WATER RESOURCES OF THE ASSABET RIVER BASIN, CENTRAL MASSACHUSETTS

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MAP SHOWING AREAS FAVORABLE FOR DEVELOPMENT OF GROUND-WATER RESOURCES

EXPLANATION

The map is a composite of available hydrologic data provided by the United States Geological Survey, the Massachusetts Department of Public Works, and other local authorities. The map shows areas favorable for development of ground-water resources, including areas with adequate recharge, sufficient aquifer storage, and suitable hydrogeologic settings. The map is intended to guide decision-making for water resource development, protection, and management.

GROUND WATER AVAILABILITY

The availability of ground water is influenced by various factors, including recharge, evapotranspiration, and groundwater flow. Recharge is the primary source of replenishment for ground water, and it is influenced by precipitation, infiltration rates, and surface water availability. Evapotranspiration, on the other hand, is a major sink for ground water, as it contributes to the depletion of the available water table. Groundwater flow, which is driven by hydraulic gradients, is also an important factor in determining the availability of ground water.

PRECESSION - THE PRIMARY SOURCE OF WATER

The primary source of water for the Assabet River Basin is precipitation. Precipitation is the process by which water falls from clouds to the Earth's surface. It can fall as rain, snow, sleet, or hail and is a critical component of the water cycle, replenishing the water supply and supporting terrestrial ecosystems. Precipitation is influenced by various factors, including atmospheric conditions, topography, and the local climate. Understanding the precipitation patterns in the Assabet River Basin is essential for assessing the availability and sustainability of ground water resources.

SCHEDULED DRAINAGE

The schedule of drainage in the Assabet River Basin is an important factor in determining the availability of ground water. Drainage systems, such as streams and rivers, can influence the recharge and discharge of ground water. The flow of surface water can transport dissolved substances, which can affect the chemical composition of ground water. Understanding the schedule of drainage systems is crucial for managing water resources and ensuring the sustainability of ground water supplies.

AQUIFERS AND WELLS

Aquifers are geological formations that act as natural reservoirs of ground water. They are characterized by their ability to store and transmit water and are essential for providing drinking water, irrigation, and other water-related activities. Wells are artificial structures used to access the water-bearing layers of aquifers. The design and construction of wells must consider the characteristics of the aquifers and the surrounding geology to ensure safe and sustainable water extraction.

SELECTED REFERENCES

This map is based on information from various sources, including reports, studies, and databases maintained by the United States Geological Survey, the Massachusetts Department of Public Works, and other relevant agencies. For a comprehensive understanding of the water resources in the Assabet River Basin, consulting these sources is highly recommended.

Graph showing cumulative departures from average precipitation at Clinton (1985-86) and at Lowell (1984-85).