1. DESCRIPTION

Furnish and install bearings for the support of bridge superstructure and substructure members. Bridge bearings under this specification consist of the 2 following categories and subcategories:

1.1. Elastomeric Bridge Bearings:
   - **Plain Elastomeric Bearings.** Consisting of elastomer only.
   - **Laminated Elastomeric Bearings.** Consisting of alternating individual layers of elastomer and steel laminates, with or without a steel top plate and special components (steel guide bars and bottom plate).
   - **Sliding Elastomeric Bearings.** Consisting of a steel top (sole) plate with a stainless steel facing (upper component) bearing on a lower component. The lower component consists of a layer of polytetrafluoroethylene (PTFE) recessed and bonded to a steel plate that is vulcanized to the top of a laminated elastomeric bearing pad with or without special components (steel guide bars and bottom plate).

Plain and laminated elastomeric bridge bearings are designated by hardness (durometer), size, and configuration and, in the case of laminated bearings, by the thickness of the individual layers of elastomer and the size and position of any steel top plates.

1.2. High Load Multi-Rotational (HLMR) Bearings:
   - **Disc Bearings.** Consisting of a polyether urethane disc contained between upper and lower steel bearing plates. The bearing has a shear resisting mechanism to prevent relative horizontal movement of the bearing plates and transmit horizontal loads.
   - **Pot Bearings.** Consisting of a plain elastomeric disc confined by a shallow steel cylinder (pot) and a steel piston which engages the cylinder sufficiently to prevent their relative horizontal movement.

Provision for sliding movements (if required) uses a separate steel top plate with stainless steel facing (upper component) bearing on a lower component, and a lower component with a layer of PTFE bonded to the top of the upper steel bearing plate of the HLMR assembly. If required on the plans, restriction of lateral movement is provided by guide bars integrated with the steel top plate and interface components of the same stainless steel facing and PTFE layer.

HLMR bridge bearings are designated by configuration (fixed, multi-direction expansion, or guided expansion) and the vertical service reaction requirements. Fixed configurations allow rotation about the horizontal axis and prevent horizontal movement in all directions. Multi-direction expansion configurations allow rotation about the horizontal axis and horizontal movement in all directions. Guided expansion configurations allow rotation about the horizontal axis and horizontal movement in one direction as indicated on the plans, while guide bars and keyways restrict horizontal movement in the orthogonal direction. Provide either disc bearings or pot bearings unless a disc or pot bearing is specifically required on the plans. Provide a fabricator-designed HLMR bearing meeting the performance and dimensional criteria described on the plans and Section 434.2.3., “HLMR Bearings.”

Bearings consisting of hinged steel bolster and rocker shoes, steel flat, cylindrical, or spherical bearings, and single/multiple steel roller bearings are not covered by this Item and must conform to Item 442, “Metal for Structures,” unless shown otherwise on the plans.
2. MATERIALS

2.1. Plain and Laminated Elastomeric Bearings. Furnish bearings produced by a manufacturer from elastomer formulations approved by the Department. The Department’s MPL has a list of approved bridge bearing elastomer formulations.

2.1.1. Elastomer. Provide elastomer for bearings formulated from previously unvulcanized 100% virgin polychloroprene rubber polymers meeting the physical properties, heat resistance, and compression set requirements of AASHTO M 251, Table X1.1, unless otherwise shown on the plans. Do not provide bearings containing previously vulcanized synthetic rubber or other synthetic rubber-like polymers. Perform material tests on the finished product in accordance with the applicable test methods. Do not use standard laboratory test slabs for this purpose. Prepare test specimens from the finished product in accordance with ASTM D3183.

Obtain approval for each elastomer formulation before use on Department projects. Submit certified test results to the Construction Division to prequalify and obtain approval of a particular formulation. Show actual test values obtained and the required values for the physical properties, heat resistance, and compression set of the elastomer when tested for compliance with the minimum requirements of AASHTO M 251, Table X1.1.

Forward samples (freight prepaid) to the Construction Division, Materials and Pavements Section, or their contracted testing laboratory when directed.

Submit only elastomer of the type or types to be supplied. Submit prequalification samples consisting of 2 finished bearings typical of the formulation and workmanship for Department projects. Submit 2 samples of each type when laminated and plain bearings are required. Laminated sample bearings may represent both plain bearings and laminated bearings for an elastomer formulation.

Plain sample bearings must measure 9 in. × 19 in. × 1 in. Laminated sample bearings must measure 9 in. × 14 in. × 1-1/2 in. with the following number of steel laminates:

- 50 durometer—3 steel laminates,
- 60 durometer—2 steel laminates, and
- 70 durometer—2 steel laminates.

Adhesion testing of laminated prequalification samples will be performed by the Department in accordance with Tex-601-J, Part I—Adhesion Test Method 1. Bond failure between the elastomer and steel laminates must occur as stated in this test method to constitute a passing test result. Presence of chlorinated compounds (neoprene) in the elastomer will be verified by the Department in accordance with Tex-601-J, Part IV—Chlorinated Compound Test Method.

Costs associated with testing elastomer formulations failing to conform to the requirements of this Item are borne by the bearings manufacturer. This cost will be assessed at the rate established by Construction Division at the time of testing.

Certify that the submitted samples are of the same basic elastomer formulation and of equivalent cure as the finished products to be furnished on Department projects.

Complete prequalification testing will be performed for each formulation at least once every 2 yr. and when necessary.

2.1.2. Steel Laminates. Provide steel laminates, for laminated bearings, of commercial grade steel strip or sheet with a thickness of 0.105 ±0.015 in.

2.1.3. Steel Top Plates. Provide steel top plates, when required for laminated bearings, in accordance with the plans.
2.1.4. **Special Components.** Provide steel guide bars and bottom plates, when required for laminated bearings, in accordance with the plans.

2.1.5. **Coatings.** Provide protective coatings for steel components materials in accordance with Item 445, “Galvanizing,” or DMS-8104, “Paint, Shop Application for Steel Bridge Members,” unless indicated otherwise on the plans.

2.2. **Sliding Elastomeric Bearings.**

2.2.1. **Lower Component.**

2.2.1.1. **PTFE.** Furnish PTFE materials that are pure virgin polytetrafluoroethylene fluorocarbon resin, unfilled. The finished materials must exhibit the physical properties shown in Table 1.

2.2.1.2. **Laminated Elastomeric Bearing Pad and Steel Plate.** Furnish laminated elastomeric bearing pads in accordance with Sections 434.2.1., “Plain and Laminated Elastomeric Bearings,” and 434.3.1., “Plain and Laminated Elastomeric Bearings.” Provide steel plates attached to laminated elastomeric bearing pads in accordance with the plans.

<table>
<thead>
<tr>
<th>Physical Property</th>
<th>Test Method</th>
<th>Value (Unfilled)</th>
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<tbody>
<tr>
<td>Tensile strength, psi</td>
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<td>2,800 Min</td>
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<td>Elongation, %</td>
<td>ASTM D4894</td>
<td>200 Min</td>
</tr>
<tr>
<td>Melting point</td>
<td>ASTM D4894</td>
<td>622 ±4°F</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>ASTM D792</td>
<td>2.16 ±0.03</td>
</tr>
</tbody>
</table>

2.2.2. **Upper Component.**

2.2.2.1. **Steel Top (Sole) Plates.** Provide steel top (sole) plates in accordance with the plans, and finished to ANSI #500 or better on the surface interfacing with the stainless steel sheet.

2.2.2.2. **Stainless Steel.** Provide Type 304 stainless steel sheet in accordance with ASTM A240. The thickness must be at least 1/16 in. unless otherwise shown on the plans.

2.2.3. **Special Components.** Provide steel guide bars and bottom plates, when required for sliding elastomeric bearings, in accordance with the plans.

2.2.4. **Coatings.** Provide coating materials as required in accordance with Item 445, “Galvanizing,” and DMS-8104, “Paint, Shop Application for Structural Steel,” unless indicated otherwise on the plans.

2.3. **HLMR Bearings.**

2.3.1. **Structural Design.** Provide a fabricator-developed design for the HLMR (disc or pot) bearings, meeting the service and factored vertical load capacity, service and factored horizontal load capacity, rotational capacity, and translation capacity requirements indicated on the plans and augmented by the requirements of this Item. Provide a bearing capable of transmitting 15% of the service vertical force as a factored horizontal load if no horizontal load capacity is provided on the plans. Provide a design that uses sole plate geometry or a grout interface to accommodate the longitudinal and transverse aspects of the bridge grade, and does not require the bearing to accommodate this in rotation unless indicated otherwise on the plans. If the bridge element supported by the bearing is cambered for dead load to be applied after the bearing is positioned, the dead load design rotation of the elastomer may be neglected provided the fabricator-developed design has checked the bearing for this temporary condition to ensure no damage occurs and there is no metal-to-metal contact. Provide a design that meets the current versions of the AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications. Assume the plan rotations do not include requirements for uncertainties and construction tolerance stipulated in the AASHTO Specifications unless indicated on the plans.
2.3.2. **Maintenance Functionality.** Provide a fabricator-developed design that allows future removal with a maximum vertical jacking height of 1/4 in. after the load is removed. Provide a design with minimum 4-in. distance between the bottom of masonry plate and top of sole plate.

2.3.3. **Elements of HLMR Bearings.**

2.3.3.1. **Lower Component.**

2.3.3.1.1. **Polyether Urethane for Disc Bearings.** Furnish polyether urethane discs conforming to the material requirements of the AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications, and the load and rotation demand indicated in Section 434.2.3.1., “Structural Design.”

2.3.3.1.2. **Elastomeric Rotational Element for Pot Bearings.** Provide elastomer conforming to the material requirements of the AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications, and the load and rotation demand indicated in Section 434.2.3.1., “Structural Design,” with the exception that usage of virgin natural polyisoprene (natural rubber) is not allowed.

2.3.3.1.3. **PTFE.** For expansion HLMR bearings, furnish PTFE materials that are pure virgin polytetrafluoroethylene fluorocarbon resin, unfilled. The finished materials must exhibit the physical properties shown in Table 1. Provide PTFE that is bonded to the top steel bearing plate of the HLMR assembly in accordance with AASHTO LRFD Bridge Construction Specifications.

2.3.3.2. **Upper Component.**

2.3.3.2.1. **Steel Top Plates.** Provide steel top plates in accordance with the AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications. Provide an ANSI #500 or better finish on the surface interfacing with the stainless steel sheet for expansion bearings. At the fabricator’s option, the steel top plate may serve the function of the sole plate between the supported structure and the HLMR bearing assembly provided it matches geometric bevel requirements, plan dimensions, and minimum thickness for the sole plate depicted on the plans, while maintaining the performance requirements and avoiding damage due to installation. Otherwise, provide connectivity between the top plate and the sole plate or grouted interface as indicated on the plans. Coordinate any necessary adjustments to the sole plate geometry, connection method, or grouted interface with the Engineer to ensure compatibility with the structural design, before ordering any materials. Provide bolted connections for connection to steel trapezoidal box girder superstructures.

2.3.3.2.2. **Stainless Steel.** Provide Type 304 stainless steel sheet in accordance with ASTM A240. The thickness must be at least 1/16 in. unless otherwise shown on the plans.

2.3.3.3. **Miscellaneous Components.**

2.3.3.3.1. **Lateral Guides.** Provide guide bars integrated with the steel top plate and interface components of stainless steel facing and PTFE for guided HLMR expansion bearings. Submit alternate interface components to stainless steel and PTFE for review and approval. Provide details indicating guide bar, stainless steel, and PTFE attachment and design to sustain the lateral loads specified on the plans while maintaining unimpeded expansion capability.

2.3.3.3.2. **Piston.** Provide in accordance with the AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications.

2.3.3.3.3. **Pot.** Provide in accordance with the AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications.

2.3.3.4. **Sealing Rings.** Provide in accordance with the AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications.
2.3.3.5. **Sealants.** Provide in accordance with the AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications.

2.3.3.4. **Supporting Masonry Plate and Anchor Rods.** Coordinate any necessary adjustments to masonry plate geometry, connection method, or grout interface with the Engineer to ensure compatibility with the structure design before ordering any materials. Provide medium strength, mild steel or better type anchor rods in accordance with Item 449, “Anchor Bolts,” including nuts and washers, unless indicated otherwise on the plans.

2.3.3.5. **Coatings.** Provide coating materials as required in accordance with Item 445, “Galvanizing,” or DMS-8104, “Paint, Shop Application for Steel Bridge Members,” unless indicated otherwise on the plans. Submit fabricator-preferred alternative coatings to the Engineer for review and approval.

3. **CONSTRUCTION**

3.1. **Plain and Laminated Elastomeric Bearings.** Electronically submit shop drawings for the complete assembly before fabrication of laminated elastomeric bearings with or without steel top plates or special components in accordance with the plans and Item 441, “Steel Structures.” Provide a bearing layout with the shop drawings.

Mold together components of a laminated bearing to form an integral unit free of voids or separations in the elastomer or between the elastomer and the steel laminates or plates, unless otherwise shown on the plans. Provide well-vulcanized elastomer between the laminates or plates and on the outer surfaces of the bearing that is uniform and integral and resists separation by mechanical means into separate, definite, well-defined elastomeric layers. Evidence of this layered construction, either at the outer surfaces or within the bearing, will be cause for rejection. Repair of damaged elastomer on sides of laminated bearings is not allowed for product acceptance. Repair of damaged elastomer on top or bottom surfaces of laminated bearings is allowed when approved.

Cover edges of steel laminates with 1/8 in. to 1/4 in. of elastomer except exposure of the laminates will be permitted at approved laminate restraining devices and around holes entirely enclosed in the finished structure. Position laminates within 1/8 in. of plan location.

Plain bearings may be molded individually, cut from previously molded strips or slabs molded to the full thickness of the finished bearings, or extruded and cut to length. The finish of cut surfaces must be ANSI 250, or smoother. The finished bearings must have no voids or separations detectable either at the bearing surfaces or within the bearing. Plain elastomeric bearings must be well vulcanized, uniform, and integral units of such construction that the bearing is incapable of being separated by any mechanical means into separate, definite, well-defined elastomeric layers. Evidence of layered construction either at the outer surfaces or within the bearing will be cause for rejection.

The permissible variation from the dimensions and configuration shown on the plans for both plain and laminated bearings will be as listed in AASHTO M 251, Table 2. Flash tolerance, finish, and appearance must meet the requirements of the latest edition of the Rubber Handbook published by the Rubber Manufacturers Association, Inc., RMA F3 and T.063 for molded bearings and RMA F2 for extruded bearings.

Perform required welding in accordance with Item 441, “Steel Structures.” Manufacture guide bars, when required, so adjacent top and bottom bar surfaces are parallel to within 1/16 in. in the assembled position. The tolerance for diameter of anchor bolt holes is +1/8 in., −0. The maximum deviation for flatness of steel plates is 1/16 in. in any 24 in. or as shown on the plans.

3.1.1. **Markings.** Mark the bearing type on the surface of each bearing as shown on the plans. The marking must remain legible until placement in the structure. Permanently mark, in addition, laminated bearings with:

- manufacturer’s name or trademark,
- lot number,
- date of manufacture (month-year), and
direction of slope.

Place this permanent marking on a face which is visible after erection of the bridge unless otherwise shown on the plans.

3.1.2. **Testing and Acceptance.** The sampling and testing of laminated bearing production, after prequalification approval, will be as follows:

3.1.2.1. **Laminated Bearings.** Subject each laminated bearing to a compression of 2,250 psi or a stress approved by the Engineer. Provide calibrated equipment per ASTM E4 for this compression testing. Each bearing will be acceptable if there is no visible evidence of bond failure or other damage and if the finished bearing meets other pertinent portions of this Item. Samples may be taken if the quality of production becomes questionable.

3.1.3. **Documentation.** Furnish certified laboratory test results on the elastomer properties of each batch or lot of compound for both plain and laminated bearings. Provide copies of certified mill test reports for laminated bearing steel top plates and any required steel special components.

3.1.4. **Storage.** Protect plain and laminated bearings from sunlight until placement in the structure.

3.1.5. **Field Methods.** Provide concrete surfaces for bearing areas under plain and laminated elastomeric bearings in accordance with Section 420.4.9., "Treatment and Finishing of Horizontal Surfaces."

Do not damage the elastomer when welding near bearings.

Damaged bearings will be subject to rejection and require replacement as directed.

3.2. **Sliding Elastomeric Bearings.** Electronically submit shop drawings for the complete assembly before fabrication of sliding elastomeric bearings in accordance with the plans and Item 441, “Steel Structures.” Provide a bearing layout with the shop drawings.

Finish the steel top (sole) plate surface, interfacing with the stainless steel sheet, per Section 434.2.2.2.1., “Steel Top (Sole) Plates.” Provide this finished surface flat to a tolerance of 1/32 in. Provide the remaining surface, outside the stainless steel sheet interface, flat to a tolerance of 1/16 in. in any 24 in.

Attach the stainless steel sheet to the steel top (sole) plate by continuous fillet-welding around the edges with an approved welding electrode. Do not extend the weld above the sliding surface. Protect the sliding surface from weld spatter. Polish the stainless steel sheet to a bright mirror finish less than 20 micro-in. rms, and solvent-clean to remove traces of polishing compound after attachment to the steel plate.

Fabricate the laminated elastomeric bearing pads according to Section 434.3.1., “Plain and Laminated Elastomeric Bearings.” Vulcanize the laminated elastomeric bearing pad to the PTFE-faced steel plate. Machine the steel plate recessed surface flat to a tolerance of 1/32 in. and within 1/32 in. of required depth. Bond the PTFE material to the steel plate recessed surface with an approved adhesive. Fit the PTFE material into the recessed surface with not more than 1/32-in. gaps around the perimeter.

Perform required welding in accordance with Item 441, “Steel Structures.” Manufacture guide bars when required so that adjacent top and bottom bar surfaces are parallel to within 1/16 in. in the assembled position. The tolerance for diameter of anchor bolt holes is +1/8 in., -0 in.

3.2.1. **Markings.** Mark the bearing type on the surface of each sliding elastomeric bearing. The marking must remain legible until placement in the structure. Permanently mark the laminated elastomeric bearing pad with the information specified in Section 434.3.1.1., “Markings.”

3.2.2. **Testing and Acceptance.** Test a minimum of 10% of the sliding elastomeric bearing assemblies to a compressive strength of 2,250 psi or a stress approved by the Engineer. Provide calibrated equipment per
ASTM E4 for this compression testing. No tested sliding elastomeric bearing may show visible damage to the PTFE or stainless steel surfaces nor evidence of bond failure between the:
- PTFE-faced steel plate and laminated elastomeric bearing pad,
- steel laminates and elastomer within the laminated elastomeric bearing pad, and
- steel plate and PTFE.

Perform check tests if necessary for the steel, laminated elastomeric bearing pads, or PTFE material to verify the properties required under Section 434.2.2., “Sliding Elastomeric Bearings.”

Bearings represented by test specimens passing the requirements of this Item will be approved for use in the structure subject to on-site inspection by the Engineer for visible defects.

3.2.2.1. **Lower Component.** Manufacture 1 additional bearing lower component per project for testing purposes. Notify the Construction Division, which will sample a bearing lower component at random from the lot, after bearings have been manufactured for a project. Forward selected samples (freight prepaid) to the Construction Division, or to their contracted testing laboratory when directed. Lower components will be tested to the following:
- **Tex-601-J, Part II—Adhesion Test Method 2.** Adhesion between the PTFE material and steel plate must meet a minimum 20 lb. per inch.
- **Tex-601-J, Part III—Adhesion Test Method 3.** Bond failure between the PTFE-faced steel plate and the laminated elastomeric bearing pad must occur as stated in this test method to constitute a passing test result.

Costs associated with testing sliding elastomeric bearing lower component project samples failing to conform to these requirements are borne by the bearings manufacturer. This cost will be assessed at the rate established by Construction Division at the time of testing.

3.2.2.2. **Documentation.** Furnish copies of certified mill test reports for the steel top (sole) plate, stainless steel, PTFE-faced steel plate, and any required steel special components. Provide a manufacturer’s certification that the PTFE material meets the requirements of this Item. Furnish certified laboratory test results on the elastomer properties of each batch or lot of compound for laminated elastomeric bearing pads.

3.2.3. **Storage.** Store sliding elastomeric bearings horizontally in a dry, sheltered area. Provide moisture and dust-resistant wrapping maintained in good condition until installation. Lift bearings only from the undersides. Protect bearings from damage, dirt, oil, grease, and other foreign substances.

3.2.4. **Field Methods.** Provide concrete surfaces for bearing areas under sliding elastomeric bearings in accordance with Section 420.4.9., “Treatment and Finishing of Horizontal Surfaces.”

Refer to the plans for temperature setting corrections for all bridges and bearing alignment relative to a chord for curved bridges. Perform such adjustments as directed if the plans do not address these requirements.

Exercise care in any field-welding required for the installation of a sliding elastomeric bearing to prevent damage to the elastomer, PTFE, or stainless steel surface. Repair damage to protective coating on the bearings and apply the final appearance coat in accordance with Item 446, “Field Cleaning and Painting Steel.”

Damaged bearings will be subject to rejection and require replacement as directed.

3.3. **HLMR Bearings.** Electronically submit shop drawings for the complete assembly, before fabrication of HLMR bearings, in accordance with the plans. Provide a bearing layout with the shop drawings including geometric placement on substructure. Provide design calculations sealed by a licensed professional engineer.
3.3.1. **Markings.** Provide a permanent identification mark indicating each bearing’s position in the structure and a direction arrow oriented in the forward station direction. Ensure the primary identification mark or a second such mark is provided at a visible location on the bearing after superstructure construction.

3.3.2. **Testing and Acceptance.** Coordinate arrangements for sampling and testing with the Construction Division before manufacturing all or a significant number of bearings for the project. Coordinate with the Construction Division, the number and type of tests that must be observed by a designated Construction Division representative. Perform testing in accordance with Section 18, “Bearing Devices,” of the current AASHTO LRFD Bridge Construction Specifications. Use prequalification for certain tests only if approved by the Construction Division.

Disassemble bearings for visual inspection after testing. Replace or repair any bearings that reveal malfunction such as lift-off, galling between components, excessive deflection, yielding of steel, wrinkling of stainless steel, and flow or bond failure of PTFE. Perform testing to validate performance of replaced or repaired bearings as directed.

Costs associated with testing project samples failing to conform to these requirements are borne by the bearings manufacturer. This cost will be assessed at the rate established by Construction Division at the time of testing.

3.3.3. **Storage.** Store HLMR bearings horizontally in a dry, sheltered area. Provide moisture and dust-resistant wrapping maintained in good condition until installation. Lift bearings only from the undersides. Protect bearings from damage, dirt, oil, grease, and other foreign substances.

3.3.4. **Field Methods.** Provide concrete surfaces for bearing areas under HLMR bearings in accordance with Section 420.4.9., “Treatment and Finishing of Horizontal Surfaces,” unless indicated otherwise on the plans or the HLMR bearing shop drawings.

Do not disassemble bearings unless otherwise approved by the Engineer with the guidance of the bearing fabricator. Clean any contaminated sliding surfaces as directed by the fabricator.

Place HLMR bearings on preformed fabric pads as indicated in Section 441.3.11.6., “Bearing and Anchorage Devices,” unless indicated otherwise on the plans or the shop drawings. Refer to the plans for temperature setting corrections for all bridges and bearing alignment relative to a chord for curved bridges. Perform such adjustments as directed if the plans do not address these requirements.

Exercise care in any field-welding required for the installation of an HLMR bearing to prevent damage to the elastomer, disc element, PTFE, or stainless steel surface. Perform repair of damage to the prime coat on the bearings and apply the final appearance coat in accordance with Item 446, “Field Cleaning and Painting Steel.”

Damaged bearings will be subject to rejection and require replacement as directed.

### 4. MEASUREMENT

4.1. **Plain and Laminated Elastomeric Bearings.** When plain and laminated elastomeric bearings are specified on the plans to be a pay item, measurement will be by each bearing.

4.2. **Sliding Elastomeric Bearings.** Sliding elastomeric bearings will be measured by each bearing.

4.3. **HLMR Bearings.** HLMR bearings will be measured by each bearing in a specified load range.
5. **PAYMENT**

5.1. **Plain and Laminated Elastomeric Bearings.** Plain and laminated elastomeric bearings used with precast prestressed concrete or rolled steel members will not be paid for directly but will be subsidiary to the pertinent Items.

For plain and laminated elastomeric bearings used with post-tensioned concrete superstructures, and with steel girders when specified as a pay item, the work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “Elastomeric Bearing” of the type specified. This price is full compensation for materials, including anchor bolts, top plates, steel special components; installation; and tools, equipment, labor, and incidentals.

5.2. **Sliding Elastomeric Bearings.** The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “Sliding Elastomeric Bearing” of the type specified. This price is full compensation for the stainless steel faced top (sole) plate, the PTFE-faced steel plate vulcanized to the top of a laminated elastomeric bearing pad, the steel special components, the anchor bolts required to connect the bearing between superstructure and substructure; installation; and tools, equipment, labor, and incidentals.

5.3. **HLMR Bearings.** The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “HLMR Bearing” of the type specified. This price is full compensation for the stainless steel faced top (sole) plate, the PTFE-faced steel plate attached to the top bearing plate, the polyether urethane disc or elastomer layer, lateral guide components, shear restriction devices or outer cylinder pot, pot bearing seals, the anchor bolts required to connect the bearing to the supporting structure; installation; and tools, equipment, labor, and incidentals.