Name of the Project : UPGRADING OF PHILSPORTS TRACK OVAL INCLUDING PRESIDENTIAL GRANGSTAND

Location : PHILSPORTS COMPLEX, MERALCO AVE., PASIG CITY

Date Prepared : **FEBRUARY 18, 2019**

Subject : **TECHNICAL SPECIFICATIONS**

I. OBJECTIVE

The basic objective of the project is to upgrade the Philsports Track Oval including the Presidential Grandstand located at Philsports Complex, Meralco Avenue, Pasig City.

II. BASIC INFORMATION

Project Name : Upgrading of Philsports Track Oval including Presidential Grandstand

Location : Philsports Complex, MeralcoAvanue, Pasig City

III. APPROVED BUDGET FOR THE CONTRACT

Ninety Four Million Six Hundred Twenty Four Thousand Four Hundred Sixty Three Pesos and 47/100 (₱ 94,624,463.47)

IV. QUALIFICATIONS

The Contractor must have valid PCAB license Category A with principal classification of General Engineering.

- The Contractor must have PCAB ARCC rating of Medium B for Building.
- The Contractor must be in sound financial standing with annual turnover/gross billings of at least 50% of the ABC.
- The Contractor must have complete construction of a structure with at least contract value of 50% of the ABC.
- The Contractor must have a licensed Civil Engineer, Electrical Engineer, Mechanical Engineer, Sanitary Engineer, Materials Engineer and Safety Officers.
- All engineers must have an experience in the construction/rehabilitation of structures such as sports facilities and the like.
- The Company must have at least ten (10) years of experience in rehabilitation works.
- The company must have a specialization in rehabilitation of track oval.

V. GENERAL SPECIFICATIONS

The work shall include the supply of labor, materials, tools, equipment and services necessary to complete the subject project per approved Scope of Work, approved Construction Plans/Drawings and these Technical Specifications, which are parts of the Contract of Services, Governing Codes: Republic Act No. 9184 and its Implementing Rules and Regulations, National

Building Code of the Philippines (P.D. 1096), Philippine Electrical Code, Philippine Plumbing and Sanitary Code, Philippine Mechanical Code, and all related applicable local ordinances and regulations.

Necessary building permits, clearances or licenses including occupancy permits shall be provided by the Contractor.

The Contractor shall submit, prior to the execution of the specified works, his schedule of work expressed in PERT/CPM Network Diagram, indicating the computation of the contract time, all activities, their duration and projected percentage accomplishments/cash flow, for monitoring purposes.

For all new constructions, the Contractor shall provide new materials, fabricated products, and necessary equipment and services for all works.

For all repair or replacement works, use brand new materials, brands/models, measurements, and finishes. Major materials, products or work items, large volume or quantity items, or other expensive items that are not particularly mentioned in these specifications, shall require submission of samples, product tests, mock-up models, and selection, or approval prior to their installation or application in the project.

Sub-contracting shall only be limited to specialty work items, which require provision of special materials, methods, techniques and equipment and are subject to the approval of the Philippine Sports Commission.

The contractor shall provide full-time supervision of the works.

All materials and equipment shall be delivered to the site at designated locations within the project premises.

The Philippine Sports Commission or its authorized representative reserves the right to reject any materials or workmanship that may be found defective or not inconformity with the approved Construction Plans/Drawings and these Technical Specifications. In case where conflicts between the Construction Plans/Drawings and the Technical Specifications arise, these should be immediately being brought to the attention of the Philippine Sports Commission or its authorized representative for appropriate action.

All billings shall be subject to submission of a Statement of Account by the Contractor, including his percentage accomplishment report and photographs for inspection/evaluation and acceptance by the Philippine Sports Commission. The Contractor shall provide access to the construction areas for the convenience of the inspection team during project inspection.

Change or additional works that are necessary but were not included in the scope of work shall be subject to variation order preparation upon request and notice by the Contractor.

VI. GENERAL REQUIREMENTS

1.0 Regulatory Requirements
- 1.1 National Building Code of the Philippines
- 1.2 National Plumbing and Sanitary Code of the Philippines
- 1.3 Philippine Electrical Code
- 1.4 Philippine Mechanical Code

2.0 Submittals
- 2.1 Construction Schedules
- 2.2 Shop Drawings, Product Data and Samples, Color Swatches
- 2.3 Construction Photographs
- 2.4 Permits (when necessary)

VII. OUTLINE TECHNICAL SPECIFICATIONS

1.0 Securing/Renewal of Building Permits:

Necessary building permits, clearances, or licenses including occupancy permit shall be provided by the Contractor. The Contractor shall pay all fees and other incidental expenses.

2.0 Dismantling of existing unwanted structures:

2.1 Demolition, Removal and Dismantling

1. Before commencing any demolition, removal, and/or dismantling work, all affected electrical lines and water supply lines shall be disconnected, or shut off except such as required for use in connection with the work on site.
2. Demolish selectively and remove or dismantle carefully all components of structures indicated in the drawings necessary to prepare for renovations. All reusable materials shall be coordinated with the agency architect/engineer for reuse.
3. Store reusable parts of the structures and materials within the area. All other materials retrieved from the site shall be turned over, supported with an inventory report on quantity and description of materials, to the Philippine Sports Commission, through the agency Property Officer. Only reusable materials shall stay in the construction area. On the other hand, all unused and destroyed materials shall be supported with a Report of Waste Materials.
4. Protect and maintain structures, materials, fixtures, and utilities that are to remain within the property.

3.0 Concrete Works

3.1 General Scope

a. The work covered by this specification shall consist of furnishing all labor, materials, permits, and related miscellaneous work necessary to complete the work as specified herein or as shown on the drawings.
b. The concrete work under this specification shall include all clearing and grubbing, preparation of subgrade, furnishing and placing concrete, shouldering, and construction of fills and embankments.

c. It is the intent of these specifications that a sub-grade of uniform stability be obtained by a suitable construction method for placement of concrete.

3.2 Material

a. Delivery, Storage, and Handling:
All materials shall be so delivered, stored, and handled as to prevent the inclusion of foreign materials and the damage of materials by water or breakage. Package materials shall be delivered and stored in original packages until ready to be used. Packages or materials showing evidence of water or other damage shall be rejected.

b. Water:
Water for concrete construction shall be clean and free of oil, acids, salts, or other deleterious materials. All city water used by the Contractor shall be paid for by the Contractor.

c. Portland Cement:
   i. Portland cement shall conform to ASTM Standard Specifications C 150 Type I or Type1A latest edition.
   ii. High-Early strength Portland shall conform to ASTM Standard Specification s C 150 Type III or Type IIIA.
   iii. All cement poured under extreme heat conditions shall use ASTM Standard Specifications C-150 Type II.
   iv. White Portland Cement shall conform to U.S. Governmental Federal Specifications SS- C-181 latest edition.

d. Sand (or Fine Aggregate):
   i. It shall be well graded from coarse to fine aggregate and not contain more than 1% clay or 1% coal or lignite when tested according ASTM methods.

   ii. All fine aggregate shall conform to the following requirements:

SIEVE SIZE	**% PASSING**
3/8 inch	100%
No. 4	95-100%
No. 16	45-80%
No. 50	5-30%
No. 100	0-10%

e. Coarse Aggregate:

   i. Coarse Aggregate shall be composed of hard, strong crystalline rock free form shale or other soft materials and free from any adherent coating or vegetable matter.

ii. All crushed stone or gravel for concrete work shall be well graded and shall pass the following sieve analysis.

SIEVE SIZE	% PASSING
2 inch	100%
1-1/2 inch	90-100%
1 inch	20-55%
¾ inch	0-15%
3/8 inch	0-5%
No. 4	0%

f. Base:

Unless the plans show differently, the base under all concrete work shall be a minimum of 6 inches deep and shall be constructed of selected gravel or crushed stone of such size that 100% will pass a 2 inch sieve and 98% will be retained on a No. 200 sieve. All gravel shall be uniformly graded between these limits and rolled with a 3 to 5 ton roller until no yieldingor creeping occurs under the roller.

g. Joint Sealing Materials:

For slabs or pavements exposed to the weather, asphalt filler shall be used conforming to the latest revision of AASHTO Specification M-18 Type A an approved master filler.

3.3 Forms

i. Forms shall conform to the shape, lines grade and dimensions indicated on the drawings. They shall be substantial and sufficiently tight to prevent leakage of mortar, and shall not deflect under the weight of the wet concrete or construction loads. They shall be properly braced or tied together so as to maintain position and shape, and insure the safety of workmen and passerby. All forms shall be cleaned and oiled each time they are used.

ii. Temporary openings shall be provided to facilitate cleaning and inspection immediately before depositing concrete. Forms shall be assembled in such a manner as to facilitate their removal without damage to the concrete.

iii. In the case of structures, unlined forms may be used for the face of all walls that are not exposed to view after the structure is completed. Suitable moldings, bevels, or chamfer strips shall be placed in angles. Or exposed edges of forms, to round or bevel corners or edges which may become chipped. The placement of such chamfer or bevel strips shall be directed by the Engineer.

iv. Plywood panel forms or steel forms may be used with the approval of the Engineer.

v. When the inside is erected and reinforcing is in place, the Engineer shall be notified and the outside form shall not be placed until work and reinforcing already done has been approved.

vi. Forms shall not be disturbed until the concrete has hardened adequately to carry its own weight and other loads that may occur.

3.4 Form Ties

Form ties approved by the engineer shall be used. These ties shall be adjustable in length and of such types as to leave no metal closer than one and one-half inches of the concrete surface. Ties shall not be fitted with any lugs, cones, washers, or other devices to act as a spreader within the form which will leave a hole larger than seven-eighths inch in diameter. Wire ties will not be permitted unless the engineer gives a written order.

Ties that are to be pulled form the wall shall be coated with cup grease or other approved material to facilitate removal. Tie rod holes shall be properly plugged.

3.5 Oiling forms

The inside surface of wood forms shall be oiled before any concrete is placed. All forms shall be greased with an approved form oil or with a good grade cup grease thinned with kerosene. All excess grease shall be wiped off with rags to leave the surface of the forms just oily to the touch.

7.6 Removing Forms

All wall forms shall be removed when the concrete has thoroughly hardened, but in no case in less than 4 days except when High-Early-Strength cement is used, in which forms may be removed after 2 days. Other forms and shorings shall remain undisturbed until the concrete has attained sufficient strength to sustain its own weight in addition to any temporary or permanent load that may be placed on it during construction.

7.7 Proportioning

The proportions specified are based on surface dry aggregate, and Portland cement in standard unopened cloth or paper sacks as packed by the manufacturer considered as weighing 94 pounds per sack.

All measurements of cement fine and coarse aggregate shall be made separately. Measurements shall be based on the weight of actual dry loose weight per cubic foot of fine and coarse aggregates used. Weighing equipment shall be

arranged to permit making compensation for changes in the weight of aggregates due to moisture. Weighing equipment shall be accurate within 1% and meet the approval of the Engineer.

Water shall be measured in an approved device capable of accurately measuring one pint plus or minus of the total amount of water required per batch.

All concrete shall be proportioned on the basis of water-cement ratio, which is defined as the ratio of the total quantity of water in the mixture, including moisture carried by the aggregate, to the quantity of cement. The ratio is expressed in U.S. gallons (8-1/3 pounds to the gallon) of water per 94 pounds each of cement.

The mix shall be as dry as possible to work the concrete. In no case shall there be more than 6-1/2 gallons of water per bag of cement used.

Moisture in the aggregate shall be measured by a method satisfactory to the Engineer, and will give results within one pound for each 100 pounds of aggregate.

The proportioning of fine and coarse aggregate shall be such that the ratio of coarse to fine shall be no less than 1 to 1 or more than 2 to 1. The aggregate shall be obtained from a source, which will insure uniform quality, gradation, and moisture content during any single days operation.

The proportioning of fine and coarse aggregate may be varied with the approval of the Engineer, but in no case shall the sum of their volumes exceed that called for nor shall the 28-day strength of the concrete fall below the following:

Type or Location of Construction	Min. Comp. Psi at 28 Days	Min. Cement bags per cubic yards
Foundations, columns, beams and slabs not Exposed to weather or freezing.	3000	5.0
Foundation walls, exterior walls and other Concrete work exposed to weather or freezing	4000	6.0*
Concrete floors and stairs subject to heavy foot traffic	4000	6.0*
Driveways, walks, garage floors, porches, etc., Exposed to weathering or freezing	4000	6.0*

**Air-entrained concrete only.

The air content of the concrete shall be 6% plus or minus 1% by volume based on measurements made on concrete immediately after discharge from the mixer in accordance with ASTM, C-138, C-173 or C-231.

3.8 Mixing

Concrete shall be mixed in a batch mixer for not less than 1-1/2 minutes after all the materials are in the mixer drum. Mixing shall continue until there is a uniform distribution of materials and the mass is homogenous in consistency and color. The mixer shall rotate at a peripheral speed of about 200 feet per minute. Mixer shall be equipped with a locked timing and locked water- measuring device.

No hand mixing or re-tempered concrete will be allowed.

A full size trial batch shall be made using the aggregates and correct proportions selected for the job. If the desired workability is not obtained, then the proportions of aggregates shall be adjusted until the mix meets the approval of the Engineer.

3.9 Central or Transit Mixed Concrete

Concrete from a central plant or mixed in transit mixer trucks may be used if it complies with these specifications. The Engineer will have free access to the batching plant and mixing plant at all times to sample all materials and inspect the work performed for this project. Concrete shall be delivered in watertight containers, which will not permit segregation of materials. When delivered, the concrete shall be uniform throughout the mass.

Cement used in transit mixed concrete shall be the same brand and type throughout the project. If, in the opinion of the Engineer, the transit mix concrete has excessive amounts of lumpy concrete, it shall be removed from the site immediately. Transit mix concrete shall not be in the truck or hopper more than 60 minutes after batch is started.

3.10 Preparations for Placing

Before beginning a run of concrete, all water shall be removed from all trenches and foundations, all equipment and forms shall be cleaned and oiled, and reinforcement shall be cleaned of ice or other foreign coatings. Concrete shall not be placed until all reinforcement is securely and properly fastened in its correct position, no until all sleeves, hangers, pipes, conducts, bolts, or any other fixture required to be embedded therein has been placed and anchored by the Contractor. Concrete shall not be placed until the forms have been inspected and approved by the Engineer, and placed under the direct supervision of the Engineer.

3.11 Handling

Concrete shall be handled from the mixer to forms as rapidly as possible by methods, which shall prevent any separation or loss of ingredients while transporting the concrete. Concrete shall be handled from the mixer in carts, buggies, or conveyors and shall not be delivered by spout or trough or dumped with a free fall of more than 5 feet. Runway supports for buggies or delivery carts shall not bear upon reinforcing steel or fresh concrete.

3.12 Placing Concrete

Placing concrete before initial set has occurred, and in no event after it has contained its water content for more than one hour. Place all concrete on clean, damp surfaces, free from water, or upon properly consolidated fills, but never upon soft mud, dry porous earth, or frozen ground.

Deposit concrete continuously and as rapidly as practical until the unit of operation is completed. Consolidate all concrete by vibration so that the concrete is thoroughly worked around the

reinforcement, around imbedded items, and into corners of forms, eliminating all air or stone pockets which may cause honey-combing, pitting, or planes of weakness. Use mechanical vibrators with a minimum frequency of 7,000 revolutions per minute, operated by competent workmen. Use of vibrators at many points from 18 to 30 inches apart for a 5 to 10 second duration. Keep a spare vibrator on the job during all concrete placing operations.

Exercise care in placement of concrete for slabs or grade over a vapor barrier. Avoid puncturing or tearing vapor barrier during transportation and placement.

3.13 Construction Joints

The placing of concrete shall be carried on continuously between construction joints shown on the drawings. If for any reason it shall become necessary to stop the placing of concrete at places other than those indicated on the drawings, such places shall have the approval of the Engineer and the manner of making the joint shall be approved. Extra reinforcing may be required if additional construction joints are used.

The surface of the concrete shall be level whenever a run of concrete is stopped. To insure a level, straight joint on the exposed surface of the walls, a strip of 1" sheathing shall be tacked to the forms at the outside surface of the wall. The concrete shall be carried about ½" above the underside of the strip. About 1 hour after the concrete is placed, the strip shall be removed and any irregularities in the joint line shall be leveled off with a wood float and laitance shall be removed. Wherever horizontal construction joints are made, ties or bolts shall be provided 3 to 6 inches below the joint with which to tighten the forms against the hardened concrete.

Keys shall be provided between footings and foundations where shown on the plans or called for in the Special Specifications.

3.14 Depositing Against Other Concrete

Before depositing new concrete on or against concrete that has hardened, the forms shall be retightened, the surface of the hardened concrete shall be roughened as required, thoroughly cleaned of foreign matter, and moistened with water.

To insure sufficient mortar at the juncture of the hardened and the newly deposited concrete, the cleaned and moistened surface of the hardened concrete, including vertical and inclined surfaces, shall first be slushed with a coating of neat cement grout against which the new concrete shall be placed before the grout has attained its initial set. Concrete for first 6 inches of the next layer shall consist of a mix having one-half the amount of coarse aggregate in the regular mix.

3.15 Protection and Curing

Provide adequate protection against rain before and during placement and finishing of concrete. Provide adequate protective measures to maintain the temperature of the concrete as specified.

Immediately after finishing operations have been completed, the entire surface of the concrete shall be sealed by spraying thereon an impervious membrane. The liquid curing compounds shall conform to the requirements of the Standard Specifications for Liquid Membrane-Forming Compounds for Curing Concrete, AASHTO Designation, M0148, Type 2, White Pigmented. Unless a greater rate of coverage is specified by the manufacturer, it shall be at 200 square feet per gallon of curing agent. Within 30 minutes after forms are removed, the concrete shall be coated with curing compound.

In lieu of curing compound above specified, the contractor may protect the concrete from premature drying by utilizing the following methods for a period of seven days: Ponding or continuous sprinkling, absorptive mats or fabrics kept continuously wet, or covering with a non- staining polyethylene film with all joints and edges weighted to prevent wind penetration.

If High-Early-Strength Cement is used, the curing period may be reduced to three days.

3.16 Defective Work

Any concrete work not formed as shown on the plans or for any reason is out of alignment or level or shows a defective surface shall be considered as not conforming with the intent of these specifications and shall be removed form the job by the Contractor at his expense unless the Engineer grants

permission to patch the defective area which shall be done in accordance with the following procedure. Permission to patch any such area shall not be considered a waiver of the Engineer's right to require complete removal of the defective work if the patching does not, in his opinion, satisfactorily restore the quality and appearance of the surface.

Immediately after removing forms all concrete surfaces shall be inspected and any poor joints, voids, stone pockets, honeycomb, or other defective areas permitted by the Engineer to be patched and all the tie holes shall at once be patched before the concrete is thoroughly dry. Defective area shall be stripped away to a depth of not less than one inch with the edges perpendicular to the surface. The area to be patched and a space at least 6 inches wide entirely surrounding it shall be wetted to prevent absorption of water form the patching mortar. The patch shall be made of the same material and of the same proportion as used for the concrete except that the coarse aggregate shall be omitted and white cement shall be substituted for a part of the gray cement to match the color of the surrounding concrete. The amount of water used in mixing the mortar shall be as little as consistent with the requirements of handling and placing. The mortar shall be re-tempered without the addition of water by allowing it to stand for a period of one hour during which time it shall be mixed with a trowel to prevent setting.

The mortar shall be thoroughly compacted into place and screeded off so as to leave the patch slightly higher than the surrounding surface. It shall be left undisturbed for a period of 1 to 2 hours to permit initial shrinkage before being finally finished. The patch shall be finished in such a manner as to match the adjoining surface. On exposed surfaces where unlined forms have been used, the final finish shall be obtained by striking off the surface with a straight edge spanning the patch and held parallel to the direction of the form marks.

Tie holes left by withdrawal of rods or the holes left by removal of end of ties shall be filled solid with mortar. For holes passing entirely throughout he wall, a plunger type grease gun or other device shall be used to force the mortar through the wall starting at the back face. A piece of burlap or canvas shall be held over the hole on the outside and when the hole is completely filled, the excess mortar shall be struck off with the cloth flush with the surface. Holes not passing entirely through the wall shall be filled with a small tool that will permit packing the hole solid with mortar. Any excess mortar at the surface of the wall shall be struck off flush with a cloth.

3.17 Surface Finish of Concrete

General: After removal of forms, all metal devices used to tie forms together and hold them to correct alignment and location shall be removed in such a manner that no metal shall remain within less than 2 inches of the surface of

the concrete. The method of removal of such ties shall be such as not to cause excessive injury to the surface of the concrete by spalling. The Contractor shall not burn off rods, bolts, or other metal devices. After the removal of such ties, the opening shall be roughened and all concrete containing any oil removed. In cases where wire ties are used, all wires shall be cut back at least one inch from the surface of the face. Immediately after the removal of forms, all cavities produced by removal of form ties and all other holes, carefully pointed with a mixture of cement and fine aggregate mixed in the same proportions used in the concrete being treated and as of as dry a consistency as it is possible to use. Mortar used in pointing shall be not more than one hour old and shall be kept moist for a period of 24 hours after it is placed. Considerable pressure shall be applied in pointing to insure filling all voids. All joints in the completed work shall be carefully tooled and left free from mortar and concrete.

3.18 Floor Finish

The upper face of all floors shall be wood floated and twice steel troweled to a smooth hard surface while the concrete is still in a plastic condition after pouring. This surface shall be obtained insofar as possible by flushing the mortar in the concrete to the surface, although small quantities of mortar may be spread upon the concrete to assist in obtaining the proper surface finish. In all cases, the mortar and concrete shall be placed in one continuous operation in order to prevent separation of the mortar surface from the concrete. On walkways, subsequent to steel troweling, surfaces shall be slightly roughened by dragging burlap across the surface in a zigzag motion.

Ordinary Surface Finish: Except as otherwise specified, all formed surfaces shall have an ordinary surface finish. The surfaces of all concrete masonry shall be thoroughly worked during the placing of the concrete. After the forms are removed and pointing completed and after the concrete has hardened, all fins and irregularities shall be removed with a carborundum brick. Should defects appear in the final surface such that, in the judgement of the Engineer, a satisfactory surface ahs not been secured, the Engineer may order the Contractor to rub finish the surface of such sections as is necessary to produce a finished and workmanlike job.

Rubbed Surface Finish: All exposed concrete for structures shall have a rubbed surface finish. Rubbed surface finish shall be made by carefully rubbing the ordinary surface finish with a fine carborundum brick immediately after removing the forms. The first step in this process shall be to moisten the surface with water and then to immediately rub it with the carborundum brick, using light pressures and a circular motion. Rubbing shall be continued until all air holes and small depressions are filled and an excess of mulch is on the surface.

The mulch shall then be brushed out smooth with a long bristle paintbrush. After the concrete has been rubbed smooth and has set for a period of 5 to 8 days, it shall then be lightly moistened and again rubbed with a carborundum brick. Rubbing shall be continued until a smooth surface free from lumber marks and irregularities is obtained. On days when the sun is strong, rubbed surfaces shall be covered with canvas to keep the sun from drying out the surface too rapidly and thus causing checking. Before final acceptance on rubbed surfaces, all lather, powder, and dust on rubbed surfaces shall be removed by rubbing with canvas when the surface is dry.

Mechanical Finish: The concrete shall be struck off and consolidated by a self-propelled spreading and finishing machine equipped with a screen to consolidate the concrete by pressure. At least 3 inches of concrete shall be carried in front of the strike off screen. After the strike off, the surface shall have longitudinal floating with a 12 to 16 foot float. Each floated section shall overlap the previous section by 5 feet.

4.0 Masonry Works

4.1 General Scope

a. The Contractor shall furnish all labor, materials, equipment and incidentals required to construct all concrete masonry walls as shown on the drawings and as specified herein.
b. All materials to be delivered on site shall be approved first by the agency engineers and/or architects as well as for the materials that already have been delivered.
c. The work under this section shall include but not limited to the following:
    1. Concrete hollow block walls
    2. Masonry reinforcing bars for concrete blocks
    3. Grouting
d. All materials for the work of this section shall be delivered, stored, and handled so as to preclude damage of any nature. Manufactured materials, such as cement, shall be delivered and stored in their original containers, plainly marked with identification of material and maker. Materials in broken containers, or in packages showing water marks or other evidence of damage, shall not be used and shall be removed from the site.

4.2 Materials & Execution

a. Concrete hollow blocks shall be manufactured with an average minimum compressive strength of 6.9Mpa having 40% maximum moisture content.

b. Aggregate for concrete blocks shall consist of sand and evenly graded pea gravel conforming to ASTM C33.
c. Masonry mortar for setting blocks shall be in proportion of 1 part cement to 3 parts sand or as otherwise approved by agency Architect/Engineer. Mortars shall be mixed with water in an amount compatible with workability. Ingredients shall be accurately measured by volume in boxes especially constructed for the purpose by the Contractor.
d. Portland cement shall conform to ASTM C 150, Type I or PNS 07 of an approved brand.
e. Sand shall be natural and shall be retained between No.50 and No. 100 sieves.
f. Waterproofing shall be "SHELL FLINTKOTE" and "RECEGROUT SL10" brand or its approved equivalent.
g. All masonry shall be laid plumb and true to lines and built to the thickness and bond required with courses level and joints and bond uniform. Masonry shall be carried up in a uniform manner. No one portion shall be raised more than one meter above adjacent portions, except with the approval of the agency Architect/Engineer.
    1. Each unit shall be placed and shoved against the previously laid block so as to produce a well compacted vertical mortar joint for the whole shell is tied together with metal ties at 0.80 meter vertical spacing. Bends of tie and reinforcing bars shall be embedded in cells filled with mortar.
    2. All horizontal and vertical reinforcing bars shall be anchored at a minimum of 20 bar diameter into the concrete walls, columns, slabs and girders.
    3. Joints made at the intersection of block walls with structural concrete and all door, window and louver frames and where indicated shall be filled with mortar grout and pointed.
    4. Unless otherwise shown on the Drawings, install all door, window and louver frames using screws and expansion shields, and set all frames tightly against the masonry walls.

h. Concrete block walls which are to be plastered shall be laid in running bond. Joints are to left rough to assist in the bonding of plaster. Otherwise, concrete block masonry shall conform to the previous paragraph 2, Concrete Hollow Block. Control joints in plastered block walls shall be carried through the plaster. The joints shall not be plastered.

i. Concrete block walls to be tooled jointed as indicated on the Drawings shall be laid in stack bond with uniformly maintained joints not exceeding 13mm. All joints shall be tooled smooth to a stripped finish as soon as the mortar has set sufficiently. No cold-chiseling will be permitted. Finish shall be as indicated on the Drawings.

j. The Contractor shall build in all miscellaneous items specified in other sections to be set in masonry including frames, lintels, reinforcing steel, electrical boxes and fixtures, sleeves, grilles, anchors, and other miscellaneous items. All anchorage, attachments, and bonding devices shall be set so as to prevent slippage and shall be completely covered with mortar.

k. Grouting and cement mortar for setting structural columns, railings, frames in walls and where otherwise required shall be done with mortar of 1 part cement to 1 part sand. Before placing grout, thoroughly clean all surfaces. Grout shall be tamped into place with a blunt tool to fill the entire void. In the event space does not permit tamping, the Contractor shall build the necessary forms and place the grout by pouring from one side only. When grout is placed by pouring, a head of grout shall be maintained in the form. Grout shall be kept wet for three days and after the temporary supports or adjusting wedges are removed, the empty space shall be grouted and the surrounding grout pointed.

l. All exposed masonry work shall be thoroughly cleaned. Mortar smears and droppings on concrete block walls shall be dry before removal with a trowel. Masonry work may be cleaned using a mild muriatic acid solution.

5.0 Painting Works

5.1 General Scope

a. Furnish materials and equipment and perform labor required to complete all painting works of areas covered under this contract. See drawings and details for location, quantity and extent of surfaces to receive paint.
b. All materials to be delivered on site shall be approved first by the agency engineers and/or architects as well as for the materials that already have been delivered.
c. The work includes but is not limited to the following items:
    1. Touch-up Painting: of miscellaneous metal, hollows metal and frames and all other materials which may have been shop coated as may be required where the shop coats have been damaged by welding or abrasion during the handling and erection operations, also all rivets, bolts and welds which are unpainted after assembly and erection.
    2. Finish Painting: including all exposed surfaces of miscellaneous metal, hollow metal work, ferrous sheet metal and other paintable metal work, paintable wood work not shop finished; shop fabricated mechanical equipment apparatus housing, electric meters, ferrous metal gratings and covers for floor and roof drains and manholes, exposed bars and insulation piping and finished area, electric panels, conduit boxes, and switched hear, all plastered surfaces, concrete and concrete block surfaces, except in areas to be excluded; primed hardware, and all items which generally require finish painting unless specifically excluded.

d. Items not requiring protective painting or finishing:
    1. Aluminum, stainless steel and non-ferrous metal, glazed structural units, exposed aggregate wall panels, and blasted concrete marble, glass, resilient tiles, ceramic floor tiles, and plastic, laminate sprayed insulation and similar items which do not generally require painting.
    2. Shop Priming: unless otherwise noted or specified herein, the work shall not include priming or protective paint which is required to be performed at the factory or in the shop. In general, this includes the following items section of the specification; miscellaneous metal, shop fabrication or factory-built mechanical equipment, electrical equipment and accessories refer to their applicable sections of the specifications for information on these items.
    3. Factory Finished Work: unless otherwise noted of specified herein, the work shall not include finish painting of items having a factory applied finish as specified in other sections of the specifications. In general, this includes the following items; metal toilet enclosure, gate, factory finished mechanical equipment and special equipment. Refer to other applicable section of the specifications for information on these items.

e. All colors are to be selected or approved by the Architect or his authorized representative and actual color shall be supplied to the Contractor for matching. All undercoats shall be tinted to approximate the finish coat color.
f. All material shall be delivered to the job site in clean, sealed, original containers with all labels and other markings intact. Materials will be stored in the area designated and all storage areas will be kept neat, clean and locked.
g. A room or rooms in the premises shall be assigned for the storage of painting tools and materials. Protect the floor with drop cloths or building paper. Place cloth and cotton waste in covered metal containers, or destroy them at the end of each work day.
h. Every precaution will be taken by the contractor to prevent fires at the end of each day's work, all oil rags, empty containers and combustible material will be removed from the premises.
i. The Contractor will protect his own area as well as adjacent areas and materials, lawns, shrubbery and other areas not to be painted with suitable covering.
j. Works specified elsewhere such as for metal, wood, concrete and masonry.
k. Use BOYSEN or DAVIES only for all painted works.

5.2 Materials & Execution

a. Use materials of approved equal and shall be delivered on the site in the original containers with labels intact and seals unbroken.

b. The use of other brand or equal or better quality will be subject to the Architect's approval. Use materials in accordance with the manufacturer's direction printed on the labels unless otherwise approved by the Architect.
c. Use paint materials for wall and ceiling.
d. The use of ready mixed paint may be allowed in the project provided, that such paint is in accordance with the Standard Specifications No. 13 of the Philippine Government.
e. Painting Schedule: as specified hereunder or as per manufacturer's direction.
   1. Interior & Exterior Metal Surfaces
      1st coat - Primer Enamel Paint
      2nd coat - Quick Dry Enamel Paint
      3rd coat - Quick Dry Enamel Paint
      Omit first coat, except for touch-up, if metal has been shop primed.
      Primer touch-up shall be of same composition as shop primer.
   2. Concrete surface of walls, exposed ceiling and block walls.
      1st coat - Flat Latex Paint
      2nd coat - Semi-Gloss Latex Paint
      3rd coat - Semi-Gloss Latex Paint
      All concealed surfaces shall be primed coated with concrete primer.
      For concrete concealed ceilings, use finish paint with thermal insulation properties of approved quality.
   3. Gypsum Board Ceiling
      1st coat - Flat Latex Paint and Sealer
      2nd coat - Flat Latex
      3rd coat - Flat Latex
   4. Dry Wall Partition
      1st coat - Flat Wall Enamel
      2nd coat - Semi-Gloss Enamel
      3rd coat - Semi-Gloss Enamel

f. Before the start of the painting work, the painting Contractor shall prepare paint a 4 feet by 4 feet area designated by the Architect or Engineer and same be used as standard workmanship for the entire work. Samples shall be made of surface preparation, primers, stains, fillers and finish coat applications.
g. Remove all loose grit, mortar, dust, dirt, grease, oil and any other foreign matter. Treat new masonry neutralizer. Refer to manufacturer's specifications for mixing. Allow solution to dry overnight before rinsing with water to remove white residue. After surface is dried, apply concrete sealer.

h. For masonry that is unpainted and exposed to the weather for 6 months or more efflorescence may appear. Remove efflorescence by any of these methods.

i. Metal must be free from oil, grease, dust and rust. The most ideal surface preparation for rust metal is White Metal Blasting. This involves the removal of

all visible rust, mill scale, paint and contaminants, leaving the metal uniformly white or gray in appearance. This blast cleaning can be achieved by sandblasting or power grinding. This metal surface preparation should be used where maximum performance or protective coatings is necessary due to exceptionally severe conditions such as constant immersion in water or liquid chemicals. These films of rust may be removed by wire-brushing, sanding or scraping. Thicker layers of rust can be removed with the use of etching solution. Metal surfaces cleared of rust must be immediately primed with metal primers. Do not allow bright metal to be exposed to the elements for prolonged periods as rust will set in fast. Clean with paint thinner where solder flux has been used.

j. Clean thoroughly to remove dust, foreign matter; oil or grease by solvent. Light sand glossy finish of new galvanized iron; clean thoroughly and then apply direct Portland cement paint or 100% acrylic roof paint. Weathered surfaces showing thin films of rust shall be sanded or wire-brushed, cleaned; immediately thereafter, prime with red lead primer or zinc chromate primer yellow. Rust films that cannot be removed by wire-brushing or sanding will disintegrate with the use of metal etching solution; thereafter, clean surface and immediately apply metal primers as indicated above. Do not allow surfaces removed of rust exposed to the weather as rust will set in fast.

k. Wood should be clean and dry, sand to remove excessive roughness and then brush off dust. Apply a coat of white exterior wood primer on knots and sappy streaks. Apply silver finish aluminum paint over stains from wood preservatives. Countersunk nail heads (rust free) before applying primer. After primer is dried, putty small openings and minor surface defects with white plasalux putty.

l. Sand to smooth surface and then dust off. Correct minor surface imperfections. Apply applicable putties after first coat is dried. Sand lightly between coats of flat, semi-gloss paints, gloss enamels and varnished. Clean rooms of dust before applying top coats.

m. Glossy Surfaces: sand and clean surfaces thoroughly. This method will provide a “tooth” for the following coats.

n. Oil and Grease: remove oil and grease by paint thinner or wiping with rags. Change solvents and rags frequently.

o. Dirt and Foreign Matter: remove loose dirt by bristly brushes, then blow clean with air pressure or steam cleaning.

p. Employ only experienced, skilled craftsmen and apply as per manufacturer’s written instructions.

q. Paint shall be applied by a brush, roller or spray in accordance with the manufacturer's directions. All materials when brushed shall be evenly flowed on with brushed best suited for the type of materials being applied. When using roller, the covers shall be carpet velvet back of high pile sheep's wool best suited for materials and texture specified by the Architect. Sprayed paint shall be uniformly applied with suitable equipment.

r. Exposed surfaces shall mean all areas visible when all permanent or built-in fixtures, grilles, etc., are in place in all areas specified or scheduled to be painted. Painted surfaces in back of movable equipment and furniture. Paint interior surfaces of ducts where visible thru grilles, and all inside metal and plastered surfaces visible through the above specified equipment covers.

s. Access panels, electrical panels, air diffusing outlets, supply and exhaust grilles, louvers, exposed conduits, primed outlet covers, primed wall and ceiling plates and other primed items they occur unless otherwise specified in Painting Schedule. Paint the back sides of access panels, removable or hinged covers and the like. Do not paint nameplates on equipment.

t. Do not apply exterior paint in damp, rainy weather. Do not apply interior paint when in the Architect's opinion, satisfactory results cannot be obtained due to high humidity and excessive temperature.

u. Protect or remove all exposed finished hardware, lighting fixtures and accessories, glasses and the like so that these are not stayed during painting operations. Re-install them after completions of works. Tape and cover with craft paper or equal other surfaces which would be endangered by stains or paint marks. Repair any damage done. Refinish any work made necessary by defective workmanship for material or carelessness of other crafts.

v. Mix paint with proper consistency in accordance with the manufacturer's printed instructions. Apply paints evenly and smoothly without runs, sags or other defects and brush efficiently to minimize brush marks. Make edges of point adjoining other material or color sharp and clean without overlapping.

w. Do not apply final coats until other trades whose operations would be detrimental to finish painting have finished with their work in the areas to be painted and the areas have been approved for painting. Test concrete and plaster surfaces for moisture, using moisture meter reading above 15 shall not be painted.

x. Do necessary puttying on nail holes, cracks, etc. after the prime coats has been applied. Bring putty plush with adjoining surface in a neat, workmanlike manner.

y. Tinting colors for oil paint shall be colors-in-oil, ground in pure linseed oil, and of the highest grade obtainable. Colors shall be non-fading.

z. Color pigments shall be used to produce the exact shades of paint which shall conform to the approved color scheme of the building.

aa. Except as otherwise noted, color of priming coat shall be lighter that body coat and the color of the body coat lighter that finish coat. The first coat shall be white.

bb. Protect the work and adjacent work and materials at all times by a suitable covering or by other methods. Upon completion of the work, remove paint and varnish spots from floors, glass finish hardware, etc. so as to leave the premises in perfect condition, acceptable to the Owner.

cc. Finished surfaces shall be solid, even color and finished texture, free from drops, runs, lumps, brush marks, discoloration or other defects.

dd. Before final inspection, any work which has become damage or discolored shall be touched up or refinished in satisfactory manner.

6.0 Specialty Works

Supply/delivery and installation of IAAF Approved Sandwich System:

a. Sandwich system asphalt/concrete sealer
b. 10mm SBR underlay
c. 3mm PolyUrethane (PU), top layer with Red EPDM (Broadcast).
d. Total thickness 13mm - 17 mm
e. Lines and markings, logo included (PSC)

6.1 Preparation of Cement Stabilized Road Mix Base Course:

Description:

The item shall consist of a foundation for surface course composed of soil aggregate, cement and water in proper promotions, road mixed and constructed on a prepared subgrade/subbase in accordance with the specification and the lines, grades and typical cross sections shown on the plans or stablished by the Engineer. The one percent (1%) slope shall be attained before conrete paving is to be done. Base shall be at least ninety five percent (95%) FDT.

Material Requirement: (Soil Aggregate)

It shall consist of any combination of gravel, sand, silt and clay or other approved combinationof materials encountered in construction site or materials obtained from approved sources. Portland cement shall be used in the concrete slabs and other works of the project such as ceremonial cauldron with Class A mixture of concrete.

6.2 Asphalting Works: (Over concrete slab)

Bituminous prime coat shall be applied by means of a pressure distributor or hand spray at a heated temperature range of 32 degeescentegrade to 68 degrees centegrade minimum of one liter per meter square on top of concrete slab on track and at D-Sections. Paving of asphalt must be done based on required system.

Material specifications (and other woks specified by installer for the purpose of compatibility of rubber to be installed and asphalt or approved by the Dept. of Public Works and Highways (DPWH).

6.3 Spreading or laying of Hot-Mix Asphalt

After the area is prepared and the prime coat has sufficiently cured or the coat has attained the "tucky" condition, spreading and laying of hot-mix asphalt follows. The mixture delivered by dump trucks from the batching plant shall be spread by the asphalt paverand struck off to be the grade and elevation established. The asphalt paver spread the mixture in layer of desired thickness and shape or finishes the layer to the desired elevation and cross section based on desired specicifications. The paver partially compacts the material thru its built-in vibrator mounted on its screed and shall attained its tolerances of:

Level	+ 3, 0mm
Flatness	+ - 6mm under 4 meter straightedge
Flatness	+ - 3mm under 1 meter straightedge
Flatness	no step like irregularities > 1mm in height

6.4 Work Methodology on Hot-Mix Asphalt Paving (HMA)

Asphalt paving operations require careful planning and preparations. The area or Surface to be paved must be properly prepared. Vehicles and equipment must be Available and in good operating condition to provide steady flow of materials to prevent delays in the operation. Compaction pattern must be prompt and adequate to produce a high quality and durable asphalt pavement. Certain processes and methods shall be followed in the course of the hot-mix asphalt paving operation.

Finished asphalt pavement must be cured at least twenty six (26) days.

Base / Surface Preparations:

A. Well compacted ground base of at least 95% FDT.
B. Base prior to asphalt paving is concrete pavement

6.5Base / Surface Preparations:

C. Base prior to asphalt paving is concrete pavement,

D. Existing asphalt on concrete pavement:

The full width of the surface to be treated shall be cleaned of loose and foreign materials by means of power broom or power blower, supplemented as necessary by hand sweeping.

6.6Application of Bituminous Primer/Tact Coat

A. Prime Coat

Bituminous prime coat shall be applied by means of pressure distributoror hand spray at a heated temperature range of 32ºC to 68ºC. The rate of application of bituminous material shall be within the range of 1 to 2 liters per square meter or the exact rate to be ordered by the engineer. The prime coat shall be left undisturbed for a period of at least 24 hours and shall not be opened to traffic until it has penetrated and cured sufficiently. Care shall be taken that the application of bituminous material is not in excess of the specified amount any excess shall be blotted with sand or be removed.

B. Tack Coat

Bituminous tack coat shall be applied by means of pressure distributor or hand spray. The rate of application of emulsified asphalt shall be 0.3 to 0.5 liter per square meter on asphalt surface, and 0.4 to 0.6 liter per square meter on concrete surface, or as directed by the Employer's Representative. Care shall be taken that the application of bituminous material is not in excess of specified amount. Traffic shall be kept off the tack coat at all times. Tack coat shall be sprayed only so far in advance on the surface course as will permit it to dry to tacky condition, before laying the hot-mix asphalt.

For transverse joints, sawed vertical face method shall be followed. After the paver is removed and the material is ramped and compacted, the mat must be sawed before paving operation begins again. The location of the sawed face should be at least 25mm behind the point of tangency so that a true surface is available at the start. Material ahead of the sawed section is of course removed. Placing thin sand underneath the ramped section will make removal easier when paving operation is required.

Spreading and laying shall be done at the prescribed laying temperature of not less than 115 degrees C. as measured in the truck prior to dumping into the paver. Close coordination between the paving crew and the asphalt batching plant is essential in securing a satisfactory and uniform job.

C. Compaction

Rolling or compaction should start as soon as possible after the hot-mix has been spread. Rolling consist of three consecut6ive phases.

1. **Breakdown Rolling** – Compact the material beyond the compaction imparted by the paver. This is best accomplished with steel-wheeled roller. Vibratory or static-weight tandem rollers are recommended. Rolling should start on the low side of the spread usually outer side of the lane being spread. When adjoining lanes are placed, the same rolling procedure should be followed to assure proper cross slope or super elevation are maintained but only after compaction of fresh mix at longitudinal joint with 6" to 8"of rollerwidth. Rolling speed should not exceed 5km per hour.

6.8 Roofing Specification

a. Structure of the galvanized Tiles

It is made up of Organic coat, Acrylic Seal Coat, AL- zinc Coat, Base steel, AL- Zinc Coat, Epoxy Coat, Stone Chip and Acrylic Top Coat.

b. It overall length is 1340 mm
c. Length it can cover is 1280 mm
d. Its weight 2.80 kg
e. Dark Grey in color
f. Certifying Bodies (ISO 9001, ISO 1400, CE , IAF and others)

VIII. Securing of Occupancy Permit

The Occupancy building permits, clearances or licenses (when necessary) shall be provided by the Contractor. The Contractor shall pay all fees and other incidental expenses. The Contractor shall provide as-built plans/drawings (if applicable), duly accomplished construction logbook, certifications and other necessary documents to secure the Occupancy Permit in favor of the Philippine Sports Commission.

IX. Cleaning/Hauling of Wastes and Debris and Cleaning of Site

After final inspection of all the works undertaken, remove all paint stains, temporary structures, installation, unused/scrap materials, wastes and debris. Dispose of them properly.

X. GENERAL NOTES

The contractor shall be responsible in securing the necessary permits/ licenses (Building, Electrical, Mechanical, Sanitary/Plumbing, Electronics & Communication and Fire Safety) from the Local Government Units (LGU's) and other government agenciesin connection with the implementation of theUpgrading of Philsports Track Oval including the Presidential Grandstand.

Other materials and workmanship not included on the above list but found necessary to complete the work shall be for the account of the contractor.

Sub-contractor/ suppliers of major works such as concrete, asphalt, paint, etc) shall be a local or multi-national company with wholly owned Philippine subsidiary and shall have a similar local project of supply and installation of the above stated materials.

The contractor shall be responsible for the safety measures during the implementation of the project and ***must submit methodologies*** in every finishing materials required in the project.

Branded materials stated in the plans and specifications is the designer's reference of quality standards.
These products can be replaced provided that the replacement is approved of the same orhigher quality.

The contractor shall ***coordinate with PSC Project Architects, Engineers and Coordinators*** inconnection with the implementation of the project so as not to hamper with PSC operations.
The contractor is required to have the necessary and appropriate tools, instruments and equipment for the proper implementation of the project.

The contractor shall submit the as built plans to PSC after the completion of the project.

It is assumed that the bidder shall have full knowledge of the work and site condition, shall have reviewed the plans and specifications and bid documents, and thus warrants the availability of the work and materials upon submission of his bid proposal.

The contractor shall coordinate all aspects of the works in order to ensure a harmonious progress without interruptions, delays of modifications to work already completed.
The prospective bidder/ contractor shall possess and submits with the eligibility documents a valid track record in undertaking related works.

Works, supply and equipment to be used not included in the program of works that willaffect the implementation of the project should be done at no additional cost to PSC authority.

A. PREVENTION OF ACCIDENT AND PUBLIC NUISSANCE

General

The Contractor shall formulate adequate control measures in accordance with therelevant local laws and regulations regarding prevention of accidents, fires and public nuisances during the execution of the work.

The Contractor shall ensure that his workmen are aware, and shall so instruct the workmen, of good and safe working practices.

The Contractor's safety plan shall take into account, among other items, working in RestrictedAreas, Contractor's Equipment; hand held power tools; percussion guns; air compressors and hoses; electrical equipment; fuels; use of dust masks, ear protectors, safety helmets and safety lines.

Prevention of Accidents

The Contractor shall formulate a safety plan for work at the Site to provide proper protection, especially at places such as Restricted Areas.

Pollution Control

The Contractor shall take all necessary steps to minimize noise, vibration, dust, soot, and other pollution resulting from the execution of the work.

B. PERIOD OF WORK

The Contractor shall complete the work within One Hundred Twenty (120) calendar days upon receipt of the Notice to Proceed. The contractor shall work two shifts per day to finish the work on time.

C. WARRANTY PERIOD

The Contractor shall submit a surety bond for a warranty period of one (1) year on materials and workmanship.

Any item found to be defective within the aforementioned period, the contractor shall immediately replace the said item/s at their own expense and no cost to PSC.

Any damage to life and property caused by the contractor operation within the vicinity of the facility covered by the project shall be the sole responsibility of the contractor.

D. CONTRACTORS RISK AND WARRANTY SECURITY

1. The Contractor shall assume full responsibility for the works from the time of construction commenced up to final acceptance by the Procuring Entity's Representative/s and shall be held responsible for any damage or destruction of the works except those occasioned by force majeure. The Contractor shall be fully responsible for the safety, protection, security and convenience of his personnel, third parties and public at large, as well as the works, equipment, fabrication and installation and the like to be affected by his construction works and deliveries.

2. The defects liability period for installed rubber shall be five (5) years from the contract completion. The certificate of acceptance shall be issued by PSC after all defects have been corrected.

E. ACCEPTANCE OF THE PROJECT

Certificate of Acceptance will be issued upon approval of the END USER and the Head of the Procuring Entity.

Prepared by:

JOSEF CHRISTOPER G. MENDOZA
Estimator – Civil Engineer
Date: _____

KEVIN MARCH ADOR DIONISIO
Engineer II – Electrical Engineer
Date: _____

Checked/Reviewed by:

ENGR. PEDRO I. PINEDA, JR.
Head, Engineering & Maintenance Section
Date: _____

Noted By:

MR. MANUEL G. BITOG
Acting Chief, Sports Facilities Division

Recommending Approval:

DIR. MERLITA R. IBAY
OIC, Office of the Executive Director
Date: _____

Approved by:

HON. WILLIAM I. RAMIREZ
Chairman
Date: _____