

**PROGRAM OF WORKS FOR PIPELINE DESIGN**

**Objective –**

This procedure prepares the Program of Works (POW) for Pipeline Extension to serve the concessionaires of Cagayan de Oro City.

**Scope –**

This procedure determines the desired pipeline size, make and design for all proposed pipeline extension of Cagayan de Oro City Water District.

This procedure is limited to the planning of Program of Works.

**Definition of Terms –**

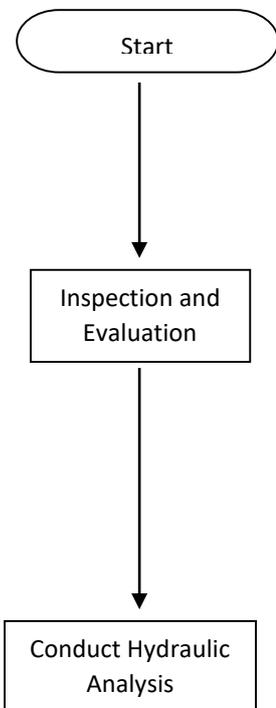
Hydraulic Analysis – Water modeling of water distribution system pipe networks

Epanet – Water distribution system modeling software

POW – Program of Works consist of Inspection Report, Hydraulic Analysis Report, GanttChart, Bill of Materials and Cost Estimates, Interconnection Details, Location and Vicinity Maps, and Request letter (if applicable).

P & D – Pipeline Section – refers to Planning & Design –Pipeline Section

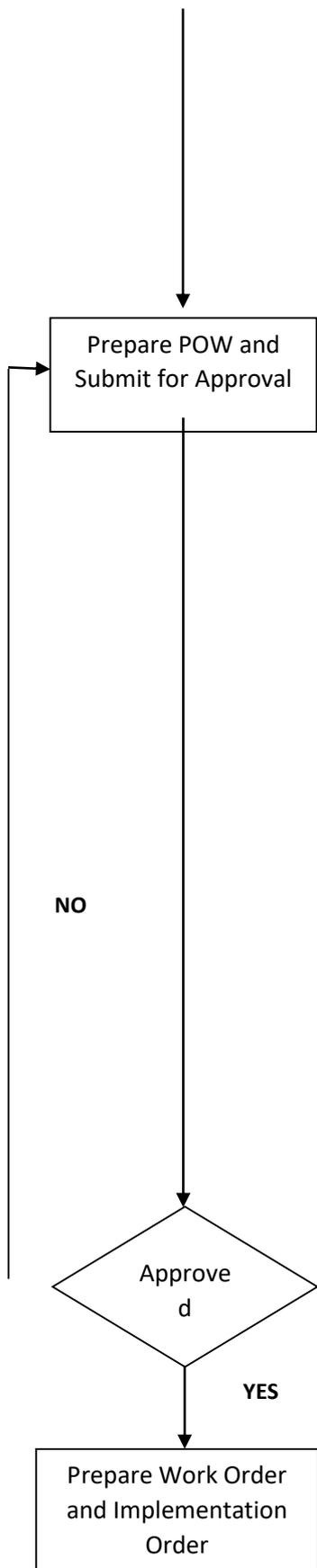
Process Flow	Detailed Description	Responsibility	Retained Documented Information
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<p>Pipeline designs are based on Annual Plan and or per Concessionaire’s Request of pipeline connection. This shall be completed within Thirty-Five (35) Calendar Days.</p> <p>The following activities are to be conducted in determining prior to Pipeline Design:</p> <ul style="list-style-type: none"> <li>• Conduct Site Inspection to get the Exact Location of Nearest Tapping Point</li> <li>• Conduct Pressure Monitoring for Peak and Average Hours</li> <li>• Conduct Data Logger Monitoring if necessary to record 24-hour Data for some areas of Low Water Pressure</li> </ul>	P&D – Pipeline Section	Inspection Report, Pressure Data, Request Letter (if applicable)
<p>Collect gathered data prior to the simulation of Epanet</p> <ul style="list-style-type: none"> <li>• Elevation</li> <li>• Water Demand</li> <li>• Distance</li> </ul> <p>Simulation of Hydraulic Analysis through Epanet is necessary to determine the exact Pipeline Size of the network.</p>	P&D – Pipeline Section	Hydraulic Simulation, Request Letter

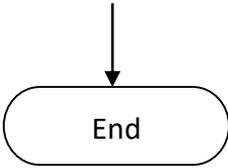
Prepared By: <p style="text-align: center;"><b>Lyndon P. Butron</b></p> <hr style="width: 20%; margin: auto;"/> Process Owner	Approved By: <hr style="width: 20%; margin: auto;"/> Quality Management Representative
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**PROGRAM OF WORKS FOR PIPELINE DESIGN**



<p>In cases of request, update is given to the Concessionaire if feasible or not.</p>		
<p>The Program of Works comprises the following:</p> <ul style="list-style-type: none"> <li>• Inspection Report</li> <li>• Hydraulic Analysis</li> <li>• Bill of Materials and Cost Estimates</li> <li>• Gantt Chart</li> <li>• Detailed Engineering Design</li> <li>• Interconnection Details</li> <li>• Location and Vicinity Maps</li> <li>• Request Letter (if applicable)</li> </ul> <p>The Immediate Supervisor, Division Manager, Department Manager, Assistant to the General Manager, and General Manager shall check and verify the following areas upon approval of POW:</p> <p><u>Immediate Supervisor shall check;</u></p> <ul style="list-style-type: none"> <li>• Nature of request</li> <li>• Evaluation Report/Inspection Report</li> <li>• Detailed Pipeline Design/Hydraulic Analysis</li> <li>• Cost Estimates</li> <li>• Road Right of Way/ Permits</li> <li>• Recommendation</li> <li>• Drafts of Reply Letter</li> <li>• Other supporting documents</li> </ul> <p><u>Division Manager shall check;</u></p> <ul style="list-style-type: none"> <li>• Water Supply System Design</li> <li>• Program of Works</li> <li>• Supporting documents</li> </ul> <p><u>Department Manager shall verify;</u></p> <ul style="list-style-type: none"> <li>• Nature of Request</li> <li>• Recommendation</li> <li>• Total Project Cost</li> </ul> <p><u>Assistant to the General Manager shall verify;</u></p> <ul style="list-style-type: none"> <li>• Nature of Request</li> <li>• Recommendation</li> </ul> <p><u>General Manager shall approve;</u></p> <ul style="list-style-type: none"> <li>• Program of Works</li> </ul> <p>If POW is approved, Proceed to the Next Step.          If not, revise the POW until Approval has been granted by the General Manager.</p>	<p>P&amp;D – Pipeline Section</p>	<p>Retain all details</p>
<p>The following are the Next Steps for the Implementation Phase:</p>	<p>P&amp;D – Pipeline Section</p>	<p>File copy</p>

**PROPRIETARY NOTICE**



<ul style="list-style-type: none"> <li>Prepare Work Order</li> <li>Prepare Implementation Order</li> </ul> <p>Inform Requisitioned of the Approved POW.</p>		
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**Reference Documents –**

1. Manual of Local Water Utilities Administration (LWUA) Standards & Specifications

**Records Generated –**

1. Request Letter
2. Work Order
3. Implementation Order
4. Pipeline Layout
5. Communication Matrix



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## INSTALLATION OF NEW SERVICE CONNECTION

**Objective –**

*This procedure prepares the installation of new service connection of customers of Cagayan de Oro City Water District.*

**Scope –**

*This procedure describes the installation of New Service Connections using the Standard Design of Cagayan de Oro City Water District.*

**Definition of Terms –**

*RIS – Requisition Issue Slip, form used to request for materials.*

Process Flow	Detailed Description	Responsibility	Retained Documented Information
<pre> graph TD     START([START]) --&gt; JO[Job Order]     JO --&gt; RIS[Prepare RIS]     RIS --&gt; INST[Installation]     INST --&gt; DAILY[DAILY ACCOMPLISHMENT]     DAILY --&gt; END([END])                     </pre>	<p>Based on the Job Order prepared by the Commercial Department, the Construction Division –Installation Section prepares the Requisition and Issuance Slip (RIS) which includes the following:</p> <p>Material description, size and quantity.</p> <p>Signatories of the RIS are the following:                      Requisitioner: Leadman                      Checked by – Supervisor                      Approved by – Division Manager</p>	<p>Construction – Installation Section</p>	<p>RIS</p>
	<p>Actual installation of New Service Connection and issuance of Water Meter Receipt.</p>	<p>Construction – Installation Section</p>	<p>Water Meter Receipt</p>
	<p>Submit Daily Accomplishment Report to the Engineering Department Manager.</p>	<p>Construction – Installation Section</p>	<p>Accomplishment Report</p>

Prepared By: <p style="text-align: center;"><u>Edna S. Najéal</u> Process Owner</p>	Approved By: <p style="text-align: center;">_____ Quality Management Representative</p>
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## **INSTALLATION OF NEW SERVICE CONNECTION**

### **Reference Documents –**

1. *Water Service Application*
2. *Job Order*
3. *COWD Service Standard Design*

### **Records Generated –**

1. *Water Meter Receipt*
2. *Accomplishment Report*

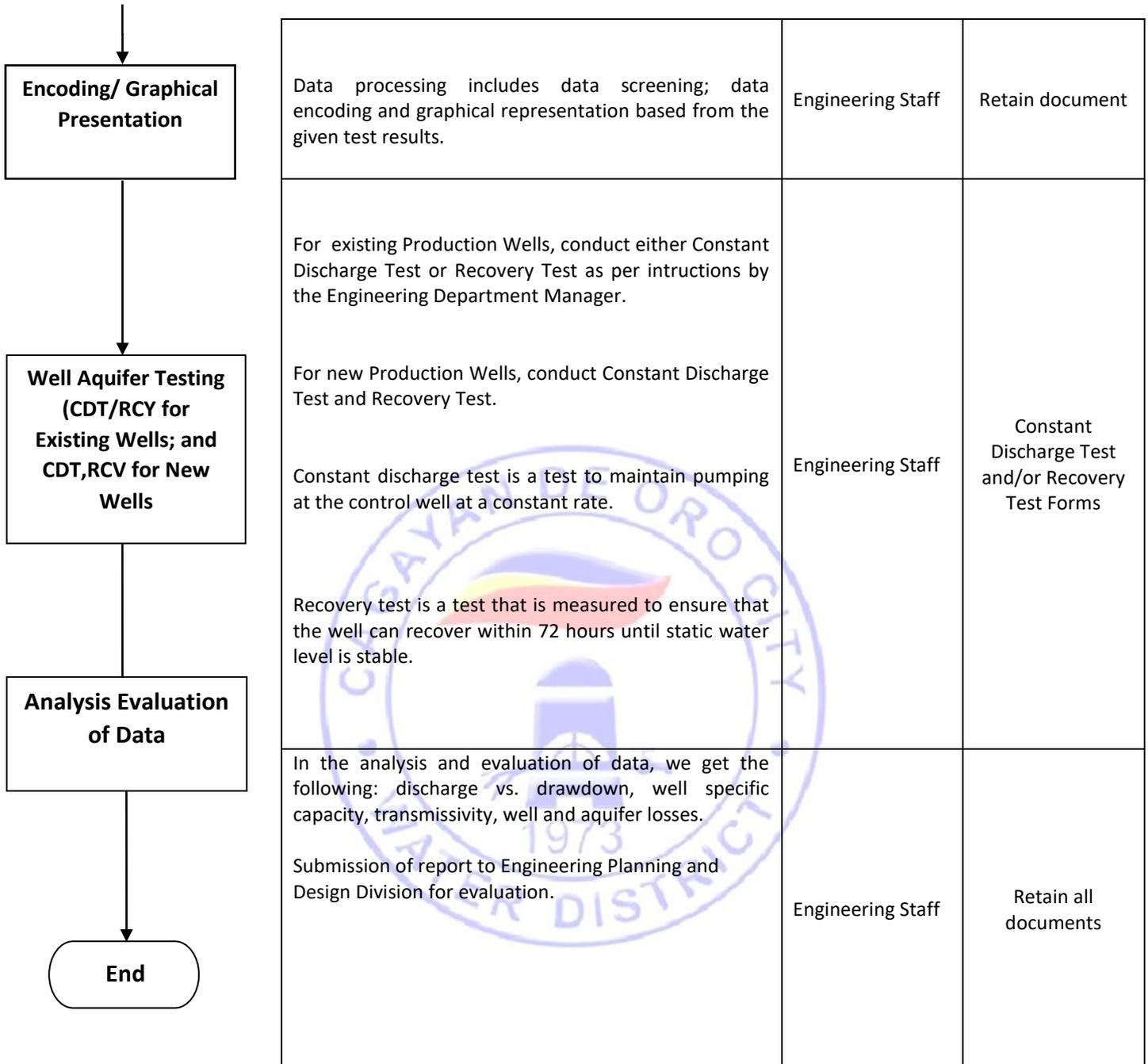


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**PRODUCTION WELL/ AQUIFER TESTING**



Reference Documents-

1. LWUA Standards on Well Development

Records Generated-

1. Step Drawdown Test
2. Constant Discharge Test
3. Recovery Test

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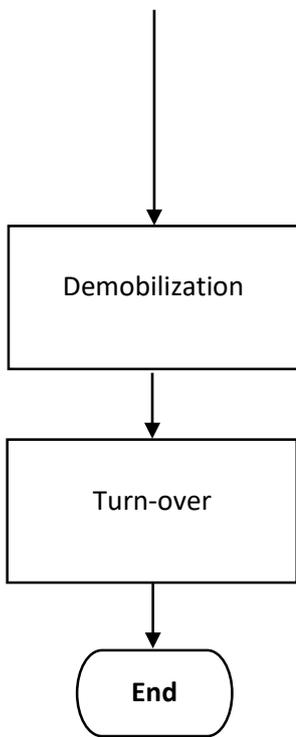


**CONSTRUCTION**

<p>Construction</p>	<p>Conduct site development, layout for building construction, conduct joint survey / as-taking for bridge or water systems construction, building, initial material testing.</p> <p>Discrepancies found during joint survey, contractor will request for variation order and project time extension.</p> <p>The Project Engineer shall conduct the toolbox meeting with the following agenda:</p> <ul style="list-style-type: none"> <li>• Accomplishments</li> <li>• Things to do the next day</li> <li>• Safety</li> <li>• Problems and Issues</li> </ul> <p>The Construction Team shall conduct coordination meeting regularly to address the problems on site immediately. Minutes of the Meeting shall then be generated.</p> <p>Follow each phases of the construction project according to the plan by comparing actual accomplishment to plan using the Gantt Chart to know the actual status.</p> <p>Project Engineer/Foreman together with representative from the Contractor should conduct regular inspection for each project phase to ensure quality of materials used and its workmanship. This includes inspection prior to pouring of concrete using the Checklist of different work activities</p> <p>Established frequency of Inspection which will be the basis for Project Billing.</p> <ul style="list-style-type: none"> <li>• 30% Project Accomplishment</li> <li>• 50% Project Accomplishment</li> <li>• 70 % Project Accomplishment</li> <li>• Hydrotesting of Pipeline for every 100 meters pipe laid.</li> </ul> <p>Conduct Pre Final Inspection</p> <ul style="list-style-type: none"> <li>• Any nonconformity found during Pre-Final Inspection shall be corrected by the Contractor immediately prior to Final Billing for Contract-Out Project.</li> </ul>	<p>Project Engineer</p>	<p>Inspection Report &amp; Material Test Result,          Checklist of different work activities (for Contract-out Project)</p>
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**PROPRIETARY NOTICE**

**CONSTRUCTION**



<p>Conduct closing inventory of all excess resources for each project.</p> <p>Perform demolition of perimeter fencing and pull-out warning / caution signages, materials and equipments.</p> <p>Perform demolition of temporary facilities and utilities, and clean-up area prior to turn over to client.</p>	<p>Project Engineer</p>	
<p>Project Engineer Prepares Completion Report upon completion of the project.</p>	<p>Project Engineer</p>	<p>As Built Plan</p>

**Reference Documents –**

1. Program of Works

**Records Generated –**

1. Project Gantt Chart & Monthly Accomplishment Report
2. Construction Project Plan
3. Quality Control Plan (checklist of Construction activities)
4. Material Test Results
5. As Built Plan
6. Turn over of completed project

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