Coastal Bluff Protection

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- Coastal Bluff Protection
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General Geology of Capo Beach

- Surficial Soils
  - Alluvium, Colluvium, Talus, Fill
- Pleistocene Terrace Deposits
  - Clays, silts, sands
  - Approximately 120,000 to 500,000 years ago
- Miocene to Pliocene
  - Capistrano Formation – Siltstone
  - Approximately 3 to 13.5 million years ago
Typical Bluff Failure Mechanism

- Erosion of Surface Soils
- Weakening of the Soil Shear Strength
SEQUENCES IN BLUFF RETREAT

1. TYPICAL BLUFF CONFIGURATION
   - PCH
   - TALUS
   - STEEP BLUFF

2. BLUFF FAILURE
   (UPPER/BEDROCK PORTION OF BLUFF)
   - TALUS DEBRIS
   - THICKENS AND STEEPENS UNTIL SLIDE OCCURS
   - MORE BLUFF FACE EXPOSED AFTER SLIDE
   - ANGLE OF REPOSE
   - TEMPORARY STABLE BLUFF
   - TALUS SUBJECT TO ADDITIONAL FAILURES

3. TALUS FAILS
   - BLUFF CONTINUES TO FAIL CREATING MORE TALUS
   (FAILURE IN LOWER PORTION OF BLUFF)

IRRIGATION-RELATED PIPING ERODES TERRACE
   - FAILURE OCCURS ALONG TENSION JOINTS
   - DEBRIS (TALUS) AT TOE ACCUMULATES
Typical Slope Failure/ Excessive Erosion Causes

- Excessive storm water.
- Poor yard/house drainage to bluff.
- Irrigation system failure.
- Slope drain line failure.
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Palisades Drive Slope Failure
Bluff Failure Preventative Measures
General Property Protection

- **Maintenance Recommendations**
  - Review education pamphlet previously provided
  - Prevent over watering
  - Check and make repairs to storm drainage system
  - Check irrigation systems, pools and spas for leaks
  - Contact SCWD and ask for water use audit
Maintenance Recommendations

- Install water conserving sprinkler heads & drip irrigation system
- Develop water conserving landscape over entire property
- Landscape architect review for drought tolerant recommendations
- Direct all runoff to approved drainage devices and ultimately the street
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- **Bluff-Top Properties**
  - Maintain property improvements
  - Prevent property drainage from impacting adjacent property
  - Prevent water from going over the bluff
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- **Bluff-Top Properties (cont.)**
  - Maintain and test sump pump to pump drainage water to street
  - Watch for new or enlarging cracks in patios or foundation slabs
  - Monitor your slope
  - Obtain expert advice from a registered geologist or geotechnical engineer
Preventative Measures

- Please consult the City of Dana Point Planning Division prior to any work on bluff top properties.
Coastal Bluff Edge Setbacks

Citywide Established by Dana Point General Plan Coastal Erosion Technical Report & Exhibited on the Zoning Map

MINIMUM SETBACK FROM COASTAL BLUFF

ZONING MAP
REVISED: August, 2012
Coastal Bluff Development Standards

**Drainage**
- Site Drainage (surface and subsurface) directed to public street or other approved drainage facility. Transportation of said run-off may require area drains, roof drains, reductions in grading, appropriate pumping mechanisms, and other similar measures.

**Landscaping**
- Native or Drought Tolerant – Minimize Irrigation Requirements
- Water Use Classification of Landscape Species in California ([http://ucanr.edu/sites/WUCOLS/](http://ucanr.edu/sites/WUCOLS/))
- California Invasive Plant Council ([www.CNPS.org](http://www.CNPS.org))

**Prohibited** - Irrigation and turf grasses within required bluff edge setback
* (for new improvement projects)
Section 9.75.040 “D”
Definitions and Illustrations

- **Development, Coastal**

The placement or erection, on land, in or under water, of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto, construction, reconstruction, demolition, or alteration of the size of any structure; including any facility of any private, public, or municipal utility; and the removal of harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provision of the Z’berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511). As used in this section, “structure” includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line. (Coastal Act/30106).
Development within Coastal Bluff Edge Setback

**Key Points**
- Minimize landform alteration
- Be subordinate to the natural character of the bluff
- Protect the bluffs as a scenic visual resource

**Permitted Improvements**
- Retaining & Non-retaining walls
- Drought tolerant Landscaping

**Prohibited Improvements**
- Swimming Pool & Sunken spas
- Prohibited - Irrigation and turf grasses within required bluff edge setback
Questions & Answers

- **CITY CONTACTS**
  - **COMMUNITY DEVELOPMENT/PLANNING**
    - KURTH NELSON: (949)248-3572
    - E-MAIL: KNELSON@DANAPOINT.ORG
  - **PUBLIC WORKS**
    - OFFICE: (949)248-3554
    - E-MAIL: MSINACORI@DANAPOINT.ORG

For more information, please visit the City’s website at:
http://danapoint.org/home/showdocument?id=21199