SWAFFHAM PRIOR PROJECT - RISK PROFILE

SEVERITY

High (3)

- The Council is unable to claim projected levels of HNIP for the project
- DBOM and O&M contracts are
- Failure of the system
- Injury, illness or death
- Environmental disaster occurs
- Commissioning - Unavailability of heat / hot
- Major legal issues delay the programme
- Project become unviable
- The Council is unable to claim projected levels of RHI for the project
- Project is economically unviable / unattractive to prospective
- Project is not attractive to prospective customers
- Businesses do not want to offset their carbon
- Project cannot secure power connection to the energy centre
- Programme delays
- Project affected by external events (Brexit, Covid-19)
- Project is negatively impacted due to legal procedures
- A change in regulations / legislation drives changes in the design or development of the project.

Medium (2)

- Insufficient resources available to develop project
- Customers are not able to connect
- Suboptimal design or geological issues make the project unviable
- Installation works fail to achieve Employer's Requirements
- Breach of planning conditions
- The energy centre or network is unable to meet the customer thermal requirements
- Disturbance and disruption caused by construction
- Failure to discharge pre-construction planning conditions

Low (1)

- The Council is unable to achieved projected levels of supplementary income for the project
- Retail price for electricity too high
- Trespassing of construction site, theft or vandalism of construction materials
- Customer connection is damaged

Low (1) | Medium (2) | High (3)

LIKELIHOOD

DEVELOPMENT

No.	Element	Risk Description / Trigger	Causes	Impacts	Likelihood	Severity	Risk Level	Control Measure	Owner	Status Update Notes	By	On
2	**RESOURCES**	**Insufficient / inadequate resources available to develop project**	1. Insufficient / inadequate local supply-chain contractor resources available to deliver project 2. Limited resource availability across partnership and delivery partners through the summer season and during COVID-19 3. Board members and/or consultants not available at key moments 4. COVID-19 restrictions mean ecologists and other specialist surveyors are not available to stay overnight at site	1. Delays to / unable to complete development programme 2. Need to source from further afield - increased costs 3. Community disconnected from development 4. Additional costs associated with subsistence, delays due to lost travel time.	Low	Medium	Medium	1. The Council to ensure that appropriate resources and financial provisions are committed to the development of the project. 2. Consultant to identify prospective supply-chain resources, deliver soft market engagement process and appoint the Design Team. 3. Monitor government advice regarding personal and commercial activities as pandemic develops. 4. Confirm availability of all partners at kick off; ensure handover/cover arrangements in place as necessary. 5. Subcontractor resource availability to be evaluated as part of the tendering process. Ensure that subcontractor has sufficient capacity to undertake the works through procurement and supply-chain vetting processes.	HT	Development phase due to close December 2020/January 2021. Supply chain resource & Covid risk to be retained (see Construction)	HT	19/10/2020
4	**FEASIBILITY**	**Project become unfeasible/ unviable**	**<u>Technical issues:</u>** 1. **Test Boreholes -** Results of test boreholes indicate that the volume / depth / flow rate of the aquifer is insufficient for required heat capacity or to meet thermal load 2. Underground utilities identified imply restrictions on network route on digging on CCC land **<u>Project management:</u>** 3. Tight timescales; slippage at this stage could make entire scheme unviable 4. Unable to secure funding/ [illegible] 5. Business case is commercially unviable: DPD Tendered costs associated with design and build of scheme are significantly higher than the estimations set out in Technoeconomic Feasibility Study 6. A change in regulations / legislation drives changes in the design or development of the project.	1. Loss of capital to fund project, project cessation. 2. Sunk costs 3. Damage to reputation 4. Decisions delayed, potentially putting whole scheme at risk 5. Consumers expectations frustrated; difficult to engage other partners and potential investors 6. Anticipated returns / revenues at DPD stage are significantly lower than that set out in Technoeconomic [illegible] 7. Increased costs, changes to economic business case.	Medium	High	High	1. Undertake further due diligence as part of the DPD stage, including further desk top analysis and specialist engagement . Construct test boreholes, to enable physical testing of abstraction rates and volumes. 2. Continue in the exploration and development of alternative technological options (such as closed loop or air source) to act as a 'fall back plan'. Identify alternative local aquifers and establish additional infrastructure requirements and costs to make connection with energy centre. 3. Complete a subterranean utility survey of the network route entire land parcel 4. Prioritise planning activities and proactive risk mgmt. approach 5. Apply asap to HNDU; regular updates to the community to keep everyone up to date. HNDU have confirmed they are assessing applications monthly to speed up project development 6. Ensure HNDU R8 requirements are captured and understood and that responsibilities are effectively distributed across stakeholders as appropriate. CCC to monitor and govern compliance throughout the DPD. 7. Undertake additional soft market engagement to corroborate subcontractor costs at the earliest opportunity. 8. Client to review assumptions set in the scenario manager and confirm approval. Appropriate research to be conducted to review assumptions. 9. Continual monitoring and research into prospective regulatory or legislative changes that may impact the viability of the proposal. Early awareness of prospective changes to enable design / proposal to be adapted / alternative solutions sought.	SF	Will account for changes to capex in financial modelling.	HT	05/11/2020
5	**EXTERNAL EVENTS**	**Project affected by external events**	**<u>COVID-19 restrictions</u>** 1. Investor decision - COVID-19 restrictions delay commercial and political decision making **<u>Others:</u>** 2. Brexit - tariffs , exchange rates, supply chain, labour availability	1. Delays to / unable to complete development programme 2. Increased costs, changes to economic business case. 3. Uptake of household surveys is too low; sign ups to network too low 4. Higher project costs 5. Project delays due to labour and product availability	High	High	High	1. Maintain frequent comms with the board; key messages in plain English; confirm core roles and decision-making requirements 2. Monitor CCC processes as they move online / to virtual decision making. 3. Ensure community engagement plans reflect resident availability	HT	Control measures complete / ongoing.	HT	04/01/2021
6	**LEGAL/REGULATORY**	**Project is negatively impacted due to legal procedures**	1. A change in regulations / legislation drives changes in the design or development of the project. 2. NASF connection traverses third party land, thus necessitating wayleaves/easements	1. Programme delays, additional costs e.g. legal 2. Increased costs, changes to economic business case.	High	High	High	1. Continual monitoring and research into prospective regulatory or legislative changes that may impact the viability of the proposal. Early awareness of prospective changes to enable design / proposal to be adapted / alternative solutions sought. 2. NASF route to be determined through engineering workprogramme. 3. The Council to agree third party engagement approach.	SF	1. Reducing. We have re-routed the network to use the highways, and CCC's powers, to avoid third-party negotiations. When red line route is clear , appoint lawyer to do full land registry sweep . 2.BYES to produce GIS map of the route - land ownership and highways.	HT	02/12/2020
7	**PLANNING**	**Breach of planning conditions**	1. Lack of competence in the team 2. Failure to adhere to Environmental and Construction plans	1. Damage to the Council's reputation 2. BYES at risk of financial impact or prosecution 3. Project extention / delays	Medium	Medium	Medium	1. Project execution plan highlights all key conditions imposed on the project 2. All subcontractor contracts to include planning conditions as appendices / included in all tender procurements/ distributed as PCI 3. BYES site supervision / control to monitor operations onsite and identify any potential breaches	BYES			05/11/2020
8	**PLANNING**	**Failure to discharge pre-construction planning conditions**	1. Failure to prepare and produce suitable documentation 2. Failure to submit to the LPA ahead of construction commencement 3. Ambiguities in pre-construction conditions 4. Lack of resources within LPA to respond in timely fashion	1. Project extension / delays	High	Medium	Medium	1. Review pre-construction conditions and revert to LPA for clarification ahead of programme, if required 2. Appropriate financial and project resources to deliver	BYES			05/11/2020

TECHNICAL

No.	Element	Risk Description / Trigger		Impacts	Likelihood	Severity	Risk Level	Control Measure	Owner	Status Update Notes	By	On
1	**CUSTOMER SYSTEM/ UTILITIES**	**Customers are not able to connect**	1.Customer systems are incompatible with the heat network 2. Lack of knowledge of customer systems - assumptions on point of connection prove erroneous and actual requirements are far more onerous.	1. Additional costs associated with customer connections. 2. Programme delays. 3. Reputational damage.	Medium	Medium	Medium	1. Undertake surveys and inspections of individual customer properties during DPD to ensure customer system details and requirements are fully captured and incorporated into design. Appropriate peer design reviews to ensure that any errors or oversights are captured and remedied in design process 2. Ensure competent and qualified engineering resources are assigned to the project and that effective QA / PDR is in place to minimise the likelihood or impact of design / specification oversights.	BYES	1. Home surveys completed for ~75 properties between October 2020 and December 2020. Continued C19 restrictions make physical surveys difficult. It is hoped that this situation will change in early 2021. 2. Design team in place and mobilised. 3. Designers have been commissioned with specific requirement to allow for future connection to the heat network.	MM	04/01/2021
2	**HEAT NETWORK**	**Suboptimal design or geological issues make the project unviable**	1. Actual heat losses from network are far higher than that projected in the design. 2. Underground obstacles, such as services infrastructure, atypical materials, rivers/watercourses, artefacts result in suboptimal routing of heat network. 3. Green sands makes open loop GHSP unviable 4. Heat pump - Change of heat source alters project timelines and/or cost	1. Increased electricity demands to meet heat loads, increase in operational costs. 2. Additional heat network costs, higher operational costs (energy) 3. Open loop technical solution is not progressed 4. Additional funding required from BEIS; greater uncertainty in viability of project	Low	Medium	Medium	1. Appropriate and scrutinised specification of trenched pipework - manufacturer's thermal performance claims to be verified by operational field data, TUV test certs (or equivalent) and factory acceptance tests. Regular QA inspections throughout installation phase 2. Undertake subterranean utilities surveys, geotech surveys, archaeological assessments and hydrology surveys ahead of detailed design, to ensure that any issues are identified and addressed at the earliest opportunity (and pre-tender). 3. Confirm ground conditions via geological survey. Revisit closed loop as a potential technical solution. 4. Propose revised scope to BEIS for sign off and/or early application to Round 9.	BYES	1. M&E due diligence complete by Max Fordham 2. Designers have been supplied with relevant survey information to enable coordination. 3. Archaeology and desktop utilities surveys complete. Subterranean / GPR surveys commissioned and completed.	MM	04/01/2021
3	**SYSTEM CAPACITY**	**The energy centre or network is unable to meet the customer thermal requirements**	1. Lack of actual energy (heat) demand data for customer connections - baseline estimates are proven to be inaccurate / erroneous. 2. ~~Client~~ Customer is unable to provide requested energy data within required timescale. 3. General design or specification errors are made, resulting in the system failing to perform as intended. 4. Required capacity of mains gas, electricity or water supply is not available for connection in the vicinity of the proposed energy centre	1. Customer discomfort, complaints, reputation, withdrawal from the scheme. 2. System fails to deliver expected performance. 3. Additional costs associated with utilities connections, including network reinforcement, added infrastructure and wayleaves etc. Potential programme impact due to lead times in making connections. 4. Additional costs associated with adding capacity at a later date	Medium	High	Medium	1. Undertake surveys and inspections of individual customer properties during DPD to ensure customer system details and requirements are fully captured and incorporated into design. Appropriate peer design reviews to ensure that any errors or oversights are captured and remedied in design process 2. Install heat meters at selected properties during winter 2018 in order to obtain better clarity on heat demands from the various archetypes. Baselines to be developed using actual energy data and not benchmarks 3. Prioritise data acquisition. Continue with development using reasonable assumptions regarding capacity requirements, with a view to updating when information becomes available. 4. Ensure competent and qualified engineering resources are assigned to the project and that effective QA / PDR is in place to minimise the likelihood or impact of design / specification oversights. 5. Undertake connections applications to local Distribution Network Operator, Cadent / NG and Local Water Company at the earliest opportunity during DPD stage. Make suitable budget provisions in Technoeconomic Feasibility Study to account for potential connection costs.	BYES	1. BYES has completed Thermal Energy Baselines using different approaches for CCC's review 2. closed. Heat meters installed in winter 2018. Data used to inform baselines. 3. CCC has issued thermal baseline model for BYES use (in line with CIBSE CP1) 4. Complete. 5. Complete. Prioritising private wire to North Angle Solar Farm	HT	19/10/2020
4	**UTILITIES CONNECTION**	**Project cannot secure power connection to the energy centre**	1. North Angle Solar Farm connection is not technically feasible 2. NASF connection is prohibitively expensive 3. NASF connection introduces delays to project programme 4. NASF connection falls through and UKPN cannot connect affordably	1. Power connection not secured for the energy centre 2. Project financials not viable 3. Project cannot supply heat to customers on time	Medium	High	Medium	1. Commission feasibility study by appropriately qualified engineers for the connection of NASF to the project. 2. Engage CCC Rural Managers in identifying and securing routes across CCC-owned and third-party land. 3. Prepare design and specification documents as required to confirm technical scope and include in tender package. 4. Engage ICPs and UKPN in procurement / tendering for the works.	BYES	1. Feasibility study completed Nov. 2020. 2. Rural Manager is mobilised and working on potential route	MM	04/01/2021
5	**TECHNOLOGY**	**Unable to source technologies that meet the performance / economic requirements of the project**	1. The required heat pump specification is unconventional to the UK market - there are limited manufacturers that are able to offer the required technology.	1. Reliability / reputation, cost, commercial / legal.	Medium	Low	medium	1. Undertake soft market research into prospective heat pump manufacturers. Prepare detailed specification and confirm compatible technology upfront with prospective manufacturers. 2. Undertake pre-qualification of prospective manufacturers to ensure capacity to supply, stability of business, service in the UK etc. 3. Perform comprehensive tendering process to select preferred supplier.	BYES	1. Completed. 2. Completed. 3. Completed.	MM	04/01/2020
	HEALTH & SAFETY	**Design of the project gives rise to health, safety or environmental hazards in its construction and / or operation**	1. Failure to comply with CDM Regulations. 2. Lack of QHSE governance / inadequate resourcing during design development stages.	1. Cost, legal, reputation.	Low	High	High	1. Ensure that appropriate budget is made available for QHSE compliance during the design development stages. 2. CCC to fulfill obligations as CDM Client. 3. Ensure that Principal Designer has the required skills, knowledge and experience to fulfill CDM obligations.	CCC / BYES	1. Budget includes for Principal Designer role. BYES has commissioned BYES as PD. 2. Continued. 3. BYES has prepared a Skills Matrix for CDM purposes. 4. Design Risk Management System implemented to ensure	MM	04/01/2020

CONSTRUCTION

No.	Element	Risk Description / Trigger		Impacts	Likelihood	Severity	Risk Level	Control Measure	Owner	Status Update Notes	By	On
1	**CONNECTION**	**Customer connection is damaged or not properly installed during construction**	1. Inadequate / inaccurate design information on existing customer sites 2. Poor / inadequate designs 3. Improper installation methods 4. Negligent / poor quality workmanship 5. Unable to gain access to customer property to complete installation 6. Trenched Heating Mains - Unforeseen complexities in the construction of trenched services. 7. Unforeseen complexities in the construction of boreholes	1. Reputational, remedial costs 2. Programme delays, abortive costs 3. Programme delays, cost overruns	High	Low	Medium	1. Ensure that customer is in full agreement with proposed installation and positioning of equipment and pipe routes. Ensure that appropriate budget provisions are made for remedial works to property, including landscaping and interior decoration. 2. Ensure that suitable obligations are passed to the customers in terms of providing access to facilitate installation. Communicate dates for installation for each customer (utilise appropriate CRM software?) with sufficient notice - ensure that dates are adhered to (with back-up resources if required). 3. Undertake up-front surveys and tests to establish potential obstructions. Coordinate heat network layout to identify most practicable / economical routes. Identify any uncertainties and risks, make appropriate allowances in programme and cost to account for risks. 4. Ensure that all construction operatives follow design and workmanship requirements, are competent and qualified to undertake the works and are supervised / managed by competent BYES clerk of works.	CCC/BYES	1. Construction phase. Budget includes remedial works (w/o contingency).	HT	19/10/2020
2	**REGULATION**	**A change in regulations / legislation drives changes in the design or development of the project.**	1. BREXIT 2. Covid-19 3. A change in funding stream	1. Increased costs, changes to economic business case. 2. Changes to planning consent must be sought for any material amendments	High	High	High	1. Continual monitoring and research into prospective regulatory or legislative changes that may impact the viability of the proposal. Early awareness of prospective changes to enable design / proposal to be adapted / alternative solutions sought.	CCC/BYES	Senior level engagement with politicians and funders (Nov 2020). Revised financial model - options include: - revising plant operation - prioritising ASHP and NASF power - seek additional HNIP grant - pursue non-RHI model	HT	05/11/2020
3	**COMMUNITY**	**Disturbance and disruption caused by construction**	1. Noise/vibration, roadworks, dust, lighting etc.	1. Reputation and relationship with customers 2. Complaints	Medium	Medium	Medium	1. Develop Construction Environmental Management Plans and Risk Registers to identify and minimise potential nuisances, such as noise, vibration etc. 2. Share plans with community and ensure awareness of any residual disruption and confirm comfort with plans.	BYES	Construction phase.	HT	16/10/2020
4	**ENVIRONMENT**	**Environmental disaster occurs during construction phase.**	1. Leaching of hazardous fluid pollutants into ground 2. Uncontrolled release of airborne pollutants 3. Damage to natural habitat by construction activities	1. Legal, remedial costs and damage to local habitat 2. Programme delays	low	High	Medium	1. Ensure effective environmental controls, policies and procedures are in place on site. Commission Environmental Aspects & Impacts Assessment and develop and implement Construction Environmental Management Plan prior to construction.	BYES	Construction phase.	HT	16/10/2020
5	**HEALTH & SAFETY**	**Injury, illness or death caused in the construction of the project**	1. Insufficient safe systems of work in place on site / insufficient risk management practices 2. Insufficient management / supervision resources 3. Unforeseen or unidentified hazards 4. Incompetent workers 5. Unsafe designs 6. Insufficient security and segregation of construction sites	1. Legal costs 2. Programme delays 3. Reputational damage	low	High	Medium	1. Ensure effective H&S controls, policies and procedures are in place on site. Adopt BYES Safe Systems of Work, commit appropriate H&S personnel to project. Ensure CDM Principal Designer and Principal Contractor, Designer, Contractor & Worker duties are fully satisfied.	ALL	Construction phase.	HT	16/10/2020
6	**COMMISSIONING**	**Commissioning - Unavailability of heat / hot water during changeover**	1. Poor coordination and execution of commissioning	1. Reputation and relationship with customers, potential remedial costs	low	Medium	Low	1. Develop and implement phased commissioning strategy to prove system prior to switchover, minimise any risk of downtime for the end customer. Undertake commissioning outside of the heating season. Develop contingency plan to implement in the event of commissioning failure	BYES	Construction phase. Household surveys (Oct - Dec 2020) to identify any properties unable to connect or where commissioning may be challenging. Any outcomes to report here?	HT	05/11/2020
7	**SECURITY**	**Trespassing of construction site, theft or vandalism of construction materials**	1. Insufficient security and segregation of construction sites	1. Legal & remedial costs 2. Programme delays	Medium	Low	Low	Implement appropriate security controls, including hoardings, signage, locks, security lighting, smart water system and remotely monitored, CCTV Ensure adequate construction phase insurance is in place	BYES	Construction phase.	HT	16/10/2020
8	**PROGRAMME**	**Programme delays during the construction phase.**	1. A lack of coordination or availability of resources 2. UK borehole drilling firms are fully booked to 2021 3. Coronavirus outbreak reduces availability of solar PV panels 4. COVID-19 restrictions / unavailability of resources delay site mobilisation and build schedule 5. Site is inaccessible at the agreed time / date.	1. Programme delays, cost overruns 2. Cannot procure cost-effective PV system	Medium	High	High	1. Undertake comprehensive supply-chain vetting to establish resource capacity, commit resources as part of tender process, develop a realistic and functional delivery programme and project execution plan, ensure effective contractual terms to incentivise deliver against programme, employ project planners/coordinator and project managers to coordinate and monitor contractor works against programme, establish contingency plan to expedite programme in the event of delays. 2. Instigate wider soft market testing for other drill companies. 3. Instigate wider soft market testing for other PV suppliers. 4. Ongoing monitoring of government advice regarding personal and commercial activities as pandemic develops.	BYES	1 & 2. Supply chain now engaged through formal tendering process. 3. Closed. Priority is private wire connection to NASF.	HT	19/10/2020
9	**LEGAL ISSUES**	**Major legal issues delay the programme during construction phase**	1. Contractor or subcontractor breach / cessation leads to termination of contract mid way through the construction phase 2. Heat main is required to traverse third party land, thus necessitating wayleaves/easements 3. Highways Act required a statutory undertaker to adopt and manage a heat network	1. Programme delays. 2. Additional costs, e.g. legal 3. Cannot secure statutory permits to install the heat network	Low	High	Medium	1. Supply-chain vetting and tender selection to evaluate prospective contractor / subcontractor historic performances, capacity and capability. Develop a contingency plan that identifies alternative contractors, such that in the event of cessation or breach, the alternative may be commissioned to continue works. 2. Establish land ownerships of heat main routes set out in TEFS to determine any privately owned land. Seek no/low cost alternatives, or, where unavoidable, engage in initial dialogue with the owner prior to any detailed design or specialist survey work to confirm no objections. Otherwise, seek up-front legal advice on how best to proceed. 3. Commission Sharpe Pritchard to review Local Government powers for heat.	BYES CCC/BYES BYES	1. Construction phase. 2. Closing. Re-routing to lay pipework in the highways and leverage CCC powers. 3. The Council has powers under the Local Government Act 1976 section 11 to generate, distribute and sell heat to tis community and has statutory undertaking powers that cover highways.	HT	05/11/2020
10	**QUALITY**	**Installation works fail to achieve Employer's Requirements**	1, Poor workmanship 2. Substandard materials	1. Programme delays, cost overruns, poor performance in operation	Low	Medium	Medium	1. Implement proper and effective quality control procedures. Quality acceptance tests to be undertaken prior to handover of any works. Client / BYES to appoint clerk of works to monitor the works on site and confirm compliance with Employers' Requirements.	BYES		HT	05/11/2020

OPERATIONAL

No.	Element	Risk Description	Causes	Impacts	Likelihood	Severity	Risk Level	Control Measure	Owner	Status Update Notes	By	On
1	**AVAILABILITY**	**Failure of the system**	1. Heat network failure / leak, causing downtime of the system. 2. Energy Centre primary plant failure , causing downtime of the system. 3. Utilities supply failure	1. Customers left without heat supply whilst system is repaired, causing discomfort, complaints, reputational impacts.	Low	High	High	1. Appropriate specification of materials, resilience in design through local isolation and pipework layout arrangements, appropriate selection of competent and qualified installers, quality assurance inspections, integrated commissioning and testing, leak detection. 2. Undertake a single point of failure risk assessment on design and ensure appropriate back-up resilience is in place. Ensure that appropriate emergency call-out services are in place.	BYES	Operational risk. 1. Contingency planning meeting w/c 30/11/2020 - proposed messaging for the community to be circulated shortly.	HT	01/12/2020
2	**ENERGY PERFORMANCE**	**Failure to meet energy performance expectations**	1. Heat network pipework deteriorates faster than projected, early failure / end of life. 2. Heat pump's coefficient of performance is significantly lower than that projected in the energy model / business case	1. Increased electricity demands to meet heat loads, increase in operational costs.	Medium	Low	Medium	1. As above, review data captured for similar installations that have been in operation for several years. Review material composition, causes and rates of degradation to confirm accuracy of manufacturer's claims. 2. Selection of heat pump from a reputable company, with performance as a key factor for selection. Manufacturer claims to be supported by evidence of performance from similar installations. Factory acceptance tests and integrated commissioning required. Seek run hour warrantees. 3. Energy Performance of the plant and heat network to be covered by BYES performance guarantees.	BYES		MM	04/01/2021
3	**SYSTEMS PERFORMANCE**	**Failure to meet design performance requirements**	1. Equipment errors. 2. Design errors 3. Poor installation / commissioning workmanship. 4. Operational failures. 5. Change in customer requirements	1. Customer demands unsatisfied, leading to complaints, need to undertake temporary fixes at additional cost.	Medium	Medium	Medium	1. Ensure that appropriate factory acceptance testing and equipement in-situ testing is undertaken to evidence that the equipment is performing as per design. 2. Integrated commissioning and quality acceptance inspections to be performed to evidence that all aspects of the system has been installed to the required design specification. Seasonal monitoring to be undertaken to ensure that performance expectations are met under all operating conditions. 3. Ensure that O&M scope and requirements are fully captured and that appropriate resources / supply-chains are commissioned to undertake specialist maintenance activities.	BYES		MM	04/01/2021
4	**MAINTENANCE**	**Inadequate maintenance of equipment**	1. Maintenance Resources - A lack of local contractor resources to undertake specialist maintenance and servicing of the equipment. 2. Poor quality of service provided by BYES	1. Increased operational costs, longer maintenance downtimes, deterioration in systems performances and shortening of equipment lifespan.	Low	Medium	Medium	1. Early engagement with local prospective supply-chain partners. Consider training needs of local resources and incorporate training programmes into project. Allocate appropriate resources to the completion of O&M contracts, ensure suitable provisions for planned preventative maintenance and reactive maintenance, with KPI penalties for performance failures.	BYES		MM	04/01/2021
5	**LIFECYCLE**	**Early lifecycle failure of equipment**	1. Poor equipment specification 2. Poor maintenance of equipment 3. Improper operation of equipment	1. Increased operational cost. Potential unscheduled downtime.	Low	Medium	Low	1. Negotiate comprehensive and extended warranties for major equipment items wherever possible. Avoid contracting with less stable businesses for major equipment. 2. Ensure that PPM is in place in accordance with manufacturers requirements and that evidence of servicing is retained for future warranty claims. 3. Ensure that any changes to the operating strategies, unexpected events etc. are recorded and subject to authorisation by CCC. Major equipment suppliers to be notified where required, so as to	CCC/BYES		MM	04/01/2021
6	**MANAGEMENT RESOURCES**	**CCC fails to perform duties as owner / manager**	1. Insufficient budget 2. lack of suitable resources	1. Poor customer experience, complaints / reputation.	Low	Low	Low	1. Ensure that CCC 'owner operator' responsibilities are clearly understood and that suitable systems, processes and resources are in place. 2. Ensure that end customers are given appropriate instructions on contact details / methods.	CCC		LC	04/01/2021
7	**WARRANTY**	**Unable to access warranty for early equipment failure.**	1. Supplier ceased trading 2. Breach of Warranty Conditions 3. Supplier ignorent / unwilling to / slow to respond	1. Prolonged equipment downtime and loss of performance - reputation / revenue. Unplanned cost of replacement.	Medium	Medium	Medium	1. Ensure only stable and resilient supply-chain is used for major equipment items. 2. Ensure that warranty exclusions / conditions are clearly highlighted and that appropriate O&M regimes and contract terms are in place to protect against breach. 3. Ensure that warranty is fully enforceable by UK law.	CCC		SG/MM	04/01/2021

SEVERITY FACTOR

Severity Level	Impact Types						Severity Factor
	Quality	Environment / Community	H&S	Reputation *Adverse publicity*	Schedule	Cost	
Highly significant	Serious errors, misscalculations and wrong assumptions during the development and construction phase of the project causing that the project can't be delivered on time and on budget or the projected revenues or enviromental benefits not been delivered or make the project unviable.	Extensive damage to critical elements of local infrastructure (e.g. school, hospital, motorway, parks, lakes, biodiversity) causing prolonged disruption. E.g. realised environmetal hazradous material or material escape from the lanfill on Stangroud Site . Gas emission	Multiple or single fatalities and / or multiple incidences of permanent disability or ill-health. Recovery difficult or even impossible. Risk of prosecution from enforcement agencies.	Sustained adverse publicity in regional media and / or national media coverage. Extensive / prolonged recirculation via social media channels. Hostile interviews by Council Leader / Chief Exec. to be interviewed on national TV or radio. Possible resignation of senior officers and / or elected members. Total loss of public confidence.	Significant issues threaten entire project. Could lead to project being cancelled or put on hold.	Losses / costs incurred of more than 80% of budget. Not covered by insurance. Financial value: Over £TBC	3
Moderate	Some residents dissatisfaction but services restored before any major impacts. Less level impact based on above as well	Medium damage to local infrastructure (e.g. minor road) causing some disruption.	Moderate injury / ill-effects requiring hospitalisation.	A number of adverse articles in regional / social media mentioning CCC. Some recirculation via social media. Single request for senior officer / member to be interviewed on local TV or radio. Adverse reaction by Cambridgeshire residents in social media / online forums. Short-term reduction in public confidence.	Delays causing cost overun and reduction of potential benefits (Slippage causes delay to delivery of key project milestone but no threat to anticipated benefits / outcomes.)	Losses / costs incurred of 20% -80% of budget. Financial value: £TBC	2
Minor	Minor inconvenience for service users and staff. No impact on project delivery.	Limited effect on local infrastructure, communities or the environment.	Short-lived / minor injury or illness that may require First Aid or medication. Small number of work days lost. Services quickly restored.	Single adverse article in local media or specific professional journal that is not recirculated (e.g. through social media). Minimal adverse publicity reduction in the public confidence.	Minor delays but can be brought back on schedule within this project stage. Or it cant but doest have anticpated benefits No threat to anticipated benefits & outcomes.	No or minimal financial cost. Cost incresed <20%	1

LIKELIHOOD FACTOR

Frequency How often might it / does it happen	**Likelihood** Will it happen or not over the risk timescale	Uncertainty description	Likelihood Factor
This will probably never happen / recur	Less than 5% chance	**Low**	1
Might happen or recur occasionally	Around 25% chance	**Medium**	2
Will undoubtedly happen / recur, possibly frequently	Around 90% chance	**High**	3

RISK MAP