

**Paper Reference 4GE1/01R**  
**Pearson Edexcel IGCSE (9–1)**

# **Geography**

## **Paper 1: Physical Geography**

**Tuesday 21 May 2019 – Afternoon**

# **Resource Book**

**Do not return this Resource Book with the Question Paper.**

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For some Figures there is a modified colour and modified black and white diagram. You may use whichever version is easier for you to view. Some diagrams are only in modified colour but you are then provided with a description of the diagram.

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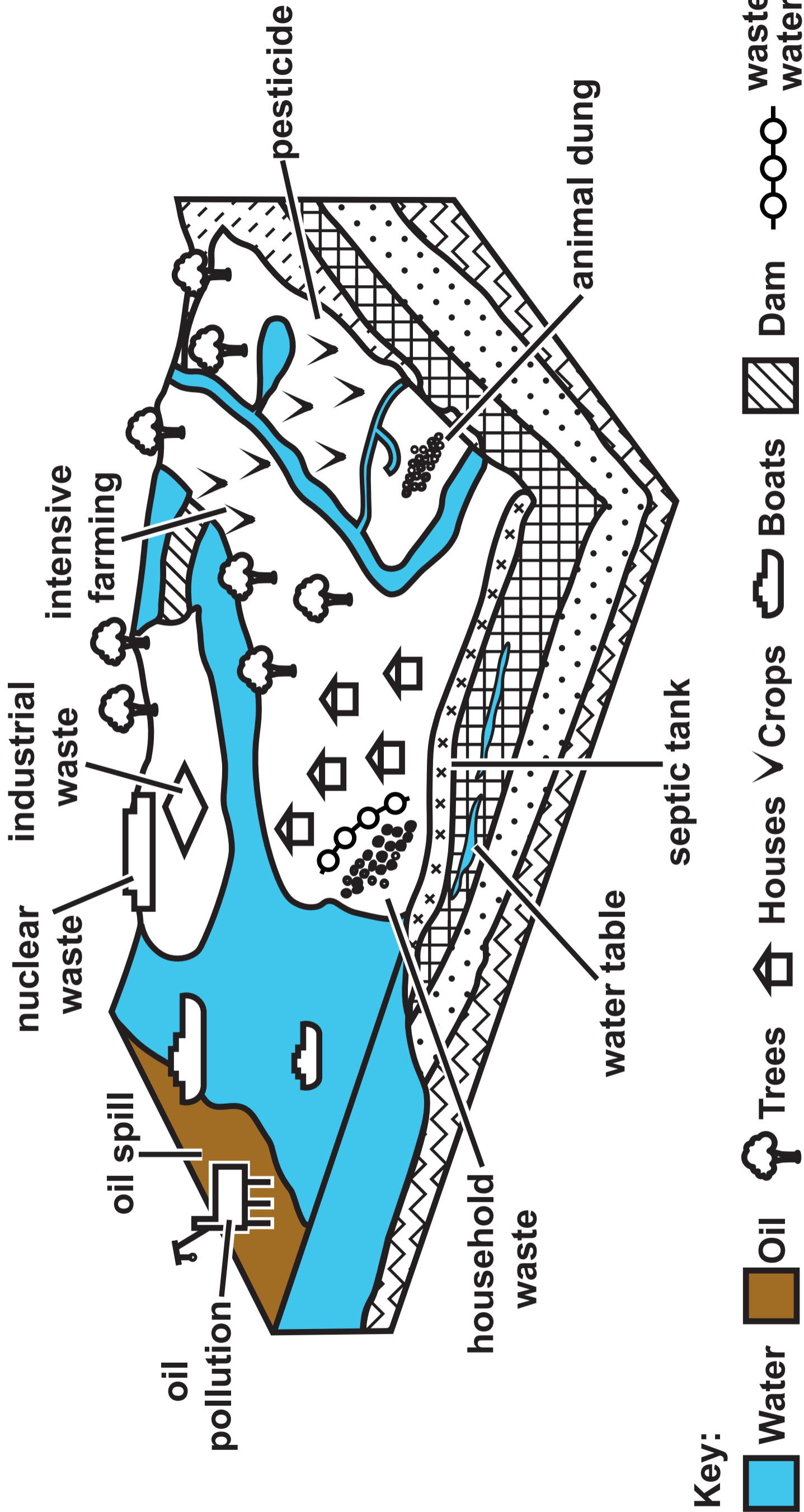
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Figure 1a 3D View – Colour

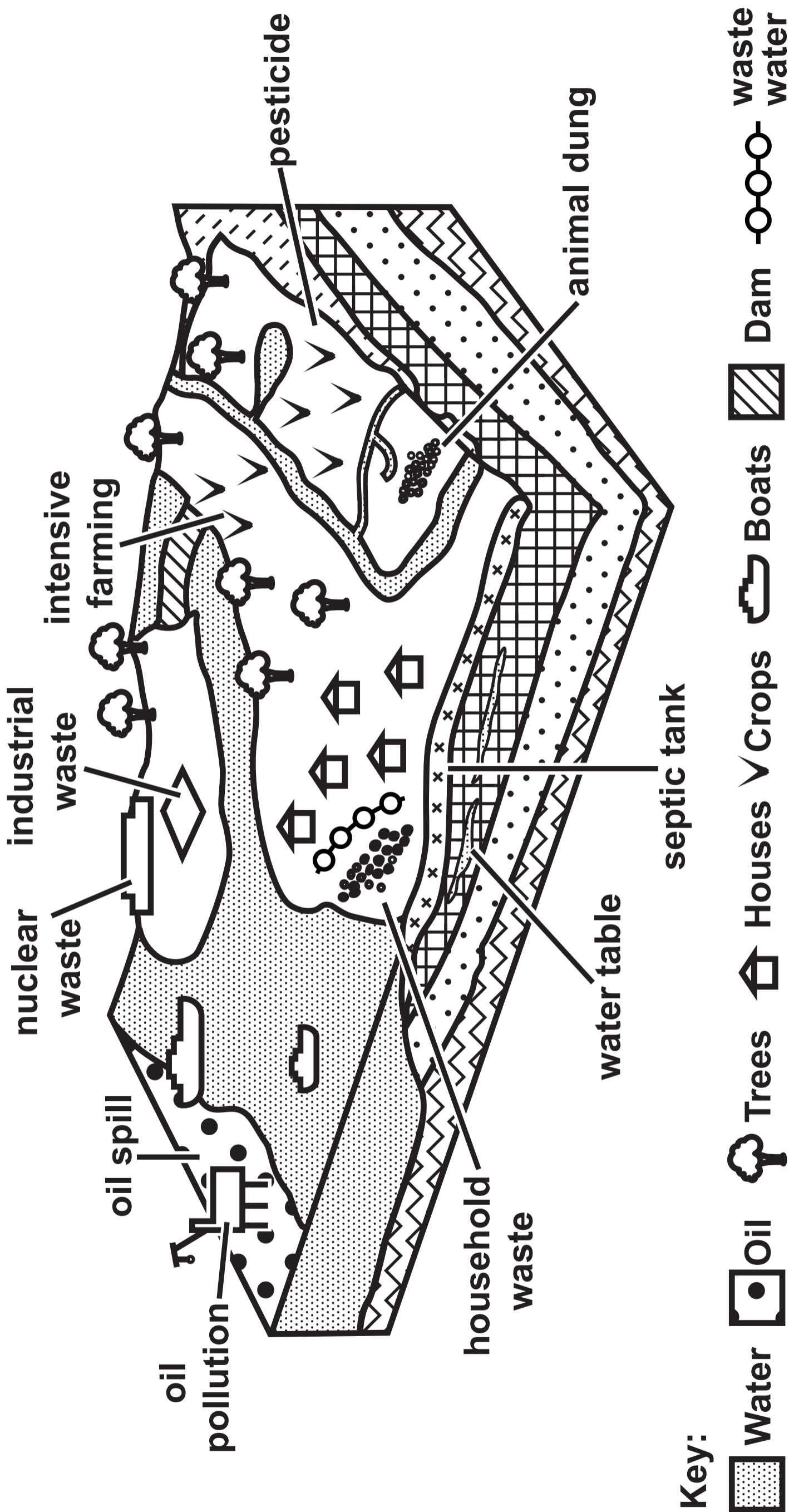
Factors influencing water quality



(Source adapted from: Reproduced with the permission of QA International, [www.ikonet.com](http://www.ikonet.com) from the book “The Visual Dictionary”. © QA International, 2003. All rights reserved.)

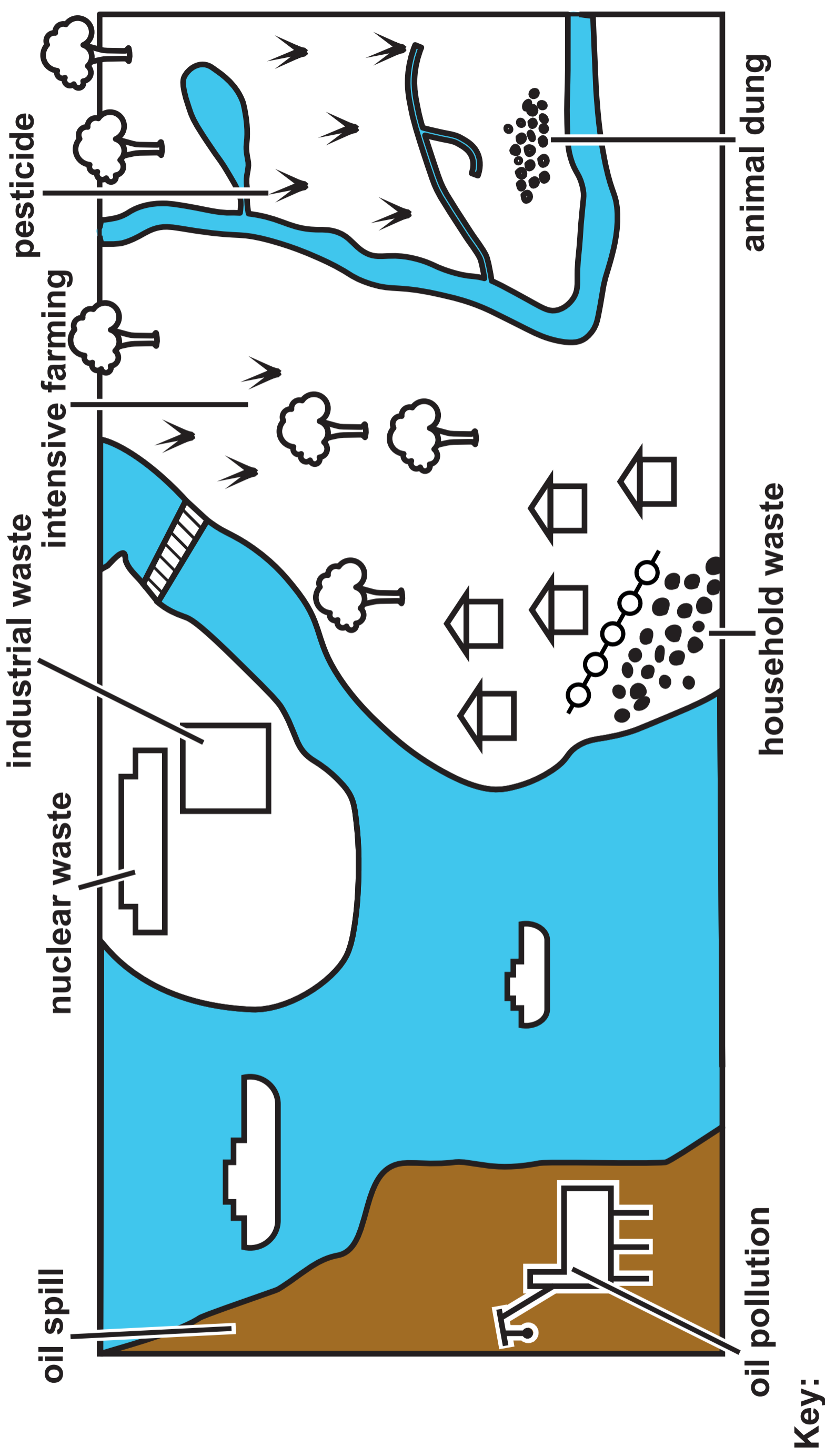
Figure 1a 3D View – Black and White

Factors influencing water quality



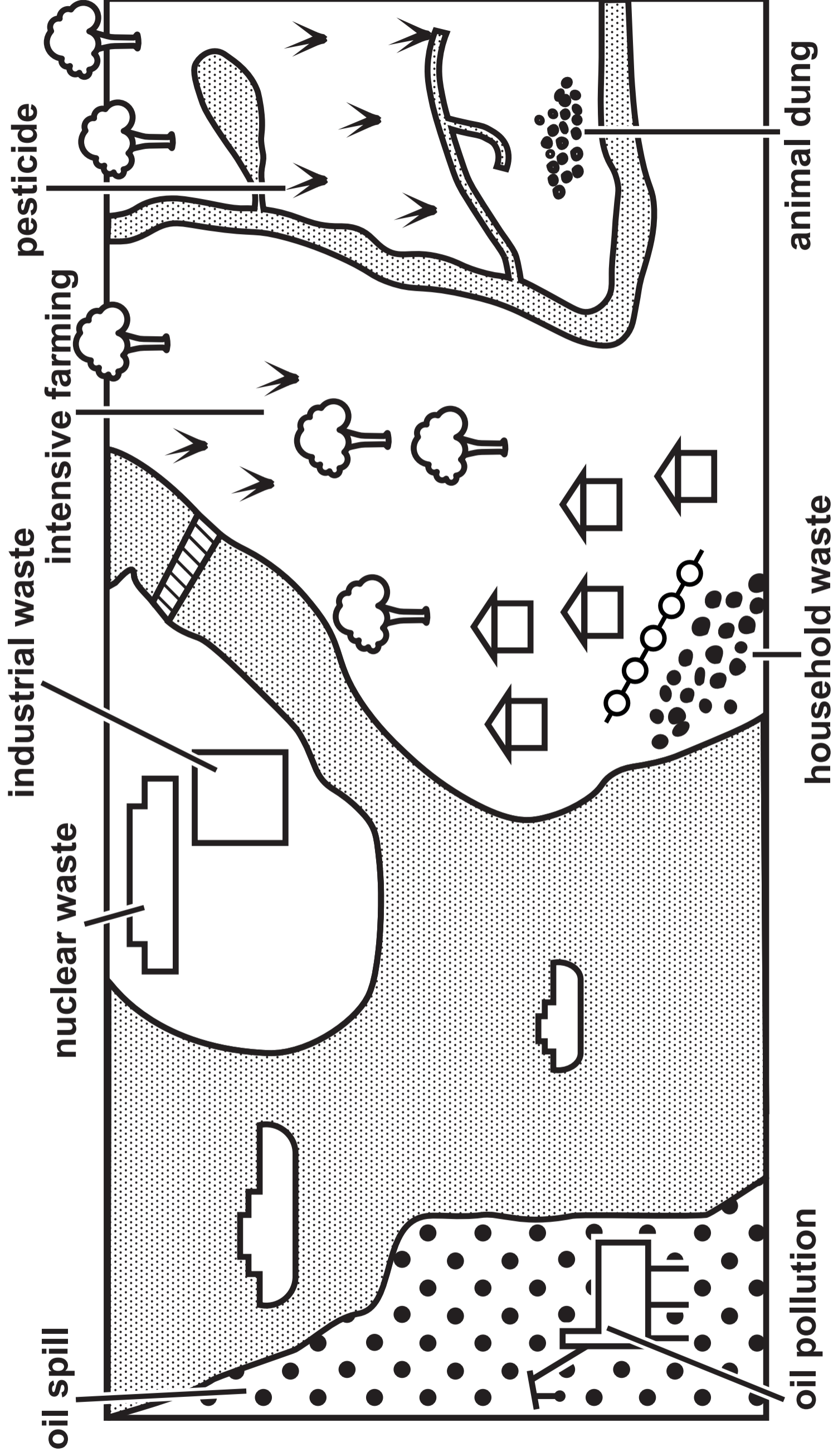
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Figure 1a Top View – Colour  
Factors influencing water quality



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**Figure 1a Top View – Black and White**  
**Factors influencing water quality**

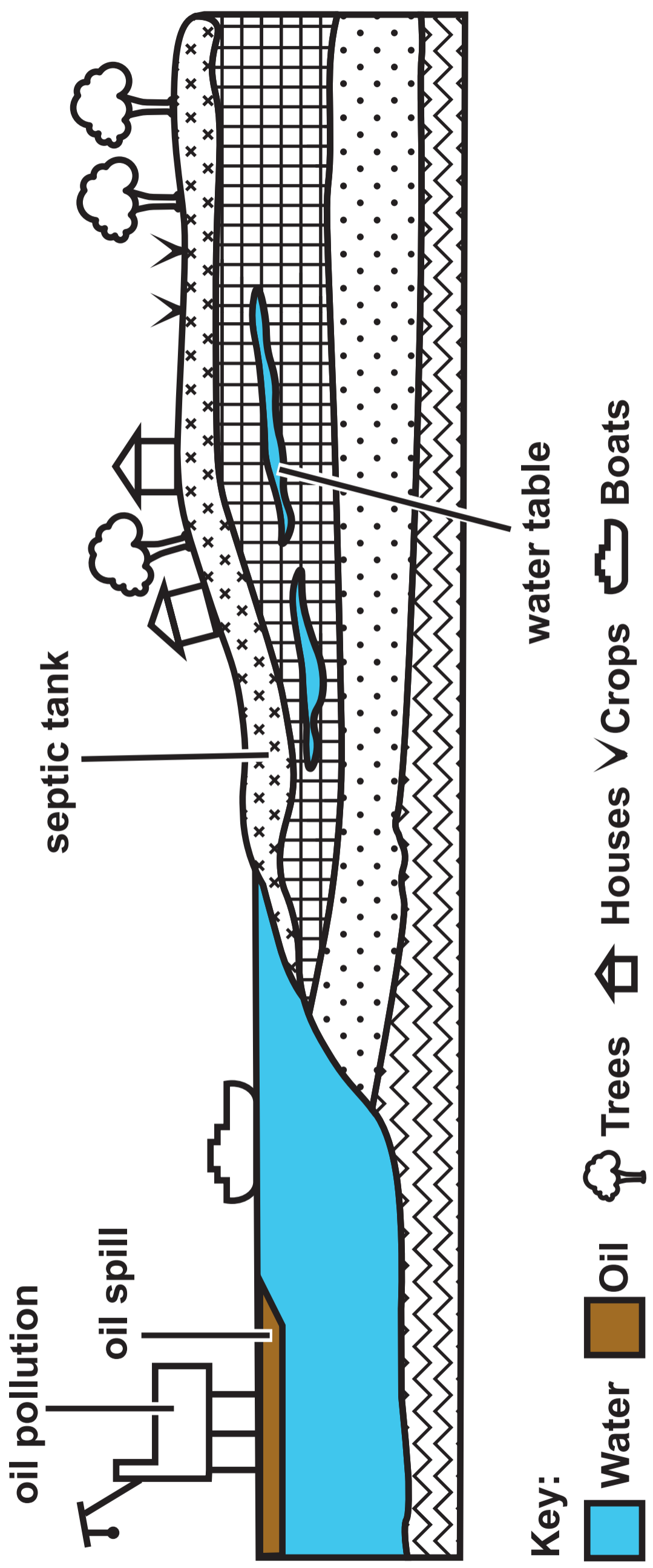


Key:

Water  
 Oil  
 Trees  
 Houses  
 Crops  
 Boats  
 Dam  
 waste  
 water

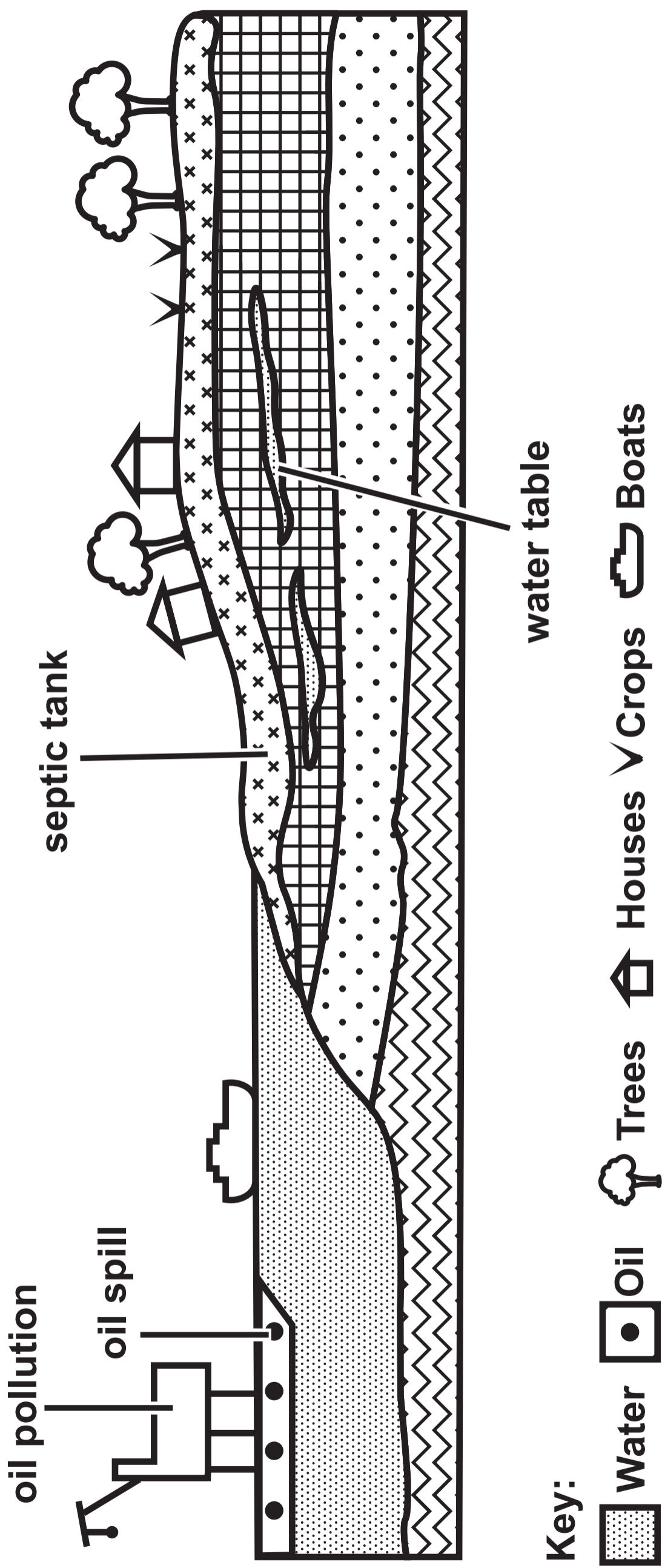
(Source adapted from: Reproduced with the permission of QA International, [www.ikonet.com](http://www.ikonet.com) from the book “The Visual Dictionary”. © QA International, 2003. All rights reserved.)

Figure 1a Side View – Colour  
Factors influencing water quality



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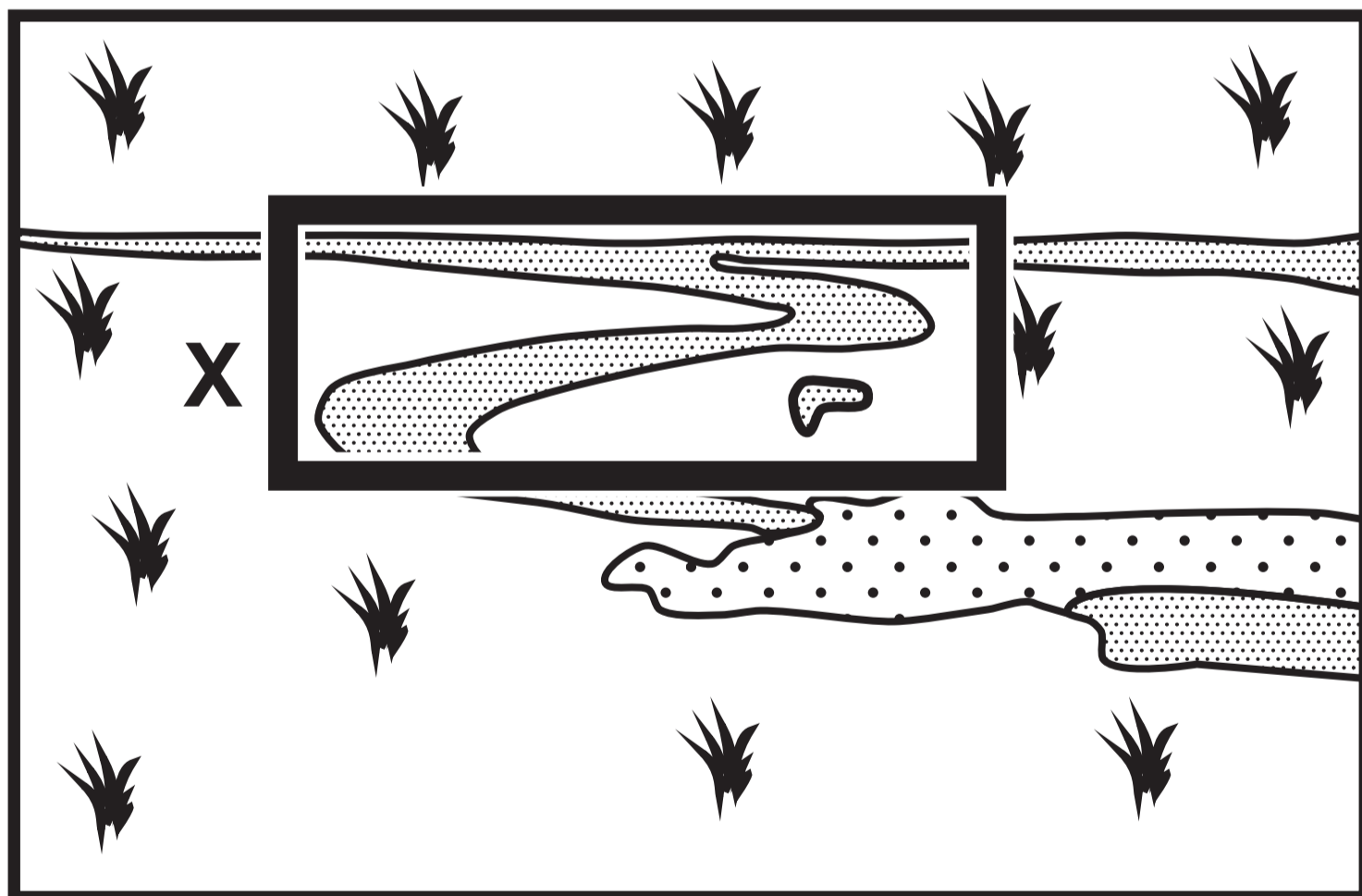
Figure 1a Side View – Black and White  
Factors influencing water quality



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Figure 1b

# A fluvial landscape in southwest Iceland



Key:

. . Rock face  
   Water  
  Grass

(Source: © David Holmes)

Figure 1c – Colour  
Levels of river flood risk across the USA in 2016

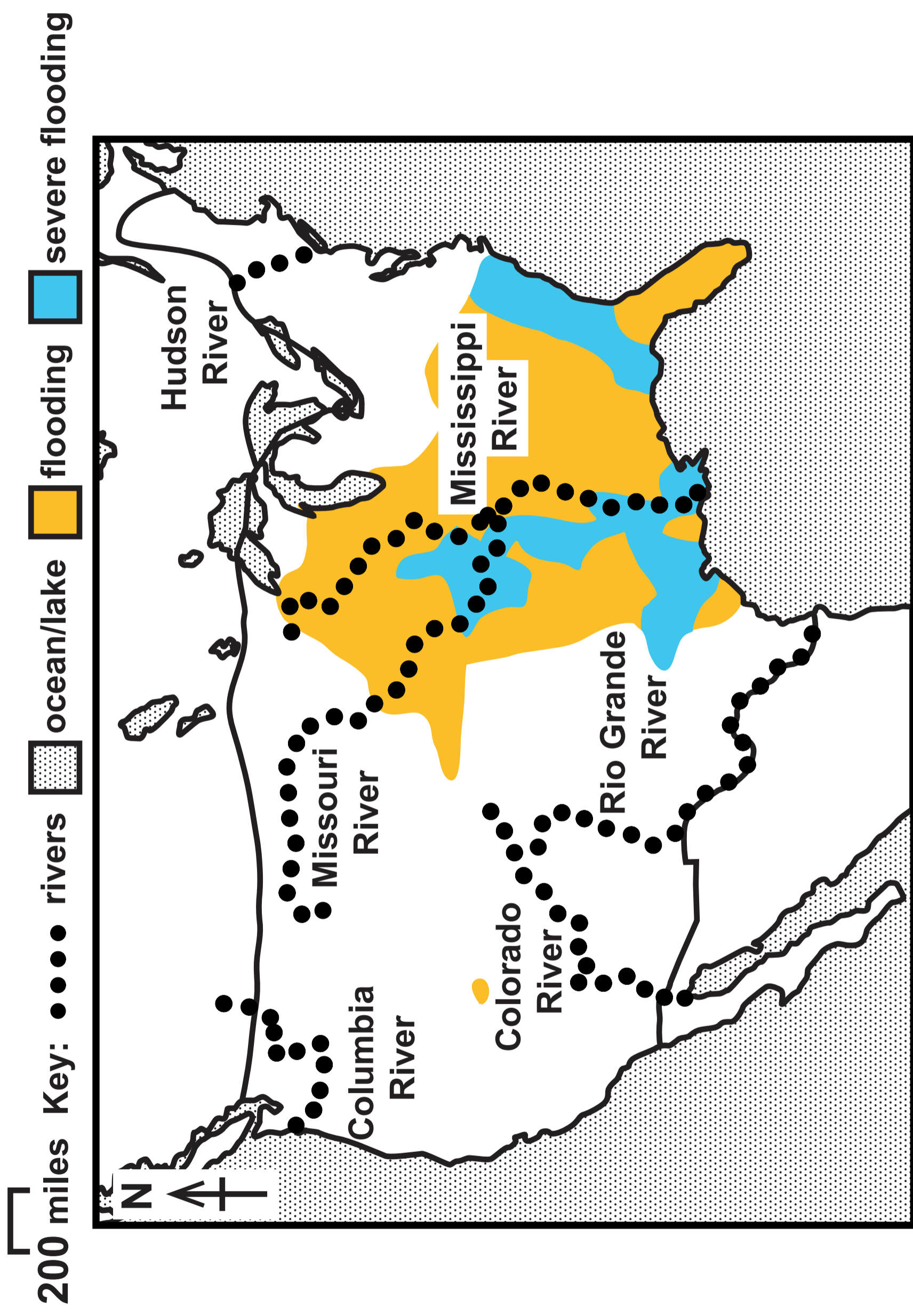
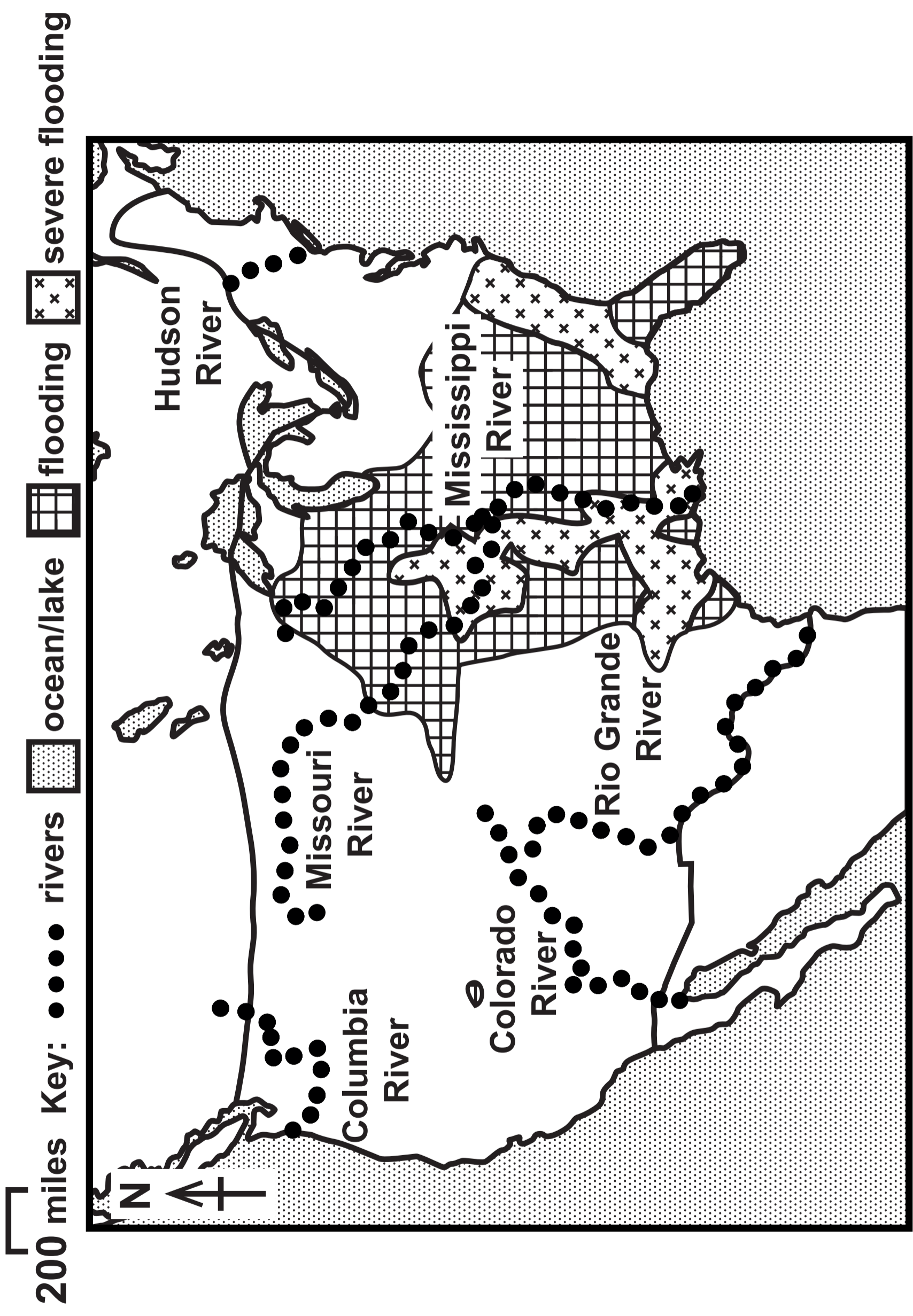
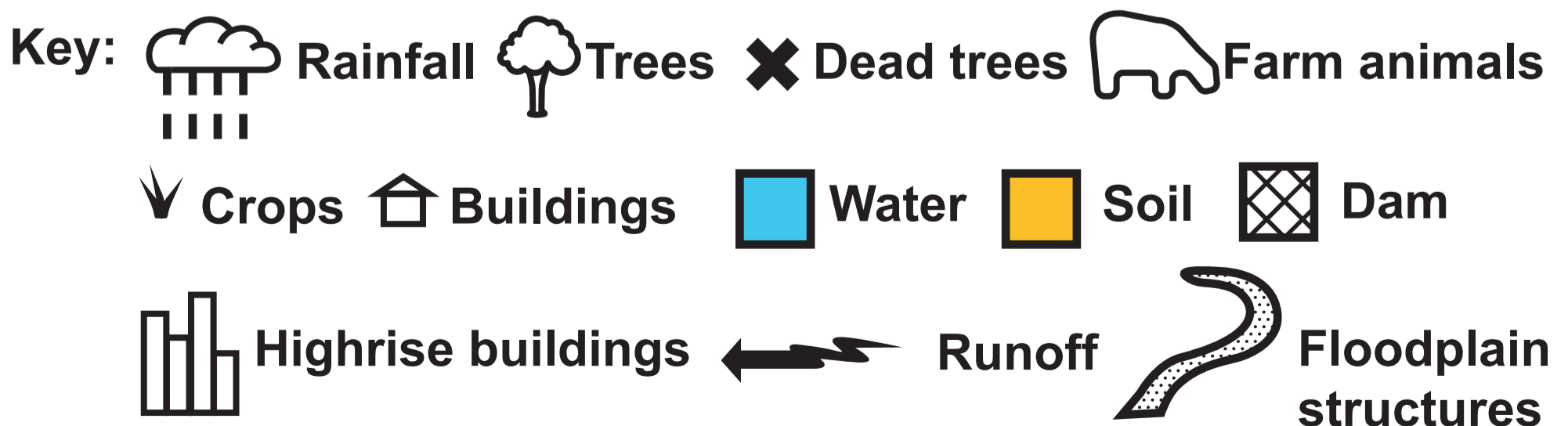
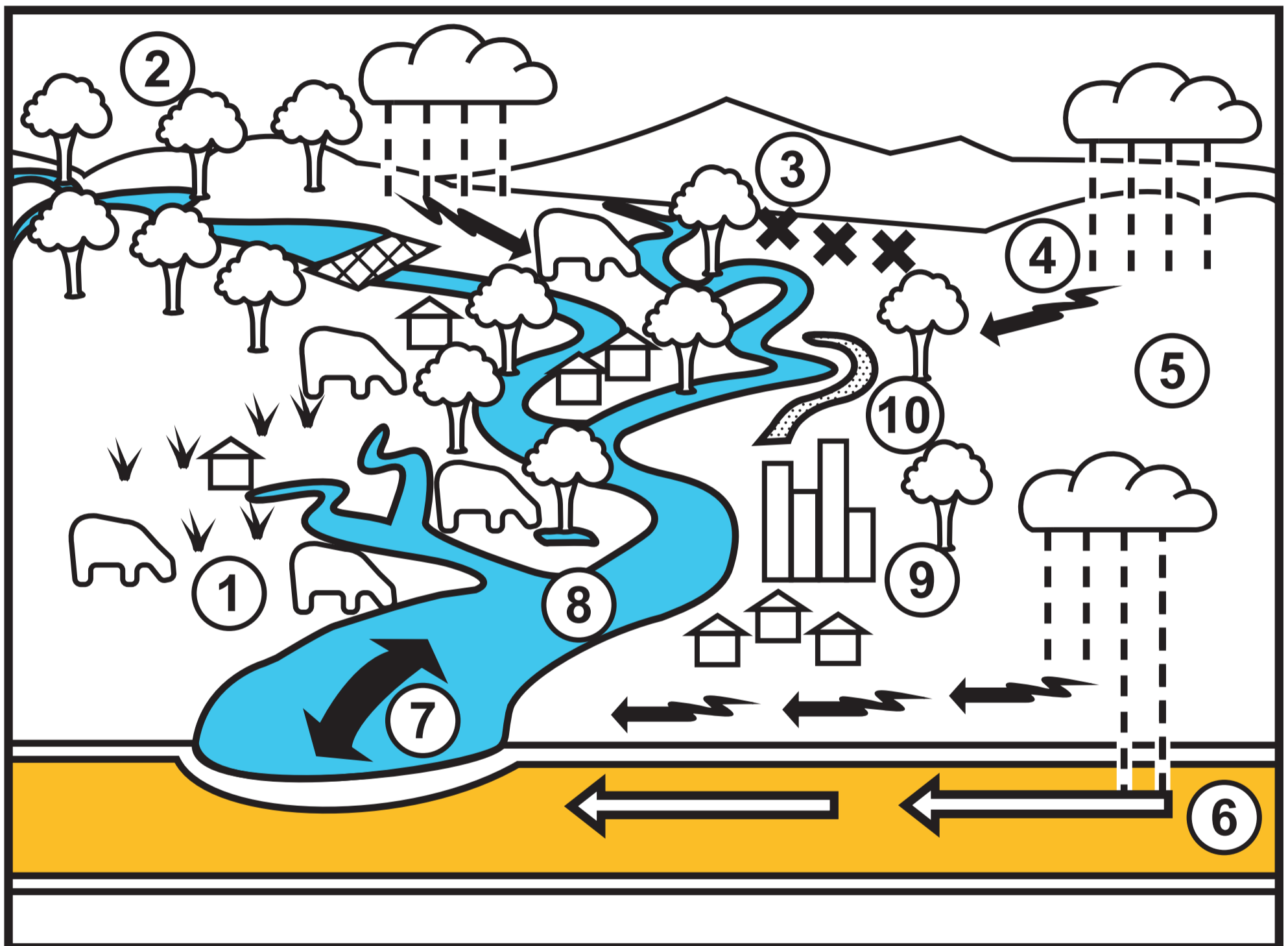


Figure 1c – Black and White  
Levels of river flood risk across the USA in 2016



**Figure 1d – Colour  
Factors affecting river flooding**

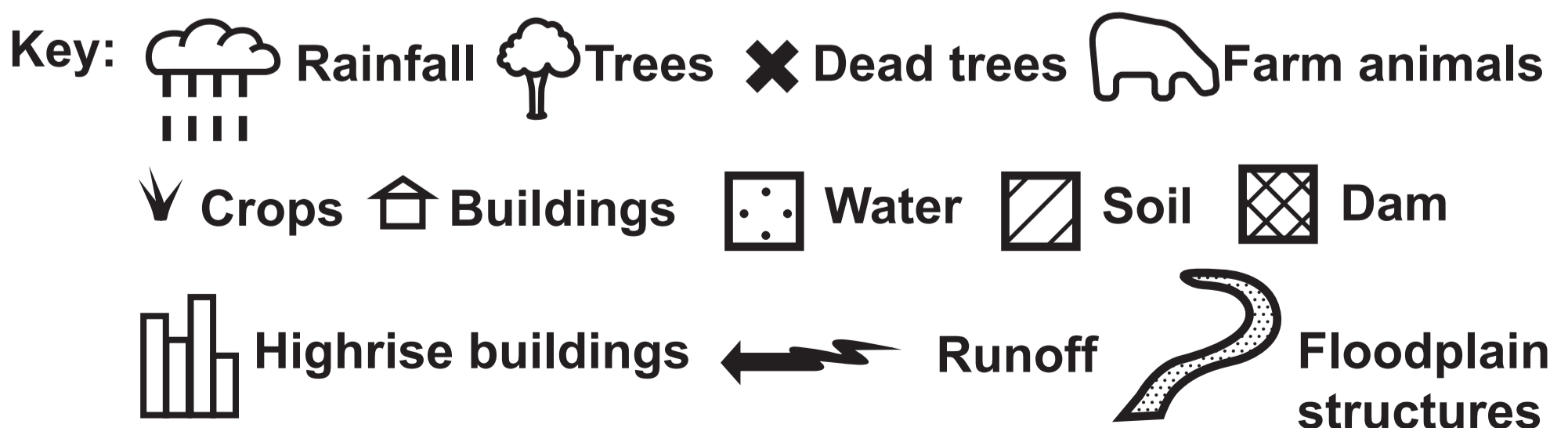
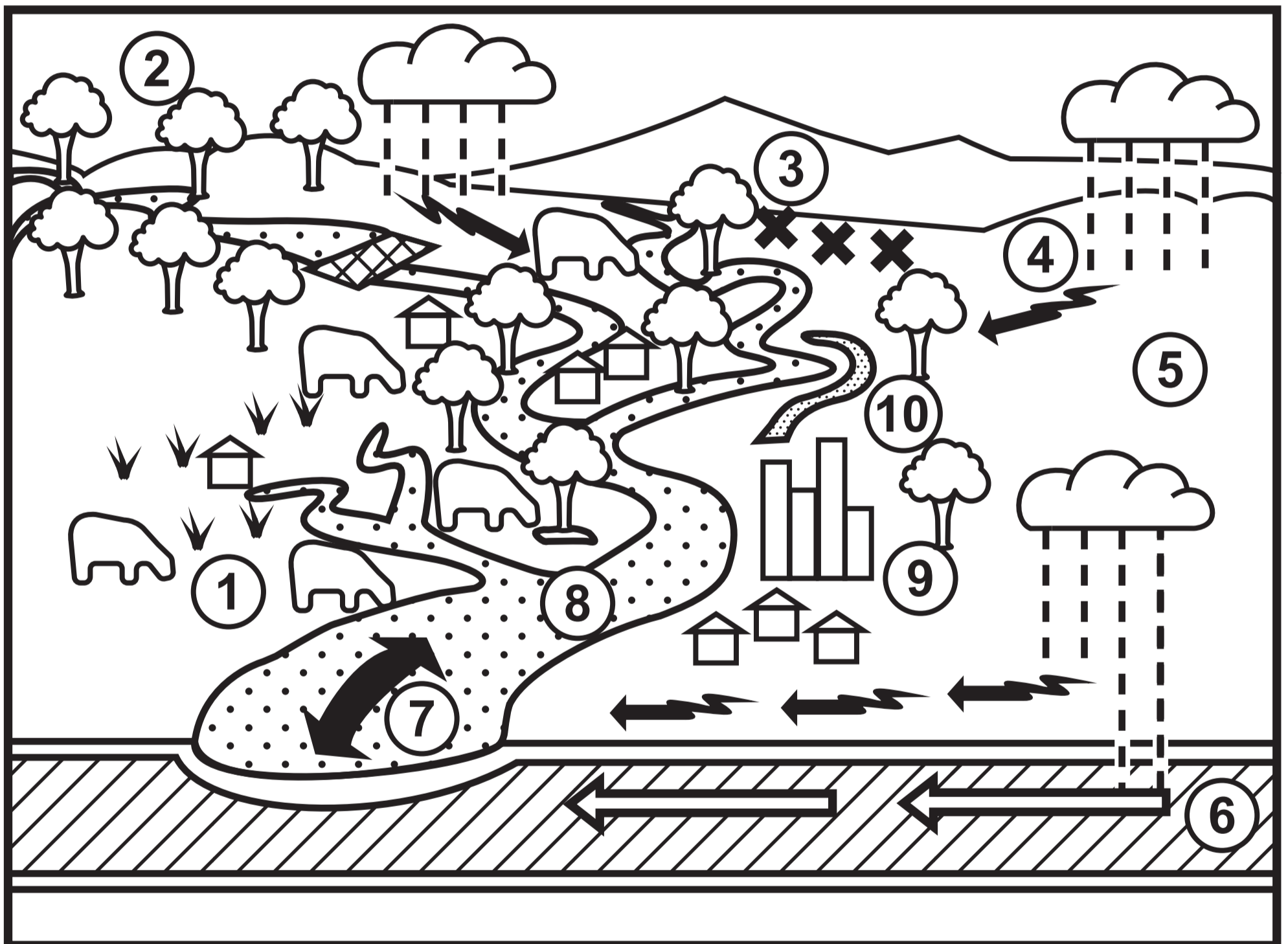
- |                         |                             |
|-------------------------|-----------------------------|
| 1. Land use             | 6. Soil moisture conditions |
| 2. Catchment vegetation | 7. Tidal/storm surges       |
| 3. Catchment area       | 8. Waterway size            |
| 4. Slope                | 9. Urbanisation             |
| 5. Soil types           | 10. Floodplain structures   |



(Source adapted from: © The State of Queensland 2018)

**Figure 1d – Black and White  
Factors affecting river flooding**

- |                         |                             |
|-------------------------|-----------------------------|
| 1. Land use             | 6. Soil moisture conditions |
| 2. Catchment vegetation | 7. Tidal/storm surges       |
| 3. Catchment area       | 8. Waterway size            |
| 4. Slope                | 9. Urbanisation             |
| 5. Soil types           | 10. Floodplain structures   |



(Source adapted from: © The State of Queensland 2018)

Figure 2a

An example of a coastal landscape

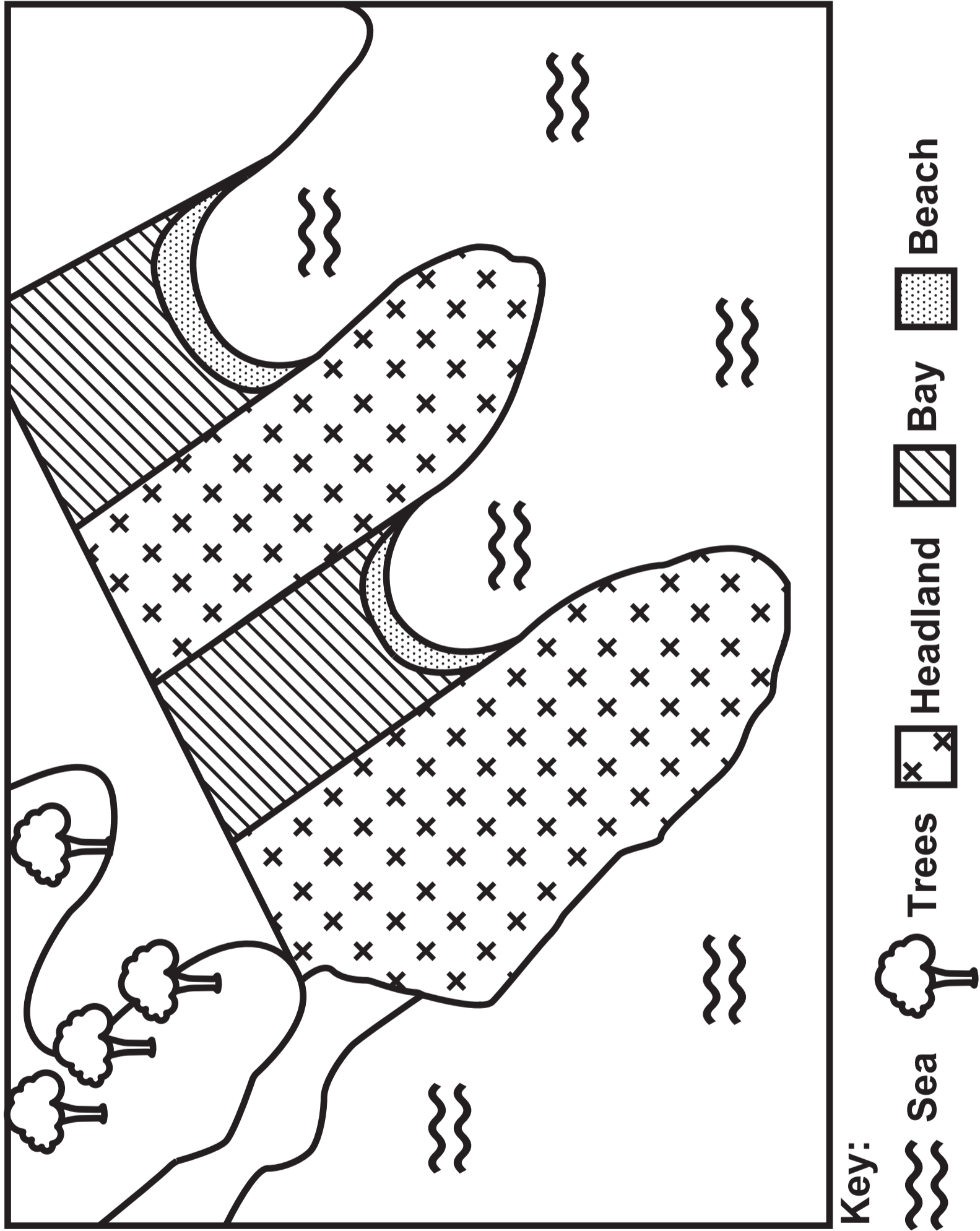
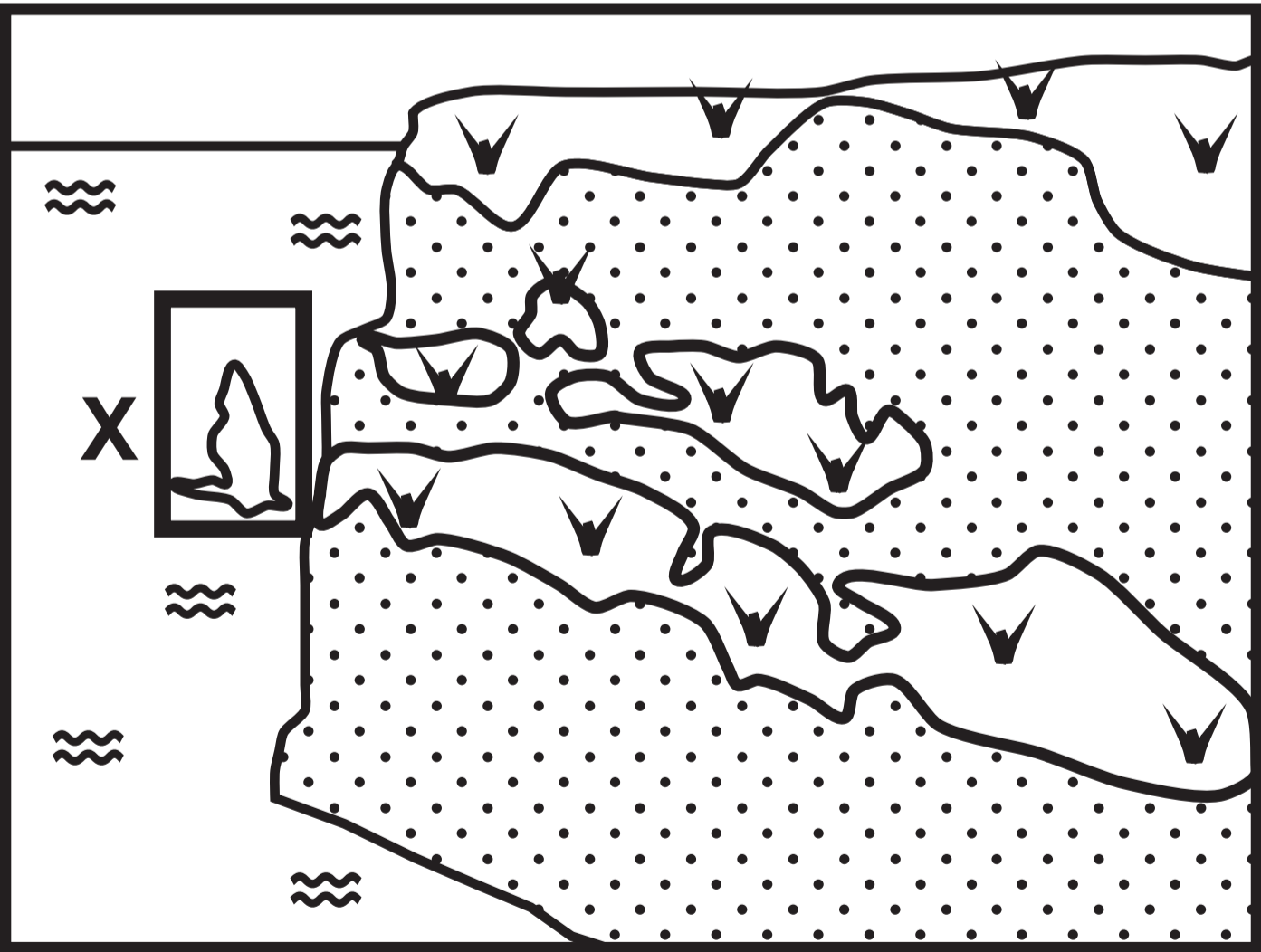


Figure 2b

A coastal landscape in the Republic of Ireland



Key:



Coastal landform

Sea



Cliff face

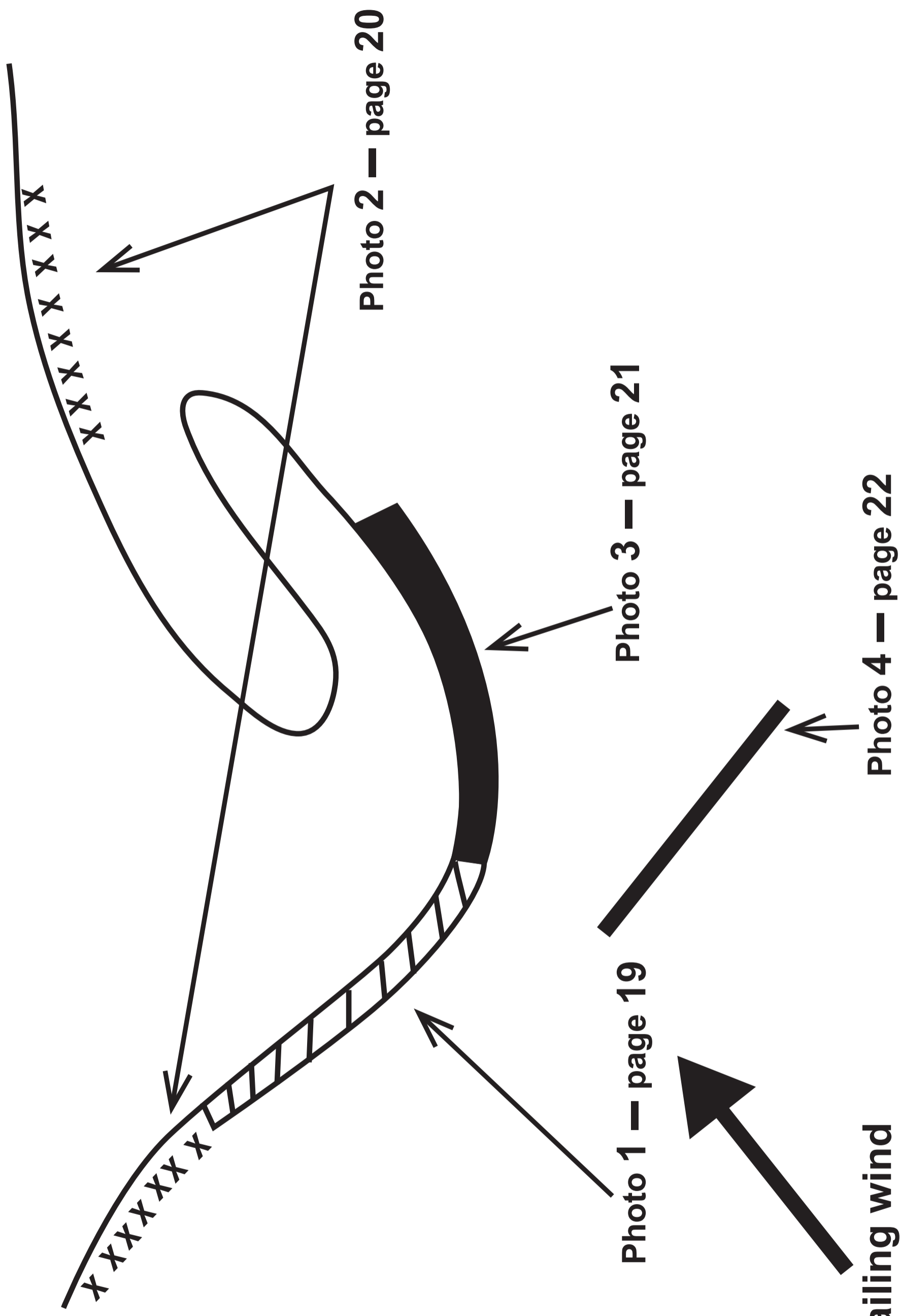


Vegetation

(Source: © David Holmes)

Figure 2c

Different approaches to shoreline management along a stretch of coastline



## Figure 2d – Part 1

### Photographic evidence of beach management techniques referred to in Figure 2c

#### **Photo 1 – Page 19**

**Rock Armour.**

**Medium maintenance cost.**

**High cost per metre, £1,350 – £6,000**

#### **Photo 2 – Page 20**

**Beach Groynes:**

**Medium maintenance cost.**

**High cost per metre, £1,600 – £4,700**

#### **Photo 3 – Page 21**

**Sea Wall.**

**Low maintenance cost.**

**High cost per metre, £700 – £5,400**

#### **Photo 4 – Page 22**

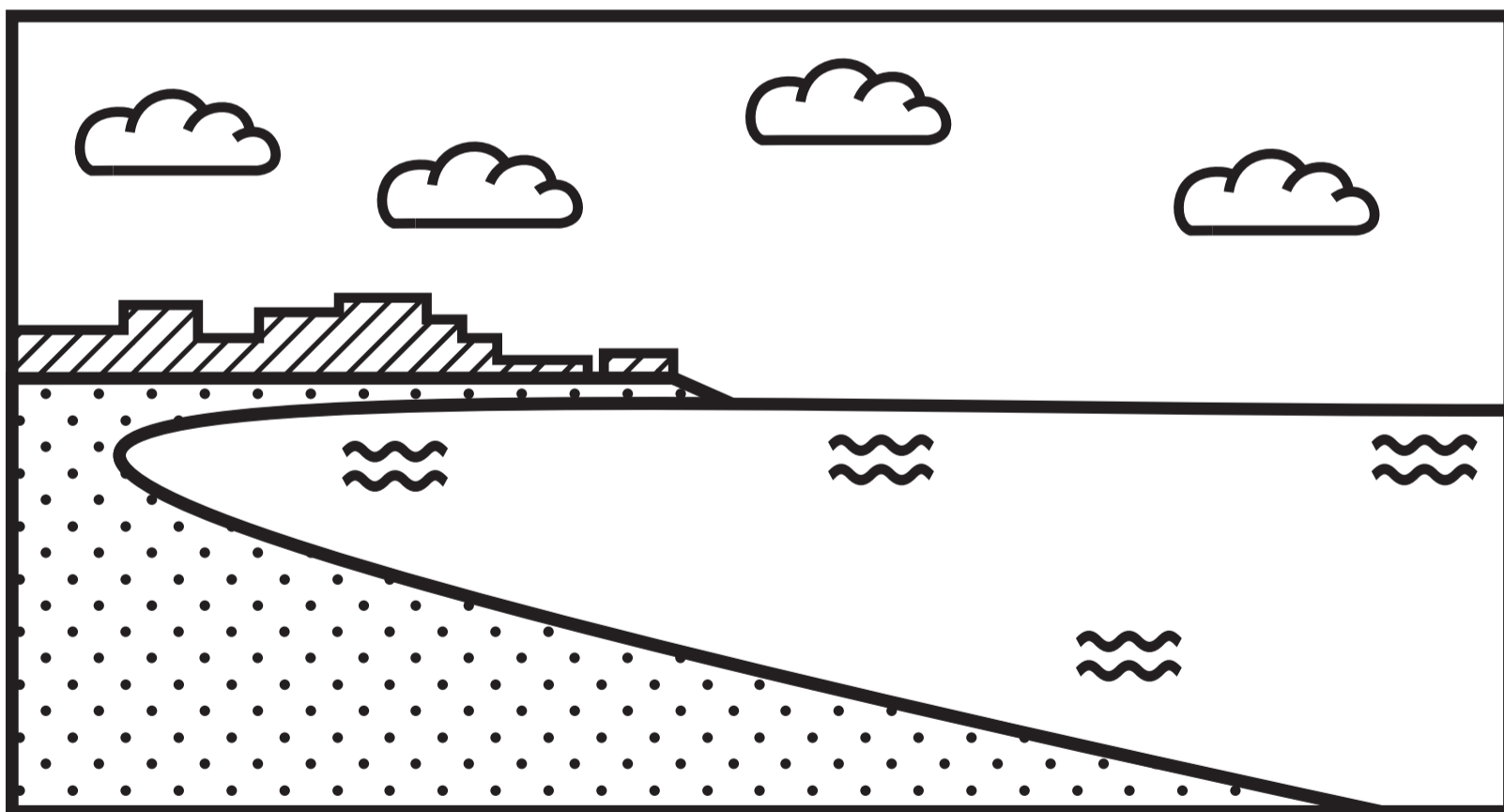
**Offshore Breakwater.**

**Medium maintenance cost.**

**High cost per metre, £2,500 – £7,000**

## Figure 2d – Part 2

### Photo 1 – Rock Armour



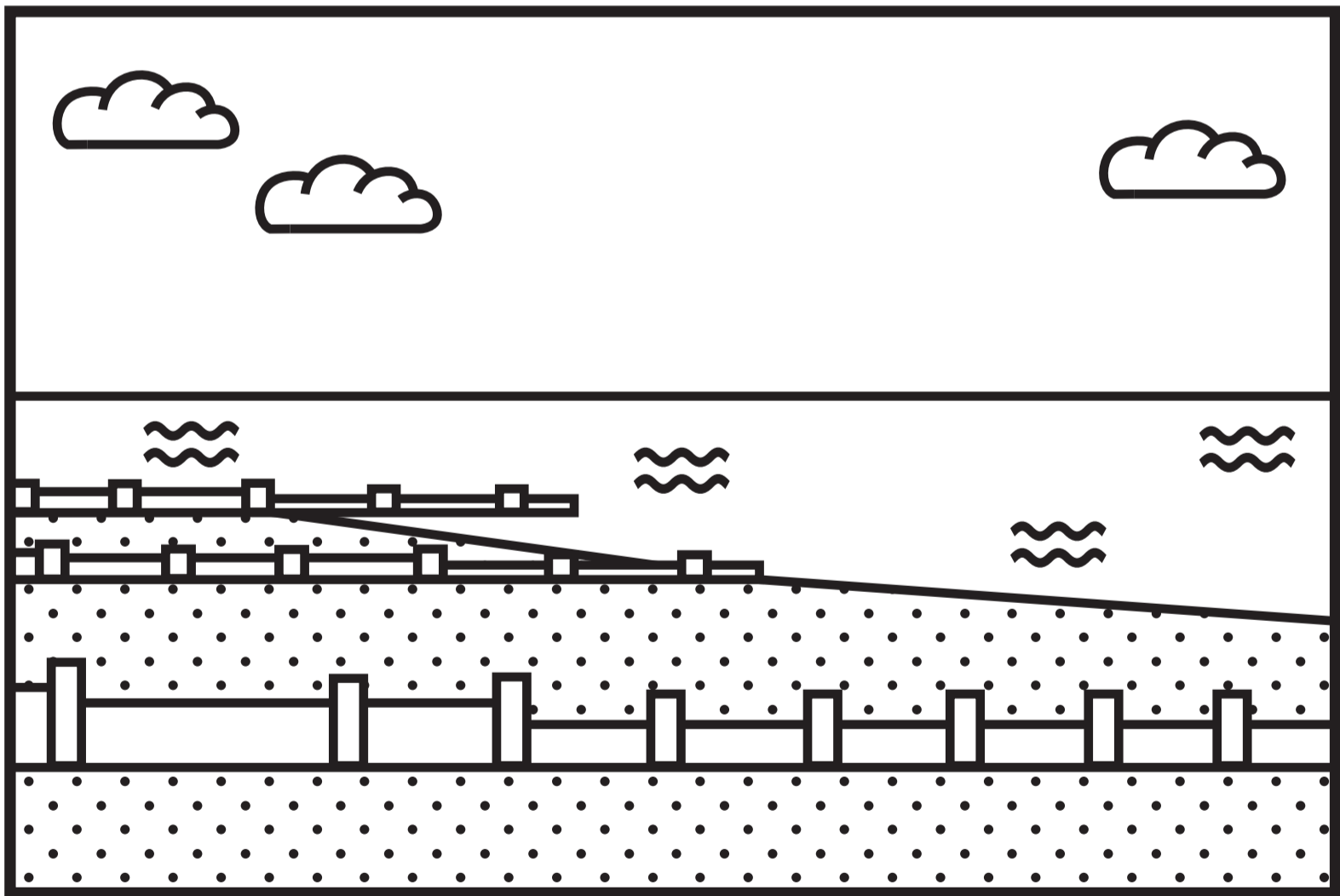
Key:

Sea    Rocks    Buildings    Clouds

(Source: Photo 1: © Mark Godden/Shutterstock)

Figure 2d – Part 3

Photo 2 – Beach Groynes



Key:

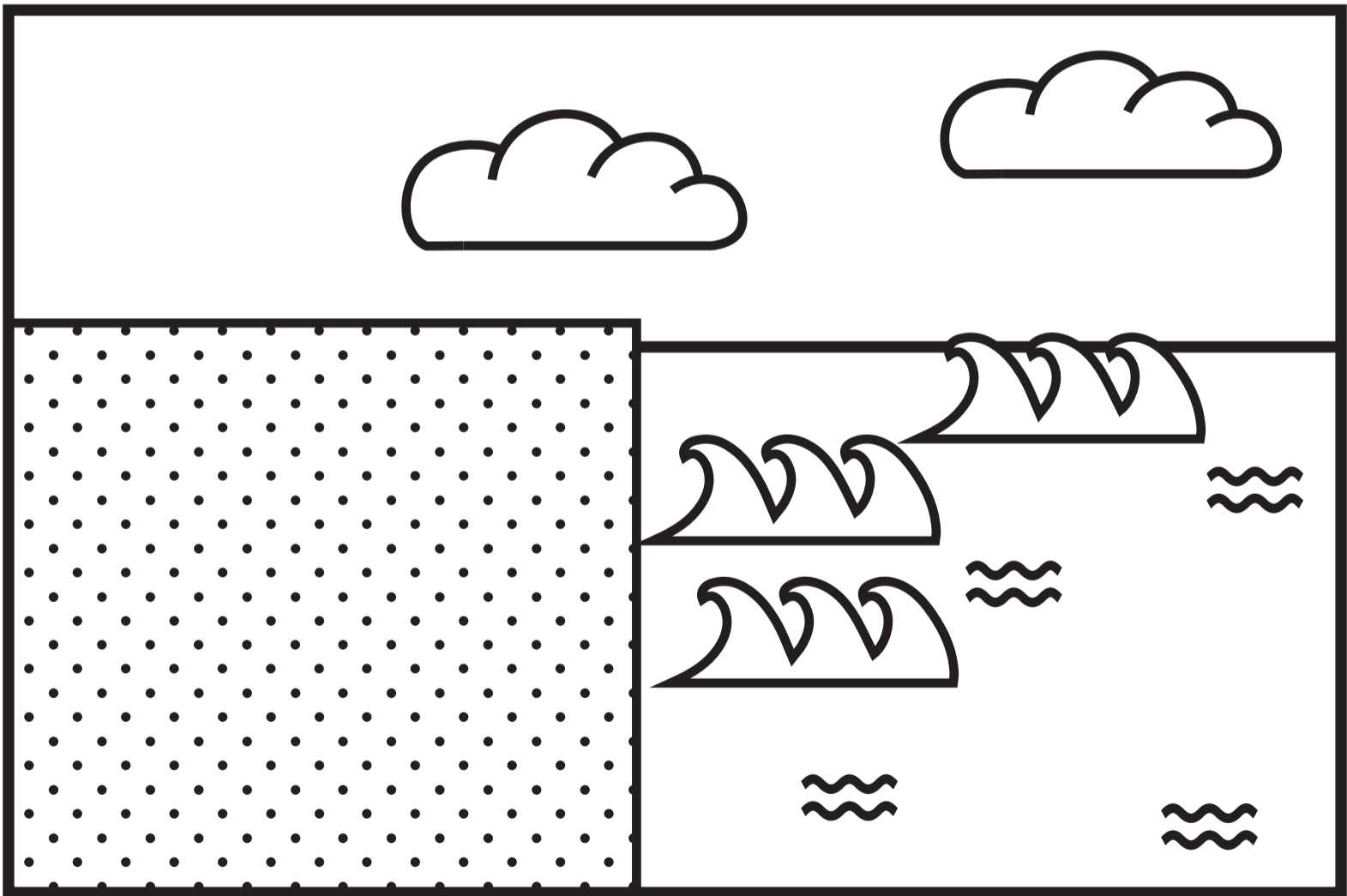
Sea Sand Groynes

Clouds

(Source: Photo 2: © Paul Wishart/Shutterstock)

Figure 2d – Part 4

Photo 3 – Sea Wall



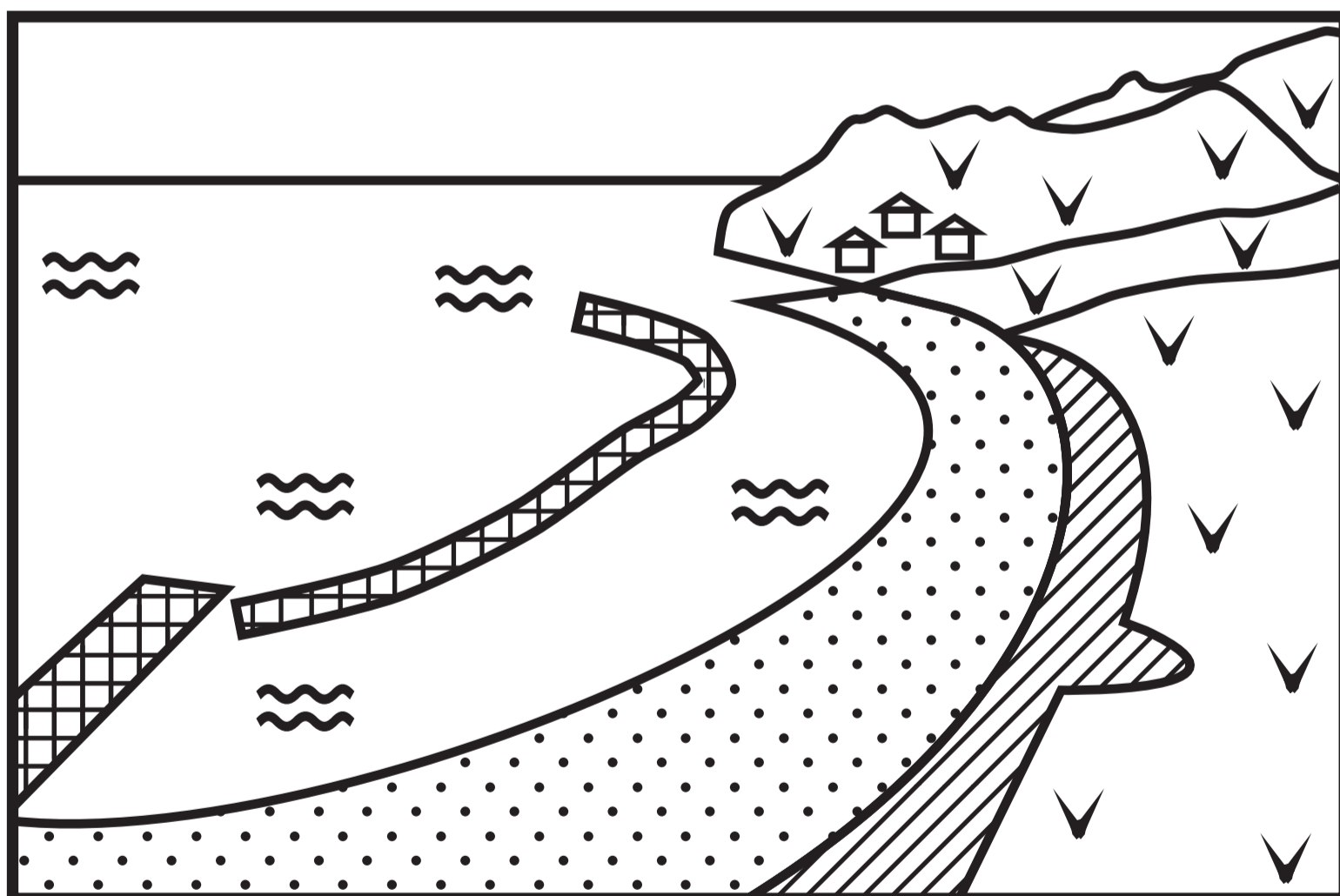
Key:

≈≈≈ Sea    ~~~ Waves    [···] Sea wall    ☁ Clouds

(Source: Photo 3: © Sasha Samardzija/Shutterstock)

## Figure 2d – Part 5

### Photo 4 – Offshore Breakwater



Key:

 Sea
  Offshore breakwater
  Beach
  Road

 Buildings
  Vegetation

(Source: Photo 4: © Ondrej Huk/Getty Images)

Figure 3a – Colour  
Characteristics of tropical cyclones

KEY:

 = Sea temperature range from 24°C to 27°C

 = Direction of tropical cyclone

A = June – October    B = August – October    C = December – March  
D = October – November    E = May – December    F = January – March

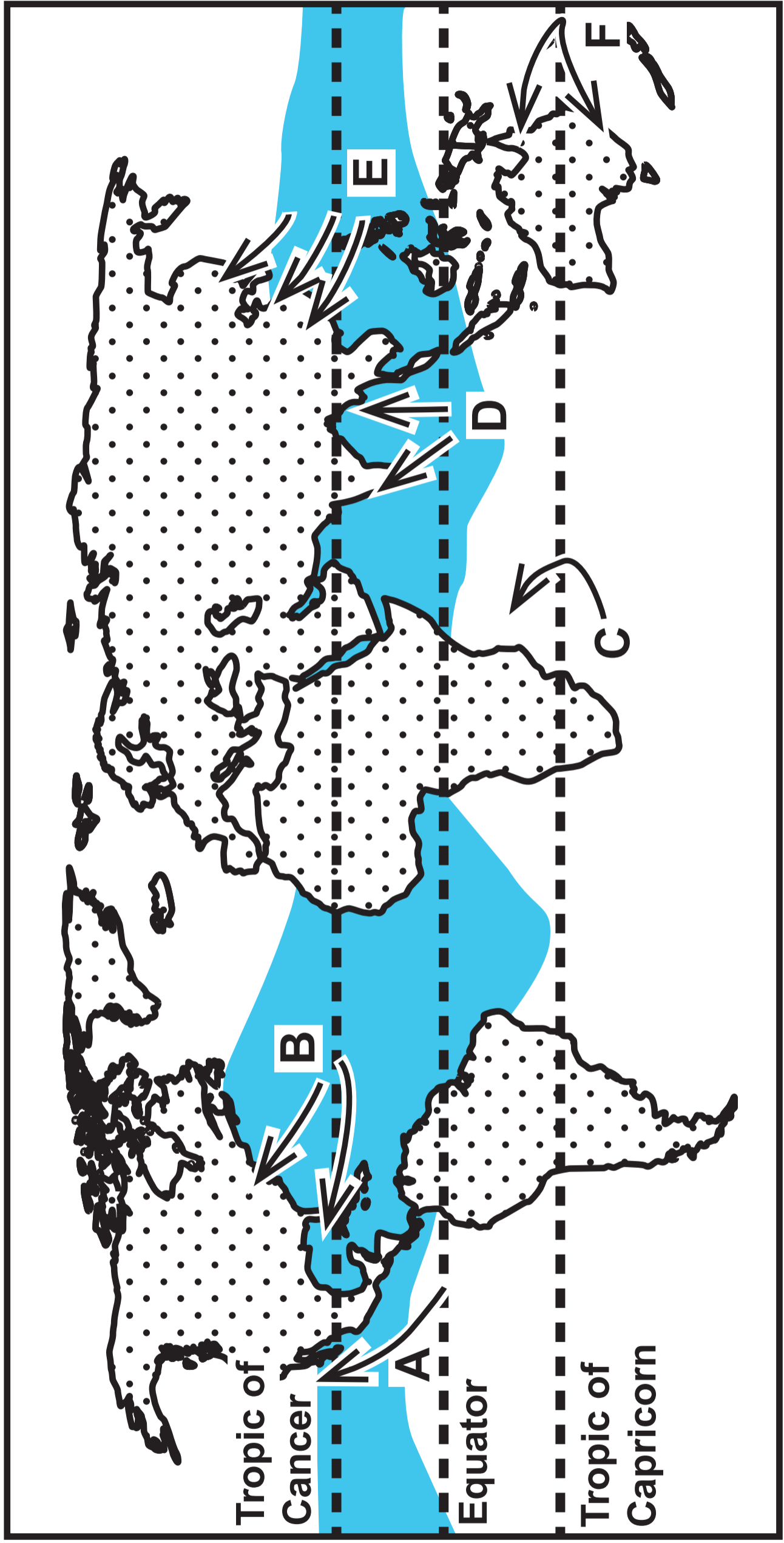


Figure 3a – Black and White  
Characteristics of tropical cyclones

KEY:

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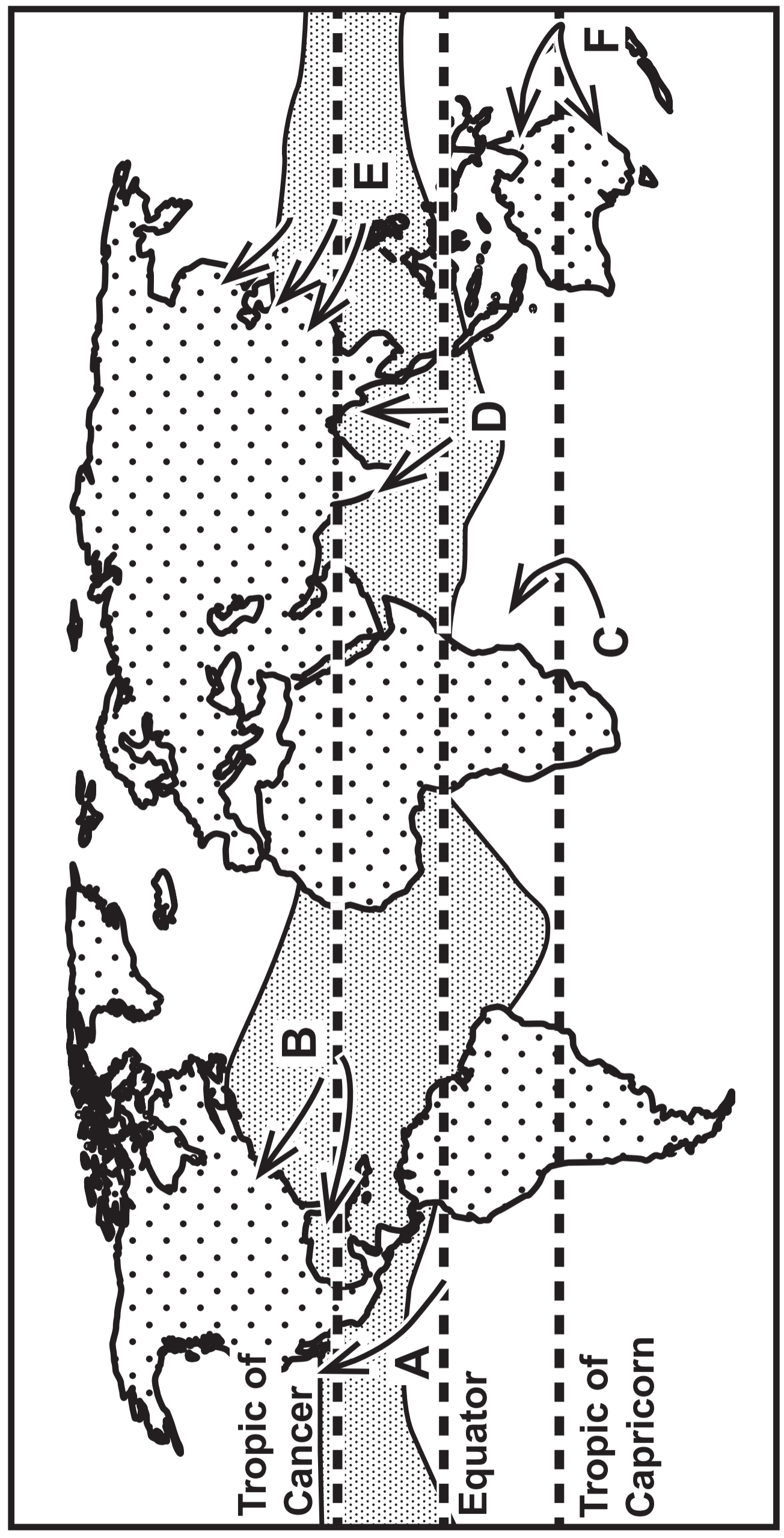
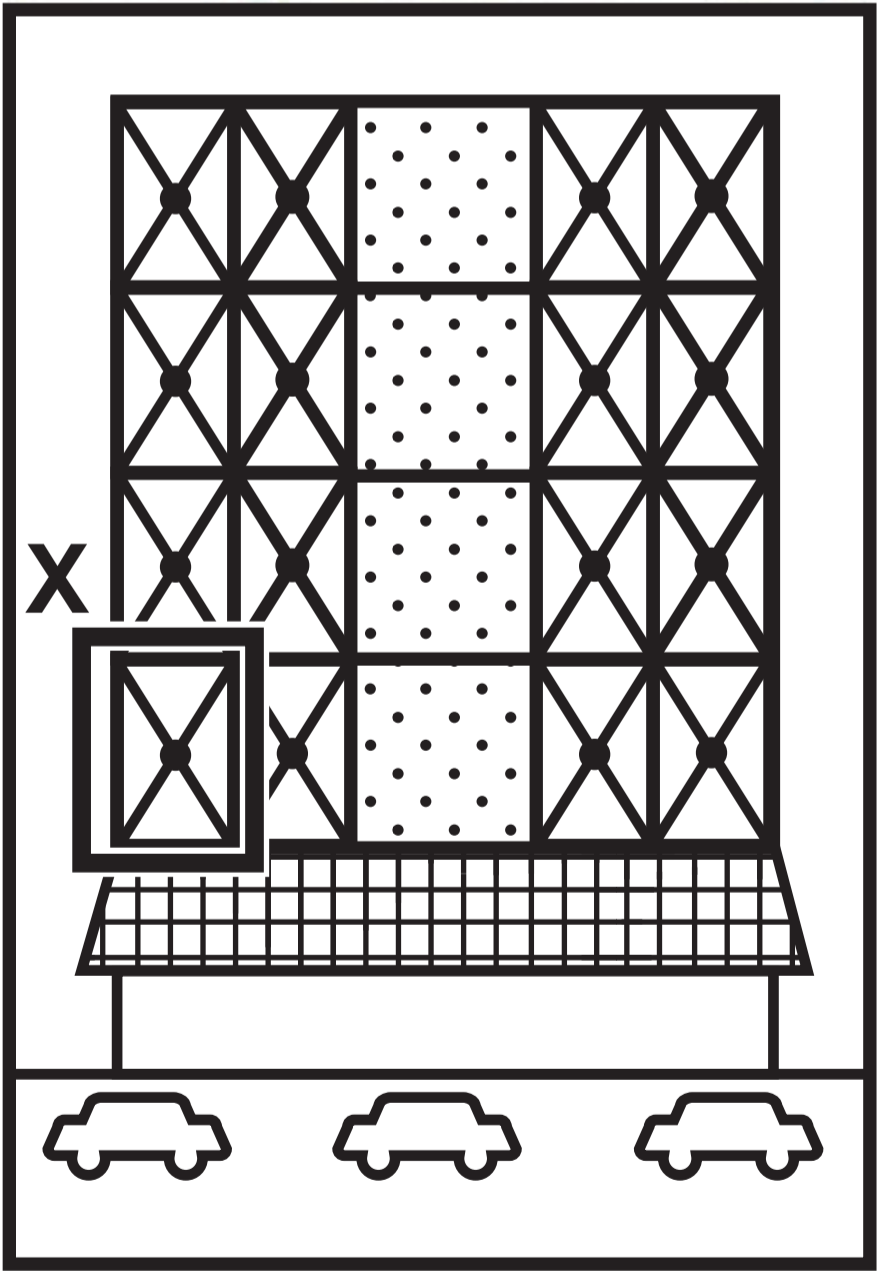


Figure 3b  
An earthquake resistant building

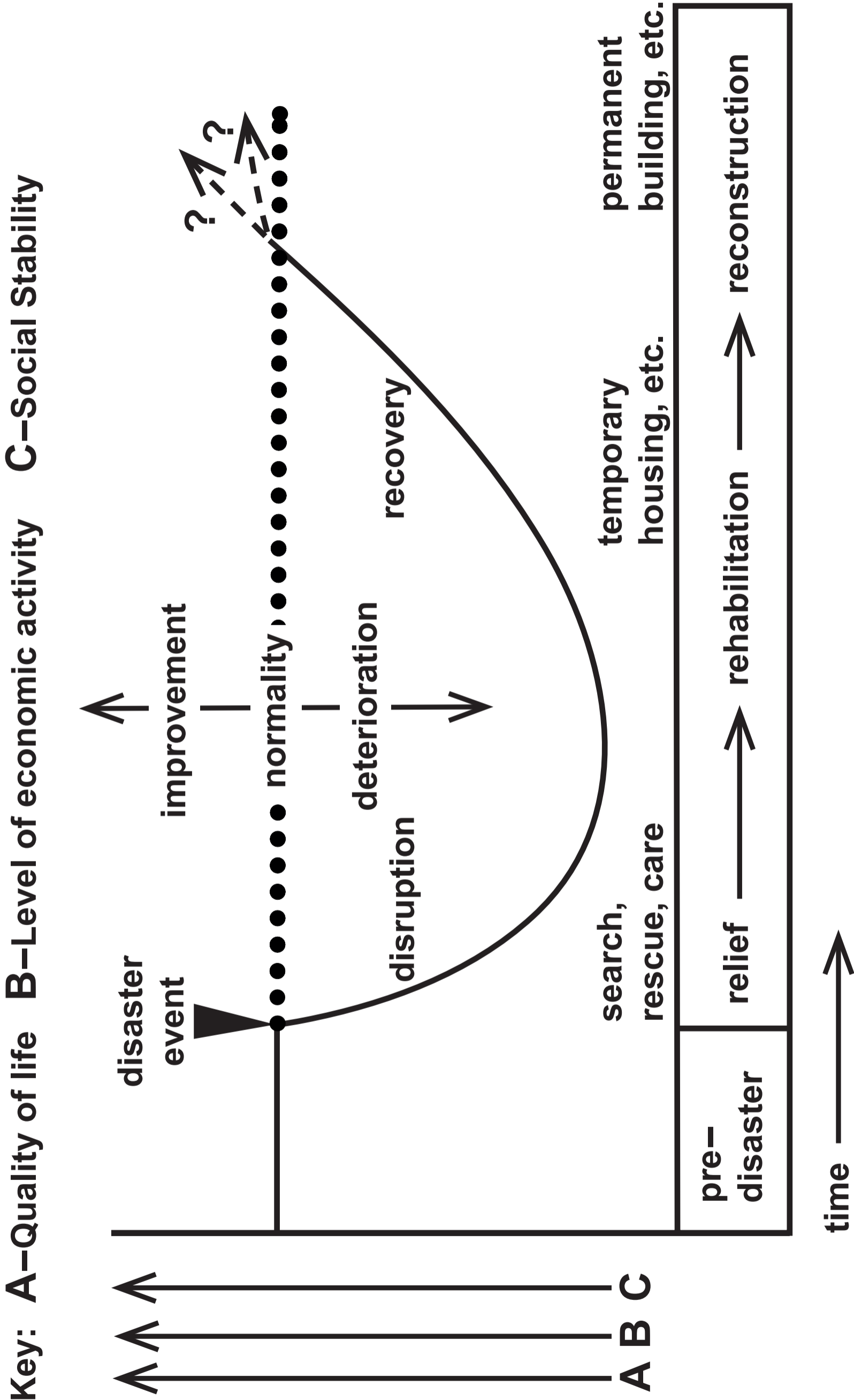


Key:

- |   |  |  |  |
|---|--|--|--|
|  Windows |  Framework over windows |  Cars |  Canopy |
|---|--|--|--|

(“Sourced from: Te Ara – The Encyclopedia of New Zealand  
Photograph by Alastair McLean”)

**Figure 3c**  
**A timeline to show the changes in quality of life for**  
**people living in regions affected by hazardous events**



(Source from: © Chris Park)

Figure 3d

## Flow diagram showing how GIS supports short-term planning in response to natural hazards

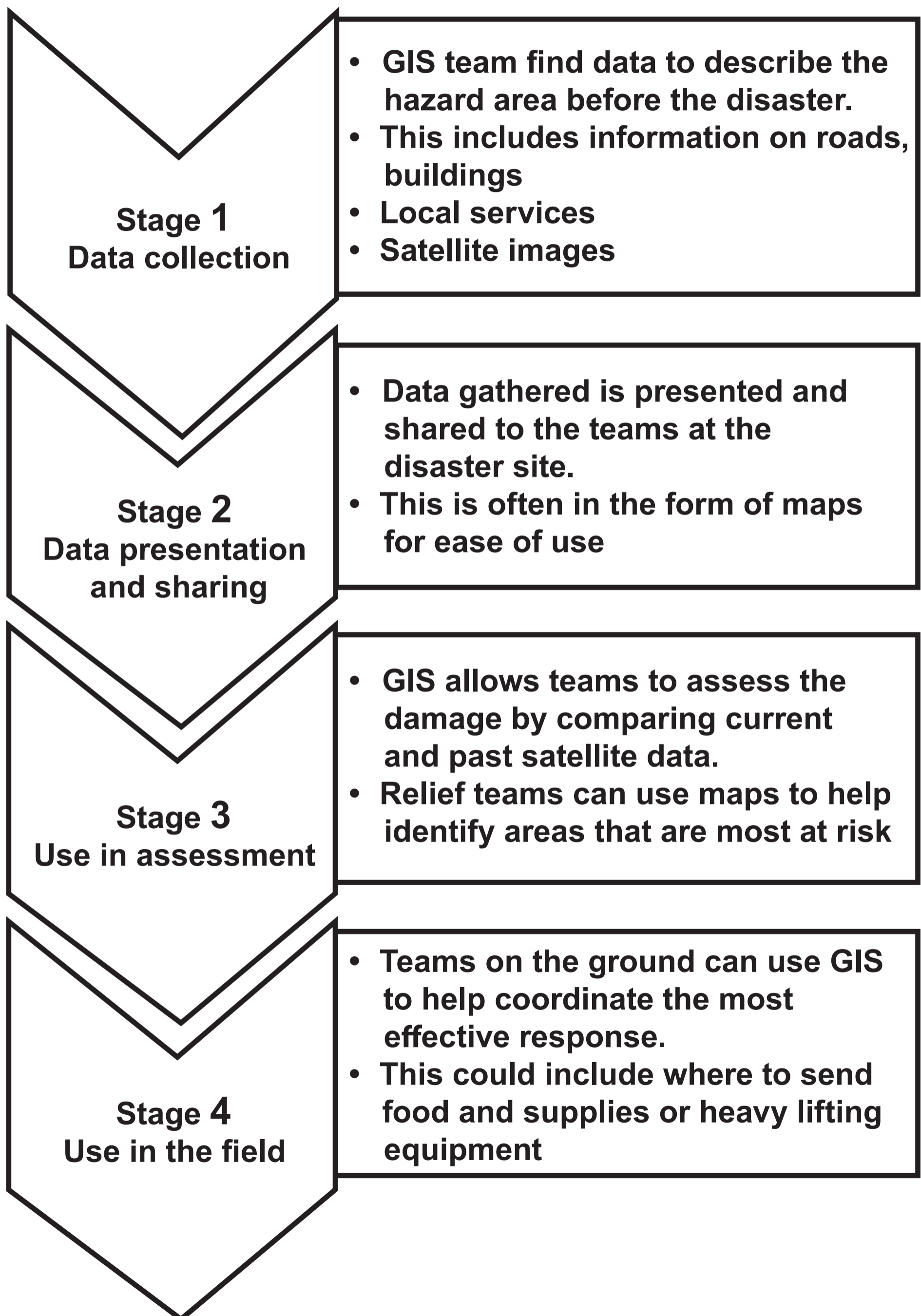


Figure 4a

River data collected by a group of students

Sample	Time taken (seconds)
1	13·1
2	15·4
3	16·8
4	20·0
5	37·0

Figure 5a

Coastal data collected by a group of students

Site	Mean shingle size (mm)
1	8·1
2	14·5
3	16·1
4	15·0
5	30·0

Figure 6a

Hazardous environment data collected by a group of students

Sample	Average Wind speed (mph)
1	60·0
2	46·0
3	55·0
4	70·0
5	10·0