

# CITY OF FORT COLLINS NATURAL AREAS PROGRAM STANDARDS & GUIDELINES FOR RESTORATION OF UTILITY EASEMENTS

Revised October, 2002

## PART 1 - GENERAL

### 1.1 DESCRIPTION

This section covers the requirements for the revegetation of utility easements on City Natural Areas and Open Lands. This includes but is not necessarily limited to upland and wetland soil stockpiling, preparation, and placement, soil amendments, seeding, mulching, sediment and erosion control fabrics, watering and initial care, and final inspection and acceptance by the City.

This section addresses all areas disturbed during the work shown or indicated in the executed utility easement documents and approved project plans.

### 1.2 PROJECT MONITORING

The recipient of the utility easement (Grantee) shall notify the Department of Natural Resources (NR) at least three (3) working days prior to the commencement of any work. NR will monitor the progress of the work throughout. NR will also, at its discretion, collect samples during construction of seed, fertilizers, soil additives, water, or any other materials it deems necessary to ensure specifications are met.

### 1.3 SUBMITTALS

**General** - The Grantee shall be required to submit statements of guarantee and/or certifications from vendors who supply seed, mulches, tackifiers, fertilizers, and any soil amendments or other materials utilized on the project. These submittals are detailed in Part 2 – Materials.

**Required Soils Testing** – The Grantee shall, if requested by NR, sample project soils and submit them for analysis to a qualified soils testing laboratory prior to the start of any seeding operations. As least one soil sample per project soil type must be collected. The location of soil samples shall be jointly determined by the Grantee and NR. Soil Samples shall be analyzed for the following minimum parameters:

1. pH
2. % Organic Matter
3. Texture (actual % sand, silt, clay, not an estimate)
4. CEC

5. Nitrate, Phosphorous, Potassium, Zinc, Iron, Copper, and Manganese (results in ppm)

The laboratory shall be informed of the species proposed to be planted and the general nature of the project. Based on this information, the laboratory shall provide written recommendations for soil amendments and/or fertilizers. This report shall be submitted to NR, where it will be reviewed and approved or modified prior to any soil preparation or seeding.

#### **1.4 GRANTEE'S SITE RESPONSIBILITIES**

It shall be the responsibility of the Grantee to locate and protect all utilities, structures, roadways, parking areas, fences, survey markers, existing vegetation (e.g. trees), etc. on all work sites. Any damage caused by the Grantee or his subcontractors shall be immediately repaired or corrected by the Grantee at no expense to the City of Fort Collins.

#### **1.5 CLEANING**

All work sites shall be kept clean and free from all debris. At the conclusion of work, the Grantee shall remove and haul from the site all excess materials, debris, and equipment. Any damage (e.g. damaged fencing, damaged road surfaces, excessive tire furrows, mud tracked onto pavement, etc.) resulting from the Grantee's activities shall be repaired by the Grantee to the satisfaction of NR at no expense to the City of Fort Collins.

#### **1.6 INSPECTION; ACCEPTANCE**

**Initial inspection** – The Grantee shall give the NR three (3) working days written notice prior to the beginning of any revegetation work. The Grantee and NR will inspect the site and verify that all utility work has been completed in accordance with specifications, including but not limited to backfill and compaction, final site grading, replacement of topsoil, removal of all construction materials, and site cleanup. When this has been verified, NR will notify the Grantee in writing that revegetation work may begin.

**Conditional Acceptance** - When work has been completed on the project or on any portion or phase of the project designated in the documents and plans, the Grantee and NR shall inspect the site together and determine whether or not the work is complete and has been done in accordance with easement documents and specifications. If mutual agreement cannot be reached on these issues, the determinations made by NR shall be final. Deficiencies in the work, if any, shall be noted and a checklist of these deficiencies given to the Grantee by NR. The Grantee shall immediately correct any deficiencies listed on the checklist.

When all checklist items are completed to the satisfaction of NR, NR shall issue a Certificate of Conditional Acceptance.

**Final Inspection; Final Approval** – There are two options available for final approval and acceptance by the City of revegetation work covered under this section. **One of these options must be jointly agreed upon by NR and the Grantee PRIOR TO THE COMMENCEMENT OF ANY WORK ON THE PROJECT.** There are two options listed for reference:

**Option 1 (City Preferred Option):**

The Grantee shall pay the City of Fort Collins Natural Area Program a lump sum of \$2,400 per acre disturbed. At such time as the Contractor is issued a conditional letter of acceptance as defined above, and the monies are paid, the City will assume maintenance responsibility for the revegetated area. This acceptance **DOES NOT** relieve the Grantee from the warranty of the work as defined below in the **Warranty** paragraph (see below).

**Warranty** - The Grantee shall warrant all seeded areas against defective materials and workmanship for two growing seasons from the date of Conditional Acceptance. At any time during the warranty period, NR may order any samples collected at the time of seeding to be tested for purity, weed content, species present, etc. The Grantee shall be responsible for the cost of these tests. The Grantee shall rework and reseed (in accordance with the provisions in the original project specifications) any areas that are dead, diseased, contain too many weedy species, or in the opinion of NR are in an unhealthy condition as a result of defective materials or workmanship, at no cost to the City. Any and all reseeded or other remedial measures required shall be completed within ten days of notification by NR.

**Final Acceptance** – As above (Section 1.6).

**Option 2 (Grantee assumes long-term responsibility for successful restoration):**

**The Grantee shall put up \$2400/acre in escrow in advance**

The Grantee shall maintain all seeded areas for at least two (2) growing seasons from the date of the Certificate of Conditional Acceptance. The Grantee shall be required to meet the coverage requirements of planted species and all other stipulations stated below. In order to accomplish these requirements, the Grantee will be expected to protect and maintain the seeded areas until the issuance of a Certificate of Final Acceptance. These maintenance requirements shall include, but not necessarily be limited to the following:

**Protection of Seeded Areas** - The Grantee shall make every effort to protect seeded areas from unnecessary pedestrian or vehicular traffic until the grasses are well established. This protection may include fencing, barricades, and signage.

**Mowing and Weed Control** - All seeded areas shall be mowed at least three times per growing season (the first mowing each season to be done prior to the time seeds mature on weedy species), leaving a stubble of five to six inches (5" to 6").

**Weed, Disease, and Insect Control** - The Grantee may, at his discretion, chose to apply appropriate herbicide(s), fungicides, and/or insecticides to control weedy species, plant disease, and insect infestations. All such applications must comply with all local, state, and federal quidelines and requirements.

**Watering** - The Contractor may water seeded areas if he deems it necessary to insure the required foliage coverage requirement is met.

**Coverage Requirement** - All seeded areas shall be inspected jointly by the Grantee and NR at specified intervals. Areas seeded in the spring shall be inspected for required coverage the following fall not later than October 1st. Areas seeded at any other time shall be inspected the following two summers not later than August 1. The required coverage for the first inspection shall be ten (10) viable live seedlings of the specified species per 1000 square centimeters (approximately one square foot), or fifty percent (50%) coverage of the specified foliage as measured from five feet (5') directly overhead, with no bare spots larger than 1000 square centimeters. At the time of the second growing season inspection, there shall be seventy-five percent (75%) foliage cover of the specified species planted as measured from five feet (5') directly overhead. No more than ten percent (10%) of the species noted on the site may be weedy species as defined by Article III, Section 20-41 of the Code of the City of Fort Collins.

Determination of required coverage will be based on fixed transects each ten meters in length, randomly placed in representative portions of the seeded areas, with plant species or bare ground/rock/litter being noted every ten (10) centimeters along each transect.

**Warranty** - The Grantee shall warrant all seeded areas against defective materials and workmanship for two growing seasons from the date of Conditional Acceptance. At any time during the warranty period, NR may order any samples collected at the time of seeding to be tested for purity, weed content, species present, etc. The Grantee shall be responsible for the cost of these tests. The Grantee shall rework and reseed (in accordance with the provisions in the original project specifications) any areas that are dead, diseased, contain too many weedy species, or in the opinion of NR are in an unhealthy condition as a result of defective materials or workmanship, at no cost to the City. Any and all reseedling or other remedial measures required shall be completed within ten days of notification by NR.

**Final Acceptance** - At the end of two growing seasons, if the cover requirement has been met and all required maintenance performed, NR shall issue a Certificate of Final Acceptance to the Grantee.

## **PART 2. MATERIALS**

### **2.1 GENERAL**

All materials used shall be new and without flaws or defects of any type, and shall be the best of their class and kind.

All materials furnished shall be free of noxious weeds as defined in Article III, Section 20-41 of the Code of the City of Fort Collins, including but not limited to Russian Knapweed, Canada Thistle, Field Bindweed, Johnsongrass, Leafy Spurge, and Kochia.

Any materials which have become wet, moldy, or otherwise damaged in transit or in storage will not be used.

All materials shall be furnished in original manufacturers shipping bags or containers and remain in these bags or containers until they are used. All materials shall be stored in a manner which will prevent them from coming into contact with precipitation, surface water, or any other contaminating substance.

### **2.2 SEED**

The seed mix will be specified by NR. All seed shall be mixed by a wholesale seed supplier in the proportions determined by NR in order to obtain the application rate specified by NR.

All seed shall conform to all current State and Federal regulations and will be subject to the testing provisions of the Association of Official Seed Analysis.

All seed and seed mixes shall be furnished in bags or containers clearly labeled to show the name and address of the supplier, the common, scientific, and variety name(s) of the seed(s), the lot number, point of origin, net weight, percent of weed content, and the guaranteed percentage of purity and germination. These labels shall be submitted to NR at the completion of the project.

The Grantee shall furnish to NR a signed statement certifying that the seed furnished is from a lot that has been tested by a recognized laboratory for seed testing within six months prior to the date of delivery.

### **2.3 FERTILIZER**

Fertilizer, if necessary, shall be specified by NR after reviewing required soils test results. All fertilizer shall be a standard commercial product of uniform composition, free flowing and conforming to applicable State and Federal laws. It shall be delivered in original, unopened containers, unless provisions are made and approved by the NR for bulk deliveries to the site of the work. The cost of any needed fertilizer will be negotiated.

No cyanamide compounds will be permitted in fertilizers.

The Contractor shall submit to NR the manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to state law of all fertilizers.

## **2.4 MULCH**

**General** - The type of mulching material to be used shall be designated by NR.

**Hay or Straw Mulch** - all hay or straw mulch shall be grass hay or straw. At least seventy (75%) percent of the mulch by weight shall be ten (10" ) inches or more in length. Mulch shall not contain any noxious weed, must, mold, cake, or decay. All mulch must be certified, copies of certification to be submitted to NR for approval prior to transport to the construction site.

**Native Grass Hay Mulch** – At least 75% of the mulch by weight shall be 10" or more in length. Native grass hay mulch shall be certified, copies of the certification to be submitted to NR for approval prior to transport to the construction site.

**Hydraulic Mulch** - hydraulic mulch material shall consist of at least ninety (90%) percent virgin wood cellulose fiber and be free of any substance or factor which might inhibit germination or growth of grass seed. The wood cellulose fibers shall have the property of becoming evenly dispersed and suspended when agitated in water.

Hydraulic mulch shall be clean and shall not contain the seeds of noxious weeds or unspecified grasses. It shall be dyed a color to allow visual metering of its application. When sprayed uniformly on the surface of the soil, the fibers shall form a blotter-like ground cover which readily absorbs water, and allows infiltration to the underlying soil.

Weight specifications for hydraulic mulch from suppliers and for all applications shall refer only to air dry weight of the fiber, a standard equivalent to ten (10%) percent moisture. The hydraulic mulch material shall be supplied in packages having a gross weight not in excess of one hundred (100 lbs.) pounds, and shall be marked by the manufacturer to show the air dry weight content.

The Grantee shall obtain and submit to the project manager certifications from suppliers of hydraulic mulch that laboratory and field testing of their product has been accomplished, and that it meets all of the foregoing requirements pertaining to wood cellulose fiber mulch.

## **2.5 ORGANIC TACKIFIER/BINDER**

Tackifier, if needed for hydromulching operations, shall be approved by NR prior to its use. Tackifier shall be an approved commercial grade product (such as "M-Binder" from Ecology Controls, P.O. Box 1275, Carpinteria, CA 93013) suitable for use with

virgin wood cellulose fiber mulch. Any tackifier shall be a non-toxic, non-corrosive, all organic powder which forms a resilient, rewettable membrane when combined with wood fiber mulches and water.

Tackifier materials shall be furnished in original manufacturer's bags or containers clearly labeled to show the name and address of the supplier, and the material chemical contents. Labels and certificates shall be submitted to NR.

## **2.6 EROSION CONTROL NETTING, BLANKETS, MATS, FABRICS**

Erosion control blankets, mats, or other commercial products for stabilizing land disturbed areas may be required in certain areas. If so, the type, manufacturer, and installation method for these products will be specified by NR.

## **2.7 WATER**

All water used on projects under this Contract shall be free of any substances harmful to plant germination and growth, or to the environment in general. The Grantee shall be responsible for furnishing and applying water which meets these requirements. NR may, at the Grantee's expense, submit samples of water used on any project for laboratory analysis (of a reasonable number and kind) to insure the quality of the water.

## **PART 3. EXECUTION**

### **3.1 GENERAL**

**Notice to Proceed** - Upon execution of the easement agreement and the submission and approval of all required documents and permits, NR shall provide the Grantee with Notice to Proceed. The Grantee shall begin and complete the work as specified in this section.

**Performance of the Work** - All work is to be performed by personnel thoroughly familiar with proper and accepted methods for soil preparation, herbicide applications, fertilizing, seeding, mulching, etc. All work is to be performed under the direct supervision of the Grantee's superintendent, who shall be thoroughly familiar with the provisions of this specification.

### **3.2 SOIL/SEEDBED PREPARATION**

Based on the soil samples (1.3 SUBMITTALS), NR, in consultation with the Grantee, shall make determinations whether or not any fertilizers or other soil amendments are necessary on the project. If it is determined that any fertilizers or other soil amendments are necessary, they shall be applied to the soil prior to any seeding, in accordance with the stipulations in this Paragraph 3.2.

Soils in areas that have supported vehicular traffic or which have been otherwise artificially compacted shall be ripped or tilled to a depth of twelve (12) inches to break up any restrictive layers prior to any seeding operations. All other areas shall be tilled to a depth of six (6) inches. The soil shall be worked until no clods of soil greater than two (2) inches in diameter remain, unless otherwise directed or approved by NR. Rocks and other objects three (3) inches or greater in any dimension shall be removed, unless otherwise directed or approved by NR.

Soils in areas to be crimped with straw or hay mulch shall be tilled to a depth of six (6) inches prior to the application of any mulch.

All ripping/tiling operations shall be done in a direction which follows the natural contours of the land on slopes of three (3) to one (1) or less. Any irregularities in the ground surface resulting from soil preparation operations shall be corrected and sloped to drain. Soils on slopes greater than three (3) to one (1) will be prepared for planting in a manner specified by NR.

Any required soil amendments (e.g. organic soil conditioners, fertilizers, etc.) shall be uniformly spread on the surface of the tilled ground at a rate recommended by the manufacturer or as specified by NR. The amendment(s) shall then be tilled into the top four (4) inches of the soil.

### **3.3 SEEDING**

All seed is to be drilled into the soil an appropriate depth for the particular seed used, and at the specified PLS/acre rate with a mechanical, power-drawn drill seeder. Brillion seeders are not allowed. Rows shall be spaced not more than 7 inches apart. The Grantee shall drill one-half of the required PLS/acre in one compass direction, and then drill the remaining half of the required PLS/acre in a direction 90 degrees to the first half unless otherwise directed by NR.

Some projects areas may be inaccessible to a drill. In these areas, which shall be agreed upon by the Grantee and NR, seed shall be uniformly broadcast at the specified PLS/acre and covered with soil to a depth appropriate for the seed species being used.

NR will be on site during seeding operations and will, at their discretion, collect representative samples of the seed used on any project for testing/compliance purposes. The Grantee shall notify NR when seeding is to take place so these samples can be obtained.

### **3.4 FERTILIZATION**

Any fertilizers specified by NR shall be applied and mixed with the soil as specified in Paragraph 3.2. In some areas, as directed by NR, fertilizers shall be spread evenly on the surface of the soil immediately after seeding operations have been completed. All fertilizers shall be applied using standard application equipment at rates specified by the NR.

### **3.5 MULCHING**

**Hay, Straw, or Native Grass Mulch** - Hay or straw mulch shall be applied immediately after seeding and/or fertilizing has been completed with a mechanical spreader at a rate not less than one and one-half (1 1/2) tons per acre, and not more than two (2) tons per acre. Hay or straw mulch shall then be anchored to the soil with a standard commercial crimper which shall crimp the fiber four (4) inches or more into the soil.

**Hydraulic Mulch** - Immediately after seeding has been completed, hydraulic mulch, shall be applied as a homogeneous slurry of water, cellulose fiber mulch, and tackifier at the rate of two thousand (2,000) pounds per acre. Mulch mixture shall be applied uniformly over all seeded areas with equipment capable of operating at one hundred (100) gallons per minute at one hundred (100) pounds per square inch.

### **3.6 HERBICIDE/CHEMICAL APPLICATIONS**

Herbicides or other chemicals, if required, shall be applied using well maintained spraying equipment by individuals working for the Grantee who are appropriately licensed by any State and/or Federal agency having jurisdiction over such applications.

**It shall be the responsibility of the Grantee** to be knowledgeable of any and all current laws and regulations pertaining to herbicide and other chemical applications,

and to advise NR immediately if any requests for these applications made by the NR are inappropriate as they pertain to these laws and regulations.

Herbicides and other chemicals shall not be applied during periods when wind or other physical conditions cause the herbicides or chemicals to be transported a distance of more than five (5) feet from the immediate area where they are being placed. **It shall be the responsibility of the Grantee** to stop work immediately and to notify NR if any weather or other physical condition exists which would make the application of herbicides or other chemicals inappropriate.

All herbicides or other chemicals used (except solid fertilizers, Paragraph 2.03) shall be applied at a rate and strength, and by the method recommended by the manufacturer of the product being used.

### **3.7 EROSION CONTROL NETTING, BLANKETS, MATS, FABRICS**

Any erosion control blankets, mats, or other soil stabilizing commercial products specified by NR and the project plans shall be installed and anchored to the ground in accordance with manufacturer's recommendations.

### **3.8 SOIL STOCKPILING**