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STANDARD OPERATING PROCEDURES
NUMBER.....02-22

PREPARATION OF THE ENGINEERING DOCUMENTATION OF A PROPOSED PCG INFRASTRUCTURE PROJECTS DURING PRE-PROCUREMENT PHASE

I. REFERENCES:

a. Naval Combat Engineering Brigade (NCEBde) Construction Project Management Handbook 2017 dated 06 July 2017.
b. DPWH Department Order No. 30 S. 2018, Prescribing the Use of the DPWH Procurement Manual in the Procurement of Contracts for Infrastructure, Consulting Services, and Goods and Services dated 19 February 2018.
c. Handbook on Philippine Government Procurement (GPPB Guidelines)
d. Construction Management Jumpstart by Barbara J. Jackson, PhD., DBIA.
e. CGLSC/CGIDS Circular No. 04-19 - Preparation of Agency Estimates for Infrastructure Projects dated 26 April 2019.
f. Logistics Letter Directive Number MB-98-01, GHQ, AFP dtd 27 March 1998, Preparation of Agency Estimates for Construction and T & U Projects.
g. Department Order No.197 s. 2016, DPWH dtd 07 October 2016, Revised Guidelines in the Preparation of Approved Budget for the Contract (ABC).
h. Department Order No. 09 s. 2021, DPWH dtd 29 January 2021, Breakdown of the Allocation of the Authorized Deductions from Project Related Expenses to be Used for Engineering and Administrative Overhead (EAO) under FY 2021 GAA, DPWH Budget.
i. Memorandum Circular No. 2012-008, PNP dtd 23 July 2012, Revised Guidelines and Policies on Programming of Funds and Implementation of PNP Infrastructure Projects.
j. Annex "A" Government Procurement Policy Board (GPPB) Resolution No. 09-2005 dtd 28 April 2005, Guidelines on Implementation of Infrastructure Projects Undertaken by the AFP Corps of Engineers.

II. PURPOSE:

This Standing Operating Procedure (SOP) prescribes the guidelines in the preparation of complete engineering documents for the proposed PCG infrastructure projects through preliminary engineering and detailed engineering design.

III. SCOPE:

This SOP shall apply to all PCG units to properly prepare engineering documentation of proposed PCG infrastructure projects.

IV. DEFINITION:

Audit Inquiry - Inquiry consists of seeking information of knowledgeable persons, both financial and non-financial, inside or outside the entity. An inquiry is an audit procedure used extensively throughout the audit and is often complementary to performing other audit procedures.

Audit Observation Memorandum (AOM) - "a written notification to the agency head and concerned officer/s informing of the deficiencies noted in the audit of accounts, operations or transactions and requiring comments to it and/or submission of documentary and other information and requirements within a reasonable period."

Basic Engineering - is a basis of detailed design and engineering development for construction.

- This phase is a reflection of all the requirements of the project. It is developing the data collected, user requirement preparation, and development parameters for various tasks.

Budget Allocation - is the amount of funding designated to each expenditure line. It specifies the maximum amount of funding an organization is willing to spend on a given item or program. It is a limit that is not to be exceeded by the employee authorized to charge expenses to a particular budget line.

Coast Guard Infrastructure Development Service (CGIDS) - the Philippine Coast Guard's engineering arm tasked to formulate the master development plan of the Command, Bases, Regional Training Centers (RTC), and Districts.

Conceptual Design - is an early phase of the design process, in which the broad outlines of function and form of something are articulated. It includes the creation of interactions, experiences, techniques, and strategies.

Detailed Engineering Design – is the phase in project implementation that applies all technical disciplines needed (i.e., mechanical, civil, electrical, piping, automation, telecommunications, instrumentation, etc.) to establish the set of deliverables.

- are studies that create a full definition of every aspect of project development. It includes all the tasks to be performed before project construction starts.

Engineering Documentation - the process wherein CGIDS personnel have to accomplish to come up with a complete PCG infrastructure project. The set of documents are subject for approval of C, CGIDS.

Infrastructure Projects - focus on the development and maintenance of services, facilities, and systems. These can be funded by private companies, publicly, or combined as a public-private partnership (a collaboration of government entities and private sector companies)

Preliminary Engineering - the overall project configuration, which has elements applicable to both construction and non-construction projects. Preliminary studies may be performed in this phase, including environmental assessments, surveys, geotechnical investigations, hydrologic/hydraulic analyses, traffic studies, etc.

Technical Personnel – of, relating to, or specializing in industrial, practical, or mechanical arts and applied science.

V. POLICIES

a. PCG units that shall prepare the construction estimates shall ensure that said estimates are computed to a reasonable degree of accuracy in conformity with the technical designs and work drawing/plans.

b. PCG units which shall prepare the construction estimates shall be fully responsible for the accuracy of the same compared to current market prices of materials and equipment usage. It shall include the cost-effectiveness of the choice of construction methods and equipment, numbers/types of equipment/labor used, etc., as well as the confidentiality of the construction estimate.

c. The CGIDS shall ensure that all estimates prepared by other PCG units, when submitted for validation and/or evaluation, are under the prescribed guidelines and standard format as embodied in this circular.

d. The Total Estimated Cost (TEC) prepared by PCG units, duly validated and evaluated by CGIDS, shall become the Approved Agency Estimates (AAE) only upon approval of the proper authority. Similarly, the Total Construction Cost (TCC) shall become the Approved Budget of the Contract (ABC) upon approval.

e. The authority which approves the TEC can revise/amend the prepared construction estimates as part of the quasi-judiciary exercise of his authority.

f. The PCG unit preparing the construction estimate shall continuously update their information/statistics on market prices of all construction inputs and use only unit prices that are realistic based on valid, up-to-date information, in contrast to guesswork haphazard pricing. All assumptions in generating the construction estimate should be shown in the cost analysis.

g. The CGIDS shall secure and maintain a copy of the quarterly Construction Materials Price Database (CMPD) from the Department of Public Works and Highways (DPWH), which shall be the basis for preparing construction cost estimates.

VI. GUIDELINES AND PROCEDURES

PRE-PROCUREMENT PHASE

The infrastructure project's queries and needs are the roots of conceptualization, leading to questions of possibility and feasibility. At this phase, preliminary planning, determination of potential issues from every stage until its completion, includes considering the investment valuation before realizing the infrastructure projects.

1. Letter Request

Letter request is a requirement for inspection, repair validation, and conceptualization of design plans and budgetary cost estimates. Requests may come from different PCG units. However, suppose the CG Base or District has activated the Infrastructure Development Unit (IDU). In that case, requests for engineering works will be catered as long as the IDU has the capability or technically-adept personnel to perform such.

2. Site Survey and Inspection

Site survey and inspection are initiated upon issuance of procurement directive from higher headquarters to conduct project study, survey, and assessment. O/IDS3 then issues a message to the Engineering Department for the task. The Engineering Department Head shall receive the order and task the concerned division to take appropriate action in accomplishing the given task.

In the conduct of survey and inspection, OIC, Site Survey and Inspection Team will prepare the personnel and equipment needed. O/IDS1 shall issue Office Order to Survey Team and issue a Letter Order to survey the specified project location. Simultaneously, IDS3 and IDS4 will coordinate for the availability of funds to support site survey and inspection, which includes the transportation and allowances required for the activity. Communications (radio message) and lateral coordination with the requesting party or end-user will then be made regarding the details and requirements of the site survey and inspection.

On-site, the survey team, will perform a survey based on the requirements and data needed. After the conduct of the survey, the OIC of the surveying team will submit and prepare the After Survey Report and submit it to the Head of Planning and Design Team for consolidation, information, and reference.

2.1.1 Survey Checklist

A survey checklist is a tool used to identify the scope of work to be considered in coming up with the Scope of Works of a project and gather the data and documents required in detailed engineering designing that should be included in the engineering documentation.

2.1.2 After Survey Report

The After Survey Report is a monitoring tool of Planning and Design. It summarizes the project definition/title, the survey team, location, the reference/s, date and scope of the survey, the findings, and the recommendation/s. The report shall be prepared by the OIC/ POIC of the survey team and submitted to the Head of Plans and Budget.

2.2 Preparation of Engineering Documentations - Engineering documentations shall comprise the following attachments:

i. Detailed Architectural and Engineering Design (DAED) Plans,
ii. Scope of Work and Specification,
iii. Bill of Quantity/Detailed Cost Estimate (BOQ/DCE),
iv. Program of Work
v. Construction Schedule (and estimated Cash Flow for projects with the schedule over Six (6) months,
vi. Site or Right-of-Way Acquisition Plans and Resettlement Action Plans, if applicable
vii. Utility Relocation Plan,
viii. Geohazard Certification from DENR,
ix. Proof of Ownership with sketch plan or technical lot description, and
x. Value Engineering Studies (shall be conducted according to standards and practices, reduce non-essential features and maintain the essential function, performance, and safety)

2.2.1 Plans, Design, and Technical Specifications

a. Plans and Design

The cost estimates shall be based on duly approved plans and designs which shall include, but not limited to, (i) Site Development Plan, (ii) Architectural Plan, (iii) Electrical Plans, (iv) Mechanical Plans, (vi) Plumbing and Sanitary details, and (vi) Structural Plans at appropriate scales. It must indicate all details necessary for the complete structure to be set out and constructed. The preparation of plans and design shall be governed by existing policies or as required by Commander, CGIDS.

Architectural Plans

These are site development plans, perspective plans, floor plans, front /side and rear elevations, transverse/longitudinal sections signed and sealed by an architect or engineer.

Structural Plans

Details on the footing, column, beam, tie beam, lintel beam, cantilever beam, slab, and slab on fill, retaining walls, wall footing, trusses, and CHB footing are shown in structural plans.

Electrical Plans

Electrical Plans provide details regarding power distribution, riser diagram, and power and lighting systems.

Mechanical Plans

Mechanical Plans provide details regarding HVAC, Fire detection and Alarm systems, and fire suppression systems within a building. Designing and planning are coordinated with the other fields of architectural and engineering practice.

Plumbing & Sanitary Plans

Plumbing Plans inclusive of sewage and potable water systems, riser diagrams, water storage, and mains.

b. Requirements in preparation of Detailed Architectural and Engineering Design (DAED) Plans

Vertical Construction

1. Location of the Project

The location of the project should be identified to make an appropriate design of the building.

2. Soil Bearing Test

It is desirable to determine soil consistency by conducting a soil bearing test (boring test) as the basis for foundation design.

Structural design. This refers to the determination of strength, rigidity, and stability of the building/structure to be built.

Data required for structural design are:

1. Basic Building Information
2. Soil classification
3. Building Types
4. Loading Types

Plans to be prepared:

1. DAED

- Site Development Plan
- Perspective View Plans
- Elevation Plans(Front/Right-side/Left-side/Rear)
- Section Plans (Transverse/Longitudinal)
- Electrical Plans
- Mechanical Plans,

- Plumbing & Sanitary Plans,
- Drainage Plans,
- Structural Plans

Horizontal Construction

1. Site Survey and Inspection – the purpose of which is to get the topography of the strip or strips flagged, where data will be utilized as the basic framework for the projection of line in the infrastructure.

2. Infrastructure Projection – the purpose of which is to fit the best line as close as possible into the terrain within the desired standard.

3. Location Survey – the purpose of which is to transfer the paper projection determined in the office from the topographic strip map to the actual site in the field.

Geometric Design

Detailed Architectural and Engineering Design (DAED) embraces the grade lines or profile, including curvature and the widths of several components such as intersections. Data required for geometric design are traffic density, character of traffic, and design speed.

Structural design

This involves the thickness of the pavement base and the stability of the foundation.

Data required for structural design are:

1. Maximum wheel load and volume of traffic
2. Soil classification
3. Minimum field compaction
4. Modulus of subgrade reaction.

Plans to be prepared:

1. Profile elevation
2. Plans
3. Transverse/longitudinal detail
4. Other details

Other road necessities include curve and gutter, drainage, line canal, culvert, and manhole.

c. Specifications

Specifications or special provisions shall be prepared for specific terms of work or construction methods, measurement, and payment under each contract/ project

that are not covered by the Standard Construction and Material Specifications of the DPWH.

The DPWH Standard Specifications for Public Works and Highways ("Blue Book") shall be the basis for the standards and codes on the goods and materials to be furnished and work performed or tested for the Contract. Volume II (2004 edition) of these specifications shall be used if the Contract pertains to Highways, Bridges, and Airports. (Item 100 to 700) Volume III (1995 edition) shall be used if the Contract pertains to Buildings, Flood Control and Drainage, or Water Supply. (Item 800 to 1700)

2.2.2 Preparation of Bill of Quantity and Detailed Cost Estimates (BOQ/DCE)

a. Direct Cost

Direct Cost pertains to all materials' costs and the labor and equipment used in constructing or installing the finished product or project.

Direct Cost shall include the following:

a.1 *Material Cost* are all supplies, including consumables, used in accomplishing the project, which includes but not limited to the following:

i. Cost at source, including processing, crushing, stockpiling, loading, royalties, local taxes, construction and/or maintenance of haul roads, etc.;
ii. Expenses for hauling to project site;
iii. Handling expenses;
iv. Storage, and;
v. Allowance for waste and/or losses.

a.2 *Labor Cost*

i. Salaries and wages as authorized by the Department of Labor and Employment (DOLE);
ii. Fringe benefits, such as vacation and sick leaves, benefits under the Workmen's Compensation Act, GSIS and SSS contributions, allowances, 13th-month pay, bonuses, etc.

a.3 *Demolition Cost* refers to the labor cost in removing the building or any material part of a building or a structure. It shall follow the guideline for labor cost.

a.4 *Specialty Works* shall be itemized to include cost for the fabricated material, installation and/or initial operation, and others.

a.5 *Equipment Cost* shall comprise the equipment rental, mobilization/demobilization, and transshipment, one percent (1%) of the Civil Works (sum of Material and Labor cost).

Equipment refers to all facilities, appliances, materials, or things required to execute and complete the project. Still, it shall not form or are not intended to form part of the project and shall not be subjected to OCM and Contractor's profit mark-up.

a.6 *Mobilization/Demobilization Cost* refers to the cost of preparatory work and operations necessary for the movement of heavy equipment, construction personnel, and supplies and incidentals to and off the project site when beginning or ending the work on the project. It is on a case-to-case basis and should not exceed 1% of labor and Material Cost. In cases where movement would require three (3) or more heavy equipment or floating assets beyond extreme normal conditions in terms of accessibility and time distance, the mobilization and demobilization cost may be computed beyond the 1% ceiling. Costing should be itemized.

a.7 *Transshipment* refers to the shipment of construction materials, containers and/or equipment to an intermediate destination and yet another destination. One possible reason or transshipment is to change the means of transport during the journey (e.g., from land transport to the port and sea transport).

a.8 *Temporary Facility* computation shall be itemized. Materials used for this item may be removed and reused for the construction project itself. If this applies, reused factors should be incorporated in the estimate.

a.9 *Other General Requirement Expenses* are the cost or expenses for permits, clearances, and other government taxes (i.e., MMDA Permit, LGU Permits, Bureau of Fire Protection Clearance, etc.) shall be included in the direct cost but should not be subjected to OCM and Contractor's profit mark-up.

b. Taxes

Only the labor cost component of the direct cost is subjected to 5% E-VAT. The material is not subjected to E-VAT, for this was already "taxed" by the supplier. The tax added by the supplier to the cost of materials is part of the total cost of materials.

c. Indirect Cost pertains to the cost not classified under the direct cost but is necessary for an orderly and timely completion of the job or project. These include overhead expenses and miscellaneous and the contractor's profit margin. It may also include salaries and wages of security guards, rental of office, transportation, and the like.

Indirect Cost shall include the following:

c.1 *Overhead expenses* are applicable only to projects undertaken by contract up to 8% (ceiling) of the Direct Cost. It shall include the following:

a.1 Engineering and Administrative supervision
a.2 Transportation allowances
a.3 Office Expenses (office equipment and supplies)
a.4 Contractors all risk insurance
a.5 Financing Cost

a.5.1. Premium on bid cost
a.5.2. Premium on performance security

Miscellaneous Expenses - usually 0.5-1% of the Direct Cost. These include laboratory tests.

Contingency cost covers the occurrence of unforeseen elements of cost within the defined project scope of work due to the combination of uncertainties, such as inadequacies in the approved scope of work and insufficiencies of site information during the planning stage. It is 3% to 5% of the Direct Cost.

c.2 *Contractors profit margin* - applies only to projects undertaken "by contract" and ranges from 10% to 15% of the Direct Cost.

NOTE: *For the percentage to be used for sub-para, refer to the OCM (Overhead, Contingency, and Miscellaneous) column in the tabulation below.*

Estimated Total Cost (TDC)	Indirect Cost % for OCM & Profit (maximum ranges)		Total Maximum Indirect Cost % for OCM, Profit
	OCM (% of TDC)	Profit (% of TDC)	
Up to P 1 Million	15	10	25
Above P 1 M to P 5 M	12	8	20
Above P 5 M to P 10 M	10	8	18
Above P 10 M to P 20 M	8	8	16

d. Agency Expenses Agency expense refers to the funds allocated for Administrative & Supervision (A&S) Architectural and Engineering (A&E) and contingency expenses needed to accomplish the project.

d.1 *Engineering & Administrative Overhead (EAO) Expenses* is to ensure fund allocation for the supervision of construction projects and preparation of detailed engineering. An amount not exceeding three percent (3%) of the TCC shall be included in the programming of funds as EAO of more than One million (P1,000,000.00). However, EAO shall not be authorized for infrastructure projects costing more than One million (P1,000,000.00).

For EAO expenses, the same shall be limited to:

i. Administrative overhead including the hiring of individuals engaged through job-orders or contracts of service or such other engagement of personnel without any employer-employee relationship;
ii. Pre-construction activities after detailed engineering, including the acquisition of ROW;
iii. Construction project management;
iv. Testing and quality control;
v. Acquisition, rehabilitation, and repair of related equipment and parts;

vi. Contingencies in relation to pre-construction activities.

The EAO expenses shall be treated or booked-up as capitalized expenditures and form part of the project cost, subject to proper accounting and audit.

2.3 Approval of Engineering Documentation

After the design plans and preparation of DAED on the data gathered through the site survey and inspection process, the concerned estimator will now program the scope of works and quantity of the materials, equipment, labor and other resources needed for the implementation of the project (either by Admin or by Contract).

Project duration will be established after the completion of the BOQ/DCE. The engineering documents will then be forwarded to the Planning and Budget Division Head for checking and signature. The Executive Officers of the Engineering Department will now verify and evaluate the prepared engineering documents. The Head of the Engineering Department will recommend through IDS3 coursing via Chief of Staff and Deputy, CGIDS to CCGIDS for proper disposition.

SIGNATORIES
Table 1-3

SIGNATORIES FOR BILL OF MATERIALS AND COST ESTIMATES	
INDIVIDUAL PROGRAM OF WORKS	
Prepared By:	Head, Plans & Budget Division, ED
Submitted By:	Head, Engineering Department
Recommend Approval:	Commander, CGIDS
Approved By:	Commandant, PCG
BILL OF QUANTITIES/DETAILED COST ESTIMATES/SUMMARY	
Prepared By:	Estimator/Designer
Checked By:	Head, Plans & Budget Division, ED
Verified By:	Asst. Dept. Head, Engineering Dept.
Recommend Approval:	Head, Engineering Dept.
Approved By:	Commander, CGIDS
SCOPE OF WORKS & SPECIFICATIONS	
Prepared By:	Estimator/Designer
Checked By:	Head, Plans & Budget Division, ED
Verified By:	Asst. Dept. Head, Engineering Dept.
Recommend Approval:	Head, Engineering Dept.
Approved By:	Commander, CGIDS
DETAILED ARCHITECTURAL AND ENGINEERING DESIGN PLANS SIGNATORIES	
COVER PAGE	
Submitted By:	Commander, CGIDS
Recommending Approval:	Commander, CGLSC
Approved By:	Commandant, PCG
PLANS	
CADO By:	Draftsman/CAD Operator
Designed By:	Engineer/ Architect/ Draftsman
Submitted By:	Head, Plans & Budget Division ED
Recommending Approval:	Head, Engineering Department
Approved By:	Commander, CGIDS
CONSTRUCTION MANAGEMENT TOOLS	
Prepared By:	Engineer
Submitted By:	OIC, Arch'l Section. Plans & Budget, ED
Approved By:	Head, Engineering Department

The CCGIDS approved Engineering Documents will be transmitted to CPCG through CCGLSC for endorsement prior to the approval of CPCG.

The ABC shall be compared with the Contractor's Bid. It will be the basis for the judging whether the bids received are reasonable or not, while the AAE shall be based on the proposal and contract booklet and should contain the same work items and quantities as those used by the Contractor in preparing his bid.

Approved Agency Estimates which shall comprise engineering documents. The following documents are attached:

i. Breakdown of Expenditures,
ii. Program of Works,
iii. Approved Budget for the Contract (ABC),
iv. Bill of Quantities/Detailed Cost Estimates,
v. Scope of Works and General Notes, and
vi. DAED plans and Specifications

Breakdown of Expenditures. The corresponding Material Cost, Labor Cost, Equipment Expenses (Equipment Rental, Mobilization/Demobilization, and Transshipment), and other Government Requirement Expenses (Permits, Clearances, and other Government taxes) are detailed in the breakdown of expenditures. The format to be utilized will vary depending on the amount of the Approved Budget for the Contract (ABC) and mode of implementation.

ABC amounts to One Million (P1,000,000.00) and below are considered to be Repair and Utilities (R&U) projects that shall **either be implemented by Administration or by Contract** depending on the capacity of the implementing unit.

ABC amounts above One Million (P1,000,000.00) are considered to be New Construction projects and **shall be implemented by contract through public bidding**.

The *Total Construction Cost* is equivalent to the *Total Estimated Cost* (TEC) **for purposes of fund availability** and shall be computed as the sum of the Total Direct Cost (TDC) and VAT.

Program of Works (POW) shall be composed of project category, project description, appropriation, work duration in calendar days (CD), mode of implementation, equipment requirement, technical personnel required, and estimated cost of proposed work. This shall include a PERT/CPM network of the project activities. (*see **Annex D***)

T*he Approved Budget for the Contract (ABC)* is the sum of the Total Direct Cost (TDC), Total Indirect Cost (TIC), and Value Added Tax (VAT). This shall be the amount used for the conduct of public bidding for infrastructure projects and will reflect on the summary of work items. **(see Annex E)**

Bill of Quantities/Detailed Cost Estimates (BOC/DEC) are all required materials, labor costs, and work items for the completion of the project shall be reflected in

the Bill of Quantities/Detailed Cost Estimates in reference with the updated Construction Materials Price Data (CMPD) to be requested quarterly from DPWH Central Office. The BOQ/DEC shall be for the CGIDS use in the cost estimation until approval of the AAE; however, the document shall not be submitted to any other office for confidentiality. (*see **Annex F***)

The prescribed Bill of Quantities/Detailed Cost Estimates format is filled up with the following procedures:

i. Columns (2) to (5) are self-explanatory.
ii. Columns (7) is the Total Direct Cost (TDC) of the work item as calculated and reflected in the Estimator's cost analysis.
iii. Columns (6) and (7) are the mark-ups in percent for OCM and Profit, respectively.
iv. Columns (8) is the total mark-up, which is the sum of the percentages under columns (6) and (7).
v. Column (9) is the Peso value of the total mark-up. It is determined by multiplying the total mark-up on percent in column (8) with the TDC (column 5).
vi. Column (10) is the VAT component which is 5% of the sum of columns (5) and (9).
vii. Column (11) is the Total Indirect Cost (TIC) which is the sum of columns (9) and (10).
viii. Column (12) is the Total Cost of each work item or the sum of columns (5) and (11).
ix. Column (13) is the unit cost for each item of work determined by dividing the estimated Total Cost in column (12) by its total quantity in column (3).

The *Scope of Works* (SOW) shall be composed of Technical Specifications and General Notes which will serve as a guide in complying the requirements as indicated in the drawing plans/designs with instruction to submit the as-built plans and pictures after the completion of the project. (*see **Annex G***)

The *Detailed Architectural and Engineering Design (DAED) plans* should be prepared in accordance with the National Structural Code of the Philippines (NSCP), Building Code of the Philippines, Batas Pambansa 344, or the Accessibility Law, Fire Code of the Philippines, and other applicable rules and regulations. (*see **Annex H***)

Upon approval of the AAE, the set of documents, excluding the Bill of Quantities/Detailed Cost Estimates, shall be provided to the Bids and Awards Committee (BAC) for purposes of confidentiality and bid evaluation Technical Working Group (TWG).

2.4 Mode of Implementation

The mode of implementation will depend on the Approved Agency Estimated (AAE). For AAE of Php 1M below have an option to implement the project by contract or by the administration. However, for AAE of Php 1M and above will be implemented by contract through public bidding.

Construction by Contract refers to the procurement and subsequent implementation of PCG infrastructure projects either through public bidding or negotiation with a legally, technically, and financially capable contractor.

Construction by Administration is a mode of implementation adopted by PCG from the AFP where the implementing unit or Project Administrator undertakes the project using its organic personnel and manages the project implementation.

The Approved Agency Estimated (AAE) has the breakdown of Estimated Expenditures with prescribed formats as shown in the annexes below. The following instructions for filling up the format to implement the projects are shown below.

2.4.1 *By Contract for New Construction* **(See Annex C-1)**

a. The Total Direct Cost (TDC) is computed by adding the Material Costs (A.1.), Labor Cost (A.2.), Equipment Expenses (A.3.), and other General Requirements (A.4.). The values of "A.1.", "A.2.", "A.3." and "A.4." are derived from the Bill of Quantities/Detailed Cost Estimate.

b. The values for the Overhead, Contingencies, and Miscellaneous (B.1.), and Contractor's Profit (B.2.), shall be determined by multiplying each applicable percentage (see OCM and Profit Table) to the Material Cost (A.1.) and Labor Cost (A.2.) only.

c. The Total Indirect Cost (TIC) shall be computed by adding the values of "A", "B", and "C".

d. The Value Added Tax (VAT) shall be computed by adding the values of TDC and TIC then multiplying the sum by five percent (5%).

e. The Total Construction Cost (TCC) shall become the Approved Budget for the Contract (ABC) for bidding purposes once the proposal was approved is the sum of the TDC, TIC, and VAT.

f. The Engineering and Administrative Overhead (EAO) Expenses shall be computed by multiplying accordingly to the allotted equivalent of a percent to project location to the Total Construction Cost (TCC) but shall not form part the cost for bidding.

g. The Total Estimated Cost (TEC) **for purposes of fund availability** shall be computed as the sum of the Total Construction Cost (TCC) and Engineering and Administrative Overhead (EAO) Expenses.

2.4.2 *By Contract for R and U* **(See Annex C-2)**

a. The Total Direct Cost (TDC) is computed by adding the Material Costs (A.1.), Labor Cost (A.2.), Equipment Expenses (A.3.) and other General Requirements (A.4.). The values of "A.1.", "A.2.", "A.3." and "A.4." are derived from the Bill of Quantities/Detailed Cost Estimate.

b. The values for the Overhead, Contingencies, and Miscellaneous (B.1.), and Contractor's Profit (B.2.), shall be determined by multiplying each applicable percentage (see OCM and Profit Table) to the Material Cost (A.1.) and Labor Cost (A.2.) only.

c. The Total Indirect Cost (TIC) shall be computed by adding the values of "A", "B", and "C".

d. The Value Added Tax (VAT) shall be computed by adding the values of TDC and TIC then multiplying the sum by five percent (5%).

e. The Total Construction Cost (TCC) shall become the Approved Budget for the Contract (ABC) for bidding purposes once the proposal was approved is the sum of the TDC, TIC, and VAT.

f. The Total Estimated Cost (TEC) for **purposes of fund availability** shall be computed as the sum of the TDC, TIC, and VAT.

2.4.3 By Admin for R and U **(See Annex C-3)**

a. The Total Direct Cost (TDC) is computed by adding the Material Costs (A.1.), Labor Cost (A.2.), Equipment Expenses (A.3.), and other General Requirements (A.4.). The values of "A.1." and "A.2." (equipment Cost) are derived from the Bill of Quantities/Detailed Cost Estimate.

b. The values for the Overhead, Contingencies, and Miscellaneous (B.1.) shall be determined by multiplying each applicable percentage (see OCM) to the Material Cost (A.1.) only.

c. The Total Indirect Cost (TIC) shall be computed by adding the values of "A", "B", and "C".

d. The Value Added Tax (VAT) shall be computed by multiplying the TDC by five percent (5%).

e. The Total Construction Cost (TCC) is equivalent to Total Estimated Cost (TEC) for **purposes of fund availability** shall be computed as the sum of the TDC, TIC, and VAT.

2.5 Organization

The Project Administrator, also known as PRAD, is the construction department head of CGIDS, in charge of supervising and administering PCG infrastructure projects.

The Project Manager is the unit/ entity of the PCG in-charge of managing and supervising "by contract" projects. For the implementation of this policy, Officer-In-Charge refers to the execution of its function in managing construction projects.

Project Monitoring In-Charge is the authorized representative of the PRAD for the administration, supervision, and completion of projects.

Project Management is the discipline of planning, organizing, and managing resources to complete specific project goals and objectives successfully.

Project Inspector is a coast guard or civilian representative of CGIDS Construction Department under the Inspection and Monitoring Branch at the project site who closely monitors and supervises the projects to ensure that construction conforms to the approved design and specifications of other purposes required by authorized entities.

Technical Inspection and Acceptance Committee (TIAC) is the committee tasked to ensure that infrastructure projects are implemented based on the approved scope of works, plans, and specifications. Construction materials delivered are in accordance with the specifications and quantities stipulated in the procurement documents.

2.6 Pre-Construction Planning

2.6.1 Pre-construction Conference

The *Project Administrator* shall conduct a pre-construction conference to discuss the details on work after receipt of the approved contract/construction directive.

a. Attendees

The conference will be presided by the Deputy Commander, CGIDS, and will be attended by the following:

a.1 Representative of Engineering Department
a.2 Representative of TWG for Infra
a.3 Officer in Charge of the Construction(OICC)
a.4 Project Monitoring in Charge
a.5 Representative from Project Performance and Evaluation
a.6 Contractor or it's representative
a.6 End-Users

b. Schedule of Conference

A day after the receipt of the approved contract, Deputy Commander, CGIDS/ and/or designated officer for units other than CGIDS, shall conduct the pre-construction conference to discuss, but not limited to, the following:

b.1 Scope of Work / Program of Work
b.2 Start of Work
b.3 Certificate of Site Possession
b.4 Information/publicity of government projects (billboard)
b.5 Billeting Facilities and Utilities
b.6 Mobilization
b.7 Quality of Work
b.8 Change/Variation Orders
b.9 Progress of Works
b.10 Reports

b.11 Inspection

A Record Officer from Project Performance and Evaluation shall prepare the minutes of the meeting duly signed by the attendees for future reference.

VII. REPEALING CLAUSE

All PCG rules and regulations which are inconsistent with the provisions of this SOP are hereby repealed or modified accordingly.

VIII. EFFECTIVITY

This SOP shall take effect upon publication of the Coast Guard Adjutant.

BY COMMAND OF COAST GUARD ADMIRAL LAROYA:

OFFICIAL:

FERDINAN B PICAR
CG COMMO
Chief of Coast Guard Staff

JAYSIEBELL B FERRER
CG CDR
Coast Guard Adjutant

Annex A - *Survey Checklist*
Annex B – *After Survey Report*
Annex C-1 - Breakdown of Expenditures by Contract for New Construction
Annex C-2 - Breakdown of Expenditures by Contract for RnU
Annex C-3 - Breakdown of Expenditures by Admin for RnU
Annex D - Program of Works
Annex E - Approved Budget for the Contract (ABC),
Annex F - Bill of Quantities/Detailed Cost Estimates,
Annex G - Scope of Works and General Notes
Annex H - DAED plans and Specifications
Annex I – *Minutes of the Meeting Format*

Name of Project:	
Project Location:	
Date of Survey:	
I. Buildings	
A. DAEP Checklist	
Architectural	Findings/Observations:
	Recommendations:
Structural	Findings/Observations:
	Recommendations:
Electrical	Findings/Observations:
	Recommendations:
Mechanical	Findings/Observations:
	Recommendations:
Plumbing	Findings/Observations:
	Recommendations:
Finishes	Findings/Observations:
	Recommendations:
Doors, Windows, & Glasses	Findings/Observations:
	Recommendations:
Roofing	Findings/Observations:
	Recommendations:
Varnishing	Findings/Observations:
	Recommendations:
Carpentry	
B. Specifications Checklist	
1. Clearing & Grubbing	Findings/Observations:
	Recommendations:

2. Embankment	Findings/Observations:
	Recommendations:
3. Demolition	Findings/Observations:
	Recommendations:
II. PIER	
Level I (Swim-by Visual Inspection)	
A. Pier Top-Side	
A.1 Bits	Findings/Observations:
	Recommendations:
A.2 Cleats	Findings/Observations:
	Recommendations:
A.3 Bollard	Findings/Observations:
	Recommendations:
A.4 Wooden Plank	Findings/Observations:
	Recommendations:
A.5 Concrete Causeway	Findings/Observations:
	Recommendations:
B. Under Pier	
B.1 Column Piles	Findings/Observations:
	Recommendations:
B.2 Dolphins	Findings/Observations:
	Recommendations:
B.3 Beaching Ramp	Findings/Observations:
	Recommendations:

	Level II (Detailed - Inspection)	
	A. Cracks on concrete	Findings/Observations:
		Recommendations:
	B. Dilapidated Wooden Planks	Findings/Observations:
		Recommendations:
	C. Corroded rebars on column piles	Findings/Observations:
		Recommendations:
III. Other field investigation requirement		
	Site / Topographic Survey	
	Geotechnical Investigation	
	Hydrographic Survey	
	Others:	
IV. Other considerations		
	Sources of Utilities:	
	a. Electricity	
	b. Water	
	c. Communication	
	Existing Utility Plan	Findings/Observations:
		Recommendations:
	Road Right of Way	Findings/Observations:
		Recommendations:
	Geohazard Certification	Findings/Observations:
		Recommendations:
	Proof of Ownership (with Sketch plan and Technical Description)	Findings/Observations:
		Recommendations:

IV. FAQ'S (Frequently Asked Question)		
	A. Mode of Implementation	
	1. By Admin	
	2. By Contract	Negotiated / Bidding
		Recommendations:
	B. Budget Ceiling: _____	
	1. Above P1,000,000.00 for Bidding	
	2. Below P1,000,000.00 for Phasing (Note: For repairs, ABC should not exceed on the assessment value of the structure)	
	C. Source of Fund	
	1. MOOE	
	2. Capital Outlay	
	3. Congressional Insertions	
	4. Foreign Assisted Projects	
	5. Others:	
	D. Construction Methodology	
	1. New Construction	
	2. Repair & Rehab	
	3. *Demolition and Build*	

_____

Team Leader, Survey Team

AFTER SURVEY REPORT

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE
ENGINEERING DEPARTMENT

From: Team Leader, Site Inspection & Survey Team (SIST)
To: Commanding Officer, Engineer Support Operation Center

AFTER SURVEY REPORT

1. Reference/s : _____
2. Date Surveyed : _____
3. Enclosure/s : _____
4. Survey Location : _____
5. Objective: Survey of _____
6. Resources:

(a) Personnel Involved

Officers

_____
_____

Enlisted Personnel

_____
_____

Civilian Employee

_____
_____

(b) Logistics

Mobility/ Transportation _____
Tools/Equipment

_____

Financial Expenses

_____

5. Scope

_____
_____

6. Findings and Concerns

_____
_____

7. Recommendation

Preparation of DAED and BOQ/DCE
Others: _____

Prepared by:

_____
_____
OIC/POIC, Survey Team

Submitted by:

Team Leader, SIST

NAME OF PROJECT :			
BREAKDOWN OF ESTIMATED EXPENDITURES	% OF TOTAL	AMOUNT	
I. ESTIMATED COST			
A. DIRECT COST			
A.1. Materials	58.75		9,755,258.01
A.2. Labor	17.67		2,934,212.88
A.3. Equipment	0.00		
TOTAL DIRECT COST (TDC)	76.42	P	**12,689,470.90**
B. INDIRECT COST			
B.1. Overhead, Contingency & Misc. (12 % Max.	9.17		1,522,736.51
B.2. Profit (8 % Max. of D.C.)	6.11		1,015,157.67
C. VAT (5 % of D.C. and I.C. Per SOP # __)	4.62		767,712.99
D. Mobilization and Demobilization (1% of TDC)	0.76		126,894.71
TOTAL INDIRECT COST (TIC)		P	**3,432,501.88**
TOTAL CONSTRUCTION	20.67	P	**16,121,972.77**
II. ESTIMATED GOVERNMENT EXPENDITURES			
1. Engineering and Administrative Overhead (3% of	2.91		483,659.18
TOTAL ESTIMATED COST (TEC)	100.00	P	**16,605,631.96**

Prepared By:	Checked/Verified by:
Estimator, Civil/Structural Branch, Plans & Budget. ED, CGIDS	Head, Plans & Budget Div, ED, CGIDS
Recommending Approval:	**Approved By:**
Head, Engineering Department, CGIDS	Commander, CGIDS

NAME OF PROJECT :			
BREAKDOWN OF ESTIMATED EXPENDITURES	% OF TOTAL	AMOUNT	
I. ESTIMATED COST			
A. DIRECT COST			
A.1. Materials	48.54		1.00
A.2. Labor	24.27		0.50
TOTAL DIRECT COST (TDC)	72.81	P	**1.50**
B. INDIRECT COST			
B.1. Overhead, Contingency & Misc. (15 % Max.	10.92		0.23
B.2. Profit (12 % Max. of D.C.)	8.74		0.18
C. VAT (5 % of D.C. and I.C. Per SOP #__21)	4.62		0.10
TOTAL INDIRECT COST (TIC)		P	**0.50**
TOTAL CONSTRUCTION	*24.28*	P	***2.00***
II. ESTIMATED GOVERNMENT EXPENDITURES			
1. Engineering and Administrative Overhead (3% of	2.91		0.06
TOTAL ESTIMATED COST (TEC)	100.00	P	**2.06**

Prepared By:	Checked/Verified by:
Estimator, Civil/Structural Branch, Plans & Budget. ED, CGIDS	Head, Plans & Budget Div, ED, CGIDS
Recommending Approval:	**Approved By:**
Head, Engineering Department, CGIDS	Commander, CGIDS

NAME OF PROJECT :			
BREAKDOWN OF ESTIMATED EXPENDITURES	% OF TOTAL	AMOUNT	
I. ESTIMATED COST			
A. DIRECT COST			
A.1. Materials	74.99		1.00
A.2. Equipment			1.00
TOTAL DIRECT COST (TDC)	74.99	P	**1.00**
B. INDIRECT COST			
B.1. Overhead, Contingency & Misc. (15 % Max.	11.25		0.15
	9.00		0.12
C. VAT (5 % of D.C. and I.C. Per SOP #__21)	4.76		0.06
TOTAL INDIRECT COST (TIC)		P	**0.33**
TOTAL CONSTRUCTION	25.01	P	**1.33**
TOTAL ESTIMATED COST (TEC)	100.00	P	**1.33**

Prepared By: Estimator, Civil/Structural Branch, Plans & Budget. ED, CGIDS	Checked/Verified by: Head, Plans & Budget Div, ED, CGIDS
Recommending Approval: Head, Engineering Department, CGIDS	Approved By: Commander, CGIDS

Philippine Coast Guard
HEADQUARTERS COAST GUARD LOGISTICS SYSTEMS COMMAND
COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE
CGBF, Muelle dela Industria, Farola Compound,
Binondo, Manila 1006

PROGRAM OF WORK

(For all Types of Project)

Date :

NAME/LOCATION OF PROJECT : **PROPOSED CONSTRUCTION OF FIRING RANGE AT CGBT**	Appropriation : P 16,605,631.96 Source of Funds : Issued Obligated Authority : Released : Cal. Days to Complete : 130 Calendar Days Desirable Starting Date : Upon Approval Mode of Implementation :
PROJECT CATEGORY : BUILDING CONSTRUCTION	
PROJECT DESCRIPTION : An 25-meter length, 8-bay firing range with roof deck buidling.	NET LENGTH : 0 + 000.00 to 950.00 Net Length : 950.00 ln.m.

MINIMUM EQUIPMENT REQUIREMENT :

Description	No.
Dumptruck (10-Wheeler)	2
Drop Hammer	0
Crawler Crane	0
Truck mounted Crane	1
Road Grader	1
Road Roller	1
Payloader	1
Water Truck	1
Water Tank	1
Backhoe with breaker	1
Vibro Hammer	1
Water Pump	1
Cutting Outfit	1
Concrete Vibrator	3
Air compressor	1
Bar Cutter	1
Bar Bender	1
Conc. Mixer (1-Bagger)	2
Plate Compactor	1
Jack Hammer	1
Diesel Hammer	
Service Truck	

TECHNICAL PERSONNEL REQUIRED :

Description	No.
Project Engineer	1
Materials Engineer	1
Geometric Surveyor	1
Foreman	1
Materials Lab. Tech.	1
Mason	10
Carpenter	6
Laborers (Skilled)	10
Laborers (Unskilled)	20

ESTIMATED COST OF PROPOSED WORK

ITEM NO.	DESCRIPTION	% OF TOTAL	UNITS	QTY	DIRECT COST TOTAL	DIRECT COST UNIT COST
PART I - OTHER GENERAL REQUIREMENTS						
	Occupational Safety and Health Program	0.496	l.s	1.00	63,000.00	63,000.00
	Soil Foundation Investigation	0.591	l.s	1.00	75,000.00	75,000.00
	Temporary Facilities/Utilities	1.182	l.s	1.00	150,000.00	150,000.00
	Mobilization & Demobilization	0.000	l.s	1.00		0.00
PART II - EARTHWORKS/SITE WORKS						
	Site Preparation, Demolition/Clearing and	0.490	sq.m	518.40	62,208.00	120.00
	Structure Excavation	1.074	cu.m.	378.13	136,227.09	360.27
	Embankment, Common Borrow	2.186	cu.m.	21.87	277,414.16	12,684.69
	Gravel Bedding	*0.095*	*cu.m.*	*615.30*	*12,091.05*	*19.65*
	Soil Poisoning	0.301	ltrs	104.00	38,145.12	366.78
PART III - CONCRETE WORKS						
	Column Footing (RMC 3000PSI)	2.917	cu.m.	65.63	370,167.18	5,640.21
	Footing Tie Beam (RMC 3000PSI)	2.011	cu.m.	39.30	255,164.17	6,492.73
	Column (RMC 3000PSI)	3.092	cu.m.	60.42	392,297.06	6,492.73
	Roof Deck Beam (RMC 3000PSI)	3.732	cu.m.	72.94	473,579.51	6,492.73
	Parapet Beam (RMC 3000PSI)	0.718	cu.m.	14.04	91,157.89	6,492.73

	Suspended Slab (RMC 3000PSI)	1.505	cu.m.	29.42	191,016.03	6,492.73
	Slab on Fill & Ramp Slab(RMC 3000PSI)	2.304	cu.m.	51.84	292,388.64	5,640.21
	PCCP, Plant Box (RMC 3000PSI)	4.694	cu.m.	105.60	595,606.49	5,640.21
PART IV - REBAR WORKS						
	Column Footing (Grade 40)	1.083	kgs	2606.86	137,459.73	52.73
	Footing Tie Beam (Grade 40)	3.496	kgs	8413.16	443,625.82	52.73
	Column (Grade 40)	7.060	kgs	16990.90	895,930.16	52.73
	Roof Deck Beam (Grade 40)	5.265	kgs	12669.81	668,078.87	52.73
	Parapet Beam (Grade 40)	0.818	kgs	1968.39	103,793.20	52.73
	Suspended Slab (Grade 40)	1.100	kgs	2647.80	139,618.49	52.73
	Slab on Fill & Ramp Slab (Grade 40)	0.969	kgs	2332.80	123,008.54	52.73
	PCCP, Plant Box (Grade 40)	1.975	kgs	4752.00	250,572.96	52.73
	G.I. Tie Wire #16	0.810	kgs	1141.53	102,737.70	90.00
PART V - FORMWORKS/SCAFFOLDING						
	FORMWORKS & SCAFOLDING	7.854	sq.m	1127.42	996,629.50	884.00
PART VI - MASONRY WORKS						
	Masonry Works	5.625	sq.m	1738.80	713,807.62	410.52
PART VII - CARPENTRY WORKS						
	Carpentry Works	11.038	sq.m	581.76	1,400,678.80	2,407.66
PART VIII - DOORS & WINDOWS						
	Doors & Windows	0.165	sq.m	4.32	20,952.00	4,850.00
PART IX - CEILING WORKS						
	Ceiling Works	0.748	sq.m	24.00	94,919.60	3,954.98
PART X - STEEL WORKS						
	Steel Works	7.946	l.m	121.50	1,008,259.35	8,298.43
PART XI - WATERPROOFING WORKS						
	Waterproofing Works	0.617	sq.m	228.00	78,345.00	343.62
PART XII - PAINTING WORKS						
	Painting Works	3.711	sq.m	2516.45	470,885.86	187.12
PART XIII - PLUMBING WORKS						
	Plumbing Works	0.519	lot	1.00	65,875.16	65,875.16
PART XIV - ELECTRICAL WORKS						
	Electrical Works	1.409	lot	1.00	178,830.14	178,830.14
PART XV - TARGET PAPER RETRIEVAL SYSTEM						
	Remote Controlled Target Retrieval System	10.402	lot	1.00	1,320,000.00	1,320,000.00
TOTAL		100.00			**12,689,470.90**	

Philippine Coast Guard
HEADQUARTERS COAST GUARD LOGISTICS SYSTEMS COMMAND
COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE
CGBF, Muelle dela Industria, Farola Compound,
Binondo, Manila 1006

PROJECT TITLE : PROPOSED CONSTRUCTION
LOCATION : CGBT, LOWER BICUTAN, TAGUIG CITY
OWNER : PHILIPPINE COAST GUARD
SUBJECT : DETAILED COST ESTIMATE

ITEM NO	DESCRIPTION	QTY	UNIT	MATERIAL COST	AMOUNT	LABOR COST	AMOUNT	TOTAL DIRECT COST	MARK-UPS IN PERCENT			TOTAL INDIRECT COST	VAT	TOTAL COST	UNIT COST
									OCM	PROFIT	TOTAL				
I	**GENERAL REQUIREMENTS**														
01	Occupational Health & Safety Requirements	1	lot	₱ 63,000.00	63,000.00	₱ 75,000.00	₱ -	₱ 63,000.00	12%	8%	20%	₱ 12,600.00	₱ 3,780.00	₱ 79,380.00	79,380.00
02	Soil Foundation Investigation	1	lot		-		75,000.00	75,000.00	12%	8%	20%	15,000.00	4,500.00	94,500.00	94,500.00
03	Temporary Facilities & Utilities	1	lot	150,000.00	150,000.00		-	150,000.00	12%	8%	20%	30,000.00	9,000.00	189,000.00	189,000.00
	Sub - Total I				**₱ 213,000.00**		**₱ 75,000.00**	**₱ 288,000.00**				**₱ 57,600.00**	**₱ 17,280.00**	**₱ 362,880.00**	**362,880.00**
II	**SITE WORKS**														
01	Site Preparation, Demolition/Clearing and Grubbing	518.4	sq.m	₱	-	₱ 120.00	₱ 62,208.00	₱ 62,208.00	12%	8%	20%	₱ 12,441.60	₱ 3,732.48	₱ 78,382.08	151.20
02	Excavation	378.125	cu.m		-	360.27	136,227.09	136,227.09	12%	8%	20%	27,245.42	8,173.63	171,646.14	453.94
03	Gravel Bedding	21.87	cu.m	382.00	8,354.34	170.86	3,736.71	12,091.05	12%	8%	20%	2,418.21	725.46	15,234.72	696.60
04	Backfilling and Compaction	615.3	cu.m	280.00	172,284.00	170.86	105,130.16	277,414.16	12%	8%	20%	55,482.83	16,644.85	349,541.84	568.08
05	Soil Poisoning	104	ltrs	320.00	33,280.00	46.78	4,865.12	38,145.12	12%	8%	20%	7,629.02	2,288.71	48,062.85	462.14
	Sub - Total II				**₱ 213,918.34**		**₱ 312,167.08**	**₱ 526,085.42**				**₱ 105,217.08**	**₱ 31,565.13**	**₱ 662,867.63**	**2,331.97**
III	**CONCRETE WORKS**														
	Column Footing														
01	Ready Mix Concrete (3000 PSI)	65.63	cu m	₱ 5,300.00	₱ 347,839.00	₱ 340.21	₱ 22,328.18	₱ 370,167.18	12%	8%	20%	₱ 74,033.44	₱ 22,210.03	₱ 466,410.65	7,106.67
	Footing Tie Beam						-								
01	Ready Mix Concrete (3000 PSI)	39.3	cu m	₱ 5,300.00	₱ 208,290.00	₱ 1,192.73	₱ 46,874.17	₱ 255,164.17	12%	8%	20%	₱ 51,032.83	₱ 15,309.85	₱ 321,506.86	8,180.64
	Column						-								
01	Ready Mix Concrete (3000 PSI)	60.421	cu m	₱ 5,300.00	₱ 320,231.30	₱ 1,192.73	₱ 72,065.76	₱ 392,297.06	12%	8%	20%	₱ 78,459.41	₱ 23,537.82	₱ 494,294.29	8,180.64
	Roof Deck Beam						-								
01	Ready Mix Concrete (3000 PSI)	72.94	cu m	₱ 5,300.00	₱ 386,582.00	₱ 1,192.73	₱ 86,997.51	₱ 473,579.51	12%	8%	20%	₱ 94,715.90	₱ 28,414.77	₱ 596,710.18	8,180.64
	Parapet Beam						-								
01	Ready Mix Concrete (3000 PSI)	14.04	cu m	₱ 5,300.00	₱ 74,412.00	₱ 1,192.73	₱ 16,745.89	₱ 91,157.89	12%	8%	20%	₱ 18,231.58	₱ 5,469.47	₱ 114,858.94	8,180.64
	Suspended Slab						-								
01	Ready Mix Concrete (3000 PSI)	29.42	cu m	₱ 5,300.00	₱ 155,926.00	₱ 1,192.73	₱ 35,090.03	₱ 191,016.03	12%	8%	20%	₱ 38,203.21	₱ 11,460.96	₱ 240,680.20	8,180.64
	Slab on Fill & Ramp Slab														
01	Ready Mix Concrete (3000 PSI)	51.84	cu m	₱ 5,300.00	₱ 274,752.00	₱ 340.21	₱ 17,636.64	₱ 292,388.64	12%	8%	20%	₱ 58,477.73	₱ 17,543.32	₱ 368,409.69	7,106.67
	PCCP, Plant Box														
01	Ready Mix Concrete (3000 PSI)	105.6	cu m	₱ 5,300.00	₱ 559,680.00	₱ 340.21	₱ 35,926.49	₱ 595,606.49	12%	8%	20%	₱ 119,121.30	₱ 35,736.39	₱ 750,464.18	7,106.67
	Sub - Total III				**₱ 2,327,712.30**		**₱ 333,664.87**	**₱ 2,661,376.97**				**₱ 532,275.39**	**₱ 159,682.62**	**₱ 3,353,334.98**	**62,224.19**

ITEM NO	DESCRIPTION	QTY	UNIT	MATERIAL COST	AMOUNT	LABOR COST	AMOUNT	TOTAL DIRECT COST	MARK-UPS IN PERCENT			TOTAL INDIRECT COST	VAT	TOTAL COST	UNIT COST
									OCM	PROFIT	TOTAL				
IV	**REBAR WORKS**														
	Column Footing														
01	16mm dia Reinf. Steel Bars (Grade 40)	2606.86	kgs	38.00	99,060.68	14.73	38,399.05	137,459.73	12%	8%	20%	27,491.95	8,247.58	173,199.26	66.44
	Footing Tie Beam														
01	16mm dia Reinf. Steel Bars (Grade 40)	6730.207	kgs	38.00	255,747.87	14.73	99,135.95	354,883.82	12%	8%	20%	70,976.76	21,293.03	447,153.61	66.44
02	10mm dia Reinf. Steel Bars (Grade 40)	1682.951	kgs	38.00	63,952.14	14.73	24,789.87	88,742.01	12%	8%	20%	17,748.40	5,324.52	111,814.93	66.44
	Column						-								
01	16mm dia Reinf. Steel Bars (Grade 40)	11808.5	kgs	38.00	448,723.00	14.73	173,939.21	622,662.21	12%	8%	20%	124,532.44	37,359.73	784,554.38	66.44
02	10mm dia Reinf. Steel Bars (Grade 40)	5182.4	kgs	38.00	196,931.20	14.73	76,336.75	273,267.95	12%	8%	20%	54,653.59	16,396.08	344,317.62	66.44
	Roof Deck Beam						-								
01	25mm dia Reinf. Steel Bars (Grade 40)	5895.09	kgs	38.00	224,013.42	14.73	86,834.68	310,848.10	12%	8%	20%	62,169.62	18,650.89	391,668.60	66.44
02	20mm dia Reinf. Steel Bars (Grade 40)	1546.182	kgs	38.00	58,754.92	14.73	22,775.26	81,530.18	12%	8%	20%	16,306.04	4,891.81	102,728.02	66.44
03	16mm dia Reinf. Steel Bars (Grade 40)	2466.74	kgs	38.00	93,698.12	14.73	36,320.35	130,018.47	12%	8%	20%	26,003.69	7,801.11	163,823.27	66.44
04	10mm dia Reinf. Steel Bars (Grade 40)	2762.794	kgs	38.00	104,986.17	14.73	40,695.96	145,682.13	12%	8%	20%	29,136.43	8,740.93	183,559.48	66.44
	Parapet Beam						-								
03	16mm dia Reinf. Steel Bars (Grade 40)	1236.52	kgs	38.00	46,987.76	14.73	18,213.94	65,201.70	12%	8%	20%	13,040.34	3,912.10	82,154.14	66.44
04	10mm dia Reinf. Steel Bars (Grade 40)	731.87	kgs	38.00	27,811.06	14.73	10,780.45	38,591.51	12%	8%	20%	7,718.30	2,315.49	48,625.30	66.44
	Suspended Slab						-								
01	12mm dia Reinf. Steel Bars (Grade 40)	2100	kgs	38.00	79,800.00	14.73	30,933.00	110,733.00	12%	8%	20%	22,146.60	6,643.98	139,523.58	66.44
02	10mm dia Reinf. Steel Bars (Grade 40)	547.8	kgs	38.00	20,816.40	14.73	8,069.09	28,885.49	12%	8%	20%	5,777.10	1,733.13	36,395.72	66.44
	Slab on Fill														
01	10mm dia Reinf. Steel Bars (Grade 40)	2332.8	kgs	38.00	88,646.40	14.73	34,362.14	123,008.54	12%	8%	20%	24,601.71	7,380.51	154,990.77	66.44
	PCCP, Plant Box														
01	10mm dia Reinf. Steel Bars (Grade 40)	4752	kgs	38.00	180,576.00	14.73	69,996.96	250,572.96	12%	8%	20%	50,114.59	15,034.38	315,721.93	66.44
	Miscellaneous														
01	G.I. Tie Wire #16	1141.53	kgs	90.00	102,737.70		-	102,737.70	12%	8%	20%	20,547.54	6,164.26	129,449.50	113.40
	Sub - Total IV				**₱ 2,093,242.83**		**₱ 771,582.65**	**₱ 2,864,825.48**				**₱ 572,965.10**	**₱ 171,889.53**	**₱ 3,609,680.10**	**1,110.00**
V	**FORMWORKS & SCAFFOLDING**														
	Form Works														
	Area	1127.415	sq.m		-	300.00	338,224.50	338,224.50	12%	8%	20%	67,644.90	20,293.47	426,162.87	378.00
01	Lumber	12676.5	bd.ft	30.00	380,295.00		-	380,295.00	12%	8%	20%	76,059.00	22,817.70	479,171.70	37.80
02	Phenolic Board 1/2" thick	392	shts	670.00	262,640.00		-	262,640.00	12%	8%	20%	52,528.00	15,758.40	330,926.40	844.20
03	Assorted Nails	190	kgs	80.00	15,200.00		-	15,200.00	12%	8%	20%	3,040.00	912.00	19,152.00	100.80
04	G.I. Tie Wire #16	3	kgs	90.00	270.00		-	270.00	12%	8%	20%	54.00	16.20	340.20	113.40
	Sub - Total V				**₱ 658,405.00**		**₱ 338,224.50**	**₱ 996,629.60**				**₱ 199,325.90**	**₱ 59,797.77**	**₱ 1,255,753.17**	**1,474.20**

ITEM NO	DESCRIPTION	QTY	UNIT	MATERIAL COST	AMOUNT	LABOR COST	AMOUNT	TOTAL DIRECT COST	MARK-UPS IN PERCENT			TOTAL INDIRECT COST	VAT	TOTAL COST	UNIT COST
									OCM	PROFIT	TOTAL				
VI	**CONCRETE MASONRY & PLASTERING WORKS**														
01	Wall Area	579.6	sq.m	₱ -	₱ -	₱ 220.55	₱ 127,830.78	₱ 127,830.78	12%	8%	20%	₱ 25,566.16	₱ 7,669.85	₱ 161,066.78	277.89
02	Cement	406	bag	230.00	93,380.00		-	93,380.00	12%	8%	20%	18,676.00	5,602.80	117,658.80	289.80
03	Sand	34.776	cu m	800.00	27,820.80		-	27,820.80	12%	8%	20%	5,564.16	1,669.25	35,054.21	1,008.00
04	150 x 200 x 400mm CHB (Load Bearing)	7535	pcs	20.00	150,700.00		-	150,700.00	12%	8%	20%	30,140.00	9,042.00	189,882.00	25.20
05	10mm dia Reinf. Steel Bars	1877.904	kgs	38.00	71,360.35		-	71,360.35	12%	8%	20%	14,272.07	4,281.62	89,914.04	47.88
06	G.I. Tie Wire	28.98	kgs	90.00	2,608.20		-	2,608.20	12%	8%	20%	521.64	156.49	3,286.33	113.40
	Plastering														
01	Wall Area	1159.2	sq.m	₱ -	₱ -	₱ 107.14	₱ 124,196.69	₱ 124,196.69	12%	8%	20%	₱ 24,839.34	₱ 7,451.80	₱ 156,487.83	135.00
02	Cement	383	bag	230.00	88,090.00		-	88,090.00	12%	8%	20%	17,618.00	5,285.40	110,993.40	289.80
03	Sand	34.776	cu m	800.00	27,820.80		-	27,820.80	12%	8%	20%	5,564.16	1,669.25	35,054.21	1,008.00
	Sub - Total VI				**₱ 461,780.16**		**₱ 252,027.47**	**₱ 713,807.62**				**₱ 142,761.52**	**₱ 42,828.46**	**₱ 899,397.60**	**3,194.97**
VII	**CARPENTRY WORKS**														
	Wall Area	581.76	sq.m	₱ -	₱ -	₱ 450.00	₱ 261,792.00	₱ 261,792.00	12%	8%	20%	₱ 52,358.40	₱ 15,707.52	₱ 329,857.92	567.00
01	Marine Plywood (3/4" Thick)	404	pcs	1,380.00	557,520.00		-	557,520.00	12%	8%	20%	111,504.00	33,451.20	702,475.20	1,738.80
02	Marine Plywood (1/2" Thick)	202	pcs	850.00	171,700.00		-	171,700.00	12%	8%	20%	34,340.00	10,302.00	216,342.00	1,071.00
03	Lumber (2"x3")	3070.08	bd.ft	55.00	168,854.40	30.00	92,102.40	260,956.80	12%	8%	20%	52,191.36	15,657.41	328,805.57	107.10
04	Anchor Bolts With Nuts and Washer(25mm dia x 250mm)	1728	kgs	35.00	60,480.00		-	60,480.00	12%	8%	20%	12,096.00	3,628.80	76,204.80	44.10
05	Wood Glue	145	kgs	390.00	56,550.00		-	56,550.00	12%	8%	20%	11,310.00	3,393.00	71,253.00	491.40
06	Fastener Wood Screw	1500	kgs	20.00	30,000.00		-	30,000.00	12%	8%	20%	6,000.00	1,800.00	37,800.00	25.20
07	Assorted Nails	21	kgs	80.00	1,680.00		-	1,680.00	12%	8%	20%	336.00	100.80	2,116.80	100.80
	Sub - Total VII				**₱ 1,046,784.40**		**₱ 353,894.40**	**₱ 1,400,678.80**				**₱ 280,136.76**	**₱ 84,040.73**	**₱ 1,764,855.29**	**4,146.40**
VIII	**DOORS**														
01	Double Leaf Swing , Solid Steel Door with Door Jamb and complete accessories.**(D-1)**	4.32	sq.m	₱ 4,500.00	₱ 19,440.00	₱ 350.00	₱ 1,512.00	₱ 20,952.00	12%	8%	20%	₱ 4,190.40	₱ 1,257.12	₱ 26,399.52	6,111.00
	Sub - Total VIII				**₱ 19,440.00**		**₱ 1,512.00**	**₱ 20,952.00**				**₱ 4,190.40**	**₱ 1,257.12**	**₱ 26,399.52**	**6,111.00**
IX	**CEILING WORKS**														
	Area	24	sq.m	-		₱ 450.00	₱ 10,800.00	₱ 10,800.00	12%	8%	20%	₱ 2,160.00	₱ 648.00	₱ 13,608.00	567.00
01	3/4" Thick Marine Plywood	18	pcs	₱ 1,380.00	₱ 24,840.00		-	24,840.00	12%	8%	20%	4,968.00	1,490.40	31,298.40	1,738.80
02	1/2" Thick Marine Plywood	9	pcs	850.00	7,650.00		-	7,650.00	12%	8%	20%	1,530.00	459.00	9,639.00	1,071.00
02	Lumber (0.30m o.c) (2"x4") both ways	419.76	bdft	55.00	23,086.80	30.00	12,592.80	35,679.60	12%	8%	20%	7,135.92	2,140.78	44,956.30	107.10
03	Wood Glue	12	kgs	390.00	4,680.00		-	4,680.00	12%	8%	20%	936.00	280.80	5,896.80	491.40
04	Fastener Wood Screw	131	kgs	20.00	2,620.00		-	2,620.00	12%	8%	20%	524.00	157.20	3,301.20	25.20
05	Assorted Nails	5	kgs	80.00	400.00		-	400.00	12%	8%	20%	80.00	24.00	504.00	100.80
06	Rod Hanger with complete accessories	55	sets	150.00	8,250.00		-	8,250.00	12%	8%	20%	1,650.00	495.00	10,395.00	189.00
	Sub - Total IX				**₱ 71,526.80**		**₱ 23,392.80**	**₱ 94,919.60**				**₱ 18,983.92**	**₱ 5,695.18**	**₱ 119,598.70**	**4,290.30**

ITEM NO	DESCRIPTION	QTY	UNIT	MATERIAL COST	AMOUNT	LABOR COST	AMOUNT	TOTAL DIRECT COST	MARK-UPS IN PERCENT			TOTAL INDIRECT COST	VAT	TOTAL COST	UNIT COST
									OCM	PROFIT	TOTAL				
X	**STEEL WORKS**														
01	Stainless Steel Grating	61	l.m	₱ 4,929.00	₱ 300,669.00	739.35	45,100.35	345,769.35	12%	8%	20%	69,153.87	20,746.16	435,669.38	7,142.12
02	Stainless Steel Cat Walk	21	l.m	8,000.00	168,000.00	1,200.00	25,200.00	193,200.00	12%	8%	20%	38,640.00	11,592.00	243,432.00	11,592.00
03	Stainless Steel Ladder Rung	1	sets	18,500.00	18,500.00	2,775.00	2,775.00	21,275.00	12%	8%	20%	4,255.00	1,276.50	26,806.50	26,806.50
04	Anchor Bolts With Nuts and Washer(20mm dia x 150mm)	10	kgs	35.00	350.00		-	350.00	12%	8%	20%	70.00	21.00	441.00	44.10
05	Steel Manhole complete w/ accessories	1	sets	10,400.00	10,400.00		-	10,400.00	12%	8%	20%	2,080.00	624.00	13,104.00	13,104.00
05	Stainless Steel Railings Round Tube (2" dia.) with complete accessories	39.5	l.m	8,200.00	323,900.00	2,870.00	113,365.00	437,265.00	12%	8%	20%	87,453.00	26,235.90	550,953.90	13,948.20
	Sub - Total X				**₱ 821,819.00**		**₱ 186,440.35**	**₱ 1,008,259.35**				**₱ 201,651.87**	**₱ 60,495.56**	**₱ 1,270,406.78**	**72,636.92**
XI	**WATERPROOFING WORKS**														
	Roof Deck Area	228	sq.m	₱	₱ -	100.00	22,800.00	22,800.00	12%	8%	20%	4,560.00	1,368.00	28,728.00	126.00
01	Waterproofing Membrane with Granule Torched applied	23	rolls	₱ 2,415.00	₱ 55,545.00		-	55,545.00	12%	8%	20%	11,109.00	3,332.70	69,986.70	3,042.90
	Sub - Total XI				**₱ 55,545.00**		**₱ 22,800.00**	**₱ 78,345.00**				**₱ 15,669.00**	**₱ 4,700.70**	**₱ 98,714.70**	**3,168.90**
XII	**PAINTING WORKS**														
	Painting Concrete Area	1845.888	sq.m	-		₱ 46.00	₱ 84,910.85	₱ 84,910.85	12%	8%	20%	₱ 16,982.17	₱ 5,094.65	₱ 106,987.67	57.96
	Painting Wood & Metal Area	670.56	sq.m	-		₱ 46.00	₱ 30,845.76	₱ 30,845.76	12%	8%	20%	₱ 6,169.15	₱ 1,850.75	₱ 38,865.66	57.96
01	Elastomeric Paint Primer Flat Latex (2 Coats)	148	gals	₱ 642.50	₱ 95,090.00		-	95,090.00	12%	8%	20%	19,018.00	5,705.40	119,813.40	809.55
02	Elastomeric Paint Latex Semi -Gloss (2 Coats)	148	gals	675.00	99,900.00		-	99,900.00	12%	8%	20%	19,980.00	5,994.00	125,874.00	850.50
03	Polyurethane Paint Flat Wall Enamel (2 Coats)	54	gals	₱ 640.00	₱ 34,560.00		-	34,560.00	12%	8%	20%	6,912.00	2,073.60	43,545.60	806.40
04	Polyurethane Paint Enamel Semi -Gloss (2 Coats)	54	gals	680.00	36,720.00		-	36,720.00	12%	8%	20%	7,344.00	2,203.20	46,267.20	856.80
05	Concrete Neutralizer	93	gals	422.00	39,246.00		-	39,246.00	12%	8%	20%	7,849.20	2,354.76	49,449.96	531.72
05	Paint Thinner	20	gals	286.00	5,720.00		-	5,720.00	12%	8%	20%	1,144.00	343.20	7,207.20	360.36
05	Masonry Putty	74	gals	349.00	25,826.00		-	25,826.00	12%	8%	20%	5,165.20	1,549.56	32,540.76	439.74
05	Wood Putty	27	gals	560.00	15,120.00		-	15,120.00	12%	8%	20%	3,024.00	907.20	19,051.20	705.60
06	Assorted Acry/Tinting Color	10	ltrs	50.00	500.00		-	500.00	12%	8%	20%	100.00	30.00	630.00	63.00
07	Brush roller 6"	5	pcs	94.45	472.25		-	472.25	12%	8%	20%	94.45	28.34	595.04	119.01
08	Paint Brush 4"	10	pcs	77.50	775.00		-	775.00	12%	8%	20%	155.00	46.50	976.50	97.65
09	Paint Brush 2"	10	pcs	35.00	350.00		-	350.00	12%	8%	20%	70.00	21.00	441.00	44.10
10	Sand Paper # 120	5	doz	120.00	600.00		-	600.00	12%	8%	20%	120.00	36.00	756.00	151.20
11	Putty Knife	10	pcs	25.00	250.00		-	250.00	12%	8%	20%	50.00	15.00	315.00	31.50
	Sub - Total XII				**₱ 355,129.25**		**₱ 115,756.61**	**₱ 470,885.86**				**₱ 94,177.17**	**₱ 28,253.15**	**₱ 593,316.18**	**5,983.05**
XIII	**PLUMBING WORKS**														
	Plumbing Accessories														
01	Roof Drain, 4"x4"x2"	6	pcs	280.00	1,680.00	148.12	888.72	2,568.72	12%	8%	20%	513.74	154.12	3,236.59	539.43
	Sanitary System														
01	PVC Pipe laying 4" Diameter (100mm)	56	l.m		₱ -	154.03	8,625.68	8,625.68	12%	8%	20%	₱ 1,725.14	517.54	10,868.36	194.08
02	PVC Pipe 4"x10' diameter (100mm)	19	pcs	450.00	8,550.00		-	8,550.00	12%	8%	20%	1,710.00	513.00	10,773.00	567.00
03	PVC Elbow 4" dia. X 45deg. (100mm)	8	pcs	39.00	312.00		-	312.00	12%	8%	20%	62.40	18.72	393.12	49.14
04	PVC Elbow 4" dia. X 90deg. (100mm)	9	pcs	50.00	450.00		-	450.00	12%	8%	20%	90.00	27.00	567.00	63.00
05	PVC Wye 4" dia. (100mm)	4	pcs	50.00	200.00		-	200.00	12%	8%	20%	40.00	12.00	252.00	63.00
06	PVC Clean Out w/ plug & sealing ring (100mm)	3	pcs	21.00	63.00		-	63.00	12%	8%	20%	12.60	3.78	79.38	26.46
07	PVC TEE 4" Dia. (100mm)	1	pcs	39.00	39.00		-	39.00	12%	8%	20%	7.80	2.34	49.14	49.14
08	PVC Coupling 4" dia. (100mm)	7	pcs	35.00	245.00		-	245.00	12%	8%	20%	49.00	14.70	308.70	44.10

ITEM NO	DESCRIPTION	QTY	UNIT	MATERIAL COST	AMOUNT	LABOR COST	AMOUNT	TOTAL DIRECT COST	MARK-UPS IN PERCENT			TOTAL INDIRECT COST	VAT	TOTAL COST	UNIT COST
									OCM	PROFIT	TOTAL				
	Catch Basin														
01	Catch Basin Area	4.32	sq.m			721.32	3,116.10	3,116.10	12%	8%	20%	623.22	186.97	3,926.29	908.86
02	Cement	15	bags	230.00	3,450.00		-	3,450.00	12%	8%	20%	690.00	207.00	4,347.00	289.80
03	Sand	1	cu.m	800.00	800.00		-	800.00	12%	8%	20%	160.00	48.00	1,008.00	1,008.00
04	Gravel	0.5	cu.m	520.00	260.00		-	260.00	12%	8%	20%	52.00	15.60	327.60	655.20
05	10mm Ø Reinf. Steel Bars	14	kgs	38.00	532.00	14.73	206.22	738.22	12%	8%	20%	147.64	44.29	930.16	66.44
06	Ga #16 GI Tie Wires	0.216	kgs	90.00	19.44		-	19.44	12%	8%	20%	3.89	1.17	24.49	113.40
07	150 x 200 x 400mm CHB (Load Bearing)	54	pcs	20.00	1,080.00		-	1,080.00	12%	8%	20%	216.00	64.80	1,360.80	25.20
08	16mm dia. Handle Stainless Round Bar (6m)	1	pcs	1,608.00	1,608.00		-	1,608.00	12%	8%	20%	321.60	96.48	2,026.08	2,026.08
09	150mm Concrete Pipe	135	pcs	250.00	33,750.00		-	33,750.00	12%	8%	20%	6,750.00	2,025.00	42,525.00	315.00
	Sub - Total XIII				₱ **53,038.44**		₱ **12,836.72**	₱ **65,875.16**				₱ **13,175.03**	₱ **3,952.51**	₱ **83,002.70**	**7,003.33**
XIV	**ELECTRICAL WORKS**														
	WIRES AND CABLES														
	THHN (Branch Circuits)														
01	3.5 mm² Cu Cond Stnd	9	rolls	₱ 4,050.00	₱ 36,450.00	774.00	6,966.00	43,416.00	12%	8%	20%	8,683.20	2,604.96	54,704.16	6,078.24
	THW (Main Feeder/ Feeder)														
02	8.0 mm² Cu Cond Stnd	1	roll	₱ 9,736.00	₱ 9,736.00	877.50	877.50	10,613.50	12%	8%	20%	2,122.70	636.81	13,373.01	13,373.01
	TW (Grounding)														
03	8.0 mm² Cu Cond Stnd	50	mtrs	₱ 45.97	₱ 2,298.50	5.85	292.50	2,591.00	12%	8%	20%	518.20	155.46	3,264.66	65.29
	PIPES AND FITTINGS														
	PVC PIPES														
04	20 mm Ø x 3m	80	lnghts	₱ 95.00	₱ 7,600.00	18.76	1,500.80	9,100.80	12%	8%	20%	1,820.16	546.05	11,467.01	143.34
	WIRING DEVICES														
05	One-Way, One-Gang Switch	8	set	₱ 99.00	₱ 792.00	17.39	139.12	931.12	12%	8%	20%	186.22	55.87	1,173.21	146.65
06	One-Way, Two-Gang Switch	2	set	₱ 723.00	₱ 1,446.00	20.13	40.26	1,486.26	12%	8%	20%	297.25	89.18	1,872.69	936.34
07	One-Way, Three-Gang Switch	1	set	₱ 167.00	₱ 167.00	20.13	20.13	187.13	12%	8%	20%	37.43	11.23	235.78	235.78
08	Duplex Conv Outlet	6	set	₱ 105.00	₱ 630.00	17.39	104.34	734.34	12%	8%	20%	146.87	44.06	925.27	154.21
09	One Gang Outlet eith ground	8	set	₱ 139.00	₱ 1,112.00	20.13	161.04	1,273.04	12%	8%	20%	254.61	76.38	1,604.03	200.50
	LIGHTING FIXTURES														
10	1x40W LED Panel Light	12	set	₱ 3,999.75	₱ 47,997.00	57.66	691.92	48,688.92	12%	8%	20%	9,737.78	2,921.34	61,348.04	5,112.34
11	1x80W LED Flood Light	6	set	₱ 4,999.75	₱ 29,998.50	57.66	345.96	30,344.46	12%	8%	20%	6,068.89	1,820.67	38,234.02	6,372.34
12	1x20W LED Flourescent Light	2	set	₱ 1,399.75	₱ 2,799.50	57.66	115.32	2,914.82	12%	8%	20%	582.96	174.89	3,672.67	1,836.34
	BOXES AND CONDULETS														
13	Junction Box PVC Orange	25	pcs	₱ 25.00	₱ 625.00	40.25	1,006.25	1,631.25	12%	8%	20%	326.25	97.88	2,055.38	82.22
14	Utility Box PVC Orange	10	pcs	₱ 25.00	₱ 250.00	40.25	402.50	652.50	12%	8%	20%	130.50	39.15	822.15	82.22

ITEM NO	DESCRIPTION	QTY	UNIT	MATERIAL COST	AMOUNT	LABOR COST	AMOUNT	TOTAL DIRECT COST	MARK-UPS IN PERCENT			TOTAL INDIRECT COST	VAT	TOTAL COST	UNIT COST
									OCM	PROFIT	TOTAL				
	PANEL BOARDS AND CIRCUIT BREAKERS														
15	**LPP** Main: , 70AT,10kAIC, 100AF 250V,2P,60HZ, Bolt-on Branches: 2 - 15AT, 50AF, 10kAIC, 2P 9 - 20AT, 50AF, 10kAIC, 2P 250V, 60Hz, Bolt-on 3-space w/ flush mounting enclosure	1	assy	₱ 15,000.00	₱ 15,000.00	2,250.00	2,250.00	17,250.00	12%	8%	20%	3,450.00	1,035.00	21,735.00	21,735.00
	MISCELLANEOUS AND HARDWARES														
16	Electrical Tape	8	bndls	₱ 280.00	₱ 2,240.00		-	2,240.00	12%	8%	20%	448.00	134.40	2,822.40	352.80
17	Hacksaw Blade	5	pcs	₱ 55.00	₱ 275.00		-	275.00	12%	8%	20%	55.00	16.50	346.50	69.30
18	PVC Cement, 500cc	2	cans	₱ 1,000.00	₱ 2,000.00		-	2,000.00	12%	8%	20%	400.00	120.00	2,520.00	1,260.00
18	Meter Base	1	ps	₱ 2,500.00	₱ 2,500.00		-	2,500.00	12%	8%	20%	500.00	150.00	3,150.00	3,150.00
	Sub - Total XIV				₱ 163,916.50		₱ 14,913.64	₱ 178,830.14				₱ 35,766.03	₱ 10,729.81	₱ 225,325.98	61,385.91
XV	**TARGET PAPER RETRIEVAL SYSTEM**														
	PULLEY SYSTEM														
01	40 Meters Remote Controlled Target Retrieval System, Complete with components and accessories	8	assy	₱ 150,000.00	₱ 1,200,000.00	15,000.00	120,000.00	1,320,000.00	12%	8%	20%	264,000.00	79,200.00	1,663,200.00	207,900.00
	Sub - Total XV				₱ 1,200,000.00		₱ 120,000.00	₱ 1,320,000.00				₱ 264,000.00	₱ 79,200.00	₱ 1,663,200.00	207,900.00
	TOTAL COST				₱ 9,755,258.01		₱ 2,934,212.88	₱ 12,689,470.90				₱ 2,637,894.18	₱ 761,368.25	₱ 15,988,733.33	

Prepared by:

Estimator, Civil/Structural Branch, Plans & Budget Div.,ED, CGIDS

Estimator, Electrical/Mechanical Branch, Plans & Budget Div., ED, CGIDS

Checked by:

Head, Plans and Budget, ED, CGIDS

Verified by:

Asst. Department Head, Engineering Department, CGIDS

Recommending Approval:

Head, Engineering Department, CGIDS

Approved by:

Commander, CGIDS

Sample Purposes Only

Philippine Coast Guard
HEADQUARTERS COAST GUARD LOGISTICS SYSTEMS COMMAND
COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE
CGBF, Muelle dela Industria, Farola Compound,
Binondo, Manila 1006

APPROVED BUDGET FOR THE CONTRACT

PROJECT: PROPOSED CONSTRUCTION OF
LOCATION: CGBT, LOWER BICUTAN, TAGUIG CITY

ITEM	DESCRIPTION	QUANTITY	UNIT	ESTIMATED DIRECT COST	MARK-UPS IN %		TOTAL MARK-UPS		VAT	TOTAL INDIRECT COST	TOTAL COST	UNIT COST
					OCM	PROFIT	%	VALUE				
1	2	3	4	5	6	7	8	9	10	11	12	13
								(5) x (8)	5%[(5) + (9)]	(9) + (10)	(5) + (11)	(12) / (3)
I	GENERAL REQUIREMENTS	1.00	l.s	288,000.00	12%	8%	20%	57,600.00	17,280.00	74,880.00	362,880.00	362,880.00
II	EARTHWORKS/SITE WORKS	1.00	l.s	526,085.42	12%	8%	20%	105,217.08	31,565.13	136,782.21	662,867.63	662,867.63
III	CONCRETE WORKS	439.19	cu.m	2,661,376.97	12%	8%	20%	532,275.39	159,682.62	691,958.01	3,353,334.98	7,635.25
IV	REBAR WORKS	53523.24	kgs	2,864,825.48	12%	8%	20%	572,965.10	171,889.53	744,854.62	3,609,680.10	67.44
V	FORMWORKS & SCAFFOLDING	1127.42	sq.m	996,629.50	12%	8%	20%	199,325.90	59,797.77	259,123.67	1,255,753.17	1,113.83
VI	MASONRY WORKS	1738.80	sq.m	713,807.62	12%	8%	20%	142,761.52	42,828.46	185,589.98	899,397.60	517.25
VII	CARPENTRY WORKS	581.76	sq.m	1,400,678.80	12%	8%	20%	280,135.76	84,040.73	364,176.49	1,764,855.29	3,033.65
VIII	DOORS & WINDOWS	4.32	sq.m	20,952.00	12%	8%	20%	4,190.40	1,257.12	5,447.52	26,399.52	6,111.00
IX	CEILING WORKS	24.00	sq.m	94,919.60	12%	8%	20%	18,983.92	5,695.18	24,679.10	119,598.70	4,983.28
X	STEEL WORKS	10.00	l.m	1,008,259.35	12%	8%	20%	201,651.87	60,495.56	262,147.43	1,270,406.78	127,040.68
XI	WATERPROOFING WORKS	228.00	sq.m	78,345.00	12%	8%	20%	15,669.00	4,700.70	20,369.70	98,714.70	432.96
XII	PAINTING WORKS	2516.45	sq.m	470,885.86	12%	8%	20%	94,177.17	28,253.15	122,430.32	593,316.18	235.78
XIII	PLUMBING WORKS	1.00	lot	65,875.16	12%	8%	20%	13,175.03	3,952.51	17,127.54	83,002.70	83,002.70
XIV	ELECTRICAL WORKS	1.00	lot	176,830.14	12%	8%	20%	35,766.03	10,729.81	46,495.84	225,325.98	225,325.98
XV	TARGET PAPER RETRIEVAL SYSTEM	1.00	lot	1,320,000.00	12%	8%	20%	264,000.00	79,200.00	343,200.00	1,663,200.00	1,663,200.00
	MOBILIZATION AND DEMOBILIZATION	1.00	lot							133,238.98	133,238.98	133,238.98
	ENGINEERING AND ADMIN OVERHEAD	1.00	lot								483,659.39	483,659.39
	TOTAL			**12,689,470.90**				**2,537,894.18**	**761,368.25**	**3,432,501.42**	**16,605,631.70**	

Prepare By:

Estimator, Civil/Structural Branch, Plans & Budget. ED, CGIDS

Checked By:

Head, Plans & Budget Div, ED, CGIDS

Recomending Approval:

Head, Engineering Department, CGIDS

Approved By:

Commander, CGIDS

Philippine Coast Guard
HEADQUARTERS COAST GUARD LOGISTICS SYSTEM COMMAND
COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE
CBGF, Muelle Dela Industria Compound, Binondo
1006 Manila

PROJECT TITLE	: PROPOSED CONSTRUCTION OF
LOCATION	: CGBT, LOWER BICUTAN, TAGUIG CITY
OWNER	: PHILIPPINE COAST GUARD
PROJECT COST	: **Php 16,121,972.77**
SUBJECT	: SCOPE OF WORKS (SUMMARY) and GENERAL NOTES

SCOPE OF WORKS:

1. The Contractor shall conduct thorough site inspection of the existing job site condition.

2. The Contractor shall conduct soil bearing Test with at least 3 Boreholes.

3. The Contractor shall construct all Architectural, Structural, Electrical, Sanitary / Plumbing, Mechanical and Fire Protection Works in accordance with the plans and specification. All items shown on the plans but not mentioned in the specification shall be included.

4. Site Clearance and Demolition will be required to remove any existing buildings, structures, or other obstructions from the general area of the WORKSITE. Furnish labor, materials, tools and equipment, facilities and other incidentals for the satisfactory completion of the project.

5. Supply of labor, tools and equipment for the excavation in preparation for concreting of footing and column footing, wall footing sizes, depths and location as indicated in the plan. Excavation shall be to the depths indicated reckoned either from the natural grade line (NGL) or finish grade whichever is lower.

6. Supply of materials, labor, tools and equipment for backfilling and compaction location as indicated in the plan. Backfill materials shall consist of approved site excavated materials and shall be free from brush, roots and other unsuitable materials which would be detrimental to compaction requirements.

7. Supply of materials, labor, tools and equipment for the fabrication and installation of reinforcing bars including tie wires, usage of tools and equipment to complete the work.

8. Supply of materials, labor, tools and equipment for the fabrication, installation, stripping and/or leaving of formworks with the actual surface in contact with the

concrete, including provision of block-outs, chamfered edges, notching, and overlaps, necessary greasing and/or coating with form oil, all necessary hardware, fixing accessories, scaffolding, shoring, and staging.

9. Supply of materials labor tools and equipment for the placing of concrete including necessary grouting, vibrating, hammering, tamping, consolidating, curing, hardening, wetting, sealing, brooming and scratching, protecting, sampling, provision of necessary extended chutes, and mixing boards usage of equipment and tools.

10. Supply of materials, labor, tools and equipment for the construction of masonry walls (Load Bearing CHB) (150mm thk (6") for exterior walls / parapet and and plastering of 25mm thick of masonry walls, blocks including lintel beams, stiffeners and sundry items such as tie wires, sealants, mortar and joint filler and other necessary materials to complete the works, location as described on plans and specifications.

11. Supply of materials, labor, tools and equipment for the installation of complete ceiling system including all necessary fixing accessories and usage of tools and equipment to complete the work, location as described on plans and specifications.

12. Supply of materials, labor, tools and equipment for the installation of Stainless-Steel Gratings, Stainless Cat walk Steel manhole including all necessary fixing accessories and usage of tools and equipment to complete the work, location as described on plans and specifications.

13. Supply of materials, labor, tools and equipment for the fabrication and installation Stainless Railings at Stair and PWD Ramp and Stainless Ladder rung fully welded including all fixing accessories and hardware's, usage of tools and equipment to complete the work, location as described on plans and specifications.

14. Supply of materials, labor, tools and equipment for the installation of Wood Partition (Firing Boot) and Wood Cladding at Column, Beam and Wall including all fixing accessories and hardware's, usage of tools and equipment to complete the work, location as described on plans and specifications.

15. Supply of labor, materials, tools and equipment for the installation of Solid Steel Door including jambs sizes including all fixing accessories and hardware's, usage of tools and equipment to complete the work, location as described on plans and specifications.

16. Supply of labor, materials, and tools for General (3-coats) painting on all surfaces i.e. masonry and concrete surfaces, ceilings, baseboards, casing including metal / steel surfaces, including surface preparation, primer tools and its use and all necessary accessories to complete the work.

17. Supply of labor, materials, tools and equipment for the installation of Water Proofing Membrane with granule torch applied and all other materials

accessories necessary to complete the works, location as described on plans and specifications.

18. Supply of labor, materials, tools and equipment for the new installation of Storm Drainage System complete with all the necessary accessories as provided for in the plan this section of that specifications.

19. Supply of labor, materials, tools and equipment for the new installation of Electrical System complete with all the necessary accessories as provided for in the plan.

20. Clearing and cleaning of all areas affected during the implementations of the project.

21. Furnish pictures to Coast Guard Infrastructure Development Service (CGIDS) or email at cgids@coastguard.gov.ph for the pre/post repair of the project for monitoring purpose of the National Headquarters Philippine Coast Guard (NHPCG).

GENERAL NOTES:

1. This simplified scope of works and the specifications are prepared in a concise manner which intention is to save time and to simplify specifications elaborateness. All work covered in the contract shall be executed in the highest form of workmanship and quality.

2. The drawings and specifications are intended to explain each mutually, and anything shown or called for in one and not the other shall be executed as part of the contract as though both are shown and specified.

3. The contractor shall take all the precautionary measures for the protection of adjacent properties from injury, damage or loss arising in connection with this contract. He shall be responsible for all damages to person and property, which may occur with the prosecution of work.

4. The contractor shall be in close coordination with the Philippine Coast Guard Technical Representatives (Coast Guard Infrastructure Development Service) on matters pertaining to engineering works. Any changes in work and materials shall be approved by the authorized representative and shall be to the advantage of the Philippine Coast Guard.

5. All works, materials and undertakings found necessary during the course of the construction shall be executed for the satisfactorily completion of the project, and shall be subject to general conditions and inspection before proper installation.

6. All permits, fees, inspections, material testing, commissioning, etc., necessary for the satisfactorily completion of the project shall be done at the expense of the contractor.

7. Submission of complete six (6) sets of as-built plans of the project, signed and sealed, indicating all measurements and details. Warranties and test results shall also be submitted in six (6) copies for all installed materials. Project warranty (2-years) shall take effect upon actual acceptance of the completed project.

8. The contractor shall undertake/furnish all the necessary items, materials, tools, equipment, labor, plants, appliances, methods and all operations that may be needed and other incidentals for the satisfactorily completion of the **PROPOSED CONSTRUCTION OF**

PROJECT TITLE	: PROPOSED CONSTRUCTION OF
LOCATION	: CGBT, LOWER BICUTAN, TAGUIG CITY
OWNER	: PHILIPPINE COAST GUARD
PROJECT COST	: **Php 16,121,972.77**
SUBJECT	: SCOPE OF WORKS (SUMMARY) and GENERAL NOTES

Prepared by:

_____
Estimator, Civil/Structural Branch, Plans & Budget, ED, CGIDS

_____
Estimator, Electrical/Mechanical Branch, Plans & Budget, ED, CGIDS

Checked by:

_____
Head, Plans and Budget, ED, CGIDS

Verified by:

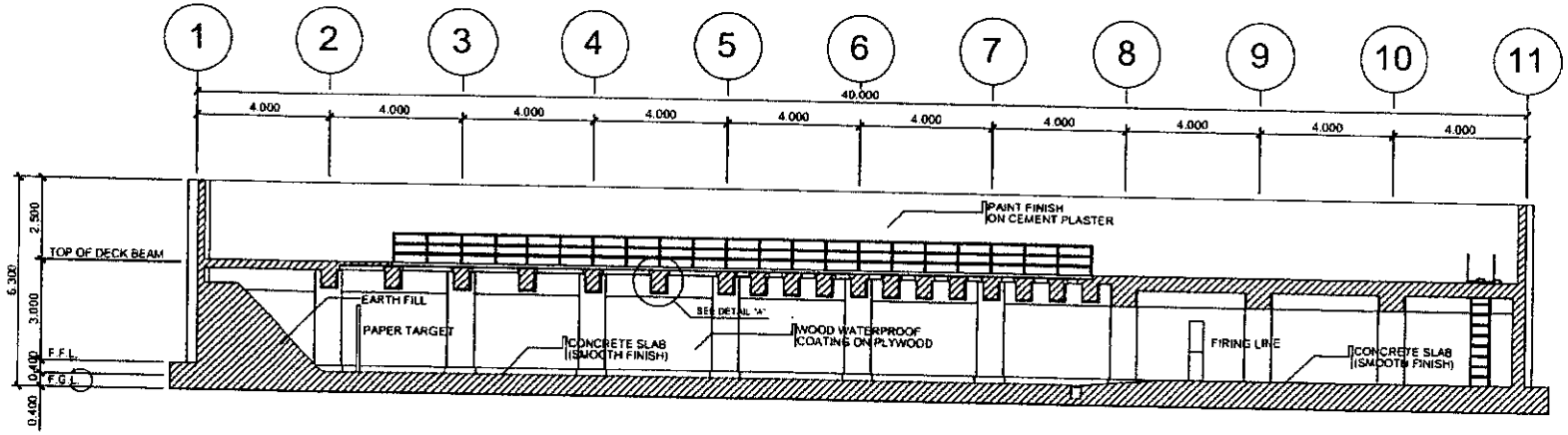
_____
Asst. Head, Engineering Dept., CGIDS

RECOMMENDING APPROVAL:

_____
Head, Engineering Department, CGIDS

APPROVED / DISAPPROVED:

_____
Commander, CGIDS



SECTION THRU "X-X"

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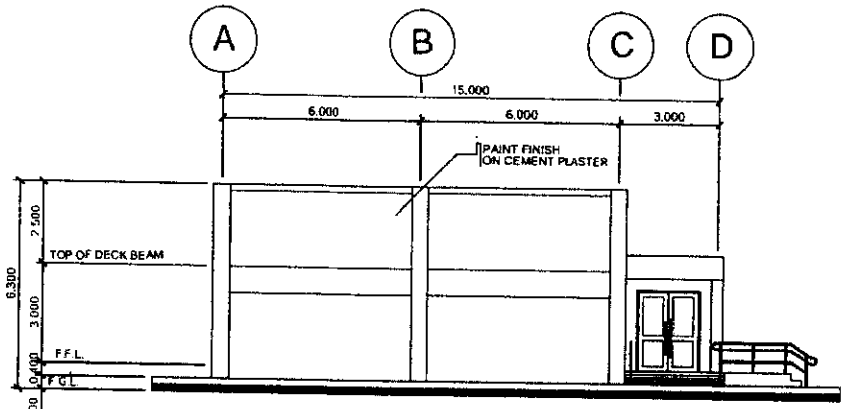
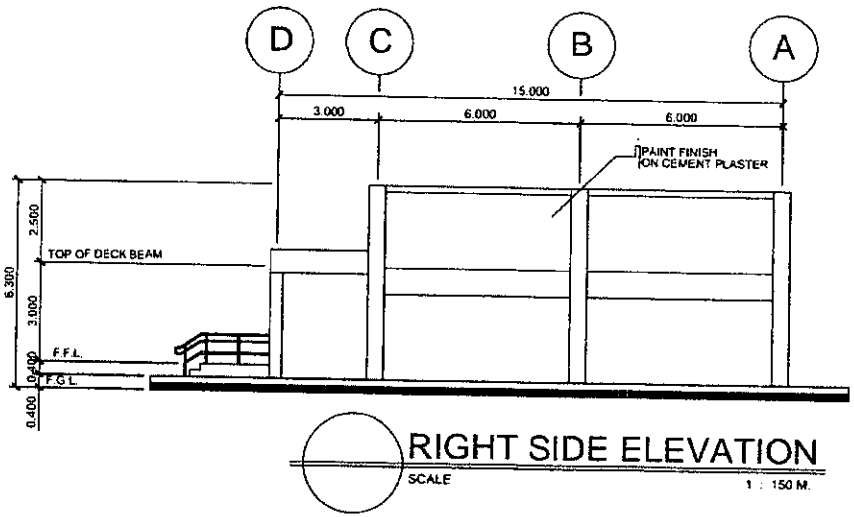


LEFT SIDE ELEVATION

SCALE 1 : 150 M.



RIGHT SIDE ELEVATION

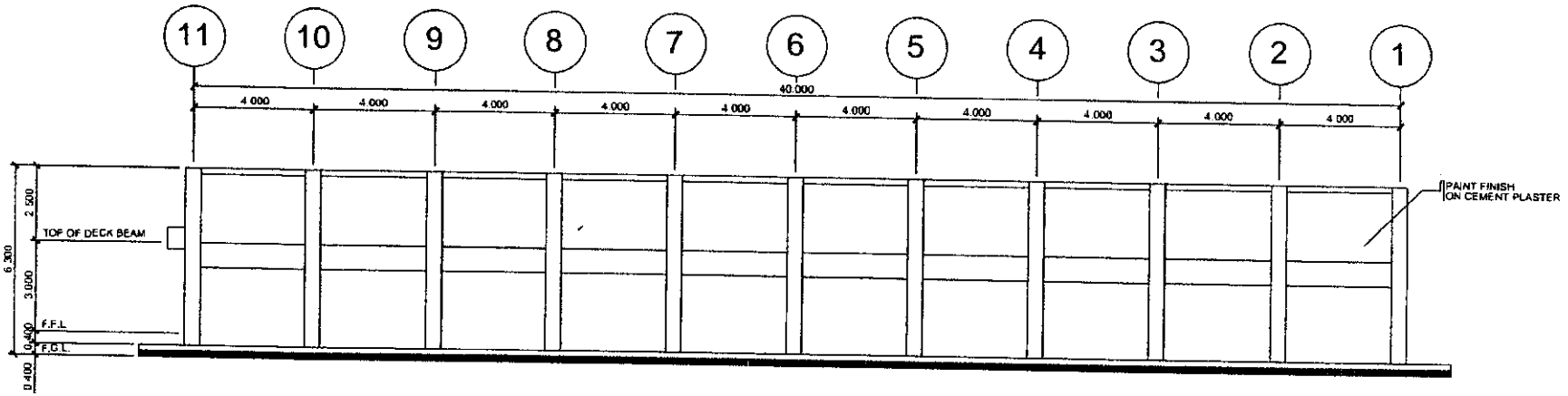
SCALE 1 : 150 M.

PHILIPPINE COAST GUARD

HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST. PORT AREA, MANILA

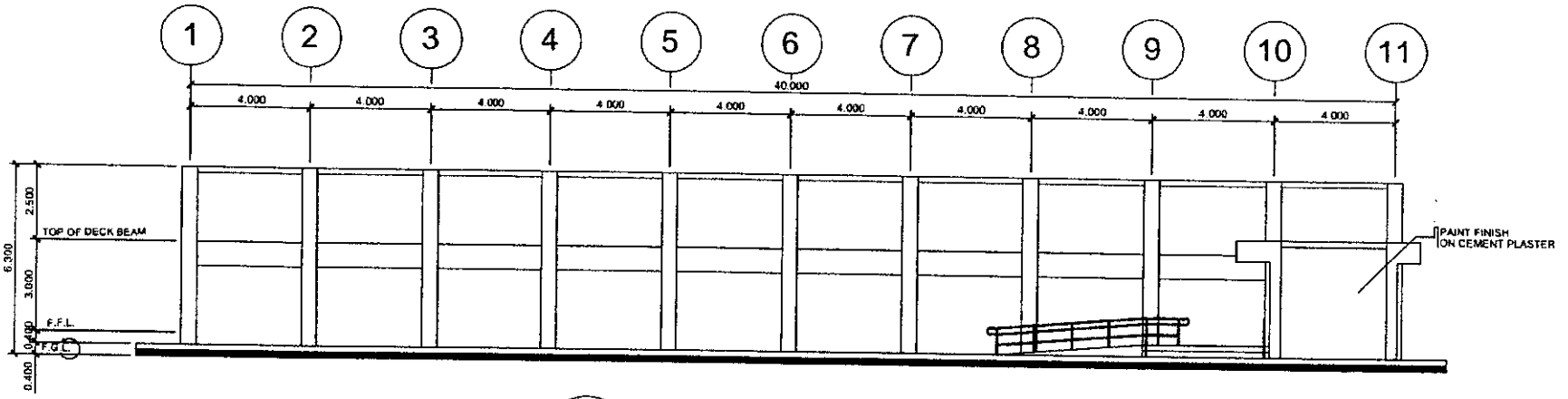
COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE:	PROPOSED CONSTRUCTION OF CG K-9 FIRING RANGE
LOCATION:	COAST GUARD BASE TAGUIG, M.L. QUEZON ST., LOWER BICUTAN, TAGUIG CITY
DRAWN BY:	CAN. S. BIRI
REVISION / DATE	
CHECKED AND SUBMITTED BY:	ENGR. JOSEPHINE MARIE B. TRINIDAD CE, Member, Structural Branch, CGIDS
RECOMMENDED BY:	ENGR. HILARIO A. ADAYA REE, Engineer IV, CGIDS
APPROVED BY:	CDR FRANCISCO ACHILLES L ACEDILLO PCG, Commander, CGIDS
SHEET NO.	



REAR ELEVATION

SCALE 1 : 150 M.



FRONT ELEVATION

SCALE 1 : 150 M.

PHILIPPINE COAST GUARD

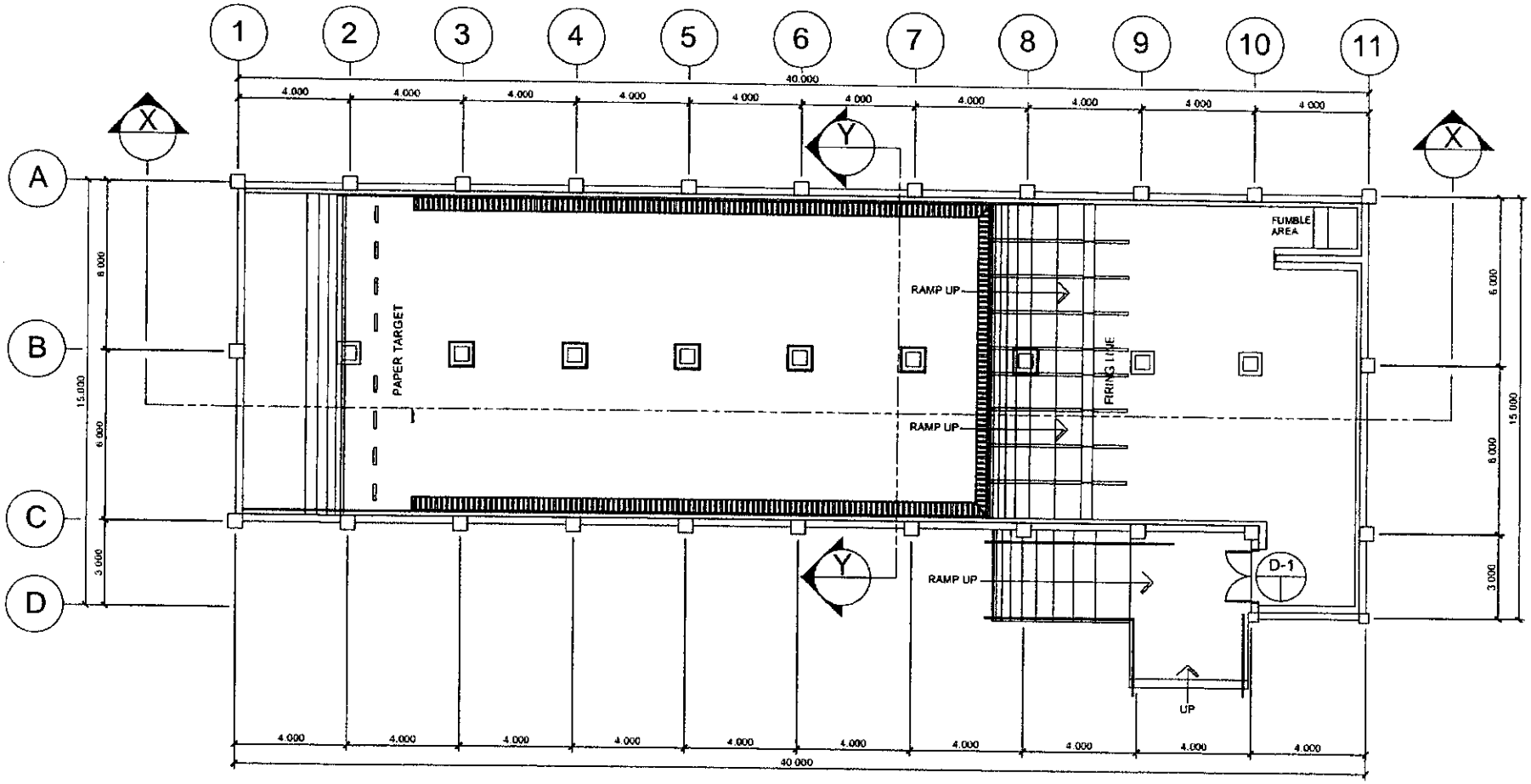
HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST. PORT AREA, MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE :	PROPOSED CONSTRUCTION OF CG K-9 FIRING RANGE
LOCATION :	COAST GUARD BASE TAGUIG, M.L. QUEZON ST., LOWER BICUTAN, TAGUIG CITY
SHEET NO.	

DRAWN BY:	CHECKED AND SUBMITTED BY:	RECOMMENDED BY:	APPROVED BY:
CARL S. SIRI	ENGR. JOSEPHINE MARIE B. TRINIDAD CE Member, Structural Branch, CGIDS	ENGR. HILARIO A. ADAYA REE Engineer IV, CGIDS	CDR FRANCISCO ACHILLES L ACEDILLO PCG Commander, CGIDS

REVISION	DATE



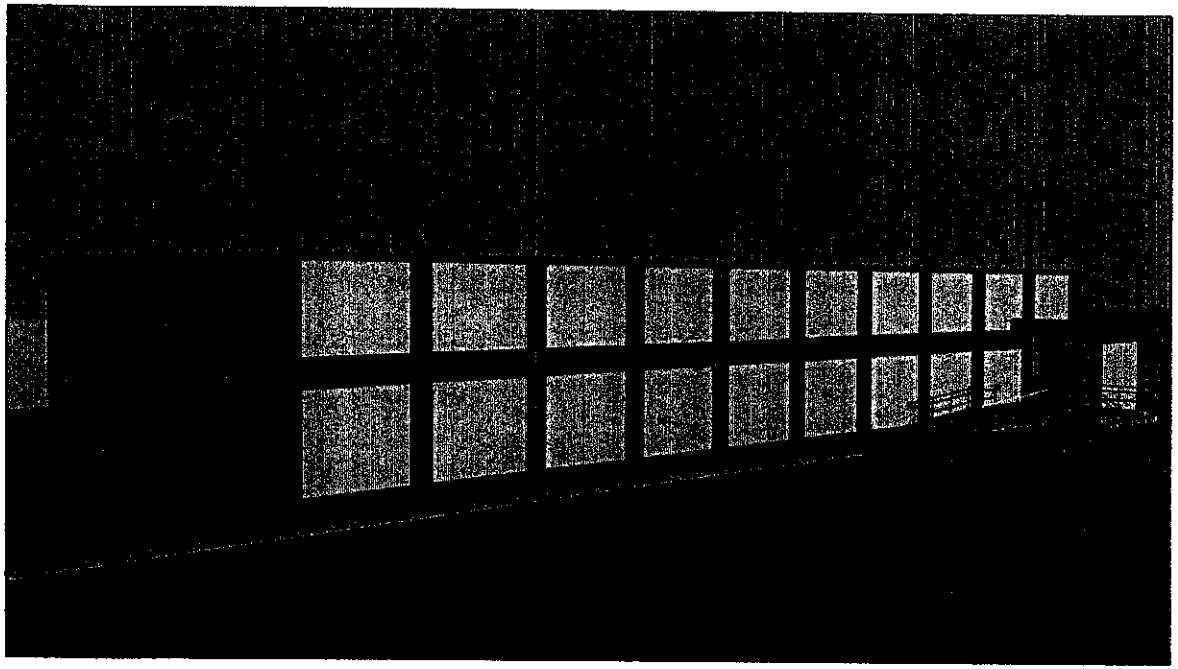
GROUND FLOOR PLAN

SCALE 1 : 150 M.

PHILIPPINE COAST GUARD

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE :	PROPOSED CONSTRUCTION OF CG K-9 FIRING RANGE
LOCATION :	COAST GUARD BASE TAGUIG, V.L. QUEZON ST., LOWER BICUTAN, TAGUIG CITY
DRAWN BY:	CARL S. BIRI
REVISION	DATE
CHECKED AND SUBMITTED BY:	ENGR. JOSEPHINE MARIE B. TRINIDAD CE Member, Structural Branch, CGIDS
RECOMMENDED BY:	ENGR. HILARIO A. ADAYA REE Engineer IV, CGIDS
APPROVED BY:	CDR FRANCISCO ACHILLES L ACEDILLO PCG Commander, CGIDS
SHEET NO.	



PERSPECTIVE

PHILIPPINE COAST GUARD

HEADQUARTERS PHILIPPINE COAST GUARD
139 26TH ST. PORT AREA, DISTRICT V

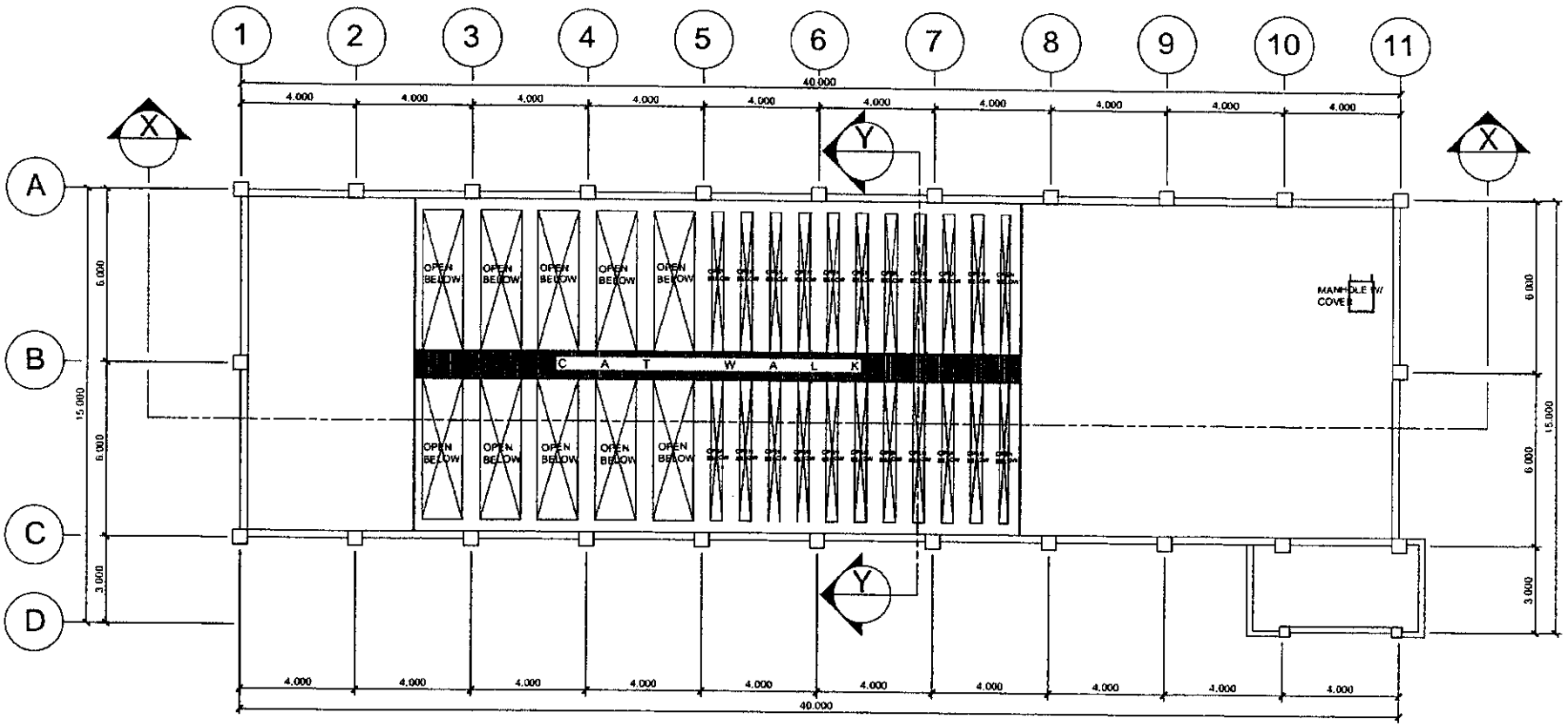
COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE:	PROPOSED CONSTRUCTION OF CG K-9 FIRING RANGE
LOCATION:	COAST GUARD BASE TAGUIG, M.L. QUEZON ST., LOWER BICUTAN, TAGUIG CITY

SHEET NO.

DRAWN BY:	CHECKED AND SUBMITTED BY:	RECOMMENDED BY:	APPROVED BY:
LANCE BIRT	ENGR. JOSEPHINE MARIE B. TRINIDAD CE Member, Structure Branch, CGIDS	ENGR. HILARIO A. ADAYA REE Engineer IV, CGIDS	CDR FRANCISCO ACHILLES L ACEDILLO PCG Commander, CGIDS

REVISION	DATE



ROOF DECK PLAN

SCALE 1 : 150 M.

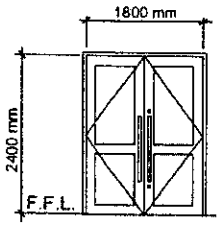
PHILIPPINE COAST GUARD

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE :	PROPOSED CONSTRUCTION OF CG K-9 FIRING RANGE
LOCATION	COAST GUARD BASE TAGUIG, M.L. QUEZON ST., LOWER BICUTAN, TAGUIG CITY
SHEET NO.	

DRAWN BY:	CHECKED AND SUBMITTED BY:	RECOMMENDED BY:	APPROVED BY:
CARL S. BIRI	ENGR. JOSEPHINE MARIE B. TRINIDAD CE Member, Structural Branch, CGIDS	ENGR. HILARIO A. ADAYA REE Engineer IV, CGIDS	CDR FRANCISCO ACHILLES L ACEDILLO PCG Commander, CGIDS

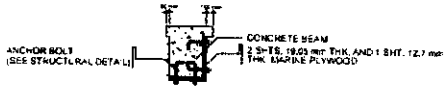
REVISION	DATE



DOUBLE LEAF
SOLID STEEL DOOR

D-1

DETAIL OF DOOR



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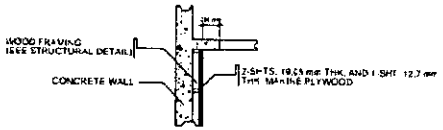

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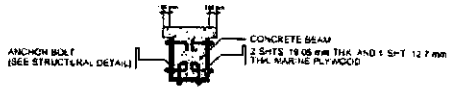

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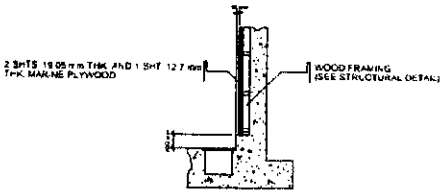

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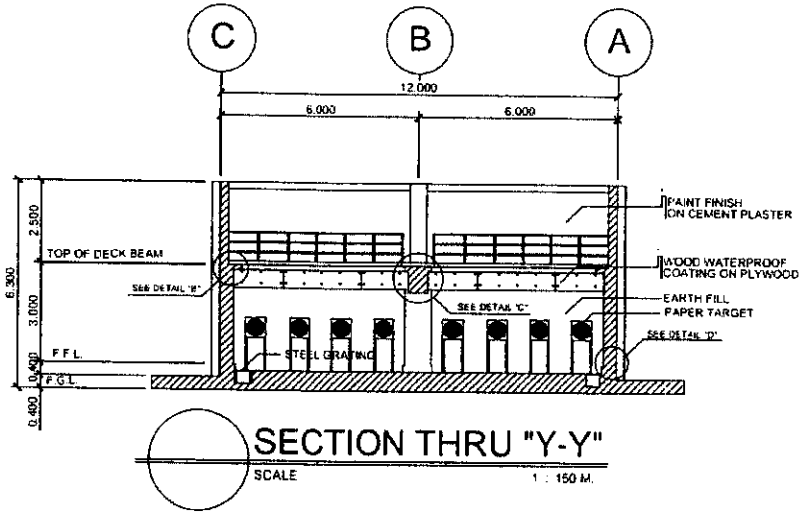


SECTION THRU "Y-Y"
SCALE 1 : 150 M.

PHILIPPINE COAST GUARD

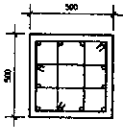
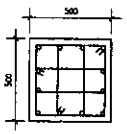
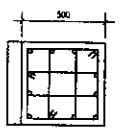
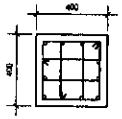
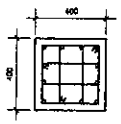
COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

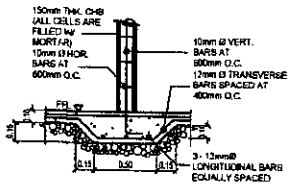
PROJECT TITLE :	PROPOSED CONSTRUCTION OF CG K-9 FIRING RANGE
LOCATION :	COAST GUARD BASE TAGUIG, M.L. QUEZON ST., LOWER BICUTAN, TAGUIG CITY
SHEET NO.	

DRAWN BY:	CHECKED AND SUBMITTED BY:	RECOMMENDED BY:	APPROVED BY:
CARL S. BIRI	ENGR. JOSEPHINE MARIE B. TRINIDAD CE Member, Structural Branch, CGIDS	ENGR. HILARIO A. ADAYA REE Engineer IV, CGIDS	CDR FRANCISCO ACHILLES L. ACEDILLO PCG Commander, CGIDS

REVISION	DATE

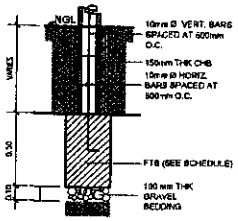
SCHEDULE OF COLUMNS

MARK	FOOTING TO GROUND FLR LEVEL	GROUND TO FLR DECK LEVEL	FLR DECK TO PARAPET WALL LEVEL
C-1	 12-25mmØ VERT. BARS W/ 10mm Ø TIES 1@50, 5@100mm, REST @ 200mm O.C. (3 TIES/ SET)	 12-25mmØ VERT. BARS W/ 10mm Ø TIES 1@50, 5@100mm, REST @ 200mm O.C. (3 TIES/ SET)	 12-25mmØ VERT. BARS W/ 10mm Ø TIES 1@50, 5@100mm, REST @ 200mm O.C. (3 TIES/ SET)
C-2	 12-20mmØ VERT. BARS W/ 10mm Ø TIES 1@50, 5@100mm, REST @ 200mm O.C. (3 TIES/ SET)	 12-20mmØ VERT. BARS W/ 10mm Ø TIES 1@50, 5@100mm, REST @ 200mm O.C. (3 TIES/ SET)	-

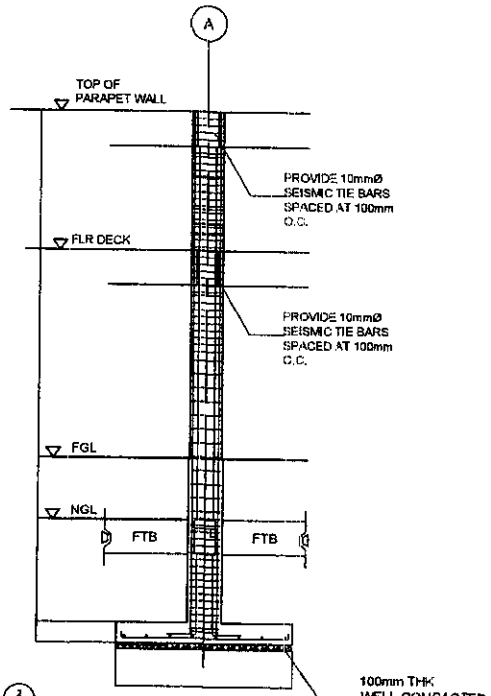


WF-1 SECTION

WALL FOOTING DETAIL
SCALE NTS

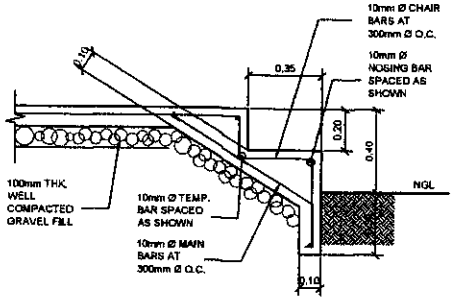


DETAIL OF WALL ON FTB
SCALE NTS

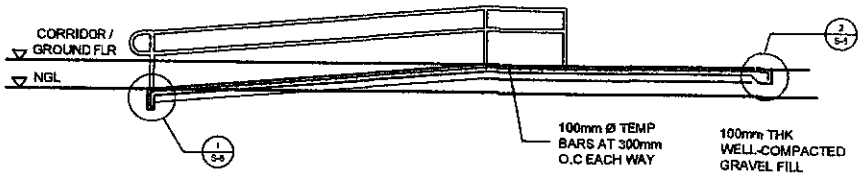


ELEVATION

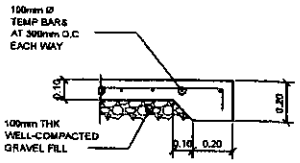
REFERENCE DETAILED ELEVATION OF COLUMNS
SCALE NTS



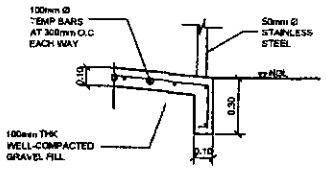
STAIR ON FILL DETAILS
SCALE NTS



RAMP DETAILS
SCALE NTS



SECTION DETAIL
SCALE NTS



2 S-5 SECTION DETAIL
SCALE NTS

PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST. PORT AREA MANILA
COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE :	PROPOSED FIRING RANGE
LOCATION:	CGBT, 56 M.L. QUEZON BLVD.,LOWER BICUTAN, TAGUIG CITY
OWNER:	PHILIPPINE COAST GUARD

SHEET NO.

DRAWN BY:	CHECKED BY:	RECOMMENDED BY:	APPROVED BY
Engr Josephine Marie B Trinidad, CE Member, Civil / Structural Branch, CGIDS	LTJG CHRISTIAN U MELON PCG Head, Plans and Programs, CGIDS	Engr. Hilario A Adaya, REE Engineer IV, CGIDS	CDR FRANCISCO ACHILLES L ACEDILLO PCG Commander, CGIDS

REVISION	DATE

LPP	Main: 70AT, 18kAIC, 100AF, 2P ,230V ,60HZ Flush Mounting Enclosure (BOLT - ON)										
CKT	LOADS NO. OF OUTLETS - VA RATINGS			VA / CIRCUIT	CURRENT (A)	FRAME (AF)	POLE	TRIP	TYPE	BRANCH RACEWAY	
	OUTLETS	OTHERS	LIGHTS							WIRE SIZE	CONDUIT SIZE
1			12 - 40VA LED Panel Lights, 8 - 7VA LED Pin Lights	1800	7.8	50	2	15AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
2			8 - 80VA LED Flood Lights, 3 - 20VA LED Flood Lights	1500	6.6	50	2	15AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
3	6 - 180 va			1080	4.7	50	2	20AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
4		1 HP PULLEY MOTOR		746	3.2	50	2	20AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
5		1 HP PULLEY MOTOR		746	3.2	50	2	20AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
6		1 HP PULLEY MOTOR		746	3.2	50	2	20AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
7		1 HP PULLEY MOTOR		746	3.2	50	2	20AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
8		1 HP PULLEY MOTOR		746	3.2	50	2	20AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
9		1 HP PULLEY MOTOR		746	3.2	50	2	20AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
10		1 HP PULLEY MOTOR		746	3.2	50	2	20AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
11		1 HP PULLEY MOTOR		746	3.2	50	2	20AT	BOLT - ON	3.5 mm² THHN Cu.Con + G	20mm Ø PVC Pipe
12	space										
13	space										
14	space										
TOTAL CONNECTED LOAD				10216	44.4						

LOAD DESIGN ANALYSIS

	LOADS	CONN. VA	DF	DEMAND VA
1	LIGHTS	3168	100	3168
2	RECEPTACLES	1080	50	540
3	ACU		100	
4	OTHERS	5968	100	5968
	MAXIMUM DEMAND VA			9676

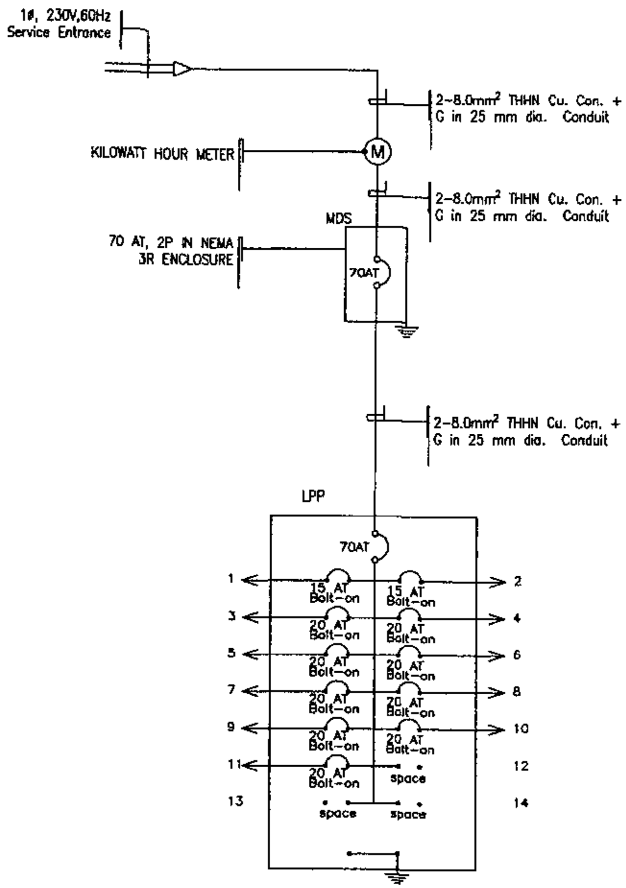
Load Current = (10216 / 230) = 44.4 A
Demand Factor = (9676/10216) * 100% = 94.71 %
Demand Current = (44.4 * 94.71%) = 42.05 A
Total Load Current = (42.05 + 1.2 Spare + 25% of the Largest Motor) = 52.46 A
Capacity = 52.46 / 75
Use : 2-8mm² THHN Cu. Con + 1-8mm² TW Ground in 25mmØ Conduit Pipe

SCHEDULE OF LOADS

SCALE NTS

LEGEND

⊠	1X40W LED PANEL LIGHT
	1X80W LED FLOOD LIGHT
	1X20W LED FLOOD LIGHT
	1X7W LED PIN LIGHT
S	ONE-WAY ONE GANG SWITCH
S_{ab}	ONE-WAY TWO GANG SWITCH
S_{abc}	ONE-WAY THREE GANG SWITCH
	DUPLEX CONVENIENCE OUTLET
	ONE GANG OUTLET WITH GROUND
	SERVICE ENTRANCE
	GROUND
	CIRCUIT BREAKER
	CIRCUIT HOMERUN
(M)	KILOWATT HOUR METER
LPP	LIGHTING AND POWER PANEL
MDS	MAIN DISCONNECT SWITCH



SINGLE LINE PANEL DIAGRAM

SCALE NTS

GENERAL NOTES

1. All electrical installations herein shall conform with the provisions of the latest edition of the Philippine Electrical Code; the rules and regulations of the nationa and local authorities concerned in the enforcement of electrical laws pertaining to the practice of electrical engineering and the requirement of the local utility company.
2. All electrical works herein shall be done under the strict supervision of a duly license professional electrical engineer or a registered electrical engineer or a registered master electrician.
3. No revisions shall be done without prior knowledge and approval of the designer/engineer; such revision done without approval shall cause responsibility of the designer/engineer to leave as a whole.
4. Unless otherwise indicated in the plan, the minimum size of conductor and conduit shall be 2.0 mm² and 15mm Ø for metallic tubing and or 20mm Ø for polyvinyl chloride conduit.
5. All wirings shall be provided with an additional ground wire which shall be continues throughout the whole system and properly bonded and grounded as provided in the Code.
6. All service/electrical equipment such as: safety switches, panelboards, transformers, metallic boxes and cabinets, raceways, etc., shall be properly grounded as provided in the Code.
7. Service entrance shall be 1Ø, 2-Wire + Gnd, 230V, 60Hz.
8. All materials to be used shall be brand new and of the approved type for both location and purpose intended to, subject to the approval of the designer/engineer.

GENERAL UTILITIES DESIGN GUIDELINES

A. LIGHTING

1. PROVIDE LIGHT SWITCH WITH INDICATOR LAMP FOR ALL LIGHTING SWITCHES.
2. FOR SEVERAL LIGHT SWITCH FACEPLATE ON ONE AREA LIGHT SWITCH SHOULD BE INSTALLED BUTT-JOINT. (MAX. OF 3 FACEPLATES FOR FACEPLATE EXCESS OF 3, PROVIDE SWITCH BANK ENCLOSURE, VERIFY DESIGNERS SPECIFICATION)
3. HEIGHT OF LIGHT SWITCH FROM FLOOR TO CENTER OF THE SWITCH IS 1000mm STANDARD. (NOTE : HEIGHT OF LIGHT SWITCH MUST BE THE SAME HEIGHT, PLUMBED, LEVELED AND ALIGNED TO THE DOOR KNOB)
4. ALL LIGHT SWITCHES FOR NARROW WALLS HAVING 600mm WIDTH OR LESS THERMOSTAT, SECURITY DOOR KEY PADS, AND BREAK GLASS DETECTOR, MUST BE CENTERED ON WALL.
5. FLUORESCENT LIGHTING GENERAL OFFICE AREAS TO HAVE SEPARATE SWITCH FROM DOWN LIGHT.
6. ALL LIGHTING GROUPS TO BE VISIBLE FROM SWITCHING POINT.
7. GROUP OF SWITCH TO BE ON COMBINE (GANGED FACEPLATES).

B. POWER

1. USE PARALLEL GROUNDING TYPE POWER OUTLETS.
2. FOR SEVERAL POWER AND DATA OUTLET ON ONE LOCATION FACEPLATE MUST BE INSTALLED BUTT-JOINT. (MAXIMUM OF 3-FACEPLATES)
3. HEIGHT OF POWER OUTLET ARE 150mm FLOOR TO BOTTOM OF POWER OUTLET. LOCATION FACEPLATE MUST BE INSTALLED BUTT-JOINT.
4. TYPICAL INSTALLATION OF POWER OUTLETS ON WALL MUST BE EQUAL ON DISTANCE.

PHILIPPINE COAST GUARD

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE : PROPOSED CONSTRUCTION OF CG K-9 FIRING RANGE

LOCATION: COAST GUARD BASE TAGUIG, M.L. QUEZON ST., LOWER BICUTAN, TAGUIG CITY

PREPARED BY: Engr Jem Mon... B. Ramos, REE, Member, Elect'l & Mech'l Branch, CGIDS

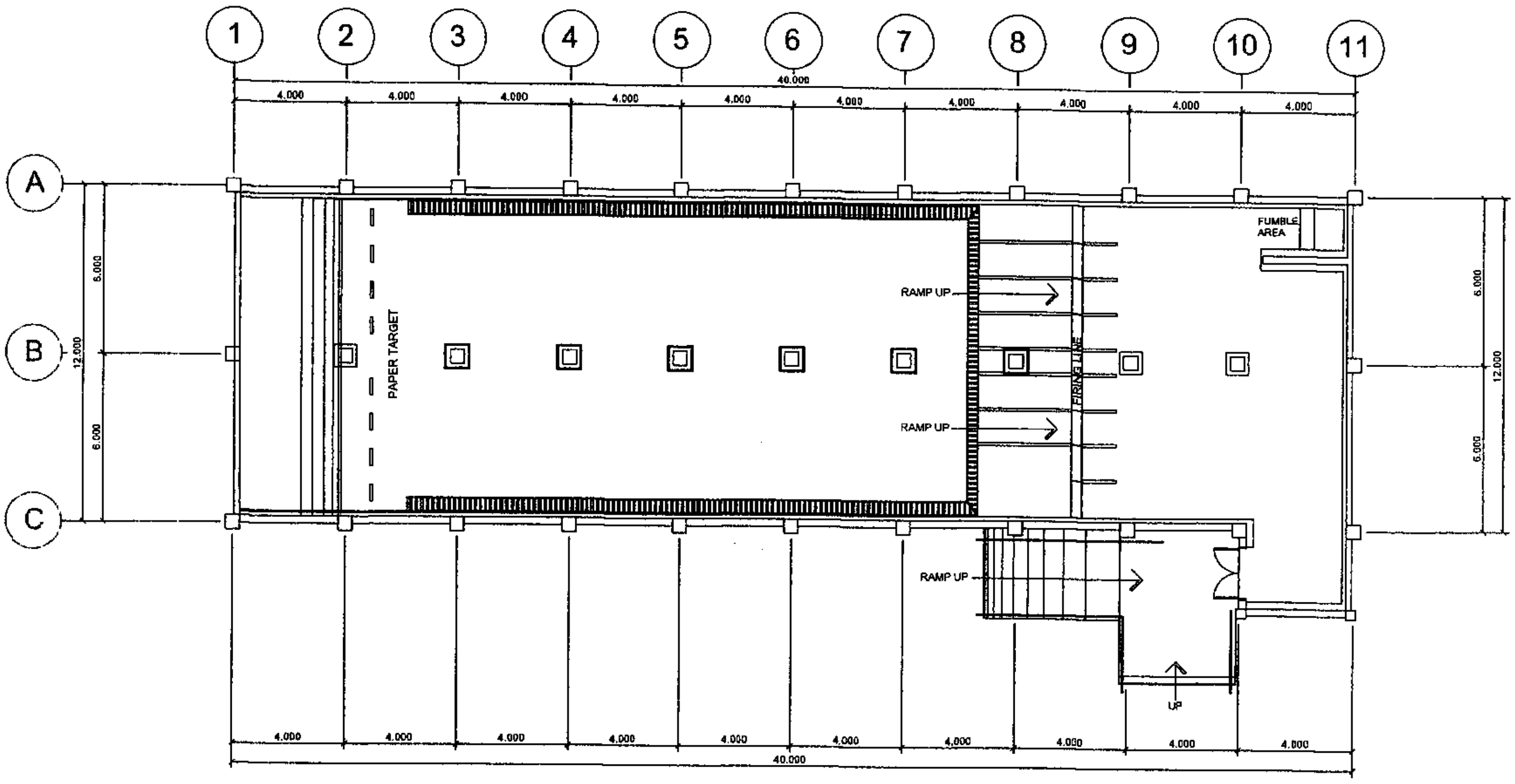
CHECKED AND SUBMITTED BY:

RECOMMENDED BY: ENGR. HILARIO A. ADAYA REE, Eniineer IV, CGIDS

APPROVED BY: CDR FRANCISCO ACHILLES L ACEDILLO PCG, Commander, CGIDS

REVISION | DATE

SHEET NO.



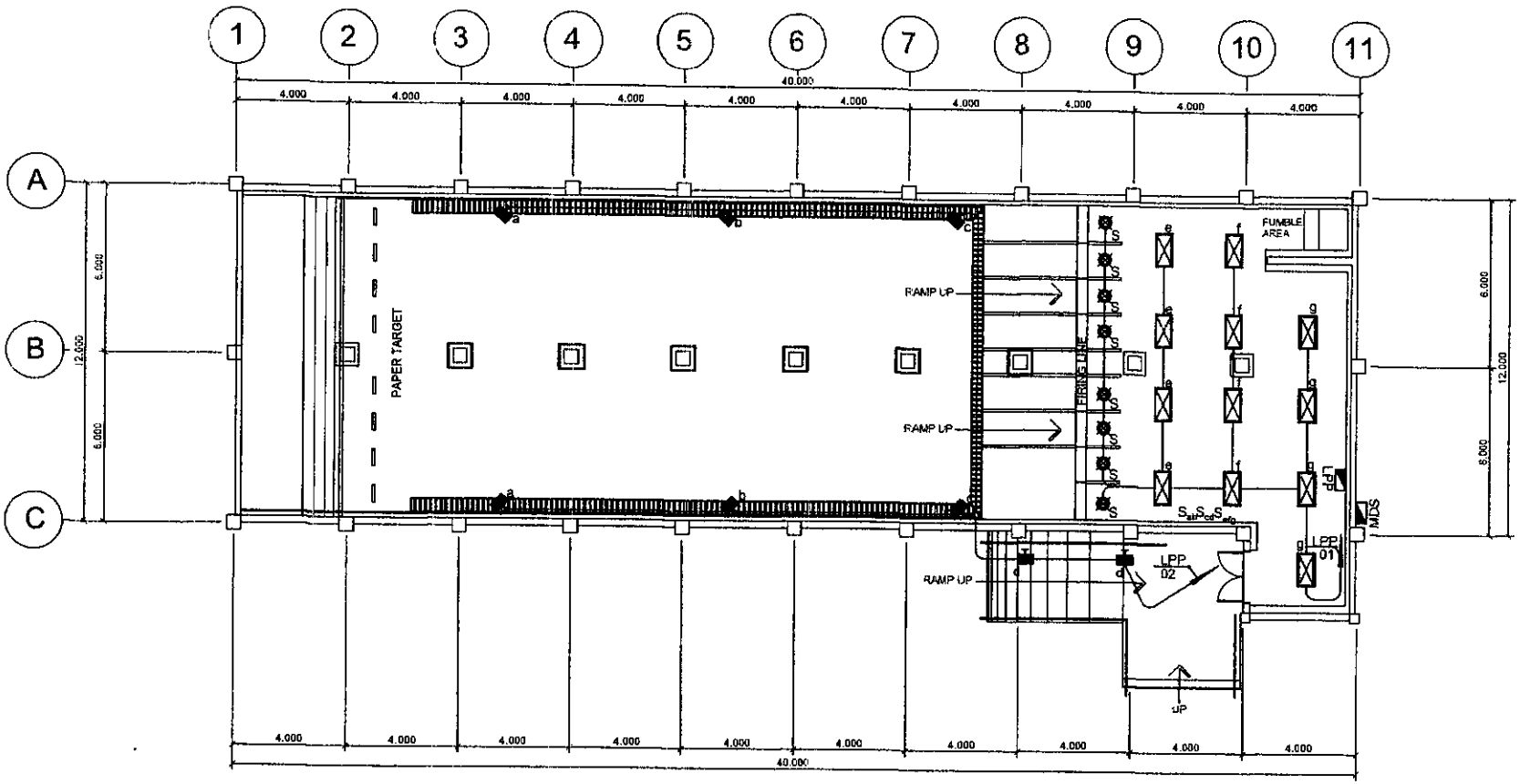
GROUND FLOOR CONVENIENCE OUTLET LAYOUT

SCALE 1 : 150 M.

PHILIPPINE COAST GUARD

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE : PROPOSED CONSTRUCTION OF CG K-9 FIRING RANGE				SHEET NO.
LOCATION: COAST GUARD BASE TAGUIG, M.L. QUEZON ST., LOWER BICUTAN, TAGUIG CITY				
PREPARED BY:: Engr Jem Momoton B. Ramos, REE Member, Elect'l & Mech'l Branch, CGIDS	CHECKED AND SUBMITTED BY	RECOMMENDED BY: ENGR. HILARIO A. ADAYA REE Enineer IV, CGIDS	APPROVED BY: CDR FRANCISCO ACHILLES L ACEDILLO PCG Commander, CGIDS	
REVISION / DATE				



GROUND FLOOR LIGHTING LAYOUT

SCALE 1 150 M.

PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 SIXTH ST., PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

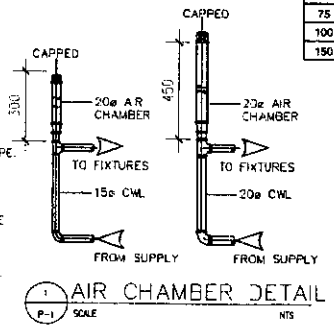
PROJECT TITLE :	PROPOSED CONSTRUCTION OF CG K-9 FIRING RANGE
LOCATION:	COAST GUARD BASE TAGUIG, M.L. QUEZON ST., LOWER BICUTAN, TAGUIG CITY
SHEET NO.	

PREPARED BY:	CHECKED AND SUBMITTED BY	RECOMMENDED BY:	APPROVED BY
Engr Jem Monsod S Ramos, REE Member, Elect'l & Mech'l Branch, CGIDS		ENGR. HILARIO A. ADAYA REE Engineer IV, CGIDS	CDR FRANCISCO ACHILLES L ACEDILLO PCG Commander, CGIDS

REVISION	DATE

GENERAL NOTES:

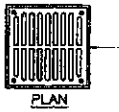
1. ALL PLUMBING WORKS TO BE DONE AND SIZES OF PIPES TO BE USED SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL PLUMBING CODE OF THE PHILIPPINES AND LOCAL REGULATIONS AND ORDINANCES.
2. ALL PIPES SHALL BE INSTALLED AS INDICATED IN THE WORKING DRAWINGS. ANY RELOCATION REQUIRED FOR PROPER EXECUTION OF OTHER TRADES SHALL BE UPON THE APPROVAL OF THE REGISTERED MASTER PLUMBER OR SANITARY ENGINEER.
3. WRITTEN DIMENSION SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
4. ALL PIPES SHALL BE PROVIDED WITH PROPER HANGER AND SUPPORT.
5. ALL FIXTURES SHALL BE VENTED INDIVIDUALLY AND WATERLINES SHALL BE VALVE BY GROUP.
6. UNLESS OTHERWISE SPECIFIED, ALL PLUMBING FIXTURES SHALL BE PROPERLY VENTED. MAXIMUM DISTANCE OF VENTILATION FROM FIXTURES SHALL BE 1.50m MEASURED ALONG THE LENGTH OF PIPE.
7. ALL PLUMBING FITTINGS SHALL BE ACCESSIBLE FOR MAINTENANCE. PROVIDE MANHOLE IF SUCH INSTALLATIONS ARE INSIDE THE CEILING.
8. ALL CHANGES IN DIRECTIONS SHALL BE MADE BY THE APPROPRIATE USE OF FORTY FIVE (45) WYE LONG SWEEP QUARTER BEND, ONE EIGHT WHEN THE CHANGE OF FLOW IS FROM HORIZONTAL TO VERTICAL. A SINGLE BEND COMBINATION MAY BE USED ONLY ON VENT PIPE.
9. NO DOUBLE HUB OR DOUBLE TEE BRANCH SHALL BE USED ON HORIZONTAL SOIL OR WASTE LINES.
10. PROVIDE PIPE SLEEVES AT WALL, COLUMNS OR SLAB TO PROTECT FROM BREAKAGE.
11. ALL EXPOSED PIPINGS AND FITTINGS IN THE AREAS SHALL BE CHROME PLATED.
12. THE BRAND AND OTHER DETAILED PLUMBING FIXTURES SHALL BE IN ACCORDANCE WITH THE SCHEDULE FURNISHED BY THE ARCHITECT.
13. GATE VALVE SHALL BE BRONZE BODY, SOLID WEDGE TYPE, SCREWED OR FLANGE END.
14. ENGINEER-IN-CHARGE TO VERIFY ACTUAL LOCATION AND ELEVATION OF STREET DRAINAGE, STREET SEWER AND STREET WATER MAINS FOR CONNECTION BEFORE CONSTRUCTION.



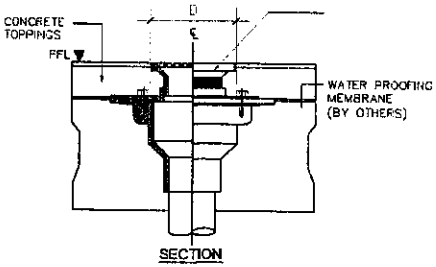
1 P-1 SCALE AIR CHAMBER DETAIL NTS

SCHEDULE OF DIMENSIONS

PIPE SIZE IN "A"	DIMENSION IN MM	
	D	F
50	100x100	225.42
75	125x125	225.42
100	150x150	225.42
150	200x200	282.57

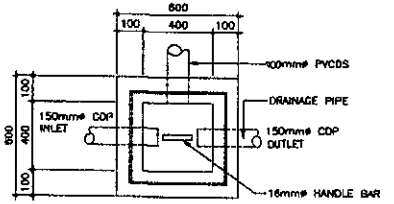


PLAN



SECTION

2 P-1 SCALE FLOOR DRAIN DETAIL NTS



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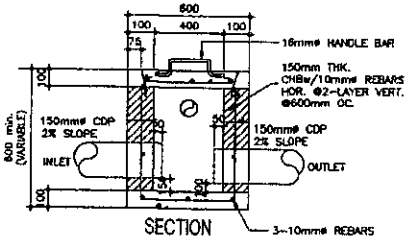
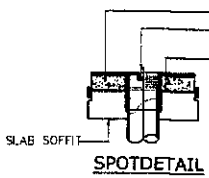


SECTION

3 P-1 SCALE CATCH BASIN DETAIL NTS

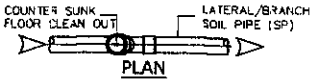
PLUMBING LEGEND:

CD	CORRIDOR DRAIN
CO	CLEAN OUT
CV	CHECK VALVE
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FHC	FIRE HOSE CABINET
LAV	LAVATORY
KS	KITCHEN SINK
MH	MANHOLE
PVC CWL	POLYVINYL CHLORIDE COLD WATER LINE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D256
PVC CWR	POLYVINYL CHLORIDE COLD WATER RISER (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D256
PVC HWL	POLYVINYL CHLORIDE HOT WATER LINE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D256
PVC RWL	POLYVINYL CHLORIDE RECYCLED WATER LINE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D256
PVC RWR	POLYVINYL CHLORIDE RECYCLED WATER RISER (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D256
PVCDP	POLYVINYL CHLORIDE DRAIN PIPE (SERIES 100) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D256
PVCDP	POLYVINYL CHLORIDE DRAIN PIPE (SERIES 100) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564)
PVCDS	POLYVINYL CHLORIDE DOWNSPOUT (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564)
PVCSP	POLYVINYL CHLORIDE SOIL PIPE (SERIES 1000) (ASTM D2429 / ASTM D3311, ISO 4435 / ASTM D2564)
PVCSS	POLYVINYL CHLORIDE SOIL STACK (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 /ASTM D2564)
PVCVP	POLYVINYL CHLORIDE VENT PIPE (SERIES 600) (ASTM D2729 / ASTM D3311, ISO 4435 /ASTM D2564)
PVCVS	POLYVINYL CHLORIDE VENT STACK (SERIES 600) (ASTM D2729 / ASTM D3311, ISO 4435 /ASTM D2564)
PVCVTR	POLYVINYL CHLORIDE VENT THRCUGH ROOF (SERIES 600) (ASTM D2729 / ASTM D3311, ISO 4435 /ASTM D2564)
PVCWP	POLYVINYL CHLORIDE WASTE PIPE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 /ASTM D2564)
RD	ROOF DRAIN
SD	SINK DRAIN
SLS	SLOP SINK
SHO	SHOWER
UD	URINAL DRAIN
WC	WATER CLOSET
WMA	WASHING MACHINE
WM	WATER METER
WS	WASTE STACK
WH	WATER HEATER
WP	WATER PUMP



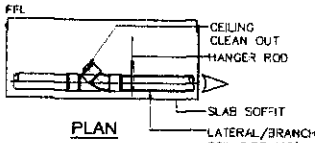
SPOTDETAIL

PIPE SIZE "A"	PIPE SIZE "B"
50	63
75	90
100	110

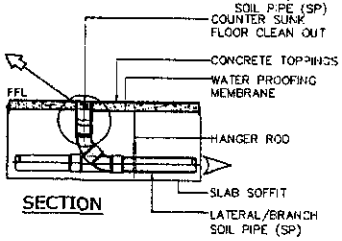


PLAN

4 P-1 SCALE CLEAN OUT DETAIL NTS



PLAN



SECTION

PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST. PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE : PROPOSED FIRING RANGE
LOCATION: CGBT, 56 M.L. QUEZON BLVD. LOWER BICUTAN, TAGUIG CITY
OWNER: PHILIPPINE COAST GUARD

SHEET NO.

DRAWN BY: Engr. Josephine Marie B Trinidad CE
Member, Civil / Structural Branch, CGIDS

REVISION	DATE

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Head, Plans and Programs, CGIDS

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Engineer IV, CGIDS

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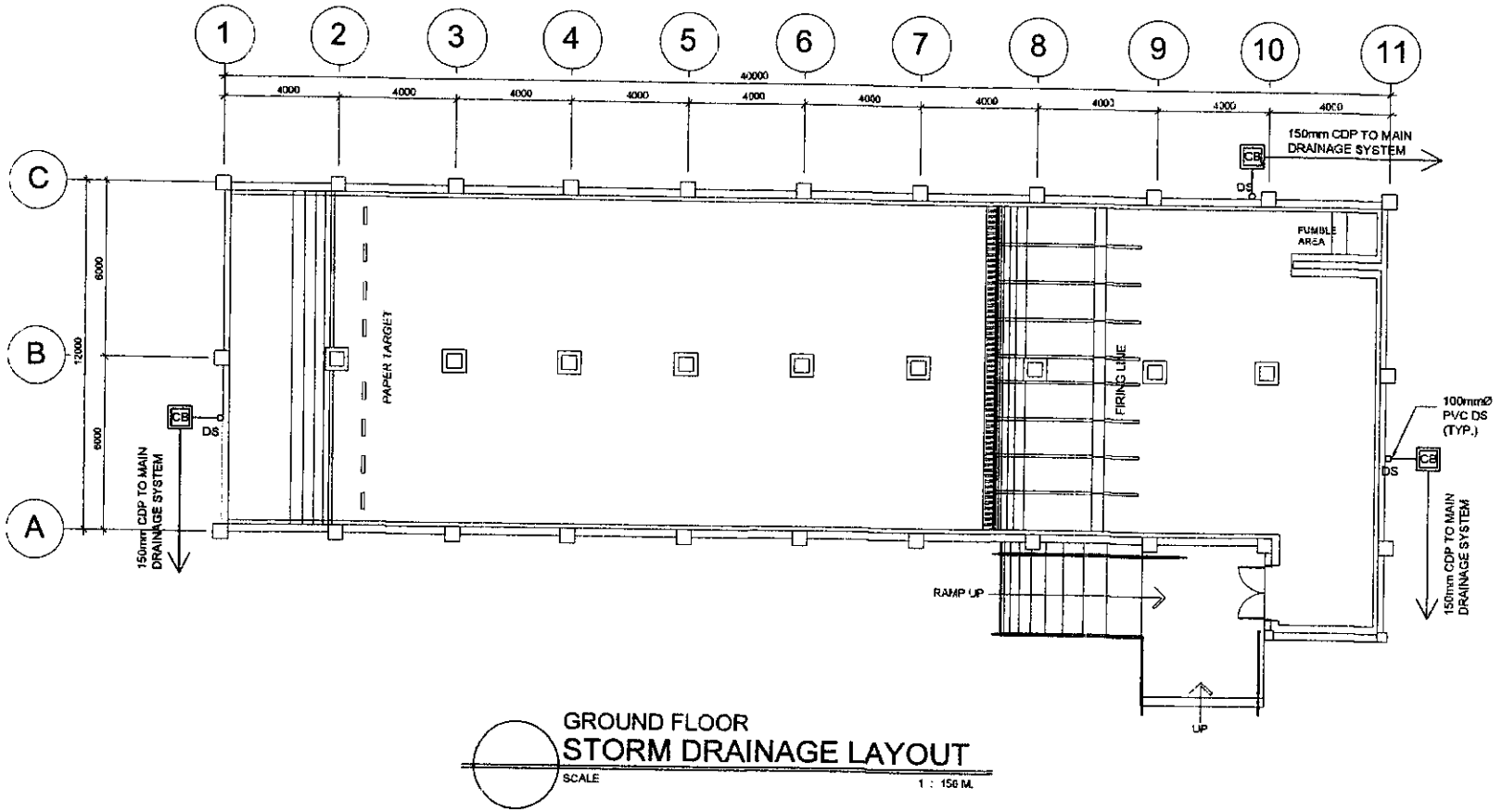
Commander, CGIDS



GROUND FLOOR
STORM DRAINAGE LAYOUT
SCALE 1 : 150 M.

PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST. PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE :	PROPOSED FIRING RANGE
LOCATION:	CGBT, 56 M.L. QUEZON BLVD. LOWER BICUTAN, TAGUIG CITY
OWNER:	PHILIPPINE COAST GUARD

SHEET NO.

DRAWN BY: Engr. Josephine Marie B Trinidad CE
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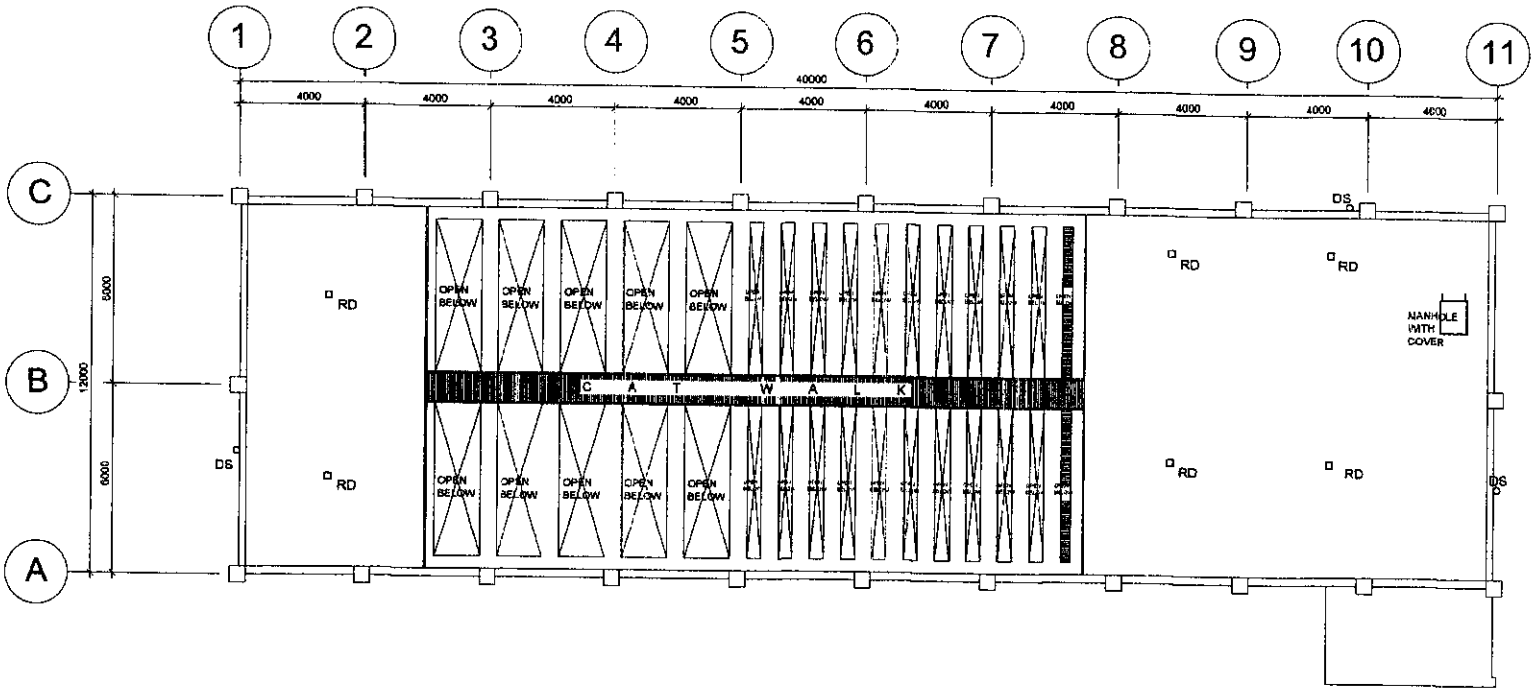
Commander, CGIDS

REVISION	DATE



ROOF DECK
STORM DRAINAGE LAYOUT
SCALE 1 : 150 M.

PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST. PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

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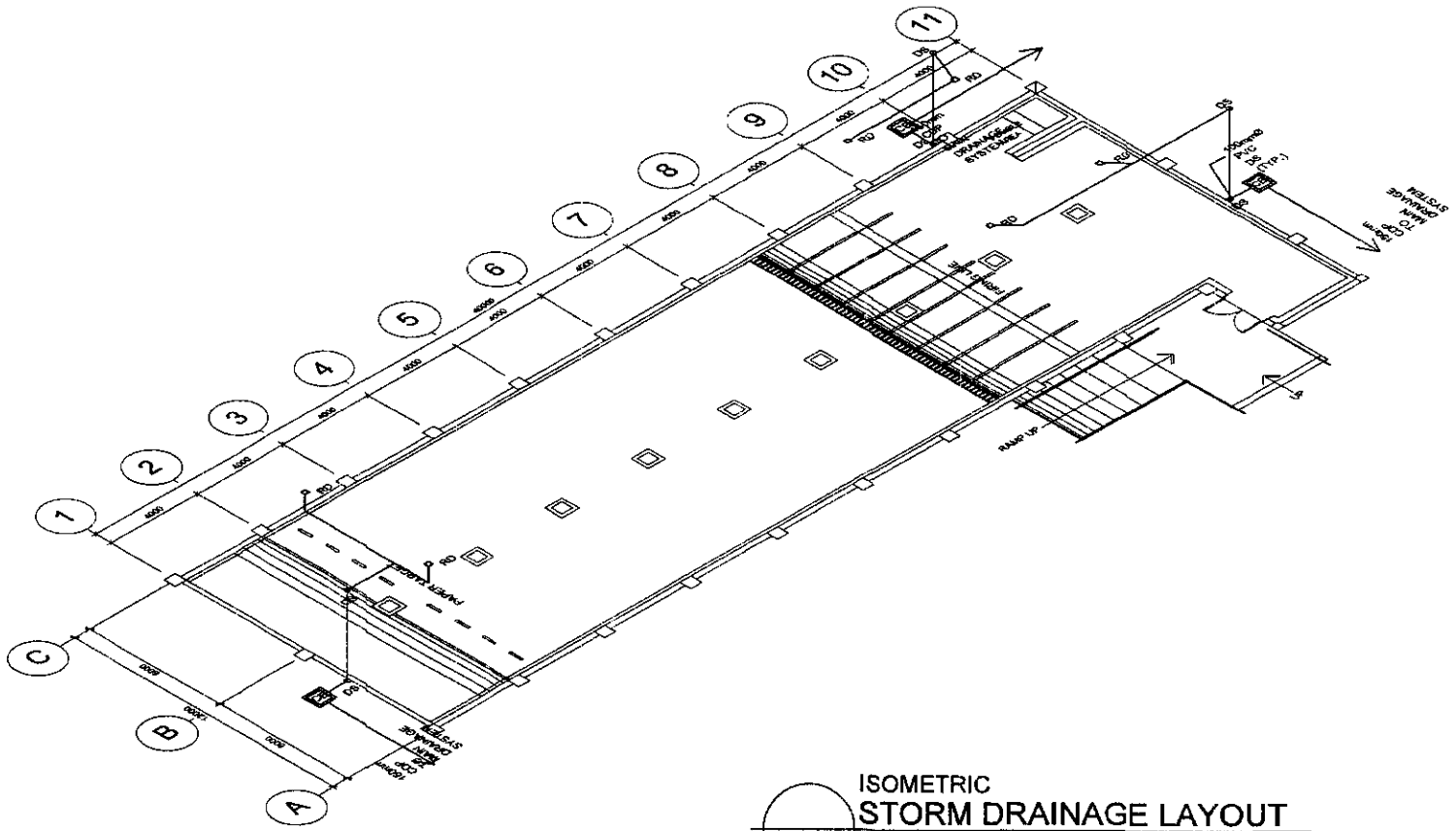
REVISION	DATE



ISOMETRIC
STORM DRAINAGE LAYOUT
SCALE 1 : 150 M.

PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST. PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE :	PROPOSED FIRING RANGE
LOCATION:	CGBT, 58 M.L. QUEZON BLVD. LOWER BICUTAN, TAGUIG CITY
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REVISION	DATE

GENERAL CONSTRUCTION NOTES

GENERAL NOTES

1.0 STANDARD AND REFERENCE

THE FOLLOWING SHALL GOVERN THE DESIGN, FABRICATION AND CONSTRUCTION OF THE PROJECT.

1.1 NATIONAL STRUCTURAL CODE OF THE PHILIPPINES (NSCP), VOL.1, 7TH EDITION 2015

2.0 DESIGN CRITERIA

2.1 LOADINGS

A. DEAD LOAD

CONCRETE	24 kN/m
STEEL	76.93 kN/m
150mm THK CHB WALL	3.38 kPa
100mm THK CHB WALL	2.38 kPa

B. LIVE LOAD

ROOF	1.00 kPa
OFFICE	2.40 kPa
BALCONY	2.90 kPa
MULTIPURPOSE AREA / CONFERENCE HALL / ROOM	4.80 kPa
LOBBY / CORRIDORS	3.80 kPa

C. WIND LOAD (NSCP 2015)

BASIC WIND VELOCITY, V = 250 KPH

P = qh [(GCpf) - (GCpi)] (DESIGN WIND PRESSURE)

WHERE: qh = VELOCITY PRESSURE, kPa

GCpf = EXTERNAL PRESSURE COEFFICIENT

GCpi = INTERNAL PRESSURE COEFFICIENT

D. SEISMIC LOAD (NSCP 2015)

$$V = \frac{Cv\ I}{RT} W \quad \text{(DESIGN BASE SHEAR)}$$

$$Vmax = \frac{2.50\ Ca\ I}{RT} W \qquad Vmin = \frac{0.80\ ZNv\ I}{R} W \ \text{(ZONE 4)}$$

$$Vmin = 0.11 Ca I W$$

WHERE: W = TOTAL DEAD LOAD

T = NATURAL PERIOD = $C_t (h_n)^{3/4}$

WHERE: C_t = NUMERICAL COEFFICIENT

h_n = BUILDING HEIGHT

I = IMPORTANCE FACTOR = 1.50

R = NUMERICAL FACTOR = 8.50

SEISMIC COEFFICIENT Ca = 0.44 Na

Cv = 0.64 Nv

NEAR SOURCE FACTOR (10km) Na = 2.0

Nv = 1.6

Z = SEISMIC ZONE = 0.40 (ZONE 4)

S = SOIL TYPE = D

2.2 DESIGN STRESSES

A. CONCRETE FOR FOOTING, COLUMNS, BEAMS, AND SLAB ON FILL (COMPRESSIVE STRENGTH @ 28 DAYS)	f'c = 20.7MPa (3,000 psi)
B. REINFORCING STEEL BARS	
a. FOR BARS 16mm@ AND GREATER	fy = 275 MPa (40,000 psi)
b. FOR BARS LESS THAN 16mm@	fy = 230 MPa (33,000 psi)
C. STRUCTURAL STEEL, ASTM-A36 FOR TRUSSES, BRACINGS & STRUTS	fy = 248 MPa (36,000 psi)
D. PURLINS COLD FORMED LIGHT GAGE SHAPES	fy = 248 MPa (36,000 psi)
E. MASONRY UNIT (CHB) NON-LOAD BEARING CHB WALLS	f'm' = 3.45 MPa (500 psi)
F. WELDS - USED E-70xx ELECTRODE	
G. STRUCTURAL BOLTS, ASTM-A307 a. Ft = 96.80 MPa (14,000 psi) b. Fv = 69 MPa (10,000 psi)	

3.0 IN THE INTERPRETATION OF THE DRAWINGS, INDICATED DIMENSIONS SHALL GOVERN AND DISTANCES AND SIZES SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES.

4.0 IN REFERENCE TO OTHER DRAWINGS, SEE ARCHITECTURAL DRAWINGS FOR DEPRESSIONS IN FLOOR SLABS, OPENINGS IN THE WALLS AND SLABS, INTERIOR PARTITIONS, LOCATION OF DRAINS, ETC.

5.0 IN CASE OF DISCREPANCIES AS TO THE LAYOUT, DIMENSIONS, AND ELEVATIONS BETWEEN THE STRUCTURAL PLANS, AND ARCHITECTURAL DRAWINGS, THE CONTRACTOR SHALL NOTIFY BOTH THE STRUCTURAL ENGINEER AND THE ARCHITECT.

6.0 ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH THE ACI 318-95 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND ALL STRUCTURAL STEEL WORK ACCORDING WITH AISC SPECIFICATION (8th EDITION) IN SO FAR AS THEY DO NOT CONFLICT WITH THE LOCAL BUILDING CODE REQUIREMENT.

7.0 ACI REFERS TO AMERICAN CONCRETE INSTITUTE, AISC TO AMERICAN INSTITUTE OF STEEL CONSTRUCTION AND ASTM TO AMERICAN SOCIETY FOR TESTING MATERIALS.

8.0 CONSTRUCTION NOTES AND TYPICAL DETAILS APPLY TO ALL DRAWINGS UNLESS OTHERWISE SHOWN OR NOTED. MODIFY TYPICAL DETAILS AS DIRECTED TO MEET SPECIAL CONDITIONS.

9.0 SHOP DRAWINGS WITH ERECTION AND PLACING DIAGRAMS OF ALL STRUCTURAL STEELS, MISCELLANEOUS IRON, PRE-CAST CONCRETE, ETC. SHALL BE SUBMITTED FOR ENGINEERS APPROVAL BEFORE FABRICATION

10.0 CONTRACTOR SHALL NOTE AND PROVIDE ALL MISCELLANEOUS CURBS, SILLS, STOOLS, EQUIPMENTS AND MECHANICAL BASES THAT ARE REQUIRED BY THE ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS.

11.0 ALL RESULTS OF MATERIAL TESTING FOR CONCRETE, REINFORCING BARS, & STRUCTURAL STEEL MUST BE NOTED & APPROVED BY THE STRUCTURAL DESIGNER.

NOTES ON CONCRETE MIXES & PLACING

1. ALL CONCRETE SHALL DEVELOP A MIN. COMPRESSIVE STRENGTH AT THE END OF TWENTY EIGHT (28) DAYS W/ CORRESPONDING MAXIMUM SIZE AGGREGATE & SLUMPS AS FOLLOWS:

LOCATION	28 DAYS STRENGTH	MAX. SIZE OF AGGREGATE	MAX. SLUMP
ALL OTHERS, INCLUDING SUSPENDED SLAB	3000 PSI (20.7 MPa)	20 mm	100 mm
COLUMNS	3000 PSI (20.7 MPa)	20 mm	100 mm
BEAMS, SLABS	3000 PSI (20.7 MPa)	20 mm	100 mm
SLAB ON FILL	2500 PSI (17.5 MPa)	20 mm	100 mm

2. MAINTAIN MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:
   - SUSPENDED SLABS ____ 20mm
   - SLAB ON GRADE ____ 40mm
   - WALLS ABOVE GRADE ____ 25mm
   - BEAM STIRRUPS AND COLUMN TIES ____ 40mm
   - WHERE CONCRETE IS EXPOSED TO EARTH BUT POURED AGAINST FORMS ____ 50mm
   - WHERE CONCRETE IS DEPOSITED DIRECTLY AGAINST EARTH ____ 75mm
3. CONCRETE SHALL BE DEPOSITED IN ITS FINAL POSITION WITHOUT SEGREGATION, RE-HANDLING OR PLACING SHALL BE DONE PREFERABLY WITH BUGGIES. BUCKETS OR WHEELBARROWS, NO CHUTES WILL BE ALLOWED EXCEPT TO TRANSFER CONCRETE FROM HOPPERS TO BUGGIES, WHEELBARROWS OR BUCKETS IN WHICH CASE THEY SHALL NOT EXCEED SIX (6) METERS IN AGGREGATE LENGTH.
4. NO PUDDLING OF CONCRETE IS SHALL BE ALLOWED WITHOUT THE USE OF VIBRATORS UNLESS AUTHORIZED IN WRITING BY THE DESIGNERS AND ONLY FOR UNUSUAL CONDITIONS WHERE VIBRATIONS ARE EXTREMELY DIFFICULT TO ACCOMPLISH.
5. ALL ANCHOR BOLTS, DOWELS AND OTHER INSERTS SHALL BE PROPERLY POSITIONED & SECURED IN PLACE PRIOR TO PLACING OF CONCRETE.
6. ALL CONCRETE SHALL BE KEPT MOIST FOR A MINIMUM OF SEVEN CONSECUTIVE DAY IMMEDIATELY AFTER POURING BY THE USE OF WET BURLAP, FOG SPRAYING, CURING COMPOUNDS OR OTHER APPROVED METHODS.
7. STRIPPING OF FORMS AND SHORES:
   - FOUNDATION ____ 24 HRS
   - SUSPENDED SLAB EXCEPT WHEN ADDITIONAL LOADS ARE IMPOSED ____ 6 DAYS
   - WALLS ____ 21 DAYS
   - BEAMS ____ 14 DAYS
   - COLUMNS ____ 21 DAYS
8. THE CONTRACTOR SHALL SUBMIT THE SCHEDULE OF POURING AND THE LOCATION OF THE CONSTRUCTION JOINTS TO THE STRUCTURAL ENGINEER AT LEAST (4) DAYS PRIOR TO THE POURING FOR APPROVAL.
9. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ADEQUATE FORMS AND SHORINGS UNTIL THE CONCRETE MEMBERS HAVE ATTAINED THEIR WORKING CONDITION AND STRENGTH.

NOTES ON FOOTINGS

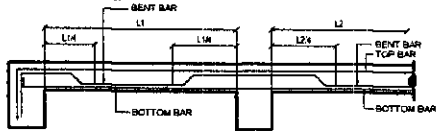
1. FOOTINGS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 96 KPa (2000 psf). CONTRACTOR SHALL REPORT TO THE ENGINEER, IN WRITING, THE ACTUAL SOIL CONDITIONS UNCOVERED AND CONFIRM ACTUAL BEARING CAPACITY OF SOIL BEFORE DEPOSITING CONCRETE.
2. FOOTING SHALL REST AT LEAST 1500mm BELOW NATURAL GRADE LINE UNLESS OTHERWISE INDICATED IN PLANS. NO FOOTING SHALL REST ON FILL.
3. MINIMUM CONCRETE PROTECTION FOR REINFORCEMENTS SHALL BE 75mm CLEAR FOR CONCRETE DEPOSITED ON THE GROUND AND 50mm FOR CONCRETE DEPOSITED AGAINST A FORMWORK.
4. IN CASES WHERE THE SOIL CONDITION IS SUCH THAT THE MINIMUM ALLOWABLE SOIL PRESSURE OF 96 KPa (2000 psf) CAN NOT BE ATTAINED AT PRACTICAL DEPTHS, THE USE OF MICROPILES, BORED PILES, OR DRIVEN PILES, MAY BE ACCEPTED IN LIEU OF STANDARD ISOLATED FOOTINGS.

NOTES ON REINFORCEMENT

1. UNLESS OTHERWISE NOTED IN PLANS, THE YIELD STRENGTH OF REINFORCING BARS SHALL BE:
   - A. FOOTINGS, FOOTING TIE BEAMS, AND GIRDERS ____ fy = 275 MPa (40,000 psi)
   - B. COLUMNS AND SHEAR WALLS ____ fy = 275 MPa (40,000 psi)
   - C. BEAMS AND GIRDER ____ fy = 275 MPa (40,000 psi)
   - D. NON - LOAD BEARING WALL PARTITIONS, BEDDED SLABS, FLOOR & ROOF SLABS, PARAPETS, CATCH BASIN, SIDE WALKS ____ fy = 227.5 MPa (33,000 psi)
2. ALL REINFORCING BARS SIZE 10mm OR LARGER SHALL BE DEFORMED IN ACCORDANCE WITH ASTM A706, BARS SMALLER THAN 10mm MAY BE PLAIN.
3. SPLICES SHALL BE SECURELY WIRED TOGETHER & SHALL LAP OR EXTEND IN ACCORDANCE WITH TABLE A & TABLE B (TABLE OF LAP SPLICES & ANCHORAGE LENGTH) UNLESS OTHERWISE SHOWN ON DRAWINGS, SPLICES SHALL BE STAGGERED WHENEVER POSSIBLE.

NOTES ON CONCRETE SLABS

1. ALL SLABS REINFORCEMENTS SHALL BE 20mm CLEAR MINIMUM FROM BOTTOM AND FROM THE TOP OF SLAB
2. UNLESS OTHERWISE SHOWN, REINFORCEMENT IN CONTINUOUS ELEVATED SLAB SHALL BE CUT AS FOLLOWS.

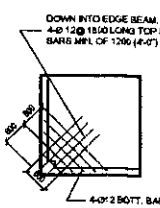


3. IF SLABS ARE REINFORCED BOTHWAYS BARS ALONG THE SHORTER SPAN SHALL BE PLACED BELOW THOSE ALONG THE LONG SPAN AT THE CENTER AND OVER THE LONGER SPAN FOR REINFORCING BARS NEAR THE SUPPORTS. THE SPACING OF THE BARS AT THE COLUMN STRIPS SHALL BE NOT BE MORE THAN ONE AND A HALF (1+1/2) SLAB THICKNESS.
4. TEMPERATURE BARS FOR SLAB SHALL BE GENERALLY PLACED NEAR THE FACE IN THE TENSION AND SHALL NOT BE LESS THAN 0.0025 X GROSS CROSS-SECTIONAL AREA (Ag) OF THE SLAB. (SEE SCHEDULE BELOW)

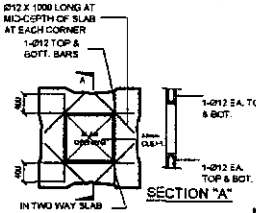
SCHEDULE OF MINIMUM SLAB REINFORCEMENT

THICKNESS	MINIMUM TEMPERATURE BARS
100 mm	10 mm@ @ 150mm EACH WAY
125 mm	10 mm@ @ 225mm EACH WAY
150 mm	10 mm@ @ 180mm EACH WAY
175 mm	10 mm@ @ 150mm EACH WAY
200 mm	10 mm@ @ 140mm EACH WAY

5. UNLESS OTHERWISE NOTED IN THE PLANS, ALL BEDDED SLABS SHALL BE REINFORCED WITH 10mm @ AT 230mm O.C. EACH WAY TO CENTER OF SLAB AND CONSTRUCTION JOINTS FOR BAME SHALL NOT BE LESS THAN 3.65 METER APART.
6. PROVIDE EXTRA REINFORCEMENTS FOR CORNER SLAB (TWO ADJACENT DISCONTINUOUS EDGES) AS SHOWN BELOW.
7. CONCRETE SLAB REINFORCEMENTS SHALL BE PROPERLY SUPPORTED WITH 10mm @ STEEL CHAIR OR APPROVED EQUIVALENT SPACED AT 1.0 METER ON CENTER BOTHWAYS.



TYPICAL CORNER SLAB DETAIL

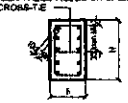


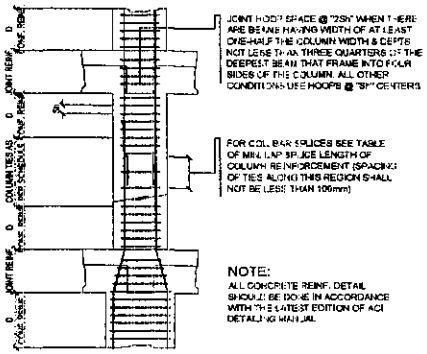
IN TWO WAY SLAB EXTEND BARS UP TO BEAM SUPPORT OVER TRIMMER BARS WHERE OPENING IS FRAMED BY BEAM

TYPICAL SLAB OPENING DETAIL

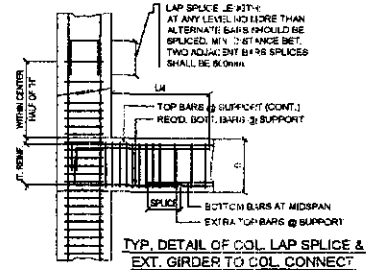
NOTES ON COLUMNS

1. PROVIDE EXTRA 9CTS OF TIES AT 100mm O.C. FOR TIED COLUMN REINFORCEMENT ABOVE AND BELOW BEAM-COLUMN CONNECTIONS FOR A DISTANCE FROM FACE OF CONNECTION EQUAL TO THE GREATER OF THE OVERALL THICKNESS OF COLUMN, 1/6 THE CLEAR HEIGHT OF COLUMN OR 450mm.
2. COLUMN TIES SHALL BE PROTECTED EVERYWHERE BY A COVERING OF CONCRETE CAST MONOLITHICALLY WITH THE CORE WITH THE MINIMUM THICKNESS OF 40mm AND NOT LESS THAN 40 TIMES THE MAXIMUM SIZE OF COARSE AGGREGATE IN MILLIMETERS.
3. WHERE COLUMNS CHANGE IN SIZE, VERTICAL REINFORCEMENTS SHALL BE OFFSET AT A SLOPE OF NOT MORE THAN 1 IN 6 AND EXTRA 10mm TIES AT 100mm SHALL BE PROVIDED THRU OUT THE OFFSET REGION.
4. UNLESS OTHERWISE INDICATED IN THE PLANS, LAP SPLICES FOR VERTICAL COLUMN REINFORCEMENTS SHALL BE MADE WITHIN THE CENTER HALF OF COLUMN HEIGHT, AND THE SPLICE LENGTH SHALL NOT BE LESS THAN 40 BAR DIAMETERS. WELDING OR APPROVED BARS ARE WELDED OR MECHANICALLY SPLICED AT ANY LEVEL AND THE VERTICAL DISTANCES BETWEEN THESE WELDS OR SPLICES OF ADJACENT BARS IS NOT LESS THAN 600mm.





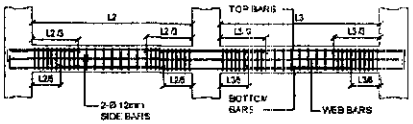
TYPICAL COLUMN ELEV. SHOWING DOWELS AND TIES SPACING



TYP. DETAIL OF COL. LAP SPLICE & EXT. GIRDER TO COL. CONNECT

NOTES ON BEAMS AND GIRDERS

1. UNLESS OTHERWISE NOTED IN PLANS, CAMBER ALL BEAMS AND GIRDERS AT LEAST 6mm@ FOR EVERY 4.50M OF SPAN, EXCEPT CANTILEVERS FOR WHICH THE CAMBER SHALL BE AS NOTED IN PLANS OR AS ORDERED BY THE ENGINEER BUT IN NO CASE LESS THAN 20mm FOR EVERY 3.0M OF FREE SPAN.
2. TYPICAL BARS BENDING AND CUTTING DETAILS SHALL BE AS SHOWN IN FIG. 5-A.
3. IF THE BEAM REINFORCING BARS END IN A WALL THE CLEAR DISTANCE FROM THE BAR TO THE FARTHER FACE OF THE WALL NOT BE LESS THAN 15mm. EMBEDMENT LENGTH SHALL BE AS SHOWN IN A TABLE "A" FOR TENSION BARS AND TABLE "B" FOR COMPRESSION BARS UNLESS SPECIFIED IN PLAN. TOP BAR SHALL NOT BE SPLICED WITHIN THE COLUMN OR WITHIN A DISTANCE TWICE THE MEMBER DEPTH FROM THE FACE OF THE COLUMN. AT LEAST TWO STIRRUPS SHALL BE PROVIDED AT ALL SPLICES.



PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST, PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE :	PROPOSED FIRING RANGE
LOCATION:	CGST, 56 M.L. QUEZON BLVD., LOWER BICUTAN, TAGUIG CITY
OWNER:	PHILIPPINE COAST GUARD

SHEET NO.

DRAWN BY:	CHECKED BY:	RECOMMENDED BY:	APPROVED BY:
Engr. Josephine Marie B. Trinidad CE Member, Civil / Structural Branch, CGIDS	LTJG CHRISTIAN U. MELON PCG Head, Plans and Programs, CGIDS	Engr. Hilario A. Adaya, REE Engineer IV, CGIDS	CDR FRANCISCO ACHILLES L. ACEDILLO PCG Commander, CGIDS

REVISION	DATE

GENERAL CONSTRUCTION NOTES

FIG. B-1

TABLE 'A'
TENSION BARS
EMBEDMENT LENGTHS AND LAPPED SPLICED IN MILLIMETERS

BAR SIZE (DEFORMED)	f'c = 20.7 MPa (3000psi)		f'c = 27.5 MPa (4000psi)	
	EMBEDMENT	LAPPED	EMBEDMENT	LAPPED
10mm Ø	300	300	300	300
12mm Ø	300	300	300	300
16mm Ø	300	400	300	400
20mm Ø	400	550	350	500
25mm Ø	600	800	550	750
28mm Ø	750	1300	650	850
32mm Ø	950	1300	850	1100

NOTE: TOP BAR, MULTIPLY VALUE BY 2

TABLE 'B'
COMPRESSION BARS
EMBEDMENT LENGTHS AND LAPPED SPLICED IN MILLIMETERS

BAR SIZE (DEFORMED)	f'c = 20.7 MPa (3000psi)		f'c = 27.5 MPa (4000psi)	
	EMBEDMENT	LAPPED	EMBEDMENT	LAPPED
10mm Ø	225	300	200	300
12mm Ø	275	300	250	300
16mm Ø	350	400	325	400
20mm Ø	450	500	475	500
25mm Ø	550	625	550	625
28mm Ø	625	675	625	675
32mm Ø	700	775	700	775

NOTE: TOP PLAIN BARS, MULTIPLY VALUE BY 2
VALUES GIVEN ABOVE CAN ALSO BE USED FOR COLUMNS

4. IF THERE ARE TWO OR MORE LAYERS OF REINFORCING BARS, USE 25mmØ BAR SEPARATORS SPACED AT 1.0M ON CENTERS. IN NO CASE SHALL THERE BE LESS THAN TWO (2) SEPARATORS BETWEEN TWO LAYERS OF BARS.
5. MINIMUM CONCRETE PROTECTION FOR REINFORCING BARS OR STEEL SHAPES SHALL BE AS SHOWN IN FIG. B-2 UNLESS SPECIFIED ELSEWHERE.

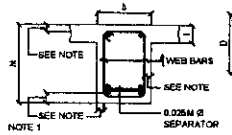
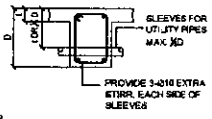


FIG. B-2



TYP. DET. FOR SLEEVES THRU CONCRETE BEAM

FIG. B-3

8. WHEN A BEAM CROSSES A GIRDER, REST BEAM ON TOP OF GIRDER BARS. BEAM REINFORCING BAR SHALL BE SYMMETRICAL ABOUT CENTER LINE WHENEVER POSSIBLE.
7. GENERALLY NO SPLICES SHALL BE PERMITTED AT POINTS WHERE CRITICAL BENDING STRESSES OCCUR. SPLICES WHERE SO PERMITTED SHALL BE INDICATED IN THE TABLE 'A' AND 'B'. WELDED SPLICES SHALL DEVELOP IN TENSION AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR, NOT MORE THAN 50% OF THE BARS AT ANY ONE SECTION IS ALLOWED TO BE SPLICED THEREIN.

NOTES ON CONCRETE HOLLOW BLOCK WALLS

1. UNLESS OTHERWISE SHOWN IN PLANS ALL CONCRETE HOLLOW BLOCKS AND CERAMIC BLOCKS SHALL BE REINFORCED AS SHOWN IN THE SCHEDULE OF CONCRETE HOLLOW BLOCKS AND CERAMIC BLOCK REINFORCEMENT.
2. PROVIDE 153mm x 306mm STIFFENER COLUMN REINFORCED WITH 4-12mm WITH 6mmØ TIES AT 150mm ON CENTER WHERE CONCRETE HOLLOW BLOCK TERMINATES AND AT EVERY 3.0m LENGTH OF CONCRETE HOLLOW BLOCK WALLS UNLESS NOTED IN STRUCTURAL PLANS.

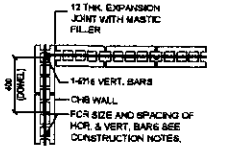
SCHEDULE OF CONCRETE HOLLOW BLOCK AND CERAMIC BLOCK REINFORCEMENT

BLOCK THICKNESS	REINFORCEMENT		NOTES
	HORIZONTAL	VERTICAL	
75 mm	10mmØ @ EVERY 3RD LEVEL	10mmØ @ 600mm O.C.	A. MINIMUM LAPS AT SPLICE = 0.25M B. PROVIDE RIGHT ANGLED REINFORCEMENT AT CORNERS 0.62M LONG C. WHERE CHB OR CER. BLK. WALL DOWELS JOIN COL., R.C. BEAMS AND WALL DOWELS WITH THE SAME SIZE AS VERT. OR HOR. REINFORCEMENTS SHALL BE PROVIDED
125 mm	10mmØ @ EVERY 3RD LEVEL	10mmØ @ 600mm O.C.	
150 mm	10mmØ @ EVERY 3RD LEVEL	10mmØ @ 600mm O.C.	
200 mm	12mmØ @ EVERY 3RD LEVEL	10mmØ @ 600mm O.C.	

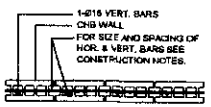
REINFORCING CONCRETE LINTEL BEAM IN CONCRETE BLOCK WALLS

LINTELS IN BLOCK WALLS

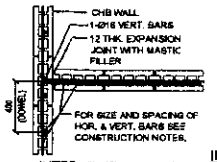
CLEAR SPAN (L')	TOTAL LENGTH (L+0.40m)	MIN. f'c' (MPa)	HEIGHT OF LINTEL (mm)	REINFORCEMENT		
				BOTTOM	TOP	STIRRUPS
1.20 m	1.60 m	14.0	200	1 - Ø10	1 - Ø10	Ø6mm @ 200mm
1.50 m	1.90 m		200	1 - Ø10	1 - Ø10	Ø6mm @ 200mm
1.80 m	2.20 m		200	1 - Ø10	1 - Ø10	Ø6mm @ 200mm
2.10 m	2.50 m	17.0	250	1 - Ø12	1 - Ø10	Ø6mm @ 200mm
2.40 m	2.90 m		250	1 - Ø12	1 - Ø10	Ø6mm @ 200mm
2.70 m	3.10 m		250	1 - Ø16	1 - Ø12	Ø10mm @ 200mm
3.00 m	3.40 m	20.0	300	1 - Ø16	1 - Ø12	Ø10mm @ 200mm
3.30 m	3.70 m		300	1 - Ø16	1 - Ø12	Ø10mm @ 200mm
3.60 m	4.00 m		300	1 - Ø20	1 - Ø12	Ø10mm @ 200mm



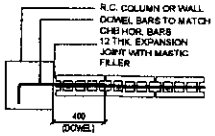
CORNER WALL



OPENING OR END WALL

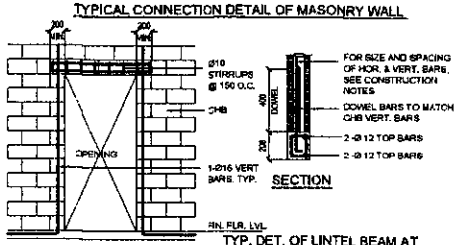


INTERSECTION WALL



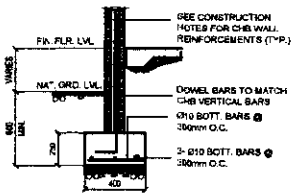
INTERSECTION R.C. COL. OR WALL

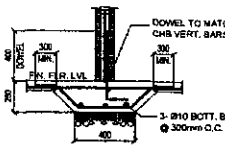
TYPICAL CONNECTION DETAIL OF MASONRY WALL

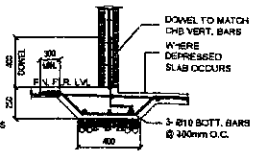


ELEVATION

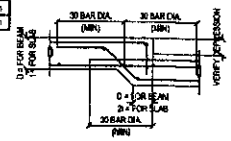
TYP. DET. OF LINTEL BEAM AT CHB WALL OPENING



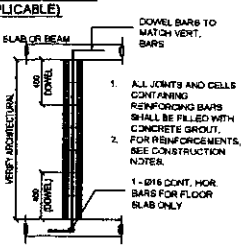




TYPICAL CHB FOOTING DETAILS (WHERE APPLICABLE)



TYPICAL DETAIL FOR BEAM OR SLAB CHANGE SOFFIT



TYP. SECTION OF MASONRY PARTITION REINFORCEMENTS

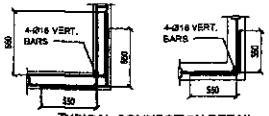
NOTES ON CONCRETE WALLS

1. ALL WALLS SHALL BE REINFORCED ACCORDING TO THE FOLLOWING SCHEDULE OF WALL REINFORCEMENT UNLESS OTHERWISE INDICATED IN THE PLANS.

WALL THICKNESS	REINFORCEMENT			VERTICAL SECTION
	HORIZONTAL	VERTICAL	REMARKS	
100mm	Ø10mm @ 250mm O.C.	Ø10mm @ 300mm O.C.	HORIZONTAL BARS AT CENTERS VERTICAL BARS STAGGERED OUT	VERT. BARS HORIZ. BARS
125mm	Ø10mm @ 300mm O.C.	Ø10mm @ 250mm O.C.		
150mm	Ø12mm @ 250mm O.C.	Ø12mm @ 300mm O.C.		

REINFORCING BARS SHALL HAVE 25mm CLEAR CONCRETE COVER FROM FACE OF WALL EXCEPT FOR WALLS IN CONTACT WITH THE GROUND WHERE A MINIMUM OF 50mm SHALL BE PROVIDED, AND FOR EXPOSED FACES OF FORMED WALLS WHERE THE MINIMUM SHALL BE 50mm CLEAR.

2. CARRY VERTICAL BARS AT LEAST 600mm ABOVE FLOOR LEVEL TO PROVIDE FOR SPLICES WHEN NECESSARY STOP AT 50mm BELOW TOP SLAB OR SOLID BAND WHERE THE WALL ENDS VERTICAL AND HORIZONTAL BARS SHALL BE SPLICED BY LAPPING A DISTANCE EQUAL TO 30 DIAMETERS AND WIRED SECURELY WITH 16 G.I. WIRE PROVIDED THAT SPLICES IN ADJACENT BARS ARE STAGGERED AT LEAST 1.50M O.C.
3. UNLESS OTHERWISE NOTED IN THE PLANS, ALL OPENINGS IN WALLS 250mm OR THICKER SHALL BE REINFORCED AROUND WITH 2-20mm Ø BARS FOR 225mm, 200mm, 175mm, 150mm, USE 2-16mmØ, FOR 125mm AND 100mm WALLS, USE 2-12mmØ BARS. ALL WALLS SPANNING SHALL HAVE VERTICAL REINFORCEMENT BENT TO A U-FORM LIKE STIRRUPS AND SPACED ACCORDING TO THE SCHEDULE UNLESS OTHERWISE NOTED (SEE FIG.1)



TYPICAL CONNECTION DETAIL OF R.C. WALL AT CORNERS

NOTES ON WELDS

1. USE E70xx ELECTRODES FOR ALL MEMBERS WELDED.
2. WELDS SHALL DEVELOP THE FULL STRENGTH OF MEMBERS JOINED UNLESS OTHERWISE SHOWN OR DETAILED IN THE DRAWINGS.

NOTES ON STRUCTURAL STEEL

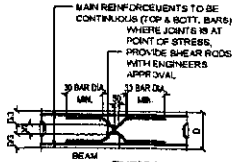
1. STRUCTURAL STEEL TO BE USED FOR FABRICATION AND ERECTION OF THIS STRUCTURE SHALL COMPLY WITH ALL THE PERTINENT PROVISION OF AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDING LATEST EDITION.
2. ALL STRUCTURAL STEEL SHAPES SHALL CONFORM TO ASTM A36 STRUCTURAL STEEL UNLESS OTHERWISE INDICATED.
3. ALL WELDED CONNECTIONS SHALL DEVELOP THE FULL STRENGTH OF THE MEMBERS CONNECTED.
4. UNLESS OTHERWISE SPECIFIED ALL WELDING RODS SHALL CONFORM AWS E70 ELECTRODES.
5. ALL BOLTS USED UNLESS OTHERWISE SPECIFIED SHALL BE ASTM A307 BOLT 3.

NOTES ON EMBEDDED PIPES

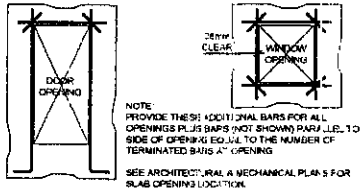
1. ALL EMBEDDED PIPES FOR UTILITIES, ETC. THAT PASS THRU BEAMS SHALL NOT EXCEED 100mm IN DIAMETER OR ¼ BEAM DEPTH WHICHEVER IS LESS, UNLESS OTHERWISE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
2. NO PIPES SHALL BE ALLOWED TO PASS THRU BEAM VERTICALLY.
3. NO PIPES SHALL BE EMBEDDED IN COLUMNS.

NOTES ON CONSTRUCTION JOINTS IN CONCRETE

1. WHERE A CONSTRUCTION JOINT IS TO BE MADE, THE SURFACE OF CONCRETE SHALL BE CLEANED AND ALL LAITANCE AND STANDING WATER REMOVED. SHEAR KEY SHALL BE PROVIDED AT THE JOINT.



TYPICAL SLAB & BEAM CONSTRUCTION JOINT DETAIL



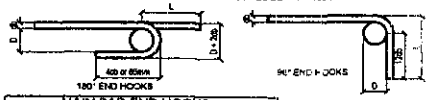
NOTE:
PROVIDE THESE ADDITIONAL BARS FOR ALL OPENINGS PLUS BARS (NOT SHOWN) PARALLEL TO SIDE OF OPENING EQUAL TO THE NUMBER OF TERMINATED BARS AT OPENING

SEE ARCHITECTURAL & MECHANICAL PLANS FOR SLAB OPENING LOCATION.

TYP. EXTERIOR WINDOW & DOOR OPENING

NOTES ON STIRRUPS

1. ALL REINFORCEMENT SHALL BE BENT COLD UNLESS OTHERWISE PERMITTED BY THE STRUCTURAL ENGINEER.
2. AS SHOWN IN THE DESIGN DRAWINGS OR PERMITTED BY THE STRUCTURAL ENGINEER. TIES & CLOSE STIRRUPS MUST BE BENT AT 135°.

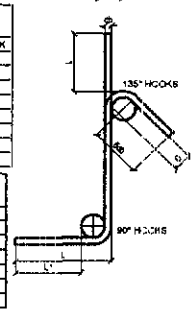


MAIN BAR END HOOKS (ALL GRADES)

BAR SIZE (DEFORMED)	DIAMETER (mm)	180° HOOK		90° HOOK
		D+2db	L	L
10mm Ø	80	75	125	150
12mm Ø	75	100	150	200
16mm Ø	95	125	175	250
20mm Ø	115	150	200	300
25mm Ø	150	200	250	450
28mm Ø	240	300	350	550
32mm Ø	300	335	450	600

STIRRUPS AND TIE HOOKS (ALL GRADES)

BAR SIZE (DEFORMED)	DIAMETER (mm)	135° HOOK		90° HOOK
		D+2db	L	L
10mm Ø	40	125	85	100
12mm Ø	50	165	115	115
16mm Ø	65	200	140	150
20mm Ø	115	250	165	300
28mm Ø	150	315	240	400



PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 SITIO ST. PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE : PROPOSED FIRING RANGE
LOCATION: CGBT, 56 M.L. QUEZON BLVD., LOWER BICUTAN, TAGUIG CITY
OWNER: PHILIPPINE COAST GUARD

SHEET NO.

DRAWN BY: Engr. Josephine Marie B Trinidad CE
Member, Civil / Structural Branch, CGIDS

CHECKED BY:

RECOMMENDED BY:

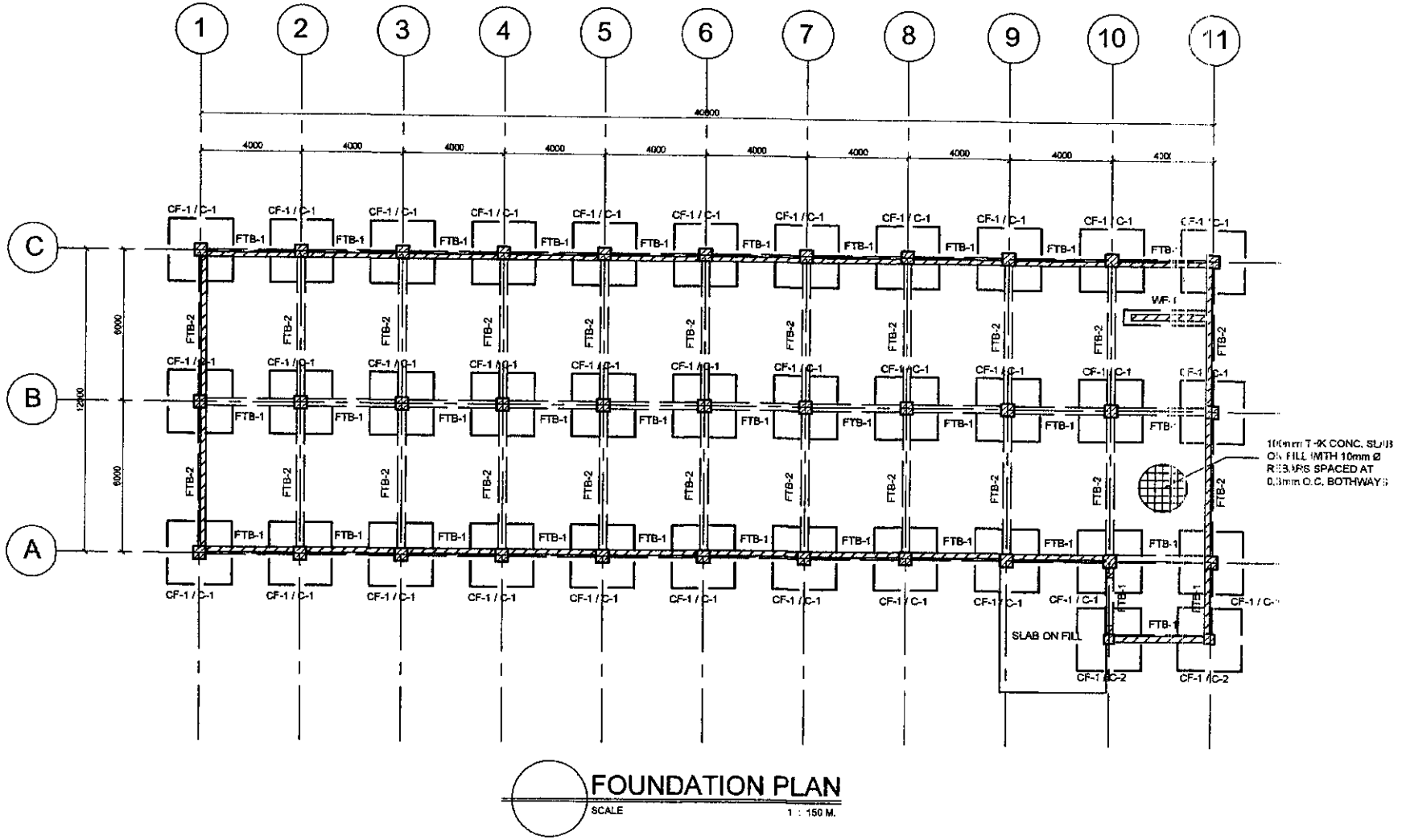
APPROVED BY:

REVISION	DATE

LTJG CHRISTIAN U MELON PCG
Head, Plans and Programs, CGIDS

Engr. Hilario A Adaya, REE
Engineer IV, CGIDS

CDR FRANCISCO ACHILLES L ACEDILLO PCG
Commander, CGIDS



FOUNDATION PLAN

SCALE 1 : 150 M.

PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST, PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

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OWNER:	PHILIPPINE COAST GUARD

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Engineer IV, CGIDS

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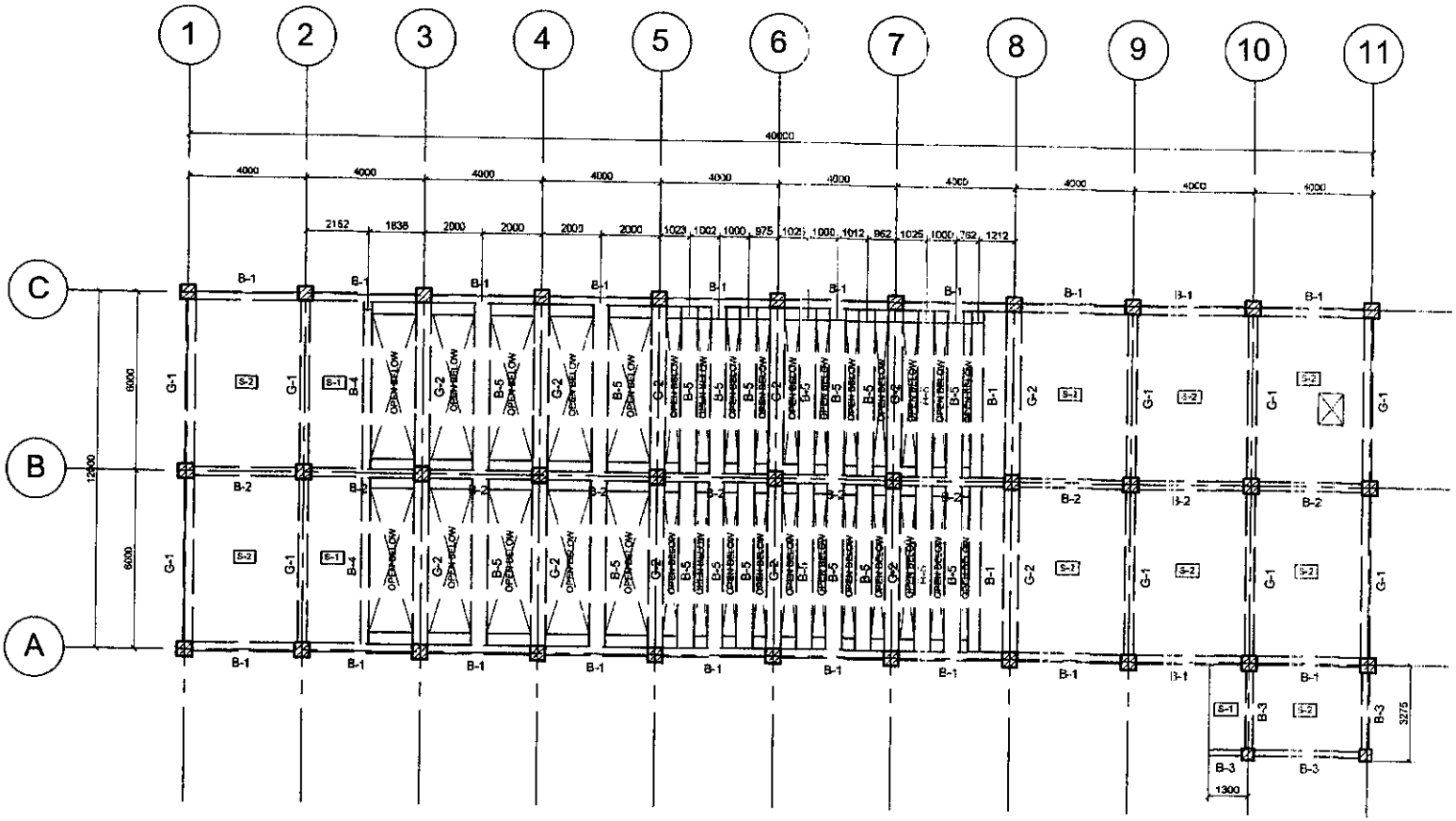
Commander, CGIDS



FLOOR DECK PLAN

SCALE 1 : 150 M.

PHILIPPINE COAST GUARD

HEADQUARTERS PHILIPPINE COAST GUARD
139 23TH ST. PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

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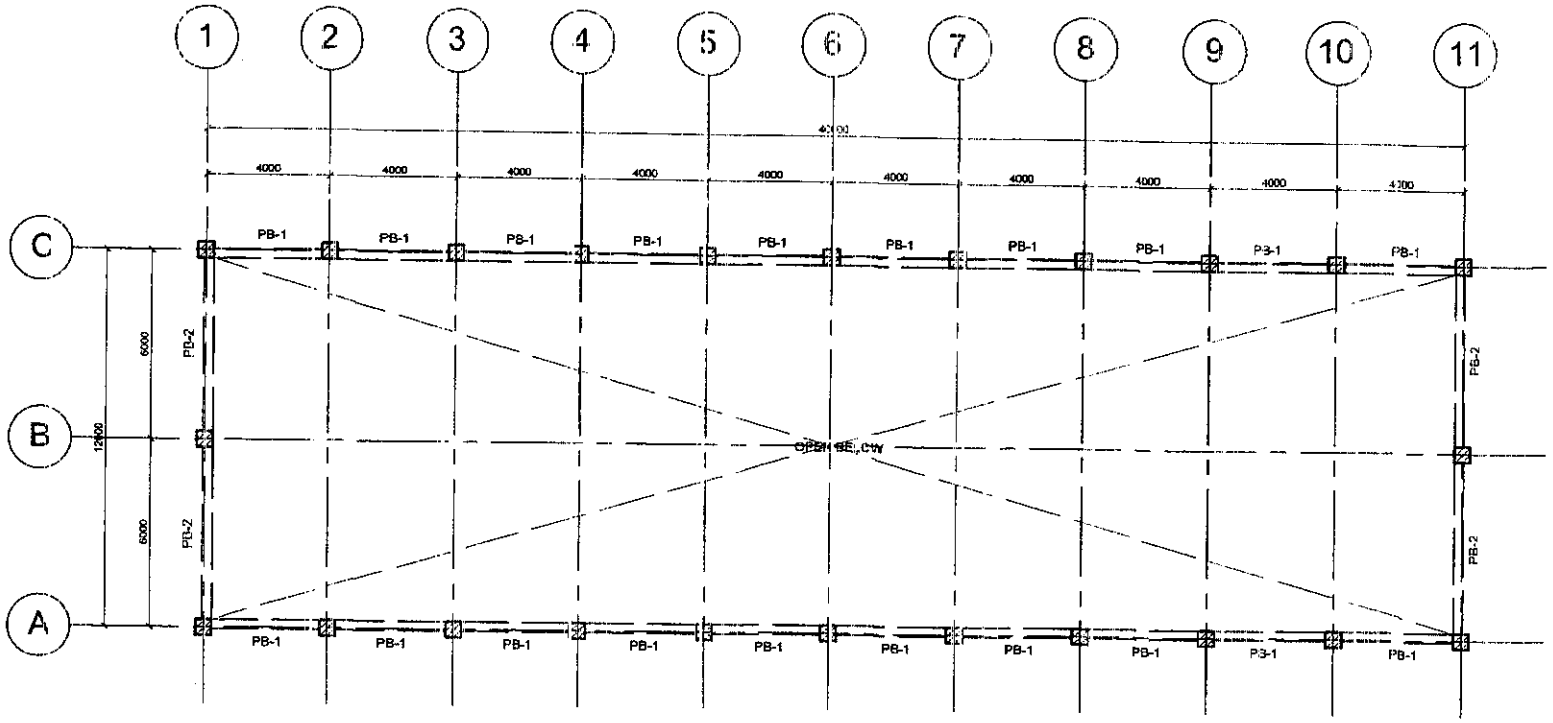
Member, Civil / Structural Branch, CGIDS

CHECKED BY: LTJG CHRISTIAN U MELON PCG
Head, Plans and Programs, CGIDS

RECOMMENDED BY: Engr. Hilario F. Adriya, REE
Engineer IV, CGIDS

APPROVED BY: COR FRANCISCO ACHILLES L ACEDILLO PCG
Commander, CGIDS

REVISION	DATE



PARAPET WALL PLAN

SCALE 1 : 150 M.

PHILIPPINE COAST GUARD
HEADQUARTERS PHILIPPINE COAST GUARD
139 25TH ST., PORT AREA MANILA

COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

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OWNER:	PHILIPPINE COAST GUARD
DRAWN BY:	Engr. Josephine Marie B Trinidad - DE Member, Civil / Structural Branch, CGIDS
CHECKED BY:	LTJG CHRISTIAN U MELON PCG Head, Plans and Programs, CGIDS
RECOMMENDED BY:	Engr. Hilario F. Adaya, REE Engineer IV, CGIDS
APPROVED BY:	CDR FRANCISCO ACHILLES L ACEDILLO PCG Commander, CGIDS
REVISION	DATE
SHEET NO.	

SCHEDULE OF BEAMS AND GIRDERS

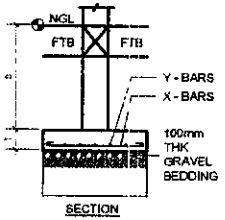
FLOOR LEVEL	MARK	SIZES (mm)		REINFORCEMENT BARS				WEB BARS	STIRRUPS SIZE AND SPACING	REMARKS
		BREADTH	DEPTH	SUPPORT		MIDSPAN				
		B	D	TOP	BOTTOM	TOP	BOTTOM			
FLOOR DECK LEVEL	B-1	300	450	3 - 25mmØ	4 - 16mmØ	4 - 16mmØ	3 - 25mmØ		10MM - 1@50, 10@100, REST @ 150mm O.C.	-
	B-2	300	450	4 - 25mmØ	4 - 16mmØ	4 - 16mmØ	4 - 25mmØ		10MM - 1@50, 10@100, REST @ 150mm O.C.	-
	B-3	250	400	3 - 16mmØ	2 - 16mmØ	2 - 16mmØ	3 - 16mmØ		10MM - 1@50, 10@100, REST @ 150mm O.C.	-
	B-4	300	450	3 - 16mmØ	3 - 16mmØ	3 - 16mmØ	3 - 16mmØ		10MM - 1@50, 10@100, REST @ 150mm O.C.	-
	B-5	550	550	4 - 16mmØ	4 - 16mmØ	4 - 16mmØ	4 - 16mmØ		10MM - 1@50, 10@100, REST @ 150mm O.C.	-
	G-1	300	450	4 - 25mmØ	3 - 25mmØ	3 - 25mmØ	4 - 25mmØ	2 - 16mmØ	10MM - 1@50, 10@100, REST @ 150mm O.C.	-
	G-2	500	500	5 - 20mmØ	4 - 20mmØ	4 - 20mmØ	5 - 20mmØ	2 - 16mmØ	10MM - 1@50, 10@100, REST @ 150mm O.C.	-
PARAPET WALL LEVEL	PB-1	300	450	3 - 16mmØ	3 - 16mmØ	3 - 16mmØ	3 - 16mmØ	2 - 16mmØ	10MM - 1@50, 10@100, REST @ 150mm O.C.	-
	PB-2	300	450	4 - 16mmØ	3 - 16mmØ	3 - 16mmØ	4 - 16mmØ	2 - 16mmØ	10MM - 1@50, 10@100, REST @ 150mm O.C.	-

SCHEDULE OF FOOTING TIE BEAM

FLOOR LEVEL	MARK	SIZES (mm)		REINFORCEMENT BARS				WEB BARS	STIRRUPS SIZE AND SPACING	REMARKS
		BREADTH	DEPTH	SUPPORT		MIDSPAN				
		B	D	TOP	BOTTOM	TOP	BOTTOM			
GROUND FLOOR LEVEL	FTB-1	300	500	5 - 25mmØ	3 - 20mmØ	3 - 20mmØ	5 - 20mmØ	-	10MM - 1@50, 10@100, REST @ 150mm O.C.	-
	FTB-2	300	500	5 - 25mmØ	4 - 25mmØ	4 - 25mmØ	5 - 25mmØ	-	10MM - 1@50, 10@100, REST @ 150mm O.C.	-

SCHEDULE OF SLABS

MARK	THICKNESS	REINFORCING BARS		REMARKS
		PARALLEL TO LONG SPAN	PARALLEL TO SHORT SPAN	
S-1	125mm + FIN.	10mm Ø TEMPERATURE BARS @ 150mm O.C.	10mm Ø @ 150mm O.C. BENT-UP 2 OUT OF 3 @ L/4 FROM FACE OF SUPPORT	ONE-WAY
S-2	125mm + FIN.	12mm Ø @ 130mm O.C. BENT-UP 2 OUT OF 3 @ L/4 FROM FACE OF SUPPORT	10mm Ø @ 130mm O.C. BENT-UP 2 OUT OF 3 @ L/4 FROM FACE OF SUPPORT	TWO-WAY



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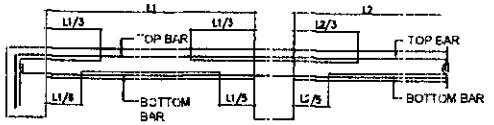
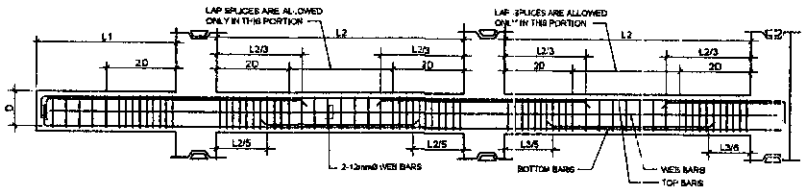
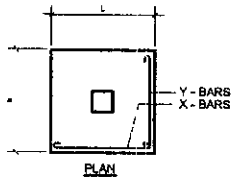


TYPICAL SLAB ELEVATION
SCALE NTS



TYPICAL BEAM ELEVATION
SCALE NTS



PLAN

COLUMN FOOTING DETAILS
SCALE NTS

FOOTING SCHEDULE

MARK	DIMENSIONS		THICKNESS (T)	DEPTH (D)	REINFORCEMENTS	
	WIDTH	LENGTH			X-BARS	Y-BARS
CF-1	2500mm	2500mm	300mm	1500mm	8 - 16mm Ø	8 - 16mm Ø

PHILIPPINE COAST GUARD
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COAST GUARD INFRASTRUCTURE DEVELOPMENT SERVICE

PROJECT TITLE : PROPOSED FIRING RANGE
LOCATION: CGBT, 56 M.L. QUEZON BLVD.,LOWER BICUTAN, TAGUIG CITY
OWNER: PHILIPPINE COAST GUARD

SHEET NO.

DRAWN BY: Engr. Josephine Marie B Trinidad CE
Member, Civil / Structural Branch, CGIDS

REVISION | DATE

CHECKED BY: LTJG CHRISTIAN U MELON PCG
Head, Plans and Programs, CGIDS

RECOMMENDED BY: Engr. Hilario A Adaya, REE
Engineer IV, CGIDS

APPROVED BY: CDR FRANCISCO ACHILLES L ACEDILLO PCG
Commander, CGIDS

Name of Project: Pre-Construction Meeting

Minutes of the Meeting

1	**MEETING:**		
2	**DATE/TIME:**	00 0000H Month Year.	
3	**PRESIDING OFFICER:**	Deputy Commander,CGIDS	
4	**ATTENDEES**		
5	**SUMMARY OF DISCUSSIONS**		
6	**TOPIC**	**DISCUSSIONS**	**RESOLUTIONS/ ACTION TO BE TAKEN**
7 8 9 10 11 12 13 14 15 16 17	**Agenda:** Construction of A. Presentation of Scope of Works B. Action Items		
18 19	Adjournment	Meeting adjourned at 00 0000H Month Year.	

Prepared by:

_____

Records Officer, Project Performance and Eval. Div

Noted by:

_____

Deputy, CGIDS