

Revello Drive and Tramonto Drive Residential Project
ENV-2019-5520-MND

**Analysis of Key Hydrology and
Water Quality Issues
Relative to CEQA**



**Castellammare Mesa Home Owners
Kim Feder, President
April 30, 2024**

The Committee evaluating the Revello Drive and Tramonto Drive Residential Project (RTP) is comprised of CMHO residents who are engineers, architects, attorneys, real estate development executives, and experts in the fields of geotechnical, structural and civil engineering, construction, transportation and sound who rendered opinions and whose expertise helped determine the community's position on this project as it relates to the California Environmental Quality Act. A great deal of historical research was performed into geological studies chronicling the history of Castellammare, Castellammare Mesa and the Tramonto Landslide. The titles of these analyses and reports have been included and indexed.

Pacific Palisades Landslide Study

Moran, Procter, Meuser and Rutledge (MPMR)
July 1959

Landslide Stabilization Study

Tramonto Drive Landslide

Los Angeles, California
URS: Goetz, Roth, Nesarajah
October 14, 2010

Interim Geologic Analysis

Revello-Tramonto Project

E.D. Michael, PG 270; EG 157; HG 574
November 6, 2023

Geotechnical Evaluation of City of Los Angeles

**Streets (Revello Drive and Tramonto Drive) and
Storm Drain as related to proposed new**

Residence Construction

Stoney-Miller Consultants, Inc.

Geotechnical Engineering and Engineering Geology

Case Number: ENV-2019-5520-MND

Revello Drive Tramonto Drive

Residential Project

Dudek -- July 2021

AND

Hydrology and Hydraulics Report

Appendix G, ENV-2019-5520-MND

VCA Engineers, Inc.

It is the Committee's decision that, at a minimum, a detailed study and Environmental Impact Report: EIR is required before moving any further on this project. Our research concluded:

1. Site stabilization is inadequate per URS study conducted for Los Angeles City in 2010
2. Hydrology and water quality impacts are understated
3. Drainage plan is inadequate for entire project
4. Existing sewer and drainage systems are band aids and will be overwhelmed with additional volume
5. Development won't mitigate or secure entire landslide
6. Proposed slope remediation is not adequate
7. Overall exacerbation of existing conditions requires further assessment – EIR

HISTORY of TRAMONTO/REVELLO LANDSLIDES

Timetable and map - Moran, Proctor, Meuser and Rutledge— July 1959.

The RTP proposes to construct four large single-family homes on a 1.35-acre site located within the area known as the Tramonto Landslide. This is an active landslide that has failed many times over the past seventy years. The origins of this landslide are pre-historic, however, the number of significant landslides and their relationship with construction projects has been well-documented. Below is a chronological summary of construction activities and landslides in Castellammare.

- 1922, slope cuts during construction of the Pacific Coast Highway.
- 1925 – 1926, development of Castellammare Mesa including installation of water main, storm drains, sanitary sewers, and grading of the basic road network. A 10-ft. promenade graded, and a parapet wall constructed on slope immediately north of the Pacific Coast Highway. First homes constructed.
- 1932-1935, widening of Pacific Coast Highway. Slope reinforcement was constructed after minor cuts.
- April 1932 – January 1933, movement east of Stretto Way during grading of Pacific Coast Highway, Location 4 [of Castellammare].
- January 1934, slope reinforcement was completed east of Stretto Way.
- March 1935, slope reinforcement completed 350 ft. west of Stretto Way.



- April 1935 slides west of Stretto Way possibly including Location 3. Slope reinforcement re-designed and is presently standing while slope reinforcement to the right and left has failed.
- April 18, 1935, slide 200 ft. west of Location 3.

HISTORY of TRAMONTO/REVELLO LANDSLIDES (cont'd.)

- August 1935, slope reinforcement completed December 1936, movement on Castellammare Drive east and west of Stretto Way, Location 4 and probably Location 3.
- By 1936, storm drain from Revello Drive to Pacific Coast Highway abandoned due to movement at Location 2.
- February 27-31 [29], 1938, Castellammare isolated by slides. Movement west of Stretto Way, Location 3.
- March 1939, movement evidenced at Location 1.
- March 7-14, 1941, damage to Porto Marina Way, Location 2.
- March 14, 1941, slide at Location 1
- February – April 1941, movements suspected in all Castellammare slide areas.
- December 1941, slide at Location 5.
- April 1947, movement at Location 3.
- Spring 1952, movement at Location 3.
- January – March 1957, movement at Location 3.
- December 1957, movement at Locations 3 and 4.
- January 1958, three homes in the north section of Location 3 posted unsafe.
- March – April 1958, movement at Locations 2, 3, 4 and 5.
- Early in 1958, a home in the north section of Location 4 posted unsafe.
- 1959, gradual movements continue at Location 3.

Roads in the upper mesa were not paved during the period of initial development in 1924-1926. It is possible that damage to utilities commenced during the construction of the Pacific Coast Highway in 1932 to 1935. By 1936 the storm drain from the intersection of Revello and Castellammare Drives to the Pacific Coast Highway was damaged, probably by sliding, and closed with plugs. Due to movement at Location 3 in March 1938, the sewer in Castellammare Drive was placed above ground on bracing. This sewer was periodically realigned until it was finally abandoned in 1958. In December of 1946 the water main east and west of Stretto Way was abandoned and replaced by mains with flexible couplings. A storm drain was constructed from Lecco Lane to the Pacific Coast Highway during 1953. In 1955 the main along Porto Marina Way was abandoned and replaced between Castellammare Drive and Lecco Lane. In 1956 the main from Revello Drive to Stretto Way along Posetano Road was abandoned and replaced with protected main. A portion of this main that passed through slide Location 3 was taken out of commission in November 1957. In September of 1957 the sewer in Tramonto Drive was found to be fractured and was replaced with a flexible line, above ground. Maintenance of sewers through slide Location 3 became such a problem during the first months of 1958 that sewers were rerouted downhill, paralleling slide Location 3. A perforated drain was placed along Castellammare Drive through slide Location 3 during the fall of 1958 and carried to the Pacific Coast Highway.

ENV-2019-5520-MND: KEY ISSUES RELATIVE TO CEQA

HYDROLOGY: PROJECT HYDRATION and WATER QUALITY IMPACTS ARE UNDERSTATED IN THE INITIAL STUDY.

A THOROUGH UNDERSTANDING OF HOW GROUNDWATER MOVES ABOUT BELOW THE SURFACE IS ESSENTIAL TO ENGINEERING A LONG-TERM SOLUTION TO PREVENT THE TRAMONTO LANDSLIDE FROM OVERTAKING THE PACIFIC COAST HIGHWAY IN THE EVENT OF AN EARTHQUAKE OR MAJOR WEATHER EVENT

“Hydrogeology may be defined as the scientific study of water that occurs in the subsurface under some set of persistent hydrologic conditions and commonly referred to as “ground water.” Although ground water temporarily in subsurface storage is included, hydrogeology primarily concerns the movement of ground water. In determining whether there is a risk of land sliding, it is important to understand the way ground water occurs or is likely to occur. In considering such matters over the long-term, application of the hydrologic balance equation can be especially useful.” – *E.D. Michael, 2023*



Commenting on PCH lane closure in April 2024 a representative from Caltrans stated “That is actually a City of LA slide. And that has been moving for years. It has been determined by geologists that removing soil will make the issue worse, potentially spreading onto the entire highway and causing a complete shutdown of PCH. – Circling the News, April 5, 2024

HYDROLOGIC BALANCE

The term ‘hydrologic balance’ refers to the movement of water through a specified volume of earth at the earth’s surface. In theory, in any given period, the amount of water entering that volume, corrected for storage changes in that volume must be equal to the amount of water leaving that volume. The purpose of the hydrologic balance commonly is to estimate increments of inflow and outflow during such period. In agrarian pursuits outflow commonly is a matter of most concern. Where slope instability is at issue, subsurface storage increase may be most important. But in any case, determining some variables of the hydrologic balance may offer a means for controlling others. For a block of the earth containing the Tramonto landslide debris, the following increments of the hydrologic balance apply:

Inflow: rain infiltration; through-flow irrigation; line leakages; subsurface inflow, particularly from the north, and inflow from early septic systems assumed to have been eliminated.

Storage: ground water corrected for incremental change in saturated zones; changes in surface storage such as swimming pools and decorative ponds, with line storage volumes assumed constant.

Outflow: evapotranspiration; evaporation from standing surface waters and damp areas; subsurface flow to Santa Monica Bay; surface runoff from springs, rain, and dewatering

We have identified several areas where the analysis in the Initial Study downplays the significance of groundwater during and after the construction phase of the project. In some cases, this is because the analysis has relied on an incorrect understanding that the proposed project site has a storm drainage system serving it. Therefore, the assertion that “The Project site and the surrounding areas are served by the existing City storm drain system.” [ENV-2019-5520-MND] is incorrect.

THERE IS NO CITY STORM DRAIN SYSTEM IN CASTELLAMMARE. RUN-OFF TRAVELS DOWNHILL VIA THE STREETS.

Except for a 24” fatigued storm drain that serves East Revello Drive, the accompanying catch basin, and an auxiliary drain that was installed on Revello Dr. in 2017, there is no City drain system in Castellammare Mesa. All run-off is directed downhill via the streets.



Photos of Tramonto Drive, February 2024.

Roads in the upper mesa were not paved during the period of initial development in 1924-1926. It is possible that damage to utilities commenced during the construction of the Pacific Coast Highway in 1932 to 1935. By 1936 the storm drain from the intersection of Revello and Castellammare Drives to the Pacific Coast Highway was damaged, probably by sliding, and closed with plugs. - *Moran, Proctor, Meuser and Rutledge— July 1959*

AN ABOVE GROUND SEWER FROM 1938 LEFT TO ROT IS NOT AN ACCEPTIBLE SOLUTION

Due to movement at the Tramonto Landslide in March 1938, the sewer on Castellammare Drive was placed above ground on bracing. This sewer was periodically realigned until it was finally abandoned in 1958. In December of 1946 the water main east and west of Stretto Way was abandoned and replaced by mains with flexible couplings.

A storm drain was constructed from Lecco Lane to the Pacific Coast Highway during 1953. In 1955 the main along Porto Marina Way was abandoned and replaced between Castellammare Drive and Lecco Lane. In 1956

the main from Revello Drive to Stretto Way along Posetano Road was abandoned and replaced with protected main. A portion of this main that passed through the Tramonto Landslide was taken out of commission in November 1957.

In September of 1957 the sewer in Tramonto Drive was found to be fractured and was replaced with a flexible line, above ground. Maintenance of sewers through slide Location 3 became such a problem during the first months of 1958 that sewers were rerouted downhill, paralleling the Tramonto Landslide.

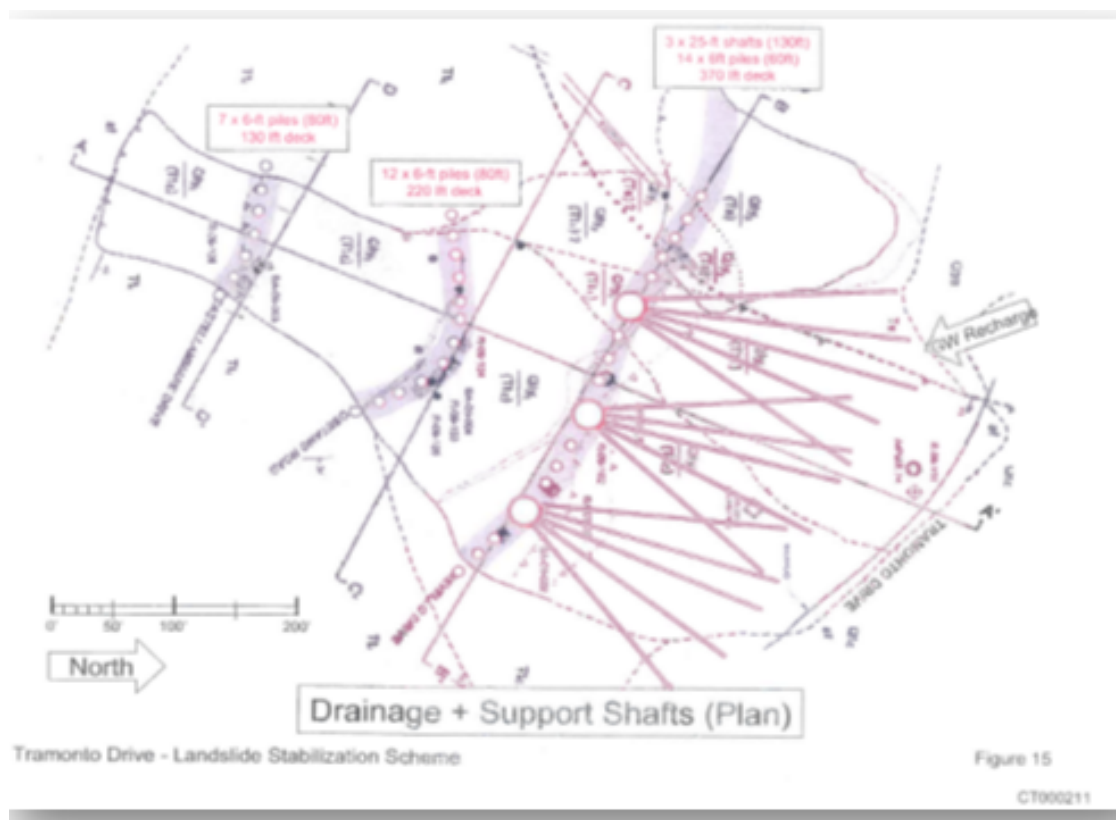
A perforated drain was placed along Castellammare Drive through the Tramonto Landslide during the fall of 1958 and carried to the Pacific Coast Highway. - *Moran, Proctor, Meuser and Rutledge— July 1959*

The URS study found that a significant cause of the landslide is subsurface water. The City's own study (URS, 2010) found that in addition to lateral pins, a large network of subsurface drainage is required to stabilize the slope. URS study section 5.2.2:

5.2.2 Subsurface Drainage

A significant portion of the groundwater perched within the terrace deposits and slide debris above the bedrock contact is recharged underground from adjacent areas. As described in Section 2.3, General Groundwater Regime, a 2-acre area along Quadro Vecchio Drive is likely to be the principal source of groundwater recharge for the Tramonto Drive landslide (See Figure 15). Hence, intercepting this source with a subsurface drainage system in the upper portion of the landslide was a key consideration in developing the slide-stabilization scheme proposed herein. Subsurface drainage may be accomplished with French drains, deep gravel walls, drainage shafts or tunnels, horizontal drains (hydraugers), or any combination thereof. In general, such systems should be designed with passive (i.e., gravity flow) discharge without the need for pumping.

Below: A 2010 URS Study diagram illustrating the massive drainage system required to stabilize the slope.



From a City of LA Geotechnical Engineering Division Memo dated July 25, 2022 regarding the RTP (page 3):

“It is important to note that the proposed stabilization plan does not include ‘global’ dewatering of the slide area to improve stability. Inclusion of dewatering as part of the overall method of stabilization, for landslides that have groundwater as one of its controlling factors, is generally considered to be beneficial.”

**DEVELOPER'S PROPOSAL HAS NO SUCH DRAINAGE PLAN AND IS THEREFORE
INADEQUATE.
THE CITY OF LA SHOULD NOT HAVE APPROVED A GEO STUDY WITH INSUFFICIENT
HYDROLOGY DATA.**

DUDEK

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In 2015, in *California Building Industry Association v. Bay Area Air Quality Management District (CBIA v. BAAQMD)*, the California Supreme Court held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of the Project. The decision held that an impact from the existing environment to the Project, including future users and/or residents, is not an impact for purposes of CEQA; however, if the Project, including future users and residents, exacerbates existing conditions, that impact must be assessed, including how it might affect future users and/or residents of the Project.

[ENV-2019-5520-MND]

Would the Project:

a.) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact

b.) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Potential Significant Impact

From E.D. Michael Interim Geologic Analysis, 2023 –

“Ground water moves through the Castellammare Mesa area and to some extent is stored there. Generally, in a particular area, groundwater may be stored as an aquifer, or in the case of Castellammare Mesa, an *effective* aquifer that through long-term observations of *effective* production and *effective* recharge it should be possible to predict how groundwater is likely to occur at any given time. As a practical matter, two effective aquifers can be defined for the Castellammare Mesa area.”

c.) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would have:

Potential Significant Impact

From E.D. Michael Interim Geologic Analysis, 2023 –

“The RTP is such that even with accomplishment of the latest requirements for the issuance of building permits as specified in Jensen and Liu (2020), the available data are insufficient to avoid adverse conditions in terms of slope stability in the event of proceeding with development of the RTP as now proposed. However, to set the

stage so to speak, it is desirable if not necessary to first clarify the basis for such an assertion. Consequently, matters are presented herein to

From E.D. Michael Interim Geologic Analysis, 2023 – Continued

establish such a basis first discussing the physical character of the Castellammare Mesa area residential development, (Sec. 3.0), its general physical character (Secs. 4.0 – 5.0), and the Tramonto landslide phenomenon, before analyzing the issue of the Lead Agency's adopting of a mitigated negative declaration for the RTP."

The 34,000 cubic yards of soil proposed to be removed is many times the legal limit and would have a potentially significant impact on groundwater supplies and interfere with the groundwater recharge.

c.) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less than Significant Impact

d.) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact

**AT MINIMUM, A DETAILED
ENVIRONMENTAL IMPACT REPORT
SHOULD BE REQUIRED FOR THIS PROJECT.**