
PART 1 - GENERAL

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| 1.1 <u>Description of Work</u> | This Section includes but is not limited to the following:

.1 All normal removals as required to complete the work. All items to be verified by a site visit prior to submission of a tender. |
| 1.2 <u>Related Work</u> | .1 Refer to other specification sections for related information.

.2 Refer to Section 01 33 00 for Shop Drawing/Submission requirements. |
| 1.3 <u>Submissions</u> | .1 Methodology:
.1 When requested provide methodology for carrying out the work

.2 Provide submission in accordance with Section 01 33 00 . |
| 1.4 <u>Protection</u> | .1 Prevent movement, settlement or damage of adjacent structures. Provided bracing and shoring as required. In event of damage, immediately replace such items or make repairs to approval of <i>Departmental Representative</i> and at no additional cost to <i>Departmental Representative</i> .

.2 Prevent debris from going adrift and becoming a menace to navigation.

.3 All damage to existing structures, roadways, pipelines, electrical systems not specified for removal to be repaired at the Contractor's cost to the satisfaction of the <i>Departmental Representative</i> . |
| 1.5 <u>Measurement for Payment</u> | .1 Sitework, demolition and removals will be measured in accordance with Section 01 29 00 . |

PART 2 - PRODUCTS

Not applicable.

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PART 3 - EXECUTION

- 3.1 Preparation
- .1 Inspect site and verify with *Departmental Representative* items designated for removal and items to be preserved.
 - .2 Locate and protect utility lines. Preserve in operating condition active utilities traversing site.
 - .3 Provide temporary power and lighting as shown on the plan or as required by the *Departmental Representative*.
 - .4 Existing fill and vent pipes, oil waste tanks and underground storage tanks to be protected from any damages. All repairs to damages as a result of Contractor's operations to be at his cost and to the satisfaction of the *Departmental Representative*.
- 3.2 Removal
- .1 Remove items indicated.
 - .2 Do not disturb adjacent structures designated to remain in place.
 - .3 At end of each day's work, leave work in safe condition so no part is in danger of toppling or falling.
- 3.3 Disposal of Material
- .1 Disposal of materials not designated for salvage or re-use in work, will be the contractor's responsibility, and must be disposed of off-site.
 - .2 The material to be disposed is to be transported and disposed of in an environmentally acceptable manner to the satisfaction of the *Departmental Representative*, and in accordance with any local, Municipal, Provincial and Federal restrictions and regulations.
- 3.4 Restoration
- .1 Upon completion of work, remove debris, trim surfaces and leave work site clean.

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- .2 Reinstatement areas and existing works outside areas of demolition to conditions that existed prior to commencement of work. Match condition of adjacent, undisturbed areas.

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Aggregates General

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PART 1 - GENERAL

- 1.1 Related Work
- .1 Refer to other Specification Sections for related information.
 - .2 Refer to **Section 01 33 00** for Shop Drawing/Submission requirements.
- 1.2 Source Approval
- .1 Source of materials to be incorporated into work or stockpiled requires acceptance.
 - .2 Inform *Departmental Representative* of proposed source of aggregates and provide access for sampling at least 4 weeks prior to commencing production.
 - .3 If, in opinion of *Departmental Representative*, materials from the proposed source do not meet, or cannot reasonably be processed to meet specified requirements, procure an alternative source to demonstrate that materials from source in question can be processed to meet specified requirements.
 - .4 Should a change of material source be proposed during work, advise *Departmental Representative* 4 weeks in advance of proposed change to allow sampling and testing.
 - .5 Acceptance of material at source does not preclude future rejection if it is subsequently found to lack uniformity, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.
- 1.3 Production Sampling
- .1 Aggregate will be subject to continual sampling during production.
 - .2 Inform *Departmental Representative* of proposed source of aggregates and provide access for sampling 4 weeks minimum before starting production.

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1.4 Measurement for
Payment

- .1 This item will not be measured separately.

PART 2 - PRODUCTS2.1 Materials

- .1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material or other deleterious substances.
- .2 Flat and elongated particles of course aggregate: to ASTM D4791.
 - .1 Greatest dimension to exceed four times least dimension.
- .3 Fine aggregates satisfying requirements of applicable section shall be one, or a blend of following:
 - .1 Screenings produced in crushing of quarried rock, boulders, gravel or slag
- .4 Coarse aggregates satisfying requirements of applicable section shall be one of following:
 - .1 Crushed rock or slag
 - .2 Gravel and crushed composed of naturally formed particles of stone.

PART 3 - EXECUTION3.1 Development of
Aggregate Source

- .1 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*.
- .2 Clear, grub and strip an area ahead of quarrying or excavating operation sufficient to prevent contamination of aggregate by deleterious materials.

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| | .3 | When operating in stratified deposits use excavation equipment and methods that will produce a uniform, homogeneous aggregate. |
| | .4 | When excavation is completed, provide drains or ditches as required to prevent surface standing water. |
| | .5 | Trim off and dress slopes of waste material piles and leave site in a neat condition. |
| 3.2 | <u>Processing</u> | |
| | .1 | Process aggregate uniformly using methods that prevent contamination, segregation and degradation. |
| | .2 | Blend aggregate as required to obtain gradation requirements specified. Use approved methods and equipment. |
| | .3 | Blending to increase percentage of crushed particles or decrease percentage of flat and elongated particles is permitted. |
| | .4 | Wash aggregates if required to meet specifications. Use only equipment accepted by <i>Departmental Representative</i> . |
| | .5 | When operating in stratified deposits use excavation equipment and methods that produce uniform, homogeneous aggregate gradation. |
| 3.3 | <u>Handling</u> | |
| | .1 | Handle and transport aggregates to avoid segregation, contamination and degradation. |
| 3.4 | <u>Stockpiling</u> | |
| | .1 | Stockpiling aggregates on stabilized, clean and well drained surfaces. |
| | .2 | Except where stockpiled on acceptable stabilized areas, provide compacted sand base not less than 300 mm in depth to prevent contamination of aggregate. Stockpile aggregates on ground but do not incorporate bottom 300 mm of stockpile into work. |
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- .3 Stockpile far enough apart to prevent intermixing.
 - .4 Reject intermixed or contaminated materials. Remove and dispose of rejected materials as directed within 48 hours of rejection.
 - .5 Stockpile materials in uniform layers of thickness as follows:
 - .1 Max 1.5 m for coarse aggregate and base course materials.
 - .2 Max 1.5 m for fine aggregate and subbase materials.
 - .3 Max 1.5 m for other materials.
 - .6 Complete each layer over entire stockpile area before beginning next layer.
 - .7 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.
 - .8 Coning of piles or spilling of material over edges of pile will not be permitted.
 - .9 Do not use conveying stackers.
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Excavating and Backfilling

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| 1.1 <u>Description</u> | .1 This section specifies requirements for excavating and backfilling. | | | | | | | | | | | | | | | | | | | | |
| 1.2 <u>Reference Standards</u> | <table border="0"><tr><td style="vertical-align: top; padding-right: 20px;">.1</td><td>American Society for Testing and Materials International (ASTM)</td></tr><tr><td style="vertical-align: top; padding-right: 20px;">.1</td><td>ASTM C117-04, Standard Test Method for Material Finer than 0.075mm (No.200) Sieve in Mineral Aggregates by Washing.</td></tr><tr><td style="vertical-align: top; padding-right: 20px;">.2</td><td>ASTM C136-05, Standard Test Method for Sieve Analysis of Fine and Course Aggregates.</td></tr><tr><td style="vertical-align: top; padding-right: 20px;">.3</td><td>ASTM D422-632002, Standard Test Method for Particle-Size Analysis in Soils.</td></tr><tr><td style="vertical-align: top; padding-right: 20px;">.4</td><td>ASTM D698-12e1 (or latest edition), Standard Compaction Characteristics of Soil Using Standard Effort (600kN-m/m³).</td></tr><tr><td style="vertical-align: top; padding-right: 20px;">.5</td><td>ASTM D4318-05, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.</td></tr><tr><td style="vertical-align: top; padding-right: 20px;">.2</td><td>AASHTO T99-94 (or latest edition) Moisture-Density Relations of Soils Using a 5.5-lb. Rammer</td></tr><tr><td style="vertical-align: top; padding-right: 20px;">.3</td><td>Canadian General Standards Board (CGSB)</td></tr><tr><td style="vertical-align: top; padding-right: 20px;">.1</td><td>CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.</td></tr><tr><td style="vertical-align: top; padding-right: 20px;">.4</td><td>Nova Scotia Transportation and Infrastructure Renewal</td></tr></table> | .1 | American Society for Testing and Materials International (ASTM) | .1 | ASTM C117-04, Standard Test Method for Material Finer than 0.075mm (No.200) Sieve in Mineral Aggregates by Washing. | .2 | ASTM C136-05, Standard Test Method for Sieve Analysis of Fine and Course Aggregates. | .3 | ASTM D422-632002, Standard Test Method for Particle-Size Analysis in Soils. | .4 | ASTM D698-12e1 (or latest edition), Standard Compaction Characteristics of Soil Using Standard Effort (600kN-m/m ³). | .5 | ASTM D4318-05, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils. | .2 | AASHTO T99-94 (or latest edition) Moisture-Density Relations of Soils Using a 5.5-lb. Rammer | .3 | Canadian General Standards Board (CGSB) | .1 | CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric. | .4 | Nova Scotia Transportation and Infrastructure Renewal |
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| .4 | Nova Scotia Transportation and Infrastructure Renewal | | | | | | | | | | | | | | | | | | | | |
| 1.3 <u>Related Work</u> | .1 Refer to other Specification Sections for related information. | | | | | | | | | | | | | | | | | | | | |
| 1.4 <u>Definitions</u> | .1 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation including dense tills, hardpan, frozen materials and partially cemented materials such as asphalt which can be ripped and excavated with heavy construction equipment. | | | | | | | | | | | | | | | | | | | | |

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- 1.5 Protection of Existing Features .1 Existing buried utilities and structures:
- .1 Prior to commencing any excavation work, notify applicable owner or authorities, establish location and state of use of buried utilities and structures. Clearly mark such locations to prevent disturbance during work.
- .2 Existing surface features:
- .1 Protect existing surface features which may be affected by work from damage while work is in progress and repair damage resulting from work.
- 1.6 Shoring and Bracing .1 Comply with applicable local regulations to protect existing features.
- 1.7 Samples .1 At least 2 weeks prior to commencing work, inform *Departmental Representative* of proposed source of fill materials and provide access for sampling.
- 1.8 Measurement for Payment .1 Work performed under this Section will be incidental to work involved in other sections of this specification.

PART 2 - PRODUCTS

- 2.1 Materials .1 Granular Sub-Base material in accordance with **Section 32 11 19**.
- .2 Granular Base material in accordance with **Section 32 11 23**.

PART 3 - EXECUTION

- 3.1 Site Preparation .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
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| 3.2 <u>Stockpiling</u> | .1 | Stockpile fill materials in areas approved by <i>Departmental Representative</i> . Stockpile granular materials in manner to prevent segregation. |
| 3.3 <u>Dewatering</u> | | |
| | .1 | Keep excavations free of water while work is in progress. |
| | .2 | Protect open excavations against flooding and damage due to surface run-off. |
| | .3 | Dispose of water in a manner not detrimental to public and private property, or any portion of work completed or under construction. |
| 3.4 <u>Excavation</u> | | |
| | .1 | Excavate to lines, grades, elevations and dimensions indicted or as directed by <i>Departmental Representative</i> . |
| | .2 | Dispose of surplus and unsuitable excavated material in approved location off site. |
| | .3 | Do not obstruct flow of surface drainage or natural watercourses. |
| | .4 | Stockpile suitable excavated materials required for backfill in approved location. |
| | .5 | Dispose of surplus and unsuitable excavated material off site. |
| 3.5 Trench Bottom
<u>Preparation</u> | | |
| | .1 | Where required due to removal of unsuitable material or unauthorized over-excavation bring bottom of excavation to design grade with approved material. |
| | .2 | Compact trench bottom to density at least equal to density of adjacent surrounding soil. |
| 3.6 Pre-Installation
<u>Inspection</u> | | |
| | .1 | Excavations require inspection and approval prior to commencement of installation operations. |
| 3.7 <u>Backfilling</u> | | |
| | .1 | Do not proceed with backfilling operations until <i>Departmental Representative</i> has inspected and approved installations. |
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- .2 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.
 - .3 Do not use backfill material which is frozen or contains ice, snow or debris.
 - .4 Backfilling around installations:
 - .1 Place bedding and surround material as specified elsewhere.
 - .2 Place material by hand under, around, and over installations until 300 mm of cover is provided. Dumping material directly on installations will not be permitted.
 - .5 Place backfill material in uniform layers not exceeding 150 mm in thickness up to subgrade elevation or top of trench. Compact each layer before placing succeeding layer.
 - .6 Compact common backfill materials:
 - .1 In non-pavement areas, to a density at least equal to density of adjacent, undisturbed soil.
 - .2 In pavement areas, compact to a minimum of 90% for cohesive soils and 95% for cohesionless soils of corrected maximum dry density, maximum density ASTM D698, AASHTO T99, Method C.
 - .7 Compact granular backfill material to a minimum 95% of corrected maximum dry density, maximum density AASHTO T99-74 (or latest edition), Method C.
 - .8 Compact using approved mechanical tamping devices, or by hand tamping to achieve specified compaction.
- 3.8 Restoration
- .1 Upon completion of work, remove surplus materials and debris and correct defects noted by *Departmental Representative*.
 - .2 Clean and reinstate areas affected by work as directed by *Departmental Representative*.
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