

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 31 05 16 - Aggregate Materials.
- .3 31 22 13.13 – Existing roadway base courses pulverization.

1.2 MEASUREMENT PROCEDURES

- .1 Measure aggregate base courses layer in cubic meters of material compacted and measured in place, incorporated to the works and accepted by the departmental representative. The price must include supply, loading and transportation to the works, installation with robotic grader and a conventional one, water and compaction of the aggregate base courses material.
- .2 The aggregate base courses materials stockpiled at the airport site will be measured and paid in cubic meters of material stockpiled and approved by the departmental representative. The price must include supply, loading and transportation to the granular reserve site of the airport and stockpile of the aggregate base courses materials.
- .3 The volumes will be calculated by civil engineering software in superposing the final grade realised with the existing terrain model or by the conventional cross-section method.

1.3 REFERENCES

- .1 LC testing method of Transport Quebec laboratory.
- .2 Spec BNQ 2560-114 - "Travaux de génie civil-granulats "

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Delivering aggregates as and when they are needed in order to avoid creating piles on site.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Divert unused granular material as approved by the departmental representative.

Part 2 Products**2.1 MATERIALS**

- .1 Granular base: material in accordance with Section 31 05 16 - Aggregate Materials and following requirements:
 - .1 Crushed stone or gravel.

- .2 Gradations to be within limits specified when tested to NQ 2560-114. Gradation curve plotted on a semi-logarithmic diagram must be progressive and continue.

- .1 Gradation to:

Sieve Designation	% Passing	% Passing
	MG 20b (gravel)	MG 20b (quarry)
31,5 mm	100	100
20 mm	90 – 100	95 – 100
14 mm	68 – 93	68 – 93
10 mm		60 – 85
5 mm	35 – 60	45 – 60
2.5 mm		30 – 48
1,25 mm	19 – 38	19 – 38
0,315 mm	9 – 17	9 – 17
0,080 mm	5 – 11	7 – 11

- .3 Intrinsic characteristic to following test :

- .1 * Methylene blue (LC 21-255) : $\leq 0,20$
- .2 Los Angeles (LC 21-400) : ≤ 50
- .3 Micro-Deval (LC 21-070) : ≤ 35
- .4 MD + LA : ≤ 80
- .5 Fragmentation (LC 21-100) : ≥ 50
- .6 **Organic material (LC 31-228) : $\leq 0,8$

**for aggregates from sand or gravel pit.

Part 3 Execution

3.1 SEQUENCE OF OPERATION

- .1 Place granular base after sub-base surface is inspected and approved by the departmental representative.
- .2 Placing
 - .1 Construct granular base to depth and grade in areas indicated, the contractor shall use a robotic grader able to follow a numeric land model and a conventional one.
 - .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. The 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 that portion of layer in which material becomes segregated during spreading.
- .3 Compaction Equipment
 - .1 Compaction equipment to be capable of obtaining required material densities.
- .4 Compacting
 - .1 Compact to density not less than 100% corrected maximum dry density in accordance with section 31 05 10 - Corrected Maximum Dry Density.
 - .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 by the departmental representative.
 - .5 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.2 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.

3.3 PROTECTION

- .1 Maintain finished base in condition conforming to this Section until succeeding material is applied or until acceptance by the departmental representative

3.4 MATCHING.

- .1 Matching between the recharged base layer and the adjacent roadway non recharged on the full width of the runway or taxiway including graded area of the runway strip and taxiway.
- .2 Longitudinal slope of the temporary connection ramp, measured with respect to the existing rolling surface and the granular base recharged must not be greater than 1%.
- .3 Round off the edges between the planes connection to obtain a smooth running surface free of sharp change in slope.

END OF SECTION