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## EDC 5: Meltwater Channel, Cadder

**Grid reference:** [NS 62787 72625]

**Site type:** Natural landform

**Site ownership:** Not known

**Current use:** Agricultural land

**Field surveyor:** Sarah Arkley & Luis Albornoz-Parra

**Current geological designations:** None

**Date visited:** 5th March 2009

### Site map

(Figure 5) Glacial Meltwater Channel Location Map

### Summary description

Glacial meltwater channel, orientated ENE–WSW. Channel carved out by meltwater from a retreating glacier. 'U'-shaped, linear depression in agricultural farmland, approx 10 m deep, 50 m across and 1 km long. Interpreted as a glacial meltwater channel cut into glacial till. Formed as the ice retreated back to the north and west and meltwater shed off the front of the glaciers. Southern margin of the pre-glacial channel of the Kelvin passes near here, confirmed by boreholes.

### EDC 5: Stratigraphy and rock types

**Age: Pleistocene Formation: Wilderness Till Formation**

**Rock type: Glacial deposits: diamicton**

### Assessment of site value

#### Access and safety

#### Aspect/Description

**Road access and parking** Either park in a layby 700 m ENE of the site by Leafield Cottage or may be able to park in the golf range located 100 m SE of the site.

**Safety of access** Located within agricultural fields but a tree belt dissecting the channel at right angles allows good access into the channel

**Safety of exposure** Undulating fields, muddy feet would probably be the worst that could happen

**Permission to visit** No permission sought

**Current condition** Good, best channel definition seen when crops are very young or fields are ploughed.

**Current conflicting activities** Ploughing will over time 'smooth out' the channel

**Restricting conditions** Time of year; crop height

**Nature of exposure** Natural landform

## **Culture, heritage & economic**

**Historic, archaeological & literary associations** None known. Rating: 0.

**Aesthetic landscape** Mainly farmland. Distinctive landform. Rating: 2.

**History of earth sciences** None known. Rating: 0.

**Economic geology** None recorded. Rating: 0.

## **EDC 5: Geoscientific merit**

**EDC 5: Meltwater Channel, Cadder. Geoscientific merit.**

## **Total Geoscientific merit score 11**

### **Current site value**

**Community** Farmer is probably the only person to go into the fields where the channel lies, but there is a golf range to the south of the field and a main road (with footpath) to the north. Rating: 5.

**Education** Good example of a linear meltwater channel, extending over 100's of metres, with other glacial features and sediments nearby a glacial story could be developed. Rating: 5.

### **Fragility and potential use of the site**

**Fragility** None

**Potential use** School, on-site interpretation, multidisciplinary

### **Geodiversity value**

Meltwater channels record the retreat of the last glaciers following a period of glaciation. They illustrate the youngest event in the geological history of the area. Although there are many examples across Scotland, this type of landform is relatively rare in East Dunbartonshire and this site displays one of the best examples. Its geodiversity value is enhanced on account of its relative rarity in East Dunbartonshire. Rating: 3.

## **Photographs**

(Photo 21) Detail of the igneous intrusion, showing an exposure of well jointed quartz-microgabbro at the edge of the dyke. Here the molten rock chilled quickly when it came into contact with the surrounding colder 'country' rock', producing many internal fractures as it cooled and contracted. Looking N.

(Photo 22) Degraded exposures of the dyke to the right of the track; probably the remains from a quarry which was formally located here. Note the ongoing construction work. Looking E.

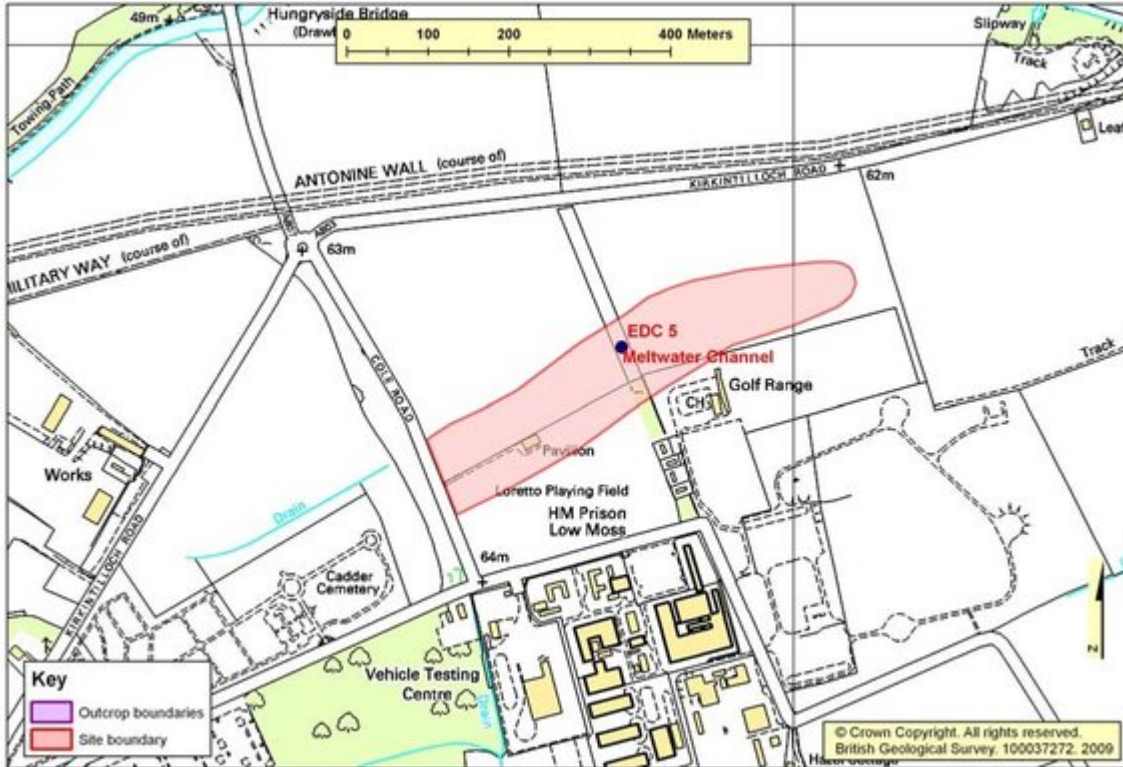
(Photo 23) Exposures of Lenzie–Torphichen Dyke adjacent to the construction work. Looking SE.

(Photo 24) View looking SW across the meltwater channel, located northeast of Cadder.

(Photo 25) Looking SE across the 'U'-shaped base of the meltwater channel.

(Photo 26) Panorama along part of the meltwater channel. Young crops and low sunshine often highlight such landforms within agricultural fields. The channel, which was cut by glacial meltwater, has been mapped out by geologists and is thought to be over 2km long.

**Bibliography**



(Figure 5) Glacial Meltwater Channel location map.

| GeoScientific Merit                  | Rarity | Quality | Literature/<br>Collections | 1st                                 |
|--------------------------------------|--------|---------|----------------------------|-------------------------------------|
| Litho Stratigraphy                   | 0      | 0       | 0                          | <input type="checkbox"/>            |
| Sedimentology                        | 0      | 0       | 0                          | <input type="checkbox"/>            |
| Igneous/Mineral/ Metamorphic Geology | 0      | 0       | 0                          | <input type="checkbox"/>            |
| Structural Geology                   | 0      | 0       | 0                          | <input type="checkbox"/>            |
| Palaeontology                        | 0      | 0       | 0                          | <input type="checkbox"/>            |
| Geomorphology                        | 4      | 5       | 2                          | <input checked="" type="checkbox"/> |

EDC 5: Meltwater Channel, Cadder. Geoscientific merit.



*(Photo 21) Detail of the igneous intrusion, showing an exposure of well jointed quartz-microgabbro at the edge of the dyke. Here the molten rock chilled quickly when it came into contact with the surrounding colder 'country' rock', producing many internal fractures as it cooled and contracted. Looking N.*



*(Photo 22) Degraded exposures of the dyke to the right of the track; probably the remains from a quarry which was formally located here. Note the ongoing construction work. Looking E.*



*(Photo 23) Exposures of Lenzie-Torphichen Dyke adjacent to the construction work. Looking SE.*



*(Photo 24) View looking SW across the meltwater channel, located northeast of Cadder.*



*(Photo 25) Looking SE across the 'U'-shaped base of the meltwater channel.*



*(Photo 26) Panorama along part of the meltwater channel. Young crops and low sunshine often highlight such landforms within agricultural fields. The channel, which was cut by glacial meltwater, has been mapped out by geologists and is thought to be over 2km long.*