



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

REGIONAL OFFICE No. XI
GOV. CHAVEZ COR. R. MAGSAYSAY ST. DAVAO CITY

(CY 2025 PROJECT)
DETAILED ENGINEERING DESIGN PLAN FOR
**CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - MAHARLIKA HIGHWAY
K1484+(-600) - K1484+722,
K1485+200 - K1485+839,
DAVAO CITY**

SECTION : BRGY. LASANG
LOCATION : DAVAO CITY
STATION LIMITS : K1484 + (-600) TO K1484 + 722
K1485 + 200 TO K1485 + 839
NET LENGTH : 1,961.00 LN M

DRAINAGE LENGTH TO OUTFALL : 4,268.98 LN M

SUBMITTED: For and in the absence of the
Chief, Planning & Design Division:
AGNES S. AUDAN
Engineer IV

JUDY ANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION

DEC 05 2024

RECOMMENDED:

JOSELITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR

APPROVED:

JUBY B. CORDON
REGIONAL DIRECTOR

GENERAL NOTES (ROADS, DRAINAGE AND STRUCTURES)

SPECIFICATIONS

1. ALL WORKS SHALL COMPLY WITH THE "DPWH STANDARD SPECIFICATIONS VOLUME II, HIGHWAYS, BRIDGES AND AIRPORTS 2013", SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS PERTAINING TO THIS PROJECT.

DIMENSIONS

1. DISTANCES BETWEEN THE HORIZONTAL CONTROL POINTS INCLUDING REFERENCE POINTS ARE MEASURED AND EXPRESSED IN METERS.
2. UNLESS OTHERWISE SPECIFIED, DIMENSIONS OF PIPES, BOX CULVERTS, BRIDGES AND OTHER STRUCTURES ARE MEASURED AND EXPRESSED IN MILLIMETERS.
3. ALL OTHER DIMENSIONS ARE EXPRESSED IN METERS.

ELEVATIONS AND GRADES

1. FINISHED GRADE ELEVATION SHOWN ON PLAN AND PROFILE SHEETS REFERS TO FINISHED PAVEMENT LEVEL AS INDICATED IN THE TYPICAL ROADWAY SECTION.
2. GROUND GRADE SHOWN ON THE PLAN AND PROFILE SHEETS REFERS TO THE ELEVATION OF THE ORIGINAL GROUND ALONG THE CENTERLINE OF THE PROJECT ROAD.

GRADING AND OTHER GENERAL REQUIREMENTS

1. ALIGNMENT AND GRADES ARE SUBJECT TO ADJUSTMENT TO SUIT ACTUAL FIELD CONDITION.
2. DISTANCES AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
3. GRADE SHOWN ARE TOP OF FINISHED PAVEMENT.
4. ALL WORKS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, REVISED 2013 AND "A POLICY ON GEOMETRIC DESIGN", AASHTO 2011.
5. WHERE NO DETOURS ARE AVAILABLE, TRAFFIC SHALL BE HANDLED IN ACCORDANCE TO PROVISIONS OF CLAUSE 75 OF THE DPWH STANDARD SPECIFICATIONS, VOLUME I, REQUIREMENTS AND CONDITIONS OF CONTRACT (2013).
6. THE APPARENT SILENCE OF SPECIFICATIONS, PLANS, SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS, AS TO ANY DETAIL OR THE APPARENT OMISSION FROM THEM OF DETAILED DESCRIPTION CONCERNING ANY POINT SHALL BE REGARDED AS MEANING THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIAL AND WORKMANSHIP OF FIRST CLASS QUALITY ARE TO BE USED.
7. ROADS CLOSED TO TRAFFIC SHALL BE PROTECTED BY EFFECTIVE BARRICADES, AND OBSTRUCTIONS SHALL BE ILLUMINATED AT NIGHT, SUITABLE WARNING SIGNS, ILLUMINATED AT NIGHT BY LANTERNS OR FLARES, SHALL BE PROVIDED. ALL LIGHTS FOR THIS PURPOSE SHALL BE KEPT BURNING FROM SUNSET TO SUNRISE.
8. THE CONTRACTOR WILL BE REQUIRED TO ERECT WARNING SIGNS OUTSIDE OF, AND 150M FROM, EACH END OF THE PROJECT, AND 150M IN ADVANCE AT ANY PLACE ON THE PROJECT WHERE OPERATIONS INTERFERE WITH THE USE OF THE ROAD BY TRAFFIC, AND AT ALL INTERMEDIATE POINTS WHERE THE NEW WORK CROSSES OR COINCIDES WITH AN EXISTING ROAD.
9. BEFORE THE START OF ACTUAL CONSTRUCTION, THE AS-STAKED PLAN SHOULD BE SUBMITTED TO THE REGIONAL OFFICE IN ORDER THAT IMMEDIATE STEPS MAY BE TAKEN TO CORRECT OR ADJUST WHATEVER APPRECIABLE DEVIATION THERE MAY BE FROM THE ORIGINAL PLAN.
10. THE IMPLEMENTING OFFICE SHALL IDENTIFY THE LOCATIONS OF AND PROVIDE ACCESSIBILITY FACILITIES FOR PERSONS WITH DISABILITIES IN ACCORDANCE WITH DO NO. 37, S. 2008.
11. QUARRY SITE IS LOCATED AT AT INDIAN RIVER. DISPOSAL SITE IS (S) KMS. WITHIN PROJECT LIMIT.
12. DESIGN WAS BASED ON SURVEY DATA SUBMITTED BY THE SURVEY AND INVESTIGATION SECTION OF PLANNING AND DESIGN DIVISION OF THE DPWH-REGIONAL OFFICE XI.

EARTHWORKS

1. CLEARING SHALL EXTEND ONE (1) METER BEYOND THE TOE OF THE FILL SLOPES OR BEYOND ROUNDING OF CUT SLOPES AS THE CASE MAY BE 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.
2. ALL CONCRETE PAVEMENT, BASE COURSE, SIDEWALKS, CURBS, GUTTERS, ETC., DESIGNATED FOR REMOVAL SHALL BE BROKEN INTO PIECES, THE SIZE OF WHICH SHALL NOT EXCEED 300mm (12in) IN ANY DIMENSION AND STOCKPILED AT DESIGNATED LOCATIONS ON THE PROJECT OR AS DIRECTED BY THE ENGINEER.
3. ALL EXCAVATIONS SHALL BE FINISHED TO REASONABLY SMOOTH AND UNIFORM SURFACES. NO MATERIALS SHALL BE WASTED WITHOUT AUTHORITY OF THE ENGINEER. EXCAVATION OPERATIONS SHALL BE CONDUCTED SO THAT MATERIAL OUTSIDE OF THE LIMIT OF SLOPES WILL NOT BE DISTURBED.
4. SPOILS FROM DEMOLISHED/EXCAVATED MATERIALS SHALL NOT BE ALLOWED TO BE STOCKPILED AT THE SHOULDER OR PART OF THE TRAVELED ROADWAY AND SHALL BE REMOVED IMMEDIATELY TO PREVENT OBSTRUCTION. SPOILS REMOVED SHALL BE DISPOSED OFF IN DESIGNATED AREAS APPROVED BY THE ENGINEER.
5. ALL EMBANKMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 104 EMBANKMENT. IT SHALL BE COMPACTED IN HORIZONTAL LAYERS NOT EXCEEDING 200mm (LOOSE MEASUREMENT) AFTER FIVE SUCCESSIVE LAYERS. THE FILL EMBANKMENT SHALL BE FULLY SATURATED WITH WATER THEN DRIED BEFORE PLACING THE SUCCEEDING LAYERS. THE PROCEDURE SHALL BE REPEATED UNTIL THE DESIRED ELEVATION IS ATTAINED.
6. WATERING AND COMPACTING OF ALL EMBANKMENTS SHALL BE CONSIDERED AS SUBSIDIARY WORK PERTAINING TO OTHER CONTRACT ITEMS. THE COST OF PERFORMANCE THEREOF SHALL BE CONSIDERED TO BE INCLUDED IN THE CONTRACT UNIT BID PRICE FOR OTHER ITEMS.
7. CUT SLOPES, EXCEPT IN ROCKS AND FILL SLOPES SHALL BE ADJUSTED AND WARPED FLOW INTO EACH OTHER OR INTO NATURAL GROUND SURFACE WITHOUT NOTICEABLE BREAK.
8. APPROACHES AND ROAD CONNECTIONS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN SUCH MANNER AS TO ENSURE PROPER CONNECTIONS TO THE RIDING SURFACES.
9. PRIOR TO COMMENCING PREPARATION OF THE SUBGRADE, ALL CULVERTS, CROSS DRAINS, DUCTS AND THE LIKE (INCLUDING THEIR FULLY COMPLETED 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.

SUBBASE AND BASE COURSES

1. RE-PREPARATION AND COMPACTION OF THE EXISTING BASE/SUBBASE TO THE REQUIRED DENSITY SHALL BE DONE PRIOR TO GRAVEL RESURFACING IN ACCORDANCE WITH DPWH STANDARD SPECIFICATIONS, VOLUME II, 2013, USING VIBRATING ROLLERS AND PNEUMATIC TIRE ROLLERS. IN AREAS WHERE THE SAID EQUIPMENT CANNOT BE USED, A PORTABLE MECHANICAL COMPACTOR SHALL BE USED.

SURFACE COURSE

1. USE STEEL FORMS FOR ITEM 311.
2. WHEN CONCRETE IS TO BE PLACED ADJOINING A PREVIOUSLY CONSTRUCTED LANE AND MECHANICAL EQUIPMENT WILL BE OPERATED UPON THE EXISTING LANE, THAT PREVIOUSLY CONSTRUCTED LANE SHALL HAVE ATTAINED THE STRENGTH OF FOURTEEN (14) DAYS CONCRETE. IF ONLY FINISHING EQUIPMENT IS CARRIED ON THE EXISTING LANE, PAVING IN ADJOINING LANES MAY BE PERMITTED AFTER THREE (3) DAYS.

3. AT TRANSVERSE CONSTRUCTION JOINTS, HOLES OF 50mm DIA AND SPACED AT 300mm (FOR 230mm AND 280mm THICK CONCRETE PAVEMENT) SHALL BE DRILLED AT ONE-HALF (1/2) OF THE EXISTING CONCRETE PAVEMENT THICKNESS SO AS TO PERMIT THE LOAD TRANSFER DEVICE (28mm DIA PLAIN DOWEL BARS FOR 230mm THICK PCPP, 36mm DIA DOWEL BARS FOR 280mm THICK PCPP, 36mm DIA FOR 300mm THICK PCPP) TO BE INSERTED AT ONE-HALF (1/2) OF ITS LENGTH. THE SAID DEVICE SHALL BE INSTALLED FIRMLY AT THE HOLES AND SHALL BE HELD IN POSITION PARALLEL TO THE SURFACE OF THE SLAB. THE DOWEL BARS SHALL BE PAINTED WITH RED LEAD AND THE SURFACE OF (1/2) OF THE LENGTH TO BE INSERTED SHALL BE COATED WITH CONCRETE EPOXY WHILE THE OTHER HALF SHALL BE COATED WITH APPROVED BITUMINOUS MATERIALS.
4. TRANSVERSE CONSTRUCTION JOINT SHALL BE CUT USING A CONCRETE SAW TO THE REQUIRED DEPTH (ONE-FOURTH TO ONE-THIRD OF THE CONCRETE PAVEMENT THICKNESS) AND WIDTH AS SHOWN IN THE APPROVED PLANS.
5. ALL JOINTS SHALL BE SUFFICIENTLY SEALED WITH ASPHALT SEALANT PRIOR TO OPENING TO VEHICULAR TRAFFIC.
6. THE CONTRACTOR SHALL PREPARE THE DESIGN MIX BASED ON THE ABSOLUTE VOLUME METHOD AS OUTLINED IN THE AMERICAN CONCRETE INSTITUTE (ACI) STANDARD 211.1, "RECOMMENDED PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL AND HEAVYWEIGHT CONCRETE". THE ENGINEER SHALL DETERMINE FROM LABORATORY TESTS OF THE MATERIALS TO BE USED, THE CEMENT CONTENT AND THE PROPORTIONS OF AGGREGATE AND WATER THAT WILL PRODUCE WORKABLE CONCRETE HAVING A SLUMP OF BETWEEN 40 AND 75 MM IF NOT VIBRATED OR BETWEEN 10 AND 40 MM IF VIBRATED, AND A FLEXURAL STRENGTH OF NOT LESS THAN 3.8 MPa WHEN TESTED BY THE THIRD-POINT METHOD OR 4.5 MPa WHEN TESTED BY THE MID-POINT METHOD AT FOURTEEN (14) DAYS IN ACCORDANCE WITH AASHTO T 97 AND T 177, RESPECTIVELY; OR A COMPRESSIVE STRENGTH OF 24.1 MPa FOR CORES TAKEN AT FOURTEEN (14) DAYS AND TESTED IN ACCORDANCE WITH AASHTO T 24.
7. PURSUANT TO DEPARTMENT ORDER NO. 137, SERIES OF 2016, FOR NEWLY CONSTRUCTED CONCRETE AND ASPHALT ROAD PROJECTS, AN IRI VALUE OF NOT MORE THAN 3.00MM/KM IS PRESCRIBED. NON-COMPLIANCE WITH THE SAID DO SHALL BE SUBJECT TO PAY ADJUSTMENTS CORRESPONDING TO THE ACQUIRED IRI VALUE. COMPLIANCE OF THE CONTRACTORS TO THE IRI REQUIREMENT AND STRICT IMPLEMENTATION OF PROPER BASE AND SUBBASE PREPARATION IS EMPHASIZED PRIOR TO CONCRETE POURING, PREPARATORY WORKS IN EXISTING SURFACES/ROADS PRIOR TO ASPHALT LAYING AND PAVING AND FINISHING FOR CONCRETE PAVEMENT.

REMOVAL OF EXISTING STRUCTURES AND OBSTRUCTIONS

1. NO PAYMENT SHALL BE MADE FOR REMOVAL OF OTHER MISCELLANEOUS STRUCTURES THAT MAY BE REQUIRED AS SUBSIDIARY WORK PERTAINING TO OTHER CONTRACT ITEMS EXCEPT FOR SPECIFIC ITEMS EXPRESSLY IDENTIFIED FOR PAYMENT.
2. IMPROVEMENTS AND OTHER SIMILAR STRUCTURES THAT WILL BE AFFECTED DURING THE IMPLEMENTATION OF THIS PROJECT SHALL BE PAID FOR UNDER THE ROAD RIGHT-OF-WAY IMPROVEMENT.

MISCELLANEOUS STRUCTURES

1. OBSTRUCTIONS WITHIN THE ROADWAY, IF NOT ILLUMINATED, SHALL BE MARKED WITH REFLECTORIZED HAZARD MARKERS (REFER TO SECTION T OF THE HIGHWAY SAFETY DESIGN STANDARDS PART 2 MAY 2012 EDITION). FOR ADDITIONAL EMPHASIS, IT IS ADVISABLE TO MARK OBSTRUCTIONS WITH NO LESS THAN FIVE ALTERNATING REFLECTORIZED BLACK AND WHITE STRIPES.
2. THE APPLICATION OF PAINT FOR PAVEMENT MARKINGS SHALL BE PREFERABLY CARRIED OUT BY A MACHINE SPECIALLY MADE FOR THIS PURPOSE BUT WHERE BRUSHES ARE USED, ONLY ROUND OR OVAL BRUSHES NOT EXCEEDING 100mm IN WIDTH WILL BE PERMITTED. THE PAINT SHALL BE SO APPLIED AS TO PRODUCE A UNIFORM, EVEN COATING IN CLOSE CONTACT WITH THE SURFACE BEING PAINTED.
3. THE APPLIED THERMOPLASTIC PAVEMENT MARKINGS SHALL HAVE A MINIMUM OF 2 YEARS OF LONGEVITY/DURABILITY.
4. MATERIALS WHICH ARE DEFECTIVE OR HAVE BEEN APPLIED IN AN UNSATISFACTORY MANNER OR TO INCORRECT DIMENSIONS OR IN A WRONG LOCATION SHALL BE REMOVED. THE ROAD PAVEMENT SHALL BE MADE GOOD AND MATERIALS REPLACED, RECONSTRUCTED AND/OR PROPERLY LOCATED, ALL AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.
5. THE PROJECT ENGINEER AND THE CONTRACTOR SHALL COORDINATE WITH THE CONCERNED IMPLEMENTING COMMUNITY ENVIRONMENT AND NATURAL RESOURCES OFFICES (CENRO) OF THE DENR REGARDING THE TURNOVER OF THE TIMBER AND OTHER DERIVABLE WOOD MATERIALS RECOVERED FROM THE TREES CUT/REMOVED.
6. SIDEWALKS SHALL BE KEPT AS LEVEL AS POSSIBLE AND ANY CHANGES IN LEVEL AT SIDEWALKS SHALL BE AFFECTED BY SLIGHT RAMPS AND DROPPED CURBS PURSUANT OF B.P. 344 OR THE ACCESSIBILITY LAW.

FACILITIES FOR THE ENGINEER

1. THE CONTRACTOR SHALL CONSTRUCT FIELD OFFICES, LABORATORIES AND LIVING QUARTERS, INCLUDING ALL THE NECESSARY AIR CONDITIONING, ELECTRICITY, WATER, DRAINAGE AND SECURITY SERVICES FOR THE USE OF THE ENGINEER AND HIS STAFF FOR 24 HOURS A DAY OR PROVIDE THE SAME ON RENTAL BASIS UNTIL END OF CONTRACT, ON COMPLETION OF CONTRACT, THE FACILITIES INCLUDING UTILITIES SHALL REVERT TO THE GOVERNMENT UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL AT ALL TIMES DURING THE DURATION OF THE CONTACT PROVIDE FOR THE USE OF ENGINEER ALL EQUIPMENT, INSTRUMENTS AND APPARATUS, ALL INFORMATION AND RECORDS AND QUALIFIED CHAINMEN AND LABORERS REQUIRED BY THE ENGINEER FOR INSPECTING AND MEASURING THE WORKS. SUCH EQUIPMENT, INSTRUMENTS AND APPARATUS SHALL INCLUDE THOSE LISTED IN THE SPECIAL PROVISIONS.
3. THE CONTRACTOR SHALL PROVIDE WITHIN THIRTY (30) CALENDAR DAYS AFTER NOTICE TO COMMENCE WORK, THE VEHICLE LISTED IN THE SPECIAL PROVISIONS FOR THE EXCLUSIVE USE OF THE ENGINEER. THE VEHICLES PROVIDED BY THE CONTRACTOR SHALL BE TO THE SATISFACTION OF THE ENGINEER. ALL VEHICLES SHALL COMPLY IN ALL RESPECTS WITH ALL RELEVANT PHILIPPINE NATIONAL OR LOCAL LAWS STATUTES AND REGULATIONS. ALL VEHICLES SHALL CARRY OR BE FITTED WITH THE ACCESSORIES AS MAY BE PRESCRIBED BY LAWS AND HAVE COMPREHENSIVE INSURANCE. THE VEHICLES ON DELIVERY SHALL BE NEW AND SHALL BE DRIVEN BY A COMPETENT, QUALIFIED AND EXPERIENCED DRIVER WHO SHALL BE UNDER DIRECT ORDER OF THE ENGINEER. THE CONTRACTOR SHALL MAINTAIN THE VEHICLE IN FIRST CLASS CONDITION AND SHALL BE SUPPLIED WITH APPROPRIATE FUEL AND LUBRICANTS AT ALL TIMES. HE SHALL PROVIDE EQUIVALENT SUBSTITUTE VEHICLES DURING ANY PERIOD WHEN THE SPECIFIED VEHICLES ARE TAKEN OUT OF SERVICE FOR MAINTENANCE, REPAIR OR ANY OTHER REASON, UNLESS OTHERWISE SPECIFIED, THE VEHICLE SHALL AT THE END OF THE CONTRACT BECOME THE PROPERTY OF THE GOVERNMENT."

REFERENCES

1. REVISED DPWH MANUAL ON HIGHWAY SAFETY DESIGN STANDARDS, MAY 2013 EDITION
- 1.1. FOR ROAD SAFETY PLANNING AND DESIGN ACTIVITIES AS WELL AS ROAD SAFETY MAINTENANCE ACTIVITIES SUCH AS THE PROPER WAY OF INSTALLING/APPLYING ROAD SIGNS, ROAD SAFETY DEVICES AND PAVEMENT MARKINGS - DO 41, s.2012
2. LABOR CODE OF THE PHILIPPINES AND ITS IMPLEMENTING RULES AND REGULATIONS DOLE DO NO. 13, s.1998, OCCUPATIONAL SAFETY AND HEALTH STANDARDS AND ITS PROCEDURAL GUIDELINES
- 2.1. FOR MONITORING, ENFORCEMENT AND IMPLEMENTATION OF CONSTRUCTION SAFETY AND HEALTH - DO 56, s.2005
3. DESIGN REFERENCES
- 3.1. DPWH DESIGN GUIDELINES, CRITERIA, AND STANDARDS (DGCS), VOLUME 4, 2015 EDITION
- 3.2. GUIDELINES FOR THE PREPARATION OF COST ESTIMATES FOR TRAFFIC MANAGEMENT AND SAFETY & HEALTH

- REQUIREMENTS FOR THE CONSTRUCTION AND MAINTENANCE OF ROADS, BRIDGES AND SAFETY & HEALTH REQUIREMENTS FOR SCHOOL BUILDINGS, 2018
- 3.3. AASHTO A POLICY ON GEOMETRIC DESIGN STANDARD OF HIGHWAYS AND STREETS, 2018 7TH EDITION
 - 3.4. AASHTO GUIDE ON PAVEMENT DESIGN, 1993 EDITION

- 3.5. HIGHWAY SAFETY DESIGN STANDARDS: PART 1 - ROAD SAFETY DESIGN, AND PART 2 - ROAD SIGNS AND PAVEMENT MARKINGS, 2012 EDITION

SURVEY SPECIFICATION

1. ALL PROJECT CONTROL POINTS ARE PROJECTED IN PRS '92 GRID COORDINATE SYSTEM (ZONE 5)
2. SURVEY INSTRUMENT USED, ROVER - CHC (70+1) SNY049125, BASE - CHC (70+1) SNY042656, TOTAL STATION - GEOMAX (ZOOM 50) SN0935275
3. DATE SURVEYED: NOVEMBER 18-21, 2024
4. PROJECT CONTROL POINTS, REFER 00100

DESIGN SPECIFICATION

1. GEOMETRIC DESIGN CRITERIA
- 1.1. NORMAL CROWN SHALL BE -1.50%, MAXIMUM SUPERELEVATION SHALL BE 8%.
- 1.2. MINIMUM RADIUS OF HORIZONTAL CURVES SHALL BE 30 METERS.
- 1.3. MINIMUM LENGTH OF PARABOLIC VERTICAL CURVES SHALL BE 60 METERS WITHOUT CONSIDERING K-VALUES

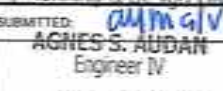
CONSTRUCTION REQUIREMENTS

ACCESSIBILITY LAW

1. PROVISION OF BATAS PAMBANSA BILANG 344 (ACCESSIBILITY LAW) AND ITS IMPLEMENTING RULES AND REGULATIONS, THE IMPLEMENTING OFFICE SHALL IDENTIFY THE LOCATIONS OF AND PROVIDE ACCESSIBILITY FACILITIES FOR PERSONS WITH DISABILITY IN ACCORDANCE WITH D.O. 37 SERIES OF 2008 TREE PLANTING
2. RATIO OF TREES REMOVED VS TREES PLANTED, 1:100 EMBANKMENT
3. EMBANKMENT PLACED ON EXISTING SLOPES THAT ARE STEEPER THAN 3:1 WHEN MEASURED AT RIGHT ANGLES TO THE ROADWAY SHALL BE CONTINUOUSLY BENCHMARKED IN LAYERS SUBJECT TO THE ENGINEER'S APPROVAL. PLEASE REFER TO STANDARD SPECIFICATIONS FOR HIGHWAYS ON METHOD OF CONSTRUCTION FOR EMBANKMENT.
4. ROADWAY EMBANKMENT OF EARTH MATERIALS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 200MM, LOOSE MEASUREMENT, AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED. AS COMPACTION OF EACH LAYER PROGRESSES, CONTINUOUS LEVELING AND MANIPULATING WILL BE REQUIRED TO ASSURE UNIFORM DENSITY.
5. THE BARS SHALL BE INSTALLED FIRMLY AT THE HOLES AT ONE HALF OF ITS LENGTH AND SHALL BE HELD IN POSITION PARALLEL TO THE SURFACE OF SLAB
6. THE BARS SHALL BE PAINTED WITH RED LEAD AND THE SURFACE SHALL BE COATED WITH APPROVED BITUMINOUS MATERIALS.
7. THE BARS SHALL NOT BE PLACED WITHIN 375 MM OF TRANSVERSE JOINTS. DRAINAGE EXACT LOCATIONS, GRADIENTS, LENGTHS, SLOPES, OUTFALLS & INVERT ELEVATIONS OF ALL DRAINAGE STRUCTURES SHALL BE CHECKED IN THE FIELD BY THE ENGINEER. MINOR ADJUSTMENTS MAY BE MADE WITH THE APPROVAL OF THE ENGINEER SUIT FIELD CONDITIONS
8. EXTENSIONS AND OTHER IMPROVEMENTS OF EXISTING DRAINAGE STRUCTURES ARE SUBJECT TO CHANGE AND SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER IN-CHARGE
9. DURING CONSTRUCTION, ANY EXISTING PIPES FOUND DAMAGED OR DEFECTIVE SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE ENGINEER. THE REMOVAL OF EXISTING STRUCTURES SHALL BE PAID FOR UNDER ITEM 101(4) - REMOVAL OF EXISTING PIPE CULVERT.
10. ANY MISCELLANEOUS REMOVAL NOT SHOWN ON THE PLANS INCLUDING REMOVAL OF HEADWALLS AND WINGWALLS OF EXISTING DRAINAGE STRUCTURES THAT ARE TO BE EXTENDED OR IMPROVED AND DISPOSAL OF RESULTING MATERIALS SHALL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO OTHER CONTRACT ITEMS. THE COST OF PERFORMANCE THEREOF SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID FOR THOSE ITEMS.
11. ANY REVISIONS, REMOVAL AND/OR RELAYING DRAINAGE STRUCTURES AS DIRECTED BY THE ENGINEER 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.
12. 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 THE EXERCISED BY THE CONTRACTOR NOT TO DAMAGE THESE MATERIALS DURING THE REMOVAL & HANDLING.
13. TEST REQUIREMENTS FOR DRAINAGE

- FOR CROSS DRAINAGE PIPES (CLASS IV)
D-LOAD TO PRODUCE A 0.30MM CRACK OF 100MMMM OF DIAMETER
D-LOAD TO PRODUCE THE ULTIMATE LOAD OF 150 100MMMM OF DIAMETER
FOR LATERAL PIPE (CLASS II)
D-LOAD TO PRODUCE A 0.30MM CRACK OF 50MMMM OF DIAMETER
D-LOAD TO PRODUCE THE ULTIMATE LOAD OF 75 100MMMM OF DIAMETER

BENCHMARKS	NORTHING	EASTING	ELEVATION (METERS)	DESCRIPTION
BM NO. 1A	802715.38 4	571580.42 8	12.572	COMMON NAIL WITH BOTTLE CAP DRIVEN ON COCO TREE RP-1 0FT-6A, NEAR STA. 4+880
BM NO. 2A	803046.23 9	572082.79 7	11.776	COMMON NAIL WITH BOTTLE CAP DRIVEN ON COCO TREE RP-1 OF T-18A AT RIGHTSIDE, NEAR STA. 5+745.574
BM NO. 2B	803057.21 0	573652.81 7	11.764	CONCRETE NAIL WITH BOTTLE CAP ON TOP OF CONCRETE SLAB RP-1 AT LEFT SIDE, NEAR STA. 4+880.000

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CORNELIO ST. COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (400) - K1484 + 722, K1485 + 200 - K1485 + 829, DAVAO CITY	SHEET CONTENTS: GENERAL NOTES	DRAFTED AND PREPARED:  NOEL V. PENORIA ENGINEER I DATE: _____	REVIEWED:  ALAIN JOHN SOTILLO ENGINEER II DATE: _____	SUBMITTED:  AGNES S. AUDAN Engineer IV JUDY ANN T. BERNARDINO CHIEF, PLANNING & DESIGN DIVISION DATE: DEC. 05 2024	RECOMMENDING APPROVAL:  JOSE LUIS S. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE: _____	APPROVED:  JUDY S. CORDON REGIONAL DIRECTOR DATE: _____	SET NO. A 111	SHEET NO. 1 45
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ABBREVIATIONS

ABUTMENT	ABUT	NOT APPLICABLE	NA
AHEAD STATIONING	AH STA	NUMBER	NO.
AND	&	ORDINARY WATER LEVEL	OWL
AREA	A	ORIGINAL GROUND LEVEL	OGL
ASPHALT CONCRETE PAVEMENT	ACP	OUTSIDE DIAMETER	OD
AT	@	PAVEMENT WIDTH	PW
AZIMUTH	AZIM.	PAVEMENT WIDTH	PW
BACK STATION	BK. STA.	PERCENT	%
SARANGAY	SRGY.	PHILIPPINES	PHIL.
BEGINNING OF CIRCULAR CURVE	BCC	PIECES	PCS
BEARING	BRG.	PLUS / MINUS	±
BEGINNING	BEG.	PUBLIC LAND SUBDIVISION	PLS
BELOW MEAN SEA LEVEL	BMSL	POINT OF INTERSECTION	PI
BENCHMARK	BM	POINT OF CURVATURE	PC
BETWEEN	BET.	POINT OF VERTICAL CURVE	PVC
BORE HOLE	BH	POINT OF VERTICAL INTERSECTION	PVI
BOTH SIDES	BS	POINT OF VERTICAL TANGENT	PVT
BOTH WAYS	BW	POINT OF TANGENT	POT
BOTTOM	BOT.	PORTLAND CEMENT CONCRETE PAVEMENT	PCCP
BRIDGE	BR.	PROJECT ROAD	PROJ. RD.
SUBDIVISION OF DECREASED PROPERTY	SD	PRIVATE SURVEY	P.S.
BY BUREAU OF LANDS SURVEYORS	BLSM	RADIUS	R
BUREAU OF LANDS LOCATION MONUMENT	CTR	REFERENCE POINT	RP
CENTER	C	REINFORCED CONCRETE BOX CULVERT	RCBC
CENTERLINE	CL	REINFORCED CONCRETE PIPE CULVERT	RCPC
CENTIMETER	cm	RETAINING WALL	RET. WALL
CONCRETE HOLLOW BLOCK	CHB	RIGHT OF WAY	ROW
CLEAR	CLR	ROAD	RD.
COLUMN	COL.	SOUTH	S
CONCRETE	CONC.	SIDEWALK	SDWK
CONCRETE HOLLOW BLOCK	CHB	SUBDIVISION OF UNDECREASED PROPERTY	Subd.
CONCRETE MONUMENT	CONC. MON.	SQUARE	SQ.
CONSTRUCTION	CONST.	SQUARE METER	sq. m. / m ²
CORNER	COR.	STANDARD	STD.
COVER	COV.	STATION	STA.
CROSS PIPE	CP	STRAIGHT	STR.
CUBIC METER	cu. m. / m ³	STREET	ST.
CYLINDRICAL	CYL.	STRUCTURE	STRUCT.
DEGREE OF CURVE	D	TANGENT DISTANCE	T
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	DPWH	TEMPERATURE	TEMP.
DETAIL	DET.	TEMPORARY BENCH MARK	TBM
DIAMETER	Ø, DIA. / Ø	VERTICAL	VERT.
DIAPHRAGM	DIAF.	WIDTH	W
DISTANCE	DIST.	WITH	WITH
DRAWING	DRWG.		
EAST	E		
ELEVATION	ELEV. / EL.		
END OF CIRCULAR CURVE	ECC		
END OF PAVEMENT	EOP		
ENGINEER	ENGR.		
EQUATION	EQ.		
EXCAVATION	EXCA.		
EXISTING	EXIST. / EXTG.		
EXPANSION	EXPAN.		
EXTENSION	EXTN.		
EXTERIOR	EXTR.		
EXTERNAL DISTANCE / EASTING	E		
FINISHED	FIN.		
FINISHED GRADE	FG		
FINISHED PAVEMENT LEVEL	FPL		
GENERAL	GEN.		
GROUND LEVEL	GL		
HEAD WALL(S)	H/W / HWS		
HIGH FLOOD LEVEL	HFL		
HIGH TIDE LEVEL	HTL		
HIGH WATER LEVEL	HWL		
HORIZONTAL	HOR.		
INCHES	IN.		
INTERSECTION ANGLE	I		
INSIDE DIAMETER	ID		
INTERIOR	INT.		
KILOGRAM	KG		
KILOMETER	km		
KILOMETER PER HOUR	KPH		
LEFT	LL		
LENGTH OF CIRCULAR CURVE	LC		
LENGTH OF VERTICAL CURVE	VC		
LONGITUDINAL	LONGIT.		
MAXIMUM	MAX.		
MAXIMUM FLOOD LEVEL	MFL		
MEAN SEA LEVEL	MSL		
METER	m		
MILLIMETER	mm		
MINIMUM	MIN.		
MONUMENT	MON.		
NORTHING	N		

LEGENDS AND SYMBOLS

TOPOGRAPHIC FEATURES, INFRASTRUCTURE AND UTILITIES

SYMBOL	ABBREVIATION	DESCRIPTION
		AND WOODEN HOUSE
		STORE
	SB	SIGN BOARD
	SP	STEEL POST
	SEP	STEEL ELECTRIC POST
	CP	CONCRETE POST
	CEP	CONCRETE ELECTRIC POST
	WEP	WOODEN ELECTRIC POST
	LP	COMBINATION OF CONCRETE AND WOODEN POST

LEGENDS AND SYMBOLS

TOPOGRAPHIC FEATURES, INFRASTRUCTURE AND UTILITIES

SYMBOL	ABBREVIATION	DESCRIPTION
		MAJOR CONTOUR
		MINOR CONTOUR
		EDGE OF ROAD (EXISTING)
		EDGE OF ROAD (PROPOSED)
		ASPHALT CONCRETE PAVEMENT
	PCCP	PORTLAND CEMENT CONCRETE PAVEMENT
		CHS/GROUTED CONCRETE/ EARTH CANAL
		NATIONAL HIGHWAY
		EXISTING CANAL (PLAN)
		EXISTING CANAL (PROFILE)
	BR.	BRIDGE
		CROSS-DRAIN
		LATERAL PIPE
		RCBC
		MANHOLE
		GUARDRAIL
		CHS WALL FENCE
		WOOD OR BARBED WIRE FENCE
		CYCLONE FENCE
		CONCRETE SLOPE PROTECTION
		GROUTED RIPRAP SLOPE PROTECTION
		RIVER / CREEK
		TREES
		COCONUT
		BANANA PLANTATION
		SCHOOL
		CHURCH
		AMAKAN HOUSE
		CONCRETE HOUSE
		WOODEN STORE

DRAWING SYMBOLS

SYMBOL	ABBREVIATION	DESCRIPTION
	C	ROADWAY CENTERLINE
		NORTH SIGN
	ELEV.	ELEVATION CALLOUT
		WATER LEVEL
	FLOW	WATER FLOW
		POINT OF INTERSECTION
	MATCH LINE	MATCH LINE
		GRID COORDINATES
	AZIM.	AZIMUTH
		PLAN AND PROFILE CALLOUT
		RCPC INVERSE ELEVATION PROFILE CALLOUT
	DIRECTION	DIRECTION
	DRAWING TITLE	MAIN DRAWING TITLE
	No. DRAWING TITLE	SECONDARY DRAWING TITLE
		CROSS SECTION SYMBOL (COMPLEX)
		CROSS SECTION SYMBOL (COMPLEX)
		DETAIL CALLOUT
	BH	BORE HOLE
		CROSS SECTION MONUMENT
	BM	BENCH MARK
	IBM	INTERMEDIATE BENCH MARK
	PSM	PERMANENT BENCH MARK
	TP	TEST PIT
	GPS	GLOBAL POSITIONING SYSTEM
		TRAVERSE POINT
		TRAVERSE STATION AND LINE



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ ST. COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - MAHARLIKA HIGHWAY
K1484 + (400) - K1484 + 722,
K1485 + 200 - K1485 + 838,
DAVAO CITY

SHEET CONTENTS:

ABBREVIATIONS
LEGENDS AND SYMBOLS

DRAFTED AND PREPARED:

NOVELL V. PENONIA
ENGINEER II
DATE: _____

REVIEWED:

ALAIN JOHN R. SOTTO
ENGINEERING SECTION CHIEF
DATE: _____

SUBMITTED:

AGNES S. AUDAN
Chief, Planning & Design Division
DATE: _____

RECOMMENDING APPROVAL:

JOSEPHINE C. SALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: _____

APPROVED:

JUBY S. CORDON
REGIONAL DIRECTOR
DATE: _____

SET NO.

A
2/11

SHEET NO.

2
45

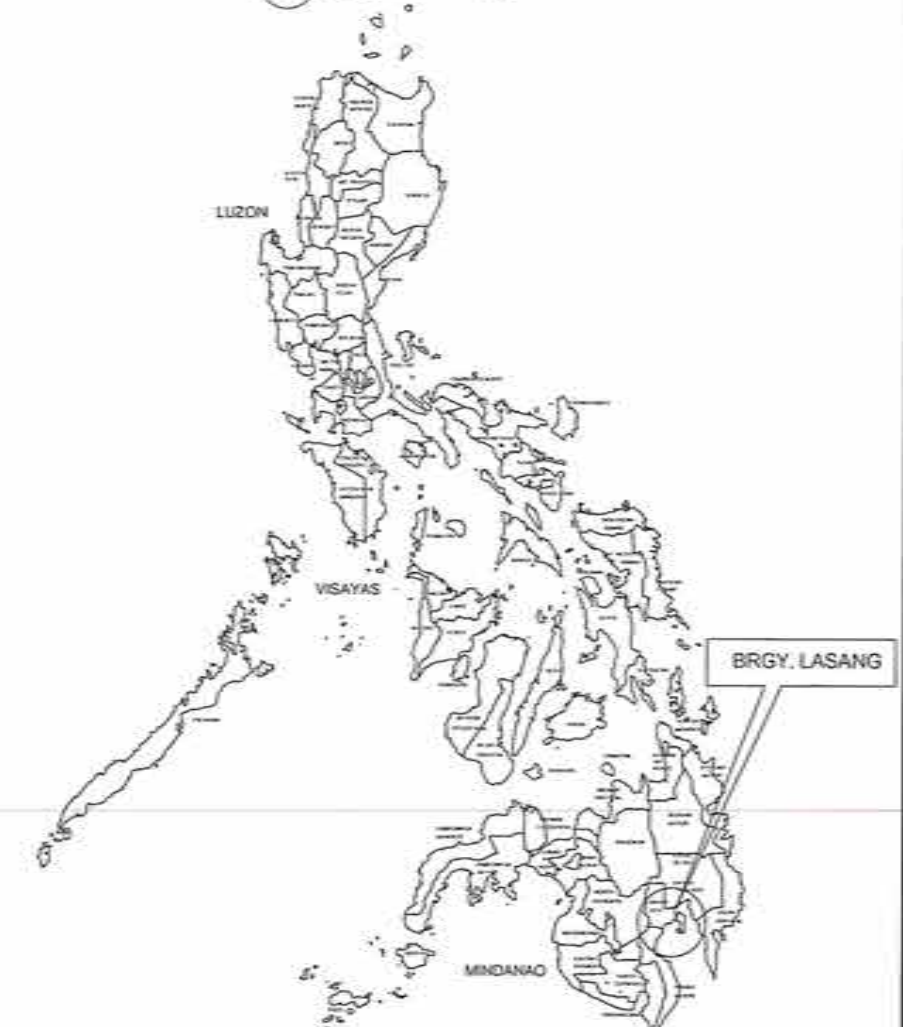
AGNES S. AUDAN
Engineer IV
DEC 05 2024



3 VICINITY MAP
SCALE 1:5000



2 LOCATION MAP
SCALE NTS



1 KEY MAP

For and in the absence of the
Chief, Planning & Design Division:

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ ST., COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION :	SHEET CONTENTS:	DRAFTED AND PREPARED:	REVIEWED:	SUBMITTER:	RECOMMENDING APPROVAL:	APPROVED:	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + [600] - K1484 + 723, K1485 + 200 - K1485 + 829, DAVAO CITY	INDEX OF SHEETS VICINITY MAP LOCATION MAP LOCATION PLAN	NOVELL V. PENOMA ENGINEER I DATE: _____	ALAN JOYR. SOLID ENGINEER IN CHARGE / CHIEF DATE: _____	AGNES S. AUDAN Engineer II JUDY ANN T. BERNARDO CHIEF ENGINEER / REGIONAL ENGINEER DATE: DEC 03 2024	JOSELOTO B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE: _____	JUST B. CORDON REGIONAL DIRECTOR DATE: _____	A 311	3 45

NAME OF PROJECT: REHABILITATION OF DRAINAGE ALONG NATIONAL ROADS - DAANG MAHARLIKA HIGHWAY DAVAO CITY

12/9/2024 13:48

PROJECT LIMIT: K1484 + (-600.000) - K1484 + 722.000

K1485 + 200.000 - K1485 + 839.000

LOCATION : LASANG DAVAO CITY

SUMMARY OF QUANTITIES

ITEM #	DESCRIPTION	UNIT	K1484 + (-600.000) TO K1484 + 722.000	K1485 + 200.000 TO K1485 + 839.000	OVERALL QUANTITY	REMARKS
101(2)	REMOVAL OF ACTUAL STRUCTURES/OBSTRUCTION	ea.	2.00		2.00	HEADWALL = 2.00 each
101(3)a1	REMOVAL OF ACTUAL STRUCTURES/OBSTRUCTION	sq.m.	25.00		25.00	PORTLAND CEMENT CONCRETE PAVEMENT REINFORCED , 0.15m THICK
101(3)a7	REMOVAL OF ACTUAL STRUCTURES/OBSTRUCTION	sq.m.	576.00		576.00	PORTLAND CEMENT CONCRETE PAVEMENT REINFORCED , 0.33m THICK
101(4)a3	REMOVAL OF ACTUAL STRUCTURES /OBSTRUCTION, 910mmØ	ln.m.	26.00		26.00	DILAPIDATED PIPES
1702(1)a	STRUCTURE EXCAVATION (COMMON SOIL)	cu.m.	245.00		245.00	FOR RCPC AND RCBC
103(3)	FOUNDATION FILL	cu.m.	1,701.00		1,701.00	FOR RCPC, RCBC AND LINED CANAL
1702(5)a	PIPE CULVERTS AND DRAIN EXCAVATION (COMMON SOIL)	cu.m.	37,458.00		37,458.00	FOR RCPC, RCBC AND LINED CANAL
1704(1)b	EMBANKMENT FROM BORROW, COMMON SOIL	cu.m.	16,631.00		16,631.00	SERVICE ROAD/ACCESS ROAD
105(1)a	SUBGRADE PREPARATION (COMMON MATERIAL)	sq.m.	12,431.00		12,431.00	SERVICE ROAD/ACCESS ROAD
1707(1)	AGGREGATE SUBBASE COURSE	cu.m.	1,865.00		1,865.00	SERVICE ROAD/ACCESS ROAD
311(2)a	PORTLAND CEMENT CONCRETE PAVEMENT REINFORCED , 0.15m THICK	sq.m.	25.00		25.00	RESTORATION OF EXISTING PAVEMENT
311(2)g2	PORTLAND CEMENT CONCRETE PAVEMENT REINFORCED , 0.33m THICK	sq.m.	576.00		576.00	RESTORATION OF EXISTING PAVEMENT
404(1)a	REINFORCING STEEL, GRADE 40	kgs.	453,692.00		453,692.00	FOR RCBC AND FLARED TYPE HEADWALL AND LINED CANAL
405(1)a3	STRUCTURAL CONCRETE, 20.68Mpa CLASS "A", 28 days	cu.m.	7823.00		7,823.00	FOR RCBC AND FLARED TYPE HEADWALL AND LINED CANAL
1718(21)b3	LINED CANAL	l.m.	1,240.00		1,240.00	LINED CANAL (TRAPEZOIDAL CONCRETE 2.00m x 1.50m 404(1)a = 32.03 kg/m, 405(1)a3 = 1.14 m ³ /m
1721(3)	CLEANING CULVERT PIPE IN PLACE, 910mmØ	l.m.	2,644.00	1,278.00	3,922.00	LATERAL RCPC ALONG NATIONAL ROAD
1721(3)	CLEANING CULVERT PIPE IN PLACE, 1220mmØ	l.m.	26.00		26.00	LATERAL RCPC ALONG NATIONAL ROAD
706(1)	CONCRETE, CLAY, PLASTIC AND FIBER PIPE, (2000MMØ HDPE)	l.m.	42.00		42.00	FOR CROSS DRAINS
1700(1)	CLEARING AND GRUBBING	sq.m.	49,608.00		49,608.00	SERVICE ROAD/ACCESS ROAD
1701(1)	UNSUITABLE EXCAVATION	cu.m.	8,086.00		8,086.00	EXISTING LINED CANAL OUTLET AREA = 4.65m ² , LENGTH = 1,737.00m

D R A I N A G E S C H E D U L E

STATION	DESCRIPTION	180(2)	101(3)a	101(3)a7	101(4)a3	1702(1)a	103(3)	1702(5)a	1704(1)b	105(1)a	1707(1)	311(2)a	311(2)g2	404(1)a	405(1)a3	1718(21)b3	1721(3)	1721(3)	706(1)	1700(1)	1701(1)	REMARKS	DESIGN PARAMETERS		
		ea.	sq.m.	sq.m.	ln.m.	cu.m.	cu.m.	cu.m.	cu.m.	sq.m.	cu.m.	sq.m.	sq.m.	kgs.	cu.m.	l.m.	l.m.	l.m.	l.m.	sq.m.	cu.m.		Q(cu.m/s)	Alpha(1)	V(m/s)
1483+434.900	REMOVE & REPLACE EXISTING 1- LINE 910mmØ X 26.00 ULM RCPC WITH 1 - 4.50m x 3.0m x 26.00 L.m RCBC. PROVIDE WINGWALL ON INLET AT STA. 1483+434.900 , IE = 9.255m	2.00		141.60	26.00	171.11	18.78	644.22						141.60	22,152.00	45.04						RCBC			
1483+434.900	CLEANING OF EXISTING LINED CANAL																			8,085.74		EXISTING LINED CANAL TO OUTLET			
1483+472.800	CLEANING CULVERT PIPE IN PLACE																	26.00				EXISTING RCPC			
1484+630.000	INSTALL 1- LINE 2000mmØ X 42.00 ULM HDPE (SKEWED). PROVIDE FLARED TYPE HEADWALL ON BOTH SIDES AT STA. 1484+ 630.000 , IE = 9.356m			434.00		123.27	11.81	392.57						434.00	349.48	7.86			42.00			CROSSDRAIN			
5+000.000 TO 3+736.574	1,263.43 L.M. CONSTRUCT TRAPEZOIDAL CONCRETE LINED CANAL (7m x 3m)						884.40	14,889.56	7,035.43					219,399.30	3,567.16					15,159.98		DOWNSTREAM OF RCBC			
5+000.000 TO 6+760.554	1,760.55 L.M. CONSTRUCT TRAPEZOIDAL CONCRETE LINED CANAL (3m x 2.50m)						528.17	8,112.50	9,534.85					196,988.39	3,732.37					7,019.84		UPSTREAM OF RCBC			
5+000.000 TO 3+736.574	1,263.43 L.M. CLEARING AND GRUBBING, SUBGRADE PREPARATION AND AGGREGATE SUBBASE COURSE									5,862.30	879.34									5,862.30		FOR SERVICE ROAD			
5+120.000 TO 5+295.554	175.55 L.M. CLEARING AND GRUBBING, SUBGRADE PREPARATION AND AGGREGATE SUBBASE COURSE									814.57	122.19									814.57		FOR SERVICE ROAD			
5+295.554 TO 6+760.554	1,465.00 L.M. CLEARING AND GRUBBING, SUBGRADE PREPARATION AND AGGREGATE SUBBASE COURSE																			6,757.60		FOR SERVICE ROAD			
5+080.000 TO 5+045.800	CONSTRUCT 1 - 2.40m x 1.80m x 34.2 L.m. RCBC AT STA. 5+080.000 - STA. 5+045.800		24.50				9.71	266.93				24.50		9,302.40	69.77							LATERAL RCBC			
5+000.000 TO 6+240.000	1,240.00 L.M. CONSTRUCT TRAPEZOIDAL CONCRETE LINED CANAL (3m x 1.50m)						248.00	13,157.25								1,240.00				8,199.86		BESIDE TASK FORCE DETACHMENT			
5+000.000 TO 6+240.000	1,240.00 L.M. CLEARING AND GRUBBING, SUBGRADE PREPARATION AND AGGREGATE SUBBASE COURSE									5,753.60	863.04									5,753.60		FOR SERVICE ROAD			
1484+722.000 TO 1483+400.000	CLEANING CULVERT PIPE IN PLACE																2,644.00					LATERAL RCPC BOTH SIDES			
1485+839.000 TO 1485+200.000	CLEANING CULVERT PIPE IN PLACE																1,278.00					LATERAL RCPC BOTH SIDES			
TOTAL		2.00	24.50	576.00	26.00	244.38	3,790.86	37,457.00	16,630.28	12,430.47	1,864.57	24.50	576.00	453,692.00	7,823.00	1,240.00	3,922.00	26.00	42.00	49,607.77	8,085.74				
SAY,		2.00	25.00	576.00	26.00	245.00	3,791.00	37,458.00	16,631.00	12,431.00	1,865.00	25.00	576.00	453,692.00	7,823.00	1,240.00	3,922.00	26.00	42.00	49,608.00	8,086.00				

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CORRAL ST. COR. B. MACSINAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - MAHARLIKA HIGHWAY
K1484 + (-600) - K1484 + 722,
K1485 + 200 - K1485 + 839,
DAVAO CITY

SHEET CONTENTS:

DRAINAGE SCHEDULE SECTION
SUMMARY OF QUANTITIES

DRAFTED AND PREPARED:

NOVELL V. PENONIA
ENGINEER I
DATE: 12/05/2024

REVIEWED:

ALAM JOSE R. SOTTO
ENGINEER IN CHARGE
DATE: 12/05/2024FORWARDED in the absence of the
Chief, Planning & Design DivisionAGNES S. AMAN
CHIEF, PLANNING & DESIGN DIVISION
DATE: 12/05/2024

RECOMMENDING APPROVAL:

JOSE LITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: 12/05/2024

APPROVED:

JUBY B. CORDON
REGIONAL DIRECTOR
DATE: 12/05/2024

SET NO.

A
411

SHEET NO.

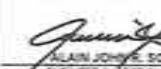
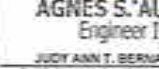
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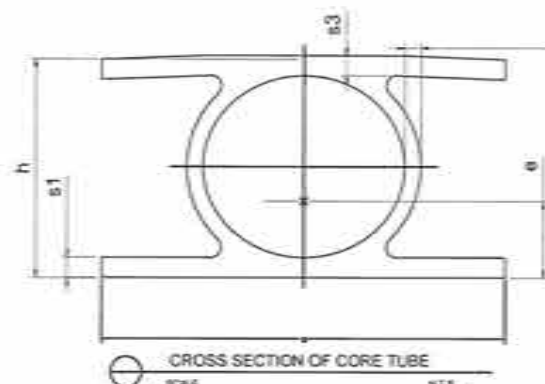
DEC 05 2024

SUMMARY & QUANTITIES

ITEM NO.	DESCRIPTION OF WORK	UNIT	QUANTITY	REMARKS
PART A. FACILITIES FOR THE ENGINEER				
A.1.1(3)	CONSTRUCTION OF FIELD OFFICE FOR THE ENGINEER	LS	1.00	
A.1.1(16)	OPERATION & MAINTENANCE OF FIELD OFFICE FOR THE ENGINEER	MONTH	12.00	
A.1.2(2)	PROVISION OF 4x4 PICK UP TYPE SERVICE VEHICLE FOR THE ENGINEER ON BARE RENTAL BASIS	VEHICLE-MONTH	12.00	
A.1.2(5)	OPERATION AND MAINTENANCE OF 4x4 PICK UP TYPE SERVICE VEHICLE FOR THE ENGINEER	VEHICLE-MONTH	12.00	
PART B. OTHER GENERAL REQUIREMENTS				
B.4(1)	CONSTRUCTION SURVEY AND STAKING	KM	1.96	
B.5	PROJECT BILLBOARD / SIGNBOARD (2 DPWH)	EACH	2.00	
B.5	PROJECT BILLBOARD / SIGNBOARD (2 DENR-EMB)	EACH	2.00	
B.5	PROJECT BILLBOARD / SIGNBOARD (2 COA)	EACH	2.00	
B.7(2)	OCCUPATIONAL SAFETY AND HEALTH PROGRAM	L.S.	1.00	
B.8(1)	TRAFFIC MANAGEMENT	MONTH	12.00	
B.9	MOBILIZATION / DEMOBILIZATION	L.S.	1.00	
PART L-A. EARTHWORKS				
101(2)	REMOVAL OF ACTUAL STRUCTURES / OBSTRUCTION	EACH	2.00	HEADWALL = 2.00 EACH
101(3)a1	REMOVAL OF ACTUAL STRUCTURES / OBSTRUCTION, 0.15m THICK PCCP (REINFORCED)	SQ.M	25.00	EXISTING PCCP
101(3)a7	REMOVAL OF ACTUAL STRUCTURES / OBSTRUCTION, 0.30m THICK PCCP (REINFORCED)	SQ.M	576.00	EXISTING PCCP
101(4)a3	REMOVAL OF ACTUAL STRUCTURES / OBSTRUCTION, 910mm DIA., RCPC	LN.M	26.00	FOR CROSS DRAIN
103(3)	FOUNDATION FILL	CU.M	1,701.00	FOR CONCRETE LINED CANAL, HEADWALL AND RCBC
105(1)a	SUBGRADE PREPARATION, COMMON MATERIAL	SQ.M	12,431.00	SERVICE ROAD / ACCESS ROAD
1700(1)	CLEARING AND GRUBBING	SQ.M	49,608.00	SERVICE ROAD / ACCESS ROAD
1701(1)	UNSUITABLE EXCAVATION	CU.M	8,086.00	EXISTING LINED CANAL OUTLET AREA = 4.65 SQ.M., LENGTH = 1,737.00M
1702(1)a	STRUCTURE EXCAVATION, COMMON SOIL	CU.M	245.00	FOR RCPC AND RCBC
1702(5)a	PIPE CULVERTS AND DRAIN EXCAVATION, COMMON SOIL	CU.M	37,458.00	FOR RCPC, RCBC AND LINED CANAL
1704(1)a	EMBANKMENT, FROM BORROW	CU.M	16,631.00	SERVICE ROAD / ACCESS ROAD
1707(1)	AGGREGATE SUBBASE COURSE	CU.M	1,665.00	SERVICE ROAD / ACCESS ROAD
PART L-C. DRAINAGE WORKS				
1718(21)a5	LINED CANAL, CONCRETE, TRAPEZOIDAL	LN.M	1,240.00	TRAPEZOIDAL (2.00M x 1.50M)
1721(3)	CLEANING CULVERT PIPE IN-PLACE (910MM DIA.)	LN.M	3,922.00	LATERAL RCPC
1721(3)	CLEANING CULVERT PIPE IN-PLACE (1220MM DIA.)	LN.M	26.00	LATERAL RCPC
PART F. SURFACE COURSE				
311(2)a	PORTLAND CEMENT CONCRETE PAVEMENT (REINFORCED), 0.15M THICK, 14 DAYS	SQ.M	25.00	RESTORATION OF EXISTING PAVEMENT
311(2)a2	PORTLAND CEMENT CONCRETE PAVEMENT (REINFORCED), 0.33M THICK, 7 DAYS	SQ.M	576.00	RESTORATION OF EXISTING PAVEMENT
PART F. DRAINAGE CONSTRUCTION				
404(1)a	REINFORCING STEEL, GRADE 40	KG	453,692.00	LINED CANAL (TM x 3m) = 219,899.30 KG, (3M x 2.5M) = 196,988.39 KG, (2M x 1.5M) = 39,717.20 KG
405(1)a3	STRUCTURAL CONCRETE, 20.68MPA, CLASS "A", 28 DAYS	CU.M	7,823.00	LINED CANAL (TM x 3m) = 3,967.16 CU.M, (3M x 2.5M) = 3,732.37 CU.M, (2M x 1.5M) = 1,413.60 CU.M
PART I. MATERIALS DETAILS				
706(1)	CONCRETE, CLAY, PLASTIC AND FIBER PIPE (2000mm DIA.)	LN.M	42.00	FOR CROSSDRAIN

NOTE: QUANTITIES ARE SUBJECT TO INCREASE/DECREASE DEPENDING ON THE ACTUAL FIELD CONDITIONS.

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ ST., COR. R. MACARSA AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED AND PREPARED:	REVIEWED:	SUBMITTED:	RECOMMENDING APPROVAL:	APPROVED:	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - BAHARILKA HIGHWAY K1484 + (400) - K1484 + 722, K1485 + 200 - K1485 + 839, DAVAO CITY	TOTAL SUMMARY OF QUANTITIES	 MAXWELL V. PENORIA ENGINEER II DATE:	 ALAIN JOHN S. DOTTA ENGINEER II, RECORDS CHIEF DATE:	 AGNES S. AUDAN Engineer IV JUDY ANN T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	 JOSEITO S. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	 JUBY S. CORDON REGIONAL DIRECTOR DATE:	A / 511	5 / 45



DIMENSION

WATERWAY (S1)	25 mm
WATERWAY (S2)	-
WATERWAY (S3)	5 mm
THICKNESS (S4)	10 mm
PROFILE HEIGHT (H)	111 mm
PROFILE WIDTH (a)	140 mm
CORETUBE DIAMETER (sd)	75 mm

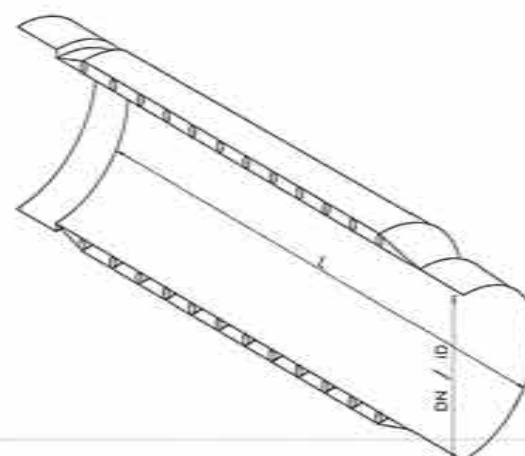
STATICAL DATA

I_x	9,385,838.00 mm ⁴
MOMENT OF INERTIA (I)	67,041.70 mm ⁴ /mm
DISTANCE OF INERTIA (e)	42.34 mm
SECTION MODULUS INSIDE (W _i)	1583.41 mm ³ /mm
SECTION MODULUS OUTSIDE (W _o)	976.43 mm ³ /mm
EQUIVALENT SOLID WALL (eww)	93.01 mm
PROFILE AREA RADIAL (ap)	46.66 mm ² /mm
PROFILE AREA AXIAL (ap2)	30.00 mm ² /mm

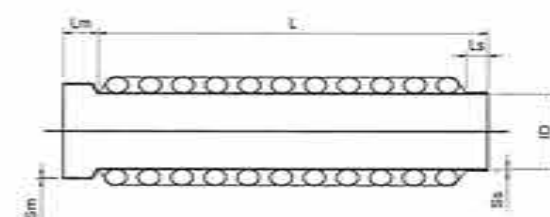
MATERIAL SPECIFICATION: VIRGIN PE 100				
S4	PROPERTY	REFERENCE METHOD	UNIT	VALUE
	MELT FLOW RATE	ASTM D 1238 ISO 1133	g/10min	0.23
	DENSITY	ISO 1183	kg/m ³	959
	MOISTURE CONTENT	ISO 15512	ppm	30
	CARBON BLACK CONTENT	ASTM D 1603	%	>2

Outside Diameter (OD) (mm)	Inside Diameter (ID) (mm)	Height, h (mm)	Length (m)
2222	2000	111.0	6

TEST REQUIREMENT	STANDARDS
RING STIFFNESS	DIN EN ISO 9969
MELT MASS-FLOW RATE (MFR)	DIN EN ISO 1133
WALL THICKNESS	DIN 16917
OVALITY/DIAMETER	ISO 3126, DIN 16917
FLATTENING TEST	ASTM F894-D7



DN/ID = INTERNAL DIAMETER (mm)
L = LAYING LENGTH (mm)



SOCKET AND SPIGOT DETAILS
SCALE N.T.S.

SPIGOT DETAILS		
DN Range (mm)	Ls (mm)	Ss (mm)
300-1200	159	21.5000
1300-1600	165	26.5000
1700-2400	171	31.5000

SOCKET DETAILS		
DN Range (mm)	Lm (mm)	Sm (mm)
300-1200	140	26.0000
1300-1600	140	29.9600
1700-2400	140	35.5400
2500-3000	140	38.5400
3100-3500	140	43.5400
3600-4000	140	48.5400

MARKINGS:

THE PIPES SHOULD BE CLEARLY MARKED WITH THE FOLLOWING INFORMATION AT ONE METER INTERVAL:

1. MANUFACTURER'S IDENTIFICATION
2. NOMINAL DIAMETER
3. NAME OF PRODUCT, RESIN TYPE IDENTIFICATION (ISO 8772)
4. NUMBER OF SPECIFICATION WHERE IT IS MANUFACTURED
5. THE WORD "GRAVITY PIPES"
6. MANUFACTURER'S CODING
7. YEAR OF MANUFACTURE

NOTE:

1. GENERAL REQUIREMENTS ACC. EN 13476, DIN 16961 AND DIN 16917, WITH STRUCTURED OR SOLID WALL, RAW MATERIAL APPROVED FOR GRAVITY AND PRESSURE APPLICATION, WITH CO EXTRUDED AND INSPECTION FRIENDLY INNER SURFACE, MINIMUM WALL THICKNESS ACC. ASTM F894/DIN 16917, STANDARD DIMENSIONS ACCORDING MENTIONED STANDARDS
2. WITH INTEGRATED ELECTRO FUSION SOCKET AND SPIGOT
3. WELDING JOINTS ACCORDING, MANUAL PIPE SUPPLIER ELECTRO FUSION SOCKET WITH INTEGRATED BRASS HEATING WIRE IN MEANDER-SHAPE, DIAMETER 2MM 3/100
4. ACTUAL QUANTITY SHALL BE AS PER APPROVED CONTRACT DOCUMENTS.

1 HIGH DENSITY POLYETHYLENE PIPE (HDPE), 2000MM DIA. SCALE 1:200

For and in the absence of the
Chief, Planning & Design Division



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ ST. COR. R. KINGSAWAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - BAHARUKA HIGHWAY
K1484 + (500) - K1484 + 722,
K1485 + 200 - K1485 + 828,
DAVAO CITY

SHEET CONTENTS:

HIGH DENSITY POLYETHYLENE PIPE (HDPE)
2000MM DIA.

DRAFTED AND PREPARED:

NOVELL V. PENCASA
ENGINEER II

REVIEWED:

JOHN J. R. SOTO
ENGINEER II, PLANNING CHIEF

SUBMITTED:

AGNES S. AUDAN
Engineer IV
JUDY ANN T. BERNARDO
CHIEF, PLANNING & DESIGN DIVISION
DATE: DEC 05 2024

RECOMMENDING APPROVAL:

JOSE LITO S. CABALLERO
ASSISTANT REGIONAL DIRECTOR

APPROVED:

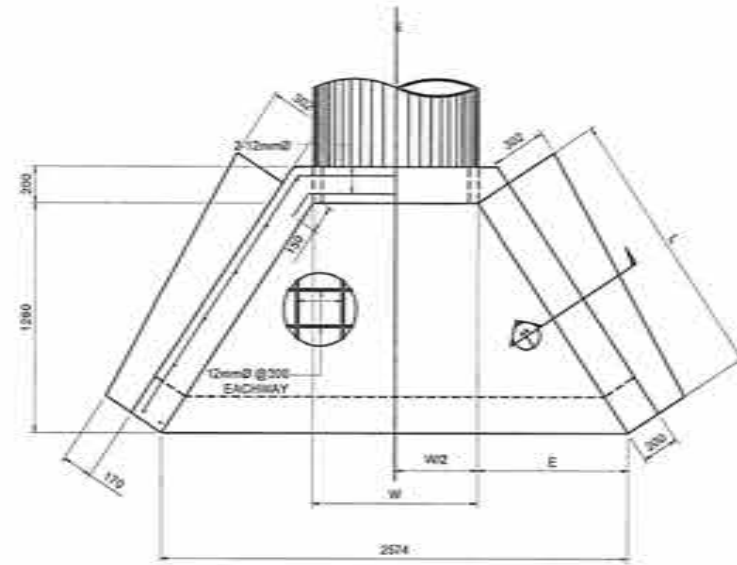
JUDY B. CORDON
REGIONAL DIRECTOR

SET NO.

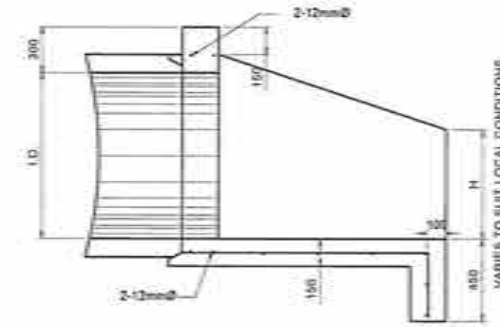
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SHEET NO.

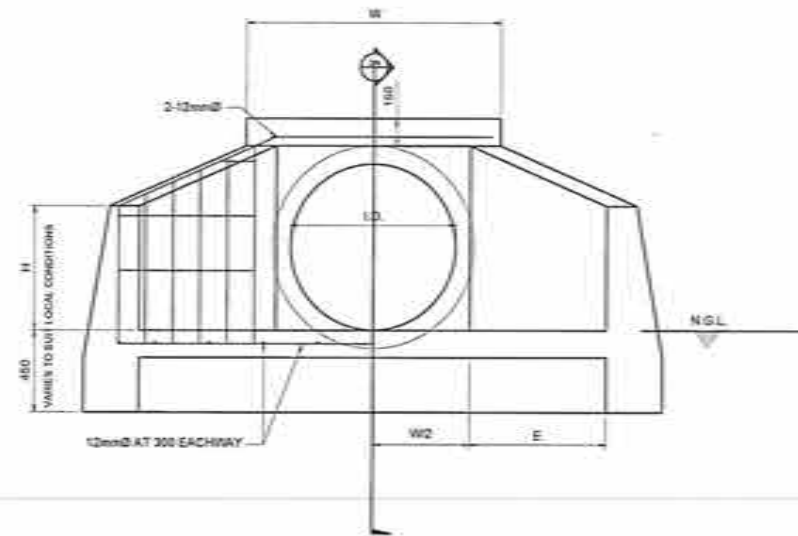
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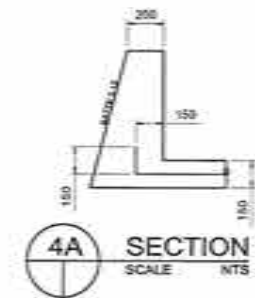
1A PLAN (TYPE I)
SCALE NTS



3A SECTION
SCALE NTS



2A SECTION ELEVATION (TYPE I)
SCALE NTS



4A SECTION
SCALE NTS

FLARED TYPE HEADWALL							
DIAMETER	DIMENSIONS (mm)				SINGLE PIPE		
	L	E	F	h	W (mm)	CONC. m³	STEEL kg
1520	2540	1410	2110	600	1680	3.93	174.74

FLARED TYPE HEADWALL DETAILS
SCALE NTS



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CORRAL ST. COR. S. MARCOS AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - MAHARAJA HIGHWAY
K1484 + 1400 - K1484 + 722
K1485 + 200 - K1485 + 620
DAVAO CITY

SHEET CONTENTS:

FLARED TYPE HEADWALL

DRAFTED AND PREPARED:

NEWELL V. PENCAMA
ENGINEER II
DATE: 10/10/2024

REVIEWED:

ALAN JOY R. SOTTO
ENGINEER II, SECTION CHIEF
DATE: 10/10/2024

For and in the absence of the
Chief Planning & Design Division

AGNES S. AUDAN
Engineer IV
JUDY ANN T. BERNARDO
CHIEF PLANNING & DESIGN DIVISION
DATE: DEC 05 2024

RECOMMENDING APPROVAL:

JOSE LITO S. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: 10/10/2024

APPROVED:

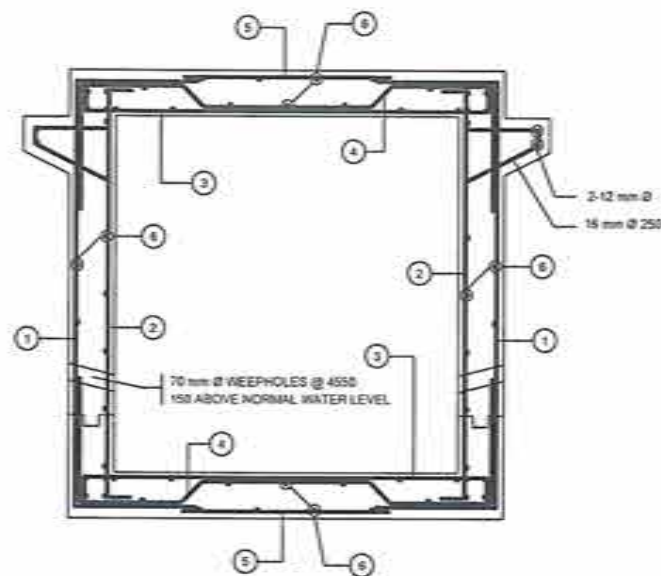
JUDY B. CORDON
REGIONAL DIRECTOR
DATE: 10/10/2024

SET NO.

A
7/11

SHEET NO.

7
45



SECTION SHOWING REINFORCEMENT
NOT TO SCALE

BAR SCHEDULE

CLEAR	1	BAR 1	BAR 2	BAR 3	BAR 4	BAR 5	BAR 6
SPAN S	HEIGHT H	mm	#	SPACING	#	SPACING	#
2400	1800	225	16	225	16	225	16

QUANTITIES FOR BOX CULVERT AND WINGWALLS

CLEAR	QTY PER METER OF BARREL
SPAN S	HEIGHT H
2400	1800

NOTE: HIGH STRENGTH REINFORCED CONCRETE BOX CULVERTS SHALL BE THE SPAN BUREAU OF LOCAL GOVERNMENTS (BUREAU OF LOCAL GOVERNMENTS)

CLEAR	QUANTITY PER WINGWALL AND APRON SLAB
SPAN S	HEIGHT H
2400	1800

GENERAL NOTES

SPECIFICATIONS

DESIGN (BTT) AASHTO SPECIFICATION FOR HIGHWAYS AND BRIDGES

CONCRETE

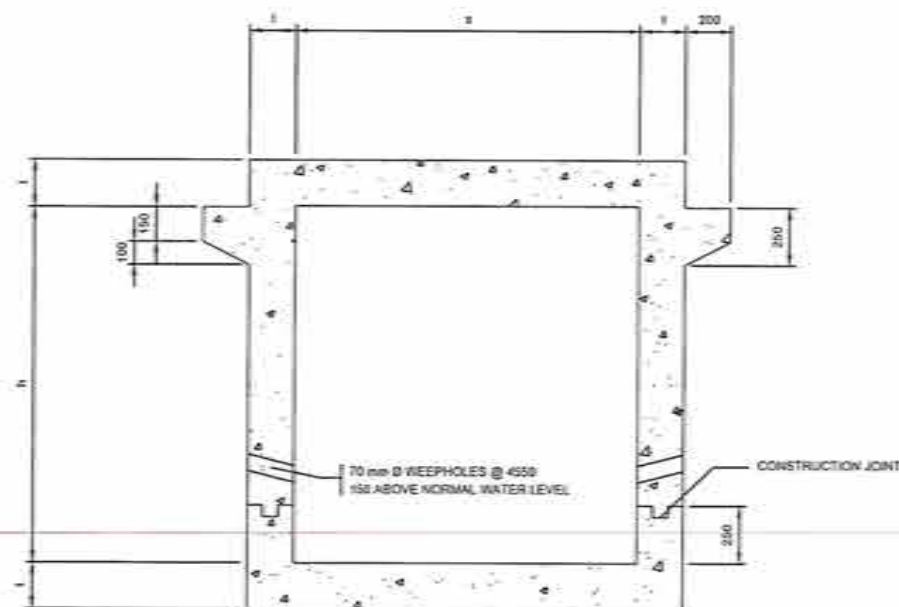
ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS (5-10000 PSI) ALL EXPOSED CORNERS TO CHAMFERED 0.019 m. NO CONSTRUCTION JOINTS ARE TO BE MADE EXCEPT WHERE SHOWN WHEN BOTTOM SLAB IS SUBJECT TO ABRASION, ADD 0.03 m TO BOTTOM SLAB TO INCREASE COVERAGE IN STEEL.

STEEL REINFORCEMENT

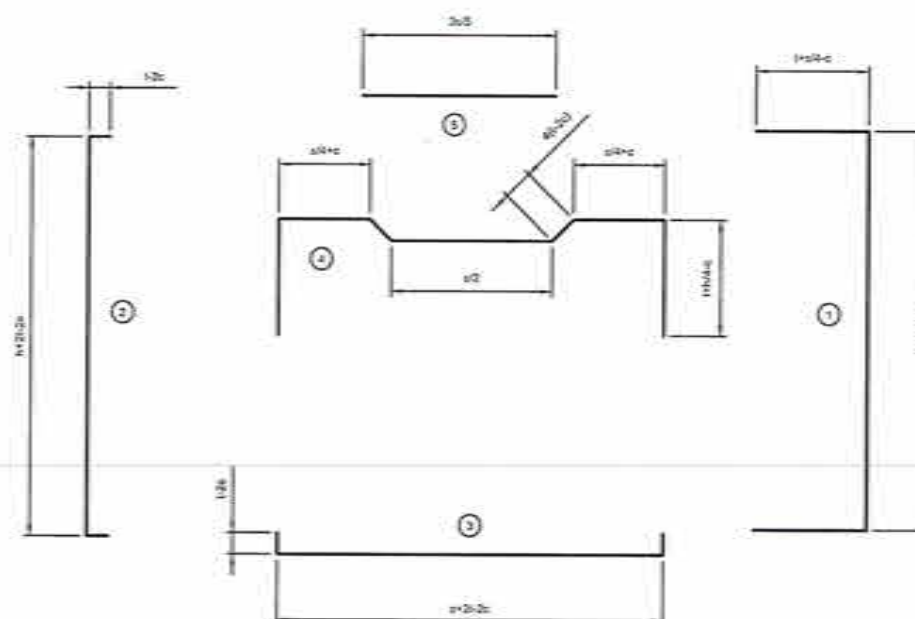
ALL REINFORCING STEEL TO BE INTERMEDIATE GRADE (GRADE 40) ASTM A 315 WITH DEFORMATION CONFORMING TO ASTM A 315-9 (5-10000 PSI)

GENERAL

IN STATING CULVERT SIZE, GIVE WIDTH BY HEIGHT (WIDTH FIRST) PLACE 12 mm EXPANSION JOINTS WITH PRE-MOLDED FILLER IN WALLS AND TOP SLAB OF BOX CULVERT AT 10000 mm INTERVALS WHEN HEIGHT OF FILL, MIN. THE TOP OF SURFACE OF THE UPPER SLAB SHALL FOLLOW THE CROWN OF FINISHED ROADWAY.



SECTION OF SINGLE BARREL RCBC
NOT TO SCALE



BAR BENDING DIAGRAM
NOT TO SCALE

For and in the absence of the

Chief Planning & Design Division

AGNES S. AUDAN

Engineer IV

JUDY ANN T. BERNARDINO

CHIEF PLANNING AND DESIGN DIVISION

DATE: DEC 05 2024

RECOMMENDING APPROVAL:

JOSE LUIS B. CASALLERO

Assistant Regional Director

DATE:

JUEY B. CORDON

REGIONAL DIRECTOR

DATE:

SET NO. 8

SHEET NO. 45

REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

REGIONAL OFFICE NO. XI

GOV. CHAVEZ ST. COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

CONSTRUCTION OF DRAINAGE STRUCTURE

ALONG ROAD - MAHARLIKA HIGHWAY

K1454 + 1400 - K1454 + 722

K1454 + 200 - K1454 + 529

DAVAO CITY

SHEET CONTENTS:

GENERAL NOTES

SINGLE BARREL BAR BENDING DIAGRAM

QUANTITIES FOR BOX CULVERT AND WINGWALL

SECTION SHOWING REINFORCEMENT

DRAFTED AND PREPARED:

NOVELL V. PENABIA

ENGINEER II

DATE:

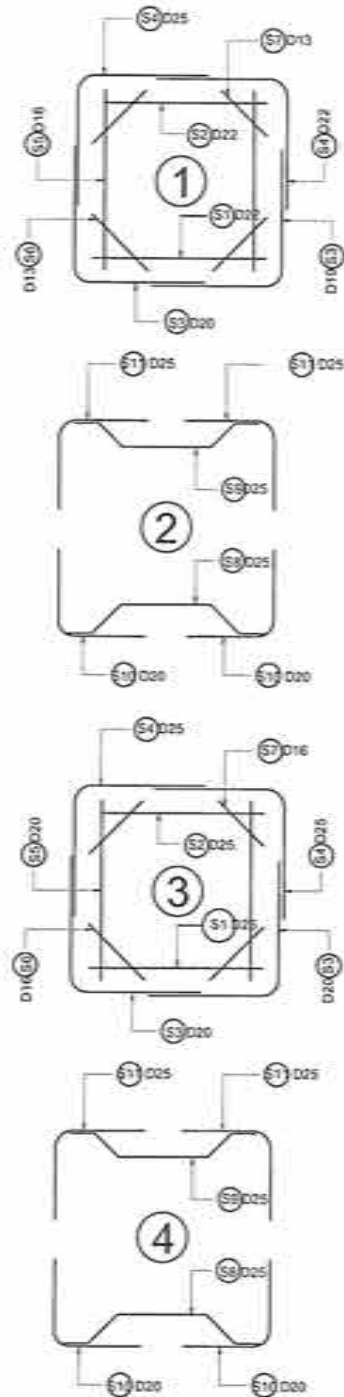
REVIEWED:

ALAN JOHN R. SOTO

ENGINEER II, SECTION CHIEF

DATE:

MAIN BAR ASSEMBLY DIAGRAM

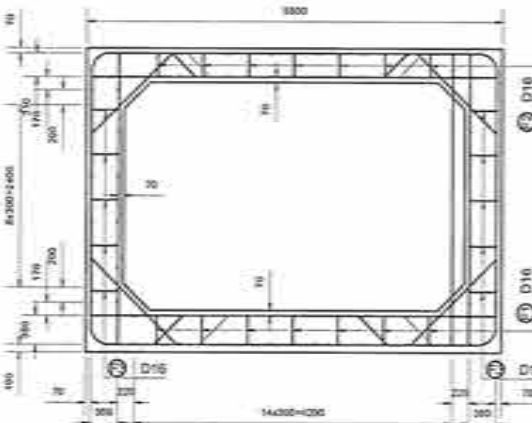
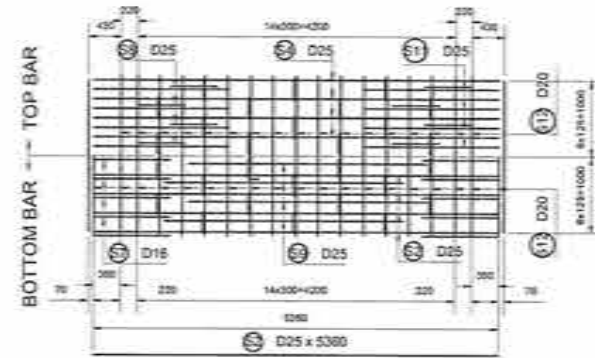


BAR ASSEMBLY DIMENSION TABLE

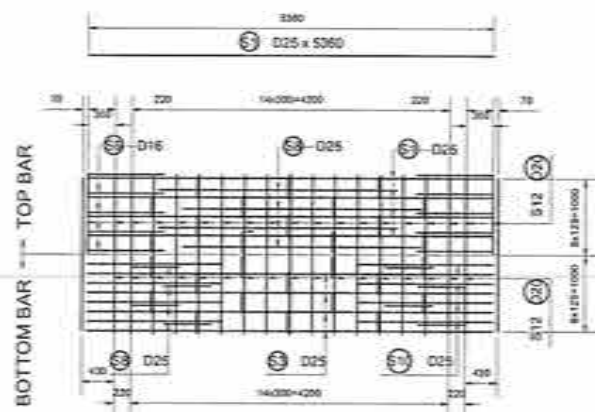
MARK	DIA. (mm.)	a (m.)	b (m.)	L (m.)	SHAPE
F1	16	0.995	1.239	1.245	
F2	16	0.995	1.099	1.105	
F3	16	0.995	0.507	0.510	



TOP SLAB
SCALE 1:100



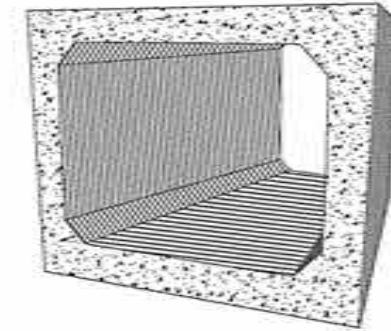
SECTION SHOWING REINFORCEMENT
SCALE 1:100



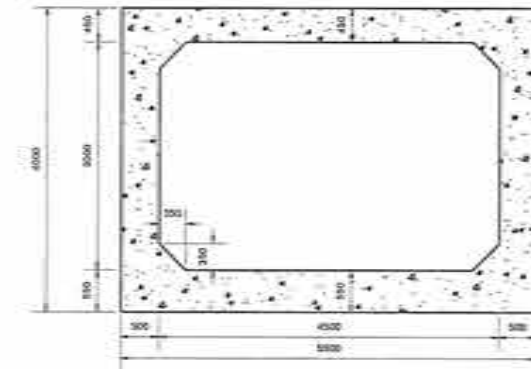
BOTTOM SLAB
SCALE 1:100

DESIGN CONDITION

LIVE LOAD	T-20
UNIT WT. REINF. CONCRETE	2500kg/cu.m.
ALLOWABLE SAND & CONCRETE	1800kg/cu.m.
STRESS CONCRETE	70kg/cu.m.
STEEL BAR	1600kg/cu.m.
EARTH PRESSURE COEF.	0.5



RCBC PERSPECTIVE
NOT TO SCALE



BAR SCHEDULE

MARK	DIA. (mm.)	LENGTH (m.)	# OF BAR (pcs)	UNIT WT. (kg/m)	WT (kg)	TOTAL WT (kg)	SHAPE
S1	25	5360	4	3.854	20.517	82.63	
S2	25	5360	4	3.854	20.517	82.63	
S3	25	5125	8	2.468	12.638	101.11	
S4	25	5125	8	2.468	12.638	101.11	
S5	16	2630	8	1.579	6.048	48.38	
S6	16	1995	8	0.898	1.516	12.78	
S7	12	1705	8	0.898	1.516	12.78	
S8	25	4960	4	3.854	18.947	62.59	
S9	25	4030	4	2.654	10.612	62.13	
S10	25	2985	8	2.468	7.361	58.89	
S11	25	2970	8	2.654	11.448	81.57	
S12	16	1000	116	1.579	1.579	183.16	
SUB TOTAL						898.89	
F1	16	1245	12	1.579	1.908	23.58	
F2	16	1105	12	1.579	1.745	21.94	
F3	16	510	24	1.579	0.825	18.33	
SUB TOTAL						63.85	
TOTAL						1,021.00	
						D25	540.48
						D20	158.39
						D16	295.40
						D12	24.88

For and in the absence of the
Chief Planning & Design Division



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ ST. COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - MAHARLIKA HIGHWAY
K1484 + (450) - K1484 + 732,
K1485 + 200 - K1485 + 839,
DAVAO CITY

SHEET CONTENTS:

SINGLE BARREL REINFORCED CONCRETE
BOX CULVERT 4.50m x 3.00m

DRAFTED AND PREPARED:

MOVELL V. PEYONIA
ENGINEER I
DATE: DEC 05 2024

REVIEWED:

ALAN JOHN R. SOTER
ENGINEER II, SECTION CHIEF
DATE: DEC 05 2024

AGNES S. AUDAN
Engineer IV
JUDY ANN T. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE: DEC 05 2024

RECOMMENDING APPROVAL:

JOSE LITO B. CASALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: DEC 05 2024

APPROVED:

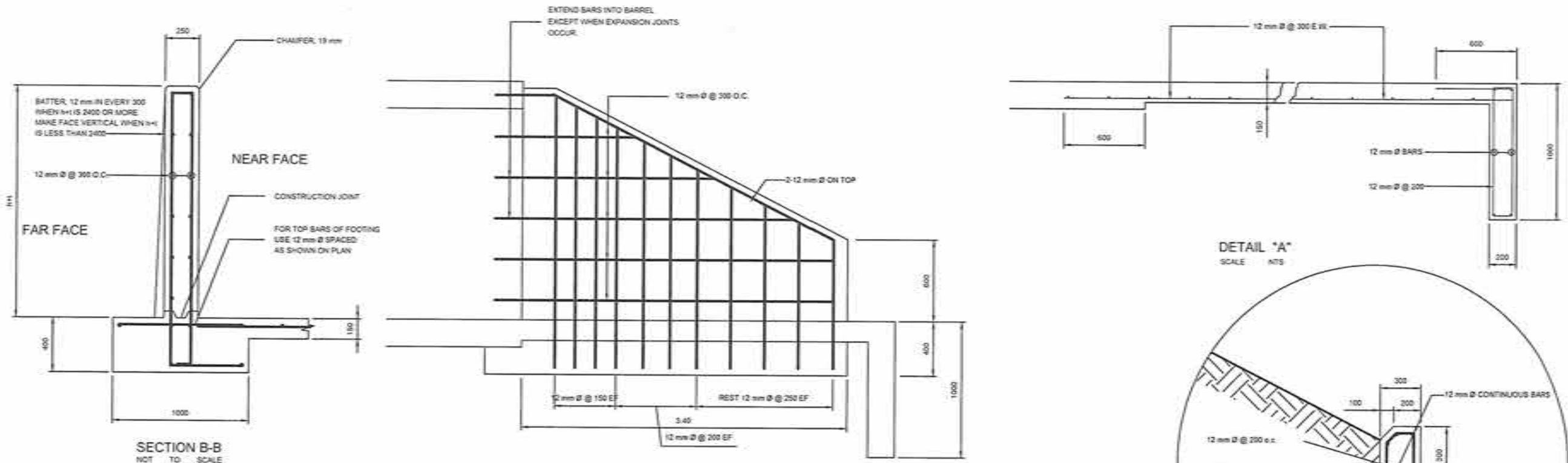
JUDY S. CORDON
REGIONAL DIRECTOR
DATE: DEC 05 2024

SET NO.

A
9/11

SHEET NO.

9
45



SECTION B-B
NOT TO SCALE

WINGWALL ELEVATION
SCALE NTS

DETAIL "A"
SCALE NTS

DETAIL "B"
SCALE 1:20 M.

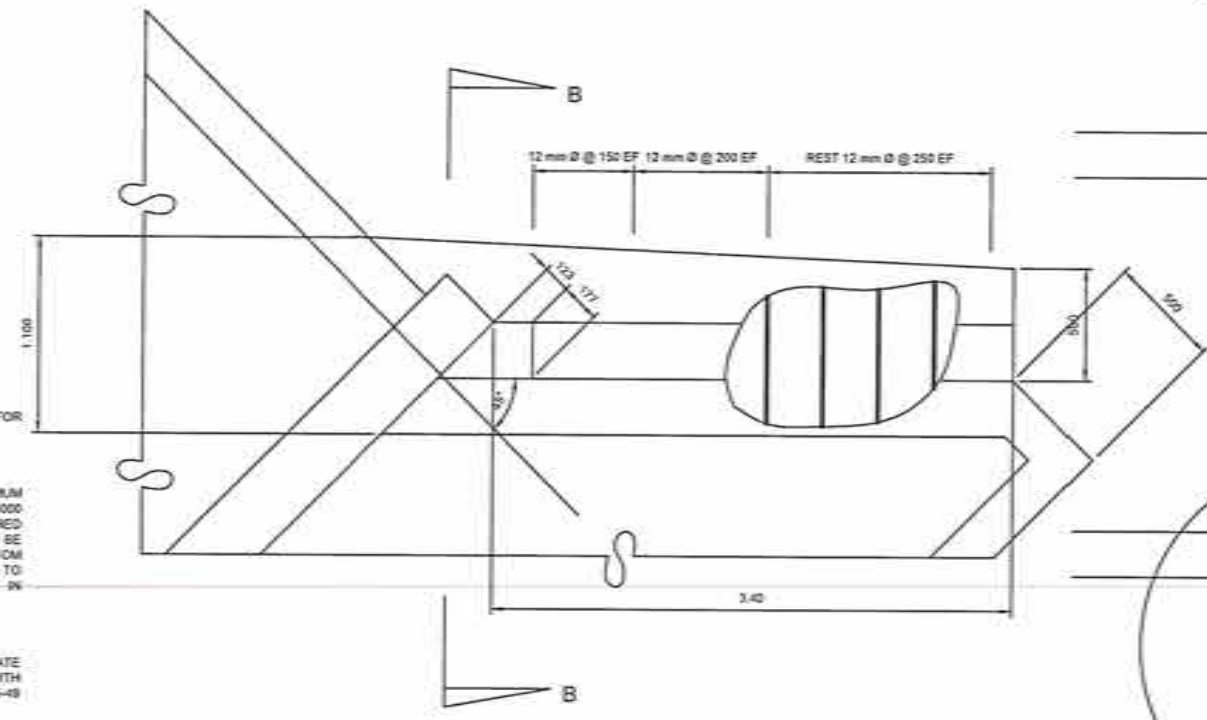
GENERAL NOTES

SPECIFICATIONS:
DESIGN 1971 AASHTO SPECIFICATION FOR HIGHWAYS AND BRIDGES

CONCRETE:
ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS (f_c 3000 PSI) ALL EXPOSED CORNERS TO CHAMFERED 0.019 m. NO CONSTRUCTION JOINTS ARE TO BE MADE EXCEPT WHERE SHOWN WHEN BOTTOM SLAB IS SUBJECT TO ABRASION, ADD 0.025 m. TO BOTTOM SLAB TO INCREASE COVERAGE IN STEEL.

STEEL REINFORCEMENT:
ALL REINFORCING STEEL TO BE INTERMEDIATE GRADE (GRADE 40), ASTM A 615 WITH DEFORMATION CONFORMING TO ASTM A-305-48 (f_y 40000 PSI).

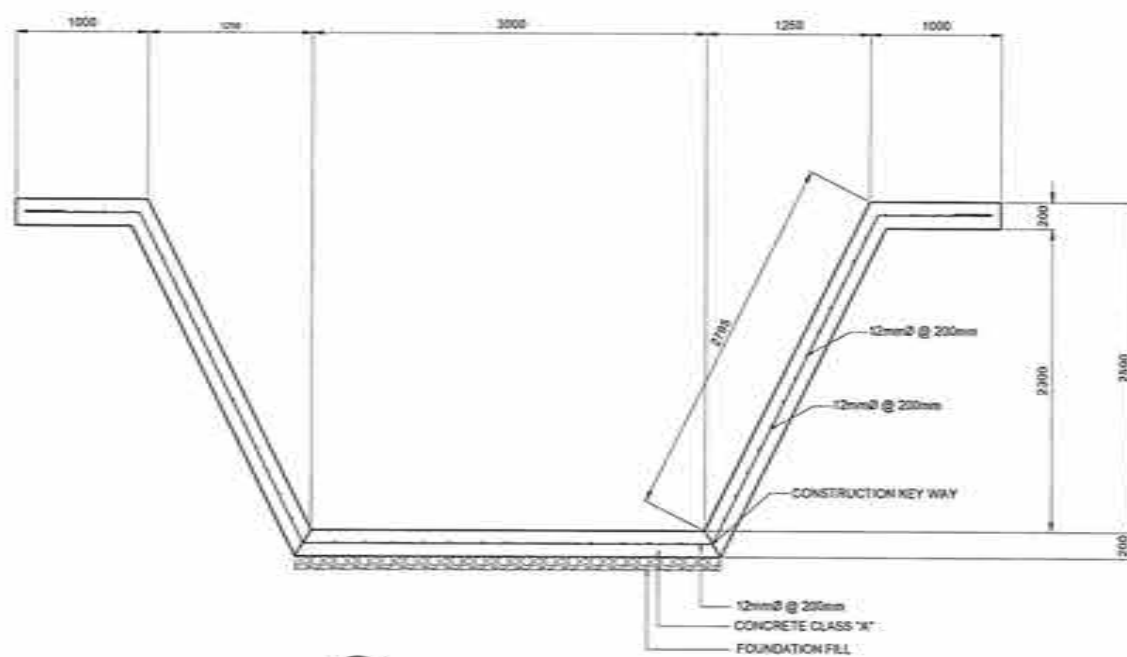
GENERAL:
IN STATING CULVERT SIZE, GIVE WIDTH BY HEIGHT (WIDTH FIRST) PLACE 12 mm EXPANSION JOINTS WITH PRE-MOLDED FILLER IN WALLS AND TOP SLAB OF BOX CULVERT AT 12200 mm INTERVALS WHEN HEIGHT OF FILL, H=0, THE TOP OF SURFACE OF THE UPPER SLAB SHALL FOLLOW THE CROWN OF FINISHED ROADWAY.



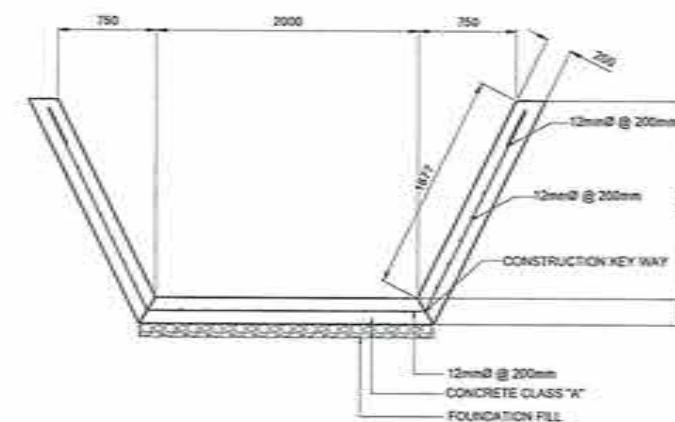
WINGWALL PLAN
SCALE NTS

PART SECTION ALONG CL OF BOX CULVERT

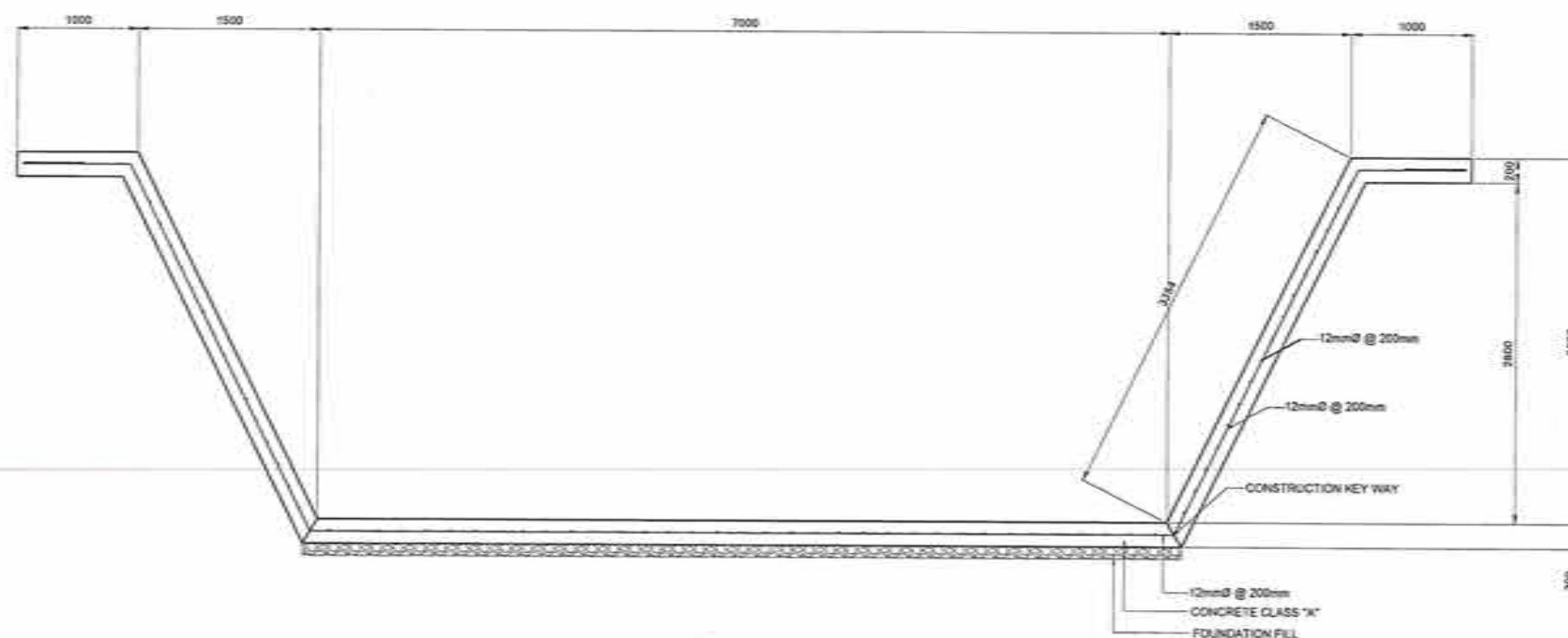
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CORRAL ST. COR. R. MADRIGAL AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED AND PREPARED:	REVIEWED:	FOR AND IN THE ABSENCE OF THE Chief Planning & Design Division	RECOMMENDING APPROVAL:	APPROVED:	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (400) - K1484 + 722, K1485 + 200 - K1485 + 638, DAVAO CITY	WINGWALL DETAILS	 NEIL V. PENOMA ENGINEER II DATE:	 ALAN JOY R. SOTO ENGINEER II, SENIOR CHIEF DATE:	 AGNES S. AUDAN Engineer IV JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	 AGELITO S. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	 JUDY B. CORDON REGIONAL DIRECTOR DATE:	A 1011	10 45



2 LINED CANAL (3m x 2.5m)



3 LINED CANAL (2m x 1.5m)



1 LINED CANAL (7m x 3m)



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ ST. COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION :
CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - MAKARLINA HIGHWAY
K1484 + 000 - K1484 + 722,
K1485 + 200 - K1485 + 629,
DAVAO CITY

SHEET CONTENTS:
LINED CANAL

DRAFTED AND PREPARED:
NEWELL V. FENORA
ENGINEER I
DATE: / /

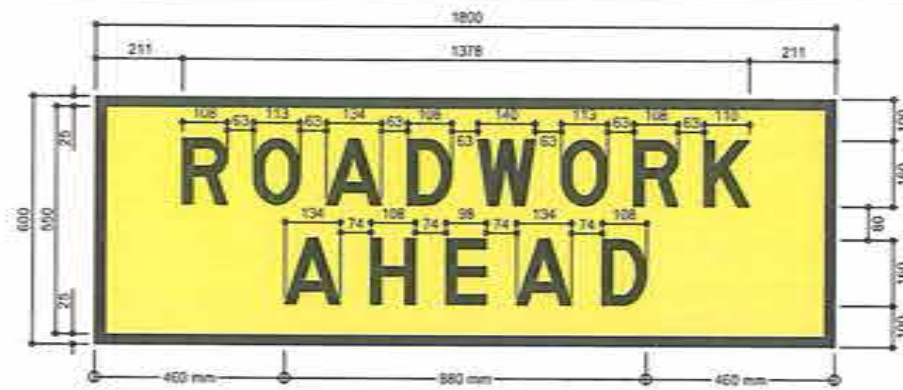
REVIEWED:
ALAN JON R. SOTO
ENGINEER II, SECTION CHIEF
DATE: / /

For and in the absence of the
Chief, Planning & Design Division
AGNES S. AUDAN
Engineer IV
JUDY ANN Y. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE: DEC. 05 2024

RECOMMENDING APPROVAL:
VOSELITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: / /

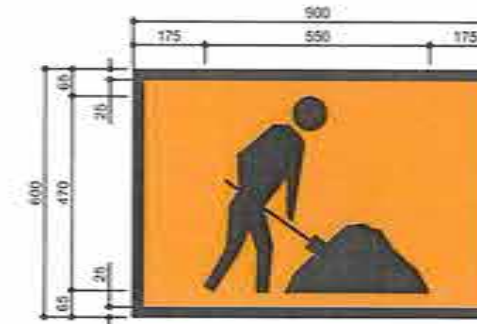
APPROVED:
JUDY B. CORDON
REGIONAL DIRECTOR
DATE: / /

SET NO. SHEET NO.
A 11
11 45



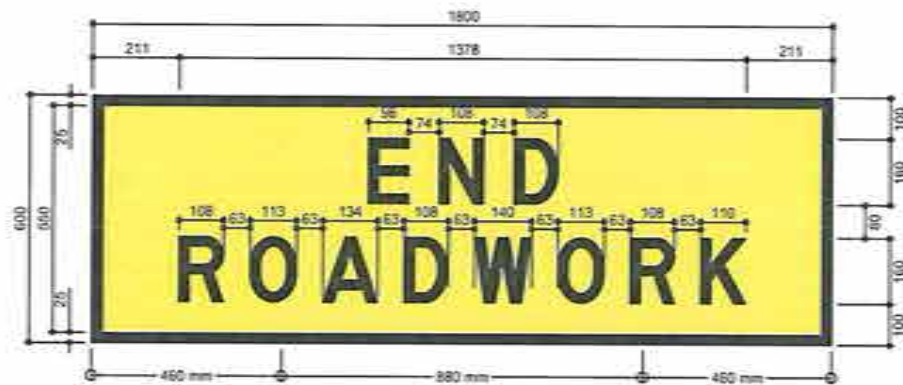
ROADWORK AHEAD DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T1-1	1800 X 600	LINE 1 - BLACK 200 DM LINE 2 - BLACK 160 DM	YELLOW REFLECTORIZED	ADVANCE WARNING SIGNS



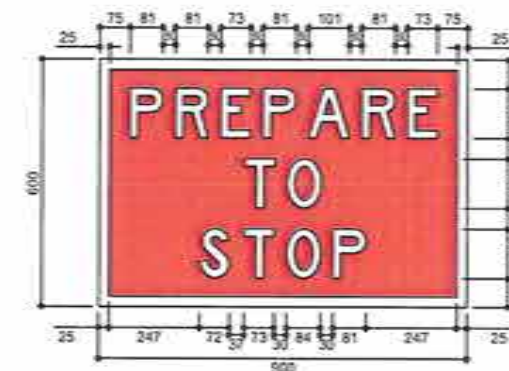
WORKMEN AHEAD (SYMBOLIC) DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T1-5	900 X 600	BLACK	RED/ORANGE - FLUORESCENT FOR DAY USE - REFLECTORIZED FOR NIGHT	ADVANCE WARNING SIGNS



END ROADWORK DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T2-16	1800 X 600	LINE 1 - BLACK 200 DM LINE 2 - BLACK 160 DM	YELLOW REFLECTORIZED	ADVANCE WARNING SIGNS



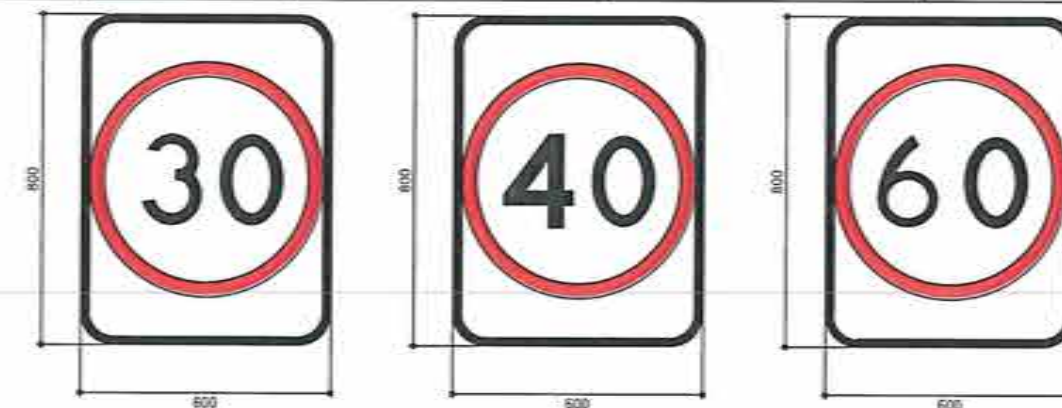
PREPARED TO STOP DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T1-18	900 X 600	LINE 1 - WHITE 120 DM LINE 2 - WHITE 120 DM LINE 3 - WHITE 120 DM REFLECTORIZED	RED REFLECTORIZED	REGULATORY SIGNS



ROAD MACHINERY AHEAD DETAILS

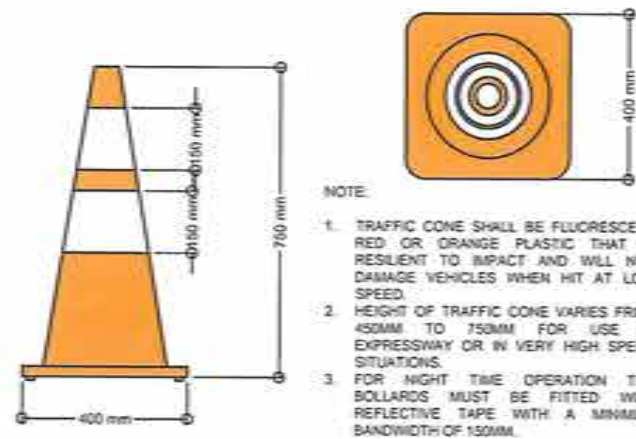
SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T1-3	1200 X 600	LINE 1 - BLACK 100 DM LINE 2 - BLACK 120 DM LINE 3 - BLACK 100 DM	YELLOW REFLECTORIZED	ADVANCE WARNING SIGNS



SPEED RESTRICTION DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
R4-1	600 X 800 (SIZE B)	BLACK 240 DM CIRCLE - 600 DIA. RED	WHITE REFLECTORIZED RED CIRCLE - REFLECTORIZED	REGULATORY SIGNS

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ ST., COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED AND PREPARED:	REVIEWED:	For and in the absence of the Chief Planning & Design Division	RECOMMENDING APPROVAL:	APPROVED:	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (-600) - K1484 + 722, K1485 + 200 - K1485 + 819, DAVAO CITY	TRAFFIC MANAGEMENT PROGRAM SIGNAGE	 MAXWELL V. PENOMA ENGINEER II DATE:	 ALAN J. R. SOTILLO ENGINEER II, SECTION CHIEF DATE:	 AGNES S. AUDAN Engineer IV JUDY ANNE T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	 JOSE LUIS B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	 JUVY B. CORDON REGIONAL DIRECTOR DATE:	B 16	12 45

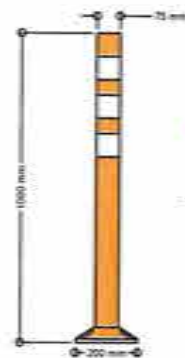


NOTE:

1. TRAFFIC CONE SHALL BE FLUORESCENT RED OR ORANGE PLASTIC THAT IS RESILIENT TO IMPACT AND WILL NOT DAMAGE VEHICLES WHEN HIT AT LOW SPEED.
2. HEIGHT OF TRAFFIC CONE VARIES FROM 450MM TO 750MM FOR USE IN EXPRESSWAY OR IN VERY HIGH SPEED SITUATIONS.
3. FOR NIGHT TIME OPERATION THE BOLLARDS MUST BE FITTED WITH REFLECTIVE TAPE WITH A MINIMUM BANDWIDTH OF 150MM.

SPACING	CONDITION
5 - 10 METERS	ON TAPER WHEN USED AROUND SMALL WORK SITES (MAY BE REDUCED TO 3m TO GUIDE PEDESTRIANS OR TO PREVENT TRAFFIC TAKING A WRONG TURN THROUGH A GAP IN THE LINE OF BOLLARDS)
10 - 20 METERS	WHEN USED AS LONGITUDINAL SEPARATION BETWEEN OPPOSING TRAFFIC FLOWS WHEN USED AS LONGITUDINAL SEPARATION OF TRAFFIC FROM THE WORKSITE OR CLOSED LANE (MAY BE INCREASED TO 50m WHERE THE LENGTH OF BOLLARDS EXCEEDS 1KM)

1 TRAFFIC CONE
SCALE NTS



2 SECTION
SCALE NTS



2 ISOMETRIC VIEW
SCALE NTS

SPECIFICATION	
REFLECTIVE:	ROAD SAFETY POLE
COLOR:	ORANGE
MATERIAL:	PU MATERIAL, ELASTIC, FLEXIBLE
REFLECTIVE FILM:	CRYSTAL LATTICE

NOTE:

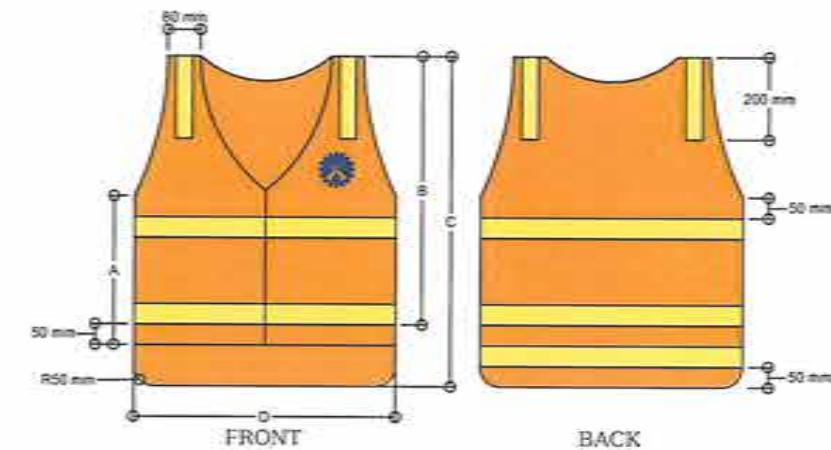
1. BOLLARDS SHALL BE FLUORESCENT RED OR ORANGE PLASTIC THAT IS RESILIENT TO IMPACT AND WILL NOT DAMAGE VEHICLES WHEN HIT AT LOW SPEED.
2. HEIGHT OF BOLLARDS MUST BE UP TO 1 METER.
3. FOR NIGHT TIME OPERATION THE BOLLARDS MUST BE FITTED WITH REFLECTIVE TAPE WITH A MINIMUM BANDWIDTH OF 250MM.
4. SPACING @ 0.50 M. O.C.

SPACING	CONDITION
5 - 10 METERS	ON TAPER WHEN USED AROUND SMALL WORK SITES (MAY BE REDUCED TO 3m TO GUIDE PEDESTRIANS OR TO PREVENT TRAFFIC TAKING A WRONG TURN THROUGH A GAP IN THE LINE OF BOLLARDS)
10 - 20 METERS	WHEN USED AS LONGITUDINAL SEPARATION BETWEEN OPPOSING TRAFFIC FLOWS WHEN USED AS LONGITUDINAL SEPARATION OF TRAFFIC FROM THE WORKSITE OR CLOSED LANE (MAY BE INCREASED TO 50m WHERE THE LENGTH OF BOLLARDS EXCEEDS 1KM)

2 FLEXIBLE BOLLARD DETAIL
SCALE NTS

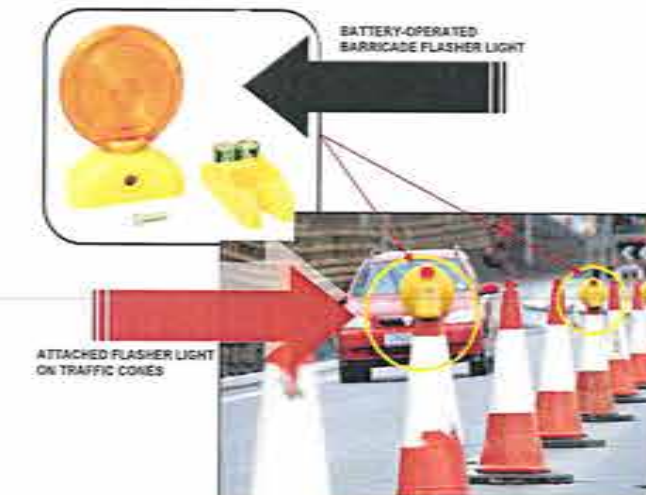
NOTE:

1. ALL PERSONNEL WORKING ON OR ADJACENT TO A ROADWORK SITE SHALL WEAR APPROPRIATE ROAD SAFETY MATERIALS SUCH AS HIGH VISIBILITY VEST (MADE FROM FLUORESCENT RED/ORANGE MATERIAL), HARD HAT AND SAFETY SHOES.
2. THE VEST SHALL BE WORN OVER NORMAL CLOTHING AND PROPERLY FASTENED SO THAT THE ENTIRE AVAILABLE AREA OF HIGH VISIBILITY MATERIAL CAN BE SEEN IN ANY DIRECTION. TO MAXIMIZE EFFECTIVENESS THE VEST SHOULD BE KEPT CLEAN AND IN GOOD CONDITION.
3. THE TRAFFIC SAFETY VEST SHALL BE MADE FROM FLUORESCENT RED OR ORANGE MATERIAL. THE VEST SHALL ALSO HAVE TWO (2) STRIPS OF YELLOW RETRO-REFLECTIVE MATERIAL AT THE FRONT AND THREE (3) STRIPS AT THE BACK. REFLECTIVE MATERIALS SHALL BE 50mm WIDE. DPMV LOGO SHALL BE 80mm DIAMETER. THE SAFETY VEST SHOULD HAVE A SECURE FASTENING PREFERABLY A ZIP.
4. THE JACKET MAY BE WORN OVER WET WEATHER CLOTHING. ALTERNATIVELY, WET WEATHER HIGH VISIBILITY CLOTHING SHALL BE MADE FROM WATER PROOF MATERIAL MATCHING THOSE PROPERTIES ABOVE FOR COLOR AND RETRO REFLECTIVITY.



SIZE	A (mm)	B (mm)	C (mm)	D (mm)
MEDIUM	280	600	750	580
LARGE	295	625	775	610
EXTRA LARGE	310	650	800	640

3 TRAFFIC SAFETY VEST DETAILS
SCALE NTS



ATTACHED FLASHER LIGHT ON TRAFFIC CONES

4 BARRICADE FLASHER LIGHT
SCALE NTS



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CORRAL, COR. R. BROSASAY AVE., DAVAO CITY

PROJECT NAME AND LOCATION:

CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - RAHARUKA HIGHWAY
K1484 + 100 - K1484 + 722
K1484 + 200 - K1484 + 635,
DAVAO CITY

SHEET CONTENTS:

TRAFFIC CONE
FLEXIBLE BOLLARD DETAIL
TRAFFIC SAFETY VEST DETAILS
BARRICADE FLASHER LIGHT

DRAFTED AND PREPARED:

NOVELL V. PENCABA
ENGINEER I
DATE: _____

REVIEWED:

ALAN JOHN SOTTO
ENGINEER II, SENIOR CHIEF
DATE: _____

For and in the absence of the
Chief Planning & Design Division

AGNES S. AUDAN
ENGINEER II, SENIOR CHIEF
DATE: DEC 05 2024

RECOMMENDING APPROVAL:

JOSE LUIS CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: _____

APPROVED:

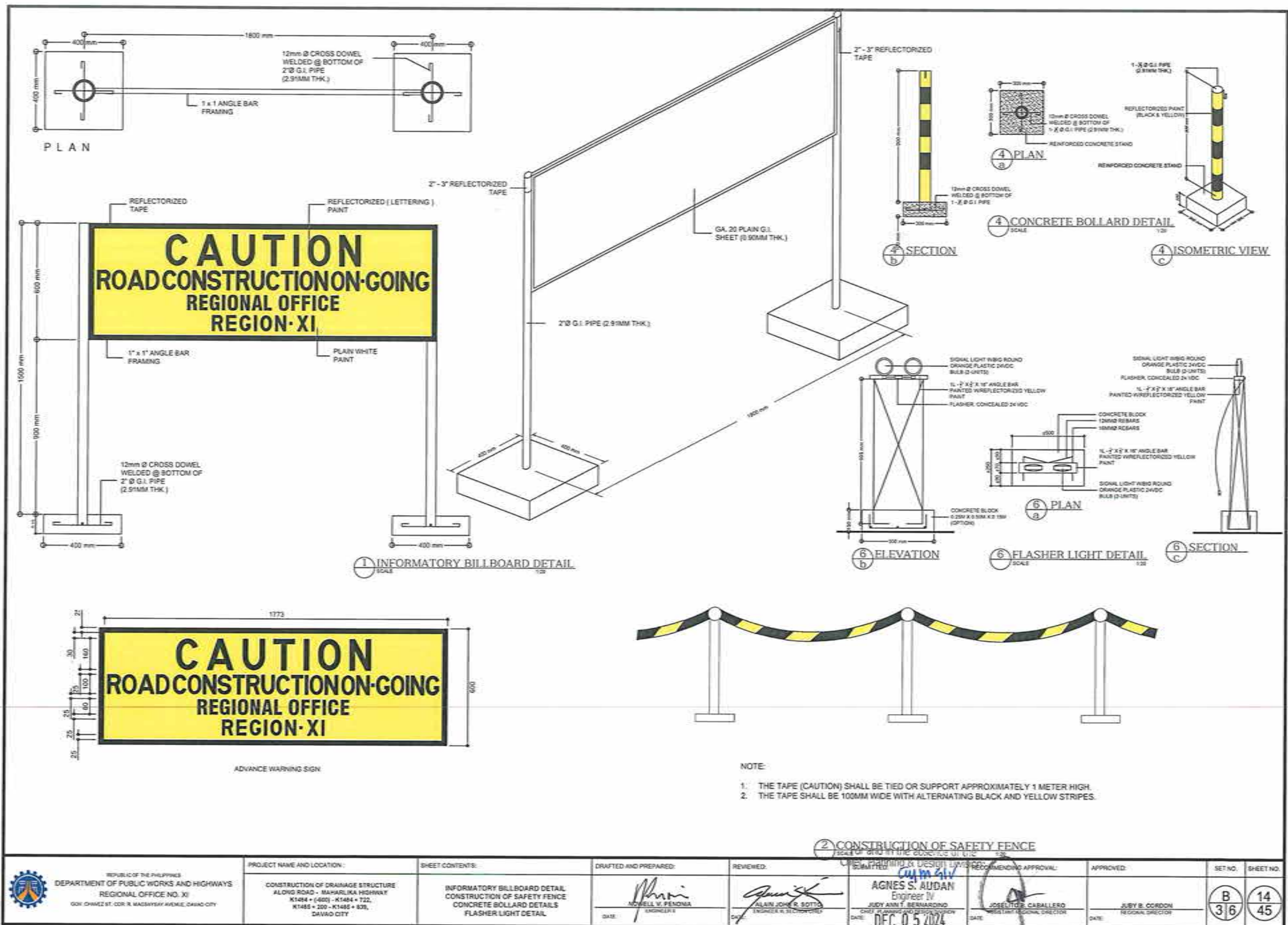
JUBY B. CORDON
REGIONAL DIRECTOR
DATE: _____

SET NO.

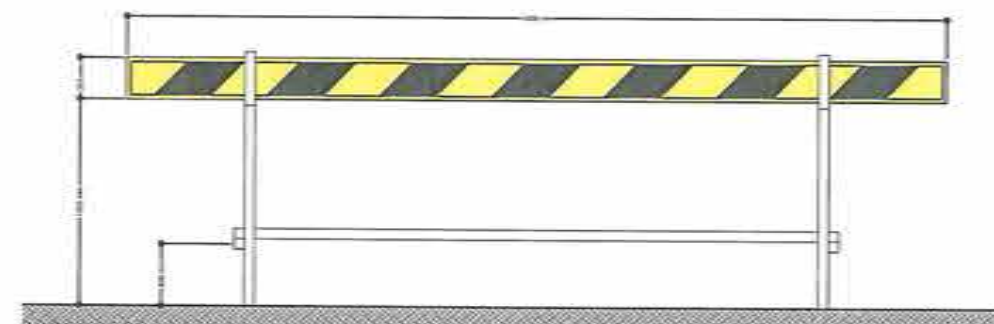
B
2/6

SHEET NO.

13
45



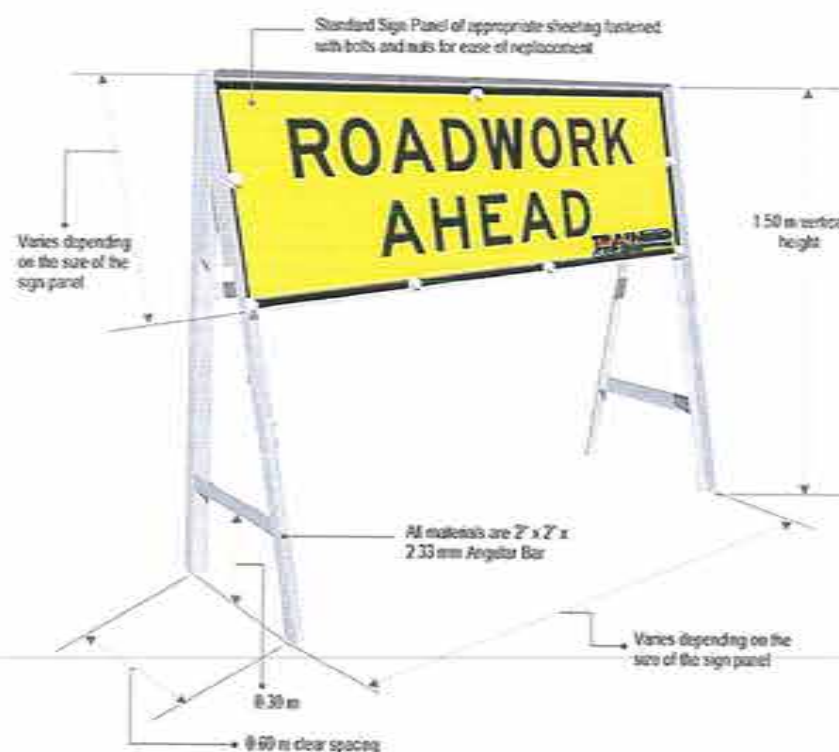
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. ORTIZ ST., COR. R. MACAYAN AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (-600) - K1484 + 722, K1485 + 200 - K1485 + 835, DAVAO CITY	SHEET CONTENTS: INFORMATORY BILLBOARD DETAIL CONSTRUCTION OF SAFETY FENCE CONCRETE BOLLARD DETAILS FLASHER LIGHT DETAIL	DRAFTED AND PREPARED: ALAN JOHN R. SOTTO ENGINEER II DATE: _____	REVIEWED: AGNES S. AUDAN Engineer IV JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	RECOMMENDING APPROVAL: JOSE LUIS CABALLERO REGIONAL DIRECTOR DATE: _____	APPROVED: JULY B. CORDON REGIONAL DIRECTOR DATE: _____	SET NO. B 3/6	SHEET NO. 14 45
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NOTE:

1. BOARD DIMENSIONS: (4M X 0.15M X 0.20M) WITH DIAGONAL BLACK AND REFLECTIVE YELLOW STRIPES PREFERABLY TERMINATING IN YELLOW AT EACH END.
2. MOUNTING HEIGHT: APPROXIMATELY 1 METER USING TRESTLES (SHOULD BE ERECTED PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW).
3. BARRIER BOARD SHALL NOT BE USED FOR DELINEATION PURPOSES OR INSTALLED PARALLEL TO VEHICULAR TRAFFIC UNLESS THERE IS AN OFFSET OF AT LEAST FOUR (4) METERS FROM THE TRAVELLED PATH.

1 BARRIER BOARD DETAIL
SCALE NTS



2 ROAD SIGN DETAILS
SCALE NTS



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
COR. CHAVEZ ST. COR. B. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - MAHARLIKA HIGHWAY
K1484 + (400) - K1484 + 722,
K1485 + 200 - K1485 + 828,
DAVAO CITY

SHEET CONTENTS:

ROAD SIGN DETAIL
BARRIER BOARD DETAIL

DRAFTED AND PREPARED:

MONTELL V. FENOSA
ENGINEER II
DATE: _____

REVIEWED:

ALAN JOHN R. SOTTO
ENGINEER II SENIOR DESIGNER
DATE: _____

For and in the absence of the

AGNES S. AUDAN
Engineer IV
JULY ANN T. BERNARDINO
CHIEF ENGINEER II SENIOR DESIGNER
DATE: DEC 05 2024

RECOMMENDING APPROVAL:

JOSELOTO CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE: _____

APPROVED:

JUBY B. CORDON
REGIONAL DIRECTOR
DATE: _____

SET NO.

B
4/6

SHEET NO.

15
45

DISPLAY AREA

(1200MM X 2400MM X 12MM
MARINE PLYWOOD)

DISPLAY AREA

(TARPAULIN ON 1200MM X 2400MM X 5MM
MARINE PLYWOOD)



Republic of the Philippines
Department of Environment and Natural Resources

NOTICE TO THE PUBLIC

5.5" Dia.

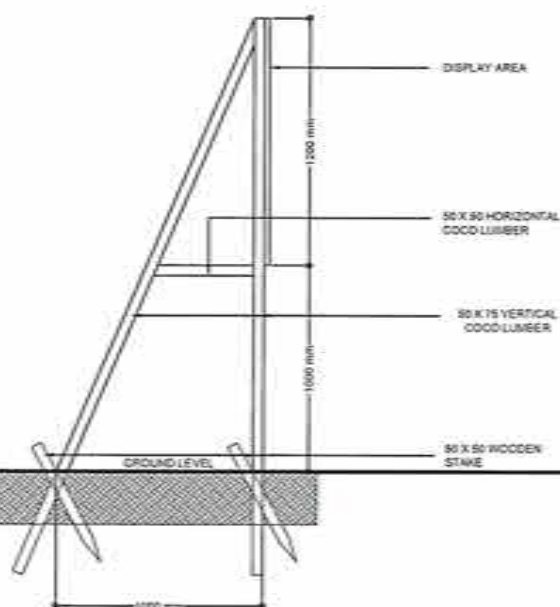
This **(PROJECT NAME)**
of the Department of Public Works and Highways XI has been issued an
ECC/CNC (Control Number) by Environmental Management
Bureau of the Department of Environment and Natural Resources, Region XI, on
(Date Issued).

Warning: Do not remove or damage this billboard as installed pursuant to the ECC/CNC issued under Presidential Decree No. 1586.

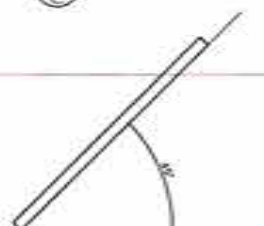
1 FRONT ELEVATION (OPTION 1)

1 FRONT ELEVATION (OPTION 2)

1 BILLBOARD DETAILS



1 ELEVATION



EDGE OF ROAD

TRAFFIC DIRECTION
ROAD

1 ORIENTATION

THIS IS WHERE YOUR TAXES GO

NAME OF PROJECT:

LOCATION:

NAME OF CONTRACTOR

DATE STARTED:

CONTRACT COMPLETION DATE:

CONTRACT COST:

IMPLEMENTING OFFICE:

SOURCES OF FUND

NOTE:

For source of Fund, state if DPWH Regular Budget, Priority Development Assistance Fund, DepEd/DAR Budget, Calamity Fund, MVUC Fund etc.



Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
Regional Office No. XI
Gov. Chavez Cor. R. Magsaysay Avenue, Davao City

Project: _____ Cost: _____
Location: _____ Fund Source/s: _____

Implementing Agencies: _____
Development Partners: _____
Contractor/Supplier: _____
Brief Description of Project: _____

Project Date			Project Status				Remarks
Duration	Started	Target Date of Completion	Percentage of Completion	As of (Date)	Cost Incurred to Date	Date Completed	

For Particular of complaints about this project, please contact the Regional Office or Cluster which has audit jurisdiction on this project:

COA Regional Office No./Cluster : XI
Address : Buhangin, Davao City
Contact No. : (082) 241-2941 or Text COA Citizens Desk (0915-5391-557)

NOTES FOR COA BILLBOARD:

- TARPULIN, WHITE, 8FT x 5 FT
- RESOLUTION: 700PI
- FONT: HELVETICA
- FONT SIZE : MAIN INFORMATION - 3"
- : SUB-INFORMATION - 1"
- FONT COLOR: BLACK



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ ST. COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - BAHARLUKA HIGHWAY
K1484 + (600) - K1484 + 722,
K1485 + 200 - K1485 + 839,
DAVAO CITY

SHEET CONTENTS:

BILLBOARD DETAIL

DRAFTED AND PREPARED:

NOVELL V. PENDING
ENGINEER

REVIEWED:

JOHN J. SOTTO
ENGINEER IN CHARGE

For and in the absence of the

Designing & Design Division

AGNES S. AUDAN
Engineer IV
JUDY ANN T. BERNARDO
CHECKING ENGINEER
DATE: DEC 05 2024

RECOMMENDING APPROVAL:

JOSELO S. CABALLERO
ASSISTANT REGIONAL DIRECTOR

APPROVED:

JUBY B. CORDON
REGIONAL DIRECTOR

SHEET NO.

B
5/6

SHEET NO.

16
45

USE OF TRAFFIC CONTROLLERS (FLAGMEN)

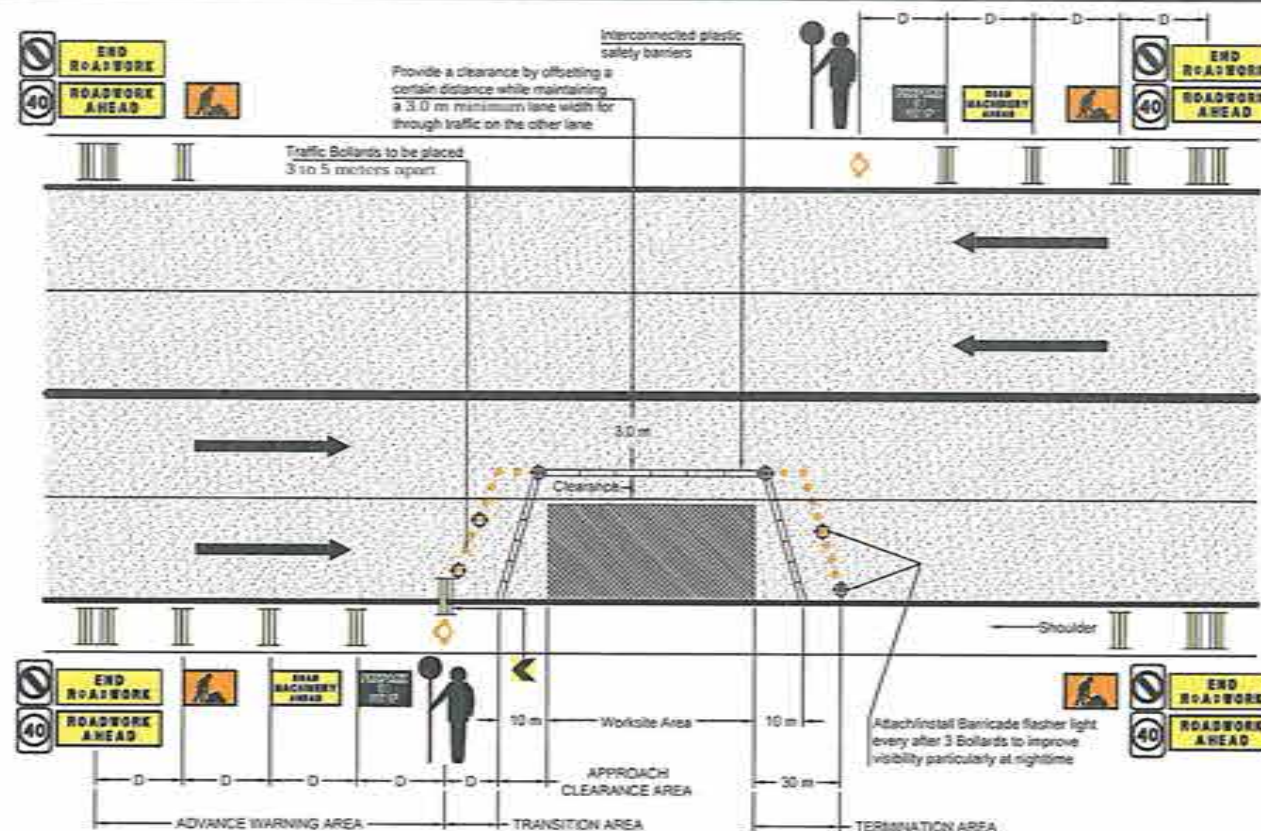
1. THE TRAFFIC CONTROLLER USES A PORTABLE STOP/SLOW HAND HELD SIGN OR RED AND GREEN STOP/GO FLAG TO CONTROL THE TRAFFIC.
2. WHEN CONTROLLING TRAFFIC, A TRAFFIC CONTROLLER SHOULD ENSURE THAT A SYMBOLIC WORKMAN SIGN AND PREPARE TO STOP SIGN AND ADDITIONAL SIGNS AND DEVICES REQUIRED FOR THE OVERALL WORKSITE TRAFFIC MANAGEMENT SCHEME ARE IN PLACE TO PROVIDE ADVANCE WARNING AND INFORMATION TO ROAD USERS.
3. THE TRAFFIC CONTROLLER SHOULD STAND APPROXIMATELY 30 METERS IN ADVANCE OF WORK AREA.
4. THE TRAFFIC CONTROLLER SHOULD BE VISIBLE TO THE APPROACHING ROAD USER AND STAND ON THE CURB SIDE OR SHOULDER CLEAR OF THE TRAVELLED PATH TO VIEW BOTH THE WORKSITE AND ONCOMING TRAFFIC.
5. TRAFFIC CONTROLLER WILL NEED TO USE TWO-WAY RADIOS TO ENSURE ADEQUATE COMMUNICATION OVER LONG DISTANCE OR WHERE THERE IS LIMITED VISIBILITY.

NOTE:

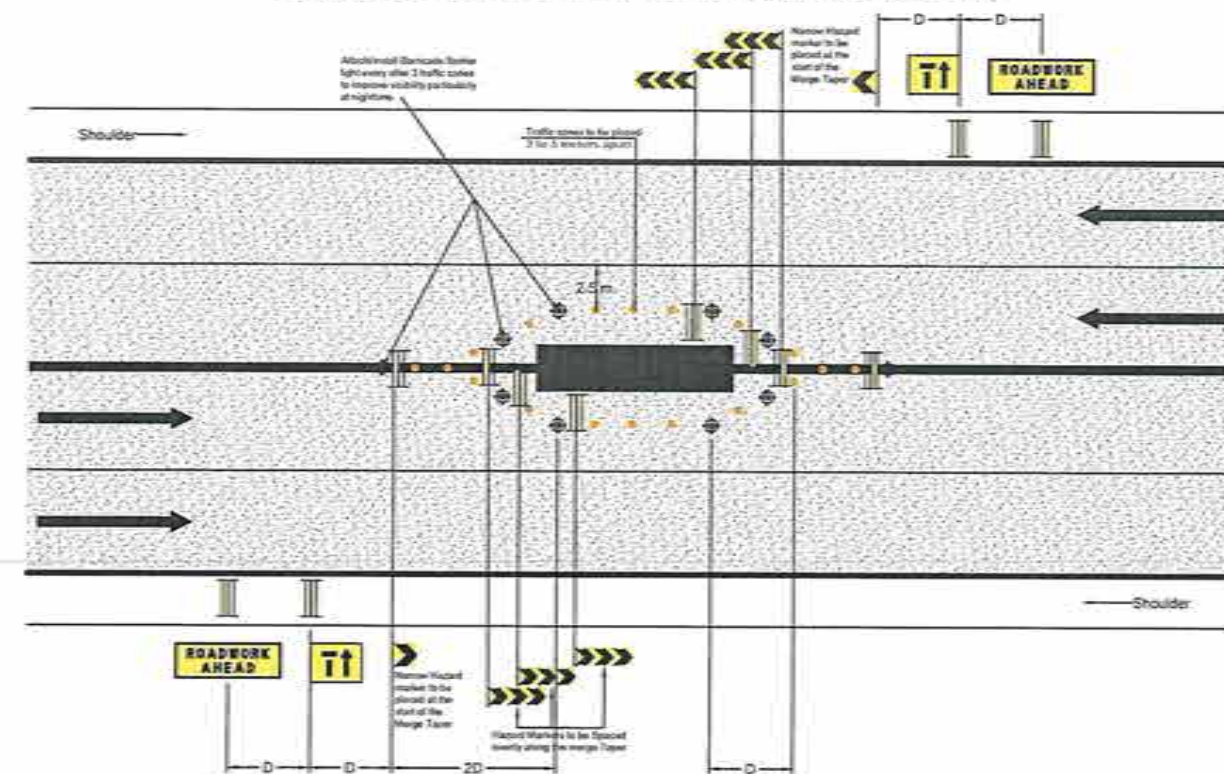
1. ROADWORK AHEAD - THE FIRST ADVANCE WARNING SIGN SEEN BY DRIVERS, SHOULD BE LOCATED AT MINIMUM DISTANCE "20" METERS (D IS THE APPROACHED SPEED OF TRAFFIC) BEFORE THE START OF THE WORKS, OR IF THERE IS A TRANSITION AREA, THE START OF THE TAPER.
2. OTHER SIGN IN ADVANCE WARNING AREA SHOULD BE SPACED "D" METERS APART.
3. LONGITUDINAL BUFFER SPACE SHOULD BE 20 TO 30 METERS LONG BUT CAN BE EXTENDED IF THE WORK AREA IS HIDDEN FROM APPROACHING ROAD USER, e.g. BY A CURVE OR DREST.
4. LATERAL BUFFER SPACE SHOULD BE A MINIMUM OF 1.2 METERS IN SLOW SPEED AREAS, OR IN HIGH SPEED AND HIGH VOLUME AREAS, A LARGE ADJACENT CLEARANCE IN DESIRABLE WITH SAFETY BARRIERS ADJACENT TO THE WORK AREA.
5. LOCATION OF TRAFFIC CONTROLLER SHOULD BE 30 METERS IN ADVANCE OF WORK AREA, WITH GOOD SITE DISTANCE OF ONCOMING TRAFFIC, WITH AN ESCAPE PATH IN AN EMERGENCY, WHERE THE OTHER TRAFFIC CONTROLLER IS VISIBLE, AND CAN BE SEEN BY THE ROAD USER.

REFERENCES:

- D.O. NO.13, SERIES 2016 - GUIDELINE FOR THE PREPARATION OF COST ESTIMATES FOR THE TRAFFIC MANAGEMENT AND SAFETY AND HEALTH REQUIREMENTS FOR THE CONSTRUCTION AND MAINTENANCE OF ROADS, BRIDGES AND SAFETY AND HEALTH.
- ROAD SAFETY MANUAL 2004
- PART 2: ROAD SAFETY AND PAVEMENT DESIGN MANUAL 2012



SCHEME 3
SUBGRADE AND SUBBASE PREPARATION, PORTLAND CEMENT
CONCRETE PAVEMENT PREPARATION (INCLUDING CURING)



SCHEME 4
PREPARING FOR THERMOPLASTIC PAVEMENT MARKINGS

1. TRAFFIC MANAGEMENT LAYOUT

PROJECT PARAMETERS	COMMENTS
1. ROAD LAYOUT	THE PROJECT IS LOCATED ALONG BRGY. TIGATTO, THE PROJECT IS A TWO-WAY DIRECTION STREET.
2. ROAD GEOMETRY	THE PROPOSED PROJECT FOR THIS SECTION IS THE CONSTRUCTION OF A TWO-LANE 280mm THK. PC/P WITH UNED CANAL AND MINOR DRAINAGE STRUCTURES.
3. SIGHT DISTANCE	SINCE THE PROPOSED PROJECT IS IN A ROLLING TERRAIN AND THERE IS ADEQUATE AND CLEAR SIGHT DISTANCE.
4. VULNERABLE ROAD USER FACILITIES	NO NEARBY COMMUNITIES ARE PRESENT ON THE PROJECT SITE.
5. PAVEMENT CONDITION	NONE
6. EXISTING SIGNS	THERE ARE NO EXISTING SIGNS ALONG THE PROJECT LIMITS.
7. LIGHTING FACILITIES	THERE ARE NO EXISTING LIGHTING FACILITIES ALONG THE PROJECT LIMITS.
8. ABUTTING ACCESSES	NONE
9. ADJOINING ROAD NETWORKS	NONE
10. OTHER POSSIBLE CONSTRAINTS	NONE



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
DOV CHAVEZ ST. COR. B. WAGSAYAN AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:
CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - MAHARLIKA HIGHWAY
K1484 + (400) - K1484 + 732,
K1485 + 200 - K1485 + 839,
DAVAO CITY

SHEET CONTENTS:
TRAFFIC MANAGEMENT LAYOUT

DRAFTED AND PREPARED:
MOISEL PENOMBA
ENGINEER II
DATE:

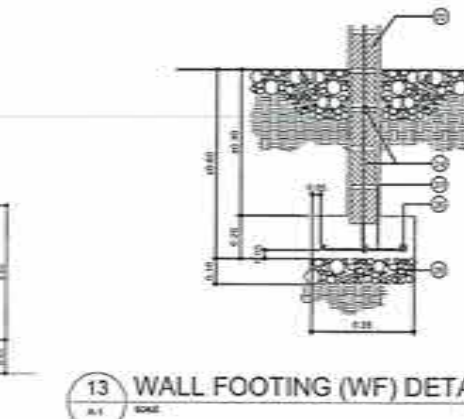
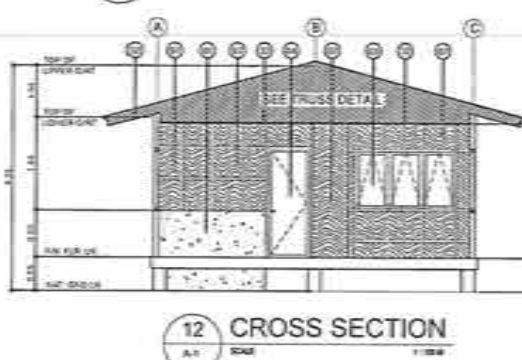
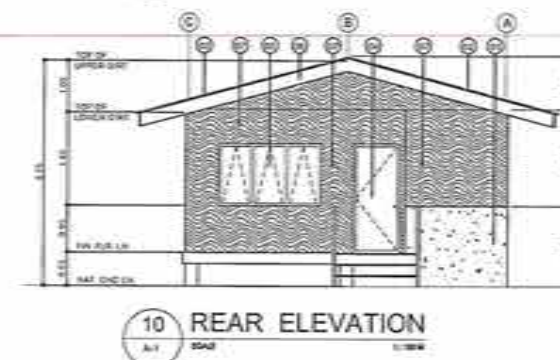
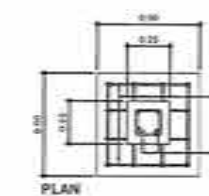
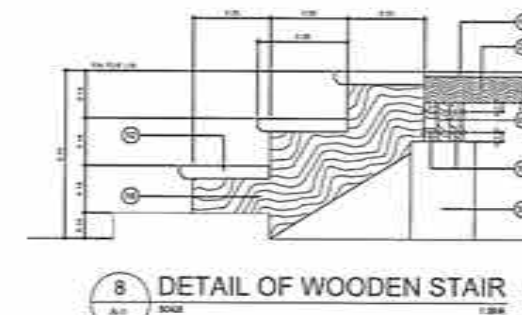
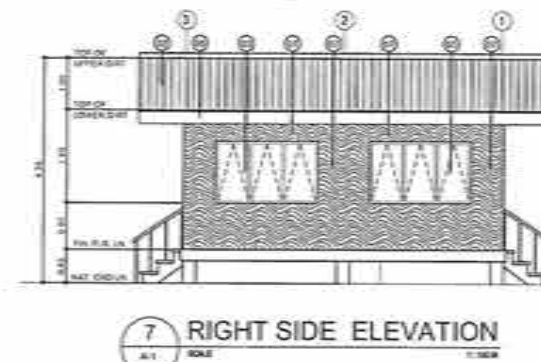
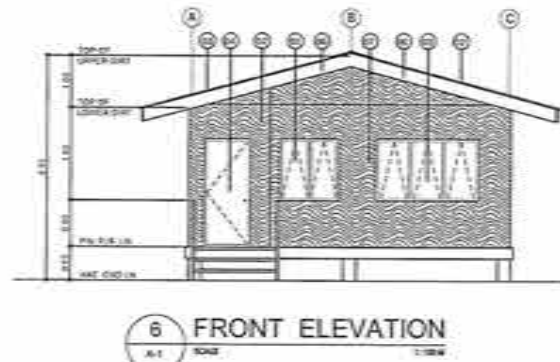
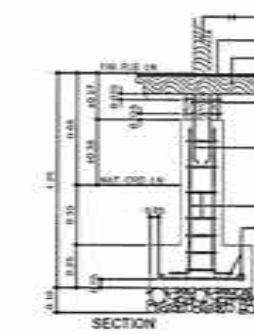
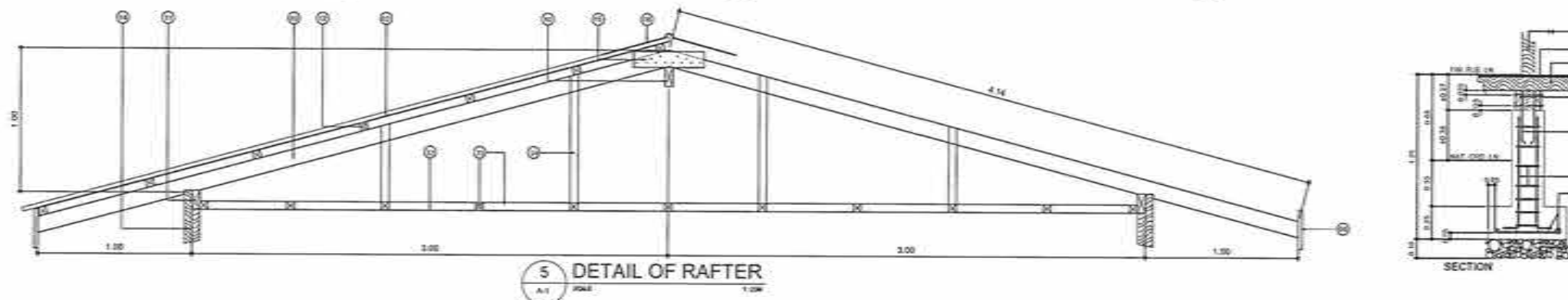
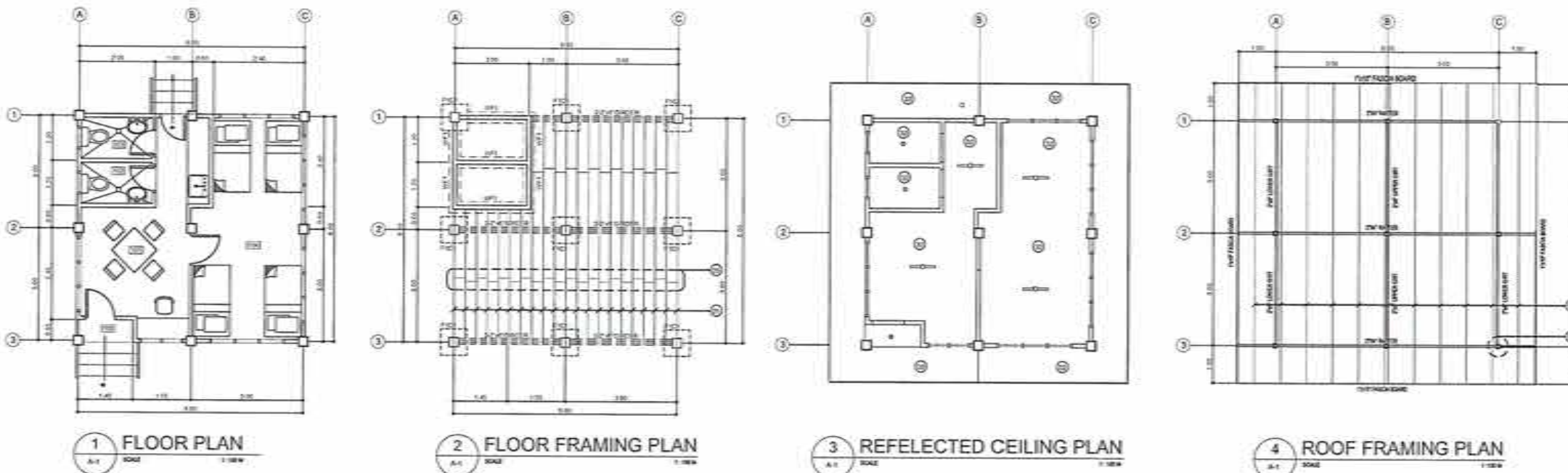
REVIEWED:
ALAIN JOHN R. SOTO
ENGINEER IN CHARGE
DATE:

For and in the absence of the
Chief Planning & Design Division
AGNES S. AUDAN
Engineer IV
JUDY ANN T. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE: DEC 05 2024

RECOMMENDING APPROVAL:
DIEGO S. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
JULY B. CORDON
REGIONAL DIRECTOR
DATE:

SET NO. SHEET NO.
B 17
6 45



ROOM DESIGNATION	
100	ENTRANCE PORCH 10TH A/C COCO PLANK FLOORING
101	KITCHEN/DINING/RECEIVING AREA 10TH A/C COCO BOARD FLOORING
102	MEN'S TOILET PLAIN CEMENT FINISH COLOR TO BE APPROVED BY THE CHAIRMAN AND THE ARCHITECT
103	WOMEN'S TOILET PLAIN CEMENT FINISH COLOR TO BE APPROVED BY THE CHAIRMAN AND THE ARCHITECT
104	SLEEPING QUARTERS 10TH A/C COCO PLANK FLOORING
INDEX	
1	4" THK. CONCRETE HOLLOW BLOCKS, PLAIN CEMENT PLASTER FINISH
2	NIPSA ROOFING SHEETS
3	AWNING PLYWOOD WINDOW
4	45MM THK HOLLOW CORE FLUSH DOOR
5	2" X 4" WOOD BLOCK SPACER
6	1" X 10" FASCIA BOARD (COCO LUMBER)
7	4MM THK. ORDINARY PLYWOOD SINGLE PARTITION WALL ON 2"x2" COCO LUM. NAILERS SP @ 0.60M O.C.B.W.
8	G.A. 26 RIDGE ROLL
9	2" X 4" RAFTER (COCO LUMBER)
10	2" X 6" UPPER GIRT (COCO LUMBER)
11	2" X 6" LOWER GIRT (COCO LUMBER)
12	2" X 2" WOODEN PURLINS SP @ 0.70M ON CENTER
13	P.E. FOAM ROOF THERMAL INSULATOR (OPTIONAL)
14	4" X 4" COCO WOODEN POST
15	2-2" X 4" X 0.50M COLLAR PLATE (COCO LUMBER)
16	2" THK. X 6" COCO BOARD FLOORING
17	2"x12" THREAD
18	2-2"x12" STRINGER
19	2-2"x6" GIRDER W/2-16MM ² MACHINE BOLT W/ NUT & WASHER
20	CONCRETE PEDESTAL
21	2"x4" FLOOR JOIST
22	4-12MM ² VERT. BARS W/ 10MM ² TIES SP @ 0.20M ON CENTER
23	4" THK. CONCRETE HOLLOW BLOCKS
24	10MM ² REINFORCING BARS SP. @ 0.60M HORIZONTALLY & VERTICALLY ON CENTER
25	8-10MM ² BEDBARS SP AS SHOWN ON CENTER BOTHWAYS
26	3-10MM ² CONTINUOUS BEDBARS SP AS SHOWN
27	10MM ² TIES SP @ 0.40M O.C.
28	100MM COMPACTED GRAVEL BASE
29	2"x4" WOODEN FLOOR BLOCKS
30	CONCRETE PEDESTAL
31	2" X 2" X 12" ANCHOR STRAP
32	2" THK. ORDINARY PLYWOOD ON 2"x2" COCO LUMBER FRAMING SP. @ 0.60M O.C.B.W. W/2"x2" COCO LUMBER HANGER SP @ 0.20M O.C.B.W.
33	2" X 2" COCO LUMBER FRAMING SP @ 0.60M O.C.B.W.
34	2" X 2" COCO LUMBER HANGER SP @ 1.20M O.C.B.W.
LEGEND	
○	30W TLD FLUORESCENT LAMP (DAYLIGHT)
○	18W COMPACT FLUORESCENT LAMP ON 3P-4PVC RECEPTACLE



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
CONSTRUCTION OF DRAINAGE STRUCTURE ALONG
ROAD - MAHARLIKA HIGHWAY
K1484 + (-600) - K1484 + 722,
K1485 + 200 - K1485 + 825,
DAVAO CITY

SHEET CONTENTS
ARCHITECTURAL DETAILS
STRUCTURAL DETAILS

DRAFTED AND PREPARED:
FERDINAND M. RAÑOSA
ARCHITECT II
DATE: _____

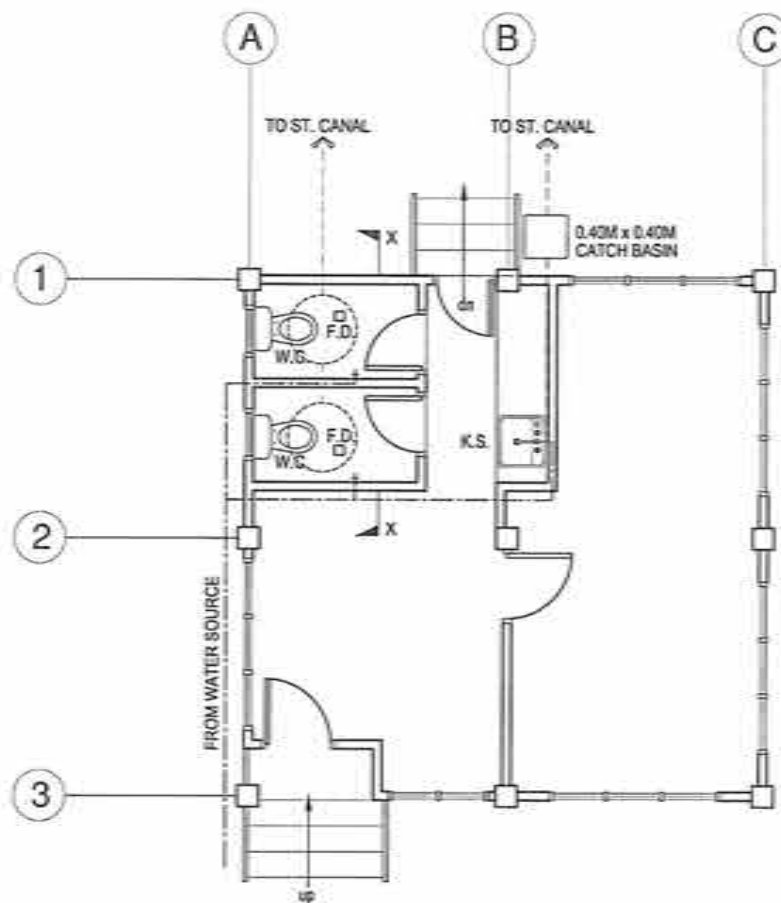
REVIEWED:
ALGIN A. GINOC
ENGINEER II, SECTOR
DATE: _____

For and in the absence of the
Chief Planning & Design Division
AGNES S. AUDAN
JUDY ANN Y. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE: DEC. 05 2024

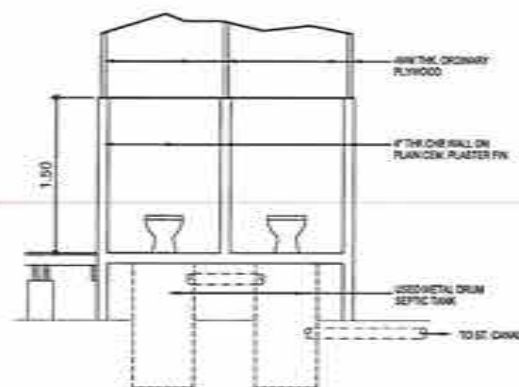
APPROVED:
JULY B. CORDON
REGIONAL DIRECTOR
DATE: _____

SET NO.
C
1/3

SHEET NO.
18
45



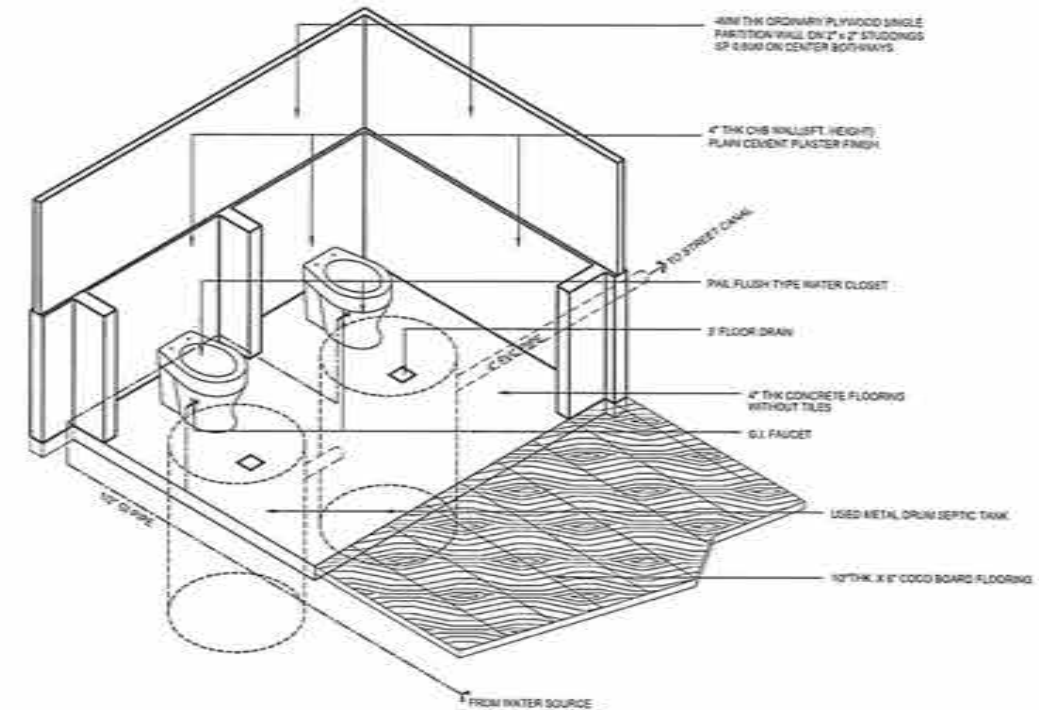
1 PLUMBING LAYOUT
EP-1 SCALE 1:50



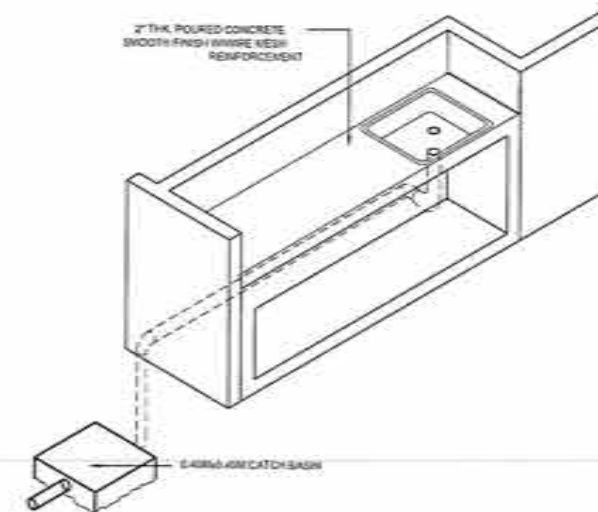
3 SECTION X-X
EP-1 SCALE 1:50

LEGEND

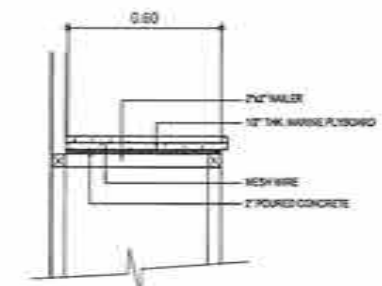
- CO CLEAN OUT
- LAV LAVATORY
- WATER LINE
- DST DRUM SEPTIC TANK
- F FAUCET
- WC WATER CLOSET
- FD FLOOR DRAIN
- CB CATCH BASIN
- KS KITCHEN SINK



2 ISOMETRIC LAYOUT
EP-1 SCALE 1:50



4 COUNTER SINK DETAIL
EP-1 SCALE 1:50



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
CONSTRUCTION OF DRAINAGE STRUCTURE ALONG
ROAD - MAHARLIKA HIGHWAY
K1484 + (-500) - K1484 + 722,
K1485 + 200 - K1485 + 809,
DAVAO CITY

SHEET CONTENTS
PLUMBING LAYOUT
ISOMETRIC LAYOUT
TOILET CROSS SECTION
COUNTER SINK DETAIL

DRAFTED AND PREPARED:
FERDINAND M. RAÑOSA
ARCHITECT II
DATE

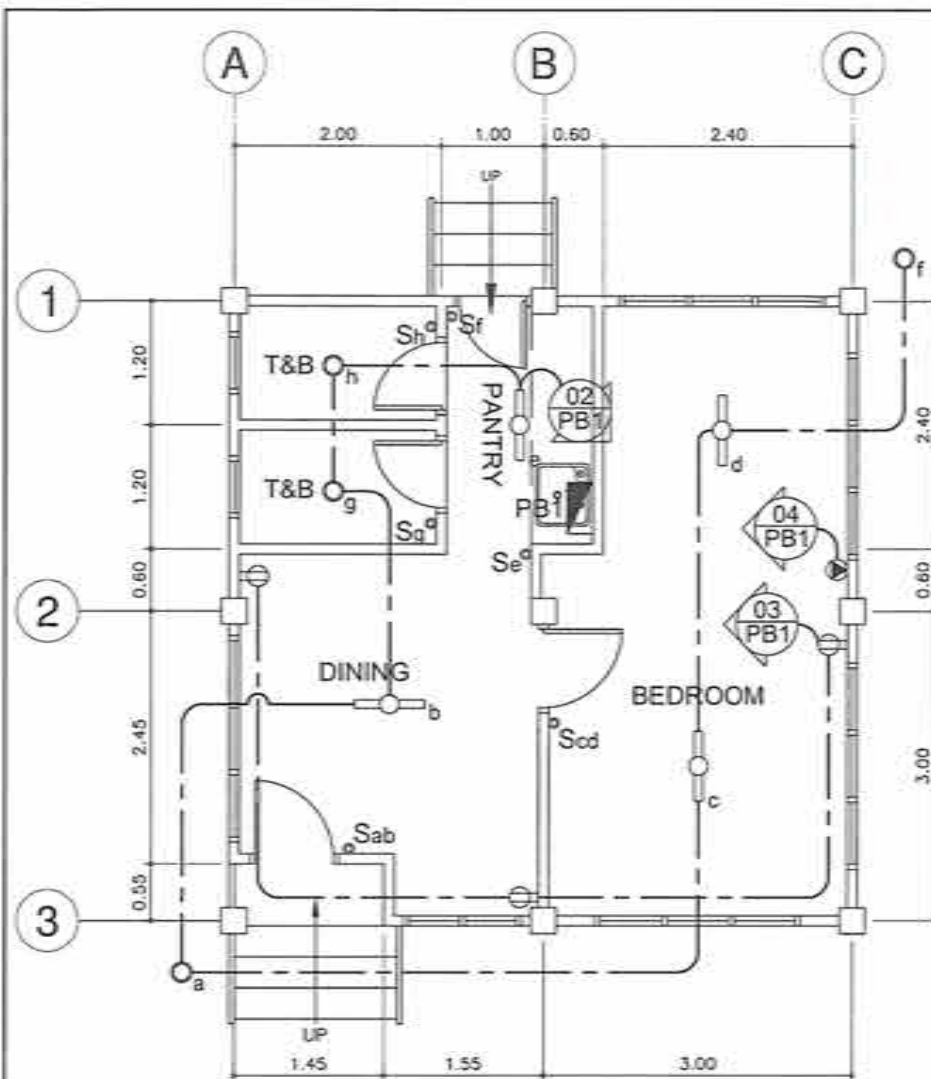
REVIEWED:
ALGIN A. GINGA
ENGINEER III, DEPT. DIVISION
DATE

For and in the absence of the
Chief Planning & Design Division:
AGNES S. AUDAN
Engineer IV
JUDY ANN T. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE DEC 05 2024

RECOMMENDED:
JOSE LUIS B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE

APPROVED:
JUDY B. CORDON
REGIONAL DIRECTOR
DATE

SET NO.
C
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SHEET NO.
19
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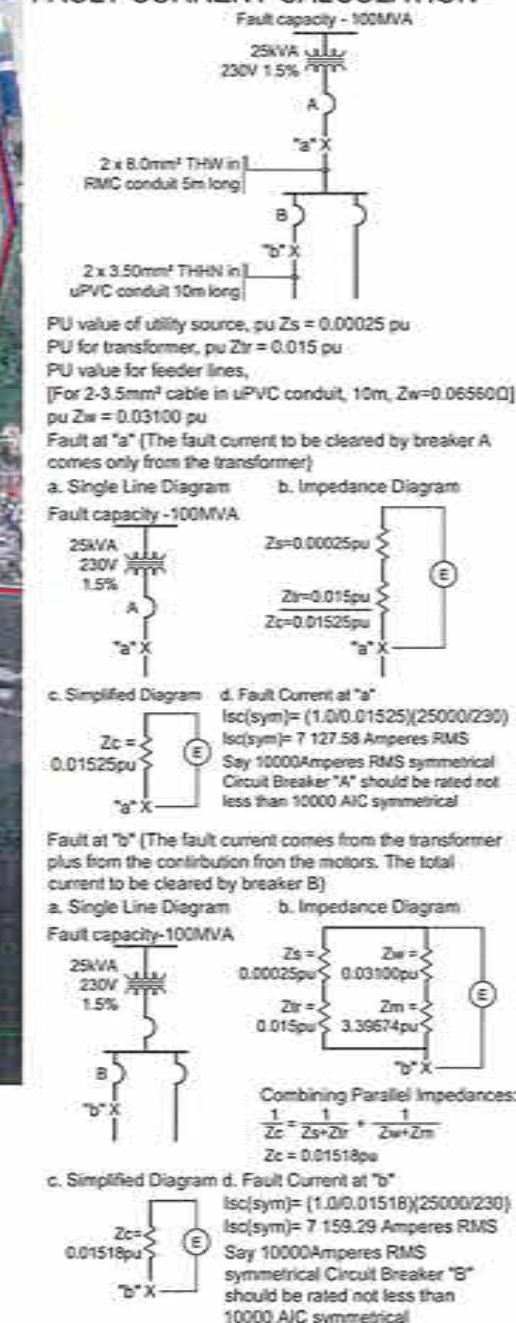


GROUND FLOOR LIGHTING & POWER PLAN
NOT TO SCALE

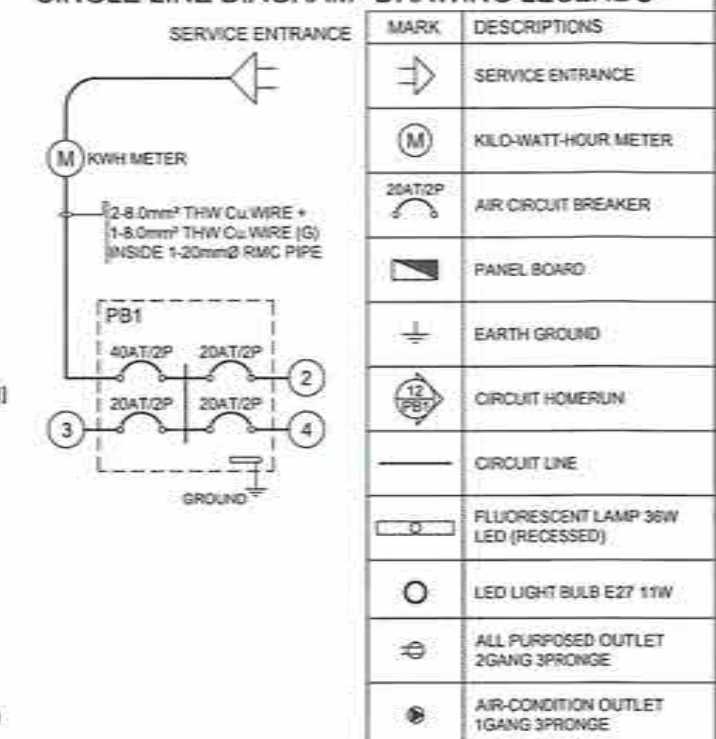


VICINITY MAP
NOT TO SCALE

FAULT CURRENT CALCULATION



SINGLE LINE DIAGRAM DRAWING LEGENDS



NOTES & SPECIFICATIONS

- ALL ELECTRICAL INSTALLATIONS MADE HEREIN SHALL CONFORM WITH THE RULES AND REGULATIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE (PEC), THE EXISTING LOCAL ORDINANCES, RULES AND REGULATIONS OF THE LOCAL ENFORCING AUTHORITY AND THE REQUIREMENT OF THE LOCAL UTILITY COMPANY
- THE TYPE OF POWER SERVICE TO BE USED SHALL BE SINGLE PHASE, 3 WIRES, 230V, 60HERTZ ALTERNATING CURRENT
- ALL MATERIALS AND DEVICES TO BE USED AND INSTALLED HEREIN SHALL BE NEW, GOOD WORKMANSHIP AND OF APPROVED TYPE BY THE BUREAU OF STANDARDS
- ELECTRICAL WIRING INSTALLATION SHALL BE DONE IN LOCATION AS FOLLOWS: (a) RIGID METALLIC CONDUIT (RMC) TO BE USED, IN SERVICE ENTRANCE AND FEEDERS, (b) ELECTRICAL METALLIC TUBING (EMT) TO BE USED ABOVE CEILING AND BETWEEN DOUBLE WALL PARTITION MADE OF COMBUSTIBLE MATERIALS (c) UNPLASTICIZED POLYVINYL CHLORIDE CONDUIT (uPVC) TO BE USED IF EMBEDDED IN CONCRETE OR UNDERGROUND
- ALL WIRES SHALL BE COPPER AND THERMOPLASTIC INSULATED TYPE "THW" UNLESS OTHERWISE INDICATED. THE MINIMUM SIZE OF WIRE AND CONDUIT TO BE USED SHALL BE 3.5mm² THW AND 15mm NOMINAL DIAMETER RESPECTIVELY
- ALL NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE PROPERLY GROUNDING IN ACCORDANCE WITH THE PROVISIONS OF PEC PART I, LATEST EDITION
- ANY DISCREPANCY IN THE LOCATION AND RATINGS OF EQUIPMENTS AND APPARATUS SHALL BE VERIFIED WITH THE OWNER OR ANY OF HIS REPRESENTATIVES AND CHANGES SHALL BE MADE ACCORDINGLY
- ALL PIPE SLEEVES SHALL BE PROVIDED WITH PROPER SUPPORT OR ANCHORAGE NECESSARY FOR PERMANENT CONNECTION TO CONCRETE WALLING OR BEAM
- WHEREVER REQUIRED AND NECESSARY, PULL BOXES OR JUNCTION BOXES OF PROPER SIZES SHALL BE INSTALLED AT CONVENIENT AND INCONSPICUOUS LOCATIONS, ALTHOUGH SUCH BOXES ARE NOT SHOWN AND MENTIONED IN THE PLANS OR IN THE SPECIFICATIONS
- ALL FEEDERS LOCATED OUTSIDE THE BUILDING SHALL BE ENCASED IN ALL AROUND CONCRETE WATER PROOFED ENVELOP, AND SHALL BE BURIED WITH NOT LESS THAN 600MM BELOW THE GROUND SURFACE
- STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATIONS, AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATIONS SHALL BE USED
- MOUNTING HEIGHT OF PANEL AND DEVICES WERE AS FOLLOWS: (FROM THE FLOOR FINISH TO CENTER OF UNIT)
A. WALL SWITCHES 1400mm
B. WALL CONVENIENCE OUTLETS 300mm
C. KWH METER 1650mm
D. PANELBOARD 1800mm
- THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATIONS OF SERVICE ENTRANCE FOR CONNECTIONS TO POWER SERVICE POINT
- ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE STRICT SUPERVISIONS OF A DULY REGISTERED ELECTRICAL ENGINEER

VOLTAGE DROP CALCULATION

FROM TRANSFORMER TO PB1
2 x 8.0mm² THW COPPER WIRE

WHERE:
 $R = 0.78 \Omega$ $L = 5.0m$
 $X = 0.064 \Omega$ $I = 41.04A$
 $VD = 1.05V$

PERCENT VOLTAGE DROP
 $\%VD = 0.46\%$

FROM PB1 TO A.C.U. LOAD CIRCUIT 4
FOR 3.5mm² THW COOPER WIRE

WHERE:
 $R = 2.0 \Omega$ $L = 10.0m$
 $X = 0.054 \Omega$ $I = 8.0A$
 $VD = 1.05V$

PERCENT VOLTAGE DROP
 $\%VD = 0.46\%$

TOTAL PERCENT VOLTAGE DROP
 $\%VD = 0.91\%$

For and in the absence of the
Chief Planning and Design Division

LOAD SCHEDULE & COMPUTATION

PANEL	CKT	DESCRIPTION	VOLT	POWER	AMPERE	PROTECTION				CONDUCTOR & CONDUIT
						AT	AF	POLE	kAIC	
PB1	1	SERVICE/ FEEDER LINE	230	2780	12.09	40	100	2	10	2 - 8.0mm ² THW Cu. + 1 - 8.0mm ² THW Cu. (G) IN 20mm ² RMC PIPE
	2	LIGHTING LOADS	230	400	1.74	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 2.0mm ² THHN Cu. (G) IN 20mm ² uPVC PIPE
	3	ALL PURPOSED LOADS	230	540	2.34	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 2.0mm ² THHN Cu. (G) IN 20mm ² uPVC PIPE
	4	AIR-CONDITION UNIT 1.0Hp	230	1840	8.00	20	100	2	10	2 - 3.5mm ² THHN Cu. + 1 - 3.5mm ² THHN Cu. (G) IN 20mm ² uPVC PIPE

LOAD COMPUTATION

(AREA CALCULATION)

GENERAL LIGHTING & RECEPTACLE LOAD
 $35.10 m^2 \times 24 \text{ VOLT-AMPERES } / m^2 = 842 \text{ VA}$
PROVIDE ONE 20-AMPERE LIGHTING & RECEPTACLE CIRCUIT
SMALL APPLIANCE LOAD
 $= 1500 \text{ VA}$
PROVIDE ONE 20-AMPERE SMALL APPLIANCE LOAD CIRCUIT
SUB-TOTAL $= 2342 \text{ VA}$

APPLICATION OF DEMAND FACTOR

FIRST 3000 VOLT-AMPERES @ 100% DF $= 3000 \text{ VA}$
REMAINER @ 35% DF $= 0 \text{ VA}$
OTHER LOADS

ONE AIR-CONDITION UNIT 1.0Hp @ 100% DF $= 1840 \text{ VA}$

TOTAL NET COMPUTED LOAD $= 4840 \text{ VA}$

SERVICE FEEDER CONDUCTORS

TOTAL FULL LOAD CURRENT
 $I = 1.25 \times 1840 + 4840 / 230 = 31.04 \text{ AMPERES}$
USE: 2 - 8.0mm² THW Cu. WIRE
1 - 8.0mm² THW Cu. WIRE (G)
INSIDE 1-20mm² RMC PIPE

SERVICE EQUIPMENT PROTECTION

TOTAL FULL LOAD CURRENT
 $I = 2.50 \times 1840 + 4840 / 230 = 41.04 \text{ AMPERES}$
USE: 1-40AT ACB 240V 2P 60Hz 10kAIC

PLAN AND PROFILE CHANNEL 1 AND 2

LEGEND:

- WM WOODEN / ANAHAW HOUSE
- MX MIX HOUSE
- CH CONCRETE HOUSE
- S STORE
- RR RIPRAP
- BUILDING
- WATER LINE
- BANK

REFERENCE POINT OF T-6A			
RP-1	RP-2	RP-3	RP-4
210°15'	301°52'12"	187°15'37"	187°15'37"
2.418 M	8.799 M	2.418 M	2.418 M
802715.384	802715.329	802715.384	802715.384
57086.428	57086.428	57086.428	57086.428

BM No. 1A - 44 COMMON NAIL WITH BOTTLE CAP DRIVEN ON COCO TREE
RP-1 OF T-6A, NEAR STA. 4+880
NORTHING: 802715.384 EASTING: 57086.428 ELEV: 12.572 M

REFERENCE POINT OF T-10A			
RP-1	RP-2	RP-3	RP-4
37°39'21"	187°15'37"	187°15'37"	187°15'37"
22.885 M	10.443 M	22.885 M	22.885 M
802815.020	802815.212	802815.020	802815.020
571876.508	571880.875	571876.508	571876.508

REFERENCE POINT OF T-1A			
RP-1	RP-2	RP-3	RP-4
187°15'37"	217°54'41"	187°15'37"	187°15'37"
8.799 M	11.458 M	8.799 M	8.799 M
802627.752	802626.998	802627.752	802627.752
572056.458	572052.648	572056.458	572056.458

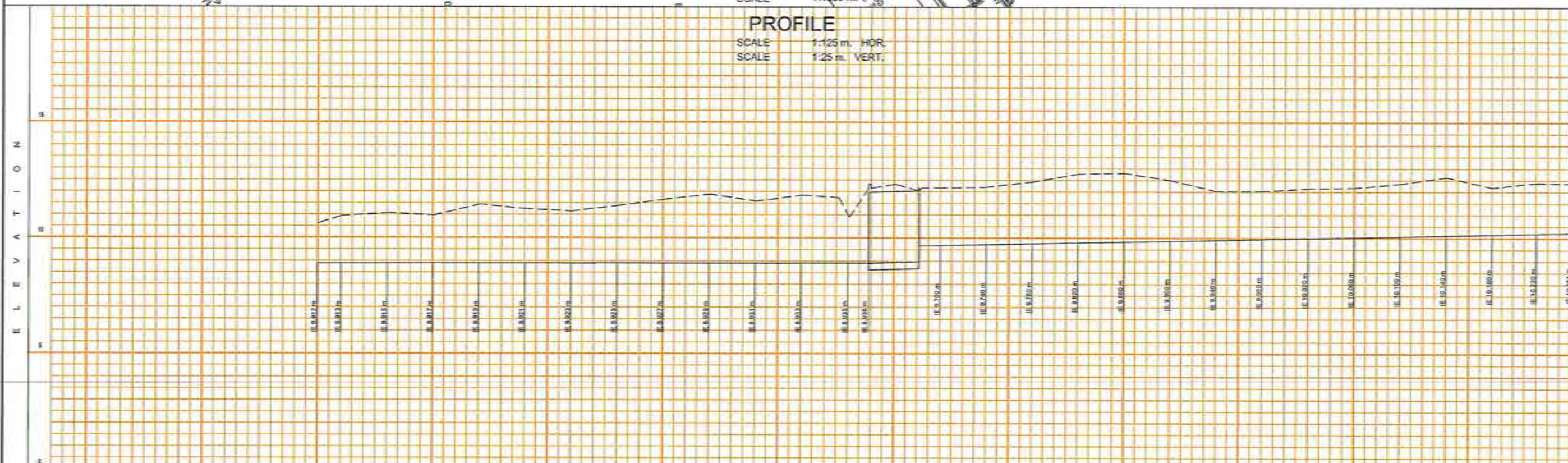
TRaverse Line	RP-1	RP-2	RP-3	RP-4
T-1A TO T-2A	139°51'57"	27.491 M	139°51'57"	27.491 M
T-2A TO T-3A	118°25'27"	25.506 M	118°25'27"	25.506 M
T-3A TO T-4A	167°34'33"	22.300 M	167°34'33"	22.300 M
T-4A TO T-5A	132°32'57"	21.960 M	132°32'57"	21.960 M
T-5A TO T-6A	145°44'02"	27.165 M	145°44'02"	27.165 M
T-6A TO T-7A	204°58'08"	30.928 M	204°58'08"	30.928 M
T-7A TO T-8A	171°24'58"	39.706 M	171°24'58"	39.706 M
T-8A TO T-9A	184°58'57"	45.248 M	184°58'57"	45.248 M
T-9A TO T-10A	161°52'15"	10.122 M	161°52'15"	10.122 M
T-10A TO T-11A	163°08'43"	12.785 M	163°08'43"	12.785 M
T-11A TO T-12A	237°39'20"	11.508 M	237°39'20"	11.508 M
T-12A TO T-13A	161°48'23"	33.210 M	161°48'23"	33.210 M
T-13A TO T-14A	223°44'20"	35.256 M	223°44'20"	35.256 M
T-14A TO T-15A	200°07'37"	21.613 M	200°07'37"	21.613 M
T-15A TO T-16A	127°10'51"	30.590 M	127°10'51"	30.590 M
T-16A TO T-17A	171°28'05"	23.353 M	171°28'05"	23.353 M
T-17A TO T-18A	258°36'05"	27.233 M	258°36'05"	27.233 M

STATION COORDINATES			
POINT	STATION	NORTHING	EASTING
T-1A	4+748.574	802621.058	572055.837
T-2A	4+777.065	802642.073	572037.917
T-3A	4+802.571	802654.214	572015.485
T-4A	4+824.871	802675.962	572010.688
T-5A	4+848.831	802690.842	571994.510
T-6A	4+873.995	802713.251	571979.215
T-7A	4+904.923	802741.329	571992.271
T-8A	4+944.829	802780.590	571986.344
T-9A	4+989.878	802825.967	571990.274
T-10A	5+000.000	802835.267	571987.124
T-11A	5+012.794	802847.532	571983.414
T-12A	5+124.301	802907.184	572077.823
T-13A	5+157.511	802908.734	572067.254
T-14A	5+182.787	802964.208	572091.629
T-15A	5+214.386	802984.500	572099.066
T-16A	5+244.870	803002.984	572074.692
T-17A	5+268.322	803025.078	572071.227
T-18A	5+295.556	803045.988	572084.264

REFERENCE POINT OF T-18A			
RP-1	RP-2	RP-3	RP-4
21°22'17"	124°11'18"	21°22'17"	21°22'17"
4.638 M	4.588 M	4.638 M	4.638 M
803048.238	803052.534	803048.238	803048.238
572082.787	572080.423	572082.787	572082.787

BM No. 2A - 84 COMMON NAIL WITH BOTTLE CAP DRIVEN ON COCO TREE
RP-1 OF T-18A AT RIGHT SIDE, NEAR STA. 5+145.574
NORTHING: 803048.238 EASTING: 572082.787 ELEV: 11.718 M

PLAN
SCALE 1:1250 m.
PROFILE
SCALE 1:125 m. HOR.
SCALE 1:25 m. VERT.



STATION	4+700	4+800	4+900	5+000	5+100	5+200	5+300
FINISHED GRADE ELEVATION	11.812	11.813	11.813	11.813	11.813	11.813	11.813
GROUND ELEVATION	11.812	11.813	11.813	11.813	11.813	11.813	11.813
WIDENING DIAGRAM	L	R					
SUPER ELEVATION DIAGRAM							

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAMON MAGSAYSAY AVE., CORNER DOY CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	FOR AND IN THE ABSENCE OF THE	APPROVED	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (600) - K1484 + 722, K1485 + 200 - K1485 + 835, DAVAO CITY	PLAN & PROFILE	JAY M. MARROJOS ENGINEER II	NOVELL V. PENOMIA ENGINEER II	AGNES S. AUDAN Engineer IV JUDY ANN T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	JOSE LITO B. CABALLERO RESIDENT REGIONAL DIRECTOR	JUBY B. CORDON REGIONAL DIRECTOR	D 110

LEGEND:

- WM WOODEN / ANAHAW HOUSE
- MH MIX HOUSE
- CH CONCRETE HOUSE
- S STORE
- RIPRAP
- BUILDING
- WATER LINE
- BANK

REFERENCE POINT OF T-18A			
RP-1	AZIMUTH	DISTANCE	NORTHING
	21°22'1"	4.528 M	80208.238
RP-2	AZIMUTH	DISTANCE	NORTHING
	124°11'1"	4.588 M	80362.354

RP-1 - COMMON NAIL WITH BOTTLE CAP DRIVEN ON TRUNK OF COCO TREE
 RP-2 - COMMON NAIL WITH BOTTLE CAP DRIVEN ON TRUNK OF COCO TREE

REFERENCE POINT OF T-6A			
RP-1	AZIMUTH	DISTANCE	NORTHING
	21°22'1"	2.419 M	80215.384
RP-2	AZIMUTH	DISTANCE	NORTHING
	201°52'12"	5.788 M	80216.238

RP-1 - COMMON NAIL WITH BOTTLE CAP DRIVEN ON TRUNK OF COCO TREE
 RP-2 - COMMON NAIL WITH BOTTLE CAP DRIVEN ON TRUNK OF COCO TREE

REFERENCE POINT OF T-10A			
RP-1	AZIMUTH	DISTANCE	NORTHING
	21°22'1"	22.808 M	80208.638
RP-2	AZIMUTH	DISTANCE	NORTHING
	181°52'16"	10.440 M	80245.210

RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF PAVEMENT
 RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF PAVEMENT

PLAN

1:1250 m.

PROFILE

SCALE 1:125 m. HOR.
 SCALE 1:25 m. VERT.



STATION	4+000	4+700	4+800	4+900	4+950	4+960	4+970	4+980	4+990	5+000	5+010	5+020	5+030	5+040	5+050	5+060	5+070	5+080	5+090	5+100	5+110	5+120	5+130	5+140	5+150	5+160	5+170	5+180	5+190	5+200	
FINISHED GRADE ELEVATION																															
GROUND ELEVATION																															
WIDENING DIAGRAM	L R																														
SUPER ELEVATION DIAGRAM																															

For and in the absence of the

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAMON MACSAHAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION:	SHEET CONTENTS:	SURVEYED:	PREPARED:	FOR AND IN THE ABSENCE OF THE	RECOMMENDING APPROVAL:	APPROVED:	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (400) - K1484 + 722, K1485 + 200 - K1485 + 839, DAVAO CITY	PLAN & PROFILE	JAY H. MARCOS ENGINEER II	NOVEL V. PENONIA ENGINEER II	AGNES S. AUDAN Engineer IV JUDY ANN T. BERNARDINO CHIEF ENGINEER AND DESIGN DIVISION DEC 03 2024	JOSE LITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR	JUBY B. CORDON REGIONAL DIRECTOR	D 210	22 45

LEGEND:

- WH WOODEN / ANAHAW HOUSE
- MH MIX HOUSE
- CH CONCRETE HOUSE
- S STORE
- RIPRAP
- BUILDING
- WATER LINE
- BANK

MATCHLINE STA 4+200

SHORE LINE
SHORE LINE
SHORE LINE

PLAN

SCALE 1:1250 m.

PROFILE

SCALE 1:125 m. HOR.

SCALE 1:25 m. VERT.

E L E V A T I O N

STATION	4+200	4+250	4+300	4+350	4+400	4+450	4+500	4+550	4+600	4+650	4+700	4+750	4+800	4+850	4+900	4+950	5+000
FINISHED GRADE ELEVATION																	
GROUND ELEVATION																	
WIDENING DIAGRAM	L	R															
SUPER ELEVATION DIAGRAM																	



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
RAJON MAGSAYSAY AVE., CORNER DOY CHAVEZ ST., DAVAO CITY

PROJECT NAME AND LOCATION:
CONSTRUCTION OF DRAINAGE STRUCTURE
ALONG ROAD - MAHARLIKA HIGHWAY
K1484 + (-600) - K1484 + 722,
K1485 + 200 - K1485 + 829,
DAVAO CITY

SHEET CONTENTS:
PLAN & PROFILE

SURVEYED:
ART H. MARCOJOS
ENGINEER II
REVIEWED:
DAVID M. CARRASCA
ENGINEER II, SECTION CHIEF

PREPARED:
NORIEL V. PENONIA
ENGINEER II
REVIEWED:
ALAN JOHN P. SOTTO
ENGINEER II, SECTION CHIEF

For and in the absence of the
Chief, Planning & Design Division:
AGNES S. AUDAN
Engineer IV
JUDY ANN T. BERNARDINO
CHIEF, PLANNING & DESIGN DIVISION
DATE: DEC 05 2024

RECOMMENDING APPROVAL:
JOSE LITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
JUSY B. CORDON
REGIONAL DIRECTOR
DATE:

SET NO. D 3110
SHEET NO. 23 45

LEGEND:

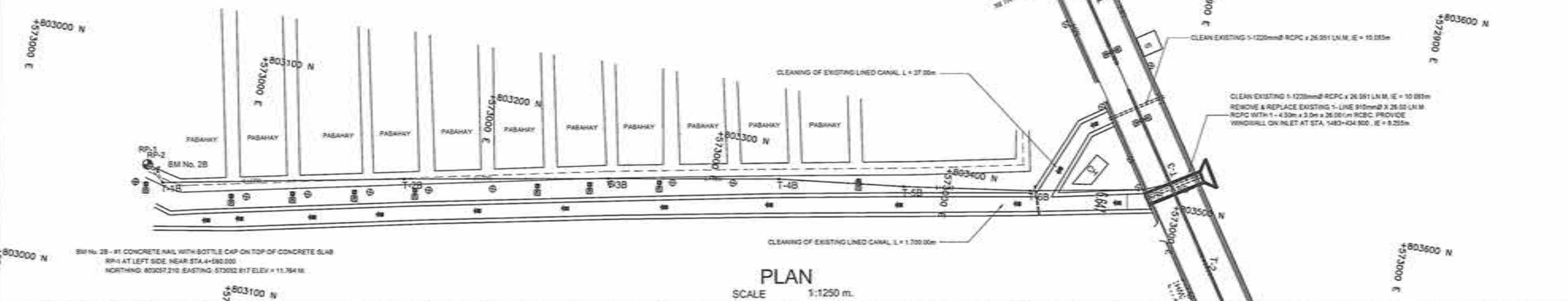
- WH WOODEN / ANAHAY HOUSE
- MH MIX HOUSE
- CH CONCRETE HOUSE
- S STORE
- RIPRAP
- BUILDING
- WATER LINE
- BANK

REFERENCE POINT OF T-18			
RP-1	ADJUTANT	DISTANCE	EASTING
RP-1	41°21'32"	10.000 M	80302.210
RP-2	57°34'08"	8.000 M	80304.308

RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT

PI-#	ADJUTANT	DISTANCE
T-18 TO T-39	169°55'15"	104.267 M
T-39 TO T-38	170°39'18"	88.581 M
T-38 TO T-48	170°54'28"	74.042 M
T-48 TO T-58	174°10'58"	53.617 M
T-58 TO T-68	172°39'28"	54.979 M
T-68 TO T-78	170°11'15"	45.594 M
T-78 TO T-88	156°55'54"	11.437 M

POINT	STATION	NORTHING	EASTING
T-18	4+563.204	80304.721	573059.430
T-39	4+657.451	803167.360	573041.188
T-38	4+756.132	803254.864	573026.788
T-48	4+830.174	803327.575	573015.594
T-58	4+883.991	803361.515	573005.630
T-68	4+938.970	803438.543	573002.604
T-78	4+988.564	803484.512	572994.152
T-88	5+000.000	803485.434	572988.571

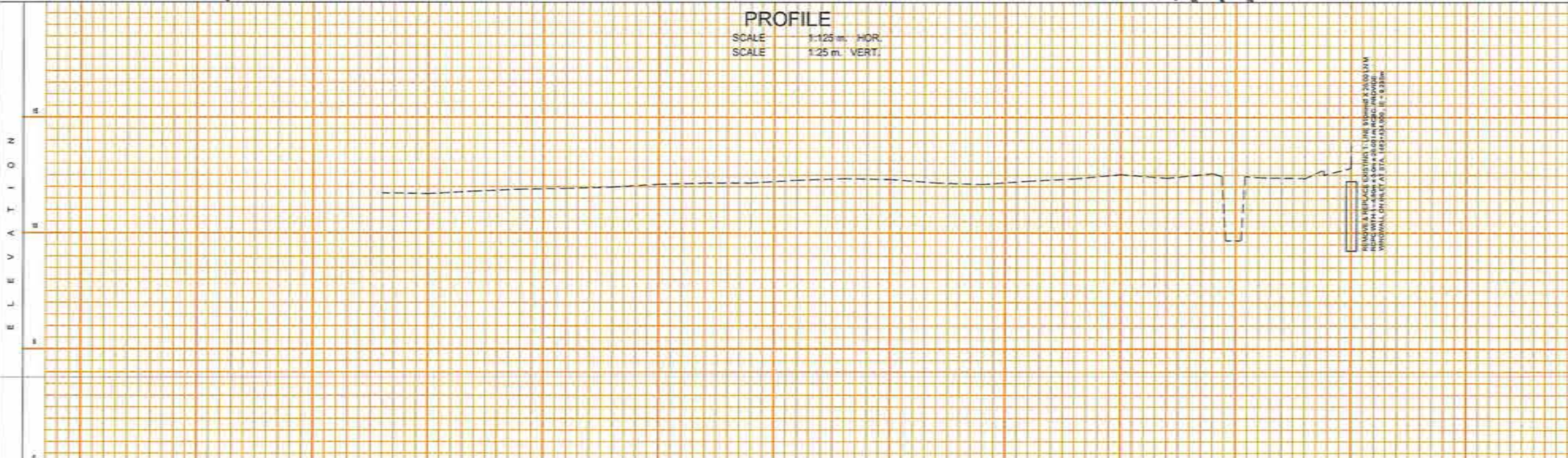


PLAN

SCALE 1:1250 m.

PROFILE

SCALE 1:125 m. HOR.
SCALE 1:25 m. VERT.



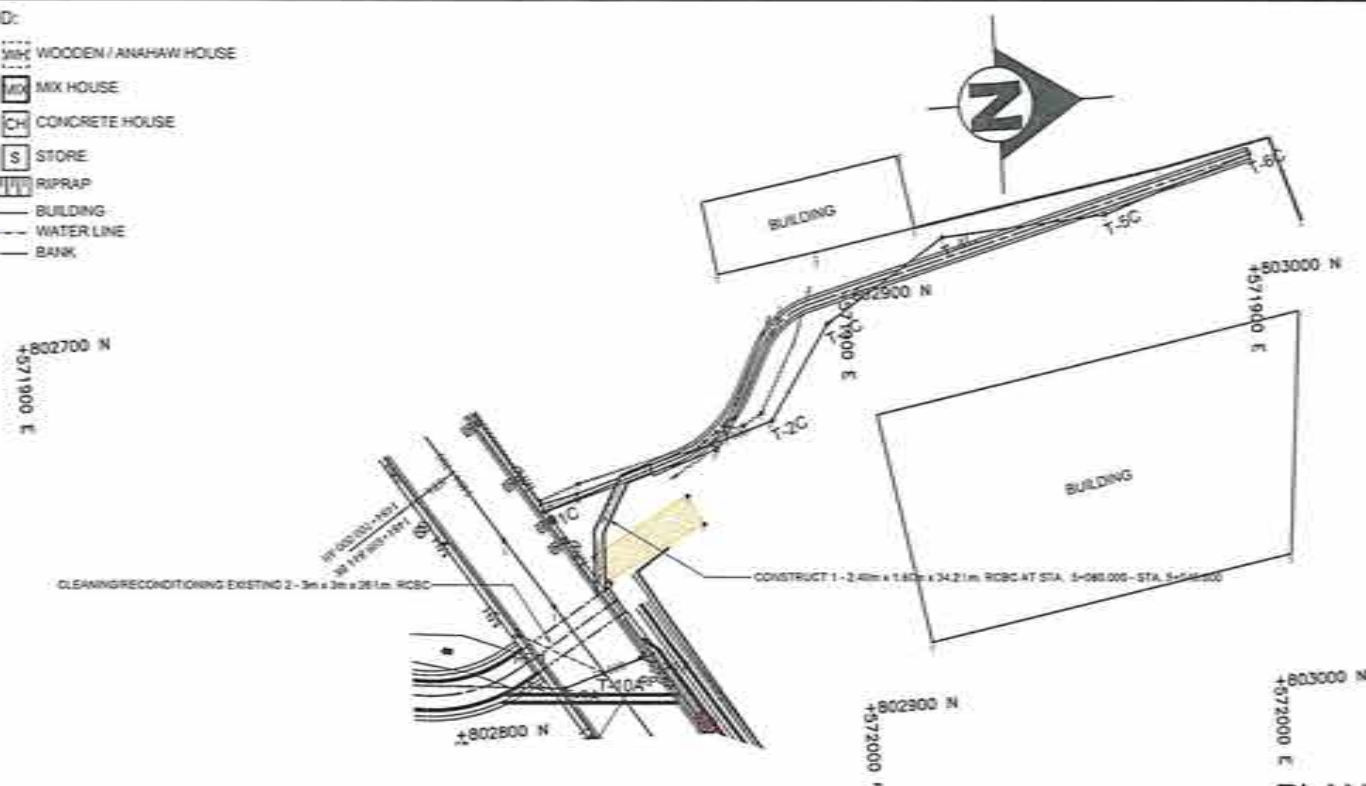
STATION	4+500	4+600	4+700	4+800	4+900	5+000
FINISHED GRADE ELEVATION						
GROUND ELEVATION						
WIDENING DIAGRAM						
SUPER ELEVATION DIAGRAM						

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAJON WISGAYAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	FOR AND IN THE ABSENCE OF THE	APPROVED	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (-400) - K1484 + 722, K1485 + 200 - K1485 + 635, DAVAO CITY	PLAN & PROFILE	SURVEYED: JAY R. MERCADUS ENGINEER II REVIEWED: DANIEL M. CARIAGA ENGINEER II, SECTION CHIEF	PREPARED: MICHEL V. PENOMA ENGINEER II REVIEWED: ALAN JOHN R. SOTO ENGINEER II, SECTION CHIEF	AGNES S. AUDAM ENGINEER IV JUDY ANN T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	JOSE LITO S. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	JUDY B. CORDON REGIONAL DIRECTOR DATE:	D 410

PLAN AND PROFILE CHANNEL 3

LEGEND:

- WH WOODEN / ANAHAW HOUSE
- MH MIX HOUSE
- CH CONCRETE HOUSE
- S STORE
- RIPRAP
- BUILDING
- WATER LINE
- BANK



PI-#	AZIMUTH	DISTANCE
T-1C TO T-2C	162°11'39"	60.000 M
T-2C TO T-3C	127°35'15"	26.893 M
T-3C TO T-4C	146°52'17"	34.999 M
T-4C TO T-5C	175°53'35"	40.078 M
T-5C TO T-6C	161°17'20"	38.149 M

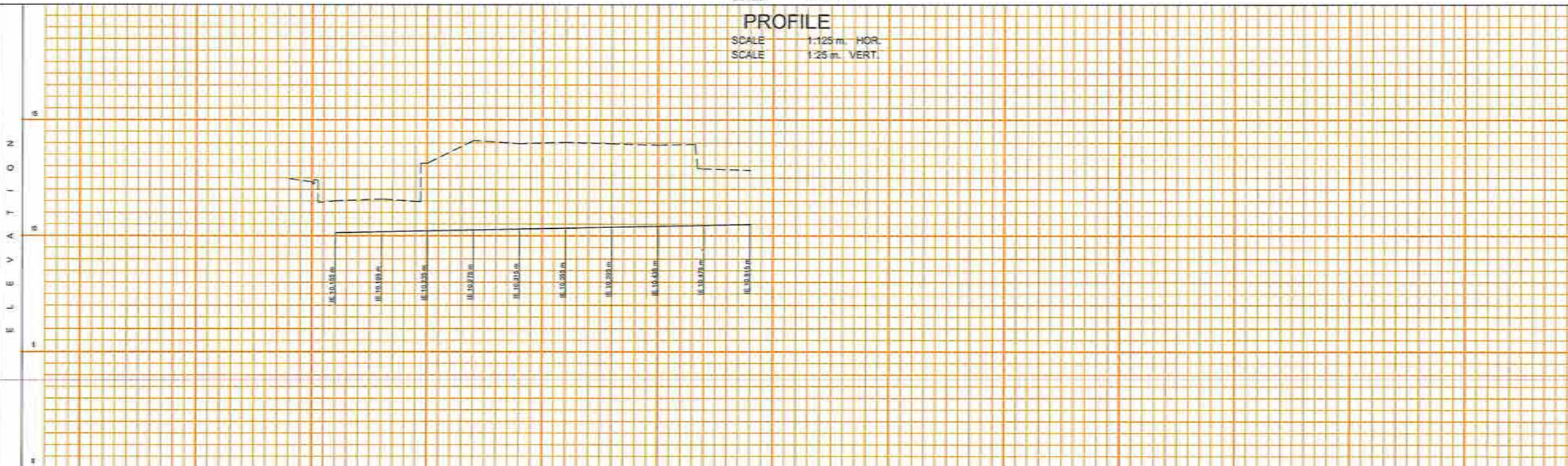
POINT	STATION	NORTHING	EASTING
T-1C	S+051.630	802823.294	571947.228
T-2C	S+111.800	802880.427	571928.883
T-3C	S+138.773	802885.286	571906.490
T-4C	S+173.732	802924.563	571887.384
T-5C	S+213.810	802964.538	571884.514
T-6C	S+251.960	803000.636	571872.170

PLAN

SCALE 1:1250 m.

PROFILE

SCALE 1:125 m. HOR.
SCALE 1:25 m. VERT.



STATION	5+000	5+100	5+200	5+300	5+400	5+500	5+600
FINISHED GRADE ELEVATION							
GROUND ELEVATION	11.95	12.10	12.10	12.10	12.10	12.10	12.10
WIDENING DIAGRAM							
SUPER ELEVATION DIAGRAM							

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAIMON MAGSAYSAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION: CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (-600) - K1484 + 722, K1485 + 200 - K1485 + 638, DAVAO CITY	SHEET CONTENTS: PLAN & PROFILE	SURVEYED: JAY H. MARCOS ENGINEER II	PREPARED: NOVELL V. PENONIA ENGINEER II	For and in the absence of the Chief Planning & Design Division AGNES S. AUDAN Engineer IV JUDY ANN T. BERNARDINO Chief Planning & Design Division DEC 05 2024	RECOMMENDING APPROVAL: JOSE LITO T. CABALLERO ASSISTANT REGIONAL DIRECTOR	APPROVED: JUBY B. CORDON REGIONAL DIRECTOR	SET NO. D 510	SHEET NO. 25 45
			REVIEWED: DAVIDO M. CARRERA ENGINEER II, SECTION CHIEF	REVIEWED: ALAN JOHN A. SOTTO ENGINEER II, SECTION CHIEF	DATE: DEC 05 2024	DATE: DEC 05 2024	DATE: DEC 05 2024	DATE: DEC 05 2024	

LEGEND:

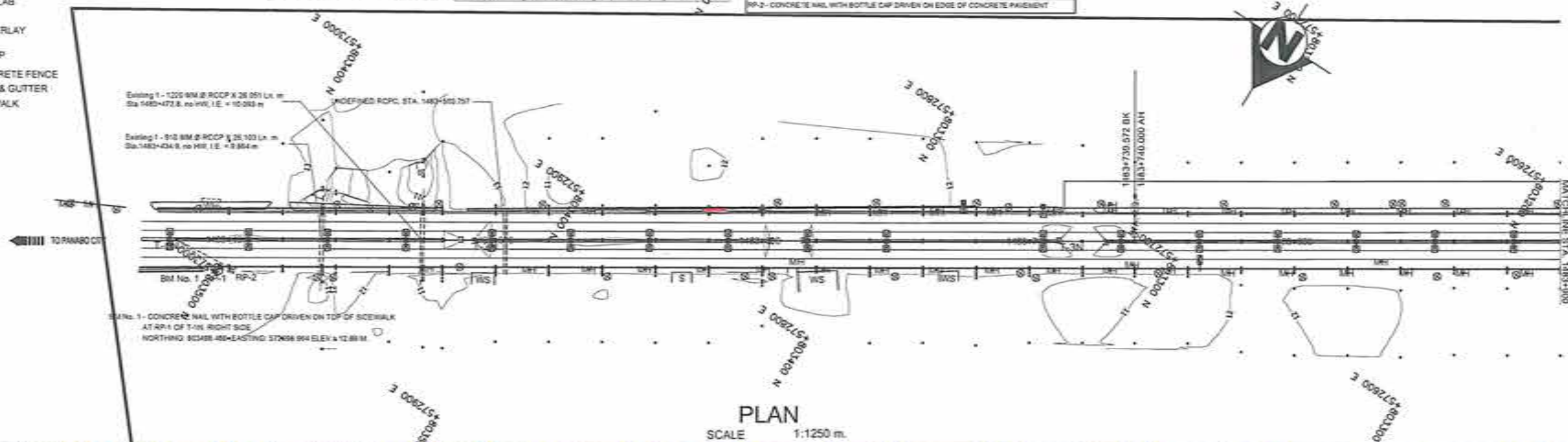
- MANHOLE
- STORE
- ELECTRIC POST
- CONCRETE SLAB
- ASPHALT OVERLAY
- RIPRAP
- CONCRETE FENCE
- CURB & GUTTER
- SIDEWALK

TRaverse LINE	PI-B	ADJUST	DISTANCE
T-1N TO T-2N	56°40'13"	119.671 M	
T-2N TO T-3N	56°38'34"	218.617 M	
T-3N TO T-4N	56°37'25"	199.643 M	

STATION COORDINATES	POINT	STATION	NORTHING	EASTING
T-1N	1483+380.281	803497.533	572017.214	
T-2N	1483+498.932	803492.800	572017.400	
T-3N	1483+719.549	803313.348	572133.353	

REFERENCE POINT OF T-1N	ADJUST	DISTANCE	NORTHING	EASTING
RP-1	82°48'28"	18.034	803498.485	572008.969
RP-2	84°42'41"	20.814	803495.198	572004.158

RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT

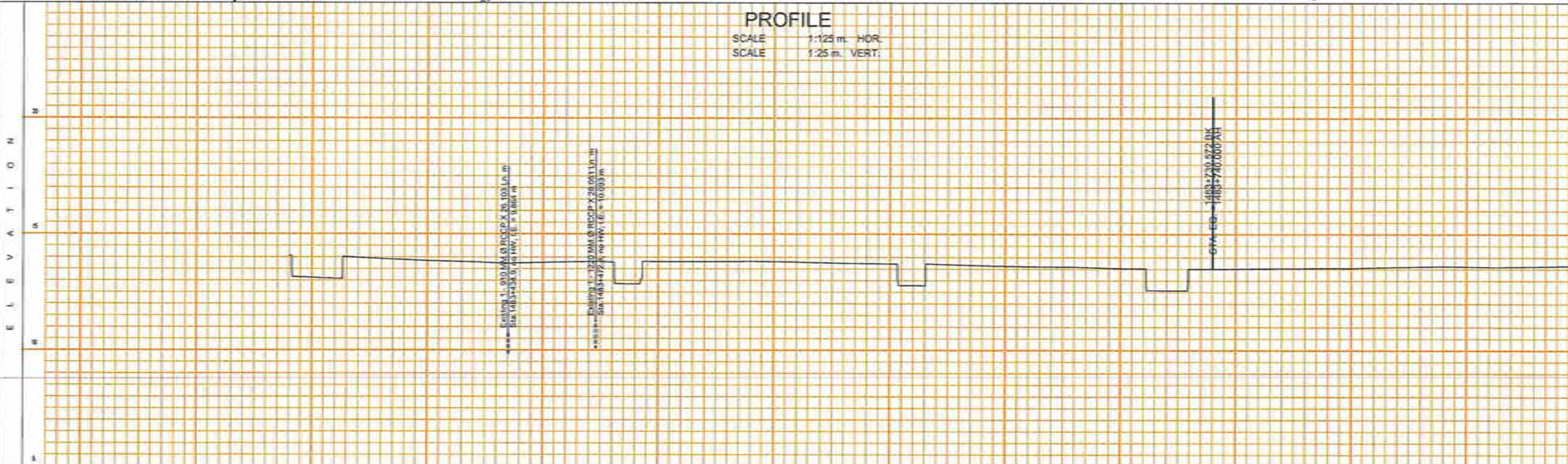


PLAN

SCALE 1:1250 m.

PROFILE

SCALE 1:125 m. HOR.
SCALE 1:25 m. VERT.



STATION	1483+000	1483+050	1483+100	1483+150	1483+200	1483+250	1483+300	1483+350	1483+400	1483+450	1483+500	1483+550	1483+600	1483+650	1483+700	1483+750	1483+800	1483+850	1483+900	1483+950	1483+1000
FINISHED GRADE ELEVATION																					
GROUND ELEVATION																					
WIDENING DIAGRAM																					
SUPER ELEVATION DIAGRAM																					

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAVON MAGSAYSAY AVE., CORNER DON. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	FOR AND IN THE ABSENCE OF THE	REVIEWED	APPROVED	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (-600) - K1484 + 722, K1485 + 200 - K1485 + 835, DAVAO CITY	PLAN & PROFILE	DAVID M. CARIAGA ENGINEER II, SECTION CHIEF	NOVELL V. PENOMIA ENGINEER II	AGNES S. AUDAN ENGINEER III JUDY ANN T. BERNARDINO ENGINEER II, DESIGN DIVISION DATE: DEC 05 2024	JOSE LITO B. CABALLERO REGIONAL DIRECTOR	JUDY B. CORDON REGIONAL DIRECTOR	D 610	26 45

LEGEND:

- MANHOLE
- STORE
- ELECTRIC POST
- CONCRETE SLAB
- ASPHALT OVERLAY
- RIPRAP
- CONCRETE FENCE
- CURB & GUTTER
- SIDEWALK

LINE	ADJUST	DISTANCE
T-4N TO T-5N	56°42'18"	255.478 M
T-5N TO T-6N	56°42'52"	79.774 M
T-6N TO T-7N	57°00'23"	79.902 M
T-7N TO T-8N	56°22'36"	98.591 M
T-8N TO T-9N	56°25'47"	115.957 M

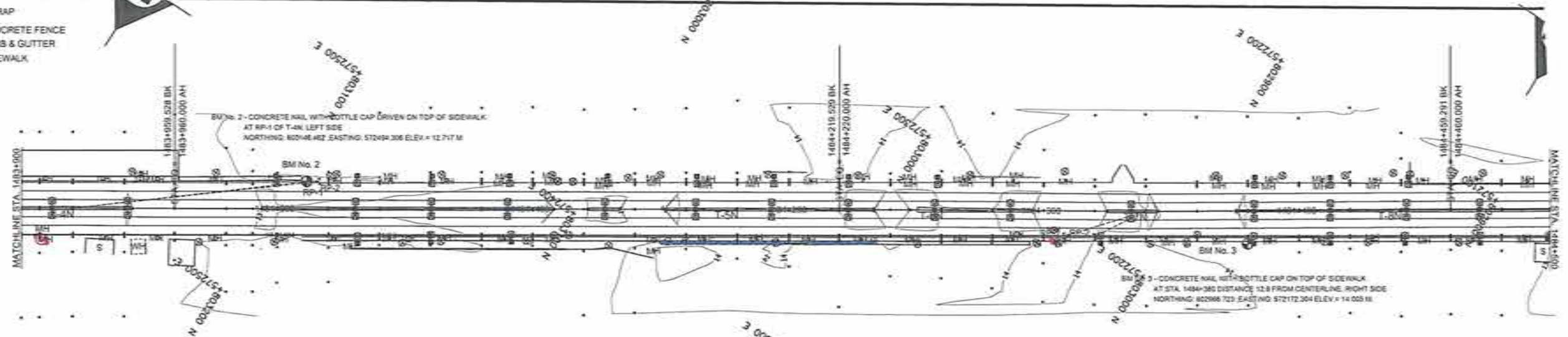
POINT	STATION	NORTHING	EASTING
T-4N	1483+919.620	803004.883	572985.434
T-5N	1484+178.568	803004.243	572347.368
T-6N	1484+258.813	803021.015	572385.519
T-7N	1484+339.715	802978.065	572142.345
T-8N	1484+439.208	802923.558	572125.558

ADJUST	DISTANCE	NORTHING	EASTING
RP-1	50°30'54"	803145.482	572494.306
RP-2	50°32'35"	803144.055	572485.508

RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT

ADJUST	DISTANCE	NORTHING	EASTING
RP-1	220°15'51"	803002.964	572220.872
RP-2	210°42'47"	802995.384	572220.828

RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT



PLAN
SCALE 1:1250 m.

PROFILE
SCALE 1:125 m. HOR.
SCALE 1:25 m. VERT.



STATION	1483+000	1483+200	1483+400	1483+600	1483+800	1484+000	1484+200	1484+400	1484+500
FINISHED GRADE ELEVATION	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
GROUND ELEVATION	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
WIDENING DIAGRAM									
SUPER ELEVATION DIAGRAM									

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAMON MASSARAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	FOR AND IN THE ABSENCE OF THE	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (-600) - K1484 + 722, K1485 + 200 - K1485 + 839, DAVAO CITY	PLAN & PROFILE	SURVEYED: <i>JOY N. MARGOS</i> ENGINEER II REVIEWED: <i>DANING M. CARAGA</i> ENGINEER II, SECTION CHIEF	PREPARED: <i>JOY N. MARGOS</i> ENGINEER II REVIEWED: <i>JOY N. MARGOS</i> ENGINEER II, SECTION CHIEF	For and in the absence of the Chief Planning & Design Division AGNES S. AUDAN Engineer IV JUDY ANN T. BERNARDINO Chief Planning and Design Division DATE: DEC 05 2024	JOSE LITO B. CABALLERO Assistant Regional Director	JUDY B. CORDON Regional Director	D 710	27 45

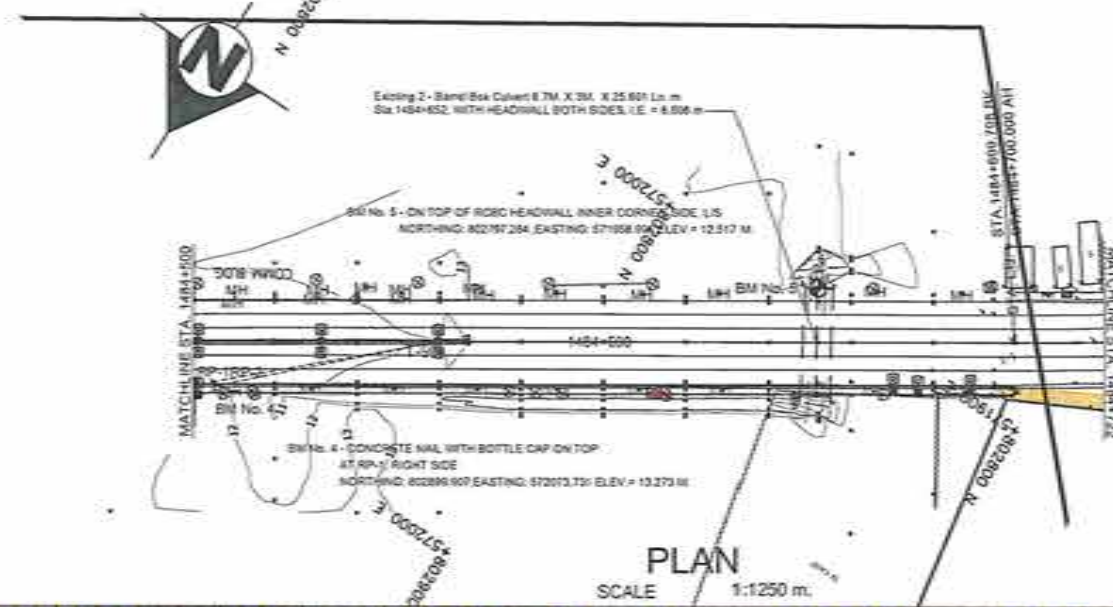
LEGEND:

- MANHOLE
- STORE
- ELECTRIC POST
- CONCRETE SLAB
- ASPHALT OVERLAY
- RIPPRAP
- CONCRETE FENCE
- CURB & GUTTER
- SIDEWALK

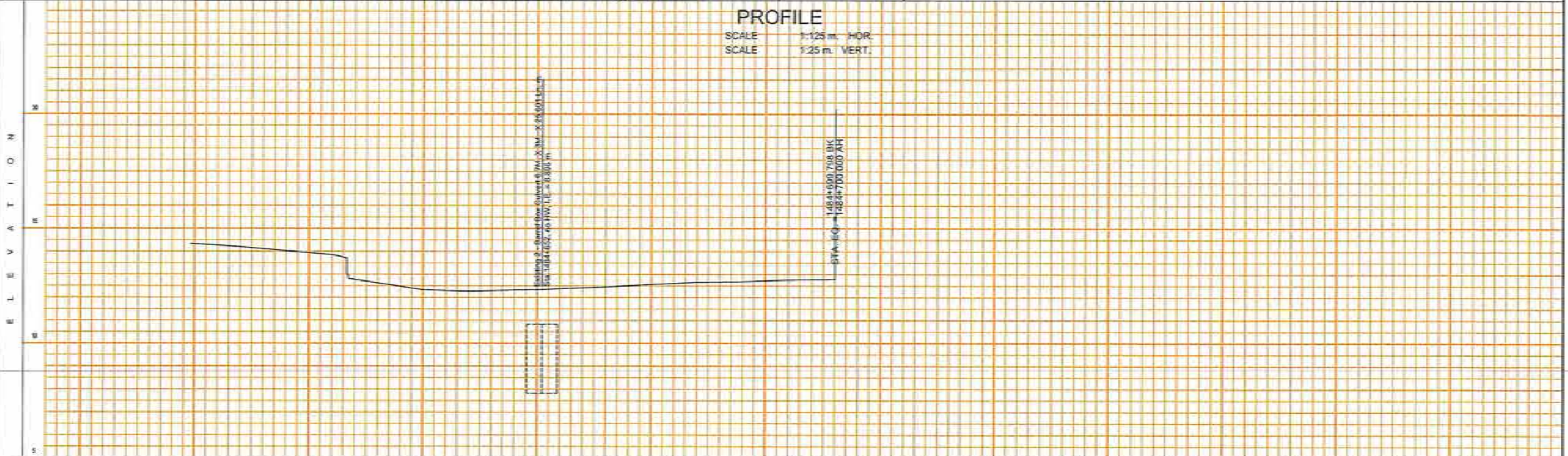
TRAVERSE LINE		
PI-R	AZMUTH	DISTANCE
T-0N TO T-1	50°39'18"	139.826 M

STATION COORDINATES			
POINT	STATION	NORTHING	EASTING
T-0N	1484+559.872	802868.144	572029.542
T-1	1484+559.788 BM	802782.254	571911.832
	1484+720.000 AH		

REFERENCE POINT OF T-0N			
POINT	AZMUTH	DISTANCE	NORTHING
RP-1	225°51'17"	5.500 M	802888.807
RP-2	225°52'20"	25.445 M	802888.745
RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT			
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT			



PROFILE
SCALE 1:125 m. HOR.
SCALE 1:25 m. VERT.



STATION	1484+500	1484+600	1484+700	1484+800	1484+900	1485+000	1485
FINISHED GRADE ELEVATION	12.15	12.15	12.15	12.15	12.15	12.15	
GROUND ELEVATION							
WIDENING DIAGRAM							
SUPER ELEVATION DIAGRAM							

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAJON MAGSAYSAY AVE., CORNER DON CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (-600) - K1484 + 722, K1485 + 200 - K1485 + 835, DAVAO CITY	SHEET CONTENTS PLAN & PROFILE	SURVEYED JAY M. MARCOS ENGINEER II	PREPARED NOVELL V. PENCORIA ENGINEER I	For and in the absence of the Chief Planning & Design Division AGNES S. AUDAN Engineer IV	RECOMMENDING APPROVAL JOSE LITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR	APPROVED JUDY B. CORDON REGIONAL DIRECTOR	SET NO. D 8/10	SHEET NO. 28 45
			REVIEWED DANILLO E. CARRERA ENGINEER II, SECTION CHIEF	REVIEWED ALAN JOHN A. SOTTO ENGINEER II, SECTION CHIEF	DATE DEC 05 2024	DATE	DATE		

LEGEND:

- MANHOLE
- STORE
- ELECTRIC POST
- CONCRETE SLAB
- ASPHALT OVERLAY
- GRAP
- CONCRETE FENCE
- CURB & GUTTER
- PAVEMENT

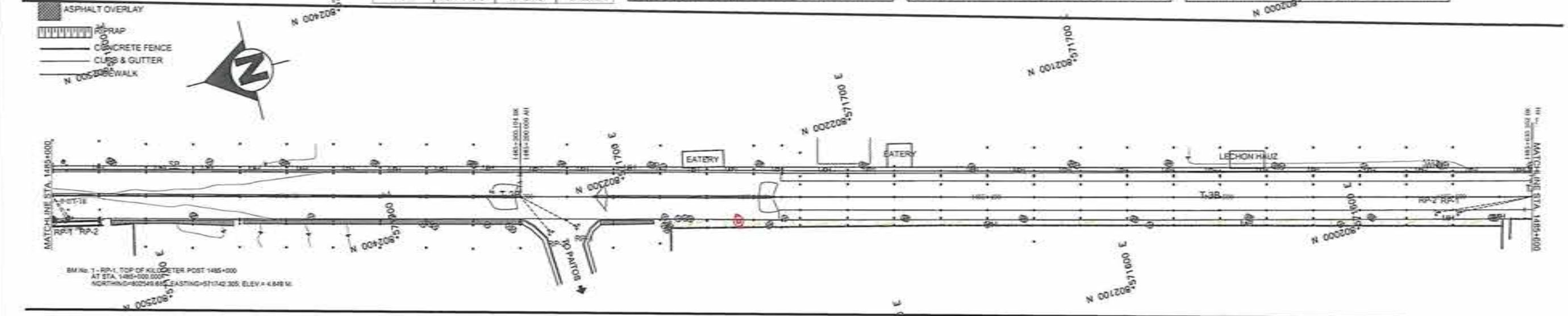
TRAVERSE LINE	PL#	AZIMUTH	DISTANCE
T-1B TO T-2B	14	14°45'02"	200.184 M
T-2B TO T-3B	14	14°35'18"	209.342 M
T-3B TO T-4B	14	14°32'21"	135.000 M

STATION COORDINATES			
POINT	STATION	NORTHING	EASTING
T-1B	1485+200.000	802244.380	571754.380
T-2B	1485+200.194	802244.499	571703.478
T-3B	1485+200.942	802244.269	571627.789
T-4B	1485+200.202	801923.321	571593.830

REFERENCE POINT OF T-2/T-1B		
RP-1	AZIMUTH	DISTANCE
RP-1	123°50'24"	10.500 M
RP-2	90°30'47"	12.472 M
RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		

REFERENCE POINT OF T-2B		
RP-1	AZIMUTH	DISTANCE
RP-1	42°03'01"	37.255 M
RP-2	94°02'21"	19.420 M
RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		

REFERENCE POINT OF T-1/T-4B		
RP-1	AZIMUTH	DISTANCE
RP-1	182°5'41"	33.359 M
RP-2	182°30'17"	42.491 M
RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		



PLAN

SCALE 1:1250 m.

PROFILE

SCALE 1:125 m. HOR.
SCALE 1:25 m. VERT.



STATION	1485+000	1485+100	1485+200	1485+300	1485+400	1485+500	1485+600
FINISHED GRADE ELEVATION	4.4	4.4	4.4	4.4	4.4	4.4	4.4
GROUND ELEVATION	4.4	4.4	4.4	4.4	4.4	4.4	4.4
WIDENING DIAGRAM							
SUPER ELEVATION DIAGRAM							

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAJON SARGASYAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	FOR AND IN THE ABSENCE OF THE	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (-400) - K1484 + 722, K1485 + 200 - K1485 + 839, DAVAO CITY	PLAN & PROFILE	SURVEYED: JAY H. MARCOS, ENGINEER II REVIEWED: BRUNO M. GARCIA, ENGINEER II, SECTION CHIEF	PREPARED: NGWELL V. PENONIA, ENGINEER I REVIEWED: ALAN JOHN R. SODIA, ENGINEER II, SECTION CHIEF	For and in the absence of the Chief Planning & Design Division AGNES S. AUDAN, Engineer IV JUDY ANN T. BERNARDINO, CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	RECOMMENDING APPROVAL: JOSELYN S. CABALLERO, ENGINEER III, REGIONAL DIRECTOR	APPROVED: JUBY B. CORDON, REGIONAL DIRECTOR	SET NO. D 910	SHEET NO. 29 45

LEGEND:

- MANHOLE
- STORE
- ELECTRIC POST
- CONCRETE SLAB
- ASPHALT OVERLAY
- RIPRAP
- CONCRETE FENCE
- CURB & GUTTER
- SIDEWALK

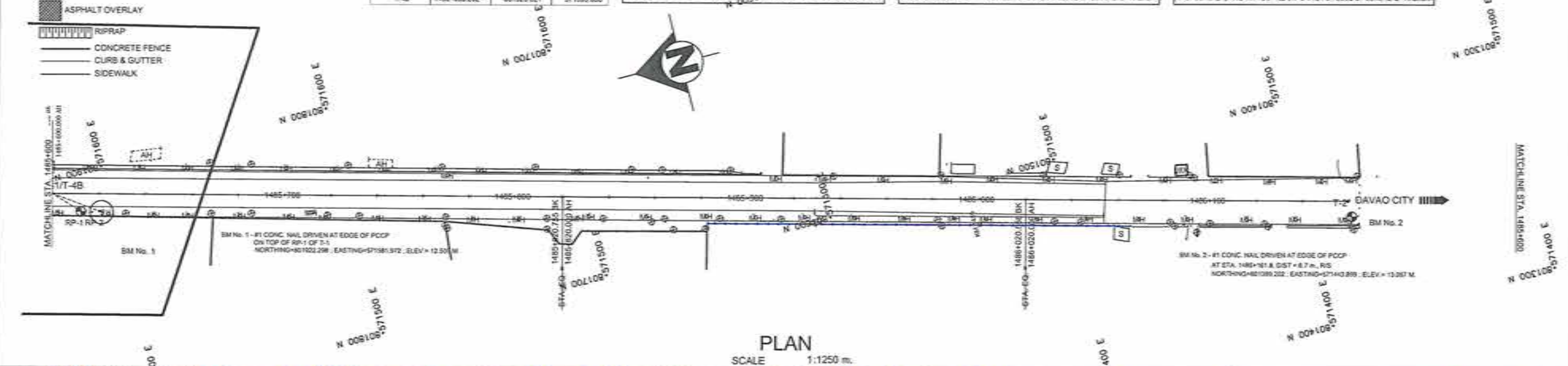
LINE	AZIMUTH	DISTANCE
T-1B TO T-2B	54°45'02"	200.184 M.
T-2B TO T-3B	54°36'18"	298.942 M.
T-3B TO T-4B	54°32'21"	135.280 M.

POINT	STATION	NORTHING	EASTING
T-1B	1485+000.000	802536.095	571754.390
T-2B	1485+200.184	802544.498	571703.418
T-3B	1485+499.942	802554.248	571627.788
T-4B	1485+635.202	801923.521	571593.830

REFERENCE POINT OF T-2/T-1B	ADIMUTH	DISTANCE
RP-1	123°30'25"	10.305 M.
RP-2	88°35'40"	12.472 M.
RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		

REFERENCE POINT OF T-2B	ADIMUTH	DISTANCE
RP-1	47°53'21"	27.252 M.
RP-2	54°03'21"	18.825 M.
RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		

REFERENCE POINT OF T-1/T-4B	ADIMUTH	DISTANCE
RP-1	182°04'41"	33.308 M.
RP-2	185°36'11"	42.491 M.
RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT		



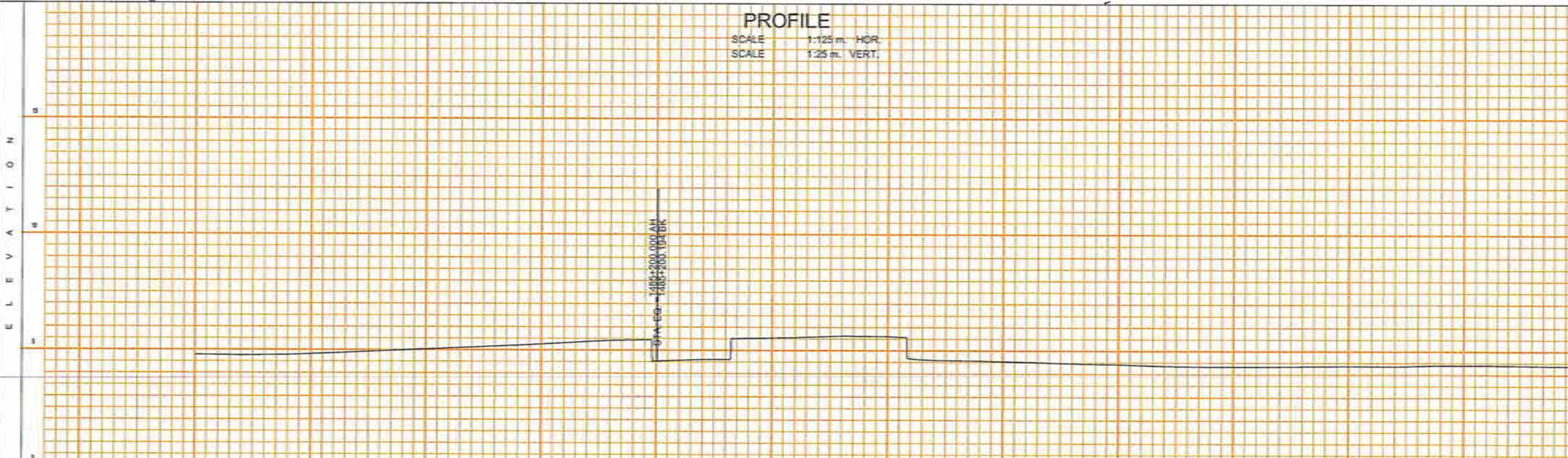
PLAN

SCALE 1:1250 m.

PROFILE

SCALE 1:125 m. HOR.

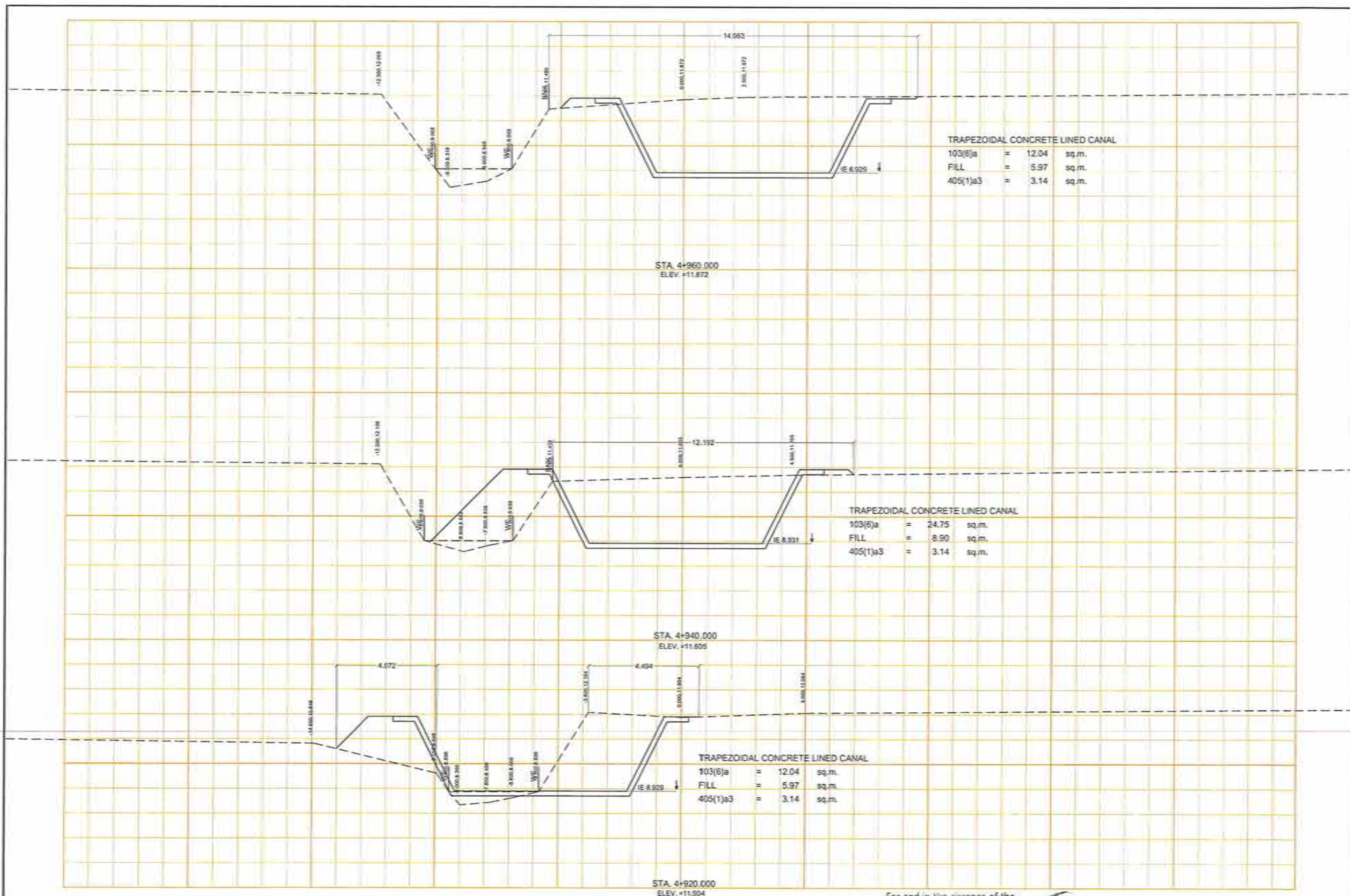
SCALE 1:25 m. VERT.



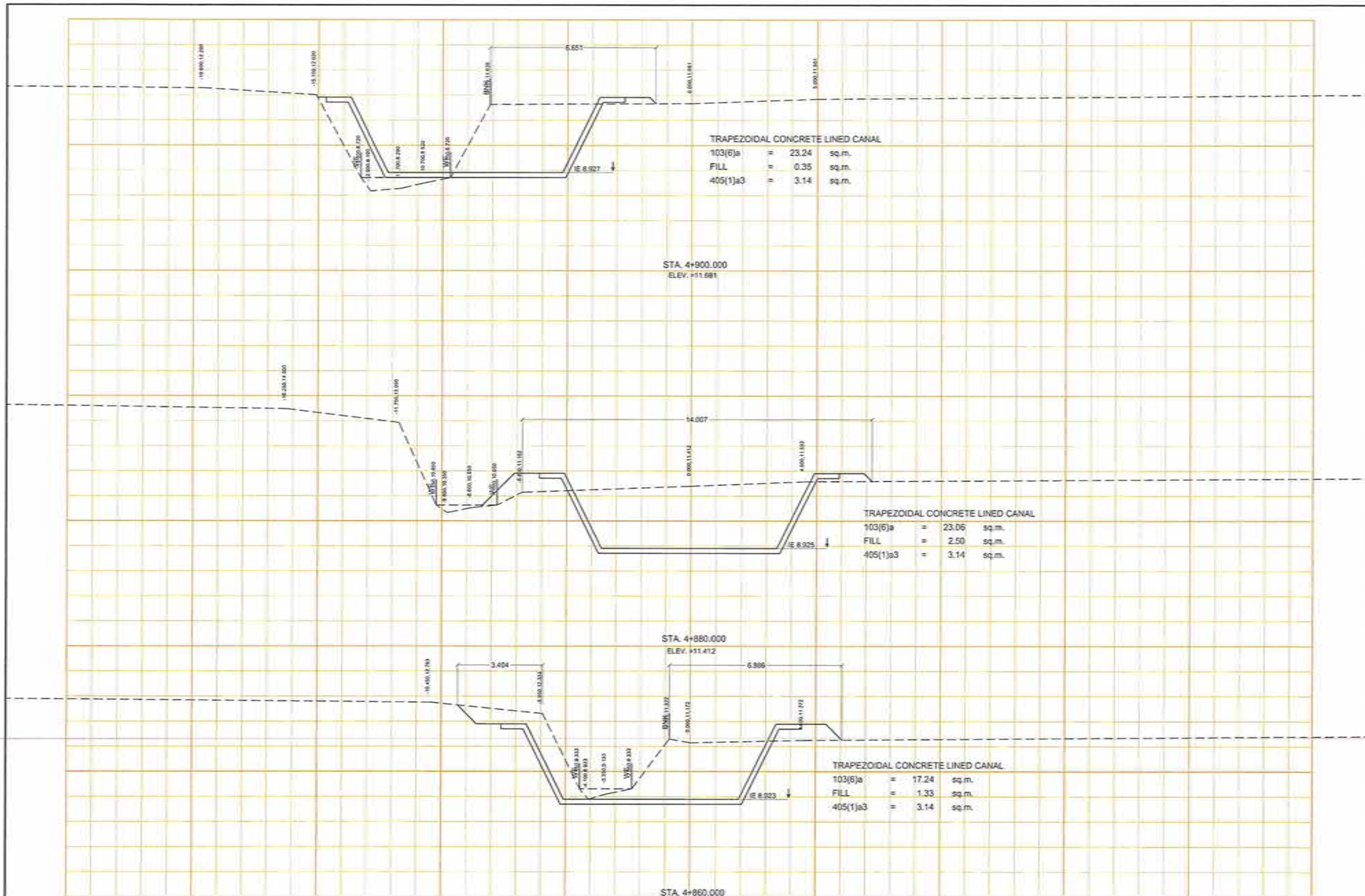
STATION	1485+000	1485+100	1485+200	1485+300	1485+400	1485+500	1485+600
FINISHED GRADE ELEVATION	4.00	4.00	4.00	4.00	4.00	4.00	4.00
GROUND ELEVATION	4.00	4.00	4.00	4.00	4.00	4.00	4.00
WIDENING DIAGRAM							
SUPER ELEVATION DIAGRAM							

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAMON MACASAYSAY AVE., CORNER DOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	FOR AND IN THE ABSENCE OF THE	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + (-600) - K1484 + 722, K1485 + 200 - K1485 + 839, DAVAO CITY	PLAN & PROFILE	DAVINO M. CARRERA ENGINEER IN CHARGE NOVELL V. FENONIA ENGINEER II REVIEWED: JUDY ANNE BERNARDINO ENGINEER II, SECTION CHIEF	DAVINO M. CARRERA ENGINEER IN CHARGE NOVELL V. FENONIA ENGINEER II REVIEWED: JUDY ANNE BERNARDINO ENGINEER II, SECTION CHIEF	AGNES S. AUDAN ENGINEER IV JUDY ANNE BERNARDINO ENGINEER II, SECTION CHIEF DATE: DEC 05 2024	JOSELYN B. CABALLERO ASSISTANT REGIONAL DIRECTOR JUBY B. CORDON REGIONAL DIRECTOR DATE:	JOSELYN B. CABALLERO ASSISTANT REGIONAL DIRECTOR JUBY B. CORDON REGIONAL DIRECTOR DATE:	1010 30 45	1010 30 45

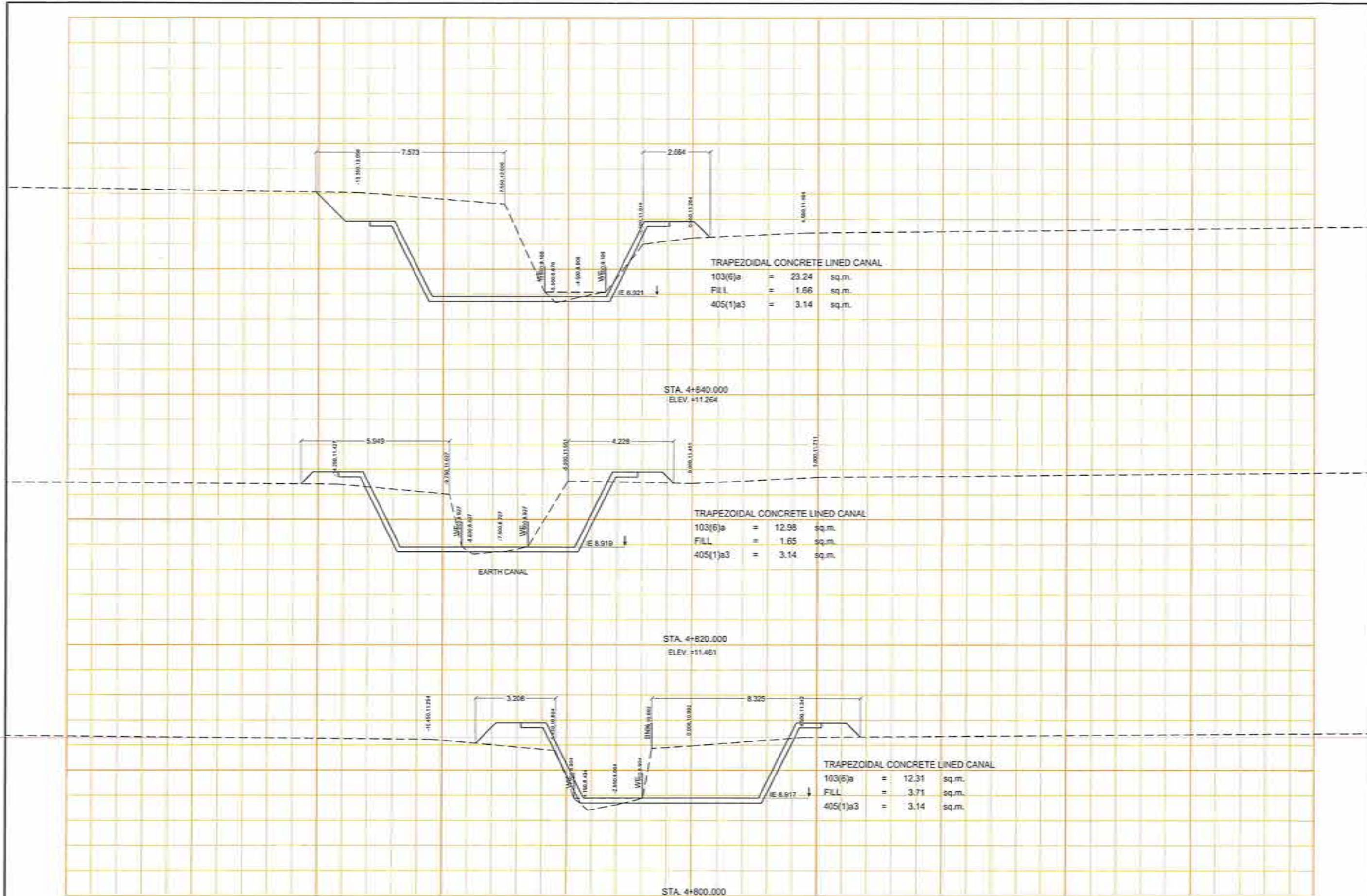
CROSS SECTION (CHANNEL 1 AND 2)



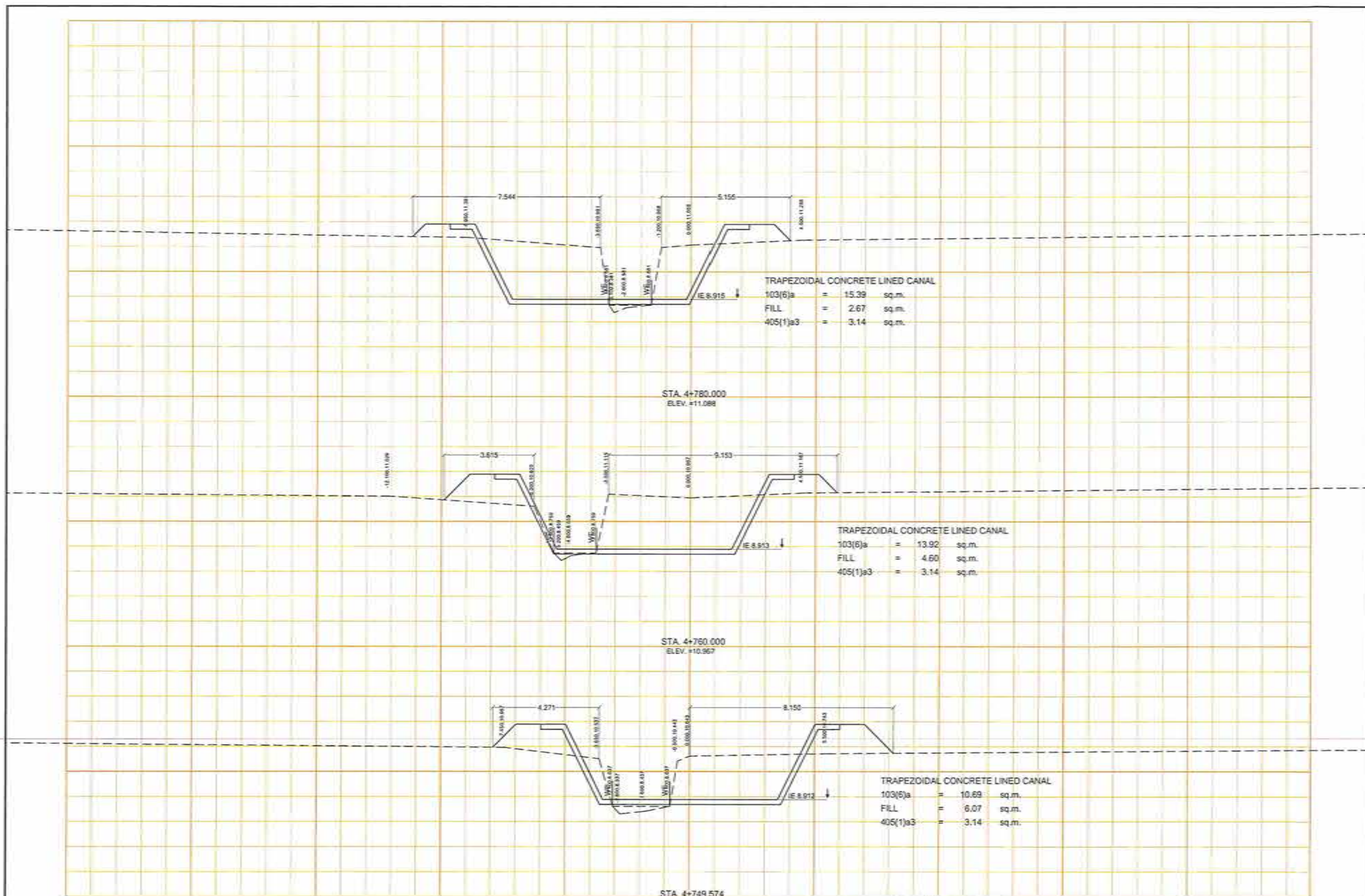
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAVON VIGASAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION: REHABILITATION OF DRAINAGE ALONG NATIONAL ROADS - DAANG MAHARLIKA (MN) K1476 + 367 - K1476 + 580 K1477 + 000 - K1477 + 087, DAVAO CITY	SHEET CONTENTS: PLAN & PROFILE	SURVEYED: JAY M. MARICOLLOS ENGINEER II	PREPARED: MICHEL V. PENONIA ENGINEER II	For and in the absence of the Chief, Planning & Design Division: AGNES S. AUDAN Engineer IV	RECOMMENDING APPROVAL: JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2016	APPROVED: JOSEITO B. ABALLERO ASSISTANT REGIONAL DIRECTOR	APPROVED: JUBY B. CORDON REGIONAL DIRECTOR	SET NO. E 214	SHEET NO. 32 45
			REVIEWED: CASIMIRO M. CARIAGA ENGINEER II, SECTION CHIEF	REVIEWED: MAIN JOHN A. SOTOS ENGINEER II, SECTION CHIEF	DATE: DEC 05 2016		DATE:			



REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAVON/UNGSAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	FOR and in the absence of the Chief Planning & Design Division	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	REHABILITATION OF DRAINAGE ALONG NATIONAL ROADS - DAANG MAHARLIKA (RMN) K1476 + 367 - K1476 + 580 K1477 + 000 - K1477 + 087, DAVAO CITY	PLAN & PROFILE	SURVEYED: JAY M. MARCOS, JR. ENGINEER II REVIEWED: DANIEL M. CARIAGA ENGINEER II, SECTION CHIEF	PREPARED: NOWELL V. PENONIA ENGINEER I REVIEWED: ALAN JOHN R. SITTO ENGINEER II, SECTION CHIEF	AGNES S. AUIDAN Engineer IV JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	JOSEPH B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	JUBY B. CORDON REGIONAL DIRECTOR DATE:	E 314	33 45

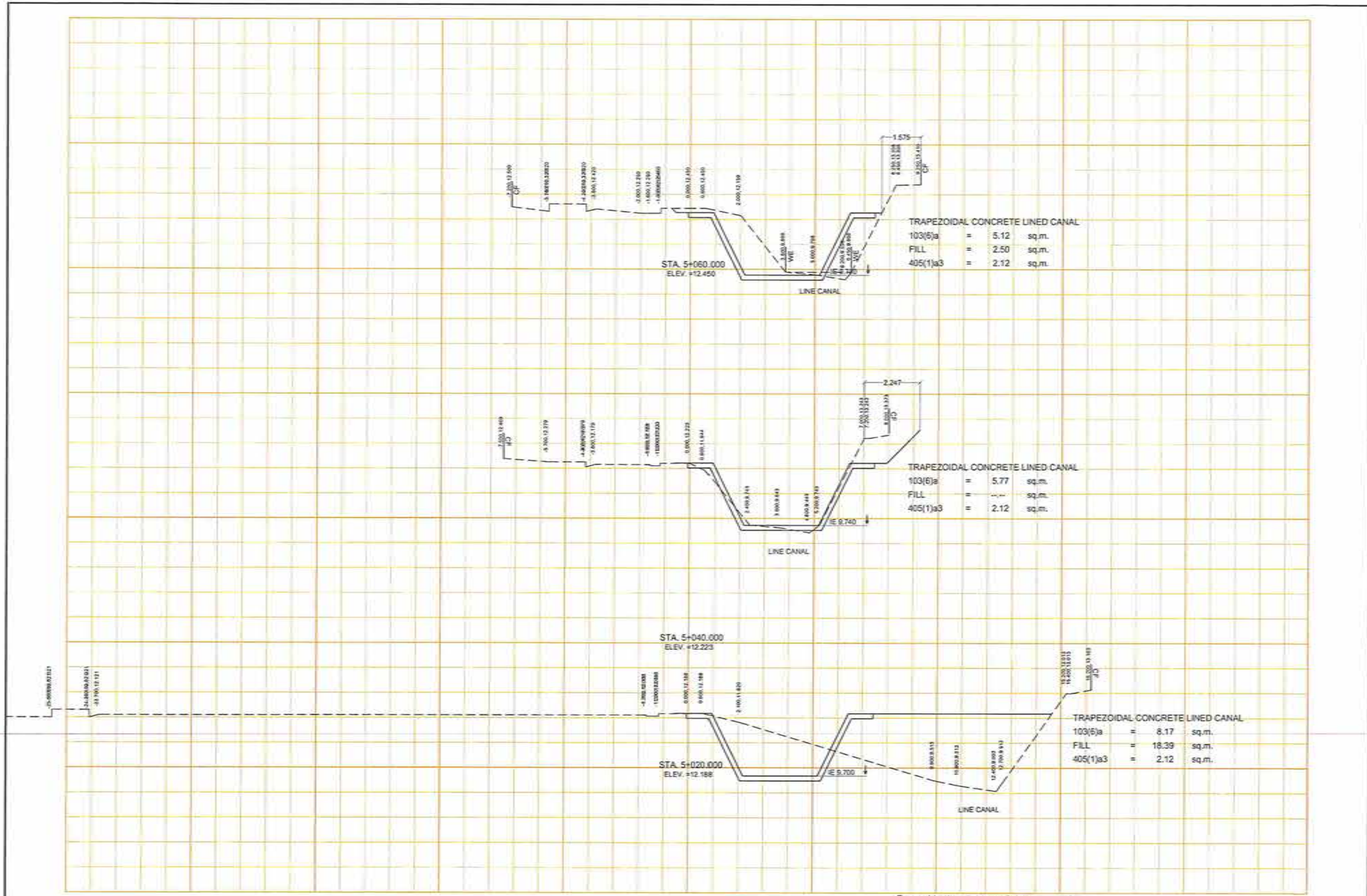


REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAJON MAZATAY AVE., CORNER GOV. CHAVEZ ST., SAVING CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	FOR AND IN THE ABSENCE OF THE	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	REHABILITATION OF DRAINAGE ALONG NATIONAL ROADS - DAANG MAHARLIKA (MN) K1476 + 367 - K1476 + 580 K1477 + 000 - K1477 + 087, DAVAO CITY	PLAN & PROFILE	JAY H. MARGOSOS ENGINEER I	NOVELL V. PENONIA ENGINEER I	Chief Planning & Design Division	AGNES S. AUDAN Engineer IV	MOSELITO S. CABALLERO ASSISTANT REGIONAL DIRECTOR	JUBY B. CORDON REGIONAL DIRECTOR	E 4/14
			REVIEWED	REVIEWED	DATE	DATE	DATE		
			DANIEL M. CARRICA ENGINEER II, SECTION CHIEF	JOHN R. SOTO ENGINEER II, SECTION CHIEF	DEC 05 2024				



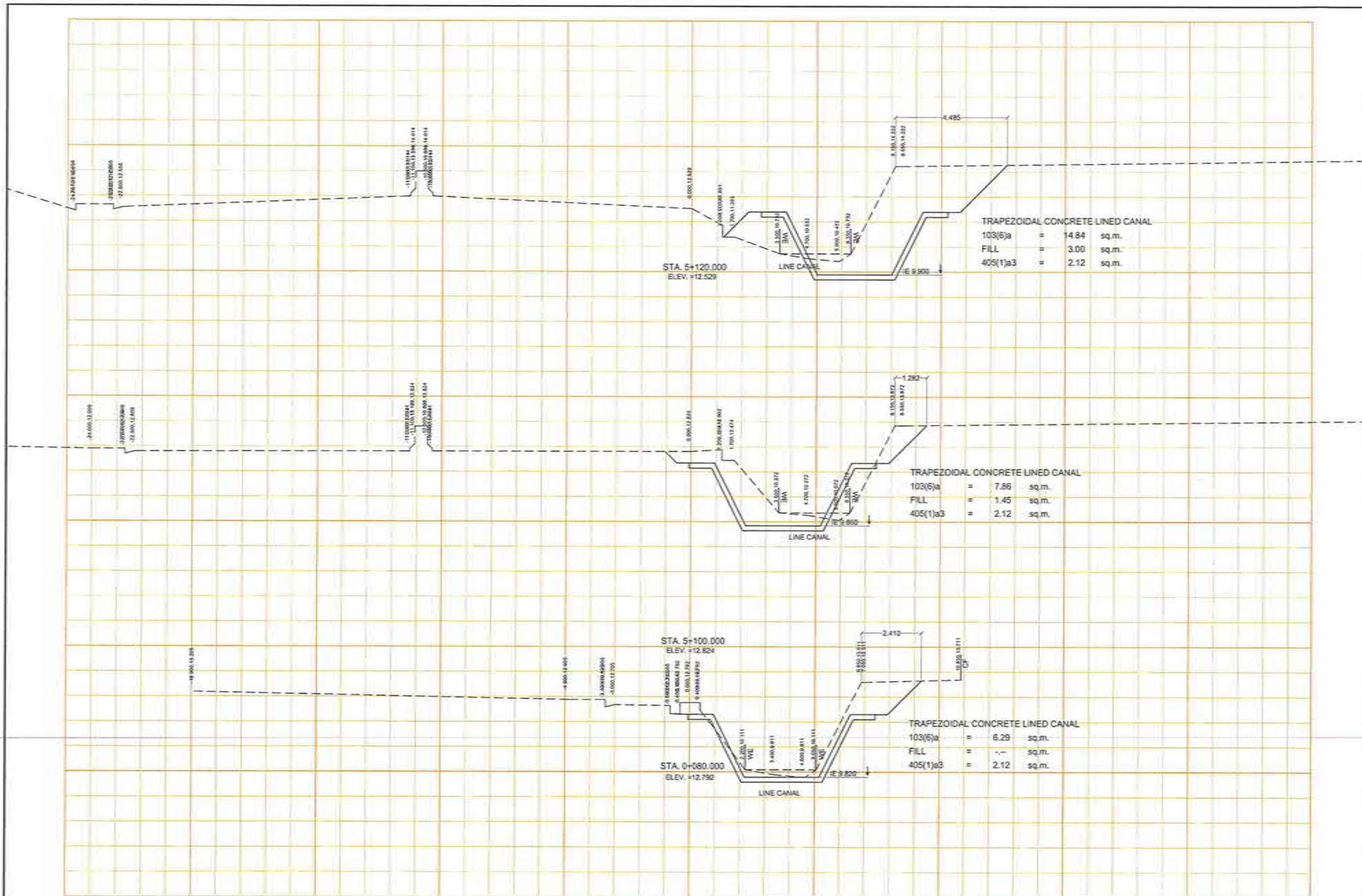
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAJON MAGSAYSAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	APPROVED	SET NO.	SHEET NO.
	REHABILITATION OF DRAINAGE ALONG NATIONAL ROADS - DAANG MAHARLIKA (MN) K1476 + 367 - K1476 + 580 K1477 + 000 - K1477 + 087, DAVAO CITY	PLAN & PROFILE	SURVEYED: <i>JOY H. MARCOS</i> ENGINEER II REVIEWED: <i>DANIEL M. CARIAGA</i> ENGINEER II, SECTION CHIEF	PREPARED: <i>AGNES S. AJUDAN</i> ENGINEER IV REVIEWED: <i>ALAN JOHN R. SOTTO</i> ENGINEER II, SECTION CHIEF	For and in the absence of the Chief, Planning & Design Division <i>Agnes S. Ajudan</i> AGNES S. AJUDAN ENGINEER IV CHIEF, PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	RECOMMENDING APPROVAL <i>JOSELITO B. CABALLERO</i> JOSELITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED <i>JUBY B. CORDON</i> JUBY B. CORDON REGIONAL DIRECTOR DATE:

CROSS SECTION (CHANNEL 2)

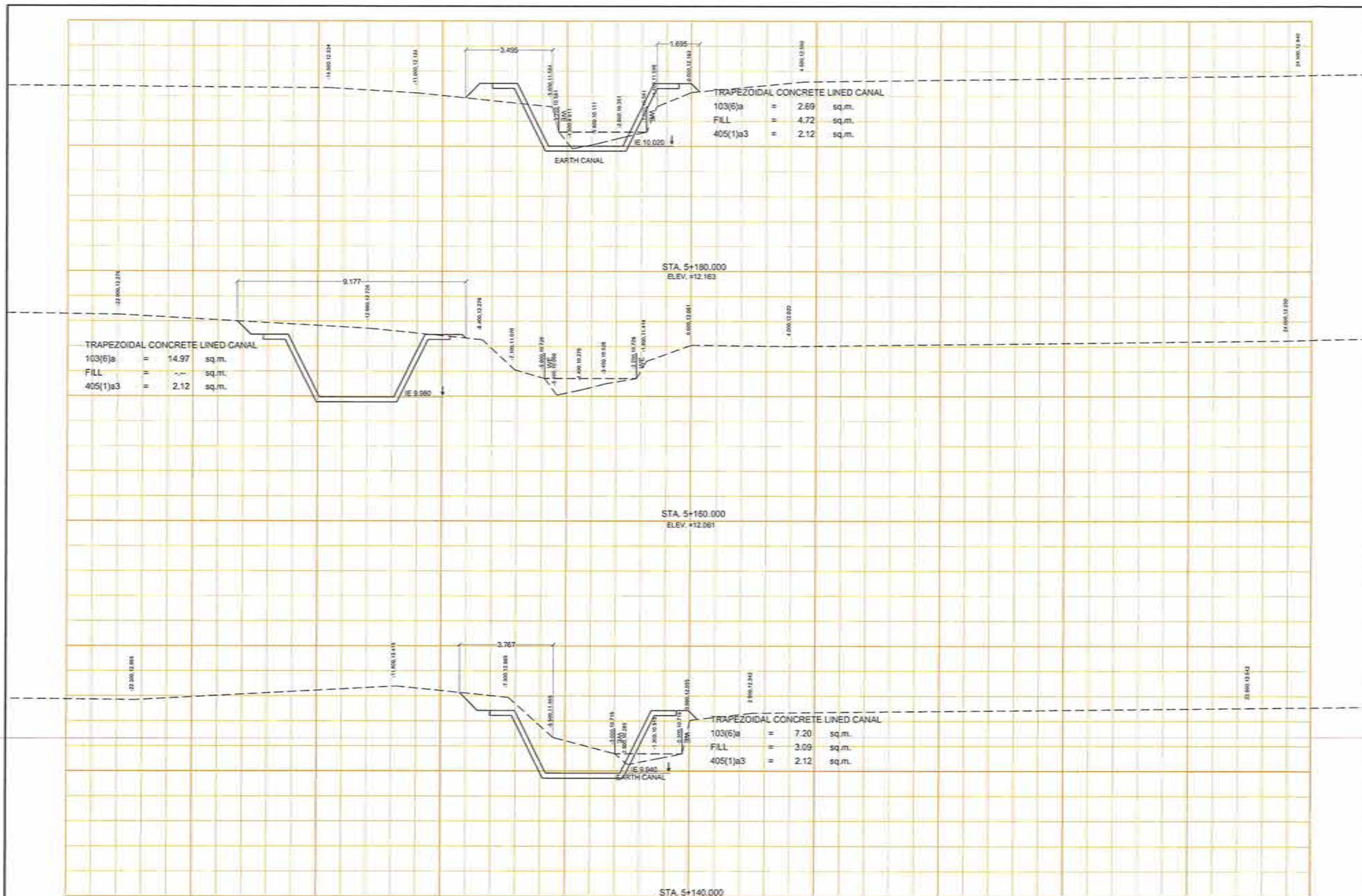


REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAJON/NAKAY SAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION: REHABILITATION OF DRAINAGE ALONG NATIONAL ROADS - DAANG MAHARLIKA (MN) K1475 + 367 - K1476 + 580 K1477 + 000 - K1477 + 087, DAVAO CITY	SHEET CONTENTS: PLAN & PROFILE	SURVEYED: JAY H. MARASIGAN ENGINEER II REVIEWED: DAVAO M. CARIAGA ENGINEER III, SECTION CHIEF	PREPARED BY: MAXWELL V. PENORIA ENGINEER II REVIEWED BY: ALAN JOHN R. SOTTO ENGINEER II, SECTION CHIEF	For and in the absence of the Chief Planning & Design Division AGNES S. AUDAN Engineer IV JUDY ANNE T. BERNARDINO CHIEF ENGINEERING DIVISION DATE: DEC 05 2024	RECOMMENDING APPROVAL: JOSEPITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: JUDY B. CORDON REGIONAL DIRECTOR DATE:	SET NO. E 614	SHEET NO. 36 45
	D:\2023 FLOOD CONTROL FILES\2023 INFRA PROJECTS\NO. 31_SASANGI CONST. UPGRADE\REHAB OF DRAINAGE AL. NATL RD CONSOLIDATED\5+020.000-5+025.554\5+020.000-5+190.000.DWG								

Tuesday, December 03, 2024



REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XII RAMON MAGSAYSAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	For and in the absence of the Chief Planning & Design Division	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	REHABILITATION OF DRAINAGE ALONG NATIONAL ROADS - DAANG MAHARLIKA (MN) K1476 + 367 - K1476 + 580 K1477 + 000 - K1477 + 087, DAVAO CITY	PLAN & PROFILE	DAVID M. CASARDA ENGINEER II DAVID M. CASARDA ENGINEER II, SECTION CHIEF	DAVID M. CASARDA ENGINEER II DAVID M. CASARDA ENGINEER II, SECTION CHIEF	AGNES S. AUDAN ENGINEER IV JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	AGNES S. AUDAN ENGINEER IV JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	E 714



REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAMON SINGSAY AVE., CORNER DOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	FOR AND IN THE ABSENCE OF THE Chief Planning & Design Division	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	REHABILITATION OF DRAINAGE ALONG NATIONAL ROADS - DAANG MAHARLIKA (MN) K1476 + 367 - K1476 + 580 K1477 + 000 - K1477 + 087, DAVAO CITY	PLAN & PROFILE	SURVEYED: JAY H. MARCOS ENGINEER I REVIEWED: DAVIDO B. SAGAGA ENGINEER II, ELECTRONIC DESK	PREPARED: NOWELL V. PENONIA ENGINEER I REVIEWED: ALAN JOHN R. SOTTO ENGINEER II, ELECTRONIC DESK	AGNES S. AUDAN Engineer IV JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE: DEC 05 2024	JOSEITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	JUBY B. CORDON REGIONAL DIRECTOR DATE:	E 814	38 45

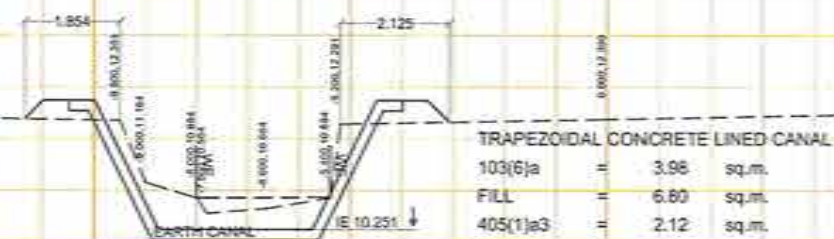


REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI RAJON MAGSAYSAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	DESIGNED	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	REHABILITATION OF DRAINAGE ALONG NATIONAL ROADS - DAANG MAHARLIKA (DMR) K1475+367 - K1477+587 K1477+000 - K1477+587, DAVAO CITY	PLAN & PROFILE	JAY H. NARDOZ ENGINEER II	NOVELL V. PENONIA ENGINEER II	AGNES S. AUDAN Engineer IV	JOSELYN B. CABALLERO ASSISTANT REGIONAL DIRECTOR	JUBY B. CORDON REGIONAL DIRECTOR	E 914	39 45
			REVIEWED	REVIEWED	DATE	DATE	DATE		
			DANLOM CARRERA ENGINEER II, SECTION CHIEF	ALAN JOHN R. SOTTO ENGINEER II, SECTION CHIEF	DEC 05 2024				

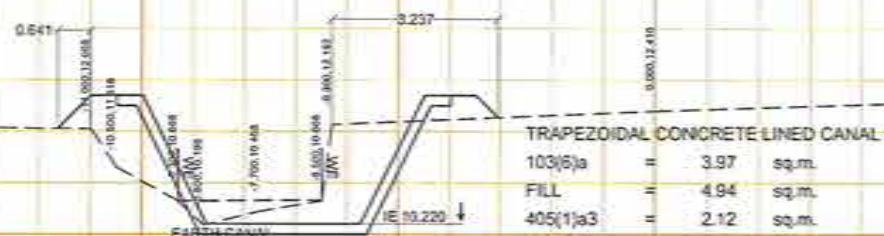
For and in the absence of the
Chief, Planning & Design Division

D:\025 FLOOD CONTROL FILES\ 2025 INFRA PROJECTS\DMR_3_LASANGI CONST. UPGRADING REHAB OF DRAINAGE AL. NHTL RD CONSOLIDATED\5+200.000 - 5+205.584\5+200.000-5+205.584.DWG

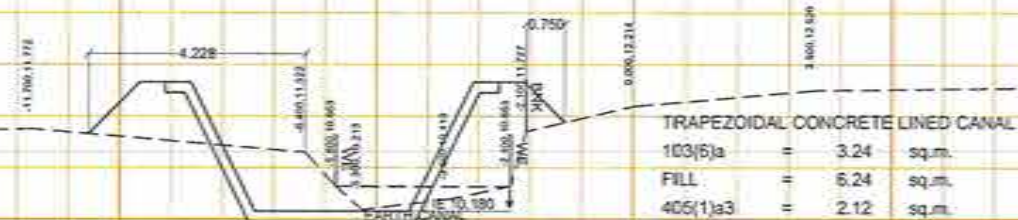
Tuesday, December 03, 2024



STA. 5+295.554
ELEV. = 12.390

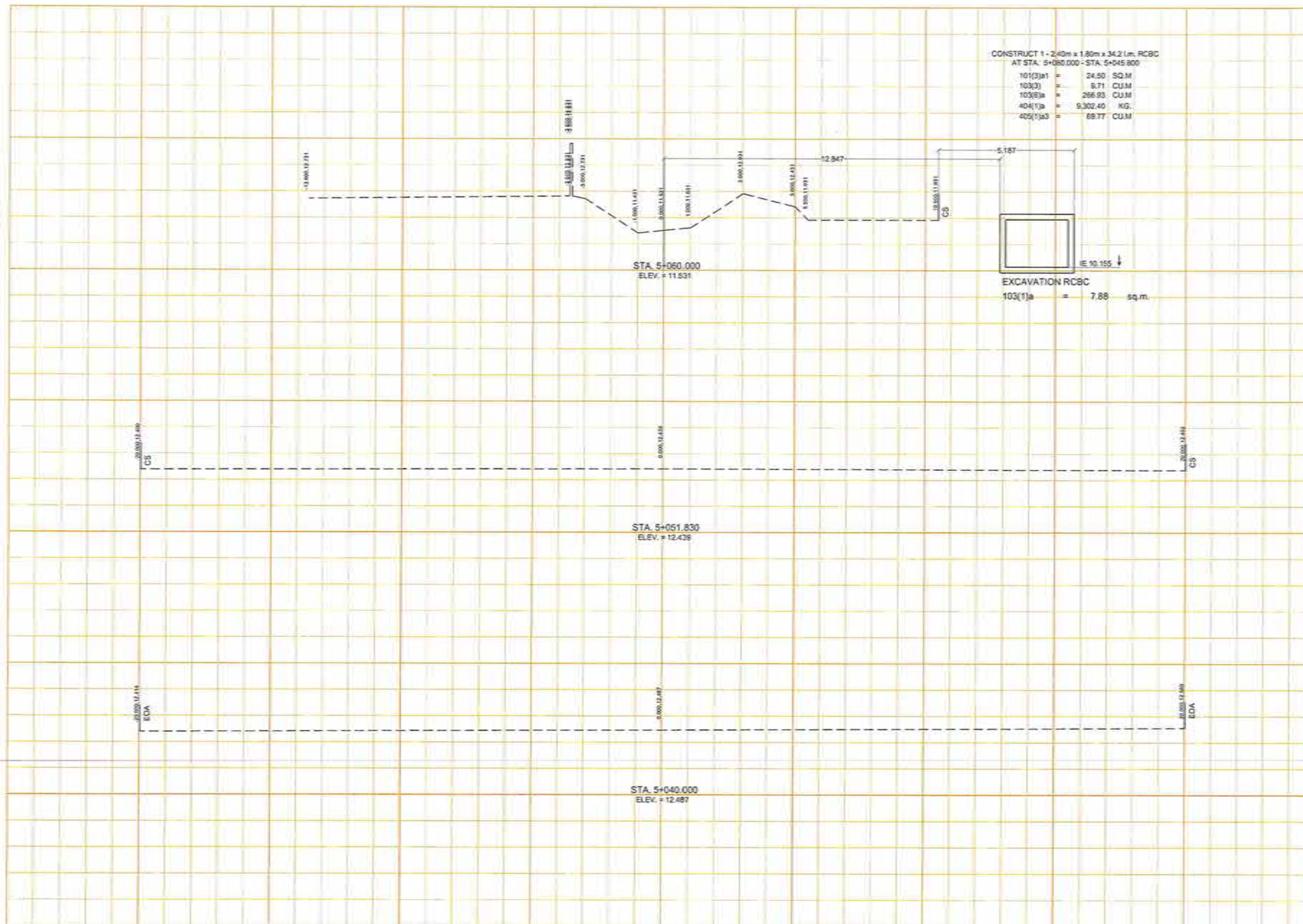


STA. 5+280.000
ELEV. = 12.416



STA. 5+260.000
ELEV. = 12.214

CROSS SECTION (CHANNEL 3)



REPUBLIC OF THE PHILIPPINES
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
 REGIONAL OFFICE NO. XI
 RAMON MAGSAYSAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY

PROJECT NAME AND LOCATION
 REHABILITATION OF DRAINAGE ALONG NATIONAL
 ROADS - DAANG MAHARLIKA (MN)
 K1476 + 357 - K1476 + 580
 K1477 + 000 - K1477 + 087,
 DAVAO CITY

SHEET CONTENTS:
 PLAN & PROFILE

SURVEYED:
 JAY R. TANGCO
 ENGINEER I
 REVIEWED:
 CARLOS M. CASAGA
 ENGINEER II, SECTION CHIEF

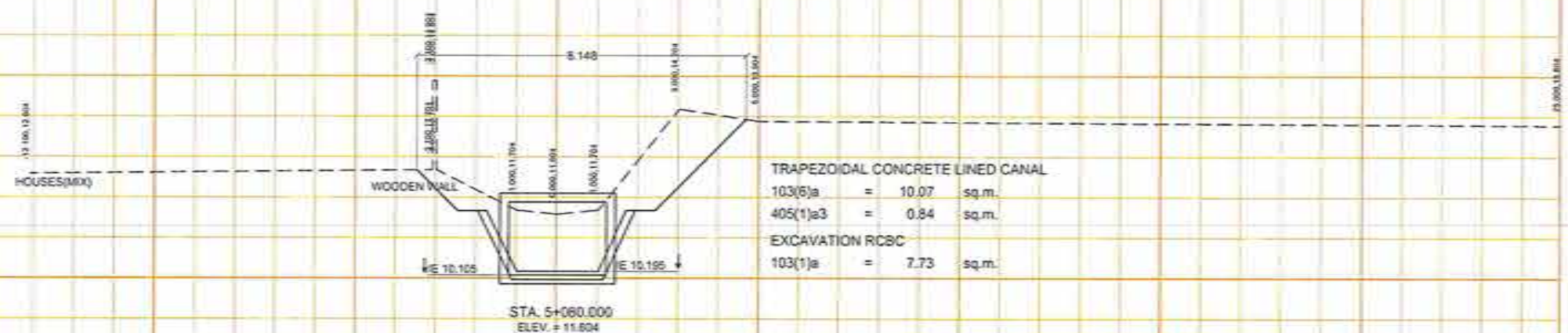
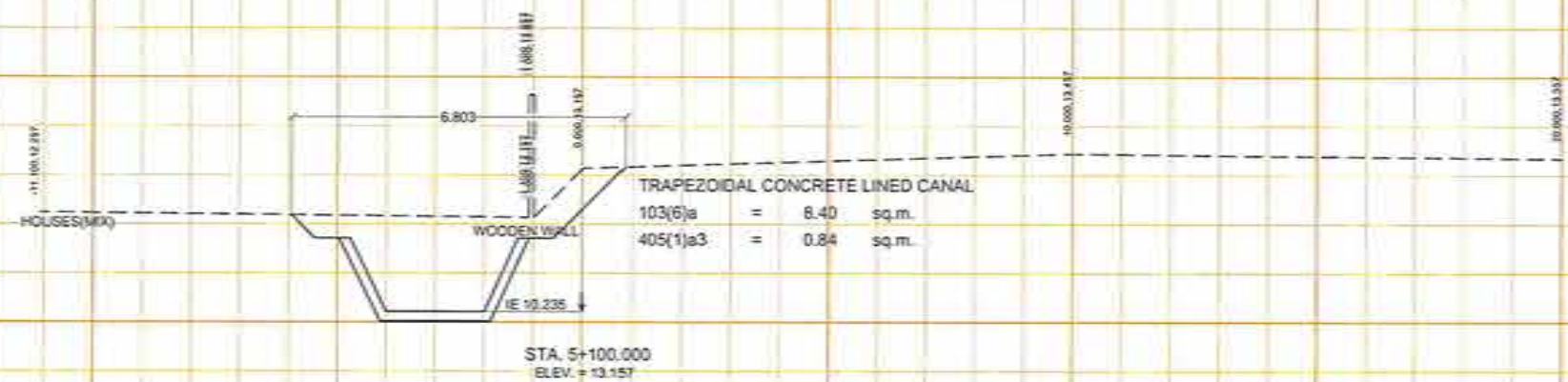
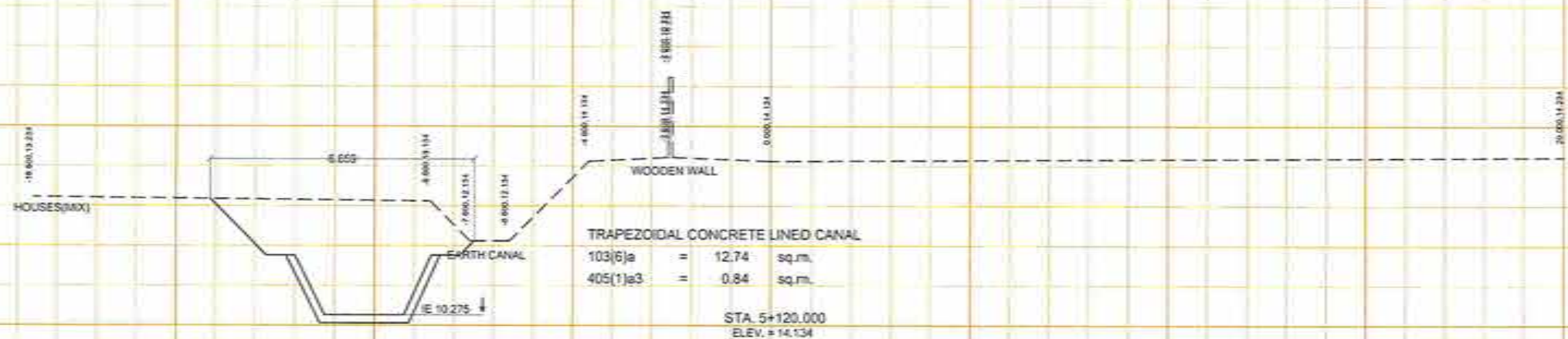
PREPARED:
 NEWELL V. PENONIA
 ENGINEER I
 REVIEWED:
 ALAN JOHN B. SOTTO
 ENGINEER II, SECTION CHIEF

For and in the absence of the
 Chief, Planning & Design Division
 AGNES S. AUDAN
 Engineer IV
 JUDY ANN T. BERNARDINO
 ENGINEER III, DESIGN DIVISION
 DATE: DEC 05 2024

RECOMMENDING APPROVAL
 JOSELYN S. CABALLERO
 ASSISTANT REGIONAL DIRECTOR
 DATE:

APPROVED
 JUBY B. CORDON
 REGIONAL DIRECTOR
 DATE:

SET NO. 1114
 SHEET NO. 41/45



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
RAMON MASSA-SAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY

PROJECT NAME AND LOCATION
REHABILITATION OF DRAINAGE ALONG NATIONAL
ROADS - DAANG MAHARLIKA (M/R)
K1475 + 357 - K1476 + 580
K1477 + 000 - K1477 + 087,
DAVAO CITY

SHEET CONTENTS
PLAN & PROFILE

SURVEYED:
JAY M. MARCOS
ENGINEER II
REVIEWED:
DANIEL M. CABRERA
ENGINEER II, SECTION CHIEF

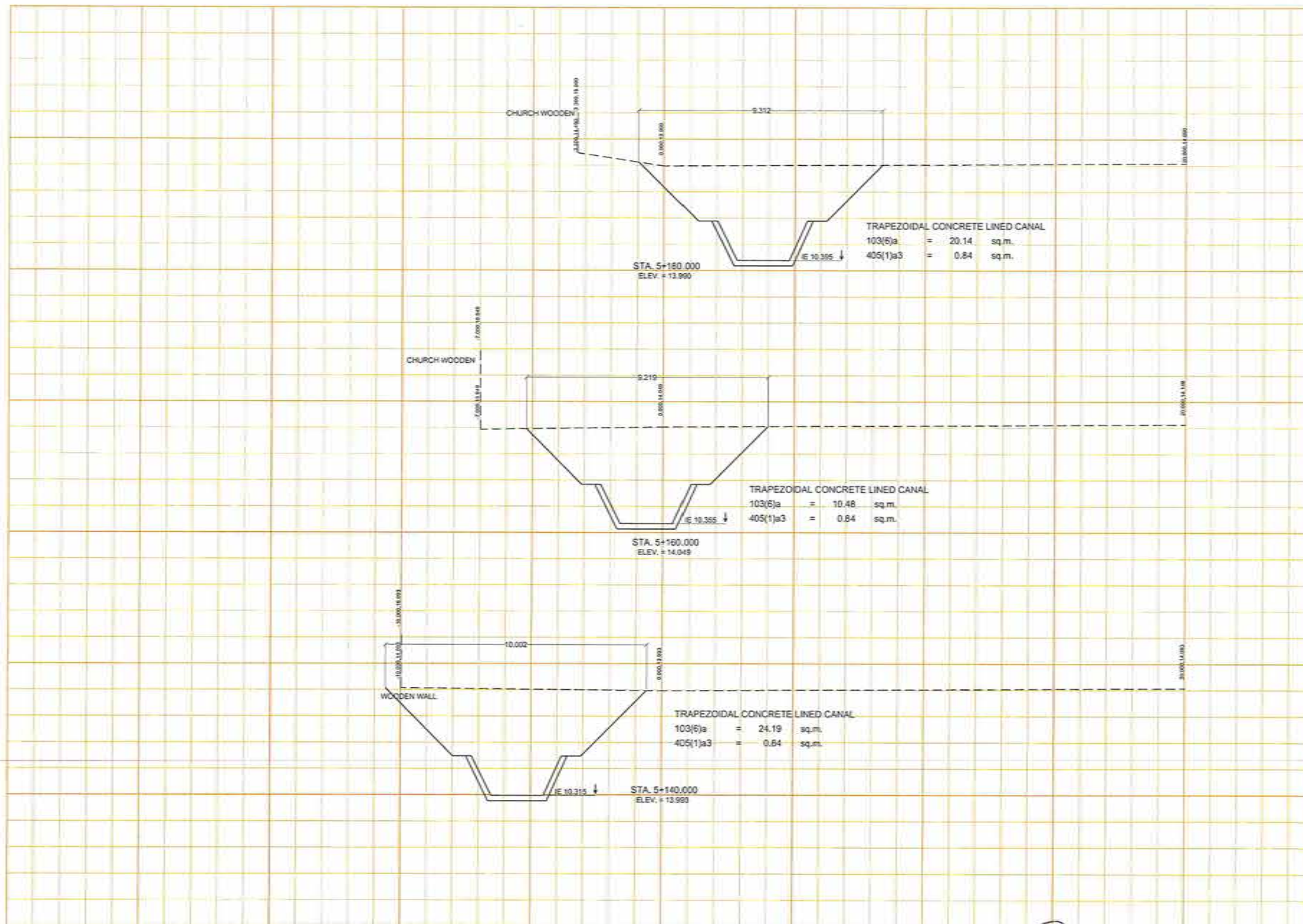
PREPARED:
NOVELL V. PENONIA
ENGINEER I
REVIEWED:
MAIN JOHN R. SOTTO
ENGINEER II, SECTION CHIEF

For and in the absence of the
Chief, Planning & Design Division
AGNES S. AUDAN
Engineer IV
JUDY ANNT. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE: DEC 05 2024

RECOMMENDING APPROVAL:
JOSE LITO S. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
JUBY B. CORDON
REGIONAL DIRECTOR
DATE:

SET NO. 42
SHEET NO. 45



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
RAMPONASAYSAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY

PROJECT NAME AND LOCATION:
REHABILITATION OF DRAINAGE ALONG NATIONAL
ROADS - DAANG MAHARLIKA (MN)
K1476 + 367 - K1476 + 580
K1477 + 000 - K1477 + 087,
DAVAO CITY

SHEET CONTENTS:
PLAN & PROFILE

SURVEYED:
JAY H. MARCOS
ENGINEER II

REVIEWED:
DAVID M. GARCIA
ENGINEER II, SECTION CHIEF

PREPARED:
NOWELL V. PENONIA
ENGINEER II

REVIEWED:
ALAN JOHN R. SOTTO
ENGINEER II, SECTION CHIEF

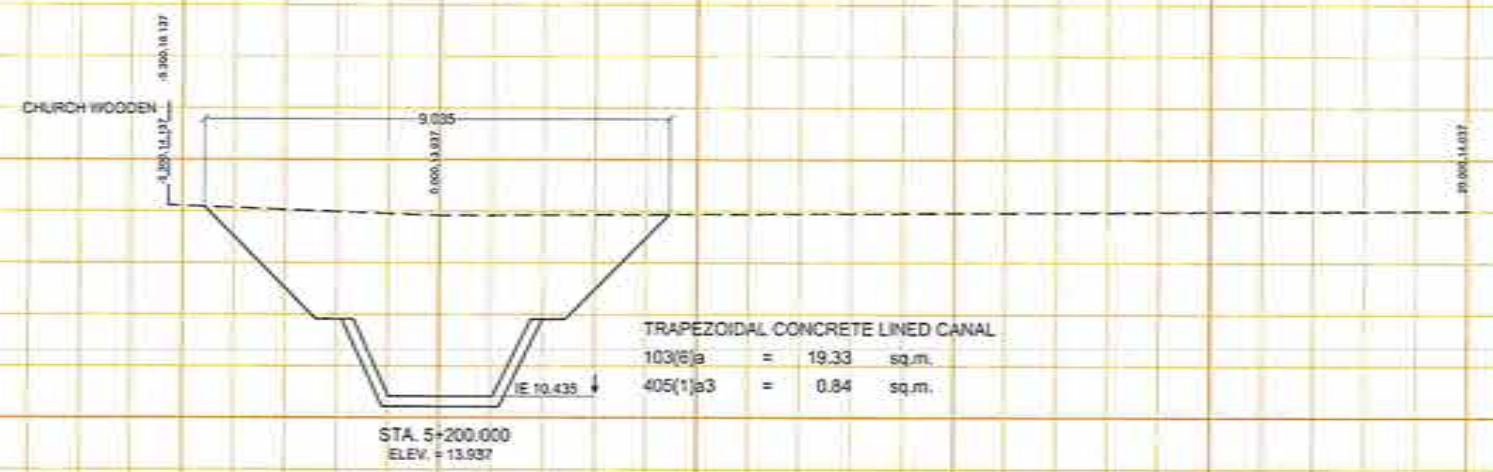
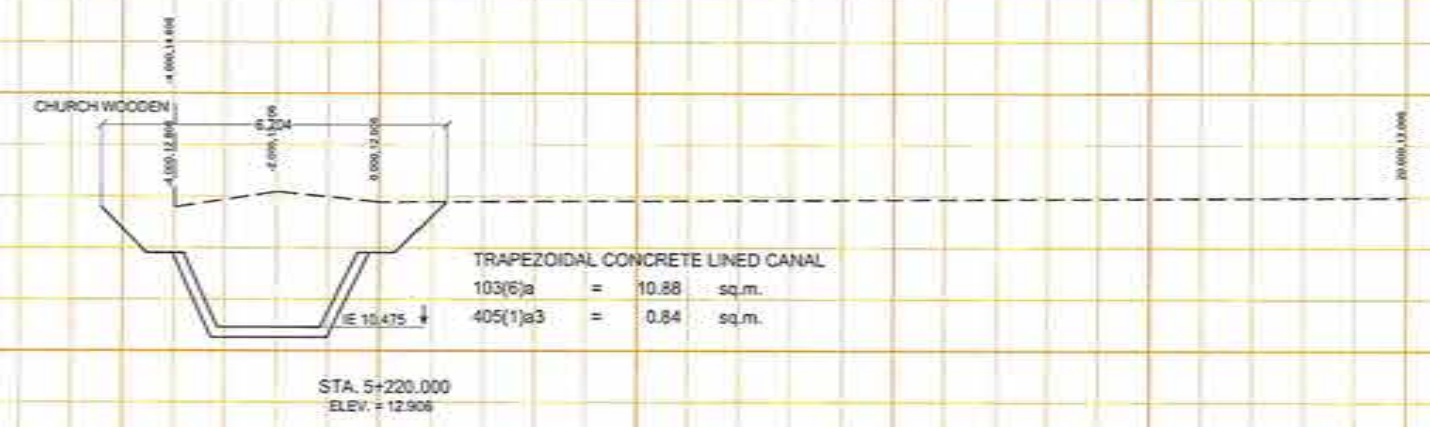
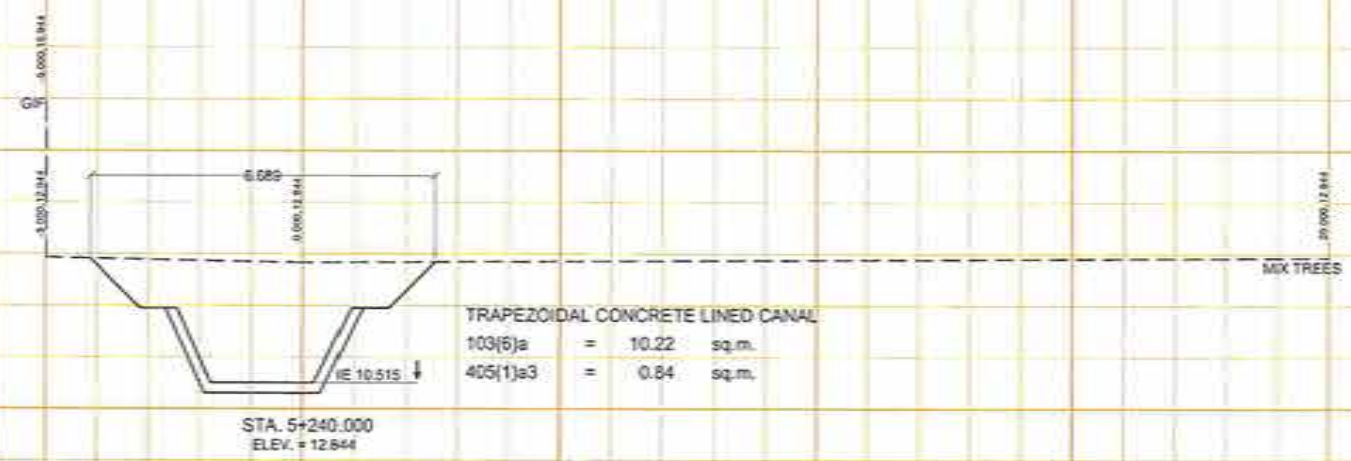
For and in the absence of the
Chief Planning & Design Division

AGNES S. AUDAN
Engineer IV
JUDY ANN P. BERNARDINO
CHIEF PLANNING & DESIGN DIVISION
DATE: DEC 05 2024

RECOMMENDING APPROVAL:
JOSELYN B. CABALLERO
ASSISTANT REGIONAL DIRECTOR

APPROVED:
JUBY B. CORDON
REGIONAL DIRECTOR

SET NO. E 1314
SHEET NO. 43 45



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
RAVON WAGSAYSAY AVE., CORNER GOV. CHAVEZ ST., DAVAO CITY

PROJECT NAME AND LOCATION
REHABILITATION OF DRAINAGE ALONG NATIONAL
ROADS - DAANG MAHARLIKA (MN)
K1475 + 357 - K1475 + 580
K1477 + 000 - K1477 + 087,
DAVAO CITY

SHEET CONTENTS
PLAN & PROFILE

SURVEYED
JAY H. MANABOS
ENGINEER II
REVIEWED
DANIEL M. CARIAGA
ENGINEER II, SECTION CHIEF

PREPARED
MORILL V. PENONIA
ENGINEER I
REVIEWED
ALAN JOHN R. SOTTO
ENGINEER II, SECTION CHIEF

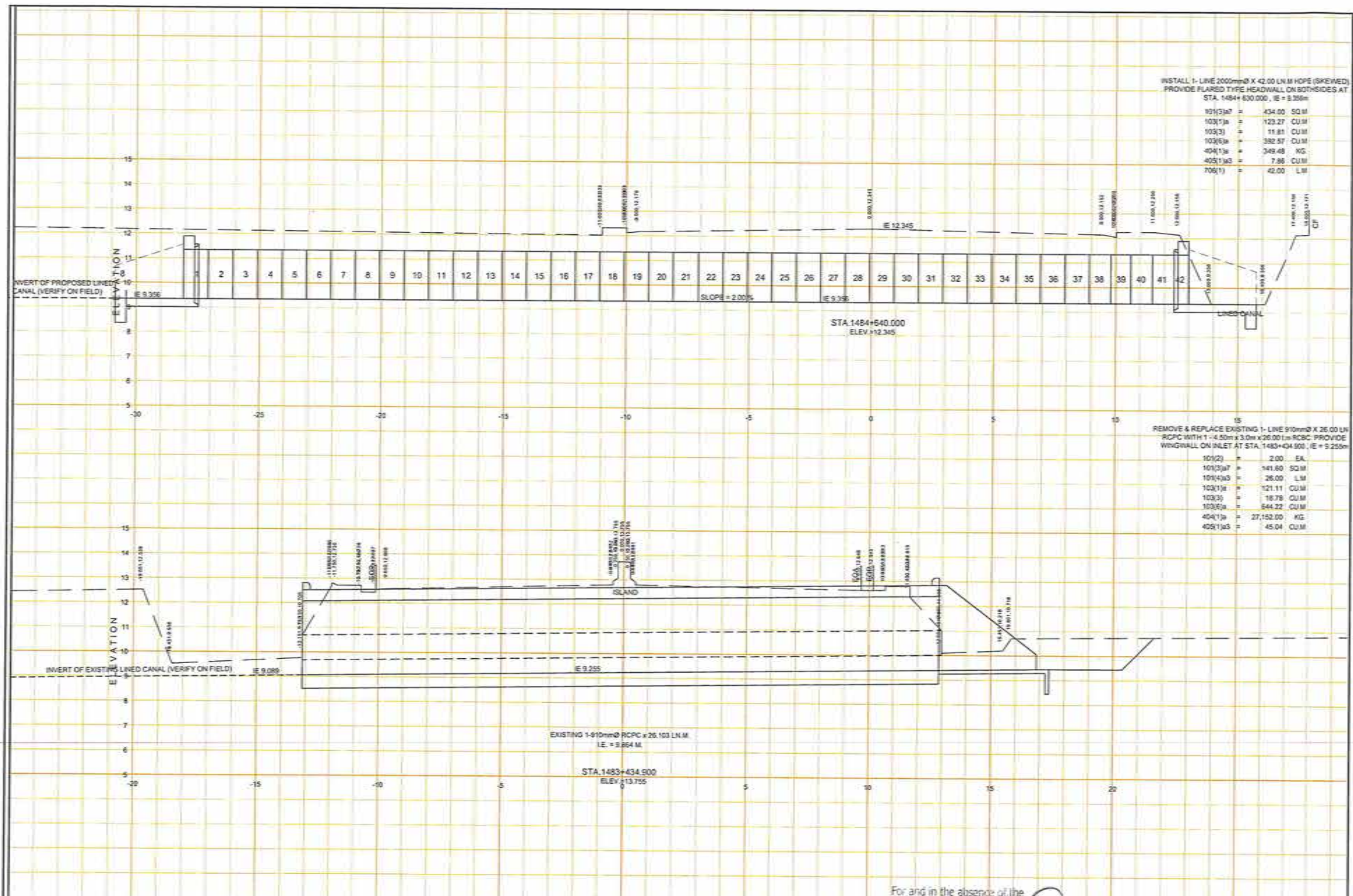
For and in the absence of the
Chief Planning & Design Division
AGNES S. AUDAN
Engineer IV
JUDY ANNT BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE: DEC. 05 2024

RECOMMENDING APPROVAL
JOSELYN CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED
JUBY B. CORDON
REGIONAL DIRECTOR
DATE:

SET NO. 44
SHEET NO. 45

CROSSDRAIN CROSS SECTION



REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CORNELIO ST. COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: CONSTRUCTION OF DRAINAGE STRUCTURE ALONG ROAD - MAHARLIKA HIGHWAY K1484 + 1500 - K1484 + 722, K1485 + 200 - K1485 + 630, DAVAO CITY	SHEET CONTENTS: CROSSDRAIN CROSS SECTIONS	DRAFTED AND PREPARED: NEIL V. PENOMA ENGINEER II DATE:	REVIEWED: AGNES S. AUDAN ENGINEER IV JUDY ANN T. BERNARDO CHIEF ENGINEER II DATE: DEC 05 2024	For and in the absence of the Chief Planning & Design Division SUBMITTED: AGNES S. AUDAN ENGINEER IV JUDY ANN T. BERNARDO CHIEF ENGINEER II DATE: DEC 05 2024	RECOMMENDING APPROVAL: JOSE LUIS CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED: JUDY B. GORDON REGIONAL DIRECTOR DATE:	SET NO. E-15	SHEET NO. 45/45
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