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## ASSESSMENT OF THE METHOD AND CRITERIA TO SELECT MOST OPTIMUM CONSTRUCTION METHOD FOR A WATER INSTALLATION PROJECT

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**ABSTRACT:** The decisions that are made during the process of selecting the method of construction for a new water installation project are very critical to a project. Unfortunately, the decision is often complicated by the numerous variables that must be considered and the uncertainty of estimated costs. When choosing a pipeline route, a project manager must balance the likely capital cost of the project with the risks inherent in the chosen construction method. Ideally, a project manager would investigate numerous alternatives to fully explore the merits of various construction methods (including the level of risk) before making his or her final decision. This paper presents the focusing on a methodology used to select the most optimum construction method for a new water installation project and actual performance of the project compared to the criteria used in the selection methodology. The method uses analytical hierarchy process and a method to capture the risks, merits and demerits of each construction method. Open Cut, Horizontal Directional Drilling, Micro Tunneling and Conventional Tunneling are the four methods considered for the project. The first part of the paper includes the background information, workshop setting used to define the problem and find the optimum solution, and methodology of the selection criteria and the results of the workshop that was considered in selecting the most optimum method. Tunneling was the most optimum method selected by the experts that includes the representatives from owner, and consultant organizations. The second part of the paper shows the analysis of the project performance against the selected criteria that includes environmental impact, constructability, schedule, and the serviceability.