Project Groundwater Greater Lincolnshire

Welcome

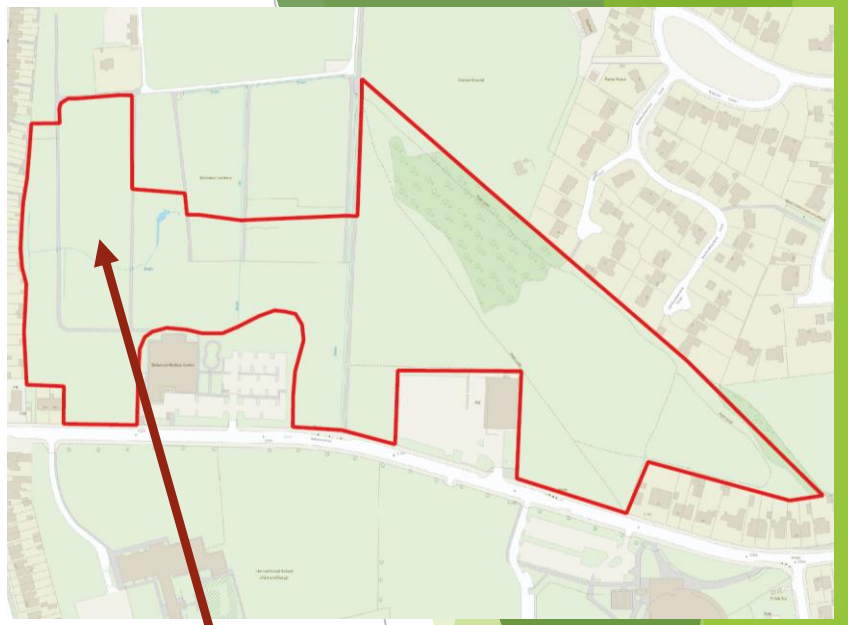
27th of Nov 2023

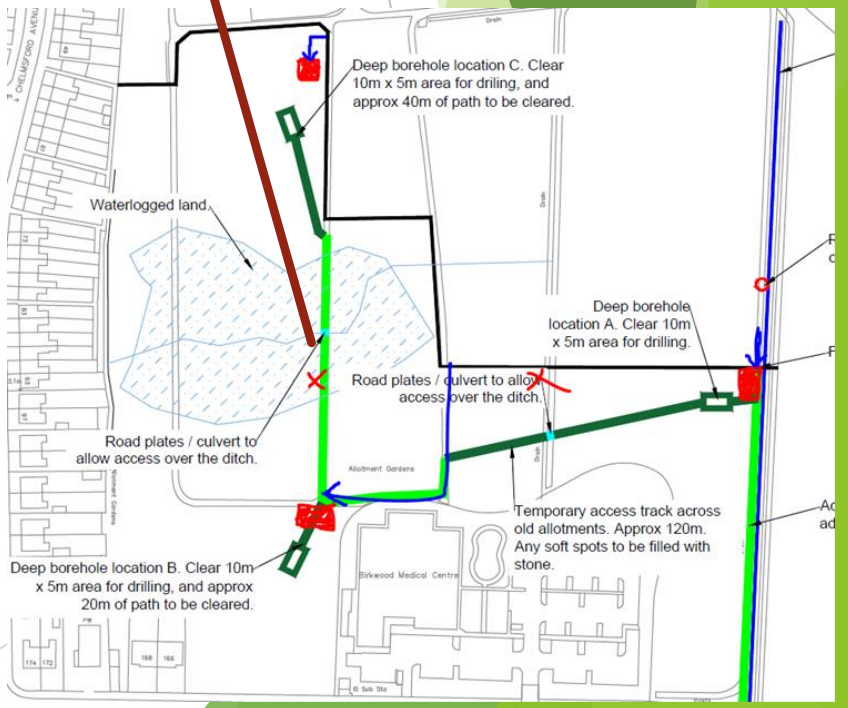
Grimsby / Saltings Allotments

EA have requested a risk methodology statement be prepared for the site before large scale clearance works go underway. Anglian water provided 20 years of water quality data to support this.

Access clearance has begun. This work involves clearing the gates and a pathway into the site, where soil sampling will proceed.

Once site access is cleared, companies are invited on site to generate wetland designs for board approval. Meeting with FAG and Allotment owners to discuss their requirements





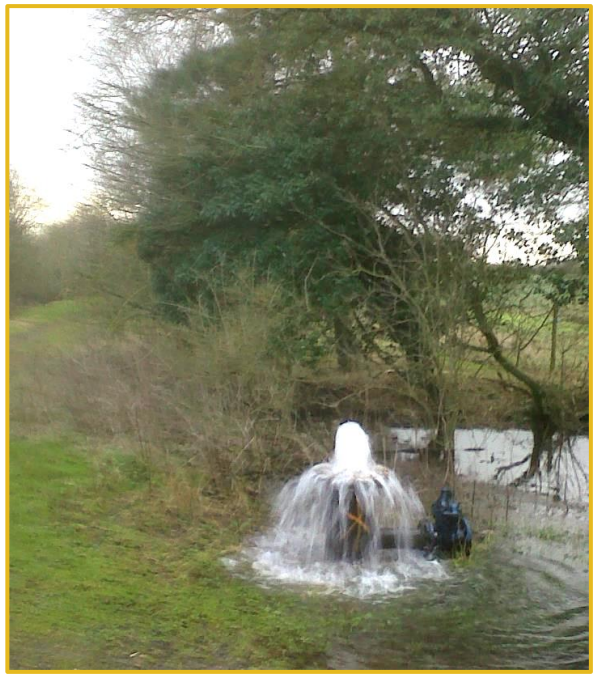
In go the clearance team

Lincoln / Hillside Avenue

- Groundwater escaping from front of properties, ongoing issue for several years
- Atkins to undertake an investigation of the location in a 4 step approach
    1. An in-depth analysis of the location
    2. Engagement with residents
    3. Update the Hydrogeological Model for the area
    4. Propose recommendations and actions

Borehole project is getting Bigger

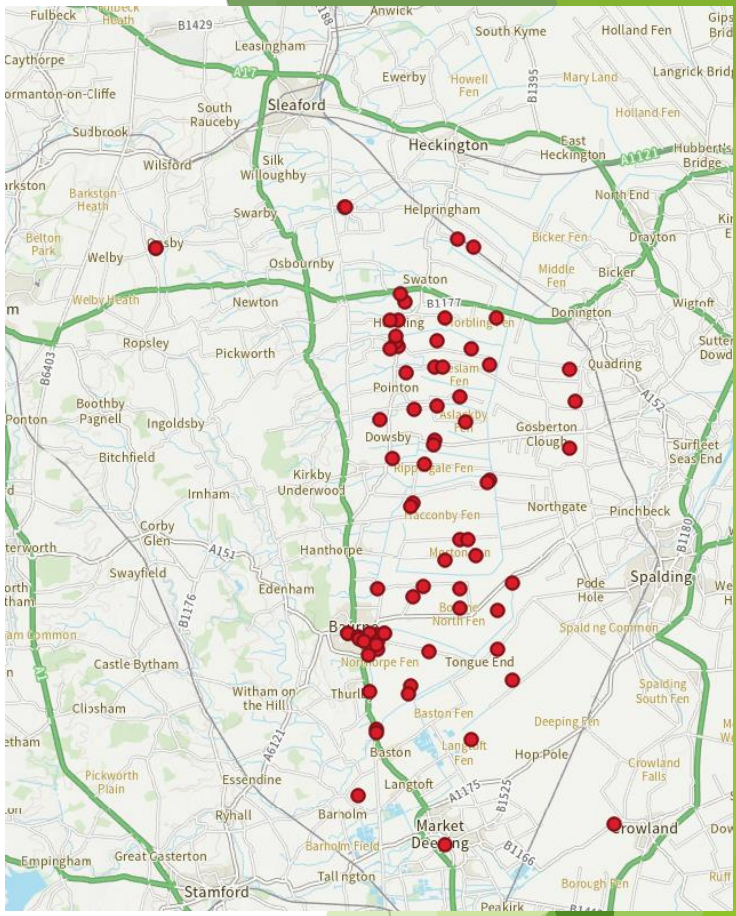
Bourne Boreholes

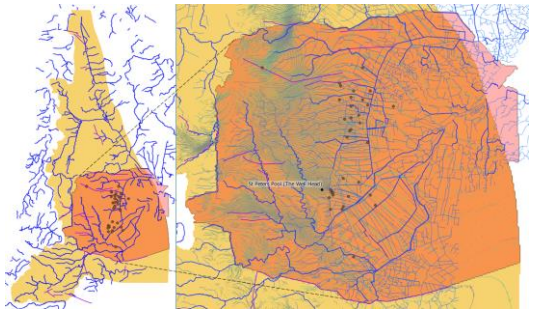


Borehole Legislation

Bourne Boreholes

- Initial walkover survey conducted 27th / 28th September, limited number of residents uptake, only 2 leaking boreholes, neither from the historical list
- Due to the need to focus on those with historical data, the original 75 are the main focus of the NFF going forward
- Door knocking has commenced to engage better with residents on the list that have yet to be contacted, letters have been provided for leaving in case residents aren't home
- Any on the list of 75 that have previously stated not interested, are being sent a separate letter by LCC to just confirm the scope of the project and the desired outcome from a walkover survey to hopefully re-engage them
- Hydrologists are currently refining and re-running the models to better increase knowledge and predictivity





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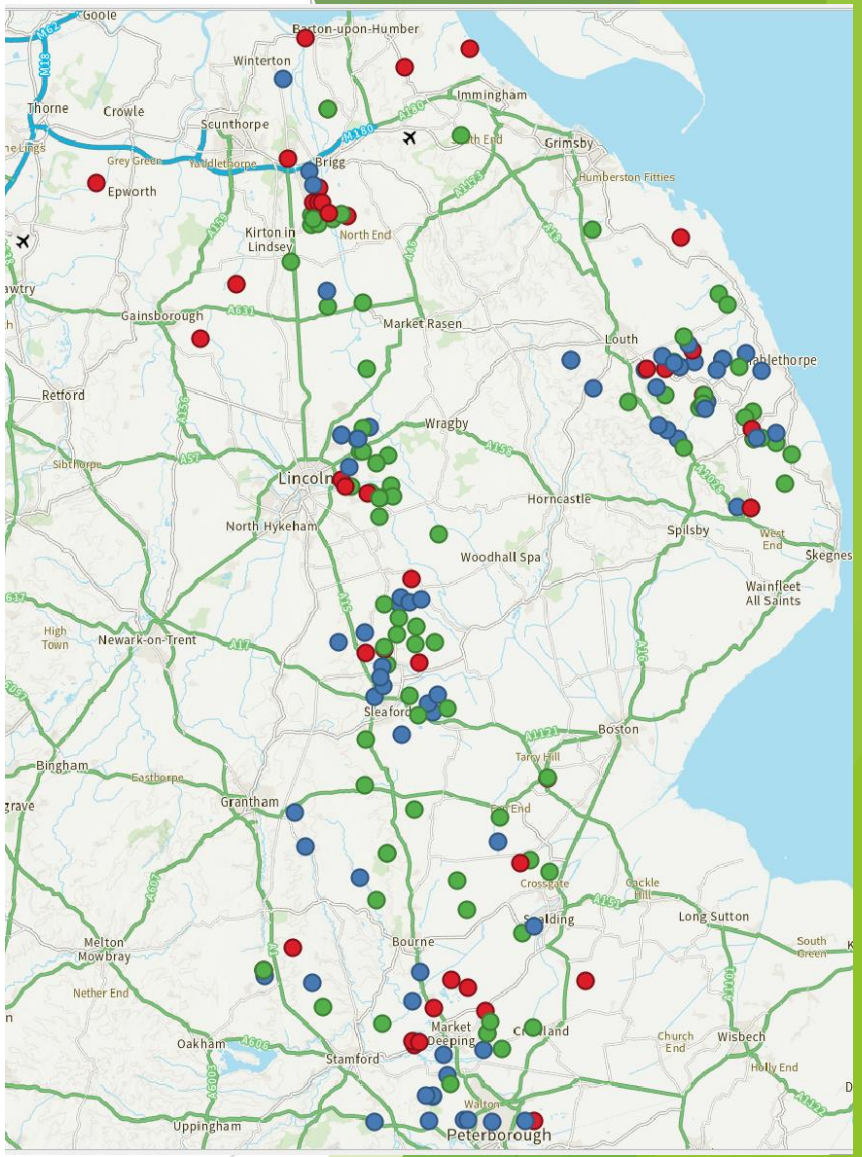
Borehole Legislation

wilkin chapman llp solicitors

Project GW is liaising with Wilkin Chapman LP to begin proceedings to create a legal document defining ownership and maintenance responsibilities of Borehole

Key areas of identification are:

- Liability for historic boreholes
- Review current system for the creation of new boreholes against engineering advice and other factors such as climate change to see if still fit for purpose.
- Develop a register of all boreholes – who would maintain this and how could it be searched.
- Is a better monitoring and inspection regime needed for current boreholes?
- Impose a system for checking caps on known historic boreholes and possibly impose obligations of repair. Who would pay - landowner / operator / grants?
- Raising public awareness and how?
- Consider whether there are any other existing regulatory regimes we could learn from



Working with Tetratech who are currently in the process of identifying and decommissioning existing EA boreholes to gain a wider and better understanding of borehole conditions and water loss.

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- Expansion to Salinisation project:-
  - Significantly increased area of investigation from Holbeach fen to the whole of the Lincolnshire Fens
  - Economic value for Field to Fork

How will this be achieved

1. Identify the type of salinisation process across the county and effect of climate change
2. Quantify the degree, length and severity of salinity and effect of climate change
3. Assess the types (and value) of crops grown
4. Estimate the loss of yield (and value) from salinisation for Lincolnshire crops
5. Assess farm level decisions/choices such as the use of salt tolerant crops and other adaptation mechanisms
6. Qualitatively assess the effects of historical salinisation on community.

By answering these questions will enable us to quantify the economic impact from field to fork

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- Although there is a wide variation between and within crop types, farm-level studies show crop yield losses on salt-affected lands of 36 – 86%
- (40–63% in India, 36–69% in Pakistan and 71–86% in Kazakhstan (Qadir et al. 2014)).

Economic Costs of Salt-Induced Land Degradation in Different Parts of the World

Study Authors	Country	Methodology	Equivalent in Million USD per Year
Marshall and Jones (1997)	Australia	Opportunity costs based on dose response method and mitigation costs	0.83
Janmaat (2004)	India	Opportunity costs (forgone agricultural income)	46
Marshall (2004)	Australia	Transaction costs	20.03
John et al. (2005)	Australia	Opportunity costs	0.09
Aslam and Prathapar (2006)	Pakistan	Opportunity costs	267
McCann and Hafdahl (2007)	Australia	Transaction costs	102
Winpenny et al. (2010)	Spain	Mitigation costs	810

Source: Negacz (2018).

- We are sharing knowledge with IGRAC and Fens 2100+ to understand and shape the wider impact of salinisation on farmland, agriculture and food production
- *[Katarzyna Negacz.Future of Sustainable Agriculture in Saline Environments]*

Overview of the next 6 months

Start clearance of saltings allotment vegetation and soil to create the basis of the wetland nature park to capture water as and an asset

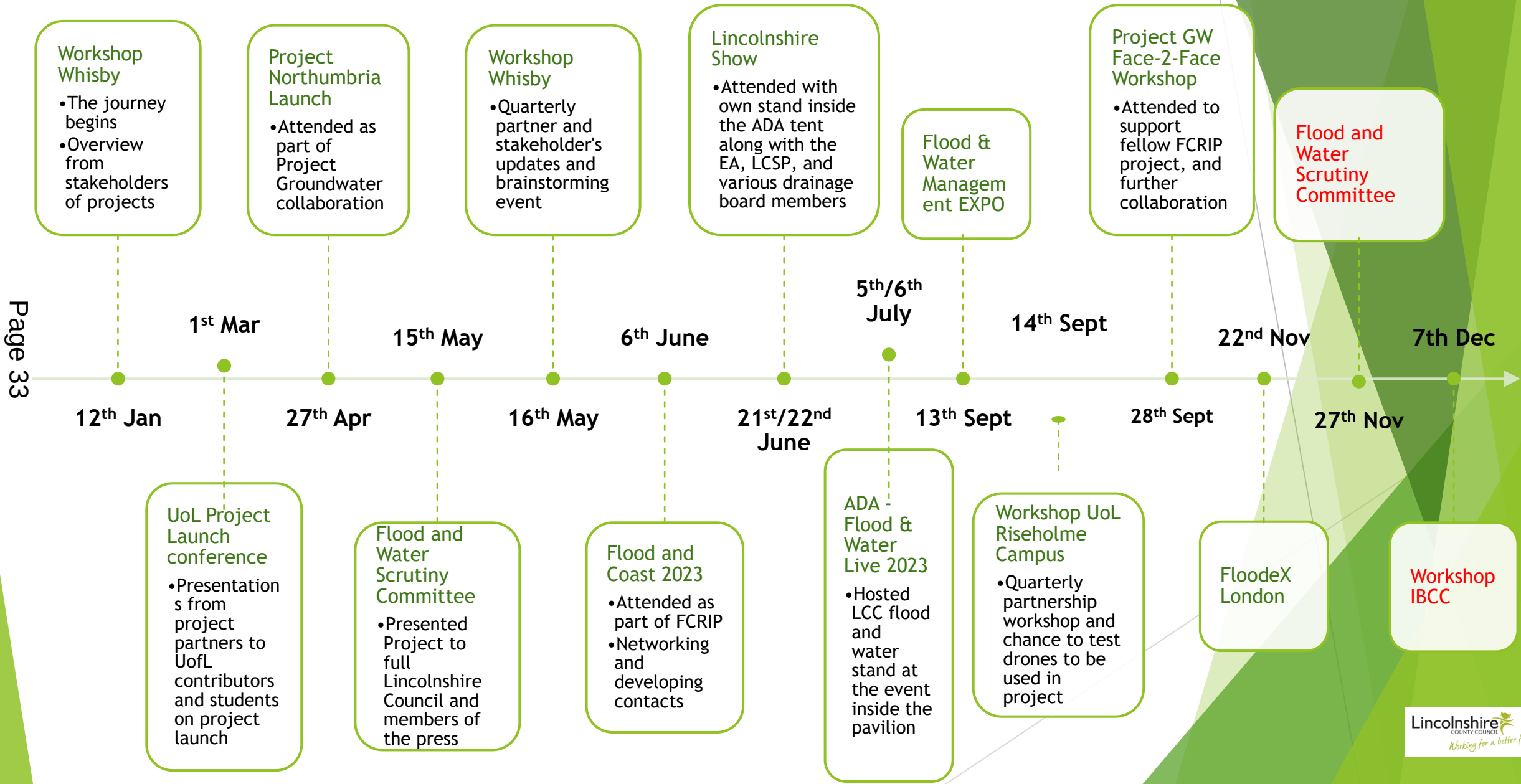
Funding agreements all in place for all work projects

Initial preliminary thoughts from modelers

Update on legal position of borehole risks and responsibilities

Commencement of expanded salinisation project to deliver economic field to fork cost

Events, Shows and Workshops



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