

SECTION 627.

CONCRETE MEDIAN BARRIER

627.01. DESCRIPTION.

- PRECAST CONCRETE MEDIAN BARRIER

This work shall consist of furnishing and placing the precast concrete median barrier in its first functional location on the project site.

The Contractor may submit for approval, prior to manufacture, designs other than those detailed in the Plans. The only alternate and special design features that will be considered are changes that will influence the casting of a section, and attachments or holes to facilitate the handling and lifting of a section. Alternate designs must meet all of the test and performance requirements specified on the Plans or by the Specifications.

- DELIVERY AND RELOCATION OF CONCRETE MEDIAN BARRIER

This work consists of the delivery of portable concrete median barrier from a storage area to the project site, relocation of the barrier along with any new barrier purchased for the project, as needed, and delivery of all barrier to the storage area.

- CAST-IN-PLACE CONCRETE MEDIAN BARRIER (DESIGN 1,1A)

This work shall consist of furnishing and placing concrete and reinforcing steel for cast-in-place concrete median barrier as shown on the Plans and in accordance with these Specifications.

The Contractor may submit for approval designs other than those detailed on the Plans. Alternate designs must meet exterior dimensions, as well as all of the test and performance requirements specified on the plans or by the Specifications.

- MOVABLE CONCRETE MEDIAN BARRIER

This work shall consist of the construction, placement, maintenance, and all handling including realignment, resetting, removal, and transportation of movable concrete median barriers at the locations designated on the Plans or as required by the construction sequence for work zone protection. Movable concrete median barriers furnished by the Contractor shall be in accordance with the details shown on the Plans and applicable Specifications herein. Movable concrete median barriers to be furnished by the Department will be available at sites designated on the Plans.

627.02 . MATERIALS.

Materials for A-Precast concrete Median Barrier, C-Cast-in-Place Concrete Median Barrier, and D-Movable Concrete Median Barrier shall meet the requirements specified in the following Subsections of Section 700 - Materials:

Portland Cement Concrete, Class A	701
White Concrete	701
Reinforcing Steel	723

627.03. EQUIPMENT.

The transfer and transport vehicle for placing, resetting, and removing the Movable Concrete Median Barriers at the project site shall be furnished in accordance with Special Provisions.

627.04. CONSTRUCTION METHODS.

- (a) **Construction methods for Precast Concrete Median Barrier and Cast-in-Place Concrete Median Barrier.** Construction methods for Precast Concrete Median Barrier and Cast-in-Place Concrete Median Barrier are as follows:

Concrete. Handle, measure, batch, and mix concrete for the precast concrete median barriers in accordance with Subsection 414.04.

Forms. Forms for the precast members shall meet the requirements of Subsection 509.04(d).

Reinforcing Steel. Reinforcing steel construction shall meet the requirements of Section 511.

Placing Concrete. Place the concrete in accordance with Subsection 509.04(e).

Finishing. The finish on all exposed surfaces of the concrete median barrier shall be smooth and dense concrete. As soon as the forms are removed, fill all rough places, holes, and porous spots, and cut all bolts, wires, or other appliances used to hold the forms 1/4 inch (6 mm) below the surface. Fill the depression with cement mortar at once. All exposed surfaces of each unit shall have a concrete surface finish as provided under Subsection 509.04(g).

Curing. The precast units may be water cured in accordance with Subsection 509.04(f) by the Forms-w-place, Water Method, or the Steam Heat Method.

Handling of Units. Take care during storage, hoisting, and handling of the precast units to prevent cracking, side bow, excessive camber, or other damage.

NOTE: Units damaged by improper storing or handling shall be replaced by the Contractor at no additional cost to the Department. Minor chipping, spalling, and scars may be repaired if approved by the Engineer.

Erection. All surfaces on which the precast units are to be placed shall be finished to a true surface to give full and uniform bearing over the entire bearing area. In case such a uniform bearing is not obtained, the defect shall be corrected in a manner approved by the Engineer. Units shall be connected or joined as shown on the Plans and shall be horizontally and vertically aligned to present a uniform and pleasing appearance.

- (b) **Construction methods for Movable Concrete Median Barriers.** Prior to beginning casting of the Movable Concrete Median Barriers, advise the Engineer of the casting site and the date casting will begin.

The mixing, placement, finishing, and curing of concrete median barriers shall be in accordance with Section 627.

Before furnishing movable concrete median barriers that have been previously constructed, provide written certification that the barrier sections conform to the requirements specified herein.

NOTE: Barrier sections, including the required hinges and hinge pins, which are damaged or lost during the process of fabrication, curling, handling, or placement shall be repaired or replaced at the Contractor's expense.

Once the movable concrete median barriers are no longer required for protection of the work site or motoring public on the project, the barriers and all hardware become the property of the Department. Remove them to storage areas designated on the Plans. At the storage area, neatly stockpile the barrier sections, and store all hardware in sturdy containers marked for future identification.

627.05. METHOD OF MEASUREMENT.

The completed and accepted quantities for all *concrete median barrier* except *concrete median barrier design IA* will be measured by the linear foot (meter).

The completed and accepted quantities for all *concrete median barrier end sections* except *median barrier design IA* end sections and transitions will be measured by each end section provided.

The quantities which constitute completed and accepted *concrete median barrier design IA*, end sections, and transition sections will be measured for payment as provided under Section 509, Class A Concrete, or Class A Concrete (small structures) and Section 511, Reinforcing Steel, which shall include full compensation for all materials, falsework, labor, equipment and incidentals necessary to complete the work as specified.

When *precast concrete median barrier, portable type* is specified, the price bid shall include the purchase of the new barrier, the delivery of the new barrier to the project site and the installation of the new barrier to the project site and the installation of the new barrier in its first functional location—i.e., the first location where the barrier is used, not where it may have been stored temporarily. The only exception is when such storage is specified in the plans, or when the Engineer directs in writing that such storage is authorized. When precast concrete median barrier, portable type is installed in its first functional location, its status becomes the same as Department owned median barrier. Any subsequent payment for the new barrier will be made in accordance with *relocation of portable type precast concrete median barrier* or *deliver portable type precast concrete median barrier*.

When relocation of portable type precast concrete median barrier is specified, the price bid shall be paid when the barrier is moved from one functional location to another functional location on the project site (when required). The last payment for this item will be made when the barrier is moved to its last functional location.

The price bid for *deliver portable type precast concrete median barrier* shall be paid when all of the barrier remaining on the project, including new barrier purchased for the project, is loaded, delivered, and stored. This payment shall include the cost of loading all of the barrier at its last functional location, delivery of the barrier to the ODOT storage yard, unloading of the barrier at the ODOT storage yard and placement as directed by the ODOT yard manager.

Movable concrete median barriers will be measured for payment as follows:

The work performed and materials required to construct the *movable concrete median barriers*, transport them, and install the barriers at the initial locations shown on the plans will be measured for payment by the linear foot (meter) at the contract unit price for movable concrete median barrier.

The work performed in realignment and resetting of the barriers in a new location, as required by the construction sequence, will be measured for payment by the linear foot (meter) at the contract unit price for *movable concrete median barrier (realign/reset)*.

The work performed in moving movable concrete median barriers furnished by the Department from storage sites and installing the barriers in place on the project site—or the work performed in removing and transporting the barriers from the project site to a designated storage area—will be measured for payment by the linear foot (meter) at the contract unit price for *movable concrete median barrier (remove/install)*.

The work performed to move concrete median barriers within the project limits a distance which exceeds the capability of the transfer and transport equipment will be measured for payment by the meter at the contract unit price for *movable concrete median barrier (relocate)*.

The work performed to load, transfer, and transport the machinery and equipment to a project or other location so designated will be paid for at the contract unit price for *movable concrete median barrier (transfer and transport vehicle)* lump sum.

627.06. BASIS OF PAYMENT.

Concrete median barrier, measured as provided above, shall be paid for at the contract unit price as follows:

- (A) PRECAST CONCRETE MEDIAN BARRIER, TYPE I LINEAR FOOT (METER)
- (B) PRECAST END SECTION CONCRETE
MEDIAN BARRIER, TYPE I EACH
- (C) PRECAST CONCRETE MEDIAN BARRIER, TYPE II LINEAR FOOT (METER)
- (D) PRECAST END SECTION CONCRETE
MEDIAN BARRIER, TYPE II EACH
- (E) PRECAST CONCRETE MEDIAN BARRIER,
PORTABLE TYPE LINEAR FOOT (METER)
- (F) PRECAST END SECTION CONCRETE MEDIAN
BARRIER, PORTABLE TYPE EACH
- (G) RELOCATION OF PORTABLE TYPE PRECAST
CONCRETE MEDIAN BARRIER LINEAR FOOT (METER)
- (H) DELIVER PORTABLE TYPE PRECAST CONCRETE
MEDIAN BARRIER LINEAR FOOT (METER)
- (I) CONCRETE MEDIAN BARRIER DESIGN 1 LINEAR FOOT (METER)
- (J) MOVABLE CONCRETE MEDIAN BARRIER LINEAR FOOT (METER)
- (K) MOVABLE CONCRETE MEDIAN BARRIER
(REALIGN/RESET) LINEAR FOOT (METER)
- (L) MOVABLE CONCRETE MEDIAN BARRIER
(REMOVE/INSTALL) LINEAR FOOT (METER)
- (M) MOVABLE CONCRETE MEDIAN BARRIER
(RELOCATE) LINEAR FOOT (METER)
- (N) MOVABLE CONCRETE MEDIAN BARRIERS
(TRANSFER & TRANSPORT VEHICLE) LUMP SUM

Such payment shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

SECTION 629 MAILBOXES

629.01. DESCRIPTION.

- (a) **General.** The purpose of this Subsection is to specify the placement of mailboxes on public rights-of-way of the road system, with due regard for the safety of the traveling public and safe access for both the delivery and retrieval of items delivered by the United States Postal Service.

629.02. MATERIALS.

- (a) **Mailboxes.** Mailboxes shall be of light metal construction or formed thermoplastic conforming to the requirements of the United States Postal Service (USPS). Requirements covering dimensions, nomenclature, and required marking is contained in "A Guide for Erecting Mailboxes on Highways (Appendix C)," 1984, AASHTO. Newspaper receiver tubes or boxes shall be of the same type materials, but do not need to adhere to any other requirements of the USPS. Dimensions for the newspaper receiver tube or box shall be the minimum necessary to receive the largest item normally delivered to the box. The property owner is responsible for providing newspaper tubes and placing names on mailboxes.
- (b) **Post Systems.**
- (1) **Wood Post.** The support post system shall consist of a single 4 inch x 4 inch (100mm x 100mm) wood post, treated or untreated, durable to the elements and soil borne attack. The post dimensions are nominal, and the post may be furnished smooth and square on four sides or rough sawn. The possible splintering surfaces shall not present a hazard to the delivery person or the owner. The post may be finished natural, oiled, or painted. Alternate posts may be a nominal 4 1/2 inch (114 mm) diameter wood post, treated or untreated, durable to the elements and soil borne attack. The post must be furnished with bark removed, and may be natural, oiled, or painted in finish.
 - (2) **Metal Posts.** A metal post system may be used provided the steel pipe posts, cold rolled shape, or hot rolled member has an equal or less strength in bending as a nominal 2 inch (50 mm) diameter standard weight steel pipe (Schedule 40). The test criteria which must be met is Section Modulus (Schedule 40-2 inch (50 mm) nominal pipe) multiplied by 36000 psi (250MPa) (yield strength of Schedule 40 pipe) must be greater than or equal to section modulus of new post system multiplied by the tested yield strength. Example: The product (0.561 inches cubed (9.14 centimeter cubed) (Section Modulus of Schedule 40-2 inch (50 mm) Pipe) x 36000 psi (250MPa) (Yield Strength of Schedule 40-50 mm Pipe) shall be greater than or equal to the product (Section Modulus of New Shape) x (Tested Yield Strength of New Shape). Aluminum tubing (round or square) or aluminized steel tubing (round or square) may also be used if the section affords sufficient strength to support the box array and withstand lateral loads caused by mail and paper delivery and/or retrieval.