

MIL-T-12173C(ME)

26 October 1984
SUPERSEDING
MIL-T-12173B(ME)
11 March 1974

MILITARY SPECIFICATION

TRAVELER, BICYCLE

This specification is approved for use by the Belvoir Research and Development Center, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers a bicycle traveler used as a component of a trail ferry in military stream-crossing operations.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research and Development Center, ATTN: STRBE-DS, Fort Belvoir, VA 22060-5606 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 5420

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SPECIFICATIONS

FEDERAL

- | | |
|-----------|--|
| FF-B-575 | - Bolts, Hexagon and Square. |
| FF-N-836 | - Nut; Square, Hexagon, Cap, Slotted, Castle, Knurled, Welding and Single Ball Seat. |
| FF-P-386 | - Pins, Cotter (Split). |
| QQ-S-781 | - Strapping, Steel and Seals. |
| RR-C-271 | - Chains and Attachments, Welded and Weldless. |
| RR-W-410 | - Wire Rope and Strand. |
| GGG-B-490 | - Blocks, Tackle (Manila and Nylon Rope). |
| PPP-B-601 | - Boxes, Wood, Cleated-Plywood. |
| PPP-B-621 | - Boxes, Wood, Nailed and Lock-Corner. |
| PPP-B-640 | - Boxes, Fiberboard, Corrugated, Triple-Wall. |

MILITARY

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| MIL-P-116 | - Preservation, Methods of. |
| MIL-T-704 | - Treatment and Painting of Materiel. |
| MIL-G-20241 | - Gasket Material, Wool Felt, Impregnated, Adhesive, Pressure-Sensitive. |
| MIL-S-81733 | - Sealing and Coating Compound, Corrosion Inhibitive. |

STANDARDS

MILITARY

- | | |
|-------------|--|
| MIL-STD-105 | - Sampling Procedures and Tables for Inspection by Attributes. |
| MIL-STD-129 | - Marking for Shipment and Storage. |
| MIL-STD-889 | - Dissimilar Metals. |

2.1.1 Government drawings. The following Government drawings form a part of this specification to the extent specified herein.

DRAWING

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- | | |
|--------------|----------------------|
| TA13220E9170 | - Traveler, Bicycle. |
|--------------|----------------------|

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(Copies of specifications, standards and drawings required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)

ANSI/ASME - Boiler and Pressure Vessel Code, Section IX, Welding Qualification.

ANSI/AWS - A5.1 - Mild Steel Covered Arc-Welding Electrodes.

ANSI/AWS - A5.18 - Mild Steel Electrodes for Gas Metal-Arc Welding.

ANSI/AWS - D1.1 - Structural Welding Code.

(Applications for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A36 - Structural Steel.

A120 - Black and Hot-Dipped Zinc Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses.

A519 - Seamless Carbon and Alloy Steel Mechanical Tubing.

B438 - Copper-Base Sintered Bearings (Oil Impregnated).

D3951 - Standard Practice for Commercial Packaging.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

AMERICAN WELDING SOCIETY (AWS)

B3.0 - Standard Qualification Procedure

(Application for copies should be addressed to the American Welding Society, 2501 Northwest Seventh Street, Miami, FL 33125.)

(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

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2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Description. The bicycle traveler shall be as shown on top assembly TA13220E9170 and as specified herein.

3.1.1 Drawings. The drawings forming a part of this specification are end product drawings. No deviation from the prescribed dimensions or tolerances is permissible without prior approval of the contracting officer. Where tolerances could cumulatively result in incorrect fits, the contractor shall provide tolerances within those prescribed on the drawings to insure correct fit, assembly, and operation of the bicycle traveler. Any data (e.g. shop drawings, layouts, flow sheets, processing procedures, etc.) prepared by the contractor or obtained from a vendor to support fabrication and manufacture of the production item shall be made available, upon request, for inspection by the contracting officer or the designated representative.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 4.3 and 6.3).

3.3 Material. Material shall be as specified herein and as shown on the drawing. Materials not specified shall be selected by the contractor and shall be subject to all provisions of this specification.

3.3.1 Material deterioration and control. The bicycle traveler shall be fabricated from compatible materials, inherently corrosion and deterioration resistant or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable storage and operating environment to which the item may be exposed.

3.3.1.1 Dissimilar metals. Dissimilar metals, as defined in MIL-STD-889, shall be electrically insulated from one another to minimize or prevent galvanic corrosion. Insulation may be provided by an insulating barrier such as a corrosion inhibiting sealant conforming to MIL-S-81733 or chromate tape conforming to MIL-G-20241. Protection against any galvanic corrosion could also be obtained by exclusion of the electrolyte if feasible.

3.3.1.2 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with components and sub-components, and shall make information available, upon request, to the contracting officer or designated representative.

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3.3.2 Recovered materials. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces and parts incorporated in the bicycle traveler may be newly fabricated from recovered materials to the maximum extent practicable, provided the bicycle traveler produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the bicycle traveler.

3.3.3 Structural steel. Structural steel shall conform to ASTM A36.

3.4 Chain. Chain shall conform to RR-C-271, type I, grade C, class 5, style 2, 0.105 or 7/64 inch diameter.

3.5 Steel pipe. Steel pipe shall conform to ASTM A120, black, standard weight, except that the ends shall not be threaded and the hydrostatic test will not be required.

3.6 Steel tubing. Steel tubing shall conform to ASTM A519, MT 1020 condition HF, round shape.

3.7 Sheaves. Sheaves shall be cast steel of the following chemical composition:

<u>Carbon</u> <u>range</u>	<u>Manganese</u> <u>range</u>	<u>Phosphorous</u> <u>maximum</u>	<u>Sulphur</u> <u>maximum</u>
<u>Percent</u>	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
0.43-0.50	0.60-0.90	0.040	0.050

The rope groove shall be finished and flame hardened to a depth of 0.050 to 0.075 inch, Rockwell hardness of C45 to C55. The sheaves shall be equipped with oil-impregnated flange bearings conforming to ASTM B438, grade 1, type II.

3.8 Snatch blocks. Snatch blocks shall conform to GGG-B-490, type III, galvanized sheave to a G-90 coating description for 1-inch rope, swivel eye fitting to take 7/8-inch diameter bolt, except that the center pin shall be a button-head type held in place by a cotter pin.

3.9 Cotter pins. Cotter pins shall conform to FF-P-386, type B, class 3.

3.10 Combination clamp and thimble. The combination clamp and thimble shall be high-strength steel casting with corrosion-resisting coating such as G90 hot dipped zinc. The clamp and thimble shall be made of two identical sections, each section being made of one-half of the clamp and one-half of the thimble. The sections shall be secured by two 1/2-inch diameter bolts. The clamp and thimble shall be designed so that the wire rope can be threaded through one

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side of the clamp over both sections of the thimble and through the other side of the clamp. The clamp and thimble shall be grooved for 1/2-inch wire rope and shall conform to the dimensions shown on figure 1. The clamp grooves shall be proportioned to give a positive clamping effect on the wire rope. The combination clamp and thimble shall, after being subjected to a partial load and after the bolts have been retightened, develop 90 percent of the breaking strength of the wire rope.

3.11 Wire rope. Wire rope shall conform to RR-W-410, type I, class 2, construction optional, improved plow steel, fiber core, zinc coated G90 (galvanized), preformed.

3.12 Bolts, hinge pins, and nuts. Bolts shall conform to FF-B-575, type III. Hinge pins shall be fabricated from unthreaded bolts. Nuts shall conform to FF-N-836, type II, style 4.

3.13 Sling bridle. The sling bridle shall be made of a manganese bronze alloy with a minimum tensile strength of 105,000 pounds per square inch. The sling bridle shall be designed to clamp on a 1/2-inch diameter single-line, two-leg sling and shall conform to the dimensions shown in figure 2. Splices shall not be used to attach the sling bridle to the sling. The sling bridle shall be easily installed or removed from the sling and shall not slip when unbalanced loads are lifted. The sling bridle shall lock itself in the sling and shall not cut, kink, or otherwise damage the sling.

3.14 Welding electrodes. Welding electrodes shall conform to AWS A5.1 or A5.18, classification and size as required for the operation.

3.15 Identification marking. The bicycle traveler shall be metal-die stamped as shown on the drawing. Die stamping shall be legible after painting.

3.16 Treatment and painting. The portions of the bicycle traveler and its components and parts normally painted shall be treated and painted in accordance with MIL-T-704, type B.

3.17 Workmanship. The fabricated bicycle traveler shall be free of sharp edges, slivers, or burrs.

3.17.1 Steel fabrication. Steel used in the fabrication of the bicycle traveler shall be free from laminations, kinks, and sharp bends. Steel shall be cut by shearing, sawing, or flame cutting. Burned surfaces of flame-cut material shall be ground or machined to remove ash and cooling checks. The straightening of material shall be done by methods that will not cause injury to the metal. Precautions shall be taken to avoid overheating, and heated metal shall be allowed to cool slowly.

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3.17.2 Welders and welding.

3.17.2.1 Welders. Before assigning any welder to manual welding work covered by this specification, the contractor shall obtain certification that the welder has passed qualification tests as prescribed by either of the following listed codes for the materials joined and the type of welding operation to be performed and that such qualification is effective as defined by the particular code:

Standard Qualification Procedure of the American Welding Society (B3.0)
Welding Qualifications of the ASME Boiler and Pressure Vessel Code
(Section IX).

The contractor shall be responsible for determining that automatic welding equipment operators are capable of producing automatic welds in accordance with ANSI/ASW. The certification shall be made available for review by the contracting officer or designated representative.

3.17.2.2 Welding. The surface of parts to be welded shall be free from scale, paint, grease, and other foreign matter. Welding shall be done by the shielded metal-arc or gas metal-arc (MIG) process and shall conform to the provisions of the American Welding Society publication "D1.1 - Structural Welding Code". All welded parts shall be free from cracks and other imperfections that may reduce the effectiveness of the part. Work shall be positioned for flat welding when practicable. Before welding over previously deposited weld metal, all traces of slag shall be removed and the adjoining base metal shall be wire-brushed clean.

3.17.3 Interchangeability. Like components shall be fabricated to be duplicates within the tolerances specified and shall be interchangeable.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications, standards, and drawings, as applicable.

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4.2 Classification of inspections. The inspections requirements specified herein are classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).
- c. Inspection of packaging (see 4.6).

4.3 First article inspection.

4.3.1 Examination. The first article bicycle traveler shall be examined for the defects specified in 4.5.1. Presence of one or more defects shall be cause for rejection.

4.4 Quality conformance inspection.

4.4.1 Sampling for examination. Sampling for examination shall be in accordance with MIL-STD-105.

4.4.2 Examination. Samples selected in accordance with 4.4.1 shall be examined as specified in 4.5.1. AQL shall be 2.5 percent defective for major defects and 4.0 percent defective for minor defects.

4.5 Inspection procedure.

4.5.1 Examination. The bicycle traveler shall be examined as specified herein for the following defects:

Major

- 101. Materials not as specified.
- 102. Materials are not resistant to corrosion and deterioration or treated to be resistant to corrosion and deterioration for the applicable storage and operating environments.
- 103. Dissimilar metals as defined in MIL-STD-889 are not effectively insulated from each other.
- 104. Contractor does not have documentation available for identification of material, material finishes or treatment.
- 105. Used, rebuilt or remanufactured components, pieces or parts incorporated in the bicycle traveler.
- 106. Nonconformance to the dimensions shown on the drawing.
- 107. Components missing or not as specified.
- 108. Chain not as specified.
- 109. Steel pipe not as specified.
- 110. Steel tubing not as specified.
- 111. Sheaves not as specified.

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- 112. Snatch blocks not as specified.
- 113. Cotter pins not as specified.
- 114. Combination clamp and thimble not as specified.
- 115. Wire rope not as specified.
- 116. Ends of wire rope not seized.
- 117. bolts, hinge pins, and nuts not as specified.
- 118. Sling bridle not as specified.
- 119. Welding electrodes not as specified.
- 120. Workmanship not as specified.
- 121. Steel fabrication not as specified.
- 122. Welding certification not available.
- 123. Weld defects such as flux inclusions, spatter, undercutting, porosity, incorrect size, or lack of fusion with parent metal.
- 124. Castings containing such defects as blow holes, porosity, shrinkage defects, cracks, thin sections, or casting not smooth or well cleaned.
- 125. Interchangeability not as specified.

Minor

- 201. Identification marking incorrect, missing or illegible.
- 202. Cleaning, treatment, and painting not as specified.

4.6 Inspection of packaging.4.6.1 Quality conformance inspection of pack.

4.6.1.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.6.1.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.6.1.3 Examination. Samples selected in accordance with 4.6.1.2 shall be examined for the following defects. AQL shall be 2.5 percent defective.

- 126. Sheave brackets not removed and pins reinstalled as specified for level A.
- 127. Unprotected surfaces not coated with preservative as specified for level A.
- 128. Boxes not as specified for level A or B.
- 129. Contents not secured within box for level A or B.
- 130. Strapping not as specified for level A or B.
- 131. Preservation and packing not in accordance with the referenced document as specified for commercial.
- 132. Marking missing, illegible, incorrect, or incomplete.

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5. PACKAGING

5.1 Preservation. preservation shall be level A or commercial as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Disassembly. The sheave brackets shall be removed and the pins shall be reinserted in the mating parts of the hinge to prevent loss.

5.1.1.2 Unprotected surfaces. Unpainted metal surfaces of components requiring the application of a contact preservative in accordance with MIL-P-116 shall be coated with type P-1 preservative. The preservative shall conform to the applicable specification listed in and shall be applied in accordance with MIL-P-116.

5.1.2 Commercial. The bicycle traveler shall be disassembled as specified in 5.1.1.1 and shall be preserved in accordance with ASTM D 3951.

5.2 Packing. Packing shall be level A, B, or commercial as specified (see 6.2).

5.2.1 Level A. Each complete bicycle traveler shall be packed in a close-fitting box conforming to PPP-B-601, overseas type, grade B, style optional or PPP-B-621, class 2, style optional. The contents shall be secured within the box in a manner to prevent free movement. box closure and strapping shall be in accordance with the appendix to the applicable box specification. Strapping shall conform to QQ-S-781, class 1, type I or IV, size as applicable. Unless otherwise specified (see 6.2), strapping shall be finish B. When specified (see 6.2) strapping shall be finish A.

5.2.2 Level B. Each complete bicycle traveler shall be packed as specified in 5.2.1, except boxes shall be domestic type and strapping shall be finish A or B. As an alternate, the complete bicycle traveler may be packed in a close-fitting box conforming to PPP-B-640, class 2, style optional. The contents shall be secured within the box in a manner to prevent free movement. Box closure and strapping shall be in accordance with the appendix to the box specification.

5.2.3 Commercial. Each complete bicycle traveler shall be packed in accordance with ASTM D 3951.

5.3 Marking.

5.3.1 Military. Marking for military levels of protection shall be in accordance with MIL-STD-129.

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5.3.2 Commercial. Marking for commercial packaging shall be in accordance with ASTM D 3951. In addition, the weight and cube of the pack shall be marked on the shipping material.

6. NOTES

6.1 Intended use. The bicycle traveler is intended for use as a component of a trail ferry in military stream-crossing operations.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. When a first article is required for inspection and approval, and the number of units required (see 3.2).
- c. Degree of preservation and degree of packing required (see 5.1 and 5.2).
- d. When other than finish B strapping is required (see 5.2.1).

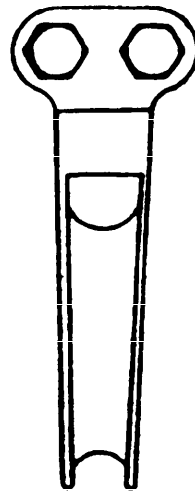
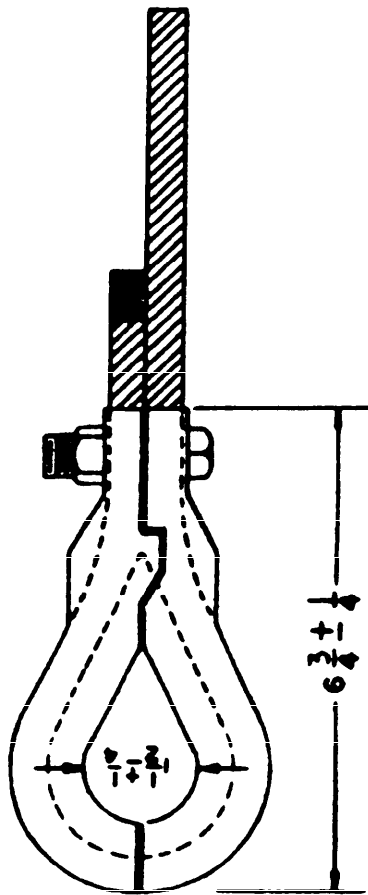
6.3 First article. When a first article inspection is required, the item will be examined and should be a first produced bicycle traveler. The contracting officer should include specific instructions in the acquisition documents regarding arrangements for examinations and approval of the document's first article.

Custodian:
Army - ME

Preparing activity:
Army - ME

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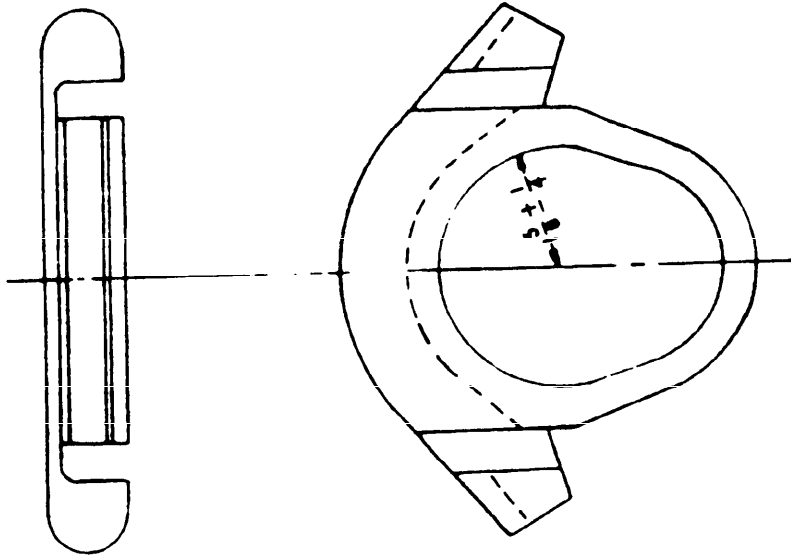


NOTE:
ALL DIMENSIONS ARE IN INCHES.

FIGURE 1. Clamp and thimble

X-4122

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NOTE:
ALL DIMENSIONS ARE IN INCHES.

FIGURE 2 Sling bridle.

X-4123

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-T-12173C(ME)		2. DOCUMENT TITLE Traveler, Bicycle	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one) <input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify): _____	
b. ADDRESS (Street, City, State, ZIP Code)			
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		b. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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