1.0 VENTILATION STRATEGY

The existing 2 supply only ventilation air handling units (AHU's), of which 1 serves the supper room/ Fire Restaurant and the second the kitchen areas, are currently located in the area proposed for the new entrance stair and lift location and as such required to be relocated. In addition, the current ductwork for the fresh air supplies to the AHU's is taken down through an external/open to outside void between the buildings. This void will disappear as part of the entrance works. The units are also of an age where consideration should be given as to whether moving the units would adversely affect their operation and future maintainability and reduce their current lifespan. After extensive discussions and review of the available options the following was agreed.

The possible locations to house the AHU's are limited due to visual implications when mounted on the roof, the physical size of the equivalent units and hence limited roof or building space available to house same without adversely affecting the current internal accommodation. The only areas where it was felt possible to house the replacement AHU was on the roof to the rear of Fire Restaurant and beside the Round Room.

The selection of units was based on the ability to improve their and the systems energy efficiency without compromising the future operation of the area served. Given that one AHU will be serving the kitchen area, this unit will remain as supply air only. Although the availability of hot extract air is likely to be high form the kitchen this air may be laden with grease, if not maintained, and hence clog any heat recovery device. In addition, it is unlikely that this recovered heat would be beneficial to the kitchen area where heating is usually not required. The Supper Room AHU currently serves both levels of the Fire restaurant. As the extraction from the Supper Room is located on the roof it is possible to recover heat from this discharge air and use this to heat the supply air system. A heat recovery AHU, using plate heat recuperator with bypass facility, is therefore proposed to supply and extract from the restaurant areas. Both AHU's will be located externally on the roof and services corridor is recommended to provide safe and dry service and maintenance space for the units.

Due to the above plant configuration the ductwork must change accordingly. As the AHU's will be externally mounted on the roof, the fresh air supply to both units will be direct and hence has been resolved. As the supply currently rises from the lower ground plantroom to high level in the kitchen ceiling, which is below the roof it will be possible to make a new penetration and connection directly from the roof to the kitchen ceiling void and hence supply ductwork. The extract from the kitchen areas will remains as is through, in the main, the kitchen canopies. The supply to the Fire Restaurant and Supper room is currently located within the lower ground plantroom and rises to serve the areas above. The relocation of the AHU to the roof therefore requires a replacement supply duct from roof to lower ground plantroom. As the existing kitchen supply ductwork current does the reverse and will become redundant, it is proposed to use either this duct, size permitting, or this route to provide the new supply ductwork route down through the building and back to reconnect to the existing supply system, with minor modifications, serving the Fire Restaurant and Supper Room. The extract system from the Supper Room will be modified to remove the existing axial fans and provide ductwork to connect the existing extraction system back to the new heat recovery AHU.

Connections will also be required to provide the AHU's with heating and new power and controls system will be required.

Mansion House boiler room will require alterations to the boiler room ventilation system and the boiler room sealed fresh air supply may need to be altered to accommodate the infill of the void between the building. The route for the new ventilation / fresh air ductwork are propose either through existing voids, following the boiler flue route, or via the cloakroom above the boiler house and out to a suitable point onto the roof.