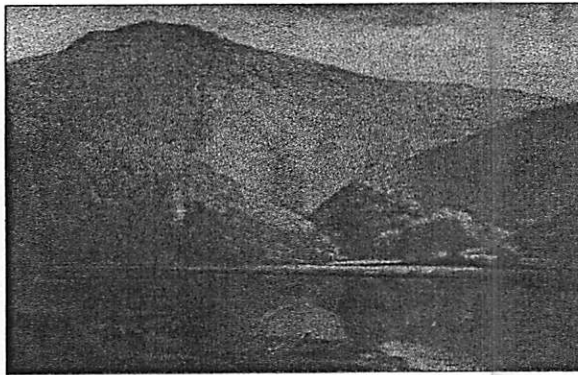


SECTION 5
LAND USE:
Grading, Drainage, Erosion Control



TED GEGOUX



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SECTION 5 LAND USE: Grading, Drainage, Erosion Control

"People create landscapes that reflect their humanity, their morality and their culture, and these landscapes then in turn determine our fate."
– Sam Broder

GOALS:

- Reduce land use impacts to preserve native biodiversity.
- Regulate new development in the riparian zone to prevent increases in flood hazard.
- Promote the use of "preventative planning" review which incorporates environmental constraints into the site evaluation process to reduce possible impacts or need for mitigation.
- Promote use of Best Management Practices that reduce grading, drainage and erosion control impacts.

Introduction

Historically, land use planning has been one of the most complex and controversial issues in Los Angeles County, resulting in some of the longest and most expensive real estate development battles in US history. Coordinated land use planning that respects the integrity of the landscape and incorporates sound site design will facilitate sustainable development that works with the environment as much as possible to maximize public safety and preserve quality of life. It is impossible to remove ourselves from dependency on the air we breathe, the water we drink and the land we live on. If our land use practices continue to degrade these essential life elements, then we will pay ever-increasing costs for mitigation and restoration. The entire Santa Monica Mountains, and Topanga in particular provide the "lungs" for all 13 million residents of Los Angeles. Runoff from the mountains has direct impact on the beaches upon which the local economy depends. Sedimentation of creeks and waterways has a devastating impact on the ecological viability of aquatic species, promotes eutrophication and continues a vicious cycle of degradation that becomes ever more difficult and costly to remediate.

It would seem prudent to develop an integrated, preventative planning review process which would identify the environmental constraints and considerations for each property BEFORE any development planning took place. By understanding the limitations of the landscape, and reviewing it within the context of its watershed level impacts, a more realistic assessment of the potential problems is possible.

This also offers the opportunity to assess the benefits that the property provides to the community at large and challenges Los Angeles County to develop ways to recognize the infrastructure costs avoided when development is ecologically sustainable. This would extend to avoided costs for streambank stabilization due to reduced peak flows, the values of air and water pollution reduction, groundwater protection and recharge, as well as avoided energy costs. These real economic benefits to both the property owner and the community at large are substantial.

LAND USE PLANNING

ACTIONS:

- 5.1 Coordinate the Topanga Creek Watershed Management Plan with the Santa Monica Bay Restoration Plan, National Park Service and CA Dept. of Parks and Recreation general plans, and the Malibu Creek Watershed Council, particularly as they relate to stream protection and land use practices in the Santa Monica Mountains.
- 5.2 Establish process to address concerns that arise due to proposed remedial actions between interested parties.
- 5.3 Evaluate adequacy of water supply for increased development.
- 5.4 Acquire, maintain, restore habitat linkages and wildlife corridors. See also Biological Inventory.
- 5.5 Protect large blocks of land for core habitat. See also Biological Inventory.
- 5.6 The services of a consulting biologist/arborist should be sought prior to and during both the design and implementation phases of all projects. Specified monitoring following completion of construction is also recommended. See also Riparian Vegetation Protection.
- 5.7 Coordinate public input on protection of resources by requiring public agencies and private property owners to notify the community of any proposed projects and their potential impacts. See also Transportation.

Recommendations which require legal and political changes for implementation:

- 5.8 Adopt the Topanga Creek Watershed Management Plan, which would provide protection for life and property, the existing community and the creek environment.
- 5.9 Develop clearing/paving restrictions based on lot size.
- 5.10 Limit future development of remote houses requiring significant infrastructure investments.
- 5.11 Request that Los Angeles County create lot size overlay to identify areas with small lots.
- 5.12 Increase ability for lot retirement with reimbursement.
- 5.13 Enact more restrictive slope development ordinances.
- 5.14 Adopt the recommendations of the Topanga Creek Watershed Management Plan to implement the policies of the local area plans.
- 5.15 Move towards developing a Santa Monica Mountains Community Standards District to implement the development standards of the Topanga Creek Watershed Management Plan.
- 5.16 Require development setbacks from oak and riparian habitats, necessary to provide suitable protection, as per local land use plans.
- 5.17 Prohibit new development where inadequate road access exits for emergency ingress and egress to the main roadways of PCH, Mulholland Hwy., Topanga Canyon Blvd., and Old Topanga Canyon Rd.

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- 5.18 Land use density in undeveloped area of core habitat should be low, 5-40 acres/unit. Infilling should be allowed in existing developed neighborhoods where infrastructure is adequate. Land use density shall be determined by a development constraints matrix and be consistent with all of the land use policies.
 - 5.19 Require a pre-design constraints analysis to identify site-specific hazard mitigation problems prior to design.
 - 5.20 Design hardscape to preserve and enhance vegetation whenever possible. See also Streambank Protection, Stream Channel Maintenance and Riparian Protection.
 - (4.45) Establish sufficient slope setbacks for new structures for fire protection; prohibit ridgetop development; allow only limited vegetation clearance on slopes greater than 3:1 (30 feet or less). All fuel modification and fuel management plans required under Section 11.702(a) of the Fire Code shall comply with these standards. See also Fire Hazard.

DRAINAGE

ACTIONS:

- 5.21 Retain runoff onsite. Store in cisterns or underground containers for irrigation and fire suppression.
- 5.22 Develop plans to control runoff and sedimentation from roads/driveways. All cut and fill slopes must be replanted with appropriate native vegetation, or retained to prevent slope erosion. See also Erosion Control and Transportation.

Recommendations which require legal and political changes for implementation:

- 5.23 Assess a proportional fee for new developments generating downslope runoff to fund costs of off-site flood hazard mitigation (e.g. detention basins).
- (4.16) Establish practices which make reduction of peak flow runoff an important element in the selection of a grading and brushing procedure. See also Flood Hazard.
- (4.25) Establish a policy in Los Angeles County of using a broader spectrum of soil conditions, including the existing vegetated condition of the site, to perform runoff comparisons between the developed and undeveloped site conditions proposed. See also Flood Hazard.
- (4.26) Develop regulations that endorse the basic notion that passing whatever runoff a particular property generates downslope to its downstream neighbors is no longer an acceptable practice. See also Flood Hazard.

EROSION CONTROL

ACTIONS:

- 5.24 Erosion control should be performed only with porous material that allows infiltration of runoff. Energy dissipaters should be used to ensure that water velocities remain low. See also Transportation.
- 5.25 Utilize appropriate erosion control and streambank stabilization Best Management Practices. See also Transportation.
- 5.26 Minimize erosion and sedimentation. Maximize sediment and runoff retention on-site. All drainage must be conveyed and released in a non-erosive manner at non-erosive velocities into natural channels or to an approved public drainage device, according to existing regulations. See also Transportation.
- (5.22) Develop plans to control runoff and sedimentation from roads/driveways. All cut and fill slopes must be replanted with appropriate native vegetation, or retained to prevent slope erosion. See also Drainage and Transportation.

Recommendations which require legal and political changes for implementation:

- 5.27 Provide identification and protection of sites particularly vulnerable to erosion or obstruction in the Topanga Creek Watershed Management Plan.
- (4.38) Brush clearance methods should be done so as to minimize soil disturbances by leaving a 4-6 inch stubble, leaving roots in place, and encouraging replacement of flash fuels like grasses with perennial natives which would require less clearance. See also Fire Hazard.

Priority actions or research that still need funding or further investigation:

- (4.49) Encourage CA Fair Plan, Los Angeles County Fire Department and the Topanga community to develop a feasible brush clearance plan that will not cause erosion. See also Erosion Control.

GRADING

ACTIONS:

- 5.28 Let the land dictate the use. Minimize grading to the greatest extent possible.

Recommendations which require legal and political changes for implementation:

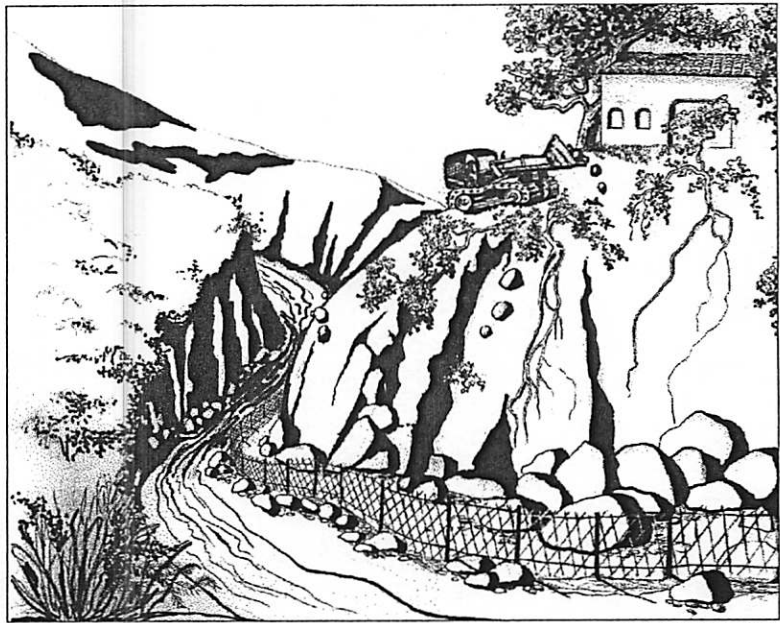
- 5.29 Establish maximum limits on the amount of grading allowed.

- 5.30 Evaluate current grading standards and inspection

procedures and develop standards and practices that will effectively prevent any sediment transportation from construction sites.

- 5.31 Documentation of existing riparian vegetation should be performed prior to any grading activities.

- (4.31) Grading, road building, and any other practice which disturbs an area of soil over the limits specified in table below should demonstrate that any additional peak flow runoff and sedimentation (i.e. over the undeveloped condition) is mitigated and retained on site. See also Flood Hazard and Transportation.



TERRI STEINMAN

Suggested Criteria which would trigger runoff mitigation measures:

Practice

Paving
Brushing (clear cutting, disking)
Grading

Criteria

1000 ft², 100 ft² per acre
3000 ft², 3000 ft² per acre
For volume: 1500 ft³, 1500 ft³ per acre
For surface area: 1000 ft², 1000 ft² per acre

STREAMBANK PROTECTION:

ACTIONS:

- 5.34 Discourage the use of hardscape in the floodplain and along creek banks. Where grouted riprap exists, replacement with more appropriate bioengineered materials and solutions should be made over time. See also Streambank and Channel Maintenance and Transportation.
- 5.35 Establish Best Management Practices for any work that impacts stream courses and adjoining habitats. Make available to all residents. See also Streambank and Channel Maintenance and Transportation.
- 5.36 Use only bio-engineered methods and materials to construct fills, backfills, embankment stabilizations, and road shoulders. See also Streambank and Channel Maintenance and Transportation.
- (4.3) Maintain and update annually the list of flood hazards, illegal dumping sites, and sites of potential slope failure. Support continued coordination of this effort between T-CEP, Caltrans, LA County Road Maintenance, etc.
- (4.5) In accordance with County ordinances, remove any large debris that could create a flood hazard by obstructing the creek channel. This should be coordinated with T-CEP, LA County and Dept of Fish and Game. See also Flood Hazard.
- (4.7) Plan strategic placement of boulders on a stream-wide basis to reduce stream velocity during peak flow, based on hydrologic evaluation and in compliance with Best Management Practices. See also Flood Hazard.
- (5.20) Design hardscape to preserve and enhance vegetation whenever possible. See also Erosion Control, and Stream Channel Maintenance.

Recommendations which require legal and political changes for implementation:

- 5.37 Require that projects which alter the stream flow characteristics document their impact on downstream properties and mitigate any significant increases in flood hazard.
- 5.38 Prohibit alteration of stream channels or floodplains; prohibit development within floodplains; require development setbacks from streamcourses.
- 5.39 Prohibit any increase in the rate of peak runoff from new development, in accordance with the RWQCB 3/4 inch storm retention requirement.
- 5.40 Develop demonstration sites for on-site retention systems to reduce run-off.
- 5.41 Establish maximum limits on the amount of impervious surface allowed.
- 5.42 Limit use of grouted concrete rip-rap only to those areas where gabions, bio-engineering efforts, etc. are not possible.
- 5.43 Removal of understory vegetation, or burying such vegetation under permanent rip-rap or culverts should be prohibited except under exceptional conditions. See also Riparian Vegetation.
- 5.44 Use of methods encouraging re-establishment of stream vegetation should be preferred over concrete or rip-rap retaining walls. See also Riparian Vegetation.
- 5.45 Require analysis with the hydrologic model prior to installation of any streambank hardscape to identify any impacts that could alter channel capacity or stream flow dynamics and to identify potential stream impacts.

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- 5.46 Replace caissons, concrete retaining walls, and other support devices in accordance with BMP's to protect stream resource and prevent (down)stream impacts by altering flow dynamics. Use hydrologic model to estimate impacts.
 - (4.34) Require analysis with the hydrologic model prior to installation of any streambank hardscape to identify any impacts that could alter channel capacity or stream flow dynamics and to identify potential downstream impacts.
 - 5.47 Coordinate information with NPDES permits. See also Stream Channel Maintenance and Water Quality.
 - 5.48 Require that plants and animals be protected during any construction within or adjacent to the stream channel.

References:

Coastal Act

Los Angeles County Department of Building and Safety

Los Angeles County Department of Public Works Interim Flood Hazard Map

Los Angeles County Regional Planning. Santa Monica Mountains North Area Plan

Los Angeles Regional Water Quality Control Board Basin Plan

Malibu Creek Watershed Natural Resources Plan

Local Coastal Plan (undergoing revision)

Santa Monica Bay Restoration Plan

Santa Monica Mountains National Recreation Area General Plan

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Supplemental Information:

More in depth description of the implications of all the above recommendation can be found in the 1996 Draft Topanga Creek Watershed Management Study. In particular, details regarding sites for possible mini-detention basins using existing culvert infrastructure are provided as well.

Appendix D provides sample designs for cisterns, and other on-site drainage retention systems which can be integrated into a property plan that provides water for fire safety and irrigation as well.