

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 31 05 17 - Aggregate Materials.
- .3 Section 31 23 10 – Excavating, Trenching & Backfilling.
- .4 Section 32 11 23 – Aggregate Base Courses.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C117-95, Standard Test Methods for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C131-96, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
 - .3 ASTM C136-96a, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .4 ASTM D422-63(1998), Standard Test Method for Particle-Size Analysis of Soils.
 - .5 ASTM D698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).
 - .6 ASTM D1557-00, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft³) (2,700kN-m/m³).
 - .7 ASTM D1883-99, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
 - .8 ASTM D4318-00, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Divert unused granular material from landfill to local facility as approved by Departmental Representative.

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1.4 MEASUREMENT FOR PAYMENT

- .1 **Granular Sub-Base:** Measure granular sub-base in cubic meters place measure (CMPM) of compacted material incorporated into work within the areas and to the thicknesses indicated on the drawings, unless otherwise specified. Include incidental to the unit price all costs associated with:
- .1 Sub-excavating and removing existing material as required to install all new granulars under the new slab-on-grade, as indicated on the drawings. Compact existing material as indicated.
 - .2 Supply and installation of geotextile in areas with and without voids, as indicated on the drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Granular sub-base material: in accordance with Section 31 05 17 - Aggregate Materials and following requirements:
- .1 Crushed, pit run or screened stone, gravel or sand.
 - .2 Gradations to be within limits specified when tested to ASTM C136 and ASTM C117. Sieve sizes to CAN/CGSB-8.1 CAN/CGSB-8.2.
 - .3 Table

Sieve Designation	% Passing
50 mm	75-100
15.9 mm	45-80
4.75 mm	25-55
1.20 mm	12-35
0.300 mm	7-20
0.075 mm	3-8

- .4 Other Properties as follows:
- .1 Liquid Limit: to ASTM D4318, Maximum 25.
 - .2 Plasticity Index: to ASTM D4318, Maximum 6.
 - .3 Los Angeles degradation: to ASTM C131. Max% Loss by mass: 40.

PART 3 - EXECUTION

3.1 PLACING

- .1 Place granular sub-base after subgrade is inspected and approved by Departmental Representative.

PART 3 - EXECUTION
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3.1 PLACING
(CONT'D)

- .2 Construct granular sub-base to depth and grade in areas indicated.
- .3 Ensure no frozen material is placed.
- .4 Place material only on clean unfrozen surface, free from snow or ice.
- .5 Begin spreading sub-base material on crown line or high side of one-way slope.
- .6 Place granular sub-base materials using methods which do not lead to segregation or degradation.
- .7 Place material to full width in uniform layers not exceeding 150 mm compacted thickness. Departmental Representative may authorize thicker lifts (layers) if specified compaction can be achieved.
- .8 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
- .9 Remove and replace portion of layer in which material has become segregated during spreading.

3.2 COMPACTION

- .1 Compaction equipment to be capable of obtaining required material densities.
- .2 Compacting
 - .1 Compact to density not less than 100% corrected maximum dry density.
 - .2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
 - .3 Apply water as necessary during compaction to obtain specified density.
 - .4 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Departmental Representative
 - .5 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

PART 3 - EXECUTION
(CONT'D)

3.3 SITE TOLERANCES

- .1 Finished sub-base surface to be within 10 mm of elevation as indicated but not uniformly high or low.

3.4 PROTECTION

- .1 Maintain finished sub-base in condition conforming to this section until succeeding base is constructed, or until granular sub-base is accepted by Departmental Representative.