Waterbury Planned Unit Development, Filings 1 &2
Weed Management Plan

February 2, 2021

1.0 Weeds

The stated purpose of the 2018 El Paso County Development Standards for "Noxious Weeds" is: "To ensure that proposed development is reviewed in consideration of the impacts to noxious weeds in order to:

- Implement the El Paso County Noxious Weed Management Plan;
- Implement the provisions of the Colorado Noxious Weeds Act;
- Reduce the spread or noxious weeds; and
- Reduce County cost for noxious weed management in newly accepted right-of-ways."

1.1 Regulatory Background

The Colorado Department of Agriculture maintains a list of noxious weed species (CDA, 2020a) and works with counties to manage noxious weeds. Weed management on Site must follow El Paso County Noxious Weed Management Plan requirements, including the "El Paso County Noxious Weeds and Control Methods" report (El Paso County, 2018a).

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.
- Watch List Species are those may pose a potential threat to the agricultural productivity and environmental values. The Watch List is intended to serve advisory and educational purposes only. Its purpose is to encourage the identification and reporting of these species to the Commissioner in order to assist in determining which species should be designated as noxious weeds.

1.2 Noxious Weed Survey Results

Weed species on the Site were very limited, sporadic and dispersed; and as such, no large patches were identified or mapped by ecos. No noxious weed species on the

Colorado Department of Agriculture List A or the Watch List (CDA, 2020a) were observed on the Site.

Three List B noxious weed species (CDA, 2020a) were observed on the Site:

- Canada thistle (*Cirsium arvense*);
- Scotch thistle (*Onopordum acanthium*)

One List C noxious weed species (CDA, 2020a) were observed on Site:

- common mullein (*Verbascum thapsus*).

1.3 Noxious Weed Management Plan

All of the 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, including those areas where weeds have the potential to proliferate, expand and infect the adjacent landscape.
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, 2020b). At a minimum, species could be introduced to control the thistle. Biological control may also be available for yellow toadflax, musk thistle, and Canada thistle; with the dense patches of yellow toadflax in the northwest corner of the Site being the highest priority of these three.
3. Reduce or eliminate grazing. Eliminate cattle grazing unless grazing is to be used for weed control. Cattle will eat young plants such as cheatgrass prior to bolting but avoid it once the plant matures. Thus, targeted grazing can reduce some weeds, but prolonged heavy grazing increases it. Cattle grazing 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. Grazing may reduce the efficacy of biological control.
4. Develop a mowing program to control weeds. This will be most effective for the large areas of common mullein, but may also be used for Canada thistle, musk thistle, and cheatgrass. Mowing may reduce the efficacy of biological controls but is necessary to stress weeds and to increase competition of beneficial species. It is critical to remove, bag and dispose of thistle flowers before they set and disperse seed so that they do not create another crop the following year. Thistle seed head/flower removal should be performed consistently throughout the year whenever they are observed.
5. Initiate chemical controls. Thistle proliferates via seed and underground roots/rhizomes. In combination with mechanical controls (mowing and picking seed heads), chemicals should be applied to thistle plants and/or patches every year in the fall until they are eradicated. Chemicals should be applied just before thistle goes dormant so that the plants draw the herbicide into the roots/rhizomes and kills the underground parts.

During construction staging:

1. Fence off all the open space areas to prevent vehicles from driving through them and spreading weed seed 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.

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 for re-vegetation of natural areas. If possible, immediately move soil to re-vegetation areas. If soil must be stockpiled, stockpile it in windrows and minimize the time in order to maintain native seed viability. Excess topsoil may be used for development areas.
2. Do not import weedy soil from other Sites. Engineered biotic soil media is a cheaper, weed-free product that may be used as a substitute for imported topsoil to provide growth media, organics and nutrients.
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) and individual lot owners should be made responsible for weed control through Codes, Covenants and Restrictions (CCRs). Weed management recommendations for the species observed on the Site are summarized in Table 2. 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 B[4]		
Canada thistle (*Cirsium arvense*)	Uncommon and dispersed.	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.

TABLE 1 – NOXIOUS WEED MANAGEMENT SUMMARY		
Species	**Occurrence**	**Management[1,2,3]**
Scotch thistle (*Onopordum acanthium*)	Uncommon and dispersed.	No known biological control agents effective against Scotch thistle. Any physical method that severs the root below the soil surface prior to seed production will kill the plant. Properly dispose of flowering cut plants, as seeds can mature and become viable. Spot treatment with herbicide will likely be needed in open space areas.
LIST C		
Common mullein (*Verbascum thapsus*)	Uncommon and dispersed.	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.

[1]Refer to the El Paso County "Noxious Weed and Control Methods" booklet for additional detail (El Paso County, 2018a).
[2]When using herbicides, always read and follow the product label to ensure proper use and application.
[3]If near water or wetlands, only use herbicides and formulations approved for use near water.
[4]All of the List B species on the Site are designated for suppression (Colorado Code of regulations, 2018).

2.0 Summary of Potential Impacts

Weeds observed on Site included two List B noxious weed species and one List C noxious weed species (CDA, 2018a). Suppression is required for all List B species. Site development typically causes weeds to increase due to increased earth disturbance and

new weeds being brought in on vehicles and shoes, soil and fill material, landscaping supplies, etc. The following recommendations are intended to minimize negative impacts and increase positive impacts:

1. Implement an integrated noxious weed management plan that begins as soon as possible, continues through construction, and is taken over and implemented by private lot owners and the HOA following construction. Control of List B species should be the highest priority.
2. Introduce biological, mechanical and chemical controls for weed suppression and eradication as soon as possible.
3. Include requirements in the CCRs that landowners manage weeds on their property per the Colorado Noxious Weed Act and El Paso County guidelines.
4. Prohibit importation of fill dirt and landscaping material from other locations unless it is first sterilized, then amended with organics and nutrients.

3.0 Regulations and Recommendations

3.1 Colorado Noxious Weed Act

In order to ensure Project compliance with the Act, the Noxious Weed Management Plan referenced in Section 3.5.3 of this Report should be implemented, and further site-specific weed management strategies should be implemented on an ongoing basis, starting as soon as feasible.