SECTION 1. GENERAL

1.1 Introduction

This report presents the results of our geotechnical engineering exploration performed for the "Freeway Management System, Phase 3, Units 1 and 2, IM-0300(152), Interstate Routes H-1 and H-2 Freeways project on the Island of Oahu, Hawaii. The project locations and general vicinities are shown on the Project Location Map, Plate 1.

This report summarizes the findings and presents our geotechnical engineering recommendations derived from our field exploration, laboratory testing, and engineering analyses. These recommendations are only intended for the design of closed circuit television (CCTV) foundations only. The findings and recommendations presented herein are subject to the limitations noted at the end of this report.

1.2 Project Considerations

The project consists of the installation of closed circuit television (CCTV) camera structures generally along Interstate Route H-1 and H-2 Freeways and Farrington Highway in the Districts of Honolulu and Ewa on the Island of Oahu, Hawaii. Five CCTV cameras will be mounted on independent poles 50 feet high. The CCTV locations are presented in the following table:

CCTV Identification	Location	Interstate Route
H-2 North CCTV	South of Waipio Interchange	H-2 Freeway
H-2 South CCTV	South of Waipio Interchange	H-2 Freeway
H-1/Kamehameha CCTV	Waiawa Interchange	H-1 Freeway
Waikele CCTV	Near Waikele Shopping Center	H-1 Freeway
Ko Olina CCTV	Ko Olina Interchange	Farrington Highway

The following structural load information acting at the base of the poles were provided by the project structural engineer for our analysis of the new CCTV foundation design.

CCTV STRUCTURAL LOAD INFORMATION					
Structure	**Loading Condition**	**Vertical Load** (kips)	**Lateral Loads** (kips)	**Overturning Moments** (kip-feet)	**Torsion** (kip-feet)
CCTV	Extreme Event	$F_y = 5$ (uplift)	$F_x = 5$ $F_z = 5$	$M_x = 125$ $M_z = 50$	$M_y = 2$

1.3 Purpose and Scope

The purpose of our exploration was to obtain an overview of the subsurface conditions to develop an idealized soil/rock data set to formulate geotechnical engineering recommendations for the design of the CCTV structure foundations. The scope of work for this exploration included the following tasks and work efforts:

1. Research and review of available in-house geologic and soils information at the CCTV sites under this project.

2. Application of necessary excavation permits from the State of Hawaii – Department of Transportation, Highways Division.

3. Coordination of the boring stakeout and utility toning and clearance with various utility companies.

4. Provisions of police officers and safety devices for traffic control and lane closures at the boring locations during our field exploration program.

5. Mobilization and demobilization of a truck-mounted drill rig and two operators to the project sites and back.

6. Drilling and sampling of five borings extending to depths of about 15.5 to 21.5 feet below the existing ground surface.

7. Coordination of the field exploration and logging of the borings by our geologists.

8. Laboratory testing of selected soil and rock samples obtained during the field exploration as an aid in classifying the materials and evaluating their engineering properties.

9. Engineering analyses of the field and laboratory data to formulate geotechnical engineering recommendations for the CCTV foundations.

10. Preparation of this report summarizing our work on the project and presenting our findings and geotechnical engineering recommendations.

11. Coordination of our overall work on the project by our senior engineer.

12. Quality assurance of our work and client/design team consultation by our principal engineer.

13. Miscellaneous work efforts such as drafting, word processing, and clerical support.

Detailed descriptions of our field exploration and the Logs of Borings are provided in Appendix A. Results of the laboratory tests performed on selected soil and rock samples are presented in Appendix B. Photographs of core samples retrieved from our field exploration are presented in Appendix C.

END OF GENERAL