APPENDIX D: FIELD FORMS AND FIELD NOTEBOOKS

D.1 Reconnaissance Survey Forms: Seep Locations

Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW - seep survey **Project Task:** seep recon

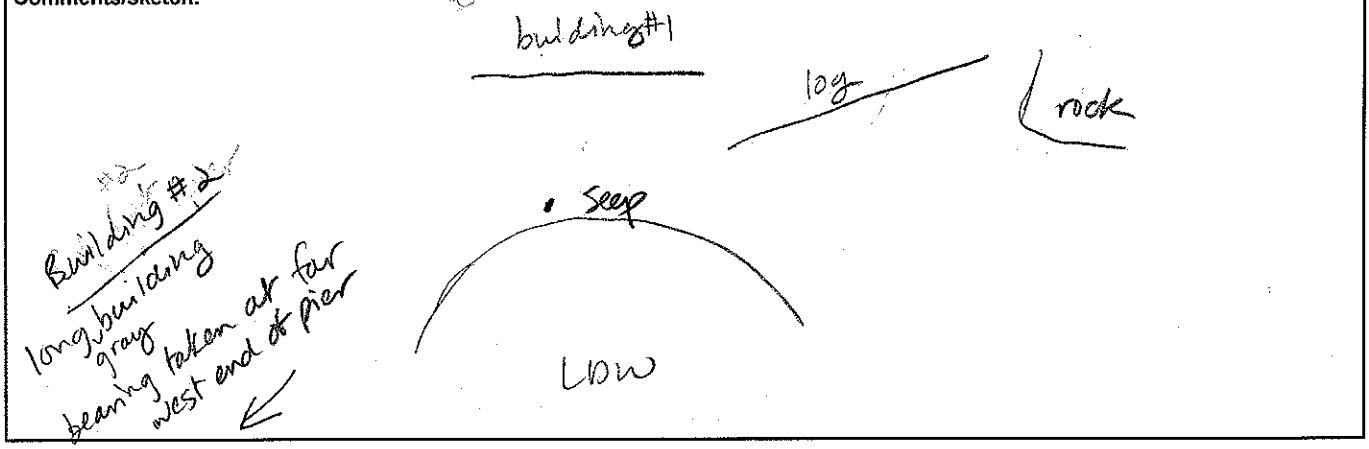
Date: 5/5/09 **Crew:** KG, JF, BB, DH, KT, RT

Weather: Partly cloudy **Photo no.** na

Name of person filling out form: Benit Bergquist

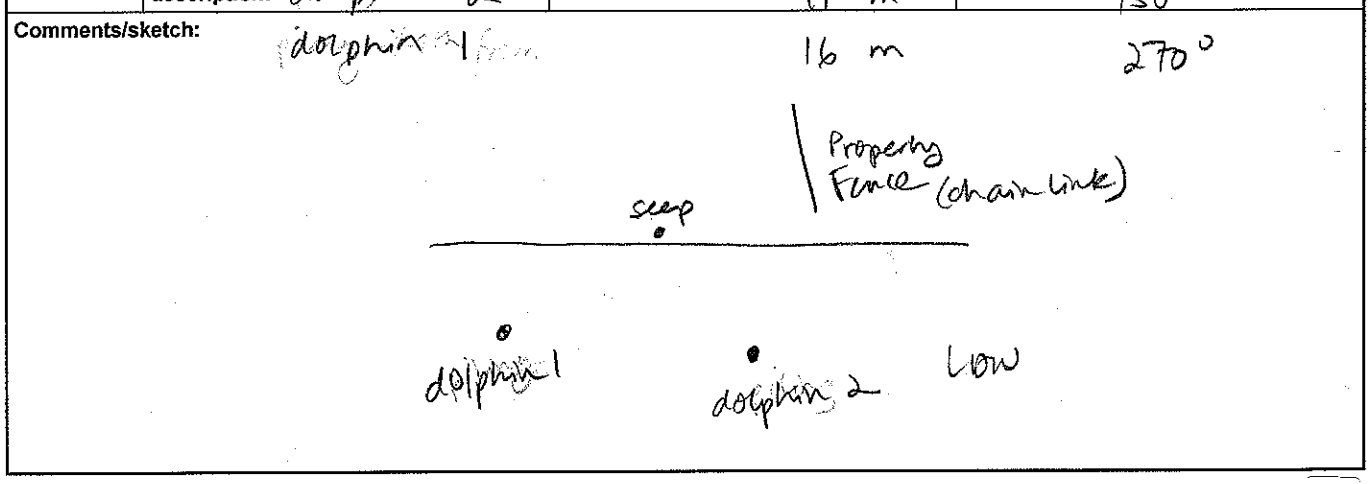
Location ID: LDW-SP-01-R-a		**Time:** 9:55 am		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 19.797		**Northing (y)** 47 32 .6## .548	
Bearing 1:	**Object description:** Building #1	**Distance:** 13 m		**Compass direction**	160°
Bearing 2:	**Object description:** Building #2	**Distance:** 154 m		**Compass direction**	30°

Comments/sketch:



Location ID: LDW-SP-02-R-a		**Time:** 10:10 am		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 19.811		**Northing (y)** 47 32 .404	
Bearing 1:	**Object description:** fence	**Distance:** 14 m		**Compass direction**	85°
Bearing 2:	**Object description:** dolphin 2	**Distance:** 11 m		**Compass direction**	150°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW - seep survey **Project Task:** seep recon

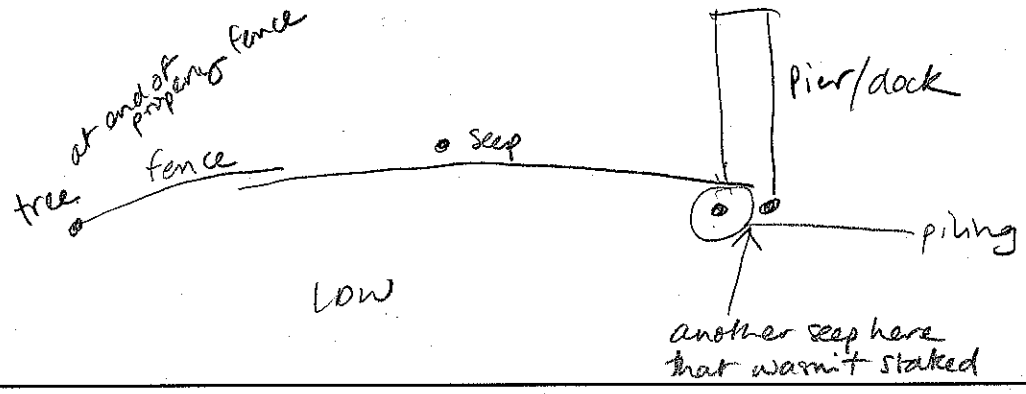
Date: 5/5/09 **Crew:** KG, JF, BB, DH, KT, RT

Weather: partly cloudy **Photo no.** na

Name of person filling out form: Bert Bergquist

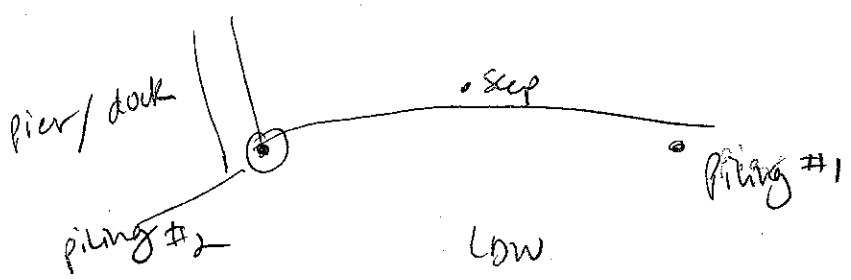
Location ID: LDW-SP-03-R-a	**Time:** 10:15 am		**Photo #: See Form 5**
GPS Coordinates:	**Easting (x):** 122 19.675		**Northing (y)** 47 32.363
Bearing 1:	**Object description:** piling	**Distance:** 8 m	**Compass direction** 140
Bearing 2:	**Object description:** tree	**Distance:** 18 m	**Compass direction** 305

Comments/sketch:



Location ID: LDW-SP-04-R-a	**Time:** 10:30 am		**Photo #: See Form 5**
GPS Coordinates:	**Easting (x):** 122 19.677		**Northing (y)** 47 32.363
Bearing 1:	**Object description:** piling #1	**Distance:** 6 m	**Compass direction** 220°
Bearing 2:	**Object description:** piling #2	**Distance:** 5 m	**Compass direction** 345

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW – seep survey Project Task: seep recon

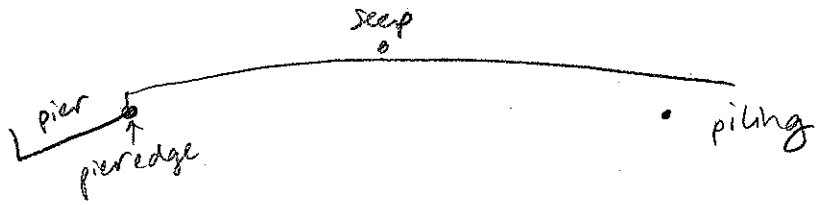
Date: 5/5/09 Crew: KG, JF, BB, DH, KT, RT

Weather: partly cloudy Photo no. na

Name of person filling out form: Berit Bergquist

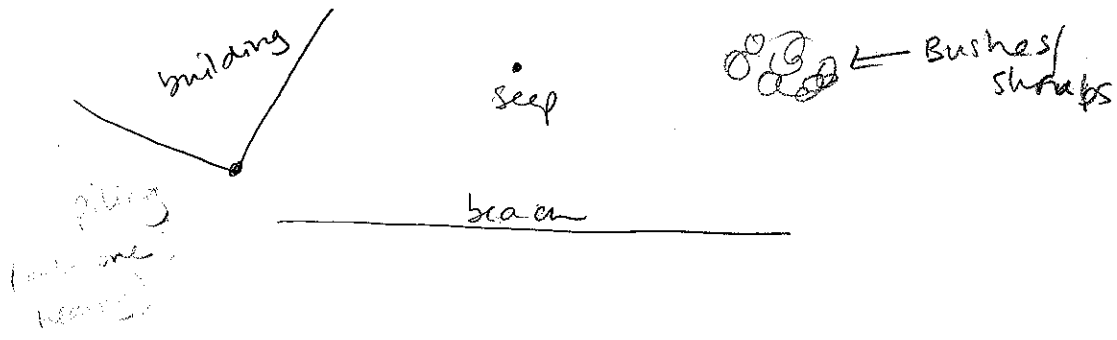
Location ID: LDW-SP-05-R-a	Time: 10:45	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122 19.546	Northing (y) 47 32.226	
Bearing 1:	Object description: pier edge	Distance: 31 m	Compass direction 295°
Bearing 2:	Object description: piling	Distance: 21 m	Compass direction 130°

Comments/sketch:



Location ID: LDW-SP-06-R-a	Time: 11:06	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122 19.475	Northing (y) 47 32.168	
Bearing 1:	Object description: Building	Distance: 18 m	Compass direction 70°
Bearing 2:	Object description: Bushes/shrubs	Distance: 56 m	Compass direction 330°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey **Project Task:** seep recon

Date: 5/5/04 **Crew:** KG, JF, BB, DH, KT, RT

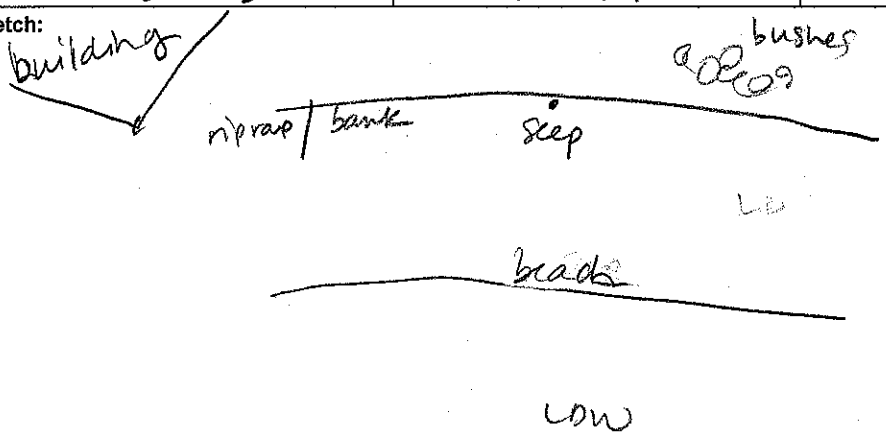
Weather: partly cloudy **Photo no.** na

Name of person filling out form: Berit Bergquist

Location ID: LDW-SP-07-R-a	Time: 11:11	Photo #: See Form 5
GPS Coordinates:	Easting (x): 1221 9.467	Northing (y) 47 32.168

Bearing 1:	Object description: Building	Distance: 9 m	Compass direction	75°
Bearing 2:	Object description: Bushes	Distance: 21 m	Compass direction	315°

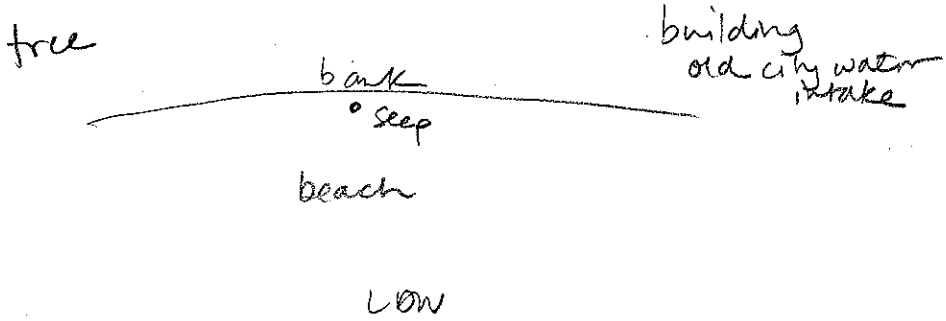
Comments/sketch:



Location ID: LDW-SP-08-R-a	Time: 11:19	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122 19.419	Northing (y) 47 32.132

Bearing 1:	Object description: tree	Distance: 38 m	Compass direction	315°
Bearing 2:	Object description: building	Distance: 51 m	Compass direction	75°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey Project Task: seep recon

Date: 5/5/09 Crew: KG, JF, BB, OH, KT, RT

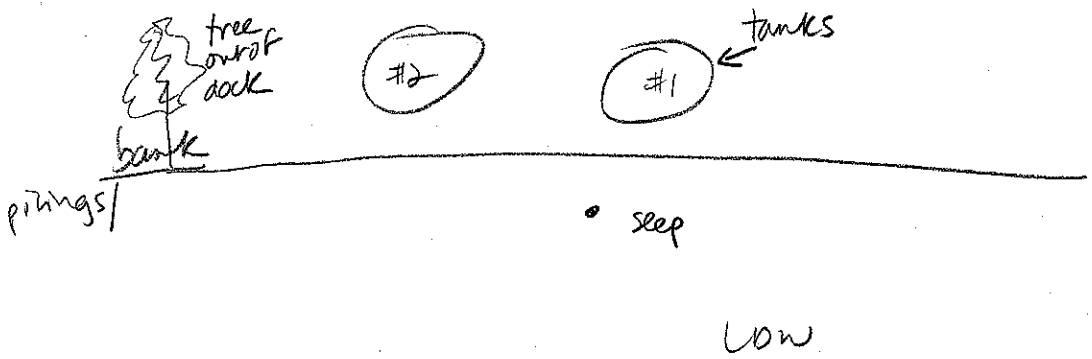
Weather: partly cloudy Photo no. na

Name of person filling out form: Benir Bergquist

Location ID: LDW-SP-09-R-a	Time: 11:36	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122 19.158	Northing (y) 47 32.128

	Object description	Distance	Compass direction
Bearing 1:	Tank #1	6 m	130°
Bearing 2:	Tree	25 m	45°

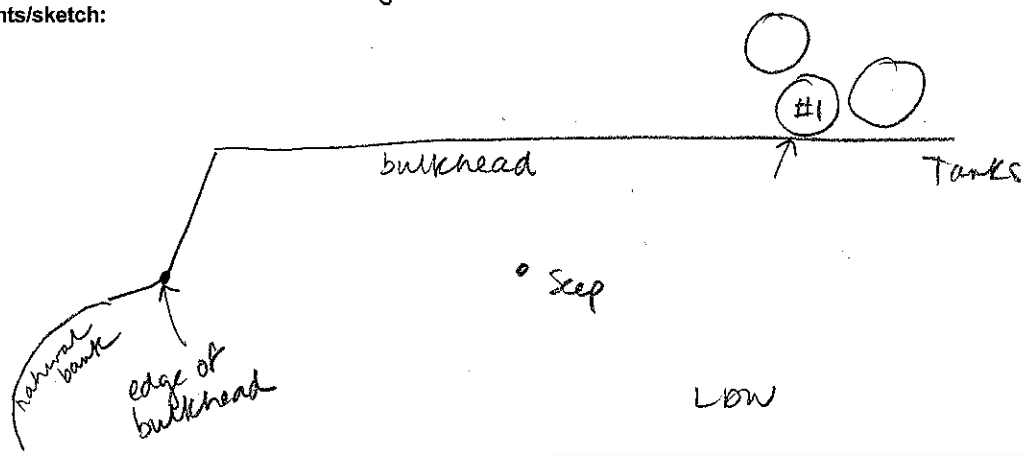
Comments/sketch:



Location ID: LDW-SP-10-R-a	Time: 11:39	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122 19.136	Northing (y) 47 32.141

	Object description	Distance	Compass direction
Bearing 1:	Tank #1	28 m	185°
Bearing 2:	Bulkhead edge	63 m	10°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW Seep survey **Project Task:** seep recon

Date: 5/5/04 **Crew:** KG, JF, BB, DH, KT, RT

Weather: partly cloudy **Photo no.** na

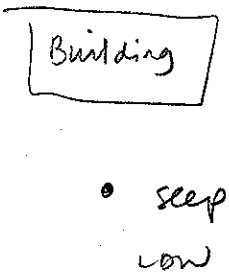
Name of person filling out form:

Location ID: LDW-SP-11-R-a		**Time:** 11:52		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 19.391		**Northing (y)** 47 32.121	
Bearing 1:	**Object description:**		**Distance:**		**Compass direction**
Bearing 2:	**Object description:**		**Distance:**		**Compass direction**

Comments/sketch:

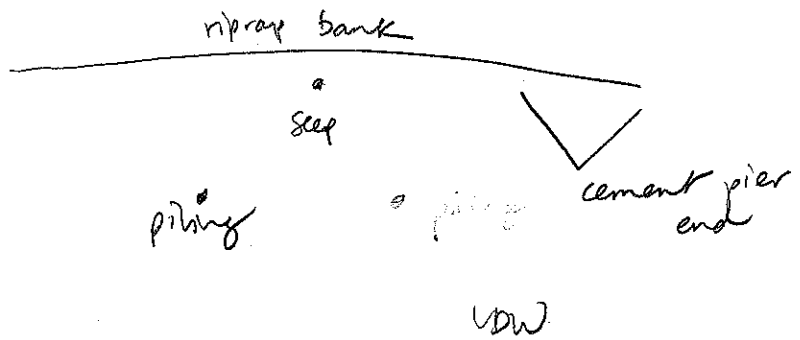
Sketch not needed - too mucky to get bearings

Directly in front of old water intake



Location ID: LDW-SP-12-R-a		**Time:** 12:01		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 19.334		**Northing (y)** 47 32.097	
Bearing 1:	**Object description:** pier end		**Distance:** 29 m		**Compass direction** 100°
Bearing 2:	**Object description:** piling		**Distance:** 17 m		**Compass direction** 165°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW Seep Survey Project Task: seep recon

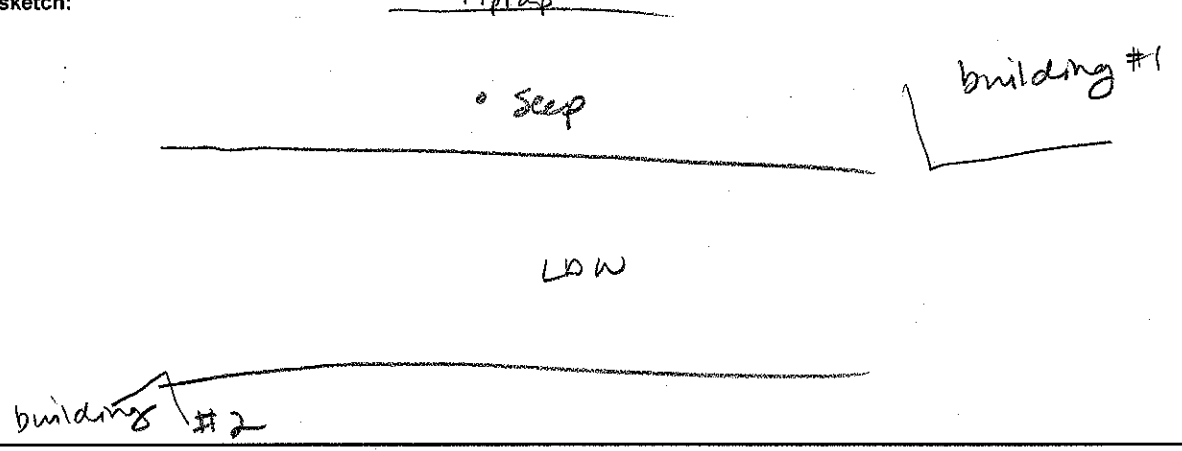
Date: 5/5/09 Crew: KG, JF, BB, DH, KT, RT

Weather: sunny Photo no. na

Name of person filling out form: Berit Bergquist

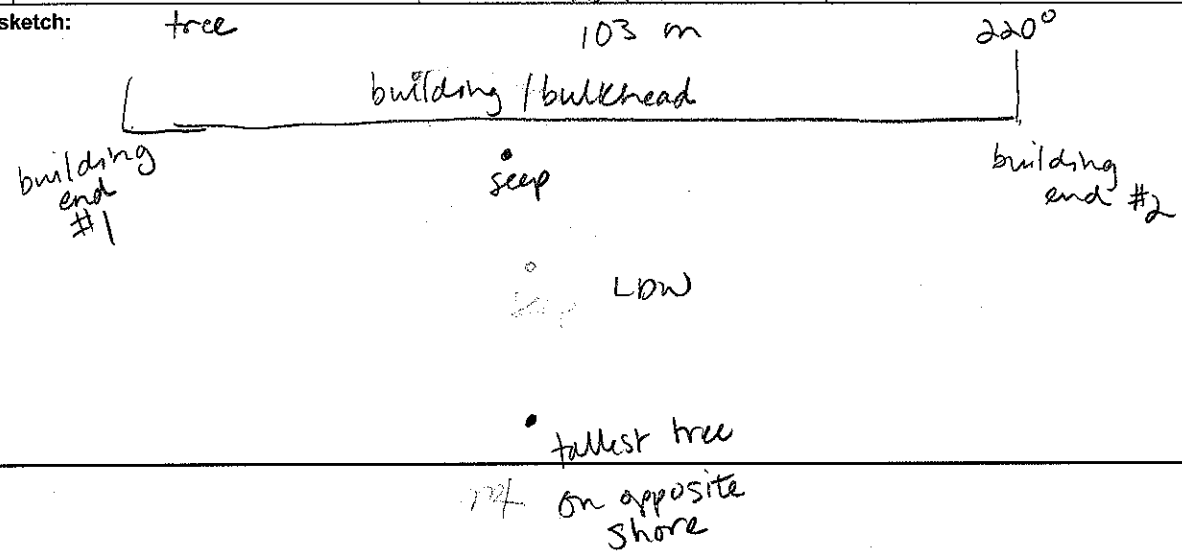
Location ID: LDW-SP-13-R-a	Time: 12:15 pm	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122° 19.137	Northing (y) 47° 31.953	
Bearing 1:	Object description: Building #1	Distance: 84	Compass direction 80°
Bearing 2:	Object description: Building #2	Distance: 156	Compass direction 235°

Comments/sketch:



Location ID: LDW-SP-14-R-a	Time: 12:22	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122° 19.022	Northing (y) 47° 31.886	
Bearing 1:	Object description: Building end #1	Distance: 122 m	Compass direction 315°
Bearing 2:	Object description: " #2	Distance: 164 m	Compass direction 95°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey Project Task: seep recon

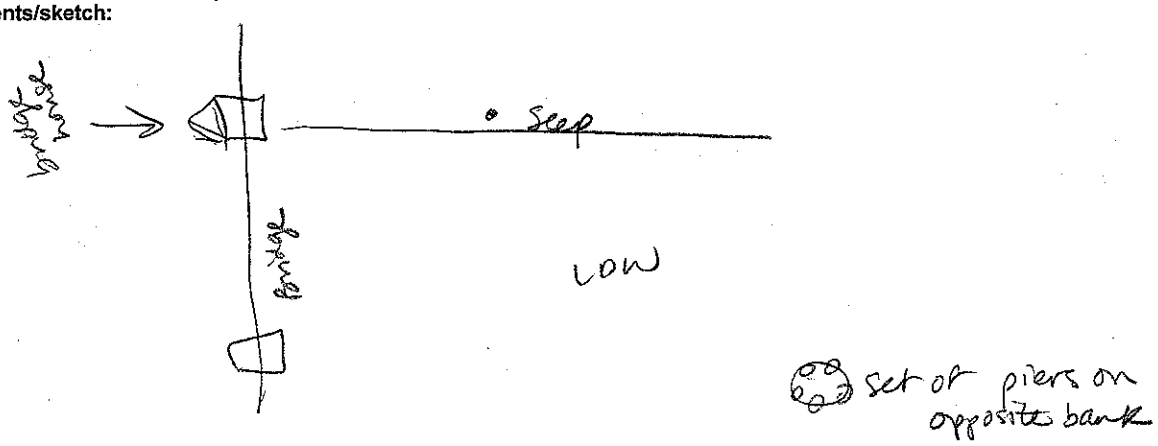
Date: 5/5/04 Crew: KG, JF, BB, DH, KT, RT

Weather: sunny Photo no. na

Name of person filling out form: Benit Bergquist

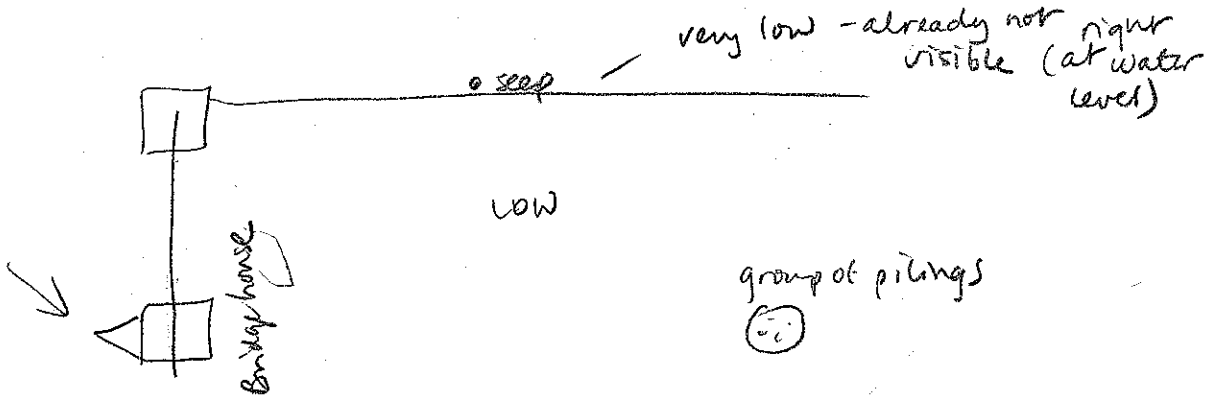
Location ID: LDW-SP-15-R-a	Time: 12:35		Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122° 18.640		Northing (y) 47° 31.675	
Bearing 1:	Object description: Bridge house	Distance: 293 m	Compass direction	290°
Bearing 2:	Object description: piers	Distance: 121 m	Compass direction	155°

Comments/sketch:



Location ID: LDW-SP-16-R-A	Time: 12:43		Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122 18.627		Northing (y) 47 31.662	
Bearing 1:	Object description: Bridge house	Distance: 309 m	Compass direction	275°
Bearing 2:	Object description: piers	Distance: 84 m	Compass direction	170°

Comments/sketch:



WindWard environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey **Project Task:** seep recon

Date: 5/5/09 **Crew:** KG, JF, BB, DH, KT, RT

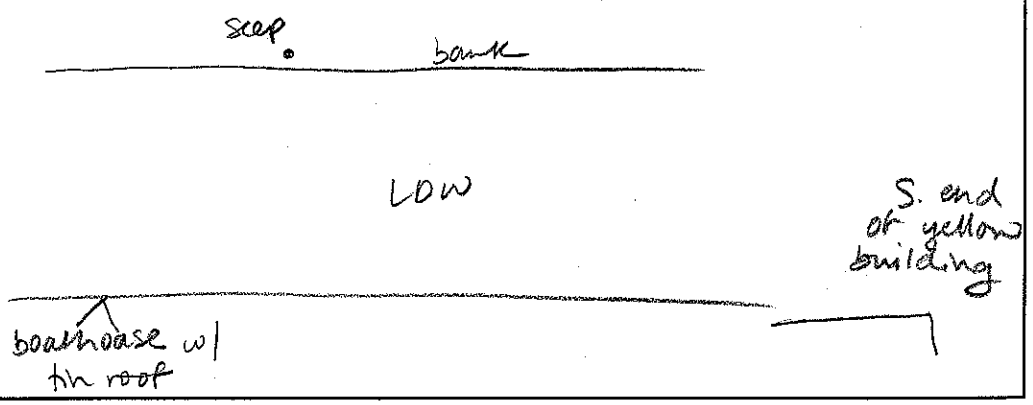
Weather: sunny **Photo no.** na

Name of person filling out form:

Location ID: LDW-SP-17-R-a		**Time:** 12:48		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122° 18.601		**Northing (y)** 47° 31.646	
Bearing 1:	**Object description:** boathouse	**Distance:** 94 m		**Compass direction**	225°
Bearing 2:	**Object description:** Yellow Building	**Distance:** 210 m		**Compass direction**	160°

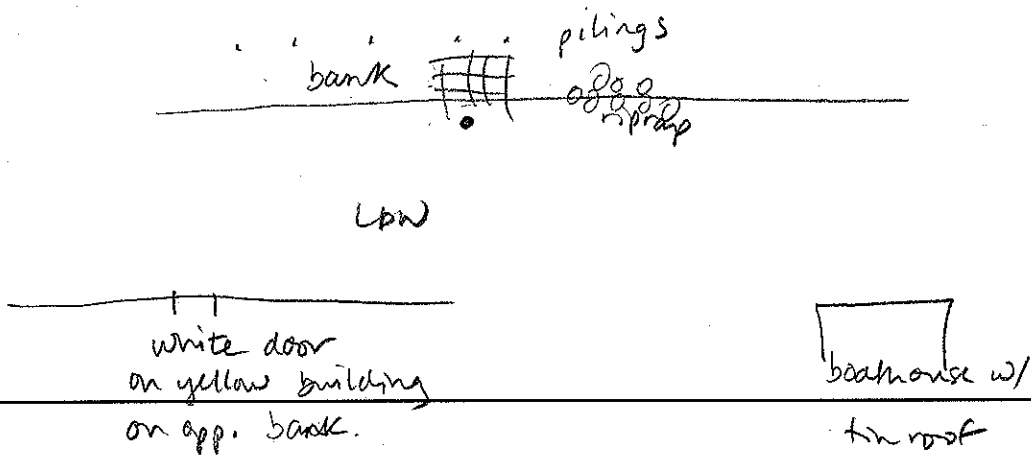
Comments/sketch:

This may be the city



Location ID: LDW-SP-18-R-a		**Time:** 12:54		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122° 19.567		**Northing (y)** 47° 31.630	
Bearing 1:	**Object description:** boathouse	**Distance:** 122 m		**Compass direction**	250°
Bearing 2:	**Object description:** white door	**Distance:** 145 m		**Compass direction**	185°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey **Project Task:** seep recon

Date: 5/5/04 **Crew:** KG, JF, BB, DH, KT, RT

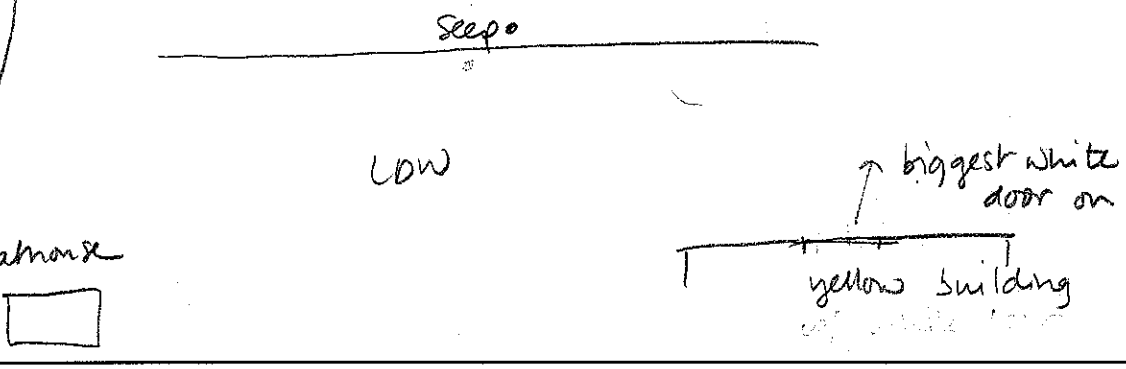
Weather: Sunny **Photo no.** na

Name of person filling out form: Berit Bergquist

Location ID: LDW-SP-19-R-a	**Time:** 1:00		**Photo #: See Form 5**
GPS Coordinates:	**Easting (x):** 122° 18.542		**Northing (y)** 47° 31.604
Bearing 1:	**Object description:** Boathouse	**Distance:** 161 m	**Compass direction** 255°
Bearing 2:	**Object description:** White door	**Distance:** 130 m	**Compass direction** 205°

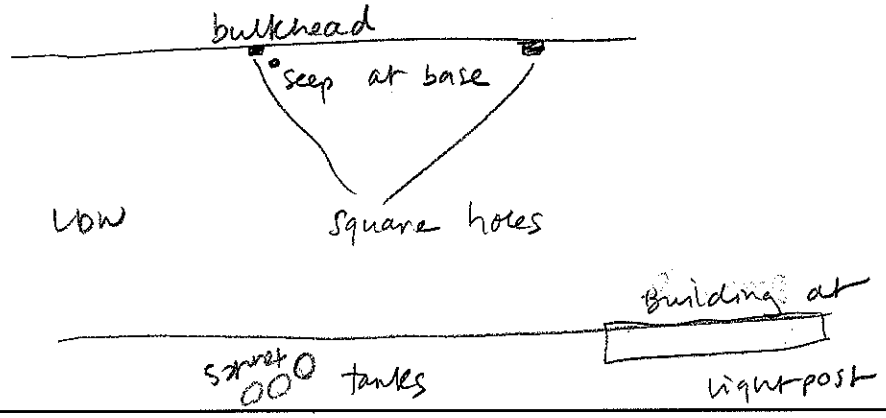
Comments/sketch:

2nd seep - not staked, nearby
47° 31.594
122° 18.536
3rd seep - discolored
47° 31.579
122° 18.528



Location ID: LDW-SP20-R-a	**Time:** 1:10		**Photo #: See Form 5**
GPS Coordinates:	**Easting (x):** 122° 18.503		**Northing (y)** 47° 31.535
Bearing 1:	**Object description:** Building	**Distance:** 141 m	**Compass direction** 180°
Bearing 2:	**Object description:** tanks	**Distance:** 145 m	**Compass direction** 255°

Comments/sketch:



47° 31.561
122° 18.515
cone-shaped pile of debris/metal → sheen at base of this area near waterline

Christy Brown
Rhone Poulenc RPM

Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW Project Task: Seep recon

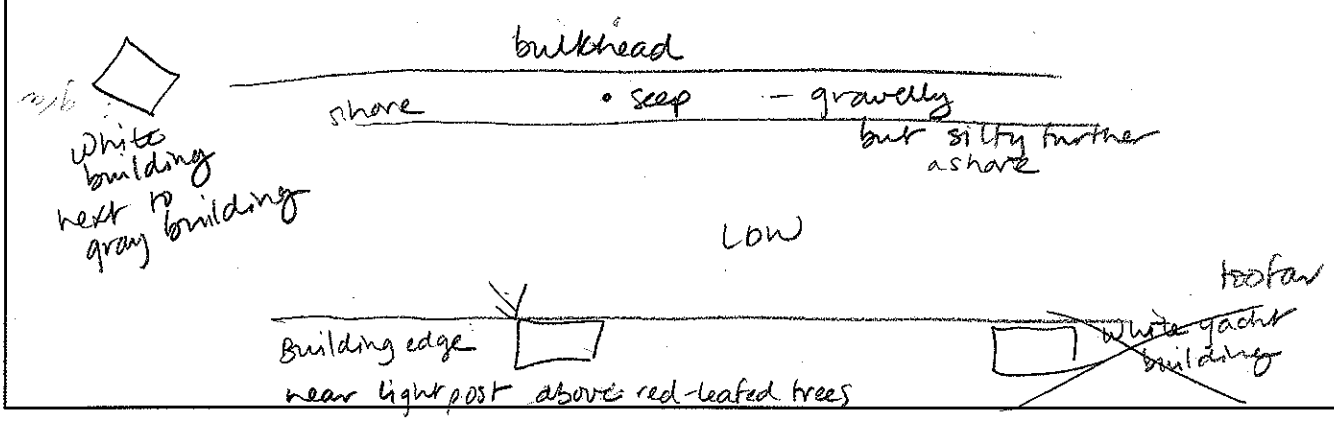
Date: 5/5/04 Crew: KG, JF, BB, DH, KT, RT

Weather: partly cloudy Photo no. na

Name of person filling out form: Benit Bergquist

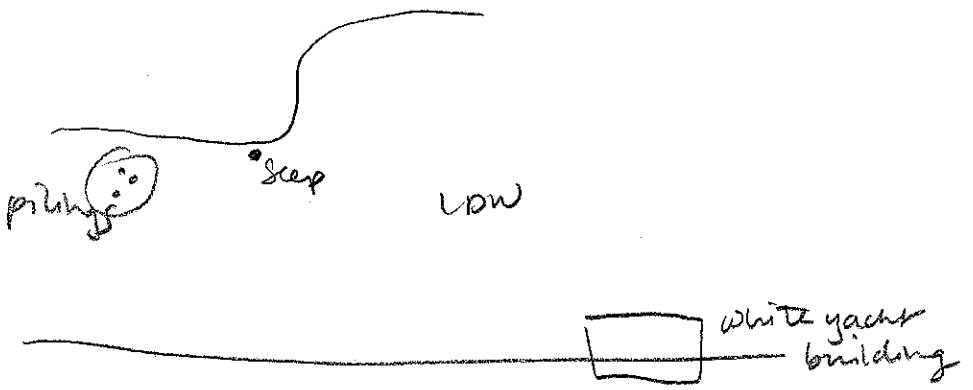
Location ID: LDW-SP-21-R-a	Time: 1:23	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122° 18.493	Northing (y) 47° 31.514	
Bearing 1:	Object description: Building nr light post	Distance: 178m	Compass direction 250°
Bearing 2:	Object description: ~~white gray = blue~~ Building	Distance: 348 m	Compass direction 335°

Comments/sketch:



Location ID: LDW-SP-22-R-a	Time: 1:45	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122° 18.386	Northing (y) 47° 31.268	
Bearing 1:	Object description: Pilings	Distance: 7 m	Compass direction 280°
Bearing 2:	Object description: Building	Distance: 321 m	Compass direction 175°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LOW seep survey Project Task: seep recon

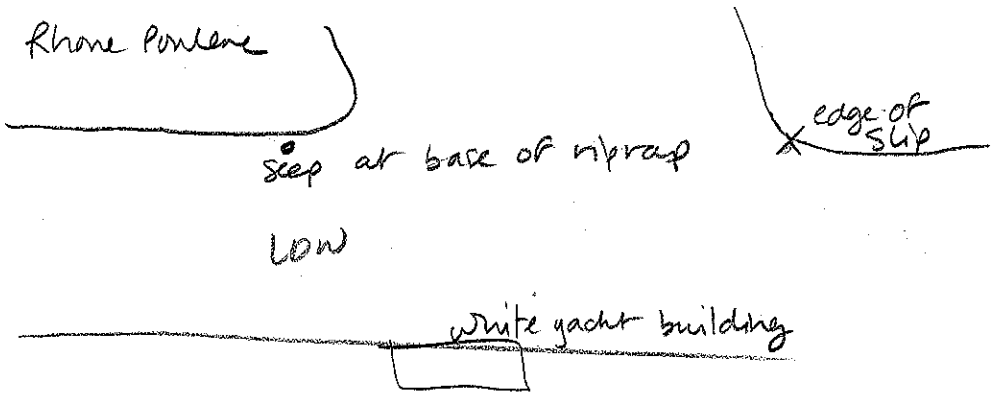
Date: 5/5/04 Crew: KG, JF, BB, DH, KT, RT

Weather: partly cloudy Photo no. na

Name of person filling out form: Bent Bergquist

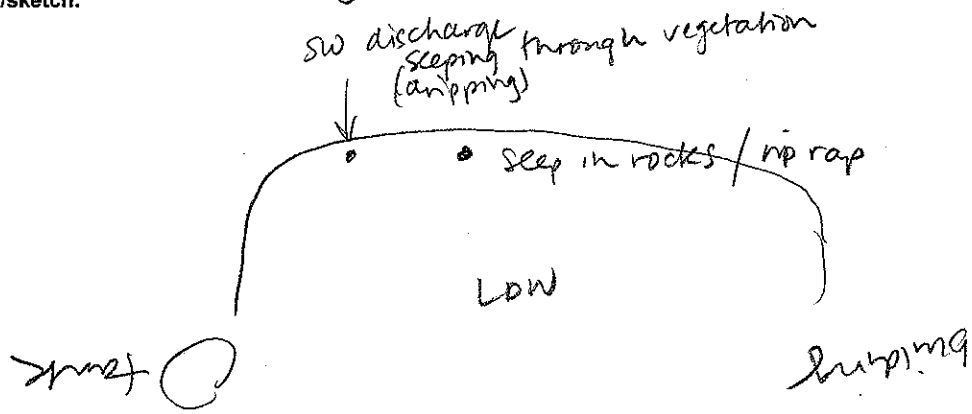
Location ID: LOW-SP-23-R-a	Time: 1:56 pm		Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122° 18.300		Northing (y) 47° 31.146	
Bearing 1:	Object description: Slip edge	Distance: 107 m	Compass direction	155°
Bearing 2:	Object description: Building	Distance: 237 m	Compass direction	230°

Comments/sketch:



Location ID: LOW-SP-24-R-a	Time: 2:11 pm		Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122 18.116		Northing (y) 47 31.171	
Bearing 1:	Object description: tank	Distance: 178 m	Compass direction	265°
Bearing 2:	Object description: building	Distance: 176 m	Compass direction	180°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW Seep survey **Project Task:** Seep recon

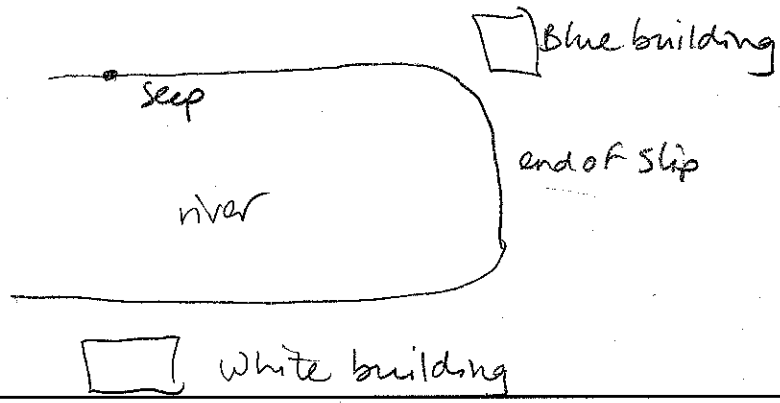
Date: 5/5/09 **Crew:** KO, JF, BB, DH, KT, RT

Weather: partly cloudy **Photo no.** na

Name of person filling out form: Bent Bergquist

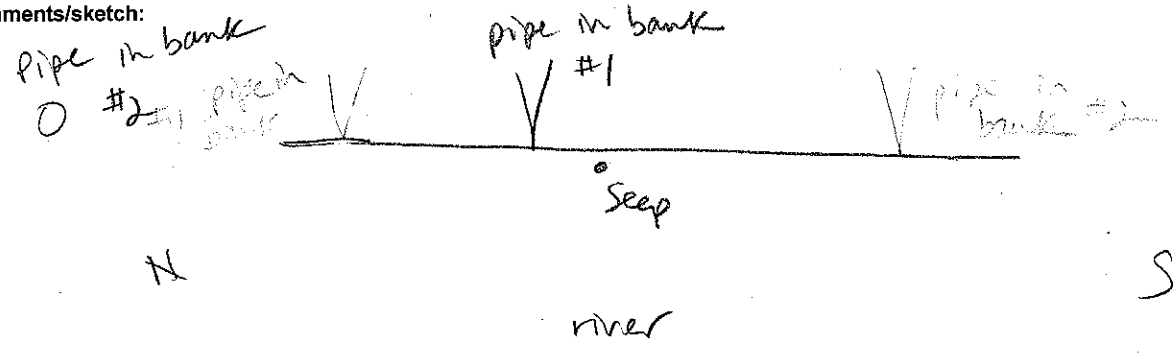
Location ID: LDW-SP-25-R-a		**Time:** 2:18		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122° 18.190		**Northing (y)** 47° 31.172	
Bearing 1:	**Object description:** white building	**Distance:** 140 m		**Compass direction**	145°
Bearing 2:	**Object description:** blue building	**Distance:** 94 m		**Compass direction**	150°

Comments/sketch:



Location ID: LDW-SP-26-R-a		**Time:** 2:34		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122° 18.252		**Northing (y)** 47° 30.904	
Bearing 1:	**Object description:** Pipe #1	**Distance:** 7 m		**Compass direction**	30°
Bearing 2:	**Object description:** Pipe #2	**Distance:** 33 m		**Compass direction**	325°

Comments/sketch:



WindWard environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey Project Task: seep recon

Date: 5/6/04 Crew: KF, JF, BB, DH, KT, RT

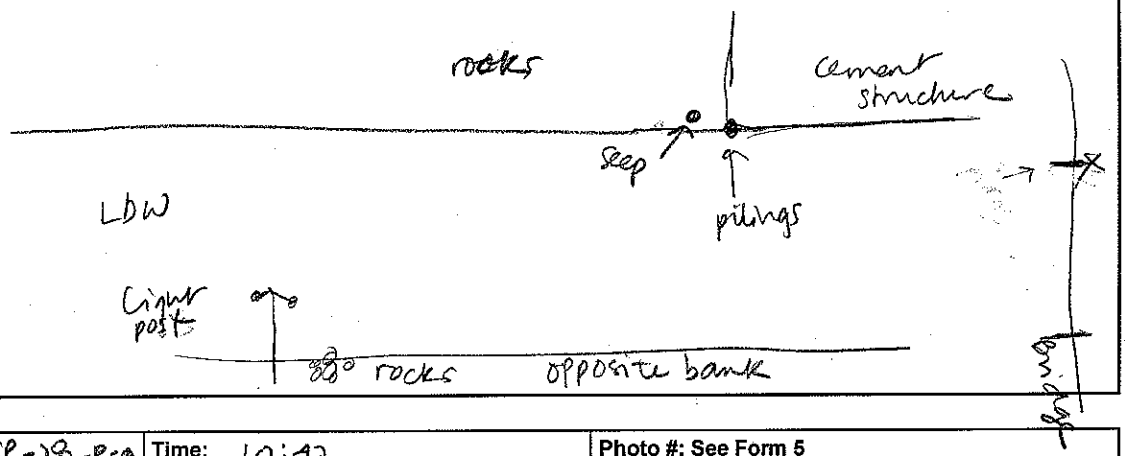
Weather: sunny Photo no. na

Name of person filling out form: Benir Bergquist

Location ID: LDW-SP-27-R-a	Time: 10:32	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122 17.815	Northing (y) 47° 30.693

Bearing 1:	Object description: X on bridge	Distance: 165 m	Compass direction 115°
Bearing 2:	Object description: Rocks below light post	Distance: 99 m	Compass direction 195°

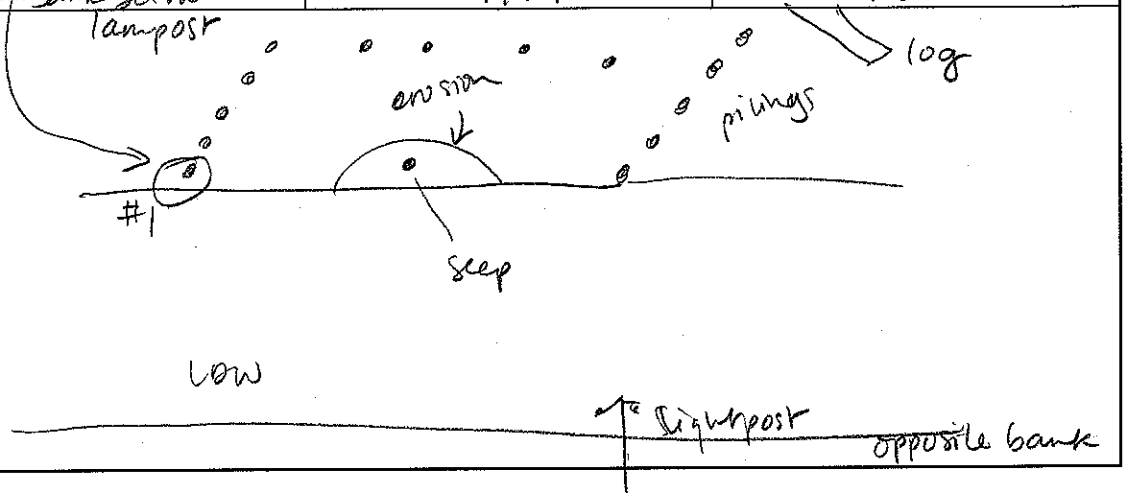
Comments/sketch:



Location ID: LDW-SP-28-R-a	Time: 10:42	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122 17.912	Northing (y) 47 30.742

Bearing 1:	Object description: piling #1	Distance: 26 m	Compass direction 210°
Bearing 2:	Object description: Bank below lamppost	Distance: 94 m	Compass direction 155°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey **Project Task:** seep recon

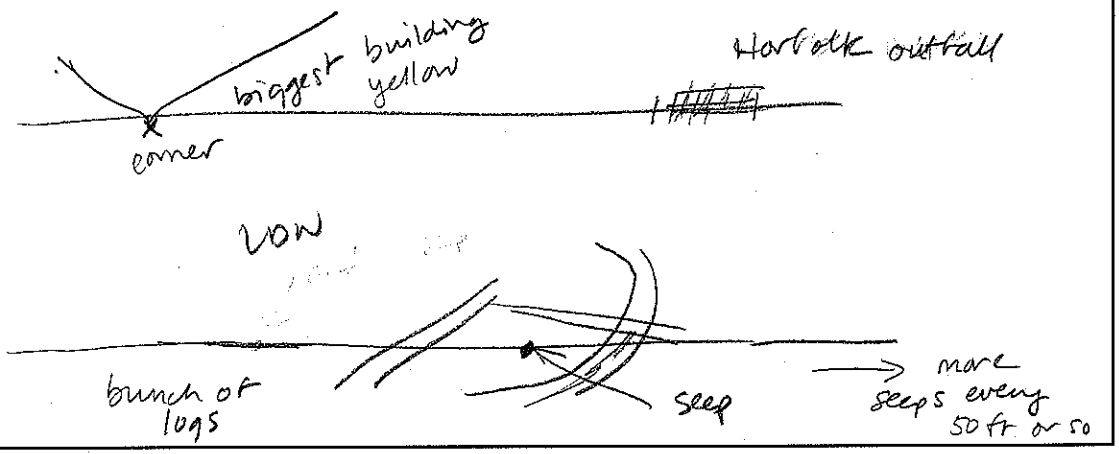
Date: 5/6/09 **Crew:** KG, JF, BB, DH, KT, RT

Weather: hazy **Photo no.** na

Name of person filling out form: Benr Bergquist

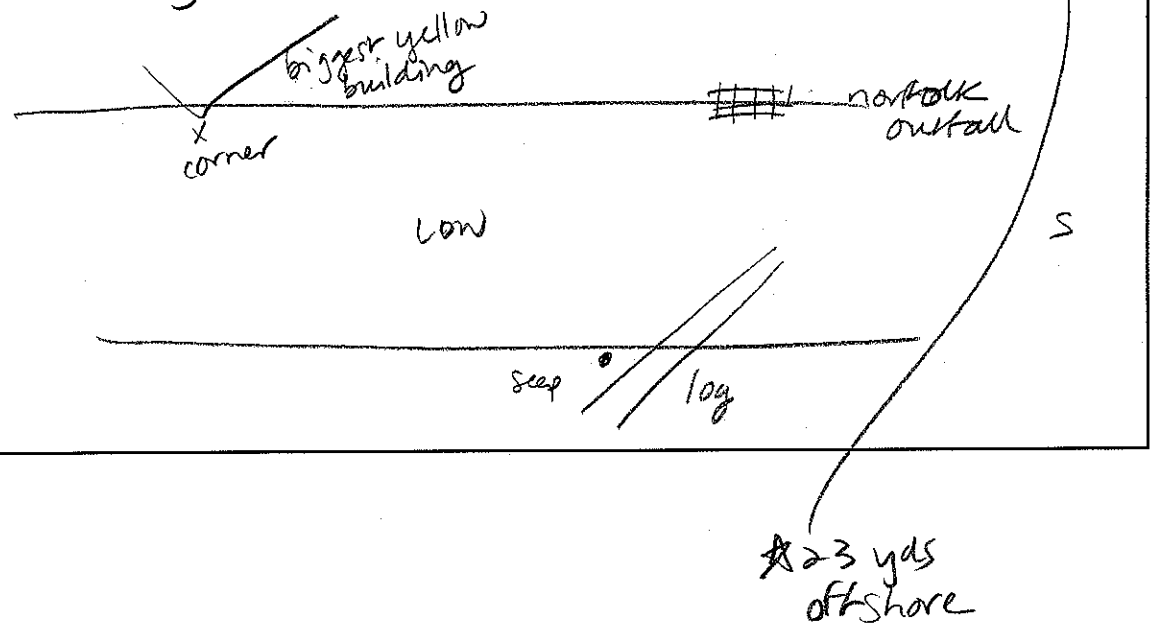
Location ID: LDW-SP-29-R-a		**Time:** 10:57		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 17.926		**Northing (y)** 47 30.706	
Bearing 1:	**Object description:** Norfolk outfall	**Distance:** 126 m		**Compass direction**	350°
Bearing 2:	**Object description:** building corner	**Distance:** 167 m		**Compass direction**	325°

Comments/sketch:



Location ID: LDW-SP-30-R-a		**Time:** 11:03		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122°17.864		**Northing (y)** 47° 30.683	
Bearing 1:	**Object description:** outfall	**Distance:** 94 m		**Compass direction**	335°
Bearing 2:	**Object description:** building corner	**Distance:** 192 m		**Compass direction**	315°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LOW seep survey Project Task: seep recon

Date: 5/6/04 Crew: KO, JF, BB, DH, KT, RT

Weather: hazy Photo no. na

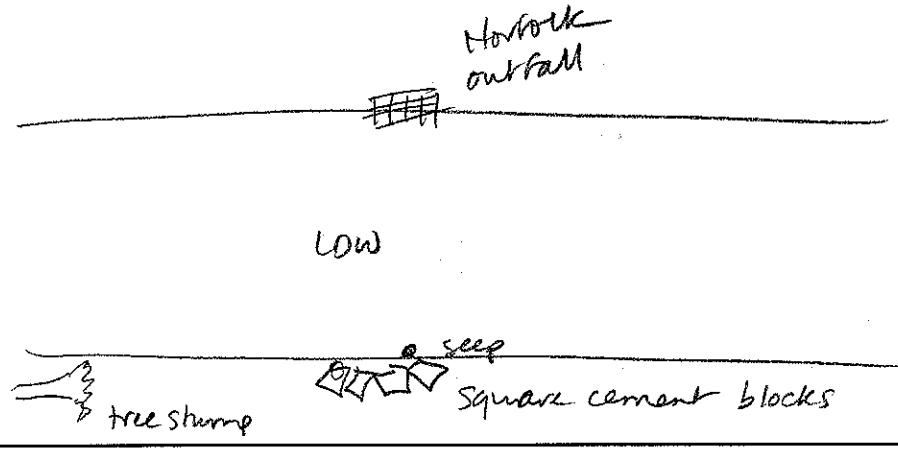
Name of person filling out form: Benit Bergquist

★ 31 yds offshore

Location ID: LOW-SP-31-R-a	Time: 11:18	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122° 16.894	Northing (y) 47° 30.698

Bearing 1:	Object description: stump	Distance: 31 m	Compass direction 260°
Bearing 2:	Object description: outfall	Distance: 88 m	Compass direction 335°

Comments/sketch:

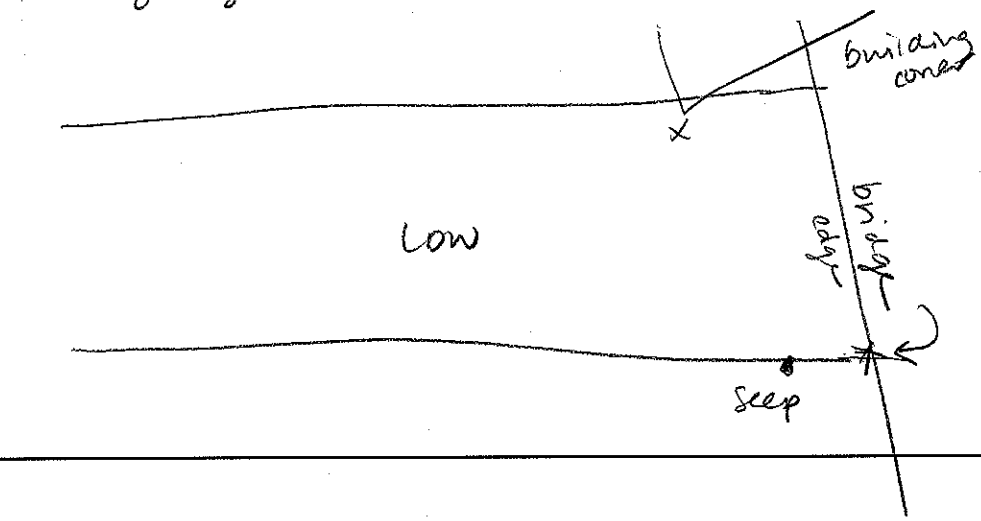


★ 40 ft offshore

Location ID: LOW-SP-32-R-a	Time: 11:25	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122° 18.026	Northing (y) 47° 30.732

Bearing 1:	Object description: Building	Distance: 35 m	Compass direction 150°
Bearing 2:	Object description: Bridge edge	Distance: 110 m	Compass direction 300°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey **Project Task:** Seep recon

Date: 5/6/09 **Crew:** KG, JF, BB, DH, KT, RT

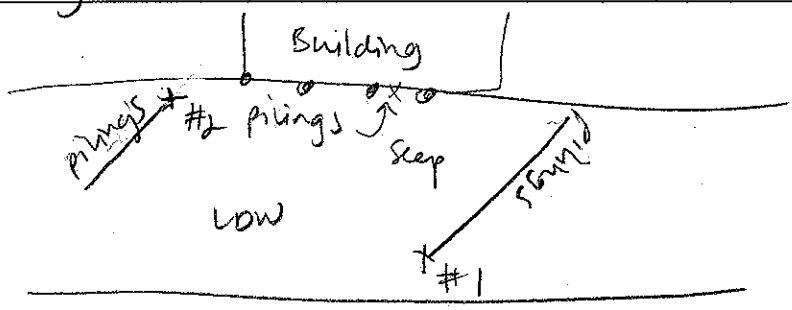
Weather: hazy **Photo no.** na

Name of person filling out form: Benit Bergquist

Location ID: LDW-SP-33-R-a		**Time:** 11:34		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122°18.061		**Northing (y)** 47 30.766	
Bearing 1:	**Object description:** Piling #1	**Distance:** 22 m		**Compass direction**	155°
Bearing 2:	**Object description:** Piling #2	**Distance:** 8 m		**Compass direction**	250°

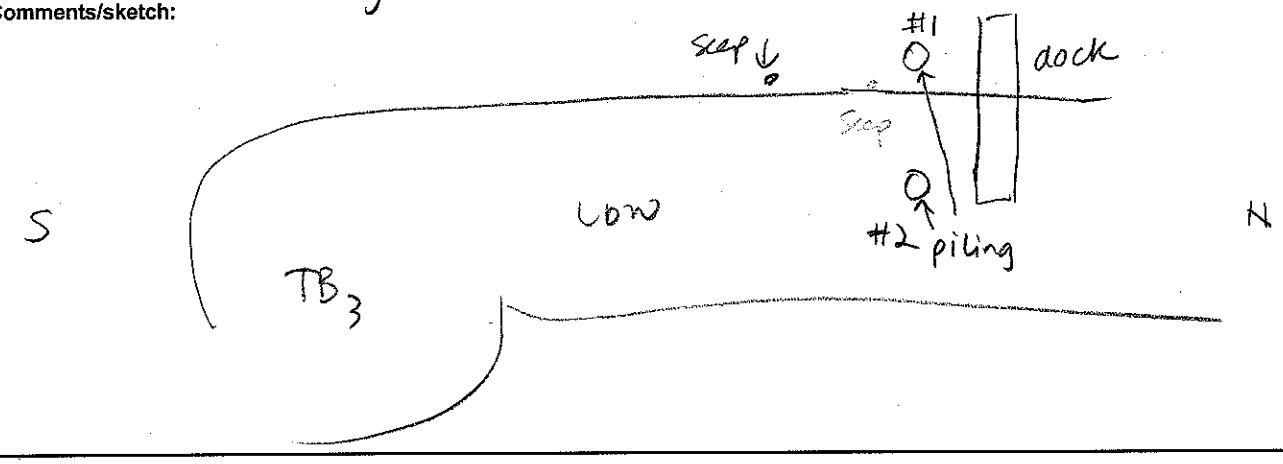
Comments/sketch:

47 30.742
122 17.912
broad seepage off mudflat



Location ID: LDW-SP-34-R-a		**Time:** 11:48		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 18.273		**Northing (y)** 47 30.736	
Bearing 1:	**Object description:** Piling #1	**Distance:** 27 m		**Compass direction**	270°
Bearing 2:	**Object description:** Piling #2	**Distance:** 21 m		**Compass direction**	335°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey **Project Task:** seep recon

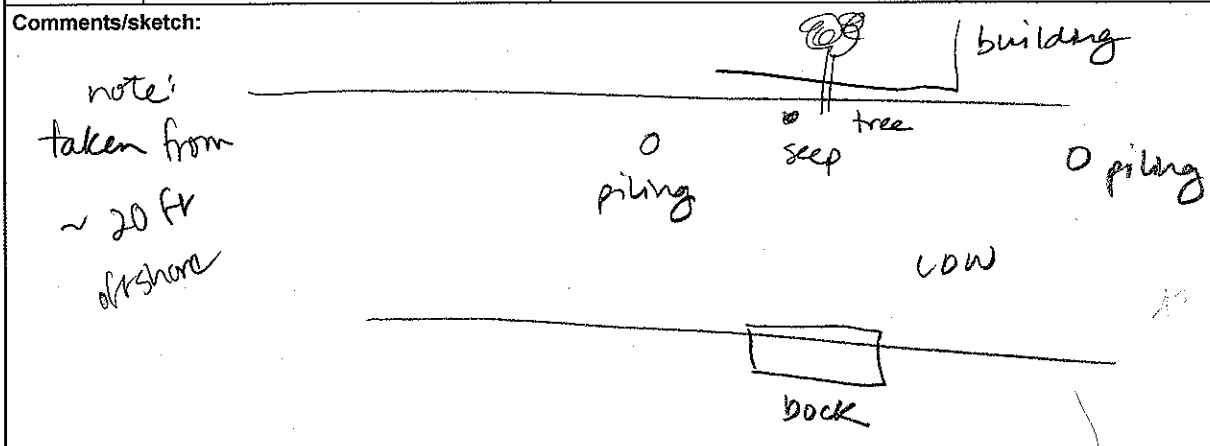
Date: 5/6/09 **Crew:** KG, JF, BB, DH, KT, RT

Weather: hazy **Photo no.** na

Name of person filling out form: Berit Bergquist

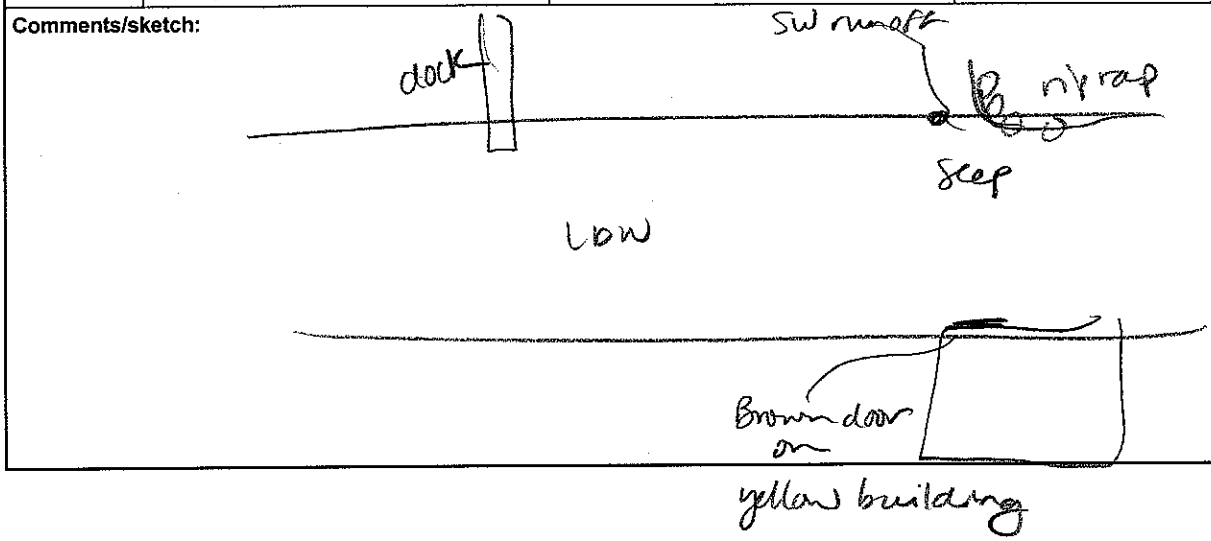
Location ID: LDW-SP-35-R-a		**Time:** 12:04		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 18.212		**Northing (y)** 47 30.800	
Bearing 1:	**Object description:** Dock	**Distance:** 126 m		**Compass direction**	210°
Bearing 2:	**Object description:** tree	**Distance:** 43 m		**Compass direction**	40°

Comments/sketch:



Location ID: LDW-SP-36-R-a		**Time:** 12:16		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122°18.330		**Northing (y)** 47 30.819	
Bearing 1:	**Object description:** Building door	**Distance:** 236 m		**Compass direction**	205°
Bearing 2:	**Object description:** Dock	**Distance:** 110 m		**Compass direction**	160°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LOW seep survey **Project Task:** seep recon

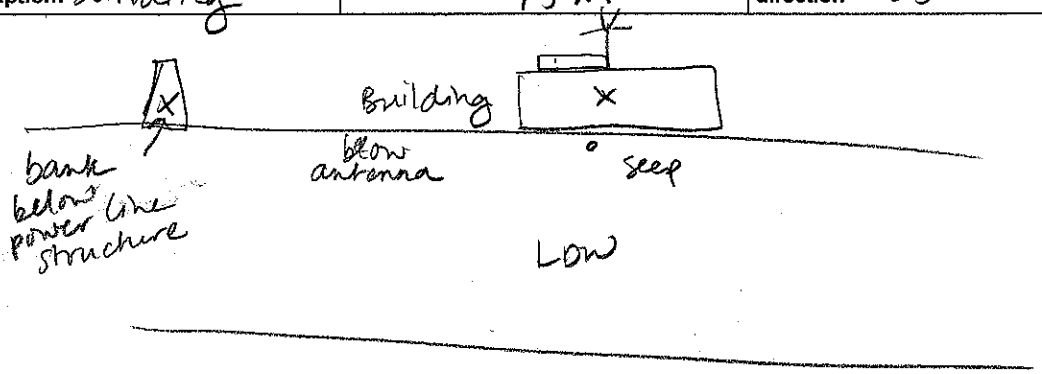
Date: 5/6/09 **Crew:** KG, JF, BB, DH, KT, RT

Weather: hazy **Photo no.** na

Name of person filling out form: Berit Bergquist

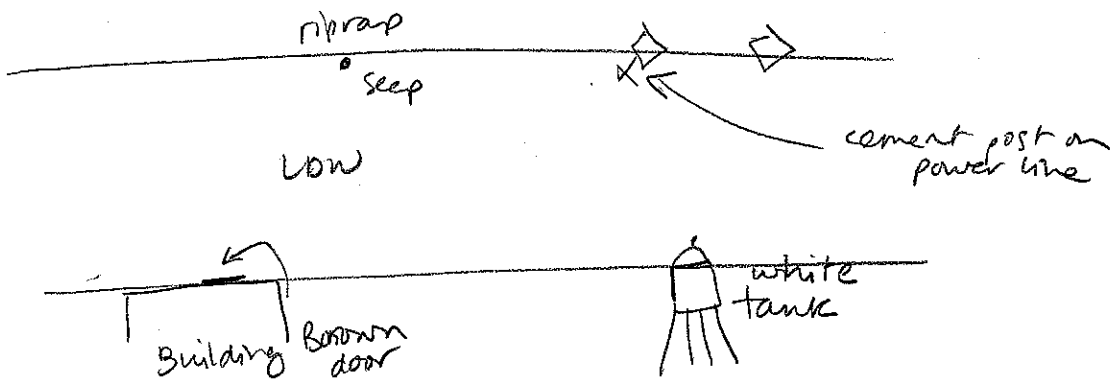
Location ID: LOW-SP-37-R-a		**Time:** 12:20		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 18.251		**Northing (y)** 47 30.848	
Bearing 1:	**Object description:** tower	**Distance:** 117 m		**Compass direction** ~~340°~~	
Bearing 2:	**Object description:** building	**Distance:** 75 m		**Compass direction** 25°	

Comments/sketch:



Location ID: LOW-SP-38-R-a		**Time:** 12:28		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122° 18.354		**Northing (y)** 47° 30.908	
Bearing 1:	**Object description:** Brown door on building	**Distance:** 121		**Compass direction** 60°	
Bearing 2:	**Object description:** Post	**Distance:** 37 m		**Compass direction** ~~260°~~	

Comments/sketch:



WindWard environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey Project Task: seep recon

Date: 5/6/04 Crew: KG, JF, BB, DH, KT, RT

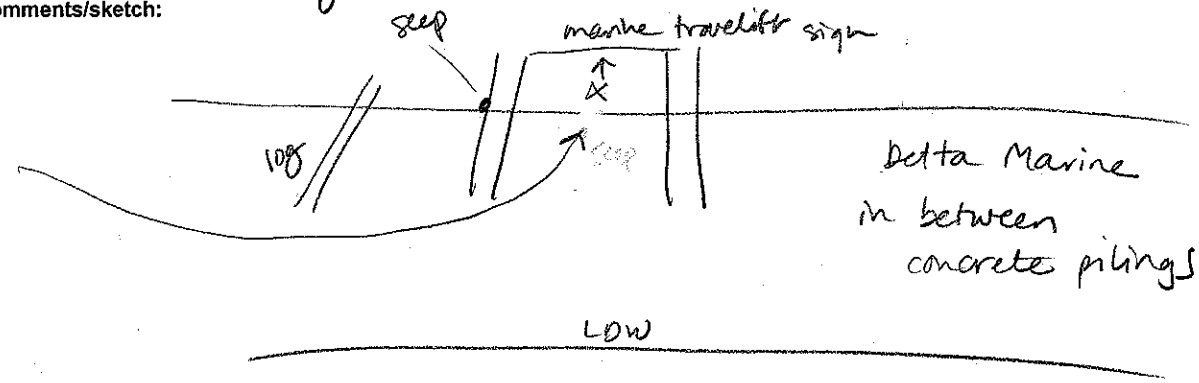
Weather: _____ Photo no. na

Name of person filling out form: Britt Beraquist

Location ID: LDW-SP-39-R-a	Time: 12:35	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122 18.398	Northing (y) 47 31.051	
Bearing 1: Object description: sign	Distance: 76 m	Compass direction 270°	
Bearing 2: Object description: log	Distance: 21 m	Compass direction 180°	

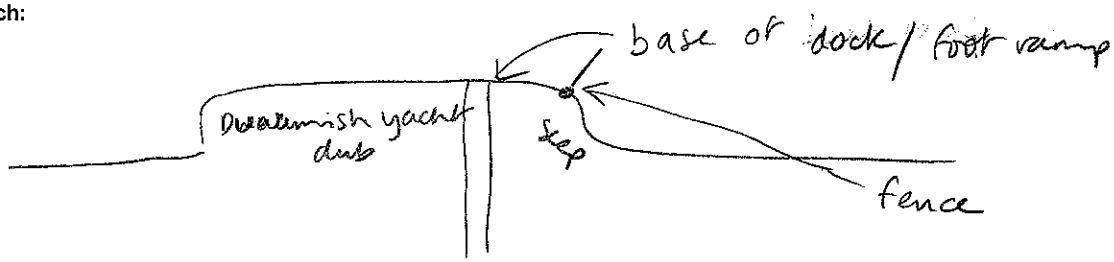
Comments/sketch:

Note reading taken here



Location ID: LDW-SP-40-R-a	Time: 12:48	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122° 18.525	Northing (y) 47° 31.215	
Bearing 1: Object description: Boat ramp	Distance: 20 m	Compass direction 130°	
Bearing 2: Object description: fence	Distance: 6 m	Compass direction 295°	

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey **Project Task:** seep recon

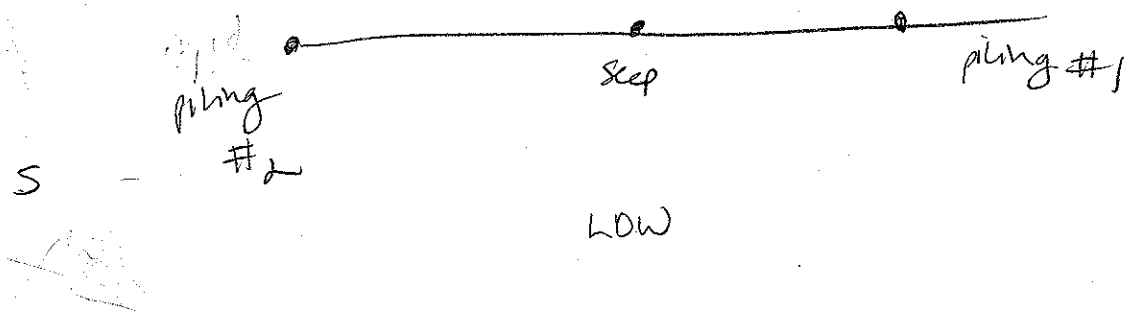
Date: 5/6/04 **Crew:** KG, JF, BB, DH, KT, RT

Weather: light clouds **Photo no.** na

Name of person filling out form: Berit Bergquist

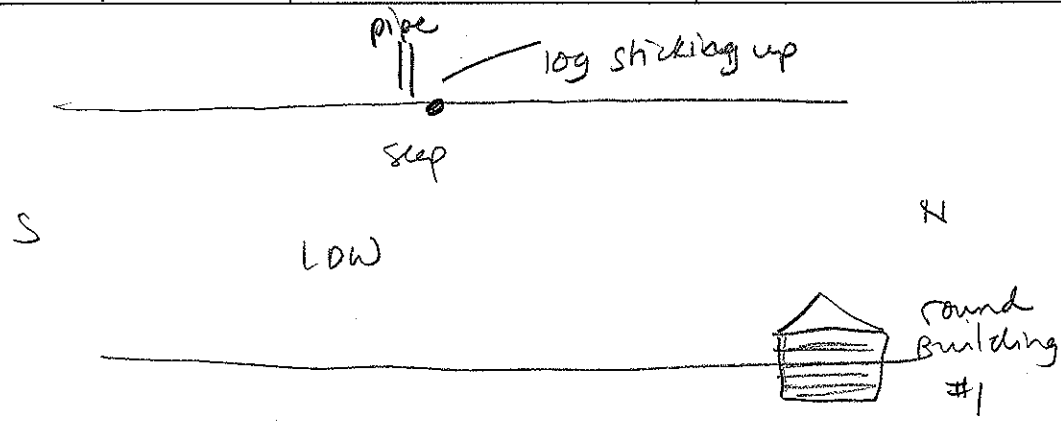
Location ID: LDW-SP-41-R-a		**Time:** 12:59		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 18.497		**Northing (y)** 47° 31.250	
Bearing 1:	**Object description:** Piling #1	**Distance:** 9 m		**Compass direction**	340°
Bearing 2:	**Object description:** " #2	**Distance:** 22 m		**Compass direction**	135°

Comments/sketch:



Location ID: LDW-SP-42-R-a		**Time:** 1:13		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 18.520		**Northing (y)** 47 31.301	
Bearing 1:	**Object description:** Building #1	**Distance:** 191 m		**Compass direction**	20°
Bearing 2:	**Object description:** Pipe	**Distance:** 11 m		**Compass direction**	230°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW Seep survey **Project Task:** Seep recon

Date: 5/6/04 **Crew:** KG, JF, BB, DH, KT, RT

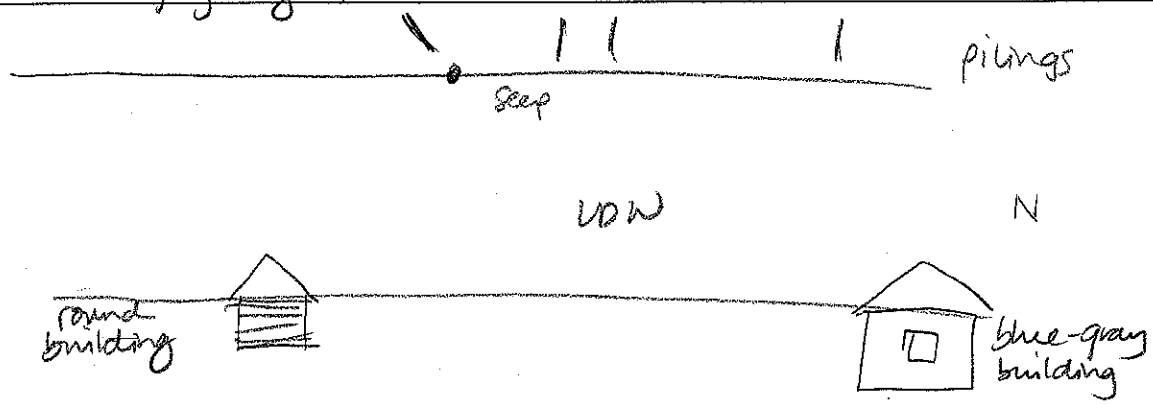
Weather: Light clouds **Photo no.** na

Name of person filling out form: Benit Bergquist

Location ID: LDW-SP-43-R-a	Time: 1:21	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122 18.536	Northing (y) 47 31.418

	Object description	Distance	Compass direction
Bearing 1:	Round building	140 m	105°
Bearing 2:	Blue-gray bldng	323 m	350°

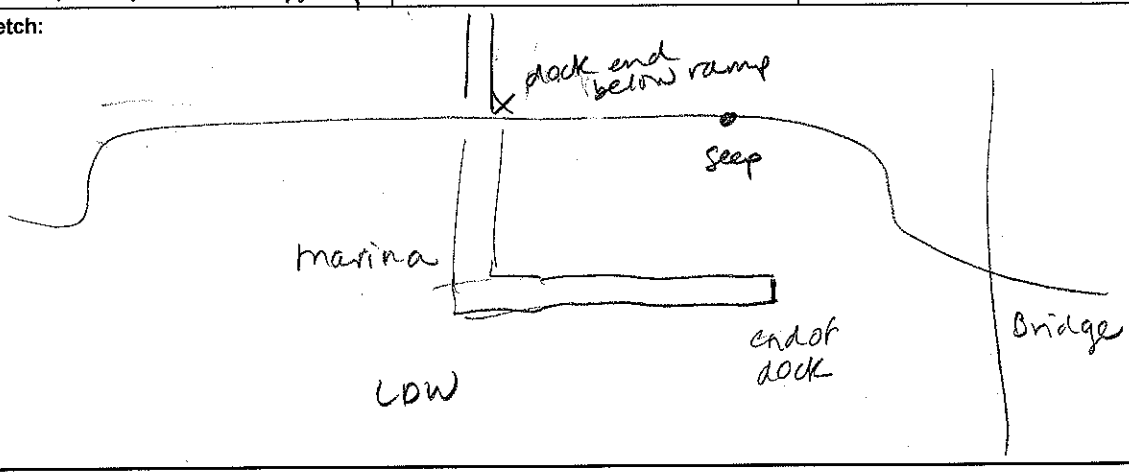
Comments/sketch:



Location ID: LDW-SP-44-R-a	Time: 1:41	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122° 18.829	Northing (y) 47° 31.699

	Object description	Distance	Compass direction
Bearing 1:	Dock end	11 m	265°
Bearing 2:	Dock end below ramp	89 m	110°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LOW Seep survey Project Task: Seep Recon

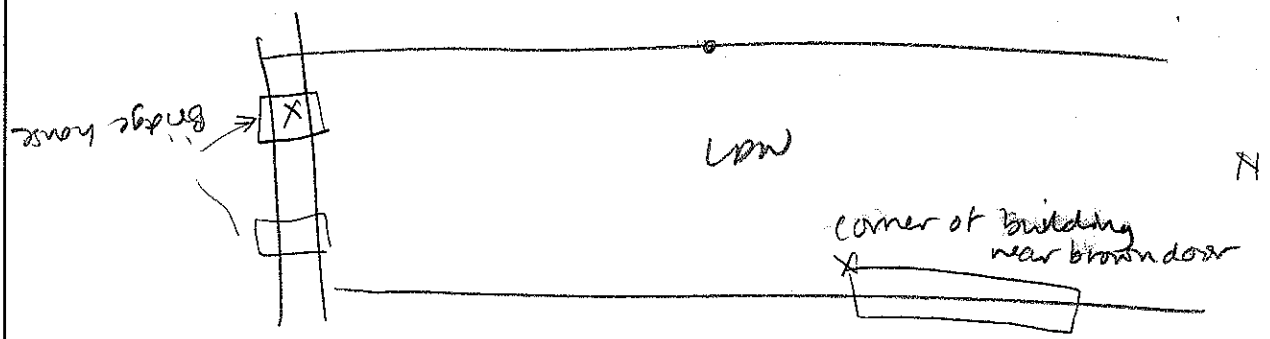
Date: 5/6/04 Crew: KC, JF, BB, DH, KT, RT

Weather: Light clouds Photo no. n.a

Name of person filling out form: Berit Bergquist

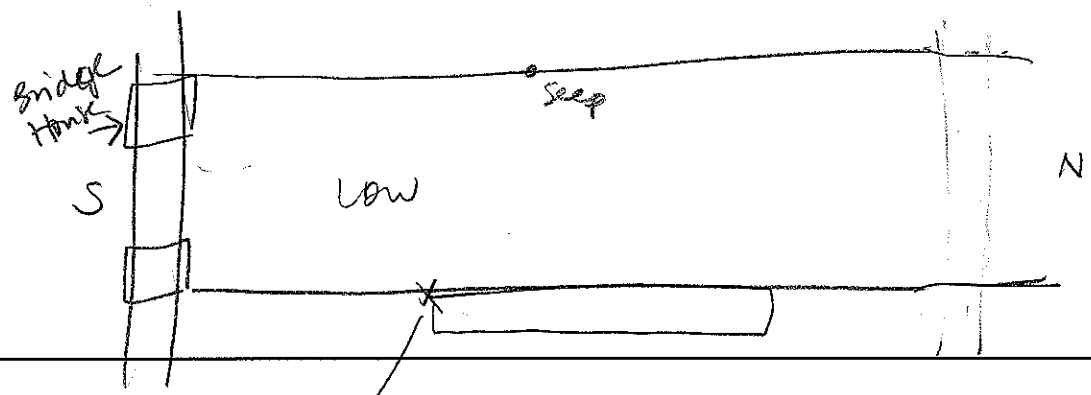
Location ID: LOW-SP-45-R-a		Time: 1:55		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 18.944		Northing (y) 47 31.772	
Bearing 1:	Object description: Bridge house	Distance: 117m		Compass direction	95°
Bearing 2:	Object description: Building	Distance: 145m		Compass direction	350°

Comments/sketch:



Location ID: LOW-SP-46-R-a		Time: 2:02		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122° 19.024		Northing (y) 47° 31.804	
Bearing 1:	Object description: S. end Building	Distance: 159		Compass direction	50°
Bearing 2:	Object description: Bridge house	Distance: 240m		Compass direction	105°

Comments/sketch:



S end of building

Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey **Project Task:** seep recon

Date: 5/6/04 **Crew:** KG, JF, BB, DH, KT, RT

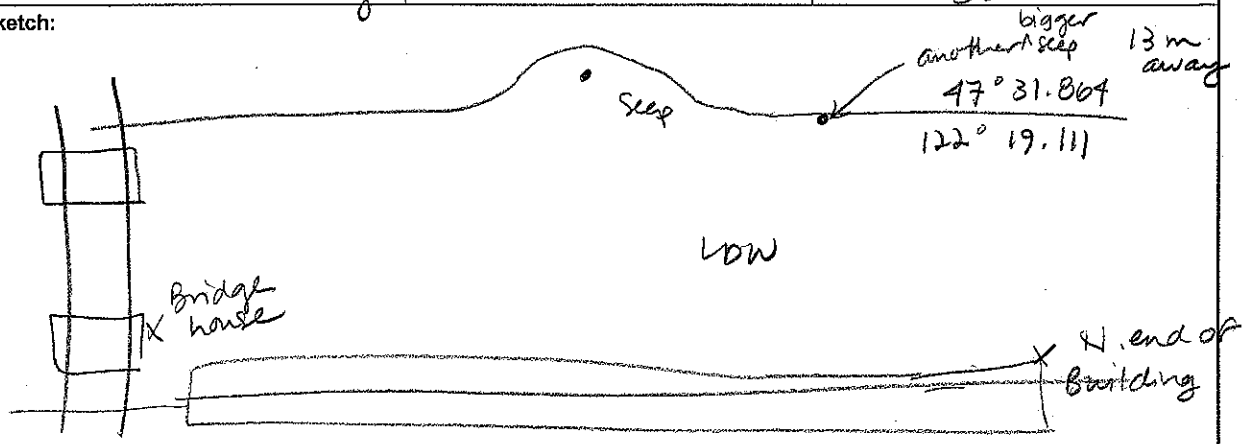
Weather: partly cloudy **Photo no.** na

Name of person filling out form: Bent Berggquist

Location ID: LDW-SP-47-R-a	Time: 2:10	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122° 19.098	Northing (y) 47° 31.854

	Object description	Distance	Compass direction
Bearing 1:	Bridge house	343 m	110°
Bearing 2:	N. end building	164 m	335°

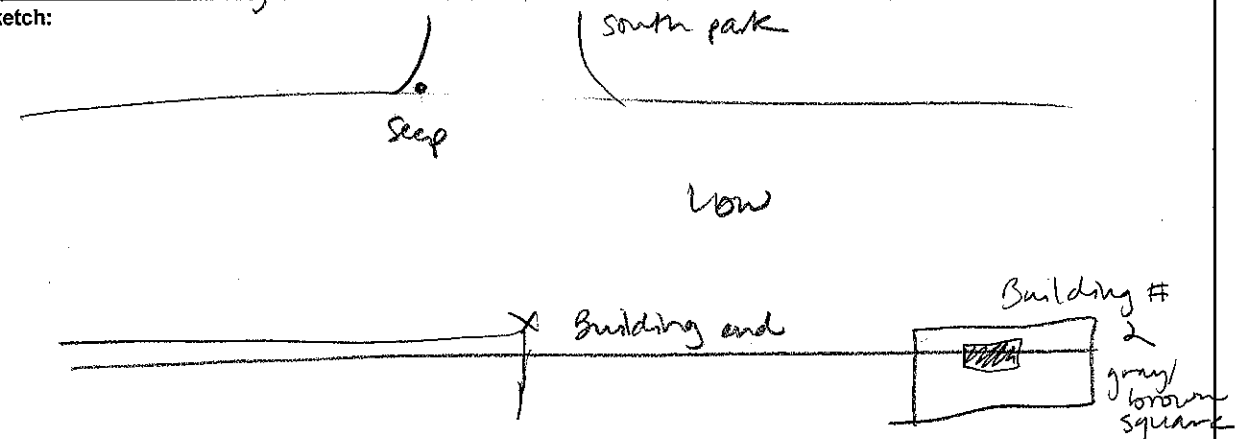
Comments/sketch:



Location ID: LDW-SP-48-R-a	Time: 2:21	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122° 19.160	Northing (y) 47° 31.893

	Object description	Distance	Compass direction
Bearing 1:	Building end	141 m	270°
Bearing 2:	Building #2	246 m	353°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LOW Project Task: seep recon

Date: 5/6/09 Crew: KG, JF, BB, DH, KT, RT

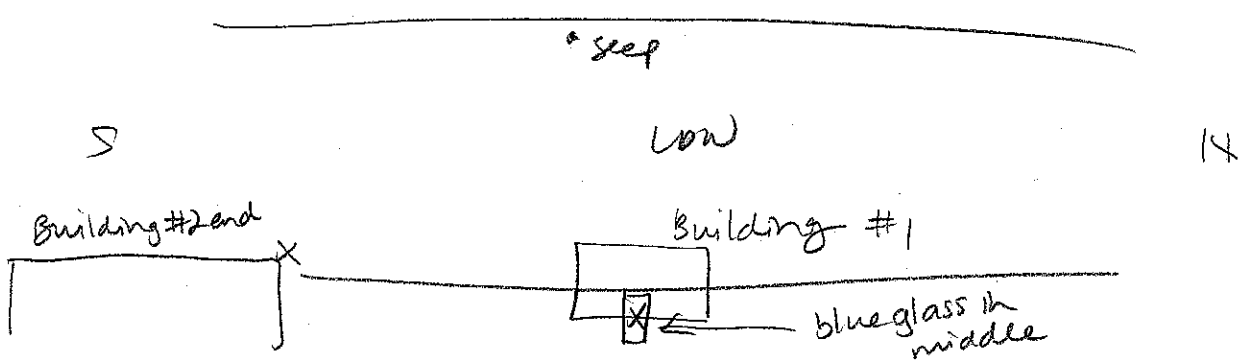
Weather: cloudy Photo no. na

Name of person filling out form: Berit Bergquist

Location ID: LOW-SP-49-R-a	Time: 2:27	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122 19.238	Northing (y) 47° 31.937

Bearing 1:	Object description: Building #2 end	Distance: 206 m	Compass direction 70°
Bearing 2:	Object description: Building #1	Distance: 196 m	Compass direction 140

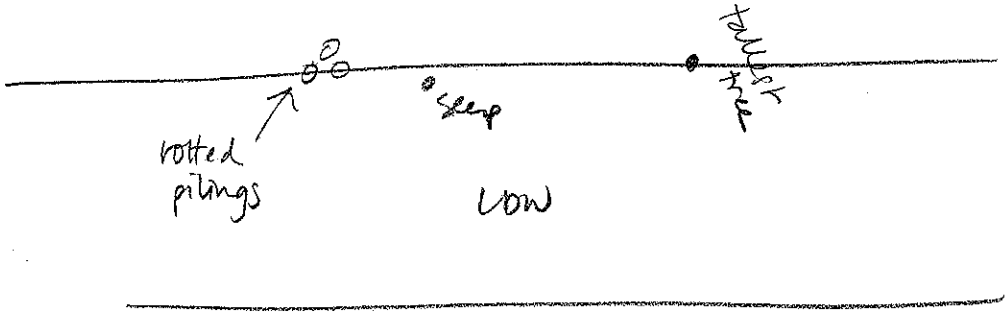
Comments/sketch:



Location ID: LOW-SP-50-R-a	Time: 2:33	Photo #: See Form 5
GPS Coordinates:	Easting (x): 122° 19.277	Northing (y) 47° 31.963

Bearing 1:	Object description: pilings	Distance: ~3 m can't get reading	Compass direction 115°
Bearing 2:	Object description: tree	Distance: 156 m	Compass direction 280°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey **Project Task:** seep recon

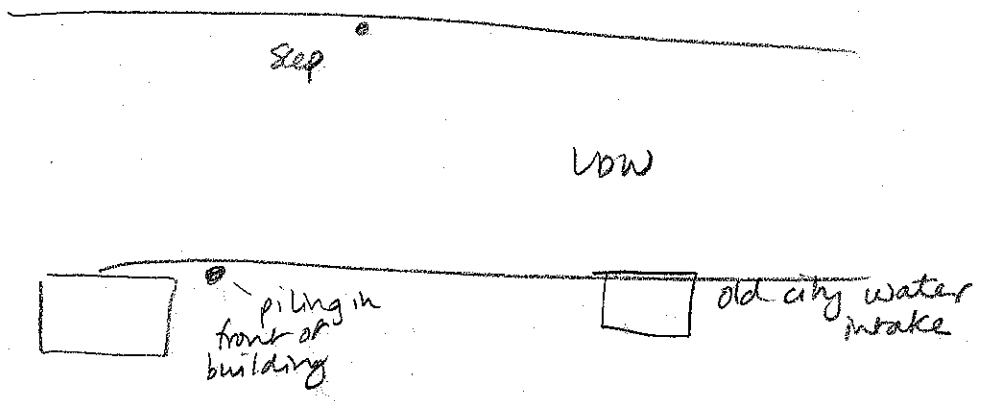
Date: 5/6/04 **Crew:** KG, JF, BB, DH, KT, RT

Weather: cloudy **Photo no.** na

Name of person filling out form: Berit Bergquist

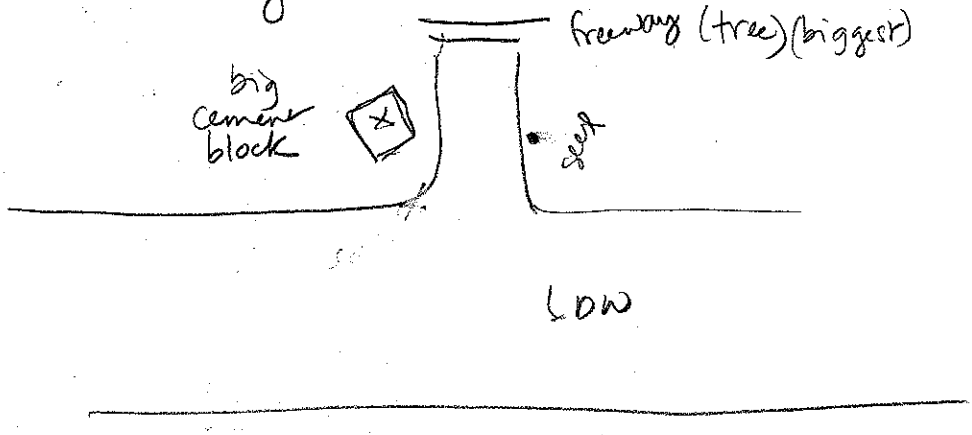
Location ID: LDW-SP-51-R-a		**Time:** 2:40		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 19.398		**Northing (y)** 47 32.041	
Bearing 1:	**Object description:** piling	**Distance:** 151 m		**Compass direction**	73°
Bearing 2:	**Object description:** water intake	**Distance:** 166 m		**Compass direction**	339°

Comments/sketch:



Location ID: LDW-SP-52-R-a		**Time:** 3:11		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122° 19.943		**Northing (y)** 47° 32.363	
Bearing 1:	**Object description:** block	**Distance:** 35 m		**Compass direction**	122°
Bearing 2:	**Object description:** trees freeway	**Distance:** 120 m		**Compass direction**	241°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW seep survey Project Task: seep recon

Date: 5/6/04 Crew: KG, JF, BB, ~~DH~~, KT, RT

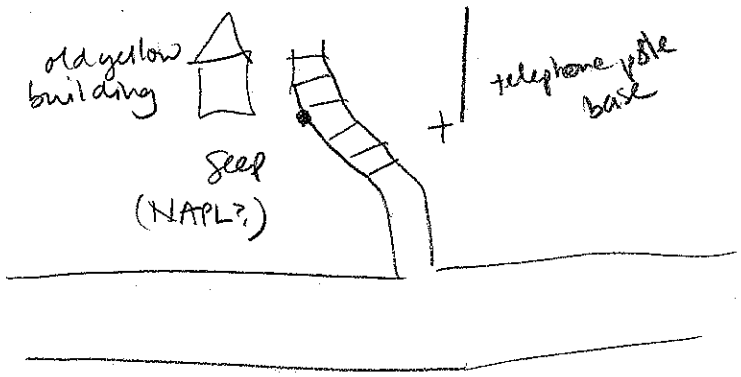
Weather: cloudy Photo no. na

Name of person filling out form: Benit Bergquist

Location ID: LDW-SP-53-R-a	Time: 3:18	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122° 19.988	Northing (y) 47 32.357	
Bearing 1:	Object description: Pole base	Distance: 25 m	Compass direction 116°
Bearing 2:	Object description: Building	Distance: 35 m	Compass direction 220°

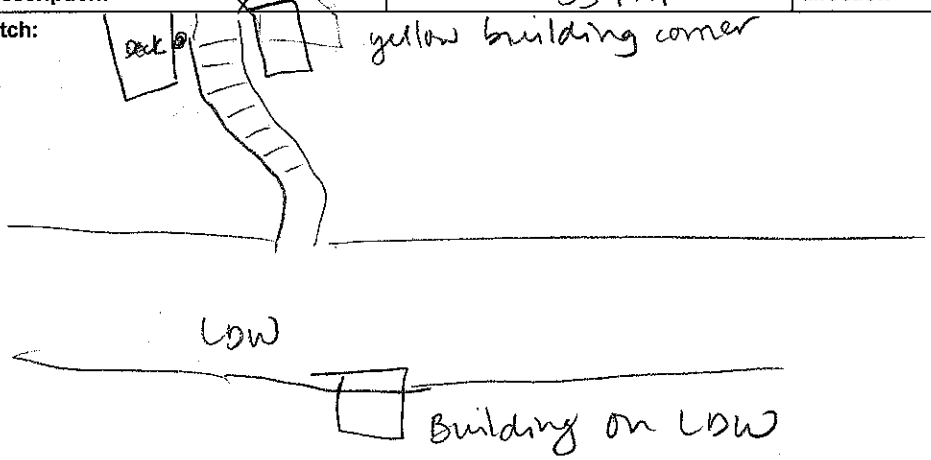
Comments/sketch:

#100 point of interest black ooze
47 32.354
122 19.991



Location ID: LDW-SP-54-R-a	Time: 3:26	Photo #: See Form 5	
GPS Coordinates:	Easting (x): 122° 20.013	Northing (y) 47° 32.358	
Bearing 1:	Object description: Building corner	Distance: 31 m	Compass direction 298°
Bearing 2:	Object description: Building on LDW	Distance: 354 m	Compass direction 68°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LOW seep survey Project Task: seep recon

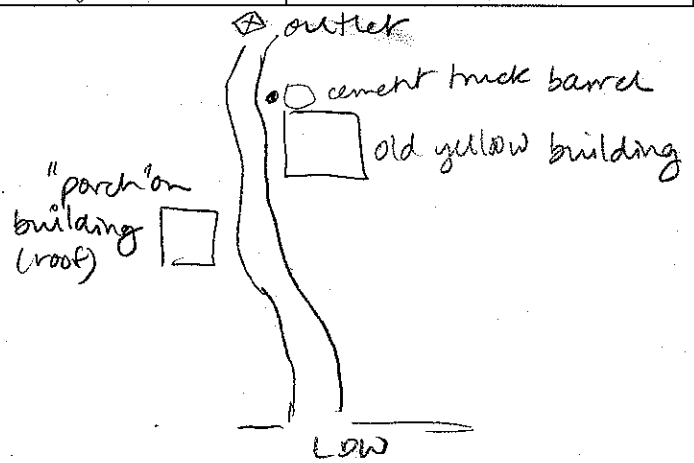
Date: 5/6/04 Crew: KG, JF, BB, DH, KT, RT

Weather: Cloudy Photo no. na

Name of person filling out form: Berit Bergquist

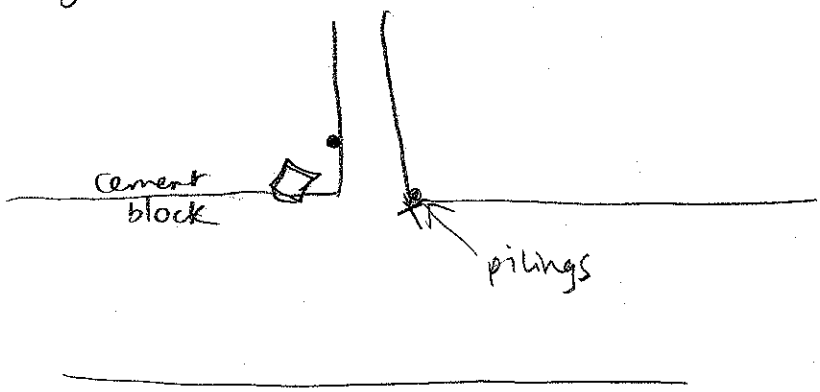
Location ID: LOW-SP-55-R-a		Time: 3:37		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122° 20.035		Northing (y) 47° 32.360	
Bearing 1:	Object description: roof of porch	Distance: 35 m		Compass direction	115°
Bearing 2:	Object description: outlet	Distance: 19 m		Compass direction	252°

Comments/sketch:



Location ID: LOW-SP-56-R-a		Time: 3:45		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122° 19.959		Northing (y) 47° 32.364	
Bearing 1:	Object description: cement block	Distance: 40 m		Compass direction	110°
Bearing 2:	Object description: Pilings	Distance: 48m		Compass direction	60°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW Seep Survey Project Task: Seep recon

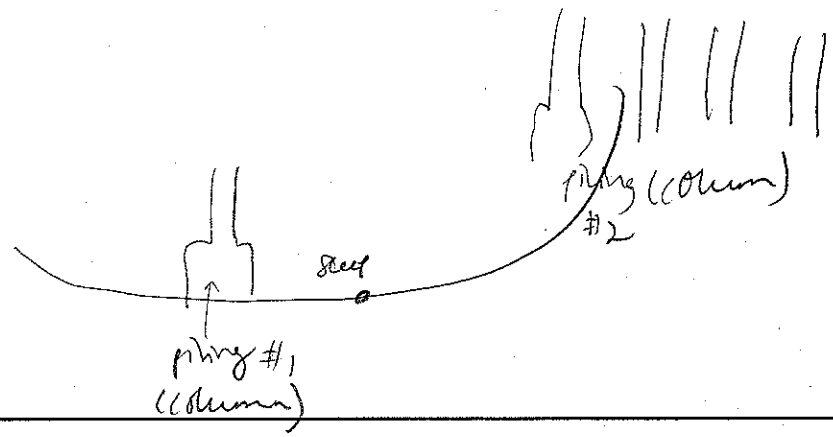
Date: 5/7/04 Crew: Bent, Joanna, Doug H., Kym T., Rick T.,

Weather: overcast, light rain Photo no.

Name of person filling out form: Joanna Florer

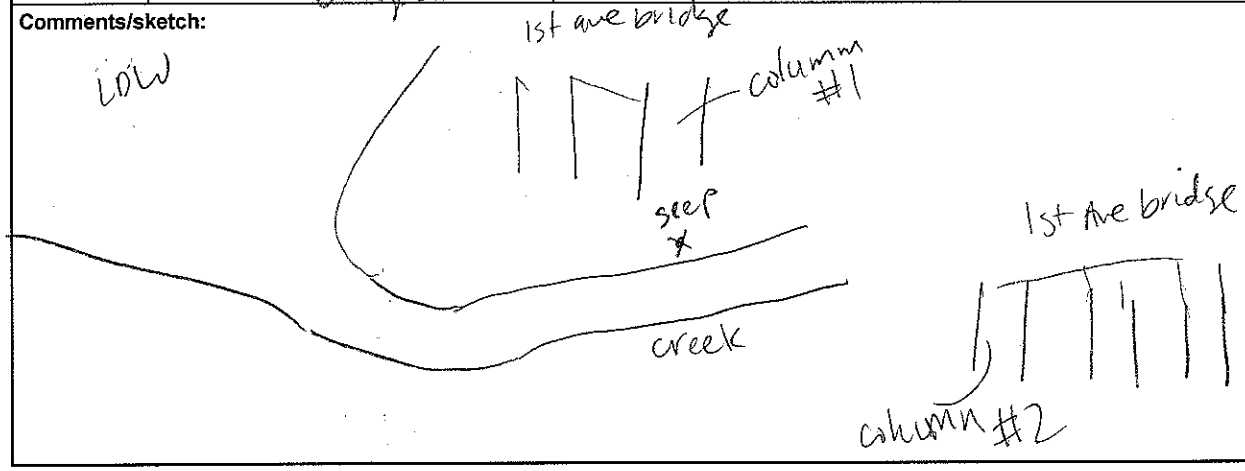
Location ID: LDW-SP-57		Time: 1109		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.092		Northing (y) 47 32.497	
Bearing 1:	Object description: cement bridge column (1st Ave)	Distance: 6m		Compass direction	70°
Bearing 2:	Object description: cement bridge column (1st Ave)	Distance: 37m		Compass direction	175°

Comments/sketch:



Location ID: LDW-SP-58		Time: 1118		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.090		Northing (y) 47 32.424	
Bearing 1:	Object description: Cement bridge column	Distance: 18m		Compass direction	150°
Bearing 2:	Object description: Cement bridge column	Distance: 36m		Compass direction	205°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-Seep Survey Project Task:

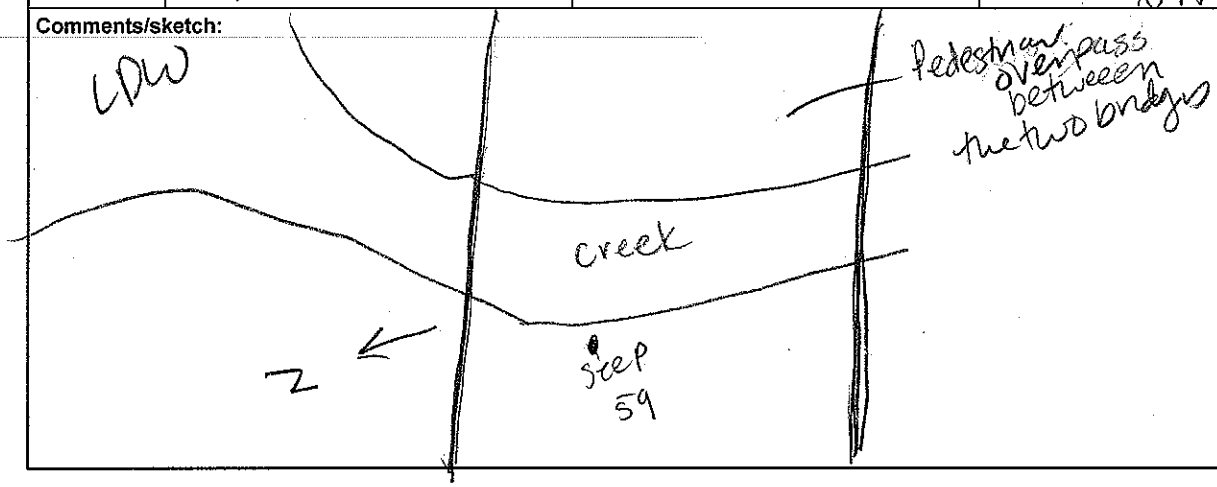
Date: 5/7/04 Crew: BB, JF, DH, KT, + RT

Weather: overcast, light rain Photo no. NA

Name of person filling out form: Joanna Florer

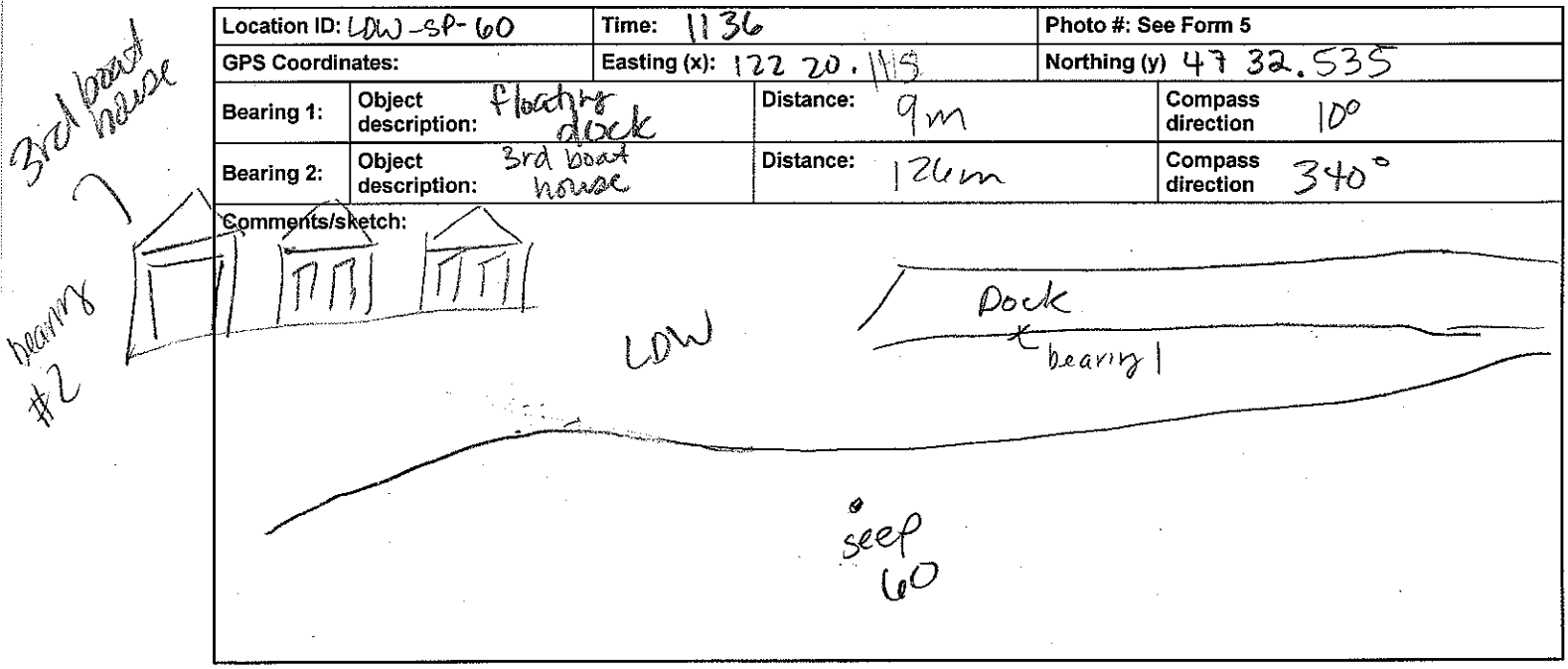
Location ID: LDW-SP-59		Time: 1123		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.092		Northing (y) 47 32.431	
Bearing 1:	Object description: NA	Distance: NA		Compass direction	NA
Bearing 2:	Object description: NA	Distance: NA		Compass direction	NA

Comments/sketch:



Location ID: LDW-SP-60		Time: 1136		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.115		Northing (y) 47 32.535	
Bearing 1:	Object description: floating dock	Distance: 9m		Compass direction	100
Bearing 2:	Object description: 3rd boat house	Distance: 126m		Compass direction	340°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW Seep Survey Project Task: Seep Recon

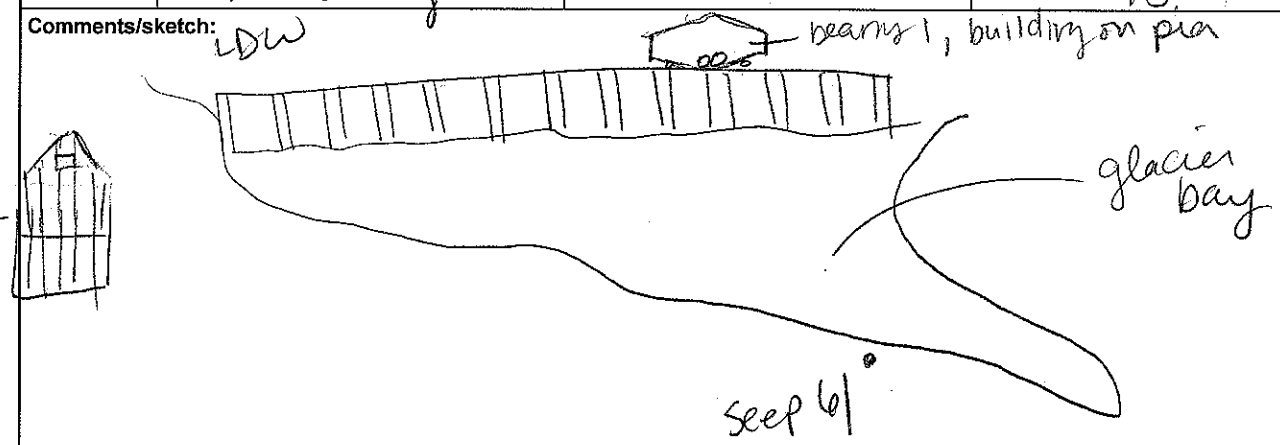
Date: 5/7/04 Crew: BB, JF, DH, KT + RT

Weather: overcast, light rain Photo no. NA

Name of person filling out form: Joanna Florer

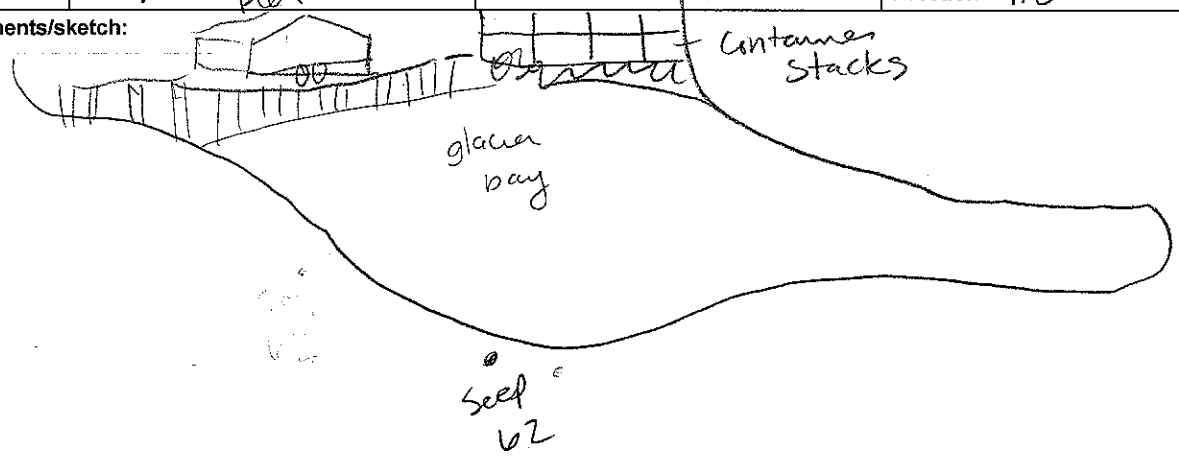
Location ID: LDW-SP-61		Time: 1156		Photo #: See Form 5
GPS Coordinates:		Easting (x): 122°20.533		Northing (y) 47°32.916
Bearing 1:	Object description: crane building on top of pier	Distance: 125m		Compass direction 70°
Bearing 2:	Object description: metal building	Distance: 94m		Compass direction 15°

Comments/sketch:



Location ID: LDW-SP-62		Time: 1203		Photo #: See Form 5
GPS Coordinates:		Easting (x): 122°20.498		Northing (y) 47°32.952
Bearing 1:	Object description: container stacks	Distance: 133m		Compass direction 145°
Bearing 2:	Object description: crane on top of pier	Distance: 97m		Compass direction 115°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-Seep Survey Project Task: Seep Recon

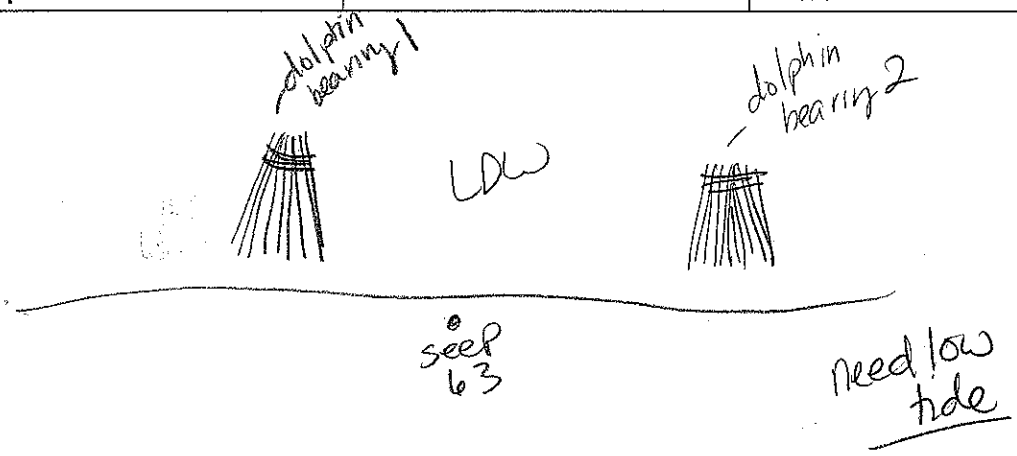
Date: 5/7/04 Crew: BB, JF, DH, KT, RT

Weather: overcast, light rain Photo no. NA

Name of person filling out form: Joanna Florer

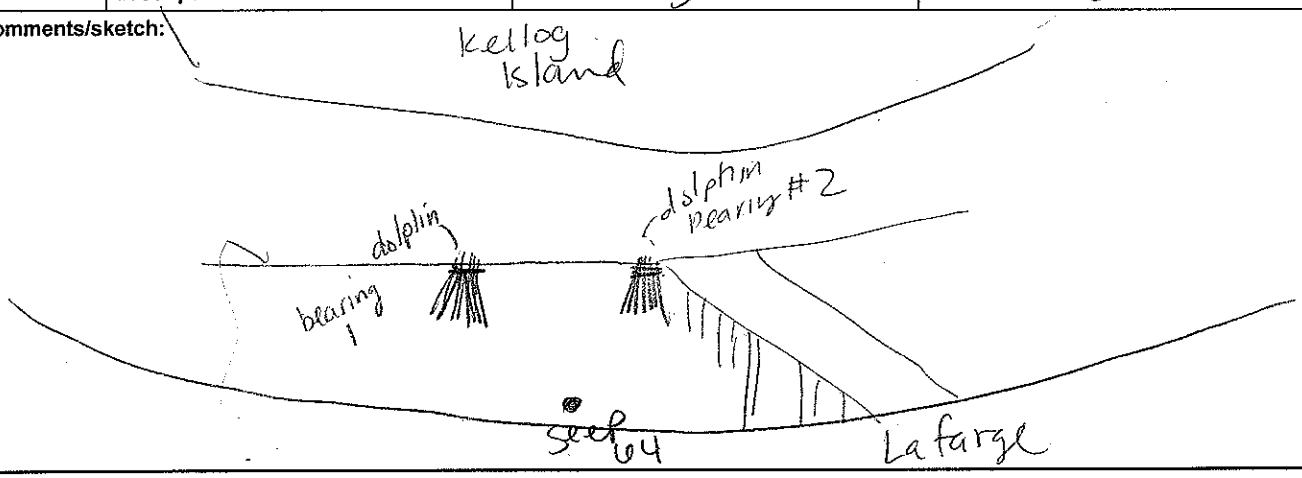
Location ID: LDW-SP-63		Time: 1226		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 19.847		Northing (y) 47 32.426	
Bearing 1:	Object description: wood dolphin	Distance: 9m		Compass direction	155°
Bearing 2:	Object description: wood dolphin	Distance: 8m		Compass direction	260°

Comments/sketch:



Location ID: LDW-SP-64		Time: 1237		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.757		Northing (y) 47 33.318	
Bearing 1:	Object description: Dolphin	Distance: 17m		Compass direction	340°
Bearing 2:	Object description: Dolphin	Distance: 30m		Compass direction	35°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-SeepSurvey **Project Task:** Seep Recon

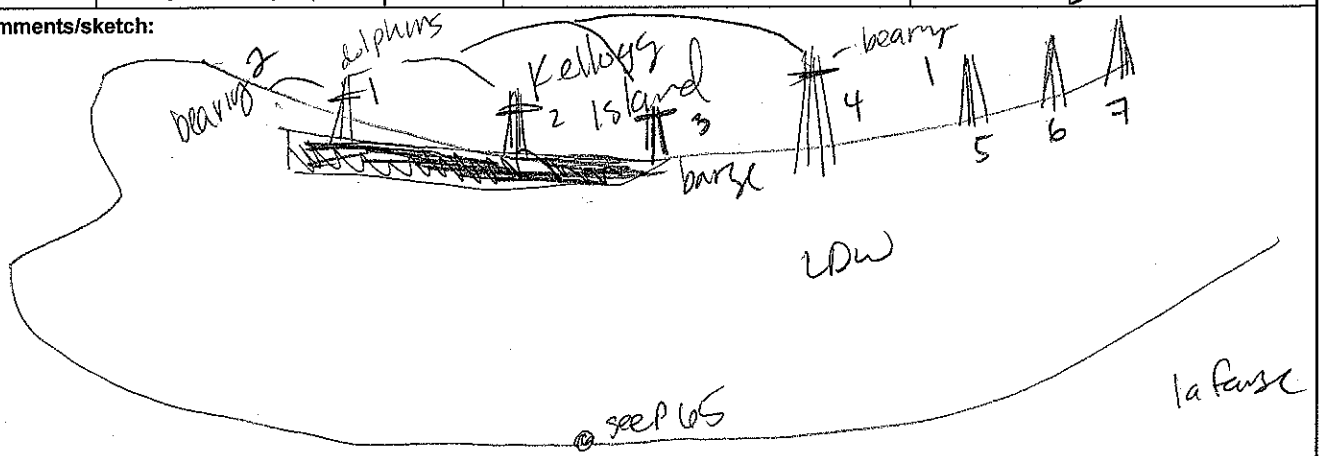
Date: 5/7/04 **Crew:** BB, JF, DH, KT & RT

Weather: overcast, light rain **Photo no.** NA

Name of person filling out form: Joanna Flores

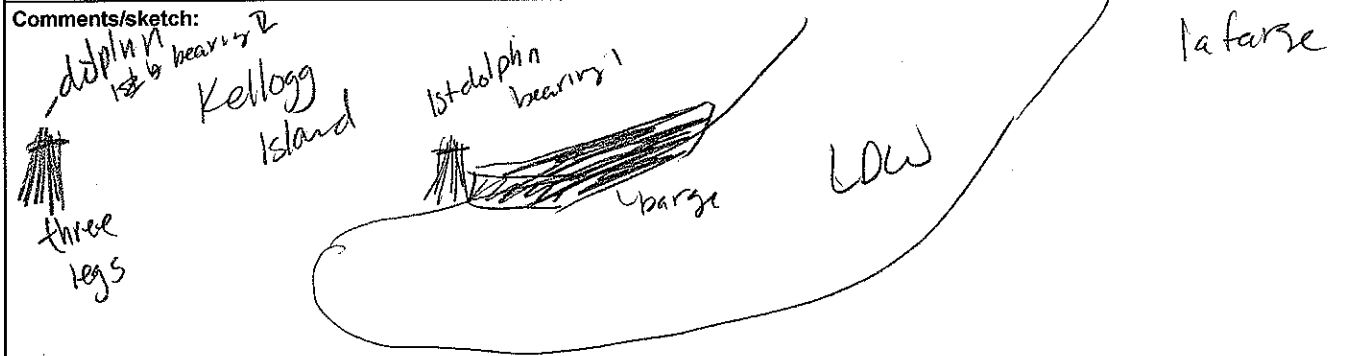
Location ID: LDW-SP-65		**Time:** 1250		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 20.803		**Northing (y)** 47 33.307	
Bearing 1:	**Object description:** 1st dolphin	**Distance:** 93m		**Compass direction**	335°
Bearing 2:	**Object description:** 4th dolphin	**Distance:** 160m		**Compass direction**	30°

Comments/sketch:



Location ID: LDW-SP-66		**Time:** 1256		**Photo #: See Form 5**	
GPS Coordinates:		**Easting (x):** 122 20.855		**Northing (y)** 47 33.326	
Bearing 1:	**Object description:** dolphin	**Distance:** 74m		**Compass direction**	25°
Bearing 2:	**Object description:** dolphin	**Distance:** 131m		**Compass direction**	320°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-Seep Survey Project Task: Seep Recon

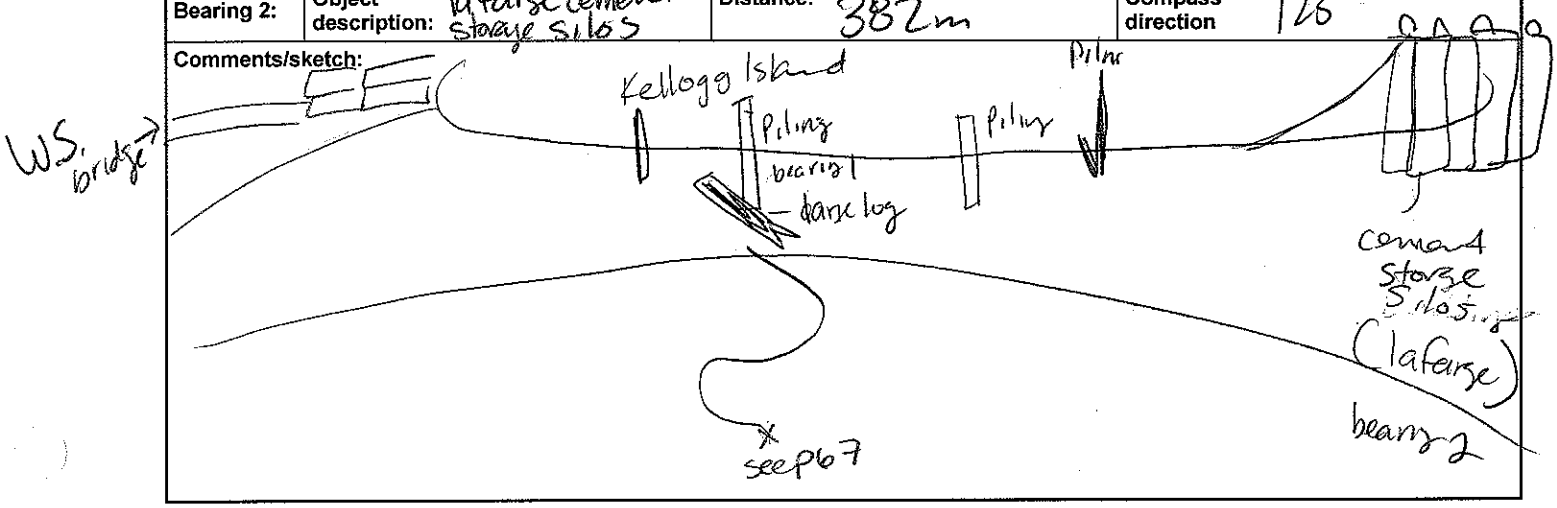
Date: 5/7/04 Crew: BB, JF, DH, KT, RT

Weather: overcast, light rain Photo no. VII

Name of person filling out form: Joanna Florer

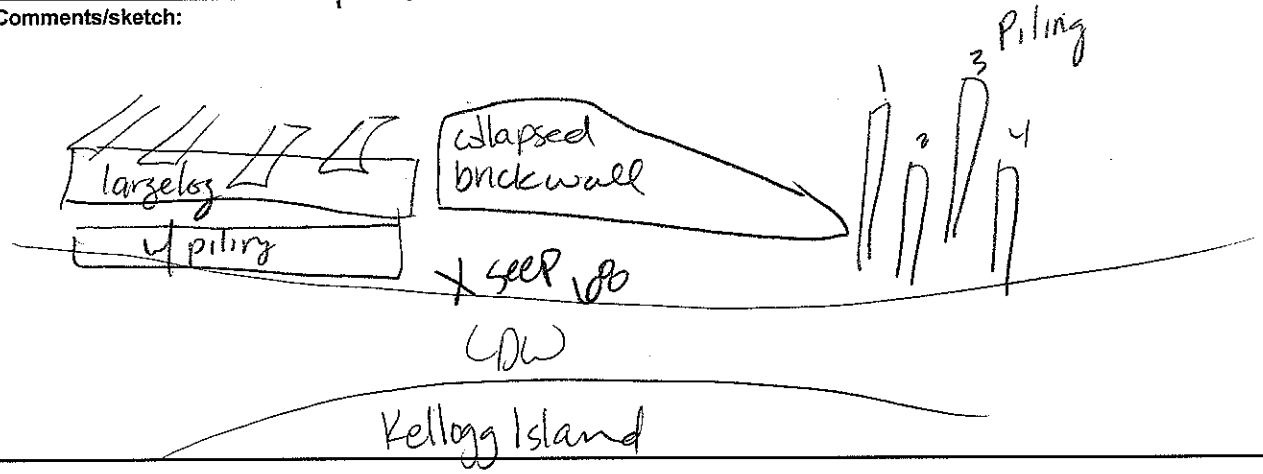
Location ID: LDW-SP-67		Time: 1309		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.982		Northing (y) 47 33.420	
Bearing 1:	Object description: Piling w/ large log in front	Distance: 59m		Compass direction 46°	
Bearing 2:	Object description: lafarge cement storage silos	Distance: 382m		Compass direction 126°	

Comments/sketch:



Location ID: LDW-SP-68		Time: 1319		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 21.014		Northing (y) 47 33.514	
Bearing 1:	Object description: large horizontal log	Distance: 12m		Compass direction 265°	
Bearing 2:	Object description: 1st piling	Distance: 10m		Compass direction 205°	

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-Seep Survey Project Task: Seep Recon

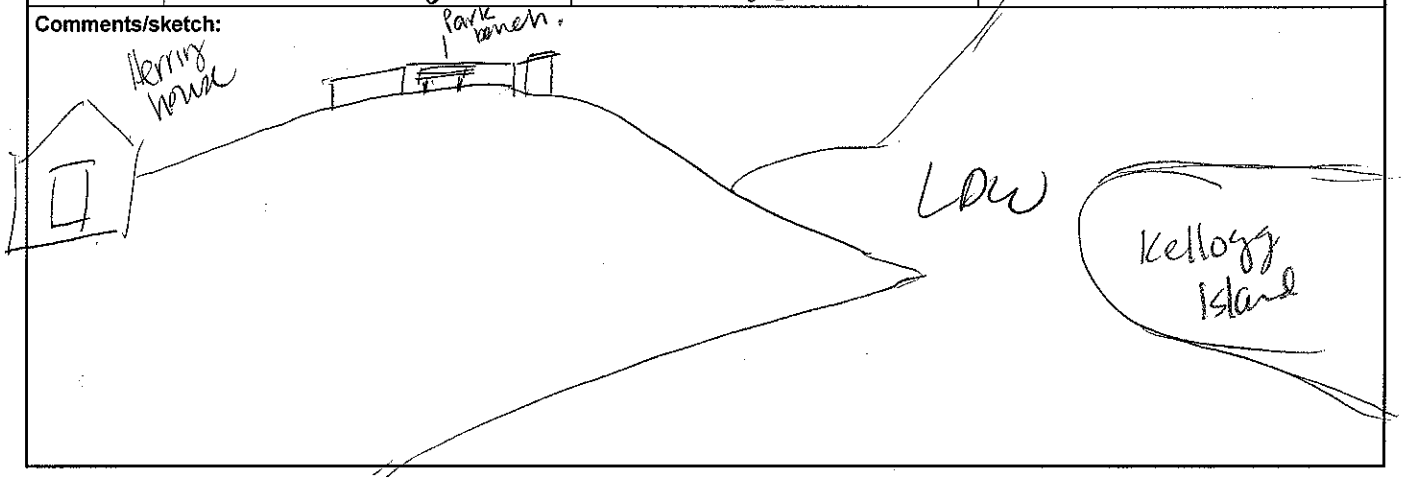
Date: 5/7/04 Crew: BB, JF, DH, KT, RT

Weather: Over cast light rain Photo no. NA

Name of person filling out form: Joanna Florer

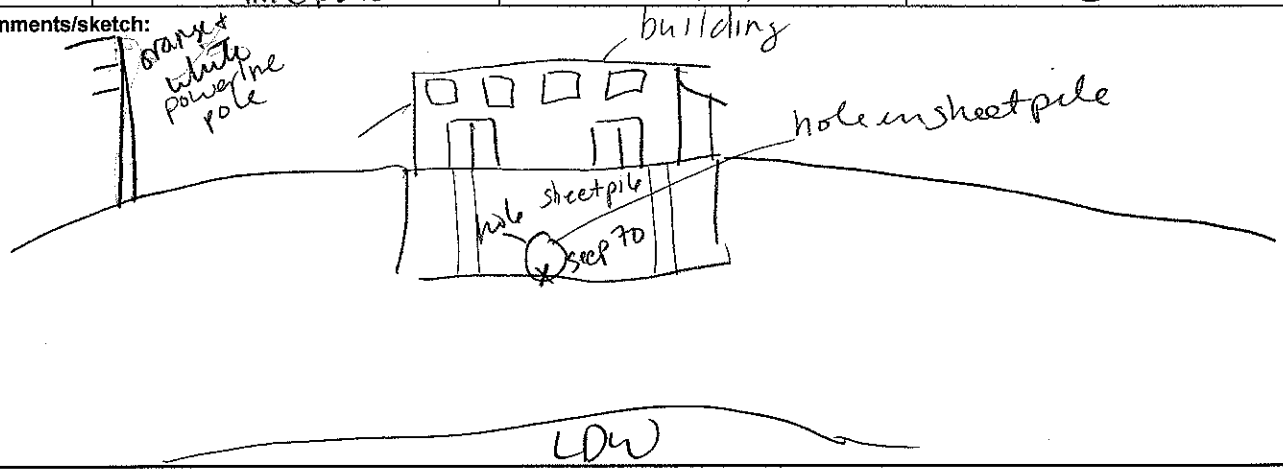
Location ID: LDW-SP-69		Time: 1330		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 21.002		Northing (y)	47 33.657
Bearing 1:	Object description: park bench	Distance:	26 m	Compass direction	300°
Bearing 2:	Object description: herring house	Distance:	65 m	Compass direction	260°

Comments/sketch:



Location ID: LDW-SP-70		Time: 1346		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.990		Northing (y)	47 33.945
Bearing 1:	Object description: building above seep - beige, metal	Distance:	7 m	Compass direction	230°
Bearing 2:	Object description: orange/white power line pole	Distance:	211 m	Compass direction	150°

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-Seep Survey Project Task: Seep Recon

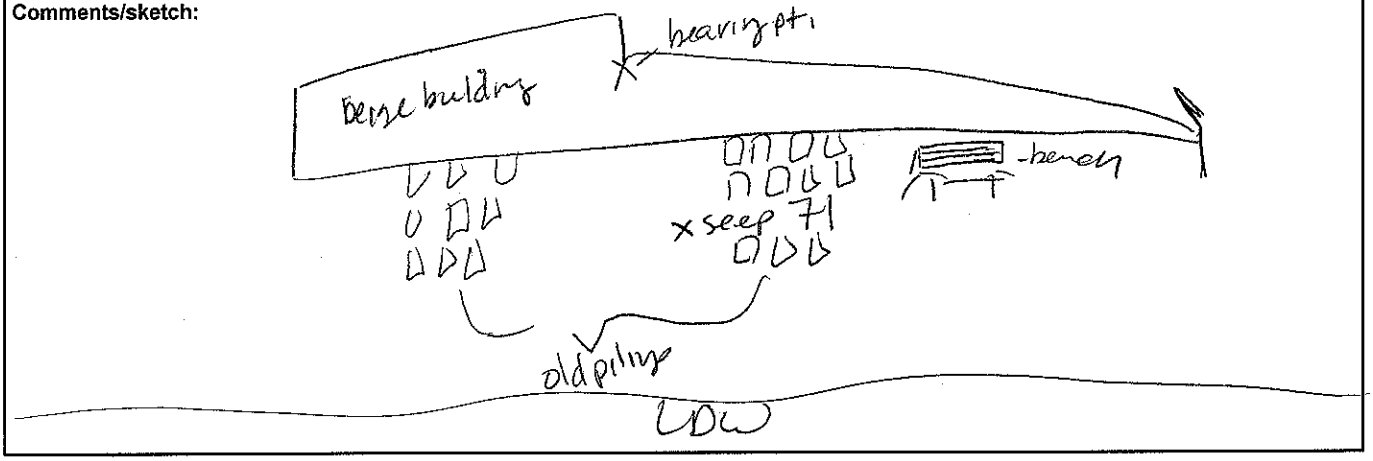
Date: 5/7/04 Crew: BB, JF, DH, KT, RT

Weather: overcast, light rain Photo no. NA

Name of person filling out form: Joanna Florer

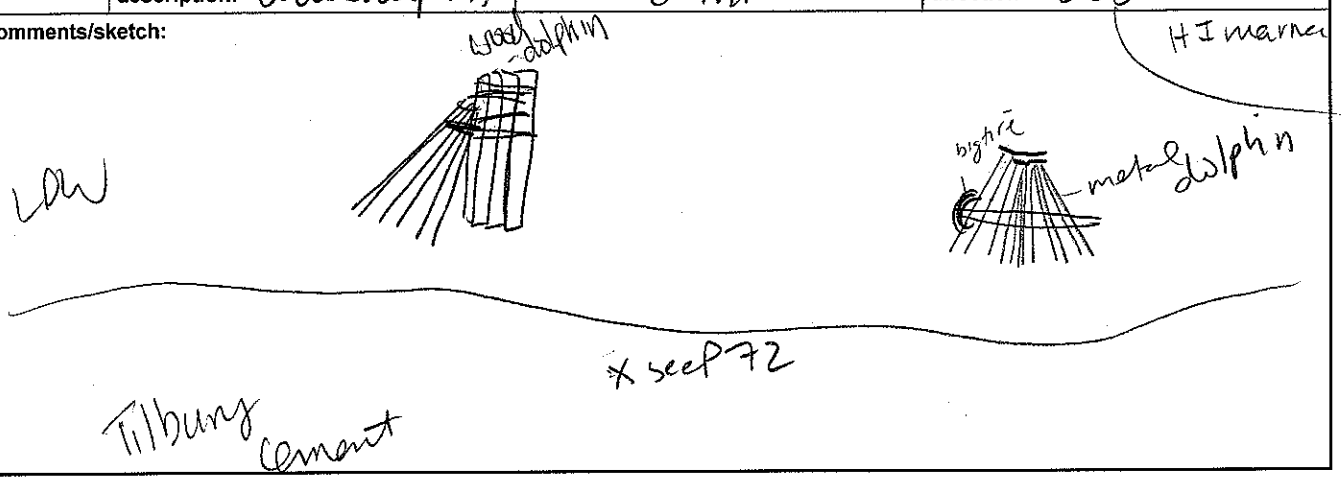
Location ID: LDW-SP-71		Time: 1354		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 21.016		Northing (y) 47 33.993	
Bearing 1:	Object description: large beige building	Distance: 35m		Compass direction	255°
Bearing 2:	Object description: bench	Distance: 38m		Compass direction	305°

Comments/sketch:



Location ID: LDW-SP-72		Time: 1411		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.743		Northing (y) 47 34.060	
Bearing 1:	Object description: metal dolphin	Distance: 22m		Compass direction	300
Bearing 2:	Object description: wood dolphin	Distance: 24m		Compass direction	205

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-Seep Survey Project Task: Seep Recon

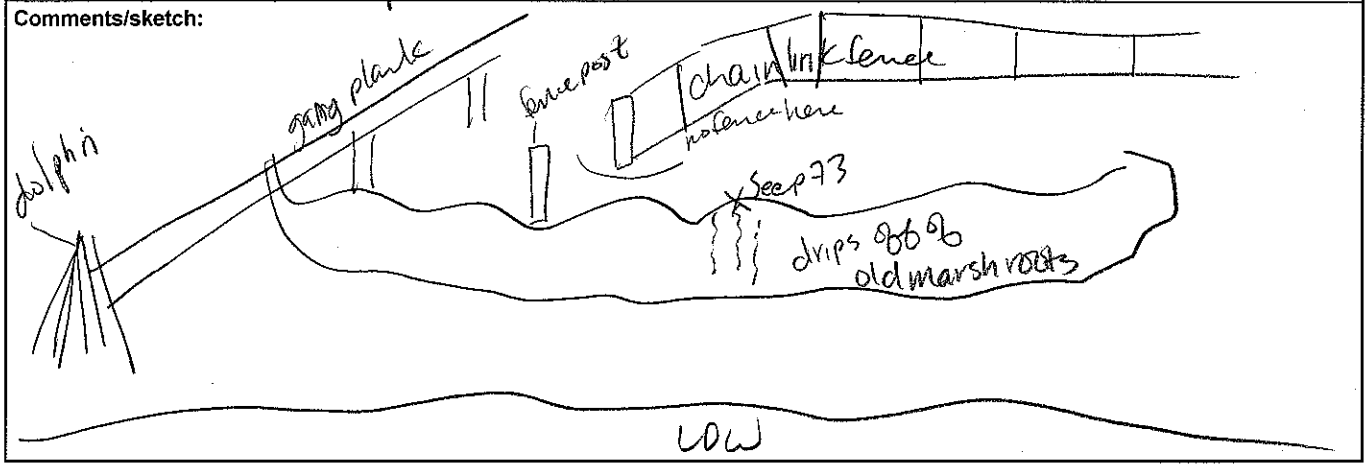
Date: 5/7/04 Crew: BB, JF, DH, KT, RT

Weather: overcast, light rain Photo no. NA

Name of person filling out form: Joanna Florer

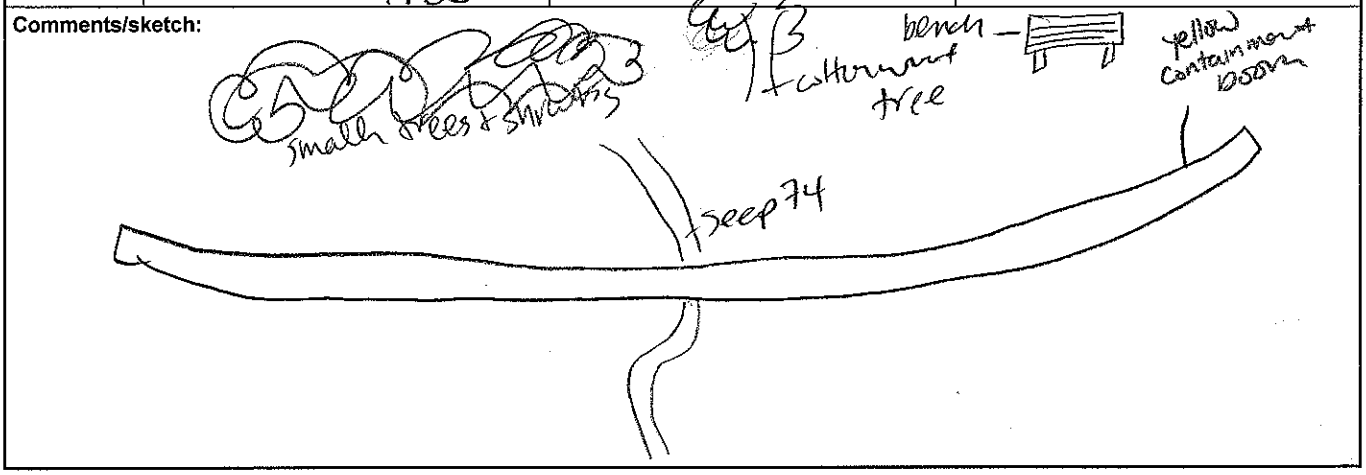
Location ID: LDW-SP-73		Time: 1430		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.693		Northing (y) 47 33.680	
Bearing 1:	Object description: dolphin at end of gangplank	Distance: 19m		Compass direction 280°	
Bearing 2:	Object description: fence post	Distance: 6m		Compass direction 25°	

Comments/sketch:



Location ID: LDW-SP-74		Time: 1436		Photo #: See Form 5	
GPS Coordinates:		Easting (x):		Northing (y)	
Bearing 1:	Object description: park bench	Distance: 26 m		Compass direction 135	
Bearing 2:	Object description: large cottonwood tree	Distance: 38m		Compass direction 80	

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-Seep Survey Project Task: Seep Recon

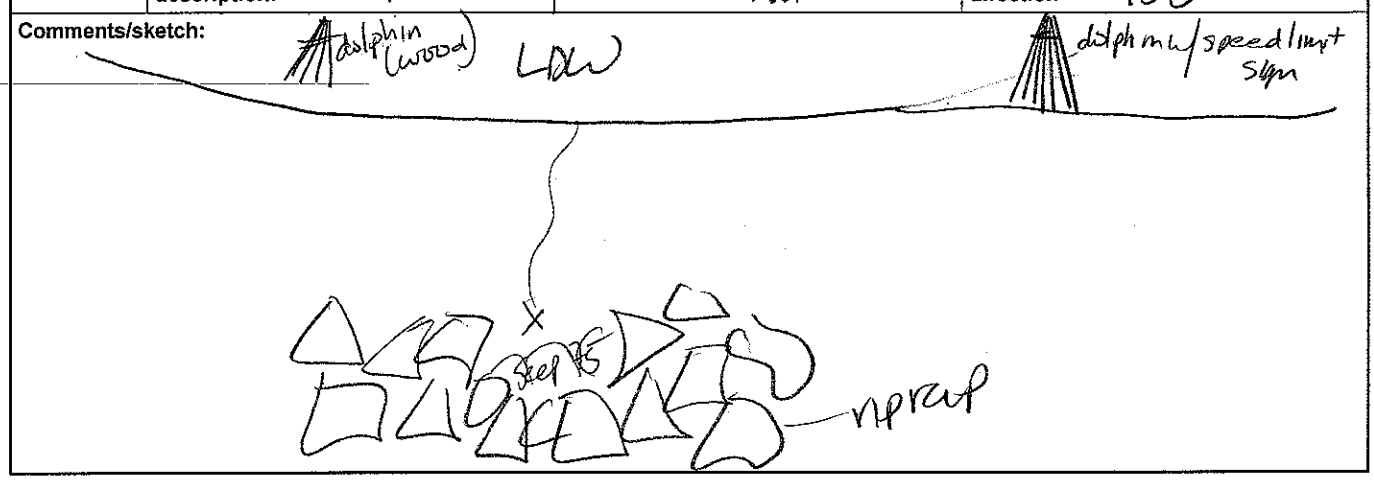
Date: 5/7/04 Crew: BB, JF, DH, KT, RT

Weather: overcast, light rain Photo no. NA

Name of person filling out form: Joanna Flower

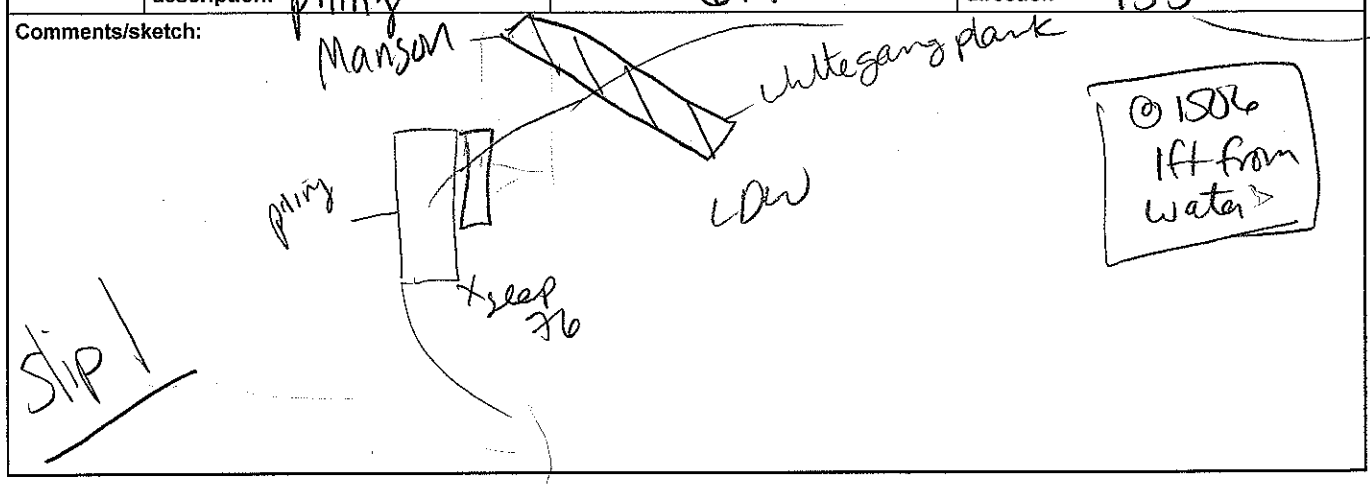
Location ID: LDW-SP-75		Time: 1446		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 1220.617		Northing (y)	4733.530
Bearing 1:	Object description: dolphin w/ sign	Distance: 98m		Compass direction	325°
Bearing 2:	Object description: 1st dolphin → S	Distance: 89m		Compass direction	155°

Comments/sketch:



Location ID: LDW-SP-76		Time: 1506		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 1220.391		Northing (y)	4733.370
Bearing 1:	Object description: white gangplank	Distance: 27m		Compass direction	210
Bearing 2:	Object description: piling	Distance: 6in		Compass direction	155

Comments/sketch:



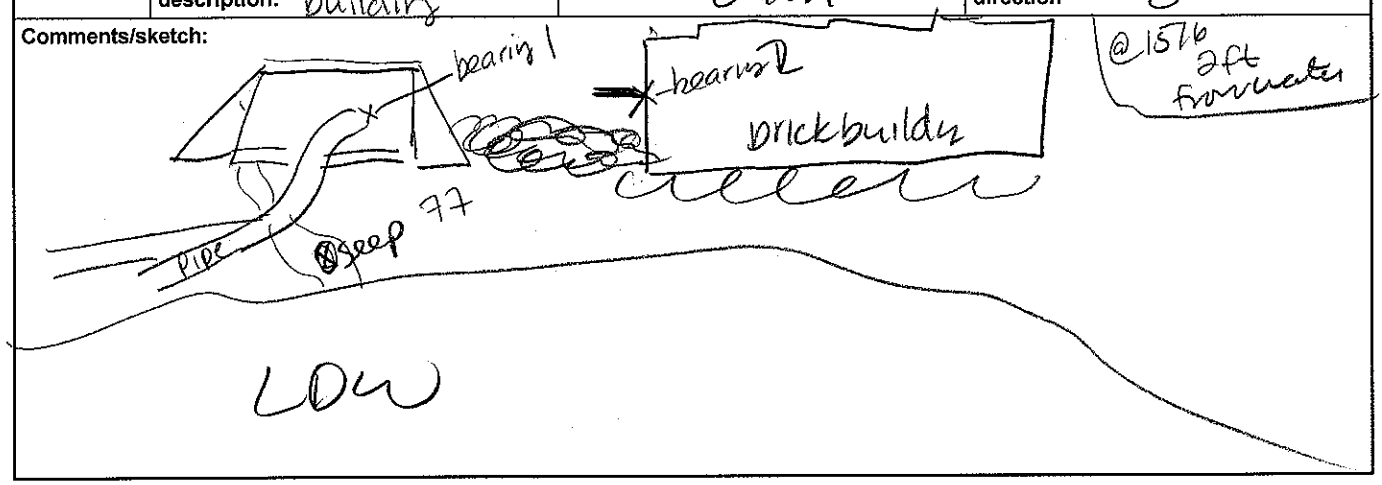
Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-Seep Survey
Project Task: Seep recon
Date: 5/7/04
Crew: BB, JF, DH, KT, RT
Weather: overcast, light rain
Photo no. NA
Name of person filling out form: Joanna Florer

Location ID: LDW-SP-77		Time: 1516		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.466		Northing (y) 47 33.282	
Bearing 1:	Object description: pipe outfall outfall	Distance: 13m		Compass direction	45°
Bearing 2:	Object description: grey brick building	Distance: 26m		Compass direction	80°

Comments/sketch:



Location ID: LDW-SP-78		Time: 1527		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 122 20.359		Northing (y) 47 33.008	
Bearing 1:	Object description: metal dolphin	Distance: 18		Compass direction	270
Bearing 2:	Object description: metal dolphin	Distance: 22		Compass direction	180

Comments/sketch:

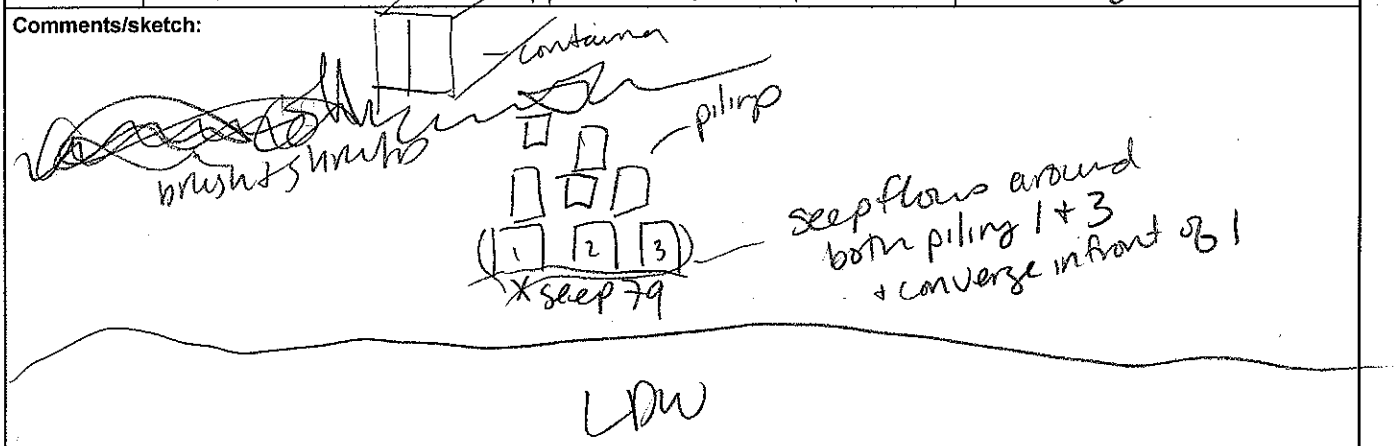
Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW - Seep Survey Project Task: Seep Recon
Date: 5/7/04 Crew: BB, JF, DH, KT, RT
Weather: overcast, light rain Photo no. NA
Name of person filling out form: Joanna Florer

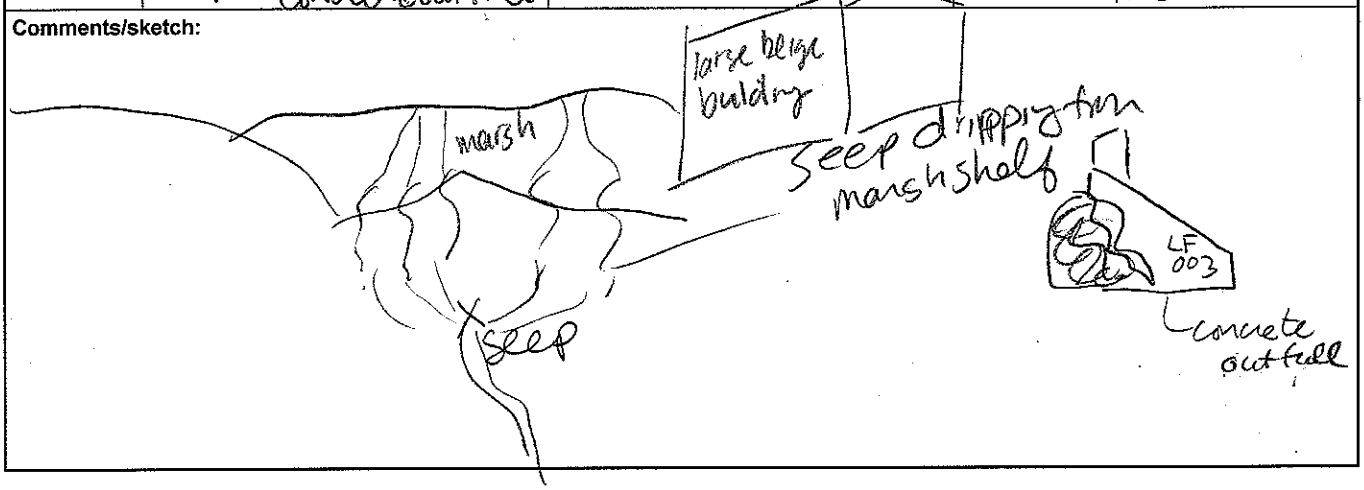
Location ID: LDW-SP-79		Time: 1538		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 1220.328		Northing (y) 47 32.974	
Bearing 1:	Object description: piling 3	Distance: 2in		Compass direction 105	
Bearing 2:	Object description: white container	Distance: 20m		Compass direction 20	

Comments/sketch:



Location ID: LDW-SP-80		Time: 1545		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 1220.291		Northing (y) 47 32.890	
Bearing 1:	Object description: beige building	Distance: 53m		Compass direction 325	
Bearing 2:	Object description: concrete outfall	Distance: 17m		Compass direction 125	

Comments/sketch:



Wind Ward environmental LLC

FORM 3. SEEP RECONNAISSANCE SURVEY FORM A

Project Name: LDW-Seep Survey Project Task: Seep Recon

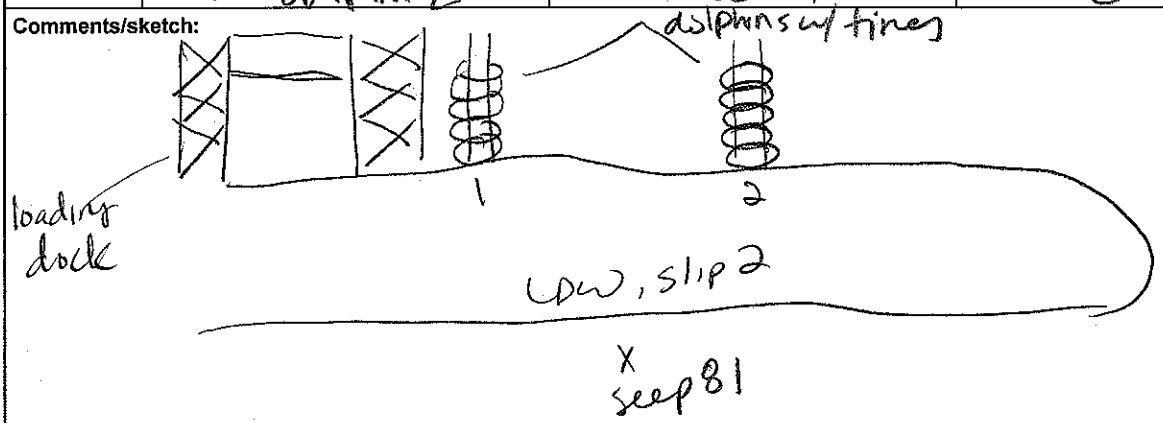
Date: 5/7/04 Crew: BB, JF, DH, KT, RT

Weather: clear Photo no. NA

Name of person filling out form: Joanna Florer

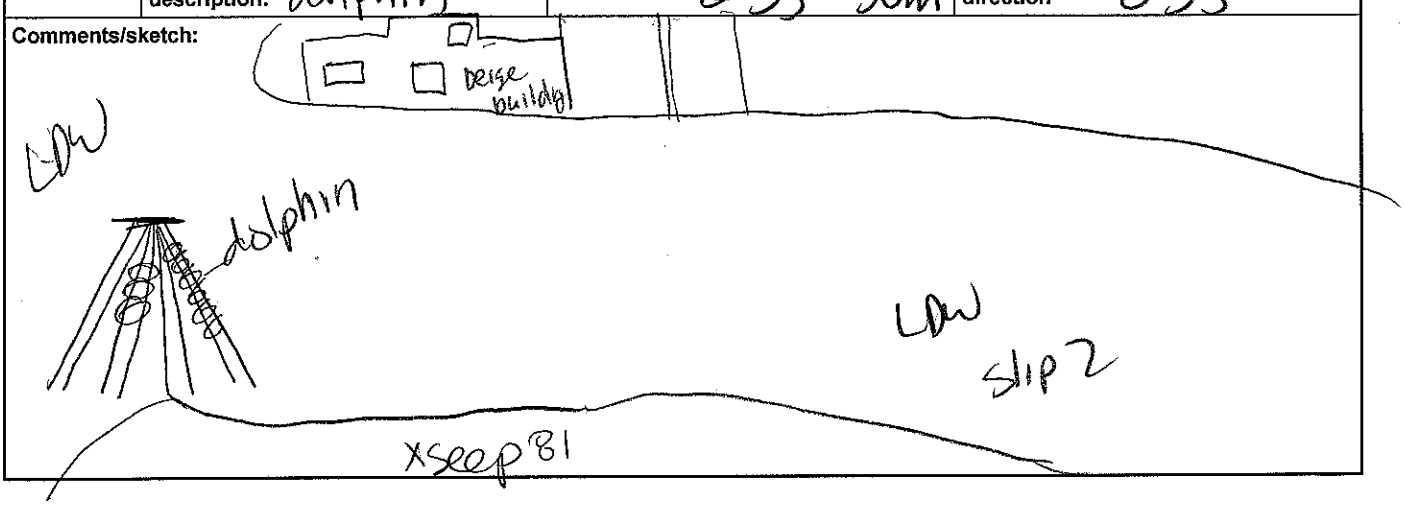
Location ID: LDW-SP-81		Time: 1552		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 1222 0, 108		Northing (y) 47 32, 816	
Bearing 1:	Object description: dolphin 1	Distance: 56m		Compass direction	275
Bearing 2:	Object description: dolphin 2	Distance: 55 m		Compass direction	285

Comments/sketch:



Location ID: LDW-SP-82		Time: 1601		Photo #: See Form 5	
GPS Coordinates:		Easting (x): 1222 0.155		Northing (y) 47 32.748	
Bearing 1:	Object description: beige building	Distance: ~~285~~ 10m		Compass direction	285
Bearing 2:	Object description: dolphin	Distance: ~~235~~ 30m		Compass direction	235

Comments/sketch:



D.2 Reconnaissance Survey Forms: Water Quality

(1)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI Seep Survey Project Task: Reconnaissance Survey

Date: 05-May-2004 Crew: RAC, Jane Sexton, Tim Fitzgerald, Eric Parker

Weather: cloudy w/ sun breaks Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 01	Easting (x):	Northing (y)	Time: 10:05

Qualitative description of flow rate: low

	Temp	SpC	DO	pH	ORP	~~Turbidity~~	Salinity
1	13.54	19783	5.40	7.23	199		15.5
2	13.18	19590	5.35	8.51	182		15.5
3							

Comments: 1+2
took samples approx. 1 ft down bank from stake

x/y coordinates for each seep provided in Boat 1 field sheets

Location ID: Seep 02	Easting (x):	Northing (y)	Time: 1048

Qualitative description of flow rate: low-med

	Temp	SpC	DO	pH	ORP	~~Turbidity~~	Salinity
1	12.34	26885	6.52	12?	298		22.3
2	12.13	26067	7.08	11?	296		21.7
3							

Comments:
Sample collected 6 ft southwest from stake 6ft

Location ID: Seep03	Easting (x):	Northing (y)	Time: 1110

Qualitative description of flow rate: med-high

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	12.48	12864	5.46	12.4?	155		10.0
2							
3							

Comments:
Sample collected 8ft northwest from stake 8ft

(2)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon Survey

Date: 05 MAY - 2004 Crew: ~~RMZ~~, Jane Sexton, Tim Fitzgerald, Eric Parker

Weather: Cloudy with sunbreaks Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep04	Easting (x): -	Northing (y) -	Time: 1117

Qualitative description of flow rate: med-high

	Temp	SpC mS/cm	DO	pH	ORP	Turbidity	Salinity
1	13.10	11.5	6.21	13.95 ?	202	1	8.7
2							
3							

Comments:
Took sample right at stake
XY coordinates for each seep provided in Boat 1 field Sheets

Location ID: Seep05	Easting (x): -	Northing (y) -	Time: 1138

Qualitative description of flow rate: med-high

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	12.47	13042	4.05	13 ?	235	1	10.1
2							
3							

Comments:
Took sample right at stake

Location ID: Seep06	Easting (x): -	Northing (y) -	Time: 1144

Qualitative description of flow rate: high

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	17.12	28386	7.80	8.82	216	1	21.0
2							
3							

Comments:
Took sample right at stake

(3)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-Seep Survey Project Task: Recon Survey

Date: 05-MAY-2004 Crew: RAL, JB, TF, EP

Weather: Cloudy with sun breaks Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep07	Easting (x):	Northing (y)	Time: 1150
Qualitative description of flow rate: high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 15.9	1 30869	1 6.80	1 10.6?	1 245	1	1 23.7
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected 10ft SW of stake; lots of footprints; selected location based on undisturbed water/area.

xy coordinates for each seep provided in boat 1 field sheets

Location ID: Seep08	Easting (x):	Northing (y)	Time: 1158
Qualitative description of flow rate: med-high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 17.3	1 11545	1 6.24	1 10?	1 107	1	1 7.8
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected 2ft above stake in seep

Location ID: Seep11	Easting (x):	Northing (y)	Time: 1207
Qualitative description of flow rate: high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 14.05	1 16665	1 7.00	1 11.9?	1 147	1	1 12.7
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

(9)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-Seep Survey Project Task: Recon Survey

Date: 05-May-2004 Crew: RAL, JS, TF, EP

Weather: Cloudy with sun breaks Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 12	Easting (x):	Northing (y)	Time: 1215
Qualitative description of flow rate: high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.22	1 31257	1 4.76	1 13.3 ?	1 250	1	1 26.5
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

xy coordinates for each seep provided in boat 1 field sheets

Location ID: Seep 9	Easting (x):	Northing (y)	Time: 1228
Qualitative description of flow rate: high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.43	1 13529	1 6.13	1 13.7 ?	1 234	1	1 10.3
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

Location ID: Seep 10	Easting (x):	Northing (y)	Time: 1236
Qualitative description of flow rate: high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 14.74	1 15040	1 7.80	1 —	1 93	1	1 11.1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected 15 ft N of stake in same main channel

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW- RI -Seep Survey Project Task: Recon Survey

Date: 05-MAY-2004 Crew: RAC, JS, TF, EP

Weather: Cloudy with sun breaks Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 13	Easting (x):	Northing (y)	Time: 1247
Qualitative description of flow rate: high			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	17.82	19535	6.14	11.4?	84		13.7
2							
3							

Comments:
Sample collected 20ft east of stake

xy coordinates for each seep provided in Boat 1 field sheets

Location ID: Seep 14	Easting (x):	Northing (y)	Time: 1256
Qualitative description of flow rate: high			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	15.69	20359	5.82	11.23?	80		15.1
2							
3							

Comments:
Sample collected 15ft east of stake

Location ID: Seep 15	Easting (x):	Northing (y)	Time: 1310
Qualitative description of flow rate: high			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	13.11	23776	4.15	—	166		19.1
2							
3							

Comments:
Sample collected at the stake

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-Seep Survey Project Task: Recon Survey

Date: 05-MAY-2004 Crew: RAC, JS, TF, EP

Weather: Cloudy with sunbreaks Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 25	Easting (x):	Northing (y)	Time: 1435
Qualitative description of flow rate: med			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 18.89	1 4647	1 6.43	1 11.4?	1 387	1	1 ~~34.7~~
2	2	2	2	2	2	2 2.0
3	3	3	3	3	3	3

Comments:

Sample taken at stake

XY coordinates for each seep provided in Boat 1 field sheets

Location ID:	Easting (x):	Northing (y)	Time:
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

JES 5/5/04

Location ID:	Easting (x):	Northing (y)	Time:
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon Survey

Date: 05-MAY-2004 Crew: RAC, JS, TF, EP

Weather: Cloudy with sun breaks Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 17	Easting (x):	Northing (y)	Time: 1325
Qualitative description of flow rate: med-high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.50	1 14678	1 3.6	1 —	1 160	1	1 11.2
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected about 3ft east of stake

XY coordinates for each seep provided in Boat Field Sheets

Location ID: Seep 18	Easting (x):	Northing (y)	Time: 1335
Qualitative description of flow rate: med-high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.18	1 19571	1 6.25	1 —	1 201	1	1 15.2
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
sample collected at stake; outfall with hinged flapper 20ft east of stake

Location ID: Seep 20	Easting (x):	Northing (y)	Time: 1345
Qualitative description of flow rate: med-low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 15.6	1 14680	1 5.53	1 13?	1 176	1	1 10.6
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

(7)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon Survey

Date: 05 - MAY - 2004 Crew: RAC, JS, TF, EP

Weather: Cloudy with sunbreaks Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 21	Easting (x):	Northing (y)	Time: 1355
Qualitative description of flow rate: high			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	13.6	22622	5.35	—	179		17.9
2							
3							

Comments:

Sample collected at stake

XY Coordinates for each Seep provided in Boat 1 field Sheets

Location ID: Seep 22	Easting (x):	Northing (y)	Time: 1405
Qualitative description of flow rate: med - low			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	14.4	13931	6.14	—	211		10.3
2							
3							

Comments:

Sample collected at stake

Location ID: Seep 24	Easting (x):	Northing (y)	Time: 1425
Qualitative description of flow rate: med - low			

	Temp	SpC ~~mS/cm~~	DO	pH	ORP	Turbidity	Salinity
1	16.04	209.2	7.31	12.7?	724		15.4
2							
3							

Comments:

Sample collected at stake

(1)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-Seep Survey Project Task: Recon Survey

Date: 06-MAY-2004 Crew: RAC, JS, EP, TF

Weather: Hazy with sun Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 26	Easting (x):	Northing (y)	Time: 1015
Qualitative description of flow rate: med			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.60	1 11612	1 3.80	1 6.84	1 194	1	1 8.7
2 13.65	2 11704	2 3.36	2 6.75	2 195	2	2 8.7
3	3	3	3	3	3	3

Comments:
Sample collected at stake

XY Coordinates for each Seep provided in Boat 1 field Sheets

Location ID: Seep 26 Surface	Easting (x): 122 18.266	Northing (y) 47 30.897	Time: 10:20
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 11.75	1 22780	1 3.08	1 7.14	1 197	1	1 18.9
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample measurements taken ≈ 50 ft off shore from stake in ≈ 6" of water (Surface Reading)

47 30.897 N
122.18.266 W

Location ID: Seep 26 1m depth	Easting (x): 122 18.266	Northing (y) 47 30.897	Time: 10:25
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 11.75	1 24860	1 3.13	1 7.06	1 196	1	1 20.8
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample measurements taken ≈ 50 ft off shore from stake in ≈ 1m of water (1m depth Reading)

(2)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon Survey

Date: 06-MAY-2004 Crew: RAC, JS, EP, TF

Weather: Hazy w/ Sun Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 23	Easting (x):	Northing (y)	Time: 1042

Qualitative description of flow rate: med

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.01	1 12118	1 2.51	1 6.71	1 199	1	1 9.2
2 12.97	2 12165	2 2.52	2 6.64	2 200	2	2 9.3
3	3	3	3	3	3	3

Comments:
Sample collected 3ft N of stake

XY coords for each seep provided in boat 1 field forms

Location ID: Seep 28	Easting (x):	Northing (y)	Time: 1051

Qualitative description of flow rate: med

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.67	1 20245	1 1.72	1 6.17	1 191	1	1 15.8
2 13.65	2 20348	2 1.78	2 6.14	2 188	2	2 15.9
3	3	3	3	3	3	3

Comments:
Sample collected at 3ft S of stake

Location ID: Seep 27	Easting (x):	Northing (y)	Time: 1108

Qualitative description of flow rate: med

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.75	1 20169	1 2.81	1 6.87	1 193	1	1 16.1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

(3)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon Survey

Date: 06-MAY-2004 Crew: RAC, JS, EP, TF

Weather: Hazy with sun Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 30	Easting (x):	Northing (y)	Time: 1116

Qualitative description of flow rate: med

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.44	1 27938	1 2.60	1 6.81	1 196	1	1 23.2
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

Sample collected at stake

XY Coords for each seep provided in Boat 1 field forms

Location ID: Seep 31	Easting (x):	Northing (y)	Time: 1121

Qualitative description of flow rate: med

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.40	1 30034	1 2.36	1 6.71	1 198	1	1 25.2
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

sample collected at stake

Location ID: Seep 29	Easting (x):	Northing (y)	Time: 1135

Qualitative description of flow rate: med high

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.70	1 25989	1 1.86	1 6.37	1 195	1	1 21.3
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

Sample collected at stake

(4)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW – RI – Seep Survey Project Task: Recon Survey

Date: 06-MAY-2004 Crew: RAZ, JS, EP, TF

Weather: Hazy with Sun Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 32	Easting (x):	Northing (y)	Time: 1147
Qualitative description of flow rate: high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 14.42	1 15482	1 2.60	1 6.94	1 196	1	1 11.6
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

Sample collected at stake

XY coords for each seep are provided in Boat 1 field forms

Location ID: Seep 33	Easting (x):	Northing (y)	Time: 1210
Qualitative description of flow rate: med-low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.28	1 30891	1 2.25	1 6.60	1 195	1	1 25.4
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

Sample collected at stake

Location ID: Seep 34	Easting (x):	Northing (y)	Time: 1217
Qualitative description of flow rate: high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 19.10	1 38010	1 2.55	1 7.34	1 182	1	1 ~~2.3276~~
2	2	2	2	2	2	2 2.3
3	3	3	3	3	3	3

Comments:

Sample collected 5 ft W of Stake

(5)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LOW-RI-Seep Survey Project Task: Recon Survey

Date: 06-MAY-2004 Crew: RAL, JB, EP, TF

Weather: Hazy with sun (windy) Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 35	Easting (x):	Northing (y)	Time: 12:30

Qualitative description of flow rate

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 16.07	1 10293	1 2.32	1 6.58	1 158	1	1 7.1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

XY Coordinates for each seep are provided in Boat 1 field forms.

Location ID: Seep 37	Easting (x):	Northing (y)	Time: 12:45

Qualitative description of flow rate high

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 15.69	1 20495	1 2.25	1 6.48	1 163	1	1 15.2
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

Location ID: Seep 36	Easting (x):	Northing (y)	Time: 1310

Qualitative description of flow rate med

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 15.90	1 21941	1 2.13	1 6.67	1 180	1	1 16.3
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

Sample collected from seep at toe of riprap; not from flow from outfall

(6)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon Survey

Date: 06-May-2004 Crew: RAZ, JS, EP, TF

Weather: Hazy with sun (windy) Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 38	Easting (x):	Northing (y)	Time: 1315

Qualitative description of flow rate: med - high

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	15.72	10865	2.61	7.22	183		7.6
2							
3							

Comments:
Sample collected at stake

XY Coordinates for each seep are provided in Boat / field forms.

Location ID: Seep 39	Easting (x):	Northing (y)	Time: 1323

Qualitative description of flow rate: high

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	15.67	8304	2.04	6.93	159		5.7
2							
3							

Comments:
Sample collected 15ft W of Stake

Location ID: Seep 40	Easting (x):	Northing (y)	Time: 1335

Qualitative description of flow rate: med

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	14.36	25030	1.83	5.75	188		19.6
2							
3							

Comments:
Sample collected at stake

(7)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-Seep Survey Project Task: Recon Survey

Date: 06-MAY-2004 Crew: RAC, JS, EP, JF

Weather: Hazy with sun (windy Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 41	Easting (x):	Northing (y)	Time: 1341

Qualitative description of flow rate: high

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	19.35	18553	1.86	6.68	89		12.5
2							
3							

Comments:

Sample collected at Stake

XY Coordinates for each seep are provided in Boat 1 field forms.

Location ID: Seep 42	Easting (x):	Northing (y)	Time: 1356

Qualitative description of flow rate: med-high

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	15.08	2341	2.82	7.32	131		22.0
2							
3							

Comments:

Sample collected at stake

Location ID: Seep 43	Easting (x):	Northing (y)	Time: 1408

Qualitative description of flow rate: high

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	15.93	14069	2.77	7.14	151		10.1
2							
3							

Comments:

Sample collected at stake

(8)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-Seep survey
Project Task: Recon survey
Date: 06-MAY-2004
Crew: RAC, JS, EP, TF
Weather: Hazy with sun (windy)
Photo no.
Name of person filling out form: Jane Sexton

Location ID: Seep 16	Easting (x):	Northing (y)	Time: 1420
Qualitative description of flow rate: med			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	15.35	122901	2.04	6.68	164		8.8
2							17.3
3							

Comments:
Sample collected at toe of rip rap; approx. 12 ft E of stake

XY Coordinates for each seep are provided in Boat 1 field forms.

Location ID: Seep 46	Easting (x):	Northing (y)	Time: 1436
Qualitative description of flow rate: med-high			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	13.38	24435	2.68	7.11	174		19.6
2							
3							

Comments:
Sample collected at the stake

Location ID: Seep 47	Easting (x):	Northing (y)	Time: 1446
Qualitative description of flow rate: med-high			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	12.36	24545	2.41	6.73	181		20.2
2							
3							

Comments:
Sample collected at stake at toe of rip rap

8746 (9)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep survey Project Task: Recon survey

Date: 06-MAY-2004 Crew: RAC, JS, EP, TF

Weather: Cloudy & windy Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 48	Easting (x):	Northing (y)	Time: 1452
Qualitative description of flow rate: high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.93	1 20529	1 2.88	1 7.92	1 181	1	1 16.0
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected approx 12 Ft NW of stake

XY Coordinates for each seep are provided in Boat 1 field forms.

Location ID: Seep 49	Easting (x):	Northing (y)	Time: 1459
Qualitative description of flow rate: med			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.95	1 15825	1 2.28	1 6.50	1 187	1	1 12.3
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at the stake

Location ID: Seep 51	Easting (x):	Northing (y)	Time: 1508
Qualitative description of flow rate: med-low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 17.74	1 34580	1 2.52	1 7.71	1 187	1	1 25.7
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected approx. 8 Ft S of stake

(10)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI - Seep Survey Project Task: Recon survey

Date: 06-MAY-2004 Crew:

Weather: Cloudy + windy Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 56	Easting (x):	Northing (y)	Time: 1550
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.97	1 11991	1 2.27	1 6.22	1 197	1	1 8.9
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

XY Coordinates for each Seep are provided in Boat Field forms

Location ID: Seep 56 surface	Easting (x):	Northing (y)	Time: 1600
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.79	1 12315	1 2.82	1 6.80	1 185	1	1 9.2
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

~6" of water (surface reading)

Same as coordinates for Seep 56; immediately adjacent to Seep 56

Location ID: Seep 56 (1m)	Easting (x):	Northing (y)	Time: 1610
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.56	1 17210	1 2.94	1 6.87	1 184	1	1 13.6
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

@ 1m of water (sub surface reading)

Same coord for Seep 56; immediately adjacent to Seep 56

(1)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Seep Recon

Date: 07-MAY-2004 Crew: RAC, JS, TF, EP

Weather: Cloudy, rain Photo no.

Name of person filling out form: Jana Sexton

Location ID: Seep 55	Easting (x):	Northing (y)	Time: 1100
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.11	1 8190	1 2.96	1 7.00	1 204	1	1 6.0
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

sample collected at stake

XY Coordinates for all stations provided in Boat / field forms.

Location ID: Seep 54	Easting (x):	Northing (y)	Time: 1112
Qualitative description of flow rate low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.83	1 9814	1 2.18	1 6.72	1 138	1	1 7.4
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

Sample collected at stake

Location ID: Seep 53	Easting (x):	Northing (y)	Time: 1120
Qualitative description of flow rate low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.63	1 ~~8494~~	1 1.90	1 6.95	1 34	1	1 16.5
2	2 20494	2	2	2	2	2
3	3	3	3	3	3	3

Comments:

Sample collected stake.

(2)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey
Project Task: Recon Survey
Date: 07 - MAY - 2004
Crew: RAC, JS, TF, EP
Weather: Cloudy, rain
Photo no.
Name of person filling out form: Jane Sexton

Location ID: Seep 52	Easting (x):	Northing (y)	Time: 1130
Qualitative description of flow rate: low			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	12.99	15026	2.15	7.28	60		11.6
2							
3							

Comments:
Sample collected at stake

XY Coordinates for all stations provided in Boat Field forms.

Location ID: Seep 50	Easting (x):	Northing (y)	Time: 1154
Qualitative description of flow rate: med			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	11.86	37642	2.50	5.91	190		32.8
2							
3							

Comments:
Sample collected at stake

Location ID: Seep 45	Easting (x):	Northing (y)	Time: 1203
Qualitative description of flow rate: low			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	12.14	26629	2.16	6.25	194		22.2
2							
3							

Comments:
sample collected at stake

(3)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-SeepSurvey Project Task: Recon survey

Date: 07-MAY-2004 Crew: RAZ, JB, TF, EP

Weather: Cloudy, rain Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 44	Easting (x):	Northing (y)	Time: 1210
Qualitative description of flow rate: med-high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 11.42	1 32595	1 2.38	1 6.11	1 200	1	1 28.3
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

XY Coordinates for all stations provided in Boat 1 field forms.

Location ID: Seep 19	Easting (x):	Northing (y)	Time: 1217
Qualitative description of flow rate: med			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.02	1 25845	1 2.57	1 6.55	1 193	1	1 21.6
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

Location ID: Seep 19 (6 inches)	Easting (x):	Northing (y)	Time: 1220
Qualitative description of flow rate:			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 11.89	1 3265	1 3.06	1 6.85	1 191	1	1 2.3 or
2	2	2	2	2	2	2 28
3	3	3	3	3	3	3

Comments:
Water quality measurements collected approx 6 inches deep below surface
30-35 ft from shore
47° 31.603 N 122° 18.549 W

(4)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-Seep survey Project Task: Recon survey

Date: 07-May-2004 Crew: RAC, JS, TF, EP

Weather: Cloudy, rain Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 19 (1m)	Easting (x):	Northing (y)	Time: 1225
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 11.90	1 3585	1 3.02	1 6.91	1 187	1	1 2.6 or
2	2	2	2	2	2	2 31.1
3	3	3	3	3	3	3

Comments:
Water quality measurements collected approx 1 m below surface 30-35 ft from shore (same location as 6" sample collection)

47° 31.603 N 122° 18.549 W

Location ID: Seep 57	Easting (x):	Northing (y)	Time: 1240
Qualitative description of flow rate high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.35	1 21980	1 2.77	1 6.62	1 208	1	1 17.9
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

XY Coordinates for all stations provided in Boat 1 field forms.

Location ID: Seep 58	Easting (x):	Northing (y)	Time: 1300
Qualitative description of flow rate med-low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 14.16	1 20212	1 2.56	1 6.36	1 205	1	1 15.6
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

(5)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon survey

Date: 07 - May - 2004 Crew: RAC, JS, TF, EP

Weather: Cloudy, rain Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 59	Easting (x):	Northing (y)	Time: 1310
Qualitative description of flow rate: med-low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.26	1 27189	1 2.68	1 6.74	1 212	1	1 22.1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Collected at stake

XY Coordinates for all stations provided in Boat / Field forms.

Location ID: Seep 60	Easting (x):	Northing (y)	Time: 1317
Qualitative description of flow rate: med-low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.56	1 26565	1 1.93	1 6.24	1 193	1	1 21.9
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected 15 ft SE of stake

Location ID: Seep 63	Easting (x):	Northing (y)	Time: 1325
Qualitative description of flow rate: med			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 11.76	1 27196	1 1.59	1 6.37	1 203	1	1 23.0
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

(6)

Wind/Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep survey Project Task: Recon survey

Date: 07 - May - 2004 Crew: RAC, JS, TF, EP

Weather: Cloudy, rain Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 62	Easting (x):	Northing (y)	Time: 1344
Qualitative description of flow rate: low			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	12.87	15394	2.39	6.95	212		12.0
2							
3							

Comments:
Sample collected at stake

XY coordinates for all stations provided in Boat 1 field forms

Location ID: Seep 62 (6")	Easting (x):	Northing (y)	Time: 1350
Qualitative description of flow rate			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity 12.4
1	12.87	15892	2.99	6.84	208		
2							
3							

Comments:
45 yds from shore
Water quality measurements collected approx 6" below surface
47° 32.940 N 122° 20.472 W

Location ID: Seep 62 (1m)	Easting (x):	Northing (y)	Time: 1355
Qualitative description of flow rate			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity 13.7
1	11.89	16997	2.97	6.95	210		
2							
3							

Comments:
45 yds from shore (same location as 6" sample collection)
Water quality measurements collected approx 1 m below surface
47° 32.940 N 122° 20.472 W

(7)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon Survey

Date: 07 - May - 2004 Crew: RAZ, JS, TF, EP

Weather: Cloudy, rainy Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 61	Easting (x):	Northing (y)	Time: 1400
Qualitative description of flow rate: med - high			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.02	1 11390	1 1.35	1 6.92	1 96	1	1 8.6
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake
Very heavy on suspended sediments, H_2S odor

XY Coordinates for all stations provided in Boat 1 field forms

Location ID: Seep 64	Easting (x):	Northing (y)	Time: 1407
Qualitative description of flow rate			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.17	1 18395	1 1.67	1 6.49	1 154	1	1 14.8
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

Location ID: Seep 65	Easting (x):	Northing (y)	Time: 1420
Qualitative description of flow rate: low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 11.98	1 26485	1 2.65	1 6.69	1 163	1	1 22.2
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

(8)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon survey

Date: 07 - May - 2004 Crew: RAL, JS, TF, EP

Weather: Cloudy, rainy Photo no.

Name of person filling out form: Jime Sexton

Location ID: Seep 66	Easting (x):	Northing (y)	Time: 1428

Qualitative description of flow rate: med-high

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.76	1 16189	1 2.50	1 6.79	1 172	1	1 12.7
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

xy Coordinates provided for all stations in Boat / Field forms.

Location ID: Seep 67	Easting (x):	Northing (y)	Time: 1441

Qualitative description of flow rate: very high

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.05	1 24148	1 2.80	1 6.93	1 178	1	1 20.0
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

Location ID: Seep 68	Easting (x):	Northing (y)	Time: 1451

Qualitative description of flow rate: med-low

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 17.15	1 21029	1 3.78	1 8.34 ?	1 174	1	1 15.1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
sample collected at stake

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep survey Project Task: Recon survey

Date: 07-May-2004 Crew: RAL, JS, TF, EP

Weather: Cloudy, Rainy Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 69	Easting (x):	Northing (y)	Time: 1500
Qualitative description of flow rate: med-low			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	17.13	26850	3.41	8.29 ?	176		19.7
2							
3							

Comments:
Sample collected at stake

XY Coordinates for all stations provided in Boat 1 Field forms.

Location ID: Seep 70	Easting (x):	Northing (y)	Time: 1512
Qualitative description of flow rate: med-high			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	12.26	30654	2.85	6.73	186		25.9
2							
3							

Comments:
Sample collected at stake

Location ID: Seep 71	Easting (x):	Northing (y)	Time: 1518
Qualitative description of flow rate: med-low			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	13.75	21033	2.71	6.75	187		16.5
2							
3							

Comments:
Sample collected at stake

(2)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: UW-SeepSurvey Project Task: Seep Recon

Date: 5/16/04 Crew: JMF & LAL

Weather: light rain, overcast Photo no.

Name of person filling out form: Joanna Flores

Location ID: UW-SP-72	Easting (x):	Northing (y)	Time: 1610

Qualitative description of flow rate: med

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.59	1 26604	1 3.01	1 7.36	1 164	1	1 21.9
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments: sample taken below stake

Location ID:	Easting (x):	Northing (y)	Time:

Qualitative description of flow rate

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments: Not used

Location ID:	Easting (x):	Northing (y)	Time:

Qualitative description of flow rate

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments: Not used

(10)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon survey

Date: 07 - MAY - 2004 Crew: RAC, JS, TF, EP

Weather: Cloudy, rainy Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 73(6")	Easting (x):	Northing (y)	Time: 1525

Qualitative description of flow rate

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.30	1 19259	1 3.33	1 7.17	1 189	1	1 15.5
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Water quality measurements collected approx. 6" below surface
23 yds from shore

47° 33.677 N 122° 20.708 W

Location ID: Seep 73(1m)	Easting (x):	Northing (y)	Time: 1530

Qualitative description of flow rate

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.11	1 20150	1 3.27	1 7.21	1 190	1	1 16.4
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Water quality measurements collected approx 1m below surface
23 yds from shore (same location as 6" sample collection)

47° 33.677 N 122° 20.708 W

Location ID: Seep 73	Easting (x):	Northing (y)	Time: 1535

Qualitative description of flow rate med - low

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 19.09	1 19333	1 3.14	1 8.73	1 184	1	1 13.1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

XY Coordinates provided for all stations in Boat 1 field forms.

(11)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-Seep survey Project Task: Recon survey

Date: 07-MAY-2004 Crew: RAZ, JS, TF, EP

Weather: Cloudy, rainy Photo no.

Name of person filling out form: Jane Saxton

Location ID: Seep 74	Easting (x):	Northing (y)	Time: 1540
Qualitative description of flow rate: med			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 21.42	1 17455	1 2.95	1 7.76	1 183	1	1 11.1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

XY coordinates for all stations provided in Boat / field forms.

Location ID: Seep 76	Easting (x):	Northing (y)	Time: 1600
Qualitative description of flow rate: low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.71	1 16134	1 2.01	1 6.10	1 174	1	1 12.3
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

Location ID: Seep 79	Easting (x):	Northing (y)	Time: 1620
Qualitative description of flow rate: med			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.41	1 21768	1 1.54	1 6.14	1 44	1	1 17.2
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected 10ft SE of stake

(12)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW - RI - Seep Survey Project Task: Recon survey

Date: 07-MAY-2004 Crew: RAL, JS, TF, EP

Weather: Cloudy, rainy Photo no.

Name of person filling out form: Jane Sexton

Location ID: Seep 80	Easting (x):	Northing (y)	Time: 1627

Qualitative description of flow rate: med

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 14.93	1 13411	1 2.96	1 6.76	1 86	1	1 9.8
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

XY Cordinates for each station are provided in Boat 1 field forms.

Location ID: Seep 81	Easting (x):	Northing (y)	Time: 1634

Qualitative description of flow rate: med

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.68	1 21460	1 2.79	1 6.65	1 114	1	1 17.3
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
sample collected at stake

Location ID: Seep 82	Easting (x):	Northing (y)	Time: 1640

Qualitative description of flow rate: med-high

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 13.27	1 14477	1 2.90	1 6.76	1 124	1	1 11.1
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments:
Sample collected at stake

(1)

Wind Ward environmental LLC

FORM 4. SEEP RECONNAISSANCE SURVEY FORM B

Project Name: LDW-RI-Seep Survey
Project Task: Recon Survey
Date: 10-MAY-2004
Crew: RAC, JMF
Weather: Rainy, Windy
Photo no.
Name of person filling out form: Joanna Flores

Location ID: LDW-SP-78	Easting (x):	Northing (y)	Time: 1515
Qualitative description of flow rate: med			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.20	1 25910	1 2.75	1 6.46	1 123	1	1 21.5
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments: sample taken at stake - no photo; retrieve still from video footage

Location ID: LDW-SP-77	Easting (x):	Northing (y)	Time: 1530
Qualitative description of flow rate: med			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 11.76	1 27727	1 2.23	1 6.14	1 133	1	1 23.5
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments: sample taken above stake - no photo, retrieve still from video footage

Location ID: LDW-SP-75	Easting (x):	Northing (y)	Time: 1545
Qualitative description of flow rate: med-low			

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 12.64	1 14946	1 1.74	1 6.52	1 140	1	1 11.7
2	2	2	2	2	2	2
3	3	3	3	3	3	3

Comments: Sample taken at stake - no photo, retrieve photo from video footage

D.3 Reconnaissance Survey Forms: Seep Observations

(1)

Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Sceps Dunwoody **Project Task:** _____

Date: 5/5/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 01	**Photo number:** 8
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	Gravel (GP) dk. gry. Brn, 95% gravel Fill, w/ Rip Rap + debris steel 5% muck (silt + clay organic), loose, wet, no odor.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	NO sheen, light brown oily, no odor trace sediment.
Description of embankment that seep flows from and general seep characteristics:	Steep, Rip Rap w/ rounded gravel, Construction debris to 20'F, Iron, wood, brick, pavement
Seep location relative to vertical changes in embankment or beach substrate:	Mid bank ~ 10' below vegetation, angle/Corner bank near dock.

Seep number: 02	**Photo number:** 9
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM GP) silty sand with gravel, dk gry to brown, 60% Fine to medium sand, 25% rounded gravel to 2-inches, 15% silty (muck), loose, wet. overlain w/ Rip Rap (Concrete) w/ construction debris, cable + pipe
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	NO odor, no sheen, slime and vegetation cover surface water clear to trans lucent yellow brn. sediment trace,
Description of embankment that seep flows from and general seep characteristics:	(below parking area) low bank seep ~ 15' (est) below high water straight bank behind barge.
Seep location relative to vertical changes in embankment or beach substrate:	broad linear seep line along toe of rip rap - low low water contact w/ Rip Rap (base of bank) / toe

Seep number:	**Photo number:**
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

(2)

Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Scrap Survey **Project Task:** _____

Date: 5/5/04 **Name of person filling out form:** Tim Fitzgerald (for POS)

Seep number: 03	**Photo number:** 10
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML-SM) Silt w/sand and gravel, dk. gray to rust brown, 50% Fine silt, clay, organic (Muck), w/20% sand, 30% rounded gravel, very loose, wet, (base of Rip Rap)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no sheen, no odor, clear to translucent trace fine sediment, rust precipitate surfaces at seep.
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap w/ metal debris (collapsed boat ramp?) Broad seep area at toe/base of Rip Rap
Seep location relative to vertical changes in embankment or beach substrate:	Toe of Rip Rap. about 15' from high water line/fence line - broad seep area ~10' small seeps

Seep number: 04	**Photo number:** 11
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) Silt, dk. brownish gray, 95% silt w/ blk organics Fine, very soft, wet, below steep concrete blocks to 10' feet. Trace fine sand.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Clear to trace gray sediment, no odor no sheen, slimy surfaces.
Description of embankment that seep flows from and general seep characteristics:	below dock/pilings, steep bank of g. Concrete blocks, very mucky area underlain by "block".
Seep location relative to vertical changes in embankment or beach substrate:	~Mid bank below concrete blocks, (North of scrap yard)

Seep number: 05	**Photo number:** 12
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) gravel and Rip Rap, with sand and silty muck, 90% rounded gravel w/crushed concrete to 10-inches, sand 10%, trace silt muck on surface, medium dense, wet,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor no sheen no color trace sediment, slime on surface rock,
Description of embankment that seep flows from and general seep characteristics:	steep bank, South of metal scrap yard/crane.
Seep location relative to vertical changes in embankment or beach substrate:	mid/low bank, within Rip Rap zone,

(3)

Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep Survey Duwamish **Project Task:** _____

Date: 05/05/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 06	**Photo number:** 13
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) Silt dk grayish brown, 95% Fine silt, clay, organic, Trace sand gravel, soft, wet,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor, no sheen, clear to trace fine gray sediment. Slime on surface area of seep, barnacles on piling, seep in 4-inch channel, meander over broad beach (~50')
Description of embankment that seep flows from and general seep characteristics:	Flat alluvial beach/bar, sand and fine silt, seep near former piling/stub.
Seep location relative to vertical changes in embankment or beach substrate:	Channelized across broad beach.

Seep number: 07	**Photo number:** 14 dk brownish gray w/some rust brown gravel.
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SP/ML) silty sand with gravel. 80% coarse to fine sand, 15% silty, 5% gravel to 2-inches, medium dense, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	~ about from channel about 20' across beach from stake, silty mucks over beach sand w/ gravel / Rip Rap No odor, NO sheen, trace fine sediment (muck)
Description of embankment that seep flows from and general seep characteristics:	channel seep from broad beach.
Seep location relative to vertical changes in embankment or beach substrate:	Stake at Rip Rap TOE, "Seep lower channel below Semi Truck parking

Seep number: 08	**Photo number:** 15
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) Silt 95% silt, dk. grayish brown, 5% Fine sand, medium to soft, wet, 40-50' from retaining wall at beach. 6" wide channel across beach.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor, no sheen, clear. Trace gry silt.
Description of embankment that seep flows from and general seep characteristics:	amongs Form pier pilings (+20)
Seep location relative to vertical changes in embankment or beach substrate:	Channel across broad beach

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep / Duwamish **Project Task:** _____

Date: 5/5/04 **Name of person filling out form:** Tim Fitzgerald.

Seep number: 11	**Photo number:** 16
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) Silt 95% silty "muck" dk gray to brownish, soft, wet, 5% Fine-medium sand, broad flat beach, w/ retaining wall + building.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor, no sheen, trace to c/dy w/ sediment (Fine)
Description of embankment that seep flows from and general seep characteristics:	10-inch channel strong flow, meanders across 50-70' of beach.
Seep location relative to vertical changes in embankment or beach substrate:	Channel from toe of retaining wall, (100+) below building/public access point.

Seep number: 12	**Photo number:** (dark grayish brown) 17
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML/SP) Silt w/ sand, 80% silty muck, 10% sand, 10% gravel Fill, soft, wet,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor, no sheen, trace fine sediment, slimy surface
Description of embankment that seep flows from and general seep characteristics:	strong channel flow from toe of Rip Rap, and sheet pile. Concrete surface (Pallets + Drums)
Seep location relative to vertical changes in embankment or beach substrate:	base of rip/rap, channel (flow) over short beach. Low Low water.

Seep number: 09	**Photo number:** 18 / #19 sample bucket "clear"
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) Gravel. 90% rounded gravel to 3-inches, 10% Fine sand and silty "muck"; very dense, wet, below steep pavement Rip Rap
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	clear, no odor / no sheen. slime on area of seep.
Description of embankment that seep flows from and general seep characteristics:	gravel w/ broken asphalt, (below Tanks) - above ground storage
Seep location relative to vertical changes in embankment or beach substrate:	mid bank, moderate slope, point seep

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: _____ **Project Task:** _____

Date: 5/5/04 **Name of person filling out form:** _____

Seep number: 10	**Photo number:** 20
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML/GP) Silt w/ gravel, 85% silty "mucky" 15% round gravel, dark grayish brown, soft, wet, –
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor/No sheen, Trace brown sediment to clear,
Description of embankment that seep flows from and general seep characteristics:	Channel to 10-inches wide, From broad seep to 20' weepy From retaining wall.
Seep location relative to vertical changes in embankment or beach substrate:	channel about 40' From wall, Meanders across broad muck/silty beach

Seep number: 13	**Photo number:** 21
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) silt, dk. grayish brown, 90% silty muck, 10% Fine sand, soft, wet, (channel across wide low tide beach)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor, no sheen, Translucent gray brown sediment,
Description of embankment that seep flows from and general seep characteristics:	wide weepy gravel + Rip rip at bank Channelizes to sample point.
Seep location relative to vertical changes in embankment or beach substrate:	about 50 From toe of Rip Rap bank, below Boeing Fuel vegetated area

Seep number: 14	**Photo number:** 22
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) silt, dk gry, brown, 95% silty "muck", soft, wet, broad Flat beach/alluvium. Trace sand gravel,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor, no sheen, gray sediment.
Description of embankment that seep flows from and general seep characteristics:	strong channel Flow to 12-inches wide,
Seep location relative to vertical changes in embankment or beach substrate:	Collects From broad area Toe of Rip Rap below Boeing Bulk channelizes meanders across broad ~50' beach alluvium w/ pilings (old)

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: _____ **Project Task:** _____

Date: 05/05/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 15	**Photo number:** 23
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) silt "muck" dark gray brown w/ rust color gravel, 80% silty muck 10% fine medium sand, 10% round gravel to 2-inches soft, wet, green "seaweed"
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor no sheen, trace gray sediment - rust precipitate on gravel surfaces in seep channel
Description of embankment that seep flows from and general seep characteristics:	10-inch strong flow channel from toe of Rip Rap to narrow beach/alluvium (20')
Seep location relative to vertical changes in embankment or beach substrate:	Channel from Rip Rap base, w/ Broken brick wall debris, South end of Boeing built/gravel boat ramp

16 covered

Seep number: 17	**Photo number:** 24 - dk. grayish brown
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) gravel and Rip Rap, 90% gravel rounded to 2-inches, 10% fine sand w/ "muck", dense, wet, barnacles
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor, no sheen, clear, "slimy" on surfaces near seep,
Description of embankment that seep flows from and general seep characteristics:	steep bank, waterfall from Rip Rap cover,
Seep location relative to vertical changes in embankment or beach substrate:	Mid bank, at collapse wooden wall, below Boeing fence + vegetation

Seep number: 18	**Photo number:** 25
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/SM) gravel w/ silty sand, 70% gravel to 2-inches, 20% fine to medium sand, 10% silty "muck", medium, wet,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor, no sheen, clear to trace gry sediment (suspect outfall behind (rubber/pipe debris)
Description of embankment that seep flows from and general seep characteristics:	10-inch channel from toe of Rip Rip, steep concrete and collapse pilings,
Seep location relative to vertical changes in embankment or beach substrate:	Base of Rip Rap Below Boeing fence/vegetation,

19 - covered/submerged

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: _____ **Project Task:** _____

Date: 5/5/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 20	**Photo number:** ~~NO PHOTO~~ 26 dk. grayish brown.
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/SM) Gravel w/ silty sand 70% rounded to crushed gravel w/ brick and concrete, 20% Fine sand, 10% silty muck, medium dense, wet, (small channel at base of concrete wall)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor no sheen, clear w/ trace brown sediment
Description of embankment that seep flows from and general seep characteristics:	Toe wall narrow flat low tide gravelly beach
Seep location relative to vertical changes in embankment or beach substrate:	Base of 15' wall (concrete + steel) small channel to 4-inches

Seep number: 21	**Photo number:** 27 dk grayish brown.
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/SM) Gravel w/ silty sand, 80% gravel crushed fill to 10-inches, 10% coarse to fine sand, 10% silty muck, dense, wet, barnacles
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor/no sheen, tr. sediment to clear
Description of embankment that seep flows from and general seep characteristics:	Steel I-beam wall to 12' over low sloping Rip Rap.
Seep location relative to vertical changes in embankment or beach substrate:	point seep, mid bank in Rip Rap

Seep number: 22	**Photo number:** 28
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) Gravel with sand, 90% round gravel to 3-inches, 10% sand fine to medium, trace silt, dense, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor no sheen
Description of embankment that seep flows from and general seep characteristics:	Rip Rap steep slope 3
Seep location relative to vertical changes in embankment or beach substrate:	Seep from toe of RIPRAP, begins channel to 12" across.

23 - Submerged

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep/Duwamish **Project Task:** _____

Date: 05/05/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 24	**Photo number:** 29 dk grayish brown
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) 95% gravel rounded to crushed rock w/ RIP RAP, 5% fine sand, dense, wet, trace "muck" w/ green slime
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	clear, trace floating white "Dust", "pollen?" no odor no sheen,
Description of embankment that seep flows from and general seep characteristics:	steep RIPRAP slope, over gravelly sand, small channel/flow
Seep location relative to vertical changes in embankment or beach substrate:	high bank several feet below hi hi water line, below fence and 747 TAIL.

Seep number: 25	**Photo number:** 30 dk brown,
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SP/GP) 80% coarse to fine sand, 20% crushed gravel to RIP RAP, dense, wet, green vegetation over RIP RAP
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor, no sheen, clear to trace fine brown sediment, green slime/vegetation in area of seep.
Description of embankment that seep flows from and general seep characteristics:	shelf bank (collapse?) RIP-RAP and sand, steep to water line,
Seep location relative to vertical changes in embankment or beach substrate:	mid bank at shelf, tree trunk follow from fenceline.

Seep number: 26	**Photo number:** 31
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	submerged return at low tide 10 A.M.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep Duwamish **Project Task:** _____

Date: 5/6/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 26	**Photo number:** 32
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) Gravel, dark grayish brown, 95% rounded to 3-inch and large Angular Rip Rap, 5% medium-coarse sand, trace silty medium dense, wet, (Stony channel flow)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor, no sheen, clear w/ trace fine sediment, little slime/growth.
Description of embankment that seep flows from and general seep characteristics:	~~mid bank~~ gravel to Rip Rap moderate slope to alluvium shore beach. below vegetation / BOE/rip fence
Seep location relative to vertical changes in embankment or beach substrate:	mid bank - gravels / Rip Rap develop strong flowing channel/rivulet carving mid bank

Seep number: 23	**Photo number:** 33
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/ML) 80% Rip Rap gravel over silty (River alluvium) bank dark gray to brown, very soft silt bank, wet, organic "muck"
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor / no sheen, clear.
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap above silty river bank - beach, below veg and above grade TANK.
Seep location relative to vertical changes in embankment or beach substrate:	multiple seep from toe of Rip Rap in rapid 4-6" channel, meander/cutty silty river bank below

Seep number: 28	**Photo number:** 34
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM) Silty Sand, dark gray to brown, 80% fine to medium sand 20% silty river alluvium, mid dense, wet, (collapsed river bank w/ pilings)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	silty sediment translucent gray brown, no odor / no sheen
Description of embankment that seep flows from and general seep characteristics:	Collapsed river bank along colonade of pilings mid bank seep cutty steep channel
Seep location relative to vertical changes in embankment or beach substrate:	mid bank multiple small seep channels to steep, cutty 10" channel.

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep Duwamish **Project Task:** _____

Date: 5/6/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 27	**Photo number:** 35
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM) silty sand, 80% med to coarse sand, 15% silt, 5% pebbles to gravel, (base of Rip Rap), loose, wet (Fill w/ ~~river~~ alluvium)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen, clear to trace sediment,
Description of embankment that seep flows from and general seep characteristics:	adjacent to concrete/steel pile wall, seep below very large (concrete to 10') block Rip Rap
Seep location relative to vertical changes in embankment or beach substrate:	mid bank at toe of Rip Rap channel to 6" wide.

Seep number: 30	**Photo number:** 36
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM) silty sand, dark greyish brown, 70% fine to med sand, 30% silty muck, trace pebbles to gravel, below Rip Rap, loose, wet, seep at large log wedge in Rip Rap
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	clear no odor/no sheen trace sediment
Description of embankment that seep flows from and general seep characteristics:	Lower mid bank, river sand + silt overlain by Rip Rap, tree stump + log snag.
Seep location relative to vertical changes in embankment or beach substrate:	toe of Rip Rap at riverbank, moderate channel to 5-inch wide.

Seep number: 31	**Photo number:** 37
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/ML) very silty sand, 60% fine to coarse sand 40% silty alluvium (muck), trace gravel Fill, loose/soft, wet, below (concrete blocks) Rip Rap.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen, clear
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap Blocks adjacent to "natural" bank (no Rip Rap). seep at toe.
Seep location relative to vertical changes in embankment or beach substrate:	Low bank, at Rip Rap contact w/ shoreline, below willows/fence.

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seeps Duwamish **Project Task:** _____

Date: 5/6/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 29	**Photo number:** 38
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) Silt w/organics, 95% silty "muck", 5% Sand (Fine) very soft, wet, Log Jam in River bank/bar /large old cedars to 30-40', set in mud.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor/no sheen Clear w/ Trace Fine sediment
Description of embankment that seep flows from and general seep characteristics:	Wide steep mud bank w/ ~½ dozen large stumps and ~~logs~~ on ad in mud. No Rip Rap below vegetated levee line
Seep location relative to vertical changes in embankment or beach substrate:	Mid bank below log w/in log jam

Seep number: 32	**Photo number:** 39
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML/GP) Silt w/ Rip Rap, 75% silt, 25% Rip Rap & debris (pipe, wood), SOFT, wet. (broad mud bank)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor/no sheen Trace Fine sediment
Description of embankment that seep flows from and general seep characteristics:	Broad low slope mud bank w/ ~~the~~ Log snags. Just South of Boeing Bridge
Seep location relative to vertical changes in embankment or beach substrate:	Mid bank at rubble/Rip Rap outcrop in mud bank low sloping mudbank w/ snags.

Seep number: 33	**Photo number:** 40
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML/GP) silty "muck" w/ Rip Rap Gravel, dark gray w/ rusty Brown surfaces, soft, wet. Riverbank sediments below short pier.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor/no sheen, Trace Fine sediment
Description of embankment that seep flows from and general seep characteristics:	upper Riverbank muds at toe of Rip Rap Seep channels to 4" wide down bank
Seep location relative to vertical changes in embankment or beach substrate:	moderate slope upper mid bank, toe of Rip Rap beneath exist pier structure/Bldg

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep/Durwood **Project Task:** _____

Date: 5/6/14 **Name of person filling out form:** Tim Fitzgerald

Seep number: 34	**Photo number:** 41 dark grayish brown
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/ML) very silty sand, 60% very fine sand 40% silty "muck", loose/soft, wet, (river bank/bar) along seep channel from Rip Rap
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	~~steep RP Rap~~ No odor no sheen, trace sediment
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap along roadway above wide (~100(?)) river bank.
Seep location relative to vertical changes in embankment or beach substrate:	seep channels across wide bank

Seep number: 35	**Photo number:** 42
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) silt, 100% "mucky" silt (riverbank) dark greyish brown, very soft, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Clear to trace brown sediment no odor/no sheen.
Description of embankment that seep flows from and general seep characteristics:	low bank, seep spring on low sloping riverbank low tide zone
Seep location relative to vertical changes in embankment or beach substrate:	low bank. v. soft muck/silt. Few tree branches.

Seep number: 37	**Photo number:** 43
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/ML) bank grey to brownish cobbles to 6" rocks, over silty river bank/muck. v. soft, wet. broad river bank (low tide ~75')
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen
Description of embankment that seep flows from and general seep characteristics:	moderate steep cobbles base overlain w/Rip Rap.
Seep location relative to vertical changes in embankment or beach substrate:	TOE of Rip Rap broad seep zone ~100, 3 main channels combine to ONE cut Channel sitting flow 2' across

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Wind/Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: _____ **Project Task:** _____

Date: 5/6/14 **Name of person filling out form:** Tim Fitzgerald

Seep number: 36	**Photo number:** 44
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	no odor/no sheen trace sediment (gry)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	(ML/GP) 100% silt below Rip Rap ad gravel, dark grayish brown, soft, wet,
Description of embankment that seep flows from and general seep characteristics:	very steep Rip Rap to low tide water, (marks submerged) small seep adjacent to large channel.
Seep location relative to vertical changes in embankment or beach substrate:	TO of Rip Rap below foundation/ "electric substation?"

Seep number: 38	**Photo number:** 45 (dark grayish brown)
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML/GP) 90% silt (below Rip Rap) 10% crushed gravel (below Rip Rap) soft, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen trace sediment
Description of embankment that seep flows from and general seep characteristics:	low tide river bank w/ channel "seep" from toe of Rip Rap
Seep location relative to vertical changes in embankment or beach substrate:	mid bank at base of Rip Rap across exposed low tide bank (30')

Seep number: 39	**Photo number:** 46
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) silty sand/gravel, 50% fine med sand, 25% silty, 25% rounded gravel, firm, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen/trace sediment
Description of embankment that seep flows from and general seep characteristics:	low sloping bank to industrial yard, seep at sand/gravel contact and low tide bank.
Seep location relative to vertical changes in embankment or beach substrate:	below Delta Marie pier, mid bank low/moderate slope sand/gravel contact.

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: _____ **Project Task:** _____

Date: 5/6/14 **Name of person filling out form:** _____

Seep number: 40	**Photo number:** 47
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML/GP) Silt (95%) below steep Rip Rap, soft, wet dark brownish gray, construction debris (wood, plastic, leaves)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor No sheens
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap below gray house,
Seep location relative to vertical changes in embankment or beach substrate:	Toe of Rip Rap stake submerged,

Seep number: 41	**Photo number:** 48
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) silty sand-60%, 40% rounded cobble Fill, firm, wet (dark gray to brown)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	slow/weepy seep along 100' of bank between moony piles, sheen at seep, light not observed in River
Description of embankment that seep flows from and general seep characteristics:	low to moderate grade cobbles and sand to high levee of Rip Rap and vegetation,
Seep location relative to vertical changes in embankment or beach substrate:	From cobble/sand/silt (mid bank) contact ~~North~~ south of workpier/barge repair.

Seep number: 42	**Photo number:** 49
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) 60% silty sand 40% rounded cobbles + small Rip Rap Firm, wet. (dark gray to brown)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	NO odor/NO sheen trace sediment
Description of embankment that seep flows from and general seep characteristics:	low to moderate slope cobbles to small Rip Rap top. seep forms small channel to 6" inches
Seep location relative to vertical changes in embankment or beach substrate:	mid bank at cobble/Rip Rap contact w river silty sand. vegetation / white bur ldg (set back.) (grounded barges to south)

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: _____ **Project Task:** _____

Date: 5/6/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 43	**Photo number:** 50
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	GP/ML - 80% angular dark grey gravel Fill, 20% silty "muck" riverbank, soft/firm, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen trace sediment
Description of embankment that seep flows from and general seep characteristics:	low grade mud bank grading to Fill rock and large Rip Rap / fence / vegetated (Boeing Fence)
Seep location relative to vertical changes in embankment or beach substrate:	Low bank broad head forms channel across silty(muck) to 6" good flow.

Seep number: 16	**Photo number:** 51
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) 90% Rip Rap Fill w/ 5% Fine med. sand, 5% muck/silt, dense, wet; dark grey to brown
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen/trace sediment
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap below Boeing Fence, vegetation. "Trickle" seep sample above stake location.
Seep location relative to vertical changes in embankment or beach substrate:	mid to lower on steep Rip Rap bank, stake submerged ~1-foot below rising tide

Seep number: 46	**Photo number:** 52
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) 60% Fine to medium sand, 20% silty muck, 20% crushed brick Fill, debris (tires, wood) Firm, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen trace sediment
Description of embankment that seep flows from and general seep characteristics:	steep Brick concrete Rip Rap over riverbank mud w/ sand, Broad seep ~10' forming small channels
Seep location relative to vertical changes in embankment or beach substrate:	Low Bank base of Fill Rip Rap on Low Tide river bank

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep / Duwamish **Project Task:** _____

Date: 5/6/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 47	**Photo number:** 53
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) silty sand w/ gravel+Rip Rap dark grey/ol brown, soft/loose, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	NO odor/no sheen Trace sediment
Description of embankment that seep flows from and general seep characteristics:	Steep Rip Rap below vegetated Fence line.
Seep location relative to vertical changes in embankment or beach substrate:	low bank, base of Steep Rip Rap at start/contact over mud bank/Rivers edge

Seep number: 48	**Photo number:** 54
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) 60% Fine to coarse sand, 20% rounded pebbles to 1"in. Occassional Rip Rap, 20% silty "muck", Firm, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	NO odor/ no sheen clear w/ Trace sediment
Description of embankment that seep flows from and general seep characteristics:	Low to moderate Beach/shore access area
Seep location relative to vertical changes in embankment or beach substrate:	Low to mid bank channel Step From Broad Beach sand/access point (Stake submerged)

Seep number: 49	**Photo number:** 55
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) Silty sand, dark grey/ol brown, 40% silt (muck) 60% Fine to coarse sand, Firm, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	NO odor/ no shee clear Trace sedim
Description of embankment that seep flows from and general seep characteristics:	20' wide mud bank w/ seep, 10' below steep Rip Rap bank and vegetation.
Seep location relative to vertical changes in embankment or beach substrate:	"spritzy" seep low river bank. Forms channel to 10-inch s width

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep Duwamish
Date: 5/6/04
Project Task:
Name of person filling out form: Tim Fitzgerald

Seep number: 57	**Photo number:** 56
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	Silty Sand (SM) dark grayish brown, 60% Fine to coarse sd 40% silt (muck) river bank, Firm to soft, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen Trace gray sediment
Description of embankment that seep flows from and general seep characteristics:	Steep Rip Rap above seep. seep weeps across 20' length, Form small channels
Seep location relative to vertical changes in embankment or beach substrate:	Low bank, base of Brick Rip Rap bank, below Tractor Trailer parking

Seep number: 53	**Photo number:** 57
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) silty sand w/ pepples, 60% sand, 25% pebbles, 15% silty Firm, wet,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Black (NAPL?) ooze, Little Flow, no sheen/ Hi TPH odor
Description of embankment that seep flows from and general seep characteristics:	NAPL Seep, at bottom of channel, steep slopy bank w/ wood terrace below Asphaltic Blob topped w/ vegetated levee.
Seep location relative to vertical changes in embankment or beach substrate:	low Low bank, adjacent to horizontal Timbers w/in Channel (~~name?~~) TROTSKY, hi

Seep number: 54	**Photo number:** 58
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	gray Foamy very small seep,
Description of embankment that seep flows from and general seep characteristics:	mod. slope w/ pier columns, construction and metal debris
Seep location relative to vertical changes in embankment or beach substrate:	mid bank, below decayed pier/platform Trace/very light Flow

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Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep / Duwamish **Project Task:** _____

Date: 5/6/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 56	**Photo number:** 59
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/SM) gravel w/ silty sand 50% rounded pebbles to large concrete Rip Rap, w/ 40% Fine to medium sand, 10% silty (mud) surface. Firm, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor / no sheen
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap bank in Trotsky channel. gravelly channel seep.
Seep location relative to vertical changes in embankment or beach substrate:	mid bank, in steep Rip Rap, below vegetation and stacked Drums

Seep number:	**Photo number:**
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

Seep number:	**Photo number:**
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep Duwamish
Date: 5/7/04
Project Task:
Name of person filling out form:

Seep number: 55	**Photo number:** 60
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) Anthropogenic Fill, with silt, dark grey/black brown, firm-loose, wet, IN TERMINUS OF TROTSKY INLET.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen Trace fine brown sediment
Description of embankment that seep flows from and general seep characteristics:	steep, rip rap and construction debris bank adjacent to pier/dock w/ structure.
Seep location relative to vertical changes in embankment or beach substrate:	seep mid bank at base of former cement truck rubble? in asphalt concrete rubble w/ gravel

Seep number: 54	**Photo number:** 61
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) 90% rounded cobbles, 5% sand, 5% silt,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Trace sheen, Trace odor "gray water" sulfide clear, to trace sediment (gray) w/Trace TPH
Description of embankment that seep flows from and general seep characteristics:	moderate slope, pebbles, sand, silt,
Seep location relative to vertical changes in embankment or beach substrate:	upper bank small trickle seep below dock w/ structure. w/ metal debris, levee.

Seep number: 53	**Photo number:** 62
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	see 05/06/04 second visit / retry water quality test.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Chemical/sulfide odor, no sheen./blk sediment seep w/in very Black muck lite gray color,
Description of embankment that seep flows from and general seep characteristics:	at Timber see description 05/06/04
Seep location relative to vertical changes in embankment or beach substrate:	very low bank; below mudbank

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep / Duwamish LR. **Project Task:** _____

Date: 05/07/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: S-2	**Photo number:** 63
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP-SM) 90% rounded gravel, to 2" rocks, 10% fine sand w/ silt, med dense, wet dark grayish brown
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No sheen / sulfide odor light gray w/ grey to blk sediment
Description of embankment that seep flows from and general seep characteristics:	seep from base of wood wall, seep small w/ white slime.
Seep location relative to vertical changes in embankment or beach substrate:	Low bank, below wood retaining wall, w/concrete pour, seep at contact w/ river bed / muck / gravel

Seep number: S-0	**Photo number:** 64
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML w/ GP) 80% dark grey to brown silty muck, 10% fine sand 10% Rip Rap concrete debris, very soft, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor / no sheen Trace sediment (gray)
Description of embankment that seep flows from and general seep characteristics:	construction debris w/ concrete pour? / clay over river bank mud, w/ seep
Seep location relative to vertical changes in embankment or beach substrate:	Low bank, point / spring seep low slope, river bank behind barge, vegetated levee,

Seep number: S-5	**Photo number:** 65
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML/SM) very silty sand, dark grey to brown, 60% Fine to coarse sand, 40% silty muck, soft-firm, wet, Trace Rip Rap from above,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No sheen / no odor, Trace gray sediment
Description of embankment that seep flows from and general seep characteristics:	moderate to steep Rip Rap w/ Tires, seep at river bank contact
Seep location relative to vertical changes in embankment or beach substrate:	Very low bank, seep at base of rubble brick weeping seep to short channel

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep / Duwamish **Project Task:** _____

Date: 05/07/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 44	**Photo number:** 66
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML/SM) very silty sand, dark grey brown, 60% fine to coarse sand (trace gravel), 40% silt, soft, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor / No sheen trace grey sediment
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap topped w/ ~6' concrete blocks,
Seep location relative to vertical changes in embankment or beach substrate:	very low bank, strong seep from base of Rip Rap, below Marina Park, channel 10' wide.

Seep number: 19	**Photo number:** 67
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/SM) 80% crushed to rounded gravel w/ brick, 10% sand, 10% silty (muck) dark grey brown, firm, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor / no sheen Trace grey sediment.
Description of embankment that seep flows from and general seep characteristics:	steep Rip ~~Rock~~ Rap broken brick, concrete slabs, topped w/ steel mill? Furnace slag lobes,
Seep location relative to vertical changes in embankment or beach substrate:	very low bank, toe of Brick Rip Rap. mod strong seep, Broad shallow channel to 3' Foot.

Seep number: 57	**Photo number:** 68
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) 95% gravel rounded and crushed to 2 inches, with Rip Rap, medium brush, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor no sheen trace brown sediment
Description of embankment that seep flows from and general seep characteristics:	mod sloped Rip Rap at bridge pilings over River bank sediment strong seep from TOE of Rip Rap.
Seep location relative to vertical changes in embankment or beach substrate:	mid bank, among bridge caisson/pilings 1st Ave, vegetated levee w/ roadside guardrail

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: _____ **Project Task:** _____

Date: 5/7/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 58	**Photo number:** 69
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM) ~~95% silt~~ 75% Fine to coarse sand, 25% silty, Firm, ~~to~~ loose, wet. Broken pilings along Bank.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen Trace Fine grey sand
Description of embankment that seep flows from and general seep characteristics:	Sand berm Fencing w/ geo Fabric collapse above slump at seep, ~Broad, shallow w/narrow channels ~10'
Seep location relative to vertical changes in embankment or beach substrate:	Low bank above tributary stream, below sand edge at roadway/guardrail, former pilings (R) and (L) slow seep.

Seep number: 59	**Photo number:** 70
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) silty sand w/gravel, 60% Fine-medium sand, 20% silty, 20% round to angular gravel (Fill) loose, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen Trace Fine grey sand.
Description of embankment that seep flows from and general seep characteristics:	Beneath roadway/bridge, slump of Fill sand and gravel, seep wraps from Broad to 15' slump, forms multiple small channels
Seep location relative to vertical changes in embankment or beach substrate:	Low bank above tributary stream (SA-seep 58)

Seep number: 60	**Photo number:** 71
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM) Silty sand, dark grayish brown, 70% Fine to medium sand, 40% silty "muck", soft-loose, wet, below small brick RipRap and pier debris.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen. Trace Fine sand + silt sediment (gray)
Description of embankment that seep flows from and general seep characteristics:	Low sloping riverbed w/ sand below RipRap at pilings, collapsing decking overhead.
Seep location relative to vertical changes in embankment or beach substrate:	Mid bank at RIP RAP toe over silty beach sand below decrepit Dock/pilings, little Flow to multiple Channels

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep / Dumanis
Date: 5/7/04
Project Task:
Name of person filling out form: Tim Fitzgerald

Seep number: 63	**Photo number:** 72
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML-SM) silt w/sand 60% ~~fine~~ silt w/"muck" 40% Fine to medium sand, trace gravel to 1-inch, SOFT-FIRM, wet. (some rust color slime over gravel)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor / no sheen slime? Trace floaty orange organics?
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap over riverbank
Seep location relative to vertical changes in embankment or beach substrate:	Low bank, TOE of long concrete rip rap over river bank sediments, between moorg piles

Seep number: 62	**Photo number:** 73
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/ML) Gravel and silt, 60% gravel grading to Rip Rap in matrix of muck w/ trace sand, dark grey to brown, SOFT, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor no sheen trace brown sediment (color)
Description of embankment that seep flows from and general seep characteristics:	low sloping riverbank sediments below RipRap Concrete and Rock, vegetated levee.
Seep location relative to vertical changes in embankment or beach substrate:	Mid bank, at base of Rip Rap over River bank, very slow flow over narrow channels

Seep number: 61	**Photo number:** 74
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	seep water - dark yellow w/ Black sediment and floaty blk organic silt/clay (mucky) sulfide odor,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	(ML) 100% dark gray w/ brown river muck, trace fine sand, very soft, wet. below gravel / Rip Rap and debris
Description of embankment that seep flows from and general seep characteristics:	Low Flat Riverbank below steep Rip Rap w/ Log snags, Drum and Rebar in Rip Rap.
Seep location relative to vertical changes in embankment or beach substrate:	Very low bank, in river bed, spring like flow dark-/organic fines, strong flow from broad area of seeps w/ multiple channels form in soft muck

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep Duwamish **Project Task:** _____

Date: 05/07/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 64	**Photo number:** 75
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) silty sand w/gravel, 60% Fine to coarse sand, 20% rounded pebbles to crushed Rock in Rip Rap, 20% silty "muck", Firm, wet. trace shells/barnacle (corpus).
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	NO odor / no sheen light brownish/yellow.
Description of embankment that seep flows from and general seep characteristics:	steep Rip Rap Rock overlain by crushed rock top w/vegetation and Fence at silo's.
Seep location relative to vertical changes in embankment or beach substrate:	low bank at toe of Rip Rap, contact w/ Riverbank silts and sand. (slow/small seep.)

Seep number: 65	**Photo number:** 76
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/SM) silty sand w/gravel, dark grey to brown, 60% sand Fine to coarse, 20% silty muck, w/20% crushed gravel to fine Firm, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	NO odor/no sheen clear to trace brown sediment
Description of embankment that seep flows from and general seep characteristics:	Top of low tide riverbank, base of Rip Rap. small low flow seep to style channel. ~4-inches
Seep location relative to vertical changes in embankment or beach substrate:	low bank at toe of crushed rock Rip Rap topped w/lobe of concrete, vegetation and Fence.

Seep number: 66	**Photo number:** 77
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/SM) gravelly sand with silt, 50% Fine to coarse sand, 25% pebble to large Rip Rap rocks, 25% silty river sediment, dark to medium Brown, Firm to loose, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor / no sheen / trace brown sediment,
Description of embankment that seep flows from and general seep characteristics:	low sloping gravelly beach over river low tide mud flat, strong seep from Broad 20' wide weepy area, Forms 10-inch wide gully channel.
Seep location relative to vertical changes in embankment or beach substrate:	Lower beach strand at river bar/low tide muck,

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: _____ **Project Task:** _____

Date: 05/07/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 67	**Photo number:** 78
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) gravel, (Brick RipRap) w/ 5% sand 5% muck, dense, wet. (seep strong from Brick pile)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen trace gray sediment
Description of embankment that seep flows from and general seep characteristics:	steep Brick RipRap over Flat tidal flat to Kellog Island
Seep location relative to vertical changes in embankment or beach substrate:	very low bank, top of tidal flat, base of brick RipRap, strong flow in channelized, meanders 100' to Rich Kellog Island

Seep number: 68	**Photo number:** 79
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM/GP) shelly silty sand w/ Crushed Brick, 60% Fine to med sand, 20% red brick, 10% silty Black "muck", 10% white broken shells, firm/medium, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/ no sheen clear to trace brown sediment
Description of embankment that seep flows from and general seep characteristics:	low sloping sands mix w/ brick collapse from above log snags topped w/ steep brick + log wall with trees + canes,
Seep location relative to vertical changes in embankment or beach substrate:	mid bank at base of Brick RipRap and log wall, Broad wet zone 10 to 50' wide, Forms several shallow low flow channels

Seep number: 69	**Photo number:** 80
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(ML) 100% Silty "Muck" w/ Drift logs, Trace shells, very soft, dark gray w/ Brown surface, wet,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/ no sheen clear, ~~so~~ trace gray sediment.
Description of embankment that seep flows from and general seep characteristics:	100' of "natural" low ~~grad~~ sloping mud and drift log bank to Low land vegetation/Trees
Seep location relative to vertical changes in embankment or beach substrate:	Very low bank, ~100' From vegetation/Trees (Restoration) "springs" from below log Jam in muck.

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep/Duwamish **Project Task:** _____

Date: 05/07/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 70	**Photo number:** 81
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP) 95% rounded gravel w/ brick, 5% sand, gray to brown, loose, wet. (Fill behind wall)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor / no sheen clear.
Description of embankment that seep flows from and general seep characteristics:	low slopy sands to steel wall w/ pilings strong "waterfall" seep onto beach sands
Seep location relative to vertical changes in embankment or beach substrate:	mid bank from hole in steel plate wall below deck w/ structure

Seep number: 71	**Photo number:** 82
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM) silty sand at RipRap pile, 80% fine med sand, 20% silty, fine/med loose, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen, Trace fine gray silt. Fucus algae at pilings
Description of embankment that seep flows from and general seep characteristics:	Low slopy beach over broad river bank,
Seep location relative to vertical changes in embankment or beach substrate:	mid bank at RipRap outcrop in beach sands, with multiple pilings, medium flow seep, channels to 6" inches

Seep number: 73	**Photo number:** 83
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SP) 95% med to fine sand, (dark gray) loose, wet, (over peat ledge to 2' foot thick)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen clear to trace gray sediment Trace foamy/bubbles.
Description of embankment that seep flows from and general seep characteristics:	low slopy ~~beach~~ broad beach w/ peat, construction debris and fill gravel at low bank.
Seep location relative to vertical changes in embankment or beach substrate: weeping	mid to upper bank above peat ledge, seep large area above peat shelf. ~100' linear

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FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep Downriver **Project Task:** _____

Date: 05/07/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 74	**Photo number:** 84
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(SM) dark grey to brown silty sand, 60% Fine to medium sand, 30% silt w/10% crushed gravel at Rip Rap, loose, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen, yellowish color, trace grey sediment
Description of embankment that seep flows from and general seep characteristics:	low slopy natural bank topped w/gravel + Rip Rap to road. Strong flowing muddy channel across mud flat
Seep location relative to vertical changes in embankment or beach substrate:	very low bank, channel from Broadway area ~100' in former slip?/cove below public access park

Seep number: 76	**Photo number:** 85
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	GP/SM gravel w/silty sand, ~~70~~ 70% rounded gravel to 2 inch, 20% Fine to med sand, 10% silty, loose, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/no sheen lite yellow color, trace sediment.
Description of embankment that seep flows from and general seep characteristics:	low slopy gravel below wooden ~~decky~~ broken shoreline
Seep location relative to vertical changes in embankment or beach substrate:	low bank at pilings below collapsed decking - low flow from small weepy area about 10' across.

Seep number: 79	**Photo number:** 86
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/ML) 80% gravel rounded to 2-inches, 20% dark grey silt (mud) loose, wet.
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no sheen/trace sulfide odor, white precipitate on gravels at seep.
Description of embankment that seep flows from and general seep characteristics:	Moderate to steep Rip Rap slope, w/multiple cutoff pilings vegetated top w/tractor trailer parking.
Seep location relative to vertical changes in embankment or beach substrate:	Low bank, toe of Rip Rap at cutoff piling w/Fucus Algae, (low flowing small seep)

10

WindWard environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: Seep Runway **Project Task:** _____

Date: 5/7/04 **Name of person filling out form:** Tim Fitzgerald

Seep number: 80	**Photo number:** 87 dark grey brown,
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/SM) gravel w/ silty sand, 50% gravel Rip Rap, 25% silt 25% Fine to medium sand, loose, wet
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	lite grey w/ trace brown sediment, no odor/no sheen
Description of embankment that seep flows from and general seep characteristics:	Steep bank, cut edge of peat lens to 5-Foot, overlain w/ Large Rip Rap topped w/ industrial yard (concrete? Gypsum?)
Seep location relative to vertical changes in embankment or beach substrate:	Mid Bank above peat shelf to 5' Foot, Seep at toe of Rip Rap

Seep number: 81	**Photo number:** 88
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP w/SM) 90% concrete & brick Rip Rap, w/ 10% silty sand dark grey to brown loose wet,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no sheen / no odor clear.
Description of embankment that seep flows from and general seep characteristics:	Steep Rip Rap bank, gravel + Brick.
Seep location relative to vertical changes in embankment or beach substrate:	mid bank, small steady seep in concrete brick Rip Rap

Seep number: 82	**Photo number:** 89
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	(GP/SM) 60% pebbles to cobbles 2-inches, 20% Fine to medium sand, 20% silty, loose, wet w/ Fucus,
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor/ no sheen Trace grey color and sediment
Description of embankment that seep flows from and general seep characteristics:	broad bank of sand/gravel to 25', overlain (steeply) by pavement slabs as Rip Rap.
Seep location relative to vertical changes in embankment or beach substrate:	mid bank, moderate spring like flow 5' wide area in sand, gravel

(1)

Wind Ward environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: LDW-RI - Seep Survey **Project Task:** Seep Recon

Date: 10-MAY-2004 **Name of person filling out form:** Bob Colvin

Seep number: Seep 78	**Photo number:** N/A
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	Silty Sand, Some gravel, Riprap bank (15%) (5%) (80%)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor / No Sheen Clear Sample
Description of embankment that seep flows from and general seep characteristics:	Moderate Slope, riprap, Concrete chunks w/ focus and green algae
Seep location relative to vertical changes in embankment or beach substrate:	Seep located lower mid bank in concrete/riprap w/ trace gravel

Seep number: Seep 77	**Photo number:** N/A
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	Pipes, wood planks, metal debris, cutoff piling medium Sand, gravel (fill gravel 2"-3"), cobble + riprap
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor / No Sheen clear Sample
Description of embankment that seep flows from and general seep characteristics:	Large (8'x10') concrete structure w/ moderate slope riprap/concrete/gravel surrounding
Seep location relative to vertical changes in embankment or beach substrate:	Seep flows from base of concrete structure from which a large metal pipe extends into waterway

Seep number: 75	**Photo number:** N/A
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	Rip rap, Silty Medium Sandy ~~Silt~~ (90%) (10%)
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor, no sheen, Pale yellowish color Some suspended fines (minimal)
Description of embankment that seep flows from and general seep characteristics:	moderately sloped riprap w/ focus
Seep location relative to vertical changes in embankment or beach substrate:	Seep flows from base of rip rap

(2)

WindWard environmental LLC

FORM 5. SEEP RECONNAISSANCE SURVEY FORM C

Project Name: LDW-R2-Seep Survey **Project Task:** Seep Recon

Date: 10-MAY-2004 **Name of person filling out form:** Bob Complith

Seep number: 72	**Photo number:** N/A
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	Ripap covered partially w/ concrete flows (85%) Some gravel (5%) (10%) Coarse + medium sands
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor, No Sheen, Slight yellow color
Description of embankment that seep flows from and general seep characteristics:	Steep grade concrete covered rip rap, Small trees at top of bank w/ concrete facility in upland
Seep location relative to vertical changes in embankment or beach substrate:	Seep flows from toe of rip rap/concrete bank. Focus on ripap + some green algae

Seep number:	**Photo number:**
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Not used
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

Seep number:	**Photo number:**
Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay):	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Not used
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

D.4 Seep Water Collection Forms

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW **Project Task:** Seep water collection

Date: 7/2/09 **Crew:**

Weather: overcast **Photo no.** 140, 141 (flow) 115, 116 (sample)

Location ID: SP-10	Easting (x): 47°32.145 N	Northing (y): 122°19.142	Time: 9:30

Turbidity Check:	Mini-piezometer		Surface sample	
	Meter 1	Meter 2	Meter 1	Meter 2
			5.68	

Sample collection method:	surface collection w/ funnel and tubing
Flow rate collection method:	width, depth & velocity
Volume of container:	na
Time to fill container:	na
Ag **Calculated flow rate:**	0.0025 m^3/sec

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL #1	1 15.03	1 27,229	1 9.80	1 6.32	1 88	1	1
HL #2	2 15.02	2 31,607	2 9.03	2 6.79	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

Couldn't be sampled on 7/1 because of rising tide. Seep flow emerged at base of wall. Water couldn't be withdrawn using mini-piezometer at base of wall. Either dry underneath or material was too fine and piezometer was clogged. Therefore, surface collection method used.

LDW SpC: HL#1 = 10160 HL#2 = 11764

Flow rate:

2 channels drain about 250 ft of wall

channel #1 width 0.6ft
depth 1 in
sec. 4.1 sec/5ft
= 0.0017 m^3/sec

channel #2 width = 6 in
depth = 0.5 in
sec = 3.7 sec/5ft
= 0.00080 m^3/sec

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	silt w/ gravel
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor or sheen
Description of embankment that seep flows from and general seep characteristics:	retaining wall, with flat beach, channelized flow
Seep location relative to vertical changes in embankment or beach substrate:	Seep flows in channel across broad beach

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW | Project Task: Seep survey

Date: 06.30.04 | Crew: BB, JF, BC, TD, MS

Weather: sunny | Photo no. 107-108. (109 - seeping from ret. wall)

Location ID: SP-1D	~~Easting (x)~~:	~~Northing (y)~~:	Time: 11:40 -0.93 MLLW

Turbidity Check:	Mini-piezometer		Surface sample	
	Meter 1	Meter 2	Meter 1	Meter 2

Sample collection method:	
Flow rate collection method:	
Volume of container:	
Time to fill container:	
Calculated flow rate:	

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4

Comments: unable to sample in remaining time (tide rising)

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW
Project Task: Seepwater Collection
Date: 7/30/04
Crew: Thai Do, J. Florer
Weather: Overcast
Photo no. 140, 141 (flow) 115, 116 (sample)

Location ID: SP-10	Easting (x): 47° 32.145N	Northing (y): 122° 19.142	Time: 1100
Sample collection method:	surface collection w/ funnel + tubing		
Flow rate collection method:	timed volume		
Volume of container:	40mL		
Time to fill container:	16.84 sec		
Calculated flow rate:			

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL #2	1 19.03 C	1 33278	1 13.14 mg/L	1 6.82	1 —	1 1.82	1 —
	2	2	2	2	2	2	2

Comments: Re-sample for VOAs

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	silt w/ gravel
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no ~~odor~~ odor or sheen
Description of embankment that seep flows from and general seep characteristics:	retaining wall w/ broad flat beach, channelized flow
Seep location relative to vertical changes in embankment or beach substrate:	seep is relatively level & flows in channel across broad flat beach

Flow Rate

	Channel #1	Channel #2
depth	1.25 in	0.5 in
width	7.5 in	4 in
Length	5 ft	5 ft
time	3.6 s	5.9 s

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW **Project Task:** Seep water collection

Date: 7/1/09 **Crew:**

Weather: overcast **Photo no.** 117, 118

Location ID: SP-12	Easting (x): 47°32.095 N	Northing (y): 122°19.334 W	Time: 9:15

Turbidity Check:	Mini-piezometer		Surface sample	
	Meter 1	Meter 2	Meter 1	Meter 2
	MP1: 4.35 / MP2: 0.86			

Sample collection method:	mini-piezometer
Flow rate collection method:	na
Volume of container:	
Time to fill container:	
Calculated flow rate:	

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL#1	1 13.56	1 8.47	1 92351	1 5.94	1 108	1	1
HL#2	2 13.71	2 9.30	2 99361	2 6.63	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

SPC of LDW

HL #1 = 18,124

HL #2 = 20,973

water level too high to measure flow rate; channelized flow area submerged

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	silt w/ sand
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor or sheen
Description of embankment that seep flows from and general seep characteristics:	riprap and sheet pile
Seep location relative to vertical changes in embankment or beach substrate:	flow at base of riprap

Wind/Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW **Project Task:** Seep water collection

Date: 7/1/09 **Crew:**

Weather: overcast **Photo no.** 119-120, 121-122

Location ID: SP-20	Easting (x): 47° 31.527	Northing (y): 122° 18.500W	Time: 10:45

Turbidity Check:	Mini-piezometer		Surface sample	
	MP 1 ~~Meter 1~~	MP 2 ~~Meter 2~~	Meter 1	Meter 2
	1.75	2.44		

Sample collection method:	mini-piezometer
Flow rate collection method:	width, depth, velocity
Volume of container:	nm
Time to fill container:	nm
Calculated flow rate:	0.00124 m³/sec

Avg

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL #1	1 15.02	1 27295	1 8.46	1 6.93	1 158	1	1
HL #2	2 15.05	2 31,648	2 8.86	2 7.32	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

SpC of LDW
HL #1 = 3383
HL #2 = 3873

Flow rate: (7/2/09)

Channel #1: length = 5 ft, width = 0.4 ft, depth = 1 in, sec = 4.5 sec → = 0.0010 m³/sec

#2: 5 ft, 0.6 ft, 0.75 in, 3.7, 9:55, 7/2 → = 0.0014 m³/sec

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	gravel with silty sand
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor or sheen
Description of embankment that seep flows from and general seep characteristics:	flat gravelly beach along a wall (concrete/steel)
Seep location relative to vertical changes in embankment or beach substrate:	seep flow at base of wall

Wind/Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW
Project Task: Seep water collection
Date: 7/2/09
Crew: BB, TD, BC, JF, S
Weather:
Photo no. 135, 136

Location ID: SP-24	Easting (x):	Northing (y):	Time: 7:40

Turbidity Check:	Mini-piezometer		Surface sample	
	Meter 1	Meter 2	Meter 1	Meter 2

Sample collection method:	
Flow rate collection method:	
Volume of container:	
Time to fill container:	
Calculated flow rate:	

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4

Comments:

No seep flow, not able to dig or insert mini-piezometer because seep was located in rip rap. Water level was about +2.5; was +1.8 during recon survey

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW **Project Task:** seep water collection

Date: 7/1/04 **Crew:**

Weather: sunny **Photo no.** 128 - 132

Location ID: SP-39	Easting (x): 47°31.035	Northing (y): 122°18.422	Time: 13:30

Turbidity Check:	Mini-piezometer		Surface sample	
	MP1 ~~Meter 1~~	MP2 ~~Meter 2~~	Meter 1	Meter 2
	0.63	0.28		

Sample collection method:	mini-piezometer
Flow rate collection method:	width, depth, velocity
Volume of container:	nm
Time to fill container:	nm
Calculated flow rate:	0.000393 m³/sec

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL#1	1 17.86	1 32931	1 9.05	1 6.28	1 192	1	1
HL#2	2 18.16	2 37913	2 9.34	2 6.94	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

SpC of LDW = HL#1 = 1522
HL#2 = 1808

Flow rate
channel length = 5ft
" width = 1.2ft
" depth = 1/8 in
vel/time = 4.5 sec

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	silty sand/gravel
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor or sheen
Description of embankment that seep flows from and general seep characteristics:	Low sloping bank
Seep location relative to vertical changes in embankment or beach substrate:	mid-bank, in eroded depression

Wind/Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LOW **Project Task:** Seep water collection

Date: 7/1/04 **Crew:**

Weather: Sunny **Photo no.** 123-127

Location ID: SP-41	Easting (x): 47°31.253N	Northing (y): 122°18.523W	Time: 12:00

Turbidity Check:	Mini-piezometer		Surface sample	
	MP1 ~~Meter 1~~	MP2 ~~Meter 2~~	Meter 1	Meter 2
	0.26	0.71		

Sample collection method:	mini-piezometer
Flow rate collection method:	nm
Volume of container:	nm
Time to fill container:	nm
Calculated flow rate:	nm

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL#1	1 18.20	1 15029	1 8.39	1 6.85	1 180	1	1
HL#2	2 18.20	2 17457	2 7.64	2 6.97	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

SpC of LOW
HL#1 = 3227
HL#2 = 3690

not possible to measure flow rate because of low substrate flow from broad wet bank

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	silty sand and cobble
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no sheen/odor
Description of embankment that seep flows from and general seep characteristics:	low to moderate slope of cobbles/sand; rip rap and vegetation at high water
Seep location relative to vertical changes in embankment or beach substrate:	seep sampled near beach/riprap contact; beach generally wet from broad low seepage

23780

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW Project Task: Seep water collection

Date: 6/30/09 Crew: BB, JC, BC, TD, MS

Weather: partly cloudy Photo no. 103-104

Location ID: SP-48	~~Easting (x):~~ 47° 31.890	~~Northing (y):~~ 122° 19.174	Time: 07:30

Turbidity Check:	Mini-piezometer				Surface sample	
	Meter 1		Meter 2		Meter 1	Meter 2
	MP1* 1.00	MP2* 1.62	MP1 0.80	MP2 1.04		

Sample collection method:	
Flow rate collection method:	velocity, depth, width
Volume of container:	
Time to fill container:	
Calculated flow rate:	0.0017 m^3/sec

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
Equipment # 1	1 17.22	1 33,354	1 4.04	1 6.29	1	1	1
Equipment # 2	2 17.19	2 28,653	2 6.61	2 5.86	2 294	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

SpC 18620 (#1), 21585 (#2) > LDW adjacent to seep

flow rate:
velocity of piece of styrofoam = 3.8 sec / 4 ft
width of channel ≈ 4 inches
depth ≈ 2 inches
Revised flow rate collection method used because of time constraints. Method suggested by Mick Easterly, agency oversight.

*MP1 and MP2 - first and second mini-piezometers from which water was pumped

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	sand and silty muck
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no sheen / odor
Description of embankment that seep flows from and general seep characteristics:	low to moderate beach, with riprap to the south of beach; park access
Seep location relative to vertical changes in embankment or beach substrate:	sand at base of riprap

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW **Project Task:** Seep water collection

Date: 6/30/09 **Crew:** BB, JC, BC, TD, MS

Weather: overcast to sunny **Photo no.** 105-106

Location ID: SP-54	Easting (x): 47° 32.351	Northing (y): 122° 20.012	Time: 09:45

Turbidity Check:	Mini-piezometer				Surface sample	
	Meter 1		Meter 2		Meter 1	Meter 2
	MP1 4.56	MP2 3.90	MP1 2.77	MP2 2.62	nm	nm

Sample collection method:	mini piezometer
Flow rate collection method:	not measured
Volume of container:	nm
Time to fill container:	nm
Calculated flow rate:	nm

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
#1	1 17.96	19754	1 6.00	1 7.03	1 -59	1	1
#2	2 17.60	2 11,326	2 2.95	2 7.42	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

SpC 78.7 (#1)

SpC 83.9 (#2)

light sheen noted on the surface of the sample collected for hydrolab

Hydrogen sulfide odor on same sample

sheen on the seep itself

Unable to measure flow because of low, broad seepage

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Sheen at seep, H_2S odor
Description of embankment that seep flows from and general seep characteristics:	moderate slope below decaying structure
Seep location relative to vertical changes in embankment or beach substrate:	Seep sampled near top of embankment

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW **Project Task:** Seep sampling

Date: 07.02.04 **Crew:** BB, JF, BC, TD, SR

Weather: overcast **Photo no.** 145-

Location ID: SP-61	~~Easting (x)~~: 47°32.918 N	~~Northing (y)~~: 122°20.539 W	Time: 11:00

Turbidity Check:	Mini-piezometer		Surface sample	
	MP1 ~~Meter 1~~	MP2 ~~Meter 2~~	Meter 1	Meter 2
	1.83	0.86	nm	nm

Sample collection method:	mini-piezometer
Flow rate collection method:	width, depth & velocity
Volume of container:	nm
Time to fill container:	nm
Calculated flow rate:	0.00752 m3/sec

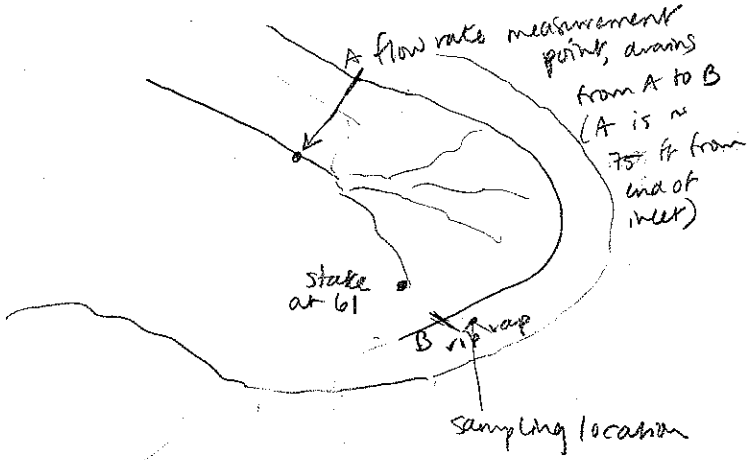
	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
H/L1	1 15.55	1 12353	1 7.52	1 6.85	1 138	1	1
H/L2	2 15.66	2 14281	2 7.40	2 7.13	2 na	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

Sample collected about 20 ft upgradient from stake at upwelling seep

bacterial sheen on surface in vicinity of sampling area

velocity = 5 ft/4 sec
Depth = 1.5 in
Width = 1.7 ft.



Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	gravel and silt
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor or sheen at seep collection location (upgradient of staked seep)
Description of embankment that seep flows from and general seep characteristics:	low flat riverbank below riprap and logs.
Seep location relative to vertical changes in embankment or beach substrate:	seep emerges just below riprap.

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW Project Task: Seep water collection

Date: 6/29/09 Crew:

Weather: sunny Photo no. 96, 97

Location ID: SP-62	Easting (x):	Northing (y):	Time: 11:50

Turbidity Check:	Mini-piezometer		Surface sample	
	Meter 1	Meter 2	Meter 1	Meter 2

Sample collection method:	
Flow rate collection method:	
Volume of container:	
Time to fill container:	
Calculated flow rate:	

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4

Comments:

Seep too dry to sample.
Will check back at lower tide on another day.

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

2958956

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW
Project Task: Seep survey
Date: 07.02.04
Crew: BB, JE, BC, TA, SR
Weather: overcast, windy
Photo no. 142-143, 144 (Funnel collection)

Location ID: SP-62	~~Easting (x):~~ 47°32.955N	Northing (y): 122°20.502W	Time: 10:30
Turbidity Check:	~~Meter #1~~ Mini-piezometer		Surface sample
	~~P-Meter 1~~	~~P-Meter 2~~	Start ~~Meter 1~~ / Finish ~~Meter 2~~
	~~50.0 NTU~~		50.0 NTU / 13.9 NTU
Sample collection method:	Funnel		
Flow rate collection method:	Funnel / beaker used to collect drainage		
Volume of container:			
Time to fill container:			
Calculated flow rate:	.000005 m^3/sec.		

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL1	1 16.40	1 21,501	1 7.42	1 6.70	1 253	1	1
HL2	2 16.43	2 24,953	2 6.69	2 7.10	2 —	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

1. Seep water could not be pumped using mini-piezometer; they appeared to be clogged.

Flow rate: (7/2/04)

100 mL in 20 sec

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	gravel and silt
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor or sheen
Description of embankment that seep flows from and general seep characteristics:	low sloping river bank below riprap, concrete and rock
Seep location relative to vertical changes in embankment or beach substrate:	Sampled at stake, at base of riprap. One isolated seep flowing.

WindWard environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW
Project Task: ☑ Seep collection
Date: 7/30/04
Crew: T. DO, J. Flora
Weather: overcast + D
Photo no.

Location ID: SR62	Easting (x):	Northing (y):	Time: 1130	
Sample collection method:	Surface collection w/ funnel + tubing			
Flow rate collection method:	~~rotameter~~ ~~volume~~ distance timed volume			
Volume of container:	40 mL			
Time to fill container:	16.0 sec			
Calculated flow rate:				

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1 19.05	1 31897	19.55	1 6.75	1 —	19.76	1 —
2	2	2	2	2	2	2

HC#2

Comments:
Re-sample for VOAs

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	gravel + silt
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor no sheen
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

Wind/Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW
Project Task: seep sample
Date: 07.02.04
Crew: BB, JF, BC, TD, SR
Weather: overcast
Photo no. 149-150

Location ID: SP-64	~~Easting~~ (x): 47°33.314N	~~Northing~~ (y): 122°20.751W	Time: 12:20

Turbidity Check:	Mini-piezometer		Surface sample	
	P_1 Meter 1	P_2 Meter 2	Meter 1	Meter 2
	19.6/28.1/(6.34)	29.9/6.64/(3.89)		

Sample collection method:	
Flow rate collection method:	
Volume of container:	
Time to fill container:	
Calculated flow rate:	

Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4

Comments: unable to collect H/L samples for H2O quality parameters b/c of rising tide (12:45) - stopped sampling

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	
Description of embankment that seep flows from and general seep characteristics:	
Seep location relative to vertical changes in embankment or beach substrate:	

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW
Project Task: LDW-Seep Sampling
Date: 7/3/04
Crew: RAC, BAB, JMF
Weather: overcast
Photo no. ~~153~~ see 6/2/04

Location ID: SP-64	Easting (x): See 6/2/04	Northing (y):	Time: 1200

Turbidity Check:	Mini-piezometer		Surface sample	
	MP1 ~~Meter 1~~	MP2 ~~Meter 2~~	Meter 1	Meter 2
	31.9 / 35.6	47.2	26.1	

Sample collection method:	minipiezometer
Flow rate collection method:	beaker used to collect channel drainage
Volume of container:	nm
Time to fill container:	nm
Calculated flow rate:	.00013 m3/sec

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL#1	1 14.10	1 31498	1 7.32	1 6.19	1 241	1	1
HL#2	2 14.68	2 37265	2 9.49	2 6.98	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:
Turbidity did not go down after 15 min w/ piezometer

Flow rate:
4 channels along about 3 ft of area below riprap. Channels approximately the same size. ~250 ml in 8 secs for each channel.

SpC in LDW
HL#1 = 26729
HL#2 = 31727

0.00003125 m³/sec. each x 4 channels

= 0.000125 m³/sec
= 0.00013 m³/sec

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	silty sand with gravel
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor or sheen
Description of embankment that seep flows from and general seep characteristics:	steep riprap rock
Seep location relative to vertical changes in embankment or beach substrate:	at base of rip rap; contact with riverbank silts and sand

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW Project Task: seep water collection

Date: 6/29/04 Crew: BC, JF, TD, BA, MS, ME

Weather: sunny Photo no. 101-102 98-100(surface)

Location ID: SP-69	Easting (x): 47° 33. ~~654~~ 654	Northing (y): 122° 21.032	Time: 13:00

Turbidity Check:	Mini-piezometer		Surface sample	
	Meter 1	Meter 2	Meter 1	Meter 2
	2.08	1.87		

Sample collection method:	mini-piezometer
Flow rate collection method:	too low to measure
Volume of container:	
Time to fill container:	
Calculated flow rate:	

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL#2	1 18.95	1 12105	1 12.75	1 6.14	1	1	1
HL#1	2 19.97	2 10480	2 1.41	2 6.~~27~~ 22	2 134	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

0.47 mm 19.4 mm (2nd piezometer reading)
cannot measure flow rate because of low flow

Sheen on surface of sediment on broad seep flow

very low flow (broad) across surface; barely discernable. Very dry below the surface when dug out w/shovel.

SpC of LDW water adjacent to seep = 20,030

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	silty muck towards LDW sand/silt below surface at sampling location
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Sheen on surface of sediment near high tide mark n. of sampling location
Description of embankment that seep flows from and general seep characteristics:	gently sloping embankment. Sampling location at edge of vegetation.
Seep location relative to vertical changes in embankment or beach substrate:	very low bank

Wind/Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW
Project Task: Seep water collection
Date: 6/29/04
Crew: BC, JF, TD, BB, MS, BZ, ME
Weather: sunny
Photo no. 91-93

Location ID: SP-71	~~Easting (x):~~ 47° 33.994 N	~~Northing (y):~~ 122° 21.018 W	Time: 8:20

Turbidity Check:	Mini-piezometer		Surface sample	
	Meter 1	Meter 2	Meter 1	Meter 2
	2.78	① 5.66 ② 2.03	nc	nc

Sample collection method:	mini piezometer
Flow rate collection method:	diversion of flow with edging material into graduated container
Volume of container:	2L
Time to fill container:	14.87 sec
Calculated flow rate:	~~7.44 sec/L~~ = .00013 m3/sec

Hydrolab #
~~X~~ 2
~~X~~ 1

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
1	17.60	123870	1 2.43	1 6.11	1	1	1
2	19.04	220390	2 0.83	2 5.83	2 116	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4

Comments:
mini-piezometer depth = 0.63 ft.

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	80% fine med sand, 20% silty wood debris in sediment
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor, no sheen
Description of embankment that seep flows from and general seep characteristics:	low sloping beach over broad river bank
Seep location relative to vertical changes in embankment or beach substrate:	mid bank at rip rap outcrop

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW
Project Task: seep water collection form
Date: 7/3/04
Crew: JF, BC, BB
Weather: overcast
Photo no. 152

Location ID: SP-75	Easting (x): 47 33.531	Northing (y): 12220.615	Time: 1030

Turbidity Check:	Mini-piezometer		Surface sample	
	MP1 ~~Meter 1~~	MP2 Meter 2	Meter 1	Meter 2
	0.59	3.6	nm	nm

Sample collection method:	mini piezometer
Flow rate collection method:	funnel / tubing / graduated container
Volume of container:	
Time to fill container:	
Calculated flow rate:	0.000148 m^3/sec

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL#1	1 15.83	1 26055	1 8.34	1 6.88	1 189	1	1
HL#2	2 14.94	2 30259	2 8.42	2 7.30	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

SpC from LDW
HL#1 28507
HL#2 33048

Flow rate from 2 channelized areas

#1 600 mL in 4.9 sec = .00012 m^3/sec

#2 250 mL in 8.8 sec = .000028 m^3/sec

sum = 0.000148 m^3/sec

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	silty med sand
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor or sheen (color?)
Description of embankment that seep flows from and general seep characteristics:	moderate slope of rip rap with low sloping bank at base
Seep location relative to vertical changes in embankment or beach substrate:	seep at base of rip rap

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW Project Task: seep water collection

Date: 06.29.04 Crew: BC, JF, TD, BB, MS, BZ, ME

Weather: sunny Photo no. 94-95

Location ID: SP-76	~~Easting (x):~~ 47° 33.361	~~Northing (y):~~ 122 20363	Time: 1030

Turbidity Check:	Mini-piezometer		Surface sample	
	Meter 1	Meter 2	Meter 1	Meter 2
	2.17 | 2.15	6-7 | 1.4		

Sample collection method:	~~mini piezometer~~ (MHES) Mark Henery ENV. Samp.
Flow rate collection method:	seep flow too small and broad to take quantitative measure
Volume of container:	
Time to fill container:	
Calculated flow rate:	

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
Hydrolab #1	1 15.27	1 1020	1 0.83	1 6.38	1 114	1	1
#2	2 14.81	2 1146	2 ~~5.33~~ 5.33	2 6.25	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

seep water from meter 2 @ 6-7 in Meter 1 = 5.58

New sample meter #1 = 2.15

clear water, not yellow as in notes > after pumping a few minutes

New sample meter #2 = 1.4

→ when in bottles, a light yellow color observed

unable to take flow rate because of broad low flow

19,970 = SpC of surface grass in LDW adjacent to seep @ 11:15

SpC (#1 & #2) 23,250

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	gravel w/ silty sand
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	No odor/sheen; light yellow color
Description of embankment that seep flows from and general seep characteristics:	Low sloping gravel below wooden broken shoreline
Seep location relative to vertical changes in embankment or beach substrate:	Low bank at pilings below collapsed decking

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW **Project Task:** Seep water collection

Date: 7/1/09 **Crew:** BB, JC, BC, TD, MS

Weather: overcast **Photo no.** 112-114

Location ID: SP-80	Easting (x): 47° 32.892	Northing (y): 122° 20.286	Time: 7:00

Turbidity Check:	Mini-piezometer		Surface sample	
	Meter 1	Meter 2	Meter 1	Meter 2
	MP1 3.17 / MP2 4.83			

Sample collection method:	mini-piezometer
Flow rate collection method:	container in channel
Volume of container:	channel 1: 100 mL / channel 2: 200 mL
Time to fill container:	10 sec / 10 sec / 10 sec
Calculated flow rate: (Avg)	0.000015 m³/sec

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HL#2	1 15.99	1 16760	1 6.83	1 6.71	1	1	1
HL#1	2 15.94	2 14280	2 8.16	2 6.25	2 -60	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments:

Oil sheen at surface and entering LDW from seep, H_2S odor, TPH sample collected. Sheen appeared in seep water when mini-piezometer was moved up and down; appeared to be discharging from seep.

Channel #1 100 mL in 10 sec

Channel #2 200 mL in 10 sec

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	gravel w/ silty sand
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	Sheen at seep, and entering the LDW from seep
Description of embankment that seep flows from and general seep characteristics:	steep bank, peat shelf at bottom of rip rap
Seep location relative to vertical changes in embankment or beach substrate:	on peat shelf at toe of rip rap

Wind Ward environmental LLC

FORM 6. SEEP WATER COLLECTION FORM

Project Name: LDW Project Task: seep sampling

Date: 06.30.04 Crew: BB, JF, BC, TD, MS

Weather: sunny Photo no. 110-111

Location ID: SP-82	~~Easting~~ (x): 47°32.751	~~Northing~~ (y): 122°20.148	Time: 12:25

Turbidity Check:	Mini-piezometer				Surface sample	
	Meter 1		Meter 2		Meter 1	Meter 2
	MP1	MP2	MP1	MP2		
	3.11	4.82	2.14	3.87	nm	nm

Sample collection method:	mini-piezometer
Flow rate collection method:	container in channel, measured @ 1:45 on 7/3/04
Volume of container:	2L 2L
Time to fill container:	3 sec each
Calculated flow rate:	0.00067 m³/sec

	Temp	SpC	DO	pH	ORP	Turbidity	Salinity
HH #1	1 18.81	1 16139	1 8.18	1 6.36	1 231	1	1
2	2 19.12	2 18668	2 10.39	2 6.54	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4

Comments: SpC 20pBZ (#2)
17,352 (#1)

Unable to measure flow rate

Substrate description (e.g., rock, soil, cobble, gravel, sand, silt, clay)	pebbles with sand and silt
Seep observations (e.g., sheen, bacterial slime, staining, odor, waste material, colored discharge, precipitates, vegetation):	no odor or sheen
Description of embankment that seep flows from and general seep characteristics:	Broad bank of sand/gravel with pavement slabs as rip rap
Seep location relative to vertical changes in embankment or beach substrate:	near base of rip rap

D.5 Field Notebooks

05-May-2004

Seep Survey / Boat 2 Field Notes

Crew Bob Complita - Windward
Jana Soxton - Exponent
Tim Fitzgerald - POS consultant
Eric Parker - RSS

Weather Cloudy w/ sun breaks

09:45 Left 1st Ave S Boat ramp (on water)

10.00 Arrive Seep 1
10:05 Took Sample 1 measurements
10.15 took Sample 2 measurements

10:40 Arrive Seep 2
10:50 Took Sample 1
10:55 Took Sample 2

11:00 Arrive Seep 3

11:15 Arrive Seep 4
11:35 Arrive Seep 5

05-MAY-2004

1142	Arrive	Seep 6		1352	Arrive	Seep 21
1148	Arrive	Seep 7		1400	"	" 22
1155	Arrive	Seep 8		1422	"	" 24
1205	Arrive	Seep 11		1430	"	" 25
1213	Arrive	Seep 12				
1225	Arrive	Seep 9				
1234	"	" 10				
1245	"	" 13				
1254	"	" 14				
1307	"	" 15				
1323	"	" 17				
1332	"	" 18				
1343	"	" 20				

* Seeps Skipped due to high water. will re-visit on 06-MAY-2004 at lower tide

Seep 16
Seep 19
Seep 23
Seep 26

Done Sampling @ 14:45 off water @ 15:30

END Bob Complita

06-MAY-2004

Seep Survey Boat 2 field notes cont'd

Crew: Bob Complitn
Jane Soxton
Eric Parker
Tim Fitzgerald

Seeps missed on 05-MAY
Seep 16 ✓
" 19
" 23 ✓
" 26 ✓

Weather: Hazey w/ Sun + wind

09:40 Left 1st Ave S boat ramp (on water)

Seep #	Arrival Time
26	10:15
26	Surface Sample taken off shore from Seep 26 @ ≈ 6" depth @ 10:20
26	Sample taken off shore from Seep 26 @ ≈ 1m depth @ 10:25
23	10:40
28	10:48
27	11:05
30	11:10
31	11:17
29	11:30
32	11:44

06 MAY 2004

Seeps missed due to tidal elevation being too high, will try again 07-MAY
Seep 19
Seep 44
Seep 45
Seep 50
Seep 52

Seep #	Arrival time
33	12:05
34	12:14
35	12:27
37	12:40
36	13:05
38	13:12
39	13:20
40	13:30
41	13:38
42	1353
43	14:05

Seep #	Arrival time
16	1417
46	1435
47	1440
48	1450
49	1454
51	1504
50	1545
56	Surface Sample readings taken ≈ 6" below water surface @ 1600
56	Sample readings taken ≈ 1m below water Surface @ 16:10

END Bob Complitn 06-MAY-2004

07-MAY-2004
Seep Survey Boat 2 Field Notes Cont'd

Crew: Bob Complin
Jane Sexton
Tim Fitzgerald
Eric Parker

Seeps missed on 06-MAY
Seep 19 ✓
" 44 ✓
" 45 ✓
" 50 ✓
" 52 ✓

Weather Overcast, rain

1045 Left Harbor Island Marina (on water).

Seep # Arrival Time

Seeps missed due to tide height
Seep 72
Seep 75
Seep 77
Seep 78

END Bob Complin 07-MAY-2004

10-MAY-2004

Seep Survey Boat 2 Field Notes cont'd

Crew: Bob Complitta
Joanna Flores

Weather: Rain, windy

1500 Left Harbor Is Marina (on Water)

Seeps to do: 72 ✓
75 ✓
77 ✓
78 ✓

Seep #	Arrival Time
78	1515
77	1530
75	1545
72	1610

1630 Return to Harbor Is Marina

END

Bob Complitta 10-MAY-2004

6/29/04

Seep Sampling

Crew: Berit Bergquist
Bob Complitta
Megan
Thai Do
Joanna Flores

Oversight:
Mick Easterly ACOE
Bernie Zavala EPA

Seep 71 arrive @ 0710

Difficulty in pumping due to tubing connections. Sampling did not begin sample collection until 0840. Completed sample collection at 9:20. Used tubing without teflon - only Masterflex.

6/30/04

Same crew w/o Bernie Zavala

At Trotsky seep S3 was underwater while we were there, will try again at lower tide (Thurs or Fri)

Seep 10 was too silty for mini-piezometer. Seep was coming out of bulk head & not upwelling & tide was coming up will return later.

12:05
checked seep 62 but still dry

~1:30
After sampling Seep 82 we went to Seep 80, but tide was too high to complete sampling, so we didn't start sampling.

7/1/04

Crew: Same crew - no EPA oversight

First went to Seep 80
Pump from Frontier broke. John B. on Chinook called Marc Patten w/ the county to arrange for pickup of another pump. Used Port pump.

Due to time constraints, flow rate was not measured (no channelized flow)

Returned to SP-10; sampled with funnel & tubing.

Flow rate was not measured at sites where it could have been, because of time constraints, & except for SP-39 which was the last seep scheduled for the day, and there was time.

7/2/04

Benr, Bob, Thai, Joanna, Suzanne

Started at 7:00. Arrived at SP-29 about 7:30, but no flow at this seep.

8:30 - went into Trotsky for seep 53. Seep was still submerged, and plenty of flow still discharging at outfall.

9:55 - measured flow at seep 20

10:00 - flow not low enough at SP-12 to measure flow rate (-2.5 tide)

10:15 went to 62

10:45 went to 61

12:00 went to 69 - only collected filtered samples because of high turbidity and rising tide.

7/3/04

Crew: Joanna, Bob & Benr

Went to seep 75 and collected sample @ 10:30. Collected morning rinsate blank

Went to SP-64 and turbidity remained high w/ mini-piezometer after 15 min of pumping. Since we already collected filtered samples on 7/2 no more samples were collected. Collected rinsate blanks using mini-piezometer w/ tubing and funnel w/ tubing.

Collected flow rate info at 61 and 62 ~ 1:30. Also at SP-80.

Went to Trotsky to check seep 58. Seep was exposed - lower flow from outlet. However no flow was coming from seep. Sheen was not observed at other seeps.

LDW-Seep chem collection 6/29/04

1st day of Seep Sampling

Sampled seeps: 71 @ 0840
: 76 @ 1030
: 69 @ 1300

- Atmospheric blank 1 collected from seep 69 @ 1300

6/30/04

Sampled seeps: 48 @ 0730
54 @ 0945
82 @ 1225

- Atmospheric blank + field duplicates taken from seep 82 @ 1225

- Seep 54 had TPH sample collected

JT

7/1/04

1st seep sampled: SP-80 @ 0700
- TPH Samples collected due to sheen at site
- Atmospheric blank collected #3

- SP-10 @ 0845
- only collected filtered samples

- SP-12 @ 0915

- SP-20 @ 10:45
  Atmospheric blank collected #4

- SP-41 @ 12:00
  MS/MSD
  sheen @ site, breaks upon contact (bacterial)
- SP-39 @ 1330

SP-80 0700 overcast 07.01.04

Turbidity - Meter 1 = 3.17 (P1); 4.83 (P2)

Location 47° 32.892 N 122° 20.286 W
Photos 112-114 - oil sheen at surface and entering LDW, H_2S odor

Hydro lab #2

Temp	D.O	Spc	pH
15.97	6.83	116760	6.71

Hydro lab #1

Temp	D.O	Spc	pH	ORP
15.94	8.16	14280	6.25	-60

Spc of LDW
H/L 1 20,398
H/L 2 23,694

Flow rate not measured due to time constraints

07.01.04

SP-10 09:45 overcast
Sampled w/ surface collection method
funnel w/ tubing in channel
Turbidity meter #1 = 5.68

location 47° 32.145N 122° 19.142W
Photos 115-116

Hydrolab #1

Temp	D.O.	SpC	pH	ORP
15.03	19.80	27,229	6.32	88

Hydrolab #2

Temp	D.O.	SpC	pH
15.02	9.03	31607	6.79

Spc of LDW
H/L 1 = 10160
H/L 2 = 11764

07.01.04

SP-12 09:15 overcast

Turbidity meter #1 4.35 (p1) 0.86 (p2)

location 47° 32.095 N 122° 19.334W
Photos 117-118

Hydrolab #1

Temp	D.O.	SpC	pH	ORP
13.56	8.47	42351	5.94	108

Hydrolab #2

Temp	D.O.	SpC	pH
13.71	8.30	49361	6.63

SpC of LDW
H/L 1 = 18,124
H/L 2 = 20,973

SP-20 : 10:45 overcast 07.01.04

Turbidity meter #1 (p1) 1.75 , (p2) 2.44

Location: 47° 31.527 N 122° 18.500W

Photos: 119-120 , 121-122 Sample

Hydrolab #1

Temp	D.O	SpC	pH	ORP
15.02	8.46	27,245	6.93	158

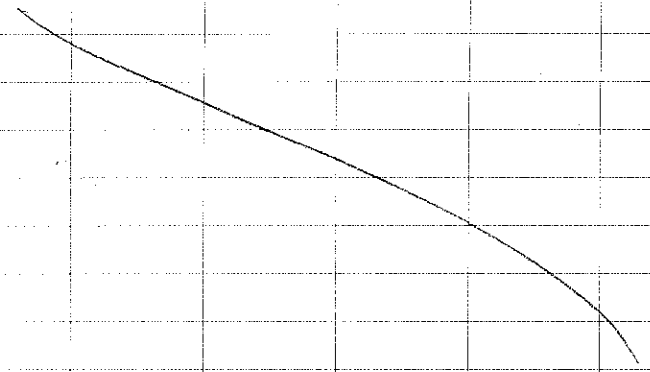
Hydrolab #2

Temp	D.O.	SpC	pH
15.05	8.86	31648	7.32

SpC of LDW

H/L #1: 3383

H/L #2: 3873



SP-41 12:00 sunny 07.01.04

Turbidity meter #1 0.26 (p1), 0.71 (p2)

Location: 47° 31.253 N 122° 18.523 W

Photos: 123-127

Hydrolab #1

Temp	D.O	SpC	pH	ORP
18.20	8.39	15029	6.85	180

Hydrolab #2

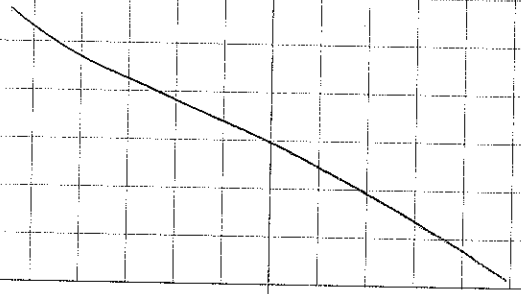
Temp	D.O.	SpC	pH
18.20	7.64	17457	6.97

SpC of LDW

H/L #1 = 3227

H/L #2 = 3690

Broad wet bank - not possible to measure flow rate.



07.01.04

SP-39 13:30 sunny

Turbidity meter #1 0.63 (p1) 0.28 (p2)

Location: 47°31.035N 122° 18.422W

Photos - 128-130, 131, 132

Hydrolab #1

Temp	DO	SpC	pH	ORP
17.86	9.05	32931	6.28	192

Hydrolab #2

Temp	DO	SpC	pH
18.16	9.34	37913	6.94

SpC at LDW

H/L #1: 4522

H/L #2: 4808

Flow rate:

channel length - 5 ft.

channel width - 1.2 ft.

channel depth - 1/8 in.

Rate - 4.5 sec

End of day

7/2/04 overcast

SP-62 @ 10:30 am

atmospheric blank #5 collected

only filtered samples collected

SP-61 @ 11am

SP-64 @ 12:20 pm

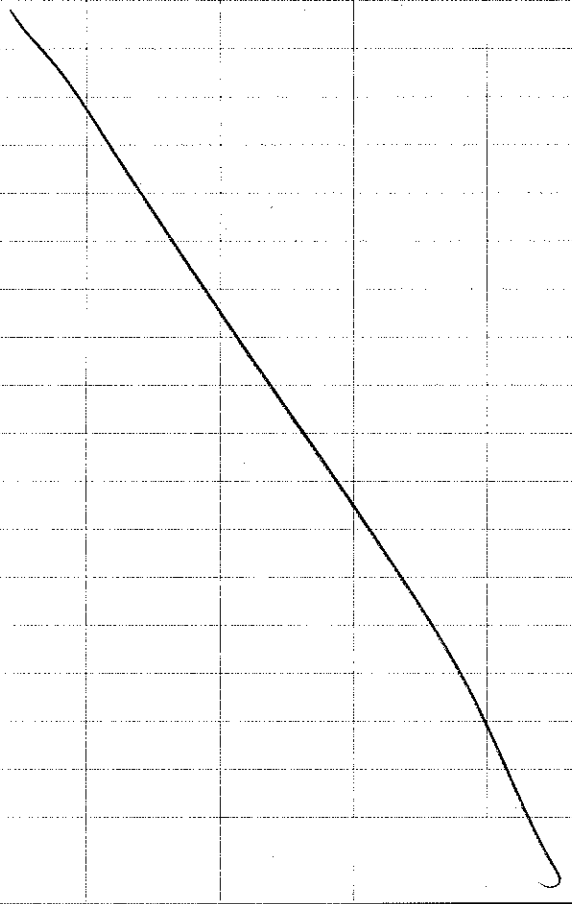
- as result of incoming tide, not all samples collected (stopped 12:45)
- samples not collected:
  - 2 of 3 PCB/Pest samples (unfiltered)
  - TPH-D unfiltered samples (2)
  - unfiltered metals
  - unfiltered mercury
  - TOC
  - TSS
  - 2 of 5 VOCs

SP-75 @ 1:15 pm

no samples collected because tide too high.

continued...

SP-69 @ 1:40pm
- collected TPH-D samples (4)
- collected TPH-G samples (2)
(added samples to previous collection at this site).



7/3/04

SP-75 @ 1030
- collected Atmospheric blank #6 for total Hg
- collected Rinsate blank for Total Hg
- collected MS/MSD for PCB/Pest
  3:1L - unfiltered
  3:1L - filtered

SP-64 @ 1200 - TPH site
- collected Rinsate blank for unfiltered (total)
  × - PCB/Pest: 3-1L (LDW-SP-64-C-RB-MP-4)
  × - Hg: 1-500mL
  - Metals: 1-500mL @1330 for Mini Piezo method (MP)
  × - TPH-D: 2-500mL
  × - SVOC: 2-500mL
- ~~TPH-G & TPH-D collected @1200~~
- collected Rinsate blank for unfiltered for Surface method (SM) @1300 (total) (LDW-SP-64-C-RB-S-4)
  × - PCB/Pest
  × - Hg
  × - Metals
  × - TPH-D
  × - SVOC
  } same volume as above

Turbidity was >5,50 no sample was collected will use yesterday's instead