

## TECHNICAL SPECIFICATIONS

Name of Project: **CONSTRUCTION OF BENGUET AGRI-PINOY TRADING CENTER TRUCK PARKING AREA AND CANAL LINING**

Location: **BSU STRAWBERRY FIELDS, BETAG, LA TRINIDAD, BENGUET**

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**ITEM B.5 - PROJECT BILLBOARD / SIGNBOARD**

**Material Requirements**

**Tarpaulin**

The design and format of the tarpaulin shall have the following specifications:

- Color: White
- Size: 8 ft. x 8 ft.
- Resolution: 70 dpi
- Font: Helvetica
- Font Size of Main Information : 3 inches
- Font Size of Sub-Information : 1 inch
- Font Color : Black
- Suitable Frame : Rigid wood frame with post; and
- Posting: Outside display at the project location after award has been made.

The information shall contain but not limited to i.) logo of the funding agencies, ii.) the name of implementing agencies, iii.) name of contractor, iv.) project's title, location, cost and description, v.) project details to include duration, date started, target date of completion and project status, and vi.) COA Anti-corruption Hotline.

The display/and or affixture of the picture, image, motto, logo, color motif, initials or other symbol or graphic representation associated with the top leadership of the project proponent or implementing agency/unit/office, on project billboard, is considered unnecessary. (General Guidelines No. 2.2.6)

**Post and Frame**

Posts and frames/braces shall be made from good lumber with a 2X3 and 2x2 inches size respectively and shall be well-seasoned, straight and free of injurious defects. The frame will be covered with 2 pieces ¼ inch thick ordinary plywood where the tarpaulin will be attached.

**Method of Measurement**

The quantities of project billboard shall be in pieces of such signs of the size specified, including the necessary posts and supports erected and accepted.

**Basis of Payment**

The quantities measured as determined in the Method of Measurement, shall be paid for at the contract unit price for the Pay Items shown in the Bid Schedule which price and payment shall be full compensation for furnishing and installing project billboard, all labor, equipment, tools and incidentals necessary to complete the Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
B.5	PROJECT BILLBOARD / SIGNBOARD	EACH

**ITEM B.7 (2) – OCCUPATIONAL SAFETY AND HEALTH PROGRAM**

**B.7 (2).1 Description**

A Company Safety Policy which shall serve as the general guiding principles in the implementation of safety and health on site duly signed by the highest company official or his duly authorized representative who has the over---all control of project execution and should include the contractor's general policy towards occupational safety, worker's welfare and health, and environment.

A Safety policy, which shall include the commitment that the contractor shall comply with DOLE minimum safety requirements, including reporting requirements of the Occupational Health and Safety Standards (OSHS), and other relevant DOLE issuances. These may include, but are not limited to the following:

- a. Registration (Rule 1020 and DO 18---02)
- b. Report of Safety Committee Organization (Rule 1040)
- c. Notification of Accidents and Occupational Illnesses (Rule 1050)
- d. Annual Work Accident/Illness Exposure Data Report (Rule 1050)
- e. Application for installation of mechanical/electrical equipment for construction of structure for industrial use (Rule 1070 and 1160)
- f. Annual Medical Report (Rule 1960)

Specific Construction Safety and Health Program shall contain the tendering agency's requirements in addition to the minimum requirements under the appropriate sections of D.O. No. 13 whenever deemed as applicable.

**B.7 (2)2 Method of Measurement**

Payment shall be made on a proportional basis, calculated by multiplying the percentage rate of physical progress to the total lump sum amount every progress billing.

**B.7 (2).3 Basis of Payment**

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
B.7 (2)	OCCUPATIONAL SAFETY AND HEALTH PROGRAM	Lump sum

**ITEM B.9 – MOBILIZATION / DEMOBILIZATION**

**B.9.1 Description**

This item shall consist of the mobilization and demobilization of equipment needed for the project. In addition, this item also includes the cleaning of the project site including its surroundings before the final inspection.

**B.9.2 Method of Measurement**

The accepted quantities, measured as prescribed in section B.9.1 shall be paid for at the contract unit price for mobilization/ demobilization which price and payment shall be full compensation for furnishings and placing all materials, including all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

**B.9.3 Basis of Payment**

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
B.9	MOBILIZATION / DEMOBILIZATION	LUMP SUM

**101(2) – REMOVAL OF ACTUAL STRUCTURES/OBSTRUCTION**

**101(2). 1 Description**

This work includes furnishing of all labor, materials, and equipment required to carry out the removal, wholly or in part, and satisfactory disposal of any obstructions which are not designated or permitted to remain except for the obstruction to be removed and disposed of under other Items in the Contract.

The work include the removal of cold storage container van and accessories, embedded G.I. pipes, excavation of foundation for concrete canal and other structures not otherwise provided for in the Specifications.

The Contractor shall keep all pavements and landing areas to and from the site of the disposal area clean and free of mud, dirt and debris during and after the execution of disposal. Disposal of debris and materials shall be as directed by the Engineer.

**101(2) .2 Construction Requirements**

The removal of debris shall be carried out by approved methods and suitable equipment, skilled labor and appropriate protection works such as barricades to ensure safety in lifting and excavation works as well as in the adjacent area.

Materials coming from the demolition works, shall remain the property of the Procuring Entity, the designated part of which shall be stored by the Contractor at places specified by the Engineer’s authorized Representative.

**101(2). 3 Method of Measurement**

Payment shall be made on a proportional basis, calculated by multiplying the percentage rate of physical progress to the total lump sum amount every progress billing.

Pay Item Number	Description	Unit of Measurement
101(1)	REMOVAL OF ACTUAL STRUCTURES/OBSTRUCTIONS	SQUARE METER

**ITEM 100(2) – CLEARING AND GRUBBING**

**100(2). 1 Description**

This item shall consist of clearing, grubbing, removing and disposing all vegetation 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.

**100(2). 2. Method of Measurement**

The accepted quantities, measured as prescribed in section ITEM 1003(1)a1 1 shall be paid for at the contract unit price for clearing and grubbing works which price and payment shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

**100(2). 3. Basis of Payment**

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
100(2).	CLEARING AND GRUBBING	SQUARE METER

**ITEM 102(2) – SURPLUS COMMON EXCAVATION**

**102(2).1 Description**

This Item shall consist of the necessary excavation for foundation and septic vault of the dormitory, and other structures not otherwise provided for in the Specifications.

It shall also include the furnishing and placing of approved foundation fill material to replace unsuitable material encountered below the foundation elevation of structures.

No allowance will be made for classification of different types of material encountered.

**102(2). 2 Construction Requirements**

**102(2). 2.1 Clearing and Grubbing**

Prior to starting excavation operations in any area, all necessary clearing and grubbing in that area shall have been performed in accordance with Item 100, Clearing and Grubbing.

**102(2). 2.2 Excavation**

General, all structures. The Contractor shall notify the Engineer sufficiently in advance of the beginning of any excavation so that cross-sectional elevations and measurements may be taken on the undisturbed ground. The natural ground adjacent to the structure shall not be disturbed without permission of the Engineer.

Trenches or foundation pits for structures or structure footings shall be excavated to the lines and grades or elevations shown on the Plans or as staked by the Engineer. They shall be of sufficient size to permit the placing of structures or structure footings of the full width and length shown in the Structural Plan under Footing Schedule. The elevations of the bottoms of footings, as shown on the Plans, shall be considered as approximate only and the Engineer may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary, to secure a satisfactory foundation.

Trenches or foundation pits for structures or structure footings shall be excavated to the lines and grades or elevations shown on the Plans or as staked by the Engineer. They shall be of sufficient size to permit the placing of structures or structure footings of the full width and length shown. The elevations of the bottoms of footings, as shown on the Plans, shall be considered as approximate only and the Engineer may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary, to secure a satisfactory foundation.

102(2). 2.3 Utilization of Excavated Materials

All excavated materials, so far as suitable, shall be utilized as backfill or embankment. The surplus materials shall be disposed off in such manner as not to obstruct the stream or otherwise impair the efficiency or appearance of the Structure. No excavated materials shall be deposited at any time so as to endanger the partly finished structure.

102(2). 3. Method of Measurement

The volume of excavation to be paid for will be the number of cubic meters measured in original position of material acceptably excavated in conformity with the Plans or as directed by the Engineer:

Pay Item Number	Description	Unit of Measurement
102(2)	SURPLUS COMMON EXCAVATION	CU.M.

**ITEM 105(1)a – SUBGRADE PREPARATION**

105(1)a. 1 Description

This Item shall consist of the preparation of the subgrade for the support of overlying structural layers. It shall extend to full width of the roadway. Unless authorized by the Engineer, subgrade preparation shall not be done unless the Contractor is able to start immediately the construction of the pavement structure.

105(1)a. 2 Material Requirements

Unless otherwise stated in the Contract and except when the sub grade is in rock cut, all materials below sub grade level to a depth 150 mm or to such greater depth as may be specified shall meet the requirements of Section 104.2, Selected Borrow for Topping.

105(1)a. 3 Construction Requirements

105(1)a. 3.1 Prior Works

Prior to commencing preparation of the sub grade, all culverts, cross drains, ducts and the like (including their fully compacted backfill), ditches, drains and drainage outlets shall be completed. Any work on the preparation of the subgrade shall not be started unless prior work herein described shall have been approved by the Engineer.

105(1)a. 3.2 Subgrade Level Tolerances

The finished compacted surface of the subgrade shall conform to the allowable tolerances as specified hereunder:

Permitted variation from design LEVEL OF SURFACE	+	20 mm
Permitted SURFACE IRREGULARITY MEASURED BY 3-m STRAIGHT EDGE	-	30 mm
Permitted variation from design CROSSFALL OR CAMBER		30 mm
Permitted variation from design LONGITUDINAL GRADE	+	0.5 %
over 25 m length	±	0.1 %

105(1)a. 3.3 Subgrade in Common Excavation

Unless otherwise specified, all materials below subgrade level in earth cuts to a depth 150 mm or other depth shown on the Plans or as directed by the Engineer shall be excavated. The material, if suitable, shall be set side for future use or, if unsuitable, shall be disposed off in accordance with the requirements of Subsection 102.2.9.

Where material has been removed from below subgrade level, the resulting surface shall be compacted to a depth of 150 mm and in accordance with other requirements of Subsection 104.3.3.

All materials immediately below subgrade level in earth cuts to a depth of 150 mm, or to such greater depth as may be specified, shall be compacted in accordance with the requirements of Subsection 104.3.3.

105(1)a. 3.4 Subgrade in Rock Excavation

Surface irregularities under the subgrade level remaining after trimming of the rock excavation shall be leveled by placing specified material and compacted to the requirements of Subsection 104.3.3.

105(1)a. 3.5 Subgrade on Embankment

After the embankment has been completed, the full width shall be conditioned by removing any soft or other unstable material that will not compacted properly. The resulting areas and all other low sections, holes, or depressions shall be brought to grade with suitable material. The entire roadbed shall be shaped and compacted to the requirements of Subsections 104.3.3. Scarifying, blading, dragging, rolling, or other methods of work shall be performed or used as necessary to provide a thoroughly compacted roadbed shaped to the cross-sections shown on the Plans.

105(1)a. 3.6 Subgrade on Existing Pavement

Where the new pavement is to be constructed immediately over an existing Portland Cement concrete pavement and if so specified in the Contract the slab be broken into pieces with greatest dimension of not more than 500 mm and the existing pavement material compacted as specified in Subsection 104.3.3, as directed by the Engineer. The resulting subgrade level shall, as part pavement construction be shaped to conform to the allowable tolerances of Subsection 105.3.2 by placing and compacting where necessary a leveling course comprising the material of the pavement course to be placed immediately above.

Where the new pavement is to be constructed immediately over an existing asphalt concrete pavement or gravel surface pavement and if so specified in the Contract the pavement shall be scarified, thoroughly loosened, reshaped and recompactd in accordance with Subsection 104.3.3. The resulting subgrade level shall conform to the allowable tolerances of Subsection 105.3.2.

105(1)a. 3.7 Protection of Completed Work

The Contractor shall be required to protect and maintain at his own expense the entire work within the limits of his Contract in good condition satisfactory to the Engineer from the time he first started work until all work shall have been completed. Maintenance shall include repairing and recompacting ruts, ridges, soft spots and deteriorated sections of the subgrade caused by the traffic of the Contractor's vehicle/equipment or that of the public.

105(1)a. 4 Method of Measurement

105(1)a. 4.1. Measurement of Items for payment shall be provided only for:

1. The compaction of existing ground below subgrade level in cuts of common material as specified in Subsection 105.3.3.
2. The breaking up or scarifying, loosening, reshaping and recompacting of existing pavement as specified in Subsection 105.3.6. The quantity to be paid for shall be the area of the work specified to be carried out and accepted by the Engineer.

105.4.2. Payment for all work for the preparation of the subgrade, including shaping to the required levels and tolerances, other than as specified above shall be deemed to be included in the Pay Item for Embankment.

105(1)a. 5. Basis of Payment

The accepted work shall be paid at the unit bid price, which price and payment constitute full compensation for furnishing all materials, labor, equipment, tools and other incidental necessary to complete this Item.

Payment will made under:

Pay Item Number	Description	Unit of Measurement
105(1)a	SUBGRADE PREPARATION	SQ.M.

**ITEM 300(2)- CRUSHED AGGREGATE SURFACE COURSE, 0.15MM THK.**

300(2). 1. Description

This item shall consist of a wearing or top course composed of gravel or crushed aggregate and binder material, whichever is called for in the Bill of Quantities, constructed on a prepared base in accordance with this Specification and in conformity with the lines, grades and typical cross-sections shown on the Plans.

300(2). 2. Material Requirements

The aggregate shall consist of hard, durable particles or fragments of stone or gravel and sand or other fine mineral particles free from vegetable matter and lumps or balls of clay and of such nature that it can be compacted readily to form a firm, stable layer. It shall conform to the grading requirements shown in table 300(2).2 when tested by AASHTO T 11 and T 27.

Table 300(2). -- Grading Requirements

Sieve Designation		Mass Percent Passing			
Standard	Alternate	Grading	Grading	Grading	Grading
Mm	U. S. Standard	A	B	C	D
25	1"	100	100	100	100
9.5	3/8	50-85	60-100	-	-
4.75	No.4	35-65	50-85	55-100	70-100
2.00	No. 10	25-50	40-70	40-100	55-100
0.425	No.40	15-30	25-45	20-50	30-70
0.075	No. 200	5-20	5-20	6-20	8-25

The coarse aggregate material retained on the 2.00 mm (No.10) sieve shall have a mass percent of wear by the Los Angeles Test (AASHTO T 96) of not more than 45.

When crushed aggregate is called for in the Bill of Quantities, not less than fifty (50) mass percent of the particles retained on the 4.75 mm (No. 4) sieve shall have at least one (1) fractured face.

The fraction passing the 0.075 mm (No.200) sieve shall not be greater than two-thirds of the fraction passing the 0.425 mm (No.40) sieve. The fraction passing the 0.425 mm (No. 40) sieve shall have a liquid limit not greater than 35 and a plasticity index range of 4 to 9, when tested by AASHTO T 89 and T 90, respectively.

Materials for gravel surface course and crushed aggregate surface course shall have a soaked CBR Value of not less than 25% and 80% respectively as determined by AASHTO T 193. The CBR Value shall be obtained at the maximum dry density and determined by AASHTO T 180, Method D.

300(2).3. Construction Requirements

300(2).3.1. Placing

Aggregate surface course shall be placed in accordance with the requirements of Item 201, Aggregate Base Course.

300(2).3.2. Compacting Requirements

Aggregate surface course shall be compacted in accordance with the requirements of Item 201, Aggregate Base Course.

300(2).3.3. Trial Sections

Trial sections shall be carried out for aggregate surface course in accordance with the requirements of Item 201, Aggregate Base Course.

300(2).3.4. Surface Course Thickness and Tolerances

The aggregate surface course shall be laid to the designed level and transverse slopes shown on the Plans. The allowable tolerances shall be as specified hereunder:

Permitted variation from design THICKNESS OF LAYER	+15 mm - 5 mm
Permitted variation from design LEVEL OF SURFACE	+15 mm - 5 mm
Permitted SURFACE IRREGULARITY Measured by 3-m straight-edge	5 mm
Permitted variation from design CROSSFALL OR CAMBER	+0.2%
Permitted variation from design LONGITUDINAL GRADE over 25 m in length	+0.1%

300(2). 4. Method of Measurement

Aggregate surface course shall be measured by the cubic metre (m3). The quantity to be paid for shall be the number of cubic metres of aggregate including all filler, placed, compacted and accepted in the completed course. No allowance will be given for material placed outside the design limits shown on the cross-sections. Trial sections shall not be measured separately but shall be included in the quantities as measured above.

300(2). 5. Basis of Payment

The accepted quantity, measured as prescribed in Section 300(2).4 shall be paid for at the contract unit price for Aggregate Surface Course which price and payment shall constitute full compensation for furnishing, handling, placing, watering, and rolling all materials, including all labor and equipment, tools and incidentals necessary to complete this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
300(2)	CRUSHED AGGREGATE SURFACE COURSE, 0.15M THK.	SQ.M.

**ITEM 500(3)b1 – LINED CANAL**

500(3)b1. 1. Description

This item shall consist of the construction of rectangular concrete canal in accordance with this Specification and in conformity with the lines and grades shown on the Plans or as established by the Engineer.

500(3)b1. 2. Construction Requirements

Construction requirements shall be in accordance whenever applicable, with Section 500.3 of DPWH: Standard Specifications for Highways, Bridges, and Airports (2013).

500(3)b1. 3. Method of Measurement and Basis of Payment

The accepted quantity, measured as prescribed, shall be paid for at the contract unit price for the pay item listed below that is included in the Bill of Quantities, which price and payment shall constitute full compensation for all the works and incidentals prescribe in this Item:

Pay Item Number	Description	Unit of Measurement
500(3)b1	LINED CANAL	L.M.