

PART 1 - GENERAL

<u>1.1 Related Sections</u>	.1	Section 31 23 10 Excavation and Backfill
	.2	Section 32 11 16 Granular Sub-Base
	.3	Section 32 11 23 Granular Base
<u>1.2 Measurement Procedures</u>	.1	No measurement will be made under this section. Include costs in items of work that require aggregate.
<u>1.3 Source Approval</u>	.1	Inform Departmental Representative of proposed source of aggregates and provide access for sampling at least four (4) weeks prior to commencing production.
	.2	If, in opinion of Departmental Representative, material from proposed source do not meet, or cannot reasonably be processed to meet specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.
	.3	Should a change of material source be proposed during work, advise Departmental Representative four (4) weeks in advance of proposed change to allow sampling and testing.
	.4	Acceptance of a 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.
<u>1.4 Production Sampling</u>	.1	Aggregate will be subject to continual sampling by Department Representative during production.
	.2	Provide Departmental Representative with ready access to source and processed material for purpose of sampling and testing.
	.3	Install adequate sampling facilities at discharge end of

production conveyor to allow Departmental Representative to safely obtain representative samples of materials being produced. Stop conveyor belt when requested by Departmental Representative to permit full cross-section sampling.

- .4 Bear the cost of sampling and testing of aggregates which fail to meet specified requirements.

PART 2 - PRODUCTS

2.1 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 are those whose greatest dimension exceeds four times least dimension.
- .3 Fine aggregates satisfying requirements of applicable section to be one, or blend of following:
 - .1 Natural sand.
 - .2 Manufactured sand.
 - .3 Screening produced in crushing of quarried rock, boulders or gravel.
- .4 Coarse aggregates satisfying requirements of applicable section shall be one, or a blend of following:
 - .1 Crushed rock.
 - .2 Gravel and crushed gravel composed of naturally formed particles of stone.
- .5 Particles having at least one fractured face are considered to be crushed particles.

PART 3 - EXECUTION

3.1 Aggregate Source

- .1 Sources to be supplied by Contractor.

3.2 Processing

- .1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.
- .2 Blend aggregates, if required, to obtain gradation requirements, percentage of crushed particles, or particle shapes, as specified. Use approved methods and

equipment.

.3 Wash aggregates, if required to meet specifications. Use only equipment approved by Departmental Representative.

.4 When operating in stratified deposits use excavation equipment and methods that produce uniform, homogeneous aggregate.

3.3 Handling

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

3.4 Stockpiling

.1 Stockpile aggregates off site. Do not unload delivered aggregate on completed concrete surfaces where damage to concrete may result.

.2 Stockpile aggregates in sufficient quantities to meet project schedule.

END OF SECTION

PART 1 - GENERAL

- 1.1 Related Sections .1 Section 31 23 10 Excavation and Backfill.
- 1.2 Description .1 This section specifies requirements for the removal of in-situ materials, existing site features and structures, their salvage and reinstatement or disposal at approved facilities off-site. This section also includes the disposal of construction waste materials off-site at approved disposal facilities.
- 1.3 Measurement Procedures .1 Construction/Demolition/Mob/Demob: Costs associated with mobilization, demobilization, the removal and disposal of existing materials and construction waste material, the storage and reinstallation of materials to be reused, temporary works and facilities including all labour, plant, equipment and necessary materials, will constitute a lump sum price, (LS), and shall consist of, but not be limited to, the following:
- .1 All costs associated with mobilization and demobilization.
 - .2 The design, supply, construction, maintenance, dismantling, and removal of temporary works, (berm or cofferdam) and pumps as required to maintain the work area in the dry during the removal of in-situ materials, preparation, placement and compaction of fills and construction protection and curing of the new concrete ramp slab.
 - .3 The removal and disposal of all asphalt and in-situ materials from the harbor bottom required for the construction of the new boat ramp as detailed on the drawings.
 - .1 All existing pavement materials removed from the work to be disposed of off-site at an approved disposal site.
 - .2 All in-situ excavated materials to be removed, dewatered and disposed of on-site in location(s) as directed by the Departmental Representative.
 - .4 The removal and reinstatement of the existing steel gate complete with posts and concrete

- foundations, in location designated by the Departmental Representative.
- .5 The removal, relocation and reinstatement of the shed and oil storage container, in location designated by the Departmental Representative.
- .6 The temporary removal, salvage, stockpiling, and re-incorporation in the work of existing rock slope protection on both sides of the new boat ramp.
- .7 The re-shaping of embankment slopes on each side of the new ramp.
- .8 The supply, installation, maintenance and removal of temporary facilities, power and water.
- .9 All demolition, removal and reinstatement as required for the construction of the structure.
- .10 Construction, maintenance and removal of any temporary work required for the construction of the structure.
- .11 All work as per Environmental requirements.
- .12 Snow/ice removal, if required, to allow access to, and work on site.
- .2 Dewatering: All costs associated with the temporary work for dewatering is to be included in Item 1.3.1 Construction/ Demolition/Mob/Demob.
- .3 Temporary Facilities: All costs associated with Items under Section 01 50 00 to be included in Item 1.3.1 Construction/Demolition/Mob/Demob.
- .4 Barriers/Security Devices: There will not be any separate measurement for payment for the provision and maintenance of barriers and security devices. Include the cost for this work in the above item 1.3.1 Construction/Demolition/Mob/Demob.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

- 3.1 Execution .1 Inspect site and verify with Departmental Representative materials designated for removal.

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| <u>3.2 Removal</u> | .1 | Remove in their entirety all materials specified for removal including all fastenings. Carefully remove materials designated to be reused, or to be salvaged and store or stockpile on site in areas designated by the Departmental Representative. |
| | .2 | Do not disturb adjacent work designated to remain in place. |
| | .3 | Verify with Departmental Representative items to be reused in the work. |
| <u>3.3 Stockpiling</u> | .1 | Obtain the approval of the Department Representative for the use of a storage site for the material to be re-used in the work. |
| <u>3.4 Restoration</u> | .1 | Upon completion of work, remove debris, trim surfaces and leave work site in clean condition. |
| | .2 | Reinstate areas and existing works outside areas of construction to conditions that existed prior to commencement of work. |
| <u>1.1 Dewatering</u> | .1 | The design of all temporary works for the dewatering required to construct the work in the dry is the responsibility of the Contractor. |
| | .2 | Method of dewatering to be submitted to Departmental Representative for review and approval. |
| | .3 | Should the Contractor choose to construct a berm with a membrane liner in order to dewater the area of work using imported material, it shall consist of clean, crushed rock. Use of sandstone or pit-run gravels is not permitted. Upon completion of work, all material used for the berm construction is to be removed, dewatered, washed and, when free of contaminants, transported from site and disposed of. |

- .4 Alternate methods of dewatering, including bladders or sand bags, to be constructed and removed from the site upon completion. Materials and methods of installation and removal shall have no detrimental effect on the environment.

END OF SECTION

PART 1 - GENERAL

<u>1.1</u>	<u>Related Sections</u>	.1	Section 01 35 44 Environmental Protection Procedures for Marine Work
		.2	Section 01 74 21 Construction/Demolition Waste Management & Disposal
		.3	Section 31 05 16 Aggregates - General
		.4	Section 31 11 00 Site Work, Preparation and Removal
		.5	Section 31 32 21 Geotextiles
		.6	Section 32 11 16 Granular Sub-base
		.7	Section 32 11 23 Granular Base
<u>1.2</u>	<u>Description</u>	.1	Work under this section consists of all operations and materials related to excavation and backfilling for Work.
<u>1.3</u>	<u>Measurement Procedures</u>	.1	Include excavation costs in Construction/ Demolition/Mob/Demob pay item of Section 31 11 00 Site Work, Preparation and Removal.
		.2	Include all other backfilling costs in the respective material sections.
<u>1.4</u>	<u>References</u>	.1	American Society for Testing and Materials International (ASTM)
		.1	ASTM C117-17, Standard Test Method for Material Finer than 75 µm (No.200) Sieve in Mineral Aggregates by Washing.
		.2	ASTM C136/C136M-14, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
		.3	ASTM D422-63(2007)e2, Standard Test Method for Particle-Size Analysis of Soils.
		.4	ASTM D698-12e2, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³ (600 kN-m/m ³)).
		.5	ASTM D1557-12e1, Standard Test Methods for Laboratory Compaction Characteristics of Soil

Using Modified Effort (56,000 ft-lbf/ft³
(2,700 kN-m/m³)).

- .6 ASTM D4318-17e1, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

- .2 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.5 Definitions

- .1 Unclassified excavation: excavation of deposits of whatever character encountered in the work. This includes concrete foundations, rubble, wood debris and other obstructions encountered during excavation.

- .2 Waste material: excavated material unsuitable for use, not approved, or surplus to requirements.

- .3 Unsuitable materials:

- .1 Weak, chemically unstable, and compressible materials.

- .2 Frost susceptible materials:

- .1 Fine grained soils with plasticity index less than 10 when tested to ASTM D 4318, and gradation within limits specified when tested to ASTM D 422 and ASTM C 136:

- .2 Sieve sizes to CAN/CGSB-8.2 Table:

<u>Sieve Designation</u>	<u>% Passing</u>
2.00 mm	100
0.10 mm	45 - 100
0.02 mm	10 - 80
0.005 mm	0 - 45

- .3 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.

1.6 Existing conditions

- .1 Existing surface features:

- .1 Conduct, with Departmental Representative, condition survey of existing plants, service poles, wires, site features, asphalt pavement, concrete slab, survey bench marks and monuments which may be affected by work.

- .2 Protect existing surface features from damage while work is in progress. In event of damage, immediately make repair as directed by Departmental Representative.
- .2 Buried services:
 - .1 Before commencing work establish location of buried services on and adjacent to site.
 - .2 Arrange with appropriate authority for relocation of buried services that interfere with execution of work: pay costs of relocating services.
 - .3 Remove obsolete buried services within 2 m of foundations: cap cut-offs.
 - .4 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.
 - .5 Prior to beginning excavation Work, notify Departmental Representative and Authorities having jurisdiction. Establish location and state of use of buried utilities and structures. Clearly mark such locations to prevent disturbance during Work.
 - .6 Confirm locations of buried utilities by careful test excavations.
 - .7 Maintain and protect from damage, water, electric, telephone and other utilities and structures encountered.
 - .8 Where utility lines or structures exist in area of excavation, obtain direction of Departmental Representative before removing or re-routing.
 - .9 Record location of maintained, re-routed and abandoned underground lines.
 - .10 Confirm locations of recent excavations adjacent to area of excavation.
- .3 Existing buildings and surface features:
 - .1 Conduct, with Departmental Representative, condition survey of existing structures, catch basins, drains, service poles, wires, survey bench marks and monuments which may be affected by Work.
 - .2 Protect existing surface features from damage while Work is in progress. In event of damage, immediately make repair as directed by

Departmental Representative.

- 1.7 Submittals
- .1 Make submittals in accordance with Section 01 33 00 Submittal Procedures.
 - .2 Quality Control: in accordance with Section 01 45 00 Testing and Quality Control:
 - .1 Submit condition survey of existing conditions as described in article 1.6 Existing Conditions, of this Section.
 - .2 Submit for review by Departmental Representative proposed dewatering and heave prevention methods as described in PART 3 of this Section.
 - .3 Submit to Departmental Representative written notice at least 7 days prior to excavation work, to ensure cross sections are taken.
 - .4 Submit to Departmental Representative a written notice when bottom of excavation is reached.
 - .5 Submit to Departmental Representative testing inspection results and report as described in PART 3 of this Section.
 - .3 Preconstruction Submittals:
 - .1 Submit construction equipment list for major equipment to be used in this section prior to start of Work.
 - .2 Submit records of underground utility locates, indicating: location plan of existing utilities as found in field, clearance record from utility authority, and location plan of relocated and abandoned services, as required.
 - .4 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 Submittal Procedures.
 - .2 Inform Departmental Representative at least 4 weeks prior to beginning Work, of proposed source of fill materials and provide access for sampling.
 - .3 Submit 70 kg samples of type of fill specified, if requested by the Departmental Representative, including representative samples of excavated material.

- .4 Ship samples prepaid to Departmental Representative, in tightly closed containers to prevent contamination and exposure to elements.
- 1.8 Quality Assurance
 - .1 Do not use backfill materials until written report of soil test results are reviewed by Departmental Representative.
 - .2 Health and Safety Requirements:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29 Health and Safety Requirements.
- 1.9 Waste Management and Disposal
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 Construction/ Demolition Waste Management and Disposal.
 - .2 Divert excess materials from landfill to local quarry for reuse as directed by Departmental Representative.
- 1.10 Special Inspection
 - .1 The bottoms of all excavated areas are to be inspected by a geotechnical engineer to ensure suitable conditions for support of new subbase materials.
 - .2 Do not proceed with backfilling until bottom of excavation has been inspected and approved.

PART 2 - PRODUCTS

- 2.1 Materials
 - .1 Random Rip-Rap (R-50): As specified under Section 31 37 10 Random Rip-Rap.
 - .2 Random Rip-Rap (R-5): As specified under Section 31 37 10 Random Rip-Rap.
 - .3 Filter fabric: As specified under Section 31 32 21 Geotextiles.
 - .4 Structural Fill: As specified under Section 32 11 16, Granular Sub-Base.
 - .5 Granular Sub-base: Crushed rock, as specified under Section 32 11 16 Granular Sub-Base.

- .6 Granular Base: Crushed rock, as specified under Section 32 11 23 Granular Base.

PART 3 - EXECUTION

3.1 Site Preparation

- .1 Set out pertinent lines, grades and levels required for excavation and backfill work. Maintain accuracy of line and grade stakes during Work.
- .2 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
- .3 Strip and dispose of existing asphalt and excavated materials as indicated on plans and as required to complete the Work.

3.2 Temporary Erosion and Sedimentation Control

- .1 If requested by the Departmental Representative, 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 sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 Preparation/Protection

- .1 Protect existing features in accordance with Section 01 10 10 General Instructions, and applicable local regulations.
- .2 Keep excavations clean, free of standing water, and loose soil.
- .3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative's approval.
- .4 Protect natural and man-made features required to remain undisturbed.

- .5 Protect buried services that are required to remain undisturbed.
- 3.4 Stockpiling
 - .1 Due to limited space, no materials are to be stockpiled on the site unless otherwise approved by Departmental Representative.
 - .2 All new materials to be brought to the site immediately prior to placement.
- 3.5 Sheathing, Shoring, Bracing and Underpinning
 - .1 Maintain sides and slopes of excavations in safe condition by appropriate methods and in accordance with Section 01 35 29 Health and Safety Requirements and Health and Safety Act for the Province of New Brunswick.
 - .2 During backfill operation:
 - .1 Unless otherwise indicated or directed by Departmental Representative, remove sheeting and shoring from excavations.
 - .2 Do not remove bracing until backfilling has reached respective levels of such bracing.
 - .3 Pull sheeting in increments that will ensure compacted backfill is maintained at elevation at least 600 mm above toe of sheeting.
 - .3 Upon completion:
 - .1 Remove shoring and bracing.
 - .2 Remove excess materials from site.
- 3.6 Dewatering:
 - .1 Keep excavations free of water while work is in progress.
 - .2 Provide details of proposed dewatering methods, including dikes and well points, for Departmental Representative's review.
 - .3 Protect open excavations against flooding and damage due to surface run-off.
 - .4 Dispose of water in runoff areas and in manner not detrimental to property, or portion of Work completed or under construction.
 - .1 Provide and maintain temporary drainage and

other diversions outside of excavation limits.

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| <u>3.7 Excavation</u> | .1 | Excavate to lines, grades, elevations and dimensions as indicated on plans and as directed by Departmental Representative. |
| | .2 | Remove obstructions encountered during excavation. |
| | .3 | Dispose of surplus and unsuitable excavated material at an approved land based disposal site and as directed by the Departmental Representative. |
| | .4 | Do not obstruct flow of surface drainage. |
| | .5 | Notify Departmental Representative when bottom of excavation is reached. |
| | .6 | Obtain Departmental Representative's approval of completed excavation. |
| | .7 | Remove unsuitable material from excavation to extent and depth as directed by Departmental Representative. |
| | .8 | Remove loose material and debris from excavations. |
| <u>3.8 Geotextile</u> | .1 | Install filter fabric where indicated and as directed in accordance with Section 31 32 21 Geotextiles. |
| <u>3.9 Fill Types and
Compaction</u> | .1 | Use types of fill as indicated or specified in related sections. Compaction densities are percentages of maximum densities obtained from ASTM D698. |
| | .2 | Placement and compaction of crushed rock base and sub-base materials to be in accordance with their respective sections. |
| <u>3.10 Backfilling</u> | .1 | Do not proceed with backfilling operations until Departmental Representative has inspected and approved bottom of excavation. |
| | .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 Refer to related sections or drawings for additional backfilling and compaction requirements.
- .5 Backfilling around installations:
 - .1 Do not backfill around or over cast-in-place concrete within 24 hours after placing of concrete.
- 3.11 Restoration
 - .1 Upon completion of work, remove waste materials and debris, trim slopes, and correct defects as directed by Departmental Representative.
 - .2 Clean and reinstate areas affected by Work as directed by Departmental Representative.
 - .3 Protect newly graded areas from traffic and erosion and maintain free of trash or debris.
- 3.12 Quality Assurance
Inspection and Testing
 - .1 Testing of materials and compaction will be carried out by Testing Agency designated by Departmental Representative. Frequency of tests will be determined by Departmental Representative.
 - .2 Departmental Representative will pay for services of testing laboratory.
 - .3 Inspection and testing by the Soil Testing Agency and/or Departmental Representative will not augment or replace Contractor quality control nor relieve the Contractor of contractual responsibilities.

END OF SECTION

PART 1 - GENERAL

<u>1.1</u>	<u>Related Sections</u>	.1	Section 31 23 10 Excavation and Backfill
		.2	Section 31 37 10 Random Rip-Rap
<u>1.2</u>	<u>Description</u>	.1	This section specifies requirements for:
		.1	The supply and installation of synthetic non-woven filter fabric to be used in backfilling operations as indicated on drawings.
		.2	The fabrication and installation of a floating silt curtain including its maintenance for the duration of work and removal.
<u>1.3</u>	<u>Measurement Procedures</u>	.1	<u>Filter Fabric:</u> The supply and installation of filter fabric will be measured as a lump sum item.
		.2	<u>Floating Silt Curtain:</u> The fabrication, installation and maintenance of the floating silt curtain for the duration of the work will be paid for as a lump sum, including the cost for the removal and disposal of the floating silt curtain upon completion of the work.
		.3	Damaged material shall be replaced at no cost to the owner.
<u>1.4</u>	<u>References</u>	.1	American Society for Testing and Materials International, (ASTM)
		.1	ASTM D4101-17, Standard Classification System and Basis for Specification for Polypropylene Injection and Extrusion Materials.
		.2	ASTM D4491/D4491M-17, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
		.3	ASTM D4595-17, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
		.4	ASTM D 4751-16, Standard Test Methods for Determining Apparent Opening Size of a Geotextile.

- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-4.2 No. 11.2-M89 (R2013), Textile Test Methods Bursting Strength - Ball Burst Test.
 - .2 CAN/CGSB-148.1, Methods of Testing Geosynthetics.
- 1.5 Submittals .1 Submit samples in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit to the Departmental Representative the following samples at least 2 weeks prior to commencing work: manufacturer's specifications on the filter fabric, and floating silt curtain proposed to be used.
- 1.6 Delivery, Storage and Handling .1 During delivery and storage, protect geotextile from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.
- 1.7 Waste Management and Disposal .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 Construction/ Demolition Waste Management & Disposal.

PART 2 - PRODUCTS

- 2.1 Materials .1 Geotextile to be synthetic fiber and be rot proof, unaffected by action of oil or salt water and not subject to attack by marine life, insects, or rodents. Fabric to be of non-woven construction supplied in rolls of minimum 3.0 metres width.
 - .1 Filter fabric for the reconstruction of the haulout ramp to have the following properties:
 - .1 Mass(g/m²) 380
 - .2 Tear (N) 500
 - .3 Tensile Strength (N) 1,200
 - .4 Elongation at Break(%) 50
 - .5 Opening Size (um) 50 to 250
 - .6 Permeability (K cm s⁻¹) 1.0 to 2.5x10⁻¹.
 - .2 Fabric for the Floating Silt Curtain to following properties:
 - .1 Mass(g/m²) 250 to 270
 - .2 Tear (N) 500
 - .3 Tensile Strength (N) 950

- .4 Elongation at Break(%) 70-100
- .5 Mullen Burst Strength (kPa) 2500
- .6 Opening Size (um) 50 to 150
- .7 Permeability (K cm s-1) 2.7×10^{-1}
- .3 Contractor shall note that the material may become buoyant.
- .4 Seams: to be in accordance with manufacturer's recommendations.
- .5 Thread for sewn seams: equal or better resistance to chemical and biological degradation than geotextile.

PART 3 - EXECUTION

- 3.1 Filter Fabric Installation .1 Place geotextile material by unrolling in orientation, manner and locations indicated and retain in position with securing pins and washers, weights or other method as approved by Departmental representative.
- .2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.
- .3 Overlap each successive strip of geotextile minimum of 600 mm over previously laid strip.
- .4 Pin successive strips of geotextile with securing pins or fasteners as recommended by manufacturer.
- .5 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material.
- .6 After installation, cover with overlying layer within 4 hrs of placement.
- .7 Replace damaged or deteriorated geotextile to approval of Departmental Representative.
- 3.2 Floating Silt Curtain Installation .1 The floating silt curtain will be installed before the excavation work and temporary water barrier installation begins and it will remain in place for the duration of the work.
- .2 Remove and replace fabric damaged or deteriorated as

directed by Departmental Representative.

- .3 Any fabric damaged to be replaced at no additional cost.
- .4 The floating silt curtain will not be removed until approved by the Departmental Representative.

3.3 Protection .1 Vehicular traffic is not permitted directly on geotextile.

END OF SECTION

PART 1 - GENERAL

- 1.1 Related Sections .1 Section 01 45 01 Weigh Scales
.2 Section 31 23 10 Excavation and Backfill
.3 Section 31 32 21 Geotextiles
- 1.2 Measurement Procedures .1 Random Rip-Rap (R-50): Random Rip-Rap (R-50) to be measured in metric tonnes, (Tonnes), of material supplied and acceptably placed in the work to the lines and grades specified.
.2 Random Rip-Rap (R-5): Random Rip-Rap (R-5) to be measured in metric tonnes, (Tonnes), of material supplied and acceptably placed in the work to the lines and grades specified.
.3 Mobilization/demobilization of equipment will not be measured separately for payment.
.4 Construction and maintenance of haul roads will not be measured separately for payment.
.5 Weighing will not be measured separately for payment, but will be considered as incidental to the work of this section.
- 1.3 References .1 New Brunswick Department of Transportation and Infrastructure (NBDTI) 2019 standard Specifications.

PART 2 - PRODUCT

- 2.1 Materials .1 Random Rip-Rap (R-50): Clean, hard, dense durable quarry stone.
.1 To consist of R-50 material and to be in strict accordance with the material requirements as per the January 2019 Edition of the NBDTI Standard Specifications, Item: 608, Random Rip Rap. Gradation to be to R-50 grading limits as per Table 608-1 of NBDTI Specifications.
.2 Random Rip-Rap (R-5): Clean, hard, dense durable

quarry stone.

- .1 To consist of R-5 material and to be in strict accordance with the material requirements as per the January 2019 Edition of the NBDTI Standard Specifications, Item: 608, Random Rip Rap. Gradation to be to R-5 grading limits as per Table 608-1 of NBDTI Specifications.

PART 3 - EXECUTION

3.1 Placing

- .1 Fine grade areas to be backfilled with stone to uniform, even surfaces. Compact to provide firm bed.
- .2 Line bottom and sides of areas to be filled with stone with filter fabric on prepared surfaces in accordance with Section 31 32 21 Geotextiles and as indicated. Place rip-rap on filter fabric so as to avoid puncturing filter fabric. Do not drive vehicles directly on filter fabric. Filter fabric is not required if the prepared surface is bedrock.
- .3 Place stone to thickness and details as indicated.
- .4 Place stone in manner approved by Departmental Representative to create a firm compacted, very dense stable mass. Place larger stones at bottom.
- .5 Finish surface evenly, free of loose areas and neat in appearance.
- .6 Mechanically place the stone. No end dumping will be permitted.

END OF SECTION
