

SECTION 321723 – PAVEMENT MARKING

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 32 12 16: Asphalt Paving

1.2 REFERENCE STANDARDS

- A. New York State Department of Transportation (DOT) Specification Section 400, latest edition.

1.4 PROJECT CONDITIONS

- A. Perform the painting operations after working hours, on weekends or at such time so as not to interfere with the flow of traffic. Provide temporary barriers to prevent vehicles from driving over newly painted areas.
- B. Apply paint on dry pavement surface, when the air temperature is above 40 degrees F and not exceeding 95 degrees F.

1.5 SUBMITTALS

- A. Product Data: Include technical data and tested physical and performance properties. Indicate pavement markings to be used, colors, dimensions and symbols.

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with materials, workmanship, and other applicable.
- B. Requirements of NYSDOT for pavement-marking work and the "National Manual on Uniform Traffic Control Devices" latest edition and the "NYS Supplement."

PART 2 PRODUCTS

2.1 MATERIALS

- A. Paint: DOT Section 640-2, yellow or white as indicated, or if not indicated as directed. Delete reference to Glass Beads.
- B. Rapid Dry Paint:
 - 1. Aexcel Corp., www.aexcelcorp.com, 72W-A042 White, 72Y-A082 Yellow
 - 2. Sherwin-Williams, www.swpavementmarkings.com, TM2152 White, TM2153 Yellow, TM2224 Blue.
 - 3. Franklin Paint Company, Inc., www.franklinpaint.com, 2014 White, 2015 Yellow.
 - 4. Approved equivalent

PART 3 EXECUTION

3.1 PREPARATION

- A. Remove dust, dirt, and other foreign material detrimental to paint adhesion.
- B. Mark layout of stripes and lines with chalk or paint.

3.2 APPLYING PAVEMENT MARKING

- A. Apply paint in accordance with DOT Section 640-3.02, except as follows:
 - 1. Delete references to Glass Beads.
- B. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Engineer.
- C. Allow paving to cure for 30 days before starting pavement marking.
- D. Sweep and clean surface to eliminate loose material and dust.
- E. Apply paint with mechanical equipment to produce pavement markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.3 PROTECTING AND CLEANING

- A. Protect pavement markings from damage and wear during remainder of construction period.
- B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 321723

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 323113 – CHAIN LINK FENCE AND GATE

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes:
 - 1. Fence framework, fabric and accessories.
 - 2. Excavation for post bases and center drop for gates.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 03 30 00: Cast in Plan Concrete
- C. Section 31 20 00: Excavation and Fill

1.3 REFERENCE STANDARDS

- A. ASTM A 53 for requirements of Schedule 40 piping.

1.4 SUBMITTALS

- A. Shop Drawings: Complete detailed drawings for each height and style of fence and gate required. Include separate schedule for each listing all materials required and technical data such as size, weight, and finish, to ensure conformance to specifications.
- B. Product Data: Manufacturer's catalog cuts, specifications, and installation instructions for each item specified.
- C. Samples:
 - 1. Fence Fabric: Minimum one square foot.
 - 2. Fence and Gate Posts: Two each, one foot long, if requested.
 - 3. Miscellaneous Materials and Accessories: One each, if requested.

- D. Quality Control Submittals:
 - 1. Certificates: Affidavit required under Quality Assurance Article.

1.1 QUALITY ASSURANCE

- A. Comply with standards of the Chain Link Fence Manufacturer's Institute.
- B. Fence shall be installed in accordance with ASTM F-567 and gates shall be installed in accordance with ASTM F-900.
- C. Provide steel fence and related gates as a complete compatible system including necessary erection accessories, fittings, and fastenings.
- D. Posts and rails shall be continuous without splices.

1.2 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which installer agrees to repair or replace components of chain-link fences that fail in materials or workmanship within specified warranty period.
- B. Failures include, but are not limited to, the following:
 - 1. Faulty operation of gate operators and controls.
 - 2. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 3. Warranty Period: Five years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 STEEL FRAMEWORK

- A. All pipe shall be Schedule 40, conforming with ASTM F-1083.
- B. End Posts, Corner Posts and Pull Posts:
 - 1. 4' Fence Height Pipe: 2 inches O.D.
 - 2. 6' and 8' Fence Height Pipe: 3 inches O.D.
 - 3. 10' Fence Height Pipe: 6 inches O.D.

C. Line Posts:

1. 4' Fence Height Pipe: 2 inches O.D.
2. 6' and 8' Fence Height Pipe: 2 1/2 inches O.D.
3. 10' Fence Height Pipe: 3 inches O.D.

D. Rails and Post Braces:

1. 4' Fence Height Pipe: 1 5/8 inches O.D.
2. 6' and 8' Fence Height Pipe: 1 5/8 inches O.D.
3. 10' Fence Height Pipe: 1 5/8 inches O.D.

E. Metallic Coating for Steel Framework:

1. Type B: Zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film.
2. External, Type B: Zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film. Internal, Type D, consisting of 81 percent, not less than 0.3-mil thick, zinc-pigmented coating.
3. Coatings: Any coating above.

2.2 STEEL FABRIC

- A. One-piece widths for fence heights up to 12'-0".
- B. Chain link, 2 inch mesh, No. 9 gauge
- C. Selvages: Top edge; bottom edge knuckled.
- D. Zinc-Coated (galvanized) Fabric: ASTM A 392, Type II, Class 1, 1.2 oz./sq. ft. with zinc coating applied after weaving.
- E. Aluminum wire ties shall not be allowed.

2.3 Bands:

- A. 6' Fence Height: 6 each bands per fence direction.
- B. 8' Fence Height: 8 each bands per fence direction.
- C. 10' Fence Height: 10 each bands per fence direction.

2.4 SWING GATE POSTS

- A. Single width of gate up to 6'-0" wide and less than 10'-0" high:
 1. Pipe: 2.875 inches OD (Schedule 40).

B. Single width of gate 6'-0" to 12'-0" wide or over 10'-0" high:

1. Pipe: 4 inches OD (Schedule 40).

2.5 SWING GATE FRAMES

A. Up to 6'-0" high, and leaf width 8'-0" or less.

1. Pipe: 1.660 inches OD (Schedule 40).

B. Height: 6'-0" - 12'-0", or leaf width exceeding 8'-0":

1. Pipe: 1.90 inches OD (Schedule 40).

C. Assemble gate frames by welding or with special steel fittings and rivets for rigid connections. Install mid-height horizontal rails on gates over 10 feet high. When width of gate leaf exceeds 10 feet, install mid-distance vertical bracing of the same size and weight as frame members. When either horizontal or vertical bracing is not required, provide truss rods as cross bracing to prevent sag or twist.

2.6 SWING GATE HARDWARE

A. Hinges: Non-lift-off type, offset to permit 180 degree swing, and of suitable size and weight to support gate. Provide 1-1/2 pair of hinges for each leaf over 6 feet high.

B. Latch: Forked type for single gates 10 feet wide or less. Drop bar type with keeper for double gates and single gates over 10 feet wide complete with flush plate set in concrete. Drop bar length shall be 2/3 the height of the gate. Padlock eye shall be an integral part of latch construction.

2.7 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Rails and Post Braces:

1. Pipe: 1.660 inches OD, 2.27 pounds per linear foot (Schedule 40).

B. Fittings and Post Tops: Steel, wrought iron, or malleable iron.

1. Fasteners: Tamper-resistant cadmium plated steel screws.

C. Stretcher Bars: One piece equal to full height of fabric, minimum cross-section 3/16 inch by 3/4 inch.

D. Metal Bands (for securing stretcher bars): Steel, wrought iron, or malleable iron.

- E. Wire Ties: Conform to American Steel Wire gauges.
 - 2. For tying fabric to line posts, rails and braces: 9 gauge (.1483 inch) steel wire.
- F. Truss Rods: 3/8 inch diameter.
- G. Concrete: Portland Cement concrete having a minimum compressive strength of 4000 psi at 28 days.
 - 1. Terminal/ End/ Corner Post Foundations:
 - a. 4' and 6' Fence Height Foundations: 3'-6" deep post embedment in 4' deep concrete footing, 12" inches diameter.
 - b. 8' Fence Height Foundations: 4'-6" deep post embedment in 5' deep concrete footing, 18" inches diameter.
 - c. 10' and greater Fence Height Foundations: 5'-0" deep post embedment in 5' deep concrete footing, 18" inches diameter.
 - 2. Line Post Foundations:
 - a. 4' and 6' Fence Height Foundations: 3'-6" deep post embedment in 4'-0" deep concrete footing, 12" inches diameter.
 - b. 8' Fence Height Foundations: 4'-6" deep post embedment in 5' deep concrete footing, 12" inches diameter.
 - c. 10' and greater Fence Height Foundations: 5'-0" deep post embedment in 5' deep concrete footing, 12" inches diameter.
- H. Spiral Paper Tubes:
 - 1. Sonotube by Sonoco Products Co., North Second St., Hartsville, SC 29550, (800) 377-2692.
 - 2. Sleek/tubes by Jefferson Smurfit Corp., P.O. Box 66820, St. Louis, MO 63166, (314) 746-1100.
 - 3. Approved equivalent
- I. Cold Galvanizing Compound: Single component compound giving 93 percent pure zinc in the dried film, and meeting the requirements of DOD-P-21035A (NAVY).

2.8 FINISHES

- A. Steel Framework:
 - 1. Pipe: Galvanized in accordance with ASTM A 53, 1.8 ounces zinc per square foot.

- B. Fabric
 - 1. Galvanized Finish: ASTM A 392 class II zinc coated after weaving, with 2.0 ounces per square foot.
- C. Fence and Gate Hardware, Miscellaneous Materials, Accessories:
 - 1. Wire Ties: Galvanized Finish, ASTM A 90 1.6 ounces zinc per square foot, or aluminized finish, ASTM A 809 0.40 ounces per square foot.
 - 2. Hardware and Miscellaneous Items: Galvanized Finish, ASTM A 153 (Table 1).

PART 3 EXECUTION

3.1 PREPARATION

- A. Clear and grub along fence line as required to eliminate growth interfering with alignment. Remove debris from State property.
- B. Do not begin installation of fence in areas to be cut until finished grading has been completed.

3.2 APPLYING PAVEMENT MARKING

- A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.
- B. Space posts equidistant in the fence line with a maximum of 10 feet on center. For fences 16 feet and higher space posts a maximum of 8 feet on center.
- C. Setting Posts in Earth: Drill holes for post footings. If existing grade at the time of installation is below finished grade, provide spiral paper tubes to contain concrete to finish grade elevation. Set posts in center of hole and fill hole with concrete. Plumb and align posts. Vibrate or tamp concrete for consolidation. Finish concrete in a dome shape above finish grade elevation to shed water. Do not attach fabric to posts until concrete has cured a minimum of 7 days.
- D. Setting Posts in Rock: Drill holes into solid rock one inch wider than post diameter, 18 inches deep for end, pull, corner, and gate posts, and 12 inches deep for line posts. Set posts into holes and fill annular space with shrink-resistant grout.

- E. Locate corner posts at corners and at changes in direction. Use pull posts at all abrupt changes in grade and at intervals no greater than 500 feet. On runs over 500 feet, space pull posts evenly between corner or end posts. On long curves, space pull posts so that the strain of the fence will not bend the line posts.
- F. Install top rail continuously through post tops or extension arms, bending to radius for curved runs. Install expansion couplings as recommended by fencing manufacturers.
- G. Install bottom and intermediate rails in one piece between posts and flush with post on fabric side using special offset fittings where necessary.
- H. Brace corner posts, pull posts, end posts, and gate posts to adjacent line posts with horizontal rails.
- I. Diagonally brace corner posts, pull posts, end posts, and gate posts to adjacent line posts with truss rods and turnbuckles.
- J. Attach fabric to security side of fence. Maintain a 2 inch clearance above finished grade except when indicated otherwise. Thread stretcher bars through fabric using one bar for each gate and end post and 2 for each corner and pull post. Pull fabric tight so that the maximum deflection of fabric is 2 inches when a 30 pound pull is exerted perpendicular to the center of a panel. Maintain tension by securing stretcher bars to posts with metal bands spaced 15 inches oc. Fasten fabric to steel framework with wire ties spaced 12 inches oc for line posts and 24 inches oc for rails and braces. Bend back wire ends to prevent injury. Tighten stretcher bar bands, wire ties, and other fasteners securely.
- K. Position bolts for securing metal bands and hardware so nuts are located opposite the fabric side of fence. Tighten nuts and cut off excess threads so no more than 1/8 inch is exposed. Peen ends to prevent loosening or removal of nuts.
 - 1. Secure post tops and extension arms with tamper-resistant screws.
- L. Install gates plumb and level and adjust for full opening without interference. Install ground-set items in concrete for anchorage, as recommended by fence manufacturer. Adjust hardware for smooth operation and lubricate where necessary.
- M. Tension Wire: Support bottom edge of fabric with tension wire. Weave tension wire through fabric or fasten with hog rings spaced 24 inches oc. Tie tension wire to posts with 9 gauge wire ties.

- N. Wire brush and repair welded and abraded areas of galvanized surfaces with one coat of cold galvanizing compound.
- O. Restore disturbed ground areas to original condition. Topsoil and seed to match adjacent areas.

3.3 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.4 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

END OF SECTION 323113

SECTION 329200 – TOPSOIL AND SEEDING

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes:
 - 1. Topsoil.
 - 2. Soil Amendments.
 - 3. Fertilizing.
 - 4. Mulches.
 - 5. Lawn.
 - 6. Lawn Restoration.
 - 7. Erosion Control Materials.
 - 8. Maintenance.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 312000: Excavation and Fill.
- C. Section 329300: Plants.

1.3 SUBMITTALS

- A. Product Certification: Certification signed by manufacturers certifying that their products comply with specified requirements.
 - 1. Manufacturer's certified analysis for standard products.
 - 2. Analysis for other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- B. Certification of grass seed from seed vendor 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.
- C. Material test reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated. Include percentages of organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant-nutrient content.

1. Analysis of existing surface soil.
2. Analysis of imported topsoil.

D. Report suitability of existing surface soil and imported topsoil for lawn and plant growth. State recommended quantities of soil amendments to be added to produce satisfactory results.

1.4 DEFINITIONS

- A. Weeds: Vegetative species other than specified species to be established in given area.
- B. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

1.5 CLOSEOUT SUBMITTALS

- A. Before expiration of required maintenance periods, Contractor is to submit maintenance instructions recommending procedures to be performed by Owner for maintenance of landscape during an entire year.

1.6 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

1.7 QUALIFICATIONS

- A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum three years documented experience and a record of successful landscape establishment.
 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site during times that work of this section is in progress.
- C. Testing Agency: To qualify for acceptance, an independent testing agency must demonstrate to Owner's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the work.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver packaged materials in sealed containers showing weight, analysis, and name of manufacturer.

- B. Protect materials from deterioration during delivery and while stored at site.

1.9 PROJECT CONDITIONS

- A. Utilities: Determine location of above grade and underground utilities prior to the start of Work. Perform Work in a manner which will avoid damage. Hand excavate, as required. Maintain grade stakes until removal is mutually agreed upon by the Engineer.
- B. Excavation: When conditions detrimental to lawn growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify the Engineer before planting.

1.10 COORDINATION AND SCHEDULING

- A. Coordinate with other site operations to avoid conflict and damage to new work.
- B. Time for seeding: Optimum period to sow permanent grass seed is generally between April 1 and May 15 or between August 15 and October 1. Schedule application for when weather conditions permit.
 - 1. Provide temporary seed and mulch when final grading is complete and waiting for optimal seeding period.
 - 2. Provide temporary seed and mulch for temporary cover on disturbed ground not to be worked on for more than seven days.
 - 3. Provide temporary seed and mulch on disturbed earth prior to temporary shutdown of construction.

1.11 WARRANTY

- A. General: The guarantee specified in this Section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Guarantee: Upon completion and acceptance of the landscaping, guarantee the materials for two years. Guarantee shall include material and labor costs. At the end of the guarantee period, the Owner's onsite representative shall inspect all planter materials. The Contractor shall promptly make all required replacements with plant materials meeting specifications.

1.12 LAWN MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable lawns and plants are established, but for not less than the following periods:
 - 1. Lawns and Seeded Areas: 120 days after date of Substantial Completion.

2. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established at that time, continue maintenance during the next planting season.
- B. Maintain and establish seeded areas by watering, weeding, replanting, and other operations. Roll, re-grade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth surface.
- C. Watering: Provide and maintain temporary piping, hoses, and watering equipment to convey water from sources and to keep grass uniformly moist to a depth of 4 inches. 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.
 1. Water all seeded areas at the minimum rate of 1 inch per week.
- D. Mow lawns as soon as there is enough top growth to cut with mower set at specified height for principal species planted. Repeat mowing as required to maintain specified height without cutting more than 40 percent of the grass height. Remove no more than 40 percent 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 a grass height of 1½ to 2½ inches.

PART 2 PRODUCTS

2.1 PLANTING BACKFILL

- A. Mixture shall be 4 parts topsoil (on-site or imported), 1 part peat moss, ½ part well-rotted manure and 10 pounds 5-0-5 planting fertilizer, mixed thoroughly per cubic yard.

2.2 TOPSOIL

- A. Source: Provide topsoil from existing stockpiles stripped from the project site and approved by the Engineer.
- B. Where existing topsoil is not available, provide topsoil conforming to the following:
 1. Original loam topsoil, well drained homogeneous texture and of uniform grade, without the admixture of subsoil material and entirely free of dense material, hardpan, sod, or any other objectionable foreign material.
 2. Containing not less than 5 percent nor more than 20 percent organic matter in that portion of a sample passing a 1/4-inch sieve when determined by the wet combustion method on a sample dried at 105 degrees C.
 3. Containing a pH value within the range of 6.5 to 7.5 on that portion of the sample that passes a 1/4-inch sieve.

4. Containing the following gradations:

SIEVE DESIGNATION	PERCENT PASSING
1 inch	100
1/4 inch	97 - 100
No. 200	20- 60

2.3 SOIL AMENDMENTS

- A. Lime: ASTM C 602, Class T, agricultural limestone containing a minimum 85 percent calcium carbonate equivalent, with a minimum 90 percent passing a No. 10 mesh sieve and a minimum 50 percent passing a No. 100 mesh sieve.
 - 1. Provide lime in the form of dolomitic limestone.
 - 2. Add lime soil as necessary to achieve a soil pH between 5.5 – 7.0.
- B. Aluminum Sulfate: Commercial grade, unadulterated.
- C. Herbicides: EPA registered and approved, of type recommended by manufacturer.
- D. Sand: Clean, washed, natural or manufactured, free of toxic materials.
- E. 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 3/4-inch sieve; soluble salt content of 5 to 10 decimeters/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: 50 to 60 percent of dry weight.

2.4 FERTILIZER

- A. Application of any fertilizer is prohibited between December 1st and April 1st and cannot be applied within 20' of a water body.
- B. Fertilizer: Mixed commercial fertilizers shall contain total nitrogen, available phosphoric acid and soluble potash in the ratio of 10-0-10. No fertilizer containing phosphorus is permitted on site.
- C. Other fertilizers meeting DOT Specification Section 713-03 Fertilizer can be used.

2.5 MULCH

- A. Dry Application, Straw: Stalks of oats, wheat, rye or other approved crops that are free of noxious weed seeds. Weight shall be based on a 15 percent moisture content.
- B. Hydro Application: Colored wood cellulose fiber product specifically designed for use as a hydro-mechanical applied mulch. Acceptable Product: Conwed Hydro Mulch, Conwed Fibers, 231 4th Street SW, Hickory, NC or approved equivalent.

2.6 SEED

- A. Furnish fresh, clean, new-crop seed mixed in the proportions specified for species and variety and conforming to Federal and State Standards.
- B. Acceptable material in a seed mixture other than pure live seed consists of nonviable seed, chaff, hulls, live seed of crop plants and inert matter. The percentage of weed seed shall not exceed 0.1 percent by weight.
- C. All seed will be rejected if the label or test analysis indicates any of the following contaminates: Timothy, Orchard Grass, Sheep Fescue, Meadow Fescue, Canada Blue Grass, Alta Fescue, Kentucky 31 Fescue, and Bent Grass.
- D. Provide seed mixture equal to Scotts Pure Premium Sun and Shade North Grass Seed Mixture, comprised of the following:

- 1. Low maintenance Fescue Lawn grass seed mix
- 2. Seeding Rate: 6 lbs/1,000 square feet
- 3. Mix:

AMOUNT BY WEIGHT IN MIXTURE	SPECIES OR VARIETY
25 PERCENT	FIREFLY HARD FESCUE
25 PERCENT	BIG HORN GT HARD/SHEEP
20 PERCENT	INTRIGUE CHEWINGS FESCUE
20 PERCENT	QUATRO SHEEP FESCUE
10 PERCENT	MINOTAUR HARD FESCUE

- 4. Wet-occasion wet locations
- 5. Seeding Rate: 4 lbs/1,000 square feet
- 6. Mix:

AMOUNT BY WEIGHT IN MIXTURE	SPECIES OR VARIETY
20 PERCENT	RED TOP
20 PERCENT	ALKALI GRASS
10 PERCENT	AUTUMN BENTGRASS
20 PERCENT	VIRGINIA WILD RYEGRASS
20 PERCENT	FOX SEDGE
10 PERCENT	FOWL BLUEGRASS

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive landscaping for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PLANTING SOIL PREPARATION

- A. Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.
- B. Mix soil amendments and fertilizers with topsoil as necessary to meet applicable ASTM standards.
- C. For lawns, mix planting soil either prior to planting or apply on surface of topsoil and mix thoroughly before planting.
 - 1. Mix lime with dry soil prior to mixing fertilizer. Prevent lime from contacting roots of acid-tolerant plants.
 - 2. Apply lime per manufacturer instructions based on soil pH.

3.3 LAWN AREA PLANTING PREPARATION

- A. Limit sub-grade preparation to areas that will be planted in the immediate future.
- B. Loosen sub-grade to a minimum depth of 4 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous materials.
- C. Spread topsoil to depth (4 inches minimum) required to meet the thickness, grades, and elevations shown, after light rolling and natural settlement. Do not spread if planting soil or sub-grade is frozen.
 - 1. Place approximately 1/2 the thickness of planting soil mixture required. Work into top of loosened sub-grade to create a transition layer and then place remainder of planting soil mixture.
- D. Grade lawn and grass areas to a smooth, even surface with loose, uniformly fine texture. Roll (112-pound roller maximum) and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future. Remove trash, debris, stones larger than 1-1/2 inches in any dimension, and other objects that may interfere with planting or maintenance operations.
- E. Moisten prepared lawn and grass areas before planting when soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

- F. Restore prepared areas if eroded or otherwise disturbed after fine grading and before planting.

3.4 FERTILIZING

- A. The soil shall be tested for pH and lime added as necessary. All amendments shall be checked and approved by the Landscape Architect before amendments are made.
- B. Apply fertilizer at a rate of 20 LBS/1,000 SF.

3.5 SEEDING

- A. Assume all risks when seed is sowed before approval of seed analysis.
- B. Sow seed by hand broadcasting or hydroseeding. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in 2 directions at right angles to each other.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.
 - 2. Do not sow immediately following rain, when ground is too dry, or during windy periods.
- C. Sow seed at the following rates:
 - 1. Low Maintenance Fescue Lawn, Seeding Rate: 6 lbs per 1000 sq. ft.
 - 2. Seed Mix for Wet Locations, Seeding Rate: 4 lbs per 1000 sq. ft.
- D. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray, immediately after each area has been mulched. Saturate to 4 inches of soil.
- E. Protect seeded areas with slopes less than 1:3 against erosion by spreading mulch after completion of seeding operations.
 - 1. Mulch rates.
 - a. Oat or wheat straw applied at a minimum rate of 2 tons per acre to form a continuous blanket 1-1/2 inches loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
 - b. Fill tank with water and agitate while adding seeding materials. Use sufficient fertilizer, mulch, and seed to obtain the specified application rate. Add seed to the tank after the fertilizer and mulch have been added. Maintain constant agitation to keep contents in homogenous suspension. Prolonged delays in application or agitation that may be injurious to the seed will be the basis of rejection of material remaining in tank.

- c. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply mulch at a minimum rate of 57 gal/1000 sf (2500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate.
- F. Anchor mulch by spraying with asphalt-emulsion tackifier at the rate of 10 to 13 gal. per 1000 sq. ft. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.

3.6 LAWN RESTORATION

- A. Renovate existing lawn within work limit.
- B. Renovate existing lawn damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
- C. Reestablish lawn where settlement or washouts occur or where minor regrading is required.
 - 1. Install new planting soil as required.
- D. Remove lawn from diseased or unsatisfactory existing lawn areas; do not bury in soil.
- E. Remove topsoil containing foreign materials such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.
- F. Where substantial lawn remains, mow, dethatch, core aerate, and rake. Remove weeds before seeding.
- G. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- H. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and lawn, and legally dispose of them off Owner's property.
- I. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.
- J. Apply soil amendments and fertilizers required for establishing new lawn and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.
- K. Apply seed and protect with straw mulch as required for new lawn.
- L. Provide lawn maintenance as required for new lawn.

3.7 SATISFACTORY LAWNS, GRASS, AND LAWN RESTORATION

- A. Satisfactory Lawns, Grass, and Lawn Restoration: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 95 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
- B. Reestablish those that do not comply with requirements and continue maintenance until satisfactory.

3.8 CLEANUP AND PROTECTION

- A. During landscaping, keep pavements clean and work area in an orderly condition.
- B. Protect landscaping from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off the Owner's property.

END OF SECTION 329200