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REPUBLIC OF THE PHILIPPINES  
MINISTRY OF PUBLIC WORKS AND HIGHWAYS  
OFFICE OF THE MINISTER  
MANILA

10 March 1983

MINISTRY ORDER )

NO. 18 )

Series of 1983 )

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SUBJECT: ROAD DIAGRAMS AND  
BRIDGE LISTS

TO ALL : REGIONAL DIRECTORS  
DISTRICT AND CITY ENGINEERS  
And Other Concerned  
This Ministry

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In order to produce standard and single multi-purpose reference documents which shall contain basic technical data on existing roads and bridges, all District/City Engineer's Offices are hereby directed to prepare and periodically update "Road Diagrams and Bridge Lists" for their respective jurisdictions, in accordance with the enclosed new guidelines and format.

The first submission of the Road Diagrams and Bridge Lists shall be on or before 31 May 1983 and shall indicate the required basic data as of 31 March 1983. Thereafter, the Road Diagrams and Bridge Lists shall be updated annually to reflect the required data as of 31 December of every year, and the updated Road Diagrams and Bridge Lists shall be submitted not later than 14 February of the following year.

All submissions of the Road Diagrams and Bridge Lists shall be made by the District/City Engineer's Offices, through the Regional Directors concerned, to the Office of the Minister, Attention: Planning Service, which will then be responsible for reviewing, consolidating, and reproducing the materials, as well as for disseminating them to all offices concerned.

JESUS S. HIPOLITO  
Minister

GUIDELINE FOR DRAFTING OF THE  
PROPOSED NEW ROAD DIAGRAM AND BRIDGE LIST

1. CARRIAGEWAY/PAVEMENT: Draw the carriageway at a horizontal scale of 1:50,000 and the width at a scale of 1:500. Each sheet should represent a maximum length of 20 kilometers, continuation for a road of more than 20 kms. should be made on succeeding sheets.

The legend to be followed indicating the type of surfacing is as shown below:

|  |                  |   |        |
|--|------------------|---|--------|
|   | Cement Concrete  |   | SBST   |
|   | Asphalt Concrete |   | Gravel |
|  | DBST             |  | Earth  |

For gravel road, the "dots" should be in a line with the same inclination as for the SBST or DBST to facilitate updating in case of upgrading to such surfaces.

2. SHOULDER: Draw the shoulder width at a scale of 1:500. Where there is a change in shoulder width or no shoulder, indicate the station limits (Ends) as the case maybe.
3. DITCH: The ditch width should be drawn at a scale of 1:500.
4. RIGHT-OF-WAY: The Right-of-Way limits should be drawn in a thicker broken line easily distinguishable from other lines. The width should be drawn at a scale of 1:500.
5. KILOMETERAGE LINE: Indicate the kilometer Post Number.
6. NAME OF PLACE LINE: Indicate the name of the city, municipality or barangay traversed by the road. The symbol usually indicates the nucleus of activity in a community or the seat of government in the case of a province, city or municipality.

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LEGEND/SYMBOL

- City . . . . . ◎
- Municipality . . . . . ⊙
- Barangay . . . . . ○

7. BRIDGE LINE: For a bridge, indicate the stationing of the center of the structure (as a fraction in thousandths of a kilometer) preceded by a plus sign and followed by the name of the bridge.

8. CULVERT LINE: For a culvert, place the stationing of the center of structure (as a fraction in thousandths of a kilometer), preceded by a plus sign and followed by the symbol "C".

9. JUNCTION INDICATOR LINE: Project the intersection point to the Junction Indicator Line(s) and write the fraction of the kilometer after a dash preceded by a plus sign together with the name of the junction.

If the junction leads to only one direction, say left(L) or right(R), extend to Junction Indicator Line concerned.

If the junction is a cross-road, extend the line cutting the section of the road to both Junction Indicator Lines.

10. SHOULDER WIDTH AND LIMITS LINE: Indicate the shoulder width in meters at the station limits in fraction of a kilometer, preceded by a plus sign, e.g. + .750.

11. DITCH LIMITS LINE: Indicate the station limits in fraction of a kilometer preceded by a plus sign, e.g. + .80

12. PAVEMENT WIDTH AND SURFACE THICKNESS LINE:

Indicate along the line the actual width of the carriageway/pavement in meters (m) and the surface thickness in centimeters (cm) e.g., 6.0/20.

13. CARRIAGEWAY/PAVEMENT SURFACE CONDITION LINE:

Indicate whether Fair, Good, Bad or Very Bad according to the following definitions:

- GOOD - No potholes or rutting or corrugation. Less than 5 potholes per 1000 meters. Cracking which does not affect driving condition may be ignored.
- FAIR - More than 5 but less than 20 potholes per 1000 meters and/or slight cracking and/or rutting and/or corrugated (less than 50% of the section length). Passenger car speed will exceed 40 km/hr.
- BAD - More than 20 potholes per 1000 meters and/or slightly rutted and/or corrugated (more than 50% of the section length) and/or heavily rutted and/or corrugated over approximately the entire length. Pavements, if any, starting to break up. Maximum comfortable travel speed (car) 40 km/hr.
- VERY BAD - Pavement breaking up and gravel surface deteriorated into numerous potholes. Just passable for cars. Maximum comfortable travel speed (car) is about 30 km./hr.

NOTE:

FOR PURPOSES OF RATING SURFACE CONDITION USE THE RATING SYSTEM FOUND ON PAGE 35 OF THE HIGHWAY PLANNING MANUAL, VOLUME V.

14. HORIZONTAL ALIGNMENT LINE:

Indicate along the entire length of the straight line diagram the sections where horizontal curves exist, as exemplified below:

For a simple curve,  $D = 3^{\circ} L$ , means that the Degree of curvature is  $3^{\circ}$  and the direction is to the left (facing the higher kilometer station ahead). Place the letter R after the degree of curvature if the curve is leading to the right.

For a reverse curve of  $12^{\circ}$  and  $20^{\circ}$  respectively, write the degrees of curvature in succession in accordance to its direction and place the letters RC enclosed in parenthesis, as  $D = 12^{\circ} L, 20^{\circ} R (RC)$ .

Compound curves should be written as follows:  
D = 6° R, 12° R (CC) if the direction is to  
the right, and vice-versa if it is to the left.

Parabolic curves and curve with one degree of  
curvature and less should be neglected.

15. TERRAIN AND CARRIAGEWAY/PAVEMENT GRADIENT:

Indicate whether the terrain is Flat (F), Rolling  
(R) or Mountainous (M), whichever is predominant in a  
homogenous section, using the following definitions:

- FLAT - Refers to level country (both longitudinal  
and transversely). Typically it is difficult  
to construct a "positive" roadside drainage  
system, to carry water away from the road  
to streams or rivers, in this type of terrain.  
During and immediately after rains, standing  
water is common on both sides of the road,  
ditch water velocities are very slow and  
silting of ditches tends to be heavy.
  
- ROLLING - Refers to country where natural grades, both  
longitudinal and transverse are gentle, less  
than 5 percent and the crest to crest distances  
are such that a straight road generally could  
be constructed on grades roughly parallel to  
natural ground. Construction of a "positive"  
drainage system generally presents no major  
problem and roadside water can be carried to  
natural water courses or drained off over  
fields.
  
- MOUNTAINOUS - Refers to terrain where steep longitudinal  
and/or transverse ground slopes necessitate:
  - a) frequent construction of cuts and fills,  
greater than 3 meters maximum depth or  
height to maintain good horizontal or  
vertical alignment;
  
  - b) numerous curves, more than 3 per kilometer,  
to avoid cuts and/or fills of a maximum  
depth or height of 3 meters, or a smaller  
number of curves to avoid greater heights  
of cut or fill, in both cases to maintain  
road grades of less than 5 percent. In  
addition, terrain should be classified  
as mountainous if:
    - sidehill benching is the predominant  
construction or if "engineered" road  
zigzag while climbing in order to  
maintain flatter grades.

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- catchment areas are such that sharp storms will rapidly load the roadside ditches, even in small catchment areas and ditch water run-off velocities will be high. Such conditions may be encountered in isolated spot locations in hilly country but, when frequently observed, terrain should be classified as mountainous.

After writing down in capital letter the type of terrain, place the pavement gradient in percentage, indicating whether negative or positive.

Where there is a series of change in gradients, plot only the prevalent ones with a grade of 5% and above contained in a stretch of 500 meters.

16. ROADSIDE FRICTION LINE:

Indicate the roadside friction, whether None, Light, Medium or Heavy, using the following definitions:

DEFINITIONS:

- NONE - Few or no houses along the carriageway
- LIGHT - Houses and/or road intersections along and close to the road, 100-200 meters between these objects. Pedestrians and other slow moving traffic observed occasionally.
- MEDIUM - Scattered roadside development, 50-100 meters between buildings and/or road intersections. Pedestrians and other slow moving traffic observed frequently.
- HEAVY - Continuous roadside development less than 50 meters between buildings and/or road intersections. Pedestrians and other slow moving traffic tend to disrupt the motor vehicle traffic and reduce travel speed to under 35 km./hr. even at low traffic densities.

17. TRAFFIC ACCIDENT FREQUENCY:

Indicate along this line the number of times accidents occur at a certain point within the past 12 months and its immediate vicinity.

Accidents where there are number of persons killed, persons injured and vehicles involved should be indicated as follows; [1-3-2] which means that one person was killed on the spot, three injured and two vehicles involved. For a symbol of [0-0-2] it means that no person was killed on the spot, no person injured and only two vehicles involved in the accident.

18. AADT LINE:                    Indicate the latest available AADT and, in parenthesis, the calendar period taken. In the AADT count include all types of vehicles excluding motorcycles, tricycles and non-motorized vehicles.
  
19. BOUNDARY LINES:            Use the traditionally accepted boundary lines between provinces, cities, municipalities and barangay in indicating separation of administrative jurisdiction.
  
20. BRIDGE/CULVERT LIST:

Fill up the self-explanatory table below the Road Diagram for each bridge/culvert.

NOTE:

PLOT ALL NATIONAL ROADS COVERED UNDER EACH RESPECTIVE JURISDICTION.

FOR STRUCTURES IN EXISTENCE, SEE SAMPLE ENTRY.

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