



# Coquille Indian Housing Authority

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2678 Mexeye Loop • Coos Bay, OR 97420

## **Killich Water Pressure and Flow Testing Report**

September 19, 2023

On 5/22/23 Jason Miles with the CBNB Water Board was contacted for information gathering purposes on water pressure testing and water flow. Topics of discussion included how elevation of a home affects water pressure, the average pressure the Water Board tries to maintain in their system, and the minimum pressure the Water Board is required to supply. Also discussed was the type and brand of testing and flow equipment they use.

A basic calculation for water pressure at different elevations is that for every 10 feet of elevation you gain, you will lose roughly -4.33 psi in water pressure. On the other hand, for every 10 feet of elevation you lose, you will gain +4.33 psi in water pressure. An example would be, in 50 feet of elevation gain, you will lose 21.65 psi.

The Water Board works to maintain a 50 psi average system wide. The law requires that the Water Board provides a minimum water pressure of 20 psi. The 20 psi minimum is required to ensure that no bacteria can grow in a city water system. Any pressures below 20 psi can cause air pockets in city waterlines that create the possibility for bacteria growth.

The Water Board performed a 24-hour hydrant pressure test 6/23-24/23 (see attached graphs) and inspected all main line valves for partial closures. All valves were found to be fully open and operational. Testing pressure and flow rates on service lines to a number of homes was also recommended.

During the 24-hour hydrant pressure testing, a distinct increase in water pressure is noticeable around 11:00 a.m. Also, a distinct decrease in pressure is observed at approximately 11:00 p.m. Those two marks are directly related to the Wisconsin Street pump station coming online for the day and going offline for the day. The Wisconsin St. pump station is controlled by demand in Charleston which dictates when it is on or offline, so the times it turns on and off can vary throughout the morning. When looking at the charts, note that when the pump station is on, the water pressure increases approximately 10 psi over the times it's not on. The red dots on the chart indicate that a reading is taken in 4 second intervals.

CIHA wanted to do in-house testing of our own, and CBNB Water Board recommended the water pressure tester and flow meter Vero-Flow 1 made by the MARS Company. This is the same tester the CBNB Water Board uses in their testing.

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CIHA purchased and received the testing equipment on 8/1/23. On 8/15/23, CIHA began conducting pressure and flow tests at various units and elevations around Mexeye Loop with A.M./P.M. readings (see attached chart). Notice that on 8/15/23, the morning readings are an average 10 psi lower than the afternoon reading on the same day. The following day, 8/16/23, note that the A.M. and P.M. readings are almost identical. Follow up testing on 8/21/23 showed the same result with almost identical readings. The pressure difference on the dates of the readings was reviewed with Jason from the Water Board on 8/21/23. Jason supplied start up times of the Wisconsin Street Pump Station for those 3 days. On 8/15/23 the pump station came online around 11:00 A.M. On 8/16/23, due to higher demand in Charleston over night and early morning, the pump station came online at 6:30 A.M. Then on 8/21/23 the pump station came on at approximately 8:30 A.M.

Jason passed along CIHA's inquiries regarding water pressure and flow to Vince Stonesifer for flow testing on the Water Board's service lines to the meters. Vince tested units at 2608 Mexeye Loop and 708 Jistajaya Ct. on 8/22/23 and 2678 Mexeye Loop on 9/13/23.

Location	Flow to Meter	Flow Thru Meter
2608	53 GPM	11 GPM
708	47 GPM	11 GPM
2678	49 GPM	7.7 GPM

After comparing data collected from CIHA's test results and the Water Board's test results, pressure issues seem to be directly related to when the Wisconsin St. pump Station is online or offline. Also, pressure and water flow can be affected by low flow shower heads, low flow aerators and hose bibs, which can have different water restrictors in them. For example, 2678 has a hose bib with a restrictor. The Water Board's flow testing at the meter shows a result of 7.7 GPM while CIHA's testing at the hose bib shows a rate of 5.2-5.4 GPM.

The CBNB Water Board has a future project scheduled to upgrade the pump system at Pigeon Point to increase supply to Charleston for a housing development that is currently in the planning stages. The upgrades are to meet demand and maintain an average 50 psi in the water system. During construction to upgrade the Pigeon Point pump station, Kilkich could see a 5-7 psi decrease in water pressure. After the upgraded station comes online, water pressure at Kilkich is likely to increase of 5-7 psi above current levels at all elevations.

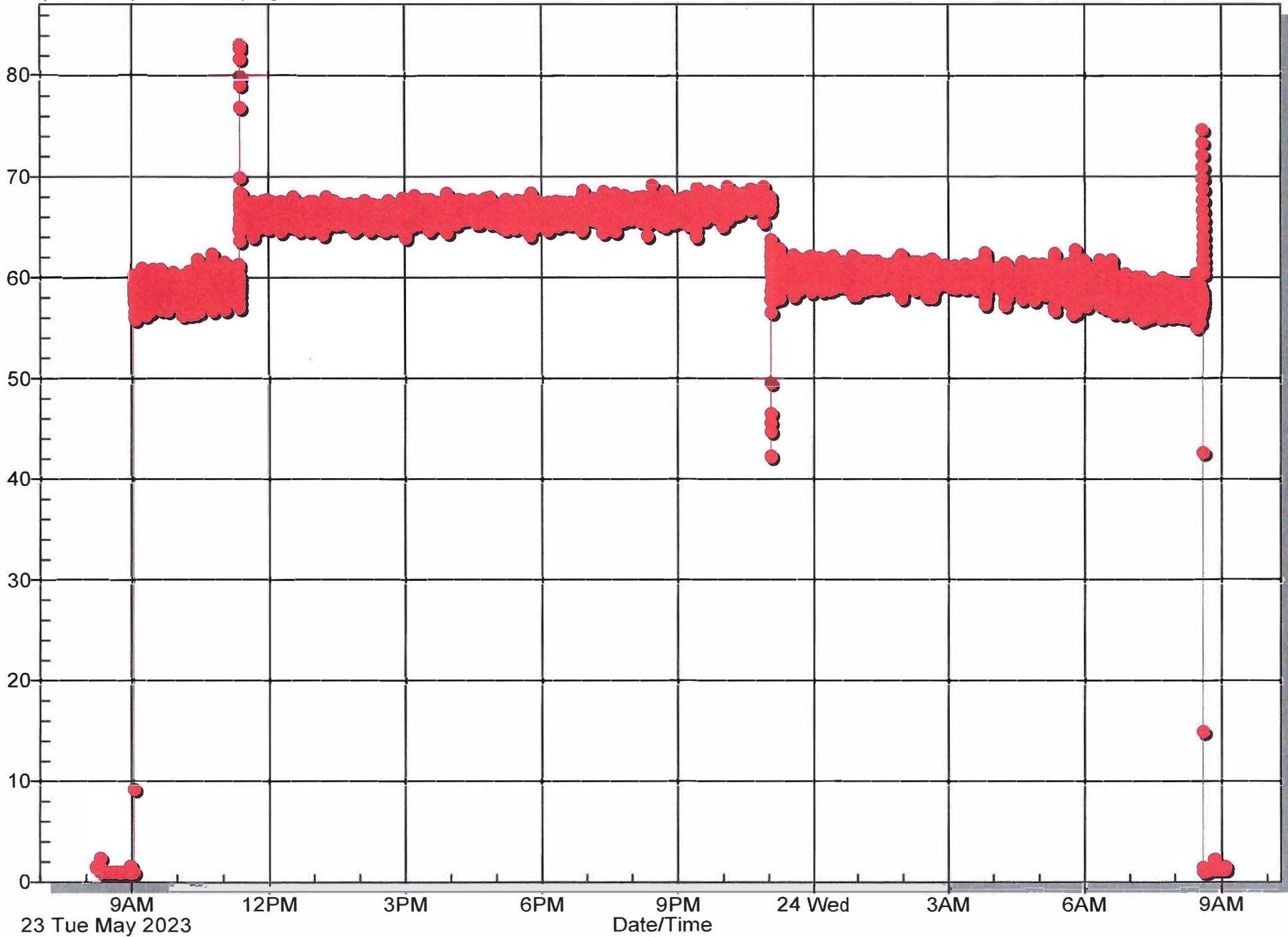
*Submitted by Scott Platter, Projects Coordinator*

# Downloaded Data - Wednesday, May 24, 2023

## 708 Jistajaya Ct.



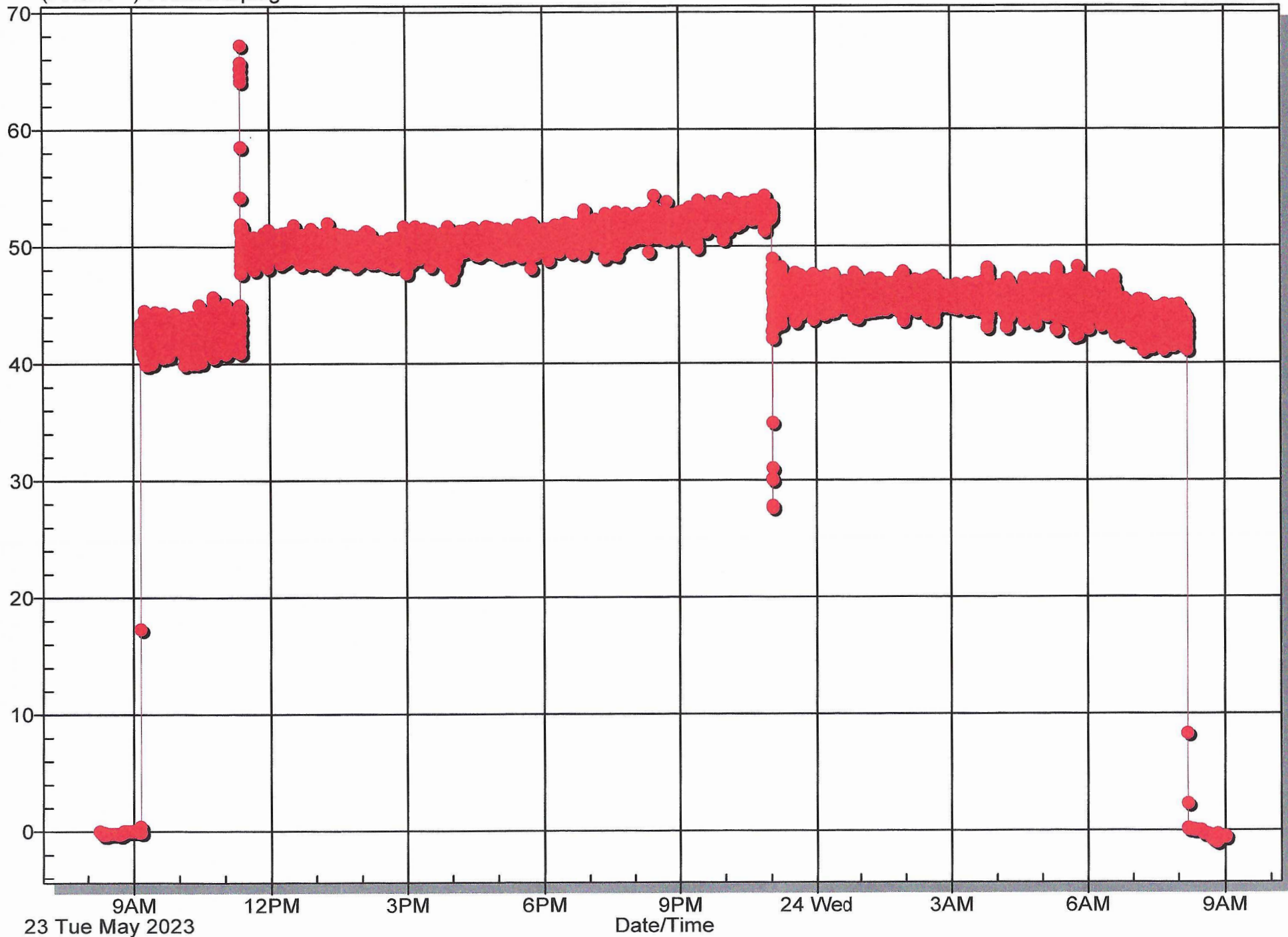
(PR325 )-Pressure/psig



# Downloaded Data - Wednesday, May 24, 2023

## Top of Miluk Drive End of Asphalt

● (PR325 )-Pressure/psig



## CIHA Water Pressure Flow Testing

Location	Elevation	Date	A.M. Time	PSI	GPM	P.M. Time	PSI	GPM
801 Miluk	112 ft	8/15/2023	8:38	27	5.8-6.0	2:00	40	6.9-7.0
2681 Mexeye	108 ft	8/15/2023	9:22	45	6.2-6.3	2:10	60	7.3
2670C Mexeye	111 ft	8/15/2023	9:34	45	6.0-6.1	2:20	56-58	7.2-7.4
502 Miluk	58 ft	8/15/2023	9:52	66-68	9.1-9.2	2:45	78-80	10.0-10.2
2608 Mexeye	62 ft	8/15/2023	10:16	65-68	8.7-8.9	3:00	76	9.9-10.1
Playground	67 ft	8/15/2023	10:30	53	10.1-10.3	3:12	64-66	11.9-12.1
708 Jis Ta Jaya	88 ft	8/15/2023	10:38	50-51	6.7	3:23	62	7.7-7.8
2678 Mexeye	110 ft	8/16/2023	8:10	58	5.2	2:43	58	5.4
2668 Mexeye	110 ft	8/16/2023	8:28	55	7.1	3:42	56	7.1
2634 Mexeye	76 ft	8/16/2023	9:03	69	5.9-6.0	3:55	70	5.9-6.0
2651 Mexeye	102 ft	8/16/2023	10:00	60	7.9	4:05	60	7.9
801 Miluk	112 ft	8/21/2023	8:35	37	6.9	1:25	36	6.9
2678 Mexeye	110 ft	8/21/2023	8:50	58	5.2	1:35	58	5.3
2670D Mexeye	111 ft	8/21/2023	8:55	56	6.9	1:48	56	6.9-7.0
2608 Mexeye	62 ft	8/21/2023	9:05	76	9.9	1:59	76	9.9
Playground	67 ft	8/21/2023	9:15	64	11.6	2:06	64	11.5
708 Jis Ta Jaya	88 ft	8/21/2023	9:25	62	7.5	2:16	63	7.7

# METER FLOW TEST RECORD

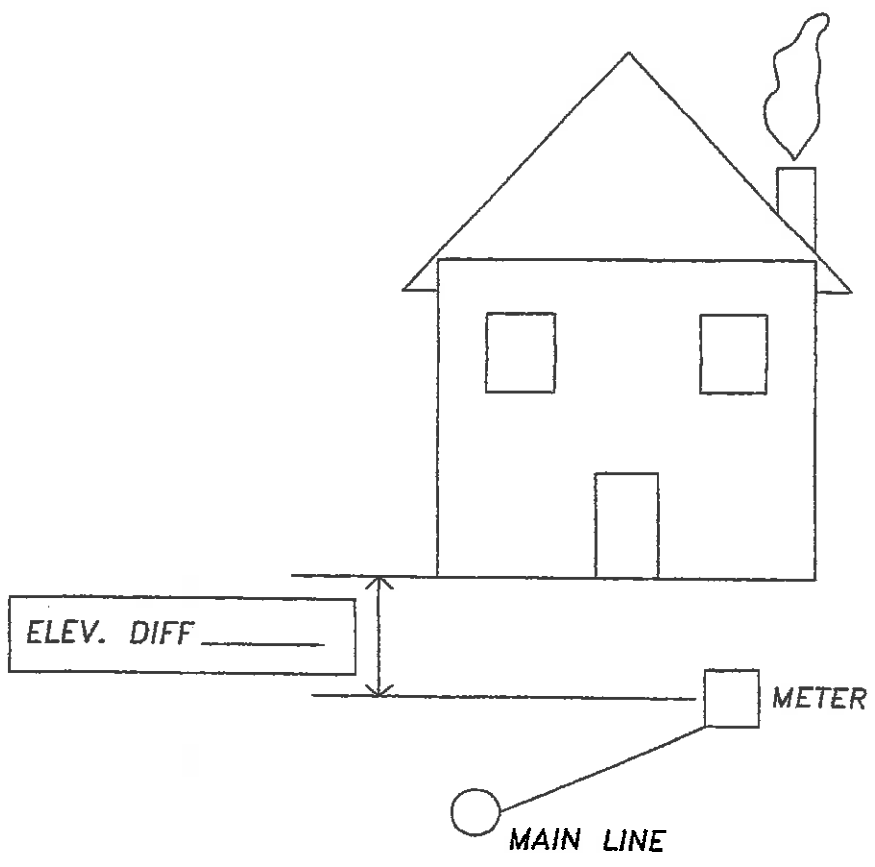
ADDRESS 2608 MEXEYE LIP  
DATE 8/22/23  
BY VW

USING FLOW METER IN PLACE  
OF WATER METER  
STATIC PRESSURE AT HOUSE 76 PSI  
RESIDUAL PRESSURE AT HOUSE 59 PSI  
STATIC PRESSURE AT FLOW METER 79 PSI  
RESIDUAL PRESSURE AT FLOW METER 74 PSI  
FLOW AT FLOW METER 11 GPM

CUSTOMER SERVICE LINE LENGTH 24  
CUSTOMER SERVICE LINE 3/4 PVC

SERVICE LINE LENGTH \_\_\_\_\_  
SERVICE LINE SIZE 1 COPPER

WITH FLUSH OUT IN PLACE  
MAXIMUM FLOW THRU FLOW METER  
WITHOUT WATER METER 53 GPM  
  
MAXIMUM FLOW THRU FLOW METER  
WITH WATER METER \_\_\_\_\_ GPM



# METER FLOW TEST RECORD

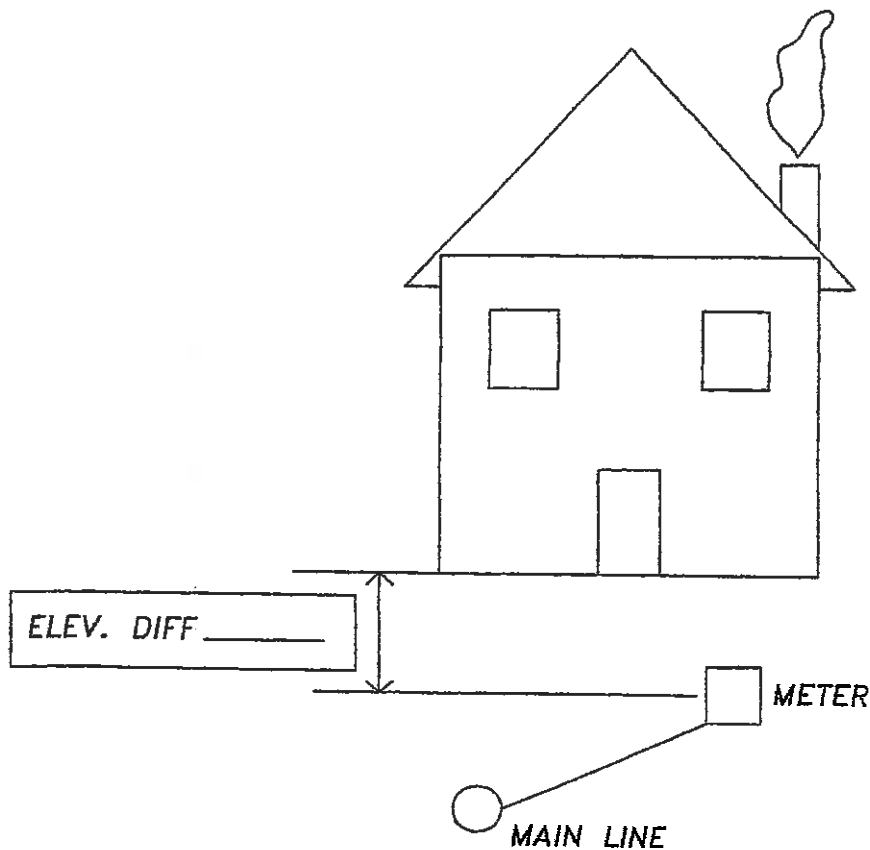
ADDRESS 708 JIS-TA-JIA  
DATE 8/22/23  
BY [Signature]

CUSTOMER SERVICE LINE LENGTH 410 FT  
CUSTOMER SERVICE LINE 3/4 PVC

SERVICE LINE LENGTH \_\_\_\_\_  
SERVICE LINE SIZE 1 Copper

USING FLOW METER IN PLACE  
OF WATER METER  
STATIC PRESSURE AT HOUSE 64 PSI  
RESIDUAL PRESSURE AT HOUSE 53 PSI  
STATIC PRESSURE AT FLOW METER 65 PSI  
RESIDUAL PRESSURE AT FLOW METER 64 PSI  
FLOW AT FLOW METER 11 GPM

WITH FLUSH OUT IN PLACE  
MAXIMUM FLOW THRU FLOW METER  
WITHOUT WATER METER 47 GPM  
MAXIMUM FLOW THRU FLOW METER  
WITH WATER METER \_\_\_\_\_ GPM



# METER FLOW TEST RECORD

ADDRESS 2678 Mexey C  
DATE 9/13/23  
BY V

USING FLOW METER IN PLACE  
OF WATER METER  
STATIC PRESSURE AT HOUSE 52 PSI  
RESIDUAL PRESSURE AT HOUSE 39 PSI  
STATIC PRESSURE AT FLOW METER 53 PSI  
RESIDUAL PRESSURE AT FLOW METER 51 PSI  
FLOW AT FLOW METER 7.7 GPM

CUSTOMER SERVICE LINE LENGTH \_\_\_\_\_  
CUSTOMER SERVICE LINE 3/4"

SERVICE LINE LENGTH 6 ft  
SERVICE LINE SIZE 1" Copper

WITH FLUSH OUT IN PLACE  
MAXIMUM FLOW THRU FLOW METER  
WITHOUT WATER METER 49 GPM  
MAXIMUM FLOW THRU FLOW METER  
WITH WATER METER \_\_\_\_\_ GPM

