C.Y. 2022 PROJECT

DETAILED ENGINEERING DESIGN PLAN FOR THE

REPAIR/REHABILITATION OF BALOGO PORT

BALOGO, STA. CRUZ, MARINDUQUE

CONCURRED BY :

VADM. NARCISO A. VINGSON, JR.
ASSISTANT SECRETARY FOR MARITIME
DATE:

APPROVED :

GERALD A. PACANAN, CESO III
REGIONAL DIRECTOR
DATE:

REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

REGION IV - B

EDSA, Diliman QUEZON CITY

C.Y. 2022 PROJECT

DETAILED ENGINEERING DESIGN PLAN FOR THE

REPAIR/REHABILITATION OF BALOGO PORT

STA. LIMITS : 00+000.00 - 00+820.00

OFFSHORE STA. : 00+000.00 - 00+071.540

ROAD STA. : 00+071.540 - 00+820.00

NET LENGTH : 820.00 m

BALOGO, STA. CRUZ, MARINDUQUE

SUBMITTED :

GENE RYAN A. ALTEA
OIC-CHIEF, PLANNING AND DESIGN SECTION
DATE:

RECOMMENDED

MELQUIADES H. STO. DOMINGO
OIC-ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:

GERALD A. PACANAN, CESO III
REGIONAL DIRECTOR
DATE:

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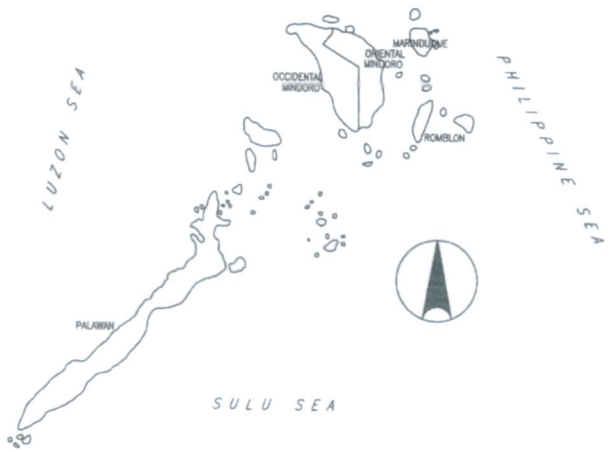
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV-B
EDSA, DILIMAN, QUEZON CITY

PROJECT NAME AND LOCATION:
DETAILED ENGINEERING DESIGN PLAN FOR THE:
REPAIR/REHABILITATION OF BALOGO PORT
BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
SUMMARY OF QUANTITIES

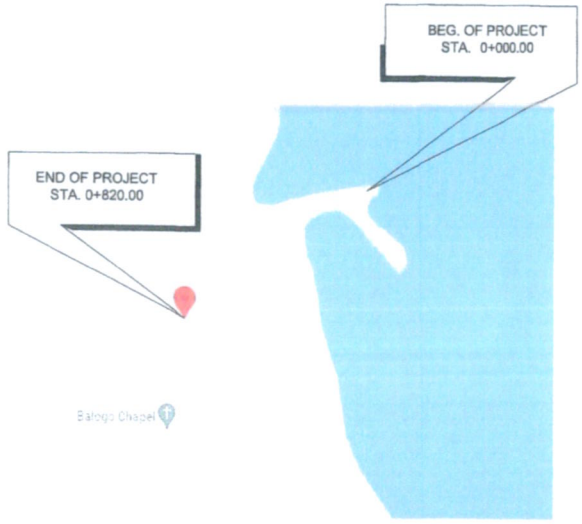
DRAFTED: MARY ROSE C. ARAÑA, ENGINEERING ASSISTANT (COS)
PREPARED: CALVIN B. CADATAL, ENGINEER II, DATE:
REVIEWED: MONTREXIS T. TAMAYO, ENGINEER III, DATE:
SUBMITTED: GENE RYAN A. ALTEA, OIC - CHIEF, PLANNING AND DESIGN DIVISION, DATE:
RECOMMENDED: MR. QUADESH STO. DOMINGO, OIC - ASSISTANT REGIONAL DIRECTOR, DATE:
APPROVED: GERALD A. PACANAN, CESO III, REGIONAL DIRECTOR, DATE:

SET NO. P 01 | 44
SHEET NO. 01 | 48



KEY MAP

LOCATION MAP



VICINITY MAP

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV-B EDSA, DILIMAN, QUEZON CITY	PROJECT NAME AND LOCATION: DETAILED ENGINEERING DESIGN PLAN FOR THE: REPAIR/REHABILITATION OF BALOGO PORT BRGY. SANTA CRUZ, MARINDUQUE	SHEET CONTENTS: KEY MAP LOCATION MAP VICINITY MAP	DRAFTED: MARY ROSE C. ARAÑA ENGINEERING ASSISTANT (COS) PREPARED: CALVIN D. CADATAL ENGINEER II DATE:	REVIEWED: MONTREXIS T. TAMAYO ENGINEER III DATE:	SUBMITTED: GENE RYAN A. ALTEA DEC - CHIEF, PLANNING AND DESIGN DIVISION DATE:	RECOMMENDED: MERCEDES H. STO. DOMINGO ARD - ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: GERALD A. PACANAN,CESO III REGIONAL DIRECTOR DATE:	SET NO. P 02 44	SHEET NO. 02 48

GENERAL NOTES

I - ROADWAY

1. STANDARD SPECIFICATIONS :
   a.) ALL WORKS SHALL COMPLY WITH THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS, GENERAL SPECIFICATIONS FOR ROADS AND BRIDGES 2004, SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS PERTAINING TO THIS PROJECT.
2. DIMENSIONS :
   a.) UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS WHICH INCLUDE STATIONING, DISTANCES BETWEEN CONTROL POINTS & DIMENSIONS OF PIPES & BOX CULVERTS ARE MEASURED IN METERS.
3. STATIONING:
   a.) THE ROAD STATIONS & ELEMENTS OF CURVES ARE RELATIVE TO THE ULTIMATE CENTERLINE OF THE ROAD.
   b.) EQUATION OF STATIONS WHEN USED (BACK STATION/AHEAD STATION) ARE PROVIDED AT THE BEGINNING OR END OF THE CURVE AND/OR AT FULL STATION.
   c.) THE STATION AT THE BEGINNING OF THE PROJECT WAS ESTABLISHED AND RECKONED FROM THE EXISTING KILOMETER POST & HAS NO RELATION WITH INTERSECTING ROAD.
4. HORIZONTAL ALIGNMENT & GRADES:
   a.) THE HORIZONTAL ALIGNMENT SHOWN IN THESE DRAWINGS FOLLOWS THE LONGITUDINAL JOINT OF PCCP. PAVEMENT (WHICH IS DEFINED AS THE EXISTING CENTERLINE) WITH MINOR DEVIATION DUE TO MAINLY SOME CONSTRUCTION ERRORS DURING ORIGINAL CONSTRUCTION STAGE. MINOR ADJUSTMENT OF THE HORIZONTAL ALIGNMENT MAY BE MADE AS DIRECTED BY THE ENGINEER TO SUIT TO THE EXISTING CENTERLINE, PARTICULARLY FOR THE A.C OVERLAY SECTIONS.
5.) UNSUITABLE MATERIALS:
   a.) UNSUITABLE MATERIALS BELOW THE SUB-GRADE SHALL BE EXCAVATED TO A REQUIRED DEPTH & WIDTH AS INDICATED IN THE PLANS OR AS DIRECTED BY THE ENGINEERS, BASED ON THE LABORATORY TEST RESULT & BE REPLACED WITH APPROVED MATERIALS.
6.) DRAINAGE STRUCTURES:
   a.) EXACT LOCATIONS, SLOPES, OUTFALLS & INVERT ELEVATIONS OF DRAINAGE STRUCTURES SHALL BE CHECKED IN THE FIELD BY THE ENGINEER. MINOR ADJUSTMENTS MAY BE MADE WITH THE APPROVAL OF THE ENGINEER TO SUIT FIELD CONDITIONS.
   b.) ANY REVISIONS, REMOVAL AND/ OR RELAYING DRAINAGE STRUCTURES AS DIRECTED BY THE ENGINEERS TO SUIT EXISTING FIELD CONDITIONS SHALL BE CONSIDERED AS SUBSIDIARY WORK PERTAINING TO OTHER CONTRACT ITEMS. NO DIRECT PAYMENT SHALL BE MADE FOR THIS WORK UNLESS OTHERWISE SPECIFICALLY IDENTIFIED FOR PAYMENT IN THE SCHEDULE.
   c.) EXISTING DRAINAGE STRUCTURES OR PART THEREOF REMOVED BY THE CONTRACTOR THAT ARE STILL SERVICEABLE SHALL BE TURNED OVER TO THE GOVERNMENT & SHALL BE DEPOSITED AT A PLACE WITHIN THE PROJECT SITE DESIGNATED WITHOUT ANY EXTRA COMPENSATION. EXTREME PRECAUTION SHALL BE EXERCISED BY THE CONTRACTOR NOT TO DAMAGE THESE MATERIALS DURING THE REMOVAL & HANDLING.
7.) ROAD CONNECTIONS & PRIVATE ENTRANCES:
   a.) APPROACHES & ROAD CONNECTIONS SHALL BE CONSTRUCTED BY THE CONTRACTOR AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEERS IN THE SUCH MANNER TO ENSURE SMOOTH CONNECTIONS & RIDING QUALITY.
   b.) DESIGN OF THE ROAD WAS BASED ON THE FINAL HIGHWAY LOCATION SURVEY.
   c.) WIDENING ON CURVES SHALL BE DETERMINED BY THE ENGINEERS IN-CHARGE TO SUIT EXISTING FIELD CONDITION.
8.) SIDE DITCHES:
   a.) ALL DITCHES SHALL COMPLY WITH THE REQUIRED STANDARDS.
   b.) INVERT ELEVATIONS & EXACT DIMENSIONS OF SIDE DITCHES MAYBE ADJUSTED IN THE FIELD AS DIRECTED BY ENGINEER.
   c.) IN SOME CASES, IN ORDER TO SATISFY , DITCH CHANNEL INVERT ELEVATIONS OF DRAINAGE SLOPE REQUIREMENT, SIDE SLOPES OF DITCHES MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.
9.) REMOVAL OF MISCELLANEOUS ROADWAY STRUCTURES:
   a.) IN PORTIONS WHERE THERE ARE EXISTING DETERIORATED ASPHALT OVERLAY, THIS SHALL BE SCARIFIED TOTALLY BEFORE PLACING THE REQUIRED OVERLAY TO ENSURE PROPER BOND. THIS WORK SHALL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO CONTRACT PAY ITEMS.
   b.) ANY REMOVAL OF MISCELLANEOUS STRUCTURES THAT MAY BE REQUIRED SHALL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO OTHER CONTRACT ITEM. NO DIRECT PAYMENT SHALL BE MADE FOR THIS WORK EXCEPT FOR SPECIFIC ITEMS EXPLICITLY IDENTIFIED FOR PAYMENT IN BID SCHEDULE.
10.) PROVISION OF ACCESSIBILITY FOR DISABLED :
   THE IMPLEMENTING OFFICE SHALL IDENTIFY THE LOCATIONS OF AND PROVIDE ACCESSIBILITY FACILITIES FOR PERSONS WITH DISABILITY IN ACCORDANCE WITH D.O. 37, SERIES 2009.

II - WHARF

ALL DIMENSIONS ARE IN MILLIMETER AND ELEVATIONS ARE IN METERS BASED FROM M.L.L.W. ELEV. 0.00 UNLESS OTHERWISE SPECIFIED.

VERIFY ALL NEEDED DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES IN THE FIELD.

THE MAXIMUM SIZE OF COARSE AGGREGATES SHALL NOT BE LARGER THAN ONE FIFTH OF THE NARROWEST DIMENSION OF THE BEAMS, NOR ONE THIRD OF THE DEPTH OF SLABS, NOR THREE QUARTERS OF THE MINIMUM CLEAR DISTANCE BETWEEN REINFORCING BARS. CONCRETE COVER SHALL BE THE FOLLOWING EXCEPT OTHERWISE SPECIFIED:

FOR SLABS, BEAMS AND GIRDERS 100mm ON TOP AND 75mm ON UNDERSIDE, MEASURED FROM THE OUTER SURFACE OF THE CONCRETE TO THE NEAREST SURFACE OF THE STEEL.

CHAMFER THE EDGES OF BEAMS, PILE CAPS, CURTAIN WALLS, R.C. CURB AND ALL OTHER PARTS OF THE SUPERSTRUCTURE BY AT LEAST 25mm.

SPLICES FOR MAIN BARS AT CRITICAL SECTION IF FOUND NECESSARY SHALL BE PROVIDED A MINIMUM LAP OF 40 BAR DIAMETER. ALL STEEL REINFORCEMENT SHALL BE DEFORMED BARS (fy = 276 MPa) UNLESS OTHERWISE SPECIFIED.

SPLICE BARS MAY BE JOINED TOGETHER BY FILLET ELECTRIC WELD IN WHICH CASE THE LAP SHALL BE AT LEAST 75mm. WELDING SHALL BE CONTINUOUS THROUGHOUT THE LENGTH OF THE LAP.

ALL INTERSECTION OF REINFORCING BARS MAY BE ELECTRICALLY SPOT WELDED IN LIEU OF TYING THEM WITH G.I. WIRES. WELDING ELECTRODES SHALL BE OF SHIELDED ARC TYPE HEAVILY COATED WITH CLASSIFICATION No. E6010 OR 6011 OF THE AMERICAN WELDING SOCIETY AND SHALL BE SUITABLE FOR THE POSITIONS AND OTHER CONDITIONS OF INTENDED USE. DIMENSIONS OF STEEL REINFORCEMENTS ARE TO BE TAKEN ON CENTER OF BARS. BAR DETAILS ARE NOT TO SCALE.

PROVIDE HOOKS AT OUTER ENDS OF TOP BARS ALONG EXTERIOR BAYS. HOOKS OF BARS SHALL HAVE A MINIMUM DIAMETER OF 4 TIMES THE DIAMETER ON SIDES OF BARS. DRAIN AND AIR HOLES SHALL BE PROVIDED AS INDICATED IN PLAN.

CONCRETE STRENGTH (f'c) TO BE USED SHALL BE AS FOLLOWS UNLESS OTHERWISE SPECIFIED.

P.S.C. SQUARE PILES	=	41.40 MPa (6,000 psi)
OTHERS	=	24.14 MPa (3,500 psi)

ROCKS TO BE USED SHALL HAVE A MINIMUM SPECIFIC GRAVITY OF 2.65, ANGULAR IN SHAPE, HARD, DURABLE AND WILL NOT EASILY DISINTEGRATE UNDER LONG EXPOSURE TO SEA WATER.

III - EXISTING FACILITIES

THE LOCAL GOVERNMENT UNIT SHALL BE RESPONSIBLE /DECIDE FOR THE DEMOLITION OF THE EXISTING FACILITIES OR OTHER STRUCTURES THAT MAY OBSTRUCT DURING THE CONSTRUCTION.

IV - CONSTRUCTION

PRIOR TO THE COMMENCEMENT OF THIS PROJECT, ALL THE NECESSARY PERMITS (ECC, BUILDING PERMITS, LOCAL CLEARANCES ETC.) SHALL BE SECURED.

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PRE-BID: SEPTEMBER 9, 2022

OPENING OF BIDS: SEPTEMBER 21, 2022

Contract ID No. : 22E00170
Name of Contract : Repair/Rehabilitation of Balogo Port, Sta. Cruz, Marinduque
Location : Sta. Cruz, Marinduque
Scope of Works : Ports/Harbors: Construction – Causeway/Wharf – with Driven Piles (PCCWDP)
Approved Budget for the Contract: Php. 298,499,999.99
Contract Duration : 360 c.d.

PART A	FACILITIES FOR THE ENGINEER			
A1.1(6)	Provision Combined field office, laboratory and living quarters building for theEngineer (Rental Basis)	AS SUBMITTED	12.00	mos.
		AS EVALUATED		
A1.1(11)	Provision Furniture/(fixtures, equipment and appliances for the field office for the Engineer	AS SUBMITTED	1.00	l.s.
		AS EVALUATED		
A1.1(14)	Provision of Laboratory Testing Equipment, Apparatus & Publications for the Engineer	AS SUBMITTED	1.00	l.s.
		AS EVALUATED		
A1.1(15)	Operation & Maintenance of Temporary Field Office, Laboratory and Living Quarters Building for the Engineer	AS SUBMITTED	12.00	mos.
		AS EVALUATED		
A1.2(4)	Provision of 4x2 Pick Up Type Service Vehicle for the Engineer on Bare Rental Basis	AS SUBMITTED	12.00	mos.
		AS EVALUATED		
A1.2(6)	Operation and Maintenance of 4x2 Pick Up Type Service Vehicle for the Engineer	AS SUBMITTED	12.00	mos.
		AS EVALUATED		
A1.3(3)	Provision of Survey Personnel for the Assistance to the Engineer	AS SUBMITTED	12.00	mos.
		AS EVALUATED		
A1.4(1)	Provision of Progress Photographs	AS SUBMITTED	600.00	ea.
		AS EVALUATED		
	TOTAL OF PART A	AS SUBMITTED		
		AS EVALUATED		
PART B	OTHER GENERAL REQUIREMENTS			
B.2	Medical Room and First Aid Facilities	AS SUBMITTED	1.00	l.s.
		AS EVALUATED		
B.5	Project Billboard/Signboard	AS SUBMITTED	2.00	ea.
		AS EVALUATED		
B.7(2)	Occupational Safety and Health Program	AS SUBMITTED	1.00	l.s.
		AS EVALUATED		
B.9	Mobilization/Demobilization	AS SUBMITTED	1.00	l.s.
		AS EVALUATED		
B.18(1)	Craneway	AS SUBMITTED	1.00	l.s.
		AS EVALUATED		
	TOTAL OF PART II	AS SUBMITTED		
		AS EVALUATED		
PART C	EARTHWORK			
102 (2)	Surplus Common Excavation	AS SUBMITTED	4,942.89	cu.m.
		AS EVALUATED		
104 (1)c	Embankment from roadway excavation, Hard Rock	AS SUBMITTED	630.89	cu.m.
		AS EVALUATED		
105 (1)a	Subgrade Preparation, Common Material	AS SUBMITTED	13,771.48	sq.m.
		AS EVALUATED		
	TOTAL OF PART C	AS SUBMITTED		
		AS EVALUATED		
PART F	BRIDGE CONSTRUCTION			
400 (4)a2	Precast Concrete Piles, furnished, 450x450mm	AS SUBMITTED	12,870.00	m
		AS EVALUATED		
400 (14)	Precast Concrete Piles, driven	AS SUBMITTED	12,852.00	m
		AS EVALUATED		
400 (16)b	Test Piles, furnished and driven, 450x450mm	AS SUBMITTED	174.00	m
		AS EVALUATED		
404 (1)a	Reinforcing Steel, Grade 40	AS SUBMITTED	265,759.05	kg
		AS EVALUATED		
405 (1)b2	Structural Concrete 27.58 Mpa, Class A 14days	AS SUBMITTED	1,144.47	cu.m.
		AS EVALUATED		
413 (4)a	Expansion Joint	AS SUBMITTED	142.00	l.m.
		AS EVALUATED		
	TOTAL OF PART F	AS SUBMITTED		
		AS EVALUATED		
PART G	DRAINAGE & SLOPE PROTECTION STRUCTURES			
500 (1)b3	Pipe Culverts RCPC 910 mm dia. (Class IV)	AS SUBMITTED	1,640.00	l.m.
		AS EVALUATED		
	TOTAL OF PART G	AS SUBMITTED		
		AS EVALUATED		
PART H	MISCELLANEOUS STRUCTURES			
624 (1)a3	Single Arm Post, with Street Light, 175W LED, 10m	AS SUBMITTED	150.00	ea.
		AS EVALUATED		
	TOTAL OF PART H	AS SUBMITTED		
		AS EVALUATED		

PART G	PROTECTIVE WORKS AND ACCESSORIES			
1400 (4)	Bollard with Accessories	AS SUBMITTED	15.00	set
		AS EVALUATED		
1403(1)	Installation of Rubber Dock Fenders	AS SUBMITTED	15.00	set
		AS EVALUATED		
	TOTAL OF PART G	AS SUBMITTED		
		AS EVALUATED		
ITEM NO.	DESCRIPTION		QUANTITY	UNIT
PART H	BULKHEADS			
1501(1)	Rock Works,Class I Rock	AS SUBMITTED	3,794.04	tonne
		AS EVALUATED		
	TOTAL OF PART H	AS SUBMITTED		
		AS EVALUATED		
	GRAND TOTAL	AS SUBMITTED		
		AS EVALUATED		

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PROJECT NAME AND LOCATION:
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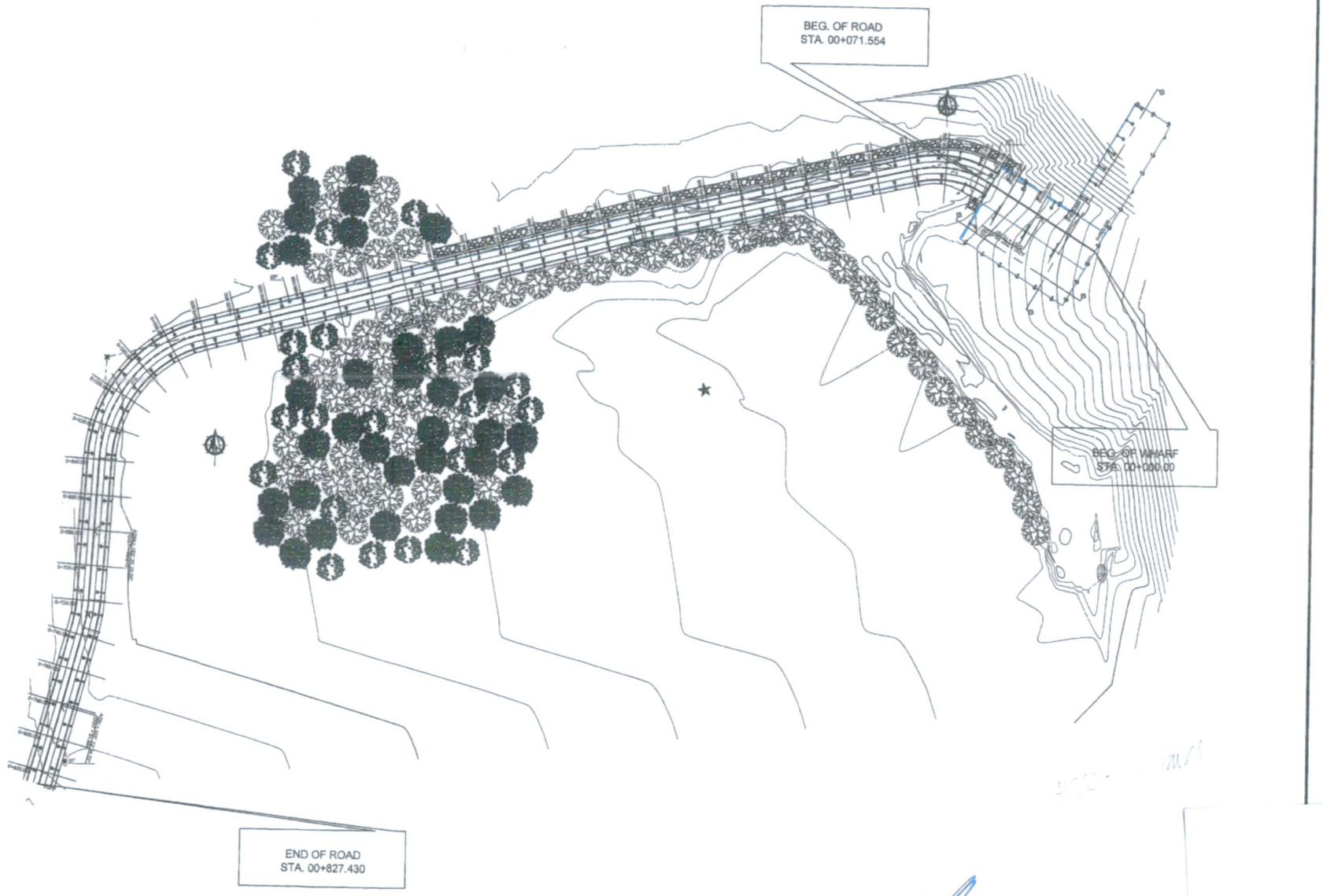
REPAIR/REHABILITATION OF BALOGO PORT
BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
SUMMARY OF QUANTITIES

DRAFTED: MARY ROSE C. ARAÑA, ENGINEERING ASSISTANT (COS)
PREPARED: CALVIN D. CADATAL, ENGINEER II, DATE:
REVIEWED: MONTREXIS T. TAMAYO, ENGINEER III, DATE:
SUBMITTED: GENE RYAN A. ALTEA, OIC - CHIEF, PLANNING AND DESIGN DIVISION, DATE:
RECOMMENDING APPROVAL: MELQUIADES H. STO. DOMINGO, OIC - ASSISTANT REGIONAL DIRECTOR, DATE:
APPROVED: GERALD A. PACANAN,CESO III, REGIONAL DIRECTOR, DATE:
SET NO. P 04 44
SHEET NO. 04 46



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BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
GENERAL PLAN

DRAFTED:
MARY ROSE C. ARAÑA
ENGINEERING ASSISTANT (COS)

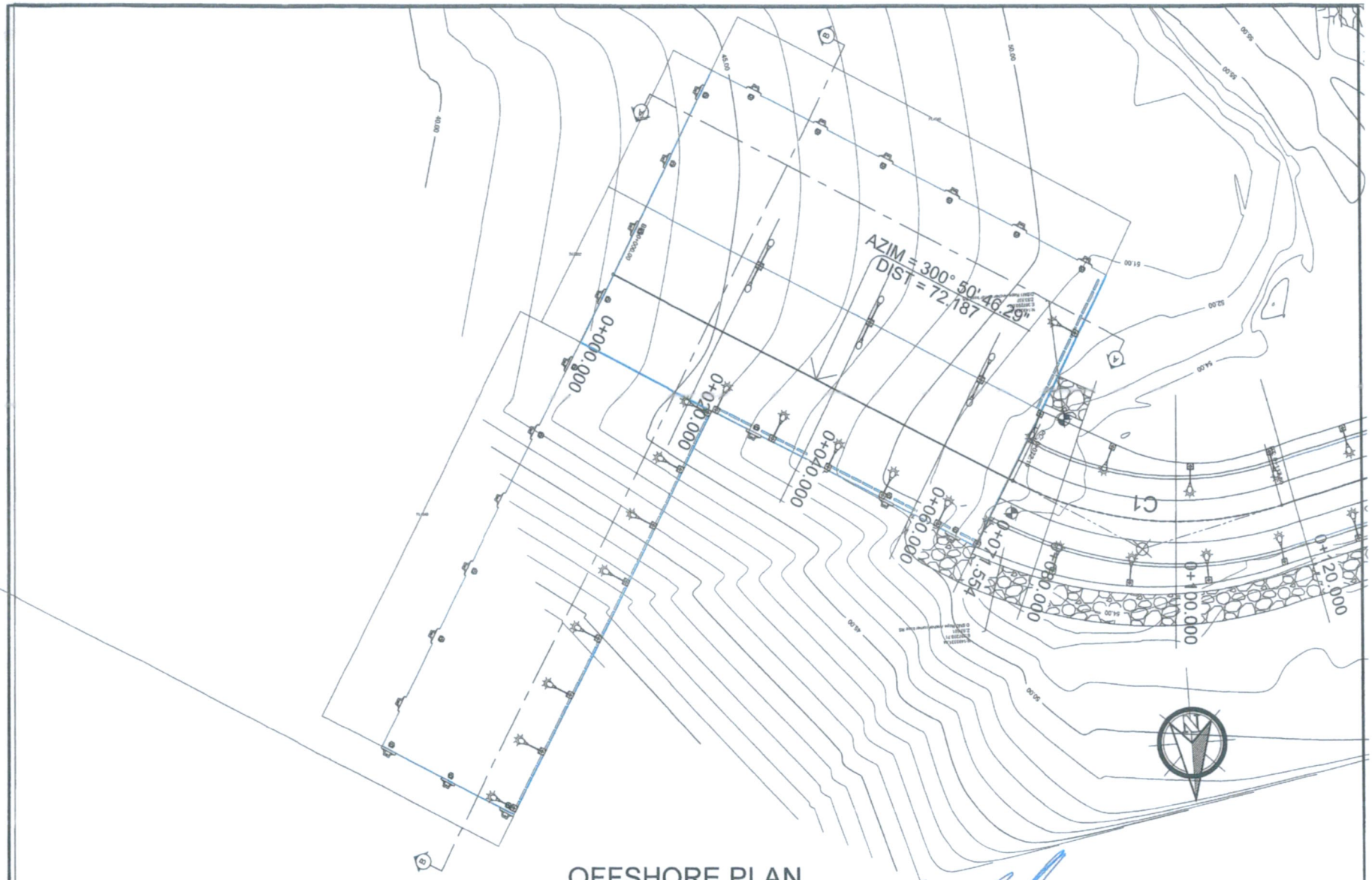
PREPARED:
CALVIN D. CADATAL
ENGINEER II
DATE:

REVIEWED:
MONTREXIS T. TAMAYO
ENGINEER III
DATE:

SUBMITTED:
GENE RYAN A. ALTEA
OIC - CHIEF, PLANNING AND DESIGN DIVISION
DATE:

RECOMMENDED:
MERCEDUARDES H. STO. DOMINGO
OIC - ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
GERALD A. PACANAN,CE
REGIONAL DIRECTOR
DATE:



OFFSHORE PLAN

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SHEET CONTENTS:
OFFSHORE PLAN

DRAFTED:
MARY ROSE C. ARAÑA
ENGINEERING ASSISTANT (COS)
PREPARED:
CALVIN D. ERDATAL
ENGINEER II
DATE:

REVIEWED:
MONTREXIS T. TAMAYO
ENGINEER III
DATE:

SUBMITTED:
GENE RYAN A. ALTEA
OIC - CHIEF, PLANNING AND DESIGN DIVISION
DATE:

RECOMMENDED:
MELQUIADES T. USTO. DOMINGO
OIC - ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
GERALD A. PACANAN,CESO III
REGIONAL DIRECTOR
DATE:

SET NO.: P 02 | 44

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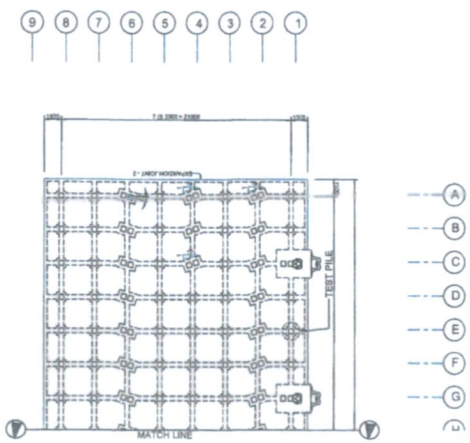

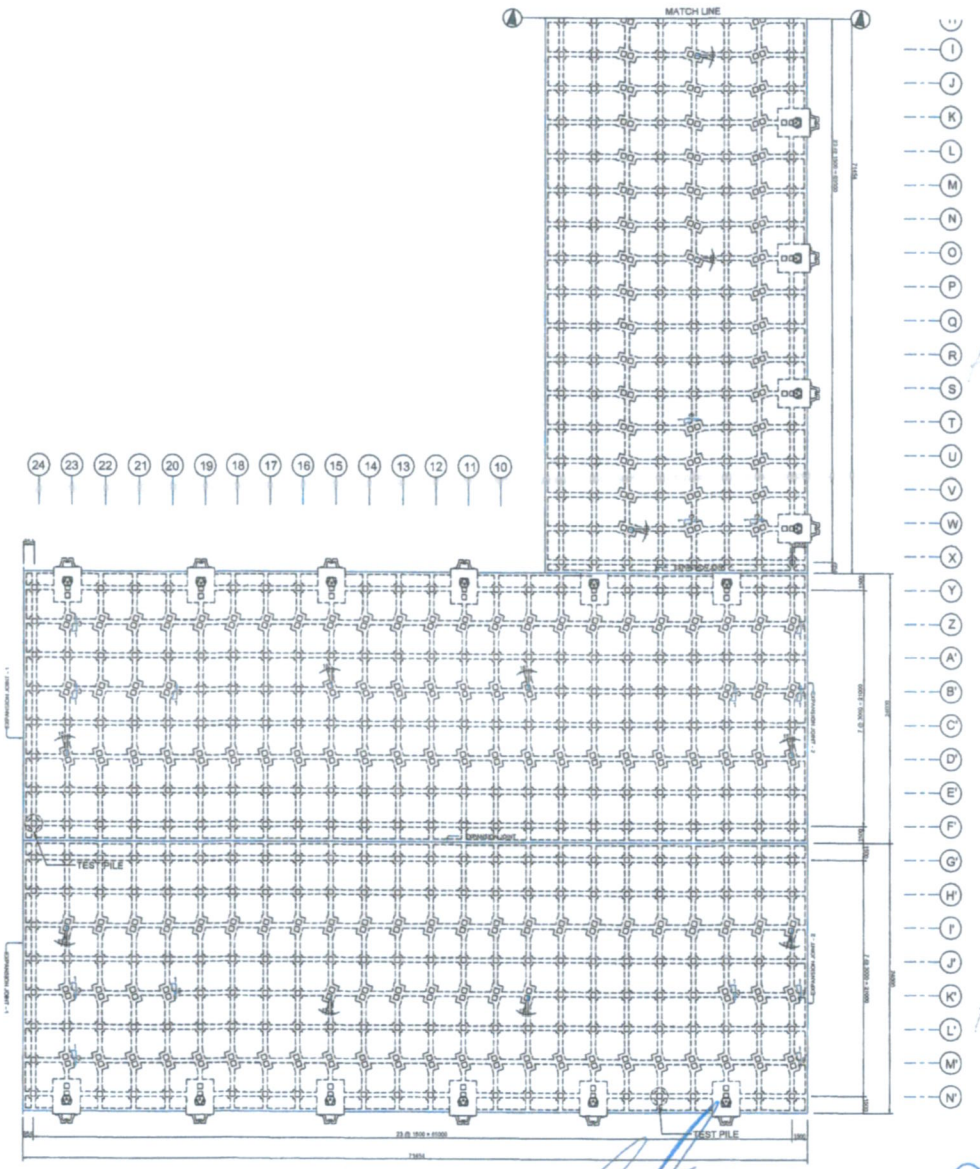

SCHEDULE OF 450mm x 450mm PSC PILES (R.C. WHARF)

PILE TYPE	LOCATIONS ROWS	LOCATIONS BENTS	QTY.	LENGTH (mm)	MINIMUM BEARING POWER (TONS)
VERTICAL	B & F	1, 3-5, 7-9, 11-13, 15-17, 19, 21, 23-25, 27-29, 31-33, 35-37, 39-41, 43-45 & 47	240	26	65
	C,E & G	1 - 47			
	D	1, 6-8, 17-21, 29-32 & 40-42			
	H	2 - 47			
VERTICAL (ENCASING FOUNDATION)	2, 6, 10	14, 18, 22, 26, 30, 34, 38, 42 & 46 (2 sets)	24	28	60
TEST PILE (VERTICAL)	A	20	3	39	-
	D	43			
	H	1			
COUPLE BATTER	B & F	2 - 47	242	27	70
	D	2-4, 10-16, 22-28, 33-39 & 44-47			

SEE ALSO PILE SCHEDULE FOR RAMPS AND DOLPHINS.

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GENERAL FRAMING AND PILING LAYOUT OF WHARF

DRAFTED:
MARY ROSE C. ARAÑA
ENGINEERING ASSISTANT (COS)

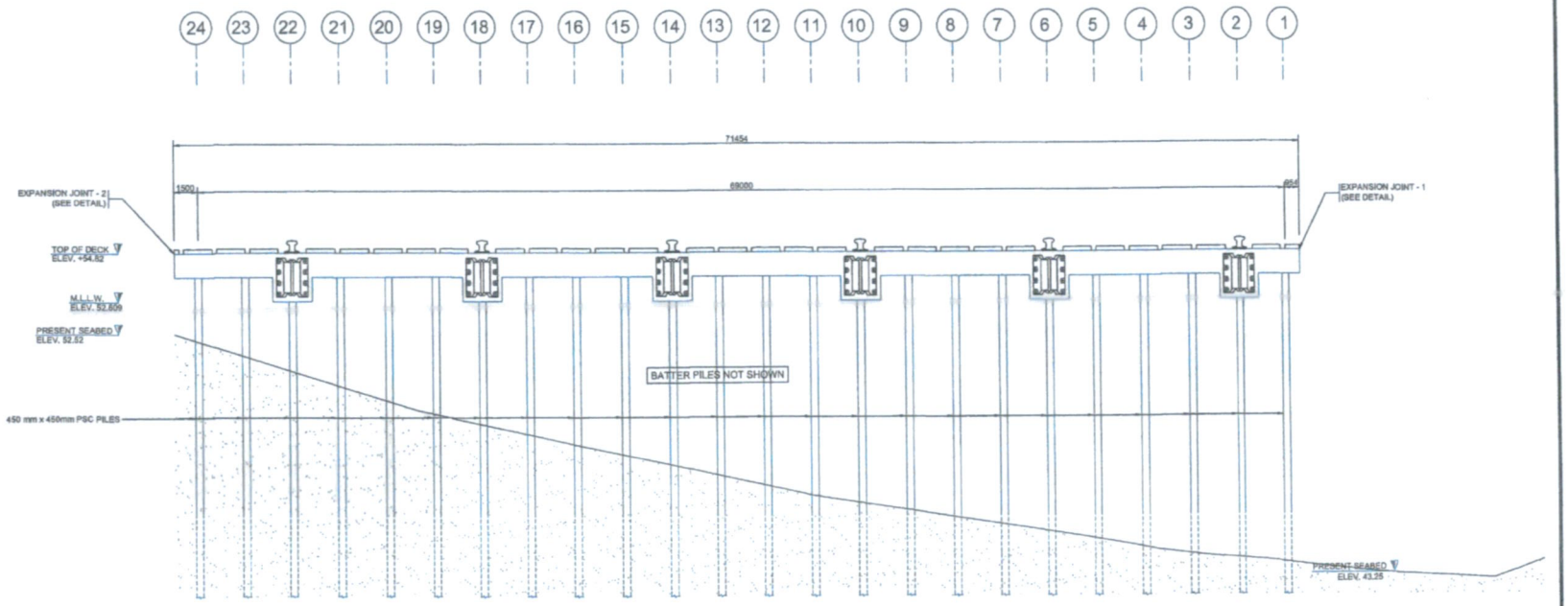
PREPARED:
CALVIN D. GADATAL
ENGINEER II
DATE:

REVIEWED:
MONTREAL T. TAMAYO
ENGINEER III
DATE:

SUBMITTED:
GENE RYAN A. ALTEA
OIC - CHIEF, PLANNING AND DESIGN DIVISION
DATE:

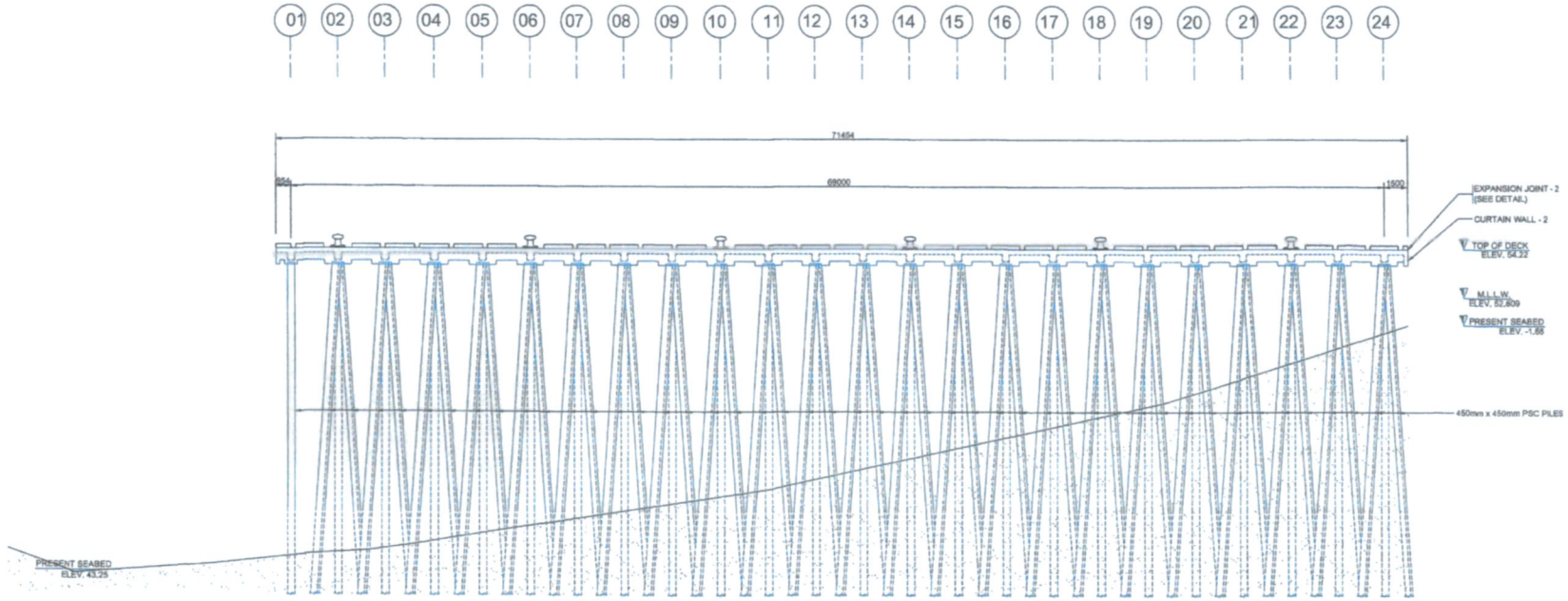
RECOMMENDED:
MERQUIADES H. STO. DOMINGO
OIC - ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
GERALD A. PACANAN, CESO III
REGIONAL DIRECTOR
DATE:



PROFILE OF SECTION "A- - A"

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV-B EDSA, DILIMAN, QUEZON CITY	PROJECT NAME AND LOCATION: DETAILED ENGINEERING DESIGN PLAN FOR THE: REPAIR/REHABILITATION OF BALOGO PORT BRGY. SANTA CRUZ, MARINDUQUE	SHEET CONTENTS: OFFSHORE ELEVATION	DRAFTED: MARY ROSE C. ARAÑA ENGINEERING ASSISTANT (COS) PREPARED: CALVIN D. CADATAL ENGINEER II DATE:	REVIEWED: MONTREXIS T. TAMAYO ENGINEER III DATE:	SUBMITTED: GENE RYAN A. ALTEA OIC - CHIEF, PLANNING AND DESIGN DIVISION DATE:	MERCUADES M. STO. DOMINGO OIC - ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: GERALD A. PACANANCESO III REGIONAL DIRECTOR DATE:	SET NO. P 04 | 44	SHEET NO. 08 48



PROFILE OF OPPOSITE SIDE OFSECTION A - A

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV-B
EDSA, DILIMAN, QUEZON CITY

PROJECT NAME AND LOCATION:
DETAILED ENGINEERING DESIGN PLAN FOR THE:
REPAIR/REHABILITATION OF SALOGO PORT
BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
TYPICAL REINFORCEMENT DETAIL OF BEAMS (1/2)

DRAFTED:
MARY ROSE C. ARAÑA
ENGINEERING ASSISTANT (COS)
PREPARED:
CALVIN D. CADATAL
ENGINEER II
DATE:

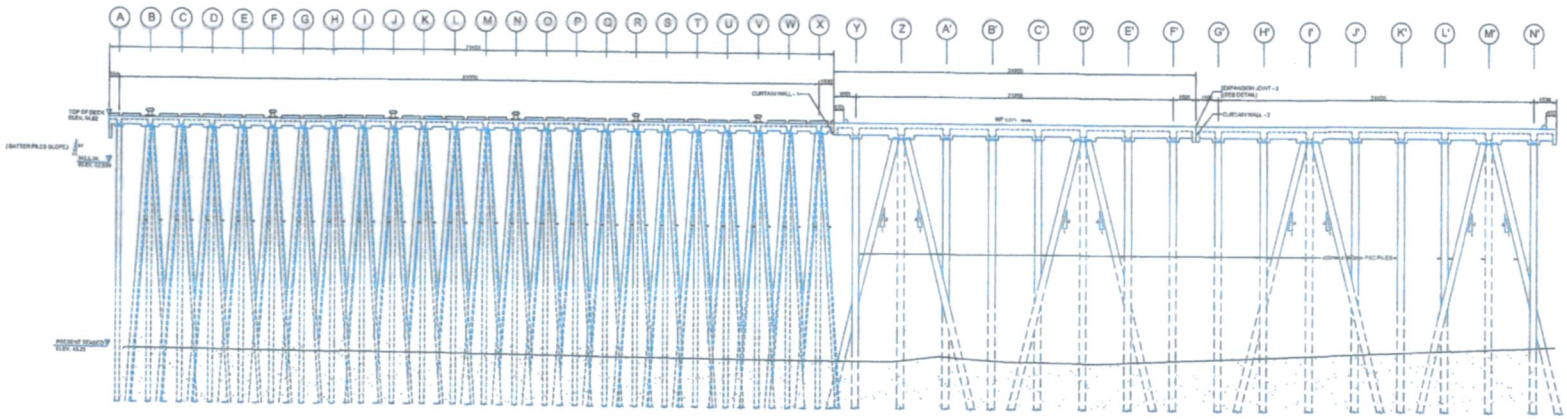
REVIEWED:
MONTREXIS T. TAMAYO
ENGINEER III
DATE:

SUBMITTED:
GENE RYAN A. ALTEA
OIC - CHIEF, PLANNING AND DESIGN DIVISION
DATE:

RECOMMENDING APPROVAL:
MELQUIADES H. STO. DOMINGO
OIC - ASSISTANT REGIONAL DIRECTOR
DATE:

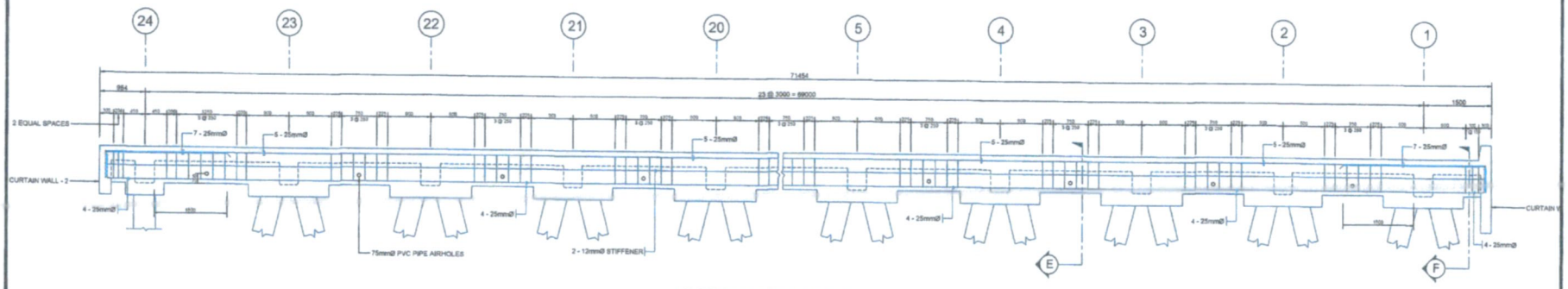
APPROVED:
GERALD A. PACANAN, CESO III
REGIONAL DIRECTOR
DATE:

SET NO. P 05 | 44
SHEET NO. 09 / 46

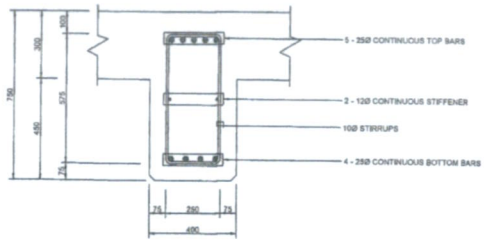


SECTION B - B
SCALE NTS

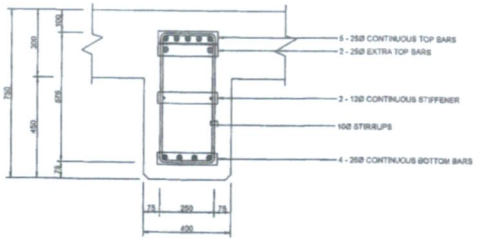
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV-B EDSA, DILIMAN, QUEZON CITY	PROJECT NAME AND LOCATION: DETAILED ENGINEERING DESIGN PLAN FOR THE: REPAIR/REHABILITATION OF BALOGO PORT BRGY. SANTA CRUZ, MARINDUQUE	SHEET CONTENTS: SECTION B - B	DRAFTED: MARY ROSE C. ARAÑA ENGINEERING ASSISTANT (COS) PREPARED: CALVIN D. CACATAL DRAFTSMAN II DATE:	REVIEWED: MONTREXIS T. TAMAYO ENGINEER III DATE:	SUBMITTED: GENE RYAN A. ALTEA OIC - CHIEF, PLANNING AND DESIGN DIVISION DATE:	RECOMMENDING: MERCEDITAS N. STO. DOMINGO OIC - ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: GERALD A. PACANAN,CESO III REGIONAL DIRECTOR DATE:	SET NO. P 06 | 44	SHEET NO. 10 48



LONGITUDINAL SECTION (ROW B)
SCALE : NTS



SECTION E (@ INTERIOR SUPPORT AND MID-SPAN)
SCALE : 1 : 10



SECTION F (@ CANTILEVER)
SCALE : 1 : 10

TYPICAL REINFORCEMENT DETAIL OF BEAMS
SCALE : AS SHOWN

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV-B
EDSA, DILIMAN, QUEZON CITY

PROJECT NAME AND LOCATION:
DETAILED ENGINEERING DESIGN PLAN FOR THE:
REHABILITATION/REHABILITATION OF BALOGO PORT
BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
TYPICAL REINFORCEMENT DETAIL OF BEAMS (1/2)

DRAFTED:
MARY ROSE C. ARAÑA
ENGINEERING ASSISTANT (DOS)
PREPARED:
CALVIN D. CADATAL
ENGINEER II
DATE:

REVIEWED:
MONTREXIS T. TAMAYO
ENGINEER III
DATE:

SUBMITTED:
GENE RYAN A. ALTEA
OIC - CHIEF, PLANNING AND DESIGN DIVISION
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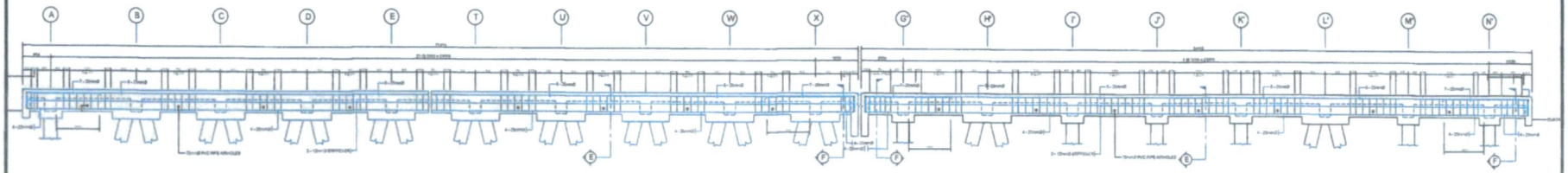
RECOMMENDED:
MR. LOMAOES H. STO. DOMINGO
OIC - ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
GERALD A. PACANAN,CESO III
REGIONAL DIRECTOR
DATE:

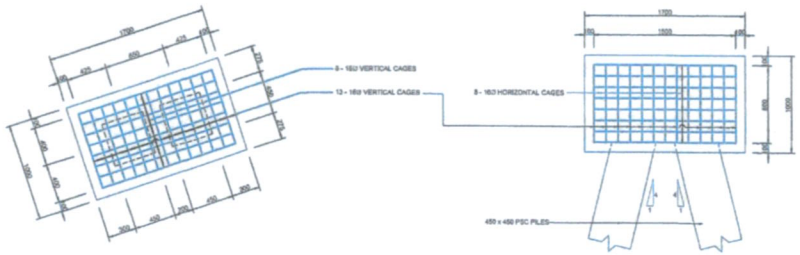
SET NO. P 07 44
SHEET NO. 11 48



TRANSVERSE SECTION (BENT 40)

SCALE : NTS

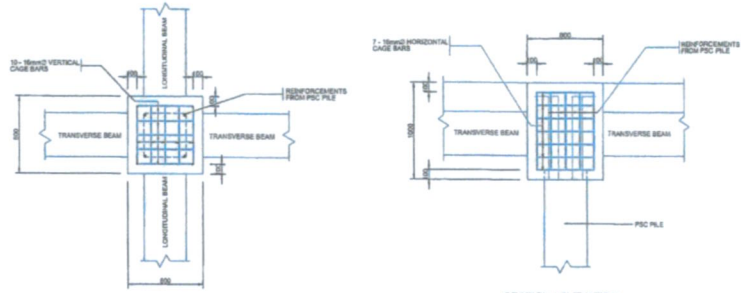
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV-B EDSA, DILIMAN, QUEZON CITY	PROJECT NAME AND LOCATION: DETAILED ENGINEERING DESIGN PLAN FOR THE: REPAIR/REHABILITATION OF BALOGO PORT BRGY. SANTA CRUZ, MARINDUQUE	SHEET CONTENTS: TYPICAL REINFORCEMENT DETAIL OF BEAMS (2/2)	DRAFTED: MARY ROSE C. ARAÑA ENGINEERING ASSISTANT (COS) PREPARED: CALVIN D. CADATAL ENGINEER II DATE:	REVIEWED: MONTREXIS T. TAMAYO ENGINEER III DATE:	SUBMITTED: GENE RYAN A. ALTEA OIC - CHIEF, PLANNING AND DESIGN DIVISION DATE:	RECOMMENDING APPROVAL: MELQUIADES R. STO. DOMINGO OIC - ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: GERALD A. PACANAN,CESO III REGIONAL DIRECTOR DATE:	SET NO. P 08 | 44	SHEET NO. 12 48



PLAN SECTION / ELEVATION

TYPICAL REINFORCEMENT OF COUPLE-BATTER PILECAP

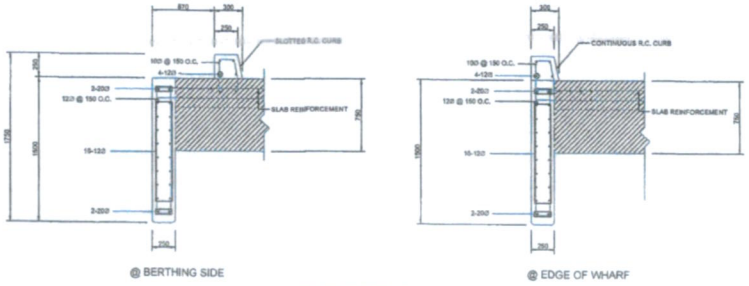
SCALE : NTS



PLAN SECTION / ELEVATION

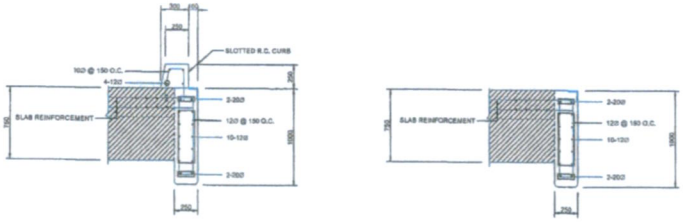
TYPICAL REINFORCEMENT OF VERTICAL PILE CAP

SCALE : NTS



@ BERTHING SIDE @ EDGE OF WHARF

CURTAIN WALL 1

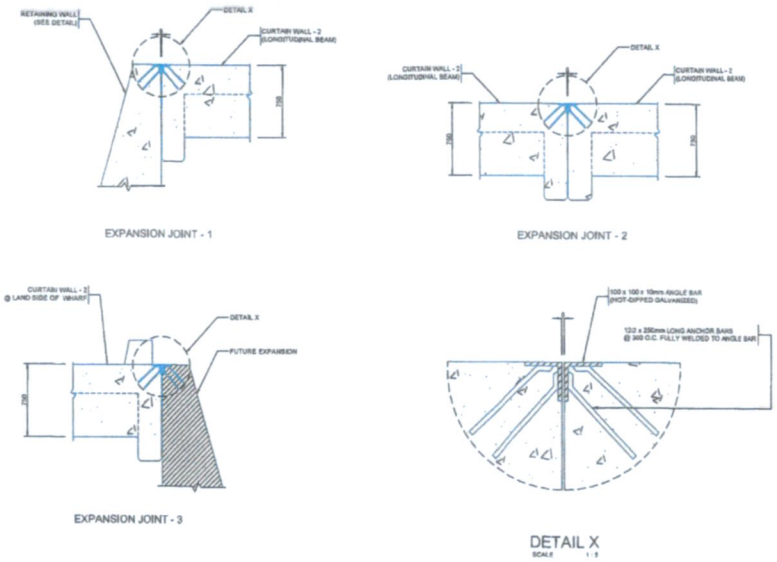


@ LAND SIDE @ LONGITUDINAL EXPANSION JOINT

CURTAIN WALL 2

DETAIL OF CURTAIN WALLS

SCALE NTS



EXPANSION JOINT - 1 EXPANSION JOINT - 2

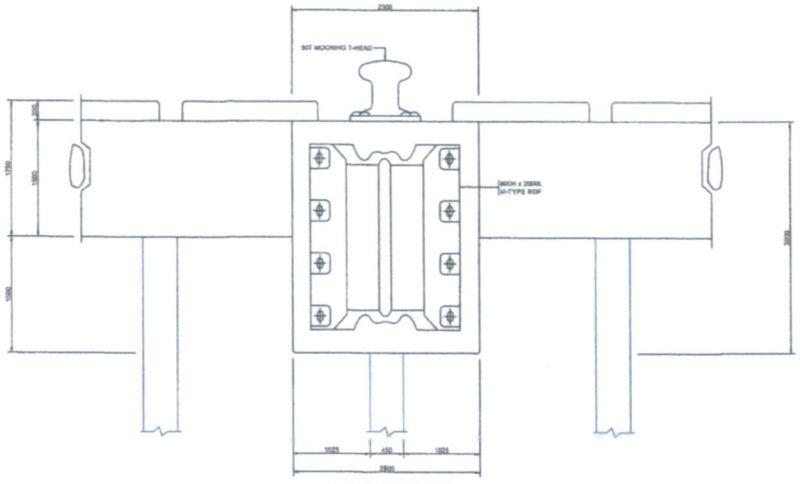
EXPANSION JOINT - 3 DETAIL X

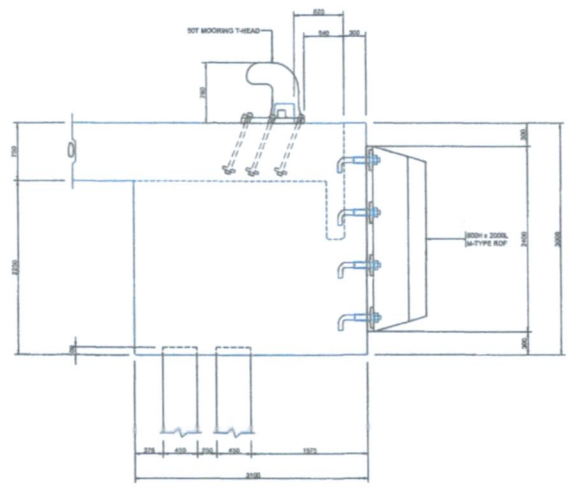
SCALE 1 : 5

DETAIL OF EXPANSION JOINTS

SCALE NTS

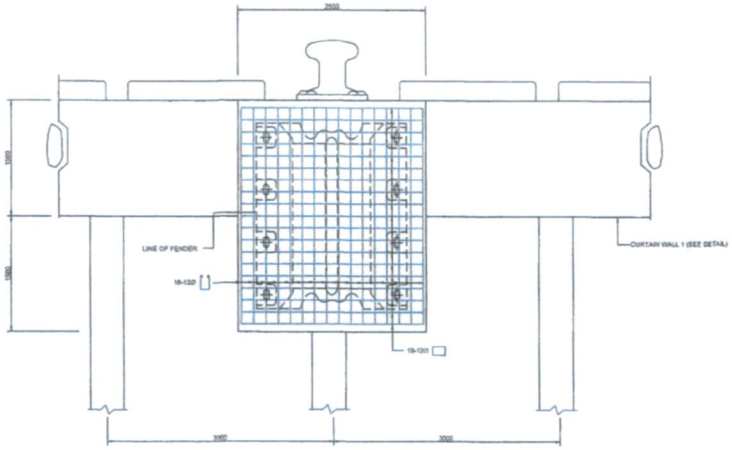
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV-B EDSA, DILIMAN, QUEZON CITY	PROJECT NAME AND LOCATION: DETAILED ENGINEERING DESIGN PLAN FOR THE: REPAIR/REHABILITATION OF BALOGO PORT BRGY. SANTA CRUZ, MARINDUQUE	SHEET CONTENTS: TYPICAL DETAILS	DRAFTED: MARY ROSE C. ARAÑA ENGINEERING ASSISTANT (COS) PREPARED: CALVIN D. CADATAL ENGINEER II DATE:	REVIEWED: MONTREXIS T. TAMAYO ENGINEER III DATE:	SUBMITTED: GENE RYAN A. ALTEA OIC - CHIEF, PLANNING AND DESIGN DIVISION DATE:	RECOMMENDING: MELQUIADES H. STO. DOMINGO OIC - ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: GERALD A. PACANAN, CESO III REGIONAL DIRECTOR DATE:	SET NO. P 09 44	SHEET NO. 13 45

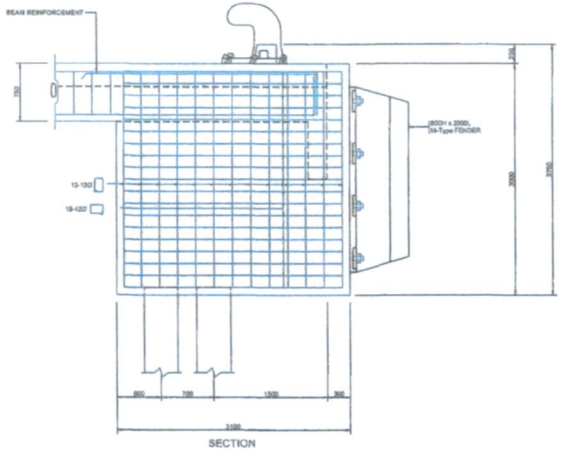




TYPICAL ATTACHMENT OF MOORING AND FENDERING SYSTEMS

SCALE NTS

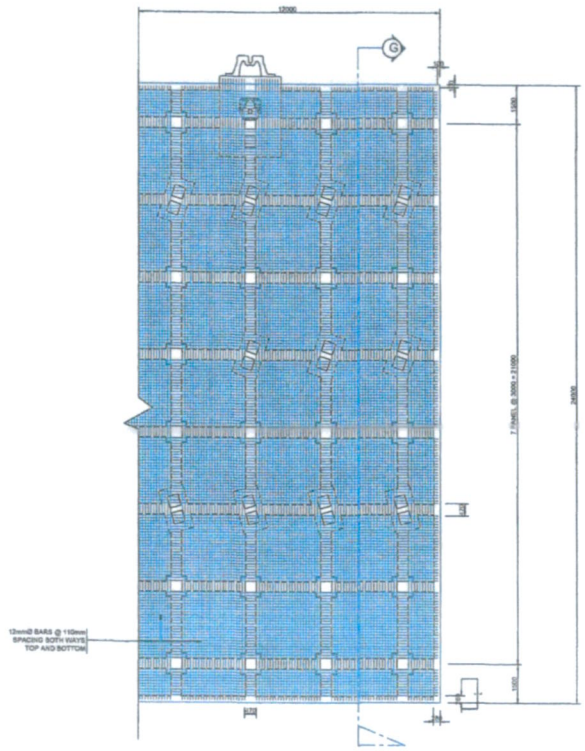




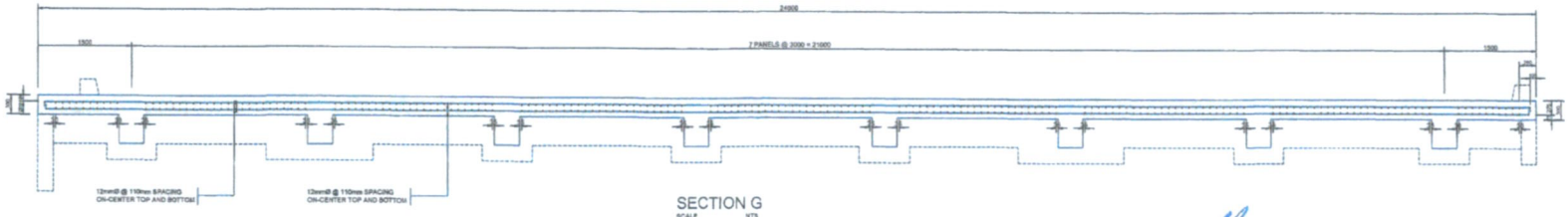
TYPICAL REINFORCEMENT DETAIL OF MOORING/FENDERING BLOCK

SCALE NTS

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV-B EDSA, CILIMAN, QUEZON CITY	PROJECT NAME AND LOCATION: DETAILED ENGINEERING DESIGN PLAN FOR THE: REHABILITATION OF BALOGO PORT BRGY. SANTA CRUZ, MARINDUQUE	SHEET CONTENTS: MOORING/FENDER BLOCK DETAIL	DRAFTED : MARY ROSE C. ARAÑA ENGINEERING ASSISTANT (COS) PREPARED : CALVIN D. CADATAL ENGINEER II DATE:	REVIEWED: MONTREXIS T. TAMAYO ENGINEER III DATE:	SUBMITTED: GENE RYAN A. ALTEA OIC-CHIEF, PLANNING AND DESIGN DIVISION DATE:	RECOMMENDED: MERCUADES H. STO. DOMINGO OIC - ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: GERALD A. PACANAN,CESO III REGIONAL DIRECTOR DATE:	SET NO. P 10 44	SHEET NO. 14 48



TYPICAL DETAIL OF SLAB
SCALE NTS

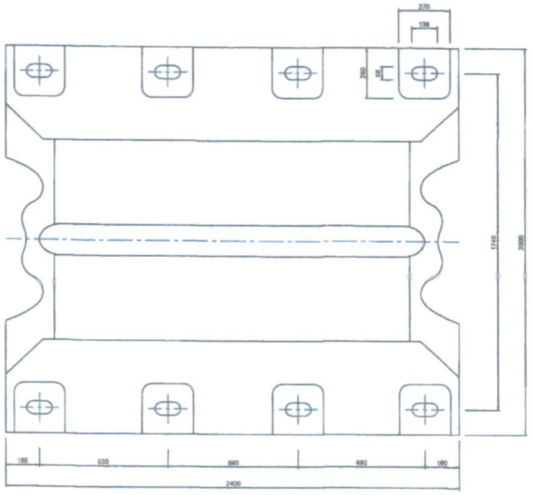


SECTION G
SCALE NTS

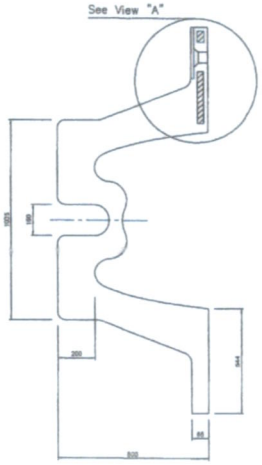
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV-B EDSA, OLIMAN, QUEZON CITY	PROJECT NAME AND LOCATION: DETAILED ENGINEERING DESIGN PLAN FOR THE: REPAIR/REHABILITATION OF BALOGO PORT BRGY. SANTA CRUZ, MARINDUQUE	SHEET CONTENTS: TYPICAL DETAIL OF SLAB	DRAFTED: MARY ROSE C. ARAÑA ENGINEERING ASSISTANT (COS) PREPARED: CALVIN G. CADATAL ENGINEER II DATE:	REVIEWED: MONTREXIS T. TAMAYO ENGINEER III DATE:	SUBMITTED: GENE RYAN A. ALTEA OIC - CHIEF, PLANNING AND DESIGN DIVISION DATE:	RECOMMENDING: MELQUIADES H. STO. DOMINGO OIC - ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: GERALD A. PACANAM,CESO III REGIONAL DIRECTOR DATE:	SET NO. P 11 44	SHEET NO. 15 48

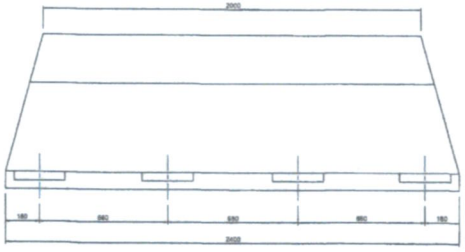
PERFORMANCE CHARACTERISTICS OF
M-TYPE FENDER 800H x 2000L

	AT RATED DEFLECTION (50%)		AT MAX. DEFLECTION (55%)	
RUBBER GRADE	REACTION FORCE	ENERGY ABSORPTION	REACTION FORCE	ENERGY ABSORPTION
N2	(TON)	(TON-M)	(TON)	(TON-M)
	115.8 (max)	38.2 (min)	160.8 (max.)	41.6 (min)

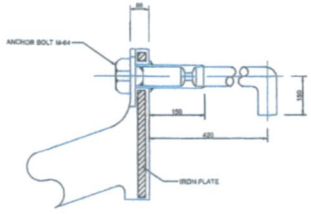


PLAN



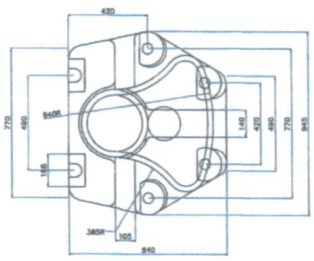


ELEVATION

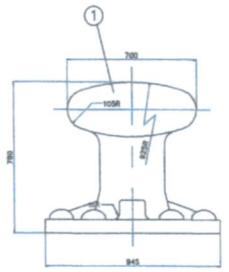


VIEW "A"

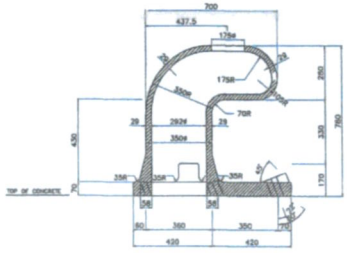
DETAIL OF M-TYPE FENDER (800H x 2000L)
SCALE NTS



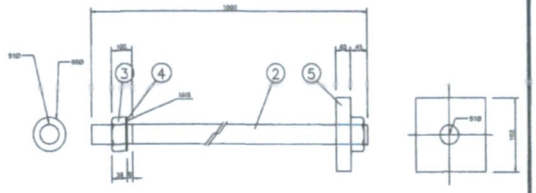
PLAN



ELEVATION



SECTION

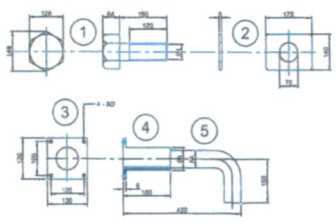


DETAIL OF ANCHOR BOLT

MATERIALS AND WEIGHT

NO.	DESCRIPTION	MATERIALS AND SPECIFICATION	ALLOW. STRESS (Kg/cm2)	QTY.	WEIGHT PER PC. (kg)	WT. X QTY
1	BODY	JIS G 5101 3 GRADE SC 46	1,400	1	663	663
2	ANCHOR BOLT	JIS G 3191 2 GRADE SS41 JIS B 0205 M 48-6	1,400	6	14	84
3	HEXAGON NUTS	JIS B 1181 I GRADE 4T, M48-6	-	12	-	-
4	PLAIN WASHER	JIS B 1256 ROUND STEEL	-	6	-	-
5	ANCHOR RING	JIS G 3101 2 GRADE SS41 OR JIS G 9101 3 GRADE SC46	1,400	6	12	72

DETAIL OF 50 TON MOORING TEE - HEAD
SCALE 1 : 10



MATERIALS SPECIFICATIONS

No.	PART	MATERIAL	REMARKS	SPECIFICATION
1	FIXING BOLT	ROLLED STEEL	GALVANIZED	JIS G3101
2	WASHER	ROLLED STEEL	GALVANIZED	JIS G3101
3	SQUARE FLANGE	ROLLED STEEL	GALVANIZED	JIS G3101
4	ANCHOR PLUG	STAINLESS STEEL	-	JIS G4303 & G4318
5	ANCHOR HOOK	ROLLED STEEL	-	JIS G3101

DETAIL OF ANCHOR BOLT FOR M-TYPE 800H FENDER
SCALE NTS

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV-B
EDSA, DILIMAN, QUEZON CITY

PROJECT NAME AND LOCATION:
DETAILED ENGINEERING DESIGN PLAN FOR THE:
REPAIR/REHABILITATION OF BALOGO PORT
BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
PERFORMANCE CHARACTERISTICS OF M-TYPE FENDER 800H x 2000L
DETAIL OF M-TYPE FENDER (800H x 2000L)
DETAIL OF ANCHOR BOLT FOR M-TYPE 800H FENDER
DETAIL OF 50 TON MOORING T-HEAD

DRAFTED:
MARY ROSE C. ARAÑA
ENGINEERING ASSISTANT (COS)
PREPARED:
CALVIN D. CADATAL
ENGINEER II
DATE:

REVIEWED:
MONTREXIS T. TAMAYO
ENGINEER III
DATE:

SUBMITTED:
GENE RYAN A. ALTEA
OIC - CHIEF, PLANNING AND DESIGN DIVISION
DATE:

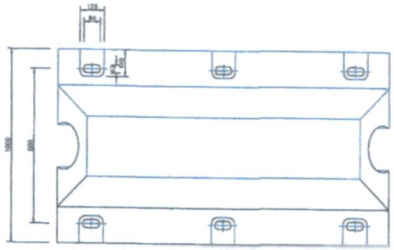
RECOMMENDED:
MERLUARDES R. STO. DOMINGO
OIC - ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
GERALD A. PACANA N.CESO III
REGIONAL DIRECTOR
DATE:

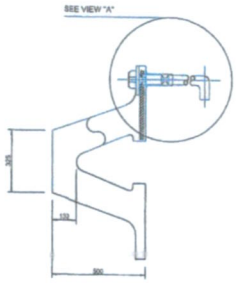
SET NO. 12 of 44
SHEET NO. 16 of 48

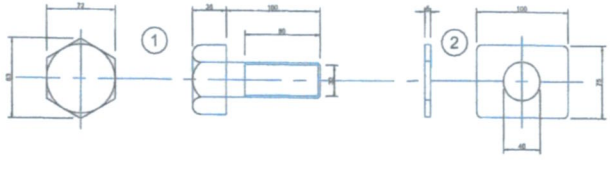
PERFORMANCE CHARACTERISTIC
OF V-TYPE 500H x 1500L FENDER

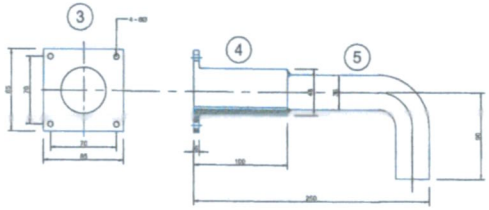
AT RATED DEFLECTION OF FENDER (45%)		
HULL PRESSURE	REACTION FORCE	ENERGY ABSORPTION
TON/M^2	TON	TON-M
98 (min.)	58.8 (min.)	5.38 (min.)

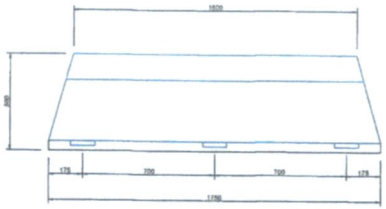


PLAN

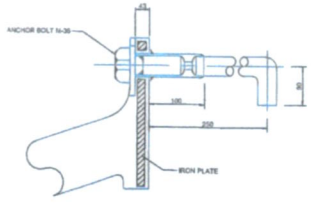








ELEVATION



VIEW "A"

MATERIALS SPECIFICATIONS

No.	PART	MATERIAL	REMARKS	SPECIFICATION
1	FIXING BOLT	ROLLED STEEL	GALVANIZED	JIS G3101
2	WASHER	ROLLED STEEL	GALVANIZED	JIS G3101
3	SQUARE FLANGE	ROLLED STEEL	GALVANIZED	JIS G3101
4	ANCHOR PLUG	STAINLESS STEEL	-	JIS G4303 & G4315
5	ANCHOR HOOK	ROLLED STEEL	-	JIS G3101

DETAIL OF ANCHOR BOLT FOR V-TYPE 500H FENDER
SCALE NTS

DETAIL OF V-TYPE FENDER (V-500H x 1500L)
SCALE NTS

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV-B
EDSA, DILIMAN, QUEZON CITY

PROJECT NAME AND LOCATION:
DETAILED ENGINEERING DESIGN PLANS FOR THE:
REHABILITATION OF BALOGO PORT
BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
PERFORMANCE CHARACTERISTICS OF V-TYPE FENDER 500H x 1500L
DETAIL OF V-TYPE FENDER (500H x 1500L)
DETAIL OF ANCHOR BOLT FOR V-TYPE 500H FENDER

DRAFTED:
MARY ROSE C. ARAÑA
ENGINEERING ASSISTANT (COS)
PREPARED:
CALVIN D. CADIATAL
ENGINEER II
DATE:

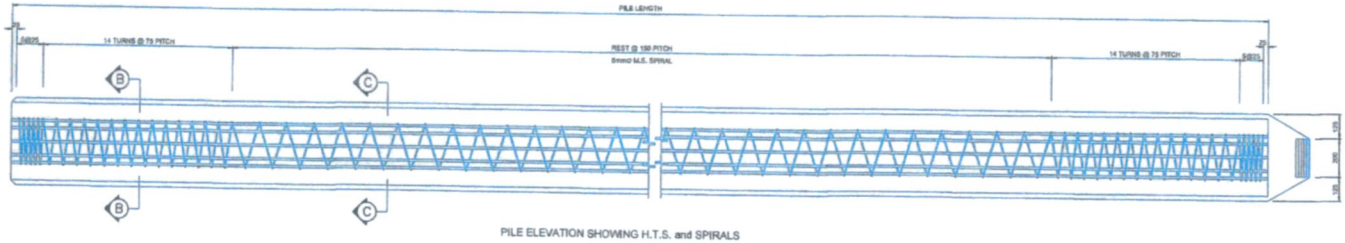
REVIEWED:
MONTREXIS T. TAMAYO
ENGINEER III
DATE:

SUBMITTED:
GENE RYAN A. ALTEA
OIC - CHIEF, PLANNING AND DESIGN DIVISION
DATE:

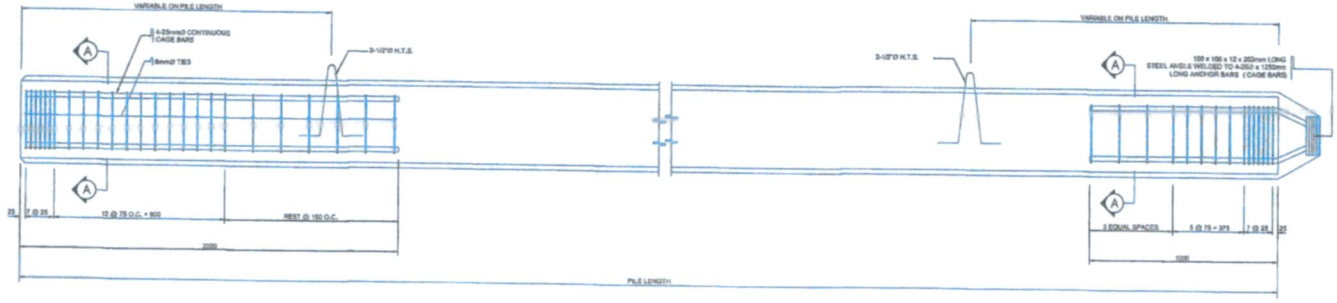
RECOMMENDED:
MERCEDITAS N. STO. DOMINGO
OIC - ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
GERALD A. PACANAN, CESO III
REGIONAL DIRECTOR
DATE:

SET NO. P 13 | 44
SHEET NO. 17 | 48



PILE ELEVATION SHOWING H.T.S. and SPIRALS



PILE ELEVATION SHOWING STIRRUPS and CAGE BARS

NOTES :

AFTER REQUIRED PENETRATION AND BEARING POWER OF PILES ARE ATTAINED AND BEFORE CASTING DECK MONOLITHIC WITH PILE HEAD, ALL CONCRETE IN THE PILE BUTT SHALL BE COMPLETELY DEMOLISHED.

CONCRETE IS TO BE 32 MPa (fc' = 5,000 psi) AS PRESCRIBED IN THE SPECIFICATION.

ALL HIGH TENSILE STRANDS (HTS) SHALL CONFORM WITH ASTM A-416, GRADE 270, WITH MINIMUM ULTIMATE STRENGTH OF 1860 MPa.

ALL DIMENSIONS ARE IN MILLIMETER.

SPECIFICATIONS :

CONCRETE STRENGTH (fc) :

fc = 2,500 psi (24 MPa) @ release

fc = 5,000 psi (35 MPa) @ 28 days

HIGH TENSILE STRANDS :

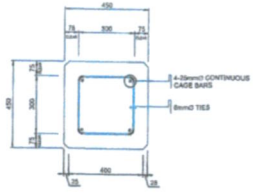
fpu = 270,000 psi (1,860 MPa)

REBARS :

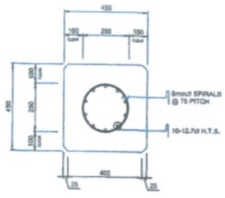
fy = 40,000 psi (276 MPa) for Deformed Bars

fy = 33,000 psi (228 MPa) for Mild Steel Coil

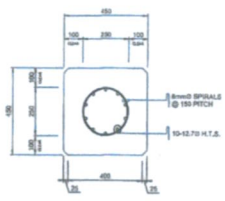
THE CONTRACTOR SHALL SUBMIT SHOP DRAWING PRIOR TO COMMENCEMENT OF WORK



SECTION A



SECTION B



SECTION C

LIFTING POINTS FOR FOUR POINT PICK-UP

NOTES : FOUR POINT PICK-UP METHOD OF LIFTING PILES SHALL BE:
- USED FOR THE 24000 - 30000mm LENGTH OF PILES (450x450)

LIFTING POINTS FOR THREE POINT PICK-UP

NOTES : THREE POINT PICK-UP METHOD OF LIFTING PILES SHALL BE:
- USED FOR THE 15000 - 23000mm LENGTH OF PILES (450x450)

DETAILS OF 450mm x 450mm PRE-STRESS CONCRETE PILE

SCALE NTS

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV-B
EDSA, DILIMAN, QUEZON CITY

PROJECT NAME AND LOCATION:
DETAILED ENGINEERING DESIGN PLAN FOR THE:
REPAIR/REHABILITATION OF BALOGO PORT
BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
DETAILS OF 450mm x 450mm PRE-STRESSED CONCRETE PILE DETAIL
NOTES
SPECIFICATIONS
LIFTING POINTS FOR FOUR POINT PICK-UP
LIFTING POINTS FOR THREE POINT PICK-UP

DRAFTED:
MARY ROSE C. ARAÑA
ENGINEERING ASSISTANT (DOS)

PREPARED:
CALVIN D. CADATAL
ENGINEER II
DATE

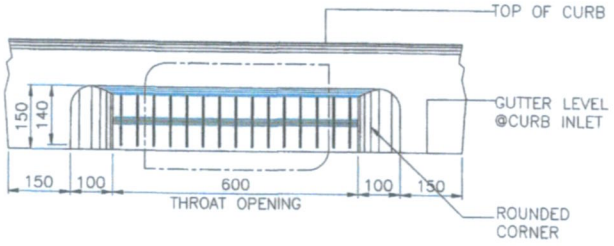
REVIEWED:
MONTRENIS T. TAMAYO
ENGINEER III
DATE:

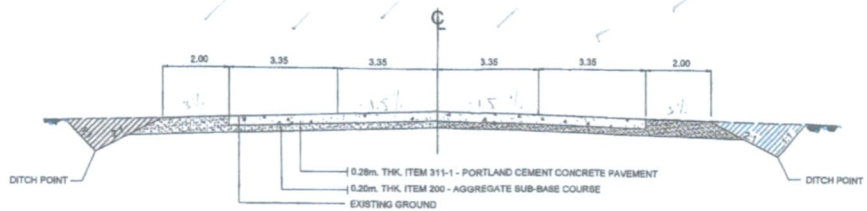
SUBMITTED:
GENE RYAN A. ALTEA
OIC - CHIEF, PLANNING AND DESIGN SECTION
DATE:

RECOMMENDING:
MERQUIADES H. STO. DOMINGO
OIC-ASSISTANT REGIONAL DIRECTOR
DATE:

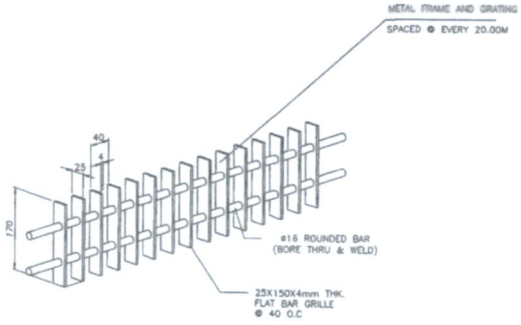
APPROVED:
GERALD A. PACANAN CESO III
REGIONAL DIRECTOR
DATE:

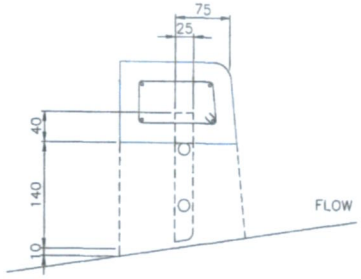
SET NO. P 14 | 44
SHEET NO. 18 | 48



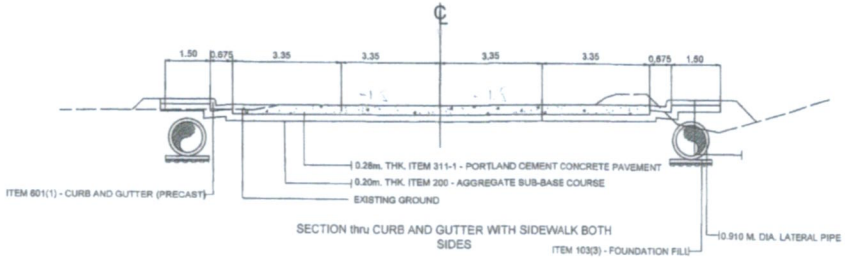


SECTION thru NORMAL CROWN ROADWAY

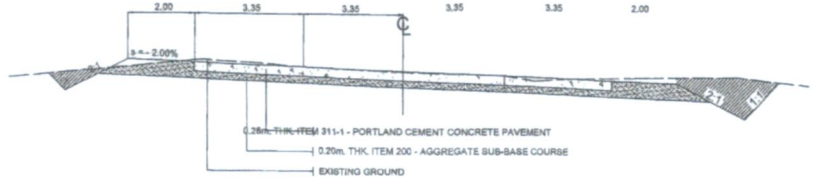




METAL FRAMES AND GRATING DETAIL



SECTION thru CURB AND GUTTER WITH SIDEWALK BOTH SIDES



SECTION thru SUPERELEVATION

TYPICAL ROAD SECTION

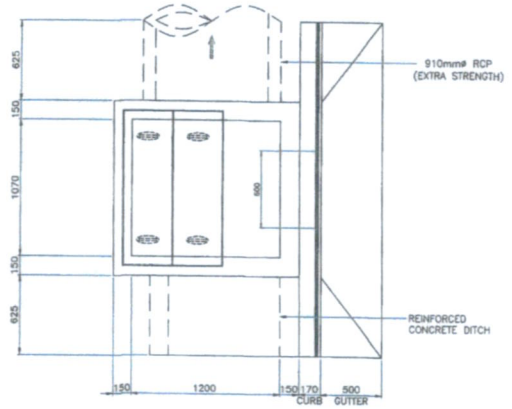
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV-B
EDSA, DILIMAN, QUEZON CITY

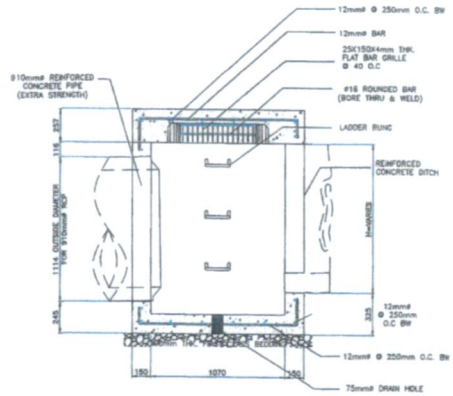
PROJECT NAME AND LOCATION:
DETAILED ENGINEERING DESIGN PLAN FOR THE REPAIR/REHABILITATION OF BALOGO PORT
BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
TYPICAL ROAD SECTION
METAL FRAME AND GRATING

DRAFTED: MARY ROSE C. ARAÑA, ENGINEERING ASSISTANT (COS)
PREPARED: CALVIN D. CADATAL, ENGINEER II, DATE:
REVIEWED: MONTREXIS T. TAMAYO, ENGINEER III, DATE:
SUBMITTED: GENE RYAN A. ALTEA, OIC - CHIEF, PLANNING AND DESIGN DIVISION, DATE:
RECOMMENDING: MELQUIADES H. STO. DOMINGO, OIC - ASSISTANT REGIONAL DIRECTOR, DATE:
APPROVED: GERALD A. PACANAN,CESO III, REGIONAL DIRECTOR, DATE:

SET NO. P 15 44
SHEET NO. 19 48





NOTES:

. 150MM BOTTOM SLAB THICKNESS FOR HEIGHT OF 1000 TO 4000MM AND 200MM FOR 5000 TO 8000MM IN HEIGHT.

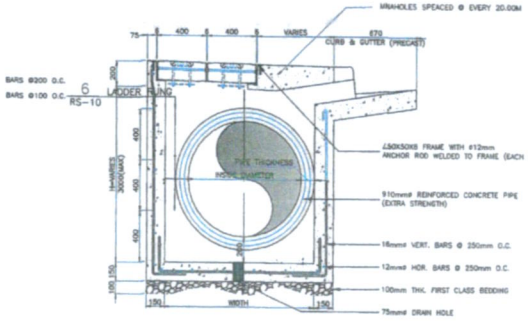
2. FROM THE HEIGHT OF 3000 TO 8000MM THE FIRST 2000MM FROM THE TOP IS CHB WITH DETAILS FOR 2000MM HEIGHT.

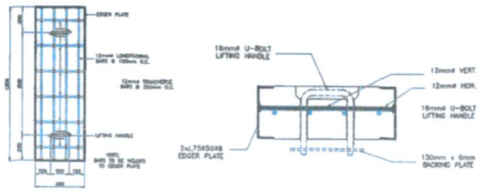
3. REINFORCEMENT FOR BOTTOM SLAB ARE ALL 10MM @400 B.W..

4. VERTICAL BARS ARE CUT AT HALF POINT FOR EVERY OTHER BAR AT SOLID WALL.

TABLE OF MANHOLE OR J.B. (SPL.)

(H) HEIGHT mm	(T) THICKNESS OF WALL mm	VERTICAL BARS			HORIZONTAL BARS
		INSIDE EDGE	CENTER	OUTSIDE EDGE	
1000	150mm CHB	-	10mm@200	-	10mm@400
2000	150mm CHB	-	12mm@200	-	
3000	180mm CONC.	20mm @300	-	32mm @300	
4000	230mm CONC.	20mm@250	-	32mm@250	
5000	280mm CONC.	20mm@225	-	32mm@225	
6000	330mm CONC.	20mm@200	-	32mm@200	
7000	380mm CONC.	20mm@175	-	32mm@175	
8000	410mm CONC.	20mm@150	-	32mm@150	





HANDLE BARS DETAIL

NOTES:

1. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, REVISED 1972.

2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

3. ALL CONCRETE SHALL BE CLASS "A" MIX. ALL EXPOSED SURFACE SHALL BE TROWEL FINISHED WITHOUT MORTAR COAT AND ALL EDGES ARE TO BE FINISHED WITH A SUITABLE LAYER.

4. REINFORCING STEEL SHALL BE INTERMEDIATE GRADE STEEL STEPS SHALL BE GRAY IRON.

5. INSIDE SURFACES AND OUTSIDE SURFACES OF ALL MASONRY SHALL HAVE A PLASTER COAT 1/2 THICK.

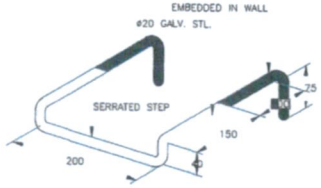
6. POSITIONS, SIZES AND NUMBER OF SEWER OR STORM-DRAIN CONDUITS ENTERING MANHOLE SHALL BE AS INDICATED IN THE GENERAL PLAN OR AS DETERMINED BY THE ENGINEER TO SUIT FIELD CONDITION.

7. CONCRETE HOLLOW BLOCKS OR DRESSED ADOBE BLOCKS SHALL HAVE AN AVERAGE POUNDS PER SQUARE INCH.

8. IN CONCRETE HOLLOW BLOCKS STRUCTURE, ALL HOLES SHALL BE FILLED WITH CEMENT MORTAR SHALL CONFORM WITH REQUIREMENTS GIVEN UNDER ITEM 412.

9. WHEN HEIGHT OF STRUCTURE EXCEEDS 1.22M (4"-00") STAGGERED STEPS AT 0.40 M INTERVAL SHALL BE PROVIDED.

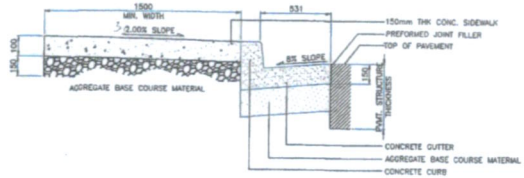
10. BOX TYPE MANHOLE SHALL NOT BE CONSTRUCTED WITHIN THE RIDING SURFACE.



LADDER RUNG DETAIL

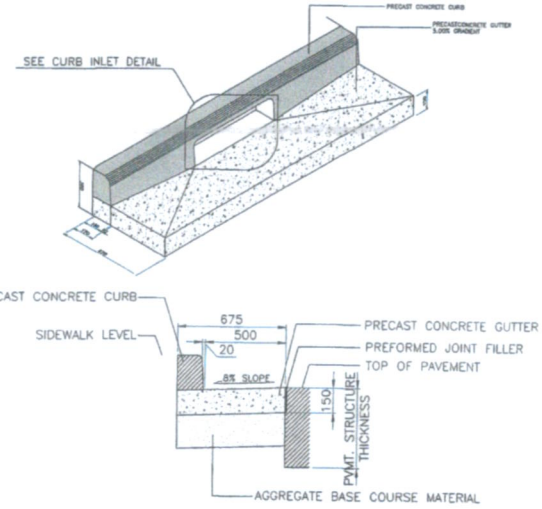
MANHOLE DETAIL

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV-B EDSA, DILIMAN, QUEZON CITY	PROJECT NAME AND LOCATION: DETAILED ENGINEERING DESIGN PLAN FOR THE: REPAIR/REHABILITATION OF BALOGO PORT BRGY. SANTA CRUZ, MARINDUQUE	SHEET CONTENTS: DRAINAGE DETAIL	DRAFTED: MARY ROSE C. ARAÑA ENGINEERING ASSISTANT (COE) PREPARED: CALVIN D. CADATAL ENGINEER II DATE:	REVIEWED: MONTREAL T. TAMAYO ENGINEER III DATE:	SUBMITTED: GENE RYAN A. ALTEA OIC - CHIEF, PLANNING AND DESIGN DIVISION DATE:	RECOMMENDED: MELQUIADES H. STO. DOMINGO OIC - ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: GERALD A. PACANAN,CESO III REGIONAL DIRECTOR DATE:	SET NO. P 16 | 44	SHEET NO. 20 48



NOTES:

1. MATERIAL AND CONSTRUCTION REQUIREMENTS SHALL CONFORM TO DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES 2004.
2. USE OF MONOFILAMENT POLYPROPYLENE SYNTHETIC FIBERS (D.O. 95, SERIES 2005) AS ADDITIVE TO CONCRETE MIX.
3. CONCRETE CURB SHALL BE CONSIDERED IN THE DESIGN OF PAVED ROADS IF THE FUNCTION IS TO SEPARATE THE ROAD FROM THE ROADSIDE, DISCOURAGING DRIVERS FROM PARKING OR DRIVING ON SIDEWALKS AND LAWNS.



CURB AND GUTTER (PRECAST) DETAIL

NOTES:

1. MATERIAL AND CONSTRUCTION REQUIREMENTS SHALL CONFORM TO DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES 2004.
2. USE OF MONOFILAMENT POLYPROPYLENE SYNTHETIC FIBERS (D.O. 95, SERIES 2005) AS ADDITIVE TO CONCRETE MIX.
3. CONCRETE CURB AND GUTTER SHALL BE CONSIDERED IN THE DESIGN OF PAVED ROADS IF THE FUNCTION IS TO FACILITATE THE CHANNELLING OF SURFACE WATER RUN-OFF THUS PREVENTING THE EROSION OF SHOULDERS AND SLOPE.
4. MINIMUM CURB INLET INTERVAL ("D")10.0METERS IN FLOODED AREAS.
5. MINIMUM CURB INLET INTERVAL ("D") 20.0METERS IN OTHER AREAS.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV-B
EDSA, DILIMAN, QUEZON CITY

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DETAILED ENGINEERING DESIGN PLAN FOR THE:
REPAIR/REHABILITATION OF BALOGO PORT
BRGY. SANTA CRUZ, MARINDUQUE

SHEET CONTENTS:
CURB AND GUTTER DETAIL

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MARY ROSE C. ARAÑA
ENGINEERING ASSISTANT (COS)

PREPARED:
CALVIN D. CADATAL
ENGINEER II
DATE:

REVIEWED:
MONTREAL T. TAMAYO
ENGINEER III
DATE:

SUBMITTED:
GENE RYAN A. ALTEA
OIC - CHIEF, PLANNING AND DESIGN DIVISION
DATE:

RECOMMENDING APPROVAL:
MS. GUIADEL M. STO. DOMINGO
OIC - ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
GERALD A. PACANAN, CESO III
REGIONAL DIRECTOR
DATE:

SET NO. P 17 44
SHEET NO. 21 48