

APPENDIX B

PEST CONTROL PROGRAM MATRIX

**Contra Costa Water District
Pest Management Program Matrix**

Pest*	Locations/Facilities	Management Objective	Action Level	Management Practice(s)
Aquatic Weeds*				
Algae*	Canal and Reservoirs	Control non-native invasive species; maintain flow in conveyance structures; and/or prevent taste and odor issues.	Phytoplankton count exceeds WQ standard and/or Flavor Profile Analysis dictates action.	Diver assist vacuum, apply algaecide
	Reservoirs	Control non-native invasive species; and/or prevent taste and odor issues.	15% of water surface area infested with filamentous algae.	Apply algaecide
	Canal and Reservoirs	Control non-native invasive species; and/or maintain flow in conveyance structures.	Zero tolerance	Mechanical harvesting, apply algaecide
Floating/Submersed*				
Emergent Hydrophytes*	Canal and Reservoirs	Control non-native invasive species; maintain flow in conveyance structures; allow access to perform operations and maintenance activities; and/or allow access for recreational use.	Zero tolerance	Apply post-emergent herbicide

* see Appendix A

**Contra Costa Water District
Pest Management Program Matrix**

Pest*	Management Practice(s)	Environmental Effects	Effects to listed Species
Aquatic Weeds*			
Algae*	Diver assist vacuum, apply algaecide	Removal of fixed algae by diver assist vacuum is localized treatment method that removes a majority of the target organism with little if any other effects to the environment. This management practice is followed by an application of algaecide within 50 yards of the vacuumed area (e.g., inlet tower) to kill remaining algae. Fish in the immediate area will migrate to areas away from the treatment area.	
	Apply algaecide	This management practice eliminates food source for algae resulting in die-off of algae. Treatment area is limited to reservoir shoreline allowing fish to migrate away from these areas.	
Floating/Submersed*	Mechanical harvesting, apply algaecide	Mechanical harvesting can cause fragmentation and propagation of aquatic weeds in other areas of the water body. Algaecide application will kill the aquatic weeds, and may reduce dissolved oxygen levels. However, the application is done in a manner (e.g., no more than 1/2 the surface treated) to allow fish to migrate away from the treatment area.	
Emergent Hydrophytes*	Apply post-emergent herbicide	Spot treatment, outside of the water body, kills target organism. Some potential for runoff after precipitation event.	
* see Appendix A			

**Contra Costa Water District
Pest Management Program Matrix**

Pest*	Locations/Facilities	Management Objective	Action Level	Management Practice(s)
Terrestrial Weeds*				
Annual Broadleaf*	All facilities	Allow safe access to facilities to perform operation and maintenance activities; prevent damage to structures and canal liner; control non-native invasive species; and/or fire prevention.	Zero tolerance along trails, fence line, at structures, and roadways. Root system tolerated on specified slopes and canal banks, and dam face to mitigate erosion.	Mowing and discing. Pre-emergent and post-emergent herbicide applications.
Annual Grasses*	All facilities	Allow safe access to facilities to perform operation and maintenance activities; prevent damage to structures and canal liner; control non-native invasive species; and/or fire prevention.	Zero tolerance along trails, fence line, at structures, and roadways. Tolerated on specific slopes and canal banks.	Mowing and discing. Pre-emergent and post-emergent herbicide applications.
Perennials*	All facilities	Allow safe access to facilities to perform operation and maintenance activities; prevent damage to structures and canal liner; control non-native invasive species; and/or fire prevention.	Zero tolerance	Mowing and discing. Pre-emergent and post-emergent herbicide applications.
Shrubs/Trees*	Canal liner	Prevent damage to structures and canal liner	Zero tolerance within 15 feet of the canal.	Post-emergent cutting, applying post-emergent herbicide
* see Appendix A				

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Pest Management Program Matrix**

Pest*	Management Practice(s)	Environmental Effects	Effects to listed Species
<p>Terrestrial Weeds</p> <p>Annual Broadleaf*</p>	<p>Mowing and discing. Pre-emergent and post-emergent herbicide applications.</p>	<p>Vegetation growth would be minimal in areas where pre-emergent herbicides are applied. Emerged plants killed with post-emergent herbicides. Pesticide residues on soil particles, and breakdown products present at site. Herbicide residue may enter the canal with drift, solubilization and runoff during precipitation events, or movement of soil particles with adhered material.</p>	
<p>Annual Grasses*</p>	<p>Mowing and discing. Pre-emergent and post-emergent herbicide applications.</p>	<p>Vegetation growth would be minimal in areas where pre-emergent herbicides are applied. Emerged plants killed with post-emergent herbicides. Pesticide residues on soil particles, and breakdown products present at site. Herbicide residue may enter the canal with drift, solubilization and runoff during precipitation events, or movement of soil particles with adhered material.</p>	
<p>Perennials*</p>	<p>Mowing and discing. Pre-emergent and post-emergent herbicide applications.</p>	<p>Vegetation growth would be minimal in areas where pre-emergent herbicides are applied. Emerged plants killed with post-emergent herbicides. Pesticide residues on soil particles, and breakdown products present at site. Herbicide residue may enter the canal with drift, solubilization and runoff during precipitation events, or movement of soil particles with adhered material.</p>	

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Pest Management Program Matrix**

Pest*	Management Practice(s)	Environmental Effects	Effects to listed Species
Terrestrial Weeds			
Shrubs/Trees*	Post-emergent cutting, applying post-emergent herbicide	Spot treatment minimizes effects to non-target organism. Herbicide residue may enter the canal with drift, solubilization and runoff during precipitation events, or movement of soil particles with adhered material.	
* see Appendix A			

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Pest Management Program Matrix**

Pest*	Locations/Facilities	Management Objective	Action Level	Management Practice(s)
Mammals*				
Burrowing Rodents*	All facilities	Prevent damage to structures and canal liner.	Zero tolerance along canal and face of dam.	Pre and post rodenticides
* see Appendix A				

**Contra Costa Water District
Pest Management Program Matrix**

Pest*	Management Practice(s)	Environmental Effects	Effects to listed Species
Mammals*			
Burrowing Rodents*	Pre and post rodenticides	Rodenticides placed in bait station that limits access to target organism and exposure to the environment.	
* see Appendix A			

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Pest*	Locations/Facilities	Management Objective	Action Level	Management Practice(s)
Insects & Other Invertebrates*	All facilities	Allow safe access to facilities to perform operation and maintenance activities. Allow safe public access to recreational trails and facilities.	Zero tolerance within 100 yards of work site and/or area for operations and maintenance activities. Zero tolerance when notified by public for recreational use and/or access.	Beekeeper to relocate bee hive or apply insecticide. Apply insecticide for all other nuisance pests.
* see to Appendix A				

**Contra Costa Water District
Pest Management Program Matrix**

Pest*	Management Practice(s)	Environmental Effects	Effects to listed Species
Insects & Other Invertebrates*	Beekeeper to relocate bee hive or apply insecticide. Apply insecticide for all other nuisance pests.	Localized treatment minimizes environmental effects. Potential for runoff into canal when used in immediate area.	
* see Appendix A			