Sign over a door at Rudder Center, Texas A&M University. Photo by Vince Cronin.

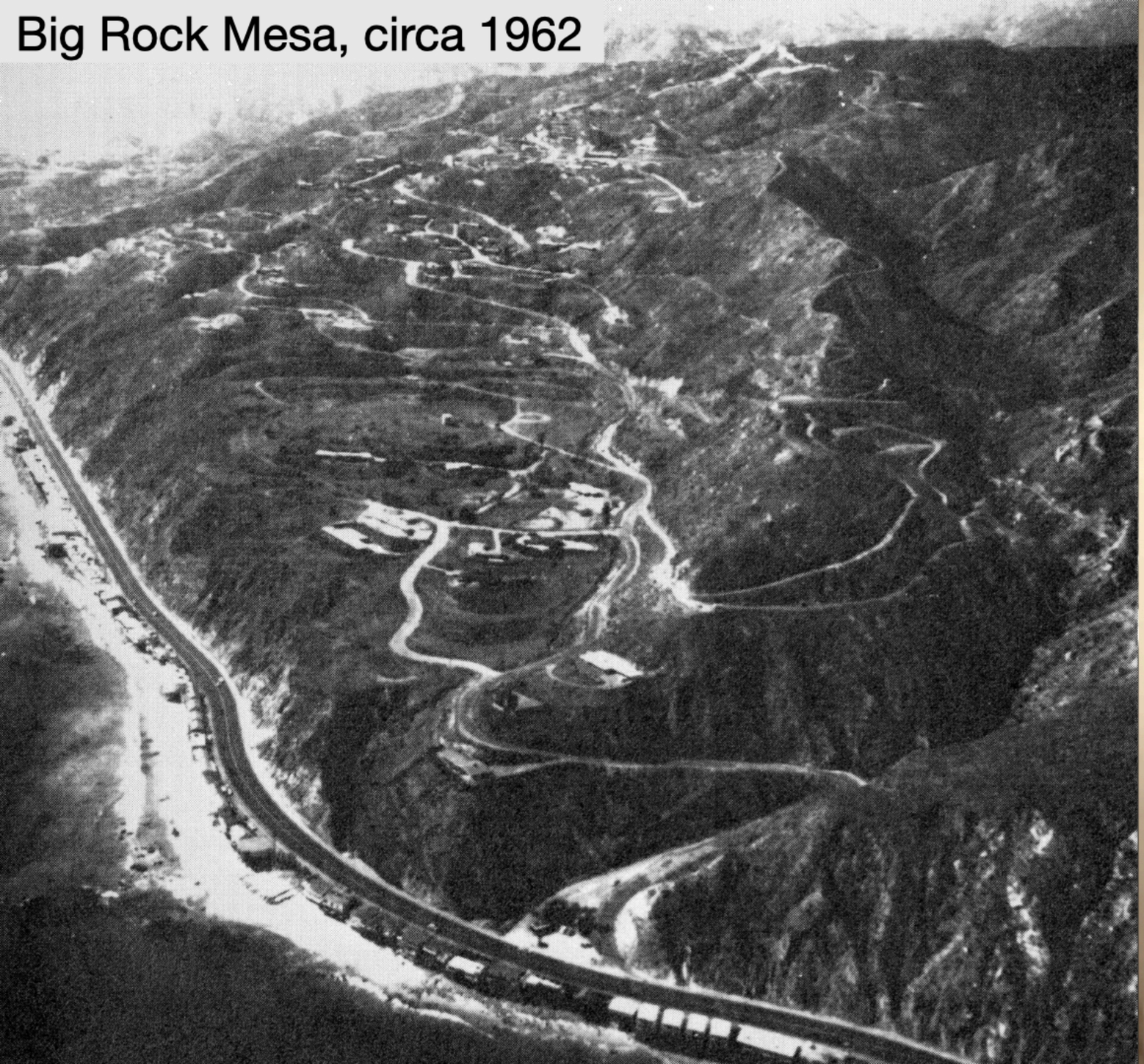
Some Ethics Resources

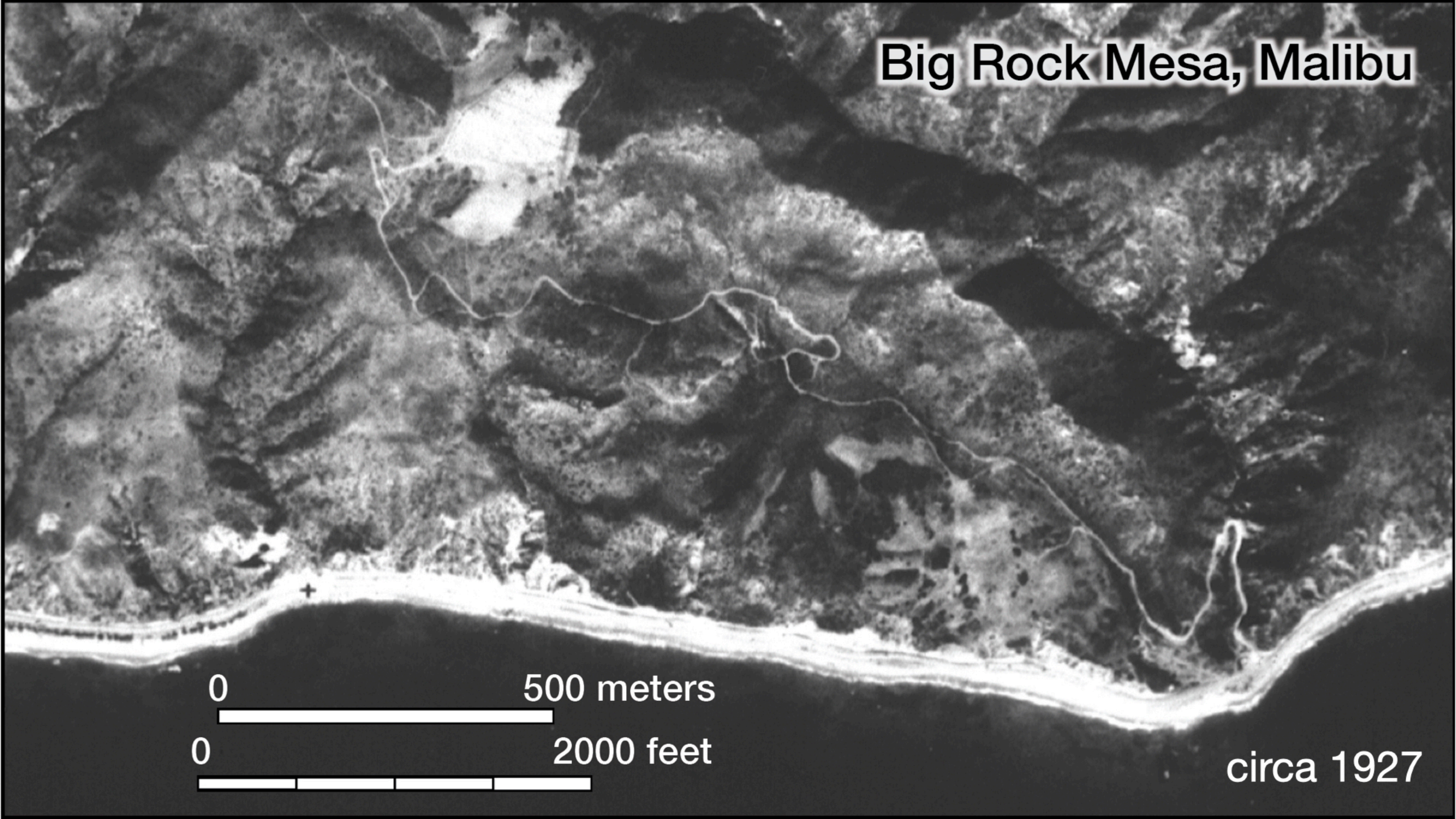
- ***United Nations Universal Declaration of Human Rights*** (1948),
  - UDHR homepage: https://www.un.org/en/about-us/universal-declaration-of-human-rights
  - Text of the declaration (PDF): https://www.un.org/sites/un2.un.org/files/2021/03/udhr.pdf
- ***United Nations Sustainable Development***
  - SD homepage: https://sdgs.un.org
  - SD goals: https://sdgs.un.org/goals

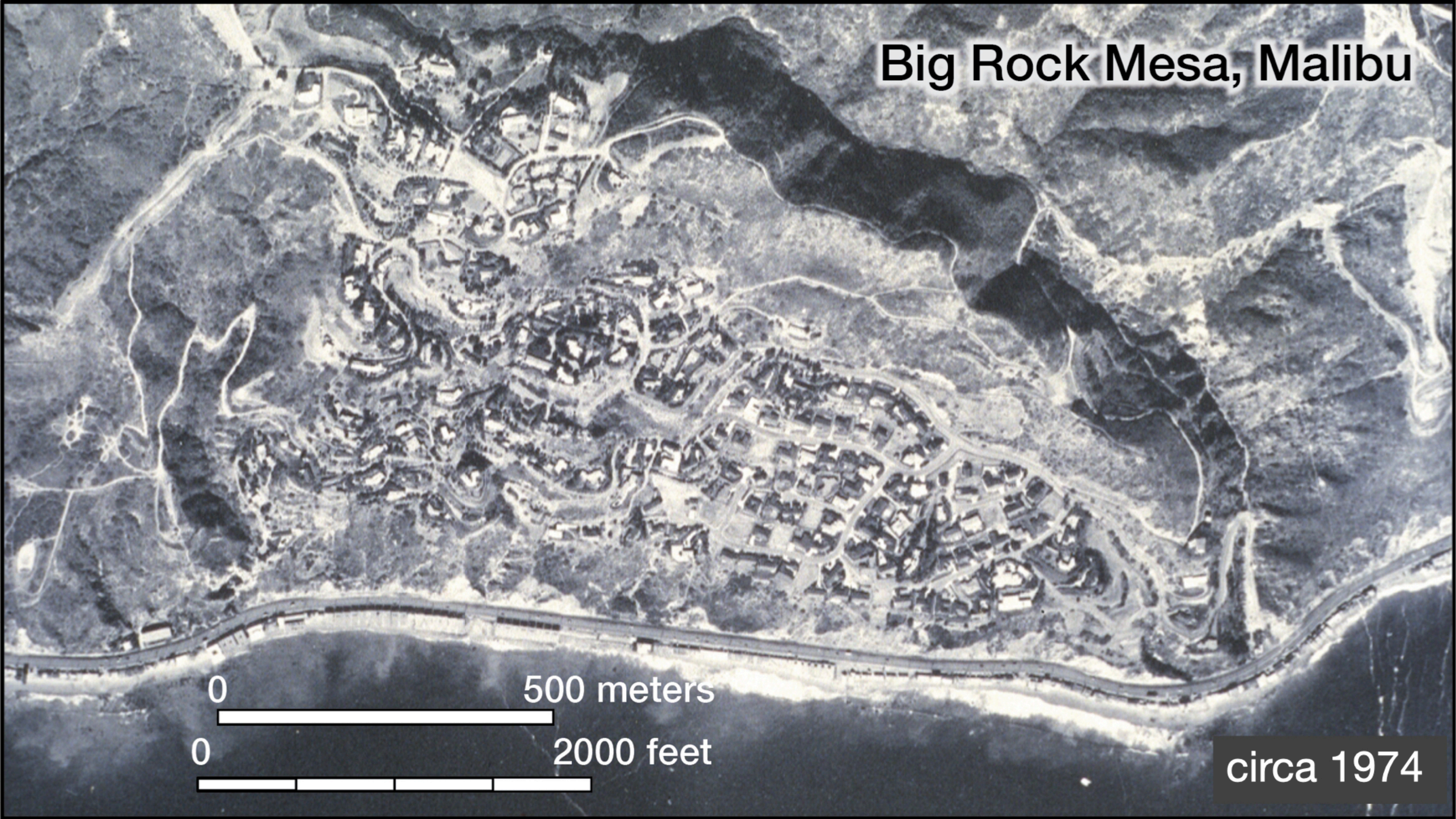
  Working definitions of "sustainable development"...

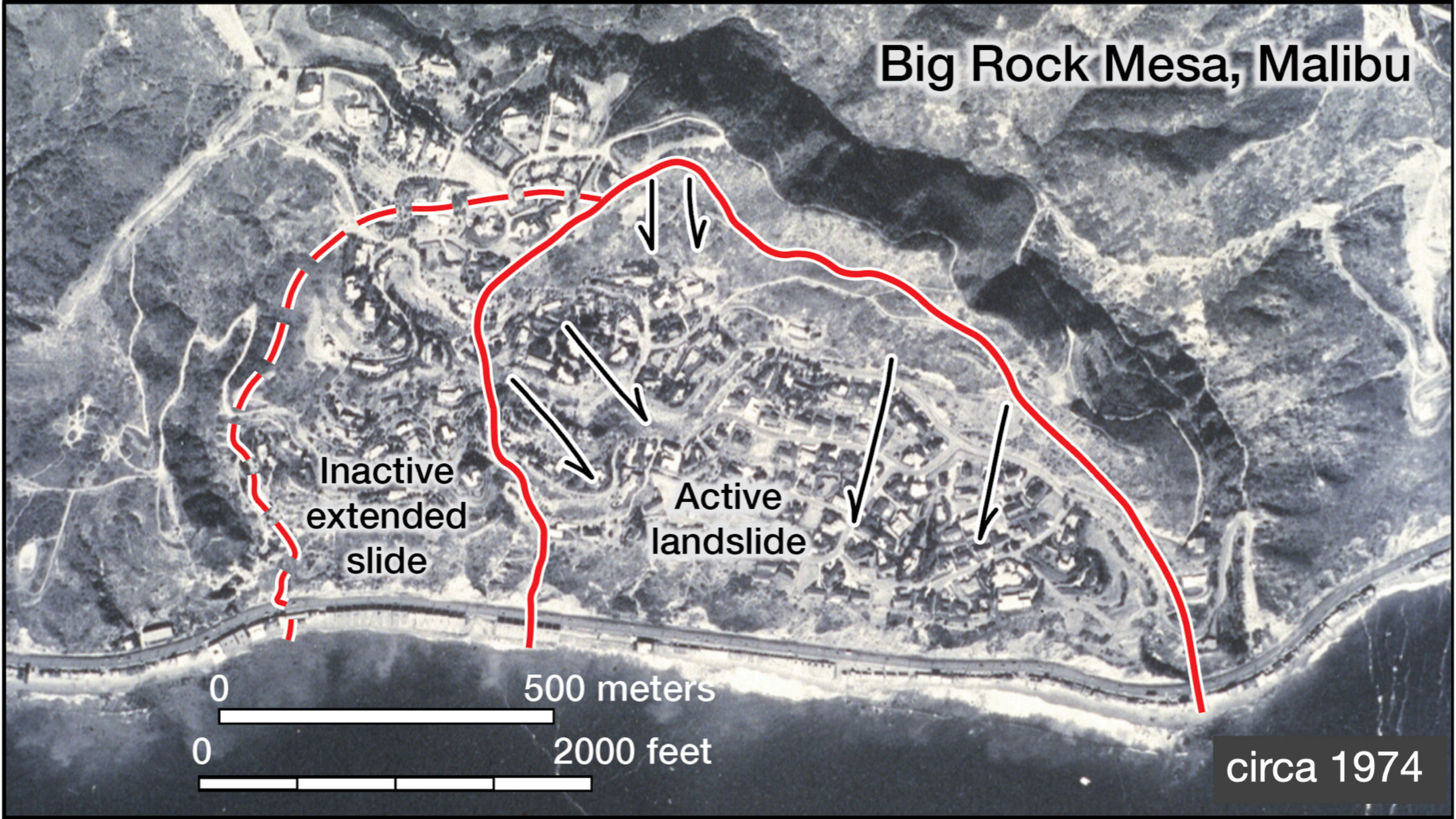
A brief case study

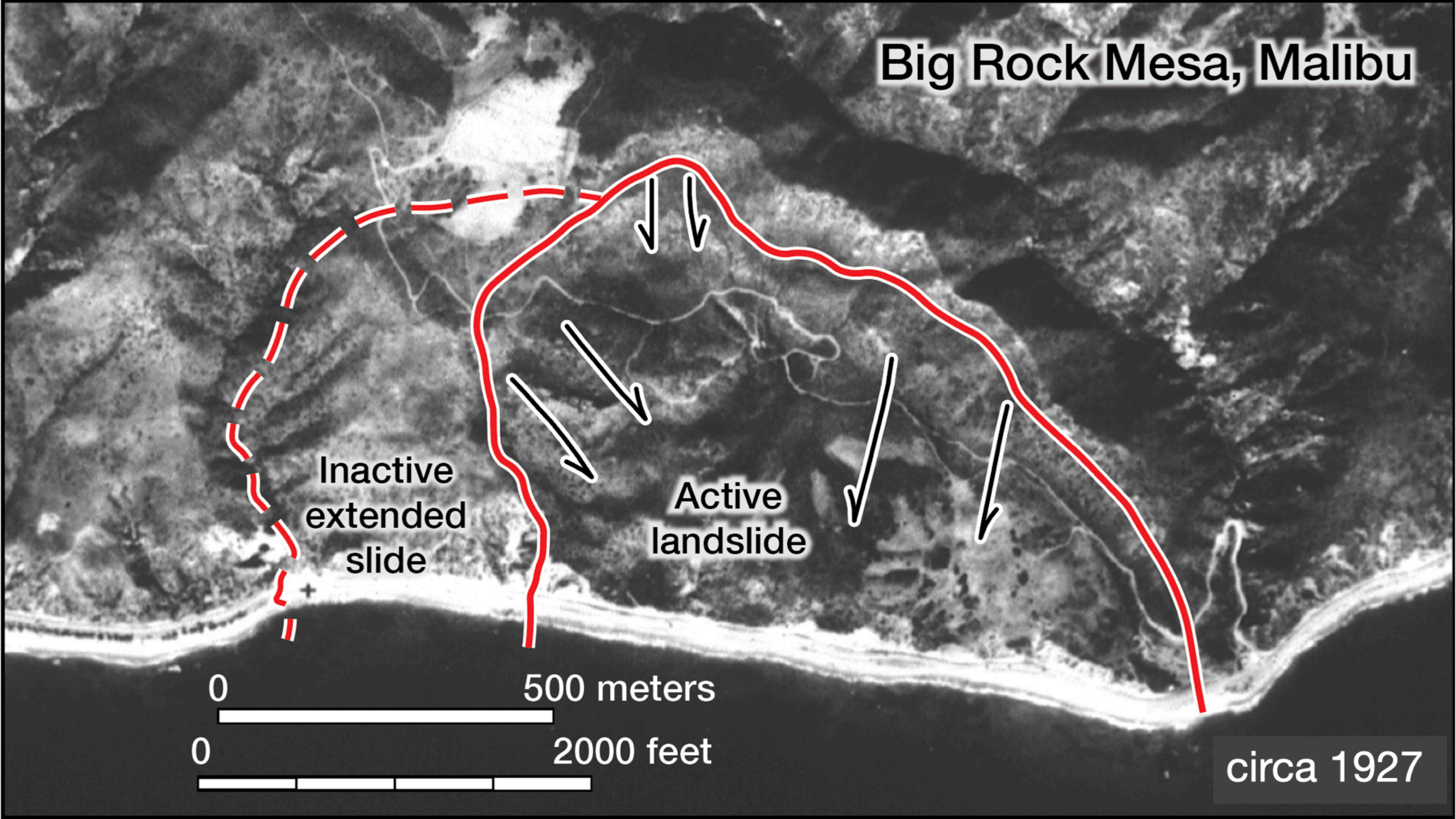
Big Rock Mesa, circa 1962



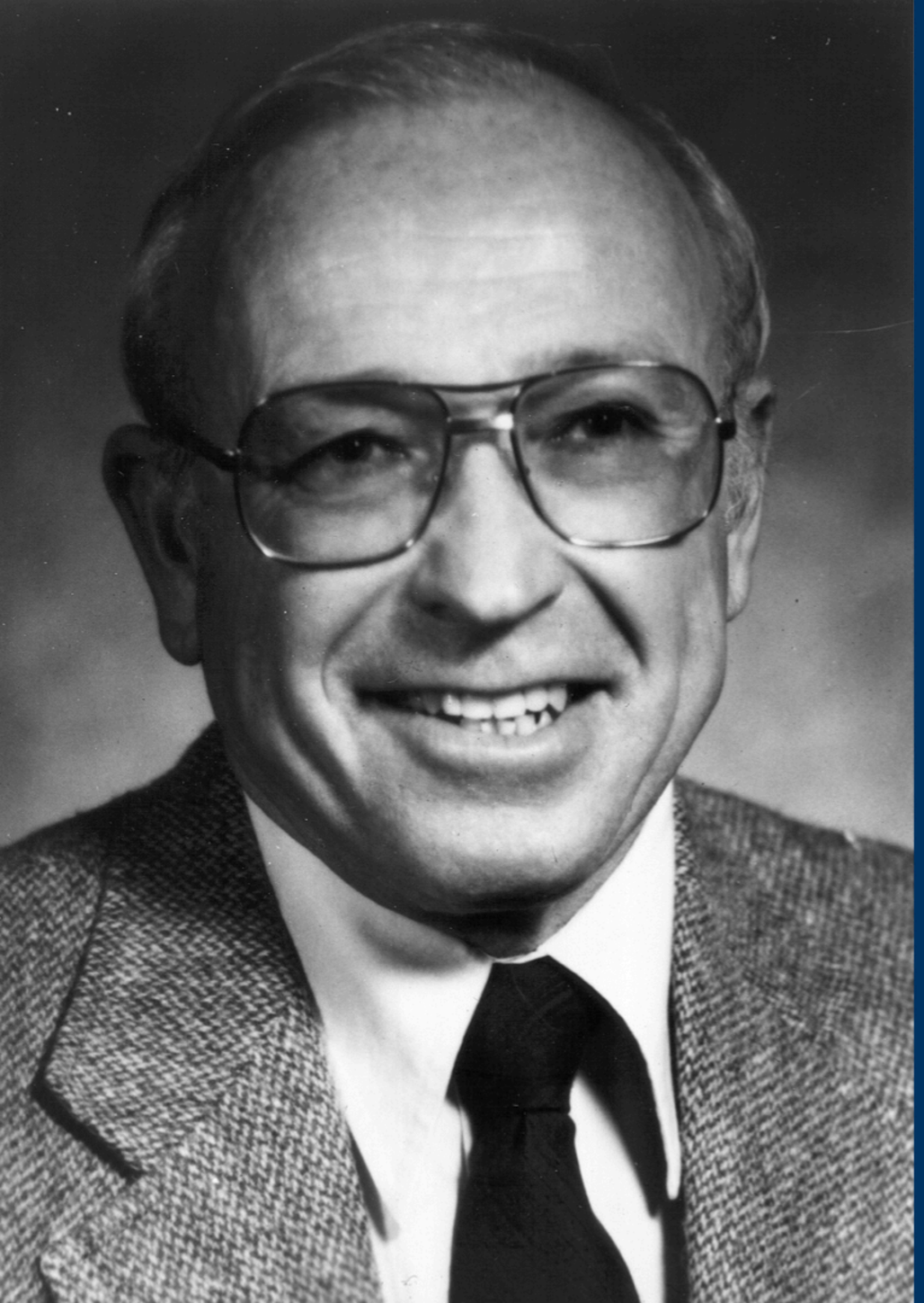

Big Rock Mesa, Malibu
0
500 meters
0
2000 feet
circa 1927


Big Rock Mesa, Malibu
0
500 meters
0
2000 feet
circa 1974


Big Rock Mesa, Malibu
Inactive
extended
slide
Active
landslide
0
500 meters
0
2000 feet
circa 1974


Big Rock Mesa, Malibu
Inactive
extended
slide
Active
landslide
0
500 meters
0
2000 feet
circa 1927

Aerial photo by Woody Higdon;
supplied by Jim Slosson



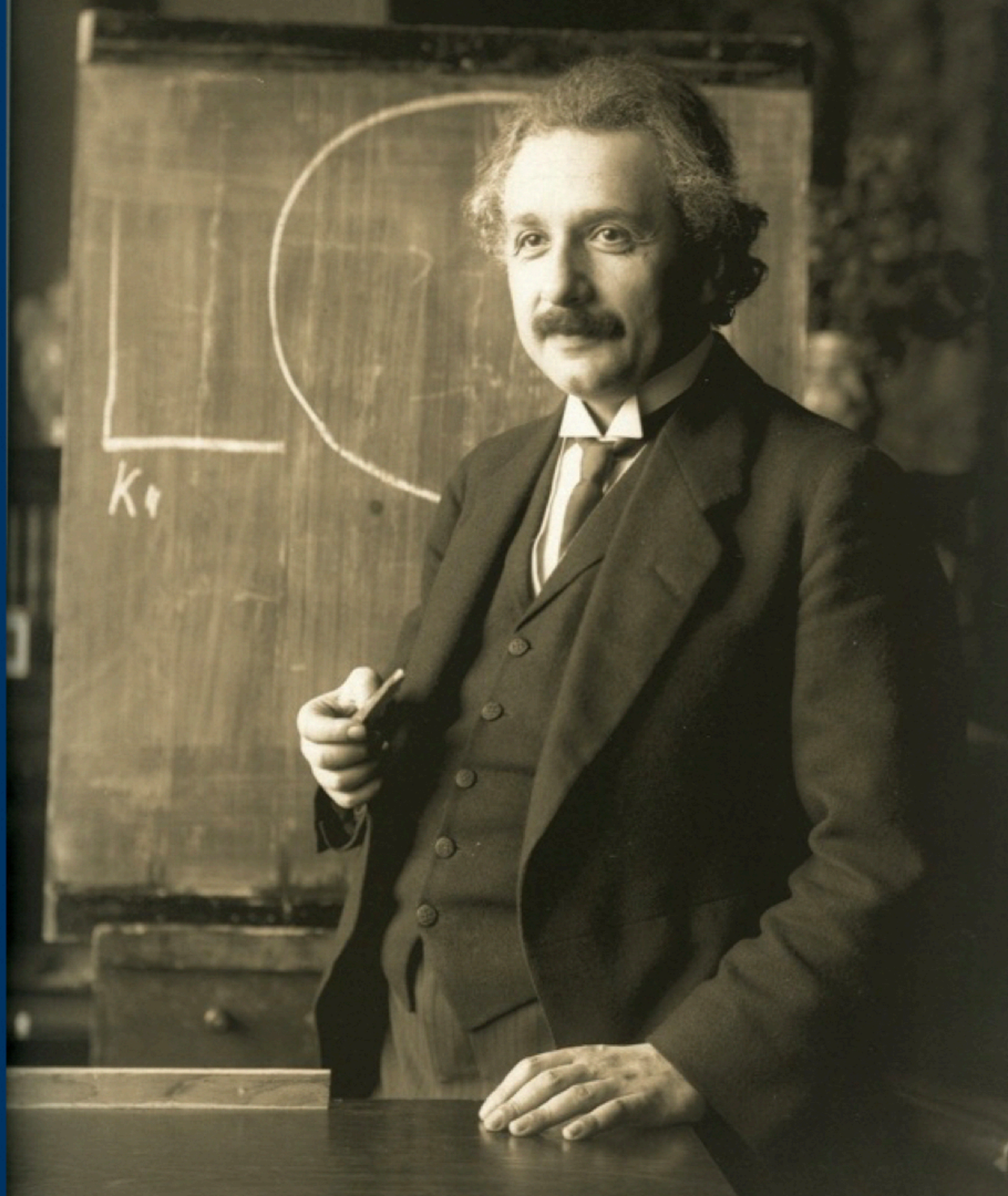
Dr. Jim Slosson

California State Geologist
1973-75

First Jahns Lecturer
1989

The right to search
for truth implies also
a duty;
one must not conceal
any part of what one
has recognized
to be true.

Einstein



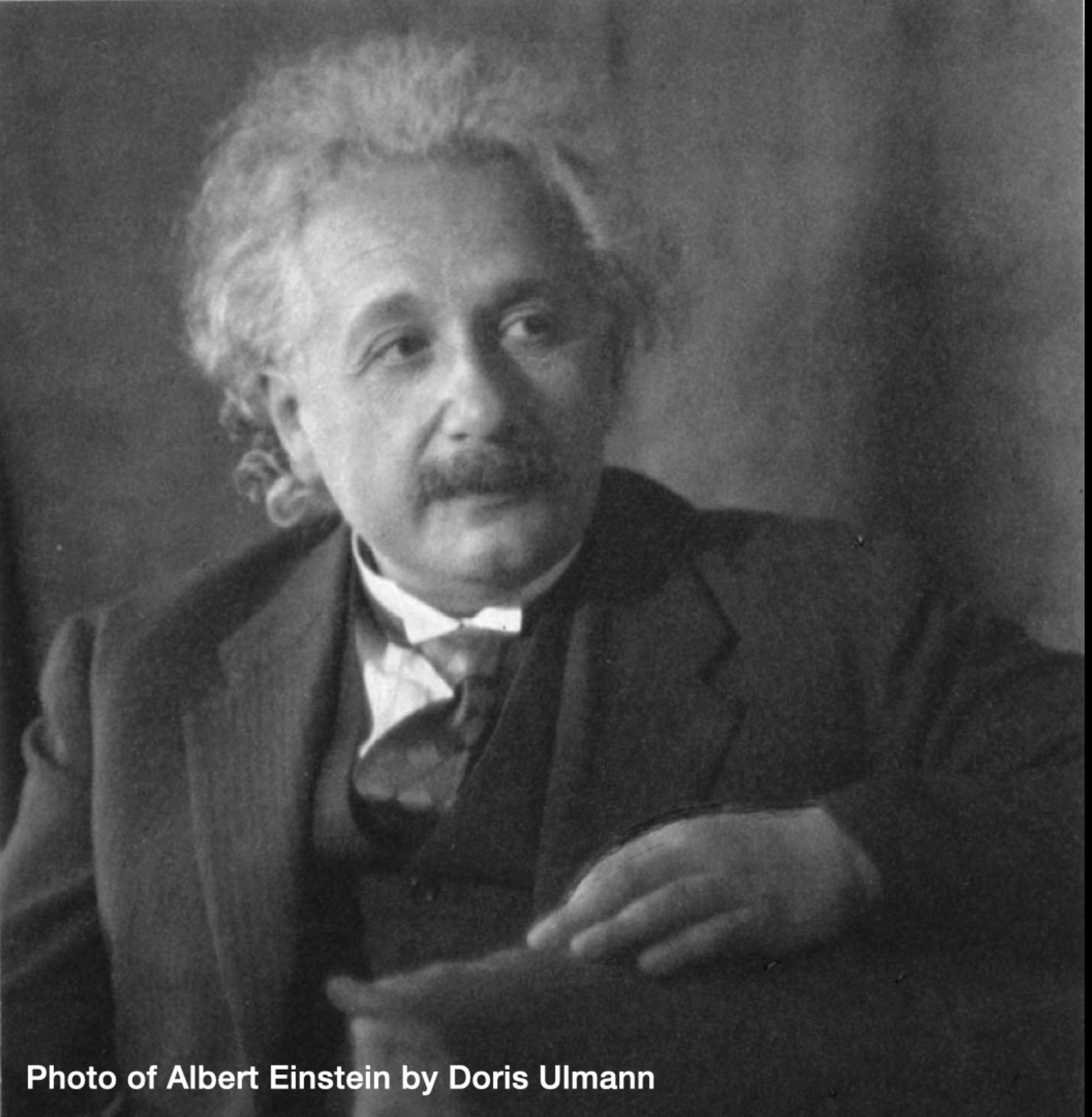


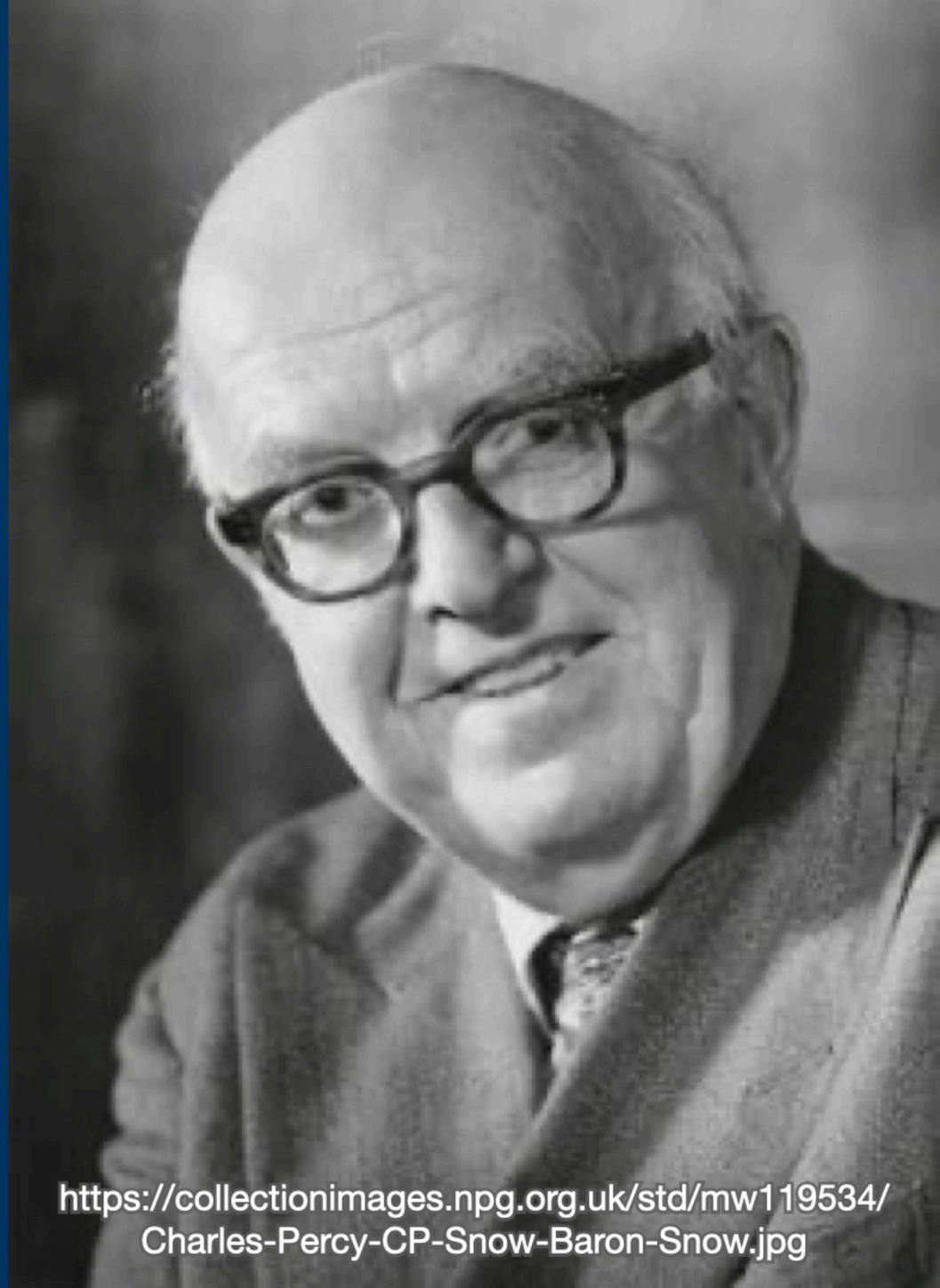
Photo of Albert Einstein by Doris Ulmann

Truth is what stands the test of experience

Einstein, 1950, The laws of science and the laws of ethics

The only ethical principle which has made science possible is that the truth shall be told all the time.

C.P Snow, “The Search” (1932)



https://collectionimages.npg.org.uk/std/mw119534/Charles-Percy-CP-Snow-Baron-Snow.jpg

Licensure laws are based on the same fundamental principle as are professional codes of ethics: the professional must hold the protection of the public health, safety, and welfare to be more important than his or her interest or even the interest of the client or employer.

Robert Tepel
AEG Spec. Pub. 7
1995

“…hold paramount the safety, health, and welfare of the public and strive to comply with the principles of sustainable development.”

American Society of Civil Engineers (2017)


Primacy Principles

Primacy principles are the most important ethical constraints for our work.

Primacy principles are the most important ethical constraints for our work.

For example, the Hippocratic Oath is an ancient expression of primacy principles under which a medical healer must work.

Primacy Principles for Professional Geoscientists

**In our professional work,
the health, safety, and wellbeing
of the public are paramount**

Robert Tepel

Primacy Principles for Professional Geoscientists

The ethical imperatives, standards, and norms that apply to any scientist also apply to professional geoscientists

Primacy Principles for Professional Geoscientists

Professional geoscientists have a responsibility to act in ways that promote, protect, and sustain the health of the Earth environment.

Primacy Principles for Professional Geoscientists

1. Public safety and welfare
2. Scientific standards & norms
3. Environmental health & sustainability

Another brief case study

We have completed an investigation of the soil/*geologic conditions* of the subject site…

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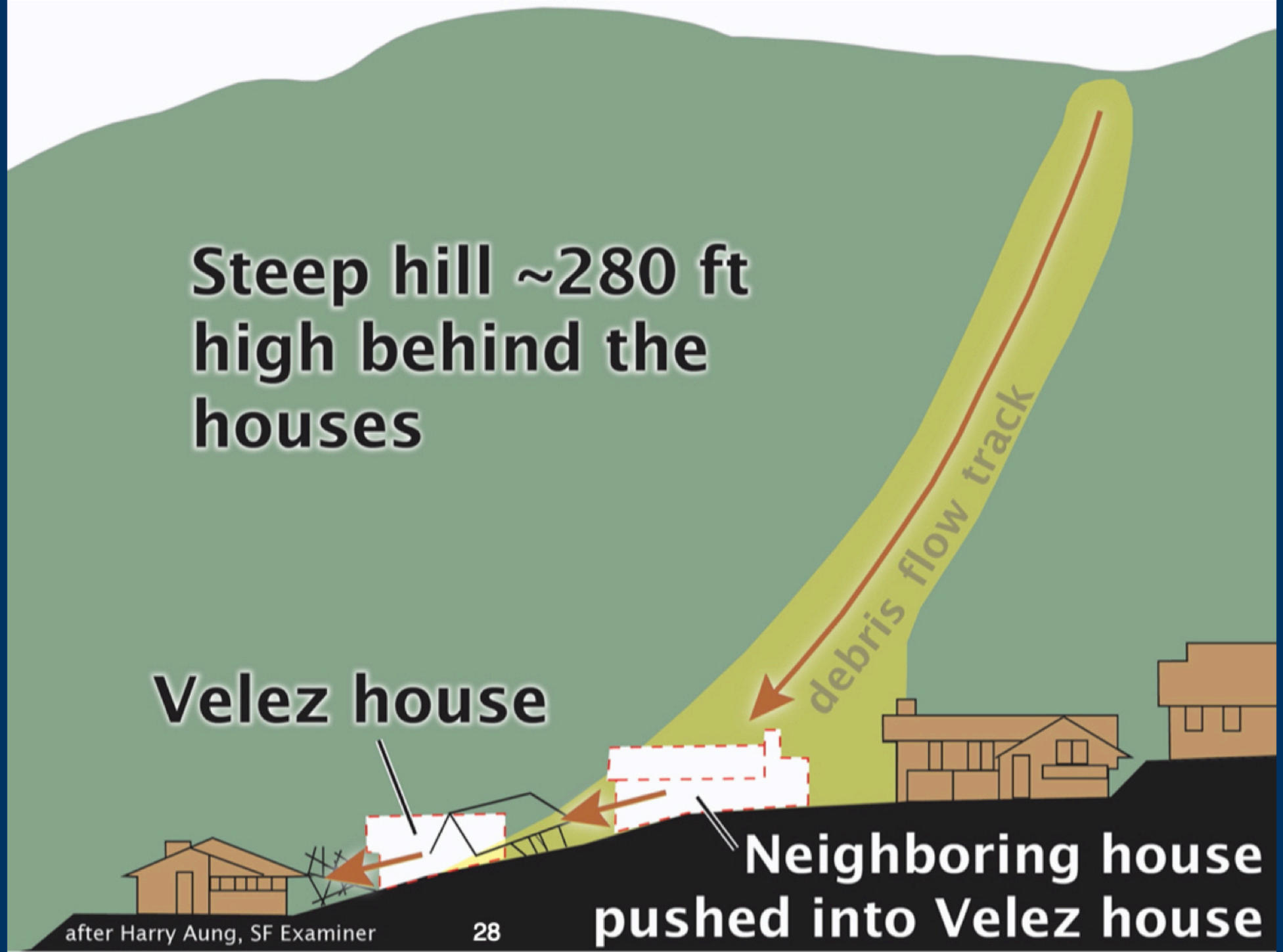
The investigation consisted of a soils and foundation study *and a geologic reconnaissance of the local area*…

We have completed an investigation of the soil/*geologic conditions* of the subject site…

The investigation consisted of a soils and foundation study *and a geologic reconnaissance of the local area*…

Our findings indicate that the site is suitable for the proposed residential use…”


Steep hill ~280 ft high behind the houses
debris flow track
Velez house
Neighboring house pushed into Velez house
after Harry Aung, SF Examiner
28

Velez Family, Christmas 1981

Bill Velez, father

Barbary Velez, mother

Michelle, age 14

Billy, age 7

Melissa, age 4

photo from Jim Slosson

photo from Jim Slosson

Reasons given to explain why the hazard potential was not recognized

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The source of the debris was on the other side of the property line.

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Colluvium-filled swales were not commonly recognized as potential hazards. It was beyond standard practice

This project was driven by the developer and engineers. Site geology was a minor consideration.

photo from Jim Slosson

Our goal as professional geoscientists is to participate in the responsible development of assets that are of sustainable benefit to society, while avoiding or effectively mitigating any hazardous consequences of that development.

minimized cost

sufficient benefit

minimized cost

sufficient benefit

meets code (minimally)

follows local standard practice

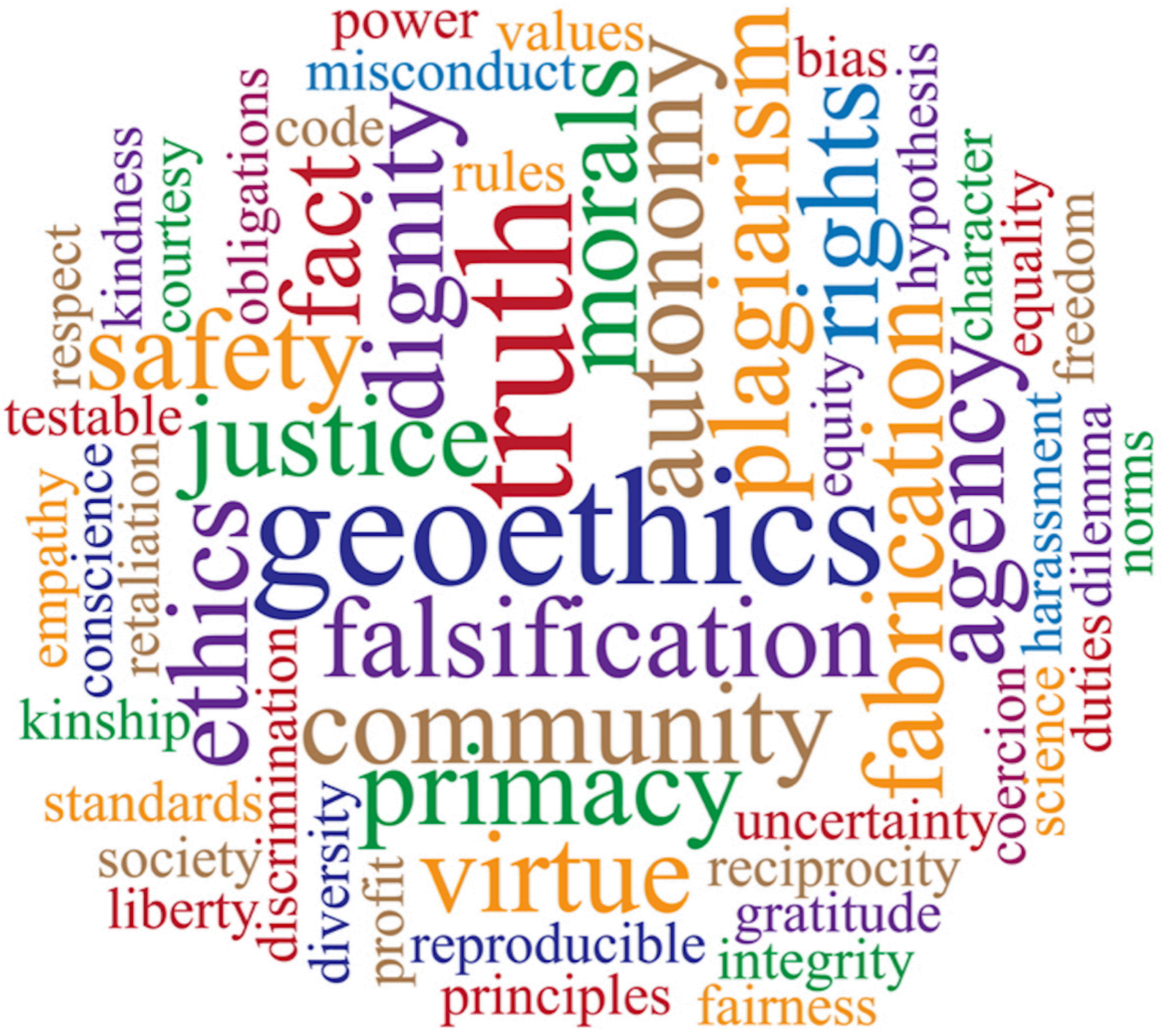
maximizes profit

minimizes cost

expedient

liability/risk seems manageable(?)

safety



Geoethics is fundamental to the professional practice of geoscience

Licensed professional geoscientists form an international community dedicated to geoscience in the public interest.

Licensed professional geoscientists form an international community dedicated to geoscience in the public interest.

Community is formed through professional organizations such as AAPG, AIPG, AEG, AGU, GSA, SIPES, and so on

Most licensed professional geoscientists are members of a geoscience society that has some form of ethics code/guidelines

AIPG

AAPG

AEG

GSA

IAEG

SEG

SIPES

EGU

EFG

GC

AGU

AGI

GSL

IAPG

ASBOG's list of 13 ethical issues, derived from the 2015 Task Analysis Survey results

Conflict of interest

Failure to disclose regulatory violations

Failure to maintain confidentiality

Gifts: accepting and giving

Inappropriate advocacy for client

Insufficient “scope of work”

Invoicing

Misrepresentation of professional qualifications

Plagiarism

Practicing outside area of competence

Practicing without license

Selective data acquisition, analysis, or disclosure

Retaliation against “whistle blowers”

Challenges for creating ethics study resources and questions for ASBOG FG and PG exams

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- Different ethics codes in license laws of different states(?)

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No geoethics education is required…

- in most undergraduate geo degree programs

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Challenges for creating ethics study resources and questions for ASBOG FG and PG exams

Different ethics codes in license laws of different states(?)

No geoethics education is required…

- in most undergraduate geo degree programs
- in ASBOG model law or rules & regs

Fair and useful questions are difficult to write (if they can be written at all)

Suggestions for finding solutions

Don’t reinvent the wheel

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Don’t reinvent the wheel

Work within the community of licensed professional geoscientists, geoscience educators, and state board members to establish goals and identify the most important ethical concerns

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Work within the community of licensed professional geoscientists, geoscience educators, and state board members to establish goals and identify the most important ethical concerns

Collaborate on creation of a list of concerns

Suggestions for finding solutions

Build open-access educational resources around the list of ethical concerns

Suggestions for finding solutions

Build open-access educational resources around the list of ethical concerns

- Primacy principles

Suggestions for finding solutions

Build open-access educational resources around the list of ethical concerns

- Primacy principles
- Definitions

Suggestions for finding solutions

Build open-access educational resources around the list of ethical concerns

- Primacy principles
- Definitions
- Examples with explanations

Suggestions for finding solutions

Build open-access educational resources around the list of ethical concerns

- Primacy principles
- Definitions
- Examples with explanations

Develop exam questions that assess candidate knowledge of the listed issues

One final case history…

after William A. Bryant, CGS retired

https://CroninProjects.org/AEG-Geoethics/

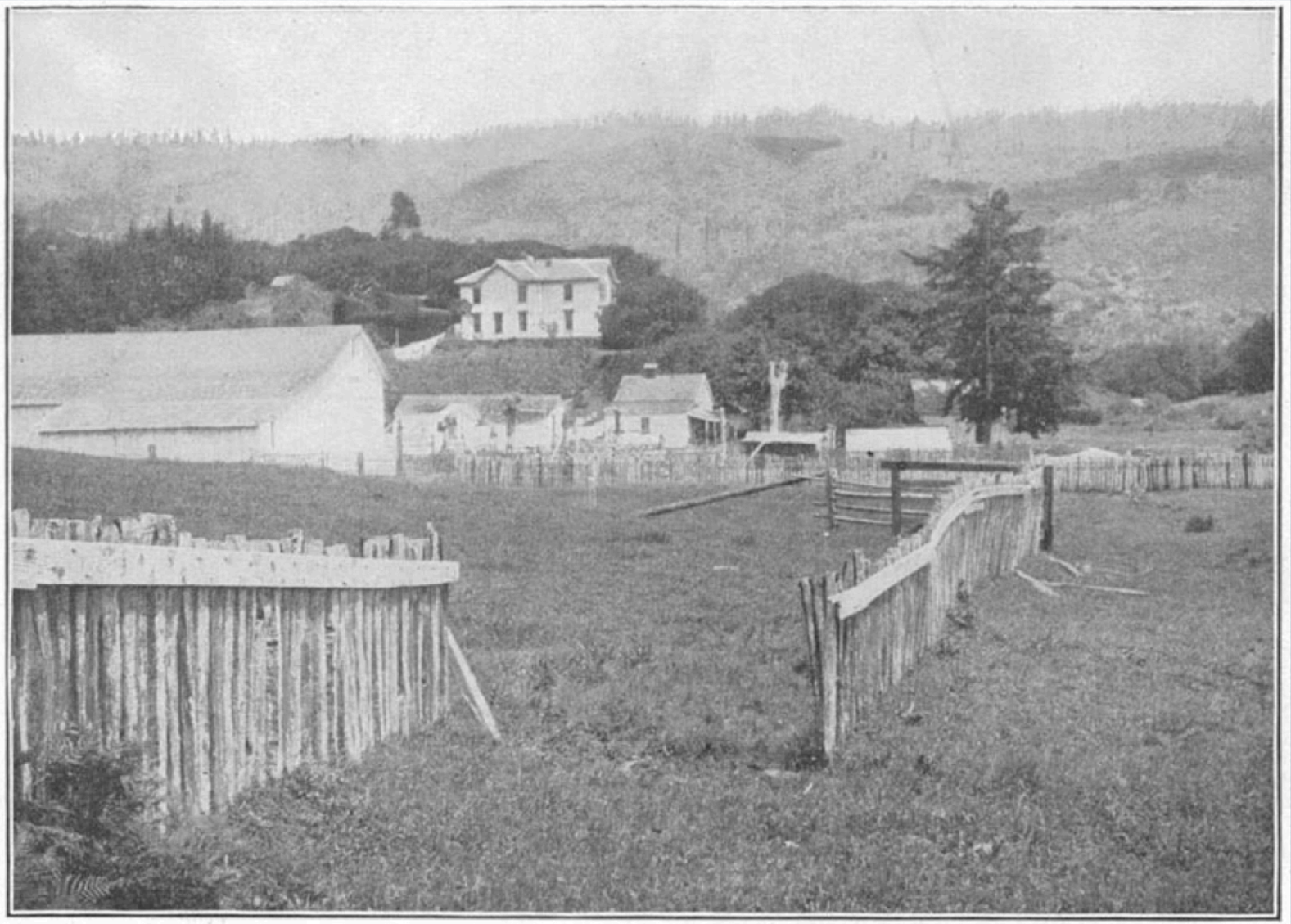
“I consider all faults to be inactive unless the State officially designates the fault as being active.”

Anonymous

New Construction Within the San Andreas Fault Zone, Pacifica, California

Google Earth image


Google Earth image
July, 1993



B. FENCE PARTED BY EARTHQUAKE FAULT.

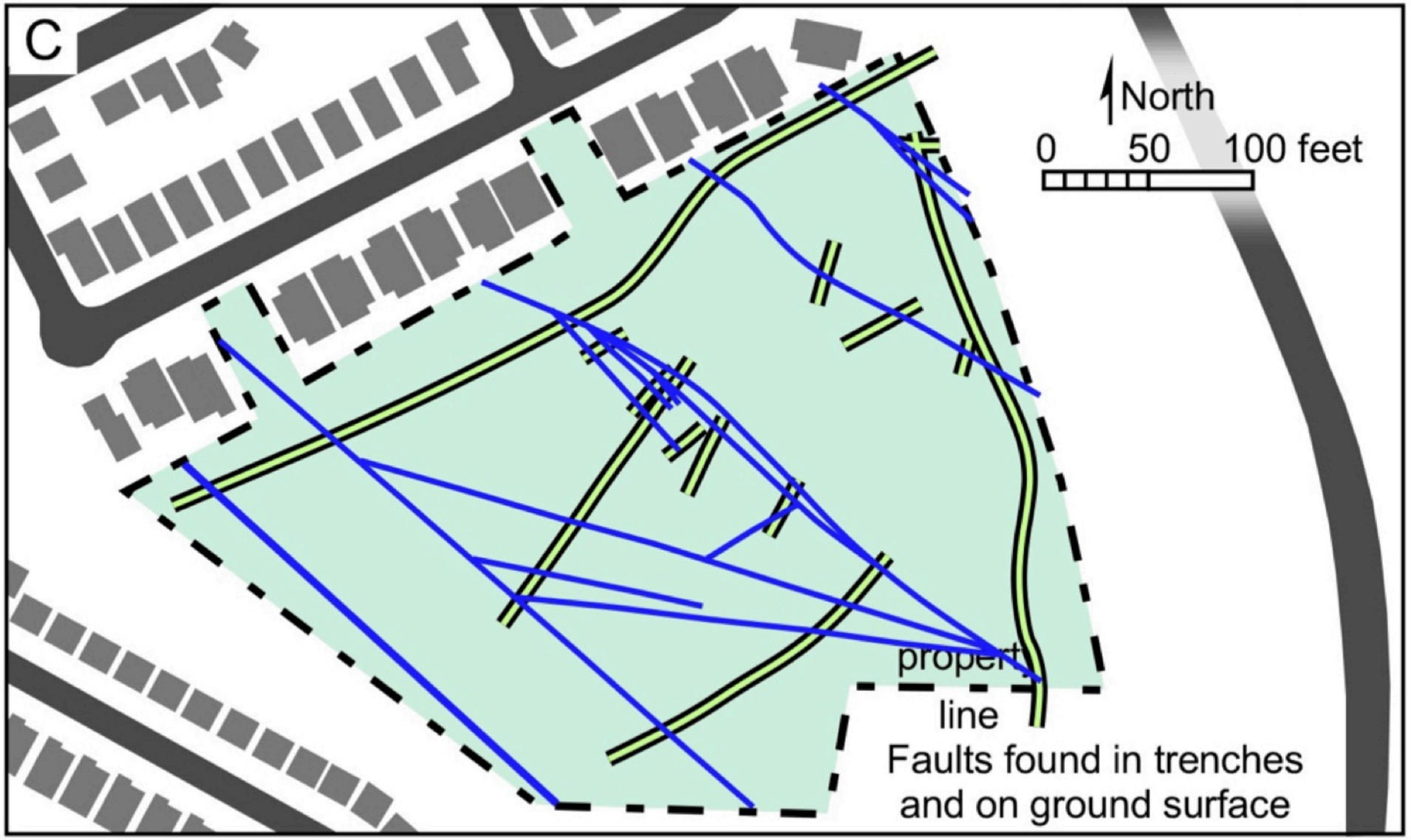
The fault trace or fracture accompanying the earthquake is inconspicuous, although the horizontal displacement is considerable. Photograph by G. K. Gilbert.

1906 San Francisco earthquake

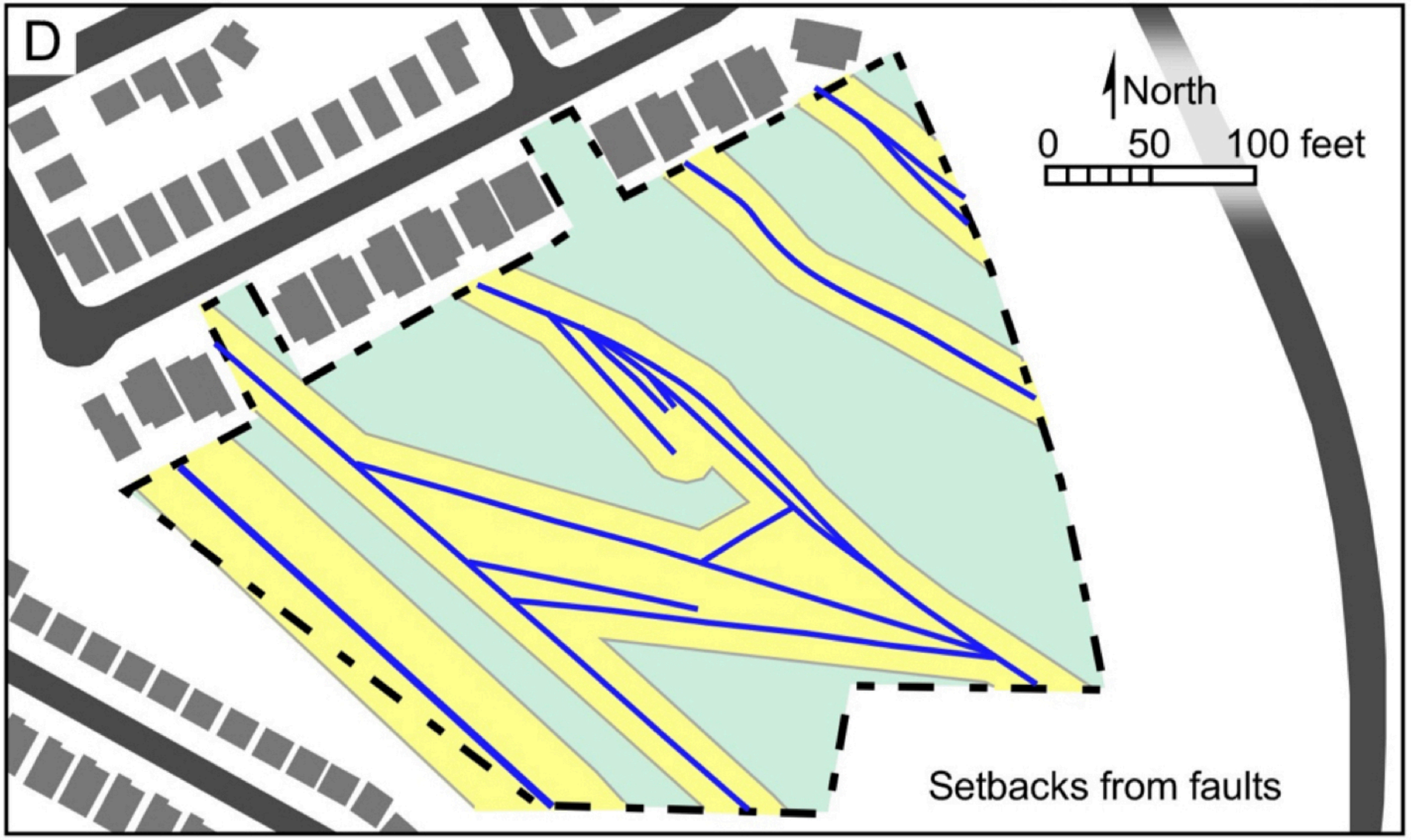
M 7.8, ~3,000 deaths

~$10.5 billion estimated damage (2015 $)

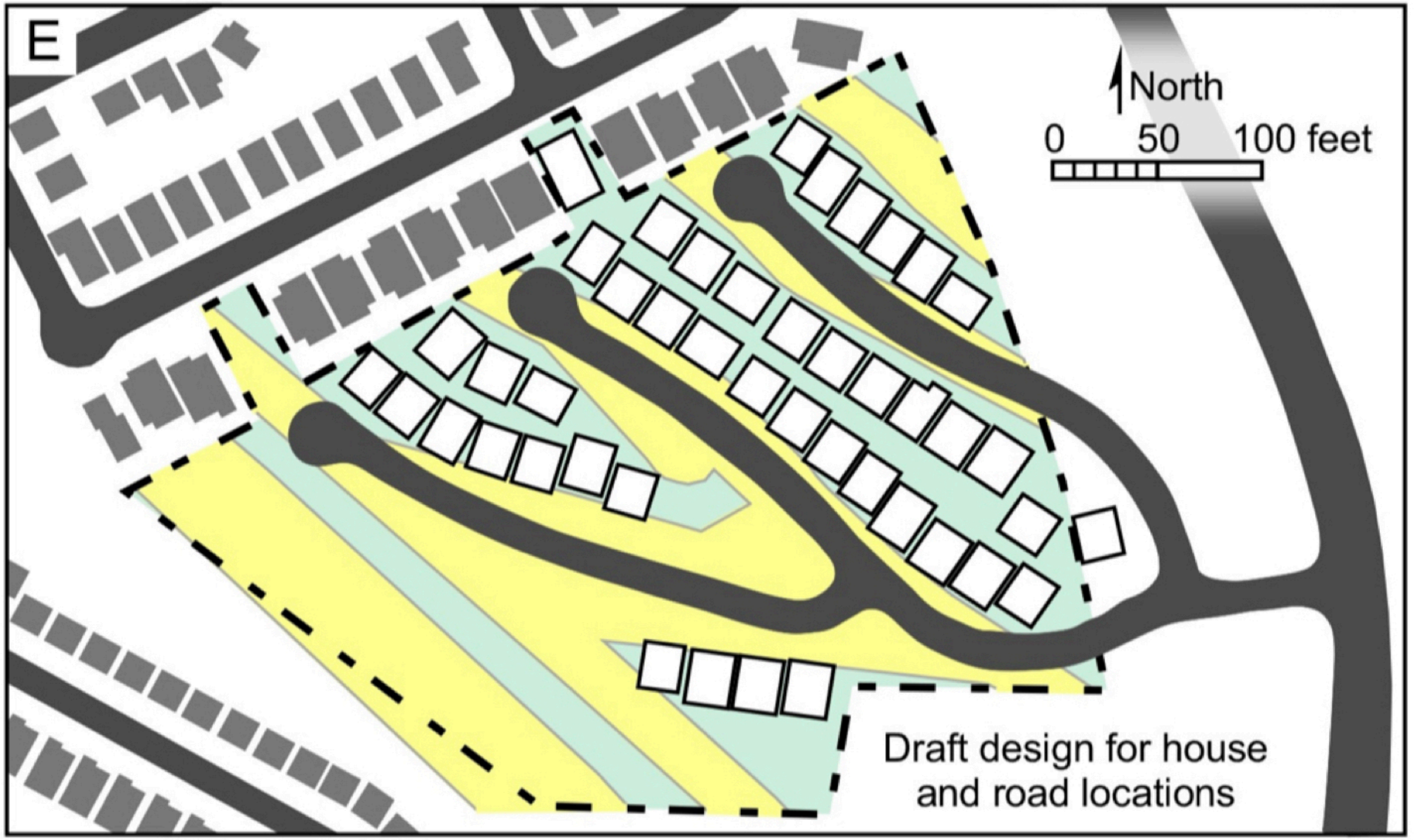
~12 feet of right-lateral offset near the development site



after W.A. Bryant



after W.A. Bryant



after W.A. Bryant

Other M 7.8 Earthquakes for Comparison

2023 Turkey-Syria earthquake

M 7.8, ~62,000 deaths

~$164 billion estimated damage

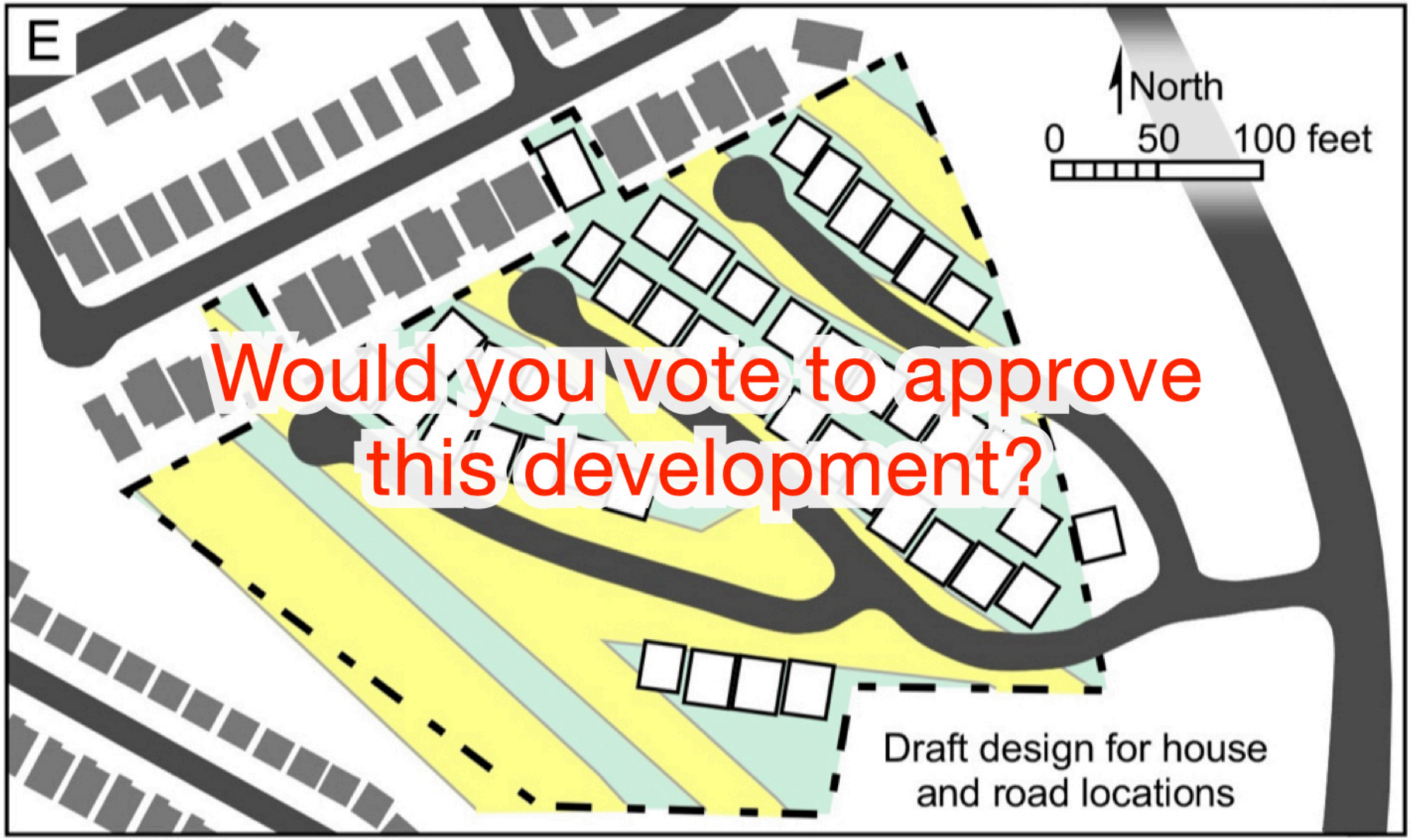
Other M 7.8 Earthquakes for Comparison

Bhaktapur, Nepal, 2015

2015 Gorka, Nepal earthquake

M 7.8, ~9,000 deaths

~$5 billion estimated damage



after W.A. Bryant


Google Earth image
March, 2015

“It’s a good thing we mapped the San Andreas fault when we did. They’ve built too many houses on top of it to map the fault zone now.”

Cliff Gray, CDMG

Slosson's Law

Practice will drop to the lowest level permitted by the administration and enforcement of applicable law.

Slosson's Law

Practice will drop to the lowest level permitted by the administration and enforcement of applicable law.

(We can do better.)

The ultimate client of any licensed professional geoscientist is society

Business decisions do not outweigh our professional obligation to protect the public.

If we do not act as responsible scientists in the public interest, the contributions of engineering geologists will not be sought or valued by society.

After Slosson et al. (1991)

Sign over a door at Rudder Center, Texas A&M University. Photo by Vince Cronin.

Some Ethics Resources

- ***United Nations Universal Declaration of Human Rights*** (1948),
  - UDHR homepage: https://www.un.org/en/about-us/universal-declaration-of-human-rights
  - Text of the declaration (PDF): https://www.un.org/sites/un2.un.org/files/2021/03/udhr.pdf
- ***United Nations Sustainable Development***
  - SD homepage: https://sdgs.un.org
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  Working definitions of "sustainable development"...