



City of Santa Barbara California

PLANNING COMMISSION STAFF REPORT

REPORT DATE: December 7, 2006
AGENDA DATE: December 14, 2006
PROJECT ADDRESS: 3443 Sea Ledge Lane (MST2005-00743)
TO: Planning Commission
FROM: Planning Division, (805) 564-5470
 Jan Hubbell, AICP, Senior Planner
 Jo Anne La Conte, Assistant Planner

I. PROJECT DESCRIPTION

The proposed project consists of the removal of an existing swimming pool, hardscaping alterations over the pool location, minor "as-built" repairs to an existing rear stairway and deck, relocation and replacement of the drains and pipes, and replacement of an existing 5-foot tall chain link fence located on the south slope at the rear of the property with a 5-foot tall black chain link fence. The proposal includes 130 cubic yards of grading. The property is developed with a two-story 3,150 square foot single family residence and a detached two-car garage on a 36,770 net square foot lot located in the Appealable Jurisdiction of the City's Coastal Zone.

II. REQUIRED APPLICATIONS

The discretionary application required for this project is a Coastal Development Permit (CDP2005-00017) to allow the proposed development in the Appealable Jurisdiction of the City's Coastal Zone (SBMC §28.45.009).

III. RECOMMENDATION

The proposed project conforms to the City's Zoning and Building Ordinances and policies of the General Plan and the Local Coastal Plan. In addition, the size and massing of the project are consistent with the surrounding neighborhood. Therefore, Staff recommends that the Planning Commission approve the proposed project, making the findings outlined in Section VII of this report, and subject to the recommended conditions of approval in Exhibit A.



Project Site

Vicinity Map for 3443 Sea Ledge Lane

APPLICATION DEEMED COMPLETE:
DATE ACTION REQUIRED:

October 25, 2006
December 24, 2006

IV. SITE INFORMATION AND PROJECT STATISTICS

A. SITE INFORMATION

Applicant: Alicia Harrison	Property Owner: Thomas Dunlap Jr. & Katherine M. Dunlap, Trustees of the Dunlap Family Trust
Parcel Number: 047-082-005	Lot Area: 36,770 square feet (net)
General Plan: Residential, 1 Unit/acre	Zoning: A-1/SD-3: One-Family Residence, Coastal Overlay Zone
Existing Use: Single Family Residential	Topography: 32% Slope
Adjacent Land Uses: North – Sea Ledge Lane South – Pacific Ocean East – Single Family Residential West – Single Family Residential	

B. PROJECT STATISTICS

	Existing	Proposed
Living Area	3,150 square feet	No change
Garage	465 square feet	No change

V. SITE STATISTICS

LOT AREA: 1 acre

OPEN YARDS:

-Required: 1,250 sq. ft
 -Provided: more than 1,250 sq. ft.

PARKING:

-Existing: 2 covered
 -Required: 2 covered

VI. ISSUES

A. DESIGN REVIEW

This project was reviewed by the Architectural Board of Review (ABR) on one occasion (meeting minutes are attached as Exhibit D). On September 5, 2006, the ABR stated that the project will have no adverse visual impacts and that the hardscape and landscape are improvements.

B. COMPLIANCE WITH THE GENERAL PLAN AND LOCAL COASTAL PLAN

The proposed project is located in the Campanil neighborhood, as identified in the Land Use Element of the General Plan and has a general plan designation of Residential, One Unit per Acre. The property is currently developed with a 3,150 square foot, one-story, single-family residence and a detached 465 square foot two-car garage located on a 36,770 square foot net

lot. The proposed project would not change the density with regards to the General Plan Land Use designation as the project involves removal of an existing swimming pool, hardscaping over the pool location, "as-built" repairs to an existing stairway and deck, relocation and replacement of drains and pipes, and replacement of an existing 5-foot tall chain link fence with a 5-foot tall black chain link fence.. A total of 130 cubic yards of grading is proposed.

The project site is a bluff-top property located at the southwestern-most corner of the City's boundary that is accessible from Sea Ledge Lane, a private road stemming from Cliff Drive. Entrance into this small community of seaside homes is restricted by an electronically controlled security gate. The Sea Ledge Lane neighborhood rests upon an ancient, inactive landslide.

The project is in Component One of the Local Coastal Plan (LCP), which is that portion of the coastal zone stretching from the city's westerly boundary, adjacent to Hope Ranch, east to Arroyo Burro Creek, and extending inland about 100 yards. This project is in a low density residential area characteristic of this component, and the entire western half of the City's coastal zone, including the bluffs that rise abruptly from the water's edge to a height of approximately 150 feet. In addition, from the bluffs' edge, the topography continues to gradually slope upward to an elevation of approximately 500 feet at the periphery of the coastal zone. The bulk of this area is zoned A-1, which requires a minimum lot size of one acre per dwelling unit. The General Plan also indicates a residential density of one unit per acre. The entire length of the shore at the foot of the bluffs in this area is indicated for public use on the General Plan map; at this time private ownership extends to the mean high tide line. Major coastal issues in this area include hazards related to fire services and seacliff retreat; maintenance of views along Cliff Drive; and lateral access along the beach below the bluffs. There is a revetment at the base of the bluff below this property that extends to both the east and west below Sea Ledge Lane.

The proposed project is located within fifty feet of the edge of the coastal bluff and, therefore, the project requires a Coastal Development Permit (CDP). In order to approve a CDP, the project must be found consistent with both Coastal Act and Local Coastal Plan (LCP) policies.

Public Views: Section 30251 of the State Coastal Act (the Act) identifies the scenic and visual qualities of coastal areas as resources of public importance. One of the stated goals of the Act is that new development must be sited and designed to protect views along the scenic coastal area, minimize the alteration of natural land forms and be visually compatible with the character of the surrounding areas. Furthermore, where feasible, visually degraded areas are to be restored and enhanced. The proposed changes will not be visible from any public view point; therefore, the project is consistent with this policy.

Bluff Protection: Section 30253 requires that new development: 1. "minimize risks to life and property in areas of high geologic, flood and fire hazard;" and 2. "assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site.....along bluffs and cliffs".

The City of Santa Barbara's Coastal Plan identifies potential hazards in the Coastal Zone and encourages the use of permeable or pervious surfaces in all new development to minimize

additional surface runoff. It also discourages excess water from being applied to the top of the cliff for gardening purposes and recommends drought tolerant plant material.

The applicant is proposing to fill and install new patio hardscape over the abandoned swimming pool and to add a new tile area of 515 square feet. This would increase the amount of weight on the bluff, a potential adverse effect. However, additional hardscape may also reduce the amount of water that would infiltrate the bluff, a potential benefit if drainage from the hardscape area is not directed in a concentrated or erosive way over the bluff. The presence of the revetment largely protects the base of the bluff. However, bluff erosion is also caused by water infiltrating the bluff from above. Conditions have been included in the project design that will minimize such drainage concentration.

The Preliminary Geologic Investigation Report dated May 31, 2006 by Adam Simmons; Consulting Geologist (see Exhibit E) states that the concrete patio may be located five feet of the current top of slope as shown on the Penfield & Smith topographic map of the parcel dated April 5, 2006. Furthermore, the Report advises that all runoff water from impervious areas such as roofs, patios, decks, French Drains, and driveway should be captured and directed via an impervious conduit to an appropriate disposal area and that no surface water or captured subsurface water should be allowed to pass in an uncontrolled matter onto the sea cliff. The Report recommends that the on site drainage system be inspected and cleaned on a regular basis to ensure it is functioning correctly.

The Geologic Report further recommends the use of deep rooted, drought tolerant plants in the landscaping of the southern portions of the property to minimize the potential for over-saturation and erosion and to minimize the planting of high water use plants (including the lawn) within 10 feet of the sea cliff. It also recommends removing any heavy, shallow rooted plants (i.e. ice plant, cactus) on or near the bluff top. These provisions have been incorporated into the conditions of approval.

The project includes the relocation and replacement of three existing inlets located west of the stairway to match the proposed hardscape plan configuration. There are two existing inlets located east of the stairway that are also proposed to be replaced and one new drainage inlet is proposed to be installed in this location. There are two 4 inch black corrugated polyethylene pipes connected to the existing bluff top drainage system that run down the bluff face. As noted above, a Preliminary Geologic Investigation Report was prepared. In addition to making recommendations regarding plantings and setbacks, it also included recommendations related to drainage, including replacing the existing separated 4 inch diameter drainage pipe visible below the wood deck and extending all drainage pipes to the base of slope to minimize the erosion potential on the bluff face. The applicant is proposing to replace these two existing pipes with high density polyethylene (HDPE) with welded joints and to create a natural drainage swale to be constructed on top of the existing bluff top French drain to further protect the bluff from surface runoff, for the purpose of controlling bluff erosion. A second French drain near the garage area is also proposed to be connected to the bluff top drainage system via the easterly on-site drains. Per the applicant, the hardscape patio and drainage inlets will be configured to allow for a one percent fall away from the house directed into the improved drainage system. Estimated grading for the hardscape improvement is 65 cubic yard of cut and

9 cubic yards of fill. Estimated grading for the pool fill component of the project is 65 cubic yards of fill.

A Preliminary Drainage Analysis prepared by Penfield and Smith (see Exhibit F) was submitted by the applicant. In regards to onsite drainage, the report states that, since there are only minor increases in hard surface improvements proposed, the analysis shows that there will be no increase in peak runoff as a result of the proposed project and that all of the runoff from the project area will be captured in the proposed onsite bluff top storm drain system and be piped to the beach. It also states that no storm water runoff from the project area discharges onto the neighboring properties, nor does it go to the western most drain in Sea Ledge Lane. The proposed improvements to the backyard of the property will create no noticeable increase in peak storm water discharge to the westernmost drain of Sea Ledge Lane because the project area does not drain in this direction but is captured in a bluff top storm drain systems and carried to the beach. Furthermore, it states that only runoff from a small part of the driveway flows to the western most drain of Sea Ledge Lane but this is outside of the project site and that runoff from the site will leave as it has historically.

In regards to off-site drainage, the report states that at the western Cliff Drive inlet, overtopping onto Cliff Drive will occur when the water surface elevation exceeds the top of the headwall at elevation 166.91. Water will then sheet flow along the north side and down Cliff Drive to the east. While the majority of this excess water will flow east down Cliff Drive, the report conservatively estimates that 20% of this excess flow will end up flowing down Sea Ledge Lane. The report states that it is their recommendation that permeable paving not be used in coastal bluff top areas and that saturating the ground would reduce it stability and could lead to accelerated erosion or sliding problems. Furthermore, it strongly recommends that surface water be captured and carried to the beach, rather than allowing it to run down the bluff face. The applicant has advised that during the heavy rains in the fall of 2005, it was determined that the 36" CMP drain located beneath 3433 and 3443 Sea Ledge Lane was in need of emergency repairs as the pipe had separated in one area, water was leaking out and a large sink hole formed and that further inspection determined that the pipe had rusted out in three other areas. Upon completion of the repairs, a video of the drain was made which was submitted to the Public Works Department. The video of the storm drain system showed no problems or issues.

Conclusion: The project site is located on the coastal bluff and was not found to be located in an archaeological sensitivity zone. Public views will not be affected because most of the development is existing, only repairs to the structures are being proposed and the remaining improvements are not visible from the coastal bluff. With the inclusion of conditions recommended by the Geologic and Drainage studies, the project is consistent with the applicable policies of the California Coastal Act and Local Coastal Plan, and all implementing guidelines.

D. ENVIRONMENTAL REVIEW

Staff has determined that the project is exempt from further environmental review pursuant to the California Environmental Quality Act Guidelines Section 15301(e). Section 15301 allows for additions to existing private structures that do not exceed 10,000 square feet if the project is

in an area where all public services and facilities are available (to allow for maximum development permissible in the General Plan) and the area in which the project is located is not environmentally sensitive.

VII. FINDINGS

The Planning Commission finds the following:

COASTAL DEVELOPMENT PERMIT (SBMC §28.45.009)

The project is consistent with the policies of the California Coastal Act, the City's Local Coastal Plan, all implementing guidelines, and applicable provisions of the Code because the development would be compatible with the existing residence and the neighborhood, would not be visible from the beach, would not impact views from public view corridors, would not impact public access and would not contribute to safety or drainage hazards on the site if the recommendations contained in the geologic and drainage studies are carried out.

Exhibits:

- A. Conditions of Approval
- B. Site Plan, Topographic Survey, Grading Plan, Details & Landscape Plan
- C. Applicant's letter, dated July 13, 2006
- D. ABR Minutes dated September 5, 2006
- E. Preliminary Geologic Investigation
- F. Preliminary Drainage Analysis

PLANNING COMMISSION CONDITIONS OF APPROVAL

3443 SEA LEDGE LANE
MST2006-00743/ CDP2005-00017
COASTAL DEVELOPMENT PERMIT
DECEMBER 14, 2006

- I. In consideration of the project approval granted by the Planning Commission and for the benefit of the owner(s) and occupant(s) of the Real Property, the owners and occupants of adjacent real property and the public generally, the following terms and conditions are imposed on the use, possession and enjoyment of the Real Property:
- A. **Recorded Agreement.** Prior to the issuance of any Public Works permit or Building permit for the project on the Real Property, the Owner shall execute a written instrument, which shall be reviewed as to form and content by the City Attorney, Community Development Director and Public Works Director, recorded in the Office of the County Recorder, and shall include the following:
1. **Uninterrupted Water Flow.** The Owner shall provide for the uninterrupted flow of water through the Real Property including, but not limited to, swales, natural water courses, conduits and any access road, as appropriate. The Owner is responsible for the adequacy of any project-related drainage facilities and for the continued maintenance thereof in a manner that will preclude any hazard to life, health or damage to the Real Property or any adjoining property.
 2. **Maintenance of Drainage System.** Owner shall be responsible for maintaining the drainage system in a functioning state. Should any of the project's surface or subsurface drainage structures fail or result in increased erosion, the Owner shall be responsible for any necessary repairs to the system and restoration of the eroded area. Should repairs or restoration become necessary, prior to the commencement of such repair or restoration work, the applicant shall submit a repair and restoration plan to the Community Development Director to determine if an amendment or a new Building Permit and/or Coastal Development Permit is required to authorize such work.
 3. **Cliff Drive Sewer Connection Requirement.** As a condition of approval of this project, Owner agrees to connect to the City sewer system when a sewer main is constructed in Cliff Drive at a point adjacent to Owner's Real Property, per Santa Barbara Municipal Code Chapter 14.44. Owner shall, at Owner's sole expense, connect to the City sewer system within one year of being advised in writing that the City sewer main is operable and available for such a connection. In the event Owner fails to comply with this condition of approval, City may enter the Real Property and make such a sewer connection with the cost of the connection becoming a lien on the real property to be paid in connection with property taxes and assessments imposed on Owner's Real Property.
 4. **Water Rights Assignment.** The Owner shall assign to the City of Santa Barbara the exclusive right to extract ground water from under the Real Property. Said

agreement will be prepared by Engineering Division Staff for the Owner's signature.

5. **Approved Development.** The development of the Real Property approved by the Planning Commission on December 14, 2006 is limited to removal of an existing swimming pool, hardscape alterations, repairs to an existing rear stairway and deck, relocation and replacement of drains and pipes, replacement of a 5-foot fence on the south slope at the rear of the property, approximately 130 cubic yards of grading, one dwelling unit, and the improvements shown on the plans signed by the chairman of the Planning Commission on said date and on file at the City of Santa Barbara.
 6. **Recreational Vehicle Storage Limitation.** No recreational vehicles, boats or trailers shall be stored on the Real Property unless enclosed or concealed from view as approved by the Architectural Board of Review (ABR).
 7. **Coastal Bluff Liability Limitation.** The Owner understands and is advised that the site may be subject to extraordinary hazards from waves during storms and erosion, retreat, settlement, or subsidence and assumes liability for such hazards. The Owner unconditionally waives any present, future, and unforeseen claims of liability on the part of the City arising from the aforementioned or other natural hazards and relating to this permit approval, as a condition of this approval. Further, the Owner agrees to indemnify and hold harmless the City and its employees for any alleged or proven acts or omissions and related cost of defense, related to the City's approval of this permit and arising from the aforementioned or other natural hazards whether such claims should be stated by the Owner's successor-in-interest or third parties.
- B. **Design Review.** The following is subject to the review and approval of the Architectural Board of Review (ABR):
- Lighting.** Exterior lighting, where provided, shall be consistent with the City's Lighting Ordinance and most currently adopted Energy Code. No floodlights shall be allowed. Exterior lighting shall be shielded and directed toward the ground.
- C. **Public Works Requirements Prior to Building Permit Issuance.** The Owner shall submit the following, or evidence of completion of the following to the Public Works Department for review and approval, prior to the issuance of a Building Permit for the project.
- Drainage Calculations.** The Owner shall submit approved drainage calculations justifying that the existing on-site and proposed on-site drainage system adequately conveys a minimum of a 25-year storm event.
- D. **Community Development Requirements Prior to Building or Public Works Permit Application/Issuance.** The following shall be finalized prior to, and/or submitted with, the application for any Building or Public Works permit:

1. **Contractor and Subcontractor Notification.** The Owner shall notify in writing all contractors and subcontractors of the site rules, restrictions and Conditions of Approval. Submit a copy of the notice to the Planning Division.
2. **Final Planning Commission Resolution Submittal.** The final Planning Commission Resolution shall be submitted, indicating how each condition is met with drawing sheet and/or note references to verify condition compliance. If the condition relates to a document submittal, describe the status of the submittal (e.g., Final Map submitted to Public Works Department for review), and attach documents as appropriate.

E. **Building Permit Plan Requirements.** The following requirements/notes shall be incorporated into the construction plans submitted to the Building and Safety Division for Building permits.

1. **Technical Reports.** All recommendations of the structural engineer and soils reports, approved by the Building and Safety Division, shall be incorporated into the construction plans.
2. **Conditions on Plans/Signatures.** The final Planning Commission Resolution shall be provided on a full size drawing sheet as part of the drawing sets. Each condition shall have a sheet and/or note reference to verify condition compliance. If the condition relates to a document submittal, indicate the status of the submittal (e.g., Final Map submitted to Public Works Department for review). A statement shall also be placed on the above sheet as follows: The undersigned have read and understand the above conditions, and agree to abide by any and all conditions which is their usual and customary responsibility to perform, and which are within their authority to perform.

Signed:

Property Owner

Date

Contractor

Date

License No.

Architect

Date

License No.

Engineer

Date

License No.

F. **Construction Implementation Requirements.** All of these construction requirements shall be carried out in the field for the duration of the project construction.

1. **Demolition/Construction Materials Recycling.** Recycling and/or reuse of demolition/construction materials shall be carried out to the extent feasible, and containers shall be provided on site for that purpose, in order to minimize

construction-generated waste conveyed to the landfill. Indicate on the plans the location of container for collection of demolition/construction materials.

2. **Construction Hours.** Construction (including preparation for construction work) is prohibited Monday through Friday before 7:00 a.m. and after 5:00 p.m., and all day on Saturdays, Sundays and holidays observed by the City of Santa Barbara, as shown below:

New Year's Day	January 1st*
Martin Luther King's Birthday	3rd Monday in January
Presidents' Day	3rd Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4th*
Labor Day	1st Monday in September
Thanksgiving Day	4th Thursday in November
Following Thanksgiving Day	Friday following Thanksgiving Day
Christmas Day	December 25th*

*When a holiday falls on a Saturday or Sunday, the preceding Friday or following Monday, respectively, shall be observed as a legal holiday.

When, based on required construction type or other appropriate reasons, it is necessary to do work outside the allowed construction hours, contractor shall contact the Chief of Building and Safety to request a waiver from the above construction hours, using the procedure outlined in Santa Barbara Municipal Code §9.16.015 Construction Work at Night. Contractor shall notify all residents within 300 feet of the parcel of intent to carry out night construction a minimum of 48 hours prior to said construction. Said notification shall include what the work includes, the reason for the work, the duration of the proposed work and a contact number.

3. **Covered Truck Loads.** Trucks transporting fill material to and from the site shall be covered from the point of origin.
4. **Construction Best Management Practices (BMPs).** Construction activities shall address water quality through the use of BMPs, as approved by the Building and Safety Division.
5. **Construction Contact Sign.** Immediately after Building permit issuance, signage shall be posted at the points of entry to the site that list the contractor(s) telephone number, work hours, site rules, and construction-related conditions, to assist Building Inspectors and Police Officers in the enforcement of the conditions of approval.
6. **Graffiti Abatement Required.** Owner and Contractor shall be responsible for removal of all graffiti as quickly as possible. Graffiti not removed within 24 hours of notice by the Building and Safety Division may result in a Stop Work order being issued, or may be removed by the City, at the Owner's expense, as provided in SBMC Chapter 9.66.

7. **Unanticipated Archaeological Resources Contractor Notification.** Prior to the start of any vegetation or paving removal, demolition, trenching or grading, contractors and construction personnel shall be alerted to the possibility of uncovering unanticipated subsurface archaeological features or artifacts associated with past human occupation of the parcel. If such archaeological resources are encountered or suspected, work shall be halted immediately, the City Environmental Analyst shall be notified and an archaeologist from the most current City Qualified Archaeologists List shall be retained by the applicant. The latter shall be employed to assess the nature, extent and significance of any discoveries and to develop appropriate management recommendations for archaeological resource treatment, which may include, but are not limited to, redirection of grading and/or excavation activities, consultation and/or monitoring with a Barbareño Chumash representative from the most current City qualified Barbareño Chumash Site Monitors List, etc.

If the discovery consists of possible human remains, the Santa Barbara County Coroner shall be contacted immediately. If the Coroner determines that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission. A Barbareño Chumash representative from the most current City Qualified Barbareño Chumash Site Monitors List shall be retained to monitor all further subsurface disturbance in the area of the find. Work in the area may only proceed after the Environmental Analyst grants authorization.

If the discovery consists of possible prehistoric or Native American artifacts or materials, a Barbareño Chumash representative from the most current City Qualified Barbareño Chumash Site Monitors List shall be retained to monitor all further subsurface disturbance in the area of the find. Work in the area may only proceed after the Environmental Analyst grants authorization.

- G. **Prior to Certificate of Occupancy.** Prior to issuance of the Certificate of Occupancy, the Owner of the Real Property shall complete the following:

Repair Damaged Public Improvements. Repair any damaged public improvements (curbs, gutters, sidewalks, etc.) subject to the review and approval of the Public Works Department. Where tree roots are the cause of the damage, the roots shall be pruned under the direction of a qualified arborist.

- H. **Litigation Indemnification Agreement.** In the event the Planning Commission approval of the Project is appealed to the City Council, Applicant/Owner hereby agrees to defend the City, its officers, employees, agents, consultants and independent contractors ("City's Agents") from any third party legal challenge to the City Council's denial of the appeal and approval of the Project, including, but not limited to, challenges filed pursuant to the California Environmental Quality Act (collectively "Claims"). Applicant/Owner further agrees to indemnify and hold harmless the City and the City's Agents from any award of attorney fees or court costs made in connection with any Claim.

Applicant/Owner shall execute a written agreement, in a form approved by the City Attorney, evidencing the foregoing commitments of defense and indemnification within thirty (30) days of the City Council denial of the appeal and approval of the Project. These commitments of defense and indemnification are material conditions of the approval of the Project. If Applicant/Owner fails to execute the required defense and indemnification agreement within the time allotted, the Project approval shall become null and void absent subsequent acceptance of the agreement by the City, which acceptance shall be within the City's sole and absolute discretion. Nothing contained in this condition shall prevent the City or the City's Agents from independently defending any Claim. If the City or the City's Agents decide to independently defend a Claim, the City and the City's Agents shall bear their own attorney fees, expenses and costs of that independent defense.

NOTICE OF COASTAL DEVELOPMENT PERMIT TIME LIMITS:

The Planning Commission's action approving the Coastal Development Permit shall expire two (2) years from the date of approval, per Santa Barbara Municipal Code §28.45.009.q, unless:

1. Otherwise explicitly modified by conditions of approval of the development permit, or unless construction or use of the development has commenced.
2. A Building permit for the work authorized by the coastal development permit is issued prior to the expiration date of the approval.

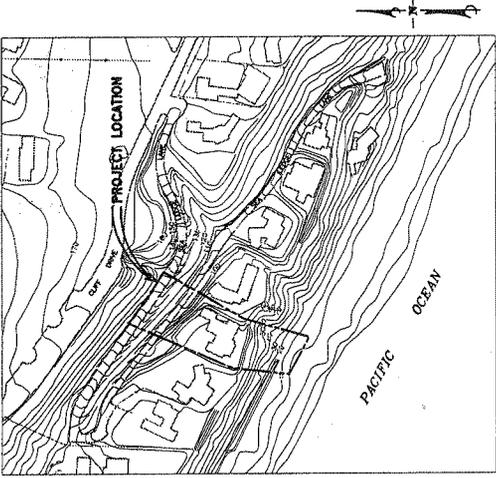
DUNLAP RESIDENCE

3443 SEA LEDGE LANE

SANTA BARBARA, CALIFORNIA

GENERAL REQUIREMENTS OF CONTRACTOR

1. THE CONTRACTOR SHALL MAINTAIN A SCHEDULED AND ACCURATE RECORD OF ALL CHANGES OF PROVIDING CONSTRUCTION FROM THAT SHOWN IN THESE PLANS AND SPECIFICATIONS FOR THE PURPOSE OF PROVIDING A BASIS FOR CONSTRUCTION RECORD DRAWINGS. NO CHANGES SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL MAINTAIN A RECORD OF ALL CONSTRUCTION CHANGES TO THE PROJECT. THE CONTRACTOR SHALL DELIVER THE RECORD OF ALL CONSTRUCTION CHANGES TO THE ENGINEER AT THE END OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE RECORD OF CHANGES WITH THE APPROVED PLANS, SPECIFICATIONS AND APPROVED CHANGE ORDERS.
2. THE CONTRACTOR WHO PREPARED THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR ANY CHANGES TO THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE APPROVED IN WRITING BY THE PROJECT ENGINEER.
3. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE PROJECT ENGINEER AND THE CITY GRADING INSPECTOR OF ANY DISCREPANCIES OR OMISSIONS FROM THESE REPRESENTED BY APPROVED PLANS AND SPECIFICATIONS.
4. THE CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SALE AND COMPLETE RESPONSIBILITY FOR ALL WORK, PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS THE CITY OF SANTA BARBARA FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES OF ANY KIND, INCLUDING REASONABLE ATTORNEY'S FEES, ARISING FROM OR IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONALS.
5. THE CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR PROTECTION OF EXISTING UTILITIES, STRUCTURES AND ADJACENT PROPERTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF SANTA BARBARA AND THE CALIFORNIA DEPARTMENT OF WATER RESOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
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7. UPON ENCOUNTERING EXISTING BURIED UTILITIES OR STRUCTURES NOT SHOWN OR LOCATED HEREON, THE CONTRACTOR SHALL STOP WORK IMMEDIATELY AND NOTIFY THE PROJECT ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.



LOCATION MAP

STORM DRAIN SPECIFICATIONS

1. STORM DRAINS, DROP INLETS, TRENCHING, BACKFILLING, ETC., SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE LATEST EDITION OF THE SANTA BARBARA CITY DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS FOR STORM DRAINAGE.
2. DETAILS, SECTIONS AND NOTES ON THESE PLANS SHALL BE CONSTRUCTED AS SHOWN ON TYPICAL DETAILS.
3. TRENCHING, BEDDING AND BACKFILL FOR STORM DRAINS SHALL CONFORM TO THE CITY OF SANTA BARBARA DEPARTMENT OF PUBLIC WORKS STD. DETAILS NO. 7-010.10 AND 7-011.1.

SHEET INDEX

- C-1 GENERAL INFORMATION AND NOTES
- C-2 TOPOGRAPHIC SURVEY
- C-3 GRADING PLAN
- C-4 DETAILS

GENERAL GRADING NOTES

1. ALL GRADING AND CONSTRUCTION ACTIVITIES SHALL CONFORM TO SANTA BARBARA CITY GRADING ORDINANCES AND ANY STANDARDS PERTAINING THEREIN, AND ALL OTHER APPLICABLE CODES AND ORDINANCES OF THE CITY OF SANTA BARBARA.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES AND THE CITY OF SANTA BARBARA.
3. A QUALIFIED SOILS ENGINEER OR HIS REPRESENTATIVE SHALL PROVIDE A REPORT ON THE PLACEMENT OF FILL MATERIAL DURING THE PLACEMENT OF FILL MATERIAL. THE REPORT SHALL BE SUBMITTED TO THE PROJECT ENGINEER AND THE CITY GRADING INSPECTOR. THE REPORT SHALL BE SUBMITTED TO THE PROJECT ENGINEER AND THE CITY GRADING INSPECTOR.
4. ALL CUT OR FILL AREAS TO BE GRADED SHALL BE CLEARED OF SURFACE VEGETATION, INCLUDING ROOTS AND ROCKS, AND ALL UNDESIRABLE MATERIALS SHALL BE REMOVED FROM THE SITE. ALL UNDESIRABLE MATERIALS SHALL BE REMOVED FROM THE SITE.
5. ANY PREVIOUSLY PLACED, UNDOCUMENTED, ARTIFICIAL FILL MATERIAL ENCOUNTERED DURING GRADING OPERATIONS SHALL BE REMOVED UNDER THE DIRECTION OF A SOILS ENGINEER PRIOR TO PLACEMENT OF ENGINEERED FILL MATERIAL.
6. ALL GEOTECHNICAL EXPLORATORY TRENCHES, BORINGS, OR OTHER SURFACE EXCAVATIONS LOCATED WITHIN THE BUILDING FOOTPRINT SHALL BE LOCATED AND PROPERLY BACKFILLED WITH ENGINEERED FILL MATERIAL.
7. NO ROCKS GREATER THAN 6-INCHES IN WITH IN THEIR GREATEST DIMENSION SHALL BE PLACED IN ENGINEERED FILL AREAS.
8. ALL FILL MATERIAL SHALL BE PLACED AT OR NEAR OPTIMUM MOISTURE CONTENT IN 6 TO 8 INCH LIFTS, AND EACH LIFT SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% (TEST PER FIVE HUNDRED (500) CUBIC YARDS OF PLACED MATERIAL). THE SOILS ENGINEER MAY INCREASE COMPACTED DENSITY AS NECESSARY TO INSURE COMPLIANCE WITH THE CITY GRADING ORDINANCES. COMPACTED DENSITY SHALL BE DETERMINED BY AN INDEPENDENT TESTING AGENCY BY THE CITY GRADING INSPECTOR.
9. THE COMPACTED STANDARD SHALL BE THE LATEST EDITION OF THE ASTM D-1557 METHOD OF COMPACTION BY THE SOILS ENGINEER.
10. ALL EXPOSED MATERIALS THAT ARE TO BE EXPOSED TO THE AIR SHALL BE COVERED WITH A MINIMUM OF 2 INCHES OF FINE SAND OR OTHER NON-EROSIVE MATERIAL. ALL EXPOSED MATERIALS SHALL BE COVERED WITH A MINIMUM OF 2 INCHES OF FINE SAND OR OTHER NON-EROSIVE MATERIAL.
11. ALL EXPOSED MATERIALS SHALL BE COVERED WITH A MINIMUM OF 2 INCHES OF FINE SAND OR OTHER NON-EROSIVE MATERIAL. ALL EXPOSED MATERIALS SHALL BE COVERED WITH A MINIMUM OF 2 INCHES OF FINE SAND OR OTHER NON-EROSIVE MATERIAL.

DUST CONTROL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DUST CONTROL MEASURES REQUIRED IN THE CONDITIONS OF APPROVAL. THE CONTRACTOR SHALL UTILIZE DUST CONTROL METHODS ON ALL DUST-PRODUCING CONDITION IN COMPLIANCE WITH REGULATIONS OF THE SANTA BARBARA AIR QUALITY DISTRICT.
2. DUST CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL DUST CONTROL MEASURES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL DUST CONTROL MEASURES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL DUST CONTROL MEASURES.

ESTIMATED EARTHWORK QUANTITIES

ITEM	QUANTITY	UNIT
EXCAVATION	65 C.Y.	C.Y.
FILL	73 C.Y.	C.Y.
EMPAVING	0 C.Y.	C.Y.
IMPORT	0 C.Y.	C.Y.

THE ABOVE QUANTITIES ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISH GRADE OR SUBGRADE. EXISTING GROUND IS BELIEVED TO BE CORRECTLY SHOWN ON THESE PLANS. PROPOSED SUBGRADE ELEVATION IS DEFINED AS THE DESIGN SURFACE ELEVATION OF EARTH TO BE CONSTRUCTED BEHIND PAVEMENTS OR STRUCTURES.

THE EARTHWORK QUANTITIES ABOVE ARE FOR BUILDING PERMIT PURPOSES ONLY. THEY HAVE NOT BEEN EXAMINED FOR ACCURACY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE QUANTITIES AND FOR THE PROVISION OF ADEQUATE EARTHWORK QUANTITIES FOR THE PURPOSE OF PREPARING A LUMP SUM BID PRICE FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS EARTH MATERIALS.



REVISIONS

NO.	DATE	DESCRIPTION

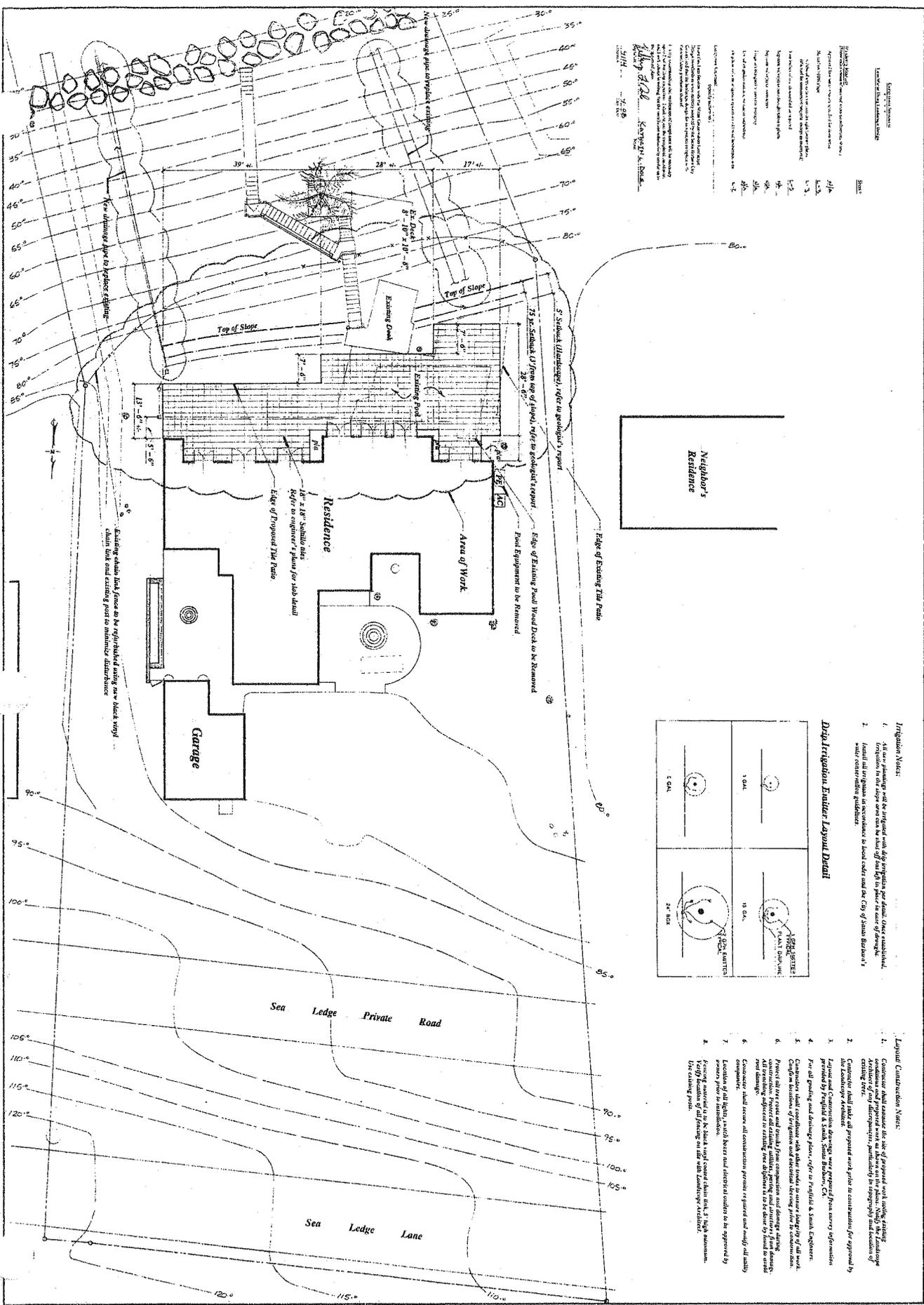
Penfield & Smith
ENGINEERS, SURVEYORS, PLANNERS
1011 East Santa Barbara Street, Santa Barbara, CA 93101
Phone: (805) 963-1234 Fax: (805) 963-1234
E-mail: info@penfield-smith.com

DESIGNED BY: _____ CHECKED BY: _____
PROJECT ENGINEER: _____ DATE: _____
PROJECT ENGINEER: _____ DATE: _____

CITY OF SANTA BARBARA
RECEIVED BY: _____ DATE: _____
3443 SEA LEDGE LANE
CITY OF SANTA BARBARA

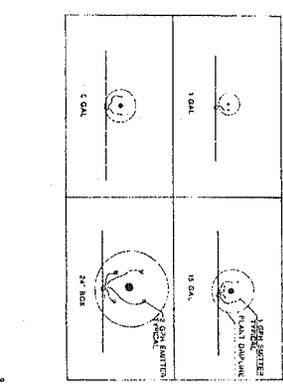
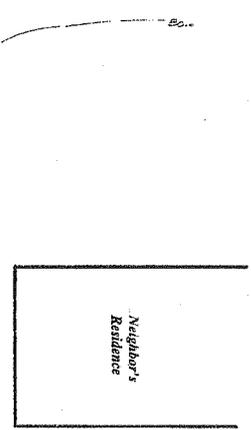
GENERAL INFORMATION AND NOTES
DUNLAP RESIDENCE
3443 SEA LEDGE LANE
CITY OF SANTA BARBARA

PROJECT NO: _____
SHEET: 1 OF 4
PLAN DATE: 08/29/08



NOTES:

1. All work shall be in accordance with the City of Santa Barbara's standards and specifications for landscape architecture.
2. All work shall be in accordance with the City of Santa Barbara's standards and specifications for landscape architecture.
3. All work shall be in accordance with the City of Santa Barbara's standards and specifications for landscape architecture.
4. All work shall be in accordance with the City of Santa Barbara's standards and specifications for landscape architecture.
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9. All work shall be in accordance with the City of Santa Barbara's standards and specifications for landscape architecture.
10. All work shall be in accordance with the City of Santa Barbara's standards and specifications for landscape architecture.



- Layout Construction Notes:**
1. Contractor shall ensure the site of proposed work meets existing conditions and proposed work is in accordance with the City of Santa Barbara's standards and specifications for landscape architecture.
 2. Contractor shall submit all proposed work prior to construction for approval by the City of Santa Barbara.
 3. Contractor shall submit all proposed work prior to construction for approval by the City of Santa Barbara.
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Duniap Residence
 3443 Sea Ledge Lane
 Santa Barbara, CA 93109
 A. P. N. 047-082-005

Proposed Hardscape Plan

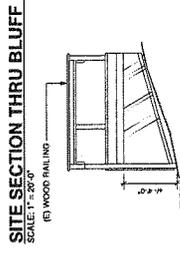
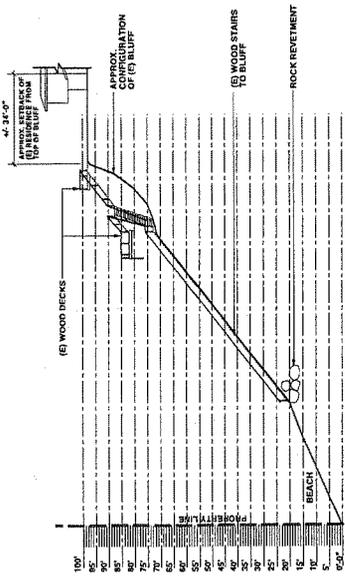
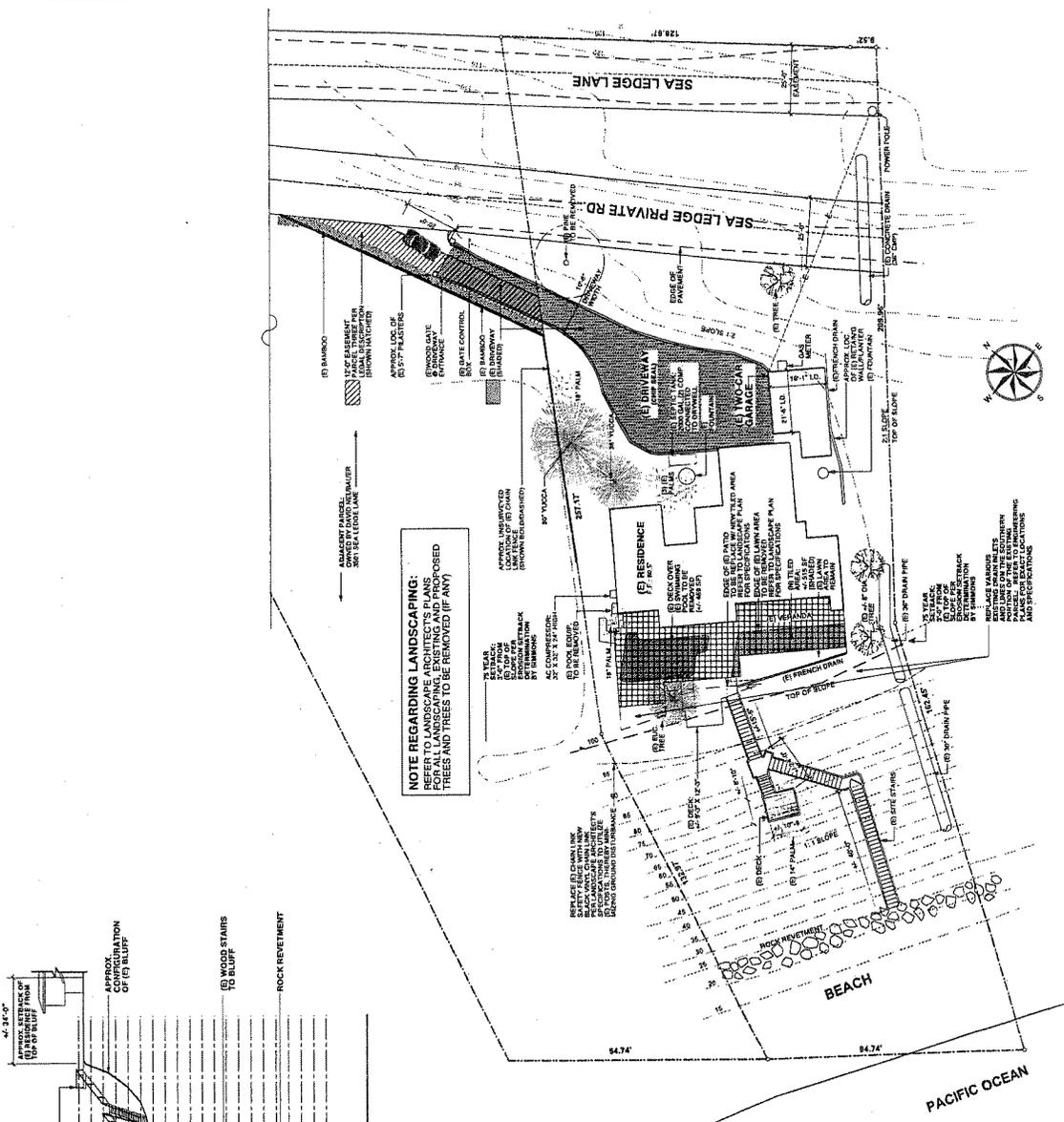
Kathryn Dole Associates, Landscape Architecture
 512 Brinkershoff Avenue, Santa Barbara, CA 93101
 phone (805) 965-1866 facsimile (805) 965-8183

Architects & Associates
 527 S. Brea Blvd., Suite 100
 Brea, CA 92621
 (949) 992-0176
 (949) 992-0177
 FAX: (949) 992-0178
 EMAIL: info@architects.com

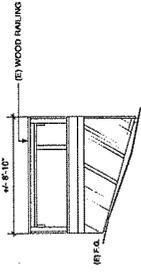
DUNLAP RESIDENCE
 GRADING, POOL REMOVAL
 3443 SEA LEDGE
 SANTA BARBARA

DATE	DESCRIPTION

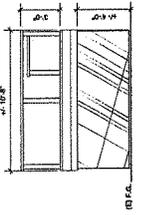
T 2.1



(E) EAST DECK ELEVATION
 SCALE: 1/8" = 1'-0"



(E) WEST DECK ELEVATION
 SCALE: 1/8" = 1'-0"

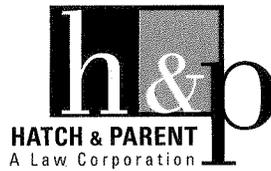


(E) SOUTH DECK ELEVATION
 SCALE: 1/8" = 1'-0"



SITE PLAN
 SCALE: 1/8" = 1'-0"

21 East Carrillo Street
Santa Barbara, CA 93101
Telephone: (805) 963-7000
Fax: (805) 965-4333



Alicia Harrison
(805) 882-1442
AHarrison@HatchParent.com

September 28, 2006

RECEIVED

By Hand Delivery

SEP 28 2006

Ms. Jo Anne La Conte
City of Santa Barbara
Planning Division
630 Garden Street
Santa Barbara, California 93101

CITY OF SANTA BARBARA
PLANNING DIVISION

Re: Dunlap Coastal Development Permit (MST#2005-00743)
3443 Sea Ledge Lane
APN 047-082-005

Dear Ms. La Conte:

Enclosed please find supplemental documentation for the Dunlap Coastal Development Permit per your August 16, 2006 conditional completeness letter.

III. A. Planning Division

1. *Include the square footage (net and gross) of the existing lot on the plans. Done*
2. *Provide gross and net square footages for each existing and proposed structure on the plans. Done*
3. *Provide site statistic information that includes the proposed percentages of building coverage on the lot, hardscape and paved areas and landscaping. Done*
4. *Provide a detailed breakdown of the amount of cut and/or fill proposed for the project on the plans. Done. Also please see memo from Penfield & Smith dated August 29, 2006.*
5. *Remove the Entry Gates elevations from the plans... and comments under "Violation Abatement" regarding ENF2004—00648... Done*
6. *Correct the note under "Violation Abatement" for ENF2005-00667 to state that this permit includes the proposal to remove the as-built deck over abandoned pool. Done*
7. *Add the replacement of the existing chain link fence... to scope of work. Done*
8. *... correct the plans if the trees and shrubs have been removed or are proposed to be removed... Done*
9. *Please change the references... to Santa Barbara City... Done*
10. *Clarify on the plans if the drainage pipes are existing and proposed to be replaced and if there are any new drainage pipes proposed. Done*
11. *Revise your final letter to the Planning Commission. Done. Please see enclosed letter.*
12. *Include a landscape plan for the bluff face going down to the disturbed area. Done*

III. B. Building and Safety Division

1. Please clarify the termination of the drainage pipes at the bottom of the bluff on the plans. Done. Also please see memo from Penfield & Smith dated August 29, 2006.

IV. Advisory Comments

1. Staff is not supportive of placing tile on the existing lawn area as a prior Coastal Development Permit required the lawn to be removed and replaced with appropriate landscaping. The proposed landscape and hardscape plans include removal of the existing lawn, with a portion of this area to be replaced with an extension of the existing tile patio, and the remainder of the area to be planted with a variety of native, drought tolerant vegetation. These plans were reviewed and approved by the ABR on 9/5/06. Further, Mr. Adam Simmons, certified geologist, recommends an impermeable surface to direct runoff water into proposed surface drains and prevent this water from spilling onto the slope (see supplemental memo dated August 30, 2006). The drainage analysis prepared by Penfield & Smith also indicates that there is no hydraulic impact from the addition of the minimal amount of tile patio in this backyard area (see calculations provided in the Preliminary Drainage Analysis dated August 28, 2006).

2. Requirements of the City's 2006 Storm Water Management Plan...

The Preliminary Drainage Analysis has been updated by Penfield & Smith to include all required calculations. Please see enclosed document dated August 28, 2006. The report indicates that no detectable increase in onsite drainage from the pre-condition to the post condition in a 25 and 100 year storm event. The County Flood Control Department recognized program, HydroCAD 7.10, was used in this analysis.

3. Local Coastal Plan policy 6.6 states revetments, seawalls, groins, pipelines, outfalls and other necessary permitted construction shall be designed to eliminate or mitigate to the maximum extent adverse impact on local shoreline sand supply.

There is an existing rock revetment at the base of the bluff. The proposed pipes to be constructed along the bluff face will be terminated so that the drainage dissipates onto the existing rock revetment.

4. Please consider placing all drainage in a single pipe to increase the project's consistency with this policy [Local Coastal Plan policy 8.1]

Please see Penfield & Smith response memo dated August 29, 2006.

With this submittal, we have provided all required additional information, and so we look forward to a completeness determination and Planning Commission review.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Alicia Harrison', with a stylized flourish at the end.

Alicia Harrison
Land Use Planner
For HATCH & PARENT
A Law Corporation

azh:azh

2. 3443 SEA LEDGE LN

(3:55)

Assessor's Parcel Number:	047-082-005
Application Number:	MST2005-00743
Owner:	Thomas E. & Katherine M. Dunlap Jr., Tst
Architect:	Dawn Sherry
Landscape Architect:	Kathryn Dole
Agent:	Alicia Harrison

(Proposal for removal of an existing swimming pool, for hardscaping alterations over the pool location, and for minor repairs to existing rear stairway and deck. The proposal includes 130 cubic yards of cut and fill grading. The single-family residence is located in the Appealable Jurisdiction of the Coastal Zone and approval of a Coastal Development Permit is requested.)

(COMMENTS ONLY; PROJECT REQUIRES ENVIRONMENTAL ASSESSMENT, NEIGHBORHOOD PRESERVATION ORDINANCE FINDINGS AND PLANNING COMMISSION APPROVAL FOR A COASTAL DEVELOPMENT PERMIT.)

(4:38)

Present: Dawn Sherry, Architect; Kathryn Dole, Landscape Architect.

Public comment opened at 4:44 p.m., and as no one wished to speak, public comment closed at 4:44

Motion: Continued indefinitely to the Planning Commission, with the following comments:

- 1) The project will have no adverse visual impacts.
- 2) The hardscape and landscape are improvements.
- 3) Approval can be made on Consent.

Action: LeCron/Wienke, 6/0/0. Blakeley absent. Sherry stepped down.

Adam Simmons -- Consulting Geologist
CERTIFIED ENGINEERING GEOLOGIST & HYDROGEOLOGIST-CEG #2015 RG #6234 HG #509

PRELIMINARY GEOLOGIC INVESTIGATION

**Dunlap Project
3443 Sea Ledge Lane
Santa Barbara, California**

May 31, 2006

RECEIVED

JUL 14 2006

**CITY OF SANTA BARBARA
PLANNING DIVISION**

EXHIBIT E

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May 31, 2006

Mr. & Mrs. Tom & Kathy Dunlap
C/o Hatch & Parent
21 East Carrillo Street
Santa Barbara, California 93101

Attn: Mr. Christopher Jacobs

Re: *Preliminary Geologic Investigation Report*
Sea Cliff Retreat Project
3443 Sea Ledge Lane
Santa Barbara, California

.....

Dear Mr. & Mrs. Dunlap:

1. **INTRODUCTION**

Pursuant to your request, we present herewith the results of our preliminary geologic investigation of the southern portions (sea bluff area) of the above captioned beach front property. The existing residence is located on the elevated "bench" in the central portion of the property, south of Sea Ledge Lane. A boulder revetment has been constructed at the base of the slope in 1986. It is our understanding that you propose abandon the existing swimming pool and re-landscape the back yard area.

The purpose of this study was to evaluate the general geologic conditions associated with the proposed abandonment of the pool and proposed re-landscaping of the property. This report reviews the regional geology and analyzes the potential for geologic hazards and their associated effects on the proposed pool abandonment. Specifically, this study determines the rate of past erosion on the sea bluff, to determine the expected limits of erosion within a 75 year time period under typical conditions. This study does not include a discussion of the overall slope stability of the property and/or analyses of pre-historic landslide activity, since such a study would require numerous deep borings and is outside of our scope of the study.

Our office has reviewed the numerous geologic, engineering, soils engineering reports prepared for the property and surrounding area including: Anikouchine; Coudray; Hoffman; Hoover; McClelland Engineers; M.L. Grant.; Pacific Materials Laboratory; Penfield & Smith; and reports prepared from our own office. No subsurface work was conducted on the property as part of this preliminary geologic investigation. However, we have reviewed the 9 to 10 foot deep boring logs described within the Foundation Exploration Reports prepared by Pacific Materials Laboratory, Inc. in 1972 and 1991 to aid in the preparation of this report. The location of the subject property and the general geologic conditions of the surrounding area are graphically shown on the attached map entitled **REGIONAL GEOLOGIC MAP** (see Figure 1).

This study was conducted in accordance with presently accepted procedures consistent with the scope of the proposed project, although no warranty is stated or implied. It is important to understand that sea cliff retreat is a dynamic, on going process that will continue in the future. The rate of sea cliff retreat experienced on this parcel during the last 40 years (period of study) may not necessarily reflect the future rates of retreat. As with any coastal bluff development, there is always some unpredictable risk of slope instability, differential settlement, seismic impacts, erosion and drainage control difficulties, or other potential geologic hazards that could affect the project. Implementation of the recommendations outlined later in this report is meant to reduce the level of risk, although it may not be able to be totally eliminated.

1.1. Setting

The parcel is located at 3443 Sea Ledge Lane in Santa Barbara, California. The property is situated on an elevated bench south of Marina Drive. The property is currently developed with an existing single family residence located on the central portion of the property, approximately 23 to 41 feet north of the south sloping sea bluff. The slope angles on the moderately steep sloping sea bluff face near the southern portions of the property range from approximately 35° to 50° or more in some areas, with an average slope angle of approximately 44° along the sea bluff. Elevations on the property range from a low of approximately 10 feet above sea level at the southeastern property corner to a maximum of approximately 136 feet along the northern property boundary (upper Sea Ledge Lane) according to a topographic survey conducted by Penfield & Smith (dated April 5, 2006).

2. GEOLOGY

2.1. Regional Geologic Setting

The South Coast is part of the Transverse Range Province of California, locally dominated by the east-west trending Santa Ynez Mountain Range and adjacent coastal valleys. Folding and faulting of the region through time has created a complex geologic setting. Consolidated shale, siltstone, and sandstone bedrock of Cretaceous through Miocene age make up the majority of the Santa Ynez Range. Much younger (typically Pleistocene age) unconsolidated to weakly consolidated deposits, typically composed of the erosional remnants of the older formations, are commonly found in the lower elevations between the high mountains and the shoreline. These materials typically overlie the bedrock as an unconformity (a depositional hiatus between the two formations). The earth materials that are in close proximity to the project site are described in greater detail in the following section.

2.2. Local Geology

Figure 1 is a **REGIONAL GEOLOGIC MAP** of the area prepared by Mr. Dibblee in 1987. This map indicates that a geologic unit described as Monterey Formation underlies the subject property. In addition, our site inspection suggests that a thin veneer of Older Alluvium (Terrace Deposits) underlies the property. This formation (shown as "Qoa" on Figure 1) is typically composed of unconsolidated to weakly consolidated massive silty sand and interbedded clays and gravels.

A southward thickening blanket of beach sand is found at the toe of the bluff and extending into the Pacific Ocean. This Holocene age deposit is denoted as "Qs" on Figure 1. The beach sand is generally composed of tan colored, unconsolidated, well sorted sands and gravels.

Unconformably underlying the Older Alluvium and beach sand and exposed on the bluff face is the Miocene age **Monterey Formation**. This marine deposited formation is shown as "Tm" on Figure 1. Several exposures of the Monterey Formation are found along the sea bluff. The Monterey Formation is generally composed of a well bedded, white to tan colored, siliceous shale with interbedded dark gray bituminous shale. Thin partings of soft, weathered white bentonite clay lenses may also be present within the Monterey shale bedrock. Bedding attitudes within the Monterey Formation on this property and surrounding sea bluff strike approximately North 49° to 58° West and dip to the South at approximately 28° to 34°. These bedding attitudes may represent translational and/or rotational movement within the pre-historic landslide (see the following section), if present. Additional south steeply dipping bedding was observed on the bluff face. This deviant bedding is attributed to localized folding which is common in this area or movement from past landslide activity. The Monterey shale exposed on portions of the sea bluff suggests that the bedding planes may be inclined (dip) at angles less than the surrounding south sloping sea bluff face. The south dipping bedding may therefore be unsupported (daylighted) in some areas, particularly where past erosion has undermined the toe of the bluff. The placement of the boulder revetment at the toe of the sea bluff in 1986 appears to have reduced the effects of erosion at the toe of the slope.

2.3. Slope Stability

An old landslide, denoted as "Qls" on Figure 1, is shown immediately west of the residence (and possibly below the residence), and underlies the western portions of Sea Ledge Lane and the eastern portions of Bajada Lane. The landslide scarp is inferred to be located on the steep slope south of Cliff Drive, north of Sea Ledge Lane. This geomorphology of the landslide feature, as viewed in the 1928 aerial photographs, suggests movement likely occurred many decades or even centuries before the 1928 photographs were taken. The "pre-historic" landslide may actually

extend to the eastern terminus of Sea Ledge Lane, including the subject property. The residence may be located outside of the pre-historic landslide boundary; however, a detailed subsurface geologic investigation would need to be conducted to support this inference.

The cause of the pre-historic landslide on the property is likely due to several factors that have effectively reduced the overall stability of the sea bluff. The greatest contributing sources for the slope failure include the accelerated erosion and undercutting of the bluff due to wave erosion, consequently steepening and removing the basal support for the sea bluff. Unsupported (daylighted) Monterey shale bedrock bedding planes can be seen along the sea bluff particularly where wave erosion has eroded and/or undermined the toe of the bluff. These unsupported shale bedding planes create a plane of weakness on the sea bluff, thereby allowing materials above the daylighted bedding to slide toward the ocean. Heavy winter rainfall also increases the overall weight of the earth materials on the bluff, thereby increasing the force of gravity acting upon the earth materials on the bluff. In general, moderate to steep sloping terrain that is underlain by the Monterey Formation and its associated clay rich soils is notorious for shallow and sometimes deep seated slope instability along the South Coast. We have outlined recommendations within this report to reduce the potential for slope instability hazards acting upon the sea bluff.

Numerous recent landslides were observed on the sea bluff east and west of Sea Ledge Lane, although there is no evidence of significant past landslides observed on the subject property since 1928. There were no overt signs of recent landslide activity impacting the property. However, evidence of a smaller sized debris flow and/or erosion channel was noted near the southeastern property line, on the sea bluff. This drainage swale may have previously extended all of the way to Cliff Drive at one time due to the uncontrolled flow of runoff water off Cliff Drive. Drainage improvements along Cliff Drive and Sea Ledge Lane have since reduced the effects of erosion in this area.

2.4. Erosion, and Drainage Control

Much of the rainfall that occurs in the area appears to percolate directly into the subsurface. However, there is some evidence that excess surface water runoff may pass down slope as sheet flow causing surface erosion. The Older Alluvium is susceptible to erosion when uncontrolled surface runoff water is allowed to flow over unprotected slopes. Erosion scars were visible along the beach bluff. The erosion scars are inferred to be the result of concentrated runoff water (from rainfall, irrigation water, or residential runoff overflow) directed onto the sea bluff. The potential for significant erosional damage will be reduced provided proper drainage control measures are implemented during and after removal/abandonment of the pool on the property. An erosion and drainage control plan will need to be designed and implemented to capture runoff from the proposed hard-scape.

2.5. Air Photo Review and Analysis

Our office reviewed several historic aerial photographs of the area to determine if there was overt evidence of newer landslide activity (within the last approximate 78 years) on the subject property and to determine the rate of past retreat. The photographs utilized for this study included the Fairchild (1928 & 1938), Santa Barbara County (1966), and Pacific Western (1997) photos, furnished by the Santa Barbara County, Planning and Development Department. Based on review of these photographs, no visible evidence of landslide activity was noted on the subject property within the last 78 years or more. Review of the June 17, 1966 aerial photographs of the subject property (residence present) indicates a well defined top of slope in the vicinity of the current top of slope, located near the tile deck.

2.6. Photogrammetric Analysis

To aid in the process of determining rates of sea cliff erosion on the subject property, we have conducted a detailed photogrammetric analysis of the site and surrounding area that measures distances between existing fixed marker's and the same fixed marker's as seen in old aerial photographs of the area. Our detailed investigation of sea cliff retreat included the establishment of several fixed points on the subject property and at the base of the bluff that could be identified on old air photos and is still in place in the field today (i.e. deck, roof line of residence, tree, etc.). We have also reviewed previously published and unpublished reports and maps that document rates of sea cliff retreat elsewhere along the South Coast.

Initially, air photos of the area taken in 1928 (Fairchild, 1928) were inspected and reviewed. These older photographs were not particularly useful for this project because of their relatively small scale (1 inch equals 1,500 feet). No accurate sea cliff retreat rate data could be determined from the 1928 photos because of its relatively small scale.

We then reviewed a series of high resolution, large scale photographs from the Santa Barbara County, Resource Management Department on June 17, 1966 (photos HB-HS-134, and -135, scale 1 inch = 250 feet). Several key features on the 1966 photos are still currently present in the area with which to accurately determine the amount of retreat that has occurred since that time. By viewing the aerial photo (stereo) pairs with the aid of a stereoscope, we were able to simulate a three dimensional view of the site and surrounding area to determine the approximate location of the top of bluff in relationship to the fixed markers. By analyzing these photo pairs and contrasting them with the existing sea cliff location, subtle changes along the coastline were measured.

The most distinct marker on the property is the existing residence and roof line. Measurements were made from these markers to the top of the sea cliff in the 1966 photograph and compared to

*Geologic Investigation: Dunlap Project - 3443 Sea Ledge Lane, S.B., CA
May 31, 2006*

the present measurements recently made in the field. Although no significant visible retreat could be seen between 1966 and present top of bluff, actual measurements provided a total retreat of approximately 1.6 feet during the 40-year time period (from 1966 to present). The approximate 19 inch retreat measurement may be within the margin of error taken from the photographs. However, the 1.6 foot retreat is equivalent to an average retreat rate of 0.04 feet per year (1.6 feet/40 years) or approximately 0.5 inches per year. However, prior to the placement of the boulder revetment, wave erosion had caused an average retreat rate of approximately 5 inches per year at the base of slope on the neighboring parcel to the west, according to a study conducted by Dr. William Anikouchine (2003). Virtually no measurable retreat was determined at the base of the slope following the placement of the boulder revetment on the property in 1986.

Another distinct, man-made feature that could be seen and photogrammetrically measured in the 1966 photos, and is still present in the area is the tile deck located approximately 5 feet from the top of slope at it's closest approach. Measurements were made from the deck to the top of the sea cliff in the 1966 photograph and compared to the recent 2006 topographic map. No measurable retreat could be found between these markers.

Application of the site specific, average retreat rate of 0.04 feet per year and a design life of 75 years (Santa Barbara County and California Coastal Commission Guidelines), the total theoretical sea cliff retreat for this site would be approximately 3.0 feet from the current top of bluff. The existing residence is located approximately 23 to 41 feet (east to west, respectively) from the top of bluff. The existing pool is located approximately 15 feet from the top of bluff. The existing pool and tile deck are therefore located outside of the theoretical 75-year/3 foot setback line.

Although the potential for the bedding plane failure to impact the property is considered low since there is no past evidence of landslide activity on the property within the last 78 years (minimum), this type of bedding plane failure has occurred on neighboring properties along the sea cliff. Although not considered as part of the proposed project we wish to state that we **do not** recommend extending the residence southward from it's current position or constructing any other "buildings" south of the residence (i.e. gazebos, etc), without further study, so as to minimize the weight on the bluff top. The existing concrete patio and/or new concrete patio may be placed within 5 feet of the top of bluff to allow for 2 feet of separation from the edge of the patio to the theoretical top of bluff based on 3 feet of erosion over the next 75 years. The weight of the existing concrete patio does not appear to have impacted the stability of the slope in the last 40 years.

It should be noted that sea cliff retreat rates are closely related to weather, tides, and surf conditions. While average long term rates of sea cliff retreat are usually reported as occurring at rates of inches or feet per year, the actual process is typically episodic, with sudden larger than

average losses occurring when severe storms and/or high surf episodes attack the coastline, followed by years or even decades of very little retreat. Examples of recent severe winter conditions occurred during the winter seasons of 1969-70, 1979-80, 1982-83, 1994-95, 1997-98 and 2004-05. Because the time interval over which our sea cliff retreat analysis included several of these severe winter erosion episodes, it is our preliminary opinion that the above listed average rate calculations are reasonably representative of a longer term time frame. A detailed sea cliff retreat study by Norris (1968) found evidence for sea cliff retreat rates elsewhere along the greater Santa Barbara Coast from near zero to as high as 10 inches per year based upon measurements from fixed markers between 1927 and 1947.

3. CONCLUSIONS & RECOMMENDATIONS

Analysis of the coastal bluff below this site suggests that the average retreat rate in the exposed areas is approximately 0.5 inches per year during the last 40 years. Application of the 0.5 inches per year retreat rate and a 75 year time period would dictate an erosion limit setback of 3.0 feet from the existing edge of bluff. In order to allow some additional space from the theoretical 75 year erosion limit line, I recommend that the existing and/or proposed concrete patio may be located within 5 feet of the current top of slope as shown on the Penfield & Smith topographic map of the parcel (dated April 5, 2006).

The above findings are the result of an approximate one-half day field investigation of the property and surrounding area, analyses of several historic aerial photographs, and review of relevant geologic literature, maps, and cross sections. Based on these findings, it is our conclusion that it is feasible to remove the upper portion of the existing pool without the use of heavy equipment within 12 feet of the top of bluff. It is my understanding that the lower portion of the pool will be properly abandoned with the placement of one or more drain holes at the bottom of the pool. The top of the pool should be covered with an impermeable surface to reduce the potential for surface water seeping through the abandoned pool and into the earth materials below the pool. Poured gravel may be placed as fill within the lower portion of the pool to minimize the need for heavy equipment compaction near the bluff. The recommendations listed below and those to be provided by your Geotechnical Engineer and Civil Engineer should also be implemented.

All runoff water from impervious areas such as roofs, patios, decks, French Drains, and driveways should be captured and directed via an impervious conduit to an appropriate disposal area. No surface water or captured subsurface water should be allowed to pass in an uncontrolled manner onto the sea cliff. We recommend that the on site drainage system be inspected and cleaned on a regular basis to ensure it is functioning correctly. Minimizing runoff is essential in reducing ground saturation near the sea cliff. This, in turn, reduces the potential for slope failure, soil creep, or erosion difficulties. I recommend replacing the existing separated 4 inch diameter drainage pipe

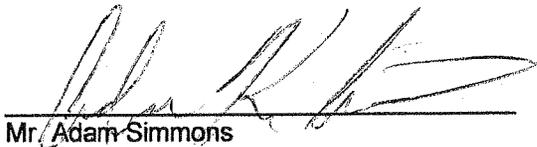
**Geologic Investigation: Dunlap Project - 3443 Sea Ledge Lane, S.B., CA
May 31, 2006**

visible below the wood deck. I also recommend extending all drainage pipes to the base of slope to minimize the erosion potential on the bluff face.

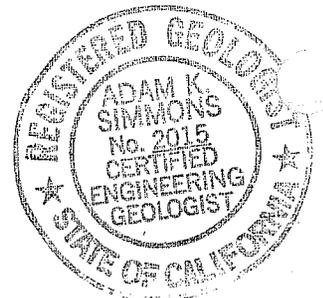
The use of deep rooted, drought tolerant plants in the landscaping of the southern portions of the property is recommended in order to minimize the potential for over-saturation and erosion. Thick and deep rooted plant varieties help to stabilize the slope and keep it in a state of under-saturation. The re-vegetation program (in areas where the existing vegetation is sparse or to be removed) should be implemented as soon as practical after the rough grading process. Minimize the planting of high water use plants (including the lawn) within 10 feet of the sea cliff. We also recommend removing any heavy, shallow rooted plants (i.e. ice plant, cactus) on or near the bluff top. We suggest that you contact a landscape architect for any questions you may have regarding drought tolerant plant varieties and the re-vegetation program.

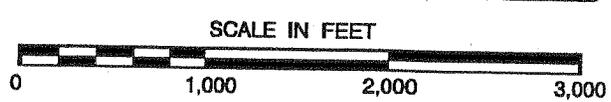
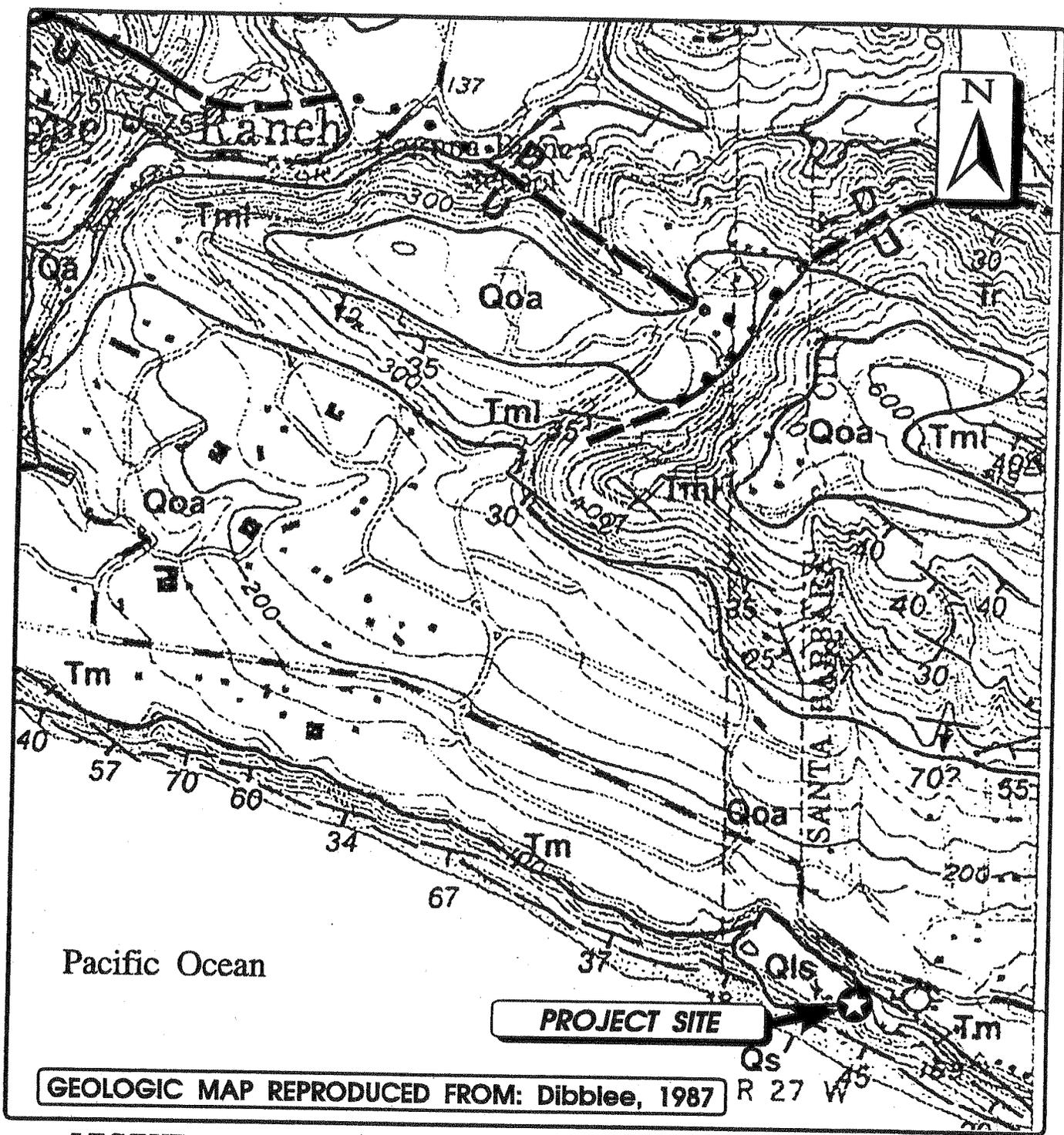
If we can be of any further service to you on this or other geologic matters, please do not hesitate to contact our office.

Sincerely,



Mr. Adam Simmons
Certified Engineering Geologist & Hydrogeologist
State of California CEG #2015 RG #6234 HG #509





GEOLOGIC MAP REPRODUCED FROM: Dibblee, 1987

Pacific Ocean

PROJECT SITE

R 27 W

RECEIVED

SEP 28 2006

CITY OF SANTA BARBARA/
PLANNING DIVISION

PRELIMINARY DRAINAGE ANALYSIS

DUNLAP RESIDENCE
3443 SEA LEDGE LANE
Santa Barbara, California

August 28, 2006

CLIENT: Tom Dunlap

PREPARED BY: Penfield & Smith
101 East Victoria Street
Santa Barbara, California 93101
(805) 963-9532

WORK ORDER NO.: 17,094.01

PROJECT MANAGER: Harry P. Fowler, P.E.

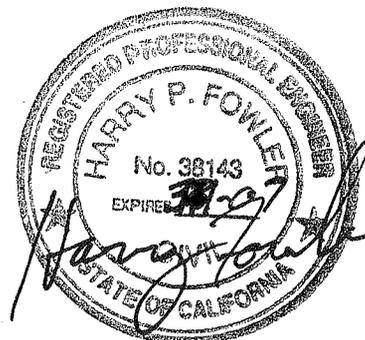


EXHIBIT F

PURPOSE OF REPORT

The Dunlap Residence project proposes to fill and cap an abandoned swimming pool; removal, repair, replacement and maintenance of associated pipes, drains and downspouts; capping and removal of electrical and plumbing pool equipment; and hardscape improvements in the backyard of an existing single family lot in Santa Barbara. This report presents the findings of a drainage analysis that looks at potential drainage impacts of the project on the neighboring parcels and the westernmost drain of Sea Ledge Lane. This report also responds to the condition of the City's Engineering Division to provide an analysis of the newer Cliff Drive storm drain, which traverses 3535 Cliff Drive. Finally, the City has further asked for a licensed engineer to give recommendations on: the condition of the westernmost drain of Sea Ledge Lane; comment on whether permeability or impermeable paving for this project is recommended; and provide information on the condition of existing onsite drains at 3443 Sea Ledge Lane.

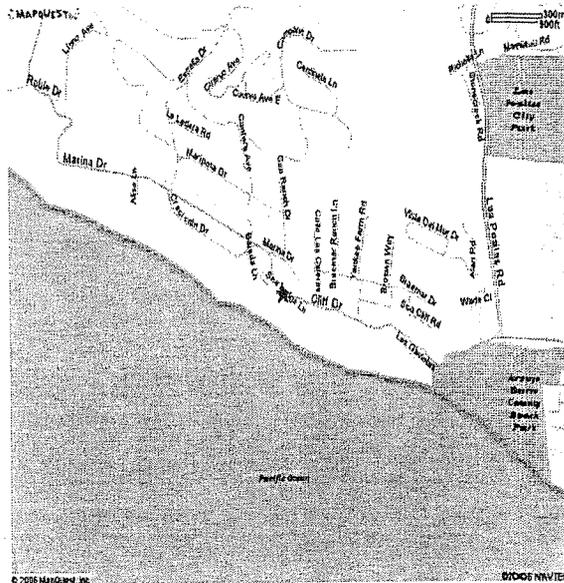


Figure A

LOCATION

The project is located at 3443 Sea Ledge Lane Lane, Santa Barbara, California. See Figure A.

PREVIOUS STUDIES

A previous storm drainage report was prepared by Mike Gones in January 1998 for the Blinn Subdivision Project, located south of Marina Drive and north of Cliff Drive near the westerly limits of the City of Santa Barbara. This report should be on file with the City of Santa Barbara. Also as part of the Blinn subdivision approval process, a preliminary storm drainage report was prepared by Flowers Associates in June 1992 and should also be on file with the City of Santa Barbara. Some of the findings from the Mike Gones drainage report will be referenced (herein after called the Gones Report).

BACKGROUND

Historically, with the exception of a small portion of the driveway, the onsite drainage of the subject property flows overland to the south, is collected by area drains and piped in 4" polyethylene drains over the bluff to the beach. The small driveway portion drains towards the west to a 3' diameter circular inlet at the westernmost end of Sea Ledge Lane. Then through an 18" RCP that discharges at the beach. As shown on Exhibit A, this drain is at the very bottom of a 99.1 acre watershed. In order to properly evaluate the 36" Cliff Drive storm drain and the 18" Sea Ledge Lane storm drain, the entire watershed was analyzed and broken up into smaller contributory areas, shown on Exhibit A.

The majority of Area 1 drains south down a watercourse, which eventually winds up flowing down Calle Las Caleras and into a 20' long storm drain inlet structure on the western side of the road. A 30" RCP then takes the water south to the eastern Cliff Drive inlet. This inlet also collects drainage from the north from Area 3. The water continues under Cliff Drive via a 30" RCP and bends to the west, where it eventually outlets into the Sea Ledge Lane Junction Structure.

The majority of Area 2 flows south either overland or down Sea Ranch Road, where drainage is collected by inlets and piped to the Marina Drive Culvert. A 30" RCP takes the water to the south under Marina Drive and to a manhole on the north side of Cliff Drive, where a 24" RCP carries the water into the western Cliff Drive inlet structure. An overflow escape is provided via a drop inlet at the Marina cul-de-sac which in turn empties into a concrete lined channel. The channel bends to the south and then to the west, eventually emptying into the western Cliff Drive inlet structure. The western Cliff Drive inlet structure is a three sided junction box with the middle section open to collect overland flow from the north. The outlet from the western Cliff Drive inlet is a 42" CMP that heads south under Cliff Drive, which then transitions at a manhole structure to a 30" CMP. This 30" CMP continues south where it outlets to the open top Sea Ledge Lane Junction Structure.

Storm water runoff from Area 4, which surface drains to the south west, is also collected in the Sea Ledge Lane Junction Structure. A 36" CMP is the outlet for the Sea Ledge Lane Junction Structure. This pipe extends down to the beach.

Storm water runoff from Area 5 surface drains westerly into the western Sea Ledge storm drain. From this 3' diameter inlet structure an 18" RCP carries the water to the beach.

METHOD OF ANALYSIS

The first analysis looks at the peak storm water discharge from the Dunlap property to the neighboring properties and to the westernmost drain of Sea Ledge Lane. The contributing area of drainage for the backyard of the property discharges to the south for both the existing and proposed conditions. This area was mapped (See Exhibit B). The County Flood Control Department recognized program, HydroCAD 7.10 was used in this analysis. This analysis was performed to determine the pre and post construction peak storm water discharge for 25 year and 100 year storm events.

Then the contributing areas of drainage for the overall watershed were mapped in order to analyze the westernmost drain of Sea Ledge Drive and the Cliff Drive storm drain (See Exhibit A). In this second analysis, the Peak flows were calculated and analyzed for the inlets at Las Caleras Road, the two inlets on Cliff Drive, the Sea Ledge Lane Junction Structure, and the Lower Sea Ledge Drain. This was done using the County inlet control charts and HydroCAD 7.10. An analysis was performed to determine the peak storm water discharge for 25 year and 100 year storm events.

The results of the above described analysis were used to determine if there would be an increase in peak storm water discharge to the neighboring properties or to the westernmost drain of Sea Ledge Lane as a result of the proposed development. This analysis was also used to determine if the Cliff Drive and Sea Ledge Lane inlets structures and outlet pipes were capable of handling a 25 year or a 100 year storm event.

RESULTS

ONSITE DRAINAGE

The results of the analysis of the onsite pre-construction drainage condition and that of the post-construction drainage condition are shown in Table 1 below. Since there are only minor increases in hard surface improvements proposed, the analysis shows that there will be no increase in peak runoff as a result of the proposed project. All of the runoff from the project area will be captured in the proposed onsite bluff top storm drain system and be piped to the beach. No storm water runoff from the project area discharges onto the neighboring properties, nor does it go to the western most drain in Sea Ledge Lane. Table 1 below lists the results of the analysis with runoff measured in cubic feet per second (cfs).

Table 1

Runoff to South	25 year	100 Year
-----------------	---------	----------

Pre-construction Runoff	0.74 cfs	0.94 cfs
Post-construction Runoff	0.74 cfs	0.94 cfs
Change in Runoff	0.00 cfs	0.00 cfs

OFF-SITE DRAINAGE

The results from the analysis of the overall watershed are shown in Table 2. A comparison of the culvert inlet capacity to runoff quantity seen at each inlet is as follows:

Table 2

<u>Location</u>	<u>Q-25(cfs)</u>	<u>Q-100(cfs)</u>	<u>Inlet Capacity(cfs)</u>
Calle Las Caleras	111.59	149.77	53
Eastern Cliff Drive	54.84	55.50	30
Western Cliff Drive	125.29	168.16	102
Upper Sea Ledge Ln.	139.82	149.18	90
Lower Sea Ledge Ln.	56.69	67.97	13

The inlet structure at Calle Las Caleras Road only has the capacity to take in 53 cfs. The remainder of the storm water flowing to this point will continue to flow overland to Cliff Drive, where it will head off to the east. The excess drainage at this inlet has no impact on the down stream storm drain system.

The eastern inlet at Cliff Drive is capable of only accepting 30 cfs. The additional drainage at this location will pond up behind the inlet and eventually flow overland to the east along the north side of Cliff Drive. Again, the excess drainage at this inlet is not a factor for the downstream storm drain system.

At the western Cliff Drive inlet, when storm runoff exceeds 102 cfs, water begins to back up on lot 3 of the Blinn Subdivision which serves as a natural detention area. Overtopping onto Cliff Drive will occur when the water surface elevation exceeds the top of the headwall at elevation 166.91. Water will then sheet flow along the north side and down Cliff Drive to the east. While the majority of this excess water will flow east down Cliff Drive, we conservatively estimate that 20% of this excess flow will end up flowing down Sea Ledge Lane.

Similar to the Cliff Drive inlet condition, the Sea Ledge Lane Junction Structure is also inadequate for a 25 year storm event with a capacity of 90 cfs. The convergence of flows from the corrugated metal pipes of the eastern and western Cliff Drive inlets is too much for the structure to contain. Water will back up; overflow the open top of the structure, and travel westerly down Sea Ledge Lane to be collected by the westernmost

inlet of Sea Ledge Lane. The inlet at the lower part of Sea Ledge Lane will not be capable to handle this overflow along with the flow from the area that normally contributes to it. With only a capability to handle 13 cfs, the water will pond at the lower part of Sea Ledge Lane until the rainfall intensity lowers or until the water elevation becomes high enough to flow overland to the bluff and the beach.

CONCLUSIONS

The proposed improvements to the backyard of the Dunlap Residence will create no noticeable increase in peak storm water discharge to the western most drain of Sea Ledge Lane. This is because the project area does not drain in this direction, but is captured in a bluff top storm drain system and carried to the beach. Only runoff from a small part of the Dunlap driveway flows to the western most drain of Sea Ledge Lane, but this is outside of the project site. Runoff from the site will leave as it has historically.

It is clear that the inlets at Cliff Drive and Sea Ledge Lane are incapable of handling a 25 or 100 year storm event. This result is consistent with the findings of the Gones report, dated from January 1998. In fact, the Gones report stated that the culverts at Marina Drive, Cliff Drive, and Sea Ledge Lane were inadequate for a 10 year storm event. The Lower Sea Ledge Lane inlet would be capable of handling the runoff of a 25 year storm event from its contributing area, if the upper inlets had a larger inlet capacity and would not overflow. A main factor contributing to the capacity problems at the lower part of the system, is that the city allowed the Calle Las Caleras Storm Drain to be constructed in August of 1974. Prior to 1974, the majority of Area 1 on Exhibit A drained to the southeast and eventually head east along a creek on the north side of Cliff Drive. Diverting this large flow outside of its natural drainage boundary to the system at Cliff Drive further hampered the capacity of the inlets at and to the south of Cliff Drive.

The condition of all of the westernmost drain of Sea Ledge Lane is unknown at this time. However, by visual inspection, the drainage inlet and outgoing 18" RCP look to be in good condition. Since the project site does not contribute runoff to this storm drain, no further investigation was made.

It is our recommendation that permeable paving not be used in coastal bluff top areas. Saturating the ground would reduce its stability and could lead to accelerated erosion or sliding problems. Furthermore, we strongly recommend that surface waters be captured and carried to the beach, rather than allowing them to run down the bluff face.

The conditions of the existing onsite drains at 3443 Sea Ledge Lane are good based on site inspection. There are two 4" corrugated polyethylene pipes that collect the site

drainage and take it down the bluff face to the beach. One of the pipes looks to be separated while the other is fully intact. However both pipes that extend down to the beach will be replaced by HDPE pipes with welded joints to prevent any separation in the future.

CALCULATIONS AND ATTACHMENTS

PLACE
SCAN 11" X 17" MAP OF:

EXHIBIT A:
DUNLAP RESIDENCE
DRAINAGE STUDY

HERE

17094.01

Type I 24-hr 48.00 hrs 25-yr Rainfall=6.71"

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

8/22/2006

Subcatchment 1S: Onsite Drainage Pre-Condition

Runoff = 0.74 cfs @ 19.89 hrs, Volume= 0.175 af, Depth= 5.77"

Runoff by SBUH method, Time Span= 0.00-52.00 hrs, dt= 0.05 hrs
Type I 24-hr 48.00 hrs 25-yr Rainfall=6.71"

Area (sf)	CN	Description
7,324	84	
8,560	98	Paved parking & roofs
15,884	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

17094.01

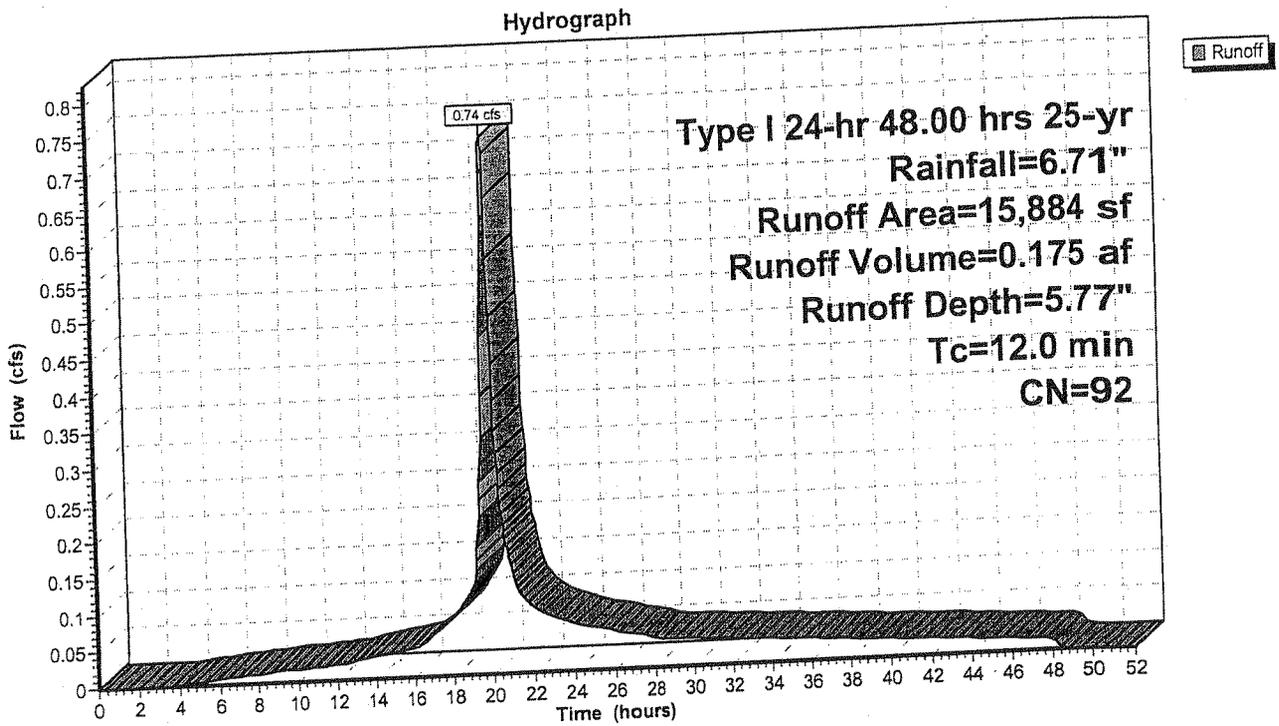
Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

Type I 24-hr 48.00 hrs 25-yr Rainfall=6.71"

8/22/2006

Subcatchment 1S: Onsite Drainage Pre-Condition



17094.01

Type I 24-hr 48.00 hrs 25-yr Rainfall=6.71"

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

8/22/2006

Subcatchment 2S: Onsite Drainage Post-Condition

Runoff = 0.74 cfs @ 19.89 hrs, Volume= 0.175 af, Depth= 5.77"

Runoff by SBUH method, Time Span= 0.00-52.00 hrs, dt= 0.05 hrs
Type I 24-hr 48.00 hrs 25-yr Rainfall=6.71"

NO Difference from Pre-Condition!

Area (sf)	CN	Description
8,910	98	Paved parking & roofs + 350 SF from Pre-Condition
6,974	84	
15,884	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

17094.01

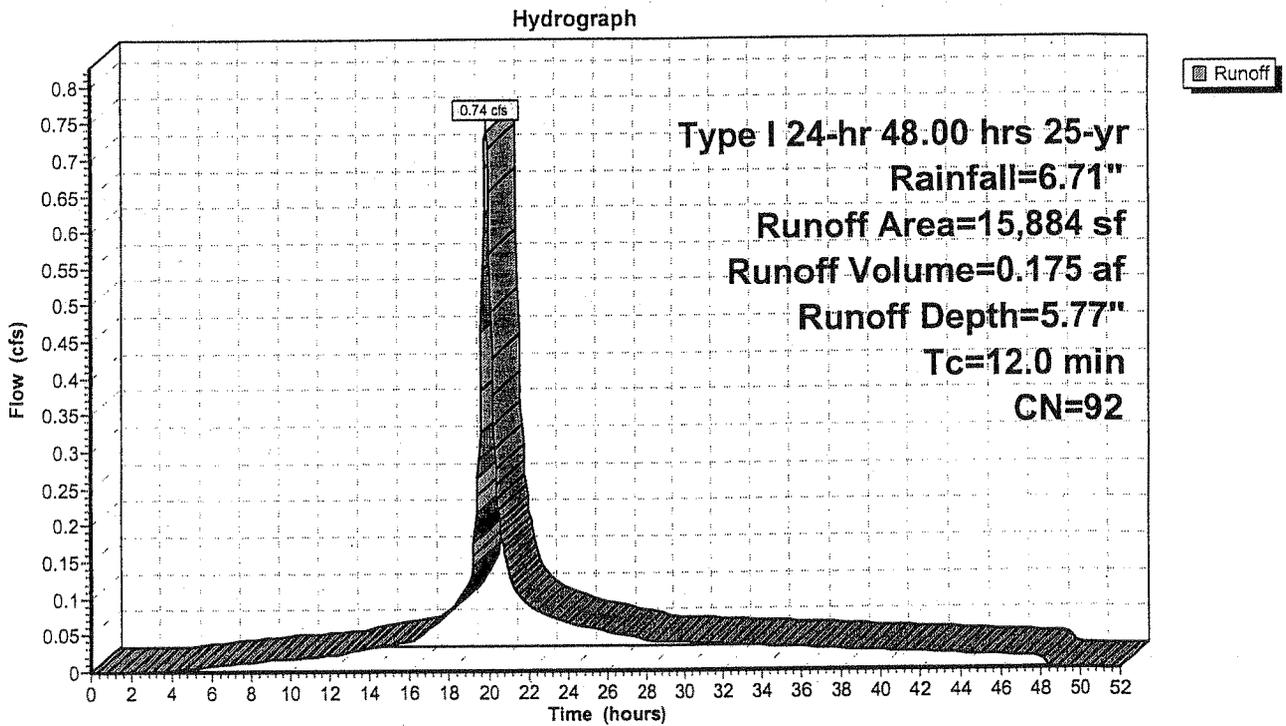
Type I 24-hr 48.00 hrs 25-yr Rainfall=6.71"

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

8/22/2006

Subcatchment 2S: Onsite Drainage Post-Condition



17094.01

Type I 24-hr 48.00 hrs 100-yr Rainfall=8.38"

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

8/22/2006

Subcatchment 1S: Onsite Drainage Pre-Condition

Runoff = 0.94 cfs @ 19.89 hrs, Volume= 0.225 af, Depth= 7.42"

Runoff by SBUH method, Time Span= 0.00-52.00 hrs, dt= 0.05 hrs
Type I 24-hr 48.00 hrs 100-yr Rainfall=8.38"

Area (sf)	CN	Description
7,324	84	
8,560	98	Paved parking & roofs
15,884	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

17094.01

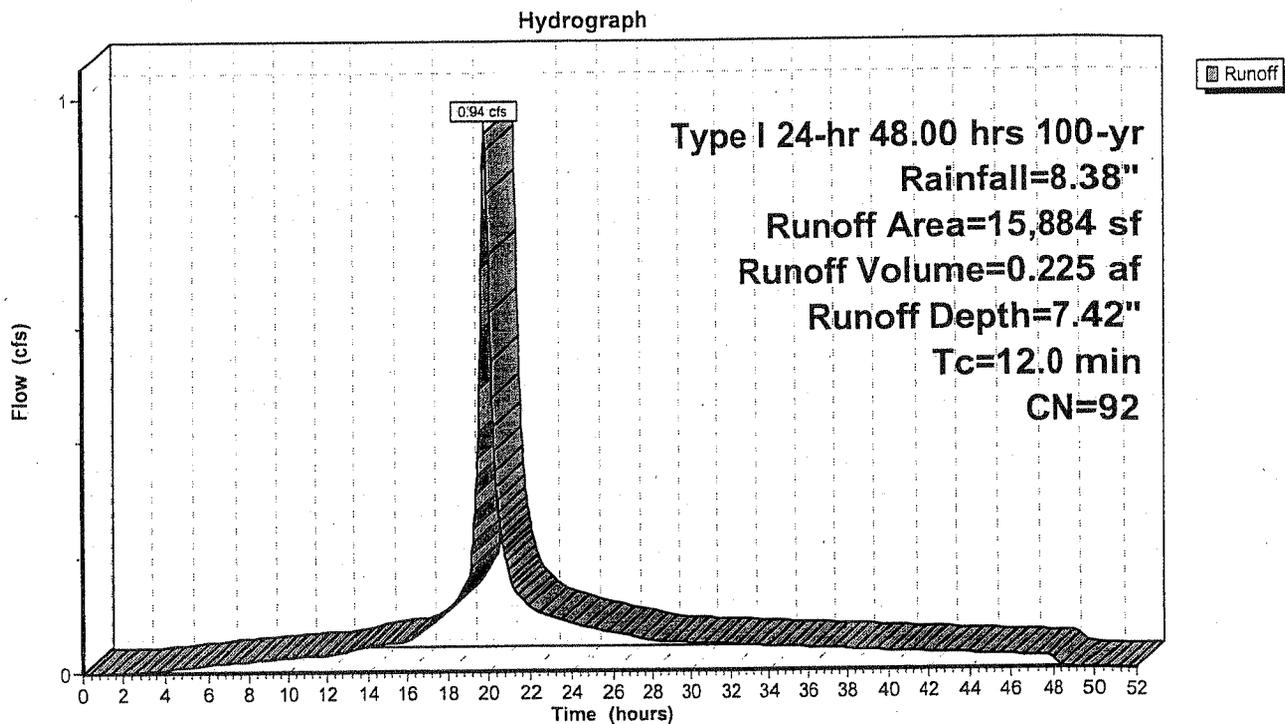
Type I 24-hr 48.00 hrs 100-yr Rainfall=8.38"

Prepared by Penfield & Smith

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8/22/2006

Subcatchment 1S: Onsite Drainage Pre-Condition



17094.01

Type I 24-hr 48.00 hrs 100-yr Rainfall=8.38"

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

8/22/2006

Subcatchment 2S: Onsite Drainage Post-Condition

Runoff = 0.94 cfs @ 19.89 hrs, Volume= 0.225 af, Depth= 7.42"
Same as pre-condition.

Runoff by SBUH method, Time Span= 0.00-52.00 hrs, dt= 0.05 hrs
Type I 24-hr 48.00 hrs 100-yr Rainfall=8.38"

Area (sf)	CN	Description
8,910	98	Paved parking & roofs + 350 SF of hardscape from pre-condition.
6,974	84	
15,884	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

17094.01

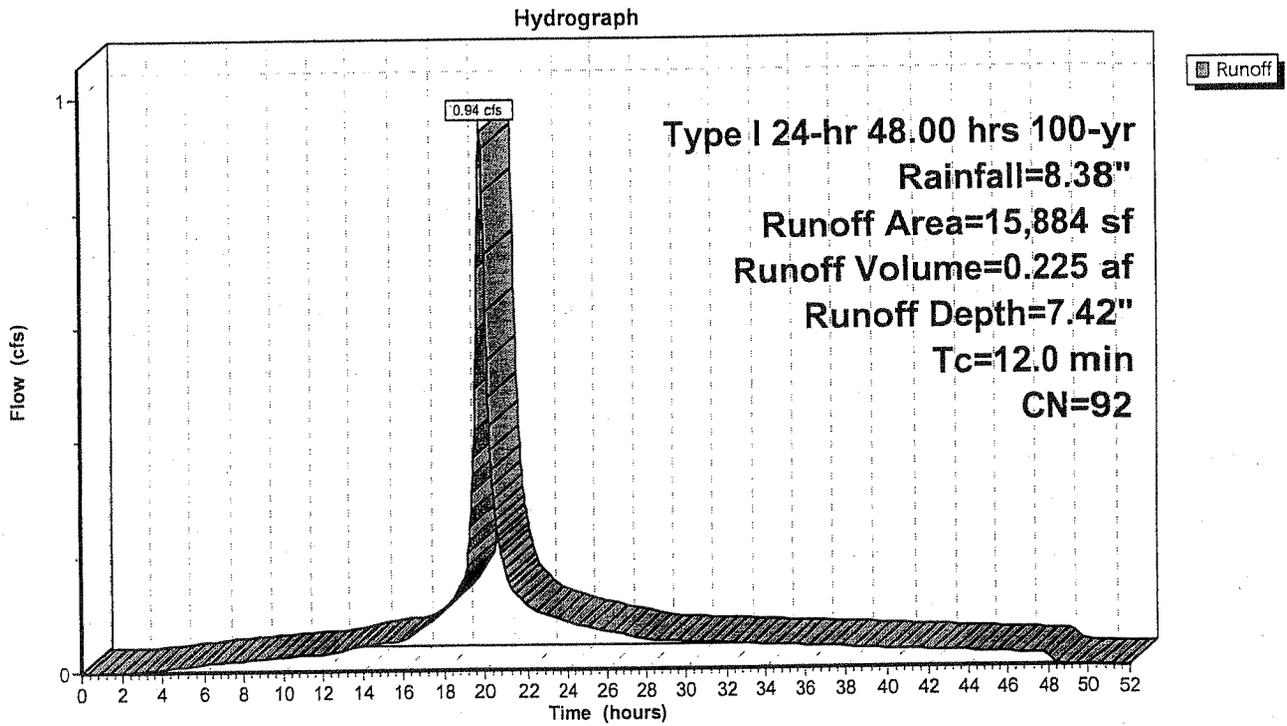
Type I 24-hr 48.00 hrs 100-yr Rainfall=8.38"

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

8/22/2006

Subcatchment 2S: Onsite Drainage Post-Condition



17094.01

Type I 24-hr 25-yr Rainfall=6.71"

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

4/5/2006

Subcatchment 1S: Lower Sea Ledge Drain

Can only take in 13 cfs.

Contributing cfs: 6.87 Lower Sea Ledge Drainage Area

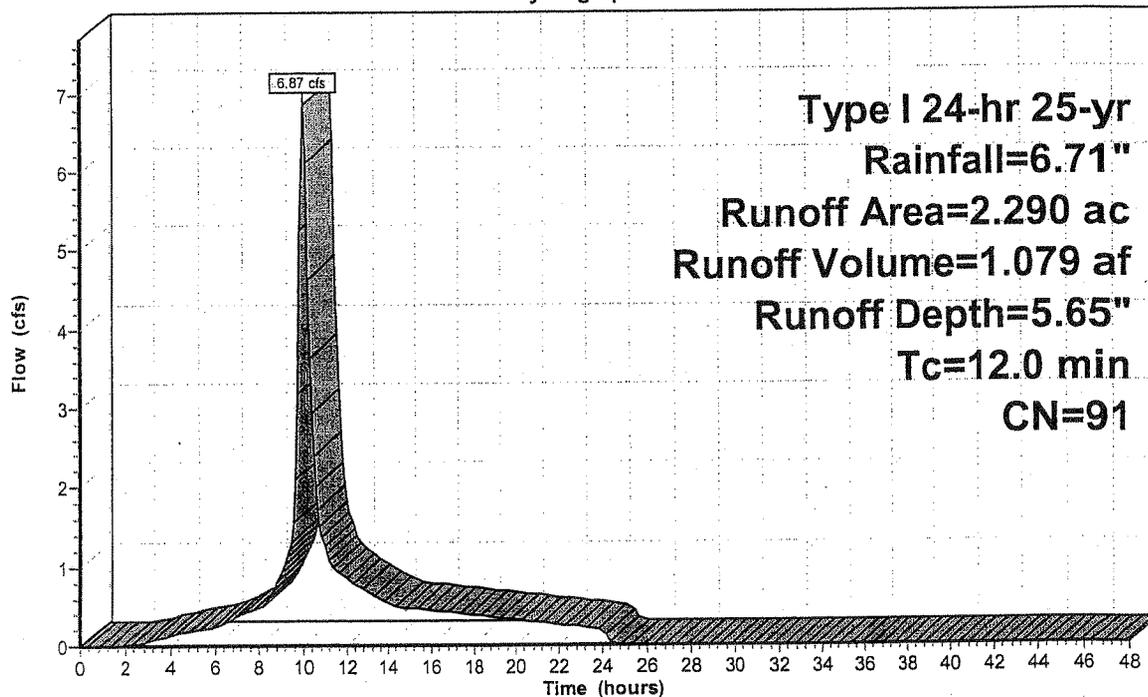
+ 47.82 Over flow from Upper Sea Ledge Ln junction box

54.69 cfs

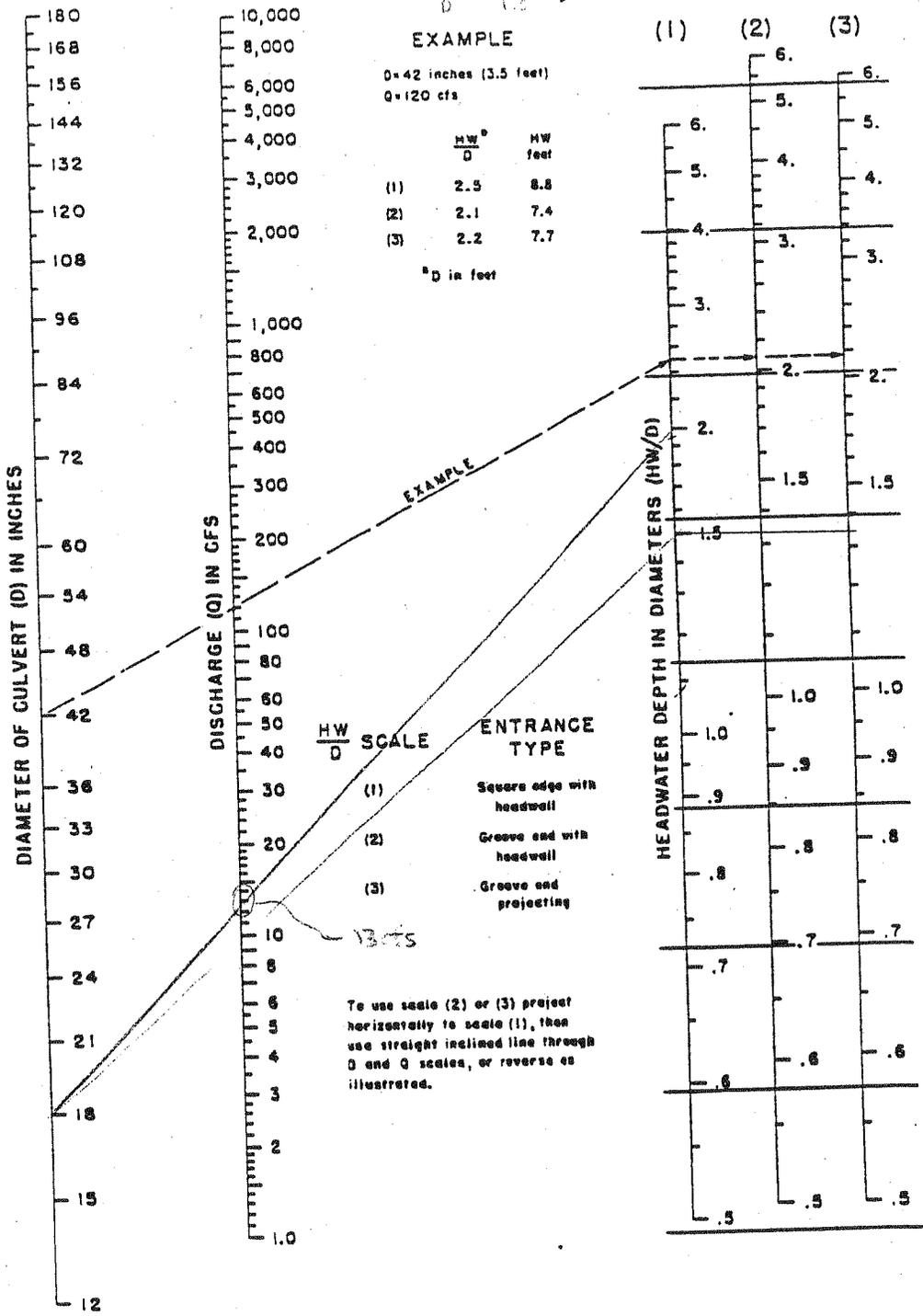
- 13

43.69 cfs will pool up @ Lower Sea Ledge Ln until rainfall intensity lowers or until water becomes high enough to overland escape over the bluff.

Hydrograph



Lower Sea Ledge Lane Inlet $D = 18" = 1.5'$
 $HW = 3'$
 $\frac{HW}{D} = \frac{3}{1.5} = 2$

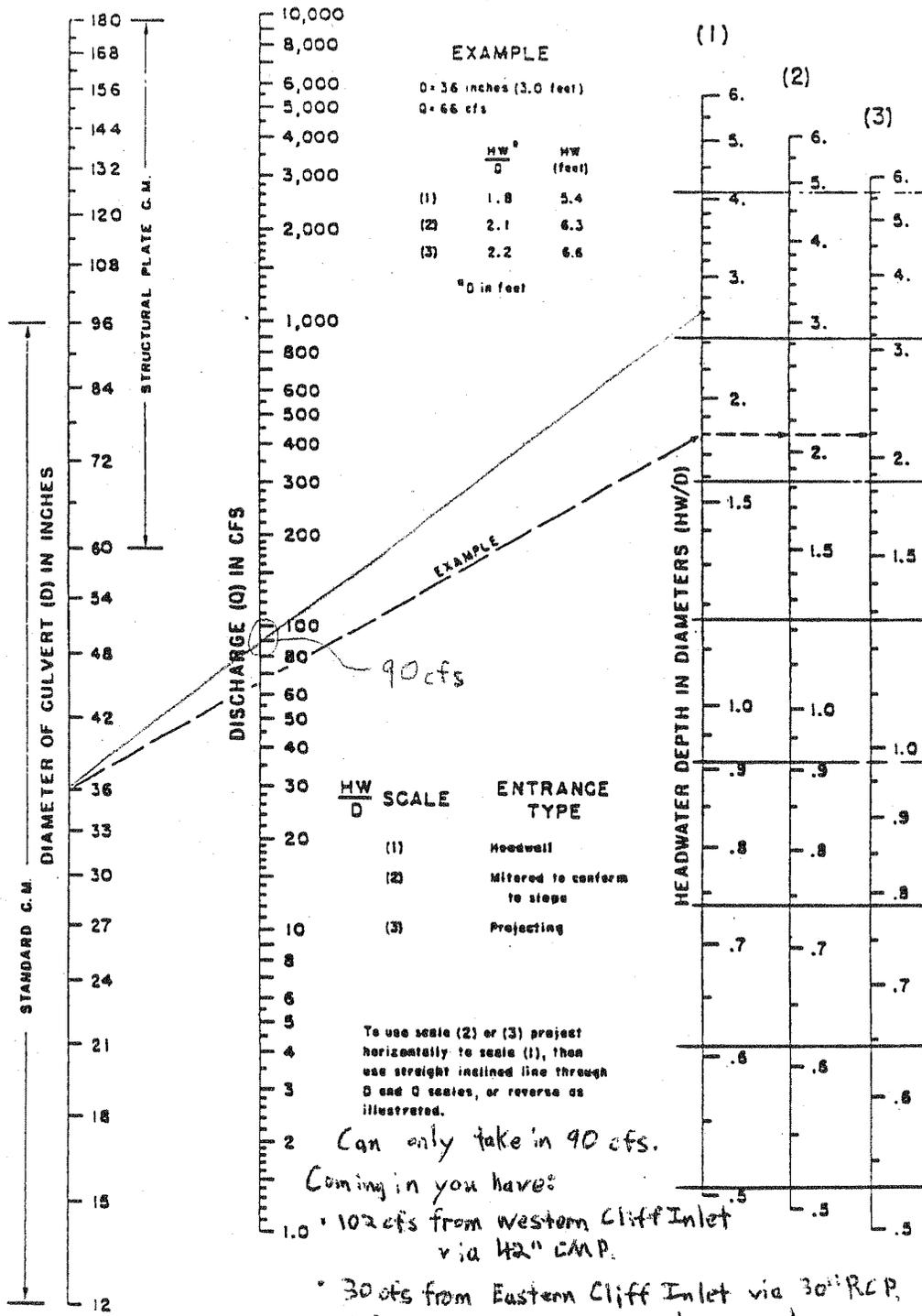


SANTA BARBARA COUNTY
DEPARTMENT OF PUBLIC WORKS
ROAD DIVISION

Headwater depth for concrete pipe culverts with inlet control

FIGURE
5

$HW = 8'$
 $D = 36" = 3'$
 $\frac{HW}{D} = \frac{8}{3} = 2.67$



SANTA BARBARA COUNTY
 DEPARTMENT OF PUBLIC WORKS
 ROAD DIVISION.

Headwater depth for C.M. Pipe Culverts with inlet control

17094.01

Type I 24-hr 25-yr Rainfall=6.71"

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

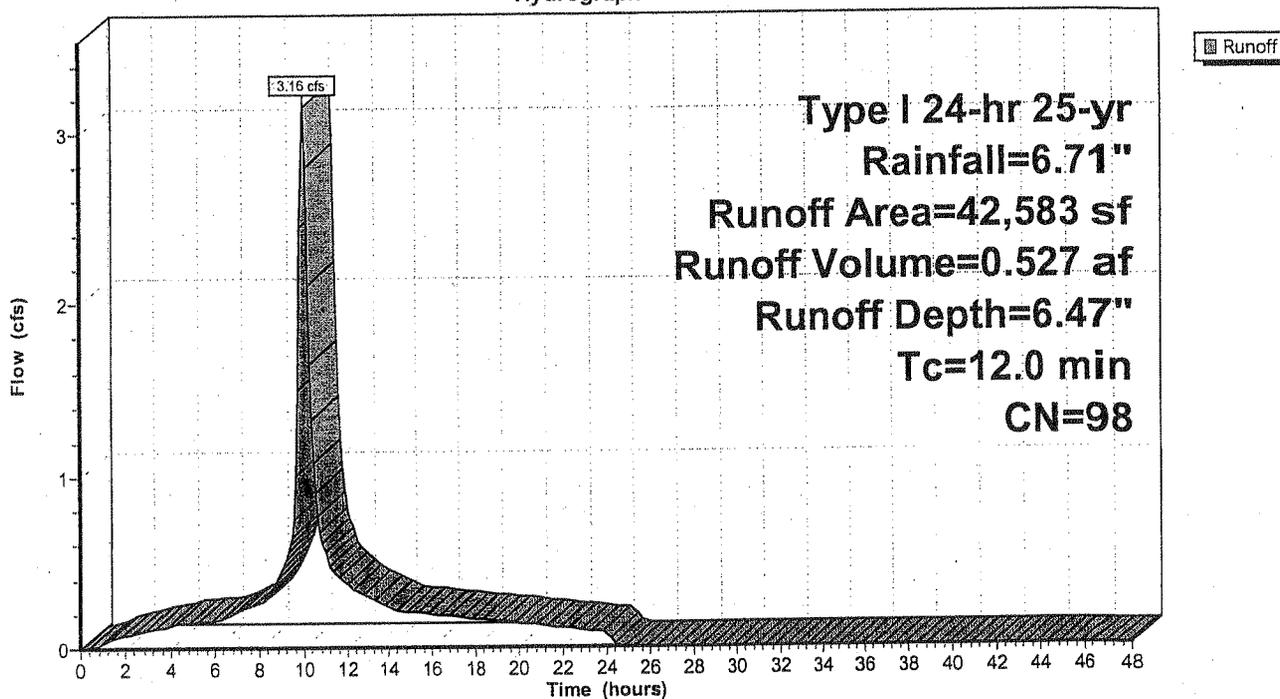
4/5/2006

Subcatchment 10S: Upper Sea Ledge Lane Area

Add 4.66 cfs to overall Q, which is excess flow from Cliff Dr.

$$\begin{array}{r} 4.66 \\ + 3.16 \\ \hline 7.82 \text{ cfs} \end{array}$$

Hydrograph



17094.01

Type I 24-hr 25-yr Rainfall=6.71"

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

4/5/2006

Western
Subcatchment 4S: Cliff Inlet

Inlet capable of pushing thru 102 cfs.

$$\begin{array}{r} 125.29 \\ - 102.00 \\ \hline \end{array}$$

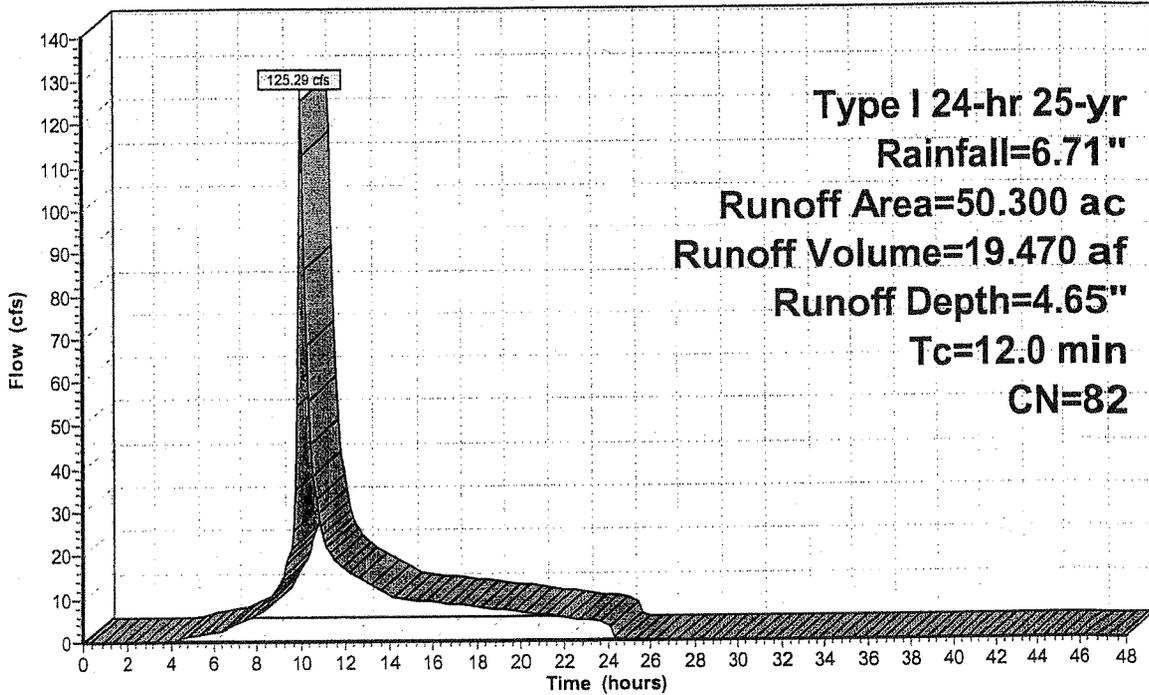
23.29 cfs

will pond up behind inlet, breakout onto Cliff Dr. and head east along the North side of Cliff Dr.

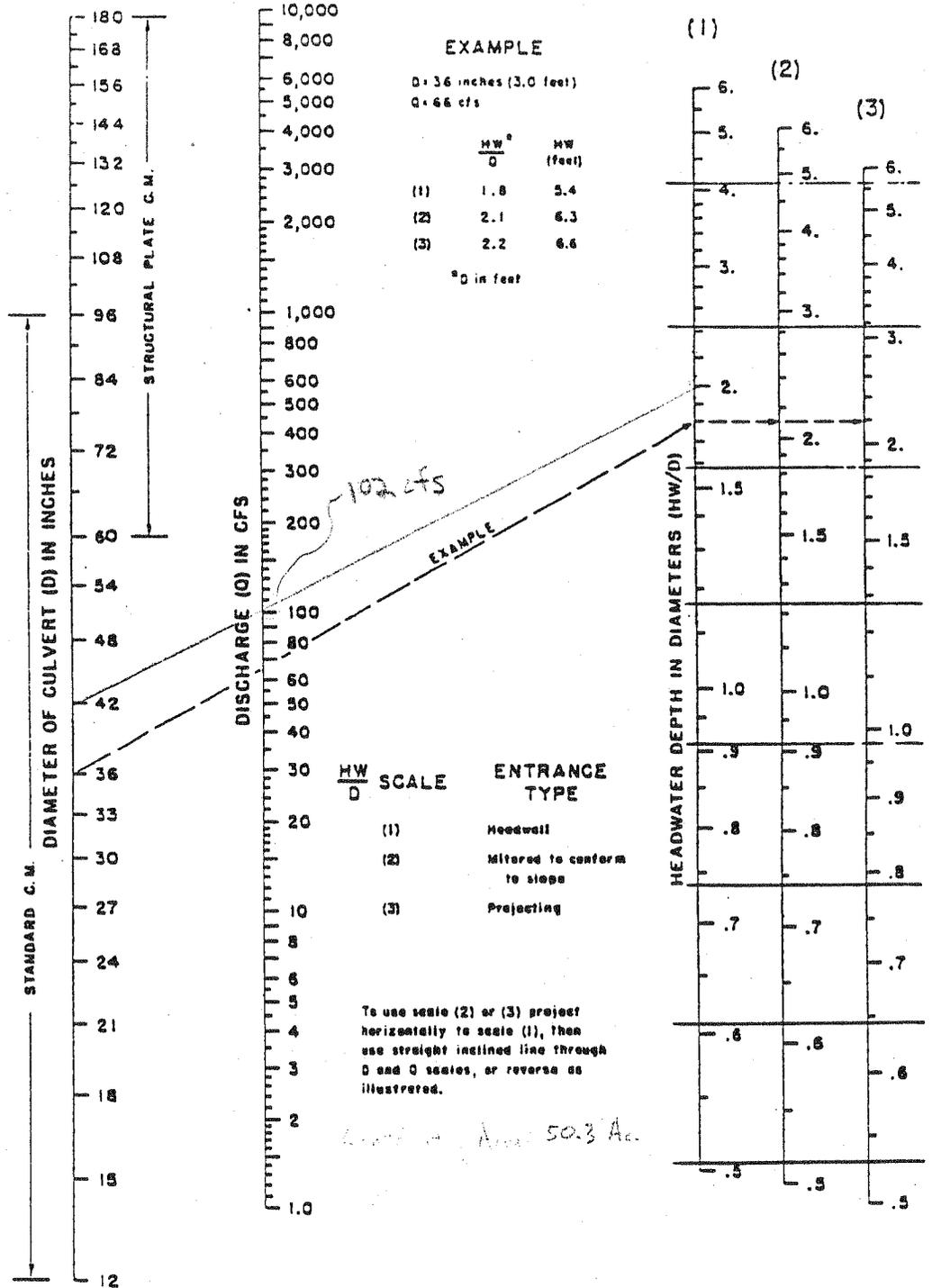
$$(1.20) (23.29 \text{ cfs}) = 4.66 \text{ cfs}$$

A small portion of this excess flow, which we conservatively estimate to be 30%, will end up flowing down Sea Ledge Ln, while the remainder will flow East down Cliff Dr.

Hydrograph



$D = 42" = 3.5'$
 $HW = 7'$
 $\frac{HW}{D} = \frac{7}{3.5} = 2$



SANTA BARBARA COUNTY
 DEPARTMENT OF PUBLIC WORKS
 ROAD DIVISION

Headwater depth for C.M. Pipe
 Culverts with inlet control

17094.01

Prepared by Penfield & Smith

HydroCAD® 7.10 s/n 003042 © 2005 HydroCAD Software Solutions LLC

Type I 24-hr 25-yr Rainfall=6.71"

4/5/2006

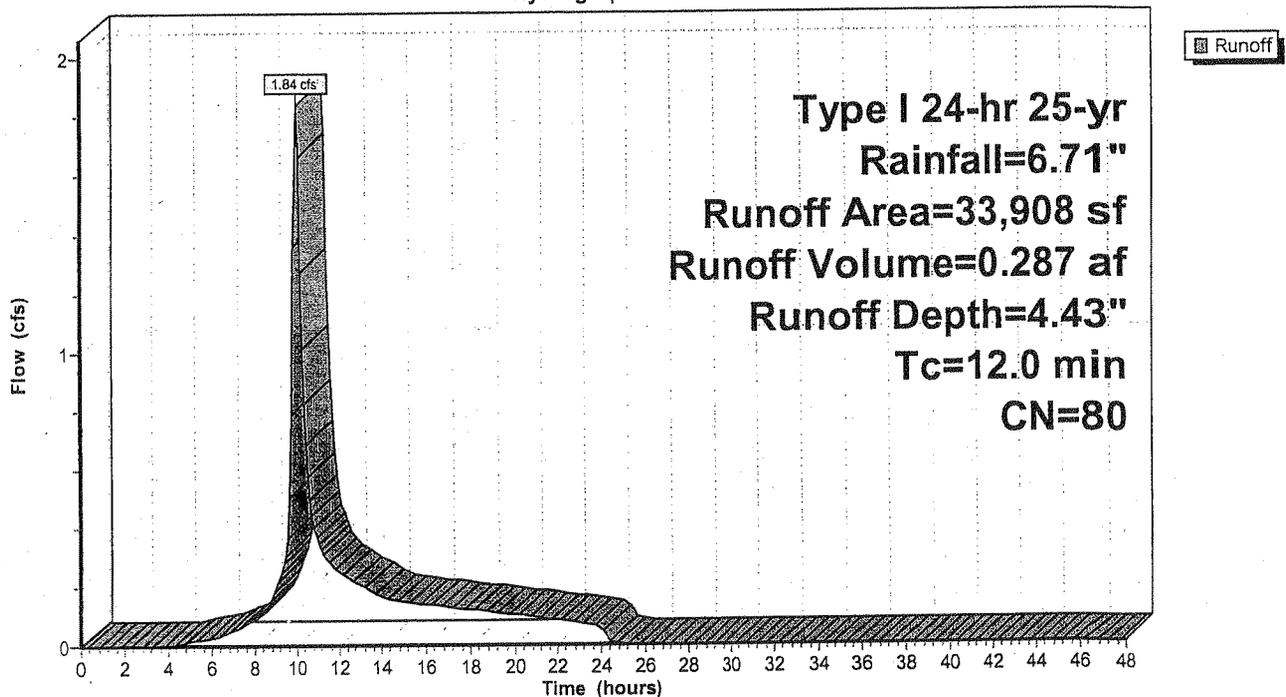
Subcatchment 9S: Eastern Cliff Drive Inlet

53 cfs is incoming from Las Cabanas Inlet via 30" RCP.
1.84 cfs add. Inlet overland flow from drainage area.

54.84 cfs

Eastern Cliff Drive Inlet can only handle 30 cfs.
24.84 cfs will either pond up @ inlet or overland
flow to the East along the North side of Cliff Drive.

Hydrograph



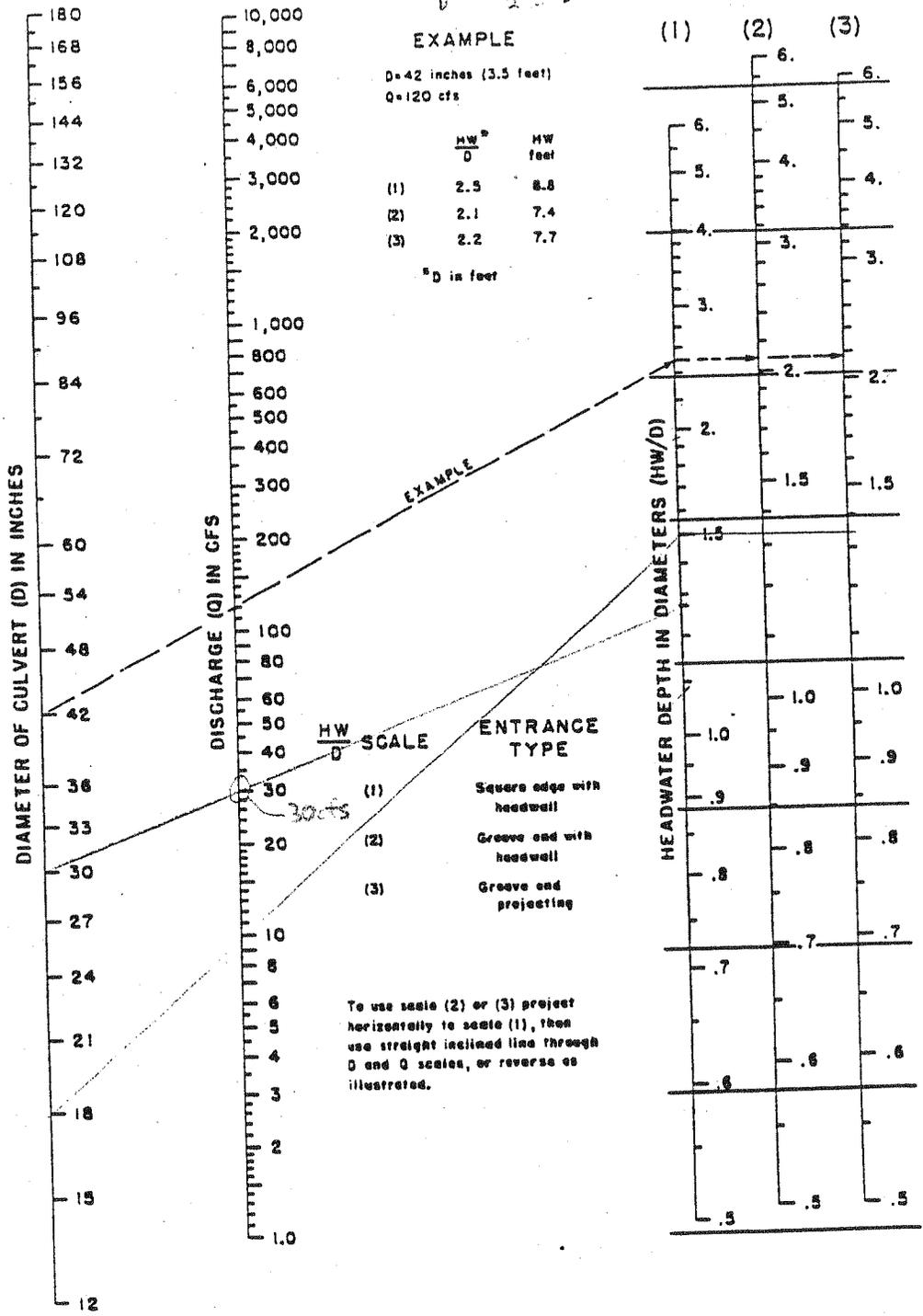
$HW = 3.2$
 $A = 30' = 2.5$
 $\frac{HW}{D} = \frac{3.2}{2.5} = 1.28$

EXAMPLE

$D = 42$ inches (3.5 feet)
 $Q = 120$ cfs

	$\frac{HW}{D}$	HW feet
(1)	2.5	8.8
(2)	2.1	7.4
(3)	2.2	7.7

*D in feet



SANTA BARBARA COUNTY
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ROAD DIVISION

Headwater depth for concrete pipe culverts with inlet control

FIGURE 5

17094.01

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Type I 24-hr 25-yr Rainfall=6.71"

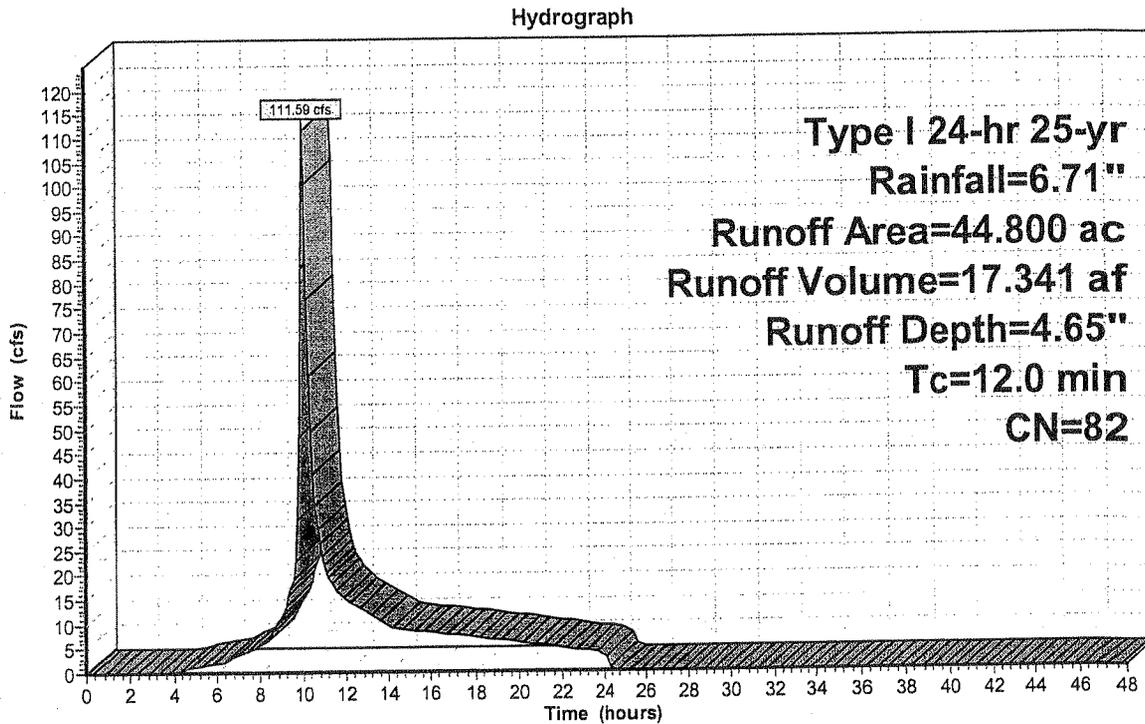
4/5/2006

Subcatchment 8S: Calle Las Caleras Inlet

Inlet can only take in 53 cfs.

Remainder will flow overland to the southward to Cliff Drive, where it will head to the east.

The 53 cfs is carried via 30" RCP to the Eastern Cliff Dr. Inlet.



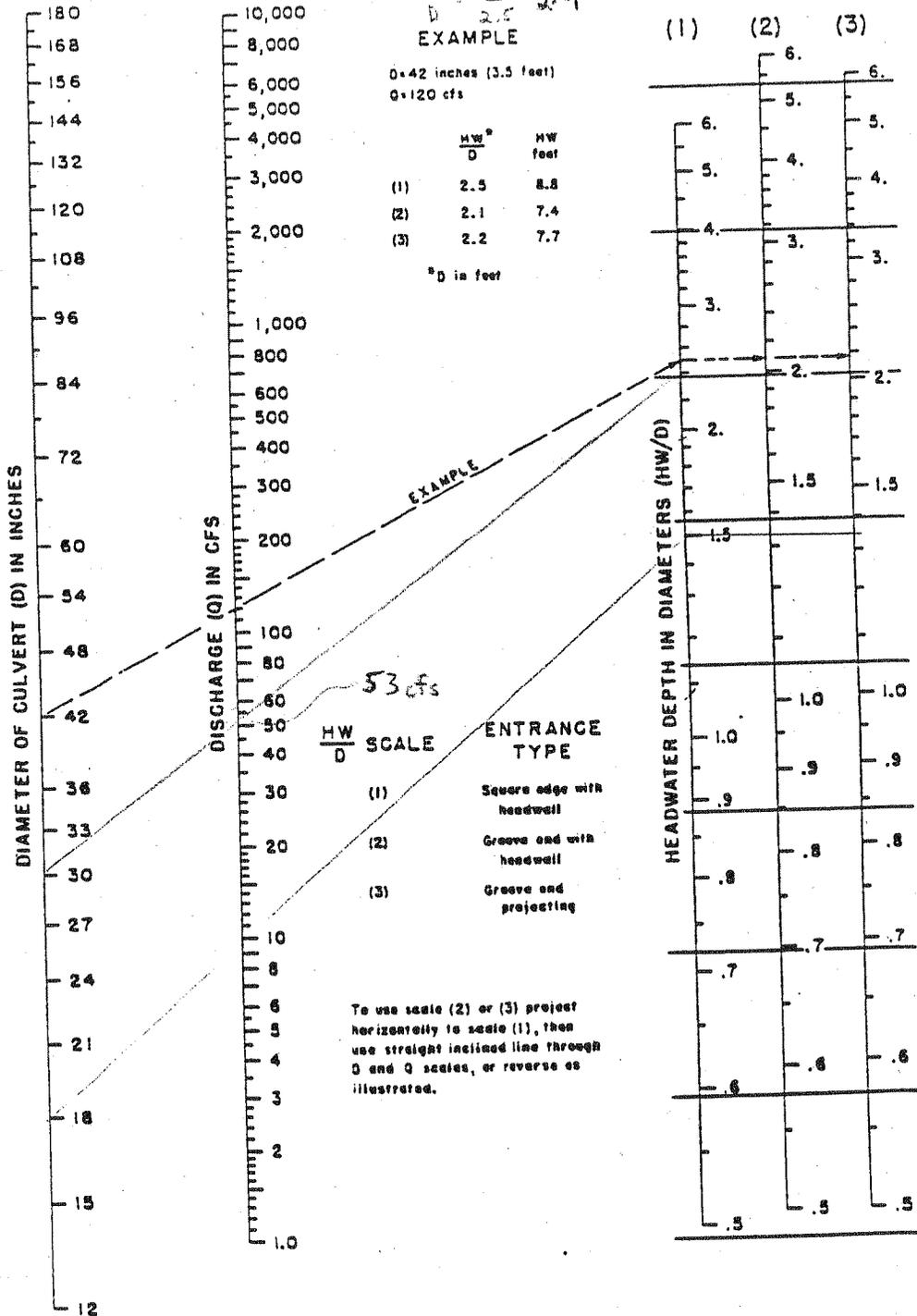
$D = 30'' = 2.5'$
 $HW = 6'$
 $\frac{HW}{D} = \frac{6}{2.5} = 2.4$

EXAMPLE

$D = 42$ inches (3.5 feet)
 $Q = 120$ cfs

	$\frac{HW}{D}$	HW feet
(1)	2.5	8.8
(2)	2.1	7.4
(3)	2.2	7.7

^aD in feet



SANTA BARBARA COUNTY
 DEPARTMENT OF PUBLIC WORKS
 ROAD DIVISION

Headwater depth for concrete pipe culverts with inlet control.

17094.01

Type I 24-hr 100-yr Rainfall=8.38"

Prepared by Penfield & Smith

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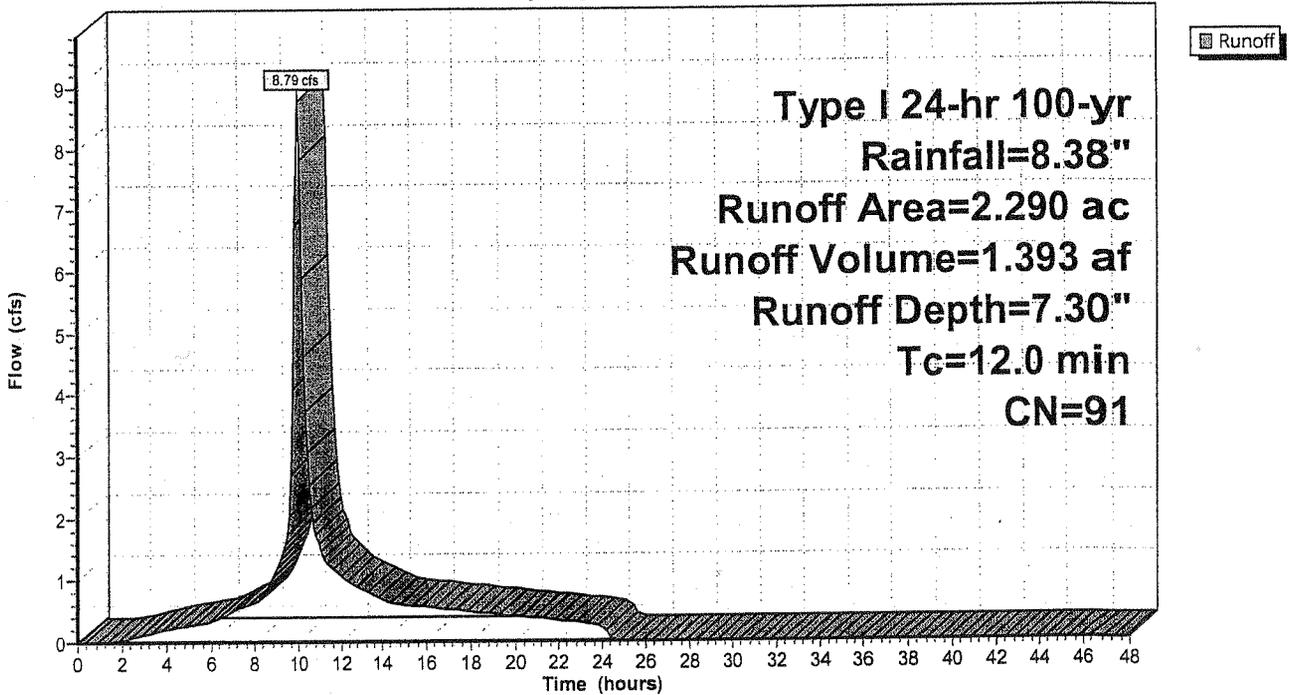
4/5/2006

Subcatchment 1S: Lower Sea Ledge Drain

Can only take 13 cfs.

Contributing cfs: 8.79 Lower Sea Ledge Ln.
 59.18 Upper Sea Ledge Ln.
 67.97
 -13
 54.97 cfs

Hydrograph



17094.01

Type I 24-hr 100-yr Rainfall=8.38"

Prepared by Penfield & Smith

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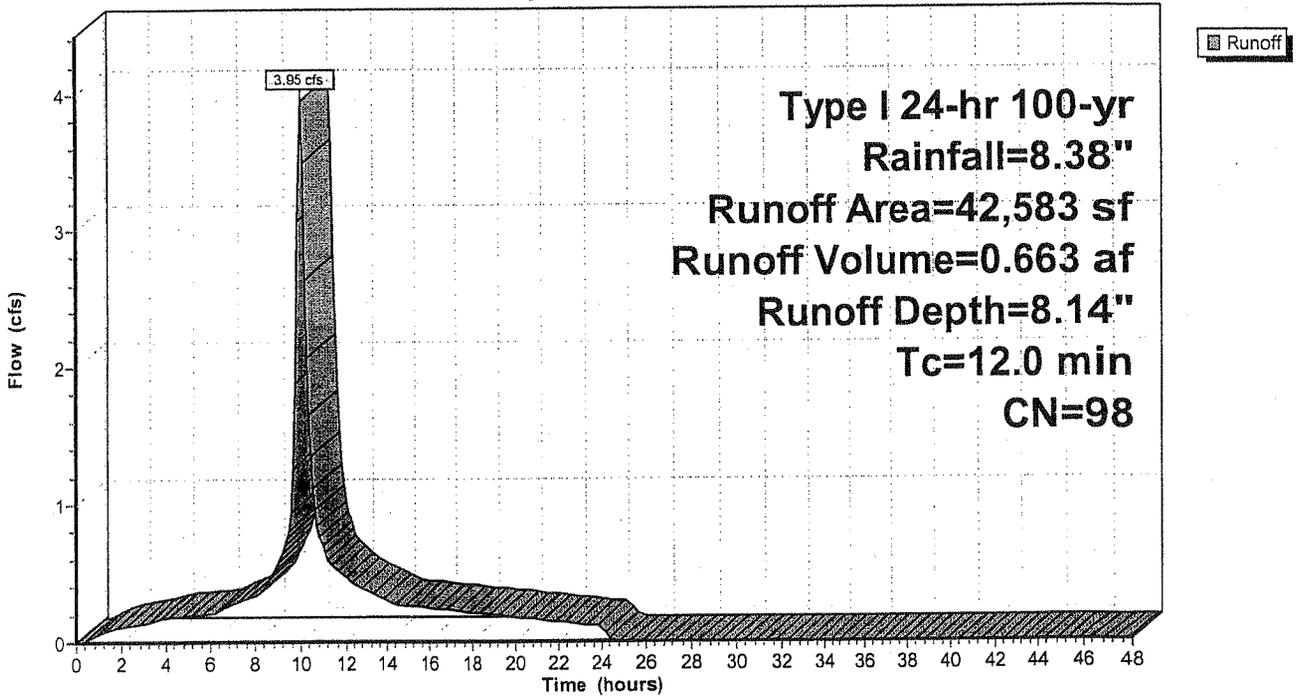
4/5/2006

Subcatchment 10S: Upper Sea Ledge Lane Area

Add 13.23 cfs to overall Q (Excess from Cliff Dr.)

$$\begin{array}{r}
 13.23 \\
 + 3.95 \\
 \hline
 17.18 \text{ cfs}
 \end{array}$$

Hydrograph



Sea Ledge Lane Junction Box 100yr

• Can only take 90 cfs.

- Influents:
- 100 cfs from West. Cliff Inlet
 - 30 cfs from East. Cliff Inlet
 - 17.18 cfs from Upper Sea Ledge Lane

$$149.18 \text{ cfs} - 90 \text{ cfs} = \boxed{59.18} \text{ Excess will flow to Lower Sea Ledge Ln. Inlet}$$

17094.01

Type I 24-hr 100-yr Rainfall=8.38"

Prepared by Penfield & Smith

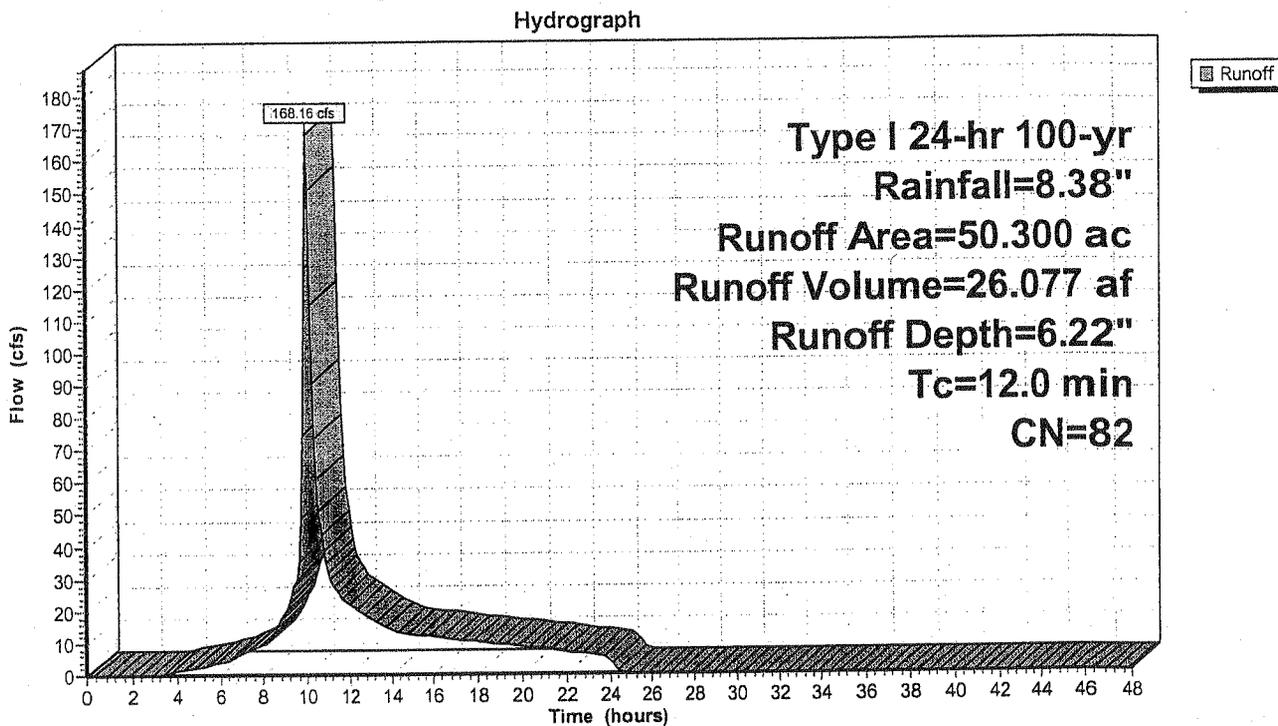
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Subcatchment 4S: Cliff Inlet

$$\begin{array}{r} 168.16 \\ - 102.00 \\ \hline 66.16 \text{ cfs Excess} \end{array}$$

$(.20)(66.16) = 13.23 \text{ cfs}$ will flow down Sea Ledge Lane based on 20% flow assumption.



17094.01

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Type I 24-hr 100-yr Rainfall=8.38"

4/5/2006

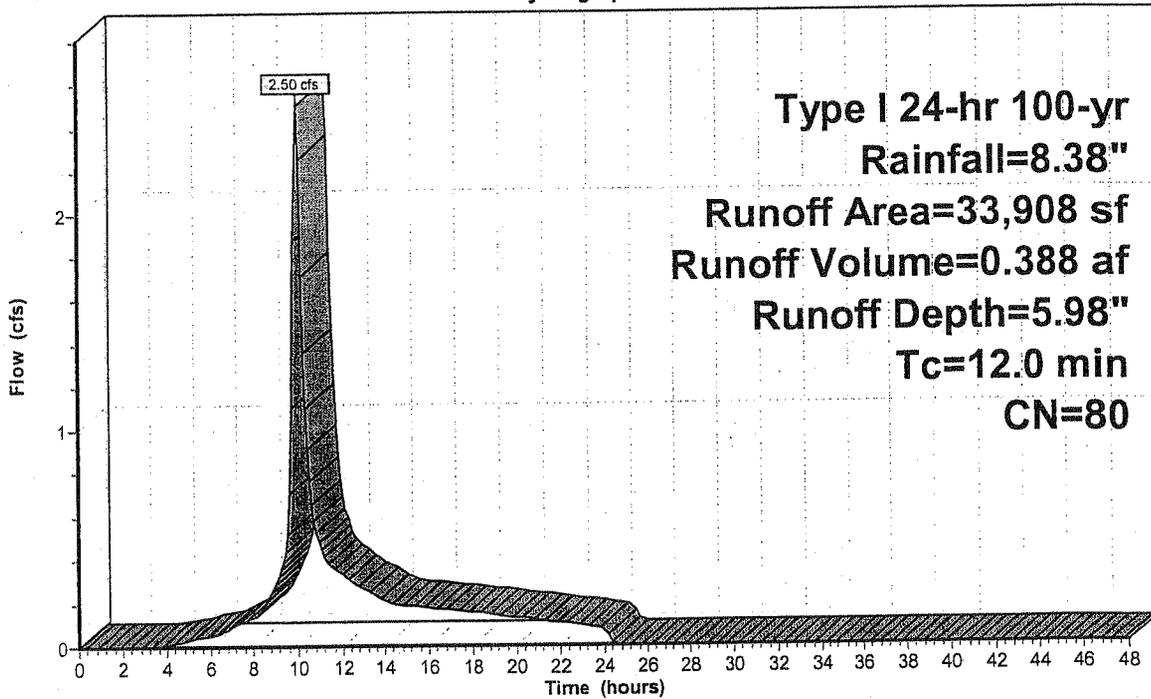
Subcatchment 9S: Eastern Cliff Drive Inlet

53 cfs from Calle Las Caleras Inlet.

2.50 cfs

55.50 cfs

Hydrograph



17094.01

Type I 24-hr 100-yr Rainfall=8.38"

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Subcatchment 8S: Calle Las Caleras Inlet

Inlet Capacity 53 cfs.

Hydrograph

