PROPOSED CONSERVATION STANDARDS
PUBLIC HEALTH REGULATIONS, CHAPTER 37B

Statement for
Department of Health Public Hearing

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This written statement expands on an oral statement delivered at the public hearing on 10 September 1974, reviewing the "conservation standards" regulation proposed by the Department of Health (DOH). It has been prepared in consultation with Paul Bartram, a staff member of the Hawaii Environmental Simulation Laboratory (HESL). It does not represent an institutional position of the University of Hawaii.

Act 249, 1974, of the Hawaii Legislature, entitled "Soil erosion and sediment control," requires that the Department of Health adopt pertinent "conservation standards" within 90 days of the Act's passage. The rational development of such standards is not an easy process. It involves considerations of the hazard to be reduced, which varies from place to place, and the best practicable means to reduce it, which must similarly vary.

Three years ago the UH Environmental Center was asked by the DOH for advice just on the matter of the best practicable treatment or control of soil erosion. The Center's failure then to provide advice constitutes one of the greatest failures in its history.

It is not surprising that the proposed standards prepared by the DOH, working entirely "in-house," should be found unsatisfactory in several respects. The best of standards cannot be fully satisfactory. Especially in the light of the need to promulgate very soon a regulation containing a standard, negative criticism of the DOH proposal would be of little value unless a better alternative or means to develop a better alternative very rapidly were presented. Appended to this statement is a HESL report proposing the means to develop an alternative--and all but developing it. To further discussion of the report this statement will return.
Delegation of powers

The principle is adopted in Act 249 that powers be delegated to the Counties to adopt soil conservation ordinances and, through their enforcement, to bring about compliance with a general soil conservation standard or standards to be adopted by the Department of Health. This principle is a wise one, and one which we have specifically recommended in the case of soil erosion control in Environmental Center testimony (for example on SB 1316, SD 1, 1972).

Purpose

As shown through extensive analysis of Act 249, the committee reports on the bill that was enacted, and the background to the bill in the accompanying HESL report, the major concern in the passage of the Act was with the effects of augmented sedimentation resulting from such land-disturbing actions as grading associated with subdivision preparation. Concern with the effects of such augmentation resulting from agricultural practices was also indicated in the Act, but this concern seems to have been reflected mainly in requirements combined control activities of the Counties and Soil Conservation Districts. The loss of soil itself seems to be of importance secondary to the downstream effects of sedimentation augmentation.

Appropriate locus of control

Notwithstanding the fact that the effects whose controls are the principal purposes of Act 249 are mainly downstream effects of augmented sedimentation, the controls must be placed on the soil erosion processes that lead to the augmented sedimentation, because the effects are not amenable to direct control. The regulation proposed by the DOH recognizes erosion on lands subject to disturbance as the appropriate locus for control.

Rationale for variable stringency of control

Because the downstream detriments per unit of soil eroded, transported downstream, and deposited, vary considerably from place to place, and because the liability of the soil to erode also varies considerably from place to place, it would be illogical to call for uniform stringency of control of erosion. The regulation proposed by the DOH provides for what are essentially three levels of stringency of control (including a no control level). However, in the DOH proposal the stringency of control is related solely to the spatially variable liability of the soil to erode. Further the components employed by the DOH in its proposed erosion "severity rating" do not represent all of the components actually having significant effects on the erosion liability of a soil. More seriously, the method of combination of these components does not reflect the way they actually combine in influencing soil erosion liability.
The components appropriately employed and the appropriate means of the combination are indicated by the Universal Soil Loss Equation, which is discussed in the appended paper. It will suffice here to remark that a "soil" that has so large an infiltration capacity that no runoff results even with intense rainfall should have a zero "soil type" rating. The clinker top of a fresh aa lava flow would be such a "soil." No zero "soil type" rating is recognized by the DOH, but if it were, its combination with even the minimum ratings for disturbed land area, rainfall intensity, activity duration, and slope (1 point each) would result in a total point rating of 4. If only two additional rating points were attributable to the four components, say by increasing the disturbed area from 4 to 16 acres, the total rating points would be 6, and some form of erosion treatment or control would be called for. Yet with the zero runoff there would be zero erosion!

Perhaps most seriously, there is completely missing from the proposed regulation any recognition that the prescribed stringency of control should vary in accordance with the severity of sedimentation effects downstream.

Prescriptions of stringency

Other than "no control," the draft regulation proposes two levels of treatment or control:

A. Best available control technology economically achievable, and

B. Best practicable control technology currently available.

The language in these prescriptions is borrowed, at least in part, from the Federal Water Pollution Control Act Amendments of 1972. At best they are so ambiguous as to be quite unenforceable. At worst they could lead to the requirement of levels of treatment or control quite unjustified by the hazard whose reduction was intended.

In the phrase "best practicable control technology currently available," what can the phrase "currently available" signify that is not already signified by the word "practicable"? If what is "best" is really best in terms of overall long-term human welfare, the single phrase "best practicable control" would be appropriate for the entire range of controls (short of stopping the land disturbance entirely) from no control at all, if there were no hazard, to the most stringent of available controls, if such were justified by the severity of the hazard. The definition in the proposed regulation that the "best practicable control technology currently available means the average of best existing treatment or control technology..." is a source of further confusion. How can a variable be the average of itself? "Best available control technology economically achievable" seems to be identical in meaning to "best practicable control technology," but this is defined in the proposed regulation as the "highest degree of control technology that has been achieved or has been demonstrated to be capable of being designed..." Since there really is no limit to the stringency of control measures that could rather easily be designed, but the more stringent controls
would not be economical nor "best," this definition appears to be in conflict with the meaning of the term to which it is supposed to apply. If "highest degree" means "most stringent technologically available," the use of this term would, on the one hand, imply the requirement of such technology even when the hazard did not justify it; and, on the other, an inability to recognize that, when the hazard is very great, no control is appropriate save complete avoidance of any land disturbing activity.

**Title of regulation**

The scope of the proposed regulation is not indicated by its title, "Conservation standards." The term Conservation Standards is used in Act 249, but it is defined simply as the standards to be adopted by the DOH. Unless the usage in the Act legally prohibits use of another title, a title indicating better the actual nature of the standards would be preferable. Such a title might be: "Soil erosion control standards," "Sedimentation control standards," or "Soil conservation standards."

**Limitation to land subject to disturbance**

Implicit in the proposed regulation is the assumption that the sedimentation problems associated with a subdivision development result entirely from soil eroded within the subdivision itself. Experience in Honolulu indicates that highly significant augmentation of sediment production may result from the concentration of drainage resulting from subdivision grading. Such concentration may result in greatly increased storm discharge rates across lands lying between the subdivision and the stream to which it drains, or to the shore. These greatly increased discharge rates result in greatly augmented erosion rates in the intervening lands.

Examples are found in subdivisions on ridge tops. The concentrated discharges result in heavy erosion on the ridge slopes and serious sediment accumulation on the valley bottoms, as well as increased sediment transport across the valley bottoms, through the streams, and to the coastal waters.

Control of sedimentation augmentation resulting from this process cannot be achieved by erosion control within the lands being graded nor by County erosion control ordinances alone, but will probably require revisions of County drainage ordinances. We are not prepared now to recommend means for controlling erosion thus indirectly stimulated by land disturbances.

**Enforcement**

The Act, the DOH regulation containing standards, and the county ordinances will, in themselves, not provide reductions in deleterious effects of sedimentation. Presumably the Counties will provide means of enforcement of their respective
ordinances, which must also constitute the means whereby the restrictions in the DOH regulation and in the Act itself will be implemented. It is not clear, unfortunately, that the DOH has any control over the extent of enforcement by the Counties of their respective ordinances, nor even over County competences for the development of appropriate ordinances and their enforcement. A system to exercise appropriate levels of control in such complex matters as soil erosion and sedimentation cannot be instituted without additional staff. The acquisition of additional staff, and particularly staff of the necessary competence, is not easy in a period of financial stringency, but without such acquisition the system cannot be successful.

HESL Report

The HESL report previously referred to: a) analyzes the purposes of Act 249 and requirements for soil conservation standards pertinent thereto; b) develops the form of an appropriate standard in such detail as to identify clearly all of the ratings and constants whose evaluation would require DOH judgment; and c) discusses the means for simplifying the expression of the standard when the various judgments have been made.

Prepared in haste, this report has not received the external review customary with HESL reports, although Wm. J. Matthews of the U.S. Army Corps of Engineers, reviewed an early draft and A. H. Banner of the Hawaii Institute of Marine Biology advised on the evaluation of coastal water sedimentation hazard. It is HESL's policy that a report of concern to an administrative agency be reviewed by that agency prior to release. The appended report should then be regarded as a draft. Regardless of extent to which its recommendations are accepted, critical review of the report and response are requested from the DOH, as a part of the process whereby the report will be completed, perhaps in the form of a HESL Working Paper.