



PROJECT TITLE : Design, Detailed Engineering and Construction of Fleurdelis Green Heights I

LOCATION : Km. 6, Brgy. Baan, Butuan City, Philippines

SCOPE OF WORKS

September.10.2012 edition

SECTION 1. GENERAL SCOPE

Design and Detailed Engineering

The initial works shall be design and detailed engineering of road works, construction of residential units, the Community Facilities to include the Club House, Swimming Pool, Playground, Chapel, parking spaces, roads and alleys, water works, waste water treatment and recycling plant, other amenities. The scope includes the detailed plans, comprehensive bill of quantities. The final report will be reviewed and approved by the Company Project Engineer.

Phase I

Phase I includes the immediate partial clearing of roads (to allow a two lane traffic) and allow the earthmoving for laying of sewer pipes, sewage / septage pipes, underdrains and recycled water pipes by the Environmental Contractor from Canada and to provide the passes for the general civil works contractor to undertake the construction of more or less 621 units of class A, B and CD (socialized housing) residences. Ten (10) model houses will be constructed simultaneously with the Road Works.

Together and simultaneous with the Environmental Contract is the contract to roll out telecom and datacom lines side by side or parallel with the water system lines.

Passable Roads

From Km 0 (Butuan City proper) to Km 6 (Barangay Baan, Butuan City), from Km. 6 to Km. 7 and onwards, roads are passable to vehicles with exception of any critical sections (if any occurring) where we allow only one lane traffic.

Construction of Bridge, Construction of 2nd Road and Alleys

Approaches and new bridge - Tumanpit Bridge (Km 6) Barangay Baan, Butuan City. The construction of the second road inside the project site will be undertaken and the alleys between the two parallel roads in simultaneous works.

These road works and building of the bridge will go hand in hand with the Environmental Contractor's earthmoving schedule. The laying of pipes and drains, installing of water tanks underneath the road and sidewalks / easements, will be undertaken in coordination with road construction works.

Construction of Structure and Sub-Structures

One (1) crane is needed in Tumampit River, Barangay Baan so that work can be done to accomplish the construction of the Bridge (top priority) because detour is not feasible due to wide river banks and deeper water.

Preparatory Clearing

Clearing of the front will be undertaken for passage into the residential housing construction site.

The clearing and construction of the entire road works together with the installation of underground pipes and underdrains shall not be more than 100 days. For any changes in schedules, the

Phase II

Phase II includes the full function construction of residences and other structures within the Fleurdellis Green Heights residential area. The construction in this phase is determined to be completed in not more than ten months or 300 days.

Rehabilitation/Improvements

Some of the critical section like bridge approaches and road slips with any collapsed slope protection unit at sections within and inside the property line area will be taken care in the initial phase.

Clearing of Roads, Pathways

Priority is given to Km. 6, Baan, Butuan City covering all roads leading to the center and all other parts of the property wherein which will be built the multipurpose hall and a portion to will serve as church/chapel, market or commercial shopping building, approach to bridge, school and such other business establishments so that business and commerce will start to flow once the village is lived in. The works are being undertaken by the General Contractor with the direction of CyberparkHoldings Inc.

Construction of Residential Units

Ten (10) model units will have been completed at this time. The subsequent construction activity will be for six hundred and eighteen (611) residential units with the following configuration:

RESIDENTIAL HOUSES

Fleurdelis Green Heights Village I(A), I(B), I(C) Total Stand Alone and Combined

Fleurdelis Village II (individual pre owned units)

Villas, 134 Units - 300 sqm/unit

Median Class, 180 Units at 150 sqm/unit

Social Housing, 90 Units at 75 sqm/unit

Social Housing, 187 Units at 75 sqm/unit

Social Housing, 30 Units @150 sqm/unit

Total number of residential units for FGH I(A), I(B), I(C) -- 621 Units

COMMUNITY FACILITIES

Community facilities will include the Club House, Swimming Pool, Playground, Chapel, parking spaces, roads and alleys, water works, waste water treatment and recycling plant, other amenities.

School Buildings

The construction of school buildings will be done by the General Contractor in coordination with the Department of Education and the Department of Public Works and Highways for documentary purposes.

Water Supply

The water will be undertaken with the Provincial Government / City Government Water District.

Subcontractor

The group of subcontractors with complete manpower and equipment shall assist the General Contractor of CyberparkHoldings Inc. in the completion of road works and construction of 621 residential units, water system installations and clearing of the site for the village amenities – shopping center and commercial space buildings.

Funding

To continue the initial funding extended to seventy nine (79) beneficiaries of lot (and house) package, the PAG-IBIG Fund is being requested for a Stand By Letter of Credit (SBLC) for funding by members of the Bankers' Association of the Philippines (BAP) of an initial One Hundred to Five Hundred Million Philippine Pesos. This covers the purchase of house and lot package for more than three hundred (300++) beneficiaries of the socialized housing units to be built in the site and subsequently an additional four hundred (400) beneficiaries as well as finally three hundred (300) other beneficiaries to be provided house and lot packages in the succeeding construction phases of the project in the same vicinity. A total of over one thousand social housing units will be funded by the PAG-IBIG Fund under the Fleurdelis Green Heights Village I, II and III construction activity.

ECL Banking of Auckland, New Zealand pledged initial acquisition funds for the project amounting to the equivalent of USD10 Million. In several phases of the construction of Fleurdelis Green Heights (FGH I, II, III) in Butuan City and in Baler, Aurora Province the subsequent construction of White Wave Resorts as well as in Batangas Province, the construction of Liberty Hills Residences and Resorts, CCAP Investments will provide on progressive drawdown basis a total nominal investment of USD200-Million through its issuing bank, the Union Bank Suisse (UBS) Branch in London, U.K.

SCOPE OF WORK

SECTION 2. ROAD WORKS

The construction procedures shall be done in accordance with the Company Standard Specifications 2012, and in full compliance with the approved plans and specifications.

Pertinent notes appearing in the Contract Plans or Drawings shall also be considered as part and parcel of the technical specifications. Such notes shall take precedence over the General Specifications.

The road network construction consists of completion of construction of one main road and additional secondary roads and / or alley comprising a total of 27,297 square meters.

The job order and funding for the construction of the road network shall be separate from the scope of construction of residential units but will be co-mingled and interfaced with the job order and scope of works of the Environmental Contractor from Canada.

Part – A – FACILITIES FOR THE ENGINEER A(8) Progress Photographs

The Contractor shall provide progress photographs taken as, when and where directed by the Company Project Engineer at intervals of not more than one month. The photographs shall be sufficient in number and location to record the exact progress of the Works.

The Contractor shall provide one proof print of each photograph taken, and the negative and ten copies, not less than 254 mm x 203 mm and printed on glossy paper, of any of the photographs selected as progress photographs by the Company Project Engineer.

The photographs retained by the Company Project Engineer will become the property of the Government and the Contractor shall supply approved albums to accommodate them. Two copies are to be signed by the Contractor, one of which will be signed by the Company Project Engineer and returned to the Contractor.

The quantities for progress photographs shall be the number of photographs selected and provided as progress photographs. The unit of measure is 'each'.

Part – B – OTHER GENERAL REQUIREMENT

Traffic Control

The Contractor shall furnish and install and maintain at all times during the duration of the Contract, at his own expense, necessary traffic signs, barricades, lights, signals and other traffic control devices and shall include flagging and other means for guidance of traffic thru the work zone.

Traffic control shall be done in accordance with prevailing government rules and regulations and with the design details included in the Plans where applicable.

Survey / Setting Out

The Contractor shall set out the Works in relation to survey stations, markers, reference pegs and bench marks which have been established. Importance is attached to these stations and the Contractor shall safeguard and protect them from harm or loss at all times until completion of the Works.

The Contractor shall be responsible for the re-establishment of any that have to be moved and for the establishment of any further survey stations, markers, reference pegs, and bench marks as are necessary for the proper setting out and control of the Works.

Stations and bench marks established by the Contractor shall be made of steel pins, 450 mm long and 12 mm diameter, set 12 mm in-situ Class B concrete blocks cast 0.25 m into the ground and at least 0.25 inch diameter. The stationing shall be scratched or clearly marked to the satisfaction of the Company Project Engineer.

In carrying out this task the Contractor shall provide at his own cost a minimum Surveying/leveling equipment and the required personnel to adequately run the surveys work. Should the Contractor discover any error in the line or level in the basic setting out, he shall at once notify the Company Project Engineer who will then issue amended drawings or instructions regarding the correction of the error.

Field Office / Temporary Shelter

The Contractor shall also provide at his own cost a field office/temporary shelter. The location dimensions and layout of such buildings and places shall be subject to the approval of the Company Project Engineer. The Contractor shall not be permitted to erect temporary buildings or structures on the site without the specific permission in writing of the Company Project Engineer including approval of the dimensions of such buildings or structures.

Pay items shall not be provided for works under Part B – Other General

Requirements. Payment for them shall be deemed to be included in the pay items for other works.

PART - C – EARTHWORKS

101(2), 101(3),101(3)A 101(4) Removal of Structures and Obstructions (Area lighting Pole, Chipping of PCCP, Sidewalk, Curb & Gutter, Lined Canal and Slope Protection, Extg. Asphalt)

Removal of existing structures, such as PCCP, curb and gutter, sidewalk, concrete manhole, and other obstruction shall be carefully done with appropriate equipment so as to avoid peripheral damaged. Excess excavated materials, and concrete debris shall be disposed-off properly at location approved by the Company Project Engineer.

In the case where the Company Project Engineer instructed the Contractor to cut or remove existing facilities, or parts thereof, such as sewers, drains, water service, gas supply or other utility lines, the Contractor shall provide and maintain satisfactory bypass service and/or protection during the construction period. When only a portion of an existing structure is to be removed, care shall be taken not to damage the retained portion. During demolition work, if any, the Contractor shall ensure the safety of his work and the general public.

All materials having salvage value shall be carefully removed to avoid damage and shall be placed in neat piles at the locations to be determined by the Company Project Engineer within the construction site. If so provided or directed by the Company Project Engineer, approved salvaged materials shall be used in the new work, with corresponding adjustment in cost.

All demolished materials not intended for reuse shall be removed or deposited at a site or hauled to a disposal area designated by the Company Project Engineer.

All other structures to be removed aside from mentioned within the limits of construction as indicated on the Drawings or as directed by the Company Project Engineer, which obstruct or interfere with the prosecution of the works, shall be removed, reinstalled, hauled and stockpiled as the case maybe in accordance with this Specification or as directed by the Company Project Engineer

102(2) Surplus Common Excavation

All excavation shall conformed to the lines, and grades shown on the approved Plans or established by the Company Project Engineer. It shall be finished to reasonably smooth and uniform surfaces and no materials

shall be wasted without authority of the Company Project Engineer.

Excavation operations shall be conducted so that materials outside of the limits will not be disturbed. All suitable materials removed from excavation shall be used in the formation of the embankment, subgrade, slopes, backfill for structures, and for other purposes.

103(1) Structure Excavation (including Pipe Culvert and Drain excavation)

This item shall consist of the necessary excavation for foundation of culverts and / or HDPE pipes, underdrain, and other structures not otherwise provided for in the Specifications. Except as otherwise provided for pipe culverts and / or HDPE pipes, the backfilling of completed structures and the disposal of all excavated surplus materials, shall be in accordance with these Specifications and in reasonably close conformity with the Plans or as established by the Company Project Engineer.

This item shall also include necessary diverting of live streams, bailing, pumping, draining, sheeting, bracing, and the placing of all necessary backfill.

Prior to starting excavation operations in any area, all necessary clearing and grubbing in that area shall have been performed in accordance with item 100, Clearing and Grubbing.

Trenches or foundation pits for structures or structure footings shall be excavated to the lines and grades or elevations shown on the approved plan or as staked by the Company Project Engineer. They shall be of sufficient size to permit the placing of structures or structure footings of the full width and length shown. Any excavation carried beyond the limits shown or described on the drawings or specifications or beyond the dimension resulting from adjustments made by the Company Project Engineer shall be backfilled with materials acceptable and as directed by the Company Project Engineer.

The volume of excavation to be paid for will be the number of cubic meters measured in original position of material acceptably excavated in conformity with the plans or as directed by the Company Project Engineer.

104(1) Embankment from Roadway Excavation

This item shall consist of the construction of embankment in accordance with this specification and in conformity with the lines, grades and dimensions shown on the plans or established by the Company Project Engineer. Embankment shall be constructed of suitable in place and accepted by the Company Project Engineer.

105(1) Subgrade Preparation

Prior to commencing preparation of the subgrade, all drainage structures, inlets, manholes drains and drainage outlet shall be completed. Any work on the preparation of the subgrade shall not be started unless prior work herein described shall have been approved by the Company Project Engineer.

After embankment has been completed, the full width shall be conditioned by removing any soft or other unstable material that will not compacted properly. The entire roadbed shall be shaped and compacted to the requirements of Subsection 104.3.3 (compaction) of Company standard.

PART – D - SUBBASE AND BASE COURSE

Item 202 Crushed Aggregate Base course

Materials

It shall consist of hard, durable particles or fragments of stone or gravel crushed to the size and of the quantity requirements of this item. It shall be free from vegetable matters, lumps or balls of clay and other deleterious substances, The material shall be of such nature that it can compacted readily to form a firm, stable base. The base material shall conform to the grading requirements of Table 202.1 Grading Requirements of Company Standard 2012.

Spreading and Compacting

The crushed aggregate material shall be placed at a uniform mixture on prepared subbase in a quantity which will provide the required compacted thickness. Maximum compaction thickness shall not exceed 150mm. all subsequent layers shall be spread and compacted in a similar manner. The moisture content of the material shall, if necessary be adjusted prior to compaction by watering with approved sprinklers mounted on trucks or by drying out as required in order to obtain the required compaction.

Compaction of each layer shall continue until a field density of at least 100 percent of the maximum dry density determined in accordance with AASHTO T 180, Method D has been achieved. In-place density determination shall be made in accordance with AASTHO 191.

PART – E - SURFACE COURSES

Item 311(1) Portland Cement Concrete Pavement

Materials

Portland cement shall conform to the requirements of Item 700, Hydraulic cement. Only Type I Cement shall be used unless otherwise provided for in special Provisions. Different brands or same brands from different mills shall not be mixed nor shall they be used alternatively unless the mix is approved by the Company Project Engineer. Cement which for any reason, has become partially set or which contains lumps of caked cement will be rejected. Cement salvaged from discard or used bags shall not be used.

Proportioning, Consistency and Strength of Concrete

The contractor shall prepare the design mix based on the absolute volume method as outlined in the American Concrete Institute (ACI) Standard 211.1 "Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete".

It is the intent of this Specification to require at least 364 kg of cement per cubic meter of concrete to meet the minimum strength requirements. The Company Project Engineer shall determine from laboratory tests of all the materials to be used, the cement content and the proportions of aggregate and water that will produce workable concrete having a slump of between 40 and 75 mm (1/2 1-1/2 inches) if not vibrated, and a flexural strength of not less than 3.8 MPa (550 psi) when tested by the mid-point method at fourteen (14) days in accordance with AASHTO T97 and T177, respectively: or a compressive strength of 24.1 Mpa (3500 psi) for cores taken at fourteen (14) days and tested in accordance with AASHTO T24

Slump shall determined using AASHTO T 119.

Water used in mixing, curing or other designated application shall be reasonably clean and free from oil, salt, alkali, grass or other substances injurious to the finished product. Water shall be tested in accordance with and shall meet the requirements of item 714, water. Water which is drinkable may be used without test. Where the source of water is shallow, the intake shall be so enclosed so as to exclude silt, mud grass or other foreign materials.

Joint fillers

Poured joint fillers shall be mixed asphalt and mineral conforming to the applicable to the requirements of Item 705, Joint Materials.

Paving and Finishing Equipment

The concrete shall be placed with an approved paver designed to spread, consolidate, screed and float finish the freshly placed concrete in one

complete pass of the machine in such a manner that a minimum of hand finishing will be necessary to provide a dense and homogeneous pavement on conformance with the Plans and Specifications. The finishing machine shall be equipped with at least two (2) oscillating type transverse screed.

Vibrators shall operate at a frequency of 8,300 to 9,600 impulses per minute under load at a maximum spacing of 60 cm.

Concrete Saw

The Contractor shall provide sawing equipment in adequate number of units and power to compete the sawing with the water-cooled diamond edge saw blade or an abrasive wheel to the required dimensions and at the required rate. He shall provide at least one (1) stand-by saw in good working condition and with an ample supply of saw blades.

Forms

Forms shall be of steel, of an approved section, and of depth equal to the thickness of the pavement edge. The base of the forms shall be sufficient width to provide necessary stability in all directions. The flange braces must extend outward on the base to not less than 2/3 the height of the form. All forms shall be rigidly supported on bed of thoroughly compacted material during the entire operation of placing and finishing of concrete. Forms shall be provided with adequate devices for secure setting so that when in place, they will withstand, without visible spring or settlement, the impact and vibration of the consolidation and finishing or paving equipment.

Weakened Plane Joint

When shown on plans, it shall consist of planes of weakness created by forming or cutting grooves in the surface of the pavement and shall include load transfer assemblies. The depth of the weakened plane joint should at all times not be less than 50mm, while the width should not be more than 6 mm.

PART – F - BRIDGE CONSTRUCTION Item 404 Reinforcing Steel

Placing of steel reinforcement shall be in accordance with the Specification and in conformity with the requirements shown on the Approved Plans or as directed by the Company Project Engineer. Steel reinforcement shall be deformed bars with a minimum tensile strength of 40,000 psi.

Steel reinforcement shall be stored above the surface of the ground

upon platforms, skids, or other supports and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust. When placed in the work, reinforcement shall be free from dirt, detrimental rust, loose scale, paint, grease, oil or other foreign materials.

All reinforcing bars requiring bending shall be cold bent to the shapes shown on the Plans or required by the Company Project Engineer. It shall be accurately placed in the position shown on the Plans or required by the Company Project Engineer and firmly held there during the placing and setting of the concrete. Bars shall be tied at all intersections except where splicing is less than 300mm in each direction, in which case, alternate intersections shall be tied. Ties shall be fastened on the inside. Reinforcement in any member shall be placed and then inspected and approved by the Company Project Engineer before placing of concrete begins. Concrete placed in violation of this provision may be rejected and removal may be required.

All reinforcement shall be furnished in the full lengths indicated on the approved Plans. Splicing of bars, except where shown on the Plans, will not be permitted without the written approval of the Company Project Engineer. Splices shall be staggered as far as possible and with a minimum separation of not less than 40 bar diameter. Not more than one-third of the bars may be spliced in the same cross-section. Except where shown on the Plans.

Item 405(1)a Structural Concrete class "A" (including falsework)

Furnishing, placing and finishing of concrete shall conform to the specifications and in accordance with the lines, grades and dimensions shown on the approved Plans.

The concrete materials shall be proportioned in accordance with the requirements for each class of concrete as specified in Table 405.2 (3,000 psi min. compressive strength for class "A" concrete) Composition and Strength of Concrete for Use in Structures of Company Standard Specifications 2012.

Concrete shall have a consistency such that it will be workable in the required position. It shall be of such a consistency that it will flow around reinforcing steel but individual particles of the coarse aggregate when isolated shall show a coating of mortar containing its appropriate amount of sand.

Part – G - DRAINAGE AND SLOPE PROTECTION STRUCTURE

Item 500(1)a, 500(1)b, 500(1) Pipe Culvert 610, 910 & 1500 mm

dia. Class "B"

Reinforced Concrete Pipe Culvert shall meet the requirements in the following specifications.

Crushing Strength –D load= to produce 0.25 mm crack

47.9 N/L.M per mm diameter (min.)

ULTIMATE LOAD= 71.8 N/L.M. per mm diameter (min.)

Joint Mortar for concrete pipes shall consist of 1 part , by volume of Portland Cement and two (2) parts of approved sand with water as necessary to obtain the required consistency.

Portland Cement and sand shall conform to the requirements of item 405, Structural Concrete, Mortar shall be used within 30 minutes after its preparation.

The bedding shall conform to one of the classes specified.

Class B bedding shall consist of bedding the conduit to a depth of not than 30 percent of the vertical outside diameter of the conduit. The minimum thickness of bedding material beneath the pipe shall be 100 mm. The bedding material shall be sand or selected soil all of which passes a 9.5 mm sieve and not more than 10 percent of which passes a 0.075 mm sieve. The layer of the bedding material shall be shaped to fit the conduit.

The conduit laying shall begin at the downstream end of the conduit line. The lower segment of the conduit shall be in contact with the shaped bedding throughout its full length.

Materials for backfilling on each side of the conduit for the full trench width and to an elevation of not less than 300 mm above the top the conduit shall be fine, readily compactible soil or granular material selected from excavation or from source of the contractors choice.

Item 502(1)a, 502(1)b, 502(1)c Manhole for 610, 910 & 1500 mm dia. RCP

This item shall consist of the construction of Manhole, in accordance with this Specification and in reasonably close conformity with the dimension, section and elevation shown on the Plans or as established by the Company Project Engineer.

Concrete for these structures shall meet the requirements of Item 405, Structural Concrete of Company Standard Specification 2012 edition.

Reinforcement shall be deformed bars cold-bent to the shapes and accurately placed in position and firmly held there during placing and setting of the concrete. They shall be free from rust, injurious defects such as cracks and laminations. Reinforcement shall be placed and then inspected and approved before placing of concrete begins. Steel reinforcement shall conform to the requirements of item 404 (Reinforcing Steel).

Part – H – MISCELLANEOUS

Item 413 Pre-formed Joint Filler

Pre-formed joint fillers shall conform to the requirements of AASTHO M 33 (ASTM D 994), AASTHO M 153, AASTHO M 213, AASTHO M 220, as specified, and shall be punched to admit the dowels where called for on the Plans, The Joint filler shall be furnished in a single piece for the depth and width required for the joint unless otherwise specified by the Company Project Engineer. When use of more than one piece is authorized for a joint, the abutting ends shall be fastened securely and held accurately to shape, by using stapling or other positive fastening satisfactory to the Company Project Engineer.

600(3) Combination of Curb and gutter (cast in place)

Concrete Curb combination of Curb and gutter shall conform to the dimension, section on the approved Plan, In case of discrepancy actual site condition shall govern over drawing. Cement concrete shall be Class "A" as specified in Item 405, Structural Concrete. Excavation shall be made to the required depth and the base upon which the curb and/or gutter is to be set shall be compacted to firm and even surface. All soft and unsuitable material shall be removed and replace with suitable material.

Base course material shall be placed and compacted to form a bed of the required thickness as shown on the Plans.

Forms shall conform to the requirements of Item 407, Concrete Structures, Metal forms shall be of an approved section.

Forms for at least 50 m of curb and gutter shall be in-placed and checked for alignment and grade before concrete is placed. Curbs and gutters constructed on curves shall have forms of either wood or metal and they shall be accurately shaped to the curvature shown on the Plans. Mixing, placing and curing of concrete shall conform to the requirements of item 405, Structural Concrete.

Item 601 Concrete Sidewalk

Sidewalk shall conform to the dimension and thickness of the approved Plan. Cement concrete shall be Class "A" as specified in Item 405, Structural Concrete. The bed course shall be compacted earth material.

The area to be paid for shall be the number of square meters of the sidewalk measured, completed in-place and accepted.

Item 606(2) - Reflectorized Thermoplastic Pavement Markings

Preparation of Road Surface

The materials should be applied only on the surface which is clean and dry. It shall not be laid into loose detritus, mud or similar extraneous matter, or over an old paint marking, or over an old thermoplastic marking which is faulty. In the case of smooth, polished surface stones such as smooth concrete, old asphalt surfacing with smooth polished surface stones and/or where the method of application of the manufacturer of the thermoplastic materials shall be recommended shall be with the approval of the Company Project Engineer.

Preparation of Thermoplastic Materials

The materials shall be melted in accordance with the manufacturer's instruction in a heater fitted with a mechanical stirrer to give a smooth consistency to the thermoplastic and such the local overheating shall be avoided. The temperature of the mass shall be within the range specified by the manufacturer and shall on no account be allowed to exceed the maximum temperature stated by the manufacturer. The molten material shall be used as expeditiously as possible and for thermoplastics which have natural resin binders or otherwise sensitive to prolong heating the materials shall not be maintained in a molten condition for more than 4 hours.

Laying

Center lines, lane lines and edges shall be applied by approved mechanical means and shall be laid to regular alignment. Other markings may be applied by hand-screed, hand propelled machine or by self-propelled machine approved or directed by the Company Project Engineer. After transfer to the laying apparatus the materials shall be maintained within the temperature range specified by the manufacturer and stirred to maintain the right consistency for laying.

In the case of screen application the material shall be laid to a thickness of not less than 3mm (approx. 1/8 inch) or more than 6mm (1/4 inch)

unless specifically authorized by the Company Project Engineer when laid over an existing marking. In the case of sprayed application the material shall be laid to the thickness of not less than 1.5 mm unless specifically authorized by the Company Project Engineer. In all cases the surface produced shall be uniform and appreciably free from bubbles and steaks.

Where the Contractor Documents require or Company Project Engineer direct that ballotini shall be applied to the surface of the markings, these shall be applied uniformly to the surface of hot thermoplastic immediately after laying such that the quality of ballotini firmly embedded and retained in the surface after completion complies with the requirements of Sub-item 606.2.2 of the Company Standard Specifications.

Road markings of a repetitive nature, other center lines, lane lines, etc. shall unless otherwise directed by the Company Project Engineer be set out with stencils which comply with the size and spacing requirements shown on the Drawings.

Re-use of Thermoplastic Materials – At the end of the day as much as possible, the remaining material in the heater and/or laying apparatus shall be removed. This may be broken and use again provided that the maximum heating temperature has not been exceeded and such re-using of material shall be approved by the Company Project Engineer.

Part – I –STREETLIGHTS

General

All works shall be done under the direct supervision of an Electrical Company Project Engineer and in strict accordance with these specifications and of the methods as prescribed by the latest edition of the Philippine Electrical Code.

All items not specifically mentioned in the specifications as noted on the drawing but which are obviously necessary to make a complete working installation shall be included.

Item 1100–3 Raceway/Underground Duct

This Item shall consist of the furnishing and installation of the complete conduit work consisting of electrical conduit. Conduit fittings such as couplings, locknuts and bushings and other electrical materials needed to complete the conduit roughing – in work of this project.

All materials shall be brand new and shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark.

Rigid steel conduit shall be galvanized and shall conform to ANCI Standard C-80. Fittings of types approved by the Company Project Engineer shall be provided as required for connection to junction, pull and outlet boxes and to equipment.

UPVC. Plastic duct for concrete encased burial shall be PVC schedule 40 and shall conform to NEMA standards. Endbell fittings shall conform to NEMA standards.

No conduits shall be used in any system smaller than 12 mm diameter electrical trade size nor shall have more than four (4) 90-degree bends in any one run and where necessary, pull boxes shall be provided.

On exposed work, all pipes and outlet boxes shall be secured by means of galvanized metal clamps which shall be held in place by means of machine screws.

Item 1101(a) - Lighting Fixtures

All lighting fixtures and lamps are as specified and listed on lighting fixture schedule. Luminaire housing shall be die cast aluminium with electro gray finish for long life performance. It shall be pole mounted with wattage capacity from 200 watts to 400 watts High Pressure Sodium Lamps (HPS). Ballast shall be 220 volt with ignitor and capacitor and shall have universal two (2) bolt slip fitter and adjustable mogul or E40 socket. Standard construction is IP55 with breathing seal to prevent contaminant from entering the optical assembly. Ball latch shall be stainless steel and precision design refractor to uniformly laminate wide area.

Lamps. Provide the type and wattage indicated in the drawing. High Pressure Sodium Lamps. 400-watts and to ANCI C78-1351 (26,000 lumens).

UL 1029 and ANSI C82.4, and shall be constant wattage transformer CWA or regulator, open type high power factor type. Ballast shall be designed to operate on the voltage system to which they are connected. Provide single lamp ballasts with a minimum starting temperature of minus 30 degrees Celsius (C). Ballast shall be constructed so that open circuit operation will not reduce their average life. High Pressure Sodium (HPS) ballast shall have a solid state ignitor/starter with an average life in the pulsing mode of 10,000 at an ignitor/starter case temperature of 75 degrees C. Average life is defined as the time after which 50 percent will have failed and 50 percent will have survived under normal conditions.

Item 1101 Wiring and Termination

Wires and cables shall be of the approved type meeting all the

requirements of the Philippine Electrical Code and bearing the PSA mark or more importantly, passing ISO 9001 compliance. Unless specified or indicated otherwise, all power and lighting conductors shall be insulated for 600 volts and / or higher. All wires shall be copper (unless otherwise specified as seen in the plan), soft drawn and annealed, smooth and of cylindrical form and shall be centrally located inside the insulation.

Conductors or wires shall not be drawn in conduits until after the cement plaster is dry and the conduits are thoroughly cleaned and free from dirt and moisture.

All joints, taps and splices on wires larger than 14 mm shall be made of suitable solderless connectors of the approved type and size. They shall be taped with rubber and PVC tapes providing insulation not less than that of the conductors.

Item 1102 –Power Supply

All materials shall be brand new and shall be of the approved type. It shall conform with the requirements of the Philippine Electrical Code and shall bear the Philippine Standard Agency (PSA) mark.

Lighting Contactor panel shall be designed and fabricated for pole mounting as indicated on the drawings. Enclosures shall be fabricated in accordance with NEMA-3R requirements and shall be watertight and dust-tight, suitable for outdoor installation and shall be rated as specified in the drawings.

Enclosure shall be bolted cover with molded case circuit breakers, contactor and plug-in twist lock photo control unit and base.

The molded case circuit breakers shall be of the thermal-magnetic type having me tripping characteristic on overload and instantaneous trip on short circuits, shall be equipped with arc quenchers, shall have a quick-made and quick- break toggle mechanism, and shall have trip-free operating handles. Each multi-pole breaker shall have a common trip so that an overload on one pole will automatically cause all poles of the breakers to open. The circuit breakers shall have an interrupting rating of not less than 20,000 symmetrical amperes at 230 volts.

Lighting Contactor. NEMA ICS 2, electrically held contactor rated as indicated.

Provide as conforming to NEMA ICS 6. Contactor shall have silver alloy double-break contacts and coil clearing contacts and shall require no arcing contacts.

Provide contactor with hand-off-automatic selector switch. Contactor shall be hermetically sealed and shall be rated as specific in the drawings.

Photocell Switch. A hermetically sealed cadmium sulphide cell rated 230 volts AC, 60 Hz with single throw contacts rated at 1800 VA, 230 volts, shall be provided conforming to UL-773. The switch shall be mounted in a high-impact resistant, non-corroding and non-conductive molded plastic housing with a NEMA locking type receptacle. The switch shall turn on 10.76 lux and off 32.28 lux. A time delay shall prevent accidental switching from transient light sources. A directional lens shall be mounted in front of the cell to prevent fixed light sources from creating a turn-off condition if necessary. The switch shall be aimed according to manufacturer's instructions. Normally the sensor opening shall be facing east.

Panelboards shall conform to the schedule of panelboard as shown on the approved plans with respect to supply characteristics, rating of main lugs or main circuit breaker, number and ratings and capacities of branch circuit breakers.

Panelboards shall consist of a factory completed dead front assembly mounted in an enclosing flush type cabinet consisting of code gauge galvanized sheet steel box with trim and door. Each door shall be provided with catch lock and two (2) keys. Panelboards shall be provided with directories and shall be printed to indicate load served by each circuit.

Panelboard cabinets and trims shall be suitable for the type of mounting shown on the approved plans. The inside and outside of panelboard cabinets and trims shall be factory painted with one rustproofing primer coat and two finish shop coats of pearl gray enamel paint.

All non-current carrying metallic parts like conduits, cabinets and equipment frames shall be properly grounded.

Item 1101(b) Street Lighting 35' Pole, 1 Arm

Poles

Provide steel poles designed for wind loading of 250 kilometers per hour determined in accordance with AASHTO LTS-2 while supporting luminaires having effective projected areas indicated. Poles shall be anchor-based types designed for use with underground supply conductors.

Provide hot-dipped, galvanized steel poles having minimum 3.5-mm thick steel, tapered 8 inches diameter base and 3 inches diameter at top and a height of 35 feet, with minimum yield/strength of 227 MPa and hot dipped

galvanized finish inside and outside.

Provide anchor bases with hot-dipped, galvanized steel anchor bolts with double nut and washer, threaded at the top end and bend 90 degrees at the bottom end. Provide galvanized nuts, washer, and ornamental covers for anchor bolts. Galvanizing shall be in accordance with the requirements of ASTM A-120 for the poles and A-153 for the fittings.

Grounding

All roadway lighting poles, panel board and metallic boxes and electrically associated frame works shall be grounded effectively. Conductor and ground wires shall be insulated copper as shown and sizes as indicated in the plans. All connections shall be mechanically and electrically sound and secure by split type copper bolts and wire nuts of approved type.

Grounding wire shall be made of stranded copper, soft drawn wire and shall be installed in one continuous length without splices or joint inside conduit. Ground rods shall be made of copper-clad steel and shall be driven in full length into the earth, sizes of which shall be indicated on the Plans' grounding details.

SCOPE OF WORK

SECTION 3.

COMMERCIAL BUILDING AND CONDOMINIUM HOTEL

The residential area will be supported with amenities, commercial spaces at the lot fronting the main national highway of 40,000 square meters.

(Scope of Work for completion)



PROJECT : FLEURDELIS GREEN HEIGHTS VILLAGE
END-USER : CYBERPARKHOLDINGS INC.
AMOUNT : PHP 714,829,500.00

SCOPE OF WORK

For preparatory works and for the construction of six hundred twenty one units residential houses

For construction of the following:

1 unit adult swimming pool 75 ft x 100 ft

1 unit children's pool 30 ft x 60 ft

1 unit clubhouse and structures 1000 sq mtrs

1 unit chapel 400 sq mtrs

1 admin office building

714,829,500.00

TOTAL

714,829,500.00

PREPARED BY:

CERTIFIED BY:

ENGR. ROMEO A. ALQUITRAN
Vice President, Technical Services

LUISITO L. MORANTE
Chairman, Bids/Awards Committee



CyberparkHoldings

PROJECT : FLEURDELIS GREEN HEIGHTS VILLAGE
END-USER : CYBERPARKHOLDINGS INC.
AMOUNT : PHP 71,000,000.00

SCOPE OF WORK

For design and engineering for the completion of road works for FGH Village

For design and engineering for the construction of six hundred twenty one units residential houses

For design and engineering for the construction of:

1 unit adult swimming pool 75 ft x 100 ft

1 unit children's pool 30 ft x 60 ft

1 unit clubhouse and structures 1000 sq mtrs

1 unit chapel 400 sq mtrs

1 admin office building 71,000,000.00

TOTAL

71,000,000.00

PREPARED BY:

ENGR. ROMEO A. ALQUITRAN
Vice President, Technical Services

CERTIFIED BY:

LUISITO L. MORANTE
Chairman, Bids/Awards Committee



PROJECT : FLEURDELIS GREEN HEIGHTS VILLAGE
END-USER : CYBERPARKHOLDINGS INC.
AMOUNT : PHP 160,000,000.00

SCOPE OF WORK

For completion of road works for FGH Village
consisting of:

Concreting of 1 main road 700 m.

Concreting of 10 side roads at approx 200 m.

Light posts and fixtures

Earthworks for underdrains and pipe

Complete panel boards, metallic boxes, electrically
associated frame works

Traffic signs, barricades, lights, signals and other traffic
control devices

1 unit Tumampit Bridge and approach

160,000,000.00

TOTAL

PHP 160,000,000.00

PREPARED BY:

ENGR. ROMEO A. ALQUITRAN
Vice President, Technical Services

CERTIFIED BY:

LUISITO L. MORANTE
Chairman, Bids/Awards Committee