Final Report for Fondation Eagle

KEY INFORMATION

a) Donor name: Fondation Eagle

b) Name of Charity and Project: WellBoring (GB-CHC-1142295) - Build 5 new wells

c) Foundation Eagle reference number: FF602-2127

d) Date of grant accepted: 27th September 2021

e) Amount: GBP 21'250

f) Name and exact location of the project and number of beneficiaries:

Build 5 new wells for the effective and safe operation of schools and the rural population, in order to support productive education in Busia County / Teso Sub-County, Kenya. The five primary schools, including their locations, are:

School Name	Number of Beneficiaries	Co-ordinates
Kisiombe Nakholo	1753	0.7474856, 34.4173808
Matumbai	1711	0.7450301, 34.4294036
Kawalun	2446	0.751184, 34.3905803
Ataba Aburi	1406	0.7643126, 34.3820464
Akibui	1215	0.7466184, 34.3680233
Total	**8531**	

g) Period of Project: 3 months, October to December 2021.

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SUMMARY

Fondation Eagle provided funding to allow WellBoring to develop borewells that provide safe water to five schools, and their local communities, in Busia County / Teso Sub-County, Kenya.

The project is now complete.

Across the 5 new wells, the Fondation has helped to provide clean, safe water to 8’531 people that were in desperate need. The five schools selected were:

- Ataba Aburi Primary School
- Akibui Primary School
- Matumbai Primary School
- Kawalun Chakol Primary School
- Kisiombe Nakholo Primary School

We can confirm that the funds were used correctly and for the purpose they were allocated. Also, the work carried out was in accordance with the initial project described.

On the following page is a detailed financial report including a breakdown of the expenditure, the exchange rate achieved.

In summary the Fondation provided a grant of GBP 21’250 and WellBoring’s final total cost was GBP 32,074. WellBoring expected to contribute GBP 3’750 of the total funding. WellBoring used an additional GBP 7’074 of its own funds to cover the actual costs.

The water quality at each of the wells was checked by the appropriate authorities and found to be good.

FINANCIAL BREAKDOWN

The following table provides a financial breakdown of the costs for each of the five wells.

On the following page is a comparison of our budgeted costs to actual expenditure.

	Ataba Aburi	Akibui	Matumbai	Kisiombe Nakholo	Kawalun Chakol
Personnel					
Director of projects	£ 166.67	£ 166.67	£ 166.67	£ 166.67	£ 166.67
Project Coordinator (PIU)	£ 133.33	£ 133.33	£ 133.33	£ 133.33	£ 133.33
Chief Driller	£ 126.67	£ 126.67	£ 126.67	£ 126.67	£ 126.67
Driller/Welders/driver(4)	£ 453.33	£ 453.33	£ 453.33	£ 453.33	£ 453.33
Office receptionist	£ 100.00	£ 100.00	£ 100.00	£ 100.00	£ 100.00
Additional / Miscellaneous	£ -	£ -	£ -	£ -	£ -
	£ 980.00	**£ 980.00**	**£ 980.00**	**£ 980.00**	**£ 980.00**
Accounting services	£ 156.67	£ 156.67	£ 156.67	£ 156.67	£ 156.67
Hydro geological services	£ 400.00	£ 400.00	£ 400.00	£ 400.00	£ 400.00
	£ 556.67	**£ 556.67**	**£ 556.67**	**£ 556.67**	**£ 556.67**
Drilling Supplies					
Drilling foam	£ 33.33	£ 33.33	£ 33.33	£ 33.33	£ 33.33
Hydraulic Oil for Rig	£ 53.33	£ 53.33	£ 53.33	£ 53.33	£ 53.33
Compressor oil	£ 21.67	£ 21.67	£ 21.67	£ 21.67	£ 21.67
Diesel for Compressor use	£ 765.00	£ 765.00	£ 765.00	£ 765.00	£ 765.00
Diesel Rig use (drilling) & Mudpump	£ 130.50	£ 130.50	£ 130.50	£ 130.50	£ 130.50
Supply of water for drilling	£ 250.00	£ 250.00	£ 250.00	£ 250.00	£ 250.00
Additional / Miscellaneous	£ -	£ -	£ -	£ -	£ -
	£ 1,253.83	**£ 1,253.83**	**£ 1,253.83**	**£ 1,253.83**	**£ 1,253.83**
Well Supplies					
PVC Casing 10 foot lengths (5.0")	£ 525.67	£ 498.00	£ 498.00	£ 498.00	£ 691.67
PVC screens	£ 183.00	£ 146.40	£ 146.40	£ 146.40	£ 219.60
Gravel Pack/Coarse Sand	£ 436.67	£ 436.67	£ 436.67	£ 436.67	£ 436.67
Bleach	£ 3.33	£ 3.33	£ 3.33	£ 3.33	£ 3.33
Hand pump & accessories	£ -	£ -	£ -	£ -	£ -
Service Casings (steel)	£ 313.33	£ 156.67	£ 156.67	£ 313.33	£ -
	£ 1,462.00	**£ 1,241.07**	**£ 1,241.07**	**£ 1,397.73**	**£ 1,351.27**
Well Pad					
Cement	£ 30.00	£ 30.00	£ 30.00	£ 30.00	£ 30.00
Wire Mesh (reinforcement)	£ 8.67	£ 8.67	£ 8.67	£ 8.67	£ 8.67
Binding Wire	£ 1.00	£ 1.00	£ 1.00	£ 1.00	£ 1.00
Sand	£ 83.33	£ 83.33	£ 83.33	£ 83.33	£ 83.33
Balast	£ 100.00	£ 100.00	£ 100.00	£ 100.00	£ 100.00
Maram	£ 83.33	£ 83.33	£ 83.33	£ 83.33	£ 83.33
Bricks (Well Pad Forms & Pump Hse)	£ 8.33	£ 8.33	£ 8.33	£ 8.33	£ 8.33
Additional / Miscellaneous	£ -	£ -	£ -	£ -	£ -
	£ 314.67	**£ 314.67**	**£ 314.67**	**£ 314.67**	**£ 314.67**
Other direct cost					
Office rental (1/5 space)/utility	£ 56.67	£ 56.67	£ 56.67	£ 56.67	£ 56.67
email & phones	£ 16.67	£ 16.67	£ 16.67	£ 16.67	£ 16.67
Equipment and supply mobilization	£ 133.33	£ 166.67	£ 133.33	£ 133.33	£ 133.33
Support truck fuel to sites	£ 66.67	£ 100.00	£ 66.67	£ 66.67	£ 66.67
Water Quality Analysis	£ 66.67	£ 66.67	£ 66.67	£ 66.67	£ 66.67
Driling permit (& WSRB)	£ 166.67	£ 166.67	£ 166.67	£ 166.67	£ 166.67
Drillers accomodation	£ 300.00	£ 300.00	£ 300.00	£ 300.00	£ 300.00
Rig Depreciation (CAPEX) & maintanances (of equipment used)	£ 266.67	£ 266.67	£ 266.67	£ 266.67	£ 266.67
Additional / Miscellaneous	£ -	£ -	£ -	£ -	£ -
	£ 1,073.33	**£ 1,140.00**	**£ 1,073.33**	**£ 1,073.33**	**£ 1,073.33**
Sub Total Direct Costs	**£ 5,640.50**	**£ 5,486.23**	**£ 5,419.57**	**£ 5,576.23**	**£ 5,529.77**
VAT (16%)	**£ 902.48**	**£ 877.80**	**£ 867.13**	**£ 892.20**	**£ 884.76**
Totals	**£ 6,542.98**	**£ 6,364.03**	**£ 6,286.70**	**£ 6,468.43**	**£ 6,414.53**
WellBoring Contribution	**-£ 2,292.98**	**-£ 2,114.03**	**-£ 2,036.70**	**-£ 2,218.43**	**-£ 2,164.53**
Grand Totals	**£ 4,250.00**	**£ 4,250.00**	**£ 4,250.00**	**£ 4,250.00**	**£ 4,250.00**

All costs were incurred in Kenyan Shillings and converted to UK Pounds at the rate of **150K.Sh. to 1GBP**.

BUDGET/ACTUAL EXPENDITURE COMPARISON

The following table compares the total budget to actual expenditure. All costs were incurred in Kenyan Shillings and converted to UK Pounds at the rate of **150K.Sh. to 1GBP**.

		Total Budget values	Actual Total Costs	Actual Total Costs
Budget Category	Budget Line Items	GBP	K. Sh.	GBP
Staff	Drilling personnel	4650	852600	5684
Facilities & Equipment	Drilling licenses & related costs	1600	202710	1351
	Drill supplies	4500	1090980	7273
	Well supplies	7000	1164060	7760
	Well pad	800	274050	1827
	Training venue & materials costs	950	232290	1549
Travel, accomodation, & meals	WellBoring Groundwater personnel expenses	3000	509820	3399
Technical assistance	Survey & testing costs	2500	484590	3231
	Total	25000	4811100	32074
	Project Funding - Fondation Eagle	**21250**		**21250**
	Core Funding - WellBoring	**3750**		**10824**

Actual costs exceeded the budget by GBP 10'284. When budgeting for the project, WellBoring expected to contribute GBP 3'750 of the total funding. Its actual contribution was GBP 10'824.

REPORT ON BUDGET VS ACTUAL COST VARIATIONS

The following table summarises the overspend / underspend, by budget line item, for the 5 new wells project delivered by WellBoring.

Budget Line Items	Variation vs budget in GBP	Variation vs budget as a percentage	Line item value as a percentage of budget	Summary reason for variation
EXCHANGE RATE VARIATION	833	3.33%		Excahange rate used for budget was K.Sh.155:GBP1 - Actual averaged K.Sh.150:GBP1
Drilling personnel	879	18.29%	18.60%	More than budgeted because of drilling conditions / extra time spent at some sites
Drilling licenses & related costs	-302	-18.26%	6.40%	License related costs were less than budgeted
Drill supplies	2623	56.41%	18.00%	Water and more diesel than usual purchased for drilling because of difficult drilling conditions at some sights
Well supplies	527	7.29%	28.00%	Gravel and sand purchased because not available locally
Well pad	1000	121.01%	3.20%	Gravel and sand purchased because not available locally
Training venue & materials costs	567	57.75%	3.80%	Materials more expensive than budgeted due to local inflation
WellBoring Groundwater personnel expenses	299	9.64%	12.00%	More than budgeted because of drilling conditions / extra time spent at some sites
Survey & testing costs	647	25.06%	10.00%	More expensive than budgeted because of remote locations

Well Report for Ataba Aburi Primary School

Number of pupils	556
Estimate of community affected	850
Total people benefiting from clean water	1406
Headteacher	Chrisantus Manyiror
Previous water access	Stream
Funds spent	Kes 718,869
Water Resources Authority	Meets standards

Pupils fetching water from the *newly constructed well at Ataba Aburi*

How we achieved this

PREVIOUS WATER ACCESS

Ataba Aburi Primary School had been depending on a stream that is about 7 kilometres from the school. Not only the school, but the whole Teso sub-county has had this hurdle in terms of access to clean-safe water.

This stream was the previous water source for Ataba Aburi Primary School

DRILLING EXPERIENCE AND WELL CONSTRUCTION

The drilling team arrived at Ataba Aburi at 12: 30pm. They did the siting, set the rig and started off right away.

The drill team managed to drill down 24 metres on the first day. On the next day, they decided to drill to 70 metres. The borehole was cased to the 70 metres depth and had an excellent water yield of 6.5 cubic metres per hour with a water rest level of 13 metres.

The construction of the well pad took one day after which it was left to dry before the pump could be installed.

The next day the borehole was disinfected and fitted with an Afridev hand pump to the depth of 70ft below ground level. Below are some of the pictures taken during the development of the well.

Pad construction at Ataba Aburi Primary

Pump installation at the well

WATER QUALITY ANALYSIS

The water quality was checked and found to be good.

FORM F/9/1/6

WATER RESOURCES AUTHORITY

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Kisumu Water Quality Laboratory
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Tel: 057072025493
Email: kisumuro@gmail.com

Physical Chemical Laboratory Results Certificate

Report Issue Date: 14/12/2021	**Sample No: 0182/2021-2022**
Name of Customer: **Ataba Aburi Primary School** WATER RESOURCES AUTHORITY LAKE VICTORIA SOUTH CATCHMENT AREA P. O. Box 666 - 40100, KISUMU TEL: 057 2025493	Received By: John Oyugi Date Received: 11/12/2021 Type of Sample: Ground water (Borehole)
Sampled/submitted by: **Wellboring Groundwater** **Purpose of Sampling:** **Assessment of water Quality** **Date of Sampling 11/12/2021**	**County: Busia**

PARAMETERS	UNIT	RESULTS	WHO GUIDELINES	KEBS(KS 459-1:2007) STANDARDS.
pH	pH Scale	**8.19**	6.5-8.5	6.5-8.5
Colour	Hazen	**15**	Max 15	Max 15
Turbidity	N.T.U	**5**	Max 5	Max 5
Conductivity (25^0C)	µS/cm	**580**	Max 2500	-
Calcium	mg/l	**16**	Max 100	Max 150
Magnesium	mg/l	**1.1**	Max 100	Max 100
Total Hardness	mg$CaCO_3$/l	**14**	Max 500	Max 300
Total Alkalinity	mg$CaCO_3$/l	**26**	Max 500	-
Chloride	mg/l	**6.6**	Max 250	Max 250
Fluoride	mg/l	**0.23**	Max 1.5	Max 1.5
Nitrate	mgNO_3-N/l	**2.4**	Max 10	-
Nitrite	mgNO_2-N/l	**0.002**	Max 0.1	Max 0.003
Sulphate	mg/l	**26**	Max 450	Max 400
Total Dissolved Solids	mg/l	**290**	Max 1500	Max 1000
Ortho Phosphate	mg/l	**0.3**	Max 2	Max 2
Iron	mg/l	**0.23**	Max 0.3	Max. 0.3
Manganese	mg/l	**0**	Max 0.1	Max 0.1

Comments:

Results refer to a sample submitted to the laboratory by the client, based on the analyzed parameters; the water has met the KEBS chemical standards for drinking water.

Signature of the Head of the Lab.....
Name of the Head of the Lab ...**Fanuel Onyango**
Title of the Head of the Lab...**WQ&PCO**

Signature of the Unit Head/Analyst.....Date **14/12/2021**
Name of the Unit Head/Analyst **Beryl Akinyi**
Title of the Unit Head/Analyst)...**Laboratory Technologist**

Disclaimer:
The results contained herein apply to the particular sample(s) tested, whose sample number and tests carried out as detailed in these results. The information contained here reflects the laboratory's findings at the time of analysis and based on the samples submitted by the customer.

Well Report for Akibui Primary School

Number of pupils	575
Estimate of community affected	640
Total people benefiting from clean water	1215
Headteacher	David Wanyonyi
Previous water access	Akibui seasonal stream
Fund spent	Kes 718,869
Water Resources Authority	Meets standards

Pupils fetching water from the *newly constructed well at Akibui*

How we achieved this

PREVIOUS WATER ACCESS

Water shortage has been a crisis within Akibui and has been ravaging the village for decades. Water was obtained from a seasonal stream that is 9 kilometres away.

The area is a semi-arid one, with mean annual rainfall of about 150-700mm per year. The stream only gets filled during the sporadic rains and therefore unable to sustain the community throughout the year.

Akibui stream-Previous water source for Akibui Primary School

DRILLING EXPERIENCE AND WELL CONSTRUCTION

Mobilisation from Ataba Aburi to Akibui took 5 hours. The drill team were able to site the point and drill 10 metres on the first day. On the next day, they managed to drill to 40 metres and hit the first aquifer at 36 metres depth: with a substantial amount of water of about 3 cubic metres per hour. On the third day, they managed to reach the planned 65 metres depth and cased the borehole.

The construction of the well pad took a day after which it was left to dry before the pump could be installed. The next day the borehole was disinfected and fitted with an Afridev hand pump.

Below are some of the pictures taken during the development of the well.

Pad construction at Akibui Primary

Pump installation at the well

WATER QUALITY ANALYSIS

The water quality was checked and found to be good.

FORM F/9/1/6

WATER RESOURCES AUTHORITY

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Physical Chemical Laboratory Results Certificate

Report Issue Date: 14/12/2021	**Sample No: 0183/2021-2022**
Name of Customer: **Akibuyi Primary School** WATER RESOURCES AUTHORITY LAKE VICTORIA SOUTH BASIN AREA P. O. Box 666 - 40100, KISUMU TEL: 057 2025493	**Received By:** **John Oyugi** **Date Received:** **11/12/2021** **Type of Sample:** **Ground water** **(Borehole)**
Sampled/submitted by: **Wellboring Groundwater** **Purpose of Sampling:** **Assessment of water Quality** **Date of Sampling 10/12/2021**	County: Busia

PARAMETERS	UNIT	RESULTS	WHO GUIDELINES	KEBS(KS 459-1:2007) STANDARDS.
pH	pH Scale	**8.20**	6.5-8.5	6.5-8.5
Colour	Hazen	**10**	Max 15	Max 15
Turbidity	N.T.U	**5**	Max 5	Max 5
Conductivity (25°C)	µS/cm	**1690**	Max 2500	-
Calcium	mg/l	**31**	Max 100	Max 150
Magnesium	mg/l	**8.5**	Max 100	Max 100
Total Hardness	$mgCaCO_3/l$	**94**	Max 500	Max 300
Total Alkalinity	$mgCaCO_3/l$	**204**	Max 500	-
Chloride	mg/l	**134**	Max 250	Max 250
Fluoride	mg/l	**0.08**	Max 1.5	Max 1.5
Nitrate	$mgNO_3N/l$	**2.2**	Max 10	-
Nitrite	$mgNO_2N/l$	**0.001**	Max 0.1	Max 0.003
Sulphate	mg/l	**14**	Max 450	Max 400
Total Dissolved Solids	mg/l	**895**	Max 1500	Max 1000
Ortho Phosphate	mg/l	**0.5**	Max 2	Max 2
Iron	mg/l	**0.08**	Max 0.3	Max. 0.3
Manganese	mg/l	**0.003**	Max 0.1	Max 0.1

Comments:

Results refer to a sample submitted to the laboratory by the client, based on the analyzed parameters the water has met the KEBS chemical standards for drinking water.

Signature of the Head of the Lab.....
Name of the Head of the Lab ...**Fanuel Onyango**
Title of the Head of the Lab...**WQ&PCO**

Signature of the Unit Head /Analyst.....Date **14/12/2021**
Name of the Unit Head/Analyst **Beryl Akinyi**
Title of the Unit Head /Analyst)...**Laboratory Technologist**

Disclaimer:
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Well Report for Matumbai Primary School

Number of pupils	685
Estimate of community affected	1026
Total people benefiting from clean water	1711
Headteacher	Moses Mukhanda
Previous water access	Seasonal stream
Fund spent	Kes 718,869
Water Resources Authority	Meets standards

Pupils fetching water from the *newly constructed well at Matumbai*

How we achieved this

PREVIOUS WATER ACCESS

Water shortage has been normal in Teso North for decades. The current water source, which is a stream, is bacteria-laden making most of the pupils to spend most of their time out of school complaining of water-related diseases.

Seasonal stream - Previous water source for Matumbai Primary School

DRILLING EXPERIENCE AND WELL CONSTRUCTION

After an arduous journey to get to the site, on day one, the drill team managed to drill to a depth of 20 metres. The formation was a stable one, majorly composed of quartz. On the next day they were able to hit the first aquifer at 45 metres.

On the final day of drilling they were able to drill to 65 metres depth in order to create a good column for the water in the hole. The yield was a good one of about 4.4 cubic metres per hour.

The construction of the well pad took a day after which it was left to dry before the pump could be installed. The next day the borehole was disinfected and fitted with an Afridev hand pump.

Below are some of the pictures taken during the development of the well.

Pad construction at Matumbai Primary

Pump installation at the newly constructed well

WATER QUALITY ANALYSIS

The water quality was checked and found to be good.

FORM F/9/1/6

WATER RESOURCES AUTHORITY

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Physical Chemical Laboratory Results Certificate

Report Issue Date: 13/12/2021	**Sample No: 0183/2021-2022**
Name of Customer **Matumbai Primary School** WATER RESOURCES AUTHORITY LAKE VICTORIA SOUTH BASIN AREA P.O. Box 666 - 40100, KISUMU TEL: 057 2025493	**Received by:** **John Oyugi** **Date Received:** **10/12/2021** **Type of Sample** **Ground water**
Sampled/submitted by: **Wellboring Groundwater** **Purpose of Sampling:** **Assessment of water Quality** **Date of Sampling:11/12/2021**	**County: Busia**

PARAMETERS	UNIT	RESULTS	WHO GUIDELINES	KEBS(KS 459-1:2007) STANDARDS
pH	pH Scale	**7.4**	6.5-8.5	6.5-8.5
Colour	Hazen	**5**	Max 15	Max 15
Turbidity	N.T. U	**3**	Max 5	Max 5
Conductivity	µS/cm	**1013**	Max 2500	-
Calcium	mg/l	**45**	Max 100	Max 100
Magnesium	mg/l	**3.32**	Max 100	Max 100
Total Hardness	$mgCaCO_3/l$	**100**	Max 500	Max 300
Total Alkalinity	$mgCaCO_3/l$	**180**	Max 500	-
Chloride	mg/l	**30**	Max 250	Max 250
Fluoride	mg/l	**0.8**	Max 1.5	Max 1.5
Nitrate	$mgNO_3N/l$	**1.6**	Max 10	-
Nitrite	$MgNO_2N/l$	**0.003**	Max 0.1	Max 0.003
Sulphate	mg/l	**14**	Max 450	Max 400
Total Dissolved Solids	mg/l	**160.4**	Max1500	Max1000
Ortho Phosphate	mg/l	**0.1**	Max 2	Max 2
Iron	mg/l	**0.08**	Max 0.3	Max 0.3
Manganese	mg/l	**0**	Max 0.1	Max 0.1

Comments:

Result refer to a sample submitted to the laboratory by the client, based on the analyzed parameters; the water has met the KEBS chemical standards for drinking water.

Signature of the Head of the Lab..... Signature of the Unit Head/Analyst.....Date **13/12/2021**
Head of the Lab...**Fanuel Onyango** Name of the Unit Head/Analyst **Beryl Akinyi...**
Title of the Head of the Lab **WQ&PCO** Title of the Unit Head/Analyst...**Laboratory Technologist**

Disclaimer:
The results contained herein apply to the particular sample(s) tested,whose sample number and tests carried out as detailed in these results. The information contained here reflects the laboratory's findings at the time of analysis and based on the samples submitted by the customer.

Well Report for Kawalun Chakol Primary School

Number of pupils	1146
Estimate of community affected	1300
Total people benefiting from clean water	2446
Headteacher	Ekisa Santos
Previous water access	Stream
Funds spent	Kes 718,869
Water Resources Authority	Meets standards

Pupils fetching water from the *newly constructed well at Kawalun Chakol*

How we achieved this

PREVIOUS WATER ACCESS

Kawalun Chakol primary and the village at large has been experiencing acute water shortage. The pupils travel for over 10 kilometres to a seasonal stream to draw water. The water crisis in the area has led to a huge health crisis. Lack of proper sanitation and consumption of the untreated stream water has led to many pupils battling various water related diseases. This has incapacitated the pupils as far as the academic performance is concerned.

Heavily polluted stream - Previous water source for Kawalun Chakol Primary School

DRILLING EXPERIENCE AND WELL CONSTRUCTION

The drilling team managed to drill 20 metres on the first day. The formation was a stable one. On the following day, they hit a water bearing formation at 30 metres which, unfortunately, had a lot of boulders. They struggled through and drilled to 35 metres.

On the third day, the drilling was smoother, and the team managed to drill to 70 metres depth. The borehole had a substantial amount of water with a yield of about 4.5 cubic metres per hour. The static water level at that time was 11 metres below the ground.

The construction of the well pad took a day after which it was left to dry before the pump could be installed. The next day the borehole was disinfected and fitted with an Afridev hand pump.

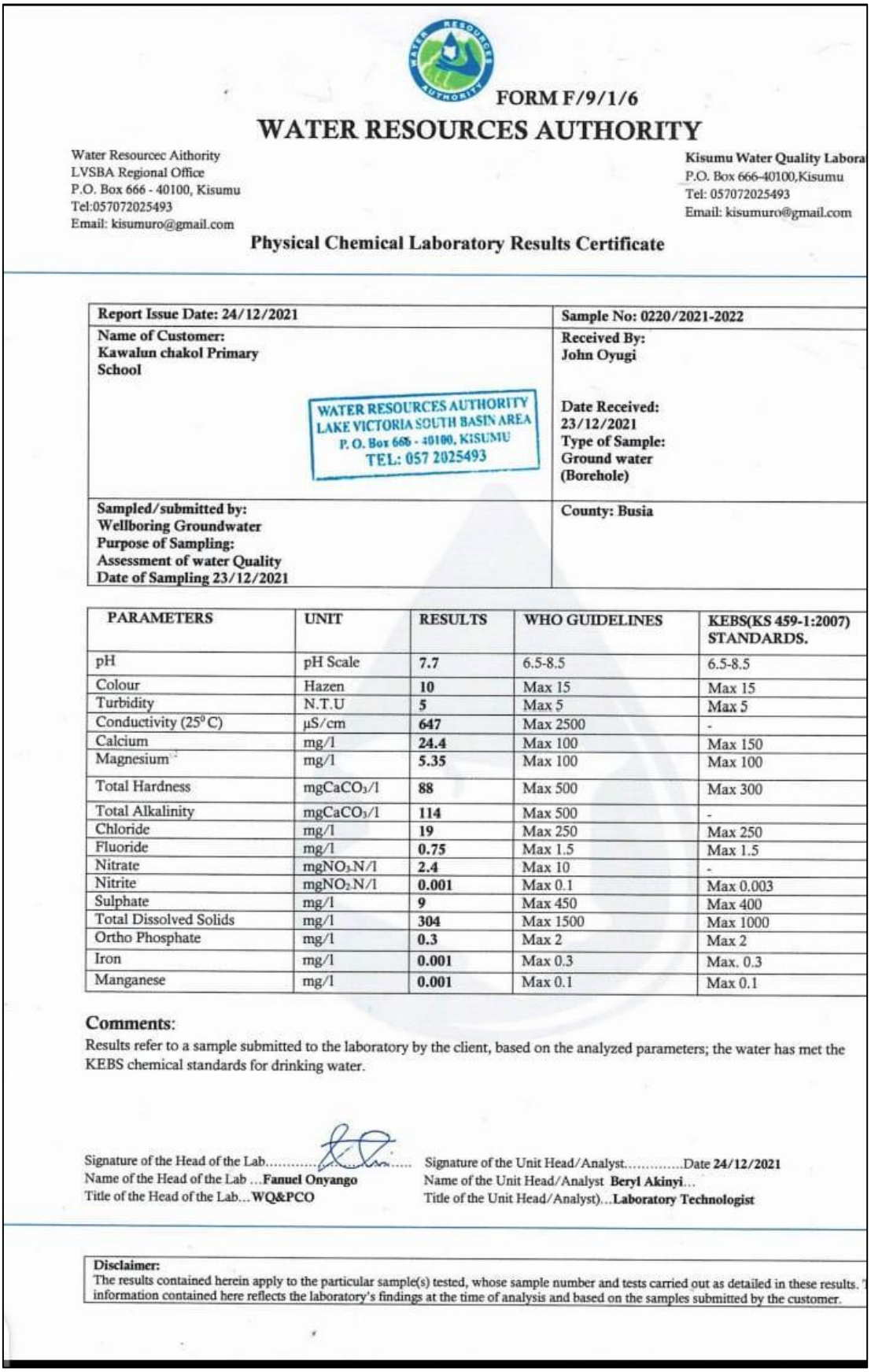
Below are some of the pictures taken during the development of the well.

Pad construction at Kawalun Chakol Primary

Pump installation at the newly constructed well

WATER QUALITY ANALYSIS

The water quality was checked and found to be good.



FORM F/9/1/6

WATER RESOURCES AUTHORITY

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Email: kisumuro@gmail.com

Physical Chemical Laboratory Results Certificate

Report Issue Date: 24/12/2021	**Sample No: 0220/2021-2022**
Name of Customer: **Kawalun chakol Primary School**	**Received By:** **John Oyugi**
WATER RESOURCES AUTHORITY LAKE VICTORIA SOUTH BASIN AREA P. O. Box 666 - 40100, KISUMU TEL: 057 2025493	**Date Received:** **23/12/2021** **Type of Sample:** **Ground water (Borehole)**
Sampled/submitted by: **Wellboring Groundwater** **Purpose of Sampling:** **Assessment of water Quality** **Date of Sampling 23/12/2021**	**County: Busia**

PARAMETERS	UNIT	RESULTS	WHO GUIDELINES	KEBS(KS 459-1:2007) STANDARDS.
pH	pH Scale	**7.7**	6.5-8.5	6.5-8.5
Colour	Hazen	**10**	Max 15	Max 15
Turbidity	N.T.U	**5**	Max 5	Max 5
Conductivity (25^0C)	µS/cm	**647**	Max 2500	-
Calcium	mg/l	**24.4**	Max 100	Max 150
Magnesium	mg/l	**5.35**	Max 100	Max 100
Total Hardness	mg$CaCO_3$/l	**88**	Max 500	Max 300
Total Alkalinity	mg$CaCO_3$/l	**114**	Max 500	-
Chloride	mg/l	**19**	Max 250	Max 250
Fluoride	mg/l	**0.75**	Max 1.5	Max 1.5
Nitrate	mgNO_3.N/l	**2.4**	Max 10	-
Nitrite	mgNO_2.N/l	**0.001**	Max 0.1	Max 0.003
Sulphate	mg/l	**9**	Max 450	Max 400
Total Dissolved Solids	mg/l	**304**	Max 1500	Max 1000
Ortho Phosphate	mg/l	**0.3**	Max 2	Max 2
Iron	mg/l	**0.001**	Max 0.3	Max. 0.3
Manganese	mg/l	**0.001**	Max 0.1	Max 0.1

Comments:

Results refer to a sample submitted to the laboratory by the client, based on the analyzed parameters; the water has met the KEBS chemical standards for drinking water.

Signature of the Head of the Lab.....
Name of the Head of the Lab ...**Fanuel Onyango**
Title of the Head of the Lab...**WQ&PCO**

Signature of the Unit Head/Analyst.....Date **24/12/2021**
Name of the Unit Head/Analyst **Beryl Akinyi**...
Title of the Unit Head/Analyst)...**Laboratory Technologist**

Disclaimer:
The results contained herein apply to the particular sample(s) tested, whose sample number and tests carried out as detailed in these results. T
information contained here reflects the laboratory's findings at the time of analysis and based on the samples submitted by the customer.

Well Report for Kisiombe Nakholo Primary School

Number of pupils	783
Estimate of community affected	970
Total people benefiting from clean water	1753
Headteacher	Wyclife Wataka
Previous water access	Stream
Funds spent	Kes 718,869
Water Resources Authority	Meets standards

Pupils fetching water from the newly constructed well at Kisiombe Nakholo

How we achieved this

PREVIOUS WATER ACCESS

The pupils of Kisiombe Nakholo have been through a lot of hardship as far as to access of clean water is concerned. They were forced to travel for over 7 kilometres to draw water from Kisiombe stream.

They were forced to sacrifice their learning time to search for water. This led to drastic academic underperformance by the pupils because most of them spent their time out of class, either fetching water, or battling various kinds of water related illnesses.

Stream - Previous water source for Kisiombe Nakholo Primary School

DRILLING EXPERIENCE AND WELL CONSTRUCTION

On arrival at Kisiombe, work started immediately. The top 10 metres drilled was a white mudstone, which was quite unstable forcing the drill team to install surface casings.

From 11 metres to 30 metres was a stable brown marble formation, with a minor aquifer at 35 metres. The drill team closed the first day at 40 metres depth. The next day work continued but progress was slower because they hit a hard granite formation at 50 metres. The team cased and gravelled at 66 metres depth.

The yield was about 5 cubic metres per hour, with a static water rest level of 18 metres below the ground.

The construction of the well pad took a day after which it was left to dry before the pump could be installed. The next day the borehole was disinfected and fitted with an Afridev hand pump.

Below are some of the pictures taken during the development of the well.

Pad construction at Kisiombe Nakholo Primary

Pump installation at the newly constructed well

WATER QUALITY ANALYSIS

The water quality was checked and found to be good.

FORM F/9/1/6

WATER RESOURCES AUTHORITY

Water Resourcec Aithority
LVSBA Regional Office
P.O. Box 666 - 40100, Kisumu
Tel:057072025493
Email: kisumuro@gmail.com

Kisumu Water Quality Laboratory
P.O. Box 666-40100,Kisumu
Tel: 057072025493
Email: kisumuro@gmail.com

Physical Chemical Laboratory Results Certificate

Report Issue Date: 24/12/2021	**Sample No: 0221/2021-2022**
Name of Customer: **Kisiombe Nakholo Primary school** WATER RESOURCES AUTHORITY LAKE VICTORIA SOUTH BASIN AREA P. O. Box 666 - 40100, KISUMU TEL: 057 2025493	**Received By:** **John Oyugi** **Date Received:** **23/12/2021** **Type of Sample:** **Ground water (Borehole)**
Sampled/submitted by: **Wellboring Groundwater** **Purpose of Sampling:** **Assessment of water Quality** **Date of Sampling 23/12/2021**	**County: Busia**

PARAMETERS	UNIT	RESULTS	WHO GUIDELINES	KEBS(KS 459-1:2007) STANDARDS.
pH	pH Scale	**7.8**	6.5-8.5	6.5-8.5
Colour	Hazen	**15**	Max 15	Max 15
Turbidity	N.T.U	**5**	Max 5	Max 5
Conductivity (25^0 C)	µS/cm	**1488**	Max 2500	-
Calcium	mg/l	**72.7**	Max 100	Max 150
Magnesium	mg/l	**14.7**	Max 100	Max 100
Total Hardness	$mgCaCO_3/l$	**242**	Max 500	Max 300
Total Alkalinity	$mgCaCO_3/l$	**368**	Max 500	-
Chloride	mg/l	**22**	Max 250	Max 250
Fluoride	mg/l	**0.5**	Max 1.5	Max 1.5
Nitrate	$mgNO_3N/l$	**1.8**	Max 10	-
Nitrite	$mgNO_2N/l$	**0.001**	Max 0.1	Max 0.003
Sulphate	mg/l	**12**	Max 450	Max 400
Total Dissolved Solids	mg/l	**744**	Max 1500	Max 1000
Ortho Phosphate	mg/l	**0.54**	Max 2	Max 2
Iron	mg/l	**0.001**	Max 0.3	Max. 0.3
Manganese	mg/l	**0.001**	Max 0.1	Max 0.1

Comments:
Results refer to a sample submitted to the laboratory by the client, based on the analyzed parameters; the water has met the KEBS chemical standards for drinking water.

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