

1. General

1.1 Section Includes

- 1.1.1 This Section specifies the general requirements for supplying and processing of aggregates to be stockpiled or incorporated into the work including those for roadway granulars and concrete. Specific requirements for physical properties of aggregate are given in related work sections.

1.2 Related Sections

- 1.2.1 Section 01 33 00 – Submittal Procedures.
- 1.2.2 Section 31 00 00 – Earthwork and Related Work.
- 1.2.3 Section 31 23 33 - Excavating, Trenching and Backfilling.
- 1.2.4 Section 32 11 16 – Granular Sub-Base.
- 1.2.5 Section 32 11 23 – Aggregate Base Courses.
- 1.2.6 Section 03 30 00 – Cast-In-Place Concrete.

1.3 References

- 1.3.1 American Society for Testing and Materials (ASTM):
- ASTM C136-01, Standard Method for Sieve Analysis of Fine and Coarse Aggregates.
 - ASTM C117-95, Standard Test Method for Material Finer Than 0.075mm (No.200) Sieve in Mineral Aggregates by Washing.
 - ASTM D 4791-99, Test Method for Flat Particles, Elongated Particles or Flat and Elongated Particles in Coarse Aggregate.
 - ASTM D 422-98, Standard Test Method for Particle Size Analysis of Soils.
 - ASTM C131-01, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
 - ASTM D 4318-00, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
 - ASTM D 1883-99, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
 - ASTM D 698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³) (600 kN-m/m³).
 - ASTM D 1557-00, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³) (2700 kN-m/m³).

- ASTM C88-99a, Standard Test Method for Soundness of Aggregates by Use of Sodium Sulphate or Magnesium Sulphate.
- ASTM C123-98, Standard Test Method for Lightweight Particles in Aggregate.
- ASTM C127-01, Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate.
- ASTM C128-01, Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate.
- ASTM D2419-02, Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
- ASTM D76-03, Standard Practise for Sampling Aggregates.
- ASTM D3665-06, Standard Practise for Sampling of Construction Materials.

1.3.2 Canadian General Standards Board (CGSB):

- CAN/CGSB-8.1-88, Sieves Testing, Woven Wire, Inch Series.
- CAN/CGSB-8.2-M88, Sieves Testing, Woven Wire, Metric.
- CAN/CGSB-16.3-M90, Asphalt Cements for Road Purposes.

1.3.3 Specifications Book, Highway Design Division, Department of Transportation and Works, Government of Newfoundland and Labrador.

1.4 Samples

1.4.1 Submit samples in accordance with Section 01 33 00 – Submittal Procedures.

1.4.2 Provide Departmental Representative with access to source and processed material for sampling.

1.4.3 Submit to the Departmental Representative, complete records as per the submittal schedule, complete with Inspection and Testing Plans (ITP), for pre-approval prior to construction.

2. Products

2.1 Materials

2.1.1 Aggregate Quality: Sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in deleterious manner for use intended.

2.1.2 Flat and elongated particles of coarse aggregate: to ASTM D 4791.

2.1.3 Fine aggregates satisfying requirements of applicable section shall be one, or a blend of the following:

- Natural sand.
- Manufactured sand.
- Screenings produced in crushing of quarried rock, boulders, gravel or slag.

2.1.4 Coarse aggregates satisfying requirements of applicable section shall be one of or a blend of the following:

- Crushed rock.
- Gravel and crushed gravel composed of naturally formed particles of stone.
- Light weight aggregate, including slag and expanded shale.

2.2 Source Quality Control

2.2.1 Inform Departmental Representative of proposed source of aggregates. Provide access for sampling.

2.2.2 If the material from the proposed source does not meet the specified physical testing requirements as outlined for each particular type of material, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.

2.2.3 If applicable, advise Departmental Representative in advance of proposed change of material source.

2.2.4 Acceptance of material at source does not preclude future rejection if it fails to conform to physical testing requirements specified, lacks uniformity, or if its field performance is found to be unsatisfactory.

3. Execution

It is expected that aggregate materials for this project will be sourced from existing stockpiles in the region and that new source development will not be required. If a new aggregate source is to be developed, Sections 3.1.1 to 3.1.5, inclusive, will apply.

3.1 Preparation

3.1.1 Topsoil Stripping

- Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected.
- Begin topsoil stripping of areas as directed by the Departmental Representative after the area has been cleared and all grubbing material removed from the site.
- Strip topsoil to depths as directed by the Departmental Representative. Avoid mixing topsoil with subsoil.

- Stockpile in locations as directed by the Departmental Representative for future use throughout the site.

3.1.2 Aggregate Source Preparation

- Prior to excavating materials for aggregate production, clear and grub area to be worked and strip unsuitable surface materials. Dispose of cleared, grubbed and unsuitable materials as directed by the Departmental Representative.
- Where clearing is required, leave screen of trees between cleared area and access roadway as directed.
- Clear, grub and strip area ahead of quarrying or excavating operation sufficient to prevent contamination of aggregate by deleterious materials.
- When excavation is completed dress sides of excavation to nominal 1.5H:1V slope, and provide drains or ditches as required to prevent surface standing water.
- Trim off and dress slopes of waste material piles and leave site in neat condition.

3.1.3 Processing

- Process aggregate uniformly using methods that prevent contamination, segregation and degradation.
- Blend aggregates, if required, to obtain gradation requirements, percentage of crushed particles, or particle shapes, as specified. Use methods and equipment approved by the Departmental Representative.
- Wash aggregates, if required to meet specifications. Use only equipment approved by the Departmental Representative.
- When operating in stratified deposits use excavation equipment and methods that produce uniform, homogeneous aggregate.

3.1.4 Handling

- Handle and transport aggregates to avoid segregation, contamination and degradation.

3.1.5 Stockpiling

- Stockpile aggregates on site in locations as indicated unless directed otherwise by Departmental Representative.
- Stockpile aggregates in sufficient quantities to meet project schedules.
- Stockpiling sites shall be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
- Separate different aggregates in stockpiles far enough apart to prevent intermixing.

- Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Departmental Representative.
- Stockpile materials in uniform layers at a maximum of 1.5 m thickness.
- Complete each layer over the entire stockpile area before beginning next layer.
- Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.
- Do not cone piles or spill material over edges of piles.

3.2 Cleaning

- 3.2.1 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.
- 3.2.2 Leave any unused aggregates in neat compact stockpiles as directed by the Departmental Representative.
- 3.2.3 For temporary or permanent abandonment of aggregate source, restore source to condition meeting requirements of authority having jurisdiction.

4. Measurement and Basis for Payment

4.1 Measurement for Payment

- 4.1.1 No separate or direct payment will be made for work specified in this Section. Costs of all work specified in this Section are deemed to be included in the lump sum or unit prices quoted in the Unit Price Table of the Schedule of Quantities and Prices.

4.2 Basis for Payment

- 4.2.1 All cost associated with work specified in this Section shall be deemed to be included in the appropriate unit and lump sum price quoted in the Unit Price Table of the Schedule of Quantities and Prices.