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

Parkhouse Farm, Harbottle, Morpeth, Northumberland, NE65 7BD
Tel: 01669 650250, E-mail: sk@ruralpartners.co.uk

BACKGROUND STATEMENT

Land to East of Durhams Road
Wiles Farm, Dawsmere
Spalding, Lincolnshire

Proposed
Irrigation Reservoir

Ref No. FP/007R/BS June 2017

Loveden Estates Ltd
Wiles Farm
Durhams Road
Dawsmere
Spalding
Lincolnshire
PE12 9NJ

1. BACKGROUND

Wiles Farm extends to some 385 hectares, farming the normal South Lincolnshire crops including 65 hectares of potatoes and some brassicas and lettuces beside the normal arable crops for the area.

An application for an Irrigation Reservoir on this site was granted Prior Approval by South Holland District Council in November 2016, ref: H06-1007-16.

Work has not started on that reservoir and this proposal is to replace the previous Prior Approval granted but for a larger reservoir on the same site.

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	0.2 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	Road
Downstream slope	Random grass
Design wave height factor	1.2
Design wave height =	0.3 m x 1.2

= 0.36 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	1.7

Minimum Freeboard Allowance = 0.4 m x 1.7
= 0.68 m
= 0.7 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

Lincolnshire County highways have confirmed the Durham Road is not a classified road and that therefore 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 with any surplus top soil spread adjacent to the reservoir - see appendix i)

5. CONCLUSION

Prior Approval has been previously granted on this site, and this application is for a larger reservoir capable of storing 15,000,000 and it is hoped therefore that Prior Approval can be granted for this replacement application which is reasonably necessary for agriculture and will enable Loveden Estates Ltd to store excess winter rainfall for irrigation during the summer months thereby helping to future proofing the business from the affects of climate change.

Simon Kenny B.Sc., I.Eng., M.I.Agr.E.
Rural Partners Ltd
Parkhouse Farm
Harbottle, Morpeth, Northumberland, NE65 7BD

PLANS

FP/007/125R Site Plan

FP/007/01R Plan and typical Section of reservoir

Appendix i

Volume Calculations

15m Gall Reservoir 04/10/2016
Client Loveden Estates Ltd
Site Land East of Durham Road

CALCULATION OF RESERVOIR QUANTITIES	15,214,320	Galls
	69,156	cu m
Volume above Ground Level	8,874,678	Galls
	40,339	cu m

Description	Qty	Unit
Bottom Width of Reservoir	130.00	m
Bottom Lenght of Reservoir	150.00	m
Ratio of Side Slopes (Wet)	4.00	
Ratio of Side Slopes (Dry)	2.50	
Depth of Water	3.00	m
Freeboard	0.75	m
Depth of Excavation below existing G.L.	1.40	m
Depth of Top Soil	0.45	m
Bulk Factor for Top Soil	1.00	
Width of Bank Top	4.00	m
Height of Bank above Ground Level	2.35	m
Width at Mid Depth of Water	142.00	m
Lenght at Mid Depth of Water	162.00	m
Width at Top Water Level	154.00	m
Lenght at Top Water Level	174.00	m
Width at Top of Bank	160.00	m
Lenght at Top of Bank	180.00	m
Area of Bottom	19,500.00	sq m
Area at Mid Depth	23,004.00	sq m
Area at Top Water Level	26,796.00	sq m
Width of Liner	164.92	m
Lenght of Liner	184.92	m
Area of Liner	30,498.16	sq m
Surface Area of Excavation @ Sub-Soil level	21,685.76	sq m
Area at Mid Depth of Excavation of Sub Soil	20,578.44	sq m
Overall Width of Reservoir Top of Bank	168.00	m
Overall Lenght of Reservoir Top of Bank	188.00	m
Overall Width of Reservoir @ Sub-Soil level	182.00	m
Overall Lenght of Reservoir @ Sub-Soil level	202.00	m
Overall Area of Reservoir @ Sub-Soil level	36,764.00	

VOLUMES

Volume of Water Storage in Gallons	15,214,320	galls
Volume above Ground Level	8,874,678	galls
Volume of Sub Soil Excavated	19,554	cu m
Volume of Top Soil Strip	16,544	cu m
Total Volume of Excavation	36,098	cu m
Volume of Bank	25,150	cu m