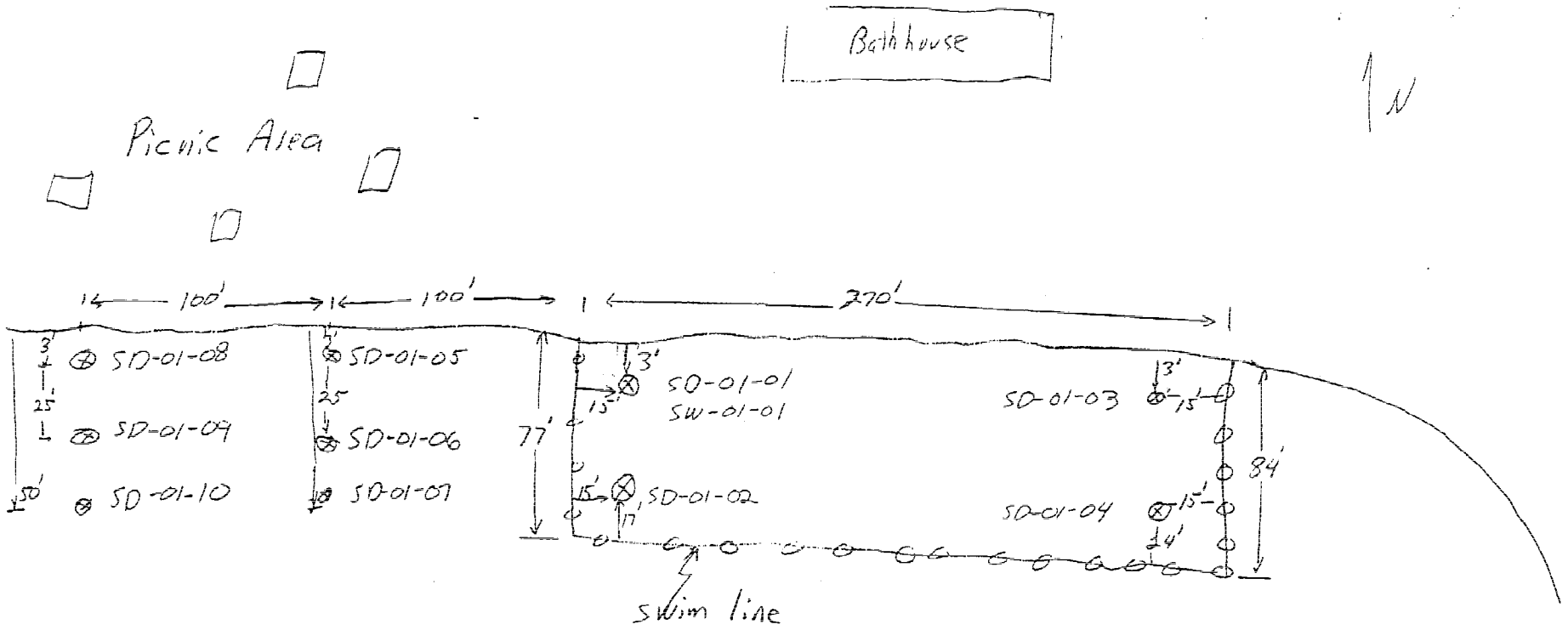
Click Here to Return to Appendix A.1 Contents

2.2 Station Descriptions

These station descriptions are taken from the final Field Operations Plan, supplemented by mapping and notations made in the field. The exact locations of each sampled site were recorded using a global positioning system supplied by the EPA.

Site 1—*Upper Mystic Lake, Sandy Beach—the adjacent area located near the numerous picnic benches in the park.* This location was chosen as a human health priority site because of its intensive use as a swimming beach, for hiking, wading, fishing, and boating. This area represents the most intensive use of the Aberjona River. Human health exposure scenarios will include swimming and wading (with varying ingestion and dermal contact parameters) and sport fish ingestion. Water and sediment quality here is also a concern for local officials. MIT data indicate high levels of metals in the sediment of the lake. Both Sandy Beach and the adjacent beach area were used for swimming and wading during the site reconnaissance visit. While the adjacent area may be used less intensively than the delineated swimming area, it is not subject to repeated clean sand amendments and therefore is likely to be more representative of actual lake contamination conditions. Four sampling points will be located within the buoys that delineate the swimming beach proper. Two points will be located close to shore (approximately 3 feet), to determine contaminant levels in areas frequented by small children, and two will be approximately 50 feet from shore to capture data from an area of the swimming beach most likely to have the highest contaminant concentrations. The remaining six sampling points will be located along the adjacent area, two close to shore (approximately 3 feet), two approximately 25 feet from shore, and two approximately 50 feet from shore.



Upper Mystic Lake

Aberjona River Study

site # 1 Sandy Beach

note (USEPA GPS location @ SD-01-01)

not to scale

As Sampled

1010 TAKE SW-1 AT SANDY BEACH

pH	T °C	COND.	HARD	DO_2
8.08	26	520	94 mg/L	4.88 mg/L

NOTE: 3 CHILDREN SWIMMING AT TIME OF SAMPLE

note GPS unit not reporting position unit say PDOP too high only gives old fix check all connections unit starts to store data when clips on 10 Old Fix.

1100 SAMPLE SD-1 TAKEN @ 1.0 BWS
DARK GRAY: C+F SAND 50-60%
C+F GRAVEL 20-30%
SILT 10-20%
ORGANIC DEBRIS 0-10%
NO ODOR.

1120 COLLECTED SD-3 - (SD-0103)
SAME COMPOSITION AS SD-0101
@ ≈1.0' BWS.

1145 SAMPLE SD-0102 @ ≈4.0' BWS
MOTTLED DARK GRAY, TAN, AND BLACK C+F SAND 80-90%
LEAF FRAGMENTS ~~SILT~~ FINE GRAVEL 10-20%
SILT 0-10%

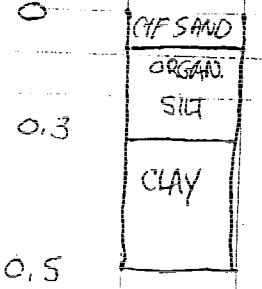
1200 COLLECT SD-0104 @ ≈4.0 BWS
SAME COMPOSITION AS SD-0103

1230: COLLECT SD-01-05 @ ≈ 1.0' BWS
BROWN TO DARK GRAY
C+F SAND 70-80%
C+F GRAVEL 10-20%
SILT 10-20%
COBBLES 0-10%
GLASS, AND ALUMINUM CAN FRAGMENTS
NO-ODOR - NUMEROUS COBBLES & GRAVEL REMOVED FROM SAMPLE
ROCKY BOTTOM.

1300 COLLECT SD-01-08 @ ≈10' BWS
LIGHT BROWN C+F SAND 80-90%
C+F GRAVEL 5-10%
SILT 5-10%
COBBLES 0-5%
ROCKY BOTTOM (COBBLES - CLEAN SAND BELOW)

1315: COLLECT SD-01-06 @ ≈ 5.0' BWS
DARK BROWN TO BLACK
ORGANIC SILT 80-90%
C+F SAND 10-20%
F GRAVEL 0-10%
CLAY 0-10%
ORGAN FIBERS + DEBRIS H_2S ODOR

1400 COLLECT SD-01-07 @ ≈ 7'
6.0' BWS.
BROWN TO LIGHT GRAY
SILT 70-90%
CLAY 30-40%
C+F SAND 0-10%
F GRAVEL 0-10%



1415 COLLECT SD-01-09 @ ≈ 5.0' BWS
DARK BROWN:
ORGANIC SILT: 70-80%
C+F SAND 10-20%
F GRAVEL 0-10%
SLIGHT H_2S ODOR, PLASTIC FRAGMENT:

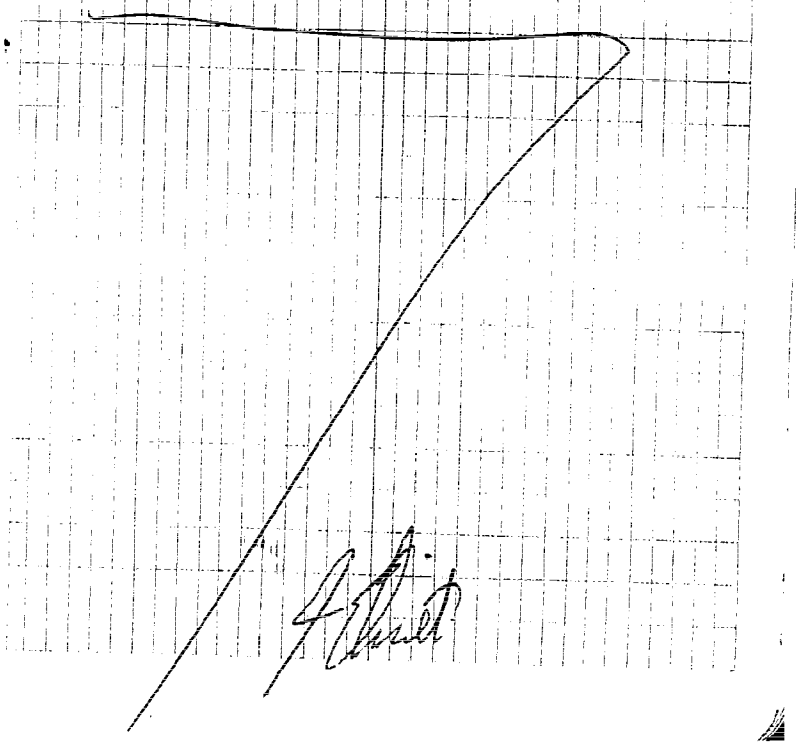
1445 COLLECT SD-01-10 @ ≈ 6.0' BWS
BLACK ORGANIC SILT 80-90%
C+F SAND 10-20%
F GRAVEL 0-10%
SLIGHT ODOR, VEGITIVE MATTER

1530 COLLECT FB-(01) 081595

1545 begin to pack samples for Fed Ex shipment

1545 Darrelyn off to Fed Ex w/ samples

1900 off site



Site 2—*Upper Mystic Lake, Inlet to Lower Forebay*. The upper and lower forebays are sediment deposition areas and of relatively high ecological importance. In addition, these areas are considered important for human health risk assessment. The sampling site was located in the lower forebay at the mouth of the inlet from the upper forebay. This is a deposition area and the most accessible part of the lower forebay from the Sandy Beach area.

0700 arrive hazy humid 90

HIS level 0 unless noted

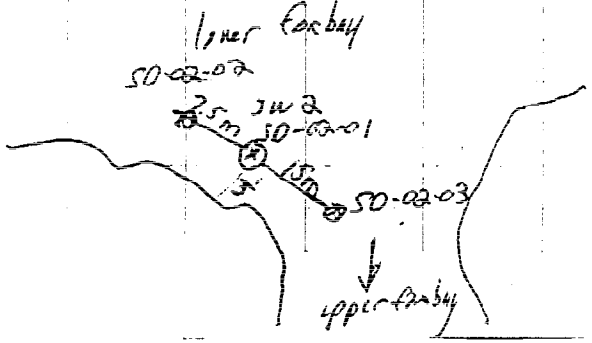
0710 set up @ back of park parking lot between locs SW 2, SW 3

0830: CALIBRATE INSTRUMENTATION
pH: soln 7.0 & 4.0
DO: electronic
COND: 1000 µMHOS soln.

0745 COLLECT SW-02-01 (PARAMETERS)

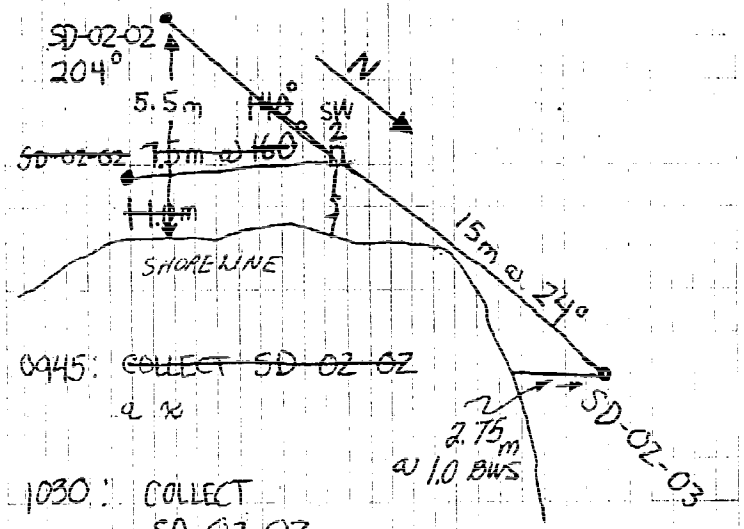
pH	T°(C)	COND(µmh)	DO(%)	HARD(mg/L)
7.78	30	475	4.6	~~100 mg/L~~ 106 mg/L

0845 collect SW-02 in 1.5' water



0920 collect sediment sample SD-02-01 & with SW-02

note: GPS not working think its poor connection: call T. Bridge @ EPA Lex 9/15 not in office until 9/17



0945: ~~COLLECT SD-02-02~~ @ x

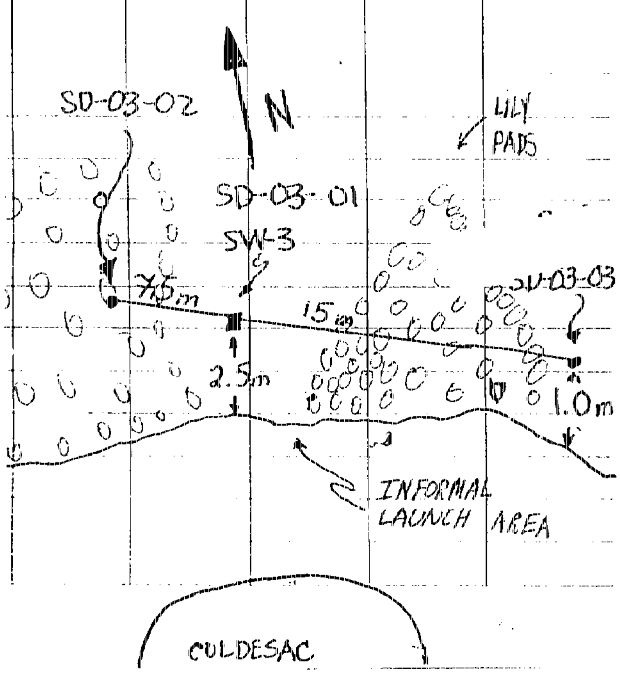
1030: COLLECT SD-02-03
DARK BROWN C+F SAND 70-80% UPPER FOREBAY
FINE GRAVEL 10-20%
SILT 10-20%
ROCKY SHORELINE NUMEROUS LILY PADS

1100: COLLECT SD-02-02 @ x 1.5m BWS
BROWN 70-80% C+F SAND
10-20% C+F GRAVEL (C REMOVED FROM SAMP.
10-20% PEAT

Site 3—*Upper Mystic Lake, Boat Put-In Near Sandy Beach Parking Lot, South End of Upper Forebay*. An area observed at the south end of the upper forebay, at the cul-de-sac at the end of the parking lot, is believed to be used for boat launching. Prow marks from recent launches were visible in the sediment during the June site visit. In addition, a child was observed playing in the water at this location. The area was selected as a sampling site because of the obvious, if somewhat limited, contact point and because this area near the mouth of the river is where the highest sediment contaminant loads are thought to drop out in the lake over time.

collect SW-03 + SW-03 MS/MSD
8' from shore in clearing
of lilly pads note lots of
plankton water stagnate 3
people have been to this
area to fish
sample collected in ~2' H2O
cans cement block bottles on bottom

pH	T°	COND	HARD	DO_2
7.83	26.5	460	100 mg/L	5.43



1215 COLLECTED SD-03-01 @ ≈ 0.5m BWS
LIGHT BROWN TO GRAY C+F SAND 80-90%
COLLECTED IN C+F GRAVEL 10-20%
OPEN WATER -SILT 0-10%
GLASS, ALUMINUM FRAG.

~~1300~~
1315 COLLECTED SD-03-03 @ ≈ 0.1m BWS
GRAY C+F SAND 85-95%
F GRAVEL 5-15% ORGANIC ODOR
SILT 0-5%
AREA DENSE WITH LILY PADS
1345 COLLETED SD-03-02 @ ≈ 0.75m BWS
DARK BROWN ORGANIC SILT 70-80%
C+F ~~3~~ 10-20%
GRAVEL 5-10%
DETRITUS 5-10%
STRONG ORGANIC ODOR DENSE LILY PAD AREA
1400 PACKAGE SAMPLES FOR SHIPMENT
1600 OFF SITE TO FED-EX (3 COOLERS)
1645 DEPART FED-EX FOR HOME.

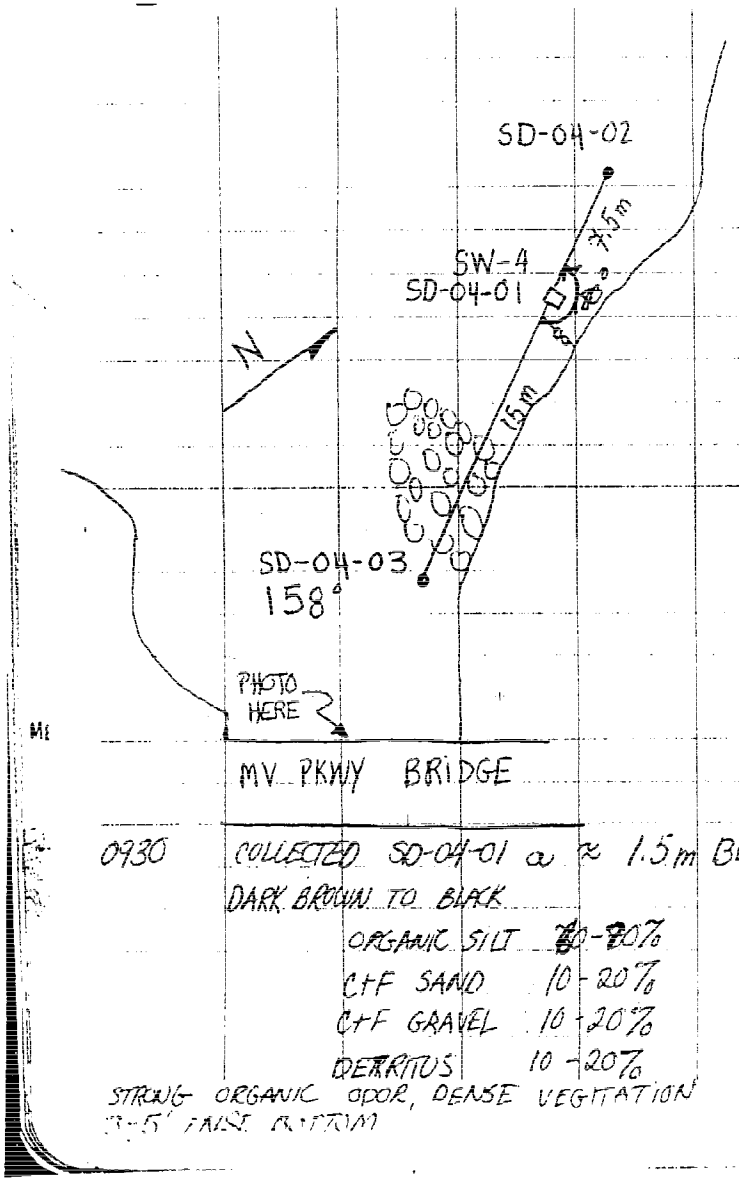
[signature]

Site 4—*Aberjona River Inlet to Upper Mystic Lake*. This area was selected as a sampling site because it is a sediment deposition area at which fishermen, waterfowl, fish, and other aquatic wildlife were observed.

0700 ON SITE, CLEAR HUMID 80'S
H+S LEVEL D UNLESS NOTED
0730 CALIBRATE INSTRUMENTATION
ⓐ COLE PALMER pH METER MAY HAVE ERRONEOUS READINGS – COMPARED IT TO EPA MODEL 762904. BOTH CALIBRATED PROPERLY WITH EACH MODELS BUFFER SOLUTIONS
ⓑ CONDUCTIVITY SOLN 1000 UMHOS READING 1000 UMOS
ⓒ DO_2: ELECTRONIC @ 0.0 FT. ABOVE S.L + 0.0% SALINITY
0815 COLLECT WATER SAMPLE FROM SW-04 TO DETERMINE PARAMETERS

	pH	T °C	COND. UMHOS	DO_2 mg/L	HARD mg/L
COLE PALMER	6.99	27.1	550	1.03	112
MEASUREMENTS INC.	6.18				

0830 COLLECT SW-04 3' FROM SHORE COLLECTION SITE IS DENSELY CHOKED WITH, ALGAE, DUCKWEED AND LILY PADS. STAGNENT. SHORELINE IS LITTERED WITH TRASH



0930 COLLECTED SD-04-01 a ≈ 1.5m BWS
DARK BROWN TO BLACK
ORGANIC SILT 70-80%
C+F SAND 10-20%
C+F GRAVEL 10-20%
DETRITUS 10-20%
STRONG ORGANIC ODOR, DENSE VEGITATION 3-5' FALSE BOTTOM

1015 COLLECTED SD-04-02 a ≈ 1.5m BWS
DARK BROWN ORGANIC SILT 70-80%
C+F SAND 10-20%
DETRITUS 10-20%
F GRAVEL 0-5%
COLLECTION SITE: DENSE AQUATIC VEG. AND ALGAE, FALSE BOTTOM 2-5' THICK, STRONG ORGANIC ODOR.

1100 COLLECTED SD-04-03 a ≈ 1.0m BWS
DARK BROWN ORGANIC SILT 70-80%
DETRITUS 20-30%
C+F SAND 0-5%
COLLECTION SITE: DENSE AQUATIC VEGITATION, & ALGAE FALSE BOTTOM 3-6', STRONG ORGANIC ODOR.

1115 PACK UP & MOVE TO SW-5

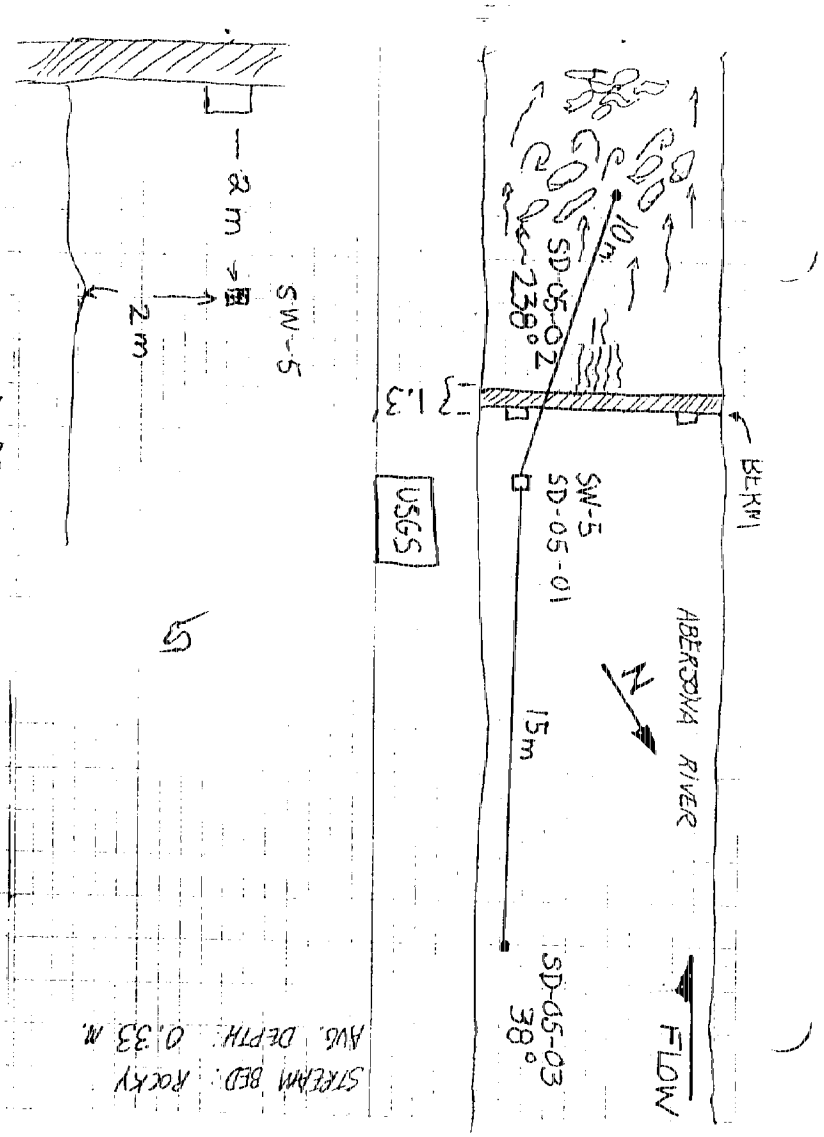
1130 onboard gear @ SW/SD 5 USGS gage station

1200 COLLECT SW-05 PARAMETERS

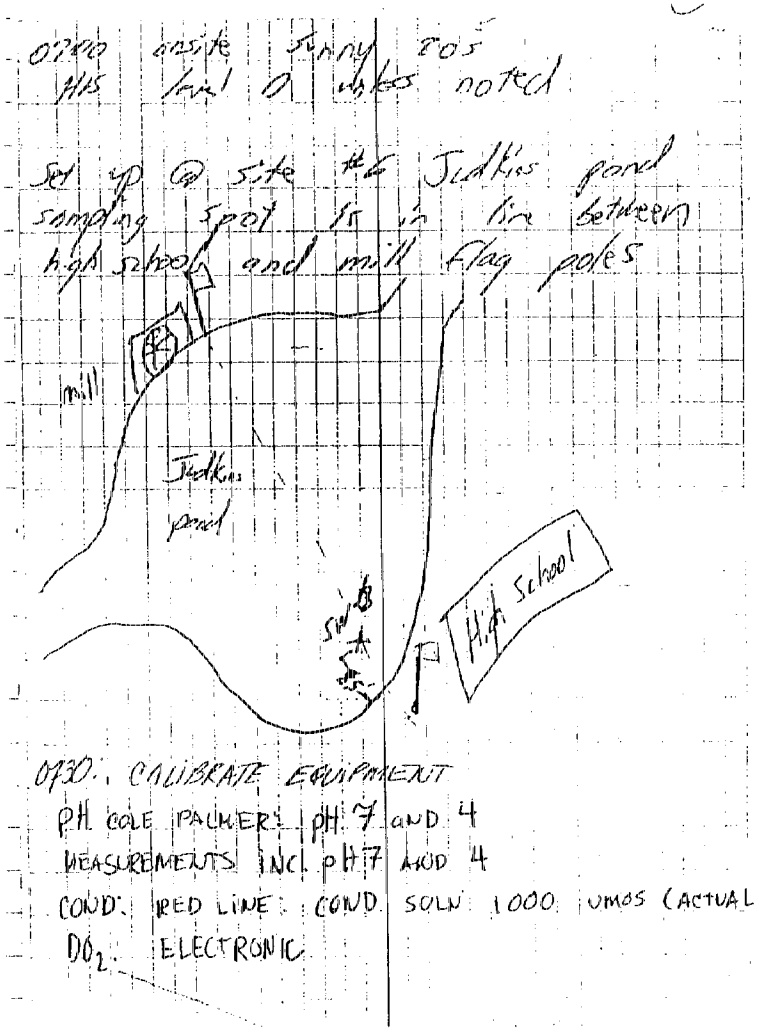
pH	T°	COND	HARD	DO_2
6.42	25.0°	560 UMHOS	136	5.12 mg/l

Site 5—*Gauge Station Off Mystic Valley Parkway.* This is the only identified sampling area within Reach 5 of the Aberjona River, as defined by Susan Siversky in her 7/17/91 memo on Wells G&H site visits to evaluate conditions for fish collection activities. The gauge station was selected to represent Reach 5 because it offers an identifiable landmark, and because it was used previously as a sampling station for the Upper Mystic Lake Watershed Urban Runoff Project.

COLLECTED SW-5
COLLECTED SD-05-01 @ 1.0' BWS
BROWN: C+F GRAVEL 70-80%
C+F SAND 10-30%
ORGANIC SILT 0-10%
COLLECTION SITE: NUMEROUS COBBLES
COLLECTED SD-05-03 @ ≈ 2.0' BWS
DARK BROWN: ORGANIC SILT 75%-85%
C+F SAND 15%-25%
F GRAVEL 0-15%
SAMPLE COLLECTED UP STREAM FROM BERM, PETROLEUM LIKE ODOR.
COLLECTED SD-05-C.
SAMPLE COLLECTED 10m FROM SW-5. IN A POOLING AREA OF DEPOSITION. ORIGINAL 7.5 M LOCATION HAD TO BE ABANDONED DUE TO HEAVILY SCOURED STREAM BED AND TURBULENT FLOW.
BROWN: C to F SAND 85-95%
F GRAVEL 5-15%
SILT 0-5%

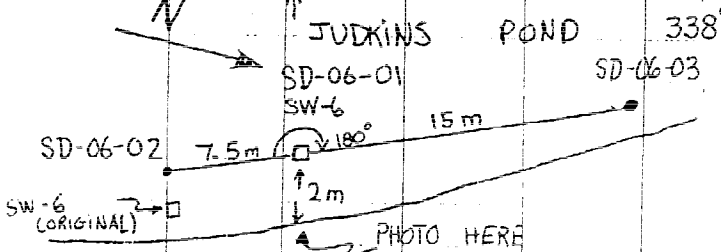


Site 6—*Judkins Pond*. This is the sampling location recommended by Siversky for Reach 4, because it appeared to be the only area in downtown Winchester where fishing could occur without being highly visible or potentially affecting non-target species. The Judkins Pond/Winchester High School area will not be defined as an intensive sampling site for the human health risk assessment, as originally planned. Judkins Pond does not seem to be an actual park and access to the shoreline is limited by a fence. Although this fence does not necessarily prevent contact, because there are portions that are broken, it was noted that on a sunny, 80°F day in June, no one was using this area for recreation. The area adjacent to the Winchester High School playing fields, just south of the Swanton Street bridge, was also reevaluated. It was initially thought that this area might be used as an access point to the river. However, it was not mentioned by any of the Winchester officials as an area of concern. It is isolated from both the high school grounds and adjacent homes due to culverts, riprap, concrete walls, fencing, or overgrown vegetation. No one was in this area during either of the site visits.



SW-6	pH	T °C	UMHOS COND	HARD	DO_2
COLE PALMER	6.68	24.1°	640	142 mg/L	6.85 mg/L
MEAS. INC.	6.60				

0745 COLLECTED SW-6
water depth - 2' soft bottom
sink ~1' in organic muck
sample collected ~~2.5'~~ 2.5' from shore



0815 COLLECTED SD-06-01 IN ~ 1.0m BWS
DARK BROWN: ORGANIC SILT 60-70%
C+F SAND 20-30%
DETRITUS 10-20%
FINE GRAVEL 0-10%
COLLECTED IN OPEN WATER, FALSE BOTTOM 2-3' THICK, ORGANIC ODOR

0845 COLLECTED SD-06-02 AT ~ 1.0m BWS
SAME COMPOSITION AND CONDITION AS SD-06-01

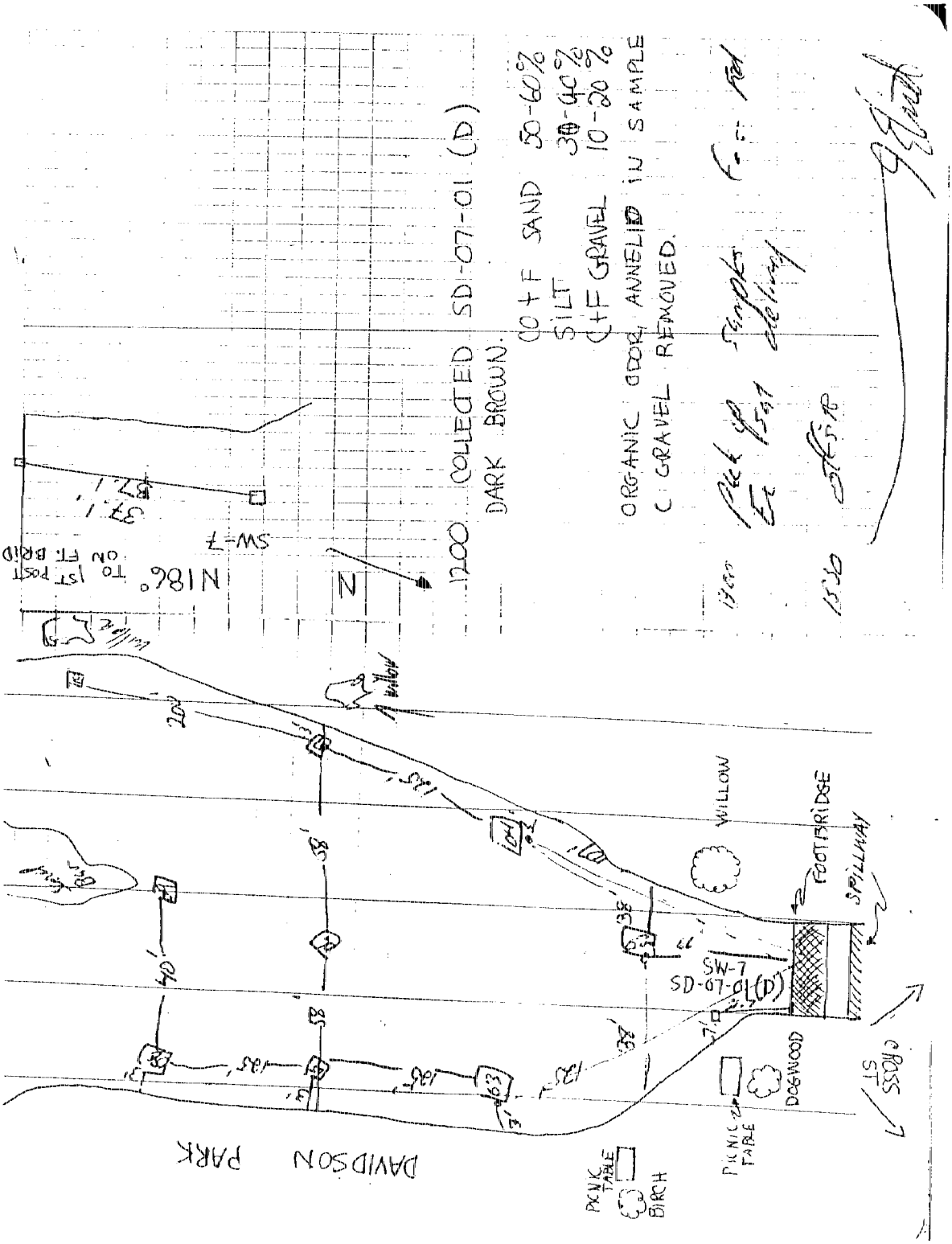
0915: COLLECTED SD-06-02 AT ~ 1.0m BWS
NOTE: DETECTED ORIGINAL SW-6 STAKE 1m FROM SHORE AT SD-06-02 LOCATION.
DARK BROW: ORGANIC SILT 70-80%
C+F SAND 10-20%
DETRITUS 10-20%
FINE GRAVEL 0-10%
COLLECTED IN OPEN WATER, FALSE BOTTOM 2-3' THICK, STRONG ORGANIC ODOR.

1000: PACK VEHICLE AND MOVE TO SW-7 (DAVIDSON PARK)

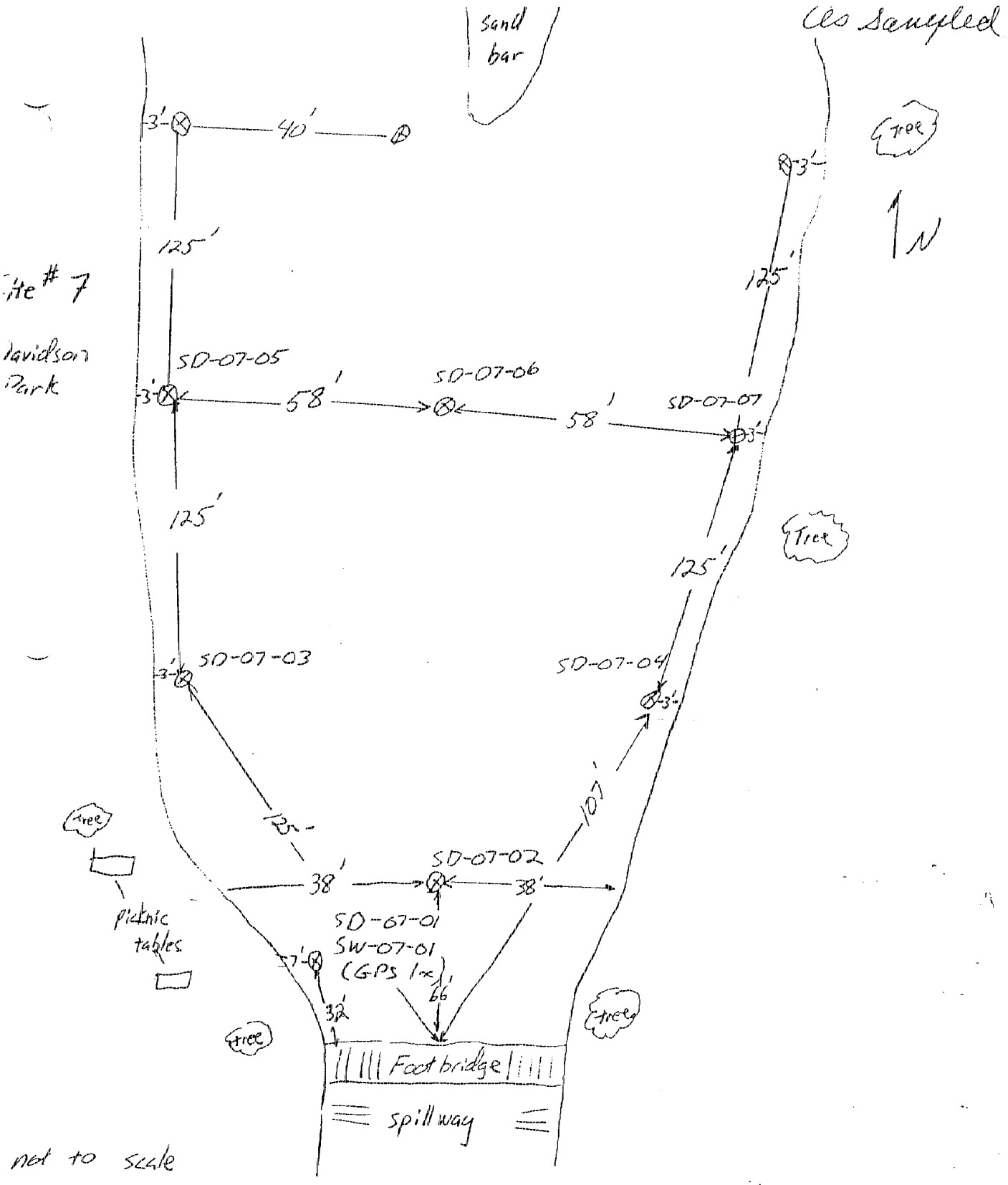
1100: COLLECT SW-7 PARAMETERS

	pH	T°C	COND UMHOS	HARD	DO_2
				mg/L	mg/L
COLE. P.	6.94				
MEA. INC.	6.80	25.3	.465	152	4.44

Site 7—*Davidson Park*. The site was selected as one of the three intensive sampling sites for the human health risk assessment based on use by local residents as well as children playing along the banks. In addition, data from the MIT suggest that Davidson Park, particularly its south end, might be an area of local peak contaminant concentrations. It may also be a localized contamination sink, due to the spillway, sand bar, and



dam in this portion of the river. Davidson Park is located just south of the Woburn/Winchester boundary off Washington and Cross Streets. Both the recreation and health directors in Winchester suggested this park as an area to consider due to its use by local residents and easy access to the river. It is also a concern because residents have requested that the beach located here be reopened for public use. The park consists of picnic tables, grassy areas, and a pond, which is actually an oxbow of the Aberjona, bounded by spillways at the northern and southern ends of this area. There were approximately five people using the park during the June visit. The current human exposure scenarios to be included in the risk assessment are wading (dermal contact and incidental ingestion) and sport fish ingestion. Sampling points will be distributed throughout the pond area, from south of the sand bar to just above the lower spillway (Figure 3-2).



Abegona River Study

0700 onsite sunny expect 95°
HrS level 0
personnel J Ehret, C Fain, H Murphy

0715 set up to cont w/
H H sample from loc #7
Davidson park

0800 collect SD-07-02
3' water sample is blk
soft org. silt / muck
sample collected 66' from bridge
in center (38') of pond

0830 collect SD-07-03 sample
same consistency as 02 w/
several cobbles on surface
sample collected 3' from W
shore 125' from bridge

note mark SD-07-04 will
collect @ later date
w/ EPA for Bioassay
sample 107' along E bank
from bridge 3' from shore

J Ehret

0850 collect SD-07-05 125' N
of SD-07-03 along W bank in
2' water blk organic muck

0910 collect SD-07-07 125' N
of SD-07-04 along E bank 3'
from shore adjacent to sm willow
same mat ~1.5' H_2O

note: 2 children playing in H_2O @ bridge

0930 collect SD-07-06 equidistant (116' W)
58' from each bank @ SD-07-07 willow
water depth - 4' same material

0955 collect SD-07-08 125' N of
SD-07-05 along W bank in
1.5' water same mat.

1015 collect SD-07-09 40' ⊥ from
SD-07-08 loc - 1' H_2O

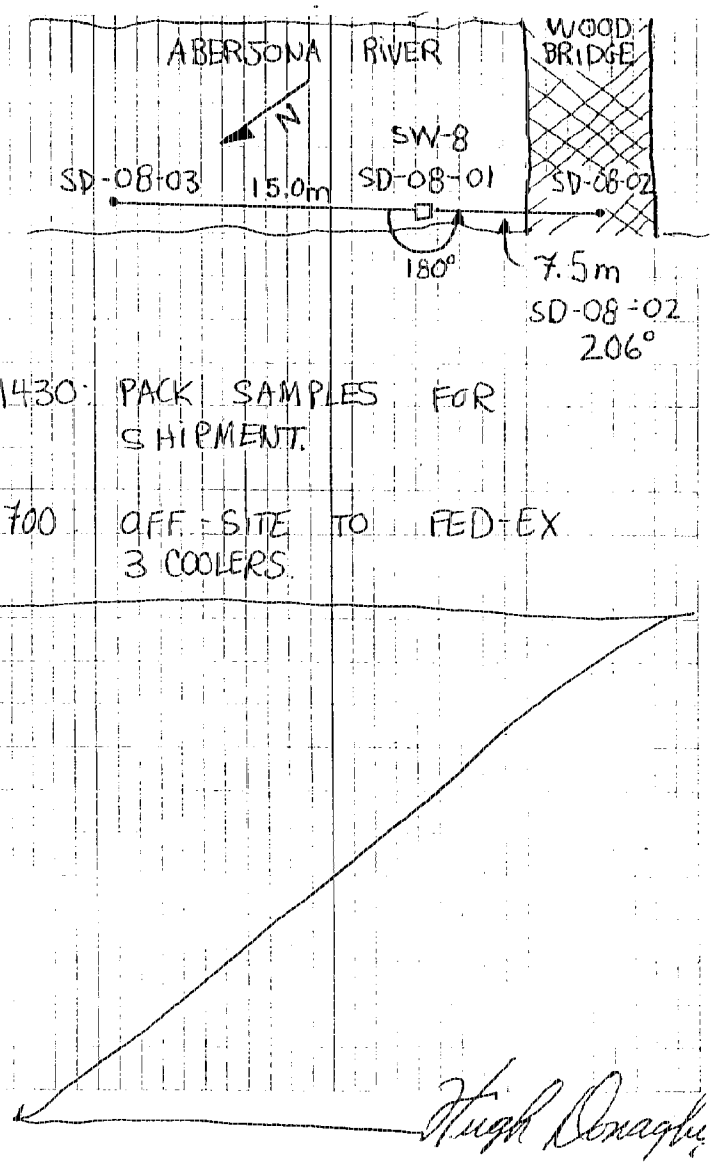
note red worms ~2" long look similar
to earthworms in sample, see
turtles + frogs on shore

J Ehret

1040 collect SD-07-10 @ 200' N of SD-07-07, along E bank in 1' H2O adjacent to willow

1100 pick up to move to SW508 callin to McGaren report status

Site 8—*Footbridge Above Washington Crossing—Just Upstream of Davidson Park and Inlet from North Reservoir.* This site was selected to represent the river reach from downstream of Cranberry Bog to Davidson Park because it corresponds closely to the Washington Street sampling station from the Upper Mystic Lake Watershed Urban Runoff Project. The site is situated at a small bridge just upstream from the river bend at the Washington Street crossing.



SW-8 PARAMETERS

pH	T°C	HARD	DO_2	COND.
6.84	18.4	163 mg/L	4.75	620

COLLECTED SW-8 1.0m FROM BANK

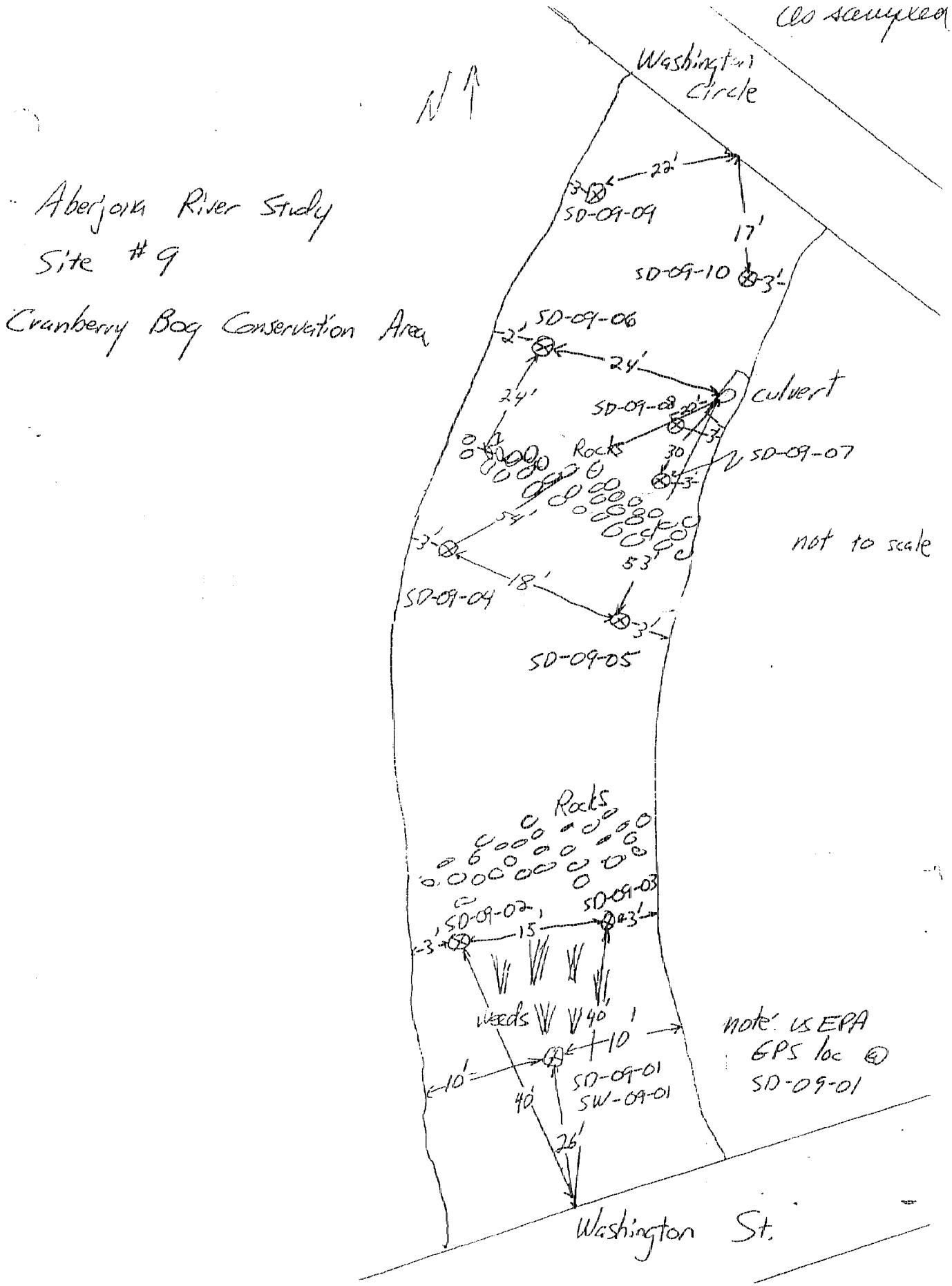
COLLECTED SD-08-01, 1.0m FROM BANK AT ≈ 1.0' BWS

DARK BROWN C+F SAND 50-60%
C+F GRAVEL 20-30%
ORGANIC SILT 20-30%

COLLECTED SD-08-02, 1.0m FROM BANK AT ≈ 1.5' BWS. SAME COMPOSITION AS SD-08-01

COLLECTED SD-08-03, 10m FROM BANK AT ≈ 1.5' BWS. SAD SAME COMPOSITION AS SD-08-01 AND SD-08-02.

Site 9—*Cranberry Bog Conservation Area—downstream from the bridge at the Cranberry Bog Conservation Area at Washington Street and Washington Circle in Woburn.* This area was identified by Councilman Medeiros, Chair of the town's Recycling and Hazardous Waste Committee, as the only point he is aware of where the Aberjona River and shoreline is used for recreation. He claims the area is used for hiking, picnics, and as an access point for tubing during high water conditions. Hiking also occurs in the area just upstream of the picnic grove. No residents were present during the October or June visit to this area. Wading and swimming (with varying ingestion and dermal contact parameters) and sport (as opposed to subsistence) fish ingestion exposure scenarios will be included for this site. Samples will be taken along the picnic area south of the bridge that transects the area (. The picnic table, grill, and benches, as well as easy access to the river, make it a logical contact point for human receptors. The small rock dams in this area might also trap sediment.


Clo scanned
Washington Circle
N
Aberjona River Study
Site # 9
Cranberry Bog Conservation Area
22'
SD-09-09
17'
SD-09-10
3'
SD-09-06
2'
24'
24'
culvert
SD-09-08
20'
Rocks
30'
SD-09-07
54'
53'
not to scale
SD-09-04
18'
3'
SD-09-05
Rocks
SD-09-02
SD-09-03
15'
3'
3'
weeds
40'
10'
10'
40'
note: US EPA GPS loc @ SD-09-01
SD-09-01
SW-09-01
26'
Washington St.

0700 Aug. 18 Sunny 80s
H+S level 1D
personnel J. Ehret
H. Monzglry
C. Fortin

0745 SW-9 PARAMETERS

pH	T°	HARD	COND	DO_2
6.93	19.3	175	695	5.21

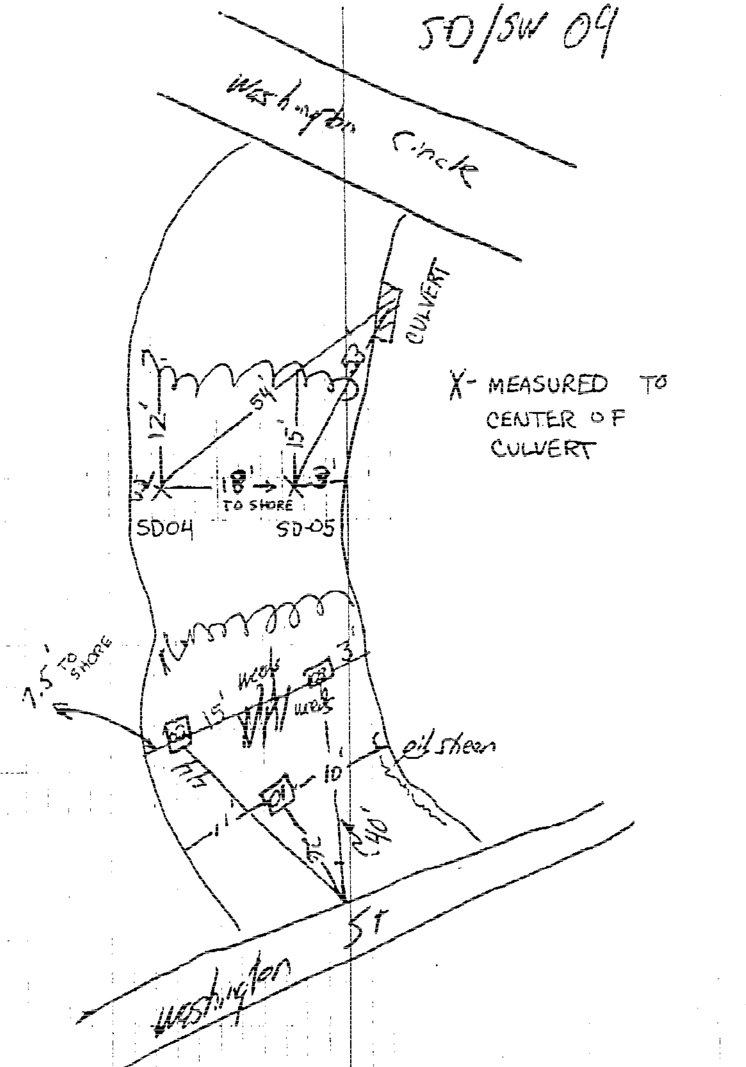
0815 collect SW-09 sample @
SD-09-01 loc 20' N of
Wash St bridge - water depth 8"
noted sheen along E bank

0830 COLLECT SD-09-01 AT 1.0' BWS
DARK BROWN C+F SAND 50-60%
C+F GRAVEL 20-30%
ORGANIC SILT 20-30%

NOTE: GRAVEL IS ANGULAR AND FAIRLY UNIFORM IN SIZE RESEMBLING COMMERCIAL CRUSHED STONE

0900 COLLECT SD-09-02
DARK BROWN PEAT 50-60%
ORG. SILT 20-30%
C+F SAND 10-20%
C+F GRAVEL 10-20%

SD/SW 09

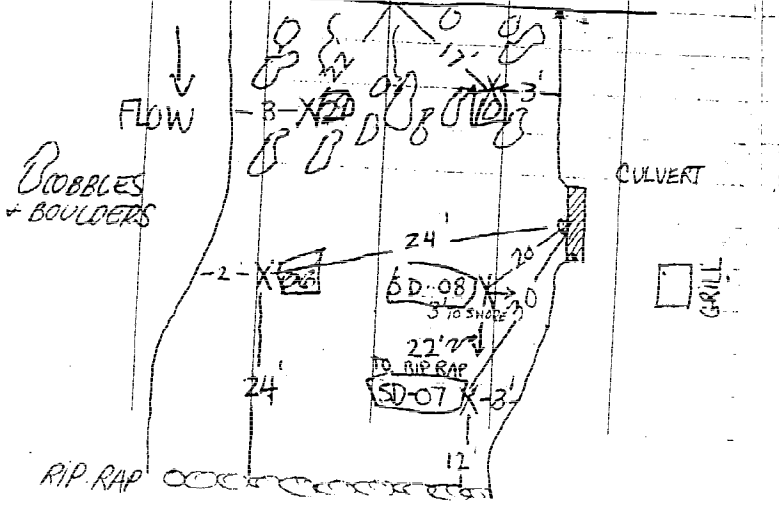


0915 COLLECT SD-09-03 AT 0.5' BWS.
DARK BROWN C+F SAND 60-70%
ORGAN. SILT 20-30%
C+F GRAVEL 10-20%

1015 COLLECT SD-09-05 AT 1.0' BWS
BROWN C+F SAND 60-70%
C+F GRAVEL 20-30%
ORGANIC SILT 10-20%

1100 COLLECT SD-09-04 AT 1.0' BWS
GRAY TO BROWN C+F SAND 80-90%
C+F GRAVEL 10-20%

BRIDGE WASH CIRCLE



COLLECT SD-09-07 AT 2.0' BWS
DARK BROWN C+F SAND 70-80%
C+F GRAVEL 20-30%
ORG. SILT 10-20%
NOTE: POCKETS OF IRON STAINING 0-5%

1230 COLLECT SD-09-08 AT 2.0' BWS
BROWN C+F SAND 70-80%
C+F GRAVEL 20-30%
ORGAN SILT 10-20%
ROCKY BOTTOM, POCKETS IRON STAINING

1300 COLLECT SD-09-06 AT 1.5' BWS
REDISH BROWN C+F SAND 80-90%
C+F GRAVEL 10-20%
VERY ROCKY MANY C GRAVEL AND COBBLES REMOVED FROM SAMPLE, SOME IRON STAINING

1330 COLLECT SD-09-09 AT 0.5' BWS.
REDISH BROWN C+F SAND 80-90%
C+F GRAVEL 10-20%
ORGAN. SILT 0-10%

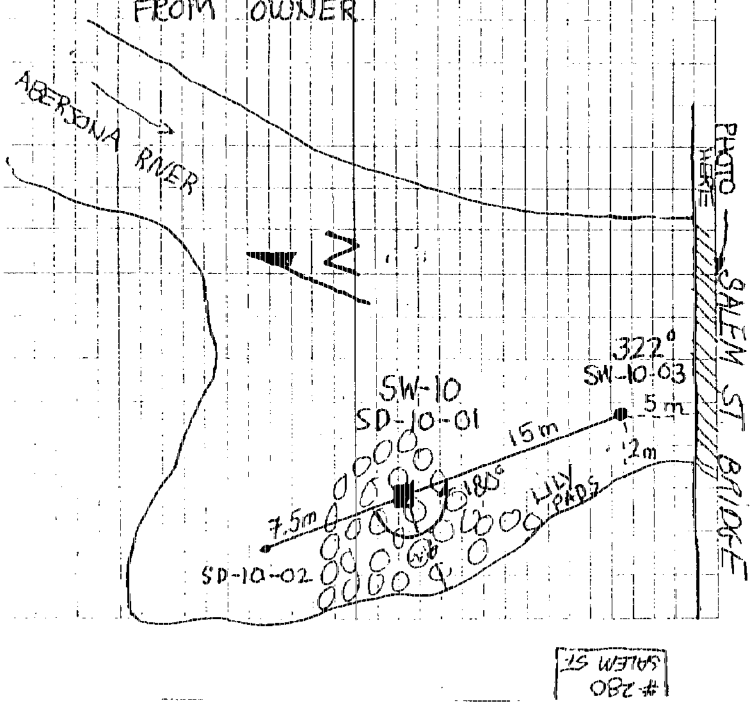
NOTE: SAMPLES SD-09 & SD-10 HAD TO BE COLLECTED USING HAND TROWEL. STREAM FLOW WAS TURBULENT. SOME FINES LOST IN CURRENT

1400	COLLECT SD-09-10 AT 0.5' BWS.
	REDISH BROWN C+F SAND 80-90%
	C+F GRAVEL 10-20%
	ORGANIC SILT 0-10%
1430	PACK SAMPLES FOR SHIPMENT.
1630	DROP 3 SAMPLE COOLERS AT FED-EX

J. Donaghey

Site 10—*Salem Street Bridge*. The reach between the Cranberry Bog Conservation Area (just downstream of the Salem Street bridge) and Route 128 are within the large wetland that comprises a substantial portion of the Wells G&H site. This wetland is the most important portion of the study area from an ecological perspective, as reflected by the placement of five wetland sampling locations and seven river sampling locations in this reach. The Salem Street bridge sampling location is a slow moving section along the west shore of the river, about 10 yards upstream from the bridge.

0900 PACK UP AND MOVE TO SW-10
0930 SET UP AT SW-10 IN BACK YARD OF RESIDENCE AT 280 SALEM ST. AFTER OBTAINING PERMISSION FROM OWNER



COLLECT SD-10-03 AT 1.5 BWS

DARK BROWN	ORGANIC SILT	70-80
	DETRITUS	20-30
	C+F SAND	0-5%
	C+F GRAVEL	0-5%

STREAM BED ROCKY ON SURFACE COBBLES REMOVED, SAMPLE VERY FIBEROUS, ORGANIC ODOR

COLLECT SW-10 AND PARAMETERS

pH	T°	COND	HARD	DO_2
7.44	22.3	850	208	7.85

COLLECT SD-10-01 AND DUPLICATE AT 2.0 BWS

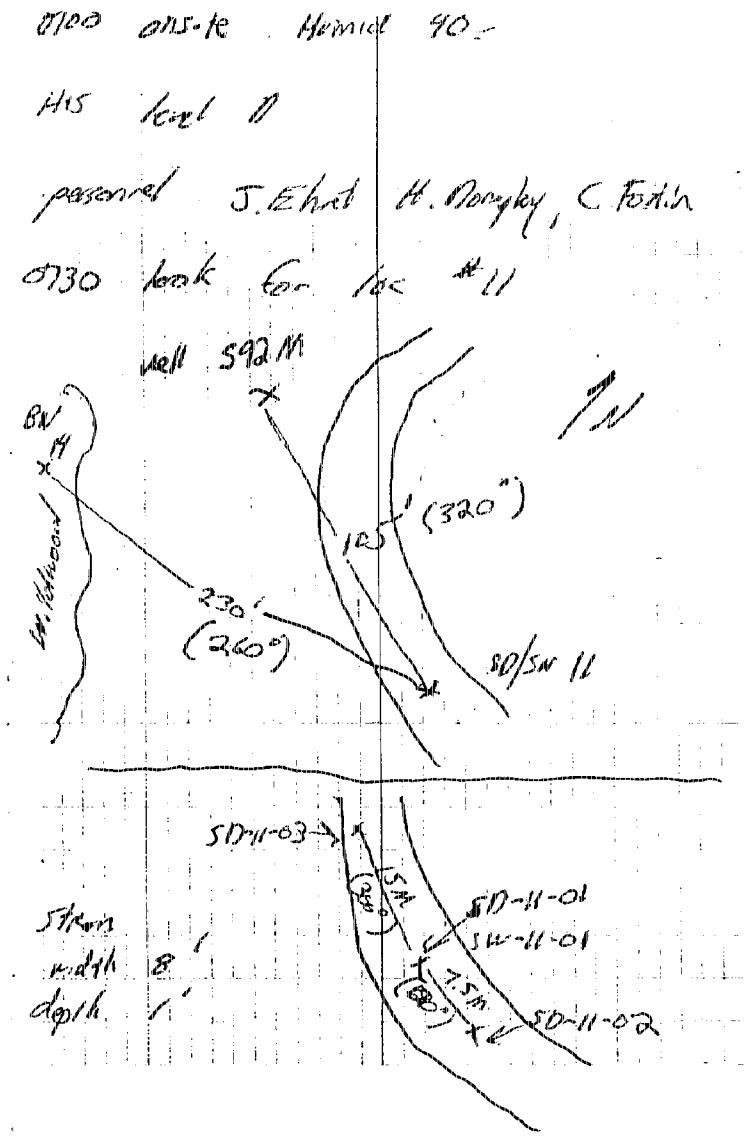
DARK BROWN	ORGANIC SILT	60-70%
-	PEAT	30-40%
	C+F SAND	0-10%

COLLECT IN LILY PAD AREA FALSE BOTTOM 2-4' THICK ORGANIC ODOR

COLLECT SD-10-02

1130 pack up samples
1615 to Fed Ex

Site 11—**Well G River** and Site 12, **Well H River**—*Bends in River Approximately 45 Yards SW of Site 13 and 35 Yards WNW of Well H, Respectively.* These sites correspond to sampling sites X-15 and X-12, respectively, from the Wells G&H Wetlands Assessment. They were identified in the wetlands assessment report as highly contaminated; no zooplankton found at X-12, few at X-15; sediments appeared contaminated, strikingly so at X-12; a small number of undersized amphipods found at X-12; no fish or evidences of fish found; foul oily smelling material found in X-12 sediments. Use of the same sites as in the Wells G&H Wetlands Assessment will provide a qualitative comparison of 1986 and 1995 conditions.



0830 collect SW-11-01

Calibration of instruments

pH	T°C	cond	hard	DO
6.8	19.6	820	231	6.3

pH meter not working correctly
pH taken using pH paper and
2nd meter which may also not be
working

0845 COLLECT SD-11-03 AT 2.0' BWS
DARK BROWN: ORGANIC SILT 75-85%
PEAT + DETRITUS 15-25%
NOTE: SHEEN ON SAMPLE FINE SAND 0-5%
ORGANIC ODOR, DETRITUS, FALSE
BOTTOM 1-3' THICK, OPEN WATER

0900 COLLECT SD-11-01 AT 2.0' BWS
DARK BROWN FINE SAND 70-80%
ORGANIC SILT 20-30%
PEAT + DETRITUS 0-10%
SOFT SANDY BOTTOM, ORGANIC ODOR

1000 COLLECT SD-11-03 AT 2.5' BWS
DARK BROWN: ORGANIC SILT 75-85%
PEAT + DETRITUS 15-25%
FINE SAND 0-5%
ORGANIC ODOR FALSE BOTTOM 1-4' THICK

1015: PACK SAMPLES FOR SHIPMENT

1200: OFF-SITE - TO ACME DRY ICE
CAMBRIDGE

1345: HOME (HUDSON NH) TO SORT
FISH

1700: FISH SORTING COMPLETED

H. Donaghey

0900- ON SITE, PARTLY SUNNY 80's
H+S LEVEL D UNLESS NOTED
0930 COLLECT SW-12
SW-12 PARAMETERS

pH	T°	COND	HARD	DO2
7.60	16.9	930	270	6.2

0930 CONT COLLECT SW-12 AT 1.0' TO STREAM BED- FLOW WAS LAMINAR, HOUSEHOLD TRASH SCATTERED IN AREA, WATER VISUALLY FREE OF ALGAE,

0945 COLLECT SD-12-03 AT 0.5' BLS.
DARK BROWN

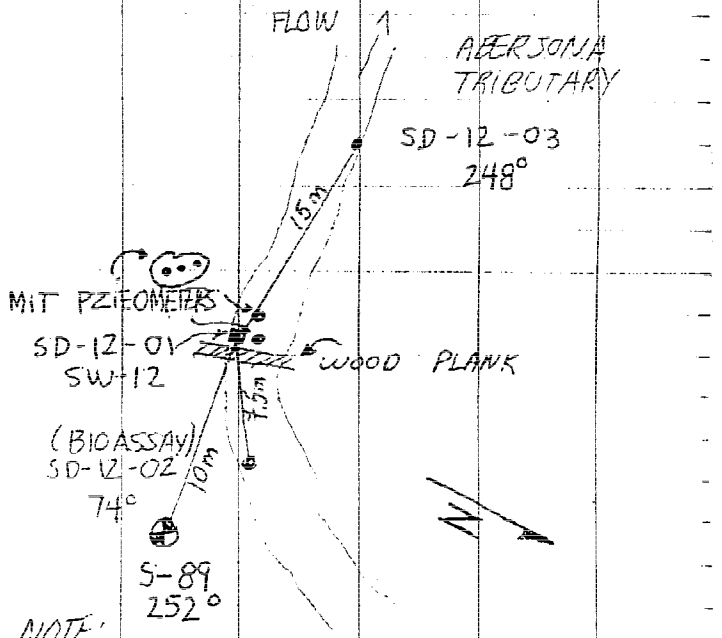
ORGANIC SILT	70-80%
PEAT	20-30%
FINE SAND	0-10%

ORGANIC ODOR

1015 COLLECT SD-12-01 AT 1.0' BLS SAME COMPOSITION AS SD-12-03

1045 COLLECT SD-12-02 (BIOASSAY) SAME COMPOSITION AS SD-12-01 & SD-12-03

1115 PETER ZEEB & ASSISSTANT FROM M.I.T. ON SITE AT SW-12 TO SAMPLE



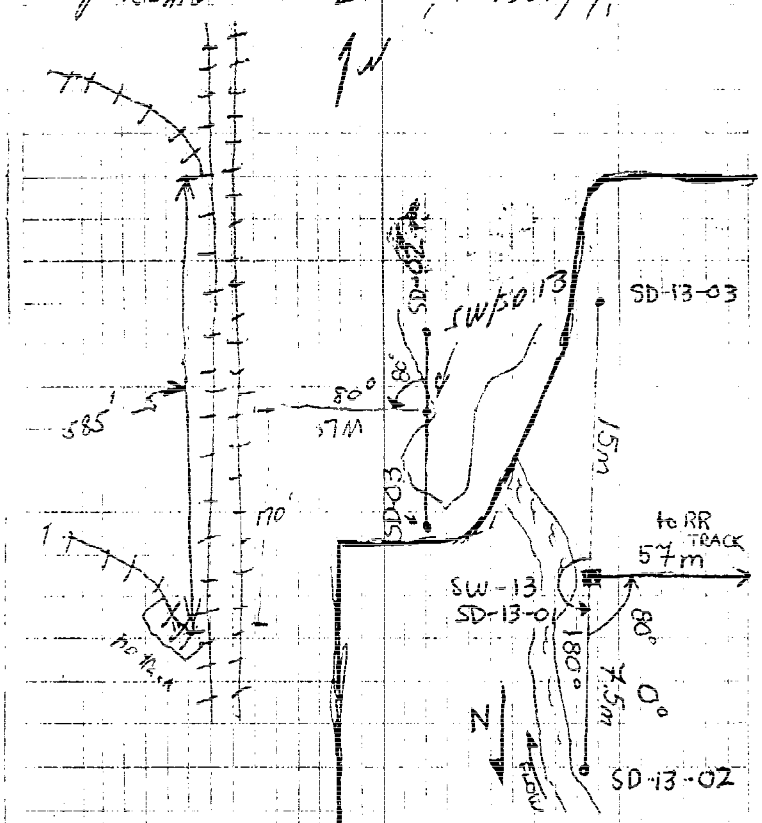
NOTE:
P. ZEEB HAS BEEN MONITORING PH AT SW-12 FOR 3 WEEKS AVERAGE ≈ 7.3

Site 13—**Sidetrack**—*Blind Side Channel of the Aberjona River About 60 Yards East of B&M Tracks, Approximately Due East of the Sidetrack at the North End of the Wildwood Property.* This site corresponds approximately to sampling site X-7 from the Wells G&H Wetlands Assessment. It was identified in the wetlands assessment report as being near a turtle nesting area, although it was not seen during the field reconnaissance. Again, use of a Wells G&H Wetlands Assessment site will provide a qualitative comparison of 1986 and 1995 conditions.

0730 find access to Pot 13 @ RR tracks

H_2S level 0

personnel J Ehret, H Doneghy, C Fortin



SW-13 ENLARGED

~~1015~~ 0945 COLLECT SW-13 AT 0.3' BWS.

pH	T°	HARD	COND	DO_2

1015 COLLECT SD-13-01 AT 0.3' BWS

DARK BROWN ORGAN. SILT 70-80%

PEAT 20-30%

F SAND 0-10%

ORGANIC ODOR, VERY FIBEROUS

1030 COLLECT SD-13-02 AT 0.3' BWS

SAME COMPOSITION AS SD-13-01

1045 COLLECT SD-13-03 AT 0 BWS

BROWN "RUSTY"

PEAT 70-80%

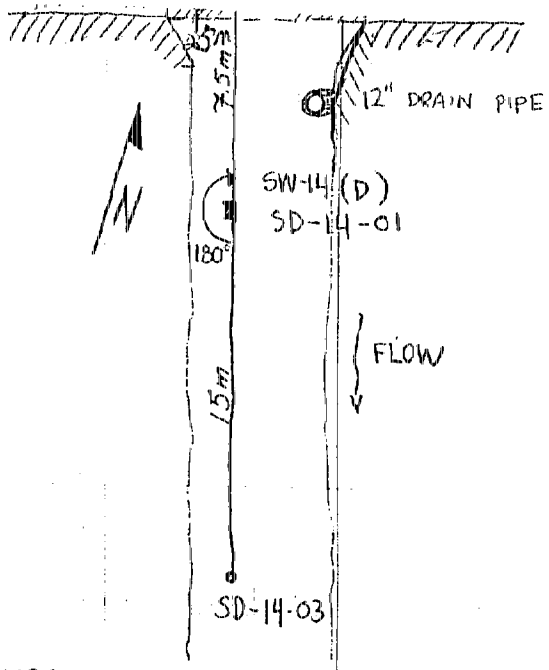
ORG. SILT 20-30%

F. SAND 0-10%

VERY FIBEROUS, ORGANIC ODOR.

PREDOMINANT VEG TYPE IN AREA WAS JEWELWEED, CATTAIL, LOOSESTRIFE

Site 14—**Olympia Road**—*Channeled Portion of the River Along the West Boundary of the Olympia Nominee Trust Property Parking Lot.* This site corresponds to sampling sites X-9 and X-11 from the Wells G&H Wetlands Assessment. It was identified in the wetlands assessment report as highly contaminated (no submersed or floating macrophytes except *Lemna*; black sediments appear to be heavily contaminated with oils and other organic compounds; pronounced chemical odor). Use of a Wells G&H Wetlands Assessment site will provide a qualitative comparison of 1986 and 1995 conditions.



SW-14 PARAMETERS

pH	T°	HARD	DO_2	COND
7.4	19.6	266	6.4	1000

COLLECT SW-14 LOCATION LITTERED WITH TRASH, TIRES, SHOPPING CARTS BUILDING SUPPLIES. FLOW IS LAMINAR DEPTH TO STREAM BED 1.2'

COLLECT SD-14-01 AT 1.0' BWS. OILY SHEEN PRODUCED ON WATER SURFACE WHEN DRIVING AUGER.

TAN TO BLACK C+F SAND 75-85%
ORGANIC SILT 15-25%
(REMOVED) → C+F GRAVEL 0-10%
PETROLEUM LIKE ODOR.

1030 COLLECT SD-14-02 AT 1.0' BWS
BROWN M+F SAND 80-90%
ORGANIC SILT 10-20%
OILY SHEEN ON WATER SURFACE PRODUCED WHEN DRIVING AUGER
FINE SAND OVERLYING COBBLE.

1100 COLLECT SD-14-03 AT 1.5' BWS
BLACK C+F SAND 70-80%
ORGAN. SILT 15-25%
(SEE NOTE ON P. 80) DETRITUS 5-15%

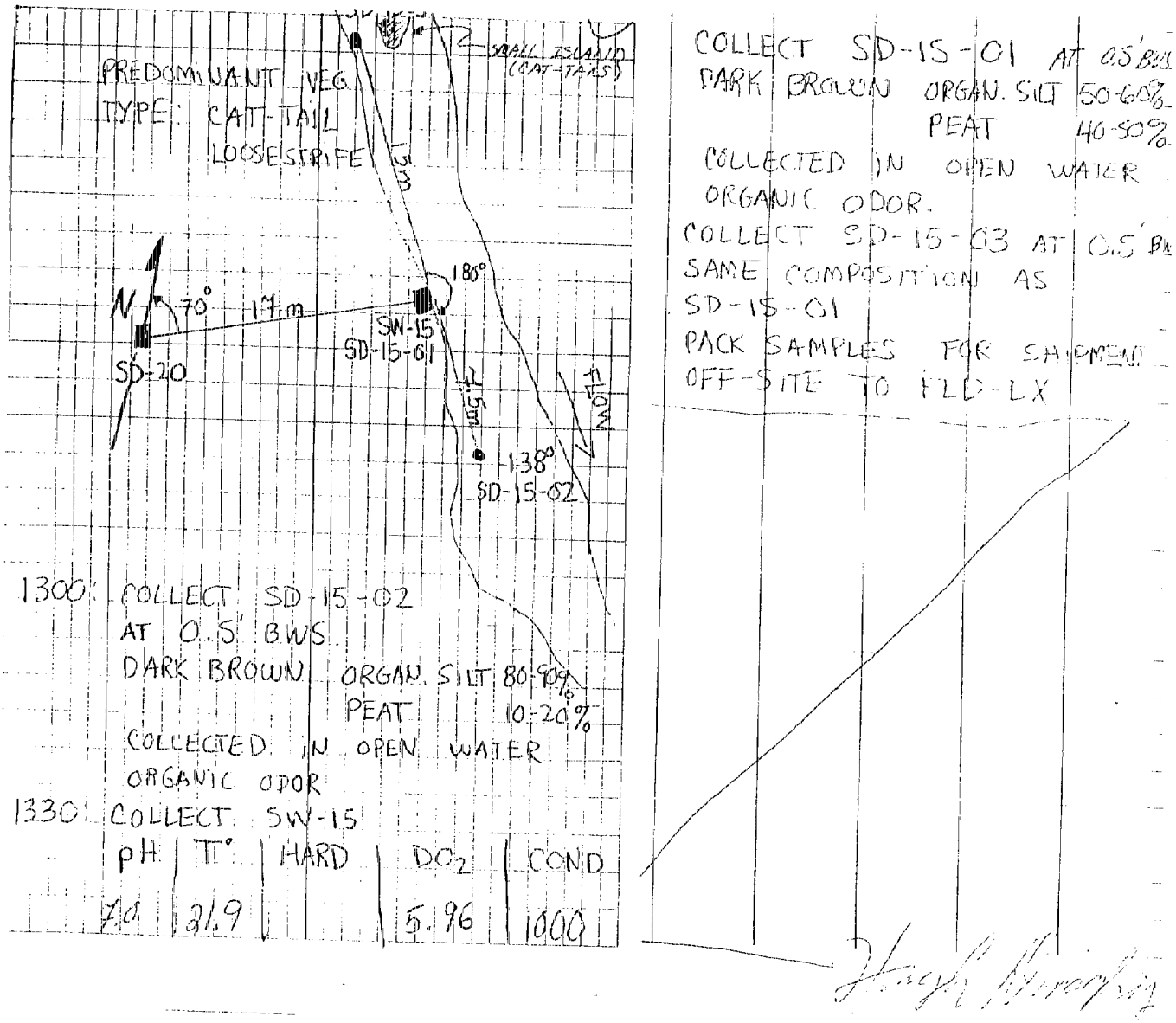
0900 - 1100 J Ehet meet w
K Manney of F+W
tour bkg. fishing loc

Horn Pond brook @ S
end of Horn Pond loc
is dry crayfish caught
between Pond St and Horn
pond
Horn pond lake loc @
N end of pond along
park
Wrights Pond loc @
public access near wood
deck

1100 K Maney offsite to
collect more crayfish?
on Shawsheen R.

NOTE: CONSIDERABLE SHEENING WITH
SMALL GLOBS OF OILY SUBSTANCE
ON WATER SURFACE WHEN
DRIVING AUGER ON SD-14-03
PETROLEUM ODOR

Site 15—Side Channel—*Wetland Location About 30 Yards East of B&M Tracks, Approximately Due West of Well G.* This site is located on an east-west line about 20 yards north of the north end of the Wildwood property on a blind side channel. It corresponds approximately to sampling site X-4 from the Wells G&H Wetlands Assessment and was identified as containing distinctly anaerobic sediments and low numbers of invertebrates. Good muskrat habitat and signs of raccoon were observed during the field reconnaissance. Use of a Wells G&H Wetlands Assessment site will provide a qualitative comparison of 1986 and 1995 conditions.



Site 16—**Cranberry Ecological**—*Cranberry Bog Conservation Area, North of Washington Crossing.* This site is at the downstream end of the wetland area that extends under the Salem Street bridge and through the Wells G&H site to Route 128. It has significant wildlife habitat. Since the bog was created by a historical impoundment, it might be a significant deposition area.

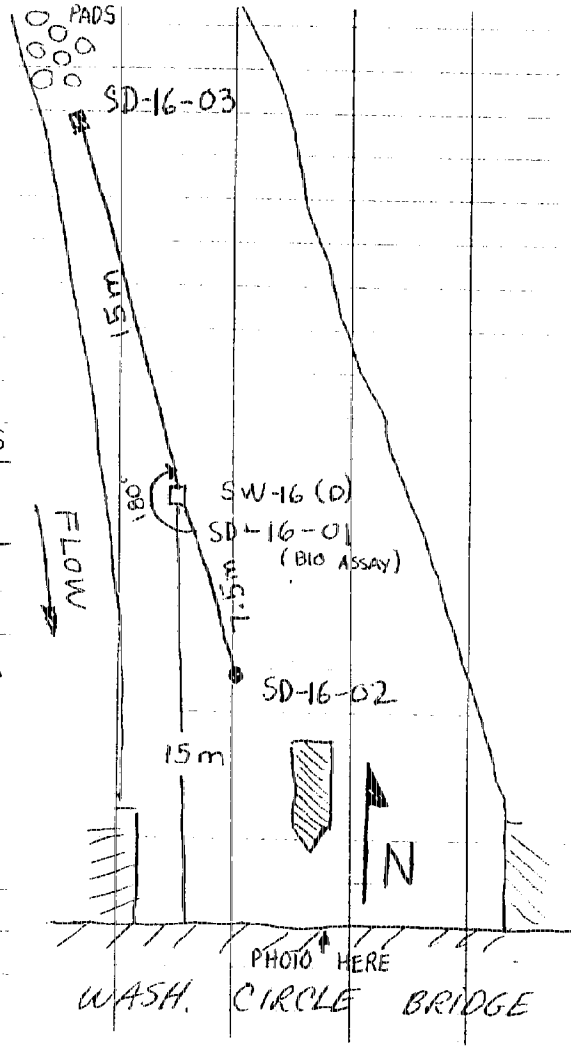
The identifier "Site 17" was not assigned.

0700: ON SITE, SUNNY, DRY, 80's
J. EHRET
C. FORTIN
H. DONAGHEY
H&S LEVEL D UNLESS NOTED

0730: TAKE SW-16 PARAMETERS

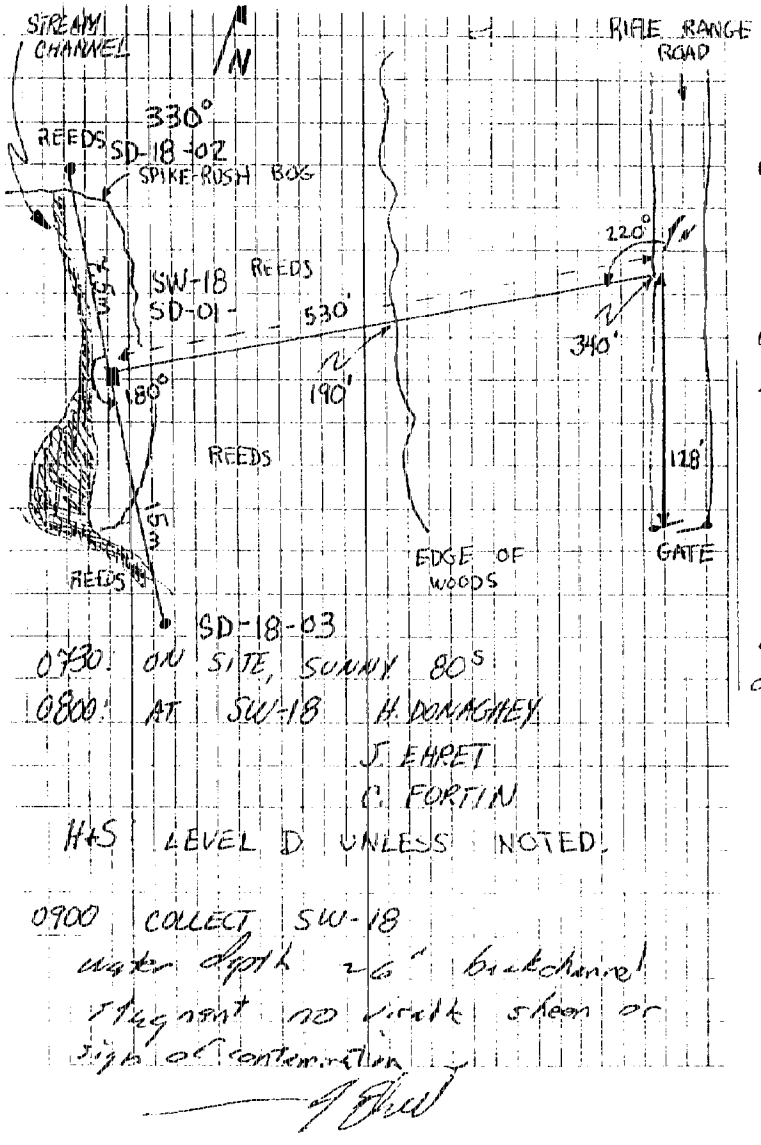
pH	T C°	HARD mg/L	DO_2 mg/L	COND UMHOS
6.95	16.3	181	5.16	650

0800
~~0745~~: COLLECT SW-16 (D)
0800 COLLECT SD-16-02 AT 1.0' BWS
BROWN C+F SAND 75-85%
C+F GRAVEL 15-15%
ORGANIC SILT 0-10%
STREAM BED IS ROCKY WITH COBBLES
NOTE: SD-16-01 IS A BIO-ASSAY AND WILL BE COLLECTED AT A LATER DATE.



0800 COLLECT SD-16-03 AT 1.0' BWS
BROWN C+F SAND 75-85%
C+F GRAVEL 10-20%
ORGANIC SILT 5-15%
ROCKY STREAM BED, LILY PADS NEAR LOCATION

Site 18—**Elephant Grass** and Site 19, **Well G Wetland**—*Wetland Location SSW and WSW, Respectively, of Well G.* Site 18 was intended to correspond to sampling site X-17 from the 1986 Wells G&H Wetlands Assessment. However, the site selected might be slightly south of X-17, which apparently falls in an area now overgrown with reeds. Site 19 corresponds to site X-14 from the wetlands assessment. Sites X-14 and X-17 were identified in the wetlands assessment report as highly contaminated sites (definite oily sheen, no aquatic fauna; no benthic invertebrates; foul oily smelling material in X-17 sediments). Selection of locations at or near Wells G&H Assessment sites was intended to provide a qualitative comparison of 1986 and 1995 conditions.



COLLECT SD-18-02 AT 0.2 BGS
DARK BROWN ORGANIC SILT 70-80%
PEAT 20-30%
ORGANIC ODOR, FIBEROUS,
COLLECT SD-18-03 AT 0.4' BGS
DARK BROWN ORGAN. SILT 60-70%
PEAT 30-40%
F. SAND 0-10%
ORGANIC ODOR, FIBEROUS
PREDOMINANT VEG TYPE IN AREA REED, SPIKE-RUSH
RELOCATE TO LOCATION 20.

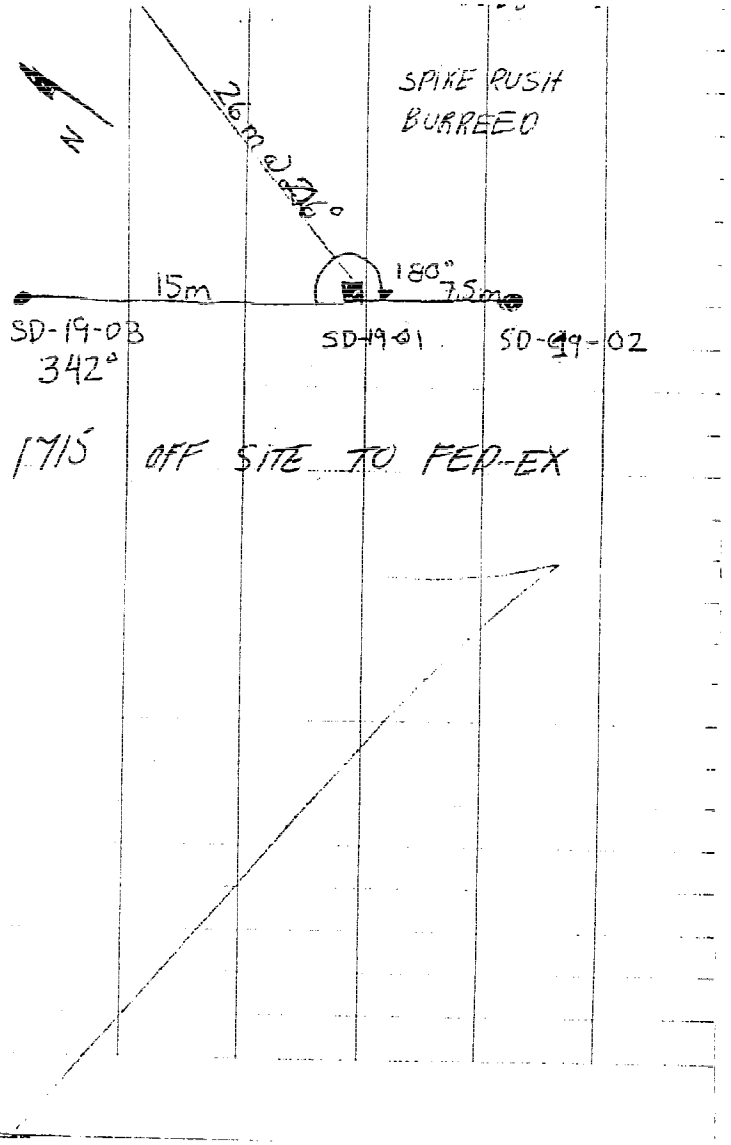
1245 @ SD 19 location
note: no standing or running surface water within 15m radius
site is spongy w/ spikerush prevalent veg type

1315 COLLECT SD-19-01 (BIOASSAY AND DUPLICATE)
DARK BROWN.
ORGANIC SILT 50-60%
PEAT 40-50%
FINE SAND 0-10%
ORGANIC ODOR

1430 COLLECT SD-19-02 (D)
SAME COMPOSITION AS SD-19-01

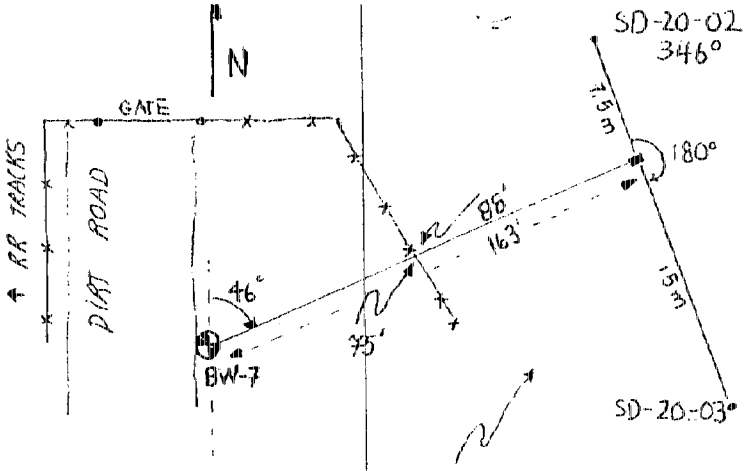
1500 COLLECT SD-19-03
SAME COMPOSITION AS SD-19-01 AND 02

1515 PACK SAMPLES FOR SHIPMENT J. EHRET HAND DELIVERS SD-19 + SD-12 BIOASSAY SAMPLES TO EPA IN LEXINGTON



1715 OFF SITE TO FED-EX

Site 20—*Side Channel Wetland Area Approximately 20 Yards SSE of Site 15.* This site is a nearly stagnant pool that appears to slowly feed into the Aberjona at Site 15. During the site reconnaissance, an oily sheen was observed on the pool and toward Site 15.

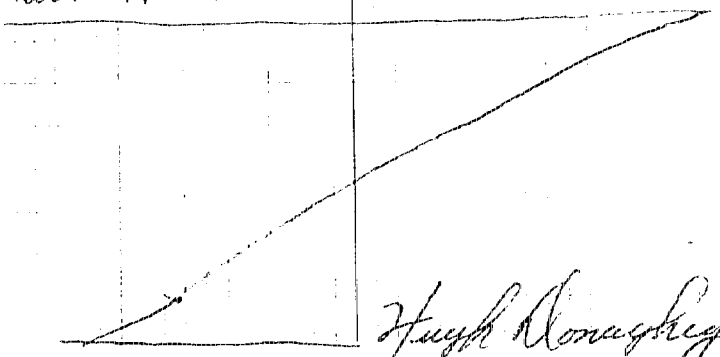


PREDOMINANT VEG. TYPE
CATTAIL, LOOSESTRIFE

NOTE: NO STANDING WATER WITHIN 15m OF SD-20 STAKE.
closest H2O @ SW15

COLLECT SD-20-01
DARK BROWN ORGANIC SILT 60-70%
PEAT 30-40%
ORGANIC ODOR, LIVING ROOT FIBERS
COLLECT SD-20-02
DARK BROWN TO GROWN ORGANIC SILT 50-60%
PEAT 40-50%
COLLECT SD-20-03
SAME COMPOSITION AS SD-20-02
PACK SAMPLES FOR SHIPMENT
COLLECT AUGER RINSATE

1600: OFF-SITE TO FED-EX

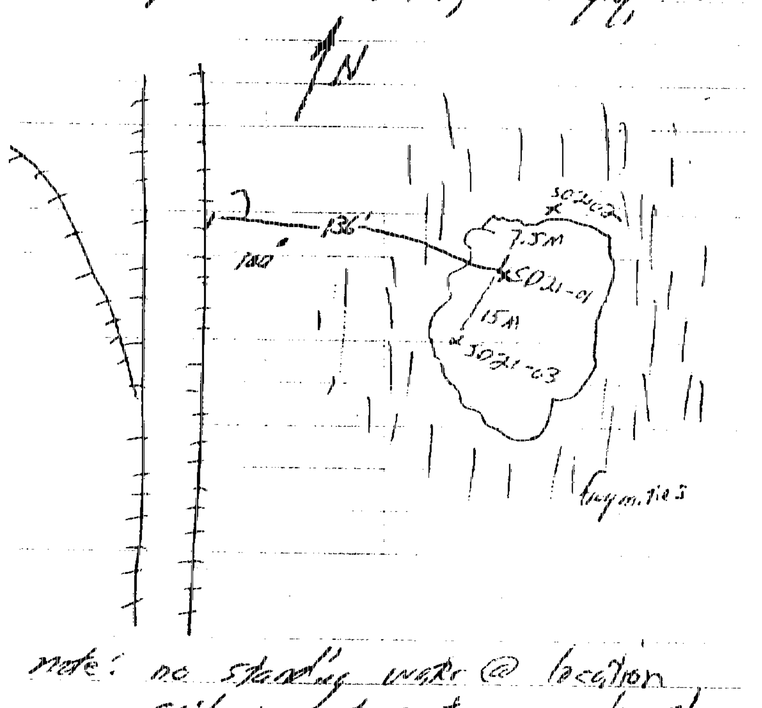


Hugh Monagley

Site 21—**Floating Bog**—*Wetland Area About 70 Yards East of the West Boundary of the Olympia Nominee Trust Property Parking Lot and 200 Yards South of Olympia Street.* This site is at a clearing in an area of elephant reed at the northwest portion of the Wells G&H wetland. It corresponds approximately to sampling site X-8 from the Wells G&H Wetlands Assessment. It was identified in the wetlands assessment report as a nearly anoxic pool; shoreline sediments were anaerobic and without abundant macroscopic life; open water had several species of zooplankton that were generally different from other sites; and gastropods, bullfrog tadpoles, turbillaria, water boatmen, nematodes, isopods, and water mites were also observed. Use of a Wells G&H Wetlands Assessment site will provide a qualitative comparison of 1986 and 1995 conditions.

(108) 9/18/95

0725 onsite cloudy 60s
H2S level 0
set up to collect SD21
Floating Bog
personnel J Ehret, H Pennegley, C Foster

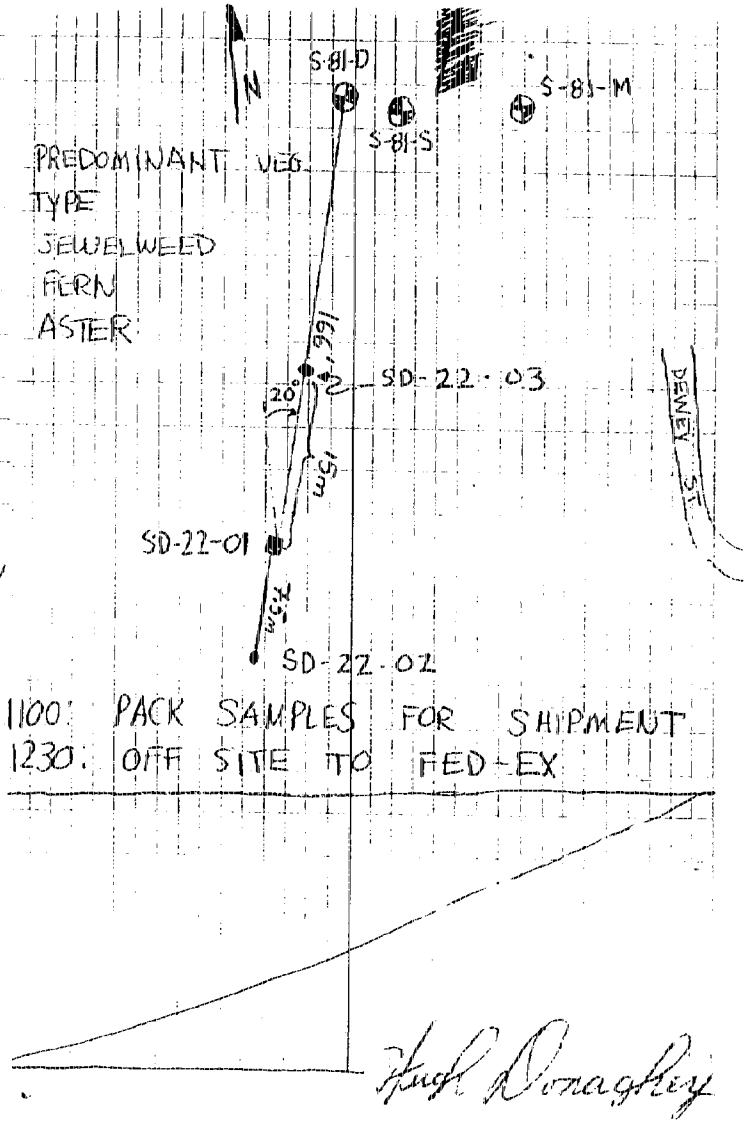


note: no standing water @ location
soil is wet peat w spike rush
+ cattail growing along bog and
surrounded by fragmites; no visible
signs of contamination

J Ehret

Site 22—*Wooded Wetland East of the Olympia Nominee Trust Property*. This site corresponds to sampling site X-16 from the Wells G&H Wetlands Assessment. It is located about 200 yards west of Dewy Street in a skunk cabbage patch. It is identified in the wetlands assessment report as dominated by trees and shrubs, with abundant birds, particularly warblers; no apparent forms of disturbance or stress were observed. Use of a Wells G&H Wetlands Assessment site will provide a qualitative comparison of 1986 and 1995 conditions.

RELOCATE TO SD-22
NO STANDING WATER
WITHIN 15M OF STAKE
COLLECT SD-22-01
DARK BROWN TO BLACK
ORGANIC SILT 70-80%
PEAT 10-20%
F. SAND 10-20%
RICH LOAM LIKE TEXTURE
MOSSY ODOR, DAMP
~~RELOCATE TO SD-22~~
COLLECT SD-22-02
SAME COMPOSITION AND
CHARACTERISTICS AS SD-22-01
COLLECT SD-22-03
SAME COMPOSITION AND
CHARACTERISTICS AS
SD-01 AND SD-02



1100: PACK SAMPLES FOR SHIPMENT
1230: OFF SITE TO FED-EX

Hugh Donaghey

Sites 23, 24, and 25—*River, Wetland, and Lake Reference Sites*. The river site is located on Lubbers Brook at Concord Street, just west of I-93, two exits north of Route 128. The wetland reference site is located on Maple Meadow Brook, at the Route 129 crossing. The lake reference site is the Arlington reservoir pending approval by the FWS.

onsite sunny 80s

move to bkgrd. river loc. Lubber Brook #23 @ N side of Concord Ave

HS level D

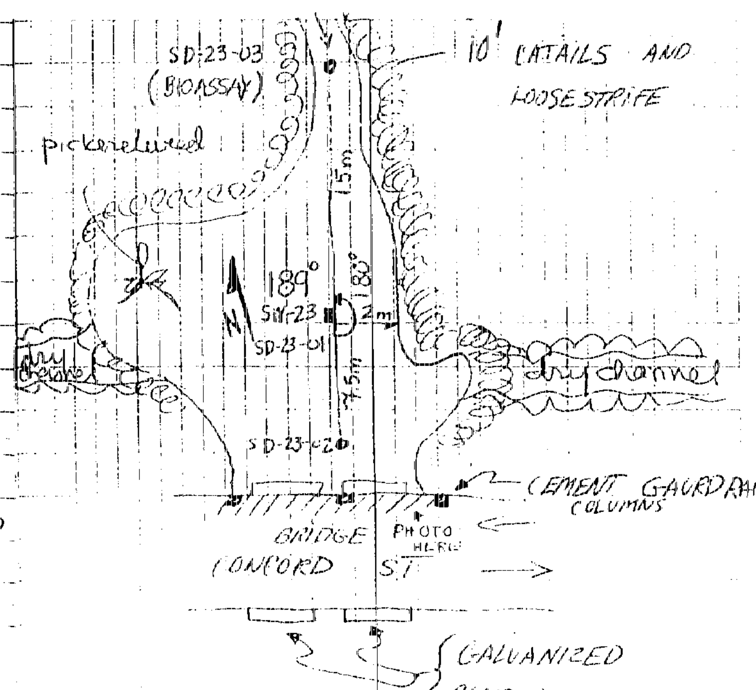
personnel S. Ehret, H. Dougherty
C. Fahn, B. Olson

SW-23 PARAMETERS

pH	T°C	DO_2	COND	HARD
6.41	14.3	2.36 mg/l	400 umhos	

COLLECT SW-23
WATER YELLOWISH IN COLOR, DENSE ALGAE AND DUCKWEED ON WATER SURFACE VERY LITTLE DETECTION OF FLOW. STAGNANT ODOR.

COLLECT SD-23-02 AT 1.5' BWS
DARK BROWN C+F SAND 60-70%
(REMOVED) C+F GRAVEL 20-30%
ORGANIC SILT 10-20%
SAMPLE LOCATION, SOME COBBLES ON SURFACE SOFT BELOW.



0945 CONT. SLOW STREAM FLOW SLIGHT ORGANIC ODOR.

COLLECT SD-23-01
DARK BROWN FINE SAND 70
ORGANIC SILT 20
PEAT 10
FIRM BOTTOM, SLIGHT ODOR

1130	COLLECT SD-23-03 AT 1.0' BLWS (BIOASSAY LOCATION)
	BROWN TO DARK BROWN
	PEAT 70-80%
	ORGANIC SILT 10-20%
	FINE SAND 10-20%
	FALSE BOTTOM, STRONG ORGANIC ODOR. LAMINAR STREAM FLOW.

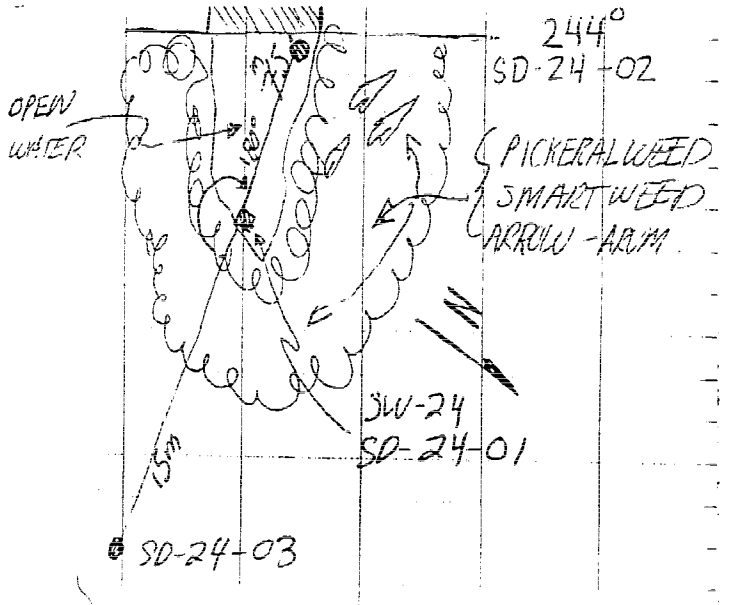
1400 COLLECT SW-24, DEPTH B.W.S. @ 0.7' NO NOTICEABLE FLOW HEAVY VEGITATION (PICKERAL WEED) MS/MSD

1415 COLLECT SD-24-02 AT 1.0' BWS

SW-24 PARAMETERS

pH	T	DO_2	HARD	COND
6.80	18.3	4.04		600

DARK BROWN C+F SAND 70-80%
ORGANIC SILT 20-30%
C+F GRAVEL 10-20%
COLLECTED IN OPEN WATER
LARGE COBBLES & BOULDERS NEAR LOCATION, LITTLE ODOR



[illegible] onsite @ N end of Horn Pond for Lake Reference location #25

personnel: J. Ehret, H. Donaghy, C. Forti

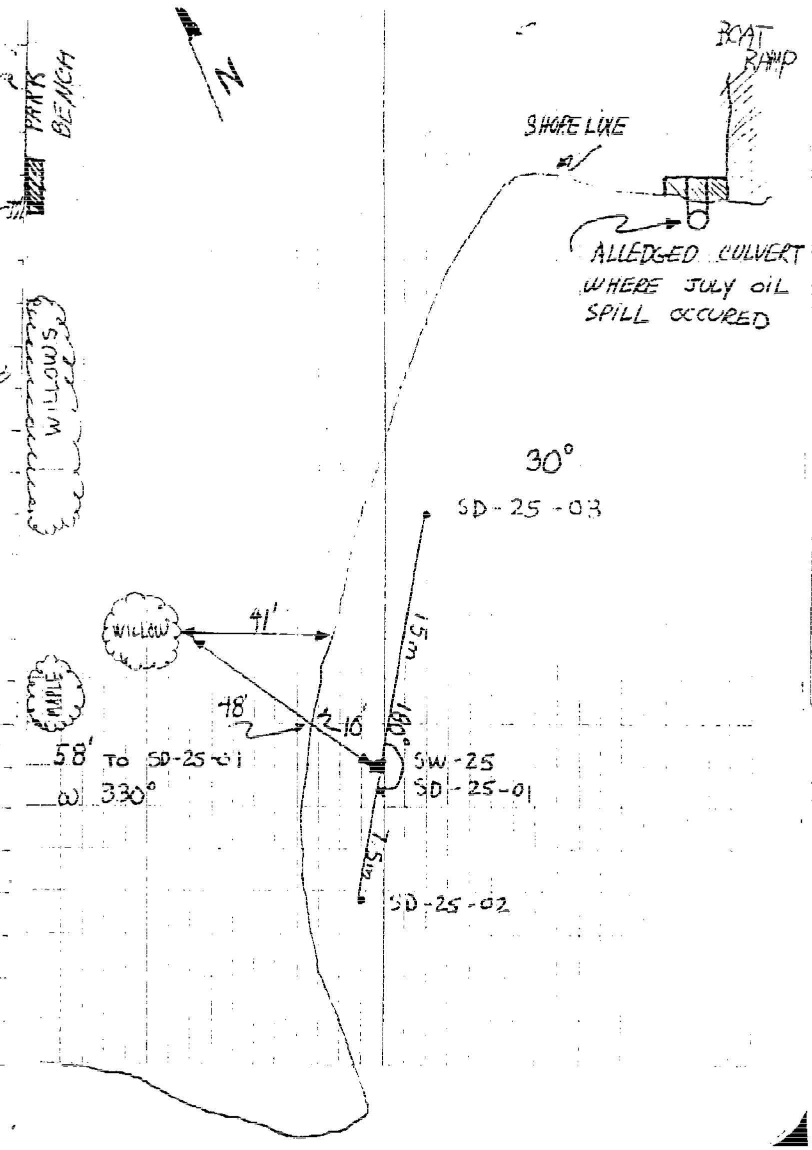
HIS level 0

0740 calibrate pH meter - EM 12965 w/ pH 4 + 7 buffers
DI SCT meter w/ 1000 mmho cond sol.

SW-25

pH	cond (umho)	temp (°C)	Hard (mg/l)	DO (mg/l)
7.30	400	18.1	78.0	7.48

0815 COLLECT SW-25 AND DUPLICATE
0915 COLLECT SD-25-01 AT 3.5' BWS
REDDISH BROWN C+F SAND 60-70%
ORGANIC SILT 30-40%
C+F GRAVEL 0-10%
POND BOTTOM IS GRAVELY WITH COBBLES AND BOULDERS

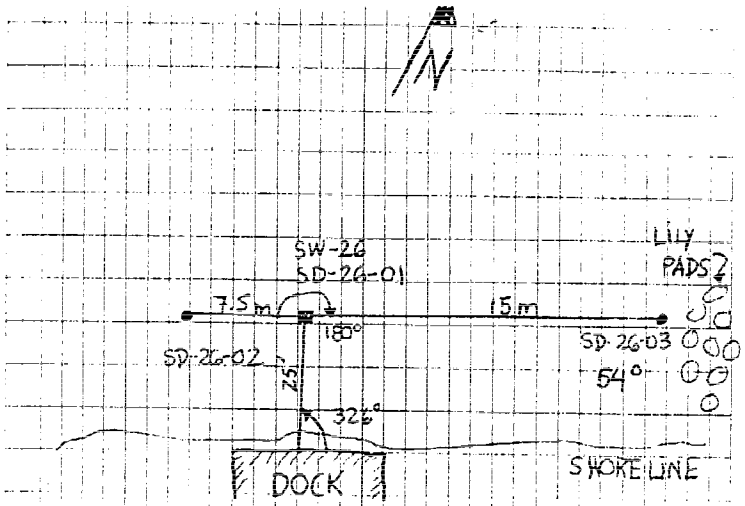


[illegible] [illegible] INFORMED US THAT
AN OIL RELEASE OCCURED
FROM AN OUTFALL PIPE
NEAR SAMPLE LOCATION IN
LATE JULY 95'

1000 COLLECT SD-25-02 AT 4.0' BWS
BROWN ORGANIC SILT 60-70%
C+F SAND 30-40%
C+F GRAVEL 0-10%
ORGANIC ODOR

1015 COLLECT SD-25-03 AT 3.0' BWS
BROWN C+F SAND 70-80%
ORGANIC SILT 10-20%
C+F GRAVEL 10-20%

1330 RELOCATE TO WRIGHTS POND
LOCATION #26



SHORE LINE 8' FROM DOCK
SW-26 17' FROM SHORELINE

1400 SW-26 PARAMETERS

pH	T	DO_2	HARD	COND
6.6	22.9	7.92		620

1430 COLLECT SW-26 25' FROM DOCK IN 3.0' OF WATER, POND BOTTOM COVERED IN 90% - 100% GE WITH SUBMERGED AQUATIC VEG.

1430 CONT. COLLECT SD-26-01 AT 3.0' BWS

BROWN ORGAN. SILT	70-80%	
C+F SAND	10-20%	
F GRAVEL	10-20%	

ORGANIC ODOR, DETRITUS, POND BOTTOM SOFT WITH SPORADIC COBBLES AND BOULDERS.

1445 COLLECT SD-26-02 (D) AT 2.5'-BWS
SAME COMPOSITION AND CHARACTERISTICS AS SD-26-01

1515 COLLECT SD-26-03 AT 2.5' BWS
SAME COMPOSITION AND CHARACTERISTICS AS SD-26-01 AND SD-26-02

1530 PACK SAMPLES FOR SHIPMENT

1730 OFF SITE TO FED-EX

Hugh Dougherty

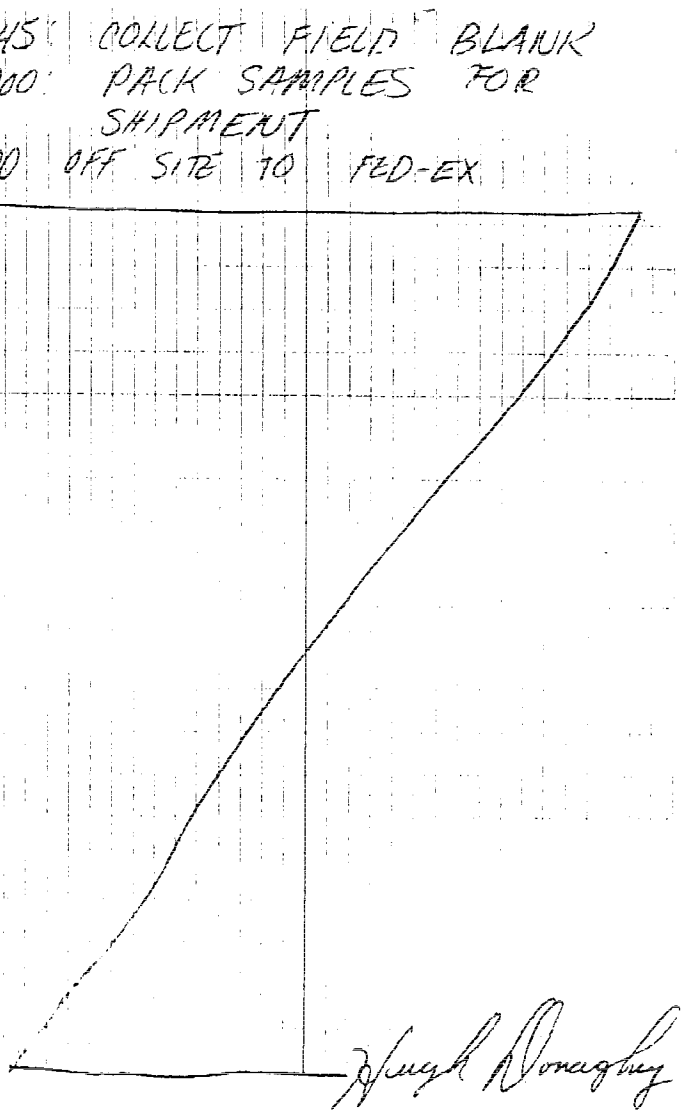
0930 COLLECT SW-27

1000 COLLECT SD-27-01
AT 2.5' BWS
BROWN C+F SAND 70-80%
ORGANIC SILT 10-20%
C+F GRAVEL 10-20%
ORGANIC ODOR, DETRITUS
ON BED SURFACE (REMOVED)

1030 COLLECT SD-27-02
AT 1.5' BWS.
TAN TO BROWN
C+F SAND 80-90%
C+F GRAVEL 10-20%
ORGANIC SILT 0-10%
STREAM BED VERY ROCKY
WITH ONLY POCKETS OF
FINES.

1045 COLLECT SD-27-03 AT
1.5' BWS.
BROWN C+F SAND 60-70%
ORGANIC SILT 20-30%
C+F GRAVEL 10-20%
ORGANIC ODOR

1145 COLLECT FIELD BLANK
1200 PACK SAMPLES FOR
SHIPMENT
1400 OFF SITE TO FED-EX



Hugh Donaghy

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0800. ON SITE AT LOCATION 27 SHAWSHEEN RIVER, SUNNY 80's

HFS LEVEL D UNLESS NOTED

0900 COLLECT SW-27 PARAMETERS

0945	pH	T°	DO_2	HARD	COND
	7.0	15.5	8.55	72	250