

Melvindale Communication Tower

Geotechnical Investigation

G2 Consulting Group, LLC performed a geotechnical investigation of the site to determine and evaluate general subsurface soil and groundwater conditions. The information obtained was used to develop foundation recommendations for the support of a proposed 250 ft. high free standing tower and equipment building and related site development procedures.



The investigation was performed under the direct supervision of Registered Professional Engineer and consisted of the drilling of soil borings and obtaining subsurface soil samples in accordance with the Standard Penetration Test method (ASTM D-1586). Laboratory testing was performed to determine the engineering properties of the subsoils obtained from the soil borings.

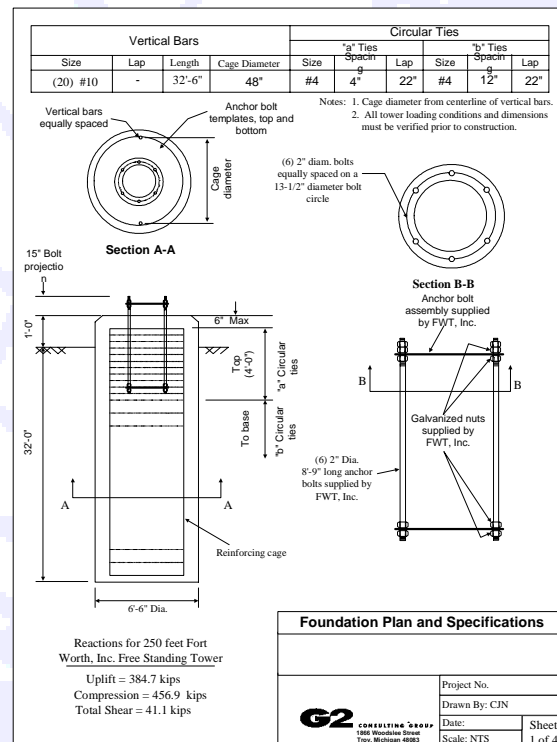
Our field and laboratory investigation indicated the presence of as much as 14 feet of clay fill underlain by 10 feet of very loose sand over soft cohesive soils which extend to the explored depth of our borings. Existing groundwater was present at a depth of 10 feet below grade.

Based on the results of our analysis, we recommended that the tower be supported on drilled piers with a shaft diameter of 6-1/2 feet bearing on the native soft clay at a depth of approximately 32 feet below the surface. Due to the presence of water bearing granular soils and possible artesian

conditions, we recommended the use of temporary casing be used during shaft drilling operations and introduction of a polymer drilling fluid inside the casing to resist the upward hydrostatic pressures on the bottom of the drilled pier. We prepared an engineering report summarizing our findings and presenting evaluations, conclusions, and recommendations about the subsoil and groundwater conditions, recommended foundations, allowable soil bearing pressures, estimates of settlement and other subsurface conditions which impact on design.

Foundation Plans and Specifications

In conjunction with the geotechnical investigation, G2 prepared foundation plans and specification for the tower foundation. G2 evaluated the existing subsurface conditions, tower loading and geometry information, and local contractor equipment and ability to design the most cost effective foundation.



Project Profile Melvindale Communication Tower

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Phase I & II Site Assessments

G2 performed a Phase I Site Assessment of the proposed tower site to evaluate the present risk of significant contamination of the selected site soils and groundwater due to reasonably identifiable current and past site conditions.



The results of our study identified adjacent PA 307 sites and previous on-site landfilling. Accordingly, G2 recommended environmental sampling be conducted in conjunction with our geotechnical investigation.

The Phase II investigation included drilling operations under level D protection, screening of soil samples using a Photoionization Detector (PID) and submitting samples to an analytical laboratory for quantitative testing.

Based on the results of our Phase II study, we concluded that the site was suitable for development of the proposed communication tower and equipment building. We recommended that environmental protocol be implemented during construction operations.

Quality Control Engineering & Testing Services - G2 Consulting Group was retained to observe foundation construction, subgrade preparation, and engineered fill placement. Our construction quality control services consisted of observ-

ing the foundation construction activities and advising the contractor as to their conformance with the project foundation plans and specifications. For the 6-1/2 ft. diameter, 32 ft. deep drilled pier foundations, we observed and provided documentation for the constructed shaft size and alignment, length of temporary and permanent casings, drilled pier bearing elevation and soil conditions, and the size, number, and spacing of reinforcing steel.

During concrete placement operations, we sampled and tested the fresh concrete for slump, entrained air and molded compressive strength test cylinders for laboratory moist curing and subsequent testing.

Finally, G2 prepared and submitted daily field reports, along with associated laboratory tests documenting the construction activities and existing soil and groundwater conditions at the time of construction.



By providing geotechnical, design, environmental, and construction engineering services, G2 is best suited to evaluate variable conditions that generally do not become clear until the time of construction. If significant variations then become evident, G2 is available to immediately re-evaluate foundation design and construction recommendations.