AS INDICATED ABOVE

NOTES:
1. ALL SIZES AND LOCATION SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL NOT BE LIABLE FOR ANY ALTERATION/REVISION ON THE PLANS/DRAGMENS AND SPECIFICATIONS IMPROVED BY THE AUTHORIZED SUPERVISING ENGINEER DONE WITHOUT THEIR KNOWLEDGE THAT MAY IMPAIR STRENGTH OF THE PROJECT.

DETAIL PLAN

SCALE: 1/4"=

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

LOCATION:
LE Village 1, Brgy. Lingga, Calamba City

MR. FERNANDO H. ARELLANO JR.
MR. EXEQUIEL AGUILAR JR.
ENGR. RANELY S. CARTAGO

DESIGNED BY:
CHECKED BY:
RECOMMENDED BY:
APPROVED BY:

SHEET CONTENTS:
AS INDICATED ABOVE

DATE:
2-6-2020

SHEET NO.
W3
NOTES:
1. ALL DIMENSIONS ARE IN METERS EXCEPT WHERE OTHERWISE SHOWN.
3. HYDRANTS AT INTERSECTIONS SHALL BE AT THE CURB RETURN. OTHER THAN STREET INTERSECTIONS, HYDRANTS SHALL BE INSTALLED ON LOT LINES.
4. HYDRANTS SHALL BE PAINTED IN ACCORDANCE WITH THE SPECIFICATIONS. COLOR SHALL BE YELLOW UNLESS OTHERWISE DIRECTED BY THE OWNER.
5. GATE VALVE SHALL BE INSTALLED AS PER STANDARD DRAWING W-10.

FIRE HYDRANT ASSEMBLY

NOTES:
1. ALL SIZES AND LOCATION SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL NOT BE LIABLE FOR ANY ALTERATION/REVISION ON THE PLANS/DRAWINGS AND SPECIFICATIONS APPROVED BY THE AUTHORIZED SUPERVISING ENGINEER DONE WITHOUT THEIR KNOWLEDGE THAT MAY IMPAIR STRENGTH OF THE PROJECT.
EXPANSION OF WATERLINES

TYPICAL SERVICE CONNECTION

NOTES:
1. ALL SIZES AND LOCATION SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL NOT BE LIABLE FOR ANY ALTERATION/REVISION ON THE PLANS/DRAWINGS AND SPECIFICATIONS IMPLIED BY THE AUTHORIZED SUPERVISING ENGINEER DONE WITHOUT THEIR KNOWLEDGE THAT MAY IMPAIR STRENGTH OF THE PROJECT.
3. EMBEDDED PIPE ACROSS THE ROADWAY SHOULD BE WITH GI CONDUIT CASING AND INSTALL TO THE DEPTH THAT WOULD NOT AFFECTED BY FUTURE ROADWORKS.
4. FOR 50mm SERVICE CONNECTION LINE, 75 mm dia x 50 mm dia GI TEE W/M TO BE USED IN LIEU OF SADDLE CLAMP.

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

LOCATION:
LE Village 1, Brgy. Lingga, Calamba City

MR. FERNANDO H. ARELLANO JR.
MR. FERNANDO H. ARELLANO JR.
ENGR. RANELY S. CARTAGO
ENGR. RANELY S. CARTAGO
MR. EXEQUIEL AGUILAR JR.

PROJECT TITLE
EXPANSION OF WATERLINES

DRAFTED BY
MR. FERNANDO H. ARELLANO JR.
MR. FERNANDO H. ARELLANO JR.
ENGR. RANELY S. CARTAGO
ENGR. RANELY S. CARTAGO
MR. EXEQUIEL AGUILAR JR.

CHECKED BY
ENGR. RANELY S. CARTAGO
ENGR. RANELY S. CARTAGO

APPROVED BY
MR. EXEQUIEL AGUILAR JR.

DATE
2-6-2020

SHEET NO.
W6

AS INDICATED ABOVE

REVISED BY

SHEET CONTENTS:

W6
### Table of Trench Dimensions (in Meters)

<table>
<thead>
<tr>
<th>Pipe Diameter (mm)</th>
<th>Minimum Width (W)</th>
<th>Maximum Width (W)</th>
<th>Depth (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50mm</td>
<td>0.20</td>
<td>0.30</td>
<td>0.60</td>
</tr>
<tr>
<td>75mm</td>
<td>0.20</td>
<td>0.30</td>
<td>0.90</td>
</tr>
<tr>
<td>100mm</td>
<td>0.40</td>
<td>0.70</td>
<td>0.96</td>
</tr>
<tr>
<td>150mm</td>
<td>0.45</td>
<td>0.75</td>
<td>1.00</td>
</tr>
<tr>
<td>200mm</td>
<td>0.50</td>
<td>0.80</td>
<td>1.05</td>
</tr>
<tr>
<td>250mm</td>
<td>0.55</td>
<td>0.85</td>
<td>1.10</td>
</tr>
<tr>
<td>300mm</td>
<td>0.60</td>
<td>0.90</td>
<td>1.15</td>
</tr>
<tr>
<td>350mm</td>
<td>0.65</td>
<td>0.95</td>
<td>1.20</td>
</tr>
<tr>
<td>400mm</td>
<td>0.70</td>
<td>1.00</td>
<td>1.25</td>
</tr>
<tr>
<td>450mm</td>
<td>0.75</td>
<td>1.05</td>
<td>1.30</td>
</tr>
<tr>
<td>500mm</td>
<td>0.80</td>
<td>1.10</td>
<td>1.35</td>
</tr>
<tr>
<td>600mm</td>
<td>0.90</td>
<td>1.20</td>
<td>1.45</td>
</tr>
</tbody>
</table>

**Legend:**
1. Compacted selected native material backfill (See Spec.)
2. Compacted selected native material in 0.15 layers (See Spec.)
3. Approved sand bedding & backfill hand placed and compacted.
4. Payment for any resurfacing will be based on maximum trench widths per size pipe shown.

**Note:**
All dimensions in meters except where otherwise shown.
PLAN FOR SETTING BARRICADE

ELEV. OF CONC. BARRICADE

NOTES:
1. ALL SIZES AND LOCATION SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL NOT BE LIABLE FOR ANY ALTERATION/REVISION ON THE PLANS/DRAWINGS AND SPECIFICATIONS APPROVED BY THE AUTHORIZED SUPERVISING ENGINEER DONE WITHOUT THEIR KNOWLEDGE THAT MAY IMPAIR STRENGTH OF THE PROJECT.

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION
LAKEVIEW SUBD., HALANG, CALAMBA CITY

PROJECT TITLE: EXPANSION OF WATERLINES
LOCATION: LE Village 1, Brgy. Lingga, Calamba City

AUTOCAD BY: MR. FERNANDO H. ARELLANO JR.
DESIGNED BY: MR. FERNANDO H. ARELLANO JR.
CHECKED BY: ENGR. RANELY S. CARTAGO
RECOMMENDED BY: ENGR. RANELY S. CARTAGO
APPROVED BY: MR. EXEQUIEL AGUILAR JR.

SHEET CONTENTS: AS INDICATED ABOVE
DATE: 2-6-2020
SHEET NO.: W9
NOTES:

1. ALL DIMENSIONS IN METERS UNLESS OTHERWISE SHOWN.VALVES SHALL HAVE A MINIMUM COVER OF 0.30 m.MEASURED TO THE TOP OF THE OPERATING NUT.

2. VALVES SHALL BE INSTALLED ON EXTENSIONS OFPROPERTY LINES EXCEPT WHERE OTHERWISE SHOWN ORSPECIFIED.

3. USE FLANGED END GATE VALVES ON STEEL AND PVCPIPE LINE INSTALLATION.

4. CAST IRON OR STEEL COVER SHALL BE ADEQUATELYDESIGNED TO CARRY TRAFFIC LOADS.

5. CONCRETE BLOCK MAY BE OMITTED ON WELDED STEELPIPE LINES AT OPTION OF CONTRACTOR.
MR. FERNANDO H. ARELLANO JR.
MR. EXEQUIEL AGUILAR JR.
ENGR. RANELY S. CARTAGO

**NOTES:**
1. ABOVE AREAS BASED ON ASSUMED SOIL BEARING PRESSURE OF 96 kPa (2000 psf).
2. REDUCE OR INCREASE AREAS PROPORTIONATELY TO SUIT ACTUAL FIELD CONDITIONS UPON APPROVAL OF ENGINEER.
3. CONCRETE FOR THRUST BLOCK SHALL BE 13.8 MPa (2000 psi).
4. ALL CONCRETE SHALL BE POURED TO AVOID INTERFERENCE WITH JOINTS.
5. THRUST BLOCKS NOT REQUIRED ON STEEL PIPELINE WITH WELDED OR FLANGE JOINTS OR ON SOLVENT WELDED PVC PIPE.
6. WHERE PIPE CONNECTS TO A FITTING IN A STEEL PIPELINE SHALL BE BLOCKED AS SHOWN HEREON.
7. BEARING AREAS BASED ON INTERNAL PRESSURE OF 106kPa (150psi).

**TABLE OF MINIMUM THRUST BLOCK AREA IN SQ. M.**

<table>
<thead>
<tr>
<th>PIPE SIZE (mm)</th>
<th>TEE &amp; DEAD END</th>
<th>90° BEND</th>
<th>45° BEND</th>
<th>22½° BEND</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>0.06</td>
<td>0.07</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>100</td>
<td>0.08</td>
<td>0.12</td>
<td>0.07</td>
<td>0.04</td>
</tr>
<tr>
<td>150</td>
<td>0.20</td>
<td>0.28</td>
<td>0.15</td>
<td>0.08</td>
</tr>
<tr>
<td>200</td>
<td>0.35</td>
<td>0.50</td>
<td>0.27</td>
<td>0.14</td>
</tr>
</tbody>
</table>

HORIZONTAL CONCRETE THRUST BLOCK DETAILS

**SCALE:**

NOTES:

1. ABOVE AREAS BASED ON AN ASSUMED SOIL BEARING PRESSURE OF 96 kPa (2000 psf).
2. REDUCE OR INCREASE AREAS PROPORTIONATELY TO SUIT ACTUAL FIELD CONDITIONS UPON APPROVAL OF ENGINEER.
3. CONCRETE FOR THRUST BLOCK SHALL BE 13.8 MPa (2000 psi).
4. ALL CONCRETE SHALL BE POURED TO AVOID INTERFERENCE WITH JOINTS.
5. THRUST BLOCKS NOT REQUIRED ON STEEL PIPELINE WITH WELDED OR FLANGE JOINTS OR ON SOLVENT WELDED PVC PIPE.
6. WHERE PIPE CONNECTS TO A FITTING IN A STEEL PIPELINE SHALL BE BLOCKED AS SHOWN HEREON.
7. BEARING AREAS BASED ON INTERNAL PRESSURE OF 106kPa (150psi).
LOCATION OF WATERLINES

Purok Gitna, Brgy. Hornalan, Calamba City

MR. FERNANDO H. ARELLANO JR.

MR. EXEQUIEL AGUILAR JR.

ENGR. RANELY S. CARTAGO

AS INDICATED ABOVE

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

LOCATION PLAN
SCALE: MTS

BRGY. HORNALAN

LOCATION SITE

Purok Gitna, Brgy. Hornalan, Calamba City

MR. FERNANDO H. ARELLANO JR.

ENGR. RANELY S. CARTAGO

MR. EXEQUIEL AGUILAR JR.

W1

3-5-2020
RELOCATION OF WATERLINES

Purok Gitna, Brgy. Hornalan, Calamba City

MR. FERNANDO H. ARELLANO JR.

MR. EXEQUIEL AGUILAR JR.

ENGR. RANELY S. CARTAGO

AS INDICATED ABOVE

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

LOCATION
Purok Gitna, Brgy. Hornalan, Calamba City

NOTES:
1. ALL SIZES AND LOCATION SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL NOT BE LIABLE FOR ANY ALTERATION/REVISION ON THE PLANS/DRAWINGS AND SPECIFICATIONS IMPROVED BY THE AUTHORIZED SUPERVISING ENGINEER DONE WITHOUT THEIR KNOWLEDGE THAT MAY IMPAIR STRENGTH OF THE PROJECT.

PLAN VIEW
SCALE 1:100

Purok Gitna Hornalan

3.24m

3.78m

5.40m

147.96m

REF. ELEV. = 0.0 m

ELEV. = 3.78 m

LEGEND:
- New 50mm PE Pipe (Est. Length = 140 LM)
- NC
  - under construction
- Details
- FIRE HYDRANT/BLOW-OFF VALVE
- AIR RELEASE VALVE

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

Lakeview Subd., Halang, Calamba City

PROJECT TITLE
RELOCATION OF WATERLINES

LOCATION
Purok Gitna, Brgy. Hornalan, Calamba City

AUTOCAD BY
MR. FERNANDO H. ARELLANO JR.

DESIGNED BY
MR. FERNANDO H. ARELLANO JR.

CHECKED BY
ENGR. RANELY S. CARTAGO

RECOMMENDED BY
ENGR. RANELY S. CARTAGO

APPROVED BY
MR. EXEQUIEL AGUILAR JR.

SHEET CONTENTS
AS INDICATED ABOVE

DATE
3-5-2020

SHEET NO.
W2
NOTES:
1. ALL SIZES AND LOCATION SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL NOT BE LIABLE FOR ANY ALTERATION/REVISION ON THE PLANS/DRAWINGS AND SPECIFICATIONS IMPROVED BY THE AUTHORIZED SUPERVISING ENGINEER DONE WITHOUT THEIR KNOWLEDGE THAT MAY IMPAIR STRENGTH OF THE PROJECT.
CURBS AND GUTTER
50mm x 90º GI ELBOW
50mm GI PIPE SCH. 40
50mm GI TEE
FH/BLOW-OFF VALVE

50mm x 63mm BRASS ANGLE HEAD (FH)
50mm GI PIPE SCH. 40

NOTES:
1. ALL SIZES AND LOCATION SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL NOT BE LIABLE FOR ANY ALTERATION/REVISION ON THE PLANS/DRAWINGS AND SPECIFICATIONS APPROVED BY THE AUTHORIZED SUPERVISING ENGINEER DUE TO THE KNOWLEDGE THAT MAY IMPAIR STRENGTH OF THE PROJECT.

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION
LAKEVIEW SUBD., HALANG, CALAMBA CITY

PROJECT TITLE: RELOCATION OF WATERLINES
DESIGNED BY: MR. FERNANDO H. ARELLANO JR.
CHECKED BY: ENGR. RANELY S. CARTAGO
RECOMMENDED BY: ENGR. RANELY S. CARTAGO
APPROVED BY: MR. EXEQUIEL AGUILAR JR.

SCALE: NTS
W4/04-2020
DATE: 3-6-2020

Purok Gitna, Brgy. Hornalan, Calamba City

50mm GI PIPE SCH. 40
50mm GI PIPE SCH. 40

50mm GI PIPE SCH. 40
50mm GI PIPE SCH. 40

0.45 TO 0.60 OR AS DIRECTED BY ENGINEER

50mm x 63mm BRASS ANGLE HEAD (FH)
1. All sizes and location subject to change to suit field conditions.
2. The designer shall not be liable for any alteration/revision on the plans/drawings and specifications improved by the authorized supervising engineer done without their knowledge that may impair strength of the project.

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

LOCATION:
Purok Gitna, Brgy. Hornalan, Calamba City

PROJECT TITLE:
RELOCATION OF WATERLINES

SHEET CONTENTS:
AS INDICATED ABOVE

DATE:
3-5-2020

W5
TYPICAL SERVICE CONNECTION

ARV ASSEMBLY PLAN

NOTES:
1. ALL SIZES AND LOCATION SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL NOT BE LIABLE FOR ANY ALTERATION/REVISION ON THE PLANS/DRAWINGS AND SPECIFICATIONS IMPROVED BY THE AUTHORIZED SUPERVISING ENGINEER DONE WITHOUT THEIR KNOWLEDGE THAT MAY IMPAIR STRENGTH OF THE PROJECT.
3. SERVICE CONNECTION ACROSS THE ROADWAY SHOULD BE WITH GI CONDUIT CASING

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

LOCATION:
Purok Gitna, Brgy. Hornalan, Calamba City
NOTES:
1. ALL SIZES AND LOCATION SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THE DESIGNER SHALL NOT BE LIABLE FOR ANY ALTERATION/REVISION ON THE PLANS/DRAWINGS AND SPECIFICATIONS APPROVED BY THE AUTHORIZED SUPERVISING ENGINEER Done without their knowledge that may impair strength of the project.
3. EXISTING WATER METER AND BRASS BALL VALVE TO BE TRANSFERRED FROM PRESENT LOCATION TO RELOCATION SITE.
# Table of Trench Dimensions (in Meters)

<table>
<thead>
<tr>
<th>Pipe Diameter (mm)</th>
<th>Minimum Width (W)</th>
<th>Maximum Width (W)</th>
<th>Depth (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50mmø</td>
<td>0.20</td>
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<td>0.60</td>
</tr>
<tr>
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<td>0.30</td>
<td>0.90</td>
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<tr>
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<td>0.75</td>
<td>1.00</td>
</tr>
<tr>
<td>200mmø</td>
<td>0.50</td>
<td>0.80</td>
<td>1.05</td>
</tr>
</tbody>
</table>

**Legend:**
1. Compacted selected native material backfill (see spec.)
2. Compacted selected native material in 0.15 layers (see spec.)
3. Approved sand bedding & backfill hand placed and compacted.
4. Payment for any resurfacing will be based on maximum trench widths per size pipe shown.

**Note:** All dimensions in meters except where otherwise shown.

---

**Normal Installation where sand bedding backfill not required.**

**In rock or when ordered by engineer.**
PLAN FOR SETTING BARRICADE

Notes:
1. All sizes and location subject to change to suit field conditions.
2. The designer shall not be liable for any alteration/revision on the plans/drawings and specifications improved by the authorized supervising engineer done without their knowledge that may impair strength of the project.
LOCATION MAP
SCALE: NTS

SUPPLY OF LABOR OF PARALLEL PIPING AND LOOPING OF WATER LINE AND DISTRIBUTION LINE

LOCATION: Site Ungguyan, Brgy. San Juan, Calamba City, Laguna

AUTO-DRAWN BY: ENGR. V. C. DAVID
DESIGNED BY: ENGR. V. C. DAVID
CHECKED BY: ENGR. F. H. ARELLANO
RECOMMENDED BY: ENGR. R. S. CARTAGO
APPROVED BY: MR. E. A. AGUILAR

DATE: SHEET CONTENTS: SHEET NO.
LOCATION MAP
W1
LEGEND:
- 150mm ø CCI pipe (existing)
- 75mm ø PVC pipe (proposed)

MEASUREMENT:
- 255.4 Linear Meter

DISTRIBUTION LINE LAYOUT PLAN

SCALE: NTS

NOTES:
1. ALL ELEVATIONS AND LOCATIONS ARE SUBJECT TO CHANGE TO SUIT FIELD CONDITIONS.
2. THIS DRAWING IS NEITHER SCALE-NOR-PLAN FOR AN AUTHORIZED CONSTRUCTION CONTRACTING CONTRACTOR NOR BODY COMMISSIONED TO PERFORM SUCH WORK. IT IS A SCHEDULE OF EDUCATIONAL WORK DRAWN BY THE AUTHORIZED ENGINEER WITHOUT THEIR KNOWLEDGE THAT MAY IMPAIR THE STABILITY OF THE PROJECT.
LEGEND:
- 150mm ø CCl pipe (existing)
- 75mm ø PVC pipe (proposed)
- 50mm ø PVC pipe (proposed)
- Cluster

NOTE:
- All design and construction are subject to change due to site condition.
- The final dimensions and specifications may differ from the proposed drawings.
- The design and construction are subject to the approval of the proper authorities.

NUTS

SCALE:

CLUSTER LAYOUT PLAN

CALAMBA WATER DISTRICT
ENGINEERING DEPARTMENT
PLANNING AND DESIGN DIVISION

SUPPLY OF LABOR OF PARALLEL PIPING AND LOOPING OF WATER LINE AND DISTRIBUTION LINE

LOCATION:
Sitio Ungguyan, Brgy. San Juan, Calamba City, Laguna

DATE: 07-17-2003