION CHANNEL IS 102.0' OR DEEPER AFTER DREDGING.
4. PLACEMENT OF NEARSHORE BACKFILL IN TYPE 1 AREAS TO CONSIST OF TYPE 2 BACKFILL TO EL 116.5', THEN TYPE 1 BACKFILL FROM EL 116.5' TO 119'. (SEE SKETCH CU4-BF-CO1)
5. TOTAL CAP AREA INCLUDES 5' HORIZONTAL OFFSET INTO COMPLIANT AREA, AS PER CONTRACT DRAWING C-0038.
6. ~~THE TOP OF CAP CAN NOT BE ABOVE ELEVATION 105' IN THE NAVIGABLE CHANNEL.~~ (2)
   CAP MATERIALS WILL NOT BE PLACED IN THE NAVIGATION CHANNEL ABOVE 105.0'.

RECORD DRAWING

0 40' 80'

REV	DATE	DRN BY	DRAWING DESCRIPTION	PM
2	11/23/09	JHG	RECORD DRAWING	MG
1	11/03/09	JHG	ADDRESS EPA COMMENTS; ISSUE FOR USE	MG
0	11/02/09	JHG	ISSUED FOR EPA REVIEW	MG

PARSONS
COMMERCIAL TECHNOLOGY GROUP
GE COMPANY – PARSONS PROJECT OFFICE
BUILDING 40–1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746–5311

DRAWING TITLE: CU4 BACKFILL AND CAP PLAN

DRAWN BY	CHECKED BY	DRAWING NO.	VERSION	SCALE
JHG	MG	CU4–BC–1	D	AS SHOWN
DATE: 11/23/09	APPROVED BY: MG			JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\OSI–BACKFILL CAP\CU4–BC–2–RECORD.DWG
PLOT DATE: 11/24/2009 2:40 PM PLOTTED BY: 48606

RM 193.9

CU3-3

35+00

PI 36+94.02

CU3-4

CU3-5

40+00

CU4-1

RM 193.8

CU4-2

PI 42+94.02

CU_4

45+00

CU4-3

CU4-4

CU4-5

50+00

CU12-1

RM 193.7

CU12-2

CU12-3

N

LEGEND

107.1 — ELEVATION OF RIVER BOTTOM

SHORELINE

CHANNEL

CU_XX — CERTIFICATION UNIT (TYP)

CERTIFICATION SUBUNIT

RM 190 — RIVER MILE

250+00 — BASELINE WITH STATIONING

DEPTH OF WATER BELOW 119' NAVD88 (FEET)

0
2
4
6
8
10
12
14
16
18
20+

NOTES

1. GRID SYSTEM IS THE NEW YORK EAST STATE PLANE COORDINATE SYSTEM, NAD 83.
2. ELEVATIONS ARE IN FEET AND ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88) BASED ON BENCHMARK "GE-HR-07R" HAVING AN ELEVATION OF 131.89' NAVD88 AS PROVIDED BY PARSONS. "GE-HR-07R" IS A CHISELED "X" ON AN ALUMINUM CAP AT LOCK 7.
3. COLORIZED DEPTH MAP IMAGERY WAS CREATED FROM A GRID OF 1' BY 1' CELLS POSTED WITH THE AVERAGE DEPTH AT THE CELL CENTER X,Y LOCATION.
4. ELEVATIONS REPRESENT THE AVERAGE ELEVATION IN A 10' BY 10' CELL AND ARE POSTED IN THE CENTER OF THE CELL. 10' BY 10' GRID ORIGINS WERE PROVIDED BY PARSONS.
5. BASEMAP FEATURES ARE APPROXIMATE AND WERE OBTAINED FROM DRAWINGS PROVIDED BY ARCADIS.
6. ORTHOPHOTO IMAGERY IS NATURAL COLOR ORTHOPHOTOGRAPHY FLOWN IN 2003 AND WAS PROVIDED BY QEA.
7. DREDGING OPERATION INFORMATION WAS PROVIDED BY CASHMAN DREDGING AND MARINE CONSTRUCTION CO., LLC.
8. REFER TO PREVIOUSLY PROVIDED DREDGE PRISM FOR TARGET ELEVATIONS.
9. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY OCEAN SURVEYS, INC. ON OR BEFORE THE DATE ON THIS DRAWING AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THOSE TIMES. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO OSI.

SURVEY VESSEL:	DEPTH SOUNDER:
R/V ECHO	RESON SEABAT 8125

NAVIGATION SYSTEM: APPLANIX POS MV IN REAL TIME KINEMATIC MODE

SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2008

SURVEY PROCESSING SOFTWARE: HYPACK MULTIBEAM EDITOR VERSION 2008

SCALE IN FEET

50 0 50 100 150

CHECK GRAPHIC SCALE BEFORE USING

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POST BACKFILL PLACEMENT - CU04

HUDSON RIVER, NEW YORK

HUDSON RIVER SEDIMENT REMEDIATION PHASE 1 PROJECT

OSI PROJECT NUMBER:	CURRENT THROUGH SURVEY DATE:	DRAWING:	ISSUE NO.:
09ES022	22 NOVEMBER 2009	PBP-CU04	1

Correspondence

(Letters and Emails)

Inglis, Andrew A (GE, Corporate)

From: King.David@epamail.epa.gov

Sent: Saturday, November 14, 2009 9:36 AM

To: Inglis, Andrew A (GE, Corporate)

Cc: Michael J. Johnson; Kruppenbacher, Timothy A (GE, Corporate); michael galbraith; Bryan Minor; Gary Klawinski; Joseph Moloughney

Subject: Re: Discussions regarding CU Backfill and Cap placement

Andrew, I agree with summary.
Dave
Sent by EPA Wireless E-Mail Services

From: "Inglis, Andrew A (GE, Corporate)" [andrew.inglis@ge.com]
Sent: 11/13/2009 05:13 PM EST
To: David King
Cc: <MJohnson@louisberger.com>; "Kruppenbacher, Timothy A (GE, Corporate)" <timothy.kruppenbacher@ge.com>; <michael.galbraith@parsons.com>; <USACE_HRFO@roadrunner.com>; <GKlawinski@ene.com>; "Joseph Moloughney" <Joseph_Moloughney@canals.state.ny.us>
Subject: Discussions regarding CU Backfill and Cap placement

Dave,
Today and yesterday we met and reviewed progress surveys of cap and backfill placement in CUs 1, 2, 3, 4, 7 and 18. This email confirms decisions made during the meeting based on reviews of the maps presented during the meeting.

CU1.
In CU1 it was agreed that sufficient thickness of isolation layer material has been placed while providing enough room to place armor stone below the 105.2' elevation in the navigation channel. It was agreed that placement of armor stone can begin.

CU2.
In CU2 it was agreed that the top of cap and backfill elevations were acceptable. GE will prepare a Form 2 package for EPA review.

CU3 .
In CU3 it was agreed that the top of cap and backfill elevations were acceptable, it was discussed that GE was in the process of placing backfill in an area of the navigation channel where the post dredge elevations were below 102' elevation. Once GE has surveyed that additional backfill location GE will prepare a Form 2 package for EPA review.

CU4.
In CU4 it was agreed that the top of cap elevations in the north east quarter of the CU was acceptable and that backfill placment in that area may begin.

CU7.
In CU7 it was agreed that the top of cap and backfill elevations were acceptable. GE will prepare a Form 2 package for EPA review.

CU18
In CU18 it was agreed that the top of cap elevations were acceptable in both of the cap locations in that CU.

Please let me know if I missed anything.

Thanks,

Andrew A. Inglis
Dredging Task Leader
GE

T +1 518-746-5256

381 Broadway
Building 40-2
Fort Edward, NY 12828
GE Corporate Environmental Programs

GE Imagination at Work

Inglis, Andrew A (GE, Corporate)

From: King.David@epamail.epa.gov
Sent: Saturday, November 21, 2009 8:58 AM
To: Inglis, Andrew A (GE, Corporate)
Cc: Mirarchi, Jeff (GE, Corporate, non-ge); Joseph Moloughney; MJohnson@louisberger.com; Kruppenbacher, Timothy A (GE, Corporate); USACE_HRFO@roadrunner.com
Subject: RE: CU4 Type A Cap Acceptance Map

Andrew,
The depth in the channel looks good. given the slope stability issue the caps are acceptable. Have the shoreline materials been placed yet?
There has been a change of plans so I will be in the office on Tuesday until 4 PM if you want to sign off on form 2.

Dave

CU-05

Form 2

CU Certification of Completion

CU BACKFILL/ENGINEERED CAP COMPLETION APPROVAL - FORM 2

Reporting Date	10/17/2009			**Placement Start Date**	9/13/2009
CU Number	5			**Placement End Date**	10/14/2009
Approximate CU Centroid	**Northing**	1616391	**Easting**	733771.6	NY State NAD 83
CU Size	4.77	Acres			
Backfill Area	4.77	Acres			
Cap Area	0.88	Acres			

Backfill Surface Mean Tri+ PCBs Concentration (when required)	NA	**mg/kg**
Number of nodes sampled	NA	**mg/kg**

Backfill	**Type of Backfill**	**Reference to appropriate drawings attached to Approval Form 1**
x	Type 2, 15%	CU 5 Backfill & Capping Plan, 9/25/09
Cap	**Type of Cap**	**Reference to appropriate drawings attached to Approval Form 1**
x	Medium to High Velocity - Type A	CU 5 Backfill & Capping Plan, 9/25/09

CU Checklist	**Indicate one of the following**		**Reviewer Initial Acceptance**			
Item	**Attached**	**Not Applicable**		**GE**		**EPA**
Drawing of Installed Backfill/Cap (with record drawing details, thickness and sample locations [when backfill/cap are placed])	x					
Where applicable in backfill areas provide the following: Sample locations (coordinates), depths, Aroclor and Tri+ PCB concentrations collected including analytical data, field observations, (hard copy and electronic copies [in database format or equivalent]		x				

Comments

Refer to attached Narrative Backfill Summary and CU 5 Backfill Placement Drawing.

Upon signing this document, GE certifies that the backfill/cap has been installed satisfactorily and that no further backfill placement or capping is required for this CU. These remedial activities exclude long term operation, monitoring, maintenance and adaptive management at the CU. EPA accepts this certification.

Signature of GE Representative	**Signature of EPA Representative**
Signature	Signature
Name	Name
Date	Date

Narrative

CU 5

Narrative Summary of Backfill and Capping and
EPA Backfill and Capping Agreements

1.0 Backfill Placement

Backfill was placed in accordance with the CU 5 Backfill and Capping Plan Drawing, dated September 25, 2009, which was provided to EPA as part of the Form 1 package. A multi-beam bathymetric survey for CU 5 was performed after final backfill placement on October 15, 2009, as shown on the attached CU 5 Post Backfill Placement Acceptance Drawing, dated October 18, 2009. The difference to dredge prism on a 10' x 10' grid is shown for all backfill areas, however it should be noted that the 6" backfill placed in the bucket refusal areas is not subject to any acceptance tolerance and is provided for information only.

2.0 Cap Placement

A Type A medium to high velocity cap was placed in accordance with the CU 5 Backfill and Cap Acceptance Record Drawing, dated September 25, 2009. A multi-beam bathymetric survey of the CU 5 cap was performed after final cap placement on October 4, 2009. The surveyed cap thickness is shown on a 5' x 5' grid for all cap areas, shown on the attached CU5 Type A Cap Acceptance Survey, dated October 19, 2009.

3.0 EPA Field Agreements Specific to CU 5 Backfill and Capping

1. The plan used to place backfill and cap in CU5 was approved by EPA on September 28, 2009 as part of the CU5 Acceptance Form 1 package. No changes were made to this plan during placement of backfill or cap in CU5.

2. During the 4:00 PM meeting on October 5, 2009, GE presented acceptance surveys of the top of cap elevations in CU5. Based on the information presented by GE, EPA accepted that the top of cap elevations were within the required design tolerances. The Cap Acceptance Survey Drawing, dated October 19, 2009 is included in this package.

3. During the 4:00PM meeting on October 12, 2009, EPA agreed that acceptance surveys of partial areas of a CU may be performed and used for acceptance once placement of backfill or cap in those areas is complete.

4. During the 4:00 PM meeting on October 17, 2009, GE presented acceptance surveys of the top of backfill elevations in CU5. Based on the information presented by GE, EPA accepted

that the top of backfill elevations were within the required design tolerances. The Backfill Acceptance Survey Drawing, dated October 19, 2009 is included in this package.

5. During the 4:00 PM meeting on October 17, 2009, EPA requested Actual 15% volumes placed be included on the Backfill Acceptance Drawings, to which GE agreed (see Note 3 on the Backfill Acceptance Survey Drawing, dated October 19, 2009). EPA also requested the 15% backfill borders be depicted on the Backfill Acceptance Drawing, to which GE agreed.

Figures

RM 194.5

WRI 0+00

WRI 5+00

WRI 10+00

WRI 15+00

CU5-1

CU5-2

CU5-3

CU5-4

CU5-5

CU_5

CU6-1

CU6-3

CU_6

CU6-4

CU6-5

LEGEND

- 107.1 — ELEVATION OF RIVER BOTTOM
- SHORELINE
- SILT CURTAIN
- SHEETPILE
- CU_XX — CERTIFICATION UNIT (TYP)
- CERTIFICATION SUBUNIT
- RM 190 — RIVER MILE
- 250+00 — BASELINE WITH STATIONING

DEPTH OF WATER BELOW 119' NAVD88 (FEET)

0 2 4 6 8 10 12 14 16 18 20+

NOTES

1. GRID SYSTEM IS THE NEW YORK EAST STATE PLANE COORDINATE SYSTEM, NAD 83.
2. ELEVATIONS ARE IN FEET AND ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88) BASED ON BENCHMARK "GE-HR-07R" HAVING AN ELEVATION OF 131.89' NAVD88 AS PROVIDED BY PARSONS. "GE-HR-07R" IS A CHISELED "X" ON AN ALUMINUM CAP AT LOCK 7.
3. COLORIZED DEPTH MAP IMAGERY WAS CREATED FROM A GRID OF 1' BY 1' CELLS POSTED WITH THE AVERAGE DEPTH AT THE CELL CENTER X,Y LOCATION.
4. ELEVATIONS REPRESENT THE AVERAGE ELEVATION IN A 10' BY 10' CELL AND ARE POSTED IN THE CENTER OF THE CELL. 10' BY 10' GRID ORIGINS WERE PROVIDED BY PARSONS.
5. BASEMAP FEATURES ARE APPROXIMATE AND WERE OBTAINED FROM DRAWINGS PROVIDED BY ARCADIS.
6. ORTHOPHOTO IMAGERY IS NATURAL COLOR ORTHOPHOTOGRAPHY FLOWN IN 2003 AND WAS PROVIDED BY QEA.
7. DREDGING OPERATION INFORMATION WAS PROVIDED BY CASHMAN DREDGING AND MARINE CONSTRUCTION CO., LLC.
8. REFER TO PREVIOUSLY PROVIDED DREDGE PRISM FOR TARGET ELEVATIONS.
9. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY OCEAN SURVEYS, INC. ON OR BEFORE THE DATE ON THIS DRAWING AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THOSE TIMES. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO OSI.

SURVEY VESSEL:	DEPTH SOUNDER:
R/V ECHO	RESON SEABAT 8125

NAVIGATION SYSTEM: APPLANIX POS MV IN REAL TIME KINEMATIC MODE

SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2008

SURVEY PROCESSING SOFTWARE: HYPACK MULTIBEAM EDITOR VERSION 2008

SCALE IN FEET

50 0 50 100 150

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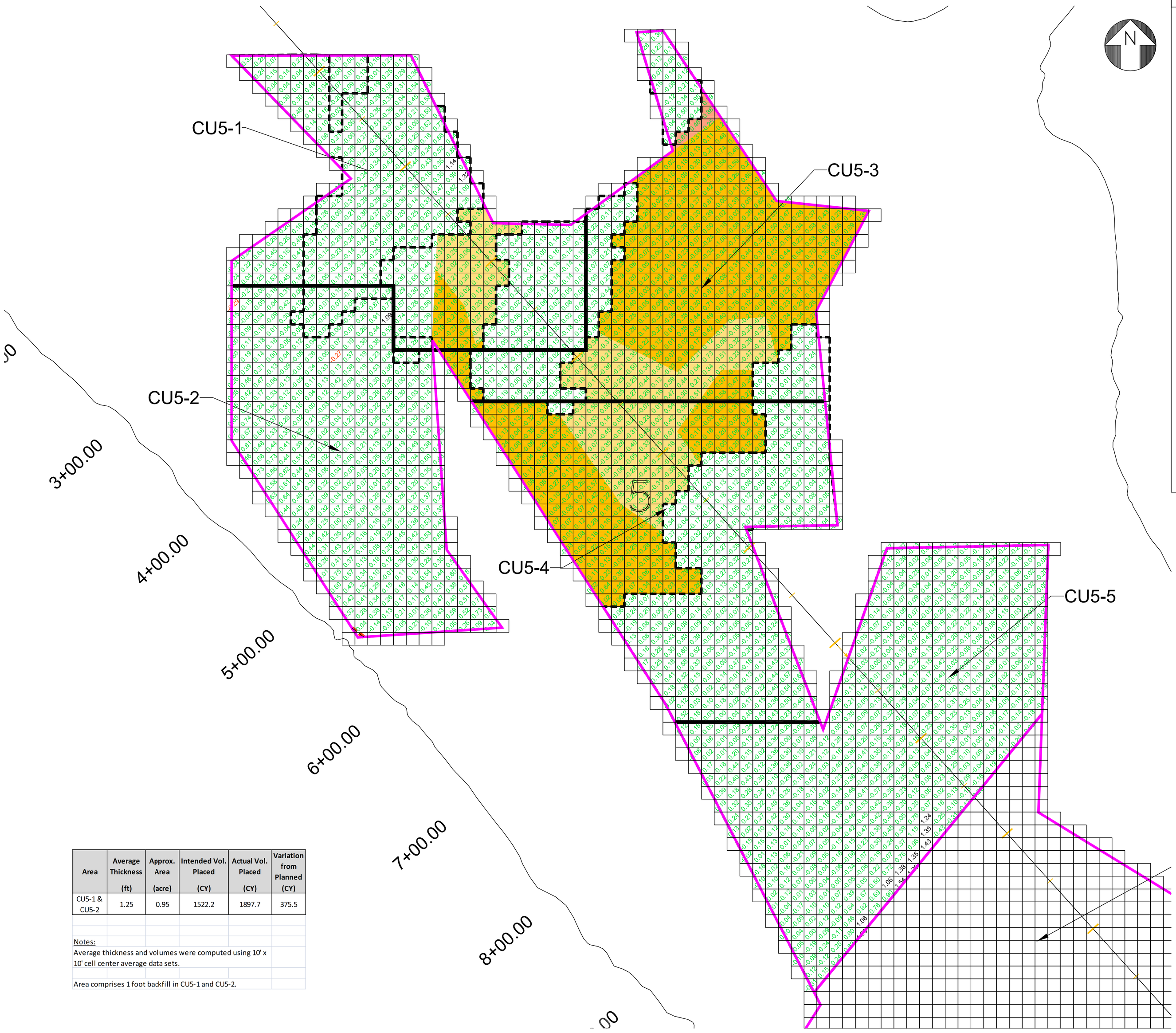
CU05 - POST BACKFILL PLACEMENT

HUDSON RIVER, NEW YORK

HUDSON RIVER SEDIMENT REMEDIATION PHASE 1 PROJECT

OSI PROJECT NUMBER:	CURRENT THROUGH SURVEY DATE:	DRAWING:	ISSUE NO.:
09ES022	15 OCTOBER 2009	PBP-CU05	1



LEGEND

- 10'x10' GRID WITHIN DESIGN GUIDELINES
- 10'x10' GRID LESS THAN DESIGN GUIDELINES
- 10'x10' GRID ABOVE DESIGN GUIDELINES
- ROCK/REFUSAL ENCOUNTERED VIA INVENTORY 1 DREDGING AS OF (JULY 2009)
- 1 FOOT BACKFILL AND NEARSHORE PLACEMENT TYPE 2 MATERIAL
- 15% BACKFILL PLACEMENT TO AN ELEV. OF 114.0 FEET TYPE 2 MATERIAL
- 15% BACKFILL PLACEMENT TO ORIGINAL BATHYMETRY TYPE 2 MATERIAL
- NEARSHORE BOUNDARY
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET

NOTES:

1. BUCKET REFUSAL AREAS NOT INCLUDED IN CU APPEPTANCE PROCESS.
2. 15% BACKFILL AREA BORDERS SHOWN FOR REFERENCE. 15% PLANNED AND ACTUAL VOLUMES INCLUDES ENGINEERED SIDE SLOPES, WHICH ARE NOT DEPICTED ON DRAWING.
3. 4,704 CY OF 15% BACFILL MATERIAL PLACED DURING BACKFILLING. BACKUP CALCULATIONS AVAILABLE UPON REQUEST.

BATHYMETRY BASED ON
OSI MULTIBEAM SURVEY
OCTOBER 15, 2009

Area	Average Thickness (ft)	Approx. Area (acre)	Intended Vol. Placed (CY)	Actual Vol. Placed (CY)	Variation from Planned (CY)
CU5-1 & CU5-2	1.25	0.95	1522.2	1897.7	375.5

Notes:
Average thickness and volumes were computed using 10' x 10' cell center average data sets.

Area comprises 1 foot backfill in CU5-1 and CU5-2.

CU 5
TYPE 2 BACKFILL PLACEMENT
ACCEPTANCE SURVEY
(FT)

REV	DATE	DRN BY	DRAWING DESCRIPTION	
1	10/19/09	JHG	REVISED PER EPA COMMENTS	MG
0	10/18/09	JHG	ISSUED FOR EPA REVIEW	MG

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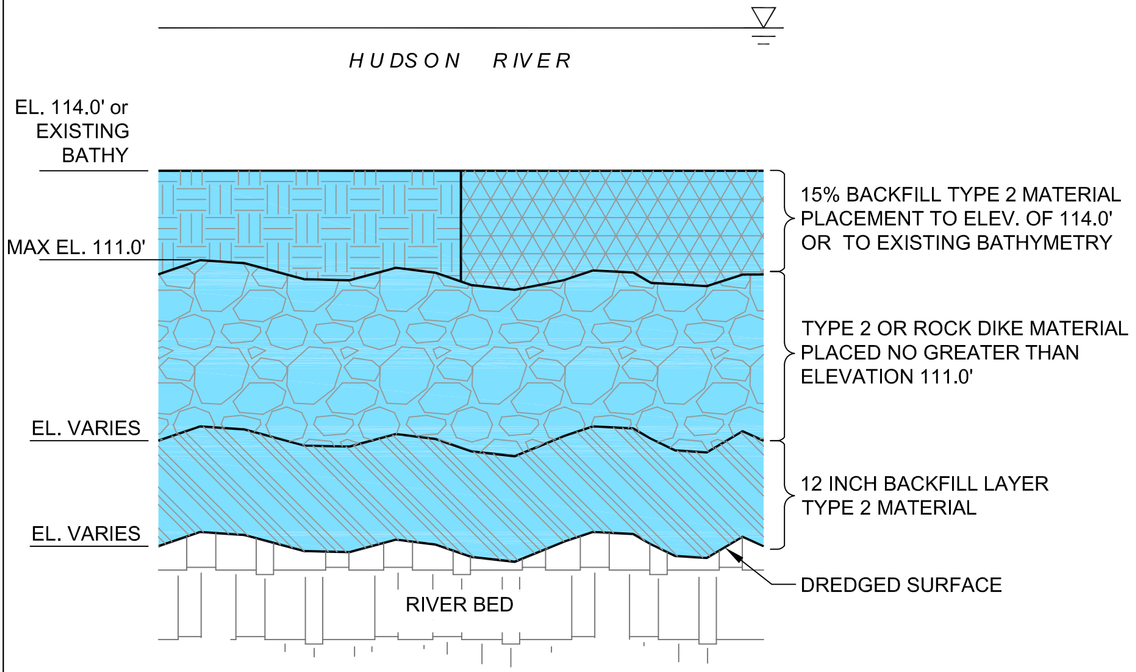
BUILDING 40-1, 381 BROADWAY
FORT EDWARD, N.Y. 12828 (518) 746-5311

DRAWN BY	CHECKED BY	DRAWING TITLE	
JHG	MG	CU-5 TYPE 2 BACKFILL PLACEMENT ACCEPTENCE SURVEY	
DATE 10/19/09	APPROVED BY MG	DRAWING NO. BKFL CU5	SCALE AS SHOWN
			JOB 442209.01401

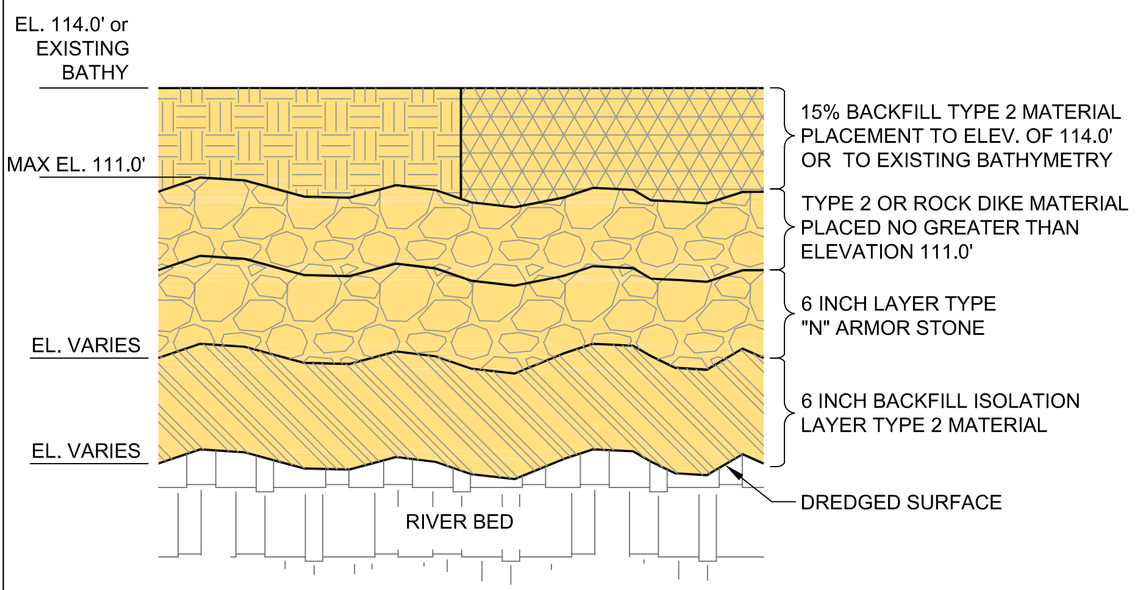
FILE NAME: E:\FORT EDWARD\PARSONS\CAP & BKFL TEMPLATES\CU5\1FT BKFL 10X10 CU5-1.DWG
PLOT DATE: 10/19/2009 6:52 PM PLOTTED BY: GOLDTHWAIT, JAMES



TYPICAL SECTION VIEW

DETAIL 2
15% BACKFILL
CU5-1, CU5-3 & CU5-4

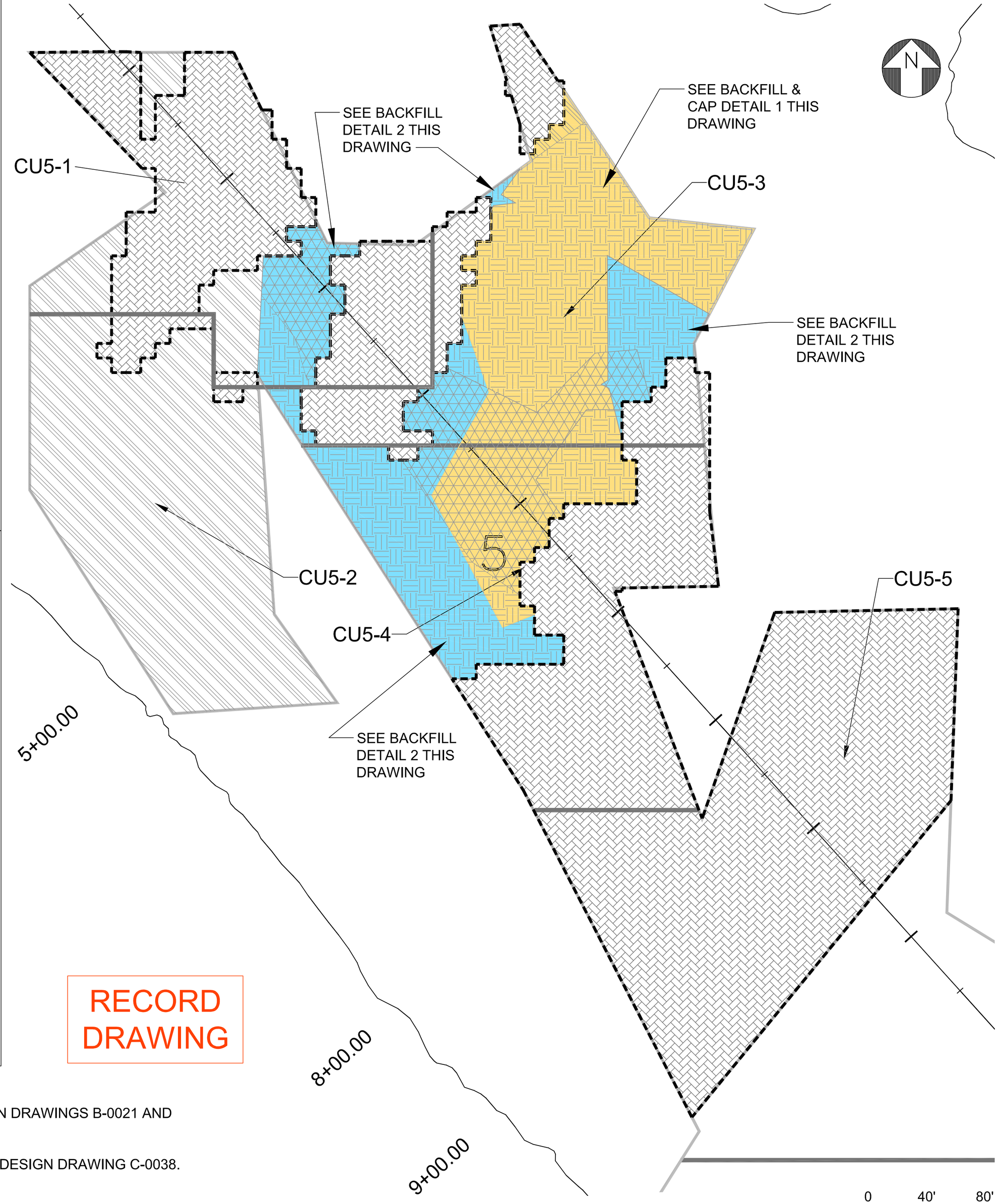
NOT TO SCALE



TYPICAL SECTION VIEW

DETAIL 1
15% BACKFILL & CAP
CU5-3 & CU5-4

NOT TO SCALE



RECORD DRAWING

LEGEND

- ROCK/REFUSAL ENCOUNTERED VIA DREDGING
- CLAY ENCOUNTERED VIA DREDGING (NOT SHOWN FOR CLARITY)
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET
- 1 FOOT BACKFILL AND NEARSHORE PLACEMENT TYPE 1 MATERIAL
- 1 FOOT BACKFILL AND NEARSHORE PLACEMENT TYPE 2 MATERIAL
- 15% BACKFILL PLACEMENT TO AN ELEV. OF 114.0 FEET TYPE 1 MATERIAL
- 15% BACKFILL PLACEMENT TO AN ELEV. OF 114.0 FEET TYPE 2 MATERIAL
- 15% BACKFILL PLACEMENT TO ORIGINAL BATHYMETRY TYPE 1 MATERIAL
- 15% BACKFILL PLACEMENT TO ORIGINAL BATHYMETRY TYPE 2 MATERIAL
- 6 INCH TYPE 2 MATERIAL OVER BUCKET REFUSAL DELINEATED AREAS
- POTENTIAL LOCATION FOR RIVERLINE FRINGING WETLAND CONSTRUCTION (PLANTING BY OTHERS)
- NEARSHORE BORDER (117.5 FEET)
- NATURAL SHORELINE MODERATE ENERGY (SEE DETAILS SHEET B-0023)
- NATURAL SHORELINE LOW ENERGY (SEE DETAILS SHEET B-0023)
- NEARSHORE BORDER SET POINT
- CAP AREA (MEDIUM TO HIGH VELOCITY - TYPE A)
- 15% BACKFILL AREA

NOTES:

1. BACKFILL TO BE PLACED IN ACCORDANCE WITH SECTION 13720 AND DESIGN DRAWINGS B-0021 AND B-0020-SK1.
2. CAP MATERIALS TO BE PLACED IN ACCORDANCE WITH SECTION 13720 AND DESIGN DRAWING C-0038.
3. REVISED PER EPA DISCUSSIONS REGARDING 15% BACKFILL PLACEMENT.

REV	DATE	DRN BY	DRAWING DESCRIPTION	PM
2	10/18/09	JHG	RECORD DRAWING	MG
1	9/25/09	JHG	ISSUED FOR USE (SEE NOTE 3)	MG
0	9/21/09	JHG	ISSUED FOR EPA REVIEW	MG

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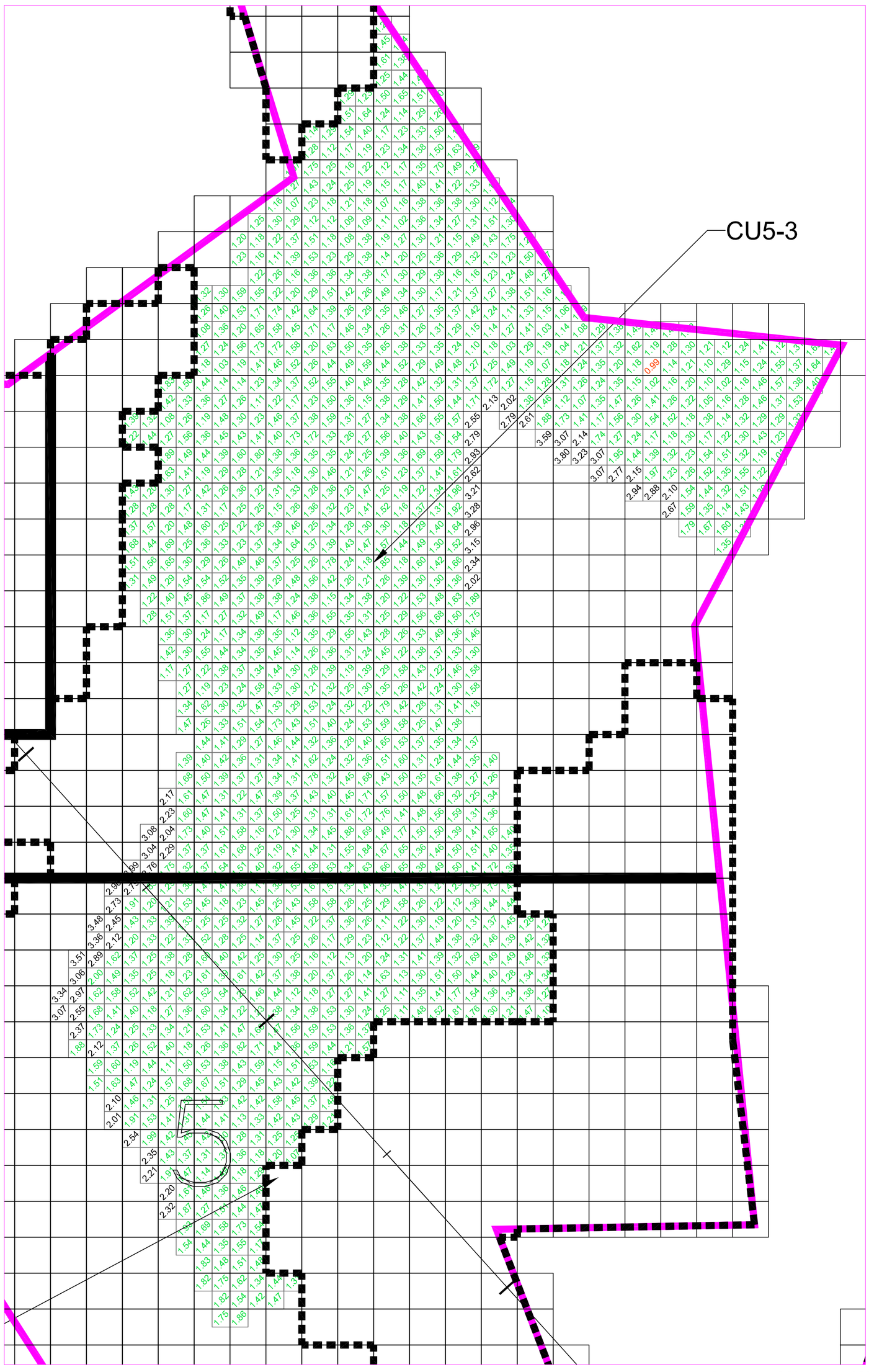
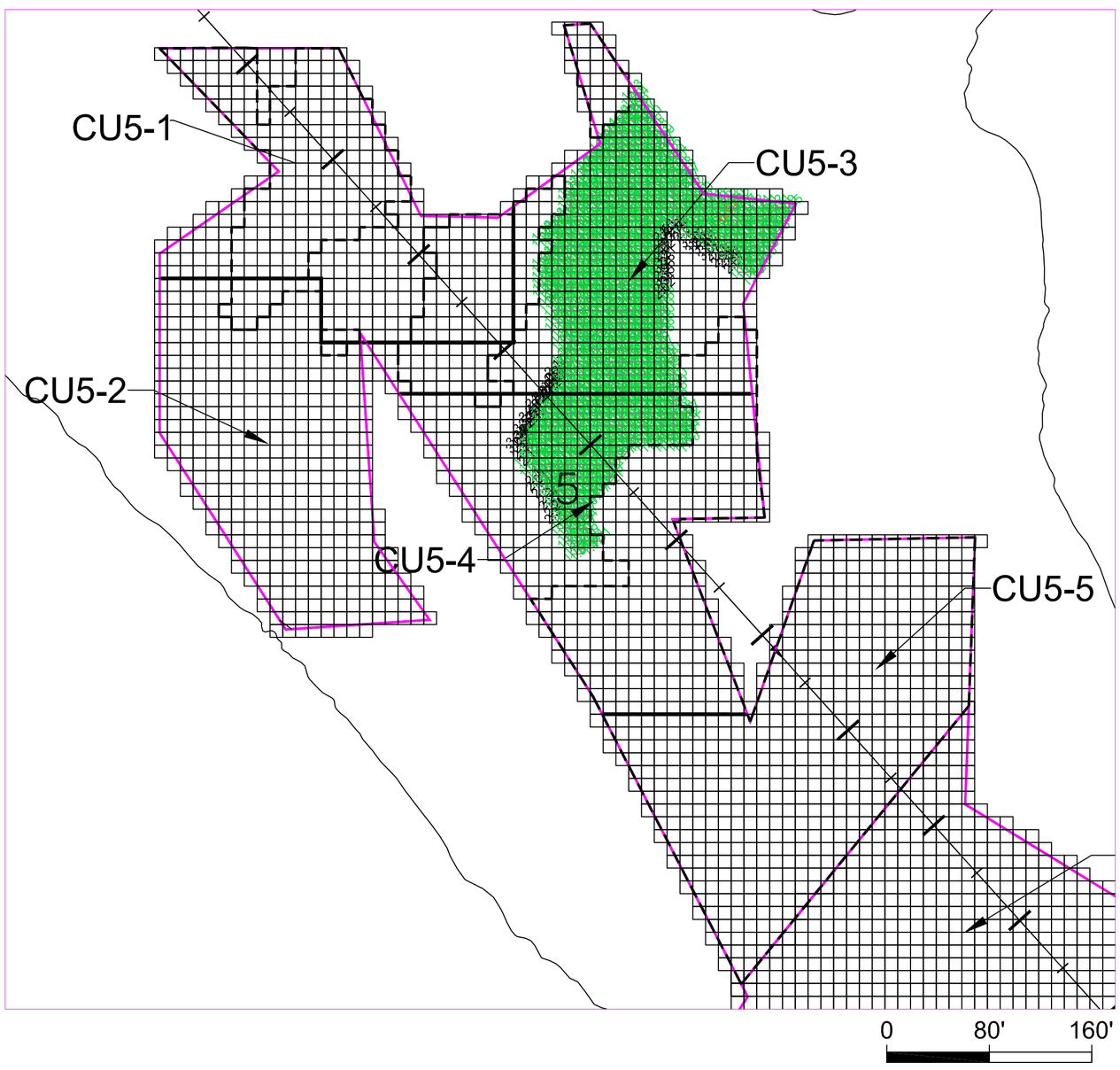
DRAWING TITLE: CU-5 BACKFILL & CAPPING PLAN

DRAWN BY	CHECKED BY	DRAWING NO.	VERSION	SCALE
JHG	MG	CU5-BC-6	A	AS SHOWN
DATE: 9/25/09	APPROVED BY: MG			JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\OSI-BACKFILL CAP\CU5-BC-7_A-RECORD.DWG
PLOT DATE: 10/18/2009 5:18 PM PLOTTED BY: 48606



CU5 TYPE A CAP PLACEMENT



CU5 TYPE A CAP LOCATION

LEGEND

- -0.03 — 5'x5' GRID WITHIN DESIGN GUIDELINES
- -0.77 — 5'x5' GRID LESS THAN DESIGN GUIDELINES
- 1.11 — 5'x5' GRID ABOVE DESIGN GUIDELINES
- ROCK/REFUSAL ENCOUNTERED VIA INVENTORY 1 DREDGING AS OF (JULY 2009)
- NEARSHORE BOUNDARY
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET

NOTES:

1. OSI MULTIBEAM SURVEY ON 10/04/09.
2. CAP THICKNESS IS LISTED IN 5'x5' GRIDS.

BATHYMETRY BASED ON
OSI MULTIBEAM SURVEY
OCTOBER 15, 2009

CU 5
CAP A TYPE
ACCEPTANCE SURVEY

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DRAWING TITLE: CU5 CAP A TYPE ACCEPTANCE SURVEY			
DRAWN BY: JHG	CHECKED BY: MG	DRAWING NO.: CU5–1	VERSION: A
DATE: 10/19/09	APPROVED BY: MG	SCALE: AS SHOWN	JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\CAP TYPE A – LOW(5X5)\CU5–1–CAP TYPE A – 5X5 (MED–HIGH).DWG
PLOT DATE: 10/19/2009 5:29 PM PLOTTED BY: 48606

CU-06

Form 2

CU Certification of Completion

CU BACKFILL / ENGINEERED CAP COMPLETION APPROVAL - FORM 2

Reporting Date	10/27/2009			**Placement Start Date**	10/4/2009
CU Number	6			**Placement End Date**	10/24/2009
Approximate CU Centroid	**Northing**	1615839	**Easting**	734231	NY State NAD 83
CU Size	4.94	Acres			
Backfill Area	3.61	Acres*			
Cap Area	1.33	Acres			

Backfill Surface Mean Tri+ PCBs Concentration (when required)	NA	**mg/kg**
Number of nodes sampled	NA	**mg/kg**

Backfill x	**Type of Backfill** Type 1, Type 2, Nearshore, 15%	**Reference to appropriate drawings attached to Approval Form 1** CU6 Backfill and Cap Plan, 10/02/09
Cap x	**Type of Cap** Type "A" Medium to High Velocity	**Reference to appropriate drawings attached to Approval Form 1** CU6 Backfill and Cap Plan, 10/02/09

CU Checklist	**Indicate one of the following**		**Reviewer Initial Acceptance**		
Item	**Attached**	**Not Applicable**		**GE**	**EPA**
Drawing of Installed Backfill/Cap (with record details, thickness and sample locations [when backfill/cap are placed])	x				
Where applicable in backfill areas provide the following: Sample locations (coordinates), depths, Aroclor and Tri+ PCB concentrations collected including analytical data, field observations, (hard copy and electronic copies [in database format or equivalent]		x			

Comments

Refer to attached Narrative Backfill Summary and CU 6 Backfill and Cap Drawings.
*Backfill Area does not include 15% backfill material placed over Cap Area.

Upon signing this document, GE certifies that the backfill/cap has been installed satisfactorily and that no further backfill placement or capping is required for this CU. These remedial activities exclude long term operation, monitoring, maintenance and adaptive management at the CU. EPA accepts this certification.

Signature of GE Representative	**Signature of EPA Representative**
Signature	Signature
Name	Name
Date	Date

Narrative

CU 6

Narrative Summary of Backfill and Capping and
EPA Backfill and Capping Agreements

1.0 Cap Placement

A Type "A" medium to high velocity cap was placed in accordance with the CU 6 Backfill and Capping Plan Drawing, dated October 2, 2009, which was provided to EPA as part of the Form 1 package. A multi-beam bathymetric survey of the CU 6 cap was performed after final cap placement on October 14, 2009, as shown on the attached CU 6 Type "A" Cap Acceptance Survey, dated October 15, 2009. The surveyed cap thickness on a 5' x 5' grid is shown for all cap areas.

2.0 Backfill Placement

Backfill materials were placed in accordance with the CU 6 Backfill and Capping Plan Drawing, dated October 2, 2009, which was provided to EPA as part of the Form 1 package. Multi-beam bathymetric surveys for CU6 were performed after backfill placement on October 22 and October 24, 2009, as shown on the attached CU6 Post Backfill Placement Acceptance Drawing, dated October 25, 2009. The difference to dredge prism on a 10' x 10' grid is shown for all backfill areas, however it should be noted that the 6" backfill placed in the bucket refusal areas is not subject to any acceptance tolerance and is provided for information only.

3.0 EPA Field Agreements Specific to CU 6 Backfill and Capping

1. The plan used to place backfill and cap in CU6 was approved by EPA on October 2, 2009 as part of the CU 6 Acceptance Form 1 package. Changes were made to the CU6 Backfill and Cap Plan on October 7, 2009 to show no placement of 1' backfill over the north area Type "A" medium to high velocity cap (Revision 2 to CU6 Backfill and Cap Plan). The drawing was changed on October 14, 2009 to show no placement of 1' backfill over the southern Type "A" medium to high velocity cap (Revision 3 to CU6 Backfill and Cap Plan).

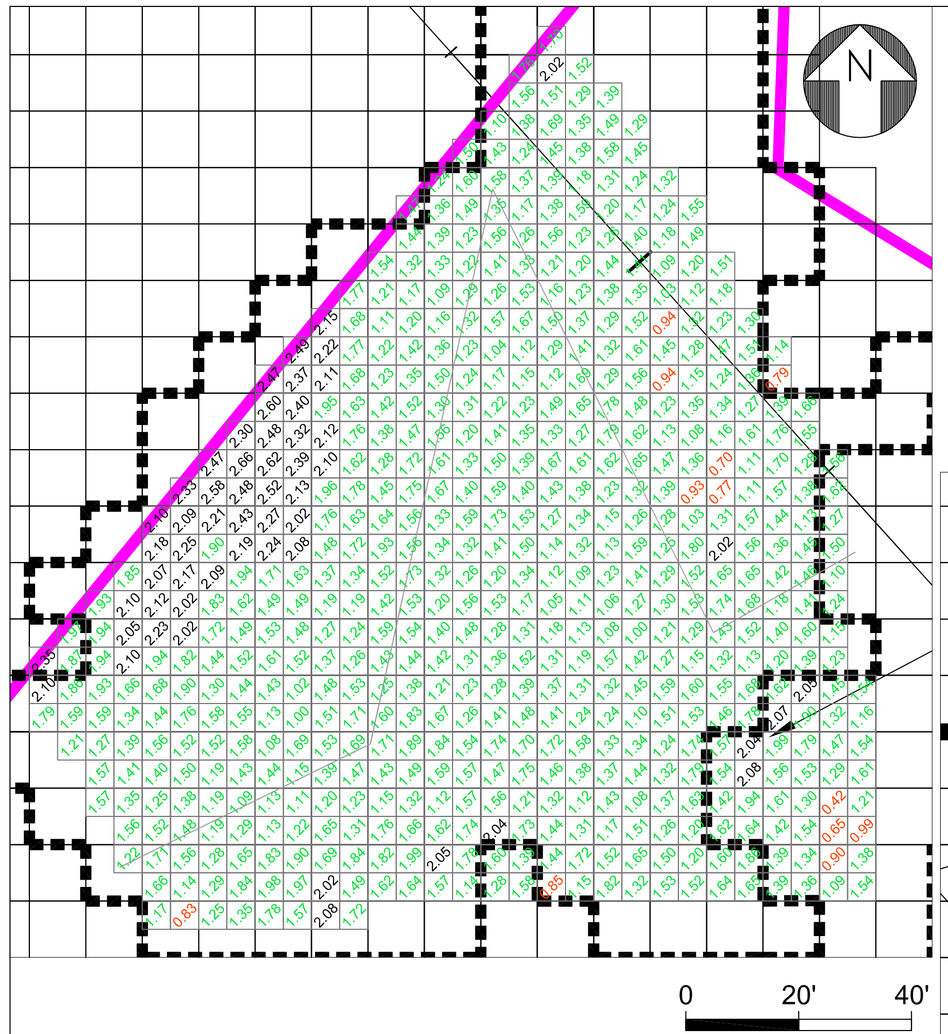
2. During the 4:00 PM meeting on October 12, 2009, EPA agreed that acceptance surveys of partial areas of a CU may be performed and used for acceptance once placement of backfill or cap in those areas is complete.

3. During the 4:00 PM meeting on October 15, 2009, GE presented acceptance surveys of the top of cap elevations in CU6. It was agreed that the placement of cap materials on top of the former road bridge pier foundations was impractical and that cap placement tolerances would not apply in those locations. Based on the information presented by GE, EPA

accepted that the top of cap elevations were within the required design tolerances. The Cap Acceptance Survey Drawing, dated October 25, 2009 is included in this package.

4. During the 4:00 PM meeting on October 23, 2009, GE presented acceptance surveys of the top of backfill elevations in CU6. Based on the information presented by GE, EPA indicated additional backfill placement is required in the southern portion of CU6 near the NYS Route 197 bridge piers. On October 23, 2009, GE directed the Dredging Contractor to place additional backfill in this area, and a third party multi-beam survey of this area was completed on October 24, 2009. The Backfill Acceptance Survey Drawing, dated October 25, 2009, included in this package, reflects the new survey data.

Figures



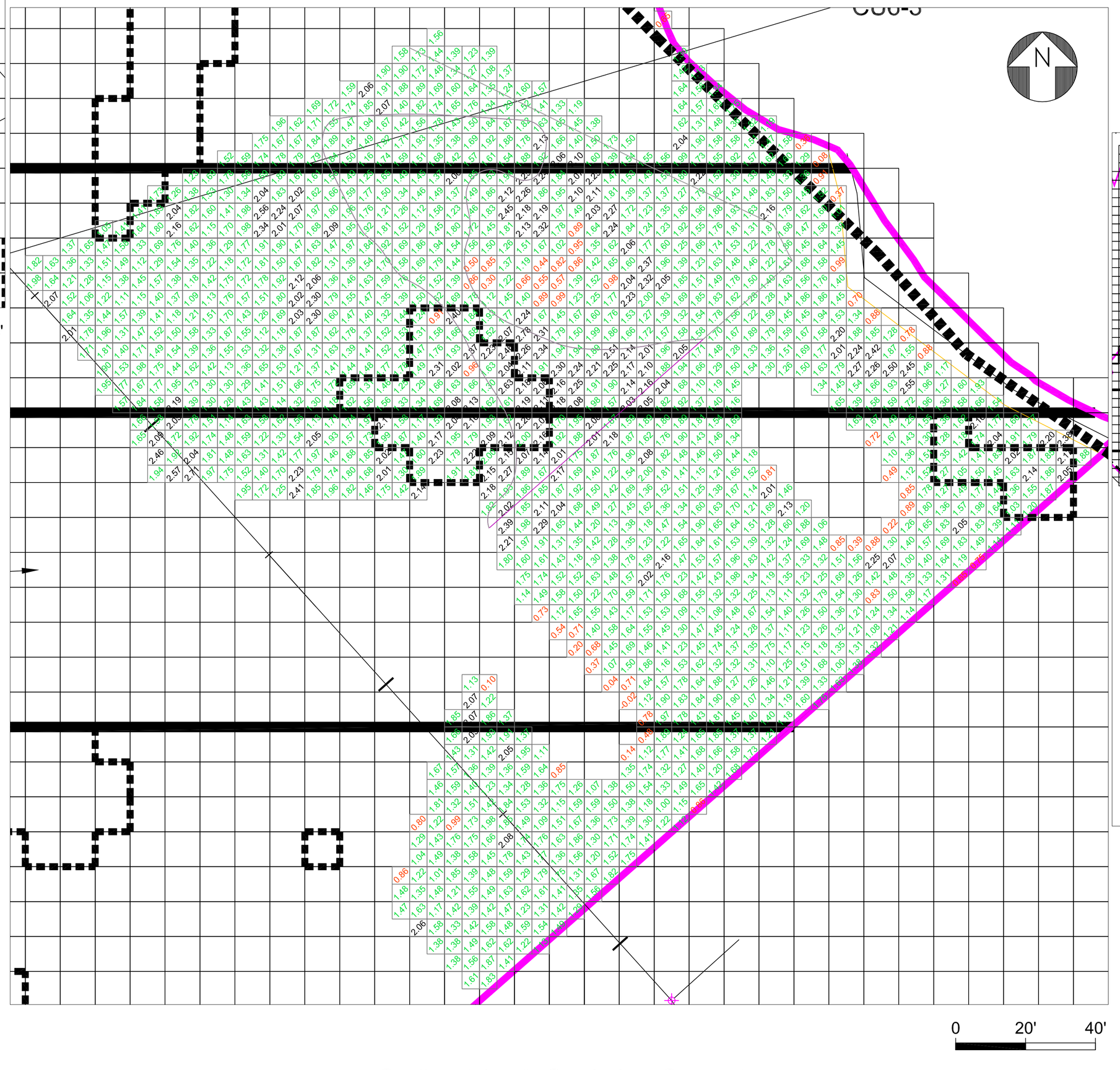
CU6 TYPE A CAP PLACEMENT

NOTES:

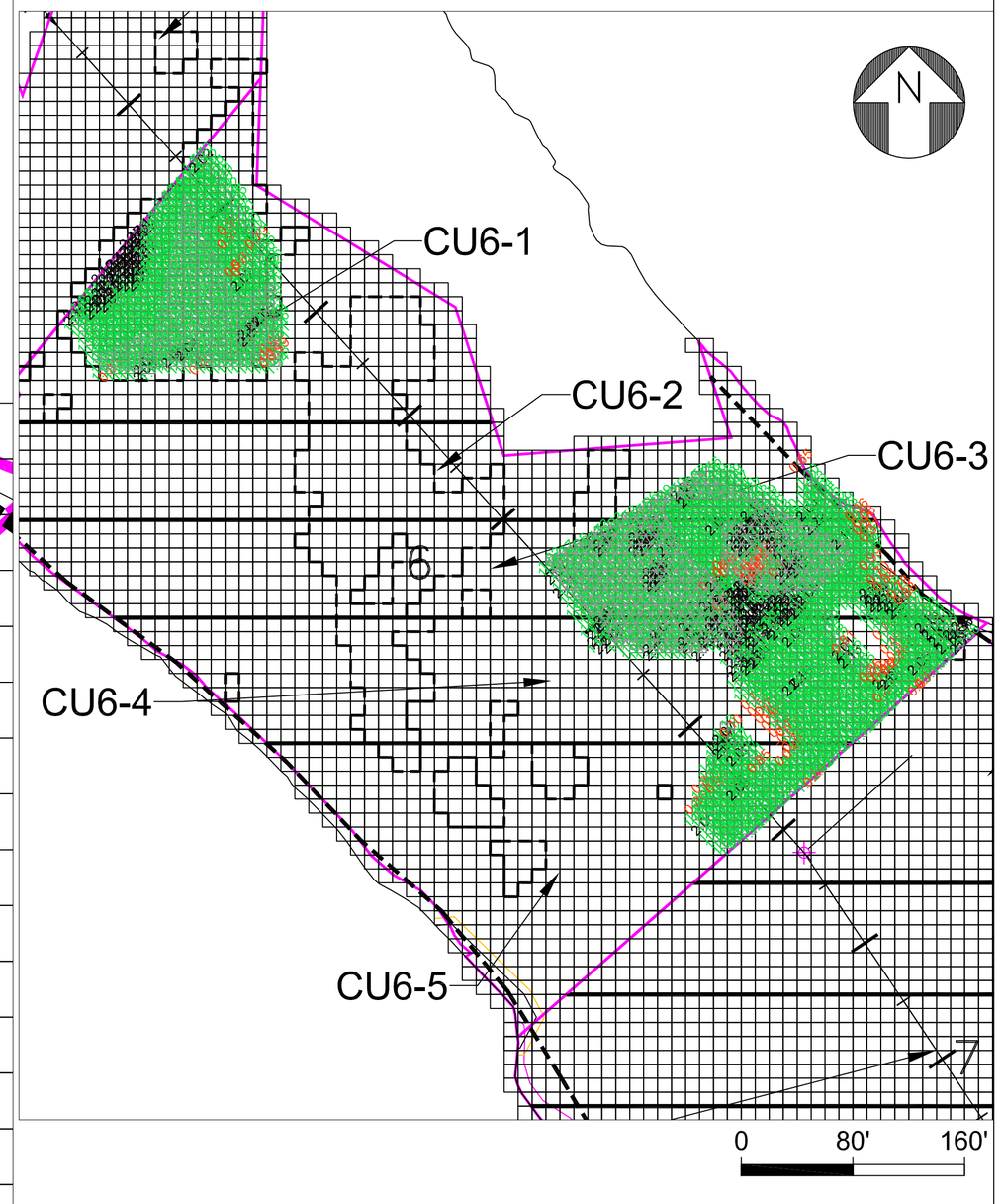
1. OSI MULTIBEAM SURVEY ON 10/14/09.
2. CAP THICKNESS IS LISTED IN 5'x5' GRIDS.

LEGEND

- 1.20 — 5'x5' GRID CELL DEPTH OF CAP PLACEMENT WITHIN DESIGN SPECIFICATIONS.
- 0.75 — 5'x5' GRID CELL DEPTH OF CAP PLACEMENT LESS THAN 1 FT BELOW DESIGN SPECIFICATIONS.
- 2.30 — 5'x5' GRID CELL DEPTH OF CAP PLACEMENT GREATER THAN 1 FT (NOT ACCEPTABLE)
- BUCKET REFUSAL ENCOUNTERED DURING INVENTORY DREDGING
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET



CU6 TYPE A CAP PLACEMENT



CU6 TYPE A CAP LOCATION

CU-6
TYPE A CAP
ACCEPTANCE SURVEY

REV	DATE	DRN BY	DRAWING DESCRIPTION	PM
0	10/15/09	JHG	ACCEPTANCE SURVEY	MG

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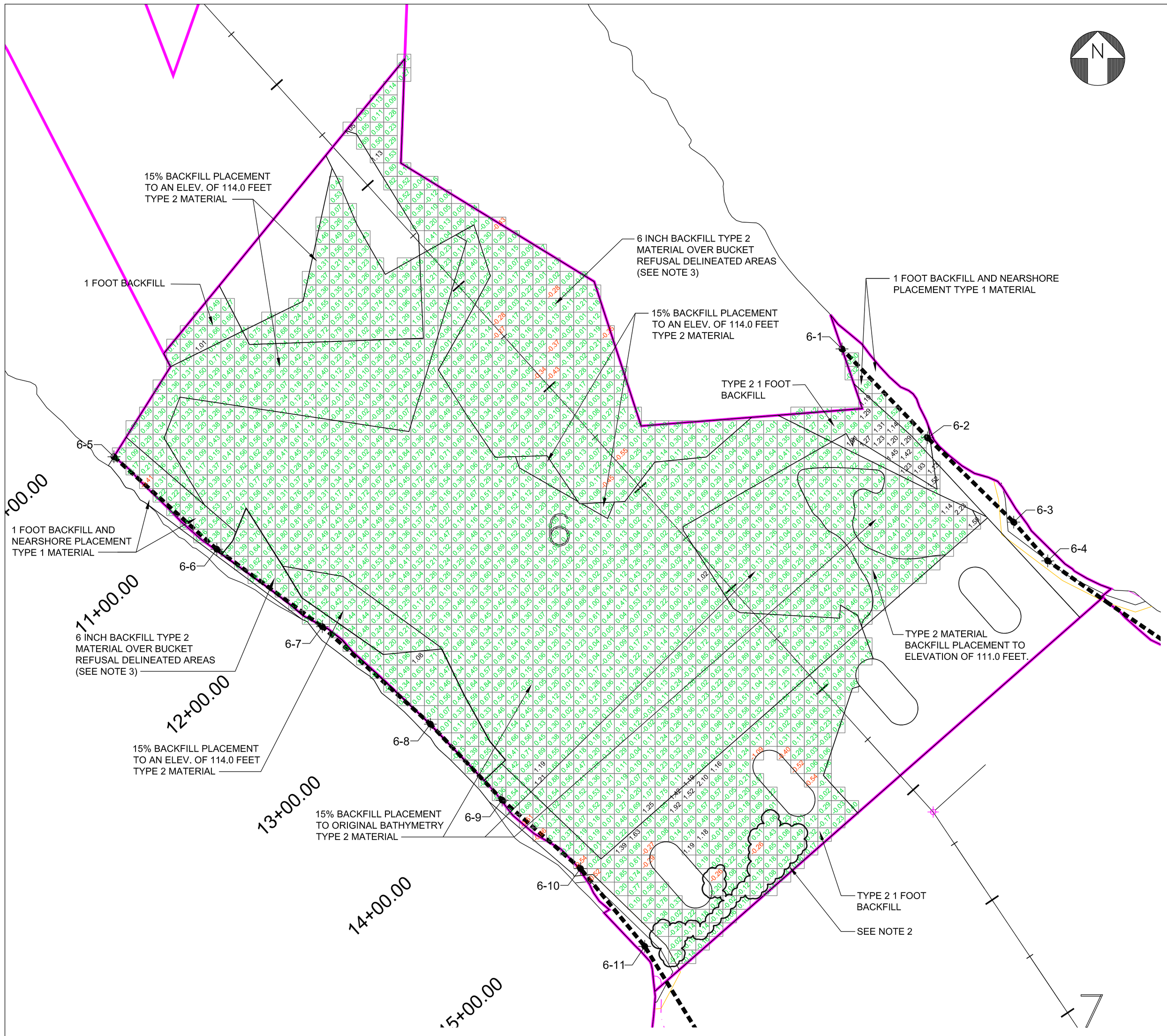
DRAWING TITLE: CU6 TYPE A CAP ACCEPTANCE SURVEY

DRAWN BY	CHECKED BY	DRAWING NO.	SCALE
JHG	MG	CU6– 1	AS SHOWN
DATE: 10/15/09	APPROVED BY: MG		JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\CAP TYPE A – LOW(5X5)\CU6 TYPE A CAP MED–HIGH–1.DWG
PLOT DATE: 10/21/2009 7:49 PM PLOTTED BY: GOLDTHWAIT, JAMES



CU-06 Near-Shore Topographic Soundings Summary Table
Collected 2009-10-22

Published Near-Shore Locations				Near-Shore Confirmation				
Name	Easting	Northing	Target Elevation	Easting	Northing	Check Elevation	Horz. Dist	Vert Diff.
6-1	734,417.77	1,615,982.87	117.50	734,417.77	1,615,982.54	117.99	0.32	0.49
6-2*	734,480.87	1,615,917.34	117.50	734,481.04	1,615,917.12	116.26	0.28	-1.24
6-3	734,544.34	1,615,855.23	117.50	734,544.34	1,615,855.24	117.19	0.01	-0.31
6-4	734,569.42	1,615,826.72	117.50	734,568.67	1,615,825.92	117.90	1.10	0.40
6-5	733,881.15	1,615,903.39	117.50	733,881.06	1,615,903.58	117.68	0.20	0.18
6-6	733,956.97	1,615,835.27	117.50	733,956.70	1,615,835.21	117.38	0.28	-0.12
6-7	734,034.74	1,615,778.22	117.50	734,034.46	1,615,777.96	117.95	0.39	0.45
6-8	734,114.40	1,615,706.40	117.50	734,114.44	1,615,706.58	117.30	0.19	-0.20
6-9	734,167.30	1,615,650.46	117.50	734,167.27	1,615,650.29	117.34	0.17	-0.16
6-10	734,225.04	1,615,600.00	117.50	734,225.16	1,615,599.87	117.26	0.18	-0.24
6-11	734,272.39	1,615,542.65	117.50	734,271.71	1,615,542.63	117.98	0.68	0.48

*Land surveyors noted Rip-Rap near location.

LEGEND

- -0.03 — 10x10 GRID WITHIN DESIGN GUIDELINES
- -0.77 — 10x10 GRID LESS THAN DESIGN GUIDELINES
- 1.11 — 10x10 GRID ABOVE DESIGN GUIDELINES
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- 6-11 — NEARSHORE BORDER SET POINT (DATA CONTAINED IN NEARSHORE SUMMARY TABLE)
- POTENTIAL LOCATION FOR RIVERINE FRINGING WETLAND CONSTRUCTION (PLANTING BY OTHERS)
- NEARSHORE BORDER (117.5 FEET)

NOTES:

1. OSI MULTIBEAM SURVEY DATE #1 OCTOBER 22, 2009.
2. BASED ON RESULTS OF MULTIBEAM #1, DREDGING CONTRACTOR PLACED ADDITIONAL BACKFILL ON OCTOBER 23 & OCTOBER 24, 2009. DATA IN CLOUDED AREA BASED ON OSI MULTIBEAM SURVEY DATE #2 OCTOBER 24, 2009.
3. BUCKET REFUSAL AREAS NOT INCLUDED AS PART OF CU ACCEPTANCE PROCESS.
4. 4,211 CY OF 15% BACKFILL MATERIAL PLACED DURING BACKFILLING. BACKUP CALCULATIONS AVAILABLE UPON REQUEST.

Area	Average Thickness (ft)	Approx. Area (acre)	Intended Vol. Placed (CY)	Actual Vol. Placed (CY)	Variation from Planned (CY)
CU06	1.53	0.61	981.5	1501.0	519.5

Notes:
Average thickness and volumes were computed using 10x10 cell center average data sets.

CU-6
1 FOOT BACKFILL PLACEMENT ACCEPTANCE SURVEY

REV	DATE	DRN BY	DRAWING DESCRIPTION	
2	10/26/09	JHG	REVISED PER EPA COMMENTS	MG
1	10/25/09	JHG	OSI MULTIBEAM SURVEY #2 - ISSUED FOR EPA REVIEW	MG
0	10/23/09	JHG	OSI MULTIBEAM SURVEY #1	MG

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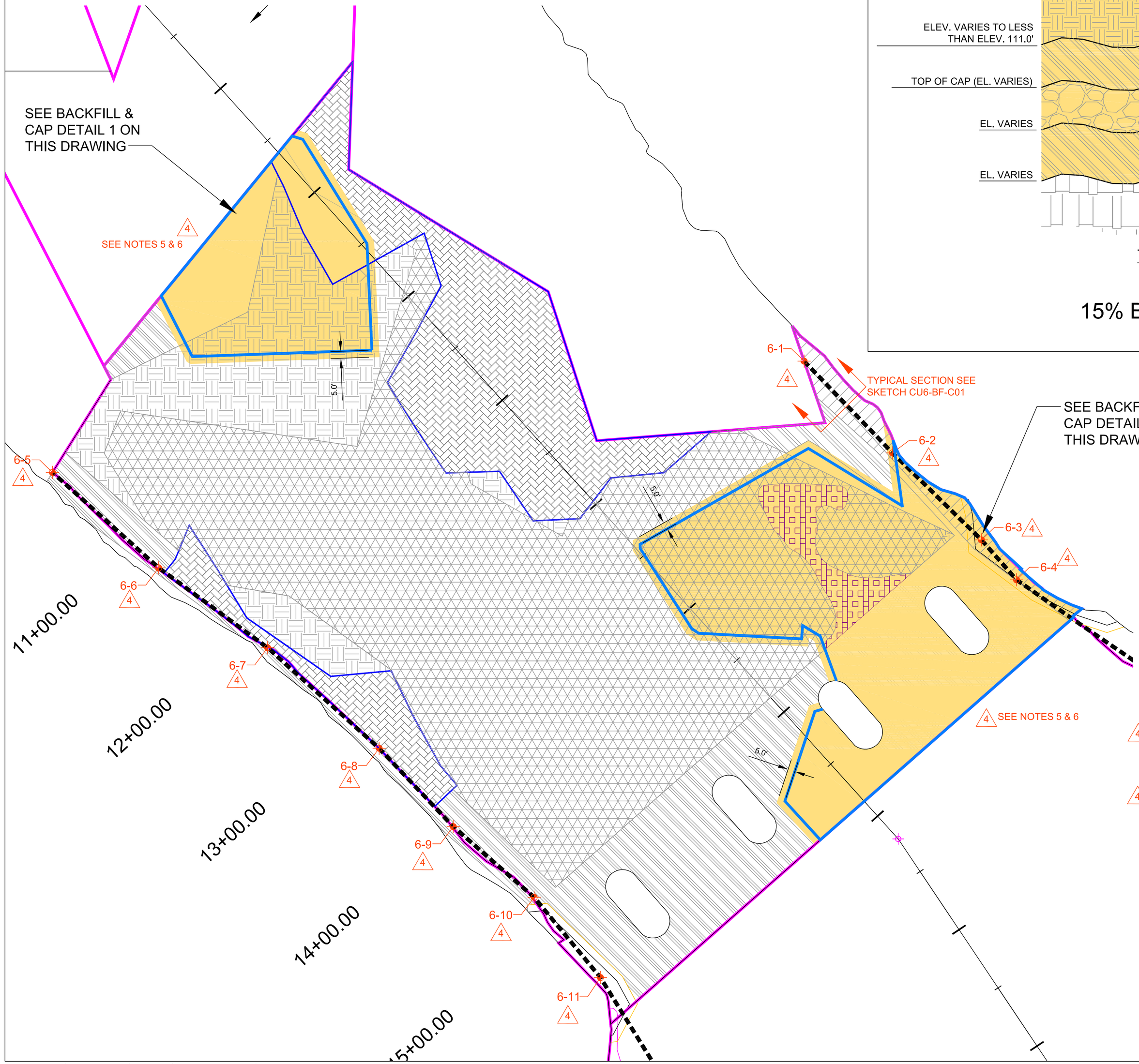
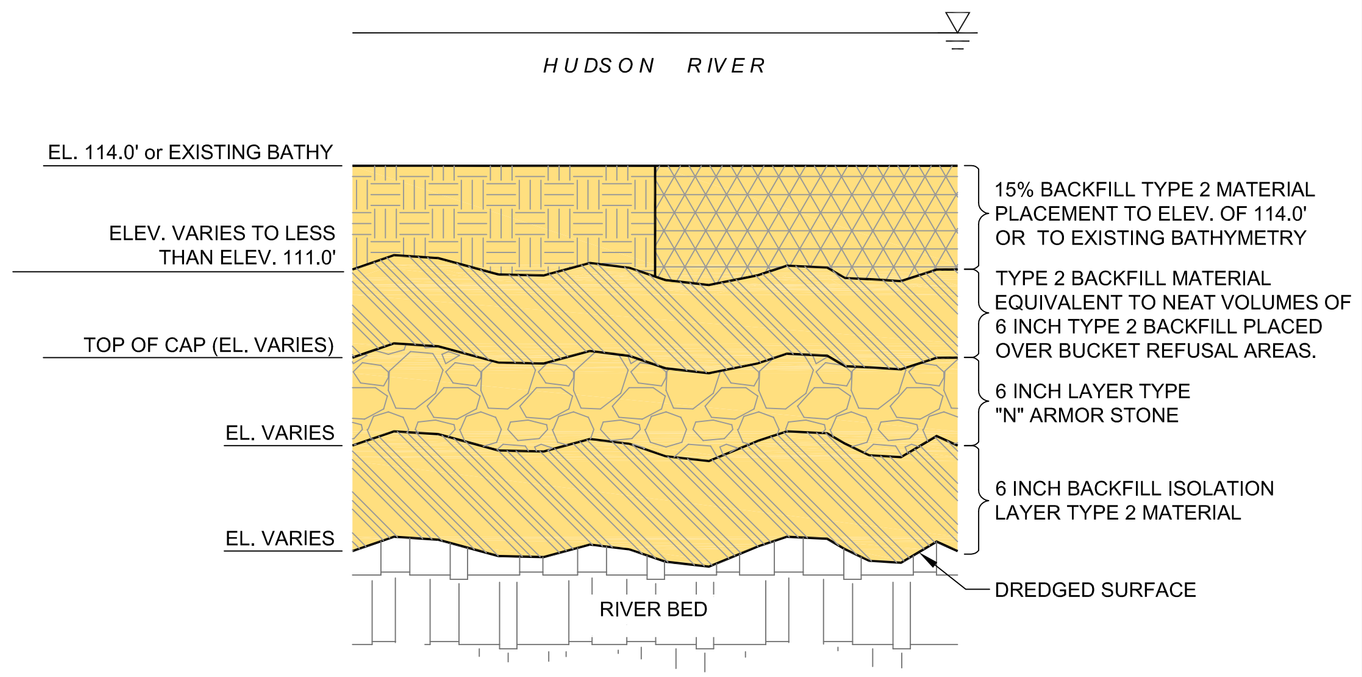
DRAWING TITLE: CU6 BACKFILL PLACEMENT ACCEPTANCE SURVEY

DRAWN BY: JHG | CHECKED BY: MG | DRAWING NO.: CU6-2 | SCALE: AS SHOWN
DATE: 10/26/09 | APPROVED BY: MG | JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\BACKFILL ACCEPTANCE\1FT BKFL 10X10 CU6-2.DWG
PLOT DATE: 10/26/2009 7:01 PM PLOTTED BY: 48606





TYPICAL SECTION VIEW

DETAIL 1
15% BACKFILL & CAP CU6

NOT TO SCALE

NOTES:

1. BACKFILL TO BE PLACED IN ACCORDANCE WITH SECTION 13720 AND DESIGN DRAWINGS B-0021 AND B-0020-SK1.
2. CAP MATERIALS TO BE PLACED IN ACCORDANCE WITH SECTION 13720 AND DESIGN DRAWING C-0038.
3. LIMITS OF BACKFILL WITHIN 111' CONTOUR AREA ADJUSTED FOR CONSTRUCTABILITY.
4. FIELD CHANGES TO FINAL DESIGN SURFACE ELEVATIONS.

4 5. TOTAL CAP AREA INCLUDES 5' HORIZONTAL OFFSET INTO COMPLIANT AREA, AS PER DRAWING C-0038.

4 6. LIMIT OF CAP AT 5 FT. HORIZONTAL OFFSET FROM LIMIT OF NON-COMPLIANT NODE POLYGON.

LEGEND

- NO DREDGE BORDER BASED ON RESULTS OF BUCKET REFUSAL AREA AND AID 1 PROBING INVESTIGATION RESULTS.
- CU BOUNDARY
- CU SUBUNIT BOUNDARY
- MUD - RIP RAP INTERFACE
- 5' INTERFACE OFFSET
- 1 FOOT BACKFILL AND NEARSHORE PLACEMENT TYPE 1 MATERIAL
- 1 FOOT BACKFILL AND NEARSHORE PLACEMENT TYPE 2 MATERIAL
- 15% BACKFILL PLACEMENT TO AN ELEV. OF 114.0 FEET TYPE 1 MATERIAL
- 15% BACKFILL PLACEMENT TO AN ELEV. OF 114.0 FEET TYPE 2 MATERIAL
- 15% BACKFILL PLACEMENT TO ORIGINAL BATHYMETRY TYPE 1 MATERIAL
- 15% BACKFILL PLACEMENT TO ORIGINAL BATHYMETRY TYPE 2 MATERIAL
- 6 INCH BACKFILL TYPE 2 MATERIAL OVER BUCKET REFUSAL DELINEATED AREAS
- POTENTIAL LOCATION FOR RIVERINE FRINGING WETLAND CONSTRUCTION (PLANTING BY OTHERS)
- NEARSHORE BORDER (117.5 FEET)
- CAP AREA (MEDIUM TO HIGH VELOCITY - TYPE A)
- TYPE 2 MATERIAL BACKFILL PLACEMENT TO ELEVATION OF 111.0 FEET.
- 4 6-11 NEARSHORE BORDER SET POINT (DATA CONTAINED IN NEARSHORE SUMMARY TABLE SHOWN ON DRAWING CU6-2, CU6 BACKFILLL PLACEMENT ACCEPTANCE SURVEY, DATED OCTOBER 26, 2009)
- 4 LIMIT OF NON-COMPLIANT NODE POLYGONS.

RECORD DRAWING

0 40' 80'

REV	DATE	DRN BY	DRAWING DESCRIPTION	PM
4	10/26/09	JHG	RECORD DRAWING	MG
3	10/14/09	JHG	ISSUED FOR USE (FIELD CHANGE)	MG
2	10/07/09	JHG	ISSUED FOR USE (FIELD CHANGE)	MG
1	10/02/09	JHG	ISSUED FOR USE	MG
0	10/01/09	JHG	ISSUED FOR EPA REVIEW	MG

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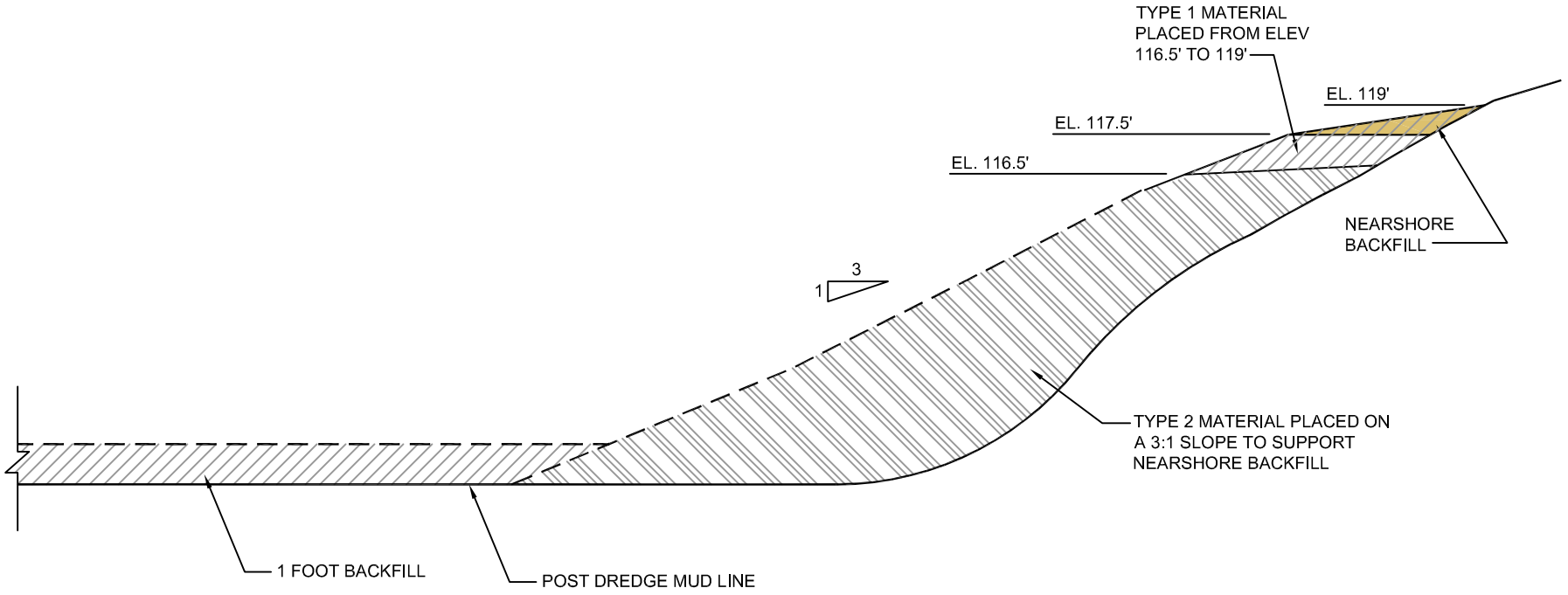
DRAWING TITLE: CU6 BACKFILL & CAP PLAN

DRAWN BY	CHECKED BY	DRAWING NO.	SCALE
JHG	MG	CU6-BC-9REC	AS SHOWN
DATE: 10/26/09	APPROVED BY: MG		JOB: 442209.01401

FILE NAME: E:\FORT EDWARD\PARSONS\OSI-BACKFILL CAP\CU6-CAP-SMC-BC-9_RECORD.DWG
PLOT DATE: 10/26/2009 7:40 PM PLOTTED BY: 48606

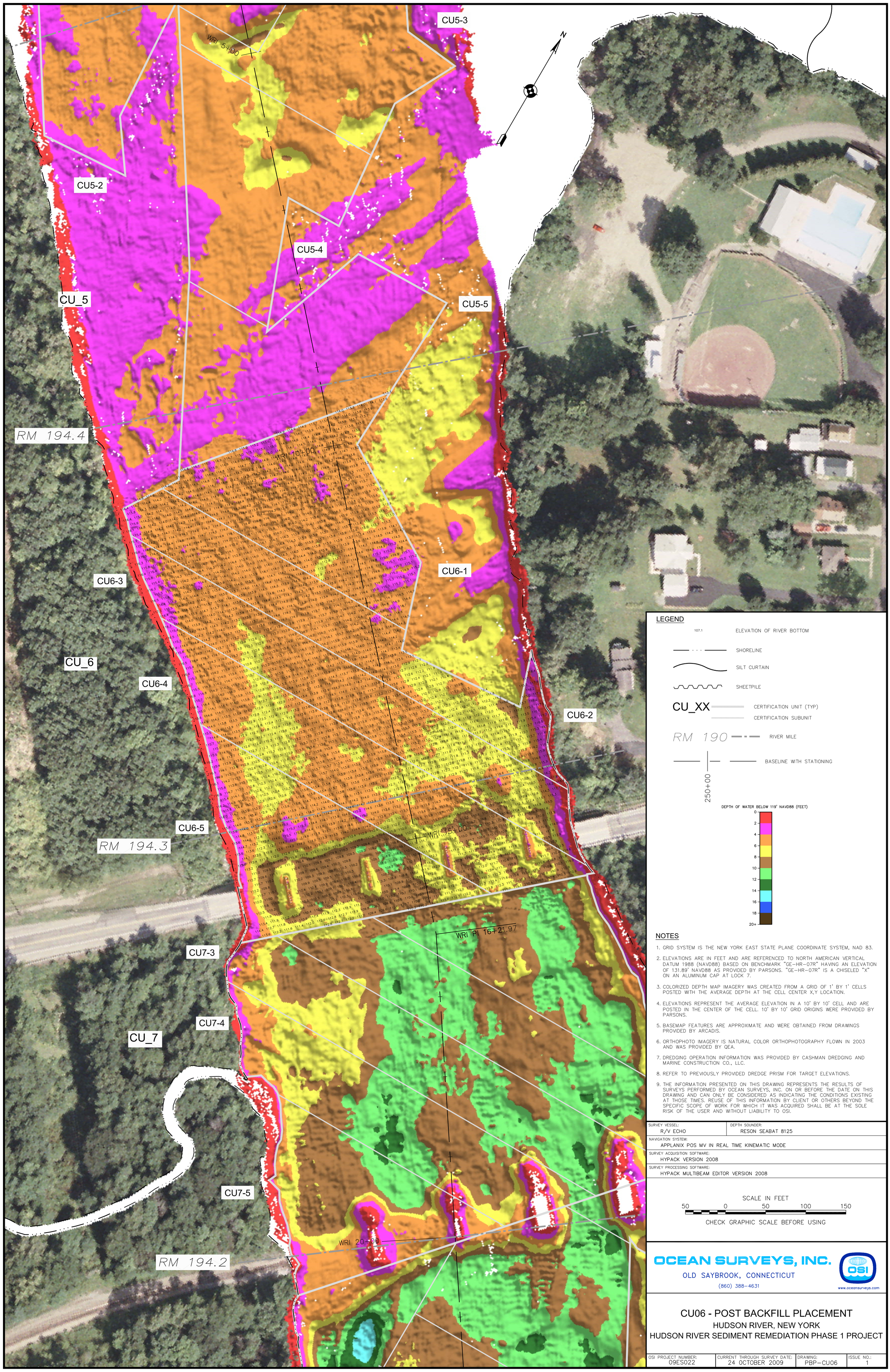


NEAR SHORE BACKFILL PLACEMENT DETAIL

TYPICAL SECTION NOT TO SCALE

PARSONS COMMERCIAL TECHNOLOGY GROUP GE COMPANY – PARSONS PROJECT OFFICE BUILDING 40–1, 381 BROADWAY FORT EDWARD, N.Y. 12828 (518) 746–5311		DRAWING TITLE CU6 NEAR SHORE BACKFILL PLACEMENT DETAIL	
DRAWN BY JHG	CHECKED BY MG	DRAWING NO. CU6–BF–C01	SCALE NOT TO SCALE
DATE 10/25/09	APPROVED BY MG		JOB 442209

FILE NAME: E:\FORT EDWARD\PARSONS\OSI-BACKFILL CAP\CU6-CAP-SMC-BC-9_RECORD.DWG
PLOT DATE: 10/26/2009 7:16 PM PLOTTED BY: 48606



LEGEND

- 107.1 — ELEVATION OF RIVER BOTTOM
- SHORELINE
- SILT CURTAIN
- SHEETPILE
- CU_XX — CERTIFICATION UNIT (TYP)
- CERTIFICATION SUBUNIT
- RM 190 — RIVER MILE
- 250+00 — BASELINE WITH STATIONING

DEPTH OF WATER BELOW 119' NAVD88 (FEET)

0 · 2 · 4 · 6 · 8 · 10 · 12 · 14 · 16 · 18 · 20+

NOTES

1. GRID SYSTEM IS THE NEW YORK EAST STATE PLANE COORDINATE SYSTEM, NAD 83.
2. ELEVATIONS ARE IN FEET AND ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88) BASED ON BENCHMARK "GE-HR-07R" HAVING AN ELEVATION OF 131.89' NAVD88 AS PROVIDED BY PARSONS. "GE-HR-07R" IS A CHISELED "X" ON AN ALUMINUM CAP AT LOCK 7.
3. COLORIZED DEPTH MAP IMAGERY WAS CREATED FROM A GRID OF 1' BY 1' CELLS POSTED WITH THE AVERAGE DEPTH AT THE CELL CENTER X,Y LOCATION.
4. ELEVATIONS REPRESENT THE AVERAGE ELEVATION IN A 10' BY 10' CELL AND ARE POSTED IN THE CENTER OF THE CELL. 10' BY 10' GRID ORIGINS WERE PROVIDED BY PARSONS.
5. BASEMAP FEATURES ARE APPROXIMATE AND WERE OBTAINED FROM DRAWINGS PROVIDED BY ARCADIS.
6. ORTHOPHOTO IMAGERY IS NATURAL COLOR ORTHOPHOTOGRAPHY FLOWN IN 2003 AND WAS PROVIDED BY QEA.
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SURVEY VESSEL:	DEPTH SOUNDER:
R/V ECHO	RESON SEABAT 8125

NAVIGATION SYSTEM: APPLANIX POS MV IN REAL TIME KINEMATIC MODE

SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2008

SURVEY PROCESSING SOFTWARE: HYPACK MULTIBEAM EDITOR VERSION 2008

SCALE IN FEET

50 0 50 100 150

CHECK GRAPHIC SCALE BEFORE USING

OCEAN SURVEYS, INC.
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CU06 - POST BACKFILL PLACEMENT

HUDSON RIVER, NEW YORK

HUDSON RIVER SEDIMENT REMEDIATION PHASE 1 PROJECT

OSI PROJECT NUMBER:	CURRENT THROUGH SURVEY DATE:	DRAWING:	ISSUE NO.:
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