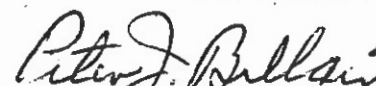


To: MODIFIED BY EI 99-022 EFFECTIVE 11/4/99 SUPERSEDED BY EI 02-039 EFFECTIVE 5/8/03		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 97-005
Title: REVISED SPECIFICATIONS FOR ARMOR UNITS (STA-PODS) AND PRECAST CONCRETE HEADWALLS FOR LATERAL OUTLET PIPES			
Distribution: ☐ Manufacturers (18) ☐ Surveyors (33) ☒ Main Office (30) ☒ Consultants (34) ☐ Local Govt. (31) ☐ Contractors/AGC (39) ☒ Regions/Agencies (32) ☐ _____ ()		Approved:  P. J. Clark, Deputy Chief Engineer, Design Division Date <u>2-24-97</u>	

EFFECTIVE DATE:

This Engineering Instruction is effective with Department contracts let on or after June 12, 1997.

PURPOSE:

Revise the material requirements of two special specifications to reference §704-03 Precast Concrete-General.

BACKGROUND:

To make the fabrication of precast items, which are under the jurisdiction of the Materials Bureau, more uniform, a new §704-03 Precast Concrete-General has been issued (reference EI 95-010). This subsection incorporates all the requirements common to the fabrication of precast items into one subsection. Special specifications, for precast items under the jurisdiction of the Materials Bureau, are being revised, as needed, to include reference to §704-03. The MATERIALS sections of the specifications transmitted under this EI have been revised and now contain the appropriate references to §704-03.

TRANSMITTED SPECIFICATIONS:

1. 17620.20 - ARMOR UNITS (STA-PODS) 2 TON CLASS
17620.21 - ARMOR UNITS (STA-PODS) 5 TON CLASS
2. 17620.20 M - ARMOR UNITS (STA-PODS) 2 METRIC TON CLASS
17620.21 M - ARMOR UNITS (STA-PODS) 5 METRIC TON CLASS
3. 18605.2501 - PRECAST CONCRETE HEADWALLS FOR 4" LATERAL OUTLET PIPES
4. 18605.2501 M - PRECAST CONCRETE HEADWALLS FOR 100 mm LATERAL OUTLET PIPES

DISCONTINUED SPECIFICATIONS:

1. 17620.09 - ARMOR UNITS (STA-PODS) 2 TON CLASS
17620.10 - ARMOR UNITS (STA-PODS) 5 TON CLASS
17620.09 M - ARMOR UNITS (STA-PODS) 1.8 METRIC TON CLASS
2. 18605.25 - HEADWALLS FOR LATERAL OUTLET PIPES

COST IMPACT:

No cost increases or decreases are anticipated with these changes.

ACTIONS BY THE MAIN OFFICE DOAB:

The attached specifications will be Main Office inserts into contract proposals which contain the referenced item numbers.

CONTACT:

Questions regarding the MATERIALS sections of the transmitted specifications should be directed to Jim Reidy, Field Engineering I Section of the Materials Bureau at (518) 457-5956.

Questions regarding the use of ARMOR UNITS or HEADWALLS FOR LATERAL OUTLET PIPES should be directed to Bob Burnett of the Geotechnical Engineering Bureau at (518) 457-4724.

ITEM 17620.20 - ARMOR UNITS (STA-PODS) 2 TON CLASS
ITEM 17620.21 - ARMOR UNITS (STA-PODS) 5 TON CLASS

DESCRIPTION.

Furnish and place armor units (Sta-Pods), or an equal approved by the Deputy Chief Engineer (Technical Services), as shown on the plans. The Sta-Pod is a patented armor unit.

PRECAST ARMOR UNITS.

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, except as noted herein.

Materials - The requirements for concrete inspection facilities, automated batching controls and recordation do not apply. Use concrete batching and mixing methods and inspection facilities approved by the Materials Bureau. Use epoxy coated, bar or wire fabric reinforcement. Use concrete with a minimum compressive strength of 4000 psi at 28 days.

Dimensional Tolerances - Do not vary unit dimensions by more than 1/2" 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 Department, all units rejected by the Engineer.

Erection of Armor Units - Insure that a representative of the patent holder is available for at least the first day of installation. Install armor units according to the representative's instructions. Obtain the Engineer's approval before putting construction equipment stresses on the armor units.

If the Engineer suspects damage has occurred to an armor unit, provide a safe means for inspection. Replace, at no additional cost to the Department, all units rejected by the Engineer.

METHOD OF MEASUREMENT.

Armor units will be measured by the number of units supplied and installed in accordance with the contract documents.

BASIS OF PAYMENT.

Include the cost of all labor, royalties, materials, installation equipment and installation supervision by the patent holder's representative in the unit price bid per armor unit.

ITEM 17620.20 M - ARMOR UNITS (STA-PODS) 2 METRIC TON CLASS
ITEM 17620.21 M - ARMOR UNITS (STA-PODS) 5 METRIC TON CLASS

DESCRIPTION.

Furnish and place armor units (Sta-Pods), or an equal approved by the Deputy Chief Engineer (Technical Services), as shown on the plans. The Sta-Pod is a patented armor unit.

PRECAST ARMOR UNITS.

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, except as noted herein.

Materials - The requirements for concrete inspection facilities, automated batching controls and recordation do not apply. Use concrete batching and mixing methods and inspection facilities approved by the Materials Bureau. Use epoxy coated, bar or wire fabric reinforcement. Use concrete with a minimum compressive strength of 30 MPa at 28 days.

Dimensional Tolerances - Do not vary unit dimensions by more than 10 mm 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 Department, all units rejected by the Engineer.

Erection of Armor Units - Insure that a representative of the patent holder is available for at least the first day of installation. Install armor units according to the representative's instructions. Obtain the Engineer's approval before putting construction equipment stresses on the armor units.

If the Engineer suspects damage has occurred to an armor unit, provide a safe means for inspection. Replace, at no additional cost to the Department, all units rejected by the Engineer.

METHOD OF MEASUREMENT

Armor units will be measured by the number of units supplied and installed in accordance with the contract documents.

BASIS OF PAYMENT.

Include the cost of all labor, royalties, materials, installation equipment and installation supervision by the patent holder's representative in the unit price bid per armor unit.

ITEM 18605.2501 - PRECAST CONCRETE HEADWALLS FOR 4" LATERAL OUTLET PIPES

DESCRIPTION.

Furnish and install precast concrete headwalls at lateral outlet pipes where shown in the contract documents.

PRECAST HEADWALL.

Notify the Materials Bureau of the name and location of the precast headwall fabricator at least 30 days before the start of production. Supply precast headwalls meeting the requirements of §704-03, except as noted herein.

Materials - The requirements for concrete inspection facilities, automated batching controls and recordation do not apply. Use concrete batching and mixing methods and inspection facilities approved by the Materials Bureau.

Fabrication - Use the dimensions shown on page 2 of this specification. Proposed changes to these dimensions, other than minor changes approved by the Engineer, require submission of three complete sets of working drawings to the Engineer for review and approval.

Basis Of Acceptance - When headwalls are fabricated by a manufacturer whose name appears on the Department's Approved List, under Precast Concrete Drainage Units, acceptance will be based on a manufacturer's certification that the units shipped conform to specification requirements. Mark the following information on certified units with permanent waterproof paint:

- a) Name or trademark of manufacturer
- b) Date of manufacture
- c) Unit identification number

RODENT SCREEN.

Use screens of 2 or 3 mesh, 16 gauge or heavier, made of Type 304 stainless steel wire or carbon steel wire, hot dipped galvanized in accordance with §719-01.

CONSTRUCTION DETAILS.

Installation - Equip each headwall with a rodent screen of the dimensions shown on page 2 of this specification. Install headwalls flush with the finished slope and orient to allow the headwall apron to drain. Extend outlet pipes into the headwall fitting until flush with the installed rodent screen. Fill the opening between the pipe and the headwall with mortar meeting the requirements of §705-21, Mortar For Concrete Masonry.

METHOD OF MEASUREMENT.

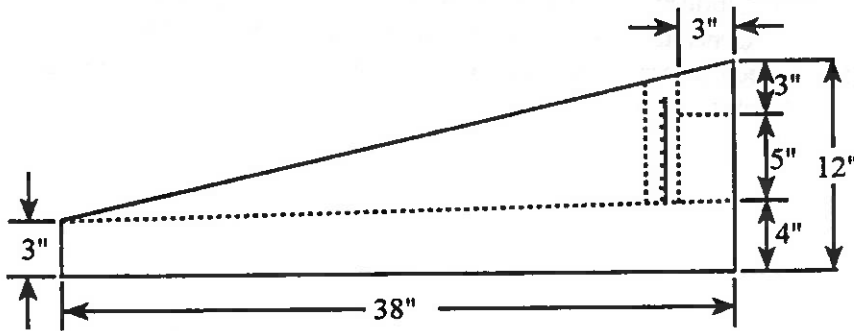
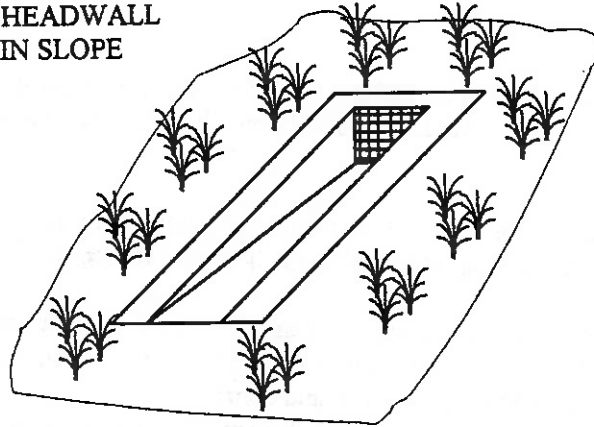
Headwalls will be measured by the number of units supplied and installed in accordance with the contract documents.

BASIS OF PAYMENT.

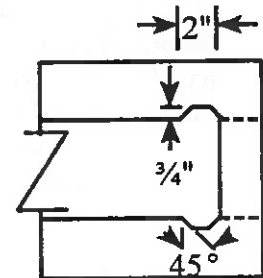
Include the cost of all labor, materials and equipment required to fabricate and install the headwalls in the unit price bid per headwall.

ITEM 18605.2501 - PRECAST CONCRETE HEADWALLS FOR 4" LATERAL OUTLET PIPES

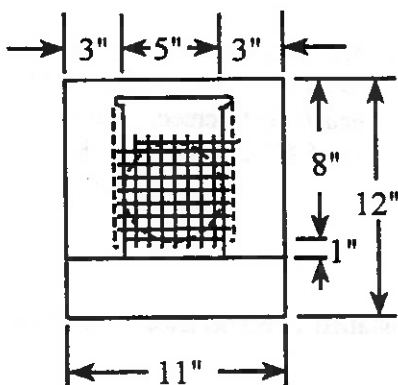
PRECAST CONCRETE
HEADWALL
IN SLOPE



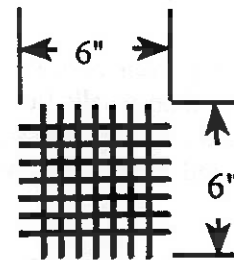
SIDE VIEW



TOP VIEW



FRONT VIEW



RODENT SCREEN
FRONT VIEW
Openings: $\frac{1}{4}$ " - $\frac{3}{8}$ " Square

PRECAST CONCRETE HEADWALL WITH REMOVABLE RODENT SCREEN
(Not To Scale)

ITEM 18605.2501 M - PRECAST CONCRETE HEADWALLS FOR 100 mm LATERAL OUTLET PIPES

DESCRIPTION.

Furnish and install precast concrete headwalls at lateral outlet pipes where shown in the contract documents.

PRECAST HEADWALL.

Notify the Materials Bureau of the name and location of the precast headwall fabricator at least 30 days before the start of production. Supply precast headwalls meeting the requirements of §704-03, except as noted herein.

Materials - The requirements for concrete inspection facilities, automated batching controls and recordation do not apply. Use concrete batching and mixing methods and inspection facilities approved by the Materials Bureau.

Fabrication - Use the dimensions shown on page 2 of this specification. Proposed changes to these dimensions, other than minor changes approved by the Engineer, require submission of three complete sets of working drawings to the Engineer for review and approval.

Basis Of Acceptance - When headwalls are fabricated by a manufacturer whose name appears on the Department's Approved List, under Precast Concrete Drainage Units, acceptance will be based on a manufacturer's certification that the units shipped conform to specification requirements. Mark the following information on certified units with permanent waterproof paint:

- a) Name or trademark of manufacturer
- b) Date of manufacture
- c) Unit identification number

RODENT SCREEN.

Use screens of 2 or 3 mesh, 16 gauge or heavier, made of Type 304 stainless steel wire or carbon steel wire, hot dipped galvanized in accordance with §719-01.

CONSTRUCTION DETAILS.

Installation - Equip each headwall with a rodent screen of the dimensions shown on page 2 of this specification. Install headwalls flush with the finished slope and orient to allow the headwall apron to drain. Extend outlet pipes into the headwall fitting until flush with the installed rodent screen. Fill the opening between the pipe and the headwall with mortar meeting the requirements of §705-21, Mortar For Concrete Masonry.

METHOD OF MEASUREMENT.

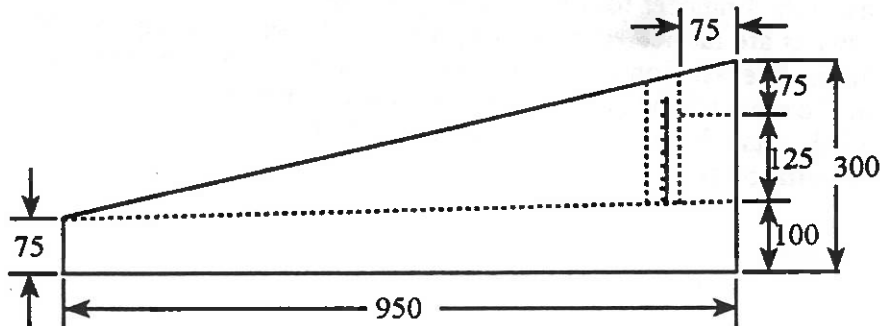
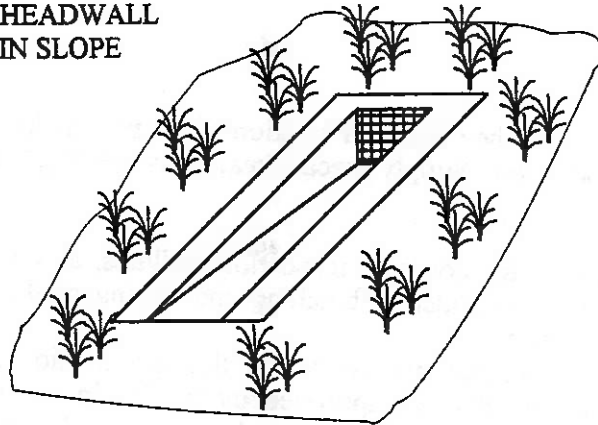
Headwalls will be measured by the number of units supplied and installed in accordance with the contract documents.

BASIS OF PAYMENT.

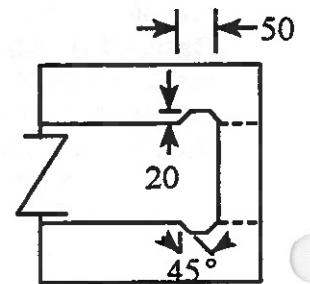
Include the cost of all labor, materials and equipment required to fabricate and install the headwalls in the unit price bid per headwall.

**ITEM 18605.2501 M - PRECAST CONCRETE HEADWALLS FOR 100 mm LATERAL OUTLET
PIPES**

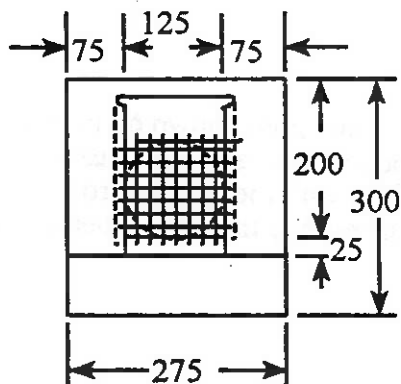
**PRECAST CONCRETE
HEADWALL
IN SLOPE**



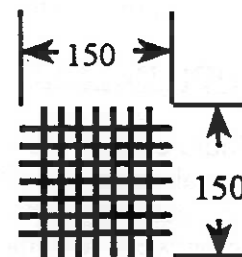
SIDE VIEW



TOP VIEW



FRONT VIEW



**RODENT SCREEN
FRONT VIEW
Openings: 6 - 10 Square**

PRECAST CONCRETE HEADWALL WITH REMOVABLE RODENT SCREEN
All Dimensions Are In Millimeters (Not To Scale)