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 West of
Home Farm, Marsh Road
Holbach Hurn, Lincolnshire

Proposed
14 million Gallon Irrigation Reservoir

Ref No. FP/2501/BS November 2025

Worth Farms Ltd
Holbeach Hurn
Spalding
Lincolnshire
PE12 8JR

1. BACKGROUND

Worth Farms Ltd are a well established farming company farming some 3,500 ha predominately in the Holbeach area.

Current Cropping for 2026 is as follows:-

Crop	Area in ha's
Wheat	1149.82
Potatoes	348.31
Salads	299.34
Maize	296.48
Sugar Beet	157.52
Kale	129.73
Spinach	112.29
Hybrid Rye	47.54
Mustard	46.99
Flax	21.06
Ditches	134.00
Margins/Woods/Paddocks	112.96
ELS	70.13

To maintain quality and continuity of production it is necessary to irrigate them, and so as to meet the demands of their customers irrigation is required to provide consistent yields and quality.

A number of reservoirs have been constructed over the years but additional capacity is still required.

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 0.75m

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

The are no known evidence 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 Worth Farms 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 affects of climate change.

Simon Kenny B.Sc., I.Eng., M.I.Agr.E.
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PLANS

FP/2501/125 Site Plan

FP/2501/01 Plan and typical Section of reservoir

Appendix i

Volume Calculations based on Rectangular Reservoir with

Area of Bottom = 17,680 sq m

Area of Bottom of Proposed Reservoir = 17,700 sq m

AHWORTHEPrev2 02/10/2025
Client F. Parnell
Site Home Farm

CALCULATION OF RESERVOIR QUANTITIES	13,902,240	Galls
	63,192	cu m
Volume above Ground Level	8,665,323	Galls
	39,388	cu m

Description	Qty	Unit
Bottom Width of Reservoir	130.00	m
Bottom Lenght of Reservoir	136.00	m
Ratio of Side Slopes (Wet)	4.00	
Ratio of Side Slopes (Dry)	3.00	
Depth of Water	3.00	m
Freeboard	0.90	m
Depth of Excavation below existing G.L.	1.25	m
Depth of Top Soil	0.00	m
Bulk Factor for Top Soil	0.00	
Width of Bank Top	4.00	m
Height of Bank above Ground Level	2.65	m
Width at Mid Depth of Water	142.00	m
Lenght at Mid Depth of Water	148.00	m
Width at Top Water Level	154.00	m
Lenght at Top Water Level	160.00	m
Width at Top of Bank	161.20	m
Lenght at Top of Bank	167.20	m
Area of Bottom	17,680.00	sq m
Area at Mid Depth	21,016.00	sq m
Area at Top Water Level	24,640.00	sq m
Width of Liner	166.16	m
Lenght of Liner	172.16	m
Area of Liner	28,606.18	sq m
Surface Area of Excavation @ Sub-Soil level	20,440.00	sq m
Area at Mid Depth of Excavation of Sub Soil	19,035.00	sq m
Overall Width of Reservoir Top of Bank	169.20	m
Overall Lenght of Reservoir Top of Bank	175.20	m
Overall Width of Reservoir @ Sub-Soil level	185.10	m
Overall Lenght of Reservoir @ Sub-Soil level	191.10	m
Overall Area of Reservoir @ Sub-Soil level	35,372.61	

VOLUMES

Volume of Water Storage in Gallons	13,902,240	galls
Volume above Ground Level	8,665,323	galls
Volume of Sub Soil Excavated	23,804	cu m
Volume of Top Soil Strip	0	cu m
Total Volume of Excavation	23,804	cu m
Volume of Bank	23,438	cu m