097.13 DPWH
06.01.2011

Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Manila

MAY 31 2011

DEPARTMENT ORDER)
NO. 32)
Series of 2011 06.01.11)

SUBJECT : Guidelines in the Submission of Plans, Program of Work (POW) and Approved Budget for the Contract (ABC) for Approval in the Central Office.

It has been observed that there are implementing offices who submit Design Plans, Program of Work (POW) and Approved Budget for the Contract (ABC) for approval in the Central Office with incomplete supporting documents necessary in the review by the Bureau of Design and Bureau of Construction, such as: the absence of design analysis, geotechnical report, etc., to support the proposed plans and the absence of approved plans and specifications, Detailed Unit Price Analysis (DUPA), etc., to support the proposed Program of Work (POW) and Approved Budget for the Contract (ABC). Likewise, there are plans and cost estimates which are disorderly presented, lack necessary information or contain excessive components of material, labor and equipment that are not within the prevailing rates and therefore, run counter with the guidelines set forth under D.O. No. 12, series of 2011-***Preparation of Approved Budget for the Contract*** and D.O. No. 56, series of 1995-***Quality of Plans***.

Such improper submission results in delay in the processing of documents that consequently, delays project implementation. To avoid these delays therefore, it is reiterated to all concerned to strictly follow from hereon, the provisions outlined under D.O. 56, series of 1995 and D.O. No. 12, series of 2011 and to submit the complete supporting documents prescribed under D.O. No. 41, series of 2009-***Implementation of the Documents Tracking System for Civil Works Projects.***

The following are additional guidelines to be followed:

A. Plans

1. To ensure accuracy and completeness of the plans and supporting documents, the implementing office shall review the plans prior to submission to the approving authority using the "Ready Checklist" for each project category, as shown in Annexes A-E; and
2. The plans and supporting documents shall be submitted together with the duly accomplished "Ready Checklist".

B. POW and ABC

1. All items of work including special items and items of work in lump sum amount, with the exception of Provisional Sum, shall be supported with detailed unit price analysis, plans and specifications;

2. The DUPA shall contain and/or be supported with the following:
   a. Model and capacity of equipment used;
   b. Labor rates derivation;
   c. Canvassed prices of materials;
   d. Derivation of the cost of materials delivered on site;
   e. Hauling Distance/Time Motion Analysis for items of work involving hauling of materials;
3. All non civil work items, such as: items of work under the Facilities for the Engineer and Other General Requirements, shall not be subject to a mark-up for Overhead, Contingencies and Miscellaneous (OCM);
4. As for the provision however of Service Vehicle, under the Facilities for the Engineer, it shall not be subject to both contractor's profit and OCM, in accordance with D.O. No. 3, series of 2010-***Guidelines on the Acquisition of Motor Vehicles for Use in Infrastructure Project Supervision***;
5. For ABC with more than two (2) pages, a summary page shall be provided reflecting the total cost per category and the total ABC. The name of the approving DPWH official shall be reflected in the summary page; and
6. The submission of an electronic file for the ABC and DUPA is also hereby required to facilitate the conduct of review/evaluation and the application of correction/s, if necessary.

This Order shall take effect immediately.

ROGELIO L. SINGSON
Secretary

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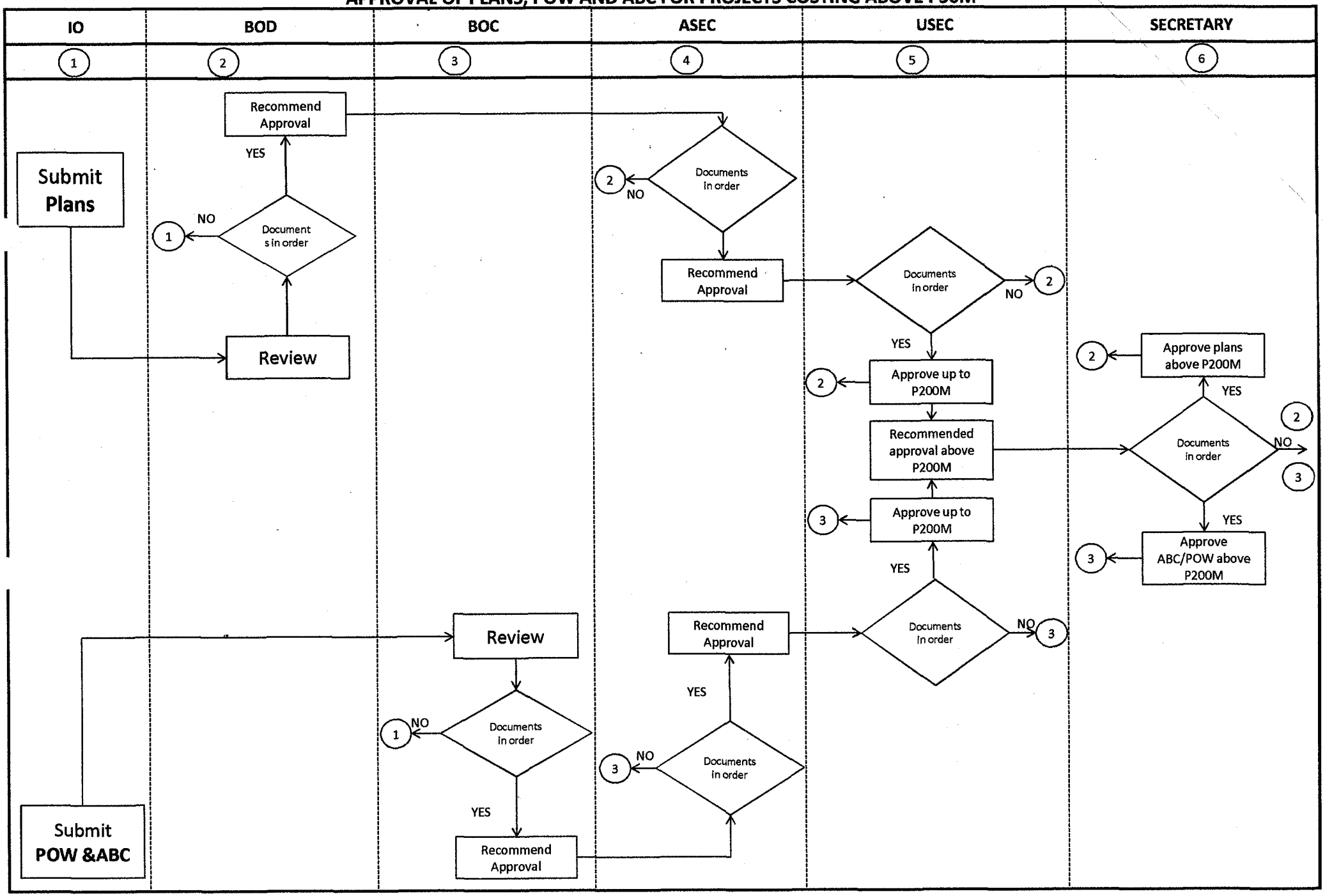
PROCEDURAL FLOWCHART
APPROVAL OF PLANS, POW AND ABC FOR PROJECTS COSTING ABOVE P50M



Annex "A"

READY CHECK FOR SURVEYS AND INVESTIGATION PLANS

I. LIST OF REQUIRED DRAWINGS

- ☐ Cover Sheet
- ☐ Index of Drawings
- ☐ Location plan & Vicinity map
- ☐ General Survey Notes, Legends, Abbreviations & Symbols
- ☐ Index Map (Survey Control) & Technical Description of all Controlling Points
- ☐ Plan/Profile for Topographic/Hydrographic Survey
- ☐ Detailed cross-sections
- ☐ Parcellary Survey Plan
- ☐ Right-Of-Way Improvement Plan
- ☐ Material Sources Map
- ☐ Soil Profile
- ☐ Others, as may be necessary

II. REQUIRED SUPPORTING DOCUMENTS

1. Topographic/hydrographic Survey plan
   - ☐ Survey Returns/computations
   - ☐ Certification from NAMRIA-DENR of the horizontal & vertical reference point used in the survey.

2. Parcellary Survey plan
   - ☐ Approved road alignment
   - ☐ Subdivision plan
   - ☐ TCT/OCT
   - ☐ Survey returns/computations
   - ☐ Computations of lot Areas/length (remaining/affected)

3. Right-of-Way Improvement plan
   - ☐ Approved road alignment
   - ☐ Tax Declaration for improvements

4. Geological Survey & Geotechnical Investigation
   - ☐ Report/data
5. Hydrology Investigation
   - ☐ Report/Analysis
   - ☐ Design Discharge computation

III. READY CHECK FOR SURVEYS & INVESTIGATION PLAN

A. TITLE SHEET

Verify if the following are indicated:

- ☐ Title/Location of the project
- ☐ Stationing of beginning/end of project
- ☐ Title block with name of approving/recommending officials

B. INDEX OF DRAWINGS

☐ 1. GENERAL PLAN

Verify if the following sheets are submitted/attached:

- ☐ Location map/Vicinity map
- ☐ General Notes (survey), Legends/Symbols & Abbreviations
- ☐ Index Map (survey controls) and Technical Description of all controlling points

☐ 2. TOPOGRAPHIC/HYDROGRAPHIC PLAN

Verify if the following are indicated:

- ☐ Project area plotted with grid coordinate system
- ☐ Plan/baseline map indicating the Azimuth, distance and stationing in every 20m interval
- ☐ Profile indicating the ground elevation, in meter
- ☐ Detailed cross-sections showing the existing ground line with elevation
- ☐ North Arrow Direction and all natural & man-made features
- ☐ Contour lines with elevation, in meters
- ☐ Reference points/Elements of Curves
- ☐ ROW limit/construction limit
- ☐ Matchline stationing in every sheet
- ☐ Description of old and new established horizontal and vertical ground controls.
- ☐ Traverse line/baseline with azimuth and distance.
- ☐ Established concrete monument: Global Positioning System (GPS), Benchmarks (BMs), and Intermediate Benchmarks (IBMs)
- ☐ Water line elevation, in meters
- ☐ Scale used in the drawing & sheet numbering
- ☐ Waiver drafted in every sheet of plans.
- ☐ Date of survey and name of Geodetic Engineer with his license & PTR numbers, signature and seal.

- ☐ Title block with name of approving officials in every sheet of plans
- ☐ Supporting Documents
  - ☐ Survey returns/computations
  - ☐ Certification from NAMRIA-DENR of the horizontal and vertical reference point used.

3. PARCELLARY SURVEY PLAN

Verify if the following are indicated:

- ☐ Project area plotted with grid coordinate system
- ☐ Plan with ROW/construction limits, contours, etc.
- ☐ Elements of Curves
- ☐ Description of old and new established horizontal and vertical ground control
- ☐ Names of adjoining Towns, Barangays and Municipality
- ☐ Lot numbers, area and names of claimants or owner of affected/remaining lots
- ☐ List/Tabulation per sheet showing the names of lot owners/claimants and area of lot affected/remaining, etc.
- ☐ TCT/OCT/Technical descriptions
- ☐ Matchline stationing in every sheet
- ☐ Date of Survey and Name, License number, signature and seal of Geodetic Engineer
- ☐ Survey waiver drafted in every sheet
- ☐ Scale used in the drawing, sheet numbering
- ☐ Names of signatories/approving officials in every sheet of plan
- ☐ Supporting Documents:
- ☐ Approved road alignment
- ☐ Subdivision plans
- ☐ Survey returns/computations
- ☐ Certification from NAMRIA-DENR of horizontal and vertical reference point.

4. RIGHT-OF-WAY IMPROVEMENT PLAN

Verify if the following are indicated:

- ☐ Project area plotted with grid coordinate system.
- ☐ Plan incorporating all existing structures, improvements, natural features, trees, etc.
- ☐ Elements of Curve
- ☐ Description of old and new established horizontal and vertical ground controls.

- ☐ Areas/length of affected/remaining structures, improvements, trees, etc.
- ☐ Land classification (residential, agricultural, commercial, industrial)
- ☐ List/Tabulation per sheet showing the name of improvements owner/claimants and type of affected improvement, i.e. store, house, concrete/wooden fence, etc.
- ☐ Match line stationing in every sheet of plan
- ☐ Scale used in the drawing, sheet numbering
- ☐ Name, License number, signature and seal of Geodetic Engineer and date of survey
- ☐ R-O-W Limits
- ☐ Waiver drafted in every sheet of plans.
- ☐ Supporting Documents:
    - ☐ Copy of approved road alignment
    - ☐ Tax declaration for improvements

C. GEOLOGICAL/GEOTECHNICAL INVESTIGATION

1. Geological Survey Report/Data

Verify if the following are indicated:

- ☐ Methodology and activities
- ☐ Geologic Map showing soils/rocks formation, geologic structures.
- ☐ Proposed project superimposed on the geologic map.
- ☐ Conclusion and Recommendation

2. Geotechnical Investigation Report/Data

Verify if the following are indicated:

- ☐ Scope of Work
- ☐ Methodology of the Investigation
- ☐ Details of Field Works
- ☐ Test Pits
- ☐ Auger Borings
- ☐ Drilling Works (Rotary Drilling, Wash Boring, Standard Penetration Test, Undisturbed Sampling, Ground Water Level)
- ☐ Details of Laboratory Works
- ☐ Moisture Content
- ☐ Classification of Soils for Engineering Purposes
- ☐ Grain Size Analysis
- ☐ Atterberg Limits
- ☐ California Bearing Ratio
- ☐ Moisture Density Relations
- ☐ Core Recovery Ratio

- ☐ Rock Quality Designation (RQD)
- ☐ Results of the Investigation
- ☐ Subgrade Condition
- ☐ Results from Test Pits
- ☐ Results from Auger Borings
- ☐ Results from Drilling Works
- ☐ Conclusions and Recommendations
- ☐ Pavement Design Recommendations
- ☐ Foundation Design Scheme (for bridges)
- ☐ Pile Capacity Data
- ☐ Horizontal Modulus of Subgrade Reaction
- ☐ Seismic Design Consideration
- ☐ Liquefaction Potential
- ☐ Settlement Evaluation

3. Attachment

a) Drilling Works

Verify if the following are attached/indicated:

- ☐ Borehole Location Plan
- ☐ Soil Profile/s
- ☐ Final Boring Logs (Per Borehole)
- ☐ Name/Location of Project
- ☐ Borehole Number
- ☐ Station with coordinates of Boreholes
- ☐ Ground Elevation
- ☐ Ground Water Level
- ☐ Final Depth of Borehole
- ☐ Depth of Sampling & Casing
- ☐ Type of Sampling
- ☐ % Recovery & % RQD
- ☐ SPT, N-Value, Consistency
- ☐ Soil Symbols & Description
- ☐ Date of Drilling Works
- ☐ Signatures of Drilling/Laboratory Personnel
- ☐ Legends, Symbols and Range of Values
- ☐ Laboratory Tests and Results
- ☐ Summary of Test Results per Borehole
- ☐ Grain Size Analysis
- ☐ Atterberg Limits
- ☐ Soil Classification/description
- ☐ Natural Moisture Content
- ☐ Specific Gravity

- ☐ Unconfined Compression Test
- ☐ Direct Shear Test

b) Test Pits and Auger Holes

Verify if the following are attached/indicated:

- ☐ Test Pits and Auger Holes Location Plan
- ☐ Soil Profile/s
- ☐ Laboratory & Summary of Tests and Results
- ☐ Station and TP/AH Number, Sample Number, Sample Depth
- ☐ Soil Classification/soil description
- ☐ Grain Size Analysis
- ☐ Natural Moisture Content
- ☐ Atterberg Limits
- ☐ Specific Gravity
- ☐ Moisture Density Relations (MDD, OMC)
- ☐ California Bearing Ratio (95%, 100%)
- ☐ % Swell
- ☐ Compaction Test
- ☐ Consolidation Test
- ☐ Signature of Laboratory Personnel

c) Photographs

Verify if the following are attached:

- ☐ Drilling Works
- ☐ Test Pitting/Auger Boring
- ☐ Test Pit/Auger Hole/Drill hole Samples

D. HYDROLOGY REPORT/ANALYSIS

1. General Requirement

Verify if the following are indicated:

- ☐ Introduction/background information.
- ☐ Location Map
- ☐ Methodology applied for the determination of design discharge based on the DPWH - DGCS
- ☐ Delineated drainage area and parameters indicated in the 1:50 000 scale topographic map (NAMRIA), including data from PAGASA used as reference.
- ☐ Actual field condition of the project site and the watershed area, including soil data and vegetative cover, flooding condition and

causes of flooding, type and amount of sediment, scour and erosion conditions.

- ☐ Watershed Physiographic Data
- ☐ Photographs of the proposed project site
- ☐ Recorded Maximum Rainfall Data and/or Minimum Stream Flow Data
- ☐ Design Flood Frequency Analysis or Unit Hydrograph Analyses (if recorded data are available)
- ☐ Watershed Parameters for Ungaged Basin
- ☐ Tabulation of Design Flow at Different Return Period
- ☐ Analysis/Calculation of the Design Discharge
- ☐ Tabulated watershed parameters used in the calculation/ program
- ☐ Additional 10% base flow on the estimated design discharge
- ☐ Formulas/equation of preferred methodology
- ☐ Specific procedure/process in the determination of variables used in the equation

2. Road/Highway Projects

Verify if the following are indicated:

- ☐ Maximum flood height or depth of flooding
- ☐ Magnitude of flood and relation to other notable floods
- ☐ Duration of flooding
- ☐ Discharge calculations for cross drains and lateral drains
- ☐ Capacity evaluation of existing drainage structures
- ☐ Others: As indicated in the General requirement, above.

3. Flood Control and Bridge Projects

Verify if the following are indicated:

- ☐ Maximum flood height upstream and downstream from the project site
- ☐ Duration and depth of flooding above the banks
- ☐ Magnitude of flood and its relation to other notable floods
- ☐ Specific and complete data and criteria used and the procedure applied in case that a particular software is utilized in the determination of the design discharge
- ☐ Flood map of maximum flood experienced with date of occurrence
- ☐ Flood damage and losses to structures and adjacent properties
- ☐ Others: As indicated in the General requirement, above.

IV. REQUIRED MINIMUM PARAMETERS FOR THE CONDUCT OF SURVEYS & INVESTIGATION

1. Topographic Survey

- ☐ 1/10,000, (secondary traverse) - Horizontal control accuracy
- ☐ 12.0mm $\sqrt{k}$ - (3^{rd} Order) - Vertical control accuracy
- ☐ 50m - Radius of curvature
- ☐ 3 - Reference points in every PI
- ☐ 20m - Distance between stationing on plans
- ☐ 30m – Right of way (ROW) limit
- ☐ 1.0 m - Contour interval
- ☐ 1.0 ea – BM concrete monument, established in every 500m interval
- ☐ 1.0 ea – PBM concrete monument, established in every 250m interval
- ☐ 1.0 ea – GPS concrete monument, established in every 3.0 km. interval

2. River Survey (For Bridges & Flood Control & Drainage Projects)

- ☐ Survey shall be extended at least 200m upstream/downstream from the proposed bridge centerline and fifty (50) m from both banks.
- ☐ 200m upstream/downstream extended profile for river channel
- ☐ Cross-sections shall be extended at least 200m from both banks towards bridge approaches
- ☐ One (1) Benchmark at each bank of the proposed bridge

3. Parcellary survey

- ☐ Linear error of closure = ½,000 (tertiary traverse)

4. Geological/Geotechnical Investigation

a) Boring Requirements for each project category

	Type of Project	Spacing	Depth
☐	Highways	-250m @ centerline for 300 VPD traffic -500m @ centerline for less than 300 VPD	-1.5m below prop. subgrade -1.5m along centerline for existing earth roads

		traffic -100m @ centerline for new roads on marshy/swampy ground	-2.0m along centerline for new roads
□	Bridges	-1 deep drilling for each abutment -1 boring, each pier for multi-span bridge	-twenty (20)m below river bed unless rock is encountered -Borings should reach 3m into bedrocks
□	Flood Control & Drainage	For dams – 60m over Foundation areas & 30m intermediate along centerline For dikes & Revetments -one (1)boring in active slide area - three (3) borings on line in critical transverse direction for high embankment & deep cuts -two hundred (200)m for irregular soft strata -one (1)km for homogeneous strata	For dams - ½ times the base width for earth dams - one (1)m times the height for small concrete dams in homogeneous foundations For high embankments & revetments: - 0.5m times the horizontal length of side slope in relatively homogeneous foundation. In irregular soft strata, borings should reach hard materials.
□	Buildings	-For large area building (930 sq.m.) one (1) borehole each @ 2 corners and one(1) at	Nine (9)m below lowest part of foundation unless rock is encountered at shallow depth.

	Buildings (cont.)	the interior -sixty (60)m for building locations on soft compressible strata -two (2) borings around perimeter for isolated rigid foundation -two (2) borings at opposite corners for building area less than 230 sq.m.	Borings should reach 3m into bedrock.

b) Material Sources
Two (2) tests pits for every Material Source

Submitted by: _____
Position : _____

Annex "B"

READY CHECK FOR FLOOD CONTROL AND DRAINAGE PLANS

I. LIST OF REQUIRED DRAWINGS

- ☐ Cover Sheet
- ☐ Index of Drawings
- ☐ Location Vicinity/Map
- ☐ General Notes/Legends, Abbreviations & Symbols, and Technical Specifications
- ☐ Geotechnical Investigation and Evaluation Report
- ☐ Technical Specifications
- ☐ Parcellary Survey Plan
- ☐ General plan, elevation sections and details of flood control/drainage and other related structures (See ready check of drawings)
- ☐ Flood Control Monitoring, Pumping Stations and Other Related Structures

II. REQUIRED SUPPORTING DOCUMENTS

1. Topographic/Hydrographic Survey Plan
   - ☐ Survey Returns/computations
   - ☐ Certification from NAMRIA-ENR of the horizontal & vertical reference point used in the survey.

2. Parcellary Survey plan
   - ☐ Approved road alignment
   - ☐ Subdivision plan
   - ☐ TCT/OCT
   - ☐ Survey returns/computations
   - ☐ Computations of lot Areas/length (remaining/affected)

3. Geotechnical Investigation and Evaluation Report

4. Design Analysis and Calculations
   - ☐ Hydrologic/Hydraulic Analysis
   - ☐ Water Surface Profile Analysis
   - ☐ Seepage and Settlement Analysis
   - ☐ Slope Stability Analysis
   - ☐ Overall Stability Analysis
   - ☐ Scour Analysis
   - ☐ Structural/Seismic Analysis
   - ☐ Detailed Quantity Calculations
   - ☐ Energy Analysis and Life Cycle Analysis (water pumping system)
   - ☐ Cooling and Heating Load Calculations (water pumping system)
   - ☐ Hydraulic Calculations (water pumping system)

5. Technical Specifications

III. READY CHECK ON DRAWINGS

A. COVER SHEET

Verify if the following are indicated:

- ☐ Letter head/logo of Proponent Office
- ☐ Name and location of Project
- ☐ Name and signatures of officials with designation who prepared/submitted, recommended and approved plans
- ☐ For project prepared by consultants-includes the standard format for the waiver of responsibility

B. INDEX OF DRAWINGS

Verify if the following are indicated:

- ☐ Table of Contents
- ☐ Summary of Contents in tabulated form
  - ☐ Item Number
  - ☐ Description of Work (or item description)
  - ☐ Units of measurement
  - ☐ Quantities for flood control and drainage including abutment and piers slope and scour protections should be presented
  - ☐ Total quantity for each item involved
  - ☐ Old and new quantities (revised quantities separately indicated in case of revised plans or "As-Staked" plans
  - ☐ Remarks
- ☐ Technical Description of all Controlling Points
- ☐ Topographic/Hydrographic Survey Plan/Profile
- ☐ Parcellary Survey Plan
- ☐ Right-Of-Way Improvement Plan
- ☐ Material Sources Map
- ☐ Soil Profile

C. LOCATION VICINITY/MAP

Verify if the following are indicated:

- ☐ Location of proposed bridge, flood control, dam, shore protection works and other related structure with respect to existing road, road section, towns, etc
- ☐ Important landmarks/existing structures
- ☐ Contours with elevation
- ☐ Location of boreholes
- ☐ Direction of stream flow

- ☐ Benchmarks used in the surveys (reference elevation)
- ☐ Azimuth for alignment of revetment (flow control structure) longitudinal axis
- ☐ Directional sign/informatory sign (northing)
- ☐ Location of private and public structure/utilities that may be affected by the proposed project.
- ☐ Location of existing bridge and other structures, if any.

D. GENERAL NOTES/LEGENDS, ABBREVIATIONS, SYMBOLS, AND TECHNICAL SPECIFICATIONS

Verify if the following are indicated:

- ☐ Design Criteria
  - ☐ Code and Specifications
  - ☐ Soil data
  - ☐ Hydraulic design data
  - ☐ Design stresses
- ☐ Construction
  - ☐ Codes and specifications
  - ☐ Material specifications
  - ☐ Construction procedure/sequence
- ☐ Special provision/information, if any
- ☐ For project prepared by Consultants-include standard format for waiver of responsibility

E. GEOTECHNICAL INVESTIGATION AND EVALUATION REPORT

Verify if the following are indicated:

- ☐ Boring logs
  - ☐ Elevation and stationing of SPT
  - ☐ N-Values
  - ☐ Description and soil classification

F. TOPOGRAPHIC/HYDROGRAPHIC SURVEY PLAN

Verify if the following are indicated:

- ☐ Survey Returns/computations
- ☐ Certification from NAMRIA-ENR of the horizontal & vertical reference point used in the survey.

G. PARCELLARY SURVEY PLAN

Verify if the following are indicated:

- ☐ Approved road alignment

- ☐ Subdivision plan
- ☐ TCT/OCT
- ☐ Survey returns/computations
- ☐ Computations of lot Areas/length (remaining/affected)

H. GENERAL PLAN, ELEVATION SECTIONS AND DETAILS OF FLOOD CONTROL/DRAINAGE AND OTHER RELATED STRUCTURES (SEE READY CHECK OF DRAWINGS)

☐ **Revetments**

Verify if the following are indicated:

- ☐ Survey stationings indicated in the location plan against plan/profile and cross sections of the proposed revetment.
- ☐ Elevation at the proposed top of revetment in plan/profile, cross sections and typical sections.
- ☐ Elevation at the proposed berm of revetment in plan/profile, cross sections and typical sections.
- ☐ Elevation at the top of cutoff wall at the foot of revetment in plan/profile, cross sections and typical section.
- ☐ Side slope/s of the proposed revetment in plan/profile, cross section and typical section.
- ☐ Dimensions of the cutoff wall at the bottom of revetment in profile, cross section and typical section.
- ☐ Location, size, type and spacing of the anchor rod or beam in profile.
- ☐ Width of the top of revetment in typical section.
- ☐ Dimensions of cutoff wall or gravity wall, if provided, at the top of revetment in typical section.
- ☐ Location, size, type and spacing of weepholes as well as the type and dimensions of filter pockets at the proposed revetment in typical section (for rubble or reinforced concrete revetment.
- ☐ Type of fill for void or eroded portions behind the proposed revetment (if boulder fill, verify sizes).
- ☐ Location and orientation, size, type and spacing of anchor rod or beam in typical section.
- ☐ Location, orientation, size and type of anchor pile in typical section.
- ☐ Location, dimensions and type of deadman anchorage in typical section.
- ☐ The existence of specific details being referred to as indicated by encircled sections noted with "See Details".
- ☐ The type and thickness of filter backing beneath the proposed revetment (for dry rubble revetments).
- ☐ Thickness and type of revetment facing material whether grouted riprap, rubble concrete, reinforced concrete, gabion or any other type of protection works in detail of facing.

- ☐ Side slopes of revetment
- ☐ Dimensions, type of material (sizes of stones and/or class of concrete), and/or sizes and spacing of bars in the detail of cutoff wall.
- ☐ Spacing of weep holes as well as the type of filter pockets.
- ☐ Dimensions, sizes and spacing of bars (including concrete cover) and connection with anchor rod or beam in the detail of pile cap of anchor pile.
- ☐ Dimensions, type, sizes and spacing of bars (including concrete cover) and connection with anchor rod or beam in the detail of deadman anchorage.
- ☐ Size and type of wale beam, sizes of washers, type of standard nuts, size and orientation of anchor road and fixing bolts, size and type of bracket (for inclined anchor rod) and size and type of sheetpile in the detail of anchor rod-sheet pile connection.
- ☐ Sizes of washers, type of standard nuts and size of anchor rod in the detail of nut and washer.
- ☐ Location and size of fixing bolts, size of anchor rod, size of pile cap, size and type of wale beam, spacing of anchorage, top dimensions of pile caps for anchor piles or deadman anchorage in the part plan showing anchorage of sheet pile.
- ☐ Sizes of stones for foot protection works.
- ☐ Dimensions, bank line, berm width (if provided), location of weepholes, in the part plan of end protection of revetment.
- ☐ Size and slope of drainage, pipes, dimensions of catch basins, type and dimensions of gate flap (if provided) in the plan and elevations of drainage scheme.
- ☐ Dimensions in the plan and elevations of stairway.
- ☐ Details of connection of the revetment with existing structures.
- ☐ Maximum and ordinary water levels in typical section and cross sections.
- ☐ Notes if consistent with the specifications.
- ☐ All sections are property labeled.
- ☐ All lines and members of the structure indicated are identified.

☐ **River/Shore Training Structure**

Verify if the following are indicated:

- ☐ Survey stationing indicated in the location plan against plan/profile and cross sections.
- ☐ Location, spacing and orientation with reference to bank/shore line (for all types of training works).
- ☐ Top elevation, length and longitudinal slope in typical section and cross sections (for all types of training works).
- ☐ Side slope, top width, and description and sizes of stones in detail of spurdikes and guidebanks.
- ☐ Spacing, size and type of piles, size and type of wale, size of bolts and spikes in detail hurdles and pile retards.

- ☐ Size and type of materials in detail of tetrahedron retard.
- ☐ Detail of joint of tetrahedron retard.
- ☐ Detail of anchorage of retards and pile hurdles to the bank.
- ☐ Maximum and ordinary water levels (for all types of training works).
- ☐ Sizes of stone for foot protection works (for all types of training works).
- ☐ Notes if consistent with specifications (for all types of training works).
- ☐ All sections are properly labeled (for all types of training works).
- ☐ All lines and members of the structure indicated are identified (for all types of training works).

☐ **Dikes or Levees**

Verify if the following are indicated:

- ☐ Survey stationings indicated in the location plan against plan/profile and cross sections.
- ☐ Elevation at the proposed top of dike in plan/profile, cross section and typical section.
- ☐ Elevation at proposed berm of dike in plan/profile, cross sections and typical section.
- ☐ Side slopes, top width of dike in cross sections and typical section.
- ☐ Description and degree of compaction of embankment material in typical section.
- ☐ Detail of slope protection.
- ☐ Sizes of all stones or boulders to be used.
- ☐ Location of drainage structures in plan/profile.
- ☐ Detail of drainage structures particularly dimensions of members of inlet and outlet portions.
- ☐ Longitudinal slope of drainage structure.
- ☐ Details of end protection works.
- ☐ Depth of foundation stripping in profile, typical section and cross sections.
- ☐ Maximum and ordinary water levels,
- ☐ Note if consistent with specifications.
- ☐ All sections are properly labeled.

☐ **Drainage Structures**

Verify if the following are indicated:

- ☐ Survey stationings indicated in the location plan against plan/profile and cross sections of the proposed drainage structures.
- ☐ Top and invert elevations in profile and cross sections (for all types of drainage structures).
- ☐ Invert slope in profile and cross sections (for all types of drainage structures)

- ☐ Side slope in plan/profile, typical section and cross sections of open drainage channel.
- ☐ Type and dimensions of lining (including class of concrete and/or size of stones) in typical section, cross sections and detail of open drainage channel.
- ☐ Sizes and spacings of bars in typical section and detail of concrete lined drainage channel.
- ☐ Location, type, size and spacings of weepholes (including description and dimensions of filter pocket) in typical section and cross sections of reinforced or rubble concrete lined open drainage channel.
- ☐ Description and dimensions of bedding materials in typical section and cross sections (for all types of bottom lined and pipe drainage structure).
- ☐ Details of box or pipe culvert (including inlet and outlet protection works) across intersecting road embankment in open drainage channel.
- ☐ Type and size of pipes in typical section and cross sections of drainage pipe conduit.
- ☐ Location in plan/profile and details of catch basins and manholes (for all types of drainage structures).
- ☐ Distance of drainage structure from the centerline or edge of existing or proposed roadway in typical section and cross sections (for all types of drainage structures).
- ☐ Design flood level in profile, typical section and cross sections (for all types of drainage structures).
- ☐ Details of inlet and outlet protection works (for all types of drainage structures).
- ☐ All existing structures are properly identified (for all types of drainage structures).
- ☐ Notes if consistent with specifications.
- ☐ All sections are properly labeled.

☐ **Shore Protection Structure**

Verify if the following are indicated:

- ☐ Contour and Depth Curves (MLLW as elevation 0.00)
- ☐ Direction of Prevailing Wind/Wave
- ☐ Direction of Current (Low & High Tide)
- ☐ Highest Tide Level Elevation
- ☐ Benchmark (Description)
- ☐ Wave Height
- ☐ Wave Run-off
- ☐ Height of Structure
- ☐ Weight of Primary Cover/Armor Units
- ☐ Thickness of Primary Layer

I. FLOOD CONTROL MONITORING, PUMPING STATIONS AND OTHER RELATED STRUCTURES

☐ ELECTRICAL PLANS

Verify if the following are indicated/shown:

- ☐ Bordering areas with public or well-known streets, landmarks and/or structures
- ☐ Location of service drop, service equipment and nearest pole of the utility company furnishing electrical energy; location of the service kW-hr meter as well as sizes of service entrance wires, conduits and service equipment; and
- ☐ Clearance of the path or run of service drops and entrance wires to adjacent existing and/or proposed structure(s)
- ☐ Verify if all electrical symbols used are shown

☐ GENERAL NOTES and/or SPECIFICATIONS

Verify if the following are indicated:

- ☐ Nature of electrical service, number of phase, wires, voltage and frequency;
  Type wiring for service entrance, feeders, sub-feeders and branch circuit wires for lighting and/or power loads, if required by Law; signaling and communication;
- ☐ Special equipment to be installed indicating ratings and classification of service or duty cycle such as rectifier, electrical welding machine, etc..;
- ☐ System or method of grounding;
  Type and rating of main disconnecting means, overcurrent protection and branch circuit wiring;
- ☐ Clearance of service drop, burial depth for service lateral, mounting height and clearance for service equipment and kWh-meter

☐ PLAN FOR POWER

Verify if the following are shown:

- ☐ Layout and wiring plans for power on floor plan drawn to scale
- ☐ Sizes and location of service entrance conductors, raceways, metering equipment, main switchboard, layout of feeders and distribution panels or switches and their sizes, types and ratings

- ☐ Complete circuits of motors and other electrical and mechanical equipment, its controlling devices, its location and ratings,
- ☐ Complete wiring of emergency power system, if any

☐ **PLANS FOR LIGHTING AND RECEPTACLE OUTLETS**

Verify if the following are shown:

- ☐ Layout and wiring plans for lighting
- ☐ Location lighting fixtures and control switches for each or group of lighting fixtures;
- ☐ Location of receptacle outlets
- ☐ Complete circuits of lighting and receptacle outlets
- ☐ Complete wiring of emergency lighting system and receptacle outlets, if any

☐ **SCHEDULE OF LOADS**

Verify if the tabulated load schedule indicated:

- ☐ Lighting and receptacle loads, motor loads and other electrical, mechanical and auxiliary loads as numbered or identified in the layouts
- ☐ Proper phase distribution and loads distribution,
- ☐ Sizes and ratings of main and branch overcurrent protective devices and
- ☐ Sizes of main and service feeders (conductors and conduit or raceway)

☐ **ONE LINE DIAGRAM**

Verify if the following are indicated:

- ☐ Single line or schematic diagram for Lighting and receptacles, panel boards showing mains and branch circuit rating; size of conductors for feeders;
- ☐ Motor loads indicating its rating in kilowatt/kilovolt ampere or Horsepower, full load current, locked rotor current, phase connection for 1-phase or 3-phase, rated voltage, numbered consecutively to correspond to its numbers in the power layout;
- ☐ Feeders and Sub- feeders shall indicate labeling or identification of said feeders, size and type of wires and raceway; protective devices and controls; and allowable ampacity of the conductor over the designed load current expressed as a ratio and indicated alongside of conductor;
- ☐ Load Center, Identification and labeling of load center showing type and rating of transformer, switches, circuit breakers and other related devices; incoming and outgoing feeders, type, size and voltage; equipment grounding

☐ **OTHER DETAILS**

Verify if the following are indicated:

- ☐ Exposed conductors' means of support, spacing and clearances;
- ☐ Installation details, dimensions, descriptions or specifications, means of supports, separators and attachments where required by Code for auxiliary gutters, wire ways, bus ways, cabinets, boxes metallic raceways, underground installation, other than specified in the Code;
- ☐ Construction and installation details and dimensions, pole top wiring details including line hardware and guying details for private pole; and
- ☐ Details of equipment, wiring, activating mechanism and protective devices, and ventilation whenever necessary for battery installation and/or low voltage or low energy power source

☐ **PLANS FOR LIGHTNING PROTECTION**

Verify if the following are shown/indicated:

- ☐ Layout, wiring and location for lightning rods/air terminals,
- ☐ Main and secondary conductors ground rods or ground plates with type, size and specifications
- ☐ Installation details for conductors, air terminals means of support, and grounding rods or ground plate
- ☐ Symbols used and general construction/installation notes and specifications

☐ **PLANS AND SPECIFICATIONS FOR INDOOR OR OUTDOOR SUBSTATION,** if any:

- ☐ Verify if indoor or outdoor substations are in compliance with the requirements and provisions of Local Power Utility and Philippine Electrical Code

☐ **TITLE BLOCK**

Verify if the following are indicated:

- ☐ Name and location of installation of project;
- ☐ Name, signature and address of owner/manager/operator/ head of the using agency;
- ☐ Title of sheet/sheet content;
- ☐ Name, signature and seal of Professional Electrical Engineer with Professional Regulation Commission professional license number and validity date, Professional Tax Receipt number with date and place issue and Tax Identification Number;
- ☐ Sheet number

☐ **DESIGN ANALYSIS**

Verify if the following are indicated:

- ☐ Illumination Levels Calculations
- ☐ Design calculation for Branch circuits, sub-feeders, feeder, and service entrance;
- ☐ Types, ratings and trip settings of overload protective devices;
- ☐ Short circuit current calculations for overcurrent protection devices;
- ☐ Calculation of voltage drops

☐ **TECHNICAL SPECIFICATIONS**

- ☐ Verify if the Technical Specification is in compliance with the DPWH Standard Specifications

☐ **DETAILED QUANTITY ESTIMATES**

- ☐ Check if detailed quantity estimates vis-à-vis the quantities of item/materials indicated on the plan.

☐ **MECHANICAL PLANS**

☐ **LEGEND OR SYMBOLS**

- ☐ Verify if all mechanical symbols used are shown

☐ **GENERAL NOTES and/or SPECIFICATIONS**

- ☐ Verify if the scope, description and nature of mechanical works are indicated

☐ **PLANS FOR AIR CONDITIONING AND VENTILATION SYSTEMS,** if any

Verify if the following are indicated:

- ☐ Layout and location of air conditioning systems are indicated / shown
- ☐ Ventilation systems are indicated

☐ **PLANS FOR WATER PUMPING SYSTEM**

Verify if the following are indicated:

- ☐ Layout and location of pumps, piping system, and its controls
- ☐ Schematic diagrams for pumping and piping system layout are indicated; and
- ☐ Schedules of Equipment are completely indicated

☐ **PLANS FOR CONVEYOR and other MECHANICAL EQUIPMENT**

Verify if the following layout and locations and details are indicated:

- ☐ Conveyor and other mechanical equipment
- ☐ Elevation;
- ☐ Brief Specifications; and
- ☐ Schedules of Equipment

☐ **PLANS FOR GENERATING SETS,** if any

Verify if the following layout and locations and details are indicated:

- ☐ Generating set
- ☐ Fuel tank
- ☐ Ventilation details
- ☐ Verify if Schedules of Equipment are complete

☐ **OTHER DETAILS**

Verify if the following are indicated:

- ☐ Ductworks
- ☐ Piping runs
- ☐ Condensing Units, if any
- ☐ Mechanical Equipment

☐ **TITLE BLOCK**

Verify if the following are indicated:

- ☐ Name and location of installation of project;
- ☐ Name, signature and address of owner/manager/operator/ head of the using agency;
- ☐ Title of sheet/sheet content;
- ☐ Name, signature and seal of Professional Mechanical Engineer with Professional Regulation Commission professional license number and validity date, Professional Tax Receipt number with date and place issue and Tax Identification Number;
- ☐ Sheet number

☐ **DESIGN ANALYSIS**

Verify if the following are indicated:

- ☐ Energy analysis and life cycle analysis;
- ☐ Cooling and heating load calculations;
- ☐ Hydraulic Calculations

☐ **TECHNICAL SPECIFICATIONS**

☐ Verify if the Technical Specification is in compliance with the DPWH Standard Specifications

☐ **DETAILED QUANTITY ESTIMATES**

☐ Check if detailed quantity estimates vis-à-vis the quantities of item/materials indicated on the plan.

☐ **ELECTRONICS PLAN**

☐ **LOCATION PLAN AND SITE DEVELOPMENT PLAN,**

Verify if the following are indicated/shown:

☐ Bordering areas with public or well-known streets, landmarks and/or structures
☐ Location of service drop, service equipment and nearest pole of the Local Exchange Carrier; location of Service Equipment as well as sizes of service entrance cables and conduits; and
☐ Clearance of the path or run of service drops and entrance cables to adjacent existing and/or proposed structure(s)

☐ **LEGEND OR SYMBOLS**

☐ Verify if auxiliary/communication symbols used are shown:

☐ **GENERAL NOTES OR SPECIFICATIONS**

Verify if the following are indicated:

☐ Nature of communication service, wires/cables, voltage and frequency;
☐ Type of wiring for service entrance, feeders, sub-feeders and branch circuit wires/cables for auxiliary/communication loads;
☐ Special equipment to be installed;
☐ System or method of grounding;
☐ Clearance of service drop, burial depth for service lateral, mounting height

☐ **PLANS FOR AUXILIARY/COMMUNICATION SYSTEMS**

Verify if the following are indicated:

☐ Layout and wiring plans for auxiliary / communication systems:
☐ Local Area Network (LAN), if any
☐ Worldwide Area Network (WAN)
☐ Public Automatic Branch Exchange (PABX)
☐ Voice Outlets
☐ Data Outlets
☐ Servers

- ☐ Main Distribution Frame
- ☐ Signalling devices
- ☐ Closed Circuit Television (CCTV)
- ☐ Floor Distributors
- ☐ Biometric scanners
- ☐ Satellite Disc
- ☐ Locations, size and ratings of auxiliary/communication equipment, apparatus, devices, controls and its interconnection wiring; and
- ☐ Source of power

☐ **AUXILIARY/COMMUNICATION RISER DIAGRAMS:**

- ☐ Verify if all the auxiliary/communication equipment, apparatus, devices and its controls, wiring connection and conduit risers with size and type; and numbered as shown / indicated

☐ **OTHER DETAILS**

Verify it the following are indicated

- ☐ Exposed cable means of support, spacing and clearances;
- ☐ Installation details, dimensions, descriptions or specifications, means of supports, separators and attachments where required by Code for auxiliary gutters, cableways, busways, distribution frame, boxes underground installation, other than specified in the Code;
- ☐ Construction and installation details and dimensions including line hardware for private pole;
- ☐ Details of battery installation and/or low voltage or low energy power, equipment, cables, ventilation details whenever necessary; and

☐ **TITLE BLOCK**

- ☐ Name and location of installation of project;
- ☐ Name, signature and address of owner/manager/operator/ head of the using agency;
- ☐ Title of sheet/sheet content;
- ☐ Name, signature and seal of Professional Electronic and Communication Engineer with Professional Regulation Commission professional license number and validity date, Professional Tax Receipt number with date and place issue and Tax Identification Number;
- ☐ Sheet number

☐ **DESIGN ANALYSIS**

- ☐ Verify if in compliance with Code and Standards for Electronics

☐ **TECHNICAL SPECIFICATIONS**

☐ Verify if the Technical Specification is in compliance with the DPWH Standard Specifications

☐ **DETAILED QUANTITY ESTIMATES**

☐ Check if detailed quantity estimates vis-à-vis the quantities of item/materials indicated on the plan.

☐ **MINIMUM REQUIREMENTS**

Verify if the following are complied:

☐ Freeboard (Fb) is the margins of height between the top of the embankment and designed flood level, Fb = 1.00 m

☐ Top width (W) of embankment to serve as road W = 3.00 m

☐ Side slopes on landside and riverside of the embankment are 2:1 for low embankment and 3:1 for high embankment

☐ Side slope of 4:1 is provided for sand embankment and protected by 300mm thick mountain soil

☐ Berms are provided along the slopes of high embankment when crest height from river bed is more than 6.00 m (for the riverside) berm at every 3.00 to 5.00 m in height with a width of 3.00 m are provided when crest height from existing ground is more than 4.00 m (from the land side) berms at every 2.00 to 3.00 m in height are provided

☐ Spurdikes shall have lengths of 10% of the width of the river but not to exceed 100 meters

Received by: _____

Position : _____

Annex "C"

READY CHECK FOR BRIDGE PLANS

I. LIST OF REQUIRED DRAWINGS

- ☐ Cover Sheet
- ☐ Index of Drawings
- ☐ Location Map/Vicinity Map
- ☐ General Notes
- ☐ Summary of quantities in Tabulated form
- ☐ General Plan and Elevation
- ☐ Foundation Plan and Layout
- ☐ Details of Superstructures
- ☐ Miscellaneous Details
- ☐ Details of Piers
- ☐ Details of Abutments
- ☐ Bridge Hydraulics Structures – if any (Refer to Hydraulics Division)
- ☐ Details of Detour Bridge, if necessary
- ☐ Details of Temporary Craneway, if necessary
- ☐ Details of Cofferdam, if necessary
- ☐ Construction Sequence/Methodology, if necessary
- ☐ Bridge Lighting, if necessary
- ☐ Other Structure as maybe necessary

II. REQUIRED SUPPORTING DOCUMENTS

- ☐ Technical Study of Alternative Type of Structure
- ☐ Structural design analyses
  - ☐ Superstructure Design
  - ☐ Substructure Design
  - ☐ Foundation Design
  - ☐ Miscellaneous Structure Design
- ☐ Detailed Quantity Calculation for all Items of Work Involved
- ☐ Geotechnical/Soil Report/Data showing plan of borehole locations, boring logs and laboratory test results
- ☐ Hydrologic and hydraulic analysis (design discharge, scour, water surface profile, etc.) supported by topographic map showing the watershed area and point of interest

III. READY CHECK FOR BRIDGE DESIGN PLANS

A. Title Sheet

Verify if the following are indicated

- ☐ Title of the Project
- ☐ Letter head/logo of Proponent Office
- ☐ Name and signature of officials with designations who prepare/submit/recommend and will approve the plans

B. Index of Drawings

- ☐ Verify and check if the index of sheets/drawings are complete and in order

C. Location Map/Vicinity Map

Verify if the following are indicated

- ☐ Location of proposed bridge with respect to existing road, road section, towns, etc.
- ☐ Important landmark/existing structures
- ☐ Contours
- ☐ Location of Boreholes
- ☐ Direction of stream flow
- ☐ Stationing
- ☐ Bench marks
- ☐ Azimuth of bridge longitudinal axis
- ☐ Directional sign/informatory sign
- ☐ Location of private and public structures/utilities that maybe affected by the proposed project
- ☐ Location of existing bridge and possible detours, if any
- ☐ Title Block

D. General Notes

Verify if the following are indicated

Design

- ☐ Codes and specifications
- ☐ Highway Loading
- ☐ Design Stresses

Construction

- ☐ Codes and Specification
- ☐ Material Specification
- ☐ Construction Procedure/Sequence
- ☐ Special Provision/Information, if any.
- ☐ Foundation Design Criteria such as allowable bearing capacity of soil under footing and ultimate/allowable capacity of piles
- ☐ Title Block

E. Summary of quantities in Tabulated form

Verify if the following are indicated

- ☐ Item Number
- ☐ Description of Work (or Item Description)
- ☐ Units of Measurement
- ☐ Quantities for Abutment, Piers and Superstructures separately presented
- ☐ Total for all items involved
- ☐ Old quantities and new (revised) quantities separately indicated in case of revised plans or as-staked plans
- ☐ Title Block

F. General plan and Elevation

Verify if the following are indicated

- ☐ Spans/Length
- ☐ Bridge Type
- ☐ Stationings (Piers, Back of Backwalls)
- ☐ Directional sign/information sign
- ☐ Ground Profile showing the elevation of ordinary water level (OWL), maximum flood level and design flood level
- ☐ Type of foundation (bored piles, R.C. piles, Steel H-piles, spread footing, etc.)
- ☐ Finish grade elevation
- ☐ Position/Spacing of railing
- ☐ Hydraulic Data
- ☐ Location and side elevation of drain grouted riprap and other bridge protection works
- ☐ Position/Spacing of drain
- ☐ Clear roadway and sidewalk width
- ☐ Title Block

G. Foundation Plan and Layout

Verify if the following are indicated

- ☐ Boring Logs
- ☐ Elevation and stationings of SPT
- ☐ N-values
- ☐ Description and soil classification
- ☐ Plan of footing showing size of footing and arrangement of piles, if any.
- ☐ Ground profile at center line of the bridge showing the maximum flood water level
- ☐ Title Block

H. Details of Superstructures

For Reinforced Concrete Deck Girder

Verify if the following are indicated

- ☐ Elevation showing dimensions, girders reinforcement, railing and rail post reinforcement
- ☐ Plan showing dimensions, slab reinforcement, diaphragm reinforcements, location of drains, railing and railing post distances, bearing details
- ☐ Typical roadway, cross section half showing dimensions and half showing slab reinforcement, sidewalk reinforcement and railing reinforcements
- ☐ Crown slopes of superelevation
- ☐ Camber diagram
- ☐ Bar bending diagram and bar bending schedule
- ☐ Estimate of quantities
- ☐ Typical section of girders, deck slab diaphragm showing dimensions and rebars

For Prestressed Concrete Girder

Verify if the following are indicated

- ☐ Notes for prestressed concrete girder
- ☐ Separate detail of girders showing position of prestressing cables and end anchorages
- ☐ Dowels and diaphragm location
- ☐ Details of Prestressing cables and end anchorages
- ☐ Required jacking force and net prestressing force.

- ☐ Girder section details, one at the end block, one at intermediate and one showing girder dimensions
- ☐ Estimate of quantities
- ☐ Title block

For Steel Truss Superstructure

Verify if the following are indicated

- ☐ General view showing elevation, plan, top and bottom view with dimensions number of joints and dimensions.
- ☐ Summary of stresses in tabulated form.
- ☐ List of drawing for details of truss span
- ☐ Camber diagram
- ☐ General Notes (specification, deadload, liveload concrete slab, reinforcing steel, structural steel, bolts/rivets, and member designations.
- ☐ Details of expansion dam
- ☐ Estimate of quantities
- ☐ Title Block

I. Miscellaneous Details

Verify if the following are indicated

- ☐ Details of drain
- ☐ Details of railing and sidewalk
- ☐ Details of expansion and fixed bearings
- ☐ Details of elastomeric bearing pad
- ☐ Details of expansion dam/joints

J. Details of Piers

Verify if the following are indicated

- ☐ Plan, Front and Side Elevation half showing dimensions and half showing reinforcements
- ☐ Position of bearings, centerline of joints, centerline of pier and eccentricity, if any
- ☐ Position of risers/bridge seats, if any
- ☐ Elevations of Top of Coping and Bottom of Footing
- ☐ Footing/Pile cap plan and elevation, half showing reinforcement and half showing dimensions, pile locations, dimensions and estimated length of piles in case of pile foundation
- ☐ Location of construction joints

- ☐ Bar Bending Diagram and if necessary show bar bending schedule
- ☐ Estimate of quantities for each pier
- ☐ Title Block

K. Details of Abutments

Verify if the following are indicated

- ☐ Plan front and side elevations, half showing dimensions and half showing reinforcement
- ☐ Position of bearings, anchorages and shear blocks
- ☐ Position of risers of bridge seats, if any
- ☐ Developed side elevation showing wingwall reinforcements
- ☐ Section showing backwall, coping, shaft and footing (reinforcement and dimension)
- ☐ Footing/Pile cap plan and elevation, Half showing reinforcement and half showing dimensions, pile locations, dimensions and estimated length of piles in case of pile foundation
- ☐ Location of construction joints
- ☐ Bar Bending Diagram and if necessary show bar bending schedule.
- ☐ Estimate of quantities for each abutment
- ☐ Title Block

L. River Protection Works – if any (Refer to Hydraulics Division)

Verify if the following are indicated

- ☐ Bridge location and alignment
- ☐ Bridge height/elevation
- ☐ Design high water level and design discharges
- ☐ Geotechnical Data
- ☐ River training works and road approaches
- ☐ Piers and abutment scour protection works

IV. MINIMUM DESIGN PARAMETERS

Verify if the following minimum design requirements are complied

- ☐ 1.00m freeboard for streams without debris
- ☐ 1.50m freeboard for streams with debris
- ☐ 3.75m freeboard for navigable river or unless specified by the Philippine Coastguard
- ☐ 4.88m vertical clearance for highway/underpass/tunnel
- ☐ L/800 superstructure deflection for rural areas
- ☐ L/1000 superstructure deflection for urban areas

- ☐ Design discharge Q=50 years return period
- ☐ 4.00m minimum roadway width (1 lane)
- ☐ 6.70m minimum roadway width (2 lanes) rural areas
- ☐ 7.32m minimum roadway width (2 lanes) urban areas

Verify if the following Codes/Specifications and Department Orders are complied:

- ☐ 2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition
- ☐ D.O. No. 75, Series of 1992 – Re: DPWH Advisory for Seismic Design of Bridges
- ☐ 2004 DPWH Standard Specifications for Highways, Bridges and Airport (Blue Book)
- ☐ DPWH Design Guidelines, Criteria and Standards, Vol. I & II (Red Book) Latest Edition
- ☐ DPWH D.O No. 56, Series of 1995 – Re: Quality of Plans

Reviewed by: _____

Position: _____

Annex "D"

READY CHECK FOR HIGHWAY PLANS

I LIST OF DRAWINGS FOR HIGHWAY PLANS

- ☐ Coversheet
- ☐ Index of Drawings
- ☐ Location Plan and Vicinity Map
- ☐ General Notes
- ☐ Legends, Symbol and Abbreviations
- ☐ Summary of Quantities
- ☐ Typical Roadway Section
- ☐ Drainage Schedule
- ☐ Schedule Listings of Other Structures
- ☐ Plan and Profile
- ☐ Standard/Typical Highway Drawings
- ☐ Typical Drainage Details
- ☐ Detailed Cross-Sections
- ☐ Detailed Drainage Cross-Sections
- ☐ Roadway Lighting Plans
- ☐ Other Structures as may be necessary

II SUPPORTING DOCUMENTS

- ☐ Design Analysis
  - ☐ Pavement Design
  - ☐ Drainage (hydrological analysis and hydraulic calculations)
  - ☐ Slope protection works (slope stability and soil bearing capacity analyses)
- ☐ Geotechnical/Soil Materials Report (Soil classification, CBR of the existing ground and existing Base/Subbase)
- ☐ Hydrologic Report/Analysis and Hydraulic Design Calculation
- ☐ Traffic Data/Study Report
- ☐ Detailed Quantity Calculations for all Items of Work involved
- ☐ Laboratory tests results

III Ready Check for Highway Plans

A. Title Sheet

Verify if the following are indicated:

- ☐ The title of the project;
- ☐ The project length and limits and cross check its veracity in the plan and profile;
- ☐ The use of convenient scale in the layout of the project;
- ☐ The signatories/recommending officials and their corresponding signatures are complete.

B. Index of Drawings

- ☐ Verify and check if the index of sheets/drawings are complete and in order.

C. Location Plan/Vicinity Map

Verify if the following are indicated:

- ☐ The location (province or city) of the project;
- ☐ The vicinity map.

D. General Information Sheets

- ☐ Verify and check if the general notes indicated are applicable to the project;
- ☐ Verify the reference of the specifications and special provisions.

E. Legends/ Symbols and Abbreviations

- ☐ Verify and check if the legends, symbols and abbreviations are applicable to the project.

F. Summary of Quantities

- ☐ Verify if the Item No., Description of Items of Work involved, Unit, and Remarks are properly indicated and in accordance with DPWH Standard Specifications.
- ☐ Check the quantities indicated vis-à-vis the submitted quantity calculations.

G. Typical Roadway Section Sheets

Verify if the following are indicated:

- ☐ The width of pavement and shoulder including widening due to superelevation;
- ☐ The type and thickness of pavement structures;
- ☐ The pavement cross slope including the rate of superelevation;
- ☐ The embankment and cut slope, widening, slope protection works, warping and rounding;
- ☐ The road right-of-way limit;
- ☐ The pavement design parameters and check vis-à-vis the pavement design analysis;
- ☐ The slope protection design parameters and check vis-à-vis the design analysis.

H. Drainage Schedule

Verify if the following are indicated:

- ☐ Location or exact station, description, units and quantity estimates of the proposed drainage structures;
- ☐ The design parameters and check if the proposed structure is adequate per design analysis.

I. Schedule of Other Structures

Verify if the following are indicated:

- ☐ Location or exact station, description, units and quantity estimates of other miscellaneous structures such as:
  - ☐ Side ditches (RC canal, grouted riprap lined canal, earth canal, etc.);
  - ☐ Slope protection works (retaining wall, grouted riprap, gabions, etc.);
  - ☐ Miscellaneous structures (guardrails, right-of-way markers, kilometer posts, pavement markings, road signs, maintenance markers, curb and curb & gutter, etc.).

J. Plan and Profile Sheets

Plan

Verify if the following are indicated:

- ☐ The centerline, edge of pavement, shoulder edge and road-right-of-way limits;
- ☐ The stations at the centerline (at every 100 m. interval);
- ☐ The drainage structures (existing and proposed) are drawn indicating the direction of flow and the description/dimension;
- ☐ The Azimuths, Distances and PI No. and check the orientation of the azimuth and its accuracy;
- ☐ The contour lines with standard intervals (1m. interval for flat sections and 5m. interval for mountainous sections);
- ☐ The Standard Reference and Control points;
- ☐ The elements of horizontal curves including its limit and check if they are accurately indicated on the plans;
- ☐ The North Arrow indicator;
- ☐ Description and type and limits of slope protection works and other roadside facilities/structures (existing or proposed);
- ☐ Matchline at every sheet.

Profile

Verify if the following are indicated:

- ☐ The elements of vertical curve including its limit;
- ☐ The gradient and finished grade elevation and verify/cross-check if the natural or original ground elevation and the finished grade elevation plotted at every 20 m. interval as indicated on the plans is the same as indicated and templated in the detailed roadway cross-sections;
- ☐ The matchline at every sheet;

- ☐ The existing and proposed drainage structures (RCPC/RCBC) including its description properly drawn and indicated as per drainage schedule/cross-sections;
- ☐ The profile of the proposed side drainage indicating its slope gradient;
- ☐ The original and finished designed grade elevation at every 20m. interval;
- ☐ The ordinary and maximum flood elevation for drainage structures including the flooded areas/sections;
- ☐ The superelevation and widening diagrams and check its application if they are properly indicated on the plans;
- ☐ Pavement/subgrade data based on test pit/borehole where logged (this can be presented in a separate plans).

K. Standard/Typical Highway Drawings

Verify/check if the following standard drawings conform with the DPWH Standard:

- ☐ Geometric Design Elements
- ☐ Guardrails
- ☐ Road Signs,
- ☐ Kilometer Posts
- ☐ Maintenance Marker,
- ☐ Right-of-way Markers,
- ☐ Typical Road Intersections
- ☐ Guardrails
- ☐ Road Signs,
- ☐ Kilometer Posts
- ☐ Maintenance Marker,
- ☐ Right-of-way Markers
- ☐ Details of pavement structure
- ☐ Sidewalks
- ☐ Pavement markings
- ☐ Intersection details

L. Typical Drainage Details

Verify and check if the following are in consonance with the DPWH Standards:

- ☐ Dimensions of standard detailed plans for RCPC and Box Culverts;
- ☐ Dimension of standard details for Masonry and Concrete Headwalls and Wingwalls for Reinforced Concrete Pipe Culverts and BOX Culverts;
- ☐ Dimensions of other typical standard Drainage Facilities
  - ☐ Ditches (lined and unlined)
  - ☐ Manholes
  - ☐ Catch basins
  - ☐ Inlets
  - ☐ Curbs and curb and gutters
  - ☐ Other structures, if any

M. Typical Slope Protection Details

Verify/check if the following standard drawings conform with the DPWH Standard:

- ☐ Grouted Riprap Slope Protection
- ☐ Reinforced Concrete Slope Protection
- ☐ Retaining Wall (stone masonry, rubble, reinforced concrete)

- ☐ Coconet Bio-Engineering solution
- ☐ Gabions
- ☐ Other structures, if any

N. Detailed Cross-Sections

The following should be verified:

- ☐ The slope on cut and embankment if appropriate for the type of soil materials indicated for rocks, rippable rocks and common earth;
- ☐ If finished grade and natural ground elevation which are indicated and templated at every 20m. interval are the same as in the plan and profile;
- ☐ If templating of cross-sections is consistent with the standard typical roadway section including the requirements for superelevation and widening;
- ☐ The area calculation/measurement of cut and fill is indicated including other relevant work items involved;
- ☐ The necessity of slope protection works indicated and check its adequacy;
- ☐ The coordinates of the natural ground section.

O. Detailed Drainage Cross-Section

The following should be verified:

- ☐ If the drainage structures are templated at the proper invert elevations;
- ☐ If finished grade and natural ground elevations are indicated and cross-checked from the plan and profile;
- ☐ If the lined canal and underdrain as specified in the Drainage Schedule are properly drawn/indicated;
- ☐ The headwall and wingwall of the drainage structures are indicated;
- ☐ The coordinates of the natural ground cross-sections;
- ☐ Scour protection are provided as needed;
- ☐ The quantities of all Items of Work involved are indicated per cross-section.

P. Roadway Lighting Plans

General Notes and/or Specifications

Verify if the following are indicated:

- ☐ Nature of electrical service, number of phase, wires, voltage and frequency; type wiring for service entrance, feeders, sub-feeders and branch circuit wires;
- ☐ Signaling and communication;
- ☐ Special equipment to be installed;
- ☐ System or method of grounding;
- ☐ Type and rating of main disconnecting means, overcurrent protection and branch circuit wiring;
- ☐ Clearance of service drop, burial depth for conduit concrete crossing roadway, mounting height;
- ☐ Clearance for service equipment and kWh-meter.

Legends and Symbols

- ☐ Verify if all electrical symbols used are shown.

Plans for Streetlights

Verify if the following are indicated on the plans:

- ☐ Layout and wiring plans for streetlights on the proposed roadway drawn to scale;
- ☐ Location and spacing of lamp post with stationing;
- ☐ Location of control panel and switches, service entrance, pedestal pole, and metering facility; complete circuits of street light;
- ☐ Complete wiring of emergency lighting system, if any;
- ☐ Location and layout of signal light devices (stop-go-signal) drawn on cross road or intersection with complete wiring and circuits and its controls;
- ☐ Layout, location and cable runs for CCTV including controls, if any;
- ☐ Layout, location and cable runs for communication systems, service entrance and service equipment.

Plans for Pedestrian Overpasses/Underpasses Lighting

Verify if the following are shown:

- ☐ Layout and wiring for lighting outlets drawn to scale showing locations of lighting fixtures and its control switches;
- ☐ Location of service equipment and service pole;
- ☐ Location and layout of proposed ventilation equipment and convenience outlets with wiring connections and circuits;
- ☐ Location of service equipment and service entrance.

Plans for Lightning Protection, (if there's any)

Verify if the following are indicated:

- ☐ Layout and location for lightning rods/air terminals;
- ☐ Main and secondary conductors ground rods or ground plates with type, size and specifications;
- ☐ Installation details for conductors, air terminals means of support, and grounding rods or ground plate;

One Line and Schematic Diagrams

Verify if the following are included:

- ☐ Panel board showing mains and branch circuit rating; size of feeders;
- ☐ Lighting system indicating branch circuit rating and size of feeders;
- ☐ Photo-Electric Control Switch.

Other Details

Verify if the following are included:

- ☐ Lighting fixture and photo-control characteristics and its details;
- ☐ Details of lamp post and its footing;
- ☐ Details of pedestal pole;
- ☐ Service entrance conductor means of support and vertical clearance;
- ☐ Details of control panels for signaling devices, etc.;
- ☐ System or equipment grounding.

Schedule of Loads and Computations

Verify if the tabulated load schedule indicate the following:

- ☐ Roadway lighting and receptacle loads, motor loads and other electrical, mechanical and auxiliary loads as numbered or identified in the layouts;
- ☐ Proper phase distribution and loads distribution;
- ☐ Sizes and ratings of main and branch overcurrent protective devices; and
- ☐ Sizes of main and service feeders.

Title Block

Verify if the title block contains the following:

- ☐ Name and location of installation of project;
- ☐ Name and signature and address of owner/manager/operator/head of the using agency;
- ☐ Title of sheet/sheet content;
- ☐ Name, signature and seal of Professional Electronic and Communication engineer (electronic plans) or Professional Electrical Engineer (electrical plans); PRC professional license number and validity date, PTR number with date and place of issue, and TIN;
- ☐ Scale used, date drawn and sheet number.

Design Analysis

Verify if the following are included on the drawing or submitted on a separate sheet:

- ☐ Illumination levels calculation/consideration;
- ☐ Short circuit current calculations for overcurrent protection devices;
- ☐ Calculation of voltage drops;
- ☐ Traffic survey report.

Technical Specifications

- ☐ Verify if the Technical Specification is in compliance with the DPWH Standard Specifications.

Detailed Quantity Estimates

- ☐ Check the detailed quantity estimates vis-à-vis the quantities of items/materials indicated on the plan.

Q. Other Structures

Mechanical Plans/Documents, (If any)

Legends or Symbols

- ☐ Verify if all mechanical symbols used are shown.

General Notes and/or Specifications

- ☐ Verify if the scope, description and nature of mechanical works are indicated.

Plans for Ventilation System, if any

Verify if the following are indicated:

- ☐ Layout and location of ventilation system;
- ☐ Schedule of equipment drawn.

Plans for Water Pumping System

Verify if the following layout and locations are indicated:

- ☐ Sump pumps with piping system and controls;
- ☐ Schematic diagrams for piping system layout and water level controls;
- ☐ Schedule of equipment.

Title Block

Verify if the following are indicated on the Title Block:

- ☐ Name and location of installation project;
- ☐ Name and signature and address of owner/manager/head of the using agency;
- ☐ Name, signature and seal of Professional Mechanical Engineer with PRC license number and validity date, PTR No. with date and place of issue, and TIN;
- ☐ Sheet number, scale used and date drawn.

Design Analysis

Verify if the following are indicated:

- ☐ Cooling and heating load calculations, if any
- ☐ Hydraulic calculations

Technical Specifications

- ☐ Verify if the Technical Specifications is in compliance with the DPWH Standard Specifications.

Detailed/Itemized Quantity Estimates

- ☐ Check the detailed quantity estimates vis-à-vis the quantities of items/materials indicated on the plan.

IV MINIMUM DESIGN PARAMETERS/REQUIREMENTS

Verify if the following minimum design requirements are complied:

PAVEMENT DESIGN

Minimum pavement thickness (National Arterial Roads)
- ☐ PCCP = 280mm
- ☐ ACP = 100mm

Minimum pavement thickness (Other national Roads)
- ☐ PCCP = 230mm
- ☐ ACP = 100mm

Cross-sections

Minimum cross-slope
- ☐ PCCP = 1.50%
- ☐ ACP = 2.00%

Minimum carriageway width
- ☐ 6.70m (National Arterial Roads)
- ☐ 6.10m (Other National Roads)

Minimum shoulder width
- ☐ 3.00m (Expressways)
- ☐ 2.00m (National Arterial Roads)
- ☐ 1.00m (Other National Roads)

Materials requirements

- ☐ Subgrade CBR = 3%
- ☐ Subbase CBR = 30%
- ☐ PCCP Flexural Strength @ 28 days
- ☐ PCCP Compressive Strength @ 28 days

GEOMETRIC DESIGN

- ☐ Horizontal Alignment
  - ☐ 50m min. radius
  - ☐ 30m min. length of tangent (T) between reverse curve
  - ☐ 0.60 m min. widening
- ☐ Vertical Alignment
  - ☐ 60m min. LVC
  - ☐ 0.50% min. grade on cut section
  - ☐ 0.35% min. grade on curbed pavement
- ☐ Slope Ratio
  - ☐ 1.5H:1.0V min. cut slope (common)
  - ☐ 1.0H:1.0V min. cut slope (sorft/rippable rock)
  - ☐ 0.5H:1.0V min. cut slope (hard/solid rock)
- ☐ Minimum Design Speed
  - ☐ 60 km/hr (flat terrain)
  - ☐ 40 km/hr (rolling terrain)
  - ☐ 30 km/hr (mountainous terrain)

DRAINAGE AND SLOPE PROTECTION

- ☐ 910mm minimum diameter of culvert (RCPC)
- ☐ 2.0H:1.0V min. embankment slope (w/o protection)

- ☐ 3.0 meter min. height of berm on embankment
- ☐ 7.0 meter min. height of berm on cut
- ☐ 1.0 meter min. berm width

Minimum grade requirement

- ☐ 4.0%- for PCCP/ACP paved shoulder
- ☐ 4.0% - for lined canal/ditches

Reviewed by: _____

Position : _____

Annex "E"

READY CHECK FOR BUILDING PLANS

READY CHECKLIST FOR BUILDINGS

I. LIST OF REQUIRED DRAWINGS

- ☐ Coversheet
- ☐ Index of Drawings
- ☐ Details of Architectural Drawings
- ☐ Details of Structural Drawings
- ☐ Details of Plumbing Drawings
- ☐ Details of Electrical Drawings
- ☐ Details of Mechanical Drawings
- ☐ Details of Electronics Drawings

II. REQUIRED SUPPORTING DOCUMENTS

- ☐ Design Analyses and Computations (for structural, plumbing, electrical, mechanical and electronics)
- ☐ Technical Specifications
- ☐ Terms of Reference (for consultancy services)

III. READY CHECK ON

A. ARCHITECTURAL DRAWINGS

- ☐ Title/Signatory Block
  Verify if the following are indicated:
  - ☐ The title and location of the project
  - ☐ The full name and designation of recommending officials and their corresponding signatures
- ☐ Vicinity Map/Location Plan
  Verify if the following are complied/indicated:
  - ☐ Within a 2 km radius at any convenient scale
  - ☐ Prominent landmarks and major thoroughfare/s
- ☐ Site Development Plan
  Verify if the following are indicated:
  - ☐ Technical descriptions/boundaries
  - ☐ Orientation/North Arrow Indication
  - ☐ Position of proposed building(s)/structure(s) with pertinent building tie lines
  - ☐ Contour lines at 1.00 m intervals, if any
  - ☐ Existing/proposed access road and driveways and existing public utilities/services
  - ☐ Existing building within and adjoining the lot to be hatched, if any
  - ☐ Distances between the proposed and existing buildings, if any

☐ Perspective, drawn at any convenient scale
☐ Floor Plan(s)
Verify if the following are complied/indicated:
- ☐ Drawn to scale of not less than 1:100 with pertinent dimensions
- ☐ Gridlines (vertical and horizontal)
- ☐ Complete identification of rooms/functional spaces
- ☐ Schedule/designation of floor finishes, door and window marks

☐ Elevations, at least four (4)
Verify if the following are complied/indicated:
- ☐ Same scale as floor plan(s)
- ☐ Gridlines
- ☐ Natural ground to finish grade elevations and floor to floor heights
- ☐ Door and window marks
- ☐ Exterior finishes/materials
- ☐ Adjoining existing structures, if any, shown in single hatched lines

☐ Sections, at least two (2)
Verify if the following are complied/indicated:
- ☐ Same scale as floor plan(s)/elevations
- ☐ Gridlines
- ☐ Natural ground to finish grade elevations and finish floor levels including ceiling heights
- ☐ Outline of cut and visible structural parts
- ☐ Door and window marks
- ☐ Built-in cabinets, etc.
- ☐ Identification of rooms and functional spaces cut by section lines
- ☐ Interior finishes/materials

☐ Ceiling Plan(s)
Verify if the following are complied/indicated:
- ☐ Same scale as floor plan(s)
- ☐ Grid lines
- ☐ Its design, materials/finish
- ☐ Location of lighting fixtures, diffusers, air exhausters/return grilles and nozzles, if any

☐ Roof Plan
Verify if the following are complied/indicated:
- ☐ Same scale as floor plan(s)
- ☐ Grid lines
- ☐ Its design, materials/finish, gutters, if any, etc.

☐ Details, in the form of plans, elevations/sections (min. scale of 1:50)
- ☐ Accessible ramp
- ☐ Accessible functional spaces
- ☐ Typ. wall/bay sections from ground up to roof
- ☐ Stairs (interior and exterior)
- ☐ Built-in cabinets
- ☐ All types of partitions
- ☐ Toilets

- ☐ Schedule of Doors and Windows
  Verify if the following are indicated:
  - ☐ Types and materials
  - ☐ Designations/marks
  - ☐ Pertinent dimensions
  - ☐ Number of sets
- ☐ Schedule of Finishes (in graphic form)
  Verify and check if the following are complied/indicated vis-à-vis floor plan(s), ceiling plan(s), elevations and sections:
  - ☐ Surface finishes specified for floors, ceilings, walls and baseboard trims for all building spaces per floor level

B. PLUMBING DRAWINGS

- ☐ Location Plan and Site Development Plan
  Verify if the following are complied/indicated:
  - ☐ Drainage systems layout and its corresponding sizes/specifications, with connections to external systems
  - ☐ Contours, @ 1.00m intervals, if any
- ☐ Plumbing Plans
  Verify if the following are indicated:
  - ☐ Sewage and vent system layout and its corresponding sizes/specifications
  - ☐ Drainage system layout its corresponding sizes/specifications
  - ☐ Hot/cold water distribution system layout its corresponding sizes/specifications
- ☐ Isometric Drawings
  Verify if the following are indicated:
  - ☐ Sewage and vent system layout
  - ☐ Drainage system layout
  - ☐ Hot/cold water distribution system layout
- ☐ Detail of Septic Tank, Sedimentation Tank, if any
- ☐ Detail of Catch Basins
- ☐ Detail of Elevated Water Tank, if any
- ☐ Legend and General Notes
  - ☐ Verify and check if the legends, symbols and abbreviations are applicable to the project

C. STRUCTURAL DRAWINGS/DOCUMENTS

- ☐ Foundation Plan
  Verify if the following are complied/indicated:
  - ☐ Same scale as architectural floor plan(s) with pertinent dimensions

- ☐ Grid lines
- ☐ Designation of columns, footings, footing tie beams, if any, and wallfootings, slab-on-fill thickness and spacing rebars

☐ Floor Framing Plan(s)

Verify if the following are complied/indicated:

- ☐ Same scale as architectural floor plan(s)/foundation plan
- ☐ Grid lines
- ☐ Designation of beams/girders and suspended slabs

☐ Roof Framing Plan

Verify if the following are complied/indicated:

- ☐ Same scale as architectural floor plan(s)/foundation plan with pertinent dimensions
- ☐ Grid lines
- ☐ Designation of roof beams/girders, roof slab(s), if any, trusses/rafters and material specifications/spacing of purlins, cross bracings, sag rods

☐ Schedule/Details of Footings, Columns, Girders/Beams, Slabs

Verify if the following are indicated:

- ☐ Pertinent dimensions
- ☐ Indication of sizes/numbers/spacings of reinforcing bars, ties/stirrups (as per drawing and per indication)

☐ Details of Trusses/Connections

☐ Details of Shear Walls/Elevator Shaft

☐ Details of Stair(s)

☐ Structural Design Analysis/Computations

Verify if the following are indicated:

- ☐ Design Criteria
- ☐ Drawing of Structural Model
- ☐ Gravity Load Analysis
- ☐ Seismic Analysis
- ☐ Wind Analysis
- ☐ Footings
- ☐ Columns
- ☐ Beams and Girders
- ☐ Suspended Slabs
- ☐ Shear Walls
- ☐ Trusses
- ☐ Stairs

D. ELECTRICAL DRAWINGS

☐ **LOCATION PLAN AND SITE DEVELOPMENT PLAN**

Verify if the following are indicated/shown:

- ☐ Bordering areas with public or well-known streets, landmarks and/or structures

- ☐ Location of service drop, service equipment and nearest pole of the utility company furnishing electrical energy; location of the service kW-hr meter as well as sizes of service entrance wires, conduits and service equipment; and
- ☐ Clearance of the path or run of service drops and entrance wires to adjacent existing and/or proposed structure(s)

☐ **LEGEND OR SYMBOLS**

- ☐ Verify if all electrical symbols used are shown

☐ **GENERAL NOTES and/or SPECIFICATIONS**

Verify if the following are indicated:

- ☐ Nature of electrical service, number of phase, wires, voltage and frequency
- ☐ Type wiring for service entrance, feeders, sub-feeders and branch circuit wires for lighting and/or power loads; fire alarm system, if required by Law; signaling and communication
- ☐ Special equipment to be installed indicating ratings and classification of service or duty cycle such as rectifier, electrical welding machine, etc.
- ☐ System or method of grounding
- ☐ Type and rating of main disconnecting means, overcurrent protection and branch circuit wiring
- ☐ Clearance of service drop, burial depth for service lateral, mounting height and clearance for service equipment and kWh-meter

☐ **PLAN FOR POWER**

Verify if the following are shown:

- ☐ Layout and wiring plans for power on floor plan drawn to scale
- ☐ Sizes and location of service entrance conductors, raceways, metering equipment, main switchboard, layout of feeders and distribution panels or switches and their sizes, types and ratings
- ☐ Complete circuits of motors and other electrical equipment, its controlling devices, its location and ratings,
- ☐ Complete wiring of emergency power system, if any
- ☐ Nature of processes/activities carried out in each room or area

☐ **PLANS FOR LIGHTING AND RECEPTACLE OUTLETS**

Verify if the following are shown:

- ☐ Layout and wiring plans for lighting on ceiling plan and receptacle outlet on floor plan drawn to scale
- ☐ Location of lighting fixtures and control switches for each or group of lighting fixtures
- ☐ Location of receptacle outlets and appliances to be served and their rating
- ☐ Complete circuits of lighting and receptacle outlets

☐ Complete wiring of emergency lighting system and receptacle outlets, if any

☐ **PLANS FOR FIRE DETECTION AND ALARM CIRCUITS**

Verify if the following are indicated:

☐ Layout and wiring plans for fire alarm manual station, fire alarm bells, fire alarm control panel and other fire alarm devices on floor plans and smoke detectors on ceiling plans drawn to scale

☐ Location of outlets, equipment and/or apparatus and controls

☐ Complete circuit showing number and size of raceway and wire

☐ **FIRE ALARM RISER DIAGRAM**

☐ Verify if fire alarm equipment, apparatus, devices and its controls, wiring connection and conduit risers with size and type; and numbered are shown/indicated

☐ **SCHEDULE OF LOADS**

Verify if the tabulated load schedule indicate:

☐ Lighting and receptacle loads, motor loads and other electrical, mechanical and auxiliary loads as numbered or identified in the layouts

☐ Proper phase distribution and loads distribution

☐ Sizes and ratings of main and branch overcurrent protective devices and

☐ Sizes of main and service feeders (conductors and conduit or raceway)

☐ **ONE LINE DIAGRAM**

Verify if the following are indicated:

☐ Single line or schematic diagram forLighting and receptacles, panelboards showing mains and branch circuit rating; size of conductors for feeders

☐ Motor loads indicating its rating in kilowatt/kilovolt ampere or Horsepower, full load current, locked rotor current, phase connection for 1-phase or 3-phase, rated voltage, numbered consecutively to correspond to its numbers in the power layout

☐ Feeders and Sub- feeders shall indicate labelling or identification of said feeders, size and type of wires and raceway; protective devices and controls; and allowable ampacity of the conductor over the designed load current expressed as a ratio and indicated alongside of conductor

☐ Load Center, Identification and labeling of load center showing type and rating of transformer, switches, circuit breakers and other related devices; incoming and outgoing feeders, type, size and voltage; equipment grounding

☐ **OTHER DETAILS**

Verify if the following are indicated:

- ☐ Exposed conductors' means of support, spacing and clearances
- ☐ Installation details, dimensions, descriptions or specifications, means of supports, separators and attachments where required by Code for auxiliary gutters, wireways, busways, cabinets, boxes metallic raceways, underground installation, other than specified in the Code;
- ☐ Construction and installation details and dimensions, pole top wiring details including line hardware and guying details for private pole
- ☐ Details of equipment, wiring, activating mechanism and protective devices, and ventilation whenever necessary for battery installation and/or low voltage or low energy power source

☐ **PLANS FOR LIGHTNING PROTECTION**

Verify if the following are shown/indicated:

- ☐ Layout, wiring and location for lightning rods/air terminals,
- ☐ Main and secondary conductors ground rods or ground plates with type, size and specifications
- ☐ Installation details for conductors, air terminals means of support, and grounding rods or ground plate
- ☐ Symbols used and general construction/installation notes and specifications

☐ **PLANS AND SPECIFICATIONS FOR INDOOR OR OUTDOOR SUBSTATION,** if any:

- ☐ Verify if indoor or outdoor substations are in compliance with the requirements and provisions of Local Power Utility and Philippine Electrical Code

☐ **TITLE/SIGNATORY BLOCK**

Verify if the following are indicated:

- ☐ Name and location of installation of project
- ☐ Name, signature and address of owner/manager/operator/ head of the using agency
- ☐ Title of sheet/sheet content
- ☐ Name, signature and seal of Professional Electrical Engineer with Professional Regulation Commission professional license number and validity date, Professional Tax Receipt number with date and place issue and Tax Identification Number
- ☐ Sheet number

☐ **DESIGN ANALYSIS**

Verify if the following are indicated:

- ☐ Illumination Levels calculations

- ☐ Design calculation for Branch circuits, sub-feeders, feeder,busways and service entrance
- ☐ Types, ratings and trip settings of overload protective devices
- ☐ Short circuit current calculations for overcurrent protection devices;
- ☐ Calculation of voltage drops

☐ **TECHNICAL SPECIFICATIONS**

- ☐ Verify if the Technical Specification is in compliance with the DPWH Standard Specifications

☐ **DETAILED QUANTITY ESTIMATES**

- ☐ Check detailed quantity estimates vis-à-vis the quantities of item/materials indicated on the plan

E. MECHANICAL DRAWINGS

☐ **LEGEND OR SYMBOLS**

- ☐ Verify if all mechanical symbols used are shown

☐ **GENERAL NOTES and/or SPECIFICATIONS**

- ☐ Verify if the scope, description and nature of mechanical works are indicated

☐ **PLANS FOR AIR CONDITIONING AND VENTILATION SYSTEMS**

Verify if the following are indicated/shown:

- ☐ Layout and location of air conditioning systems
- ☐ Layout of ventilation systems

☐ **PLANS FOR WATER PUMPING SYSTEM**

Verify if the following are indicated/shown:

- ☐ Layout and location of water pumps, water tank, piping system, controls, and source of water
- ☐ Schematic diagrams for piping system layout and water level controls
- ☐ Schedules of Equipment

☐ **PLANS FOR FIRE SUPPRESSION SYSTEM**

Verify if the following are indicated/shown:

- ☐ Layout and location of automatic sprinkler heads with its piping, and controls on ceiling plans
- ☐ Schematic riser diagram for every floor
- ☐ Details of sprinkler system
- ☐ Schedule of equipment

☐ Layout and locations of dry-stand pipe, fire extinguisher with installation details

☐ **PLANS FOR ELEVATOR**

Verify if the following layout and locations and details are indicated:

☐ Elevator
☐ Ventilation systems
☐ Hoistway elevation
☐ Brief Specifications
☐ Schedules of Equipment

☐ **PLANS FOR GENERATING SETS**

Verify if the following layout and locations and details are indicated:

☐ Generating set ☐ Fuel tank ☐ Ventilation details
☐ Schedules of Equipment

☐ **OTHER DETAILS**

Verify if the following are indicated:

☐ Ductworks ☐ Piping runs
☐ Condensing Units ☐ Mechanical Equipment

☐ **OTHER PLANS**

Verify if the following are indicated:

☐ Gases ☐ Liquefied Gases ☐ Others

☐ **TITLE/SIGNATORY BLOCK**

Verify if the following are indicated:

☐ Name and location of installation of project
☐ Name, signature and address of owner/manager/operator/head of the using agency
☐ Title of sheet/sheet content
☐ Name, signature and seal of Professional Mechanical Engineer with Professional Regulation Commission professional license number and validity date, Professional Tax Receipt number with date and place issue and Tax Identification Number
☐ Sheet number

☐ **DESIGN ANALYSIS**

Verify if the following are indicated:

☐ Energy analysis and life cycle analysis
☐ Cooling and heating load calculations
☐ Hydraulic Calculations Fire Protection System

☐ **TECHNICAL SPECIFICATIONS**
- ☐ Verify if the Technical Specification is in compliance with the DPWH Standard Specifications

☐ **DETAILED QUANTITY ESTIMATES**
- ☐ Check detailed quantity estimates vis-à-vis the quantities of item/materials indicated on the plan

F. ELECTRONICS DRAWINGS

☐ **LOCATION PLAN AND SITE DEVELOPMENT PLAN**

Verify if the following are indicated/shown:
- ☐ Bordering areas with public or well-known streets, landmarks and/or structures
- ☐ Location of service drop, service equipment and nearest pole of the Local Exchange Carrier; location of Service Equipment as well as sizes of service entrance cables and conduits; and
- ☐ Clearance of the path or run of service drops and entrance cables to adjacent existing and/or proposed structure(s)

☐ **LEGEND OR SYMBOLS**
- ☐ Verify if auxiliary/communication symbols used are shown

☐ **GENERAL NOTES OR SPECIFICATIONS**

Verify if the following are indicated:
- ☐ Nature of communication service, wires/cables, voltage and frequency
- ☐ Type of wiring for service entrance, feeders, sub-feeders and branch circuit wires/cables for auxiliary/communication loads
- ☐ Special equipment to be installed
- ☐ System or method of grounding
- ☐ Clearance of service drop, burial depth for service lateral, mounting height

☐ **PLANS FOR AUXILIARY/COMMUNICATION SYSTEMS**

Verify if the following are indicated:
- ☐ Layout and wiring plans for auxiliary / communication systems:
  - ☐ Local Area Network (LAN)
  - ☐ Worldwide Area Network (WAN),
  - ☐ Public Automatic Branch Exchange (PABX)
  - ☐ Main Distribution Frame
  - ☐ Doctors Paging Systems
  - ☐ Public Address System
  - ☐ Signalling devices
  - ☐ Closed Circuit Television (CCTV)
  - ☐ Voice Outlets
  - ☐ Data Outlets
  - ☐ Servers
  - ☐ Floor Distributors
  - ☐ Nurses' Call Station
  - ☐ Bundy clock
  - ☐ Biometric scanners
  - ☐ Satellite Disc

- ☐ Locations, size and ratings of auxiliary/communication equipment, apparatus, devices, controls and its interconnection wiring
- ☐ Source of power

☐ **AUXILIARY/COMMUNICATION RISER DIAGRAMS**

- ☐ Verify if all the auxiliary/communication equipment, apparatus, devices and its controls, wiring connection and conduit risers with size and type; and numbered as shown / indicated

☐ **OTHER DETAILS**

Verify it the following are indicated:

- ☐ Exposed cable means of support, spacing and clearances
- ☐ Installation details, dimensions, descriptions or specifications, means of supports, separators and attachments where required by Code for auxiliary gutters, cableways, busways, distribution frame, boxes underground installation, other than specified in the Code
- ☐ Construction and installation details and dimensions including line hardware for private pole
- ☐ Details of battery installation and/or low voltage or low energy power, equipment, cables, ventilation details whenever necessary

☐ **TITLE/SIGNATORY BLOCK**

Verify it the following are indicated:

- ☐ Name and location of installation of project
- ☐ Name, signature and address of owner/manager/operator/ head of the using agency
- ☐ Title of sheet/sheet content(s)
- ☐ Name, signature and seal of Professional Electronic and Communication Engineer with Professional Regulation Commission professional license number and validity date, Professional Tax Receipt number with date and place issue and Tax Identification Number
- ☐ Sheet number

☐ **DESIGN ANALYSIS**

- ☐ Verify if in compliance with the Code and Standards for Electronics

☐ **TECHNICAL SPECIFICATIONS**

- ☐ Verify if the Technical Specification is in compliance with the DPWH Standard Specifications

☐ **DETAILED QUANTITY ESTIMATES**

- ☐ Check detailed quantity estimates vis-à-vis the quantities of item/materials indicated on the plan

READY CHECK FOR OTHER STRUCTURE

READY CHECK FOR PEDESTRIAN BRIDGE

I. LIST OF REQUIRED DRAWINGS

- ☐ Coversheet
- ☐ Index of Drawings
- ☐ Location Map/Vicinity Map
- ☐ General Notes
- ☐ Details of Architectural Drawings
- ☐ Details of Structural Drawings
- ☐ Details of Electrical Drawings, if any
- ☐ Miscellaneous Items

II. REQUIRED SUPPORTING DOCUMENTS

- ☐ Structural Design Analysis and Computations
- ☐ Geotechnical Investigation and Evaluation Report
- ☐ Electrical Design Analysis and Computations, if any
- ☐ Technical Specifications

III. READY CHECK ON

A. ARCHITECTURAL DRAWINGS

- ☐ Floor Plan(s)
  Verify if the following are complied/indicated:
  - ☐ Drawn to scale, preferably 1:100, with pertinent dimensions
  - ☐ Schedule/designation of finishes: floor, railings, stairs/ramps, etc.
- ☐ Elevations
  Verify if the following are complied/indicated:
  - ☐ Same scale as floor plan with pertinent dimensions
  - ☐ Natural ground to finish grade elevations and street/sidewalk to floor heights
  - ☐ Exterior finishes
- ☐ Sections
  Verify if the following are complied/indicated:
  - ☐ Same scale as floor plan with pertinent dimensions
  - ☐ Natural ground to finish grade elevations and street/sidewalk to floor heights
  - ☐ Outline of cut and visible structural parts
  - ☐ Finishes

- ☐ Roof Plan, if any
  Verify if the following are complied/indicated:
  - ☐ Same scale as floor plan with pertinent dimensions
  - ☐ Its design, materials/finish, gutters, if any, etc.
- ☐ Details (min. scale of 1:50)
  - ☐ Stairs/Ramps
  - ☐ Railings
  - ☐ Others

B. STRUCTURAL DRAWINGS

- ☐ Foundation Plan
  Verify if the following are complied/indicated:
  - ☐ Same scale as architectural floor plan with pertinent dimensions
  - ☐ Designation of columns, footings, footing tie beams, if any
- ☐ Floor/Multi-Level Floor Framing Plan
  Verify if the following are complied/indicated:
  - ☐ Same scale as foundation plan
  - ☐ Designation of beams/girders and suspended/precast slabs
- ☐ Roof Framing Plan, if any
  Verify if the following are complied/indicated:
  - ☐ Same scale as foundation/floor plan
  - ☐ Designation of roof beams, roof slabs, if any, trusses/rafters and material specifications/spacing of purlins, cross bracings, sag rods
- ☐ Schedule/Details of Footings, Columns, Girders/Beams, Slabs
  Verify if the following are indicated:
  - ☐ Pertinent dimensions
  - ☐ Indication of sizes/numbers/spacings of rebars, ties/stirrups (as per drawing and per indication)
- ☐ Details of Trusses/Rafters/Connections
- ☐ Details of Stairs/Ramps
- ☐ Structural Design Analysis/Computations
  Verify if the following are indicated:
  - ☐ Design Criteria
  - ☐ Drawing of Structural Model
  - ☐ Gravity Load Analysis
  - ☐ Seismic Analysis
  - ☐ Wind Analysis, if applicable
  - ☐ Footings
  - ☐ Columns
  - ☐ Beams and Girders
  - ☐ Suspended/Precast slabs
  - ☐ Trusses/Rafters
  - ☐ Stairs/Ramps

C. ELECTRICAL DRAWINGS, if any

☐ **PLANS FOR LIGHTING OUTLETS**

Verify if the following are shown:

- ☐ Layout and wiring plans for lighting outlet on floor plan drawn to scale
- ☐ Location of lighting fixtures and control switches for each or group of lighting fixtures
- ☐ Complete circuits of lighting outlets
- ☐ Location of service drop, service equipment
- ☐ Clearance of the path or run of service drops and entrance cables to adjacent existing and/or proposed structure(s)

☐ **LEGEND OR SYMBOLS**

- ☐ Verify if electrical symbols used are shown

☐ **GENERAL NOTES OR SPECIFICATIONS**

Verify if the following are indicated:

- ☐ Nature of service, wires/cables, voltage and frequency
- ☐ Type of wiring for service entrance feeders and branch circuit wires/cables for lighting loads
- ☐ System or method of grounding
- ☐ Clearance of service drop, burial depth for service lateral, mounting height

☐ **SCHEDULE OF LOADS**

Verify if the tabulated load schedule indicate:

- ☐ Lighting loads as numbered or identified in the layouts
- ☐ Sizes and ratings of main overcurrent protective devices
- ☐ Sizes of wires and conduits

IV. MINIMUM DESIGN PARAMETERS

Verify if the following are indicated:

- ☐ Minimum Clearance at Road Crown – 4.88m
- ☐ Minimum Width – 1.20m
- ☐ Minimum Vertical Clearance of Service Drop (up to 600V only):
  - ☐ Along Sidewalks – 3.10m
  - ☐ Crossing Over Public Street – 5.50m

Reviewed by: _____

Position : _____