

Appendix H

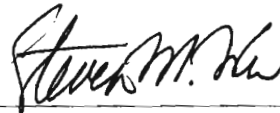
Sunnyvale East and West Channels Flood Protection Project Geotechnical Studies

**GEOTECHNICAL INVESTIGATION REPORT
SUNNYVALE EAST CHANNEL FLOOD PROTECTION PROJECT –
PLANNING STUDY
SUNNYVALE, CALIFORNIA
PROJECT NO. 26074002-1211**

PREPARED BY:

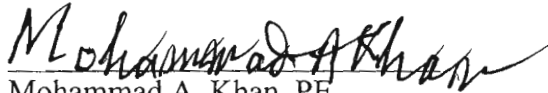


Karl A. Neuman, PE, GE
Assistant Civil Engineer II
Geotechnical Engineer 2701



Steven M. Wu, PE, GE
Associate Civil Engineer
Geotechnical Engineer 2612

REVIEWED AND APPROVED BY:



Mohammad A. Khan, PE
Senior Engineer
Civil Engineer 48359

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

December 19, 2008

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Project Description	1
1.2	Scope of Services	2
2.0	FIELD EXPLORATION AND LABORATORY TESTING.....	2
2.1	Field Exploration.....	2
2.2	Geotechnical Laboratory Testing.....	6
3.0	GEOLOGY AND SEISMICITY	6
4.0	SURFACE AND SUBSURFACE CONDITIONS.....	7
4.1	Surface Conditions	7
4.2	Subsurface Conditions.....	7
5.0	GROUNDWATER CONDITIONS.....	8
6.0	ENGINEERING ANALYSIS.....	9
6.1	Liquefaction	9
6.2	Slope Stability	9
6.2.1	Selection of Strength Parameters	9
6.2.2	Soil Parameters Used for Slope Stability Analyses	10
6.2.3	Slope Stability Analyses	11
6.3	Seepage.....	13
6.4	Settlement.....	14
7.0	DISCUSSIONS AND CONCLUSIONS	15
7.1	Liquefaction and Other Seismic Considerations	15
7.2	Slope Stability	15
7.3	Channel Bank Erosion.....	16
7.4	Seepage.....	17
7.5	Settlement.....	17
7.6	Foundation Considerations.....	17
7.7	Other Construction Considerations	17
8.0	RECOMMENDATIONS.....	18
8.1	Grading and Earthwork	18
8.1.1	Clearing, Grubbing, and Stripping.....	18
8.1.2	Embankment Subgrade Preparation.....	18
8.1.3	Levee Embankment Fill Materials.....	18
8.1.4	Structural Fill Materials	19
8.1.5	Fill Placement and Compaction	19
8.1.6	Finished Grade, Grade Slope and Tolerance	20
8.2	Seismic Design Criteria.....	20
8.3	Bridge Foundation Design	21
8.4	Erosion Protection.....	21
8.5	Plan Review and Design Phase Geotechnical Report.....	22
9.0	LIMITATIONS.....	22

PLATES

1	Location and Vicinity Map
2A – 2H	Soil Boring Site Plan
3 – 36	Boring Logs SE-1 through SE-17, and SE-21 through SE-37
37	Soil Classification and Test Data Key

APPENDICES

A	Cone Penetration Test Logs
B	Laboratory Testing Results
C	Fence Diagrams
D	Slope Stability Analyses
E	Assessment of Bank Erosion Sites

DISTRIBUTION

4 copies: Mrs. Melissa Carter
Project Manager
Santa Clara Valley Water District

1 copy: Mr. Bal Ganjoo
Senior Project Manager
Santa Clara Valley Water District

Complete document available for review at:

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

or upon request to:

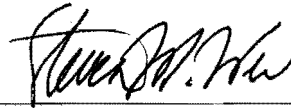
Tiffany Hernandez, Environmental Planner
Santa Clara Valley Water District
(408) 265-2607
thernandez@valleywater.org

**GEOTECHNICAL INVESTIGATION REPORT
SUNNYVALE ██████████ CHANNEL FLOOD PROTECTION PROJECT –
PLANNING STUDY
SUNNYVALE, CALIFORNIA
PROJECT NO. 26074002-1211**

PREPARED BY:




Karl A. Neuman, PE, GE
Assistant Civil Engineer II
Geotechnical Engineer 2701



Steven M. Wu, PE, GE
Associate Civil Engineer
Geotechnical Engineer 2612

REVIEWED AND APPROVED BY:



Mohammad A. Khan, PE
Senior Engineer
Civil Engineer 48359

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

December 19, 2008

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Project Description.....	1
1.2	Scope of Services	2
2.0	FIELD EXPLORATION AND LABORATORY TESTING.....	3
2.1	Field Exploration.....	3
2.2	Geotechnical Laboratory Testing.....	5
3.0	GEOLOGY AND SEISMICITY	5
4.0	SURFACE AND SUBSURFACE CONDITIONS.....	6
4.1	Surface Conditions	6
4.2	Subsurface Conditions.....	6
5.0	GROUNDWATER CONDITIONS.....	7
6.0	ENGINEERING ANALYSIS.....	7
6.1	Liquefaction	7
6.2	Slope Stability.....	8
6.2.1	Selection of Strength Parameters	8
6.2.2	Soil Parameters Used for Slope Stability Analyses	9
6.2.3	Slope Stability Analyses	10
6.3	Seepage.....	13
6.4	Settlement.....	13
7.0	DISCUSSIONS AND CONCLUSIONS	14
7.1	Liquefaction and Other Seismic Considerations.....	14
7.2	Slope Stability	15
7.3	Channel Bank Erosion.....	15
7.4	Seepage.....	16
7.5	Settlement.....	16
7.6	Foundation Considerations.....	16
7.7	Other Construction Considerations	16
8.0	RECOMMENDATIONS	17
8.1	Grading and Earthwork	17
8.1.1	Clearing, Grubbing, and Stripping.....	17
8.1.2	Embankment Subgrade Preparation.....	17
8.1.3	Levee Embankment Fill Materials.....	18
8.1.4	Structural Fill Materials	18
8.1.5	Fill Placement and Compaction	18
8.1.6	Finished Grade, Grade Slope and Tolerance	19
8.2	Box Culvert Design.....	20
8.3	Erosion Protection.....	20
8.4	Plan Review and Design Phase Geotechnical Report	21
9.0	LIMITATIONS.....	21

PLATES

1	Location and Vicinity Map
2A – 2E	Soil Boring Site Plan
3 – 16	Boring Logs SW-1, SW-2, SW-4, SW-8 thru SW-17, and SW-19
17	Soil Classification and Test Data Key

APPENDICES

A	Cone Penetration Test Logs
B	Laboratory Testing Results
C	Fence Diagrams
D	Slope Stability Analyses
E	Assessment of Bank Erosion Sites

DISTRIBUTION

4 copies: Mrs. Melissa Carter
Project Manager
Santa Clara Valley Water District

1 copy: Mr. Bal Ganjoo
Senior Project Manager
Santa Clara Valley Water District

Complete document available for review at:

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

or upon request to:

Tiffany Hernandez, Environmental Planner
Santa Clara Valley Water District
(408) 265-2607
thernandez@valleywater.org