

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

REGION VIII BARAS, PALO, LEYTE

C.Y. 2025 PROJECT DETAILED ENGINEERING DESIGN PLAN FOR

SIPAG - COASTAL ROADS AUGMENT RESILIENCY OF COASTAL COMMUNITIES - CONSTRUCTION OF COASTAL ROAD, BARANGAY GARDEN, POBLACION, ARTECHE, EASTERN SAMAR

STATION LIMITS: 0+000 - 0+234

NET LENGTH: 0.234 LANE KM - 4 LANES

BEGIN OF PROJECT: LAT= 12.26532793° N.

LONG= 125.37366813° E

END OF PROJECT:

LAT= 12.26693213° N.

LONG= 125.37306405° E

CW1 - Construction of Concrete Road - 0.936 LANE KM.

SUBMITTED

RECOMMENDED

MA. MARGARITA C. JUNIA. D.M. ASSISTANT REGIONAL DIRECTOR

APPROVED

EDGAR B. TABACON, CESO-IV

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REPLOYE OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO VIII
BAPAR PAJO LEYTE

SIPAG - COASTAL ROADS AUGMENT RESILIENCY OF COASTAL COMMUNITIES - CONSTRUCTION OF COASTAL ROAD, BARANGAY GANGEN, POBLACION, ARTECHE, EASTERN SAMAR EASTERN SAMAR LD

PROJECT NAME AND LOCATION

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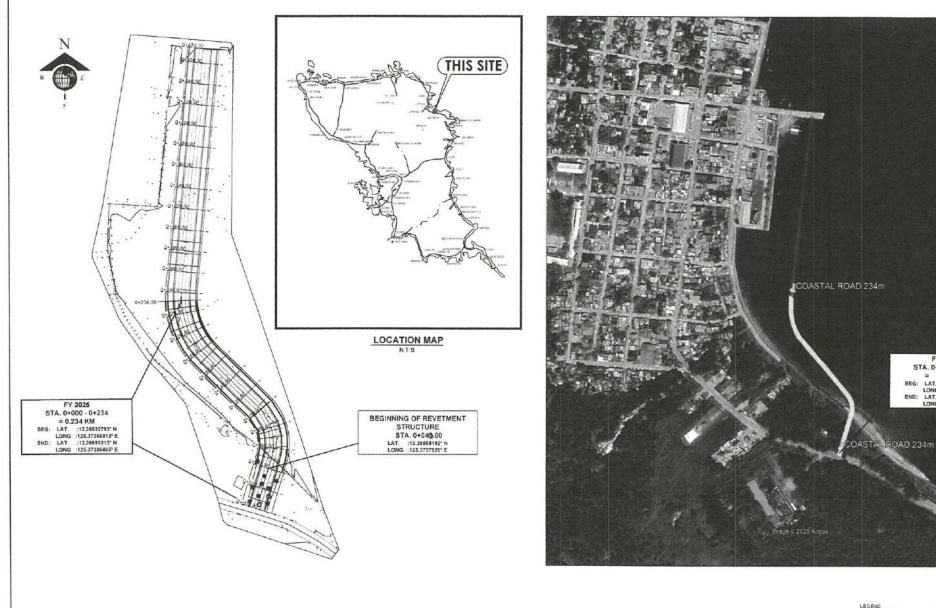
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GENERAL PLAN NTS

VICINITY MAP NTS

LEGEND RED ALIGNMENT

- NATIONAL ROAD

FY 2025 STA. 0+000 - 0+234 = 0.234 KM = 0.234 KM BEG: LAT, :12,26632793°N LONG :125,37366813°E END: LAT. :12,26693213°N LONG :125,37306405°E

PROPOSED ORANGE ALIGNMENT - FY 2025 PROJECT

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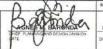
EASTERN SAMAR LD

GENERAL PLAN AND VICINITY MAP

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LEGENDS

ABUTMENT	ABUT	EXCAVATION	EXCA.	POINT OF VERTICAL CURVE	PVC
AHEAD STATIONING	AH STA	EXISTING	EXIST./EXTG	POINT OF VERTICAL CORVE	PVI
AND	&	EXPANSION	EXPN.	POINT OF VERTICAL INTERSECTION POINT OF VERTICAL TANGENT	PVT
AREA	Ā	EXTENSION	EXTN.	POINT OF TANGENT	POT
ASPHALT CONCRETE PAVEMENT	ACP	EXTERIOR	EXTR.	PORTLAND CEMENT CONCRETE PAVEMENT	PCCP
AT	@	EXTERNAL DISTANCE/EASTING	E E	PROJECT PROJECT	PROJ.
AZIMUTH	AZM	FINISHED	FIN.		
BACK STATION	BK. STA.	FINISHED GRADE	FG.	PROJECT ROAD	PROJ. RD
	BRGY.			PRIVATE SURVEY	P. S
BARANGAY		FINISHED PAVEMENT LEVEL	FPL.	RADIUS	R_
BEGINNING OF CIRCULAR CURVE	BCC	GENERAL	GEN.	REFERENCE POINT	RP
BEARING	BRG.	GROUND LEVEL	GL	REINFORCED CONCRETE BOX CULVERT	RCBC
BEGINNING	BEG.	HEAD WALL(S)	HW/ HWS	REINFORCED CONCRETE PIPE CULVERT	RCPC
BELOW MEAN SEA LEVEL	BMSL	HIGH FLOOD LEVEL	HFL	RETAINING WALL	RET. WALL
BENCHMARK	BM	HIGH TIDE LEVEL	HTL	RIGHT OF WAY	ROW
BORE HOLE	BET.	HIGH WATER LEVEL	HWL	ROAD	RD
BOTH HOLE	BH	HORIZONTAL	HOR.	SOUTH	S
BOTH WAYS	BS	INCHES	IN.	SIDEWALK	SDWK
воттом	BW	INTERSECTION ANGLE	1	SUBDIVISION OF UNDECREASED PROPERTY	Csd
BRIDGE	вот.	INSIDE DIAMETER	ID	SQUARE	SQ.
SUBDIVISION OF DECREASED PROPERTY	BR.	INTERIOR	INT.	SQUARE METER	sq.m/ m²
BY BUREAU OF LANDS LOCATION MONUMENT	BSD.	INTERMEDIATE BENCH MARK	IBM	STANDARD	STD
BUREAU OF LANDS AND LOCATION MONUMENT	BLLM	KILOGRAM	KG.	STARTING POINT	SP
CENTER	CTR.	KILOMETER	km.	STATION	STA.
CENTERLINE	£	KILOMETER PER HOUR	KPH	STRAIGHT	STR
CENTIMETER	cm	LEFT	LL		
CONCRETE HOLLOW BLOCK	CHB		LC	STREET	ST.
	CLR.	LENGTH OF CIRCULAR CURVE	VC	STRUCTURE	STRUCT.
CLEAR	COL.	LENGTH OF VERTICAL CURVE	LONGIT	TANGENT DISTANCE	T
COLUMN	CONC.	LONGITUDINAL	MAX.	TEMPERATURE	TEMP.
CONCRETE		MAXIMUM		TEMPORARY BENCH MARK	TBM
CONCRETE MONUMENT	CONC. MON.	MAXIMUM FLOOD LEVEL	MFL	VERTICAL	VERT
CONSTRUCTION	CONST.	MEAN SEA LEVEL	MSL	WIDTH	W
CORNER	COR.	METER	m	WITH	w/
COVER	COV.	MILLIMETER	mm.		
CROSS PIPE	CP	MINIMUM	MIN.		
CUBIC METER	cu.m/ m ³	MONUMENT	MON		
CYLINDRICAL	CYL	NORTHING	N		
DEGREE OF CURVE	D	NOT APPLICABLE	NA		
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	DPWH	NUMBER	NO.		
DETAIL	DET.	ORDINARY WATER LEVEL	OWL		
DIAMETER	DIA./Ø	ORIGINAL GROUND LEVEL	OGL		
DIAPHRAGM	DIAP.	OUTSIDE DIAMETER	bc.		
DISTANCE	DIST.	PAVEMENT WIDTH	PW		
DRAWING	DRWG.	PERCENT	%		
EAST	E	PHILIPPINES	PHL.		
ELEVATION	ELEV./EL	PIECES	PCS.		
END OF CIRCULAR CURVE	ECC	PLUS/ MINUS	±		
END OF PAVEMENT	EOP	PUBLIC LAND SUBDIVISION	PLS		
ENDING POINT	EP	POINT OF INTERSECTION	PI		
ENGINEER	ENGR.	POINT OF INTERSECTION POINT OF CURVATURE	PC		
	EQ.	FOINT OF CORVATORE	V		
EQUATION CANAL	EC.				
EQUALIZATION CANAL	EU.				



DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

REGIONAL OFFICE NO. VIII

PROJECT-MAM AND LOCATION
SIPAG - COASTAL ROADS AUGMENT RESILIENCY
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COASTAL ROAD, BARANGAY GARDEN,
POBLACION, ARTECHE, EASTERN SAMAR
EASTERN SAMAR LD

LEGENDS

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SYMBOLS

SYMBOL	ABBREVIATION	DESCRIPTION
STMBOL	ABBREVIATION	
Con the state		MAJOR
		CONTOUR
		CONTOUR
		ROAD
انی	ą.	
		CENTERLINE EDGE OF ROAD
		(PROPOSED)
-	RROW	RIGHT OF WAY LIMIT
MATCHLINE 51A 6-000		MATCHLINE
		GRID COORDINATES
DAT - 000 00000	AZIM.	AZIMUTH
-4		NORTH ARROW
) ED		INDICATOR
ELEV		ELEVATION
•		CALLOUT
Pt1		POINT OF INTERSECTION NUMBER
		POINT OF
		INTERSECTION
POT	0	POINT OF TANGENCY
Э вм	вм	BENCHMARK
•	1014	INTERMEDIATE
Э вм	IBM	BENCHMARK
A		REFERENCE
RP 1		POINT
Λ		KILOMETER
KM/·		POST
E0852559	ACP	ASPHALT CONCRETE
D. Control of the Con	ACP	PAVEMENT
	PCCP	PORTLAND CEMENT
	PULP	CONCRETE PAVEMENT
		EXISTING
		CANAL
		CONCRETE SLOPE
		PROTECTION
00000000	SM	STONE MASONRY SLOPE
		PROTECTION
		FRUFUSEU

<u>-</u> 8–	EP	ELECTRICAL POST
===		BRIDGE
Description	RCPC	REINFORCED CONCRETE PIPE CULVERT
) =csc	RCBC	REINFORCED CONCRETE BOX CULVERT
		RIVER/CREEK
		SHORE LINE
√W.		DIRECTION OF WATER FLOW
0000*		TREES (PREMIUM / COCONUT)
E D D A D D B B		WOODS/RAINFOREST
		SCRUB
		RICE FIELD
		MANGROVE
AH CH WS CW		SCHOOL/ CHURCH/ AMAKAN HOUSE/ CONCRETE HOUSE/ WOODEN STORE/ COMB OF CONC. AND WOODEN HOUSE
		EMBANKMENT / EXCAVATION LIMIT
(BH)		BOREHOLE
		CHEVRON
		TEST PIT

DE	SIGN FEATURE PROFILE	SON
SYMBOL	ABBREVIATION	DESCRIPTION
LEFT RIGHT		DITCH
	RCBC	REINFORCED CONCRETE BOX
	RCPC	CULVERT REINFORCED CONCRETE PIPE CULVERT
		SUPER ELEVATION INNER
		SUPER ELEVATION OUTER
		LENGTH OF VERTICAL CURVE
FVI STA 4+210-00 ELEV 16-00 M LVC 100-00 M M-0 +0-126		POINT OF INTERSECTION STATION AND ELEVATION
A _{OMF} A _{WM}		ORDINARY/ MAX WATER LEVEL
gn+3 00%		FINISHED GRADE
/~_/		ORIGINAL GRADE

4	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
र ए ग	REGIONAL OFFICE NO VIII

INDIECT NAME AND LOCATION	
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EASTERN SAMAR I D	

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SYMBOLS











THE REHABILITATION/ CONSTRUCTION PROJECT FOLLOWS THE EXISTING TRAVERSE AND GROUND

DESIGN STANDARDS

DPWH DESIGN GUIDELINES, CRITERIA AND STANDARDS (DGCS), VOLUME 4, 2015 EDITION B) AASHTO A POLICY ON GEOMETRIC DESIGN STANDARDS OF HIGHWAYS AND STREETS, 2011. THE DITION C), AASHTO GUIDE ON PAVEMENT DESIGN, 1993 EDITION D) HIGHWAY SAFETY DESIGN STANDARDS: PART 1 - ROAD SAFETY DESIGN, AND PART 2 - ROAD SIGNS AND PAVEMENT MARKINGS.

III. STANDARD SPECIFICATIONS

A) ALL WORKS SHALL COMPLY WITH THE DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS. BRIDGES AND AIRPORTS, 2013 EDITION VOLUME 2.

B I SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS PERTAINING TO THE PROJECT

A) ALL TRAVERSE POINTS WHERE TIED TO THE CENTER TOP AT THE ENDS OF EXISTING CONCRETE PROVINCIAL ROAD.

BITRUE AZIMUTH WAS USED IN RUNNING THE TRAVERSE POINTS.

C) SIMPLE CURVES WERE USED IN THE TRANSITION OF THE HORIZONTAL CURVATURES. D) ALL HORIZONTAL CURVE COMPUTATIONS ARE BASED ON THE 25 00M. ARC DEFINITION

E) SKEWED ANGLE IS DEFINED AS THE ANGLE BETWEEN THE LINE IN QUESTION AND A LINE CENTERLINE OF THE ROAD

F.) INTERSECTION POINTS (PI) ARE REFERRED TO AT LEAST TWO REFERENCE POINTS WITHIN OR OUTSIDE THE ROAD RIGHT - OF - WAY

4.) VERTICAL CONTROL

A.) DATUM OF ALL ELEVATIONS IS MEAN SEA LEVEL.

B) ALL ELEVATIONS WERE RECKONED FROM THE TOP OF THE CENTERLINE OF EXISTING

C I BENCHMARKS WERE PROVIDED AS SHOWN ON THE PLANS AND PROFILE DRAWINGS.

IV. DIMENSIONS

A) UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS WHICH INCLUDES STATIONING DISTANCE BETWEEN CONTROL POINTS AND AS SHOWN IN THE PLAN ARE IN METER AND THE UNIT OF MEASURE AS SHOWN IN DETAILS OF STRUCTURE ARE IN MILLIMETERS

V. TOPOGRAPHIC SURVEY

A) SHALL BE DONE AS PER TERMS OF REFERENCE

A) THE ROAD STATIONING AND ELEMENTS OF ELEMENTS OF HORIZONTAL AND VERTICAL CURVES SHOWN ON THE PLAN AND PROFILE SHEETS ARE RECKONED FROM THE ROADWAY CENTERLINE B.) STATIONING OF THE BRIDGES, RCPC, RCBC, AND OTHER STRUCTURES ARE RECKONED FROM THE STATIONING OF THE ROADWAY CENTERLINE SHOWN ON THE PLAN.

VI FLEVATIONS AND GRADES

A.) FINISHED GRADE ELEVATION SHOWN ON PLAN AND PROFILE SHEETS REFERS TO THE FINISHED PAVEMENT LEVEL SHOWN ON THE TYPICAL ROADWAY SECTION

B.) GROUND GRADE SHOWN ON THE PLAN AND PROFILE SHEET REFERS TO THE ELEVATION OF THE ORIGINAL GROUND ALONG THE CENTERLINE OF THE PROJECT ROAD.

C.) FINISHED GRADE FOR THIS PROJECT ARE SUBJECT TO CHANGE TO SUIT EXISTING FIELD CONDITION HOWEVER THAT IT IS MORE ADVANTAGEOUS AND MORE ECONOMICAL ON THE PART OF THE GOVERNMENT AND THE DESIGN STANDARD FOR HIGHWAYS PER REQUIREMENT OF A ASHTO ARE PROPERLY FOLLOWED.

D.) WIDENING IN CURVES IS SUBJECTED TO ADJUSTMENT TO SUIT EXISTING FIELD CONDITION AND SHALL BE BACKFIELD WITH APPROVED MATERIALS.

E) PROPER ROAD CONNECTION AT THE BEGINNING AND END OF THE PROJECT SHALL BE PROVIDED TO ENSURE SMOOTH RIDING SURFACE

6.) CLEARING AND GRUBBING

A) THE EXTENT OF CLEARING AND GRUBBING SHALL BE 3.00M BEYOND THE TOES OF FILL SLOPE BEYOND ROUNDING SLOPE OF CUT AS INDICATED IN THE TYPICAL ROADWAY SECTION. B.) ALL MEASUREMENTS SHALL BE BY HORIZONTAL DISTANCES

C.) IN PLACES WHERE EXISTING CEMENT CONCRETE PAVEMENT AND OTHER

STRUCTURES AND UTILITIES WILL NOT BE DAMAGED

8.) RIGHT - OF - WAY

A) THE PROPOSED ROAD RIGHT - OF - WAY IS 15,00M FROM THE CENTER LINE.

VII. REMOVAL OF EXISTING STRUCTURES AND OBSTRUCTIONS

A.) ALL WORKS SHALL COMPLY WITH CLAUSE 39 REQUIREMENTS AND CONDITIONS OF CONTRACTS VOLUME-1 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS AND HIGHWAYS 1995.

B.) PORTIONS OF EXISTING UTILITIES SUCH AS WATER MAINS, IRRIGATION CHANNELS, TELEPHONE POSTS AND TRUNK LINE, ETC. THAT MAY CAUSE OBSTRUCTION TO THE CONSTRUCTIONS OWNER CONCERNED EXTREME PRECAUTION SHALL BE EXERCISED BY THE CONTRACTOR NOT TO DAMAGE ANY SECTION OF THE EXISTING PUBLIC UTILITIES DURING CONSTRUCTION , ANY REPAIR OF DAMAGE HEREOF SHALL BE ON THE ACCOUNT OF THE CONTRACTOR, ANY REMOVAL OF THE MISCELLANEOUS STRUCTURES THAT MAY BE REQUIRED SHALL BE SUBSIDIARY WORK PERTAINING TO OTHER CONTRACT ITEM, NO DIRECT PAYMENT SHALL BE MADE FOR THIS EXCEPT FOR SPECIFIC ITEMS EXPLICITLY IDENTIFIED FOR PAYMENT IN THE BID SCHEDULE

IX. EMBANKMENT AND SLOPE PROTECTION WORKS

A) FOUNDATION OF THE SLOPE AND EMBANKMENT PROTECTION WORKS SHALL SIT ON A FIRM AND SUITABLE FOUNDATION SOFT SPOTS UNDER THE FOUNDATION SHALL BE REMOVED AND REPLACED WITH SUITABLE BEDDING MATERIALS OR CONCRETE CLASS "B"

B)SOFT SPOTS BETWEEN THE DUT FACE AND SLOPE/ EMBANKMENT PROTECTION WALLS MUST BE FILLED WITH

ROCKS OR SUITABLE MATERIALS SUCH AS BACKFILL MATERIALS PLACED BEHIND THE WALL SHALL BE FREE DRAINING NON EXPENSIVE AND WATER SHALL BE DRAINED BY WHEEP HOLES PLACED AT SUITABLE INTERVALS

C.) THE DEPTH PENETRATION SHALL BE MEASURED FROM LEVEL OF THE ORIGINAL GROUND SURFACE AND SHALL NOT INCLUDE EXCAVATED MATERIALS

PORTLAND CEMENT CONCRETE PAVEMENT

A) THIS ITEM SHALL CONSIST OF PAVEMENT OF PORTLAND CEMENT CONCRETE. WITH OR WITHOUT
REINFORCEMENT CONSTRUCTED ON THE PREPARED BASE IN ACCORDANCE WITH THIS SPECIFICATION AND IN CONFORMITY WITH LINES. GRADES: THICKNESS AND TYPICAL CROSS-SECTION SHOWN ON THE PLANS

XI. REINFORCING STEEL

A) THIS ITEM SHALL CONSIST OF FURNISHING BENDING FABRICATING AND PLACING OF STEEL REINFORCEMENT OF THE SHAPE. TYPE, SIZE AND GRADE REQUIRED IN ACCORDANCE WITH THIS SPECIFICATION AND IN CONFORMITY WITH THE REQUIREMENTS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER

XIL STRUCTURAL CONCRETE

A) THIS ITEM SHALL CONSIST OF FURNISHING PLACING AND FINISHING CONCRETE IN ALL STRUCTURES EXCEPT PAVEMENTS IN ACCORDANCE WITH THIS SPECIFICATION AND CONFORMING TO THE LINES, GRADES AND DIMENSIONS SHOWN ON THE PLANS.

XIII. THE IMPLEMENTING OFFICE SHALL IDENTIFY THE LOCATIONS OF AND PROVIDE ACCESSIBILITY FACILITIES

IX. DESIGN SPECIFICATIONS

1.) PAVEMENT DESIGN CRITERIA

1.A) PAVEMENT DESIGN PARAMETER: 0.23M this

DEP	IGN REQUIREMENTS	
A.	PERFORMANCE PERIOD FOR PCCP	20 YEARS (FOR PCCP)
B.	DESIGN TRAFFIC: ESAL	7.277 X 10 ⁵
C.	DESIGN RELIABILITY: R	0.85
D.	STANDARD DEVIATION: So	0.35
E.	STANDARD DEVIATION: SO DESIGN SERVICEABILITY LOSS: APSI	2.50
F.	PCCP MODULUS OF RUPTURE: Sc	464.45
G.	PCCP MODULUS OF ELASTICITY: Ec SUBGRADE DESIGN CBR EFFECTIVE ROADBED RESILIENT MODULUS: MR	3.360 × 10 ⁵
H.	SUBGRADE DESIGN CBR	5.31 %
L	EFFECTIVE ROADBED RESILIENT MODULUS: MR	7,965.00
7.	SUBBASE ELASTIC MODULUS: ESB	15,000.00
K.	SUBBASE THICKNESS EFFECTIVE MODULUS AT SUBGRADE REACTION: K (pc)	200.00 MM
L.	EFFECTIVE MODULUS AT SUBGRADE REACTION: K (pc:)	175.00
M.	DRAINAGE COEFFICIENT: Cd	1.00
N.	LOAD TRANSFER COEFFICIENT: J	3.90

100.00

2.) SLOPE STABILITY AND SLOPE PROTECTION CRITERIA

2.A) EMBANKMENT PROTECTION PARAMETERS

O. LOSS OF SUPPORT: 15

K (corrected)

STO	INE MASONRY	
A	UNIT WEIGHT OF STONE MASONRY, W	24.00 Kn/m
В	SURCHARGE DUE TO LIVE LOAD. S.	9.81 Kn/m ²
C	UNIT WEIGHT OF SOIL W.	19 0 Kn/m ³
D	ANGLE OF FRICTION OF SOIL Ø	40"
E	SLOPE OF SOIL FACE, B	6.0*
F	COEFF OF FRICTION bin GROUND & SM. U.	9.60
G	BOTTOM THICKNESS OF MASONRY B	3.00 m
H	TOP THICKNESS OF MASONRY, b	0.50 m
1	HEIGHT OF ACTIVE SOIL PRESSURE, H	6.00 m
J.	HEIGHT OF PASSIVE SOIL PRESSURE h.	1.00 m
K	HEIGHT OF EQUIVALENT OF SURCHARGE, ht	0.52 m
1	CONSIDERED STRIP OF MASONRY by	1.00 m

3.) DRAINAGE DESIGN CRITERIA

HYDROLOGIC ANALYSIS AND HYDRAULIC PARAMETERS 3.A) HYDROLOGIC ANALYSIS AND HYDRAULIC PARAMETERS

1 BARREL - 3 0m X 3 0m RCBC - STA 12+240 A DESIGN STORM FREQUENCY

COEFFICIENT OF RUN-OFF, C RAINFALL INTENSITY, I CATCHMENT AREA. A 9.30 166.14 mm/hr 9.565 Sq.km RUN-OFF DISCHARGE Qu 2 5891 Cu m/Sec DEPTH OF FLOW H 0.04898 ROOUGHNESS COEFFICIENT N 0018 WETTED PERIMETER, P. HYDRAULIC RADIUS R 2 57 297 4 58 m/s INLET VELOCITY, V.: 3.61 m/s INLET CONTROL. HW.D. **QUILET CONTROL HW**

COORDINATE SYSTEM

SURVEY SPECIFICATION

COORDINATE REFERENCE SYSTEM PRS92 / Philippines zone 5

PROJECTION TM

DATUM PRS92 EPSG CODE 3125

REFERENCE BENCHMARK DETAILS

A) THE POSITION OF PROJECT CONTROL POINTS SHALL BE DEFINED AND MARKED ON THE GROUND BY MONUMENTS OF PERMANENT NATURE

ACCESSIBILITY

GROUND STABILITY

3. SECURITY FROM POSSIBLE ACTS OF DISTURBANCE C) INTERVAL OF MONUMENTS.

PRIMARY GPS CONTROL (GPS)
PRIMARY PROJECT CONTROL (6M) SKM INTERVAL

INTERMEDIATE CONTROL (IBM)

500M INTERVAL

EVERY 250M INTERVAL IN BETWEEN 8Ms

DATE OF SURVEY

JUNE 20 - 25, 2023

EQUIPMENT USED

HI-TARGET/RTKS, ROVER, BASED, HOL460A, CONTROLLER Q-MINI A10(UWB)

3.8) HYDROLOGIC ANALYSIS AND HYDRAULIC PARAMETERS

O DUTLET CONTROL HW

LIN	IED CANAL	
А	DESIGN STORM FREQUENCY	2 YEARS FOR CANA
B	COEFFICIENT OF RUN-OFF, C.	0.30
C	RAINFALL INTENSITY I	188 14 mm/hr
0	CATCHMENT AREA, A	0 165 Sq km
6	RUN-OFF DISCHARGE Q.	2.5891 Cu m/Sec
F	DIAMETER D	0.91 m
G	DEPTH OF FLOW, H.	0 32 m
H	SLOPE S	0 04898
1	ROOUGHNESS COEFFICIENT N	0.018
1	WETTED PERIMETER, P	2 57 297
K	HYDRAULIC RADIUS, R.	0.23
L	INLET VELOCITY, V.	4 58 m/s
14	OUTLET VELOCITY, V,	3.61 m/s
6.0	INTET CONTROL HAND	DA E

NOTE: ANY HARLENGERS BY LOUIS AND ALLESS BY CONCINCIAL WITH PRESCRIBE TRUST DATA THE FOR ALL HIS INSTRUMENTATIONS FOR THE PROBLECT ON THE WARMAN ALLESS BROOKED THE PARK OFFICE THANK OFFICE HE DOORS JOINTY OF THE CONTINUOUS THE PRESCRIBE THE CHARLE WAS THE PLANKING AND DESCRIBENCES OF THE ARMS SHALL BE SUBMITTED TO THE RESIDUAL OFFICE. ANY LOUIS THANK OFFICE AND ALLESS A

RIVER THE TEMPLATE AND/OR STACE OUT THE LOCATION OF LIVED CANAL AND OTHER STRUCTURES AS HER TYPICAL ROADYNAY SECTION DEFORE COMMENCING CONSTRUCTION ACCIDIONALLY ANY CHANGES IN THE GUARITY OF WORKS ITEM INJURIED AS A RESULT OF REVISIO UNITED COMMENTED AND ACCIDIONED ON THE LEGATIVE PLANE.



DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

REGIONAL OFFICE NO. VIII

PROJECT HAVE AND LOCATION

SIPAG - COASTAL ROADS AUGMENT RESILIENCY OF COASTAL COMMUNITIES - CONSTRUCTION OF COASTAL ROAD, BARANGAY GARDEN.

POBLACION, ARTECHE, EASTERN SAMAR

SHEET CONTENTS

JAKE GALFRLES S. HECHANOVA

O YEARS

FELIX & BACUS

antogen

6 24

EASTERN SAMAR LD

GENERAL NOTES

CONSTRUCTION REQUIREMENT

1. ALL CONSTRUCTION SHALL CONFORM TO

CONDITIONS OF CONTRACT

B THE SPECIAL PROVISIONS

THE SPECIFICATIONS OF ITEMS OF WORK FOR THIS PROJECT SHALL BE THE DPWH STANDARD SPECIFICATIONS FOR PUBLIC WORKS & HIGHWAYS 2013 EDITION, VOLUME II -HIGHWAYS BRIDGES & AIRPORTS OR SPECIAL PROVISION AS PRESENTED IN THE TENDER DOCUMENTS OF THE PROJECT.

2 SETTING OUT

THE SETTING OUT AND ELEVATION OF THE DIFFERENT COMPONENTS OF THE STRUCTURE SHALL BE APPROVED BY THE ENGINEER PRIOR TO THE START OF ANY CONSTRUCTION WORK.

3 CONSTRUCTION SURVEY AND STAKING

- SHALL CONSIST OF FURNISHING THE NECESSARY EQUIPMENT AND MATERIAL TO SURVEY, STAKE CALCULATE, AND RECORD DATA FOR THE CONTROL OF WORK IN ACCORDANCE WITH THIS SPECIFICATION AND IN CONFORMITY WITH THE LINES, GRADES AND DIMENSIONS SHOWN ON THE PLANS OR AS ESTABLISHED BY THE
- STAKING ACTIVITIES SHALL BE INCLUDED IN THE CONSTRUCTION SCHEDULE TO BE SUBMITTED BY THE CONTRACTOR DATES AND SEQUENCE OF EACH STAKING ACTIVITY SHALL BE INCLUDED
- PRIOR TO CONSTRUCTION, THE ENGINEER SHALL BE NOTIFIED OF ANY MISSING INITIAL REFERENCE LINES. CONTROLS, POINTS, OR STAKES. THE ENGINEER SHALL REESTABLISH MISSING INITIAL REFERENCE LINES. CONTROLS. POINTS, OR STAKES THE CONTRACTOR FOR CONVENIENT USE OF GOVERNMENT-FURNISHED DATA SHALL PERFORM ADDITIONAL CALCULATIONS IMMEDIATE NOTIFICATION OF APPARENT ERRORS IN THE INITIAL STAKING OR IN THE FURNISHED DATA SHALL BE PROVIDED.
- D BEFORE SURVEYING AND STAKING, THE CONTRACTOR SHALL DISCUSS AND COORDINATE THE FOLLOWING WITH THE ENGINEER
 - SURVEYING AND STAKING METHODS
 - STAKE MARKING/CONCRETE MONUMENTS
 - GRADE CONTROL FOR COURSES OF MATERIAL
 - DEFERENCING
 - STRUCTURE CONTROL
 - ANY OTHER PROCEDURES AND CONTROLS NECESSARY FOR THE WORK

4 PROJECT BILLBOARD

- DO. 11. SERIES OF 2022. AMENDMENT TO DEPARTMENT ORDER NO. 21 SERIES OF 2017. "REVISED GUIDELINES ON THE INSTALLATION OF PROJECT BILLBOARD"
- REVISED GUIDELINES ON THE INSTALLATION OF PROJECT BILLBOARD (PER D O. 21, S.

5 TRAFFIC MANAGEMENT

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEVELOPING AND MAINTAINING AN EFFECTIVE TRAFFIC CONTROL PLAN IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUBJECT TO THE APPROVAL OF THE ENGINEER AND THE CORRESPONDING LOCAL AUTHORITIES

6 MOBILIZATION

- SHALL CONSIST OF MOBILIZATION OF EQUIPMENT AND MANPOWER, MATERIALS AND OTHER ITEMS THAT SHALL BE OF USE IN THE IMPLEMENTATION OF THE PROJECT
- ALL CEMENT MATERIALS SHALL BE STORED IMMEDIATELY UPON DELIVERY AT SITE, IN A WEATHER PROOF BUILDING WHICH WILL PROTECT THE CEMENT FROM DAMPNESS THE FLOOR SHALL BE RAISED FROM THE GROUND BY 4 INCHES.
- C. ALL SIGNAGES AND PROJECT BILLBOARDS SHALL BE PLACED AT DESIGNATED LOCATIONS APPROVED BY THE PROJECT ENGINEER.

DEMOBILIZATION

FOLLOWS ONLY AFTER THE PROJECT WAS FINALLY ACCEPTED AND THE SURROUNDINGS ARE PROPERLY CLEANED

8 CLEARING AND GRUBBING

- THE ENGINEER WILL ESTABLISH THE LIMITS OF WORK AND DESIGNATE ALL TREES, SHRUBS, PLANTS AND OTHER THINGS TO REMAIN. THE CONTRACTOR SHALL PRESERVE ALL OBJECTS DESIGNATED TO REMAIN PAINT REQUIRED FOR CUT OR SCARRED SURFACE OF TREES OR SHRUBS SELECTED FOR RETENTION SHALL BE AN APPROVED ASPHALTUM BASE PAINT PREPARED ESPECIALLY FOR TREE SURGERY
- B. CLEARING SHALL EXTEND ONE (1) METER BEYOND THE TOE OF THE FILL SLOPES OR BEYOND ROUNDING OF CUT SLOPES AS THE CASE MAYBE FOR THE ENTIRE LENGTH OF THE PROJECT UNLESS OTHERWISE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER AND PROVIDED IT IS WITHIN THE RIGHT OF WAY LIMITS OF THE PROJECT. WITH THE EXCEPTION OF TREES UNDER THE JURISDICTION OF THE FOREST MANAGEMENT BUREAU (FMB)

INDIVIDUAL REMOVAL OF TREES OR STUMPS

INDIVIDUAL TREES OR STUMPS DESIGNATED BY THE ENGINEER FOR REMOVAL AND LOCATED IN AREAS OTHER THAN THOSE ESTABLISHED FOR CLEARING AND GRUBBING AND ROADSIDE CLEANUP SHALL BE REMOVED AND DISPOSED OFF AS SPECIFIED UNDER SUBSECTION 100.2.2 EXCEPT TREES REMOVED SHALL BE CUT AS NEARLY FLUSH WITH THE GROUND AS PRACTICABLE WITHOUT REMOVING STUMPS

10. EMBANKMENT

- SHALL CONSIST OF THE CONSTRUCTION OF EMBANKMENT IN ACCORDANCE WITH THIS SPECIFICATION AND IN CONFORMITY WITH THE LINES, GRADES AND DIMENSIONS SHOWN ON THE PLANS OR ESTABLISHED BY THE ENGINEER.
- PRIOR TO CONSTRUCTION OF EMBANKMENT, ALL NECESSARY CLEARING & GRUBBINGIN THE AREA SHALL BE PERFORMED IN CONFORMITY WITH ITEM 100. CLEARING AND
- EMBANKMENT CONSTRUCTION SHALL CONSIST OF CONSTRUCTING ROADWAY EMBANKMENTS, INCLUDING PREPARATION OF THE AREAS UPON WHICH THEY ARE TO BE PLACED; THE CONSTRUCTION OF DIKES WITHIN OR ADJACENT TO THE ROADWAY. THE PLACING AND COMPACTING OF APPROVED MATERIAL WITHIN ROADWAY AREAS WHERE UNSUITABLE MATERIAL HAS BEEN REMOVED, AND THE PLACING AND COMPACTING OF EMBANKMENT MATERIAL IN HOLES, PITS, AND OTHER DEPRESSIONS WITHIN THE ROADWAY AREA
- EMBANKMENTS AND BACKFILLS SHALL CONTAIN NO MUCK, PEAT, SOD, ROOTS OR OTHER DELETERIOUS MATTER. ROCKS, BROKEN CONCRETE OR OTHER SOLID, BULKY MATERIALS SHALL NOT BE PLACED IN EMBANKMENT AREAS WHERE PILING IS TO BE PLACED OR DRIVEN
- WHERE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, THE SURFACE OF THE EXISTING GROUND SHALL BE COMPACTED TO A DEPTH OF 150 MM AND TO THE SPECIFIED REQUIREMENTS OF THIS ITEM
- WHERE PROVIDED ON THE PLANS AND BILL OF QUANTITIES THE TOP PORTIONS OF THE ROADBED IN BOTH CUTS AND EMBANKMENTS, AS INDICATED, SHALL CONSIST OF SELECTED BORROW FOR TOPPING FROM EXCAVATIONS

11. STRUCTURE EXCAVATION

- A. 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
- B. 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.
- C. STRUCTURES OTHER THAN PIPE CULVERTS ALL ROCK OR OTHER HARD FOUNDATION MATERIALS SHALL BE CLEANED OF ALL LOOSE MATERIALS, AND CUT TO A FIRM SURFACE, EITHER LEVEL, STEPPED, OR SERRATED AS DIRECTED BY THE ENGINEER ALL SEAMS OR CREVICES SHALL BE CLEANED AND GROUTED. ALL LOOSE AND DISINTEGRATED ROCKS AND THIN STRATA SHALL BE REMOVED. WHEN THE FOOTING IS TO REST ON MATERIAL OTHER THAN ROCK, EXCAVATION TO FINAL GRADE SHALL NOT BE MADE UNTIL JUST BEFORE THE FOOTING IS TO BE PLACED. WHEN THE FOUNDATION MATERIAL IS SOFT OR MUCKY OR OTHERWISE UNSUITABLE, AS DETERMINED BY THE ENGINEER. THE CONTRACTOR SHALL REMOVE THE UNSUITABLE MATERIAL AND BACKFILL WITH APPROVED GRANULAR MATERIAL THIS FOUNDATION FILL SHALL BE PLACED AND COMPACTED IN 150 MM LAYERS UP TO THE FOUNDATION ELEVATION.
- PIPE CULVERTS THE WIDTH OF THE PIPE TRENCH SHALL BE SUFFICIENT TO PERMIT SATISFACTORY JOINTING OF THE PIPE AND THOROUGH TAMPING OF THE BEDDING MATERIAL UNDER AND AROUND THE PIPE.
- 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
- BACKFILL AND EMBANKMENT FOR STRUCTURES OTHER THAN PIPE CULVERTS -EXCAVATED AREAS AROUND STRUCTURES SHALL BE BACKFILLED WITH FREE DRAINING GRANULAR MATERIAL APPROVED BY THE ENGINEER AND PLACED IN HORIZONTAL LAYERS NOT OVER 150 MM. IN THICKNESS, TO THE LEVEL OF THE DRIGINAL GROUND SURFACE. EACH LAYER SHALL BE MOISTENED OR DRIED AS REQUIRED AND THOROUGHLY COMPACTED WITH MECHANICAL TAMPERS.
- BEDDING, BACKFILL, AND EMBANKMENT FOR PIPE CULVERTS BEDDING, BACKFILL AND EMBANKMENT FOR PIPE CULVERTS SHALL BE DONE IN ACCORDANCE WITH ITEM 500, PIPE CULVERTS AND STORM DRAINS

12. SUBGRADE PREPARATION

- A 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
- PRIOR TO COMMENCING PREPARATION OF THE SUBGRADE, 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.
- SUBGRADE LEVEL TOLERANCE THE FINISHED COMPACTED SURFACE OF THE SUBGRADE SHALL CONFORM TO THE ALLOWABLE TOLERANCES AS SPECIFIED

20 MM PERMITTED VARIATION FROM DESIGN LEVEL OF SURFACE 30 MM PERMITTED SURFACE IRREGULARITY MEASURED BY 3-M STRAIGHT EDGE. 30 MM PERMITTED VARIATION FROM DESIGN CROSSFALL OR CAMBER PERMITTED VARIATION FROM DESIGN LONGITUDINAL GRADE OVER 25 M LENGTH

D. 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 10229 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

E. 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.

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.

13. AGGREGATE SUBBASE COURSE

- A. THIS ITEM SHALL CONSIST OF FURNISHING, PLACING AND COMPACTING AN AGGREGATE SUBBASE COURSE ON A PREPARED SUBGRADE IN ACCORDANCE WITH THIS SPECIFICATION AND THE LINES. GRADES AND CROSS-SECTIONS SHOWN ON THE PLANS. OR AS DIRECTED BY THE ENGINEER.
- THE AGGREGATE SUBBASE MATERIAL SHALL BE PLACED AT A UNIFORM MIXTURE ON A PREPARED SUBGRADE IN A 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 IS PLACED. THE PLACING OF MATERIAL SHALL BEGIN AT THE POINT DESIGNATED BY THE ENGINEER. PLACING SHALL BE FROM VEHICLES ESPECIALLY EQUIPPED TO DISTRIBUTE THE MATERIAL IN A CONTINUOUS UNIFORM LAYER OR WINDROW THE LAYER OR WINDROW SHALL BE OF SUCH SIZE THAT WHEN SPREAD AND COMPACTED THE FINISHED LAYER BE IN REASONABLY CLOSE CONFORMITY TO THE NOMINAL THICKNESS SHOWN ON THE PLANS WHEN HAULING IS DONE OVER PREVIOUSLY PLACED MATERIAL HAULING EQUIPMENT SHALL BE DISPERSED UNIFORMLY OVER THE ENTIRE SURFACE OF THE PREVIOUSLY CONSTRUCTED LAYER. TO MINIMIZE RUTTING OR UNEVEN COMPACTION.
- C. SPREADING AND COMPACTING WHEN UNIFORMLY MIXED. THE MIXTURE SHALL BE SPREAD TO THE PLAN THICKNESS, FOR COMPACTION, WHERE THE REQUIRED THICKNESS IS 150 MM OR LESS. THE MATERIAL MAY BE SPREAD AND COMPACTED IN ONE LAYER WHERE THE REQUIRED THICKNESS IS MORE THAN 150 MM, THE AGGREGATE SUBBASE SHALL BE SPREAD AND COMPACTED IN TWO OR MORE LAYERS OF APPROXIMATELY FOUGLI THICKNESS, AND THE MAXIMUM COMPACTED THICKNESS. OF ANY LAYER SHALL NOT EXCEED 150 MM. ALL SUBSEQUENT LAYERS SHALL BE SPREAD AND COMPACTED IN A SIMILAR MANNER. THE MOISTURE CONTENT OF SUBBASE MATERIAL SHALL, IF NECESSARY, BE ADJUSTED PRIOR TO COMPACTION BY WATERING WITH APPROVED SPRINKLERS MOUNTED ON TRUCKS OR BY DRYING OUT, AS REQUIRED IN ORDER TO OBTAIN THE REQUIRED COMPACTION. IMMEDIATELY FOLLOWING FINAL SPREADING AND SMOOTHENING, EACH LAYER SHALL BE COMPACTED TO THE FULL WIDTH BY MEANS OF APPROVED COMPACTION EQUIPMENT ROLLING SHALL PROGRESS GRADUALLY FROM THE SIDES TO THE CENTER, PARALLEL TO THE CENTERLINE OF THE ROAD AND SHALL CONTINUE UNTIL THE WHOLE SURFACE HAS BEEN ROLLED ANY IRREGULARITIES OR DEPRESSIONS THAT DEVELOP SHALL BE CORRECTED BY LOOSENING THE MATERIAL AT THESE PLACES AND ADDING OR REMOVING MATERIAL UNTIL SURFACE IS SMOOTH AND UNIFORM. ALONG CURBS HEADERS, AND WALLS, AND AT ALL PLACES NOT ACCESSIBLE TO THE ROLLER. THE SUBBASE MATERIAL SHALL BE COMPACTED THOROUGHLY WITH APPROVED TAMPERS OR COMPACTORS IF THE LAYER OF SUBBASE MATERIAL OR PART THEREOF DOES NOT CONFORM TO THE REQUIRED FINISH, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE. MAKE THE NECESSARY CORRECTIONS COMPACTION OF EACH LAYER SHALL CONTINUE UNTIL A FIELD DENSITY OF AT LEAST 100 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH AASHTO T 180 METHOD D HAS BEEN ACHIEVED. IN-PLACE DENSITY DETERMINATION SHALL BE MADE IN ACCORDANCE WITH
- TRIAL BEFORE SUBBASE CONSTRUCTION IS STARTED, THE CONTRACTOR SHALL SPREAD AND COMPACT TRIAL SECTIONS AS DIRECTED BY THE ENGINEER. THE PURPOSE OF THE TRIAL SECTIONS IS TO CHECK THE SUITABILITY OF THE MATERIALS. THE EFFICIENCY OF THE EQUIPMENT AND THE CONSTRUCTION METHOD WHICH IS PROPOSED TO BE USED BY THE CONTRACTOR THEREFORE, THE CONTRACTOR MUST USE THE SAME MATERIAL, EQUIPMENT AND PROCEDURES THAT HE PROPOSES TO USE FOR THE MAIN WORK. ONE TRIAL SECTION OF ABOUT 500 MZ SHALL BE MADE FOR EVERY TYPE OF MATERIAL AND/OR CONSTRUCTION EQUIPMENT/PROCEDURE PROPOSED FOR USE AFTER FINAL COMPACTION OF EACH TRIAL SECTION, THE CONTRACTOR SHALL CARRY OUT SUCH FIELD DENSITY TESTS AND OTHER TESTS REQUIRED AS DIRECTED BY THE ENGINEER.

IF A TRIAL SECTION SHOWS THAT THE PROPOSED MATERIALS, EQUIPMENT OR PROCEDURES IN THE ENGINEER'S OPINION ARE NOT SUITABLE FOR SUBBASE, THE MATERIAL SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE, AND A NEW TRIAL SECTION SHALL BE CONSTRUCTED. IF THE BASIC CONDITIONS REGARDING THE TYPE OF MATERIAL OR PROCEDURE CHANGE DURING THE EXECUTION OF THE WORK, NEW TRIAL SECTIONS SHALL BE CONSTRUCTED

REPUBLIC OF THE PHOPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

REGIONAL OFFICE NO. VIII

ROJECT NAME AND LOCATION

JAKE CHER ES S. HECHANOVA

FELIX R. BACUS

dwhite

AGNES M BARONDA

SHEET NO

COASTAL GOAD BARANGAY GARDEN POBLACION, ARTECHE, EASTERN SAMAR FASTERN SAMAR LD

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CONSTRUCTION REQUIREMENTS

CONSTRUCTION REQUIREMENT

14. GRAVEL SURFACE COURSE

- 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.
- B. PLACING AGGREGATE SURFACE COURSE SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 201, AGGREGATE BASE COURSE.
- C. COMPACTING REQUIREMENTS AGGREGATE SURFACE COURSE SHALL BE COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 201, AGGREGATE BASE COURSE
- D. TRIAL SECTIONS TRIAL SECTIONS SHALL BE CARRIED OUT FOR AGGREGATE SURFACE COURSE IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 201, AGGREGATE BASE COURSE
- E. SURFACE COURSE THICKNESS AND TOLERANCES THE AGGREGATE SURFACE COURSE SHALL BE LAID TO THE DESIGNED LEVEL AND TRANSVERSE SLOPES SHOWN ON THE PLANS THE ALL DWARL ET DILEPAUNCES SHALL BE AS SPECIESD LEDELINGED.

HE PLANS THE ALLOWABLE TOLERANCES SH	HALL BE AS SPECIFIED HERE!
PERMITTED VARIATION FROM	+15 MM
DESIGN THICKNESS OF LAYER	- 5MM
PERMITTED VARIATION FROM	+15 MM
DESIGN LEVEL OF SURFACE	- 5MM
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%

15. PORTLAND CEMENT CONCRETE PAVEMENT

- A. QUALITY CONTROL OF CONCRETE THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE QUALITY CONTROL OF ALL MATERIALS DURING THE HANDLING, BLENDING, AND MIXING AND PLACEMENT OPERATIONS.
- B. EQUIPMENT EQUIPMENT AND TOOLS NECESSARY FOR HANDLING MATERIALS AND PERFORMING ALL PARTS OF THE WORK SHALL BE APPROVED BY THE ENGINEER AS TO DESIGN, CAPACITY AND MECHANICAL CONDITION THE EQUIPMENT SHALL BE AT THE JOBSITE SUFFICIENTLY AHEAD OF THE START OF CONSTRUCTION OPERATIONS TO BE EXAMINED THOROUGHLY AND APPROVED
- C. PREPARATION OF GRADE AFTER THE SUBGRADE OR BASE HAS BEEN PLACED AND COMPACTED TO THE REQUIRED DENSITY. THE AREAS WHICH WILL SUPPORT THE PAVING MACHINE AND THE GRADE ON WHICH THE PAVEMENT IS TO BE CONSTRUCTED SHALL BE TRIMMED TO THE PROPER ELEVATION BY MEANS OF A PROPERLY DESIGNED MACHINE EXTENDING THE PREPARED WORK AREAS COMPACTED AT LEAST 60 CM
 - BEYOND EACH EDGE OF THE PROPOSED CONCRETE PAVEMENT.
 IF LOSS OF DENSITY RESULTS FROM THE TRIMMING OPERATIONS, IT SHALL BE RESTORED BY ADDITIONAL COMPACTION BEFORE CONCRETE IS PLACED. IF ANY TRAFFIC IS ALLOWED TO USE THE PREPARED SUBGRADE OR BASE, THE SURFACE SHALL BE CHECKED AND CORRECTED IMMEDIATELY AHEAD OF THE PLACING CONCRETE THE SUBGRADE OR BASE SHALL BE UNIFORMLY MOIST WHEN THE CONCRETE IS PLACED.
- D. SETTING FORMS WHEN ANY FORM HAS BEEN DISTURBED OR ANY GRADE HAS BECOME UNSTABLE. THE FORM SHALL BE RESET AND RECHECKED.
- CONDITIONING OF SUBGRADE OR BASE COURSE WHEN SIDE FORMS HAVE BEEN SECURELY SET TO GRADE. THE SUBGRADE OR BASE COURSE SHALL BE BROUGHT TO PROPER CROSS-SECTION HIGH AREAS SHALL BE TRIMMED TO PROPER ELEVATION. LOW AREAS SHALL BE FILLED AND COMPACTED TO A CONDITION SIMILAR TO THAT OF SURROUNDING GRADE. THE FINISHED GRADE SHALL BE MAINTAINED IN A SMOOTH AND COMPACTED CONDITION UNTIL THE PAVEMENT IS PLACED UNLESS WATERPROOF SUBGRADE OR BASE COURSE COVER MATERIAL IS SPECIFIED. THE SUBGRADE OR BASE COURSE SHALL BE UNIFORMLY MOIST WHEN THE CONCRETE IS PLACED. IF IT SUBSEQUENTLY BECOMES TOO DRY, THE SUBGRADE OR BASE COURSE SHALL BE SPRINKLED, BUT THE METHOD OF SPRINKLING SHALL NOT BE SUCH AS TO FORM MUD OR POOLS OF WATER
- F. HANDLING, MEASURING AND BATCHING MATERIALS THE BATCH PLAN SITE, LAYOUT, EQUIPMENT AND PROVISIONS FOR TRANSPORTING MATERIAL SHALL BE SUCH AS TO ASSURE A CONTINUOUS SUPPLY OF MATERIAL TO THE WORK, STOCKPILES SHALL BE BUILT UP IN LAYERS OF NOT MORE THAN ONE (1) METER IN THICKNESS. EACH LAYER SHALL BE COMPLETELY IN PLACE BEFORE BEGINNING THE NEXT WHICH SHALL NOT BE ALLOWED TO "CONE" DOWN OVER THE NEXT LOWER LAYER AGGREGATES FROM DIFFERENT SOURCES AND DF DIFFERENT GRADING SHALL NOT BE STOCKPILED TOGETHER ALL WASHED AGGREGATES AND AGGREGATES PRODUCED OR HANDLED BY HYDRAULIC METHODS, SHALL BE STOCKPILED OR BINNED FOR DRAINING AT LEAST TWELVE (12) HOURS BEFORE BEING BATCHED

- G. MIXING CONCRETE THE CONCRETE MAY BE MIXED AT THE SITE OF THE WORK IN A CENTRAL-MIX PLANT, OR IN TRUCK MIXERS. THE MIXER SHALL BE OF AN APPROVED TYPE AND CAPACITY MIXING TIME WILL BE MEASURED FROM THE TIME ALL MATERIALS, EXCEPT WATER, ARE IN THE DRUM READY-MIXED CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH REQUIREMENTS OF AASHTO M 157. EXCEPT THAT THE MINIMUM REQUIRED REVOLUTIONS AT THE MIXING SPEED FOR TRANSIT-MIXED CONCRETE MAY BE REDUCED TO NOT LESS THAN THAT RECOMMENDED BY THE MIXER MANUFACTURER. THE NUMBER OF REVOLUTIONS RECOMMENDED BY THE MIXER MANUFACTURER SHALL BE INDICATED ON THE MANUFACTURER'S SERIAL PLATE ATTACHED TO THE MIXER. THE CONTRACTOR SHALL FURNISH TEST DATA ACCEPTABLE TO THE ENGINEER VERIFYING THAT THE MAKE AND MODEL OF THE MIXER WILL PRODUCE UNIFORM CONCRETE CONFORMING TO THE PROVISION OF AASHTO M 157 AT THE REDUCED NUMBER OF REVOLUTIONS SHOWN ON THE SERIAL PLATE
- LIMITATION OF MIXING NO CONCRETE SHALL BE MIXED, PLACED OR FINISHED WHEN NATURAL LIGHT IS INSUFFICIENT. UNLESS AN ADEQUATE AND APPROVED ARTIFICIAL LIGHTING SYSTEM IS OPERATED. DURING HOT WEATHER, THE ENGINEER SHALL REQUIRE THAT STEPS BE TAKEN TO PREVENT THE TEMPERATURE OF MIXED CONCRETE FROM EXCEEDING A MAXIMUM TEMPERATURE OF 32°C. CONCRETE NOT IN PLACE WITHIN NINETY (90) MINUTES FROM THE TIME THE INGREDIENTS CHARGED INTO THE MIXING DRUM OR THAT HAS DEVELOPED. SET INITIAL SHALL NOT BE USED. RETEMPERING OF CONCRETE OR MORTAR WHICH PARTIALLY HARDENED, THAT IS REMIXING WITH OR WITHOUT ADDITIONAL CEMENT, AGGREGATE, OR WATER, SHALL NOT BE PERMITTED. IN ORDER THAT THE CONCRETE MAY BE PROPERLY PROTECTED AGAINST THE EFFECTS OF RAIN BEFORE THE CONCRETE IS SUFFICIENTLY HARDENED. THE CONTRACTOR WILL BE REQUIRED TO HAVE AVAILABLE AT ALL TIMES MATERIALS FOR THE PROTECTION OF THE EDGES AND SURFACE OF THE UNHARDENED CONCRETE.
- PLACING CONCRETE CONCRETE SHALL BE DEPOSITED IN SUCH A MANNER TO REQUIRE MINIMAL REHANDLING. UNLESS TRUCK MIXERS OR NON-AGITATING HAULING EQUIPMENT ARE EQUIPPED WITH MEANS TO DISCHARGE CONCRETE WITHOUT SEGREGATION OF THE MATERIALS, THE CONCRETE SHALL BE UNLOADED INTO AN APPROVED SPREADING DEVICE AND MECHANICALLY SPREAD ON THE GRADE IN SUCH A MANNER AS TO PREVENT SEGREGATION, PLACING SHALL BE CONTINUOUS BETWEEN TRANSVERSE JOINTS WITHOUT THE USE OF INTERMEDIATE BULKHEADS. NECESSARY HAND SPREADING SHALL BE DONE WITH SHOVELS NOT RAKES WORKMEN SHALL NOT BE ALLOWED TO WALK IN THE FRESHLY MIXED CONCRETE WITH BOOTS OR SHOES COATED WITH EARTH OR FOREIGN SUBSTANCES.
- TEST SPECIMENS AS WORK PROGRESSES, AT LEAST ONE (1) SET CONSISTING OF THREE (3) CONCRETE BEAM TEST SPECIMENS, 150 MM X 150 MM X 525 MM SHALL BE TAKEN FROM EACH 330 M2 OF PAVEMENT 230 MM DEPTH OR FRACTION THEREO. PLACED EACH DAY TEST SPECIMENS SHALL BE MADE UNDER THE SUPERVISION OF THE ENGINEER, AND THE CONTRACTOR SHALL PROVIDE ALL CONCRETE AND OTHER FACILITIES NECESSARY IN MAKING THE TEST SPECIMENS AND SHALL PROTECT THEM FROM DAMAGE BY CONSTRUCTION OPERATIONS. CYLINDER SAMPLES SHALL NOT BE USED AS SUBSTITUTE FOR DETERMINING THE ADEQUACY OF THE STRENGTH OF CONCRETE THE BEAMS SHALL BE MADE CURED, AND TESTED IN ACCORDANCE WITH AASHTO T 23 AND T 97
- K. JOINTS JOINTS SHALL BE CONSTRUCTED OF THE TYPE AND DIMENSIONS, AND AT THE LOCATIONS REQUIRED BY THE PLANS OR SPECIAL PROVISIONS. ALL JOINTS SHALL BE PROTECTED FROM THE INTRUSION OF INJURIOUS FOREIGN MATERIAL UNTIL SEALED.
- L. SURFACE TEST AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY, THE PAVEMENT SURFACE SHALL BE TESTED WITH A 3-M STRAIGHT-EDGE OR OTHER SPECIFIED DEVICE AREAS SHOWING HIGH SPOTS OF MORE THAN 3 MM BUT NOT EXCEEDING 12 MM IN 3 M SHALL BE MARKED AND IMMEDIATELY GROUND DOWN WITH AN APPROVED GRINDING TOOL TO AN ELEVATION WHERE THE AREA OR SPOT WILL NOT SHOW SURFACE DEVIATIONS IN EXCESS OF 3 MM WHEN TESTED WITH 3 M STRAIGHT-EDGE. WHERE THE DEPARTURE FROM CORRECT CROSS-SECTION EXCEEDS 12 MM, THE PAVEMENT SHALL BE REMOVED AND REPLACED BY AND AT THE EXPENSE OF THE CONTRACTOR, ANY AREA OR SECTION SO REMOVED SHALL BE NOT LESS THAN 1.5 M IN LENGTH AND NOT LESS THAN THE FULL WIDTH OF THE LANE INVOLVED. WHEN IT IS NECESSARY TO REMOVE AND REPLACE A SECTION OF PAVEMENT, ANY REMAINING PORTION OF THE SLAB ADJACENT TO THE JOINTS THAT IS LESS THAN 1.5 M IN LENGTH, SHALL ALSO BE REMOVED AND REPLACED
- M. CURING IMMEDIATELY AFTER THE FINISHING OPERATIONS HAVE BEEN COMPLETED AND THE CONCRETE HAS SUFFICIENTLY SET, THE ENTIRE SURFACE OF THE NEWLY PLACED CONCRETE SHALL BE CURED IN ACCORDANCE WITH EITHER ONE OF THE METHODS DESCRIBED HEREIN FAILURE TO PROVIDE SUFFICIENT COVER MATERIAL DE WHATEVER KIND THE CONTRACTOR MAY FLECT TO USE OR THE LACK OF WATER TO ADEQUATELY TAKE CARE OF BOTH CURING AND OTHER REQUIREMENTS. SHALL BE A CAUSE FOR IMMEDIATE SUSPENSION OF CONCRET ING OPERATIONS. CONCRETE SHALL NOT BE LEFT EXPOSED FOR MORE THAN 1/2 HOUR BETWEEN STAGES OF CURING OR DURING THE CURING PERIOD. IN ALL CONGESTED PLACES, CONCRETE WORKS SHOULD BE DESIGNED SO THAT THE DESIGNED STRENGTH IS ATTAINED
- N. REMOVAL OF FORMS FORMS FOR CONCRETE SHALL REMAIN IN PLACE UNDISTURBED FOR NOT LESS IN THE REMOVAL OF THAN TWENTY FOUR (24) HOURS AFTER CONCRETE POURING FORMS CROWBARS SHOULD BE USED IN PULLING OUT NAILS AND PINS CARE SHOULD BE TAKEN SO AS NOT TO BREAK THE EDGES OF THE PAVEMENT PORTIONS OF THE CONCRETE ARE SPALLED, THEY SHALL BE

- BE IMMEDIATELY REPAIRED WITH ERESH MORTAR MIXED IN THE PROPORTION OF DIVE PART OF PORTLAND CEMENT AND TWO PARTS FINE AGGREGATES, MAJOR HONEYCOMB AREAS WILL BE CONSIDERED AS DEFECTIVE WORK, AND SHALL BE REMOVED AND REPLACED AT THE EXPENSE OF THE CONTRACTOR. ANY AREA OR SECTION SO REMOVED SHALL NOT BE LESS THAN THE DISTANCE BETWEEN WEAKENED PLANE JOINT NOR LESS THAN THE FULL WIDTH OF THE LANE INVOLVED.
- O. SEALING JOINTS JOINTS SHALL BE SEALED WITH ASPHALT SEALANT SOON AFTER COMPLETION OF THE CURING PERIOD AND BEFORE THE PAVEMENT IS OPENED TO TRAFFIC INCLUDING THE CONTRACTOR'S EQUIPMENT. JUST PRIOR TO SEALING, EACH JOINT SHALL BE THOROUGHLY CLEANED OF ALL FOREIGN MATERIALS INCLUDING MEMBRANE CURING COMPOUND AND THE JOINT FACES SHALL BE CLEAN AND SURFACE DRY WHEN THE SEAL IS APPLIED.
- PROTECTION OF PAVEMENT THE CONTRACTOR SHALL PROTECT THE PAVEMENT AND ITS APPURTENANCES AGAINST BOTH PUBLIC TRAFFIC. AND TRAFFIC CAUSED BY HIS OWN EMPLOYEES AND AGENTS. THIS SHALL INCLUDE WATCHMEN TO DIRECT TRAFFIC AND THE ERECTION OF AND MAINTENANCE OF WARNING SIGNS, LIGHTS, PAVEMENT BRIDGES OR CROSS-OVERS, ETC. THE PLANS OR SPECIAL PROVISIONS WILL INDICATE THE LOCATION AND IN CASE TYPE OF DEVICE OR FACILITY REQUIRED TO PROTECT THE WORK AND PROVIDE ADEQUATELY FOR TRAFFIC ALL BOREHOLES AFTER THICKNESS AND/OR STRENGTH DETERMINATIONS OF NEWLY CONSTRUCTED ASPHALT AND CONCRETE PAVEMENTS SHALL BE IMMEDIATELY FILLED/RESTORED WITH THE PRESCRIBED CONCRETE/ASPHALT MIX AFTER COMPLETION OF THE DRILLING WORKS. ANY DAMAGE TO THE PAVEMENT, OCCURRING PRIOR TO FINAL ACCEPTANCE, SHALL BE REPAIRED OR THE PAVEMENT BE REPLACED.
- Q. ACCEPTANCE OF CONCRETE THE STRENGTH LEVEL OF THE CONCRETE WILL BE CONSIDERED SATISFACTORY IF THE AVERAGES OF ALL SETS OF THREE (3) CONSECUTIVE STRENGTH TEST RESULTS EQUAL OR EXCEED THE SPECIFIED STRENGTH FC' AND NO INDIVIDUAL STRENGTH TEST RESULT IS DEFICIENT BY MORE THAN 15% OF THE SPECIFIED STRENGTH FC' A SET SHALL CONSIST OF A MINIMUM OF THREE (3) CONCRETE BEAM SPECIMENS.

DEFICIENCY IN STRENGTH OF CONCRETE SPECIMENS, PRICE ALLOWED PERCENT (%)	PERCENT (%) OF CONTRACT PRICE PER LOT
LESS THAN 5	100
5 TO LESS THAN 10	80
10 TO LESS THAN 15	70
15 TO LESS THAN 20	60
20 TO LESS THAN 25	50
25 OR MORE	0

- R. OPENING TO TRAFFIC THE ENGINEER WILL DECIDE WHEN THE PAVEMENT MAY BE OPENED TO TRAFFIC. THE ROAD WILL NOT BE OPENED TO TRAFFIC UNTIL TEST SPECIMENS MOLDED AND CURED IN ACCORDANCE WITH AASHTO T 23 HAVE ATTAINED THE MINIMUM STRENGTH REQUIREMENTS IN SUBSECTION 311.2.12 IF SUCH TESTS ARE NOT CONDUCTED PRIOR TO THE SPECIFIED AGE. THE PAVEMENT SHALL NOT BE OPERATED TO TRAFFIC UNTIL 14 DAYS AFTER THE CONCRETE WAS PLACED. BEFORE OPENING TO TRAFFIC THE PAVEMENT SHALL BE CLEANED AND JOINT SEALING COMPLETED
- TOLERANCE IN PAVEMENT THICKNESS THE THICKNESS OF THE PAVEMENT WILL BE DETERMINED BY MEASUREMENT OF CORES FROM THE COMPLETED PAVEMENT IN ACCORDANCE WITH AASHTO T148. THE COMPLETED PAVEMENT SHALL BE ACCEPTED ON A LOT BASIS. A LOT SHALL BE CONSIDERED AS 1000 LINEAR METERS OF PAVEMENT WHEN A SINGLE TRAFFIC LANE IS POURED OR 500 LINEAR METERS WHEN TWO LANES ARE POURED CONCURRENTLY. THE LAST UNIT IN EACH SLAB CONSTITUTES A LOT IN ITSELF WHEN ITS LENGTH IS AT LEAST 1/2 OF THE NORMAL LOT LENGTH. IF THE LENGTH OF THE LAST UNIT IS SHORTER THAN 1/2 OF THE NORMAL LOT LENGTH, IT SHALL BE INCLUDED IN THE PREVIOUS LOT, OTHER AREAS SUCH AS INTERSECTIONS, ENTRANCES. CROSSOVERS, RAMP, ETC., WILL BE GROUPED TOGETHER TO FORM A LOT. SMALL IRREGULAR AREAS MAY BE INCLUDED WITH OTHER UNIT AREAS TO FORM A LOT EACH LOT WILL BE DIVIDED INTO FIVE (5) EQUAL SEGMENTS AND ONE CORE WILL BE OBTAINED FROM EACH SEGMENT IN ACCORDANCE WITH AASHTO T 24

16. REINFORCING STEEL

- ORDER LISTS 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
- PROTECTION OF MATERIAL STEEL REINFORCEMENT SHALL BE STORED ABOVE THE SURFACE OF THE GROUND UPON PLATFORMS, 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, REINFORGEMENT 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



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SIPAG - COASTAL ROADS AUGMENT RESILIENCY OF COASTAL COMMUNITIES - CONSTRUCTION O COASTAL BOAD BARANGAY GARDEN. POBLACION, ARTECHE, EASTERN SAMAR EASTERN SAMAR LD

EVENED JAKE CHANGES S. HECHANOVA



ECOMMENDED



CONSTRUCTION REQUIREMENTS