www.sustainable-greenham.org

Student Module for Reuse/Recycling, Sustainability

The following activity should be delivered using the resources of the 'Impact of Greenham Common Development' page of the website.

The Runway — Implementing the Plan

Background

Greenham Common air base had runways, taxiways, perimeter tracks and apron areas (photo of whole runway area - image 1) . The runways and service areas had been extended so that they could be used by long range bombers carrying nuclear warheads.

When it closed in 1992, the base had a runway 3.6 km long and two taxiways of about the same length (image 1) . For this to be converted back to heathland, it was necessary to remove (images 2 and 3) all this material, and regrade the surface in some areas.

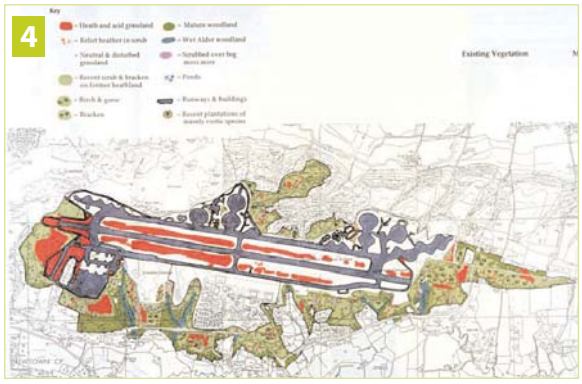

1


2


3

Task A

Print off (with the scale) from the internet a Google Map of your local area. Measure out on this map an area, near your home or school that you know, of land 3.6km long x 0.26 km wide. This will give you some idea of the area covered by concrete and tarmac at Greenham Common in 1991 (image 4) . (The whole site covered an area of 360 hectares - or a total area of 3.6kms x 1km).


4

Task B

The thinnest of the areas of concrete and tarmac were made up of a single layer 150mm thick; others were thicker right up to some which were in three separate layers, each up to 450mm thick. As the site was developed and areas repaired or improved, parts of the runway were made up of alternating layers of tarmac and reinforced concrete.

Let us assume that the average thickness was 300 mm and that a cubic metre weighed 2.4 tonnes, how many tonnes of concrete and tarmac were at the airbase for recycling (photo of crusher -image 8)?

The recycled materials would substitute for newly quarried gravel or rock. If a typical hectare of river valley gravels when excavated can produce 50,000 tonnes of sand and gravel, how much land would this recycling scheme save?

Not all valleys contain sand and gravel but assuming a valley near you does, plot on a large scale map an area approximately this size (remember, there are 100 hectares in a square kilometre).

Task C

In order to revive the dry heathland (image 5) habitat, it was necessary to part fill the holes left by the removal of the concrete and tarmac. This was done by importing 160,000 m^2 of suitable soil.

What proportion of the void (hole space) would have been filled by this amount?

Task D

Assume that all the recycled materials that you have calculated were produced from the runway were all sold.

- ✪ 37.5% was used in the building of the Newbury by-pass (assume 5km away)
- ✪ 12.5% was delivered to the rest of Newbury
- ✪ 50% went equally to Thatcham, Reading, Winchester, Basingstoke and Oxford,

How much in tonnes was used in each area?

Use diagrams (if possible on or around the edge of a map) showing these places then illustrate how much went to each destination.

Task E

Using the map, work out, then describe (by road numbers and places) the routes from Greenham Common to each of the delivery points using the best (not necessarily the shortest) main roads (eg a motorway is ëbetterí for lorries than say a ëBí road)

Measure the distances involved for each place.

Task F

If the average lorry load is 18 tonnes, how many journeys were necessary to carry all the material?

If a train can carry say 1500 tonnes , how many journeys would have been necessary if it could all have been carried by rail?

Look at the map showing the destinations and work out which could be used, then measure the distances along the routes for each destination. Using the answers from Task D, apply the rules below to see how much recycled material could have been carried by rail, assuming it all was moved in a single year.

- ✪ Minimum quantity in one year for a 20km journey 1,000,000 tonnes
- ✪ Minimum quantity in one year for a 40km journey 500,000 tonnes
- ✪ Minimum quantity in one year for a 60km journey 350,000 tonnes
- ✪ Minimum quantity in one year for a 80km journey 200,000 tonnes

(The minimum quantity stated above means that is the smallest amount of material to be moved a particular distance that is economic for the train company).

NB these are not actual firm figures as there are many, many variables such as the cost of loading/unloading facilities, the strength of the track, competition from passenger traffic to use particular routes.