REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

REGION XI

DAVAO DEL NORTE

2ND DISTRICT ENGINEERING OFFICE

TAGUM CITY

C.Y. 2025 PROJECT

DETAILED ENGINEERING DESIGN PLAN FOR

TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 989 - K1505 + 035, K1508 + 593 - K1508 + 643, K1509 + 000 - K1509 + 106, K1510 + 588 - K1510 + 852, K1510 + 880 - K1511 + 139, K1513 + 000 - K1514 + 000

SECTION	:	TAGUM-PANABO CIRCUMFERENTIAL ROAD (TUBOD SECTION)
LOCATION	:	CARMEN, DAVAO DEL NORTE
STATION LIMITS	:	K1504 + 216.00 - K1504 + 606.00 (4 LANES) K1504 + 606.00 - K1504 + 906.00 (2 LANES) K1504 + 906.00 - K1504 + 959.00 (4 LANES) K1504 + 989.00 - K1505 + 035.00 (4 LANES) K1508 + 593.00 - K1508 + 643.00 (4 LANES) K1509 + 000.00 - K1509 + 106.00 (4 LANES) K1510 + 588.00 - K1510 + 852.00 (4 LANES) K1510 + 880.00 - K1511 + 139.00 (4 LANES) K1513 + 000.00 - K1514 + 000.00 (4 LANES)
NET LENGTH	:	2,467.00 LN.M. (9.268 LANE KM.)
ROAD SECTION I.D.	:	S01365MN

SUBMITTED:

JEZABEL E. TULING, MPA
CHIEF, PLANNING AND DESIGN SECTION

DATE:

RECOMMENDED:

GARRY E. VERANO
OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER

DATE:

APPROVED:

ARTURO P. LONGYAPON
DISTRICT ENGINEER

DATE:

PROJECT LIMITS:

BEG. OF PROJECT/BEG. OF SECTION 1 :	K1504 + 216.00
END OF SECTION 1 :	K1504 + 959.00
	743.00
BEG. OF SECTION 2 :	K1504 + 989.00
END OF SECTION 2 :	K1505 + 035.00
	54.00
BEG. OF SECTION 3 :	K1508 + 593.00
END OF SECTION 3 :	K1508 + 643.00
	50.00
BEG. OF SECTION 4 :	K1509 + 000.00
END OF SECTION 4 :	K1509 + 106.00
	106.00
BEG. OF SECTION 5 :	K1510 + 588.00
END OF SECTION 5 :	K1510 + 852.00
	264.00
BEG. OF SECTION 6 :	K1510 + 880.00
END OF SECTION 6 :	K1511 + 139.00
	226.00
BEG. OF SECTION 7 :	K1513 + 000.00
END OF SECTION 7 :	K1514 + 000.00
	1,024.00

PROJECT NET LENGTH : 2,467.00 LN.M.

Sheet List Table

Sheet Number	Sheet Title
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4	GENERAL NOTES (1)
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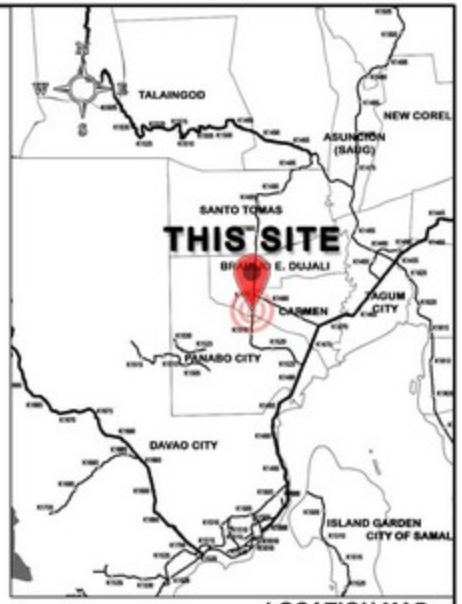
7	280 MM PCCP DETAILS - REBLOCKING (2) AND SCHEDULES
8	280 MM PCCP DETAILS - REBLOCKING ON BOTH SIDES
9	STRAIGHT LINE DIAGRAM AND SCHEDULES
10	GUARDRAIL DETAILS AND SCHEDULE
11	REGULATORY SIGN DETAILS AND SCHEDULE
12	REFLECTORIZED THERMOPLASTIC PAVEMENT MARKING DETAIL AND SCHEDULE
13	TRAFFIC MANAGEMENT LAYOUT
14	TRAFFIC SIGN
15	STANDARD DPWH AND COA BILLBOARD
16-22	PLAN AND PROFILE
23 - 59	CROSS SECTION

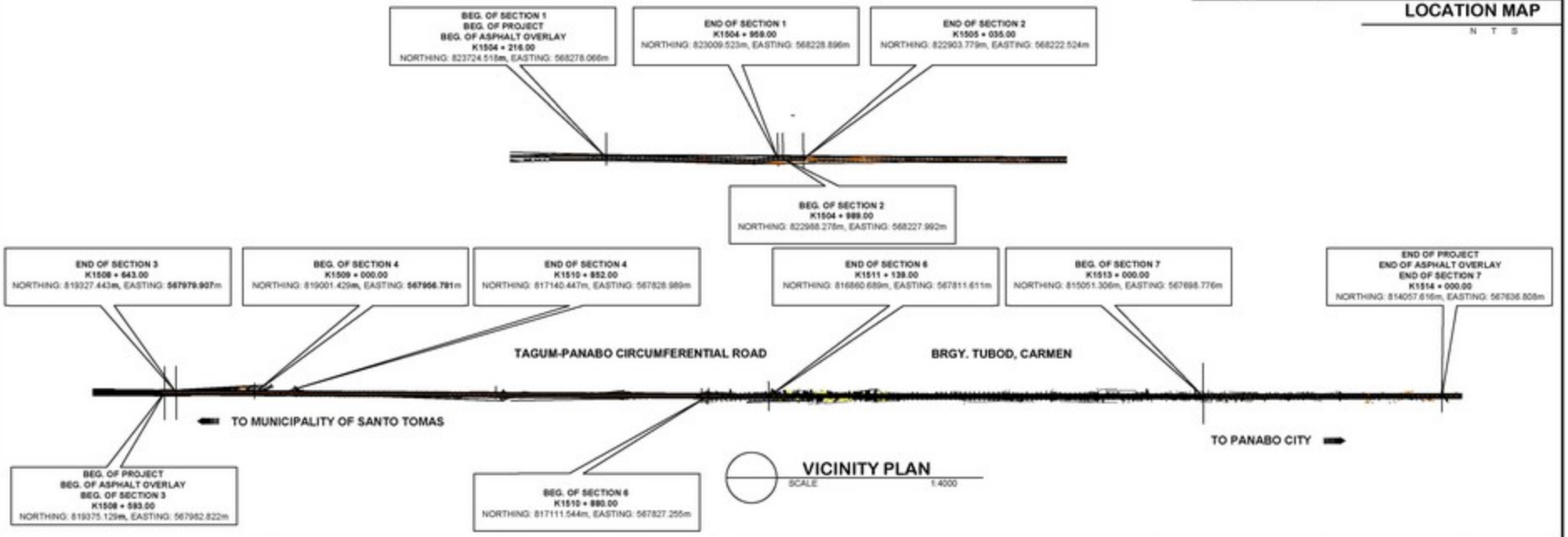
RBIA:

K 1504 + 000.00 TO K 1505 + 000.00	1008.00 LN.M.
K 1508 + 000.00 TO K 1509 + 000.00	970.00 LN.M.
K 1509 + 000.00 TO K 1510 + 000.00	1015.00 LN.M.
K 1510 + 000.00 TO K 1511 + 000.00	967.00 LN.M.
K 1513 + 000.00 TO K 1514 + 000.00	1024.00 LN.M.



LOCATION MAP

N T S



VICINITY PLAN

SCALE 1:4000

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION XI DAVAO DEL NORTE 2ND DISTRICT ENGINEERING OFFICE TAGUM CITY	PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 989 - K1505 + 035, K1508 + 593 - K1508 + 643, K1509 + 000 - K1509 + 106, K1510 + 588 - K1510 + 852, K1510 + 880 - K1511 + 139, K1513 + 000 - K1514 + 000	SHEET CONTENTS: PROJECT LIMITS, LOCATION PLAN, VICINITY MAP AND INDEX OF SHEETS	DRAFTED: HERWIN JOAN J. HABABAG ENGINEER II RECOMMENDING: WARREN S. PIÑEZ ENGINEER II	REVIEWED: BENILDA S. PACQUIAO ENGINEER III DATE:	SUBMITTED: JEZABEL E. TULING, MPA CHIEF, PLANNING AND DESIGN SECTION DATE:	RECOMMENDED: GARRY M. VERANO OFFICE OF ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: ARTURO P. TONGYAPON DISTRICT ENGINEER DATE:	SET NO. A 1 1	SHEET NO. 1 59

SUMMARY OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	REMARKS
PART A	**FACILITIES FOR THE ENGINEER**			
A.1.2 (2)	Provision of 4x4 Pick Up Type Service Vehicle for the Engineer on Bare Rental Basis	vehicle-month	4.88	
A.1.2 (5)	Operation and Maintenance of 4x4 Pick Up Type Service Vehicle for the Engineer	vehicle-month	4.88	
PART B	**OTHER GENERAL REQUIREMENTS**			
B.4 (1)	Construction Survey and Staking	km.	2.47	
B.5	Project Billboard / Signboard	ea	4.00	COA and DPWH
B.7 (2)	Occupational Safety and Health Program	ls	1.00	
B.8 (2)	Traffic Management	ls	1.00	
B.9	Mobilization / Demobilization	ls	1.00	
PART C	**EARTHWORKS**			
101 (3)b3	Removal of Actual Structures/Obstruction (0.23n thk. PCCP - Unreinforced)	sq.m.	905.00	For Reblocking (See Schedule)
101 (3)c1	Removal of Actual Structures/Obstruction (0.05m thk. ACP)	sq.m.	5,675.00	
102 (1)	Unsuitable Excavation	cu.m.	418.00	
105 (1)a	Subgrade Preparation (Common Material)	sq.m.	1,307.02	
PART D	**SURFACE COURSE**			
200 (1)	Aggregate Subbase Course	cu.m.	261.00	
PART E	**SURFACE COURSE**			
300 (1)	Gravel Surface Course	cu.m.	575.00	For Gravel Shouldering
302 (2)	Emulsified Asphalt	sq.m.	62,301.96	
310 (1)b	Bituminous Concrete Surface Wearing Course, Hot Laid (40mm thk)	sq.m.	32,422.51	
310 (2)b	Bituminous Concrete Surface Binder Course, Hot Laid (40mm thk)	sq.m.	43,681.58	
311 (1)e1	PCC Pavement (Unreinforced), 0.28 m. thk., 14 days	sq.m.	1,337.17	
PART G	**DRAINAGE AND SLOPE PROTECTION STRUCTURES**			
PART H	**MISCELLANEOUS STRUCTURES**			
603 (3)a1	Metal Guardrail (Metal Beam) including Post, Single, W-Beam	l.m.	1,686.17	See Schedule
603 (4)b	Metal Beam End Piece, Bull Nose	ea	24.00	See Schedule
605 (2)ak2	Regulatory signs, 600mm, R6-10B, Miscellaneous signs Bike Lane sign	ea	50.00	See Schedule
612 (1)	Reflectorized Thermoplastic Pavement Markings (White)	sq.m.	1,406.46	See Schedule
612 (2)	Reflectorized Thermoplastic Pavement Markings (Yellow)	sq.m.	27.60	See Schedule
613 (1)	Concrete Joint Sealant (Hot-Poured Elastic Type)	kg.	328.80	

NOTE: THE QUANTITIES OF ALL WORK ITEMS INVOLVED ARE SUBJECT TO INCREASE/DECREASE AS PER ACTUAL FIELD REQUIREMENTS.

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SHEET CONTENTS: SUMMARY OF QUANTITIES

DRAFTED: HERWIN JOAN J. HABABAG, Engineer II
PREPARED: WARREN S. PIÑEZ, Engineer II

REVIEWED: BENILDA S. PACQUIAO, Engineer III, DATE:

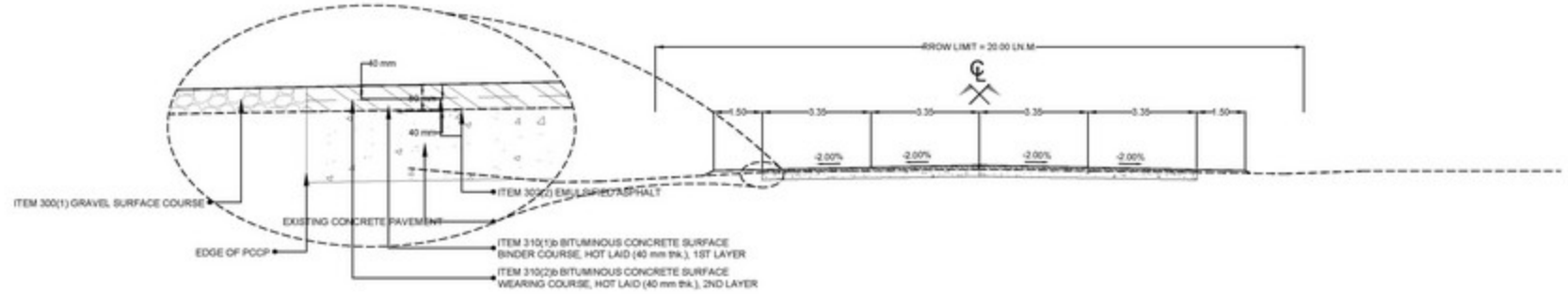
SUBMITTED: JEZABEL E. TULING, MPA, Chief, Planning and Design Section, DATE:

RECOMMENDED: GARRY M. VERANO, Officer-in-Charge, Office of Assistant District Engineer, DATE:

APPROVED: ARTURO P. TONGYAPON, District Engineer, DATE:

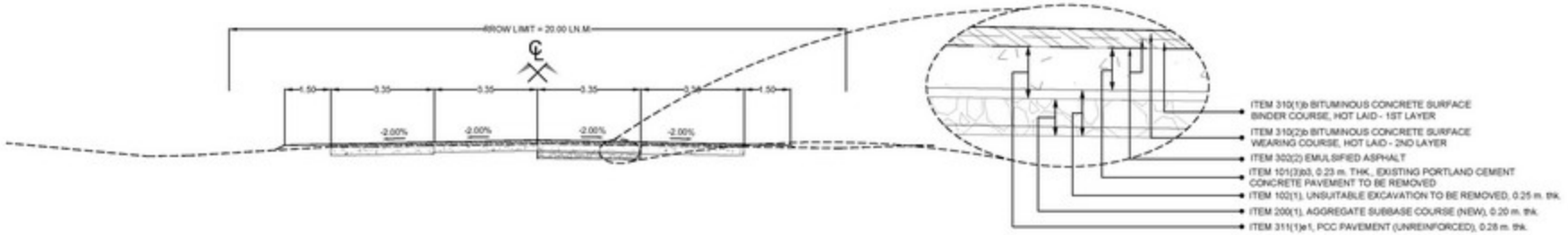
SET NO. 8 | 1 | 1

SHEET NO. 2 / 59



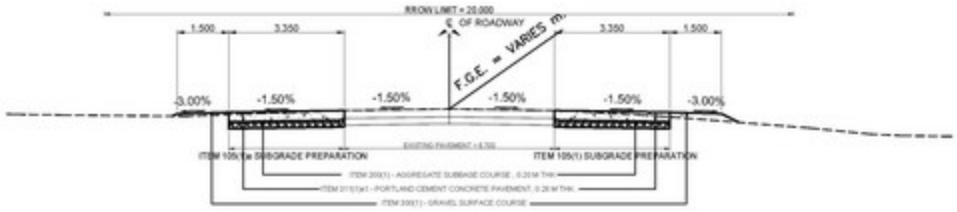
TYPICAL ROADWAY SECTION SHOWING FOUR (4) LANES WITH PROPOSED ASPHALT OVERLAY (80mm thk.)

SCALE 1 : 100 M.



TYPICAL ROADWAY SECTION SHOWING FOUR (4) LANES WITH REBLOCKING

SCALE 1 : 100 M.



TYPICAL ROADWAY SECTION 2 AT NORMAL CROWN WITH REBLOCKING ON BOTH SIDES

SCALE 1 : 100 M.

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SHEET CONTENTS: TYPICAL ROADWAY SECTION (1)

DRAFTED: HERWIN JOAN J. HARABAG, ENGINEER II
RECHECKED: WARREN S. PIÑEZ, ENGINEER II

REVIEWED: BENILDA S. PACQUIAO, ENGINEER III, DATE:

SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:

RECOMMENDED: GARRY M. VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:

APPROVED: ARTURO P. TONGYAPON, DISTRICT ENGINEER, DATE:

SET NO.: C 1 1

SHEET NO.: 3 59

G E N E R A L N O T E S
R O A D W A Y

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.

SURVEY SPECIFICATIONS

1. All project control points are projected in PRS '92 Grid Coordinate System (Zone 5).
2. Survey instrument used, Stonex S900 (Base) SN: S900281940030, Stonex S900 (Rover) SN: S900281940027.
3. Date Surveyed: November 12-14, 2024.
4. Project control points, refer to plan and profile.

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 refer 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 adjustments to suit actual field conditions.
2. Distances and elevations are in meter unless otherwise indicated.
3. Grades 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 the provisions of Clause 75 of the DPWH Standard Specifications, Volume 1, Requirements and Conditions of Contract (2013).
6. The contractor shall continuously keep the road undergoing improvement and the section detours in such condition satisfactory to the Engineer that traffic will be accommodated during the entire contract period without any inconvenience to the traveling public in accordance to Clause 38 of the DPWH Standards Specifications, Volume 1, Requirements and Conditions of Contract (2013). The contractor shall bear all expenses for constructing, reconstructing if necessary and maintaining such road detours, approaches, including run-around temporary bridges without compensation.
7. The apparent silence of specifications, plans, special provisions and supplementary specifications, as to any detail or the apparent omission from them of a 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.
8. 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 of flares, shall be provided. All lights for this purpose shall be kept burning from sunset to sunrise.
9. 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.
10. Before the start of actual construction, the As-Staked Plan should be submitted to the Davao del Norte Sub-District Engineering Office in order that immediate steps may be taken to correct or adjust whatever appreciable deviation there may be from the original plan.
11. Quarry site for Item 200 is Mabuhay, Carmen (25.25 km.) and Item 104 is Magwawa, Sto. Tomas (36.00 km.) from the project site. Disposal site is one (1) km outside project limit.
12. Design was based on survey data submitted by the Surveys and Investigation Unit of the Planning and Design Section of the DPWH-Davao del Norte Sub-District Engineering Office.

EARTHWORK

1. 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.
2. 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.
3. 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.
4. 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 saturated with water then dried before placing the succeeding layers. The procedure shall be repeated until the desired elevation is attained.
5. 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.
6. Cut slopes, except in rocks and fill slopes shall be adjusted and warped to flow into each other or into natural ground surface without noticeable break.
7. Approaches and road connections shall be constructed as shown on the plans or as directed by the Engineer in such manners as to ensure proper connections to the riding surfaces.
8. 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 COURSE

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, 2004, using vibrating rollers and pneumatic tire rollers. Inareas where the said equipment cannot be used, a portable mechanical compactor shall be used.

SURFACE COURSE

1. Use steel forms for item 311- Portland Cement Concrete Pavement.
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) day 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 60mm 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 PCCP; 36mm dia plain dowel bars for 280mm thick PCCP; 36mm dia. for 300mm thick PCCP) 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 one-half (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.
   -DO 54, s.2012
4. Transverse contraction 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.

DRAINAGE AND SLOPE PROTECTION STRUCTURES

1. Exact locations, gradients, lengths, top and invert elevations of all drainage structures that are required shall be determined in the field by the Engineer.
2. Extensions and other improvements of existing drainage structures are subject to change and shall be determined in the field by the Engineer in-charge.
3. During construction, any existing pipes found damaged or defectives 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.
4. 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 for those items.

FOR ASPHALT OVERLAY

1. Item 310 shall consist of constructing a bituminous concrete surface course composed of aggregates, mineral filler, and bituminous material mixed in a central plant, constructed and laid hot on the prepared base in accordance with this specification and in conformity with lanes, grades, thickness and typical cross-section shown on the plans.
2. Bituminous material shall be either medium curing (MC) cut-back asphalt cement, whichever is called for in the bill of quantities. It shall conform to the requirements of ITEM 702, Bituminous Materials. The penetration grade, type and grade of bituminous material shall be specified in the special provisions.
3. Aggregates shall conform to the requirements of ITEM 307, Bituminous Plant Mix Surface.
4. The proportion of bituminous material on the basis of total dry aggregate shall be from 5.0 to 0.8 mass percent. The exact percentage to be used shall be fixed by the engineer in accordance with the job-mix formula and the other quality control requirements.
5. During the mixing operation, one half to one (0.50 to 1.0) mass percent of hydrated lime, dry aggregate basis shall be added to the mixture. The lower percentage limit is applicable to aggregate which are predominantly calcareous.
6. The construction requirements shall be in accordance whenever applicable with SECTION 307.3.
7. All deteriorated transverse and longitudinal joints shall be sealed with asphalt prior to laying of asphalt mix.
8. All cracks shall be sealed using machine pressurized epoxy injection. Spacing of copper tubes used in epoxy injection shall have a minimum and maximum spacing of 100 mm and 150 mm respectively depending on the extent of the cracks.
9. The contractor shall be responsible for handling materials and performing all parts of the work shall be approved by the engineer as to design, capacity and mechanical condition. The equipment shall be at the jobsite sufficiently ahead of the start of construction operations to be examined thoroughly and approved.
10. The Asphalt Overlay must attain an IRI of 3.0 m/km.
11. The Asphalt Plant must be BRS accredited.

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 7 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 shall 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.

CONSTRUCTION REQUIREMENTS

Staking activities shall be included in the construction schedule to be submitted by the contractor. dates and sequence of each staking activity shall be included.

The engineer shall set initial reference lines, horizontal and vertical control points, and shall furnish the data for use in establishing control for the completion of each element of the work. data relating to horizontal and vertical alignments, theoretical slope stake catch points, and other design data shall be furnished.

The contractor shall be responsible for the true settling of the works or improvements and for correctness of positions, levels, dimensions and alignment of all parts of the works. he shall provide all necessary instruments, appliances, materials and supplies, and labor in connection therewith. the contractor shall provide a survey crew supervisor at the project site whenever surveying/staking activity is in progress.

Prior to construction, the engineer shall be notified of any missing initial reference lines, controls, points, or stakes. the engineer shall reestablish missing initial reference lines, controls, points, or stakes.
The contractor for convenient use of government-furnished data shall perform additional calculations. immediate notification of apparent errors in the initial staking or in the furnished data shall be provided.

All initial reference and control points shall be preserved. at the start of construction, all destroyed or disturbed initial reference or control points necessary to the work shall be replaced.

Before surveying and staking, the contractor shall discuss and coordinate the following with the Engineer.

1. SURVEYING AND STAKING METHODS
2. STAKE MARKING/CONCRETE MONUMENTS
3. GRADE CONTROL FOR COURSES OF MATERIAL
4. REFERENCING
5. STRUCTURE CONTROL
6. ANY OTHER PROCEDURES AND CONTROLS NECESSARY FOR THE WORK

REFERENCES:

1. Revised DPWH Manual on Highway Safety Design Standards,May 2013 Edition
   - 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
   - D.O. 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.
   - For monitoring, enforcement and implementation of construction safety and health
   - D.O. 56,s. 2005
3. Design References
   - DPWH Design Guidelines,Criteria & Standards(DGCS),2015 Edition
   - 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
   - AASHTO, A Policy on Geometric Design Standard of Highways and Streets, 2011 6th Edition
   - AASHTO, Guide on Pavement Design, 1993 Edition
   - Highway Safety Design Standards: Part 1 - Road Safety Design, and Part 2 - Road Signs and Pavement Markings, 2012 Edition

This is to certify that the detailed engineering surveys and designs have been conducted according to the prescribed agency standards and specifications in conformance with the provisions of Annex"A" of the Revised Implementing Rules and Regulations of RA 9184,and that the detailed engineering outputs are adequate for the procurement at hand.

WARREN S. PIÑEZ
Head, Survey & Investigation Unit

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION XI DAVAO DEL NORTE 2ND DISTRICT ENGINEERING OFFICE TAGUM CITY	PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD. - K1504 + 210 - K1504 + 950, K1504 + 969 - K1505 + 025, K1506 + 500 - K1506 + 640, K1509 + 000 - K1509 + 108, K1510 + 500 - K1510 + 952, K1510 + 980 - K1511 + 139, K1513 + 550 - K1514 + 000	SHEET CONTENTS: GENERAL NOTES (1)	DRAFTED: HERWIN JOAN J. HARABAG ENGINEER II RECOMMEND: WARREN S. PIÑEZ ENGINEER II	REVIEWED: BENILDA S. PACQUIAO ENGINEER III DATE:	SUBMITTED: JEZABEL E. TULING, MPA CHIEF, PLANNING AND DESIGN SECTION DATE:	RECOMMEND: GARRY M. VERANO OFFICER-IN-CHARGE OFFICE OF ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: ARTURO P. TONGYAPON DISTRICT ENGINEER DATE:	SET NO. D 1 1	SHEET NO. 4 59

ABBREVIATIONS

ABUTMENT	ABUT
AHEAD STATIONING	AH STA
AND	&
AREA	A
ASPHALT CONCRETE PAVEMENT	ACP
AT	@
AZIMUTH	AZIM
BACK STATION	BK. STA.
BARANGAY	BRGY.
BEGINNING OF CIRCULAR CURVE	BCC
BEARING	BRG
BEGINNING	BEG.
BELOW MEAN SEA LEVEL	BMSL
BENCHMARK	BM
BETWEEN	BET
BORE HOLE	BH
BOTH SIDES	BS
BOTH WAYS	BW
BOTTOM	BOT.
BRIDGE	BR.
SUBDIVISION OF DECREASED PROPERTY BY BUREAU OF LANDS SURVEYORS	BSD
BUREAU OF LANDS LOCATION MONUMENT	BLLM
CENTER	CTR.
CENTERLINE	℄
CENTIMETER	cm
CONCRETE HOLLOWBLOCK	CHB
CLEAR	CLR
COLUMN	COL.
CONCRETE	CONC.
CONCRETE HOLLOWBLOCK	CHB
CONCRETE MONUMENT	CONC. MON.
CONSTRUCTION	CONST.
CORNER	COR.
COVER	COV.
CROSS PIPE	CP
CUBIC METER	cu. m. / m3
CYLINDRICAL	CYL.
DEGREE OF CURVE	D
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	DPWH
DETAIL	DET.
DIAMETER	DIA. / Ø
DIAPHRAGM	DIAP.
DISTANCE	DIST.
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	EXPN.
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)	HW / 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	LT.
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
NOT APPLICABLE	NA
NUMBER	NO.
ORDINARY WATER LEVEL	OWL
ORIGINAL GROUND LEVEL	OGL
OUTSIDE DIAMETER	bc
PAVEMENT WIDTH	PW

PAVEMENT WIDTH	PW
PERCENT	%
PHILIPPINES	PHIL.
PIECES	PCS.
PLUS / MINUS	±
PUBLIC LAND SUBDIVISION	PLS
POINT OF INTERSECTION	PI
POINT OF CURVATURE	PC
POINT OF VERTICAL CURVE	PVC
POINT OF VERTICAL INTERSECTION	PVI
POINT OF VERTICAL TANGENT	PVT
POINT OF TANGENT	POT
PORTLAND CEMENT CONCRETE PAVEMENT	PCCP
PROJECT	PROJ.
PROJECT ROAD	PROJ. RD
PRIVATE SURVEY	P.S.
RADIUS	R
REFERENCE POINT	RP
REINFORCED CONCRETE BOX CULVERT	RCBC
REINFORCED CONCRETE PIPE CULVERT	RCPC
RETAINING WALL	RET. WALL
RIGHT OF WAY	ROW
ROAD	RD
SOUTH	S
SIDEWALK	SDWK
SUBDIVISION OF UNDECREASED PROPERTY	Csd
SQUARE	SQ.
SQUARE METER	sq. m. / m2
STANDARD	STD.
STATION	STA.
STRAIGHT	STR.
STREET	ST.
STRUCTURE	STRUCT.
TANGENT DISTANCE	T
TEMPERATURE	TEMP.
TEMPORARY BENCH MARK	TBM
VERTICAL	VERT.
WIDTH	w
WITH	w/

LEGENDS AND SYMBOLS

DRAWING SYMBOLS

SYMBOL	ABBREVIATION	DESCRIPTION
	℄	ROADWAY CENTERLINE
		NORTH SIGNS
ELEV		ELEVATION CALLOUT
WATER LINE		WATER LEVEL
FLOW		WATER FLOW
		POINT OF INTERSECTION
MATCH LINE STA. 0+000		MATCH LINE
		GRID COORDINATES
	AZIM	AZIMUTH
		PLAN AND PROFILE CALLOUT
		RCPC INVERSE ELEVATION PROFILE CALLOUT
DIRECTION		DIRECTION
DRAWING TITLE		MAIN DRAWING TITLE
DRAWING TITLE		SECONDARY DRAWING TITLE
		CROSS SECTION SYMBOL (COMPLEX)
		CROSS SECTION SYMBOL (COMPLEX)
		DETAIL CALLOUT

DRAWING SYMBOLS

SYMBOL	ABBREVIATION	DESCRIPTION
	BH	BORE HOLE
		CROSS SECTION MONUMENT
	BM	BENCH MARK
	IBM	INTERMEDIATE BENCH MARK
	PBM	PERMANENT BENCH MARK
	TP	TEST PIT
	GPS	GLOBAL POSITIONING SYSTEM
		TRAVERSE POINT
		TRAVERSE STATION AND LINE

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
		CHB/GROUTED/CONCRETE/ EARTH CANAL
		NATIONAL HIGHWAY
		EXISTING CANAL (PLAN)
		EXISTING CANAL (PROFILE)
	BR	BRIDGE
		CROSS-DRAIN
		LATERAL PIPE
		RCBC
		MANHOLE
		GUARDRAIL
		CHB WALL FENCE
		WOOD OR BARBED WIRE FENCE
		CYCLONE FENCE
		CONCRETE SLOPE PROTECTION
		GROUTED RIPRAP SLOPE PROTECTION
		RIVER / CREEK

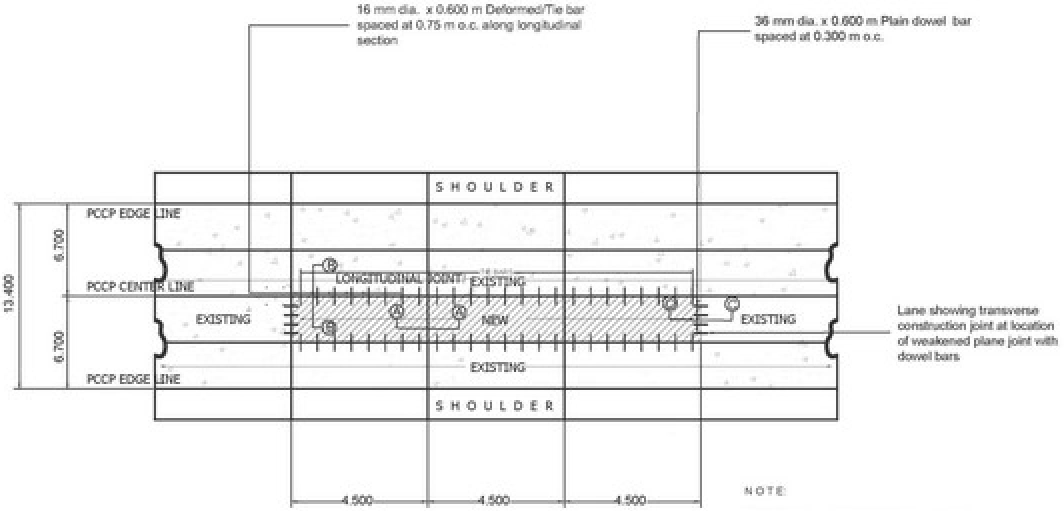
TOPOGRAPHIC FEATURES, INFRASTRUCTURE AND UTILITIES

SYMBOL	ABBREVIATION	DESCRIPTION
		TREES
		COCONUT
		BANANA PLANTATION
		SCHOOL
		CHURCH
		AMAKAN HOUSE
		CONCRETE HOUSE
		WOODEN STORE
		COMBINATION OF CONCRETE AND WOODEN HOUSE
		STORE
SB	SB	SIGN BOARD
	SP	STEEL POST
SEP	SEP	STEEL ELECTRIC POST
	CP	CONCRETE POST
CEP	CEP	CONCRETE ELECTRIC POST
	WEP	WOODEN ELECTRIC POST
	LP	LAMP POST

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION	SHEET CONTENTS
TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 969 - K1505 + 035, K1506 + 560 - K1506 + 843, K1509 + 000 - K1509 + 106, K1510 + 586 - K1510 + 952, K1510 + 000 - K1511 + 129, K1513 + 000 - K1514 + 000	ABBREVIATIONS, LEGENDS AND SYMBOLS

DRAFTED / PREPARED	REVIEWED	SUBMITTED	RECOMMENDED	APPROVED	SET NO.	SHEET NO.
HERWIN EVAN J. HABABAG, ENGINEER II / WARREN S. PIÑEZ, ENGINEER II	BENILDA S. PACQUIAO, ENGINEER III, DATE:	JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:	GARRY [illegible] VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:	ARTURO [illegible] ONGYAPON, DISTRICT ENGINEER, DATE:	E 1 1	5 / 59



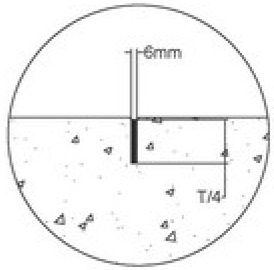
NOTE:

TRANSERVE CONSTRUCTION JOINT SHALL BE PROVIDED OF ANY RUN WHERE LAYING OF CONCRETE HAS BEEN STOPPED FOR THIRTY (30) MINUTES OR LONGER.

ALL TRANSVERSE CONSTRUCTION JOINTS SHOULD BE BUTT JOINTS WITH DOWEL.

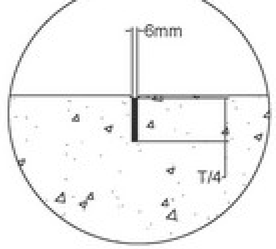
TYPICAL BAR LAYOUT "T" THICK PAVEMENT

TYPICAL PLAN OF TWO-LANE DOWELLED PAVEMENT
NOT TO SCALE



POURED ASPHALT SEAL 30-50 PENETRATION

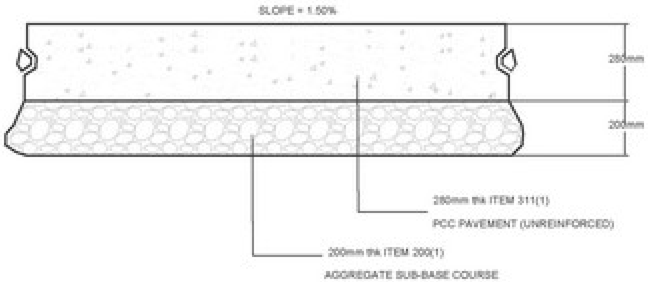
SAWED GROOVE TYPE



PRE-MOLDED JOINT FILLER

PRE-MOLDED STRIP TYPE

WEAKENED GROOVE DETAIL
SCALE NTS



PAVEMENT SECTION
SCALE NTS

TABLE SPACING OF TIE BARS (L=600 mm)		
SLAB THICKNESS (mm)	SPACING S1 (mm)	
	12 mm dia.	16 mm dia.
230	600	750
240	600	750
250	600	750
260	500	750
270	500	750
280	500	750
290	500	750
300	500	750
310	400	750
320	400	750
330	400	750
340	400	750

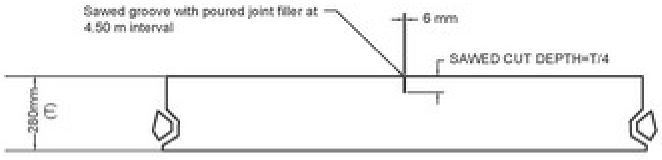
BASED ON AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES 1993

TABLE SPACING OF PLAIN DOWEL BARS (L=600 mm)		
SLAB THICKNESS (mm)	DIAMETER, D(mm)	SPACING, S2(mm)
230	28	300
240	30	300
250	32	300
260	32	300
270	34	300
280	36	300
300	36	270

NOTE:
DIAMETER AND SPACING OF PLAIN DOWEL BARS MAY BE MODIFIED AS LONG AS THE EQUIVALENT STEEL AREA IS SUSTAINED.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

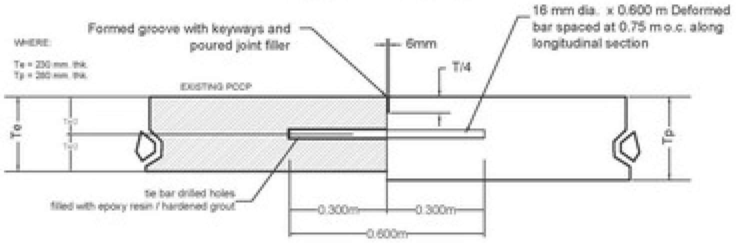
PROJECT NAME AND LOCATION	SHEET CONTENTS	DRAFTED / PREPARED	REVIEWED	SUBMITTED	RECOMMENDED	APPROVED	SET NO.	SHEET NO.
TAGUM-PANABO CIRCUM RD - K1504 + ...	280 MM PCCP DETAILS - REBLOCKING (1)	HERWIN EVAN J. HABABAG, ENGINEER II / WARREN S. PIÑEZ, ENGINEER II	BENILDA S. PACQUIAO, ENGINEER III, DATE:	JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:	GARRY ... VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:	ARTURO ... LONGYAPON, DISTRICT ENGINEER, DATE:	F 1 1	6 59



SECTION A - A

CONTRACTION JOINT SECTION

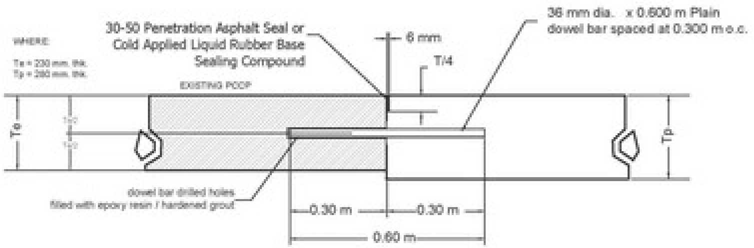
SCALE 1 : 20 M.



SECTION B - B

LONGITUDINAL CONSTRUCTION JOINT (NEW PCCP AND EXISTING PCCP)

SCALE 1 : 20 M.



SECTION C - C

DOWELLED EXPANSION JOINT DETAIL (NEW PCCP AND EXISTING PCCP)

SCALE 1 : 20 M.

1. Materials and workmanship shall conform with the DPWH Standard Specification for Highways, Bridges and Airport, 2013
2. Contraction joints are formed when concrete on one side of the joint is poured ahead and allowed to set before pouring on the other side, No construction joint shall be placed within 1.50 m. from the weakened plane joint.
3. At construction joint (longitudinal or transverse) care should be taken that no concrete from the last slab placed overhangs any portion of the first slab.
4. Tie bars should be deformed steel bars. All dowel bars shall be smooth round steel bar free from rust and other defects which might restrict their movement.
5. Type of weakened plane joint to be used shall be as specified in the plans and only one type should be used for the whole project.
6. Material for the metal side form shall be brand new sheet metal Gauge no. 15 of black iron free from rust and links.
7. At least six (6) successive dowelled butt joints at normal joint spacing shall be provided before or after an expansion joint.
8. The groove or cracks above joints (longitudinal or transverse) shall be sealed with 30-50 penetration asphalt seal or cold applied liquid rubber compound after the concrete had been cured and before opening pavement to traffic. Asphalt sealed should be poured in such manner that spalling shall be prevented/ eliminated, thus, provide a smooth leveling/ riding surface.
9. All transverse joints except construction joint shall be continuous from edge to edge.
10. All longitudinal joints shall meet at intersections with no gaps or offset.
11. All dimensions are in millimeters unless otherwise specified.
12. Avoid stoppage of formworks along curves.
13. Construct expansion joint at every 90 meters and/or every adjacent existing structures.

SCHEDULE OF REBLOCKING (0.23m THK)

Station			Width	Location	Length
1509+088.00	-	1509+106.00	3.35	INNER LANE R/S	18.00
1510+660.00	-	1510+691.50	3.35	INNER LANE R/S	31.50
1510+678.00	-	1510+691.50	3.35	INNER LANE L/S	13.50
1510+756.00	-	1510+765.00	3.35	OUTER LANE L/S	9.00
1510+756.00	-	1510+778.50	3.35	INNER LANE L/S	22.50
1511+004.50	-	1511+027.00	3.35	INNER LANE L/S	22.50
1511+031.50	-	1511+054.00	3.35	INNER LANE R/S	22.50
1511+076.50	-	1511+081.00	3.35	INNER LANE R/S	4.50
1511+094.50	-	1511+103.50	3.35	INNER LANE R/S	9.00
1511+094.50	-	1511+130.50	3.35	INNER LANE L/S	36.00
1511+112.50	-	1511+130.50	3.35	INNER LANE R/S	18.00
1513+009.00	-	1513+018.00	3.35	INNER LANE L/S	9.00
1513+076.50	-	1513+090.00	3.35	INNER LANE L/S	13.50
1513+112.50	-	1513+130.50	3.35	INNER LANE L/S	18.00
1513+153.00	-	1513+166.50	3.35	INNER LANE R/S	13.50
1513+189.00	-	1513+198.00	3.35	INNER LANE R/S	9.00
				TOTAL LENGTH	270.00
				TOTAL AREA	904.50
				SAY	905.00

SCHEDULE OF ASPHALT OVERLAY

STATION	LENGTH (m)	WIDTH (m)	AREA (sq.m)		REMARKS
			310(1)b	310(2)b	
K 1504 + 216.00 TO K 1514 + 000.00			29,027.03	40,194.50	ASPHALT OVERLAY OF 4 LANES
K 1504 + 606.00 TO K 1504 + 906.00			2,742.90	3,270.00	ASPHALT OVERLAY OF 2 LANES
			402.00		TRANSITIONS
K 1509 + 040.00	27.00	6.70	214.40	180.90	ADD 5m.-TRANSITION RAMP (RIGHT SIDE)
K 1509 + 040.00			36.18	36.18	FLARED TRANSITION (APPROACH TO MEDIAN)
		TOTAL	32,422.51	43,681.58	

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION:

SHEET CONTENTS:
280 MM PCCP DETAILS - REBLOCKING (2) AND SCHEDULES

DRAFTED: HERWIN EVAN J. HABABAG
PREPARED: WARREN S. PIÑEZ

REVIEWED: BENILDA S. PACQUIAO, ENGINEER III

SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION

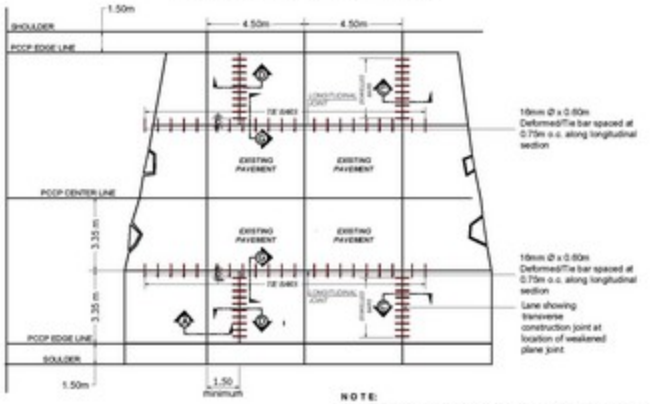
RECOMMENDED: GARRY L. VERANO

APPROVED: ARTURO R. LONGYAPON, DISTRICT ENGINEER

SET NO. G 1 1

SHEET NO. 7 / 59

TYPICAL BAR LAYOUT "T" THICK PAVEMENT



NOTE:

TRANSERVE CONSTRUCTION JOINT SHALL BE PROVIDED OF ANY RUN WHERE LAYING OF CONCRETE HAS BEEN STOPPED FOR THIRTY (30) MINUTES OR LONGER.

ALL TRANSVERSE CONSTRUCTION JOINTS SHOULD BE BUTT JOINTS WITH DOWEL.

TYPICAL PLAN OF FOUR-LANE DOWELLED PAVEMENT

NOT TO SCALE

NOTE:

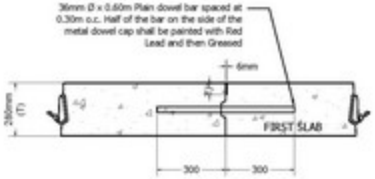
1. Materials and workmanship shall conform with the DPWH Standard Specification for Highways, Bridges and Airport, 2013
2. Contraction joints are formed when concrete on one side of the joint is poured ahead and allowed to set before pouring on the other side. No construction joint shall be placed within 1.50 m. from the weakened plane joint.
3. At construction joint (longitudinal or transverse) care should be taken that no concrete from the last slab placed overhangs any portion of the first slab.
4. Tie bars should be deformed steel bars. All dowel bars shall be smooth round steel bar free from rust and other defects which might restrict their movement.
5. Type of weakened plane joint to be used shall be as specified in the plans and only one type should be used for the whole project.
6. Material for the metal side form shall be brand new sheet metal Gauge no. 15 of black iron free from rust and links.
7. At least six (6) successive doweled butt joints at normal joint spacing shall be provided before or after an expansion joint.
8. The groove or cracks above joints (longitudinal or transverse) shall be sealed with 30-50 penetration asphalt seal or cold applied liquid rubber compound after the concrete had been cured and before opening pavement to traffic. Asphalt sealed should be poured in such manner that spalling shall be prevented/ eliminated, thus, provide a smooth leveling/ riding surface.
9. All transverse joints except construction joint shall be continuous from edge to edge.
10. All longitudinal joints shall meet at intersections with no gaps or offset.
11. All dimensions are in millimeters unless otherwise specified.
12. Avoid stoppage of formworks along curves.
13. Construct expansion joint at every 90 meters and/or every adjacent existing structures.

TABLE SPACING OF PLAIN DOWEL BARS (L=600 mm)		
SLAB THICKNESS (mm)	DIAMETER,D (mm)	SPACING, S2(mm)
230	28	300
240	30	300
250	32	300
260	32	300
270	34	300
280	36	300

NOTE:
DIAMETER AND SPACING OF PLAIN DOWEL BARS MAY BE MODIFIED AS LONG AS THE EQUIVALENT STEEL AREA IS SUSTAINED.

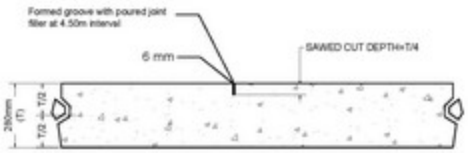
TABLE SPACING OF TIE BARS (L=600 mm)		
SLAB THICKNESS (mm)	SPACING S1 (mm)	
	12 mm dia.	16 mm dia.
230	600	750
240	600	750
250	600	750
260	500	750
270	500	750
280	500	750
290	500	750
300	500	750

BASED ON AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES 1993



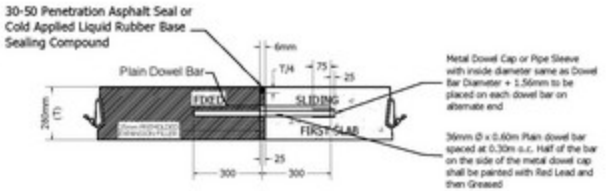
D BUTT TRANSVERSE CONSTRUCTION OR CONTACT JOINT

NOT TO SCALE



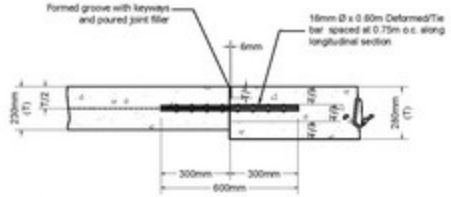
A CONTRACTION JOINT SECTION

NOT TO SCALE



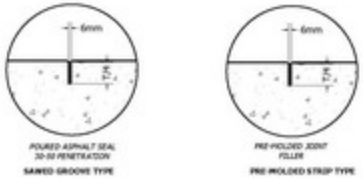
C DOWELLED EXPANSION JOINT DETAIL

NOT TO SCALE



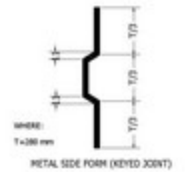
G LONGITUDINAL CONSTRUCTION JOINT

NOT TO SCALE



WEAKENED GROOVE DETAIL

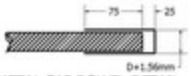
NOT TO SCALE



METAL SIDE FORM (KEYED JOINT)

DETAIL OF SIDE FORMS

NOT TO SCALE



METAL CAP DOWEL DETAIL

NOT TO SCALE

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD. - K1504 + 216 - K1504 + 950, K1504 + 969 - K1505 + 025, K1506 + 500 - K1506 + 640, K1509 + 000 - K1509 + 106, K1510 + 588 - K1510 + 952, K1510 + 980 - K1511 + 139, K1513 + 550 - K1514 + 000

SHEET CONTENTS: 250 MM PCCP DETAILS - RESLOCKING ON BOTH SIDES

DRAWN: HERWIN EVAN J. HARABAG, ENGINEER II
PREPARED: WARREN S. PIÑEZ, ENGINEER II

REVIEWED: BENILDA S. PACQUIAO, ENGINEER III, DATE:

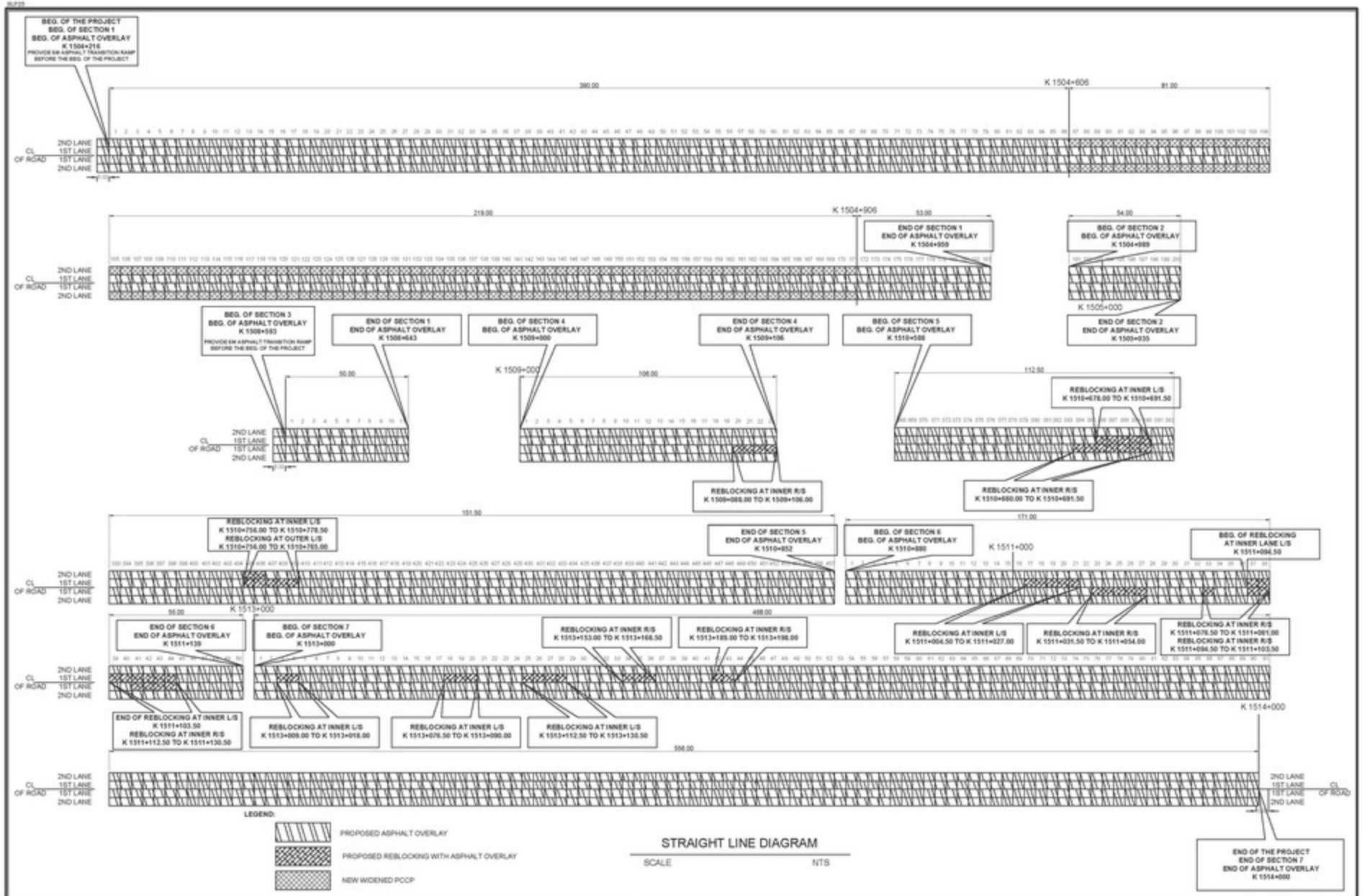
SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:

RECOMMENDED: GARRY B. VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:

APPROVED: ARTURO P. TONGYAPON, DISTRICT ENGINEER, DATE:

SHT NO.: H 1 1

SHEET NO.: 8 59



STRAIGHT LINE DIAGRAM

SCALE NTS

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 989 - K1505 + 035, K1508 + 583 - K1508 + 643, K1509 + 000 - K1509 + 106, K1510 + 588 - K1510 + 852, K1510 + 880 - K1511 + 139, K1513 + 000 - K1514 + 000

SHEET CONTENTS: STRAIGHT LINE DIAGRAM AND SCHEDULES

DRAFTED: HERWIN EVAN J. HABABAG, ENGINEER II
RECOMMEND: WARREN S. PIÑEZ, ENGINEER V

REVIEWED: BENILDA S. PACQUIAO, ENGINEER III, DATE:

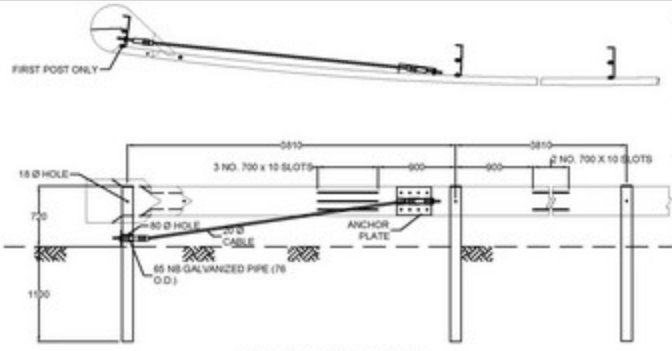
SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:

RECOMMENDED: GARRY RIVERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:

APPROVED: ARTURO P. TONGYAPON, DISTRICT ENGINEER, DATE:

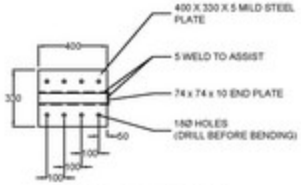
SET NO. I 1 1

SHEET NO. 9 59

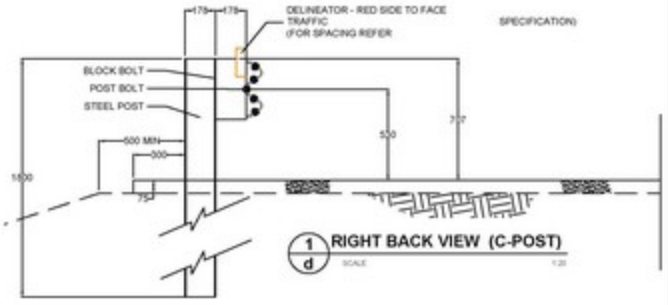


1 a RIGHT BACK VIEW
SCALE 1:40

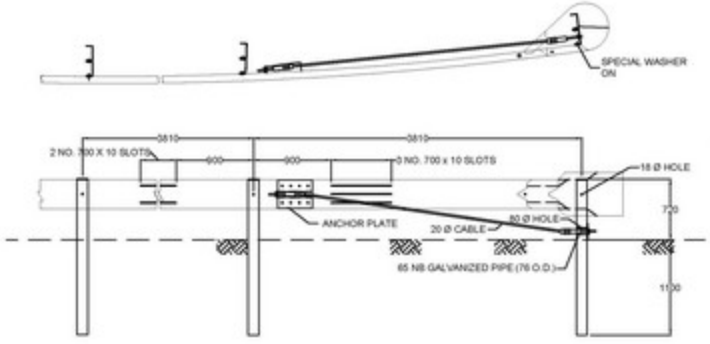
SCHEDULE OF METAL GUARDRAIL INCLUDING POST			
STATION	LENGTH (m)	END PIECE	LOCATION
K1504 + 216.00 TO K1504 + 533.00	634.61	4	B/S
K1504 + 906.00 TO K1504 + 959.00	106.68	4	B/S
K1504 + 989.00 TO K1505 + 035.00	106.68	4	B/S
K1508 + 593.00 TO K1508 + 643.00	99.06	4	B/S
K1509 + 000.00 TO K1509 + 106.00	213.36	4	B/S
K1510 + 588.00 TO K1510 + 852.00	525.78	4	B/S
TOTAL	1,686.17	24	



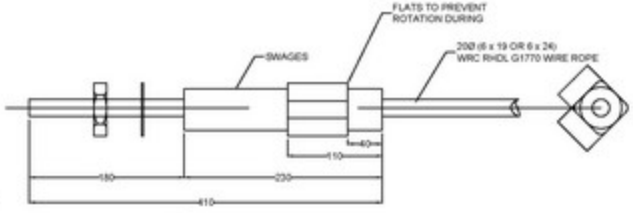
1 c ANCHOR PLATE
SCALE 1:20



1 d RIGHT BACK VIEW (C-POST)
SCALE 1:20

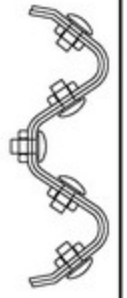


1 b LEFT BACK VIEW
SCALE 1:40



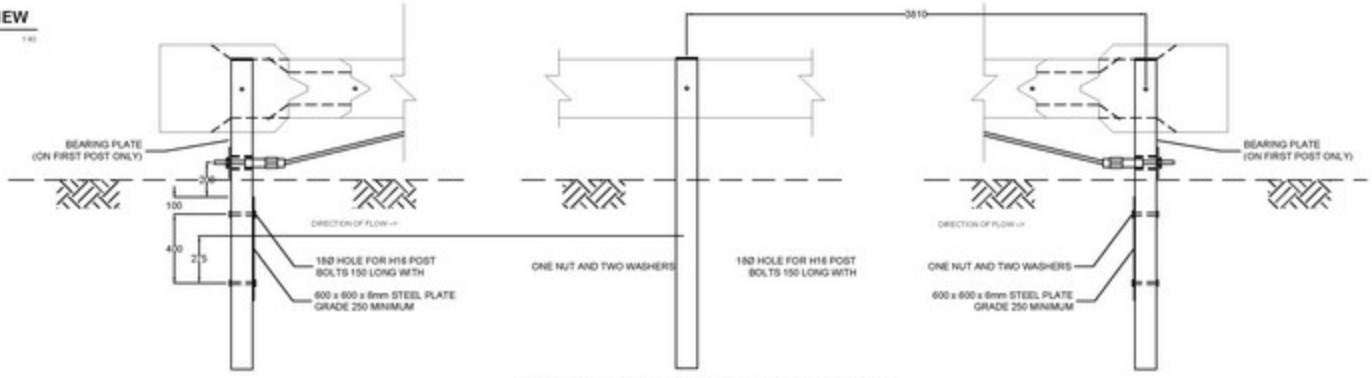
1 e ANCHOR CABLE ASSEMBLY
SCALE 1:40

1 f SPLICE CONNECTION
SCALE 1:40



NOTES:

1. THE AGREEMENT OF THE PRINCIPAL ROAD DESIGN ENGINEER SHOULD BE SOUGHT BEFORE MODIFICATION ARE MADE TO ANY PART OF THE DESIGN.
2. IN REMOTE AREAS WHERE CONCRETE IS NOT READILY AVAILABLE, THE CONCRETE FOOTING CAN BE REPLACED BY A 600 x 600 x 6mm STEEL PLATE BOLTED TO THE FACE OF THE FIRST 2 POSTS ON THE DOWNSTREAM SIDE OF THE POST.
3. B.C.T. ASSEMBLY TO BE HOT DIP GALVANIZED (INCLUDING NUTS, BOLTS AND WASHERS) TO AS1650/1989. HOLES TO BE DRILLED BEFORE GALVANIZING.
4. BOLTS TO BE SNUG TIGHTENED TO AS4100/1990.
5. WHERE THE FACE OF GUARD FENCE IS ERECTED WITHIN 0 TO 1m BEHIND HE BACK OF KERB, THE MOUNTING HEIGHT SHALL BE MEASURE FROM THE ADJACENT ROAD PAVEMENT SURFACE. HOWEVER, THE VERTICAL POSITION OF THE



1 g BREAKAWAY CABLE TERMINAL (BCTA)
SCALE 1:20

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION:
TAGUM-PANABO CIRCUM RD. - K1504 + 216 - K1504 + 959, K1504 + 989 - K1505 + 035, K1508 + 593 - K1508 + 643, K1509 + 000 - K1509 + 106, K1510 + 588 - K1510 + 852, K1510 + 880 - K1511 + 136, K1513 + 000 - K1514 + 000

SHEET CONTENTS:
GUARDRAIL DETAILS AND SCHEDULE

DRAWN:
HERWIN EVAN J. HABABAG
ENGINEER II
CHECKED:
WARREN S. PIÑEZ
ENGINEER II

REVIEWED:
BENILDA A. PACQUIAO
ENGINEER III
DATE:

SUBMITTED:
JEZABEL B. TULING, MPA
CHIEF, PLANNING AND DESIGN SECTION
DATE:

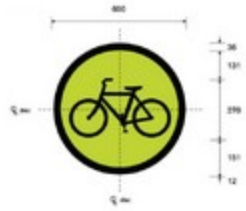
RECOMMENDED:
GARRY P. VERANO
OFFICER-IN-CHARGE
OFFICE OF ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:
ARTURO P. TONGYAPON
DISTRICT ENGINEER
DATE:

SET NO.: J 1 1
SHEET NO.: 10 59

REGULATORY SIGN SCHEDULE

TYPE	QUANTITY	LOCATION / STATION
 R6-10 (BIKE LANE)	50 UNITS	1504 + 216.00 TO 1504 + 959.00 WITH 6 UNITS ON B/S 1504 + 989.00 TO 1505 + 035.00 WITH 2 UNITS ON B/S 1508 + 593.00 TO 1508 + 643.00 WITH 2 UNITS ON B/S 1509 + 000.00 TO 1509 + 106.00 WITH 2 UNITS ON B/S 1509 + 588.00 TO 1510 + 852.00 WITH 2 UNITS ON B/S 1510 + 880.00 TO 1511 + 139.00 WITH 2 UNITS ON B/S 1513 + 000.00 TO 1514 + 000.00 WITH 9 UNITS ON B/S



R6-10 (BIKE LANE)

BLACK SYMBOL AND BORDER ON RETRO-REFLECTIVE FLUORESCENT YELLOW-GREEN BACKGROUND

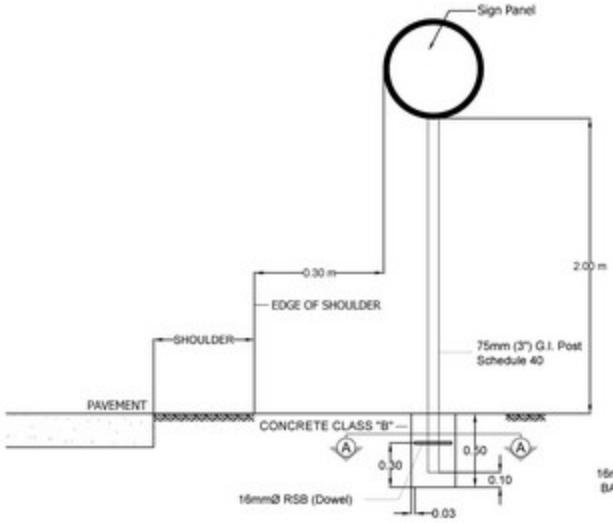
NOTE :

ALL POSTS SHALL BE THOROUGHLY CLEANED, FREE FROM GREASE, SCALE AND RUSTS AND SHALL BE GIVEN ONE COAT OF RUST-INHIBITING PRIMING PAINT AND TWO COATS OF INTERNATIONAL ORANGE PAINT IN ACCORDANCE WITH PAINT DPWH STANDARD SPECIFICATION.

SPECIAL CARE SHOULD BE EXERCISED IN THE PLACEMENT OF SAID SIGNS TO ENSURE THEY ARE PROMINENTLY DISPLAYED TO APPROACHING DRIVERS.

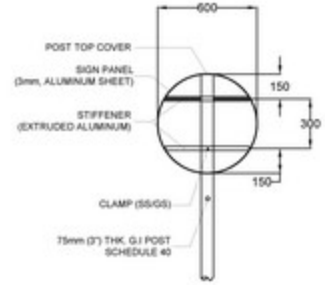
D.O. # 158, S.2015
DPWH STANDARD SPECIFICATIONS FOR ROAD SIGNS.

THE DIMENSIONS, SIZES OF LETTERS AND NUMERALS, SHAPE, COLOR AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF DPWH HIGHWAY SAFETY STANDARD PART 2: ROAD SIGNS AND PAVEMENT MARKINGS MANUAL 2012.

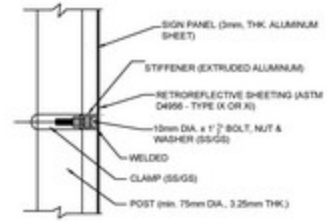


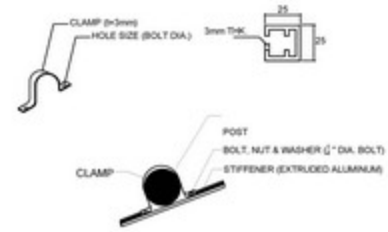
1/11 **DETAIL OF FIXED POST (FOR WARNING & REGULATORY SIGNS)**
N T S

SECTION A - A



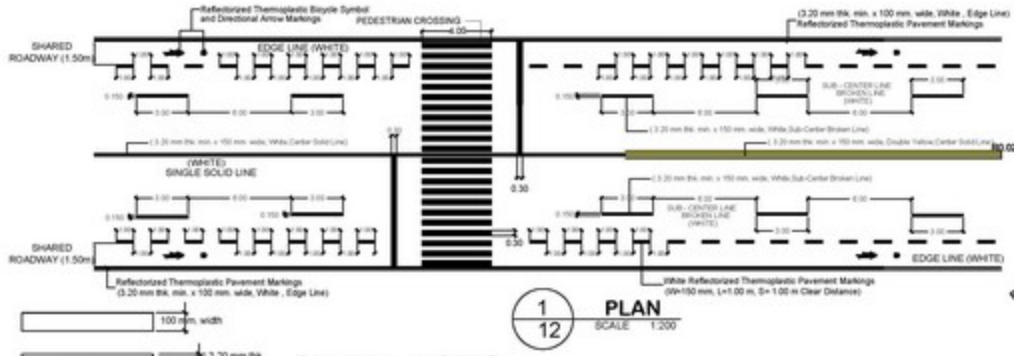
2/11 **MOUNTING DETAILS**
N T S



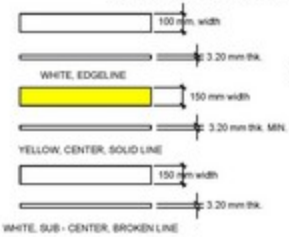


3/11 **STIFFENER AND CLAMP DETAILS**
N T S

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION XI DAVAO DEL NORTE 2ND DISTRICT ENGINEERING OFFICE TAGUM CITY	PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 989 - K1505 + 035, K1508 + 593 - K1508 + 643, K1509 + 000 - K1509 + 106, K1510 + 588 - K1510 + 852, K1510 + 880 - K1511 + 139, K1513 + 000 - K1514 + 000	SHEET CONTENTS: REGULATORY SIGN DETAILS AND SCHEDULE	DRAFTED: HERWIN EVAN J. HABABAG ENGINEER II PREPARED: WARREN S. PINEZ ENGINEER II	REVIEWED: BENILDA S. PACQUIAO ENGINEER III DATE:	SUBMITTED: JEZABEL E. TULING, MPA CHIEF, PLANNING AND DESIGN SECTION DATE:	RECOMMENDED: GARRY RIVERANO OFFICER-IN-CHARGE OFFICE OF ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: ARTURO P. TONGYAPON DISTRICT ENGINEER DATE:	SET NO. K 1 | 1	SHEET NO. 11 59



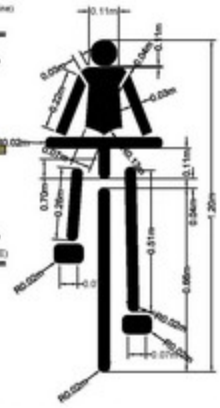
1/12 **PLAN**
SCALE 1:200



REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS DETAIL

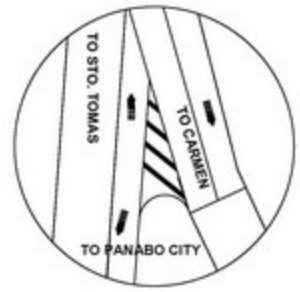
GENERAL NOTES:

1. The materials, dimensions, shape, color, size of numerals, letters and installation shall conform in accordance with specifications of DPWH manual on pavement markings.
2. Reflectorized thermoplastic pavement stripping material shall conform to AASHTO M249 in which the road must be applied in a molten state by mechanical means w/ surface application of glass beads at a rate of not less than 350 g/L of glass beads having a size range of drop-in type and will produce an adherent reflectorized stripe of specified thickness and width capable of resisting deformation by traffic.



2/12 **REFLECTORIZED THERMOPLASTIC BICYCLE MARKINGS DETAIL**
NTS

APPROACH TO MEDIAN PAVEMENT MARKING DETAILS



AT K1509+040.00 (L/S)

3/12 **REFLECTORIZED THERMOPLASTIC DIRECTIONAL ARROW DETAIL**
NTS

REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS SCHEDULE

Station			Edgeline / Stop Bar			Solid Centerline			Broken Lines			Area (white)	Area(yellow)	Description
			Length	Width	No. of Lines	Length	Width	No. of Lines	Length	No. of Strips	No. of Lines			
1504+216.00	-	1504+606.00	390.00	0.10	2							78.00		Edgeline, White
1504+906.00	-	1504+959.00	53.00	0.10	2							10.60		Edgeline, White
1504+989.00	-	1505+035.00	54.00	0.10	2							10.80		Edgeline, White
1508+593.00	-	1508+643.00	50.00	0.10	2							10.00		Edgeline, White
1509+000.00	-	1509+106.00	106.00	0.10	2							21.20		Edgeline, White
1510+588.00	-	1510+852.00	264.00	0.10	2							52.80		Edgeline, White
1510+880.00	-	1511+139.00	226.00	0.10	2							45.20		Edgeline, White
1513+000.00	-	1514+000.00	1,024.00	0.10	2							204.80		Edgeline, White
1504+216.00	-	1504+959.00							743.00	83	2	74.20		Broken Subcenterline, White line 3m length
1504+989.00	-	1505+035.00							54.00	6	2	5.40		Broken Subcenterline, White line 3m length
1508+593.00	-	1508+643.00							50.00	6	2	5.40		Broken Subcenterline, White line 3m length
1509+000.00	-	1509+106.00							106.00	12	2	10.80		Broken Subcenterline, White line 3m length
1510+588.00	-	1510+852.00							264.00	30	2	27.00		Broken Subcenterline, White line 3m length
1510+880.00	-	1511+139.00							226.00	26	2	23.40		Broken Subcenterline, White line 3m length
1513+000.00	-	1514+000.00							1,024.00	114	2	102.60		Broken Subcenterline, White line 3m length
1504+216.00	-	1504+959.00				743.00	0.15	1				111.45		White Center line, Single Solid line
1504+989.00	-	1505+035.00				54.00	0.15	1				8.10		White Center line, Single Solid line
1508+593.00	-	1508+643.00				50.00	0.15	1				7.50		White Center line, Single Solid line
1508+960.00	-	1508+980.00										7.47		Arrow Markings (Please see details)
1509+000.00	-	1509+106.00				106.00	0.15	1				15.90		White Center line, Single Solid line
1509+040.00	-	1509+060.00										14.66		Approach to Median (Please see details)
1510+588.00	-	1510+810.00				222.00	0.15	1				33.30		White Center line, Single Solid line
1510+810.00	-	1510+852.00				42.00	0.15	2					12.60	Yellow Center line, Double Solid line
1510+880.00	-	1510+930.00				50.00	0.15	2					15.00	Yellow Center line, Double Solid line
1510+930.00	-	1511+139.00				176.00	0.15	1				26.40		White Center line, Single Solid line
1513+000.00	-	1514+000.00				1,024.00	0.15	1				153.60		White Center line, Single Solid line
									2,167.00	1,084.00	2	325.20		Bike Lane, Broken White Line
											44	20.24		Bicycle markings & directional arrow - every 100 mts. R/S
										TOTAL		1,406.45	27.60	

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD. - K1504 + 216 - K1504 + 959, K1504 + 989 - K1505 + 035, K1508 + 593 - K1508 + 643, K1509 + 000 - K1509 + 106, K1510 + 588 - K1510 + 852, K1510 + 880 - K1511 + 139, K1513 + 000 - K1514 + 000

SHEET CONTENTS: REFLECTORIZED THERMOPLASTIC PAVEMENT MARKING DETAIL AND SCHEDULE

DRAFTED: HERWIN EVAN J. HARABAG, ENGINEER II
RECOMMENDING: WARREN S. PIÑEZ, ENGINEER V

REVIEWED: BENILDA S. PACQUIAO, ENGINEER III, DATE:

SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:

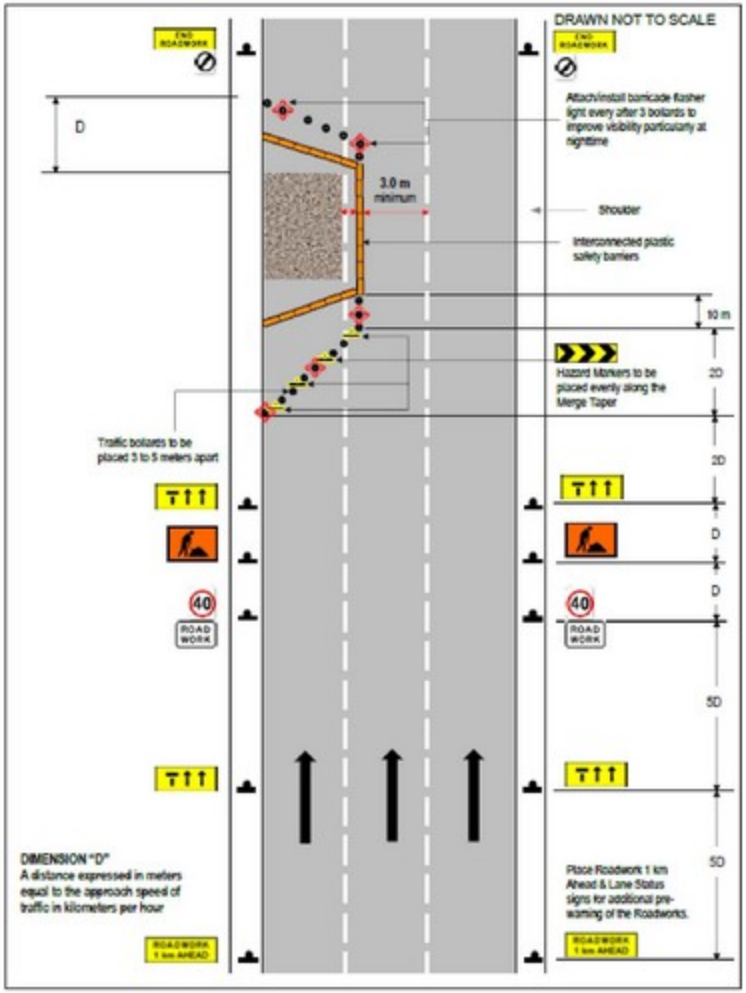
RECOMMENDED: GARRY B. VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:

APPROVED: ARTURO P. TONGYAPON, DISTRICT ENGINEER, DATE:

SET NO.: L 1 | 1

SHEET NO.: 12 / 59

LAYOUT 9 – Closure of Inner Lane – Multilane Road, High Speed, Long Term



ROAD & BRIDGE WORK SITE TEMPORARY SIGNAGE		SIGN No.	SIZE (mm) (WidthxHeight)
LEGEND:			
40	SPEED RESTRICTION	R4-10	600X800
	ROADWORK AHEAD	T1-1	1800x600
END ROADWORK	END ROADWORK	T2-16	1800x600
	END SPEED RESTRICTION	R4-2	600x800
	WORKMEN AHEAD (SYMBOLIC)	T1-5	900x600
PREPARE TO STOP	PREPARE TO STOP	T1-18	900x600
ROAD MACHINERY AHEAD	HEAVY MACHINERY AHEAD		1600x600
	TEMPORARY HAZARD MARKER	T5-5	550x450
	TEMPORARY BOLLARDS		
	TEMPORARY BOLLARDS WITH FLASHER		

TRAFFIC MANAGEMENT LAYOUT
NOT TO SCALE

LAYOUT 9 – Closure of Inner Lane – Multilane Road, High Speed, Long Term

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD. - K1504 + 216 - K1504 + 950, K1504 + 969 - K1505 + 025, K1506 + 500 - K1506 + 640, K1509 + 000 - K1509 + 106, K1510 + 588 - K1510 + 952, K1510 + 980 - K1511 + 139, K1513 + 550 - K1514 + 000

SHEET CONTENTS: TRAFFIC MANAGEMENT LAYOUT

DRAFTED: HERWIN JOAN J. HABABAG, ENGINEER I
RECOMMENDED: WARREN S. PIÑEZ, ENGINEER II

REVIEWED: BENILDA S. PACQUIAO, ENGINEER III, DATE

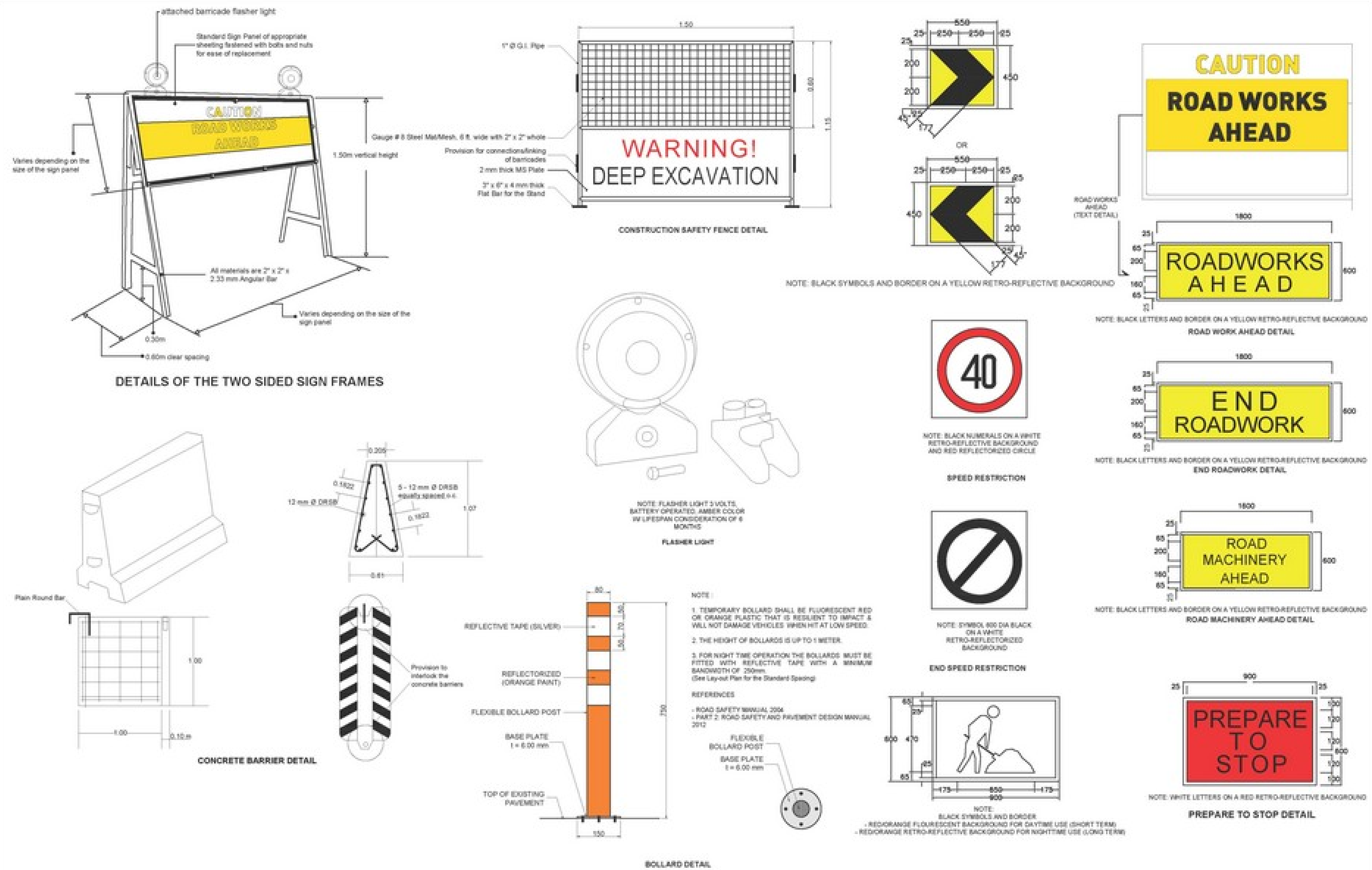
SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE

RECOMMENDED: GARRY M. VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE

APPROVED: ARTURO P. TONGYAPON, DISTRICT ENGINEER, DATE

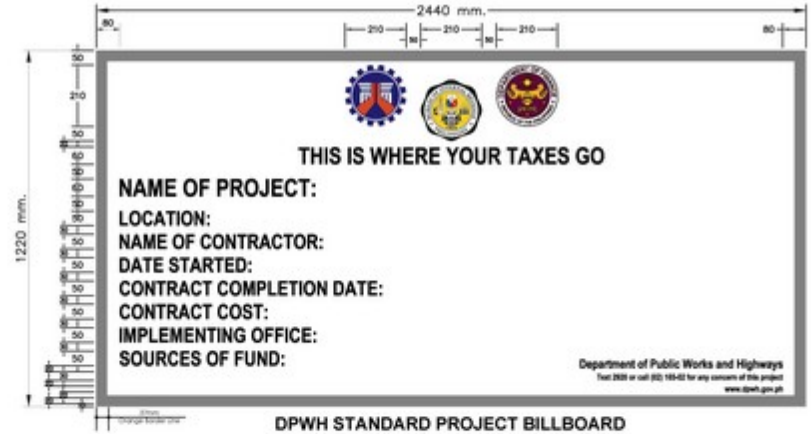
SET NO.: M 1 | 1

SHEET NO.: 13 / 59



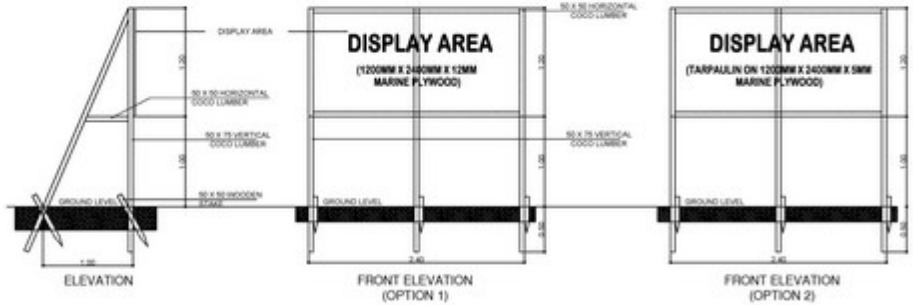
LAYOUT 9 – Closure of Inner Lane – Multilane Road, High Speed, Long Term

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION XI DAVAO DEL NORTE 2ND DISTRICT ENGINEERING OFFICE TAGUM CITY	PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 869 - K1505 + 035, K1505 + 590 - K1506 + 843, K1509 + 000 - K1509 + 108, K1510 + 588 - K1510 + 952, K1510 + 880 - K1511 + 128, K1513 + 000 - K1514 + 000	SHEET CONTENTS: TRAFFIC MANAGEMENT PLAN DEVICES AND SIGNAGES	DRAFTED: HERWIN EVAN J. HABABAG ENGINEER II PREPARED: WARREN S. PIÑEZ ENGINEER II	REVIEWED: BENILDA S. PACQUIAO ENGINEER III DATE:	SUBMITTED: JEZABEL E. TULING, MPA CHIEF, PLANNING AND DESIGN SECTION DATE:	RECOMMENDED: GARRY B. VERANO OFFICER-IN-CHARGE OFFICE OF ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: ARTURO P. LONGYAPON DISTRICT ENGINEER DATE:	SET NO.: N 1 1	SHEET NO.: 14 59



DPWH STANDARD PROJECT BILLBOARD

DENR STANDARD PROJECT BILLBOARD



BILLBOARD FRAME DETAIL

COA BILLBOARD

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

Project:_____ Cost:_____
Location:_____ Fund Source/s:_____
Implementing Agency/ies:_____
Development Partner/s:_____
Contractor/Supplier:_____
Brief Description of Project:_____

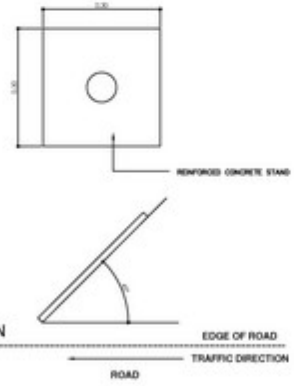
Project Details:

PROJECT DATE			PROJECT STATUS				REMARKS
Duration	Started	Target Date of Completion	Percentage of Completion	As of (Date)	Cost Incurred to Date	Date Completed	

For particulars or complain about this project, please contact the Regional Office or Cluster which has audit jurisdiction on this project:

COA Regional Office No./Cluster:_____
Address:_____
Contact No.:_____or Text COA Citizen's Desk at 0915-5391957

2440 mm. (8 ft.)
2440 mm. (8 ft.)
WHITE BACKGROUND



NOTE :

1. THE NEW BILLBOARD DESIGN LAYOUT, DIMENSION AND LETTER SIZES ON WHITE BACKGROUND, AS SHOWN ON THE ATTACHED DRAWING, SHALL BE DEPICTED ON A STANDARD BILLBOARD MEASURING 1200mm. x 600mm. (2ft. x 4ft.) USING 12.5mm. (1/2 INCH) THICK MARINE PLYWOOD OR TARPAULIN OF THE SAME SIZE POSTED ON 5mm. (3/16 INCHES) MARINE PLYWOOD.
2. ALL EXISTING BILLBOARDS OF ON-GOING PROJECTS SHALL BE REPLACED WITH NEW ONE ADOPTING THE ABOVE GUIDELINES.
3. FOR EACH BUILDING PROJECT, THE BILLBOARD SHALL BE INSTALLED IN FRONT OF THE PROJECT.
4. FOR EACH ROAD/ BRIDGE/ FLOOD CONTROL PROJECT, TWO BILLBOARD SHALL BE INSTALLED, ONE AT THE BEGINNING AND ONE AT THE END OF PROJECT.
5. NAME(S) AND/ OR PICTURE(S) OF ANY PERSONAGE SHOULD NOT APPEAR IN THE BILLBOARD.
6. NO OTHER BILLBOARDS SHALL BE ALLOWED TO BE INSTALLED 100 METERS BEFORE AND 100 METERS AFTER ALL DPWH PROJECT AND IN-BETWEEN THE PROJECT LIMITS OR WITHIN THE ROAD RIGHT-OF-WAY.
7. DPWH CONTRACTORS SHALL NOT BE ALLOWED TO PLACE NAMES OF POLITICIANS OR CARRY POLITICAL BILLBOARD ON THEIR EQUIPMENT.

-DO #21, S.2017

NOTE :

* INSTALLATION OF BILLBOARD SHALL BE ONE(1) AT THE BEGINNING & ONE(1) AT THE END OF THE PROJECT.
* NAMES OR PICTURES OF ANY PERSONAGES SHOULD NOT APPEAR IN THE BILLBOARD.
* NO POLITICAL BILLBOARD SHALL BE ALLOWED TO BE INSTALLED 100m BEFORE & 100m AFTER ALL DPWH PROJECTS & IN BETWEEN THE PROJECT LIMITS OR WITHIN THE ROAD-RIGHT-OF-WAY.
* DPWH CONTRACTORS SHALL NOT BE ALLOWED TO PLACE NAMES OF POLITICIANS ON THEIR EQUIPMENT OR CARRY POLITICAL BILLBOARD ON THEIR EQUIPMENT.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 958, K1504 + 989 - K1505 + 035, K1508 + 583 - K1508 + 840, K1509 + 000 - K1509 + 108, K1510 + 588 - K1510 + 852, K1510 + 880 - K1511 + 136, K1513 + 000 - K1514 + 000

SHEET CONTENTS: STANDARD DPWH AND COA BILLBOARD

DRAFTED: HERWIN EVAN J. RABABAG, ENGINEER II
PREPARED: WARREN S. PIÑEZ, ENGINEER II

REVIEWED: BENILDA S. PACQUIAO, ENGINEER III, DATE:

SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:

RECOMMENDED: GARRY P. VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:

APPROVED: ARTURO P. LONGYAPON, DISTRICT ENGINEER, DATE:

SET NO. 0 1 1

SHEET NO. 15 59

LEGEND:

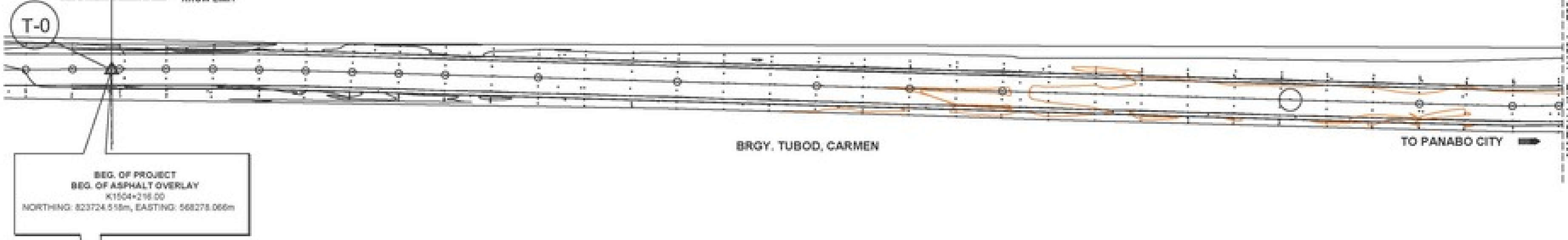
- EXISTING PCCP
- ASPHALT OVERLAY
- SHOULDER
- SCARIFIED WITH ASPHALT OVERLAY
- VARIOUS TREES
- CUT
- FILL
- RROW LIMIT

PLAN

SCALE 1:1250

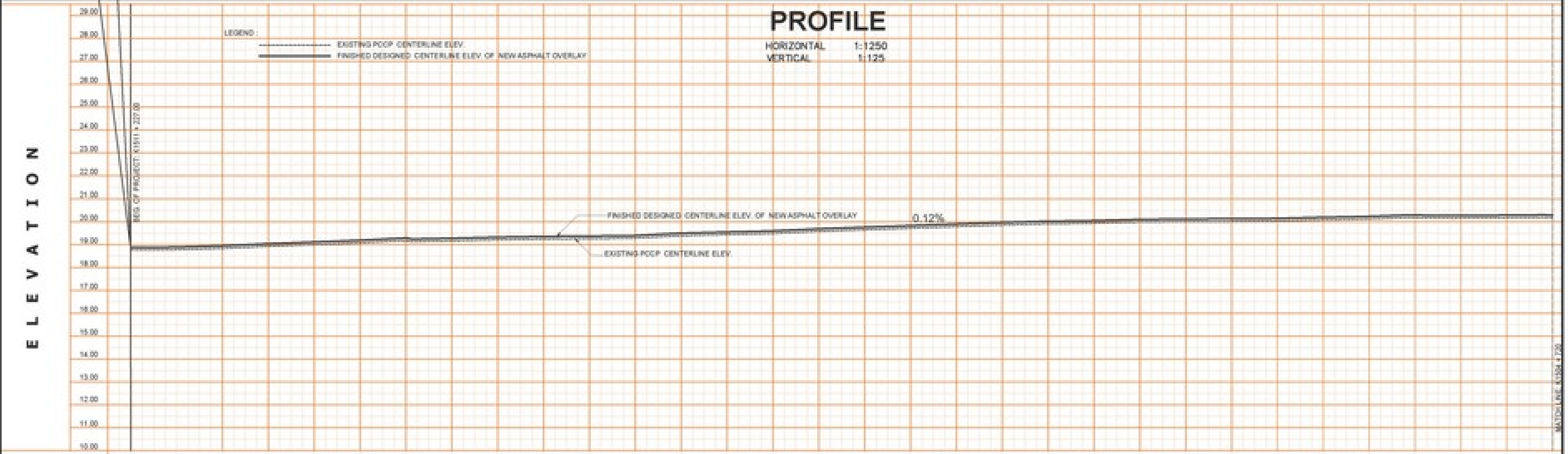
POINT TABLE			
ELEVATION	NORTHING	EASTING	DESCRIPTION
19.18	823724.518	568278.066	BEG. OF PROJECT - BEG. OF SECTION 1
20.45	823009.523	568228.896	END OF SECTION 1

TRAVERSE		
Line No.	DISTANCE	AZIMUTH
T0 - T1	743.00	5°12'11.558"
T2 - T3	54.00	3°47'11.750"



PROFILE

HORIZONTAL 1:1250
VERTICAL 1:125



STATION	1504+100	1504+120	1504+140	1504+160	1504+180	1504+200	1504+220	1504+240
EXISTING PCCP CENTERLINE ELEV.	18.771	18.783	18.842	18.832	19.005	19.083	19.182	19.171
FINISHED DESIGNED CENTERLINE ELEV. OF NEW ASPHALT OVERLAY	18.884	18.896	18.955	19.045	19.118	19.196	19.296	19.284

STATION	1504+260	1504+280	1504+300	1504+320	1504+340	1504+360	1504+380	1504+400
EXISTING PCCP CENTERLINE ELEV.	19.219	19.249	19.288	19.280	19.392	19.433	19.494	19.559
FINISHED DESIGNED CENTERLINE ELEV. OF NEW ASPHALT OVERLAY	19.332	19.363	19.380	19.396	19.505	19.546	19.607	19.672

STATION	1504+420	1504+440	1504+460	1504+480	1504+500	1504+520	1504+540	1504+560
EXISTING PCCP CENTERLINE ELEV.	19.619	19.703	19.792	19.861	19.915	19.942	19.991	20.015
FINISHED DESIGNED CENTERLINE ELEV. OF NEW ASPHALT OVERLAY	19.732	19.816	19.906	19.975	20.029	20.056	20.105	20.128

STATION	1504+580	1504+600	1504+620	1504+640	1504+660	1504+680	1504+700	1504+720
EXISTING PCCP CENTERLINE ELEV.	20.021	20.003	20.086	20.091	20.180	20.111	20.180	20.118
FINISHED DESIGNED CENTERLINE ELEV. OF NEW ASPHALT OVERLAY	20.135	20.116	20.200	20.204	20.294	20.225	20.293	20.232

WIDENING	L	w = 0
	R	
SUPERELEVATION	4.00% / -1.50% / -4.00%	NORMAL CROWN -1.50%

MATCH LINE

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 969 - K1505 + 035, K1508 + 580 - K1508 + 843, K1509 + 000 - K1509 + 108, K1510 + 556 - K1510 + 952, K1510 + 990 - K1511 + 129, K1513 + 000 - K1514 + 000

SHEET CONTENTS: PLAN AND PROFILE (1)

DRAFTED: HERWIN EVAN J. HABABAG, ENGINEER II

PREPARED: WARREN S. PIÑEZ, ENGINEER II

REVIEWED: BENILDA S. PACQUIAO, ENGINEER III, DATE:

SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:

RECOMMENDED: GARRY B. VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:

APPROVED: ARTURO R. DONGYAPON, DISTRICT ENGINEER, DATE:

SET NO.: P 1 7

SHEET NO.: 16 / 59

LEGEND:

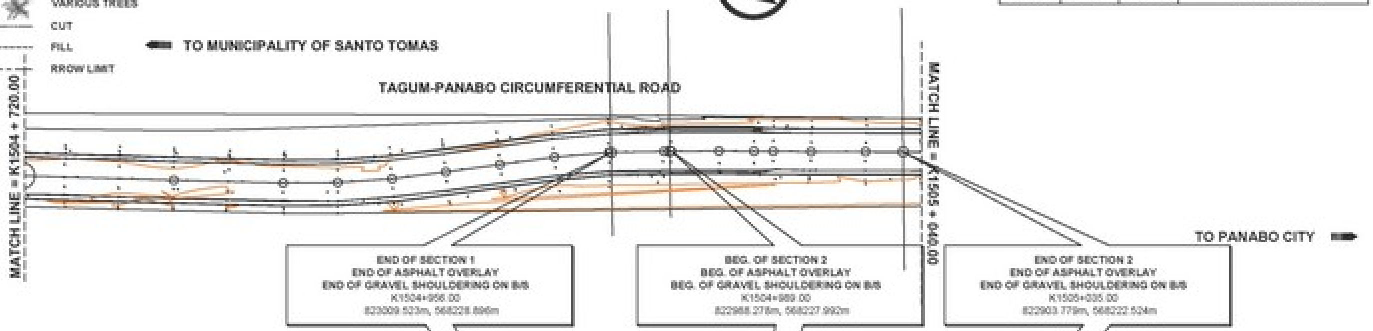
- EXISTING PCCP
- ASPHALT OVERLAY
- SHOULDER
- SCARIFIED WITH ASPHALT OVERLAY
- VARIOUS TREES
- CUT
- FILL
- RROW LIMIT

PLAN

SCALE 1:1250

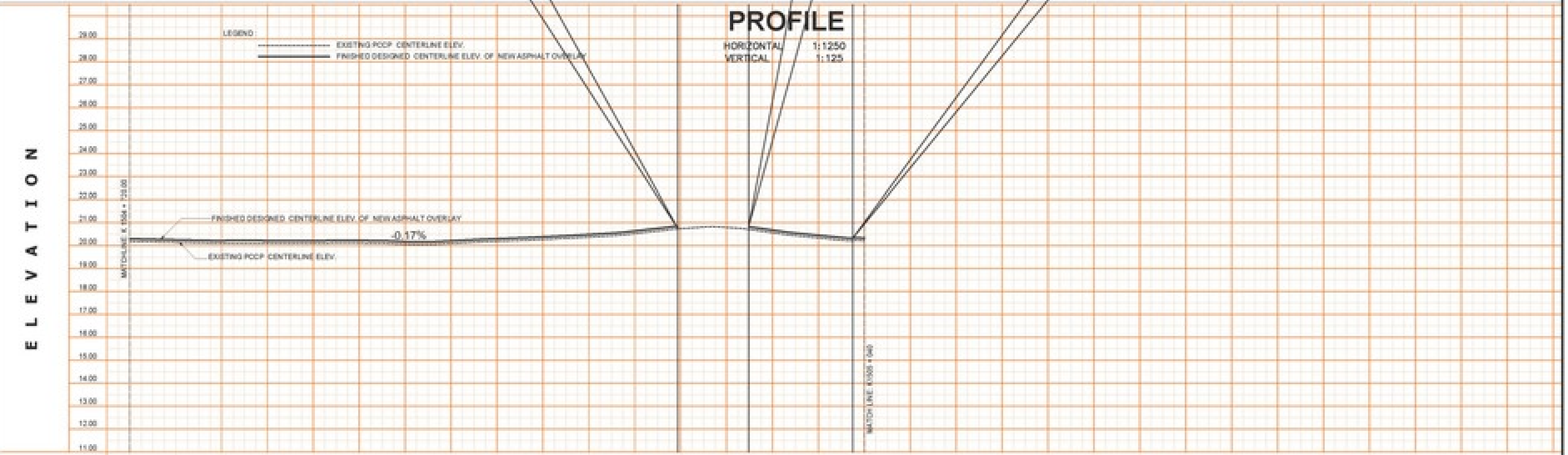
POINT TABLE			
ELEVATION	NORTHING	EASTING	DESCRIPTION
20.72	822988.278	568227.992	BEG.. OF SECTION 2
20.20	822903.779	568222.524	END OF SECTION 2

TRAVERSE		
Line No.	DISTANCE	AZIMUTH
T0 - T1	743.00	5°12'11.556"
T2 - T3	54.00	3°47'11.750"



PROFILE

HORIZONTAL 1:1250
VERTICAL 1:125



STATION 10.00	1504+720	1504+740	1504+760	1504+780	1504+800	1504+820	1504+840	1504+860	1504+880	1504+900	1504+920	1504+940	1504+960	1504+980	1505+000	1505+020	1505+040
EXISTING PCCP CENTERLINE ELEV.	20.118	20.143	20.053	20.077	20.106	20.119	20.085	20.149	20.190	20.271	20.373	20.526	20.742	20.792	20.563	20.337	20.211
FINISHED DESIGNED CENTERLINE ELEV. OF NEW ASPHALT OVERLAY	20.232	20.257	20.053	20.190	20.219	20.232	20.178	20.262	20.304	20.384	20.486	20.639	20.829	20.868	20.676	20.451	20.336

WIDENING	L	MATCH LINE
	R	w = 0
SUPERELEVATION	4.00% / -1.50% / -4.00%	NORMAL CROWN -1.50%

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION XI DAVAO DEL NORTE 2ND DISTRICT ENGINEERING OFFICE TAGUM CITY	PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 989 - K1505 + 035, K1508 + 580 - K1508 + 843, K1509 + 000 - K1509 + 106, K1510 + 590 - K1510 + 952, K1510 + 880 - K1511 + 128, K1513 + 000 - K1514 + 000	SHEET CONTENTS: PLAN AND PROFILE (2)	DRAFTED: HERWIN EVAN J. HABABAG ENGINEER II PREPARED: WARREN S. PIÑEZ ENGINEER II	REVIEWED: BENILDA S. PACQUIAO ENGINEER III DATE:	SUBMITTED: JEZABEL E. TULING, MPA CHIEF, PLANNING AND DESIGN SECTION DATE:	RECOMMENDED: GARRY B. VERANO OFFICER-IN-CHARGE OFFICE OF ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: ARTURO P. LONGYAPON DISTRICT ENGINEER DATE:	SET NO. P 2 7	SHEET NO. 17 59

LEGEND:

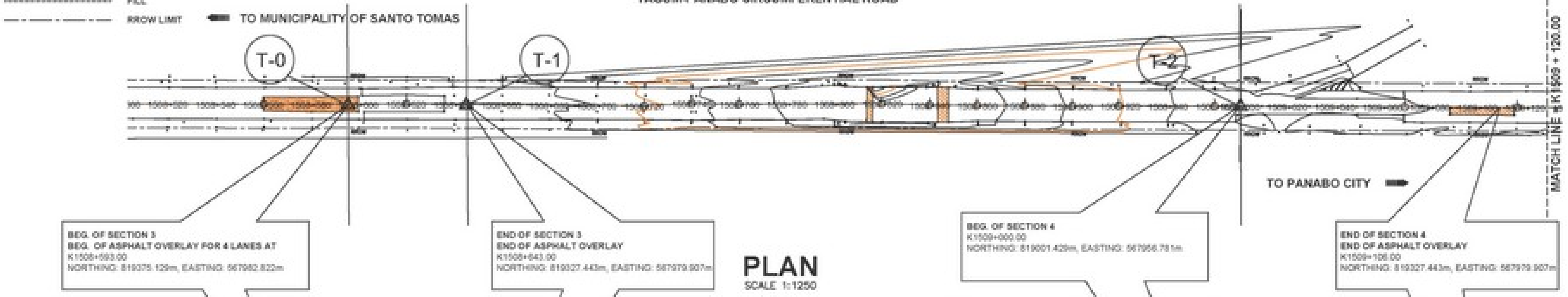
- EXISTING PCCP
- ASPHALT OVERLAY
- SHOULDER
- SCARIFIED WITH ASPHALT OVERLAY
- VARIOUS TREES
- CUT
- FILL
- RROW LIMIT

N

POINT TABLE			
ELEVATION	NORTHING	EASTING	DESCRIPTION
18.72	819375.129	567982.822	BEG. OF SECTION 1/CL OF EXIST. PCCP
18.25	819327.443	567979.907	END OF SECTION 1/CL OF EXIST. PCCP
18.02	819001.429	567956.781	BEG. OF SECTION 2/CL OF EXIST. PCCP

TRAVERSE		
Line No.	DISTANCE	AZIMUTH
T0 - T1	50.00	3° 30' 16.77"
T2 - T3	1,867.00	3° 55' 35.86"
T4 - T5	226.00	3° 30' 16.77"
T6 - T7	1,024.00	3° 28' 30.28"

TAGUM-PANABO CIRCUMFERENTIAL ROAD

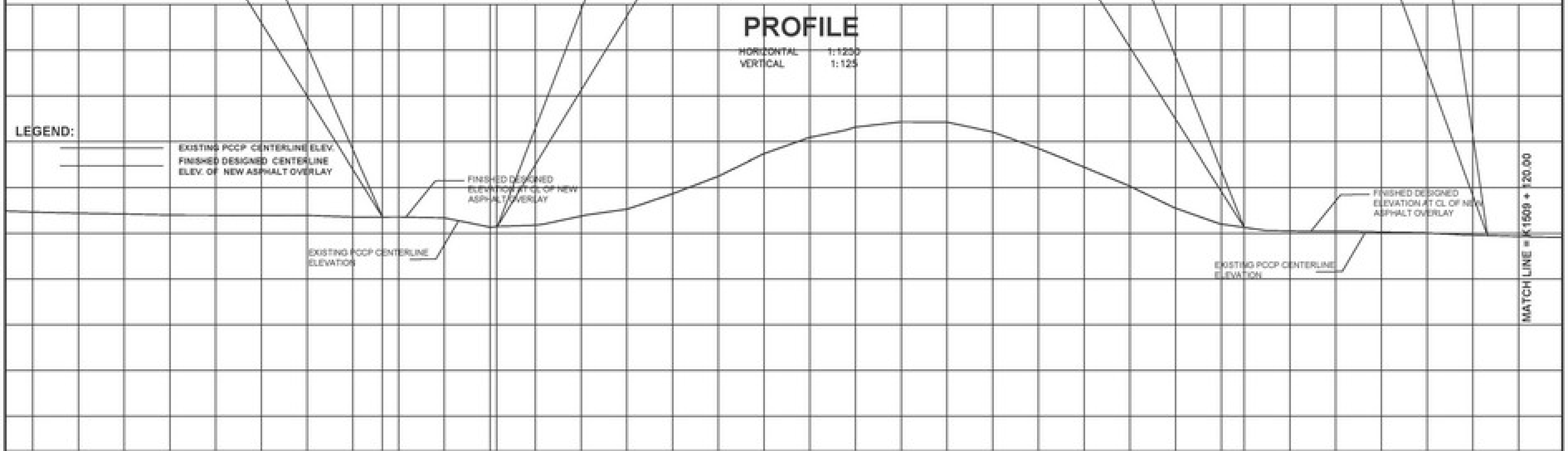


PLAN

SCALE 1:1250

PROFILE

HORIZONTAL 1:1250
VERTICAL 1:125



STATION	FINISHED DESIGNED ELEVATION AT CL OF NEW ASPHALT OVERLAY	EXISTING PCCP CENTERLINE ELEVATION
1508+500	18.816	18.798
	18.901	18.793
	18.900	18.792
	18.895	18.787
	18.819	18.711
1508+593	18.823	18.715
1508+620	18.785	18.677
1508+643	18.373	18.268
	18.464	18.356
	18.863	18.755
1508+700	19.165	19.057
	19.840	19.732
	20.607	20.499
	21.583	21.475
	22.291	22.183
1508+800	22.739	22.631
	22.968	22.858
	22.957	22.849
	22.520	22.412
	21.804	21.696
1508+900	20.999	20.891
	20.057	20.057
	19.205	19.097
	18.512	18.404
1509+000	18.368	18.258
	18.211	18.103
	18.190	18.082
	18.166	18.058
	18.121	18.013
1509+100	18.030	17.922
1509+120	17.975	17.867

WIDENING

SUPER ELEVATION

← EXISTING ELEVATION →

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION XI DAVAO DEL NORTE 2ND DISTRICT ENGINEERING OFFICE TAGUM CITY	PROJECT NAME AND LOCATION TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 869 - K1505 + 035, K1508 + 593 - K1508 + 643, K1509 + 000 - K1509 + 106, K1510 + 398 - K1510 + 952, K1510 + 990 - K1511 + 139, K1513 + 000 - K1514 + 000	SHEET CONTENTS PLAN AND PROFILE (3)	DRAFTED HERWIN EVAN J. HABABAG ENGINEER II PREPARED WARREN S. PIÑEZ ENGINEER II	REVIEWED BENILDA S. PACQUIAO ENGINEER III DATE:	SUBMITTED JEZABEL E. TULING, MPA CHIEF, PLANNING AND DESIGN SECTION DATE:	RECOMMENDED GARRY B. VERANO OFFICER-IN-CHARGE OFFICE OF ASSISTANT DISTRICT ENGINEER DATE:	APPROVED ARTURO P. LONGYAPON DISTRICT ENGINEER DATE:	SET NO. P 3 7	SHEET NO. 18 59

LEGEND:

- EXISTING PCCP
- ASPHALT OVERLAY
- SHOULDER
- SCARIFIED WITH ASPHALT OVERLAY
- VARIOUS TREES
- CUT
- FILL
- RROW LIMIT

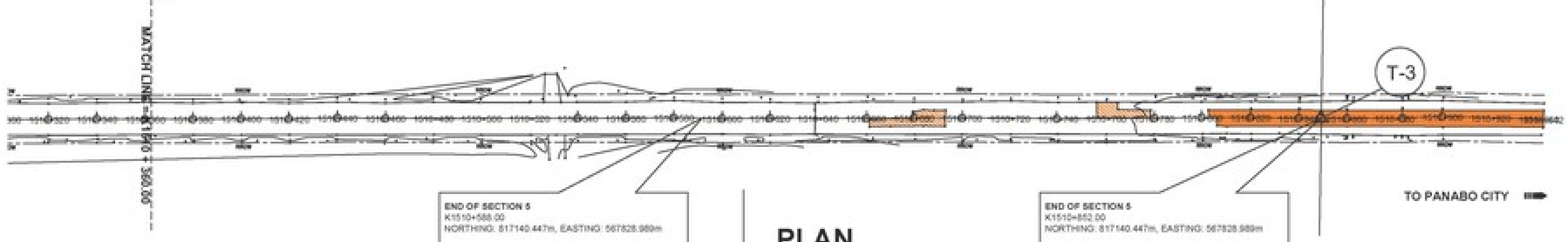
N

TAGUM-PANABO CIRCUMFERENTIAL ROAD

POINT TABLE			
ELEVATION	NORTHING	EASTING	DESCRIPTION
18.25	819327.443	567979.907	END OF SECTION 1/CL OF EXIST. PCCP
18.02	819001.429	567956.781	BEG. OF SECTION 2/CL OF EXIST. PCCP
18.57	817140.447	567828.989	END OF SECTION 2/CL OF EXIST. PCCP

TRAVERSE		
Line No.	DISTANCE	AZIMUTH
T0 - T1	50.00	3° 30' 16.77"
T2 - T3	1,667.00	3° 55' 35.86"
T4 - T5	226.00	3° 30' 16.77"
T6 - T7	1,024.00	3° 28' 30.28"

TO MUNICIPALITY OF SANTO TOMAS

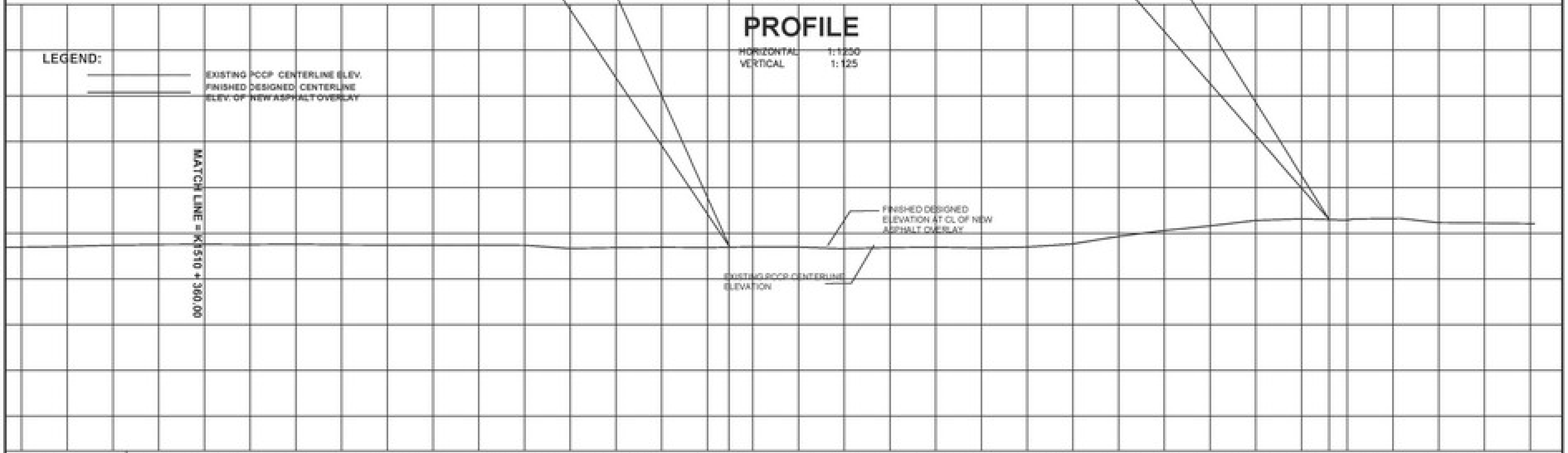


PLAN
SCALE 1:1250

PROFILE
HORIZONTAL 1:1250
VERTICAL 1:125

LEGEND:

- EXISTING PCCP CENTERLINE ELEV.
- FINISHED DESIGNED CENTERLINE ELEV. OF NEW ASPHALT OVERLAY



STATION	FINISHED DESIGNED ELEVATION AT CL OF NEW ASPHALT OVERLAY	EXISTING PCCP CENTERLINE ELEVATION
1510+340	17.615	17.567
1510+360	17.622	17.516
1510+380	17.612	17.564
1510+400	17.628	17.530
1510+420	17.604	17.496
1510+440	17.595	17.497
1510+460	17.597	17.489
1510+480	17.595	17.497
1510+500	17.565	17.477
1510+520	17.444	17.336
1510+540	17.481	17.373
1510+560	17.495	17.387
1510+580	17.482	17.374
1510+600	17.517	17.409
1510+620	17.507	17.399
1510+640	17.439	17.331
1510+660	17.482	17.374
1510+680	17.502	17.396
1510+700	17.461	17.353
1510+720	17.509	17.401
1510+740	17.446	17.340
1510+760	17.973	17.865
1510+780	18.230	18.122
1510+800	18.422	18.324
1510+820	18.471	18.363
1510+840	18.784	18.536
1510+860	18.683	18.575
1510+880	18.757	18.649
1510+900	18.572	18.464
1510+920	18.553	18.445
1510+940	18.535	18.427

WIDENING

SUPER ELEVATION

EXISTING ELEVATION

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 969 - K1505 + 035, K1505 + 590 - K1506 + 843, K1509 + 000 - K1509 + 106, K1510 + 566 - K1510 + 952, K1510 + 960 - K1511 + 129, K1513 + 000 - K1514 + 000

SHEET CONTENTS: PLAN AND PROFILE (A)

DRAFTED: HERWIN EVAN J. HABABAG, ENGINEER II

PREPARED: WARREN S. PIÑEZ, ENGINEER II

REVIEWED: BENILDA B. PACQUIAO, ENGINEER III, DATE:

SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:

RECOMMENDED: GARRY D. VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:

APPROVED: ARTURO R. LONGYAPON, DISTRICT ENGINEER, DATE:

SET NO. P 4 7

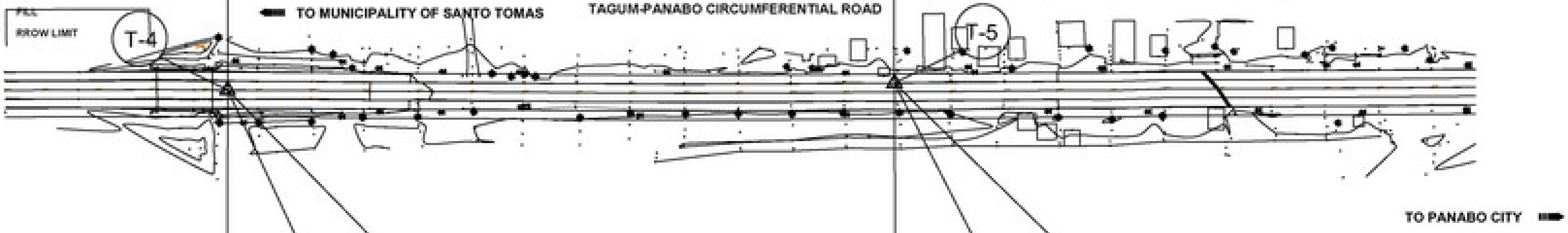
SHEET NO. 19 / 59

LEGEND:

- EXISTING PCCP
- ASPHALT OVERLAY
- SHOULDER
- SCARIFIED WITH ASPHALT OVERLAY
- VARIOUS TREES
- CUT
- FILL
- RROW LIMIT

POINT TABLE			
ELEVATION	NORTHING	EASTING	DESCRIPTION
16.65	817111.544	567827.255	BEG. OF SECTION 3/CL OF EXIST. PCCP
14.70	816860.689	567811.611	END OF SECTION 3/CL OF EXIST. PCCP
16.24	815051.306	567698.776	BEG. OF SECTION 4/CL OF EXIST. PCCP

TRAVERSE		
Line No.	DISTANCE	AZIMUTH
T0 - T1	50.00	3° 30' 16.77"
T2 - T3	1,667.00	3° 55' 35.86"
T4 - T5	226.00	3° 30' 16.77"
T6 - T7	1,024.00	3° 28' 30.28"



BEG. OF SECTION 6
BEG. OF ASPHALT OVERLAY
K1510+860.00
NORTHING: 817111.544m, EASTING: 567827.255m

END OF SECTION 6
END OF ASPHALT OVERLAY
K1511+139.00
NORTHING: 816860.689m, EASTING: 567811.611m

PLAN

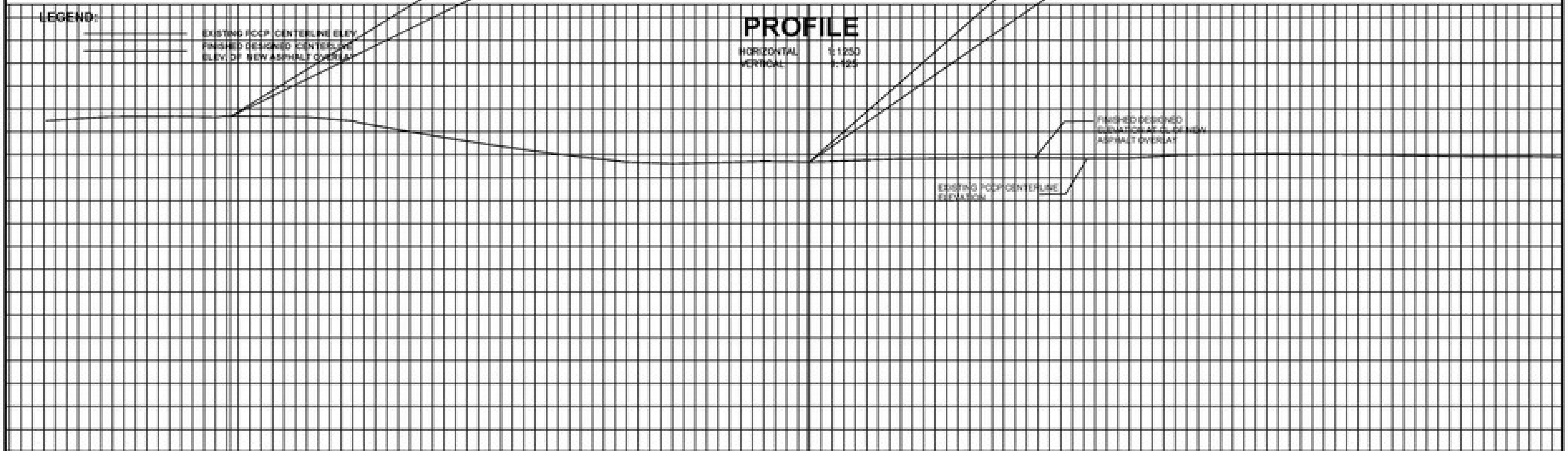
SCALE 1:1250

PROFILE

HORIZONTAL 1:1250
VERTICAL 1:125

LEGEND:

- EXISTING PCCP CENTERLINE ELEV.
- FINISHED DESIGNED CENTERLINE ELEV. OF NEW ASPHALT OVERLAY



STATION	FINISHED DESIGNED ELEVATION AT CL OF NEW ASPHALT OVERLAY	EXISTING PCCP CENTERLINE ELEVATION
1510+860	16.784	16.676
1510+880	16.752	16.644
1510+900	16.794	16.686
1510+920	16.780	16.652
1510+940	16.596	16.488
1510+960	16.211	16.103
1510+980	15.869	15.761
1511+000	15.559	15.451
1511+020	15.271	15.163
1511+040	15.017	14.909
1511+060	14.809	14.701
1511+080	14.736	14.629
1511+100	14.784	14.676
1511+120	14.842	14.734
1511+140	14.811	14.703
1511+160	14.873	14.765
1511+180	14.840	14.832
1511+200	14.935	14.847
1511+220	14.980	14.872
1511+240	14.974	14.866
1511+260	14.935	14.847
1511+280	14.960	14.852
1511+300	15.083	14.975
1511+320	15.130	15.022
1511+340	15.162	15.054
1511+360	15.144	15.036
1511+380	15.105	14.997
1511+400	15.082	14.974
1511+420	15.043	14.935
1511+440	15.031	14.923
1511+460	15.026	14.918

WIDENING

SUPER ELEVATION ← EXISTING ELEVATION →

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION XI
DAVAO DEL NORTE
2ND DISTRICT ENGINEERING OFFICE
TAGUM CITY

PROJECT NAME AND LOCATION: TAGUM-PANABO CIRCUM RD - K1504 + 216 - K1504 + 959, K1504 + 869 - K1505 + 025, K1506 + 580 - K1508 + 843, K1509 + 000 - K1509 + 106, K1510 + 580 - K1510 + 952, K1510 + 860 - K1511 + 139, K1513 + 000 - K1514 + 000

SHEET CONTENTS: PLAN AND PROFILE (5)

DRAFTED: HERWIN EVAN J. HABABAG, ENGINEER II

PREPARED: WARREN S. PIÑEZ, ENGINEER II

REVIEWED: BENILDA S. PACQUIAO, ENGINEER III, DATE:

SUBMITTED: JEZABEL E. TULING, MPA, CHIEF, PLANNING AND DESIGN SECTION, DATE:

RECOMMENDED: GARRY B. VERANO, OFFICER-IN-CHARGE, OFFICE OF ASSISTANT DISTRICT ENGINEER, DATE:

APPROVED: ARTURO P. CONGYAPON, DISTRICT ENGINEER, DATE:

SET NO.: P 5 7

SHEET NO.: 20 / 59