PEACEHAVEN HUB

Design Report to support submission for CIL funding

FEBRUARY 2024

kaner olette
architects

Introduction

This report summarises some thoughts and suggestions relating to a bid for CIl funding on the Hub Building at Centenary Park. George Dyson, Town Clerk of Peacehaven Town Council has appointed Kaner Olette Architects, Betteridge and Milsom Cost Consultants, QODA Engineers and Consibee Structural Engineers to provide a 'high level' assessment of a possible scope for the building taking into account the anticipated budget and the condition report prepared by Pyxis Property Consulting in January 2024.

It should be noted that the recommendations are based on the information available in the time. No site visit has been taken or detailed surveys. It is not a comprehensive feasibility study of options abvailable to the council but more of a 'sense check' for a deliverable and useful project to address some of the key concerns on the building, most notably the heating system and the roof. The team are highlighting some of the design and construction constraints that may need to be considered in the decision making process for the final scope.

The building was constructed in the mid 1980s and had some limited modifications in 2014. There are a number of elements in place from the original building design and fabric.

KEY POINTS FROM PYXIS PROPERTY REPORT

- No major structural issues evident
- No evidence of RAAC
- Intermittent roof leaks and possible condensation; low levels of insulation
- Sheet rooflights heavily stained/algae growth
- Some deterioration and damage to ply fascias and plastic rainwater goods
- Mix of door styles and materials - some rust and broken glass panels; issues with ASB in past
- Gas boiler and hot water systems deemed at end of service life
- Air extraction not checked
- Light fittings generally fluorescent/compact fluorescent; no LED
- Minor finishes issues in various places to flooring,ceiling and tiling
- Asbestos report not available - KOA have since provided PTC with a copy of the 2014 report
- Assumed fire risk assessment has taken place and all maintenance carried out

PTC NET ZERO COMMITMENT

It is believed that Peacehaven Town Council have committed to achieving net zero and this provides an opportunity to address some of the key 'weaknesses' of the building in this regard.

FUTURE PLANS

A major feasibility options study for the future direction and business plan for the building was recently tendered but PTC decided not to proceed. This study assumes that the general layout and use will now not change in the medium term.

Methodology and Key Questions

After an initial briefing session with the Town Clerk and Finance Manager we suggested a team of consultants to help develop the recommentations, who were then appointed. We then held a design workshop with the team to discuss some of the key elements to factor in to explore options and the key constraints. The existing information available to us was reviewed and we researched what we had from the 2014 works. Each consultant then prepared a commentary to help inform this report.

KEY FACTORS EXPORED:

- Age of Building and 'end of life' components
- Condition of Building
- Likely Budget
- Desire to move towards Net Zero
- Fabric First Approach to sustainability
- Anticipated loads of changes and effects on structure
- Pros and cons of changing the roof shape/form
- Requirements of current building regulations
- Site logistics and construction methodology
- Lifespan of new elements
- Coastal climate - salt, wind loads, nesting seagulls - future climate change
- Antisocial behaviour
- Logical package of works
- Possible priorities - assumed

SUGGESTED PRIORITY OF SCOPE:

1. Address any areas of health and safety risk
2. Address areas of possible water ingress into the building/fabric degradation
3. Address services systems that are in risk of failure
4. Address any further failing functional components that affect usage
5. Address any aesthetic issues

Form of Roof

There was some discussion with the Town Clerk on whether the roof form should stay the same or was there opportunities to chnage to provide more space at a mezzanine levvel as well as accommodate more PV panels.

Due to time constraints and scope of brief we have not investigated in detail options on differerent approaches to roof forms. However, to help with decision making we have looked very briefly at options that may assist the usge of the building.

Option A: Retain the same shape ie square plan hipped low pitch roof

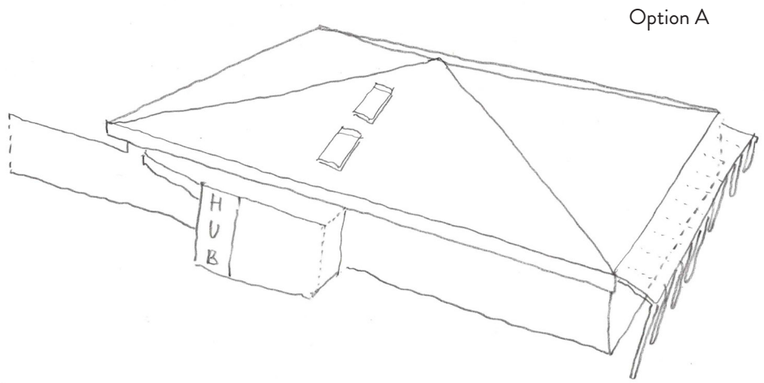
This is clearly the simplest approach. The original structure is lightweight steel trusses and purlins on loadbearing masonry walls and shallow strip foundations. To retain this and work within anticipated loads would mean a quicker, cheaper roof replacement but with certain improvements (better rooflights, ease of construction, upgrade to insulation and allowance for PV cells. Planning permission is unlikely to be needed as no major change to the appearance or impact on neighbours. It is likely that the roof could be replaced in bays thus reducing the risk of water ingress or the need for a temporary roof.

Option B: Change to duopitch roof with ridge in east/west orientation

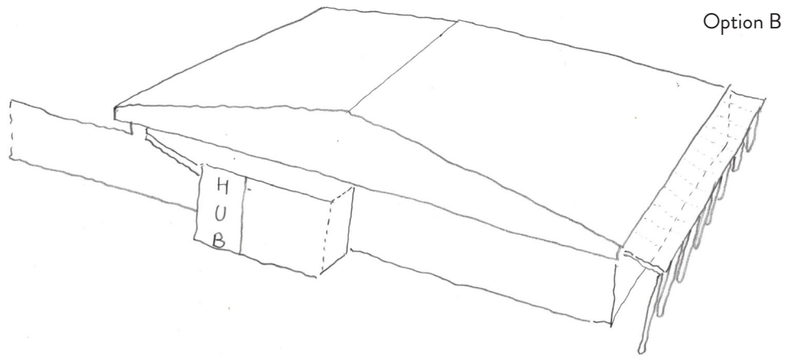
This could enable a greater number of PV panels to be accommodated in the optimum orientation (facing south) and may allow some extra space in the roof void. To achieve this the roof structure would need to be changed and columns/new foundations at the two gable ends. The existing porch could perhaps be retained. This would most likely need planning permission and would be a far higher capiltal cost with greater cost and time risk as more complex to construct. Without further discussion it is not clear how the mezzanine elements can work with the existing layout as new stairs would be required and there is a variety of ceilings in place currently. Also all the existing partition walls would need to be reviewed and possibly extended as currently related to the hipped form.

We believe that Option A would be the more effective way forward based on the information available to us. There are a number of complex implications of changing the form. If there was to be a major change in use, height, layout or space required then this may change - this is currently outside of our scope.

Option A



Option B



Roof System Options

Presuming option A is adopted there is then an exercise on which type of roof would replcae the existing. The roof pitch is quite low at 15 degrees. This is fine with metal lightweight roofs and flat roof membranes (such as single ply). It would not be able to accommodate slate or tiles due to weight and the minimum pitch required for these roof types. Single ply is perhaps possible but is generally of low visual quality and uses plastic/oils in its manufacture. It has low puncture resistance so can be easily damaged by anti social behaviour or even by pecking by seagulls.

Therefore we are concentrating on a lightweight metal roof system.

There are a large number of systems on the market with different properties, appearances , sutainability credentials and costs. A full investigation of this is beyond the scope of this report but it is recommended that if the project proceeds then a methodical review of options is carried out and budget costs attained. Some potential options set out below:

Option X: Like for Like replacement:

The existing roof is believed to be a basic trapezoidal industrial steel roof, powder coated with 50mm PUR insulation and liner sheet fixed to purlins. Similar systems exist now that can improve on insulation values and thermal breaks. We would not recommend like for like replacement of the rooflight sheeting over the entrance corridor and a more sophisticated rooflight is considered. We would also suggest that perhaps the colour of the roof is changed to 'freshen' the identity of the building alongside any ply fascias etc. Although still possible to use the PUR insulation we generally steer clients away due to its manufacture and properties in fire. It should be noted that fixings are exposed and can be a point of failure.; flashings and accessories can be quite crude in their detail

Option Y: Standing Seam Coated Steel:

The Greencoat system has a similar appearance to the zinc used on the gateway Cafe but is much cheaper. The coatings are allegedly more sustainable than standard powder coatings based on rape seed. Long life spans are quoted and the upstand seams allow for easy connection of PV cell panels.. All fixings are concealed in the upstand seams and accessories are more refined in their detail

Option Z: Uncoated aluminium:

The Kalzip system is based on lightweight aluminium panels with standing seams not dissimilar to Option Y. The main difference is weight and appearance (light silver with 'bossed' finish).

Knepp Estate restaurant - Kaner Olette

Victoria Park Hub Ashford - Kaner Olette

Services Commentary

QODA Consulting are MEP engineers who have extensive experience in low carbon projects.
The following is an initial set of proposals by Rory Walsh, Director

Mitsubishi Ecodan Air Source Heat Pump

Peacehaven Hub – Scope of Works for MEP Services **Rev 2**

Existing services

In general, the existing mechanical services are at or approaching the end of their useful economic life expectancy and will need to be replaced. The electrical services are more recent and can be in part reused.

Space heating is provided by a Potterton Kingfisher gas fired boiler, which is circa 30 years old and is likely to have been part of the original installation. Steel panel radiators provide heating within rooms. The distribution pipework is steel and though serviceable there are no thermostatic valves to control the heat within the space.

Hot water is provided by a pair of Lochinvar gas fired water heaters, however one of these units have been decommissioned. Again, the system is likely to be circa 30 years old and the end of their useful economic life expectancy. Local thermostatic mixing valves supply the showers, with 3 No. shower heads in each of the changing rooms, single shower in referee's room. Changing room showers are in fair condition, assumed to be on working order.

Cold water storage tanks located in the loft above the changing rooms appear in good and serviceable condition and should be regularly checked as part of the water hygiene management regime.

Air extraction is provided by localised units in the WC facilities, changing rooms and office.

The mains electrical intake and meter is located in the entrance foyer, with a distribution board located adjacent to Accessible WC. Main board appears relatively recent with inspection label indicating last inspection in 2022. The periodic inspection and the arising reports should provide details of where the installation needs work to comply with regulations.

Light fittings a mix of types and age, including ceiling grid mounted, bulkhead and emergency. The majority are fluorescent or compact fluorescent which are being phased out so replacement lamps and parts will not be available. Consideration needs to be given to a lighting replacement programme to update the lighting to energy efficient LED throughout the building.

Electrical socket and switch outlets are all standard metalclad surface mounted on walls with conduit wiring. Visually power circuits, switchgear and outlets appear serviceable but need to be assessed as part of periodic EICR.

There is a multi-zone fire alarm panel with associated detectors, sounders and call points located throughout the building. It appears to be a more recent installation and has a logbook recording the regular testing.

New Services

Gas

Based upon displacing carbon bases fuel and providing heating via a heat pump and hot water by direct electric we will require the gas supply and meter to be stripped out.

Electrical Supply

Eliminating gas from the site will require the existing single-phase supply to be replaced by an 80A TP&N supply. There appears to be three phase supply in the vicinity of the site and there is a 500kVA substation close by. The HV network has 44% headroom so there appears to be ample supply in the vicinity of the site.

Heating

The existing gas fired heating system will need to be stripped out and replaced with a heating system sized based upon 55ºC flow temperature and 50ºC return. There will need to be a buffer vessel and 2 No. Mitsubishi Ecodan R32 14kW Monobloc Air Source Heat Pump Package PUZ-(HWM140VHA). The radiators will need to be replaced with larger heat emitters to operate with the lower water temperature.

Domestic Hot and Cold Water

The existing supply is to be upgraded so that the water storage tanks can be removed. The existing 2 No. gas fired hot water generators are to be stripped out. The hot water will be provided by 3 No. electric showers in each changing room. 6 No. point of use hot water heaters will be provided for the wash hand basins.

Ventilation

New local extract fans in the toilets, kitchen and showers.

Electrical Services

New Distribution boards to feed the new mechanical services and water heaters.

Lighting

New lighting throughout with PIR controls.

Lightning Protection

A risk assessment should be undertaken to establish if the building should be provided with lightning protection.

PV

The capital cost, payback and energy saving will favour insulation of the wall and roof over PV. Typically, PV has a typical payback period of 22 years compared to 16 for fabric insulation. PV panels typically have a useful life expectancy of 20 to 25 years compared to 80 years for fabric insulation. That said if the roof is to be replaced provision should be made for installing PV panels at some time in the future.

Structural Commentary

Ian Prentice of Conisbee Structural Engineers has reviewed the available information on the existing building including some limited work from 2014.

Peacehaven Community Pavilion

Introduction

Conisbee have been asked by Kaner Olette architects to review outline proposals for recladding the existing roof to the Pavilion building along with the possibility of adding PV panels to the roof. In addition, it is understood that removal and remodelling of the existing roof to form a duo pitch roof is also being considered.

Existing Building

The Pavilion is a single storey building built in the mid 1980's which is approximately 16m x 16m square on plan. Original architects' drawings that have been made available to us indicate that the building is of load bearing masonry construction. Photos of a small extension to the building which was constructed around 2014 appear to indicate that foundations are concrete strip footings which would be in keeping with a building of this size.

The roof is a symmetrical hipped roof. Each of the four hips are supported by proprietary steel lattice beams which appear to be supported on the inner blockwork leaf of the external cavity walls at each corner and on a central masonry pier at the apex of the roof. Secondary lattice beams span between the external cavity walls and the hip beams to reduce the span of the purlins supporting the roof cladding. From the photos that we have inspected , the purlins are proprietary pressed steel C sections.

The roof cladding appears to be a proprietary panel system. We assume that this is a *sandwich* type panel with insulation between external and internal sheeting. This looks to be well fixed down to the purlins with multiple self-tapping screws.

Within the main hall of the building , photos show that the roof structure is fully exposed.

We have not visited site and we therefore assume that the building / structure is in good state of repair and that there are no structural defects or issues with the roof and walls etc.

Proposals

It is understood that consideration is being given to replacing the original roof cladding which is nearly 40 years old. Given that the building was constructed in the mid 1980's the roof is likely to have been designed for the roof loadings specified in BS6399 Part 1. This noted that a live load of 0.75 Kn /m2 should be used to design roofs with a pitch up to 30 degrees with no access other than for maintenance. The roof currently has a 15 degree pitch. Subsequent loading codes , including the current Eurocode, reduced the live load to 0.6 kN /m2 , a difference of 0.15 kN /m2 or 15 kg /m2.

This difference in loading could therefore be used to offset the load of PV panels should they be fixed to the existing roof. PV panels are not generally heavy and this load reduction should cover their weight. We understand that the PV's would only be fixed to the southern quarter of the roof and not over its entirety.

If the roof cladding is replaced, a cladding with a similar weight to the existing should be used. This would avoid adding load which would mean having to justify the existing structure and potentially strengthen it. If the PV's are not installed then the additional load allowance could be offset against a slightly heavier roof cladding.

Allowance should be made for replacing the C section purlins given the amount of fixings that appear to have been made into these. Additional purlins may also be required for the new covering depending on its spanning capability.

We also understand that another option that has been suggested is to replace the existing hipped roof with a duo pitch roof to increase the area available to site PV panels. This could be achieved by using pairs of timber mono pitch trussed rafters spanning between the external walls and the central masonry wall. The drawback of this would be that a ceiling would have to be installed within the hall area which is currently open. If the hall roof needed to remain open, primary beams would need to be installed to span between the central masonry wall and the external wall with purlins spanning between them to support the roof cladding. Consideration would need to be given to lateral thrust on the external wall and columns may need to be added to support the ends of the beams. In addition to the new roof structure, the external walls would need to be raised on two sides to form gable ends to the roof.

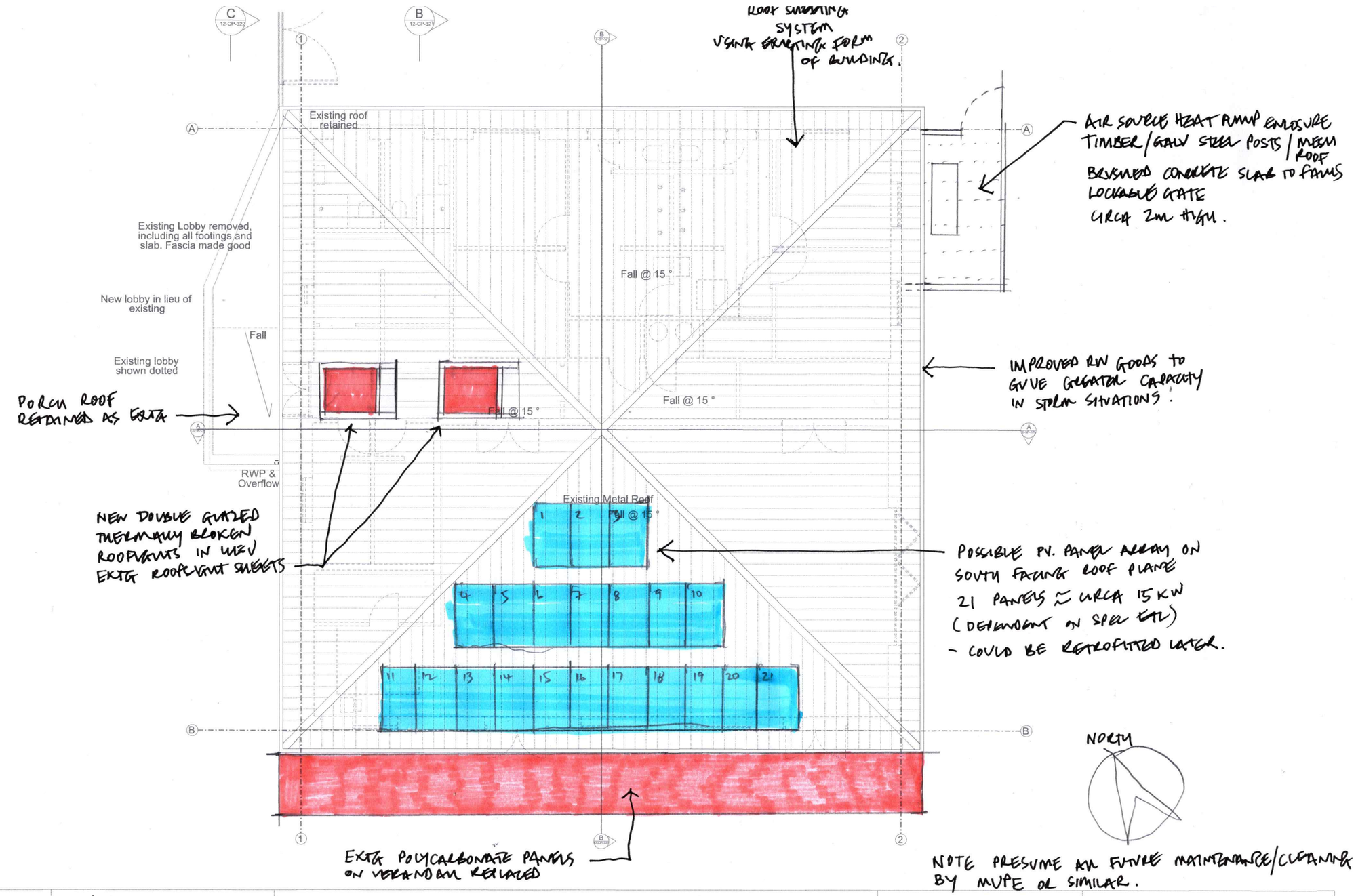
Reconfiguring the roof would change the load paths and add load to elements that at present carry little load. Investigation works would need to be carried out to ascertain details of the structure (foundations and wall etc) so that checks could be made to ensure that these elements are able to carry the required loads. If they could not be justified, then strengthening works would be required which would add to the overall cost of the works.

Summary

Provided that the weight of the replacement roof cladding is similar to the existing and the PV panels are lightweight then the existing roof structure should be adequate. Allowance should be made for replacing the existing purlins.

If the roof is replaced, then investigations works would need to be carried first in order to prepare a structural scheme. Strengthening of the existing structure may well be required which would need to be factored into the overall cost of the new roof.

Summary Drawing - Roof and Externals



revision history	general notes		
C1 - 18/06/2014 - Construction Issue	This drawing is Copyright and shall not be produced nor used for any other purpose without the written permission of the Architect. Do not scale this drawing.	0m 1m 2m 3m 4m	kaner olette architects t: 07821 462249 e: contacts@kaneroliette.co.uk

Appendix A - October 84 Drawings