

**NOTES:**

1. BEDROCK GEOLOGY UNITS DIGITIZED AND DESCRIPTIONS ADAPTED FROM USGS BEDROCK GEOLOGIC MAP OF MASSACHUSETTS BY ZEN ET AL (1983).
2. LOCATION OF OUTLINE OF THE ABERJONA WATERSHED ADAPTED FROM FIGURE 1 (LOCATION OF ABERJONA WATERSHED) FROM REPORT ENTITLED: "SOURCES AND DISTRIBUTION OF ARSENIC IN THE ABERJONA WATERSHED, NOVEMBER, 1994, BY ANNA O. AURILIO ET AL.
3. STREAMS, BROOKS, PONDS AND LAKES DIGITIZED FROM USGS MAPS (GEO-TIFF IMAGE FILES) OBTAINED FROM MASSACHUSETTS GIS.
4. STANDARD DESIGNATION OF BEDROCK GEOLOGY CHANGED FOR CLARITY (A=Dpgr, B=Zangr, C=Zdigb, D=Zv and E=Zw).
5. COORDINATES OF MAP: MASS. GRID COORDINATES SYSTEM, NAD 83 IN FEET; ORIGINAL DATUM CONVERTED USING BLUE MARBLE'S "GEOGRAPHIC CALCULATOR" (VERSION 4.2).
6. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
7. PLAN NOT TO BE USED FOR DESIGN.
8. BURIED BEDROCK VALLEY LOCATION FROM GEOLOGICAL SURVEY BULLETIN 1061-F, "GLACIAL GEOLOGY OF THE MYSTIC LAKES - FRESH POND AREA" BY NEWTON E. CHUTE, 1959.
9. FAULT IDENTIFICATION FROM MIT THESIS BY DANIEL McBREARTY, "FRACTURE FLOW AS INFLUENCED BY GEOLOGIC FEATURES IN THE ABERJONA VALLEY, MASSACHUSETTS", JUNE 1993.

**LEGEND**

- FAULT LINE
  - BURIED BEDROCK VALLEY
  - RIVER (DASHED WHERE CULVERTED)
- A PEABODY GRANITE (MIDDLE DEVONIAN) - ALKALIC GRANITE CONTAINING FERRO-HORNBLLENDE. INTRUDES B
  - B GRAY GRANITE TO GRANODIORITE MORE MAFIC THAN GRANITE / DIORITE. NORTH OF BOSTON INTRUDES E, D.
  - C DIORITE & GABBRO (PROTEROZOIC) - COMPLEX OF DIORITE AND GABBRO, SUBORDINATE METAVOLCANIC ROCKS AND INTRUSIVE GRANITE AND GRANODIORITE
  - D METAMORPHOSED MAFIC TO FELSIC FLOW, AND VOLCANICLASTIC AND HYPABYSSAL INTRUSIVE ROCKS (PROTEROZOIC) - INCLUDES SOME DIORITE AND GABBRO NORTH AND NORTHWEST OF BOSTON
  - E WESTBORO FORMATION (PROTEROZOIC) - QUARTZITE, SCHIST, CALC-SILICATE QUARTZITE, AND AMPHIBOLITE.

REGIONAL BEDROCK GEOLOGY

FIGURE 3-1

MSGRP REMEDIAL INVESTIGATION REPORT

INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS



TETRA TECH NUS, INC.

DRAWN BY: R.G. DEWSNAP

REV.: 0

CHECKED BY: J. DANIELI / P. CALL

DATE: DECEMBER 13, 2004

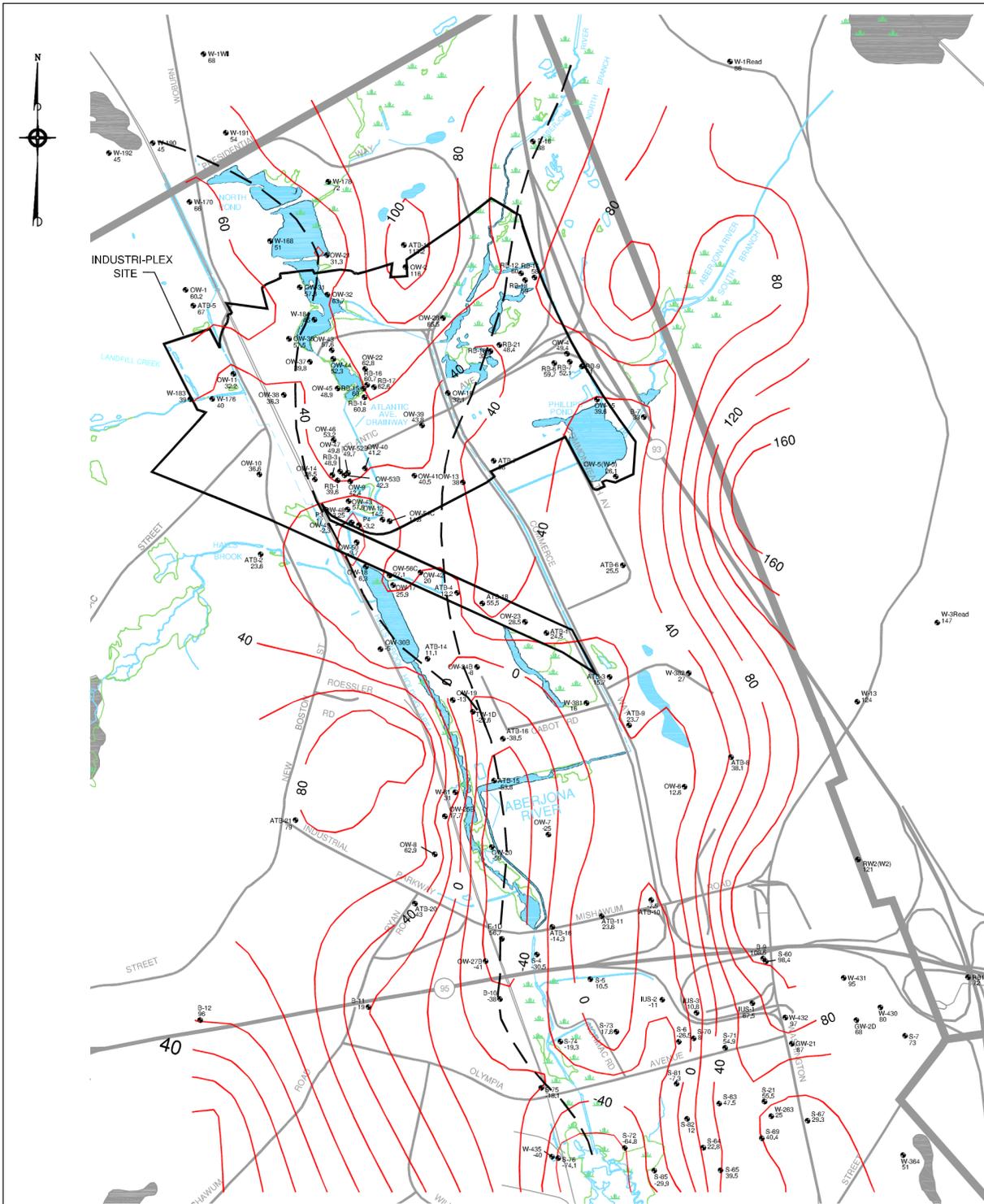
SCALE: AS SHOWN

FILE NO.: \DWG\4123\0910\GEO\_BED\_2.DWG

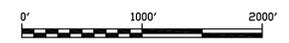
55 Jonspin Road

Wilmington, MA 01887

(978)658-7899



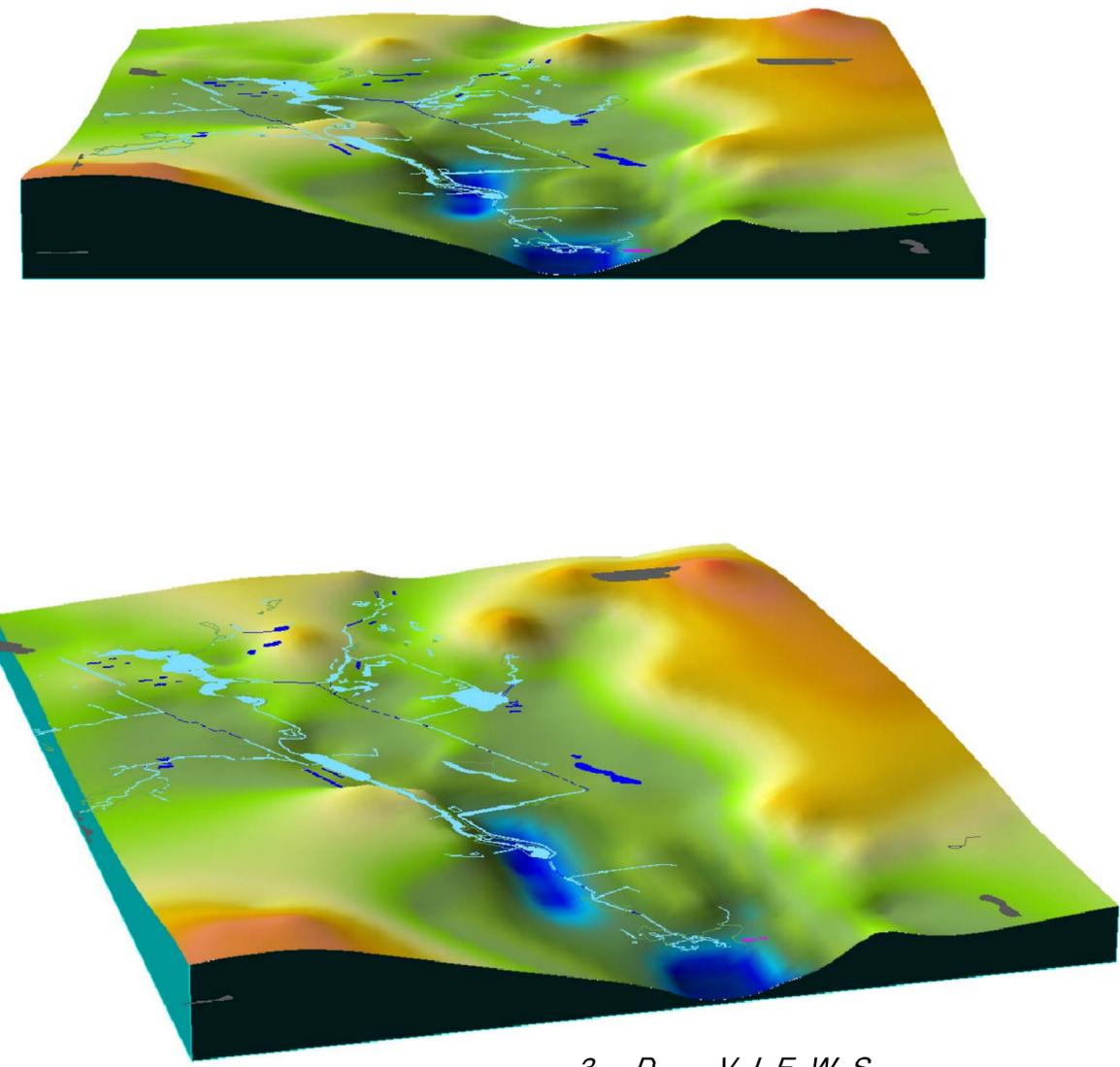
**PLAN VIEW**



GRAPHIC SCALE PLAN VIEW

- LEGEND**
- S-72 BORING LOCATION
  - 64.8 BEDROCK SURFACE ELEVATION
  - 80 BEDROCK SURFACE CONTOUR
  - Approximate WETLAND AREA
  - Approximate LOCATION OF BURIED BEDROCK VALLEY

- NOTES:**
1. LOCATIONS OF MAJOR ROADS, STREETS AND WATER COURSES FROM MASSACHUSETTS GIS AND MAPPING PROVIDED BY THE CITY OF WOBURN ENGINEERING DEPT.
  2. PLAN DATUM IN NAD 83 FEET; ORIGINAL DATUM FROM MASSACHUSETTS GIS IN NAD 83, METERS AND WAS CONVERTED TO NAD 83 FEET USING THE GEOGRAPHIC CALCULATOR BY BLUE MARBLE GEOGRAPHICS, VERSION 4.2.
  3. BEDROCK SURFACE ELEVATIONS BASED ON BORING LOGS FROM OTHER CONTRACTORS FOR VARIOUS INVESTIGATIONS; POINT ELEVATIONS FROM THESE FIELD NOTES.
  4. 3D VIEWS AND BEDROCK ELEVATION CONTOURS GENERATED BY USE OF SURFER VERSION 8.0.; VERTICAL EXAGGERATION IS 4:1.



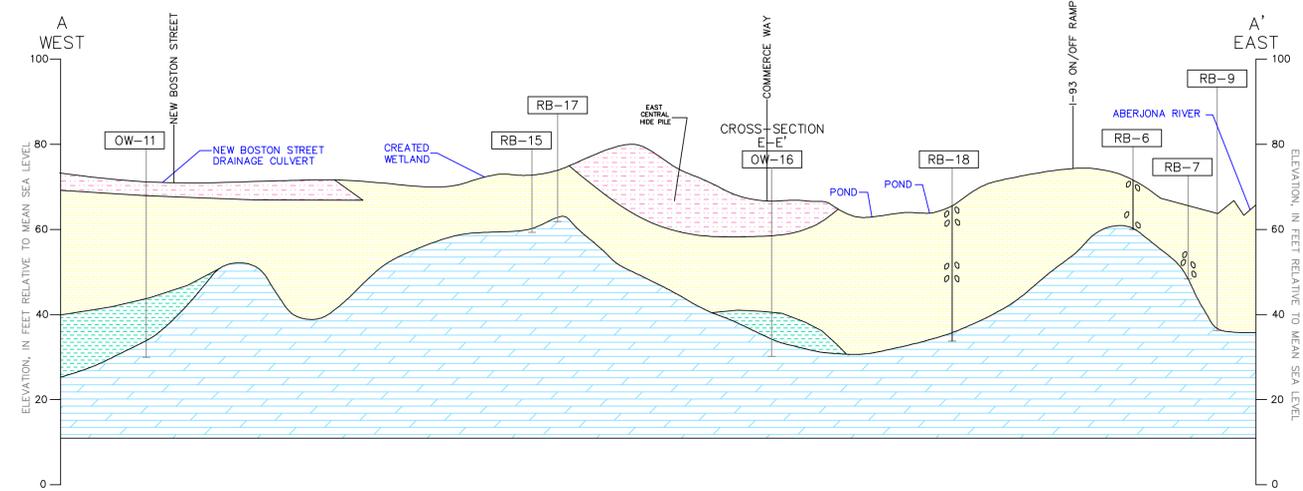
**3 - D VIEWS**

NO SCALE

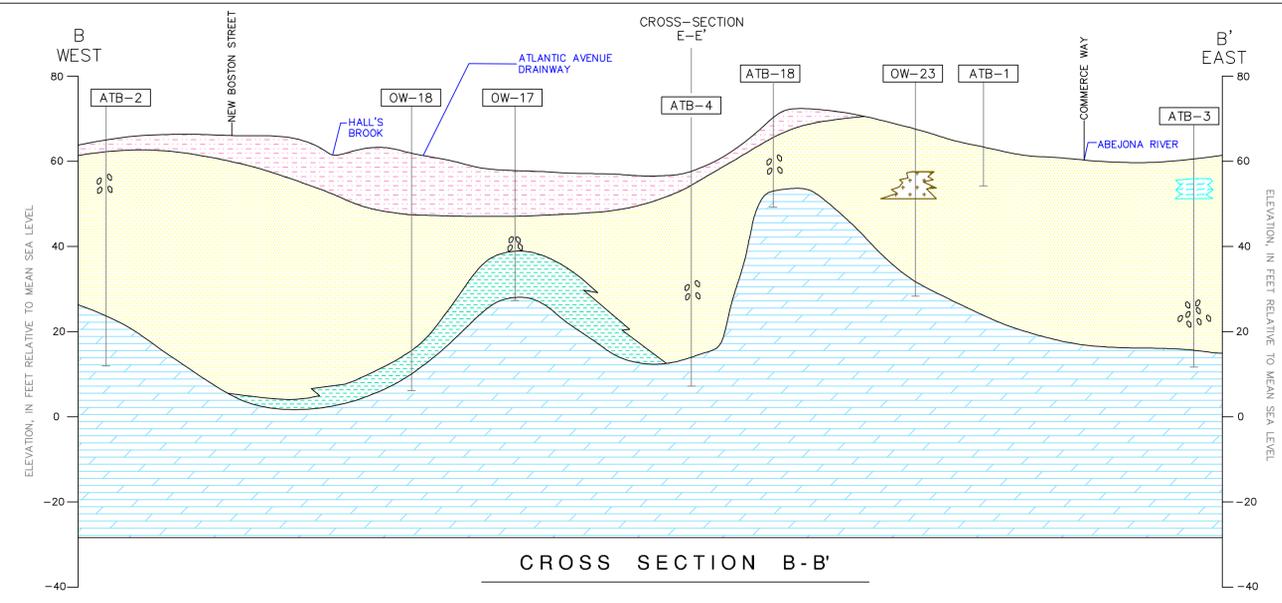
DRAWN BY: D.W.M. / R.G.D.	TITLE: BEDROCK ELEVATION MAPS		
PREPARED BY: J. DANIEL / P. CALL	MSGRP REMEDIAL INVESTIGATION REPORT		
CHECKED BY: G. BULLARD	INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS		
	SOURCE: BASE PLAN BY MASSACHUSETTS GIS AND THE CITY OF WOBURN (SEE NOTES)		
SCALE: AS SHOWN	DATE: MARCH 10, 2005	PROJ. NO: 4123	
PROJECT MANAGER: G. BULLARD	DRAWING NO: 3-2	ACFILE NAME: \PWC\4123\0910\BEDROCK_2.DWG	REV: 0
PROGRAM MANAGER: G. GARDNER			

**TETRA TECH NUS, INC.**

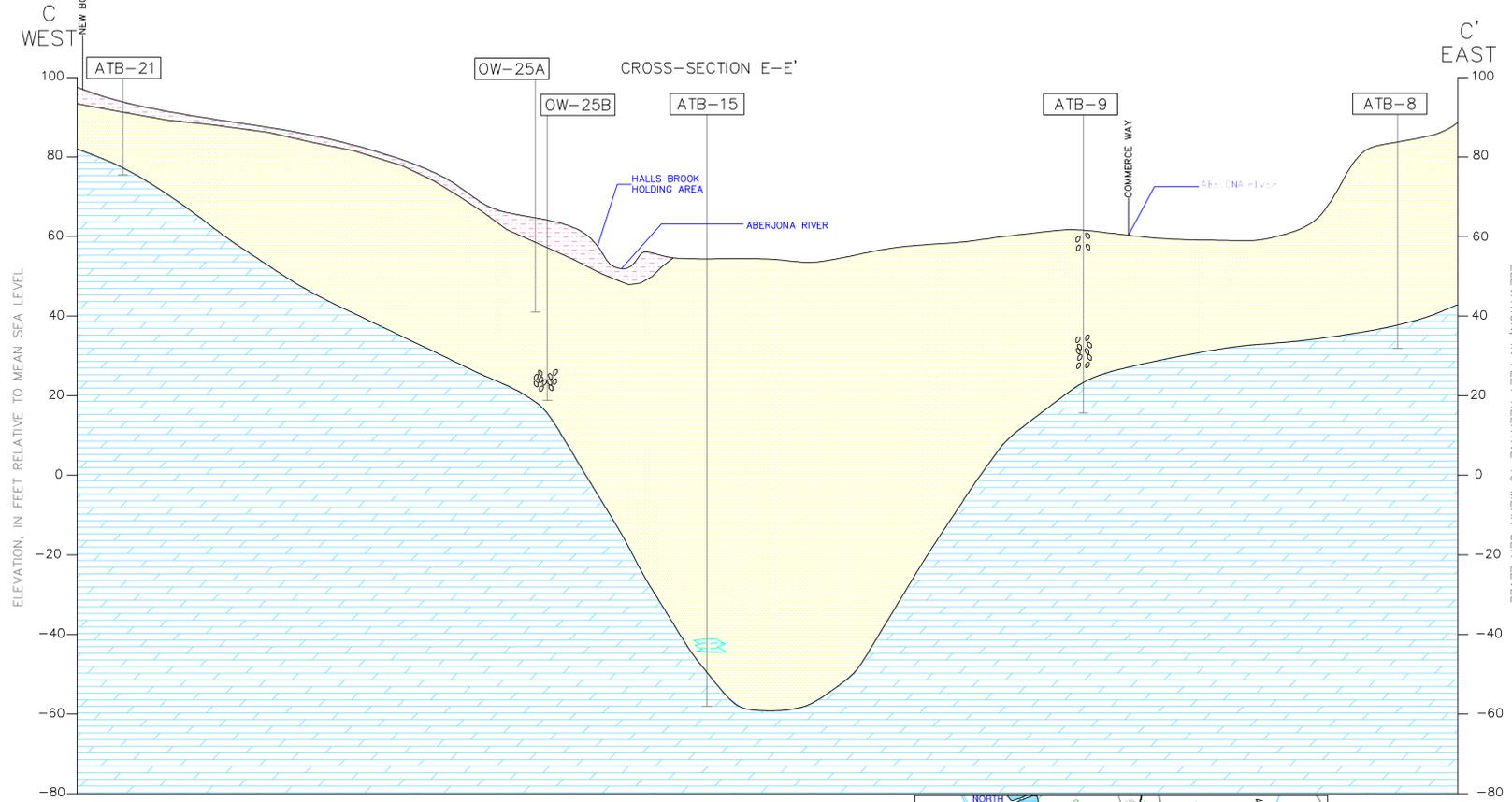
55 JONSPIN ROAD  
WILMINGTON, MASSACHUSETTS 01887  
(978)658-7899



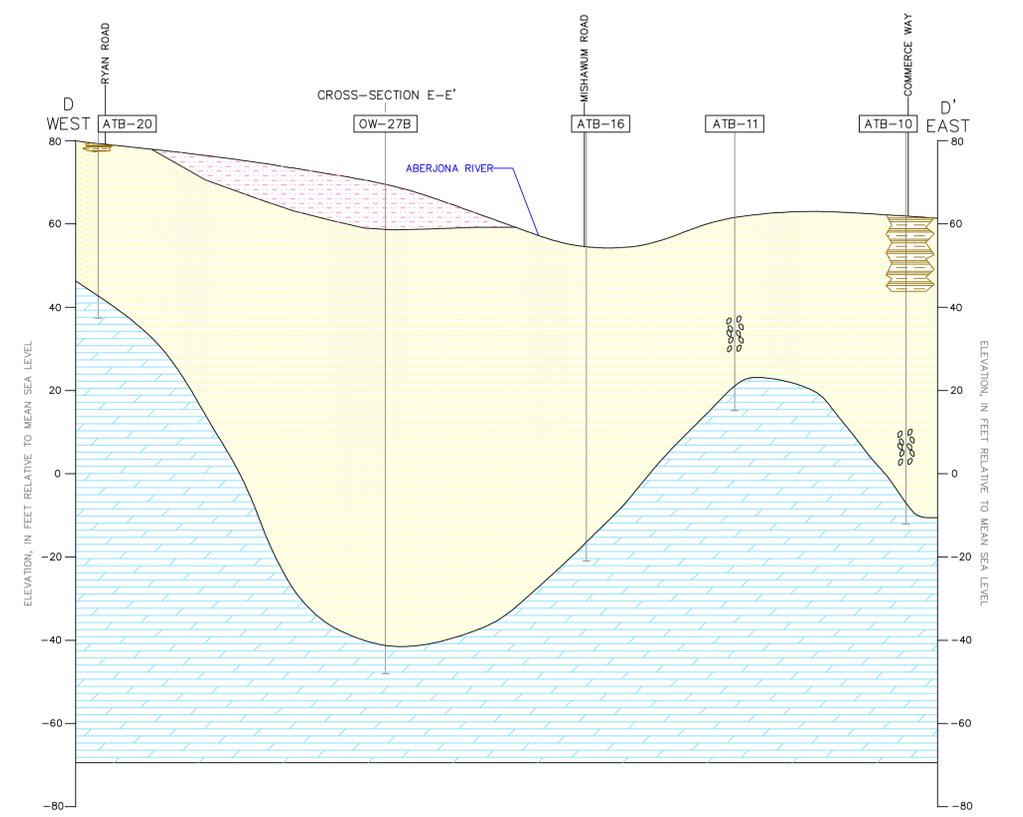
CROSS SECTION A-A'



CROSS SECTION B-B'



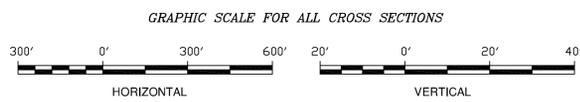
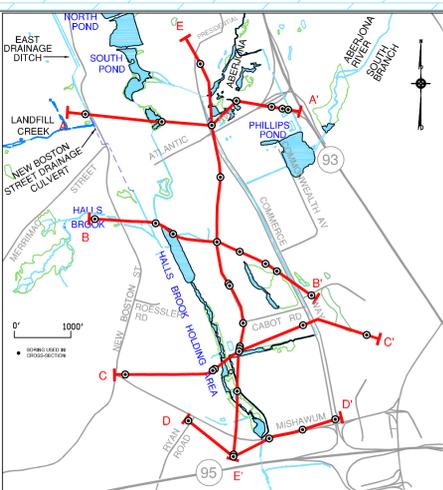
CROSS SECTION C-C'



CROSS SECTION D-D'

**LEGEND**

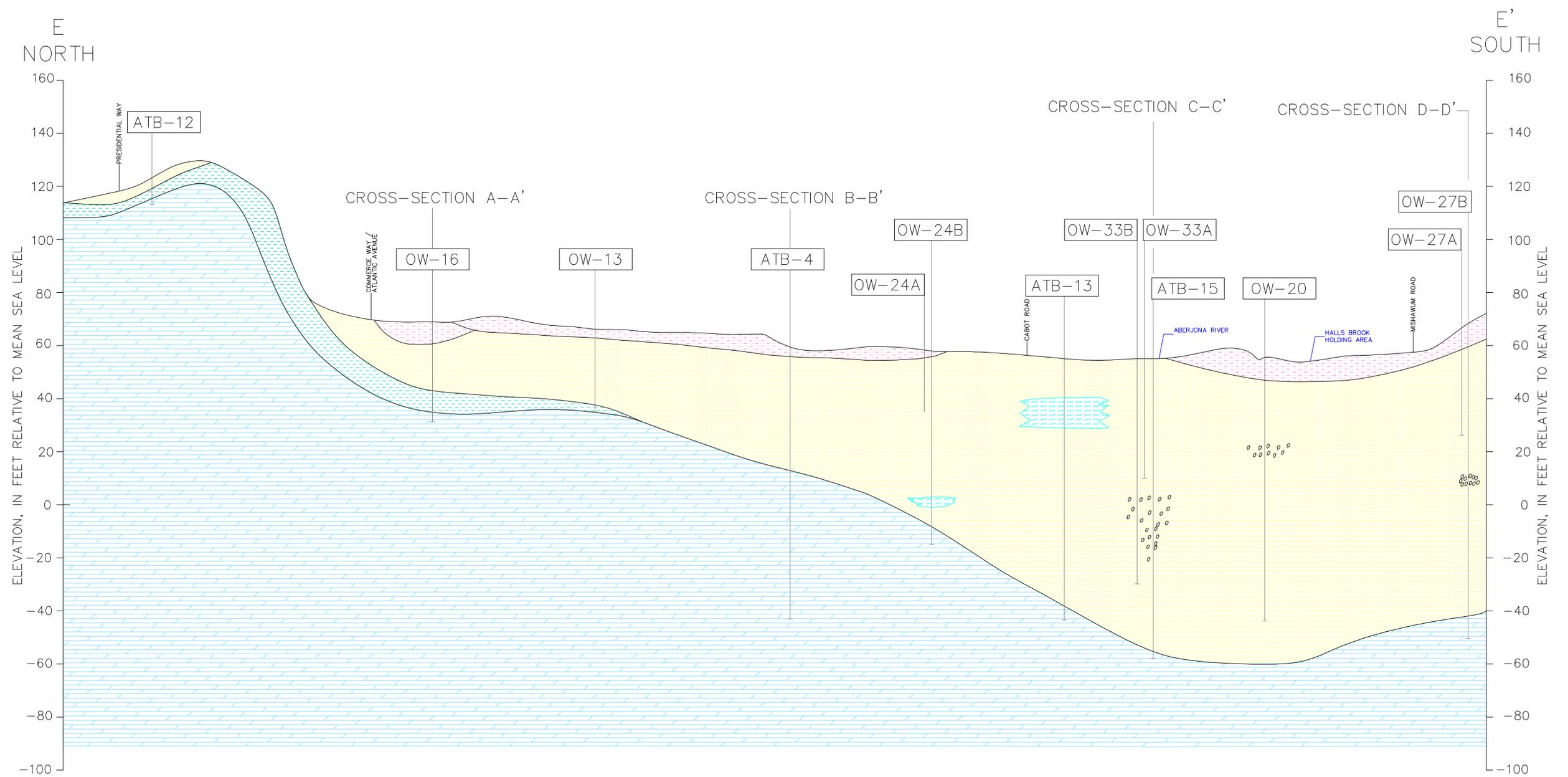
	FILL: FILL CONSISTS OF MANUFACTURED OR CONSTRUCTION DEBRIS AND WASTE SLUDGE MIXED WITH NATURAL MATERIALS SUCH AS SILTY SAND, GRAVEL, OR TOPSOIL.		CLAY: CLAY INTERBEDDED WITH SILT AND SAND.
	PEAT: FORMER SWAMP & MARSH DEPOSITS PRIMARILY COMPOSED OF DECAYED PLANT MATERIAL AND SOME ORGANIC SILT, SAND, AND MUCK.		SILT: SILT WITH SOME CLAY AND TRACE AMOUNTS OF FINE SAND. DISCONTINUOUS LAYERS OF SAND AND GRAVEL MAY ALSO OCCUR.
	TILL: FINE TO COARSE GRAVEL IN A DENSE MATRIX OF CLAY, SILT AND SAND.		SAND: FINE TO COARSE SAND WITH VARIOUS AMOUNTS OF SILT, CLAY, AND GRAVEL AND LENSES OF SILT AND CLAY. AREAS OF INTERMIXED SILTY SAND ARE DENOTED BY THE SILT SYMBOL. SAND WITH SOME GRAVEL IS DENOTED BY GRAVEL SYMBOL.
	ORGANIC SILT: ORGANIC SILT WITH A TRACE TO SOME FIBROUS PARTIALLY DECAYED PLANT MATERIAL.		BEDROCK: GABBRO. GRAY-GREEN.
	GRAVEL: FINE TO COARSE GRAVEL WITH VARYING AMOUNTS OF SAND, SILT, CLAY, AND BOULDERS.		APPROX. LOCATION OF BORINGS USED TO PRODUCE CROSS-SECTIONS.



- NOTES:**
1. MAIN CROSS SECTION DELINEATIONS ADAPTED & DIGITIZED FROM A PLAN BY ROUX ASSOCIATES, INC., ENTITLED "GENERALIZED GEOLOGIC CROSS-SECTIONS", "PART 1 OF 2", PREPARED FOR: INDUSTRI-PLEX SITE REMEDIAL TRUST, DATED: 5/91, PLATE NO. 3, FILE NO.: M006609DY.1D.3
  2. INTERPRETATION OF GEOLOGIC UNITS WITHIN MAIN DELINEATION LIMITS AND EXTENT OF UNITS PREPARED BY TETRA TECH NUS, INC., USING BORING LOGS, WELL & BORING LOCATIONS, TOP OF BEDROCK, AND GROUND SURFACE ELEVATIONS PROVIDED BY ROUX ASSOCIATES.
  3. LOCATIONS OF THE BORINGS USED FOR EACH CROSS-SECTION ARE SHOWN AS GREY CIRCLES ALONG EACH CROSS-SECTION, E.G. A-A', ON THE MAP INSET.
  4. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
  5. PLAN NOT TO BE USED FOR DESIGN.

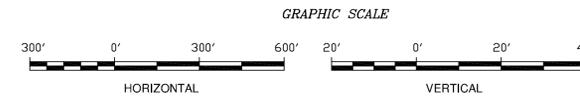
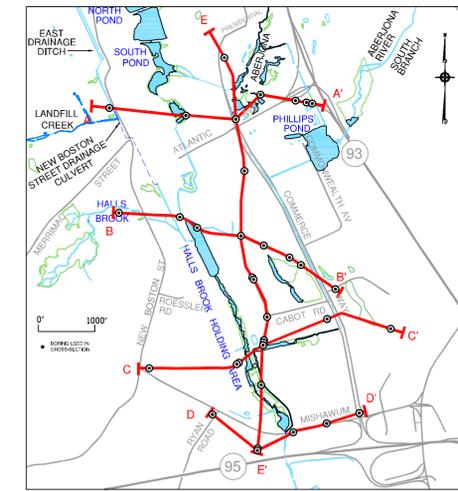
DRAWN BY: R.G. DEWSNAP		TITLE: GEOLOGIC CROSS-SECTIONS A-A', B-B', C-C', & D-D'	
PREPARED BY: M. HEALEY		MSGRP REMEDIAL INVESTIGATION REPORT	
CHECKED BY: J. DANIELI		INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS	
PROJECT MANAGER: G. BULLARD		SCALE: AS SHOWN	DATE: MARCH 10, 2005
PROGRAM MANAGER: G. GARDNER		DRAWING NO: 3-3	PROJ. NO: 4123
		ACFILE NAME: \\VMEV4123\0910\GEO_X_SECT_A-D.DWG	REV: 0

**TETRA TECH NUS, INC.**  
 55 JONSPIN ROAD  
 WILMINGTON, MASSACHUSETTS 01887  
 (978)658-7899



**LEGEND**

	FILL: FILL CONSISTS OF MANUFACTURED OR CONSTRUCTION DEBRIS AND WASTE SLUDGE MIXED WITH NATURAL MATERIALS SUCH AS SILTY SAND, GRAVEL, OR TOPSOIL.		CLAY: CLAY INTERBEDDED WITH SILT AND SAND.
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  2. INTERPRETATION OF GEOLOGIC UNITS WITHIN MAIN DELINEATION LIMITS AND EXTENT OF UNITS PREPARED BY TETRA TECH NUS, INC., USING BORING LOGS, WELL & BORING LOCATIONS, TOP OF BEDROCK, AND GROUND SURFACE ELEVATIONS PROVIDED BY ROUX ASSOCIATES.
  3. LOCATIONS OF THE BORINGS USED FOR EACH CROSS-SECTION ARE SHOWN AS GREY CIRCLES ALONG EACH CROSS-SECTION, E.G. A-A', ON THE MAP INSET.
  4. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
  5. PLAN **NOI** TO BE USED FOR DESIGN.

DRAWN BY: R.G. DEWSNAP	TITLE: GEOLOGIC CROSS-SECTION E-E'		
PREPARED BY: M. HEALEY	MSGRP REMEDIAL INVESTIGATION REPORT		
CHECKED BY: J. DANIELI	INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS		
	SOURCE: SEE NOTES		
	SCALE: AS SHOWN	DATE: MARCH 10, 2005	PROJ. NO: 4123
PROJECT MANAGER: G. BULLARD	DRAWING NO: 3-4	ACFILE NAME: \V004123\0910\GEO_X_SECT_E.DWG	REV: 0
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