

PURELY FARMHOUSE; CONDITION APPRAISAL

1.00	SUMMARY AND OVERVIEW We have been appointed to undertake an appraisal of Purely Farmhouse, Chelworth Road, Cricklade, SN6 6HE. The appraisal is intended to assess the current condition of the property and make an assessment regarding the viability of retention and repair relative to its current state. As assessment will be made in relation to this, versus replacing the existing dwelling via demolition and new build of a replacement dwelling. This appraisal supports planning application PL/2025/09161 which has been submitted to seek permission for the demolition and replacement of the existing dwelling. The replacement dwelling proposed, has a larger floor area than the existing property. The existing property was previously consented for extension under planning application 19/06873/FUL and the size of the replacement dwelling proposed would match the extended dwelling size consented under the aforementioned application. As such, this appraisal will not only consider the state of the existing property and associated cost of repair, but it will consider the approximate cost of an extension to the existing property, broadly in line with the aforementioned consent, and will then compare this cost to an approximate construction cost of the replacement dwelling. In addition to the required works and associated costs, energy efficiency is a significant consideration at the current time. The Net Zero Carbon targets being pursued by the UK Government, alongside Regional and National Planning Policy and energy efficiency requirements defined in current England & Wales Building Regulations should also be a material consideration of any assessment. Reference to 'AD' refer to England & Wales Building Regulations – the Approved Documents.
2.00	PROPERTY HISTORY The property is a 3 / 4 bedroom property. The property has not been lived in for a number of years and was last owned / occupied by Wiltshire Wildlife Trust. The original construction date of the property is not known and a basic search of the property does not reveal any such data. Given the visual appearance of the property and some of the construction techniques used, it is assumed that the property may have been constructed in the 1970's or 1980's. It is also not clear if all of the accommodation was built at the same time, or if the single storey element to the rear of the property was added as an extension at a later date. For the purpose of this report, the single storey element to the rear is referred to as 'single storey extension'.
3.00	AREA ASSESSMENT For the purpose of this report, gross internal floor areas will be referenced throughout the document. The following areas have been used, taken directly from available drawings with associated check dimensions taken on site: Existing Property - Gross Internal Ground Floor Area: 64m² - Gross Internal First Floor Area: 46m² - Total Gross Internal Floor Area: 110m² - External Wall Area: 222 m² - Roof Covering Area (Adjusted to Roof Pitch): 70 m² Extension to Existing Property - An extension of 124m² will be required to enact planning consent 19/06873/FUL and / or to bring the total gross internal floor area of the existing dwelling in line with that of the replacement dwelling proposed under this application.

	Replacement Dwelling - The replacement dwelling proposed under this application (PL/2025/09161) has a gross internal floor area of 234m², rounded to the nearest square metre.
4.00	SCHEDULE OF DEFECTS A non-intrusive, visual inspection of the property was undertaken on 2nd January 2026. The purpose of the inspection was to determine evident defects that would require remedial works should the property be bought back into occupation as a dwelling. The below summarises the findings of this inspection, scheduling out the defects identified with associated photographic record where feasible.
4.01	External Envelope: External Walls / Render • Defect: Delamination of render from the substrate. Cracking and flaking evident throughout. • Defect: Vegetation growth, specifically Ivy, attached to the façade in numerous locations across the property. • Remedial Work Required: Based on the above, the existing render (and vegetation) will need to be removed and stripped back to the existing masonry. A full re-render of the external walls will be required, with associated substrate preparation. 
4.02	External Envelope: External Walls / DPC • Defect: There is no evidence of a DPC installed to the property and there is also evidence of damp internally at the base of the walls which reinforces the lack of DPM. • Remedial Work Required: A liquid injected DPM will need to be installed throughout.

	
4.03	External Envelope: External Walls / Insulation • Defect: The external walls appear to be constructed from twin skim masonry wall construction, but are only circa 200mm thick and are therefore not cavity / insulated walls. These would not comply with current energy efficiency standards (AD Part L1) and will require insulating. Due to the lack of a cavity, the external walls should be insulated with insulated dry lining systems. • Remedial Work Required: Insulated dry lining systems to be installed internally to the external walls.
4.04	External Envelope: Roof • Defect: The roof tiles appear to be Asbestos cement roof slates. These were typically used before the mid 1990's and the mottled grey appearance is a strong indicator of this. A visual inspection of the internal roof structure was undertaken and whilst there are no significant signs of leakage, the roof membrane is a bituminous felt membrane. This membrane is typical of those used in the 1970's / 1980's and as such it would appear to be life expired and should be replaced alongside the roof tiles. The bituminous membrane is also non-permeable and there is no evidence of roof ventilation to the structure which would lead to further deterioration. The timber roof structure appears slender in section and would not meet current Structural Design Codes. Despite this, they appear in fair condition and could be retained, however replacement roof tiles would likely exceed the weight of the existing load bearing capacity and as such strengthening of the roof structure would be required. Insulation should also be installed to the roof structure. • Remedial Work Required: Full replacement of the existing roof structure with insulation; breather membrane; battens; counter battens and new Natural Slate roof tiles. 

4.05 External Envelope: Roof Abutments

- **Defect:** There are numerous roof abutments where the single storey rear roof's abut the walls of the two storey element of the property. In these locations cavity trays have not been installed and whilst there are Lead Flashings evident, these would not comply with current Lead Sheet Association details / recommendations.
- **Remedial Work Required:** Cut cavity trays into existing walls and install new abutment flashings.



4.06 External Envelope: Fascias, Soffits, Verges and Rainwater Goods

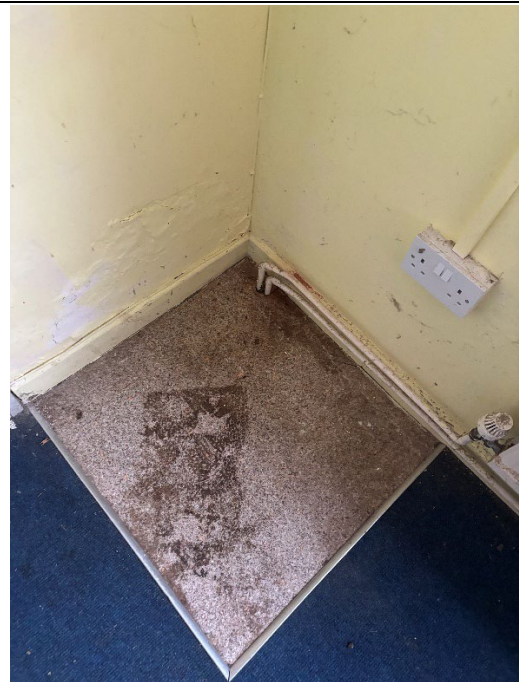
- **Defect:** Deterioration / rotting of the timber fascia, soffits and verges. These appear to be painted softwood and there is little evidence of recent maintenance, thus contributing to the decay. The rainwater goods are also in poor condition generally.
- **Remedial Work Required:** Replacement of fascia, soffits, verges and rainwater goods.



4.07	External Envelope: Vertical Cracking / Structural Movement • Defect: Vertical cracking evident at the junction between the single storey extension and the two-storey dwelling. Cracking is evident at the aforementioned junctions on both sides of the extension. • Defect: Evidence of repair work having been undertaken at the aforementioned junctions, along with repair work above the doors into the single storey extension. • Remedial Work Required: Based on the above it is apparent that differential settlement has occurred between the single storey extension and the two-storey main dwelling. The single storey extension has settled further than the two storey element and this has caused the defects. The required remedial action will necessitate: (a) Underpinning of foundations to the existing single storey extension; (b) Stitch drilling at the vertical junction between the single storey extension and two storey element. 
4.08	External Envelope: Windows and Doors • Defect: External windows and doors appear life expired and would not comply with current energy efficiency standards as defined within AD Part L1. • Remedial Work Required: Full replacement of all existing windows and doors, including provision of insulated DPC's around the perimeter of the openings.



4.09	External Envelope: Ground Floor Slab • Defect: The ground floor slab is showing signs of damp and unevenness internally, especially between the man house and the single storey extensions where there is significant level change. This is borne out externally, where the slab appears to be a mixture of ground bearing slab and suspended floor. The vents to the front of the property identify the suspended floor in this area, but there are no signs of cross vents to the rear, probably due to the single storey rear extension. This will mean that there is inadequate sub-floor ventilation which will lead to further deterioration of the floor condition. The ground floor construction will also not comply with current thermal performance standards as defined within AD Part L1. . • Remedial Work Required: Remove / breakout and replace existing ground floor slab / structure with new insulated, ground bearing slab with suitable damp / moisture protection.
4.10	Internals: Damp • Defect: There is evidence of damp throughout the property, especially to the floor and base of the walls, but also to the walls generally. This reinforces the lack of damp proofing (DPC to walls and DPM to slab) as noted above, alongside the lack of insulation also noted above. • Remedial Work Required: Carry out remedial works as described elsewhere and include additional allowance for full replacement of all internal wall / ceiling finishes generally.



4.11 Internals: Delamination of Finishes

- **Defect:** There is delamination of the internal finishes to the external walls, especially within the single storey rear extension. This further highlights the problems with damp and lack of insulation as noted above.
- **Remedial Work Required:** Carry out remedial works as described elsewhere and include additional allowance for full replacement of all internal wall / ceiling finishes generally.



4.12	Internals: Ceiling Finishes • Defect: Ceiling finishes are in a poor state of repair generally and in some instances Artex ceiling finishes have been used and these may contain asbestos. Furthermore, it is suggested that intrusive visual inspection of floor / ceiling structures should be undertaken to confirm there is no decay or structural deficiency. • Remedial Work Required: Remove and replace existing ceiling linings to ground and first floors.
4.13	Internals: Stairs • Defect: The stairs are excessively steep and do not comply with current 'Prevention from Falling' regulations; AD Part K. • Remedial Work Required: Replace existing internal staircase with new, compliant staircase and carry out internal amendments as required to accommodate, including re-planning of the layout and / or structural alterations to the first floor structure. 

4.14 Internals: Finishes, Fixtures & Fittings

- **Defect:** All of the internal finishes, fixtures and fittings are life expired and deteriorated.
- **Remedial Work Required:** Full replacement of all internal finishes, fixtures and fittings required. This includes Kitchens, Bathrooms, Utility Room and WC.



4.15	Internals: Evidence of Rodents • Defect: There is strong evidence of rodent ingress within the property. There is evidence of rat droppings throughout, especially within the single storey extension and this is reinforced by the existence of a trap inside the property. • Remedial Work Required: This highlights the general poor state of repair of the property and the remedial works proposed elsewhere will resolve this.
4.16	Services: Heating & Hot Water • Defect: The property uses an oil fired boiler for heating and hot water. The oil tank externally is a single skin, un-bunded oil tank. The bund has been provided by way of a concrete 'tank' (that the main tank sits over) which is in a poor state of repair and would not comply as a bund under current regulations. The overall installation is not compliant with current regulations. Furthermore, internal installations appear in a poor state of repair generally. The hot water tank is undersized for a domestic property of this size and again appears to be in a poor state of repair. • Remedial Work Required: A new heating and hot water system is required throughout the property. To comply with current energy efficiency regulations (AD Part L1) then a heat pump should be provided for heating and hot water purposes. The heating system would operate off of an underfloor heating system to maximise efficiency to the ground floor, with wet radiators to the first floor. Installing underfloor heating to the first floor is not as energy efficient due to the potential for heat loss through the floor structure.



4.17 Services: Plumbing

- **Defect:** The plumbing systems in the property show little signs of maintenance / upkeep. The waste installations (i.e. the SVP) are largely installed externally which is not good practice and internal installations are in a poor state of repair.
- **Remedial Work Required:** Full replacement of all existing plumbing systems required.



4.18 Services: Electrical Installations

- **Defect:** There is little evidence of upkeep or maintenance of any of the electrical systems and some of the installations clearly date to the original construction of the property. Furthermore, subsequent adaptations – likely to facilitate the recent use of the property by the Wildlife Trust – appear to have been undertaken on an ad-hoc basis, resulting in apparently separate systems with the property. There are main boards in both the ground and first floor of the property, apparently serving different electrical systems. The electrical installations as they currently exist would not meet current Building Regulations (AD Part P) nor electrical safety standards (BS7671 – Requirements for Electrical Installations).

	Remedial Work Required: Full rewire of existing property, including new consumer units. 
4.19	Internal Layout Defect: Whilst not a defect as such, the property has clearly undergone bit part alteration over the years through the single storey rear extension and then the alterations associated with the most recent occupation by the Wildlife Trust. The layout has become 'confused', with two kitchens, a utility, a bathroom and a WC on the ground floor. There are a series of 'smaller' rooms on the ground floor, which do not provide a coherent template for modern living. Remedial Work Required: Internal alteration would be required to rationalise the ground floor layout such that it could be recreated as a single occupancy dwelling. The internal walls are in some instances load bearing, supporting the joisted timber first floor structure and as such some structural modifications would be required as part of any refurbishment.
5.00	REMEDIAL WORKS The below summarises the required remedial works associated with the defects outlined above and provides cost estimates for the associated works. The costs quoted are based on: - Current market rates taken from live projects and tender returns for similar construction works within the region. - Benchmarking against BCIS (Building Cost Information Services) cost data. The BCIS have been established for 60 years and during that time they have collected, collated, analysed, modelled and interpreted significant volumes of cost information. They are seen as the industry benchmark for market cost data across private and public sector developments. The remedial work section references listed below, correspond to the defects described above. i.e. the defect described under 4.01 align with the remedial work / cost described in 5.01.
5.01	External Envelope: External Walls / Render Typical scope of works to include: • Mechanically remove and dispose of existing render. • Prepare existing walls, including cleaning, filling minor cracks & holes and applying bonding coats. • Install new render system comprising base coat, top-coat with smooth float finish, paint finish and stop beads. • Scaffolding and associated access equipment. Projected Cost = £21,100

5.02	External Envelope: External Walls / DPC Typical scope of works to include: • Drill holes at standard spacing along the base of the wall. • Inject liquid chemical DPC. • Allow curing and monitor penetration. Projected Cost = £12,950
5.03	External Envelope: External Walls / Insulation Typical scope of works to include: • Mechanically remove existing wall finishes. • Prepare existing substrates following strip-out. • Install vertical timber battens. • Install 80 mm PIR insulation between battens. • Install polythene vapour control layer. • Fix 12.5mm plasterboard. • Prepare all board linings and apply skim coat finish. Projected Cost = £24,500
5.04	External Envelope: Roof Typical scope of works to include: • Strip existing roof system, including asbestos roof tiles, and dispose of under licence. • Install new roofing system comprising: PIR insulation between rafters; Breather Membrane; Battens and Counter Battens; Eaves / Verge / Ridge Vents; Natural Slate Roof Tiles; Ridge and Verge Tiles. • Scaffolding and associated access equipment. Projected Cost = £21,500
5.05	External Envelope: Roof Abutments Typical scope of works to include: • Cut into existing masonry to accommodate cavity tray. • Install horizontal DPC / cavity tray; proprietary flexible tray. • Ensure proper lap with existing roof covering and weatherproofing. • Make good masonry / pointing around tray. Projected Cost = £2,500
5.06	External Envelope: Fascias, Soffits, Verges and Rainwater Goods Typical scope of works to include: • Remove and dispose of fascias, soffits, verges and rainwater goods. • Supply and fit new PVC-u fascias and soffits. • Install new PVC-u verges at gable ends, including fixings and detailing. • Supply and install new PVC-u gutters, hoppers, and downpipes. • Scaffolding and associated access equipment. Projected Cost = £6,750

5.07	External Envelope: Vertical Cracking / Structural Movement Typical scope of works to include: <i>Underpinning:</i> • Excavate in short sections below existing foundation. • Pour reinforced concrete / mass concrete underpinned foundations. • Backfill and compact surrounding soil. <i>Stitch Drilling:</i> • Drill holes along junction of extension and main house. • Install stainless steel or mild steel reinforcement bars (stitch bars). • Grout bars into holes to stabilise and tie structures together. Projected Cost = £22,500
5.08	External Envelope: Windows and Doors Typical scope of works to include: • Remove and dispose of existing windows and doors. • Prepare openings, including installation of vertical / horizontal DPC's around opening. • Install new windows and doors, typically double-glazed uPVC casement windows and doors. • Scaffolding and associated access equipment. Projected Cost = £16,500
5.09	External Envelope: Ground Floor Slab Typical scope of works to include: • Break out and dispose of existing slab and excavate to grade as required. • Lay new slab comprising; 200mm compacted Type 1 Hardcore; 1200 gauge polythene DPM; 200mm reinforced in-situ concrete slab; 100mm PIR insulation; 500 gauge polythene separating layer; 80mm sand:cement screed. Projected Cost = £21,000
5.10	Internals: Damp All remedial works required generally included within other remedial works elsewhere.
5.11	Internals: Delamination of Finishes All remedial works required generally included within other remedial works elsewhere.
5.12	Internals: Ceiling Finishes Typical scope of works to include: • Remove existing ceiling finishes. • Install mineral wool insulation within joist depth. • Make good existing substrates. • Fix 12.5mm plasterboard. • Prepare all board linings and apply skim coat finish. Projected Cost = £9,500

5.13	Internals: Stairs Typical scope of works to include: • Remove existing staircase and dispose of. • Carry out structural alterations to stairwell as required. • Install new staircase. Projected Cost = £7,000
5.14	Internals: Finishes, Fixtures & Fittings Typical scope of works to include: Strip Out • Strip-out, demolition and disposal where not included elsewhere. <i>Sub-total; £3,500</i> Floor Finishes • Prepare substrates as required, including levelling compounds. • Install new floor finishes, typically carpet to Living Room and Bedrooms; Timber Flooring to Family / Dining areas; Tiles to Kitchens, Bathrooms and Utility. • Install skirtings throughout. • Trims and finishing as required.. <i>Sub-total; £13,000</i> Internal Doors • Prepare openings as required. • Install door linings. • Install new timber doors. • Install architraves. <i>Sub-total; £7,500</i> Kitchen & Utility • Install new kitchen and utility fittings including base units, wall units and worktops. • Install new appliances and white goods. • Tiled splashbacks to walls. • Install architraves. <i>Sub-total; £14,500</i> Bathroom & WC • Install new sanitary fittings and appliances. • Install new bath and shower with associated tanking membranes to walls and floors. • Install new wall tiling. • Install architraves. <i>Sub-total; £4,500</i> Painting & Decorating • Painting decorating throughout to all substrates. <i>Sub-total; £6,000</i> Projected Total Cost = £49,000

5.15	Internals: Evidence of Rodents All remedial works required generally included within other remedial works elsewhere.
5.16	Services: Heating and Hot Water Typical scope of works to include: • 12kW Air Source Heat Pump and associated external works (base and service entry connections). • Wet underfloor heating system to ground floor. • Oversize radiators to first floor. • Cylinders and expansion vessels. • Valves, clips, TRV's. • Controllers and thermostats. • Testing and commissioning. Projected Cost = £29,500 (Split approximately £12,00 for the heat pump; £10,000 for the underfloor heating; £5,000 for radiators; £2,500 for controls, testing and commissioning)
5.17	Services: Plumbing Typical scope of works to include: • Strip-out of old plumbing. • New cold and hot water distribution throughout the house. • New waste / drainage runs where needed. Projected Cost = £7,000
5.18	Services: Electrical Installations Typical scope of works to include: • Strip-out of existing (old) wiring. • New cabling throughout walls / ceilings. • New sockets, switches, and lighting circuits. • New consumer unit (fuse board) with RCD/RCBO protection. • Testing and certification to comply with UK Building Regulations and BS 7671. Projected Cost = £8,500
5.19	Internal Layout Typical scope of works to include: • Demolition of existing internal walls to suit revised layout. • Temporary propping of openings as required. • Installation of new structural steel supports to load bearing openings. • Associated making good as required. Projected Cost = £12,500

5.20	Total Refurbishment Costs Total refurbishment costs as outlined above are summarised below: • External Envelope: External Walls / Render = £21,100 • External Envelope: External Walls / DPC = £12,950 • External Envelope: External Walls / Insulation = £24,500 • External Envelope: Roof = £21,500 • External Envelope: Roof Abutments = £2,500 • External Envelope: Fascias, Soffits, Verges and Rainwater Goods = £6,750 • External Envelope: Vertical Cracking / Structural Movement = £22,500 • External Envelope: Windows and Doors = £16,500 • External Envelope: Ground Floor Slab = £21,000 • Internals: Ceiling Finishes = £9,500 • Internals: Stairs = £7,000 • Internals: Finishes, Fixtures & Fittings = £49,000 • Services: Heating = £29,500 • Services: Plumbing = £7,000 • Services: Electrical Installations = £8,500 • Internal Layout = £12,500 <i>Sub-total refurbishment cost = £272,300</i> • Contingency allowance @ 10% = £27,230 TOTAL REFURBISHMENT COST = £299,530
6.00	COMPARATIVE CONSTRUCTION COSTS Once the refurbishments costs have been defined as above, an assessment needs to be made of the total cost of the refurbishment / extension cost versus the replacement new build property. To make this assessment, extension / new build construction costs must be assessed on a £/m² basis. This is the only viable way of making the assessment without doing a full detailed schedule of works for each option which is not feasible without a full detailed design. For this assessment rates have been taken from BCIS rates for a mid / high specification property. This will not only include the level of finishes, but would typically include additional energy enhancement measures and renewables. REFURBISHMENT & EXTENSION Refurbishment = £299,530 Extension to refurbished property of 124m² @ £2,750 per m² = £341,000 <i>Total Refurb & Extension Cost = £640,530</i> DEMOLITION & REPLACEMENT EXTENSION Demolition of existing property and associated disposal / recycling = £12,500 New build property of 234m² @ £2,750 = £643,500 <i>Total Demolition & Replacement Dwelling Cost = £656,000</i>

	The above assessment shows that the costs associated with the two options are broadly similar. However, despite the allowance of a contingency within the refurbishment costs, there is more risk associated with the refurbishment / extension costs. The condition of structural timbers (roof and floors), external walls, foundations to the main two storey element of the property, chimney stacks etc. could also increase the costs further. The non-intrusive inspection undertaken to date demonstrates the fact that the property is generally in a poor state of repair throughout, with much of it being 'life expired' due to the age of the property and relative lack of maintenance and upkeep throughout it's lifecycle, especially in recent years. The assessment also highlights the fact that significant refurbishment works can be more expensive than new build works. For example, underpinning of existing foundations would be more expensive than digging and pouring new foundations. Before drawing any conclusions it is worth considering the energy efficiency of both options and this assessment is undertaken below.																		
7.00	ENERGY EFFICIENCY ASSESSMENT Given current national targets relating to energy efficiency and Net Zero Carbon, it is important to consider the comparative energy efficiency of both the refurbishment & extension and demolition & replacement options. Some of the key concepts to consider when looking at an overarching Sustainability & Environmental Assessment are as follows: • Operational Energy: Energy used during the lifetime of the home (heating, cooling, hot water, lighting, appliances). • Embodied Carbon: CO₂ emissions associated with producing and transporting building materials and construction processes. • Lifecycle Assessment (LCA): Holistic measure of environmental impact from cradle to grave. The data presented below is collated from guidance published by the following professional organisations, all of which are playing a central role in the understanding of energy efficiency and whole life carbon in the built environment and are also shaping the strategies we need to develop to achieve the UK Government Net Zero Carbon 2050 targets. • LETI (London Energy Transformation Initiative) • BRE (Building Research Establishment) • RIBA (Royal Institute of British Architects)																		
7.01	Operational Energy Efficiency Comparison Even with extensive refurbishment and renovation, older properties would typically be expected to achieve lower performance values than a new build property, primarily due to the fact that old building elements (even when refurbished) often have irregular construction, thermal bridging, and uncontrolled air leakage. A high-level assessment of an operational energy efficiency comparison can be seen in the table below. <table><tr><th>Feature</th><th>Renovate & Extend</th><th>Replacement / New Build</th></tr><tr><td>Thermal Insulation (Walls/Roof/Floor)</td><td>High (but still prone to irregularity)</td><td>Very high (continuous, optimised)</td></tr><tr><td>Airtightness</td><td>Good to excellent (depends on workmanship)</td><td>Excellent (designed and tested)</td></tr><tr><td>Energy Demand (Heating)</td><td>Medium-low</td><td>Low-very low</td></tr><tr><td>EPC Target Achievable</td><td>B to A</td><td>A to A+</td></tr><tr><td>Integration of Renewables</td><td>Good</td><td>Excellent</td></tr></table> It is clear from the above that the demolition and replacement dwelling option has some significant benefits from the perspective of operational energy efficiency. This reduces ongoing energy consumption, lowers energy costs, provides more scope for future / additional renewables integration (beyond any installed during construction; i.e. ASHP . Solar PV) and will provide greater occupant comfort.	Feature	Renovate & Extend	Replacement / New Build	Thermal Insulation (Walls/Roof/Floor)	High (but still prone to irregularity)	Very high (continuous, optimised)	Airtightness	Good to excellent (depends on workmanship)	Excellent (designed and tested)	Energy Demand (Heating)	Medium-low	Low-very low	EPC Target Achievable	B to A	A to A+	Integration of Renewables	Good	Excellent
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7.02

Embodied and Whole Life Carbon

Considerations in relation to embodied and whole life carbon are outlined below.

Renovation & Extend

- Lower initial carbon footprint: By retaining existing elements you avoid the carbon associated with demolishing and manufacturing new structure.
- Extending adds new embodied carbon, but less than building the whole property anew.
- Net benefit: Often lower short-term emissions compared to complete rebuild, however the condition of the existing property (and extent of renovation required) can affect this position.

New Build

- Higher initial embodied carbon: All materials (concrete, steel, insulation, glazing) are new.
- However, operational carbon is lower over time, especially when paired with renewables.

Life Cycle Perspective

- Some studies show that once a building is operational for 20 – 30 years, the lower energy use of a high-performance new build will offset its higher upfront embodied carbon. This period will reduce if the amount of renovation required to the existing structure is significant, but this is well within the life expectancy window of a new build property which would have a design life in excess of 50 years if build to a high standard / specification with modern construction materials and techniques.

A summary Environmental Comparison is included in the table below.

Criterion	Renovate & Extend	Replacement / New Build
Upfront Embodied Carbon	Lower	Higher
Operational Energy Efficiency	Medium-high	Very high
Lifespan Performance	Good	Excellent
Air Tightness	Moderate to high	Very high
Risk of Performance Gaps	Higher	Lower
Waste Generation	Lower	Higher
Predictability of Performance	Moderate	High

In terms of practical outcomes that may direct the decision making process in specific cases, the below is a summary of key considerations and how they could apply to this project.

When Renovation & Extension makes strong environmental sense:

- Structure is in reasonable condition. In the case of the application property, the structure is in poor condition and intrusive opening up once construction works commence could further impact this position.
- You avoid a lot of demolition waste. There will be significant demolition waste due to the extent of refurbishment required. Elements of structure that are to be retained under this option are essentially limited to timber and masonry / concrete. Timber and masonry / concrete can readily be recycled, and the latter can be partially recycled on site for re-use in sub-bases.
- Carbon embodied in retained structure is large relative to new build. This is a fact, but the existing property will need to be stripped back to a 'skeleton' so the retained structure is minimal. Furthermore, the discovery of further defects once work commences can minimise this differential position.
- Retrofit strategy is complex (insulation, airtightness, damp prevention) and can reduce overall efficiency. This would be a concern for the application property as the extent of refurbishment, alteration and renovation required to realise the previously consented extension would result in a lot of complex (and therefore high risk) junctions and interfaces.

	When Demolition & Replacement makes strong environmental sense • Original structure would be expensive to upgrade properly. This would be the case for the renovation and extension option as outlined above. • You want exceptional performance (EPC A/A+). This will provide long term energy efficiency (and therefore sustainability), cost benefits and reductions in whole life carbon emissions. • You want to future-proof for 2050 net-zero targets. This has to be a consideration for this property given it's anticipated life expectancy will push it well beyond 2050 and more high performing, energy efficient dwellings will be a key contributor to achieving the NZC 2050 targets. Residential buildings are responsible for approximately 20% of all carbon emissions in the UK and therefore improving the efficiency of these is critical. • You want to avoid retrofit complexities / damp risks. Clearly the financial investment for both options is significant and the applicant wants to maximise cost versus benefit. Considering all of the above and the condition of the existing property, the balance tips in favour of the demolition and replacement option under this metric.																								
7.02	SAP Calculations and Energy Performance Ratings SAP Calculations and Energy Performance Ratings are the key metric calculations used for assessing energy efficiency and demonstrating compliance with UK Building Regulation (AD Part L1). Using benchmark data, it is possible to provide high level assessments of the likely outcome for both options related to this project. This assessment is included in the table below. <table><tr><th>Metric</th><th>Renovate & Extend</th><th>Replacement / New Build</th></tr><tr><td>EPC Rating</td><td>B → low A</td><td>A / A+</td></tr><tr><td>SAP Score</td><td>~78 – 88</td><td>~92 – 105</td></tr><tr><td>Heating Demand</td><td>Medium-low</td><td>Very low</td></tr><tr><td>Airtightness</td><td>Good</td><td>Excellent</td></tr><tr><td>Thermal Bridging</td><td>Moderate</td><td>Minimal</td></tr><tr><td>Predictability</td><td>Moderate</td><td>High</td></tr><tr><td>Long-term Energy Cost</td><td>Low</td><td>Very low</td></tr></table> Apart from the energy performance issues that affect sustainable outcomes, the energy costs are a relevant consideration for the applicant. The reduction in energy consumption of the replacement dwelling could represent a saving of circa £1 000 per annum compared to the renovate and extend option. This will represent a significant saving over the expected lifecycle of the property.	Metric	Renovate & Extend	Replacement / New Build	EPC Rating	B → low A	A / A+	SAP Score	~78 – 88	~92 – 105	Heating Demand	Medium-low	Very low	Airtightness	Good	Excellent	Thermal Bridging	Moderate	Minimal	Predictability	Moderate	High	Long-term Energy Cost	Low	Very low
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Predictability	Moderate	High																							
Long-term Energy Cost	Low	Very low																							
8.00	SUMMARY AND CONCLUSION This assessment demonstrates that whilst overall construction costs could be similar across the renovation & extension option versus the demolition & replacement option, the risks are higher with the former option. In terms of whole life carbon the balance is in favour of the replacement dwelling option and this also has significant benefits from an operational energy and overall sustainability perspective. Although not mentioned above, expected lifespan should also be a consideration and the replacement dwelling would have a longer life span than the renovated and extended dwelling and this further favours the replacement option as the costs of work, and the embodied carbon associated with further remedial work, or earlier life expiry would also need to be considered across the entire carbon life-cycle. Operational energy costs and occupant comfort should also be a consideration and these will be reduced and enhanced respectively under the replacement option.																								

	Other tangible benefits should also be considered and the proposed relocation of the replacement dwelling within the overall site should also be factored in. The existing dwelling is immediately adjacent the industrial site and given the plot size the opportunity to relocate the dwelling seems sensible in all contexts. Taking all of the above into consideration, my professional recommendation would be that the demolition and replacement of the existing dwelling is the most viable option across all key considerations.
8.01	Report prepared by:  James Bastable (Chartered Architect) ARB Registration Number: 071316C RIBA Membership Number: 12015390 22nd January 2026