



**Attachment 1 – NIG/MDG/TEN32**

**Quality Control Plan for Water Project**

<b>Date:</b>	9 <sup>th</sup> March 2021
<b>Developed By:</b>	Galadima Gilah
<b>Position:</b>	Program Coordinator – WASH
<b>Description:</b>	Quality control plan for the construction and completion of; Motorized borehole, steel stanchion with 20 cubic meter PVC storage tank, water fetching points and soak pits

**1.0 Introduction**

To insure quality, MERCY CORPS has developed these guidelines for the construction of Boreholes and Water supply infrastructure in the North East Region. These guidelines are designed as generic templates that must be modified in line with the design, BOQ and specifications of each particular water Project bearing in mind the overall objectives of MERCY CORPS. The contractor must be made aware of this plan during the Kick-off meeting.

**1.1 Purpose and Scope**

This inspection Plan is developed to ensure that this project is carried out with best quality practices. The Plan also specifies the quality system requirements applicable to all personnel who manage, perform and verify work affecting quality for the construction of the boreholes, Plumbing/pump installation, Stanchion/storage units, Pipe network, solarization/mechanization and water points in various locations in Borno State - whether they are employed directly or indirectly. It is applicable throughout the entire Project and to all parties participating in the Project Execution.

**1.2 Terms, Definitions and Abbreviations**

<b>COMPANY</b>	The owner of the CONTRACT and in this instance; MERCY CORPS
<b>CONTRACTOR</b>	The Company to whom the CONTRACT WORK has been Awarded and in this instance ( ..... )
<b>PROJECT</b>	<b>Water Projects. under Maida Program</b>



- ☐ **Accept:** approved: Acknowledge, by signature, initial or stamp and date, that a document or activity has been evaluated and confirmed to meet stated requirement.
- ☐ **Document:** Any written or pictorial information, describing Specifying, reporting or certifying activities, requirements, Procedures or results.
- ☐ **ITP:** a document which sets out the specific operational techniques and activities with the relevant acceptance criteria aimed at monitoring a process and at eliminating causes of unsatisfactory performance at relevant stages of the work and/or services. All the ITP forms required for different activities are itemized in the Inspection and Test Plan Chart. **This chart must be signed off by the Contractor and the WASH team at the Kick-off meeting.**
- ☐ **Hold point = H:** This is mandatory notification to MERCY CORPS. All activities at this level must not proceed without the approval and presence of MERCY CORPS inspection/technical team/Staff.
- ☐ **Review = R:** Notification Evaluation is not required. Inspection of documents and procedures for the execution of works with the materials and activities involved for the purpose of acceptance or rejection documented by signature, initial or stamp and date.
- ☐ **Witness point = W:** A prior notification to MERCY CORPS is mandatory. All activities at this level may proceed by the contractor if MERCY CORPS is not present at the stipulated time provided there is no rescheduling or cancellation from MERCY CORPS.
- ☐ **RANDOM INSPECTION:** Notification is not required. Sufficient representative materials and components are selected and examined to satisfy that these activity or material conform to required specifications and are free from defects.
- ☐ **Contractor Engineer:** A qualified personnel of the contractor (preferable a Geologist) with proven/certified Knowledge on the Project. **It is compulsory that the personnel is present and manages the project through the lifespan of the**



**project. All technical communications would be done between MERCY CORPS Engineer and the Contractor Engineer.**

### **1.3 NOTIFICATIONS**

MERCY CORPS shall be given advance notice (at least a day before) prior to all activities during official work days (Monday to Friday). 48hours advance notice for weekends and public holiday works via e-mail or Phone call. All inspection, test and construction activities identified as Hold point's activities cannot be carried out during the weekend without prior notification and approval via email or phone call by MERCY CORPS's Supervising Engineer. It is the responsibility of the contractor to ensure the MERCY CORPS Engineer is Pre-informed before a Hold Point activity is carried out.

### **1.4 SIGN-OFF/APPROVAL**

Witness points shall be signed off by the Contractor and MERCY CORPS. However, if MERCY CORPS is absent they would be required to sign afterwards where applicable.

Hold Points shall be signed-off by the contractor and MERCY CORPS on site after the activity has been completed or before the activity starts. As applicable, before proceeding with any further works.

All relevant tests/inspections forms must be made available by Contractor or MERCY CORPS Engineer and signed-off on the spot immediately after tests/inspections or activity has been carried out by the contractor and MERCY CORPS.

### **1.5 NON-CONFORMANCE REPORT (NCR):**

A non-conformance report documents the details of a non-conformance (default in specification) identified in a quality audit or other process/activity review. The objective of the report is to make a clear, identifiable and concise definition of the problem so that corrective action can and will be initiated by the contractor mostly before any other activity is continued. This document is used to officially inform the contractor & Supply chain on a breach in the implementation of the project as to required contractual specifications. A contractor must avoid NCR's as 3 NCR's in one project means the contractor can be blacklisted after investigations. After MERCY CORPS engineer spots a probable case of Non-conformance,



Contract/PR No:				<b>INSPECTION/TEST and SUPERVISION PLAN CHART</b>			
Title of ITP CHART: <b>Borehole Construction</b>							
Location where ITP is Applicable:				Date:		Contractor Name	
S/N	Description of QA Activity	Inspection Level			Responsible <b>MERCY CORP S Staff</b>	QC Form to be used to Verify Compliance	Comments/Remarks
		Cont		MER			
1	Mobilization Checklist	<b>H</b>		<b>H</b>	WaSH Officer	Borehole Mobilization Plan	
2	Inspection of All materials to be Installed	<b>H</b>		<b>H</b>	WaSH Officer	Material Inspection Report	
3	Drilling Activity	<b>H</b>		<b>H</b>	WaSH Officer	Borehole Construction Report	Before installation
4	During Concreting (Foundation/Slabs Etc)	<b>H</b>		<b>H</b>	WaSH Officer	Concrete inspection Form	
5	Blocks work for Water Fetching Point and soak Pit	<b>H</b>		<b>w</b>	WaSH Officer	Blockwork Inspection Checklist	
6	Steel Fabrication Works(Tank Stand)	<b>w</b>		<b>w</b>	WaSH Officer	Stanchion (Iron Works) Checklist	
7	Excavation of Soak Pit/Tank Stand Foundation.	<b>w</b>		<b>w</b>	WaSH Officer	Excavation Checklist	
8	Plumbing installation for Tank Storage	<b>H</b>		<b>W</b>	WaSH Officer	Plumbing Works Inspection Form Storage Tank Installation	
9	Solar Submersible Pump Installation	<b>H</b>		<b>H</b>	WaSH Officer	Pump Installation Form	
10	Solar PV system and Electrical Power installation.	<b>H</b>		<b>H</b>	WaSH Officer	Solar panel's & Generator Installation Form	
<b>Key for Inspection</b>		(Name)			Sign:		Date:
		<b>Contractor:</b>					
<b>I</b> = Random Inspection <b>R</b> = Review Records <b>W</b> = Witness (mandatory notification) <b>H</b> = Mandatory Hold Point <b>W.T.O</b> – WASH Technical Officer.		Approved: (Name)			Sign:		Date
		<b>MERCY CORPS</b>					



NB: All Quality forms would be produced and Filled by Contractor before MERCY CORPS Checks and Signs off on Site



## BOREHOLE MOBILIZATION CHECKLIST

Project Name/Contract Number:		Date:	
S/N	Activity	Checklist	Comment
1	Contract	Contract signed	
2	Drilling plan	Drilling work plan submitted and approved	
3	Community Liaison	Explain details of drilling process.	
		Community member roles, contributions and responsibilities	
		Exchange details of main contact persons or community/Camps representatives.	
		Driller's representative introduced to the Community	
4	Equipment is appropriate and in working condition	Check the Suitability of Drilling rods	
		Check if Hammers and bits are of the right diameter (measure).	
		Temporary casing diameter is correct.	
5	Samples of materials meet with technical specifications	Sample box	
		Casing and screen (measure length and diameter)	
		Filter pack and gravel materials	
		Screen	
6	Data collection forms	Form of data entry forms agreed (Refer to Annex E of Code of Practice for Cost Effective Boreholes, RWSN 2010)	

<b>INSTPECTED BY</b>	<b>MERCY CORPS REPRESENTATIVE</b>	Input Name, Position, Signature and Date
	<b>CONTRACTOR REPRESENTATION</b>	Input Name, Position, Signature and Date

## BOREHOLE CONSTRUCTION REPORT

Community Name:				GPS:			
Contract Number:				BH NO:			
Name of Contractor:				Date:			
1	Type of Equipment Used						
2.	Drilling Method Used,						
	Is the Borehole Vertically Aligned?			YES		NO	
3	Drilling Start Time:			Drilling Completion Time.			
4	Is Contractor Geologist on Site?			YES		NO	
5	Is Casing Diameter 150mm	YE S		Was the Casing Capped		YES	NO
6	Total Depth Drilled			Total Depth Cased			
7	Screen Length: -			Screen Diameter/slot size			
8	Gravel Packing:	YES	NO	Grain Size Used			
9	Depth Water was Struck?						
10	Was Equipment lost in The Well?			YES		NO	
						If yes What?	
11	Was Well Logging done at every 3m Interval?			YES		NO	
						Attach Photos of logging to this form	
12	Bore Hole Development	Start Time:		Finish Time		MERCY CORPS Engineer must be present at the for this activity	
CONCLUSION/General Comments on the overall quality of Works(to be filled by the MERCY CORPS Engineer							
SUPERVISED BY: _____ NAME (Contractor Geologist) Signature Date							
SUPERVISED BY: _____ NAME (MERCY CORPS Engineer/Supervisor) Signature Date							

CONCRETE INSPECTION FORM			
Borehole NO:		DATE OF POUR:	
CONCRETE GRADE(MIX): 1:2:4			
DESCRIPTION	CONTRACTOR ACCEPTANCE	MERCYCORPS ACCEPTANCE	REMARKS
<b>1.0 FORMWORK</b>			
Is braising adequate?			
Is Formwork Aligned?			
Is there Adequate Access			
Check Dimensions as per Design.			
<b>2.0 REINFORCEMENT</b>			
Are the Re-bars free from excessive Rust			
Is the Spacing Correct(20mm C/C)			
Is the Concrete Cover as Per Specification			
Are all Tie wires in place and correctly Tied?			
Correct Numbers of bars in the reinforcement			
Are the Reinforcement bars of the correct size ( <i>according to Spec</i> )(Column-20mm &raft slab-16mm)			
<b>3.0 GENERAL</b>			
Is the Pour site clean and free from all Debris			
Are there any Vibratory Pokers or materials for Compaction?			
Confirm Mix Ratio(1:2:4-Cement:River Sand: Gravel)			
<b>CONCRETE REPAIR POST POUR</b>			
DESCRIPTION OF DEFECT:			
<b>NB: ALL REPAIR IS MANDATORY HOLD POINT</b>	<b>CONTRACTOR ACCEPTANCE</b>	<b>MERCYCORPS ACCEPTANCE</b>	
CONCRETE DEFECT INSPECTION			
SURFACE PREPARATION INSPECTION			
MATERIALS EQUIPMENT AND TESTING			
POST REPAIR INSPECTION			
SIGNED: _____ Contractor (cont.) Name Date			
SIGNED: _____ (MERCY CORPS) Witness Name Date			



<b>BLOCK WORK INSPECTION CHECKLIST FOR WATER FETCHING POINT &amp; Soak Pit</b>		FORM NO: CONTRACT NO: BOREHOLE NUMBER																																																												
<div>ITEMS TO BE CHECKED BEFORE APPROVAL IS GIVEN</div> <div> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">CHECK</th> </tr> <tr> <th>y</th> <th>N</th> <th></th> </tr> </thead> <tbody> <tr> <td><b>Materials Item</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Is the mortar mix to specification (1:6) One Cement bag to 12 head pans of sand?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Confirm Quality of Water used is suitable for drinking</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Is the Quality of Block Used satisfactory?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Is thickness of mortar Satisfactory?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Were Blocks wetted before Use</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Is Finished level as per design?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Are all blocks laid in full horizontal mortar bed?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Were at least 3 course of Blocks Turned to allow for Percolation?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Dimensions and alignment of blockwork?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Was Mortar Mixed used within 30mins after minxing?</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> </div>					CHECK			y	N		<b>Materials Item</b>				Is the mortar mix to specification (1:6) One Cement bag to 12 head pans of sand?				Confirm Quality of Water used is suitable for drinking				Is the Quality of Block Used satisfactory?				Is thickness of mortar Satisfactory?				Were Blocks wetted before Use				Is Finished level as per design?				Are all blocks laid in full horizontal mortar bed?				Were at least 3 course of Blocks Turned to allow for Percolation?				Dimensions and alignment of blockwork?				Was Mortar Mixed used within 30mins after minxing?											
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REMARK: ACCEPTABLE QUALITY OF WORKS <div> <ul style="list-style-type: none"> <li>• YES</li> <li>• NO</li> </ul> </div> (LIST UNACCEPTABLE ITEMS AND EXPLAIN)																																																														
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	<b>TANK STAND (IRON WORKS) CHECKLIST</b>	FORM NO: CONTRACT NO: LATRINE NO.	
<i>Concrete foundation should be cured to specified number of days before Loading or commencement of any steel works.</i>			
<b>ITEMS TO BE CHECKED BEFORE APPROVAL IS GIVEN</b>	CHECK/Accept		
	CONTRACTOR		MERCY CORPS
<b>Steel Members</b>			
Check for Dimension of I beams as to Approved Designs			
Dimensions of Each H columns as to Approved Designs and Specs			
Check for Size of Bolts/Guasset plates as to Approved Designs and specifications			
Check for Size and dimensions of Diagonal Brazing's			
<b>Dimensions of Members</b>			
Check For Dimensions and quantity of all Iron Members as to Design			
Check For Dimension of Iron Braising			
Check for Alignment of Vertical and Horizontal Members			
<b>General</b>			
Confirm Each Tank is to required Capacity/Volume (5m3)			
Confirm the Dimensions of Gird Rails is adequate and according to Specification			
Confirm Quality of Aluminum Painting.			
Confirm the Quality of the overall Workmanship			
Confirm MERCY CORPS Visibility is clearly Printed as Specified on Scope of works			
REMARK: <input type="checkbox"/> ACCEPTABLE QUALITY OF WORKS • YES • NO (LIST UNACCEPTABLE ITEMS AND EXPLAIN)			
SIGN: _____ <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>CONTRACTOR</span> <span>NAME:</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>DATE</span> <span></span> </div> SIGN: _____ <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>MERCY CORPS</span> <span>NAME:</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span></span> <span>DATE</span> </div>			



<b>EXCAVATION CHECKLIST</b>		
DATE OF EXCAVATION: .....		
PIT GPS LOCATION: .....		
ITEMS TO BE CHECKED BEFORE APPROVAL IS GIVEN	<b>SIGNATURE &amp; DATE</b>	
	CONTRACTOR	MERCY CORPS
CONFIRMATION OF THE PERIPHERY OF THE PIT		
CONFIRMATION OF DEPTH OF EXCAVATED PIT		
CLEAN-UP		
TYPE OF EXCAVATED SOIL OK		
PRESENCE OF UNDERGROUND FACILITY		
REMARKS: ACCEPTANCE OF EXCAVATION YES NO (LIST UNACCEPTABLE ITEM(S) AND EXPLAIN:		
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 45%;"> <p>SIGNED: .....</p> <p style="text-align: center;">CONTRACTOR(Name)</p> </div> <div style="width: 45%;"> <p>.....</p> <p style="text-align: center;">Sign</p> </div> <div style="width: 10%;"> <p>.....</p> <p style="text-align: center;">Date</p> </div> </div> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 45%;"> <p>SIGNED: .....</p> <p style="text-align: center;">MERCY CORPS</p> </div> <div style="width: 45%;"> <p>.....</p> <p style="text-align: center;">Sign</p> </div> <div style="width: 10%;"> <p>.....</p> <p style="text-align: center;">Date</p> </div> </div>		

	<b>PLUMBING WORKS INSPECTION FORM –</b>	FORM NO: CONTRACT NO: LATRINE NO.	
<i>Concrete foundation should be cured to specified number of days before Loading or commencement of any steel works.</i>			
ITEMS TO BE CHECKED BEFORE APPROVAL IS GIVEN		CHECK/Accept	
		CONTRACTOR	MERCY CORPS
<b>Plumbing/Piping</b>			
Confirm Pipe Quality/type to Specification (at least 10Bar)			
Confirm Pipe Diameter as to Specifications			
Confirm pipe Cleanout			
<b>Pipe Connection Method</b>			
Confirm Pipe connection Method (threaded-GI or Solvent weld-PVC Gum)			
Confirm All pipe joint are free from leakages During operation			
Ensure Pipe cutting method does not compromise quality			
<b>General /Vales and Fittings</b>			
Check overall Pipe length for leakages			
Ensure quality of gate valves and non-return valves are of required quality/Spec			
Confirm Alignment of outlet and inlet Pipes to H Steel Columns			
Ensure Pipes is embedded in Clean Soil and at least 60cm below ground level			
Check Installation of Water Flow Meters.			
REMARK/General Comments if Needed. ACCEPTABLE QUALITY OF WORKS <div style="text-align: center;">           YES  <input type="checkbox"/> </div> <div style="text-align: center;">           NO (LIST UNACCEPTABLE ITEMS AND EXPLAIN)  <input type="checkbox"/> </div>			
SIGN: _____ <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">CONTRACTOR DATE</div> <div style="text-align: center;">NAME:</div> </div>			
SIGN: _____ <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">MERCY CORPS</div> <div style="text-align: center;">NAME:</div> <div style="text-align: center;">DATE</div> </div>			

<b>PUMP INSTALLATION FORM</b>				
Community Name:			GPS:	
Contract Number:			BH NO:	
Name of Contractor.			Date:	
	<b>PUMP Specifications</b>		Comments	
1	Type of Pump To be Installed			
2	Pump Capacity/ Specification(HP/KW)			
3	Pump installation Depth			
4	Check that the Pump Head Ratings Matches the Motor			
<b>Plumbing Installation</b>				
4	Check Pipe Diameter			
5	Check Quality of Riser Pipes			
6	Check for Pump Safety Rope.			
7	Check the Quality and Capacity of the Cable used			
CONCLUSION/General Comments on the overall quality of Works( <i>to be filled by the MERCY CORPS Engineer</i> )				
<div style="display: flex; justify-content: space-between;"> <div> <b>SUPERVISED BY:</b> _____  NAME (Contractor Geologist) </div> <div> _____  Signature </div> <div> _____  Date </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div> <b>SUPERVISED BY:</b> _____  NAME (MERCY CORPS Engineer/Supervisor) </div> <div> _____  Signature </div> <div> _____  Date </div> </div>				



## SOLAR PANNELS & GENERATOR INSTALLATION FORM

Community Name:	GPS:
Contract Number:	BH NO:
Name of Contractor.	Date:

SOLAR PANNELLS				Comments	
1	Ensure all modules Securely fastened to the Brackets				
2	Visually inspect the array for cracked modules, damaged junction boxes, and loose wires.				
3	Visually inspect each Module to confirm the Wattage summing up to the Wattage required to power the pump				
4	Check Tilt Angle				
5	<b>Identify orientation (azimuth) of proposed array location ..... degrees.</b>				
6	Perform a Shading study to ensure PV systems are free from shadows cast by other facilities.				
7	Check Uniformity of the Panels(Same Wattage)				
8	Check Electrical Connection (Use Equipment)				
9	Check the Quality Of the Cables.				

CONCLUSION/General Comments on the overall quality of Works(*to be filled by the MERCY CORPS Engineer*)

SUPERVISED BY: \_\_\_\_\_

NAME (Contractor Geologist)                      Signature                      Date

SUPERVISED BY: \_\_\_\_\_  
NAME (MERCY CORPS Engineer/Supervisor)      Signature      Date



Contractor Non Conformance Report (NCR)			
Contractor Name:		MERCY CORPS Representative:	
Contract Name:		Position:	
Contractor's Representative:		Phone No :	
Telephone:		Contract Location:	
Signature: _____		Signature: _____	
Date: _____		Date: _____	

Details of Non Conformance	Action Required	Completion Date	Verification of Completion
<b>Comments: Contractor is Advised to avoid further Non-conformances in the course of the Project as 2 NCR's in a Project could affect Contractors appraisal and ability to Secure another project with MERCY CORPS.</b>			