

NOTES:

1. LOCATIONS OF MAJOR ROADS, STREETS AND WATER COURSES FROM MASSACHUSETTS GIS AND MAPPING PROVIDED BY THE CITY OF WOBURN ENGINEERING DEPT.
2. ORIGINAL PLAN DATUM FROM SOURCES CONVERTED TO NAD 83 FEET USING THE GEOGRAPHIC CALCULATOR BY BLUE MARBLE GEOGRAPHICS, VERSION 4.2; VERTICAL DATUM: NAVD 1988.
3. GROUNDWATER LEVELS WERE MEASURED ON APRIL 18, 2002 FROM A DESIGNATED MEASURING POINT (TOP OF PVC) AT EACH TEMPORARY SHALLOW OVERBURDEN MONITORING WELL. THE GROUNDWATER LEVELS WERE CONVERTED TO AN ELEVATION BASED ON THE TOP OF PVC ELEVATION.
4. TEMPORARY MONITORING WELLS SURVEYED BY LOUIS FEDERICI & ASSOCIATES. VERTICAL DATUM IN NAVD 1988.
5. SURFACE WATER LEVELS WERE MEASURED ON 4/18/02 BY A DEPTH AND VELOCITY TRANSDUCER LOCATED IN THE CENTER OF THE RIVER CHANNEL AT EACH STATION. THE SURFACE WATER LEVELS WERE CONVERTED TO ELEVATIONS BASED ON TRANSDUCER ELEVATIONS SURVEYED IN THE FIELD BY TTNUS AND CORRECTED TO NAVD 88 ACCORDING TO THE SURFACE WATER STATION PAD ELEVATION (SURVEY BY LOUIS FEDERICI & ASSOCIATES).
6. WATER TABLE CONTOURS GENERATED BY USE OF SURFER VERSION 8.0 AND MODIFIED TO CONFORM WITH PRESENT WATER BODIES AND OTHER PHYSICAL FEATURES.

GRAPHIC SCALE



WATER TABLE ELEVATION CONTOURS - 04/18/02
 MSGRP REMEDIAL INVESTIGATION REPORT
 INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS

FIGURE 3-5

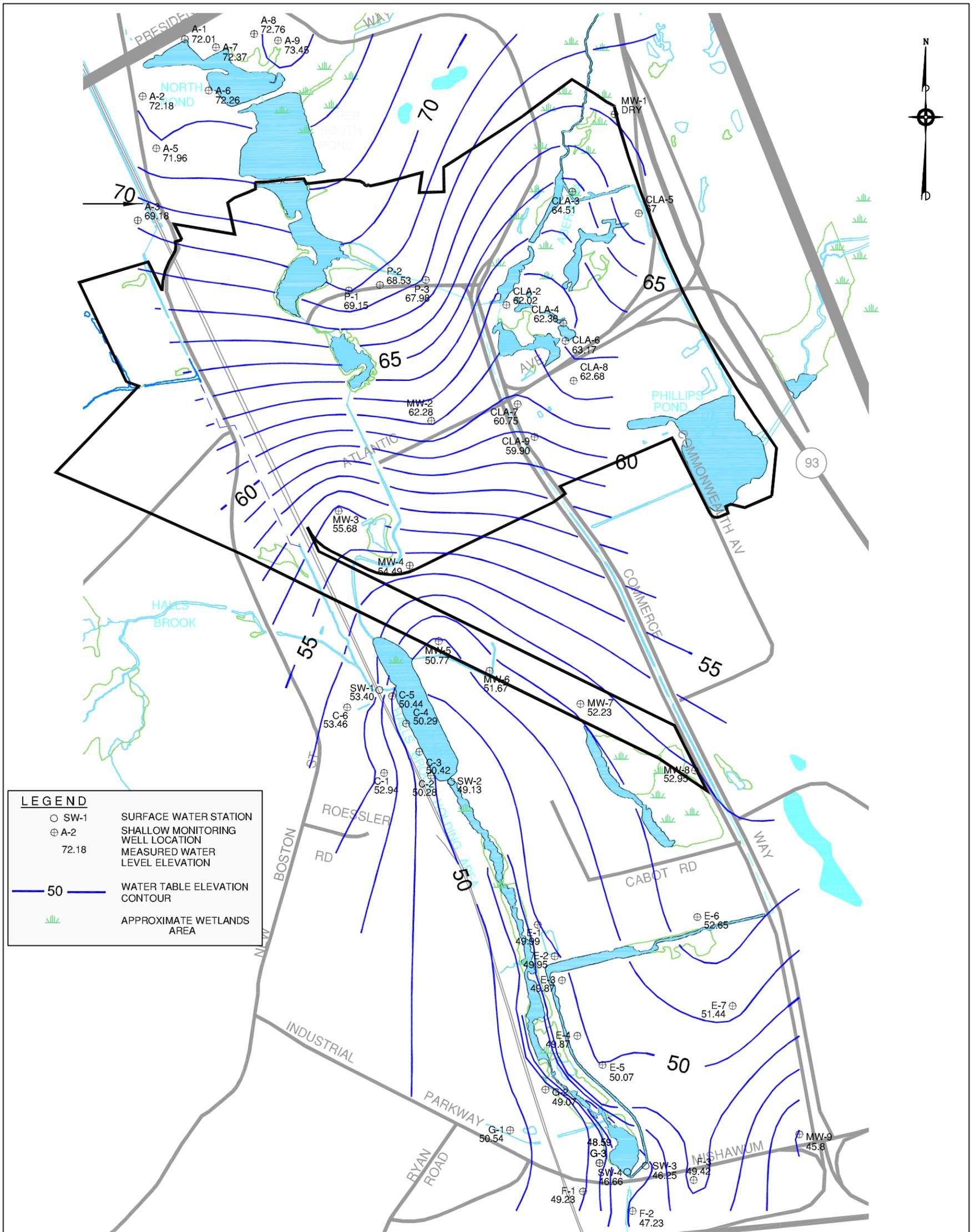
DRAWN BY: D.W.M. / R.G.D.
 CHECKED BY: J. DANIELI / P. CALL
 SCALE: AS NOTED

REV.: 0
 DATE: JANUARY 05, 2005
 FILE NO.: DWG\4123\0910\041802_1.DWG



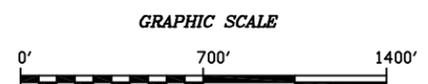
TETRA TECH NUS, INC.

55 Jonspin Road Wilmington, MA 01887
 (978)658-7899



NOTES:

1. LOCATIONS OF MAJOR ROADS, STREETS AND WATER COURSES FROM MASSACHUSETTS GIS AND MAPPING PROVIDED BY THE CITY OF WOBURN ENGINEERING DEPT.
2. ORIGINAL PLAN DATUM FROM SOURCES CONVERTED TO NAD 83 FEET USING THE GEOGRAPHIC CALCULATOR BY BLUE MARBLE GEOGRAPHICS, VERSION 4.2; VERTICAL DATUM: NAVD 1988.
3. GROUNDWATER LEVELS WERE MEASURED ON JULY 30, 2002 FROM A DESIGNATED MEASURING POINT (TOP OF PVC) AT EACH TEMPORARY SHALLOW OVERBURDEN MONITORING WELL. THE GROUNDWATER LEVELS WERE CONVERTED TO AN ELEVATION BASED ON THE TOP OF PVC ELEVATION.
4. TEMPORARY MONITORING WELLS SURVEYED BY LOUIS FEDERICI & ASSOCIATES. VERTICAL DATUM IN NAVD 1988.
5. SURFACE WATER LEVELS WERE MEASURED ON 7/30/02 BY A DEPTH AND VELOCITY TRANSDUCER LOCATED IN THE CENTER OF THE RIVER CHANNEL AT EACH STATION. THE SURFACE WATER LEVELS WERE CONVERTED TO ELEVATIONS BASED ON TRANSDUCER ELEVATIONS SURVEYED IN THE FIELD BY TTUS AND CORRECTED TO NAVD 88 ACCORDING TO THE SURFACE WATER STATION PAD ELEVATION (SURVEY BY LOUIS FEDERICI & ASSOCIATES).
6. WATER TABLE CONTOURS GENERATED BY USE OF SURFER VERSION 8.0 AND MODIFIED TO CONFORM WITH PRESENT WATER BODIES AND OTHER PHYSICAL FEATURES.



WATER TABLE ELEVATION CONTOURS - 07/30/02
 MSGRP REMEDIAL INVESTIGATION REPORT
 INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS

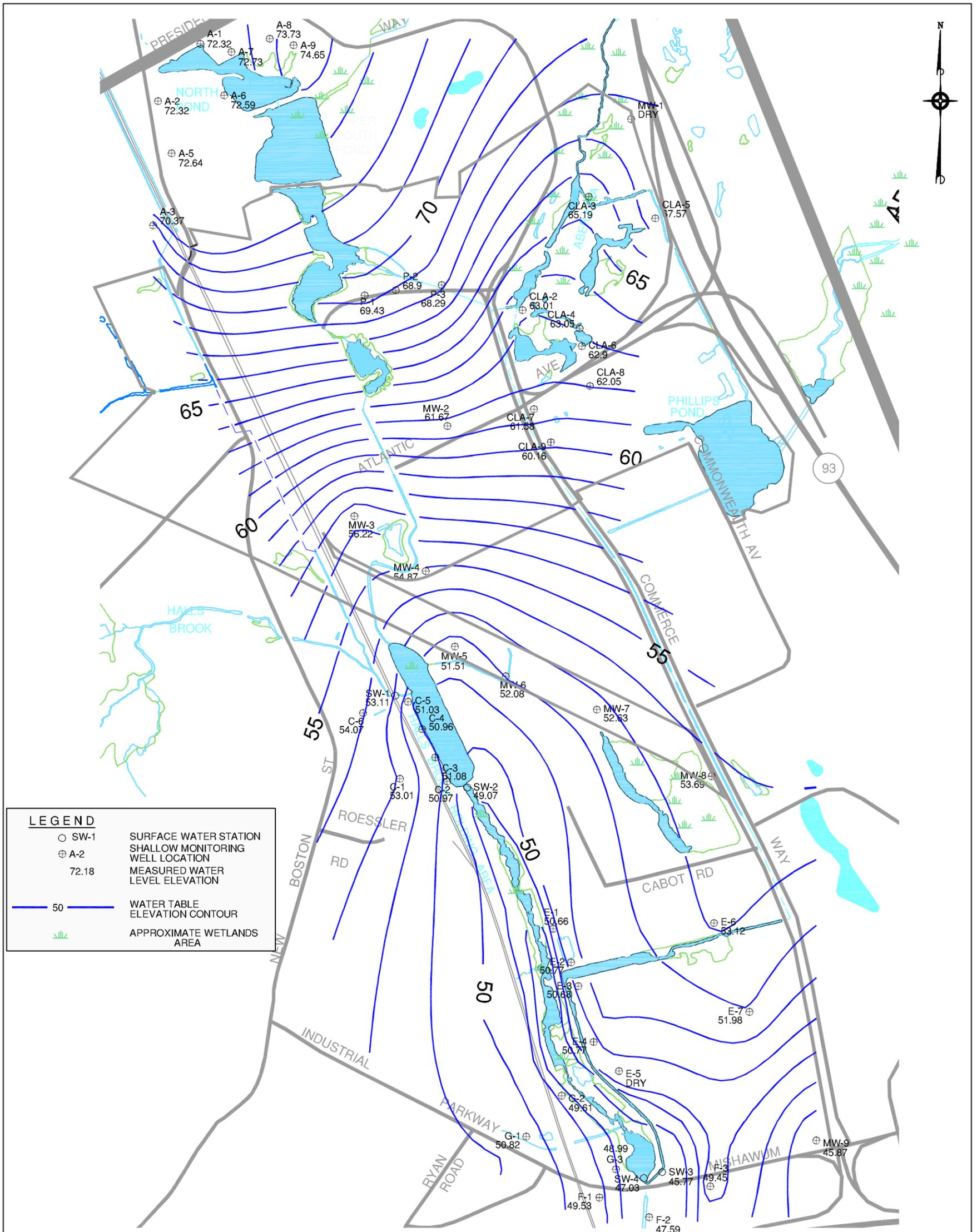
FIGURE 3-6

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CHECKED BY: J. DANIELI / P. CALL	DATE: JANUARY 06, 2005
SCALE: AS NOTED	FILE NO.: DWG\4123\0910\073002_1.DWG

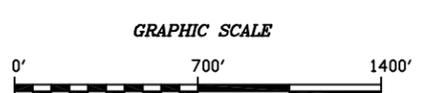


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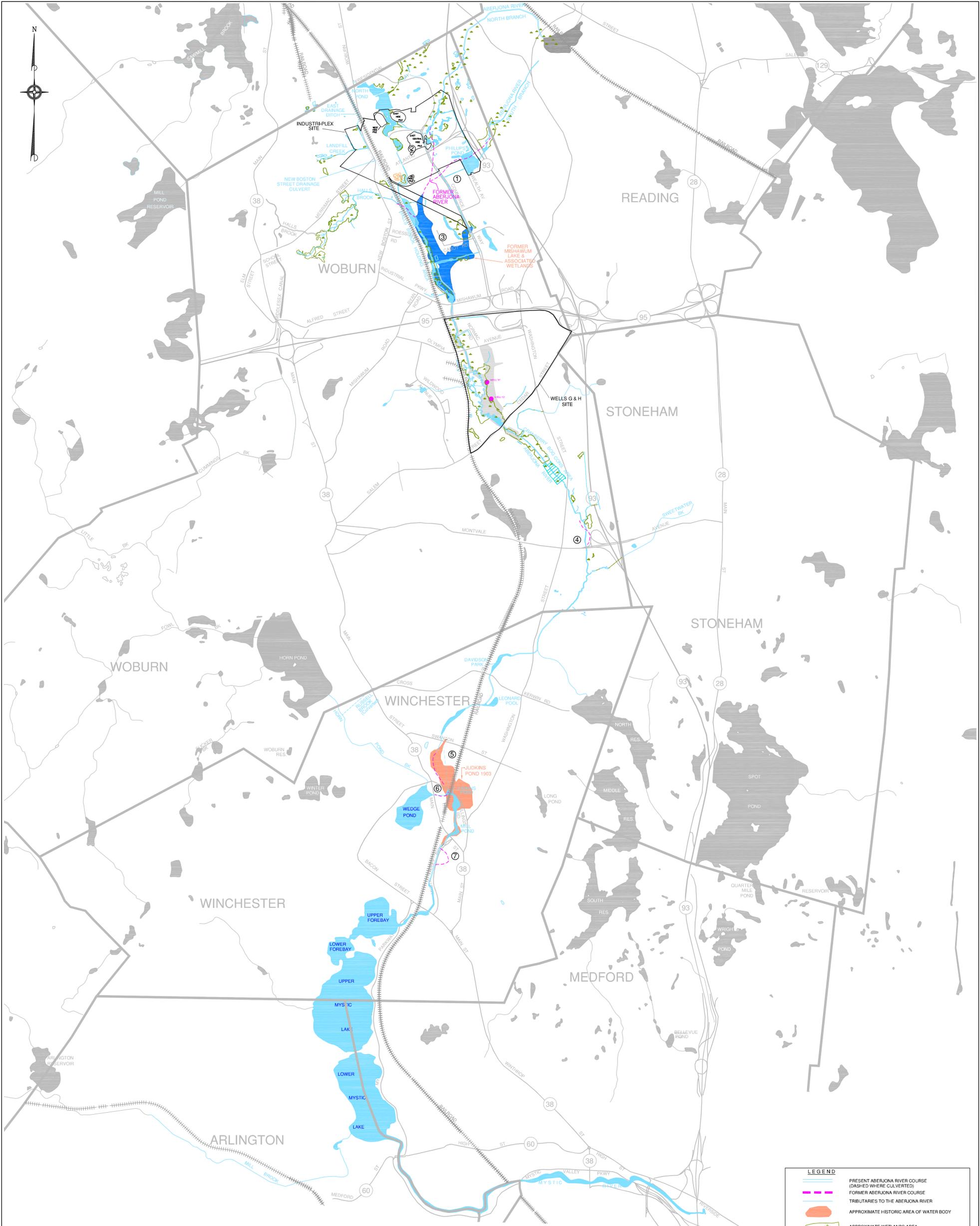
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- NOTES:**
1. LOCATIONS OF MAJOR ROADS, STREETS AND WATER COURSES FROM MASSACHUSETTS GIS AND MAPPING PROVIDED BY THE CITY OF WOBURN ENGINEERING DEPT.
 2. ORIGINAL PLAN DATUM FROM SOURCES CONVERTED TO NAD 83 FEET USING THE GEOGRAPHIC CALCULATOR BY BLUE MARBLE GEOGRAPHICS, VERSION 4.2; VERTICAL DATUM: NAVD 1988.
 3. GROUNDWATER LEVELS WERE MEASURED ON OCTOBER 28, 2002 FROM A DESIGNATED MEASURING POINT (TOP OF PVC) AT EACH TEMPORARY SHALLOW OVERBURDEN MONITORING WELL. THE GROUNDWATER LEVELS WERE CONVERTED TO AN ELEVATION BASED ON THE TOP OF PVC ELEVATION.
 4. TEMPORARY MONITORING WELLS SURVEYED BY LOUIS FEDERICI & ASSOCIATES. VERTICAL DATUM IN NAVD 1988.
 5. SURFACE WATER LEVELS WERE MEASURED ON 10/28/02 BY A DEPTH AND VELOCITY TRANSDUCER LOCATED IN THE CENTER OF THE RIVER CHANNEL AT EACH STATION. THE SURFACE WATER LEVELS WERE CONVERTED TO ELEVATIONS BASED ON TRANSDUCER ELEVATIONS SURVEYED IN THE FIELD BY TTINUS AND CORRECTED TO NAVD 88 ACCORDING TO THE SURFACE WATER STATION PAD ELEVATION (SURVEY BY LOUIS FEDERICI & ASSOCIATES).
 6. WATER TABLE CONTOURS GENERATED BY USE OF SURFER VERSION 8.0 AND MODIFIED TO CONFORM WITH PRESENT WATER BODIES AND OTHER PHYSICAL FEATURES.



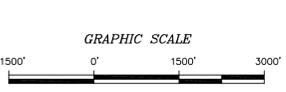
WATER TABLE ELEVATION CONTOURS – 10/28/02		FIGURE 3-7	
MSGRP REMEDIAL INVESTIGATION REPORT		 TETRA TECH NUS, INC. 55 Jonspin Road Wilmington, MA 01887 (978)658-7899	
INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS			
DRAWN BY: D.W.M. / R.G.D. CHECKED BY: J. DANIELI / P. CALL SCALE: AS NOTED	REV.: 0 DATE: JANUARY 17, 2005 FILE NO.: DWG\4123\0910\102802_1.DWG		



NOTES:

1. LOCATIONS OF TOWN BOUNDARIES, MAJOR ROADS, STREETS, WATER BODIES, AND WATER COURSES FROM PLANS BY THE MASSACHUSETTS GIS AND CITY OF WOBURN ENGINEERING DEPT. (2003) EXCEPT AS NOTED BELOW.
2. JUDKINS POND 1903 LOCATION DIGITIZED FROM USGS MAP: BOSTON, MA QUADRANGLE, EDITION OF JULY, 1903, REPRINTED 1942, OBTAINED FROM [HTTP://DOCS.UNH.EDU](http://docs.unh.edu).
3. LOCATIONS OF HISTORIC MISHAWUM LAKE, AND HISTORIC ABERJONA RIVER NORTH BRANCH FROM A PLAN ENTITLED "PLANS OF ABERJONA RIVER, HALL'S BROOK AND MISHAWUM LAKE FLOOD CONTROL AND DRAINAGE STRUCTURES TO REPLACE EXISTING WATERWAY, WOBURN, MA, FOR PETITION OF MARK PHILLIP TRUST", WESTON & SAMPSON ENGINEERS, DATED: NOV. 1974.
4. PARTS OF THE ABERJONA RIVER SOUTH BRANCH SHOWN FROM A PLAN BY HALLIBURTON NUS, INC., PLAN DATED: AUGUST 25, 1997, ENTITLED: "HISTORICAL AND CURRENT SURFACE WATER CONDITIONS, PRELIMINARY MSGRP STUDY, INDUSTRI-PLEX, WOBURN, MA".
5. SURFACE WATER FEATURES ADAPTED FROM FIGURE 39 (ABERJONA RIVER STUDY AREA, WETLANDS STATUS & RIVER COURSES, 1995) FROM A REPORT ENTITLED: "AERIAL PHOTOGRAPHIC ANALYSIS OF THE ABERJONA RIVER STUDY AREA, MIDDLESEX COUNTY, MASSACHUSETTS", OCTOBER, 2002, BY U.S. E.P.A. AND ONE METER AERIAL PHOTOGRAPHS OBTAINED FROM THE MASSACHUSETTS GIS.
6. ROADS AND WATER COURSES UNAVAILABLE FROM ABOVE SOURCES ADDED FROM AVAILABLE PLANS AND/OR FIELD OBSERVATIONS.
7. PLAN DATUM IN NAD 83 FEET; ORIGINAL DATUM FROM OTHER PLANS CONVERTED TO NAD 83 FEET USING THE GEOGRAPHIC CALCULATOR BY BLUE MARBLE GEOGRAPHICS, VERSION 4.2.
8. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
9. PLAN NOT TO BE USED FOR DESIGN.

LEGEND	
	PRESENT ABERJONA RIVER COURSE (DASHED WHERE CULVERTED)
	FORMER ABERJONA RIVER COURSE
	TRIBUTARIES TO THE ABERJONA RIVER
	APPROXIMATE HISTORIC AREA OF WATER BODY
	APPROXIMATE WETLANDS AREA
HISTORIC CHANGES TO ABERJONA RIVER	
①	ABERJONA RIVER DIRECTED INTO CONTINUOUS OPEN CHANNEL BETWEEN 2 LINES OF COMMERCE WAY (1970'S)
②	ATLANTIC AVENUE DRAINWAY CONSTRUCTED FOR DRAINAGE OF CREATED WETLANDS AND THE EXPANDED SOUTH POND (1995)
③	HALLS BROOK STORAGE AREA DEVELOPED FOR FLOOD STORAGE (EARLY 1970'S)
④	RIVER DIVERTED DUE TO DEVELOPMENT ON NORTH SIDE OF MONTVALE AVENUE (1970'S)
⑤	RIVER DIVERTED THROUGH UNDERGROUND CULVERT AT WINCHESTER HIGH SCHOOL (1960'S)
⑥	CHANGE WHERE HORN POND TRIBUTARY MEETS ABERJONA RIVER (1950'S)
⑦	RIVER CHANGE AT MANCHESTER FIELD IN WINCHESTER, MA (1940'S)



DRAWN BY: R.G. DEWSNAP
 PREPARED BY: P. CALL
 CHECKED BY: D. BAXTER

TITLE: CURRENT AND HISTORIC SURFACE WATER FEATURES
 MSGRP REMEDIAL INVESTIGATION REPORT
 INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS

SOURCE: MASSACHUSETTS GIS AND OTHER SOURCES (SEE NOTES)

SCALE: AS SHOWN DATE: DECEMBER 15, 2004 PROJ. NO: 4123

PROJECT MANAGER: G. BULLARD DRAWING NO: ACFILE NAME: REV: 0

PROGRAM MANAGER: G. GARDNER FIGURE 3-B D:\MS\4123\0910\CURRENT-HISTORIC_SW_FEATURES.DWG

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