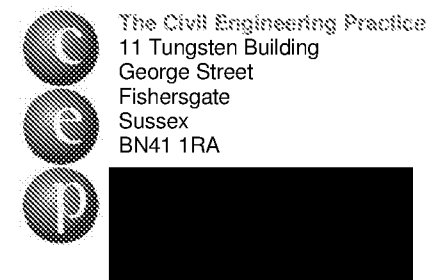


Designer's Response



Project	23314
Project Number	Wicks Farm Glasshouse and Reservoirs, Ford
Comments Received from	Paul Cann
Date Comments Received	4 May 2021
Date of Response	29 June 2021

Comment / Query		Designer's response
1	Invert bed planning 1.5, as built 1.52-1.28	Invert levels will not affect storm water storage volume only irrigation water. The base level of the reservoir has been sloped to aid periodic cleaning and taken as a whole does not reduce the required design storm storage volume. We do not propose to make any alterations to this element.
2	Reservoir Crest Level, planning granted at 4.86m AOD, as built indicated 5.11-5.17m AOD on the north bank and 4.70-4.88 m AOD on the south Bank	Crest heights higher than designed on the north side of the reservoir and lower than designed (by 160mm) on the south side of the reservoir. This will negatively affect available storm water storage volume above the required irrigation water and is not as per the design. The level of the south bank of the reservoir will be raised to a minimum of 4.86m AOD to ensure the design storage volume is provided in the reservoir. The north bank can remain, but this could be lowered to 4.86m AOD to utilise the excess fill material.



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3 Reservoir Outlet pipe level, planning granted at 3.850m AOD, as built level is 4.100m AOD.	This reduces the available storm water storage volume above required irrigation water by 250mm across the reservoir. We propose that a second outlet to the hydrobrake manhole is constructed at 3.85m AOD and the current outlet is removed.
4 Reservoir Hydro brake, planning granted for a discharge at 20/l/s, as built hydrobrake restricted to 13/l/s.	This is a reduction below greenfield runoff and will also affect the requirement for storm water storage the requirement for which will have been increased as a result. We propose the hydrobrake is changed to the planning agreed model with an outlet of 20l/s.
Swale inter connections as pointed out on site are different, installed 1 x 450mm, Planning 2 x 600mm. Originally there were far more yard concrete planned and is currently still shown on the planning drawings. The as built surface area run off to the front of the site is far less so therefore water flow through the ditch and swales reduces significantly.	This refers to the storage swale at the southwest side of the site. A reduction from 2x600mm to a single 450mm pipe is considerable. We propose that the 450mm pipe is replaced with the planning approved twin 600mm pipes or that 3 additional 450mm pipes are added to the existing 450mm pipe to allow the same conveyance.
Main swale, Bed level planning 4.100-3.800, as built 4.125	This will have resulted in reduced storage available within the swale and should be rectified. We propose the base of the swale is adjusted to the planning levels.
Outlet from main southern swale, planning 3.750, as built 3.980. Also pipe size on the planning drawing 450mm, as built 150mm	The change in invert level constitutes a reduction of available storm water storage volume above required irrigation water by 230mm across the swale. The outlet is governed to 13l/s and the 150mm pipe will allow a conveyance at 1:150 of 14.4l/s. We proposed that the outlet is lowered to the correct level of 3.75m AOD. The 150mm pipe is acceptable and will not affect the discharge to the watercourse.

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Western ditch is now piped with 150mm dia pipe in part	This ditch was culverted in error and has now been excavated and the culvert removed.
The outlet to the filter drainage is in one position on the as built info, planning drawing shows multiple outlets.	This refers to the French drain which has been taken to the western swale in a 225mm pipe. Whilst the 225mm pipe may not convey the full 100 year plus climate change rainfall event if the system overtops it will flow overland entirely within the site over the concrete site access roadway and be collected in the swale where it was originally intended to be discharged in multiple locations. There is no risk to any downstream catchment off site from this arrangement. We do not propose any change to this system.
Glasshouse roof water drainage is a different design from the planning. Planning drawing shows a gravity system with spaced out multiple outlets, headwalls and inspection chambers into the reservoir. Installed design is a fully closed system with outlets concentrated in one area.	The roof drainage has been built as a syphonic system, the original gravity system did not take storage in the gravity pipework into account in the storage calculations, all storage was within the reservoir and swales. These pipe sizes were for gravity conveyance only. There is no risk to any downstream catchment off site from this arrangement. We do not propose any change to this system.
Northern ditch is central to the meadow as appose to the planning drawing which details it parallel to the railway track. There are a few minor level difference on other areas but the above points are the headline differences that will need to be looked at for planning and compliance.	Whilst this encroaches into the existing flood storage area, it is not reducing the volume of storage available. There is no risk to any downstream catchment off site from this arrangement. We do not propose any change to this system.