Orland Woods Phase II

Three Year Monitoring and Management Program

Reporting

- The selected contractor shall provide the Village of Orland Park with a 24 hour notification prior to the start of planting installation.
- Following substantial completion, the developer will submit documentation that confirms that the natural area landscape revegetation has been completed per the drawings and specifications. All nursery packing lists indicating the species and quantities of materials installed will accompany this notice to verify all plant material was installed.
- The annual report will include a location map, a summary of annual monitoring observations, a description of management performed during the year, a tabular summary of annual progress relative to acceptance standards, representative photographs and a list of recommendations for management during the upcoming growing season.

Naturalized Landscape Acceptance Criteria

- Within three months of seed installation (or three months after the start of the growing season following dormant seeding), at least 90 percent of the seeded area, as measured by aerial cover, will be vegetated or otherwise stabilized against erosion.
- Naturalized landscapes shall have no more than 0.25 square-meter devoid of vegetation, as measured by aerial coverage.
- Seeded areas shall have no rills or gullies greater than four inches wide by four inches deep, and basin shorelines shall not have more than six inches of cut as a result of erosion. All areas that are subject to these conditions shall be fixed immediately with imported pulverized topsoil and topped with seed mixture.
- Emergent areas shall have minimum of 35 percent ground cover (avg. 50 percent) and other wetland and prairie areas shall have a minimum of 35 percent ground cover (avg. 60 percent) by species in the approved plant list and/or native species with native coefficient of conservation (C-) values of at least 2 (per Swink and Wilhelm 1994 or more current version).
- Naturalized landscapes shall have a minimum of 30 percent presence by species seeded or planted for the permanent matrix and/or native species with C-value of at least 2 (per Swink and Wilhelm 1994 or more current version).
- Installed woody materials shall be alive, in healthy condition, and representative of the species.
- No more than 25 percent of any specific plant community shall be individually or collectively dominated by non-native or weedy species.
- None of the three-most dominant species may be non-native or weedy, including but not limited to Canada Thistle (*Cirsium arvense*), Common Reed (*Phragmites australis*), Reed Canarygrass (*Phalaris arundinacea*), sweetclover (*Melilotus* spp.), Kentucky Bluegrass (*Poa pratensis*), Purple Loosestrife (*Lythrum salicaria*), Barnyard Grass (*Echinochloa crus-galli*) or Sandbar Willow (*Salix interior*) unless otherwise indicated on the approved planting plan. Cattails (*Typha* spp.) do not count towards the 25 percent weed criterion provided they represent no more than 20 percent cover.

- A long-term Operation and Maintenance (O&M) plan must be prepared and submitted by the contractor for Village review and approval as a condition of landscape acceptance.

Responsible Parties

- A long-term Operation and Maintenance (O&M) plan must be prepared and submitted by the contractor for Village review and approval as a condition of landscape acceptance.
- The permittee will be responsible for ensuring vegetation establishment is progressing and for funding and implementing the three-year (minimum) "nearterm" management and maintenance plan. The permittee may elect to contract management and maintenance services to a third party to ensure proper implementation.

Monitoring Methodology

- Monitoring shall be performed for a minimum of three years after planting is substantially complete, and until acceptance standards are met. These standards are subject to acceptance by the Village of Orland Park.
- Annual vegetation monitoring will occur in August, September or early October. Meander survey methodology shall be sued when reviewing the sites these times. The contractor shall take between (5) and (10) representative site photographs of the native planting areas and visually review of each vegetative community to identify the following:
    a. The limits of all vegetation areas by general community type and dominant species within each planting zone (e.g., wetland and prairie/mesic zones).
    b. All plant species (native and non-native) in each planting zone.
    c. The five most dominant species within each planting zone.
    d. The percent survival of planted species.
    e. The approximate percent ground cover by native species within each planting zone.
    f. The percent ground cover by non-native or invasive species in each planting zone.
    g. Erosion and sedimentation problems.
    h. Water level or drainage problems
    i. Areas of bare soil larger than 0.25 square-meter, and
    j. Observations on specific management strategies necessary to achieve acceptance requirements.

Near-term Management

- Undesirable Plant Control - Various means of weed control shall be employed, as appropriate, and may include mechanical control, chemical control and/or biological control.
  a. *Mechanical Control:* Mechanical control of nuisance plant species typically includes cutting, mowing and/or the digging up individual plants by hand. In many cases, cutting or mowing a plant before its seeds mature will minimize further spread. For general mowing of swaths of vegetation, mowers should be set to a height of 12+ inches above the ground surface or to a height that treats weedy species yet minimizes impacts on desirable plants.
  b. *Chemical Control:* For aggressive weeds, an appropriate herbicide will be applied. Because of the potential for damage to native plant communities, the use of preventative herbicides shall be limited to problem areas and problem species for which manual control is ineffective. Aquatic herbicides may not be used to treat algal blooms. Herbicide use must be in strict compliance with all application rates, procedures, warning labels and applicable codes, standards and best management practices.
  c. *Biological Control:* An alternative to chemical treatment, use of biological controls for invasive species will be considered provided site conditions are appropriate to support and maintain the insect population. This use of this application must be confirmed first by the Village of Orland Park and its landscape restoration representative.

Wildlife Management

a. Pesticides will not be used broadly or routinely at the mitigation site other than for mosquito abatement (should that be necessary). Pesticides will be used only for specific and localized problem areas as determined by a Village-approved landscape restoration specialist with experience in installation and development of native plant communities, should such areas occur. Standard application procedures and precautions for chemical application in wetland areas will be followed.
b. Fertilizer Application—Turf management chemicals will not be used within areas of naturalized plantings unless specifically prescribed by and per the direction of a Village-approved landscape restoration specialist. If used, special care will be taken to not apply fertilizers when inclement weather is forecast.

Near-term Management Schedule

- The following provides a general schedule of management and maintenance tasks for installation and establishment of naturalized landscapes. The actual schedule and tasks performed in any given year may differ based on specific recommendations from a Village-approved landscape restoration specialist.

Year 1 Management Actions

a. Mowing to a height of 6 to 8 inches may be performed when vegetation reaches a height of 12 inches. (Note: Weekly mowing at turf lawn height will NOT be performed.) If clippings shade the ground or smother the remaining plants, they shall be bagged for off-site disposal or otherwise dispersed. The last mow will be timed so that vegetation can grow to a height of (8) to (10) inches before winter.
b. Weeding shall be timed to prevent development of weed seeds. For aggressive biennial and perennial weeds, herbicide will be selectively applied (e.g., wick application, not spraying). Turf management chemicals must not be used on native plantings except as directed by the Village-approved landscape restoration specialist.
c. Other potential responsibilities include, but are not limited to, debris and litter removal, access restriction enforcement, insect/pest control, erosion repairs, and wildlife management (e.g., control of carp, muskrats, geese, etc. as needed). The need for other management actions will be determined on a quarterly basis when performing general maintenance visits for dam embankments and control structures. These shall be reported to the Village-approved landscape restoration specialist for further instruction on the appropriate action to take.

Year 2 Management Actions

a. Seeded area will be mowed as close to the ground as possible in early spring and the cuttings raked or bagged. If annual weeds remain, an additional mow will be performed during mid to late June, with the mow height set to (12) inches.
b. Weed management will emphasize control of biennial and perennial weeds. Biennial weeds targeted for control include Sweetclovers (*Melilotus* spp), Queen Anne's lace (*Daucus carota*), and Teasel (*Dipsacus* spp.). Proper weed control may require multiple treatments and will be performed at times that will provide maximum treatment effectiveness.
c. Other management practices shall include, but not limited to debris and litter removal, access restriction enforcement and erosion control and repairs. Additional management tasks may include insect/pest control, reseeding/replanting in targeted areas, and wildlife management as determined on a quarterly basis when performing general maintenance visits for dam embankments and control structures.

Year 3 Management Actions

a. Typical management in the third growing season involves the use of prescribed fire in combination with mechanical and chemical methods for controlling aggressive biennial and perennial weeds. The contractor shall consult the Village-approved landscape restoration specialist before conducting the burn.
b. Prescribed burns for naturalized landscapes require a permit from the Illinois environmental Protection Agency and are typically conducted between mid-October and April as weather and site conditions permit. A permit shall be obtained from the Illinois Environmental Protection Agency prior to conducting a prescribed burn. The Village and local authorities shall be contacted prior to conducting a prescribed burn. If prescribed burning is not practical, mowing in late fall or very early spring will be substituted for burning. The burn-replacement mow will occur at a height of (2) inches, with cut material bagged for off-site disposal.
c. Management of aggressive weeds shall continue over all (3) years. Other management practices will include debris and litter removal, access restriction enforcement, and erosion control and repairs. Additional management tasks may include insect/pest control, reseeding/replanting in targeted areas, wildlife management as determined on a quarterly basis when performing general maintenance visits for dam embankments and control structures.