**THE SPECIAL PROVISIONS DESCRIBED WITHIN IS AN ATTEMPT TO COVER MOST DESIGN ASPECTS OF UTILIZING THE EARTHGUARD® FUSION EROSION CONTROL SYSTEM. THIS DOCUMENT IS INTENDED TO BE UTILIZED AS A GUIDELINE, WHICH CAN BE CUSTOMIZED BY THE USER TO MEET SPECIFIC PROJECT REQUIREMENTS.**

**THIS PROVISION DOES NOT ATTEMPT TO ADDRESS ALL ASPECTS OF EROSION CONTROL AND RE-VEGETATION DESIGN. A PROFESSIONAL ENGINEER RESPONSIBLE FOR DESIGN SHOULD CHECK THE INFORMATION PRESENTED IN DETAIL. CONSULT YOUR EARTHGUARD FUSION REPRESENTATIVE FOR MORE INFORMATION.**

**1. GENERAL**

**1.1. Work Included. *EarthGuard Fusion*** shall be furnished and applied as shown on the drawings and as required for proper installation and functioning of the product. The product is packaged in a 50 lb. bag with the ***EarthGuard*** chemistry inside.

**2. MATERIALS**

***2.1 EarthGuard Fusion. EarthGuard Fusion*** is composed of a proprietary blend of organic renewable agricultural fibers, other natural fibers, a combination of growth mediums and microbial growth stimulators and the erosion control/soil stabilizing chemistry of ***EarthGuard.***

Compost found within this product shall meet the Seal of Testing Assurance Program of the US Composting Council.

***EarthGuard Fusion*** provides immediate to long-term topsoil development and overall improvements in the soils ability to support plant growth (tilth) at all stages of development. ***EarthGuard Fusion*** also enhances plant establishment, development, and long-term plant sustainability. The combination of materials in ***EarthGuard Fusion*** is scientifically balanced to improve and expedite topsoil development.

At no time shall field mixing of fibers, tackifiers, growth mediums, soil stabilizers or stimulants be allowed.

**Physical Properties**

|  |  |  |
| --- | --- | --- |
| **Property** | **Test Method** | **Value** |
| Thickness | ASTM D6566 | > 0.240 in. |
| Mass/Unit Area | ASTM D6525 | > 18.10 oz./sq. yd. |
| Water Absorption | ASTM D 1117/ECTC TASC 00197) | > 555% |
| Ground Cover/Light Penetration | ASTM D6567 | 100% |

**Erosion Control Performance**

|  |  |  |
| --- | --- | --- |
| **Property** | **Test Method** | **Value** |
| Large-Scale Slope Erosion Control | ASTM D6459\* | 0.003 |

\*Modified ASTM D6459 (Standard Test Method for Determination of Erosion Control Blankets Performance in Protecting Hillslopes from Rainfall-Induced Erosion) used by hydraulic mulch manufactures.

**Agricultural Properties**

|  |  |  |
| --- | --- | --- |
| **Property** | **Test Method** | **Value** |
| Organic Matter Content | TMECC 05.07-A | > 91.80% |
| Maturity by CO2 Respiration | TMECC 05.08-E | 8 = "Finished" compost |
| pH | TMECC 04.11-A | 7.5 |
| Carbon:Nitrogen (C:N) | TMECC 05.02-A | > 72.5:1 |
| Moisture Content | TMECC 03.09-A @ 70 C | < 13% |
| Cation Exchange Capacity | TMECC Modified | > 22.5 millequivalents/100g |

TMECC - Test Methods for the Examination of Composting and Compost, The U.S. Composting Council.

**2.2. Seed (OPTIONAL – SPECIFY TYPE IF REQUIRED).** The seed to be applied in combination with the EarthGuard Fusion shall be of Type **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** as shown in the plans and specified within these Special Provisions.

Seed shall be labeled by the vendors supplying the seed. Seed shall have been tested for purity and germination not more than 12 months prior to the application of the seed. Seed testing results shall be delivered to the Engineer prior to applying the seed. Seed labels furnished by the seed supplying vendor shall indicate the purity, germination and pure live seed as determined by testing.

Seed with a germination rate lower than the minimum rate specified may be used when approved by the Engineer in writing.

Seed specified without a germination requirement, at the time of sowing, shall be from the previous or current year's harvest, and shall be labeled to include the name date (month and year) collected and the name and address of the seed supplier.

**2.3. Fertilizer (OPTIONAL – SPECIFY TYPE IF REQUIRED).** The fertilizer to be applied in combination with the EarthGuard Fusion shall be

PLEASE SELECT ONE

2.3.1 EarthGuard Elixir 4-4-4 as shown in the plans and specified within these Special Provisions.

|  |  |
| --- | --- |
| **GUARANTEED ANALYSIS** | |
| Total Nitrogen (N) | 4.0% |
| Available Phosphate (P2O5­) | **4.0%** |
| Soluble Potash | **4.0%** |
| **Calcium** | **7.0%** |
| **Sulfur** | **3.0%** |
| Magnesium | 0.70% |
| Copper | 0.05% |
| Zinc | 0.05% |
| Boron | 0.02% |
| Sodium | 0.10% |
| Cobalt | 0.0005% |
| Molybdenum | 0.0005% |
| Mycorrhizae Spore  Species | 0.860 Propagules/g Glomus intradices 0.860 Propagules/g Glomus aggregatum 0.860 Propagules/g Glomus mosseae |
| Plant Nutrients | Chicken Manure, Elemental Sulfur, Sulfate of Potash, Liquid Fish |

2.3.2 EarthGuard Elixir 8-5-5 with Mycorrhizae and 14 Essential Elementsas shown in the plans and specified within these Special Provisions.

|  |  |
| --- | --- |
| **GUARANTEED ANALYSIS** | |
| Total Nitrogen (N) | 8.0% |
| Available Phosphate (P2O5­) | **5.0%** |
| Soluble Potash | **5.0%** |
| **Iron** | **0.10%** |
| **Calcium** | **7.0%** |
| **Sulfur** | **3.0%** |
| Magnesium | 0.70% |
| Copper | 0.05% |
| Zinc | 0.05% |
| Boron | 0.02% |
| Sodium | 0.10% |
| Cobalt | 0.0005% |
| Molybdenum | 0.0005% |
| Endo Mycorrhizae  Spore Species | 0.860 Propagules/g Glomus mosseae 0.860 Propagules/g Glomus intradices  0.860 Propagules/g Glomus aggregatum |
| Plant Nutrients | Chicken Litter, Urea, Cobalt Sulfate, Copper Sulfate, Manganese Sulfate, Molybdenum Oxide, Potassium Chloride, Anhydrous Ammonia, Boric Acid, Zinc Sulfate Elemental Sulfur, Sulfate of Potash, Liquid Fish |

**2.4. Microbial Probiotics (OPTIONAL – SPECIFY TYPE IF REQUIRED).** The microbial probiotics to be applied in combination with the EarthGuard Fusion shall be as shown in the plans and specified within these Special Provisions.

|  |  |
| --- | --- |
| **GUARANTEED ANALYSIS** | |
| pH | 6.9-7.5 |
| Organic | 100% |
| Live Cells (cells/ml) | 6.1x108 |

PLEASE SELECT ONE

2.4.1 Elixir Quantum Growth Light

|  |  |
| --- | --- |
| **GUARANTEED ANALYSIS** | |
| pH | 6.9-7.5 |
| Organic | 100% |
| Spore Cultures (cells/ml) | 6.1x108 |

2.4.2 Elixir Quantum Growth SRP-1

|  |  |
| --- | --- |
| **GUARANTEED ANALYSIS** | |
| pH | 6.5-8.0 |
| Organic | 100% |
| Spore Cultures (cells/ml) | 1.8x109 |

2.4.3 Elixir Quantum Growth VSC

|  |  |
| --- | --- |
| **GUARANTEED ANALYSIS** | |
| pH | 6.5-8.0 |
| Organic | 100% |
| Spore Cultures (cells/ml) | 3.7x109 |

**3. APPLICATION RATES**

EarthGuard Fusion shall be mixed in the following general proportions depending soil erosivity and agronomical properties. Consult your EarthGuard Fusion Sales Representative and/or product manufacturer Terra Novo Inc. at (888) 843-1029 for the appropriate project specific application rates.

Rates below are for use when no soil analysis has been done. For more cost-effective results, soil testing and analysis is recommended.

PLEASE DELETE PRODUCTS NOT TO BE USED

|  |  |  |  |
| --- | --- | --- | --- |
| **SLOPE** | **≤ 4:1** | **3:1** | **≥ 2:1** |
| **Fusion**  **(lb./ac)** | **3500-4000** | **4000-4500** | **4500-5500** |
| **Fusion**  **(kg/ha)** | **3925-4475** | **4475-5050** | **5050-6170** |
| **Fusion Extreme**  **(lb./ac)** | **4000-4500** | **4500-5000** | **5000-5500** |
| **Fusion Extreme**  **(kg/ha)** | **4475-5050** | **5050-5605** | **5605-6165** |
| **Elixir 4-4-4**  **Fertilizer**  **(lb./ac)** | **500** | **500** | **500** |
| **Elixir 8-8-8**  **Fertilizer**  **(lb./ac)** | **500** | **500** | **500** |
| **Elixir Quantum Growth Light**  **(gal./ac)** | **1** | **1** | **1** |
| **Elixir Quantum Growth VSC**  **(gal./ac)** | **1** | **1** | **1** |

**\*\*\* Application Dependent on CO2 Respiration**

**4. BLENDING**

Correct mixing and proper application are key factors in obtaining satisfactory performance. Engage agitators at ¾ speed. Fill hydroseeding vessel with water to at least 1/3 capacity (high enough to cover agitators) prior to adding any EarthGuard Fusion. Continue to fill vessel with water and slowly add the EarthGuard Fusion, Elixir, seed, fertilizer and other amendments while agitators are in motion. Continue to mix tank a minimum of 10-15 minutes prior to application.

Optimal water to Fusion Ratio: 60 gal of water/50 lb. bale of Fusion

**5. APPLICATION**

The soil to which the EarthGuard Fusion slurry shall be applied to must be graded to remove any pre-existing rills and shall be compacted to meet project specifications. Track-walking or some other soil imprinting devise is recommended to roughen the slope to slow water flows during a storm event. Slope Interruption Devices, such as fiber rolls, should be applied prior to the application of EarthGuard Fusion if desired. Slope Interruption Devices, if installed should be placed on the slope contour perpendicular to the flow of water.

Maintain hydroseeders agitation speed at medium to high through the entire shooting process to keep materials from settling to the bottom of the tank.

As with any straw based product it is also important to limit the number of times the hydroseeder is shutdown during application.  If the seeder is shut down but before they restart shooting from a canon or hose they need to remove the nozzle shoot a small amount to clear the line/canon, replace the nozzle and shoot immediately.  If they know they are going to need to stop shooting during a single tank load they may want to add 10 gal of water to the noted amounts above.  In addition it is important to close the valve at the end of the hose when they stop shooting during a load to keep the material from dewatering.

If spraying is interrupted or stopped ensure that the hydroseeding nozzle is pointed up. Prior to re-spraying remove all material from the nozzle and shoot a small amount to material to clear the line.

Caution should be taken to avoid creating puddles or runoff. It is recommended for the slurry to be sprayed from multiple directions and angles to ensure proper coverage. Treated areas shall not be disturbed after application.

It is recommended that EarthGuard Fusion be applied 24 hours prior to or following a storm event if possible.

**6. REPAIR OF DAMAGED AREA**

Any damaged area shall be repaired utilizing the exact blend and application procedure as specified above.

**7. PAYMENT**

EarthGuard Fusion will be paid for by the square foot (square meter) of area treated. The price shall include full compensation furnishing all labor, materials, tools, equipment, and incidentals, and for doing all EarthGuard Fusion work, complete in place, as shown on the plans, and as specified in these special provisions, and as directed by the Engineer.