

A-000 3306

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

CONTRACT ID CODE PAGE OF PAGES
1 23

2. AMENDMENT/MODIFICATION NO. 0003	3. EFFECTIVE DATE 10/02/98	4. REQUISITION/PURCHASE REQ. NO. ED0000-8219-0007	5. PROJECT NO. (If applicable) dk
6. ISSUED BY US ARMY ENGR DIST NEW ORLEANS PO BOX 60267 NEW ORLEANS LA 70160-0267 Sheila W. Enclade scl (504)862-1514		7. ADMINISTERED BY (If other than Item 6) US ARMY ENGR DIST, NEW ORLEANS ATTN CEMVN-CT-R PO BOX 60267 NEW ORLEANS LA 70160-0267	

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)	(y)	9A. AMENDMENT OF SOLICITATION NO. X DACW29-98-B-0112
		9B. DATED (SEE ITEM 11) 09/03/98
		10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS SEE BELOW

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended.

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.

(y)	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.
	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).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	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.)

THE ABOVE NUMBERED SOLICITATION FOR COMPETITIVE 8(a), LAKE PONTCHARTRAIN, LA & VIC., HURRICANE PROTECTION, HIGH LEVEL PLAN, FRONTING PROTECTION AT PUMP STA. #6 ORLEANS PARISH - JEFFERSON PARISH 17th ST. OUTFALL CANAL (METAIRIE RELIEF), ORLEANS & JEFFERSON PARISHES, LA, IS HEREBY AMENDED AS FOLLOWS:

BID OPENING DATE

BID OPENING DATE & TIME OF 14 OCTOBER 1998, 2:00 P.M., LOCAL TIME AT PLACE OF BID OPENING, IS HEREBY ESTABLISHED.

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	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY (Signature of Contracting Officer)	

SECTION 00010

Delete page 00010-3 in its entirety and substitute the revised attached page 00010-3 therefor.

SECTION 01300

ENG FORM 4288-R, SUBMITTAL REGISTER, page 1 of 4, Items 11 and 12. Delete the "X" in column "o" and place an "X" in column "p" for both items.

SECTION 01431

EPA FORM 3510-6 Notice of Intent (NOI). In block V, revise the "Project Start Date" of "10/02/98" and "Completion Date" of "09/30/98" to "11/10/98" and "10/31/00", respectively.

SECTION 02070

Page 4, paragraph 7. In the 2nd line, change "selective demolition" to the work covered in this section".

SECTION 02140

1. Page 1, paragraph 3. Delete this paragraph in its entirety and substitute the following therefor.

"3. SUBMITTALS. Submittals shall be in accordance with Section 01300 – SUBMITTAL PROCEDURES". The Contractor shall submit eight (8) copies of his/her complete dewatering design package with details of his/her proposed dewatering facilities to the Contracting Officer (CO) for review and approval by the CO. These details must be presented in the form of shop drawings, including the type of system, planned layout and sizes of wells, jet eductors and/or wellpoints, headers, including all lengths requiring burial, collectors, ditches, piezometers, sumps and pumps; number, type, location, elevation, proposed method of installation, and proposed methods of testing of piezometers; facilities for measuring the flow of water pumped from each well and/or wellpoint segment of the dewatering system; facilities and proposed schedule for monitoring of sanding; provisions for disposal of water from the dewatering system; and plan of operation including flooding and rewatering plans. This submittal shall include the design capacity of each well and/or wellpoint segment at the design stage, and shall be submitted no later than 60 days prior to installation of the system. The Contracting Officer's review of the Contractor's proposed dewatering facilities will not exceed thirty (30) calendar days and will be for the purpose of determining (1) the acceptability of the general design concept and layout of the system; (2) the gross capacity of the system at the design stage; and (3) the acceptability of the flooding and rewatering plans. The design and installation procedure of the individual components of the system need not be submitted

for review as the performance of the complete system remains a responsibility of the Contractor. If the Contracting Officer determines, based on the above-mentioned review, that the system appears adequate to accomplish the required results, the system will be approved for installation. If the Contracting Officer's review determines that the Contractor's proposed dewatering facilities are either inadequate or inappropriate to accomplish the required results, the Contractor will be so notified in writing, and the basis for rejection will be included. Subsequent approval of the plan for installation, either as submitted or revised as a result of the review, should not be interpreted as the Government accepting responsibility for the performance of the dewatering system and shall not relieve the Contractor of full responsibility for the proper design, installation, maintenance, operation, and actual performance of both the individual system components and the entire system. After approval of installation, the Contractor shall install the entire dewatering system and shall make no alteration to the planned system without the prior written approval of the Contracting Officer. If, during the progress of the work, the installed dewatering system proves inadequate to meet the requirements specified, including piezometers, the Contractor shall, at his/her expense, furnish, install, and operate such additional dewatering facilities and/or make such changes, either in features of the system or the plan of operation, as may be necessary to perform the required dewatering without additional cost to the Government."

SECTION 02171

1. Page 3, paragraph 5. Delete the 2nd and 3rd sentences in their entirety and substitute "No work shall proceed until the submittals have been reviewed and approved by the Contracting Officer(CO). The review should not exceed thirty(30) days. The Contractor shall submit an original and seven (7) copies of its complete temporary retaining structures design package consisting of the following:" therefor.
2. Page 2, paragraph 4.2.2. Add "No cold rolled sheet piling shall be allowed." as the 2nd sentence.

SECTION 02273

1. Page 4, paragraph 4.1.3. Delete the stone gradation table and replace with the following table:

<u>"% Lighter By Weight</u>	<u>Limit of Stone Weight in Lbs.</u>
100	400-160
50	160-80
15	80-30

Note: Layer Thickness = 30 inches"

2. At the end of this section delete the 1st RIPRAP GRADATION CURVE (dated Oct. 1998, at the end of this section and replace with the attached revised RIPRAP GRADATION CURVE therefor.

SECTION 02411

Page 4, paragraph 8.4. In the last line, change "4.5" to "4.2.2".

SECTION 09940

1. Page 2, paragraph 3.2. Delete this paragraph in its entirety and substitute the following therefor.

"3.2 American Society for Testing and Materials (ASTM).

D 561-82	Carbon Black Pigment for Paint
D 740-89	Methyl Ethyl Ketone
D 841-90	Nitration Grade Toluene
D 843-90	Nitration Grade Xylene
D 1045-86	Sampling and Testing Plasticizers Used in Plastics
D 1153-94	Methyl Isobutyl Ketone
D 1186-93	Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base
D 1200-94	Viscosity by Ford Viscosity Cup
D 1210-79	Fineness of Dispersion of Pigment-Vehicle Systems
D 2917-91	Methyl Isoamyl Ketone
D 4417-93	Measurement of Surface Profile of Blast Cleaned Steel
E 1347-90	Color and Color-Difference Measurement by Tristimulus (Filter) Colorimetry"

2. Page 3, add the following new paragraph as:

"3.8 Macbeth Division (MD).

40219 (Matte Edition) Munsell Book of Color: Matte Finish Collection"

3. Page 7, paragraph 4.2.1. Add "For all vinyl-type paints submitted for laboratory testing, separate 1/2-pint samples of ingredient raw materials shall be furnished." as the 2nd sentence.

4. Page 12, paragraph 10. Add "Containers for vinyl-type paints shall be lined with a coating resistant to solvents in the formulations and capable of effectively isolating the paint from contact with the metal container." as the 3rd sentence.

5. Delete pages 13 and 14 in their entirety and substitute the attached pages 13, 14, 14a, 14b, and 14c therefor.

6. Delete pages 17, 18, 19, 20, and 21 in their entirety and substitute the attached pages 17, 18, 19, 20, 21, and 22 therefor.

SECTION 11285

1. Page 2, paragraph 3.1. Insert the following between "A 123-89" and "A 153-82":

"A 126-84 Gray Iron Casting for Valves, Flanges and Pipe Fittings"

2. Page 2, paragraph 3.1. Delete the following:

"A 193-89 Alloy Steel Bolting Materials for High-Temperature Service

A 194-88 Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service"

3. Pages 2 and 3, paragraph 3.1. Revise the following ASTM references as shown:

"A 276-89a" to "A 276-92"

"A 320-88" to "A 320-93"

"A 582-87" to "A 582-93"

"D 2000-75" to "D 2000-96"

4. Page 5, paragraph 8.1. Delete the sentence in its entirety and substitute "Material for iron castings shall meet the applicable requirements of either ASTM A 48 for "Class Nos. 30A, 30B or 30C or ASTM A126, "Class B". " therefor.

5. Page 5, paragraph 8.3. Delete the paragraph in its entirety and replace with:

"8.3 Corrosion-Resisting Steel. Corrosion-resisting steel rods for stems and fasteners shall meet the applicable requirements of ASTM A 276 for "Type 302 or 304"."

6. Page 5, paragraph 8.4. Delete the paragraph in its entirety and replace it with "8.4 Reserved".

7. Delete pages 6 and 7 in their entirety and substitute the attached revised pages 6, 7, 7a, and 7b therefor.

8. Page 10, paragraph 10.2.2. Add the following to the end of the paragraph "For the butterfly gates, the Contractor shall rewind and convert a 60 hz system motor to 25 hz system motor if the 25 hz system motor is not readily available."

DRAWINGS

1. Dwg. 2-2 of 2-7, Grid Line C-3. Change "0.75'" to "7.5'".

2. Dwg. 2-2 of 2-7, Grid Line A-4. Change "REPLACE IN-KIND AS REQUIRED FOR" to "REPLACE AS REQUIRED FOR".

3. Dwg. 2-7 of 2-7, EAST MONOLITH SECTION AND WEST MONOLITH SECTION. Replace "STEEL WALL THIMBLE" with "TYPE F WALL THIMBLE".

4. Dwg. 3-1 of 3-10. Delete the construction easement and safety fencing lines and all notations identifying these lines. Add the following note: "THE NORMAL WATER ELEVATION SURFACE ON THE FLOODSIDE IS APPROXIMATELY 2.0 N.G.V.D."

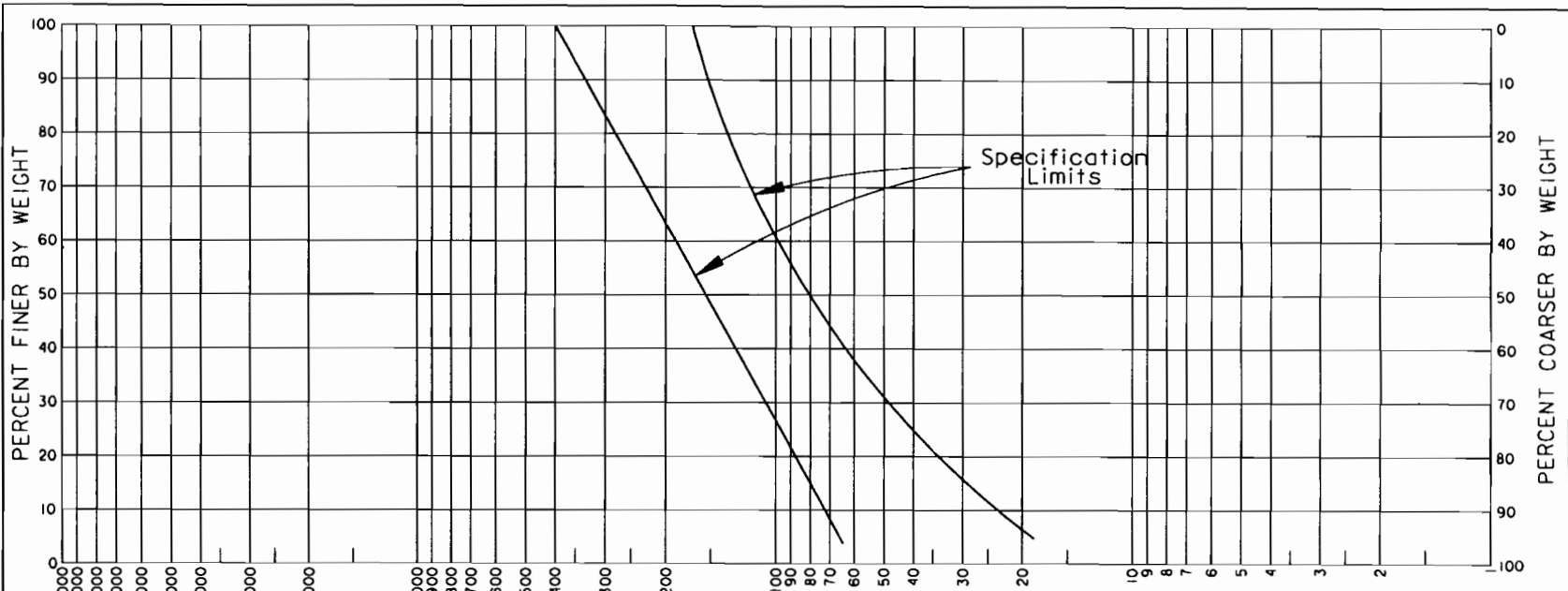
5. Dwg. 3-6 of 3-10, Section A. Change the depth of rip-rap from 3'-9" to 3'-0".

6. Dwg. 9-3 of 9-10. Delete the construction easement lines and all notations identifying these lines.

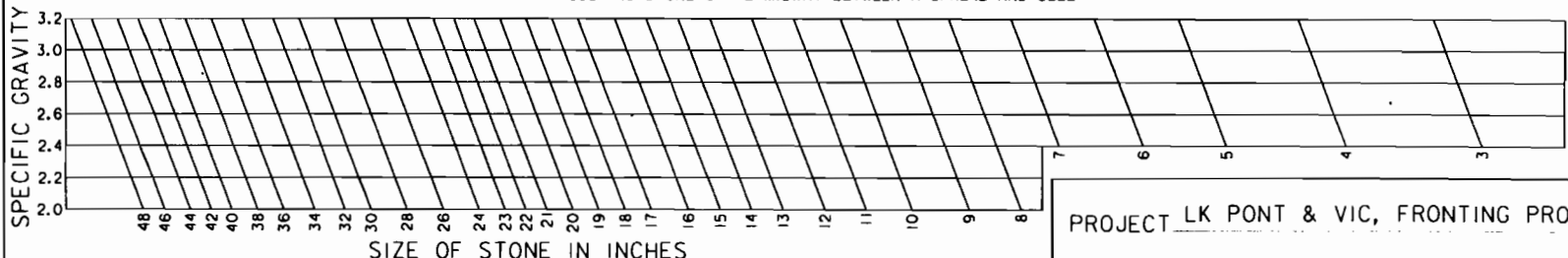
SECTION 00010 - BIDDING SCHEDULE
Lake Pontchartrain, LA and Vicinity, Hurricane Protection, High Level Plan,
Fronting Protection at Pump Station #6, Orleans Parish - Jefferson Parish,
17th Street Outfall Canal (Metarie Relief)

Item	DESCRIPTION	Estimated Quantity	Unit	Unit Price	Estimated Amount
0001	Mobilization and Demobilization	Lump Sum	LS		
0002	Clearing and Grubbing	Lump Sum	LS		
0003	Cofferdam Excavation (East Monolith)	Lump Sum	LS		
0004	Cofferdam Excavation (West Monolith)	Lump Sum	LS		
0005	Channel Excavation	Lump Sum	LS		
0006	Embankment	Lump Sum	LS		
0007	Fertilizing and Seeding	Lump Sum	LS		
0008	Armor Stone (Rip-Rap)				
0008AA	First 1583 Tons	1583	Tons		
0008AB	All Over 1583 Tons	1583	Tons		
*0009	Piling, Steel Sheet, Type PZ-22	5611	SF		
0010	Piling, Steel Sheet, Type CZ-114	480	SF		
0011	Piling, Steel Sheet, Type PSA-23	285	SF		
0012	Construction Dewatering	Lump Sum	LS		
0013	Cofferdam (East Monolith)	Lump Sum	LS		
0014	Cofferdam (West Monolith)	Lump Sum	LS		
*0015	Furnish Steel H-Piles (HP 14 x 73)	13,800	LF		
*0016	Driving Steel H-Piles (HP 14 x 73)	13,800	LF		
0017	Reinforced Concrete	Lump Sum	LS		

* Denotes change from previous Bid Schedule



WEIGHT OF STONE IN POUNDS •
 SPECIFIC GRAVITY OF ROCK
 * ASSUMING STONE SHAPE MIDWAY BETWEEN A SPHERE AND CUBE



STONE GRADATION:

<u>% Light By Weight</u>	<u>Limit of Stone Wight in Lbs..</u>
100	400 - 160
50	160 - 080
15	80 - 30

PROJECT LK PONT & VIC, FRONTING PROTECT.
 AREA PS #6, ORL & JEFF PARISHES, LA.
 DATE OCT 98

RIPRAP GRADATION CURVES

PART 2 PRODUCTS

11. **SPECIAL PAINT FORMULAS.** Special paints shall have the composition as indicated in the formulas listed herein. Where so specified, certain components of a paint formulation shall be packaged in separate containers for mixing on the job. If not specified or otherwise prescribed, the color shall be that naturally obtained from the required pigmentation.

12. **PAINT FORMULATIONS.** Special paint formulas shall comply with the following.

12.1 Formula V-766e, Vinyl-Type White (or Gray) Paint.

<u>INGREDIENTS</u>	<u>PERCENT BY WEIGHT</u>
Vinyl Resin, Type 3	5.6
Vinyl Resin, Type 4	11.6
Titanium Dioxide and (for Gray)	
Carbon Black	13.0
Diisodecyl Phthalate	2.9
Methyl Isobutyl Ketone	32.0
Toluene	34.7
Ortho-Phosphoric Acid	0.2
	<hr/>
	100.0

12.1.1 Processing. The dispersion of pigment shall be accomplished by means of pebble mills or other approved methods to produce a fineness of grind (ASTM D 1210) of not less than 7 on the Hegman scale. Grinding in steel-lined or steel-ball mills will not be permitted. No grinding aids, antissettling agents, or any other materials except those shown in the formula will be permitted. The paint shall show the proper proportions of specified materials when analyzed by chromatographic and/or spectrophotometric methods. The ortho-phosphoric acid shall be measured accurately and diluted with at least four parts of ketone to one part of acid and it shall be slowly incorporated into the finished paint with constant and thorough agitation.

12.1.2 Viscosity. The viscosity of the paint shall be between 60 and 90 seconds using ASTM D 1200 and a No. 4 Ford cup.

12.1.3 Colors. The white and gray paints shall be furnished in the volume ratio designated by the purchaser. The gray paint shall contain no pigments other than those specified. Enough carbon black shall be included to produce a dry paint film having a

reflectance of 20-24 (ASTM E 1347). The resulting gray color will approximate Munsell color 2.5PB 5/2 identified in MD-40219.

12.2 Formula C-200a, Coal Tar-Epoxy (Black) Paint. The paint shall conform to SSPC Paint 16 manufactured with Type 1 pitch. In addition to standard labeling, container labels shall include the term, Corps of Engineers Formula C-200a.

13. INGREDIENTS FOR SPECIAL PAINT FORMULAS. The following ingredient materials and thinners apply only to those special paints whose formulas are shown above in detail.

13.1 Pigments and Suspending Agents.

13.1.1 Carbon Black. Carbon black shall conform to ASTM D 561, Type I or II.

13.1.2 Titanium Dioxide. Titanium dioxide in vinyl paint Formula V-766e shall be one of the following: Kronos 2160 or 2101, Kronos, Inc.; Ti-Pure 960, E.I. Dupont DeNemours and Co., Inc.; Unitane OR-650, Kermira, Inc.

13.2 Resins, Plasticizer, and Catalyst.

13.2.1 Diisodecyl Phthalate. Diisodecyl Phthalate shall have a purity of not less than 99.0 percent, shall contain not more than 0.1 percent water, and shall have an acid number (ASTM D 1045) of not more than 0.10.

13.2.2 Vinyl Resin, Type 3. Vinyl resin, Type 3, shall be a vinyl chloride-acetate copolymer of medium average molecular weight produced by a solution polymerization process and shall contain 85 to 88 percent vinyl chloride and 12 to 15 percent vinyl acetate by weight. The resin shall have film-forming properties and shall, in specified formulations, produce results equal to Vinylite resin VYHH, as manufactured by the Union Carbide Corporation.

13.2.3 Vinyl Resin, Type 4. Vinyl resin, Type 4, shall be a copolymer of the vinyl chloride-acetate type produced by a solution polymerization process, shall contain (by weight) 1 percent interpolymerized dibasic acid, 84 to 87 percent vinyl chloride, and 12 to 15 percent vinyl acetate. The resin shall have film-forming properties and shall, in the specified formulations, produce results equal to Vinylite resin VMCH, as manufactured by the Union Carbide Corporation.

13.2.4 Ortho-phosphoric Acid. Ortho-phosphoric acid shall be a chemically pure 85-percent grade.

13.3 Solvent and Thinners.

13.3.1 Methyl Ethyl Ketone. Methyl ethyl ketone (MEK) shall conform to ASTM D 740.

13.3.2 Methyl Isobutyl Ketone. Methyl isobutyl ketone (MIBK) shall conform to ASTM D 1153.

13.3.3 Methyl Isoamyl Ketone. Methyl isoamyl ketone (MIAK) shall conform to ASTM D 2917.

13.3.4 Toluene. Toluene shall conform to ASTM D 841.

13.3.5 Xylene. Xylene shall conform to ASTM D 843.

14. TESTING.

14.1 Chromatographic Analysis. Solvents in vinyl and epoxy paints and thinners shall be subject to analysis by programmed temperature gas chromatographic methods and/or spectrophotometric methods, employing the same techniques that give reproducible results on prepared control samples known to meet the specifications. If the solvent being analyzed is of the type consisting primarily of a single chemical compound or a mixture or two or more such solvents, interpretation of the test results shall take cognizance of the degree of purity of the individual solvents as commercially produced for the paint industry.

14.2 Vinyl Paints. Vinyl paints shall be subject to the following adhesion test. When V-766 is tested, 5 to 7 mils (dry) shall be spray applied to mild steel panels. The steel panels shall be essentially free of oil or other contaminants that may interfere with coating adhesion. The test panels shall be dry blast cleaned to a White Metal grade which shall be in compliance with SSPC SP 5. The surface shall have an angular profile of 2.0 to 2.5 mils as measured by ASTM D 4417, Method C. After being air dried for 2 hours at room temperature, the panel shall be dried in a vertical position for 16 hours at 120 degrees F. After cooling for 1 hour, the panel shall be immersed in tap water at 85 to 90 degrees F for 48 to 72 hours. Immediately upon removal, the panel shall be dried with soft cloth and examined for adhesion as follows: With a pocket knife or other suitable instrument, two parallel cuts at least 1 inch long shall be made 1/4 to 3/8 inch apart through the paint film to the steel surface. A third cut shall be made perpendicular to and passing through the end of the first two. With the tip of the knife blade, the film shall be loosened from the panel from the third cut between the parallel cuts for a distance of 1/8 to 1/4 inch. With the panel being held horizontally, the free end of the paint film shall be grasped between the thumb and forefinger and pulled vertically in an attempt to remove the film as a strip from between the first two cuts. The strip of paint film shall be removed at a rate of approximately 1/10 inch per second and shall be maintained in a vertical

position during the process of removal. The adhesion is acceptable if the strip of paint breaks when pulled or if the strip elongates a minimum of 10 percent during its removal. Paints not intended to be self-priming shall exhibit no delamination from the primer.

PART 3 EXECUTION

15. CLEANING AND PREPARATION OF SURFACES TO BE PAINTED.

15.1 General Requirements. Surfaces to be painted shall be cleaned before applying paint or surface treatments. Deposits of grease or oil shall be removed in accordance with SSPC SP 1, prior to mechanical cleaning. Solvent cleaning shall be accomplished with mineral spirits or other low toxicity solvents having a flashpoint above 100 degrees F. Clean cloths and clean fluids shall be used to avoid leaving a thin film of greasy residue on the surfaces being cleaned. Items not to be prepared or coated shall be protected from damage by the surface preparation methods. Machinery shall be protected against entry of blast abrasive and dust into working parts. Cleaning and painting shall be so programmed that dust or other contaminants from the cleaning process do not fall on wet, newly painted surfaces, and surfaces not intended to be painted shall be suitably protected from the effects of cleaning and painting operations. Welding of, or in the vicinity of, previously painted surfaces shall be conducted in a manner to prevent weld spatter from striking the paint and to otherwise reduce coating damage to a minimum; paint damaged by welding operations shall be restored to original condition. Surfaces to be painted that will be inaccessible after construction, erection, or installation operations are completed shall be painted before they become inaccessible.

15.2 Ferrous Surfaces Subject to Severe Exposure. Ferrous surfaces subject to extended periods of immersion or as otherwise required shall be dry blast-cleaned to SSPC SP 5. The blast profile, unless otherwise specified, shall be 1.5 to 2.5 mils as measured by ASTM D 4417, Method C. Appropriate abrasive blast media shall be used to produce the desired surface profile and to give an angular anchor tooth pattern. If recycled blast media is used, an appropriate particle size distribution shall be maintained so that the specified profile is consistently obtained. Steel shot or other abrasives that do not produce an angular profile shall not be used. Weld spatter not dislodged by blasting shall be removed with impact or grinding tools and the areas reblasted prior to painting. Surfaces shall be dry at the time of blasting. Blast cleaning to SSPC SP 5 shall be done in the field and, unless otherwise specifically authorized, after final erection. Within 8 hours after cleaning, prior to the deposition of any detectable moisture, contaminants, or corrosion, all ferrous surfaces blast cleaned to SSPC SP 5 shall be cleaned of dust and abrasive particles by brush, vacuum cleaner, and/or blown down with clean, dry, compressed air, and given the first coat of paint. All abrasives used in sandblasting operations shall contain less than 1% silica, unless approved in writing by the Contracting Officer. Upon written request by the Contractor, the Contracting Officer may authorize mill or shop cleaning of assembled or

partially assembled components specified to receive one of the vinyl-type paint systems. The surfaces, if shop blasted, shall be shop coated with the first and second coats of the specified paint system. The shop coating shall be maintained in good condition by cleaning and touching up of areas damaged during the construction period. If pinpoint or general rusting appears, surfaces shall be reblasted and repainted at no added cost to the Government. Prior to the field application of subsequent coats, soiled areas of the shop coating shall be thoroughly cleaned and all welds or other unpainted or damaged areas shall be cleaned and coated in a manner to make them equivalent to adjacent, undamaged paint surfaces.

16. PAINT APPLICATION.

16.1 General. The finished coating shall be free from holidays, pinholes, bubbles, runs, drops, ridges, waves, laps, excessive or unsightly brush marks, and variations in color, texture, and gloss. Application of initial or subsequent coatings shall not commence until the Contracting Officer has verified that atmospheric conditions and the surfaces to be coated are satisfactory. Each paint coat shall be applied in a manner that will produce an even, continuous film of uniform thickness. Edges, corners, crevices, seams, joints, welds, rivets, corrosion pits, and other surface irregularities shall receive special attention to ensure that they receive an adequate thickness of paint. Spray equipment shall be equipped with traps and separators and where appropriate, mechanical agitators, pressure gauges, pressure regulators, and screens or filters. Air caps, nozzles, and needles shall be as recommended by the spray equipment manufacturer for the material being applied. Airless-type spray equipment may be used only on broad, flat, or otherwise simply configured surfaces, except that it may be employed for general painting if the spray gun is equipped with dual or adjustable tips of proper types and orifice sizes. Airless-type equipment shall not be used for the application of vinyl paints.

16.2 Mixing and Thinning. Paints shall be thoroughly mixed, strained where necessary, and kept at a uniform composition and consistency during application. Paste or dry-powder pigments specified to be added at the time of use shall, with the aid of powered stirrers, be incorporated into the vehicle or base paint in a manner that will produce a smooth, homogeneous mixture free of lumps and dry particles. Where necessary to suit conditions of the surface temperature, weather, and method of application, the paint may be thinned immediately prior to use. Thinning shall generally be limited to the addition of not more than 1 pint per gallon of the proper thinner; this general limitation shall not apply when more specific thinning instructions are provided.

16.9 Drying Time Prior to Immersion. Minimum drying periods after final coat prior to immersion shall be: vinyl-type paint systems at least 3 days, and cold-applied coal tar systems at least 7 days. Minimum drying periods shall be increased twofold if the drying temperature is below 65 degrees F and/or if the immersion exposure involves considerable abrasion.

16.10 Protection of Painted Surfaces. Where shelter and/or heat are provided for painted surfaces during inclement weather, such protective measures shall be maintained until the paint film has dried and discontinuance of the measures is authorized. Items that have been painted shall not be handled, worked on, or otherwise disturbed until the paint coat is fully dry and hard. All metalwork coated in the shop or field prior to final erection shall be stored out of contact with the ground in a manner and location that will minimize the formation of water-holding pockets; soiling, contamination, and deterioration of the paint film, and damaged areas of paint on such metalwork shall be cleaned and touched up without delay. The first field coat of paint shall be applied within a reasonable period of time after the shop coat and in any event before weathering of the shop coat becomes extensive.

16.11 Vinyl Paints.

16.11.1 General. Vinyl paints shall be spray applied, except that areas inaccessible to spraying shall be brushed. All of the vinyl paints require thinning for spray application. Thinners for vinyl paints shall be as follows:

APPROXIMATE AMBIENT AIR TEMPERATURE
(Degree F)

Below 50	MEK
50 - 70	MIBK
Above 70	MIAC

The amount of thinner shall be varied to provide a wet spray and avoid deposition of particles that are semidry when they strike the surface. Vinyl paints shall not be applied when the temperature of the ambient air receiving surfaces is less than 35 degrees F nor when the receiving surfaces are higher than 125 degrees F. Each spray coat of vinyl paint shall consist of a preliminary extra spray pass on edges, corners, interior angles, pits, seams, crevices, junctions of joining members, rivets, weld lines, and similar surface irregularities followed by an overall double spray coat. A double spray coat of vinyl-type paint shall consist of applying paint to a working area of not less than several hundred square feet in a single, half-lapped pass, followed after drying to at least a near tack-free condition by another spray pass applied at the same coverage rate and where practicable at right angles to the first. Rivets, bolts, and similar surface projections shall receive sprayed paint from

every direction to ensure complete coverage of all faces. Pits, cracks, and crevices shall be filled with paint insofar as practicable, but in any event, all pit surfaces shall be thoroughly covered and all cracks and crevices shall be sealed off against the entrance of moisture. Fluid and atomization pressures shall be kept as low as practicable consistent with good spraying results. Unless otherwise specified, not more than 2.0 mils, average dry film thickness, of vinyl paint shall be applied per double spray coat. Except where otherwise indicated, an undercoat of the vinyl-type paint may receive the next coat any time after the undercoat is tack-free and firm to the touch, provided that no speedup or delay in the recoating schedule shall cause film defects such as sags, runs, air bubbles, air craters, or poor intercoat adhesion. Neither the prime coat nor any other coat shall be walked upon or be subjected to any other abrading action until it has hardened sufficiently to resist mechanical damage.

16.11.2 Vinyl Paints. Vinyl Paints (Formula V-766e) is a ready-mixed paints designed to be spray applied over a wide range of ambient temperatures by field thinning with the proper type and amount of thinner. For spray application, it shall be thinned as necessary up to approximately 25 percent (1 quart per gallon of base paint) with the appropriate thinner; when ambient and steel temperatures are above normal, up to 40-percent thinning may be necessary for satisfactory application.

16.12 Coal Tar-Epoxy (Black) Paint (Formula C-200a).

16.12.1 Mixing. Component B shall be added to previously stirred Component A and thoroughly mixed together with a heavy-duty mechanical stirrer just prior to use. The use of not more than 1 pint of xylene thinner per gallon of paint will be permitted to improve application properties and extend pot life. The pot life of the mixed paint, extended by permissible thinning, may vary from 2 hours in very warm weather to 5 or more hours in cool weather. Pot life in warm weather may be extended by precooling the components prior to mixing; cooling the mixed material; and/or by slow, continuous stirring during the application period. The mixed material shall be applied before unreasonable increases in viscosity take place.

16.12.2 Application. Spray guns shall be of the conventional type equipped with a fluid tip of approximately 0.09 inch in diameter and external atomization, seven-hole air cap. Material shall be supplied to the spray gun from a bottom withdrawal pot or by means of a fluid pump; hose shall be 1/2 inch in diameter. Atomization air pressure shall not be less than 80 psi. High-pressure airless spray equipment may be used only on broad, simply configured surfaces. Brush application shall be with a stiff-bristled tool heavily laden with material and wielded in a manner to spread the coating smoothly and quickly without excessive brushing. The coverage rate of the material is approximately 110 square feet per gallon per coat to obtain 20 mils (dry thickness) in a two-coat system. The paint shall flow together and provide a coherent, pinhole-free film. The direction of the spray passes (or

finish strokes if brushed) of the second coat shall be at right angles to those of the first where practicable.

16.12.3 Subsequent Coats. Except at the high temperatures discussed later in this paragraph, the drying time between coal tar-epoxy coats shall not be more than 72 hours, and application of a subsequent coat as soon as the undercoat is reasonably firm is strongly encouraged. Where the temperature for substrate or coating surfaces during application or curing exceeds or can be expected to exceed 125 degrees F as the result of direct exposure to sunlight, the surfaces shall be shaded by overhead cover or the interval between coats shall be reduced as may be found necessary to avoid poor intercoat adhesion. Here, poor intercoat adhesion is defined as the inability of two or more dried coats of coal tar-epoxy paint to resist delamination when tested aggressively with a sharp knife. Under the most extreme conditions involving high ambient temperatures and sun-exposed surfaces, the drying time between coats shall not exceed 10 hours, and the reduction of this interval to a few hours or less is strongly encouraged. Where the curing time of a coal tar-epoxy undercoat exceeds 72 hours of curing at normal temperatures, 10 hours at extreme conditions, or where the undercoat develops a heavy blush, it shall be given one of the following treatments before the subsequent coat is applied:

a. Etch the coating surface lightly by brushoff blasting, using fine sand, low air pressure, and a nozzle-to-surface distance of approximately 3 feet.

b. Remove the blush and/or soften the surface of the coating by wiping it with cloths dampened with 1-methyl-2-pyrrolidone solvent or with Bitumastic 2CB solvent marketed by the Kopcoat, Inc or approved equal. The solvents may be applied to the surface by fog spraying followed by wiping, but any puddles of solvent must be mopped up immediately after they form. The subsequent coat shall be applied in not less than 15 minutes or more than 3 hours after the solvent treatment.

16.12.4 Ambient Temperature. Coal tar-epoxy paint shall not be applied when the receiving surface or the ambient air is below 50 degrees F nor unless it can be reasonably anticipated that the average ambient temperature will be 50 degrees F or higher for the 5-day period subsequent to the application of any coat.

16.12.5 Safety. In addition to the safety provisions in paragraph 7, other workmen as well as painters shall avoid inhaling atomized particles of coal tar-epoxy paint and contact of the paint with the skin.

17. PAINT SYSTEMS APPLICATION. The required paint systems and the surfaces to which they shall be applied are shown in this paragraph, and/or in the drawings. Supplementary information follows.

17.1 Fabricated and Assembled Items. Items that have been fabricated and/or assembled into essentially their final form and that are customarily cleaned and painted in accordance with the manufacturer's standard practice will be exempted from equivalent surface preparation and painting requirements described herein, provided that:

a. Surfaces primed (only) in accordance with such standard practices are compatible with specified field-applied finish coats.

b. Surfaces that have been primed and finish painted in accordance with the manufacturer's standard practice are of acceptable color and are capable of being satisfactorily touched up in the field.

c. Items expressly designated herein to be cleaned and painted in a specified manner are not coated in accordance with the manufacturer's standard practice if different from that specified herein.

17.2 Surface Preparation. The method of surface preparation and pretreatment shown in the tabulation of paint systems is for identification purposes only. Cleaning and pretreatment of surfaces prior to painting shall be accomplished in accordance with detailed requirements previously described.

17.3 System No. 4. Paint shall be spray applied to an average minimum dry film thickness of 7.5 mils for the completed system, and the thickness at any point shall not be less than 6.0 mils. The specified total film thickness shall be attained in any event, and additional coats needed to attain the specified thickness shall be applied at no additional cost to the Government. Attaining the specified film thickness in fewer than the prescribed number of coats or spray passes will be acceptable provided heavier applications do not cause an increase in pinholes, bubbles, blisters, or voids in the dried film and also provided that no more than 2.0 mils (dry film thickness) per double spray coat nor more than 1.0 mil per single spray pass of nonzinc paint shall be applied at one time.

17.4 System No. 6. Paint shall be spray or brush applied with a minimum of two coats to provide a minimum total thickness at any point of 16 mils. The specified film thickness shall be attained in any event, and any additional (beyond two) coats needed to attain specified thickness shall be applied at no additional cost to the Government.

18. PAINTING SCHEDULES.

SYSTEM NO. 4

Items or surfaces to be coated: Sluice gates, hoists, miscellaneous metal and all ferrous metal not otherwise specified to be painted, except corrosion resistant steel,

galvanized steel and padlocks. The sluice gates, and hoist may be furnished with an approved standard manufactures finish in lieu of paint System No. 4.

SURFACE

<u>PREPARATION</u>	<u>1st COAT</u>	<u>2nd COAT</u>	<u>3rd COAT</u>	<u>4th COAT</u>	<u>5th COAT</u>
White metal blast clean	White Vinyl V-766e (double spray coat)	Gray Vinyl V-766e (double spray coat)	White Vinyl V-766e (double spray coat)	Gray Vinyl V-766e (double spray coat)	Gray Vinyl V-766e (double spray coat)

SYSTEM NO. 6

Items or surfaces to be coated:

(a) All sheet piling from cut-off to EL. (-)12.00 excluding the portion encased in concrete. Interlock grooves of the sheet piling shall not be painted. The unpainted portions of sheet piling which are to be embedded in concrete shall be free from surface contaminants such as oil, loose particles or similar conditions that would prohibit bonding between the concrete and sheet piling.

(b) All manway covers, drainage gates and steel pipe sleeves exposed.

(c) All damaged metal surfaces. Prepainted items shall be recoated in accordance with the manufacturers recommendation and all sheet pile shall be coated with coal tar epoxy.

SYSTEM NO. 6

SURFACE

<u>PREPARATION</u>	<u>1st COAT</u>	<u>2nd COAT</u>	<u>3rd COAT</u>
White metal blast cleaning (black)	Coal tar- epoxy C-200a (black)	Coal tar- epoxy C-200a (black) (if needed to attain required thickness)	Coal tar- epoxy C-200a

PAINTING EXISTING CONSOLES

(1) Each console and end panel shall be thoroughly cleaned of all oil, grease, weld splatter, and surface rust prior to priming and painting.

(2) Cleaning shall include a complete washdown with Sherwin Williams or Dupont metal preparation, No. 57175 as listed on the drawings.

(3) All minor visible surface scratches dents, and imperfections shall be filled and sanded flat and smooth prior to finishing.

(4) Paint coatings shall be applied in accordance with the manufacturer's recommended procedures for air atomized spray processes. Brush or roller application of primer or paint will not be accepted.

(5) All surfaces shall have a high gloss finish, free of runs, drips, and uneven paint coverage. Any console with such imperfections shall be rejected by the Board Engineer and shall be refinished as previously specified.

(6) All interior and exterior surfaces, except aluminum mounting panels, shall be coated with Dupont Imron polyurethane enamel automotive finish, as specified below:

(a) Prime coat of self-etching gray primer consisting of #615S primer and #616S converter. If necessary, reduction up to a maximum of 10% by volume may be accomplished using #8100S retarder.

(b) Finish coat of #78387U Light Blue, per chart chip #69, using #192S activator and #8485S reducer, limited to 10% by volume.

19. PROTECTION OF NON-PAINTED ITEMS AND CLEANUP. Walls, equipment, fixtures and all other items in the vicinity of the surfaces being painted shall be maintained free of damage by paint or painting activities. Prompt cleanup of any paint spillage and prompt repair of any painting activity damage shall be required.

20. MEASUREMENT AND PAYMENT. No separate measurement or payment will be made for painting. Payment for all painting work performed and for all materials furnished under the section of the specifications for painting will be included in the contract unit or lump sum prices for which the work is incidental to.

9. FLOOR STANDS, ACCESSORIES AND APPURTENANCE.

9.1. Sluice Gates.

9.1.1 Description. Floor stands, associated lifting machinery and accessories shall be designed for gates with opening as shown on drawings 2-5 and 2-6 and maximum heads of 20 feet seating and 10 feet unseating. Each gate shall be of Cast Iron (ASTM A 126, Class B), fully bronze mounted, shall have side wedging devices for seating heads and shall be the rising stem, flush bottom type.

9.1.2 Frame. The frame shall be the flange back type and of one piece, cast-iron construction (ASTM A 126, CL B). All contact surfaces of the frame shall be machine-finished. The frame shall be machined on its front face to accommodate the seat facings. A machined cast-iron stop bar shall be bolted and keyed to the frame to form a flush invest. The back face of the frame shall be drilled and machined to bolt directly to the machined face of the thimble. All bolt holes shall be drilled using templates to match the thimble. The frame shall have integrally cast pads with machined surfaces and keyways to receive the side, wedging devices.

9.1.3 Guides. The guides shall be of one-piece, cast-iron construction (ASTM A 126, CL B), conservatively designed to withstand the total thrust due to the water pressure and the wedging action. The guides shall be machine-finished on all contact surfaces, and a groove shall be machined the full length of the guide to provide sufficient clearance between the slide tongue and the guide groove to permit free movement and ensure proper engagement of the wedging devices. The guides shall have machined areas on their front faces for at least one-half the vertical gate opening and shall be sufficiently long to retain and support at least one-half of the slide when the gate is in the full-open position. The guides shall be attached to the frame with AISI 304 stainless steel bolts and washers and bronze nuts, and shall be doweled to prevent relative motion between the guides and frame. Integrally cast pads with machined surfaces shall be provided for attachment of the wedging devices.

9.1.4 Slide. The slide shall be either square or rectangular and of one-piece, cast-iron construction (ASTM A 126, CL B) with integrally-cast vertical and horizontal ribs and a reinforced section around the perimeter to provide for the seat facings. The slide shall have machined areas on its seating face to accommodate the seat facings. A tongue shall be provided on each side of the slide, shall extend its full length and shall be machined on all sides to provide sufficient clearance between the tongue and the guide groove to permit free movement. Integrally cast pads shall be provided and machine-finished to receive the wedges. A stem nut pocket shall be cast integrally on the vertical centerline and above the horizontal center and shall be shaped to receive the stem nut.

9.1.5 Wedging Devices. The gate shall be provided with sufficient side wedging devices to limit leakage to 0.1 gallon per minute per foot of perimeter at the specified maximum seating. The wedging devices shall be of solid cast bronze, machine -finished on all contact surfaces and keyed to the cast-iron pads to maintain adjustment. The wedging devices shall be attached with either bronze or steel studs and bronze nuts, and the adjustable element shall be provided with a bronze adjusting screw with either a bronze lock nut or another approved locking device.

9.1.6 Seat Facings. Seat facings shall be of extruded bronze. The facings shall be attached to the machine-finished areas on the frame, guides and slide by bolting, brazing, dovetail-type grooving or another method approved by the Contracting Officer. The width of the facing shall be not less than 3/4-inch. After attachment, the facing shall be machined to a plane surface and to at least a 63 micro-inch finish. The seal shall be a specially molded shape designed to produce a wide sealing area on the machined stop bar bolted to the frame. The differential sealing pressure of the seal on the stop bar shall be capable of being varied by adjustment of the side wedging devices.

9.1.7 Wall Thimble. The wall thimbles shall be of one-piece, cast- iron construction (ASTM A 126, CL B) of "E" and "F" cross section as shown on the contract drawings, and provided with an integrally- cast ring or water stop. The front flange face shall be machine- finished to a plane surface and provided with tapped holes, using a template to match the drilling of the frame. The vertical centerline shall be clearly shown by permanent marks at the top and bottom of the machined surface and the word "TOP" shall be permanently marked thereon. The thimble shall be provided with holes in the invert to permit satisfactory concrete placement. A permanent gasket of uniform thickness shall be provided between the front face of the thimble and the back face of the frame.

9.1.8 Stem, Couplings and Stem Guides. The stem shall be of sufficient diameter to withstand, without buckling or permanent distortion, the stresses induced by closing the gate under locked torque conditions. Stem threads shall be either machine-cut or rolled and of the ACME type. The stem and nut threads shall have sufficient contact area so that the contact pressure will not exceed 5,000 psi when the maximum stem thrust is exerted. The stem thread surfaces in contact with the lift nut shall have not rougher than a 63 micro-inch finish if machine cut and not rougher than a 32 micro- inch finish if roll-formed. The exterior corners of the threads, either during or after machining, shall be given a slight radius of approximately 0.015-inch in order to prevent them from acting as cutting edges as the stem passes through the lift nut. The stem shall be of corrosion-resisting steel. The stem shall be fitted with a tapped hole in the top end for handling. The tapped hole shall be of sufficient diameter and depth for the insertion of an eyebolt of sufficient strength to pick up the entire stem from a horizontal position. The stem shall be provided at its lower end with a bronze thrust nut which will fit into the pocket provided therefor on the slide and which will positively prevent rotation of the stem. Stem guides shall be of cast-iron,

bronze bushed and mounted on cast iron brackets. They shall be drilled and slotted so as to be adjustable in two directions and shall be spaced at close enough intervals to support the stem adequately with an L/R ratio of not more than 200. The bronze bushing shall be machine-bored 1/16-inch to 1/8-inch larger than the stem diameter. The stem guide, including the bronze bushing, shall be the two-piece collar type which can be installed and removed with the stem in place. Stem guides shall be attached with corrosion resistant steel anchor bolts.

9.1.9 Fasteners. All fasteners shall be of either silicon bronze or corrosion-resisting steel. The quantity and size of fasteners shall be as recommended by the gate manufacturer.

9.1.10 Stem Cover. A readily removable stem cover, fabricated from galvanized, standard wall steel pipe shall be provided for each gate operator. The cover shall attach to the top of the operator with conservatively sized corrosion resistant fasteners. The cover shall be provided with an opening through which the stem may be inspected and lubricated. A gasketed cover with wing nuts shall be furnished to seal this opening.

9.1.11 Painting Gates. The gates shall be painted as specified in Section 09940.

9.1.12 Lube Reservoir. A manual lube reservoir shall be installed on each floor stand to feed oil to the lift nut during operation.

9.2 Butterfly Gates.

9.2.1 Description. Butterfly gates shall be square and shall be as manufactured by Hydro Gate or equal. They shall be of the size shown on the contract drawings. Each gate shall be complete with frame, leaf, actuator, and all necessary attaching bolts. Each gate shall be self-contained and when installed in accordance with the manufacturer's recommendations, shall be watertight up to a differential head of 20 ft on the horizontal centerline of the gate.

9.2.2 Gate Leaf. The gate leaf shall be fabricated from ASTM A36 carbon steel. It shall be designed for the maximum head shown on the drawings. Design stresses for all structural parts shall have a safety factor of 3.0 on the yield strength or 5.0 on ultimate strength - whichever is less. A stainless steel seating face shall be furnished around the periphery of the leaf. The four corners of the leaf shall be rounded with a radius not to exceed 7.25 in. to seal with similar rounded corners in the gate frame.

9.2.3 Gate Frame. The gate frame shall be fabricated from ASTM A36 carbon steel to the size shown on the drawings and shall be arranged to be installed as shown in the contract drawings.

9.2.3.1 A resilient, neoprene seal shall be attached firmly to the gate frame to provide a watertight contact with the stainless steel seating face on the gate leaf when the gate is in the fully closed position. All stainless steel parts shall be per ASTM A582, Type 303; or ASTM A276, Type 304 or 304L.

9.2.3.2 The stainless steel back-up angle for the seal shall be positioned accurately and welded to the gate frame. Stainless steel studs shall be welded to the back-up angle on a center-to-center spacing as required to hold the seal in place and provide field adjustment when required. Adjusting segments shall be furnished to contain the downstream side of the resilient seal and push uniformly against the seal for adjustment and to hold it in place. Adjusting fasteners and segments shall be Type 303 or Type 304 stainless steel. The neoprene seal shall be adjustable from the downstream side of the leaf after the gate is installed.

9.2.3.4 Shaft bearing housings shall be bored and supplied with vertical shaft bearings of the self-lubricating type. The maximum unit pressure on the bearing shall not