CATCH BASIN A TO SEWERAGE LINE FROM WATER SUPPLY

7.00 2.50 2.00 2.50 2.50

0.10m. thk. ROOF SLAB

ZPP¡%DUV#P O.C. BOTHWAYS

RB-1

1.00

50mm x 50mm EYE STEEL METALING WITH
5mm X 38mm FLAT BARS

10mm BARREL BOLT

HEAVY DUTY METAL HINGES

50mm G.I. PIPE FABRICATED HINGES FOR SERVICE DOOR

SCALE: 1:30m.

0.30m. x 0.30m. CONCRETE POST

50 mm d/ G. PIPE

ROOF SLAB PLAN

SCALE: 1:100m.

DETAIL OF ROOF BEAM

SCALE: 1:30mm.

CROSS-SECTIONAL DETAIL OF SUSPENDED SLAB

SCALE: 1:30mm.

DETAL OF STEEL GATE

SCALE: 1:30m.
**SCHEDULE OF LOADS**

<table>
<thead>
<tr>
<th>OKT. NO.</th>
<th>LOAD DESCRIPTION</th>
<th>WATTS</th>
<th>VOLTS</th>
<th>BREAKER</th>
<th>SIZE OF WIRES</th>
<th>CONDUITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30Hp Submersible motor</td>
<td>2327</td>
<td>230</td>
<td>2P,100A,230V</td>
<td>3-50mm² + 14mm²</td>
<td>20mm² PVC PIPE</td>
</tr>
<tr>
<td>2</td>
<td>5-Convenience Outlet &amp; 2-Exhaust Fan</td>
<td>1100</td>
<td>230</td>
<td>2P,20A,230V</td>
<td>2-3.5mm² THHN</td>
<td>20mm² PVC PIPE</td>
</tr>
<tr>
<td>3</td>
<td>5-100w Lighting Outlet 1-500w Spotlight Outlet</td>
<td>1000</td>
<td>230</td>
<td>2P,15A,230V</td>
<td>2-2.0mm² THHN</td>
<td>20mm² PVC PIPE</td>
</tr>
<tr>
<td>4</td>
<td>SPARE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>2427</td>
<td>230</td>
<td>2P,110A,230V</td>
<td>5.5mm² THHN</td>
<td>25mm² PVC PIPE</td>
</tr>
</tbody>
</table>

A= 2427²=0.6
A=105.53 (USE 2-5.5mm² THHN & 3.5mm² THHN GROUNDING IN 25mm² PVC PIPE)

---

**NOTES:**
1. All sizes and locations are subject to change to suit field conditions.
2. The designer shall not be liable for any alternation/revision on the plans/drawings and specifications approved by the authorized supervising engineer done without their knowledge that may impair the success of the project.
ELECTRICAL SPECIFICATION

A. GENERAL SPECIFICATIONS:

1. The work under this Division consists of furnishing all materials, equipment, tools, labor and all other services necessary to complete and make ready for operation the Electrical Power described below and or indicated in the Electrical Plans an Specifications in accordance with the latest edition of the Philippine Electrical Code with the Local Requirements of the Utility. Companies concerned and with the Local Government.

2. Service to the Pump and Motor Load must 440V, 3, 3x11G Power System.

And service to the Perimeter Lighting must be 230V, 3D, 2x1G power system and service to Pump and Motor Load for single phase location.

3. The Low Voltage Cables are THHN Insulated, Stranded, and Copper Conductor.

4. All Ground Wires shall be Insulated Grounds.

5. Cable sizes are selected by applying appropriate de-rating factors for ambient conditions of installations as per PEC.

6. Power factor for all loads is assumed 0.80.

7. Size of grounding wire will be based on PEC Table 3.10.1.16

8. Ampacities of feeders supplying continuous loads are taken as 125% of Full Load Current as per PEC.

9. All electrical materials shall be new and listed by the Underwriters Laboratories, Inc., shall meet their requirements and shall bear their label whenever standards have been established and label service is regularly furnished by that agency.

10. Mounting height shall be as follows:

   - Convenience outlet shall be 300mm above floor finish
   - Convenience outlet shall be 300mm above lavatories
   - Wall switches shall be 1400mm on center from floor finish.

11. Wiring Method shall be as follows:

   - Poly Vinyl Chloride (PVC) or Unplasticised Poly Vinyl Chloride (uPVC) - Used when embedded in concrete wall or masonry and can be laid underground within 500mm deep from earth grade.
   - Rigid Steel Conduit (RSC) - Used in exposed/wet location and can be laid underground within 500mm deep from earth grade.
   - Wet location panelboards shall be NEMA 4 enclosures/wall mounted or designed for surface mounting if external mounting is specified.

12. For easily identify the polarity, use color coded THHN/THWN and TW stranded copper conductor.

   - RED - positive or line 1
   - YELLOW - negative or line 2
   - BLUE - line 3
   - GREEN - ground
   - WHITE - neutral or lineside ground
   - BLACK - homom or Main Feederline

13. PVC and metal conduit shall be joined to junction boxes and pull box to make a grid and waterproof connection. If metal conduit is used, an insulated bushing shall be provided at the end of the metal conduit on the inside of the junction box or pull box to prevent scuffing of the cable insulation.

14. All works herein shall be done under the strict supervision of duly LICENSE ELECTRICAL ENGINEER.

LEGEND:

- 18W CFL w/ 4" Vertical Type Downlight, Aluminum Glossy Reflector and White Baked Finish Steel
- 30W Floodlight (CFL Type Lamp)

B. LIGHTING FIXTURES SPECIFICATIONS:

All luminaires and ballasts shall be certified by the manufacturer

Fixture Type A

- 18W CFL w/ 4" Vertical Type Downlight, Aluminum Glossy Reflector and White Baked Finish Steel

Fixture Type B

- 30W Floodlight (CFL Type Lamp)

C. OUTLETS AND SWITCHES SPECIFICATIONS:

- Duplex Wide Series Universal Convenience Outlet - grounding type w/ faceplate, 15A, 230V, 1-phase
- 1-gang Normal Switch (Wide Series), 15A, 230V
- 2-gang Normal Switch (Wide Series), 15A, 230V
- 3-gang Normal Switch (Wide Series), 10A, 230V

D. PULL BOX (S), JUNCTION BOX(S) AND UTILITY BOX(S) SPECIFICATIONS:

The junction box cover shall be made watertight and a suitable gasket and secured with stainless steel or cadmium plated screws or bolts

- Junction boxes shall be stainless steel.
- Junction boxes shall be flanged and designed for flush mounting if exposed in concrete, or designed for surface mounting if external mounting is specified.
- Junction boxes shall be drilled or tapped for all conduit connections. Junction boxes shall be installed such that covers removable.

E. PANEL BOARD, MOTOR CONTROLLER AND MANUAL TRANSFER SWITCH SPECIFICATIONS:

- Factory assembly
- The panelboards shall be UL Listed.

GENERAL:

- Except as otherwise indicated, provide panelboards, enclosures and auxiliary components of types, sizes, and ratings indicated, which comply with manufacturer's standard materials, design and construction in accordance with published product information, etc. with number of unit panelboard devices as required for complete installation. Where more than one type of component meets indicated requirements, selection is in installer's option. Where types, sizes, or ratings are not indicated, comply with PEC. UL, and established industry standards for applications indicated.

ENCLOSURES:

- Provide galvanized sheet steel cabinet type enclosures, in sizes NEMA types as indicated, code-gage, minimum 16-gauge thickness. Construct with multiple knockouts and wiring gutters. Provide fronts with flush locks and keys, all panelboard enclosures keyed alike, with concealed doors with flush locks and keys, all panelboard enclosures keyed alike, with concealed door hinges and door stops equipped with interior cross-directory frame, and card with clear plastic covering. Provide POWDER COATED GRAY finish.

- Wet location panelboards shall be NEMA 4 enclosures

- Use NEMA 1 enclosures for indoor use, primarily to provide a degree of protection against limited amounts of falling dirt.

- Use NEMA 3R enclosures for outdoor use, primarily to provide a degree of protection against rain, sleet, and damage from external ice formation.

- Equipment shall have a nameplate installed and mounted to the front cover and indicate: Product information; equip with number of unit panelboard devices as required for applications regularly furnished by that agency.

- Provide galvanized sheet steel cabinet type enclosures, in sizes NEMA types as indicated, code-gage, minimum 16-gauge thickness. Construct with multiple knockouts and wiring gutters. Provide fronts with flush locks and keys, all panelboard enclosures keyed alike, with concealed door hinges and door stops equipped with interior cross-directory frame, and card with clear plastic covering. Provide POWDER COATED GRAY finish.

- Wet location panelboards shall be NEMA 4 enclosures.

- Use NEMA 1 enclosures for indoor use, primarily to provide a degree of protection against limited amounts of falling dirt.

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- Equipment shall have a nameplate installed and mounted to the front cover and indicate: Product information; equip with number of unit panelboard devices as required for applications regularly furnished by that agency.

- Use NEMA 1 enclosures for indoor use, primarily to provide a degree of protection against limited amounts of falling dirt.

- Use NEMA 3R enclosures for outdoor use, primarily to provide a degree of protection against rain, sleet, and damage from external ice formation.

- Equipment shall have a nameplate installed and mounted to the front cover and indicate: Product information; equip with number of unit panelboard devices as required for applications regularly furnished by that agency.

- Use NEMA 1 enclosures for indoor use, primarily to provide a degree of protection against limited amounts of falling dirt.

- Use NEMA 3R enclosures for outdoor use, primarily to provide a degree of protection against rain, sleet, and damage from external ice formation.

- Equipment shall have a nameplate installed and mounted to the front cover and indicate: Product information; equip with number of unit panelboard devices as required for applications regularly furnished by that agency.

- Use NEMA 1 enclosures for indoor use, primarily to provide a degree of protection against limited amounts of falling dirt.

- Use NEMA 3R enclosures for outdoor use, primarily to provide a degree of protection against rain, sleet, and damage from external ice formation.

- Equipment shall have a nameplate installed and mounted to the front cover and indicate: Product information; equip with number of unit panelboard devices as required for applications regularly furnished by that agency.

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- Equipment shall have a nameplate installed and mounted to the front cover and indicate: Product information; equip with number of unit panelboard devices as required for applications regularly furnished by that agency.
PLANTERS BOX DETAIL

SCHEDULE OF LOADS

ENGINEERING DEPARTMENT

PEDRO ESTALARR

CALAMBA WATER DISTRICT

PLANNING AND DESIGN DIVISION

SECTION A-A

SCALE: 1/100

SECTION B-B

PLANTERS BOX DETAIL

SEWER LAYOUT

SCALE: 1/100

Notes:
1. All sizes and locations are subject to change to suit field conditions.
2. The designer shall not be liable for any alteration/revision on the plans/drawings and specifications, incurred by the authorized agent for the Government or the client, knowledge that may impair the顺利 of the project.

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

LAKEVIEW SUBD., HALANG, CALAMBA CITY

PROJECT TITLE: PROPOSED PUMPING STATION

LOCATION: Brgy. Bungo, Calamba City, Laguna

DRAWN BY: A. L. DEL PRADO

DESIGNED BY: ENGR. R. S. CARTAGO

RECOMMENDED BY: ENGR. R. S. CARTAGO

APPROVED BY: MR. E. A. AGUILAR JR.

DATE: 03/30/2020

SHEET CONTENTS: SEWER LAYOUT

SHEET NO.: P-1

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION
TANK CAPACITY: 227 lits (maximum)
DIMENSION: 2.4m(H) x 1.2m(W) x 1.2m(L)
PROPOSED PORTALET

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

LOCATION: Brgy. Bungo, Calamba City, Laguna

PROPOSED PUMPING STATION

DRAWN BY: A. L. DEL PRADO
DESIGNED BY: ENGR. R. S. CARTAGO
RECOMMENDED BY: ENGR. R. S. CARTAGO
APPROVED BY: MR. E. A. AGUILAR JR.

TANK CAPACITY: 227 lits (maximum)
DIMENSION: 2.4m(H) x 1.2m(W) x 1.2m(L)
PROPOSED PORTALET
CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

PROJECT TITLE: PROPOSED PUMPING STATION
LOCATION: Southville, Brgy. Kay-anlak, Calamba City, Laguna

FOUNDATION PLAN
SCALE: 1:30

WALL FOOTING (WF-1)
SCALE: 1:30

DETAIL OF FOOTINGS
SCALE: 1:30

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

NOTE:
1. ALL SIZES AND LOCATIONS ARE SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL BE HELD HARMLESS FOR ANY ALTERATION/DELETION OF THE PLANS/ DRAWINGS AND SPECIFICATIONS INFLICTED EXTENDED USE THEREOF.

DATE: 03/30/2020
SHEET: S-1

DRAWN BY: A. L. DEL PRADO
DESIGNED BY: ENGR. R. S. CARTAGO
RECOMMENDED BY: ENGR. R. S. CARTAGO
APPROVED BY: MR. E. A. AGUILAR JR.

FOUNDATION PLAN
DETAIL OF FOOTINGS
DETAIL OF COLUMN

0.30

200mm x 200mm
TARMAC FROM 3.00m HIGH
0.20

10mm TIES 2A50,
3.00 & 200 @ REST

12mm @ 10m TIES 2A50,
40 100 & 200 @ REST

6-12mm VER. BARS
W/ 10mm TIES 2A50,
40 100 & 200 @ REST

6-16mm BARS
BOTHWAYS

6-12mm
W/ 10mm TIES 2A50,
40 100 & 200 @ REST

6-16mm
W/ 10mm TIES 2A50,
40 100 & 200 @ REST

0.30

0.20

2.50

2.00

0.30

0.20

0.10

0.05

0.10

0.20
**ROOF SLAB PLAN**

**SCALE:** 1:30

**CROSS-SECTIONAL DETAIL OF SUSPENDED SLAB**

**SCALE:** 1:30

**DETAIL OF STEEL GATE**

**SCALE:** 1/2

**DETAIL OF ROOF BEAM**

**SCALE:** 1:30mm.

**NOTES:**
1. All sizes and locations are subject to change to suit field conditions.
2. The designer shall not be liable for any alteration or revision on the plans/drawings and specifications without his written consent.
3. Supervising Engineer Cimsuit Lay these instructions guide the preparation of the project.

**PROPOSED PUMPING STATION**

**LOCATION:** Southville, Brgy. Kay-anilog, Calamba City, Laguna

**DATE:** 03/30/2020

**DRAWN BY:** A. L. Del Prado

**DESIGNED BY:** ENGR. R. S. Cartago

**RECOMMENDED BY:** ENGR. R. S. Cartago

**APPROVED BY:** MR. E. A. Aguilari Jr.

**DATE:** 03/30/2020

**SHEET NO.:** S-2
SCHEDULE OF LOADS

<table>
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<tr>
<th>Ckt. No.</th>
<th>Load Description</th>
<th>Watts</th>
<th>Volts</th>
<th>Breaker</th>
<th>Size of Wires</th>
<th>Conduit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30Hp Submersible motor</td>
<td>22371</td>
<td>230</td>
<td>3P,100A,230V</td>
<td>3–5.5mm² THHN Cable</td>
<td>20mm PVC PIPE</td>
</tr>
<tr>
<td>2</td>
<td>5-Convenience Outlet &amp; 2-Exhaust Fan</td>
<td>1100</td>
<td>230</td>
<td>2P,20A,230V</td>
<td>2–3.5mm² THHN</td>
<td>20mm PVC PIPE</td>
</tr>
<tr>
<td>3</td>
<td>3–100W Lighting Outlet 1–500W Spotlight Outlet</td>
<td>1000</td>
<td>230</td>
<td>2P,15A,230V</td>
<td>2–2.0mm² THHN</td>
<td>20mm PVC PIPE</td>
</tr>
<tr>
<td>4</td>
<td>SPARE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>24271</td>
<td>230</td>
<td>2P,100A,230V</td>
<td>5.5mm² THHN</td>
<td>25mm PVC PIPE</td>
</tr>
</tbody>
</table>

A = 24271 \times 0.8

A = 105.53 \text{ (USE 2–5.5mm}^{2}\text{THHN}

84.42 \times 1.25

25mm PVC PIPE
ELECTRICAL SPECIFICATION

A. GENERAL SPECIFICATIONS:
1. The work under this Division consists of furnishing all materials, equipment, tools, labor and all other services necessary to complete and make ready for operation the Electrical Power described below and as indicated in the Electrical Plans and Specifications in accordance with the latest edition of the Philippine Electrical Code with the Local Requirements of the Utility. Companies concerned and with the Local Government.
2. Service to the Pump and Motor Load must be 440v, 3ph, 1+1G Power System.
And service to the Perimeter Lighting must be 230v, 10, 2x+ 1G power system and service to Pump and Motor Load for single phase location.
3. The Low Voltage Cables are THHN Insulated, Stranded, and Copper Conductor.
4. All Ground Wires shall be Insulated Grounds.
5. Cable sizes are selected by applying appropriate de-rating factors for ambient conditions of installation as per NEC.
6. Power factor for all loads is assumed 0.80.
7. Size of grounding wire will be based on NEC Table 3.10.1.16.
8. Ampacities of feeders supplying continuous loads are taken as 125% of Full Load Current as per NEC.
9. All electrical materials shall be new and listed with the Underwriters Laboratories, Inc., shall meet their requirements and shall bear their label whenever standards have been established and label service is regularly furnished by that agency.
10. Mounting height shall be as follows:
   a. Convenience outlet shall be 300mm above floor finish
   b. Convenience outlet shall be 300mm above lavatories
   c. Wall switches shall be 1400mm on center from floor finish.
11. Wiring Method shall be as follows:
   a. Poly Vinyl Chloride (PVC) or Unplasticised Poly Vinyl Chloride (uPVC)- Used when embedded in concrete wall or masonry and can be laid underground within 500mm deep from earth grade.
   b. Rigid Steel Conduit (RSC) - Used in exposed/wet location and can be laid underground within 200mm deep from earth grade.
12. For easily identify the polarity, use color coded THHN/THWN and TW stranded copper conductor.
13. PVC and metal conduct shall be joined to junction boxes and pull box to make a grid and waterproof connection. If metal conduit is used, an insulated busing shall be provided at the end of the metal conduit on the inside of the junction box or pull box to prevent scuffing of the cable insulation.
14. All works herein shall be done under the strict supervision of the LICENSE ELECTRICAL ENGINEER.

B. LIGHTING FIXTURES SPECIFICATIONS:
All luminaires and ballasts shall be certified by the manufacturer.

 Fixture Type A
- 18W CFL or 4" Vertical Type Downlight, Aluminum Glossy Reflector and BLUE Baked Finish Steel

 Fixture Type B
- 30W Floodlight (CFL Type Lamp)

C. OUTLETS AND SWITCHES SPECIFICATIONS:
- Duplex Wide Series Universal Convenience Outlet - grounding type w/ faceplate, 15A, 230V, 3-phase
- 1-gang Normal Switch (Wide Series), 10A, 230V
- 2-gang Normal Switch (Wide Series), 10A, 230V
- 3-gang Normal Switch (Wide Series), 10A, 230V

D. PULL BOX (S), JUNCTION BOX(S) AND UTILITY BOX(S) SPECIFICATIONS:
- The junction box cover shall be made watertight and a suitable gasket and secured with stainless steel or cadmium plated screws or bolts
- Junction boxes shall be stainless steel.
- Junction boxes shall be flanged and designed for flush mounting if encased in concrete, or designed for surface mounting if external mounting is specified.
- Junction boxes shall be drilled or tapped for all conduit connections. Junction boxes shall be installed such that covers removable.

E. PANEL BOARD, MOTOR CONTROLLER AND MANUAL TRANSFER SWITCH SPECIFICATIONS:
- Factor assembly
- The panelboards shall be UL Listed.
- GENERAL: Except as otherwise indicated, provide panelboards, enclosures and ancillary components of types, sizes, and ratings indicated, which comply with manufacturer's standard materials, design and construction in accordance with published product information; equip with number of unit panelboard devices as required for complete installation. Where more than one type of component meets indicated requirements, selection is installer's option. Where types, sizes, or ratings are not indicated, comply with NEC, UL, and established industry standards for applications indicated.

ENLISTED:
- Provide galvanized sheet steel cabinet type enclosures, in sizes NEMA types as indicated, code-gage, minimum 16-gauge thickness. Construct with multiple factory assembly and service to Pump and Motor Load for single phase location.
- Wet location panelboards shall be NEMA 4 enclosures.
- Use NEMA 1 enclosures for indoor use, primarily to provide a degree of protection against limited amounts of falling dirt.
- Use NEMA 3R enclosures for outdoor use, primarily to provide a degree of protection against rain, steel, and damage from external ice formation.
- Equipment shall have a nameplate installed and mounted to the front cover and indicate: panelboard type, amp rating, voltage rating and short-circuit current rating.
TANK CAPACITY: 227 lits (maximum)
DIMENSION: 2.4m(H) x 1.2m(W) x 1.2m(L)

PROPOSED PORTALET

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; Marine Plywood</td>
<td>- 4' Stainless Cabinet Handle</td>
</tr>
<tr>
<td>2.4&quot; Stainless Handle</td>
<td>- 1/4&quot; Clear Glass</td>
</tr>
<tr>
<td>- Marine Plywood</td>
<td>- Door Varnish</td>
</tr>
<tr>
<td>- Clear Glass</td>
<td>- Door Varnish</td>
</tr>
<tr>
<td>- SS Handle</td>
<td>- Door Varnish</td>
</tr>
</tbody>
</table>

SPECIALTIES
- CALAMBA WATER DISTRICT
- ENGINEERING DEPARTMENT
- PLANNING AND DESIGN DIVISION
- CALAMBA WATER DISTRICT
- ENGINEERING DEPARTMENT
- PLANNING AND DESIGN DIVISION

LAKESIDE SUBD., HALANG, CALAMBA CITY

LOCATION: Southville, Brgy. Kay-an-log, Calamba City, Laguna

PROPOSED PUMPING STATION

PROPOSED PORTALET

DETAILED OF SIGNAGE

DETAILED OF CABINET

DETAILED OF TABLE
**ELECTRICAL SPECIFICATION**

**A. GENERAL SPECIFICATIONS:**

1. The work under this Division consists of furnishing all materials, equipment, tools, labor and all other services necessary to complete and make ready for operation the Electrical Power described below and as indicated in the Electrical Plans and Specifications in accordance with the latest edition of the Philippine Electrical Code with the Local Requirements of the Utility. Companies, compliance with the Local Government.

2. Service to the Pump and Motor Load must be 440V, 3.8V, 1G Power System. And service to the Patient’s Lighting must be 230V, 12V, 1G Power system and service to Pump and Motor Load for single phase location.

3. The Low Voltage Cables are THHN Insulated, Stranded, and Copper Copper.

4. All Ground Wires shall be Insulated Grounds.

5. Cable sizes are selected by applying appropriate de-rating factors for ambient conditions of installations as per PEC.

6. Power factor for all loads is assumed 0.80.

7. Size of grounding wire will be based on PEC Table 3.10.1.16

8. Ampacities of feeders supplying continuous loads are taken as 125% of Full Load Current as per PEC.

9. The Low Voltage Cables are THHN Insulated, Stranded, and Copper Conductor.

10. Mounting height shall be as follows:

11. Wiring Method shall be as follows:

   - Poly Vinyl Chloride (PVC) or Unplasticized Poly Vinyl Chloride (UPVC) - Used when embedded in concrete wall or masonry and can be laid underground within 200mm deep from earth grade.
   - Rigid Steel Conduit (RSC) - Used in exposed/wet location and can be laid underground within 200mm deep from earth grade.

12. Residential wiring for wall switches shall be 1400mm on center from floor finish.

13. Convenience outlets shall be 300mm above floor finish.

14. Wall switches shall be 1400mm on center from floor finish.

15. Mounting height shall be as follows:

   - Convenience outlet shall be 300mm above floor finish.
   - Convenience outlet shall be 150mm above floor finish.

16. Wiring to be installed such that covers removable.

17. Junction boxes shall be stainless steel.

18. Junction boxes shall be flanged and designed for flush mounting if encased in concrete, or designed for surface mounting if external mounting is specified.

19. Junction boxes shall be 18W CFL w/ 4” Vertical Type Downlight, Aluminum Glossy Reflector and BLUE Baked Finish Steel.

20. Junction boxes shall be 30W Floodlight (CFL Type Lamp).

21. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

22. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

23. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

24. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

25. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

26. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

27. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

28. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

29. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

30. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

31. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

32. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

33. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

34. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

35. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

36. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

37. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

38. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

39. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

40. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

41. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

42. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

43. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

44. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

45. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

46. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

47. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

48. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

49. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

50. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

51. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

52. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

53. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

54. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

55. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

56. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

57. Junction boxes shall be 18W compact flourescent lamp (CFL) with amperage as required with black housing or Main-Firelite.

58. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.

59. Junction boxes shall be 30W Floodlight (CFL Type Lamp) with amperage as required with black housing or Main-Firelite.

60. Junction boxes shall be Weatherproof Outlet with amperage as required with black housing or Main-Firelite.
TANK CAPACITY: 227 lts (maximum)
DIMENSION: 2.4m(H) x 1.2m(W) x 1.2m(L)

PROPOSED PORTALET
PROPOSED PUMPING STATION

LOCATION: Landmark Subd., Calamba City, Laguna

NOTES:
2. CHANGES TO THE PLAN ARE SUBJECT TO THE AUTHORITY OF THE ENGINEERING DEPARTMENT.
3. ALL CUPRUS ALLOYS ARE TO BE BRIGHT DIPPED.
4. ALL WELDED CONNECTIONS ARE TO BE G.A. CONNECTIONS.
5. HEIGHT IS FROM FLOOR TO TOP OF PUMP.

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

PROJECT TITLE: PROPOSED PUMPING STATION

DRAWN BY: A. L. DEL PRADO
DESIGNED BY: ENGR. R. S. CARTAGO
RECOMMENDED BY: ENGR. R. S. CARTAGO
APPROVED BY: MR. E. A. AGUILAR JR.

DATE: 03/30/2020

SHEET CONTENTS: MECHANICAL LAYOUT
CHLORINATION PUMP DETAIL
DETAIL OF DISCHARGE PIPE

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

PROPOSED PORTALET DETAIL OF SIGNAGE
DETAIL OF HANGING CABINET

LAKEVIEW SUBD., HALANG, CALAMBA CITY
SCHEDULE OF LOADS

<table>
<thead>
<tr>
<th>CKT. NO.</th>
<th>LOAD DESCRIPTION</th>
<th>WATTS</th>
<th>VOLTS</th>
<th>BREAKER</th>
<th>SIZE OF WIRES</th>
<th>CONDUITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30Hp Submersible motor</td>
<td>2237</td>
<td>230</td>
<td>3P,100A,230V</td>
<td>3-36mm² + 14mm² (U) THHN Cable</td>
<td>20mm PVC PIPE</td>
</tr>
<tr>
<td>2</td>
<td>5-Convenience Outlet &amp; 2-Exhaust Fan</td>
<td>1100</td>
<td>230</td>
<td>2P,20A,230V</td>
<td>2-3.5mm² THHN</td>
<td>20mm PVC PIPE</td>
</tr>
<tr>
<td>3</td>
<td>5-100w Lighting Outlet 1-500w Spotlight Outlet</td>
<td>1000</td>
<td>230</td>
<td>2P,15A,230V</td>
<td>2-2.0mm² THHN</td>
<td>20mm PVC PIPE</td>
</tr>
<tr>
<td>4</td>
<td>SPARE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>2427</td>
<td>230</td>
<td>2P,110A,230V</td>
<td>5.5mm² THHN</td>
<td>25mm PVC PIPE</td>
</tr>
</tbody>
</table>

A= 2427x0.8
A=105.53 USE 2-5.5mm² THHN & 3.5mm² THHN GROUNDING IN 25mm² PVC PIPE

A= 84.42x1.25

LEGEND:

- BLACK - homerun or Main Feederline
- WHITE - neutral or lineside ground
- GREEN - ground
- BLUE - line 3
- RED - positive or line 1

ELECTRICAL LAYOUT

PUMP SUCTION

SUPPLY

POWER LAYOUT

LIGHTING LAYOUT

PLANNING AND DESIGN DIVISION

ENGINEERING DEPARTMENT

CALAMBA WATER DISTRICT

PROJECT TITLE: PROPOSED PUMPING STATION

LOCATION: Landmark Subd., Calamba City, Laguna

DRAWN BY: A. L. DEL PRADO

DESIGNED BY: PEDRO ESTALAR

RECOMMENDED BY: ENGL. R. S. CARTAGO

APPROVED BY: MR. E. A. AGUILAR JR.

DATE: 03/30/2020

SHEET CONTENTS: ELECTRICAL LAYOUT

RISER DIAGRAM

RIDER DIAGRAM
ELECTRICAL SPECIFICATION

A. GENERAL SPECIFICATIONS:

1. The work under this Division consists of furnishing all materials, equipment, tools, labor and all other services necessary to complete and make ready for operation the Electrical Power described below and indicated in the Electrical Plans as Specifications in accordance with the latest edition of the Philippine Electrical Code with the Local Requirements of the Utility. Companies concerned and with the Local Government.

2. Service to the Pump and Motor Load must have 440V, 3Ø, 3x1YG Power System. And service to the Perimeter Lighting must be 230V, 1Ø, 2x1YG power system and service to Pump and Motor Load for single phase location.

3. The Line Voltage Voltages are THEN Insulated, Stranded, and Copper Conductor.

4. All Ground Wires shall be Insulated Grounds.

5. Cable sizes are selected by applying appropriate de-rating factors for ambient conditions of installations as per PEC.

6. Power factor for all loads is assumed 0.80.

7. Size of grounding wire will be based on PEC Table 3.10.1.16

8. Ampacities of feeders supplying continuous loads are taken as 125% of Full Load Current as per PEC.

9. All electrical materials shall be new and listed with the Underwriters Laboratories, Inc., shall meet their requirements and shall bear the label wherever standards have been established and label service to Pump and Motor Load for single phase location.

10. Mounting height shall be as follows:

11. Wiring Method shall be as follows:

12. For each outlet the polarity, use color coded THHN/THWN and TW stranded copper conductor.

13. PVC and metal conduit shall be jointed to junction boxes and pull box to make a grid and waterproof connection. If metal conduit is used, an insulated bushing shall be provided at the end of the metal conduit on the inside of the junction box or pull box to prevent scuffing of the cable insulation.

14. All works herein shall be done under the strict supervision of duly LICENSED ELECTRICAL ENGINEER.

B. LIGHTING FIXTURES SPECIFICATIONS:

All luminaires and ballasts shall be certified by the manufacturer

Fixture Type A

18W CFL w/ 4" Vertical Type Downlight, Aluminum Glossy Reflector and White Baked Finish Steel

Fixture Type B

30W Floodlight (CFL Type Lamp)

C. OUTLETS AND SWITCHES SPECIFICATIONS:

1. Duplex Wide Series Universal Convenience Outlet - grounding type w/ faceplate, 15A, 230V, 1-phase

2. 1-gang Normal Switch (Wide Series), 15A, 230V

3. 2-gang Normal Switch (Wide Series), 15A, 230V

4. 3-gang Normal Switch (Wide Series), 15A, 230V

D. PULL BOX (S), JUNCTION BOX(S) AND UTILITY BOX(S) SPECIFICATIONS:

The junction box cover shall be made waterproof and insulated with stainless steel or copper plated screws or bolts. Junction boxes shall be stainless steel. Junction boxes shall be flanged and designed for flush mounting if encased in concrete, or designed for surface mounting if external mounting is specified. Junction boxes shall be drilled or tapped for all conduit connections. Junction boxes shall be installed such that covers are removable.

E. PANEL BOARD, MOTOR CONTROLLER AND MANUAL TRANSFER SWITCH SPECIFICATIONS:

Factory assembly.

GENERAL: Except as otherwise indicated, provide panelboards, enclosures and auxiliary components of types, sizes, and ratings indicated, which comply with manufacturer’s standard materials, design and construction in accordance with published product information, except with number of unit panelboard devices as required for complete installation. Where more than one type of component meets indicated requirements, selection is installer’s option. Where types, sizes, or ratings are not indicated, comply with PEC, UL and established industry standards for applications indicated.

ENCLOSURES: Provide galvanized sheet steel cabinet type enclosures, in sizes NEMA types as indicated, code-gage, minimum 16-gauge thickness. Construct with multiple components as indicated, comply with PEC, UL and established industry standards for applications indicated.

For easily identify the polarity, use color coded THHN/THWN and TW stranded copper conductor.

For easily identify the polarity, use color coded THHN/THWN and TW stranded copper conductor.

1. The work under this Division consists of furnishing all materials, equipment, tools, labor and all other services necessary to complete and make ready for operation the Electrical Power described below and indicated in the Electrical Plans as Specifications in accordance with the latest edition of the Philippine Electrical Code with the Local Requirements of the Utility. Companies concerned and with the Local Government.

2. Service to the Pump and Motor Load must have 440V, 3Ø, 3x1YG Power System. And service to the Perimeter Lighting must be 230V, 1Ø, 2x1YG power system and service to Pump and Motor Load for single phase location.

3. The Line Voltage Voltages are THEN Insulated, Stranded, and Copper Conductor.

4. All Ground Wires shall be Insulated Grounds.

5. Cable sizes are selected by applying appropriate de-rating factors for ambient conditions of installations as per PEC.

6. Power factor for all loads is assumed 0.80.

7. Size of grounding wire will be based on PEC Table 3.10.1.16

8. Ampacities of feeders supplying continuous loads are taken as 125% of Full Load Current as per PEC.

9. All electrical materials shall be new and listed with the Underwriters Laboratories, Inc., shall meet their requirements and shall bear the label wherever standards have been established and label service to Pump and Motor Load for single phase location.

10. Mounting height shall be as follows:

11. Wiring Method shall be as follows:

12. For each outlet the polarity, use color coded THHN/THWN and TW stranded copper conductor.

13. PVC and metal conduit shall be jointed to junction boxes and pull box to make a grid and waterproof connection. If metal conduit is used, an insulated bushing shall be provided at the end of the metal conduit on the inside of the junction box or pull box to prevent scuffing of the cable insulation.

14. All works herein shall be done under the strict supervision of duly LICENSED ELECTRICAL ENGINEER.
TANK CAPACITY: 227 lits (maximum)
DIMENSION: 2.4m(H) x 1.2m(W) x 1.2m(L)
PROPOSED PORTALET

ACRYLIC SIGN

SIGNAGE DETAIL

3.50

1.20

0.60

TOP VIEW

FRONT VIEW

TABLE DETAILS

SECTION A OF HANGING WOOD CABINET

MATERIAL SPECIFICATIONS:
- 3/4" Marine Plywood
- 1/2" Plywood (backing)
- 4" Stainless Hinges
- Marine Catch w/ lockset

- Clear Glass
- Stainless Handle
- Color: Duco Varnish

PROPOSED PORTALET

DETAIL OF SIGNAGE

DETAIL OF HANGING WOOD CABINET

Note: All sizes and locations are subject to change to suit field conditions.
2. The drawings shall not be liable for any alteration, omission, or changes in the plans, drawings, and specifications imposed by the municipality, supervising engineer, or without the written consent of the sponsor.

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

LAKEVIEW SUBD., HALANG, CALAMBA CITY
LOCATION: Landmark Subd., Calamba City, Laguna

PROJECT TITLE:
PROPOSED PUMPING STATION

RECOMMENDED BY:
ENGR. R. S. CARTAGO

APPROVED BY:
MR. E. A. AGUILAR JR.

DRAWN BY:
A. L. DEL PRADO

DESIGNED BY:
ENGR. R. S. CARTAGO

SHEET CONTENTS:
PROPOSED PORTALET
DETAIL OF SIGNAGE
DETAIL OF HANGING WOOD CABINET

DATE: 03/30/2020
SHEET NO.

SPECIALTIES
**ELECTRICAL LAYOUT**

**SCALE** 1:1000

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**SCHEDULE OF LOADS**

<table>
<thead>
<tr>
<th>CRN. NO.</th>
<th>LOAD DESCRIPTION</th>
<th>WATTS</th>
<th>VOLTS</th>
<th>BREAKER</th>
<th>SIZE OF WIRING</th>
<th>CONDUITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3HP Submersible Motor</td>
<td>2237</td>
<td>230</td>
<td>3P,100A,230V</td>
<td>3×35mm² + 14mm² (G) THHN Cable</td>
<td>20mm PVC PIPE</td>
</tr>
<tr>
<td>2</td>
<td>5-Exhaust Fan</td>
<td>1100</td>
<td>230</td>
<td>3P,100A,230V</td>
<td>2×3mm² THHN</td>
<td>20mm PVC PIPE</td>
</tr>
<tr>
<td>3</td>
<td>5-100w Lighting Outlet</td>
<td>1000</td>
<td>230</td>
<td>3P,15A,230V</td>
<td>2×2.5mm² THHN</td>
<td>20mm PVC PIPE</td>
</tr>
<tr>
<td>4</td>
<td>SPAKE</td>
<td>100</td>
<td>230</td>
<td>2P,100A,230V</td>
<td>0.5mm² THHN</td>
<td>25mm PVC PIPE</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>5427</td>
<td>230</td>
<td>3P,100A,230V</td>
<td>3.5mm² THHN</td>
<td>25mm PVC PIPE</td>
</tr>
</tbody>
</table>

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**CALAMBA WATER DISTRICT**

**ENGINEERING DEPARTMENT**

**PLANNING AND DESIGN DIVISION**

**PROJECT TITLE:** PROPOSED PUMPING STATION

**DRAWN BY:** A.L. DEL PRADO

**DESIGNED BY:** PEDRO ESTALAR

**RECOMMENDED BY:** ENGR. R.S. CARTAGO

**APPROVED BY:** M.F.E.A. AGULAR, JR.

**LOCATION:** Barangay Halang, Calamba City, Laguna

---

**DATE:** 11/03/2020

**SHEET CONTENTS:** ELECTRICAL LAYOUT SCHEDULE OF LOADS RISER DIAGRAM

**SHEET NO.:** E-1
ELECTRICAL SPECIFICATION

A. GENERAL SPECIFICATIONS:
1. The work under this Division consists of furnishing all materials, equipment, tools, labor and all other services necessary to complete and make ready for operation the Electrical Power described below and in the Electrical Plans as Specifications in accordance with the latest edition of the Philippine Electrical Code with the Local Requirements of the Utility Company concerned and with the Local Government.
2. Service to the Pump and Motor Load must meet 490V, 380V, 3w-1g Power System. And service to the Perimeter Lighting must be 230V, 120V, 2w-1g power system and service to Pump and Motor Load for single phase location.
3. All Low Voltage Cables are THHN Insulated, Stranded, and Copper Conductor.
4. All Ground Wires shall be Insulated Grounds.
5. Cable sizes are selected by applying appropriate derating factors for ambient conditions of installations as per PEC.
6. Power factor for all loads is assumed 0.80.
7. The work under this Division consists of furnishing all materials, equipment, tools, labor and all other services necessary to complete and make ready for operation the Electrical Power described below and in the Electrical Plans as Specifications in accordance with the latest edition of the Philippine Electrical Code with the Local Requirements of the Utility Company concerned and with the Local Government.
8. Ampacities of feeders supplying continuous loads are taken as 125% of Full Load Current as per PEC.
9. All electrical materials shall be new and listed with the Underwriters Laboratories, Inc., shall meet their requirements and shall bear their label wherever standards have been established and label service is regularly furnished by that agency.
10. Mounting height shall be as follows:
   - Conduit/rigid: 1500mm above floor finish.
   - Conduit/insulated: 2000mm above floor finish.
   - Wall switches shall be 1400mm on center from floor finish.
   - Convenience outlet shall be 300mm above floor finish for indoor use.
   - Convenience outlet shall be 300mm above lavatories for outdoor use.
11. All luminaries and ballasts shall be certified by the manufacturer.
12. For easily identify the polarity, use color coded THHN/THWN and TW stranded copper conductor.
13. PVC and metal conduit shall be joined to junction boxes and pull box to make a grid and waterproof connection. If metal conduit is used, an insulated busing shall be provided at the end of the metal conduit on the inside of the junction box or pull box to prevent scuffing of the cable insulation.
14. All works herein shall be done under the strict supervision of duly LICENSE ELECTRICAL ENGINEER.
15. No Authority must be secured for works herein.
16. All works herein must comply with the electrical requirements of the National Electrical Code, UL and PEC.
17. The panelboards shall be UL Listed.
18. GENERAL: Except as otherwise indicated, provide panelboards, enclosures and ancillary components of types, sizes, and ratings indicated, which comply with manufacturer’s standard materials, design and construction in accordance with published product information, equip with number of terminals, devices, and accessories required for complete installation. Where more than one type of component meets indicated requirements, selection is installer’s option. Where types, sizes, or ratings are not indicated, comply with PEC, UL, and established industry standards for applications indicated.
19. ENCLOSURES: Provide galvanized sheet steel cabinet type enclosures, in sizes NEMA types as indicated, code gauge, minimum 16 gauge thickness. Construct with multiple knockouts and wiring gutters. Provide frames with adjustable indicating trim clamps, and doors with flush bolts and latches, all panelboard enclosures listed, with concealed door hinges and door stays. Equip with interior circuit directory frame, and card with clear plastic covering. Provide POWDER COATED GRAY finish.
20. Wet location panelboards shall be NEMA 4 enclosures.
21. Use NEMA 1 enclosure for indoor use, provide a degree of protection against limited amounts of falling dirt.
22. Use NEMA 3 enclosure for outdoor use, primarily to provide a degree of protection against rain, sleet, and damage from external ice formation.
23. Equipment shall have a Nameplate installed and mounted to the front cover and indicate panelboard type, amp rating, voltage rating and short-circuit current rating.

B. LIGHTING FIXTURES SPECIFICATIONS:
All luminaries and ballasts shall be certified by the manufacturer.

Fixture Type A
- 18W CFL w/ 4" Vertical Type Downlight, Aluminum Glossy Reflector and White Baked Finish Steel

Fixture Type B
- 30W Floodlight (CFL Type Lamp)

C. OUTLETS AND SWITCHES SPECIFICATIONS:

D. PULL BOX (S), JUNCTION BOX(S) AND UTILITY BOX(S) SPECIFICATIONS:

E. PANEL BOARD, MOTOR CONTROLLER AND MANUAL TRANSFER SWITCH SPECIFICATIONS:

SPECIFICATIONS: