

Felixstowe Peninsula Project Proposal December 2017



4th December 2017

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1. Exec Summary

This proposal is an attempt to bring together the great work and development that has been achieved by the cooperative group, to a point where a commercial decision can be made.

The proposal is based on historic data supported by innovative and collaborative strategic thinking to produce benefit for a diverse group of stakeholders.

For this to proceed, it will require all beneficiaries to recognise that sometimes their reward may not be truly proportional to their input. However, without a collaborative approach the project would never launch.

The proposal is as follows:

Water

- There is sufficient water to meet the collective landowners requirement and with careful engineering the risk of saline contamination can be minimised.
- The summer water availability is limited, so the proposal will only be viable if landowners are prepared to invest in further winter storage.
- The concerns around existing IDB pumping activity causing damage to valuable saltings can be completely removed. Whilst still providing freshwater flows, above Natural England's expectation to the estuary.
- Improved relationships with the EA are likely to provide a light touch view to licence charges.

Pumping

- IDB remains in control of pumping, operating suitable equipment to service a 17km pipeline.
- IDB continues to finance the pumping activity in line with its existing funding streams.
- Only irrigation water to be pumped from the Kings Fleet holding sump. Surplus drainage water to be diverted to Falkenham Pump and to the reinstated Felixstowe golf course sluice/pump.

Pipeline

- A collectively funded pipeline to be installed by a new company made up from the landowners interested in new water supplies.
- Pipeline will release water to each farm at strategically agreed points
- Funding and operating costs to be paid for by users on a proportionate basis, based on actual volumes pumped.

Costing

- Subject to landowners agreeing, loan payback terms and being successful in its 40% grant application; this proposal will deliver water to farms below the target of £20 per acre inch. This figure includes the cost of providing new water storage reservoir facilities.

Structure

- The proposal is to form a new business as a company limited by guarantee. This will be responsible for building the project, repaying the pipeline loan, planning and liaising with the IDB, EA and landowners and delivering the long term strategy.
- Governance will be achieved through a strategic Board representing all of the various stakeholders.
- A single person would be engaged to build, manage, administrate and be responsible to the board.

Timeline

- Decisions to this proposal required by Christmas.
- Detailed plan to be resolved by end of March to ensure strong grant proposal and timely appointment of contractors.
- Pipeline construction to start in May and complete by the end of November
- Pumping to reservoirs to commence January 2019

Confidentiality: I recognise that the information supplied in this report is built from individual details relating to private ownership. For this reason names and farm locations are redacted in this document.

2. Stakeholder Objectives

Over the last 3 years the Felixstowe Peninsula Project has been supported by a range of stakeholders. It is important in such a collaborative project, that we fully understand, what each supporter is looking to achieve through our combined efforts.

Suffolk County Council

- To support the holistic management of Suffolk's valuable water resource, so to maximise its environmental and economic benefits

IDB

- To continue to meet it's core daily obligations to the public and landowners
- To support the development of the holistic use of water
- To maximise economic interests of landowners and stop damage to the environment (e.g. saltings at Kings Fleet)
- To ensure that any scheme does not burden the IDB with risk and increased workload that would compromise its effectiveness

Landowners

- To develop new water sourcing opportunities, that allow further economic growth to local agriculture whilst improving the true sustainability of the environment

Environment Agency

- To support the holistic potential of the FPP, whilst ensuring Natural England's future requirements are met and water is licensed in a manner that allows catchment status to be improved.

Anglian Water

- Support via the Water Resources Act, to encourage collaboration between public water supply and agricultural water users to explore opportunities for future supplies, to meet their public water supply future resource strategy

David Adams and family

- Respect for the land and water facilities provided. We should leave the land and drainage in no worse condition than we take it on.

3. Water Resource

Before exploring water resources , I am mindful that we all use various languages when discussing quantities of water. The following report uses a language based on meters cubed and acre inches. For those of you that speak with different tongues!! I have provided the following quick conversions.

1 m³ = 220 gallons

1 acre inch = 103 m³ = 22,660 gallons

1 mega litre = 1,000m³ = approx. 10 acre inches

1litre/second = 86 m³/day = 18,920 gallons/day

3.1 Water Requirements

One of the drivers for this project is the landowner’s desire to increase both the volume and sustainability of their irrigation water supply.

The following represents the most recent (October) indication of landowner’s interest in further water supply with an indication of summer and winter timing. Current and planned winter storage reservoir capacity is also shown.

Table 1.

Land Owner	Farm	Operator	Committed Water Volumes 000m ³		Storage Capacity 000m ³	
			Winter	Summer	Current	Planned
██████████	██████████	██████████████████		50	50	
██████████	██████████	██████████████████	7	13	32	
████	██████████	██████████		35	Seepage	?
████	██████████	██████████		35	0	?
██████████	██████████	██████████████████	100	45	140	
██████████	██████████	██████████████████	115	35	307	
██████████	██████████	██████████████████		25	16	
██████████	██████████	██████████	5	15	Seepage	
██████████	██████████	██████████████████	50		Seepage	50
██████████	██████████	██████████████████		60	120	
██████████	██████████	██████████████████		20	Seepage	?
		Totals	277	333		

This gives an initial total requirement of 610,000m³ per annum with a strong preference for summer water (55 % summer, 45 % winter). This is clearly driven by the desire to reuse existing winter storage capacity, by using summer water “top up”.

To justify this increase in water use, the collective landowners would be required to provide evidence of need, to support the application. The irrigable area of the collective landownership that the proposed scheme could service is estimated to be 6,000 acres.

The current combined agricultural license volume for this area is 1,174,963m³. This is equal to an average of 2 acre inches, per acre.

The proposed scheme could provide volumes that would double this average, delivering an average of 4 acre inches per acre. This would comfortably fit within the ceiling set by EA thresholds and precedents. (Some recent local schemes have been accepted up to an average of 7 acre inches per acre)

It should also be noted that of the current collective license volume, only 53% of all licensed volume, are licences of right, with the 47% balance being time limited, to be reviewed by 2026 or earlier.

Of these time limited licences, the majority (85%) are surface water licences and the majority (88%) are winter abstraction.

Table 2

Licence Summary for collective Landowners

Total Collective Licence	1,174,963m³
Licence of Rights	53%
Time Limited Licence	47%
Surface Water Licence	67%
Ground Water Licence	33%
Annual Licence	18%
Winter Licence	43%
Summer Licence	34%

The above clearly demonstrates that the proposed scheme is required, not only to deliver extra volume, but also to provide extra security, to protect against future license review. The EA have committed to review the FPP proposal as “extra” water resource and not use it to erode existing “vulnerable” licences.

However, I believe we need to show strong cooperative behaviour with the EA in this area. Once the true yield and quality of this scheme is proven we should be open to discussions on licence changes, licence trading, water trading to Anglian Water and supply of winter stored water, to recharge rivers when in stress . eg. Mill River.

3.2 Water Availability and Storage requirements

There are a range of values available for historic annual water volumes “removed” from the Felixstowe Peninsula. These have been used to come up with a best fit model. This information comes from the Mott McDonald report and IDB pumping records. Paul Bradford has reviewed these alongside EA data and suggests that we should work on the following guidelines

Table 3.

Year	Probability	Total	Summer	Winter	% Winter
Dry	1 in 15	600,000	0	600,000	100%
Average	2 in 3	900,000	150,000	750,000	83%
Wet	1 in 9	1,200,000	300,000	900,000	75%

Please recognise that these are guide figures only, but in the context of the initial requirement indicated, it would appear that we have the quantity available, subject to quality criteria (salinity). Separate EA figures would suggest that a minimum of 600,000m³ of winter water would be available.

The profile of availability (summer or winter) is however the opposite to the landowner requirement. This may improve with further flow data and future separation of saline flows, but based on today’s information there is a need to invest in winter storage capacity.

Despite the economies of scale achieved by building one centralised reservoir close to the Kings Fleet, these would be offset by the costs of pumping high pressure irrigation water to individual farms (Bigger pumps, bigger pipes). Equally transferring at low pressure would be uneconomic, as the water would end up being pumped three times to get water to fields.

This proposal would be for individual landowners to build their own on farm storage capacity (possibly combining forces with neighbours), to accommodate the predominant winter supply. A collectively owned pipeline would then be laid to service these reservoirs. The estimated cost of reservoir construction is demonstrated below in Table 4

Table 4. Reservoir construction costs.

A 100, 000 m³ reservoir is likely to cost circa £ 120,000 if clay lined and £200,000 if butyl lined.

A successful grant scheme could reduce these figures by 40 % and should be seen favourably, if presented alongside the collective pipeline scheme.

Depending on the view taken on depreciation and grant viability, this could give annualised costs between £ 2.40 and £ 10 acre inch

Example:

Investment for 100,000m³ Reservoir

		Clay £	Lined £
Capital Required		120,000	200,000
Grant Funding	40%	48,000	80,000
Nett Capital		72,000	120,000
Depreciation years	25	2,880	4,800
Cost p.a./ac" stored		£2.88	£4.80

3.3 Water Quality

In light of the salinity data produced by Mott McDonald, there would be considerable concern for the abstraction of suitable water, both in summer months and during high flow pumping periods.

To give more confidence around salinity (and flow data) ,non salinity and flow probes have been installed at the existing extraction point at Kings Fleet. These will need to run for 2 to 3 years before we can establish a reliable trend. With the current dry conditions no statistically reliant data has been provided to date.

(NB.current flow rates are only at 20lts per second= 1700 m³ day = 310,000 m³ per winter abstraction period)

However, having worked with Giles Bloomfield, there is a proposal that will allow higher risk saline flows to be separated from fresh water flows. This will give greater confidence for fresh water volumes and will allow the IDB to use the less certain quality to meet flow levels required on saltings. (More to follow on how this will be achieved in the pumping section).

3.4 Licence

Following an initial response from the EA that was not too positive, Jane, Paul and Tim have had a very constructive meeting in Westminster, which indicates a more realistic position to be taken going forward, with the FPP being badged as a pilot scheme, which should give greater flexibility and support from our local EA team.

The hopeful outcome being

- Recognition that the project is a national "pilot" scheme with possible replication in other areas.
- Minimal charging for summer license and sensible charging for winter license to cover administrative costs.
- Access to attractive long term funding stream (via IDB).

In light of the cooperative approach being offered from Westminster and in the hope of taking those at the coal face in the EA with us, I believe we should offer support to

help the EA with some of their current environmental challenges on the peninsula. These could be

- Invest in salt marsh re-establishment (faggot structures)
- Offering higher freshwater flows to saltings.
- Helping IDB with practical eel transfer systems.
- Engage with Suffolk Wildlife Trust, Rivers Trust and directly with Natural England to improve mutual understanding with them.

To achieve this outcome it is proposed that the IDB, on behalf of the collective land owners, apply for and own the abstraction license. The costs of this can be recovered via the volume related charge shown in the costings (appendix 1)

Within this proposal the IDB wish to manage teh relationship with the EA and NE and the collective land owner group would support them financially through a one off capital donation and ongoing annual funding to allow the IDB to help NE meet their coastal objectives.

4. Pumping

The initial desire from landowners was to have full control and ownership of pumping facilities.

If you look at the costing sheet in Appendix 1 and contrast scenarios 2 & 3, it is clear that the desire to have ownership and control would come at a considerable cost.

The proposal is to leave the IDB to do what they know and do well – pumping and sea defences and that the landowners should also do what they know and do well - pipes and reservoirs. This also strongly supports the objectives of the HWMP and grant schemes, demonstrating collaborative behaviour across the project.

The pumping proposal is one that allows the IDB to meet its wider drainage obligations, without further burdening ratepayers. It is also one that would fit with their existing teams workload, simplify their Kings Fleet long term strategy, whilst not requiring the collective landowner to be tied to a daily commitment. It will require good communications, planning and telemetry to ensure good connection between farm and IDB. The detailed plan of pumping arrangements at Kings Fleet can be seen in Appendix 2.

The costing does recognise the need for the IDB to charge an annual fee proportional to the volumes pumped, to reflect the capital investment that they will need to fund ahead of their original timescale. This will also provide them with some funding to help with higher level of eel support schemes and to recognise the hopefully, small license fee that they will be paying on our behalf. The figure in the costings has yet to be agreed with the IDB.

For the purpose of this proposal we have adopted the Primes quote both technically and financially. If the project goes ahead, this would be put out to tender to ensure technical credibility and best value. The current IDB pumps would be removed and

replaced with floating pumpsets, triggered by flow and salinity sensors and with full telemetric control and recording.

5. Pipeline

The proposed pipeline route is the same as circulated at the last FPP meeting.

The proposal is for the pipeline to be collectively owned by the landowners and funded over a 20 year term. Each landowner would have an access point at the most favourable location for their holding. Release and recording of water at this point will be automatically controlled in line with the agreed volumes.

As above, for the purpose of this proposal, I have adopted the Primes quote (modified to reflect the new route), and this would then go out to tender, to check technical and financial value.

With the exception of 4 potential easement situations, where land is not owned by potential beneficiaries, I have assumed all collaborative landowners will provide access free of charge. For the four outstanding easements, I have provided a budgeted contingency, for a one off capitalised figure, within the costing.

The possibility of aligning our route with the Anglian 1 route was explored. Disappointingly due to the lack of practical engagement, unfavourable route, cost and timelines, this is not considered to be a viable option, with the exception of a small stretch at Waldringfield.

The route is designed to cross the existing Anglian Water pipeline that services Alton Water reservoir. This will provide AW with the opportunity to take water from the project. The provision of a take off point recognises the contribution made by AW early on allowing the feasibility study to proceed.

6. Costing (see Appendix 1 – Felixstowe Peninsula financial options)

When the project was first explored, a figure of £20 per acre inch, for water supplied to farm, was suggested as a fair market rate and one that it was hoped that the project would be able to meet and any proposals benchmarked against.

It quickly became clear to me that the decision making process for this project was stalling, as it was not clearly demonstrating cost and value to the potential stakeholders.

To help demonstrate the value of this proposal, I have constructed a costing sheet that will allow you to see the implications of different scenarios. The most significant variables in this costing are listed below and can be altered on the spreadsheet in the cells shaded blue, to allow you to look at the impact of these variables.

- Grant success
- Payback term
- Energy usage
- IDB Charge

- Committed volumes by members
- Actual annual volumes pumped

The 6 scenarios demonstrate 5 contrasting outcomes, and help to illustrate a wide range of values and one outcome (scenario 6) that I believe would deliver a prudent costing in an average year.

I have also attached a sheet clarifying what the benefits and liabilities would be to a 10% member of the project.

The costing does indicate that the combined budgeted cost for the pumping/pipeline, plus the additional cost of individual farms providing their own winter reservoir storage, could be delivered within the £20 acre inch target.

7. Risks & Opportunities

Risks

Sea Wall Integrity

With the proximity to sea wall the Kings Fleet site would be vulnerable to overtopping. Having taken some advice from Andrew Hawes, he believes that the height and condition of this wall to be as good as any along the Suffolk Estuaries.

Saline Intrusion

As explained earlier, there is currently evidence of some compromise of water quality. This risk would be minimised with the pumping arrangements and protected by saline monitors and trip sensors on pumps, to avoid pumping contaminated water into reservoirs.

Archaeological Works

There is a risk with the proximity to Kings Fleet and its history, that we could face some Archaeological challenges. This risk is minimised by the width and depth of the disturbed ground and we have budgeted archaeologist support whilst trenching near the Fleet.

Opportunities

With the long term weather predictions suggesting more volatility, there is likely to be a greater demand on water sources. With the increased urbanisation of the Felixstowe peninsula (eg. new lorry park), there is also likely to be greater run off. The scheme is not limited to the original volumes assessed and could be a conduit for future greater volumes for all water users.

As mentioned earlier, existing water sources are likely to be challenged over time. This scheme provides extra security to insure against any deterioration of existing licences.

8. Funding

The initial funding, circa £125,000, was raised by SCC, Anglian Water, IDB and ESWAG to enable the project feasibility to be assessed by commissioning Mott McDonald and other environmental surveys.

More recently all landowners interested in taking water, have contributed funds, proportional to the volumes they would like to take from the scheme.

Capital required for this proposal would be between £1.6 – 1.7 million. The scheme would be eligible for the countryside productivity grant, Water Resource Management. If successful this would reduce the capital required to £1.0 million.

Funding of this capital is being discussed with various sources including the IDB, Green Bank and High St Banks, with terms ranging between 20 to 30 years and interest rates running between 3-4% per annum.

Each member would be required to pay an annual charge proportional to their original share of water requested, e.g. 10% of water volume committed, pays 10% of annual loan repayment.

Annual running costs of the business (as indicated in the costing) would be charged quarterly in advance for the committed volume on the first three quarters with a final balancing payment at the end of year to reflect actual pumped volumes.

9. Structure

Having taken advice from Barker Gotelee and Turner and Ellerby, the proposed company structure would be for a company limited by guarantee with every member having equal voting rights.

Governance structure proposed would be to form a Strategic Board with representation from SCC, AW, NE, IDB, land owners and operations manager. To meet annually or as necessary.

An operational management committee would be set up to look after the day to day workings. This committee would meet quarterly through the construction phase and six monthly thereafter.

It is proposed that a group manager is contracted to manage the project through its construction phase and then remain in a part time role to manage the group on an annual basis. Day to day operations, include liaising with IDB and landowners, to be managed by Group Manager. No employment is envisaged at this stage.

Accountant to be engaged to reconcile annual accounts and to ensure correct recording procedures are in place to maximise tax advantage through construction and ongoing operation

Quarterly performance reports to be circulated to all members.

10. Timeline

December 11th 2017	Stakeholder Meeting.
Pre Xmas 2018	Decision made to proceed on project. Company formed. Full application for license to EA.
February 1st 2018	Easements completed. Pipeline route survey completed.
February 1st to March 30th 2018	Grant proposals completed. Funding stream agreed. Tenders for pipeline and pumping completed.
April 1st 2018	Contractors appointed.
May 2018	Construction of pipeline commences.
August 2018	Pumps installed.
December 2018	Commission and pressure test pipeline.
January 2019	Start pumping.