



**Engineering &
Environmental**
CONSTRUCTION

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HILL STABILIZATION CITY OF LAGUNA

CASE STUDY

PROJECT OVERVIEW

Project Name: Laguna Canyon Hill Stabilization

Location: Laguna Beach, CA

Job Type: Hill Stabilization

DESCRIPTION

This Southern California property located close to residential areas on a steep canyon hillside presented significant slope stability issues. Property development & associated grading was constructed without permits in the 1950s. In the 1980s, a fire destroyed residential structures and surrounding vegetation. A damage assessment with geotechnical investigation determined the housing pad and access roadway were constructed without proper compaction. In addition, spoils from the previous grading had been pushed down-slope and were left uncompacted. As a result, stormwater drainage created “piping” throughout the site. These adverse conditions presented the potential for slope failure and significant risks to adjoining and down-slope properties. E&E was contracted to implement a remedial grading plan, utilizing existing site material only, to mitigate the risk of slope failure & eliminate the transport of the un-compacted fill. The successful execution of the project returned the Property to its pre-development condition in terms of both topography and vegetation.



MAIN TASKS

- Install ingress/egress controls
- Clear and grub Property
- Locate and remove all subsurface utilities and structures
- Excavate overburden, build fill key
- Excavate and stockpile all undocumented fill
- Excavate any surficial failures
- Excavate, rip and re-compact all fill keys
- Prepare grade to receive the re-compacted fill
- Backfill/replace material including moisture-conditioning
- Backfill and compact slope face consistent with the final grading plan and as necessary to establish pre-development contours
- Install and continuously maintain storm-water mitigation, Best Management Practices (BMP's) throughout the Property

CHALLENGES

The Client was highly concerned about the potential impact on adjoining properties downslope of the construction area. Above-normal amounts of rainfall occurred during construction. Due to potential slope stability risks, the project required E&E to construct mitigation measures utilizing basic design plans in conjunction with a field engineering and construction process. The site was highly vulnerable to sheet flow of storm-waters across unconsolidated soils. Equipment that could be used was limited due to site access by a narrow private road.

INTERESTING POINTS

During the extraordinary rainfall that occurred, only minimal debris was seen to surface at the downslope properties. To mitigate surface water impacts, E&E built and maintained check dams, straw wattle and silt fence that withstood the torrents. Access to the site required delivery of heavy equipment on residential neighborhood roads. This was a very sensitive issue with closely located neighbors of the property. E&E actively participated in city meetings to help alleviate concerns and E&E staff walked all equipment up the road on plywood sheeting to avoid any damage to the existing road.

ABOUT E&E CONSTRUCTION

Engineering and Environmental Construction (E&E) was founded in 2006 with a primary focus on the installation of environmental remediation systems. Over the years, we've continually expanded our skill-sets to become one of the industry's leading purveyors of full-service construction services – both within the environmental industry and in general construction. Today, we are proud to offer a wide range of highly specialized environmental engineering capabilities and a full-suite of general construction services to support our clients' ever-evolving needs.



STATEMENT OF QUALIFICATIONS

Engineering and Environmental Construction, Inc (E&E) is a privately held corporation established in 2006. E&E's main construction offices are based in Huntington Beach, CA. We are licensed to conduct operations throughout California, Arizona, Nevada, and Washington.

Contractor Licenses and Certifications Include (but aren't limited to):

- Class A General Engineering License
- B General Building License
- C-10 Electrical License
- C-36 Plumbing License
- Hazardous Substances Removal License
- Annual OSHA Excavation & Trenching Certification
- Remedial Action Certification
- SCAQMD Rule 1166 – Various Locations Permit

E&E is recognized as an SBE with many entities, such as the DGS, and we are also pre-cleared by Homeland Security for access to ports and military installations. We maintain a Zero Incident Safety Record and a 0.78 Experience Modification Rate (EMR), among other H&S recognitions.

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