

Guided Walk along the Kinross Raingardens Trail & Loch Leven

Meet 10.00 a.m., Wednesday 19th April 2023, at Kinross Park and Ride (P&R), Kinross (adjacent to Sainsbury's store, on Junction Road, just off M90).

Finish 16.30-17.00 hr. at the Boat house and Pier car park. Then dispersal to accommodation, prior to rendezvous for dinner according to tastes and budget (options to be shared en route along the Trail).

Kinross is a small town. The entire walk can be done on foot, or a return to cars and driving to the afternoon part of the walk will be equally easy to do. Refreshments will be available at two of the sites, but you are requested to bring your own lunch.

Note: this meeting is the field trip part of the two-day spring meeting and precedes the one-day conference in Perth on 20th April. The Trail walk can be a morning only if desired; we return to the P&R car park at lunch time (Loch Leven section in the afternoon).

There is no fee for either day and attendance at both is not mandatory, although it is desirable for maximum benefit.

Contact: <http://www.kinross-shirecivictrust.org/>

INTRODUCTION TO THE TRAIL

The Raingardens Trail begins at the Kinross P&R and extends down to the shore of Loch Leven, where it connects with the Loch Leven Heritage Trail. The aims are to highlight the scope for using green infrastructure to manage rainfall runoff whilst enhancing, for locals and visitors, amenity, climate change resilience and biodiversity interest.

Specific objectives are:

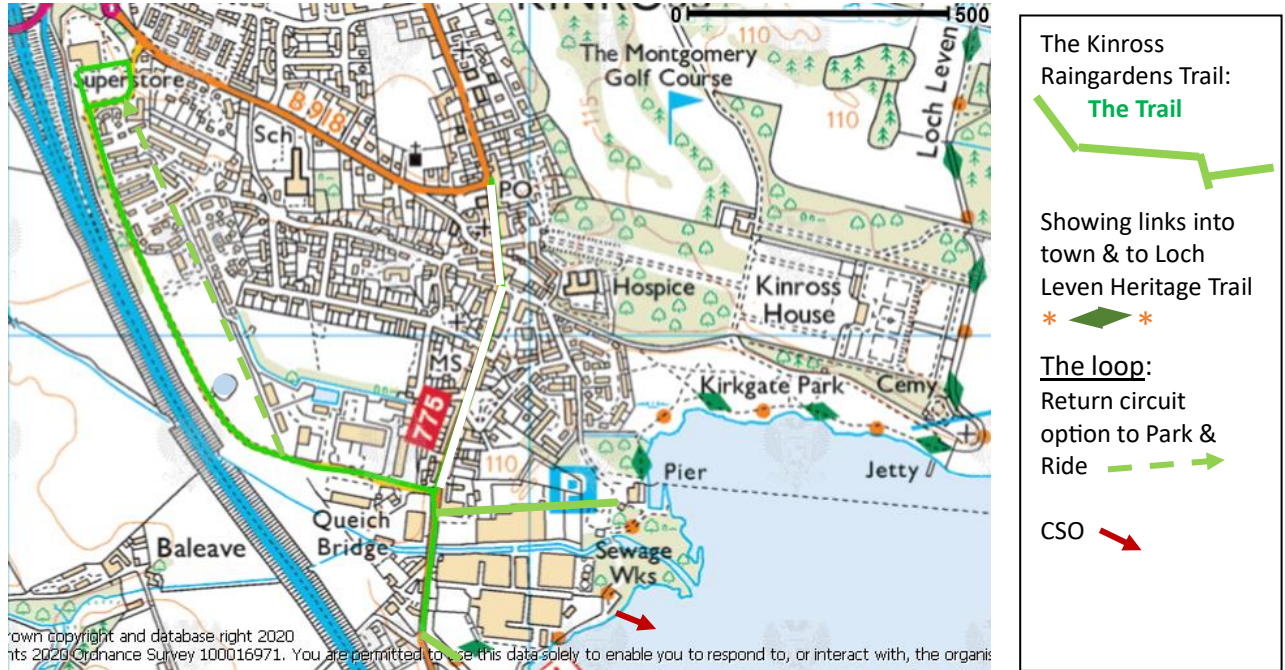
- Create an identifiable feature for the town which will enhance the reputation of Kinross-shire
- Enhance and protect the existing raingarden assets along the Trail (swales and wetlands)
- Create an inter-linked wildlife corridor from the refurbished P&R, down to the Loch Leven Heritage Trail, with connections to the Clash Burn, South Queich (river) and the loch.

HIGHLIGHTS

- Renovation of two failed soakaways in a public car park, creating wildflower infiltration swales instead (work done March 2022). Debated policy change: switch from herbicide maintained bare soil margins of car park, to woodland flora vegetation beneath boundary trees, with occasional strimming and removal of cut material?
- Gully-free link road draining to four narrow grass swales maintained by annual cut.
- Larger swales receiving drainage from commercial/leisure premises; deeper soils and more diverse flora.
- Unusual willow swale car park serving fitness and well-being premises (Dance Connect)
- Constructed wetland receiving the outflows from the swale networks (biodiverse and innovative design. Recently maintained (for first time) by some excavation to restrain ecological succession and restore some open water).
- Industrial/commercial estate partially drained via a gravel filter drain network of source control features, flowing to an overgrown constructed wetland; some restoration work undertaken in March 2023. Gravel filter drains provide first level pollution control.
- Extensive impervious areas at industrial/commercial premises further down the Trail, on a combined sewer with CSO discharges into Loch Leven; scope for next retrofit raingardens.
- Loch Leven and restoration success of late 1990s-2008, then subsequent decline: how and why?

Local and national researchers and practitioners will be on hand to talk about the issues and work done to being about improvements.

Map of Kinross: the Raingardens Trail and Connection with Loch Leven Heritage Trail



Map of Kinross Raingardens Trail, showing connections with the Loch Leven Heritage Trail

Development of the Raingardens Trail



Kinross P&R: Oily, muddy car park, converted to wildflower grassland shallow swales, March 2022



Kerbs or hedgerows as physical barriers to runoff? Willow swale at *Dance Connect*. Retrofit options for keeping vehicles out of swales: add rumble strip and double yellow lines? (snow-drops for early spring enhancement shown too?).

Compare the two sets of swales: Junction Road shallow swale – why so narrow? The parallel swale network for commercial units alongside Junction Road – why so deep? [To allow fall for outflows from conventional deep drains from each developed property on the site?].

Spring meeting field visits SUGIR, SuDSnet and susdrain 19th April 2023



Ragged robin and ox-eye daisies in bloom in early summer, Junction Road swales, c.f. deeper swales serving commercial premises in parallel.

The Raingardens Trail is also a pollinators pathway (Tayside Biodiversity Partnership).



The swales drain to the **Church View Wetland**; an innovative SUDS feature. A seat and wheelchair rest place has been provided (to be improved) facing the attractive constructed wetland, with a view behind it and beyond to Kinross town centre and the church tower (below).



Ecological succession over > 15 years at next wetland - **Clashburn Close** - has reduced open water area; some restoration undertaken in March 2023. Wetland cut-back to create a berm to force inflow around the wetland, improving on original design (stopping short circuiting direct to outlet).



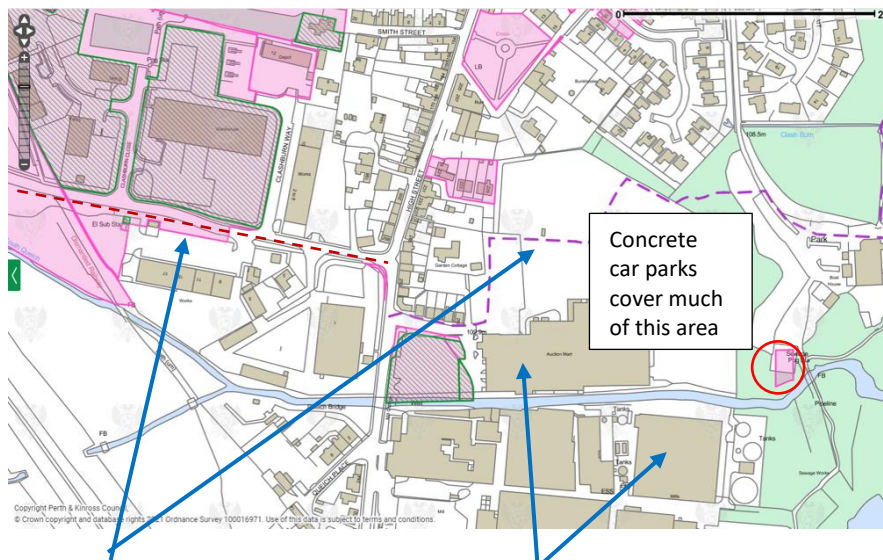
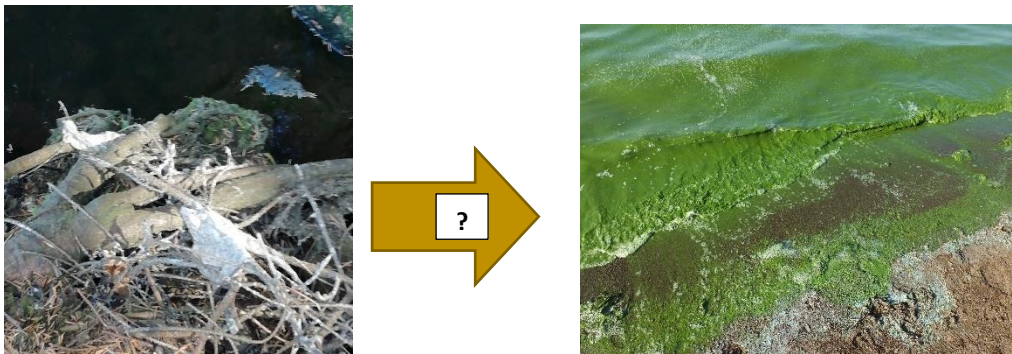
New pond and marsh in South Queich Flood Area (adjacent to Church View Wetland)



South Queich flood storage feature, Junction Road prior to Clashburn Close and commercial premises. Dry parts of the area scraped to increase wetland interest and connectivity with the other two wetlands.

Loch Leven – Are storm sewage inputs contributing to the return of major algal blooms?

- And could raingarden retrofits remove runoff water from parts of the major impervious areas involved?



Large impervious areas at two major premises.
 At one, 50% of the impervious area drains to the combined sewer and nearby (downstream of their connection) is a major CSO spilling sewage into the loch.
 The other site is unknown, but no SUDS

Existing Raingardens Trail
 Trail route down to join --- Trail route down to join the Loch Leven Heritage Trail

Industrial premises with at least some runoff to combined sewer
 No pollution from industrial sites shown, but regular storm sewage from Kinross South Pumping Station

Phase 3 of the Kinross Raingardens Challenge hopes to persuade new owner of the former Car Auctions premises to survey rainwater drainage connections and seek diversion out of the combined sewer. Similarly at the adjacent premises to the south of the river (also on the combined sewer).
 Thanks to event sponsors (refreshments) Kipper Hire, Dance Connect and the Kinross-shire Civic Trust.