1 GENERAL

1.01 PRODUCTS INSTALLED BUT NOT SUPPLIED UNDER THIS SECTION

.1 Not used.

1.02 RELATED REQUIREMENTS

.1 Section 31 05 16 - Aggregates for Earthwork

1.03 MEASUREMENT AND PAYMENT

.1 Granular base to be included in square metre cost of base asphalt placement unit price.

.2 Measure excavation of base, sub-base and sub-grade materials to correct deficiencies in sub-grade discovered during proof rolling to be included in the cost of base asphalt unit price.

.3 Transport of base courses to be included in unit price.

.4 Compaction of base courses to be included in unit price.

.5 Compaction testing is to be performed in accordance with 01 29 83 and considered incidental to the work and included in square metre cost of base asphalt placement unit price.

1.04 REFERENCE STANDARDS

.1 ASTM International
- .1 ASTM C 117-17, Standard Test Methods for Material Finer Than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing.
- .2 ASTM C 131-14, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
- .3 ASTM C 136-14, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .4 ASTM D 698-12e2, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft^3) (600kN-m/m^3).
- .5 ASTM D 1557-12e1, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft^3) (2,700kN-m/m^3).
- .6 ASTM D 1883-16, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
- .7 ASTM D 4318-17e1, 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.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

1.06 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with 31 05 16 - Aggregates for Earthwork.

.2 Storage and Handling Requirements:
.1 Handle material in such a way to not segregate.

2 PRODUCTS

2.01 MATERIALS

.1 Granular base:
.1 Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1, CAN/CGSB-8.2 and ASTM E11.
.1 Gradation table:

Percent Passing by Dry Weight		
Sieve Designation	Granular 'A'	Granular 'B'
100 mm	-	-
75 mm	-	-
50 mm	-	100
37.5 mm	-	-
25 mm	-	50-100
19 mm	100	-
15.9 mm	-	-
9.5 mm	50-80	-
4.75 mm	35-60	20-55
1.20 mm	15-35	10-35
0.30 mm	5-20	5-20
0.180 mm	-	-
0.075 mm	2-6 (Pit Source)	2-6 (Pit Source)
	2-8 (Rock Source)	2-8 (Rock Source)

.2 Material to level surface depressions to meet gradation limits in accordance with gradation table above.
.3 Material to conform to requirements in Section 31 05 16 – Aggregates for Earthwork.
.4 Plasticity index: to ASTM D 4318, 0.
.5 Los Angeles degradation: to ASTM C 131. Max. % loss by weight: 35
.6 Crushed particles: at least 60% of particles by mass within each of following sieve designation ranges to have at least 1 freshly fractured face. Material to be divided into ranges using methods of ASTM C 136.

Passing		Retained on
50 mm	to	25 mm
25 mm	to	19.0 mm
19.0 mm	to	4.75 mm

3 EXECUTION

3.01 PREPARATION

.1 Temporary Erosion and Sedimentation Control:
- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.02 PLACEMENT AND INSTALLATION

.1 Place granular base after sub-base surface is inspected and approved in writing by DR.

.2 Placing:
- .1 Construct granular base to depth and grade in areas indicated.
- .2 Ensure no frozen material is placed.
- .3 Place material only on clean unfrozen surface, free from snow and ice.
- .4 Begin spreading base material on crown line or on high side of one-way slope.
- .5 Place material using methods which do not lead to segregation or degradation of aggregate.
- .6 For spreading and shaping material, use spreader boxes having adjustable templates or screeds which will place material in uniform layers of required thickness.
- .7 Place material to full width in uniform layers not exceeding 150 mm compacted thickness.
  - .1 DR 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 that portion of layer in which material becomes segregated during spreading.

.3 Compaction Equipment:
- .1 Ensure compaction equipment is capable of obtaining required material densities.
- .2 Efficiency of equipment not specified to be proved at least as efficient as specified equipment at no extra cost and written approval must be received from DR before use.

.4 Compacting:
- .1 Compact to density not less than 100% corrected maximum dry density to ASTM D 698.
- .2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
- .3 Apply water as necessary during compacting to obtain specified density.

.4 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved in writing by DR.

.5 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.03 SITE TOLERANCES

.1 Finished base surface to be within plus or minus 10 mm of established grade and cross section but not uniformly high or low.

3.04 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.05 PROTECTION

.1 Maintain finished base in condition conforming to this Section until succeeding material is applied or until acceptance by DR.

END OF SECTION