

RURAL PARTNERS LIMITED
F I N E · P L A N S

Parkhouse Farm, Harbottle, Morpeth, Northumberland, NE65 7BD
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BACKGROUND STATEMENT

**Land North West of
Red House, Wykes Lane
Donnington, Spalding
Lincolnshire, PE11 4SE**

**Proposed
15 million Gallon Irrigation Reservoir**

Ref No. FP/26/01/BS September 2026

F Craven & Sons Ltd
The Mill
Wigtoff Road
Sutterton
Boston
Lincolnshire
PE20 2EL

1. BACKGROUND

F Craven & Sons Ltd are a well established farming company farming some 184 ha from Mill, Wigtoff Road, Sutterton.

With changing weather patterns there is pressure on the Environment Agency to more effectively manage the country's water resources particularly during the summer months and it is Government Policy to encourage the construction of reservoirs to store winter run off.

The applicant currently has a licence to extract 15m gallons (68,000m³) annually between the 1st January and the 31st March.

The proposal is to construct a lined earth banked reservoir to store this water for use during the growing period for use during the summer months.

Current cropping is typically:-

Cauiflower	70.3 ha
Sugar Beet	32.6 ha
Winter Wheat	32.1 ha
Potatoes	22.6 ha
Grass Margins	20.8 ha
SFI Crop Action	2.8 ha
Asparagus	0.7 ha
Miscellaneous	1.8 ha

2. RESERVOIR DESIGN CRITERIA

The reservoir has been designed with reference to the following:-

Small Embankment Reservoirs; Report 161; CIRIA (Construction Industry Research and Information Association)
Floods and Reservoir Safety: an Engineering Guide; The Institution of Civil Engineers. (F&RS)

Freeboard Height

Design Freeboard when full is 0.60m

Fetch	0.23 km	
Average Hourly annual max wind speed	18 - 20 m/s	Fig 3 F&RS
Once in Ten Yearly maximum wind speed	24 - 26 m/s	Fig 4 F&RS
Design Wind Speed assumed	25 m /s	

Using Fig 9. F&FS Relationship between effective fetch, wind speed and significant wave height by interpolation

Significant Wave Height 0.3 m

Design Wave Height

Using Table 2 F & FS Design Wave Heights

Dam Type	Earth Fill
Crest	Grass
Downstream slope	Random grass
Design wave height factor	1.3
Design wave height	= 0.3 m x 1.3
	= 0.39 m
	= 0.4 m

Wave Run Up

Using Fig 10 F&FS Ratio of run-up height to design wave height

Dam Slope	1 : 4
Slope characteristic	Smooth
By interpolation Run-up Ratio	1.4
Minimum Freeboard Allowance	= 0.4 m x 1.4
	= 0.56 m
	= 0.6 m

3. ARCHAEOLOGY

There are no known evidences of archaeology on the site which has been intensively cultivated over the years.

Should on stripping the site any evidence be found then Lincolnshire County Councils Historic Environment Team will be advised.

4. PLANNING LEGALISATION

The proposed development can be dealt with under the Prior Notification Procedure for the following reasons:-

The reservoir is reasonable necessary for the purposes of agriculture
The development is being carried out on an area of land of greater than 5 ha
The area of the proposed operations exceeds 0.5 ha
No part of the development is within 25 metres of a metalled part of a trunk or classified road
No excavated material will be removed from the unit. (The spoil from the excavation will be used to construct the walls of the reservoir - see appendix i)

5. CONCLUSION

Prior Approval should be granted for the proposed reservoir so as to enable F Craven & Sons Ltd to provide consistent yields and quality so that they can remain competitive against other growing areas in the country and assist in future proofing the business from the effects of climate change.

Simon Kenny B.Sc., I.Eng., M.I.Agr.E.
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Drawing No.	Description
FP/26/01/250	Site Plan
FP/26/01001	Plan and Section

Appendix i

Volume Calculations based on Rectangular Reservoir with
Area of Bottom = 16,400 sq m
Area of Bottom of Proposed Reservoir = 16,280 sq m

Lagoon Model

09/09/2026

Client Craven 15m

Site Reservoir

CALCULATION OF RESERVOIR QUANTITIES	15,019,710	Galls
	68,271	cu m
Volume above Ground Level	9,500,284	Galls
	43,183	cu m
Description	Qty	Unit
Bottom Width of Reservoir	100.00	m
Bottom Lenght of Reservoir	164.00	m
Ratio of Side Slopes (Wet)	4.00	
Ratio of Side Slopes (Dry)	2.50	
Depth of Water	3.38	m
Freeboard	0.60	m
Depth of Excavation below existing G.L.	1.40	m
Depth of Top Soil	0.00	m
Bulk Factor for Top Soil	1.00	
Width of Bank Top	4.00	m
Height of Bank above Ground Level	2.58	m
Width at Mid Depth of Water	113.51	m
Lenght at Mid Depth of Water	177.51	m
Width at Top Water Level	127.02	m
Lenght at Top Water Level	191.02	m
Width at Top of Bank	131.82	m
Lenght at Top of Bank	195.82	m
Area of Bottom	16,400.00	sq m
Area at Mid Depth	20,149.74	sq m
Area at Top Water Level	24,264.63	sq m
Width of Liner	136.80	m
Lenght of Liner	200.80	m
Area of Liner	27,470.60	sq m
Surface Area of Excavation @ Sub-Soil level	19,482.24	sq m
Area at Mid Depth of Excavation of Sub Soil	17,909.76	sq m
Overall Width of Reservoir Top of Bank	139.82	m
Overall Lenght of Reservoir Top of Bank	203.82	m
Overall Width of Reservoir @ Sub-Soil level	152.71	m
Overall Lenght of Reservoir @ Sub-Soil level	216.71	m
Overall Area of Reservoir @ Sub-Soil level	33,095.26	

VOLUMES

Volume of Water Storage in Gallons	15,019,710	galls
Volume above Ground Level	9,500,284	galls
Volume of Sub Soil Excavated	25,088	cu m
Volume of Top Soil Strip	0	cu m
Total Volume of Excavation	25,088	cu m
Volume of Bank	21,120	cu m