**SECTION 32 92 00**

**TURF AND GRASSES**

**PART 1 - GENERAL**

1. SECTION INCLUDES
2. Work to be performed under this Section shall consist of furnishing all labor and materials necessary to install new sod including soil preparation, sod laying, maintenance, and repair; all in accordance with the specifications and plans of this project.

1.2 REFERENCES

* + 1. ANSI – American National Standards Institute
		2. ASTM – American Society of Testing and Materials
		3. TPI – Turfgrass Producers International
		4. TWCA – Turfgrass Water Conservation Alliance

1.3 DEFINITIONS

* + - * 1. Finish Grade: Elevation of finished surface of planting soil.
				2. Planting Soil: Native soil or surface soil modified to become topsoil; mixed with soil amendments.
				3. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.
				4. Final Acceptance: Acceptance issued to contractor by Owner when work is substantially complete and all punchlist items have been remedied.
				5. Establishment Period: Period agreed upon between Contractor and Owner after Final Acceptance in which Contractor is required to irrigate and maintain sod until established.
				6. Maintenance Period/Contract: Period agreed upon between Contractor and Owner after the Establishment Period in which Contractor is required to irrigate and maintain sod until end of contract.

1.4 SUBMITTALS

* + - * 1. Product Data: Submit for each type of product indicated.
				2. Certifications: Provide from seed vendor or sod producer each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

Certification of each sod and seed mixture for turfgrass sod, identifying source, including name and telephone number of supplier.

* + - * 1. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer.
				2. Qualification Data: For landscape installer.
				3. Material Test Reports: For existing native soil.
				4. Maintenance Data: Recommended procedures to be established by Owner for maintenance of sod lawns during a calendar year. Submit before expiration of required maintenance periods.

1.5 QUALITY ASSURANCE

Installer Qualifications: A qualified landscape installer whose work has resulted in successful bluegrass sod lawn and bluegrass seed establishment.

Installer’s Field Supervision: Require installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

* + - * 1. Soil Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
				2. Native Soil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of topsoil.
				3. All work shall be performed in accordance with the best standards of practice relating to the trade.

1.6 DELIVERY, STORAGE, AND HANDLING

* + - * 1. Sod: Harvest, deliver, store, and handle sod according to requirements in TPI's "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in its "Guideline Specifications to Turfgrass Sodding."
				2. Soil Amendments, fertilizer, and other chemicals shall be delivered in original, unopened containers bearing manufacturer’s chemical analysis. Instead of containers, materials may be furnished in bulk. A chemical analysis shall be provided for bulk deliveries.
				3. Storage: Materials shall be stored in areas designated by the Owner.

Contractor shall water sod, as often as necessary, to keep sod in a moist condition until installation. No sod shall be stored on site for longer than two (2) days. Sod that becomes yellow, dry, or broken, shall be removed from the site and replaced by the Contractor at no additional cost to the Project.

Fertilizers and other soil amendments shall be stored in cool, dry locations away from contaminants.

Chemical treatment materials shall not be stored with other landscape materials.

* + - * 1. Handling: Except for bulk deliveries, materials shall not be dropped or dumped from vehicles.

1.7 JOB SITE CONDITIONS

* + - * 1. Protection of Property: Preserve and protect all monuments, structures, existing improvements, and paved areas from damage due to work of this section. In the event damage does occur, completely repair or replace all damage to satisfaction of Owner at no additional cost to the Project or Owner.
				2. Protection and Repair of Underground Lines: Request proper utility company to stake exact location (including depth) of all underground utilities. Take whatever precautions are necessary to protect these underground lines from damage, and, in the event damage does occur, repair all damages at no additional cost to the Project or Owner.
				3. Replacement of Paving and Curbs: Where trenches and lines cross existing roadways, paths, curbing, etc., keep damage to a minimum and restore to original condition.

1.8 SCHEDULING

* + - * 1. Planting Restrictions: Plant during one of the following periods as described below. Coordinate planting periods with maintenance periods to provide required maintenance from date of installation, through final acceptance and until beginning of maintenance contract.

No seeding or sodding operations shall take place if ground is muddy, standing water present, frozen, snow covered or if sod is dormant.

Sod Installation: April 15th to September 15th or until ground temperatures are above 40° F and/or sod is no longer available for the season.

* + - * 1. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

**PART 2 - PRODUCTS**

## TURFGRASS SOD:

* + 1. General Information
			1. Provide natural living turfgrass sod that is certified, approved, Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with TPI's "Specifications for Turfgrass Sod Materials" in its "Guideline Specifications to Turfgrass Sodding."
			2. Furnish natural living turfgrass sod suitable for low maintenance areas, reclamation, roadsides, pastures, sports fields, and large parks of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.
		2. Desert Sage™ - TWCA Certified Bluegrass Sod
			1. Sod specifications include but are not limited to:
				1. Shall be grown from a TWCA Qualified 5 seed bluegrass blend utilizing cultivars that exceed normally accepted industry criterion.
				2. Shall contain no rye grass cultivars.
				3. Shall have a maximum 50# per acre seeding rate.
				4. Shall have a minimum multi-year root mass with strong rhizome development.
				5. Shall be certified noxious weed free.
				6. Shall be TWCA Qualified drought tolerant turfgrass.

Shall require no more than 30” annual supplemental water during establishment and no more than 20” annual supplemental water after establishment.

Shall contain a strong root base capable of root penetration to a minimum depth of 8” into landscape soil.

* + - * 1. Growing medium shall be a sandy loam soil with low clay content.
				2. Shall be grown without netting.
				3. Shipping mow height shall be 2”.
				4. Shall be supplied by Chanshare Farms – 10785 W. 12800 N., Tremonton, UT 84337.

2.2 ORGANIC SOIL AMENDMENTS

* + - * 1. Compost

Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

Organic Matter Content: 35%- 50% percent of dry weight.

2.3 PLANTING ACCESSORIES

* + - * 1. Selective Herbicides: EPA registered and approved, of type recommended by manufacturer for application.
				2. Fertilizer: Slow-Release fertilizer, granular or pelleted in the following composition:

Composition: 7-2-3 Nitrogen, phosphorous, and potassium or in amounts recommended in soil reports from a qualified soil-testing agency.

2.4 WATER

* + - * 1. Water shall be supplied and paid for by the Contractor until the irrigation system becomes fully operational. Distribution of water from the Owner’s source for all portions of this section, including maintenance, shall be the responsibility of the Contractor. Failures in the irrigation system shall not relieve the Contractor from applying the water necessary to irrigate the plantings.

The Contractor shall be required to obtain a water meter from the local municipality for all watering requirements prior to completion and full operation of the automatic irrigation system.

**PART 3 - EXECUTION**

3.1 EXAMINATION

Examine areas to receive sod lawns for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

All damage caused by Contractor shall be repaired at no additional cost to the project.

All areas of fill, i.e., trenches, mounds, etc., shall be compacted and settled prior to any planting soil being placed in areas to be sodded.

Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-gearing water runoff or airborne dust to adjacent properties and walkways.

3.3 INSTALLATION

Limit sod lawn subgrade preparation to areas to be planted.

Apply organic compost material at a rate of 3 CY/ 1000 SF and fertilizer at a rate of 1 lb. of nitrogen per 1000 SF. Apply directly to fine grade and rototill into native soil to a minimum depth of six (6”) inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off of Owner’s property.

Delay mixing fertilizer with planting soil if planting will not proceed within a few days.

Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.

Moisten prepared sod lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

Restore areas if eroded or otherwise disturbed after finish grading and before planting.

Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is muddy, standing water present, frozen or snow covered.

Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

Lay sod across angle of slopes exceeding 1:3.

Anchor sod on slopes exceeding 1:6 with steel staples spaced as recommended by sod manufacturer but not less than 2 anchors per sod strip to prevent slippage.

Saturate sod with fine water spray within two hours of planting. See table below for recommended watering amounts for the first month after installation:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week | 1st | 2nd | 3rd | 4th |
| How often to water | Every Day | Every Other Day | Every Third Day | Every Fourth Day |
| April | \* |
| May | \* | 1/3 | 1/2 | 2/3 |
| June | 1/4 | ½ | 2/3 | ¾ |
| July | 1/4 | ½ | 2/3 | ¾ |
| August | 1/4 | ½ | ¾ | 1 |
| September | \* | 1/3 | ½ | 2/3 |
| October | \* |
|  | \*Apply ¼ of an inch as needed |

3.4 CLEANUP AND PROTECTION

1. Promptly remove soil and debris created by any work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
2. Restore all damaged areas to original condition unless otherwise shown on plans at no additional cost to the Project or Owner.
3. Maintain continuous cleaning operation throughout duration of work. Dispose of, off-site, at no additional cost to Project or Owner, all trash or debris generated by installation of irrigation system.
4. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.
5. Remove erosion-control measures after grass establishment period.

3.5 SODDED LAWN MAINTENANCE

* + - * 1. Begin construction period maintenance immediately after each area is planted and continue until acceptable sod lawn is established. Continue through final acceptance and until beginning of ongoing maintenance contract.
1. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.
	* + - 1. Maintain and establish sod lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth sod lawn.
				2. Watering: Provide and maintain permanent irrigation system, piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist.
2. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
3. Water sod lawn at the rates specified in the table below through the maintenance period.

|  |  |
| --- | --- |
| April | No irrigation recommended, unless needed under extremely dry periods |
| May ± | 1 inch every 10-14 days |
| June  | 1 inch every 7-10 days |
| July ± | 1 inch every 6-7 days |
| August  | 1 inch every 6-9 days |
| September ± | 1 inch every 7-10 days |
| October ± | A good soaking to a depth of six to eight inches around the beginning of the month |
| November | No irrigation recommended unless unusually warm and lawn shows signs of stress |
|  | ± Apply 1# Nitrogen fertilizer per 1000 square feet. Look for a balanced N-P-K ratio of 4-1-2. Apply late May and October, early July and September |

* + - * 1. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 40 percent of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

Mow grass 2 - 2 1/2” inches high.

* + - * 1. Aeration: Core/tine aerate lawn once during the spring and tine aerate lawn once during October.
				2. Sod Lawn Post fertilization: Apply fertilizer immediately after installation initial mowing and when grass is dry, water after application.
1. Use a commercial fertilizer with balanced N-P-K values that will provide actual nitrogen of at least 1 lb/1000 sq. ft..

END OF SECTION