


TECHNICAL SPECIFICATIONS

For


UPGRADING OF SEED STORAGE WITH COLD STORAGE

LOCATION: WESVIARC, Hamungaya, Brgy. Buntatala, Jaro,
Iloilo City

Prepared by:


JERRY B. GUANCO, ABE
Engineer II (License #007298)

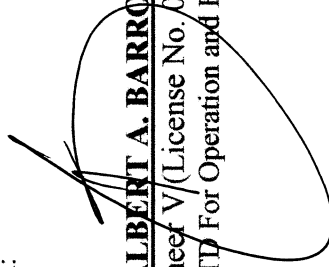
Reviewed/Checked:


YVONNE GRACE H. SUR, ABE
Engineer II (License No. 0005970)
Head, EPDSS

Recommending Approval:

MOISES D. MANA-AY, ABE, MEE
Engineer IV (License No. 0006077)
OIC-Chief, RAED

Approved:


JOSE ALBERT A. BARROGO, ABE
Engineer V (License No. 0003768)
OIC-RTD For Operation and Extensions

SPECIFICATIONS

GENERAL DESCRIPTION OF THE WORK

The work to be done and executed shall include the furnishing of labor and materials, equipment, and specialized works in the **Upgrading of Seed Storage with Cold Storage** completely as shown in the drawing, reflected in the detailed estimates and as described herein.

All works to be done shall be in the highest quality of workmanship to the fullest intent and meaning of the plans and specifications unless otherwise specified.

B.1. TEMPORARY FACILITY AND OFFICE EQUIPMENT

The contractor shall provide the temporary shelter of all workers and engineer on site, Where and when it is deemed necessary, the Contractor shall furnish lighting facilities, signs and sentry, and other safety facilities and services.

This section includes the delivery of the **3 units of Intel core i7 ,11th Gen Windows 10 pro-64-Bit ,16GB DDR4 3200MHz Memory ,17.3-inch screen size, with backlight technology and 512 GB PCIe Gen 4 SSD, 1T, ICT.** with belt-in Microsoft office.

The contractor shall deliver the said Equipment upon the issuance of the NTP. It shall be delivered with a good condition and shall conform as specified.

Basis of Payment:

The accepted quantities, measured as prescribed in Section B.1 shall be paid for at the contract unit price for the particular pay items listed above that is included in the Bill of Quantities. The payment shall constitute full compensation for providing the temporary facility and the delivery of office equipment as indicated and prescribed herein.

B.5 PROJECT BILLBOARD, SIGNAGES AND BARRICADES

The contractor shall implement the COA Circular no. 2013-004, the information and the publicity on programs/projects/ activities of government agencies. A tarpaulin signboard must be suitably framed for the outdoor display at the project location, and shall be posted as soon as the award has been made. The design and format shall conform to the plans and specification.

Basis of Payment:

Work prescribed for Billboard, signages and barricades shall not be measured and paid separately, same shall be deemed to be included in pay items for other items for work. The contractor shall be paid per lumpsum as specified in the bill of quantities.

B.7 HEALTH AND SAFETY PROGRAM

B 7.1 GENERAL

All security and health controls necessary for the execution of the Works such as but not limited to, medical facilities, manpower safety gadgets, sanitary arrangements, explosives and fuel, temporary fencing, safety precautions and fire prevention, shall be established and maintained by the Contractor at his own expense. The Contractor shall make himself responsible for all security and health controls and shall submit to the Engineer for his approval the organization and the regulations for these purposes.

The Contractor shall take all necessary precautions against risks, loss of life or of injury to any person employed on the Works or to employees of the Employer and the Engineer or to visitors or to persons having good and sufficient reasons to be about the Works, and shall properly safeguard the Works to the satisfaction of the Engineer.

The Contractor shall provide their Workers, Supervisors, Engineers, and Owner's and Engineer's representatives the necessary safety gadgets at the site such as: safety shoes, safety helmets, safety belts, gloves, goggles, gas or dust mask, and Uniforms,

The Contractor shall furthermore take all necessary precautions against damage to the property of the Employer or of others located at or adjacent to the Site. The Contractor shall at all times comply with any accident prevention, regulations and any safety regulations of local or national authorities or that shall be prescribed by the Employer.

The Contractor shall appoint a Safety Officer and hold periodical safety meetings with the Engineer and with his own supervisors and foremen. The Contractor shall report in writing within twenty-four (24) hours to the Engineer all accidents involving the death of and/or injury to any person, resulting from the Contractor's operation.

conformity with the requirements of any duly constituted medical and sanitary authority. The Contractor shall provide first aid units/stations, and shall be responsible for and bear all cost in connection with the first aid services including the use of ambulance of injured or sick employees transporting to the hospital. Such first aid services shall be provided to the Employer, the Engineer, and to their employees at the site at no cost to them. The Contractor shall make his own arrangement for treatment of casualties on the Site in

BASIS OF PAYMENT

Work prescribed for Health and safety shall not be measured and paid separately, same shall be deemed to be included in pay items for other items for work.

B.9 MOBILIZATION AND DEMOBILIZATION

Mobilization Shall include transportation to the site of Contractor's plant, materials, equipment, employees, furnishings and temporary facilities.

Mobilization, as provided in these Specifications, means preparatory work and operations, including, but not limited to, those necessary for the movement of necessary personnel, plant and equipment to the Site.

Demobilization shall include dismantling and removal from the site of Contractor's plant, materials and equipment and all temporary facilities. It shall also include cleanup of the site after completion of the Contract Work as approved by the Engineer and transportation from the site of Contractor's employees.

The Contractor shall furnish the Engineer with a resources schedule, showing in detail the sequence of proposed delivery to the Site of plant and equipment necessary to comply with the proposed construction program.

The Contractor shall keep the Engineer informed of the arrival of plant and equipment on the Site. In accordance with the Conditions of Contract, the Contractor shall not remove construction plant and equipment from the Site without the approval of the Engineer.

Basis of Payment

The quantities determined as provided above shall be paid for at the appropriate contract unit price, for each of the particular pay items shown in the Bill of Quantities which price and payment shall constitute full compensation for furnishing and maintaining such items:

Description	-----Mobilization/Demobilization
Unit of Measurement	-----Lump sum
Payment of 70% of the Lump Sum will be made monthly in the proportion that the progress of mobilization completed in a particular month bear to the total numbers of plant and equipment shown in the approved resources schedule.	
The remaining 30% of the Lump Sum will be paid upon certification by the Engineer that the demobilization of plant and equipment has been completed including site clean up to his satisfaction.	

WAREHOUSE EQUIPMENT AND OTHER ACCESSORIES

These sections contain the delivery of equipment such as:

- 1. **2 Units-** 500 kg Beam Type Platform Scale, Mechanical Double Beam Type, Patented Scale Lock, Easy Zero Balancing, Stainless Steel Weighing Indicator, Built-In Wheels,
- 2. **2 units-** RS PRO Foldable Flatbed Steel Platform Trolley, 608 x 907 x 870mm, 300kg Load(min)
- 3. **44 pcs** -HDPE Reversible Plastic pallet(36"x36"x5") (min.)

All stated above warehouse equipment shall be delivered with good quality, it shall conform with the specifications and free from any damage. If delivered defective, the contractor shall replace with new one without defects with their own expense. It shall be acceptable nor approved by the end user

BASIS OF PAYMENT

Quantity as provided in this section shall be paid for at the unit bid or contract unit price which payment shall constitute full compensation including labor of delivery, warehouse equipment as specified above and number of pieces of other accessories as indicated and incidents necessary to complete this item and shall be approved by the engineer and accepted by the end user.

800. SITE CLEARING AND REMOVAL OF AGRICULTURAL STOCKS AND OTHER OBSTRUCTION

800.1 The contractor shall be responsible for the clearing of all agricultural stocks and other obstruction inside the building and shall be hauled and transfer to the designated area wherein all stocks will be secured and free from any damage.

800.2 The contractor shall coordinate the personnel in charge with the said warehouse for the keepsake of all stocks.

BASIS OF PAYMENT

Quantity as provided in this section shall be paid for at the unit bid or contract unit price which payment shall constitute full compensation including labor of delivery, warehouse equipment as specified above and number of pieces of other accessories as indicated and incidents necessary to complete this item and shall be approved by the engineer and accepted by the end user.

Separate payment will not be made for the furnishing of plant, labor and materials in pursuance to the provisions described in this Sub-Section and the entire cost of this work shall be deemed included in the various rates and prices in the priced Bill of Quantities.

801. Demolition/Removal of Existing Delapidated Reinforced Concrete flooring with Disposal of waste materials.

801. 1 Work of this contract comprises the demolition of portion of Concrete slab on grade, deteriorated main door aluminum screen, Louver screen, and any damaged portion of the building and shall be restore as indicated on the plans.

801. 2 The Contractor shall furnish all materials, tools, equipment, devices, appurtenances, facilities, and services as required for performing the demolition and removal Work.

801.3 Remove trash and debris from the site at frequent intervals so that their presence will not delay the progress of the work or cause hazardous conditions for workers and the public.

801.4 Disposal of demolished materials shall be done accordingly and shall be coordinated to G.S of the Department of Agriculture.

BASIS OF PAYMENT

The accepted quantities, measured as prescribed in Section 801, shall be paid for at the Contract unit price or volume price bid for the Pay Items listed above that is included in the Bill of Quantities which price and payment shall be full compensation for removing and disposing of all demolished debris and obstructions, including labor, equipment, tools and incidentals necessary to complete the work prescribed in this item.

804(4) GRAVEL BEDDING

804(4). These items describe the materials to be delivered on site for the bedding on slab on grade .it shall be either crushed rock or screened gravel for bedding. Sub base shall be well compacted before putting gravel bed and prior to the installation of steel bar.

BASIS OF PAYMENT

Payment will be made under:

Pay Item No. 804(4)
Description: Gravel Bedding
Unit Measurement: Cubic Meter

903(1). FORMS AND SCAFFOLDINGS

No scaffolds shall be erected, moved, dismantles or altered except under the supervision of competent persons or the supervising engr.

Scaffolds and their components must be capable of supporting without failure 4 times the maximum intended load.

Steel scaffolding shall be used in accordance with manufacturers recommendations, proper seating and locking of all connections, using the corrective devices.

During setting up and dismantling of scaffolds, warning signs, safety Gordon and other safety measures shall be provided to ensure safety.

Forms shall be of steel or wood provided it is well fabricated and installed properly and accordingly.

BASIS OF PAYMENT

Forms and scaffoldings shall be measured and for based on lump sum involved in the complete and accepted installation and erection. Payment per lumpsum shall include cost of required materials, connectors, hardware and all incidental expenses to complete the works and accepted by the project -in -charge/engineer.

900.0 STRUCTURAL CONCRETE (Replacement of Slab on grade)

This section consists of concreting of slab on grade with 0.150m thick with a reinforcement of 10mm bar diameter spaced @0.50m O.C Both ways.

- 1.1 All materials shall be so delivered, stored and handled as to prevent the inclusion of foreign materials and the damage of the materials by water or breakage.
- 1.2 Packed materials shall be so delivered and stored in the original packages until ready for use.

- 1.3 Packages showing evidence of water or other damages shall be rejected.

- 1.4 Field Density Test shall be done prior to pouring of concrete.

2. WATER

- 2.1 Water to be use in mixing concrete shall be free from oil, alkali and organic matter on other deleterious substance and shall be reasonably clear and clean. The use of brackish water is not allowed.

3. PORTLAND/POZZOLAN CEMENT

- 3.1 Portland /Pozzolan cement shall be Apo or Holcim, or any equivalent brand in standard 40kgs.

4. FINE AGGREGATES

4.1 Fine aggregates or sand used in composition of concrete shall be clean, strong and uncoated grains, free from injurious amount of dust, lumps or flaky particles and shall not contain more than 5% clay.

5. COARSE AGGREGATES

5.1 Coarse aggregates or gravel shall be well graded as top size ranging from 6mm up to the size, which readily pass between all reinforcing bars and between reinforcement and forms.

6. CONCRETE MIXTURE

- 1. Class “A” concrete-(20Mpa concrete) slabs mixture (1:2:4).
Minimum Strength, Concrete other than fill, shall have a minimum compressive strength 28 days of 140 kg/cm2 (2000 psi).

BASIS OF PAYMENT

The accepted quantities of structural concrete completed in place will be paid for at the contract unit price for **cubic meter** as indicated on the Bill of Quantities

. Pay Item and Description: Structural Concrete

Structural Concrete - Structural Concrete

Such prices and payment shall be full compensation for furnishing all materials, including metal water stops, joints, joint fillers, weep holes, and rock backing and timber bumpers; for all form and false work; for mixing, placing, furnishing, and curing the concrete; and for all labor, materials, equipment, tools and incidentals necessary to complete the item.

902(1) REINFORCING STEEL (Grade 40)

902.1 Description

This item shall consist of furnishing, bending, fabrication and placing of steel reinforcement of the type, size, shape and grade required in accordance with this specification and conformity with the requirements shown on the Plans or as directed by the Engineer.

902.2 Material Requirements

Reinforcing steel shall meet the requirements of item 902, Reinforcing Steel and Wire Rope.

902.3.1 Order List

Before materials are ordered, all order lists and bending diagrams shall be furnished by the Contractor, for approval of the Engineer. The approval of order lists and bending diagrams by the Engineer shall in no way relieve the Contractor of responsibility for the correctness of such lists and diagrams. Any expense incident to the revisions of materials furnished in accordance with such lists and diagrams to make them comply with the Plans shall be borne by the Contractor.

902.3.2 Protection of Materials

Steel reinforcement shall be stored above the surface of the ground upon platform, skids, or other supports and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust. When placed in the work, reinforcement shall be free from dirt, detrimental rust, loose scale, paint, grease, oil, or other foreign materials. Reinforcement shall be free from injurious defects such as cracks and laminations. Rust, surface seams, surface irregularities or mill scale will not be cause for rejection, provided the minimum dimensions, cross sectional area and tensile properties of a hand wire brushed specimen meets the physical requirements for the size and grade of steel specified.

902.3.3 Bending All reinforcing bars requiring bending shall be cold-bent to the shapes shown on the Plans or required by the Engineer.

SPLICING

902.3.4 Splicing All reinforcement shall be furnished in the full lengths indicated on the Plans. Splicing of bars, except where shown on the Plans, will not be permitted without the written approval of the Engineer. Splices shall be staggered as far as possible and with a minimum separation of not less than 40 bar diameters. Not more than one-third of the bars may be spliced in the same cross-section, except where shown on the Plans.

Unless otherwise shown on the Plans, bars shall be lapped a minimum distance of:

Splice Type	Grade 40
Tension :24 bar diameter	
Compression :20 bar diameter	

In lapped splices, the bar shall be placed in contact and wired together. Lapped splices will not be permitted at locations where the concrete section is insufficient to provide minimum clear distance of one and one-third the maximum size of coarse aggregate between the splice and the nearest adjacent bar. Welding of reinforcing steel shall be done only if detailed on the Plans or if authorized by the Engineer in writing. Spiral reinforcement shall be spliced by lapping at least one and a half turns or by butt welding unless otherwise shown on the Plans. 902.3.6 Lapping of Bar Mat Sheets of mesh or bar mat reinforcement shall overlap each other sufficiently to maintain a uniform strength and shall be securely fastened at the ends and edges. The overlap shall not be less than one mesh in width.

Basis of Payment

The accepted quantity, measured as prescribed in this section shall be paid for at the contract unit price for reinforcing steel which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number: **902(1)**
Description: **Reinforcing Steel**
Unit of Measurement: **Kilograms**

1010(2) ALUMINUM SCREEN DOOR AND LOUVER:

Louver screen shall be made of high-quality stainless steel and frames shall be of 2" stainless steel flat bar bolted to wall. **Aluminum Screen Door** shall be made of high-quality aluminum with heavy duty hinges and lockset and shall be manufactured in accordance to its sizes as specified.

1010(2). 1 HARDWARE

Nails, Bolts, and nuts and any hardware shall be of standard sizes and of good quality. Door hinges, door knobs, lockset and other hardware accessories shall be of good quality.

Bas of Payment:

Aluminum Screen Door and louver shall be measured and for based on the number of square meters involved in the complete and accepted installation. Payment per square meter shall include cost of required hardware and all incidental expenses to complete the works and accepted by the project in charge/engineer.

PAINTING WORKS

1016.0 (1)b PAINTING WORKS (Waterproofing (Exterior wall, exterior and interior parapet wall, Concrete Canopy and concrete gutter)

1032(1)a (Painting Works (Masonry/Concrete)

1032(1)c (Painting Works for Steel (Container Van, Stair Ladder, steel Door, Trusses, purlins, sag rod, cross bracing, plates and other steel materials)

1. The work covered by this section of the specification consist in the proper preparation of surfaces, the furnishing of labor, materials, tools, appliances, scaffoldings and other necessary equipment and in the performing of all operations in connection with painting, varnishing, complete in accordance with color schemes and as specified therein. (Color shall be approved by the supervision engineer otherwise specified.)
2. All paint materials shall meet the requirements of the specifications by the standardization committee on supplies and shall be delivered on the job in the original containing, with labels intact and seal unbroken.
3. Tinting colors for all paints shall be colors in oil, ground and pure in linseed oil, and for the highest grade obtainable.
4. Color pigments shall be used to produce the exact shades paint, which shall conform to the approved color scheme of the building.
5. Except as otherwise noted, color of the priming coat shall be lighter than the body coat and color of the body lighter than the finished coat. The first coat shall be white.
6. Concrete surfaces shall be thoroughly cleaned, smoothly had pressed and well sandpaper before any paint or oil finished is applied.
7. Steel surfaces shall be thoroughly cleaned, application of rust converter, if necessary, shall be done before application of epoxy primer.
8. Before applying paint to concrete cement plaster or other cement finishes, etc., this surface must be allowed to dry thoroughly. Application of paint shall be of 3 coats.
9. Exterior wall shall be water proofing painted.

10. 1. Voids, cracks, nick etc. will be repaired with proper patching material and finished flushed with surrounding surfaces.
11. 2. Marred or damage shop coats on metal shall be spot primed with appropriate metal primer.

Verify that concrete surfaces are sound and clean, and that form release agents and materials used to cure the concrete are compatible with waterproofing treatment. Examine surfaces to be waterproofed for form tie holes and structural defects such as honeycombing, rock pockets, faulty construction joints and cracks. Such defects to be repaired in accordance to manufacturer's product data. Use heavy duty liquid water proofing paint and applied 30 mils thick.

Bituminous water membrane paint shall apply in concrete gutter in accordance with the manufacturer's specifications.

12. Use quality paints for all surfaces to be painted.

Basis of Payment

The quantities determined as per area shall be paid for at the appropriate contract unit price, for each of the particular pay items shown in the Bill of Quantities which price and payment shall constitute full compensation for furnishing and maintaining such items.

ACCESS ROAD

ITEM 100.0 (SITE CLEARING)

This item shall consist of clearing, grubbing, removing and disposing all vegetable and debris as designated in the contract, except those objects that are designated to remain in place or are to be removed in consonance with other provisions of this Specification. The work shall also include the preservation from injury or defacement of all objects designated to remain.

The cost incurred by the Contractor in complying with the obligation under this Section shall be paid separately as prescribed in the priced Bill of Quantities

BASIS OF PAYMENT

The accepted quantities, measured as prescribed in Section 100, shall be paid for at the Contract unit price or Area price bid for the Pay Item that is included in the Bill of Quantities which price and payment shall be full compensation for removing and disposing of all demolished debris an obstruction, including labor, equipment, tools and incidentals necessary to complete the work prescribed in this item.

ITEM 200.0 AGGREGATE SUB - BASE COURSE

Aggregate sub-base course as Item 200 which consists of furnishing, placing and compacting aggregate sub-base course on a prepared sub-base.it shall have a thickness of 0.20 meters, and compaction every 3rd layer of application. Also, a Field Density Test (FDT) must be conducted by the contractor before the scheduled pouring.

PLACING

The aggregate subbase material shall be placed at a uniform mixture on prepared subgrade in quantity which will provide the required compacted thickness. When more than one layer is required, each layer shall be shaped and compacted before the succeeding layer placed.

MATERIAL REQUIREMENTS

Aggregate for subbase shall consist of hard, durable particles or fragments of crushed stone, crushed slag, or crushed or natural gravel and filler of natural or crushed sand or other finely divided mineral matter. The composite material shall be free from vegetable matter and lumps or balls of clay, shall be of such nature that it can be compacted readily to form a firm, stable subbase.

MEASUREMENT AND BASIS OF PAYMENT

The quantity of Aggregate sub base course to be paid for shall be the volume of material compacted in place, accepted by the Engineer and formed with material obtained from any source.

Separate payment will not be made for the furnishing of labor and materials in pursuance to the provisions described in this Section and the entire cost of this work shall be deemed included in the various rates and prices in the priced Bill of Quantities

ITEM 311.0 PORTLAND CEMENT CONCRETE PAVEMENT -0.20m Thk. (With Reinforcement)

This item shall consist of pavement of Portland Cement Concrete with reinforcement, constructed on the prepared base in accordance with the specification and in conformity with lines, grades, thickness and typical cross sections shown on plans.

- a. The road network shall have a width of 4.00 meters (2.00 meters half lane), with a thickness of 0.20 meters, and a length of 80 meters
- b. The length of span for weakened plain joints will be 4.50 meters. Cutting depth will be 1/3 of the thickness of the PCCP. Cutting shall be done after 24 hours after pouring and shall be applied with asphalt sealant.
- c. 16mm diameter deformed bar with a length of 0.75m shall be installed as the tie bars every 0.60m spacing, and dowels of 36mm plain round bars spaced at 0.30 meters will be installed every 20.0m spaced at 0.40 meters on center.
- d. The PCCP shall be made with Class A Concrete Mixture with a compressive strength of 20.68 MPa (3,000 psi), and a 28-day curing period.
- e. The PCCP will also have a slope of 1.50% from center sloping to the gutters.
- f. Remove and Replace of the PCCP shall be done on the following conditions:
 1. Cracks within 1.50m from the WPJ or 1/3 of L of the span, or cracks which extended up to 3.00 meters from WPJ, or 2/3 of L of the span
 2. Transverse Cracks
 3. Scaling/Spalling occurred on the surface of the whole span of the road
 4. Please see attached plans for other details and specifications attached plans for other details and specifications.

MEASUREMENT AND BASIS OF PAYMENT

The accepted quantity, measured as prescribed in Section 311.4, shall be paid for at the contract unit price for Portland cement Concrete Pavement, which price and pavement, which price and payment shall be full compensation for preparation of roadbed and finishing of shoulders, unless otherwise provided by the Special Provisions furnishing all materials, for mixing, placing, finishing and curing all concrete, for furnishing and placing all joint materials, for sawing weakened plane joints, for fitting the prefabricated center metal point, for facilitating and controlling traffic and for furnishing all labor, equipment, tools and incidentals necessary to complete the item

Payment will be made under

Pay Item Number-----311
Description-----PCCP (Portland Cement Concrete Pavement)
Unit of Measurement-----Cubic meters

ITEM 404.0 REINFORCING STEEL (GRADE 40)

This item shall consist of furnishing, bending, fabrication and placing of steel reinforcement of the type, size, shape and grade required in accordance with this specification and conformity with the requirements shown on the Plans or as directed by the Engineer.

Spacing of placement of reinforced steel shall be of 0.60m O.C both ways.

METHOD OF MEASUREMENT

The quantity of reinforcing steel to be paid for will be the final quantity placed and accepted in the completed structure.

No allowance will be made for tie-wires, separators, wire chairs and other material used in fastening the reinforcing steel in place.

If bars are substituted upon the Contractor’s request and approved by the Engineer and as a result thereof more steel is used than specified, only the mass specified shall be measured for payment. No measurement or payment will be made for splices added by the Contractor unless directed or approved by the Engineer.

When there is no item for reinforcing steel in the Bill of Quantities, costs will be considered as incidental to the other items in the Bill of Quantities

BASIS OF PAYMENT

The accepted quantity, measured as prescribed in this section, shall be paid for at the contract unit price for Reinforcing Steel which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Pay Item Number -----404
Description ----- Reinforcing Steel
Unit of Measurement _____ Kilograms

