Attachment 9

SPECIFICATIONS

Extra Heavy Rock Material for Armoring & Erosion Control (Statewide)

(Revised on 02/19/20)

IFB# 23203

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Scope

It is the intent of these specifications to cover the minimum requirements for the materials included within this document for delivery to various locations throughout the State.

This section contains appropriate guidance documents for bidders to determine suitability of material offerings. The document includes specifically selected chapters and sections from the NYSDOT Standard Specifications most current version and all current addenda.

Bidders Note: It is a Contractor's responsibility to make sure that all items delivered comply with the most up-to-date NYSDOT Standard Specifications. The complete NYSDOT Standard Specification for contracting may be found here:
https://www.dot.ny.gov/main/business-center/engineering/specifications/updated-standard-specifications-us

ITEM 620.01000006 - GROUTED STONE FILLING (HEAVY)

The provisions of § 620 – BANK AND CHANNEL PROTECTION of the NYSDOT Standard Specifications shall apply with the following modifications.

Grout meeting the requirements of § 620-2.04 shall be used to fill the space between stones per § 620-3.04.

Payment will be made under:

Item No.	Item	Pay Unit
620.01000006	Grouted Stone Filling (Heavy)	Cubic Yard

ITEM 620.03000008 – GROUTED STONE FILLING (LIGHT)

The provisions of §620 – BANK AND CHANNEL PROTECTION of the NYSDOT Standard Specifications shall apply with the following modifications.

Grout meeting the requirements of §620-2.04 shall be used to fill the space between stones per §620-3.04.

Grout shall be placed such that the light stone filling is combined into clusters approximately the size and shape of the gradation of medium stone filling per §733-21 Stone Filling.

Payment will be made under:

Item No.	Item	Pay Unit
620.03000008	Grouted Stone Filling (Light)	Cubic Yard

ITEM 620.06010002 - EXTRA HEAVY RIP RAP (Revised 02/19/20)

DESCRIPTION:

The requirements of Section 620-1 and Subsection 620-1.02 shall apply except as follows:

MATERIALS:

The requirements of Subsections 620-2.01 shall apply.

Extra Heavy dry rip-rap shall be a product of ledge rock and consist of stone having a minimum specific gravity (saturated surface dry, S.S.D.) of 2.48.

Graduation of extra heavy rip-rap shall conform with the following requirements:

Stone Size	
Heavier than 5000 lbs.	80%
1500 lbs. to 5000 lbs.	20%

The thickness of the individual stones shall be between 18 inches to 24 inches. The top and bottom surfaces of each stone shall be approximately parallel to each other and the sides approximately perpendicular to the bottom and top.

The gradation of materials furnished for use as extra heavy dry rip-rap shall be accepted or rejected based on a visual examination by the Engineer. The Engineer or their inspector will examine the material at the source prior to the shipment to the site.

CONSTRUCTION DETAILS:

The requirements of Section 620-3.03 and 620-3.05 shall apply.

METHOD OF MEASUREMENT:

The quantity to be paid for shall be the number of tons of stones and spalls provided as directed by the Engineer.

BASIS OF PAYMENT:

The unit price bid per ton of this item shall include the costs of furnishing all materials.

ITEM 620.13000016 - EXTRA HEAVY STONE FILLING

The requirements of Section 620 regarding stone filling shall apply with the following modifications to the material specifications 733-21:

1) Section 733-21.B

Add the following to Table 733-21A: Stone Filling Gradation

Stone Filling Item	See Notes	Stone Size	Percentage of Total by Weight
Extra Heavy	2, 3, 4	Heavier than 1,300lbs.	50 - 100
		Smaller than 6 in.	0 - 10

2) Section 732-21.B

Add the following to the Approximate Shape Table:

Specific Masses and Sizes	1st Column CUBE	2nd Column RECTANGULAR SOLID	3rd Column RECTANGULAR SOLID	4th Column SPHERE	5th Column PRISM
1,300 lbs	d= 24 in.	d= 30 in.	d = 20 in.	d = 31 in.	d = 36 in.

ITEM 620.14010009 - EXTRA HEAVY STONE TYPE A
ITEM 620.14020009 - EXTRA HEAVY STONE TYPE B

DESCRIPTION
The requirement of Subsection 620-1.01 shall apply.

MATERIALS
The requirements of Subsections 620-2.01 and 620-2.02 shall apply, except as follows:

Type A	Stone Size
Heavier than 2500 lb	50% - 100%
Smaller than 9 inches	0% - 10%

Type B	Stone Size
Heavier than 1250 lbs	50% - 100%
Smaller than 8 inches	0% - 10%

CONSTRUCTION DETAILS
The requirements of Subsections 620-3.01 and 620-3.02 shall apply.

METHOD OF MEASUREMENT
The requirements of Subsection 620-4.01 shall apply.

BASIS OF PAYMENT
The requirements of Subsection 620-5.01 shall apply

Item No.	Description	Payment Unit
620.14010009	Extra Heavy Stone Type A	CY
620.14020009	Extra Heavy Stone Type B	CY

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ITEM 620.20000017 – ARMOR UNITS (STA-PODS) 2 TON CLASS

ITEM 620.21000017 – ARMOR UNITS (STA-PODS) 5 TON CLASS

DESCRIPTION

This work shall consist of furnishing and placing armor units (Sta-Pods), or an equal approved by the Deputy Chief Engineer Technical Services in accordance with the contract documents and as directed by the Engineer. The Sta-Pod is a patented armor unit.

MATERIALS

Notify the Materials Bureau of the name and location of the precast armor unit fabricator at least 30 days before the start of production. Supply precast armor units meeting the requirements of §704-03 Precast Concrete - General, except as noted herein.

A. Materials. Use epoxy coated, bar or wire fabric reinforcement. Use concrete with a minimum compressive strength of 4000 psi at 28 days.

B. Dimensional Tolerances. Do not vary unit dimensions by more than ½ inch from those shown on the approved working drawings.

CONSTRUCTION DETAILS

Handling and Storage. Lift with a bridle or sling and move in a way that avoids damage to the units. Store units on a firm bed. The Engineer will reject units which are not true to line and grade or are defective in any respect. Replace, at no additional cost to the Authorized User, all units rejected by the Engineer.

METHOD OF MEASUREMENT

This work will be measured as the number of Sta-Pod units supplied as directed by the Engineer.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all materials, as directed by the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
620.20000017	Armor Units (Sta-Pods) 2 Ton Class	Each
620.21000017	Armor Units (Sta-Pods) 5 Ton Class	Each

ITEM 620.29010008 - NATIVE/IMPORTED STREAM AND UPLAND BOULDERS (LARGE)

ITEM 620.29020008 - NATIVE/IMPORTED STREAM AND UPLAND BOULDERS (MEDIUM)

DESCRIPTION

This work shall consist of removing and stockpiling native stream and upland boulders or furnishing new boulders as directed by the Engineer.

MATERIALS

Native stream and upland boulders shall be existing stream and upland boulders having a consistent character and shall be derived from designated locations as shown on the plans, proposal, or as ordered by the Engineer. New boulders shall be furnished from an approved source and shall be composed of well graded naturally occurring round or sub-rounded stone and substantially free of excess dirt or silt.
Crushed material is not acceptable.

Gradation shall be:

Stone Size (Medium)	*Stone Size (Large)*	*% by Total Weight*
Heavier than 110 lb.	Heavier than 660 lb.	50 to 100%
Lighter than 45 lb.	Lighter than 110 lb.	0 to 5 %

Approval or rejection of gradation and appearance will be based on a visual inspection of the material by the Engineer.

Material will conform to the requirements of Subsection 620-2.01

CONSTRUCTION DETAILS

Where specified, native stream and upland boulders shall be removed from only designated areas shown on the plans or proposal, and stockpiled (if necessary) at a location approved by the Engineer for reuse.

METHOD OF MEASUREMENT

The quantity to be paid for under this Item shall be the number of cubic yards computed from the payment lines shown on the plans, or as directed by the engineer.

BASIS OF PAYMENT

The unit price per cubic yards for native/new stream and upland boulders shall include the cost of all labor, equipment, and incidental materials required to excavate the material from its source, stockpile (if required).

ITEM 620.29030006 QUARRIED STONE (DIMENSIONAL)

DESCRIPTION:

This work shall consist of furnishing all materials as directed by the Engineer. The work shall be done in accordance with these specifications as established by the Engineer.

MATERIALS:

The requirements of Subsection 620-2.01 shall apply along with the following:

The quarried stones shall be rectangular in shape and have the following standard dimensions:

Length:	5.0 ft
Width:	4.0 ft
Thickness:	3.0 ft

The maximum permissible variation in dimensions of individual quarried stones from the standard dimensions shall not be more than six inches. All quarried stones shall be inspected by the Engineer for dimensional compliance upon arrival at the project location. Stones not in conformance with the contract documents may be rejected by the Engineer.

The dry unit weight of each stone shall be 3.5 tons or greater.

All stone shall come from the same source and, where possible, shall be similar in color and texture to the native stone in the project area.

All quarried stone shall be of sufficient soundness to resist weathering, shall have a reasonably smooth face and be sound and free from cracks or other defects that would interfere with the proper placing of the blocks or impair the strength and permanence of the construction. Porous stone such as sandstone and soft stone such as shale shall not be used. In no instance shall concrete or other "debris" be used

CONSTRUCTION DETAILS:

The requirements of Subsection 620-3.01 shall apply

METHOD OF MEASUREMENT:

The quantity to be paid for shall be the number of tons of quarried stone as ordered by Engineer.

BASIS OF PAYMENT:

The unit price bid shall include costs of the number of tons of quarried stone furnished.

Payment will be made under:

Item No.	Item	Pay Unit
620.29030006	Quarried Stone (Dimensional)	Ton

OGS ITEM 1 - ROCK REVETMENT (ARMOR STONE)

MATERIALS:
Armor stone shall be a product of limestone, dolomite, or granite rock and conform to the following requirements:

STONE SIZE
Equal to or greater than 4000 lbs. 100%

The thickness of the individual stones shall have a minimum diameter of 3 feet and be irregular in shape.

BASIS OF PAYMENT:
The unit price bid shall include costs of the number of tons of Rock Revetment (Armor Stone) furnished.

Payment will be made under:

Item No.	Item	Pay Unit
OGS Item 1	Rock Revetment (Armor Stone)	Ton

OGS ITEM 2 - ROCK REVETMENT (TOE STONE)

MATERIALS:
Toe stone shall be a product of limestone, dolomite, or granite rock and conform to the following requirements:

STONE SIZE
Equal to or greater than 8000 lbs. 100%

The thickness of the individual stones shall have a minimum diameter of 3.75 feet and be irregular in shape.

BASIS OF PAYMENT:
The unit price bid shall include costs of the number of tons of Rock Revetment (Toe Stone) furnished.

Payment will be made under:

Item No.	Item	Pay Unit
OGS Item 2	Rock Revetment (Toe Stone)	Ton

