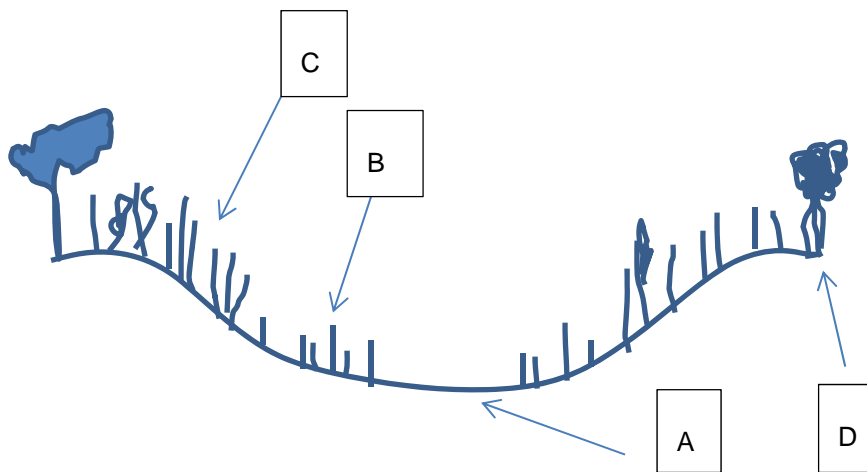


Seed Collection Plan

FEG Grenade Range Aquatic Features (AF09-1, AF09-1B, AF09-2)

The three aquatic features (AF) support wetland plant species in zonal gradients, depending on depth and duration of standing water:

- A. Bare areas of ponding bottom with potential invertebrate cysts and larvae
- B. AF bottom: brown-headed rush (*Juncus phaeocephalus*, FACW), common spikerush (*Eleocharis macrostachya*, OBL), hyssop-leaved loosestrife (*Lythrum hyssopifolia*, OBL)*, rabbitsfoot grass (*Polypogon monspeliensis*, FACW)*, others (potential presence of new grass species)
- C. Upper AF edge: western rush (*Juncus occidentalis*, FACW), toad rush (*Juncus bufonius* var. *occidentalis*, FACW), western goldenrod (*Euthamia occidentalis*, FACW), cape grass (*Tribolium obliterum**, not in Jepson, no wetland status) – * =non-native
- D. Upland vegetation (central maritime chaparral, grassland)



Data requirements prior to seed collection:

- Documentation of zonal boundaries via GPS
- Establish Photopoints with gps/stakes and take photos

Seed Collection

Seed collection will take place in all three aquatic features. Seeds from each aquatic feature will be collected, labeled and stored separately. Seeds will be collected from zones B and C in each aquatic feature. (See figure above.) Seeds collected in each zone will also be stored separately and labeled. For example AF09-1 Zone B and AF09-1 Zone C, AF09-1B Zone B and AF09-1B Zone C, and AF09-2 Zone B and AF09-2 Zone C. Seeds will be stored in paper bags and stored in a cool dry place.

Seed Collection Methods

Using scissors or cutting shears vegetation seed heads will be cut and collected by zone and place in paper bags labeled with aquatic feature number and zone. Some species that may be collected include *Juncus occidentalis*, *Euthamia occidentalis*, and *Eleocharis macrostachya*.

Seeds in duff can be collected using either a broom and dust pan or a vacuum/hand held vacuum. Seeds and duff would then be placed in paper bags labeled by aquatic feature and zone.

Seed Storage

Seeds will be stored in paper bags labeled appropriately as described above in the seed storage room of the ESCA office until remediation work is complete.

Sample Log

Well/Boring Small Pond (#1) Project Name and No. _____

Site Location Marina CA Drilling Started 10/1/12 Drilling Completed 10/1/12

Total Depth Drilled 32 inches Hole Diameter NA inches Sampling Interval NA feet

Length and Diameter of Sampling Device NA Type of Sampling Device Back hoe

Drilling Method Back hoe Drilling Fluid Used NA

Drilling Contractor Weston Driller _____ Helper _____

Prepared By M. Sullivan Hammer Weight NA Hammer Drop NA inches

Sample Depth (feet below land surface)	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
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From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4 1/6"	-	-	(CL) Topsoil, Clay w/ trace ^{nut} 3.0-2.0 φ sand. Medium plastic, Roots & organic material, sand sub rounded, sub spherical, soft	
4 1/6"	18 1/20"	-	-	(SM) silty sand, 1.0-3.0 φ sand, sub spherical, rounded to sub rounded, some cementation. Predominantly Quartz some iron staining & roots. Dense, dry ~10-30% fines, non plastic	
18 1/20"	32"			(SM) silty sand, 1.0-3.0 φ sand, sub spherical sub angular, loose, moist, predominantly quartz, ~20-40% fines, non plastic	

Sample Log

#2

Well/Boring Mid Pond (Large cu) Project Name and No. Fort ORD

Site Location Marina CA Drilling Started 10/1/11 Drilling Completed 10/1/11

Total Depth Drilled 32 inches feet Hole Diameter NA inches Sampling Interval NA feet

Length and Diameter of Sampling Device NA Type of Sampling Device Backhoe

Drilling Method Backhoe Drilling Fluid Used N/A

Drilling Contractor Weston Driller [Signature] Helper _____

Prepared By Mr. Sullivan Hammer Weight NA Hammer Drop NA inches

Sample Depth (feet below land surface)		Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample Description	PID (ppm)
From	To				
0	~12"			(CL) Topsoil, clay w/ trace sand, 3.0-2.0 ϕ sand, sub rounded, sub spherical roots and organic matter, soft, medium plastic,	
12"	24"			(SM) silty sand, 1.0-3.5 ϕ sand sub angular, sub spherical, some cementation iron staining, roots, dense, dry ~10-20% fines non plastic predominantly quartz grains	
24"	?			(SM) silty sand 1.0-3.5 ϕ sand, sub angular sub spherical, loose, moist, 40-30% fines non plastic, predominantly quartz grains iron staining throughout.	

Sample Log

Well/Boring #3 (medium Pond) Project Name and No. Fort Ord

Site Location Marina CA Drilling Started 10/1/12 Drilling Completed 10/1/12

Total Depth Drilled 32 ^{inches}/_{feet} Hole Diameter NA inches Sampling Interval NA feet

Length and Diameter of Sampling Device NA Type of Sampling Device Back hoe

Drilling Method Back Hoe Drilling Fluid Used NA

Drilling Contractor Weston Driller _____ Helper _____

Prepared By Mr. Sullivan Hammer Weight NA Hammer Drop NA inches

Sample Depth (feet below land surface)		Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample Description	PID (ppm)
From	To				
0	2 1/5"			(CL) sandy clay topsoil, clay w/ organic matter	
				3.5-2.0φ sand sub angular, sub spherical Predominantly Quartz, Medium plastic soft, roots	
2 1/5"	19 1/21"			(SM) silty sand, 3.5-1.0φ sand, subangular sub spherical, non plastic, some cementation	
				Dense, Dry sand predominantly Quartz ~10-30% fines, roots	
19 1/21"	?			(SM) silty sand 3.5-1.0φ sand, sub angular sub spherical, loose, moist, predominantly Quartz ~10-30% fines non plastic, roots	