



William Guman & Associates, Ltd.

Bill Guman, RLA, ASLA | Principal
Colorado Springs City Councilman 1993-2001
Colorado Springs Planning Commissioner 1992-1993
Regional Building Commissioner 1997-2001

URBAN PLANNING | COMMUNITY DESIGN | LANDSCAPE ARCHITECTURE | ENTITLEMENT COORDINATION

731 North Weber Street, Suite 10 | Colorado Springs, CO 80903 | (719) 633-9700

<http://www.gumanltd.com/>

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Noxious Weed Management Plan

Regulatory Background

The Colorado Department of Agriculture maintains a list of noxious weed species (CDA, 2018a) and works with counties to manage noxious weeds. Weed management on Site must follow County requirements, including the “El Paso County Noxious Weeds and Control Methods” report (El Paso County, 2015b).

There are four CDA categories of noxious weeds:

- List A: Rare noxious that are designated for eradication statewide.
- List B: Discretely distributed noxious weeds that must be eradicated, contained, or suppressed, depending on their location, to stop their continued spread.
- List C: These species are well-established in Colorado. Species management plans are designed to support the efforts of local governing bodies to facilitate more effective integrated weed management. The goal of such plans is not to stop the continued spread of these species, but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species.

Noxious Weed Management Plan

Any List B species on the Site are designated for suppression (CDA, 2018a). The Colorado Noxious Weed Act defines suppression as *“reducing the vigor of noxious weed populations within an infested region, decreasing the propensity of noxious weed species to spread to surrounding lands, and mitigating the negative effects of noxious weed populations on infested lands.”* Suppression efforts may employ a wide variety of integrated management techniques. Per the El Paso County Noxious Weed and Control Methods document (El Paso County, 2018a): *“The most effective way to control noxious weeds is through Integrated Pest Management (IPM). IPM incorporates weed biology, environmental information, and available management techniques to create a management plan that prevents unacceptable damage from pests, such as weeds, and poses the least risk to people and the environment. IPM is a combination of treatment options that, when used together, provide optimum control for noxious weeds; however, IPM does not necessarily imply that multiple control techniques have to be used or that chemical control options should be avoided.*

- *Prevention: The most effective, economical, and ecologically sound management technique. The spread of noxious weeds can be prevented by cleaning equipment, vehicles, clothing and shoes before moving to weed free areas; using weed-free sand, soil, and gravel; and using certified weed free seed and feed.*
- *Cultural: Promoting and maintaining healthy native or other desirable vegetation. Methods include proper grazing management (prevention of overgrazing), re-vegetating or re-seeding, fertilizing, and irrigation.*

- *Biological: The use of an organism such as insects, diseases, and grazing animals to control noxious weeds; useful for large, heavily infested areas. Not an effective method when eradication is the objective but can be used to reduce the impact and dominance of noxious weeds.*
- *Mechanical: Manual or mechanical means to remove, kill, injure, or alter growing conditions of unwanted plants. Methods include mowing, hand pulling, tilling, mulching, cutting, and clipping seed heads.*
- *Chemical: The use of herbicides to suppress or kill noxious weeds by disrupting biochemical processes unique to plants.”*

The following information provides general measures to prevent introducing new weeds and spreading existing weeds during construction:

Prior to Construction:

1. Create a native habitat restoration and weed control plan for the Open Space areas. Total re-vegetation of some areas may be necessary. An option in the weediest areas would be to remove the top three to six inches of topsoil and replace it with topsoil from non-weedy short grass prairie areas that will be developed. If topsoil can be transferred directly, or is only briefly stockpiled, then re-seeding may not be needed. Planning topsoil management ahead of construction may decrease costs for weed control, restoration, and grading.
2. Biological control is a low cost and non-invasive way to begin controlling weeds. Optimum results take 3-5 years. Contact the Colorado Department of Agriculture Request-A-Bug program at 970-464-7916 to reserve insects, determine the species/quantity needed and discuss release schedules (CDA, 2018b). At a minimum, species should be introduced to control any knapweed, if found. Biological control may also be available for any yellow toadflax, musk thistle, and Canada thistle, if found.
3. If knapweed exists on site, grazing should be reduced. In any knapweed infested area, unless using grazing for weed control, cattle grazing should be eliminated. Cattle will eat young knapweed prior to bolting but avoid it once the plant matures and develops spines. Thus, targeted grazing may reduce knapweed, but prolonged heavy grazing increases it. Cattle grazing in areas of diffuse knapweed twice in spring may decrease seed by 50%. If cattle are being used for weed control, grazing should consist of two, 10-day intervals in the spring when diffuse knapweed is bolting and about 6 to 12 inches tall (see CSU, 2013). Grazing may reduce the efficacy of biological control.
4. Develop a mowing program to control weeds. This will be most effective for species like common mullein, but also Canada thistle, musk thistle, and cheatgrass. Mowing in knapweed areas may reduce efficacy of biological control for this species.

During construction staging:

1. Fence off all the open space areas to prevent vehicles from driving through them and spreading knapweed, etc. to new areas (Note: fencing will also prevent unpermitted wetland impacts and likely be required by the stormwater management plan).
2. Designate a minimal number of vehicle crossings of the Open Space areas. Construct crossings with weed free soil so that noxious weed seeds are not tracked into new areas.

During construction:

1. Prior to any grading of the non-weedy areas, salvage the top six inches of topsoil so that it can be used to construct vehicle crossings and for re-vegetation of natural areas. If possible, immediately move soil to re-vegetation areas. If soil must be stockpiled, minimize the time in order to maintain native seed viability. Excess topsoil may be used for development areas.

2. Do not move weedy soil to new areas within the Site or import weedy soil from other Sites.
3. Control weeds within staging areas and along construction access roads on an ongoing basis.
4. Noxious weeds are most likely to become established in areas where the native vegetation and soil have been disturbed by construction. Thus, maintaining and then quickly re-establishing desirable vegetation post-construction will minimize weed infestations. Desirable vegetation may consist of native plant communities or landscaped areas.

The site development plan should include measures to prevent introducing new weeds and spreading existing weeds during construction (including prevention measures above). Following construction, the Homeowner’s Association (HOA) will be responsible for weed control. Weed management recommendations for common species in the vicinity are summarized in Table 1. Refer to the El Paso County “Noxious Weed and Control Methods” booklet for additional detail (El Paso County, 2018a).

TABLE 1 – NOXIOUS WEED MANAGEMENT SUMMARY		
Species	Occurrence	Management^{1,2,3}
LIST B⁴		
Canada Thistle (<i>Cirsium arvense</i>)	Uncommon. Individual plants may be scattered by heavy grazing.	Mowing combined with herbicide treatment. Mow every 10 to 21 days during the growing season to prevent seeding. Spot treatment with herbicide will likely be needed in open space areas.
Musk Thistle (<i>Carduus nutans</i>)	Uncommon. Individual plants may be scattered by heavy grazing.	Severing the root below the soil surface is effective. Mowing is most effective at full bloom, but flowering plant parts must be disposed of properly to prevent seed development. Spring herbicide treatment is also effective.
Scotch Thistle (<i>Onopordum acanthium</i>)	Uncommon. Individual plants may be scattered by heavy grazing.	Severing the root below the soil surface is effective. Flowering plant parts must be disposed of properly to prevent seed development. Spring and fall herbicide treatments are also effective during the rosette stage.
LIST C		

Species	Occurrence	Management ^{1,2,3}
Common mullein <i>(Verbascum Thapsus)</i>	Uncommon. Individual plants may be scattered through site.	Reduce grazing to increase density of other vegetation. Mow in the bolting to early flowering stage to reduce seed production. Use herbicide to kill existing rosettes. Hand-pulling is effective, but likely not feasible for such large areas. Establish other vegetation and minimize disturbance to prevent existing seeds from sprouting in bare soil.
Common burdock <i>(Arctium minus)</i>	Uncommon. Individual plants may be scattered through site.	Hand pull or dig when soil is moist, but make sure to wear gloves. Bag specimens carefully so as not to scatter seeds. Mowing is also effective, cutting the top growth of the plant. The key to effective control is to prevent seed production and/or spread.

¹Refer to the El Paso County “Noxious Weed and Control Methods” booklet for additional detail (El Paso County, 2018a).

²When using herbicides, always read and follow the product label to ensure proper use and application.

³If near water or wetlands, only use herbicides and formulations approved for use near water.

⁴All of the List B species on the Site are designated for suppression (CCR, 2018).