

**BuildingName**  
**The Description of the Project**  
P00000000 0000

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**SPECIFICATION DIVISION 2**

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**DIVISION 02 SITEWORK**

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**DIVISION 02 SITEWORK**  
**SECTION 02070 - SELECTIVE DEMOLITION**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Work of this Section includes the following:
1. Demolition work of existing construction and building elements indicated on Drawings or by provisions of this Section.
  2. Salvage of existing items to be reused or recycled.
- B. Related work of other Sections includes the following:

*DELETE BELOW IN CONSULTATION WITH MECHANICAL ENGINEER OR IF NO A/C EQUIPMENT OR PIPING DEMOLITION IS INCLUDED IN PROJECT.*

1. Refrigerant handling requirements are specified in Division 1 Section "Work Restrictions."

*DELETE BELOW IN CONSULTATION WITH MECHANICAL ENGINEER OR IF NO FUME HOOD DUCTWORK DEMOLITION IS INCLUDED IN PROJECT.*

2. Fume hood ductwork demolition requirements are specified in Division 1 Section "Work Restrictions."

*USUALLY RETAIN BELOW.*

3. Safety barriers and temporary closures are specified in Division 1 Section "Temporary Facilities."

*RETAIN BELOW FOR REROOFING PROJECTS INVOLVING TEAROFF OF EXISTING ROOF.*

4. Installation of new roofing system after removal of existing roof is specified in Division 7.

*DELETE BELOW IF NO ASBESTOS WORK IN PROJECT.*

5. Removal and disposal of asbestos-containing materials is specified in Division 13 Section "Asbestos Abatement."

*DELETE BELOW IF NO SPECIAL LEAD PRODUCT REMOVAL WORK.*

6. Removal and disposal of lead-containing materials is specified in Division 13 Section "Lead Products Removal and Disposal."

*DELETE BELOW IF NO LIGHT FIXTURE DEMOLITION WORK IN PROJECT.*

7. Removal and disposal of fluorescent lamps and ballasts is specified in Division 16 Section "Basic Electrical Requirements."

**1.2 SALVAGE**

- A. Salvage, General: Items shown or scheduled for removal or demolition are the property of the Contractor unless noted otherwise. Remove and dispose of items legally, off-site, in accordance with requirements of the Standard General Conditions and Construction Documents.

*DELETE BELOW IF NO MECHANICAL OR ELECTRICAL DEMOLITION.*

- 1. Ancillary Materials: Where mechanical or electrical devices are indicated to be demolished, legally dispose of ancillary materials.

*EDIT BELOW TO SUIT PROJECT.*

- a. Lubricant oils: Contact UM OSEH Hazardous Materials (734-763-4568) to arrange for proper disposal of lubricant oils.

*INCLUDE BELOW IF ITEMS SCHEDULED FOR DEMOLITION ARE TO BE RETURNED TO OWNER OR REINCORPORATED INTO THE PROJECT.*

- B. Reincorporation of Materials and Owners Salvage:

- 1. Carefully remove, store and reincorporate into new work items marked "Save for Reuse" (or similar instruction) as shown on drawings or as scheduled; and where otherwise indicated to be reincorporated into the Work, regardless of marking.

*RETAIN ABOVE OR BELOW OR BOTH TO SUIT PROJECT*

- 2. Owner's Salvage: Carefully remove items marked "Return to Owner" (or similar instruction) and return to Owner's storage area within building.

*RETAIN BELOW IF LOCKSETS WILL BE REMOVED AND NOT REINCORPORATED INTO PROJECT*

- a. Remove cylinders from locksets removed during demolition operations. Turn cylinders over to Owner's Key Office.

**1.3 SUBMITTALS**

- A. Landfill Records: Indicate receipt and acceptance of demolished material by a landfill facility authorized to accept such material.

**1.4 QUALITY ASSURANCE**

- A. Notify the Michigan Department of Environmental Quality as required by law, of demolition work, including work that does not involve asbestos abatement work.

**PART 2 - PRODUCTS (NOT APPLICABLE)**

**PART 3 - EXECUTION**

**3.1 DEMOLITION, GENERAL**

A. Carry out all demolition work in a neat and orderly manner. Keep noise, dust, and similar nuisances to a minimum. Do not collapse walls. Do not throw or drop materials.

1. Where material indicated to be removed is suspected of containing asbestos, inform Owner's Representative immediately. Do not disturb materials suspected of containing asbestos until asbestos content has been verified by Owner.

*INCLUDE BELOW WHEN SHAFTS WILL BE CUT INTO FOR ARCHITECTURAL, MECHANICAL OR ELECTRICAL WORK.*

2. Use extreme caution when cutting into shafts and chases. Shafts and chases may end above occupied areas within building. Take all necessary precautions to prevent debris from falling through openings between floors during demolition operations. Comply with requirements of Division 1 Section "Temporary Facilities".

B. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

C. Take all necessary precautions to avoid damage to surrounding materials to remain. Erect barriers as indicated in Division 1 Section "Temporary Facilities."

1. Confine dust and debris to immediate area of demolition activity to the greatest extent practicable.
2. Protect existing finish work to remain in place and that will be exposed to view.
3. Cover or otherwise protect existing equipment which is to remain operational, from moisture, dust, dirt, and debris in accordance with requirements of Division 1 Section "Temporary Facilities."
4. Protect existing utilities and services indicated to remain in service and protect them against damage during demolition operations.
5. Patch, repair or replace materials and items accidentally damaged during demolition operations.

*RETAIN THE PARAGRAPH BELOW FOR REROOFING PROJECTS.*

6. Re-roofing Project Demolition: Removal of existing roofing materials shall not expose more of the underlying construction than can be recovered in one day with the specified roofing system.

D. Deliver materials to the work area and rubble and debris to ground level in a manner approved by the Owner's Representative in advance.

### 3.2 DEMOLITION OF ARCHITECTURAL FINISHES

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  3. Do not use cutting torches without written permission from Owner's Representative. Comply with provisions of the Standard General Conditions and Owner's rules and procedures.
  4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loading on supporting walls, floors, or framing.
  5. Dispose of demolished items and materials promptly.
- B. Remove all loose material from partially demolished work leaving only sound and secure construction.

#### **INCLUDE THE FOLLOWING WHEN PLASTER REPAIR MAY BE REQUIRED**

1. Plaster: Remove loose plaster that will be exposed in finished construction. Loose plaster is defined as plaster material of at least 2 inches by 4 inches in size that can be moved by touch or that sounds hollow when lightly tapped with a hammer.

#### **INCLUDE THE FOLLOWING WHEN CARPET OR RESILIENT FLOORING WILL BE REMOVED**

2. Flooring: Where shown, scheduled or otherwise required for application or installation of new floor finishes or coverings, remove existing flooring tile, resilient sheet flooring as follows:
  - a. Remove all traces of existing flooring materials. Remove resilient sheet and tile flooring products in compliance with recommended methods of Resilient Floor Covering Institute "Recommended Work Practices for Removal of Resilient Floor Coverings."
  - b. Remove adhesives, except those containing asbestos. Use chemical strippers approved by manufacturer of new flooring materials, or grind concrete floor surfaces to completely remove adhesive. Obtain Owner's Representative's approval of removal method prior to beginning removal work.
  - c. Do not remove vinyl composition tile or adhesives suspected of containing asbestos. Owner will verify asbestos content of questionable materials. Removal of asbestos-containing adhesives (if any) is included in Division 13 Section "Asbestos Abatement."
  - d. Clean floor slabs of dust and adhesive residue.

**3.3 DEMOLITION OF CONCRETE OR ASPHALT**

- A. Water used during concrete and asphalt work (including sweeping and saw-cutting) must be contained and collected for proper disposal. Do not discharge water containing dust or debris from concrete or asphalt work into storm drains, catch basins or to the sanitary sewer system.

*INCLUDE THE PARAGRAPHS BELOW IF DEMOLISHED ACOUSTICAL PANELS AND TILE ARE TO BE RECYCLED. THIS IS A VIABLE ECONOMIC OPTION IF COST OF SEPARATING ACOUSTICAL TILE FROM THE REST OF CONSTRUCTION DEBRIS IS MINIMAL. USG, ARMSTRONG AND BPB ALL HAVE RECYCLING PROGRAMS AND WILL PICK UP PROPERLY PREPARED PANELS FREE OF CHARGE IF THE TYPE OF TILE IS RECYCLABLE. SEE ALSO COMMENTS IN SECTION 09510.*

**3.4 RECYCLING OF MATERIALS**

- A. Acoustical ceiling panels and tile.
1. Coordinate with requirements for accepting materials by acoustical ceiling manufacturer selected to supply materials under Division 9 Section "Acoustical Ceilings."
  2. Neatly stack large clean pieces on wooden pallets. Shrink wrap pallets or bind with straps.
  3. Notify manufacturer when collection and wrapping of materials is complete and ready for pickup.
  4. Store in a protected location accessible to manufacturer for pickup.

**END OF SECTION 02070**



**SECTION 02215 - SOIL EROSION AND SEDIMENTATION CONTROL**

*AUGUST, 2005 - UPDATED TO REFLECT CURRENT REQUIREMENTS OF UM OSEH.*

*DUE TO REGULATORY REQUIREMENTS, DO NOT EDIT THIS SECTION OTHER THAN WHERE INDICATED BY COMMENTARY.*

*CONSULT WITH OSEH ON ALL PROJECTS FOR WHICH SOIL EROSION AND SEDIMENTATION CONTROL MIGHT BE REQUIRED IN ORDER TO DETERMINE IF THE PROJECT DOES REQUIRE SESC AND TO DETERMINE APPROPRIATE SESC MEASURES FOR THE PROJECT. IF THE PROJECT QUALIFIES FOR SESC, SUBMIT A PROJECT NOTIFICATION FORM TO OSEH. FORM CAN BE DOWNLOADED FROM WEB SITE WWW.OSEH.UMICH.EDU/SESCAPPA.PDF*

*IF THIS SECTION IS INCLUDED IN THE SPECIFICATIONS, ALSO INCLUDE ACCOMPANYING SOIL EROSION AND SEDIMENTATION CONTROLS SUPPLEMENTAL CONDITIONS IN THE FRONT END DOCUMENTS.*

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes conducting earthwork and earth change activity operations in a manner to protect Waters of the State (of Michigan), storm drains, and adjacent properties from soil erosion and sedimentation.

**1.2 DEFINITIONS**

- A. "Waters of the State" includes the Great Lakes and their connecting waters, lakes, ponds and streams which may or may not be serving as a County drain as defined by the drain code; or any other body of water that has definite banks, a bed and visible evidence of a continued flow or continued occurrence of water or wetlands regulated under Part 303.

**1.3 SUBMITTALS**

- A. Submit product information for materials proposed for use.

**1.4 QUALITY CONTROL**

- A. Requirements of Regulatory Agencies: For earth changes, comply with the following:

*DELETE BELOW IF SITE IS LESS THAN ONE ACRE AND MORE THAN 500 FEET FROM WATERS OF THE STATE.*

- 1. Part 91, Soil Erosion and Sedimentation Control (SESC) of the Natural Resource & Environmental Protection Act, 1994 PA 451, as amended (Part 91).

*ALWAYS INCLUDE BELOW.*

2. The University of Michigan Soil Erosion & Sedimentation Control Procedures.

### 1.5 PERFORMANCE REQUIREMENTS

- A. Implement the soil erosion and sedimentation control plan including required maintenance during construction and final removal as directed in the plans, and as needed per site conditions and as required by site inspections by University of Michigan Occupational Safety and Environmental Health (OSEH).
- B. Control runoff, soil erosion, and sedimentation. No sediment should leave the site.
- C. Prevent wind erosion. No visible emissions (dust) should leave the site.
- D. Comply with The University of Michigan Soil Erosion and Sedimentation Control Procedures.

### 1.6 REFERENCES

- A. The University of Michigan Soil Erosion & Sedimentation Control Procedures.  
<http://www.oseh.umich.edu/stormwater/emsec.html>
- B. Guidebook of Best Management Practices for Michigan Watersheds  
[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3682\\_3714-118554--,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-118554--,00.html)

## PART 2 - MATERIALS (NOT APPLICABLE)

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Where the following events result in the need for additional or modified soil erosion and sedimentation control installations to meet the objective of the referenced procedures, provide remedial installations on a timely basis.
  1. Unanticipated alterations to the construction schedule.
  2. Unanticipated site conditions except Acts of God such as a tornado or fire.
- B. Install temporary erosion and sedimentation control measures prior to or upon commencement to earthwork activities.
  1. Install an entrance anti-tracking pad with a minimum of 50 feet in length. A geotextile filter fabric should be placed under 6 inches of limestone aggregate.
  2. Install temporary inlet protection at all adjacent and down-gradient storm water inlets, catch basins and manholes that may be impacted.

**BELOW IS ONE EXAMPLE OF A PERIMETER BARRIER. MODIFY TO SUIT PROJECT.**

3. Install silt fence with stakes on the side down gradient from the disturbed area. Toe in six inches of the fencing material.
  4. Place stockpiles and other spoil piles away from the drainage system to minimize sediment transport. Keep as few stockpiles as possible during the course of the project. If the stockpile and/or spoil pile must remain on-site overnight, or if the weather conditions indicate the chance for precipitation,
    - a. cover the pile with water repellent material to prevent erosion or
    - b. install silt fencing around the base of the pile to prevent transport of sediment to the storm water system and wet the pile as needed to prevent wind erosion, or
    - c. apply other control methods as appropriate to the site.
  5. Where runoff enters the existing storm water system, protect the storm system from sedimentation.
    - a. Temporary inlet protection must prevent the release of sediment and allow for proper drainage.
      - 1) Use of burlap is not acceptable as a SESC measure.
      - 2) If filter fabric is used on drains, ensure the filter fabric is placed over (not under) the storm grates to facilitate maintenance (cleaning) of the controls.
      - 3) If high storm water flows are expected, use silt sacks in lieu of filter fabric for drain protection. Based on site conditions select regular or high flow silt sacks as appropriate.
- C. Utilize a water truck as needed for dust control.
- D. Utilize a sweeping machine to remove sediment tracked onto the pavement on a daily basis at minimum. Use sweeper more frequently as dictated by site conditions.
- E. Maintain erosion and sedimentation controls on a daily basis until the contract has been completed and accepted. Maintenance shall include:
1. Repair of damaged installations.
  2. Replacement of lost soil erosion & sedimentation control measures.
  3. Periodic removal of collected silt and sedimentation as required or directed to maintain effectiveness of the silt traps, filters and basins.
- F. Correct non-conforming soil erosion and sedimentation control Work on a timely basis within 24 hours, if Waters of the State are being impacted or within 5 days if not impacting Waters of the State.

- G. Complete permanent soil erosion control measures for all slopes, channels, ditches, or any disturbed land area within 5 calendar days after final grading or the final earth change has been completed. Maintain temporary control measures until permanent soil erosion control measures are in place and the area is stabilized.

**3.2 CLEAN UP**

- A. Remove temporary erosion control measures after permanent soil erosion measures are in place and the area is stabilized, unless ordered by the Owner's Representative to remain in place. Care shall be taken during removal to prevent soil erosion and sedimentation.

**END OF SECTION 02215**

**SECTION 02300 - EARTHWORK**

*THIS SECTION IS FOR VERY LIMITED EXCAVATION AND BACKFILL PROJECTS. FOR BUILDING ADDITIONS AND OTHER SIGNIFICANT STRUCTURES, USE AIA MASTERSPEC SECTION OF SAME NUMBER AND NAME.*

*2/07 - SUBBASE COMPACTION CHANGED TO FROM 95% TO 98%*

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes the following:
1. Preparing sub-grades for slabs-on-grade and walks.
  2. Excavating.
  3. Drainage and moisture-control fill course for slabs-on-grade.
  4. Sub-base course for walks.
  5. Subsurface drainage backfill for walls and trenches.
  6. Excavating and backfilling trenches within building lines.
  7. Excavating and backfilling for underground mechanical and electrical utilities and appurtenances.

**1.2 DEFINITIONS**

- A. Unauthorized excavation consists of removing materials beyond indicated sub-grade elevations or dimensions without direction by the Architect. Unauthorized excavation, as well as remedial work directed by the Architect, shall be at the Contractor's expense.

**PART 2 - PRODUCTS**

**2.1 SOIL MATERIALS**

- A. General: Provide approved borrow soil materials from off-site when sufficient approved soil materials are not available from excavations.
- B. Satisfactory Soil Materials: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter.
- C. Unsatisfactory Soil Materials: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
- D. Backfill Materials: Satisfactory soil materials.
- E. Sub-base Material: MDOT Class II; washed, graded sand, ASTM C 136, with 100 percent passing a 3-inch sieve, not less than 60 percent passing a 1-inch sieve, and not more than 30 percent passing a No. 100 seive.

- F. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, ASTM D 448, coarse aggregate grading size 57, with 100 percent passing a 1-1/2-inch sieve and not more than 5 percent passing a No. 8 sieve.
- G. Filtering Material: Evenly graded mixture of natural or crushed gravel or crushed stone and natural sand, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 50 sieve.
- H. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Protect structures, utilities, sidewalks, pavements, and adjacent plant materials from damage caused by earthwork operations.

**3.2 EXCAVATION**

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 0.10 foot.
  - 1. Excavations for Footings: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
  - 2. Excavation for Walks: Excavate surfaces under walks to indicated cross sections, elevations, and grades.
  - 3. Excavation for Utility Trenches: Excavate trenches to indicated slopes, lines, depths, and invert elevations.
    - a. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit.
    - b. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit.

**ALWAYS INCLUDE NEXT TWO PARAGRAPHS FOR PROJECTS REQUIRING EXCAVATION.**

- B. During Work activities if suspect contaminated soil, groundwater, or other unknown material is encountered contact both University of Michigan Construction Management Representative and UM OSEH Hazardous Materials and Remediation Services Program (phone no. 743-763-6973) immediately. Suspect contaminated soil may exhibit chemical or unusual odors, staining, unusual coloring, and/or contain man-made debris. Suspect contaminated groundwater may exhibit chemical or unusual odors, unusual coloring, and/or sheen.
- C. Immediately cease all excavation, dewatering, transport, or disturbance of the suspect material until given direction by University of Michigan Construction Management Representative.

- D. Fill unauthorized excavation under foundations by extending indicated bottom elevation of concrete foundation or footing to excavation bottom.

**3.3 UTILITY TRENCH BACKFILL**

- A. Place and compact initial backfill of satisfactory soil material or sub-base material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.
- B. Coordinate backfilling with utilities testing.
- C. Place and compact final backfill of satisfactory soil material to final sub-grade.

***BELOW FOR BACKFILLING AT FOOTING DRAINS.***

**3.4 SUBSURFACE DRAINAGE BACKFILL**

- A. Drainage Backfill: Place and compact drainage backfill of filtering material over subsurface drain, in width indicated, to within 12 inches of final sub-grade. Overlay drainage backfill with one layer of filter fabric, overlapping edges at least 6 inches.
- B. Impervious Fill: Place and compact impervious fill material over drainage backfill to final sub-grade.

**3.5 COMPACTION**

- A. Place backfill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure.
- C. Compact soil to not less than 95 percent maximum dry density according to ASTM D 1557.

**3.6 SUBBASE COURSE**

- A. Under walks, place sub-base course material on prepared sub-grades.
  - 1. Compact sub-base course at optimum moisture content to required grades, lines, cross sections and thickness to not less than 98 percent of ASTM D 4254 relative density.
  - 2. When thickness of compacted sub-base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

**3.7 DRAINAGE FILL**

- A. Under slabs-on-grade, place drainage fill course on prepared sub-grade.
  - 1. Compact drainage fill to required cross sections and thickness.
  - 2. When compacted thickness of drainage fill exceeds 6 inches thick place materials in equal layers, with no layer more than 6 inches thick nor less than 3 inches thick when compacted.

**3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS**

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

**END OF SECTION 02300**

**SECTION 02310 - COMPACTED, CLASS A FILL MATERIALS**

**PART 1 - GENERAL**

*THIS SECTION SPECIFIES A PUMPABLE CONCRETE GROUT MATERIAL WITH LIMITED SHRINKAGE - USED IN SPECIAL CIRCUMSTANCES ONLY.*

**1.1 SUMMARY**

- A. Work Included: Class A Compacted Fill as indicated on drawings.
  - 1. In addition, install embedded items furnished under Section 05500, "Metal Fabrication".

**1.2 SUBMITTALS**

- A. Submittals: In addition to product data, submit proposed mix design, including slump and weight data; and copy of laboratory test report showing strengths achieved and expected curing time.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURERS**

- A. Manufacturer: Provide materials manufactured by the following:
  - 1. Flo-Fill Co., 1008 Scheurmann St., Essexville, Mi 48732; phone no. (517)-893-1493.
    - a. "Flo-Fill" compacted, class A, fill; complying with the following:
  - 2. Fly Ash: approximately 1950 pounds per cubic yard.
  - 3. Portland cement: approximately 85 pounds per cubic yard.
    - a. Water: 60 to 70 gallons per cubic yard.
  - 4. Minimum Cured Strength: 6000 pounds per square foot.
  - 5. Dry Weight: 60 to 70 pounds per cubic foot.

**2.2 MIXING**

- A. Mix material on site in strict accordance with manufacturer's instructions.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Placing: Pump mixture into place in fluid state to eliminate compaction effort. Spread and level to grades indicated on drawings.
- B. Curing: Cure by drying for a minimum of 7 calendar days before placing additional construction over fill material.

END OF SECTION 02310

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**SECTION 02315 - ENGINEERED GRANULAR FILL**

**PART 1 - GENERAL**

**THIS SECTION SPECIFIES ENGINEERED COMPACTED GRANULAR FILL MATERIAL. USE ONLY WHEN FILL MUST BE ENGINEERED, NOT FOR ORDINARY BELOW-SLAB USE.**

**1.1 SUMMARY**

- A. Extent of engineered granular fill indicated on drawings.
- B. Type of engineered granular fill is compacted sand and gravel, installed in layers and tested for compliance with requirements.

**1.2 QUALITY ASSURANCE**

- A. Employ an approved Geotechnical Testing Laboratory to evaluate and confirm compaction effort by testing for moisture content, and density of materials in place. For each 6 inch lift, test 6 locations at intervals not exceeding 25 feet. Immediately obtain test results, and re-compact and re-test areas not conforming to specified compaction requirements prior to placing additional fill materials.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Comply with the following Michigan Department of Transportation "1984 Standard Specifications for Construction" Section 8.02.06 for Granular Material Class I:
  - 1. Sieve Analysis: ASTM C 136
  - 2. Total Percent Passing - Dry Weights:
    - a. For 2-inch: 100 percent.
    - b. For 1/2-inch: 45-85 percent.
    - c. For No. 4: 20-85 percent.
    - d. For No. 30: 5-3 percent.
  - 3. Percent Loss by Washing - Dry Weights: ASTM C 117; 0-5 percent.
- B. Provide Granular Materials consisting of one, or any combination of, the following:
  - 1. Sand; gravel; crushed stone; foundry sand; iron blast-furnace slag; reverberatory-furnace slag.
  - 2. Provide foundry sand free of combustible materials and containing negligible quantities of iron.
- C. The following materials are not permitted:
  - 1. Cementitious shale.
  - 2. Crushed concrete.

**PART 3 - EXECUTION**

**3.1 PLACEMENT AND COMPACTION**

- A. Place fill materials in layers not exceeding 6 inches and compacted with portable pneumatic tampers and vibratory compactors to not less than 95 percent of maximum dry density as determined in accordance with ASTM D 1557 (modified Proctor).

**END OF SECTION 02315**

**SECTION 02935 - LAWN REPAIR**

*THIS SECTION SPECIFIES LAWN REPAIR FOR DUMPSTER AND TRUCK TIRE DAMAGE. REFER MORE EXTENSIVE LAWN WORK TO LANDSCAPE ARCHITECT.*

*2/07 - ADDED NOTE TO REQUIRE 4" MIN. TOPSOIL*

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Extent of lawn repair includes areas damaged by construction operations, including movement of heavy equipment, dumpster locations and similar operations.
- B. Types of lawn repair include the following:
  - 1. Grading and fine raking.
  - 2. Seeding.
  - 3. Mulching.

**1.2 SUBMITTALS**

- A. Product data or certificates of conformance indicating that products used comply with requirements.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Seed: Fresh, clean, dry, new-crop seed composed of varieties, in equal proportions, tested for minimum percentages by weight of purity and germination as follows:
  - 1. Baron Kentucky Bluegrass; 98% purity; 80% germ.
  - 2. Nugget Kentucky Bluegrass; 98% purity; 90% germ.
  - 3. Touchdown Kentucky Bluegrass; 98% purity; 90% germ.
  - 4. Pennlawn Red Fescue; 98% purity; 90% germ.
  - 5. Manhattan Ryegrass; 97% purity; 90% germ.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Thoroughly loosen and grade soil to true lines, free from unsightly variation, lumps, ridges and depressions. Remove sticks, stones, roots and other objectionable material over 1 inch in any dimension that might interfere with the formation of a finely pulverized seed bed.
- B. Level displaced soil around perimeter of ruts and depressions.

- C. Distribute topsoil on damaged lawn areas in quantity sufficient to provide repaired areas that are level and uniform with adjacent undisturbed lawn areas.
- D. Spread, cultivate and lightly compact a minimum of 4" topsoil to prevent future settlement; drag and grade to finished grade.

**3.2 APPLICATION**

- A. Rake seed uniformly to an average depth of 1/4 inch, and at a rate of 2.3 lb. per 1000 sq. ft. Lightly roll the seed bed to provide good moisture contact between the seed and soil.
- B. Mulch seeded areas with straw.
- C. Water thoroughly and immediately with a fine mist until straw is compacted and soil is soaked to a depth of 3 inches.

**END OF SECTION 02935**