

PART 1 – GENERAL**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Sections include but are not limited to:
 - 1. Section 31 20 00 – Earth Moving
 - 2. Section 31 23 00 – Excavation and Fill
 - 3. Section 31 23 33 – Excavation and Fill for Structures
 - 4. Section 31 23 19 – Trenching and Backfilling
 - 5. Section 31 25 13 – Soil Erosion and Sedimentation Control
 - 6. Section 31 25 16 – Sedimentation Basins
 - 7. Section 32 92 00 – Turf and Grasses
 - 8. Section 32 93 00 – Plants
 - 9. Section 32 84 00 – Irrigation
 - 10. Section 01 33 00 – Submittal Procedures
 - 11. Section 01 45 00 – Quality Control
 - 12. Section 01 57 00 – Temporary Controls

1.2 REFERENCES, CODES, AND STANDARDS

- A. Applicable codes and standards include, but are not limited to:
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM D2487 – Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 2. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
 - 3. ASTM D5035 – Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Method).
 - 4. ASTM D6988 – Standard Guide for Field Testing and Monitoring of Vegetation and Soil Quality on Construction Sites.
- C. U.S. Environmental Protection Agency (EPA)
 - 1. EPA 832-R-92-005 – Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.
- D. U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)
 - 1. NRCS Conservation Practice Standards – Critical Area Planting (Code 342).
 - 2. NRCS Conservation Practice Standards – Mulching (Code 484).
- E. Occupational Safety and Health Administration (OSHA)
 - 1. OSHA 29 CFR Part 1926 – Safety and Health Regulations for Construction.
- F. American Society of Civil Engineers (ASCE)
 - 1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures (for applicable loading on stabilization structures).

G. Local and State Codes and Ordinances for erosion control and sedimentation prevention.

1.3 SUBMITTALS

A. Action Submittals:

1. Product Data: Submit manufacturer's product data, including physical, chemical, and performance characteristics, installation instructions, and maintenance recommendations.
2. Shop Drawings: Submit detailed drawings illustrating erosion and sedimentation control measures including dimensions, materials, locations, and anchorage details.
3. Samples: Submit representative samples of stabilization materials, including fabric, mulch, seed mixtures, and soil amendments.
4. Construction Schedule: Submit schedule indicating timing and sequence of erosion control installation, monitoring, and maintenance.
5. Quality Control Plan: Submit plan detailing inspection, testing, and monitoring procedures for stabilization measures.

B. Informational Submittals:

1. Manufacturer's Certificates: Certify that products comply with specified requirements.
2. Soil Analysis Reports: Submit laboratory soil test results to verify suitability for stabilization measures.
3. Maintenance and Monitoring Reports: Submit documentation of periodic inspections and maintenance activities as required.

1.4 QUALITY ASSURANCE

A. Installer Qualifications:

1. Engage installers who have a minimum of five years' experience in installation of erosion and sedimentation control stabilization measures similar in scope and complexity.

B. Testing Agency:

1. Engage a qualified independent testing laboratory to perform required soil compaction and material quality tests.

C. Regulatory Compliance:

1. Perform work in accordance with all applicable federal, state, and local regulations pertaining to erosion control and sedimentation prevention.

D. Performance Criteria:

1. Stabilization measures shall prevent erosion and sediment loss during and after construction as demonstrated by monitoring and inspection.

E. Environmental Protection:

1. Implement measures to minimize adverse environmental impact including protection of existing vegetation and watercourses.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original unopened containers or bundles with labels intact and legible.
- B. Store materials in a dry, protected location off the ground and protected from sunlight, moisture, and contamination.
- C. Handle materials to prevent damage or deterioration.
- D. Protect temporary erosion control devices from damage during construction operations.
- E. Store seed and mulch materials in accordance with manufacturer recommendations to maintain viability.

1.6 WARRANTIES

- A. Provide a minimum warranty period of two years from date of final acceptance for all stabilization measures installed under this Section.
- B. Warranty shall cover repair or replacement of materials and corrective work required due to failure of erosion and sediment control stabilization measures.
- C. Provide manufacturer's standard product warranties for erosion control fabrics, mats, and other proprietary materials.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Erosion Control Blankets and Mats:
 - 1. Biodegradable erosion control blankets composed of natural fibers such as straw, coconut coir, or wood excelsior, complying with ASTM D6475.
 - 2. Synthetic erosion control mats constructed of UV stabilized polypropylene or polyethylene fibers, resistant to degradation, compliant with ASTM D6459.
- B. Soil Stabilization Fabrics:
 - 1. Woven and nonwoven geotextiles manufactured from polypropylene or polyester, UV stabilized, meeting ASTM D5035 and ASTM D4873 requirements.
- C. Mulch Materials:
 - 1. Straw mulch free of noxious weeds and seeds.
 - 2. Wood cellulose mulch compliant with NRCS standards.
 - 3. Hydromulch mixtures formulated for erosion control and seed germination.
- D. Seed Mixes:
 - 1. Provide seed mixtures consisting of native or adapted species selected for site conditions and erosion control effectiveness. Seed shall be certified and meet purity and germination requirements per local standards.
- E. Soil Amendments:

1. Fertilizers, lime, and soil conditioners as recommended by soil testing laboratory to promote vegetation establishment.
- F. Anchoring Devices:
1. Staples, pins, and stakes fabricated from corrosion-resistant materials sized and spaced per manufacturer's recommendations for securing stabilization materials.

2.2 MANUFACTURERS

- A. Erosion Control Blankets and Mats:
1. North American Green
 2. Profile Products LLC
 3. American Excelsior Company
 4. Western Excelsior
 5. Curlex® by American Excelsior
- B. Soil Stabilization Fabrics:
1. TenCate Geosynthetics
 2. Propex Operating Company, LLC
 3. Huesker, Inc.
- C. Mulch and Hydromulch:
1. Seed Research of Oregon
 2. HydroStraw®
 3. WoodStraw®
- D. Seed Suppliers:
1. Native Seed Network
 2. Ernst Conservation Seeds
 3. Wildflower Farms

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that earthwork and grading operations are complete and conform to lines, grades, and elevations specified.
- B. Confirm that soil surface is free of debris, clods, rocks, and foreign materials that would interfere with stabilization materials.
- C. Inspect soil moisture content and texture to ensure suitability for seed germination and material installation.
- D. Notify Architect/Engineer of unsatisfactory conditions prior to proceeding.

3.2 PREPARATION

- A. Scarify or roughen soil surface as required to provide a suitable bonding surface for stabilization measures.

- B. Apply soil amendments, fertilizer, and lime uniformly per soil test recommendations.
- C. Grade soil surface smooth and uniform without low spots or depressions that could pond water.
- D. Moisten soil as necessary before seeding and installation of erosion control materials.

3.3 INSTALLATION OF STABILIZATION MEASURES

- A. Seeding:
 - 1. Apply seed uniformly at specified rates using mechanical or hand spreaders.
 - 2. Lightly rake or drag seeded area to incorporate seed into soil surface to a depth of 0.5 inch (13 mm).
 - 3. Apply fertilizer and lime if not previously applied during preparation.
- B. Mulching:
 - 1. Apply mulch evenly over seeded areas at thickness recommended by manufacturer and NRCS standards.
 - 2. Secure mulch with tackifiers or netting as specified to prevent displacement.
- C. Erosion Control Blankets and Mats:
 - 1. Place blankets or mats immediately after seeding and mulching or as directed.
 - 2. Lay blankets smooth and tight without wrinkles or folds, overlapping edges per manufacturer's instructions.
 - 3. Anchor blankets with staples or pins at spacing recommended by manufacturer, ensuring secure attachment to soil surface.
 - 4. Overlap adjacent sections minimum 6 inches (150 mm) along edges and 12 inches (300 mm) at ends.
- D. Soil Stabilization Fabrics:
 - 1. Install geotextiles in accordance with manufacturer's instructions and project drawings.
 - 2. Excavate trenches at edges where required for fabric anchorage and bury fabric securely.
 - 3. Maintain fabric tension and alignment during installation to prevent wrinkles or displacement.
- E. Temporary Stabilization:
 - 1. Apply temporary seeding or mulching on disturbed areas not actively worked for longer than 14 days.
- F. Permanent Stabilization:
 - 1. Establish permanent vegetative cover on all disturbed areas as soon as practical after final grading.

3.4 FIELD QUALITY CONTROL

- A. Perform inspections of installed stabilization measures at intervals not exceeding 14 days and after significant rainfall events.
- B. Verify proper installation, anchorage, and condition of erosion control materials.

- C. Inspect seeded areas for germination, uniformity, and coverage.
- D. Identify and repair areas of erosion, displacement, or failure promptly.
- E. Testing: Perform soil compaction tests in areas where soil stabilization fabrics are installed to verify compaction meets ASTM D698 or project requirements.
- F. Documentation: Maintain detailed inspection and maintenance logs including dates, observations, and corrective actions.
- G. Notify Architect/Engineer immediately of any nonconformance or damage requiring corrective action.

3.5 MAINTENANCE

- A. Maintain erosion and sediment control stabilization measures continuously until permanent vegetation is established and site is stabilized.
- B. Water seeded areas as required to promote germination and growth without causing erosion.
- C. Repair or replace damaged erosion control materials promptly.
- D. Remove sediment deposits from silt fences, basins, and other control devices when accumulation reaches 50 percent of design capacity.
- E. Control weeds and invasive species to prevent establishment and damage to stabilization measures.
- F. Continue maintenance activities for a minimum period of two years or until site is permanently stabilized.

3.6 PROTECTION

- A. Protect installed stabilization measures from traffic, equipment, and other construction activities.
- B. Provide temporary fencing or barricades as necessary to prevent disturbance.
- C. Coordinate with other trades to avoid damage during concurrent operations.

3.7 CLEANING

- A. Remove and legally dispose of all construction debris, excess materials, and temporary erosion control devices upon completion of work.
- B. Leave site clean and free of erosion and sedimentation hazards.

END OF SECTION