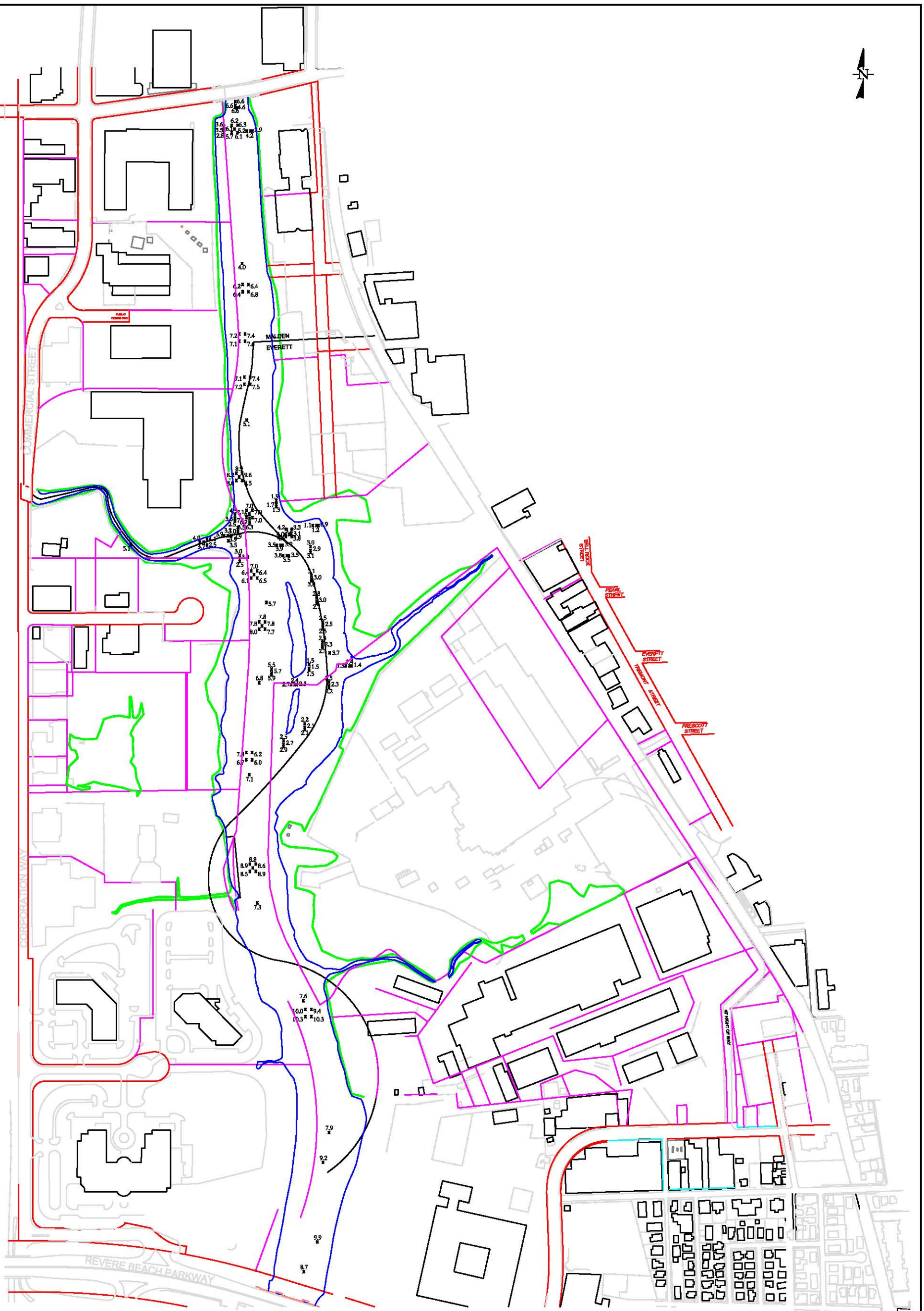

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CONCORD, MASSACHUSETTS

MALDEN RIVER RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD MASSACHUSETTS

WATER DEPTHS (IN FEET)

Date: JAN 2007

Figure: F-1

LEGEND

9.9 SPOT WATER DEPTH

EXISTING BUILDING

FORMER BUILDING

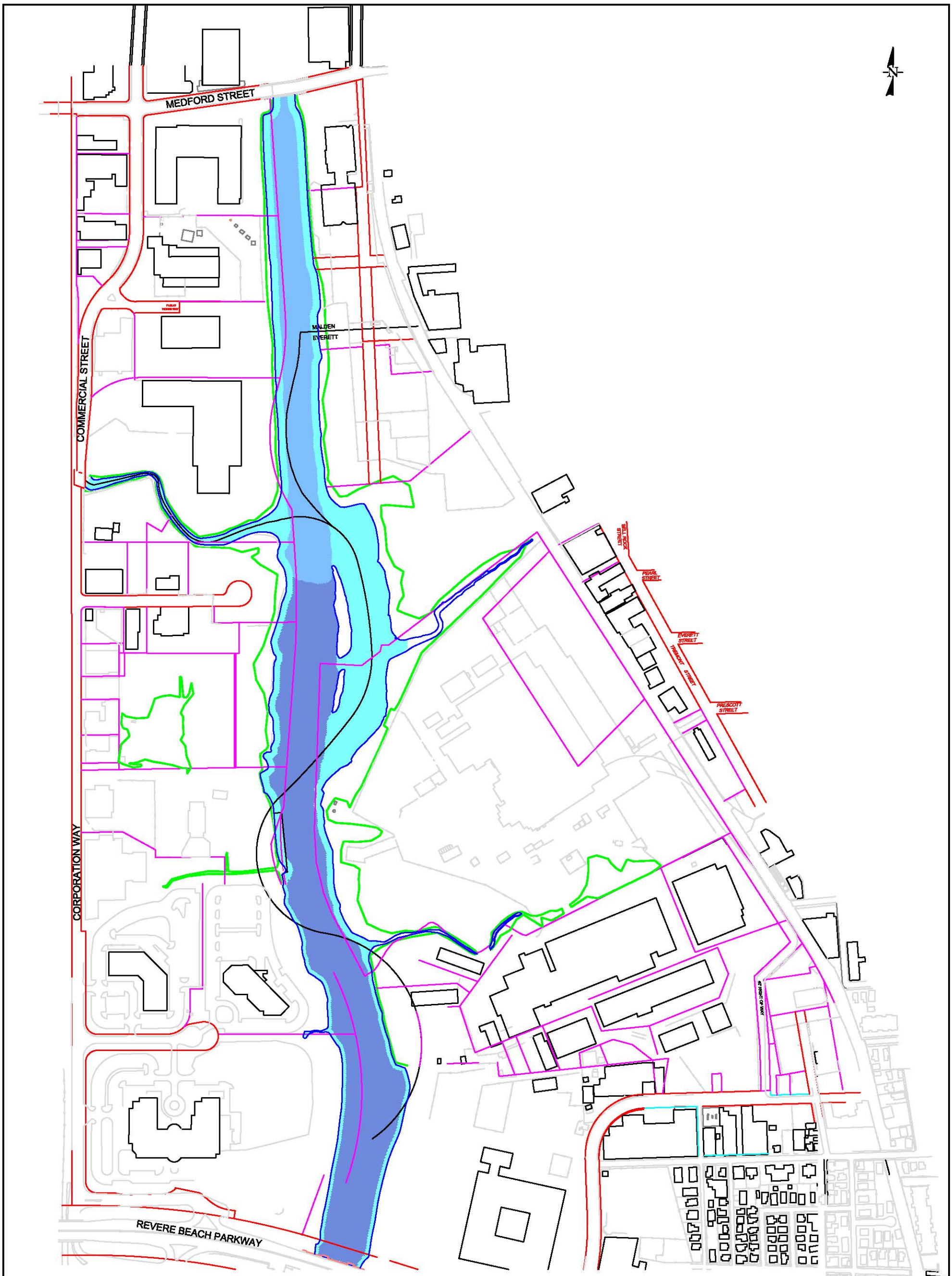
WETLAND

NOTES

Reference: Figure prepared by Toomey-Munson & Associates Inc. from Wetland Resources Location Plan-10-5-99, revised 8-11-00; Haley & Aldrich Phase 2 Site Assessment, Former Malden MGP site-2001.

0 200 400

Approximate Scale In Feet



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MALDEN RIVER RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD MASSACHUSETTS

WATER DEPTHS RANGES (IN FEET)

Date: JAN 2007 | Figure: F-2

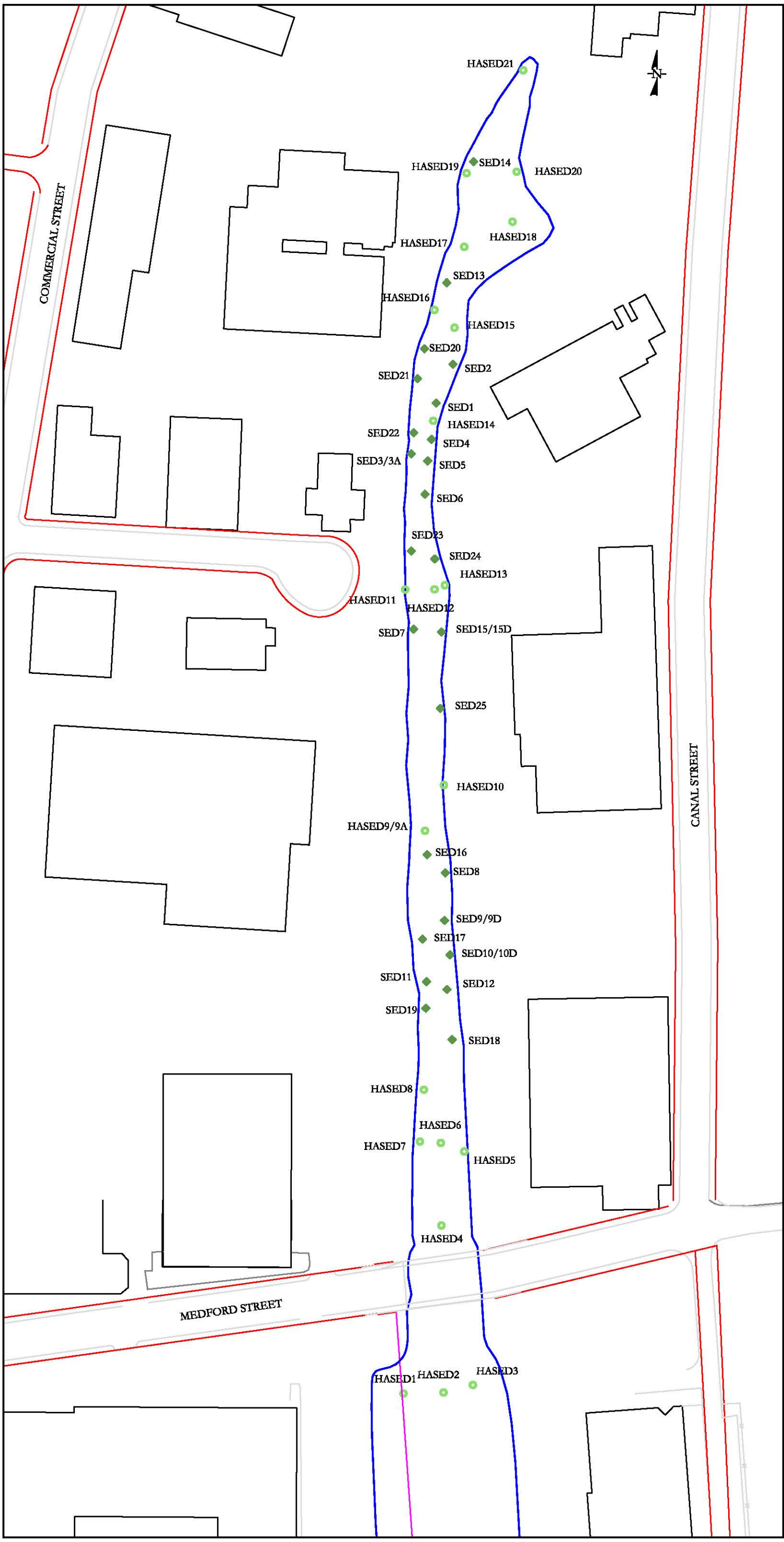
LEGEND

- WATER DEPTH 1-3 FEET
- WATER DEPTH 5-7 FEET
- WATER DEPTH >7 FEET
- EXISTING BUILDING
- FORMER BUILDING
- WETLAND

NOTES

Reference: Figure prepared by Toomey-Munson & Associates Inc. from Wetland Resources Location Plan-10-5-99, revised 8-11-00; Haley & Aldrich Phase 2 Site Assessment, Former Malden MGP site-2001.

0 200 400
Approximate Scale In Feet



DEPARTMENT OF THE ARMY
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CONCORD, MASSACHUSETTS

LEGEND

- RIVER BORING PLACED BY H&A: 2000
- SEDIMENT SAMPLE TRC 1996

NOTES

- Reference: Figure prepared by Toomey–Munson & Associates Inc. from Wetland Resources Location Plan–10–5–99, revised 8–11–00; Haley & Aldrich Phase 2 Site Assessment, Former Malden MGP site–2001.

Sample locations are approximate and were compiled from various sources.

TRC sample locations from Rohm Tech site plan: 1–29–97.

USGS locations taken from draft email dated 5–30–03.

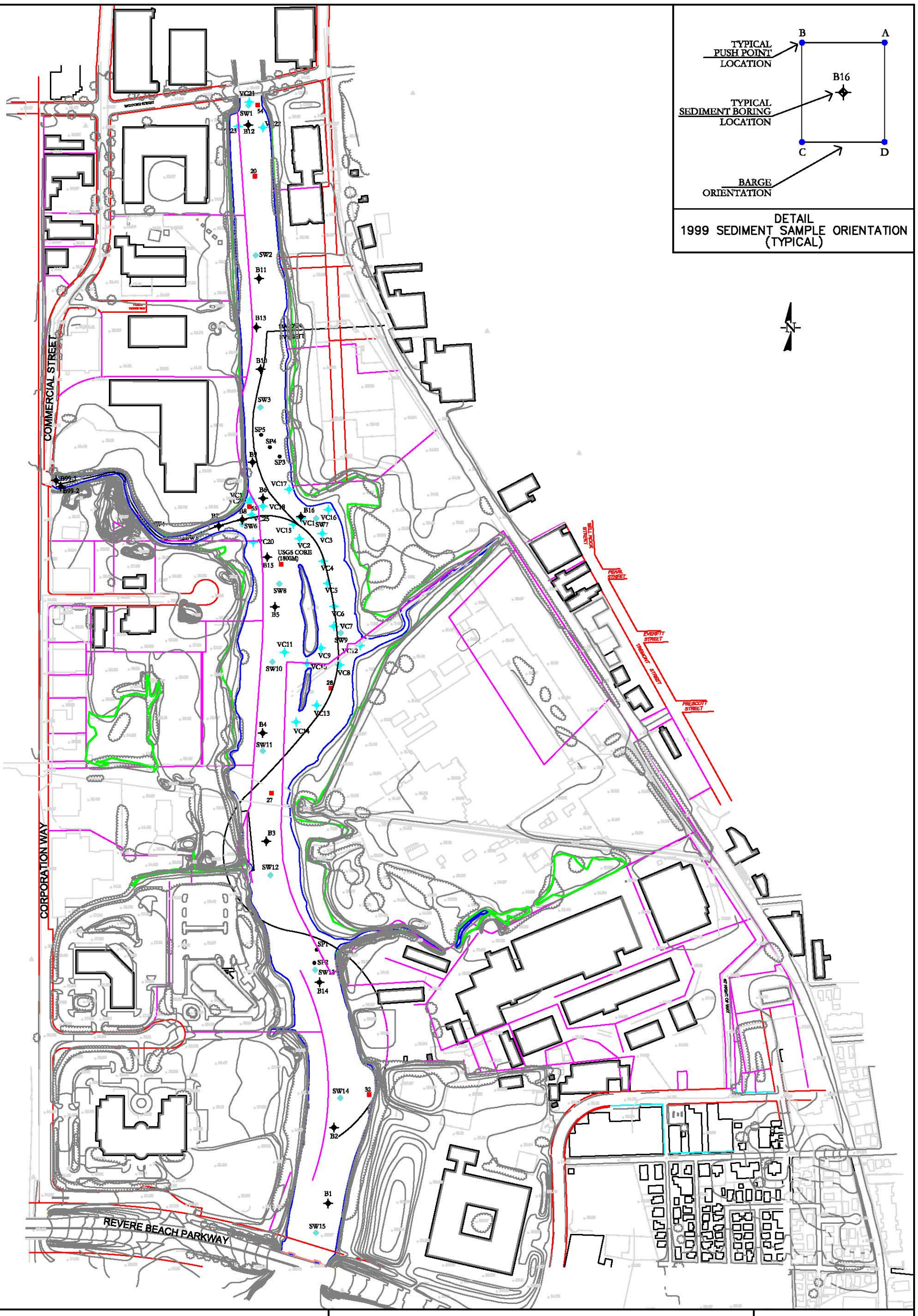
MALDEN RIVER RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD
MASSACHUSETTS

HISTORIC SAMPLE LOCATIONS: 1996–2000

0 200 400
Approximate Scale In Feet

Date: JAN 2007

Figure: F–3



DETAIL
1999 SEDIMENT SAMPLE ORIENTATION
(TYPICAL)

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

MALDEN RIVER RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD MASSACHUSETTS

APPROXIMATE SAMPLE LOCATIONS

Date: JAN 2007

Figure: F-4

LEGEND

- RIVER BORING PLACED BY NCA: 1999
- HAND DRIVEN PROBE PLACED BY NCA: 1999
- USGS SEDIMENT SAMPLE LOCATION
- RIVER BORING PLACED BY NCA: 2003
- SURFACE WATER SAMPLE COLLECTED BY NCA: 1999
- EXISTING BUILDING
- FORMER BUILDING
- WETLAND

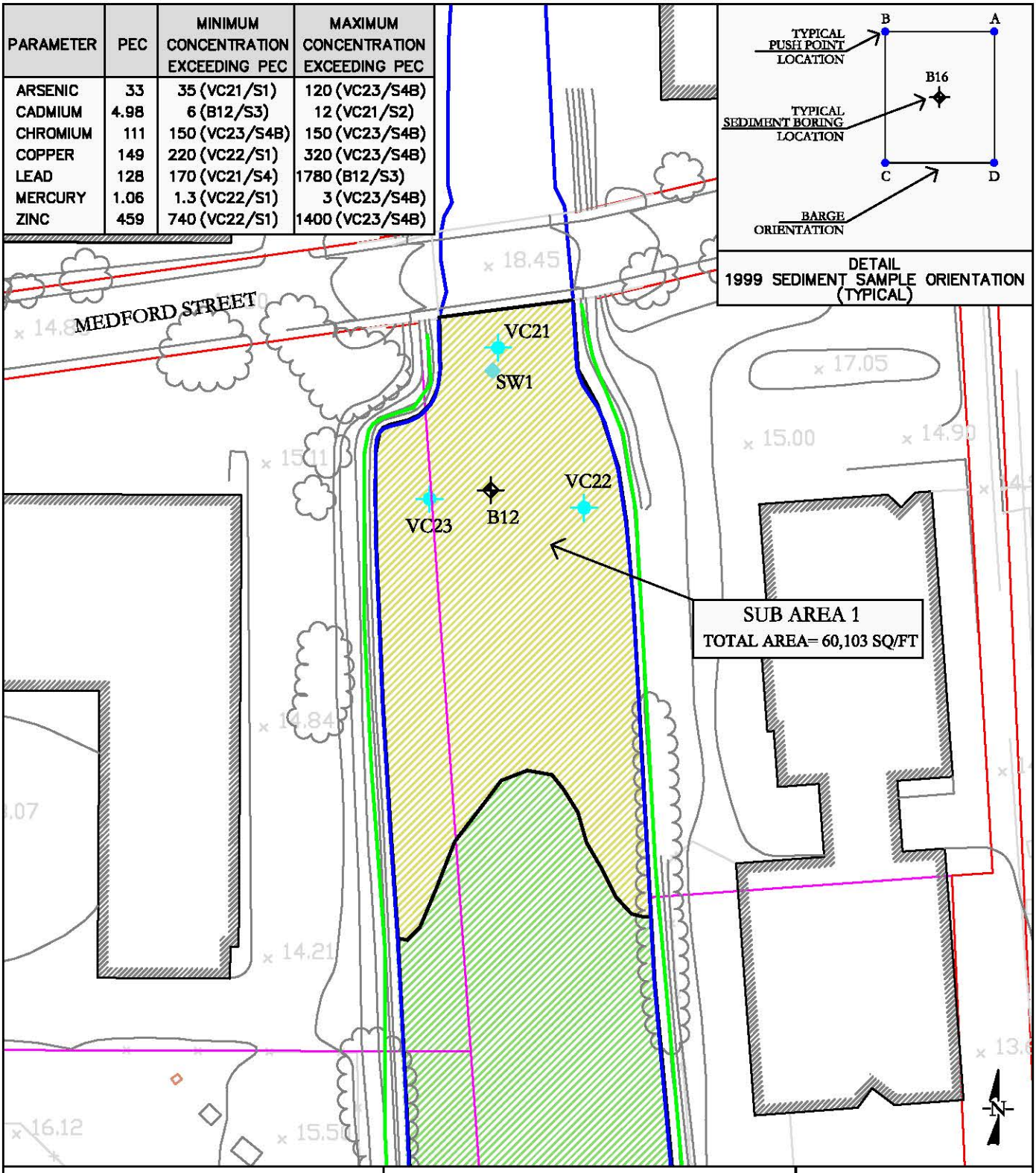
NOTES

Reference: Figure prepared by Toomey-Munson & Associates Inc. from Wetland Resources Location Plan-10-5-99, revised 8-11-00; Haley & Aldrich Phase 2 Site Assessment, Former Malden MGP site-2001.

0 200 400
Approximate Scale In Feet

PARAMETER	PEC	MINIMUM CONCENTRATION EXCEEDING PEC	MAXIMUM CONCENTRATION EXCEEDING PEC
ARSENIC	33	35 (VC21/S1)	120 (VC23/S4B)
CADMIUM	4.98	6 (B12/S3)	12 (VC21/S2)
CHROMIUM	111	150 (VC23/S4B)	150 (VC23/S4B)
COPPER	149	220 (VC22/S1)	320 (VC23/S4B)
LEAD	128	170 (VC21/S4)	1780 (B12/S3)
MERCURY	1.06	1.3 (VC22/S1)	3 (VC23/S4B)
ZINC	459	740 (VC22/S1)	1400 (VC23/S4B)

DETAIL
1999 SEDIMENT SAMPLE ORIENTATION (TYPICAL)



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MALDEN RIVER RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD
MASSACHUSETTS

SUB–AREA 1 DETAIL

LEGEND

- RIVER BORING PLACED BY NCA: 1999
- RIVER BORING PLACED BY NCA: 2003
- SURFACE WATER SAMPLE COLLECTED BY NCA: 1999
- SUB–AREA 1
- SUB–AREA 2
- WETLAND

NOTES

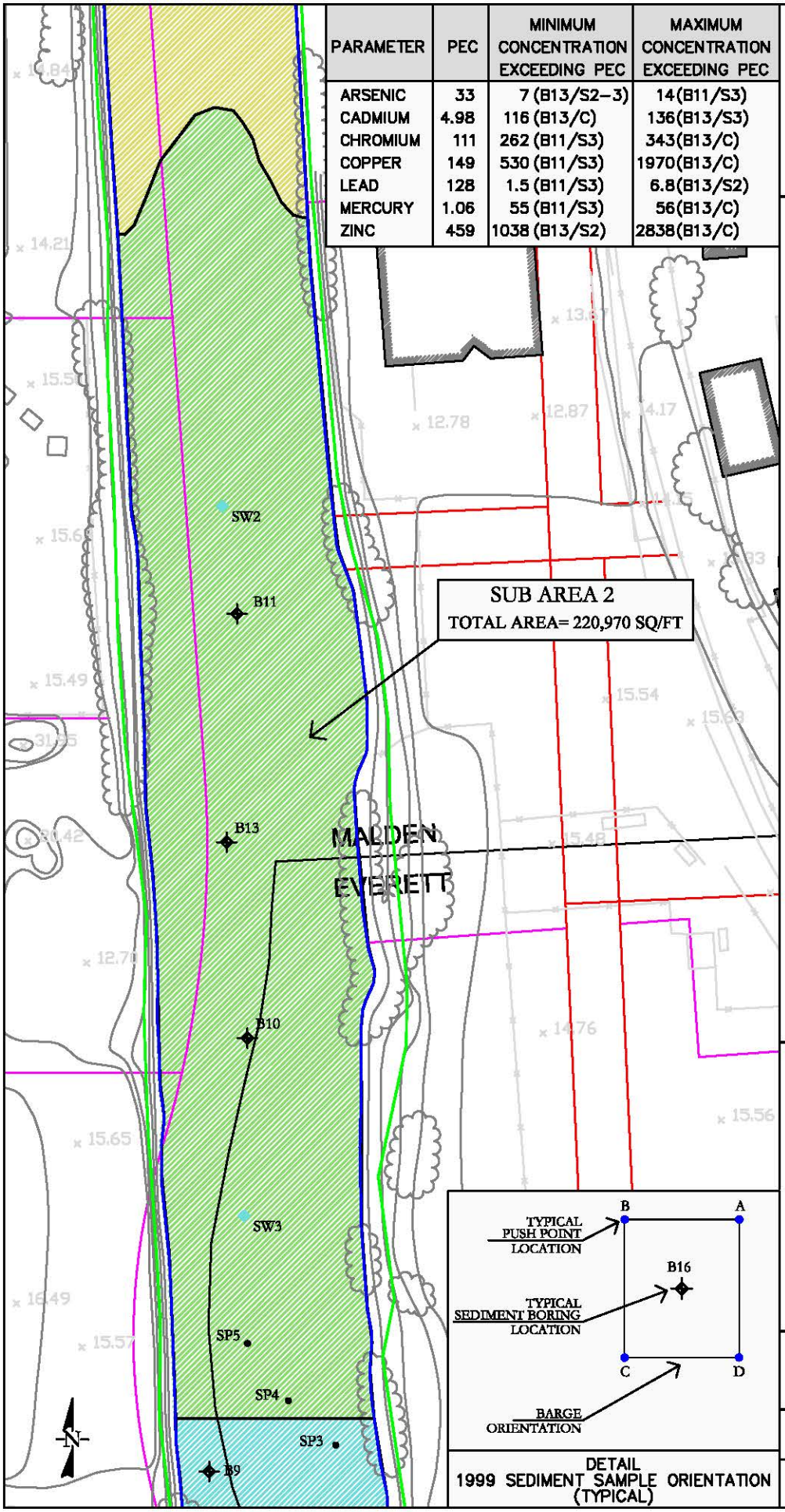
Reference: Figure prepared by Toomey–Munson & Associates Inc. from Wetland Resources Location Plan–10–5–99, revised 8–11–00; Haley & Aldrich Phase 2 Site Assessment, Former Malden MGP site–2001.

0 50 100
Approximate Scale in Feet

Date: JAN 2007

Figure: F–5

PARAMETER	PEC	MINIMUM CONCENTRATION EXCEEDING PEC	MAXIMUM CONCENTRATION EXCEEDING PEC
ARSENIC	33	7 (B13/S2–3)	14(B11/S3)
CADMIUM	4.98	116 (B13/C)	136(B13/S3)
CHROMIUM	111	262 (B11/S3)	343(B13/C)
COPPER	149	530 (B11/S3)	1970(B13/C)
LEAD	128	1.5 (B11/S3)	6.8(B13/S2)
MERCURY	1.06	55 (B11/S3)	56(B13/C)
ZINC	459	1038 (B13/S2)	2838(B13/C)



DETAIL
1999 SEDIMENT SAMPLE ORIENTATION (TYPICAL)

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT,
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

LEGEND

- RIVER BORING PLACED BY NCA: 1999
- HAND DRIVEN PROBE PLACED BY NCA: 1999
- RIVER BORING PLACED BY NCA: 2003
- SURFACE WATER SAMPLE COLLECTED BY NCA: 1999
- SUB–AREA 1
- SUB–AREA 2
- SUB–AREA 3
- WETLAND

Reference: Figure prepared by Toomey–Munson & Associates Inc. from Wetland Resources Location Plan–10–5–99, revised 8–11–00; Haley & Aldrich Phase 2 Site Assessment, Former Malden MGP site–2001.

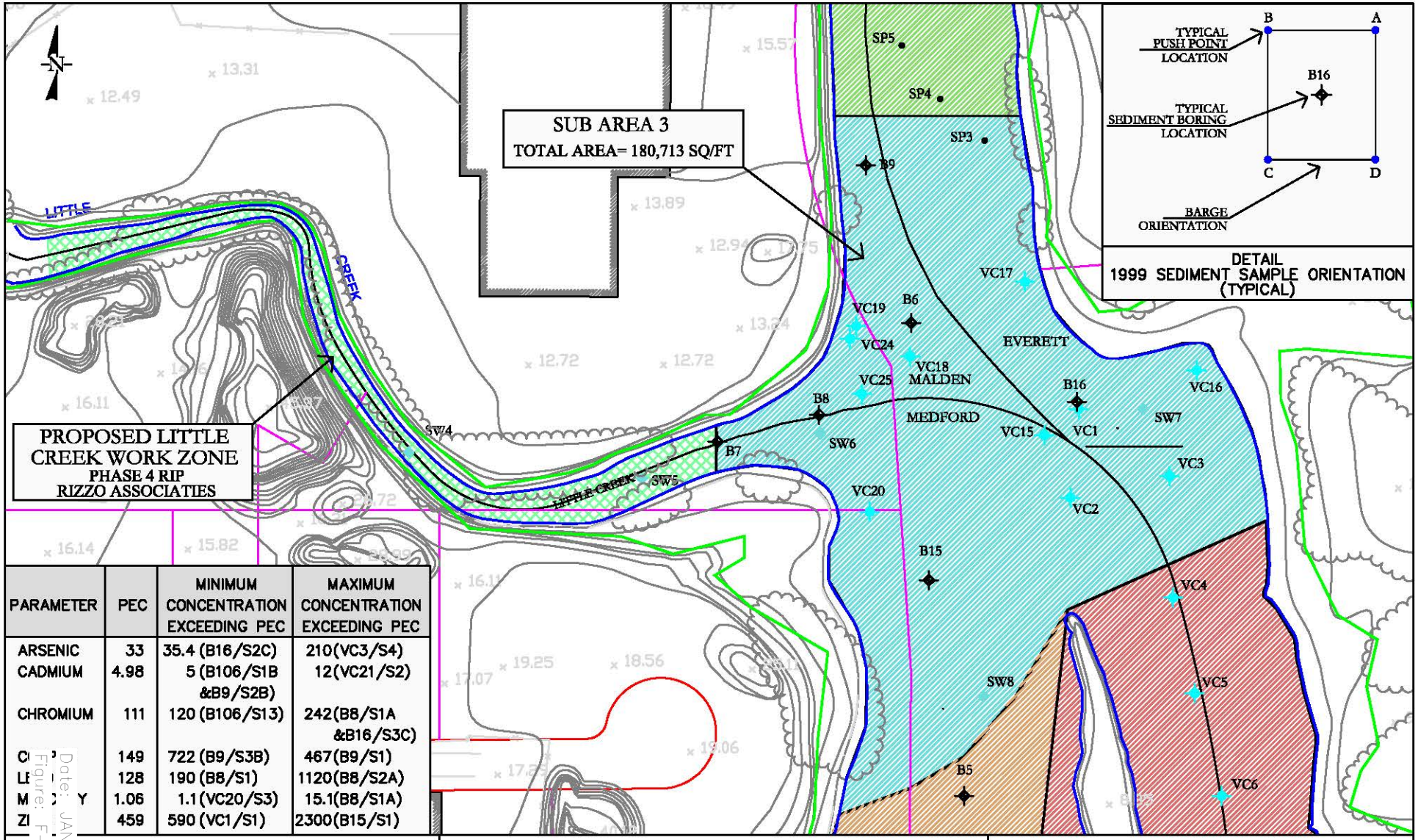
MALDEN RIVER RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD
MASSACHUSETTS

SUB–AREA 2 DETAIL

0 70 140
Approximate Scale In Feet

Date: JAN 2007

Figure: F–6



PARAMETER	PEC	MINIMUM CONCENTRATION EXCEEDING PEC	MAXIMUM CONCENTRATION EXCEEDING PEC
ARSENIC	33	35.4 (B16/S2C)	210(VC3/S4)
CADMIUM	4.98	5 (B106/S1B &B9/S2B)	12(VC21/S2)
CHROMIUM	111	120 (B106/S13)	242(B8/S1A &B16/S3C)
C[illegible]	149	722 (B9/S3B)	467(B9/S1)
LE[illegible]	128	190 (B8/S1)	1120(B8/S2A)
M[illegible]Y	1.06	1.1(VC20/S3)	15.1(B8/S1A)
ZI[illegible]	459	590 (VC1/S1)	2300(B15/S1)

Date: JAN 2007
Figure: F-7

DEPARTMENT OF THE ARMY
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MALDEN RIVER RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD MASSACHUSETTS

SUB-AREA 3 DETAIL

LEGEND

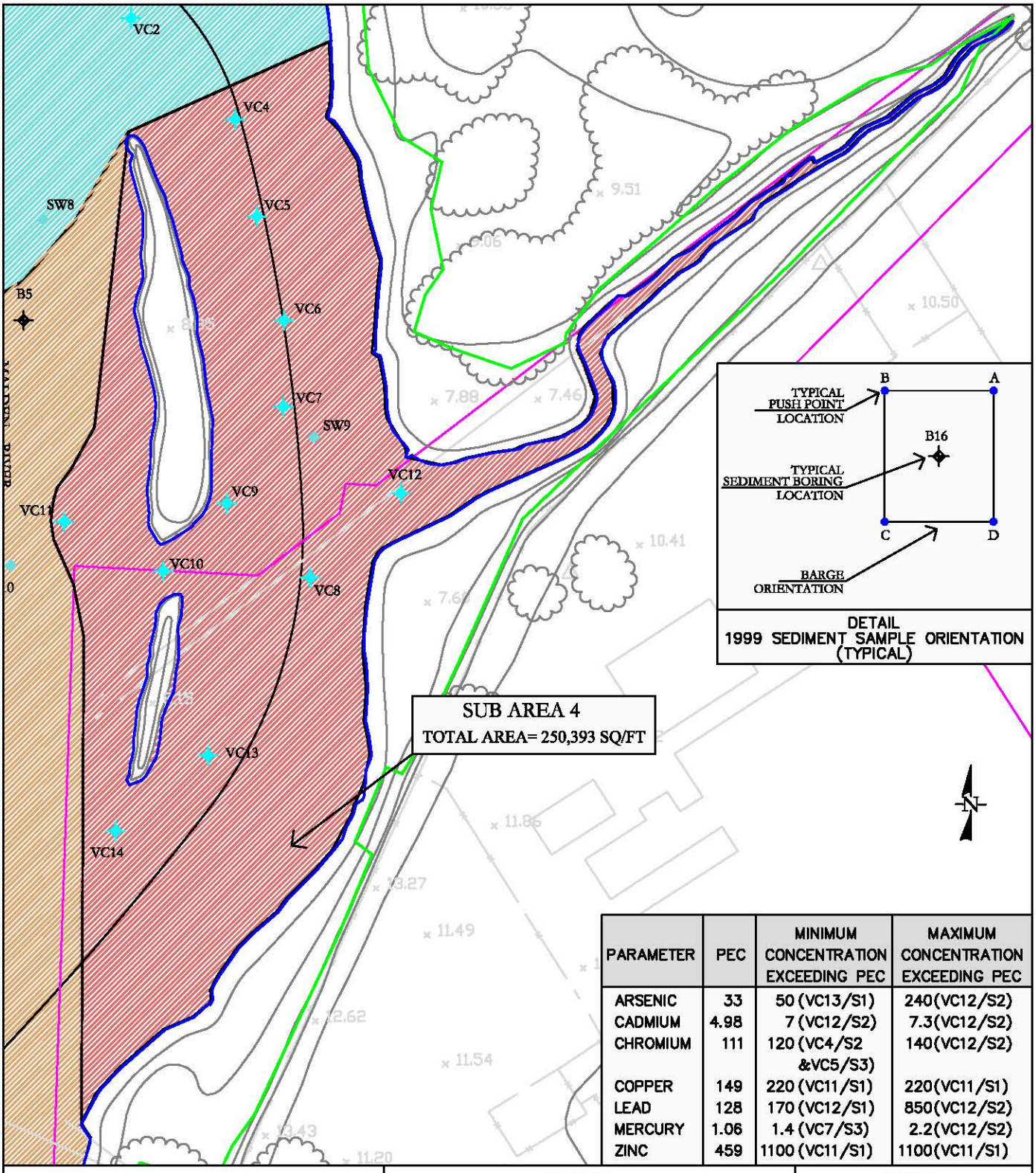
- RIVER BORING PLACED BY NCA: 1999
- RIVER BORING PLACED BY NCA: 2003
- HAND DRIVEN PROBE PLACED BY NCA: 1999
- SURFACE WATER SAMPLE COLLECTED BY NCA: 1999
- SUB-AREA 2
- SUB-AREA 3
- SUB-AREA 4
- SUB-AREA 5
- WETLAND

Reference: Figure prepared by Toomey-Munson & Associates Inc. from Wetland Resources Location Plan-10-5-99, revised 8-11-00; Haley & Aldrich Phase 2 Site Assessment, Former Malden MGP site-2001.

0 70 140
Approximate Scale In Feet

Date: JULY 2006

Figure: 4-15



PARAMETER	PEC	MINIMUM CONCENTRATION EXCEEDING PEC	MAXIMUM CONCENTRATION EXCEEDING PEC
ARSENIC	33	50 (VC13/S1)	240(VC12/S2)
CADMIUM	4.98	7 (VC12/S2)	7.3(VC12/S2)
CHROMIUM	111	120 (VC4/S2 &VC5/S3)	140(VC12/S2)
COPPER	149	220 (VC11/S1)	220(VC11/S1)
LEAD	128	170 (VC12/S1)	850(VC12/S2)
MERCURY	1.06	1.4 (VC7/S3)	2.2(VC12/S2)
ZINC	459	1100 (VC11/S1)	1100(VC11/S1)

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MALDEN RIVER RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD
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SUB–AREA 4 DETAIL

LEGEND

- RIVER BORING PLACED BY NCA: 1999
- RIVER BORING PLACED BY NCA: 2003
- HAND DRIVEN PROBE PLACED BY NCA: 1999
- SURFACE WATER SAMPLE COLLECTED BY NCA: 1999
- SUB–AREA 3
- SUB–AREA 4
- SUB–AREA 5
- WETLAND

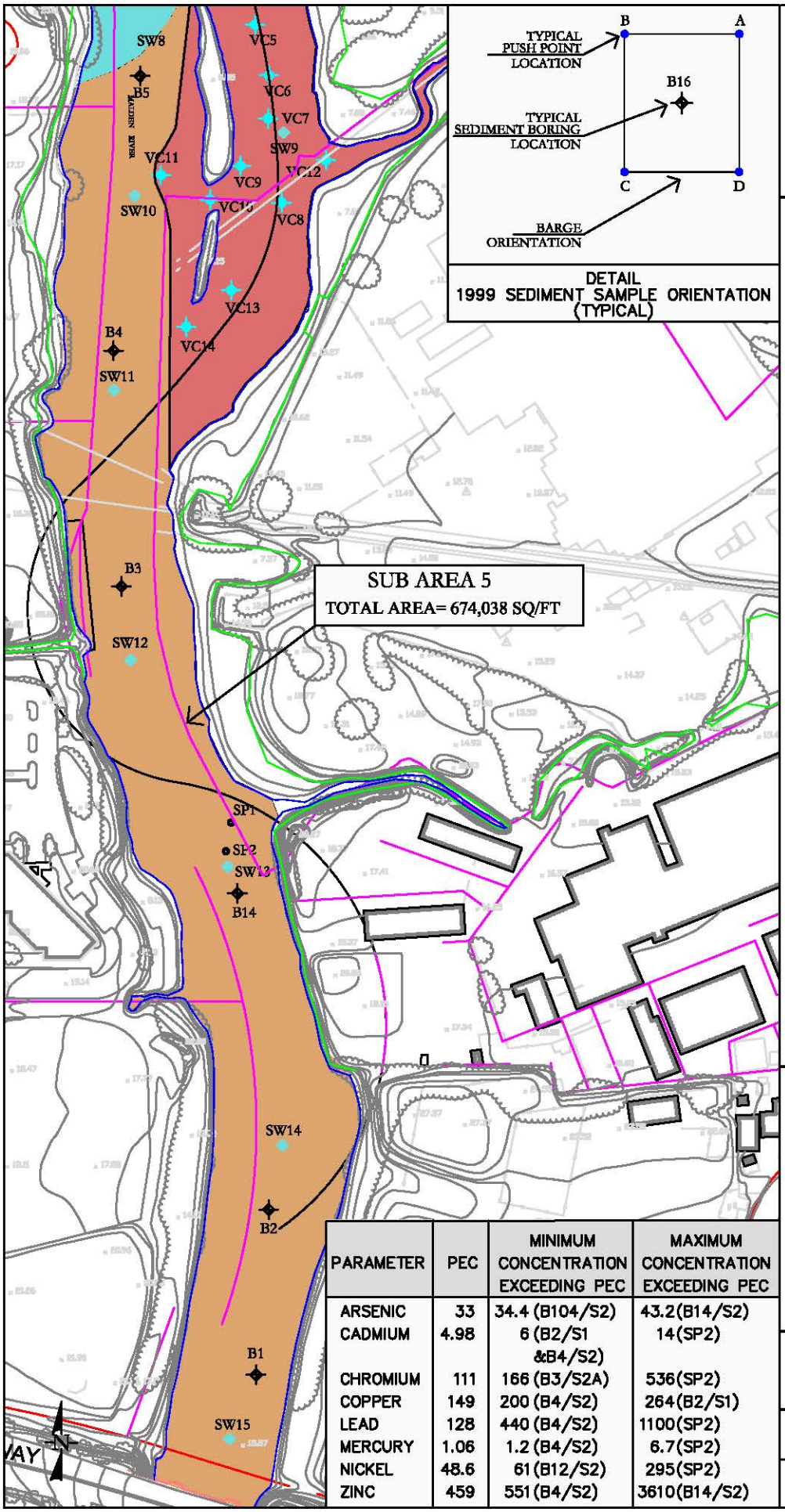
NOTES

Reference: Figure prepared by Toomey–Munson & Associates Inc. from Wetland Resources Location Plan–10–5–99, revised 8–11–00; Haley & Aldrich Phase 2 Site Assessment, Former Malden MGP site–2001.

0 70 140
Approximate Scale In Feet

Date: JAN 2007

Figure: F–8



DETAIL
1999 SEDIMENT SAMPLE ORIENTATION
(TYPICAL)

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT,
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

LEGEND

- RIVER BORING PLACED BY NCA: 1999
- HAND DRIVEN PROBE PLACED BY NCA: 1999
- RIVER BORING PLACED BY NCA: 2003
- SURFACE WATER SAMPLE COLLECTED BY NCA: 1999
- SUB–AREA 3
- SUB–AREA 4
- SUB–AREA 5
- WETLAND

PARAMETER	PEC	MINIMUM CONCENTRATION EXCEEDING PEC	MAXIMUM CONCENTRATION EXCEEDING PEC
ARSENIC	33	34.4 (B104/S2)	43.2(B14/S2)
CADMIUM	4.98	6 (B2/S1 &B4/S2)	14(SP2)
CHROMIUM	111	166 (B3/S2A)	536(SP2)
COPPER	149	200 (B4/S2)	264(B2/S1)
LEAD	128	440 (B4/S2)	1100(SP2)
MERCURY	1.06	1.2 (B4/S2)	6.7(SP2)
NICKEL	48.6	61(B12/S2)	295(SP2)
ZINC	459	551(B4/S2)	3610(B14/S2)

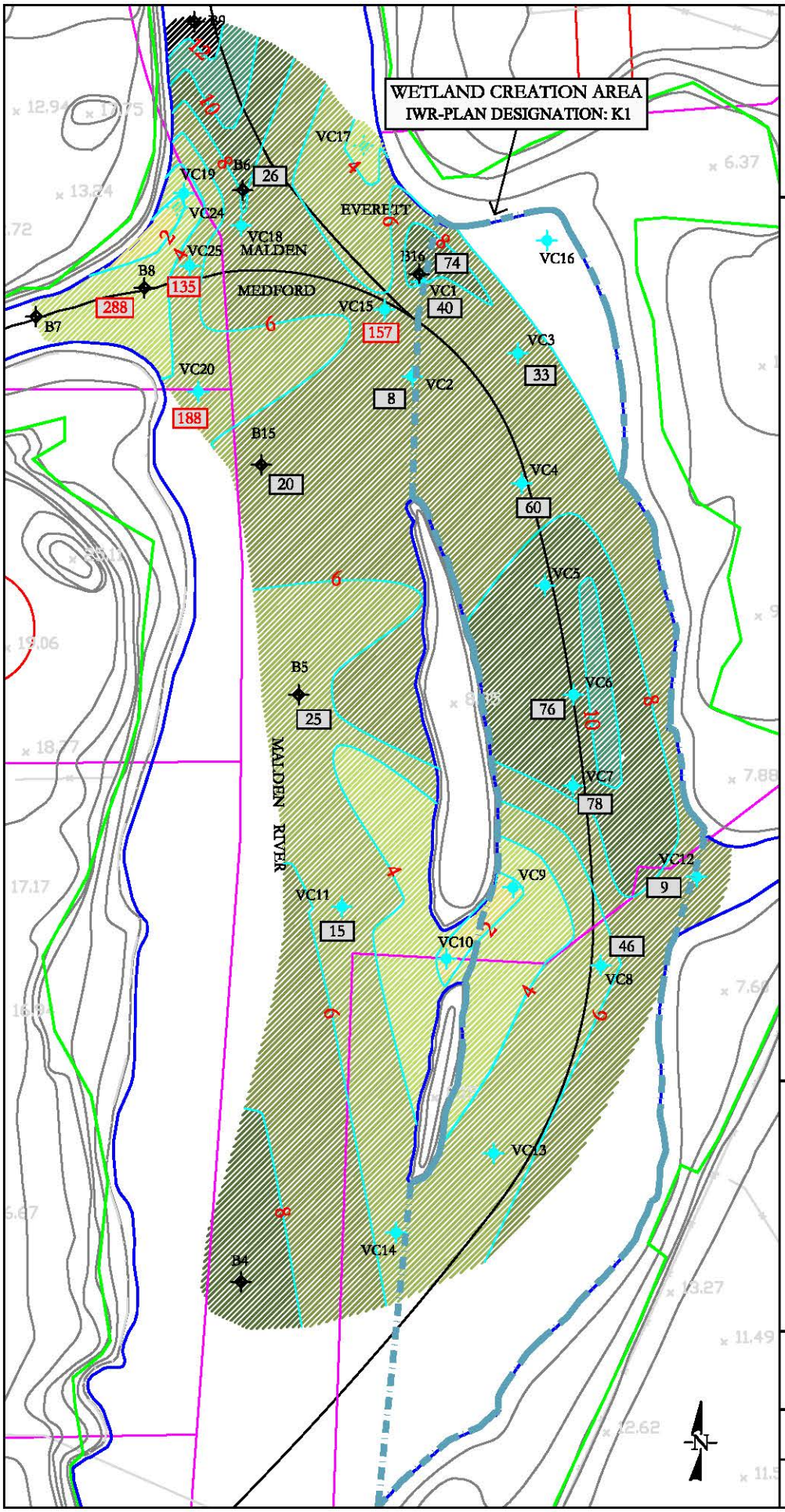
MALDEN RIVER
RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD
MASSACHUSETTS

SUB–AREA 5 DETAIL

0 300
Approximate Scale In Feet

Date: JAN 2007

Figure: F–9



DEPARTMENT OF THE ARMY
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CONCORD, MASSACHUSETTS

LEGEND

- RIVER BORING PLACED BY NCA: 1999
- HAND DRIVEN PROBE PLACED BY NCA: 1999
- RIVER BORING PLACED BY NCA: 2003
- 40 — PAH PEC VALUE 0–3 FOOT INTERVAL FROM TOP OF SEDIMENT
- CLAY DEPTH (FEET) FROM TOP OF SEDIMENT
- EDGE OF BANK
- EXISTING BUILDING
- FORMER BUILDING
- WETLAND

NOTES

Reference: Figure prepared by Toomey–Munson & Associates Inc. from Wetland Resources Location Plan–10–5–99, revised 8–11–00; Haley & Aldrich Phase 2 Site Assessment, Former Malden MGP site–2001.

B–5 sample was collected from 32–44" from top of sediment.

MALDEN RIVER RESTORATION PROJECT
EVERETT, MALDEN, MEDFORD MASSACHUSETTS

CONSENSUS BASED SEDIMENT TOXICITY EVALUATION

PROBABLE EFFECTS CONCENTRATION VALUES

0 70 140
Approximate Scale In Feet

Date: JAN 2007

Figure: F–10