



ENVIRONMENTAL CONSULTANTS

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August 3, 2022

Newton Conservation Commission  
100 Commonwealth Ave  
Newton, MA 02459

**Re: Charles River Vegetation Management Plan Notice of Intent – Supplemental Information Package**

Dear Conservation Commission Members:

SWCA Environmental Consultants (SWCA) is submitting the enclosed supplemental information package on behalf of the Massachusetts Department of Conservation and Recreation (DCR) in response to comments and questions from the Newton Conservation Commission during the July 21, 2022 Conservation Commission Hearing. The applicant (DCR) understands that the Commission would like additional information regarding the schedule and specification of native plant restoration following invasive plant management activities. Below is a brief summary of the planning process associated with invasive plant management within the Charles River Reservation in Newton. The attached page goes into greater detail regarding what will be included in future management plan submissions to the Conservation Commission, including the goals and strategies to restoration associated with this project.

1. DCR prioritizes a section of invasive plants for management within the Newton portion of the Charles River Reservation
2. A full invasive plant management plan is developed using the decision tree and management options matrix submitted with the NOI (Appendix E)
3. DCR submits the location-specific invasive plant management plan to the Newton Conservation Commission for approval prior to the start of work.
4. An annual summary report will be submitted to the Newton Conservation Commission at the end of each year detailing what work has been performed, what future management may be needed, and the overall success of the management and ultimate native restoration.
5. Adaptive management and restoration will continue as needed.

This filing was originally submitted on July 5, 2022 through the eDEP filing site as well as the Newton NewGov filing site. Please reach out with any questions.

Sincerely,

A handwritten signature in black ink that reads 'Naomi Valentine'.

Naomi Valentine  
Ecological Restoration Team Lead

## 1.0 RESTORATION OF INVASIVE PLANT MANAGEMENT AREAS

Once DCR has defined a specific invasive plant management area, they will submit an invasive plant management plan to the Conservation Commission for approval. This plan will include the specifics regarding invasive plant management, removal, and disposal. If necessary, the plan will also include sediment and erosion control barrier installation, maintenance, and removal plans (following EPA Construction General Permit best management practices) as well as temporary stabilization measures, if applicable. The management plan will also include the goals of the invasive plant management plan. Goals will include both management success goals as well as native restoration landscape type goals.

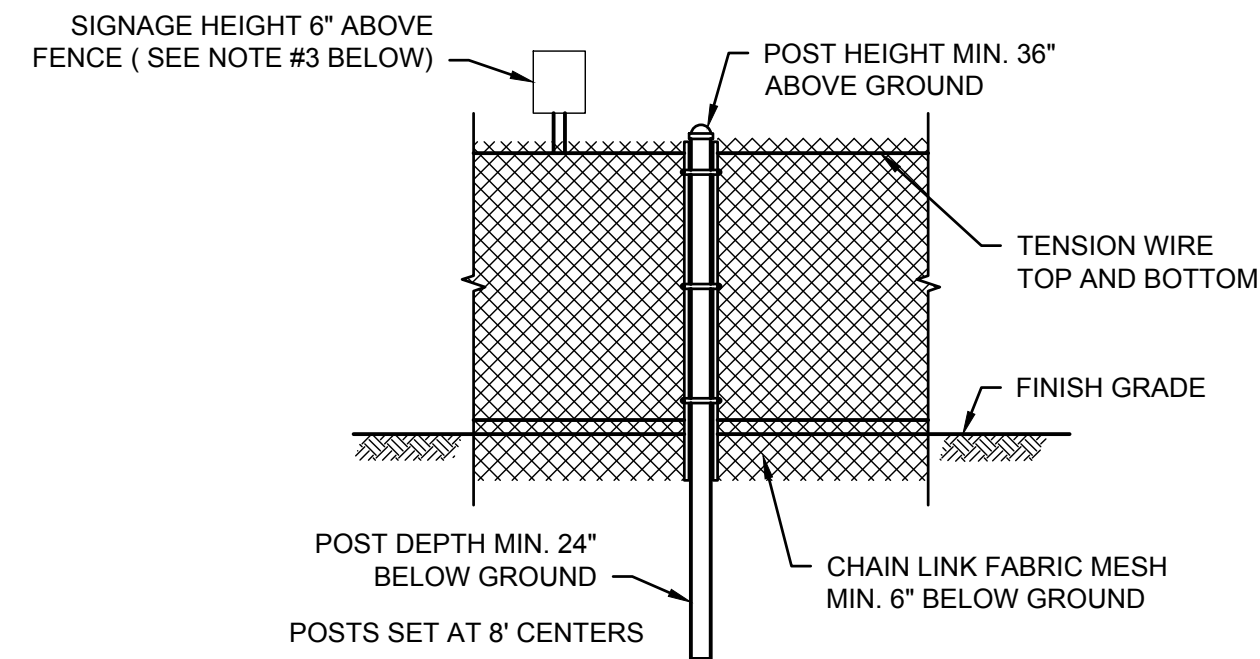
The *Landscape Restoration Plant List* submitted with the original NOI filing is organized by landscape cover type (mirroring the Landscape Types present throughout the Charles River Reservation). DCR will identify what Landscape Type is to be restored in a given invasive plant management area. This will define which plant pallet will be utilized from the *Landscape Restoration Plant List*.

As described at the July 21, 2022 Conservation Commission hearing, DCR plans to focus on adaptive plant management practices. Invasive plants are dynamic and require varying methods of management based on their placement, density, and environment surrounding. Therefore, it is important to allow flexibility in the management plan and rely on regular monitoring to determine the exact timing of various management methods, including restoration. Furthermore, previous invasive plant management projects in the Charles River Reservation and across the Commonwealth have taught us that native plants will readily repopulate an area once the competition of invasive plants has been reduced or eliminated. Conditions are sure to change from year to year and DCR's plan for restoration will need to be equally adaptable.

The following points will be considered during adaptive management and native plant restoration:

- No areas are planned to be cleared to the ground surface or to have all vegetation removed by other means. So, there should be no bare areas as a result of invasive plant management. However, should any bare areas be observed immediately following management, DCR will seed with a native restoration seed mix appropriate for the Landscape Type to be restored.
  - Seeding will occur in these scenarios within two weeks of soil disturbance.
    - All seeded/restored areas will be enclosed with goose deterrent fencing (Attachment A)
    - Can also double as pedestrian exclusion fencing at the start of management if desired
  - Other site stabilization measures (erosion control blanket, etc.) will be considered as well as needed.
- Invasive plant management takes continued management efforts and will require more than one growing season to reach most management and restoration goals.
  - DCR will not revegetate with containerized material until 80% or more of the targeted invasive plants are controlled.
  - DCR will allow for one full growing season to pass before planning any restoration planting or large-scale seeding (not including bare soil seeding, as described above).
- Monitoring and reporting each year will focus on the progress made toward invasive plant management and restoration goals.
  - Additional management and potentially seeding will continue until all defined restoration goals are met.
  - The Conservation Commission will receive reports on invasive plant management and restoration goals in each year-end report for this project.

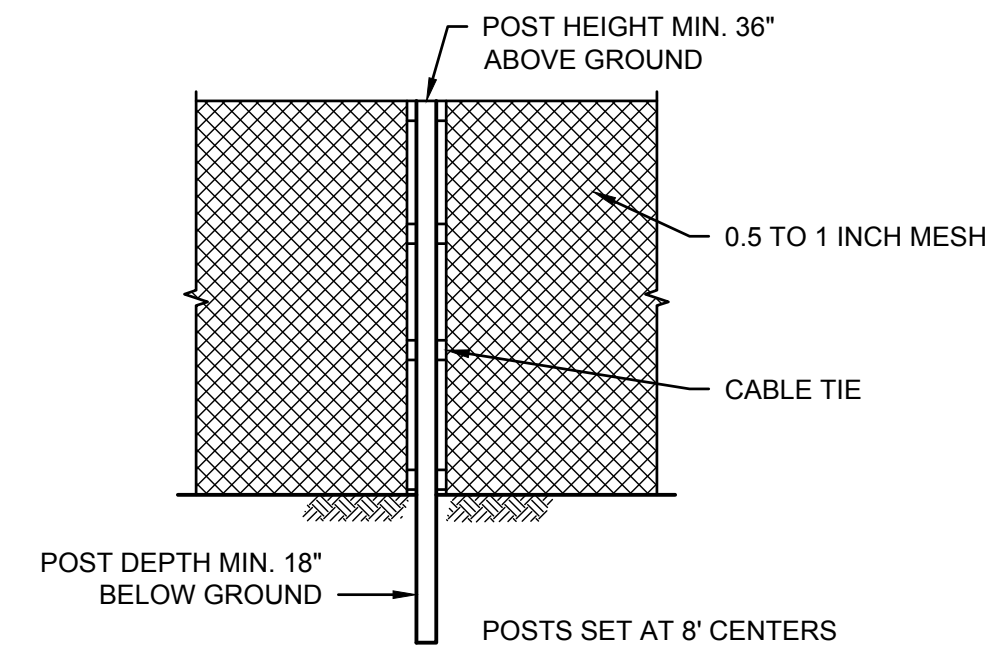
**ATTACHMENT A**  
**Goose Deterrent Fencing**



**CHAIN LINK FENCE**

**NOTES:**

1. THE PLASTIC MESH FENCE SHALL BE PLACED ON THE UPLAND SIDE OF ALL RESTORATION AREAS AND ON THE WATER SIDE.
2. THE CHAIN LINK FENCE WILL BE UTILIZED IN LOCATIONS WHERE PLASTIC MESH FENCING IS DETERMINED TO BE INADEQUATE FOR PROTECTION.
3. SIGNAGE, SPACED 50' O.C., SHALL STATE "INVASIVE PLANT MANAGEMENT AREA: HERBICIDE APPLICATION IN PROGRESS - DO NOT DISTURB".

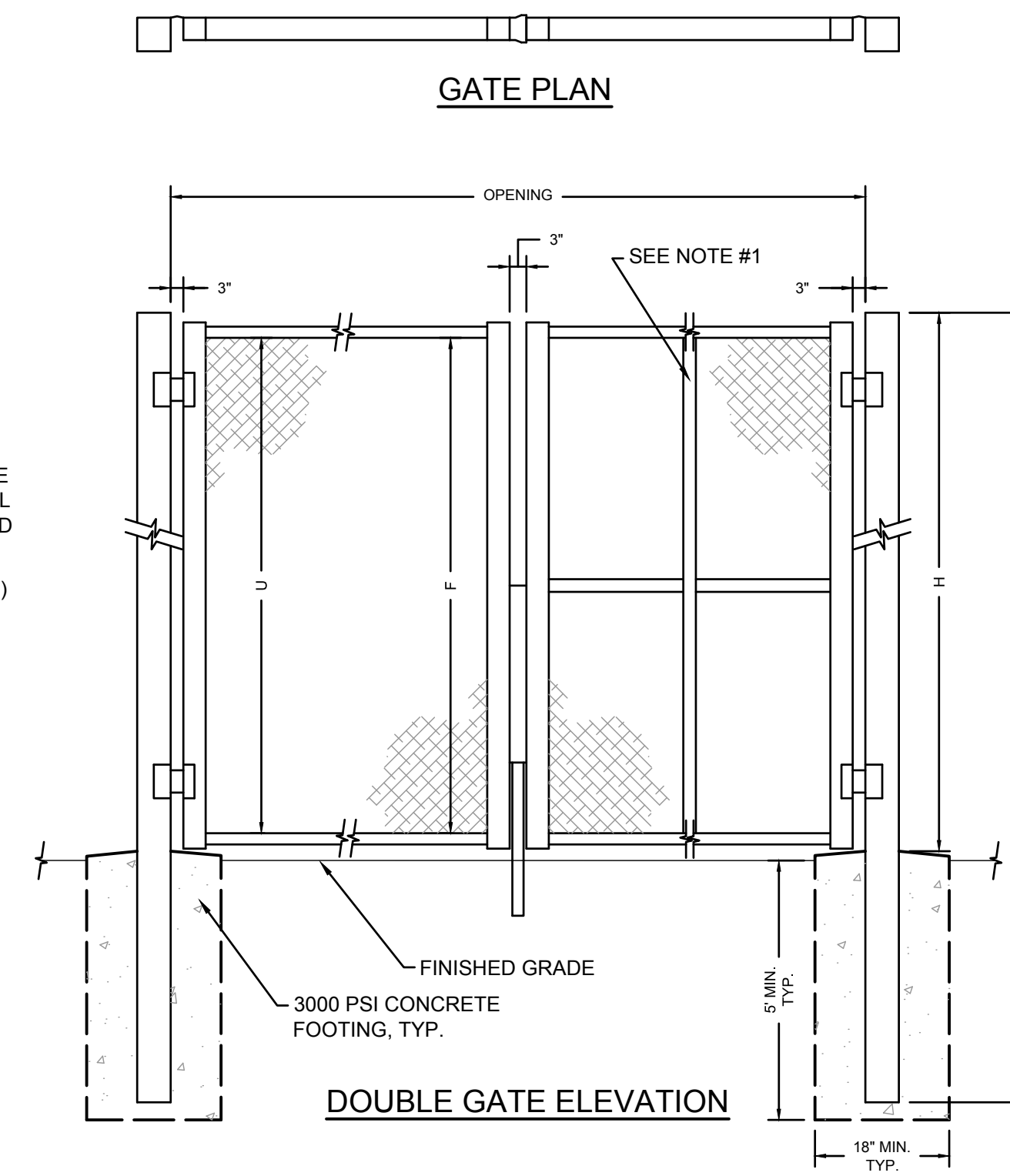


**PLASTIC MESH FENCE**

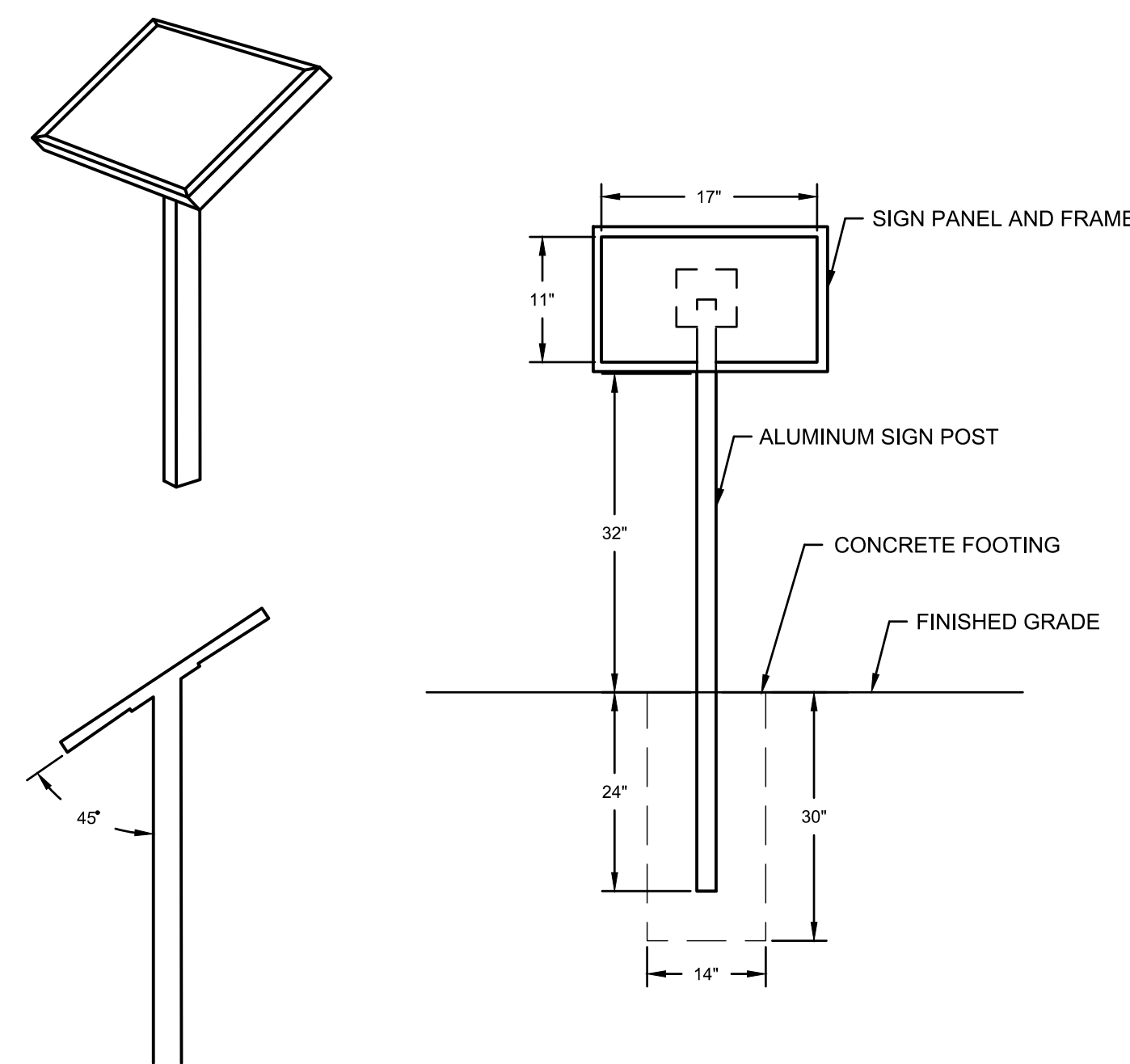
**NOTES:**

1. CENTER UPRIGHT REQUIRED ON GATE LEAVES 8'-0" AND WIDER. CENTER RAIL REQUIRED ON GATE LEAVES 10'-0" AND HIGHER.
2. PROVIDE MEANS OF HOLDING GATE(S) OPEN DURING SITE USE HOURS.
3. PROVIDE ZINC COATED LOCKS WITH MATCHING KEYS FOR ALL GATES TO OWNER.
4. SUBMIT SHOP DRAWINGS.

SINGLE OR DOUBLE LEAF GATES		
NOM. HEIGHT (H) (WITHOUT BARBED WIRE)	UPRIGHT HEIGHT (U) (ACTUAL DIMENSION)	FRAME HEIGHT (F) (ACTUAL DIMENSION)
3'-0"	2'-10"	2'-8 1/2"



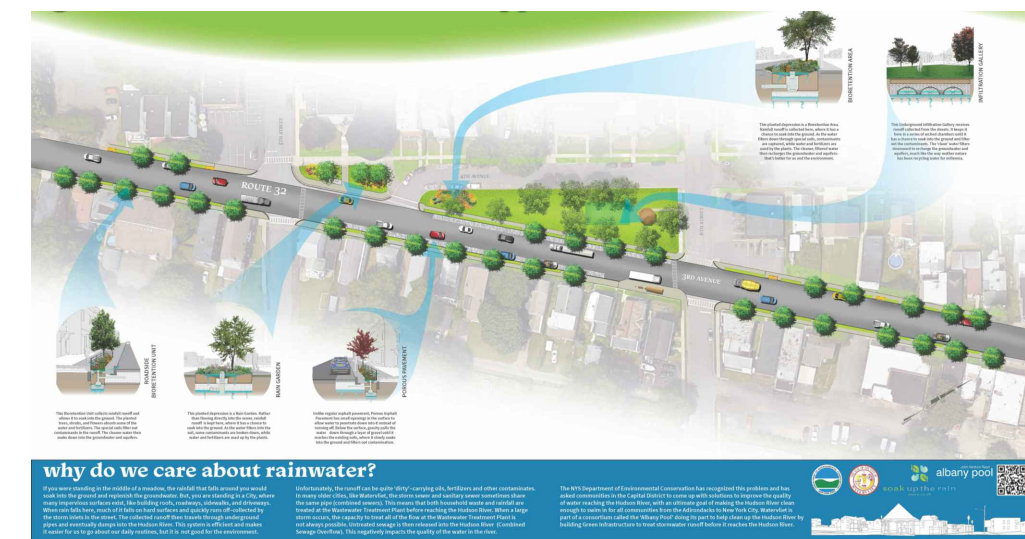
**1 HERBIVORE DETERRENT FENCING DETAIL**  
SCALE: N.T.S.



**INFORMATIONAL SIGNAGE TYPE "A"**

**NOTES:**

1. POSTS TO BE 2" X 4" RECTANGULAR ALUMINUM WITH STAINLESS STEEL HARDWARE.
2. SIGN PLATE TO BE WELDED AT 45 DEGREES IN ALL INSTANCES.
3. POSTS TO BE INSTALLED A MINIMUM OF 24" BELOW GRADE IN CONCRETE FOOTING PER MANUFACTURER'S RECOMMENDATIONS.
4. SIGN POST AND FRAME TO BE TEXTURE POWDER COATED "FOREST GREEN" IN COLOR.
5. SIGN FRAMES TO ALLOW FOR A PANEL THICKNESS OF .125".
6. SIGN FRAME WIDTH TO BE 3/4" AND PROVIDE A REMOVABLE TOP RAIL FOR PANEL INSTALLATION.
7. SIGN FRAME TO ALLOW FOR 11" BY 17" GRAPHIC PANEL.
8. SIGN MATERIALS TO BE AS MANUFACTURED BY FOSSIL INDUSTRIES INC., PANNIER GRAPHICS, IZONE IMAGING OR APPROVED EQUIVALENT.



**TYPICAL INFORMATIONAL SIGN GRAPHIC**

**NOTE:** GRAPHIC TO BE PROVIDED BY OWNER'S REPRESENTATIVE.

**2 CHAIN LINK FENCE GATE DETAIL**  
SCALE: N.T.S.

**3 INFORMATIONAL SIGN DETAIL**  
SCALE: N.T.S.

Consultants:

Revisions:

No.	Date	Description

Seal:

Issued For:

FOR PERMITTING USE ONLY - NOT FOR CONSTRUCTION

Scale: AS NOTED

Date: MARCH 2021

Drawn By: RAM

Reviewed By: DPB

Approved By: CFR

W&S Project No: P18-3241-S1A

W&S File No:

Drawing Title:

**PLANTING DETAILS**

Sheet Number:

**C504**

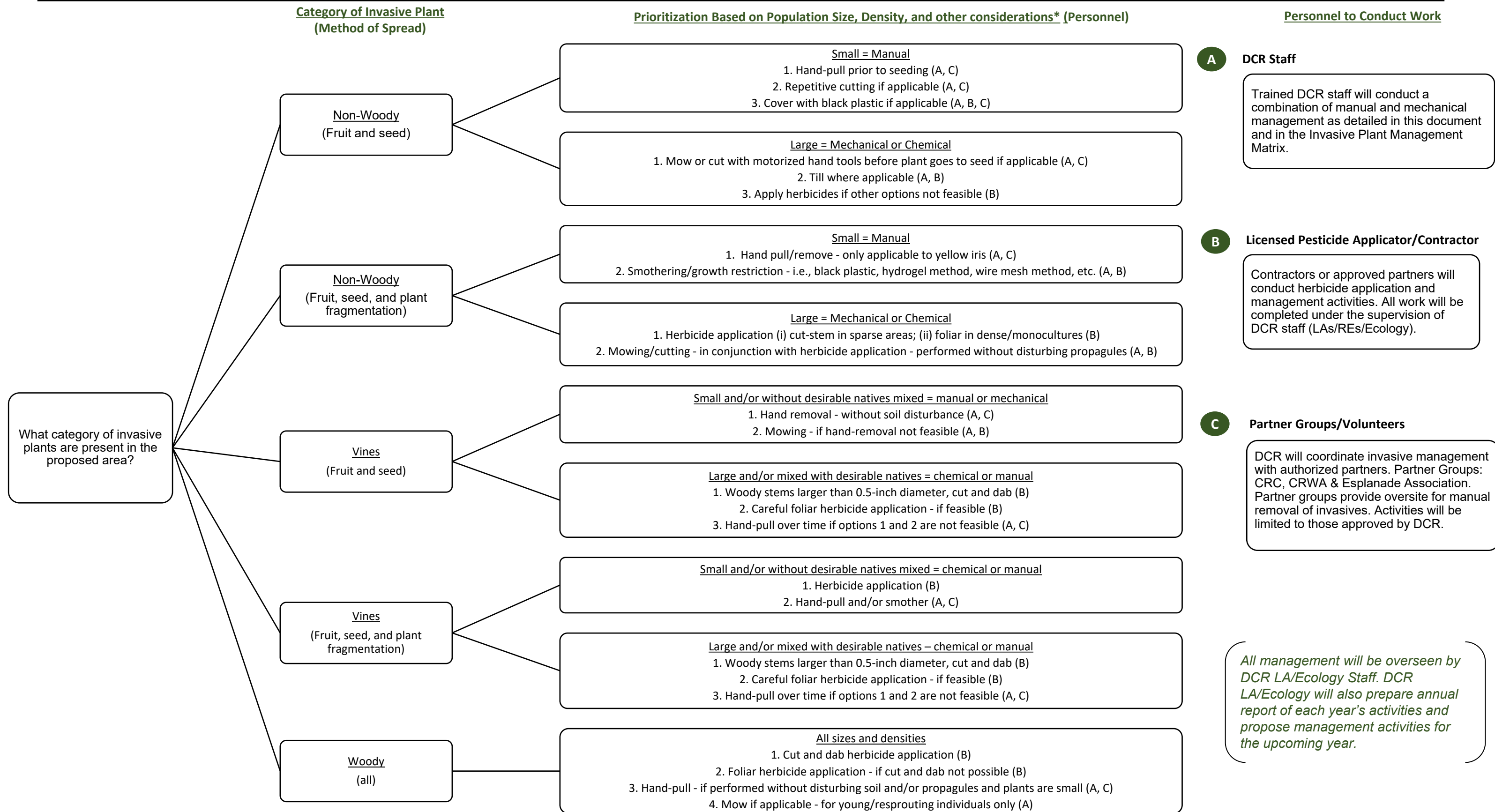
**ATTACHMENT B**

**CRVMP Invasive Plant Management Decision Tree  
and Management Details**



# CRVMP Invasive Plant Management Decision Tree

DCR-proposed invasive plant management will be completed by DCR staff, partner groups, or state contractors



What category of invasive plants are present in the proposed area?

Non-Woody  
(Fruit and seed)

Non-Woody  
(Fruit, seed, and plant fragmentation)

Vines  
(Fruit and seed)

Vines  
(Fruit, seed, and plant fragmentation)

Woody  
(all)

Small = Manual  
1. Hand-pull prior to seeding (A, C)  
2. Repetitive cutting if applicable (A, C)  
3. Cover with black plastic if applicable (A, B, C)

Large = Mechanical or Chemical  
1. Mow or cut with motorized hand tools before plant goes to seed if applicable (A, C)  
2. Till where applicable (A, B)  
3. Apply herbicides if other options not feasible (B)

Small = Manual  
1. Hand pull/remove - only applicable to yellow iris (A, C)  
2. Smothering/growth restriction - i.e., black plastic, hydrogel method, wire mesh method, etc. (A, B)

Large = Mechanical or Chemical  
1. Herbicide application (i) cut-stem in sparse areas; (ii) foliar in dense/monocultures (B)  
2. Mowing/cutting - in conjunction with herbicide application - performed without disturbing propagules (A, B)

Small and/or without desirable natives mixed = manual or mechanical  
1. Hand removal - without soil disturbance (A, C)  
2. Mowing - if hand-removal not feasible (A, B)

Large and/or mixed with desirable natives = chemical or manual  
1. Woody stems larger than 0.5-inch diameter, cut and dab (B)  
2. Careful foliar herbicide application - if feasible (B)  
3. Hand-pull over time if options 1 and 2 are not feasible (A, C)

Small and/or without desirable natives mixed = chemical or manual  
1. Herbicide application (B)  
2. Hand-pull and/or smother (A, C)

Large and/or mixed with desirable natives – chemical or manual  
1. Woody stems larger than 0.5-inch diameter, cut and dab (B)  
2. Careful foliar herbicide application - if feasible (B)  
3. Hand-pull over time if options 1 and 2 are not feasible (A, C)

All sizes and densities  
1. Cut and dab herbicide application (B)  
2. Foliar herbicide application - if cut and dab not possible (B)  
3. Hand-pull - if performed without disturbing soil and/or propagules and plants are small (A, C)  
4. Mow if applicable - for young/resprouting individuals only (A)

*\*No mowing or tilling will ever occur in wetlands, steep slopes, or within bank.  
\*Hand pulling will not be performed within bank.*

		Methods of Management				Methods of Disposal	
Category	Invasive Plant Name	Mechanical	Manual	Chemical	Species-Specific Notes		
Non-woody; Fruit and seed	Garlic Mustard ( <i>Alliaria petiolata</i> )		-Hand pull (small infestations): do not put pulled plants in piles where roots can stay moist -Mulching: several inches of wood chips -Cutting: repetitive for multiple growing seasons prior to seed set; cut a few inches above soil after flower stalks elongate but before flowers open. Do not cut first year rosettes.		Herbicide application: most effective in fall and/or early spring	<p><b>Prior to flowering:</b> Depends on scale of infestation</p> <p><u>Small infestation</u></p> <ul style="list-style-type: none"> <li>• Pull or cut plant and leave on site with roots exposed.</li> </ul> <p><u>Large infestation</u></p> <ul style="list-style-type: none"> <li>• Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).</li> <li>• Monitor. Remove any re-sprouting material.</li> </ul> <p><b>During and following flowering</b> Do nothing until the following year or remove flowering heads and bag and let rot.</p> <p><u>Small infestation</u></p> <ul style="list-style-type: none"> <li>• Pull or cut plant and leave on site with roots exposed.</li> </ul> <p><u>Large infestation</u></p> <ul style="list-style-type: none"> <li>• Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).</li> <li>• Monitor. Remove any re-sprouting material.</li> </ul>	
	Purple Loosestrife ( <i>Lythrum salicaria</i> )				Herbicide application: after flowering but before seeds form (June - August)		
	Broad-Leaved Pepperweed ( <i>Lepidium latifolium</i> )	-Tilling/mowing (herbicide follow-up required): disk in fall, mow when flowers bud in spring. Allow plants to reach flower bud stage once more before applying herbicide. Further spraying likely needed in future.			- Foliar Application: 1-3% Glyphosate (or approved alternative solution - see notes) directly to foliage prior to seed set		Herbicide Application: should be timed to be at the period when carbohydrate root reserves are at lowest during early flowering or bud stage.
	Greater Celandine ( <i>Chelidonium majus</i> )						Safety note: Sap can cause skin irritation. Wear gloves when handling.
	Ground Elder/ Bishops Weed/Goutweed ( <i>Aegopodium podagraria</i> )	-Mowing: frequent mowing at short heights, early in year just after plant has reached full leafout -Covering: cover with black plastic sheeting		-Hand pull small/manageable infestations before flowering/seed			Covering: covering after mowing can exhaust energy reserves
	Lesser Celandine ( <i>Ficaria verna</i> )						Safety note: Sap can cause skin irritation. Wear gloves when handling.
	Japanese Stiltgrass ( <i>Microstegium vimineum</i> )	-Cutting: cut to ground with weed whacker in September, shortly before they produce seed					Herbicide application: 1-2% Fusion/surfactant solution recommended -June to August)
	Horned Poppy ( <i>Glaucium flavum</i> )						Hand pull in spring/early summer
	Tyrol Knapweed ( <i>Centaurea nigrescens</i> )	-Mowing: mow when plants are in late bud to early bloom stage, 2-4 times a year			- Foliar Application: 3% solution of triclopyr herbicide/water to leaves in early spring or fall		Herbicide application: most effective when combined with hand pulling or mowing
	Spotted Knapweed ( <i>Centaurea biebersteinii</i> )						Safety note: Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling.
	Wild Chervil ( <i>Anthriscus sylvestris</i> )	-Mowing: repeatedly before seed set		-Hand pulling -Digging: Dig up seedling plants and root before flowering	- Foliar Application: Broadleaf selective herbicides more effective than nonselective herbicides		Hand pulling: remove entire rosette and taproot Herbicide application: can be enhanced with tilling one week after application, then mid-September seeding of perennial native grasses Safety note: Can cause skin irritation. Wear gloves when handling.
	Leafy Spurge ( <i>Euphorbia esula</i> )	-Mowing		-Cutting			Cutting/mowing: seed formation can be prevented by repeated cutting/mowing, but root system will remain viable. Cut plants within 4 inches from ground before seed set and repeat through growing season.
	Giant Hogweed ( <i>Heracleum mantegazzianum</i> )	-Plowing: must be done for multiple years; best after mechanical and chemical control		-Hand pulling: (young plants in April-May) -Flower/seed head removal: when flowers are no longer visible but before seeds mature -Cut and Cover- cut plants to ground level and cover soil with black plastic (multiple years)	- Foliar Application: systemic herbicide between April-June and again in July-August		Root removal: cut taproot about 6 inches below ground level in early spring, remove cut pieces, follow up visit 2 weeks after root cut.

		Methods of Management				Methods of Disposal
Category	Invasive Plant Name	Mechanical	Manual	Chemical	Species-Specific Notes	
Non-woody: Fruit, seed, and plant fragment	Common Reed ( <i>Phragmites australis</i> )		-Pulling/cutting (not very effective and can lead to spread of propagules) -Hydrogel: cut stalks to ground surface, cover with biodegradable material, place hydrogel and planting medium, and install native vegetation.	Foliar Herbicide Application Cut-Stem Application (isolated stems only)	<u>Pulling/cutting</u> : cut stems below lowest leaf, leaving a stump 6 in or shorter during the flowering stage or boot stage (developed seed head) -typically July  <u>Herbicide application</u> : Glyphosate or Imazapyr foliar application during flowering or boot stage.	<p><b>Small infestation</b></p> <ul style="list-style-type: none"> <li>• Bag all plant material and let rot.</li> <li>• Never pile and use resulting material as compost.</li> <li>• Burn.</li> </ul> <p><b>Large infestation</b></p> <ul style="list-style-type: none"> <li>• Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile.</li> <li>• Monitor and remove any sprouting material. <ul style="list-style-type: none"> <li>• Pile, let dry, and burn.</li> </ul> </li> </ul>
	Chinese Silvergrass ( <i>Miscanthus sinensis</i> )		-Grubbing (small infestations)	Foliar Application: Spot treatments of 2% glyphosate/water solution in late spring or fall	<u>Grubbing</u> : ensure ALL roots are removed	
	Japanese Knotweed ( <i>Polygonum cuspidatum</i> )	-Cutting/mowing: Early June or after plant has bloomed out	-Wire mesh: install after cutting vegetation flush to ground. Tightly secure and ensure mesh remains tightly affixed to ground surface.	- Foliar application: apply to foliage - Cut-stem: apply concentrated herbicide to exposed stem (thick stems only)		
	Reed Canary Grass ( <i>Phalaris arundinacea</i> )	Mowing	-Cutting: Cut as close to the ground as possible to prevent seeding or as part of integrated approach -Shading: Cover with shade cloth and secure tightly; mulching with thick cardboard and wood mulch -Restoration Planting: install native trees and shrub to shade out and compete	- Glyphosate or Imazapyr spot spraying		
	Yellow Iris ( <i>Iris pseudacorus</i> )		- Pulling/Digging: Hand pull seedlings; dig up mature plants			
	Mugwort ( <i>Artemisia vulgaris</i> )			- Foliar application: apply glyphosate or triclopyr in late summer or early fall	Mow in early summ and early fall	
Vine: Non-woody: Fruit and seed	Mile-A-Minute ( <i>Polygonum perfoliatum</i> )	Mowing	-Hand pulling: when soil is wet prior to fruit formation	Foliar application: apply systemic herbicide in summer before fruiting; use surfactant	Mowing must be repetative to prevent flowering and fruit/seed production	<p><b>Prior to flowering:</b></p> <p>Depends on scale of infestation</p> <p><u>Small infestation</u></p> <ul style="list-style-type: none"> <li>• Pull or cut plant and leave on site with roots exposed.</li> <li>• Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).</li> <li>• Monitor. Remove any re-sprouting material.</li> </ul> <p><u>Large infestation</u></p> <ul style="list-style-type: none"> <li>• Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).</li> <li>• Monitor. Remove any re-sprouting material.</li> </ul> <p><b>During and following flowering</b></p> <p>Do nothing until the following year or remove flowering heads and bag and let rot.</p> <p><u>Small infestation</u></p> <ul style="list-style-type: none"> <li>• Pull or cut plant and leave on site with roots exposed.</li> </ul> <p><u>Large infestation</u></p> <ul style="list-style-type: none"> <li>• Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).</li> <li>• Monitor. Remove any re-sprouting material.</li> </ul>
	Swallow-wort ( <i>Cynanchum spp.</i> )		-Digging: Dig up plants so that root crown and rhizomes can be removed, before seeds mature.	- Cut and dab Triclopyr treatment	Mowing can reduce spread, bu must be done every year to be effective. Conduct before seed pods mature.	
	Japanese Hops ( <i>Humulus japonicus</i> )	-Mechanized cutting early and throughout growing season	-Hand pulling (small infestations)	- Foliar treatment: ideally two systemic s a year after germination but before extensive growth and again before seed production		
	Porcelain Berry ( <i>Ampelopsis brevipedunculata</i> )			- systemic prior to seed set		
	Dodder ( <i>Cuscuta spp.</i> )		-Hand pulling: remove if seedlings found before attaching to host -Pruning -Restoration Planting: install non-host species such as grasses and monocots	<u>Herbicide application</u> : Pre-emergent herbicides such as trifluralin applied before seed germination	<u>Pruning</u> : after attachment to host, prune part of host plant 1/4 to 1/8 of an inch below infected area	



		Methods of Management				Methods of Disposal
Category	Invasive Plant Name	Mechanical	Manual	Chemical	Species-Specific Notes	
Vine; Non-woody; Fruit, seed, and plant fragment	Hedge Bindweed ( <i>Calystegia sepium</i> )		-Hand pulling: pull young plants 3-4 weeks following germination -Deep cultivation -Covering: cover using landscape fabric or cardboard to prevent light (up to 3 years)	- Fall treatment with glyphosate preferably when there are few flowers but not full bloom	<u>Deep cultivation</u> : use wide sweeps to cut roots and rhizomes 16-18 inches below the surface in dry soil <u>Herbicide application</u> : avoid treatments in time of drought	<p><b>Prior to fruit/seed ripening</b> <u>Small infestation/Seedlings</u></p> <ul style="list-style-type: none"> <li>• Bag all plant material and let rot.</li> <li>• Never use resulting material as compost.</li> <li>• Burn.</li> </ul> <p><u>Larger infestations</u></p> <ul style="list-style-type: none"> <li>• Make a brush pile.</li> <li>• Burn.</li> </ul> <p><b>After fruit/seed is ripe</b> Don't remove from site.</p> <ul style="list-style-type: none"> <li>• Burn.</li> <li>• Make a covered brush pile.</li> <li>• Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</li> </ul>
	Japanese Honeysuckle ( <i>Lonicera japonica</i> )		-Hand pulling (small infestations)	Apply a 2% glyphosate or triclopyr solution to leaves from spring through fall. Use 25% solution if using cut-stump method		
	Kudzu ( <i>Pueraria montana spp. Lobata</i> )		-Mowing/Digging	Utilize cut-stem treatments with systemic chemicals	<u>Mowing/Digging</u> : Use shovel or pick axe to expose base of root crowns and cut the root below crown with axe or handsaw. Preferably done during hottest parts of summer. <u>Herbicide application</u> : try to remove vines from native plant species prior to application	
	Bittersweet Nightshade ( <i>Solanum dulcamara</i> )		-Hand pulling: pull young plants, taking care not to break pieces Cut/cover: can be cut to ground and covered with heavy-duty geotextile fabric for at least 2 years		<u>Herbicide application</u> : must effective when temperatures are between 50-80 °F; and no rain expected; should be applied before native plants emerge. Retreat for 1-2 years may be necessary. Physical removal should only be done after herbicide has been in place long enough for nightshade to be brown and dead.	
Vine; Woody; Fruit, seed, and plant fragment	Hardy Kiwi ( <i>Actinidia arguta</i> )		-Cutting: cut large vines in winter/early spring	Foliar or cut-stem herbicide treatment with glyphosate. -Foliar treatment apply directly to leaves with 3% solution (Foliar when cut stem is not possible due to access or too small stem width) This treatment is possible throughout the growing season and usually most effective when flowering/fruitletting.	Herbicide application should be conducted in late summer - early fall	
	Asiatic Bittersweet ( <i>Celastrus orbiculatus</i> )	Brush mow large infestations of smaller vines when not overtopping desirable vegetation.	-Hand pulling (small infestations) -Cutting: cut climbing vines near ground	-Cut stem cut vine stems and apply 20%-50% solution immediately -Basal Bark apply concentrated herbicide directly to tree/shrub bark. (fall or early winter)	<u>Herbicide application</u> : apply immediately after cutting, repeat applications preferably in fall and winter. Basal bark method with Garlon 4 can be done if temperatures are above 50 degrees F.	
Vine; Woody; Fruit and seed	Morning Glory/Bindweed ( <i>Convolvulus arvensis</i> )		-Hand pulling: pull up to 3-4 weeks following germination -Deep cultivation -Covering: cover using landscape fabric or cardboard (up to 3 years)	- Fall treatment with glyphosate preferably when there are few flowers but not full bloom	<u>Deep cultivation</u> : use wide sweeps to cut roots and rhizomes 16-18 inches below surface in dry soil <u>Herbicide treatment</u> : avoid treatments in times of drought	<p><b>Prior to fruit/seed ripening</b> <u>Seedlings and small plants</u></p> <ul style="list-style-type: none"> <li>• Pull or cut and leave on site with roots exposed. No special care needed.</li> </ul> <p><u>Larger plants</u></p> <ul style="list-style-type: none"> <li>• Use as firewood.</li> <li>• Make a brush pile.</li> <li>• Chip.</li> <li>• Burn.</li> </ul> <p><b>After fruit/seed is ripe</b> Don't remove from site.</p> <ul style="list-style-type: none"> <li>• Burn.</li> <li>• Make a covered brush pile.</li> <li>• Chip once all fruit has dropped from branches.</li> <li>• Leave resulting chips on site and monitor.</li> </ul>

		Methods of Management				Methods of Disposal
Category	Invasive Plant Name	Mechanical	Manual	Chemical	Species-Specific Notes	
Woody; Fruit and seed	Autumn Olive ( <i>Elaeagnus umbellata</i> )	Mowing (when small enough resprouts are present)	-Hand pulling/digging: pull or dig small seedlings and sprouts -Cutting: remove saplings with weed wrench, cut large plants and dig out stump if possible	Foliar or cut-stem herbicide treatment with glyphosate. -Foliar treatment apply directly to leaves with 3% solution (Foliar when cut stem is not possible due to access or too small stem width) This treatment is possible throughout the growing season and usually most effective when flowering/fruiting. -Cut stem cut vine stems and apply 20%-50% solution immediately -Basal Bark apply concentrated herbicide directly to tree/shrub bark. This treatment can occur in fall or early winter	Herbicide application to occur in the late growing season (July-September)	<b>Prior to fruit/seed ripening</b> <u>Seedlings and small plants</u> <ul style="list-style-type: none"> <li>Pull or cut and leave on site with roots exposed. No special care needed.</li> </ul> <u>Larger plants</u> <ul style="list-style-type: none"> <li>Use as firewood.</li> <li>Make a brush pile.</li> <li>Chip.</li> <li>Burn.</li> </ul> <b>After fruit/seed is ripe</b> <u>Don't remove from site.</u> <ul style="list-style-type: none"> <li>Burn.</li> <li>Make a covered brush pile.</li> <li>Chip once all fruit has dropped from branches.</li> <li>Leave resulting chips on site and monitor.</li> </ul>
	Common Buckthorn ( <i>Rhamnus cathartica</i> )				herbicide application in fall or early winter	
	Burning Bush ( <i>Euonymus alatus</i> )				<b>Digging:</b> large plants can be dug up with spading fork, pulled with weed wrench, or cut. Stump must be ground out or regrowth clipped.	
	Cypress Spurge ( <i>Euphorbia cyparissias</i> )				Hand pulling must be conducted frequently and repeatedly	
	Glossy Buckthorn ( <i>Frangula alnus</i> )				Utilize a 25% solution when conducting cut-stem application	
	Shrub Honeysuckles ( <i>Lonicera morrowii</i> , <i>L. tatarica</i> , <i>L.x bella</i> , <i>L. maackii</i> )				Herbicide application to occur in late summer during fruiting	
	Japanese Barberry ( <i>Berberis thunbergia</i> )				<b>Herbicide application:</b> for trees smaller than 4 inches in diameter: apply Triclopyr mixed with horticultural oil to the bark, a foot from base of trunk in early spring or from June-September <del>Cut stem treatments should be applied to outer</del>	
	Norway Maple ( <i>Acer platanoides</i> )				-Hand pulling: pull seedlings from moist soils, dig up larger plants -Girdling: cut through bark and cambium in circle around trunk in the spring <del>Cutting: cut trunks 2-3' from ground prior to spring sap</del>	
	Sycamore Maple ( <i>Acer pseudoplatanus</i> )					
Multiflora Rose ( <i>Rosa multiflora</i> )	-Mowing (when small with regular mower, when larger with brush mower)	-Hand pulling/cutting (small populations)		Mowing: 3-6 times per year when performed for partial control		
Woody; Fruit, seed, and plant fragment	False Indigo Bush ( <i>Amorpha fruticosa</i> )		Hand-pull plants when feasible, dig to remove all roots when possible. Cut and continue to trim regularly.	Foliar or cut-stem with systemic herbicide (glyphosate or approved alternative)	-Repeated defoliation can limit regrowth, but mowing can encourage growth. - <b>Digging:</b> Dig and sever root 3-4 inches below the crown; repeat as necessary	<b>Prior to fruit/seed ripening</b> <u>Seedlings and small plants</u> <ul style="list-style-type: none"> <li>Pull or cut and leave on site with roots exposed. No special care needed.</li> </ul> <u>Larger plants</u> <ul style="list-style-type: none"> <li>Make a brush pile.</li> <li>Burn.</li> </ul> <b>After fruit/seed is ripe</b> <u>Don't remove from site.</u> <ul style="list-style-type: none"> <li>Burn.</li> <li>Make a covered brush pile.</li> <li>Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</li> </ul>
	Tree of Heaven ( <i>Ailanthus altissima</i> )	-Grubbing: for young trees or saplings	Hand pulling: pull or dig very young seedlings Cutting: cut trees while small, in early summer when root reserves are at lowest. Cut regrowth frequently.	-Foliar application apply 3% solution directly to leaves -Cut stem application cut as close to the ground as possible and apply 20%-50% solution as quickly as possible after cutting -Basal Bark application apply concentrated herbicide directly to bark as directed by herbicide label	<b>Herbicide application:</b> Basal bark application is most effective for trees 4-8 inches in diameter. Apply when tree is fully leafed but before it begins to show fall color	
	Large Gray Willow/Rusty Willow ( <i>Salix atrocinerea</i> / <i>S. cinerea</i> )	Girdling: cut through bark and cambium layers			<b>Herbicide application:</b> best method for willows is bore and fill application: suitable for willows with branches larger than 50mm in diameter. Cut stem method for smaller trees and branches in summer-fall.	