



Consulting Engineers LLP
Multi Discipline Consultancy

Electrical Inspection Report

at
McNulty Yard
for
Port of Tyne

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Date: December 2012

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Project No: 5570

Issue No: 2

Issue Date: December 2012



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1.0 EXECUTIVE SUMMARY

- 1.1 The Electrical Installation across McNulty Yard is typical of a system whose infrastructure is some 45 years old with many of the buildings having been added to on an ad hoc basis over the past 20/25 years. In these instances it is unlikely that the electrical installation which will meet current standards although certain elements may still be retained.
- 1.2 In certain buildings, some services maybe retained although almost all require some updating. In these buildings there are a 'common' number of areas requiring rectification:
- All buildings to have periodic inspection and testing undertaken.
 - All buildings to have Emergency lighting installation installed in accordance with BS 5266
 - All buildings to have Fire Alarm systems installed in accordance with BS5839
 - All buildings to have Earthing installations upgraded to meet the requirements of BS 7671
- 1.3 In addition to the general age and condition of the Electrical installation it is likely that much of the switchgear contains small amounts of asbestos used as insulating or Arc suppression material.
- 1.4 Further detailed recommendations are outlined on a building by building basis in the main body of the report.



2.0 INTRODUCTION

BRIEF

- 2.1 DTA Consulting Engineers LLP were appointed in September 2012 by Port of Tyne to undertake a condition report at McNulty Yard and this particular report forms part of the overall report on the site.
- 2.2 This specific report should be read in conjunction with the other sections of the overall report.

RESTRICTIONS AND LIMITATIONS

- 2.3 The inspection was undertaken without any intrusive investigations or testing.
- 2.4 No design appraisal of the systems has been undertaken.

CIRCULATION OF REPORT

- 2.5 The Report has been prepared for the use of the person or organisation giving the instruction and should only be used within the context under which the instruction is given. It may be disclosed to other professional advisors assisting in respect of that purpose but must not be disclosed to a third party without the approval of DTA Consulting Engineers LLP.

3.0 BUILDING REFERENCE 1 - PIPE SHOP

INTAKE

- 3.1 The mains supply to this building is located on the South East Wall terminating in an MEM manufacture section board which in turn supplies multiple distribution boards throughout the building, these in turn supply all electrical services within the building.
- 3.2 110V supplies throughout the pipe shop are derived via a dedicated distribution system supplied via a floor mounted 400V/110V transformer.

MAINS & SUB MAINS CABLING

- 3.3 Mains and sub mains cabling takes the form of PVC/SWA/PVC cable generally fixed to the structure.
- 3.4 The mains cabling is circa 30 years old and appears to be in reasonable condition although access is not available to the majority of the cable run, in many instances the sub mains cabling requires to be fixed/supported in accordance with BS7671.

DISTRIBUTION EQUIPMENT

- 3.5 The main building distribution equipment located on the South Eastern wall of the building comprises a combination of Proteus and MEM switchgear and distribution boards. Both the Proteus and MEM equipment is some 30 years old and in poor condition. There are also numerous distribution boards installed throughout the pipe shop predominantly of Proteus, MEM and Hager manufacture all of which are of a similar age. Within the store area there are a number of items of switchgear of Memrex and Glasgowrex manufacture, this is probably circa 50 years old and in poor condition.





CABLE CONTAINMENT SYSTEMS

- 3.6 Cable tray and PVC mini trunking is provided for the containment of final circuit cabling in all other areas the cables are clipped direct to the structure. The containment systems are also suffering from corrosion as a result of water ingress and provide limited support to sub mains cables.

FINAL CIRCUIT WIRING

- 3.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:
- PVC/SWA/PVC cabling fixed to tray or direct to the building structure.
 - 'Armourflex' cabling fixed to tray or direct to the building structure
- 3.8 In the case of the PVC/SWA/PVC and 'Armourflex' cabling although it is in reasonable condition it is clear that much of the installation has been added to over the years on an 'ad-hoc' basis and hence cable ratings etc may have been exceeded as a result of de-rating values not being taken into account when adding to systems.

LIGHTING INSTALLATION

- 3.9 The general lighting is provided by means of high bay luminaire, bare batten and IP65 rated fluorescent luminaires. A number of luminaires were inoperative at the time of the survey. The luminaires are of varying age circa 5-20 years old and in varying condition.

EMERGENCY LIGHTING

- 3.10 Emergency lighting is provided by means of a minimal number of bulkhead luminaires around the building.



- 3.11 Given the dimensions of the building and the numbers/locations of the emergency luminaires it is unlikely that the lighting levels required under BS5266 will be met by the present installation.

FIRE DETECTION

- 3.12 The building is currently fitted with an 8-Zone Firesafe Fire Alarm System with the main control panel located adjacent the ground floor main entrance door.
- 3.13 Individual detectors are located throughout the building with manual call points situated at the final escape routes on the ground floor. Fire alarm sounders are provided to the pipe shop and circulation areas.
- 3.14 It was noted during the survey that some of the smoke detectors were in poor condition.
- 3.15 It was not possible to check the audibility of the fire alarm system at the time of the survey. We would recommend that this is checked to ensure that it complies with the minimum levels as stipulated in BS5839.
- 3.16 There is no visual indication of a fire alarm activation anywhere in the property which does not comply with current standards, however as these standards are not retrospective, it is not a requirement to install visual detection unless there is a major building refurbishment undertaken.
- 3.17 Consideration should, however be given to installing a new system complying with BS5839 as replacement parts maybe difficult to source.

SMALL POWER

- 3.18 A number of BS4343 socket outlets are located around the building generally fed via PVC/SWA/PVC or Armourlex cabling, there are also a limited number of surface mounted metal clad sockets fed via PVC/SWA/PVC. The installation is generally in reasonable condition although the protective devices serving these outlets is unidentified as circuit charts for the distribution boards were not present.
- 3.19 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the existing distribution equipment.

EARTHING

- 3.20 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 3.21 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 3.22 Although some minor elements of the electrical installation are in a serviceable condition the vast majority of the installation is at the end of its useful life and requires replacement.
- 3.23 Consideration should be given to the replacement of the distribution equipment, replacement of the inoperative general luminaires, the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

4.0 BUILDING REFERENCE 1A - PIPE SHOP - OFFICES

INTAKE

- 4.1 The mains supply to this building is located on the basement West Wall and supplies multiple distribution boards throughout the building, these in turn supply all electrical services within the building.

MAINS & SUB MAINS CABLING

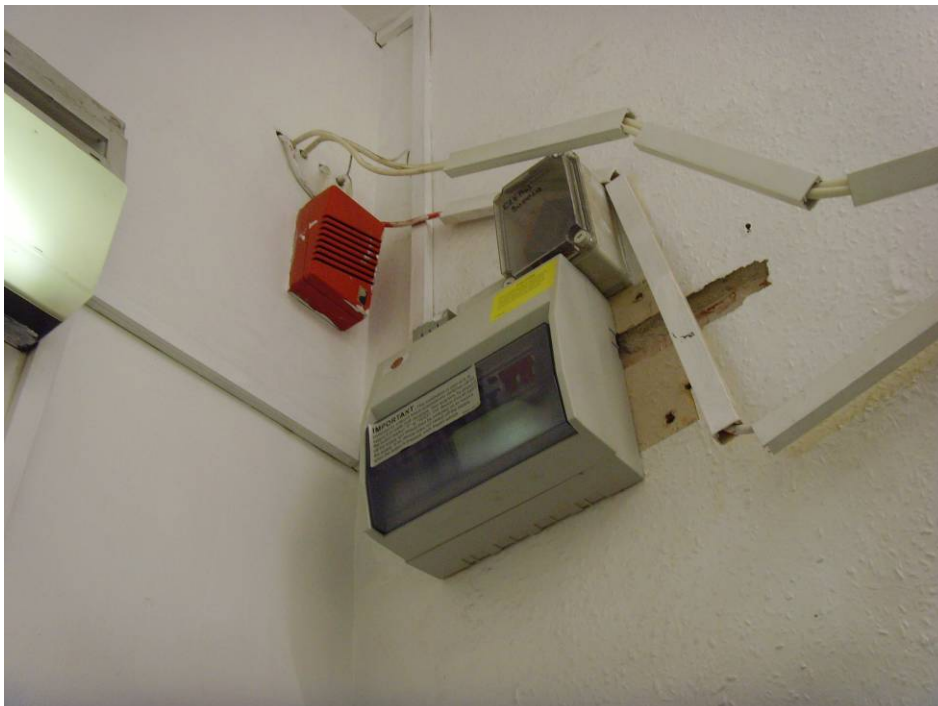
- 4.2 Mains cabling takes the form of PVC/SWA/PVC cable generally fixed to the structure, with sub main cabling being PVC twin & earth.
- 4.3 The mains cabling is circa 25 years old and appears to be in reasonable condition although access is not available to the majority of the cable run, in the case of the PVC twin and earth cabling, in numerous locations this is clipped direct to the structure without any means of mechanical protection.

DISTRIBUTION EQUIPMENT

- 4.4 The main building distribution equipment located on the west wall of the building comprises a combination of Dennis and Hager switchgear and is some 25 years old and in reasonable condition. This switchgear in turn feeds Wylex distribution boards to each floor of the office block, these boards are circa 15 years old and also appear to be in reasonable condition.

CABLE CONTAINMENT SYSTEMS

- 4.5 PVC mini/standard trunking is provided for the containment of final circuit cabling in all other areas the cables are flush within the building fabric. The containment systems in general appear to be in a reasonable condition however there are a number of areas where it is extremely poor having suffered mechanical damage.



FINAL CIRCUIT WIRING

- 4.6 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:
- PVC singles contained in trunking/conduit
 - PVC twin & earth cable.
- 4.7 The majority of the final circuit wiring appears to be in reasonable condition, however twin & earth cables are installed in numerous locations without mechanical protection making them susceptible to damage.

LIGHTING INSTALLATION

- 4.8 The general lighting is provided by means of surface mounted bare batten fluorescent luminaires and recessed luminaires with both prismatic diffusers and Cat 2 louvres. A number of luminaires were inoperative at the time of the survey. The luminaires are circa 10-15 years old and in most cases are not suitable for this type of environment.

EMERGENCY LIGHTING

- 4.9 Emergency lighting is provided in general to the main escape routes, at the time of survey a number of the fittings were either broken or missing tubes.
- 4.10 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

- 4.11 The building is currently fitted with a 2-Zone Firescan 90 Fire Alarm System with the main control panel located on the first floor landing.
- 4.12 Individual detectors are located throughout the building with manual call points situated on each level and at the final exit on the ground floor. Fire alarm sounders are provided to a number of rooms.
- 4.13 It was noted during the survey that some of the smoke detectors were in poor condition.
- 4.16 It was not possible to check the audibility of the fire alarm system at the time of the survey. We would recommend that this is checked to ensure that it complies with the minimum levels as stipulated in BS5839.
- 4.17 There is no visual indication of a fire alarm activation anywhere in the property which does not comply with current standards, however as these standards are not retrospective it is not a requirement to install visual detection unless there is a major building refurbishments undertaken.
- 4.18 Consideration should however be given to installing a new system as replacement parts maybe difficult to source.

SMALL POWER

- 4.19 There are a number of small power outlets distributed throughout the office building fed via the local distribution board. The installation is generally in a reasonable condition although the protective devices serving these outlets is unidentified as circuit charts for the distribution boards were not present.



- 4.20 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, a number are installed within the distribution equipment but not sufficient to satisfy BS7671.

EARTHING

- 4.21 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 4.22 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 4.23 Consideration should be given to the replacement of the distribution equipment, replacement of the inoperative general luminaires, the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.



5.0 BUILDING REFERENCE 2 - GATE HOUSE

INTAKE

- 5.1 The mains supply to this building is located in the store this supplies all the electrical services within the building.

MAINS & SUB MAINS CABLING

- 5.2 Mains cabling takes the form of PVC/SWA/PVC cable.

DISTRIBUTION EQUIPMENT

- 5.3 The main building distribution equipment located within the store is of Dorman Smith manufacture and is some 2 years old and in good condition.

CABLE CONTAINMENT SYSTEMS

- 5.4 There is a mixture of PVC trunking/dado trunking and PVC conduit provided for the containment of final circuit cabling. The containment systems are in good condition.

FINAL CIRCUIT WIRING

- 5.5 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:
- PVC singles contained in trunking/conduit
 - PVC twin & earth cable.
- 5.6 The final circuit wiring appears to be in good condition.

LIGHTING INSTALLATION

- 5.7 The general lighting is provided by means of surface mounted IP65 rated fluorescent luminaires. The luminaires are circa 2 years old and in good condition.

EMERGENCY LIGHTING

- 5.8 No emergency lighting is provided to the building.
- 5.9 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

- 5.10 The building is currently fitted with a number of battery operated smoke detectors.

SMALL POWER

- 5.11 There are a number of small power outlets distributed throughout the office building fed via the local distribution board. The installation is generally in a good condition although the protective devices serving these outlets is unidentified as circuit charts for the distribution boards were not present.
- 5.12 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, a number are installed within the distribution equipment but not sufficient to satisfy BS7671.



EARTHING

- 5.13 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 5.14 There were no record drawings, test certificates or records of periodic testing and inspection available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 5.15 Consideration should be given to the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

6.0 BUILDING REFERENCE 03 - STORES

- 6.1 The mains supply to this building is located on the West Wall and terminates in a Hagar manufacture MCB distribution board which supplies all electrical services throughout the building.

MAINS & SUB MAINS CABLING

- 6.2 Mains and sub mains cabling takes the form of PVC/SWA/PVC cable generally fixed to the structure.
- 6.3 The mains cabling is circa 30 years old and appears to be in reasonable condition although access is not available to the majority of the cable run.

DISTRIBUTION EQUIPMENT

- 6.4 The main building distribution equipment comprises a wall mounted MCB distribution board located on the west wall of the building. The distribution board is some 20 years old and the existing cover is damaged compromising the I.P rating of the D.B.

CABLE CONTAINMENT SYSTEMS

- 6.5 Steel cable trunking/conduit is provided for general services such as lighting and small power.
- 6.6 The containment systems are in reasonable condition

FINAL CIRCUIT WIRING

- 6.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:
- PVC singles contained in trunking/conduit
 - PVC/SWA/PVC cable.
- 6.8 The final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

- 6.9 The general lighting is provided by means of IP65 rated fluorescent luminaires fixed direct to lighting trunking.
- 6.10 The luminaires are circa 10-15 years old with some inoperative at the time of the survey. Although in reasonable condition routine maintenance to the inoperative luminaires should be undertaken.

EMERGENCY LIGHTING

- 6.11 Emergency lighting is provided to the 2No. final exits with 1No. also mounted at high level in the centre of the building.
- 6.12 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

- 6.13 There was no fire detection system apparent during the survey, consideration should be given to the provision of a system complying with BS 5839.

SMALL POWER



- 6.14 There was no small power apparent during the survey.
- 6.15 From a safety viewpoint if there is small power within the building these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 6.16 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 6.17 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 6.18 Consideration should be given to the replacement of the distribution board, replacement of the inoperative general luminaires, the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

7.0 BUILDING REFERENCE 04 - WORKSHOP & STORES

INTAKE

- 7.1 The mains supply to this building is located on the South Wall and terminates in an English Electric manufacture main switch feeding an MEM distribution board which supplies all electrical services throughout the building.

MAINS & SUB MAINS CABLING

- 7.2 Mains and sub mains cabling takes the form of PVC/SWA/PVC cable generally fixed to the structure.
- 7.3 The mains cabling is circa 40 years old and appears to be in reasonable condition although access is not available to the majority of the cable runs.

DISTRIBUTION EQUIPMENT

- 7.4 The main building distribution equipment comprises a wall mounted English Electric main switch and MEM distribution board located on the south wall of the building. The distribution board is some 40 years old and the existing cover is damaged.



CABLE CONTAINMENT SYSTEMS

- 7.5 PVC mini trunking and steel conduit is provided for general services such as lighting and small power within the office with a cabling clipped direct within the main store.
- 7.6 The containment systems are in a poor condition, in many cases suffering from water ingress.

FINAL CIRCUIT WIRING



7.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:

- PVC singles contained in trunking/conduit.
- PVC twin & earth.
- PVC/SWA/PVC cable.

7.8 The final circuit wiring appears to be generally in reasonable condition.

LIGHTING INSTALLATION

7.9 The general lighting within the stores is provided by means of high bay luminaires fixed direct to the steel purlins a number of these fittings have been replaced with low bay fittings. Within the office areas GLS ceiling pendants and bare batten fluorescents are provided.

7.10 The luminaires are circa 10-20 years old with some inoperative at the time of the survey. All luminaires are in poor condition.

EMERGENCY LIGHTING

7.11 There was no emergency lighting apparent during the survey.

7.12 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

7.13 There was no fire detection system apparent during the survey, consideration should be given to the provision of a system complying with BS 5839.

SMALL POWER

7.14 There are a number of small power outlets distributed around the offices fed via the local distribution board. The installation is in a poor condition.

7.15 From a safety viewpoint if there is small power within the building these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

7.16 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

7.17 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

7.18 Consideration should be given to the replacement of all the distribution equipment, replacement of the inoperative general luminaires, the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

8.0 BUILDING REFERENCE 05 - RUBB TENT

- 8.1 The mains supply to this building is located on the South Wall and terminates in a Morgan Moore manufacture distribution board which supplies all electrical services throughout the building. At the time of survey the supply to the building had been isolated and stripped out

MAINS & SUB MAINS CABLING

- 8.2 The mains cabling has been isolated and stripped out.

DISTRIBUTION EQUIPMENT

- 8.3 The main building distribution equipment comprises a floor mounted distribution board located on the south wall of the building. The distribution unit is in poor condition showing signs of corrosion and is presently isolated.



CABLE CONTAINMENT SYSTEMS

- 8.4 Cables are clipped direct to the structure with BS4343 outlets mounted beneath the distribution board.

FINAL CIRCUIT WIRING

- 8.5 The final circuit wiring was inaccessible during the survey, however it would appear that plug in BS4343 outlets are used for any small power required.

LIGHTING INSTALLATION

- 8.6 The general lighting is provided by means of both High Bay luminaires and surface mounted flood lights fixed direct to the steel purlins. The luminaires are circa 15 years old and it was not possible to verify their operation at the time of the survey due to the main supply being isolated and stripped out.



- 8.7 Although the supply had been stripped out it was evident that a number of High Bays were broken or missing and also that at least one of the flood lights was broken. The missing or broken luminaires will need to be replaced with routine maintenance to the inoperative luminaires been undertaken .

EMERGENCY LIGHTING

- 8.8 There was no emergency lighting apparent during the survey.

FIRE DETECTION

- 8.9 There was no fire detection system apparent during the survey, consideration should be given to the provision of a system complying with BS 5839, dependent upon the future use of the building.

SMALL POWER

- 8.10 There was no small power apparent during the survey, however it would appear that plug in BS4343 outlets are utilised when small power is required.

EARTHING

- 8.11 No earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 8.12 There were no record drawings, test certificates or records of periodic testing and inspection available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 8.13 Consideration should be given to the replacement of the distribution board, replacement of the inoperative general luminaires, the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.



9.0 BUILDING REFERENCE 06 - TEMPORARY BUILDING

INTAKE

9.1 There was no permanent main supply apparent during the survey.

MAINS & SUB MAINS CABLING

9.2 There were no mains & sub mains cables apparent during the survey.

DISTRIBUTION EQUIPMENT

9.4 It would appear that the external floor mounted BS4343 units are utilised as and when lighting and small power is required.

CABLE CONTAINMENT SYSTEMS

9.5 All cables appear to be supported off ship hooks around the perimeter of the building.

FINAL CIRCUIT WIRING

9.6 Supplies to final circuits, power, lighting etc. are by means of extension cables fitted with BS4343 sockets.

LIGHTING INSTALLATION

9.7 The general lighting is provided by means of 2No. scaffold mounted flood lights and surface mounted inspection lamps around the perimeter of the building.

9.8 The luminaires are circa 5 years old and appear to be in reasonable condition although they were inoperable at the time of survey.

EMERGENCY LIGHTING

9.9 No emergency lighting is apparent within the building.

9.10 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

9.11 There was no fire detection system apparent during the survey, consideration should be given to the provision of a system complying with BS 5839.

SMALL POWER

9.12 Supplies to small power equipment is by means of equipment fitted with BS4343 sockets connected to the external feeder pillar.

EARTHING

9.14 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION



- 9.15 There were no record drawings, test certificates or records of periodic testing and inspection available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 9.16 There appears to be no fixed electrical installation within this building. In the event that the building is to be reused consideration should be given to the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

10.0 BUILDING REFERENCE 07 - OFFICES

INTAKE

- 10.1 The main supply enters the building within the ground floor corridor immediately inside the main entrance.

MAINS & SUB MAINS CABLING

- 10.2 Mains and sub mains cabling takes the form of PVC/SWA/PVC and Armourflex cable generally in trunking or fixed direct to the structure.
- 10.3 The cabling is circa 10-15 years old.

DISTRIBUTION EQUIPMENT

- 10.4 The main building distribution equipment comprises a wall mounted Hager distribution board located adjacent the main entrance. The distribution board is some 10-15 years old and appears in reasonable condition. An additional distribution board is located adjacent this board to serve local lighting and small power, with a further board located on the first floor again serving local lighting and small power, these are also in reasonable condition.

CABLE CONTAINMENT SYSTEMS

- 10.5 PVC mini trunking is provided for general services such as lighting and small power with steel cable trunking provided for sub mains cabling.
- 10.6 The containment systems are in reasonable condition although there was some steel trunking lid missing.

FINAL CIRCUIT WIRING

- 10.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:
- PVC singles contained in trunking/conduit
 - PVC twin & earth cable.
 - Armourflex cabling
- 10.8 The majority of the final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

- 10.9 The general lighting is provided by means of surface mounted switch start fluorescent luminaires some with diffusers but most without fixed direct to the ceiling. The luminaires are circa 10-15 years old and appear to be in reasonable condition generally, however some were inoperative at the time of survey, for office environment they are not suitable as they do not meet current legislation.

EMERGENCY LIGHTING

- 10.10 With the exception of two number emergency luminaires to the corridor area no emergency lighting is apparent within the building.
- 10.11 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

- 10.12 The building is currently fitted with an 2-Zone Fire Alarm System with the main control panel located within the ground floor main entrance corridor.
- 10.13 Individual detectors are located throughout the building with manual call points situated at the final escape routes on the ground floor. Fire alarm sounders are provided to the corridors and circulation areas only.
- 10.14 It was noted during the survey that some of the smoke detectors were in poor condition.
- 10.15 It was not possible to check the audibility of the fire alarm system at the time of the survey. We would recommend that this is checked to ensure that it complies with the minimum levels as stipulated in BS5839.
- 10.16 There is no visual indication of a fire alarm activation anywhere in the property which does not comply with current standards, however as these standards are not retrospective so it is not a requirement to install visual detection unless there is a major building refurbishment.
- 10.17 Consideration should be given to installing a new system as replacement parts maybe difficult to source.

SMALL POWER

- 10.18 There are a number of small power outlets distributed throughout the office building fed via the local distribution board. The installation is generally in a reasonable condition although the protective devices serving these outlets is unidentified as circuit charts for the distribution boards were not present.
- 10.19 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 10.20 Earthing to final circuits is provided by means of cable armouring in the case of PVC/SWA/PVC and Armourflex cabling.
- 10.21 It is recommended that the earth continuity and earth loop impedance of final circuits be tested in accordance with the requirements of BS7671 and in particular Guidance Note 8 should be provided and any necessary improvements made in accordance with the requirements of these two documents.

DOCUMENTATION

- 10.22 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 10.23 Consideration should be given to the undertaking of periodic testing to the whole of the electrical installation, removal/replacement of any damaged cabling/accessories and to the provision of new general lighting, emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

11.0 BUILDING REFERENCE 08 - MAIN OFFICE BUILDING

INTAKE

- 11.1 The main supply enters the building within the ground floor waiting area within a purpose built electrical cupboard.

MAINS & SUB MAINS CABLING

- 11.2 Mains and sub mains cabling takes the form of PVC/SWA/PVC and PVC twin & earth cable generally in trunking or fixed direct to the structure.
- 11.3 The cabling is circa 20 years old.

DISTRIBUTION EQUIPMENT

- 11.4 The main building distribution equipment comprises a wall mounted Proteus distribution board and Hager switchgear located within the main electrical cupboard. The distribution board is some 20 years old and appears in reasonable condition. Additional distribution boards are located on the upper floors to serve local lighting and small power these are also in reasonable condition however their covers have been removed.

CABLE CONTAINMENT SYSTEMS

- 11.5 PVC mini trunking/low level trunking and also dado trunking is provided for general services such as lighting and small power. It appears that within ceiling voids the cables are clipped direct to the structure.
- 11.6 The containment systems throughout out the building are of varying condition ranging from reasonable to very poor.

FINAL CIRCUIT WIRING

- 11.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:
- PVC twin & earth.
 - Armourflex cabling
- 11.8 The majority of the final circuit wiring appears to be in reasonable condition, with some cabling requiring remedial works.

LIGHTING INSTALLATION

- 11.9 The general lighting is provided by means of surface mounted switch start fluorescent luminaires some with diffusers but most without fixed direct to the ceiling. Within some offices recessed Cat2 luminaires have been installed and to corridor areas there are recessed fittings complete with prismatic louvres. The luminaires are circa 10-15 years old and appear to be in reasonable condition generally, however some were inoperative at the time of survey and are not suitable for an office environment as they do not meet current standards.

EMERGENCY LIGHTING

- 11.10 The emergency lighting within the building is fairly extensive and only minor modifications would be required to meet the requirements of BS5266. It is recommended that a full discharge test is also carried to confirm operation of the existing.



- 11.11 It is recommended that the existing system is enhanced to comply with BS 5266 throughout the building.

FIRE DETECTION

- 11.12 The building is currently fitted with an 8-Zone C-tec Fire Alarm System with the main control panel located within the ground floor waiting area.
- 11.13 Individual detectors are located throughout the building with manual call points situated at the final exits. Fire alarm sounders are provided to the corridors and circulation areas and also to most offices.
- 11.14 The majority of the equipment appears to be in reasonable condition.
- 11.15 It was not possible to check the audibility of the fire alarm system at the time of the survey. We would recommend that this is checked to ensure that it complies with the minimum levels as stipulated in BS5839.
- 11.16 There is no visual indication of a fire alarm activation anywhere in the property which does not comply with current standards. However these standards are not retrospective so it is not a requirement to install visual detection unless there is a major building refurbishment.
- 11.17 It was not possible to check if the existing system is operational but due the recent addition of battery operated smoke detectors it would suggest that it is not currently in working order.

SMALL POWER

- 11.19 There are a number of small power outlets distributed throughout the office building fed via the local distribution boards. The installation is generally in a reasonable condition although some outlets are currently not installed/fixed correctly and the protective devices serving these outlets are unidentified as circuit charts for the distribution boards were not present.
- 11.20 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 11.21 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

SECURITY

- 11.22 The building is currently fitted with a Mini-Lok Security Alarm System.
- 11.23 Individual detectors are located throughout the building but at the time of survey we were unable to determine if the system is fully operational. It is recommended that the system is fully tested to confirm operation.

DOCUMENTATION

- 11.24 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS



- 11.25 Consideration should be given to the undertaking of periodic testing to the whole of the electrical installation, removal/replacement of any damaged cabling/accessories and to the provision of new general lighting, emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

12.0 BUILDING REFERENCE 08A - MAIN OFFICE BUILDING – DIMENSIONAL CONTROL/OFFICE/MEDICAL (GROUND FLOOR)

12.1 It is assumed at this stage that these buildings are ultimately fed from the main distribution within building 8.

MAINS & SUB MAINS CABLING

12.2 Mains and sub mains cabling takes the form of PVC/SWA/PVC cable generally in trunking or fixed direct to the structure.

12.3 The cabling is circa 20 years old.

DISTRIBUTION EQUIPMENT

12.4 The main building distribution equipment comprises a wall mounted Hager distribution board mounted at high level. The distribution board is some 20 years old and appears in reasonable condition.

CABLE CONTAINMENT SYSTEMS

12.5 PVC mini trunking is provided for general services such as lighting and small power.

12.6 The containment systems are in reasonable condition.

FINAL CIRCUIT WIRING

12.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:

- PVC twin & earth cable.
- Armourflex cabling

12.8 The majority of the final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

12.9 The general lighting is provided by means of surface mounted switch start bare batten fluorescent luminaires fixed direct to the ceiling or on suspension chains. The luminaires are circa 20 years old and appear to be in reasonable condition generally, however some were inoperative at the time of survey and are unsuitable for an office environment as they do not meet current legislation.

EMERGENCY LIGHTING

12.10 With the exception of two number emergency luminaires to the corridor area no emergency lighting is apparent within the building.

12.11 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

12.12 The ground floor of the building is currently fitted with sounders and break glass units.

12.13 Consideration should be given to the provision of a system complying with BS 5839.



SMALL POWER

- 12.14 There are a number of small power outlets distributed throughout the office building fed via the local distribution board. The installation is generally in a reasonable condition although the protective devices serving these outlets is unidentified as circuit charts for the distribution boards were not present.
- 12.15 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 12.16 Earthing to final circuits is provided by means of cable armouring in the case of PVC/SWA/PVC and Armourflex cabling.
- 12.17 It is recommended that the earth continuity and earth loop impedance of final circuits be tested in accordance with the requirements of BS7671 and in particular Guidance Note 8 should be provided and any necessary improvements made in accordance with the requirements of these two documents.

DOCUMENTATION

- 12.18 There were no record drawings, test certificates or records of periodic testing and inspection available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 12.19 Consideration should be given to the undertaking of periodic testing to the whole of the electrical installation, removal/replacement of any damaged cabling/accessories and to the provision of new general lighting, emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.



13.0 BUILDING REFERENCE 9 - SAFETY OFFICE

INTAKE

13.1 The main supply enters the building within the ground floor corridor to the rear of the building.

MAINS & SUB MAINS CABLING

13.2 Mains and sub mains cabling takes the form of PVC/SWA/PVC cable generally in trunking or fixed direct to the structure.

13.3 The cabling is circa 10-15 years old.

DISTRIBUTION EQUIPMENT

13.4 The main building distribution equipment comprises a wall mounted Hager distribution board within the ground floor rear corridor, this in turn feeds two number distribution boards to the first floor offices. The distribution board are some 10-15 years old and appear to be in reasonable condition.

CABLE CONTAINMENT SYSTEMS

13.5 PVC mini trunking and recessed conduits are provided for general services such as lighting and small power.

13.6 The containment systems are in reasonable condition.

FINAL CIRCUIT WIRING

13.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:

- PVC twin & earth cable.
- Armourflex cabling

13.8 The majority of the final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

13.9 The general lighting is provided by means of surface mounted switch start fluorescent luminaires some with diffusers but most without fixed direct to the ceiling.. The luminaires are circa 10-15 years old and appear to be in reasonable condition generally, however some were inoperative at the time of survey and for the office environment they are not suitable as they do not meet current legislation.

EMERGENCY LIGHTING

13.10 Emergency luminaires are provided within some rooms, with escape routes partially covered, final exits are also covered within the building.

13.11 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

13.12 The building is currently fitted with a 12-Zone Conventional Fire Alarm System with the main control panel located within the ground floor main entrance corridor.



- 13.13 Individual detectors are located throughout the building with manual call points sited at some final exits. Fire alarm sounders are provided to the corridors and circulation areas only.
- 13.14 It was noted during the survey that some of the smoke detectors were in poor condition and some were installed in incorrect locations.
- 13.15 It was not possible to check the audibility of the fire alarm system at the time of the survey. We would recommend that this is checked to ensure that it complies with the minimum levels as stipulated in BS5839.
- 13.16 There is no visual indication of a fire alarm activation anywhere in the property which does not comply with current standards. However these standards are not retrospective so it is not a requirement to install visual detection unless there is a major building refurbishment undertaken.
- 13.17 Consideration should be given to installing a new system as replacement parts may be difficult to source and the existing system in showing multiple faults.

SMALL POWER

- 13.18 There are a number of small power outlets distributed throughout the office building fed via the local distribution board. The installation is generally in a reasonable condition although the protective devices serving these outlets is unidentified as circuit charts for the distribution boards were not present.
- 13.19 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 13.20 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 13.21 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 13.22 Consideration should be given to the undertaking of periodic testing to the whole of the electrical installation, removal/replacement of any damaged cabling/accessories and to the provision of new general lighting, emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.



14.0 BUILDING REFERENCE 10

CANTEEN

14.1 This building has been condemned therefore no access is allowed.



15.0 BUILDING REFERENCE 11 - SUB STATION

Building 11 presently houses the main 11kV intake switchgear and L.V. distribution switch gear for the 'South Yard' comprising the following:

The South yard supply is derived from Northern Power Grids 11000 volt network via two Reyrolle IMS oil switches and a Reyrolle metering bus coupler. The output from the metering bus coupler feeds a customer owned Yorkshire switchgear 11,000V switchboard comprising 400A oil switch incomer and 3No. 400A 11,000 Volt oil circuit breakers feeding transformers 1,3 and 2. The Yorkshire switchgear is approximately 45 years old, oil insulated and of their SO-HI type. Although in the past this type of switchgear has been subject to a number of failures in general these have been as a result of incorrect installation procedures.

Transformers 1 and 2 are located immediately outside the substation. Each transformer is rated at 1000kVA with an indicated secondary voltage of 440 Volts nominal. These transformers in turn feed an English Electric Switchboard comprising a main air insulated busbar system with fuse switch outgoing ways serving the following.

RHS Switchboard

1500A T.P.N – Transformer 1 Incomer

Outgoing Devices:

200A T.P.N – Blue Steel Offices
200A T.P.N – Red Offices
400A T.P.N – Switchboard 14
400A T.P.N – Switchboard 12
400A T.P.N – Switchboard 16,17 & B1
400A T.P.N – Switchboard Main Offices
400A T.P.N – Main Offices
400A T.P.N – Boat Shop
400A T.P.N – Supply B (under Gantry)
400A T.P.N – Compressor House

Buscoupler – Rating Unknown

L.H.S Switchboard

Outgoing Devices:

400A T.P.N – Supply A (under Gantry)
400A T.P.N – Crane Gantry
200A T.P.N – Computer Sockets – Loft Office
63A T.P.N – Clean Comp Supply
400A T.P.N – Temp Supply – Janice
300A T.P.N – Tin Smiths
800A T.P.N – New Yard 3 Tier Office
400A T.P.N – Switchboard 10 and 11
150A T.P.N – No. 2 Berth
300A T.P.N – Switchboard 18



Incoming cabling to the switchboard from the transformers is single core P.I.L.C cable with outgoing cabling being a mix of multicore P.I.L.C and P.V.C/SWA insulated cables to distribution switchboards located across the site.

Conclusions and Recommendations

In general the distribution equipment is circa 40 years old and beyond its life expectancy with signs of water ingress into busbar systems. Interlocks are not provided on L.V. equipment allowing access to live switchgear.

16.0 BUILDING REFERENCE 12 - ELECTRICAL STORE

INTAKE

16.1 The main supply enters the building within the office to the rear of the building.

MAINS & SUB MAINS CABLING

16.2 Mains and sub mains cabling takes the form of PVC/SWA/PVC cable generally in trunking or fixed direct to the structure.

16.3 The cabling is circa 10-15 years old.

DISTRIBUTION EQUIPMENT

16.4 The main building distribution equipment comprises a wall mounted Hager distribution board within the office. The distribution board is some 10-15 years old and is in poor condition.

CABLE CONTAINMENT SYSTEMS

16.5 PVC mini trunking is provided for general services such as lighting and small power, with the remaining circuit wiring clipped direct.

16.6 The containment systems are in reasonable condition.

FINAL CIRCUIT WIRING

16.7 Supplies to final circuits, power, lighting etc. are by means of:

- PVC twin & earth cable.

16.8 The majority of the final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

16.9 The general lighting is provided by means of surface mounted switch start fluorescent luminaires fixed direct to the ceiling. The luminaires are circa 10-15 years old and appear to be in reasonable condition generally, however some were inoperable at the time of survey and they are not suitable for this type of environment.

EMERGENCY LIGHTING

16.10 No emergency lighting is apparent within the building.

16.11 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

16.12 There was no fire detection system apparent during the survey, consideration should be given to the provision of a system complying with BS 5839.

SMALL POWER

16.13 There are a number of small power outlets distributed throughout the office building fed via the local distribution board. The installation is generally in a reasonable condition although the



protective devices serving these outlets is unidentified as circuit charts for the distribution boards were not present.

- 16.14 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 16.15 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 16.16 There were no record drawings, test certificates or records of periodic testing and inspection available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 16.17 Consideration should be given to the undertaking of periodic testing to the whole of the electrical installation, removal/replacement of any damaged cabling/accessories and to the provision of new general lighting, emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

17.0 BUILDING REFERENCE 13 - FAB SHOP

INTAKE

- 17.1 The main fab shop building has a number main supplies derived from sub No.1 located throughout the building terminating in English Electric manufacture switchgear and distribution equipment which supply all electrical services throughout the building. A number of the main switchboards have been isolated as part of the Veale Nixon Works.



- 17.2 Metering is provided by a sub meters located adjacent certain switchboards ref- IKC34M serial No's 856466 & 858467.

MAINS & SUB MAINS CABLING

- 17.3 Mains and sub mains cabling takes the form of PVC/SWA/PVC and P.I.L.C.cabling.
- 17.4 The cabling is circa 40-45 years old and appears to be in reasonable condition although access is not available to the majority of the cable run.

DISTRIBUTION EQUIPMENT

- 17.5 The building distribution equipment is of various manufacture including but not limited to English Electric, Hager, Square D, Allenwest, Dennis, Bill, MEM, Crabtree, Proteus and Dorman Smith, the equipment is located around the perimeter of the building in various locations, The distribution equipment has obviously been added to over the years and varies significantly in age from 5-45 years old and as such the condition varies greatly, although the majority of the equipment is in poor condition and its performance under fault conditions cannot be guaranteed.

CABLE CONTAINMENT SYSTEMS

17.6 Minimal steel cable tray is provided for final circuit cable containment, the remaining cables either surface clipped or supported off the existing steel structure. Surface PVC mini trunking is provided to the ground floor office.

17.7 The majority of the containment systems are in a poor condition.

FINAL CIRCUIT WIRING

17.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:

- PVC/SWA/PVC
- Armourflex cabling
- PVC twin & earth

17.8 The majority of the final circuit wiring appears to be in reasonable condition, although the installation has been added to on an ad-hoc basis over the years.

LIGHTING INSTALLATION

17.9 The general lighting is provided by means of both High Bay luminaires and surface mounted flood lights fixed direct to the steel purlins and structure. The luminaires are circa 25 years old and are in a poor condition with the exception of the flood lights which appear to be in a reasonable condition.

EMERGENCY LIGHTING

17.10 There is a minimum number of emergency bulkheads to the office and twin spots to the main building area, due to the size of the building it is unlikely that the existing installation would provide sufficient lighting in the case of a loss of supply to meet current legislation.

17.11 It is recommended that a system complying with BS 5266 be provided throughout the building.

FIRE DETECTION

17.12 The building is currently fitted with a Fire safe 12-Zone Fire Alarm System with the main control panel located adjacent the main entrance.

17.13 Individual detectors are located throughout the building with manual call points sited at some final exits. Fire alarm sounders are wall mounted throughout the building.

17.14 It was noted during the survey that some of the smoke detectors were in poor condition and given their location it is unlikely that they will operate correctly.

17.15 It was not possible to check the audibility of the fire alarm system at the time of the survey. We would recommend that this is checked to ensure that it complies with the minimum levels as stipulated in BS5839 particularly with regard to the bedhead locations.

17.16 There is no visual indication of a fire alarm activation anywhere in the property which does not comply with current standards. However these standards are not retrospective so it is not a requirement to install visual detection unless there is a major building refurbishment.

17.17 Consideration should be given to installing a new system as replacement parts maybe difficult to source and the existing system in showing multiple faults.



SMALL POWER

- 17.18 A number of BS4343 socket outlets are located around the building generally fed via PVC/SWA/PVC or Armourlex cabling, there are also a limited number of surface mounted metal clad sockets fed via PVC/SWA/PVC. The installation is generally in a poor condition and some supplies had been isolated at the time of survey also the protective devices serving these outlets are unidentified as circuit charts for the distribution boards were not present.
- 17.19 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 17.20 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 17.21 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 17.22 Consideration should be given to the undertaking of periodic testing to the whole of the electrical installation, replacement of the distribution equipment, removal/replacement of any damaged cabling/accessories and to the provision of new general lighting, emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

18.0 BUILDING REFERENCE 13A - FAB SHOP – OFFICES (FIRST FLOOR)

INTAKE

18.1 The mains supply to this building derived from the main fab shop which in turn feeds multiple distribution boards throughout the office building these in turn supply all electrical services throughout the building.

MAINS & SUB MAINS CABLING

18.2 Mains' cabling takes the form of PVC/SWA/PVC cabling.

18.3 The cabling is circa 10-15 years old and appears to be in reasonable condition although access is not available to the majority of the cable run.

DISTRIBUTION EQUIPMENT

18.4 The building distribution equipment is of Hager, Proteus, Square D and MEM manufacture the distribution boards are located around the building. The distribution board range from 5-20 years old and in general appear in reasonable condition although some equipment is showing signs of damage.

CABLE CONTAINMENT SYSTEMS

18.5 PVC mini trunking is provided for general services such as lighting and small power, with the remaining circuit wiring clipped direct or above false ceilings.

18.6 The containment systems are in reasonable condition however some trunking lids are missing.

FINAL CIRCUIT WIRING

18.7 Supplies to final circuits, power, lighting etc. are predominantly:

- PVC twin & earth cable.

18.8 The majority of the final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

18.9 The general lighting is provided by means of surface mounted bare batten fluorescent luminaires and recessed luminaires with both prismatic diffusers and Cat 2 louvres. A number of luminaires were inoperative at the time of the survey. The luminaires are circa 10-15 years old and in most cases are not suitable for this type of environment.

18.10 It was also noted that a number of switch points are damaged.

EMERGENCY LIGHTING

18.11 The emergency lighting within the building is fairly extensive with some office and circulation spaces covered, additional fittings need to be installed and any defective fittings replaced. It would also be recommended that a full discharge test is also carried to confirm operation of the existing fittings.

18.12 It is recommended that the existing system is upgraded to comply with BS 5266 throughout the building.

FIRE DETECTION

- 18.13 It is understood that the building is currently covered by the Fire safe 12-Zone Fire Alarm System located adjacent the main entrance to the fab shop as at the time of survey no further panel was apparent.
- 18.14 Individual detectors are located throughout the building with manual call points sited at final exits. Fire alarm sounders are located within the circulation areas.
- 18.15 It was noted during the survey that some of the smoke detectors were in poor condition.
- 18.16 It was not possible to check the audibility of the fire alarm system at the time of the survey. We would recommend that this is checked to ensure that it complies with the minimum levels as stipulated in BS5839.
- 18.17 There is no visual indication of a fire alarm activation anywhere in the property which does not comply with the current are not retrospective so it is not a requirement to install visual detection unless there is a major building refurbishment undertaken.
- 18.18 It was not possible to check if the existing system is operational but due the recent addition of battery operated smoke detectors it would suggest that it is not currently in working order.
- 18.19 Consideration should be given to installing a new system as replacement parts maybe difficult to source and the existing system in showing multiple faults.

SMALL POWER

- 18.20 There is a number of small power outlets distributed throughout the office areas. The installation is generally in a reasonable condition although the protective devices serving the small power outlets are unidentified in many instances.
- 18.21 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 18.22 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 18.23 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 18.24 Consideration should be given to the undertaking of periodic testing to the whole of the electrical installation, replacement of the distribution equipment, removal/replacement of any damaged cabling/accessories and to the provision of new general lighting, emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

19.0 BUILDING REFERENCE 14 - RIGGING LOFT

INTAKE

- 19.1 At the time of the survey the mains supply location could not be identified, although it is understood to be derived from the Fab Shop

MAINS & SUB MAINS CABLING

- 19.2 Mains' cabling takes the form of PVC/SWA/PVC cabling.
- 19.3 The cabling is circa 15-20 years old and appears to be in reasonable condition although access is not available to the majority of the cable run and in many locations the cabling installation does not meet current standards.



DISTRIBUTION EQUIPMENT

- 19.4 The first floor building distribution equipment is a Centaur manufacture distribution board located on the South wall of the building, The distribution board is 15-20 years old and is in poor condition.

CABLE CONTAINMENT SYSTEMS

- 19.5 Steel cable trunking/conduit and pvc mini trunking are provided for final circuit cable containment, the trunking installation is generally in poor condition and parts of the conduit system are damaged with cables exposed, the remainder of the installation is surface clipped this is poorly installed and in need of additional fixings.

FINAL CIRCUIT WIRING

- 19.6 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:

- PVC twin & earth cable.
- PVC/SWA/PVC cable

19.7 The majority of the final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

19.8 The general lighting is provided by means of surface mounted switch start fluorescent luminaires and IP65 rated luminaires fixed direct to the ceiling, additional lighting is also provided by a surface mounted flood light. The luminaires are circa 10-15 years old and are in poor condition with a number inoperative at the time of survey and the majority not suitable for this type of environment.

EMERGENCY LIGHTING

19.9 No emergency lighting is apparent within the building.

19.10 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

19.11 Minimal fire detection is provided to this area with both smoke detectors and sounders fitted to the ground and first floors and also a break glass unit installed at the final exit.

SMALL POWER

19.12 There are a number of small power outlets within the office areas although the main building area is restricted mainly to BS4343 sockets. The installation is generally in a poor condition and the protective devices serving the small power outlets are unidentified in many instances.

19.13 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

19.14 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

19.15 There were no record drawings or test certificates available on site and the periodic testing period has already elapsed.

CONCLUSIONS AND RECOMMENDATIONS

19.16 Consideration should be given to the undertaking of periodic testing to the whole of the electrical installation and to the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.



20.0 BUILDING REFERENCE 15 - RUBB TENT

INTAKE

- 20.1 The mains supply to this building is located on the North Wall and terminates in a Morgan Moore manufacture distribution board which supplies all electrical services throughout the building. At the time of survey the supply to the building had been isolated as part of Veale Nixon's work.

MAINS & SUB MAINS CABLING

- 20.2 The mains cabling has been isolated and stripped out but is marked up as being fed from the blue switchroom.

DISTRIBUTION EQUIPMENT

- 20.3 The main building distribution equipment comprises a floor mounted distribution board located on the north wall of the building. The distribution board is in poor condition has been isolated as part of Veale Nixon's work.

CABLE CONTAINMENT SYSTEMS

- 20.4 Cables are clipped direct to the structure.

FINAL CIRCUIT WIRING

- 20.5 The final circuit wiring was inaccessible during the survey.

LIGHTING INSTALLATION

- 20.6 The general lighting is provided by means of both High Bay luminaires and surface mounted flood lights fixed direct to the steel purlins. The luminaires are circa 15 years old and it was not possible to verify their operation at the time of the survey due to the main supply being isolated.
- 20.7 Although the supply had been isolated it was evident that a number of High Bays were broken or missing lamps. The missing or broken luminaires need to be replaced with routine maintenance to the inoperative luminaires being undertaken

EMERGENCY LIGHTING

- 20.8 There was no emergency lighting apparent during the survey.

FIRE DETECTION

- 20.9 There was no fire detection system apparent during the survey, consideration should be given to the provision of a system complying with BS 5839, dependant upon the future use of the building.

SMALL POWER

- 20.10 There was no small power apparent during the survey.

EARTHING

- 20.11 No earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.



DOCUMENTATION

- 20.12 There were no record drawings, test certificates or records of periodic testing and inspection available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 20.13 Consideration should be given to the replacement of the distribution board, replacement of the inoperative general luminaires, the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.



21.0 BUILDING REFERENCE 16 - DOCK OFFICE

21.1 This building is due to be demolished and therefore forms no part of this report.



22.0 BUILDING REFERENCE 17 - SINGLE STOREY OFFICE SPACE

INTAKE

22.1 The mains supply to this building is located on the East Wall and terminates in a Hager manufacture distribution board which supplies all electrical services throughout the building.

MAINS & SUB MAINS CABLING

22.2 Mains cabling takes the form of PVC/SWA/PVC cabling.

22.3 The cabling is circa 10-15 years old and appears to be in reasonable condition although access is not available to the majority of the cable run.

DISTRIBUTION EQUIPMENT

22.4 The main building distribution equipment comprises a wall mounted distribution board of Hager manufacture located on the east wall of the building. The distribution board appears to be circa 10-15 years old and in reasonable condition.

CABLE CONTAINMENT SYSTEMS

22.5 PVC mini trunking is provided for general services such as lighting and small power, with the remaining circuit wiring on metal tray.

22.6 The containment systems in general appear to be in reasonable condition, although some cabling installation does not comply with current installation standards from a support or bending radius viewpoint.

FINAL CIRCUIT WIRING

22.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:

- PVC twin & earth cable.
- Armourflex cabling

22.8 The majority of the final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

22.9 The general lighting is provided by means of surface mounted switch start bare batten fluorescent luminaires fixed direct to the ceiling. The luminaires are circa 10-15 years old, however some were damaged or missing tubes at the time of survey they are not suitable for an office environment as they do not meet current legislation.

EMERGENCY LIGHTING

22.10 Emergency lighting is provided to one of the final exits and there are further emergency lights installed in some areas of the building.

22.11 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

- 22.12 Individual detectors are located throughout the building with manual call points situated at the final exits. Fire alarm sounders are provided some of the offices and circulation areas only.
- 22.13 It was noted during the survey that some of the smoke detectors were in poor condition and their performance is therefore unknown.
- 22.14 It was not possible to check the audibility of the fire alarm system at the time of the survey. We would recommend that this is checked to ensure that it complies with the minimum levels as stipulated in BS5839.
- 22.15 There is no visual indication of a fire alarm activation anywhere in the property which does not comply with current standards. However these standards are not retrospective so it is not a requirement to install visual detection unless there is a major building refurbishment undertaken.
- 22.16 The existing fire alarm panel has no cover fitted and the system is therefore currently inoperative.
- 22.17 Consideration should be given to installing a new system as replacement parts maybe difficult to source.

SMALL POWER

- 22.18 There are a number of small power outlets distributed throughout the office building fed via the local distribution board. The installation is generally in a reasonable condition although the protective devices serving these outlets are unidentified as circuit charts for the distribution boards were not present.
- 22.19 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 22.20 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 22.21 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 22.22 Consideration should be given to the replacement of the distribution board, replacement of the luminaires in line with the latest lighting guide, the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.



23.0 BUILDING REFERENCE 18 - THREE STOREY OFFICE SPACE

INTAKE

- 23.1 The mains supply to this building is located on the South Wall on the ground floor and terminates in a MEM manufacture section board which supplies all electrical services throughout the building.

MAINS & SUB MAINS CABLING

- 23.2 Mains cabling takes the form of PVC/SWA/PVC cabling.
- 23.3 The cabling is circa 10-15 years old and appears to be in reasonable condition although access is not available to the majority of the cable run.

DISTRIBUTION EQUIPMENT

- 23.4 The main building distribution equipment comprises a wall mounted section board located on the south wall of the building this in turn feeds an individual distribution board on each floor of the building. The distribution board appears to be circa 10-15 years old and in reasonable condition.

CABLE CONTAINMENT SYSTEMS

- 23.5 PVC mini trunking and recessed conduit is provided for general services such as lighting and small power, with sub mains being fed in metal trunking
- 23.6 The containment systems in general appear to be in reasonable condition.

FINAL CIRCUIT WIRING

- 23.7 Supplies to final circuits, power, lighting etc. are by means of a number of wiring systems predominantly:
- PVC twin & earth cable.
 - Singles in conduit/trunking
 - Armourflex cabling
- 23.8 The majority of the final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

- 23.9 The general lighting is provided by means of surface mounted switch start bare batten fluorescent luminaires fixed direct to the ceiling. The luminaires are circa 10-15 years old and many were damaged or missing tubes at the time of survey, They are not suitable for an office environment as they do not meet current legislation.

EMERGENCY LIGHTING

- 23.10 Emergency lighting is provided to some of the final exits and there are further emergency lights installed to the escape routes of the building, within the ground floor area many of the fittings are broken.
- 23.11 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION



- 23.12 The building is currently fitted with a 12-Zone Conventional Fire Alarm System with the main control panel located adjacent the ground floor main entrance corridor.
- 23.13 Individual detectors are located throughout the building with manual call points sited at most final exits. Fire alarm sounders are provided to some corridors and circulation areas only.
- 23.14 It was noted during the survey that some of the smoke detectors were in poor condition and some were installed in incorrect locations.
- 23.15 It was not possible to check the audibility of the fire alarm system at the time of the survey. We would recommend that this is checked to ensure that it complies with the minimum levels as stipulated in BS5839 particularly with regard to the bedhead locations.
- 23.16 There is no visual indication of a fire alarm activation anywhere in the property which does not comply with current standards. However these standards are not retrospective so it is not a requirement to install visual detection unless there is a major building refurbishment.
- 23.17 Consideration should be given to installing a new system as replacement parts maybe difficult to source and the existing system in showing multiple faults.

SMALL POWER

- 23.18 There are a number of small power outlets distributed throughout the office building fed via the local distribution board. The installation is generally in a reasonable condition although in certain areas outlets have been removed and the protective devices serving the outlets are unidentified as circuit charts for the distribution boards were not present.
- 23.19 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 23.20 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

- 23.21 Some record drawings were available, however no test certificates or records of periodic testing and inspection were available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 23.22 Consideration should be given to the replacement of the luminaires in line with the latest lighting guide, the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.



24.0 BUILDING REFERENCE 19 - SUB STATION

Building 19 and its associated external 11,000 RMU and Transformer presently houses the main intake switchgear for the north yard. The adjacent L.V. substation previously fed from the South Yard substation has been isolated by Veale Nixon as part of their works.

The 'North Yard' intake comprises the following:

A separate 11000 Volt metered supply derived from Northern Power Grids 11,000 Volt network supplies the North Yard.

The supply feeds a single 1000kVA transformer via an external ring main unit on Northern Power Grids Redhead/East Holburn feeder.

The transformer in turn feeds a Ellison manufactured ACB switchboard approx. 20 years old and located in the adjacent switchroom comprising the following:

- 1600A T.P.N A.C.B – Transformer Incomer
- 800A T.P.N A.C.B – (Isolated)
- 800A T.P.N A.C.B – Janis Ring Main
- 800A T.P.N A.C.B – Talisman
- 800A T.P.N A.C.B – No I.D.



25.0 BUILDING REFERENCE 20 - ELECTRICAL STORE

25.1 The mains supply to this building is located on the East Wall of the building and terminates in a Proteus manufacture distribution board which supplies all electrical services throughout the building.

MAINS & SUB MAINS CABLING

25.2 Mains cabling takes the form of PVC/SWA/PVC cabling.

DISTRIBUTION EQUIPMENT

25.3 The main building distribution equipment comprises a wall mounted Proteus distribution board within the office. The distribution board is some 15 years old.

CABLE CONTAINMENT SYSTEMS

25.4 Steel trunking and tray and PVC mini trunking is provided for general services such as lighting and small power, with the remaining circuit wiring clipped direct.

25.5 The containment systems appear to be in reasonable condition.

FINAL CIRCUIT WIRING

25.6 Supplies to final circuits, power, lighting etc. are by means of:

- PVC twin & earth cable.
- PVC singles contained in trunking/conduit

25.7 The majority of the final circuit wiring appears to be in reasonable condition.

LIGHTING INSTALLATION

25.8 The general lighting is provided by means of suspended IP65 fluorescent luminaires fixed direct to the ceiling and on lighting trunking. The luminaires are circa 5-10 years old and appear to be in reasonable condition generally, however some were inoperative and some had diffusers missing at the time of survey.

EMERGENCY LIGHTING

25.9 Emergency luminaires are provided to the final exits only.

25.10 It is recommended that a system complying to BS 5266 be provided throughout the building.

FIRE DETECTION

25.11 There was no fire detection system apparent during the survey, consideration should be given to the provision of a system complying with BS 5839.

SMALL POWER

25.12 There are a number of small power outlets distributed throughout the office fed via the local distribution board. The installation is generally in a reasonable condition although the protective devices serving these outlets are unidentified as circuit charts for the distribution boards were not present.



- 25.13 From a safety viewpoint these circuits should be protected via a R.C.D or RCBO device, neither of these are installed within the distribution equipment.

EARTHING

- 25.14 Minimal earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

SECURITY

- 25.15 The building is currently fitted with a Challenger Security Alarm System.
- 25.16 Individual detectors are located throughout the building but at the time of survey we were unable to determine if the system is fully operational. It is recommended that the system is fully tested to confirm operation.

DOCUMENTATION

- 25.17 There were no record drawings, test certificates or records of periodic testing and inspection available on site.

CONCLUSIONS AND RECOMMENDATIONS

- 25.18 Consideration should be given to the undertaking of periodic testing to the whole of the electrical installation, removal/replacement of any damaged cabling/accessories and to the replacement of the damaged lighting. Installation of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671 should also be undertaken.



26.0 BUILDING REFERENCE 21 - RUBB TENT

INTAKE

26.1 The mains supply to this building was not apparent at the time of survey.

MAINS & SUB MAINS CABLING

26.2 No mains or sub mains cabling was evident at the time of survey.

DISTRIBUTION EQUIPMENT

26.3 No distribution equipment was evident at the time of survey.

CABLE CONTAINMENT SYSTEMS

26.4 No cable containment was evident at the time of survey.

FINAL CIRCUIT WIRING

26.5 The final circuit wiring was inaccessible during the survey.

LIGHTING INSTALLATION

26.6 The general lighting is provided by means of surface mounted flood lights fixed direct to the steel purlins. The luminaires are circa 10 years old and it was not possible to verify their operation at the time of the survey.

EMERGENCY LIGHTING

26.7 There was no emergency lighting apparent during the survey.

FIRE DETECTION

26.8 There was no fire detection system apparent during the survey, consideration should be given to the provision of a system complying with BS 5839, dependant upon the future use of the Building.

SMALL POWER

26.9 There was no small power apparent during the survey.

EARTHING

26.10 No earthing and cross bonding is provided as part of the Electrical installation throughout the building the requirements of BS7671 and in particular Guidance Note 8 should be provided.

DOCUMENTATION

26.11 There were no record drawings, test certificates or records of periodic testing and inspection available on site.

CONCLUSIONS AND RECOMMENDATIONS

26.12 Consideration should be given to the provision of emergency lighting and fire detection systems in accordance with the relevant British Standards and the upgrading of the earthing installation in accordance with BS7671.

27.0 SITE WIDE ELECTRICAL INFRASTRUCTURE

- 27.1 The site wide electrical infrastructure is generally covered within each building element of this report although the exact connection arrangements between buildings are difficult to ascertain without isolation of supplies to permit testing of cables.
- 27.2 Many of the designations on both the High Voltage and Low Voltage switch gear have changed and in certain circumstances cabling has been disconnected within switchboards further complicating the identification of circuits.
- 27.3 South Yard

The South yard supply is derived from Northern Power Grids 11000 volt network via two Reyrolle IMS oil switches and a Reyrolle metering bus coupler. The output from the metering bus coupler feeds a customer owned Yorkshire switchgear 11,000V switchboard comprising 400A oil switch incomer and 3No. 400A 11,000 Volt oil circuit breakers feeding transformers 1,3 and 2. The Yorkshire switchgear is approximately 45 years old, oil insulated and of their SO-HI type. Although in the past this type of switchgear has been subject to a number of failures in general these have been as a result of incorrect installation procedures.

Transformers 1 and 2 are located immediately outside the substation. Each transformer is rated at 1000kVA with an indicated secondary voltage of 440 Volts nominal. These transformers in turn feed an English Electric Switchboard comprising a main air insulated busbar system with fuse switch outgoing ways serving the following.

RHS Switchboard

1500A T.P.N – Transformer 1 Incomer

Outgoing Devices:

200A T.P.N – Blue Steel Offices
200A T.P.N – Red Offices
400A T.P.N – Switchboard 14
400A T.P.N – Switchboard 12
400A T.P.N – Switchboard 16,17 & B1
400A T.P.N – Switchboard Main Offices
400A T.P.N – Main Offices
400A T.P.N – Boat Shop
400A T.P.N – Supply B (under Gantry)
400A T.P.N – Compressor House

Buscoupler – Rating Unknown

L.H.S Switchboard

Outgoing Devices:

400A T.P.N – Supply A (under Gantry)
400A T.P.N – Crane Gantry
200A T.P.N – Computer Sockets – Loft Office
63A T.P.N – Clean Comp Supply
400A T.P.N – Temp Supply – Janice
300A T.P.N – Tin Smiths
800A T.P.N – New Yard 3 Tier Office
400A T.P.N – Switchboard 10 and 11

150A T.P.N – No. 2 Berth
300A T.P.N – Switchboard 18

Incoming cabling to the switchboard from the transformers is single core P.I.L.C cable with outgoing cabling being a mix of multicore P.I.L.C and P.V.C/SWA insulated cables to distribution switchboards located across the site. The distribution switchboards across the site are a variety of manufacturers of differing ages and condition. The switchgear located within the fabrication shop being typical of that across the site, manufactured by English Electric and circa 45 years old.

A third 1000kVA transformer is located between the pipe shop and workshop and provides supplies to the South of the site via an L.V. switchboard located within the workshop to local sub distribution boards.

27.4 North Yard

A separate 11000 Volt metered supply derived from Northern Power Grids 11,000 Volt network supplies the North Yard.

The supply feeds a single 1000kVA transformer via an external ring main unit on Northern Power Grids Redhead/East Holburn feeder.

The transformer in turn feeds a Ellison manufactured ACB switchboard approx. 20 years old and located in the adjacent switchroom comprising the following:

1600A T.P.N A.C.B – Transformer Incomer
800A T.P.N A.C.B – (Isolated)
800A T.P.N A.C.B – Janis Ring Main
800A T.P.N A.C.B – Talisman
800A T.P.N A.C.B – No I.D.

Another L.V. switchboard is located adjacent to the 'Ellison switchroom'. This switch board of English Electric manufacturer approximately 45 years old and provides supplies to the North of the site.

A number of 'freestanding' L.V. switchboards are located across the yard supplied from the above two switchboards by a series of L.V. ring feeders.

27.5 Overview of Site Wide Electrical Installation

The vast majority of the Electrical Infrastructure to both the South and North Yards is circa 45-50 years old.

The high voltage switchgear is oil insulated, at the time of the survey there was no indication of any recent servicing of the switchgear having been undertaken.

Similarly the three transformers in the South yard are circa 50 years old, these are also oil insulated and show no signs of recent servicing or that they have been tested for P.C.B's.

Much of the main L.V. Switchgear is not fitted with mechanical interlocks to prevent access to live parts of the switchgear without isolation of the circuit.

The main South yard L.V switchboard is provided with a buscoupler which is not interlocked (other than via an external padlock) with either of the incoming switches which could permit the two transformers to be connected in parallel and exceed the fault rating of the switchboard.



Sub mains cabling across the site is either buried or in the many cases laid across the ground or fixed between buildings. These cables tend to be large as the site distribution is at a low voltage and in many instances the cables are insufficiently supported putting undue strain on cable conductors and terminations.

27.6 Conclusions and Recommendations

It is clear that the vast majority of the Electrical infrastructure across both the North and South Yards is beyond its life expectancy and no longer suitable for the possible range of activities across the site. Given the area of the site a H.V. network supplied from a single infeed location should be provided with 'local' transformers positioned at specific load centres. This will reduce the need to have large L.V. cables running across the site and also negate the risk of having L.V. supplies from the South Yard feeding services within the North Yard and vice versa and the associated risk to personnel this carries.



28.0 LIGHTNING PROTECTION AND SURGE PROTECTION

- 28.1 During the survey no lightning protection was seen to be provided to any of the building structures, nor was any surge protection visible as part of any of the main switchboards or distribution equipment.
- 28.2 Lightning protection should be afforded to structures to minimise the risk of damage or fire in the case of a lightning strike.
- 28.3 An assessment of the risk of a lightning strike can be undertaken in accordance with the requirements of the British Standard to establish if lightning protection should be afforded to a building structure, in DTA's experience all buildings at the McNulty Yard will require lightning protection to be provided. It is then up to the owner/occupier to assess the risk to business continuity etc and decide upon the need to implement the recommendations.
- 28.4 In the case of surge protection this is provided as part of new switchgear installations to protect electrical systems from transients caused by indirect strikes or power surges off site. Given the age of the switchgear installed across the site, surge protection is unlikely to be provided. Any new equipment should be provided with adequate surge protection for its anticipated duty.