



*Applied Earth Sciences*  
Geotechnical  
Engineers  
and Geologists

3595 Old Conejo Road  
Thousand Oaks  
California 91320-2122  
805 375-9262  
818 889-2137  
805 375-9263 fax

May 31, 2007

**Mehdi Humkar**

C/o Haaland Group, Inc.  
351 Rolling Oaks Drive, #200  
Thousand Oaks, California 91361  
Fax: 805-496-3727

Work Order: 2454-0-0-101

Attn: Ms. Debbie Aronson

**PROJECT: Geotechnical Update Study, Proposed 9 Lot Sudivision, 43 Acres South of Olsen Road and East of Hardy Lane, Tract 5363, City of Thousand Oaks, California.**

Reference: Gorlan and Associates, Inc., 2003, Geotechnical Investigation, Proposed 10 Lot Sudivision, 43 Acres South of Olsen Road and East of Hardy Lane, City of Thousand Oaks, California. Work Order: 2454-0-0-10, Log Number: 22141, Dated January 15.

## **1. INTRODUCTION**

Presented herein is a geotechnical update of the referenced report of January 15, 2003 regarding Tract 5363 on Olsen Road east of Hardy Lane in the City of Thousand Oaks, California. This update is based wholly on the information contained in the referenced report and a recent site visit by a geologist from this office. The site visit was performed to evaluate visually changes in the surface condition of the tract since the referenced report. A revised 100-scale Tentative Tract Map prepared by Haaland Group, Inc. (dated 3/21/07) for the proposed development serves as the base for the attached Geotechnical Map (Plate 1).

## **2. PLAN REVIEW**

Based on a review of the latest plan by Haaland Group, Inc., the most significant change to the project is the reconfiguration of Lots 7, 8, and 9 and the proposed access to these lots. These lots have been moved closer to Olsen Road with a private street extending southerly from Olsen Road on the eastern and southern side of Lot 7. This new street will be manufactured by filling in a drainage course with engineered fill. Fill depth in this area will be on the order of 35 feet deep. Additionally, a Parcel "A" has been added between Lots 4 and 5 with low retaining walls and a storm drain system.

Maximum depth of fill and cut is approximately 35 feet and 12 feet respectively. Maximum fill and cut slope heights are both approximately 25 feet at 2(h):1(v) gradients.

## **3. SITE VISIT**

A recent site visit was made by a geologist from our office to visually observe the site and note any readily observable changes that have occurred on the property since our last report (GAI, 2003). Based on this site

visit, it appears that the site is relatively unchanged since our previous visit. The site is covered with a moderate to dense growth of seasonal weeds and grasses. Localized piles of brush and landscaping debris were noted along the City of Simi/ Thousand Oaks property line southwest of Parcel "A".

Extensive avocado orchards have been planted adjacent to and southeast of Tract 5363 in the City of Simi Valley.

#### **4. SEISMIC DESIGN PARAMETERS**

As discussed in the referenced report, active faults identified by the State are not present on-site nor is the site within an Alquist-Priolo Earthquake Fault Zone (formerly Special Studies Zone). Nevertheless, the site is within a seismically active region prone to occasional damaging earthquakes. Earthquake loads shall be determined in accordance with Chapter 16, Division IV of the current California Building Code. Seismic input parameters provided below are based on the 2001 California Building Code (CBC), Chapter 16.

The purpose of the CBC earthquake provisions is primarily to safeguard against major structural failures and loss of life, not to limit damage or maintain function. Therefore, the values provided in the CBC should be considered minimum design values. Cracking of walls and possible structural damage should be anticipated in a significant seismic event.

<b>CBC – CHAPTER 16 TABLE NO.</b>	<b>SEISMIC PARAMETER</b>	<b>VALUE PER 2001 CALIFORNIA BUILDING CODE</b>
16 - I	Seismic Zone Factor, $Z$	0.40
16 - J	Soil Profile Type	$S_c$
16 - Q	Seismic Coefficient, $C_a$	$.40N_a$
16 - R	Seismic Coefficient, $C_v$	$.56N_v$
16 - S	Near-Source Acceleration Factor, $N_a$	1.3
16 - T	Near-Source Velocity Factor, $N_v$	1.6
16 - U	Seismic Source Type	B, Simi Fault, ~2.5 km

#### **5. FOUNDATION RECOMMENDATIONS**

Geotechnical recommendations presented in the referenced report were reviewed with respect to the revised 100-scale Tentative Tract Map prepared by Haaland Group, Inc. for the proposed development. The recommendations remain applicable for the proposed development as shown on the attached Geotechnical Map (Plate 1), where not superseded herein.

#### **6. FILL PLACEMENT**

All fill soils should be compacted to a minimum of 90 percent relative compaction shallower than 30 feet deep. Fills below a depth of 30 feet from the finished grade should be compacted to a minimum of 95 percent relative compaction. Relative compaction is the ratio of the in-place dry soil density to the maximum dry soil density as determined in general accordance with ASTM test method D 1557.

#### **7. SUBDRAINS**

Subdrains should be placed in natural drainage areas that will receive engineered compacted fill exceeding 10 feet in thickness. Proposed subdrain locations are shown on Plate 1. A typical subdrain detail is attached.

The subdrains should be located at least 10 feet below the finished grade and should consist of a minimum 6 inch diameter perforated PVC (Schedule 40) pipe, or equivalent. Where the length exceeds 500 feet, an 8

inch diameter perforated pipe should be used. Where two or more 8 inch pipes converge into a main trunk pipe, or more than three 6 inch tributary pipes outlet into a main trunk pipe, the main pipe should consist of a 10 inch diameter perforated pipe. Perforations should be no more than 1/4 inch diameter.

The subdrains should be encased in 9 cubic feet of drain material per lineal foot of pipe installed in a trench or "v" cut made into bedrock or firm native soils exposed in the canyon cleanouts or along the heel of a bench in the perimeter drain case. The canyon cleanouts may expose a variety of soils ranging from granular to fine grained with mixtures of both. All cleanouts should be to firm native soils and should be observed by the project geotechnical consultant.

It is recommended that the drain material consists of 3/4 to 1 inch gravel or equivalent wrapped with filter cloth (such as Supac 4NP or Mirafi 140S or equivalent). Drain pipe wrapped in filter cloth and encased in drain material may be considered an alternative to the above recommended design. Drain material encasing a filter cloth wrapped pipe should consist of No. 4 rock and sand at a 1:1 ratio. Alternates or material equivalents must be approved by the project geotechnical engineer.

The subdrain locations and installation should be verified in the field by the project engineering geologist. As soon as possible after grading is completed around the subdrain outlet, the outlet must be located, protected from future damage and covered with a galvanized screen clamped in-place. Subdrain outlets should be established by survey to aid in relocation. To protect the outlet, as a minimum, it should be extended 1 foot past the slope face and marked with a steel post and/or encased in concrete.

## **8. CLOSURE**

The report was prepared for Mehdi Humkar and his design consultants solely for design and construction of the project described herein. It may not contain sufficient information for other uses or the purposes of other parties without consulting Gorian and Associates, Inc.

No warranty, express or implied, is made as to conclusions and professional advice included in this report. Gorian and Associates, Inc. disclaim responsibility and liability for problems that may occur if the recommendations presented in this report are not followed.

Services of Gorian and Associates, Inc. or this report should not be construed to relieve the owner or construction contractor from their responsibility or liabilities, or for maintaining a safe jobsite. Neither the professional activities of Gorian and Associates, Inc. nor the presence of our employees shall be construed to imply Gorian and Associates, Inc. has responsibility for methods of work performance, superintendence, sequencing of construction, or safety in, on, or about the jobsite.

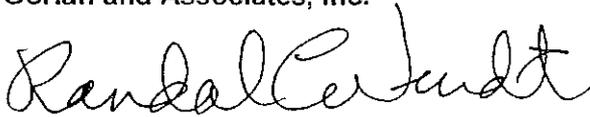
The recommendations are based on interpretations of the subsurface conditions observed in subsurface explorations and a surficial site reconnaissance as addressed herein and the referenced reports. The interpretations may differ from actual subsurface conditions, which can vary horizontally and vertically across the site. Due to possible subsurface variations, this office should observe all aspects of field construction addressed herein. Persons using this report for bidding or construction purposes should perform such independent investigations, as they deem necessary.

oOo

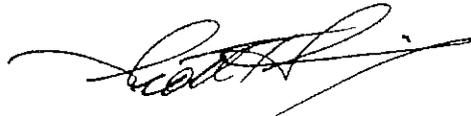
Please feel free to contact us if you have any questions regarding the information and recommendations provided herein.

Respectfully,

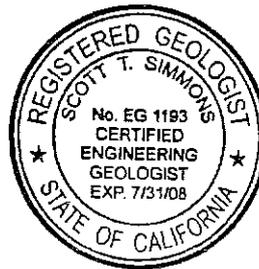
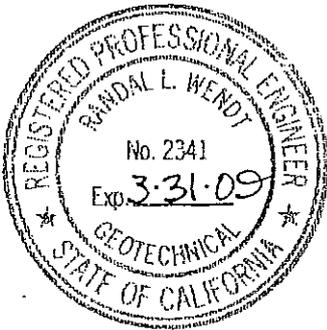
Gorian and Associates, Inc.



By: Randal L. Wendt, GE 2341  
Senior Geotechnical Engineer



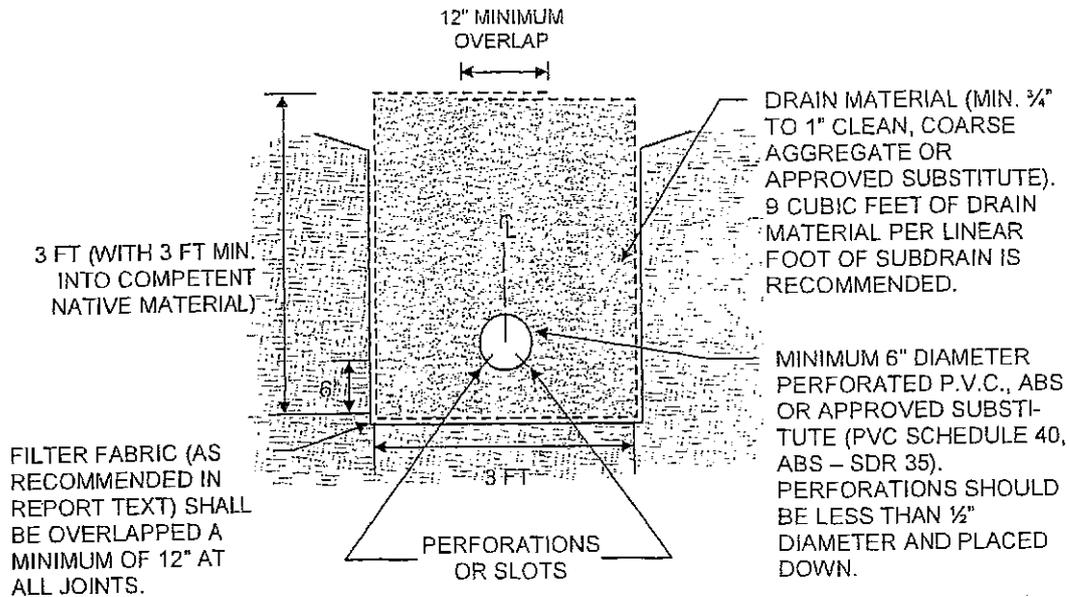
Scott T. Simmons, EG 1193  
Principal Engineering Geologist



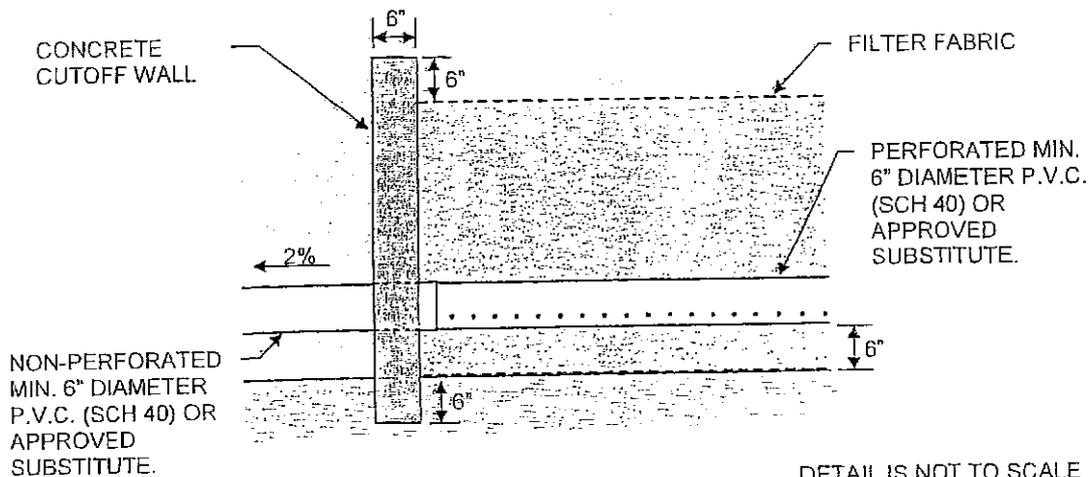
Attachments: Geotechnical Map (Plate 1)  
Geotechnical Cross Sections A-A', B-B', C-C', and D-D' (Plates 2 through X)  
Typical Subdrain Detail

Distribution: Addressee (6)

# CANYON SUBDRAIN AND CUTOFF WALL TYPICAL DETAIL



**NOTE:** CUTOFF WALL SHOULD EXTEND MINIMUM 6" BEYOND SUBDRAIN MATERIAL (IN ALL DIRECTIONS)

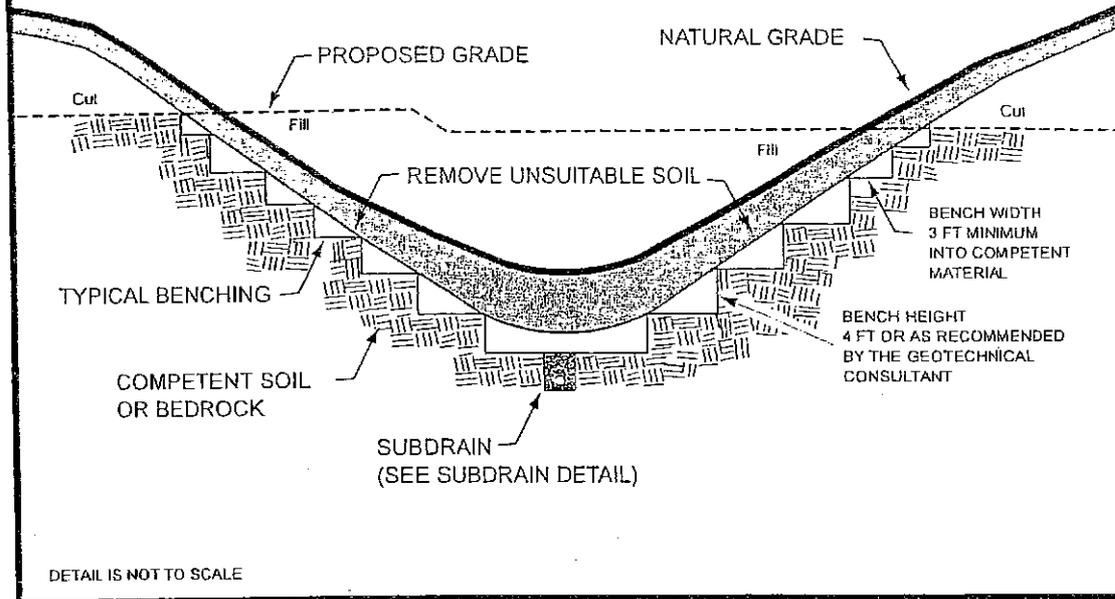


**NOTE:** Subdrain pipe should be 6" diameter up to 500 ft long and 8" diameter over 500 ft long. Subdrain pipe should be 10" diameter where up to three 6" subdrain pipes or where two 8" diameter subdrain pipes are confluent unless specified otherwise by the geotechnical consultant. (See soils report)

# CANYON CLEANOUT AND BENCHING

## TYPICAL DETAIL

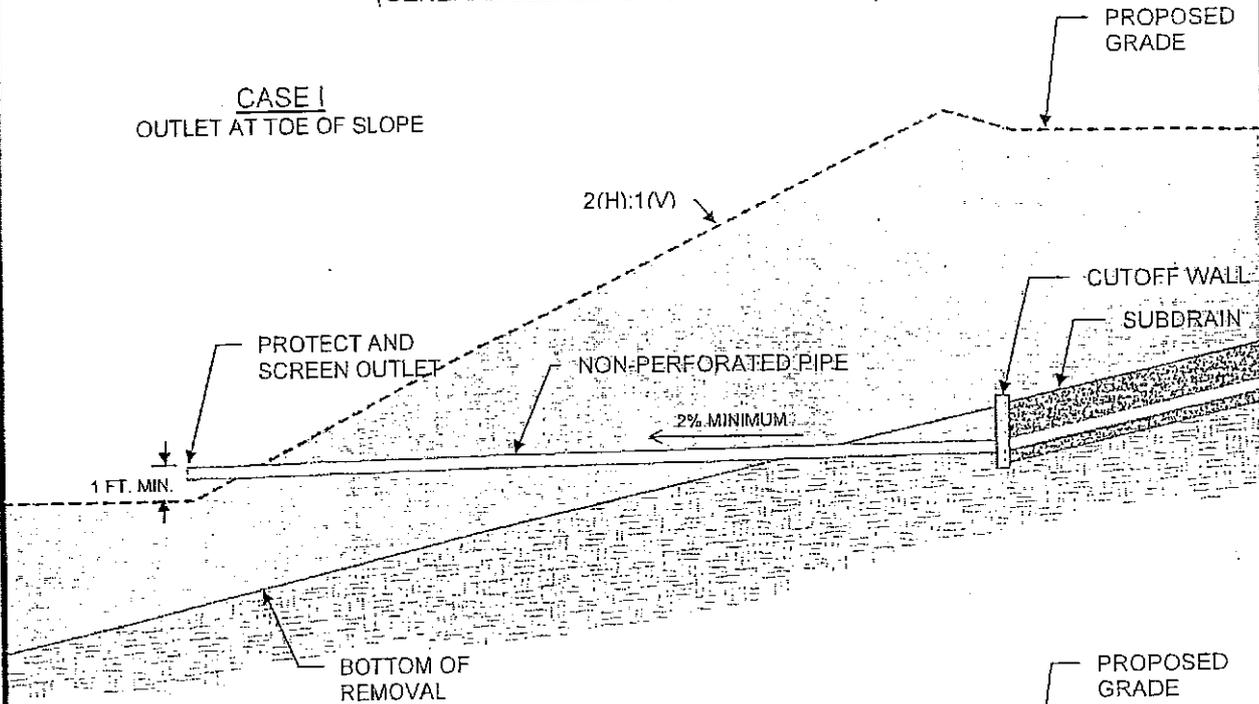
(GENERALIZED TRANSVERSE SECTION)



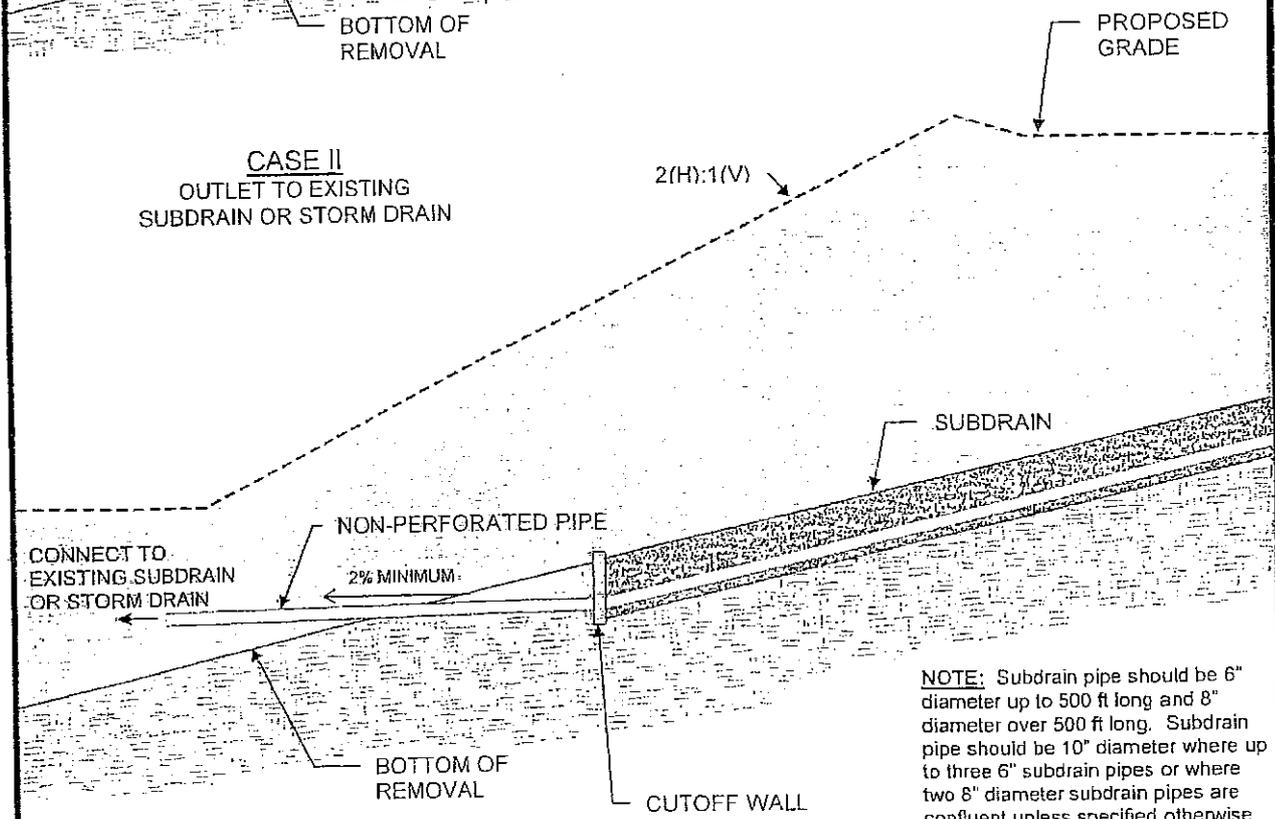
# CANYON SUBDRAIN OUTLET TYPICAL DETAIL

(GENERALIZED LONGITUDINAL SECTION)

**CASE I**  
OUTLET AT TOE OF SLOPE



**CASE II**  
OUTLET TO EXISTING  
SUBDRAIN OR STORM DRAIN



**NOTE:** Subdrain pipe should be 6" diameter up to 500 ft long and 8" diameter over 500 ft long. Subdrain pipe should be 10" diameter where up to three 6" subdrain pipes or where two 8" diameter subdrain pipes are confluent unless specified otherwise by the geotechnical consultant.

DETAIL IS NOT TO SCALE