MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**NATIVE GRASSES AND WILDFLOWERS FOR EROSION CONTROL**

RSD:JN 1 of 7 APPR:DMG:JLB:05-01-23

**a. Description.** This work consists of preparing the site, planting, and maintaining native grasses and wildflowers plantings at locations shown on the plans or as directed by the Engineer. Ensure all work is done in accordance with the standard specifications, except as noted in this special provision and when directed by the Engineer.

At least 10 calendar days prior to starting work, the Contractor performing the native grasses and wildflowers seeding work must provide the Engineer with documentation that they meet one or both of the following requirements.

1. At least one person employed by the Contractor and assigned to the job site must have a degree or certificate in Turf Management, Horticulture, or related field.

2. At least one person employed by the Contractor and assigned to the job site must have a least 5 years of experience in native perennial plant establishment.

**b. Materials.**

1. Product Delivery, Storage and Handling. Ensure all seeds are packaged and kept dry to ensure adequate protection against damage and maintain dormancy while in transit, storage or during planting operations.

Ensure all seed is delivered to the site in sealed containers and labeled in compliance with the *Federal Seed Act* and *1965 PA 329, Michigan Seed Law*.

When applicable, the seed supplier must provide seed that has been treated to overcome dormancy mechanisms during the first growing season.

A. Submittals.

(1) At the preconstruction meeting, submit for approval to the Engineer a written description of the proposed seed mixes indicating the following:

(a) Name and location of seed supplier(s).

(b) Geographic origins of each species.

(c) Proposed substitutions of species due to lack of availability. Ensure all substitutions are approved by the Engineer prior to seeding.

(d) Within 30 days after award, submit copies of all seed labels to Engineer.

(2) At the preconstruction meeting, submit a project work schedule to the Engineer indicating the dates of each of the following events:

(a) Seed installation.

(b) Substantial completion of work.

B. Seed Testing Requirements. The seed weights noted indicate weight per acre in pure live seed (PLS) and must mean the total amount of fresh new crop seed per acre for all species listed. In the event that the seed supplier is unable to verify the percentage of PLS prior to installation, the supplier must submit germination reports that identify the actual germination rate of each species.

C. Seeding Mixture. Ensure the seed mixture, as detailed in Table 1, is composed of the species listed by weight, and is individually packaged according to species. The Engineer will inspect seed before individual packages are opened. Obtain native seed from sources within the same EPA Level III Ecoregion, or the next adjacent Ecoregion, to the west or east. For more information, see the EPA website at:

<http://www.epa.gov/wed/pages/ecoregions/level_iii.htm>

Ensure seed is less than 1 year old and from the previous harvest season. Ensure seeds are stored as recommended by the supplier. The following seed companies or approved equal are acceptable suppliers:

Cardno Native Plant Nursery Michigan Wildflower Farm

128 Sunset Drive 11770 Cutler Road

Walkerton, IN 46574 Portland, MI 48875

(574) 586-2412 (517) 647-6010

Native Connections Shooting Star Native Seeds

17080 Hoshel Road 20740 County Road 33

Three Rivers, MI 49093 Spring Grove, MN 55974

(269) 580-4765 (507) 498-3944

2. Herbicides. Use glyphosate, a non-selective herbicide, to eradicate existing vegetation. Use it in accordance with the manufacturer's label.

3. Topsoil. Furnish compost and/or topsoil in accordance with section 917 of the Standard Specifications for Construction and place at a depth of 4 inches as shown on plans.

4. Fertilizer. Fertilization is not required.

5. Mulch. Use straw mulch or approved equal on this project.

**c. Construction.** This seeding method entails eradicating the existing vegetation with herbicide and using an interseeder drill or broadcast spreader to install the seed, then applying the mulch.

1. Seeding Method 1 - Drill Seeding. Prepare the site by mowing existing vegetation to a height of 4 to 6 inches if necessary, prior to spraying. Allow the existing vegetation to re-grow or "flush" before herbicide application with glyphosate. This may take 1 to 3 weeks depending on weather conditions. The work of vegetation control is required to eliminate the existing vegetation from the site. Spray vegetation with approval of the Engineer with glyphosate and in accordance with the manufacturer's directions. Apply spray on dry vegetation that will remain dry for no less than 24 hours. The Engineer will inspect vegetation and the results of the vegetation control.

Re-spray all vegetation uncontrolled by the initial herbicide treatment as directed by the Engineer within 14 calendar days after first herbicide treatment date and will be considered as part of the initial herbicide treatment. The Contractor must possess a valid Michigan Department of Agriculture and Rural Development commercial pesticide applicator's certificate for Right of Way Category 6. Perform seeding 7 to 10 calendar days after the final herbicide application.

Ensure the grass and forb seed is planted from April 15 to June 15 or from October 1 to freeze up. If uncontrolled grasses or weeds are present, ensure they are sprayed before seeding. Install the seed mixture with a seed drill that will accurately meter the types of seed to be planted and keep all seeds uniformly mixed during the drilling (Rangeland no-till drill, Truax, Tye or approved equal). Ensure the seed drill is calibrated to uniformly apply the seed at the specified rates and contains a minimum of two seed boxes; a fine seed box and a box for large/fluffy seeds, and is equipped with disc furrow openers and packer assembly to compact the soil directly over the drill rows. Ensure maximum row spacing is 8 inches. Ensure the interseeder drill is outfitted with trash rippers which will slice through the vegetative mat and make a furrow into the underlying soil approximately 1 inch wide by 1/4 to 1/2 inch deep. Ensure these furrows are directly in line with the drill seed disc openers. Ensure fine seed is drop-seeded onto the ground surface from the fine seed box and ensure large/fluffy seed is placed to obtain a final planting depth of 1/4 to 1/2 inch. Ensure all drill seeding is done at a right angle to surface drainage.

Uniformly apply straw mulch at a rate of 3/4 ton per acre immediately following seed installation. Apply mulch as directed by Engineer.

2. Seeding Method 2 - Broadcast Seeding. Ensure the site is prepared by spraying existing vegetation. The work of vegetation control is required to eliminate the existing vegetation from the site. Spray vegetation with approval by the Engineer with glyphosate, and in accordance with the manufacturer's directions. Apply spray on dry vegetation that will remain dry for no less than 24 hours. The Engineer will inspect vegetation and the results of the vegetation control.

Re-spray all vegetation uncontrolled by the initial herbicide treatment as directed by the Engineer within 14 calendar days after first herbicide treatment date and will be considered as part of the initial herbicide treatment. The Contractor must possess a valid Michigan Department of Agriculture & Rural Development commercial pesticide applicator's certificate for Right of Way Category 6. Perform seeding 7 to 10 calendar days after the final herbicide application.

Ensure the grass and forb seed is planted from April 15 to June 15 or from October 1 to freeze up. If uncontrolled grasses or weeds are present, ensure they are sprayed before seeding. Ensure the site is mowed/scalped and then willow tilled (1/4 to 1/2 inch) using a drag or garden rake.

Ensure mowing and tilling are done just prior to planting. Apply the seed mixture uniformly over the surface using a tractor-mounted combination seeder/cultipacker unit (Brillion, Truax Trillion or approved equal). Calibrate the seeder to uniformly apply seed at the specified rate. A cone seeder or other similar broadcasting equipment may also be used. Plant seed at a depth of 1/8 to 1/4 inch deep. Lightly roll or rake the area to set the seed.

Uniformly apply straw mulch at a rate of 3/4 ton per acre immediately following seed installation. Apply mulch as directed by Engineer.

**d. Maintenance Requirements.** Ensure maintenance is conducted during the first and second year of the contract.

1. First Year Maintenance - Spring Planting. Maintenance will consist of mowing the areas every 30 days after planting or when the weeds are flowering until September 30. Ensure a flail-type mower is used to chop up the vegetation and prevent the clippings from smothering the native seedlings. Mow the areas to a height of 4 to 6 inches.

Use spot spray throughout this period for noxious weeds not controlled by mowing to the satisfaction of the Engineer and/or Region Resource Specialist.

2. First Year Maintenance - Fall Planting. Maintenance will consist of mowing the area every 30 days the following year after planting. Mowing will begin May 1st and continue until September 30th. Ensure a flail-type mower is used to chop up the weeds and prevent the clippings from smothering the native seedlings. Mow the areas to a height of 4 to 6 inches.

Use spot spray throughout this period for noxious weeds not controlled by mowing to the satisfaction of the Engineer and/or Region Resource Specialist.

3. Second Year Maintenance. Maintenance will consist of mowing to a height of 8 inches at the end of April through the first week in May. If weeds are present a second mowing will be required around June 7th. Mow at the 8 inch height. A third mowing may be required if the biennial noxious weeds are present. Ensure this mowing is done when the plants are in full bloom which will usually occur in late June. Mow at an 8 inch height.

Use spot spray throughout this period for noxious weeds not controlled by mowing to the satisfaction of the Engineer and/or Region Resource Specialist.

4. Acceptance. The Region Resource Specialist will inspect for a dense cover of specified plants accurate to the genus, species, and variety, along with erosion and bare areas at the end of the first and second growing seasons.

A. Repair and reseed areas larger than 100 square feet using the appropriate seed mix at no cost to the contract within acceptable planting dates as directed by Engineer.

B. Seeded areas will require 90 percent vegetative cover and 80 percent of species planted are present. Coverage must be sufficient to prevent erosion to be acceptable.

**f. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

**Pay Item Pay Unit**

Native Grasses and Wildflowers Seeding Square Yard

Maintenance, First Season Dollar

Maintenance, Second Season Dollar

1. **Native Grasses and Wildflowers Seeding** will be measured in place by area in square yards and includes vegetation control (herbicide and mowing) and seed establishment including grasses, forbs, installation of seed and mulch.

The following schedule of payment applies to work performed in accordance with this special provision. Upon completion of the mulching stage, 75 percent of the authorized amount for **Native Grasses and Wildflowers Seeding** will be paid. The remaining authorized amount will be paid upon completion of all other work necessary to comply with this special provision and to meet all final acceptance parameters for native grasses and wildflowers seeding.

2. **Maintenance, First Season** at the completion of each of the five weed control periods for work satisfactorily completed 20 percent of the applicable budgeted dollar amount will be paid.

3. **Maintenance, Second Season** at the completion of each of the three weed control periods for work satisfactorily completed 33.3 percent of the applicable budgeted dollar amount will be paid.

**Table 1: Native Roadside Seed Mix**

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| Specification: Custom Mixture |
| Description: Native species, Grasses, and Forbs |   |
| Application Rate: 15 lbs./acre |
| Nurse Crop: Apply annual oats for spring seeding before June 15, or if the engineer allows seeding between June 15 and October 15. For fall seeding after October 15, use winter wheat, or annual ryegrass at 0.8 lbs./1,000 ft2 prior to mulch. |
| Erosion Control: Install mulch over new seed bed. |
| Common Name | Scientific Name | Ounces/Acre |
| Grasses and Sedges |
| *Andropogon gerardii* | Big Bluestem | 4.00 |
| *Bromus ciliatus* | Side Oats Grama | 30.00 |
| *Elymus canadensis* | Canada Wildrye | 32.00 |
| *Panicum virgatum* | Switch Grass | 2.00 |
| *Schizachyrium scoparium* | Little Bluestem | 32.00 |
| *Sorghastrum nutans* | Indian Grass | 8.00 |
| *Sporobolus heterolepis* | Prairie Dropseed | 12.00 |
| Forbs |
| *Agastache foeniculum* | Lavender Hyssop | 1.00 |
| *Allium cernuum* | Nodding Pink Onion | 5.00 |
| *Asclepias incarnata* | Marsh Milkweed | 8.00 |
| *Asclepias syriaca* | Common Milkweed | 5.00 |
| *Aster azureus* | Sky Blue Aster | 2.00 |
| *Aster laevis* | Smooth Aster | 2.00 |
| *Aster novae-angliae* | New England Aster | 2.00 |
| *Baptisia alba* | White False Indigo | 6.00 |
| *Echinacea purpurea* | Purple Coneflower | 6.00 |
| *Eryngium yuccifolium* | Rattlesnake Master | 8.00 |
| *Heliopsis helianthoides* | Ox-Eye Sunflower | 3.00 |
| *Liatris pycnostachya* | Prairie Blazingstar | 8.00 |
| *Monarda fistulosa* | Bergamot | 1.00 |
| *Penstemon digitalis* | Smooth Penstemon | 2.00 |
| *Ratibida pinnata* | Yellow Coneflower | 5.00 |
| *Rudbeckia hirta* | Black Eyed Susan | 4.00 |
| *Rudbeckia subtomentosa* | Sweet Black Eyed Susan | 2.00 |
| *Rudbeckia triloba* | Brown Eyed Susan | 2.00 |
| *Senna hebecarpa* | Wild Senna | 6.00 |
| *Silphium laciniatum* | Compassplant | 6.00 |
| *Silphium terebinthinaceum* | Prairie Dock | 4.00 |
| *Solidago rigida* | Stiff Goldenrod | 1.00 |
| *Tradescantia ohiensis* | Ohio Spiderwort | 6.00 |
| *Verbena hastata* | Blue Vervain | 1.00 |
| *Vernonia fasciculata* | Ironweed | 4.00 |
| *Veronicastrum virginicum* | Culver's Root | 1.00 |
| *Zizia aurea* | Golden Alexanders | 8.00 |