

1.0 GENERAL

1.1 Related Work

- 1.1.1 Section 02210 - Site Grading – Rough
- 1.1.2 Section 02212 - Planting Soil and Finish Grading
- 1.1.3 Section 02990 - Landscape Maintenance

1.2 Scope

- 1.2.1 This specification shall cover all operations relating to seeding fine and coarse grass seed mixes in both irrigated and non-irrigated conditions. The work performed under the current specification shall include all labour, materials, equipment, etc. required to seed and establish seed mixes in accordance with the methods and performance criteria as described herein.

1.3 References

- 1.3.1 Seeds Act, R.S.C., 1985, c. S-8
- 1.3.2 The Weed Control Act, SS 2010, cW-11.1
- 1.3.3 Minister's Order Designating Prohibited, Noxious and Nuisance Weeds(Weed List)
- 1.3.4 Seeds Regulations C.R.C., c.1400

1.4 Quality Control

- 1.4.1 The Contractor shall notify the Contract Administrator prior to any seeding activities.
- 1.4.2 The Contractor shall submit to the Contract Administrator original seed bag labels for each type of seed mix used before seeding.
- 1.4.3 Any proposed changes to the seed mixes must be approved by the Contract Administrator.
- 1.4.4 Grass seed, fertilizer, mulch, and any other materials required shall be delivered and stored in standard containers, clearly marked with contents, weight, analysis, and name of supplier or manufacturer.
- 1.4.5 Seed shall be mixed by a recognized seed house and clearly marked with the name of the supplier and the specified seed composition. Seed shall be tested in by a Canadian Food Inspection Agency (CFIA) accredited seed testing laboratory.

1.5 Inspections

- 1.5.1 The Contract Administrator shall inspect the work at the following stages:
- .1 After seedbed preparation.
 - .2 Within 24hrs of seeding.
 - .3 Within 3 working days of receiving request for Substantial Performance from Contractor.
 - .4 Within 3 working days of receiving request for Final Acceptance from Contractor.
 - .5 Following deficiency repairs, as applicable.

1.6 Testing

- 1.6.1 Prior to installation of seed, the contractor shall supply the Consultant with seed certificates or the Report of Analysis, for review and approval by Consultant.
- 1.6.2 It is the responsibility of the Consultant to ensure that seed certificates or Report of Analysis is reviewed and any plant material to be used is free of prohibited and noxious weeds as specified under Canada's Seed Act, The Weed Control Act and the Ministers Order Designating Prohibited, Noxious and Nuisance Weeds In addition, the City of Regina prohibits the use of crested wheatgrass(*agropyron cristatum*), smooth brome(*bromus inermis*), quack grass(*elytrigia repens*), reed canary grass(*phalaris arundinacea*) and foxtail barley(*hordeum jubatum*).
- 1.6.3 All seed should be tested using the Canadian Methods and Procedures for Testing seed or similar, as specified in Canada's Seed Regulations.
- 1.6.4 If noxious and or nuisance weeds are found present during seed mix testing, the Contractor is responsible to obtain new seed, and supplying Consultant with seed certificates or the Report of Analysis, for review and approval by Consultant

2.0 PRODUCTS

2.1 Grass Seed Mixes

- 2.1.1 Canada Certified No. 1 Grade in accordance with the Seeds Act free of disease, weed seeds, and other foreign materials. Selected cultivars shall be regionally appropriate and suited to the intended site conditions and use.

- 2.1.2 See **APPENDIX A - SEED MIX LIST (Mixes 1-5)**. This seed mix list are guidelines, substitutions are to be approved by City of Regina Parks Department representative.
- 2.2 Other Materials
 - 2.2.1 Water: free of impurities that would inhibit germination and growth.
 - 2.2.2 Fertilizer: slow-release synthetic fertilizer applied as per recommendation of soil reports.
 - 2.2.3 Erosion Control Blanket: As approved.
 - 2.2.4 Hydro-mulch: As approved; wood cellulose containing no contaminants.
 - 2.2.5 Tackifier/Binder: As approved.
- 2.3 Equipment
 - 2.3.1 Manual Seeding: 'cyclone' style broadcast seeder and flexible drag mat, chains, or harrows as approved by the Contract Administrator.
 - 2.3.2 Mechanical Seeding: 'Brillion' style drop seeder. Equipment must be capable of accurately placing seed at specified depth and rate in single pass operation.
 - 2.3.3 Hydro seeding and hydro mulching: Hydro-seeder capable of thoroughly mixing water, seed, fertilizer, and wood fiber and uniformly applying the mixture at a specified rate.
 - 2.3.4 Rollers: as specified; suitable to the work area and type of work.

3.0 EXECUTION

- 3.1 Workmanship
 - 3.1.1 Clean any adjacent sidewalk, roads, or other hard surfaces at the end of each working day. Remove refuse and maintain a clean work environment.
- 3.2 Site Preparation
 - 3.2.1 Re-grade or repair any areas damaged during construction and topsoil placement. Remove weeds, stones, debris, and other foreign materials exceeding 25mm in diameter before seeding.
 - 3.2.2 Fertilize seeding area at time of seeding with 11-52-0 fertilizer at a rate of 100kg/ha or as recommended in soil analysis results. Incorporate fertilizer to a depth of 100mm during topsoil preparation.

- 3.2.3 Obtain approval from the Contract Administrator prior to starting seeding. Seedbed must meet criteria described in 02212 Planting Soil and Finish Grading.
- 3.2.4 If the seeding area has established Noxious or Nuisance weeds (as listed in the Weed Control Act), ensure these plants are eliminated prior to proceeding to seeding.
- 3.3 Seedbed Preparation
 - 3.3.1 The following must be accomplished prior to seeding:
 - .1 Loosen topsoil and fine grade to achieve a friable seedbed.
 - .2 Eliminate rough spots and low areas; ensure positive internal drainage.
 - .3 Consolidate seedbed leaving a smooth and uniform seedbed that is firm against deep foot printing (i.e., > 25mm depression).
- 3.4 Seeding
 - 3.4.1 No seeding shall begin without prior approval from the Contract Administrator.
 - 3.4.2 Seed in accordance with good horticultural practices during favorable weather conditions.
 - 3.4.3 Do not seed under adverse conditions, including but not limited to frozen or saturated ground, or ground covered in snow, ice, or water. Avoid broadcast seeding if wind levels are resulting in inconsistent seeding rates and coverage.
 - 3.4.4 Areas to be seeded must be seeded before July 15, after August 31, and/or 2 weeks prior to freeze-up to allow sufficient establishment and growth to overwinter and withstand spring clean-up activities.
 - 3.4.5 Use equipment that is in good working condition and is suitable for the seeding area.
 - 3.4.6 Sow seed uniformly at the seed rate listed for the mix and equipment being used. Sow half seed in one direction and remainder at right angles.
 - 3.4.7 Ensure seed is embedded to a depth of 5mm within 1 hour of seeding. Roller pack the site immediately after seeding, as needed, or as directed by the Contract Administrator.

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- 3.4.8 Water immediately with a fine spray in sufficient quantities to saturate the seeded soils to a depth of 100mm. Continue to supply irrigation as needed and as described in 3.6.
 - 3.4.9 Repair and reseed dead or bare areas as soon as possible following approved methods specified herein.
 - .1 Hand broadcast seeding is unacceptable without the Contract Administrator's approval.
 - 3.4.10 Protect seeded areas against damage. Remove protection once Final Acceptance has been met, or at the direction of the Contract Administrator.
 - 3.5 Erosion Control
 - 3.5.1 The Contractor shall take all necessary precautions to control erosion and avoid the release of sediment to adjacent areas.
 - 3.5.2 A site-specific Erosion Control Plan will be required at the discretion of the Contract Administrator.
 - 3.5.3 Install or apply approved erosion control measures as indicated on the Drawings or at the direction of the Contract Administrator immediately following seeding.
 - 3.5.4 Maintain, repair, and/or replace according to product specifications as needed throughout plant establishment.
 - 3.5.5 Hydro-mulching (if specified)
 - .1 The Contract Administrator shall inspect the seeded area prior to any hydro-mulch application.
 - .2 Apply approved product according to manufacturers recommendations for the given site, slope, and soil conditions.
 - .3 Apply hydro-mulch within 24 hours of seeding operations. Coordinate necessary inspections with the Contract Administrator to avoid any delay in application.
 - 3.6 Maintenance During Establishment
 - 3.6.1 Perform maintenance operations in accordance with Section 02990 Landscape Maintenance from time of seeding until Final Acceptance has been met.
 - 3.6.2 Maintenance during establishment shall include all activities required to establish a healthy plant community including but not limited to: watering, weed removal, reseeding, etc.

3.7 Substantial Performance

3.7.1 A Substantial Performance inspection will:

- .1 be conducted with the Contractor, the Contract Administrator, and the designated City of Regina, Parks Department representative present.
- .2 take place 1 growing season after installation of seed.
 - a) One (1) growing season is defined as the period of time between installation of seed to, at a minimum, June 30 of the following year, or, in the sole opinion of Parks Maintenance, on the date when the irrigation systems are operating and the vegetation is in full leaf, whichever event occurs last.
- .3 will take place after June 30 and before September 30, or, in the sole opinion of Parks Maintenance, when the irrigation systems are operating, and the vegetation is in full leaf.

3.7.2 Seeding will meet Substantial Performance once the following criteria has been demonstrably met:

- .1 The certified seed specified herein has been sown in accordance with the current specification.
- .2 The seeded area has been installed for a minimum of one (1) growing season.
- .3 The seeded area has established into a healthy, vigorously growing condition.
- .4 The seeded area is free of bare and dead spots and fewer than ten (10) broadleaf weeds per fifty (50) square metres.
- .5 Seeded area is free of Noxious and Nuisance weeds as specified under Canada's The Weed Control Act and the Ministers Order Designating Prohibited, Noxious and Nuisance Weeds . In addition, the City of Regina prohibits the use of crested wheatgrass (*agropyron cristatum*), smooth brome (*bromus inermis*), quack grass (*elytrigia repens*), reed canary grass (*phalaris arundinacea*) and foxtail barley (*hordeum jubatum*).
- .6 Project Maintenance Log has been submitted and approved in accordance with Section 02990 Landscape Maintenance.
- .7 The Contractor has:
 - a) submitted a request for Substantial Performance to the Contract Administrator;

- b) completed an on-site Substantial Performance inspection with Contract Administrator and City of Regina, Parks Department representative;
- c) addressed all deficiencies identified by the Contract Administrator, if applicable; and
- d) been issued Substantial Performance by the Contract Administrator with approval by City of Regina, Parks Department representative.

3.7.3 The Contractor shall continue to perform maintenance as described in 3.6 until Final Acceptance has been issued.

3.8 Final Acceptance

3.8.1 A Final Acceptance inspection will:

- .1 be conducted with the Contractor, the Contract Administrator, and the designated City of Regina, Parks Department representative present.
- .2 take place two (2) growing seasons after issuance of Substantial Performance.
- .3 will take place after June 30 and before September 30, or, in the sole opinion of Parks Maintenance, when the irrigation systems are operating, and the vegetation is in full leaf, whichever event occurs last.

3.8.2 Final Acceptance shall be issued if the following criteria have been demonstrably met:

- .1 The seeded area has been installed for a minimum of two (2) additional growing seasons following Substantial Performance;
- .2 The seeded area has established into a healthy, vigorously growing condition;
- .3 The seeded area is free of bare and dead spots and fewer than ten (10) broadleaf weeds per fifty (50) square metres;
- .4 Seeded area is free of Noxious and Nuisance weeds as specified under Canada's The Weed Control Act and the Ministers Order Designating Prohibited, Noxious and Nuisance Weeds . In addition, the City of Regina prohibits the use of crested wheatgrass (*agropyron cristatum*), smooth brome (*bromus inermis*), quack grass (*elytrigia repens*), reed canary grass (*phalaris arundinacea*) and foxtail barley(*hordeum jubatum*).
- .5 Project Maintenance Log has been submitted and approved in accordance with Section 02990 Landscape Maintenance; and

- .6 The Contractor has:
- a) submitted a request for Final Acceptance to the Contract Administrator;
 - b) completed an on-site Final Acceptance inspection with Contract Administrator and City of Regina, Parks Department representative present;
 - c) addressed all deficiencies identified by the Contract Administrator, if applicable; and
 - d) been issued Final Acceptance by the Contract Administrator with approval by City of Regina, Parks Department representative.

SEE APPENDIX A - SEED MIX LIST (Mixes 1-5)

END OF SECTION

APPENDIX A - SEED MIX LIST (Mixes 1-5)

Seed Mix 1: High Maintenance Turf					
Common Name / Scientific Name	Cultivar	Rate (lb/ac)	Rate (kg/ha)	% of Mix (by weight)	Approx. Seeds/ft ²
Kentucky bluegrass / <i>Poa pratensis</i>	Kentucky Bluegrass made up of the following: At least 5 varieties, one in each sub-category				
	America – Bedazzled, Jumpstart, Waterworks	26.04	29.16	20.0%	836.91
	Compact – Bewitched, Blueberry, Moonlight SLT	26.04	29.16	20.0%	836.91
	Midnight – Midnight, Endurance, Nuglade	26.04	29.16	20.0%	836.91
Creeping red fescue / <i>Festuca rubra</i>	Enchantment, Shadow II	11.16	12.50	12.5%	199.83
Chewing fescue / <i>Festuca rubra</i> subsp. <i>Commutata</i>	Aberdeen, Boreal	11.16	12.50	12.5%	199.83
Perennial ryegrass / <i>Lolium perenne</i>	Fiesta II, Coastal 4-Way, Triumphant	11.16	12.50	15.0%	58.16
Total		111.60	124.98	100.0%	2968.57
Purpose: High quality turf being regularly maintained with mowing, irrigation, fertilization, etc.					
Planting Areas: Sports fields, Athletic Fields					

Seed Mix #2: Medium Maintenance Turf					
Common Name - Scientific Name	Cultivar	Rate (lb/ac)	Rate (kg/ha)	% of Mix (by weight)	Approx. Seeds/ft ²
Kentucky bluegrass / <i>Poa pratensis</i>	Minimum 2 broad tolerance cultivars e.g. Midnight, Touchdown, Alene I	33.48	37.50	30.00	1076.10
Creeping red fescue / <i>Festuca rubra</i>	Aberdeed, Jasper II, Boreal	22.32	25.00	20.00	399.70
Chewings fescue / <i>Festuca rubra</i> subsp. <i>Commutata</i>	Windward, Victory II, Ambrose	22.32	25.00	20.00	192.16
Tall fescue / <i>Festuca arundinacea</i>	Mustang IV, Nightcrawler	11.16	12.50	10.00	58.16
Hard Fescue / <i>Festuca brevipila</i>	Spartan II	11.16	12.50	10.00	174.23
Perennial ryegrass / <i>Lolium perenne</i>	Fiesta IV	11.16	12.50	10.00	58.16
Total		111.61	125.00	100.00	1958.51
Purpose: Kentucky Bluegrass & Fescue mix for irrigated site. This mix will require less water than Mix #1.					
Planting Areas: Irrigated turf in City parks and open space excluding athletic fields and sports fields. Not for use in boulevards or medians, not for use without irrigation.					

Seed Mix #3: Unirrigated Coarse Grass					
Common Name / Scientific Name	Cultivar	Rate (lb/ac)	Rate (kg/ha)	% of Mix (by weight)	Approx. Seeds/ft ²
Canada bluegrass / <i>Poa compressa</i>	Reubens, Canon	13.39	15.00	10.00	735.68
Kentucky bluegrass / <i>Poa pratensis</i>	Alene, Touchdown, Brooklawn	13.39	15.00	10.00	430.44
Creeping red fescue / <i>Festuca rubra</i>	Aberdeed, Jasper II, Boreal	23.44	26.25	17.50	419.68
Hard Fescue / <i>Festuca brevipila</i>	Osprey, Eureka II, Discovery	23.44	26.25	17.50	365.87
Chewings fescue / <i>Festuca rubra</i> subsp. <i>Commutata</i>	Windward, Victory II, Ambrose	23.44	26.25	17.50	201.77
Sheeps fescue / <i>Festuca ovina</i>	Quatro	23.44	26.25	17.50	282.48
Perennial ryegrass / <i>Lolium perenne</i>	Fiesta IV	13.39	15.00	10.00	69.79
Total		133.93	150.00	100.00	2505.72
Purpose: Unirrigated grass mix receiving infrequent mowing and maintenance.					
Planting Areas: Unirrigated coarse grass open space, park space. Do not use in ditch bottoms.					

Seed Mix #4: Salt Tolerant (no Clover)					
Common Name / Scientific Name	Cultivar	Rate (lb/ac)	Rate (kg/ha)	% of Mix (by weight)	Approx. Seeds/ft2
Kentucky bluegrass / <i>Poa pratensis</i>	Salt tolerant cultivar	16.74	18.75	15.00	538.05
Creeping red fescue / <i>Festuca rubra</i>	Sealink	33.48	37.50	30.00	599.54
Hard Fescue / <i>Festuca brevipila</i>	Osprey, Eureka II, Discovery	16.74	18.75	15.00	261.34
Chewings fescue / <i>Festuca rubra</i> subsp. <i>commutata</i>	Windward, Victory II, Ambrose	16.74	18.75	15.00	144.12
Perennial ryegrass / <i>Lolium perenne</i>	Fiesta IV	16.74	18.75	15.00	87.24
Fulfs alkaligrass / <i>Puccinellia distans</i> or Nuttall's alkaligrass / <i>Puccinellia nuttalliana</i>	Common	11.16	12.50	10.00	307.46
Total		111.61	125.00	100.00	1937.75
Purpose: Salt tolerant turf grass mix used in seeding and overseeding in salt affected soils.					
Planting Areas: For use in boulevards, medians, saline soils, roadsides that experience moderate to heavy salt spray, other.					

Seed Mix #5: Salt Tolerant with Clover					
Common Name / Scientific Name	Cultivar	Rate (lb/ac)	Rate (kg/ha)	% of Mix (by weight)	Approx. Seeds/ft2
Kentucky bluegrass / <i>Poa pratensis</i>	Salt tolerant cultivar	11.16	12.50	10.00	358.70
Creeping red fescue / <i>Festuca rubra</i>	Sealink	33.48	37.50	30.00	599.54
Hard Fescue / <i>Festuca brevipila</i>	Osprey, Eureka II, Discovery	16.74	18.75	15.00	261.34
Chewings fescue / <i>Festuca rubra</i> subsp. <i>commutata</i>	Windward, Victory II, Ambrose	16.74	18.75	15.00	144.12
Perennial ryegrass / <i>Lolium perenne</i>	Fiesta IV	16.74	18.75	15.00	87.24
Fulfs alkaligrass / <i>Puccinellia distans</i> or Nuttall's alkaligrass / <i>Puccinellia nuttalliana</i>	Common	11.16	12.50	10.00	307.46
Micro Clover / <i>Trifolium repens</i> var. <i>Pipolina</i>		2.00	2.24	5.00	13.96
Total		108.03	120.99	100.00	1772.36
Purpose: Salt tolerant turf grass and Clover mix used in seeding and overseeding in salt affected soils.					
Planting Areas: For use in boulevards, medians, saline soils, roadsides that experience moderate to heavy salt spray, other.					