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Office of the Senior Geologist
Groundwater Surveys and Development Agency, GoM.
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No. SG/GSDA/Pune/Tech/LGW/ 761 / 2024

Date- 14/08/2024

To,

✓ Shri. Ajit Govindlal Mutha
A 42, Vinit Society,
Kothrud, Pune.

Sub :Regarding Hydrogeological survey at Gat.No.941 and 942 Plot No.4 of Shirur,
Taluka Shirur, Dist Pune.

Reff :1.Your application dated 08/08/2024.

2.Hydrogeological Survey fee submitted by the applicant through challan
dated 09/08/2024.

With reference to the above subject hydro-geological survey was carried out in the presence of concern personnels at the applicant's site located at Gat.No.941 and 942 Plot No.4 of Shirur, Taluka Shirur, Dist Pune. At the time of Hydrogeological survey applicant Shri Ajit G Mutha and Shri. Ramdas Pathare, Supervisor was present.

The details of the proposed site are as below.

Name of Village	Shirur, Taluka Shirur, Dist Pune.
Co-ordinates	Lat -18° 44' 45" N, Long -74° 22' 30" E
Elevation (msl)	563.88 m
Toposheet & Quadrant No	47F/05 and 3B
Watershed No.	BM-27
Rock Type	Basalt
Aquifer (Water bearing Zone)	Shallow Aquifer (Jointed and Fractured Basalt)

Location:

The Shirur is located towards North East direction of Pune City at a distance of about 70 km.The area under study i.e said Gat.No.941 and 942/Plot No.4 is located towards south west direction of Shirur.

Geomorphology:

The topography of the Shirur is plain to gently sloping. The general slope of the area is towards North east direction. From the southern part of the village area the streams flowing towards north east direction and meets to the Kukadi River.

Geology:

The area of the Shirur consists of solidified layers of basalt and thickness of each layer varies from 8.00 to 15.00 meters and formed during upper Cretaceous to lower Eocene period of Geological time scale. The basalts are dark grey to black in colour, fine to medium grained, medium jointed and fractured in nature. The geological as well as lithological data considered as per field observations and reported data of the surveyed area from applicant's representative. The observations are as below.

Lithology	Greyish to brownish coarse grained soil	0.00 - 1.50 m
	Highly to moderately weathered Basalt.	1.50 - 6.00 m
	Greyish black coloured, fine to medium grained, jointed and fractured Basalt.	6.00 - 12.00 m
	Greyish black coloured partly jointed and fractured Massive Basalt	12.00 - 15.00 m
	Greyish black coloured compact Massive Basalt	Below 15.00 m.

Hydrogeological Conditions:

At the said Sr.No the Soil thickness ranges from 0.00-1.50 m, the weathered basalt thickness ranges 1.50-6.00m, jointed and fractured basalt ranges 6.00 - 12.00 m, Greyish black coloured partly jointed and fractured Massive Basalt ranges 12.00 - 15.00 m and below 15.00 m the Greyish black coloured compact Massive Basalt. The entire area of the studied Gat.No. is underlain by the basaltic lava flows of upper Cretaceous to lower Eocene age. Geologically the area is covered by jointed and fractured basalt. Ground water in Deccan Trap Basalt occurs mostly in the upper weathered and fractured parts down to 1.00 - 15.00 m bgl under unconfined conditions. The water bearing strata at deeper depth exists under semi confined to confined conditions at a depth of about 15-25 m and 40-50m. From the groundwater availability point of view, the village area is moderate to high yielding groundwater potential zone.

The availability of groundwater as a source depends largely upon surface and subsurface geology, geomorphology, natural drainage pattern, depth of weathering and fractures present. Actual annual rainfall, groundwater extraction from other sources in the surrounding area is also the factors which control and affect the availability of groundwater.

At the said Gat No one Bore well is observed. The bore well is functional and perennial in nature, presently the usage of water is for drinking and domestic purpose.

The details of existing Groundwater sources are given in below table.

Sr. No	Source	Location Gat No.	Details of Existing GW Sources				Lifting Device	Remark
			Dimensions /Daimeter	Depth in m	Water Level in m.			
					Winter	Summer		
1	Bore Well No.	Shirur Gat.No.941 and 942 Plot No.4	150 mm	60.00 m	2.50 m	6.50 m (R)	1.5 HP Submerssible pump	-

Observations:

On the basis of Hydrogeological survey done by this office, at Gat.No.941 and 942 Plot No.3 the groundwater source i.e one Bore well is observed. The bore well is in good condition, functional and high yielding condition. These source is perennial in nature presently usage of groundwater is for drinking purpose. From the groundwater availability point of view, the surveyed area is high moderate to yielding groundwater potential area. From the existing GW sources, approx 40 KLPD water may available for drinking and domestic purpose. Presently availability of groundwater from the existing source is sufficient for the applicant. If in future water demand increased the additional water required for the drinking and domestic purpose, the water supply connection from local authority is necessary and mandatory to the applicant.

Presently there is limited Groundwater extraction from the existing sources of the applicant. Nevertheless, deficit in normal rainfall, increase in population density, excess groundwater extraction from surrounding areas and lack of groundwater recharge may create stress on the availability of groundwater. Following measures are recommended and are mandatory to the applicant.

Recommendations:

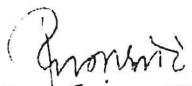
1. At the time of any development process the applicant /company /every holder of a said land shall take all possible precautions to avoid the disturbance of the natural drainage system and aquifer system available.
2. The available groundwater should be strictly used for drinking and domestic purpose only. For future development of infrastructure the requirement of water should be fulfilled by tanker water/untreated raw water so that extraction/utilization of groundwater is controlled.
3. If in future the additional water required for the drinking and domestic purpose, the water requirement should be fulfilled by the water supply connections of local authority and is mandatory to the applicant.
4. For the sustainable availability of groundwater the Roof Top Rain Water Harvesting measures to the existing groundwater source is must.
5. The rain water harvesting structures should be implemented under the technical guidance of this office (G.S.D.A. Pune) and checked it from time to time.
6. The water quality of existing sources should be analyzed regularly by the applicant/firm on its own cost from the water quality laboratory. For drinking

purpose treated water should be used.

7. The topographical, hydro-geological conditions and rainfall play very important role for fulfilling the requirement of drinking and domestic water. In view of sustainable groundwater for the drinking and domestic use, the groundwater recharge through rainwater harvesting measures in a quantity equal to the extraction of groundwater from the existing sources is mandatory to the applicant.
8. In view of water requirement for the drinking and domestic use, it is strongly recommended that minimum 70 % of the extracted groundwater must be recycled and reused for further usage.
9. During the Scarcity period the rules of Maharashtra Groundwater (Development and Management) Act 2009 are mandatory to the applicant.

Surveyed By


Assistant Geologist,
GSDA, Pune


Senior Geologist,
Groundwater Surveys & Development Agency,
Dist Pune.