

Emlid Agriculture White Paper – Innovelec

Drains / Drainage and Irrigation management

Many farms in the UK have a need to install or maintain drains within individual fields in order to control the moisture levels of the soil. Soil that is overly wet can lead to damage to the soil structure which in turn can reduce crop production.

Older Drains

In the UK a lot of the older drains in fields could have been installed up to 200 years ago. Over time these, usually clay, drainage pipes have become clogged resulting in fields having issues with drainage. The location of these older drains could also have been lost which leads to a longer process to locate then clear each drain.

Once these older outlets have been located and cleared (jetted), Emlid's Reach RS3 or Reach RS2+ with their hand-held GPS / GNSS surveying capability provide a farmer with the ability to accurately, cost effectively and easily plot the location of these older drain outlets. Allowing the production of a map of each field which plots the location of each individual outlet.

In this case, if an area of a field becomes blocked again, a farmer (or farm labourer) can visit the location of the drain outlets affected to clear them of any sediment buildup.

New Drains

When it comes to installing new drains, not just the outlets, but the whole system can be mapped using GPS / GNSS as the pipe is laid in the bottom of the trench. Allowing a farmer to accurately relocate a drain pipe if there are any issues with drainage in the future.

Emlid's Reach RS2+ is capable of providing a position output stream of data. This data can be fed into a third-party device either using Bluetooth or by using a Serial cable.

In addition to accurately positioning the drain pipe within the field, Emlid's Reach RS2+ can also be used to calculate the what the depth of the drain should be at any particular position. This can provide the drain with the correct gradient to control the moisture in the soil.

Soil Sampling

By mapping each field, a farmer can calculate exactly where in the field seed and fertiliser needs to be applied. Modern technology means that this map can be created using GPS / GNSS by driving the perimeter of the field with the correct software the field can be mapped. Emlid's Reach RS2+ can provide a cm accurate location to compatible mapping software.

A grid is then applied to the map in order to calculate the best intervals at which to take soil samples within a field.

Emlid's Reach RS2+ or Reach RS3 can be used manually to take a farmer to a chosen point (Stake Out). Whereas the Reach RS2+ can provide a position input to an automatic sampler via serial cable or Bluetooth.

Machinery Guidance and Automation

Farmers have to be increasingly aware of their costs with the cost of Seed, Fertiliser and Fuel all increasing.

As a result of soil sampling, an accurate application map is developed, showing which areas of a specific field require certain treatments such as fertiliser or other chemicals. This has an impact financially, while providing a positive environmental impact.

Emlid's Reach RS2+ can provide a very (cm) accurate position to a third-party device. Information provided by the soil sampling combined with the Reach RS2+ position output can provide variable rate control by the application being turned on and off as required.

This combination of Emlid Reach RS2+ and the application map can also be used to turn seed drills on or off when required.

Using Emlid's Reach technology to aid in machinery guidance and automation can lead to a reduction in seed costs through putting seeds in the best possible locations to give the best yield, a reduction in fertiliser costs by fertilising only where needed and fuel costs by planning the best path within a set field to minimise the use of fuel for each job undertaken.

For More Technical Information on the Emlid Products please visit:

<https://innovelec.co.uk/brand/emlid/>