

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE J	PAGE OF PAGES 1
2. AMENDMENT/MODIFICATION NO. 0005	3. EFFECTIVE DATE 07-May-03	4. REQUISITION/PURCHASE REQ. NO. W32CS522277893		5. PROJECT NO. (If applicable)	
6. ISSUED BY CODE DACW17		7. ADMINISTERED BY (If other than Item 6) CODE DACW17			
USA ENGINEER DISTRICT, JACKSONVILLE PRUDENTIAL OFFICE BLDG. 701 SAN MARCO BLVD. CESAJ-CT JACKSONVILLE, FL 32207-8175			BY HAND: DELIVER TO "ISSUED BY" ADDRESS BY MAIL: USAED JACKSONVILLE, PO BOX 4970, ATTN:CESAJ-CT JACKSONVILLE, FL 32232-0019		

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)		<input checked="" type="checkbox"/> 9A. AMENDMENT OF SOLICITATION NO. DACW17-02-R-0033 <input checked="" type="checkbox"/> 9B. DATED (SEE ITEM 11) 11-MAR-2003 10A. MODIFICATION OF CONTRACTS/ORDER NO. 10B. DATED (SEE ITEM 13)
CODE	FACILITY CODE	
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS		
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers tended. <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not ex-		

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

<input checked="" type="checkbox"/>	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
<input type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
REFURBISHMENT OF S-352 AND MISCELLANEOUS REPAIRS TO S-351, GLADES COUNTY, HENDRY COUNTY AND PALM BEACH COUNTY, FLORIDA

Any enclosures accompanying this amendment should be inserted in the plans and specifications as applicable. All superseded materials should be removed or adequately marked to indicate they have been superseded.

THE DATE AND TIME FOR RECEIPT OF PROPOSALS IS 19 MAY 2003 BY 2:00 P.M.

(Continued on Page 2)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR <i>(Signature of person authorized to sign)</i>	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY <i>(Signature of Contracting Officer)</i>	16C. DATE SIGNED

SECTION SF-30 BLOCK 14 CONTINUATION PAGE

1. SPECIFICATIONS: Specifications for this project have been updated.

a. Either asterisks appear before and after the line or lines where revisions have been made to the text on the enclosed revised or added pages or the text changes have been updated with additions noted with underlined text and deletions noted with line/cross-outs, and pertain only to the changes made by this amendment.

b. The text changes may have necessitated reformatting of subsequent text or pages. If this is the case, those pages have also been issued as amended pages but are not marked with asterisks or underlined text and line/cross-outs.

ADD the attached STANDARD FORM 30 for Amendment #0005

Section 00010 (Standard Form 1442): DELETE Section 00010, page 00010-1 and REPLACE with the attached revised Section 00010, page 00010-1. Section 00010 pages 00010-2 and 00010-3 remain unchanged.

Section 00010A LINE ITEMS AND PRICING SCHEDULE: DELETE Section 00010A and REPLACE with the attached revised Section 00010A.

Section 01270 MEASUREMENT AND PAYMENT: DELETE Section 01270 and REPLACE with the attached revised Section 01270.

Section 05502 METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS: DELETE Section 05502 and REPLACE with the attached revised Section 05502.

2. DRAWINGS: D.O. File No. 400-38,315 dated June 2002 in 89 Sheets + Cover.: DELETE Drawing No. 12/3 and REPLACE with the attached revised Drawing No. 12/3. Also, ADD the attached new Drawing No. 16/1. All other Drawing Nos. and Cover remain unchanged.

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NO. DACW17-02-R-0033	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED 11-Mar-2003	PAGE OF PAGES
	IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.			

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO. W32CS522277893	6. PROJECT NO.
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7. ISSUED BY USA ENGINEER DISTRICT, JACKSONVILLE PRUDENTIAL OFFICE BLDG 701 SAN MARCO BLVD CESAJ-CT JACKSONVILLE FL 32207	CODE DACW17	8. ADDRESS OFFER TO (If Other Than Item 7) CODE BY HAND: DELIVER TO "ISSUED BY" ADDRESS BY MAIL: USAED JACKSONVILLE, PO BOX 4970, ATTN: CESAJ-CT JACKSONVILLE FL 32232-0019	DACW17
TEL:	FAX:	TEL:	FAX:

9. FOR INFORMATION CALL:	A. NAME PAMELA J OWENS	B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) 904-232-1443
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SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, identifying no., date):

Refurbishment of S-352 and Miscellaneous Repairs to S-351, Glades County, Hendry County, and Palm Beach County, Florida

DESCRIPTION OF WORK: See Page 00010-3

DRAWINGS: D.O. File No. 400-38,315 dated June 2002 in 89 Sheets Plus the Cover

Magnitude of Construction is between \$1,000,000.00 and \$5,000,000.00

This acquisition is 100% HubZone Set-Aside. All qualified HUBZone small businesses are encouraged to participate.

You must be registered in the Central Registration in order to be eligible to receive an award from this solicitation. Call 1-888-227-2423 for information.

11. The Contractor shall begin performance within 30 calendar days and complete it within 180 calendar days after receiving award, notice to proceed. This performance period is mandatory, negotiable. (See Section 00700 _____.)

12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS?
(If "YES," indicate within how many calendar days after award in Item 12B.)

YES NO

12B. CALENDAR DAYS

10

13. ADDITIONAL SOLICITATION REQUIREMENTS: *SEE SECTION 00100A-1, PARAGRAPH A-2.6

A. Sealed offers in original and *2 copies to perform the work required are due at the place specified in Item 8 by 02:00 PM (hour) local time 19 May 2003 (date). If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee is, is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 90 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

SECTION 00010A
LINE ITEMS AND PRICING SCHEDULE

REFURBISHMENT OF S-352 AND MISCELLANEOUS REPAIRS TO S-351
CENTRAL AND SOUTH FLORIDA PROJECT FOR FLOOD CONTROL AND OTHER PURPOSES
GLADES, HENDRY, PALM BEACH COUNTIES, FLORIDA

<u>LINE ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
0001	<u>BASE FOR S-352:</u>			
0001AA			LUMP SUM	\$ _____
	S-352 DEWATERING SPILLWAY STRUCTURE (SEE SECTION 02140)			
0001AB			LUMP SUM	\$ _____
	EXCAVATE HYDRAULC LINE AND RESLEEVE			
0001AC			LUMP SUM	\$ _____
	HANDLING, TRANSPORTATION, AND DISPOSING HAZARDOUS WASTE			
0001AD			LUMP SUM	\$ _____
	REMOVAL AND REPLACEMENT OF HANDRAILS			
0001AE			LUMP SUM	\$ _____
	REPAIR CONCRETE CRACKS			
0001AF			LUMP SUM	\$ _____
	SANDBLASTING AND PAINTING OF VERTICAL LIFT GATES AND COMPONENTS			
0001AG			LUMP SUM	\$ _____
	SANDBLASTING AND PAINTING OF MECHANICAL HOIST MACHINERY			
0001AH			LUMP SUM	\$ _____
	SANDBLASTING AND PAINTING OF MISCELLANEOUS METALS			
0001AJ			LUMP SUM	\$ _____
	VERTICAL GATE INSPECTION AND REPAIR WORK			
0001AK			LUMP SUM	\$ _____
	MECHANICAL REPAIR WORK			
0001AL			LUMP SUM	\$ _____
	ELECTRICAL REPAIR WORK			
	TOTAL BASE FOR S-352 (LINE ITEMS 0001AA THROUGH 0001AL)			\$ _____
0002	<u>BASE FOR S-351:</u>			
0002AA			LUMP SUM	\$ _____
	S-351 DEWATERING SPILLWAY STRUCTURE			
0002AB			LUMP SUM	\$ _____
	REPAIR CONCRETE CRACKS			
0002AC			LUMP SUM	\$ _____
	REMOVAL AND REPLACEMENT OF FENCE AND COVER PLATE			
0002AD			LUMP SUM	\$ _____
	REMOVAL AND REPLACEMENT OF HANDRAILS			
0002AE			LUMP SUM	\$ _____
	SANDBLASTING AND PAINTING OF MISCELLANEOUS METALS			
0002AF			LUMP SUM	\$ _____
	HANDLING, TRANSPORTATION, AND DISPOSING HAZARDOUS WASTE			
0002AG			LUMP SUM	\$ _____
	VERTICAL LIFT GATE INSPECTION AND REPAIR			
	TOTAL BASE FOR S-351 (LINE ITEMS 0002AA THROUGH 0002AG)			\$ _____
	TOTAL (INCLUDES BASE, S-352 & S-351)			\$ _____
	<u>(INCLUDES LINE ITEMS 0001AA THROUGH 0002AG)</u>			

NOTES:

- (1) ALL OFFERS MUST BE FOR THE ENTIRE WORK AND MUST HAVE EACH BLANK SPACE COMPLETED.
- (2) SEE SECTION 00100, "INSTRUCTIONS, CONDITIONS AND NOTICES TO OFFERORS."

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SECTION 01270

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SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the LINE ITEMS AND PRICING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.1.1 Dewatering of Structure (Line Item 0001AA)

Payment will be made for costs associated with dewatering the Spillway Structure, which includes full compensation for furnishing all materials, equipment, and labor required to dewater the structure. Payment will be made in accordance with Section 02240 DEWATERING.

1.1.2 Excavate Hydraulic Line and Resleeve (Line Item 0001AB)

Payment will be made for costs associated with Excavating hydraulic line and resleeving, which includes full compensation for furnishing all materials, equipment, and labor required to excavate, resleeve, backfill, and repair area of excavation. Payment will be made in accordance with Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES

1.1.3 Handling, Transporting, and Disposing Hazardous Waste (Lead) (Line Item 0001AC)

Payment will be made for costs associated with Handling, Transporting, and Disposing Hazardous Waste (Lead), which includes full compensation for furnishing all materials, equipment, and labor required to handle, transport, and dispose of hazardous waste lead products. Payment will be made in accordance with Section 09965A PAINTING: HYDRAULIC STRUCTURES.

1.1.4 Removal and Replacement of Handrails (Line Item 0001AD)

Payment will include full compensation for furnishing all materials, equipment, and labor required to remove and replace handrails, in accordance with Section 05502A METALS: MISCELLANEOUS, STANDARD ARTICLES,

SHOP FABRICATED ITEMS

1.1.5 Repair of Concrete Cracks (Line Item 0002AE)

Payment will be made for costs associated with dewatering the Spill way Structure, which includes full compensation for furnishing all materials, equipment, and labor required to dewater the structure. Payment will be made in accordance with Sections, 02230 Clearing and Grubing and 03900 Restortation of Concrete.

1.1.6 Sandblasting and Painting of Vertical Lift Gates and Components (Line Item 0001AF)

Payment will include full compensation for furnishing all materials, equipment, and labor required to sandblast and paint taintor gate and components, in accordance with Section 09965A PAINTING: HYDRAULIC STRUCTURES and 02210 CLEARING AND GRUBBING.

1.1.7 Sandblasting and Painting of Mechanical Hoist Machinery (Line Item 0001AG)

Payment will include full compensation for furnishing all materials, equipment, and labor required to sandblast and paint mechanical hoist machinery, in accordance with Section 09965A PAINTING: HYDRAULIC STRUCTURES..

1.1.8 Sandblasting and Painting of Miscellanous Metals (Line 0001AH)

Payment will include full compensation for furnishing all materials, equipment, and labor required to sandblast and Miscellaneous Items such as Wall Armor and other items on site noted on drawings requiring painting, in accordance with Section 09965 PAINTING: HYDRAULIC STRUCTURES.

1.1.9 Vertical Lift Gate Inspection and Repair Work (Line Item 0001AJ)

Payment will include full compensation for furnishing all materials, equipment, and labor required to repair inspect and vertical gate, in accordance with Section 05502 METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS, 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS and 11288 VERTICAL GATE LIFT REPAIR WORK.

1.1.10 Mechanical Repair Work (Line Item 0001AK)

Payment will be made for costs associated with furnishing all plant, materials, equipment, and labor required to repair the mechanical hoist equipment in accordance with Sections 15000 MECHANICAL WORK S-352 AND Section 15495 HYDRAULIC POWER SYSTEMS.

1.1.11 Electrical Repair Work (Line Item 0001AL)

Payment will include full compensation for furnishing all materials, equipment, and labor required to complete electrical repair work in accordance with Section 16415 ELECTRICAL WORK.

1.1.12 Dewatering of Structure (Line Item 0002AA)

Payment will be made for costs associated with dewatering the Spillway Structure, which includes full compensation for furnishing all materials, equipment, and labor required to dewater the structure. Payment will be made in accordance with Section 02240 DEWATERING.

1.1.13 Repair of Concrete Cracks (Line Item 0002AB)

Payment will be made for costs associated with dewatering the Spillway Structure, which includes full compensation for furnishing all materials, equipment, and labor required to dewater the structure. Payment will be made in accordance with Sections, 02230 CLEARING AND GRUBING and 03900 RESTORATION OF CONCRETE.

1.1.14 Removal and Replacement of Fence and ~~Grating Replacement~~ Cover Plate (Line Item 0002AC)

Payment will include full compensation for furnishing all materials, equipment, and labor required to remove and replace Fence on Wing walls and replace ~~grating~~ cover plate, in accordance with Sections 02821 Fencing, and 05502 METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS.

1.1.15 Removal and Replacement of Handrails (Line Item 0002AD)

Payment will include full compensation for furnishing all materials, equipment, and labor required to remove and replace handrails, in accordance with Section 05502 METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS

1.1.16 Sandblasting and Painting of Miscellaneous Metals (Line 0002AE)

Payment will include full compensation for furnishing all materials, equipment, and labor required to sandblast and Miscellaneous Items such as Wall Armor, water blasting, remove junction box and other items on site noted on drawings requiring painting, in accordance with Section 09965 PAINTING: HYDRAULIC STRUCTURES.

1.1.17 Handling, Transporting, and Disposing Hazardous Waste (Lead) (Line Item 0002AF)

Payment will be made for costs associated with Handling, Transporting, and Disposing Hazardous Waste (Lead), which includes full compensation for furnishing all materials, equipment, and labor required to handle, transport, and dispose of hazardous waste lead products. Payment will be made in accordance with Section 09965A PAINTING: HYDRAULIC STRUCTURES.

1.1.18 Vertical Lift Gate Inspection and Repair Work (Line Item 002AG)

Payment will include full compensation for furnishing all materials, equipment and labor required to inspect and repair vertical lift gate, in accordance with Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS, 05502 METALS: MISCELLANEOUS, STANDARD ARTICLES,

SHOP FABRICATED ITEMS and 11288 Vertical Lift Gate.

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SECTION 05502

METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 53	(1996) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A 193/A 193M	(1996b) Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
ASTM A 194/A 194M	(1996) Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service
ASTM A 240/A 240M	(1996) Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels
ASTM A 276	(1996) Stainless and Heat-Resisting Steel Bars and Shapes
ASTM A 307	(1994) Carbon Steel Bolts and Studs, 60 000 psi Tensile Strength
ASTM A 312/A 312M	(1995a) Seamless and Welded Austenitic Stainless Steel Pipes
ASTM A 320/A 320M	(1994; R 1995) Alloy Steel Bolting Materials for Low-Temperature Service
ASTM A 484/A 484M	(1994b) General Requirements for Stainless Steel Bars, Billets, and Forgings
ASTM A 668/A 668M	(1996) Steel Forgings, Carbon and Alloy, for General Industrial Use
ASTM A 730	(1993) Forgings, Carbon and Alloy Steel, for Railway Use

ASTM B 121/B 121M	(1995) Leaded Brass Plate, Sheet, Strip, and Rolled Bar
ASTM B 148	(1993a) Aluminum-Bronze Sand Castings
ASTM B 150	(1995a) Aluminum Bronze Rod, Bar, and Shapes
ASTM B 209	(1996) Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B 308/B 308M	(1996) Aluminum-Alloy 6061-T6 Standard Structural Shapes
ASTM F 436	(1993) Hardened Steel Washers

ASME INTERNATIONAL (ASME)

ASME B18.2.1	(1981; Supple 1991; R 1992) Square and Hex Bolts and Screws (Inch Series)
ASME B18.2.2	(1987; R 1993) Square and Hex Nuts (Inch Series)
ASME B18.3	(1986; R 1995) Socket Cap, Shoulder and Set Screws (Inch Series) Including Dimensions of Hexagon and Spline Sockets and Keys to Match
ASME B18.6.2	(1972; R 1993) Slotted Head Cap Screws, Square Head Set Screws, and Slotted Headless Set Screws
ASME B18.6.3	(1972; R 1991) Machine Screws and Machine Screw Nuts
ASME B18.21.1	(1994) Lock Washers (Inch Series)
ASME B18.22.1	(1965; R 1990) Plain Washers

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS RR-W-410	(Rev D; Am 1) Wire Rope and Strand
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1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Shop Fabricated Metal Items; G|ED

Detail handrail drawings for wingwall at S-351 and canal locations at S-351 and S-352 and other fabrication drawings as required for contract, shall be submitted for approval as specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

SD-03 Product Data

Miscellaneous Metals and Standard Metal Articles; G|COR

Shop Fabricated Metal Items; G|COR

Lists of materials shall be submitted for approval as specified and in Section 05055a METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

Records which identify the disposition of approved material and fabricated items in the work must be submitted for approval as specified and in Section 05055a METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

SD-04 Samples

Shop Fabricated Metal Items; G|COR

Samples shall be submitted for approval as specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS. Samples of standard or fabricated items shall be full size and complete as required for installation in the work, and may be installed in the work, provided each sample is clearly identified and its location recorded.

SD-06 Test Reports

Miscellaneous Metals and Standard Metal Articles; G|COR

Shop Fabricated Metal Items; G|COR

Certified test reports for materials tests and analyses shall be submitted for approval as specified and in Section 05055a METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

1.3 Product Testing of Aluminum Picket Rail

Manufacturers must submit complete tests based on ASTM E 985 or other recognized Standard, which shows that their system meets all performance requirements outlined in this specifications. In lieu of product testing, manufacturer may submit calculations certified by a Professional Engineer, showing system meets all performance requirements outlined in this specification

1.4 FABRICATION AND WORKMANSHIP REQUIREMENTS

Fabrication requirements and workmanship provisions for items specified in this section shall conform with the requirements of Section 05055a METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

1.5 DELIVERY, STORAGE AND HANDLING

a. Deliver materials to the job site in good condition and properly protected against damage to finished surfaces.

b. Storage on site:

1. Store material in a location and in a manner to avoid damage. Stacking shall be done in a way that will prevent bending.

2. Store material in a clean, dry location away from uncured concrete and masonry. Cover with waterproof paper, tarpaulin, or polyethylene sheeting in a manner that will permit circulation of air inside the covering.

c. Keep handling on site to a minimum. Exercise particular care to avoid damage to finishes of material.

PART 2 PRODUCTS

2.1 MISCELLANEOUS METALS AND STANDARD METAL ARTICLES

Miscellaneous metal materials and standard metal articles shall conform to the respective specifications and other designated requirements. Sizes shall be as specified or shown. Where material requirements are not specified, materials furnished shall be suitable for the intended use and shall be subject to approval.

2.1.1 Structural Steel

2.1.2 Steel Plates

ASTM A36

2.1.2.1 Structural

ASTM A 514, Grade 36

2.1.3 Steel Plates

ASTM A 36

2.1.4 Steel Pipes and Pipe Fittings

2.1.4.1 Pipes

ASTM A 53, Type E or S, Grade B, seamless or electric-resistance welded, galvanized, nominal size and weight class or outside diameter and nominal wall thickness as shown, threaded and coupled ends.

2.1.5 Bars and Shapes

Stainless steel bars and shapes shall conform to the following as specified or shown:

- a. ASTM A 276, UNS S30400 with a maximum carbon content of 0.08 percent, Condition A, hot-finished or cold-finished, Class C.

2.1.5.1 Plates, Bars & Shapes for Roller & Track Systems

- a. Fasteners for Bolted Track Plates and Guide Bars - Bolting materials shall conform to ASTM A 193/A 193M or ASTM A 320/A 320M, Class 2, Grade B8 Nuts shall conform to ASTM A 194/A 194M, Grade 8A.

- b. Gate Roller Links and Pins

Pins - ASTM A 276, UNS S21800, Condition A, cold-finished or hot-rolled and machine-finished to the tolerances specified in ASTM A 484/A 484M for cold-finished round bars, Class C.

- c. Seal Plates, Bars, and Retainers; Roller Guide Bars; and Track Plates.

(1) Welded Seal Plates and Bars; Welded Roller Guide Bars; and Welded Track Plates - ASTM A 240/A 240M, UNS S30400, Hot-Rolled and Annealed or Heat Treated, and Blast Cleaned or Pickled Finish; or ASTM A 276, UNS S30400 with a maximum carbon content of 0.08 percent, Condition A, Hot-Finished or Cold-Finished, Class C.

(2) Bolted Seal Plates, Bars, and Retainers; and Bolted Roller Guide Bars - ASTM A 240/A 240M, UNS S30400, Hot-Rolled and Annealed or Heat Treated, and Blast Cleaned or Pickled finish; or ASTM A 276, UNS S30400, Condition A, hot-finished or cold-finished, Class C.

2.1.5.2 Pipe

ASTM A 312/A 312M, seamless or welded, UNS S30400, NPS and schedule number or outside diameter and nominal wall thickness as shown, threaded and coupled ends.

2.1.6 Steel Forgings

2.1.6.1 General Industrial Use

ASTM A 668/A 668M, Class D, carbon content not exceeding 0.35 percent, and an overall chemical composition which results in satisfactory weldability.

2.1.6.1 Railway Use

ASTM A 730, Grade C, carbon content not exceeding 0.35 percent and an overall chemical composition which results in satisfactory weldability.

2.1.7 Aluminum

2.1.7.1 Sheets and Plates

ASTM B 209, Alloy 6061, Temper T6.

2.1.7.2 Structural Shapes

ASTM B 308/B 308M, Alloy 6061, Temper T6.

2.1.8 Bronze

2.1.8.1 Aluminum Bronze Castings

ASTM B 148, Copper Alloy UNS No. C95400.

2.1.8.2 Aluminum Bronze Rods, Bars, and Shapes

ASTM B 150, Copper Alloy UNS No. C61900, Temper M20.

2.1.9 Brass

2.1.9.1 Sheet, Plates, and Bars

ASTM B 121/B 121M, Composition C33500, Temper H01.

2.1.10 Bolts, Nuts, and Washers

Bolts, nuts, and washers shall be of the material, grade, type, class, style and finish indicated or best suited for intended use.

2.1.10.1 Bolts, Nuts, and Washers (Other Than High-Strength)

- a. Bolts and Nuts - ASTM A 307, Grade A, hot-dip galvanized
- b. Bolts - ASME B18.2.1.
- c. Nuts - ASME B18.2.2.
- d. Washers
 - (1) Plain Washers - ASME B18.22.1, Type B.
 - (2) Lock Washer - ASME B18.21.1.
 - (3) Beveled Washers - ASTM F 436, Type 3, Beveled.

2.1.10.2 Stainless Steel Bolts, Nuts and Washers

- a. Bolting materials shall conform to ASTM A 193 or ASTM A 320 CLASS 3 GRADE B: (ANSI TYPE 304)

b. Nuts shall be made from Armco Nitronic 60, conforming to ASME B 18.2.2

c. Washers shall be made from Austenitic Steel in accordance with requirements of ASME 18.22.1

2.1.10.3 Screws

Screws shall be of the material, grade, type, style, and finish indicated or best suited for use intended.

2.1.11 Cap Screws

ASME B18.2.1, ASME B18.3, or ASME B18.6.2 as required.

2.1.11.1 Machine Screws

ASME B18.6.3.

2.1.11.2 Set Screws

ASME B18.6.2.

2.1.11.3 Expansion Anchors

Type as required by manufacture, except that nail driven types will not be acceptable.

2.1.11.4 Wire Rope

FS RR-W-410, Type I, Class 3, Construction Corrosion Resistant Steel, wire sizes as shown.

2.2 SHOP FABRICATED METAL ITEMS

Shop fabricated metal items shall conform to the requirements and details as specified or shown and to the workmanship provisions and other applicable fabrication requirements as specified in Section 05055a METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.2.1 Railings

Railings shall be of the type specified and shown with picket rails and shall be furnished and installed complete with all fittings, brackets, fasteners, sleeves, anchors, and other appurtenances as shown and as required for proper installation. Aluminum handrail to be assembled by means of mechanical fittings. No pop rivets, sheet metal screws, epoxies or welded connections will be accepted. Railing replacement shall be aluminum at all locations. Railing system shall have a permanently installed picket rails. The picket rails shall not allow more than a four inch sphere to pass through openings vertically.

2.2.1.1 Materials

Aluminum railings shall be of pipe or tube as specified in paragraph PIPES AND TUBES. Sleeves and other appurtenances shall be of the same material as the rails and posts or approved compatible materials.

2.2.1.2 PERFORMANCE REQUIREMENTS

A. General: All railings shall be supplied to conform to applicable sections of OSHA, Florida Building Code and EM385-1-1. In engineering handrail and railing systems to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:

1. Aluminum: AA "Specifications for Aluminum Structures."

B. Structural Performance of Handrails and Railing Systems: Engineer, fabricate, and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials for handrails, railing systems, anchors, and connections. Apply each load to produce the maximum stress in each of the respective components comprising handrails and railing systems.

1. Toprail of Guardrail System: Capable of withstanding the following loads applied as indicated:

a. Uniform load of 50 pounds per lineal foot applied horizontally at right angles to the top rail.

2. Infill Area of Guardrail Systems: Capable of withstanding the following loads applied as indicated:

a. Reactions due to the above load need not be combined with those loads on the toprail of guardrail system.

3. Handrails: The mounting of handrails shall be such that the completed handrail and supporting structure are capable of withstanding the following loads applied as indicated:

a. Concentrated load of 200 pounds applied in any direction at any point on the handrail.

b. These loads shall not be assumed to act cumulatively with those loads on the infill area of guardrail system.

C. Thermal Movements: Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in engineering, fabricating, and installing of joints, overstressing of components and connections, and other detrimental effects. Base engineering calculations on actual surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.

1. Temperature Change (Range): 120 deg. F ambient; 180 deg. F

material surfaces.

D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

2.2.1.3 Fabrication

All handrail system to consist of top rail and intermediate rails with vertical pickets between intermediates. Pickets are to be friction fit into drilled holes at intermediate rails. Rail shall be of slip-on fittings assembly and shall be flush-finished. Assembled threaded joints shall have no exposed threads. Slip-on fittings shall be tight-fitting. Fasteners for slip-on fittings shall be the self-locking, concealed type. Manufactured in compliance with ASTM B 26 aluminum-magnesium alloy 535. Fasteners for aluminum fittings shall be of aluminum or stainless steel. Expansion joints in railings shall be an outer-sleeved slip-joint, with one end of the sleeve secured to one rail and the ends of the adjoining rails separated a minimum of 1 inch in the installed position. Expansion joints shall be located in rails near the intersection of rails and posts. Bends in railings shall be made in a manner that railings are not crushed and shall maintain their original cross-sectional shape. Railings shall be free of burrs, sharp corners, and sharp edges. Railing finish shall be anodized aluminum. Manufacturer design calculations, showing that the installed railings are capable of withstanding a design working load of 200 pounds applied in any direction at any point on the top rail without permanent deformation, must be submitted and approved prior to installation. During installation set screws shall be treated with Loctite permanent thread locks to prevent removal.

2.2.1.4 RAILING SYSTEM (Picket Railing)

Components

a. Rails and Posts

Extruded Aluminum Pipe ASTM 8429

Aluminum alloy 6063-T6. Finish AA M10C22A41

Posts - 2" EPS Schedule 90

Rails - 2" IPS Schedule 40

Pickets - 3/4" IPS Schedule 10

b. Mechanical Contractors

Post and handrail connector fittings

Sand cast of alum alloy 535 (ASTM 826)

Supplied with anodize finish 7 mil, minimum thickness

Design - Fittings shall be the type which fastens to the exterior of the pipe by means of a stainless steel internal/external knurl cup point set screw (ASTM F880). No other fasteners will be accepted.

Flanges

Sand cast from aluminum alloy 535 (ASTM B26)

Supplied with anodize hiish.7 and minimum thickness

Design - Flanges shall be the type which fastens to the exterior of the pipe by means of a stainless steel knurl internal/external cup point set screw (ASTM F880)

All anchoring hardware mil be 300 sues stainless steel.

c. Fasteners

a. All fasteners to be 302 or 304 stainless steel

b. Set screws shall be treated with Loctie permanent threadlocked during installation.

2.2.1.5 FASTENERS

a. Fasteners for Anchoring Railings to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring railing to other types of construction indicated and capable of withstanding design loadings. All exposed fasters shall be made grouted and made tamper resistant to resist removal.

1. For aluminum railings, provide fasteners fabricated from type 304 stainless steel.

b. Fasteners for Interconnecting Railing Components: Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

c. Cast-in-Place and Post-Installed Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials with capability to sustain, without failure, the loads determined by local code requirements.

1. list anchors required

2.2.1.6 GROUT AND ANCHORING CEMENT

a. Non-shrink, Non-metallic Grout: Premixed, factory-packaged, non-shrink, non-metallic, non-staining, non-corrosive grout. Provide

grout specifically recommended by manufacturer for interior and exterior applications. Minimum 28 day compressive strength of 3000 psi.

b. (Picket Railing Railing)

Fabricate handrails and railing systems with non-welded, internal and mechanical connections to comply with manufacturer's printed requirements, project design requirements, details, dimensions, finish and member sizes, including post spacing and anchorage, but not less than the structural requirements to support loading.

1. Clearly mark component units for site assembly and installation.

2. Use connections that maintain structural capacity of joined members.

c. Provide weep holes or other means to exit entrapped water from hollow sections of railing members exposed to exterior, condensation, or moisture from other sources.

d. Form all changes in rail direction by mitered, uniform radius bend within allowable tolerance of pipe size.

e. Cut materials square and remove burrs from all exposed edges, with no chamfer.

f. Make exposed joints butt tight and flush.

g. Close exposed visible ends of Top Rails and Handrails by use of an end cap.

h. Verify dimensions on site prior to shop fabrication.

2.2.1.7 FINISHES, GENERAL

a. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.

b. Protect mechanical finishes on exposed surfaces from damage per manufacturer's recommendations.

c. Appearance of Finished Work

2.2.1.8 ALUMINUM FINISH

Anodized finish shall be Class I provided in accordance with AA-M12 C22 A41.

2.2.1.9 Installation

Railings shall be installed as specified and shown. Railing posts anchored to concrete surfaces perpendicular to the posts shall be rigidly secured to flange fittings anchored to concrete with expansion anchors. Railing posts

anchored to concrete surfaces parallel to the posts shall be rigidly secured to flange fittings anchored to concrete with expansion anchors. Railing posts anchored to structural metal shall be structural metal shall be separated from material with neoprene pad. Ends of rails anchored to concrete or masonry shall be rigidly secured to flange fittings anchored to concrete or masonry with expansion anchors

2.2.2 Cover Plates

~~Grating and~~ Cover plates shall be of the material and size shown, and shall be fabricated in sectional panels of the width and length shown, or as appropriate, to accurately fit within the supporting recess frames. Openings through panels shall be provided ~~as shown or~~ as required to match cover plate to be replaced (see photo detail on drawing. Cover plates shall be galvanized after fabrication. Cover plates shall be as specified in paragraph STEEL FLOOR PLATE. Sharp edges and burrs shall be removed from plates.

~~2.2.2.1 Cover Plates~~

~~Cover plates shall be as specified in paragraph STEEL FLOOR PLATE. Cover plate panels shall be provided with holes for insertion of removal tool. Sharp edges and burrs shall be removed from plates.~~

PART 3 EXECUTION

3.1 PREPARATION

Supply items to be cast in concrete, embedded in masonry.

3.2 DISSIMILAR METALS

- a. When aluminum components come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting the dissimilar metal with a heavy coat of a asphalt paint or provide a heavy vinyl tape barrier.
- b. When aluminum components come into contact with cement or lime mortar, exposed aluminum surfaces shall be painted with two-part epoxy.

3.3 INSTALLATION

- a. Install in accordance with shop drawings and manufacturer's instructions.
- b. Erect work square and level, horizontal or parallel to rake of steps or ramp, and free from distortion or defects detrimental to appearance or performance.
- c. Expansion and Contraction
 - a. Top rail of the handrail system shall be spliced at a maximum of every 24' by means of an internal coupling. A 3/8" gap should

be provided between the rails at each splice. Provide splices with 3/8 " gap in all rails over expansion joints in concrete.

3.4 Site Visit

The handrail manufacturer shall have qualified, representative present during the first day of installation. This representative will also make additional visits throughout the course of installation.

3.5 CLEANING

a. As installation is completed, wash thoroughly using plain water containing a mild soap or detergent. When preferred, an anodized finish shall be cleaned with white gasoline, kerosene or distillate. Aluminum with a painted finish shall be cleaned with plain water containing a mild soap or detergent.

b. Do not use an acid solution, steel wool or other harsh abrasives.

c. If stains remain after washing, remove paint finish and restore in accordance with NAAMM Metal Finishes Manual. Finish must not be removed from anodized aluminum. Reanodizing can only be done by removing railing and returning it to the anodizer.

3.6 REPAIR OF DEFECTIVE WORK

a. Remove stained or otherwise defective work and replace with material that meets specification requirements.

-- End of Section --

