

## HUMAN FACTORS CAUSING THE COCKERMOUTH FLOODING

1. **URBANISATION** : Although Cockermouth only has a population of around 8000, increasing urbanisation and the coverage of greater areas with tarmac and concrete reduces the amount of infiltration and increases the amount and speed of overland flow. This takes water to streams and rivers more quickly
2. **BLOCKED SEWERS** : The sewage system had not been cleaned out fully leading to blockages and the build up of water
3. **LIMITED DREDGING** : Nearby rivers had not been dredged effectively in the years preceding the floods. This reduced the ability of rivers to drain water efficiently away from the town

## IMPACT OF PHYSICAL / HUMAN FACTORS ON THE STORM HYDROGRAPH AT COCKERMOUTH

- Shortens the time lag of the storm hydrograph
- Steepens the rising limb of the storm hydrograph
- Raises the peak of the storm hydrography
- This produces a 'flashy' hydrography which rises and fall quickly
- This makes it more likely that the discharge of the river will exceed the channel capacity
- The factors combined to produce a 1000 year event (only expected once every 1000 years)
- Discharge at Cockermouth was 700 cumecs (cubic metres per second)
- Normal discharge is 35 cumecs, so it was 20 times larger than normal



