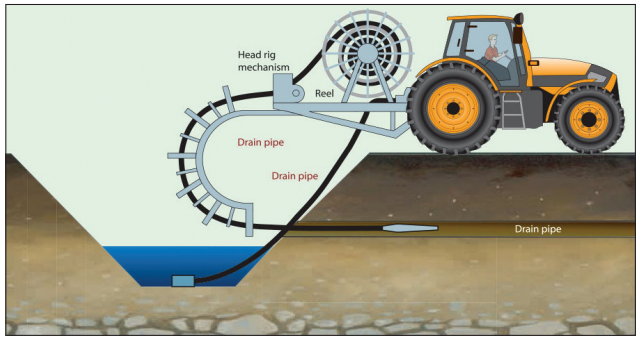


What methods unblock drains?

- Jetting (above) – is an efficient way of cleaning piped drains. A hose, fed through the pipe washes and flushes sediment, iron ochre and debris from its internal walls, perforations and adjacent stone fill. Some models can extend to 300 m up the pipe.
- Rodding – is a more labour intensive and less effective alternative.

What do I need to consider?

- When cleaning drains be aware of potential damage to fish and their habitats, including impacts downstream.
- Fish and their spawning grounds are protected under Fisheries Acts.
- In-stream work from July to September is least disruptive to fish.
- If in doubt, consult Inland Fisheries Ireland www.fisheriesireland.ie

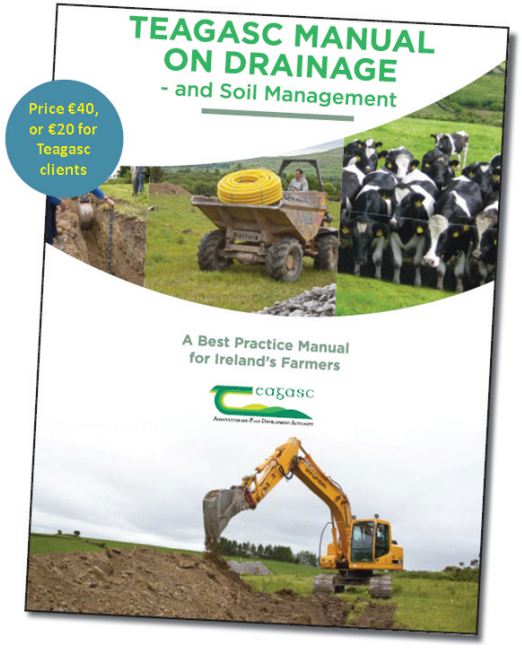
Useful Publications

Land Drainage Booklet

A freely downloadable practical guidebook to land drainage is available via the Teagasc website, **www.teagasc.ie/publications** Search "Land Drainage".

Land Drainage Manual

The Teagasc Manual on Drainage and Soil Management is available from Teagasc offices or can be ordered via the Teagasc website, **www.teagasc.ie/publications** Search "Teagasc Manual on Drainage and Soil Management".



www.teagasc.ie/heavysoils

teagasc
Agriculture and Food Development Authority

Crops Environment & Land Use Programme
Johnstown

Animal & Grassland Research & Innovation Programme
Moorepark

Land Drainage: MAINTENANCE

Q&A

- ✔ Why do drainage systems stop performing?
- ✔ How can I ensure future ease of maintenance?
- ✔ How are open drains maintained?
- ✔ What methods unblock drains?
- ✔ What do I need to consider?

teagasc
Agriculture and Food Development Authority

Introduction

- A maintenance plan should be adopted following the installation of any drainage system.
- Maintenance vastly improves the capacity and the lifespan of the drainage system.
- A regular maintenance programme should include assessment of the whole network, focusing in particular on likely areas for blockages (Figure 1) and adequate upkeep.

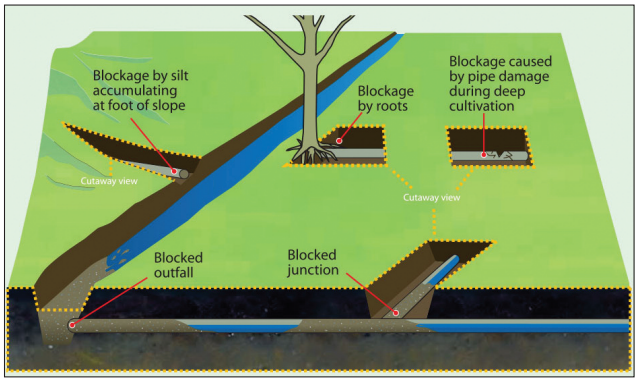


Figure 1: Examples of where blockages may arise.

Why do drains stop performing?

- The performance of drainage systems will deteriorate over time, due to a variety of blockages.

What causes drains to block?

- Fine soil particles: silt and clay particles are many times smaller than aggregate or pipe slits, they can enter pipes and settle in low flow conditions.
- Iron ochre deposits: these are predominantly 'rust' and occur naturally in certain soil types.
- Plants and their roots: can thrive in open channels, at the pipe outlet and deep within the system.
- Collapse/sedimentation of open drains, due to flow conditions, undercutting of banks or livestock damage.

How can I ensure future ease of maintenance?

- Clean and upgrade open drains before field drain installation to ensure good outfalls and consistent flows.
- Use simple layouts with few junctions, use manholes as access points. The upstream end of field drain pipes can be brought to the field surface and capped to allow access.
- Mark the locations of field drain outlets and manholes in the field and on maps to help locating them afterwards.
- Always use pipes to allow for maximum water flow and maintenance by jetting/rodding.
- Ensure the aggregate used above the pipe is washed and 10–40 mm in size. At present there is no evidence to suggest membranes on top of aggregate or around pipes help.

How are open drains maintained?

- Open drains should conduct surface water during rainfall, be deeper than in–field drains and also where possible drain groundwater all year round.
- Open drains should be clean and as deep as possible with a graded profile (Figure 2).
- The bank slopes of open drains need to be appropriately graded to prevent collapse (See Table).
- If such grades cannot be achieved then piping of new open drains may be necessary.
- When cleaning open drains, care must be taken to protect field drain outlets from damage.
- Spoil from such works can be spread on adjoining land but must not impede water.

Soil	Channel <1.3m deep	Channel >1.3m deep	Max water velocity m/sec
	Horizontal:Vertical		
Heavy Clay	0.5:1	1:1	1.5
Clay or Silt Loam	1:1	1.5:1	1.0

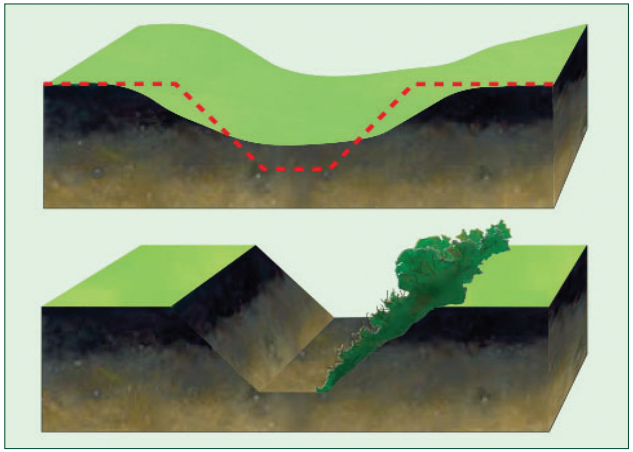


Figure 2: Maintenance of open drains changes the shape of the drain and makes them more efficient for water transport.