

## Joints

All joints, longitudinal, transverse, etc., shall be constructed as shown on the Drawings and shall be clean and free of all foreign material after completion of shoulder work prior to acceptance of the work and in accordance with the following provisions:

### Longitudinal and Transverse Contact Joints:

Longitudinal contact joints are joints formed between lanes that are poured separately. Transverse contact joints are joints formed between segments of a lane that are poured separately. Transverse contact joints shall be formed perpendicular to pavement centerline at the end of each day of concrete placing, or where concreting has been stopped for 30 minutes or longer but not nearer than 1.5 meters from sawed contraction joints. All contact joints shall have faces perpendicular to the surface of the pavement. Tie bars of the size, length and spacing shown on the Drawings shall be placed across longitudinal and transverse contact joints.

## Placing Concrete

The concrete shall be deposited and spread in order that segregation will not occur and place a uniform layer of concrete whose thickness is approximately 20 mm greater than that required for the finished pavement is placed. Rakes shall not be used for handling concrete.

In order to prevent the introduction into the concrete of earth and other foreign materials, the men whose duties require them to work in the concrete, shall in general, confine their movements to the area already covered with fresh concrete. Whenever it becomes necessary for these men to step out of the concrete, their footwear shall be washed or otherwise thoroughly cleaned before returning to the concrete. Repeated carelessness with regard to this detail will be deemed sufficient cause for removing and replacing such worker.

During the operation of striking off the concrete, a uniform ridge of concrete at least 70 mm in height shall be maintained ahead of the strike-off screed for its entire length. Except when making a construction joint, the finishing machine shall at no time be operated beyond that point where this surplus can be maintained in front of the strike-off screed.

After the first operation of the finishing machine, additional concrete shall be added to all low places and honeycombed spots and the concrete rescreeded. In any rescreeding, a uniform head of concrete shall be maintained ahead of the strike-off for its entire length. Honeycombed spots shall not be eliminated by tamping or grouting.

Workers on the job shall have mobile footbridges at their disposal so that they need not walk on the wet concrete.

In conjunction with the placing and spreading, the concrete shall be thoroughly spaded and vibrated along the forms, bulkhead, and joints.

The internal vibrators shall be of pneumatic, gas-driven, or electric type, and shall operate at a frequency of not less than 3,200 pulsations per minute.

Whenever the placing of the concrete is stopped or suspended for any reason, for a period of 30 minutes or longer, a suitable bulkhead shall be placed so as to produce a vertical transverse joint. If an emergency stop occurs within 2.5 meters of the contraction or an expansion joint the concrete shall be removed back to the joint. When the placing of the concrete is resumed, the bulkhead shall be removed and a new concrete placed and

vibrated evenly and solidly against the face of previously deposited concrete. Any concrete in excess of the amount needed to complete a given section or that has been deposited outside the forms shall not be used in the work.

The Contractor shall provide suitable equipment for protecting the fresh concrete in case of rain, such as screens which will cause the rain water to run off beyond the edges of the paving, rain proof tarpaulins or other methods approved by the Engineer. The equipment shall be sufficient to shelter from rain all areas equal to that paved in two hours of work.

#### Finishing Concrete

The concrete shall be compacted and finished by a mechanical, self-propelled finishing machine of approved type, having two independently operated screeds. If a machine possessing only one screed is approved, the screed will not be less than 450 mm wide and shall be equipped with compensating springs to minimize the effect of the momentum of the screed on the side forms. The number of driving wheels, the weight of the machine and the power of the motor shall be so coordinated as to prevent slippage. The top of the forms and the surface of the finishing machine wheels shall be kept free from concrete or dirt.

The machine shall at all times be in first-class mechanical condition and shall be capable of compacting and finishing the concrete as herein described. Any machine which causes displacement of the side forms from the line or grade to which they have been properly set, or causes undue delay due to mechanical difficulties, shall be removed from the work and replaced by a machine meeting the Specifications.

The finishing machine shall be operated over each section of pavement two or more times and at such intervals as will produce the desired results. Generally, two passes of the finishing machine are considered the maximum desirable.

The concrete shall be vibrated, compacted, and finished by a vibratory finishing machine. The vibratory machine shall meet the requirements for ordinary finishing, and shall be one of the following type:

1. The machine shall have two independently operated screeds; the front screed shall be equipped with vibratory units with a frequency of not less than 3,500 pulsations per minute. There shall be not less than one vibratory unit for each 2.5 meters length or portion thereof, of vibratory screed surface. The front screed shall not be less than 300mm wide and shall be equipped with a "bull nose" front edge built on a radius of not less than 50mm. This type of vibratory finishing machine shall be operated in such manner that each section of pavement will receive at least one vibratory pass, but not more than two passes, unless otherwise directed, or ;
2. The machine shall be equipped with an independently operated vibratory "pan" (or pans) and two (2) independently operated screeds, the "pan" shall be mounted in a manner that will permit it to come in contact with the forms and will permit vibration of the full width of lane simultaneously.

There shall be not less than one vibratory unit for each 2 m. length or portion thereof, of vibrating pan surface. The vibratory units in any individual pan shall be synchronized and have a frequency of not less than 3,500 pulsations per minute. The front screed shall be capable of operating in a position that will strike off the concrete at a sufficient height above the top of the forms to allow for proper compaction with the vibrating pan. This type of vibratory finishing machine shall be operated in such manner than each section of pavement will receive at least one vibratory pass but not more than two passes, unless otherwise directed.

After the final pass of the finishing machine and when the concrete has started to dry, the surface of the pavement shall be finished with an approved longitudinal float. The float may be operated either manually or by mechanical means. The float may be either of wood or metal shall be straight and smooth and light in weight so as not to displace or sink into the concrete surface.

To be effective, the float shall be at least 300mm wide and 3m long. When manually operated, the float shall be moved from edge to edge with a wiping motion and advance one (1) meter or more.

The succeeding trip shall overlap the previous trip. A light smoothing lute at least 3 meters long may be used provided approved by the Engineer.

The surface of the pavement shall be tested by the Contractor, before the final belting, with an approved standard straightedge 3 meter in length. Irregularities so detected shall be corrected immediately. Special attention shall be given to the concrete adjacent to transverse joints to insure that the edges thereof are not above the grade specified or the adjacent concrete below grade. All depressions or projections shall be corrected before any initial set has developed in the concrete.

After the concrete has been brought to the required grade, contour and smoothness, it shall be finished by passing over the concrete a drag of one or two burlap clothes, which give the surface the required roughness. The vehicles used to carry these cloths may be independent of the concrete-laying machine or may be incorporated with it and may be operated either by hand or mechanically.

Hand finishing will be permitted only on variable width sections of the pavement and other places where the use of the finishing machine would be impractical. Hand finishing shall be accomplished by means of the hand-operated strike-off template of either steel or steel-shod wood construction. The striking template shall be operated forward with a combined longitudinal and transverse motion and shall be so manipulated that neither end will be raised off the side forms. A similar tamper shall be used for tamping the concrete.

As soon as the concrete has attained its initial set, the edges of the pavement, the longitudinal joints, the construction dummy and expansion joints not sawn shall be carefully finished with an edging tool having radius of at least 5mm. The tools, the special accessories for cutting impressed joints and methods of workmanship shall be such as will produce a joint whose edges are of the same quality of concrete as the other portion of the pavement. Methods and workmanship which make use of excess mortar or grout in this area shall be eliminated. Unnecessary tool marks shall be eliminated during work, and the edges left smooth and true to line.

### Striking Forms

Forms shall remain in place at least 12 hours after the concrete has been placed. When working conditions are such that the early strength gain of the concrete is delayed, the forms shall remain in place for a longer period, as directed by the Engineer. Bars or heavy load shall not be used against the concrete when still in the forms. Any damage to concrete resulting from form removal shall be repaired promptly by the Contractor as directed by the Engineer without any additional payment to the Contractor.

## Curing Concrete

Unless otherwise ordered by the Engineer, curing of concrete shall be done by any method specified in the Section "Reinforced Concrete".

## Cleaning and Sealing Joints

After completion of the required curing and before opening of the pavement to traffic, all joints shall be thoroughly cleaned of all concrete aggregate fragments or other materials.

After removal of side forms, the ends at transverse expansion joints at the edges of the pavement shall be carefully cleaned of any concrete within the expansion spaces for the entire depth of slab, care being taken not to injure the ends of the joints. Expansion and contraction joints shall then be poured with a hot joint sealer to the depth as indicated on the Drawings. Joint sealer shall be poured using approved hand pouring pots, with liquid at a temperature not less than that recommended by the approved manufacturer.

## Opening to Traffic

The pavement shall be closed to traffic, including the vehicles of the Contractor, for a period of 10 days after the concrete is placed or longer if in the opinion of the Engineer, the weather conditions make it necessary to extend this time. The Contractor shall furnish, place and maintain satisfactory barricades and lights as directed, to exclude all traffic from the pavement.

Any damage to the pavement due to traffic shall be repaired or replaced at the expense of the Contractor. Paving mixers, mechanical concrete spreaders and finishers and other heavy paving equipment shall not be operated on completed concrete lanes in order to construct alternate lanes until after the regular curing period is completed. Even then, planks shall be laid on the finished pavement or other precautions taken to prevent damage to the concrete pavement.

## Pavement Smoothness, Thickness and Tolerance

Portland cement concrete pavement shall be constructed to the designed level and transverse slope shown on the Drawing. The allowable tolerance shall be as listed hereunder:

- |    |  |         |
|----|--|---------|
| 1. | Permitted variation from design thickness of layer | + - 5mm |
| 2. | Permitted variation from design level of surface   | + - 5mm |

The thickness of the pavement will be determined by measurement of cores from the completed pavement in accordance with AASHTO T 148.

The completed pavement shall be accepted on a lot basis. A lot shall be considered as 2,500 sq.m of pavement. The last unit in each slab constitutes a lot in itself when its length is at least  $\frac{1}{2}$  of the normal lot length. If the length of the last unit is shorter than  $\frac{1}{2}$  of the normal lot length, it shall be included in the previous lot.

Other areas such as intersections, entrances, crossovers, ramp, etc., will be grouped together to form a lot. Small irregular areas may be included with other unit areas to form a lot.

**ITEM 16 : CONSTRUCTION JOINTS**

**SCOPE OF WORK**

This item shall consist of the manufacturing and installation of construction joints / expansion joints in accordance with the details, and at the locations, lines, grades and dimensions shown in the drawings.

**MATERIAL REQUIREMENTS**

1. All construction joints / expansion joints shall be hot-dipped galvanized inside and out in accordance with international standards for galvanizing BS EN1460.
2. Painted finish shall be rejected.
3. All steel gratings and angle bars for construction joints / expansion joints shall be hot-dipped galvanized except for the nuts, washers and bolts which shall be stainless steel.
4. Welding shall be in accordance with the AWS Code and as herein specified or any other welding standard, approved by the Engineer.

The Contractor shall be required to submit test certificates for steel materials for the construction / expansion joints joints used in its manufacture; and for hot-dip galvanizing which shall meet or exceed the specifications under "Zinc Coating".

**EXECUTION**

**DELIVERY, STORAGE AND INSTALLATION**

1. Upon delivery at site, the hot-dipped galvanized construction joints / expansion joints shall not be subjected to the following activities:
  - a. Re-fabrication
  - b. Cutting
  - c. Grinding
  - d. Welding
  - e. Sawing
  - f. Any hot works or similar activities
2. Stainless steel nuts and bolts may be tack welded using stainless steel welding rods.
3. The construction joints / expansion joints shall not be exposed to sea water and other corrosive chemicals or substances prior to installation.

## **ITEM 17 : STEEL AND METAL WORKS**

### **GENERAL**

General Requirements contain provisions and requirements essential to these specifications; and apply to this Section, whether or not referred to herein.

### **SCOPE OF WORK**

The work includes the furnishing of all labor, materials, equipment and other incidentals necessary for the fabrication and installation of structural steel and miscellaneous metal works as specified in relevant items of these specifications and as indicated on the drawings.

### **SUBMITTAL**

1. Before placing orders for materials for the steel and metal works, the Contractor shall submit to the Engineer for approval shop drawings for all steelwork. All project shop drawings shall show the dimension of all parts, method of construction, bolts, welding sectional areas and other details.
2. The detail of connections shown on the shop drawings shall be such as to minimize formation of pockets to hold condensation, water or dirt. A minimum gap between abutting angles and the like shall be provided wherever possible to eliminate any traps and facilitate maintenance painting.
3. No materials shall be ordered nor fabrication commenced until the shop drawings are approved by the Engineer.

### **STORAGE OF MATERIALS**

Structural materials, either plain or fabricated, shall be stored above the ground upon platforms, skids, or other supports. Materials shall be kept free from dirt, grease, and other foreign matter and shall be protected from corrosion.

### **MATERIAL REQUIREMENTS**

1. Unless specified herein all steel structures and metals shall conform with the requirements of "Steel and Metal Works." Connections where details are not specified or indicated herein, shall be designed in accordance with the American Institute of Steel Construction (AISC), Manual of Steel Construction, latest edition.
2. Structural steel works consisting of channels, gusset plates and other structural steel shape shall be as indicated on the drawings and shall be structural carbon steel conforming to ASTM A 36. Shapes shall be as given in AISC, Manual of Steel Construction.
3. High strength structural bolts, shall conform to ASTM A 325, Types 1 or 2. Nuts shall conform to ASTM A 560, Grade A, heavy hex style, except nuts 38 mm (1-1/2 inch) may be provided in hex style. Washers shall conform to ANSI B 18.22.1, Type B.
4. Electrodes for arc welding shall be E70 series conforming to American Welding Society Specifications A5.1.
5. Tests are required under the ASTM Standards for steel to be used in the Works and shall be carried out in the presence of the Engineer and at least four (4) days notice must be given to him of the dates proposed for such tests. Four (4) calendar days notice on which fabricated steelwork will be ready for inspection in the Contractor's yard.

6. Standard bolt shall conform to ASTM A 307 Carbon Steel Externally Threaded Standard Fasteners.

## **EXECUTION**

### **QUALIFICATION**

Qualification of steel fabricators, erectors and welders shall comply with the requirements.

### **FABRICATION REQUIREMENTS**

1. **Workmanship**

Fabrication shall be performed within the permissible tolerance by the approved fabricator. All workmanship shall be of the best quality with respect to internationally recognized standards of practice.

2. **Cutting**

Low-carbon structural steel may be cut by machine-guided torch instead of by shears or saw. Harmful notches, burrs, irregularities, etc., shall not be developed at the cut surface.

3. **Contact Faces**

Contact surfaces between bases or other elements bearing directly upon bearing plates shall be ground or milled as necessary for full effective bearing. Edges for welding shall likewise be properly prepared.

4. **Bolt Holes**

Bolt holes shall be according to engineering practice and as specified in these specifications. Gas burning of holes will not be permitted.

5. **High Strength Bolt Assembly Preparation**

Surfaces of high strength bolted parts in contact with bolt heads and nuts shall not have a slope of more than 1:20 with respect to a plane normal to the bolt axis.

Where the surface of a high strength bolted part has a slope of more than 1:20, a beveled washer shall be used to compensate for lack of parallelism.

High strength bolted parts shall fit solidly together when assembled and shall not be separated by gaskets or any other interposed compressible materials.

When assembled, all joint surfaces including those adjacent to washers shall be free of scale except tight mill scale, and shall be free from dirt, loose scale, burrs, and other defects that would prevent solid seating of parts.

Contact surfaces of friction-type joints shall be free from oil, paint, lacquer or galvanizing.

6. **Welding**

All welding shall be done only by welders certified as to their ability to perform in accordance with accepted testing requirement.

Welding of parts shall be in accordance with structural standards and the Standard Code for Arc and Gas Welding in Building Construction of AWS, and shall only be done where shown, specified, or permitted by the Engineer.

Damage to galvanized areas by welding shall be thoroughly cleaned with wire brushing and all traces of welding flux and loose or cracked zinc coating shall be removed prior to painting. The cleaned area shall be painted with two coats of zinc oxide-zinc dust paint. The paint shall be properly compounded with a suitable vehicle in the ratio of one part zinc oxide to four parts zinc dust by weight. As an alternative to the above, the Contractor may submit for approval the use of a galvanizing rod or galvanizing solder to repair damaged areas.

The welding machine shall be a stable welder, and have suitable functions for the dimension of materials to be welded. The auxiliary tools used for welding shall perform sufficiently and adequately.

The welding machine used for field welding shall be of readily adjustable for electric current.

## 7. Shop Assembly

Structural units furnished shall be assembled in the shop. An inspection shall be made to determine that the fabrication and the matching of the component parts are correct.

Jigs shall be used for the assembly of units as much as possible to maintain appropriate position of mutual materials.

Approval of the Engineer shall be required when drilling temporary bolt holes or welding temporary support to the assembled structure.

The tolerances shall not exceed those allowed by codes and each unit assembled shall be closely checked to insure that all necessary clearances have been provided and that binding does not occur in any moving part.

In order to maintain accurate finished dimensions and shape, appropriate reverse strain or restraint shall be provided as required. Assembly and disassembly work shall be performed in the presence of the Engineer, unless waived in writing by the Engineer any errors or defects disclosed shall be immediately remedied by the Contractor.

Before disassembly for shipment, component parts of the structures shall be match marked to facilitate erection in the field.

## FABRICATION TOLERANCES

### 1. Dimensional Tolerances for Structural Work

Dimensions shall be measured by means of an approved calibrated steel tape at the time of inspection. Unevenness of plate work shall not exceed the limitation of the standard mill practice as specified in the American Institute of Steel Construction, "Manual of Steel Construction".

### 2. Camber

Reverse camber in any structural steel members in excess of 1/1,000 of the span length shall cause rejection. The minimum dead load camber for any structural steel member shall be as allowed by Code, or otherwise specified.



## INSPECTION AND TEST OF WELDING

### 1. Inspection of Welding

Inspection of welding shall be executed for the following work phases.

#### a. Before Welding

Scum, angle of bevel, root clearance, cleaning of surface to be welded, quality of end tab, drying of welding rod.

#### b. During Welding

Welding procedure, diameter of coil and wire, type of flux, welding current and voltage, welding speed, welding rod position, length of arc, melting, cleaning of slag of each level under surface chapping, supervision of welding rod.

#### c. After Execution of Welding

Assurance of bead surface, existence of harmful defects, treatment of crater, quality of slag removal, size of fillet, dimension of extra fill of butt welding, treatment of end tab.

### 2. Testing of Welding

Twenty percent (20%) of welds contributing in the overall strength of the structure and which will be inaccessible for the inspection in service shall be tested.

Welding shall be tested by ultrasonic test to the extent specified herein or as directed by the Engineer.

Where partial inspection is required, the ultrasonic test shall be located at random on the welds so as to indicate typical welding quality.

If ten percent (10%) of the random ultrasonic tested indicate unacceptable defect, the remaining eighty percent (80%) of the welding shall be tested. Repair welding required shall be ultrasonic tested after the repairs are made.

## CORRECTIONS

In lieu of the rejection of an entire piece or member containing welding which is unsatisfactory or which indicates inferior workmanship, corrective measures may be permitted by the Engineer whose specific approval shall be obtained for making each correction. Defective or unsound welds or base steel shall be corrected either by removing and replacing the entire weld, or as follows.

1. Excessive convexity or overlap shall be reduced by grinding.
2. Undercuts, lack of weld shall be repaired with necessary reinforcement of weld after removal of any foreign materials such as slag, dust, oil, etc.
3. Any defects such as slag inclusions, incomplete fusion, or inadequate joint penetration, shall be completely removed, cleaned and re-welded.
4. Cracks in welds or base steel, shall be removed to sound steel throughout their length and 5cm beyond each end of the crack, followed by welding. The extent of the crack, depth and length, shall be ascertained by the use of acid etching, magnetic particle

inspection or other equally positive means.

The removal of welded steel shall be done by chipping, grinding, oxygen cutting, oxygen gouging, or air carbon arc gouging and in such a manner that the remaining welded steel or base steel is not nicked or undercut. Defective portions of the welding shall be removed without substantial removal of the base steel.

## INSTALLATION

### 1. Installation Program

#### a. Prerequisite Condition

Prior to executing steel fabrication and field installation, the Contractor shall prepare a comprehensive installation program including engineering supervision organization, fabrication procedures, field installation procedures, material application, machinery applications, inspection procedure, scope and standard of quality judgment, and submit to the Engineer for approval.

#### b. Special Technical Engineering

Special technical engineering different from contract specifications can be applied upon receiving approval of the Engineer.

### 2. Installation Requirement

#### a. Setting of Anchor Bolt and Others

- a. 1. Anchor bolts shall be set in accurate position by using templates.
- a. 2. The setting method shall be proposed to the Engineer for his approval before setting starts.
- a. 3. The threads of bolt shall be cured with an appropriate method against rust and/or any damage before tightening.
- a. 4. Non-shrink mortar shall be placed under base plates, well cured to obtain the sufficient strength before bearing loads are applied to base plates.

#### b. Temporary Bracing

- b. 1. Temporary bracing shall be installed as necessary to stay assemblies and assume loads against forces due to transport, erection operations or other work.
- b. 2. Temporary bracing shall be maintained in place until permanent work is properly connected and other construction installed as necessary for support, bracing or staying of permanent work.
- b. 3. Extent and quality of temporary bracing shall be as necessary against wind and other loads, including seismic loads not less than those for which the permanent structure is designed to resist.

#### c. Adequacy of Temporary Connections

During erection, temporary connection work shall be securely made by bolting and/or

welding for all dead load, wind and erection stresses.

**d. Alignment**

No permanent bolting or welding shall be done until the alignment of all parts with respect to each other shall be true within the respective tolerances required.

**e. Field Welding**

e. 1. Any shop paint or surfaces adjacent to joints where field welding is to be executed shall be wire brushed to remove paint/primer.

e. 2. Field welding shall conform to the requirements specified herein, except as approved by the Engineer.

**f. High Strength Bolts**

Final tightening of high strength bolts shall be done by using manufacturer's power operated equipment without any overstress to the threads.

**g. Correction of Errors**

g. 1. Corrections of minor misfits by use of drift pins, and reaming, chipping or cutting will be permitted and shall be provided as part of erection work.

g. 2. Any errors to be corrected or adjusted, preventing proper assembly, shall be immediately reported to the Engineer, and such corrections or adjustments shall be made as necessary and approved by the Engineer.

g. 3. Cutting or alterations other than as approved will not be permitted.

**h. Erection**

h. 1. Erection and installation shall be as per approved shop drawings.

h. 2. Each structural unit shall be accurately aligned by the use of steel shims, or other approved methods so that no binding in any moving parts or distortion of any members occurs before it is finally fastened in place.

h. 3. Operations, procedures of erection and bracing shall not cause any damage to works previously placed nor make overstress to any of the building parts or components. Damage caused by such operations shall be repaired as directed by the Engineer at no extra cost to the Employer.

## **GALVANIZING**

### **PREPARATION**

All mild steel parts exposed to weather shall be hot-dipped galvanized after fabrication in accordance with the requirements of ASTM A 123 or ASTM A 153. Prior to galvanizing, the surfaces shall be cleaned of dirt, weld splatter, grease, slag, oil, paint or other deleterious matters. The steel surfaces shall be chemically de-scaled and cleaned with the same abrasive blast or other suitable method as approved by the Engineer.

## COATING

The zinc coating shall consist of uniform layers of commercially pure zinc free from abrasions, cracks blisters, chemical spots or other imperfections, and shall adhere firmly to the surface of the steel. The weight of zinc coating per square meter of actual surface shall not be less than 550 grams. Any surface damaged subsequent to galvanizing shall be given two coats of approved zinc rich paints.

## PAINTING

This work shall consist of the preparation of the metal surfaces, the application, protection and drying of the painted surfaces, and supplying of all tools, tackle, scaffolding, labor and materials necessary for the entire work. Painting shall be applied in the field or shop as approved by the Engineer.

Unless otherwise specified or approved, all painting work for structural steel shall comply with the requirements of this Section.

### SHOP PAINTING

All structural steel shall be given a shop primer after fabrication and cleaning before delivery to the site.

All steel work shall be thoroughly dried and cleaned of all loose mill scale, rust and foreign matters by means of sand blasting or other suitable methods approved by the Engineer before shop painting shall be applied. Each individual piece shall be painted prior to assembly. Portions where field welding or field contact with concrete is required shall not be painted.

Except for galvanized surfaces and items to be encased in concrete, clean ferrous metal surfaces shall be given one coat of Amerlock 400 Epoxy Primer at 100 Microns or approved equal. Additional coat shall be applied to surfaces that will be concealed or inaccessible for finish painting by Amerlock 400, Top Coat at 150 Microns with color or equivalent.

### FIELD PAINTING

After erection, the Contractor shall thoroughly prepare and clean the entire surface of all structural steel from all dirt, grease, rust or other foreign matters. The entire surface of all members shall then be field painted.

## MATERIALS

### 1. Structural Steel Work

- a. After surface preparation, steelwork shall be given one coat of approved prefabricating primer.
- b. Before final assembly of steelwork at the fabricator's shop, two shop coats of special red lead primer shall be applied to the surface of sections to be in permanent contact, meeting faces and all other concealed surfaces. After final assembly, but before delivery to the project site, the steelwork shall likewise be given two shop coats of special red lead primer.

### 2. Galvanized Steelwork

All galvanized steelwork shall be treated with zinc chromate two-pack etch primer followed by

one coat of non-etch zinc chromate primer.

### 3. Miscellaneous Metal Work

Unless otherwise specified in other Sections of the Specifications or shown on the drawing, miscellaneous metal works such as ladders, structural steel ladder rungs, etc. shall be given two shop coats of epoxy primer and two coats of epoxy enamel.

## CONSTRUCTION METHODS

### 1. Cleaning of Surfaces

Surfaces of metal to be painted shall be thoroughly cleaned; removing rust, loose mill scale, dirt, oil or grease, and other foreign substances. Unless cleaning is to be done by sand blasting, all weld areas, before cleaning is started, shall be neutralized with a proper chemical, after which they shall be thoroughly rinsed with water.

Three methods of cleaning are provided herein. The particular method to be used shall be as directed by the Engineer.

### 2. Hand Cleaning

The removal of rust, scale, and dirt shall be done by the use of metal brushes, scrapers, chisels, hammers or other effective means. Oil and grease shall be removed by the use of gasoline or benzene.

Bristle or wood fiber brushes shall be used for removing loose dirt.

### 3. Sandblasting

All steel shall be cleaned by sandblasting. The sandblasting shall remove all loose mill scale and other substances. Special attention shall be given to cleaning of corners and re-entrant angles. Before painting, sand adhering to the steel in corners and elsewhere shall be removed. The cleaning shall be approved by the Engineer prior to any painting which shall be done as soon as possible before rust forms.

### 4. Flame Cleaning

All metal, except surface inside boxed members and other surfaces which shall be inaccessible to the flame cleaning operation after the member is assembled, shall be flame cleaned in accordance with the following operations.

- a. Oil, grease, and similar adherent matter shall be removed by washing with a suitable solvent. Excess solvent shall be wiped from the work before processing with subsequent operations.
- b. The surface to be painted shall be cleaned and dehydrated (free from occluded moisture) by the passage of oxyacetylene flames which have an oxygen to acetylene ratio of at least 1.0. The oxyacetylene flames shall be applied to the surfaces of the steel in such a manner and at such speed that the surfaces are dehydrated; dirt, rust loose scale in the form of blisters or scabs, and similar foreign matters are freed by the rapid, intense heating by the flames. The number arrangement and manipulation of the flames shall be such that all parts of the surfaces to be painted are adequately cleaned and dehydrated.
- c. Promptly after the application of the flames, the surfaces of the steel shall be wire

brushed, hand scraped wherever necessary, and then swept and dusted to remove all free materials and foreign particles.

- d. Paint shall be applied promptly after the steel has been cleaned and while the temperature of the steel is still above that of the surrounding atmosphere.

5. Weather Conditions

a. Exterior Coatings

Coatings to surface shall not be applied during foggy or rainy weather, or under the following surface temperature conditions: below 4°C, or over 35°C, unless approved by the Engineer.

b. Interior Coatings

Coatings shall be applied when surfaces to be painted are dry and the following surface temperatures can be maintained: between 18 to 35°C during the application.

6. Application

- a. Paint shall be factory tinted and mixed. All paint shall be field mixed before applying in order to keep the pigments in uniform suspension.

b. Field Painting

When the erection work is complete, including all bolting and straightening of bent metal, all adhering rust, scale, dirt, grease or other foreign materials shall be removed as specified above.

As soon as the Engineer has examined and approved each steel and metal works structures, all field bolts, all welds, and any surfaces from which the top or first coat of paint has become worn off, or has otherwise come defective shall be cleaned and thoroughly covered with one coat of paint.

Surfaces to be bolted and surfaces which shall be in contact with concrete, shall not be painted. Surfaces which shall be inaccessible after erection shall be painted with such field coats as are required. When the paint applied for retouching the shop coat has thoroughly dried, and the field cleaning has been satisfactorily completed, such field coats as are required shall be applied. In no case shall a succeeding coat be applied until the previous coat is dry throughout the full thickness of the paint film. All small cracks and cavities which were not sealed in a watertight manner by the first field coat shall be filled with a pasty mixture of red lead and linseed oil before the second coat is applied.

The following provision shall apply to the application of both coats. To secure a maximum coating on edges of plates or shapes, bolt heads and other parts subjected to special wear and attack, the edges shall first be striped with a longitudinal motion and the bolt heads with a rotary motion of the brush, followed immediately by the general painting of the whole surface, including the edges and bolt heads.

The application of the second field coat shall be deferred until adjoining concrete work has been placed and finished. If concreting operations have damaged the paint, the surface shall be re-cleaned and repainted.

**c. General Manners**

Painting shall be done in a neat and workmanlike manner. Paint may be applied with hand brushes or be spraying, except aluminum paint which preferably shall be applied by spraying. By either method the coating of paint applied shall be smoothly and uniformly spread so that no excess paint shall collect at any point. If the work done by spraying is not satisfactory to the Engineer hand brushing shall be required.

**d. Brushing**

When brushes are used, the paint shall be so manipulated under the brush as to produce a smooth, uniform, even coating in close contact with the metal or with previously applied paint, and shall be worked into all corners and crevices.

**e. Spraying**

Power spraying equipment shall be used to apply the paint in a fine spray. Without the addition of any paint, the sprayed area shall be immediately followed by brushing, when necessary, to secure uniform coverage and to eliminate wrinkling, blistering and air holes.

**f. Removal of Paint**

If the painting is unsatisfactory to the Engineer the paint shall be removed and the metal thoroughly cleaned and repainted.

## **ITEM 18 : ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL**

### **SCOPE OF WORK**

This specification covers the requirements for zinc coating (galvanizing) by the hot-dip process on iron and steel products made from rolled pressed and forged shapes, casting, plates, bars and strips.

This specification covers both fabricated and un-fabricated products, for example, assembled steel products, structural steel fabrications, large tubes already bent or welded before galvanizing, and wire work fabricated from uncoated steel wire. It also covers steel forgings and iron castings incorporated into pieces fabricated before galvanizing or which are too large to be centrifuged (or otherwise handled to remove excess galvanizing bath metal).

### **MATERIAL REQUIREMENTS**

#### **STEEL OR IRON**

The specification, grade or designation, and type and degree of surface contamination of the iron or steel in articles to be galvanized shall be supplied by the purchaser to the hot-dip galvanizer prior to galvanizing.

The presence in steels and weld metal, in certain percentages, of some elements such as silicon, carbon and phosphorus tends to accelerate the growth of the zinc-iron alloy layer so that the coating may have a matte finish with a little or no outer zinc layer.

### **EXECUTION**

#### **FABRICATION**

The design and fabrication of the product to be galvanized shall be in accordance to the plans and specifications. ASTM Practices A 143, A 384 and A 385 provide guidance for steel fabrication for optimum hot-dip galvanizing and shall be complied with in both design and fabrication.

#### **CASTINGS**

The composition of heat treatment of iron and steel castings shall conform to specifications designated by the purchaser. Some types of castings have been known to show potential problems being embrittled during normal thermal cycle of hot-dip galvanizing. The requirements for malleable iron castings to be galvanized are stipulated in ASTM specification A 47.

#### **ZINC**

The zinc used in the galvanizing bath shall conform to ASTM Specification B 6. If a zinc alloy is used as the primary feed to the galvanizing bath, then the base material used to make that alloy shall conform to ASTM Specification B 6.

#### **BATH COMPOSITION**

The molten metal in the working volume of the galvanizing bath shall contain not less than an average value of 98.0% zinc by weight.



## COATING PROPERTIES

**Table 1 – Minimum Average Coating Thickness Grade by Material Category**

| Material Category         | All Specimens Tested<br>Steel Thickness Range (Measured), mm (in.) |                                 |                               |                                     |                  |
|---------------------------|--|---------------------------------|-------------------------------|-------------------------------------|------------------|
|                           | < 1/16<br>(<1.6)   | 1/16 to < 1/8<br>(1.6 to < 3.2) | 1/8 to < 3/16<br>(3.2 to 4.8) | > 3/16 to < 1/4<br>(> 4.8 to < 6.4) | ≥ 1/4<br>(≥ 6.4) |
| Structural Shapes & Plate | 45   | 65                              | 75                            | 85                                  | 100              |
| Strip and Bar             | 45   | 65                              | 75                            | 85                                  | 100              |
| Pipe and Tubing           | 45   | 45                              | 75                            | 75                                  | 75               |
| Wire                      | 35   | 50                              | 60                            | 65                                  | 80               |

## COATING THICKNESS

The average thickness of coating for all specimens tested shall conform to the requirements of Table 1 for the categories and thickness of the material being galvanized. Minimum average thickness of coating for any individual specimen is one coating grade less than that required in Table 1. Where products consisting of various material thicknesses or categories are galvanized, the coating thickness grades of each thickness range and material category of material shall be shown in Table 1. The specification of coating thickness heavier than those required by Table 1 shall be subject to mutual agreement between the galvanizer and Engineer.

For articles whose surface area is greater than 100,000 mm<sup>2</sup> (160 in.<sup>2</sup>) (multi-specimen articles), each test article in the sample must meet the appropriate minimum average coating thickness grade requirements of Table 1. Each specimen coating thickness grade comprising that overall average for each test article shall average not less than one coating grade below that required in Table 1.

For articles whose surface area is equal to or less than 100,000 mm<sup>2</sup> (160 in.<sup>2</sup>) (single-specimen articles), the average of all test articles in the sample must meet the appropriate minimum average coating thickness grade requirements of Table 1. For each test article, its specimen coating thickness shall not be less than one coating grade below that required in Table 1.

No individual measurement or cluster of measurements at the same general location on a test specimen shall be cause for rejection under this specification provided that when those measurements are averaged with the other dispersed measurements to determine the specimen coating thickness grade for that specimen, the requirements of the above specifications as appropriate are met.

The coating thickness grades in Table 1 represent the minimum value obtainable with a high level of confidence for the ranges typically found in each material category. While most coating thicknesses will be in excess of those values, some materials in each category may be less reactive (for example, because of chemistry or surface condition) than other materials of the steel category spectrum. Therefore, some articles may have a coating grade at or close to the minimum requirements shown in Table 1. In such cases, the precision and accuracy of the coating thickness measuring technique should be taken into consideration when rejecting such articles for coating thickness below that is required by this specification.

## FINISH

The coating shall be continuous (except as provided below), and as reasonably smooth and uniform in thickness as the weight size and shape of the item. Except for local excess coating thickness which would interfere with the use of the product or make it dangerous to handle (edge tears or spikes), rejection for non-uniform coating shall be made only for plainly visible excess coating not related to design factors such as holes, joints, or special drainage problems. Since surface smoothness is a relative term, minor roughness that does not interfere with the intended use of the product, or roughness that is related to the as-received (un-galvanized) surface condition, steel chemistry to zinc shall not be grounds for rejection.

Surfaces that remain uncoated after galvanizing may be renovated in accordance with the methods in ASTM Practice A 780 provided that the following conditions are met:

1. Each area subject to renovation shall be 25mm (1 in.) or less in its narrowest dimension.
2. The total area subject to renovation on each article shall be no more than  $\frac{1}{2}$  of 1% of the accessible surface area to be coated on that article, or 22,500mm<sup>2</sup> (36 in.<sup>2</sup>) per ton of piece weight, whichever is less. Inaccessible surface areas are those which cannot be reached for appropriate surface preparation and application of repair materials as described in ASTM Practice A 780.
3. The thickness of renovation shall be that is required by the thickness grade for the appropriate material category and thickness range in Table 1 in accordance with the coating thickness requirements, except that for renovation using zinc paints, the thickness of renovation shall be 50% higher than that required by table 1, but not greater than 0.0254mm (4.0 mils).
4. When areas requiring renovation exceed the criteria previously provide, or are inaccessible for repair, the coating shall be rejected.

## THREADED COMPONENTS IN ASSEMBLIES

The zinc coating on external threads shall not be subjected to a cutting, rolling or finishing tool operation, unless specifically authorized by the purchaser. Internal threads may be tapped or retapped after galvanizing. Coatings shall conform to the requirements of ASTM Specification A 153/A 153 M.

## APPEARANCE

Upon shipment from the galvanizing facility, galvanized articles shall be free from uncoated areas, blisters, flux deposits and gross gross inclusions. Lumps, projections, globules or heavy deposits of zinc which will interfere with the intended use of the material will not be permitted. Plain holes of 12.5mm (1/2 in.) diameter or more shall be clean and reasonably free from excess zinc. Marks in the zinc coating caused by tongs or other items used in handling the article during the galvanizing operation shall not be cause for rejection unless such marks have exposed the base metal, and the bare metal areas exceed the criteria provided in number 1 and 2 of Subsection "Finish".

Whenever dross is present in a form other than finely dispersed pimples in the coating and is present in such amount as to be susceptible to mechanical damage, it will be considered as "gross".

## ADHERENCE

The zinc coating shall withstand handling consistent with the nature and thickness of the coating and the normal use of the article, without peeling or flaking. Although some material may be formed after

galvanizing, in general the zinc coating on the articles covered by this specification is too heavy to permit severe bonding without damaging the coating.

## SAMPLING

A lot is a unit of production or shipment from which a sample may be taken for testing. Unless otherwise agreed upon between the galvanizer and the purchaser, or established within this specification, the lot shall be as follows:

1. For testing at a galvanizer's facility, a lot is one or more articles of the same type and size comprising a single order or a single delivery load, whichever is smaller, or any number of articles identified as a lot by the galvanizer, when these have been galvanized within a single production shift and in the same bath.
2. For test by the purchaser after delivery, the lot consists of the single order or the single delivery load, whichever is smaller, unless the lot identify, established in accordance with the above, is maintained and clearly indicated in the shipment by the galvanizer.

The method of selection and number of test specimens shall be agreed upon between the galvanizer and the purchaser. Otherwise, the test specimens shall be selected random from each lot. In this case, the minimum number of specimens from each lot shall be as follows:

| Number of Pieces in Lot | Number of Specimens |
|-------------------------|---------------------|
| 3 or less               | All                 |
| 4 to 500                | 3                   |
| 501 to 1,200            | 5                   |
| 1,201 to 3,200          | 8                   |
| 3,201 to 10,000         | 13                  |
| 10,001 and over         | 20                  |

A test specimen which fails to conform to any requirement of this specifications shall not be used to determine the conformance to other requirements.

## TEST REQUIREMENTS

### Magnetic Thickness Measurements:

The thickness of the coating shall be determined by magnetic thickness gauge measurements in accordance with ASTM Practice E 376. For each specimen, five or more measurements shall be made at points widely dispersed throughout the volume occupied by the specimen so as to represent as much as practical, the entire surface area of the test specimen. The average of the five or more measurements thus made for each specimen is the specimen coating thickness.

For articles whose surface area is greater than 100,000 mm<sup>2</sup> (160 in<sup>2</sup>), in the average of the three specimen coating thickness grades comprising each test article is the average coating thickness for that test article. A specimen must be evaluated for each steel category and

material thickness within the requirements for each specimen of the test article

For articles whose surface area is equal to or less than 100,000 mm<sup>2</sup> (160 in<sup>2</sup>), the average of all specimen coating thickness grades is the average coating thickness for the sample.

The use of magnetic measurement method is appropriate for larger articles, and may be appropriate for smaller articles when such is practical using ASTM Practice E 376.

#### Stripping Method

The average weight of coating may be determined by stripping a test article, a specimen removed from a test article, or group of test articles in the case of very small items such as nails, etc., in accordance with Test method ASTM A 90/A 90m. The weight of coating per unit area thus determined is converted to equivalent coating thickness values in accordance with Table 2, Coating Thickness Grade (rounding up or down as appropriate). The thickness of coating thus obtained is the test article coating thickness, or in the case of a specimen removed from a test article, is the specimen average coating thickness.

Table 2 – Coating Thickness Grade <sup>A</sup>

| Coating Grade | mils | oz/ft <sup>2</sup> | µm  | g/m <sup>2</sup> |
|---------------|------|--------------------|-----|------------------|
| 35            | 1.4  | 0.8                | 35  | 245              |
| 40            | 1.4  | 1.0                | 45  | 320              |
| 50            | 2.0  | 1.2                | 50  | 355              |
| 55            | 2.2  | 1.3                | 55  | 390              |
| 60            | 2.4  | 1.4                | 60  | 425              |
| 65            | 2.6  | 1.5                | 65  | 460              |
| 75            | 3.0  | 1.7                | 75  | 530              |
| 80            | 3.1  | 1.9                | 80  | 565              |
| 85            | 3.3  | 2.0                | 85  | 600              |
| 100           | 3.9  | 2.3                | 100 | 705              |

<sup>A</sup> Conversions in Table 2 are based on the metric thickness value equivalents from the next earlier version, using conversion factors consistent with Table X 2.1 in Specification A 653/A 653M, rounded to the nearest 5 µm (0.0002 in.). The conversion factors used are: mils = µm x 0.03937; oz/ft<sup>2</sup> = µm x 0.002316; g/m<sup>2</sup> = µm x 7.067.

#### Weighing Before or After Galvanizing

The average of coating may be determined by weighing articles before and after galvanizing, subtracting the first weigh from the second and dividing the result by the surface area. The first weigh shall be determined after pickling and drying, and the second after cooling to ambient temperature. The weight of coating per unit area thus determined is converted to

equivalent coating thickness values according to Table 2 (rounding up or down as appropriate). The thickness of coating thus obtained is the test article coating thickness.

#### Microscopy

The thickness of coating may be determined by cross-sectional and optical measurement in accordance with ASTM Test Method B 487. The thickness thus determined is a point value. No less than five such measurements shall be made at locations on the test article which are as widely dispersed as practical, so as to be representative of the whole surface of the test article. The average of no less than five such measurement is the specimen coating thickness.

#### Adhesion

Determine adhesion of the zinc coating to the surface of the base metal by cutting or prying with the point of a stout knife, applied with considerable pressure in a manner tending to remove a portion of the coating. The adhesion shall be considered inadequate if the coating flakes off in the form of a layer of the coating so as to expose the base metal in advance of the knife point. Do not use testing carried out at edges or corners (points of lowest coating adhesion) to determine adhesion of the coating. Likewise, do not use removal of small particles of the coating by paring or whittling to determine failure.

#### Embrittlement

Test for embrittlement may be made in accordance with ASTM Practice A 143

The galvanized article should withstand a degree of bending substantially the same as the ungalvanized article. Flaking or spalling of the galvanized coating is not be construed as an embrittlement failure.

#### Inspection, Rejection and Retest

The material shall be inspected at the galvanizer's plant prior to shipment. However, by agreement the purchaser may make the tests which govern the acceptance or rejection of the materials in his own laboratory or elsewhere.

When inspection of materials to determine conformity with the visual requirements of Subsection "Finish" warrants rejection of a lot, the galvanizer may sort the lot and submit it once again for acceptance after he has removed any nonconforming articles and replace them with conforming articles.

Materials have been rejected for reasons other than embrittlement may be stripped and regalvanized, and again submitted for inspection and test at which time they shall conform to the requirements of this inspection.

#### Transport and Storage

Galvanized components shall, wherever possible, be transported and stored under dry, well-ventilated conditions to prevent the formation of wet storage staining.

Either zinc phosphate or chromate passivation treatment after galvanizing may be used to minimize the wet storage staining which may occur on articles unable to be stored in dry, well-ventilated conditions.

Provided the coating thickness complies with the requirements of Subsection "Coating Thickness", no further remedial action is required to the stained areas.

## **ITEM 19 : DRAINAGE WORKS**

### **SCOPE OF WORK**

The works shall consist of excavation, backfilling and construction of lateral drains, construction of manholes, reconnection to existing lateral and other related works in accordance with the dimensions, size, elevation and grade as shown on the drawing and shall conform with the Specification.

At least thirty (30) days before the start of any construction related to drainage works, the Contractor shall submit to the Engineer for his approval, shop drawings of the drainage work he intends to construct. The shop drawings shall include the materials and the general method of installation he intends to employ.

### **MATERIAL REQUIREMENTS**

#### **BACK FILL**

Fill shall be in accordance with Item "Reclamation and Fill".

#### **GRAVEL BEDDING**

Gravel Bedding/gravel base shall be in accordance with the specifications of Crushed Course Aggregates in "Reinforced Concrete".

#### **SAND BEDDING**

Sand bedding shall be in accordance with Item "Reinforced Concrete (Fine Aggregates)".

#### **CONCRETE**

Mixing/Casting and steel reinforcements shall be in accordance with Item "Reinforced Concrete" while the dimensions shall be as shown on the Drawings.

#### **CEMENT MORTAR**

Cement mortar shall consist of one part Portland cement to two parts of fine aggregate with water added as necessary to obtain the required consistency.

#### **REINFORCED CONCRETE PIPE**

The fabrication of reinforced concrete pipes shall conform to the Specifications of ASTM C 76 while the testing requirements shall conform to ASTM C 497. The Engineer reserves the right to inspect and test the pipe delivered for intended purpose. Defects that are discovered after acceptance of delivery of the pipe but before installation shall be a cause for rejection.

Standard reinforcement details and concrete strength shall be in accordance with DPWH "Standard Two Meter Concrete Pipe Culvert".

### **EXECUTION**

#### **EARTHWORKS**

All earthworks for concrete pipe culvert shall conform to the lines, grades and elevations shown on the drawings or as directed by the Engineer.

The lateral drain shall be excavated to the depth, grade and width established by the Engineer. The bedding surface shall provide a firm foundation of uniform density throughout the entire length. Soft, spongy, or otherwise unstable material encountered that will not provide a firm foundation for the concrete drainage shall be removed to the full width of the trenches and replaced by suitable material to a depth of not less than 30 cm. 100mm thick gravel bedding shall be used as foundation or otherwise as specified.

#### PIPE LAYING

The pipe shall be tested for water-tightness of joints before backfilling the trench. Unsatisfactory work shall be corrected without additional cost to the PPA. The collar shall have set sufficiently prior to backfilling.

Methods of installation and typical bedding for pipe conduits if not included in the plans, shall conformed to DPWH "Standard Two Meter Reinforced Concrete Culvert".

#### LATERAL DRAIN

Concrete cover and the existing steel gratings shall be set to the required elevations as shown on the drawings to fit the adjoining surfaces and shall be installed after the adjoining concrete is struck off and finished, and the fit on the frames shall be such that there is no rocking.

All completed structures shall be thoroughly cleaned of any accumulations of silts, debris or foreign matter of any kind, until finally accepted and put into service.

#### CATCH BASIN INLETS, MANHOLES AND OUTLETS

Lid frames shall be set to the required elevations as shown on the drawings to fit the adjoining surfaces. Lids shall be installed after the adjoining concrete is struck off and finished, and the fit on the frames shall be such that there is no rocking.

Where reconstruction of existing catch basin inlets, manholes, outlets, or similar structures are indicated, the work shall be in accordance to the details and elevations as shown on the drawings, including re-installation of existing metal frames, grates and lids, or replacing of concrete covers instead of grates that may have been lost or found lacking. All completed structures shall be thoroughly cleaned of any accumulations of silts, debris or foreign matter of any kind, until finally accepted and put into service.

#### FIELD DENSITY TEST

Field Density tests to determine the percent of compaction of the fill material shall be conducted until a field density of at least 95 percent of the maximum dry density in accordance with AASHTO T180, Method D has been achieved. In place density determination shall be made in accordance with AASHTO T191.



## ITEM 20 : ELECTRICAL WORKS

### SCOPE OF WORK

The work to be done shall consist of fabricating, trenching, furnishing, delivering and installing electrical materials/fixtures completed in accordance with all the details of the electrical works as shown on the drawings including materials, labor, tools and equipment and all incidental works as found necessary.

Refer to electrical plans/drawings for location and extent of work involved.

### GENERAL REQUIREMENTS

- a) All works shall be done in accordance with the requirements of the publications and agencies having jurisdiction, as well as the requirements of the approved standards.
  1. National Fire Protection Association - (NFPA)
  2. National Electrical Manufacturer Association - (NEMA)
  3. Underwriter Laboratories, Inc. - (UL)
  4. Philippine Electrical Code - (PEC)
  - Philippine National Standard - (PNS)
  - Light Emitting Diode - (LED)
  5. Federation Specification:  
Molded Case circuit Breaker - (MCCB)
  6. American National Standard Institute - (ANSI)
  7. American Society for Testing and Materials - (ASTM)
  8. Illuminating Engineering Society - (IES)
- b) The electrical power will be connected to the local electric cooperative supply. The supply voltages shall be 220 volt, single phase (1Ø), and 60 hertz.
- c) The Contractor shall employ a licensed Registered Electrical Engineer or Master electrician to perform or to supervise and to conduct the continuous inspection of all electrical work.
- d) The Contractor shall first obtain approval from the Authority before procurement, fabrication or delivery of electrical materials to the site. Partial submittals will not be acceptable and will be returned without review. Submittals shall include the Manufacturer's Name, Trade Name, Place of Manufacture, Catalog Model or Number, Nameplate Data, Size, Layout Dimensions, Capacity, Project Specification and Paragraph Reference, Technical Society Publication References and other information necessary to establish contract compliance of each item to be furnished.
- e) All excavations fill and backfill and concrete works involved herein, shall be carried to the required elevations and shall conform to the provisions of specification under Earthwork and Concrete Construction of this tender document.
- f) The materials and equipment to be furnished shall be standard products of reputable manufacturer engaged in the reproduction of such materials and equipment.

- g) All permits and electrical fees required for this work shall be obtained at the expense of the Contractor. The Contractor shall furnish the Engineer-in-Charge, the final Certificates of Inspections and approval from the proper government authorities after the completion of work. The Contractor shall prepare all as-built plans and all other paper works as required by the enforcing authorities.
- h) The Contractor shall furnish and install electrical materials as shown in the drawings. A licensed Electrical Engineer or Master Electrician is required to implement the installation of the electrical system. A licensed electrical contractor shall oversee/conduct the installation of the main circuit breaker.
- i) Electrical installation shall conform to the requirements of Philippine Electrical Code (PEC) and the other approved standards.
- j) The contractor shall install all electrical works with the supervision of the qualified Registered Electrical Engineer (REE) or Master Electrician. All electrical installation applications regardless of capacity and voltage whether new, addition or revision shall be accompanied by electrical plans signed and sealed by a duly licensed Professional Electrical Engineer (PEE).

## **MATERIAL REQUIREMENTS**

All materials shall be brand new and shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark.

### **PRODUCTS**

#### **WIRES AND CABLES**

The conductor material to be furnished and installed shall be copper wire Heat-Resistant Thermoplastic (THHN/THWN-2). All conductors shall be rated 600 volts insulation and shall be standard for all sizes.

#### **CONDUIT AND FITTINGS**

Underground PVC conduit shall be polyvinyl chloride with concrete covered. It shall be manufactured to schedule 40 outside diameter. All fittings and bends shall be solvent bonded using manufacturers recommended product.

#### **LED FLOODLIGHT FIXTURE 250 WATT (OUTDOOR)**

##### **Specifications:**

Color Temperature: warm white (WW/DL)

Average Life hours: 50,000

CRI: RA>75

Working Temperature: 30 -70 degrees

Certifications: CE, ROHS

Light Source: 5-50w Hi-Power LED Chip (Bridgelux /Epistar)

Circuit Protection: Short Circuit & Over-Voltage & High Voltage Surge Protection

Frequency range: 60 hertz

Beam angle: 120 degrees

Working voltage: AC85V-265V

IP Rating: IP 65

Power Factor : >90%

Lamp Body Material: Aluminum alloy, tempered glass (equivalent)

## **LIGHTNING PROTECTION WITH ACCESSORIES**

It consists of air terminals, down conductors, ground connections, grounding electrodes as shown in the plan.

### **PANEL BOARD**

Panel board shall conform to the schedule of panel board as shown on the approved plans with respect to supply characteristics, rating of main lugs or main circuit breaker, number and ratings and capacities of branch circuit breakers.

Panel board shall consist of a factory completed dead front assembly mounted in an enclosing NEMA 3R cabinet consisting of code gauge galvanized sheet steel box with trim and door.

Main and branch circuit breakers for panel board shall have the rating, capacity and number of poles as shown on the approved plans. Breakers shall be thermal magnetic type solid state-type with interrupting capacity of 10,000 amperes symmetrical minimum. Breaker terminal shall be UL listed as suitable for type of conductor provided. Breaker shall be the bolt-in type (that is, bolted to the current carrying bus). Plug-in circuit breakers are not acceptable

### **CONCRETE DUCT BANK / HANDHOLE**

The contractor shall construct concrete duct bank and handhole as shown in the approved plan.

### **FLOODLIGHT POLE (12.0 meter height)**

The floodlight pole is to be hot-dip galvanized steel and designated as complete system with anchor bolts, steel ladder, hot-dip galvanized steel frame for mounting the number of floodlight fixtures are indicated on the approved plan.

A maintenance platform complete with safety rail should be provided as shown in the approved plan.

Anchor bolts are made of Stainless Steel to ensure that the floodlight pole assembly capacity can withstand all the stresses composed of wind, luminares weight and live load of maintenance personnel.

### **PROTECTIVE COATING FOR FLOODLIGHT POLE**

#### **Hot Dipped Galvanizing**

All mild steel parts exposed to weather shall be hot-dipped galvanized after fabrication as shown in the approved plan or directed by the Engineer in accordance with the requirements of JIS H88641. Prior to hot-dip galvanizing, the surface shall be cleaned of dirt, weld splatter, grease, slag, oil, paint or other deleterious matters. The steel surfaces shall be chemically descaled and cleaned with abrasive blast or other suitable method as approved by the Engineer.

## **EXECUTION**

### **INSTALLATION**

Floodlight Pole shall be installed at the proposed back-up area provided with reinforcement pile foundation, while Single Angle Bar Floodlight steel lamp post installed at the side of existing concrete fence as shown in the plan.

**Pole Setting:** Depth as shown on the approved plans.

Construction of reinforced steel lamp post and floodlight pole foundation shall be in accordance with the shape and dimensions as shown on the approved plans

Excavations / backfilling required before /after installation of lamp post and floodlight pole with the trench shall conform to the provisions of Earthwork and Concrete construction.

Concrete Pedestal Post shall be reinforced concrete with appropriate weatherproof fittings as constructed as shown in the approved plan. Reinforced concrete materials shall conform to the requirements of concrete. Concrete shall be of 21 Mpa (3000 psi) compressive strength.

Metering: the local electric utility company of Tagbilaran Port is responsible for the supply and installation of metering equipment, and its accessories, but it is part of the contractor responsibility and expense to coordinate with them on this regard.

#### **WORKMANSHIP**

The work throughout shall be executed in the best and most thorough manner under the direction of and at the satisfaction of the Registered Electrical Engineer or Master Electrician, who will interpret the intent meaning of the drawings and specification and shall have the power to reject any work and materials which in his judgment, are not in full accordance therewith.

#### **TESTING OPERATIONS**

When the electrical installation is completed, the Contractor shall test the installed electrical materials and equipment in the presence of Registered Electrical Engineer or Master Electrician. The system shall be free from any defects, shorts or grounds. The Contractor at no extra cost shall furnish all necessary instruments and personnel required for the testing.

#### **GUARANTEE**

Upon completion and before final acceptance of the work, the Contractor shall furnish the Engineer a written guarantee stating that all works executed are free from defects on materials and workmanship. The guarantee shall be for a period of one year from the date of the final acceptance. Any work that becomes defective during the said period shall be corrected / replaced by the Contractor at his own expense in a manner satisfactory to the Authority.

**ITEM 21 : PROJECT BILLBOARD****SPECIFICATION**

The Project Billboard shall be installed at location(s) designated by the Engineer.

The size and specifications of materials for the standard billboard shall be 4ft. x 8ft. (1,200mm x 2,400mm) using ½ inch (12mm) marine plywood or tarpaulin poster on 3/16 inch (5mm) marine plywood.

Project billboards shall not contain Name(s) and/or picture(s) of any personages.

See attached drawings for further details of the standard billboard.

2438 (8 ft.)

1219 (4 ft.)

(Name of Project and Location)

CONTRACTOR

EFFECTIVITY OF CONTRACT


CONTRACT COMPLETION DATE

CONTRACT COST

IMPLEMENTING OFFICE

SOURCE OF FUND

PHILIPPINE  
PORTS  
AUTHORITY



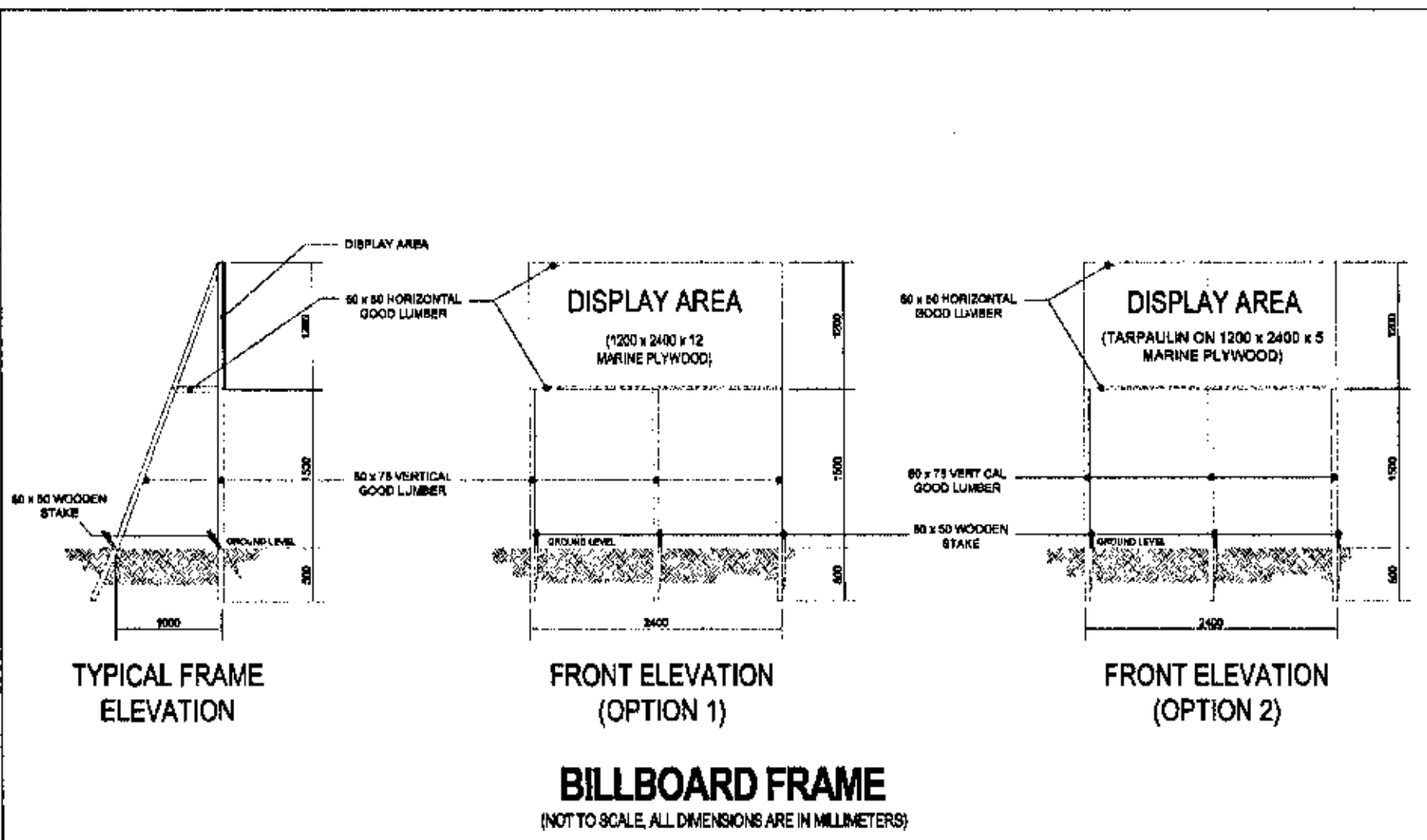
STANDARD PROJECT BILLBOARD

37mm YELLOW BORDER LINE

WHITE BACKGROUND

ARIAL BLACK TEXT

ARIAL DARK BLUE TEXT



“To all our contractors, suppliers, and service providers, all we ask is for you to

**SPEED UP**

your contracts and **FINISH**

**AHEAD** of schedule,

**WITHOUT SACRIFICING**

**QUALITY**

of work, and **REASONABLENESS**

**OF COST** agreed upon. Gawin niyo

‘yan at hindi tayo maghihiwalay ng

landas (Do that and we will not part ways).”

A Message from  
DOTr Secretary Arthur Tugade



@DOTRPH

@DOTRPH

www.dotr.gov.ph



## ITEM 22 : SAFETY SIGNAGES AND BARRICADES

### DESCRIPTION

This work includes the furnishing and installing of safety signages and barricades in accordance with the specifications and to the details shown below in the drawings, or as directed by the Engineer.

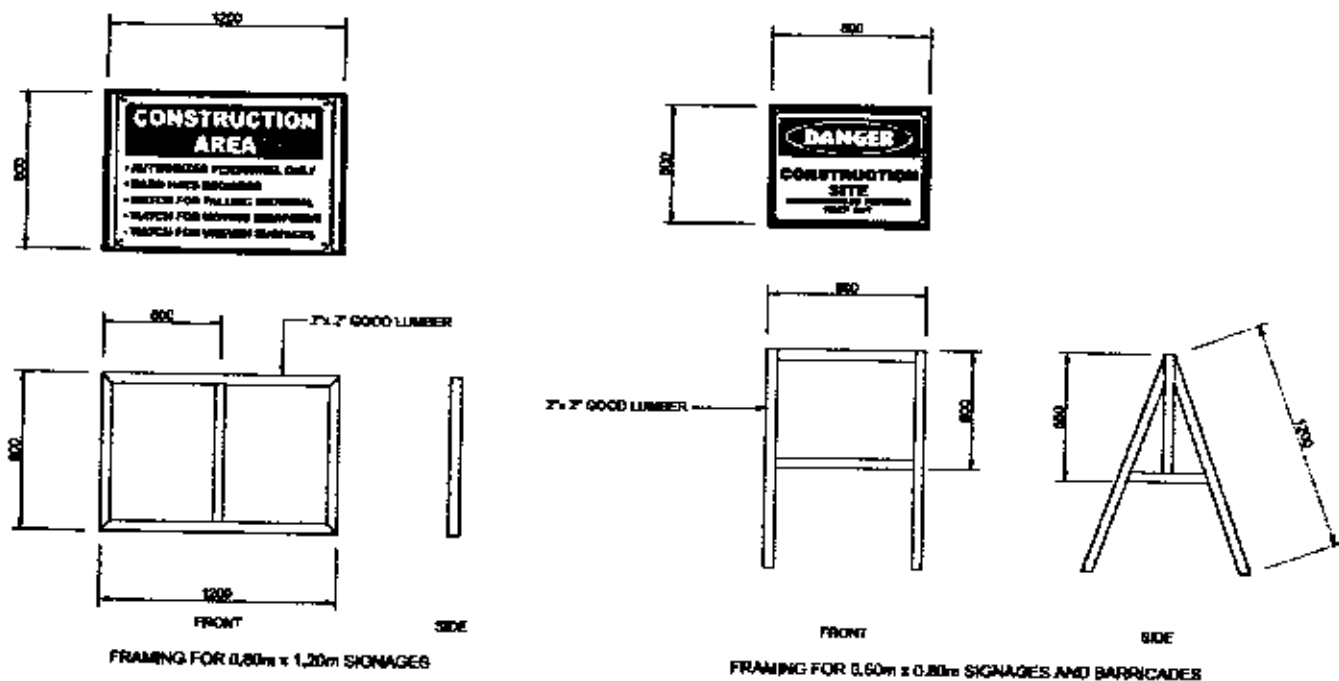
### SPECIFICATION

The Signage's and Barricades shall be installed at location(s) designated by the Engineer.

The sizes of the standard signages shall be 2-2/3ft x 4ft (800mm X 1,200mm) for fixed type and 2ft x 2-2/3ft (600mm x 800mm) for mobile type. For barricade standard 2ft x 2-2/3ft (600mm x 800mm) shall be provided.

The materials to be used for signages and barricades are ½ inch (12mm) marine plywood or tarpaulin poster on 2" x 2" (50mm x 50mm) good lumber frame (see drawing below).

The printing or painting shall be the discretion of the Engineer.



### STANDARD PLAN FOR SIGNAGES AND BARRICADES

**SECTION VII**

**DRAWINGS**  
**(APPROVED PLANS)**

# SECTION VII

## DRAWINGS AND APPROVED PLANS

(SEE ISSUED APPROVED PLANS)

### LIST OF DRAWINGS:

|          |  |
|----------|--|
| 1 OF 43  | DEVELOPMENT PLAN, GENERAL NOTES, DESIGN PARAMETERS, LIST OF DRAWINGS AND LOCATION MAP.   |
| 2 OF 43  | DEMOLITION AND CLEARING LAYOUT.  |
| 3 OF 43  | GENERAL PLAN.  |
| 4 OF 43  | PART PLAN OF RC PIER WITH TUBULAR STEEL PIPE PILE FOUNDATION, PILING AND FRAMING LAYOUT OF RC PIER WITH TUBULAR STEEL PIPE PILE FOUNDATION, SCHEDULE OF MOORING BOLLARD (TEE-HEAD), SCHEDULE OF FENDERING SYSTEM (V-TYPE), PILE SCHEDULE (550mmØ STEEL PIPE PILES - A252 GRADE 2) AND NOTES. |
| 5 OF 43  | TYPICAL CONNECTION OF TUBULAR STEEL PILE, PILE SPLICING, DETAIL OF BACKING CYLINDER PLATE AT SPLICING, SECTIONS, REINFORCING BAND AT PILE TIP, NOTES AND SPECIFICATIONS.   |
| 6 OF 43  | Segment 1 Details. OFF-SHORE ELEVATION (PIER SEGMENT-1) AND SECTION A.   |
| 7 OF 43  | Segment 1 Details. SECTION B, SECTION C, PILE CAP FOR VERTICAL PILES, PILE CAP FOR COUPLE PILES AND DETAIL OF CURTAIN WALL (SEGMENT 1 AND 2).  |
| 8 OF 43  | Segment 1 Details. REINFORCEMENT DETAIL OF MOORING/FENDERING BLOCK (SEGMENT-1) AND TYPICAL ATTACHMENT OF 600H x 1500L/ 500H x 1500L AND 50T/ 35T MOORING TEE-HEAD (SEGMENT-1).   |
| 9 OF 43  | Segment 1 Details. BEAM DETAIL (SEGMENT-1).  |
| 10 OF 43 | Segment 1 Details. BEAM DETAIL (SEGMENT-1).  |
| 11 OF 43 | Segment 1 Details. DETAIL OF SLAB AND DETAIL OF CONSTRUCTION JOINT.  |
| 12 OF 43 | Segment 2 Details. PART PLAN OF RC PIER WITH PRE-STRESSED CONCRETE PILE FOUNDATION AND PILING AND FRAMING LAYOUT OF RC PIER WITH PRE-STRESSED CONCRETE PILE FOUNDATION.  |
| 13 OF 43 | Segment 2 DETAIL OF 450mm x 450mm PRE-STRESSED CONCRETE PILE, NOTES AND SPECIFICATIONS.  |
| 14 OF 43 | Segment 2 OFF-SHORE ELEVATION (PIER SEGMENT-2) AND SECTION D.  |
| 15 OF 43 | Segment 2 SECTION E. SECTION F, SECTION G AND SECTION H.   |
| 16 OF 43 | Segment 2 PILE CAP FOR VERTICAL PILES, PILE CAP FOR COUPLE-BATTER PILES, DETAIL OF CONSTRUCTION JOINT AND DETAIL OF SLAB.  |
| 17 OF 43 | Segment 2 REINFORCEMENT DETAIL OF MOORING/FENDERING BLOCK (SEGMENT-1) AND TYPICAL ATTACHMENT OF 600H x 1500L/ 500H x 1500L V-TYPE RDF AND 50T/ 35T MOORING TEE-HEAD (SEGMENT - 2).   |
| 18 OF 43 | Segment 2 BEAM DETAIL (SEGMENT-2).   |
| 19 OF 43 | Segment 2 BEAM DETAIL (SEGMENT-2).   |
| 20 OF 43 | SHEET PILING AND ANCHORAGE LAYOUT.   |
| 21 OF 43 | CONCRETE BLOCKS WALL AND MOORING ANCHORAGE LAYOUT.   |
| 22 OF 43 | DETAIL OF PRE-STRESSED CONCRETE SHEET PILE (350mm x 600mm) AND SPECIFICATIONS.   |
| 23 OF 43 | DETAIL OF REINFORCED CONCRETE CORNER SHEET PILE.   |
| 24 OF 43 | TYPICAL DETAIL OF TIE-ROD ASSEMBLY, DETAIL OF ANCHOR WALL, DETAIL OF ANCHOR BLOCK FOR 32mm/36mm TIE-ROD ASSEMBLY.  |

|          |  |
|----------|--|
| 25 OF 43 | DETAIL OF COPING WALL, DETAIL OF COPING WALL (BERTH SIDE) AND DETAIL OF MOORING AND FENDERING ATTACHMENT.  |
| 26 OF 43 | DETAIL OF RETAINING WALL, DETAIL OF MOORING ATTACHMENT AT CONCRETE BLOCK WALL AND DETAIL SCHEDULE OF CONCRETE BLOCKS.  |
| 27 OF 43 | STATION 0+000 AND STATION 0+020.   |
| 28 OF 43 | STATION 0+040 AND STATION 0+060.   |
| 29 OF 43 | STATION 0+070 AND STATION 0+080.   |
| 30 OF 43 | STATION 0+100 AND STATION 0+120.   |
| 31 OF 43 | STATION 0+132 AND LINE 0+000.  |
| 32 OF 43 | LINE 0+020 AND LINE 0+034.50.  |
| 33 OF 43 | LINE 0+64.50 AND LINE 0+94.50.   |
| 34 OF 43 | TYPICAL PORTLAND CEMENT CONCRETE PAVEMENT DETAILS, DETAIL OF INTERLOCKING CONCRETE BLOCKS DETAIL OF INTERLOCKING CONCRETE BLOCK PAVEMENT AND DETAIL OF SHEAR KEY/ CONCRETE EDGE. |
| 35 OF 43 | DETAIL OF 50 TON MOORING TEE-HEAD AND DETAIL OF 35 TON MOORING TEE-HEAD.   |
| 36 OF 43 | DETAIL OF 15 TON MOORING BOLLARD (SINGLE PILLAR) AND DETAIL OF V-TYPE RUBBER DOCK FENDER (V-600H x 1000L).   |
| 37 OF 43 | DETAIL OF V-TYPE RUBBER DOCK FENDER (V-600H x 1500L) AND DETAIL OF V-TYPE RUBBER DOCK FENDER (V-500H x 1500L).   |
| 38 OF 43 | STORM DRAINAGE LAYOUT.   |
| 39 OF 43 | DETAIL OF CATCH DRAIN MANHOLE, TYPICAL INSTALLATION OF RC PIPE CULVERT AND DRAINAGE INTERFACE.   |
| 40 OF 43 | LATERAL DRAIN DETAILS.   |
| 41 OF 43 | PORT LIGHTING LAYOUT PLAN, GENERAL NOTES, LEGEND, NOTES, RISER DIAGRAM AND SCHEDULE OF LOAD.   |
| 42 OF 43 | DETAIL OF 12 METER HIGH FLOODLIGHT STEEL POLE.   |
| 43 OF 43 | DETAIL OF FLOODLIGHT FOUNDATION, DETAIL OF CONCRETE DUCT BACK AND DETAIL OF HAND HOLE.   |

**SECTION VIII**

**BILL OF QUANTITIES**  
**and**  
**ATTACHMENTS**

**BILL OF QUANTITIES**  
**CONSTRUCTION OF BACK-UP AREA AND RC PIER**  
 Port of Tagbikaran, Bohol



| NO.<br>(1)           | DESCRIPTION OF WORK<br>(2)  | UNIT<br>(3) | QTY.<br>(4) | UNIT PRICE<br>(Pesos)<br>(5) | AMOUNT<br>(Pesos)<br>(4) x (5) |
|----------------------|---|-------------|-------------|------------------------------|--------------------------------|
| BILL NO. 1           | <b>GENERAL EXPENSES</b>   |             |             |                              |                                |
| 1.01                 | Mobilization, demobilization and cleaning   | lot         | 1           |                              |                                |
| 1.02                 | Rental of temporary site office and residence for the Engineer and staff  | mo.         | 20          |                              |                                |
| 1.03                 | Maintain temporary site office and residence for the Engineer and staff   | mo.         | 20          |                              |                                |
| 1.04                 | Provide Construction Safety and Health Program in the execution of the project including stringent Covid-19 protocols per PPA Engineering Circular No. 01-2020 and, construction guidelines for project implementation during the period of public health emergency approved by PDCB and CIAP (as indicated in the bid documents) | mo.         | 20          |                              |                                |
| TOTAL FOR BILL NO. 1 |   |             |             |                              |                                |

**BILL OF QUANTITIES**  
**CONSTRUCTION OF BACK-UP AREA AND RC PIER**  
 Port of Tagbilaran, Bohol



| NO.<br>(1) | DESCRIPTION OF WORK<br>(2)   | UNIT<br>(3)                  | QTY.<br>(4)          | UNIT PRICE<br>(Pesos)<br>(5) | AMOUNT<br>(Pesos)<br>(4) x (5) |
|------------|--|------------------------------|----------------------|------------------------------|--------------------------------|
| BILL NO. 2 | BACK-UP AREA ( 12,081.30 sq. m. )  |                              |                      |                              |                                |
| 2.01       | Chipping of existing RC curb, flushed to deck level and smoothed with mortar   | l.m.                         | 288                  |                              |                                |
| 2.02       | Excavation of existing seabed to required elevation (for placing of rocks)   | cu.m.                        | 2,641                |                              |                                |
| 2.03       | Excavation of fill materials for catch drain manhole, lateral drainage, floodlight foundation duct bank and handhole   | cu.m.                        | 210                  |                              |                                |
| 2.04       | Supply and deliver to site 0.35m x 0.60m x 16m PSC sheet piles   | l.m.                         | 3,120                |                              |                                |
| 2.05       | Supply and deliver to site R.C. Corner piles<br>a) R.C. Corner pile No. 1<br>b) R.C. Corner pile No. 2<br>c) R.C. Corner pile No. 3<br>d) R.C. Corner pile No. 4   | l.m.<br>l.m.<br>l.m.<br>l.m. | 16<br>16<br>15<br>15 |                              |                                |
| 2.06       | Handle, pitch and drive PSC sheet piles and R.C. corner piles  | l.m.                         | 3,184                |                              |                                |
| 2.07       | Chipping of newly driven PSC sheet piles & R.C. Corner piles including disposal  | no.                          | 169                  |                              |                                |
| 2.08       | Supply & place 3,500 psi. concrete for retaining walls, anchor wall, anchor block, coping wall, concrete block wall, slotted RC curb, shear key, floodlight foundation duct bank, handhole, lateral drainage and catch drain manhole   | cu.m.                        | 1,190                |                              |                                |
| 2.08       | Supply & install steel reinforcement for retaining walls, anchor wall, anchor block, coping wall, concrete block wall, slotted RC curb, shear key, floodlight foundation duct bank, handhole, lateral drainage and catch drain manhole | kg.                          | 89,248               |                              |                                |
| 2.10       | Supply and place 3,000psi concrete blocks<br>a. Concrete block 1<br>b. Concrete block 2<br>c. Concrete block 3   | unit<br>unit<br>unit         | 126<br>126<br>130    |                              |                                |

**BILL OF QUANTITIES**  
**CONSTRUCTION OF BACK-UP AREA AND RC PIER**  
 Port of Tagbilaran, Bohol



| NO.<br>(1) | DESCRIPTION OF WORK<br>(2)   | UNIT<br>(3) | QTY.<br>(4) | UNIT PRICE<br>(Peso)<br>(5) | AMOUNT<br>(Peso)<br>(4) x (5) |
|------------|--|-------------|-------------|-----------------------------|-------------------------------|
| 2.11       | Supply and place 50-100 kg. rocks  | cu.m.       | 7.887       |                             |                               |
| 2.12       | Supply and install tie-rod (steel 45) including accessories  |             |             |                             |                               |
|            | a) # 55mm x 17 meters  | set.        | 46          |                             |                               |
|            | b) # 55mm x 13 meters  | set.        | 5           |                             |                               |
|            | c) # 55mm x 2 meters   | set.        | 2           |                             |                               |
|            | d) # 36mm x 11 meters  | set.        | 10          |                             |                               |
|            | e) # 32mm x 11 meters  | set.        | 18          |                             |                               |
| 2.13       | Supply and install geotextile fabric   | sq.m.       | 4,843       |                             |                               |
| 2.14       | Supply and place sand and gravel fill  | cu.m.       | 73,802      |                             |                               |
| 2.15       | Supply, place and compact aggregate subbase course   | cu.m.       | 12,497      |                             |                               |
| 2.16       | Supply, spread and compact aggregate base course   | cu.m.       | 1,835       |                             |                               |
| 2.17       | Supply, place and compact gravel bedding for lateral drain, catch drain manhole, floodlight foundation, duct bank, handhole, anchor wall and anchor blocks | cu.m.       | 45          |                             |                               |
| 2.18       | Supply, spread and compact cement treated base course  | cu.m.       | 1,581       |                             |                               |
| 2.19       | Supply, spread and compact levelling course sand cushion   | cu.m.       | 479         |                             |                               |
| 2.20       | Supply, deliver and install interlocking concrete paving blocks  | sq.m.       | 9,580       |                             |                               |
| 2.21       | Construct portland cement concrete pavement (800mm thk) including dowel bars and construction joint  | sq.m.       | 1,412       |                             |                               |
| 2.22       | Supply and deliver to site rubber dock fender (V-type, 600H x 1000L) including accessories   | set         | 9           |                             |                               |
| 2.23       | Install rubber dock fender and accessories   | set         | 9           |                             |                               |



**BILL OF QUANTITIES**  
**CONSTRUCTION OF BACK-UP AREA AND RC PIER**  
 Port of Tagbilaran, Bohol



| NO.<br>(1)                  | DESCRIPTION OF WORK<br>(2)  | UNIT<br>(3) | QTY.<br>(4) | UNIT PRICE<br>(Peso)<br>(5) | AMOUNT<br>(Peso)<br>(4) x (5) |
|-----------------------------|---|-------------|-------------|-----------------------------|-------------------------------|
| 2.24                        | Supply and deliver to site mooring bollard (25 Tons, T-head) including accessories  | set         | 5           |                             |                               |
| 2.25                        | Supply and deliver to site mooring bollard (15 Tons, Single Pillar) including accessories                                     | set         | 9           |                             |                               |
| 2.26                        | Install mooring bollards and accessories  | set         | 14          |                             |                               |
| 2.27                        | Supply and install lateral drainage trench grate cover including angular frame  | l.m.        | 34          |                             |                               |
| 2.28                        | Supply and install catch drain manhole RC cover including accessories   | set         | 9           |                             |                               |
| 2.29                        | Supply and install reinforced concrete pipe culvert 900mm ø   | l.m.        | 187         |                             |                               |
| 2.30                        | Supply, deliver and drive 0.45m x 0.45m x 22m PSC piles for Floodlight Foundation including chipping up to required elevation | l.m.        | 44          |                             |                               |
| 2.31                        | Supply and install port lighting system including all appurtenances   | lot         | 1           |                             |                               |
| <b>TOTAL FOR BILL NO. 2</b> |   |             |             |                             |                               |

**BILL OF QUANTITIES**  
**CONSTRUCTION OF BACK-UP AREA AND RC PIER**  
 Port of Tagbilaran, Bohol



| NO.<br>(1)        | DESCRIPTION OF WORK<br>(2)  | UNIT<br>(3) | QTY.<br>(4) | UNIT PRICE<br>(Pesos)<br>(5) | AMOUNT<br>(Pesos)<br>(4) x (5) |
|-------------------|---|-------------|-------------|------------------------------|--------------------------------|
| <b>BILL NO. 3</b> | <b>RC PIER (15m x 150m)</b>   |             |             |                              |                                |
| 3.01              | Supply, deliver and drive 450mm x 450mm x 29m PSC Test Piles  | no.         | 2           |                              |                                |
| 3.02              | Supply and deliver to site 450mm x 450mm PSC Piles  | l.m.        | 5,064       |                              |                                |
| 3.03              | Handle, pitch and drive 450mm x 450mm Vertical PSC Piles  | l.m.        | 2,744       |                              |                                |
| 3.04              | Handle, pitch and drive 450mm x 450mm Batter PSC Piles  | l.m.        | 2,320       |                              |                                |
| 3.05              | Chipcut & dispose portion of newly driven PSC Piles up to required elevation  | no.         | 178         |                              |                                |
| 3.06              | Supply, deliver and drive 550mm <sup>2</sup> steel pipe test pile with protective external coating  | m.t.        | 10          |                              |                                |
| 3.07              | Supply and deliver to site steel pipe piles (A262 Grade 2, 550mm ø x 8mm & 12mm thk)  | m.t.        | 314         |                              |                                |
| 3.08              | Application of polyurethane external coating and mastio filler for steel pipe piles (Polyurethane : 1,500 microns dry film thickness or equivalent) | sq.m.       | 2,083       |                              |                                |
| 3.09              | Supply and install 8mm thk. reinforcing band at tip of steel pipe piles   | no.         | 68          |                              |                                |
| 3.10              | Handle, pitch and drive vertical steel pipe piles (550mm ø x 8mm & 12mm thk)  | l.m.        | 1,088       |                              |                                |
| 3.11              | Handle, pitch and drive batter steel pipe piles (550mm ø x 8mm & 12mm thk)  | l.m.        | 1,056       |                              |                                |
| 3.12              | Splice 550mm dia steel pipe piles   | no          | 68          |                              |                                |
| 3.13              | Extract clogged materials from steel pipe piles   | cu.m.       | 45          |                              |                                |
| 3.14              | Cutting of driven steel pipe piles up to cut-off elevation including turn-over to authority of excess piles   | no.         | 68          |                              |                                |
| 3.15              | Supply and install reinforcing steel cage for steel pipe piles  | kg.         | 88,277      |                              |                                |

Bidder's Authorized Signature

**BILL OF QUANTITIES**  
**CONSTRUCTION OF BACK-UP AREA AND RC PIER**  
 Port of Tagbilaran, Bohol



| NO.<br>(1)                  | DESCRIPTION OF WORK<br>(2)  | UNIT<br>(3) | QTY.<br>(4) | UNIT PRICE<br>(Peso)<br>(5) | AMOUNT<br>(Peso)<br>(4) x (5) |
|-----------------------------|---|-------------|-------------|-----------------------------|-------------------------------|
| 3.16                        | Supply and place 3,500 psi concrete filler for steel pipe piles   | cu.m.       | 301         |                             |                               |
| 3.17                        | Supply and place 3,500 psi concrete for the superstructure  | cu.m.       | 883         |                             |                               |
| 3.18                        | Supply and install steel reinforcement for the superstructure   | kgs.        | 136,078     |                             |                               |
| 3.19                        | Supply and install hot-dipped galvanized angle bar, 100mm x 100mm x 10mm for construction joint-2, including dowel bars | lm.         | 101         |                             |                               |
| 3.20                        | Supply and deliver to site Rubber Dock Fender (V500H x 1,500L) including accessories                                    | set         | 8           |                             |                               |
| 3.21                        | Supply and deliver to site Rubber Dock Fender (V600H x 1,500L) including accessories                                    | set         | 13          |                             |                               |
| 3.22                        | Install Rubber Dock Fenders including accessories   | set         | 21          |                             |                               |
| 3.23                        | Supply and deliver to site Mooring Bollard (35-Tons, T-head) including accessories                                      | set         | 8           |                             |                               |
| 3.24                        | Supply and deliver to site Mooring Bollard (50-Tons, T-head) including accessories                                      | set         | 13          |                             |                               |
| 3.25                        | Install Mooring Bollards including accessories  | set         | 21          |                             |                               |
| <b>TOTAL FOR BILL NO. 3</b> |   |             |             |                             |                               |

Bidder's Authorized Signature

**BILL OF QUANTITIES**  
**CONSTRUCTION OF BACK-UP AREA AND RC PIER**  
 Port of Tagbilaran, Bohol



| NO.<br>(1)                  | DESCRIPTION OF WORK<br>(2)   | UNIT<br>(3) | QTY.<br>(4) | UNIT PRICE<br>(Peso)<br>(5) | AMOUNT<br>(Peso)<br>(4) x (5) |
|-----------------------------|--|-------------|-------------|-----------------------------|-------------------------------|
| <b>BILL NO. 4</b>           | <b>REIMBURSABLE ITEMS</b>  |             |             |                             |                               |
| 4.01                        | Provide reimbursable items necessary in the implementation of the project as determined by the Authority |             |             |                             |                               |
|                             | a.) Office furniture and appliances  | lot         | 1           |                             |                               |
|                             | b.) Computers and Accessories  | lot         | 1           |                             |                               |
| <b>TOTAL FOR BILL NO. 4</b> |  |             |             |                             |                               |

Bidder's Authorized Signature

## **BASIS OF PAYMENT FOR WORK ITEMS INCLUDED IN THE PROPOSAL**

The work items included in the proposal and the basis of payments are as follows:

### **BILL NO. 1**

#### **GENERAL EXPENSES**

**Item 1.01      Mobilization, demobilization and cleaning**

The quantity to be paid for shall be the minimum equipment requirement enumerated in the bid documents mobilized, demobilized and cleaning of the site and accepted by the Engineer. The contract lump sum price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to mobilize and demobilize all the minimum equipment requirement enumerated in the bid documents including cleaning of the site. Fifty percent (50%) of the total amount shall be payable after the mobilization activity while the remaining (50%) payable after demobilization and cleaning.

**Item 1.02      Rental of temporary site office and residence for the Engineer and staff**

The quantity to be paid for shall be the actual rental of site office and residence for the engineer and staff and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary for the provision of temporary site office and residence for the engineer and staff.

**Item 1.03      Maintain temporary site office and residence for the Engineer and staff**

The quantity to be paid for shall be the actual services rendered in maintaining the site office and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the maintenance of the temporary site office and residence as well as other expenses such as provision for electric power, telephone bill, potable water supply, janitorial and security services.

**Item 1.04      Provide construction safety and Health Program in the execution of the project including stringent Covid-19 protocols per PPA Engineering Circular No. 01-2020 and, construction guidelines for the project implementation during the period of public health emergency approved by PDCB and CIAP (as indicated in the bid documents)**

The quantity to be paid for shall be the actual implementation of construction safety and health program and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the implementation of the Construction Safety and Health Program, as required and approved by the Department of Labor and Employment (DOLE).

**BILL NO. 2**

**BACK-UP AREA (12,081.30 sq.m.)**

- Item 2.01      Chipping of existing R.C. Curb, flushed to deck level and smoothen with mortar**
- The quantity to be paid for shall be the actual length in linear meter of existing R.C. Curb to be chipped off, flushed to deck level and smoothened with mortar in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 2.02      Excavation of existing seabed up to required elevation (for placing of rocks)**
- The quantity to be paid for shall be the actual volume in cubic meter of existing seabed to be excavated up to required elevation (for placing of rocks) in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 2.03      Excavation of fill materials for catch drain manhole, lateral drainage, floodlight foundation, duct bank and handhole**
- The quantity to be paid for shall be the actual volume in cubic meter of fill materials to be excavated for catch drain manhole, lateral drainage, floodlight foundation, duct bank and handhole in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 2.04      Supply and deliver to site 0.350m x 0.60m x 16m PSC sheet piles**
- The quantity to be paid for shall be the actual length in linear meter of PSC sheet piles (0.350m x 0.60m x 16m), supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 2.05      Supply and deliver to site RC corner piles**
- a) RC Corner pile No. 1
  - b) RC Corner pile No. 2
  - c) RC Corner pile No. 3
  - d) RC Corner pile No. 4
- The quantity to be paid for shall be the actual length in linear meter of RC corner piles of various type and sizes, supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 2.06      Handle, pitch and drive PSC sheet piles and RC corner piles**
- The quantity to be paid for shall be the actual length in linear meter of PSC sheet piles and RC corner piles to be handled, pitched and driven in accordance with the plans and specifications, measured from the tip of piles to cut-off elevation and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.07      Chipping of newly driven PSC sheet piles and RC corner piles including disposal**

The quantity to be paid for shall be the actual number of newly driven PSC sheet piles and RC corner piles, chipped off up to required elevation and disposed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.08      Supply and place 3,500 psi concrete for retaining wall, anchor wall, anchor block, coping wall, concrete block wall, slotted RC curb, shear key, floodlight foundation, duct bank, handhole, lateral drainage and catch drain manhole**

The quantity to be paid for shall be the actual volume in cubic meter of 3,500 psi concrete for retaining wall, anchor wall, anchor block, coping wall, concrete block wall, slotted RC curb, shear key, floodlight foundation, duct bank, handhole, lateral drainage and catch drain manhole, supplied and set-in-place in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.09      Supply and install steel reinforcement for retaining wall, anchor wall, anchor block, coping wall, concrete block wall, slotted RC curb, shear key, floodlight foundation, duct bank, handhole, lateral drainage and catch drain manhole**

The quantity to be paid for shall be the actual weight in kilogram of reinforcing steel bars for retaining wall, anchor wall, anchor block, coping wall, concrete block wall, slotted RC curb, shear key, floodlight foundation, duct bank, handhole, lateral drainage and catch drain manhole, supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.10      Supply and place 3,500 psi concrete blocks**  
a) Concrete block 1  
b) Concrete block 2  
c) Concrete block 3

The quantity to be paid for shall be the actual unit of 3,500psi concrete blocks of various type and sizes, supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.11      Supply and place 50-100 kg. rocks**

The quantity to be paid for shall be the actual volume in cubic meter of 50-100 kg. rocks, supplied and set-in-place in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.12      Supply and install tie-rod (steel 45) including accessories:**

- a.) 55mmø x 17meters
- b.) 55mmø x 13meters
- c.) 55mmø x 2meters
- d.) 36mmø x 11meters
- e.) 32mmø x 11meters

The quantity to be paid for shall be the actual set of tie rods of various sizes and lengths including accessories to be supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.13      Supply and install geotextile fabric**

The quantity to be paid for shall be the actual area in square meter of geotextile fabric, supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.14      Supply and place sand and gravel fill**

The quantity to be paid for shall be the actual volume in cubic meter of sand and gravel fill, supplied and set-in-place in accordance with the plans and specifications and accepted by the Engineer. Hydrographic/Topographic Surveys before and after placing of sand and gravel fill shall be made to determine the actual elevations along the cross sections and the actual quantities for payment. Volume due to settlement as established using settlement plates shall also be considered for payment. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.15      Supply, place and compact aggregate subbase course**

The quantity to be paid for shall be the actual volume in cubic meter of aggregate subbase course to be supplied, set-in-place and compacted in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.16      Supply, spread and compact aggregate base course**

The quantity to be paid for shall be the actual volume in cubic meter of aggregate base course to be supplied, spread and compacted in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.17      Supply, place and compact gravel bedding for lateral drain, catch drain manhole, floodlight foundation, duct bank, handhole, anchor wall and anchor blocks**

The quantity to be paid for shall be the actual volume in cubic meter of gravel bedding, supplied, set-in-place and compacted for lateral drain, catch drain manhole, floodlight foundation, duct bank, handhole, anchor wall and anchor blocks in accordance with the plans and specifications and accepted by the Engineer. The contract unit price



shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.18      Supply, spread and compact cement treated base course**

The quantity to be paid for shall be the actual volume in cubic meter of cement treated base course to be supplied, spread and compacted in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.19      Supply, spread and compact leveling course sand cushion**

The quantity to be paid for shall be the actual volume in cubic meter of leveling course sand cushion, supplied, spread and compacted in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.20      Supply, deliver and install interlocking concrete paving blocks**

The quantity to be paid for shall be the actual area in square meter of interlocking concrete paving blocks to be supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.21      Construct Portland cement concrete pavement (300mm thick) including dowel bars and construction joint**

The quantity to be paid for shall be the actual area in square meter of Portland cement concrete pavement (300mm thick) including dowel bars and construction joint, to be constructed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.22      Supply and deliver to site rubber dock fender (V-type, 600H x 1000L) including accessories**

The quantity to be paid for shall be the actual set of rubber dock fenders (V-type, 600H x 1000L) including accessories, supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.23      Install rubber dock fenders including accessories**

The quantity to be paid for shall be the actual set of rubber dock fenders including accessories, installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.24 Supply and deliver to site mooring bollard (25 Tons, T-head) including accessories**

The quantity to be paid for shall be the actual quantity in set of mooring bollard (25 Tons, T-head) including accessories, supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.25 Supply and deliver to site mooring bollard (15 Tons, Single Pillar) including accessories**

The quantity to be paid for shall be the actual quantity in set of mooring bollard (15 Tons, Single Pillar) including accessories, supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.26 Install mooring bollards including accessories**

The quantity to be paid for shall be the actual quantity in set of mooring bollard including accessories, installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.27 Supply and install lateral drainage trench grate cover including angular frame**

The quantity to be paid for shall be the actual set of lateral drainage trench grate cover including angular frame, to be supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.28 Construct catch drain manhole RC cover including accessories**

The quantity to be paid for shall be the actual set of catch drain manhole RC cover including accessories, to be constructed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.29 Supply and install reinforced concrete pipe culvert 900mmØ**

The quantity to be paid for shall be the actual length in linear meter of reinforced concrete pipe culvert 900mmØ, to be supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.30 Supply and deliver and drive 0.45m x 0.45m x 22m PSC piles for Floodlight Foundation including chipping up to required elevation**

The quantity to be paid for shall be the actual length in linear meter of .45m x 0.45m x 22m PSC piles for Floodlight Foundation, supplied, delivered and driven including chipping up to required elevation in accordance with the plans and specifications and

accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.31      Supply and install port lighting system including all appurtenances**

The quantity to be paid for shall be the actual lot of port lighting system including all appurtenances, to be supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**BILL NO. 3**

**RC PIER (15m X 150m)**

**Item 3.01      Supply, deliver and drive 450mm x 450mm x 29m PSC test piles**

The quantity to be paid for shall be the actual number of PSC test piles (450mm x 450mm), supplied, delivered and driven in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.02      Supply and deliver to site 450mm x 450mm PSC piles**

The quantity to be paid for shall be the actual length in linear meter of PSC piles (450mm x 450mm), supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.03      Handle, pitch and drive 450mm x 450mm vertical PSC piles**

The quantity to be paid for shall be the actual length in linear meter of 450mm x 450mm vertical PSC piles, handled, pitched and driven in accordance with the plans and specifications, measured from the tip of piles to cut-off elevation and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.04      Handle, pitch and drive 450mm x 450mm batter PSC piles**

The quantity to be paid for shall be the actual length in linear meter of 450mm x 450mm batter PSC piles, handled, pitched and driven in accordance with the plans and specifications, measured from the tip of piles to cut-off elevation and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.05      Chip/cut and dispose portion of newly driven PSC piles up to required elevation**

The quantity to be paid for shall be the actual number of newly driven PSC piles, chipped/cut off up to required elevation and disposed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

- Item 3.06      Supply, deliver and drive 550mm dia. steel pipe test pile with protective external coating**
- The quantity to be paid for shall be the actual weight in metric tons of 550mm dia. steel pipe test pile with protective external coating, supplied, delivered and driven in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 3.07      Supply and deliver to site steel pipe piles (A252 Grade 2, 550mmØ x 9mm & 12mm thk.)**
- The quantity to be paid for shall be the actual weight in metric tons of steel pipe piles (A252 Grade 2, 550mmØ x 9mm & 12mm thk.), supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 3.08      Application of polyurethane external coating and mastic filler for steel pipe piles (Polyurethane: 1,500 microns dry film thickness or equivalent)**
- The quantity to be paid for shall be the actual area in square meter of polyurethane external coating and mastic filler for steel pipe piles (Polyurethane: 1,500 microns dry film thickness or equivalent), applied on the surface of the steel pipe piles in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 3.09      Supply and install 9mm thk. reinforcing band tip for steel pipe piles**
- The quantity to be paid for shall be the actual number of 9mm thk. reinforcing band tip, supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 3.10      Handle, pitch and drive vertical steel pipe piles (550mmØ x 9mm & 12mm thk.)**
- The quantity to be paid for shall be the actual length in linear meter of vertical steel pipe piles (550mmØ x 9mm & 12mm thk.), handled, pitched and driven in accordance with the plans and specifications, measured from the tip of piles to cut-off elevation and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.
- Item 3.11      Handle, pitch and drive batter steel pipe piles (550mmØ x 9mm & 12mm thk.)**
- The quantity to be paid for shall be the actual length in linear meter of batter steel pipe piles (550mmØ x 9mm & 12mm thk.), handled, pitched and driven in accordance with the plans and specifications, measured from the tip of piles to cut-off elevation and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.12      Splice 550mm dia. steel pipe piles**

The quantity to be paid for shall be the actual number of 550mm dia. Steel pipe piles, spliced in accordance with the plans and specifications, measured from the tip of piles up to required elevation and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.13      Extract clogged materials from steel pipe piles**

The quantity to be paid for shall be the actual volume in cubic meter of clogged materials to be extracted from steel pipe piles in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.14      Cutting of driven steel pipe piles up to cut-off elevation including turn-over to authority of excess piles**

The quantity to be paid for shall be the actual number of steel pipe piles, cut-off up to required elevation including turn-over to authority of excess piles in accordance with the plans and specifications, measured from the tip of piles up to required elevation and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.15      Supply and install reinforcing steel cage for steel pipe piles**

The quantity to be paid for shall be the actual weight in kilogram of reinforcing steel cage for steel pipe piles, supplied and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.16      Supply and place 3,500 psi concrete filler for steel pipe piles**

The quantity to be paid for shall be the actual volume in cubic meter of 3,500 psi concrete filler for steel pipe piles, supplied and set-in-place in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.17      Supply and place 3,500 psi concrete for the superstructure**

The quantity to be paid for shall be the actual volume in cubic meter of 3,500 psi concrete for the superstructure, supplied and set-in-place in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.18      Supply and install steel reinforcement for the superstructure**

The quantity to be paid for shall be the actual weight in kilogram of reinforcing steel bars for the superstructure, supplied, fabricated and installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be

full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.19      Supply and install hot-dipped galvanized angle bar, 100mm x 100mm x 10mm for construction joint-2, including dowel bars**

The quantity to be paid for shall be the actual length in linear meter of hot-dipped galvanized angle bar, 100mm x 100mm x 10mm for construction joint-2, including dowel bars, supplied and installed in accordance with the plans and specifications and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.20      Supply and deliver to site rubber dock fender (V-type, 500H x 1500L) including accessories**

The quantity to be paid for shall be the actual set of rubber dock fenders (V-type, 500H x 1500L) including accessories, supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.21      Supply and deliver to site rubber dock fender (V-type, 600H x 1500L) including accessories**

The quantity to be paid for shall be the actual set of rubber dock fenders (V-type, 600H x 1500L) including accessories, supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.22      Install rubber dock fenders including accessories**

The quantity to be paid for shall be the actual set of rubber dock fenders including accessories, installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.23      Supply and deliver to site mooring bollard (35-Tons, T-head) including accessories**

The quantity to be paid for shall be the actual quantity in set of mooring bollard (35-Tons, T-head) including accessories, supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.24      Supply and deliver to site mooring bollard (50-Tons, T-head) including accessories**

The quantity to be paid for shall be the actual quantity in set of mooring bollard (50 Tons, T-head) including accessories, supplied and delivered to site in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 3.25      Install mooring bollards including accessories**

The quantity to be paid for shall be the actual quantity in set of mooring bollards including accessories, installed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**BILL NO. 4**

**REIMBURSABLE ITEMS**

**Item 4.01      Provide reimbursable items necessary in the implementation of the project as determined by the Authority.**

- a. Office Furniture and Appliances**
- b. Computers and Accessories**

The quantity to be paid for shall be the actual quantity of determined items by the Authority deemed necessary in the implementation of the project, supplied, delivered and accepted by the Authority. Payment for said items shall be made only upon complete delivery/acceptance of such. The contract lump sum price shall be full compensation for providing all determined items. The Contractor's Profit and Overhead, Contingencies and Miscellaneous (OCM) should not be included in the cost of said items. Claims for payment shall be supported by Official Receipt(s) (OR) and at least three (3) canvasses. The amount to be paid for shall be the price indicated in the OR but should not exceed the contract lump sum price. The determined items shall be the property of PPA. Operation and maintenance shall be borne by PPA.

**FACILITIES TO BE PROVIDED FOR THE ENGINEER & HIS STAFF**

**RENTAL OF SITE OFFICE AND RESIDENCE FOR THE ENGINEER & STAFF**

The Contractor shall provide a temporary site office and residence (rental) with an area of at least 48 square meters for use of the Engineer and his staff for the whole duration of the project.



## OFFICE EQUIPMENT FOR USE OF THE PPA ENGINEER AND STAFF

The Contractor shall provide within thirty (30) days after notice to commence work, the following main items of brand new office equipment for use of the Engineer and his staff. The Contractor shall make available for use of the Engineer other equipment as may be necessary for the proper functioning of the office. The equipment shall be the property of PPA. Operation and maintenance shall be borne by PPA.

|   |       |  |
|---|-------|--|
| <b>a) Office Furniture and appliances</b> |       |  |
| 2   | sets  | Office table, 1.5 x 0.70m with chair       |
| 1   | set   | Conference table w/ chair (6-str.)         |
| 2   | pcs.  | Single bunk beds w/ mattress & beddings    |
| 2   | pcs.  | Waste paper basket                         |
| 1   | pc.   | Calculator (Scientific, 12 digit capacity) |
| 1   | pc.   | Communication system, Cell phone           |
| 1   | pc.   | Filing Steel Cabinet, 4-drawers            |
| 2   | units | Air-conditioned unit (1.0 hp., wdo type)   |
| 1   | unit  | Refrigerator (6 cu.ft.)                    |
| 1   | set   | Gas stove (2 burner with tank)             |
| 1   | unit  | Hot and cold water dispenser (5 gal. Cap.) |
| 1   | pc.   | White board with eraser and marker         |
| 1   | unit  | Stand fan (16" dia.)                       |
| <b>b) Computers and Accessories</b>       |       |  |
| 2   | sets  | Desktop Unit & Accessories                 |
| 2   | sets  | Printer and Accessories                    |
| 2   | units | Uninterrupted Power Supply (UPS)           |
| 2   | units | External Hard Drive (USB 3.0, 4TB)         |
| 1   | unit  | Computer Table                             |
| 1   | unit  | Computer Chair                             |
| <b>c) Licensed Softwares</b>              |       |  |
| 2   | units | Microsoft Office (latest version)          |

## COMPUTER AND ACCESSORIES

The Contractor shall provide within thirty (30) days after notice to commence work, two (2) "Brand New Desktop", complete with printer and accessories and licensed software for the use of the PPA Engineer and his Staff at the start of the project. The items shall be the property of PPA. Operation and maintenance shall be borne by PPA.

| Description / Specifications:               | DESK TOP UNIT   |
|---|---|
| Brand/Model                                 | <i>Asus, Apple, Lenovo, ACER, HP or Equivalent Branded</i>  |
| Processor                                   | <i>Intel® Core™ i7-9700K CPU</i>  |
| System Memory                               | <i>8GB DDR4 Ram at 2666MHZ up to 32GB, 2DIMM slots</i>  |
| Chipset                                     | <i>Intel B360</i>   |
| CD-ROM                                      | <i>Tray load DVD Drive (Reads and Writes to DVD/CD)</i>   |
| Graphics                                    | <i>NVIDIA GeForce RTX 2060 6GDS</i>   |
| SATA  | <i>4 x SATA 6.0 Gbps</i>  |
| HDD/SSD                                     | <i>128GB SSD (M.2 PCIe 128GB) + 1TB HDD (3.5" 7200rpm)</i>  |
| WIFI/ Bluetooth                             | <i>802.11ac 2x2/ Bluetooth 5.0</i>  |
| LAN   | <i>Realtek RTL8111H 10/ 100/ 1000Mbps</i>   |
| Audio                                       | <i>Realtek ALC887, DTS Headphone X</i>  |
| Accessories                                 | <i>Wireless Keyboard and Mouse</i>  |
| Ports                                       | <i>4 x USB 3.2, 2 X USB 2.0, HDMI, Audio Jack, RJ45 and Mic in/ headphone out</i>   |
| Display (Monitor)                           | <i>27" inch. FHD (1920 x 1080 Display) with speaker, display ports, USB hub, earphone jack and PC audio inputs.</i>                               |
| OS Bundled (Certification/License)          | <i>Windows 10 PRO for business</i>  |
| Anti-virus Software                         | <i>Symantec 12.1.x /or other Anti-Virus Software (optional)</i>   |
| Multi-Function Printer (Copy, Scan Printer) | <i>HP, Epson, Brother or equivalent brand with wide format capabilities (A3 size), 128 MB Memory Capacity and Automatic Document Feeder (ADF)</i> |
| External Hard Drive                         | <i>Portable (USB 3.0 Interface, at least 4TB Capacity)</i>  |

## SOFTWARE

The Contractor shall provide within thirty (30) days after commence work, the specified **"License softwares"** latest version for the use of the PPA Engineer and staff. The software shall be the property of PPA. Operation and maintenance shall be borne by PPA.

**MINIMUM MAJOR EQUIPMENT REQUIREMENTS**

|   |        |   |   |
|---|--------|---|---|
| 1 | unit/s | Air-compressor (250cfm, minimum), owned             | / |
| 1 | unit/s | Backhoe (0.40 cu.m., 94.30hp, minimum), owned       | / |
| 1 | unit/s | Centrifugal Trash Pumps, owned                      | / |
| 2 | unit/s | Clamshell, owned                                    | / |
| 1 | unit/s | Concrete cutter, owned                              | / |
| 1 | unit/s | Concrete Mixer (1 bagger, minimum), owned           | / |
| 1 | unit/s | Concrete Bucket, owned                              | / |
| 2 | unit/s | Concrete Screeder, owned                            | / |
| 4 | unit/s | Concrete Vibrator (3.50 hp, minimum), owned         | / |
| 1 | unit/s | Crane Barge (319 GW, minimum) with 60T crane, owned | / |
| 2 | unit/s | Crawler Crane (30T, minimum), owned                 | / |
| 1 | unit/s | Pile Hammer (Diesel, 7,500 kg.m.), owned            | / |
| 1 | unit/s | Pile Hammer (Diesel, 13,500 kg.m.), owned           | / |
| 2 | unit/s | Diving Equipment (complete), owned                  | / |
| 1 | unit/s | Drop Hammer (2T, minimum), owned                    | / |
| 2 | unit/s | Dump Truck (8 cu.m., minimum), owned                | / |
| 4 | unit/s | Bar Bender (electric, 25mm dia min.), owned         | / |
| 4 | unit/s | Bar Cutter (electric, 25mm dia min.), owned         | / |
| 1 | unit/s | Forklift (1.36T, minimum), owned/leased             | / |
| 1 | unit/s | Jackhammer, owned                                   | / |
| 2 | unit/s | Oxy/Acetylene Cutting Outfit, owned                 | / |
| 2 | unit/s | Payloader (80 hp, minimum), owned                   | / |
| 2 | unit/s | Plate Compactor (5 hp, minimum), owned              | / |
| 2 | unit/s | Road Grader (125hp, minimum), owned                 | / |
| 2 | unit/s | Road Roller (12.05T, vibratory, minimum), owned     | / |
| 2 | unit/s | Transit Mixer (5-6 cu.m. cap., minimum), owned      | / |
| 1 | unit/s | Tugboat (500hp, minimum), owned/leased              | / |
| 1 | unit/s | Water Truck (1,000 gal., minimum) with pump, owned  | / |
| 2 | unit/s | Welding Machine (400 amp., minimum), owned          | / |
| 1 | unit/s | Cargo Truck (5T, minimum), owned                    | / |

## CONSTRUCTION SAFETY AND HEALTH REQUIREMENT

The Contractor shall implement the construction safety and health program in accordance with the applicable provisions of the Occupational Safety and Health Standards (OSHS) of the Department of Labor and Employment (DOLE) including stringent covid-19 protocols per PPA Engineering Circular No. 01-2020 and Construction Guidelines for Project Implementation during the period of public health emergency approved by PDCB and CIAP.

The Contractor, subject to the approval of the Engineer shall provide and maintain throughout the duration of the contract a medical room with at least 15 square meters together with all necessary supplies to be sited in the Contractor's main area.

The Contractor shall provide the following minimum requirements:

### LABOR

|   |     |                           |
|---|-----|---------------------------|
| 1 | no. | Safety Engineer / Officer |
| 1 | no. | Nurse / Health Officer    |

### EQUIPMENT / MATERIALS

#### Personnel Protective Equipment

|     |      |                                |
|-----|------|--------------------------------|
| 63  | pcs. | Hard Hats                      |
| 63  | pcs. | Gloves (rubberized)            |
| 63  | pcs. | Safety Glasses/Goggles (clear) |
| 126 | pcs. | Long sleeve T-shirt            |
| 2   | pcs. | Aprons                         |
| 4   | pcs. | Safety Belts                   |
| 63  | pcs. | Safety Shoes                   |
| 4   | pcs. | Life Lines                     |

#### Safety Devices

|    |        |  |
|----|--------|--|
| 1  | lot    | Barricades                                   |
| 1  | lot    | Warning signs                                |
| 2  | unit/s | Fire extinguisher                            |
| 1  | lot    | Disinfection Booth with Footbath             |
| 63 | no.    | PCR Test for Covid-19 (Initial Testing)      |
| 63 | no.    | PCR Test for Covid-19 (Confirmatory Testing) |

|                               |   |                  |
|-------------------------------|---|------------------|
| Medical and First Aid System  | - | Twenty (20) mos. |
| Temporary shelter for workers | - | 1 lot            |

### NOTE:

The Contractor shall provide the above-cited minimum construction safety and health requirements or as required by the Engineer.

PPA MEMORANDUM CIRCULAR  
No. 012  
Series of 2016  
Attachment

Page 1 of 18

**REVISED SCHEDULE OF MINIMUM TEST REQUIREMENTS OF  
CONSTRUCTION MATERIALS FOR PPA INFRASTRUCTURE PROJECTS**

| <b>Materials/Items of Work</b>                          | <b>Required Tests</b>  | <b>Minimum Incremental Frequency of Tests</b>   |
|---|--|---|
| <b>I. Construction of Pier/Wharf, Platform and Ramp</b> |  |   |
| <b>Structural Concrete (SC)</b>                         |  |   |
| A Portland Cement                                       | Quality Test   | For every 2,000 bags (40kg) or fraction thereof   |
| B Fine Aggregate  | Quality Test for Grading, Elutriation (wash), Bulk Specific Gravity, Absorption, Mortar Strength, Soundness, Organic Impurities, Unit Weight, % Clay Lumps and Shale | For every 1,500 cubic meter or fraction thereof   |
| C Coarse Aggregate                                      | Quality Test for Grading, Bulk Specific Gravity, Absorption and Abrasion   | For every 1,500 cubic meter or fraction thereof   |
| D Water   | Certificate from the Engineer or Quality Test for Density and Chloride Content   | One per source  |
| E Steel Bars  | Mill Certificate and Quality Test for Chemical Composition and Mechanical Properties   | For every 10,000 kg or fraction thereof   |
| F Concrete  | Compressive Strength on cylinder samples   | 1 set consisting of 3 concrete cylinder samples shall be taken from each day's pouring and to represent not more than 75 cu m of concrete or fraction thereof |
|   | Slump Test   | For every mix   |
| G Admixture and Concrete Curing Materials               | Quality Test   | One per shipment  |
| <b>Piling (P)</b>                                       |  |   |
| A Concrete Piles  | Fabrication Report   | One per fabrication   |
| 1 Concrete  | Same test as for SC (F)  | Same frequency as SC (F)  |
| 2 Steel Bars  | Same test as for SC (E)  | Same frequency as SC (E)  |
| 3 High Tension Strand                                   | Test for Chemical Composition and Mechanical Properties  | For every 20000kg or fraction thereof   |

PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2016  
Attachment

Page 2 of 14

| Materials/Items of Work                          | Required Tests   | Minimum Incremental Frequency of Tests   |
|--|--|--|
| 4 Coarse Aggregates                              | Same Test as for SC (C)  | Same frequency as SC (C)   |
| 5 Fine Aggregates                                | Same Test as for SC (B)  | Same frequency as SC (B)   |
| 6 Steel Pipe Piles                               | Fabrication Report, Mill Certificate and Quality Test for Chemical and Mechanical properties   | One per fabrication  |
| 1 Steel  | Chemical Composition (refer below) <ul style="list-style-type: none"> <li>Under 14" (355.6mm) Outside Diameter</li> <li>14" to 36" (355.6 to 914mm) Outside Dia</li> <li>Over 36" (914mm) Outside Diameter</li> </ul> Mechanical/Tensile | 2 from 200 pipe or fraction thereof<br>2 from 100 pipe or fraction thereof<br>2 from 3000ft (914m) or fraction thereof<br>One (1) tension test shall be made on one length or fraction thereof of each size, or one piece of strip representing each lot of 200 lengths or fraction thereof of each size |
| 2 Polyurethane Coating                           | Mill Certificate and Quality Test  | One per fabrication  |
| 3 Concrete                                       | Same test as for SC (F)  | Same frequency as SC (F)   |
| 4 Fine Aggregate                                 | Same test as for SC (B)  | Same frequency as SC (B)   |
| 5 Coarse Aggregate                               | Same test as for SC (C)  | Same frequency as SC (C)   |
| 6 Steel Bars                                     | Same Test as SC (E)  | Same frequency as SC (E)   |
| 7 Water  | Same Test as SC (D)  | Same frequency as SC (D)   |
| Rubber Dock Fenders (RDF)                        | Physical Test<br>Performance Test for Energy Absorption and Reaction Force   | All units<br>All units   |
| Accessories<br>Washer and Fong Bolt, Anchor Bolt | Physical Test<br>Quality Test for Chemical Composition and Mechanical Properties   | All units<br>One per fabrication   |

PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2018  
Attachment

Page 3 of 18

| <b>Materials/Items of Work</b>   | <b>Required Tests</b>  | <b>Minimum Incremental Frequency of Tests</b> |
|--|--|---|
| Mooring Bollard (MB) and Accessories (Hexagon Nuts, Plain Washer, Anchor Ring and Anchor Bolt) | Physical Test<br><br>Quality Test for Chemical Composition and Mechanical Properties | AR Units<br><br>One per fabrication           |
| <b>II. Construction of Back-Up Area, Causeway and Pavement</b><br><br>Sheet Piling (SP)        |  |   |
| A Concrete Sheet Piles   |  |   |
| 1 Concrete   | Same test as for SC (F)  | Same frequency as SC (F)                      |
| 2 Steel Bars   | Same test as for SC (E)  | Same frequency as SC (E)                      |
| 3 High Tension Strands   | Same test as for P (A 3)   | Same frequency as P (A 3)                     |
| 4 Fine Aggregates  | Same test as for SC (B)  | Same frequency as SC (B)                      |
| 5 Coarse Aggregates  | Same Test as for SC (C)  | Same frequency as SC (C)                      |
| B Steel Pipe Piles   |  |   |
| 1 Steel  | Same test as for P (B1)  | Same frequency as P (B1)                      |
| 2 Concrete   | Same test as for SC (F)  | Same frequency as SC (F)                      |
| 3 Fine Aggregate   | Same test as for SC (B)  | Same frequency as SC (B)                      |
| 4 Steel Bars   | Same test as for SC (E)  | Same frequency as SC (E)                      |



PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2016  
Attachment

Page 4 of 48

| <b>Materials/Items of Work</b>           | <b>Required Tests</b>   | <b>Minimum Incremental Frequency of Tests</b>   |
|--|---|---|
| Rocks                                    | Test for Apparent Specific Gravity and Abrasion   | For every 1,500 cubic meter or fraction thereof   |
| Geotextile Filter                        | Physical and Mechanical Test<br>Mill Certificate  | One per batch<br>One per batch  |
| Sand and Gravel Fill                     | Quality Test for Organic Impurities and Grading   | For every 1,500 cubic meter or fraction thereof   |
| Selected Fill                            | Quality Test for Grading, Plasticity and Laboratory Compaction Test<br>Laboratory California Bearing Ratio (CBR)<br>Field Density Test  | For every 1,500 cubic meter or fraction thereof<br>For every 2,500 cubic meter or fraction thereof<br>For every layer of 150mm of compacted depth at least one group of three in-situ density test for every 500 sq m or fraction thereof |
| Aggregate Base Course                    | Quality Test for Grading and Plasticity<br><br>Quality Test for Grading, Plasticity, Abrasion and Laboratory Compaction Test<br><br>Laboratory California Bearing Ratio (CBR)<br>Field Density Test | For every 300 cubic meter or fraction thereof<br><br>For every 1,500 cubic meter or fraction thereof<br><br>Same frequency as Selected Fill<br>Same frequency as Selected Fill  |
| Portland Cement Concrete Pavement (PCCP) |   |   |
| A. Portland Cement                       | Same test as for SC (A)   | Same frequency as SC (A)  |
| B. Fine Aggregate                        | Same test as for SC (B)   | Same frequency as SC (B)  |
| C. Coarse Aggregate                      | Same test as for SC (C)   | Same frequency as SC (C)  |
| D. Water                                 | Same test as for SC (D)   | Same frequency as SC (D)  |
| E. Steel Bars (Dowels)                   | Same test as for SC (E)   | Same frequency as SC (E)  |
| F. Joint Filler                          | Quality Test  | One (1) per shipment  |

PPA MEMORANDUM CIRCULAR  
No. 072  
Series of 2016  
Attachment

Page 5 of 10

| <b>Materials/Items of Work</b>   | <b>Required Tests</b>                            | <b>Minimum Incremental Frequency of Tests</b>   |
|--|--|---|
| G Admixture and Concrete Curing Material   | Same test as for SC (G)                          | Same frequency as SC (G)  |
| H Concrete   | Same test as for SC (F)<br>Flexural Test         | Same frequency as SC (F)<br>3 beam samples for every 330 sq m or fraction thereof   |
| I Completed Pavement   | Cone Test  | 1 set (3 specimen) for every 2,500 sq m and fraction thereof  |
| Interlocking Concrete Blocks   |  |   |
| A Cement   | Same test as for SC (A)                          | Same frequency as SC (A)  |
| B Fine Aggregate   | Same test as for SC (B)                          | Same frequency as SC (B)  |
| C Coarse Aggregate   | Same test as for SC (C)                          | Same frequency as SC (C)  |
| D Water  | Same test as for SC (D)                          | Same frequency as SC (D)  |
| E Admixture & Concrete Curing Materials  | Same test as for SC (G)                          | Same frequency as SC (G)  |
| F Completed Blocks   | Physical Test and Compressive Strength           | 6 blocks per day of fabrication   |
| Cement Treated Base Course (CTB)   |  |   |
| A Portland Cement  | Same test as for SC (A)                          | Same frequency as SC (A)  |
| B Fine & Coarse Aggregates   | Quality Test for Grading, Abrasion and Soundness | For every 1,500 cubic meter or fraction thereof   |
| C Water  | Same test as for SC (D)                          | Same frequency as SC (D)  |
| D Completed CTB  | Field Density Test                               | For every layer of 150mm of compacted depth at least one group of three in-situ density test every 500 sq m or fraction thereof |
| Retaining Wall/Coping Wall/RC Curb/RC Ditch/Shear Key/Concrete Blocks/Learn Concrete |  |   |
| A Portland Cement  | Same test as for SC (A)                          | Same frequency as SC (A)  |
| B Fine Aggregate   | Same test as for SC (B)                          | Same frequency as SC (B)  |

PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2018  
Attachment

Page 4 of 10

| <b>Materials/Items of Work</b>        | <b>Required Tests</b>  | <b>Minimum Incremental Frequency of Tests</b>                                   |
|---------------------------------------|--|---|
| C Coarse Aggregates                   | Same test as for SC (C)  | Same frequency as SC (C)  |
| D Water                               | Same test as for SC (D)  | Same frequency as SC (D)  |
| E Steel Bars                          | Same test as for SC (E)  | Same frequency as SC (E)  |
| F Admixture and Concrete Curing       | Same test as for SC (G)  | Same frequency as SC (G)  |
| G Concrete                            | Same test as for SC (F)  | Same frequency as SC (F)  |
| Tie Rod                               |  |   |
| A Steel                               | Same test as for SC (E)  | One per batch   |
| B Assembly                            | Performance Test (Tension)   | One per batch   |
| Tie Bars and Dowels                   | Same test as for SC (E)  | For every 10,000 kg or fraction thereof per Tie bars and Dowels                 |
| Pipe Culverts and Storm Drains        |  |   |
| A Pipes                               | Test for Strength, Absorption and Physical   | For every 50 pieces   |
| B Mortar or Joint                     | Same Test as for SC (A,B and D)<br>Alternative Test Same test as for SC (F) and Inspection Report                                    | For every 25 pieces   |
| Concrete Hollow Blocks                |  |   |
| A Portland Cement                     | Same test as for SC (A)  | Same frequency as SC (A)  |
| B Fine Aggregates                     | Same test as for SC (B)  | Same frequency as SC (B)  |
| C Water                               | Same test as for SC (D)  | Same frequency as SC (C)  |
| D Concrete                            | Same test as for SC (F)  | Same frequency as SC (F)  |
| E Completed CHB                       | Quality Test   | One for every 500 pieces or fraction thereof                                    |
| Construction Joints (CJ)              |  |   |
| A Angle Bars                          | Test for Physical and Mechanical Properties  | One per batch   |
| B Steel Bars                          | Same test as for SC (E)  | One per batch   |
| C Zinc (Hot Dip Galvanizing) Coatings | Physical Test for Appearance, Stripping, Weighing, Adherence and Adhesion<br><br>Coating Thickness<br>Magnetic Thickness Measurement | All units<br><br>1 set (3 specimen) for every 100,000 sq mm or fraction thereof |

PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2018  
Attachment

Page 7 of 18

| <b>Materials/Items of Work</b> | <b>Required Tests</b>  | <b>Minimum Incremental Frequency of Tests</b>   |
|--------------------------------|--|---|
| <b>Sacked Concrete</b>         |  |   |
| A Cement                       | Same test as for SC (A)  | Same frequency as SC (A)  |
| B Fine Aggregates              | Same test as for SC (B)  | Same frequency as SC (B)  |
| C Coarse Aggregates            | Same test as for SC (C)  | Same frequency as SC (C)  |
| D Water                        | Same test as for SC (D)  | Same frequency as SC (D)  |
| E Concrete                     | Same test as for SC (F)  | Same frequency as SC (F)  |
| F Sack (jute)                  | Physical Test  | One for every 50 pieces   |
| <b>Rubble Concrete</b>         |  |   |
| A Cement                       | Same test as for SC (A)  | Same frequency as SC (A)  |
| B Fine Aggregates              | Same test as for SC (B)  | Same frequency as SC (B)  |
| C Coarse Aggregates            | Same test as for SC (C)  | Same frequency as SC (C)  |
| D Water                        | Same test as for SC (D)  | Same frequency as SC (D)  |
| E Concrete                     | Same test as for SC (F)  | Same frequency as SC (F)  |
| F Rocks                        | Same test as for ROCKS   | Same frequency as ROCKS   |
| <b>Earthworks</b>              |  |   |
| A Sub-grade preparation        | Grading Test<br>Plasticity Test (LL, PL, PI)<br>Laboratory Compaction Test<br><br>Density Test   | For every 1,500 cubic meter or fraction thereof<br><br>For every layer of 150mm of compacted depth at least one group of three in-situ density test every 500 sq m. or fraction thereof |
| B Structure Excavation         | If excavated materials shall be used as Backfill<br>Grading Test<br>Plasticity Test (LL, PL, PI)<br>Laboratory Compaction Test<br><br>Density Test | For every 1,500 cubic meter or fraction thereof<br><br>For every layer of 150mm of compacted depth at least one group of three in-situ density test every 500 sq m. or fraction thereof |

PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2016  
Attachment  
Page 8 of 10

| Materials/Items of Work   | Required Tests  | Minimum Incremental Frequency of Tests             |
|---|---|--|
| <b>III Port Operations Building/Passenger Terminal Building/Transit Shed/Warehouse</b>                        |   |  |
| <b>STRUCTURAL WORKS</b>   |   |  |
| Refer to Structural Concrete (SC) and Piling Works (P)  |   |  |
| <b>ARCHITECTURAL WORKS</b>  |   |  |
| Ceramic – Filled Liquid Membrane / Water Proofing, Hydrophobic Poreblocking Ingredients with Superplasticizer | Physical Property, Mechanical and Chemical Property, Leak Test / Flood Test     | One per shipment                                   |
| Paint   | Quality Test  | One 4-L can for every 100 cans or fraction thereof |
| Ceramic Tile  | Inspection and Evaluation Report from the Engineer                              | One per shipment                                   |
| Stainless Steel   | Inspection and Evaluation Report from the Engineer                              | One per shipment                                   |
| Roofing Materials   | Inspection and Evaluation Report from the Engineer                              | One per shipment                                   |
| Ceiling Materials   | Inspection and Evaluation Report from the Engineer                              | One per shipment                                   |
| <b>ELECTRICAL AND MECHANICAL WORKS</b>  |   |  |
| Wires / Cables  | Inspection and Evaluation Report from the Engineer<br>Testing and Commissioning | One per shipment                                   |
| Electrical Devices  | Inspection and Evaluation Report from the Engineer<br>Testing and Commissioning | One per shipment                                   |
| Fire Alarm System   | Inspection and Evaluation Report from the Engineer<br>Testing and Commissioning | One per item                                       |
| Wiring Devices  | Inspection and Evaluation Report from the Engineer<br>Testing and Commissioning | One per shipment                                   |

PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2016  
Attachment

Page 8 of 10

| Materials/Items of Work              | Required Tests  | Minimum Incremental Frequency of Tests |
|--------------------------------------|---|--|
| Protective Devices                   | Inspection and Evaluation Report from the Engineer<br><br>Testing and Commissioning | One per shipment                       |
| Telephone System                     | Inspection and Evaluation Report from the Engineer<br><br>Testing and Commissioning | One per item                           |
| CCTV System                          | Inspection and Evaluation Report from the Engineer<br><br>Testing and Commissioning | One per item                           |
| CATV System                          | Inspection and Evaluation Report from the Engineer<br><br>Testing and Commissioning | One per item                           |
| Background Music and Paging System   | Inspection and Evaluation Report from the Engineer, Testing and Commissioning       | One per item                           |
| Air Conditioning Units & Ventilation | Inspection and Evaluation Report from the Engineer<br><br>Testing and Commissioning | One per item                           |
| Conduit Pipes                        | Inspection and Evaluation Report from the Engineer<br><br>Testing and Commissioning | One per item                           |
| Lighting Fixtures                    | Inspection and Evaluation Report from the Engineer<br><br>Testing and Commissioning | One per item                           |
| <b>PLUMBING WORKS</b>                |   |  |
| Pipes                                | Inspection and Evaluation Report from the Engineer<br><br>Testing and Commissioning | One per item                           |

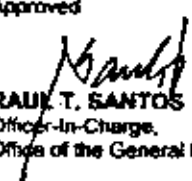
PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2016  
Attachment


Page 19 of 19

| Materials/Items of Work  | Required Tests   | Minimum Incremental Frequency of Tests                  |
|--|--|---|
| Fixtures   | Inspection and Evaluation Report from the Engineer<br><br>Testing and Commissioning  | One per item  |
| Pipe Culverts  | Compression Strength<br><br>Inspection and Evaluation Report from the Engineer       | For every size not more than 25 pipes cast in the field |
| IV Miscellaneous Materials<br>Fencing<br>A Barbed Wire, Cyclone Wire Mesh, Chain Link<br>B Concrete Post | Physical Test (Dimensions and Coatings)<br><br>Refer to Superstructure (SC)          | One per Batch<br><br>Refer to Superstructure (SC)       |
| Lamp Post<br>A Structural Steel<br>B Zinc (Hot Dip Galvanizing) Coatings                                 | Physical Test (Dimensions)<br>Same test as for SC (E)<br><br>Same test as for CJ (C) | All units<br><br>One per batch                          |
| Drainage Steel Grating   | Same test as for SC (E)<br><br>Inspection Report                                     | One (1) batch   |
| Metal Pipe (Cast Iron Galvanized, etc.)  | Physical Test (Dimensions and Coatings)  | 1 per delivery  |
| Welding Works  | Destructive and Non Destructive Test   | One (1) per lot   |

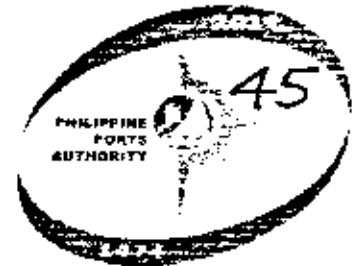
- NOTES**
1. Testing of RDF shall be performed only by an independent Testing Laboratory duly accredited by BRS, DOST and PPA
  2. Testing of other materials shall be performed only by an independent Testing Laboratory duly accredited by BRS and PPA.
  3. All other issuances which are otherwise inconsistent herewith are hereby revoked or otherwise amended.

Approved

  
**RAUL T. SANTOS**  
Officer-In-Charge,  
Office of the General Manager



MAY 15 2020



**ENGINEERING CIRCULAR NO. 01 2020**

**FOR : THE MANAGER, PCMD  
ALL PORT MANAGERS  
CONCERNED CONTRACTORS**

**FROM : THE ASSISTANT GENERAL MANAGER,  
ENGINEERING OFFICE**

**SUBJECT : SAFETY GUIDELINES FOR THE IMPLEMENTATION OF  
ALL PPA (CAPEX & RM) AND DOTr TOURISM AND  
SOCIAL REFORM PROJECTS DURING THE COVID-19  
PUBLIC HEALTH CRISIS**

Pursuant to the Proclamation No. 929, series of 2020 issued by President Rodrigo Roa Duterte, declaring a State of Calamity throughout the Philippines due to the Coronavirus Disease 2019 (COVID-19) and in view of the extended implementation of Enhanced Community Quarantine (ECQ) and General Community Quarantine (GCQ) in the identified areas, the following guidelines, in addition to the existing safety standards approved by the DOLE and also to the PPA Memorandum Circular No. 18-2020, are hereby directed to be implemented in all on-going PPA infrastructure projects including the DOTr Tourism and Social Reform projects:

1. Only persons from Twenty-One (21) to Fifty-Nine (59) years of age, without pre-existing health conditions, such as, but not limited to immunodeficiency, comorbidities or other health risk and who did not come in contact with someone with COVID-19 shall be allowed to be included in the workforce for areas under ECQ and GCQ.
2. The Contractor shall provide for their personnel/workers the necessary welfare facilities and amenities, such as employees' quarters for board and lodging for the project area covered by the ECQ and GCQ, otherwise, prior to deployment, prescribed procedures shall be conducted at every instance of re-entry.
3. Adequate food, potable drinking water, disinfectants shall be made available by the Contractors for their in-house personnel/worker during the period of ECQ/GCQ.
4. Compliance to social distancing, proper hygiene and mandatory wearing of face masks and other protective personal equipment shall be ensured for all on-going projects as precautionary measures to avoid and contain the spread of COVID-19 in the work place.




5. Field Offices, employees' quarters, bunkhouses and other common areas shall be maintained to ensure cleanliness and daily disinfection of said areas must be conducted accordingly.
6. Contractors shall provide disinfection facilities such as handwashing station, foot bath and others to be placed at various locations of all on-going projects.
7. Contractors shall ensure that their projects are in compliance with the DOLE D.O. No. 13 series of 1998. Personnel and workers shall be provided with the supply of vitamins particularly Vitamin C and other over the counter medicines, quarantine facilities and oxygen tanks for emergency purposes.
8. Safety Officer of the Contractor shall regularly conduct briefing on the information regarding COVID-19 construction protocols on top of other safety requirements.
9. As preventive measure, daily monitoring of the pre and post work health conditions of workers shall be undertaken by the Contractor's health/safety officer particularly the temperature, blood pressure and exposure monitoring. Personnel with symptoms relative to COVID-19 shall be immediately isolated and quarantined for fourteen (14) days and if necessary, brought to the DOH COVID-19 treatment facility under strict confidentiality/privacy.
10. Daily health monitoring report shall be prepared by the Safety Officer and to be submitted to the assigned PPA Project Engineer/Port Engineer.
11. Proper protocols in accordance with the DTI and DOLE Interim Guidelines and the Local Government Unit policy on work place prevention and control of COVID-19 shall likewise be strictly observed.
12. Daily work activities shall be under strict monitoring by the Safety Officer to ensure compliance with safety standards and quarantine protocols.
13. Sharing of construction and office equipment is discouraged. However, if it cannot be avoided, disinfection of equipment in between transfer shall be conducted.
14. All materials and equipment brought inside the project site shall be disinfected, as much as possible.
15. Non-essential personnel, visitors and general public shall be restricted to enter the project site. All personnel entering the construction site premises on a temporary basis (e.g. Delivery truck drivers, inspectors, etc) shall be properly logged and checked for symptoms. Gatherings, liquors, and/or merry-making are strictly prohibited in the project site.

18

16. PPA Port/Resident Engineer shall ensure strict compliance to DOLE D.O. No. 13, series of 1998 and implementation of the mentioned COVID -19 precautionary measures in the work place.
17. Clustered and staggered deployment of employees within the construction site shall be observed to minimize personnel contact.
18. Contractors shall submit to the implementing unit the inventory of work activities including the proposed sequencing of activities to be followed and undertaken to comply to the required social distancing. Break times shall be conducted in a staggered manner.

For strict compliance.

  
**CONSTANTE T. FARINAS, JR.**

*C - MEMO*  
① PLS. forward a set/copies  
of these Guidelines to  
each OM for their info,  
reference and guidance  
② CHRG file/inf



June 29, 2020

**MEMORANDUM**

**FOR :** The Assistant General Manager for Engineering  
Office of the Assistant General Manager for Engineering

**FROM :** The Manager  
Internal Audit Department (IAD)

**SUBJECT :** Construction Guidelines for Project Implementation during the  
period of Public Health Emergency

Last June 16, 2020, we received thru email the letter from the Construction Industry Authority of the Philippines (CIAP) to the General Manager dated June 15, 2020 (copy attached) regarding the above subject. CIAP is requesting PPA to assist them in disseminating the above Construction Guidelines to our stakeholders, including contractors and implementing units.

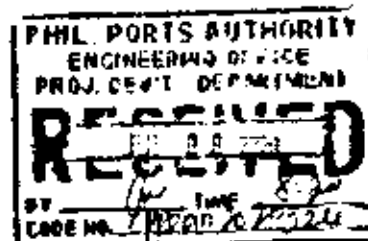
Relative to this, IAD being the implementing unit for Constructors Performance Evaluation System (CPES) and relative to its implementation, may we seek assistance from your good office in disseminating the attached guidelines to the PPA Engineering Units and PPA constructors

Thank you for your kind consideration

  
VENICIUS V. VILLASEÑOR

Cc: The General Manager

Attachment/s: As stated





## **Construction Guidelines for Project Implementation during the period of Public Health Emergency**

### **Background**

The President declared a state of public health emergency through Presidential Proclamation No. 922 s. 2020 to address the Corona Virus Disease (COVID-19) threat, subsequently placing the whole of Luzon under Enhanced Community Quarantine (ECQ) on 16 March 2020.

The Inter-Agency Task Force for the Management of Emerging Infectious Diseases (IATF), based on its risk assessment recommended the extension of the ECQ in high risk geographic areas in Luzon and the imposition of the ECQ in some high risk areas in Visayas and Mindanao, while proposing a General Community Quarantine (GCQ) in all low risk and moderate risk areas in the country from 1 May 2020 to 15 May 2020.

Different parts of the country are expected to progress through various levels of public health emergency and declared as high, medium, or low risk areas depending on the prevalence of COVID-19 cases and related statistics, thereby placing them under corresponding community quarantine status.

The construction industry which contributes about 4.2 million workers to the country's labor force, in anticipation of the lifting of ECQ, is getting ready to return to work and would like to ensure the safety and welfare of people, most especially those of its employees/workers. Construction industry players would like to focus on preventing the occurrence of and controlling the spread of the virus in the workplace, mindful that a single case of COVID-19 can lead to an interruption, if not total work stoppage.

The global pandemic has affected livelihoods, lifestyles and industries including the construction industry which relies heavily on human resources. Total work stoppage from the time ECO was declared has had debilitating effects not just on workers who are mostly project based and therefore paid on a daily basis but on contractors as well, majority of whom or 88% are small and medium enterprises (SMEs).

The Philippine Domestic Construction Board (PDCB), an implementing board of the Construction Industry Authority of the Philippines (CIAP), mandated to formulate policies, plans, programs, and strategies for the development of the Philippine construction industry organized a Technical Working Group (TWG) composed of representatives from contractors of varying sizes and suppliers coming from Luzon, Visayas and Mindanao to draft the proposed protocols for the industry in preparation for resumption of construction work in areas under quarantine. The TWG drafted the "Construction Guidelines for Project Implementation during the period of Public Health Emergency" as a reference for contractors and implementing agencies, to ensure viability of projects and protection from and spread of the corona virus.

The TWG considered four (4) major components of the project cycle, namely, Materials, Manpower, Machinery and Money or the 4Ms of construction in creating the

**PHILIPPINE DOMESTIC CONSTRUCTION BOARD**  
CONSTRUCTION INDUSTRY AUTHORITY OF THE PHILIPPINES  
An Attached Agency of the Department of Trade and Industry

SE Executive Building Center  
306 San. Gil J. Puyat Ave. cor. Malabon Ave.  
Malabon, Philippines

☎ (+632) 8296-1501  
🌐 [www.cdcb.gov.ph](http://www.cdcb.gov.ph)

☎ (+632) 8297-0791  
📧 [FOCB@cdcb.gov.ph](mailto:FOCB@cdcb.gov.ph)

guidelines. These were developed considering SME contractors which employ the biggest chunk of the industry's labor workforce and large contractors involved in both public and private infrastructure projects as well as vertical construction. The guidelines will give pointers in managing their human resources at this critical time but will likewise give important directions to contractors in managing their business not just for survival but to be able to contribute to the country's economic recovery program.

The TWG is presenting options or courses of actions which contractors may consider depending on applicability to the project's unique characteristics while maintaining minimum requirements based on guidelines by government authorities such as the IATF Omnibus Guidelines for the Implementation of Community Quarantine in the Philippines, Department of Trade and Industry (DTI) and Department of Labor and Employment (DOLE) Interim Guidelines on Workplace Prevention and Control of COVID-19, and DOH Department Memorandum No. 2020-220, Interim Guidelines on the Return-to-Work.

These guidelines are subject to periodic review to better respond to developments and ensure workers health and protection as well as compliance with government regulations.

#### **Purpose**

The guidelines will set key principles and minimum requirements that define responsible, healthy and safe operations for construction related operations under COVID-19 and ensure the survival of business as well as the protection of workers.

#### **Scope / Coverage**

The guidelines will include prevention, detection, and rapid response measures designed to achieve the principles above while maintaining business continuity across the construction industry.

#### **Policy Content / Guidelines**

##### **Materials**

##### **1. Deliveries**

1. All equipment and material deliveries must be carefully planned and monitored.
2. Transition and delivery zones are identified and limited to select personnel, i.e., receivers and deliverers.
  - 2.1. Transition personnel are regularly monitored, always provided required Personal Protective Equipment (PPEs) and may be included for optional testing.
  - 2.2. Social distancing and other protocols by the Department of Health (DOH) should be followed.
3. As much as possible, cargo is unloaded only by the receivers, while the deliverers do not leave their vehicles. If the receivers are not enough to unload the cargo, the deliverers must unload while the receiver has to wait at a secured distance until completed.

4. All cargo should undergo proper disinfection procedures before use. Likewise, involved staff should also be properly disinfected before entering the jobsite.
  - 4.1. Materials, which are exposed to the sun, such as concrete and gravel, need not be disinfected.

## **Manpower**

### ***I. Awareness and Communication***

1. Active communication between the workers, safety officers (as specified under Section 14 of R.A. 11058 and its Implementing Rules and Regulations (IRR) as specified in DOLE D.O. 198 S. 2018), site supervisors, and management is advised in planning and implementing the protocols.
  - 1.1. All languages and dialects should be accounted for to ensure proper communication.
2. Infographics (may adopt DOH's), signages, and posters on health and safety measures (see Annex A) must be posted at entry points and strategic areas:
  - 2.1. Daily updates on the latest developments.
  - 2.2. Self-screening measures.
  - 2.3. COVID-19 Hotline.
3. As much as possible, all workers should exercise the practices for reducing the risk of transmission, and proper hygiene as identified by the DOH:
  - 3.1. Social distancing (at least one (1) meter distance from next person).
  - 3.2. Proper handwashing using anti-bacterial soap (or use alcohol-based hand sanitizer when unavailable).
  - 3.3. Avoid contact with own eyes, nose, and mouth.
  - 3.4. Prohibit spitting.
  - 3.5. Covering of mouth with tissue or arm (if tissue is unavailable) when sneezing or coughing.
  - 3.6. Use and remove PPE with care.
  - 3.7. Do not share personal belongings such as phones, pens, PPEs.
  - 3.8. Avoid physical greetings (e.g., handshakes, hugs).
4. All workers' status on-site and off-site, are properly noted at all times by the safety officers.
  - 4.1. Fit to work
  - 4.2. Sick
  - 4.3. High temperature
  - 4.4. Other conditions
5. An acceptable level of health evaluation is properly communicated between new hires and management.
6. All workers would need to provide their location or place of residence prior to working. This is to help create a proper algorithm for contact tracing.
  - 6.1. Additionally, workers coming from COVID-19 hotspots would need to be identified.
7. Quarantined workers should also be kept track of under strict confidentiality and privacy.

### ***II. Clearing for Return to Work***

1. Stringent qualification criteria for employees/workers:

- 1.1. Must be 21 to 59-year-old, without pre-existing health conditions, such as, but not limited to, immunodeficiency, comorbidities, or other health risks, including any person who resides with the aforementioned.
- 1.2. Employees or consultants who are 60-year-old or above may be part of the workforce for construction projects as may be allowed under General Community Quarantine (GCQ) and ECQ guidelines under Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines dated 15 May 2020 which states that those aged 60 and above may be allowed to work in permitted industries and offices.
- 1.3. Must have no COVID 19 symptoms.
2. Screening and entry at construction site. Item 4, Section 8 of the Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines, dated 15 May 2020, states that "Compliance with Joint DTI-DOLE Return-to-Work Guidelines and DOH Return-to-Work Guidelines shall be considered sufficient compliance with minimum health standards. In no case shall the testing of all returning workers be construed as a condition precedent for his/her return." The most important screening step is checking all returning workers for symptoms within the last 14 days and excluding anyone who is symptomatic. (Annex B) Contractors have the option to test workers for COVID-19 thru DOH prescribed testing protocols to determine if there is asymptomatic transmission.
  - 2.1. The Human Resource Department should undertake daily health pre-screening (see Annexes C & D – DOLE Work Resumption Protocol & pre-screening sample form). Returning employees/workers should be made aware of giving accurate information as specified in RA 11332.
  - 2.2. All returning employees/workers must declare (via SMS) any recent travel history to or residence in an area with a reported case of local transmission of COVID-19 over the 14-days prior to entry.
  - 2.3. Returning workers that do not show any symptoms will be quarantined for 14 days within the jobsite and will be allowed to work under a zoned or grouped area.
  - 2.4. Those who have been living/confined in the barracks during ECQ/GCQ period for at least 14 days and with no symptoms, will be allowed to work immediately.
  - 2.5. Management should have an understanding and plan on how the workers travel to and from the jobsites.
  - 2.6. A heightened gate entrance screening protocol (see Annex E – Sample Protocol for Screening Employees and Visitors per DTI-DOLE Interim Guidelines) with the use of non-contact thermal scanners on ALL personnel upon entry to construction premises will be implemented. He/She must declare recent possible exposure to confirmed COVID-19 cases, including travel history to or residence in an area with reported local transmission of COVID-19 disease. The individual should also attest that they are not experiencing the following symptoms: (see Annex F – Daily COVID-19 Health Checklist Form)
    - 2.6.1. Fever
    - 2.6.2. Cough
    - 2.6.3. Shortness of breath
    - 2.6.4. Colds
    - 2.6.5. Sore throat

- 2.6.6. Runny nose
- 2.6.7. Nasal congestion
- 2.6.8. Muscle pains
- 2.6.9. Headache
- 2.6.10. Difficulty of breathing
- 2.6.11. Diarrhea
- 2.6.12. Loss of sense of smell
- 2.6.13. Loss of sense of taste
- 2.7. Security guard or assigned personnel/ safety engineers on duty will then refer these personnel to the Safety and Health Personnel, who will then conduct the DOH Decision Tool for COVID-19 Assessment.
- 2.8. Employers shall provide the DOLE through its Regional Office copy furnished DOH, monthly report of illness, diseases and injuries utilizing the DOLE Work Accident/Illness Report Form (WAIR) (see Annex G).
- 3. Suspected Cases (Possible cases of COVID-19)
  - 3.1. Any individual exhibiting flu-like symptoms should not report to work. Instead, they should do the following:
    - 3.1.1. Self-isolate, alert their safety officers or other applicable authorities.
    - 3.1.2. Contact proper health authorities for additional guidance.
  - 3.2. Employers/workers, who had the COVID-19 virus, should do the following before reporting to work:
    - 3.2.1. Fulfill the adequate time for self-quarantining as recommended by the DOH.
    - 3.2.2. Test negative for COVID-19.
    - 3.2.3. Receive proper medical clearance, before reporting to work.
  - 3.3. In the event of a worker contracting COVID-19 while working, the management should do the following:
    - 3.3.1. Isolate the worker immediately in a separate well-ventilated holding area (or in site isolation room) in the workplace, away from other workers.
    - 3.3.2. Contact local government and health authorities.
    - 3.3.3. Gather records of all people who have worked with the infected worker, who tested positive within the past four weeks.
    - 3.3.4. Gather information on those who have been in location or shared equipment with the person.
    - 3.3.5. Provide COVID-19 testing to all workers, who have been working closely with the infected individual.
    - 3.3.6. Be ready to present the information to the appropriate authorities.
    - 3.3.7. Inform the wider workforce of the situation while protecting the privacy of the individual.
    - 3.3.8. Clean and disinfect all site surfaces and equipment.
    - 3.3.9. Follow any additional directions from local government and health authorities.
  - 3.4. For senior personnel, who are working in multiple jobsites, they are expected to self-quarantine for at least 14 days, if there has been a breach in one of their jobsites.
  - 3.5. The safety officer should have a knowledge on the proximate hospitals or quarantine facilities to ensure that in the event of a COVID-19 incident, workers can be given proper healthcare.



**III. Monitoring**

1. **Health Checks**
  - 1.1. Regular monitoring of personnel's health, especially for COVID-19 symptoms (e.g., mandatory regular no contact temperature check).
  - 1.2. Day to day monitoring of personnel's health.
2. **Workers Hygiene**
  - 2.1. Constant reminder on proper coughing etiquette.
3. **Limit number of Work Personnel**
  - 3.1. Limited mobilization of personnel and minimized skeletal staff.

**IV. Proper Work Attire**

1. **All workers must wear the prescribed clothing of the DOLE-OSHC:**
  - 1.1. Shirt with sleeves
  - 1.2. Pants
  - 1.3. Closed-toe boots
  - 1.4. Hard hat
  - 1.5. High visibility vest
  - 1.6. Other necessary Personal Protective Equipment (i.e. face masks, gloves, goggles, face shields, etc.) shall be prescribed based on specific characteristics of project.
2. As per the DOH, all workers are expected to wear proper face masks.

**V. Social Distancing and Precautionary Measures**

1. Social distancing should be observed at the construction site and in the office:
  - 1.1. All workers should respect social distancing guidelines, as much as possible.
2. Provision for transport compliant with social distancing requirements.
3. Provision of On-/Near-Site accommodations/barracks, where available.
  - 3.1 Enough space should be provided for every employee/worker staying in the barracks to ensure that social distancing (at least 50% reduction in density of people) are adequately implemented. This can be achieved either by providing additional space/facilities or by having occupants work (and sleep) in shifts.
  - 3.2. Segregate employees/workers who are coming back to work from those who originally stayed in the barracks during the ECQ period.
  - 3.3. Barracks should have at least one (1) meter of physical distance from each occupant and/or provision of a physical barrier in between occupants.
  - 3.4. Should be well ventilated / windows opened to allow fresh air circulation.
4. Provision of dedicated point-to-point shuttle service (residence-workplace-residence and compliant with social distancing).
5. Observe social distancing (e.g., no sharing of workspaces, staggered lunch breaks, use of large conference rooms only) and hygiene measures (e.g., provide hand washing and disinfection stations, mandatory use of face masks) in workplaces, shuttles and accommodations.
  - 5.1. Split/alternating shifts are encouraged to avoid extensive intermingling.
  - 5.2. Breaks should be staggered to limit the number of people in proximity with each other.

- 5.3. Individuals are expected to clean up their own areas after eating with proper disinfectants.
- 5.4. Limit the number of people operating or occupying freight elevators.
- 5.5. Designate smoking area:
  - 5.5.1. Smokers/vapers must use designated area or do so off-site and butts are to be placed in the designated receptacle. Hands must be washed before and after smoking.
  - 5.5.2. Stand so that smoke or vapor produced is not going into another person's breathing zone.
- 5.6. Site meetings:
  - 5.6.1. Only absolutely necessary meeting participants should attend.
  - 5.6.2. Attendees should be one (1) meter apart from each other.
  - 5.6.3. Rooms should be well ventilated / windows opened to allow fresh air circulation.
  - 5.6.4. Hold meetings in open areas where possible.
  - 5.6.5. Conduct toolbox meetings in wide open spaces to enable workers to keep the required physical distance of at least one (1) meter. (see Annex H).
  - 5.6.6. Meetings are to be held through teleconferencing or videoconferencing, where possible.

#### VI. Site Operations / Construction Work Site

- 1. Access and Movement to/from Construction Site
  - 1.1. If possible, establish one-way staircases and walkways to minimize workers' contact.
  - 1.2. Management can look up possible decontamination chambers (e.g. swimming pool grade-chlorine).
  - 1.3. All people entering and exiting the workplace should be registered, for easier contact tracing in the event of an outbreak.
  - 1.4. All non-essential workers are prohibited from entering the jobsite.
- 2. Limiting and Removing Internal Touch points areas.
- 3. Compartmentalization
  - 3.1. If possible, divide the construction site into zones or other methods to keep workers physically separated. This will promote social distancing and will make containment of possible outbreak easier.
    - 3.1.1. Limit on the number of people per zone is advised.
    - 3.1.2. Management can consider reducing workforce in the jobsite.
- 4. Construction Site Cleaning
  - 4.1. Regular disinfection of workplaces, shuttles, and accommodations.
  - 4.2. All offices and jobsites should disinfect the following at least twice per day:
    - 4.2.1. Door handles
    - 4.2.2. Railings
    - 4.2.3. Ladders
    - 4.2.4. Switches
    - 4.2.5. Controls
    - 4.2.6. Shared equipment
    - 4.2.7. Common and eating areas
    - 4.2.8. Personal workstations

- 4.3. Hands and common tools/equipment are cleaned or disinfected after each task.
- 4.4. Awareness on location of commonly used items
5. All offices and jobsites should implement additional cleaning measures of common areas as recommended by the DOH.
6. Management can look up possible decontamination chambers (e.g. chlorine, iodine, betadine, potassium persulfate).
  - 6.1. Demisting only decontaminates the surface, thus the need for PPEs.
  - 6.2. Suggested additional sanitary measures to be implemented/installed on site but are not limited to the following:
    - 6.2.1. Water stations
    - 6.2.2. Proper handwashing areas and hand washing protocol.
    - 6.2.3. Alcohol-based hand sanitizer shall be provided in all department areas, entrances, canteens, beside hand punch machines and other facilities.
    - 6.2.4. Disinfectant wiping products.
    - 6.2.5. Footwear disinfection treatment units (foot baths) before entering site premises or facilities (staff houses, barracks, canteens/mess halls, site offices and others).
7. Limit and remove internal touch point areas (e.g. coffee machines, water fountains, common pens). If possible, also remove doors/ door handles for jobsites.
8. A proper waste and disposal area must be provided, as well as proper disposal of contaminated products.

#### *VII. Additional Guidelines for Vertical and Horizontal Projects*

1. If possible, all construction workers are to be housed in either on-site barracks, or off-site barracks. This would make monitoring of workers' activities easier.
  - 1.1. All workers must use the same vehicles they came into work in, if returning to the off-site barracks.
  - 1.2. All vehicles would need to be disinfected, before being ready for use the next day.
2. Management can also look into using the floors of buildings, as barracks, with proper permission of the owners.

#### **Machinery**

1. All equipment deliveries must be carefully planned, monitored and managed to avoid the risk of COVID-19 transmission.
2. All delivered equipment must be cleaned and disinfected before use.
3. Assign regular worker to use the equipment, if possible. If sharing cannot be prevented, take precautions and follow the cleaning guide before and after each use.
4. Clean equipment before and after each day's work with a disinfectant, concentrating on points of contact such as handles.
5. If equipment needs to be transferred to other construction sites, the following action must be taken into considerations:
  - 5.1. Plan, monitor and manage the transfer of equipment.
  - 5.2. Equipment should be disinfected before transporting.

- 5.3. Transporting driver must be recorded including the assellant.
- 5.4. At the delivery site, equipment should be properly endorsed.
- 5.5. Once the equipment is received at the project site, number 2, 3 and 4 must be done.

### Money

*Contracting parties need to discuss, before resumption or start of work, contract provisions on: Payments, Variations and Timelines considering the effects of current government health and safety standards that have to be complied with to prevent the spread of the coronavirus pandemic and ensure workers' protection from the contagious disease. Contractors' concern on cash flow, price escalation, time extensions and productivity will need to be established and agreed with project owners. Contractors need to devise project implementation plan aligned with government approved health and safety protocols.*

Contractors need to familiarize themselves with Republic Act (R.A.) 11469 or Bayanihan to Heal As One Act; R.A. 11058 and its IRR as specified in DOLE D.O. 198 S. 2018, and DOLE's D.O. 13 and ensure contracts are aligned with these landmark regulations. For projects with signed contracts before the onset of the coronavirus pandemic, contractors need to check on DOLE's guidelines on drafting new contracts so provisions on employment details, i.e. accommodations, meals, etc. can be included as these are expected to be heavily affected by new guidelines on health and safety. Company code of disciplines may likewise need to be reviewed and re-written to consider pandemic guidelines and ensure employees/workers' full support and cooperation.

Pursuant to Section 21 of DOLE D.O. 198, s. 2018, *"The total cost of implementing a OSH program shall be an integral part of the operations cost. It shall be a separate pay item in construction and in all contracting or subcontracting arrangements."* to cover the cost inflicted during this Public Health Emergency. These costs include, but are not limited, to testing kits; personal protective equipment; workers' barracks; quarantine facilities; isolation rooms; disinfectants; sanitation equipment and facilities; and other expenses relative to compliance with safety and health standards during construction.

Contractors should conduct periodic audits (frequency to be determined based on a project scale and scope) to verify that the appropriate measures have been implemented and are maintained.

The site supervisors and safety officers are expected to conduct daily audits, and safety reports to management in order to make sure that the appropriate measures are implemented and followed.

Construction companies should expect to deal with heightened safety and health guidelines until such time that the pandemic has fully been eradicated, and:

1. Analyze contract requirements;
2. Comply with contractual notice requirements;
3. Adapt and Adjust schedule;
4. Coordinate and Cooperate with all participants; and

## 5. Document everything.

### *Risk Assessment and Response*

1. All contractors would need to guarantee the minimum level of standards to protect the health of the workers engaged in the construction sites.
2. Before any activity is resumed, all hazards, due to the halting of work, must be reviewed and controlled.
  - 2.1. Workers involved should have proper understanding of the operations and environment condition checking
3. An integrated continuity plan should also be provided in the event of a partial or complete shutdown of jobsite or if jobsite operations are severely limited.
4. All contractors should complete an integrated continuity plan to respond to partial or complete shutdown of construction sites or in the case of a severe limitation of site operations.

The COVID-19 pandemic affects working hours and earnings in all businesses globally. However, the construction industry is unique with respect to the COVID-19 because construction contracts typically contain provisions about time for performance and fees for failing to perform on time. There is no question that all participants in the construction industry have experienced, and will continue to experience, impacts on their operations because of COVID-19 and experts say the fallout is one more factor poised to affect construction firms. These impacts include, among others, schedule delays, workforce disruptions, equipment and supply chain disruptions, reduced productivity due to on site health and safety measures (e.g., social distancing, staggering of work, enhanced sanitary measures, etc.), permit delays or restrictions on new permits, and financing restrictions or cash flow shortages.

Therefore, it is critical that construction companies be proactive rather than reactive in dealing with the COVID-19 and it is highly recommended that they take the following steps with respect to the coronavirus:

1. Define – identify the company's main vulnerabilities (convene a meeting with senior management and decision-makers to identify potential impacts on the company).
2. Assess – understand if and how the company is prepared to deal with the company's main vulnerabilities (review any existing plans and procedures to ensure they are current and begin preparing business continuity and crisis management plans and procedures aimed at minimizing potential impacts on the company).
3. Implement and Manage – ensure the company's plans and procedures work (work with senior management and decision-makers to establish and embed response and recovery arrangements and confirm senior management and decision-makers understand their roles and support how the plans and procedures will be used).
4. Communicate and Remain Vigilant – ensure the company's teams are informed (assign clear responsibilities for internal and external communications).

This pandemic was not foreseeable and unfortunately, its duration and fallout remain uncertain. What is certain is that the world is transitioning. Being prepared for this will be essential to managing the outcome and minimizing negative impacts.

## Monitoring

DTI-CIAP is revitalizing its Joint Administrative Order No. 01, S. 2011 with DOLE, DPWH, DILG and the Professional Regulation Commission (PRC) to strengthen coordination and enhance the implementation of the Construction Guidelines on Project Implementation for the period of Public Health Emergency, DOLE D.O. 13 and R.A. 11058 and its IRR as specified in DOLE D.O. 198 S. 2018, and specifically, enforce strict monitoring of construction activities.

The DOLE shall refer to the Philippine Contractors Accreditation Board (PCAB) its findings, after due process, on any act or omission committed by construction contractors in violation of labor standards, safety rules and regulations and other pertinent policies.

## Effectivity

These guidelines shall take effect after approval by the CIAP Board and posting in the official gazette ([www.officialgazette.gov.ph](http://www.officialgazette.gov.ph)) and CIAP website ([www.ciap.dti.gov.ph](http://www.ciap.dti.gov.ph)).

## References

1. WHO – Getting your workplace ready for COVID-19, 19 March 2020
2. Philippines – Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines as of 15 May 2020
3. Philippines – COVID-19 Protocols for Construction Sites Workers Safety and Security Version 3 by Philippine Constructors Association (PCA) as of 25 April 2020
4. Australia – Building and Construction Industry: Minimizing the Risk and exposure to COVID-19 as of 9 April 2020
5. Canada – COVID-19 – Standardized Protocols for all Canadian Construction Sites Version 4
6. New Zealand COVID-19: V&H Construction Protocols Version 2
7. New Zealand – COVID-19 Health and Safety Protocols for New Zealand Residential Construction Sites Version 3, 22 April 2020
8. DOH – Administrative Order No. 2020-015 “Guidelines on the Risk-Based Public Health Standards for COVID-19 Mitigation”
9. DOH Department Memorandum No. 2020-151, Interim Guidelines on Expanded Testing for COVID-19, reiterated under DOH D.M. No. 2020-174
10. DOH D.M. No. 2020-0220, s. 2020, Interim Guidelines on the Return-to-Work as of 11 May 2020
11. DPWH D.O. 39, S. 2020, Revised Construction Safety Guidelines for the Implementation of Infrastructure Projects during the COVID-19 Public Health Crisis, repealing D.O. No. 35, S. 2020
12. DTI - DOLE Interim Guidelines on Workplace Prevention and Control of COVID-19
13. DTI and DOLE Webinar on 8 May 2020
14. DOLE Labor Advisory No. 18, S. 2020, Guidelines on the Cost of COVID-19 Prevention and Control Measures, 16 May 2020
15. DOLE Department Order 13: Guidelines Governing Occupational Safety and Health in the Construction Industry
16. R.A.11058, “An Act Strengthening Compliance with Occupational Safety and Health Standards and Providing Penalties for Violations thereof” and its Implementing Rules and Regulations as specified in DOLE D.O. 198 S. 2018
17. DOLE-DPWH-DTI-DILG-PRC Joint Administrative Order No. 1, Series of 2011

18. *EEI Guidelines on the COVID-19 Prevention and Control at the Workplace (Alert level code RED sub-level 2)*
19. *DMCI Work Resumption Protocols as of 22 April 2020*

### **Acknowledgment**

The Construction Guidelines for Project Implementation during the period of Public Health Emergency would not have been possible without the patience, diligence and selfless dedication of the following members of the Technical Working Group (TWG) who religiously participated in the deliberations and drafting work:

#### **Philippine Domestic Construction Board (PDCB)**

Liberto V. Espiritu  
Ronaldo R. Elepaño, Jr.  
Dino Mae D. Suelto  
Warren Simon W. King  
Doris U. Gecho  
**Luzon**  
Norman K. Macapagal  
**Visayas**  
Francis Gerard S. Cañedo  
Edgar B. Watin  
Kevin Bling Lim  
Benedict C. Uy  
**Mindanao**  
Ludwig Van A. Ledesma  
Lourdes Ledesma, M.D.  
Ramon F. Allado  
Wilfredo H. Guerson

#### **Philippine Constructors Association (PCA), Inc.**

Randolf T. Rellera  
Arlan P. Vergara  
Eduardo P. Trinidad  
**Government**

Assistant Secretary Mariano R. Alquiza – DOLE

Assistant Secretary Antonio Molano Jr. – DPWH

The Technical Working Group (TWG) was ably assisted by the following staff of the Philippine Domestic Construction Board:

Leilani d.L. del Prado  
Jocelyn C. Carrasco  
Nikki C. Najarro  
Ariane Monique D. Balaoing  
Dana Lorraine C. Faunilo  
Rose Ann A. Bolitres



15 June 2020

Atty. JAY DANIEL R. SANTIAGO  
General Manager  
Philippines Ports Authority (PPA)  
Bonifacio Drive, South Harbor  
Port Area - Manila

**Subject: Construction Guidelines for Project Implementation during the  
period of Public Health Emergency**

Dear Atty. Santiago:

Greeting ☺!

In line with the President's declaration of Public Health Emergency in the country to address COVID-19, the Philippine Domestic Construction Board (PDCB), an implementing board of the Construction Industry Authority of the Philippines (CIAP), mandated to formulate policies, plans, programs, and strategies for the development of the Philippine construction industry organized a Technical Working Group (TWG) composed of representatives from contractors of varying sizes and suppliers coming from Luzon, Visayas and Mindanao to formulate protocols for the industry for resumption of construction work in areas under quarantine.

As a result, we have developed the "Construction Guidelines for Project Implementation during the period of Public Health Emergency" to serve as reference for contractors and implementing agencies, to ensure viability of projects and protection from and spread of the coronavirus. The Guidelines were approved by the PDCB and CIAP Board on May 18 and June 2020, respectively.

These guidelines set key principles and minimum requirements that define responsible, healthy and safe operations for construction-related operations under COVID-19 and ensure the survival of business as well as the protection of workers. These guidelines include prevention, detection, and rapid response measures designed to achieve the principles above while maintaining business continuity across the construction industry.

These also present options or courses of actions which contractors may consider depending on applicability to the project's unique characteristics while maintaining minimum requirements based on guidelines by government authorities such as the IATF Omnibus Guidelines for the Implementation of Community Quarantine in the Philippines, Department of Trade and Industry (DTI) and Department of Labor and Employment (DOLE) Interim Guidelines on Workplace Prevention and Control of COVID-19, and DOH Department Memorandum No. 2020-220, Interim Guidelines on the Return-to-Work.

In this regard, may we respectfully furnish you with the copy of the approved Construction Guidelines (copy attached), for your reference. Further, may we also

**PHILIPPINE DOMESTIC CONSTRUCTION BOARD  
CONSTRUCTION INDUSTRY AUTHORITY OF THE PHILIPPINES**  
An Attached Agency of the Department of Trade and Industry

PPA Executive Building Center  
2620 San Juan 1, Alibon Avenue, Alibon Area  
Manila

☎ +6321 8 099 1801  
🌐 [www.pdcboi.gov.ph](http://www.pdcboi.gov.ph)

☎ +6321 8 897 0791  
🌐 [PDCBaiib.gov.ph](http://PDCBaiib.gov.ph)



request your kind assistance in disseminating these Construction Guidelines among your stakeholders, including contractors and implementing agencies.


You may also visit CIAP's website at [www.ciap.dti.gov.ph](http://www.ciap.dti.gov.ph) for the latest updates and version of these Construction Guidelines.

For questions and clarifications, kindly email PDCB Secretariat at [pdcb@dti.gov.ph](mailto:pdcb@dti.gov.ph). Thank you for your usual support.

Sincerely,



DORIS U. GACHO

Executive Director, PDCB 

## **SECTION IX**

# **CHECKLIST OF TECHNICAL AND FINANCIAL DOCUMENTS**

# Checklist of Technical and Financial Documents

## I. TECHNICAL COMPONENT ENVELOPE

### Class "A" Documents

#### Legal Documents

- ☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages); or
- ☐ (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document; and
- ☐ (c) Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas; and
- ☐ (d) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

#### Technical Documents

- ☐ (e) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; and
- ☐ (f) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules; and
- ☐ (g) Philippine Contractors Accreditation Board (PCAB) License; or Special PCAB License in case of Joint Ventures; and registration for the type and cost of the contract to be bid; and
- ☐ (h) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission; or Original copy of Notarized Bid Securing Declaration; and
- ☐ (i) Project Requirements, which shall include the following:
  - ☐ a. Organizational chart for the contract to be bid;
  - ☐ b. List of contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;
  - ☐ c. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; and
- ☐ (j) Original duly signed Omnibus Sworn Statement (OSS); and if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

**Financial Documents**

- ☐ (k) The prospective bidder's audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission; and
- ☐ (l) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

**Class "B" Documents**

- ☐ (m) If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence;  
or  
duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

**II. FINANCIAL COMPONENT ENVELOPE**

- ☒ (n) Original of duly signed and accomplished Financial Bid Form; and

**Other documentary requirements under RA No. 9184**

- ☐ (o) Original of duly signed Bid Prices in the Bill of Quantities; and
- ☐ (p) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; and
- ☐ (q) Cash Flow by Quarter.

**SECTION X**  
**BIDDING FORM**

## Bid Form for the Procurement of Infrastructure Projects

*[shall be submitted with the Bid]*

---

### BID FORM

Date : \_\_\_\_\_  
Project Identification No. : \_\_\_\_\_

**To: Philippine Ports Authority**  
PPA Building, Bonifacio Drive,  
South Harbor, Port Area, Manila

Having examined the Philippine Bidding Documents (PBDs) including the Supplemental or Bid Bulletin Numbers \_\_\_\_\_, the receipt of which is hereby duly acknowledged, we, the undersigned, declare that:

- a. We have no reservation to the PBDs, including the Supplemental or Bid Bulletins, for the Procurement Project: **Construction of Back-up Area and RC Pier, Port of Tagbilaran, Bohol**;
- b. We offer to execute the Works for this Contract in accordance with the PBDs;
- c. The total price of our Bid in words and figures, excluding any discounts offered below is: \_\_\_\_\_;
- d. The discounts offered and the methodology for their application are: \_\_\_\_\_;
- e. The total bid price includes the cost of all taxes, such as, but not limited to: *[specify the applicable taxes, e.g. (i) value added tax (VAT), (ii) income tax, (iii) local taxes, and (iv) other fiscal levies and duties]*, which are itemized herein and reflected in the detailed estimates;
- f. Our Bid shall be valid within the period stated in the PBDs, and it shall remain binding upon us at any time before the expiration of that period;
- g. If our Bid is accepted, we commit to obtain a Performance Security in the amount of \_\_\_\_\_ percent of the Contract Price for the due performance of the Contract, or a Performance Securing Declaration in lieu of the the allowable forms of Performance Security, subject to the terms and conditions of issued GPPB guidelines<sup>1</sup> for this purpose;
- h. We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;
- i. We understand that this Bid, together with your written acceptance thereof

---

<sup>1</sup> currently based on GPPB Resolution No. 09-2020

included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and

- j. We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.
- k. We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the **Construction of Back-up Area and RC Pier, Port of Tagbilaran, Bohol of the Philippine Ports Authority.**
- l. We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: \_\_\_\_\_

Legal Capacity: \_\_\_\_\_

Signature: \_\_\_\_\_

Duly authorized to sign the Bid for and behalf of: \_\_\_\_\_

Date: \_\_\_\_\_

**STATEMENT OF ALL ON-GOING GOVERNMENT AND PRIVATE CONTRACTS,  
INCLUDING CONTRACTS AWARDED BUT NOT YET STARTED, WHETHER SIMILAR OR NOT SIMILAR IN NATURE**

| Name of the Contract or Title Of the Project 1]   | Owner's Name and Address | Nature/ Scope of Work 2] | Contractor's Role (in percentage) 3] | Total Contract Value At |                    |                                      | Date of Award 5] | Value of Outstanding Works | Estimated Time of Completion | % of Accomplishment |        | Contract Duration 5] |           |
|---|--------------------------|--------------------------|--------------------------------------|-------------------------|--------------------|--------------------------------------|------------------|----------------------------|------------------------------|---------------------|--------|----------------------|-----------|
|   |                          |                          |                                      | Award                   | Project Completion | Escalated Value to Present Prices 4] |                  |                            |                              | Planned             | Actual | Start                | Completed |
| <b>A) Government Contracts</b><br><br>i. On-going<br>ii. Awarded but not yet started<br><br><b>B) Private Contracts</b><br><br>i. On-going<br>ii. Awarded but not yet started |                          |                          |                                      |                         |                    |                                      |                  |                            |                              |                     |        |                      |           |
|   |                          |                          |                                      |                         |                    |                                      |                  |                            |                              |                     |        |                      |           |

**NOTE:**

- 1] As appearing or defined in the contract entered/executed by the parties
- 2] With special reference to the Scope of Works as described/enumerated in the advertised Invitation To Bid.
- 3] Indicate whether as Sole Contractor, Sub-Contractor or Member in a Joint Venture / Consortium
- 4] Indicate the FOREX used if Contract Value is expressed in a currency other than the Philippine Peso. Specify the "Escalation Factor" used to escalate the Contract Value from completion date to the advertisement date of the Invitation to Bid per section 23.11.2 (3) of R.A. 9184.
- 5] State Month and Year.

This Statement shall be supported by:  
 a) Notice of Award and/or Contract  
 b) Notice to Proceed

\_\_\_\_\_  
Name of Firm/Applicant

\_\_\_\_\_  
Authorized Signing Official

\_\_\_\_\_  
Date



**STATEMENT OF THE BIDDER'S SINGLE LARGEST COMPLETED CONTRACT (SLCC) SIMILAR TO THE CONTRACT TO BE BID**

| Name of the Contract or Title Of the Project | Owner's Name and Address | Nature/Scope of Work | Contractor's Role and Percentage Of Participation | Total Contract Value At |            |                                   | Date of Award | Value of Outstanding Works | Contract Duration |           |
|--|--------------------------|----------------------|---|-------------------------|------------|-----------------------------------|---------------|----------------------------|-------------------|-----------|
|  |                          |                      |   | Award                   | Completion | Escalated Value to Present Prices |               |                            | Start             | Completed |
|  |                          |                      |   |                         |            |                                   |               |                            |                   |           |

**NOTE :**

1. The prospective bidder must have completed an SLCC that is similar to the contract to be bid, and whose value, adjusted to current prices using the PSA consumer price indices, must be at least fifty percent (50%) of the ABC to be bid.
2. This Statement shall be supported by:
  - a. Notice of Award and / or Notice to Proceed.
  - b. Project Owner's Certificate of Final acceptance issued by the owner other than the Contractor or Constructors Performance Evaluation System (CPES) Final Rating, which must be at least satisfactory.

\_\_\_\_\_  
Name of Firm/Applicant

\_\_\_\_\_  
Authorized Signing Official

\_\_\_\_\_  
Date

### EXPERIENCE RECORD ON SIMILARLY COMPLETED PROJECTS

| Similar Major Categories of Work<br>1]                 | Unit of Measure | Quantity |                      |                      |                      |                      | Unit of Measure | Quantity |
|--|-----------------|----------|----------------------|----------------------|----------------------|----------------------|-----------------|----------|
|  |                 |          | Title of the Project | Title of the Project | Title of the Project | Title of the Project |                 |          |
| 1. Offshore Pile Driving Works                         | l.m.            | 5,279 ✓  |                      |                      |                      |                      |                 |          |
| 2. Reinforced Concrete Works                           | cu.m.           | 1,182 ✓  |                      |                      |                      |                      |                 |          |
| 3. Rockworks (50-100 kg./pc.)                          | cu.m.           | 3,994 ✓  |                      |                      |                      |                      |                 |          |
| 4. Placing of Fill materials                           | cu.m.           | 43,150 ✓ |                      |                      |                      |                      |                 |          |
| 5. Construction of interlocking concrete paving blocks | sq.m.           | 4,790 ✓  |                      |                      |                      |                      |                 |          |
| 6. Construction of Portland Cement Concrete Pavement   | sq.m.           | 706 ✓    |                      |                      |                      |                      |                 |          |

**NOTE:** 1] Submit the Certificate of Completion/Certificate of Acceptance by the project owner, Final Recapitulation/Bill of Quantities and/or Constructor Performance Evaluation System (CPES) ratings, 1<sup>st</sup>, 2<sup>nd</sup> & Final visit (if applicable). Projects with no Certificate of Completion/Acceptance and Recapitulation/Bill of Quantities shall not be considered.

2] The Owner's Certificate of Final Acceptance; or the Constructors Performance Evaluation Summary (CPES) Final Rating and/or the Certificate of Completion, must be satisfactory.

\_\_\_\_\_  
Name of Firm/Applicant

\_\_\_\_\_  
Authorized Signing Official

\_\_\_\_\_  
Date

(Revised Form : September 2012)

## FINANCIAL DATA

- A. The prospective bidder's audited Financial Statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "RECEIVED" by the Bureau of Internal Revenue (BIR), or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission.

|                              | Year |
|------------------------------|------|
| 1. Total Assets              |      |
| 2. Current Assets            |      |
| 3. Total Liabilities         |      |
| 4. Current Liabilities       |      |
| 5. Net worth (1-3)           |      |
| 6. Net Working Capital (2-4) |      |

- B. The computation of the bidders Net Financial Contracting Capacity (NFCC) must be at least equal to the ABC to be bid, as follows:

NFCC = [ (Current assets minus current liabilities) (15) ] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started coinciding with the contract to be bid.

NFCC = \_\_\_\_\_

Attached herewith are certified true copies of the audited financial statements stamped received by the BIR or BIR authorized collecting agent for the latest/immediately preceding calendar year.

\_\_\_\_\_  
Name of Firm/Applicant

\_\_\_\_\_  
Authorized Signing Official

Date: \_\_\_\_\_

### NOTES:

If Partnership or Joint Venture, each Partner or Member Firm of Joint venture shall submit separate financial statements.

## LIST OF CONTRACTOR'S PERSONNEL

I hereby declare that the following key personnel enumerated below, with attached resume/bio-data, including valid PRC License, for the various positions / functions, are available for the project applied for:

| Position of Key Personnel              | Name | No. of Key Personnel | Similar Experience in the Position (Years)<br>1] | Total Experience in the Position (Years) | Attachment(s)   | Annex(es)   |
|--|------|----------------------|--|--|---|-------------|
| Project Manager                        |      |                      |  |  | PRC License (CE Preferred)<br>Complete Qualification and Experience Data<br>Certificate of Commitment   | Annex " _ " |
| Project Engineer                       |      |                      |  |  | PRC License (CE Preferred)<br>Complete Qualification and Experience Data<br>Certificate of Commitment   | Annex " _ " |
| Materials Engineer II                  |      |                      |  |  | PRC License (CE Preferred)<br>Submit Valid and Renewed DPWH Certificate of Accreditation<br>Submit Accreditation Identification Card as Materials Engineer<br>Complete Qualification and Experience Data<br>Certificate of Commitment | Annex " _ " |
| Construction Safety and Health Officer |      |                      |  |  | Certificate of Safety and Health Construction Related Course<br>issued by DOLE Accredited Trainings<br>Complete Qualification and Experience Data<br>Certificate of Commitment  | Annex " _ " |
| Foreman                                |      |                      |  |  | Complete Qualification and Experience Data<br>Certificate of Commitment   | Annex " _ " |
| Other Position(s)                      |      |                      |  |  | Complete Qualification and Experience Data<br>Certificate of Commitment   | Annex " _ " |

NOTE: 1. Minimum qualification requirements: (work experience is similar in nature and complexity to the project to be bid with regard to Registration Particulars of the Contractor's License)

|   |   |
|---|---|
| Project Manager - Five (5) years                      | Materials Engineer – One (1) year                           |
| Project Engineer - Three (3) years                    | Materials Engineer I – for projects costing up to 100M      |
| Foreman - Five (5) years                              | Materials Engineer II – for projects costing more than 100M |
| Construction Safety and Health Officer – One (1) year |   |

\_\_\_\_\_  
Name of Firm/Applicant  
REVISED FORM (September 2012)

\_\_\_\_\_  
Authorized Signing Official

\_\_\_\_\_  
Date

## LIST OF CONTRACTOR'S EQUIPMENT UNITS

I hereby declare that the following equipment listed below which are owned, leased or under purchase agreement are in good operating condition and are available for the duration of the project:

| DESCRIPTION<br>(Type, Model,<br>Make) | No. of<br>Unit(s) | Capacity<br>Output<br>2] | Owned, Leased<br>and/or under<br>purchase<br>agreement<br>1] | Submitted Proof of<br>Ownership/Leased/<br>Purchase Agreement<br>(Mark as Annex<br>"A.....Z") | OTHER INFORMATION(S)<br>(As Applicable) |                      |                                |          |        |
|---------------------------------------|-------------------|--------------------------|--|---|---|----------------------|--------------------------------|----------|--------|
|                                       |                   |                          |  |   | Manufacturer                            | Engine<br>Serial No. | Chassis No./<br>Name of Vessel | Location | Status |
|                                       |                   |                          |  |   |   |                      |                                |          |        |
|                                       |                   |                          |  |   |   |                      |                                |          |        |
|                                       |                   |                          |  |   |   |                      |                                |          |        |
|                                       |                   |                          |  |   |   |                      |                                |          |        |
|                                       |                   |                          |  |   |   |                      |                                |          |        |
|                                       |                   |                          |  |   |   |                      |                                |          |        |

- 1] Indicate if owned or leased as listed in the Checklist/Bidding Documents. For owned equipment, as required, submit proof of ownership (i.e. deed of sale, sales invoice, official receipt). For Water Truck, Dump Truck and Transit Mixer submit LTO Certificate of Registration and valid Official Receipt. For owned barge/tugboat, submit Marina Certificate of Ownership and valid Cargo Ship Safety Certificate. For newly purchased barge/tugboat, submit Deed of Sale together with an application for Marina Certificate of Ownership duly received/authenticated by Marina with corresponding valid Cargo Ship Safety Certificate. For leased equipment, submit duly notarized copy of lease contract together with a copy of the Marina Owner's (Lessor's) Certificate and valid Cargo Ship Safety Certificate.
- 2] The unit of each equipment shall be as indicated in the Checklist/Bidding Documents, i.e GW (for crane barge), DWT (for deck barge and hopper barge), TON (for crane, road roller and drop hammer), kg.-m/blow (for diesel hammer), cu.m (for dump truck), hp. (for tugboat, road grader, bulldozer and concrete vibrator), cfm (for compressor), gal. (for water truck with pump), amp. (for welding machine), bagger (for concrete mixer).

\_\_\_\_\_  
Name of Firm/Applicant

\_\_\_\_\_  
Authorized Signing Official

\_\_\_\_\_  
Date

REVISED FORM (January 2011)

**Omnibus Sworn Statement for Sole Proprietorship**  
*[shall be submitted with the Bid]*

REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

**AFFIDAVIT**

I, \_\_\_\_\_, of legal age, [Civil Status], [Nationality], and residing at \_\_\_\_\_, after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the sole proprietor or authorized representative of \_\_\_\_\_ with office address at \_\_\_\_\_;
2. As the owner and sole proprietor, or authorized representative of \_\_\_\_\_, I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for **Construction of Back-up Area and RC Pier, Port of Tagbilaran, Bohol** of the Philippine Ports Authority, as shown in the attached duly notarized Special Power of Attorney;
3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;
6. The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;
7. [Name of Bidder] complies with existing labor laws and standards; and
8. [Name of Bidder] is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
  - a. Carefully examining all of the Bidding Documents;
  - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
  - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the [Name of the Project].
9. [Name of Bidder] did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or

representative of the government in relation to any procurement project or activity.

10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_ day of \_\_\_, 20\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Name of Bidder/ Authorized Representative  
(Signatory's Legal Capacity)  
AFFILIANT

**[Jurat]**

*[Format shall be based on the latest Rules on Notarial Practice]*

**Omnibus Sworn Statement for Partnership or Cooperative**  
*(shall be submitted with the Bid)*

REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

**AFFIDAVIT**

I, \_\_\_\_\_, of legal age, [Civil Status], [Nationality], and residing at \_\_\_\_\_, after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the duly authorized and designated representative of \_\_\_\_\_ with office address at \_\_\_\_\_;
2. I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for **Construction of Back-up Area and RC Pier, Port of Tagbilaran, Bohol of the Philippine Ports Authority**, as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];
3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;
6. None of the officers and members of [Name of Bidder] is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;
7. [Name of Bidder] complies with existing labor laws and standards; and
8. [Name of Bidder] is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
  - a. Carefully examining all of the Bidding Documents;
  - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
  - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the [Name of the Project].



9. [Name of Bidder] did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_ day of \_\_\_, 20\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Name of Bidder/ Authorized Representative  
(Signatory's Legal Capacity)  
AFFIANT

**[Jurat]**

*[Format shall be based on the latest Rules on Notarial Practice]*

**Omnibus Sworn Statement for Corporation or Joint Venture**  
*[shall be submitted with the Bid]*

REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

**AFFIDAVIT**

I, \_\_\_\_\_, of legal age, [Civil Status], [Nationality], and residing at \_\_\_\_\_, after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the duly authorized and designated representative of \_\_\_\_\_ with office address at \_\_\_\_\_;
2. I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for **Construction of Back-up Area and RC Pier, Port of Tagbilaran, Bohol**, as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];
3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;
6. None of the officers, directors, and controlling stockholders of [Name of Bidder] is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;
7. [Name of Bidder] complies with existing labor laws and standards; and
8. [Name of Bidder] is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
  - a. Carefully examining all of the Bidding Documents;
  - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
  - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the [Name of the Project].
9. [Name of Bidder] did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or

representative of the government in relation to any procurement project or activity.

- 10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.**

**IN WITNESS WHEREOF**, I have hereunto set my hand this \_\_\_ day of \_\_\_, 20\_\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Name of Bidder/ Authorized Representative  
(Signatory's Legal Capacity)  
AFFIANT

**[Jurat]**

*[Format shall be based on the latest Rules on Notarial Practice]*

**Bid Securing Declaration Form**  
*[shall be submitted with the Bid if bidder opts to provide this form of bid security]*

---

REPUBLIC OF THE PHILIPPINES)  
CITY OF \_\_\_\_\_ ) S.S.

**BID SECURING DECLARATION**  
**Project Identification No.:** \_\_\_\_\_

**To: Philippine Ports Authority**  
PPA Building, Bonifacio Drive,  
South Harbor, Port Area, Manila

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f), of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:
  - a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
  - b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
  - c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this \_\_\_\_ day of [month] [year] at [place of execution].

---

Name of Bidder/ Authorized Representative  
(Signatory's Legal Capacity)  
**AFFIANT**

**[Jurat]**  
*[Format shall be based on the latest Rules on Notarial Practice]*

## CONSTRUCTION METHODOLOGY

Name of Project : \_\_\_\_\_

Proposed Project Description : \_\_\_\_\_

Location : \_\_\_\_\_

### MINIMUM SCOPE OF CONSTRUCTION METHODOLOGY

#### A. BACK-UP AREA

1. Chip-off existing RC curb (288 l.m.)
2. Excavation of existing seabed (2,641 cu.m.) and fill materials (210 cu.m.) up to required elevation
3. Supply and drive 0.35m x 0.60m x 16m PSC sheet piles (3,120 l.m.)
4. Supply and drive R.C. Corner piles (64 l.m.)
5. Chip-off newly driven PSC sheet piles & R.C. Corner piles including disposal (199 no.)
6. Supply & place 3,500 psi. concrete (1,180 cu.m.)
7. Supply & installation of steel reinforcements (69,248 kgs.)
8. Supply and place 3,000 psi concrete blocks of various sizes (384 units)
9. Supply and place 50-100 kg. rocks (7,987 cu.m.)
10. Supply and installation of tie-rods of various sizes (steel 45) including accessories (81 sets)
11. Supply and installation of geotextile fabric (4,843 sq.m.)
12. Supply, place and compact sand and gravel fill (73,802 cu.m.), aggregate subbase course (12,497 cu.m.), aggregate base course (1,835 cu.m.) and gravel bedding (45 cu.m.)
13. Supply and installation interlocking of concrete paving blocks (9,580 sq.m.) including cement treated base course (1,581 sq.m.) and leveling course sand cushion (479 sq.m.)
14. Construction of portland cement concrete pavement (300mm thk) including dowel bars and construction joint (1,412 sq.m.)
15. Supply and installation of Rubber Dock Fender (V600H x 1,000L) (9 sets) including accessories
16. Supply and installation of Mooring Bollard (25-Tons, T-head) (5 sets) and (15-Tons, T-head) (9 sets) including accessories
17. Supply and installation of trench grate cover including angular frame for lateral drainage (34 l.m.)
18. Supply and installation of 900mm Ø reinforced concrete pipe culvert (187 l.m.)
19. Supply and installation of port lighting system (1 lot) including pile foundation (44 l.m.)

#### B. RC PIER

1. Supply and drive 450mm x 450mm x 29m PSC test piles (2 no.)
2. Supply and drive 450mm x 450mm PSC piles (5,064 l.m.)
3. Chip-off/cutting of newly driven PSC piles up to required elevation (178 no.)
4. Supply and drive 550mmØ steel pipe test pile with protective external coating (10 m.t.)
5. Supply and delivery to site steel pipe piles (A252 Grade 2, 550mm Ø x 9mm & 12mm thk) (314 m.t.) including application of polyurethane external coating (2083 sq.m.) and supply and installation of 9mm thk. Reinforcing band tip (66 no.)
6. Handle, pitch and drive vertical steel pipe piles (550mm Ø x 9mm & 12mm thk) (1,088 l.m.)

7. Handle, pitch and drive batter steel pipe piles (550mm  $\varnothing$  x 9mm & 12mm thk) (1,056 l.m.)
8. Splicing of 550mm dia steel pipe piles (68 no)
9. Extraction of clogged materials from steel pipe piles (45 cu.m.)
10. Cutting of driven steel pipe piles up to cut-off elevation including turning over to authority of recovered pile materials (68 no.)
11. Supply and installation of reinforcing steel cage for steel pipe piles (69,277 kgs.)
12. Supply and place 3,500 psi concrete filler for steel pipe piles (301 cu.m.)
13. Supply and place 3,500 psi concrete for the superstructure (883 cu.m.)
14. Supply and installation of steel reinforcements for the superstructure (136,078 kgs.)
15. Supply and installation of hot-dipped galvanized angle bar, 100mm x 100mm x 10mm, as construction joint including dowel bars (101 l.m.)
16. Supply and installation of Rubber Dock Fender (V500H x 1,500L) (8 sets) and (V600H x 1,500L) (13 sets) including accessories
17. Supply and installation of Mooring Bollard (35-Tons, T-head) (8 sets) and (50-Tons, T-head) (13 sets) including accessories

**NOTES:**

The narrative construction method will guide and familiarize the contractor and the PPA on how the project shall be carried out in accordance with the highest standard of workmanship.

The construction method shall be consistent with the Bar Chart / S-Curve Schedule, Equipment Schedule and Manpower Schedule.

---

Signature  
(Authorized Signing Official)

## MANPOWER SCHEDULE

Name of Project : \_\_\_\_\_

Proposed Project Description : \_\_\_\_\_

Location : \_\_\_\_\_

| MANPOWER<br>(Minimum)                    | CONTRACT DURATION (_____ Calendar Days) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
|--|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|
|  | M O N T H L Y                           |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
|  | 1                                       | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| Project Manager                          |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Project Engineer                         |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Materials Engineer II                    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Construction Safety and Health Officer   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Foreman                                  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Specify other applicable positions, ie.: |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| - Carpenter                              |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| - Steelman                               |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| - Mason                                  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| - Electrician                            |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| - Rigger                                 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| - Others                                 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |

\_\_\_\_\_  
Signature  
(Authorized Signing Official)

### EQUIPMENT UTILIZATION SCHEDULE

Name of Project : \_\_\_\_\_

Proposed Project Description : \_\_\_\_\_

Location : \_\_\_\_\_

[illegible]

Signature  
(Authorized Signing Official)



## CASHFLOW BY QUARTER AND PAYMENT SCHEDULE

Name of Project: : \_\_\_\_\_

Proposed Project Description : \_\_\_\_\_

Location : \_\_\_\_\_

| Project Duration<br>(days or months) | Payment Schedule<br>(Monthly, in Pesos) | Cash flow<br>(Quarterly, in Pesos) |
|--------------------------------------|---|------------------------------------|
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
|                                      |   |                                    |
| <b>TOTAL</b>                         |   |                                    |

### NOTES

- The cash flow by quarter and payment schedule should be consistent with the Bar Chart and S-curb.
- Payment schedule shall not be more than once a month.

\_\_\_\_\_  
Signature  
(Authorized Signing Official)

## Contract Agreement Form for the Procurement of Infrastructure Projects (Revised)

*[not required to be submitted with the Bid, but it shall be submitted within ten (10) days after receiving the Notice of Award]*

### CONTRACT AGREEMENT

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ between Philippine Ports Authority with principal office at PPA Building, Bonifacio Drive, South Harbor, Port Area, Manila (hereinafter called the "Entity") and [name and address of Contractor] (hereinafter called the "Contractor").

WHEREAS, the Entity is desirous that the Contractor execute [name and identification number of contract] (hereinafter called "the Works") and the Entity has accepted the Bid for [contract price in words and figures in specified currency] by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

#### NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents as required by the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184 shall be deemed to form and be read and construed as part of this Agreement, viz.:

- a. Philippine Bidding Documents (PBDs);
  - i. Drawings/Plans;
  - ii. Specifications;
  - iii. Bill of Quantities;
  - iv. General and Special Conditions of Contract;
  - v. Supplemental or Bid Bulletins, if any;
- b. Winning bidder's bid, including the Eligibility requirements, Technical and Financial Proposals, and all other documents or statements submitted;

Bid form, including all the documents/statements contained in the Bidder's bidding envelopes, as annexes, and all other documents submitted (e.g., Bidder's response to request for clarifications on the bid), including corrections to the bid, if any, resulting from the Procuring Entity's bid evaluation;

- c. Performance Security;
- d. Notice of Award of Contract and the Bidder's conforme thereto; and
- e. Other contract documents that may be required by existing laws and/or the Procuring Entity concerned in the PBDs. Winning bidder agrees that additional contract documents or information prescribed by the GPPB that are subsequently required for submission after the contract execution, such as

**the Notice to Proceed, Variation Orders, and Warranty Security, shall likewise form part of the Contract.**

3. In consideration for the sum of [total contract price in words and figures] or such other sums as may be ascertained, [Named of the bidder] agrees to [state the object of the contract] in accordance with his/her/its Bid.
4. The Philippine Ports Authority agrees to pay the above-mentioned sum in accordance with the terms of the Bidding.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

**JAY DANIEL R. SANTIAGO**  
General Manager

for:

**Philippine Ports Authority**

**Name of Bidder/ Authorized  
Representative  
(Signatory's Legal Capacity)**

for:

**Contractor**

**Acknowledgment**

***[Format shall be based on the latest Rules on Notarial Practice]***