



Calamba Water District

Lakeview Subdivision, Halang, Calamba, Laguna
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PROJECT TITLE : **RENOVATION WORKS AND ADDITIONAL ROOFS OF BUCAL WATER INTAKE STRUCTURE**
LOCATION : **BGRY. BUCAL, CALAMBA CITY**

I. SCOPE OF WORKS AND SPECIFICATIONS

FOR THE SUPPLY OF LABOR , MATERIALS AND SUPERVISION FOR THE ABOVE PROJECT TITLE

A. OLD INTAKE BOX ROOF STRUCTURE

- 1 Dismantling and replacement of roofing sheets, flashing and inside gutter
- 2 Alignment of existing woods/metal rafter.
- 3 Replacement of wooden Purlins with Steel C- Purlin spaced @ 0.60m on center.
- 4 Dismantling and replacement of ceiling boards and nailers.
- a. Boards shall be screwed/nailed to ceiling joist and nailing strips in the pattern as shown in the drawing with hardiflex screw/nail evenly spaced @ 200mm on centers, each way.
- b. Ceiling joist shall be metal furring channel (metal component) spaced @ 0.60 meter on center, both ways.

A.1 MATERIALS SPECIFICATIONS

- a. Roof : Ga. # 24 Coloroof Pre-painted Long Span
- b. Purlin : 1.2mm thk x 50mm x 75 mm GI C-Furlin
- c. Ceiling : 6mm thk x 1.22m x 2.44m Hardiflex Board
- d. Ceiling Joist : 0.6mm thk x 19mm x 50mm Metal Furring
- e. Flashing/inside gutter : Gage # 24 Coloroof Pre-painted flashing
- f. Roofing Screw : 2 1/2 in. Brass tek screw with self sealing neoprene washer
- g. Metal screw for ceiling joist
- h. Aluminum blind rivet for flashing

B. SUCTION PIPE AREA ROOF STRUCTURE

- 1 The work consist all materials, equipment, tools, labor and other facilities and satisfactory performance of all works necessary to complete all roofing and tinnery works as shown in the drawing and as specified herein.
- 2 The materials supplied by the contractor on this items shall conform to with the US Standards or with any other international standards of equal value
- 3 Flashing and gutters shall be riveted that will ensure the watertight workmanship
- 4 All trusses must be 2 angle bars for top and bottom chord; for all members use 1 angle bar, properly welded. Steel c-purlins spaced @ 0.60 m O.C. with angle bar stopper.
- 5 a. All ceiling boards shall be screwed/nailed to ceiling joist and nailing strips in the pattern as shown in the drawing with hardiflex screw/nail evenly spaced @ 200mm on centers, each way.
- b. Ceiling joist shall be metal furring channel (metal component) spaced @ 0.60 meter on center, both ways.
- 6 All Structural steel both angles and steel plates shall have an ultimate strength of $F_y=33000$ psi.
- 7 Metal components of Wall Panel to be installed in front of water intake structure to be bolted with masonry anchor on the perimeter fence.
- 8 All welding shall be by the shielded arc method and shall conform to the "AWS Code for Arc and gas Welding in Building Construction". Qualification of welders shall be in accordance with the "Specifications for Standard Qualification Procedure" of the AWS.

B.1 MATERIALS SPECIFICATIONS

- a. Roof : Gage # 24 Coloroof Pre-painted Long Span
- b. Purlin : 1.2mm thk x 50mm x 75 mm GI C-Purlin

- c. Ceiling : 6mm thk x 1.22m x 2.44m Hardiflex Board(**Roof Eaves only**)
- d. Ceiling Joist : 0.6mm thk x 19mm x 50mm Metal Furring
- e. Flashing : Gage # 24 Coloroof Pre-painted flashing
- f. Inside gutter : Gage # 24 SS Sheet
- g. Support of inside Gutter : 6mm thk x 25 mm MS FLat bar
- h. Trusses : 6mm thk. x 40mm x 40 mm MS angle bar
- i. Metal Component for Wall Panel
 - Infront of Water intake structure
- Vertical : 6mm thx x 50mm x 50 mm MS Angle Bar
- Horizontal : 6mm thx x 40mm x 40 mm MS Angle Bar
- j. - Additional roofing : 6mm thx x 40mm x 40 mm MS Angle Bar
- k. Masonry Anchor : 16 mmØ Dynabolt Masonry Anchor
- l. Roofing Screw : 2 1/2 in.Brass tek screw with self sealing neoprene washer
- m. Metal screw for ceiling joist
- n. Aluminum blind rivet for flashing
- o. Rafter for Upper Roofings : 1.2mm thk x 50mm x 150mm Aluminum C- Channel
- p. Wall panel : Gage # 24 Coloroof Pre-painted Long Span

C. STEEL STRUCTURE

- 1 The work consist all materials, equipment, tools, labor and other facilities and satisfactory performance of all works necessary to complete the structural steel support as shown in the drawing and as specified herein.
- 2 The materials supplied by the contractor on this items shall conform to with the US Standards or with any other international standards of equal value
- 3 All Girders must be 2 angle bars for top and bottom chord; for all members use 1 angle bar, properly welded.
- 4 Electric hoist and manual plain trolley to be provided by the contractor.
- 5 Overhead Chain Hoist supporting structure at the existing submersible pump area to be bolted on the existing concrete beam with masonry anchor.
- 6 All Structural steel both angles and steel plates shall have an ultimate strength of $F_y=33000$ psi.
- 7 All welding shall be by the shielded arc method and shall conform to the "AWS Code for Arc and gas Welding in Building Construction". Qualification of welders shall be in accordance with the "Specifications for Standard Qualification Procedure" of the AWS.
- 8 Pipe column steel and overhead chain hoist supporting structure shall conform to the "Specifications for Welded and Seamless Steel Pipe," (ASTM A53), Grade B.

C.1 MATERIALS SPECIFICATIONS

- a. Girder : 6mm thk. x 40mm x 40 mm MS angle bar
- b. Pipe Column : 3 in Ø BI Pipe, Sch. 40
- c. Steel Column : 6mm x 100mm x 100mm H - Beam
- d. Railing for Plain Trolley : 200mm x 165mm x 12.5 kg/ft I - Beam
- e. Base Plate : 1/2 in Thk. MS Plate
- f. ELectric Chain Hoist and Manual Plain Trolley = 1 ton
- g. Overhead Chain Hoist supporting structure = 3 in Ø BI Pipe, Sch. 40
- h. Masonry Anchor : 16 mmØ Dynabolt Masonry Anchor

D. MASONRY

D.1 ADDITIONAL CONCRETE COLUMNS AND CHB WALLS

- 1 Preparation of Equipment : All the equipment for mixing and transporting concrete shall be clean. Debris shall be removed from spaces to be occupied by concrete. Forms shall be properly coated. Masonry filler units that will be in contact with concrete shall be well drenched. Reinforcement shall be thoroughly clean or deleterious coatings. All latiance and other unsound material shall be removed before additional concrete is placed against hardened concrete.

- 2 Mixing, Placing, and Curing of Concrete : All concrete shall be mixed until there is uniform distribution of materials and shall be discharged completely before mixer is recharged. Curing shall be maintained above 10°C and moist condition for at least first 7 days after placement.
- 3 Formworks Design and Removal : Forms shall result in the final structure that conforms to shapes, lines, and dimension of members as required by the design drawings and specifications. It should be tight to prevent to prevent leakage of mortar; also it shall be properly braced and tied together to maintain position and shape. Form shall be removed in such manner as not to impair safety and serviceability of the structure. All concrete shall have sufficient strength not to damaged thereby.
- 4 General procedures : Placed CHB, steel reinforcements, concrete, ties and all others appurtenances as shown and as required to provide a complete and workable installation. Where steel reinforcement spacing details as shown, the reinforcement bars shall conform thereto and shall be placed as indicated; provided, that the reinforcement bars shall complete and adequate regardless of whether or not these reinforcement bars are specifically shown.
- 5 Laying of CHB Wall/Louver Blocks: CHB inside surfaces shall be filled with grout/mortar and shall encase fully the reinforcing steel. The minimum thickness for wall shall be 150mm. The reinforcement shall be limited to maximum spacing of 800mm on center. The minimum diameter shall be 10mm. Horizontal reinforcement shall be provided at the top/bottom of wall opening .
- 6 Column Fabrication : Shoring and scaffolding shall be undertaken properly and adequately so as to support or brace masonry units during construction and throughout the period of hardening its grout. Grouting shall be done in layers that will assure proper filling of all voids and keyed properly to prevent slippage of bond. The number of vertical reinforcement shall not be less than four(4), nor shall the diameter less than 12mm. Lateral ties as shown enclosed all longitudinal bars. Lateral ties shall be placed not less than 38mm and not more than 125mm from the surface of column. Maximum tie spacing shall be 200mm.
- 7 Reinforcement : At time concrete is placed steel reinforcement shall be free from coating that would destroy or reduce bond. Steel reinforcement shall be cut to its desired length as specified on the plan.
- 8 Testing : Testing of masonry materials shall be done by applicable government bodies or their authorized agencies, according to testing procedures and other relevant requirements needed for such tests. In absence of the above, testing shall be bed one in accordance with ASTM C 140-70, Method of Test for Concrete Masonry Units.

D.2 PERIMETER FENCE AND WALL FINISHES

- 1 All damaged walls/perimeter fence to be repaired and existing louver blocks @ old intake structure to be retouched(new pump area).
- 2 Surfaces to receive plaster shall be clean and free from defects. Corners and interior angles shall be square which arises slightly rounded. Thickness of plaster, base to the finished plaster surfaces, shall not be less than 20 mm.
- 3 All portland cement plaster shall be mixed one(1) part portland cement and three parts sand

D.3. FLOORING, SUCTION PIPE SUPPORT AND EQUIPMENT FOUNDATION

- 1 Existing flooring exclusive of canal and manhole opening should be topped with 50mm thk concrete. Corners of canal shall be square which arises slightly rounded.
- 2 Repair of existing suction pipe support and equipment foundations.
- 3 Dismantling/blinding of existing 10 in Ø pipe, relocation of drains, demolition of existing wall/column and repiping of priming water line as shown in the drawing to be done prior topping of flooring.

D.4. MATERIALS SPECIFICATIONS

- 1 Size of concrete hollow block shall be 125mm x 200 mm x 400mm. No deforms and dried as deliver.
- 2 Size of concrete louver block shall be 100mm x 200 mm x 200mm. No deforms and dried as deliver.

D. REPIPING OF PRIMING WATER LINE

- 1 Installation of new 3 in Ø GI pipe from old intake structure to suction pipe area(overhead)

- 2 Modification of existing 1 1/2 in Ø and 1 1/4 in Ø Blow off line. Existing pipe to be used and additional fittings needed to be provided by the contractor
- 3 Fabrication and installation of pipe support

D.1. MATERIALS SPECIFICATIONS

Galvanized Iron Pipes

- 1 Pipe Description: Pipes shall conform to the requirements of the ASTM A53/A53M or ASTM A120 and shall be Schedule 40.
Pipe fittings shall conform to the requirements of ASME/ANSI B16.3 (Malleable Iron Threaded Fittings Class 150 and 300) and shall be Class 150.
- 2 Pipe Construction: The pipe shall be practically straight and both ends of the pipe shall be at right angle to the axis of the pipe. The inside and outside surfaces of the pipe shall be free from injurious defects. Unless otherwise specified, the length of the pipe shall be 6 meters. The tolerance shall be plus 6 meters without negative tolerance. Pipes shall be clearly marked with Trademark, Nominal Size, Length and Class of Pipe.
- 3 The pipe threads shall be made according to American Standard Pipe Taper Thread (NPT) with taper angle equal to 1°47’.
- 4 Pipe shall be coated with zinc, both inside and outside surfaces, in accordance to ASTM A153/A153M-05 (Standard Specification for Zinc Coating (Hot – Dip) on Iron and Steel Hardware)
- 5 Pipe Dimensions: Pipe shall conform to the following dimensions and weights:

| Nominal Pipe Size, in | ½ | ¾ | 1 | 1¼ | 1 ½ | 2 | 3 | 4 |
|----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Nominal Diameter, mm | 15 | 20 | 25 | 32 | 40 | 50 | 75 | 100 |
| Outside Diameter, mm | 21.3 | 26.7 | 33.4 | 42.2 | 48.3 | 60.3 | 88.9 | 114.3 |
| Wall Thickness, mm | 2.8 | 2.9 | 3.4 | 3.6 | 3.7 | 3.9 | 5.49 | 6.02 |
| Tolerance (outside diameter, mm) | ±0.397 | ±0.397 | ±0.397 | ±0.397 | ±0.397 | ±1% | ±1% | ±1% |
| Tolerance (wall thickness, mm) | -12.5% | -12.5% | -12.5% | -12.5% | -12.5% | -12.5% | -12.5% | -12.5% |
| Weight per meter, kg | 1.27-1.34 | 1.68-1.78 | 2.50-2.62 | 3.38-3.55 | 3.75-4.23 | 5.00-5.43 | 10.3-11.3 | 14.5-16.1 |

- 6 Pipe Thread: The pipe threads shall be made according to “American Standard Pipe Taper Thread (NPT) with taper angle equal to 1°47’.

| Nominal Pipe Size, in | ½ | ¾ | 1 | 1¼ | 1 ½ | 2 |
|-----------------------|-------|-------|-------|-------|-------|-------|
| Nominal Diameter, mm | 15 | 20 | 25 | 32 | 40 | 50 |
| Thread per inch | 14 | 14 | 11 ½ | 11 ½ | 11 ½ | 11 ½ |
| Pitch, in | 0.071 | 0.071 | 0.087 | 0.087 | 0.087 | 0.087 |

- 7 Coatings: Pipes shall be coated with zinc both inside and outside surfaces.
- 8 Random Testing: For every size, two (2) sample pipes representing each lot of one hundred (100) pieces or less shall be tested for compliance with this specification. Any visible defect or failure to meet the quality standards herein will be grounds for rejecting the entire order.
- 9 Certification: The manufacturer shall furnish a sworn statement that the inspection and metallurgical and pressure tests have been results thereof comply with the requirements of the applicable Standard(s) herein specified. A copy of the Certification shall be submitted to Calamba Water District.

Galvanized Iron Fittings

- 1 Fitting Description: All pipe fittings shall conform to the requirements of “ MALLEABLE IRON THREADED FITTINGS CLASS 150 AND 300 (ASME/ANSI B16.3)” and shall be Class 150.

- 2 Fitting Dimensions: Fittings shall conform to the following dimensions:

| Nominal Pipe Size, in | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 | 3 | 4 |
|-----------------------|-------|-------|-------|-------|-------|-------|--------|--------|
| Length | | | | | | | | |
| Length | 28.45 | 33.27 | 38.1 | 44.45 | 46.74 | 57.15 | 78.23 | 96.27 |
| Weight, kg | 0.11 | 0.18 | 0.29 | 0.43 | 0.56 | 0.79 | 2.34 | 4.0 |
| 45° Elbow | | | | | | | | |
| Length | 22.35 | 24.89 | 28.45 | 32.77 | 36.32 | 42.67 | 55.12 | 66.29 |
| Weight, kg | 0.07 | 0.10 | 0.15 | 0.38 | 0.52 | 0.77 | 2.11 | 3.46 |
| St. Elbow | | | | | | | | |
| Length, ME | 40.89 | 48.01 | 54.1 | 61.98 | 67.82 | 83.06 | 114.55 | 114.27 |
| Length, FE | 28.45 | 33.02 | 38.10 | 44.45 | 49.28 | 57.15 | 78.23 | 96.27 |
| Weight, kg | 0.11 | 0.18 | 0.29 | 0.49 | 0.66 | 1.06 | 2.99 | 4.94 |
| Tee | | | | | | | | |
| Length | 28.45 | 33.27 | 38.10 | 44.45 | 49.28 | 57.15 | 78.23 | 96.27 |
| Weight, kg | 0.16 | 0.25 | 0.41 | 0.59 | 0.78 | 1.19 | 3.22 | 5.12 |
| Cross Tee | | | | | | | | |
| Length | 28.45 | 33.27 | 38.10 | 44.45 | 49.28 | 57.15 | 78.23 | 96.27 |
| Weight, kg | 0.20 | 0.29 | 0.44 | 0.72 | 0.86 | 1.33 | 3.70 | 6.76 |
| Coupling | | | | | | | | |
| Length | 34.04 | 38.61 | 42.42 | 49.02 | 54.61 | 64.26 | 80.77 | 93.73 |
| Weight, kg | 0.09 | 0.13 | 0.22 | 0.34 | 0.45 | 0.66 | 1.5 | 2.56 |
| Union Patente | | | | | | | | |
| Length | 43.69 | 51.31 | 55.63 | 57.4 | 62.74 | 69.85 | 89.92 | 97.79 |
| Weight, kg | 0.21 | 0.26 | 0.41 | 0.54 | 0.74 | 1.09 | 2.47 | 4.31 |
| Thickness, mm | 2.54 | 3.05 | 3.30 | 3.56 | 3.81 | 4.32 | 5.84 | 6.60 |
| Tolerance | | | | | | | | |
| Dimension, CF, mm | ±1.50 | ±1.50 | ±1.80 | ±1.80 | ±2.00 | ±2.00 | ±2.50 | ±3.00 |
| Thickness | -0.10 | -0.10 | -0.10 | -0.10 | -0.10 | -0.10 | -0.10 | -0.10 |

*Note:

1. All dimensions are in millimeters except where otherwise shown.
2. Center-to-face dimensions apply to elbows, tees and crosses
3. Face-to-face dimensions apply to couplings, unions, etc.
4. ME – Male End, FE – Female End, CF – Center-to-Face

- 3 Fitting Thread: All pipe fittings shall be female thread made according to “American Standard Pipe Taper Thread” (NPT).
- 4 Coatings: Fittings shall be coated with zinc in accordance to “STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE (ASTM A153/A153M-05)”.

E. ELECTRICAL WORKS

E.1 GENERAL SPECIFICATIONS

- 1 The work under this Division consist of furnishing all materials, equipment, tools, labor and all other services necessary to complete and make ready for operation the Electrical Power described below and or indicated in the electrical plan and specifications in accordance with the latest edition of the Philippine Electrical Code with the local requirements of the utility companies concerned and with the local government.
- 2 The low voltage cables are THHN insulated, stranded and copper conductor. All ground wired shall be insulated grounds.
- 3 Cable sizes are selected by applying appropriate de-rating factors for ambient conditions of installation as per PEC.
- 4 Power factor for all loads assumed 0.80.

- 5 Size of grounding wire will be based on PEC table 3.10.1.16
- 6 Ampacities of feeders supplying continuous loads are taken as 125% of full load current as per PEC.
- 7 All electrical materials shall be new and listed with the underwriters laboratories inc. shall meet their requirements and shall bear their label wherever standards have been established and label service is regularly furnished by that agency.
- 8 Mounting height shall be as follows:
 - a. Convenience outlet shall be 300mm above floor finish
 - b. Convenience outlet shall be 300mm above lavatories
 - c. Wall switches shall be 140mm on center from floor finish
- 9 Wiring methods shall be as follows:
 - a. Poly vinyl chloride (PVC) or unplasticised poly vinyl chloride (uPVC) - used when embedded in concrete wall or masonry and can be laid underground within 500mm deep from earth grade.
 - b. Rigid Steel Conduit (RSC) - used in exposed/wet location and can be laid underground within 20mm deep from earth grade.
- 10 To simply identify the polarity, use color coded THHN/THWN and TW stranded copper conductor.
 - a. RED - positive or line 1
 - b. YELLOW - negative or line 2
 - c. BLUE - line 3
 - d. GREEN - ground
 - e. WHITE - neutral or lineside ground
 - f. BLACK - homerun or main feederline
- 11 PVC and metal conduit shall be joined boxes or pull box to make a rigid and waterproof connection. If metal conduit is used as insulated bushing shall be provided at the end of the metal conduit on the inside of the junction box or pull box to prevent scuffing of the cable insulation.
- 12 All works herein shall be done under the strict supervision of a duly LICENSED ELECTRICAL ENGR.

E.2. LIGHTING FIXTURES SPECIFICATIONS:

All luminaries and ballasts shall be certified by the manufacturer

- 1 **Fixture Type A**
18W CFL w/ ceiling socket of 4" Ø finish
- 2 **Fixture Type B**
30W Floodlight (CFL Type Lamp)

E.3. OUTLETS AND SWITCHES SPECIFICATIONS

- 1 Duplex wide series universal convenience outlet - grounding type w/ faceplate 15 A 230V, 1-phase
- 2 1- gang normal switch (wide series), 10A 230V
- 3 2- gang normal switch (wide series), 10A 230V

E.4. PULLBOX(S), JUNCTION BOX(S) AND UTILITY BOX(S) SPECIFICATIONS:

- 1 The junction box cover shall be made waterlight with a suitable gasket and secured with stainless steel cadmium plated screws or bolts
- 2 Junction boxes shall be PVC type or galvanized steel
- 3 Junction boxes shall be flanged and designed for flush mounting if encased in concrete
- 4 Junction boxes shall be drilled or tapped for all conduit connection. Junction boxes shall be installed such the covers are removable.

E.5. PULLBOX(S), JUNCTIONS BOX(S) AND UTILITY BOX(S) SPECIFICATIONS:

- 1 Wire gutter/wireway body and cover are fabricated or factory assembly at minimum 16-gauge thickness GI sheet or galvanized steel, depth(H - 150 x D - 100 x L - 1200mm)
- 2 Flush and surface wireway covers are available
- 3 Wireway are exceeding 72 inches in length has two overlapping covers
- 4 Variety of fittings allow runs which can change direction, junction, and terminate
- 5 Standard wireway connectors (sold separately) have a unique gate feature which can swing completely open allowing for continuous runs of wire and cable.

- 6 Universal connectors are also available for adapting to other manufacturer wireway
- 7 Gray acrylic electrocoat finish

E.6. PULLBOX(S), JUNCTIONS BOX(S) AND UTILITY BOX(S) SPECIFICATIONS:

- 1 Factory assembly
- 2 The panel board shall be UL listed
- 3 GENERAL: Except as otherwise indicated provide panel boards enclosures and ancillary components of types, size, and ratings indicated which comply with manufacturer standard materials design and construction in accordance as required for complete installation. Where more than one type of component meets indicated requirements selection is installer's option. Where types, sizes, or ratings are not indicated.
- 4 ENCLOSURES: Provide galvanized sheet steel cabinet type enclosures in sized and NEMA types as indicated, code-gauge, minimum 16-gauge thickness. Construct with multiple knockouts and wiring gutters. Provide fronts with adjustable indicating trim clamps and doors with flush locks and keys all panel board enclosures keyed alike with concealed door hinges and door swings equip with interior circuit-directory frame and card with clear plastic covering provide POWDER COATED GRAY finish.
- 5 Wet location panel boards shall be NEMA 4 enclosures
- 6 Use NEMA 1 enclosures for indoor use, primarily to provide a degree of protection against limited amounts of falling dirt
- 7 Equipment shall have a nameplate installed and mounted to the front cover and indicated panel board type, amp rating, voltage rating and short-circuit rating.

E.7. MATERIALS SPECIFICATIONS:

1. CONDUITS

Rigid Metal Conduit (RSC)

- 1 Rigid Metal Conduit shall be hot-dip galvanizes steel. Threads shall be hot galvanized after cutting.

| Pipe Size | | Nominal Outside Diameter (mm) | Nominal Wall Thickness (mm) |
|-----------|----|-------------------------------|-----------------------------|
| in | mm | | |
| 3/4 | 21 | 26.7 | 2.7 |
| 1 | 27 | 33.4 | 3.2 |
| 1 1/4 | 35 | 42.2 | 3.4 |
| 1 1/2 | 41 | 48.3 | 3.5 |
| 2 | 53 | 60.3 | 3.7 |

F. PEST PREVENTION

- 1 Fabrication and installation of steel matting for fixed window in tubular frame with flat bar clip with mosquito screen
- 2 Fabrication and installation of mosquito screen for concrete louvers blocks
- 3 Modification of existing steel door beside sluice gate area

F.1. MATERIALS SPECIFICATIONS:

- 1 Steel Matting : Ga # 6 GI, Mesh = 50mm
- 2 Tubular Frame : 1.0mm thk x 50mm x 25mm BI Tubular
- 3 Flat Bar : 6mm thk x 25 mm GI Steel
- 4 Mosquito Screen : Aluminum Screen
- 5 Mosquito Screen Frame : 3mm thk x 20mm Aluminum Flat Bar
- 6 Steel Door : Ga # 14 x 1.22m x 2.44m BI Sheet

G. PAINTING AND COATINGS

G.1. GENERAL

The work included in this Clause consists of the furnishing of all labor, materials, apparatus, scaffolding, and all appurtenant work in connection with painting and coating in accordance with these Specifications. The Engineer shall approve any subcontractor for painting and coating.

G.2. SCOPE

The following surfaces are to be painted, except where otherwise specified or shown:

- 1 Concrete
 - a. Concrete perimeter fence
 - b. Inside and outside surfaces of Old Intake Structure/Suction Pipe area concrete wall
 - c. Sluice gate concrete wall(inside/outside)
- 2 All structural and miscellaneous steel
 - a. Piping System
 - b. Structural steel support, Trusses, Girders, etc...
 - c. Air Receiving tank
 - d. Plain GI Sheets
 - e. Sluice gate lifting system
 - f. Steel fence, Steel Matting, Steel Door
- 3 Wood
 - a. Ceiling
 - b. Senepa
 - c. Purlins
- 4 Flooring/Equipment Foundation
 - a. Old Intake Structure and Suction Pipe Area
 - b. Pump and Air Receiver Tank Foundation
 - c. Suction Pipe Support
 - d. Sluice gate concrete slab
 - e. Stair(Concrete)

G.3. APPLICATION OF PAINT

- a. General

All painting and finishing shall be performed by skilled craftsmen. Each coat of paint shall be applied at proper consistency, evenly, and free of laps, sags, and runs and cut sharply to required lines. Except as otherwise specified or required, paint shall be applied only under dry and dust-free conditions that will insure properly finished surfaces, free of defects and blemishes. Paint shall not be applied when temperature is likely to be above 320C (900F). Sufficient time shall be allowed between coats to insure proper drying. All primer and intermediate coats shall be unscarred and completely integral at time of application of each succeeding coat. The Engineer shall be notified when each coat has been applied and is ready for inspection. Until each coat is inspected and approved by Engineer, no succeeding coats shall be applied.

- b. Methods of Application

AS per paint manufacturer's specifications

G.4. Materials

- 1 Concrete : Quick Drying Enamel
- 2 Structural and Misc. Steel : Red Oxide Primer/Quick Drying Enamel
- 3 Flooring, Foundation : 100 % Polyamine-cured heavy duty epoxy floor coating

G. OTHERS

- 1 As-built Drawings of Electrical System of BPS and Bucal Intake Structure

III. REFERENCE DRAWINGS

- A 1 - Floor Plan
- A 2 - Floor Plan
- A 3 - Front Elevation
- A 4 - Rear Elevation
- A 5 - Existing Roof Plan

- S 1 - Foundation Plan
- S 2 - Additional Roof Framing Plan
- S 3 - Detail of Trusses
- E 1 - Electrical Lay out
- E 2 - Schedule of Loads/Riser Diagram
- P 1 - Repiping of Priming Water Line

IV. ACCEPTANCE

- 1. No crevices and stain on concrete flooring, perimeter fence and concrete wall.
- 2. No ponding of water on concrete flooring
- 3. Proper Waste/Debris Disposal

V. OTHERS

- 1. Contractor should submit all the necessary documents such as Construction Methodology and Detailed Daily Schedule of Activities, etc... during Kick off Meeting
- 2. Construction Safety and Good Housekeeping must be observed at all Times.
- 3. Contractor should include product catalogue of materials in their proposal for evaluation purposes.

NOTES :

Reference - LWUA TECHNICAL STANDARDS and CWD EXISTING STANDARDS.

Prepared by:



MR. FERNANDO H. ARELLANO JR
Senior Engineer CWD-EPDD

Reviewed by:

ENGR. RENANTE A. CAPITILE
Senior Utilities Service Officer CWD-EPDD

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ENGR. JOSELITO A. GILLERA
Engineering Manager - CWD

Approved by :

MR. EXEQUIEL A. AGUILAR
General Manager - CWD

