

Republic of the Philippines DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

OFFICE OF THE SECRETARY

Manila

September 05, 2022

MEMORANDUM

TO

KHADAFFY D. TANGGOL

Regional Director DPWH-CAR

Engineer's Hill, Baguio City

Transmitted herewith are the **APPROVED** requests for **modification** of the hereunder stated projects:

- 1. OO1: Ensure Safe and Reliable National Road System Asset Preservation Rehabilitation/ Reconstruction of National Roads with Slips, Slope Collapse, and Landslide Tertiary Roads *along Claveria CalanasanKabugao Rd K0646 + 450 K0646 + 472 - - - - P96,552,000.00.*
- 2. OO1: Ensure Safe and Reliable National Road System Asset Preservation Rehabilitation/ Reconstruction of National Roads with Slips, Slope Collapse, and Landslide Tertiary Roads *Jct Talubin-Barlig-Natonin-Paracelis-Calaccad Rd K0380 + 1112 K0380 + 1295 - - - - P175,000,000.00.*
- 3. OO1: Ensure Safe and Reliable National Road System Asset Preservation Rehabilitation/ Reconstruction of National Roads with Slips, Slope Collapse, and Landslide Secondary Roads Banaue-Mayoyao-A Lista-Isabela Bdry Rd K0350 + 650 K0350 + 760 - - - - **P85,905,000.00.**
- 4. OO1: Ensure Safe and Reliable National Road System Asset Preservation Rehabilitation/ Reconstruction of National Roads with Slips, Slope Collapse, and Landslide Secondary Roads *Mt Prov-Cagayan via Tabuk-Enrile Rd K0418 + 580 K0418 + 623, K0418 + 780 K0418 + 898 - - - P150,000,000.00.*
- 6. OO1: Ensure Safe and Reliable National Road System Asset Preservation Rehabilitation/ Reconstruction of National Roads with Slips, Slope Collapse, and Landslide Secondary Roads *Mt Prov-Cagayan via Tabuk-Enrile Rd K0406 + 453 K0406 + 692 - - - - P300,000,000.00.*
- 7. OO1: Ensure Safe and Reliable National Road System Asset Preservation Rehabilitation/ Reconstruction of National Roads with Slips, Slope Collapse, and Landslide Tertiary Roads Gov. Bado Dangwa National Rd K0319 + 572 K0319 + 736 - - - - P120,000,000.00.

Please be reminded that all approved modifications **shall be posted in the DPWH website within five (5) days** from its approval. Failure to comply with this requirement shall be dealt with accordingly.

Under ecretary for Regional Operations in CAR, Regions I, II, IX, X, XI, XII and XIII

2.3 aap/AVS/AGC/ERP



Republic of the Philippines DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

OFFICE OF THE SECRETARY

Manila

July 28, 2022

MEMORANDUM

FOR

MANUEL M. BONOAN

Secretary

As per GAA/Original

This Department

This refers to the memorandum dated July 7, 2022of **DPWH CAR Regional Director KHADAFFY D. TANGGOL,** requesting for the approval of the **Remodification** of the project under FY 2022 General Appropriation Act (GAA), to wit;

As Modified

710	per onny origin	ilea:		715 T TOUTH CO			
		Project D	escription				
UACS No.: 31 Project ID: Po	L010810076700 00604218LZ	00					
OO1: Ensure Safe and Reliable National Road System			OO1: Ensure Sa System	OO1: Ensure Safe and Reliable National Road System			
Reconstruction	onstruction of National Roads with Slips, Reconstruction of National Roads wit e Collapse, and Landslide - Secondary Slope Collapse, and Landslide - Se			ads with Slips,			
Banaue-Mayoyao-A Lista-Isabela Bdry Rd - K0350 + 660 - K0350 + 775			Banaue-Mayoyao-A Lista-Isabela Bdry Rd - K0350 + 650 - K0350 + 760				
Physical Target	Unit Cost P ('000)	Allocation P ('000)	Physical Unit Cost Cost Target P ('000) Estima				
CW1 Construction of Road Slope Protection Structure: 4,772.500 Square meters	₽17,370.00 / Square meters	₽ 82,898.325	CW1 Construction of Road Slope Protection Structure: 3,140.000 Square meters		₽ 82,898.325		
EAO	-	₽ 3,006.675	EAO	-	₽ 3,006.675		
	Total:	₽85,905.000		Total:	₽ 85,905.000		
Justification:							

Justification:

- The revised station limit reflects the exact section that requires immediate slope mitigation due to its susceptibility to soil/ rock collapse.
- The decrease from 4,772.500 square meters to 3,140.000 square meters in the physical target is due to the decrease in length of the structure and the decrease in average slant height from 42 meters to 28 meters based on the result of the stability analysis.



UACS No.: 310108100767000 Project ID: P00604218LZ

Page 2 of 2

• The increase in unit cost is due to the design length of 5-meter permanent ground anchors, as recommended in the design analysis. Also, the utilization of the prevailing construction material cost of system components of the Active Protection System contributed to the increase in unit cost thereon causing a deduction in the target area of the proposed slope mitigation.

• The derived unit cost is based on the approved Detailed Unit Price Analysis and Program of Work which consider the lowest canvass cost for high tensile wire mesh, with joint rod,

wire rope, rope grips, coupling coil, pin anchors, and cross clips/ anchors.

 See attached Certificate of Reasonableness of Estimates approved by the Regional Director.

• See also the attached evaluation of the Bureau of Construction on the project's unit cost.

Based on our evaluation, the submitted request for **remodification** of the said project is in order. It is recommended for its approval, and thereby, supersedes the first modification dated **March 24**, 2022.

ADOR G. CANLAS

Assistant Secretary for Regional Operations Regions I, II, CAR, IX, X, XI, XII and XIII

APPROVED/DISAPPROVED:

3.5 dlbc/mksa/AVS/AGC

Secretary

Department of Public Works and Highways Office of the Secretary



Republic of the Philippines DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

CENTRAL OFFICE

Manila

July 27, 2022

MEMORANDUM

FOR

: Assistant Secretary ADOR G. CANLAS.

For Regional Operations in REGIONS I, II, CAR, IX, X, XI, XII & XIII

Subject

: 001: Ensure Safe and Reliable National Roads with Slips Slope Collapse and Landslide – Secondary Roads, Rehabilitation/Reconstruction of National Roads Banaue – Mayoyao A Lista –

Isabela Bdry. Road P85,905,000.00 and three (3) others.

Forwarded herewith are the result of evaluation for the above-mentioned projects which were referred to this office.

PROJECT NO. 1

The amount of Eighty Five Million Nine Hundred Five Thousand Pesos (P85,905,000.00) for $3,140.50~m^2$ of Slope Protection Structures as submitted was found to be reasonable as evaluated based on the items of work involved and its quantities as reflected in the submitted Program of Works and design plans duly approved by Regional Director, DPWH-CAR.

SCOPE OF WORK

ITEM NO.	DESCRIPTION	1-10 (Sept. 1881)	DUNT tal Cost)	PERCENT Weight (%)
Part A	Facilities for the Engineer	Р	203,439.60	0.25%
Part B	Other General Requirements	Р	1,532,726.30	1.85%
Part C	Earthworks	Р	223,796.35	0.27%
Part G	Drainage & Slope Protection Structures	Р	80,769,413.00	97.43%
Part H	Miscellaneous Structures	Р	168,028.00	0.20%
	GRAND TOTAL	Р	82,897,403.25	100.00%

Cost of slope protection per m^2 = $\frac{P82,897,403,25}{3,140.00 \text{ m}^2}$ = $\frac{P26,400.45}{m^2}$ = $\frac{P26,400.45}{m^2}$ = $\frac{P26,769,413.00}{3,140.00 \text{ m}^2}$ = $\frac{P25,722.74}{m^2}$

The estimated cost of **P26,400.45** per square meter of slope protection structures for the Rehabilitation/Reconstruction of National Roads with Slips Slope Collapse and Landslide - Secondary Roads – Banaue - Mayoyao A Lista – Isabela Bdry. Road at 3,140.00 square meter is due to design requirements which mainly involved Erosion Control Mat (Type 4), Permanent Ground Anchor, Hydroseeding and Active Wire Mesh System (High Tensile) at **97.43%** of the total project cost coupled with recent price escalation of construction materials and fuel and it is 394.50 km away to project site.

(Part A, B, C & G are excluded)

If Facilities for the Engineer, Other General Requirements, Earthworks, and Miscellaneous Structures along the stations as reflected in K0350+650 – K0350+760 per approved plans and location map of the proposed new road alignment are excluded in the computation the resulting cost is only **P25,722.74** per square meter, hence it is considered reasonable as the Unit Costs of the items of work involved are within the range of the prevailing cost of the Department.

PROJECT NO. 2

The amount of Three Hundred Million Pesos (P300,000,000.00) for 11,394.00 m² of Slope Protection Structures as submitted was found to be reasonable as evaluated based on the items of work involved and its quantities as reflected in the submitted Program of Works and design plans duly approved by Regional Director, DPWH-CAR.

SCOPE OF WORK

ITEM NO.	DESCRIPTION	100000000000000000000000000000000000000	OUNT tal Cost)	PERCENT Weight (%)
Part A	Facilities for the Engineer	Р	375,580.80	0.13%
Part B	Other General Requirements	Р	2,559,573.20	0.88%
Part C	Earthworks	Р	474,665.97	0.16%
Part D	Subbase and Base Course	Р	158,117.45	0.05%
Part E	Surface Course	Р	1,407,120.60	0.49%
Part F	Bridge Construction	Р	120,689.44	0.04%
Part G	Drainage & Slope Protection Structures	Р	284,252,869.60	98.19%
Part H	Miscellaneous Structures	Р	147,484.80	0.05%
	GRAND TOTAL	P	289,496,101.86	100.00%

Cost of slope protection per m^2 = $\frac{P289,496,101.86}{11,394.00 \text{ m}^2}$ = $\frac{P25,407.77/m^2}{11,394.00 \text{ m}^2}$ = $\frac{P284,252,869.60}{11,394.00 \text{ m}^2}$ = $\frac{P24,947.59/m^2}{11,394.00 \text{ m}^2}$

The estimated cost of **P25,407.77** per square meter of slope protection structures for the Rehabilitation/Reconstruction of National Roads with Slips Slope Collapse and Landslide - Secondary Roads – Mt. Province – Cagayan via Tabuk – Enrile Road at 11,394.00 square meter is due to design requirements which mainly involved Erosion Control Mat (Type 4), Permanent Ground Anchor, Hydroseeding and Active Wire Mesh System (High Tensile) at **98.19%** of the total project cost coupled with recent price escalation of construction materials and fuel and it is 422.48 km away to project site.

(Part A, B, C, D, E, F & H are excluded)

If Facilities for the Engineer, Other General Requirements, Earthworks, Subbase Course, Surface Course, Bridge Construction and Miscellaneous along the stations as reflected in K0406+453 – K0406+692 per approved plans and location map of the proposed new road alignment are excluded in the computation the resulting cost is only **P24,947.59** per square meter, hence it is considered reasonable as the Unit Costs of the items of work involved are within the range of the prevailing cost of the Department.

PROJECT NO. 3

The amount of Sixty Nine Million Pesos (P69,000,000.00) for 2,507.00 m² of Slope Protection Structures as submitted was found to be reasonable as evaluated based on the items of work involved and its quantities as reflected in the submitted Program of Works and design plans duly approved by Regional Director, DPWH-CAR.

SCOPE OF WORK

ITEM NO. DESCRIPTION			OUNT cal Cost)	PERCENT Weight (%)	
Part A	Facilities for the Engineer	Р	203,439.60	0.31%	
Part B	Other General Requirements	Р	1,511,469.80	2.27%	
Part C	Earthworks	Р	228,436.93	0.34%	
Part G	Drainage & Slope Protection Structures	Р	64,640,950.30	97.08%	
	GRAND TOTAL	P	66,584,296.63	100.00%	

Cost of slope protection per m ²	=	P66,584,296.83 2,507.00 m ²	=	P26,559.35/m ²
Cost per kilometer of Road (Exclude Part A, B & C)	=	P64,640,950.30 2,507.00 m ²	=	P25,784.18 m ²

The estimated cost of **P26,559.35** per square meter of slope protection structures for the Rehabilitation/Reconstruction of National Roads with Slips Slope Collapse and Landslide - Secondary Roads – Banaue - Mayoyao A Lista – Isabela Bdry. Road at 2,507.00 square meter is due to design requirements which mainly involved Erosion Control Mat (Type 4), Permanent Ground Anchor, Hydroseeding and Active Wire Mesh System (High Tensile) at **97.08%** of the total project cost coupled with recent price escalation of construction materials and fuel and it is 402.80 km away to project site.

(Part A, B & C are excluded)

If **Facilities for the Engineer, Other General Requirements and Earthworks,** along the stations as reflected in K0358+842 – K0359+047 per approved plans and location map of the proposed new road alignment are excluded in the computation the resulting cost is only **P25,784.18** per square meter, hence it is considered reasonable as the Unit Costs of the items of work involved are within the range of the prevailing cost of the Department.

PROJECT NO. 4

The amount of One Hundred Fifty Million Five Hundred Fifty Thousand Pesos (P150,550,000.00) for 5,853.04 m² of Slope Protection Structures as submitted was found to be reasonable as evaluated based on the items of work involved and its quantities as reflected in the submitted Program of Works and design plans duly approved by Regional Director, DPWH-CAR.

SCOPE OF WORK

ITEM NO.	DESCRIPTION		OUNT tal Cost)	PERCENT Weight (%)
Part A	Facilities for the Engineer	Р	281,685.60	0.19%
Part B	Other General Requirements	Р	1,787,292.50	1.23%
Part C	Earthworks	Р	417,767.82	0.29%
Part F	Bridge Construction	Р	6,171,515.37	4.25%
Part G	Drainage & Slope Protection Structures	Р	136,619,434.98	94.04%
	GRAND TOTAL	Р	145,277,696.27	100.00%

Cost of slope protection per m ²	=	P145,277,696.27 5,853.04 m ²	=	P24,820.90/m ²
Cost per kilometer of Road (Exclude Part A, B, C & F)	=	P136,619,434.98 5,853.04 m ²	=	P23,341.62/m ²

The estimated cost of **P24,820.90** per square meter of slope protection structures for the Rehabilitation/Reconstruction of Roads with Slips Slope Collapse and Landslide - Secondary Roads - Baguio - Bontoc Road, Sabangan, Mt. Province at 5,853.04 square meter is due to design requirements which mainly involved Erosion Control Mat (Type 4), Permanent Ground Anchor, Hydroseeding and Active Wire Mesh System (High Tensile) at **94.04%** of the total project cost coupled with recent price escalation of construction materials and fuel and it is 385.30 km away to project site.

(Part A, B & C are excluded)

If Facilities for the Engineer, Other General Requirements, Earthworks and Bridge Construction along the stations as reflected in K0374+120 – K0374+285 per approved plans and location map of the proposed new road alignment are excluded in the computation the resulting cost is only P23,341.62 per square meter, hence it is considered reasonable as the Unit Costs of the items of work involved are within the range of the prevailing cost of the Department.

ARISTARCO M. DOROY

OIC - Director, Bureau of Construction

Cc: Undersecretary MAXIMO L. CARVAJAL for Technical Services

6.1.1 JAM/CBC/GEC Desktop reasonableness CAR Ref. No.: 6.1-405-5550/358-02



Republic of the Philippines DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS CORDILLERA ADMINISTRATIVE REGION

Engineer's Hill, Baquio City

July 4, 2022

MEMORANDUM

FOR

: MANUEL M. BONOAN

Secretary

THRU

: ROBERTO R. BERNARDO

Undersecretary for Regional Operations

Regions I, II, III, IV-A, V & CAR

SUBJECT

: Request for the Modification of the Project: ORGANIZATIONAL OUTCOME 1: Ensure Safe and Reliable National Road System - Asset Preservation Program - Rehabilitation/ Reconstruction of Roads with Slips, Slope Collapse, and Landslide - Secondary Roads - Banaue-Mayoyao-A Lista-Isabela Bdry Rd - K0350 + 660 - K0350

+ 775

We are respectfully submitting the modification of the above project in the amount of **Eighty-Five Million Nine Hundred Five Thousand Pesos (Php 85,905,000.00)**, as indicated below:

	As per GAA/Original	As Modified
Project ID	P00604218LZ	
UACS	310108100767000	
Project Title	Banaue-Mayoyao-A Lista- Isabela Bdry Rd – K0350 + 660 - K0350 + 775	Banaue-Mayoyao-A Lista- Isabela Bdry Rd – K0350 + 650 - K0350 + 760
Physical 4,772.500 Square meters		3,140.00 Square meters

The supporting documents based on D.O. No. 37, series of 2018 are attached for your ready reference.

For the consideration of the Secretary.

KHADAFFY D. TANGGOL

Regional Director

CAR.1 CSCE/EFD/JWC/ABM

Telefax: (074) 444-6460/(074) 444-8838

E-mail address: dpwh_car@dpwh.gov.ph

		Α.	GENERAL				
1. REGION Cordillera Adminis	trative Region	2. DEO Ifugao 2nd District	t Engineering Office			VE DISTRICT IE DISTRICT)	
В.	ORIGINAL PROJEC	T	C. PROPOSED REVISED PROJECT				
4. UACS (Unified Acco	unt Code Structure as de	fined in GAA)				-	
5. Project Id P00604218LZ	/						
6. Project Category OO1: Ensure Safe a	nd Reliable National	Road System /					
7. Sub-Program (P/ Asset Preservation Roads		onstruction of Natio	onal Roads with Slips,	Slope Collaps	e, and Lan	dslide - Secondary	
8. Operating Unit Central Office			18. Operating Unit Central Office	Change subject t	o DBM appr	oval)	
9. Type of Work (En	ter Details for all Compo	nents below)	19. Type of Work (Enter Details for all Components below)				
Component ID	Type of Work		Component ID	Type of V	Type of Work		
CW1		Construction of Road Slope Protection Structure			Construction of Road Slope Protection Structure		
EAO			EAO				
10. PROJECT DESCRIPTION (as recorded in GAA) Banaue-Mayoyao-A Lista-Isabela Bdry Rd - K0350 + 660 - K0350 + 775			20. PROJECT DESCRIPTION (of the revised project) Banaue-Mayoyao-A Lista-Isabela Bdry Rd - K0350 + 650 K0350 + 760				
11. ALLOTMENT (P'000) (as recorded in GAA) 85,905			21. REVISED ESTIMATED COST (P'000) (Equal to, or lower than GAA allotment) 85,905 22. CAF (To be obtained from Financial Management office) YES				
12. PHYSICAL TARG	ET (Enter Details for all (Components below)	23. PHYSICAL TARGET (Enter Details for all Components below)			oonents below)	
Component ID	Target	Target Unit	Component ID	Target		Target Unit	
CW1	4,772.500	Square meters	CW1	3,140.000		Square meters	
EAO			EAO				
13. UNIT COST (Enter Details for all Components below)		nts below)	24. UNIT COST (Enter	Details for all Co	mponents b	elow)	
Component ID	Component Cost (P'000)	Target Unit Cost (P'000/Target Unit)	Component ID	Compone (P'000)	-	Target Unit Cost (P'000/Target Unit)	
CW1	82,898.325	17.370 /	CW1	82,898.32	5	26.401	
EAO	3,006.675		EAO	3,006.675	/		

14. PROJECT WORK LOCATION accordance with DO 65 Series 2014) Click here to enter text. Start X Start Y	M (Must be defined in strict End X End Y		ON (Must be defined in strict accordance uplete "ANNEX A" for National and LP) End X End Y			
15. ROAD CLASSIFICATION (if a Secondary Road	applicable)	26. ROAD CLASSIFICATION (if applicable) Secondary Road				
16. IMPLEMENTING OFFICE (R the original project) Regional Office CAR	ecord the Implementing Office of	27. IMPLEMENTING OFFICE (Record the Implementing Office of the proposed revised project) Regional Office CAR				
17. PROJECT IMPLEMENTATIO	ON PLAN (PIP)	28. PROJECT IMPLEMENTATI	ON PLAN (PIP)			
Planned Start Date 03/24/2022			Planned End Date 04/20/2023			
29. OVERLAP? 30. UNDER WARRANTY ☑ NO ☐ YES ☑ NO ☐ YES						
	D. ATTACHMEN	ITS & JUSTIFICATIONS				
31. PROJECT IMPACT ANALYSIS ATTACHED? (For Flood Control Projects) □ NO □ YES □ N/A 32. TECHNICAL JUSTIFICATION (Explain in detail in Bullet point format; minimum of 2 points) • The revised station limit reflects the exact section which needs immediate slope mitigation due to its susceptibility to soil/ rock collapse. • The difference in the estimated unit cost as per GAA and as per POW amounting to Php 9,031.000/sq.m. for the Construction of Slope Protection Structures of the aforementioned project is due to the recent price escalation of construction material and fuel. The basis of the said adjustments is specified in the Department Memorandum dated May 18, 2022. • Moreover, the increase in the design length of anchors, as recommended in the design analysis, which affects the unit cost of Item 513(1): Permanent Ground Anchor. • Further, the utilization of the prevailing construction material cost of system components of the Active System contributed to the variation in unit cost thereon causing a deduction in the target area of the proposed slope mitigation. • Over all, the increase in unit cost is considered reasonable as the unit cost of items of work involved are within the range of the prevailing costs of the Department.						
		Department.				
33. PHOTOS SUBMITTED □NO ⊠YES		Department.				

	35. P	REPARED BY	Y:
Name:	ERLINDA F. DOLIENTE	Position:	Chief, Planning Section
Office:	Cordillera Administrative Region	Date:	
36. REVIE	WED BY DISTRICT OFFICE (If Required)	38. REV	VIEWED BY REGIONAL OFFICE
Name: Position: Date:		Name: Position: Date:	ANGELITA B. MABITAZAN Chief, Planning and Design Division
37. RECOMM	ENDED BY DISTRICT OFFICE (If Required)	39. RE	COMMENDED BY REGIONAL OFFICE
Name:		Name:	KHADAFFY D. TANGGOL Regional Director
Date:		Date:	

UACS (Unified Account 310108100767000		as defined in GAA)				
Project Id P00604218LZ							
	40. DPW	/H OFFICE OF T	HE UNDERSECRETARI	ES FOR OPERATIONS	USE ONLY		
Category of Modific (choose one)		Category A Category B Category C Category D Adjustment	 Typographical Errors Change in Station Limits, Change in Location Change in Operating Unit Send to PS-PD to amend in does not comply with DBI 	ge in Station Limits, due to increase or decrease in budget ge in Location ge in Operating Unit (requires DBM approval)			
Primary Reason for	Request (base	ed on Category	of Modification): (ch	oose one)			
Category A	Category B		Category C	Category D	Adjustment (Must be no change to target or GAA line item)		
☐ Typographical erro on Project Description☐ Project Description needs items removed due to typo error	Work Change in due to in decrease	n station limits, crease or in budget n Physical Target	□ No such Barangay □ No such City/Municipality	Change in (IO), requiring a change in the (OU)	Typographical error on Project Component Description Typographical error on other fields not included in, or not consistent with GAA Move funds between Project Components Add/delete Project Components Change of Itemized Project Component: Various Description Location Amount Target		
		Reviewed by C	Office of the Undersec	retary for Operations			
Name:	Engr. ANTON	O Y. SOBREVIÑ	ias, Jr.				
Signature	70	74					
Position:	Project Manag	ger II					
Date:		7/28/22					
		A1 DDW/H	DI ANNUNC CEDITICE C	NET 1105 01111			
			PLANNING SERVICE O	OFFICE USE ONLY			
Category of Modifica choose one)	ation	Category B – Category C – Category D – Adjustment –	Change in Station Limits, do Change in Location Change in Operating Unit (or Send to PS-PD to amend No does not comply with DBM	1YPS	n budget		
		R	eviewed by Planning	Service			
Name:	CHRISTYBEL C	CANUEL	Name:	PETER PAUL R. COR	TEZ		
Signature		45	Signature:	Parl	11		
Position:	Regional Coord	inator ,	/ Position:	OIC – Chief, Program	ming Division		
Date:		8/3/201	Date:	, 3, 4,	5		

Annex A to Form for Modification Request

Component ID	Section ID	Start Limit LRP + Disp	End Limit LRP + Disp	Start Chainage	End Chainage	Length (m)	Type of Work	Detail Scope of Work	Target Unit	Physical Target
P00604218LZ – CW1	S00480LZ	K0350 + 650	K0350 + 760	10065	10175	110	Construction of Road Slope Protection Structure	Slope Protection Works (Rockfall Netting wiith Hydroseedin g, Erosion Control Mat and Permanent Ground Anchor(L/S))	Square meters /	3,140