DEPARTMENT OF PUBLIC WORKS AND
OFFICE OF THE SECRETARY
Manila

June 02, 2020

MEMORANDUM

FOR : **MARK A. VILLAR**
Secretary
This Department

This refers to the memorandum dated 26 May 2020 of **DPWH Region XI Director ALLAN S. BORROMEO** requesting for the approval of the Modification of the hereunder project covered by CY 2020 General Appropriation Act (GAA), to wit;

As per GAA/Original			*As Modified*		
Project Description					
UACS No. 300116202217000 **Project ID : P00444758MN** Local Program - Local Roads and Bridges - Local Roads - Construction / Repair / Rehabilitation / Improvement of Various Infrastructure including Local Projects Davao City Coastal Bypass Rd. (Bago Aplaya - Times Beach - Roxas Avenue), Davao City			Local Program - Local Roads and Bridges - Local Roads - Construction / Repair / Rehabilitation / Improvement of Various Infrastructure including Local Projects Davao City Coastal Bypass Rd. (Bago Aplaya - Times Beach - Roxas Avenue), Davao City		
Type of Work/ Physical Target	**Unit Cost**	**Allocation**	**Type of Work/ Physical Target**	**Unit Cost**	**Estimated Cost**
CW1 – Construction of Concrete Road 1.100 lane km	₱ 219,318,181.82/ lane km	₱ 241,250,000.00	CW1 – Construction of Concrete Road 1.246 lane km	₱ 198,169,110.00/ lane km ₱396 M/Km.	₱ 246,918,711.05
CW2 – Construction of Asphalt Road 9.040 lane km	₱ 166,320,914.05/ lane km	₱1,503,541,063.00	CW2 – Construction of Asphalt Road 12.04156 lane km	₱ 86,156,309.49/ lane km ₱172 M/Km	₱ 1,037,456,370.12
CW3 – Construction of Gravel Road 1.200 lane km	₱ 281,458,333.33/ lane km	₱ 337,750,000.00	CW3 – Construction of Gravel Road 1.200 lane km	₱ 312,500,000.00/ lane km ₱624 M/Km	₱ 375,000,000.00
CW4 – Construction of Substructure 1 bridge	₱ 810,600,000.00/ bridge	₱ 810,600,000.00	CW4 – Construction of Substructure 1 bridge	₱ 840,000,000.00/ bridge	₱ 840,000,000.00
CW5 – Construction of Concrete Bridge 585.900 sq.m.	₱ 92,234.17 / sq.m.	₱ 54,040,000.00	CW5 – Construction of Concrete Bridge 585.900 sq.m.	₱ 105,405.12/ sq.m.	₱ 61,756,857.26
CW6 – Construction of Concrete Bridge 585.900 sq.m.	₱ 92,234.17 / sq.m.	₱ 54,040,000.00	CW6 – Construction of Concrete Bridge 585.900 sq.m.	₱ 105,667.18/ sq.m.	₱ 61,910,399.31

Type of Work/ Physical Target	Unit Cost	Allocation	Type of Work/ Physical Target	Unit Cost	Estimated Cost
CW7 - Construction of Concrete Bridge 585.900 sq.m.	₱ 92,234.17/ sq.m.	₱ 54,040,000.00	CW7 - Construction of Concrete Bridge 585.900 sq.m.	₱ 107,277.24/ sq.m.	₱ 62,853,732.45
CW8 - Construction of Concrete Bridge 585.900 sq.m.	₱ 92,234.17 / sq.m.	₱ 54,040,000.00	CW8 - Construction of Concrete Bridge 585.900 sq.m.	₱ 107,277.24/ sq.m.	₱ 62,853,732.45
CW9 – Construction of Road Slope Protection Structure 31,640.000 sq.m.	₱ 55,601.15 / sq.m.	₱ 1,759,220,437.00	CW9 – Construction of Road Slope Protection Structure 37,464.160 sq.m.	₱ 53,386.23 / sq.m.	₱2,000,070,367.36
CW10 – Construction of Other Facilities 1 facility	₱ 409,968,670.00/ facility	₱ 409,968,670.00	CW10 – Construction of Other Facilities 1 facility	₱ 300,000,000.00/ facility	₱ 300,000,000.00
			ROW Acquisition 5,693.78 sq.m.	₱ 41,800.00/ sq.m.	₱ 238,000,000.00
EAO	-	₱ 191,447,830.00	EAO	-	₱ 183,117,830.00
	Total	**₱ 5,469,938,000.00**		Total	**₱ 5,469,938,000.00**

Justification:

Modification in physical targets and component costs were due to the following:

- CW1: Increase in physical target for construction of concrete road from 1.100 lane km to 1.246 lane km and with increase in component cost but with lower unit cost:
  - Construction of concrete road (15.4m) includes construction of RCBC. The design height of the pile foundation of RCBC is 20m instead of the anticipated 25m and depth of box culvert as per design is 3.3m instead of the anticipated 3.8m, hence, lower unit cost (See attached typical drawing detail/cross-section); and
  - There is a need to extend the length of the box culvert to tap with existing pumping station in the area to provide an outfall for run-off waters, hence, also increase in length for concreting and correspondingly increase in component cost.
- CW2: Increase in physical target for construction of asphalt road from 9.04 lane km to 12.042 lane km but with decrease in component cost and unit cost since as per design, average height for embankment for road is 5m instead of the anticipated 7m since location of the road is closer to the coastal area. Hence, project limits was extended to cover adjacent section which also needs construction of asphalt road. The road component covers the construction of 4-lane (15.4m) 100mm thick asphalt pavement [with Anti-Rutting Additive (ARA)] and construction of sidewalk, curb and gutter, and bicycle lane. The entire width of the road including off-carriageway is 24.94m or almost equivalent to a 7-lane road. Also, scope of work includes grouted riprap slope protection, concrete fence including post, roadway lighting, drainage structures especially concrete, clay, plastic and fiber pipe or high density polyethylene pipe (HDPE) for the outfall, and considerable earthworks (embankment from borrow with drainage and separation geotextiles). *See attached typical drawing detail/cross-section.*
- CW3: No change in physical target for construction of gravel road (partial embankment) but with increase in component cost:-
  - The gravel road forms part of the approaches of the bridge. The proposed designed finish gradeline for the bridge is about 12.37m to attain the designed gradeline of the bridge, hence, requires very massive embankment. The partial embankment has an average height of 4m with up to top width of 40m and base width of 48m. Also, this requires unsuitable excavation of 22, 405.4 cu.m. In addition, this involves construction of 1.5m diameter bored piles at Abutment A; and

- Moreover, this gravel road (partial embankment) requires huge volume of 62,232.10 cu.m. of backfill sand. This also includes separation geotextile (basal reinforcement woven geotextiles) with an area of 6,960 sq.m., drainage geotextiles (biaxial separation and protection non-woven geotextile for geotube) with an area of 6,990.00 sq.m. and hydraulic filter (geotextile tube) to withstand pressures/forces as well as for stability against sea waves (*See attached typical drawing detail/cross-section*).

- CW4: Increase in component cost for construction of substructure in order to complete all the remaining works for the substructure such as construction of all remaining bored piles at Pier 1-7 including its testing and provision of steel craneway with platforms. Original component amount covers only portion of the construction of the bored piles (*See attached typical drawing detail/cross-section*).
- CW5, CW6, CW7 and CW8: No change in physical target for construction of concrete bridge but with increase in component cost. The design used for earthquake analysis (near source factor used is 0.7 instead of 0.3) was based on the New Metro Davao Earthquake Model inasmuch as there are new identified fault lines located near the proposed coastal road brought about by the recent earthquakes in Mindanao. With this, design requires a stronger, more structurally stable and resilient bridge structure which requires bored piles (1.20m dia) with height of 35m instead of the anticipated 30m, prestressed structural concrete members (30m, Type IV-B, I-Girders) and construction of abutment protection using steel sheet piles (8 meter high, Z type) including construction of craneway (*See attached plan and elevation and typical drawing detail/cross-section*).
- CW9: Increase in physical target for road slope protection structure from 31,640 sq.m. to 37,464.160 sq.m. and with increase in component cost but with lower unit cost since as per design, the average height for embankment for the structure (both sides) is 7m instead of the anticipated 8m since location of the road is closer to the coastline. In addition, the length of the asphalt road was extended to cover the adjacent section which also need asphalting, correspondingly, the need to extend also the length for slope protection to protect the road from settlement. This project component involves the construction of seawall with wave deflector, installation of separation and drainage geotextile, installation of geotube, placing of backfill sand, construction of rubble concrete and hexapods, construction of steel sheet piles with pile cap (6m high), concrete blocks for toe protection, construction of causeway and retaining wall (*See attached typical drawing detail/cross-section*).
- CW10: Decrease in component cost for construction of other facilities (esplanade/site development, partial embankment) in order to augment the needed cost for ROW acquisition along the bypass road (*See attached typical drawing detail/cross section*);
- ROW: With additional/new component (ROW Acquisition):
  - The alignment of the road will end at Roxas exit which is located within a highly urbanized area in Davao City where a number of residential and commercial buildings are situated, hence, the need for payment for ROW acquisition/affected improvements in order to ensure the smooth implementation of the project;
  - Considerable cost for ROW Acquisition due to the number of commercial buildings that will be affected which have higher zonal and fair market values compared to other classification such as residential areas.
- EAO: Change in component cost for EAO due to the inclusion of payment for ROW Acquisition in the project components

Attached for ready reference is the Cost Comparison of the proposed and previously approved costs and quantities of the sections/packages (per year) for the same project with explanation for the decrease/increase in cost and/or quantities.

Based on our evaluation of the submitted documents, the request for modification of the said project is in order, hence, it is respectfully recommended to the Secretary for his consideration and approval. Please see Memorandum dated Sept 4, 2020 & the Legal Dvsn justifying the certify of reasonableness of the cost per component.

DIMAS S. SOGUILON, CESO I
Undersecretary for Regional Operations in Mindanao

APPROVED/DISAPPROVED:

MARK A. VILLAR
Secretary

2.3 aap/AVS/DSS

Department of Public Works and Highways
Office of the Secretary
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