B1 BIM

Details and Experience Delivering to Level 2 BIM

Dornan were appointed to complete the design, installation and commissioning of Mechanical, Electrical and Public Health services for the new ENT Dental & Oral Centre of Excellence for the University College London Hospital. This project was delivered to BIM Level 2 requirements. **(BIM Images attached UCLH Project)**

From the outset, Dornan implemented the team structure as defined in PAS 1192-2, assigning roles such as Task Team managers as well as assigning a dedicated Task Information Manager to the project.

Support was provided to Mace in the development of the BIM Execution Plan (BEP) in response to the Employers information requirements.

The agreed project standards, methods and procedures (SMP's) were documented, such as the regularity of information exchange and the agreed file formats. This provided clarity to all parties involved in the project, which was particularly important as specialist trades became involved as the project progressed.

A "Model Production Delivery Table" (MPDT) was created, confirming who was responsible for the elements in the model and the required Level of Development for model elements. This outlined both the geometric level of Detail (LOD) and the Level of Information (LOI) to be associated to each component.

A "Task Information Delivery Plan" (TIDP) was also produced outlining all of Dornan's deliverables & planned program of works, which was incorporated into the Mace "Master Information Delivery Plan" (MIDP).

While working on the project, we exchanged our information through the Mace common data environment. This included Requests for information (RFI's), Technical submittals, as well as our drawings and models for review and acceptance by the Clients design team.

As the project requirements defined the use of the BS1192:2007+A2:2016 naming convention for documents, it was easy for us to navigate the common data environment and find the documents from the wider team which we required.

The Dornan Information Manager on the project ensured that our documents were compliant prior to upload and kept our internal team up to date as new information was received.

The purpose for issuing documents was controlled by assigning suitability codes to each document. This ensured that information was only used for its intended purpose, for example spatial coordination or construction.

The common data environment also gave confidence and clarity that we were working with the latest information at all times.

Models were exchanged by the Architect, Structural engineer and sub-contractor trades in ".ifc" format via the Common Data Environment on a regular basis. These single discipline models were federated for coordination review workshops. Automated clash detection was performed on the models and discussed in the weekly coordination workshops as well as other design items.

The quantum of open items and the duration taken to find a resolution was tracked following each coordination workshop using a BCF file online platform to provide progress reports and a status on model completion.

The model was utilised to support communication with the Client and key stakeholders to help inform decision making and reduce the risk of a delay.

Our project planners worked closely with our BIM coordinators during the planning and sequencing stages. The systems used can link the components in the model with the proposed installation date in the program via a Work breakdown structure (WBS) code to develop a visual sequence of equipment and services installation.

The impact of proposed changes to the program on items such as access requirements and plant replacement, the prefabrication strategy and interaction with other trades could be assessed easily which supported decision making.

As the project was delivered to BIM Level 2 requirements, "COBie" (Construction Operations Building Information Exchange) data in compliance with BS1192-4 was a deliverable on the project.

Elements within the model were named in compliance with BS8541. Parametric data was also associated to each component including Uniclass 2015 classification.

Workshops were held with the clients Facilities management team to ensure that the data was structured to their requirements and that the asset naming convention complied with their existing estate standards.

An online system was used by our construction team to input additional COBie data to the information model, such as component installation dates, during installation and commissioning. The online system associated the data in the online platform to the model geometry in the ifc files. The system allowed input of data and visibility of the model in the field using a hand held tablet.

A combined COBie file was generated from the federated data by the online system for handover to the client and their facilities management team.

B2 Supply Chain

BEST PRACTICE

For all of Dornan's Business Functions, including Procurement, there are in place bespoke Company policy and procedural documentation that sets out clearly how actions and operations should be performed in order to achieve best practice. **(Dornan Procurement QP6 attached)**

The actions which support our implementation of best practise include;

Establishment of a centralised supply chain team, led by Barry O'Hea (our European Procurement Director) and consists of 18 full-time staff who manage approx. £200,000,000 worth of expenditure per annum across Europe and the UK.

Lead procurement teams support Barry and in London this is led by Ian Blesson, who has developed long-term relationships over the last 15 years with key suppliers and sub-contractors who add value to the delivery of Dornan's model. Ian updates the register of approved suppliers through bi-monthly meetings with each Company.

Sharing of new ways of working on improved technologies is collected at our quarterly meetings with principles from our projects and supply chain partners.

This information is communicated through distribution of engineering notifications or emails to each of our business units and relevant suppliers.

The scope of works and associated roles and responsibility matrices are developed on each of our projects from an early stage for key sub-contractors to ensure that duty and clarity of ownership is in place. In this way, we try and ensure the risk is placed with the company who is best qualified to manage the relevant risk. Our project manager monitors the effectiveness of how various interfaces are developing through weekly recorded meetings, which are shared with the overall project team either via toolbox talks or engineering bulletins.

Prior to entering in to a sub-contract with our supplier / sub contracts the Dornan policy always dictates that all project teams carry out detailed analysis of all capacity of the chosen supplier to ensure that they the necessary resources, track record and competencies to carry out the relevant works. Reports of past performance on previous projects are analysed and any areas were their KPI's were low, specific action plans are asked for. A sub-contractor report form is attached in this way, we aim to mitigate issues around labour shortages and poor quality, and take away lessons learned from previous jobs to improve delivery on the next project. These actions occur on all our projects and the DESL PMs share the SC performance reports with the wider business at our quarterly management meetings and on-going.

Monthly director meetings, also occur with our key supply chain partners, to review performance and to rectify alignment of out-turn costs versus their tendered offer. This leads to early notification of potential budget issues and are shared with the wider professional team from an early stage.

All our sub-contractors sign up and adopt the Dornan Health & Safety systems and procedures, and are inducted in line with the Dornan EHS policies. Our supply chain are required to take out mandatory training requirements, which consist of manual handling, work at heights and abrasive wheels training.

Each employee is encouraged to complete the Dornan safety observation cards or App. The observation responses are communicated back to our contractors weekly at toolbox talks to ensure they feel their observations have been heard.

Opportunities for improvement are communicated to our supply chain via weekly H&S inspections & monthly audits. H&S leagues are implemented on each of our sites and shared with all contractors' directors at the end of each month, highlighting areas requiring improvement and good practice.

KEY PERFORMANCE TARGETS

During sub-contract negotiations with our supply chain, KPI's will be established and agreed with each company in order for Dornan to monitor and track their performance.

Once appointed the supplier, manufacturer and sub-contractor will complete an Acceptance Form. They will be required to submit for approval details of the following,

- All submitted information will be checked against the specification.
- When compliance is correct the submittal will be forwarded for client approval.
- Once approvals have been received the subcontract work should proceed in accordance with the project program.
- The subcontractor performance will be managed and monitored to ensure compliance with all the above.
- Quality checks will be carried out in accordance with the Dornan Quality Plan in association with the agreed items above.

The KPI's which Dornan operate to are as follows;

- Pre-Construction Period – all drawings and technical submittal 100% complete during the pre-con period.
- Milestone date delivery – S Curve Monitoring, planned hours versus actual, constantly monitoring the programme and being able to react to changes as the job develops.
- System Walk-downs and inspections – full visibility and professional team involvement.
- Quality performance in terms of snag reduction – Quantity of snags on a project and how these are managed
- Compliance with regulations and standards –Keeping up to date and working closely with BCOs. Following Grenfell Tower interpretations of the standards and expectations have changed.
- Planned Commissioning Activities Targets v Actual Commissioning Activities Targets achieved
- Handover Quality and Training for End-users – Signed off packs
- Client satisfaction – feedback survey

PAYMENT TERMS

Dornan has a reputation for favourable payment terms and conditions of the contract. It is in our interest to have a satisfied supply chain so that Dornan receives their best efforts and performance without payment concerns.

We treat our supply chain as we would wish to be treated by our clientele.

The latest Dun & Bradstreet report on Dornan Engineering gives us a PAYDEX score of 76, which equates to a Low Risk of Slow Pay.
(D&B Report Supporting Report attached)

We constantly strive for improvements in all aspects of our business and we are one of the Industries best performers with payment and Supply Chain relationships.

SUPPLIER SELECTION PROCESS

When the list of potential tenderers is decided, where relevant, a pre-qualification questionnaire will be sent to each for completion.

The Project Manager will decide if a Pre-Qualification Interview is required.

Completed questionnaires are evaluated and scored with suitable candidates invited to attend a Pre-qualification interview. (PQQ questionnaire uploaded for support)

References will be obtained and checked to make sure quoted contracts were completed satisfactorily and within time and budget.

The following factors are among those to be considered in the selection;

- Their experience should be relevant to the works package and there should be a history of several similar jobs.
- Their resources in engineering, site management, labour, plant, and equipment should be adequate to service the works package.
- Their current order book should have available capacity to accommodate the works package.
- The level of their turnover should be appropriate to the package under consideration.
- In-house facilities are preferred to sub-let.
- In geographic location, the preferred precedence is local/provincial/ national/international.
- Sound industrial relations policy.
- Certified to ISO 9001 preferably, but at a minimum must be operating a quality system in line with said specification, or subject to Dornan Engineering Quality System.
  (Supporting Supplier Selection docs attached)

B3 HEALTH AND SAFETY MANAGEMENT

Dornan CEO Statement: BRIAN ACHESON

"The concept of safety as a value can simply be viewed as an ethic that guides the way we view safety and safety-related behaviour. Dornan has many safety efforts in place, focused on developing rules and procedures providing safety excellence and developing themed campaigns. At Dornan we do not just rely on our line managers to ensure compliance, we involve our entire workforce so "Zero Incidents" are achieved.

Our safety records are a testament to this."

APPROACH TO HEALTH AND SAFETY

Dornan's Health and Safety Management System has been audited to;

- ISO audits (International Organization for Standardization)
- Accreditations (Achilles Building Confidence, FPAL, RISQS, CHAS)
- Heathrow plant handovers
- Project statistics

Our compliance with EHS legislation and our policies and procedures are reflected by our recent Achilles 5 Star award and our many other awards such as RoSPA Gold, Construction line, CHAS and the British Safety Council International award who audit our systems regularly.
(Accreditations Attached for Support)

COMMUNICATIONS

Various channels throughout our projects communicate Health, safety and wellbeing. Prior to starting on our projects, all of our project team members are required to undergo our online induction, which communicates our H&S minimum standards and expectations and is available in three languages.

Our Project Team members are briefed on their task-specific method statement and risk assessment including project-specific information.

Mandatory toolbox talks are carried out weekly with all operatives and management team. These briefings are focussed on specific EHS topics as well as relevant site matters such as coordination and housekeeping.

Communication is a two-way stream, and we encourage our operatives to report unsafe and safe acts or suggestions by filling in a safety observation card. We have also developed a safety observation app to accompany our traditional card format which can be downloaded by scanning QR codes from posters on-site or at the point of induction. "You Said, We Did" boards are displayed on our projects alongside weekly action reports, responding to observations raised.

Dornan are certified members of CIRAS, Confidential Reporting For Safety.

(Online Induction & Testing, 2019 EHS Policy and further EHS info attached as supporting docs)

LESSONS LEARNED

Safety alerts are produced following accidents, incidents and near misses on our projects. Once a full investigation has taken place the team produces a safety alert to our group operations director who then issues this to all directors. To ensure these safety alerts are communicated to all project teams and operatives, signed declarations are returned to the group operations director. **(Safety Alert Jan 15, 2019 attached as supporting docs)**

Quality lessons learned during the progression of the project are shared across all Dornan projects.

CDM

Dornan work as a contractor under CDM 2015 and work closely with the principal contractor during the pre-construction stage to develop our own health and safety plan that reflects the construction phase plan of the project.

The principles of prevention are applied from the design stage right throughout the installation stage.

All direct and supply chain labour are vetted before starting on our projects and copies of their qualifications, CSCS / trade cards are received before booking them into inductions. Dornan have developed our own online induction which is currently available in English, Polish & Hungarian, which is completed by operatives before arriving at site. At site, they are taken through a short site-specific induction before attending the principal contractor's induction. Dornan have recently carried out a language survey on all our projects and will now be adding a Romanian translation to our online induction.

Task-specific risk assessments and method statements are communicated to all operatives and signed during induction.

SUPPLY CHAIN COMPETENCE

Dornan carry out subcontractor assessments with all our vendors and health and safety is a crucial focal point. Subcontractors provide copies of their training registers and employee qualifications at tender stage. Our supply chain follows the Dornan induction process when starting on a project.

WELLBEING

Dornan use a variety of methods to measure health, safety and wellbeing across our projects.

Monthly audits are carried out by our resident H&S advisors with arising actions being assigned to members of the team with closeout times being allocated to each.

Monthly statistics including hours worked, and subcontractors scoring is shared with head office along with behavioural-based safety returns. Safety observation cards and H&S audits to compile

an overall scorecard, which is communicated to all staff and our supply chain. Where standards are not being met, improvement plans are put in place to monitor areas of concern closely.

Project-specific safety leagues are used to measure a supplier's health and safety compliance on a month-to-month basis. The criteria include weekly safety documentation being returned, RAMS being produced in a timely fashion, work areas housekeeping, toolbox talk attendance.

BEHAVIOURAL SAFETY PROGRAMMES

Dornan is committed to ensuring the Health, Safety and Welfare of our workforce and all who work with us.
Incident Prevention is the key to our strategy and our Behaviour Based Safety Programme helps to reinforce our Safety Culture, Safety Behaviour and Safety Training ensuring **Safety is in our DNA**.

The purpose of the Dornan in-house behavioural-based safety programme is to:

• Help recognise that every site team member has a responsibility for safety awareness and helping to identify Health and Safety risks within their environment.
• Promote Incident Prevention.
• Identify and promote the Key Safe Behaviours and Conditions, which help to minimise risks to Health, Safety and Environment.
• Proactive direction to enhance safety as a core value through employee participation. Safety Observation Reports and Safety Incentive Scheme help to keep Safety foremost in the minds of all Employees.
• Strive for continuous improvement through acknowledgement and positive feedback, encouragement, coaching and reward.
• Promoting and encouraging positive awareness through increased employee engagement.
• Developing strong lines of communication between all team members.

Supervisors have been trained in promoting, acknowledging and encouraging safe behaviours. All supervisors are required to carry out weekly safety observations and provide on the spot feedback and coaching as needed. The Project Manager carries out weekly performance reviews with the Safety Manager and delivers feedback on the team's performance. Supervisors, or a nominated person, talk about safe behaviour patterns at the weekly Toolbox Talk. It is of utmost importance that an "open door policy" is established and encouraged between all parties from field operatives through to Main Board Directors to maintain proactive communication for continuous improvements on all EHS aspects.
Safety performance is tracked by measuring key targets each month to ensure the behavioural programme is running correctly. The Project Manager or other nominated manager delivers regular briefings on EHS performance.

LEADERSHIP

Dornan senior directors recognise the importance of employee's health, safety and wellbeing. Recently Dornan directors have supported the launch of our Mental Health programme. This consisted of mental health first aider training whereby employees from all areas of the business have attended training workshops to assist them in recognising the signs of mental ill health and providing support to colleagues on the issues surrounding their mental health. Also the introduction of an employee assistance programme (EAP) that is an essential resource for helping

employees cope with the challenges of life, both work-related and non-work-related. The EAP offers employees and subcontractors a confidential, free and professional service where they can discuss mental health problems, legal issues, consumer advice, financial difficulties and career advancement. Site management teams organised an effective awareness campaign with the EAP provider by distributing small wallet cards and leaflets, sending emails, delivering toolbox talks and erecting posters and displaying videos from the EAP website.

WELLBEING INITIATIVES Dornan recently created a video to raise awareness about mental health tying in with the "Time to Talk Day" national campaign 'ask twice'. This video included messages from our Senior Management as well as a short scene by one of our site teams to reinforce the message. The video was shared with our clients and supply chain and uploaded to social networking sites such as LinkedIn and Facebook. Here is the link for this video: **https://www.youtube.com/watch?v=E7sB6t35QWA**. This initiative received over 20,000 hits on social media platforms (viewing/sharing/commented). An external company, Mental Health at Work, also promoted it, which is led by the Mind Charity.

We supported the "Time to Talk Day" campaign by coordinating shutdowns across all project sites to hold mental health awareness workshops. The workshops raised awareness about how important it is to look after your mental health and the support available within Dornan. The workshops were a huge success with some clients requesting that Dornan present to the full client site team. Between both the video and mental health awareness workshop initiatives much positive feedback from employees, clients and our supply chain was received.

We have decided to formalise our Health and Wellbeing initiatives in an annual calendar.

The initiatives planned will promote and support wellbeing in the company. This calendar includes:

- 3 x Companywide Workshops: Raising awareness about Health and Wellbeing
- Monthly Toolbox Talks: On Health and Wellbeing Topics suggested by the NHS
- Companywide Sports events: Tag Rugby League, Tough Mudder event, Sports day, Memorial Charity Football Tournament

Additionally, we were approached by Mace to take part in a Collaborative Health & Wellbeing Survey. We have agreed to take part in this survey to allow us to get a real picture of the health and wellbeing of our employees and to measure the effectiveness of our Health and Wellbeing initiatives.

Also, Dornan's initiative was promoted by external publisher Mental Health at Work, led by Mind. Mind is the UK's most prominent mental health charity, established in 1946, endorsed by the Royal Foundation & whose president is Stephen Fry. The link to our video was featured on the front page of their website. Please see the link below.

https://www.mentalhealthatwork.org.uk/resource/dornans-mental-health-and-wellbeing-awareness-campaign/?read=more

We had 12 project sites involved in this 'Time to Talk Day' on the 7th February, which involved facilitating 1-hour workshops on each of your sites. The workshops included showing a presentation and coordinating group exercises to raise awareness about mental health.

B4 RISK

Risk Management:

Dornan have worked at Heathrow Airport for the past 6 years with Mace on an NEC Form of Contract. We are also involved with Crossrail at Canary Wharf with an NEC Contract.

Dornan separate risks into two separate categories depending on whether they are Project Risks or Business Risks. Project Risks are primarily under the control of others whereas Business Risks remain with Dornan.

Project Risks would generally be managed and recorded by the Main Contractor by way of a "Project Risk Register" into which all of the Trades Contractors would feed information particular to the delivery of the Works.

Business Risks are in-house risks to the return on our contract and are managed by way of measureable KPI's, e.g., labour productivity.

NEC3 Contracts manage risk by way of the Project Risk Register and also by adopting an Early Warning Notice mechanism which encourages a collaborative approach to problem solving in order to prevent delay and disruption to the project delivery.

Under the NEC3 The Employer accepts responsibility for certain types of risks – Claims, Compensation Events, Damage to items under its control, Damage resulting from force majeure events. The Employer can also accept further risks depending on which Option Contract (A-F) is adopted, e.g., price fluctuations, programme risks, etc.

In terms of Opportunity Dornan focus on early engagement of our Engineering and Commercial Teams in every project to provide the Employer with Value Engineering proposals which may realise a betterment in terms of value and/or time for the Project.

Measuring Risk:

The primary KPI's Dornan implement in terms of Risk Management are Labour Productivity and Materials/Sub-Contract Procurement – see attached Risk Register.

All Early Warning Notices we issue have been evaluated in terms of potential to impact the programme critical path and every notice will have a "response required by" date beyond which the Early Warning has the potential to impact on the programme unless mitigation measures are adopted.

Risk Mitigation Strategies:

Institutional

Insofar as possible we try to remove our Construction Works off site to our in-house Fabrication Facility in Coventry. To a certain extent this insulates our delivery against programme risks as a considerable volume of our installation is delivered on a just-in-time basis. A secondary but equally important aspect of this is that the controlled environment of our Fabrication Facility allows for improved EHS management.

Project Specific

Dornan's FEED strategy is to front load our Engineering Resource in order to engage with the Employer in terms of Design Development and thereby mitigate market price fluctuation exposure, particularly in respect of Procurement.

Dornan's also operate a detailed Earned Value Analysis (EVA or S/E) measurement tool we have developed which we call Prism. This allows us to measure our labour productivity and identify any potential recovery strategies which may need to be

B5 Sustainable Development Policy

BREEAM

Dornan delivered their first BREEAM Very Good project in 2010 with Mace in Newbury, Berkshire. Since then we have completed one BREEAM Outstanding, five Excellent, two further Very Good rating. They are;

	Project	Rating
1	Oxford University – BDI Building **(see Case Study)**	Outstanding
2	245 Hammersmith Road	Excellent
3	17-23 Bentinck Street	Excellent
4	The Lexicon Bracknell **(see Case Study)**	Very Good
5	Broadgate Circle	Very Good
6	City University London	Excellent
7	Newbury Data Centre	Very Good
8	Verde Office HQ SW1	Excellent
9	W5 Office HQ	Excellent

We are currently working on a further five BREEAM rated building projects.

	Project	Rating
1	55-91 Knightsbridge	Very Good
2	London School of Economics	Outstanding
3	Marble Arch Place	Excellent
4	Institute of Cancer Research, Sutton	Excellent
5	University College London Hospital Phase 5	Excellent

Since 2013, Robert Feahney has been Dornan's BREEAM Accredited Professional who help encourage and develop our staff on understanding the importance to our business and that of each client of a Model such as the BRE's Energy Assessment Model.

As the Mechanical & Electrical contractor to the project, Dornan are in a position to positively influence the outcome of the BREEAM assessment in the following areas:

- Man 01 Sustainable Procurement
- Man 02 Responsible Construction Practices
- Man 03 Construction Site Impacts
- Man 04 Lifecycle Costs and Service Life Planning
- Hea 02 Indoor Air Quality
- Hea 03 Thermal Comfort
- Hea 04 Water Quality

- Hea 05 Acoustic Performance
- Ene 01 Reduction of CO2 Emissions
- Ene 02 Energy Monitoring
- Wat 01, 02, 03, 04
- Wst 01 Construction Waste Management

It is during the project tender and pre-construction stages that we have the best opportunity to affect the BREEAM outcomes. Dornan has substantial engineering and estimating departments where our engineers get the chance to work collaboratively with our clients and professional teams to find the best solutions for each project. **(Supporting doc attached)**

LOW ENVIRONMENTAL IMPACTS

BDI Building – Oxford University – achieved BREEAM Outstanding

How did we achieve BREEAM Outstanding?

Through client and professional team collaboration to find the best solutions;

Mechanical

- As part of the sustainability strategy for the building, subterranean labyrinth for passive heating and cooling. Outside air is pulled through three separate air corridors totalling one kilometre in length. By the time the air reaches the major roof plant, it has warmed or cooled by up to five degrees, reducing energy costs.
- AHU's were sized and engineered to suit the labyrinth.
- Dornan engineered, procured, installed tested and commissioned
    - CHP plant
    - Absorption Chillers
    - DAC units
- Dornan engineered, procured, supplied, installed and tested an extremely sophisticated BMS system that heated and cooled a sizeable open space R&D facility
- Dornan engineered, procured, supplied, installed, tested and commissioned sustainable urban drainage system and drainage attenuation.

Electrical

- Dornan engineered, procured, supplied, installed and tested a PV system that *was* suspended over a green sedum roof.
- Dornan engineered, procured, supplied, installed and tested a lighting control system with absence detection to reduce energy consumption.
- Dornan engineered, procured, supplied, installed and tested 32 Data cabinets with Rear door coolers to reduce heat and allow Data switchgear to work more efficiently. The waste heat from this was reused through the CHP generating power that could be sold back to the National Grid.
- Dornan engineered, procured, supplied, installed and tested an LV panel in the basement that did not require any heating or cooling requirement due to its subterranean location.

INNOVATIONS

Health and Safety App

Traditionally, SOC's are completed in paper format. However, Dornan have introduced a new option of completing the cards through interactive devices. The form is downloaded by QR code and completed on a mobile phone or portable device. This additional option has allowed safety leaders to make fast, on the spot observations in real time. It eliminates the possibility of good practice safety observations going unnoticed and likewise ensures that a maximum of near miss incidents are noted. These types of observations

contribute to the leading indicators, which allow the company to focus on proactive measures for improving safety performance each year.

Dornan are currently working on a “Sustainability & Renewable Energy Review” tool for use on projects. It is still under development, as is a separate tool for “Designing for Construction Waste Reduction”, also under development.

D’PRISM (Dornan Progress Reporting Info for Schedule Management)

To further improve Dornan’s traditional control procedures, Dornan have developed an in house bespoke mobile App, to allow for more efficient collating of the project’s physical progress data. **(Supporting doc attached)**

D’PRISM was a development initiated by Sean Lane (Dornan Group Planning Manager) in late 2017. It is a bespoke mobile app, managed via Microsoft Dynamics NAV with five app modules that deliver Dornan’s Project Controls, QA &project handover.

D'PRISM is a database driven system that will collect the data from the project team and "sync" with the bespoke application. The MS Dynamics database, in turn, will "Sync" with our existing Spreadsheet-based Progress Measurement systems and update all data as required.

It gives the "project team" instant access to live project data, to support informed decision making concerning project programming of critical activities.

The approach has many benefits to the project, where Supervision are using tablets in the field, thereby;

- Increase accuracy and speed collecting the project information
- Increased efficiency across the projects resource pool
- Improved access to project data in the field
- Reduced paper / hard copy usage
- Reduced administration time inputting data
- Increased compliance in the collection of data
- Access to 3d model and drawings/specs in the field

Pre-fabrication Plant in Coventry.

In 2018, Dornan established an offsite fabrication plant in Coventry to support projects with a best-practice approach to offsite fabrication and assembly. **(Supporting doc attached)**

We work collaboratively with our clients, contractors and professional teams to identify, as early as possible, the actions needed at each project stage to consider offsite construction and make it work for the project. The 30,000ft2. Plant in Coventry gives our projects improved control over two of the major issues we encounter today ensuring we deliver on time and budget.

At our Coventry plant, Dornan assemble the following offsite:

• Riser Modules
• Pump Skids
• Fan Coil Cooling Units with Controls
• Complete Boiler Rooms
• Water Storage Vessel Skid
• Electrical Distribution Panels and Containment
• Modular Wiring to Lighting and Power
• BMS and MCC Panels
• Main Cooling and Heating Pipework
• Support Bracketry

PROJECT PROFILE | COMMERCIAL

Residential, Office space & retail

MARBLE ARCH PLACE

55 BRYANSTON ST

LONDON

DORNAN

START DATE

February 2018

DURATION

10 Months

VALUE

£34M

CLIENT

Almacantar

CONTRACTOR

Multiplex

CONTRACT TYPE

JCT DESIGN AND BUILD 2011

PROJECT DESCRIPTION

Marble Arch Place is an impressive mixed-use development that will result in a new landmark building for London, and a striking gateway to the West End once completed in 2020. The build will consist of 7 levels of office space to building 1 and 54 apartments within building 2.

SCOPE OF WORKS

M&E Installation of a 7 Storey office building & Shell and Core of 18 storey residential building, including a shared basement consisting of 5 levels. Full 3D Model Coordination, Design Validation and CDP elements

Electrical

Fire Alarm

New Incoming Supply Metering

LV Distribution

CHP

Rising and underfloor Busbar systems

Provision for Photovoltaic Micro Generation

Small Power Lighting

Fire Detection and Alarm System

Security System/Access Control System/CCTV system

Wiring to Mechanical Plant/Equipment

Disabled Refuge System

Accessible WC's Call System

Mechanical

Heating Plant LTHW Distribution CHW Cooling Plant CHW Distribution Cooling Systems

BMS Control System

Ventilation Systems Metering

Domestic Water Services Mains Water

Domestic Hot Water Services

Domestic Waste Pipe work In- stallation

REFERENCE:

NAME: Mike Broad
TITLE: M&E Projects Director, Multiplex
EMAIL: mike.broad@multiplex.global
PHONE: 07702973302

PROJECT PROFILE | COMMERCIAL

Residential, Office space & retail

MARBLE ARCH PLACE

55 BRYANSTON ST

LONDON

DORNAN

START DATE

February 2018

DURATION

10 Months

VALUE

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CLIENT

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Domestic Hot Water Services

Domestic Waste Pipe work In- stallation

REFERENCE:

NAME: Mike Broad
TITLE: M&E Projects Director, Multiplex
EMAIL: mike.broad@multiplex.global
PHONE: 07702973302

PROJECT PROFILE | MECHANICAL & ELECTRICAL
FITZROY PLACE

LONDON

UNITED KINGDOM

Main Contractor

Sir Robert McAlpine

Engineers

Aecom

START DATE:

JULY 2013

DURATION:

22 MONTHS

VALUE:

£40M

CONTRACT TYPE:

JCT MAJOR

CONSTRUCTION

FLOOR SPACE:

220,000m²

'Dornan made a very supportive contribution on what was a very difficult project for all concerned. They, like everyone else on the project, had some real challenges to overcome and they worked with us to overcome these. The Dornan package was a major package and they delivered this.'

- *John Brady, Sir Robert McAlpine*

REFERENCE:
John Brady,
Regional Building Services Manager

Email:
j.brady@srm.com

Phone:
07801216869

PROJECT DESCRIPTION

- Former Middlesex Hospital site demolished in 2008
- 235 Private residential apartments
- 220,000 sq.ft. of offices in two buildings
- 54 affordable apartments
- Education facilities, 193 car spaces, 762 bike spaces, Refurbish Grade II* Chapel, 101 residential store rooms

Scope of Works

- 3 MV Switchrooms
- CHP Plant – 465kVa
- Life Safety Generator – 1000kVa
- LV Distribution
- Central Services
- Lighting Control System
- 6No Chillers
- 6No Adiabatic Dry Coolers
- 3 x Boiler Plantrooms;
- 30 Air Handling Units
- 870 x 4 Pipe Fan Coil Units
- Ductwork Installation
- Air Systems;
- 289 Apartment HIU's;
- 235 Apartment CIU's.
- Condenser and Chilled Water Pipework Pre-Fabricated Off Site;
- Water Services incl. 13 Cold Water Storage Tanks


PERCY &
FOUNDERS
ONE
FITZROY
PLACE

B6a CASE STUDY – MANAGEMENT OF MEP WORKS

FITZROY PLACE, LONDON

Background:

Dornan Engineering were initially awarded a £17,000,000 contract by Sir Robert McAlpine, our first project with SRM, to install the electrical services at Fitzroy Place, London.

EMCOR, formerly Drake & Scull, were awarded the mechanical services contract.

At the instigation of Dornan, both EMCOR and Dornan Engineering shared the same project office, situated next to the project site in Fitzrovia. It was imperative that both companies worked very closely and collaboratively together as the pre-construction period was short and a lot of work was required to get the MEP design in place, to Installation requirements.

6 months into the project, EMCOR's parent company in the USA decided they no longer wanted to undertake mechanical construction in the UK and they did not wish to proceed with the Fitzroy Place project.

Sir Robert McAlpine, the Main Contractor, requested that Dornan take on the responsibility for the full MEP packages and we agreed to do this.

What started as a £17m contract turned into a £40m project for Dornan Engineering.

We directly employed the majority of the EMCOR team and enhanced this with senior Dornan mechanical experts.

The delivery of high-standard design and construction quality standards;

Benchmark and mock up scheduling was done as standard on the project. This was especially important for interface details such as the junction of plasterboard margins and raised access flooring. Dornan only selected items for install as specified by the client and professional team, or with products from proven suppliers with a demonstrable history of working on high profile projects. Once technical submittals were approved for front of house items, the samples were reviewed by the architectural team and with SRM, Aecom and the end client Exemplar.

Programme management and your track record in meeting the programme;

Dornan mitigated delays by working with closely with SRM to re-sequence works activities to meet our overall programme and commissioning targets. For example on roof areas where works were delayed, Dornan were able to specify requirements for landing roof plant that progressed the project, by working with SRM to ensure roof insulation was installed in specific areas.

The overall project timeframe was significantly delayed on the project which was out of Dornan's control. Dornan demonstrated an ability to work with Sir Robert McAlpine by ensuring that the minimum disruptions occurred by substantially increasing our manpower and crafts on the project.

We had daily programme and management meetings with SRM and the professional team at a very senior level to ensure all avenues were explored and initiated to keep on top of the development.

At the clients request we were operating shift systems on the project as well as full weekend working to achieve project handover.

Value management, value engineering and the response to any budgetary constraints; and the applicant's approach to achieving acceptance by the client;

Dornan achieved significant intelligent value engineering savings on both generator and the CHP packages. We also re-coordinated our roof services to remove the requirement for gantry walkways throughout, replaced with a small number of step-overs on the roof. This was also achieved on the back of house light fittings, where again significant savings were achieved.

Health, Safety and Wellbeing performance;

The main challenges for HSW were a heavily subscribed pit lane and a landlocked site. Dornan made sure that deliveries were booked in using the online SRM system, and booked in a just in time for installation to ensure materials did not congregate on site. We also made sure that for lifting in key items of plant that we were coordinating with the crane hook time of other contractors on the site. The other challenges we encountered were ensuring that the EMCOR team members were integrated into our business and they understood clearly our requirements for safety on site

Environmental and sustainability performance;

This was one of the very first projects were Dornan rolled out our behavioural based safety initiative. We supplemented this with advice from an external 3rd party called Big Apple safety, who worked with Dornan to ensure we understood the SRM requirements for EHS on the site. We were also able to utilise our project specific guidelines based upon our ISO 14001 certification.

Working under other organisations who are Principal Contractor;

Dornan are able to develop strong working relationships with all stakeholders on the project. This is one of our key aims on all aspects of delivery. Dornan formulate project specific strategies for identifying the key personnel working along-side us, and ensuring we have dedicated team members charged with ensuring we get feedback on performance, as well as ensuring we have open and honest lines of communication throughout. This became especially important later in the project when as a team we were mitigating delays and communication lines need to be maintained. Finally, our business project sponsors were able to make themselves available to drive programme, and allay any concerns raised expediently

Working in publicly visible high-profile environment.

The Fitzroy Place project was immediately adjacent to other high value residential properties in Fitzrovia, as well as being close to Oxford Street and Tottenham Court Road.

Considerations such as impromptu client visits and queries, as well as ensuring operatives were not wearing PPE or congregating at the site entrance all had to be managed.

Although the project was a difficult one for SRM and their trade contractors, Dornan Engineering worked very closely with all of the stakeholders to deliver a high quality installation.

The finished product proved very successful for the end client, with the residential properties sold quickly and Estee Lauder, the French Cosmetics giant taking the full commercial property as their European Headquarters.

Please refer to the Sir Robert McAlpine reference letter attached. This is from John Brady, now MEP Director at SRM. John and a special SRM team were relocated from Scotland to London to enhance SRM's Project set-up and ensure a high quality delivery.

Dornan Engineering is now one of SRM's strategic MEP Partners for their major London schemes and we are currently working on 3 of their projects with 1 Finsbury Place at Broadgate about to be handed over.


15/04/2019 14:00


15/04/2019 14:03

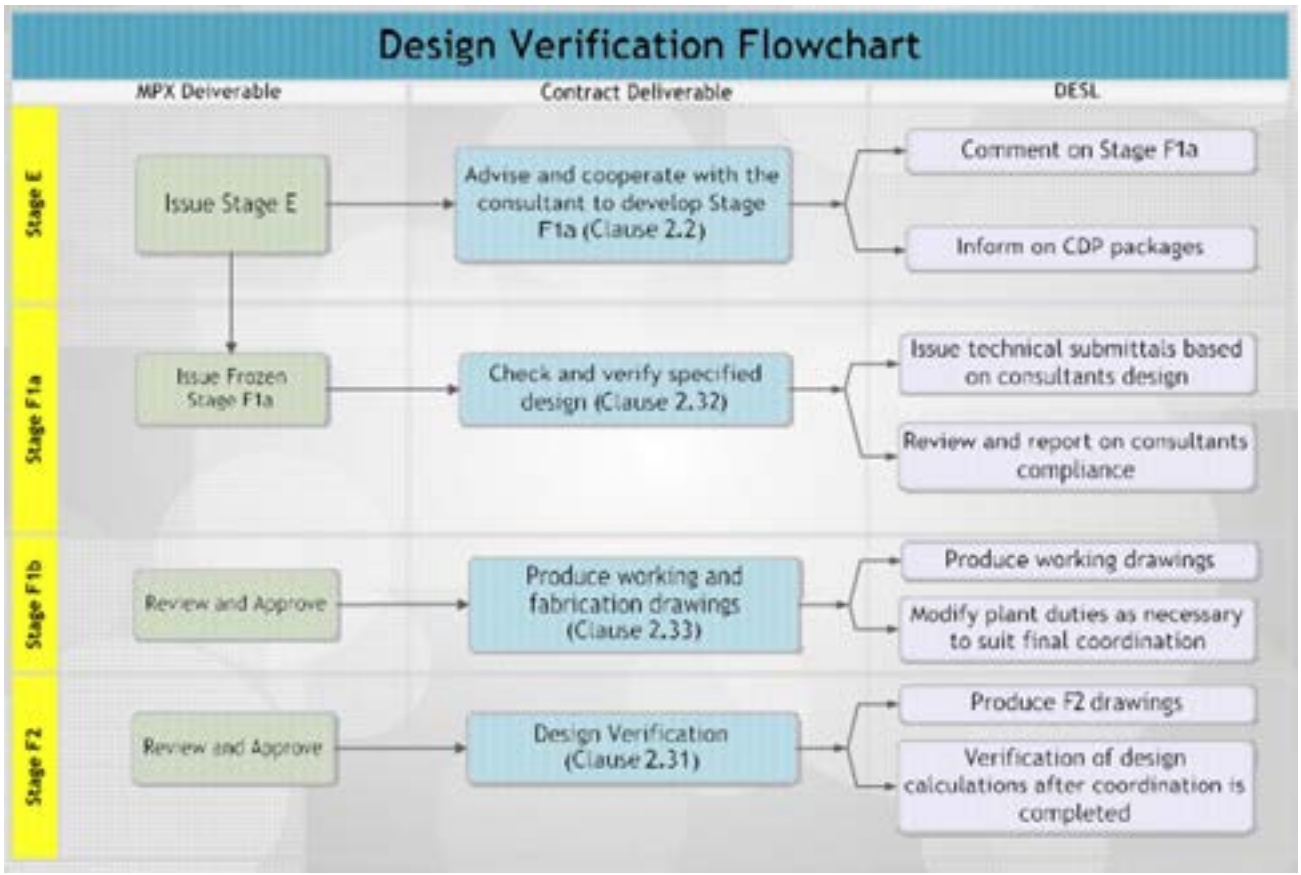

15/04/2019 14:06

B6b Design Management

Dornan were appointed to complete the design, installation and commissioning of Mechanical, Electrical and Public Health services for the new Marble Arch Commercial Development in London (**BIM Images Marble Arch Project)** the initial stage was to develop a stage 4 design form the projects consultant to a full technical design, develop this then to a modular solution and then further develop this to a working/construction design.

From the outset, Dornan implemented a team structure and defines the full stages of design responsibility, assigning roles such as Task Team managers as well as assigning dedicated design engineers to the project. Key is understanding the design outputs, Dornan shall, in conjunction with the Client, develop all design outputs to enable a successful co-ordination and installation phase. The design output is represented by drawings, specifications, calculations, datasheets, technical submittals and other forms that can be verified against design input requirements.

The first stage of design development is all ways to understand the client's brief or as we call it the "employer requirements". This information is very much documented and indeed the initial stages of design that has been carried out by the client's professional team should have following the brief detailed by the employer. Therefore it is essential our design team validates information that has been issued by the client's professional team and understand the client requirements. Dornan has developed a defined matrix that sets this out and show clears roles, paths for information transfer and responsibilities. (See below)

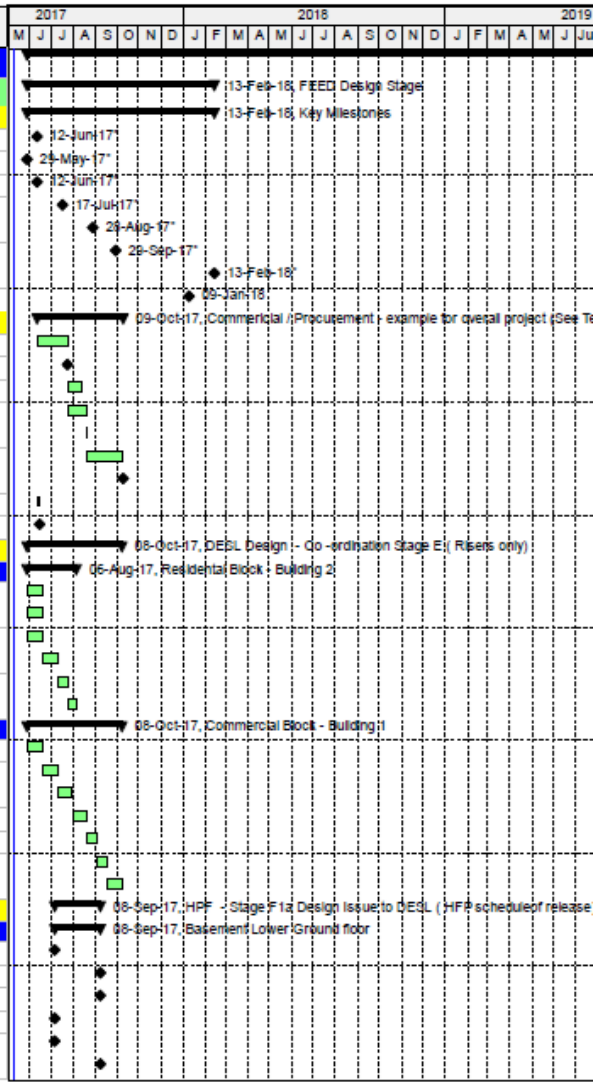


Once all of the deliverables are know the development of a **F**ront **E**nd **E**ngineering **D**eliverables programme (FEED) is critical in ensuing information is produced within allocated times. This programme is shared with the completed professional team and indeed manages key KPI's for deliverables.

ster BASELINE with C Construction 16.10.17

751 - Marble Arch Project
Baseline Schedule FEED & Construction
BL1 Master 11th May 2017

ty Name	Duration - Weeks	Start	Finish
(11.05.17 BL) Master BASELINE with C Const	163	29-May-17	10-Jul-20
	37	29-May-17	13-Feb-18
	37	29-May-17	13-Feb-18
Stage E Design Issue - 26/05/17	0	12-Jun-17*	
ase Models, Equipment Specs & Schedule to EDC - 29/05/17	0	29-May-17*	
urement Start Date for modularisation - 29/05/17	0	12-Jun-17*	
Stage F1a- Commercial Building 1 Ground to roof - 17/07/17	0	17-Jul-17*	
Stage F1a - Residentia Building 2 Ground to Roof - 28/08/17	0	28-Aug-17*	
F1a - Basements 29/09/17	0	29-Sep-17*	
an F2 / Design release for manufacture Site Wide - 13/02/18	0	13-Feb-18*	
lication Commence - 19/02/18	0	09-Jan-18	
t - example for overall project (See Tech Sub WBS)	17	12-Jun-17	09-Oct-17
ation Period to Market (6 Weeks)	6	12-Jun-17	23-Jul-17
e F1A	0		23-Jul-17
e- Schedule (F1A) Review (3 Weeks)	3	24-Jul-17	13-Aug-17
ation Revelw (4 Weeks)	4	24-Jul-17	20-Aug-17
nical Submission Release	0	21-Aug-17	21-Aug-17
Revelw (7 Weeks) - Approval Period	7	22-Aug-17	09-Oct-17
oval Issued	0		09-Oct-17
sub	1	12-Jun-17	16-Jun-17
PF drawings Issued to DESL	0		16-Jun-17
ion Stage E (Risers only)	19	29-May-17	08-Oct-17
g 2	10	29-May-17	06-Aug-17
rs - Design / Model	3	29-May-17	18-Jun-17
nd Floor Level - Level 0 - Design / Model	3	29-May-17	18-Jun-17
l 1 - Design / Model	3	29-May-17	18-Jun-17
ls 2 - 9 - Design / Model	3	19-Jun-17	09-Jul-17
ls 10-18 - Design / Model	2	10-Jul-17	23-Jul-17
Level - Design / Model	2	24-Jul-17	06-Aug-17
ng 1	19	29-May-17	08-Oct-17
rs - Design / Model	3	29-May-17	18-Jun-17
nd Floor Level - Level 0 - Design / Model	3	19-Jun-17	09-Jul-17
l 1 - Design / Model	3	10-Jul-17	30-Jul-17
l 2 - Design / Model	3	31-Jul-17	20-Aug-17
ls 3 - 6 - Design / Model	2	21-Aug-17	03-Sep-17
l 7 - Design / Model	2	04-Sep-17	17-Sep-17
Level - Design / Model	3	18-Sep-17	08-Oct-17
sue to DESL (HFP scheduleof release)	9	07-Jul-17	08-Sep-17
floor	9	07-Jul-17	08-Sep-17
r Ground Floor - Mechanical	0		07-Jul-17*
r Ground Floor - Public Health	0		08-Sep-17*
r Ground Floor - Small power / Lighting	0		07-Sep-17*
r Ground Floor - Security	0		07-Jul-17*
r Ground Floor - Builders Works	0		07-Jul-17*
r Ground Floor - Fire Alarm	0		07-Sep-17*



Critical Remaining Work — Second Baseline
Milestone
summary

Page 1 of 14

Current Date : 16-Oct-17 at 11:40
Project Baseline
Project Data Date : 11-May-17

The Project Manager shall conduct a formal review of the following documents at planned stages through competent design review teams based on the risk and complexity of the project, these different stages are noted below. Design reviews include both internal and Client reviews. This design review will be executed prior to being issued for construction and shall include:

- P&IDs
- Calculations
- Model review

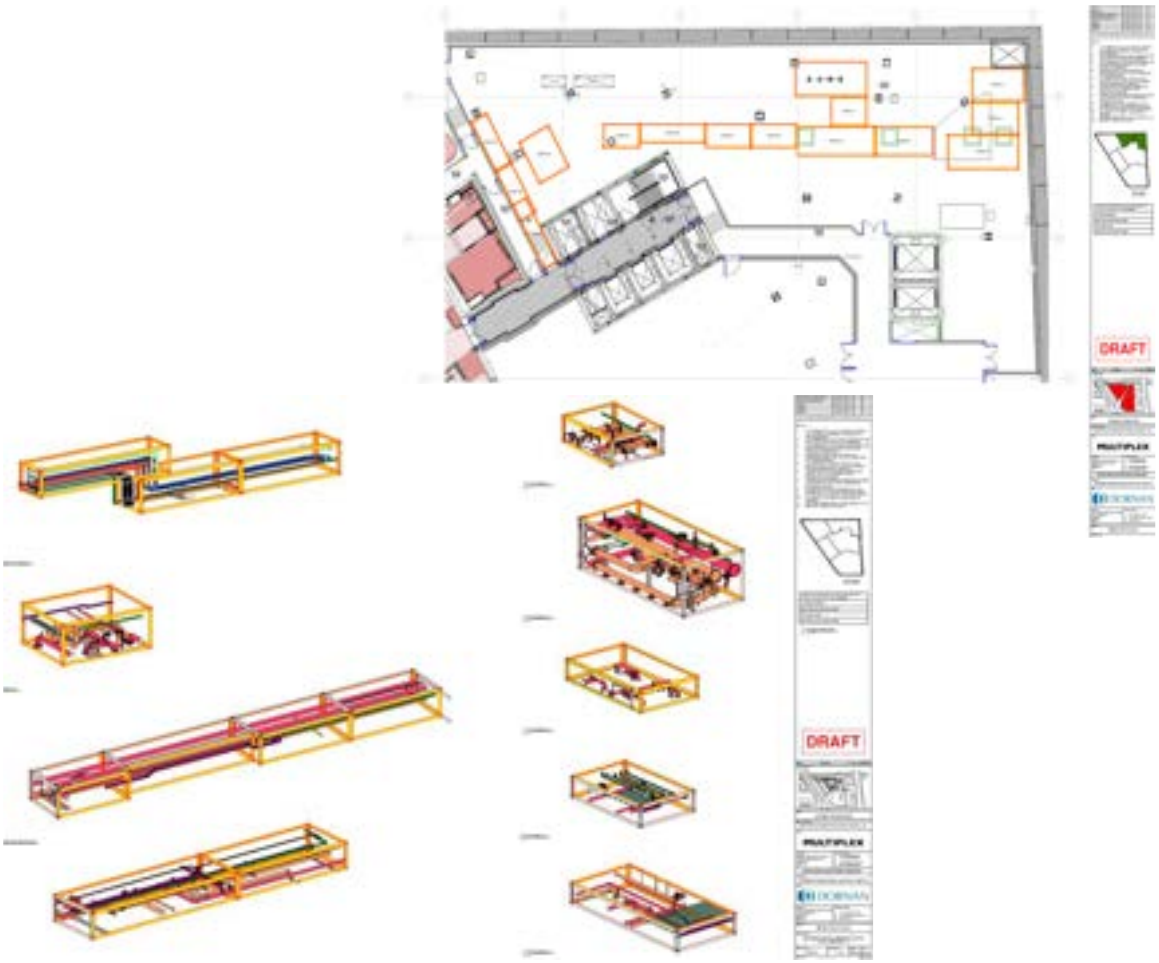
Any comments are recorded and subsequent changes are duly incorporated into the final deliverables, either in the form of minutes or marked up appropriate standard checklists.

Where Consultant or Sub-Contractor drawings and documents are submitted for review and comment they shall be hand or electronically marked up and returned under cover of Consultant/Sub-contractor Drawing/Documents Review Sheet.

Support is provided by a number of specialists such as Structural engineering, Acoustics and Expansion specialist. During the initial project phase our team structured a design matrix in line with RIBA/BSRIA BG6, this defined roles, responsibilities and most important outputs. This was then further broken down into a series of design checks notably defined by,

- **0% Technical Review,** is a meeting to review and discuss the contractual documents, review planning applications, Building Regulations and BREEAM documentation to identify a start point for the design and to ensure all tender clarifications and responsibilities are clearly identified. This sets out the agenda for the 30% Technical Review.

- **30% Technical Review** is a follow up meeting to the 0% Technical Review to progress the design on to the next level. Dornan's Design team will have commenced the design since the 0% Technical Review by calculating the load assessment of the building, heat loss and heat gain calculations, plant locations, electrical loadings and service routes being identified. All information will be issued to the project team in preparation for the 30% Technical Review to allow the project team, including clients representatives review the work completed to date.
  Dornan will have followed up on all Technical Queries issued to withstand any hold ups. In addition to this, each service is discussed in more detail, data from Dornan and Client preferred manufacturers or supplier of choice produced to assist the design team in working up the design. **Zoning requirements** and any technical requirements of each system will be discussed. Services requirements are to be discussed, i.e. plant location, sizes, weights, modular and plant zoning details and any missing information is to be identified. Technical Queries (TQ's) are to be produced and issued to the relevant specialist contractor(s). New deliverables are set from the 30% Technical Review which identifies the design teams requirements allowing for the design to be 60% complete at the next review. This will include but not limited to plant room layouts, riser layouts, main equipment schedules and any co-ordination of tight areas.



- **60% Technical Review** is held to reconvene with the design team to check on the progress of the design. Deliverables will have been outlined at the 30% stage which will include but limited to plant room layouts, riser layouts, main equipment schedules and any co-ordination of tight areas. For this meeting a full set of hard copy A1 drawings will be tabled and finer detail such as bracketry, module shop drawings, module setting out and manufacturer's specific installation/ spacing details etc. are to be included.
  The Design team engineers will commence issuing the equipment schedules to preferred manufacturers and suppliers to establish the best price available for each piece of equipment. Once a manufacturer is selected a technical submission is issued. Once approved and verified internally the tech sub is issued to the client's consultant, architect and main contractor for comment/approval with a 14 day approval period. This is targeted to be completed 3 weeks prior to the 95% Technical Review to allow the Design Team time to incorporate any comments into the 95% Technical Review.

- **Final Technical Review (95%)** is held to review the fully co-ordinated and completed design along with associated calculations package. The thermal model will have been updated to include specific equipment approved by the client's consultant to ensure Part L / Section 6 compliance before

issuing a final package to the client. All module and skid drawings will be complete and ready to be sent to Specialist suppliers for manufacture.
Following the 95% review and the Dornan Quality Assurance process, the design will be issued to the client's consultant with the accompanied calculations package and Part L / Section 6 compliance report.

Quality is always paramount during this phase of project design, Quality control of information will be an integral part of every stage of project delivery. Dornan's Design control is set up according to the Design Development Procedure (QP 14, internal quality control process) in accordance with ISO 9001:2015 requirements.

A Quality Plan has been prepared in accordance with the following reference documents:

- ISO 9001:2015
- Project specific design standards and procedures
- Client Specifications and Drawings
- Dornan Engineering procedures, templates and work instructions

Quality activities on this project are compliant with Legislation with regard to the following standards:

- British Standard Codes of Practice for Building Services Systems
- British Standards or European equivalents
- CIBSE Commissioning Codes and Technical Memoranda
- CIBSE Guides Volumes A to E inclusive
- CIBSE Lighting Guide and Codes
- IET Wiring Regulations for Electrical Installations – BS7671:2018 – 18th Edition
- IEE Guidance Notes 1-8
- The Institute of Plumbing, Plumbing Services Design Guide

B6c Installation and Commissioning

Dornan were appointed to complete the design, installation and commissioning of Mechanical, Electrical and Public Health services for the new Marble Arch Commercial Development in London (**BIM Images Marble Arch Project)** the initial stage was to develop a stage 4 design form the projects consultant to a full technical design, develop this then to a modular solution and then further develop this to a working/construction design.

The MEP scope in Marble Arch is split into two very distant work flows, Off-Site modularisation and assembly and traditional onsite installation with includes full commissioning and handover. Initially from the offset a detailed Quality Control and commissioning plan is developed which defines the objectives of the project team and of course the project quality goals. Example below.

Deliver a quality performance level which minimises cost of poor quality, re-work and wastage and demonstrates a QMS is in place which provides the required assurance by doing the following:

- *Actively communicating quality, setting goals for quality, reviewing and monitoring, improving performance on quality*
- *Raising the awareness level of the QMS*
- *Having a fully resourced team of skilled staff capable of delivering quality within their roles*
- *Implementing a Quality Audit Program to evaluate the effectiveness of the Project QMS system during procurement, fabrication, construction and commissioning.*
- *Utilise the benefits of prefabrication services installation and offsite assemblies*

Dornan Engineering's process approach to project execution and emphasises each project's dependence on other internal departments and support functions that collectively support the project. Processes required to meet the deliverables are documented, linked to on site work instructions and standards and have competence requirements identified for each member of the project team and supporting functions. Communication with the Client and acting on their feedback, feeds in to continual process improvement of our project execution processes. Dornan's development of a Construction Plan is to complete the project without incident, injury or ill-health to personnel, and without damage to equipment and the environment. These objectives are accomplished through the recognition, anticipation, evaluation, and control of hazardous conditions; training and implementation of safe work practices; and complying with local regulatory requirements. The Project Environmental, Health and Safety Plan describes Dornan's management, organisation and control of Environmental, Health and Safety related activities occurring during the execution of our work.

The Construction Plan is concerned with the installation details for the project and ensuring they are carried out in a safe effective manner due to the prefabrication strategy for this project and the alternative method of installation over a traditional installation.

Offsite Fabrication

Our Prefabrication methodology utilises off site modularisation of what was traditionally fabricated on site.

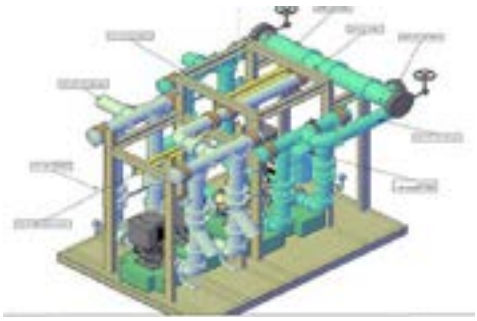
Off-site fabrication is used to minimize the risks associated with traditional build including;

- Programme Risk
- Installation Wear & Tear
- Hot works
- Working at Height
- Minimise on site man hours and associated H&S Risks
- Coordination / Sequencing of works

It is our intention to procure the Main Plant and Prefab associated Pipework, Bracket's and containment where possible and store off site. The delivery of the equipment would be programmed in line with the Main Contractor

Items identified for Off-site Fabrication include:

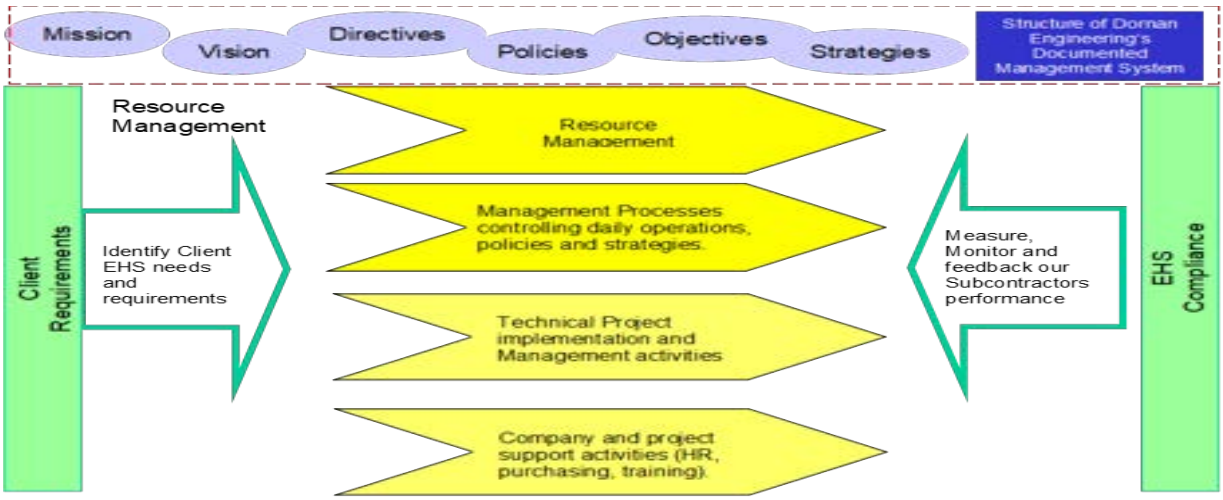
- Boiler containerised units
- Mechanical Distribution Riser Pipework
- Plant room Headers, Pump Arrangements
- Pump Skids
- M&E containment / Pipes / Bracket's in Modular Form where possible
- Riser Assemblies
- Water Storage Tanks Procured in Panel form for minimum on site assembly



Doran Process Approach to Prefabricated Project Execution

As this project is making use of DESL's Prefabrication Strategy with the intention to prefabricate as much services off site as possible, this Construction Plan alters from the traditional Construction Plan for the installation method of the services.

Doran Process Approach to Project Execution



Inspection & Test Plan completion

A detailed Inspection and Test Plan (ITP) is developed for key activities and referencing controlling procedures, verifying documents, and inspection co-ordination and hold points during off Site and on site testing and installation.

During the manufacturing process for engineered/pre- fabricated items and skid packages, an inspection and test plan (ITP) shall be compiled and submitted to the Project for review. The ITP is subject to acceptance by all parties before manufacture commences. The QA/QC coordinator, Project Engineer/Project Manager and Client representatives shall be included in the review and approval of all Supplier/Subcontractor ITPs. The ITP shall reflect and recognize all employer requirements and specific project needs for installation, list all the major quality related activities in chronological/construction process in a controlled order, from approval of documents and drawings through manufacturing,

System Testing and Commissioning

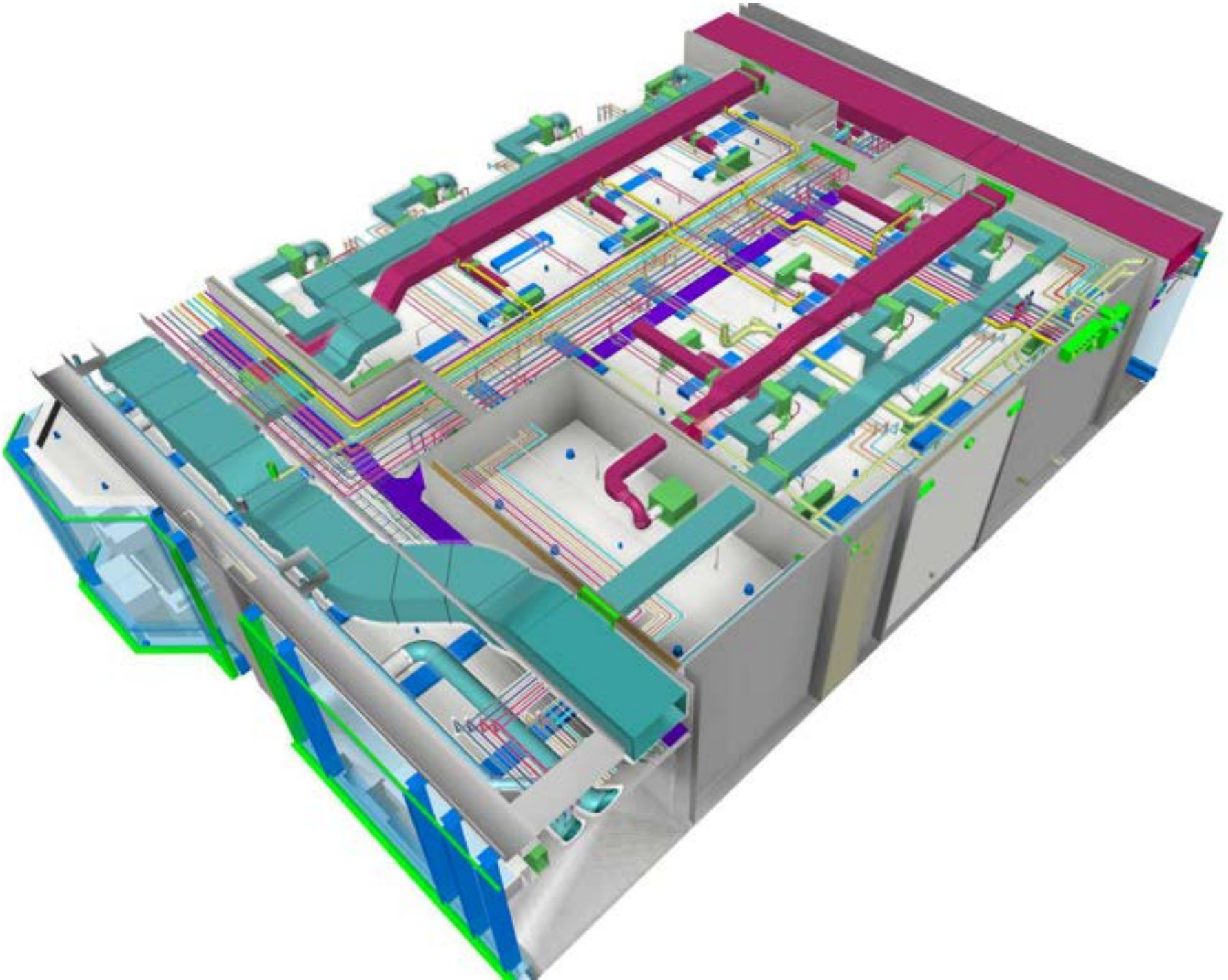
System Handover shall be progressed through pre and post review and approval of the technical content of Construction Completion packages and for acceptance of each system.

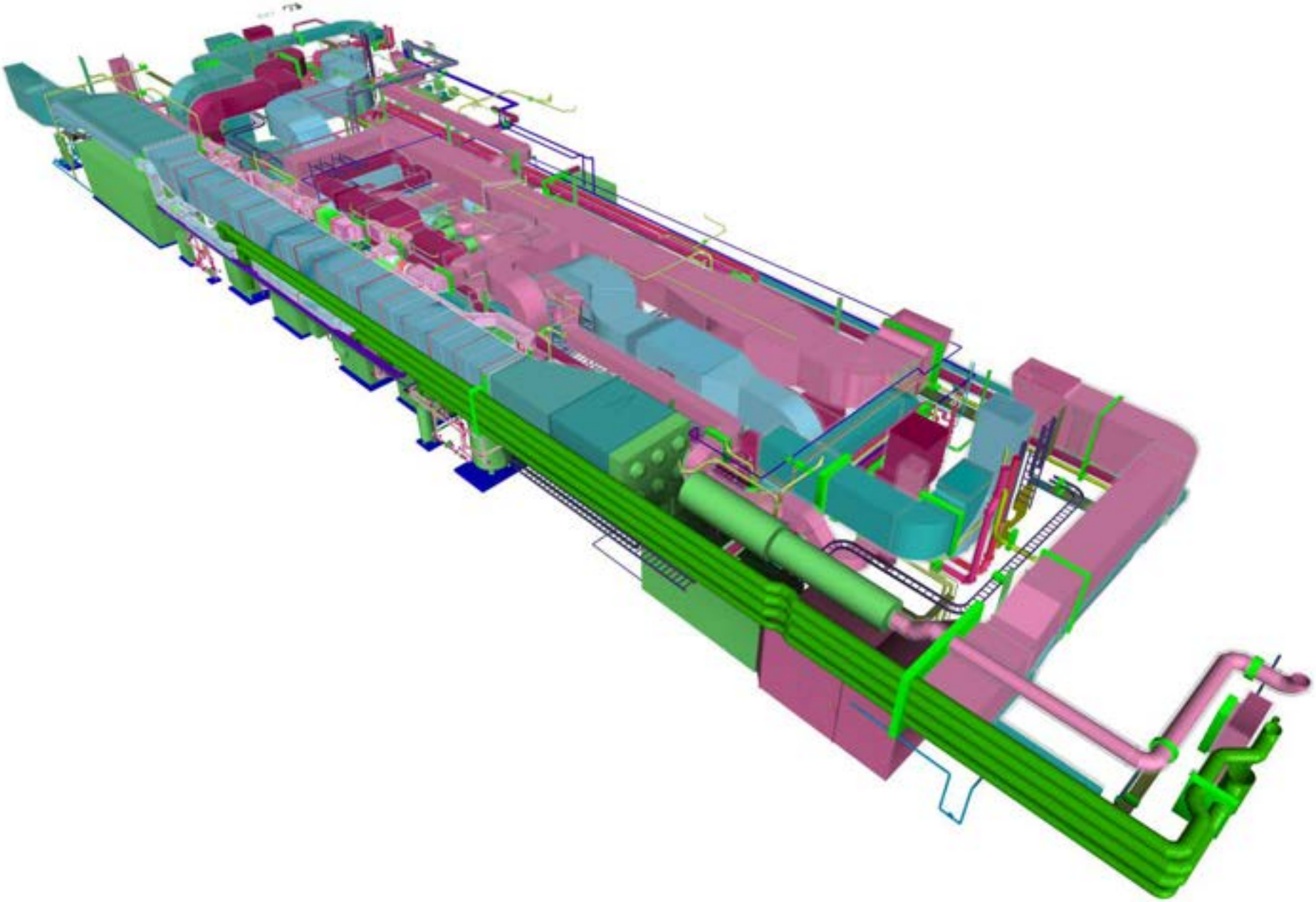
Our Project Team shall be responsible for coordinating our approach to system handover and commissioning in communication with the client's Commissioning Manager.

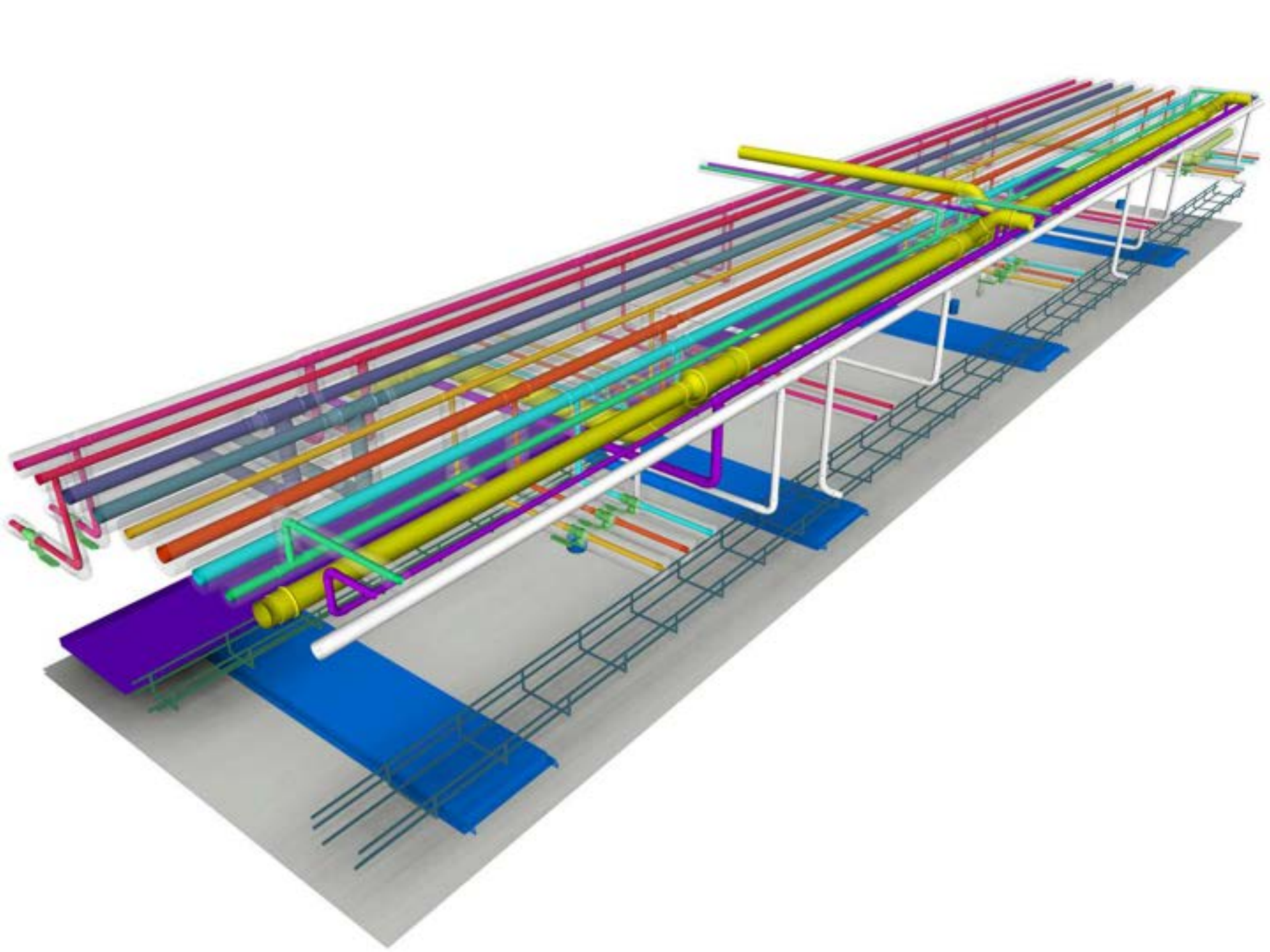
The main tasks performed in readiness for Commissioning, include:

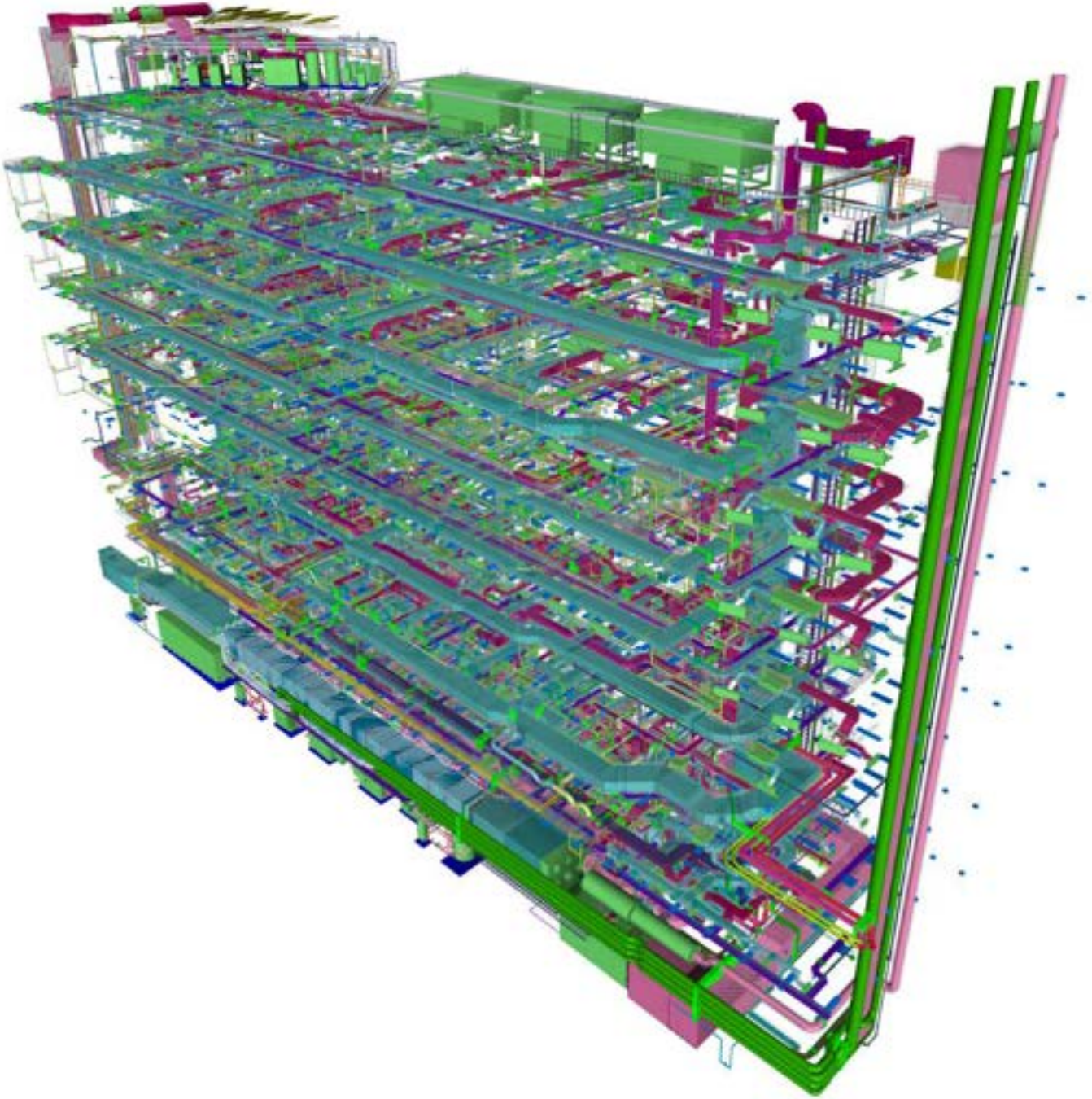
- Review and comment on the Clients detailed commissioning requirements.

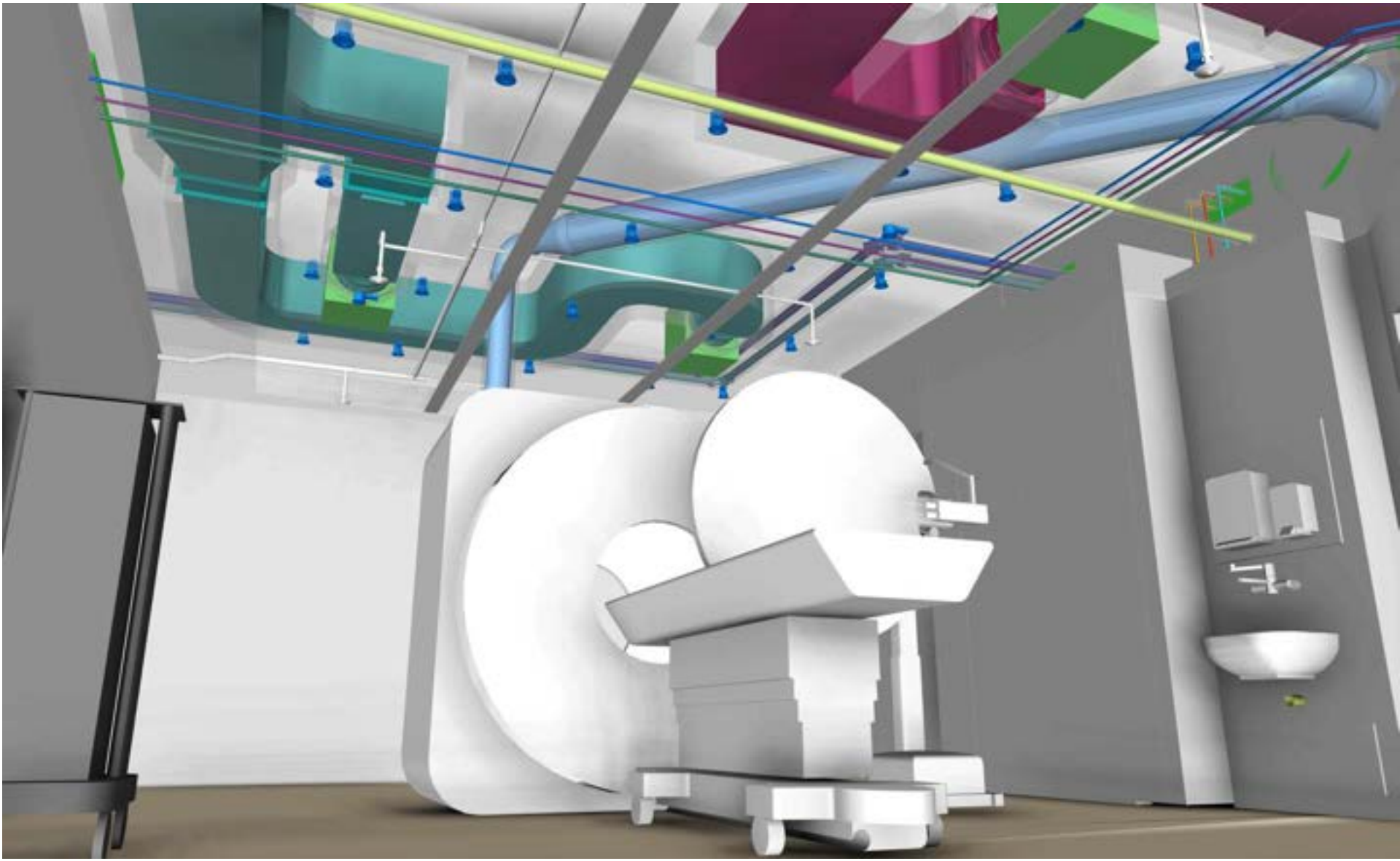
- Review and be familiar with installation drawings and equipment technical submittals re commissioning
- Be part of the project inspection and test team having verified each system as ready to proceed to commissioning.
- Work to and implement a coordinated commissioning programme.
- Attend off site test activities.
- Implement and coordinate system by system testing and handover.
- Compile pre commissioning system handover folders per system.
- Attend and where applicable, facilitate training and demonstrations.
- Issue final system test and commissioning documentation to client for comment and act on comments.
- Outline Partial Commissioning handover within the Commissioning Programme
- Outline Commissioning activities within each system ITP documents











UK BIM Structure

Office Based Team Members

- Darren Quigley — UK BIM Manager
- Nikolas Gonzales — Project BIM Manager
- Chris Kay — Project BIM Manager
- Osita Eze — BIM Coordinator
- Inderpal Bansal — BIM Coordinator
- Gianluca Tiranti — BIM Coordinator
- Parminder Kalsi — BIM Coordinator
- Billy Murray — BIM Coordinator
- Antonio Bernal — BIM Coordinator
- Christopher Geylen — BIM Coordinator
- Oliver Toole — BIM Coordinator

Site Based Team Members

- Chris Rose — BIM Lead
- Brendan Lynott — BIM Coordinator
- Tarek Eddin — BIM Technician

Current Supply Chain Support

IBSECAD

Blue Thorn TECHNOLOGY

EDC

DPS

BREEAM®

Code for a Sustainable Built Environment
www.breeam.org/ap

BREEAM Accredited Professional

This is to certify that:

Robert Feaheny

passed the

BREEAM Accredited Professional Examination

held on

4/10/2013

and is authorised to use the BREEAM AP badge on marketing and publicity literature in connection with work as a BREEAM AP.

BREEAMAP0719

Certificate Number

1

Issue Number

7 November 2013

Valid from

For and on behalf of BRE Training

Pauline Traetto

Associate Director, BRE Training

BREEAM ACCREDITED PROFESSIONAL

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To check the validity of this certificate please scan the QR Tag, visit www.greenbooklive.com/check or contact us.

BRE Training is part of BRE Group, Garston, Watford WD25 9XX.
Tel. 01923 664829 Fax 01923 664336 www.bre.co.uk/training

bre

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CONFIDENTIAL REPORTING FOR SAFETY

Certificate of Membership

Dornan Engineering Services Ltd

Membership number

C1131

Valid from: **01/04/2018**

Valid until: **31/03/2019**

Company registration number

5799522

Catherine Baker

Head of CIRAS

ANOTHER LINE OF DEFENCE

Reference Form

Instructions:

Please send this reference request form to previous customers. Once it is returned to you please attach it to the PQQ. We will validate the reference during the PQQ review process.

We are very grateful to you for taking the time to complete this form and value your feedback.

Supplier Name:
Sir Robert McAlpine Ltd

Project Details:

Project	Trade	Contract Value	Date Contract completed
Fitzroy Place, London	Mechanical & Electrical Services	£40m	April 2016

Performance Feedback:

Performance rating – Please rate supplier's performance using a scale of **1 – 5** in the grid below				
Totally dissatisfied	Mostly dissatisfied	Neither satisfied nor dissatisfied	Mostly satisfied	Totally satisfied
1	2	3	4	5

Design	People	Commercial	Programme	Quality	Safety	Sustainability
4	5	4	4	5	5	4

Other Comments
Dornan made a very supportive contribution on what was a very difficult project for all concerned. They, like everyone else on the project, had some real challenges to overcome and they worked with us to overcome these challenges. The Dornan package was a major package and they delivered this.

Will you consider this supplier for future contracts?
Yes, without doubt.

Completed by:

Reference completed by:	
Name: John Brady	Organisation: Sir Robert McAlpine Ltd
Job Title: Regional Building Services Manager	Email address: j.brady@srm.com
Phone number: 07801 216869	Date: 25th April 2016

Dornan Engineering Limited

Design and Development
QP.14

Change Control
The Managing Director or his nominated representative must approve all changes to this document.

05	16/10/12	Reference made to design planning templates	BOS / RF	O. Lonergan
04	17/01/12	Reference made to RIBA stages of design activity	R.Feaheny	O.Lonergan
03	26/06/06	Revised per PAR	J. Tubbert	O. Lonergan
02	14/11/05	Approved for use	J. Tubbert	O. Lonergan
01	04/10/05	Approved for use	M.A.Shaw	B.Acheson
Draft	01/09/05	Issued for review	M.A.Shaw	B.Acheson
Revision	**Date**	**Summary of Changes**	**Author**	**Approved**
			Quality Manager	**Managing Director**

1.0 PURPOSE & SCOPE

To ensure that all design aspects of a project are planned at an early stage, to ensure that a Design Plan is prepared at the appropriate time and updated regularly, to foster a process approach to planning and controlling of design elements within projects, and to ensure that the Client's requirements are recorded in a documented brief.

This procedure is applicable to all projects where Dornan Engineering have design responsibilities and is applicable where design is produced in-house or externally by a Dornan Engineering appointed Service Provider, e.g. Design Consultant. Where design is produced externally the procedure shall be read in conjunction with procedure QP15, Appointment of Services Providers.

2.0 AUTHORITY AND RESPONSIBILITY

The Project Director will oversee all activities to ensure their compliance with this procedure. Responsibilities are defined in the flow diagrams by means of bold text.

3.0 METHOD

Design Plan

The Project Director or Manager ensures that the Design Plan is set-up for all projects with Design Input. The Project Director also ensures that the Design Plan is updated regularly to reflect the current status of the project. Client supplied information on which output is to be based is specifically referred to in the Design Plan. The Design Plan is a working document. It is an aid to the Project Director in running the project. The controlled version of the Design Plan is held electronically in the project folder.

The Design Plan may have attachments as recorded in the notes section or documents can be hyperlinked to the Plan. The electronic version of attachments is held in the appropriate project folder.

Where the project is a multi-disciplinary project each discipline shall have its own Design Plan.

Client Brief

The Project Director considers the Client Brief to determine the scope of design services required.

The Project Director examines risk and ensures that liability is defined clearly in all contracts.

The Project Director will communicate by e-mail or letter with the client to formalise the client requirements. A fixed Scope shall be agreed with the client, identifying the client contract deliverables and Dornan contract deliverables.

The availability of internal and external resources is considered in the context of this. The Client Brief shall form the basis for the preparation of the Design Plan.

Design Process

The Design Process to be adopted for the production of information, drawings, specifications, etc., shall be recorded in the Design Plan and agreed with the client. The Process may be based on Pro-Forma procedures such as Engineers Ireland ME 2000 Conditions of Engagement, BSRIA BG6/2009 Design Activities, or may be a project specific bespoke process.

Design Development

Preliminary design, specifications and drawings are produced based on the agreed scope of work. The preliminary design is reviewed by the Project Director for consistency against the fixed scope of work and Dornan deliverables.

The Project Director approved preliminary design is issued to the client for approval and comments. The comments of the client are incorporated into the preliminary design as required and the design proceeds to detail design.

On completion of detailed design a formal review meeting is convened with the client and the design package is reviewed against the fixed scope and client contract deliverables. The comments of the client are incorporated into the design as required. The design is then issued for procurement and manufacture.

Preparing Calculations

(This section applies where design is produced in house) To ensure that design information plans or scheme design reports and calculations are prepared in a controlled manner and that errors are detected prior to related output the following procedure shall be adopted.

Appropriate design information is developed from the agreed brief and is supplemented as necessary with attachments to define the criteria under which calculations are prepared. This information shall be included in the scheme design report.

The information shall include a written statement of data, assumptions, methods and particular requirements necessary to produce and validate the design.

The production of calculations is the responsibility of the Project Manager. Calculations are produced on standard calculation sheets or using approved software. Calculations and computer printouts include unique identification, job number, sheet number, date and initials of designer. Superseded calculations are extracted from files and either destroyed or spoiled by marking superseded. A calculation Index for each discipline shall be prepared and shall be updated through the project as required.

Checking Calculations

(This section applies where design is produced in house) The Project Manager assesses the risk and complexity of the design, and the experience of the designer. This assists in the choice of appropriate checker and level of check, which is recorded in the Design Plan.

The accuracy of calculations is the equal responsibility of all involved in their production. Appropriate levels of self-checking are carried out as the calculation is progressed. Calculation checking, reporting and amendment is completed before issue of related design output.

The checker initials the calculation sheets checked. The calculation check brief is completed, signed and returned to the Project Engineer with the marked-up calculations. The check brief is signed off by the Project Engineer when the agreed actions have been implemented.

Externally prepared calculations are the responsibility of the Dornan Engineering appointed Service Provider, however, if required these may be inspected during the course of the project review process.

Design Change Control

Formal design change control pocedures shall be implemented to ensure that changes to the agreed brief are identified, notified, reviewed and recorded; to foster a process approach to planning design changes, allocating additional resources, defining deliverables and claiming reimbursement; to ensure that an efficient, proactive and Client focused approach pertains at all times.
(Changes arising within normal design development are not covered by this procedure).

All abnormal, unexpected changes which may have significant cost or programme implications for the project are recorded and are copied to the relevant parties. The records include a notification of change, a description of the change and the consequences.

When a change is to be implemented the Client's agreement is recorded and the agreed change is copied to all relevant parties.

The Project Director maintains a register of design changes including details of reference, date, description and source.

Design Risk Assessments

The Designer's risk assessement safety and health review ensures that the statutory requirements defined for designer duties in the Safety, Health and Welfare at Work (Construction) Regulations are achieved (or appropriate legislation, when preparing designs for projects outside Ireland).

It is carried out during each design review, at a minimum at scheme and detailed design stages.

The Project Director schedules reviews and selects appropriate reviewers based on the risk and complexity of the project and the experience of the design team. The reviews are documented and recorded.

Typically, this type of review is recorded using forms where Hazard Identification & Risk Assessments and the Residual and Particular Risks are recorded.

The documents are reviewed by a competent member of staff. The Project Manager puts in place a mechanism to ensure that any issues raised during the review are resolved before information is used as a basis for further design and before the formal release or issue of information.
The Project Manager signs off the Health & Safety sheets/review report when the actions are complete. Typically review records are filed with the Design Plan.

Typically the information is issued to the appointed Project Supervisor Design for the DesignProcess.

Design Reviews

The purpose of design reviews is to ensure that output complies with the agreed Client's brief, Dornan's scope of duties, statutory requirements and project objectives.

The Project Director schedules design reviews in the Design Plan and selects appropriate reviewers based on the risk and complexity of the project and the experience of the design team. Reviews are carried out at appropriate stages of design. Design reviews include both internal and cient reviews.

Design reviews avail of a sample agenda and include reviewing appropriate inputs to the design, design criteria and the design outputs. The review record includes notes of all the aspects that were included in the review, so as to ensure that at a later date,

should a query arise, the records clearly indicate the issues that were covered in the review.

Design Reviews shall be documented and shall record of all items discussed.
This can either be in the form of minutes or marked up appropriate standard checklists.

On completion of the review the Project Director states whether the review has achieved its intended objective or whether further action is required.

Where Consultant or Sub-Contractor drawings and documents are submitted for rview and comment they shall be hand or electronically marked up and returned under cover of Consultant/Sub-Contractor Drawing/Documents Review Sheet.

The Project Director puts in place a mechanism to ensure that action issues are resolved before information is used as a basis for further design and before the release or issue of output.

The Project Director signs off the review record when the actions are complete.

The review records shall be filed with the project Design Plan.

Design Certification

Where identified as a project or a statutory requirement, design certification requirements shall be recorded in the Design Plan. Typically, design cerification could include certification of the emergncy lighting design or fire alarm & detection system design.

4.0 RECORDS/DOCUMENTATION

Title	Description	Form
Design & Development		QP14
Appointment of Service Providers		QP15
Project Design Plan		R14.01
Client Briefing Documents		R14.02
Client Brief Checklist		R14.03
Project Deliverables		R14.04
Electrical Design Checklist		R14.05
Mechanical Design Checklist		R14.06
Calculation Index		R14.07
Calculation Check Report		R14.08
Design Issue & Return Register		R14.09
Design Risk Assessment		R14.10
Design Review Record		R14.11
Return of Consultant/Sub-Contractor Drawings / Documents		R14.12

Design Development QP14

Phase	Activity	Tools
	The Process is initiated when Dornan Engineering are Contracted to provide Design Services	
Planning	Establish Design Plan For Project **Project Director**	R14.01 Project Design Plan
	Consider & Review Client Brief Documents **Project Director**	R14.02 Client Briefing Documents
	Formalise / Agree Client Requirements & Deliverables **Project Director**	R14.03 client Brief Checklist
	Identify Engineering Resources Required **Project Director**	R14.04 Project Deliverables
Agreement	Process for Production of Information Agreed With Client **Project Director**	R14.01 Project Design Plan
Preliminary Design	Produce Preliminary Design & Specifications **Project Director**	R14.02 Client Briefing Documents
	Review & Submit Preliminary Design & Specifications For Approval **Project Director**	R14.03 client Brief Checklist R14.04 Project Deliverables
	Obtain Client Approval & Proceed to Detailed Design **Project Director**	R14.05 Electrical Design Checklist R14.06 Mechanical Design Checklist R14.07 Project Deliverables R14.08 Project Deliverables R14.11 Design Review Record
Detailed Design	Execute Internal Stage Design Reviews as identified in Design Plan & Incorporate Client Comments **Project Director**	R14.02 Client Briefing Documents R14.03 client Brief Checklist R14.04 Project Deliverables R14.07 Calculation Index R14.08 Calculation Check Report R14.09 Design Issue and Return Register R14.10 Design Risk Assessment R14.11 Design Review Record R14.12 Return of Consultant / Subcontractor Drawings / Documents
	Formal Design Review with client **Project Director**	
	Incorporate Client Comments **Project Director**	
	R14.06 Mechanical Design Checklist	

Project Name: | Project No: | Revision:

Reviewers: | Design Stage: | Date:

RIBA Stage 0: Strategic Definition

Reference		Requirements from Previous Stage	Allocated to: (L = Lead, S = Support, R = review)						Dornan Comment	Dornan refernce / guidance document	Optional Extras
			Client	Clients team (architect etc)	Main Contractor	Design Team (if not DORNAN)	DORNAN	Other			
	Designing Out Construction Waste										
0.1.1	Carry out checks for compliance with regulations	N/A	L	S					Pre-Award Stage		
0.1.2	Set corporate targets for reducing waste.	N/A	L	S					Pre-Award Stage		
0.1.3	Embed these targets within corporate policy and procedures.	N/A	L	S					Pre-Award Stage		
0.1.4	Set corresponding requirements/targets for each project.	N/A	L	S					Pre-Award Stage		
0.1.5	Ensure sufficient measurement/monitoring processes are in place for each project.	N/A	L	S					Pre-Award Stage		
0.1.6	Report annually on overall corporate performance.	N/A	L	S					Pre-Award Stage		

RIBA Stage 1: Preparation & Brief

Reference		Requirements from Previous Stage	Allocated to: (L = Lead, S = Support, R = review)						Dornan Comment	Dornan refernce / guidance document	Optional Extras
			Client	Clients team (architect etc)	Main Contractor	Design Team (if not DORNAN)	DORNAN	Other			
	Designing Out Construction Waste										
1.1.1	Ensure designing out waste-specific clauses (targets/requirements) are embedded within the pre-qualification questionnaire and invitation to tender documentation.	Review Stage 0 documentation	L	S					Pre-Award Stage		
1.1.2	Ensure designing out waste specific clauses (targets/ requirements) are embedded in all appointment and contract documents.	Review Stage 0 documentation	L	S					Pre-Award Stage		
1.1.3	Identify 'designing out waste champion' to lead and report on designing out waste issues.	Review Stage 0 documentation	L	S					Pre-Award Stage		
1.1.4	Designing out waste champion may need to brief design team/others on designing out waste.	Review Stage 0 documentation	L	S					Pre-Award Stage		
1.1.5	Be prepared to demonstrate best practice/experience in designing out waste principles and delivery as part of tendering/appointment.	Review Stage 0 documentation	R	L		S			Pre-Award Stage		
1.1.6	Agree with client project-specific targets/priorities for designing out waste, agree methodologies as necessary. Plans should include rationale and overall strategies as well as more detailed information.	Review Stage 0 documentation	R	L		S			Pre-Award Stage		
1.1.7	Identify 'designing out waste champion' to lead and report on designing out waste issues.	Review Stage 0 documentation	R	L		S			Pre-Award Stage		

Project Name: Project No: Revision:

Reviewers: Design Stage: Date:

1.1.8	Designing out waste champion within design team to brief all members of team on issues, targets and the need to embed these issues into their own design/ specifications.	Review Stage 0 documentation	R	L		S			Pre-Award Stage		
1.1.9	Carefully assess existing buildings on site to establish extent of fabric to be retained and refurbished. Accurate survey is critical. Ensure proposed design does not compromise ongoing adaptability of existing building.	Review Stage 0 documentation	R	L		S			Pre-Award Stage		
1.1.10	Where buildings are to be demolished, use a pre-demolition audit to quantify materials and/or components that can be recovered. Accurate survey is critical.	Review Stage 0 documentation	R	L		S			Pre-Award Stage		
1.1.11	Assess all site resources to establish extent that can be re-used/recovered/recycled on site and potential design solutions for use in proposed project. Accurate survey is critical.	Review Stage 0 documentation	R	L		S			Pre-Award Stage		
1.1.12	Be prepared to demonstrate best practice/experience in designing out waste principles and delivery as part of tendering/appointment.	Review Stage 0 documentation		R	L	R			Pre-Award Stage		
1.1.13	Identify 'designing out waste champion' to lead and report on designing out waste issues.	Review Stage 0 documentation		R	L	R			Pre-Award Stage		
1.1.14	Designing out waste champion within contractor's team to brief all likely personnel/including sub-contractors on issues, targets and the need to embed these issues into their own work packages.	Review Stage 0 documentation		R	L	R			Pre-Award Stage		
1.1.15	Assess all site resources to establish extent that can be re-used/recovered/recycled on site and potential design solutions for use in proposed project. Accurate survey is critical.	Review Stage 0 documentation		R	L	R			Pre-Award Stage		
1.1.16	Check if materials from other projects nearby or being undertaken by client/design team/contractor can be usefully incorporated within the proposed building design.	Review Stage 0 documentation		R	L	R			Pre-Award Stage		
1.1.17	Assess likely impact of designing out waste measures on design, cost and project programme.	Review Stage 0 documentation		R	L	R			Pre-Award Stage		
1.1.18	Report on above to client.	Review Stage 0 documentation		R	L	R			Pre-Award Stage		

Project Name: | Project No: | Revision:

Reviewers: | Design Stage: | Date:

RIBA Stage 2: Concept Design

Reference		Requirements from Previous Stage	Allocated to: (L = Lead, S = Support, R = review)						Dornan Comment	Dornan refernce / guidance document	Optional Extras
			Client	Clients team (architect etc)	Main Contractor	Design Team (if not DORNAN)	DORNAN	Other			
	Designing Out Construction Waste										
2.1.1	Designing out waste champion may need to re-brief design team/others on designing out waste/update on progress.	Review Stage1 documentation	L	S		S					
2.1.2	Assess all site resources to establish extent that can be re-used/recovered/recycled on site and potential design solutions for use in proposed project. Accurate survey is critical.	Review Stage1 documentation	R	L		S					
2.1.3	Check if materials from other projects nearby or being undertaken by client/design team/contractor can be usefully incorporated within the proposed building design.	Review Stage1 documentation	R	L		S					
2.1.4	Assess likely impact of designing out waste measures on design, cost and project programme.	Review Stage1 documentation	R	L		S					
2.1.5	Report on above to client.	Review Stage1 documentation	R	L		S					
2.1.6	Identify all on-site and off-site resources that can be incorporated into proposals.	Review Stage1 documentation	R	L		S					
2.1.7	Check any testing (for example, with regard to contamination) required in association with above components (including assessment by principal designer).	Review Stage1 documentation	R	L		S					
2.1.8	Discuss management/construction issues with client which could impact on designing out waste (for example, use suitable contractors (including demolition contractors).	Review Stage1 documentation	R	L		S					
2.1.9	Establish from site surveys potential constraints to construction that could impact on relative benefits/ detriments of off-site construction options/materials storage on site/access constraints.	Review Stage1 documentation	R	L		S					
2.1.10	Consider all principles outlined under adaptability, layering and access, and agree with client specific ways forward.	Review Stage1 documentation	R	L		S					
2.1.11	Consider potential for deployment of temporary or re-locatable structures to offset need for permanent structures.	Review Stage1 documentation	R	L		S					
2.1.12	Consider layouts with potential to increase adaptability over time, such as adjacencies and grouping of specific functions.	Review Stage1 documentation	R	L		S					
2.1.13	Consider potential to increase longevity of spaces through anticipating alternative uses/additional height.	Review Stage1 documentation	R	L		S					

Project Name: Project No: Revision:

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2.1.14	Consider structural solutions which use less material and provide minimal intrusion allowing for long term flexibility in use, self-supporting solutions preferred over interdependent ones.	Review Stage1 documentation	R	L		S					
2.1.15	Consider simplicity and standardisation of form/grid/ materials.	Review Stage1 documentation	R	L		S					
2.1.16	Consider 'core' arrangements that provide all required services but allow greater freedom beyond these 'fixed' areas, such as fire escape stairs, lifts and toilets.	Review Stage1 documentation	R	L		S					
2.1.17	Consider access arrangements and relationship with excavation/earth movement to minimise excavation re-modelling and potential removal of spoil.	Review Stage1 documentation	R	L		S					
2.1.18	Review foundation and ground-floor design to minimise waste and extend potential lifespan of solutions chosen.	Review Stage1 documentation	R	L		S					
2.1.20	Agree with client designed separation of layers in relation to lifespan and function.	Review Stage1 documentation	R	L		S					
2.1.21	Consider likely high areas of wear and tear, and identify potential to allow for discrete repair/ maintenance of these areas without impact on adjacent finishes.	Review Stage1 documentation	R	L		S					
2.1.22	Consider likely components requiring greater maintenance and review access/safety and tolerances.	Review Stage1 documentation	R	L		S					
2.1.23	Where specific items (such as existing steel beams) are to be used/re-used, establish subsequent design requirements (for example, span limitations).	Review Stage1 documentation	R	L		S					
2.1.24	Agree with structural engineer explicit fixings strategies to enable deconstruction of components and agree with client.	Review Stage1 documentation	R	L		S					
2.1.25	Agree with services engineer explicit strategies for services to minimise waste generation.	Review Stage1 documentation	R	L		S					
2.1.26	Assess likely impact of designing out waste measures on design, cost and project programme.	Review Stage1 documentation	R	L		S					
2.1.27	Assess likely impact of agreed measures on planning/ building warrant/other statutory compliance (for example, Scottish Environment Protection Agency and Scottish Water), utility providers and neighbours.	Review Stage1 documentation	R	L		S					
2.1.28	Report on above to client.	Review Stage1 documentation	R	L		S					
2.1.19	If appointed to design stages, be prepared to engage in all issues raised as part of the design team.	Review Stage1 documentation			S		S		Dornan to support where / if design responsibilites are identified		

RIBA Stage 3: Developed Design

Project Name: Project No: Revision:

Reviewers: Design Stage: Date:

Reference		Requirements from Previous Stage	Allocated to: (L = Lead, S = Support, R = review)						Dornan Comment	Dornan refernce / guidance document	Optional Extras
			Client	Clients team (architect etc)	Main Contractor	Design Team (if not DORNAN)	DORNAN	Other			
	Designing Out Construction Waste										
3.1.1	Designing out waste champion may wish to re-brief design team/others on designing out waste/update on progress.	Review Stage 2 documentation	L	S		S					
3.1.2	Client may need to purchase reclaimed materials in advance of, or separate to main contract.	Review Stage2 documentation	L	S		S					
3.1.3	Designing out waste strategy should be reviewed by all team members and issues raised (for example, structural/services conflicts, costs, and health and safety implications).	Review Stage 2 documentation	R	L		S					
3.1.4	Prepare initial construction/deconstruction plan as basis for understanding construction sequence, to highlight potential problems with deconstruction process and identify impact on waste. Include fixings points for all major items/items likely to require more frequent maintenance cycles.	Review Stage2 documentation	R	L		S					
3.1.5	Subsequent to the above, identify (with contractor/ sub-contractors if available) likely significant waste arisings and methods for controlling these to minimise waste, costs, emissions, etc. This information can also be put in the health and safety plan, costed and agreed with client.	Review Stage 2 documentation	R	L		S					
3.1.6	Begin the process of dimensional coordination, establish structural and planning grids in combination with a more detailed knowledge of (standardised) components.	Review Stage2 documentation	R	L		S					
3.1.7	Establish floor heights, and structural and services zones to minimise extent of material offcuts, but optimise long-term potential for alteration/ adaptation.	Review Stage 2 documentation	R	L		S					
3.1.8	Use valuable components (worth re-using).	Review Stage2 documentation	R	L		S					
3.1.9	Use durable components (capable of being re-used).	Review Stage 2 documentation	R	L		S					
3.1.10	Use ‘whole’ components (that is, do not need to be notched, chamfered or altered to work) to optimise change of re-use.	Review Stage2 documentation	R	L		S					
3.1.11	Use repairable components (capable of being repaired and re-used).	Review Stage 2 documentation	R	L		S					
3.1.12	Use standard components as far as possible to minimise waste and increase potential for replacement, etc.	Review Stage2 documentation	R	L		S					

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Reviewers: Design Stage: Date:

3.1.13	Use the minimum number of components to simplify ongoing maintenance and repair issues.	Review Stage 2 documentation	R	L		S					
3.1.14	Use re-used and recycled materials and components in preference to new.	Review Stage2 documentation	R	L		S					
3.1.15	Use natural and/or safely compostable components and materials in preference to man-made options.	Review Stage 2 documentation	R	L		S					
3.1.16	Use components which are easy to handle to simplify installation and reduce costs and risks associated with access and repair.	Review Stage2 documentation	R	L		S					
3.1.17	Avoid using composite materials that cannot be separate – especially adhesive-bonded components.	Review Stage 2 documentation	R	L		S					
3.1.18	Avoid coatings that will compromise re-use and recycling potential.	Review Stage2 documentation	R	L		S					
3.1.19	Avoid toxic materials and coatings that will represent a health risk and future disposal burden.	Review Stage 2 documentation	R	L		S					
3.1.20	Avoid materials and components with little or no resale, re-use or recovery potential.	Review Stage2 documentation	R	L		S					
3.1.21	Prioritise non-fixed components (for example, friction fit and floating floors).	Review Stage 2 documentation	R	L		S					
3.1.22	Use durable and re-usable fixings.	Review Stage2 documentation	R	L		S					
3.1.23	Use a minimum number and type of fixings.	Review Stage 2 documentation	R	L		S					
3.1.24	Use fixings that are removable (such as screws and bolts) not ‘once-only’ (such as nails and welds).	Review Stage2 documentation	R	L		S					
3.1.25	Use fixings for which simple or standard tools will work.	Review Stage 2 documentation	R	L		S					
3.1.26	Chemical fixings and wet mixes, where used, should be weaker than the bonded components to allow for re-use of components.	Review Stage2 documentation	R	L		S					
3.1.27	Wet mixes where possible to be re-usable/ compostable.	Review Stage 2 documentation	R	L		S					
3.1.28	Report on above to client.	Review Stage2 documentation	R	L		S					
3.1.29	If appointed to design stages, be prepared to engage in all issues raised as part of the design team.	Review Stage2 documentation			S		S		Dornan to support where / if design responsibilites are identified		

RIBA Stage 4: Technical Design / Specialist Design

Allocated to: (L = Lead, S = Support, R = review)

Project Name: Project No: Revision:

Reviewers: Design Stage: Date:

Reference		Requirements from Previous Stage	Client	Clients team (architect etc)	Main Contractor	Design Team (if not DORNAN)	DORNAN	Other	Dornan Comment	Dornan refernce / guidance document	Optional Extras
	Designing Out Construction Waste										
4.1.1	Designing out waste champion may wish to re-brief design team/others on designing out waste/update on progress.	Review Stage 3 documentation	L	S		S					
4.1.2	Client may need to purchase reclaimed materials in advance of, or separate to, main contract.	Review Stage 3 documentation	L	S		S					
4.1.3	Use durable and re-usable fixings.	Review Stage 3 documentation	R	L		S					
4.1.4	Use a minimum number and type of fixings.	Review Stage 3 documentation	R	L		S					
4.1.5	Use fixings that are removable (such as screws and bolts) not 'once-only' (such as nails and welds).	Review Stage 3 documentation	R	L		S					
4.1.6	Use fixings for which simple or standard tools will work.	Review Stage 3 documentation	R	L		S					
4.1.7	Chemical fixings and wet mixes, where used, should be weaker than the bonded components to allow for re-use of components.	Review Stage 3 documentation	R	L		S					
4.1.8	Wet mixes where possible to be re-usable/ compostable.	Review Stage 3 documentation	R	L		S					
4.1.9	Report on above to client.	Review Stage 3 documentation	R	L		S					
4.1.10	Deconstruction plan, should be reviewed by all team members and issues raised (such as structural and services conflicts, costs, and health and safety implications).	Review Stage 3 documentation	R	L		S					
4.1.11	Detailed designs and specifications must be checked against manufacturer's guidance to avoid conflicts where designing out waste principles have been applied.	Review Stage 3 documentation	R	L		S					
4.1.12	Preference for suppliers and manufacturers that will lease, repair or take back and recycle components.	Review Stage 3 documentation	R	L		S					
4.1.13	Preference for suppliers that will adopt best practice packaging options to minimise on-site waste.	Review Stage 3 documentation	R	L		S					
4.1.14	Standard specification tools and models, such as National Building Specification(NBS)and Building Information Modelling (BIM), should be reviewed to ensure they do not compromise designing out waste principles applied.	Review Stage 3 documentation	R	L		S					
4.1.15	Where performance specifications are used, ensure these include clauses that adequately control designing out waste aspirations.	Review Stage 3 documentation	R	L		S					

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4.1.16	Where designing out waste principles have been applied and these differ markedly from conventional design, ensure these are highlighted within tendering documentation (for example, together in a separate section towards the front of the document) to avoid these being missed.	Review Stage 3 documentation	R	L		S					
4.1.17	Review specialist input (such as services layouts) to avoid compromise of the principles applied.	Review Stage 3 documentation	R	L		S					
4.1.18	Identify solutions to any planning consent conditions as applied to waste.	Review Stage 3 documentation	R	L		S					
4.1.19	Review all off-site construction detail proposals in terms of detail and process in relation to designing out waste aspirations.	Review Stage 3 documentation	R	L		S					
4.1.20	Review building warrant requirements in relation to designing out waste aspirations.	Review Stage 3 documentation	R	L		S					
4.1.21	Designing out waste principles, as agreed, to be included in all tender packages for specialist subcontractors	Review Stage 3 documentation	R	L		S					
4.1.22	Ensure all designing out waste principles applied are integrated in BIM model and handbook with location, means of disassembly, re-use/recycling notes and any special considerations stated.	Review Stage 3 documentation	R	L		S					
4.1.23	Agree best practice principles of on-site waste management to be included in tendering documentation for contractor. These should include a SWMP including site storage and logistics, 'just- in-time delivery' regime, a consolidation centre as necessary and careful sequencing plans.	Review Stage 3 documentation	R	L		S					
4.1.24	Agree with client best practice materials delivery regime to be included in tender documents for contractor.	Review Stage 3 documentation	R	L		S					
3.1.28	Report on above to client.	Review Stage 3 documentation	R	L		S					
3.1.29	If appointed to design stages, be prepared to engage in all issues raised as part of the design team.	Review Stage 3 documentation			S		S		Dornan to support where / if design responsibilites are identified		

RIBA Stage 5: Construction

Reference		Requirements from Previous Stage	Allocated to: (L = Lead, S = Support, R = review)						Dornan Comment	Dornan refernce / guidance document	Optional Extras
			Client	Clients team (architect etc)	Main Contractor	Design Team (if not DORNAN)	DORNAN	Other			
	Designing Out Construction Waste										

Project Name: Project No: Revision:

Reviewers: Design Stage: Date:

5.1.1	Designing out waste champion should take the opportunity to re-brief design team/contractor on designing out waste aspirations (for example, at the pre start meeting).	Review Stage 4 documentation	L	S		S						
5.1.2	Ensure all designing out waste principles applied are integrated in BIM model and handbook with location, means of disassembly, re-use/recycling notes and any special considerations stated.	Review Stage 4 documentation	R	L		S						
5.1.3	Agree best practice principles of on-site waste management to be included in tendering documentation for contractor. These should include a SWMP including site storage and logistics, 'just- in-time delivery' regime, a consolidation centre as necessary and careful sequencing plans.	Review Stage 4 documentation	R	L		S						
5.1.4	Agree with client best practice materials delivery regime to be included in tender documents for contractor.	Review Stage 4 documentation	R	L		S						
5.1.5	Report on above to client.	Review Stage 4 documentation	R	L		S						
5.1.6	Designing out waste should be included as an item in all meetings, including pre-start meeting to ensure issues are raised and resolved with due consideration with alterations managed and costed, etc.	Review Stage 4 documentation	R	L		S						
5.1.7	If appointed to design stages, be prepared to engage in all issues raised as part of the design team.	Review Stage 4 documentation			S		S		Dornan to support where / if design responsibilites are identified			
5.1.8	Contractor to adhere to all waste management guidelines established including use of specified suppliers, waste minimisation, recycling, reducing over-ordering and packaging aspects.	Review Stage 4 documentation			L	R	S		Dorna to comply with contract requirements			
5.1.9	Contractor to ensure all sub-contractors adhere to guidelines as above.	Review Stage 4 documentation			L	R	S		Dorna to comply with contract requirements			
5.1.10	Contractor to ensure all tools necessary for disassembly/instructions and information are made available as required for inclusion within final documentation.	Review Stage 4 documentation			L	R	S		Dorna to comply with contract requirements			

RIBA Stage 6&7: Handover, Closeout & Use

			Allocated to: (L = Lead, S = Support, R = review)								
Reference		**Requirements from Previous Stage**	**Client**	**Clients team (architect etc)**	**Main Contractor**	**Design Team (if not DORNAN)**	**DORNAN**	**Other**	**Dornan Comment**	**Dornan refernce / guidance document**	**Optional Extras**
	Designing Out Construction Waste										
5.1.1	Client designing out waste champion should brief all occupants on designing out waste aspirations and associated maintenance/repair implications.	Review Stage 5 documentation	L	S	S	S	S		Dorna to comply with contract requirements		

Project Name: | Project No: | Revision:

Reviewers: | Design Stage: | Date:

5.1.2	Client should initiate a plan for ongoing reporting and education associated with waste management generally.	Review Stage 5 documentation	L	S	S	S	S		Dorna to comply with contract requirements		
5.1.3	Designing out waste issues arising in defects period to be handled as necessary with regard to original aspirations.	Review Stage 5 documentation	R	L		S			Dorna to comply with contract requirements		
	Contractor should allow for demonstration of servicing requirements as part of commissioning, to include long-term designing out waste principles as applicable.	Review Stage 5 documentation	R	R	L	R	S		Dorna to comply with contract requirements		

Procurement
QP6

Distribution Control
See Controlled Copy Distribution list in Annual Records file.

Change Control
The Managing Director or his nominated representative must approve all changes to this document.

04	21/07/08	Revised as per DCN 802	R. Feaheny	O. Lonergan
03	26/06/06	Revised per PAR's	J. Tubbert	O. Lonergan
02	14/11/05	Approved for use	J. Tubbert	O. Lonergan
01	04/10/05	Approved for use	M.A.Shaw	B.Acheson
Draft	01/09/05	Issued for review	M.A.Shaw	B.Acheson
Revision	Date	Summary of Changes	Author	Approved
			Quality Manager	Managing Director

Contents

1.0 PURPOSE

The purpose of this procedure is to control the purchasing of all products and services procured or subcontracted is in accordance with Dornan's Quality Management System.

2.0 SCOPE

The scope is applicable to all products and services procured for use within production/servicing and administration or subcontracted in support of client requirements.

3.0 AUTHORITY AND RESPONSIBILITY

The Managing Director will oversee all activities to ensure their compliance with this procedure.
All employees are responsible for working and complying with the procedure.
All other responsibilities are described within the procedure.

4.0 METHOD

4.1 General

Product and services specifications, where applicable, are used to ensure correct products and services are purchased. Products and services will be purchased where possible from ISO 9000 or equivalent approved suppliers.

4.2 Vendor Enquiry

At tender stage, vendor enquiries are submitted to perspective suppliers and sub contractors. The quotations received are used to compile a competitive pricing schedule for the project.

4.3 Approved Supplier List

A list of approved suppliers is maintained by the Procurement Manager on the Navision Financial System and includes the following data:

- Vendor Code Number-displayed in Alphanumeric and where the last 3 digits denote currency.
- Name of Vendor and address.
- System Search name.
- Telephone/Fax/E-mail address (if applicable).
- Contact names.
- Comments section.
- Blocked field: (Holding further P.O.'s being raised).

The approved suppliers list is added to and amended whenever necessary. New additions to the approved list will only apply once a successful period of supply has been achieved (on average at least 3 months)
Existing suppliers are also subject to continual review (R6.07) based on delivery performance (time and quantity).
Supplier Questionnaires (R6.03) are submitted annually with priority given to the top 10 suppliers in terms of euro value of transactions completed in the past year.
All items purchased for use as defined by the scope of this procedure or items that can have any effect on quality must be purchased only from suppliers listed on the Approved Suppliers list.

4.4 Source Sub Contractor

Potential names to be considered for pre-qualification will be obtained from the following sources

- Current or past knowledge within the Company.
- Recommendations from the employer.
- Industry associations, journals or registers.
- Unsolicited enquiries from interested contractors.
- Answers to a pre-qualification / invite to bid advertisement.
- An approved suppliers list.

4.5 Short Listing

The aim is to provide a short list of tenderers of between 3 and 8 depending on the complexity and size of the package
The number should be the minimum required to ensure adequate competition. The maximum should be set to avoid excessive administration by the Project Team in tendering and review process, and also so as not to discourage worthwhile tenderers
The sections below deal with the selection of potential Tenderers
The Project Manager shall decide the method to be employed in the generation of the Tender List
The Project Manager shall decide if Pre-Qualification is required

4.6 Questionnaire & Prequalification Interview

When the list of potential tenderers has been selected, where relevant a pre-qualification will be sent to each for competition
The Project Manager will decide if a Pre-Qualification Interview is required. Completed questionnaires will be reviewed and if decided, suitable candidates invited to attend a Pre-qualification Interview
If necessary, references will be taken up to see if previously quoted contracts were completed satisfactorily and on time
The following factors are among those to be considered in the selection

- Their experience should be relevant to the works package and there should be a history of several similar jobs.
- Their resources in engineering, site management, labour, plant and equipment should be adequate to service the works package.
- Their current order book should have available capacity to accommodate the works package.
- The level of their turnover should be appropriate to the package under consideration.
- In-house facilities are preferred to sub-let.
- In geographic location, the preferred precedence is local/provincial/ national/international.
- Sound industrial relations policy.

Certified to ISO 9000 preferably, but at a minimum must be operating a quality system in line with said specification, or subject to Dornan Engineering Quality System.

4.7 Tender List

A tender list for the required number is then derived from the qualifying contractors in accordance with the Estimating & Tender procedure, *see QP5.*

4.8 Sub-contractor Appointment

The company utilises the services of sub-contractors, and prior to acceptance of the sub-contractor on the bid list, he has to supply copies of the following:

- An organisation chart with defined responsibilities
- A Quality Plan for use on the project
- Verification procedures for the Quality Plan
- Method statements suitable for the project
- Site specific safety file.
- Project Quality manual.
- Project specific method statements.
- Programs and delivery schedules.
- Relevant Insurances.
- Submittals for any equipment or installation details requiring client approval.

Once appointed the subcontractor will complete an Acceptance Form for Sub-Sub-Contractors
The subcontractor will be required to submit for approval details of the following

- All submitted information will be checked against specification.
- When compliance is correct the submittal will be forwarded for client approval.
- Once approvals have been received the subcontract work should proceed in accordance with the project program.
- The subcontractor performance will be managed and monitored to ensure compliance with all the above.
- Quality checks will be carried out in accordance with the Dornan Quality Plan in association with the agreed items above.

4.9 Purchase Order Request (POR)
A Purchase Order Requisition (R6.02) is raised based on project take offs. Project Specifications and other client requirements are attached.

In the case of isolated projects the Purchase Order Requisition (POR) is sent directly to the Procurement Manager for price and delivery.

Procurement (Site or in Head Office) maintain a Purchase Order Requisition Index. Procurement solicits vendors for price and delivery.
Every requisition raised is signed by purchasing personnel.

4.10 Purchase Bid Summary (PBS)
A Purchase Bid Summary (R6.04) is prepared by Procurement. Vendor prices, delivery dates, technical acceptance, etc are compared. The Purchase Bid Summary is forwarded to the Project Manager for approval.

4.11 Material Requisition (MR)
The Project Manager makes a final decision based on the information contained in the Purchase Bid Summary (PBS) and must then forward a Materials Order Sheet (R6.05) to Procurement for purchase.

4.12 Purchase Order (PO)
A Purchase Order (R6.01) is raised on the Navision System by the Procurement Manager / Administrative staff.

All Purchase Order are approved and authorised before it is placed with the supplier, in accordance with the Company's Line & Limits of Authority for signature. The signing of a Purchase Order denotes approval of information in the document and authorisation to proceed with the purchase.

A Purchase Order (PO) will only be raised upon receipt of one of the following completed documents.

1. **Materials Requisition:**
   This is raised by the Project team identifying materials required and is supported in some instances with specifications and drawings to further clarify and detail specific material requirements. Requisition is faxed to Head Office and filed with pink copy of Purchase Order. For day to day site purchasing and where it has been decided that the Procurement department maintains sole contact with the supplier to purchase material, a material order sheet (R6.05) is raised from site, communicating to the Procurement department, the items to be purchased.
2. **Supplier A/C Invoice**
   Certain accounts are agreed/set-up which is driven by invoice receipt only.

Purchase Orders (PO) are filed sequentially and by Project.
(White) Vendor, (Pink) Purchasing, (Blue) Site Copy maintained in Site Office

4.13 Procurement and Construction Tracking
Project schedules are used by the Project team to track major equipment from placement of order to delivery on site. Vender performance will be monitor with regard to timely performance and correctness of delivered goods. Inspection and testing is organised as required by contract. The client will be informed as to venue and time of testing. Approved testing instructions will be prepared as per contract requirements.
All quotations, specifications, approvals and other relevant documents are attached electronically to the purchase order on Navison.

4.14 Inspection & Test
Inspection & Test is organised as required. Where client instruction is not available Dornan will prepare instruction for approval and use.

4.15 Verification of Purchased product
All incoming products are inspected. Packing list and material requisitions are used to verify quantities.

The signing off of the Vendors invoice (for payment) being the formal acceptance of the product.

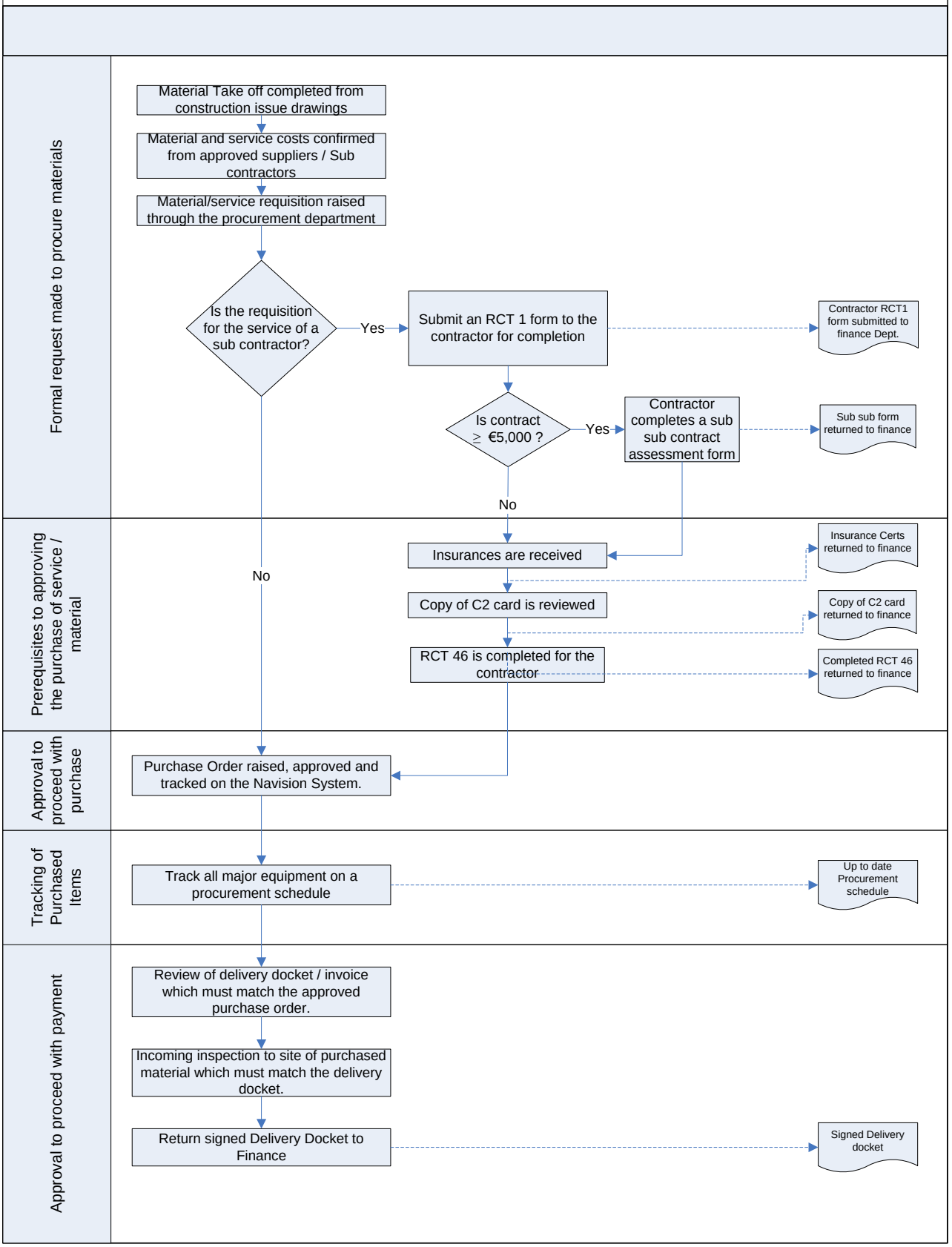
5.0 RECORDS/DOCUMENTATION

Title	Description	Ref.
Procurement	Process for controlling all purchases, including supplier appraisal	QP6
Estimating & Tender	Process for estimating and tendering for projects	QP5
Purchase order	Head office purchase order form	R6.01
Material requisition	Purchase requisition form	R6.02
Supplier Questionnaire Form	Supplier questionnaire record	R6.03
Purchase Bid Summary	PBS	R6.04
Material order sheet	Communicate site orders to purchasing	R6.05
Material Status Report	Status of Materials including Submittals status	R6.06
Vendor Assessment	To assess vendors on annual basis	R6.07

6.0 FLOWCHART

See attached Flowchart for this procedure

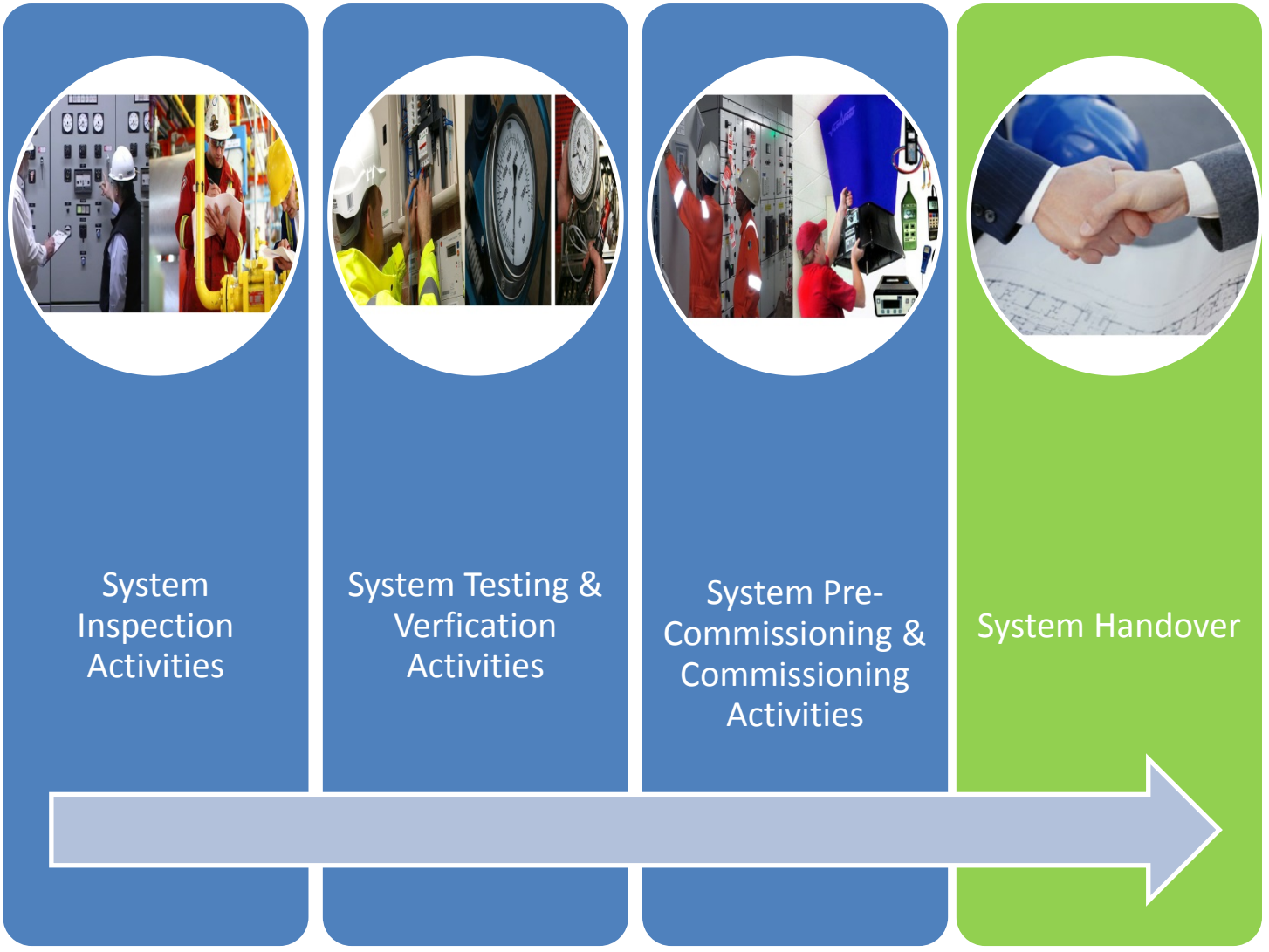
Procurement – QP06



DORNAN

Inspection, Test & Commissioning Activity Process

PROJECT: XXXXXXXXX



Section 1: Contents

Section 2: ITCA Process Overview

Dornan team will utilise the ITCA process to ensure that PROJECT XXX is inspected, tested and commissioned to the relevant standards and specification. It will also ensure that the quality of documentation issued for handover to client upon system completion is to the appropriate standard.

Inspections, Testing & Commissioning shall be undertaken in accordance with the relevant requirements and standards. A schedule of commissioning and testing shall be produced which identifies a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and testing and inspecting building fabric. The schedule will identify the appropriate standards that all commissioning activities will be conducted in accordance with such as current Building Regulations, BSIRA and CIBSE guidelines and / or other appropriate standards where applicable.

All Projects will adopt the ITCA process; it will be implemented site wide across all systems. This process will be initiated by QA Management on project start-up and operated/maintained on Site throughout the project by the Dornan Site team. They will follow in accordance with the following procedure:

- During Pre-Con stage/Prior to Installation stage on site all mechanical and electrical systems will be broken down into sub systems with activities assigned to each ensuring that all systems and components are inspected, tested and commissioned in line with project specifications and relevant standards. This will be in the form of an activity schedule.

- At the same stage all criteria for inspections, tests and commissioning activities will be outlined along with the documentation requirements for client handover records. This will ensure a fully traceable and easy to follow process throughout construction, pre commissioning and post commissioning stages.

- The activities listed in the schedule will conform to the step by step process listed within the projects Inspection and Test Plans.(ITP's)

- Dornan will monitor and inspect all incoming Plant and material used in Mechanical and Electrical Installations. All incoming materials and equipment will be checked with reports and Inspections documented ensuring compliance with relevant standards and specification

- Contractors will complete all relevant ITCA documentation together with all appropriate attachments and sign-offs, then issue to the Dornan team for review prior to distribution to the project team to enable any demonstrations.

- Once the inspection, testing or commissioning activity has been completed successfully the professional team will sign off the documentation.

- The documentation for each individual ITCA activity will then be filed on the project servers and issued on the clients database

- All ITCA documentation will then be collaborated and issued in Turn Over Packages (TOP's). The installation where applicable will be split into the following TOP's – Electrical Distribution Systems, Fire Alarm & Systems, Security & Data Systems, Building Management & Monitoring Systems, Mechanical & Public Health Systems, Containment Systems and finally Statutory Documentation.

- The Handover documentation will be issued in both hard copy and soft copy, depending on the client's requirements.

- Dornan will keep copies of all testing and commissioning documentation for future reference in a folder specifically allocated for the purpose.

Section 3: ITCA Schedule & Dashboard

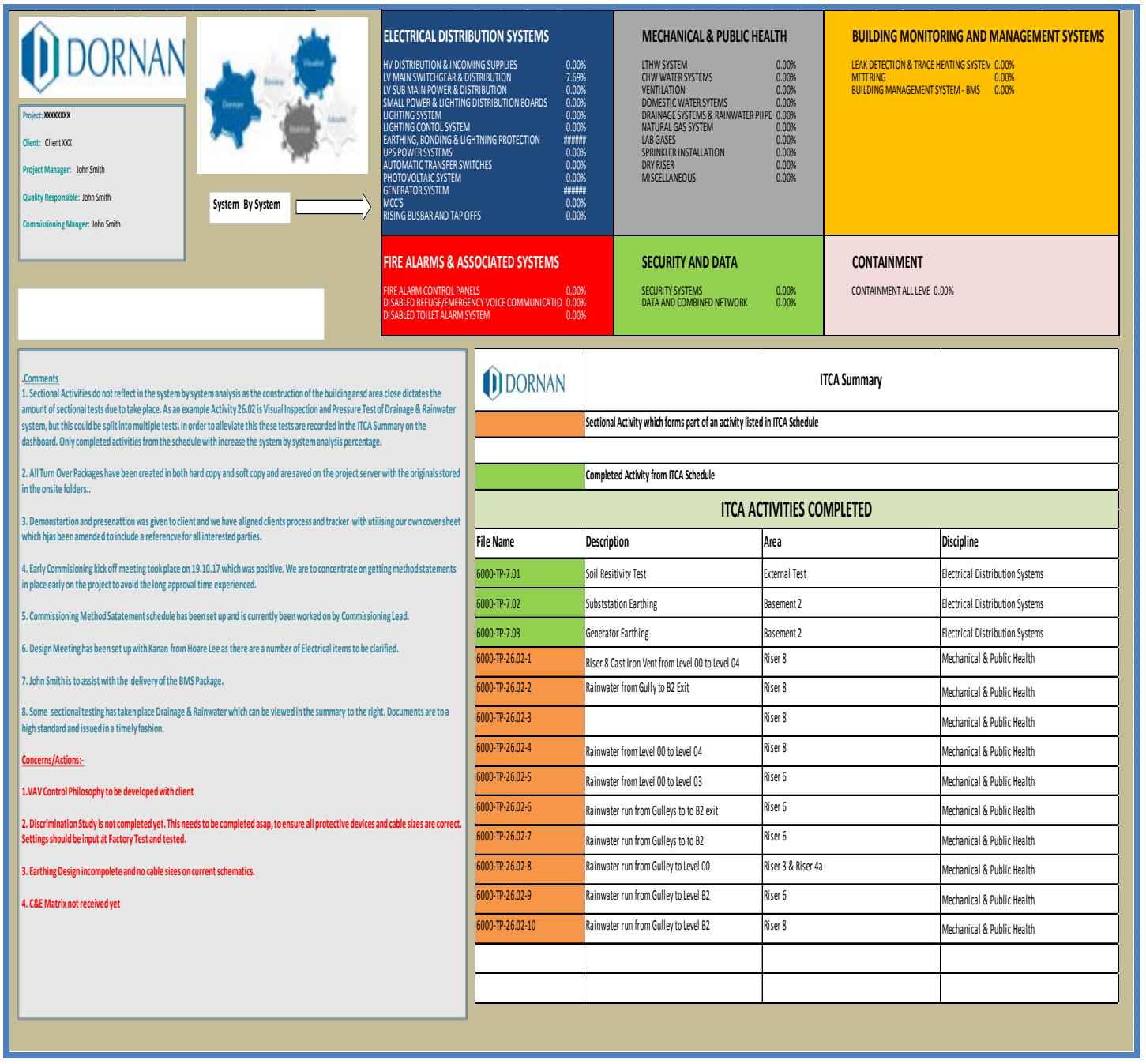
Figure 3.1: ITCA Schedule

Activity Schedules display minimum activities required for successful completion and handover of an M&E system. It is easily adapted to client requirements and is project specific.

PROJECT: XXXXXXXXX				INSPECTION/TEST & COMMISSIONING ACTIVITY SCHEDULE																
Package Ref.	Element	Activity	IC REF.	System / Component	Reference	Location	Criteria	Documents Required	Responsibility	Dorman M & E Templates	Method Statement		Item Complete Y	Witness				Documents		Action Note / Comments
											Issued	Approved		Client	Designer	IC	BCO	Issued	Signed / Filed	
BUILDING MONITORING AND MANAGEMENT SYSTEMS																				
18-LEAK DETECTION & TRACE HEATING SYSTEM																				
6000	TP	19.01	IS.03	Leak Detection System Inspection and Installation Sign Off	Roof Bund	Roof	Check all cabling/sensors installed according to drawings and specifications, correct cabling and fixing. Ensure all labelling is correct and marked up drawings/schematics available	Inspection report on cabling/sensors and containment system along with marked-up drawing/schematic and punchlist. Manufacturers compliance certificate	Provided by Dorman	CS.001/CS.004/CS.021/ CS.047										
6000	TP	19.02	IS.03	Leak Detection Cable/Sensor Checks and Functional Tests	Roof Bund	Roof	Continuity & Insulation testing where applicable. Functional Testing of all sensors and sensor cabling along with any alarms to the BMS etc.	Test Report, Calibration Certificate, Manufacturer's conformity and Overall Certificate	Provided by Dorman	TS.020										
6000	TP	19.03	IS.03	Leak Detection System Inspection and Installation Sign Off	Sprinkler Tank	Basement 2	Continuity & Insulation testing where applicable. Functional Testing of all sensors and sensor cabling along with any alarms to the BMS etc.	Test Report, Calibration Certificate, Manufacturer's conformity and Overall Certificate	Provided by Dorman	TS.020										
6000	TP	19.04	IS.03	Leak Detection Cable/Sensor Checks and Functional Tests	Sprinkler Tank	Basement 2	Continuity & Insulation testing where applicable. Functional Testing of all sensors and sensor cabling along with any alarms to the BMS etc.	Test Report, Calibration Certificate, Manufacturer's conformity and Overall Certificate	Provided by Dorman	TS.020										
6000	TP	19.03	N/A	Trace Heating System Inspection and Installation Sign Off	Chiller 1 & 2 Pipework	Roof	Check all traces,devices installed according to drawings and specifications, correct cabling and fixing. Ensure all labelling is correct and marked up drawings/schematics available	Inspection report on cabling/sensors and containment system along with marked-up drawing/schematic and punchlist. Manufacturers compliance certificate	Provided by Dorman	CS.001/CS.004/CS.021/ CS.047										
6000	TP	19.04	IS.09	Trace Heating Functional Tests	Chiller 1 & 2 Pipework	Roof	Insulation testing where applicable. Functional Testing of all traces and ensure correct set up of thermostats. Verify all signals	Test Report, Calibration Certificate, Manufacturer's conformity and Overall Certificate	Provided by Dorman	TS.044										
6000	TP	19.03	N/A	Trace Heating System Inspection and Installation Sign Off	Sprinkler Valve Chamber	Level 00	Check all traces,devices installed according to drawings and specifications, correct cabling and fixing. Ensure all labelling is correct and marked up drawings/schematics available	Inspection report on cabling/sensors and containment system along with marked-up drawing/schematic and punchlist. Manufacturers compliance certificate	Provided by Dorman	CS.001/CS.004/CS.021/ CS.047										
6000	TP	19.04	IS.09	Trace Heating Functional Tests	Sprinkler Valve Chamber	Level 00	Insulation testing where applicable. Functional Testing of all traces and ensure correct set up of thermostats. Verify all signals	Test Report, Calibration Certificate, Manufacturer's conformity and Overall Certificate	Provided by Dorman	TS.044										
20-METERING																				
6000	TP	20.01	N/A	Metering System Inspection and Installation Sign Off	Full System	Sitewide	Check all cabling installed according to drawings and specification, correct cabling and fixing. Ensure all labelling is correct and schedule of meters and marked up schematics/drawings available.	Inspection report on cabling and containment system along with marked up drawing/schematic and punchlist.	Provided by Dorman/Specialist Contractor	CS.001/CS.004/CS.021/ CS.047										
6000	TP	20.02	IS.03	Metering Loop Cabling Tests	All RTU & IDN Loops	Sitewide	Continuity & Insulation testing	Test Report, Metering Schedule and Calibration Certificate	Provided by Dorman/Specialist Contractor	TS.009										
6000	TP	20.03	IS.03	Meter Set Up and Commissioning	All RTU's and IDN's	Sitewide	Ensure meters are programmed correctly and set up on correct network. Slave ID's to be checked and baudrates. Ensure CT's are reading correct direction.	Commissioning report verifying correct set of parameters. Metering Schedule to be provided	Provided by Specialist Contractor	N/A										
21-BUILDING MANAGEMENT SYSTEM - BMS																				
6000	TP	21.01		Description of Operations Review and Sign Off	N/A	N/A	Review operations for all BMS control. Document to be reviewed by all relevant parties and signed off. Any requested adjustments to be made prior to commissioning on site.	Detailed narrative on operations of BMS control	Provided by Specialist Contractor	N/A										
6000	TP	21.02		BMS MCC's/Outstation Factory Acceptance Test-FAT	FACTORY TEST	OFF SITE TEST	Insulation, Continuity, Key Test Stiches, Settings, Function tests & BMS indications and Lamp Tests	Full FAT Report detailing all tests and inspections carried out accompanied by drawings/schematics. Snags recorded and calibration certificates for test instruments	Provided by Specialist Contractor	N/A										
6000	TP	21.03		Bench Test Software & Graphics including demos	FACTORY TEST	OFF SITE TEST	Software and Graphics Demo	Report containing sample screenshots and demonstration guide detailing alarms that will be received etc.	Provided by Specialist Contractor	N/A										
6000	TP	21.04		Pre-Commissioning Point To Point Testing	MCC-P-B1	Basement 1	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.05		Functional Testing & Point to Graphic Testing	MCC-P-B1	Basement 1	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.06		Pre-Commissioning Point To Point Testing	MCCP-R1	Roof	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.07		Functional Testing & Point to Graphic Testing	MCCP-R1	Roof	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.08		Pre-Commissioning Point To Point Testing	NV-CP1	Car Park	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.09		Functional Testing & Point to Graphic Testing	NV-CP1	Car Park	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.10		Pre-Commissioning Point To Point Testing	GFR-CP2	Level 00	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.11		Functional Testing & Point to Graphic Testing	GFR-CP2	Level 00	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.12		Pre-Commissioning Point To Point Testing	1RR-CP3	Level 01	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.13		Functional Testing & Point to Graphic Testing	1RR-CP3	Level 01	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.14		Pre-Commissioning Point To Point Testing	2RR-CP4	Level 02	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.15		Functional Testing & Point to Graphic Testing	2RR-CP4	Level 02	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.16		Pre-Commissioning Point To Point Testing	3RR-CP5	Level 03	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.17		Functional Testing & Point to Graphic Testing	3RR-CP5	Level 03	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.18		Pre-Commissioning Point To Point Testing	VAV & FAN COIL CONTROLS	Level 00	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.19		Functional Testing & Point to Graphic Testing	VAV & FAN COIL CONTROLS	Level 00	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.20		Pre-Commissioning Point To Point Testing	VAV & FAN COIL CONTROLS	Level 01	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.21		Functional Testing & Point to Graphic Testing	VAV & FAN COIL CONTROLS	Level 01	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.22		Pre-Commissioning Point To Point Testing	VAV & FAN COIL CONTROLS	Level 02	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.23		Functional Testing & Point to Graphic Testing	VAV & FAN COIL CONTROLS	Level 02	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.24		Pre-Commissioning Point To Point Testing	VAV & FAN COIL CONTROLS	Level 03	Continuity, Safety interlock, trip settings, Pumps/AHUs/Fans Set to work & BMS indications	Full points list schedule report for all outstations,MCC's detailing all points checked. Confirmation systems are set-up to run	Provided by Specialist Contractor	N/A										
6000	TP	21.25		Functional Testing & Point to Graphic Testing	VAV & FAN COIL CONTROLS	Level 03	Software download, Functional Operation checks in line with Description of operations and verification of site points and calibrations. Percentage point testing and equipment operation	Full points list schedule report for all outstations,MCC's detailing all points functionally checked, operational and reporting correctly on graphics	Provided by Specialist Contractor	N/A										
6000	TP	21.26		Final Commissioning - Description of Operations and function checks	DESCRIPTION OF OPERATIONS	SITEWIDE	Software download and function/operation of plant as per Des of Ops	Full report for BMS system detailing functional checks for all devices and operations proven as per Des Ops	Provided by Specialist Contractor	N/A										
6000	TP	21.27		BMS Head End-Overall Graphics and Navigation/Training	DESCRIPTION OF OPERATIONS	SITEWIDE	Head End Demo	Demo Report	Provided by Specialist Contractor	N/A										
MECHANICAL & PUBLIC HEALTH																				
22-LTHW SYSTEM																				
6000	TP	22.01	N/A	LTHW Pipework & Associated equipment	LTHW System	SITEWIDE	Receive items at Site. Perform incoming material receipt inspection	Materials incoming inspection check sheet with Delivery Note &CM	Provided by Dorman	MI-MT-01										
6000	TP	22.02	31.01	LTHW pipework - Visual Inspection & Pressure testing	LTHW System	SITEWIDE	Inspection of installed Pipework; visual and dimensional checks, painting, , Verify installed as per drawings, spec and compliant with standards. Pipework Pressure tests in accordance with specifications and standards	Inspection Forms,Pressure Test certificate and marked-up Mewing schematic accompanied by calibration certificate and Punchlist, updated drawing/P&ID	Provided by Dorman/Specialist Contractor	MI-PI-01, MI-PI-06										
6000	TP	22.03	31.02	LTHW System - Flushing & Chemical Clean	PP-B2-01, PP-B2-02, PP-B2-03 01, SP-B2-02, SP-B2-03 SP-B2-	SITEWIDE	Dynamic flush, biocide-wash, chemical clean, post flush, bacteriafy, Biocide & inhibitor dose. Final samples certs from independent lab, to BSRIA guide BG/29/2012	Analysis Report from Lab and relevant schematic	Provided by Dorman/Specialist Contractor	MI-PI-07										
6000	TP	22.04	N/A	LTHW pipework - Insulation/Lagging	LTHW System	SITEWIDE	Inspection of Lagging/Insulation. Verify installed as per drawings, spec and compliant with standards	Insulation Test certificate and marked up drawing schematic accompanied by calibration certificate & Punchlist	Provided by Dorman	MI-PI-12										
6000	TP	22.05	31.03	LTHW Primary System Pumps - Balance/demo	PP-PP-B2-01, PP-PP-B2-02, PP-PP-B2-03	B2 PLANTROOM	Balance, pump test, pressure settings,Rotation,Sizing of Pumps to be verified, flow rates and all design parameters to be verified	Commissioning and Test Report with applicable schematics/drawings and calibration certificates. Manufacturer certificate and warranty	Provided by Specialist Contractor/Dorman	MI-R-05										
6000	TP	22.06	31.04	LTHW CT AHU System - Balance/demo	LTHW	B2 PLANTROOM	Balance, pump test, pressure settings,Rotation,Sizing of Pumps to be verified, flow rates and all design parameters to be verified	Commissioning and Test Report with applicable schematics/drawings and calibration certificates. Manufacturer certificate and warranty	Provided by Specialist Contractor/Dorman	MI-R-05										
6000	TP	22.07	31.05	LTHW VT Radiators System - Balance/demo	LTHW	B2 PLANTROOM	Balance, pump test, pressure settings,Rotation,Sizing of Pumps to be verified, flow rates and all design parameters to be verified	Commissioning and Test Report with applicable schematics/drawings and calibration certificates. Manufacturer certificate and warranty	Provided by Specialist Contractor/Dorman	MI-R-05										
6000	TP	22.08	31.06	LTHW CT DAWS PHX System - Balance/demo	LTHW	B2 PLANTROOM	Balance, pump test, pressure settings,Rotation,Sizing of Pumps to be verified, flow rates and all design parameters to be verified	Commissioning and Test Report with applicable schematics/drawings and calibration certificates. Manufacturer certificate and warranty	Provided by Specialist Contractor/Dorman	MI-R-05										
6000	TP	22.09	31.08	Boiler Commision	BLR-B2-01, BLR-B2-02, BLR-B2-03	B2	Manufacturers test certificate & Commissioning Report.	Boiler Commissioning and Test Report, Gas Purge Report along with applicable schematics/drawings and calibration certificates. Manufacturer certificate and warranty	Provided by Specialist Contractor	N/A										
6000	TP	22.09	31.07	Boiler Flue Pressure Test	Boiler Flue	Ground Floor	Pressure Test Certificate	Pressure Test in accordance with HVCA guidelines	Provided by Specialist Contractor	N/A										
6000	TP	22.10	IS.02	Plate Heat Exchanger (PHX), Expansion Vessels, Pressurisation Units, Evaporators, Filters, Dosing Pots, Water Meter	DP01, DP02, DP03, DP05, DP07, EXP-01, EXP-02, EXP-03, EV-LTHW-B2-01, EV-LTHW-B2-02, PSU-LTHW-B2-01	VARIOUS FLOORS	Visual inspections prior to Commissioning and review of Manufacturers Test Certificates/ Report.	Commissioning and Test Report with applicable schematics/drawings and certificates. Manufacturer certificate and warranty and pressure test certs as applicable	Provided by Dorman/Specialist Contractor	MI-EQ-08, MI-S-01, MI-S-03										
6000	TP	22.11	N/A	Energy Meters	LTHW SYSTEM METERS	VARIOUS FLOORS	Inspection and Installation Sign Off, ensuring compliance with MID/CAM/credit Erne 02.	Commissioning and Test Report with applicable schematics/drawings and calibration certificates. Manufacturer certificate and warranty	Provided by Specialist Contractor	N/A										
6000	TP	22.12	31.09	Water Quality Monitoring	LTHW SAMPLE	OFF SITE ANALYSIS	Monitor as per BSRIA upto completion	Analysis Report from Lab and relevant schematic	Provided by Specialist Contractor	N/A										

Figure 3.2: ITCA Dashboard

Utilising the ITCA schedule allows us to keep the project under the microscope at all times and the dashboard provides an overview on progress on a system by system basis.



Section 4: Inspections

Inspections will be on an on-going basis of a representative sample of the installation or on completion of the installation. Before progressing any commissioning activity Dornan will confirm that the system has been fully installed and inspected in accordance with current regulations and specification. Dornan will provide all necessary documentation to demonstrate the level of attainment for the completion of the inspection process. Dornan will use all applicable mechanical, electrical and instrumentation Inspection and testing templates which are regularly reviewed and audited.

Inspection Activities include (but not limited to):

- Selection and erection of equipment in accordance with specification and relevant standards
- Suitability of equipment for the environment in which they are installed
- Containment and their support systems
- Ductwork cleanliness checks in accordance with BS EN15780.
- Installation of pipework in accordance with P&ID's and grades used in line with specification and relevant standard.
- Plant and equipment is free from any physical damage.
- Terminations and tightness of joints in line with manufacturer's guidelines.
- Sealing of all joints and insulation thickness in accordance with spec. and standards.
- Correct selection and type of all protective devices.
- All cabling dressed in neatly, supported and inner sheaths stripped correctly stripped at all entry points
- Correct selection of type of glands and their tightness for the application in which they are installed.
- Correct identification of all services installed and labelling in line with specification.

Dornan will liaise with the project professional team to ensure that the inspections of the installed works have been completed and signed off as complete before the commissioning / testing process begins.

- Electrical Distribution Systems inspections and sign-off to ensure compliance and suitability of equipment inspections in accordance with current regulations and specification.
- Mechanical and Public Health Systems inspections and sign-off to ensure compliance and suitability of equipment inspections in accordance with current regulations and specification.
- Building Management and Monitoring Systems inspections and sign-off to ensure compliance and suitability of equipment inspections in accordance with current regulations and specification.
- Fire Alarm and Systems inspections and sign-off to ensure compliance and suitability of equipment inspections in accordance with current regulations and specification.
- Security and Data Systems including security, access control etc. inspections and sign-off to ensure compliance and suitability of equipment inspections in accordance with current regulations and specification.

Section 5: Tests and Verification

Dornan in association with the professional team will witness the Testing and Verification, and will validate that the systems tests are complete and verified prior to Commissioning stage. Dornan will use all applicable mechanical, electrical and instrumentation Inspection and testing templates which are regularly reviewed and audited.

Testing activities include (but not limited to):

- Ductwork pressure tests in accordance with current industry standards and specification requirements.
- Pipework pressure tests in accordance with current industry standards and specification requirements.
- Fire Damper Drop tests ensuring correct opening and closing operation
- Static checks on all electrical and mechanical rotary machines.
- Factory Acceptance Tests on applicable plant and equipment. (FAT)
- Site Acceptance Tests on applicable plant and equipment.(SAT)
- Electrical cable's dead testing (insulation resistance & continuity) in accordance with BS7671 and specification requirements.
- Static checks on all electrical and mechanical rotary machines.
- Fire Alarm Loop continuity checks.
- Decibel tests from audible equipment.
- Lux Level Testing in accordance with BS7671 and CIBSE guide.
- Emergency lighting tests in accordance with BS5266.

- UPS static testing
- Primary and Secondary Injection testing where applicable.
- Test Earth rods /Main earth and extraneous metal works/equipment earthing in accordance with BS7671 and BS 7430
- Electrical wiring including power, lighting and systems such as Fire Alarm loops, BMS cabling, lifts, generators, etc., shall be dead and live tested in accordance with BS7671 and specification requirements. Tests to include (but are not limited to):
  - Earth Loop Impedance(Zs)
  - Insulation Resistance
  - Continuity
  - Earth Leakage
  - Polarity
  - Phase Rotation
  - Prospective Fault Current(PFC)
  - Checking of all protective device types and settings against system wide selectivity study.

Section 6: Commissioning

The Dornan team will ensure the following items are carried out as part of the Commissioning activities:
Commissioning Activities include (but are not limited to):

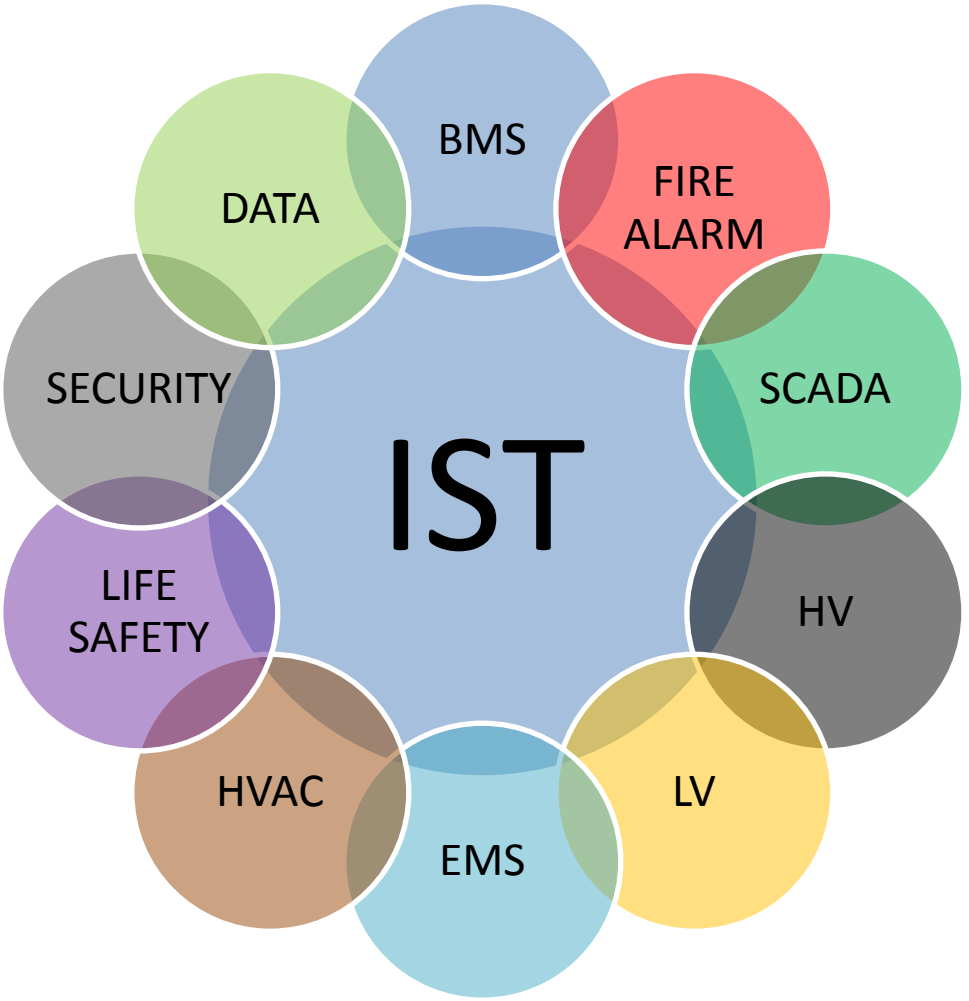
- Balancing of all air and water distribution systems. (In compliance with the CIBSE and BSRIA codes and the particular requirements of the Specification)..
- Individual commissioning of electrical, mechanical and life safety systems (including damper control).
- Balancing of all pumps contained within their respective systems and measurement of flow rates.
- Functional checking and calibration of all control systems, including the building management, power management systems, fire alarms, access control and lighting control.
- Co-ordinated commissioning of all electrical, mechanical and life safety systems under automatic control.
- Preparation of documentation approved by the professional team and a record of all checks, measurements and adjustments made with the associated equipment calibration certification.
- The completion of snags that will affect the operation of the systems, identified during the inspection and commissioning process.
- The maintenance of systems being run for commissioning and test purposes
- Dynamic flushing of water pipework systems using system pumps and temporary pumps where required, through the flushing loops before plant components (Chillers, Boilers, Plate Heat Exchangers, fan coil units, etc.).
- Back flushing of plant components (Chillers, Boilers, Plate Heat Exchangers, fan coil units, etc.).
- Chemical cleaning including sample analysis in the treatment of the primary and secondary LTHW, CHW, and CDW water pipework systems.
- Functional testing of equipment
- Protection Settings verification
- ATS / STS Changeover functionality and timer settings
- Setting the system to work including all start up and running of the equipment, including setting up and calibrating all safety cut-out's and interlocks.
- Material certificates, declaration of conformity and manufacturer test certificates are received and reviewed on receipt of material to Site.
- Functional testing of Security and data systems and verification of operation in line with specified control strategy on Head End computer.
- Commissioning of all leak detection systems and verification of alarm reporting back on applicable system. I.e. BMS
- Commissioning of generator backups and battery backup systems..
- Functional testing of Lighting Control systems and verification of operation in line with specified control strategy on Head End computer.
- Ensure meters are programmed correctly and set up on correct network. Ensure CT's are reading correct direction.

Integrated System Testing is to be undertaken as part of the commissioning process to ensure the system or systems, perform satisfactorily with all interfaces commissioned as per the design intent.

The Integrated Systems Testing cannot proceed until all systems required to complete the testing, are fully commissioned and signed-off. The systems must have all outstanding snags / defects rectified and signed-off.

The main Integrated Systems Tests to be carried out to achieve practical completion are as follows: -

- Fire alarm cause/effect testing including operation of all plant & equipment as dictated by the Cause and Effect matrix
- Motorised smoke damper testing (as part of the cause and effect)
- Power failures including SCADA control &EMS
- BMS operations and recovery under powerfailure
- Environmentaltesting
- Black Building Test
- BMS systemscontrol
- EMS Operations andinterfaces



Section 7: Handover

The Dornan team will ensure the following items are carried out and issued as part of the final handover process.

- Preparation of documentation approved by the project professional team and a record of all checks, measurements and adjustments made with the associated equipment calibration certification.
- The completion of snags that affect the operation of the systems, identified during the inspection, testing and commissioning process.
- Handover Documentation requirements are confirmed and requested at the Contract Review stage of the project, in accordance with the QP5 Estimating & Tender procedure.
- Site QA will be responsible for Turn Over Packages. They will complete and satisfy the project ITP and client requirements prior to submission of TOP's.
- Formal issue of all applicable TOP's. This can be in the form of an electronic upload to the client's online database or in hard copy or discs depending on client requirement.
- Formal issue of As Built Drawings, Schematics. This can be in the form of an electronic upload to the client's online database or in hard copy or discs depending on client requirement.
- Operation and Maintenance manuals. This can be in the form of an electronic upload to the client's online database or in hard copy or discs depending on client requirements
- Statutory documents such as Electrical Installation Certificate, Emergency Lighting Certificate, Fire Alarm Certificate, Chlorination Certificate, Fire Rated Ductwork Certificate, Disabled Refuge Certificate and Earthing/Lightning Protection Certificates will be issued as part of the final handover and also at Practical completion stage should they be required.The above mentioned list is non-exhaustive.
- All applicable asset and warranty information. This can be in the form of an electronic upload to the client's online database or in hard copy or discs depending on client requirements.

Section 8: Cover Sheet for Activities

PROJECT: xxxxxxxxx		DORNAN	
INSPECTION, TESTING & COMMISSIONING CERTIFICATE			
System :	HV DISTRIBUTION & INCOMING SUPPLIES	**Handover Pack Ref:**	DESL-TOP-001
Area :	OFF SITE TEST	**Handover Pack**	Electrcial Distribution
Level:	OFF SITE TEST	**Client Reference:**	xxxx-xx-xx-xx-xx
Activity;	Transformer Factory Acceptance Test (FAT)	**Activity No.:**	1.01

ACTIVITY DISCIPLINE:

Inspection Activity	Test Activity	Commissioning Activity
✓	✓	

Issued By (Company) :	**DORNAN**	**Name :**	**John Ducey**
Issue Date:	**06/12/2017**	**Sign :**	

This certifies the above item works has been inspected, tested/commissioned in accordance with specification, relevant codes of practice - noting any exceptions below

Demonstrated / Witnessed by:				
ORGANISATION	**NAME**	**SIGNED**	**DATE**	**Comment no.**
Sub-Contactor	J.Smith		30/11/2017	
Client	J.Smith		30/11/2017	
Designer	J.Smith		30/11/2017	
Dornan Engineering	J.Smith		30/11/2017	
Third Party/Notified Body	J.Smith		30/11/2017	

Ref.	**Comments / Exceptions**	**By :**		**Cleared :**		**Accepted :**	
		Initial	**Org**	**Initial**	**Date**	**Initial**	**Date**
1							
2							
3							
4							

Attachments:			
Construction Snag Sheets		**Commissioning/Test Reports**	✓
Marked up drawing / schematics	✓	**Calibration Certificates**	✓
Inspection Report		**Conformity Certificate**	
Schedule/Points List		**Photos**	

Section 9: Documentation Requirements

This is a non-exhaustive list and is provided for indicative purposes.

Fire Dampers:

- Method statement (Ductwork Company)
  - Fire Damper Schedule
  - Marked up drawings
  - Installation complete checklist(Dornan)
  - Testing complete checklist sample

Ductwork:

- Method statement (Ductwork Company)
  - Ductwork Pressure Test sheets
  - Marked up drawings
  - Installation complete checklist(Dornan)

Ventilation Commissioning

- Method Statement (Commissioning Company)
  - Test sheets with design figures
  - Fan curves
  - Installation complete checklist(Dornan)

System Flushing & Chemically Cleaning

Method Statement (Flushing Contractor)

- Installation complete checklist(Dornan)
- Velocity flowrate sheets with design flowrates
- Strainer sheets
- Back flushing sheets
- Chemical analysissheets
- Marked up drawings

LTHW, CHW & CDW System

- Method Statement(Dornan)
  - Installation Complete Checklist
  - Pipework Pressure Testing
- Method Statement (Commissioning Company)
  - Water Balancing Test sheets with design figures
  - Pump curves
- Method Statement (Boiler Specialist)
  - Boiler Functional testsheet
  - Boiler Emissions test Sheet
  - Boiler Flue Pressure TestSheet
- Method Statement (CHP Specialist)
  - CHP Functional Test Sheet
- Method Statement (Pump Manufacturer) Pump Set-Up Functional Test Sheet
- Method Statement (Pressurisation Unit Manufacturer)
  - Pressurisation Unit Set-Up Functional Test Sheet
- Method Statement(Manufacturer)
  - Underfloor Heating System – Pressure Test Sheets
  - Functional Test Sheets
- Method Statement
  - Chiller Functional Test Sheet(Manufacturer)
- Method Statement
  - Cooling Tower Functional Test Sheet(Manufacturer)

Gas System

- Method Statement (GasCompany)
  - Pipework Pressure Test sheets
  - Gas Purging TestSheet

Air Conditioning System

- Method Statement (AC Company)
  - Pipework Pressure Test sheets
  - Vacuum Test Sheet
  - Functionality TestSheet
  - Condensate Drain TestSheet

Trace Heating

- Method Statement (Trace HeatingCompany)
  - Installation complete checklist(Dornan)
  - Trace Heating Functionality Test Sheet

Drainage

- Method Statement (Drainage Company)
  - SVP Pipework Pressure Testing Test Sheet
  - Rainwater functional Test Sheet
  - Sump Pump Functionality TestSheet

Domestic Water Services

- Method Statement
  - Installation complete checklist(Dornan)
  - Water Tank Visual Inspection Checklist (DWS Company)
  - BCWS, HWS & Irrigation Pipework Pressure Testing Test Sheet (DWSCompany)
  - Pump Set-Up Check Sheet (Pump Manufacturer)
- Method Statement
  - UV Water Treatment Functionality CheckSheet(Manufacturer)
- Method Statement
  - Electromagnetic Water Conditioner Functionality Check Sheet(Manufacturer)
- Method Statement
  - Water Softener Functionality Check Sheet(Manufacturer)
- Method Statement
  - Irrigation System Functionality CheckSheet(Manufacturer)
- Method Statement
  - Calorifier's Functional & Control TestSheet(Manufacturer)
- Method Statement
  - Smoke Damper Functional & Sequencing TestSheet(TBC)

Electrical LV Distribution

- Method Statement (Electrical Contractor)
  - Installation complete checklist(Dornan)
  - Ductor & Flash TestSheets
  - SAT Test Sheets
  - Live Testing Sheets
- Method Statement (Electrical Contractor)
  - ATS Functionality testSheets
- Method Statement (Generator Specialist)
  - Generator Functionality test Sheets
- Method Statement (CHP Specialist)
  - CHP Functionality testSheets

Earthing and Bonding

- Method Statement (Electrical Contractor)
  - Bonding Report

Lightning Protection

- Method Statement (Electrical Contractor)
  - Functional Test Sheet

Electrical Small Power Distribution

- Method Statement (Electrical Contractor)
  - Installation complete checklist(Dornan)
  - Dead Testing Sheets
  - Live Testing Sheets
  - Distribution boardschedules

Lighting Control

- Method Statement (Electrical Contractor)
  - Installation complete checklist(Dornan)
  - Lighting Lux Level TestSheets
  - Emergency Lighting TestSheets
  - Marked Up Drawings

Energy Management System

- Method Statement (Energy Management Contractor)
  - Installation complete checklist(Dornan)
  - Functional Test Sheet
  - Integration With Head End Test Sheet

Fire Alarm System

- Method Statement (Fire Alarm Contractor)
  - Installation complete checklist(Dornan)
  - Loop Testing Sheet
  - Device & Audibility TestingSheet
  - Independent component interfacing Test Sheet
  - Cause & Effect matrix
  - BMS Interface TestSheet

Voice Alarm System

- Method Statement (Fire Alarm Contractor)
  - Installation complete checklist(Dornan)
  - Loop Testing Sheet
  - Device & Audibility TestingSheet

Aspiration System

- Method Statement (Fire Alarm Contractor)
  - Installation complete checklist(Dornan)
  - Functional test Sheet
  - Interface with Fire Alarm Panel Test Sheet

Fire Telephone System

- Method Statement (Fire Alarm Contractor)
  - Installation complete checklist(Dornan)
  - Functional test Sheet

Disabled Refuge System

- Method Statement (Fire Alarm Contractor)
  - Installation complete checklist(Dornan)
  - Functional test Sheet

Disabled Toilet Alarm System

- Method Statement (Fire Alarm Contractor)
  - Installation complete checklist(Dornan)
  - Functional test Sheet

Induction Loop System

- Method Statement (Fire Alarm Contractor)
  - Installation complete checklist(Dornan)
  - Functional test Sheet

Sprinkler System

- Method Statement (Sprinkler Contractor)
  - Installation complete checklist(Dornan)
  - Pipework Pressure TestSheet
  - Flow and Tamper functional Test Sheet
  - Interface with Fire Alarm System Test Sheet

Dry Riser System

- Method Statement (Sprinkler Contractor)
  - Installation complete checklist(Dornan)
  - Pipework Pressure Test Sheet
  - Flow Test Sheet

Access Control System

- Method Statement (Security Contractor)
  - Installation complete checklist(Dornan)
  - Loop Testing Sheet
  - Device Testing Sheet
  - Integration with Fire Alarm System Test Sheet

CCTV System

- Method Statement (Security Contractor)
  - Installation complete checklist(Dornan)
  - Loop Testing Sheet
  - Device Testing Sheet
  - Head End Testing Sheet

BMS

- Method Statement (BMS Contractor)
  - Installation complete checklist(Dornan)
  - Point To Point Testing Sheet
  - Point To Graphic TestingSheet
  - Head End Testing Sheet
  - Description of Operation

Integrated Systems Testing

- Method Statement
  - Testing Prerequisites

Section 10: Roles and Responsibilities

Project Manager (PM)

It is the responsibility of the Dornan Project Manager to implement and assign resources to this process. The Project Manager ensures that all the activities contained within this process are completed in line with the Project Quality and ITCA process and conform to client's specification and relevant standards.

Quality Assurance Manager / Site QA/QC Personnel

It is the responsibility of the Dornan Quality Assurance Manager to schedule regular audits to verify implementation of the Quality Assurance procedures and ensure compliance with Dornan QMS systems and the Quality Plan. Each Subcontractor and on-site Supervisor shall be responsible for completion of quality control activities as defined in project specifications.

Site QA personnel provide oversight of the interaction of the Dornan Control systems in the day to day operation of the Site project and deliverables from Suppliers and Subcontractors. This extends to monitoring and reporting on progress and quality for off-site fabrication and on-site installation works.

Key to the work of the Site QA/QC personnel is interaction with the team of Project Engineers who ensure technical compliance with Client and Project specifications. Part of the Quality role involves day to day interaction with the site team in over-seeing on site standards and company guidelines and industry norms.

Construction Manager

The Construction Manager will coordinate the installation activities and is supported by the Project Manager and site supervision. The Construction Manager oversees inspection test and commissioning activities and also subcontractor activities including that of mechanical and electrical installation contractors and specialist commissioning subcontractors. Interaction and coordination of our team liaising with the client and specialists input to each system being installed is key to the implementation of a quality installation on a system by system basis.

Project Engineers

Each Engineer is instructed through the Lead Engineers on their responsibilities relating to each electrical and mechanical system being installed. Technical compliance is assured through the submittal approval process where adherence to specification is a prerequisite for approval of both equipment and specialist services being applied to the project. Engineers will also play a pivotal role in managing specialist contractors on site through the ITCA process and they will be assisted by the commissioning manager and off senior management who will be available on a part time basis or full time dependent on project requirements.

Commissioning Manager

The commissioning manger will manage & supervise the commissioning of various systems, work closely with various project teams Team to provide expert advice, guidance and leadership. They will lead & direct all commissioning activities at the site adhering to company procedures and processes. They will ensure best practices by developing and implementing turnover, pre-commissioning, commissioning processes and systems considering and including: contractual requirements, project and construction schedule. The commissioning manager will establish system boundaries, scopes of work, and commissioning execution plans along with assisting project teams with review and submission of Commissioning RAMS and Test Scripts. They will also be actively involved & participate in vendor supplier and subcontractor meetings to resolve issues.

Summary

Order Reference: barry.ohea@dornangroup.com | **Report as of:** 21/03/2019 12:52 PM | using Currency as EUR

DORNAN ENGINEERING SERVICES LIMITED

Tradestyle(s): -

ACTIVE HEADQUARTERS

Address: 114a Cromwell Road, LONDON, SW7 4ES, United Kingdom
Phone: +44 20 7340 1030
D-U-N-S: 77-895-8087
Registration Number: 05799522
In Portfolio: Yes
Tags: Customer
Alerts: No alerts

Failure Score	Delinquency Score	Age of Business	Employees
95	86	12 years	223
(No change since last month)	(No change since last month)	2006 Year Started	223 (here)

Recent Alerts

There are no alerts to display.

Company Profile

D-U-N-S
77-895-8087
Legal Form
Private Limited Liability Company
Date of Registration
28/04/2006

Telephone
+44 20 7340 1030
Website
www.dornan.ie
Email
reception@dornan.ie

Annual Sales
€ 84,043,537 (In SingleUnits)
Employees
223
Age (Year Started)
12 years (2006)
Line of Business

Other engineering activities (not including engineering design for industrial process and production or engineering related scientific and technical consulting activities)

Risk Assessment

Overall Business Risk

LOW	LOW-MODERATE	MODERATE	MODERATE-HIGH	HIGH

Maximum Credit Recommendation

€ 3,748,026

The recommended limit is based on a low risk of business failure.

Dun & Bradstreet Thinks...

- Overall assessment of this organisation over the next 12 months: **STABLE CONDITION**
- Based on the predicted risk of failure: **STRONG LIKELIHOOD OF CONTINUED OPERATIONS**
- Based on the predicted risk of severely delinquent payments: **LOW POTENTIAL FOR SEVERELY DELINQUENT PAYMENTS**

Failure Score Formerly Financial Stress Score

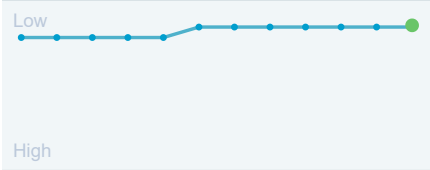
95

Low Risk (100) High Risk (1)

Company's risk level is: LOW

Probability of failure over the next 12 months: **0.18 %**

Past 12 Months



Delinquency Score Formerly Commercial Credit Score

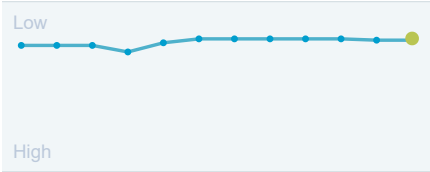
86

Low Risk (100) High Risk (1)

Company's risk level is: LOW-MODERATE

Probability of delinquency over the next 12 months: **4.47 %**

Past 12 Months



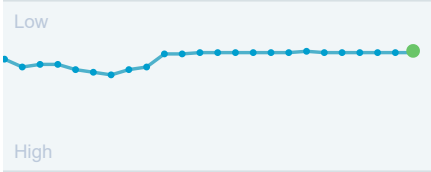
PAYDEX ®

76

Low Risk (100) High Risk (0)

Days Beyond Terms : **6**

Past 24 Months



D&B Rating

Current Rating as of 19/03/2019

Financial Strength

2A : £ 1,500,000 to £ 6,999,999 in Tangible Net Worth or Equity

This Company's Current
Tangible Net Worth:
£ 3,455,234

Risk Indicator

1 : Minimum Risk

The scores and ratings included in this report are designed as a tool to assist the user in making their own credit related decisions, and should be used as part of a balanced and complete assessment relying on the knowledge and expertise of the reader, and where appropriate on other information sources. The score and rating models are developed using statistical analysis in order to generate a prediction of future events. Dun & Bradstreet monitors the performance of thousands of businesses in order to identify characteristics common to specific business events. These characteristics are weighted by significance to form rules within its models that identify other businesses with similar characteristics in order to provide a score or rating.

Dun & Bradstreet's scores and ratings are not a statement of what will happen, but an indication of what is more likely to happen based on previous experience. Though Dun & Bradstreet uses extensive procedures to maintain the quality of its information, Dun & Bradstreet cannot guarantee that it is accurate, complete or timely, and this may affect the included scores and ratings. Your use of this report is subject to applicable law, and to the terms of your agreement with Dun & Bradstreet.

Legal Events

Events	Occurrences	Last Filed
Insolvency	No	-
Court Judgements	0	-
Mortgages and Charges	0	-
Public Filings	No	-

Trade Payments

Highest Past Due

€ 45,890

Highest Now Owing
€ 1,156,798

Total Trade Experiences
40

Largest High Credit
€ 2,891,996

Ownership

This company is a **Domestic Ultimate, Headquarters, Subsidiary**

Global Ultimate
DORNAN ENGINEERING HOLDINGS LIMITED
IRELAND
D-U-N-S Number 89-616-7090

Domestic Ultimate

People

Current Principals
9

New Appointments
0

Resignations

Closures

DORNAN ENGINEERING SERVICES LIMITED
UNITED KINGDOM
D-U-N-S Number 77-895-8087

Immediate Parent
Dornan Engineering Ltd
D-U-N-S Number 98-872-5388
100% shareholding

Total Members in Family Tree - 12

Branches
2

0

0

Executive Leadership

Tony O'Shea, *Director*

Bryan White, *Director*

Patrick Finn, *Director*

Paul Flynn, *Director*

Patrick Finn, *Company Secretary*

Financial Overview

Source: D&B

Balance Sheet Fiscal (individual) 31/12/2017	**Amount** (In Single Units)	**Last 5 Years**
Tangible Net Worth:	€ 3,997,009	
Current Assets:	€ 38,359,462	
Total Fixed Assets:	€ 110,971	
Total Current Liabilities:	€ 33,980,826	
Long Term Liabilities:	€ 492,598	
Net Current Assets (Liabilities):	€ 4,378,636	
Total Assets:	€ 38,470,433	

Profit & Loss Fiscal (individual) 31/12/2017	**Amount** (In Single Units)	**Last 5 Years**
Sales / Turnover:	€ 84,043,537	
Gross Profit / (Loss):	€ 4,871,888	
Profit / (Loss) Before Taxes:	€ 1,297,095	
Net Profit / (Loss):	€ 1,128,722	

Key Business Ratios	**Ratio for the Business**
Current Ratio:	1.10
Acid Test:	1.10
Current Liabilities / Net Worth (%):	850.20
Sales / Net Working Capital:	19.20

Key Business Ratios	Ratio for the Business
Return on Capital (%):	28.90

Country/Regional Insight

United Kingdom

Risk Category

LOW | MODERATE | HIGH

Low Risk — High Risk

Political risk is high, the economy is slowing, and business failures are rising.

Risk Assessment

D&B Risk Assessment

Overall Business Risk

LOW | LOW-MODERATE | MODERATE | MODERATE-HIGH | HIGH

Dun & Bradstreet Thinks...

- Overall assessment of this organisation over the next 12 months: **STABLE CONDITION**
- Based on the predicted risk of failure: **STRONG LIKELIHOOD OF CONTINUED OPERATIONS**
- Based on the predicted risk of severely delinquent payments: **LOW POTENTIAL FOR SEVERELY DELINQUENT PAYMENTS**

Maximum Credit Recommendation

€ 3,748,026

The recommended limit is based on a low risk of business failure.

Failure Score Formerly Financial Stress Score

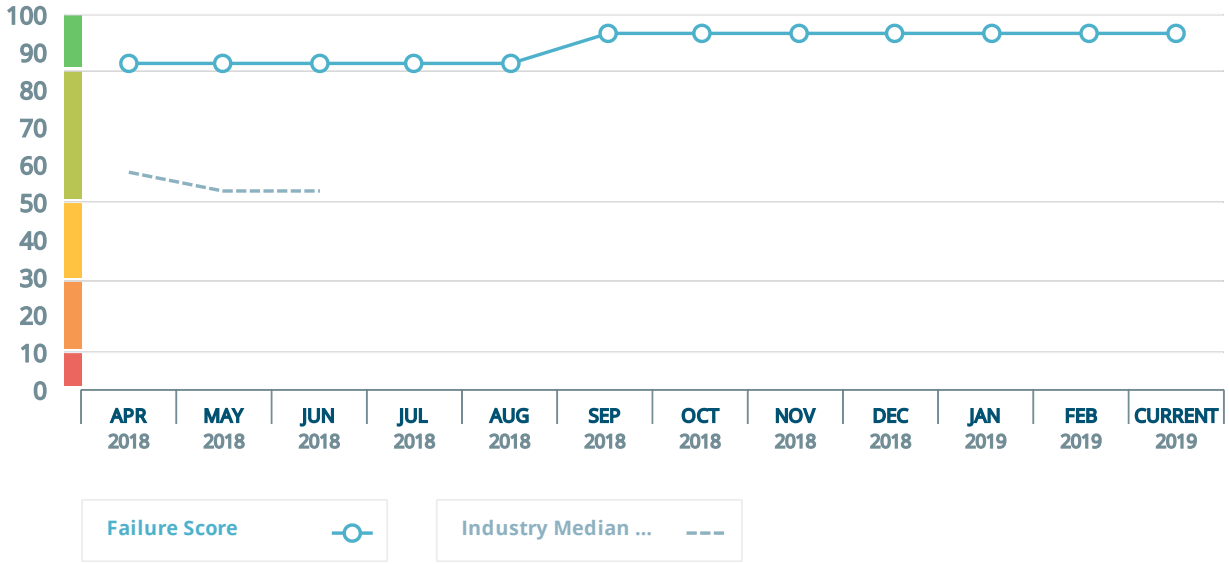
95

Low Risk (100) — High Risk (1)

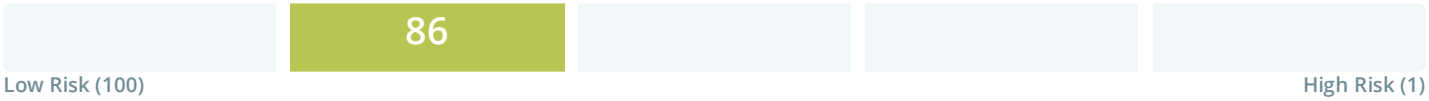
- There are no outstanding mortgages or charges registered against this business.
- The Principals' experience and the performance of their current associated businesses is very strong.
- The tangible net worth of the Domestic Ultimate Parent (DORNAN ENGINEERING SERVICES LIMITED) is satisfactory.
- The pre-tax profit over total assets ratio (calculated from the accounts made up to 31/12/2017) is satisfactory or unknown.
- This business is well established and has been trading since 28/04/2006.

Level of Risk	Raw Score	Probability of Failure	Industry Average
Low	1493	0.18%	1.06%

Business and Industry Trends

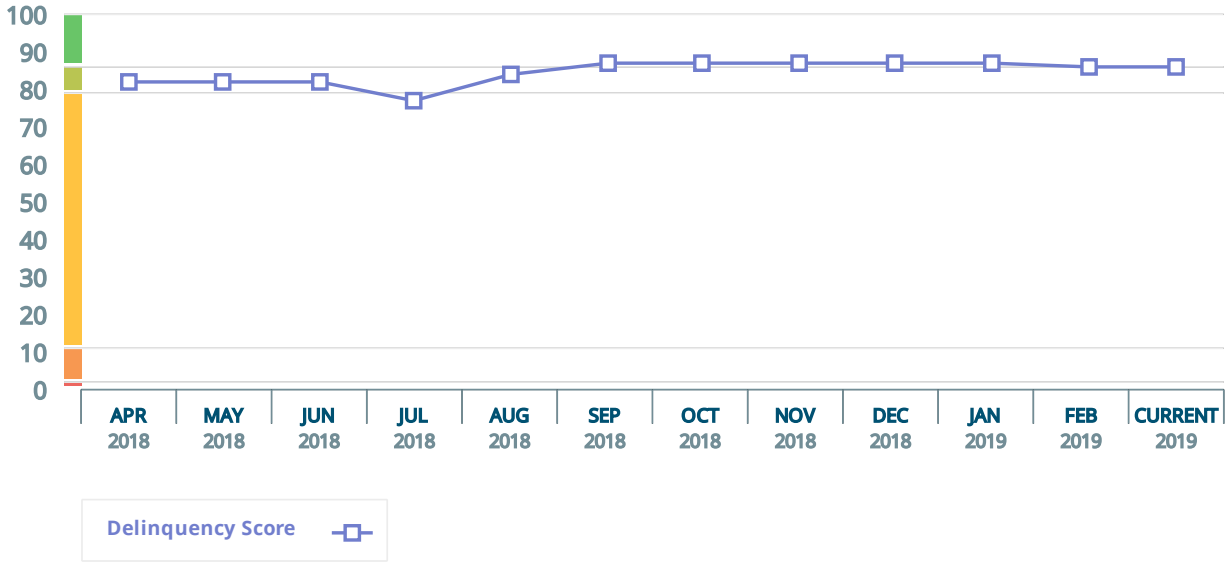


Delinquency Score Formerly Commercial Credit Score



Level of Risk	Raw Score	Probability of Delinquency
Low-Moderate	519	4.47%

Business and Industry Trends



PAYDEX ®

Based on 24 months of data

76

Low Risk (100) High Risk (0)

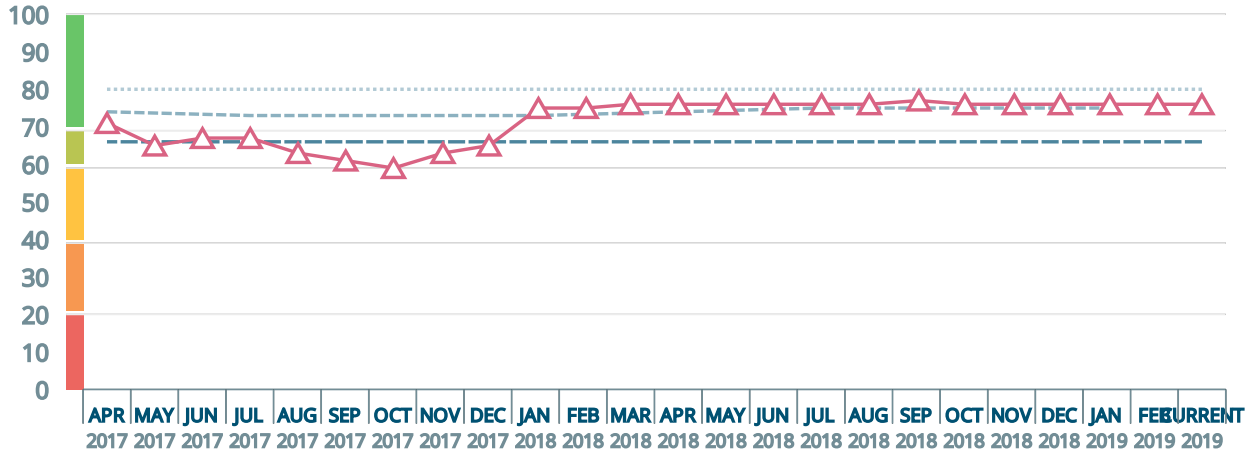
Risk of Slow Pay
Low

Payment behaviour
6 Days Beyond Terms

Business and Industry Trends

Businesses in the same industry - 3027

3449 - Other engineering activities (not including engineering design for industrial process and production or engineering related scientific and technical consulting activities)



PAYDEX ® | Industry Median ... | Industry Upper Q... | Industry Lower Q...

D&B Rating

Current Rating as of 19/03/2019

Financial Strength

2A : £ 1,500,000 to £ 6,999,999 in Tangible Net Worth or Equity

This Company's Current
Tangible Net Worth:
£ 3,455,234

Risk Indicator

1 : Minimum Risk

Trade Payments

Trade Payments Summary (Based on 24 months of data)

Overall Payment behaviour	% of Trade Within Terms	Highest Past Due

6
Days Beyond Terms

92%

£ 39,669

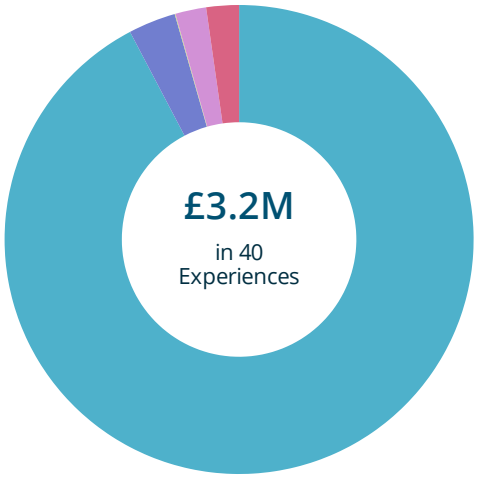
Highest Now Owing:
£ 1,000,000

Total Trade Experiences:
40

Largest High Credit:
£ 2,500,000

Average High Credit:
£ 78,253

Trade Credit Analysis



- Within Terms
- 1 - 30 Days Beyond Terms
- 31 - 60 Days Beyond Terms
- 61 - 90 Days Beyond Terms
- 91+ Days Beyond Terms

8% of the Total Value reported as Overdue

This company has an average days beyond terms of **6** and payment score of **76**

Trade Payments By Credit Extended (Based on 12 months of data)

Range of Credit Extended (£)	Number of Payment Experiences	Total Value	% Within Terms	1 - 30 Days	31 - 60 Days	61 - 90 Days	91 + Days
100,000 & over	3	£ 2,800,000	98	2	-	-	-
50,000 - 99,999	3	£ 200,000	23	23	-	26	28
15,000 - 49,999	5	£ 100,000	70	-	-	15	15
5,000 - 14,999	5	£ 32,000	100	-	-	-	-
1,000 - 4,999	6	£ 12,000	100	-	-	-	-
Less than 1,000	18	£ 6,870	61	17	22	-	-

Legal Events

All public notice information has been obtained in good faith from the appropriate public sources.

Insolvency	Public Filings	Court Judgements	Mortgages and Charges
No	No	0	0
Latest Filing: -	Latest Filing: -	Most recent unsatisfied: -	Most recent unsatisfied: -

Events

Public Filing - First Gazette Notice, Active - Proposal to Strike off

Filing Date	27/03/2007

Special Events

Please note name change

Corporate Linkage

Members in the Tree	Subsidiaries of this Company	Branches of this Company	Minority Shareholders
12	0	2	5

Ownership

This company is a **Domestic Ultimate, Headquarters, Subsidiary**

Global Ultimate
DORNAN ENGINEERING HOLDINGS LIMITED
IRELAND
D-U-N-S Number 89-616-7090

Domestic Ultimate
DORNAN ENGINEERING SERVICES LIMITED
UNITED KINGDOM
D-U-N-S Number 77-895-8087

Immediate Parent
Dornan Engineering Ltd
D-U-N-S Number 98-872-5388
100% shareholding

Total Members in Family Tree - 12

Branches

2

Shareholders

Shareholder Name	Voting Percentage
Brian Gerard Acheson	-
Bryan White	-
David Myers	-
Oliver Lonergan	-
Ronan Keohane	-

Branches

Address
DORNAN ENGINEERING SERVICES LIMITED, Legal & General House, St Monicas Road, TADWORTH, KT20 6EU, SURREY

Company Profile

Company Overview

D-U-N-S
77-895-8087

Date of Registration
28/04/2006

Telephone
+44 20 7340 1030

Website
www.dornan.ie

Email
reception@dornan.ie

Annual Sales
£ 72,651,856 (In SingleUnits)

Age (Year Started)
12 years (2006)

Line of Business
Other engineering activities (not including engineering design for industrial process and production or engineering related scientific and technical consulting activities)

Business Registration

Registered Name	DORNAN ENGINEERING SERVICES LIMITED
Registered Address	2ND FLOOR EMPEROR'S GATE 114A CROMWELL ROAD, LONDON, SW7 4ES, United Kingdom
Legal Form	Private Limited Liability Company

Registration Date	28/04/2006
Registration Number	05799522
Date Started	01/01/2006
Confirmation Statement Date	19/04/2018
Date of the Latest Financial Statement at the Registry	2018-04-19
Date Financial Statement Lodged	2018-09-17
Date of Latest Financial Statement included in the report	31/12/2017
Issued Share Capital	£ 180 made up of 100 Ordinary shares of £ 1.00 each 70 Ordinary shares of £ 1.00 each 10 Ordinary shares of £ 0.01 each 10 Ordinary shares of £ 1.00 each

Business Activities And Employees

Business Information

Employees	223

SIC Information

SIC Codes	Type	Source	SIC Description
71129	UK SIC 2007	Companies House	Other engineering activities (not including engineering design for industrial process and production or engineering related scientific and technical consulting activities)
25620	UK SIC 2007	D&B	Machining
3449	US SIC (1972)	-	Manufacturing-miscellaneous metal work

History

Change Type	Date Changed	Changed To	Changed From
Registered Address	22/09/2015	2ND FLOOR EMPEROR'S GATE 114A CROMWELL ROAD, LONDON, SW7 4ES, United Kingdom	1ST FLOOR, 114A CROMWELL ROAD, LONDON, SW7 4ES, United Kingdom
Registered Address	28/07/2015	1ST FLOOR, 114A CROMWELL ROAD, LONDON, SW7 4ES, United Kingdom	36 BROADWAY, LONDON, SW1H 0BH, United Kingdom

Change Type	Date Changed	Changed To	Changed From
Registered Address	14/10/2010	36 BROADWAY, LONDON, SW1H 0BH, United Kingdom	LYRIC 1 LYRIC SQUARE, LONDON, W6 0NB, United Kingdom
Registered Address	01/03/2010	LYRIC 1 LYRIC SQUARE, LONDON, W6 0NB, United Kingdom	40 CHAMBERLAYNE ROAD, KENSAL RISE, LONDON, NW10 3JE, United Kingdom
Registered Address	21/08/2009	40 CHAMBERLAYNE ROAD, KENSAL RISE, LONDON, NW10 3JE, United Kingdom	SUITE 1 THE STUDIO, ST NICHOLAS CLOSE, ELSTREE, HERTS, WD6 3EW, United Kingdom
Registered Address	19/06/2008	SUITE 1 THE STUDIO, ST NICHOLAS CLOSE, ELSTREE, HERTS, WD6 3EW, United Kingdom	SUITE 100 2ND FLOOR, 20 OLD STREET, LONDON, EC1V 9AB, United Kingdom

Principals

Current Principals	New Appointments	Resignations	Linked to Closures
9	0 (in the last 12 months)	0 (in the last 12 months)	0

TOP-FIVE-PRINCIPALS

Tony O'Shea	01 Dec 2016 - Current
Bryan White	01 Dec 2016 - Current
Patrick Finn	01 Dec 2016 - Current
Paul Flynn	01 Dec 2016 - Current
MR. Ronan Keohane	01 Sep 2015 - Current

CURRENT PRINCIPALS

Tony O'Shea
Director
LinkedIn Profile

Date Appointed	01/12/2016
Address	2nd Floor Emperors Gate 114a Cromwell Road, SW7 4ES, London
Date of Birth	06/1960 (Age - 58 Years)
Nationality	Irish
Occupation	None

Bryan White

Director
LinkedIn Profile

Date Appointed	01/12/2016
Address	2nd Floor Emperors Gate 114a Cromwell Road, SW7 4ES, London
Date of Birth	08/1972 (Age - 46 Years)
Nationality	Irish
Occupation	None

Patrick Finn
Director
LinkedIn Profile

Date Appointed	01/12/2016
Address	2nd Floor Emperors Gate 114a Cromwell Road, SW7 4ES, London
Date of Birth	06/1957 (Age - 61 Years)
Nationality	Irish
Occupation	None

Associations

KANTOR ENERGY LTD	01 Dec 2016 - Current

Paul Flynn
Director
LinkedIn Profile

Date Appointed	01/12/2016
Address	2nd Floor Emperors Gate 114a Cromwell Road, SW7 4ES, London
Date of Birth	08/1967 (Age - 51 Years)
Nationality	British
Occupation	None

Patrick Finn
Company Secretary
LinkedIn Profile

Date Appointed	01/12/2016
Address	2nd Floor Emperors Gate 114a Cromwell Road, SW7 4ES, London

MR. Ronan Keohane
Director
LinkedIn Profile

Date Appointed	01/09/2015
Address	2nd Floor Emperor'S Gate 114a Cromwell Road, SW7 4ES, London
Date of Birth	03/1982 (Age - 37 Years)
Nationality	Irish
Occupation	Company Director

MR. David Anthony Myers
Director
LinkedIn Profile

Date Appointed	24/05/2014
Address	2nd Floor Emperor'S Gate 114a Cromwell Road, SW7 4ES, London
Date of Birth	08/1968 (Age - 50 Years)
Nationality	Irish
Occupation	Businessman

Associations

KANTOR ENERGY LTD	01 Sep 2015 - Current
FCC ELLIOTT UK LTD	11 Feb 2010 - 09 Dec 2011

MR. Brian Acheson
Director
LinkedIn Profile

Date Appointed	02/05/2006
Address	2nd Floor Emperor'S Gate 114a Cromwell Road, SW7 4ES, London
Date of Birth	04/1965 (Age - 54 Years)
Nationality	Irish
Occupation	Company Director

Associations

KANTOR ENERGY LTD	01 Sep 2015 - Current

MR. Oliver Lonergan
Director
LinkedIn Profile

Date Appointed	02/05/2006
Address	2nd Floor Emperor'S Gate 114a Cromwell Road, SW7 4ES, London
Date of Birth	05/1959 (Age - 59 Years)
Nationality	Irish
Occupation	Company Director

Associations

KANTOR ENERGY LTD	01 Sep 2015 - Current

PREVIOUS PRINCIPALS

Derek Duffy
Director
LinkedIn Profile

Date Appointed	22/12/2010
Date Resigned	19/10/2016
Address	12 The Old Rectory, Lucan Village
Date of Birth	10/1974 (Age - 44 Years)
Nationality	Irish
Occupation	Electrical Engineer

MR Christopher Mcgovern
Director
LinkedIn Profile

Date Appointed	02/05/2006
Date Resigned	30/11/2016
Address	3 Dryden Place, Blackrock Road, Cork
Date of Birth	12/1951 (Age - 67 Years)
Nationality	Irish
Occupation	Company Director

Associations

KANTOR ENERGY LTD	06 Jun 2012 - 30 Nov 2016

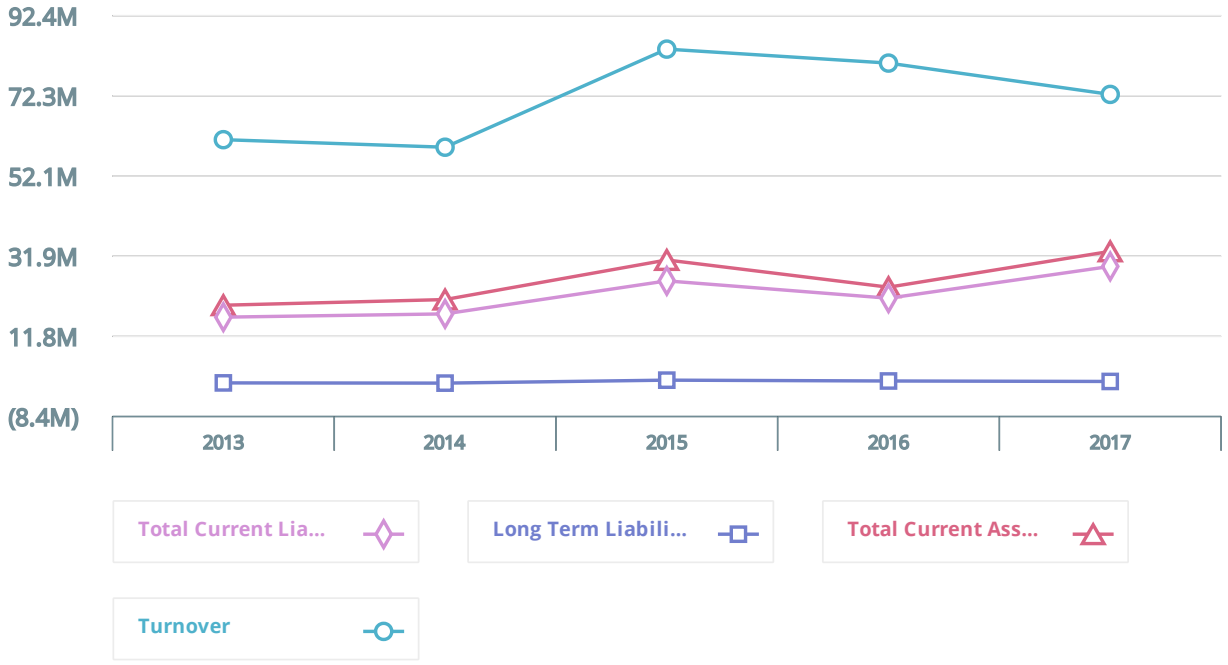
Financials

Overview

Source: D&B | Currency: All figures shown in GBP unless otherwise stated

Financial Statement Comparison

The values displayed below are for the subject company.



	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
Sales / Turnover	72,651,856	80,529,364	84,043,784	59,361,045	61,262,033
Profit / (Loss) Before Taxes	1,121,280	(2,261,464)	1,716,039	660,429	1,826,451
Equity Shareholders Funds	3,455,234	2,519,754	4,882,372	3,683,407	3,191,390
Tangible Net Worth	3,455,234	2,519,754	4,882,372	3,683,407	3,191,390
Total Fixed Assets	95,929	292,533	376,617	87,734	252,436
Total Assets	33,255,958	24,437,990	31,369,306	21,120,018	19,857,927
Total Current Assets	33,160,029	24,145,457	30,992,689	21,032,284	19,605,491
Total Current Liabilities	29,374,895	21,374,414	25,732,219	17,427,475	16,602,531
Net Current Assets (Liabilities)	3,785,134	2,771,043	5,260,470	3,604,809	3,002,960
Employees *	223	266	281	189	178

* = In Single Units

Financial Notes / Opinions

Year	Unfavourable	Financial Notes / Opinions
2017	No	
2016	No	
2015	No	
2014	No	
2013	No	

Audit Information

Type	Details
Accountant	Crowley & McCarthy
Auditor	Crowley & McCarthy
Solicitor / Lawyer	Cannings Connolly, 16 St Martins Le Grand, London

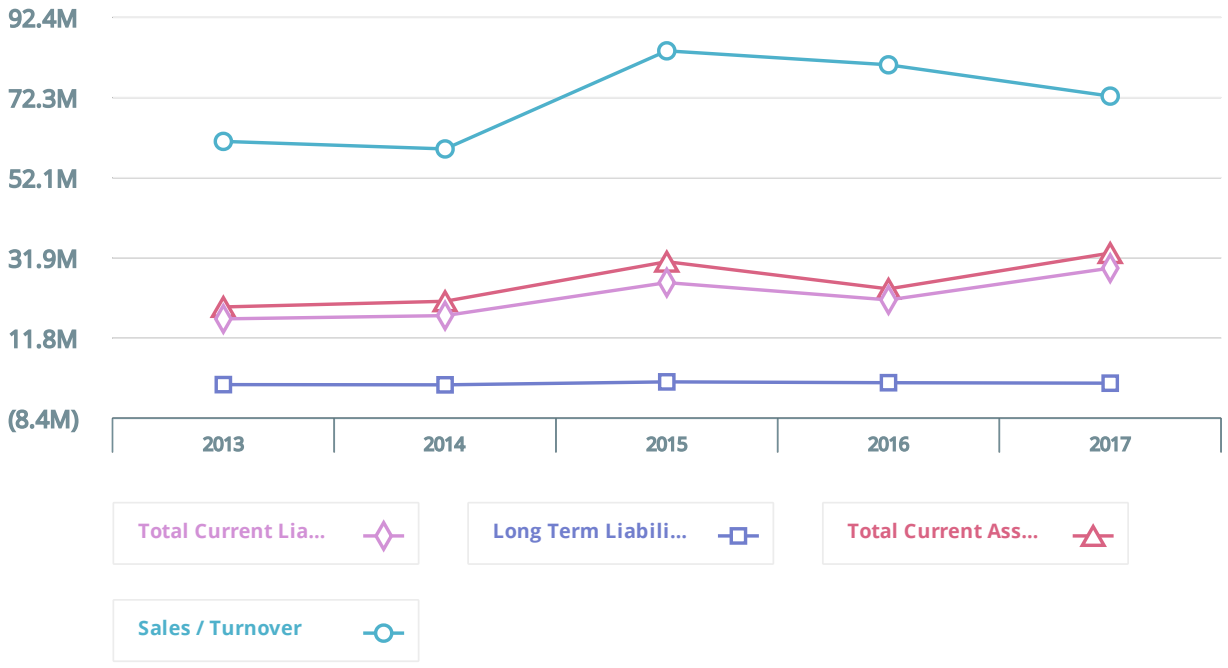
Balance Sheet

Source: D&B | Currency: All figures shown in GBP unless otherwise stated

Financial Statement Comparison

The values displayed below are for the subject company.

Annual



Assets	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
FIXED ASSETS					
Total Tangible Fixed Assets	91,085	220,012	324,001	82,223	251,769
Land & Buildings	45,439	113,597	181,755	-	-
Fixtures And Equipment	45,646	106,415	142,246	82,223	251,769
Financial Assets and Investments	4,844	66,940	52,616	5,511	667
Other Long Term Assets	-	5,581	-	-	-
Total Fixed Assets	**95,929**	**292,533**	**376,617**	**87,734**	**252,436**
Stock & Work In Progress	-	91,921	28,764	15,809	-

Assets	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
TOTAL CURRENT ASSETS					
Debtors & Prepayments	30,767,422	21,189,626	26,241,760	19,690,795	18,859,629
Trade Debtors	21,898,142	9,175,986	22,481,879	19,162,442	12,248,781
Amounts Owed by Group Companies	8,565,010	958,874	3,263,853	413,228	6,480,697
Tax Recoverable	-	631,290	-	-	-
Other Receivables	55,138	242,567	362,677	22,845	23,146
Prepayments	249,132	10,180,909	133,351	92,280	107,005
Cash at Bank / In Hand	2,392,607	2,863,910	4,722,165	1,295,680	705,862
Other Current Assets	-	-	-	30,000	40,000
Total Current Assets	**33,160,029**	**24,145,457**	**30,992,689**	**21,032,284**	**19,605,491**

Liabilities	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
TOTAL CURRENT LIABILITIES					
Trade Creditors	7,072,583	5,490,855	7,349,030	13,095,352	13,650,148
Bank Loans & Overdrafts	19,297	113,708	704	-	-
Other Loans Payable	-	-	-	501,869	1,392,064
HP / Lease Payments	-	-	-	-	18,738
Amounts Due to Directors	-	40,347	80,347	-	-
Amounts Due to Group Companies	12,726,283	5,152,447	787,917	1,775,390	-
Tax & Social Security	1,275,883	1,515,039	2,678,860	1,132,364	680,984
Accruals / Deferred Income	594,477	9,022,318	889,224	890,832	851,123
Other Current Liabilities	7,686,372	39,700	13,946,137	31,668	9,474
Total Current Liabilities	**29,374,895**	**21,374,414**	**25,732,219**	**17,427,475**	**16,602,531**
Net Current Assets (Liabilities)	**3,785,134**	**2,771,043**	**5,260,470**	**3,604,809**	**3,002,960**
Total Assets less Current Liabilities	**3,881,063**	**3,063,576**	**5,637,087**	**3,692,543**	**3,255,396**
HP / Lease Payments	-	-	-	-	54,318
LONG TERM LIABILITIES					
Deferred Taxation	2,998	-	45,336	9,136	9,688
Other Long Term Liabilities	422,831	543,822	490,451	-	-
Minority Interest Liability	-	-	218,928	-	-
Total Long Term Liabilities	**425,829**	**543,822**	**754,715**	**9,136**	**64,006**

Liabilities	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
Net Assets	3,455,234	2,519,754	4,882,372	3,683,407	3,191,390

Net Worth / Shareholders' Funds	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
Issued Share Capital	170	170	200	200	200
Share Premium Account	20,000	10,000	10,000	-	-
Retained Profit / (Loss) Reserve	3,435,034	2,509,554	4,872,172	3,683,207	3,191,190
Other Reserves	30	30	-	-	-
Total Equity Shareholders' Funds	**3,455,234**	**2,519,754**	**4,882,372**	**3,683,407**	**3,191,390**
Tangible Net Worth	**3,455,234**	**2,519,754**	**4,882,372**	**3,683,407**	**3,191,390**

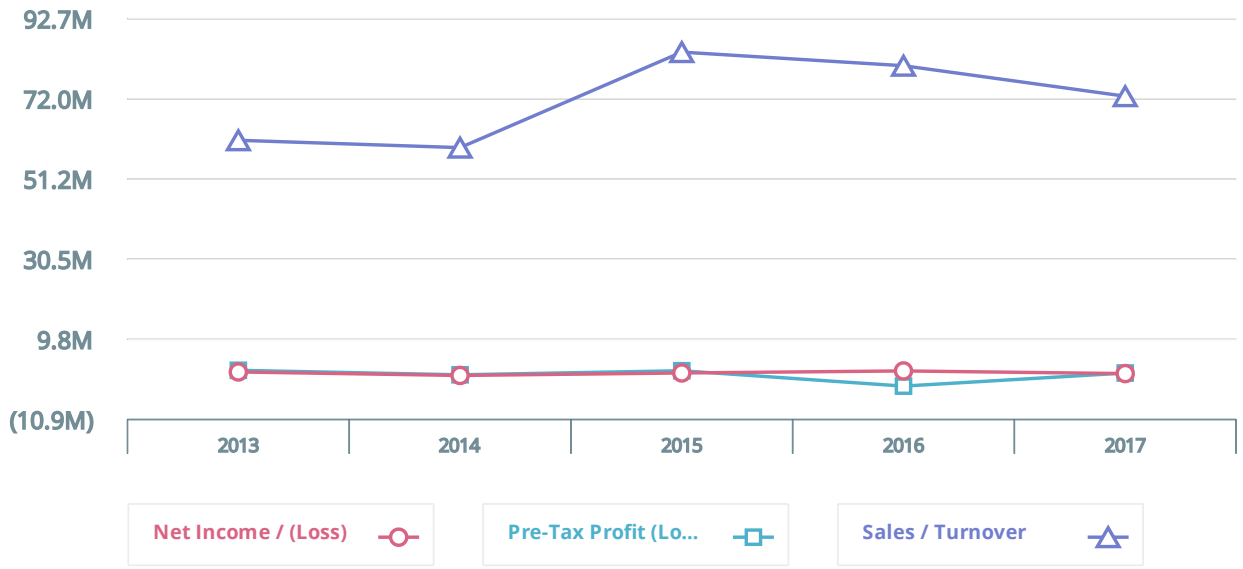
Balance Sheet Notes	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
Total Operating Lease Commitments	642,832	903,382	1,042,200	91,700	91,700
Operating Lease Commitments - Plant & Machinery (or other)	642,832	903,382	-	91,700	91,700
Operating Lease Commitments - Land & Buildings	-	-	1,042,200	-	-
Contingent Debt Amount	-	-	-	-	181,000

Profit And Loss Accounts

Source: D&B | Currency: All figures shown in GBP unless otherwise stated

Financial Statement Comparison

The values displayed below are for the subject company.



	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
Sales / Turnover	**72,651,856**	**80,529,364**	**84,043,784**	**59,361,045**	**61,262,033**
Including Exports of	-	-	-	612,031	-
Cost Of Sales	68,440,328	73,749,398	77,755,868	56,141,304	54,712,767
Gross Profit / (Loss)	**4,211,528**	**6,779,966**	**6,287,916**	**3,219,741**	**6,549,266**
Operating Expenses	3,778,415	6,137,070	4,589,369	2,519,547	4,685,116
Other Operating Charges	-	2,881,349	-	-	-
Net Operating Profit / (Loss)	**433,113**	**(2,238,453)**	**1,698,547**	**700,194**	**1,864,150**
Total Financial Income and Gains	**731,289**	**13,931**	**49,089**	**2,707**	**3,006**
External Interest receivable	1,647	5,838	2,531	2,707	3,006
Other financial income and gains	729,642	8,093	46,558	-	-
Total Financial Expenses and Losses	**43,122**	**36,942**	**31,597**	**42,472**	**40,705**
External Interest Payable	43,122	36,942	31,597	39,500	37,347
Group Interest Payable and Other Financial Expenses and Losses	-	-	-	2,972	3,358
Profit / (Loss) Before Taxes	**1,121,280**	**(2,261,464)**	**1,716,039**	**660,429**	**1,826,451**
Total Taxes	145,551	(375,620)	388,418	168,412	432,580
Current Taxes	112,815	(277,268)	352,218	168,964	442,848
Deferred and Other Taxation	32,736	(98,352)	36,200	(552)	(10,268)
Profit / (Loss) after Taxes	**975,729**	**(1,885,844)**	**1,327,621**	**492,017**	**1,393,871**
Minority Interests Profit/(Loss) Appropriation	-	(224,509)	192,379	-	-
Net Profit / (Loss)	**975,729**	**(1,661,335)**	**1,135,242**	**492,017**	**1,393,871**

STATEMENT OF RECONCILIATION	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
Retained Profit / (Loss) at start of year	2,459,305	4,872,172	3,735,716	3,191,190	1,797,319
Net Profit / (Loss) for the year	975,729	(1,661,335)	1,135,242	492,017	1,393,871
Dividends	0	0	0	0	0
Other Additions	-	6,231	1,214	-	-
Other Deductions	-	707,514	-	-	-
Retained Profit / (Loss) at end of year	3,435,034	2,509,554	4,872,172	3,683,207	3,191,190

Profit and Loss Notes	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
Total Payroll	15,096,859	18,414,765	17,472,385	10,159,660	9,652,083
Total Depreciation and Amortisation	114,332	111,708	48,163	70,331	130,453
Total Directors' Remuneration *	468,111	839,440	332,431	207,692	232,783
Highest Paid Director *	204,500	-	-	207,692	232,783
Total Auditors' Remuneration *	37,246	35,275	33,000	35,000	35,000
Auditors' Remuneration - Audit Fees *	37,246	35,275	33,000	25,000	25,000
Auditors' Remuneration - Non Audit Fees *	-	-	-	10,000	10,000

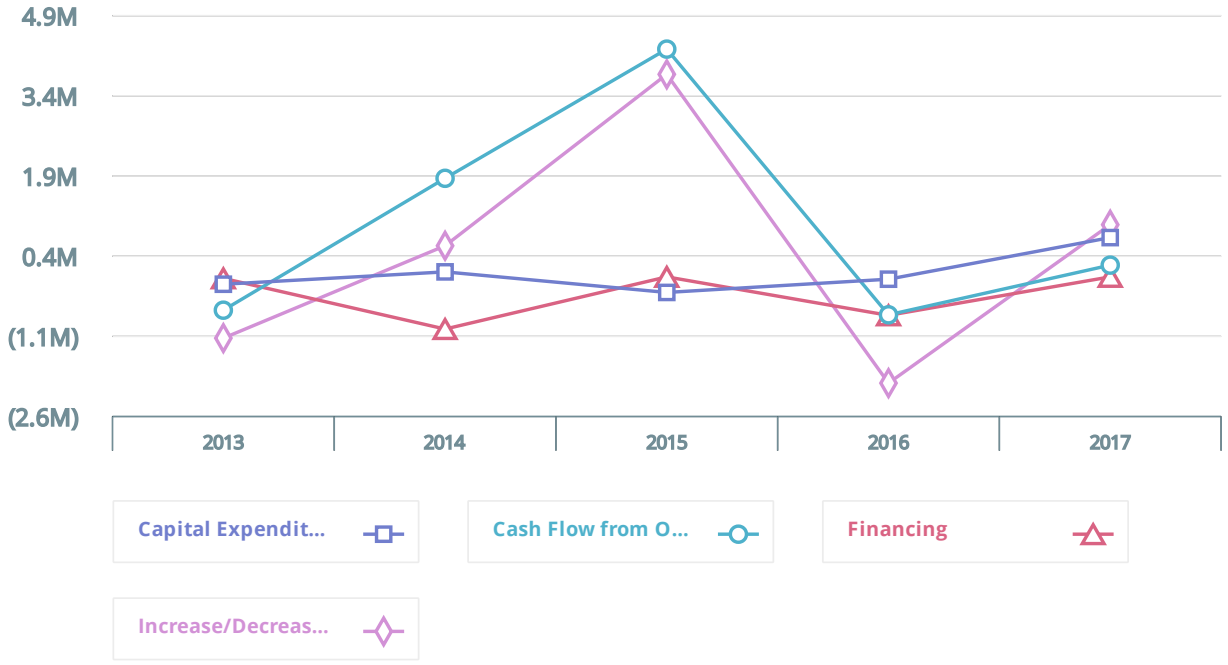
*=Full Value

Cash Flow

Source: D&B | Currency: All figures shown in GBP unless otherwise stated

Financial Statement Comparison

Annual



	Individual 31/12/2017 In Single Units	Consolidated 31/12/2016 In Single Units	Consolidated 31/12/2015 In Single Units	Individual 31/12/2014 In Single Units	Individual 31/12/2013 In Single Units
Cash Inflow from Operating Activities	228,910	(697,730)	4,257,264	1,848,015	(611,428)
Return on Investment & Servicing of Finance	1,647	(31,104)	(29,066)	(39,765)	(37,699)
Taxation	-	(501,595)	(170,253)	(353,495)	(338,614)
Capital Expenditure & Financial Investment	742,383	(33,316)	(280,400)	103,158	(127,210)
Cash Inflow (Outflow) Before Use of Liquid Assets & Financing	972,940	(1,263,745)	3,777,545	1,553,069	(1,114,951)
Financing	10,000	(707,514)	10,000	(963,251)	(17,677)
Increase (Decrease) in Cash in the Year	982,940	(1,971,259)	3,787,545	589,818	(1,132,628)

Financial Statement Comparison

Quarterly

Financial Ratios

Source: D&B | Currency: All figures shown in GBP unless otherwise stated

Profitability	31/12/2017	31/12/2016	31/12/2015	31/12/2014	31/12/2013
Profit Margin (%)	1.5	(2.8)	2.0	1.1	3.0
Shareholder's Return (%)	32.5	(89.7)	35.1	17.9	57.2

Profitability	31/12/2017	31/12/2016	31/12/2015	31/12/2014	31/12/2013
Return on Capital (%)	28.9	(73.8)	30.4	17.9	56.1
Return on Assets (%)	3.4	(9.3)	5.5	3.1	9.2

Financial Status	31/12/2017	31/12/2016	31/12/2015	31/12/2014	31/12/2013
Acid Test (x)	1.1	1.1	1.2	1.2	1.2
Current Ratio (x)	1.1	1.1	1.2	1.2	1.2
Solvency Ratio (x)	862.5	869.9	542.5	473.4	522.2
Fixed Assets / Networth (%)	2.6	8.7	6.6	2.2	7.9
Current Liabilities / Networth (%)	850.2	848.3	527.0	473.1	520.2
Current Liabilities / Stocks (%)	-	23,253.0	89,459.8	110,237.7	-

Asset Utility	31/12/2017	31/12/2016	31/12/2015	31/12/2014	31/12/2013
Stock Turnover Rate	-	876.1	2,921.8	3,754.9	-
Sales / Net Working Capital (x)	19.2	29.1	16.0	16.5	20.4
Assets/Sales (%)	45.8	30.3	37.3	35.6	32.4
Asset Turnover (%)	218.5	329.5	267.9	281.1	308.5
Collection Period (days)	110.0	41.6	97.6	117.8	73.0
Capital / Employee *	17.4	11.5	20.1	19.5	18.3

Employee *(In SingleUnits)	31/12/2017	31/12/2016	31/12/2015	31/12/2014	31/12/2013
Sales / Employee *	325.8	302.7	299.1	314.1	344.2
Profit / Employee *	5.0	(8.5)	6.1	3.5	10.3
Employee Average Wage *	67.7	69.2	62.2	53.8	54.2

Growth Rates (%)

	2017 vs 2016	2016 vs 2015	2015 vs 2014	2014 vs 2013
Turnover	(9.78)	(4.18)	41.58	(3.10)
Gross Profit	(37.88)	7.83	95.29	(50.84)
Net Operating Profit / (Loss)	119.35	(231.79)	142.58	(62.44)
Profit / (Loss) Before Tax	149.58	(231.78)	159.84	(63.84)
Profit / (Loss) After Tax	151.74	(242.05)	169.83	(64.70)
Net Profit / (Loss) for the Year	158.73	(246.34)	130.73	(64.70)
Number of Employees	(16.17)	(5.34)	48.68	6.18
Profit / Employee	158.82	(239.34)	74.29	(66.02)
Current Assets	37.33	(22.09)	47.36	7.28
Total Current Liabilities	37.43	(16.94)	47.65	4.97
Total Assets less Current Liabilities	26.68	(45.65)	52.66	13.43

	2017 vs 2016	2016 vs 2015	2015 vs 2014	2014 vs 2013
Net Current Assets (Liabilities)	36.60	(47.32)	45.93	20.04
Long Term Liabilities	(21.70)	(27.94)	8,160.89	(85.73)
Net Assets	37.13	(48.39)	32.55	15.42

Registry Info

General Info

Registration Number
05799522

Registered Address
2ND FLOOR EMPEROR'S GATE 114A
CROMWELL ROAD
LONDON, SW7 4ES
United Kingdom

Registration Date
28/04/2006

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Dornan Environmental, Health & Safety Manual

1. **Index**

Contents

Revision History

Rev	Date	Summary	Prepared EHS Manager	Approved Managing Director
Draft	11/11/2016	Review & feedback	B Foskin	O Lonergan
0	02/01/2017	Initial Release	B Foskin	O Lonergan
1	05/01/2018	Annual Review and some management procedures removed due to EHSQ integration.	B Foskin	O Lonergan
2	04/01/2019	Annual Review and Inclusion of Environmental Aspects Assessment Procedure.	B Foskin	O Lonergan

2. Manual Introduction

The EHS manual is the property of Dornan Engineering Holdings Limited * & all its concerned subsidiaries which includes Dornan Engineering Services Ltd., Dornan Engineering Ltd., Kantor Energy Limited (Hereinafter referred to as Dornan). The EHS manual outlines the plans to satisfy the Environmental, Health and Safety requirements for Dornan.

The Manual replaces the following documents:

- The Irish Safety Statement
- The UK Safety Policy
- European Safety Statement/other requirements

The manual is a 'controlled' document within Dornan's Integrated EHS Management System. The manual is intended for use as a public document that displays the company's commitment to achieving a high standard of environmental, health and safety compliance in all our activities.

2.1. Manual Administration

The purpose of this section is to ensure that all issues associated with this manual are uniquely identified, and that changes to the manual and subsequent re-issue are properly controlled. Each section of this manual is identified by its own individual page and reference number to enable individual policy/procedure distribution throughout the organisation. The manual as a whole will have an individual issue revision number. Changes to the manual contents will only be made by the Dornan Group EHS Manager with the approval of the Managing Director.

A copy of this document is available to all Dornan employees. An electronic copy of the document is available via the Dornan EHS public server, and the company website www.dornangroup.com.

Policy/Procedure Master Register tracks all changes to each Policy/Procedure and is available on Dornan's EHS public server.

This document and its contents may not be copied or loaned to a third party without prior consent in writing from Dornan. Any such request should be directed to the EHS Manager. One master copy of all superseded versions of this document shall be retained for record purposes. Revisions of this manual will be with the express authority/approval of the Dornan Managing Director

At a minimum, Dornan will complete an annual review of the EHS manual, procedures, policies, and management system requirements.

3. Health and Safety Policy Statement

Health & Safety Policy

DORNAN

Our objectives at Dornan are to provide a safe working environment for all our employees and subcontractors. The senior management of the Company is committed to the prevention of injury and ill health and continual improvement in Safety Management and Safety performance.

We undertake to:

- Comply with all applicable safety legislation
- Provide sufficient resources to meet our objectives
- Manage our work activities to minimize the risk of accidents to our employees, subcontractors and the general public
- Consult with employees, subcontractors and others to continuously improve safety on all projects and places of work
- Continually improve our safety management systems and actively seek to establish and maintain the highest possible standards of Health, Safety and Welfare.
- Keep our procedures under constant review in order to ensure on-going compliance with current legislation and best practice.
- Fully support all employees in their rights to cease work where the employee believes that a task or condition will endanger either themselves or others.

In order to achieve our objectives we require the help and co-operation of all employees and contractors to:

- Take all actions necessary to secure their personal safety and that of their fellow workers
- Comply with all relevant duties under health and safety legislation, Dornan safety policies and with industry best practice.
- Notify Dornan Management of any hazards and potential hazards as soon as possible
- Understand the consequences of non-compliance with Health & Safety rules

This policy will be reviewed annually and at all times remain relevant and appropriate to the Company. It will be communicated to all employees and prominently displayed at all Dornan workplaces.

Oliver Lonergan

Managing Director

2/01/2019

Date

4. Environmental Policy Statement

Environmental Policy

DORNAN

Dornan are committed to a policy of effectively managing environmental performance in order to minimise the impact of our business processes on the natural environment and the community at large. This commitment extends to all the company's business units, workplaces, employees and subcontractors.

We are committed to:

- Developing and maintaining a Comprehensive Environmental Management System, which ensures compliance with all Environmental Legislation, Regulations, codes of Practice, and any other standard to which the company subscribes.
- Meeting and, where possible, exceeding current regulatory requirements placed upon the business.
- Prioritising and continuously improving environmental management systems and thus environmental performance, while delivering services to our clients.
- Educating employees at all levels to identify areas of environmental risk and to take measures to protect the environment, including; to avoid pollution of land, air or water, to source and use resources sustainably and to protect ecosystems.
- Working with suppliers, subcontractors and others who contribute to the project effort to achieve similar standards of environmental management and awareness
- Engaging openly with community, government authorities and recognised special interest groups in order to share understanding and to cooperate as appropriate
- Setting business specific environmental targets and objectives, auditing and reviewing performance against targets and report progress annually to the Board of Directors.

Oliver Lonergan

Managing Director

Date 2/01/2019

5. COHE Policy (Control of Hazardous Energies)

5.1. Purpose

The purpose of the policy is to ensure that machinery or equipment is stopped, isolated from all hazardous energy sources, and properly Locked Out and Tagged Out.

5.2. Scope

This policy applies to all Dornan employees, subcontractors and workplaces.

5.3. Definitions

Affected Employee (AFE): A person who uses equipment that is being serviced under Lock Out and Tag Out procedures, or who works in an area where equipment is being serviced.

Authorising Engineer (AUE): Engineer based on site appointed by Dornan to implement and monitor electrical safety rules and procedures. Appoints Senior Authorised Person (SAP), Authorised Person and Skilled Person.

Authorised Employee (AE): A person who locks out or tags out equipment to do service or maintenance work. An affected employee becomes an authorised employee when that employee's duties include service or maintenance work on equipment.

Authorised Person (AP): The employees authorized by AE to receive, action, close out and return an isolation/energisation permit and have the necessary competencies to use lock out/tag out while performing installation, commissioning, servicing or maintenance tasks. Upon receipt of an approved permit/isolation request, the AP may perform Lock Out and Tag Out on behalf of the SAP.

Accompanying Competent Person (ACP): The Authorised Person may specify on a safety document that for certain work, an accompanying person is required in attendance during the work or testing.

Nominated Person: Someone identified by DEL with adequate training and experience to take on full responsibility for the control of Electrical Energy (LOTO, energisation etc.).

Senior Authorised Person (SAP): Person appointed by the Authorising Engineer to implement and operate the electrical safety rules and procedures for a site.

Skilled Employee: A person with technical knowledge or sufficient experience to enable him/her to avoid dangers which electricity may create.

Capable of being locked out: An energy-isolating device that is designed with a hasp or other means of attachment to which or through which a lock can be affixed, or if it has a locking mechanism built into it. Other energy-isolating devices will also be considered to be capable of being locked out, if lock out can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy-control capability.

Disconnect: A switch that disconnects an electrical circuit or load (motor, transformer, or panel) from the conductors that supply power to it. An open circuit does not allow electrical current to flow. Under a lockout procedure, a disconnect must be capable of being locked in the open position. Also a valve that can turn on a mechanical supply on a pipe line.

Energised: Connected to an energy source or containing potential energy.

Energy Source: Any source of energy. Examples: electrical, mechanical, hydraulic, pneumatic, chemical, and thermal.

Energy-Isolating Device: A mechanical device that physically prevents transmission or release of energy.

Hazardous Energy: Any of the types of energy existing at a level or quantity that could be harmful to workers or cause injury through inadvertent release or start-up of equipment.

Lockout Device: A device that locks an energy-isolating device in the safe position.

Nominated Person: Someone identified by DEL with adequate training and experience to take on full responsibility for the control of Electrical Energy (LOTO, energisation etc.).

Lockout: Placing a lockout device on an energy-isolating device, under an established procedure, to ensure the energy-isolating device and the equipment it controls cannot be operated until the lockout device is removed. (An energy-isolating device is capable of being locked out if it has a hasp that accepts a lock or if it has a locking mechanism built into it.)

Procedure: A series of steps taken to isolate energy and shut down equipment.

Tag out device: A prominent warning sign, such as a tag, that can be securely fastened to an energy-isolating device to indicate that the energy-isolating device and the equipment it controls cannot be operated until the tag out device is removed.

Tag out: Placing a tag out device on an energy-isolating device, under an established procedure, to indicate that the energy-isolating device and the equipment it controls cannot be operated until the tag out device is removed.

5.4. Responsibilities

Project Manager/Nominated Person

Develop written lockout-tag out procedures for all equipment as necessary. A written safe system of work needs to be in place prior to authorizing work to proceed. Has ultimate responsibility for control of Electrical Energy. Ensure that necessary locks, tags and other protective devices are available and properly used by staff. An up-to-date listing of energy control program devices shall be maintained and the distribution of devices shall be logged. Ensure that authorised staff are experienced, have received the required training and understand the requirements of this policy. Mechanical and electrical safety rules are on the EHS Public server. These must be complied with. A LOTO procedure template is also available on the EHS Public server.

Authorised Personnel (AUE, AE, AP, ACP)

Authorised Person are personnel responsible for implementing any measures required for hazardous energy control. Authorised Person shall receive specialised training to understand the types, magnitude and hazards of energy presented by the equipment they are authorised to lock out.

Environmental Health and Safety (EHS) Manager

Group EHS manager is responsible for the development of this policy and for its periodic review and updating. Site EHS officers will assist in the development of training programs related to this policy. Site EHS officers have the authority to stop work when actions that are not in compliance with this policy are observed.

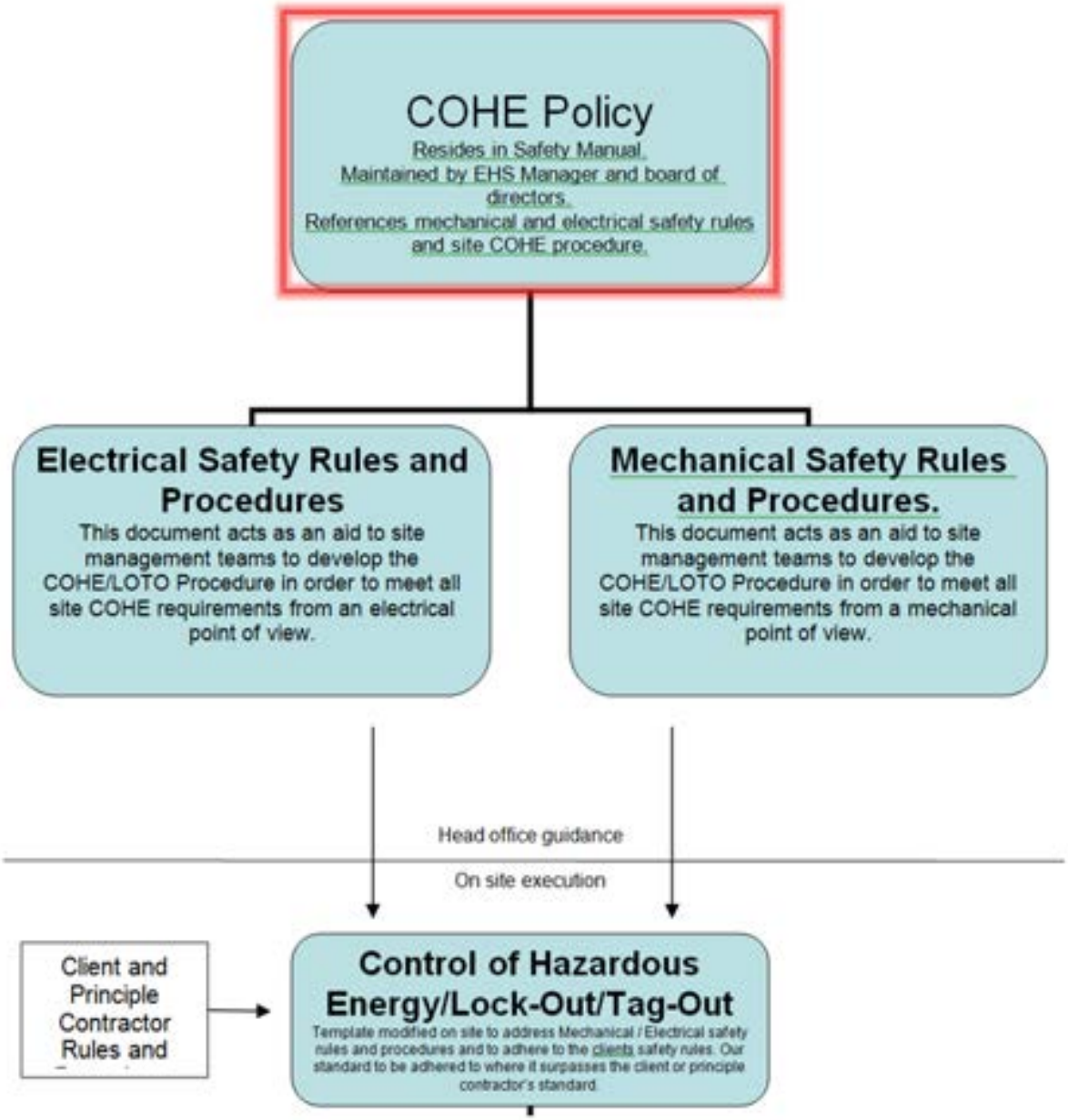
All Employees & Subcontractors (AFE)

Employees and others shall not attempt to start-up or energise equipment or systems that have been Locked Out and Tagged Out. Employees & others must follow the lockout/tag out procedures described in this policy. Employees who work in areas where lockout/tag out procedures are used must understand the purpose of the procedures and are prohibited from attempting to restart machines or equipment that are locked and tagged.

5.5. Procedure

Process Overview

Project specific arrangements are designed, taking into account internal policies/procedures and technical/specialist advice.



This establishes the Dornan policy for protecting employees & others who carry out work where there is a risk of unexpected start-up or release of hazardous energy including includes potential, kinetic, flammable, chemical, electrical, and thermal sources. This work includes installing,

constructing, repairing, testing, commissioning and dismantling machines, equipment or processes.

Minimum Control Measures

The following minimum procedures must be followed during the application of lock out-tag out controls. These generic procedures need to be customised for each project by establishing specific, written energy isolation protocols.

Where required the authorised nominated person or supervisor must notify people affected by a shutdown that a loss of service will occur and provide the expected start and duration of the project and a description of all systems shutdown. Sufficient lead time should be provided to allow affected areas to prepare for shutdown.

The subject equipment or system shall be shutdown using normal procedures. Following shutdown, the **Lock Out and Tag Out** devices are attached to each energy isolating device by the each companies authorised employee involved this work. Always Lock and Tag.

Once **Lock Out and Tag Out** has been completed, all potentially hazardous stored or residual energy must be relieved, disconnected, restrained and otherwise rendered and confirmed safe. Always test for “Dead” to prove that energy is dissipated.

Prior to starting work on the subject equipment or systems, the authorised employee shall verify that isolation and de-energization has been completed successfully, by attempting to start the equipment with LOTO in place

Once work is complete and prior to removal of the **Lock Out and Tag Out** devices, the work area shall be inspected to ensure equipment is safe to Energise and that nonessential items have been removed. The work area shall also be inspected to ensure that all employees have been safely positioned or removed.

Following the removal of lockout and tag out devices, affected employees shall be notified that the equipment or system will be restarted. A test, to prove that no short circuits are present, will be conducted prior to restarting equipment. The Applied (LOTO) lock out and tag out shall only be removed by the authorised Person.

If the Authorised Person is not available to remove a lock out device, removal may be done by the Accompanying competent person (ACP) and approved by Authorising Engineer but only after making all reasonable efforts to contact the authorised person and after verifying that the equipment or system is safe.

The Authorised Person must be informed that their lock out device has been removed. When servicing or maintenance is performed by more than one crew, trade or group, group lockout and tag out devices shall be used. Each authorised employee shall affix a personal lockout and tag out device to the group lockout device, lockbox or comparable mechanism when beginning work and shall remove the device when work is completed. Nominated person to be in control of work activity.

The Authorised Person who locks out and tags out equipment must follow specific written COHE procedures. The procedures must include the following information:

- The intended use of the procedure.
- Steps for shutting down, isolating, blocking, and securing equipment.
- Steps for placing, removing, and transferring lockout devices.

- Equipment-testing requirements to verify the effectiveness of the energy-control procedures.

When re-energising equipment is necessary (when power is needed to test or position the equipment, for example) temporary removal of lockout devices is allowed. This applies only for the time required to perform the task and the procedure must be documented and approved.

Isolation:

Inform all affected employees of equipment shutdown.
Shut down equipment.
Isolate or block hazardous energy.
Remove any potential (stored) energy and test for "Dead" to prove that energy is dissipated.
Lock Out and Tag Out the energy sources.
Verify the equipment is isolated from hazardous energy. Test to ensure that the system is dead.

Energisation:

Remove tools and replace machine or equipment components.
Inform co-workers about energy-control device removal.
Ensure all workers are clear of the work area.
Verify machine or equipment power controls are off or in a neutral position.
Remove the **Lock Out and Tag Out** device.
Re-energise equipment.

Lockout and Tag out Devices:

Lockout and tag out devices must meet the following criteria to ensure that they are effective and cannot be removed inadvertently:

- Lockout devices must work under the environmental conditions in which they are used. Tag out device warnings must remain legible even when they are used in wet, damp, or corrosive conditions.
- Lockout and tag out devices must be designated by colour, shape, or size. Tag out devices must have a standardized print and warning format with date applied and person responsible stated on the tag.
- Lockout devices and tag out devices must be strong enough so that they can't be removed inadvertently. Tag out devices must be attached with a single-use, self-locking material such as a nylon cable tie.
- Any employee who sees a lockout or tag out device must be able to recognise who attached it and its purpose.
- Each lock must have a unique key and spare keys must be destroyed before lock is introduced to LOTO System.
- The location of each lock with unique number must be controlled using a lock register
- Energy-isolating devices are the primary means for protecting employees and must be designed to accept a lockout device. Energy isolating devices must clearly identify function.
- **Electrical energy sources: Lock Out and Tag Out** of electrical energy sources must occur at the circuit disconnect switch. Electrical control circuitry does not effectively isolate hazardous energy. See also **Alternative methods**.

<u>Lock Out/Tag Out Applicable to Testing</u>

Energised Testing

When an energy-isolating device is locked or tagged and it is necessary to test the equipment, do the following:
Obtain permission and relevant permit

Remove any unnecessary tools or materials
Ensure that all other employees are out of the area.
Ensure correct exclusion zone set up
Remove locks or tags from energy isolating devices.
Wear suitable PPE.
Proceed with live tests.
De-energise equipment and **Lock Out and Tag Out** energy-isolating devices.
Operate equipment controls to verify that the equipment is de-energized.
Prove/Test/Prove

Multiple Lockout

When authorised employees must service equipment that has several energy sources and several energy-isolating devices, the employees must follow procedures applicable to multiple lockout situations.

Exposure Survey

Site management will conduct a hazardous-energy survey to determine affected equipment, types and magnitude of energy, and necessary tasks to be carried out. Each task will be risk assessed to determine if it must be accomplished with Lock Out and Tag Out procedures.

Alternative Methods

When Lock Out and Tag Out is ***not*** used for tasks that are routine, repetitive, and integral to the production process, or prohibits the completion of those tasks, then an alternative method must be used to control hazardous energy.
Selection of an alternative control method must be based on a risk assessment of the machine, equipment, or process. The risk assessment must consider existing safeguards provided with the machine, equipment or process that may need to be removed or modified to perform a given task.
Under all circumstances, the individual must have exclusive personal control over the means to maintain the state of the control circuit in a protective mode.

Training

Employees who may be exposed to hazardous energy will receive training before assignment to ensure that they understand Dornan COHE policy and have skills to apply, use, and remove energy controls. The training will include the following:

Affected employees will be trained in the purpose and use of energy-control procedures. *An affected employee uses equipment that is being serviced under lockout or tag out procedures or works in an area where equipment is being serviced.*

Authorised employees will be trained to recognise hazardous energy sources, the type and magnitude of energy in the workplace, the methods and means necessary for isolating and controlling energy, and the means to verify that the energy is controlled. *An authorised employee locks out or tags out equipment to do service work. An affected employee becomes an authorised employee when that employee's duties include service or maintenance work on equipment.*

Employees whose jobs are in areas where energy-control procedures are used will be trained on the procedures and the prohibition against starting machines that are locked or tagged out. Employees will be retrained annually to ensure they understand energy-control policy and procedures.

Authorised and Affected Employees will be retrained whenever their job assignments change, energy-control procedures change, equipment or work processes present new hazards, or when they don't follow energy-control procedures. Current training records will be maintained for each authorised and affected employee including the employee's name and the training date.

Emergency Action

In the event of an accident, or an electric shock being received by the person carrying out the work, or testing, the Accompanying authorised person shall:

- Isolate the electrical equipment and if necessary move the person from the area of danger.
- Using the communication system previously established, summon help and assistance.
- Carry out first aid in accordance with emergency first aid training.
- Once emergency first aid has been administered and the situation is under control, barrier off the equipment to ensure no interference is allowed until a supervisor arrives and takes charge of the situation.
- Prepare a formal statement for the AE and EHS Advisor outlining the events leading up to the incident and the subsequent actions taken.

Inspections of Written Energy-Control Procedures

Ongoing supervision and safety inspections of procedures must take place for the duration of the project.

5.6. Reference/Records

Internal

- Project specific procedure-Control of Hazardous Energies Lock-Out/Tag-Out
- LOTO Log
- Control of Hazardous Energies – Doc No.- DEL-LOTO-002 MV Authorised Person
- Control of Hazardous Energies - Doc No. DEL-LOTO-003 Isolation request
- Control of Hazardous Energies - Doc No.DEL-LOTO-004 LV Energisation Request
- Control of Hazardous Energies – Doc. No- DEL-LOTO-005 Emergency / Lost / Abandoned Lock removal Form
- Control of Hazardous Energies - Doc No.-DEL-LOTO-006 LV Authorised person
- LV ENERGISATIONS - Doc No.DEL-LOTO-007 acceptance form
- Control of Hazardous Energies -Doc No.-DEL-LOTO-008 Mechanical Energisation Request
- Permit to work- (No Doc Number Required as each permit has its own individual permit number/reference)
- EWI034 Procedure for working on or adjacent to potentially live LV electrical distribution and control systems including switch rooms
- HSG-04 Tool for periodic inspection of energy control procedures
- HSG-09 Mechanical Safety Rules
- HSG-10 Electrical Safety Rules

External

- BS EN 50110-1:2013 Operation of electrical installations -Part 1: General Requirements.

6. Lighting Policy

6.1. Purpose

The purpose of this document is to outline the lighting requirements for Dornan places of work, including access to the place of work.

6.2. Scope

This document is applicable to all Dornan places of work.

6.3. Definitions

Lumen: the unit of visible light
Lux: one lumen per M^2

6.4. Responsibilities

Project Manager

To ensure that there is adequate resources available to adequately light all Dornan work areas and access to those work areas.

Construction Manager / Supervisor

To ensure that work areas are adequately illuminated prior to commencing works and during works in an area.

EHS Advisor

Monitor lighting levels during inspections and audits in the workplace.

Responsibilities of All Employees

Stop works and report to the supervisor on any lighting issues

6.5. Policy

Where artificial lighting shall be required, it shall not adversely affect or change the perception of any sign or signal provided for the purpose of health and safety.

In all work areas under Dornan's control, suitable and sufficient secondary lighting shall be provided in areas where there would be a risk to the health and safety of any person in the event of failure or primary artificial lighting.

Level of Illumination

The level of illumination required to provide conditions in which work can be carried out without undue risk or fatigue. A risk assessment shall be carried out in the first instance to assess the lighting in the workplace. As per the Minimum lighting recommendations in 'Lighting at Work HSG 38 HSE Guidance'.

In practice however, these figures may need to be increased in several instances. More light may be needed depending on the tasks or individual and this shall be determined by a risk assessment. Levels of Illumination shall be monitored to ensure company compliance with this policy.

6.6. Reference Documents

- Lighting at Work HSG 38 HSE Guidance
- Relevant BGRA

7. Signage Policy

7.1. Purpose

The purpose of this document is to give guidance on the use of signage on site. This policy set out requirements for the use of signage on site.

7.2. Scope

This policy applies to all Dornan work areas.

7.3. Definitions

None.

7.4. Responsibilities

Site Supervisor

To ensure that adequate signage is in place to warn and illustrate to employees the presence of hazards as well as other information for their safety health and welfare.

Site EHS Advisor

To conduct an assessment of the workplace with the site manager and to issue guidance on where signage is required.

Employees/Sub-contractors

To adhere to barriers and signage posted in their work area.

7.5. Policy

An assessment of the work area to be carried out, identifying the requirement for signage. Signs will be utilised to signify hazards, prohibited area, mandatory PPE, the locations of firefighting equipment, escape and diversion routes, obstacles, first aid locations as a minimum.

Text on signs should not be used if the meaning of the sign is clear from a pictogram. Where explanation is necessary then the text can be added to a supplementary signboard on the same carrier.

Signs are to adhere to the following colour code and style.

Sign Type	Meaning / Information	Shape and Colours	Example	Note	
Prohibition	Danger alarm - Stop, shutdown, emergency cut-out devices Evacuate	Shape Background Symbol / pictogram	Round White Black		The safety colour red must appear around the edge and in a transverse bar and must cover at least 35% of the surface of the sign.
Fire Fighting	Firefighting equipment - Identification and location	Shape Background Symbol / pictogram	Rectangular or Square Red White		Signboards or a safety colour (or both) shall be used to mark permanently the location and identification of fire-fighting equipment.
Warning	Warning sign - Be careful, take precautions Examine	Shape Background Symbol / pictogram	Triangular Yellow with black edging Black		A yellow triangle must have a black edge. The safety colour yellow must cover at least 50% of the surface of the sign.
Mandatory	Mandatory sign - Specific behaviour or action Wear personal protective equipment	Shape Background Symbol / pictogram	Round Blue White		The safety colour blue must cover at least 50% of the surface of the sign.
Emergency Escape/ First Aid	Emergency Escape/ First Aid - Doors, exits, routes, equipment, facilities	Shape Background Symbol / pictogram	Rectangular or square Green White		The safety colour green must cover at least 50% of the surface of the sign.
No Danger	No Danger, Rescue Equipment - Return to normal	Background	Green		
Supplementary Signs	Used with signboard for supplementary information, includes information in writing	Background Symbol / pictogram Background Symbol / pictogram	White Black Safety colour Contrasting colour	 	Should not be used if the meaning is clear by use of a pictogram or symbol alone
Obstacles, dangerous locations	Risk of colliding with obstacles, of falling or of objects falling	Background	Yellow and black or red and white stripes at ~45° angle and more or less equal size		Places with a risk of colliding with obstacles or of falling shall be permanently marked with a safety colour or with signboards (or both).
Traffic routes	Traffic routes for vehicles	Background	Continuous white or yellow lines where require		Where required for the protection of persons, traffic routes for vehicles shall be clearly identified by continuous stripes in a clearly visible colour.

Signage Requirements

Having multiple messages on the same sign should be avoided. Separate pictograms on the same carrier should be used instead. Having combination signage should be utilised where possible as in a warning pictogram and a mandatory signage pictogram. This warns as to what the hazard is and also gives the information on the safe way to proceed. Another example would be to use a prohibition sign (maybe a no access sign) accompanied by a directional sign showing the way around the restricted area.

Every effort should be used to exclude unauthorised persons from our work areas. Signage can be ineffective without a robust, secured barrier.

A signage catalogue is available on the EHS public server.

7.6. Reference/Records

- Applicable local legislation
- Construction Phase Health & Safety Plans
- HSFM-01 Risk assessment form
- Regulatory Body (HSE. HSA etc.) Guidance
- Signage catalogue on the EHS public server
- Dornan BGRA's

8. Site Traffic Policy

8.1. Purpose

Every construction site must be organised in such a way that pedestrians and vehicles can move safely. Clearly defined instructions and marked routes should be provided for pedestrians and vehicles. Site Traffic includes the interface between the movement onsite of vehicles & persons / pedestrians.

8.2. Scope

This procedure is applicable to Dornan workplaces. Workplaces to include but not limited to - compounds/laydowns/workshops and any area of Dornan control.

8.3. Definition

The term 'vehicles' includes: cars, vans, lorries, low-loaders and mobile plant such as excavators, lift trucks and site dumpers etc..

8.4. Responsibilities

The Site Owner shall organise a construction site so that vehicles and pedestrians using site routes can move around safely. The routes need to be suitable for the persons or vehicles using them, in suitable positions and sufficient in number and size.

Project Manager

Ensuring adequate measures are in place for access/egress for vehicles relating to Dornan's business activities arriving to site. Liaising with the site owner to ensure the necessary authorisation is in place ensuring safe access for site plant & equipment. Highlighting any site restrictions prior to deliveries of plant & equipment for use onsite. Ensuring that adequate Risk Assessment is completed for site traffic.

EHS Advisor

To monitor compliance with conditions set out in the Site traffic management plan or equivalent.
Check that adequate Risk Assessment is completed for site plant and equipment

Employees

To report any defective plant and equipment.
Adhere to site rules in relation to speed limits and the site restrictions in relation to the use of plant and equipment in certain areas.
To comply with the site traffic management plan at all times.
Complete checks & document said checks on plant and equipment as per site requirements.

8.5. Policy

Project Site Traffic Management plans should contain a section describing contingency plans to deal with emergencies, which could occur at that site or premises.

The following will help keep pedestrians and vehicles apart:

- **Entrances and exits** - provide separate entry and exit gateways for pedestrians and vehicles.
- **Walkways** - provide firm, level, well-drained pedestrian walkways that take a direct route where possible.
- **Crossings** - where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly.

- **Visibility** - make sure drivers driving onto public roads can see both ways along the footway before they move on to it.
- **Obstructions** – do not block walkways so that pedestrians have to step onto the vehicle route.
- **Barriers** – pedestrian routes must be segregated with physical barriers from vehicle routes.

Risk Assessment

Pedestrians

- Dornan personnel are to use the approved designated routes.
- Adequate lighting to be available so that access is visible.
- Any obstruction of these routes shall be reported immediately.
- Any works completed by Dornan shall not obstruct access or egress routes.
- Safe crossing points should be provided where people have to cross main vehicle routes.
- Unloading of vehicles should only take place at specified loading bays as instructed by the Site Owner/Representative.
- Pedestrian routes shall be segregated with physical barriers from vehicle routes.

Vehicles

- Dornan's personnel are to use designated routes and comply with routes, speed limits and the traffic management plan.
- Dornan operators of vehicles shall be competent, trained and authorised in the use of equipment and will use the vehicle as per the manufacturer's instructions.
- No unauthorised person shall ride on vehicles.
- The vehicle in use shall be fit for purpose and correct for the job in hand.
- The vehicle shall be inspected and maintained as per manufacturer's instruction.
- Designated parking facilities for plant - reverse parked where necessary.
- Proper design guideline for the stores/workshops/compounds.
- Only those, licenced where applicable, and deemed competent by their project managers are permitted to tow trailers.
- Loading areas to be planned as to not block or impede access.

Deliveries

Laydown areas are to be assessed to ensure suitability of materials required and the accessibility for the delivery truck, and the safe access for pedestrians in through the area. Materials are to be palleted where practical so that they can be easily removed with a telehandlier.

Access to the bed of the truck is to be avoided wherever possible. Suitable controls to ensure safety are to be adopted if access to the back of the truck or trailer is required.

The material supplier is to be made aware of any local road restrictions pertaining to the site.

Traffic Management Plan

The information included in the Traffic Management Plan or information given by the Site Owner or their appointee shall be used to ensure Dornan's EHS plan, task specific risk assessments and

method statements are specific to site. The management of deliveries must be considered in the site-specific EHS plan.

The requirements or changes within the traffic management plan must be communicated to all employees for that site.

Training

- Any Dornan employees operating a site vehicle shall be in possession of a valid, recognised operators training card/certificate, licence as required.
- Familiarisation training must be carried out as per manufactures instructions.

8.6. Reference/Records

- Site traffic management plan
- Dornan BGRA's
- BGRA 32 Site Plant and Machinery
- BGRA 38 Transport (Delivery Vehicles on Site)
- BGRA 43 Driving in Company Transport
- BRGA 56 Telescopic Handliers
- BGRA 57 Use of Buggies
- BGRA 64 Use of Car Trailers

9. Control of Noise Policy

9.1. Purpose

Dornan shall ensure that the noise levels exposed to our employees is controlled and that no noise levels will become a hazard to a person's health.

9.2. Scope

This policy is applicable to those Dornan employees or employees of subcontractors, while involved in work related to Dornan business which involves the use of equipment that may be likely to have a noise level emitted.

9.3. Definition

- Noise - means any audible sound.
- Decibel (dB) – the unit of measurement of the intensity of sound, the higher the dB, the louder the sound. For a rise of 3 dB, the sound will be twice as loud.
- Exposure – exposure to sound at work.
- Action Levels – the level of exposure to noise that is averaged out over a working day or week and the maximum noise to which an employee is exposed to in a working day.
- Maximum Exposure Value – the levels of noise exposure that must not be exceeded.
- Control Measures – any measures that need to reduce the risk in the workplace.
- Acoustic Shock – a sudden and unexpected noise which is perceived as loud, that is transmitted through a telephone or headset that may cause an adverse reaction.

9.4. Responsibility

Project Manager

Ensure that the risk to health is considered in all risk assessments and that records are maintained throughout the project.
Designate and provide signage for hearing protection zones, where necessary, where exposure to workers is equal to or exceeds the upper action value (see signage policy).
Make hearing protection and other necessary resources available to employees where required.
Provide supervision to ensure that this procedure is complied with.
Ensure measures are implemented and maintained to reduce the risk of health to its lowest reasonably practicable level. Ensure appropriate records are maintained. Use noise control measures, limit exposure to workforce.

Site Supervisor

Ensure that workers are aware of tasks that can have a detrimental effect on their hearing, where the personal exposure is above the upper action value and provide the relevant information.

Ensure that hearing protection zones are maintained and have the correct signage to designate such zones.

Ensure that workers are wearing the hearing protection where hearing protection zones have been identified.

Ensure that the control measures identified within the risk assessment are being complied with at all times.

Where hearing protection has become damaged/ineffective, ensure there is a supply on site for replacement.

Ensure that equipment used has been maintained and is fit for use.

Those Inducting Employees

Ensure that all employees are aware of the relevant occupational health policies.

EHS Advisor

To monitor compliance with Dornan's occupational health policy at all work locations. Check that adequate risk assessments are completed for occupational hazards on site.

Responsibilities of all employees

Comply with and use the measures Dornan provide to reduce hazards associated with noise. Use noise control measures, such as silencers and enclosures in accordance with employer/manufacturer's instructions. Follow any training or instruction given. Wear hearing protection as instructed when exposed to or above the upper exposure action values and anytime in an area marked as hearing protection zone. Take care of any hearing protection or noise control equipment they need to use. Report any defect in the hearing protection or other protective measures or any difficulties in using them. Consider the persons near the task to ensure they are not affected by our acts and omissions. Follow any site rules concerning noise. Stop works and report to the supervisor on any noise issues. Report any issues or health problems. All employees must read, understand and sign safe systems of work before work commences.

9.5. Policy

Dornan shall keep up with good practice and relevant construction industry standards for noise control. It is the company's policy to control the exposure of workers as regards to noise levels as far as reasonably practicable & encourage continuous improvements.

9.6. Risk Assessment

Dornan shall take specific action at certain action values.

A specific noise assessment should be undertaken to identify all work activities/tasks where there is likely to be a noise hazard. This will be referenced and used in the task specific risk assessments where a noise hazard is present.

Dornan shall use the hierarchy of controls as follows to control any noise hazard:

- Eliminate
- Reduce noise at source
- Control of exposure i.e. enclose - isolate
- Hearing protection zones
- Safe systems of work
- Maintenance of equipment
- Information Instruction Training Supervision (IITS)
- PPE

Noise Exposure Action Levels

At the lower exposure action level of 80dB(A) - Peak Sound Pressure 135dB(C):

- Inform, instruct and train employees on the hearing/noise risks.

- Supply hearing protection to these employees upon request.
- Ensure that any equipment or arrangements provided is suitable and that the equipment is correctly used or implemented.
- At the upper exposure action level of 85dB(A) - Peak Sound Pressure 137dB(C).
- Reduce and control exposure to noise by means other than hearing protection.
- Establish hearing protection zones, marked by signs and ensure that anybody entering the zone is wearing hearing protection.
- Supply hearing protection to the correct attenuation level and ensure that it is worn.

Tools & Equipment

Dornan work tools and equipment are required to be inspected and maintained on a regular basis and recorded. Tools and equipment must be maintained regularly so that noise levels can be kept to a minimum and that noise control devices are working correctly. Employees have a duty to visually inspect any equipment before use and report and faulty or damaged items.

Third Party Noise

Shall be controlled and co-ordinated by the main contractor and Dornan controls shall be used to reduce exposure to employees.

9.7. Reference/Records

- Dornan BGRA's
- Register of Company Equipment Noise Levels
- Company Equipment noise assessments
- Noise Assessment completed by external specialists

10. Control of Vibration Policy

10.1. Purpose

The purpose of this policy is to determine and control vibration levels which Dornan employees may be exposed in their place of work so as not to result in injury or cause ill health.

10.2. Scope

This policy is applicable to those Dornan employees or employees of subcontractors, while involved in work related to Dornan business, which involves the use of equipment that may be likely to have a vibration level emitted.

10.3. Definition

Vibration means rapid movement back and forth or oscillating movement. Mechanical vibrations at work can expose workers to hand-arm vibration (HAV) and or whole-body vibration (WBV).

10.4. Responsibilities

Project Manager

Ensure that the risk to health is considered in all risk assessments and that records are maintained throughout the project. Ensure measures are implemented and maintained to reduce the risk of health to its lowest reasonably practicable level and ensure procedures are established to allows operator rest periods / change of tasks. Ensure appropriate records are maintained. Use vibration control measures to limit exposure to workforce.

Those Inducting Employees

Ensure that all employees are aware of the relevant occupational health policies.

EHS Advisor

To monitor compliance with Dornan's occupational health policy at all work locations. Check that adequate risk assessments are completed for occupational hazards on site

Responsibilities of All Employees

Comply with and use the measures Dornan provide to reduce vibration hazards. Use vibration control measures, limit work exposure. Follow any training or instruction given. Consider the persons near the task to ensure they are not affected by our acts and omissions. Follow any site rules concerning vibration. Stop works and report to the supervisor on any vibration issues from equipment. Report any issues or health problems. All employees are to read, understand and sign safe systems of work before work commences.

10.5. Policy

It is the company's policy to control the exposure of workers as regards to vibration levels as far as reasonable practicable.

Risk Assessment

Dornan will undertake a suitable and sufficient assessment of the risk from vibration to its employees. The task should be assessed to see which aspect of the task involves the use of vibrating equipment and evaluate if this method can be altered to reduce the level of exposure practically.

The Risk assessment shall cover but is not limited to:

- Reference to the technical data of equipment and tools used in the process – including manufacturer's data and any specialist assessments completed by external organisations.
- Observations of working practices
- Working practice times i.e. is the work continuous or intermittent
- Specific working conditions
- Specific protective equipment to reduce the effects of vibration
- Worker competence & Training - inspecting and maintaining the equipment that
- Will minimise the vibration emittance.

Controls

There are many ways to protect someone from the hazards associated with vibration emissions and below should be considered whenever planning works.

Alternative Work Methods

Look for alternative work methods, which eliminate or reduce exposure to vibration.

Mechanise or Automate the Work

Example: use of a bench mounted band saw - minimal oscillating exposure as opposed to hand held grinder for cutting rod and metal materials.

Equipment Selection

- Make sure that equipment selected or allocated for tasks is suitable and can do the work efficiently.
- Equipment that is unsuitable, too small or not powerful enough is likely to take much longer to complete the task and expose employees to vibration for longer than is necessary.
- Select the lowest vibration tool that is suitable and can do the work efficiently.
- Limit the use of high-vibration tools wherever possible.

Purchasing Policy for Replacing Old Equipment and Tools

- Work equipment is likely to be replaced over time as it becomes worn out, and it is important that you choose replacements, so far as is reasonably practicable, which are suitable for the work, efficient and of lower vibration.
- Discuss your requirements with a range of suppliers.
- Check with suppliers that their equipment is suitable and will be effective for the work, compare vibration emission information for different brands/models of equipment, ask for vibration information for the way you plan to use the equipment, and ask for information on any training requirements for safe operation.

Workstation Design

- Improve the design of workstations to minimise loads on employees' hands, wrists and arms caused by poor posture.
- Use devices such as jigs and suspension systems to reduce the need to grip heavy tools tightly.

Maintenance

Introduce appropriate maintenance programmes for your equipment to prevent avoidable increases in vibration (following the manufacturer's recommendations where appropriate).

Do not use blunt or damaged drill bits and replace consumable items such as grinding wheels, so that equipment is efficient and keeps employee exposure as short as possible.

Work Schedules

- Limit the time that employees are exposed to vibration.
- Plan works to avoid individuals being exposed to vibration for long, continuous periods – several shorter periods are preferable.
- Where tools require continual or frequent use, introduce employee rotas to limit exposure times (you should avoid employees being exposed for periods which are long enough to put them in the high-risk group e.g. above the 'ELV'.
- Example: Organise employees to work in teams where they switch tasks within the team to avoid individuals having unnecessarily high exposure to vibration.

PPE

Employees shall be supplied with protective clothing when necessary to keep them warm and dry. This will encourage good blood circulation, which should help protect from developing vibration white finger. Gloves can be used to keep hands warm, but should not be relied upon to provide protection against vibration.

10.6. Reference/Record

- Dornan BGRA's
- Register of Company Equipment vibration Levels
- Company Equipment vibration assessments
- Vibration Assessment R7451.

11. Manual Handling Policy

11.1. Purpose

Dornan recognise that manual handling activities can be a significant source of injury resulting in pain, recurring injury, time off work and sometimes long-term or permanent disablement. In recognising this problem, the main purpose of this this policy is to reduce, so far as is reasonably practicable, the risks involved in manual handling activities, and to detail arrangements to achieve this reduction in line with legislative requirements and best practices.

This document sets out the commitment of Dornan to meet the applicable legislation which requires that the potential for harm to staff and others working on behalf of Dornan's as a result of undertaking manual handling operations is either eliminated, or where that is not reasonably practicable, adequately controlled.

To achieve compliance with the requirements of the Manual Handling Regulations, Dornan's recognises the importance of its role in placing day-to-day responsibility with project management, assisted by the Health and Safety Advisors and Safety Representatives.

The requirements of this Policy are based on the principle that employees shall not undertake manual handling tasks having the potential to cause harm, unless they have, in the first instance, been risk assessed and appropriate controls have been implemented to reduce the risk to as low as reasonably practicable.

This policy will provide guidance to employees to reduce, so far as is reasonably practicable, the risks associated with manual handling activities and to ensure compliance with relevant statutory requirements, standards and guidelines.

11.2. Scope

This policy applies to all Company employees, contractors, agency staff and visitors who work at or visit any facility, site and/or location, as applicable. The implementation of the policy will be fully supported and complimented by a comprehensive training programme.

11.3. Definition

Manual Handling is defined as:

> "Any transporting or supporting of a load (including the lifting, putting down, pushing, pulling, carrying or moving thereof) by hand or bodily force."
>
> OR
>
> "Manual handling of loads" means any transporting or supporting of a load by one or more employees and includes lifting, putting down, pushing, pulling, carrying or moving a load, which, due to its characteristics or of unfavourable ergonomic conditions, involves risk, particularly of back injury.

11.4. Responsibilities

Project Manager

Project Managers will have overall responsibility in ensuring that Dornan carry out the work as safely as is reasonably practicable and ensure resources, equipment and safe systems are in place in order for the work to be carried out safely. Project managers must liaise with Dornan

Safety Management and Site Safety Manager in order to identify site manual handling needs and ensure best manual handling practices are adopted on site.

Those Inducting Employees

Ensure that all employees are aware of the relevant occupational health policies.

Supervisors

Must consider manual handling risks when assigning employees tasks. Supervisors are responsible for ensuring that manual handling activities on sites are planned safely and preparing an appropriate method statement and risk assessment for the activity taking into account manual handling risks and the controls to be implemented.

EHS Advisor

EHS Advisors will have responsibility to ensure that site management teams have been made aware of their responsibilities under this Manual Handling Policy and any relevant legislation and best practices applicable to manual handling and means of avoiding manual handling. EHS Advisors will help site teams in identification of manual handling risks and implementation of controls as set out in the risk assessment process. EHS Advisors will be responsible for monitoring compliance in relation to all manual handling activities at site level and providing feedback to site teams in relation to this.

Responsibilities of All Employees

Comply with and use the measures Dornan provide to reduce manual handling hazards and take reasonable care of themselves and others. Follow any training or instruction given. Consider the persons near the task to ensure they are not affected by our acts and omissions. Follow any site rules concerning manual handling. Report any issues or health problems. All employees to adhere to safe systems of work before work commences & throughout the duration of the task. To make correct use of personal protective equipment (PPE) supplied by the employer. To report immediately any defective plant, equipment or systems of work to management. Employees must not lift loads beyond their ability and must consult with Supervision before performing any strenuous manual handling activities. Employees must ensure Supervision are made aware of any conditions which might affect their ability to carry out a manual handling activity safely including previous manual handling injuries/ Musculoskeletal injuries, and any medical conditions or medications which might increase their risk when performing the task of manual handling.

Sub-contractors Employees

Subcontractor personnel should be fully trained in manual handling before arriving to site. Sub-contractors and visitors shall follow requirements of assessing manual handling tasks and following the control measures as instructed.

11.5. Policy

Dornan shall ensure that all manual handling operations are controlled so as not to become a hazard to health and safety. We understand that in construction there will be an element of manual handling but we aim to ensure all risk is controlled and were possible eliminated.

The main aim of this requirement/policy is to prevent injury, not only to the back, but to any part of the body. Manual handling shall be avoided whenever practical. Alternatives will be made available through the use of mechanical means, team lifts, breaking loads down and training to ensure manual handling injuries are prevented. All Dornan employees are trained in manual handling to ensure that they will be able to carry out manual handling as safely as possible and to allow them to carry out dynamic risk assessment based on T.I.L.E. (Task, Individual, Load, and Environment). Any high-risk manual handling activities will be assessed and appropriate controls identified and adopted for the management of risks. All lifting equipment will be thoroughly inspected as required by legislation. In addition, this equipment will be inspected at routine intervals at least monthly – depending on type of equipment and its usage.

The following hierarchy of measures for dealing with risks from manual handling will be followed:

- Avoid hazardous manual handling operations so far as is reasonably practicable.
- Assess manual operations that cannot be avoided.
- Reduce the risk of injury so far as is reasonably practicable using the below controls.

Control Measures shall include:

- If the task cannot be avoided a mechanical means must be considered.
- All persons must be trained in manual handling.
- The load could be split into manageable loads when practical.
- Use team lifts to lighten the load.
- Follow the specific RA/MS for the task and the process for manual handling below.

11.6. Risk Assessment

Where manual handling cannot be avoided a risk assessment on manual handling will be required. Standard Manual Handling Activities will be assessed using the Risk Assessment Process and form (HSFM-01). For the more detailed assessment of High risk manual handling activities, Risk Assessment specific to the manual handling task will be conducted using the Manual Handling Risk Assessment Form (HSWI-14). There are a number of key stages of the Manual Handling Risk Assessment Form, which are outlined below:
Identify all manual handling activities which require assessment. The general risk assessment procedure can be used to identify any manual handling activities requiring Manual Handling Risk Assessment. There are four steps in the manual handling risk assessment:

- The *T*ask
- The *I*ndividual Capability
- The *L*oad
- The *E*nvironment

To help you remember this approach, use the word *TILE*, the initial letter of each element: Task, Individual, Load and Environment.

The Task:

When considering the task, the following risk factors need to be considered: Does the operation involve any of the following risk factors?

Twisting – This causes the spine to move out of proper alignment. Alignment refers to how the head, shoulders, spine, hips, knees and ankles relate and line up with each other. Poor alignment of the body puts increased stress on the spine and can result in injury. This is compounded when an operative is handling a load which increases the force exerted on the misaligned spine. Twisting of the trunk is common when unloading and stacking of boxes and material deliveries. It is a bad habit and a shortcut which will increase the likelihood of injury.

Stretching – Anything that causes you to reach, such as reaching for a toolbox stored on a high shelf. This changes the curvature of the spine increases the risk of injury especially when performing a manual handling activity. Not only can stretching result in spinal and arm injuries, it can also result in a person falling over and injuring themselves or in accidently knocking items over on top of themselves or others.

Stooping/Bending – Having a slumped posture or bending forward from the waist again puts the spine out of alignment and lifting out of alignment results in back injuries.

Long carrying distances – The longer the carrying distances the longer the pressure is exerted on the person increasing the possibility of injury. In addition, our muscles and bones require energy and oxygen and during manual handling activities these are depleted decreasing our defences.

Repetition – This results in muscular and bone fatigue which will cause deficiency and injury. Rest, pauses in task allow the body and active muscle to seek recovery, when the muscle cannot receive the adequate level of recovery then muscle fatigue occurs and more likely to cause injury.

The biggest risk for disks, ligaments, and the spinal column comes from executing a number of the above during any given operation.

Individual:

This considers the individual's physical capability, training and knowledge. It is important to recognise that we all vary in our ability to engage in manual handling activities.

Factors that can influence our lifting capacity and capabilities include:

- Age (the risk of injury increases with age).
- Strength (research indicates that in general the lifting capacity of women is two-thirds that of men).
- General state of health and fitness (pre-existing injuries or medical conditions can increase the risk of injury).
- Training and experience.

Medical conditions that can affect individual ability to carry out manual handling activities include:

- Heart conditions.
- Pre-existing musculoskeletal injuries.
- High blood pressure.
- Diseases or injuries to joints.
- Pregnancy.

Other human factors which should be considered is the information and training of the employee and the employees capacity to use that training – risk of injury will be increased if the employee is unable to recognise the hazards involved in the task or when the employee does not know how to plan the lift and implement appropriate controls. Employees should have the capability of assessing every load individually, knowing their own capabilities to manage a load.

Load

This refers to the characteristics of a load – such as weight, size, difficulty of grasping etc. The main risk factor is going to be how heavy it is, the greater the weight the greater the strain on the active muscles working to carry out the task, the more the load can be reduced the less exposure the worker will have to manual handling heavy loads. Good grip is important as a load that could slip mid lift or carry will jolt the body probably causing a muscle injury to the back. The stability of the load is an important factor as a load that has the potential for the centre of gravity to move while transporting it can give a false sense of security to the worker again potentially losing their grip, jolting back muscles etc.

Environment:

For example, available space, uneven or slippery floors, unsuitable temperature, etc. The work area or environment can dictate how the load is carried, pushed, pulled etc. restricted work spaces will cause the worker to carry out manual handling activities with unfavourable postures i.e. not getting adequate stance to lift, twisting around areas to get clear of items etc. The route may pose risks i.e. steps, difference in gradient slope, potential trip hazards or restricted visibility transporting a load can all result in high-risk potential injury. Working in hot environments can cause muscle fatigue quicker where as too cold environments will reduce gripping, muscle dexterity etc.

Training

Dornan expect all employees to be trained in manual handling every 3 years as a minimum. This must be reviewed on the site training matrix at induction stage and as required and identified by the site team. Training shall be arranged as necessary through the training coordinator/HR.

The manual handling training will be completed by competent trainers. Suitable trainers are those who have received appropriate certified training and have knowledge, skills and experience in the subject, have the ability to communicate effectively, are able to give practical demonstrations and have appropriate teaching materials. The Manual Handling Course content should include both instruction and practical training and will follow the most current legislative requirements, guidance documents and best practises in relation to Manual Handling at work.

11.7. Reference/Records

- Dornan BRGA's
- Manual handling assessment (HSWI-14)
- Part 2 Chapter 4 of the General Application Regulations on Manual Handling
- Manual Handling Operations Regulations 1992, as amended by the Health and Safety (Miscellaneous Amendments) Regulations 2002

12. Asbestos Policy

12.1. Purpose

This policy describes the requirements of Dornan for the protection of employees, contractors or visitors from exposure to materials containing asbestos.

12.2. Scope

The general work activities of Dornan do not involve carrying out of any licensed or non-licensed works with asbestos or substances containing asbestos. Exposure to asbestos and the risks are well publicised. Breathing airborne asbestos fibres can lead to related lung diseases, including cancers. The symptoms of these diseases often do not appear for some years after the exposure to asbestos.
Dornan acknowledges the potential health hazards arising from exposure to asbestos and will adopt a protective approach, as far as is reasonably practical, towards people who are considered likely to disturb, or be exposed to asbestos-containing materials.
This policy document explains how Dornan manage asbestos containing materials that are either identified or presumed to exist on sites where we are present.

12.3. Definition

Asbestos is the name for a group of natural occurring mineral fibres which are strong and both heat and chemically resistant.

12.4. Responsibilities

It is the duty of the client/owner to ensure any asbestos has been identified on their property before instructing any works to take place. It is also the duty of the employer to ensure that this information has been given and that a suitable plan and risk assessment is in place that has been communicated and the correct training has been undertaken to mitigate the exposure of asbestos to any person.

Client/Owner

It is the duty of the client/owner to appoint a competent party to survey for asbestos on their property. Should asbestos be identified all reasonable efforts must be made to eliminate or minimize the risk of exposure prior to instructing others to work. This information must be clearly passed on to all relevant parties before instructing any works to take place.

Employer

It is also the duty of the employer to ensure that all information regarding asbestos onsite has been given and that a suitable plan and risk assessment is in place that has been communicated and the correct training has been undertaken to mitigate the exposure of asbestos to any person.

Project Manager

It is the duty of the project manager to ensure that information regarding asbestos onsite has been given and that a suitable plan and risk assessment is in place that has been communicated and the correct training has been undertaken to mitigate the exposure of asbestos to any person.

Those Inducting Employees

To ensure that all employees are aware of the relevant occupational health policies and are clear on the effects of exposure to asbestos airborne fibres.

EHS Advisor

To monitor compliance with Dornan's occupational health policy at all work locations. Check that adequate risk assessments are completed for occupational hazards on site.

Responsibilities of All Employees

Comply with and use the measures Dornan provide to reduce exposure to asbestos or substances containing asbestos. Follow any training or instruction given. Consider the persons near the task to ensure they are not affected by our acts and omissions. Follow any site rules. Stop works and report to the supervisor on any asbestos or substances containing asbestos is detected. Report any issues or health problems. All employees to read, understand and sign safe systems of work before work commences

12.5. Policy

Background

Asbestos has been used in the construction of properties and buildings throughout Europe over the past 100 years. It has been used in various ways, processes and areas due to its cost benefits and heat & sound resistance abilities.

Likely Occurrences

Asbestos can be found in:

- Gaskets – pipes for chemicals or heat
- Pipe lagging – also can be found in old boiler lagging
- AIB – Asbestos Insulating Boards used for fire doors or wall/ceiling lining
- Asbestos Cement – generally on roofs can be in sheet or tile form
- Floor Tiles – Thermoplastic type tiles for floor covering

Asbestos Surveys

There are two types of surveys; Management, and Refurbishment & Demolition.

Management Survey

This identifies asbestos in all accessible areas. This is the survey that is required if no construction work is to take place i.e. this is suitable for our offices.

Refurbishment & Demolition Survey

This is required for ALL construction work and will be an intrusive survey that intends to identify all asbestos that would normally be classed as inaccessible in a management survey. The surveyor may use destructive methods to gain samples for the survey.

Asbestos Management Plan & Information

It is the client's duty to ensure the correct surveys have been undertaken and the asbestos management plan is in place. The plan itself will be taken over by the Main Contractor during the demolition and construction phases. The information for this plan must be available to all contractors working in the building to ensure the correct information is available for the contractors H&S plan and the risk assessments.

Training

All Dornan employees who could be exposed to asbestos during their working day shall undertake asbestos awareness training.

This training will be annual and once the initial course has been completed, the following year's refresher course can be given in the form of a toolbox talk by a member of the EHS Team. The following year after this the complete course must be undertaken again.

Also training is required for the correct use of the PPE, this can be from a member of the EHS department.

Should the Risk Assessment identify the risk of asbestos, specialist PPE training with regards asbestos, face fit testing, protective cover-all and correct decontamination procedures to be available.

12.6. Risk Assessment

As with any hazardous area of our works, if asbestos is known or suspected in a building the risk assessment must consider this. This will be required when working on any building built before 1999 in the UK or if known or identified by the client. The completed risk assessment must have sufficient detail and suitable controls (see below) and be communicated to the operatives involved in the task.

Controls

When undertaking the risk assessment for controlling the exposure to personnel, the assessor must consider the hierarchy of controls:

Eliminate – Ensure no Dornan personnel works in an area that could contain asbestos or that the asbestos has been removed before entry. Confirmation and air clearance certs required.

Enclose – If Dornan employees have to work in an area, has the existing asbestos been treated and covered/enclosed?

Safe Systems of Work – Ensure the Risk Assessment and Method Statement have detailed the potential hazards and the actions required by the employees to avoid exposure.

Information – Have all the operatives the correct training in place?

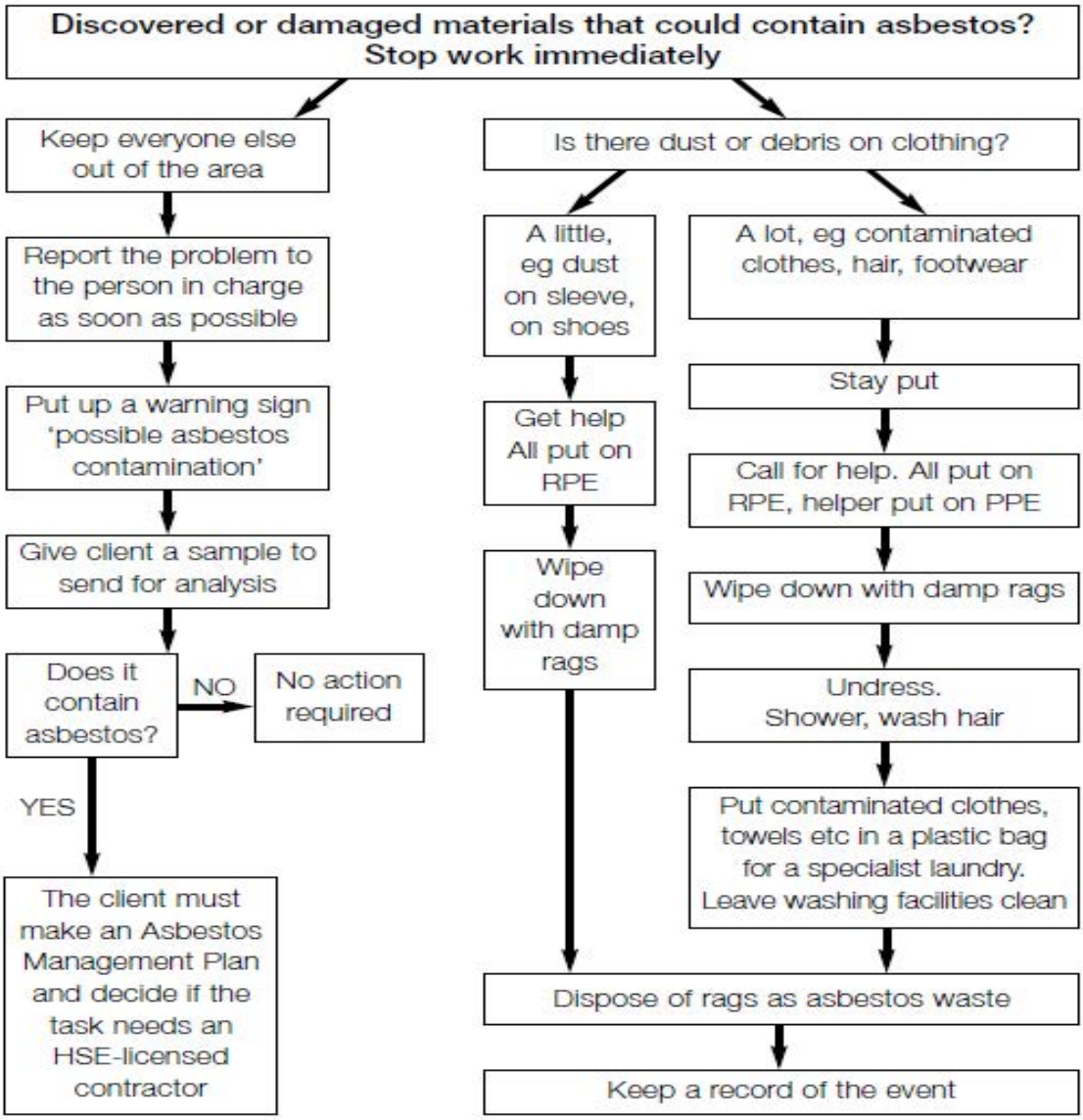
PPE – PPE is always a last resort. The risk assessment must state the correct type and style of PPE required. For respiratory protection when there is a possibility of asbestos exposure masks must be of FFP3 standards and all persons must be face fitted to the correct mask. Specialist training for the correct use and safe removal of PP, should there be a risk of contamination of asbestos.

12.7. Reference/Records

- BGRA49 Asbestos
- Relevant Approved Codes of Practice on asbestos

The following flow chart is the HSE guide on emergency arrangements and should be followed. This should be communicated to the teams whenever there is a possibility of accidentally disturbing asbestos.

Emergency Arrangements/Procedures on discovering materials that could contain Asbestos



13. Control of Substances Hazardous to Health

13.1. Purpose

The purpose of this policy is to determine and control exposure levels to hazardous substances so as not to cause ill health to employees, subcontractors or others.

13.2. Scope

The general work activities of Dornan do not normally involve the handling of hazardous substances. There are however some rare instances where this may be required. All hazardous substances to be used on the Project must be pre-approved by EHS in advance of bringing them to site.

13.3. Definition

COSHH – Control of Substances Hazardous to Health, this also covers general requirements for the use of hazardous substances within the workplace.

13.4. Responsibilities

Procurement Manager

To ensure that substances are sourced from responsible manufacturers/suppliers and comply with chemical regulations. Provision of safe disposal arrangements must also be considered and supplied to comply with Local Authority Regulations.

Project Manager

To consider the safety of employees when selecting products for use on site. To ensure that adequate safety resources (fire extinguishers, spill control kits, first aid kits and trained first aiders) are in place for the use of the product. Provision of safe disposal arrangements must also be considered and supplied to comply with Local Authority Regulations.

Stores Person

To ensure that hazard substances are stored as per their manufacturer's instructions. All hazardous substances are to be signed for.

Supervisor

To ensure that hazardous substances are used and stored as per their manufacturer's instructions when on site. To ensure that MSDS and COSHH are available to employees.

EHS Advisor

Are to advise on and monitor compliance in the use/storage of hazardous substances and conduct regular inspections. Completes the COSHH Assessment and completes an annual review of the relevant Material Safety Data Sheet to ensure data sheets are current.

Employees

Use as instructed in manufacturers guidelines.

Summary of Requirements

The priority for Dornan projects shall be to use non-hazardous materials/products as opposed to hazardous types. Dornan shall undertake a suitable and sufficient assessment of the health risks created by work which is liable to expose employees to substances hazardous to health and of the steps that need to be taken by employers to meet these.

13.5. Risk Assessment

COSHH risk assessments shall be completed by Dornan Engineering using the latest manufacturer's safety data sheets and workplace exposure limits. It will take into consideration the task in hand, substances to be used, possible route of entry into the body and the control measures available. An Annual review of COSHH Assessments will be completed.

Dornan Engineering will prevent, or where this is not reasonable practicable, adequately control, the exposure of their employees to substances hazardous to health. Workplace exposure limits must not be exceeded.

Dornan Engineering employees and subcontractors must make proper use of any control measures provided including engineering methods or PPE and follow any training given, for example, face fit testing.

All employees must read, understand and sign the safe systems of work to which they are working.

Routes of Entry to the Body

Hazardous substances can gain entry into the body by numerous different routes, which can result in either acute or chronic affects.

The Main Routes of Entry to the Body are:

Ingestion: A hazardous substance can enter the body through the mouth. These often occurs accidentally through hand-to-mouth transfer. After handling a chemical substance, any residing residues can be ingested by bringing hand (or glove) in contact with the mouth. Personnel are to ensure that hands are washed vigorously with soap and water prior to any eating or drinking.

Inhaling: One of the most common routes of entry, breathing in dust, fumes or vapours allow the substance into the lungs, where it can damage the lungs themselves and/or be spread around the body in the person's bloodstream.

Absorption: Along with inhalation, absorption is the other main way a hazardous substance can enter the body. This usually takes place through cuts or other breaks in the skin, although there are other hazardous substances which can penetrate unbroken skin such as lead.

Injection: Accidental injuries caused by sharp objects can penetrate the skin and allow harmful substances into the body. Particular hazards include discarded needles and syringes. There are numerous occupations where sharps risks are present including customs officials searching luggage, waste disposal workers (either medical waste or household), and construction workers where illegal drug use may have taken place on abandoned or derelict sites, or even current building sites if there have been trespassers on site overnight during the construction work.

Personal Protection

All employees shall use the correct PPE provided to them and control measures put in place.

Hand Protection

Hand protection must be suitable for the work being carried out. This includes cuts and abrasions and substances affecting the skin.

EN420 Standard defines the general requirement for protective gloves in terms of construction, fitness of purpose, safety, etc.

EN388:2016 Standard defines the requirement for protective gloves against mechanical risk.

4	Abrasion > 1 to 4
X	Cut (Coupe Test) > 1 to 5, X if not tested
4	Tear > 1 to 4
3	Puncture > 1 to 4
C	Cut (TDM Test) > A to F, X if not tested
P	Impact Protection > P (if passed)

To protect hands from hazardous substances/chemicals, choose a glove that meets the new European Standard EN374-1:2016. Ensure sure the glove material you choose protects against the substances being handled.

Type A: Protective glove with permeation resistance of at least 30 minutes each for at least 6 test chemicals.

Type B: Protective glove with permeation resistance of at least 30 minutes each for at least 3 test chemicals.

Type C: Protective glove with permeation resistance of at least 10 minutes for at least 1 test chemical.

Glove manufacturers usually produce charts to show how well their gloves perform against different substances. Manufacturers use three key terms, breakthrough time, permeation rate and degradation.

- **Breakthrough time** is the time required for a chemical to permeate through the glove material and come into contact with the skin. Permeation is a process by which a chemical can pass through a material without going through pinholes or pores or other visible openings. This indicator informs personnel how long a particular glove can be used for.
- The **permeation rate** is the amount that then permeates through. The higher the rate, the more of the chemical will move through the glove. Choose a low rate.
- Some chemicals can destroy the glove material. It may get harder, softer or may swell. **Degradation** indicates the deterioration of the glove material on contact with a specific chemical. Choose gloves with an excellent or good degradation rating.

Respiratory Protection

Inhalation is one of the main routes of entry in to the body for a contaminant/hazardous substance. Thus, all respiratory protection must be suitable and sufficient and fit the wearer correctly. Operatives that require the use of respiratory protection equipment must be face fit tested on a regular basis.

What is RPE?

Respiratory Protective Equipment (RPE) is a particular type of PPE used to protect the individual wearer against inhalation of hazardous substances in the workplace air. RPE should only be used where adequate control of exposure cannot be achieved by other means.

Types of RPE

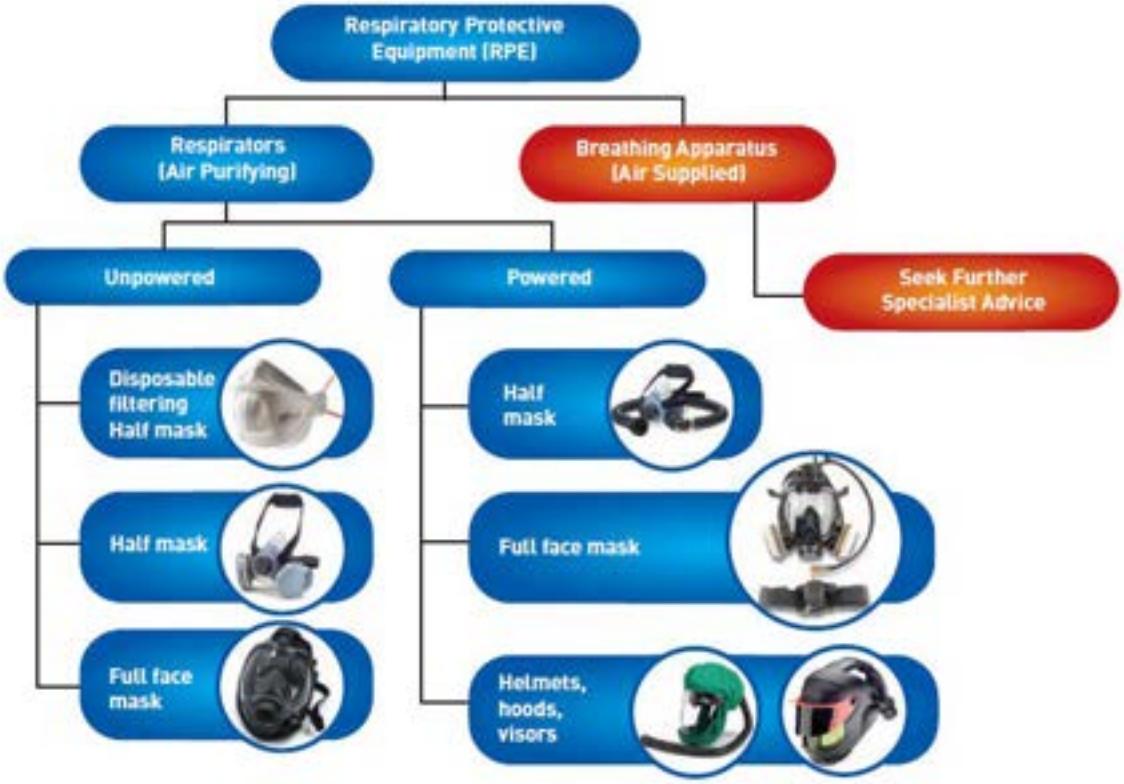
There are two types of RPE currently used in the workplace, either filtering devices or breathing device types (see diagram below).

Filtering Device Types (Negative Respirators)

A range of different types exist, dust masks, half mask respirators, full face mask respirators and powered (fan assisted) respirators. These use filters to remove the contaminants in the workplace air. In a negative pressure device one or more air purifying filters are attached via an inhalation valve to a tight fitting face piece. The negative pressure relative to the ambient air outside the respirator is created by inhalation of air, drawing the contaminated air through the purifying filter.

Breathing Apparatus (BA) Types (Positive Respirators)

A range of different types exist, fresh air hose, airline, and demand valve; use an independent supply of breathing quality air, for example an air cylinder or compressor. Powered air purifying respirators, supplied air and self-containing breathing apparatus are all positive pressure devices. The pressure on the inside of the respiratory inlet exceeds the ambient air pressure outside the respirator. As a general rule, positive pressure devices are used for more hazardous exposures.



Respirator and Breathing Apparatus Types

Selection of Respiratory Protective Equipment

The correct selection of appropriate RPE for the task undertaken is one of the most important steps in the RPE lifecycle process. Failing to select, fit-test, use, store and maintain correct RPE

will lead to exposure of hazardous substance(s) at work. Using incorrect RPE can potentially lead to workplace fatalities, in areas of low oxygen concentration or confined spaces for example.

There are four separate areas that need to be considered when selecting RPE, which you may need to discuss with your equipment supplier.

Equipment Factors

- Must be CE-marked
- Must be adequate for the task in hand
- Must be compatible with the environment, the task, the wearer and other personal protective equipment used.
- Must be in good working order

Work Environment Factors

- Is the atmosphere potentially oxygen deficient?
- Are any asphyxiates present or is there potential for sudden release and their likely concentrations?
- Is the atmosphere immediately dangerous to life or health?
- Is the atmosphere corrosive or likely to become so?
- Is the atmosphere explosive or likely to become so?
- What are the permeation capabilities of air contaminants (e.g. via face-piece and filters)?
- What is the physical state (e.g. gas, mist, dust, fume) of the contaminant?
- What is the temperature and humidity of the atmosphere?

Task Related Factors

- What are the work rates involved?
- Are there visibility requirements?
- Are there any mobility requirements including spatial conditions of the environment?
- Are there any communication requirements?
- Is there likely to be thermal strain on wearer?
- Are any other accessories worn in the area in contact with the device?
- What tools are to be used?
- Are there any other pieces of personal protective equipment to be worn in addition to a respiratory protective device?
- What is the duration of wear?
- Will manual handling be involved and how will this affect the type of RPE chosen?

Individual Factors

- Medical fitness of the wearer (e.g. asthma, bronchitis or heart disease)
- Facial characteristics of the wearer including facial hair
- Physical characteristics of the wearer

- Use of spectacles
- Use of contact lenses
- Assessment of the fit of tight-fitting face piece

Filter Types

Choosing the correct filter type is a critical aspect in the RPE selection process. Use of the incorrect filter such as a particulate filter for protection against vapours will result in no protection being given and the equipment will be completely ineffective.

There are 3 main filter types:

- Particle filter (P sign and filtration efficiency number 1, 2 or 3)

- Gas/vapour filter

- Combined filters (for particles, gases & vapours)

Types of particles, gas and vapour filters (courtesy of NSAI)

Substance	Filter Type	Colour
Particles	P	White
Organic gases and vapours (BP>65°C) as specified by the manufacturer	A	Brown
Inorganic gases and vapours as specified by the manufacturer (excluding carbon monoxide-CO)	B	Grey
Sulphur dioxide and other acid gases and vapours as specified by the manufacturer	E	Yellow
Ammonia and organic ammonia derivatives as specified by the manufacturer	K	Green
Mercury	Hg – incorporates P3 filter and for single use only	Red-White
Oxides of nitrogen	NO – incorporates P3 filter and for single use only	Blue-White
Organic gases and vapours (BP ≤65 °C) substance as specified by the manufacturer	AX single use only	Brown
Filters against specific substances as specified by the manufacturer	SX marked with the name of the chemical	Violet, Violet-White if combined with particle filter

Note: Many of these filters can be used with filtering devices relying on the breathing action of the wearer (negative pressure devices) and also with powered devices. Filters may carry two sets of classification, one for negative pressure devices the other for the powered devices. The powered device marking is not relevant when used with negative pressure devices and vice versa.

Particle filters are divided into three classes:

- P1 = Low efficiency filters
- P2 = Medium efficiency filters
- P3 = High efficiency filters

Gas/Vapour filters are also divided into three classes:

- A1/B1 = Low capacity filter
- A2/B2 = Medium capacity filters
- A3/B3 = High capacity filters

These are then further divided according to the gases they protect against. Filters can also be combined or multi type. The manufacturer's recommendations should be followed on replacement of filters.

Protection Factors

A respiratory protective device is considered adequate if it has the capacity to reduce the wearer's exposure to a hazardous substance to acceptable levels (e.g. to comply with occupational exposure limit values). Each RPD has a protection factor (PF) assigned to it, which is the ratio of the airborne concentration of the substance outside the device to that inside the device.
Therefore, you need to determine the expected concentration of the contaminant(s) in the air (a monitoring programme may be required to establish this) in order to calculate the PF required. PF's have a wide range from low protection factors to high e.g. from 4 to 2000.

There are three types of protection factor (PF):

- **APF - Assigned Protection Factor**
- **NPF - Nominal Protection Factor**
- **WP F- Workplace Protection Factor**

Filter Types and APF's

CE Marked Particle Filter Type	APF (what is likely to be attained in practice)
P1	4
P2	10
P3	20

Face-Piece Fit Testing

It is recommended that fit testing is carried out for all tight fitting respirators. The purpose of fit testing is to ensure a good fit of the mask to the individual and is applicable to tight fitting filtering facemasks. It is also useful for checking that the wearers can put on a respirator face piece correctly themselves. The correct establishment of a tight seal on the face piece at all times is vital to prevent exposure. There are two methods of Fit Testing: Qualitative or Quantitative.

Qualitative Fit Testing

This is suitable for disposable filtering face pieces. Qualitative methods are based on the wearer detecting leakage through the face seal region using a bitter/sweet tasting aerosol or odour compounds e.g. Saccharin, this is a pass or fail test only.

Quantitative Fit Testing

This is suitable for full and half face mask respirators and gives a numerical measure of the fit. Specialised equipment is required to conduct the measurement, which typically involves a laboratory test chamber or a portable fit testing device. This more stringent pass/fail test demonstrates the level of performance of the respirator with a measurable result for a particular mask on a particular individual. Fit factors (FF) are calculated from quantitative testing in a laboratory; your fit testing service provider should be able to help you select the most appropriate method in conjunction with a qualified Occupational Hygienist.

Repeat Fit Testing

A repeat fit test should be conducted in the following circumstances:

- Where the wearer loses or gains weight
- Develops any facial changes (scars, moles, etc.) around the face seal area

If an employee does not pass a fit test for an RPD, a better fit can be obtained by trying a respirator of a different size or model or made by another manufacturer.

Alternatively, a respirator that does not rely on a tight face seal, such as a hood type may be selected. Tight fitting face piece respirators must not be worn by individuals who have a beard or moustache. Respirators that do not rely on a tight seal such as hoods or helmets may be used by these individuals instead.

The testing of power assisted or breathing apparatus face pieces is carried out with the respirator temporarily converted into a negative pressure respirator by adapting the face piece to use a P3 filter instead of the air supply. Respirator manufacturers can supply these adapters. There is no requirement to fit test loose fitting equipment, however the employer should establish that the equipment affords full protection.

Lead

What is Lead?

Lead is a toxic heavy metal. It is found in many different products including rolled lead sheeting, paints, glass, solder, plastic and rubber compounds, therefore, workers can be exposed to lead in a variety of work activities.
Further detailed information is included in table below, relating to the use and risk of lead exposure in industry.

Work with lead not liable to result in significant exposure

1 Work with galena (lead sulphide).	Mining and working of galena when its character or composition is not changed.
2 Low temperature melting of lead (below 500 °C). Such low temperatures control the fume but some care is still required in controlling any dust from the dross.	Plumbing; soldering.
3 Work with materials which contain less than 1% lead.	
4 Work with lead in emulsion or paste form where the moisture content is such and is maintained so that lead dust and fume cannot be given off throughout the duration of the work.	Brush painting with lead paint and using some stabilisers for plastics.
5 Handling of clean solid metallic lead e.g. ingots, pipes, sheets etc.	Miscellaneous metal industries, stock holding, general plumbing with lead sheet.
Lead alkyls: Any exposure to lead alkyl vapours from leaded gasoline where the lead content is limited by legislation.	Work with leaded gasoline including, for example the filling of petrol vehicles on garage forecourts (except for work inside tanks which have contained leaded gasoline.

Source: Tables taken from Control of Lead at Work (third edition) Control of Lead at Work Regulations 2002 Approved Code of Practice and guidance. HSE (UK)

Potential Health Effects from Exposure to Lead

Lead exposure is one of the oldest known occupational hazards. The two routes of entry for lead in to the body are through the inhalation of dust or fumes containing lead and the ingestion (swallowing) of lead containing materials.

Lead is very toxic to the human body, prolonged or repeated exposure causes damage to the nervous system, kidneys, blood, and it is suspected of causing cancer.

High levels of exposure over a short period of time can cause acute poisoning and symptoms of acute poisoning include a metallic taste in the mouth, vomiting, abdominal cramps, constipation and diarrhoea. Long-term exposure to lower doses causes chronic poisoning but symptoms of chronic poisoning are more difficult to spot, as they are very similar to many other common

complaints. Characteristic symptoms of chronic poisoning include a blue line in the gums and a 'drop wrist'. Severe abdominal pain and pallor may also be seen.

Children/young people are more susceptible than adults as they absorb greater amounts from the gastrointestinal tract. Lead is a cumulative toxin with 90% found in the bones. Lead is particularly toxic to children as lead exposure in children interferes with the development of the nervous system causing potentially permanent learning and behavioural disorders. Children/young people may suffer skeletal changes following chronic exposure.

Women of reproductive age are at a higher risk of damage from lead exposure because it can affect fertility, and increase the risk of stillbirths and miscarriages. As lead is a mutagen, it can also cause genetic defects. A pregnant employee must inform her employer at the earliest opportunity of her pregnancy to enable an adequate risk assessment to be conducted.

In addition, if a worker brings lead contamination home, for example, on their work clothing, his or her partner and children are at a higher risk of health effects due to lead exposure.

Main Common Work Situations causing Lead Exposure - Welding

If lead welding is carried out in a confined space with inadequate ventilation for lengthy periods of time, the risk of lead exposure could be significant. Most construction work on site is carried out for short periods of time in open air so the risk of lead exposure is normally low.

What Protective Measures Should Generally be taken when Working with Lead?

It is critical to avoid the inhalation of lead dust, fume or vapour or swallowing lead when a person eats, drinks, smokes or bite their nails without washing their hands or face first. Some general advice is provided below.

- All risks to lead workers must be considered in a written risk assessment before work starts. It must include arrangements to deal with accidents, Incidents and emergencies such as an uncontrolled release of lead dust or fume etc.
- Avoid allowing lead dust becoming airborne for example by using tools with suitable extraction.
- Employees must report any damaged equipment to their employer.
- The work area must be kept clean and ensure lead waste is removed at the end of the day.
- Make sure neighbouring workers are not contaminated by any work with lead.
- Eating and drinking should only to be carried out in designated areas that are free from lead contamination.
- Always have a good standard of personal hygiene employees must wash their hands and face and scrub their nails before eating, drinking or smoking and always wash before going home.
- Never bring home lead contaminated clothes or equipment as it could contaminate the car, the home or family members with lead.

What Personal Protective Equipment (PPE) should be used when working with lead?

The type of PPE used must be based on the written risk assessment but will generally include suitable respiratory protective equipment (RPE), barrier cream, gloves, eye protection, safety footwear and disposable overalls. The worker must be properly trained in the use maintenance and storage of PPE.

If tight fitting respirators are used, the employer must arrange for face-fit testing to ensure it correctly fits the worker. If disposable masks are used, the worker must be clean-shaven and the

employee must wear the mask properly otherwise the level of protection given will not be as good as expected.

Always seek professional advice from equipment suppliers as the use of incorrect respiratory equipment could mean exposure to lead at work. The use of powered air respiratory protection can give greater protection to the worker. The relevant respiratory protection for a situation requires individual evaluation of the work and relates to the concentration of lead that the worker may be exposed to.

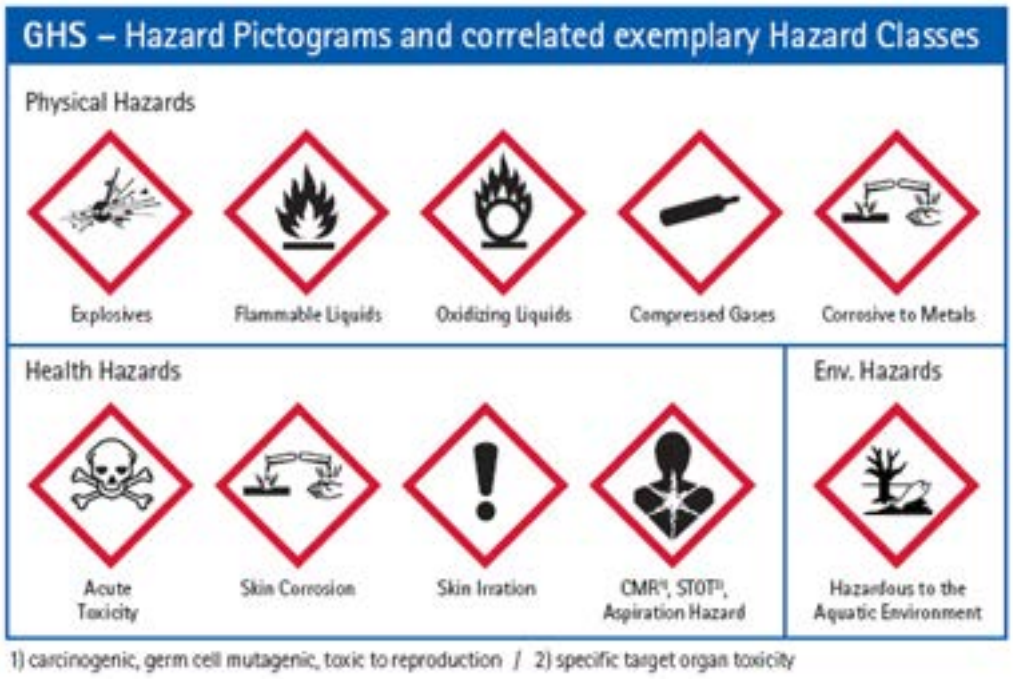
What is the Role of Health Surveillance?

Health surveillance, where applicable, is used to prevent occupationally related disease in workers. It allows adverse variations in their health, due to working conditions, to be identified as early as possible. It must be carried out by a doctor experienced in occupational medicine. Those workers starting in a job where they will be working with lead on a regular basis should have a pre-employment medical examination.

Signs & Labels

Under current legislation, all chemical substances must be labelled correctly to ensure hazard pictograms and H & P statements are present. If an unidentified substance is found on site it should not be touched but reported back to the Project Management.

Hazard/Warning pictograms used on chemical products include:



Training

Training and Toolbox talks will be given to raise awareness and increase knowledge of substance being used and their associated control measures. In addition, briefings will be given on incident reporting procedures.

Welfare

- Welfare facilities shall also be used to ensure high standards of personal hygiene before eating, drinking or smoking. This will dramatically reduce the chance of a hazardous substance entering the body.
- This may be provided by the main contractor or by Dornan. Any issues found must be reported back to the project management.
- The welfare facilities provided must be suitable for the site size and conditions.

Prevention of exposure & selection of substances & products

- An employer's overriding duty and first priority is to consider how to prevent employees being exposed to substances hazardous to health by all routes.
- The duty to prevent exposure should be achieved by measures other than the use of personal protective equipment.
- Employers can best comply with this requirement by eliminating the use or production of substances hazardous to health in the workplace.

This might be achieved by:

- changing the method of work so that the operation giving rise to the exposure is no longer necessary.
- modifying a process to eliminate the introduction of a hazardous by-product or waste product.
- Substituting wherever reasonably practicable, a non-hazardous substance which presents no risk to health where a hazardous substance is used intentionally.

In many workplaces, it will not be possible or practical to completely eliminate exposure to substances hazardous to health.

Therefore, where it is necessary to use a hazardous substance, an employer should consider whether it is possible to reduce exposure and risk to the health of employees significantly by using:

(a) An alternative less hazardous substance; or

(b) A different form of the same substance; or

(c) A different process.

For example, by changing the form of the substance concerned so that exposure is negligible e.g. using a substance in pellet rather than powder form.

Storage

All substances and products brought to site must have consideration to storage requirements and possible hazards such as fire, explosion and general issues relating to the mixing of chemicals. Dornan must ensure that all products brought to site are notified to the main contractor and the correct storage facilities are made available.

The Dornan document 'Guidance for the Safe Storage of Hazardous Substances' HSG-08 is to be used when planning the storage and movement of substances when on site.

The storage facilities used, cupboards and cages must be suitable for the products being stored such as the below images:

COSHH cupboard for chemicals & substances

Gas cage for cylinders

Review of Material Safety Data Sheets (MSDS's)

A periodic review of site MSDS's will take place at minimum every year or sooner where circumstances change.

The review should cover (as a minimum) the following checks;

- That we have the most up to date MSDS for the substance being used on file.
- That the MSDS is compliant with the GHS/current standards.
- The most suitable MSDS is sourced for the product.

13.6. Reference/Records

- Dornan Chemical Risk Assessment Form – HSFM-49
- Dornan BGRA's
- Guidance for the Safe Storage of Hazardous Substances' HSG-08
- H.S.A – A Guide to Respiratory Protective Equipment
- H.S.A – Safety with Lead at Work

14. Plant & Equipment Policy

14.1. Purpose

To ensure that all plant & equipment used/owned by the Dornan have been manufactured and tested to a recognised standard, fit for the task, used/operated as per manufactures guidelines by trained and competent personal and inspected as required by legislation.

14.2. Scope

This policy applies to all plant and equipment used/owned/hired by Dornan.

14.3. Definition

Any approved plant or equipment that is used within an approved work task.

14.4. Responsibility

Project Manager

To ensure the equipment is being used correctly and all inspections and maintenance is up to date on the equipment. To ensure all equipment used is suitable and fit for purpose & used with the supplied safety guards/devices.

Stores Person

Once plant and equipment is on-site, they must ensure that a log is kept of all relevant plant & equipment.

Supervisors

To ensure that only trained/ competent persons are authorised to operate the plant & equipment. Permits that are required are issued, correct and adhered to. The correct controls (signs, barriers and PPE) are in place. Ensure all areas where equipment is used are fit for work.

EHS Advisor

To advise project management as to what is required from a legal standpoint. To monitor compliance in the use of equipment and maintaining inspection certificates on file for the equipment in use & checking training certification on file for employees using the equipment.

Employees

To use equipment in accordance with manufacturer's instructions, not to misuse equipment. To ensure equipment is not damaged or unsafe, and report all defects and near misses. Not to work in unlit rooms or dangerous areas without relevant controls. To take reasonable care of themselves and others who may be affected by their acts or omissions at work

14.5. Policy

In order to ensure all plant & equipment brought to site is fit for purpose, suitable for the task & does not present any undue risks to employees & any third parties, Dornan will implement a system of identifying that checks have been made by the subcontractor or persons prior to using the equipment on the worksite.
On completion, Dornan will issue authority to use the plant or equipment when all documents have been submitted to Dornan EHS

The attached items should be used to control access to site

- Dornan site access plant request form
- Dornan plant sticker for quick id & information on site)

- Follow onsite site specific measures for controlling of plant & equipment

Equipment Used for Lifting

The safe working load (SWL) of lifting equipment should never been exceeded.

Only use certified lifting equipment, marked with S.W.L. (safe workload), serial number, CE mark etc. which has a recorded & in date examination and deemed to be in good order.

Maintenance

Dornan will ensure that plant & equipment is maintained in an efficient state, in efficient working order and in good repair & all necessary maintenance is carried out. Where plant & equipment requires a maintenance log, the log will be kept up to date.

Inspections

Dornan will ensure that all plant and equipment used/owned by Dornan employees is inspected in line with manufacturer's instructions and statutory requirements.

Competent Persons

Persons that undertake inspections are required to have the necessary training, knowledge and experience on the plant & equipment in order to carry out inspections on the relevant piece of plant/equipment.

Information & Training

Dornan shall ensure that all employees who use work equipment have the relevant health and safety information applicable and written instructions pertaining to the use of that particular item of plant/equipment. Where the company provides plant, only trained/authorised operators permitted to operate site plant and machinery. Dornan will ensure that suitable training in place for the operator, for example: Telehandler, Crane Operator, Slinger/Signaller, MEWP etc.

14.6. Reference/Records

- BRGA Risk Assessments
- Relevant operator manuals
- HS-FM-43 Grinder Chop saw declaration
- Plant & Equipment Inspections
- HS-FM-25, Lifting Equipment Inspection
- HS-FM-26, MEWP checks
- HS-FM-26A, PECO checks
- HS-FM-26B Lifter Stacker Checks
- HS-FM-27, Telescopic Handler Checks
- HSFM-27A, Forklift Checks
- HSFM-11A, Work at Height Checks Fall Arrest
- HSFM-11B, Periodic Examination of Equipment for Working At height
- HSFM-34 Work Equipment inspection
- HSFM-58 Dornan Lift Plan Checklist

15. Housekeeping Policy

15.1. Purpose

The purpose of this document is to outline how to manage housekeeping and material storage on site.

15.2. Scope

This policy applies to all Dornan work areas.

15.3. Definitions

None.

15.4. Responsibilities

Project Manager:
To ensure that materials are delivered in a just in time basis and that adequate resources are available for housekeeping on site.

Construction Managers / Supervisors:
To ensure safe access is provided to all work areas. To ensure that the area is kept clean, tidy and that there is adequate resources for segregated waste removal.

Stores Persons:
To ensure safe storage of materials and that there's adequate safe access around all stored materials.

EHS Advisor:
To monitor safe access to work areas and to maintain good housekeeping standards in Dornan work areas. To report non-compliance to supervision team and track close out.

All Employees
To adhere to site housekeeping rules.

15.5. Policy

Dornan and it subcontractors will fully comply with the project requirements in relation to standards of housekeeping. Dornan will provide dedicated housekeeping personnel and subcontractors will be obliged to do likewise. At a minimum Dornan and subcontractors will;

- Gather up and remove debris to keep the work site orderly.
- Plan for the adequate disposal of scrap, waste and surplus materials.
- No waste is to be left on floor where it can cause an obstruction or tripping hazard.
- Keep the work area and all equipment under their control tidy.
- Designate areas for waste materials and provide containers.
- Keep stairways, passageways, ladders, scaffold and gangways and any other means of access free of material, supplies and obstructions
- Secure loose or lightweight material that is stored on roofs or on open floors.
- Keep materials at least 2m from openings, roof edges, excavations or trenches.
- Keep hoses, power cords, welding leads, etc. from lying in heavily travelled walkways or any other means of access.

- Ensure openings are covered, protected adequately (e.g. sumps, shafts, floor openings, etc.)
- Store flammable or explosive materials apart from other materials.
- Keep flammable materials in proper containers with contents clearly marked.
- Dispose of greasy, oily rags and other flammable materials in approved containers.
- Store containers in an upright position.
- Store and chain all compressed gas cylinders in an upright position.
- Provide the appropriate fire extinguishers for the materials held on-site and maintain and inspect as per the statutory inspection requirements

Materials/Equipment Storage

Dornan will store materials and equipment in areas as indicated in compliance with site-specific requirements.

All stored materials and equipment will be stacked neatly and not cause an obstruction or tripping hazard. Materials and equipment will be stored as per manufacturer's instructions.

All employees are responsible for the stacking and safe storage of materials and Dornan Management are to ensure adequate space, lighting is available for the quantities of materials stored on site.

Minimum quantities of materials are to be kept onsite unless they are deemed absolutely necessary.

The Project Manager is responsible for ensuring that Material Safety Data Sheets (MSDS) and COSHH assessments are produced and maintained for hazardous substances onsite to minimise materials handling risks to personnel.

Waste

As works progress all waste to be segregated and placed in the dedicated containers, waste quantities shall be kept to an absolute minimum.

No waste is to be left on the floor where it can cause an obstruction or tripping hazard.

Leads

Leads should be hooked up above head height where possible or alternatively leads should be moved to sides of walkways or rooms to avoid becoming a trip hazard.

15.6. Reference Records

- BGRA’s
- Site EHS Plans

16. Access and Egress Policy

16.1. Purpose

There must, so far as is reasonably practicable, be suitable and sufficient safe access and egress from:

- Every construction site to every other place provided for the use of any person whilst at work;
- Every place construction work is being carried out to every other place to which workers have access within a construction site.

16.2. Scope

This procedure is applicable to workplaces under Dornan's control.

16.3. Definition

Access & Egress is the means of access on site through designated access points for employees to get to and from places of work.

16.4. Responsibilities

Project Manager

To ensure that adequate equipment is available on site to control access to Dornan work areas and storage areas.

Supervisors

To ensure that safe access and egress is available to its workforce & that access ways are kept clear for emergency services. This will be achieved by planning the work, cooperating with main contractor to ensure routes are maintained to a high standard. Dornan management are responsible for liaising with the site owner to ensure safe access and egress is adequately addressed.

To ensure suitable and safe access equipment for employees to gain access to work areas e.g. MEWP's, podium ladders, scaffolds etc.

EHS Advisor

To monitor compliance of safe access and egress and to conduct regular inspections and issue guidance where signage/segregation is required.

Employees

To ensure their workstations does not obstruct access and egress routes. To ensure that they use the access routes provided for their safety. To ensure that safe access equipment provided is used safety as per the manufacturer's instructions.

16.5. Policy

The main hazards associated with access and aggress are:

- Traffic from parking outside of site boundary and routes to site
- Site traffic (lorries, telehandlers etc.) and suitable access for deliveries
- Slips, trips and falls from poorly designed, marked and maintained pedestrian routes
- Wrong choice of access equipment at height i.e. mobile tower in lieu of scissor lift.
- Poorly maintained access equipment

Risk Assessment

Dornan will limit these risks by completing Pre-Start Checks in the form of an SPA or equivalent and carry out suitable and sufficient Risk Assessments to include:

- Daily monitoring by site supervisor/manager
- Coordinating with the main contractor
- Good housekeeping routines
- Weekly monitoring activities
- Health and safety audits
- Ensuring access routes are well lit
- Safety signage and barriers are in place as needed
- Ensuring storage areas are complied with and maintained
- Ensure storage areas where possible, are not in access and egress routes.

16.6. Reference Records

- Site traffic management plan
- Dornan BGRA's

17. Site Welfare Facilities

17.1. Purpose

Dornan are obliged to ensure employees and personnel under their control are provided with suitable welfare facilities whilst at work and those facilities are maintained to the highest standards.

17.2. Scope

This procedure is applicable to Dornan workplaces.

17.3. Definition

Welfare facilities are facilities which are available for use by employees for the duration of their works onsite where a premises is used as a workplace.

17.4. Responsibilities

Project Manager

To ensure adequate site welfare facilities & and first aid facilities/resources appropriate to the number of employees onsite & ensure measures are in place for maintaining site welfare facilities

EHS Advisor

Advise on the requirements and monitor compliance of welfare facilities and first aid facilities/resources. Conduct regular inspections of welfare facilities.

Employees

Responsible for maintaining site welfare facilities in a good condition & reporting to the employer if cleaning/maintained is required.

17.5. Policy

Dornan shall ensure, so far as is reasonably practicable, that Site Welfare & Amenities so far as they affect Dornan or any worker under Dornan's control are adequate and in accordance with the requirements of the regulations.

- Sufficient and suitable sanitary convenience for both sexes to be provided and adequately lit.
- A convenient supply of drinking water will be provided from the public mains or from some other source approved by the sanitary authorities.
- Washing facilities will be provided and will include hot and cold running water, soap and clean towel or other suitable means of cleaning and drying.
- Adequate and suitable accommodation for clothing not worn during working hours will be provided and suitable drying facilities for work clothes.
- Facilities will be constructed of sound, suitable material to exclude draughts, rain and dampness, with floor levels that prevent inflow of water. Walls and floors will be of smooth impervious materials and designed to facilitate thorough and effective cleaning.
- Canteen to comfortably accommodate the entire workforce shall be provided complete with sufficient tables of smooth washable material and seating for each person. Facilities will have adequate windows for daylight, be heated and ventilated and adequately lit. Where requested each canteen will be equipped to heat food in a special area of the canteen, however all gas cylinders will be kept outside.
- All canteens, toilets, washrooms and drying rooms will be maintained in a serviceable, clean and hygienic condition at all times.
- Access to all facilities shall be kept clear and entrance to facilities will be by pathways, gangways or solid surface free of mud or water.

- Facilities will be used exclusively for the use and welfare of employees and in no circumstances be used for the storage of any tools or materials and will not be worked in.

First-Aid Facilities

First-aid facilities and trained first aid personnel must be available by law to render treatment and maintain required records. A sufficient number of suitable first aid boxes or cases must be provided while work is going on and be reasonably accessible to all persons working on the site.

An employer shall provide, or ensure that there are provided, such equipment and facilities as are adequate and appropriate in the circumstances for enabling first-aid to be rendered to his employees if they are injured or become ill at work.

A first-aid box or kit provided shall be distinctively marked “First Aid” and placed under the charge of a responsible person who, while in charge of the box or case shall be readily available while any persons for whom it is required are working on the site. The name of this person (normally the First-Aider) shall be plainly indicated in a prominent place on or near the box or case.

17.6. Reference Records

- Dornan BGRA’s

18. Environmental Management Policy

18.1. Purpose

The purpose of this policy is to implement Dornan's Environmental Policy & to manage the immediate and long-term environmental impacts of an organisation's products, services and processes.

18.2. Scope

This policy encompasses activities associated with Dornan's business units, workplaces, employees and subcontractor's as identified.

18.3. Definitions

Environmental Management System (EMS) ISO 14001:

This internationally agreed standard sets out the requirements for an Environmental Management System. ISO 14001 provides a framework that helps Dornan achieve its environmental goals through the management of environmental aspect & impacts associated with Dornan's operations.

ISO 14001 definitions:

Environment

"surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation."

Environmental aspect

"element of an organization's activities or products or services that can interact with the environment"

Environmental impact

"any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects."

18.4. Responsibilities

Project Managers

Ensure the necessary emergency arrangements are in place in the event of an environmental emergency.

Ensure reports are completed and submitted to head office, Client or Client representative and the authorities where necessary.

Supervise Environmental compliance and ensure the necessary resources, waste receptacles etc. are in place & that the use of these is monitored.

Introduce the Site Waste Management plan in conjunction with the Site EHS Plan.

Introduce site initiatives to promote environmental awareness e.g. Promote reduce/reuse recycle ethos.

Construction Managers / Site Supervisors

Ensure the necessary resources are in place for waste minimisation and segregation is practiced as part of our proactive approach to waste management.

To actively monitor efficient use of materials on site and promote "just in time" delivery rather than carrying a large amount of deteriorating material on site. To record quantities of waste generated where obtainable.

Ensure the necessary emergency arrangements/equipment is in place in the event of an environmental emergency.

Instruct employees to adhere to the Site Waste Management plan (where in place).

EHS Advisors

Advise on Company Environmental Policy and other requirements.
Audit environmental compliance onsite, complete regular audits/inspection reports, and distribute findings.
Assist in the investigation of any environmental incidents/near misses along with the Site PM (or delegate).
Reporting environmental incidents to the authorities where necessary.
Communicate to workforce the Environmental impacts associated with site activities.

All Employees and Sub-contractors

Adhere to Company Environmental Policy and other applicable policies.
Comply with Environmental legislation.
Adhere to the Site Waste Management plan (where in place).
Use & store equipment so that it does not have negative impact on the environment.
Report any environmental incidents/near misses as soon as reasonably practicable.
Adhere to the necessary emergency arrangements are in place in the event of an environmental emergency.

Group EHS Manger

The Group EHS Manager is responsible for advising the Managing Director on legal requirements and updates on the company Environmental performance.

18.5. Policy

Dornan's Environmental Management Policy involves:

- Identify environmental impacts particularly in the focus areas of energy use, air emissions, water use, waste & recycling.
- Dornan's goals to minimise environmental nuisance, increase resource efficiency, reduce dependency on non-renewable resources, reduce our carbon footprint, minimise waste to landfill through recycling, pollution prevention & protect biodiversity.
- Where feasible measure the carbon footprint associated with Dornan's activities and identify, review and where necessary aim to reduce Dornan's carbon footprint through the development of defined goals & objectives.
- Work in compliance with Client Environmental Policies and procedures.

Dornan has introduced measures in order to reduce the identified Environmental Impacts which is documented on the Environmental Aspects Impacts Register (HSR-11) which is continually reviewed

18.6. Reference/Records

- HSR-11 Environmental Aspects Impacts Register
- Dornan Environmental Policy
- Environmental Aspects Assessment Procedure – Section 19

19. Environmental Aspects Assessment Procedure

19.1. Purpose

The purpose of this procedure is to define the process of identifying the organization's environmental aspects, determining their level of significance and establishing and maintaining the Register of Environmental Aspects.

19.2. Scope of the Procedure

This procedure applies to the Dornan Engineering's activities, products and services that can interact with the environment.

19.3. Definitions

Environment – Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelationships.

Environmental aspects – The element of an organisation's activities, products and services that can interact with the environment. An environmental aspect can cause an environmental impact. A significant environmental aspect is an environmental aspect that has or can have a significant environmental impact.

Environmental impact - Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.

19.4. Responsibility

The identification of environmental aspects as well as their assessment will be performed on an annual basis, or when changes arise to any on-site activities, products or services that may have the potential to cause environmental impacts. The latter will require an environmental aspects assessment prior to the implementation of the changes.

The Group EHS Manager is responsible for carrying out this assessment with the aid of senior management.

Project managers and EHS advisors conduct this function on a site basis.

19.5. Procedure

18.6.1 Identification Process

The Environmental Manager will, with the aid of senior management:

- Identify environmental impacts for Dornan Engineering's activities, products and services.
- Identify environmental aspects or normal, abnormal and emergency conditions.
- Identify environmental aspects of past, present and future activities.

18.6.2 Analysis

For each aspect identified, information on each aspect is compiled under the below headings. This information and its findings are presented in the Register of Environmental Aspects.

Work Area - A brief description of the work area is described under this heading on the register.

Life Cycle Stage - This includes the consecutive and interlinked stages of the services or product from procurement or generation from natural resources to final disposal. It includes procurement, design, construction, transportation, delivery, use, and end of life and final disposal.

Description of the Aspect - Brief description of the aspect.

Environmental Impact of the Aspect - Brief description of the impacts of the environmental aspect.

Monitoring and Controls - A brief description of the procedures, standard operating procedures, controls in place by Dornan Engineering to manage environmental impacts.

Condition - The assessment is carried out under normal, abnormal and emergency situations. For the purposes of this EMS the following are definitions of these conditions:

- Normal: Day to day activities
- Abnormal: Irregular but planned events
- Emergency: Unplanned events e.g. Natural disasters, fires, explosions etc.

Frequency of Activity (F) - Describe if an activity is carried out daily, weekly, monthly, annually, or less than once per year.

Likelihood of Impact and loss of control (L) - Describe the likelihood of an impact after applying the Dornan Engineering's controls and procedures. Describe the likelihood as either almost certain, very likely, likely, unlikely, highly unlikely.

Severity of the Impact (S) - Describe the impact as a major environmental impact (an impact that effects International designated sites), high impact (e.g. impacts on designated sites or species), medium impact, low impact or minimal impacts.

Significance Rating - A numerical value of F*L*S.

If the Residual Risk rating is between 60 - 125 then Dornan considers this as a high impact.

If the Residual Risk rating between 21 - 59 then Dornan considers this as a medium impact.

If the Residual Risk rating ≥ 20 then Dornan considers this as a low impact.

Legislation - A brief description of the legislation governing the impacts should be described here. Possibly reference our legal requirements procedure.

19.6. Evaluation

The use of the Environmental Aspect Register allows the Environmental Manager to assign a significance rating to a specific environmental aspect. The assessment matrix considers each aspect under categories such as Frequency of Activity (F), Likelihood of Impacts and loss of control (L) and Severity of the impacts (S) and assigns a score to each. The assessment matrix used is outlined in the table below.

Frequency of Activity	Likelihood of an Impact or Loss of Control	Severity of Impacts	Risk Score
Daily	Almost Certain	Major Environmental Impact	5
Weekly	Very Likely	High Impact	4
Monthly	Likely	Medium Impact	3
Annually	Unlikely	Low Impact	2
Less than once a year	Highly Unlikely	Minimal Impact	1

The most significant aspects for inclusion in the Environmental Programme are decided by the Environmental Manager and Group Operations Director. Those aspects are deemed significant by either the numerical rating score or the Environmental Manager. Those aspects deemed significant must have Environmental Objectives and Targets assigned, which aims to eliminate, prevent or reduce their environmental impact.

19.7. Review

Review meetings shall be held by the Environmental Manager periodically (or at least annually of if there is a significant change in the process) to approve the environmental aspects assessment procedure and to formally evaluate any new aspect or changes during the previous period. Senior management shall be informed of major changes to the environmental aspects assessment procedure.

19.8. References/Records

- Register of Environmental Aspects
- Legislation Register – Available from LUS

20. Working at Height Policy

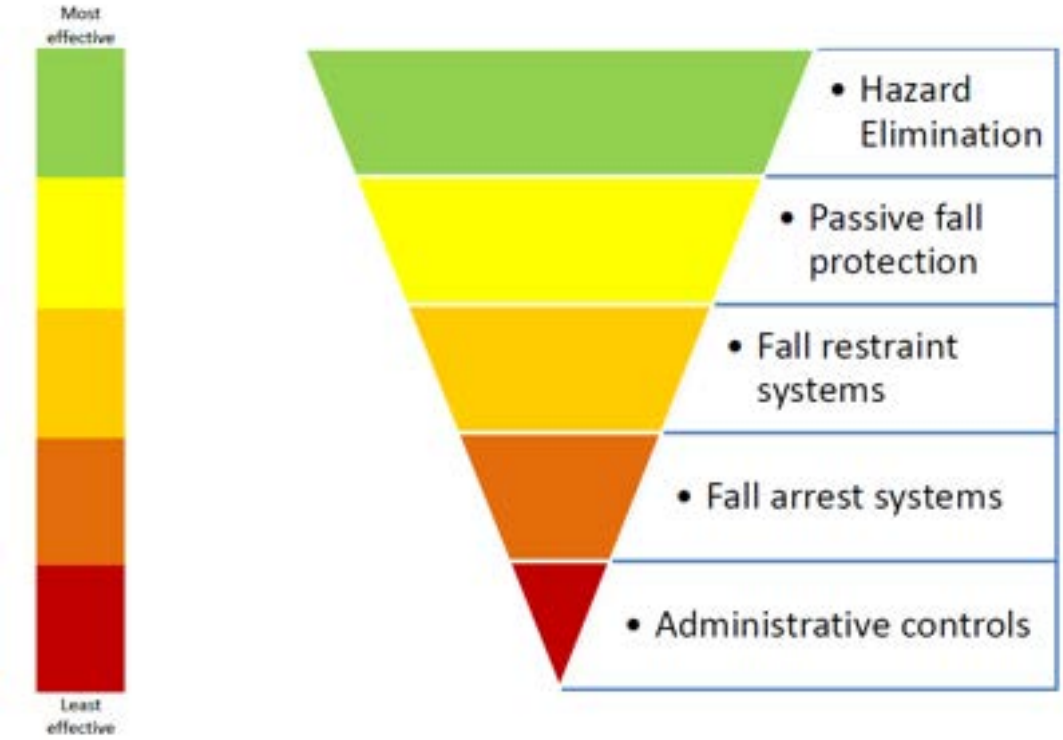
20.1. Introduction

Work at height is one our high-risk activities. We are committed to ensuring the risk is eliminated or controlled as far as reasonably practicable.

We will protect employees and others by:

- Identifying work activities that may involve working at height.
- Eliminating the need to work at height whenever it is reasonably practicable to do so.
- Ensuring that where work at height cannot be eliminated, we use the risk assessment process to evaluate & manage risk.
- Implementing a safe system of work that will prevent falls of persons, materials & equipment.
- Providing suitable plant and equipment to allow safe access for persons and materials.
- Ensuring working platforms and any supporting structures are appropriate and designed in accordance with current standards.
- Ensuring that regular inspections of all equipment required for working at height are undertaken.
- Providing adequate information and training to ensure that only competent persons are engaged in working at height.

The preferred order for controlling fall hazards is as follows:



20.2. Definitions

Work at Height is work in any place, including a place at, above or below ground level where a person could be injured if they fell from that place. This can also include means of access and egress to a place of work.

20.3. Responsibilities

All personnel are responsible for ensuring that the intentions of this policy are effectively implemented on site with Site Managers ensuring necessary appropriate action is determined and actioned upon. This will include reviewing the work arrangements of contractors who will be working at height including monitoring safety method statements and risk assessments before allowing work to commence.

It is the responsibility of each member of staff to:

- Co-operate with this policy
- To abide by the requirements of any systems of work designed to protect them
- Utilise any plant and equipment in a safe & responsible manner
- Inspect equipment before use and report defects immediately

Dornan Supervision must:

- Ensure work at height is avoided if possible and that no work is done at height if it is not safe and reasonably practicable to do it other than at height.
- Ensure that work at height shall only occur when the weather conditions do not jeopardise the health and safety of employees and others affected by that work.
- Ensure that work at height is properly planned, appropriately supervised and carried out in accordance with the requirements of this policy and the appropriate statutory provisions.
- Review the work arrangements of contractors who will be working at height including requesting and reviewing safety method statements and risk assessments before allowing work to commence.
- Ensure the risks from falling objects are properly controlled by appropriate signage and barriers.
- Ensure the perimeter of buildings, structures, pits, tanks, floor openings, etc., have guardrails to stop people falling over the edge. The guardrails should have the necessary strength so that they are able to withstand the impact of a person falling against them. Where guardrails are used, they should be in place prior to any work commencing and should not be removed until all work is complete. Guardrails should be erected by competent persons.
- Ensure all equipment used for working at height is maintained in line with manufacturer's instructions and Dornan policies and procedures.

20.4. Policy

Risk Assessment

The selection of suitable access equipment will be arrived at through the process of a suitable and sufficient risk assessment and the application of the hierarchy of controls when considering work at height. All work at height must be planned, organised and carried out by competent persons.

Refer to Section 26 - Hazard Identification, Risk Assessment & Control.

Method Statements

The information gathered during the risk assessment will be used to develop a method statement that will include, where necessary:

- Specification of the type(s) of access equipment to be used, e.g. powered access, scaffold towers.

- Collective fall prevention measures, e.g. guardrails should be deployed in the first instance rather than personal protection.
- Personal fall arrest equipment, which should be the last in the hierarchy of control.
- Requirements for inspection.
- Any supervision that may be necessary.
- The means for preventing unauthorised access to the area underneath the work being carried out.
- Any weather conditions that workers may be exposed to e.g. icy roofs, slippery surfaces in the rain, wind.
- Any emergency or rescue conditions e.g. it is not acceptable just to rely on the emergency services, this needs to be covered in the risk assessment and planned prior to the work being carried out.

Ladders (Step and Straight)

Ladders will only be used for tasks of low risk and short duration and if the risk assessment demonstrates they are the most suitable work equipment.

- Stepladders must be opened completely and ensure that the spreader is locked prior to use.
- Must be heavy duty, industrial types (EN131 Professional).
- Never use a stepladder in an unfolded position.
- Stepladders must be prevented from spreading by means of stays, chains or cords. These should be of sufficient and equal length, kept in good order, and should be renewed if found to be defective.
- Stepladders are not to be used near leading edges or other location that results in the user working in excess of the effective height of safety handrails.
- Ladders with broken or missing steps, rungs, or cleats, broken side rails, or other faulty equipment must not be used. Improvised repairs must not be made.
- Ladders must not be used as guys, braces, skids, or for other than their intended purposes;
- Climbing or gripping surfaces should be free from oil, grease or mud or other slippery substances.
- The top two steps of a stepladder must not be used for standing.
- Straddling of ladders is not permitted under any circumstances.
- Work must never be carried out from the top platform unless there is an extension above the top to provide a handhold.
- When climbing users must maintain at least three points of contact with the ladder (two feet and one hand or two hands and one foot) and always face the ladder.
- Only one person is to use a stepladder at any one time.
- When working to the side of a ladder, the centreline of the body must be maintained between the side rails and work must not involve overreaching.
- Where steps are used in a doorway the door should be wedged open securely. Ladders must not be placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded.
- Metallic or metal-type ladders must NOT be used around electrical energy, components, and sources.

- Ladders with defects must be taken out of service and tagged as "Dangerous, Do Not Use."
- If a ladder has to rest on any surface it must be stable, firm or of sufficient strength to safely support the ladder and load. The rungs must remain horizontal and able to support the load. Ladders must be positioned to ensure stability during use.
- **Straight ladders** must be at the correct angel (4:1).
- When using a straight ladder for access onto platform, then it must extend 1m or three rungs above the platform.
- Ladders must not be dropped or jarred.
- Any ladder that has been damaged should be withdrawn from service.
- A thorough examination of damaged ladders should be undertaken and appropriate action taken where necessary such as repair by a competent person or scrapping.
- Ladders should be capable of being individually identified.
- Apart from inspection before and after normal use, they should be examined regularly by a competent person.
- Ladders found to be defective should be suitably labelled or marked and withdrawn from service until repaired.
- The inspection should include checking rungs, treads, crossbars and stiles for defect (especially the presence of compression creases in timber), rung to stile connections, ropes, cables and all fittings, locks, wheels, pulleys, rivets, screws and hinges.
- A record should be kept of these inspections (form HS-FM-11).
- Storage areas should be easily accessible.
- Timber ladders should be stored where they will not be exposed to the elements but should have good ventilation.
- They should not be exposed to excessive heat or dampness.
- Ladders should not be hung from the stile or a rung.
- Timber ladders may be coated with transparent non-conductive finish such as varnish or a clear preservative but not with any opaque covering such as paint.
- Aluminium equipment should be given an adequate protective coating when it is subject to acids, alkalis or corrosive substances.
- Preservatives for timber components in aluminium should not contain copper salts.

Podium Type Ladders

Podium type ladders are the preferred type of ladder to be used on Dornan projects. The use of other ladders will be restricted to access and/or inspection purposes and for light duties where it is impractical to install a working platform or use podium steps.

- Must be heavy duty, industrial types (EN131 Professional).
- Gates must be closed when working on the podium ladder platform.
- Do not lean against the gate when working on platform.
- Do not use a podium to gain access to a higher level or onto another platform.

Other factors which have a bearing on whether ladders are appropriate are:

- Whether the ladder can be securely fixed against slipping outwards or sideways.
- The conditions on the site (e.g. exposure, weather, movement of persons or vehicles).

- Whether the user has a safe handhold and is close enough to the work.
- The ability, training and experience of the users.
- The strength, the surface condition and the type of structure against which the ladder is to rest.
- The nature of the work and the type of tools required and the weight of article to be fixed.

Scaffolds

Typically, the provision of scaffolding is by others and Dornan will seek appropriate permission before use.

Scaffolds must conform to the following criteria:

- Scaffolding must conform to BS EN 12811-1:2003 Temporary works equipment. Scaffold Performance requirements and general design.
- The erection, alteration or dismantling of a scaffold must only be conducted by a qualified scaffolder.
- Upon completion, written confirmation must be provided by a competent Scaffolder warranting that the scaffold is complete and safe for the intended use.
- A scaffold tagging system must be implemented at all times during erection, use and dismantling of the scaffold – This system must ensure unauthorised access is prevented on scaffolding that is incomplete or otherwise not fit for purpose.
- Scaffolds shall be subject to documented inspection by a qualified Scaffolder.
- Scaffolding must incorporate compliant edge protection, including a mid-rail and kick board at every open edge of the work platform.

Edge protections must satisfy the following criteria:

- Handrails must be at least 950m high from the working platform to the top of rail (but not more than 1100mm high).
- The maximum vertical gap is 470mm.
- Maximum gap between scaffold and face of structure 300mm.
- If access to equipment is required (for example, a hoist) it must be protected with gates, safety chains or other means to prevent a person falling.
- Loading Bays must have displayed the maximum permitted weight (kgs) allowed on loading bay & be clearly visible to vehicle operators.

Mobile Towers

- All mobile towers supplied and used by Dornan will be; erected by trained and competent people. The preference is for PASMA, CSCS (Ireland) or equivalent training.
- Comply with the standard required for all types of scaffolds, e.g. double guardrails, toe boards, bracing and access ladder and with instruction manual for the erection of the mobile tower. The mobile tower must comply with EN1004 Standard.
- Have purpose-designed platforms with safe trapdoor entry and exit.
- Have built in access for safe ascent and decent.
- Be supplied with the correct size and quantity of stabilisers to prevent overturning.
- Have the correct quantity and number of guardrails with the correct gaps and dimensions to prevent fall.
- All towers must be inspected following assembly and then at suitable regular intervals by a competent person.

Hop-ups

- Hop up platform may be used for low-level access subject to a risk assessment. They must be used only in accordance with manufacturer's instructions. The must be included on a weekly plant register and inspected likewise. Hop ups must be rated for industrial use.

Mobile Elevated Work Platforms

- MEWPs are designed as a work area and not for access purposes. Persons should only egress from an elevated MEWP in an emergency or if a thorough risk assessment identifies that as the only practicable means of gaining access to an area. Access must be through the MEWP Gate. Climbing out of MEWPS not permitted.
- MEWP's must be inspected on delivery. Must have operators manual, most recent test inspection and be free of visible defects.
- Operators must conduct a pre-start safety inspection prior to each use.
- MEWPs must only be operated on a firm and level surface.
- Overhead beams/structures must be identified prior to use and necessary controls implemented to prevent or minimise the risk of contact/crush injury.
- Personnel must stand on the platform floor and excessive reaching or leaning outside the work platform is not permitted.
- MEWP's must only carry tools, materials, and goods that can be safely handled by a person working from the platform and are within the SWL.
- Attachment for carrying of materials on or in a MEWP must be certified by the MEWP manufacturer.
- Exclusion zones and barricades must be positioned a sufficient distance from the MEWP to prevent injury to other workers / pedestrians or collision with vehicles and mobile plant.
- A rescue plan is required for all MEWP's. Note there are over 4,000 different makes and models of MEWP available globally.

Altering Safety Devices: Altering or disabling interlocks or other safety devices is prohibited and is grounds for disciplinary action, up to and including termination.

Fall Protection Equipment in MEWP's

- The need for a fall protection system will be the outcome of a job specific risk assessment undertaken prior to work commencing and taking into consideration the **operator's manual from the manufacturer.**
- In all cases if fall protection equipment is used, the point of attachment must be the anchor point installed by the equipment manufacturer. The location of anchorage points on MEWP equipment varies. They can be located anywhere from the platform floor to the top guardrail.
- The location must be considered when selecting fall protection system.
- Personnel cannot attach lanyards to adjacent poles, structures or equipment while they are working in the MEWP.
- When working next to water, a harness should not be worn due to the risk of drowning if the MEWP falls into the water. Life jackets should be worn.

Fall Protection Systems in Scissors or Vertical Lifts

When working from an elevated scissors lift, a worker needs to be protected from falling by a properly designed and maintained guardrail system. However, if the guardrail system is less than

adequate, or the worker leaves the safety of the work platform, an additional fall protection device would be required.
The need for PFP equipment will result from a job-specific risk analysis undertaken prior to starting work, which takes into consideration the MEWP manufacturer's operator instructions as found in the operator's manual. Typically IPAF and manufacturer guidance indicate that it is not normally necessary for personnel working from a vertical lift to wear fall protection equipment, other than in exceptional circumstances.

Note: An exceptional circumstance will include when the operators feet leave the platform floor.

Note: Generally, inertia reel blocks are not considered suitable for use in MEWP's. The lanyard manufacturer recommendations may not suit the MEWP anchor point locations. Dornan will comply with individual project specific requirements requiring the use of fall protection systems on all types of MEWP's. These requirements must be compatible with the manufacturer guidelines.

Fall Protection Equipment in Boom Lifts

A full body harness with a short or adjustable lanyard **must** be used to provide work restraint. The lanyard should be adjusted to be as short as possible to ensure the forces from the "catapult effect" would not cause the occupant to be thrown from the platform but rather remain within the confines of the work platform.

Spotters

Depending on the location and local work environment, safety spotters will be required during the use of MEWP. Spotters shall be required when there is a potential for operator injury due to physical contact with facility systems or structures. Spotters shall also be required when there is a potential for damage to sensitive facility systems or structures. Examples of when a spotter is required are:

- In areas containing energized electrical equipment (separate method statement required)
- In congested work locations such as overhead piping/mechanical
- In close proximity to other personnel
- In operating manufacturing areas
- In areas of poor visibility
- In locations adjacent to Hazardous Production Materials
- In areas with floor openings/leading edges,
- A safety spotter may be another co-worker located on the work platform or on the ground depending on area to be observed during movement. The spotter shall work in conjunction (team) with the operator to ensure the MEWP is utilised in a safe manner. Spotters shall be in a visual line of sight with the MEWP and be able to lower the MEWP in an emergency.
- EMO button shall be visible and unobstructed.
- Spotters shall monitor all horizontal and vertical movements and provide guidance to the operator.
- A spotter may spot for multiple lifts. The spotter is not an additional person for the sole purpose of observing the lift. The spotter is meant to be a productive worker who can be called on to observe the MEWP during the vertical or horizontal movement.
- The spotter and operator must assess the workplace for potential hazardous operating conditions prior to all horizontal or vertical movements of the MEWP.
- The spotter must be included in the development of the rescue plan and be familiar with the emergency descent procedures for the machine in use.

- Dornan will comply with individual project specific requirements in relation to spotters.

Storage

The person in charge of the MEWP must ensure the following:

- The MEWP is parked in its designated space. If there is no designated space, the MEWP must be parked away from high traffic areas, including emergency routes and pedestrian walkways.
- The MEWP is secure and stabilized as necessary, with the basket positioned to prevent unauthorized access to the basket and controls. During inclement weather, the basket must be lowered to prevent damage.
- The keys are returned to the designated key repository.

Fuelling/Battery Charging

- The engine shall be shut down while fuel tanks are being filled. Fuelling shall be done in a well - ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.
- Refuelling of machines will be accrued out in designated areas with necessary spill protections and environmental controls in place.
- Batteries shall be charged in accordance with manufacturers manual.

General use of Fall Protection Equipment

(Additional information is available in the PPE policy).

Definitions

Fall Arrest - This stops a person after they have fallen.

Work Restraint - This stops you falling in the first place, by preventing you from getting in to a position where you can fall.

Fall Arrest Systems

A typical fall arrest system normally consists of a full body harness and a lanyard with some form of inline shock absorption capability. Anchorage points should be designed and tested as being suitable for fall arrest. Where a fall arrest device is provided for use by persons at work, Dornan site management must ensure that:

- All anchorage points for the device are inspected by a competent person before their first use and then on a regular basis so that they are capable of supporting the design loads.
- In addition, the user should carry out a visual inspection before every use.
- If the load bearing capacity of an anchorage point is impaired, the anchorage is immediately made inoperable so as to prevent its use.
- Any harness, safety line or other component of the device that shows wear or weakness to the extent it may cause the device to fail is not used.
- All persons using the device have received training in the selection, assembly and use of the system.
- Adequate provision is made for the rescue of a person whose fall is arrested by a fall arrest device.

Work Restraint Systems

- A typical work restraint system normally consists of a full body harness and lanyard with no shock absorber because the person will not get into a fall arrest situation.

- The lanyard length should be set or adjusted such that the user cannot get into a situation where fall arrest is required, this applies to fixed length, adjustable length and retractable (inertia reel) type lanyards.
- Waist belts should not be used.

Falling Objects

Suitable measures must be put in place to prevent the fall of any material or object, which is likely to cause injury. These may include:

- Safe means of raising and lowering plant, materials and debris.
- A secure physical barrier to be provided to prevent objects falling freely from buildings or structures in or in the vicinity of the workplace.
- Where it is not possible to provide such a barrier, the provision of measures to arrest the fall of objects. These measures may include the platform of a scaffolding system or certain types of other roof edge protection systems, or the careful positioning of a toe board that forms part of the guardrail, or the use of appropriate infill panels to the guardrail.

The use of hand held tools while working at heights

Where a hazard exists for hand held tools being dropped from heights, and no other means of preventing them from striking people below is practicable for the situation, they must be secured to the user or another suitable anchorage point by positive means e.g. tool tethers.

Training

All DEL employees and subcontractors will be adequately trained and provided with sufficient information so that they are competent to comply with this policy and supervised as appropriate. Work at heights training is a compulsory core training module for direct and subcontract employees.

Dornan Project teams are responsible for ensuring that all subcontractors, temporary workers and employees working under their care are fully trained and are aware of all policies and procedures in relation to the hazards of working at height. This includes those:

- Persons involved in work, planning or supervising work at height
- Persons who supervise personnel using access equipment
- Persons who use ladders, stepladders, podiums, scaffolds and other access equipment

MEWP's

Dornan employees and subcontractors must not use MEWP unless they are holders of a current (and appropriate i.e. 3a, 3b, managers card) International Powered Access Federation (IPAF) PAL (Powered Access Licence) card or equivalent. Operators must be suitably experienced and fit to undertake the tasks required of them.

All MEWP operators shall be trained in accordance with the manufacturer's operating and maintenance manual and user's work instructions before operating the MEWP. Only properly trained and authorised personnel shall be permitted to operate the MEWP. Retraining is required if gaps are identified during an evaluation of the operator's use of an MEWP.

Emergency Rescue Planning

In accordance with legislation, best practice and guidance (BS 8437:2005) Dornan will ensure that before any work at height can commence on site the following provisions are in place:

- There must be a rescue plan and procedure in place
- Operatives must be trained and competent in the use of rescue equipment.
- A sufficient number of trained and competent personnel must be on site.
- The rescue procedure in place is practised on a regular basis and competence is maintained on record.
- The selection of rescue equipment is appropriate for the nature of work.
- A comprehensive Work at Height Rescue Plan will be developed only in circumstances where it is identified via risk assessment that there is a danger of suspension trauma/venous pooling/ toxic shock resulting from a fall from height. In all other circumstances, (i.e. when the casualty is not suspended and can be reached via standard access methods) emergency/first aid procedures as specified in relevant method statements/risk assessments shall be followed.

At all times the Dornan plan will complement and support the plan prepared by the Principal Contractor or client. The current template for use is HS-FM-31 available on the EHS public folder.

20.5. Reference/Records

- Relevant inspection forms for WAH equipment
- Relevant BGRA's

21. PPE Policy

21.1. Introduction

The purpose of this Personal Protective Equipment Policy is to protect the employees of Dornan from exposure to work place hazards and the risk of injury through the use of personal protective equipment (PPE) when other means of protection against hazards are not adequate or feasible. It is designed to ensure that employees receive the correct PPE that they need, in the right size or style, understand its care, use and disposal and that it is readily available to them. The correct PPE will always be identified in task specific risk assessments.
The Company will provide free of charge all necessary PPE for Dornan employees and in exceptional cases where there is an agreement in place to supply others. Subcontractors and others are responsible for supplying their own employees with PPE unless otherwise agreed.

21.2. Responsibilities

Immediate Supervisors are Responsible for:

- Ensuring PPE is available
- Providing PPE as required or upon request to all employees
- Ensuring PPE is being used by each affected employee during all job tasks which require such protection
- Conducting specific hazard assessments for personal protective equipment use upon request;
- Documenting distribution of PPE
- Taking the appropriate corrective action in accordance with the Company Policy for employees not wearing required PPE

EHS Advisors are Responsible for:

- Assessing the workplace to determine if hazards are present, or are likely to be present, which necessitates the use of PPE;
- Communicating selection decisions to each affected employee and supervisor;
- Selecting and recommending PPE that properly fits each affected employee;
- Ensuring that employees are trained on the proper use, care, and cleaning of PPE
- Documenting distribution of PPE
- Maintaining records on hazard assessments
- Maintaining records on PPE assignments and training
- Periodically re-evaluating the suitability of previously selected PPE

Employees are Responsible for:

- Maintaining & inspecting all PPE prior to its use
- Wearing PPE upon the direction of their immediate supervisor
- Participating in mandatory training
- Notifying their supervisor when new PPE is necessary
- Contacting Environmental Health and Safety when a hazard or process has changed which may render previously used PPE ineffective
- Informing the supervisor of the need to repair or replace PPE
- Notifying their supervisor of any changes which might impact the type of PPE they utilise

Subcontractors are Responsible for:

- Providing the required PPE, and associated training, for their employees to comply with applicable regulations and this policy.

Visitors / Vendors are Responsible for:

- Visitors / Vendors with deliveries to site are responsible for the utilisation of PPE as required by this policy & site-specific requirements.

Employees or subcontractors who repeatedly disregard and do not follow PPE policies and rules will be subject to the company disciplinary procedures.

Minimum requirements

Not all project requirements are the same and typically Dornan will have to comply with Client or other PPE standards that differ from those of the company. It is our policy to cooperate and comply with local site requirements but the following are the minimum requirements that we will comply with at all times.

Eye and Face Protection

- Employees, subcontractors and visitors shall wear eye protection 100% of the time while on the job site
- Eye protection must comply with EN 166:2001 including sunglasses where worn.
- Face shields shall be worn for protection from flying particles or projectiles e.g. grinding & when drilling overhead.
- Adapters for use with hard hats or caps may be used.
- When using a face shield, safety eyewear shall also be worn
- Specific hazards may require additional protection e.g. safety goggles to be worn when drilling above head height.

Eye and Face Protection While Welding

Welding hoods or shields designed to protect the eyes, face, and head from ultraviolet radiation, sparks, molten metal, and flying particles are required during arc-welding activities.

Welding goggles may be used during acetylene welding, cutting and brazing activities. Welders shall only use equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation.

Welding shields do not provide impact protection if the welder is using a grinder!

Prescription Eyewear

The Company shall pay for prescription safety eyewear for those employees who wear prescription lenses and whose job involves potential eye hazards as determined by a PPE Hazard Assessment. Personnel with field operation responsibilities are eligible for Company-provided prescription safety eyewear under this procedure. At the outset, employees should contact their line manager.

Eligibility for office employees will be determined by their supervisor and will be based on risk exposure. Prescription safety eyewear shall be provided to eligible employees provided:

- Employee receives advance approval from his supervisor
- The safety eyewear meets EN requirements

Replacements/repairs shall be provided when an employee's lenses and/or frames are damaged during a work-related activity, or when a prescription change warrants. Supervisor approval is needed for replacement/repairs.

If an employee's job duties require the use of a full-face respirator, the Company will provide a corrective eyeglass apparatus that fits inside the face mask. The Company will not allow the use of safety eyewear that interferes with the respirator seal.

For employees required to wear prescription safety eyewear under this procedure, the Company will reimburse the actual cost of safety eyewear up to €100. If employees desire to purchase prescription safety eyewear where the cost is over these limits, they may do so, but must pay the additional amount.

Employees who wear ordinary glasses for everyday use that clearly do not meet EN-166 will be required to need to wear safety over-glasses. **Side defenders on ordinary glasses are not acceptable.**

Contact Lens

Contact lenses may be worn but must be supplemented by safety eyewear compliant with this procedure.
Contact lens wearers should be aware (and be made aware of) that certain conditions may make it necessary to avoid wearing their lenses. Each situation should be carefully investigated and the relevant risk assessment adapted as required. These situations may include:

- Exposure to chemical fumes and vapours.
- Areas where potential for chemical splash exists.
- Areas where particulate matter or dust is in the atmosphere.
- Exposure to extremes of infrared rays.
- Intense heat.
- Dry atmosphere.
- Flying particles.
- Areas where caustic substances are handled, particularly those used or stored under pressure.
- Welding

In workplaces with ultra-violet and infrared radiation sources, users of contact lenses require protection just as persons not wearing contact lenses do. Contact lens types absorb infrared radiation. This effect is potentially more harmful to the soft lens wearer as it could alter the water balance of the contact lens.

Hand and Arm Protection

It is Dornan policy that gloves complying with EN388 are worn 100% of the time on site. All employees will be expected to be wearing gloves at all times and only gloves provided by the company will be allowed unless specifically approved by the EHS team.
Employees will wear cut resistant gloves (4X43C EN388 2016) any time they are handling any metal materials or any other sharp-edged or pointed materials that creates an exposure for cuts or puncture wounds. Additionally where there is a risk of arm injury e.g. working above ceilings, protective sleeves that protect the arm must be worn.
Fingerless gloves may be used for termination and other low risk activities requiring maximum dexterity, when identified in the task risk assessment.
The exact requirement for hand protection will be the outcome of a job specific risk assessment undertaken prior to work commencing and taking into consideration manufacturer's operators' manual or recommendations. Gloved hands are to be kept clear of rotating parts eg, when using the Pipe threading machine, pedestal drill and bench grinder.
In this instance, the risk assessments may require additional measures such as latex gloves to protect against oils.

Risk assessments must take account of jewellery and the dangers of snagging on stationery or moving plant, power tools are other equipment.

Foot Protection

EN 345 safety boots (not shoes) must be worn by all Dornan employees whilst on site. Rigger boots are acceptable unless prohibited on a specific project or identified as unsuitable in the risk assessment.

All boots must provide toe, ankle and sole protection. They must be in good condition and replaced as necessary.

Head Protection

All employees, contractors and visitors shall wear a hardhat while on Company premises, excluding offices, company vehicles and during welding activities. In exceptional circumstances and subject to a specific risk assessment identifying no foreseeable risk of injury, alternative arrangements may be put in place.

- Head protection shall comply with EN 397:2012.
- Hardhats and suspensions shall be replaced as recommended by the manufacturer.
- During welding activities welders are not required to wear hard hats during hood use, unless other hazards dictate the need for head protection in combination with eye protection (i.e. welding hoods in combination with head protection). After completing the welding activity, a hard hat is required.
- Chin straps should be provided and used if a job involves work in windy conditions, especially at height, or repeated bending or constantly looking upwards.
- Only approved attachments may be placed on the helmet.
- Workers may not modify a helmet i.e. drill holes for additional ventilation.
- Normally, helmets should be replaced at intervals recommended by the manufacturer. They will also need replacing when the harness is damaged or if it is likely that the shock absorption or penetration resistance has deteriorated. For example, when the shell has received a severe impact, or if deep scratches occur (i.e. to a depth greater than 25% of the shell thickness) or if the shell has any visible cracks.
- Hoodies/Beanies/Baseball caps shall never be worn under a hard hat, and extra care should be taken at all times when wearing hoodies due to the additional hazards they create.
- Winter liners approved by the manufacturer of the hard hat can be worn.
- Exemptions from head protection rules based on religious beliefs will be dealt with on a case-by-case basis in accordance with local regulations.

High Visibility Vests & Jackets

- All Dornan employees and subcontractors must wear high visibility vests or jackets whilst working on site. This equipment must comply with EN 471 e.g. everyday fluorescent clothing is not a substitute for high visibility work wear.
- There may also be project specific requirements for different colour vests such as banksmen and spotters.

Personal Fall Arrest Equipment-Minimum Standards

- Full body harnesses are required with a shock-absorbing lanyard. The use of body belts is prohibited.
- The attachment point of the body harness is the centre D-ring on the back.

- Employees must always tie off at or above the D ring of the harness except when using lanyards 1.0m or less in length.
- Harnesses or lanyards that have been subjected to an impact load shall be destroyed.
- Load testing shall not be performed on fall protection equipment.
- Connecting devices can be a rope or web lanyard, rope grab or retractable lifeline.
- Only locking snap hooks may be used.
- Horizontal lifelines will be designed by a qualified person and installed in accordance with the design requirements.
- Lanyards and vertical lifelines need a minimum breaking strength of 5,000 pounds (2,268 kg).
- The length of a single lanyard shall not exceed 2.0m.
- The use of steel lanyards is prohibited.
- Lanyards may not be clipped back to itself (e.g. around an anchor point) unless specifically designed to do so.
- If vertical lifelines are used, each employee will be attached to a separate lifeline.
- Lifelines need to be protected against being cut or abraded
- Equipment must be hung in a dry ventilated area out of direct sunlight.

Hearing Protection

- Ear muffs or plugs must be provided where employees are exposed in designated areas and for certain work tasks to noise levels in excess of 80dB(a).
- It is recommended that hearing protection is used in noise levels in excess of 80dBA.
- It is compulsory that hearing protection is used in noise levels in excess of 85dBA. The employer must also take steps to reduce the level of sound at 85dBA. All ear protection will be to EN 352.

Respiratory Protection

- All wearers of respirators that rely on a mask-to-face seal must be fit tested before initial use and annually thereafter. Fit testing is also required when a change in the facial structure of a wearer occurs or a different make/model of respirator is purchased.
- Qualitative or quantitative fit tests are used to determine if the respirator mask provides an acceptable fit to the wearer. Qualitative fit test procedures rely on a subjective sensation (taste, irritation, smell) of the respirator wearer to a particular test agent while a quantitative fit test uses measuring instruments to measure face-seal leakage.
- All fit testing is provided through EH&S.
- Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air- purifying respirators (PAPR's) shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode.
- Loose fitting, hood-style PAPRs do not require fit testing.

Electrical Protective Equipment

- Employees working in areas where electrical hazards are present shall be provided with and shall use protective equipment (Arc Flash Gear) that is designed and constructed for the specific body part to be protected and for the work performed.
- Employees shall wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with live parts or from flying objects resulting from electrical explosion.

- Face, neck and chin protection shall be provided wherever there is a danger of injury from exposure to electric arcs or flashes or from flying objects resulting from electrical explosions.
- Employees shall wear eye protection whenever there is a danger of injury from electric arcs, flashes or from flying objects resulting from electrical explosions. Face shields without an arc rating shall not be used for electrical work. Safety glasses or goggles must always be worn underneath face shields.
- Employees shall wear rubber insulated gloves where there is a danger of hand and arm injury from electric shock due to contact with live parts or where there is a possible exposure to arc flash burn. Leather or FR gloves shall be worn where required for arc flash protection.
- Where insulating rubber gloves are used for shock protection, leather protectors shall be worn over the rubber gloves.
- Where insulated footwear is used as protection against step and touch potential, dielectric overshoes shall be required. Insulated soles shall not be used as primary electrical protection.
- Workers involved in switching should have the additional PPE, rated helmet and face shield 10,000V, Gloves, Shepherds hook etc. which needs to identified in the relevant task risk assessments.

Flame Resistant Clothing

- Flame-resistant (FR) apparel to EN 533 shall be visually inspected before each use. FR apparel that is contaminated or damaged shall not be used. Protective items that become contaminated with grease, oil, flammable liquids or combustible liquids shall not be used. The garment manufacturer's instructions for care and maintenance of FR apparel shall be followed.
- FR clothing made from flammable synthetic materials that melt at temperatures below 315 degrees Celsius, such as acetate, nylon, polyester, polypropylene and spandex, either alone or in blends, shall not be used. Clothing made from non-melting flammable natural materials, such as cotton, wool, rayon or silk may be used as under layers beneath FR apparel.
- FR garments worn as outer layers over FR apparel (i.e. jackets or rainwear) must also be made from FR material.
- Flash suits must permit easy and rapid removal by the user.
- Additional requirements may be required for site-specific reasons e.g., flame retardant and anti-static clothing in addition to chemical resistant.

21.3. Procedure

PPE Risk Assessment

Business Generic Risk Assessments (BGRA) will identify the PPE requirements for typical hazards and activities carried out by Dornan employees and subcontractors. These BGRA's are available on the EHS Public folder on the U drive and updates as required.

The project safety advisor, in conjunction with supervisors, will complete specific risk assessments for each project and document them in the relevant form HS-FM-01. The safety advisor or supervisor will keep the forms in the project safety folders on site.
The project safety advisor will review, and update the hazard assessment for PPE whenever:

- A job changes
- New equipment or process is installed
- There has been an accident
- Whenever a supervisor or employee requests it
- Or at least every year

- Any new PPE requirements that are developed will be added into the company PPE matrix (see PPE Matrix).
- Selection of PPE should be made in consultation with the safety team and must provide protection against the particular hazards for which they are selected. Medical consultation will be sought here appropriate.

The following factors shall be considered when selecting PPE:

- Chemical hazards
- Physical hazards
- Task requirements
- Potential for PPE failure
- Maintenance requirements
- Interferences
- PPE durability
- Duration of use
- Regulatory requirements/certification
- User's size and physical abilities (for fit, comfort and individual needs)

Once the hazards of a workplace have been identified, project team will determine if the hazards can first be eliminated or reduced by methods other than PPE, i.e. methods that do not rely on employee behaviour, such as engineering controls.

If such methods are not adequate or feasible, then the Safety advisor will determine the suitability of the PPE presently available; and as necessary, will select new or additional equipment which ensures a level of protection greater than the minimum required to protect our employees from the hazards. Care will be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards will be recommended for purchase.

All personal protective clothing and equipment will be of safe design and construction for the work to be performed and will be maintained in a sanitary and reliable condition. Only those items of protective clothing and equipment that meet relevant EN standards will be procured or accepted for use.

Affected employees whose jobs require the use of PPE will be informed of the PPE selection and will be provided PPE by Dornan at no charge.

Training

- Any worker required to wear PPE will receive training in the proper use and care of PPE before being allowed to perform work requiring the use of PPE. The training will include, but not necessarily be limited to, the following subjects:
- When PPE is necessary to be worn
- What PPE is necessary
- How to properly don, doff, adjust, and wear PPE
- The limitations of the PPE
- The proper care, maintenance, useful life, and disposal of the PPE

- Training of each employee will be documented using Tool Box talk form HS-FM-08 and kept on file.
- Subcontractors are ultimately responsible for training their own employees in a similar fashion.

Retraining

Periodic retraining will be offered to PPE users as needed. The need for retraining will be indicated when:

- An employee's work habits or knowledge indicates a lack of the necessary understanding, motivation, and skills required to use the PPE (i.e., uses PPE improperly).
- New equipment is installed
- Changes in the work place make previous training out-of-date
- Changes in the types of PPE to be used make previous training out-of-date
- Following an incident or accident where the PPE was incorrectly used.

Cleaning and Maintenance of PPE

- It is important that all PPE be kept clean and properly maintained. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision.
- Employees must inspect, clean, and maintain their PPE according to the manufacturers' instructions before and after each use. Supervisors are responsible for ensuring that users properly maintain their PPE in good condition.
- Personal protective equipment must not be shared between employees until it has been properly cleaned and sanitized. PPE will be distributed for individual use whenever possible.
- If employees provide their own PPE, it must be adequate for the work place hazards, and maintained in a clean and reliable condition.
- Defective or damaged PPE will not be used and will be immediately discarded and replaced.
- It is also important to ensure that contaminated PPE which cannot be decontaminated is disposed of in a manner that protects employees from exposure to hazards.

21.4. Reference/Records

- PPE issue form HS-FM-09
- PPE Matrix

PPE Matrix

JOB TASK	Mandatory					Arm	Body		Eyes/face		Ears	Lungs	Comments
	Hard hat	Safety shoes	Gloves	Hi-viz vest	Glasses	Gauntlet	Overalls	Harness	Goggles	Face Shield	Ear Defenders	Mask	All PPE requirements are subject to the risk assessments for the task
Manual handling	X	X	X	X	X		X						Flame proof overalls may be required
Cutting	X	X	X	X	X					X	X		Green Traffiglove
Grinding	X	X	X	X	X				X	X	X		Goggles under Shield
Ducting work/Pipe work	X	X	X	X	X	X							Green Traffiglove, Gauntlets
Work on live panels	X	X	X	X	X		X			X	X		Flame retardant equipment, rubber mats. Arc rated PPE may be required
Handling corrosive chemicals	X	X	X	X	X		X			X			Chemical apron and protective gloves (check MSDS), goggles or face shield for splash hazards
Welding/ Burning / Cutting	X	X	X	X	X		X			X		X	Welding gloves, hood, leathers and respiratory protection as needed per exposure - Glasses under Shield, Flame Proof Overalls
Working at elevated locations	X	X	X	X	X			X					Fall protection equipment; harness, D ring, lanyard,
Work in confined spaces	X	X	X	X	X		X	X			X	X	Will need specific training depending on task requirements
Power tools	X	X	X	X	X		X		X	X	X	X	Depending on tool. Gloves may not be worn in certain circumstances
Operating mobile plant	X	X	X	X	X						X		Possibly dark glasses
Removing contaminated equipment	X	X	X	X	X				X	X	X	X	Filter Grades per Risk Assessment
Cable Pulling	X	X	X	X	X								
Terminating	X	X	X	X	X								Fingerless gloves

NOTES:
Refer to CEN guidance document on EHS Public server PPE
HSE document information 668/25-Welding & allied Processes available on EHS Public Folder under section 10 PPE

Rev1-11-15

22. Control of Subcontractors

22.1. Purpose

The purpose of this policy if to outline how sub-contractors are managed on Dornan construction projects.

22.2. Scope

This policy applies to all Dornan work areas.

22.3. Definitions

Sub-Contractor: A separate company to Dornan, sub-contracting work form Dornan. Sub-contractors take on their duties as contractors and as employers to their employees.
Agency: In relation to health and safety, these persons will be classed as Dornan direct employees.
Limited Company – self-employed, In relation to health and safety these will be treated as sub-contractors.

22.4. Responsibilities

Project Managers
To ensure that sub-contractors are appointed in good time. To ensure that all relevant safety information has been received from the sub-contractor prior to them starting on site.

EHS Advisors
The review the main contractor's safety information and develop a safety brief outlining the Dornan's safety expectations for all sub-contractors. To review sub-contractor safety documentation to ensure that it is adequate and to report any shortcomings or concerns to the person appointing the sub-contractor and to the project manager.

Those Appointing Sub-Contractors
To send out the safety brief to all contractors that they intend to price work for their projects. To ensure that the sub-contractor has priced for the safety requirements of the brief. To liaise with the safety advisor to ensure that they are using the most up to date safety brief. To ensure that a kick off meeting is held where all safety expectations are discussed.

Supervisor/Site Manager for the Sub-contractor
To adhere to all contained within the safety information pack and any safety updates or changes that occur throughout the project.

Quality Manager
To maintain the sub-contractor performance tracker.

22.5. Policy

Safety Brief
The safety brief, developed by the EHS advisor, will be based on a number of different sources of information. This information will be as follows:

- The Dornan Site Safety Plan, Dornan specific requirements, auditing and reporting schedule, involvement with Hi5 BBS program, etc.
- Main Contractor Safety instructions, planning requirements for the project (Delivery routes and restrictions etc.). Site-specific hazards and control outlined by the main contractor, site induction process etc.
- Contractor checklist.

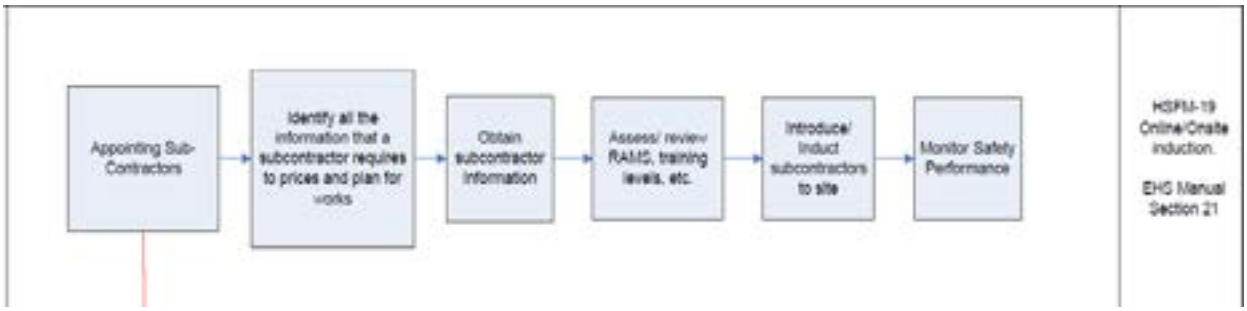
Items provided with the brief:

- Copies of the induction forms (Main contractor and Dornan).
- Agreed RAMS template to be populated by the sub-contractor.
- Sub-contractor questionnaire.
- Dornan training matrix to be populated by the sub-contractor.

Items expected from the contractor;

- A site-specific safety statement/policy or equivalent.
- Completed sub-contractor questionnaire.
- Populated training matrix along with proof of training.
- A method statement for their works on site, (in agreed format).
- Insurance details.
- Confirmation that they have a system of deeming their employees competent.

Flowchart illustrating subcontractor control



Integrating the Sub-contractor into the Project

Site inductions are to be planned in advance for those coming to site. The new contractor will be provided with a Dornan Liaison in order to familiarise the contractor with the site and to provide advice to the new contractor. Set up safety check of plant and equipment provided by the sub-contractor will be conducted before they go into use.

Performance Checks

Surveillance audits will be conducted on the contractor as per Section 30, Audits and Inspection Procedure. The contractor's foreperson will be expected to accompany the site audit. Audits conducted will outline either positive or negative outcomes.

Positive Performance

This will be reflected in the site EHS incentive initiative and Dornan's HI5 BBS program. The project manager, upon liaising with the EHS advisor, will forward the positive review to the Group Quality Manager who will update the sub-contractor performance tracker accordingly.

Negative Performance: where manageable will be addressed on site and reported to the sub-contractor and the Dornan project manager for the project. The sub-contractor performance will be tracked thereafter. If no improvement is noted then an NCR may, at the discretion of the Dornan management team, be issued to the sub-contractor. The sub-contractor will be given a week to reply to the NCR with an action plan to improve their safety performance.

Further action, where required, will be managed through the contracts manager.

22.6. Reference/Records

- Sub-contractor performance tracker. (Managed and updated by the Quality Manager)
- Sample Safety Brief HS-FM-XXX-JOB#
- NCR Report
- Sub-contractor EHS Questionnaire
- Training Matrix
- Main contractor EHS safety instructions
- Site specific RAMS templates HS-FM-17-JOB#
- Induction Form HS-FM-05
- Dornan site specific safety plan
- Dornan Hi5 Program
- Sub-contractor site specific EHS plan/policy
- HSP-12 Audits and Inspection

23. Emergency Preparedness and Response

23.1. Purpose

The purpose of this procedure is to establish a uniform approach to planning and identifying the potential for and responding to accidents and emergency situations, and for preventing and mitigating the environmental impacts that may be associated with them. Project Emergency Action Plans are developed, tested and reviewed in accordance with this procedure.

23.2. Scope

This procedure is applicable to all Dornan projects and places of work. Client and/or Principal Contractors procedures will, where appropriate, take precedence.

23.3. Definition

For the purpose of this procedure emergency means an unplanned occurrence, this has the potential to cause harm to people, property, the environment or the business.

Types of Emergencies

Serious Work Accident
A serious accident is any accident that involves either serious injury requiring urgent medical aid, or involves entrapped persons whose health or safety is in immediate danger. This includes acute exposure to a hazardous substance.

Fire Emergency
Is any occurrence of fire that cannot be quickly brought under control by use of a hand held fire extinguisher. A major fire could have serious consequences including people being injured or killed and buildings or equipment destroyed.

Inclement Weather Emergency
Any weather condition which makes normal working operations unsafe or where travelling to the place of work is unsafe.

Environmental Emergency
Any emergency likely to cause damage to the environment such as chemical spills etc.

General Medical Emergency (including non-work related)
Heart attack, stroke, cardiac arrest, diabetic emergencies etc.

23.4. Responsibilities

Managing Director and Group EHS Manager.
Must liaise prior to predicted weather warnings and decide on suitable course of action. Must maintain a list of contacts for department heads with the affected office and communicate the course of action to them.

Office Department Heads
To maintain a list of contact details of the persons under their control and must cascade received information to persons under their control in the event of an emergency.

Project Managers
Project Managers have the responsibility to ensure that all sites have suitable contingency plans in place to mitigate the effects of emergencies. Where applicable the Clients plan will take precedence. The Site Manager will arrange training in the effective use of emergency equipment for staff. A means of

contacting employees must be in place to ensure good communication in an inclement weather situation. To ensure that materials and equipment are secured before predicted adverse weather conditions.

Construction Managers and Supervisors

- Construction Managers and Supervisors will ensure that contingency plans appropriate to their site are in place and properly communicated to all relevant staff.
- Ensure that appropriate emergency equipment (Fire extinguishers/blankets/radio's etc.) is available to workers who might have to act in an emergency situation.

EHS Advisors

- EHS Advisors have a responsibility to ensure that they provide suitable advice to site teams on the content of their contingency plans and also to monitor the effectiveness of the contingency plan and emergency measures being implemented on site.
- Must evaluate and access the risk when attending any emergency situation in conjunction with rescuers/ site management team present and avoid any activities which might put the rescuer/employee at risk.

Employee and Sub-contractors

- To ensure that they follow the sites contingency plan. To ensure that they have their access cards with them at all times on site.
- To attend emergency training that may be required for emergency procedures. To ensure that they have appropriate skills and knowledge to carry out tasks assigned to them and if in doubt to raise any issues with the project team.
- Must evaluate and access the risk when attending any emergency situation in conjunction with site management and safety team and avoid any activities which might put the rescuer/employee at risk.

23.5. Policy

EHS Plan

Project EHS plans will contain a section describing contingency plans to deal with emergencies, which could occur at that site or premises. These contingency plans will in all instances address the following as appropriate:

- Fires
- Spillages and discharges
- Accidents Injuries
- Unexpected hazards

In addition, they should include other possible emergencies dependent on the nature of the activities/location/premises. The Contingency Plan should include the following:

- Contact telephone numbers of specific staff to be notified in case of an emergency situation occurring.
- Contact telephone numbers of safety and environmental advisors.
- Details of first aid arrangements.
- Details for contacting emergency services

- Details of the nearest accident and emergency hospital.
- A layout of the site containing relevant items.
- Client contacts to be notified together with any client specific requirements.
- Fire evacuation procedures and drill arrangements as appropriate.
- Drill arrangements as appropriate.

The contingency plans will be communicated to all staff at induction, toolbox talks & briefings.

General Medical Emergency (including non-work related)

Employees are to pass on pre-existing medical conditions or medical conditions that may become apparent during the course of their employment to Dornan following an induction in order to ensure availability of relevant health records in case of an emergency. Dornan shall ensure that this record can be retrieved in the event of injury/medical event and effective treatment provided.

Should Dornan identify persons who are medically at risk, company first aiders must be informed. Site EHS plan must identify steps to be taken in the event of a serious medical emergency. This must include initial treatment by First Aider and responsibilities for contacting emergency services and co-ordinating emergency services on site.

Chemical Emergency - Spillages and Discharges

- All Spillages and discharges/environmental incidents shall be notified to the EHS Advisor.
- **Spillage of Low/Medium Hazardous Chemicals:** Area to be cordoned off and the spillage cleaned up according to the instructions on the Safety Data Sheet (SDS) documents or a specialist called.
- **Fuel and Similar Spillage:** Spillages to be contained with sand and subsequently cleaned up in the most appropriate manner. If soil is contaminated, soil to be removed by or to a specialist licensed sub-contractor. All documentation to be retained and filed.
- **Release/Damage to Foul or Storm Sewers:** Release/damage to be reported to at the earliest opportunity.

Inclement Weather Emergencies

Weather forecasts are to be checked on a regular basis. Stores and compounds are to be kept in good order. Items that have to potential to catch wind are to be adequately secured.

Good communication is required during inclement weather conditions, the principle contractor / PSCS must have a Dornan contact name and number in order to contact with them in the event of emergency site conditions.

The project manager is responsible for communicating to the workforce in the event of site closures etc. All work areas are to be inspected after inclement weather to ensure that they are safe to work in.

Where Main and Regional offices are affected. The Group EHS Manager (Regional Manager for the UK) and the Managing Director (DESL Managing Director for the UK) are to liaise prior to adverse weather conditions and are to decide on the best course of action. That course of action is then to be communicated to the heads of departments within the affected offices who have the responsibility to forward the information to those under their control.

Incidents/Injuries

For Injury on Site: the following must occur.

- Minor cuts, bruises etc. can be dealt with by the Dornan/Site First Aider at the appropriate stations.
- All treatments, no matter how minor, will be recorded by the First Aider and reported to the EHS Advisor. (First Aids Incidents must be recorded using HSFM-15 First Aid Report Form)
- Injuries of a more serious nature (must be initially treated by a First Aider where feasible) but depending on the severity, referred onward to the Company Doctor or the A&E Department of the nearest hospital. A staff member **must** accompany any injured party leaving site for such a purpose. (On sites with Medical Practitioners/Service, this service should be utilized).
- If the injured party is unconscious, the emergency procedures must be activated immediately.
- He/she should not be left alone and only moved if in danger of further injury.
- Where applicable the client's plan will take precedence. This will also be communicated to all staff at induction.
- Copies of the Emergency plan will be displayed at prominent locations on the Site notice board and Canteens etc.
- Frequency of drills and other tests will be included in the EHS Plan relevant to each workplace.

23.6. Reference/Records

- HSG 03 Emergency procedure guidelines
- HSFM 13 Incident Report
- HSFM 14 Incident Report Near Miss
- HSFM 15 First Aid Report
- HSFM 47 Environmental Incident Report
- HSFM 28 Emergency procedures form
- HSTP-07 Spill Control Response

24. Communication, Participation & Consultation

24.1. Purpose

The purpose of this procedure is to ensure communication & consultative arrangements are in place, which involves employees, employer representatives, contractors, visitors and clients of the organisation, working together to continually improve health, safety and environmental standards.

24.2. Scope

This procedure applies to communication & consultation arrangements information both internally and externally dealing with Environmental, Safety and Health issues relating to Dornan Business activities.

24.3. Definitions

None.

24.4. Responsibilities

Managing Director

The Managing Director and senior management are responsible for ensuring the promotion and facilitation of communications, participation and consultation throughout the company.

Project Manager & Site Manager

Shall ensure that the company's EHS Policies are issued to every employee & brought to the attention of subcontractors & visitor to the workplace.

The company's EHS Policies to be available at every workplace occupied by the company. The company's EHS Policies shall be issued to clients and other interested third parties, if requested. Managers and supervisors must consult so far as reasonably practicable with employees, agency staff, contractors and their employees who are likely to be directly affected by a health and safety matter.

There is a systematic means of informing the workforce of OH&S issues e.g. Tool Box Talks, informing employees of Safety Alerts/Safety Bulletins issued by the Senior EHS Advisor. Any external communications (especially complaints) or any communication written or verbal from an Environment or Safety regulatory body is referred to the Group EHS manager.

Group EHS Manager

The Group EHS Manager is responsible for advising the Managing Director on legal requirements and the company performance with respect to participation and consultation. The Group EHS Manager is responsible for receiving all communications from external interested parties. Review and log any relevant communication. Answer communications that fall within the scope of their responsibility. Forward communications to other responsible departments. Ensure that all such communications are responded to in a reasonable time period and responses recorded

The Group EHS Manager & EHS Advisors

Will ensure that: Environmental, Safety and Health information is communicated by utilising a variety of media to include, but not limited to, the following: Bulletin Board Notices, Communication Meetings, Employee Handbooks, Posters / Banners, Safety Alerts and E-Mail Distribution

All Employees

Have a duty to facilitate and participate in constructive communication of EHS matters. EHS issues affect everybody and all staff have a responsibility to comply with the Company's Environment & Health and Safety Policy's.

24.5. Procedure

The organisation will consult with employees through regular EHS meetings and will arrange and support the election of health and safety representatives.

Methods to facilitate communication, participation and consultation will include:

- Site induction and on-going site based training
- Involvement in Task Risk Assessments, Method Statements, SPA's, Accident Investigations and any other lagging indicators relating to Dornan Business Activities e.g. accidents, injuries etc.
- Any other leading indicators relating to Dornan Business activities e.g. SOR's, Behavioural based safety observations.
- Attendance at Tool Box Talks, Site Inductions and Site Meeting
- Safety Representation-Workers shall be informed as to who their representative(s) on EH&S matters.
- Consultation on changes to company procedures via the TBT process etc.
- Supervisor safety forum, SLT meeting
- Site EHS Meetings
- Subcontractor coordination meetings
- Similar methods will be used for any contractors and any other interested parties.
- The Site Manager and EHS Advisor will cooperate in ensuring any such consultation takes place where required.
- SLT, Management Review, EHS Team Meetings etc.
- Any other method of consultation that requires employee participation.
- Employee surveys for the company

All communication and consultation will:

- Be timely and provided in a form that can be understood by all.
- Give employees a reasonable opportunity to express their views.
- Take those views into account to help shape decisions.

24.6. Toolbox Talk Procedure

Introduction

Tool Box Talks (TBT's) are a conduit for information and provide workers with the opportunity to have their say about hazards/controls, incidents/accidents, work processes and company procedures. Toolbox meetings should be run on a regular basis; the frequency of meetings will depend on the size, nature and location of the site. Some hazardous activities could require daily meetings, while often a weekly/fortnightly meeting will suffice.

Why do we have Toolbox Talks (TBT's?)

- Inform workers of changes to company procedures
- Identify new hazards and review existing hazards
- Develop/review hazard controls
- Discuss/review accident and incident data
- Employee participation
- Communication
- Discuss programme
- Develop/review work processes
- Short training sessions.

Structure

TBT's should be short and to the point. Meeting on a regular basis and running for 10-15 minutes is an ideal way to involve workers and make the most effective impact. Monday morning is an ideal time to run the meeting as workers can be briefed on the weeks programme and review the previous week's activities. Depending on the nature of the business it is advisable to conduct an inspection of the work area prior to a meeting to help identify any problems and to assist with topical items for discussion. Details of TBT's should be recorded and kept on file. It is important to record meeting dates, attendees and discussion items, even follow up items from hazards, accidents and incidents. Managers and supervisors will normally run the TBT but workers can also assist in the process.

Topics for Discussion

Discussion points at TBT's should be topical and relevant to current or upcoming activities in the workplace. Topical items for discussion can be identified by asking workers for input, changes in the plant or work process or work environment, or in response to accidents/incidents in the workplace.

24.7. Reference/Records

- EHS Consultation Register Records
- Safety Alerts
- Induction forms, registers
- Meeting minutes
- Completed RAMS, SPA's Etc.
- Tool Box Talks Manual
- Toolbox Talk Timetable

25. Site Induction & Registration

25.1. Purpose

The purpose of this procedure is to outline the company's approach to introducing workers into the organisation.

25.2. Scope

This procedure is applicable to Dornan projects.

25.3. Definitions

Induction is the communication of site specific and company safety, health and environmental information to all new employees prior to their commencement of work.

25.4. Responsibilities

Project Managers

Retains overall responsibility for ensuring all persons under Dornan control receive site induction and complete the registration form before commencing work.

The Project EHS Advisor

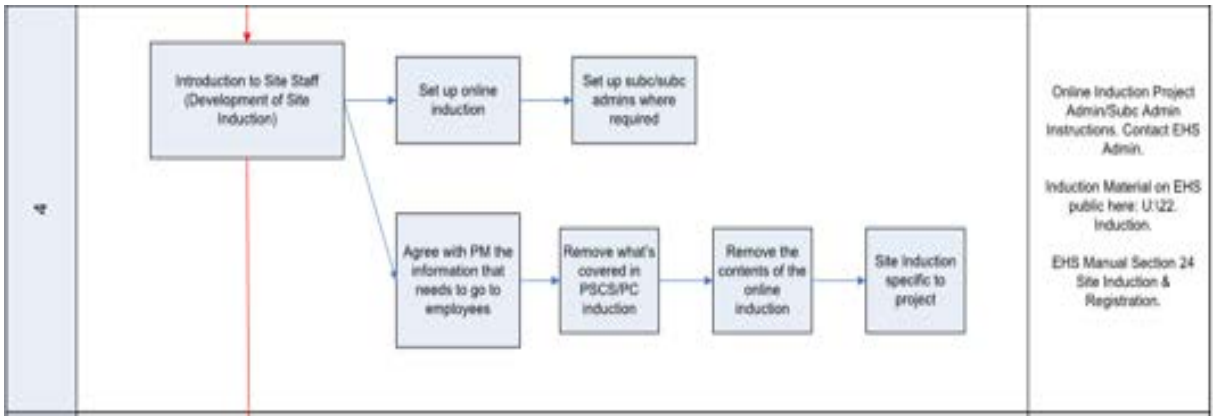
Acts as project administrator for the online induction, issuing induction login details and delegating to a subcontractor admin where appropriate.
In conjunction with the PM, develops a Power Point Induction Presentation for each Project. (A typical presentation is available of the EHS Public folder)

The Site Manager/supervisors and/or EHS Advisor

Responsibility for ensuring that all personnel have received the Dornan Induction.

25.5. Procedure

Flowchart illustrating Induction Procedure



The project administrator will issue log in details to new starts before they arrive on site.
Upon arrival to site, the new start's induction status will be checked to ensure that it is complete. If not, the new start will sit induction.

A Power Point Induction presentation is produced making reference to the Project EHS Plan and Site Specific Risks. The presentation is reviewed and updated as required. All new employees must sit the power point induction as well as the online induction prior to commencing work. The induction is carried

out by a member of the Dornan management team. All persons inducted must complete the registration and Induction record HSFM-05 upon completion of the training.
The person conducting the induction is responsible for ensuring all relevant paper records are completed and filed in the relevant Safety Management folder. Medical conditions made know to Dornan staff are to be treated as confidential and securely stored. For Dornan direct employees such information should be communicated to HR.

25.6. Reference/Records

- HS-FM-05 Site Registration and Induction Form
- Folder 28. Site Setup on EHS Public server

26. Hazard Identification & Risk Assessment & Controls

26.1. Purpose

This procedure sets minimum requirements for carrying out and recording risk assessments with respect to health, safety and the environmental hazards.

26.2. Scope

It applies to all Dornan operations and places of work. Whilst the focus of this procedure is on the **legal** requirement for Dornan as an employer to carry out risk assessments, there is also reference to Method Statements as the Risk Assessment forms an integral part of such documents.

26.3. Definitions

Hazards
A hazard can be anything — whether work materials, equipment, work methods or practices — that have the potential to cause harm.

Risks
A risk is the chance, high, medium or low, that somebody may be harmed by the hazard.

Risk assessment (RA)
A systematic examination of all aspects of work that considers;

- What could cause injury or harm
- Whether the hazards could be eliminated and, if not,
- What preventive or protective measures are, or should be, in place to control the risks.

RAMS/Safety Method Statement (MS)
A Project specific document that includes the RA and a systematic procedure of how a job is to be carried out Method Statement (MS). In some cases, the Dornan format may be superseded by that of the Client or Main Contractor.

The purpose of a RAMS is to:

- Outline a safe method of work for a specific activity
- Provide an instructional document that staff must read and understand before starting an activity.
- Meet legal requirements (i.e., assessing and controlling workplace hazards and risks)
- Provide evidence in auditing and inspection

Workplace hazard identification, assessment and controls are an on-going process. These should be undertaken at various times, including:

- If it has not been done before
- When a new hazard has been identified
- When a change to the workplace occurs
- After an incident, accident or workplace illness
- At regularly scheduled times appropriate to the workplace.
- There is reason to suspect that it is no longer valid; or
- There has been a significant change in the matters to which it relates

26.4. Responsibilities

Project Managers

It is the ultimate responsibility of the Project Manager (PM) to ensure that all necessary Risk Assessments (RA) and method statements (MS) relevant to the task have been carried out on the project.

Construction Managers (CM) and Supervisors

It is the responsibility of Construction Managers (CM) and Supervisors (Sup) to clearly detail the step-by-step procedures for the task being assessed and to enter this information in the RA & MS. This should be done in a manner that allows sufficient time for review prior to works commencing. It is the responsibility of the CM/Sup to complete the final review before issuing the final document to the Principal Contractor/Client. It is the responsibility of the CM/Sup to communicate the approved RA & MS with the members of the team before work commences.

Those Appointing Sub-Contractors

It is the responsibility of those appointing sub-contractors and safety advisor to ensure that all sub-contractor documentation/ RAMS/Method Statements issued to Dornan are reviewed and only accepted when they comply with Dornan standards.

EHS Advisors

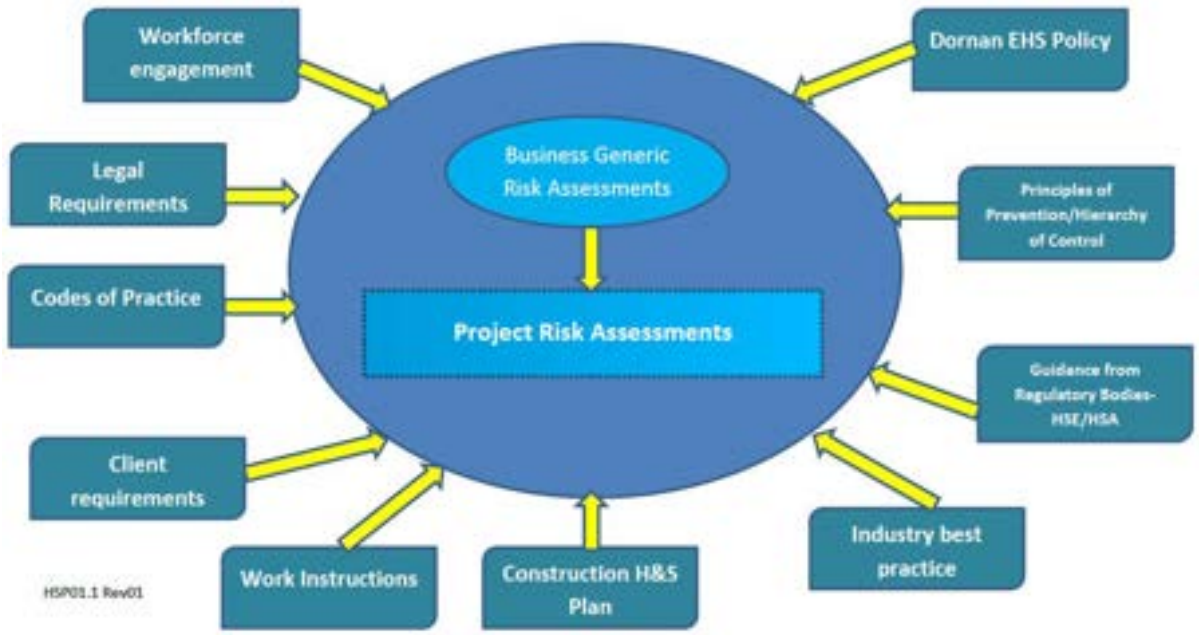
It is the responsibility of the EHS Advisor to audit the effectiveness and implementation of the RA & MS and recommend changes or review as required. It is the responsibility of the EHS Advisor to review the RA & MS from an EHS perspective.

Employees

Employees have a responsibility to work in accordance with the method statement to ensure the protection of their own and others health and safety. It is the responsibility of all employees to cease works if the task/activity cannot be carried out safely in accordance with the conditions of the RA/MS

26.5. Procedure

Business Generic Risk Assessments are compiled from a variety of sources to provide guidance to project teams in developing the site-specific risk assessments. These Generic Risk Assessments are the basis upon which the Company Policy is formulated and are reviewed as required and at minimum annually. There are multiple sources of information, legal and contractual requirements that may need to be taken in to account.



Prior to commencement of work, the Project Managers and the EHS Advisor are responsible for ensuring that the document:-

- Defines the activity/task.
- Identifies the hazards connected with the task/activity.
- Identifies who might be harmed and how.
- Evaluates the risks.
- Outlines the precautions to be taken.
- Records the findings.

The Project Managers and the EHS Advisor are also responsible for the following:

- Supervising and implementing the control measures.
- Compiling a register of risks in the Project EHS Plan.
- Reviewing the assessment and updating if necessary. This is done with the team. The frequency of reviews may depend on other projects specific systems in place. The Project Manager/deputy and EHS Advisor will decide on the appropriate frequency and methods.

Risks should be reduced to the lowest reasonably practicable level by taking preventative measures, in order of priority. This is what is meant by a hierarchy of control. The list below sets out the order to follow when planning to reduce risks and in many cases a combination of control measures will be needed.

- Elimination - Redesign the job or substitute a substance so that the hazard is removed or eliminated.
- Substitution - Replace the material or process with a less hazardous one.
- Engineering controls - for example use work equipment or other measures to prevent falls where you cannot avoid working at height, install or use additional machinery to control risks from dust or fume or separate the hazard from operators by methods such as enclosing or guarding dangerous items of machinery/equipment. Give priority to measures which protect collectively over individual measures.
- Administrative Controls - These are all about identifying and implementing the procedures you need to work safely. For example: reducing the time workers are exposed to hazards (e.g. by job rotation), prohibiting use of mobile phones in hazardous areas, increasing safety signage, and performing risk assessments.
- Personal protective clothes and equipment - Only after all the previous measures have been tried and found ineffective in controlling risks to a reasonably practicable level, must personal protective

equipment (PPE) be used. For example, where you cannot eliminate the risk of a fall, use work equipment or other measures to minimise the distance and consequences of a fall (should one occur). If chosen, PPE should be selected and fitted by the person who uses it. Workers must be trained in the function and limitation of each item of PPE.

- Reference must be made to the Dornan EHS manual when preparing risk assessments.
- The findings of risk assessments must be communicated (in the appropriate language) to all parties involved in the activities. The nature of the communication should be appropriate to the experience of those involved, the complexity of the controls that are proposed, and the significance of the risk if the controls are ignored.

  The options to be considered are:
  - Verbal instruction (a tool box talk or at induction).
  - Written instruction (included in a method statement).
  - Safe Work Plans (or similar).
  - Daily briefings.
  - Risk Assessments must be filed and made available on site.

26.6. Reference/Records

- Applicable local legislation
- Construction Phase Health & Safety Plan
- HSFM-01 Risk assessment form
- HS-FM-17 Method Statement
- Dornan Business Generic Risk Assessments
- Regulatory Body (HSE. HSA etc.) Guidance

27. Identification of Legal Requirements & Evaluation of Compliance

27.1. Purpose

The purpose of this procedure is to define how applicable legal requirements, and other requirements, to which Dornan subscribes, are identified and applied to its business. This procedure will also serve the company's commitment to periodically evaluating compliance with our legal requirements.

27.2. Scope

This procedure is applicable to all Dornan business activities.

27.3. Definitions

Other requirements include those of Clients, Principal Contractors and others.

27.4. Responsibilities

The Group EHS Manager

Is responsible for notifying management of material changes in legal and other requirements and of changes needed to the EHS management system (S&EMS).

Operations Directors

Are responsible for ensuring their managers are aware of changes and that they communicate those changes to site based and other staff.

EHS Advisors

Are responsible for providing advice to all employees of Dornan and ensuring staff are made aware of legal and other obligations under OHS legislation.

27.5. Procedure

The following sources of information will be used to ensure that Dornan is kept aware of changes to legislation:

- Government websites. These sources will be checked at each month end.
- EU Directives.
- Publications and journals received and circulated by Dornan e.g. Health and Safety Review.
- Institutions/safety groups to which Dornan belongs e.g. IOSH, CIF, BSC, ECA
- Dornan's have subscribed to the 'Legislation Update Service', 'LUS' which is an online service which allows EHS Advisor to access Company Legal Registers.
- The Company Legal Registers are regularly updated through the 'LUS' Service.
- Dornan's EHS Advisors receive Monthly EHS Legislation update newsletters from 'LUS'.

The Group EHS Manager will ensure that the content of SMS is updated and maintained to reflect Dornan's legal and other obligations. Changes to SMS will be communicated via email and through the various levels of management, safety alerts and listing on the Intranet.

The Group EHS Manager and EHS Advisors will provide advice on relevant legal and other requirements to staff either on request or during the course of site/workplace inspections.

Compliance will be evaluated and measured by the continuous auditing and inspection regime. Such inspections and audits are reviewed by senior management at monthly operations meetings. Other results of evaluation of compliance will be documented in the register.

27.6. Reference/Records

'Legislation Update Service' Legal and other requirements registers.

28. Incident Investigation & Reporting Procedure

28.1. Purpose

The purpose of this procedure is to ensure all EHS incidents are recorded internally and are investigated appropriately, with a view to prevention of similar occurrences.

28.2. Scope

This procedure is applicable to all incidents involving;

- Dornan employees or employees of subcontractors, while involved in work related to Dornan business
- Members of the public affected by our activities

28.3. Definitions

Incident (includes Accidents, Near Misses, Ill health, Medical Treatment and First Aid Accidents)
An unplanned event linked to a Dornan activity or workplace that results in personal injury or death.

Near Miss
Any unsafe event that results or could have resulted in damage to property, equipment, or personal injury.

Work Related Ill Health
Any work related ill health condition a member of staff claims to be, or appears to be suffering from. Examples include hand/arm vibration' work related upper limb disorders, occupational asthma, and dermatitis.

Medical Treatment
An injury requiring specialist or repeated treatment e.g. stitches.

First Aid
Any one treatment and subsequent observation of minor scratches, burns, splinters which do not require treatment/supervision by a physician (even though provided by a physician).

28.4. Responsibilities

Project Manager
It remains the prime responsibility of all Project Managers (PM) to ensure that incidents on their sites are reported to Head Office using the correct procedure and as soon as possible. In the event of an injury to a member of the public the PM (or delegate) will complete the form.

Supervisor
In the event that person cannot or does not complete the form, the IP's supervisor is to complete and submit the form.

EHS Advisors
EHS Advisors where in-situ will take responsibility for the investigation but at minimum assist in completion of the reports and establishing the facts.

IP and Employees
All accident, incidents and near misses must be reported. The initial responsibility to ensure a report is completed rests with the injured party. Incidents should be reported verbally and then in writing using the approved forms.

28.5. Procedure

- Employees must report any incident to Dornan Site Management immediately and complete the appropriate Dornan Incident Report Form i.e. HSFM-13 Incident Report, HSFM-14 Incident Report Near Miss or HSFM-15 First Aid Report

- The PM (or delegate) will report the injury to the Operations Director, Group EHS Manager and to the Financial Director as soon as possible and in the case of a personal injury send the front page of HSFM-13 Incident Report to head office within 24 hours.

- The PM and EHS Advisor will investigate incident and review concerns raised. The level of investigation will be determined at this stage. Should it be necessary the Operations Director, EHS Manager and HR will be requested to get involved.

- The PM and EHS Advisor will carry out necessary interviews and complete the documentation.

- In the case of a Dornan employee being absent from work, the line manager must maintain contact and keep EHS & HR informed of developments.

- In the case of a subcontractor employee being absent the Dornan PM must ensure contact is maintained with the individual and/or his employer.

- The PM and EHS Advisor will identify the required corrective actions and ensure they are implemented.

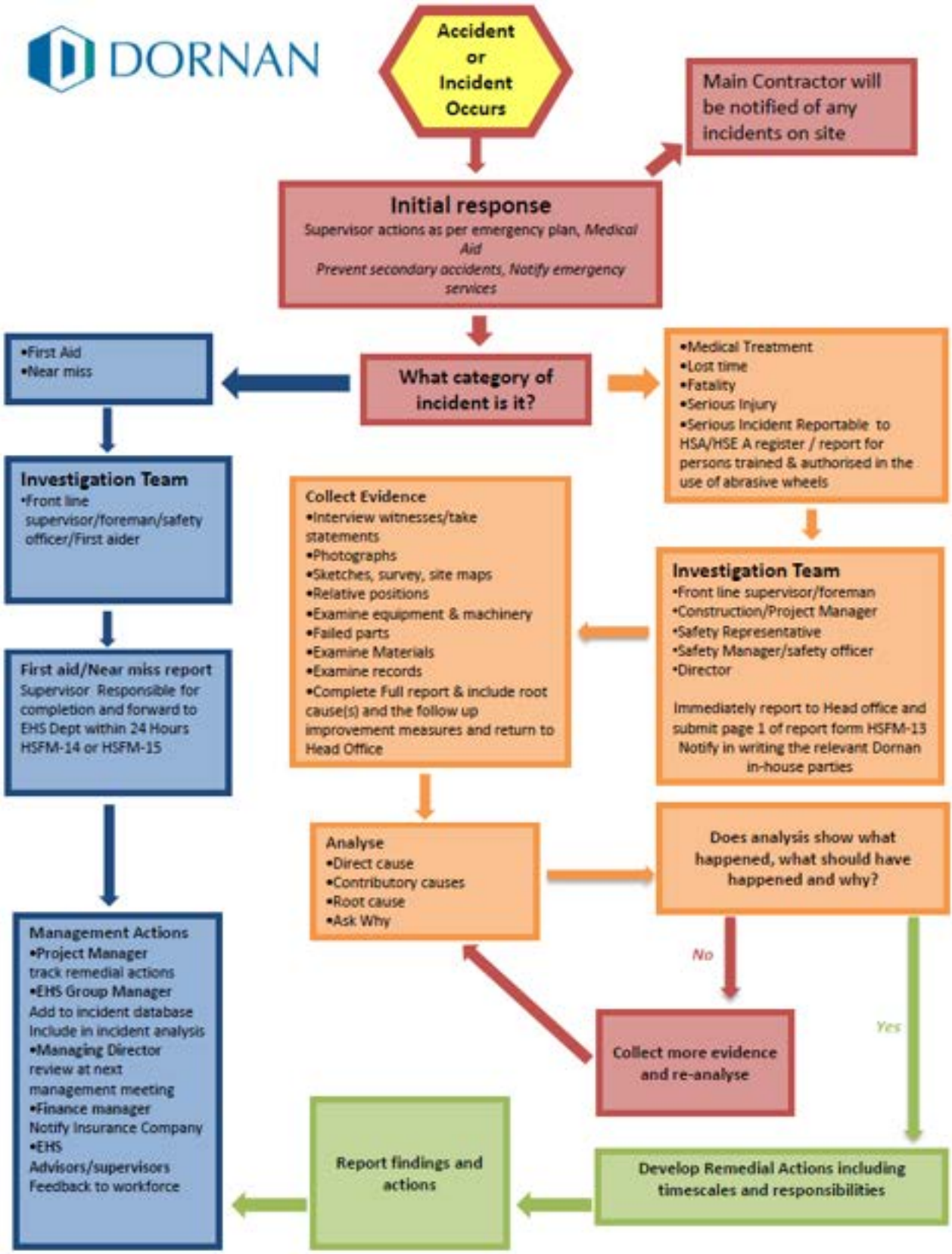
- Records will be kept on file at head office.

- All incidents will be reviewed by senior management at EHS Review meetings and Management meetings.

28.6. Reference/Records

- HSFM-13 Incident Report
- HSFM-14 Incident Report Near Miss
- HSFM-15 First Aid Report
- HSFM-47 Environmental Incident Report
- Work Instruction HSWI-1 RIDDOR reporting (UK)
- Work Instruction HSWI-2 Notification of Accidents and Dangerous Occurrences (IRL)
- Guidelines to completing Incident Reports

28.7. Accident/Incident Reporting Flowchart



29. Monitoring and Measuring Performance

29.1. Purpose

The purpose of this procedure is to define the methods by which Environmental Health and Safety performance is measured, recorded and reported throughout Dornan through the following means: Audits, inspections, BBS observations, checklists and weekly packs are completed as required by company policy and site requirements.

29.2. Scope

This procedure is applicable to all Dornan business activities.

29.3. Definitions

None.

29.4. Responsibilities

Project Manager

Responsible for ensuring that audits are carried out, participating in the audits and ensuring actions are tracked and closed out.

Supervisor

Responsible for carrying out routine inspections, in conjunction with the site safety advisor, on plant and equipment. Monitor EHS performance of operatives and sub-contractors. Carry out audits and inspections as per company policy and site requirements. Ensure weekly packs are completed and returned to EHS manager.

EHS Manager

To advise Senior Management on EHS performance of the Company measured against legal requirements, industry benchmarks and client expectations. To produce an annual summary of accident data and frequency rates.

EHS Advisors

To carry out documented inspections and audits of all workplaces, and to forward all such reports to the Project Manager and EHS Manager. Monitor EHS performance of operatives and sub-contractors.

Operations Directors & Managers

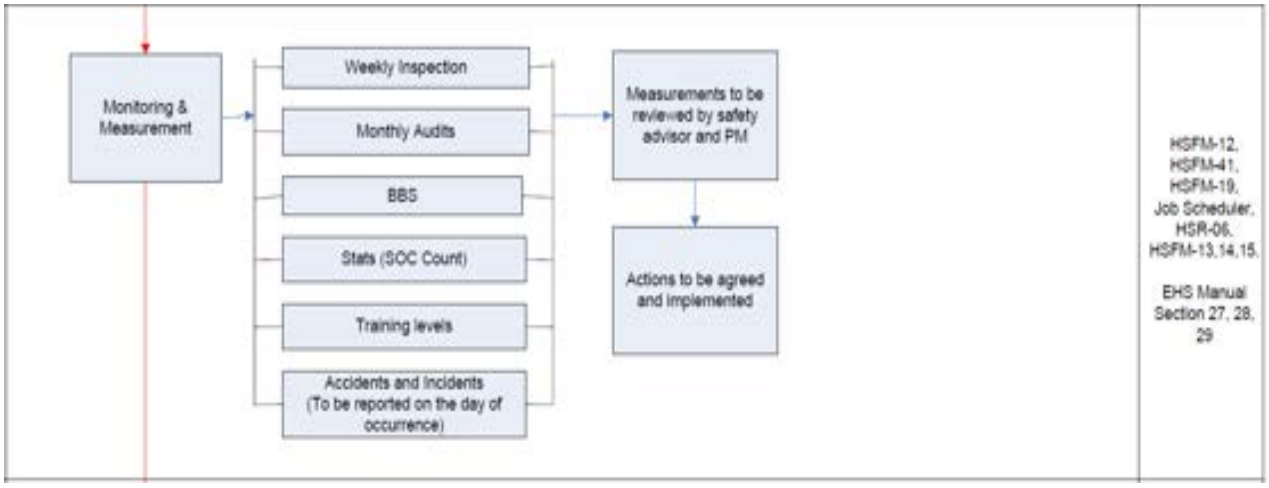
To document reports of site visits and forward to the Project Manager and EHS Manager

All employees

Suggest improvements in Safety, Health and Environment to project the team. Comply with the Audit Team in relation to observations from Audits.

29.5. Procedure

Flowchart of Monitoring Measurement Procedure



- Objectives and Targets for EHS issues are set and reviewed by senior management.

- Regular EHS review meetings are held between the Managing Director, Operations Director and EHS Manager to address all EHS issues a Dornan.

- Quarterly Management meetings also address EHS issues including;
  - Injuries (accident book entries, lost time injuries and incidents causing injury to third parties).
  - Legal and other requirements

29.6. Reference/Records

- Minutes of EHS Review meetings & management meetings
- EHS Site returns

30. Audits & Inspections Procedure

30.1. Purpose

To describe the requirements for the internal auditing and inspection process of the Health Safety and Environmental Management System, including:

- Project EHS inspection and reporting
- EHS Management System audits

30.2. Scope

This Procedure applies to the Dornan EHS Management System, all projects, and workplaces under the control of Dornan.

30.3. Definitions

Inspection is defined as an EHS assessment that focuses primarily upon the adequacy of the physical working environment in which staff and others work.

Audit is defines as the documented, systematic and objective examination of the EHS management system, Policy and Codes, with the aim of assessing whether the management system meets Dornan & Clients needs and legal requirements and how it is being implemented on our projects.

30.4. Responsibilities

Directors/Contracts Managers
It is the responsibility of the Directors/Contracts Managers to complete the Directors/senior Manager site safety Walk HSFM-10 following site visits. iAuditor and Yellowjacket templates can also be used.

Project Managers/Construction Managers
It is the responsibility of the Project and Construction Managers to carry out documented inspections intervals identified in the project EHS Plan. HS-FM-12 can be used for this purpose.

Supervisors/foremen
It is the responsibility of supervisors to ensure that a Daily inspection is carried out before work commences and upon completion of work.

EHS Advisors
Responsible for carrying out regular inspections (HS-FM-12) and monthly scored audits (HS-FM-41) of the company places of work, disseminating the information and submitting reports to the Project Manager and EHS Manager & EHS Administrator**.**

EHS manager
It is the responsibility of the EHS Manager to ensure that an EHS Management System audit programme is planned, established and implemented. He will receive and all findings from audit reports and communicate with senior Management.

30.5. Procedures for Site Audits & Inspections

Directors/Contracts Manager Site Safety Walk

Directors/Senior Managers will document findings of their site walks. This is to be circulated on site and forwarded to the EHS Manager.

Weekly EHS Inspections

The Dornan EHS Advisor will carry out Weekly EHS inspections (HSFM-12) on each project.

The inspection will be conducted to observe EHS legislative and company requirements including, but not limited to:

- Induction of personnel
- Wearing of mandatory and task specific PPE
- Risk assessments/method statements
- Task training
- Access & egress
- Adequate signage in place
- Good housekeeping practices in place

The person conducting the inspection will ensure that non-conformances are noted and corrective actions determined. The Dornan management team will ensure that are corrective actions are implemented, and non-conformances closed out.

The Safety Advisor will ensure that hard copies of daily inspections are maintained on site for the life of the project.

Monthly EHS Audits

The Dornan EHS Advisor will carry out a Monthly EHS audit on each project.

The Audit will be conducted to observe EHS legislative and company requirements as set out (but not limited to) in HSFM-41. The person conducting the Audit will ensure that non-conformances are noted and corrective actions determined.

The Dornan management team will ensure that corrective actions are implemented, and non-conformances closed out. The EHS Advisor will ensure that hard copies of daily inspections are maintained on site for the life of the project. Results from the EHS Audit will be forwarded to the EHS Manager to compile the site safety league.

Findings of audits will be reviewed at EHS Management Review meetings and trends reviewed.

EHS Manager Audits

The Group & Regional EHS Mangers will conduct audits based on the Audit & Inspection Schedule (included).

Audit & Inspection Schedule

Type	Timescale	Document
Safety Manager Start-up audit with SMS/Documentation bias	2-3 weeks affecter start-up	HS-FM-29 (iAuditor)
Safety Manager Quarterly audit	End of first three months	HS-FM-29 (iAuditor)
Safety advisors rated audit with documentation bias	One per month*	HS-FM-41
Safety advisors weekly inspection	One per week*	HS-FM-12

*indicative only

30.6. Procedure for EHS Management System Audits

The Group EHS Manager will request competent staff to perform EHS Management System audits. Whenever possible, auditors are selected from a function not directly involved in the audit.

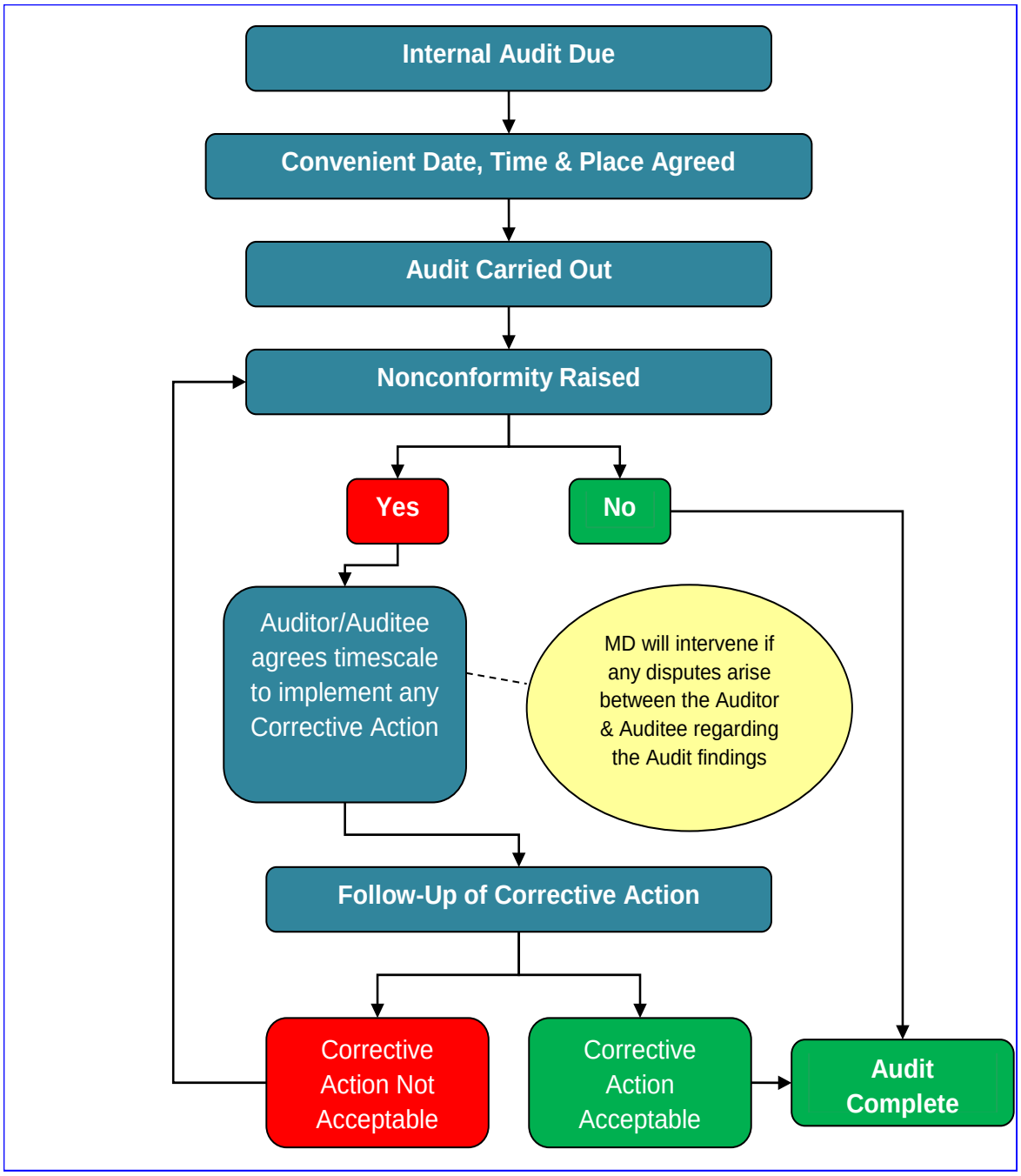
The EHS manager creates the audit schedule. The audit schedule defines the following:

- Timeframe of the audit
- Scope of audit
- Elements and/or areas to be audited

Elements of the EHS Management system will be audited on an on-going basis. The schedule will be based on risk assessments, results of previous audits, and may be adjusted for new procedures or following incidents or complaints.

During the audit, auditors may use applicable checklists. They record all findings on the checklists. All documents related to the audit, including checklists, deficiency reports, corrective action responses, are maintained by the EHS Manager.

EHS System Audit Flowchart



30.7. Reference/Records

- HS-FM-29
- HS-FM-41
- HS-FM-12
- Internal Audit schedule
- Internal audit Form

31. Control of EHS Documents

31.1. Purpose

The purpose of this procedure is to identify the responsibilities for authorisation, distribution and control of EHS management system documentation and related records.

31.2. Scope

This procedure is applicable to all Dornan EHS controlled documents.

31.3. Definitions

EHS Controlled documents refers to the whole content of the EHS system namely:

- Environmental & Safety Policy
- EHS System Manual
- System Procedures
- Specified EHS Forms and Templates

31.4. Responsibilities

EHS Manager

- Prepare and approve contents of all EHS controlled documents.
- Ensure distribution of EHS controlled documents.
- Ensure the review and update of EMS controlled documents as necessary
- Ensure that the Safety Manual is maintained and reviewed at appropriate intervals

Contracts Managers/Site Managers/ EHS Advisors

Ensure that site documentation is current, maintained and obsolete documents are removed/destroyed as appropriate.

31.5. Procedure

Document Issue and Distribution

Only approved EHS documents are posted on the Dornan server. The EHS Public folder on the U Drive must be regarded as the only source for current versions of controlled documents.

Relevant EHS documentation and related records shall be accessible on all sites. On sites without remote access, specific arrangements must be agreed between the Site Manager and the Safety Advisor.

Weekly EHS Submissions shall be transmitted to the EHS Administrator at head office via the Dornan email system. Individuals working within the company have access to certain folders and they need to have been selected to view folders. There are Assigned Administrators who can restrict access to certain users using the system.

31.6. Document Amendments and Revisions

The content of EHS System will be reviewed at regular intervals and individual documents may be revised in response to changing circumstances. Any requests to make specific amendments or revisions to controlled documents should be made through the EHS Manager.

Access to the Dornan server provides the up to date version of all EHS related documents and should be used to ensure the correct version of documentation is in use.

31.7. Reference/Records

- HSFM-36 Master Document List
- Quality Management System Procedure QP3 Project Document Control

32. Control of Records

32.1. Purpose

The purpose of this procedure is to describe the process for identification, storage, protection, retrieval, retention and disposal of EHS records.

32.2. Scope

This procedure is applicable to all Dornan projects and places of work. It relates to all EHS records, both hardcopy and electronic or other media form, required for effective operation of Dornan EHS Management System. These records are managed at head office and on site. Records include but are not limited to: forms (when filled in), reports, training, audit results, inspection results, maintenance records, emergency response records, information on significant EHS aspects, and management reviews.

32.3. Definitions

Record: A document which furnishes objective evidence of activities, performed or results achieved.

32.4. Responsibilities

EHS Manager

It is the responsibility of the EHS Manager or designee to identify records, arrange for storage, protection and retrieval of documents stored at head office. He is responsible for setting retention periods, arranging for disposal of these documents and ensuring data security. The EHS Manager will be responsible for records relating to the EHS management system.

Project Manager and EHS Advisors

The Project Manager and EHS Advisors are responsible for identifying the above arrangements required at site level.

Project Team Members

All project team members are responsible for cooperating with these arrangements.

32.5. Procedure

All projects arrange for the identification, collection, indexing, access, filing, storage, maintenance, and disposition of EHS records.

All EHS records are legible, retrievable, and maintained in a suitable environment to prevent deterioration, damage/loss and unauthorised access.

Retention of records is in accordance with regulatory requirements and the Dornan EHS Records Retention Schedule HSWI-02.

Appropriate IT backup controls are in place to ensure the reliability, security, and availability of electronic environmental records.

32.6. Sensitive Information

Access to sensitive information will be restricted to ensure that employee's personal details are not freely available. Only sensitive information required from a legal standpoint will be retained.

32.7. Reference/Records

- Master Document List HSFM-36
- Record Retention Period Schedule HSWI-02

33. Appendices

33.1. BGRA's Register
(Business Generic Risk Assessments)

BGRA Number	Description
BGRA-01	Abrasive Wheels.
BGRA-02	Working on Live Panels LV.
BGRA-03	Cranes and Lifting Equipment.
BGRA-04	Working in Live MCC Rooms.
BGRA-05	Live Plant Rooms.
BGRA-06	Housekeeping.
BGRA-07	Ladders (Step and A-Frame).
BGRA-08	Ladders (Straight and Extension).
BGRA-09	Lifting Floors and Gratings.
BGRA-010	Manual Handling.
BGRA-011	MEWP (Scissor and Boom).
BGRA-012	Live Services.
BGRA-013	Power Tools.
BGRA-014	Scaffolding (Fixed).
BGRA-015	Scaffolding (Mobile).
BGRA-016	Cable Drums Setup.
BGRA-017	Cable Installation.
BGRA-018	Site Establishment (Canteen).
BGRA-019	Waste Disposal.
BGRA-020	Workshop Calibration and Tests.
BGRA-021	Fabrication.
BGRA-022	Testing and Commissioning.
BGRA-023	Site Fabrication and Installation.
BGRA-024	Cable Preparation (Use of Knife).
BGRA-025	Fire.
BGRA-026	Hazardous Substances.
BGRA-027	Site Establishment and Facilities (Access and Egress).
BGRA-028	Noise.
BGRA-029	Classified Areas (Hazardous Ex).
BGRA-030	Glanding Cables.
BGRA-031	Welding.
BGRA-032	Site Plant and Machinery.
BGRA-033	Confined Spaces.
BGRA-034	Lifting Operations.
BGRA-035	Access and Egress.
BGRA-036	Electricity.
BGRA-037	Dust.
BGRA-038	Transport (Delivery Vehicles on site).
BGRA-039	Mechanical Plant (Static and Manual Mechanical)
BGRA-040	Visual Display Units
BGRA-041	Safe Use of Threading Machine
BGRA-042	COSHH Risk Assessment
BGRA-043	Driving in company transport

BGRA-044	WAH General hazards
BGRA-045	Roof Work
BGRA-046	Hand tools
BGRA-047	Pneumatic power tools.
BGRA-048	Cartridge operated tools
BGRA-049	Asbestos
BGRA-050	Lead
BGRA-051	Vibration
BGRA-052	Radiography
BGRA-053	Working in office
BGRA-054	Pressure testing
BGRA-055	Adverse Weather Conditions
BGRA-056	Use of Telescopic handlers
BGRA-057	Use of Buggies
BGRA-058	Hydraulic pipe cutters
BGRA-059	Use of Material Lifter Stackers
BGRA-60	Podium Ladders
BGRA-61	GF Cutting Machine
BGRA-62	Walking Site
BGRA-63	Band saw
BGRA-64	Trailer Use and Maintenance
BGRA-65	Safe Isolation
BGRA-66	Young Person's Risk Assessment

33.2. HS-FM's (Company Forms)

U:\0. Master document List

33.3. COSHH Assessments Register

Item #	Product
1	Cutting Compound
2	Petrol
3	Acetylene
4	ZG-90 cold zinc galv spray
5	AC90 Multipurpose Lubricant
6	Durapipe Eco Cleaner
7	Nitrogen
8	Oxygen
9	WD-40
10	Geo yellow Marking Spray
11	Henkel Cleanser
12	Boc Refrigerant R410A
13	Cutting Oil Thread Cutting Lubricant
14	Red Oxide
15	PVC Cement
16	Boss White Pipe Jointing Compound
17	Coolworks Spray
18	Acrylic Sealing
19	Silicone
20	Spray Adhesive
21	Diesel
22	Isover Insulation
23	Map-Plus Gas
24	Tangit Cleaning Tissues

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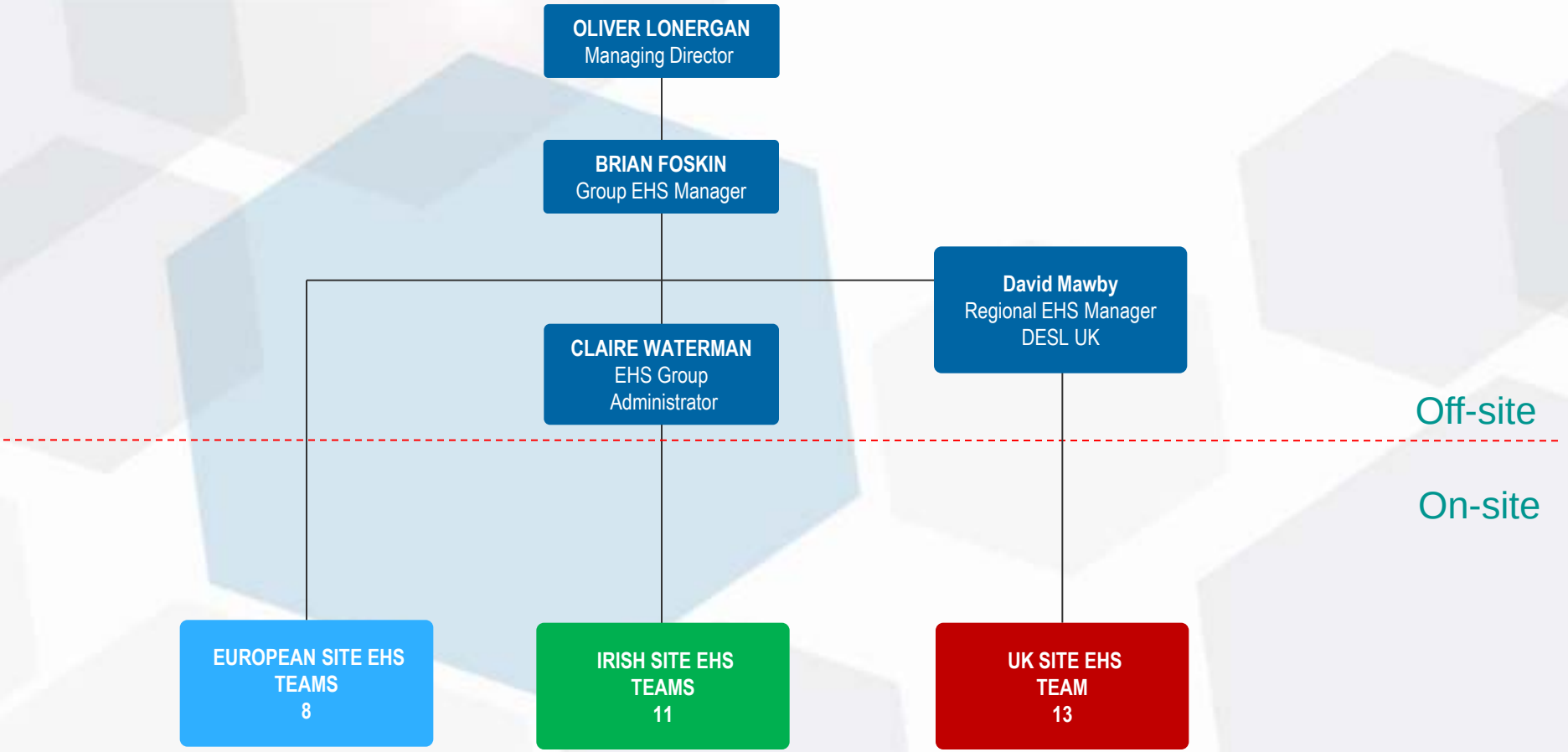
Organisation Chart
EHS Department



DORNAN

Quiz 1

Please complete the following questions on General Safety

The following multiple-choice quiz will test you on the topics we have covered. If you fail to answer all the questions correctly, you will have to retake the quiz. In order to advance to the next section you must achieve a score of 100%.

1) What must you have in place before you start work?
- The necessary equipment
- Be in full compliance with site rules, have the correct PPE, a Safe Working Plan, completed Risk Assessments and Method Statements
- The project supervisor's approval
- Any tools that will be needed during the job

2) You will be able to operate MEWP's and enter confined spaces once you have completed this induction.
- True
- False

3) All site personnel must complete the site registration form.
- True
- False

4) What does the following sign mean?

- All PPE for the head should be worn; including hearing protection, RPE, face shield
- Ear protection must be worn
- Hair is to be kept in a hairnet
- Listening to music on-site is permitted

5) Minimum PPE on site is:
- Safety Boots and Helmet
- Hi Visibility Vest
- Safety Glasses and Gloves
- All of the above

6) What route should be used when accessing site?
- The access route with the least traffic
- The designated access route with labelled walkways and barriers
- The nearest access route

7) What must you adhere to if you are driving for work?
- The company driver and vehicle policy
- Local government laws
- The speed limit
- All of the above

DORNAN

Quiz 1

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- Any tools that will be needed during the job

2) You will be able to operate MEWP's and enter confined spaces once you have completed this induction.
- True
- False

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- The designated access route with labelled walkways and barriers
- The nearest access route

7) What must you adhere to if you are driving for work?
- The company driver and vehicle policy
- Local government laws
- The speed limit
- All of the above

Quiz 3

Please complete the following questions on Site Safety

Please take the following quiz. To proceed to the next section you must achieve a score of 100%.

1) Is it acceptable to stand on mid rails to gain extra height in a MEWP?
- Yes
- No

2) Who is allowed to build mobile towers?
- The operator
- Any willing employee with the knowledge
- The stores person
- Authorized, PASMA or CSCS trained and competent personnel

3) Why must you close the gate of a podium ladder?
- To prevent other people climbing the ladder
- To provide back support
- To secure the handrail system around you
- To hang tools

4) What type of Tasks can you use straight and step ladders for?
- Low risk tasks for a short period where there are no alternative means of access
- Any working at heights tasks
- Where the terrain is uneven or slippery
- Any tasks that require the use of drills

5) Who is permitted to modify scaffolds?
- The site foreman
- Authorized, CSCS/CPCS trained and competent personnel
- Employees working on the scaffold
- A banksman

6) Who is authorized to rig loads and guide cranes?
- An apprentice
- Employees with over ten years' experience
- Any supervisor
- A CPCS/CSCS trained slinger/signaler

7) Does this induction authorize you to energize and de-energize equipment?
- Yes
- No

8) What Equipment needs to be PAT tested

- Portable Tools
- All electrical equipment
- Stationary electrical equipment
- Lifting gear

9) What type of PPE is required when using sharp objects?

- Suitable gloves of EN4543 standard
- Leather gloves
- Coveralls
- Goggles

DORNAN

Quiz 1

Please complete the following questions on General Safety

The following multiple-choice quiz will test you on the topics we have covered. If you fail to answer all the questions correctly, you will have to retake the quiz. In order to advance to the next section you must achieve a score of 100%.

1) What must you have in place before you start work?
- The necessary equipment
- Be in full compliance with site rules, have the correct PPE, a Safe Working Plan, completed Risk Assessments and Method Statements
- The project supervisor's approval
- Any tools that will be needed during the job

2) You will be able to operate MEWP's and enter confined spaces once you have completed this induction.
- True
- False

3) All site personnel must complete the site registration form.
- True
- False

4) What does the following sign mean?

- All PPE for the head should be worn; including hearing protection, RPE, face shield
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- Safety Boots and Helmet
- Hi Visibility Vest
- Safety Glasses and Gloves
- All of the above

6) What route should be used when accessing site?
- The access route with the least traffic
- The designated access route with labelled walkways and barriers
- The nearest access route

7) What must you adhere to if you are driving for work?
- The company driver and vehicle policy
- Local government laws
- The speed limit
- All of the above

Quiz 5

Please complete the following questions on Communication

Please take the following quiz. To proceed to the next section you must achieve a score of 100%.

1) What must you do in the event of a medical emergency?

- Evacuate to a safe area
- Alert the emergency services
- Wait for help to arrive and for further instruction. Attend to injured party if safe to do so.
- All of the above

2) When must you report Accidents?

- Only when an accident results in an injury
- Only when an injured party receives medical treatment
- All accidents must be reported to the site management team
- Only when an accident results in property damage

3) Who can administer first aid?

- A competent first aider
- The first person to discover the injured
- Any willing personnel onsite
- a and b

4) What should you do if you discover a fire?

- Raise the alarm and alert emergency services
- Extinguish the fire if it is safe to do so
- Evacuate through a fire exit and assemble at the designated muster point
- All of the above

Dornan Prefabrication Plant, Coventry

Introduction

Prefabrication

Prefabrication Plant, Coventry

Pre-fabrication

If it can be modelled it can be built.

- We interrogate every project to identify all of the prefabrication opportunities.
- Close integration between the various disciplines gives rise to endless prefabrication options.
- In depth QA/QC procedures ensures high quality, structurally sound services modules making the best use of the space available.
- The use of coordinated BIM and VDC and its related technologies allows for ‘just in time’ modules that work ‘first time’.
- We implement 4D timeliner sequencing and work with the other stakeholders to create a phased installation plan. We know what will happen, when it will happen and how it will happen to reduce health and safety risks and maximise productivity.
- We use the latest laser guided set outs for clarity and confidence of exact install.

Prefabrication

Dornan founded their fabrication plant in Coventry during 2018.

The UK Government in its 2025 Industrial Strategy Policy document states the following:

“The availability of digital information will also enable more effective design for manufacture and assembly. This will make offsite fabrication solutions, which are often precluded by current procurement practices, more readily applicable in the future. As demand for low carbon and sustainable construction continues to increase, the potential of offsite fabrication to deliver assets with half the waste and 25% less energy in use will make it an ever more attractive option.”

In 2018 Dornan established an offsite fabrication plant in Coventry to support projects with a best-practice approach to offsite fabrication and assembly.

We work collaboratively with our clients, contractors and professional teams to identify, as early as possible, the actions needed at each project stage to consider offsite construction and make it work for the project.

A 30,000ft^2. plant that gives our projects improved control over two of the major issues we encounter today.

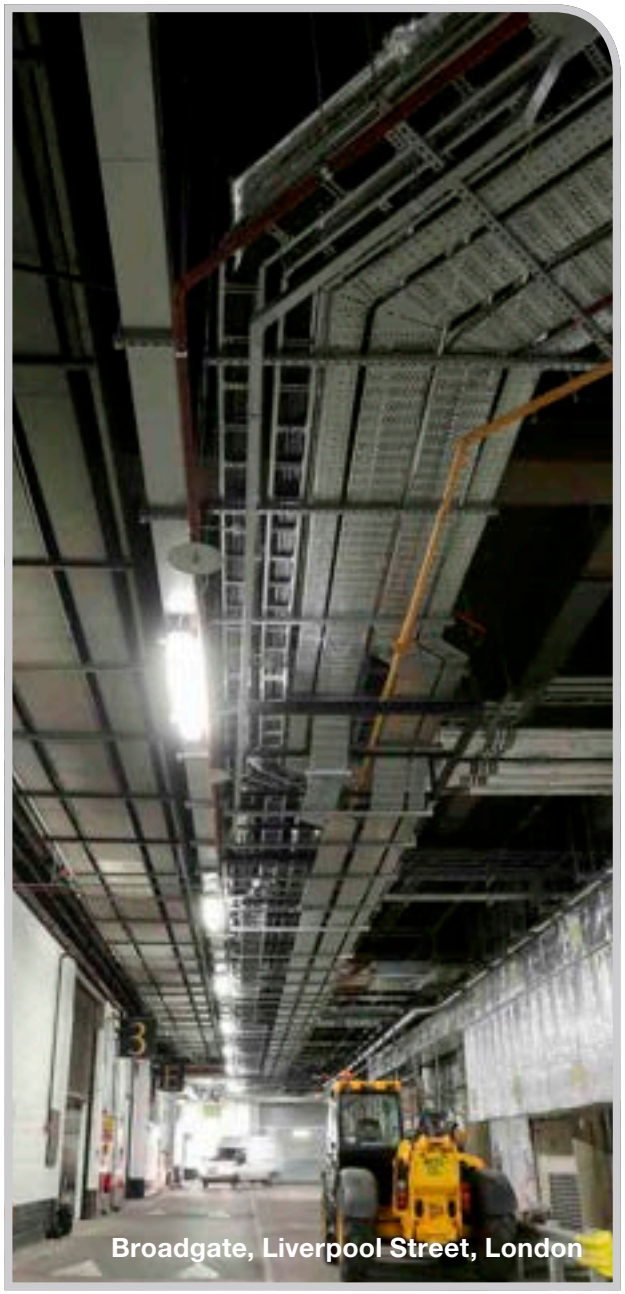
Delivering on time and on budget.

At our Coventry plant, Dornan assemble the following offsite:

- Riser Modules
- Pump Skids
- Fan Coil Cooling Units with Controls
- Complete Boiler Rooms
- Water Storage Vessel Skid
- Electrical Distribution Panels and Containment
- Modular Wiring to Lighting and Power
- BMS and MCC Panels
- Main Cooling and Heating Pipework
- Support Bracketry

Prefabrication Plant, Coventry

Prefabrication


Broadgate, Liverpool Street, London

Advantages

- Factory manufacturing ethos with zero defects;
- Complex manufacturing processes which include class 1 MIG/TIG welding carried out in a safer, controlled, factory environment;
- Accountability and traceability;
- Increased site productivity.
- 30,000ft^2 Manufacturing Plant in Coventry

Labour

- Multi skilled operatives with a manufacturing bias giving improved productivity (30%) increase;
- Improved onsite coordination and safety.

Cost Advantage

- Avoidance of fixed scaffolding for the duration of a traditional construction period;
- Minimisation of temporary safety and task lighting required for traditional construction period;
- Increase in productivity over traditional construction methods;
- Reduced workforce over traditional methods;
- Less plant and equipment on site.

Space

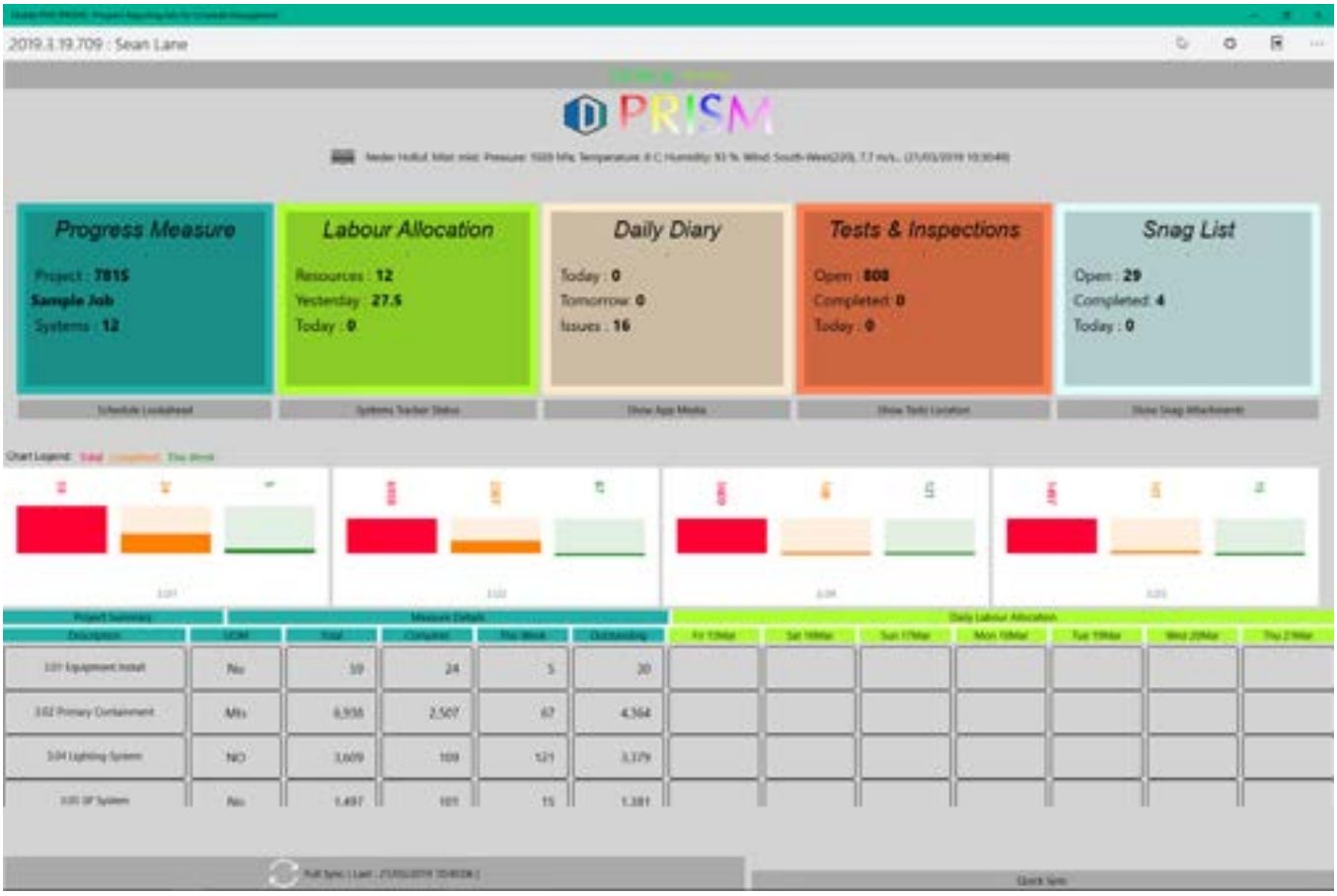
- Fit for purpose delivery – less excess material and storage;
- Reduced workforce, welfare and supervision;
- Free space for other trades.

D'PRISM
Progress-Reporting-Info-for-Schedule-Management

DORNAN

D'PRISM Mobile App

The App allows the user to absorb and interact with Dornan systems & all required project info at the workface without the need for an active Internet connection (App works offline)



1. Innovation Outline

D'PRISM (Dornan Progress Reporting Info for Schedule Management) was a development initiated by Sean Lane (Dornan Group Planning Manager) in late 2017. It is a bespoke mobile app, managed via Microsoft Dynamics NAV with 5 app modules that deliver Dornan's Project Controls, QA &project handover.

The 5 modules are:

1. Progress Measurement
2. Labour Allocation (man-hours tracking)
3. Daily Diary (Site Records)
4. Test & Inspection (test documents)
5. Snag List.

The system went live on a real Project in January 2018. There have been a number of enhancements and feature upgrades since, with the snag list being the latest module added in February 2019.

Eli Lilly IE43 T2 was the pilot project for D'PRISM. This is a large scale Bio-Tech project currently ongoing in Cork of which Dornan are the E&I contractor. It is a complex pharma installation of 300,000 man-hours and circa 20,000 cables and pneumatic tubes, across 150 systems or TOP's (Turnover packs) that need to be handed over on a phased basis throughout the life of the project to facilitate the clients CQV (define) commissioning effort.

2. Objectives

Dornan are in a sector of the construction industry; M, E&I, that demand's robust, prompt detailed & accurate information with regards to project progress and handover status. The "old' system while reliable, was heavily dependent on paper and people walking office to site. This is slow, inefficient and non-environmentally friendly method.

The design intent of the development of D'PRISM is to make it easier for our project staff to:

1. Capture physical progress
2. Enter trade hours and allocations to site tasks
3. Capture records with photographs
4. Complete a test or inspection sheet
5. Raise a snag with photograph and drawing attachments

All in 1 place *(the app/tablet),* ***from the workplace*** *(on site),* ***managed in 1 place*** *(NAV)*

App Module dscription & Feature highlights

Progress Measure

- The app and database is purpose built so that the app user can walk into an area or room on site, quickly navigate and filter the associated work items associated with that room across all activities e.g., cable containment, lighting, cabling, small power.
- We have a work to go filter which further enhances this , whereby only uncompleted tasks are displayed, a big help in room completion closeouts.
- The app user can filter any column of the database to ensure ultimate flexibility of narrowing datasets, for example "system handover" content or "Origin/destination' locations of cables.
- Project Drawings can be opened for viewing and mark-up for each line item using Bluebeam.

Daily Allocation

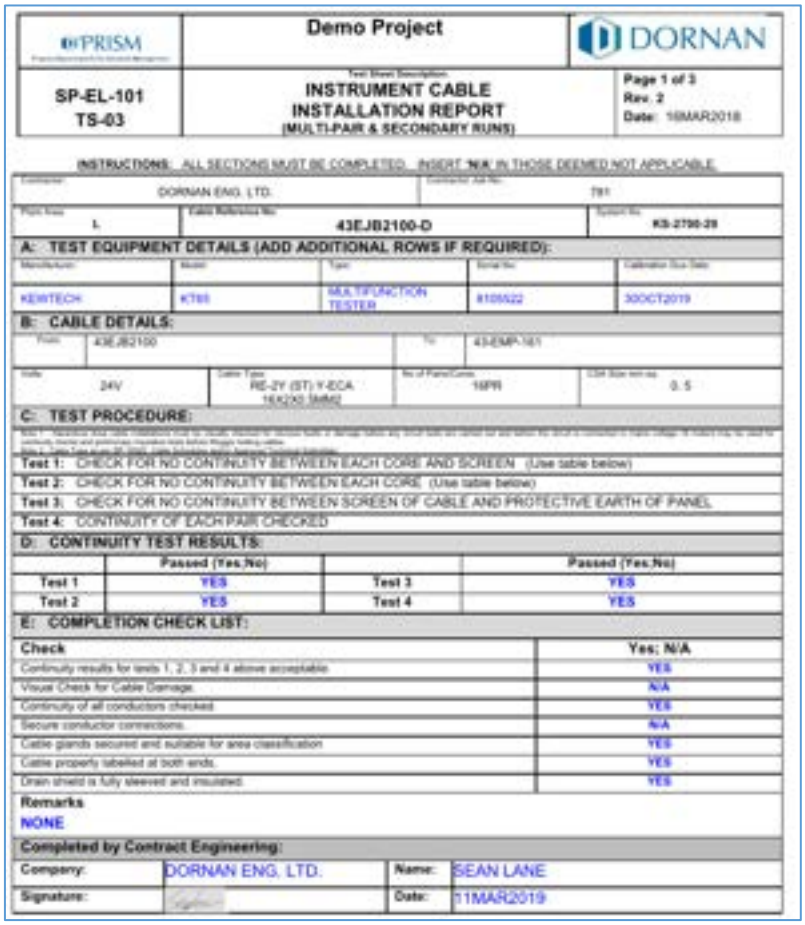
- A day per page timesheet, which allows user to record man-hours relative to tasks worked on by their resources.
- Integrated with site clock in system to provide app user with "Worked hours" for previous day, this ensures accuracy of man hour records.
- Search bar for quickly finding resources.
- Add comments related to resources for a given day

Daily Diary

- A day per page daily diary that allows the user log any diary entries and planned activities.
- A site issues section which allows the user to capture issues in real time, by entering data about the issue, complete with photograph attachments and also allocate affected resources to the particular issue.
- Open items will stay open, until app user is happy the issue has been resolved.

Test & Inspections

- Allows the testing user to complete test sheets in real time on site without the need for paper.
- Test sheets are prepopulated with non-Test data using NAV to minimise users input.
- Available tests only appear when construction dept. have completed the installation of the item, cable/pipeline and it is ready to test. This is automatically managed by NAV
- Tester selects the piece of test equipment used.
- Tester completes the test sheet by filling in all test values & Submits
- When back in the office, and app is Sync'd, test documents will be available in the specified project sever location
- Good quality testing documents are produced resulting in reduced quality/GDP issues.
- Test sheets are being produced quickly and accurately
- Reduced time spent sourcing information during testing phase.
- No Lost Sheets – all data is contained in NAV



Demo Project

SP-EL-101
TS-03

INSTRUMENT CABLE
INSTALLATION REPORT
(MULTI-PAIR & SECONDARY RUNS)

Page 1 of 3
Rev. 2
Date: 18MAR2018

INSTRUCTIONS: ALL SECTIONS MUST BE COMPLETED. INSERT 'N/A' IN THOSE DEEMED NOT APPLICABLE.

Contractor: DORNAN ENG. LTD. | Contractor Job No.: 781

From: L | Cable Reference No.: 43EJB2100-D | System No.: KS-2700-28

A: TEST EQUIPMENT DETAILS (ADD ADDITIONAL ROWS IF REQUIRED):

Manufacturer	Model	Type	Serial No.	Calibration Due Date
KEWTECH	KT65	MULTIFUNCTION TESTER	8109522	30OCT2019

B: CABLE DETAILS:

From: 43EJB2100 | To: 43-EMP-161

Volts	Cable Type	No of Pairs/Cores	CSA Size mm sq
24V	RE-2Y (ST) Y-ECA 16X2XD SWA	16PR	0.5

C: TEST PROCEDURE:

Test 1: CHECK FOR NO CONTINUITY BETWEEN EACH CORE AND SCREEN (Use table below)
Test 2: CHECK FOR NO CONTINUITY BETWEEN EACH CORE (Use table below)
Test 3: CHECK FOR NO CONTINUITY BETWEEN SCREEN OF CABLE AND PROTECTIVE EARTH OF PANEL
Test 4: CONTINUITY OF EACH PAIR CHECKED

D: CONTINUITY TEST RESULTS:

	Passed (Yes,No)		Passed (Yes,No)
Test 1	YES	Test 3	YES
Test 2	YES	Test 4	YES

E: COMPLETION CHECK LIST:

Check	Yes; N/A
Continuity results for tests 1, 2, 3 and 4 above acceptable	YES
Visual Check for Cable Damage.	N/A
Continuity of all conductors checked	YES
Secure conductor connections.	N/A
Cable glands secured and suitable for area classification	YES
Cable properly labelled at both ends.	YES
Drain shield is fully sleeved and insulated	YES

Remarks
NONE

Completed by Contract Engineering:

Company:	DORNAN ENG. LTD.	Name:	SEAN LANE
Signature:		Date:	11MAR2019

Sample Completed Sheet

Snag List

- Provision of a regular report listing defects to each supervisor.
- Overall project tracking available for internal punches.
- Photographs linked to snag list as a helpful aid to action the punch items.
- Paperless system – easier to track, environment friendly
- Integrated with Measure & Test module – open new snags directly from those modules.

Other Benefits

- Access to 3D models @ the workface
- If site Wi-Fi is available, full access to email/Dornan servers/web etc.
- Access to short term schedule lookahead's & system handover needs
- Summary statistics view relative to app users scope of work
- Bluebeam is a powerful construction aid for drawing/document mark-up

How does it work?

All of Dornan existing project controls and engineering procedures are used to prepare the projects progress measurement database in MS Excel. This typically consists of Material Take off build up using final design docs and drawings, including cable /pipe/ductwork schedules.

Project Setup Process

Once prepared, the database is imported to NAV database where there is a setup process (typically taking 2 days) which covers:

- App users and tablet setup
- Allocation of Project resources\trades to App Users
- Control of data and editing rights to app users
- Integration of site time clock with Resources
- Hyperlinking of project drawings
- Test and Inspection setups

3. Involvement of Staff

Sean Lane – Dornan Group Planning Manager

Sean's background in Instrumentation, Testing & Commissioning and also Planning and Project Management was a key ingredient in building a product that fitted the needs of both management and project teams in delivering our projects more efficiently and successfully

Kevin O Driscoll – Testing/QA Lead - Eli Lilly Project

Kevin has substantial experience in project handovers, Testing/Commissioning and Project Management, and hence was a hugely valuable contributor in developing the Test/Inspections and Snag modules.

Barry Morrison – Snr Planner – Eli Lilly Project

Barry is a Senior Planner with an Electrical Engineering background, and like Kevin was instrumental in ensuring the development was given a chance to succeed and be properly piloted. Barry has a keen interest in finding ways of becoming more efficient and innovating for future.

Dornan Board Management – for allowing the financial investment to take place

Evosoft – our valued Software partner

Between Dornan Staff and Evosoft circa 2000hours has been invested in the app development

4. Outcomes & Results

The use of the Eli Lilly Project as a pilot project has proved to be a huge success on 2 levels:

1. The proactive attitude of the Dornan team in Eli Lilly and their ability to visualise the future benefits of this investment helped immensely in the development & optimisation of the app.
2. Being a complex project type, many issues and bugs were highlighted and resolved prior to upscaling of the system.

Some Current Usage Statistics

- Used on 12 major projects in Europe, UK & Ireland - contract values of €350million
- Data/Power/Pharma & Commercial projects
- 193,000 progress entries
- 80,000 allocation sheet entries
- 6675 test sheets completed
- 45/213 TOP's handed over on the Eli Lilly Project
- 70 app users
- Increased Compliance of Data Collection from App users
- Consistency of data collected = efficient production of accurate outputs

5. Excellence

a. The app has been a huge success and Senior Dornan Management have recently taken the decision to roll out the solution to all new Dornan Project's
b. Project Controls is about making good project management decisions, and this development greatly assists in that endeavour
c. D'PRISM has been a clever and innovative development by Dornan that enhances the existing, reliable project controls systems. The primary reason for the investment was the lack of a suitable solution that integrates workflows between planning, engineering, construction and QA departments.

6. Other statements/facts

- There has been a positive engagement by staff in terms of the culture change that a development like this brings, and that will be an ongoing challenge in an industry that is historically slow to become lean.
- Extensive Training in the new system is provided to both app users & NAV users
  We have also put in place detailed setup manuals and troubleshooting guides and remote home office support to service project needs

DORNAN

RISE AWARD

Leading the Way in Safety

Dornan Engineering aimed to improve the health, safety and wellbeing of all employees within the company in 2018. In order to achieve this, we ran a number of successful safety initiatives throughout the year.

Safety Initiatives:

- Launch of our Safety Observation App
- Employee Poster Competition
- Employee Assistance Program
- Mental Health First Aiders

Dornan Safety Observation App

Safety observation cards (SOC) are a means of promoting workers safety awareness, corrective action, communication and learning from identified hazards and near-miss incidents. It is a way for leaders to communicate their safety observations in a positive way to all employees on site.

Traditionally, SOC's are completed in paper and pencil format. However, Dornan have introduced a new option for completing the cards through interactive devices. The form can be downloaded by QR code and completed on a mobile phone or portable device.

This additional option has allowed safety leaders to make fast, on the spot observations in real time. It eliminates the possibility of good practice safety observations going unnoticed and likewise ensures that a maximum of near miss incidents are noted. These types of observations contribute to the leading indicators which allow the company to focus on proactive measures for improving safety performance each year.

SOC App Poster

Have Your Say!

We would like to hear from you if you have any of the following to report:

Near Miss

Safe Behaviour

Safety Suggestion

Unsafe Act

Download the Dornan Safety Observation App by following the below steps.

Download the app by scanning the QR code below with your iPhone camera or QR code reader app on your Android device.

Add the Safety Observation web link to your home screen for easy access.

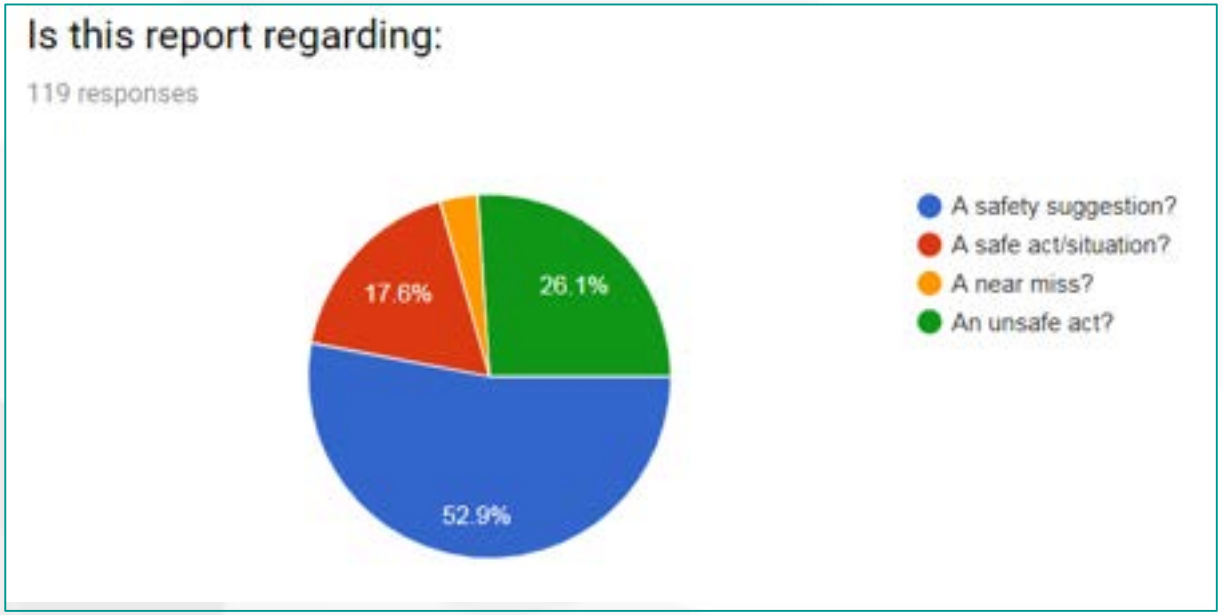
Have your Say when safe to do so, from anywhere on the project.

Advantages of SOC App

- ✓ Free to use
- ✓ Logs both safe and unsafe observations.
- ✓ Ease of use encourages operatives to raise near misses and unsafe acts as well as contribute their own safety suggestions.
- ✓ Automatic entry and update of observations into EHS spreadsheet.
- ✓ Observations are monitored until full action close out.
- ✓ Observations raised and actions implemented can be displayed on project ‘Safety Observation Boards’.
- ✓ New app compliments long established paper SOCs.

SOC App Data Analysis

Spreadsheet populates reports and provides information on which company made observations (Dornan direct operatives or subcontractors), what projects used the app, type of observation and category of observation.



Safety Poster Competition

We launched our Poster Competition in June 2018. The goal of the competition was to engage our workforce in health and safety issues and to obtain new and fresh safety ideas for the poster campaign.

We launched a new poster on each day of Safety Week 2018. The posters aimed to raise awareness of the following themes:

Mental Health

Work at Height

Plant & Equipment

Power Tools

C. O. H. E.

Project Controls System Method Statement

Document No: PCP-DE-003

Revision	Date	Summary of Changes	Author	Approved
2	17-Jan-17	General Revision Updates	S Lane	P Flynn (COO)
1	8-Apr-16	General Revision Updates	S Lane	O Lonergan (MD)
0	15-Jul-15	Issued for review	S. Lane	O Lonergan (MD)
			Planning Manager	Chief Operations Officer

Introduction

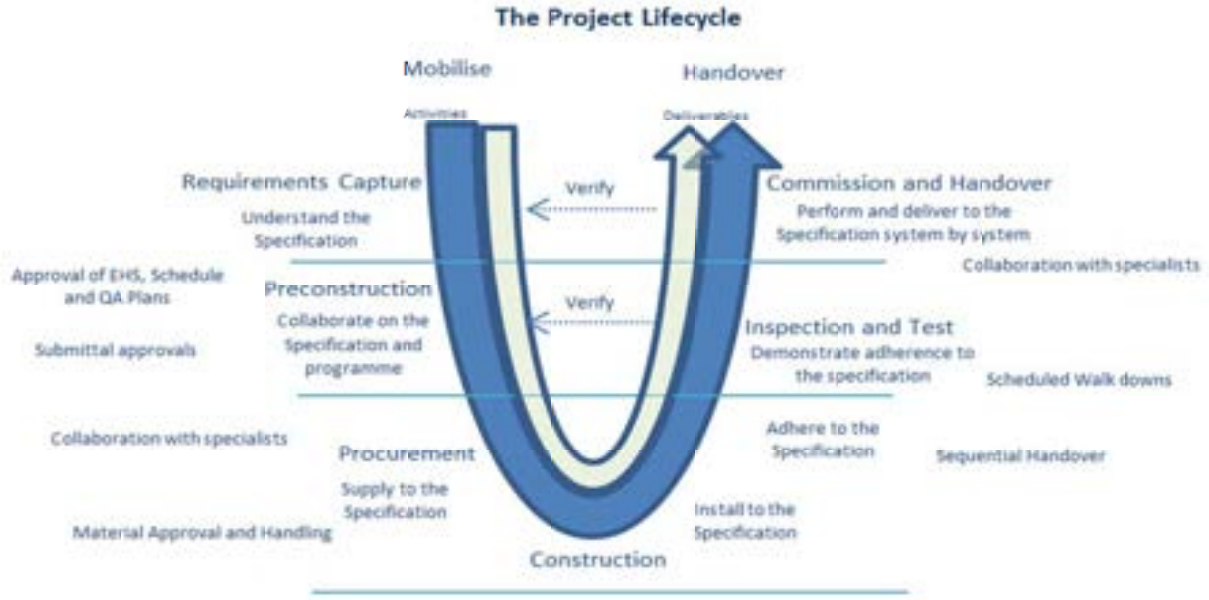
The purpose of this document is to outline the proposed methodology to be implemented for all Dornan Mechanical, Electrical and Instrumentation Works Projects with regards to planning and progress measurement for both Dornan direct works and our sub-contractors

Our aim is to provide a high degree of relevant detail for both internal and external use when generating project construction schedules and measuring progress on our project's versus the agreed construction schedules using the various tool's put in place on all projects as standard.

The project schedule should ensure adequate planning of pre-construction phase's, construction phase's specifically labour, procurement and any commissioning works that are part of the work scope

The schedule will also need to provide adequate levels of reporting during the execution of the works

Ultimately, this document describers the process of how Dornan develop program and progress measurement systems from the point successful tenders are handed over to construction teams for execution and handover. The Project Controls System Needs List & Tracker (Doc: PCP-DE-001-13.3) should be used to track the status of the Project Controls system development until the system is fully operational



Steps to developing the Project Controls System

Establishment of the project controls system

1. Work Breakdown Structure identification.
2. Generating the project Progress Measure Sheet.
3. Developing the Construction Schedule.
4. Developing Progress S-Curves, Manpower Histograms, Commodity Curves.
5. Baselining the agreed Construction Schedule.

Implementing & Monitoring the Project Controls System

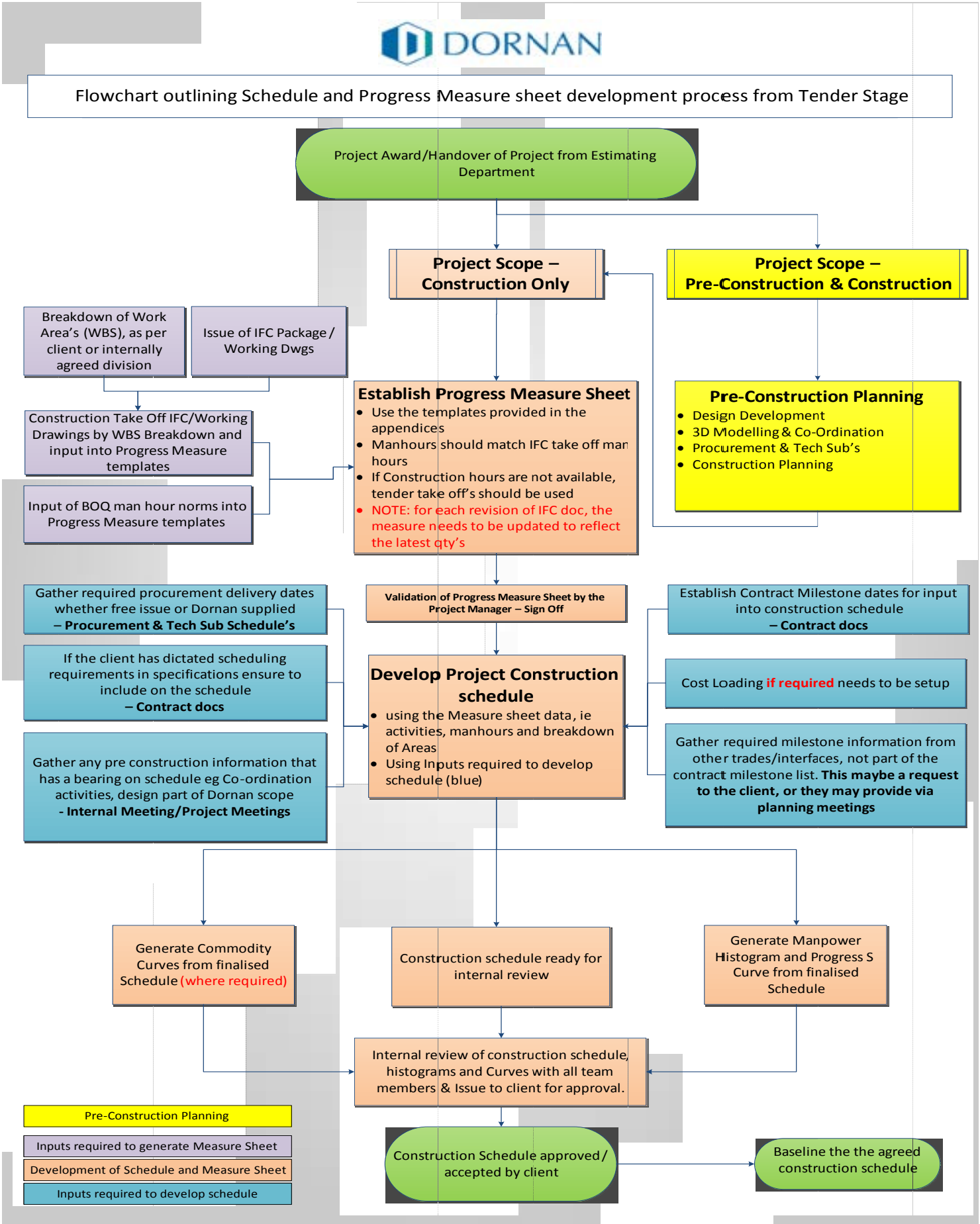
6. Measurement of Weekly Progress mark up's.
7. Daily Labour Allocation Sheets.
8. Measurement and Analysis of labour efficiencies using the S/E system.
9. Updating/Reviewing the schedule
10. Progress Reporting TOP/Systems Tracking.
11. Delay/Event notifications.
12. Project Weekly Reports
13. Monthly Reports - Dashboards/Narrative's

Appendices

Appendix 1		M,E&I Progress Measure Summary Template
Appendix 2		Guidance Notes for use of Progress Measure Templates - Rev 0 - 2016.04
Appendix 3:	**Doc Ref**	**Progress Measure Template Description**
		Process Piping
	1.1	Off Site piping Fabrication
	1.2	Equipment Installation
	1.3	On Site piping installation
	1.4	Pressure Testing & Pre-Commissioning
	1.5	Insulation & Painting
	1.6	Inline Instrument/valve installation
		Mechanical Building Services & HVAC
	2.1	Mechanical Equipment
	2.2	LTHW/Heating System
	2.3	CHW System
	2.4	Ventilation Services Systems
	2.5	Public Health/Sanitation Services System
	2.6	Domestic Water Services System
	2.7	Sanitary Ware
	2.8	Cooling-A/C System
	2.9	Insulation
	2.10	Testing & Commissioning
		Electrical
	3.1	Elec Equipment Installation
	3.2	Primary Containment Installation
	3.3	Secondary Containment Installation
	3.4	LV/MV Cable Installation
	3.5	LV/MV Cable terminations
	3.6	E&I Testing
	3.7	Lighting System incl Lighting Controls
	3.8	Small Power System
	3.9	Fire Alarm System
	3.10	Telecom System
	3.11	Earthing System
	3.12	Security/CCTV/Access Control/Public Address Systems
	3.13	Trace Heating
	3.14	BMS System
	3.15	Lightning Protection
	3.16	Testing & Commissioning
		Instrumentation
	4.1	Junction Boxes, Isolators and LCS Installation
	4.2	Instrument Installation
	4.3	Instrument Hook ups
	4.4	Loop Checking
	4.5	Spec Checks/Bench Checks

	4.6	Secondary Containment Installation Instruments
	4.7	Instrument Cabling
	4.8	Instrument Terminations
	4.9	Cable Testing
	4.10	Airline/tubing install
Appendix 4	**Doc Ref**	**Histogram & S-Curve Templates**
	1.2.3.1	Histogram Stacked by Trade & S Curve Planned only
	1.2.3.2	Histogram Stacked by Trade & S Curve with Planned v Actual
	1.2.3.3	Standard Histogram & S Curve with Planned v Actual
	1.2.3.4	Commodity Curve Template
Appendix 5	**Doc Ref**	**Allocation Sheets & S/E Spreadsheet Templates**
	7.1	Daily Allocation Sheet Process Pipe
	7.2	Daily Allocation Sheet Mechanical
	7.3	Daily Allocation Sheet Electrical
	7.4	Daily Allocation Sheet Instrumentation
	7.5	Weekly (Soft Copy) overall Allocation Sheet
	7.6	Supervisors Daily Report
	8.1	S/E Template
Appendix 6	**Doc Ref**	**TOP/Systems Handover Tracking & Reports**
	10.1	Sample Template of Systems Turnover Tracking Report
	12	Weekly Report Contents List
	13.1	Monthly Report - Dashboard
	13.2	Monthly Report - Narrative
	13.3	PCP System Status Tracker

Development of the project controls system



The above flowchart graphically demonstrates Steps 1 to 5 identified in the contents. The responsibility Matrix overleaf outlines the roles & responsibilities of the various team members in establishing the project controls system

Developing the Project Controls System

The Responsibility Matrix below outlines the roles and responsibilities of the various team members when developing the Project Controls System

Responsibility Matrix for Development of Program and Progress Measure System

Role	Off-Site				On-Site											Client
RO = Responsible Owner, AO = Accountable Owner, C = Contributor, I = Informed	Operations Director	Planning Manager	Purchasing Dept.	Project Estimator	Project/Site Manager	Construction Manager	Project Planner**	Jnr Project Planner**	Project QS/Team	Project Engineer's	Site Supervisor	Site Foreman	Site Chargehand	Project Safety team	Project Quality team	Issue of IFC/final design docs
Project Handover of Estimate to construction Team, incl fully detailed BOQ and basis of allowances				RO	RO	C	C	C	C							
Breakdown of Work Area's (WBS), as per client or internally agreed division					C	C	RO	RO	I	C	C	I	I	I	I	
Issue of IFC Package/Information					I	I	I	I	I	I	I			I	I	RO
Construction Take Off, by Area/Room/Floor					AO	I	AO	AO	RO	C	C	C				
Input of BOQ man hour norms into take-off spreadsheets					AO	I	AO*	AO	RO*							
Establish Progress Measure Sheet		C			AO	I	RO	RO	C	C	C	C	C		C	
Validate the Progress Measure Sheet – Sign Off					RO	I	AO	AO	I							
Gather required procurement delivery dates whether free issue or Dornan supplied			C	C	C	C	RO	RO	C	C						C
If the client has dictated scheduling requirements in specifications ensure to include on the schedule					I		RO	RO	I							
Gather any pre construction information that has a bearing on schedule			C		C	C	RO	RO	C	C				C	C	
Establish Contract Milestone dates for input into construction schedule					C	C	RO	RO	C	C				I	I	
Cost Loading if required needs to be setup					C		RO	RO	C							
Gather required milestone information from other trades/interfaces, not part of the contract milestone list.					C	C	RO	RO			C					C
Develop Project Construction schedule using the Progress Measure sheet data,	I	I			AO,C	AO,C	RO	RO	I	I	I	I	I	I	I	
Generate Manpower Histogram and Progress S Curve from finalised Schedule	I	I			AO,C	AO,C	RO	RO	I	I	I	I	I	I	I	
Generate Commodity Curves from finalised Schedule (where required)	I	I			AO,C	AO,C	RO	RO	I	I	I	I	I	I	I	
Internal review of construction schedule, histograms and Curves with all team members & Issue to client for approval.	I	I			AO,C	AO,C	RO	RO	I	I	I	I	I	I	I	

Reference Doc: Flowchart outlining Schedule and Measure sheet development process from Tender Stage

***The Project Manager can decide who completes this task, but it must be clearly defined to all team members**

****Project Planner & Jnr Project Planner columns are in place to cover projects where either level of planner could be assigned to a project**

1. Work Breakdown Structure identification

Each project is unique in its layout, whether be its physical size, floor layouts, zones, rooms,, buildings etc. etc. therefore it is important that the project team set's out the best Work Breakdown Structure possible to suit the build. Clients may have already identified this which may be fine, however if we feel that we can make it better suited to our view on how the build will go, then that should be discussed both internally and with the client.

Fig1.1 below shows a "hatched" marked up site layout drawing showing the defined Area's of the project that will be carried into the Measure and Schedule.

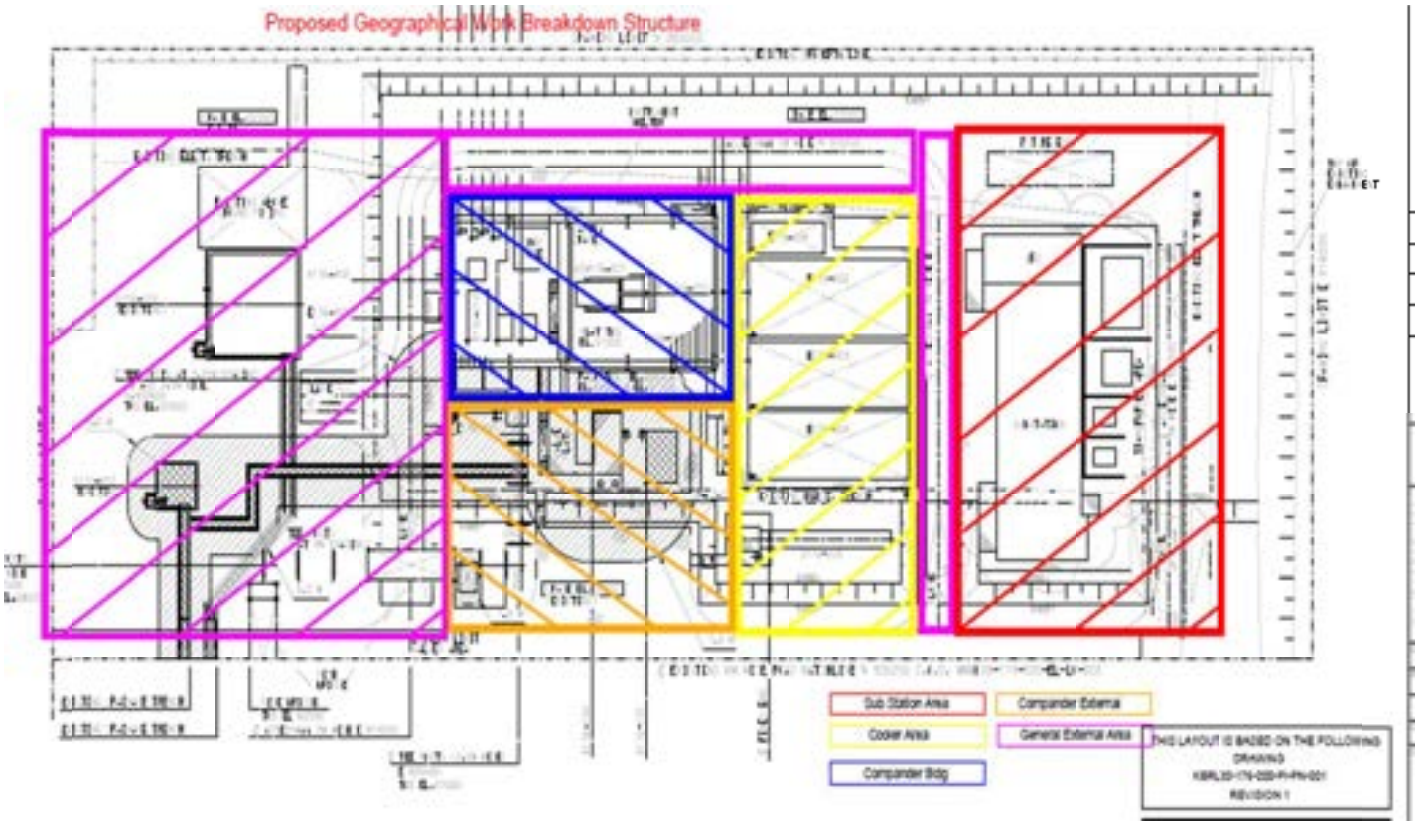
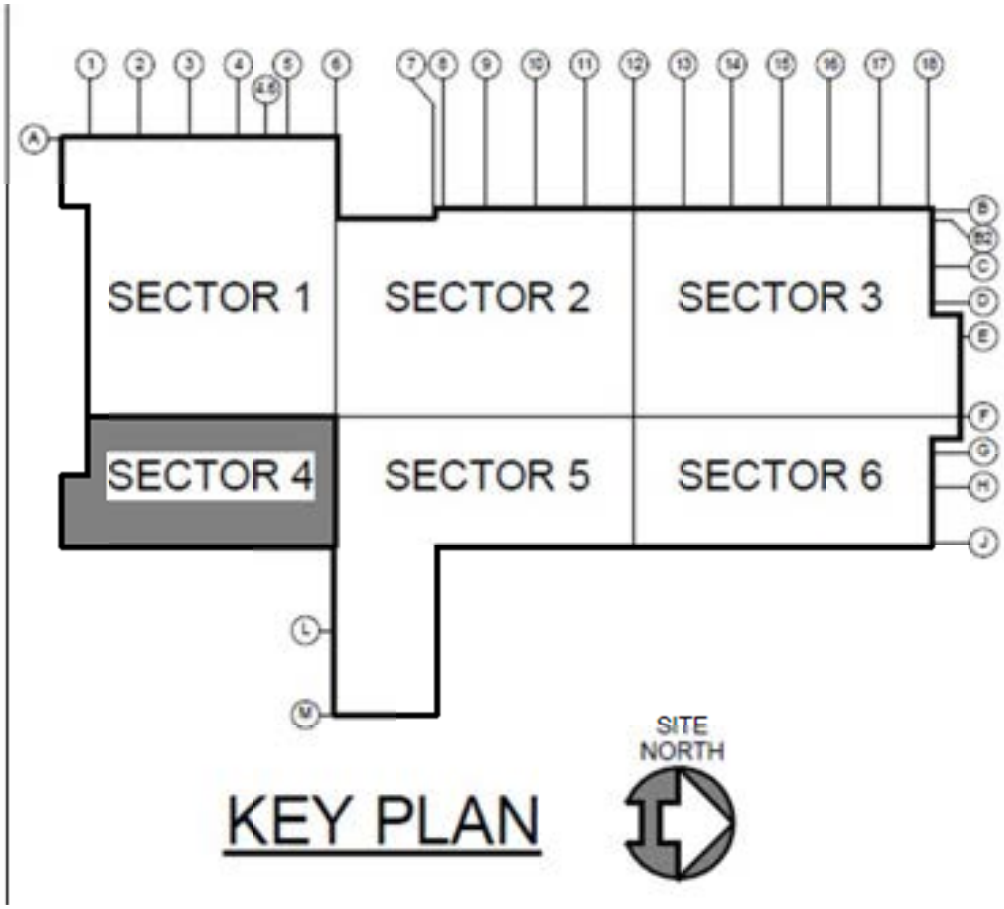


Fig 1.2 below shows the sub Area's within the Main Building (in this case defined by the client) which allows the work scopes to be broken down into more manageable chunks of work. These splits can also be used to divide Supervisor's Area responsibilities as required, therefore ensuring clear lines of demarcation. There are also examples of the M&E systems that might exist, the individual project system list also needs to be defined on each project



The below table is an example of the defined WBS for a project using both the BOQ to define the scope disciplines and the layout drawings above to define the work area's

Work Breakdown Structure	
Phase	Pre-Construction
	Construction
	Commissioning
Area	Data Hall
	Security Bldg.
	Fire Water Pumphouse
	MV Substation
	Warehouse
	General
	Sitewide
Sub Area	Zone 1
	Zone 2
	Zone 3
	Zone 4
	Zone 5
	Zone 6
	Zone (Future)
	Zone (Future)
Floor	Gnd Floor
	First Floor
	Ground Floor Mezz
Discipline	**Electrical**
	MV Cabling
	Submains Cabling Installation
	Electrical Equipment
	Containment Installation
	General Services Installation
	Mechanical Services Wiring Installation
	Earthing / Lightning Protection
	110V DC System
	Building Management System / I&C
	Lighting Installation
	Fire Alarm System
	Trace Heating System Installation
	Security Systems Installation (incl. CCTV & Door Access)
	UPS Installation
	Testing
	Mechanical
	Mechanical Equipment

	Ductwork installation
	LTHW System
	CHW System
	Domestic Hot & Cold Water Services
	Gas systems
	Process Systems
	Instrument Air
	Compressed Air
	Testing

The final detail level to be added to the WBS will be the activity details within the schedule.
Generally on Electrical you will have 3 “fix’s” on electrical services systems e.g. Lighting, General Services, Fire Alarm 1st fix being containment, 2nd fix being the cable install and 3rd fix being the installation of the device and the termination of the cabling.

Mechanical systems will generally have 2 fix’s, for example on Ventilation, Water services piping systems etc., with the first fix consisting of the Duct/pipe install and the 2nd fix consisting of the grille installation and connection or sanitary ware/rad installation and connections

2. Generating the Project Measure Sheet

The main function of the Measure Sheets is as follows:

1. It is used to establish the man hours by discipline of the project for all works including direct & Sub-Contracted elements. (using Tender BOQ norms)
2. It is used to update the weekly progress achieved by inputting the installed quantities received from the Weekly progress walk/survey
3. The Progress Measure system once setup correctly will auto-calculate various update data for use in schedule updates and weekly reporting.
4. When progress is updated it will give the required "Earned Hours" data for use when calculating S/E Ratio's
5. It can be used to produce Work Packs using various filters allowing relevant information flow to the people who need it. E.g. giving a Supervisor only what they need.
6. Used correctly, the measure sheet will allow weekly progress measurement be completed in a more efficient and more accurate manner
7. Sub-Contract & Direct Scopes of work must be clearly identified against each progress Measure Heading
8. As IFC/Working Drawing info develops the Measure needs to be adapted to follow changes in scope

Using this basic WBS table from Section 1 it is now possible to start developing the Progress Measure Sheet and define the work and man-hours of each discipline into their applicable Area, Sub Area, and Floor.

The company requirement for Measures sheets is that all scope work is defined in the measure sheet together with the labour norms associated with each component. This then allows us to confidently assess the labour man-hours associated with each discipline, and in further detail e.g. Area, Floor etc. which will be required for input into the construction schedule to establish planned labour requirements to be described at a later stage of this procedure

2.1 Measure Sheet Layout and Format

It is important at this point that the IFC take off's take the WBS into account and therefore define the quantities of each discipline/system as per the WBS defined in Section 1.

It is also hugely important that **once the measure sheet is generated that the hours should match the Tender BOQ** (unless there are known changes to scope e.g. revised qtys on IFC drawings). Reason for this is tracking progress and labour efficiency must be based on the contract/tender rates to provide useful analysis.

Any shortfalls in the tender must be validated at this point also, thus providing a measure sheet that reflects scope and construction man hours required to execute the install.

Each discipline will have its own tab on the excel file linked to a summary sheet detailing the discipline, Man-hours, Earned Man-hours, % complete data, example shown below. Note the man-hour figures highlighted in yellow will only be finalised when the take off by WBS is complete and the BOQ norms are applied to each work element.

Revisions of IFC documents should also be indicated on Measure sheets where applicable, e.g. for cable schedules, as this will help identify the reasons for any changes and ensure that all parties are working to the latest information.

Table 2, overleaf, covers the main system/discipline headings that would be part of our scope on our projects. This table should also be used as the format for the projects progress measure summary, the excel version is attached in appendix 1. Also, any systems not applicable to the particular project can be deleted from the summary.

In addition, there is a generic set of notes and instructions on the implementation of the progress measure system, which is contained in appendix 2

Each Progress Measure heading listed in this table also has a reference template, numbered as per the item numbers on the summary, which lays out the formats and requirements of the standard progress measure. These are contained in the appendix 3

Table 2

Progress Measure Sheet Summary

Item	Description	Tender Hrs	Total Construction Hrs	Hrs Earned	% Complete	% of Project	Hrs To Go
Mechanical Work's							
Process pipework							
1.1	Off Site piping Fabrication				0.0%	0.0%	0.00
1.2	Equipment Installation				0.0%	0.0%	0.00
1.3	On Site piping installation				0.0%	0.0%	0.00
1.4	Pressure Testing & Pre-Commissioning				0.0%	0.0%	0.00
1.5	Insulation & Painting				0.0%	0.0%	0.00
1.6	Inline Instrument/valve installation				0.0%	0.0%	0.00
	Mechanical Systems Totals	**0**	**0**	**0**	**0.0%**	**0.0%**	**0.00**
Mechanical Building Services & HVAC							
2.1	Mechanical Equipment				0.0%	0.0%	0.00
2.2	LTHW/Heating System				0.0%	0.0%	0.00
2.3	CHW System				0.0%	0.0%	0.00
2.4	Ventilation Services Systems				0.0%	0.0%	0.00
2.5	Public Health/Sanitation Services System				0.0%	0.0%	0.00
2.6	Domestic Water Services System				0.0%	0.0%	0.00
2.7	Sanitary Ware				0.0%	0.0%	0.00
2.8	Cooling-A/C System				0.0%	0.0%	0.00
2.9	Insulation				0.0%	0.0%	0.00
2.10	Testing & Commissioning				0.0%	0.0%	0.00
	Mechanical Systems Totals	**0**	**0**	**0**	**0.0%**	**0.0%**	**0.00**
E&I Works							
Electrical Works							
3.1	Elec Equipment Installation				0.0%	0.0%	0.00
3.2	Primary Containment Installation				0.0%	0.0%	0.00
3.3	Secondary Containment Installation				0.0%	0.0%	0.00

3.4	LV/MV Cable Installation				0.0%	0.0%	0.00
3.5	LV/MV Cable terminations				0.0%	0.0%	0.00
3.6	E&I Testing				0.0%	0.0%	0.00
3.7	Lighting System incl Lighting Controls				0.0%	0.0%	0.00
3.8	Small Power System				0.0%	0.0%	0.00
3.9	Fire Alarm System				0.0%	0.0%	0.00
3.10	Telecom System				0.0%	0.0%	0.00
3.11	Earthing System				0.0%	0.0%	0.00
3.12	Security/CCTV/Access Control/PA Systems				0.0%	0.0%	0.00
3.13	Trace Heating				0.0%	0.0%	0.00
3.14	BMS System				0.0%	0.0%	0.00
3.15	Lightning Protection				0.0%	0.0%	0.00
3.16	Testing & Commissioning				0.0%	0.0%	0.00
	Electrical Systems Totals	**0.00**	**0.00**	**0**	**0.0%**	**0.0%**	**0.00**
Instrumentation Works							
4.1	Junction Boxes, Isolators and LCS Installation				0.0%	0.0%	0.00
4.2	Instrument Installation				0.0%	0.0%	0.00
4.3	Instrument Hook ups				0.0%	0.0%	0.00
4.4	Loop Checking				0.0%	0.0%	0.00
4.5	Spec Checks/Bench Checks				0.0%	0.0%	0.00
4.6	Secondary Containment Installation Instruments				0.0%	0.0%	0.00
4.7	Instrument Cabling				0.0%	0.0%	0.00
4.8	Instrument Terminations				0.0%	0.0%	0.00
4.9	Cable Testing				0.0%	0.0%	0.00
4.10	Airline/tubing install				0.0%	0.0%	0.00
	Instrumentation Systems Totals	**0.00**	**0.00**	**0.00**	**0.0%**	**0.0%**	**0.00**
	Project Totals	**0.00**	**0.00**	**0.00**	**0.0%**	**0.0%**	**0.00**

2.2 Establishing the WBS coding against measure sheet items

Once the take-off's are completed using the WBS, then together with Labour Norms and the area/room breakdowns the man hours can be calculated for each area. Ultimately when carrying out this exercise you are generating your list of activities for the construction schedule.

The below sample **extract,** table 7**,** of a lighting measure sheet shows the Area/Room split for qty's of light fittings within 2 room's shows how the Man hours for each fix & each room can be extracted and used for progress/tracking purposes.

Dwg. No	Rev	Floor	AREA	Sub-Area	Description	Qty	Units	1st fix complete	2nd fix complete
4913 - BDI - E - 3000	G	Basement	Section B	Plantroom	F	8	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Plantroom	FE	3	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Plantroom	Infrared Presence Detector - Surface Mounted	2	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Plantroom	Photocell Override	1	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Plantroom	Time Clock For External Lighting Circuits	1	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Plantroom	Two Way Light Switch	2	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Plantroom	Light Switch	1	NO		
4913 - BDI - E - 3000	G	Basement	Section B	LV room	F	4	NO		
4913 - BDI - E - 3000	G	Basement	Section B	LV room	FE	3	NO		
4913 - BDI - E - 3000	G	Basement	Section B	LV room	Photocell Override	1	NO		
4913 - BDI - E - 3000	G	Basement	Section B	LV room	Time Clock For External Lighting Circuits	1	NO		
4913 - BDI - E - 3000	G	Basement	Section B	LV S room	Infrared Presence Detector - Recessed	1	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Toilets	Infrared Presence Detector - Recessed	9	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Toilets	G	14	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Toilets	E	10	NO		
4913 - BDI - E - 3000	G	Basement	Section B	Toilets	L (1m)	6	NO		

At the end of each disciplines measure sheet tab, a table should be setup to automatically calculate the Total Hours and Hours Earned for each WBS heading, see below example. The auto calculating table is achieved by using a combination of “Sum if” and “concatenate” formulas using the data on the above example.

Program Update Summary								
Area	Program Activity ID	1st Fix Hrs	Earned Hrs	% Complete	Program Activity ID	2nd Fix Hrs	Earned Hrs	% Complete
Basement Section B Plantroom		24.1	0.0	0.0%		13.2	0.0	0.0%
Basement Section B LV Switchboard room		13.4	0.0	0.0%		8.0	0.0	0.0%
Basement Section B Toilets		52.3	0.0	0.0%		30.6	0.0	0.0%
Basement Section B Showers/Toilets		49.6	0.0	0.0%		30.9	0.0	0.0%
Basement Section B		219.8	0.0	0.0%		134.5	0.0	0.0%
Basement Section C Plantroom		30.8	0.0	0.0%		19.4	0.0	0.0%
Basement Section C		297.5	0.0	0.0%		288.7	0.0	0.0%
Basement Section A Toilets		53.6	0.0	0.0%		34.3	0.0	0.0%
Basement Section A		430.1	0.0	0.0%		379.8	0.0	0.0%
Basement Atrium Atrium		18.8	0.0	0.0%		52.9	0.0	0.0%
Ground Floor Section B Plantroom		50.9	0.0	0.0%		29.4	0.0	0.0%
Ground Floor Section B Toilets		52.3	0.0	0.0%		30.6	0.0	0.0%
Ground Floor Section B		278.7	0.0	0.0%		207.1	0.0	0.0%
Ground Floor Section C		391.3	18.1	4.6%		395.9	0.0	0.0%
Ground Floor Section A Toilets		53.6	0.0	0.0%		34.3	0.0	0.0%
Ground Floor Section A		360.5	0.0	0.0%		339.2	0.0	0.0%
Ground Floor Atrium Atrium		21.4	0.0	0.0%		35.5	0.0	0.0%
First Floor Section B Toilets		52.3	0.0	0.0%		30.6	0.0	0.0%
First Floor Section B		332.3	57.6	17.3%		290.2	0.0	0.0%
First Floor Section C		250.6	250.6	100.0%		403.1	12.2	1.9%
First Floor Section A Toilets		50.9	0.0	0.0%		29.9	0.0	0.0%
First Floor Section A		372.5	115.2	30.9%		349.1	0.0	0.0%
Second Floor Section B Toilets		52.3	0.0	0.0%		30.6	0.0	0.0%
Second Floor Section B		335.0	30.8	9.2%		277.6	3.2	0.5%
Second Floor Section C		381.9	234.5	61.4%		396.4	0.0	0.0%
Second Floor Section A Toilets		53.6	0.0	0.0%		34.3	0.0	0.0%
Second Floor Section A		388.6	210.4	54.1%		376.2	4.3	0.6%
TOTALS		**4668.6**	**917.2**	**19.6%**		**4282.0**	**19.8**	**0.5%**

Totals to carry to Measure	**8950.5**	**937.0**	**10.47%**

2.3 Summary of Measure sheet development.

The examples shown in this section are only a small extract for illustration purposes. There is a substantial effort required in setting up the measure sheet at the commencement of the project, however once prepared correctly will not only benefit the person running the system on a weekly basis, it will also benefit the rest of the project team immensely as you will be able to do endless filters of information that can more or less answer any query in relation to man hours.

Ultimately, the team will be better informed to make good decisions on the project.

At this point the Project Manager should validate and sign off on the Progress Measure System and therefore the following should be clearly defined:

1. The Project Man hours in total & in each WBS Area
2. The Project Scope in total & in each WBS Area

The Commercial dept should also use the Progress Measure man hour Status as part of the Cost forecast projections:

1. Hours Earned
2. Hours to Go
3. S/E Factor

3. Developing the Construction Schedule

Ideally, the construction schedule should be generated using the measure sheet summaries as the guide in establishing the activity list within the program. Obviously, there will be milestones and other activities to be considered that do not have labour hours attached to them that will also be required.

There are many ways in which to approach the development of the construction schedule and depending on the software being used (Primavera, ASTA etc.), there may be limitations based on their functional ability.

However, the minimum requirement for all construction schedules is as follows:

3.1 Be man hour loaded.
3.2 Include the full project scope.
3.3 Include any contractual milestones and/or contract scheduling requirements.
3.4 Include as much relevant predecessor information as required
3.5 Be fully logic linked.
3.6 Be setup as an official project document
3.7 The Standard Work week hours should be clearly stated on the program and S-curve. This is especially relevant where different Sub-cons work "non-standard" hours

3.1 Schedule Man hour loading

Using the Measure sheet summaries on each tab, the man-hours for each activity is extracted and input into the schedule, below is an example of what the tables should look like coming out of the measure sheet. In this case, when the activities are loaded into the program, you can populate the Activity ID which will help speed up the progress updates later on.

Program Update Summary								
Area	Program Activity ID	1st Fix Hrs	Earned Hrs	% Complete	Program Activity ID	2nd Fix Hrs	Earned Hrs	% Complete
Basement Section B Plantroom		24.1	0.0	0.0%		13.2	0.0	0.0%
Basement Section B LV Switchboard room		13.4	0.0	0.0%		8.0	0.0	0.0%
Basement Section B Toilets		52.3	0.0	0.0%		30.6	0.0	0.0%
Basement Section B Showers/Toilets		49.6	0.0	0.0%		30.9	0.0	0.0%
Basement Section B		219.8	0.0	0.0%		134.5	0.0	0.0%
Basement Section C Plantroom		30.8	0.0	0.0%		19.4	0.0	0.0%
Basement Section C		297.5	0.0	0.0%		288.7	0.0	0.0%

Again, similar to the requirement for the measure sheet hours to match the tender BOQ or IFC take off, the man-hours in the schedule must also match the measure sheet hours ensuring there will accuracy throughout all reporting.

3.2 Schedule should Include the full project scope.

Any construction schedules must include all the current scope. Again the tender BOQ should be the primary reference point for establishing the scope.

The only exception being variation works, which will cannot be determined at project kick off. As the project progress, it is sometime beneficial to include variations in the schedule if the volume of change is substantial; there are no set rules around this, only that these works are at least considered when forecasting labour lookahead's.

One example of scope that needs to be included is specialist sub-contractor works like, Lightning protection, Insulation works or commissioning packages. To establish these man-hours you will need to request the man-hours form the applicable sub-contractor. If the sub-contractor refuses to make this information available, then we will have to make an approximation using their price, taking material supply into account also.

When the Sub-Contractor pricing packages are being issued for pricing, it should be stipulated that we require man-hours as part of the tender return, and as a minimum we should have a labour cost breakdown separate from Materials, Equipment and prelims

3.3 Schedule should Include any contractual milestones

It is important when generating the construction schedule that the contract is reviewed from a scheduling viewpoint.

All schedules should include the following:

- any contractual milestone date's
- any contractual requirements in relation to schedule specification's set down by the client
- IF L&AD's are part of the contract, the associated activities need to be carefully considered

3.4 Schedule should Include as much relevant predecessor information as required

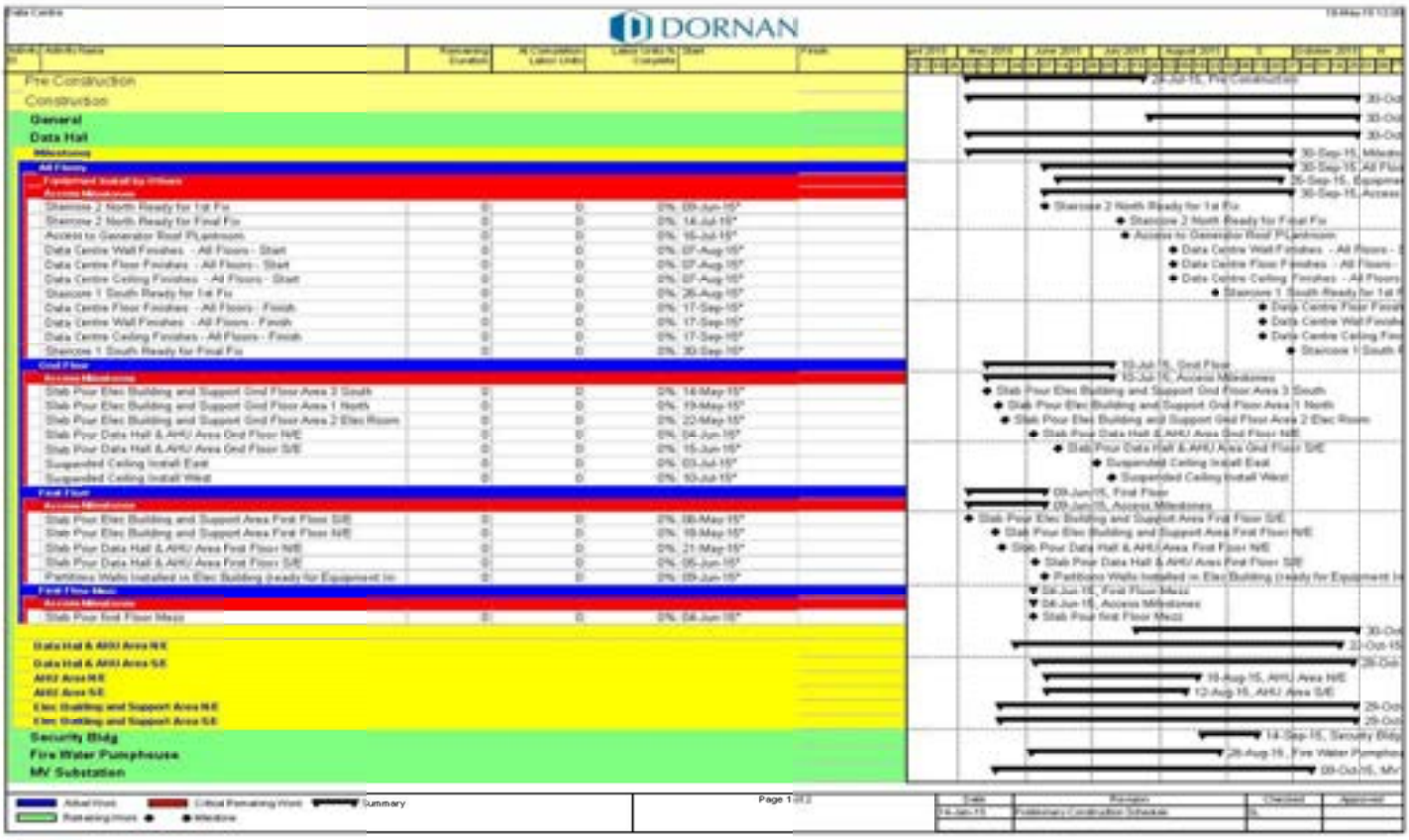
It is important when generating the schedule that all the required milestone information is incorporated into the schedule. A schedule needs to have adequate detail, but too much can render schedules impractical to update if trying to establish when predecessor activities are complete

It is therefore important to refrain from adding in information that is not relevant as this will only contribute to difficulties in updating information during the execution. For example if you were extracting information from a civil works schedule to establish access dates, then you should only incorporate the minimum relevant information in the schedule.

To help assisting providing a better integrated programme it will be necessary to engage with all other interfacing trades/parties.

This engagement can take many forms:

1. Interacting with Client and their subcontractors in Interactive planning sessions
2. Interacting with and engaging Dornan Sub-Contractors to ensure “buy in” to the programme has been established and targets are achievable in terms of delivering the programme with repect to resources and durations
3. Implementing Last Planner Systems
4. Daily / Weekly Co-ordination with Project Parties



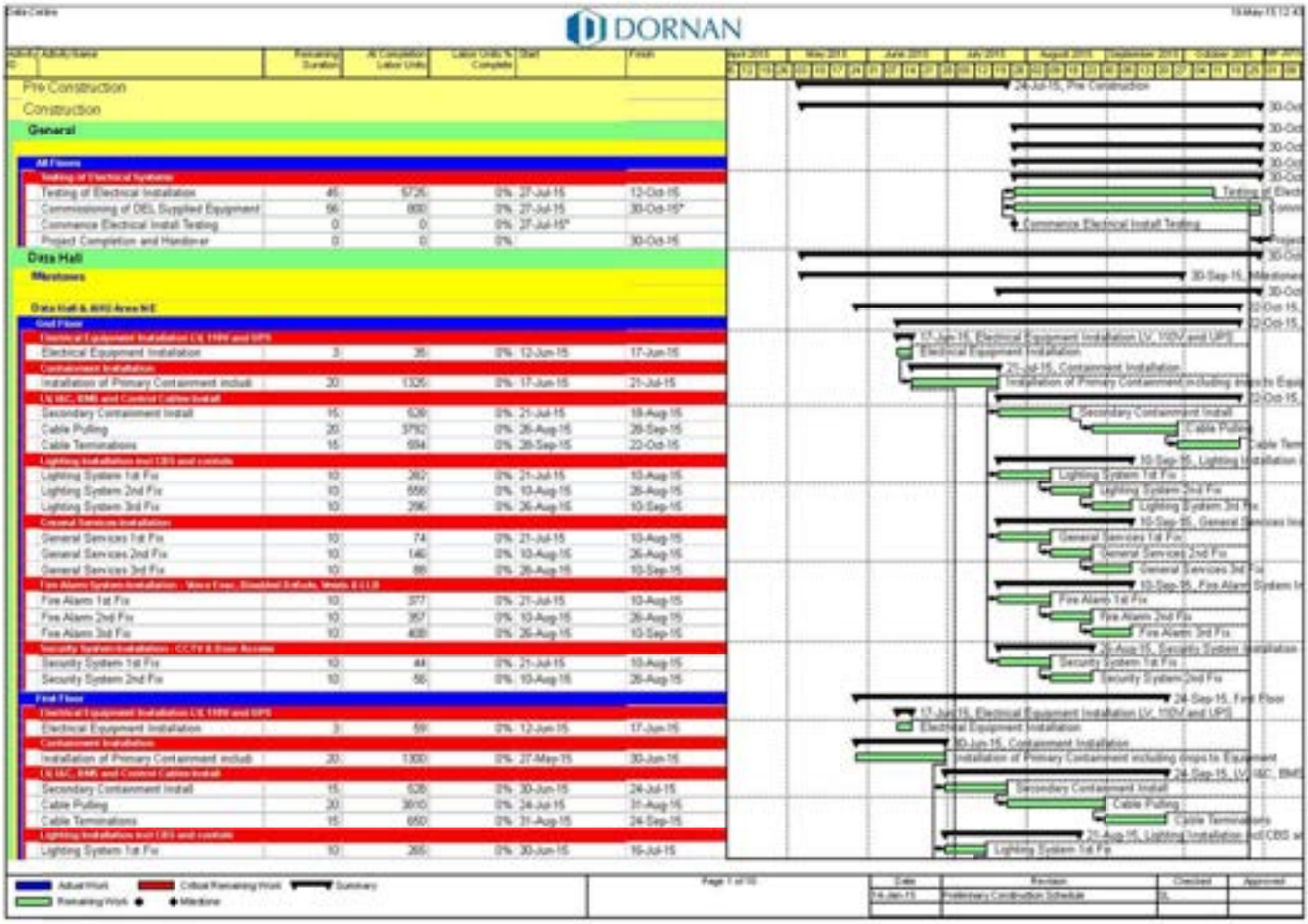
3.5 Schedule to be fully logic linked.

All schedules should have the relevant relationships setup to help ensure accurate scheduling. Also, you should minimise any lags, and only use Start-Finish relationships in the first run of the schedule, as this will make it easier to identify mistakes in relationships when reviewing. It will also help when trying to level manpower peaks when reviewing the manpower histogram.

With regards to activity durations, there are no hard and fast rules around establishing durations, however items to be considered when deciding on durations would be:

- The manhours associated with the activity and its successor's.
- Any constraints in terms of finish dates for the activity
- The labour levels likely to be assigned to the activity (e.g. cable pulling crew size or cable terminating in a panel)
- The level of labour in an area at which congestion is likely to impact productivity
- If the work is specific to a particular sub-contractor, where logic of the same activity in other areas needs to be considered e.g. cable pulling sub-contractors
- It beneficial to filter sub-contractor specific activities also when reviewing durations and manpower to guide on the likelihood of the subcontractor to meet the labour requirements.

Bearing in mind that each project is different, there may well be other items to consider in addition to the above

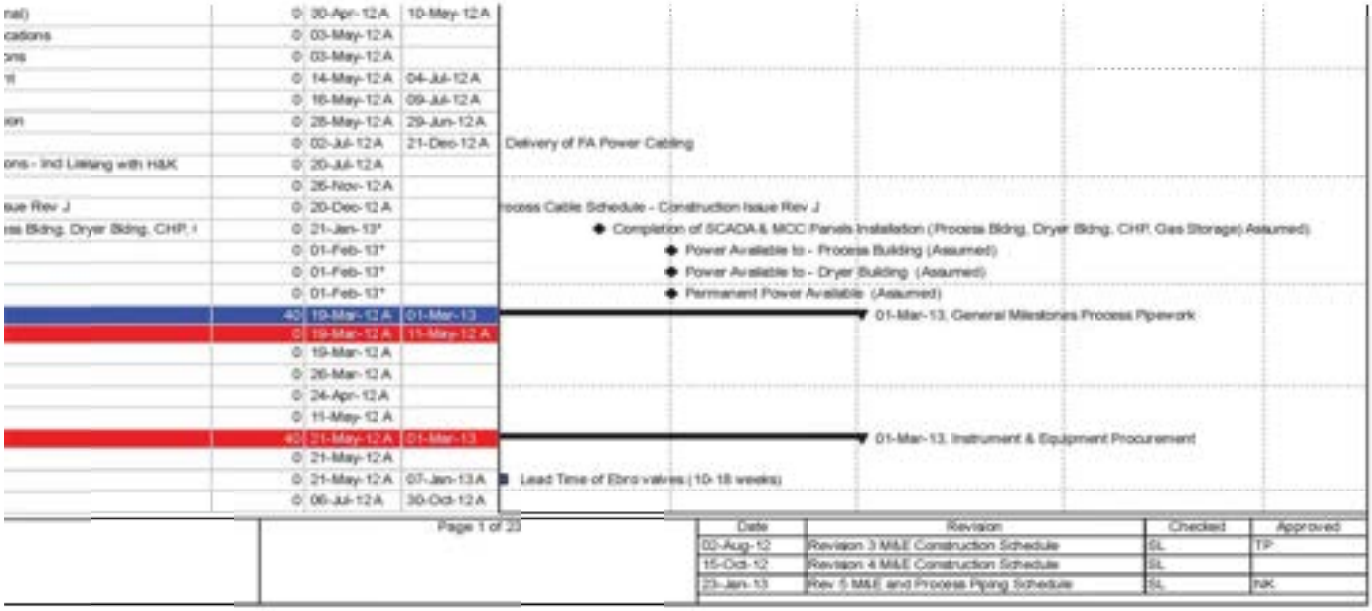


Furthermore the structure will ensure that over/under progress reporting by supervision is controlled as you will always have control of what was claimed in the previous week's measure.

3.8 Schedule setup as an official project document

All schedules must be setup the same as any other project document for tracking purpose's. All this simply means to each schedule revision gets a revision no and a date to allow good tracking of schedule revision's.

Example below:



4. Developing Progress S-Curves, Manpower Histograms, Commodity Curves

On completion of the construction schedule the Progress S-curve, Manpower Histogram and commodity curve data can be extracted. All projects should have a Progress S Curve and Manpower Histogram.

Commodity Curve's where required will be used and are a useful tool for setting high level targets of KPI's where the project has large qty's.

See below examples:

4.1 Data for S-curve and Manpower Histogram

Using primavera, the weekly planned hours can be extracted into excel and converted to provide a planned v actual S-curve and Histogram.

It is important that prior to any issue of the schedule, S-curves and Histograms for approval including when the baseline is set, that the data extracted from Primavera is done after the last changes i.e. the schedule matches the data exported to excel

See below extract of part of the spreadsheet for the examples further down

Weeks Commencing							
Dates	**9-Feb-15**	**16-Feb-15**	**23-Feb-15**	**2-Mar-15**	**9-Mar-15**	**16-Mar-15**	**23-Mar-15**
Planned Hrs Data							
Planned Manhours per Week	0	240	245	381	953	1640	1657
Planned Manpower per week	0	5	5	8	20	35	35
Cumulative Earned Hours Planned	0	240	485	866	1819	3459	5116
Weekly % Complete Planned	0.00%	1.54%	1.58%	2.45%	6.13%	10.56%	10.67%
Cumulative % Complete Planned	0.00%	1.54%	3.12%	5.57%	11.71%	22.26%	32.93%
Earned/Actual Hrs Data							
Earned Hrs Actual							
Actual Manpower							
Cumulative Earned Hours Actual	0	0					
Actual Weekly % Complete	0.0%	0.0%					
Actual Cumulative % Complete	0.0%	0.0%					

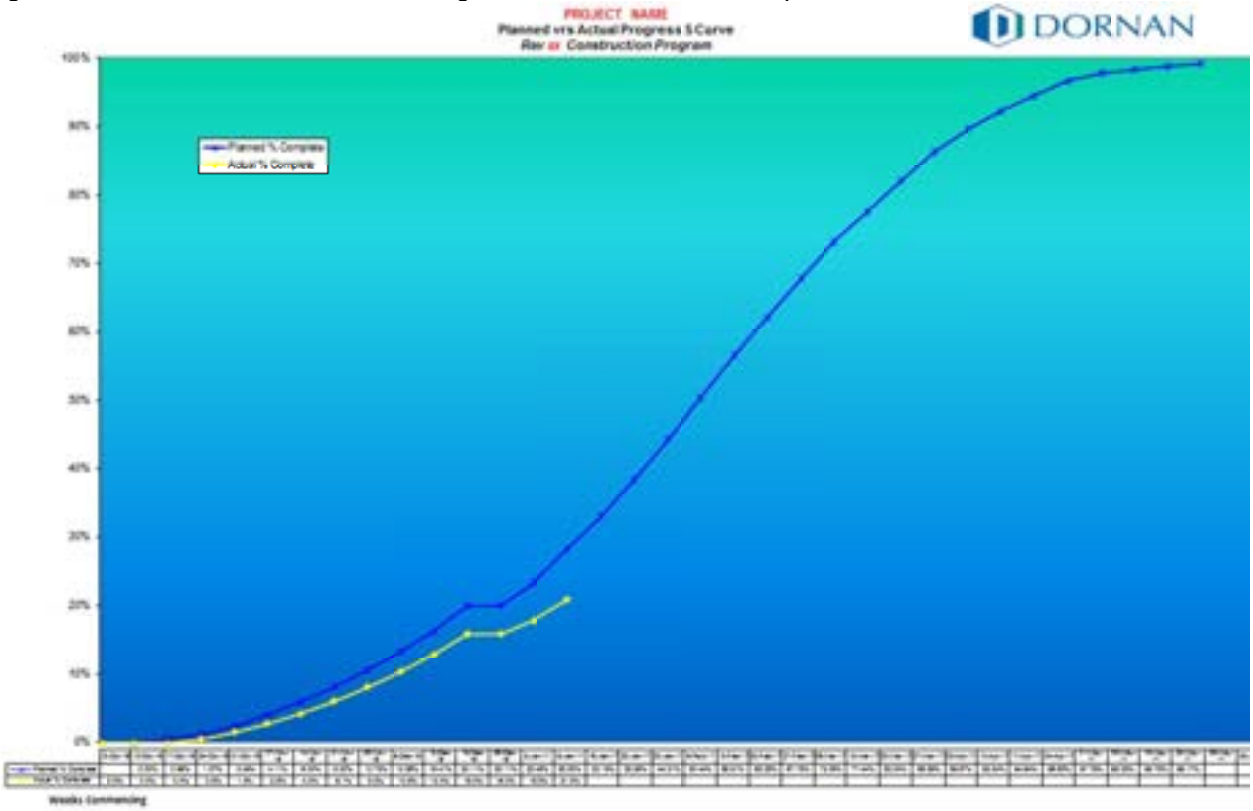
Total Manhours	15536
Standard hrs per week	47

There are various templates available for the different types of histograms required, listed below are some of these, contained in Appendix 4

- **1.2.3.1 Histogram Stacked by Trade & S Curve Planned only**
- **1.2.3.2 Histogram Stacked by Trade & S Curve with Planned v Actual**
- **1.2.3.3 Standard Histogram & S Curve with Planned v Actual**

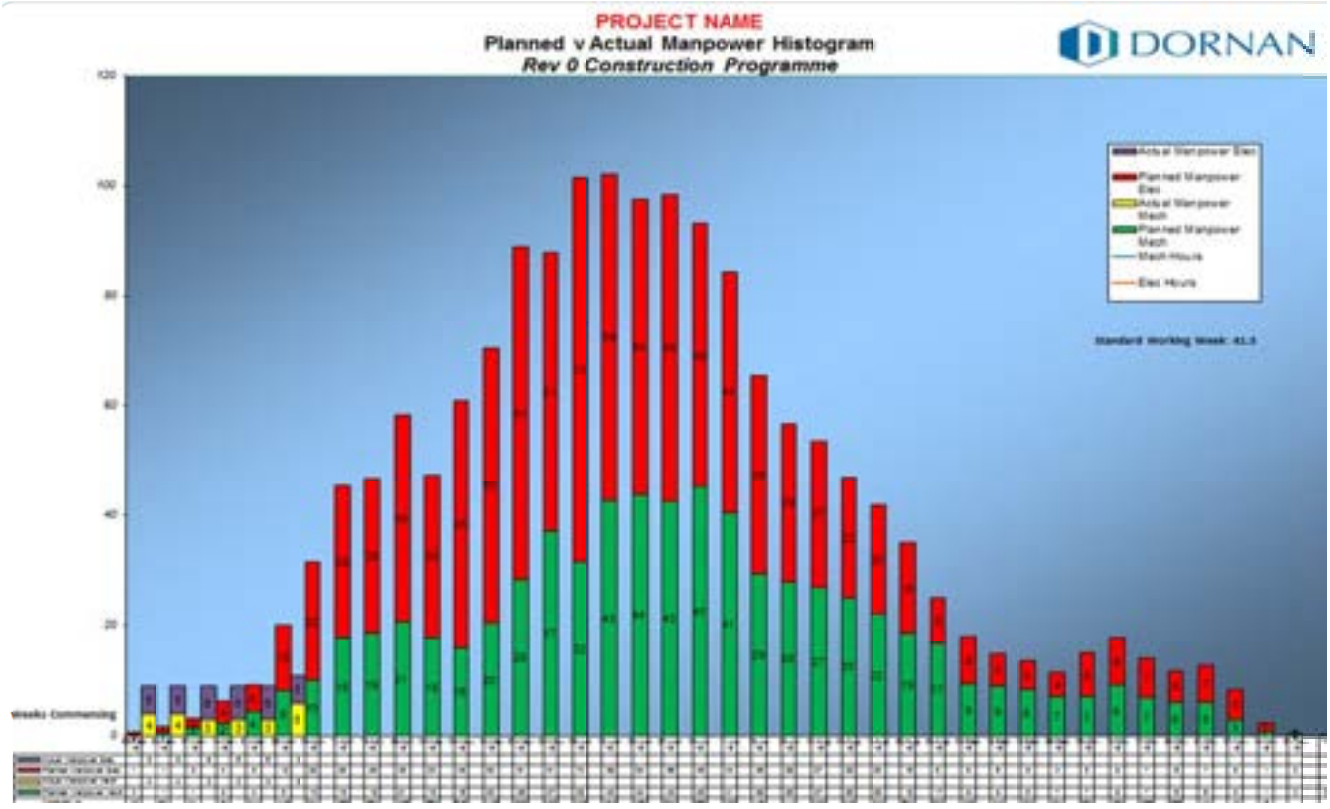
4.2 Progress S-Curve

Using the above table the S-Curve can be generated, see below example.

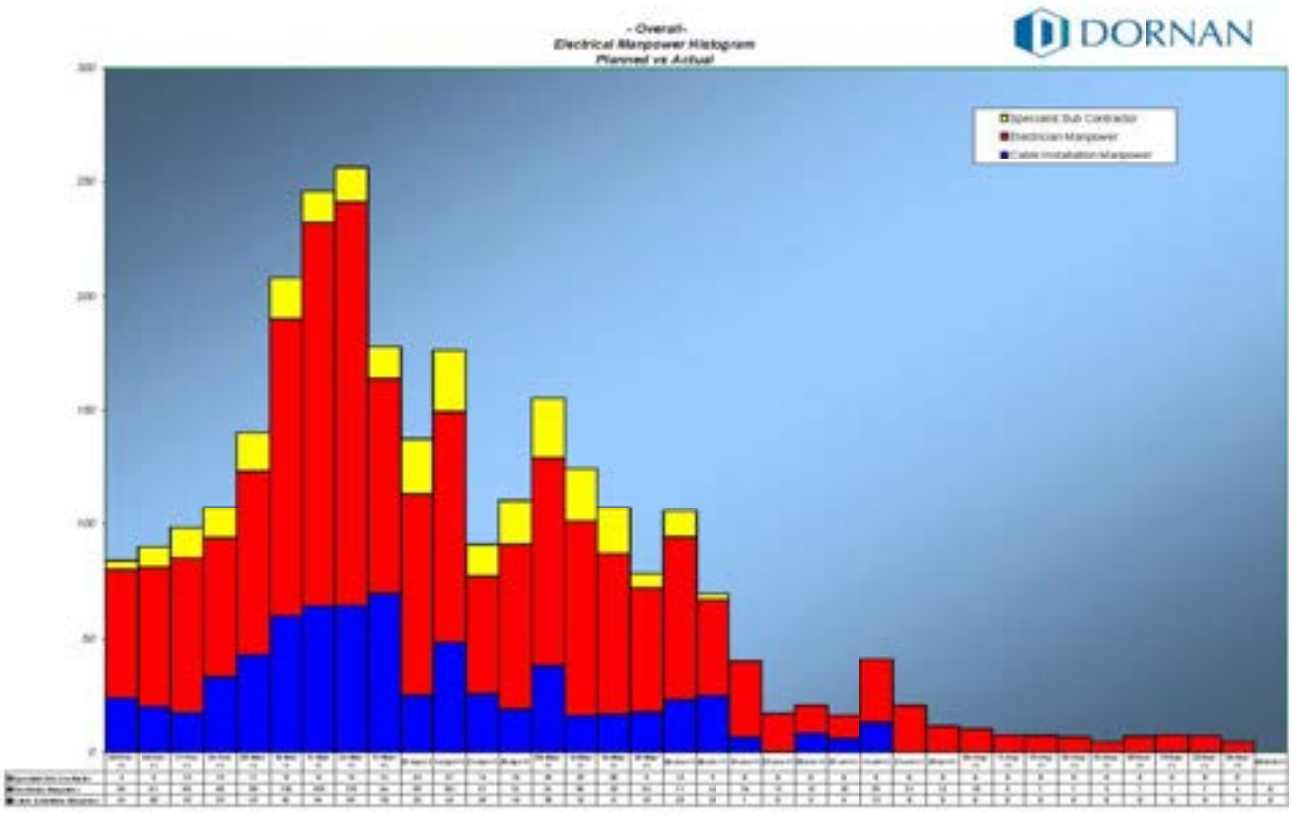


4.3 Manpower Histogram

Using the above table in 4.1 the Manpower Histogram can be generated, see below example.



Stacked Histograms can also be generated if activities on the program are coded by the different types of trade to allow various types and qty of trade be identified

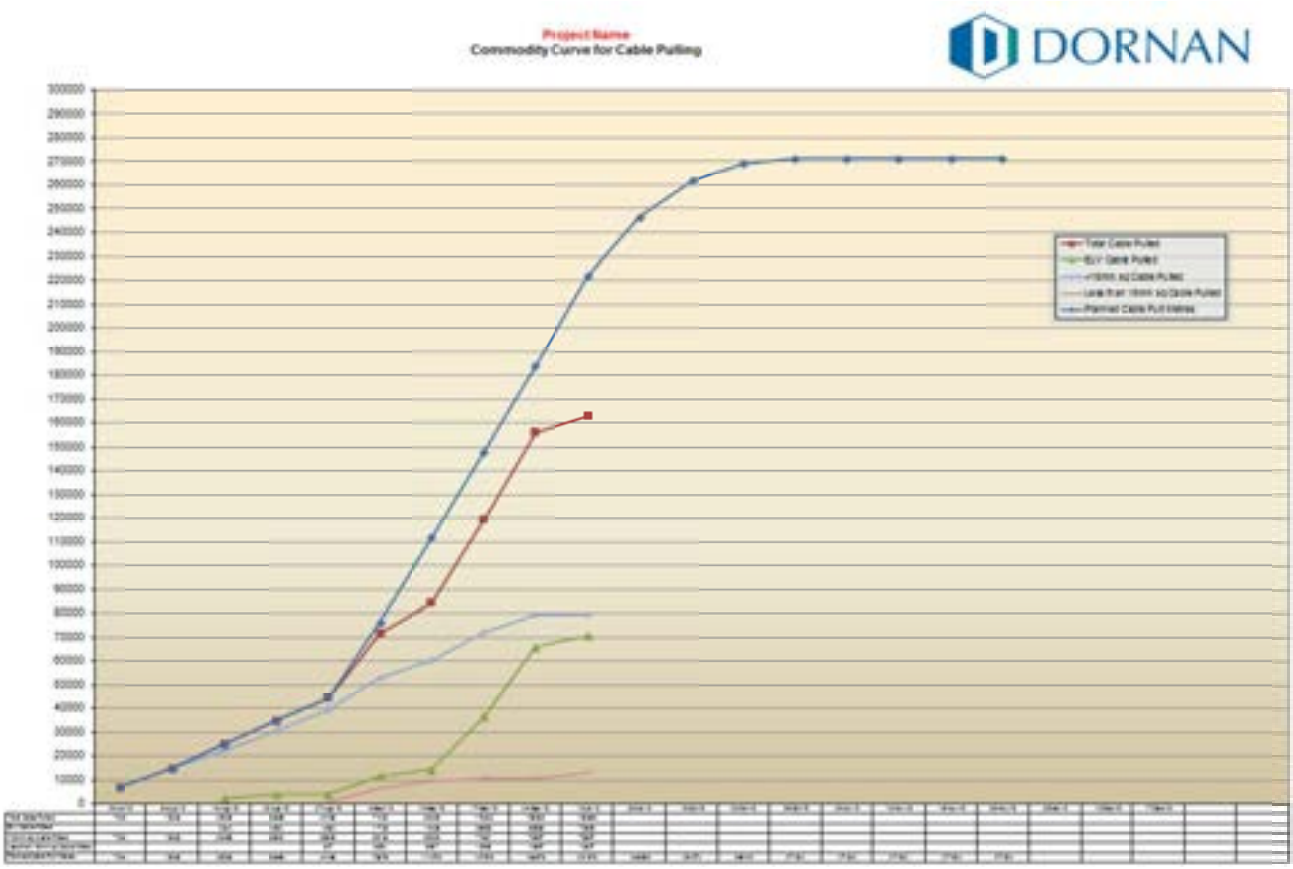


4.4 Commodity Curves

The generation of commodity curves is a little more complicated than generating the S-curve and histogram. The example below shows a cable pulling commodity curve.

You will need to extract, by area, when the cable pulling activities are scheduled. You will also need to extract from the cable schedule in this case the qty of cable in metres per area.

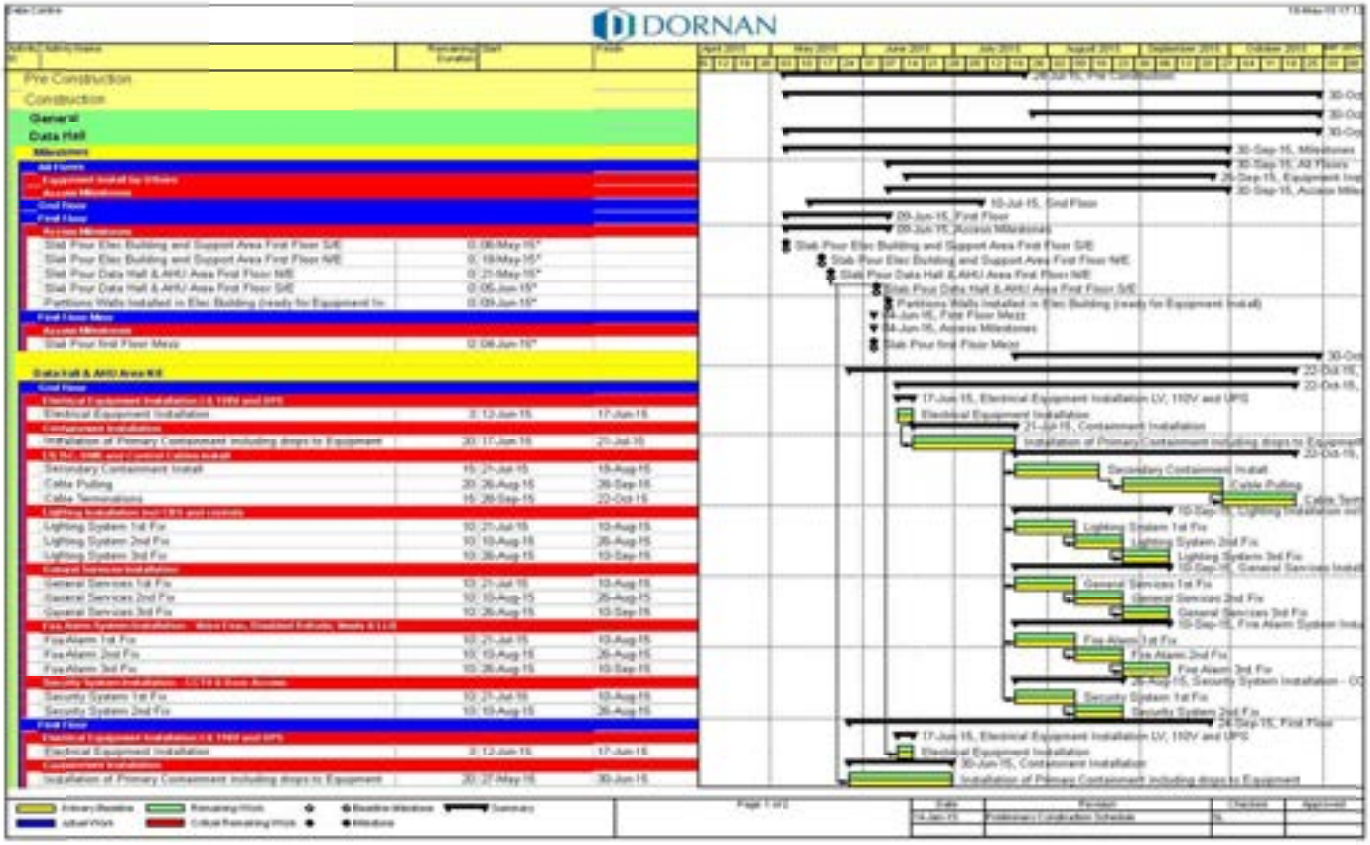
Once these pieces of information are established, simply divide the activity duration by the meterage of cable associated with the activity. When repeated for all areas of the project, you will have the required figures to establish the weekly planned qty of cable.



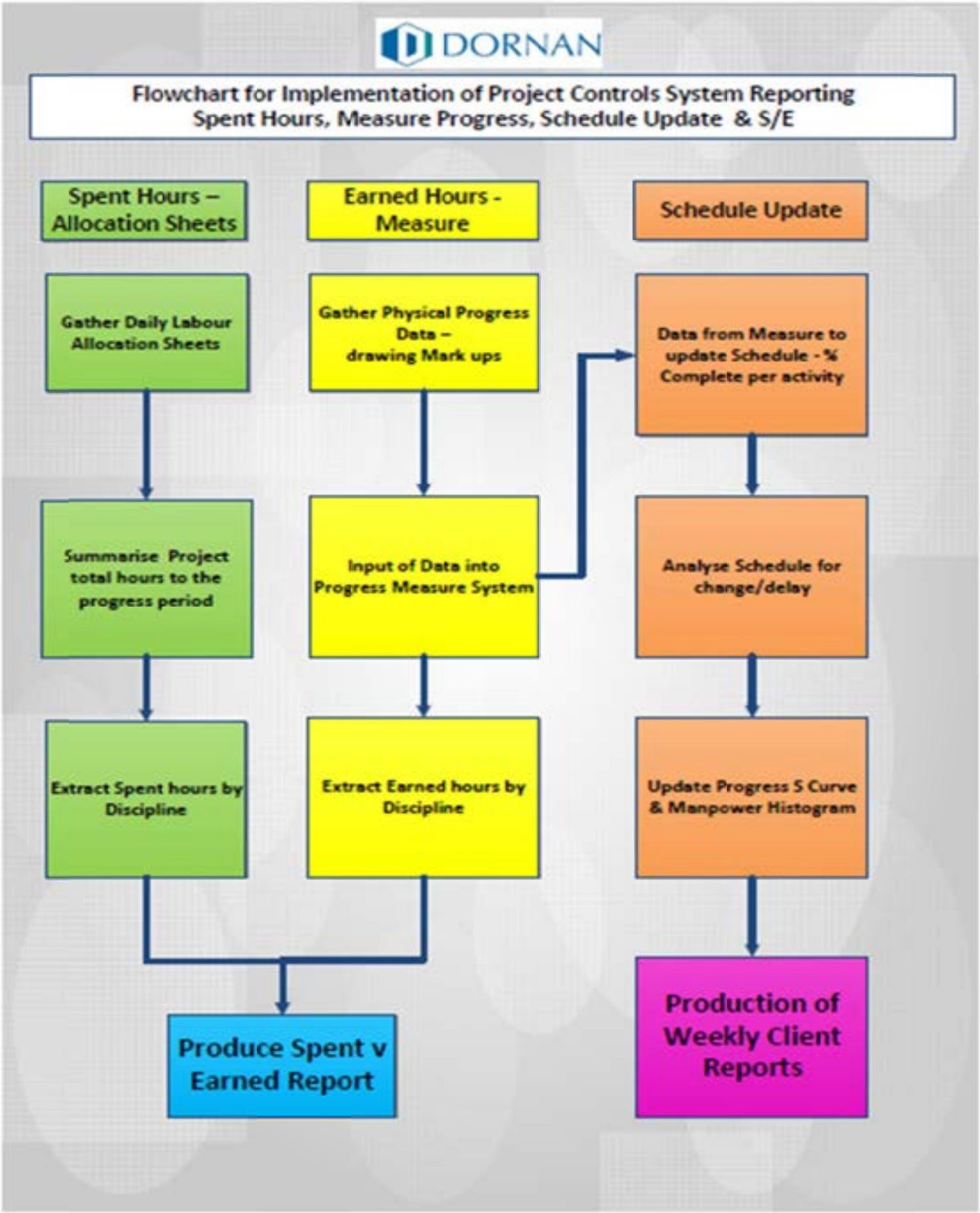
5. Baselining the agreed Construction Schedule

Once the construction schedule, S-Curve, Manpower Histogram have been reviewed and approved both internally and by the client, then the schedule should be base lined as a reference for tracking purposes.

This should be done before progressing any activities on the schedule, the only exception being if it is a mid-project re-scheduling exercise. The baseline will then sit in the background and can be displayed in the gantt chart if required to give a visual indication (in yellow on below example) by activity where it sits in relation to the baseline.



Implementing the Project Controls System



Implementing the Project Controls System

The Responsibility Matrix below outlines the roles and responsibilities of the various team members when implementing & monitoring the projects progress measure, program performance and Labour efficiency

Responsibility Matrix for Implementation of Program and Progress Measure System												
Role	**Off-Site**			**On-Site**								
RO = Responsible Owner, **AO = Accountable Owner,** **C = Contributor,** **I = Informed**	Operations Director	Planning Manager	Project Estimator	Project/Site Manager	Construction Manager	Project Planner**	Jnr Project Planner**	Project QS/Team	Site Supervisor	Site Foreman/ Chargehand	Site Safety Rep	QA/Eng Team
6. Measurement of Weekly Progress mark up's.												
6.1 Identify progress cut off periods (Mon-Sun, Fri-Thurs etc)	I	I		AO	AO	RO	RO	I	I	I		
6.2 Prepare Work Packs for Supervision using progress Measure System		I		AO	AO	RO	RO	C	I	I		
6.3 Weekly collation & return of the Progress measure update				AO	AO	AO*	AO*	I*	RO*	RO*		
6.4 input of installed qty's to Progress Measure				AO	AO	RO	RO	I	I	I		
6.5 Cross Checks of update and Program update tables				AO	AO	RO	RO					
7. Daily Allocation Sheets.												
7.1 Preparation & formatting of the Daily allocation sheets	I	I		AO	AO	RO	RO	C	I	I		
7.2 Completion daily, of labour allocation sheet by DEL Supervisor (incl Sub-Cons)				AO	AO	AO	AO	I	RO	RO	I	
7.3 Supervisors Daily Report				AO	AO	AO	AO	I	RO	RO		
8. Measurement and Analysis of labour efficiencies using the S/E system.												
8.1 Preparation & formatting of the S/E templates	I	I		AO	AO	RO	RO	C	I	I		
8.2 Weekly production of S/E figures				AO	AO	RO	RO	I	I	I		
8.3 Review of poorly performing S/E figures				AO	AO	RO	RO	I	C	C		
8.4 Items causing Poor performance outside of Dornan control to be communicated to client via report/cause & Effect schedule or other			I	AO	AO	RO	RO	I	C	C		
9. Weekly Updates / Review of the schedule												
9.1 Update of the program	I	I		AO	C	RO	RO	I	I	I		
9.2 Review & re-forecasting of activities				C	C	RO	RO	I	C	C		
9.3 Review of revised resource/labour requirements				C	C	RO	RO	I	C	C		
10. Progress Reporting TOP (Turn over Pack)/Systems Tracking.												
10.1 Preparation & formatting of the TOP/Systems Tracker	I	I		AO	AO	RO	RO		I	I		C
10.2 Weekly Updates of the TOP Tracker				C	C	RO	RO		C	C		I
10.3 QA System Handover Status data for update				C	C	RO	RO		C	C		C
11. Delay/Event notifications												
11.1 Preparation & formatting of the Cause & Effect schedule/Early Warning tracker or other project specific delay/disruption tracker				AO	AO	RO	RO	I	I	I		
11.2 Weekly update of tracker	I	I		C	C	RO	RO	C	C	C		C

***The Project Manager can decide who completes this task, but it must be clearly defined to all team members**

****Project Planner & Jnr Project Planner columns are in place to cover projects where either level of planner could be assigned to a project**

6. Measurement of Weekly Progress mark up's.

Once the project commences the installed quantities need to be updated weekly, to allow the various reports be updated for internal and external reporting

The Process of gathering the information is as follows:

1. Identify the cut off day for progress required to give enough time to input the measure data and update the weekly reports.

2. All Supervision/management need to be made aware of and buy into the cut off day.

3. Provide the relevant supervisor with the work packs using the Progress measure for the area & discipline's they are responsible for to allow them plan their work and also fill out that week's installed quantities. It is important to only issue the relevant information to each supervisor and giving the supervisor adequate time to complete in order keep the process as simple as possible.

4. In some cases, depending on project size, resource and other factors the PM may decide that other members of the team are better placed to conduct the weekly measure site walk if the supervisor will not have the available time to complete it. The allocation of this task is at the discretion of the Project Manager, but must be clearly defined as to who is responsible for producing the measure of weekly progress

5. Once all information is received back, update the Measure Sheet accordingly to establish the Earned Hours for that period.

6. Once satisfied that all installed quantities have been updated and Earned Hours are established this information can be used to calculate S/E's and weekly progress %

Variations-Additional Works Measures

The procedure/process for completing additional works must be agreed with the team at the commencement of the project and approved with the PM.

Any works that are done outside of the Progress Measure / original work scope must:

1. Be clearly recorded and approved for execution via the specific project requirements, i.e. Site Instruction from client etc etc...
2. Spent hours must be recorded against each variation order/site instruction. Whether by day work or other means agreed with the Project QS
3. The daily allocation sheet should also contain the spent hours on variations.
4. In the event that variations are priced on a fixed price basis the budget of hours must be provided to the supervisor.
5. The RCV/Variation log will also need to be marked up in terms of progress complete % against each variation. This log is usually controlled by the project QS

No variation work should ever commence without written approval.

7. Daily Labour Allocation Sheets.

Daily Allocation sheets (sometimes referred to as Labour/Force Returns) are a vital piece of documented evidence that have many functions. The primary function is to generate spent hours each week against each activity on the project for using in calculating the project S/E

The level of detail that a supervisor can provide when filling out a daily allocation sheet cannot be underestimated. The allocation sheet needs to be setup by the planner relevant to the project, so similar to the Measure sheet and schedules have the same discipline headings to allow simpler reporting, calculations and comparison's

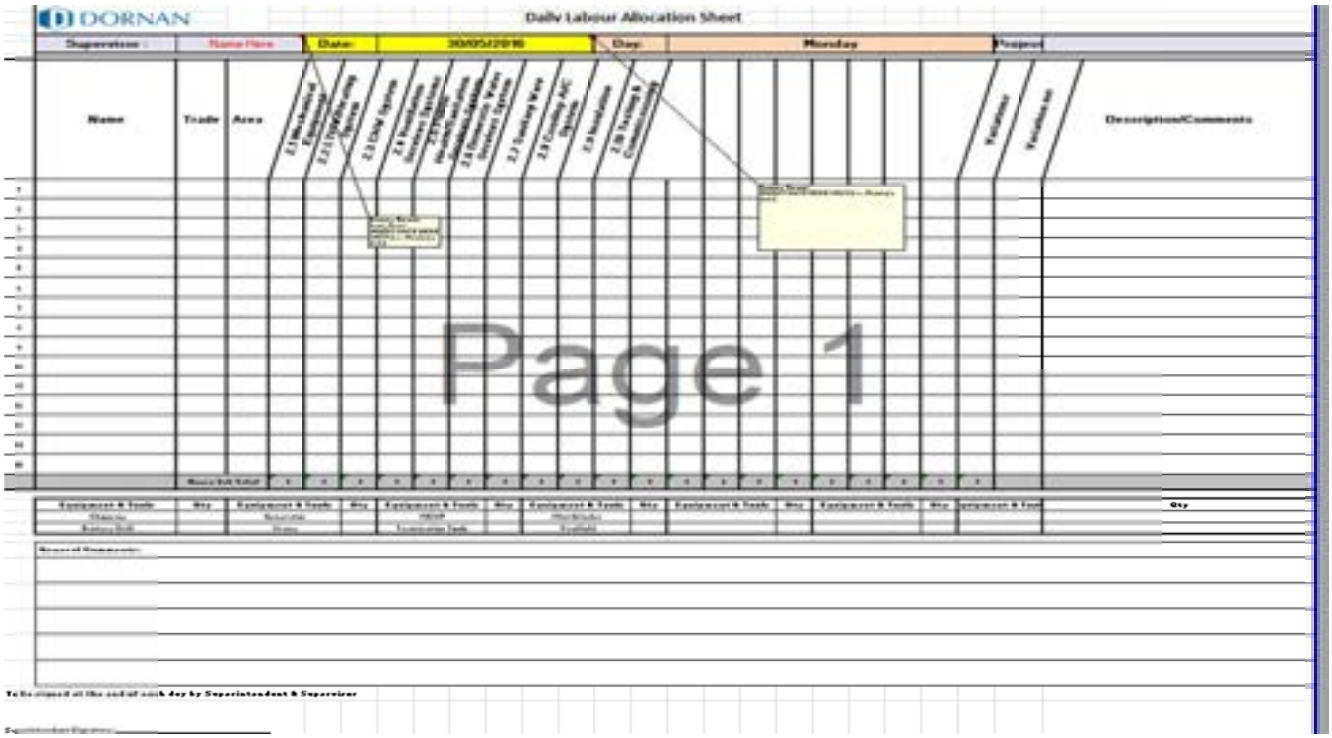
The template for the Daily & Weekly allocation sheets are attached in appendix 5

Below is the information level required from Supervisors when filling out allocation sheets?

1. All labour under supervisors control is listed by name
2. The hours spent against each activity should be listed in detail against each discipline **incl variations and the associated VO number**
3. The Area/Floor/Building should also be listed
4. The comments column should be utilised where issues/events have occurred during the day that caused disruption to labour
5. Plant & Tools in use on the day should be listed.

Allocation Sheets must be completed daily by all supervision, and this needs to be monitored strictly by the planner and if needed the PM.

Key information is fresh in the head on the day it is relevant, this will only be lost if the sheets are filled out the following day or even worse at the end of the week.



Allocation Sheets must be completed daily by all supervision, and this needs to be monitored strictly by the planner and if needed the PM.

Key information is fresh in the head on the day it is relevant, this will only be lost if the sheets are filled out the following day or even worse at the end of the week.

The weekly Allocation sheet should be completed to electronically log all individual daily allocation sheets for the week and ensure all spent hours are recorded accurately

The below Supervisors Daily Report also needs to be completed by the Supervisor in addition to the daily allocation sheet to log general comments and description of works, completed that day, planned for the next day and any site issues that arise during the day

DORNAN Supervisors Daily Report

Project		Weather	
Job No		DATE	
Supervisor	Sub Contractor	Area	

Detailed descriptions of activities performed during this DAY:		Tuesday
Item No	Activity	Description of Works
1		
2		
3		
4		
5		

Planned activities for the next DAY:		Wednesday
Item No	Activity	Description of Works
1		
2		
3		
4		
5		

Site Issues - Comments		
Item No	Activity	Description
1		
2		
3		
4		
5		

Signed	Date

8. Measurement and Analysis of labour efficiencies using the Spent v Earned system.

The S/E ratio of a project determines the labour efficiency against the tender norms on a weekly basis and is a key indicator on the health of a projects financial state with respect to labour.

Its accuracy therefore is very important and any inaccuracies or shortcuts in generating the measure sheet and allocation sheets will show up when producing the S/E calcs

Once the Measure sheet earned hours for the week have been established by discipline and the spent hours have been established from the Daily Allocation sheets by discipline, we can now establish an overall and a detailed S/E calculation of the efficiency levels of labour for that period. The site clock in machine and timesheets should also be regularly cross checked with the allocation sheets to ensure accuracy.

Example of overall Project S/E

Overall Weekly S/E				
Wk No.	**Week Ending**	**Spent Hrs Weekly**	**Hrs Earned Weekly**	**Weekly SE**
8	20FEB15	238	127	1.87
9	26FEB15	221	145	1.52
10	05MAR15	354	218	1.63
11	12MAR15	708	512	1.38
12	19MAR15	1296	837	1.55
13	26MAR15	913	783	1.17
14	02APR15	1440	1174	1.23
15	09APR15	1490	1633	0.91
16	16APR15	1736	1723	1.01
17	23APR15	1641	1682	0.98
18	30APR15	1572	1562	1.01
19	07MAY15	1392	1378	1.01
20	14MAY15	1442	1355	1.06
21	21MAY15			
22	28MAY15			
23	04JUN15			
24	11JUN15			
25	18JUN15			
26	25JUN15			
27	02JUL15			
	Cumulative Project S/E	**14440**	**13129**	**1.10**

S/E by Discipline									
	Week 19			Week 20			Overall		
Description	Spent	Earned Hrs	S/E Ratio	Spent	Earned Hrs	S/E Ratio	Spent	Earned Hrs	S/E Ratio
Dismantle scope	10	10	1.00	45	50	0.90	115	120	0.96
Equipment Installation	115	122	0.94	66	61	1.08	652	602	1.08
Primary Containment	0	0	#DIV/0!	0	0	#DIV/0!	2332	1006	2.32
Secondary Containment	86	97	0.89	97	103	0.94	599	531	1.13
Cable Installation/Laying	476	485	0.98	189	179	1.06	3403	3176	1.07
Cable Terminations	122	81	1.51	94	90	1.04	347	228	1.52
Cable Testing	18	11	1.64	10	12	0.83	51	23	2.20
Earthing	55	56	0.98	51	53	0.96	308	492	0.63
Instrument Hook Up's	0	0	#DIV/0!	0	0	#DIV/0!	0	0	#DIV/0!
Lighting and Small Power	205	211	0.97	438	338	1.30	1531	1729	0.89
Tubing	8	8	1.00	15	32	0.47	237	355	0.67
Manifold Hook Ups	0	0	#DIV/0!	0	0	#DIV/0!	0	0	#DIV/0!
SI / Variation Works	307	307	1.00	437	437	1.00	4867	4867	1.00
	1392	**1378**	**1.01**	**1442**	**1355**	**1.06**	**14440**	**13129**	**1.10**

Process of establishing cause of inefficiencies

Where an S/E requires investigation, the Spent and Earned hours should be assessed for their accuracy to begin with.

- Are all excel formulas calculating and following through from the various measure tabs etc.
- A supervisor may well have missed installed quantities.
- A supervisor may have overestimated the spent hours.
- Are any variation hours identified correctly

When the above items have been checked to ensure the accuracy of the S/E figure, then the following question's need to be asked:

- Was there events affecting labour efficiency, below is a non-exhaustive list of common reasons:
  - No access to the workface
  - Non installed equipment
  - Congestion
  - Excessive labour
  - Absence of materials **either** free issue or Dornan supply
  - Other trades not completing preceding works as agreed
  - Inefficiency due to Acceleration
  - Weather
  - Poor/incomplete design

- Is there a deficiency in the tender norms allowed to complete a task?
- Was the work activity/intent perceived or understood by the estimator at tender the same as the work now is required on site, there may be grounds for a variation.
- Is there new work scope being installed by the crew not yet identified or quantified in the measure.

Once the cause of a poorly preforming activity has been established then it should be discussed as appropriate with the project management team to decide from there what action is required, to improve efficiencies and future performance

9. Updating/Reviewing the schedule

The schedule should be updated in line with project reporting requirements, generally weekly. The following considerations apply to schedule updates.

1. Only update labour related activity progress when you are happy that all earned data for the period is final.
2. Update any on site milestone completions for the period.
3. Update any pre-construction activities.
4. Re-schedule and milestone activity changes that have been communicated in the period.
5. If activity sequences have progressed out of sequence, which can happen, just ensure that this is the case.
6. When you reschedule the project, then review all activities and re-forecast activities as required with the Project Manager and site management team as appropriate.
7. Review the revised planned labour requirements after the update and assess how likely it is that achieving the planned progress is possible, and adjust where necessary in agreement with the site team.
8. Ensure after the update the planned and earned hours match the measure sheet figures.
9. Be mindful in the event that a project is delayed with respect to the baseline, that any reporting of same should be discussed with the PM first before incorporating into any reporting.

Bear in mind individual projects may request items in addition to the above e.g. what if scenarios, look ahead filters et

10. Progress Reporting TOP/Systems Tracking.

On projects where system turnovers are a key part of schedule delivery it will be required to track the progress of systems installation.

To do this accurately it will be required to allocate a system number to every item on the Measure sheet. In most cases the system's boundaries and contents will have to be defined by the client to ensure the commissioning program is supported by the construction handover sequence.

In general, this will not be an initial requirement as the schedule will be area based, and system completion and handover's usually become more relevant as a project heads to 50-70% complete.

Below is an example of the summary level required.

11. Delay/Event notifications.

In the event that a projects progress is being affected by delay's, it will be necessary to notify our client of the particulars of the delay including the cause and effect analysis of same.

Each individual contract will need to be reviewed to ascertain the requirements for notifying the client of delays and the consequences of same.

Using the information gathered from site personnel using all the documents described in this document will generally, if utilised properly, provide the detail and causes of the event.

It is important when reporting issues that they are accurate and any dates quoted for open and close dates need to be accurately reflected in any reporting.

12. Weekly Client issue Project Reports

Every Project must have a weekly report in place regardless of what the contract specifies in terms of reporting. The report should include all relevant project related records, below is a list of headings that should be used to select the project specific report contents

Some projects may not require all these headings and some may require additional info/reports, the PM should select & approve the contents headings for the reports and also it is important that an owner is specified for each heading and an overall owner to pull the report together, usually the planner.

Contents

13. Monthly Project Dashboards

Monthly Dashboard reports are required from each project, and should be submitted to the Planning Manager as per the outlined schedule of cut-off dates.

These reports are issued to the applicable Operations director and Managing Director each month and provide high level detail of a projects performance.

The templates are available at the commencement of the project and should be reviewed with the Planning Manager to agree what content is applicable to that project.

Depending on the stage of the project, the dashboard or narrative will be required, not both. E.g. at the start of a project when all systems are not yet in place the narrative will suffice

Dashboard Monthly Report

DORNAN

Monthly Project Report

Project Details			
Project		Month Period	
Job No		Project Name	
Contract Start Date		Man Hours Tender	
Contract Finish Date		Variation Hours	
Actual Start Date		Total Manhours	
L&AD's in Contract		Current Estimated Finish	
Planned Manpower		Actual Manpower	
Planned % complete		Actual % complete	
S/E			

Delay & Disruption	
Contract requirements time	
Contract requirements cost	
How are events/delay recorded and notified	
No of notifications issued	

Narrative of Key Points/Achievements/KPI's for this month

Narrative of Key Points/Achievements/KPI's for the month ahead

Project Area's of risk/concern

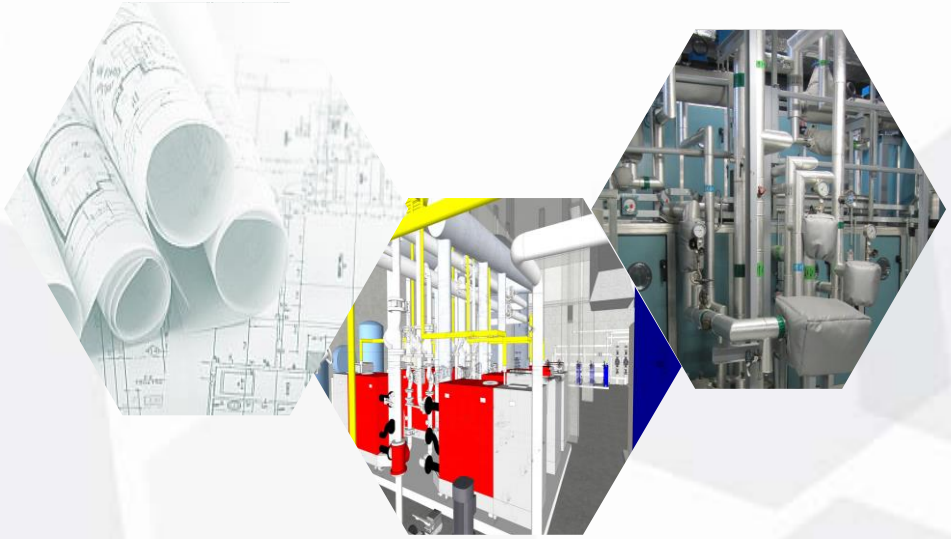
Narrative Monthly Report

DORNAN

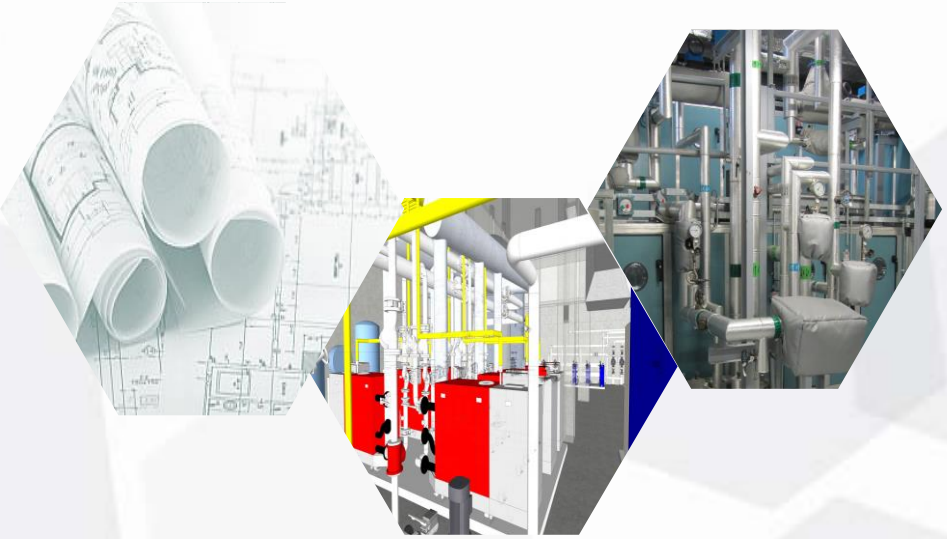
PREP (Project Execution Plan) REVIEW GUIDE

2018 B CLEARY

Index



Introduction



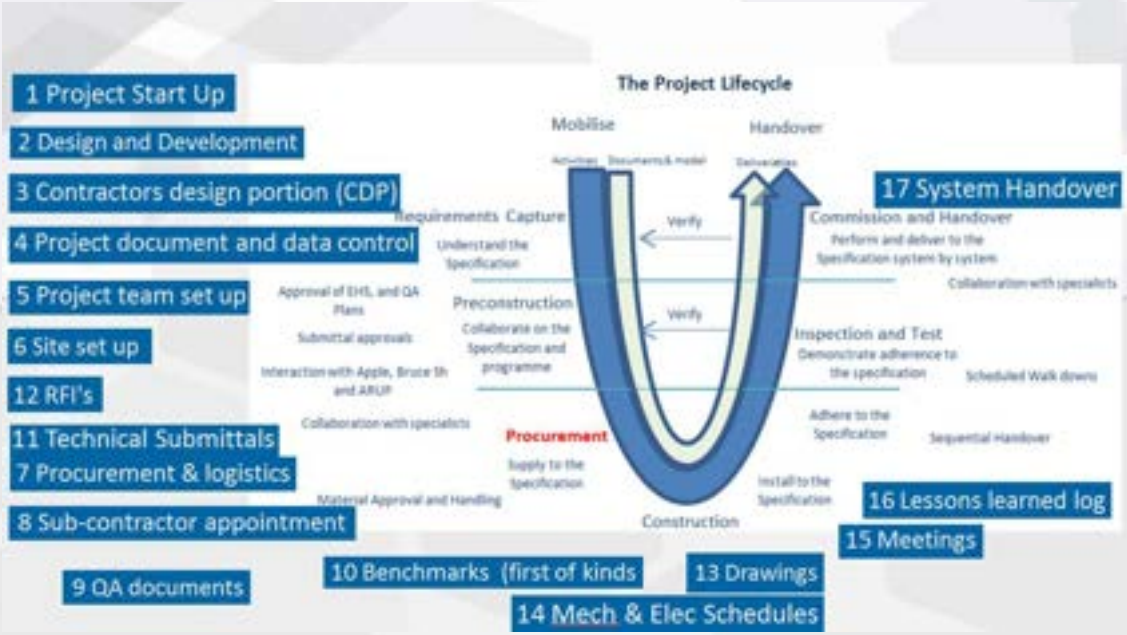
PREP (Project Execution Plan) Reviews are a structured process in which to guide an auditor through a project review but also acts as a guide to teams to understand how projects are structured.

This presentation summarises the key topics covered in the 17 sections of the PREP reviews from project start to handover.

Each slide presents an extract from each section of the PREP review and clarifies what are we trying to achieve at each stage of the project.

The 17 PREP Project Execution Plan Focus Areas

1 Project Start Up
2 Design and Development
3 Contractors design portion (CDP)
4 Project document and data control
5 Project team set up
6 Site set up
7 Procurement & logistics
8 Sub-contractor appointment
9 QA documents
10 Benchmarks (Firsts of kind)
11 Technical Submittals
12 RFI's
13 Drawings
14 Mech & Elec Schedules
15 Meetings
16 Lessons learned log
17 System Handover



The 17 PREP (Project Execution Plan) Focus Areas

A project goes through stages from preconstruction to procurement to installation to inspection, test and handover.

The PREP review can happen at any time in the project lifecycle and is structured to start by asking questions of project set up and work down and ask questions about handover and testing.

1 Project Start Up

2 Design and Development

3 Contractors design portion (CDP)

4 Project document and data control

5 Project team set up

6 Site set up

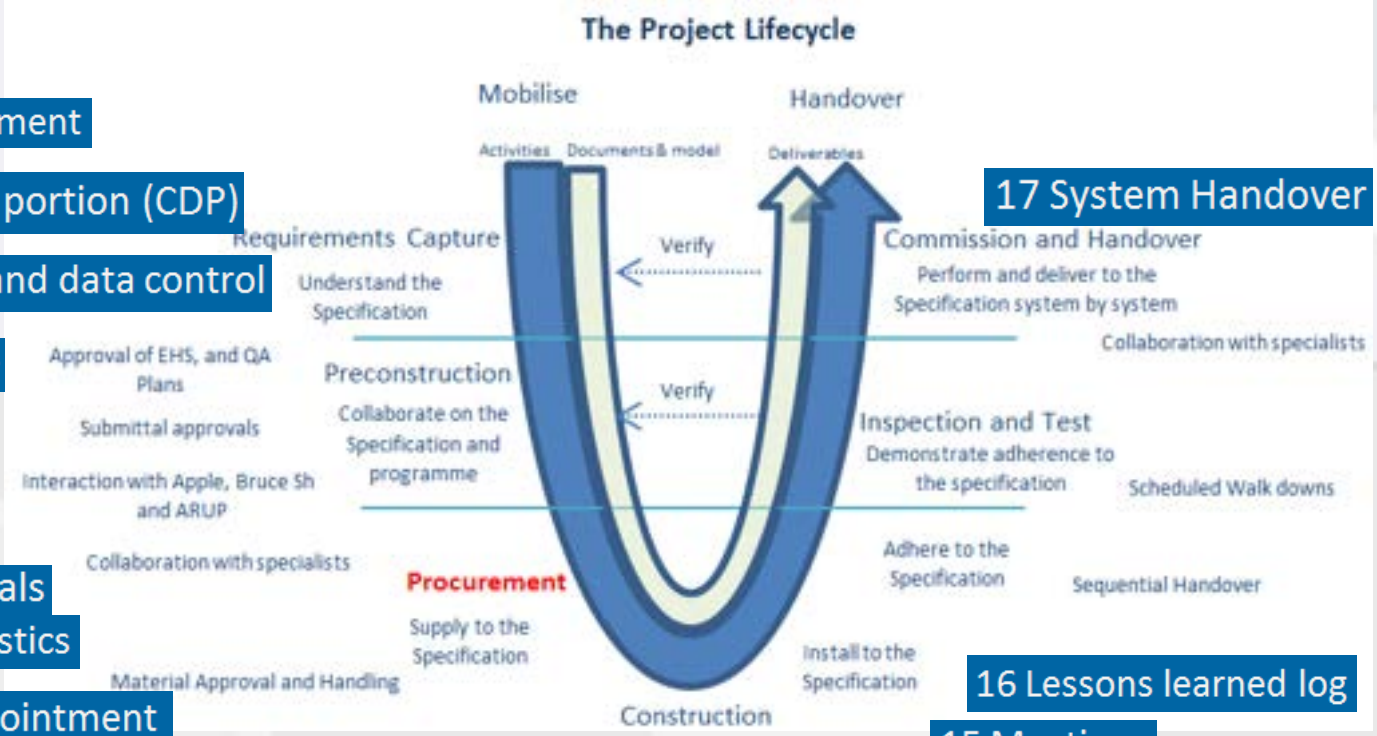
12 RFI's

11 Technical Submittals

7 Procurement & logistics

8 Sub-contractor appointment

9 QA documents



17 System Handover

16 Lessons learned log

15 Meetings

10 Benchmarks (first of kinds

13 Drawings

14 Mech & Elec Schedules

1.0 Project Start Up

- Do we know the scope?
- Is contract clear and changes understood, communicated & acknowledged ?
- Is the project resourced effectively?
- Where are the team coming from and when ?
- Are incoming & outgoing docs captured ?
- Are submittals started; are we prioritising items & managing submittals with long lead times ?
- Are Key document deliverables started ?
- Are we Communicating ? (Internal / External)

1.00	Project start up (project manager)
1.01 Scope Understood	Scope and tender review completed at review between pm and estimator
1.02 Scope Understood	Contract / Letter of intent received and signed
1.03 Scope Understood	Contract changes noted if applicable
1.04 Roles Assigned	Reporting structure & Organisation Chart for the project has been produced
1.05 Roles Assigned	Project Kick off meeting held with operations director and site supervisor
1.06 Work Ongoing	A full construction materials take off has been undertaken
1.07 Work Ongoing	IFT vs IFC comparison undertaken and report produced
1.08 Work Ongoing	CCS developed from agreed priced BOQ's
1.09 Work Ongoing	Onsite Dornan Document control established
1.10 Work Ongoing	Procurement schedule has been produced which is linked to the submittal register.
1.11 Work Ongoing	Project schedule has been produced
1.12 Work Ongoing	Site Health & Safety plan has been produced
1.13 Work Ongoing	Project Quality plan has been produced
1.14 Work Ongoing	Project Execution plan has been produced
1.15 Work Ongoing	Has a project design plan been implemented
1.16 Work Ongoing	A Commissioning plan has been established
1.17 Reporting	Project measures are being undertaken and reported back to head office - S curve available on request
1.18 Reporting	Progress meetings are held and recorded

2.0 Design and development as Applicable to Project - (Project Director / Project Manager)

- **Do we know the scope of our service i.e. is there an understanding of the client's requirements & is this formally documented?**
- **Where are the team coming from and when?**
- **Are incoming & outgoing docs captured?**
- **Is design process planned with client involvement?**
- **Are Key documented design deliverables known and started?**
- **Is progress reported – Are ongoing design changes captured in the Design Plan.** (deliverables development, reviews, changes).

2.00	Design and development - (project Director / project manager)
2.01 Scope Understood	Has a client brief of the design been undertaken and deliverables defined
2.02 Scope Understood	Have the clients requirements been formalised by email or in a letter
2.03 Scope Understood	Has the scope of design services been reviewed
2.04 Roles Assigned	Have engineering resources been identified
2.05 Roles Assigned	Have Dornan Deliverables been identified
2.06 Work Planned	Is the design plan up to date
2.07 Work Planned	Has preliminary design been issued to client for review
2.08 Work Ongoing	Has a detailed design been completed and accepted by the client team
2.09 Work Ongoing	Has a written statement of data, assumptions, methods and particular requirements been produced
2.10 Work Ongoing	Has a designer risk assessment safety and health review been produced
2.11 Work Ongoing	Are all calculations initialled by the person checking them
2.12 Work Ongoing	Has a design change process been implemented to cover design changes made by DORNAN
2.13 Reporting	Are design reviews recorded and kept with the design plan

3.0 Contractor Design Portion CDP - (Project Manager)

- Do we know What the Design Scope is ?
- Is the service provider acceptable to the client?
- Is the process of comparing service providers completed & documented?
- Is there a formal communication / contract in place?
- Are changes tracked?

3.00	Contractors design portion (CDP) - (project manager)
3.01 Scope Understood	Has a list of CDP items been identified
3.02 Roles Assigned	Has a list of services providers been generated and bid tab formulated
3.03 Work Ongoing	Have letters of enquiry been issued to more than one provider in order to get a broad view of the costs
3.04 Work Ongoing	Has client approval been sought to provide the service provider
3.05 Work Ongoing	Has a service level agreement been put in place
3.06 Work Ongoing	Has a notice to proceed been issued to the contractor
3.07 Work Ongoing	Has an appointment of service providers checklist been completed
3.08 Reporting	Are change order requests being tracked
3.09 Reporting	Is design change register up to date

4.0 Project document and data control (Project Manager)

- **Have we control over the documentation associated with the project?**
- **Is the server or equivalent platform set up ?**
- **Is Submittals Register tracked to approval?**
- **Is RFI Register tracked to closure ?**
- **System Turnover Register with owner assigned & plan in place?**
- **Schedules in use are controlled and ownership assigned in the team (**Cables, Luminaires, Valves, Lines, Weld History, Plant… for example**)**

4.00	Project document and data control (project manager)
4.01 Scope Understood	Process for issuing and receiving information agreed and established
4.02 Reporting	An incoming & outgoing drawing and document register including specifications has been established
4.03 Reporting	Has a project folder structure been established
4.04 Reporting	Technical submittal register has been established and is up to date
4.05 Reporting	RFI process has been agreed and RFI register established
4.06 Reporting	Are mech and elec schedules in place (cable schedule, plant schedules, equipment schedules)
4.07 Reporting	A test pack register has been established and approved
4.08 Reporting	Have project handover documents (O&M Manuals) been identified and format approved

5.0 Project Team set up (Project Manager)

- Is the Project Effectively Resourced?
- Are we engaging with Supply Chain?
- Are we engaging with other contractors?
- Are we communicating?
- Are we planning?

5.00	Project team set up (project manager)		
5.01 Role Assigned	Site team established to match scope and size of project		Sample Roles and Responsibilities
5.02 Role Assigned	Resource management including manpower and equipment has been identified and is tracked	1202	Sample Roles and Responsibilities
5.03 Role Assigned	Procurement scheduling and communication with vendors is in place and meeting minutes are recorded,distributed & actioned	400	Sample submittal register
5.04 Role Assigned	Service co-ordination and communication with other trades has been established		Guidance doc on coordination
5.05 Role Assigned	Environmental and health and safety management and monitoring has been established	1001	Sample EHS Plan
5.06 Role Assigned	Document control & Administration including control of drawings and documentation - role identified?	201	Sample Roles and Responsibilities
5.07 Role Assigned	QA team have been identified to match scope and size of project		Sample Roles and Responsibilities
5.08 Role Assigned	Progress reports set up and issued to client	1202	Sample Progress Report
5.09 Role Assigned	Project engineering has been set up and engineering lead clearly identified		Sample Roles and Responsibilities
5.10 Role Assigned	Quality planning including early identification of hold points on the project		Sample Inspection & Test Plan
5.11 Role Assigned	Project commissioning planning set up - role identified?		Sample Roles and Responsibilities
5.12 Role Assigned	Project planning and control - role identified?		Sample Roles and Responsibilities

6.0 Site set up (project manager)

- Can we move to site?
- Have we enough space for office and stores?
- Are we tracking staff & sub-contractors?
- Can the site accommodate our materials?
- Is site accommodation and infrastructure suitable?

6.00	Site set up (project manager)
6.01 Scope Understood	Site set up requirements have been identified, security, lighting, power, voice & Data and office accomodation
6.02 Work Planned	Lay down area has been identified / is in place
6.03 Work Planned	Site storage facilities identified / in place
6.04 Work Planned	Clock in/out system set up and running
6.05 Work Planned	Site server has been set up and access made available to all site team
6.06 Work Planned	Site welfare facilities in place (Drying room / canteen)
6.07 Work Planned	Company signage, Safety, health and environmental signage & boards in place
6.08 Work Planned	Actions in the event of fire identified and communicated to all staff

7.0 Procurement & logistics - site purchasing / procurement team

- **Do we know our preferred Supply Chain?**
- **Can the site accommodate our materials and deliveries?**
- **Can we handle logistics and handling of our deliveries?**
- **What stock control is in place?**
- **How do we manage (**storage & reporting**) non-conforming material?**
- **Is site accommodation and infrastructure suitable (**Broadband, desks, drying room, welfare**)?**

7.00	Procurement & logistics - site purchasing / procurement team
7.01 Scope Understood	Has a procurement bid summary been prepared (bid tab)
7.02 Scope Understood	Material storage area is acceptable and ensures material is segregated & protected from deterioration and damage
7.03 Roles Assigned	Full time stores person on site with access to PO report weekly.
7.04 Work Ongoing	Quarantine area and log established containing reason item is in quarantine and who removes item from area and why
7.05 Work Ongoing	Have supplier questionnaires been completed and submitted to head office
7.06 Work Ongoing	Procurement & delivery schedule is up to date
7.07 Work Ongoing	Material & equipment are fully inspected upon delivery to site using packing lists
7.08 Work Ongoing	Materials delivery dockets reviewed to ensure correct delivery of items
7.09 Reporting	Materials delivery dockets signed and copied. Copies / originals sent to head office with a copy on site
7.10 Reporting	Have materials return dockets been completed for materials returned to stores
7.11 Reporting	Major items of plant being taken from stores are recorded
7.12 Reporting	Are "FREE ISSUE" over, short or damaged reports completed and issued to client
7.13 Reporting	Materials order sheets and requisitions are filed and easily retrievable

8.0 Sub-Contractor Appointment – (Commercial Team)

- What approved sub-contractors are on site?
- Are relevant insurances & contract obligations with sub-contractors in place for the duration of the project?
- What programme are sub-contractors working to?
- Who are the sub-contractors reporting to?
- Are sub-contractor teams consistent & competent?
- Will sub-contractors inspect & test in line with DEL requirements?

8.00	Sub-contractor appointment - commercial team
8.01 Scope Understood	Is there a comprehensive list of sub contractors on site.
8.02 Scope Understood	Have CDP Sub-contractors been identified and Engineering inputted to sub contract requirements.
8.03 Roles Assigned	Have all sub contractors signed up to the sub-sub contractor documents?
8.04 Work Planned	Have all sub contractors issued a program and delivery schedule?
8.05 Work Ongoing	Have all sub contractors issued relevant insurances?
8.06 Work Ongoing	Have all sub contractors submitted method statements?
8.07 Roles Assigned	Have all sub contractors submitted details & qualifications of their onsite team ?
8.08 Work Planned	Have all sub contractors submitted an inspection and test plan for their scope ?

9.0 QA Documents

- Is there an approved Quality Plan for the job?
- Who is responsible for Quality on the project?
- Are site standards understood by the team?
- Is the plan for inspecting and testing each system understood and communicated ?
- Are inspection records being maintained?
- Are we tracking snags and improving ?

9.00	QA documents - quality team
9.01 Scope Understood	Has the site quality plan been reviewed and is it current
9.02 Scope Understood	Is there a Quality Induction for all / new personel
9.03 Scope Understood	Have ITPs been reviewed as relavent to the project
9.04 Work Ongoing	Are QA procedures readily available and if so where are they kept
9.05 Work Ongoing	Are site QA team reviewing the IFC drawings prior to issue
9.06 Work Ongoing	Are the site QA team reviewing the technical submittals
9.07 Work Ongoing	Are the site QA team completing inspections of site benchmarks and ensuring all works are to the same standard?
9.08 Reporting	Is a sub contractor general punch list in place and up to date
9.09 Reporting	Records are established and maintained on all inspections

10.0 Benchmarks (first of kinds) - Quality / Engineering

- Are we working to benchmarks / Firsts of Kind?
- Are they being reviewed & approved?

10.00	Benchmarks (first of kinds) - Quality / Engineering
10.01 Scope Understood	Has a Benchmark / FOK register been established
10.02 Work Planned	Is the Benchmark schedule up to date
10.03 Work Ongoing	Are all Benchmarks brought to status A
10.04 Reporting	Are all Benchmarks reviewed by client and signed off as acceptable

11.0 Technical submittals - Engineering

- **How many submittals are on the register & are the revisions identified for each one?**
- **How many are approved?**
- **Are we prioritising submittals with long lead times & priority items?**
- **Are they to a complete consistent standard (**highlighted plant, ref to drawings, spec compliance statement with each**)?**
- **Are alternatives being proposed?**

11.00	Technical submittals - Engineering
11.01 Work Planned	Have individual numbers been assigned to each technical submittal
11.02 Work Ongoing	Have all technical submittals been logged on the submittal register
11.03 Work Ongoing	Is the submittal register up to date?
11.04 Work Ongoing	Has a CDE been completed on all equipment and components (Comply / deviate / exception)
11.05 Work Ongoing	Are all technical submittals brought to a status A
11.06 Work Ongoing	Do tech subs contain drawings / diagrams as required
11.07 Work Ongoing	Are tech subs issued in sufficient time in order to meet material site dates
11.08 Work Ongoing	Have value engineering alternatives been offered for specified equipment

12.0 RFI's - Engineering

- How many RFIs are on the register & are the revisions identified for each one?
- How many are responded to and in suitable time?
- Are the replies sufficient to answer what was asked ?
- Can we categorise the justification for each request?
- Who manages RFIs to completion?

12.00	RFI's - Engineering
12.01 Work Ongoing	Do RFIs have individual numbers assigned
12.02 Work Ongoing	Are all RFIs logged on the register
12.03 Work Ongoing	Is the RFI schedule up to date?
12.04 Work Ongoing	Does the RFI schedule show who receives responses
12.05 Work Ongoing	Do RFI's remain open until the action is completed?
12.06 Work Ongoing	Is there an RFI category on the RFI to determine why it is being raised (design issue, scope gap, error in construction, etc.)

13.0 Drawings - Engineering

- Have we a register which shows the status of each drawing?
- Are current drawings available for use?
- How do we manage retired drawings?
- Do we know what docs have gone to each supervisor and subbie and vendor ?
- What % of the drawings are As Built?

13.00	Drawings - Engineering
13.01 Scope Understood	Are drawings being updated and issued to site
13.02 Work Ongoing	Drawing register updated with the date received or drawings stamped with received date & responsible engineer per drawing
13.03 Work Ongoing	Drawing sticks up to date with most recent drawings
13.04 Work Ongoing	Are drawings being as-built on site on an ongoing basis
13.05 Work Ongoing	Superseded drawings removed from circulation and marked accordingly
13.06 Work Ongoing	Are all Dornan IFC drawings brought to status "A"
13.07 Work Ongoing	Is there a schedule of As-built drawings to be completed by DORNAN and agreed with design team / client (typical drawings generally don't require as-build)

14.0 Mech & Elec Schedules - Engineering

- **How do we know the extent of what we are dealing with in terms of numbers of equipment and meters of pipe, duct, cable tray and cable ?**
- **How do we record the % installed of the example items above?**
- **How are changes to the systems in the project managed & communicated?**
- **What schedules are used and for what purpose (**tracking, reporting etc**.) ?**
- **Are we effectively managing the scope of the project?**

14.00	Mech & Elec schedules - Engineering
14.01 Scope Understood	Does the schedule have system numbers per line to identify all systems that are relevant to the line (cable / pipework, etc.)
14.02 Scope Understood	Are schedules updated with RFI & design changes
14.03 Scope Understood	Do the schedules incorporate all sources and destinations for cable / pipe etc. as required
14.04 Scope Understood	Is the schedule available to the commercial team to allow them to track progress and establish costs etc
14.05 Scope Understood	Have drawing measurements been verified on site using a measuring wheel to ensure there is no error in the drawings leading to inaccurate measurements and purchases
14.06 Scope Understood	Have distribution board schedules been updated to reflect ongoing changes
14.07 Scope Understood	Has a mechanical and electrical interface schedule been generated to ensure there are no scope gaps?

15.0 Meetings - All

- What meetings are attended externally and internally in the Dornan Team?
- How are actions tracked to closure from these meetings ?

15.00	Meetings - All
15.01 Scope Understood	Do meetings cover all aspects of the project including H&S, commercial, engineering, BIM, site issues etc.
15.02 Reporting	Are the minutes generated from meetings issued to all parties for review
15.03 Reporting	Are minutes clear and concise with actions for relevant personnel
15.04 Reporting	Close out dates to be identified and tracked in meeting minutes to ensure closure

16.0 Lessons learned log - All

- What are we doing now that we did in the past and works well ?
- Are we effectively communicating the knowledge / improvements?
- What are we definitely doing differently now compared to before ?

16.00	Lessons learned log - All
16.01 Reporting	Is there a lessons learned log
16.02 Reporting	Is it available to all on the server and do all staff know where it is located
16.03 Reporting	Is the lessons learned log updated frequently and are all team members contributing

17.0 System Handover - Commissioning Manager

- **Have we a list of systems to be installed ?**
- **Have we a list of tests planned and completed per system (**using cable schedule, line list **)?**
- **Are test packs format approved and test records recorded to date ?**
- **Have we enough people to administer walk downs and completion of tests and handover of paper and systems ?**
- **Who's started the O&M?**
- **Who's as building?**
- **Who's tackling the snags?**

17.00	System Handover - commissioning manager
17.01 Work Ongoing	Have snag sheets been signed off by the client
17.02 Work Ongoing	Have inspection templates been approved & signed off by the client
17.03 Work Ongoing	Are calibration certificates for test equipment included in test packs
17.04 Work Ongoing	Have equipment schedules been marked up with results of tests
17.05 Work Ongoing	Have all system been pre-commissioned prior to client witnessing
17.06 Work Ongoing	Has a training schedule been agreed for all systems / is training complete for all systems
17.07 Work Ongoing	Does the O&M manual cover all aspects of the index on 4.13.2 of QP13 and has it been approved by the client / main contractor
17.08 Reporting	Are all test results contained within the test pack
17.09 Reporting	Have all details of the tests been recorded, attendees, location, date and time etc.
17.10 Reporting	Have all Systems been tested fully in accordance with the approved Test / Check sheets
17.11 Reporting	Do test packs contain a list of snags and snag closure dates
17.12 Reporting	Have testing documents been signed by the client
17.13 Reporting	Has a commissioning method statement been produced and signed off
17.14 Reporting	Have all system completions been witnessed by client
17.15 Reporting	Is technical training recorded and signed off by DORNAN and trainee

DORNAN

Mechanical / HVAC | Electrical | Instrumentation

Thank You

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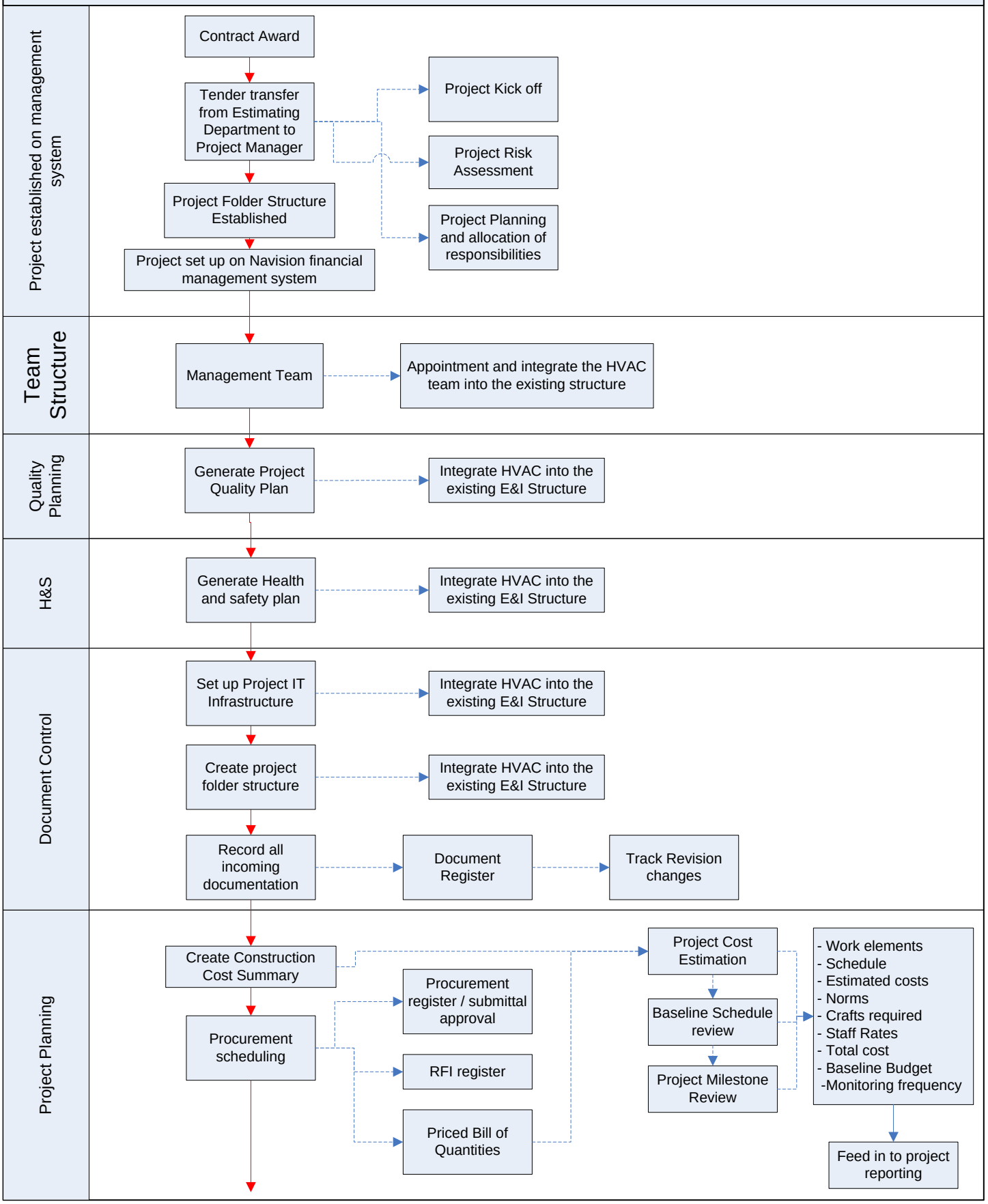
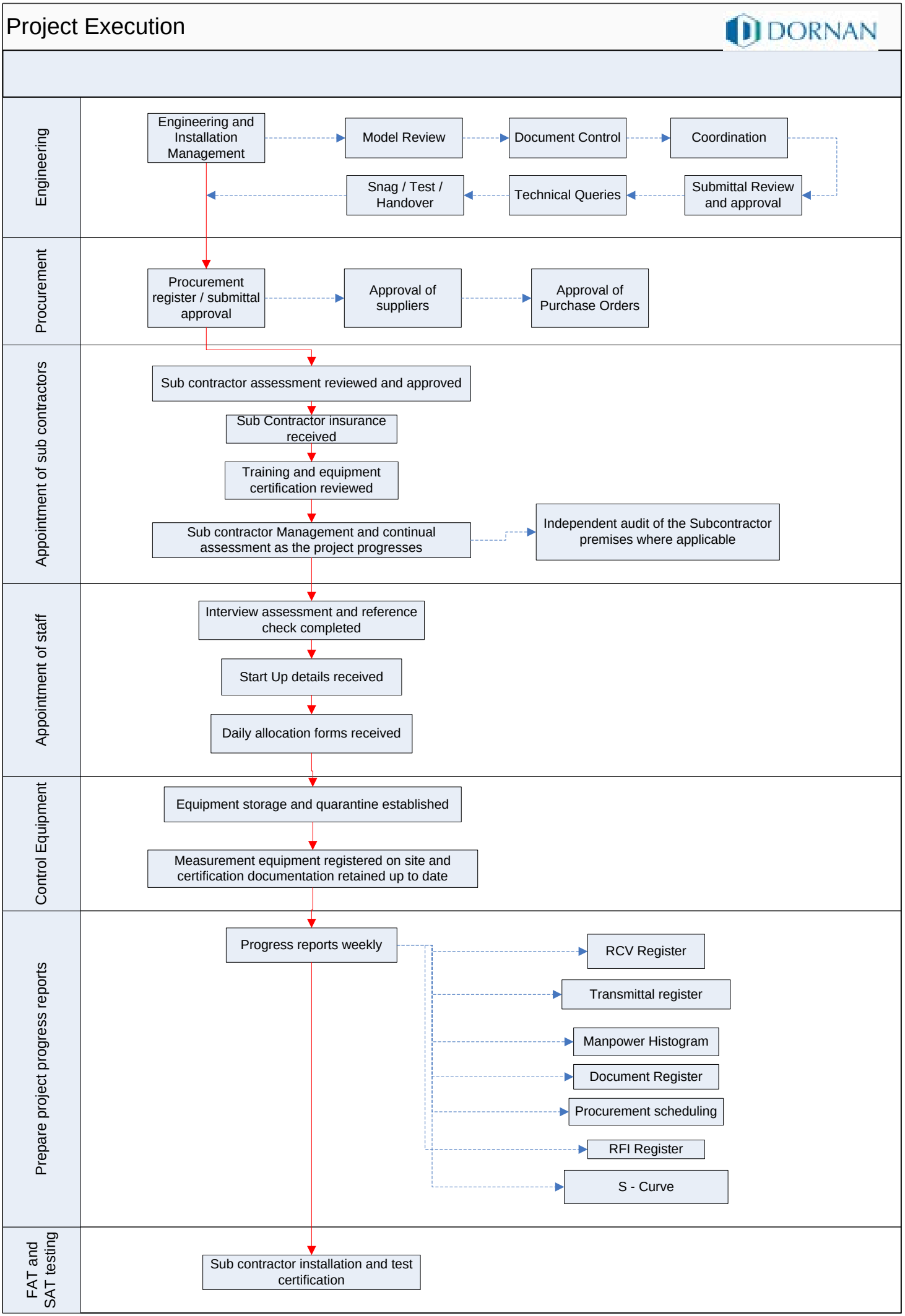
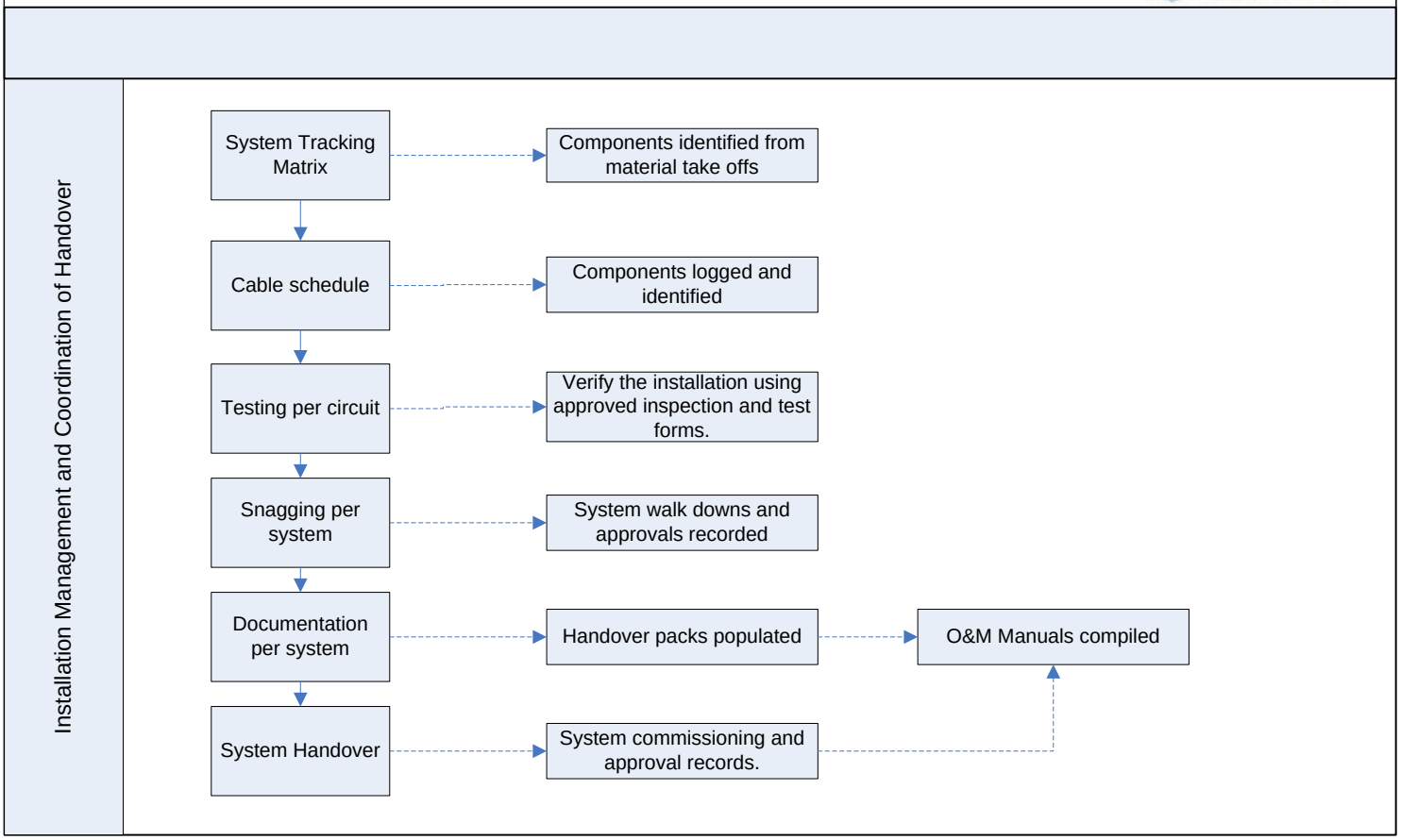
Project Execution



Project Execution



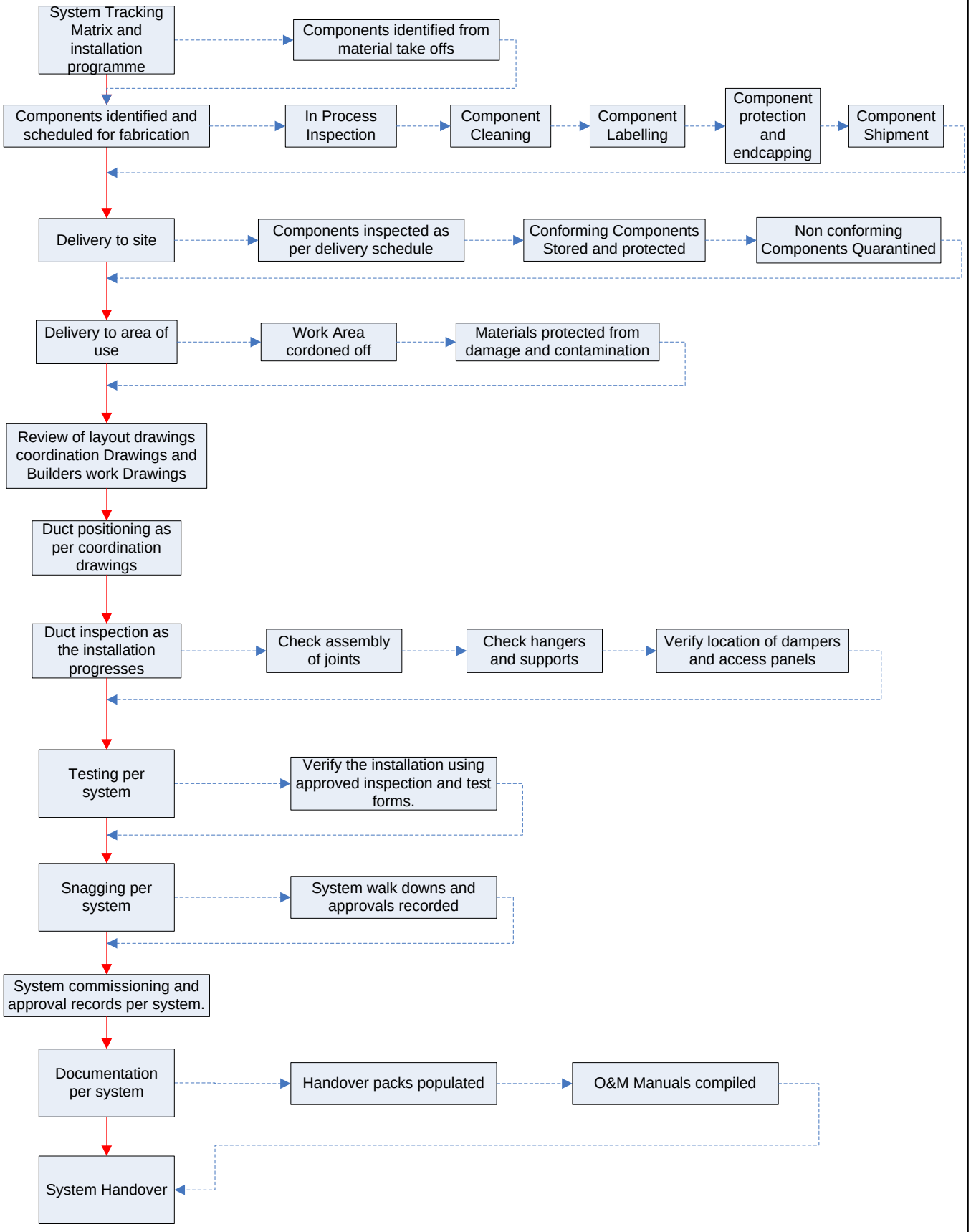
Project Execution



Project Execution

DORNAN

Installation Management and coordination of Handover



Membership Certificate

Dornan Engineering Services Limited

Is a Member of RoSPA until

31st July 2019

As a member, this organisation supports RoSPA's mission to save lives and reduce injuries

Membership No: **M 408576765**

Membership Postcode: **SW7 4ES**

Errol Taylor
Chief Executive of RoSPA

The Royal Society for the Prevention of Accidents
Patron: Her Majesty The Queen
Registered Charity No. 207823

From: Mawby, David
To: McGauran, Shay; Acheson, Courtney
Subject: Safety Alert - Threading Machine
Date: Monday 25 March 2019 15:29:29
Attachments: image001.jpg
image002.jpg
image003.png
image004.jpg

Hi Both,

Below is an email from Paul Flynn to all directors requesting that they communicate this out to all their teams.

Attached is an example of a safety alert featuring part of a toolbox talk.

David Mawby CMIOSH
UK EHS Manager

Dornan Engineering Services Ltd.
Mechanical ◆ Electrical ◆ Instrumentation ◆ Contractors ◆ Engineers
114a Cromwell Road, London,
SW7 4ES
Office line: 44 207 340 1030
Mobile: 44 77 1537 2026
Email: david.mawby@dornan.co.uk

Please have a look at Dornan's Mental Health Video
https://www.youtube.com/watch?v=E7sB6t35QWA

Before you print this email please consider the environment.

From: "Flynn, Paul" <paul.flynn@dornangroup.com>
Date: 28 February 2019 at 18:23:37 GMT
To: "Hogan, Derek" <derek.hogan@dornangroup.com>, "Meagher, Fergal" <fergal.meagher@dornangroup.com>, "Keohane, Ronan" <ronan.keohane@dornan.co.uk>, "Herbert, Brendan" <brendan.herbert@dornangroup.com>, "White, Bryan (Director)" <bryan.white@dornan.co.uk>, "Morley, Paul" <paul.morley@dornangroup.com>, "Keating, Brian" <Brian.Keating@dornangroup.com>, "Connolly, Aoife" <Aoife.Connolly@kantorenergy.com>, "Culloty, James" <james.culloty@dornangroup.com>, "Dougan, James" <james.dougan@dornan.co.uk>
Cc: "Lonergan, Oliver" <oliver.lonergan@dornangroup.com>, "Foskin, Brian" <brian.foskin@dornangroup.com>, "O'Shea, Tony" <tony.oshea@dornan.co.uk>,

"Casey, Agnes" <agnes.casey@dornangroup.com>
Subject: Safety Alert - Threading Machine

Derek / Fergal / Ronan / Brendan / Bryan / Paul / Aoife / Brian / Jimmy / James,

Please find attached our safety alert on the safe use of Threading Machines following an incident in January.

Can you please ensure the alert is communicated to the supervision and trades who use threading machines.

The key learning is to only use plant and machinery per the instructions given by the manufacturer and keep the work area tidy.

Please use the alert to review the housekeeping around work stations and check that any mechanical plant is being used according to the manufacturer's instructions.

Please have the site managers in each project sign the tool box talk / training given to confirm the message has been imparted and get the signed training record returned to Brian Foskin / Agnes Casey.

Thank you,

Paul

Paul Flynn,
Group Operations Director

DORNAN

SAFETY ALERT

Hand Injury while using RIGID 300 – THREADING MACHINE

Project: 755; 245 Hammersmith Road

Date of Incident: 15/01/2019

Details of Incident:

The Injury was sustained when an operative on site was using a RIGID 300 threading machine to join a drain pipe (secured in the machine) and a valve. The injured party then accidently stood on the operating pedal of the machine which caused the assembly to rotate and catch his hand against the body of the machine.

The injured party was taken to A&E to be assessed but luckily only sustained bruising.

Photo on the right: Demonstration carried out showing the IP with his hand in the vicinity of the rotating parts. The arrow indicates the anti-clockwise direction of travel.

Investigation

An investigation in to the incident was conducted.

It had become "the norm" to fit valve to pipework while the pipes were secured in the machine. The instruction manual of the machine was reviewed and it was found that this is not permitted by the machine manufacturer. Pipe and fittings should be assembled on a bench mounted vice or other suitable means of securing work pieces.

Housekeeping around the unit was poor at the time of the accident.

Recommended corrective actions

All sites must conduct a toolbox talk on this safety alert to high light the dangers of using these machines.

All site management must ensure;

- Site specific risk assessments for these machines must include the manufacturers limitations of use and other safety precautions. Means of securing workpieces must be made available.
- Housekeeping around these units must be maintained to a high standard in order to ensure safe access for the operator. The operating pedal must be placed in a position that prevents unintended starts.

For more information: michelle.obrien@dornangroup.com, david.mawby@dornangroup.com and brian.foskin@dornangroup.com

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Tool-box Talks & EHS Consultation Record

Project Name:	LSE	Ref no:	759	Given by:	Julie

Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
MARCIN (FHFL LTD)	01/03/19		GWF
GEORGE BURLA	01/03		GWE
DRAGOS POPA	01/03/19		GWE
N. SUPROVICI	01/03/19		GWE

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

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Tool-box Talks & EHS Consultation Record

Project Name:	LSE	Ref no:	759	Given by:	Julie

Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
C. Irvine	1/3/19		B&G Elec.
N. Dedyuk	1/3/19		B&G
Osman Saliu	-11-		B-G.
Neil Allen	"		B&G
L. Andrews	"		B&G
S. Asciuti	"		B+G
A. Segaver	"		B+G
Ivan Youkov	"		GWE
Majid Hosseinzadeh	"		GWE
Ruben Freitas	"		GWE
N.S. Goian	-11-		GWE
J. Burns	-11-		WTC
D Kilton	"		WTC
Chorrew	"		WTC

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

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Project Name:	LSE	Ref no:	759	Given by:	Julie

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Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
A. Balogun	1/3/19		RDS
P. LUMLEE	1/3/19		"
A. Knight	1/3/19		RDS
A. Brown	01/03/19		R.D.S.
ILJA ROGAN	1/3/19		RDS
C. SELVAGE	1/3/19		RDS
D. Shortall	1/3/19		RDS
I. PAMPLING	1/3/19		RDS
D. Robinson	1/3/19		RDS
D. NAIDIN	1/3/19		RDS
T Roff	1-3-19		RDS
L. Duke	1-3-19		RDS
A. DEMUTA	1-3-19		RDS
M Beckingham	1-3-19		RDS
Md. Jobayar	1/3/19		RDS
T. BAYAYI	1/3/19		RDS

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

DORNAN

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Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
GABRIEL POPA	1/03/19	[signature]	DORNAN
STEFAN SURA	1/3/19	[signature]	GWE
D. POPA	1.3.19	[signature]	WTL
M. Koupeky	1.3.19	[signature]	WTL
ALEX. SAMSON	—"—	[signature]	DORNAN
Bill miller	—"—	[signature]	B+G

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

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Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
Paul Williams	01-03-19	P. Williams	P. Mech
LEO ENE	01.03.19		P. MECH.
R. MINUT	01.03.19		PMECH
MARCIN_B.	01/04/19		P. MECH
G. Stroe	01.03.19		E MECH
P. Ciuperca	01.03.19		P MECH
I. SONTEA	1.3.19		PMECH
NECULAI TUDOR	-11-		GWE
G Bădulescu	1 3 19		GWE
IOANNIS KOULIS	1/03/19		GWE
DRAGOS MARIN	1/03/19		GWE.
Artur Kvesko	-11-		GWE
TUDOREL PAUN	1/03/19		GWE
M. Boyana	1/03/19		GWE
N. SCHMIDT	01/03		ROYCE
M. VIEIRA	01/03/19		ROYCE

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

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Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
DWOBS	1/3/19		Dornan
E. MITROFAN	1-3-19		GWE
COSMIN-SORIN M.	01.03.19		GWE
S. BOBCHEV	3.03.19		ROYCE

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

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Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
ALEX [illegible]	1-3		GWE
STAN SZYLAR	1-3		GWE
James ADAMS	1-3		GWE
Joe [illegible]	1-3-19		GWE
CIPRIAN M.	01.03.19		GWE
DRAGOS POPA	01/03/19		GWE
IONUT NEGULA	01103/19		GWE
[illegible]	01/03/19		GWE
[illegible]	01/03/19		GWE
JAKE	01/3/19		GWE
P. OGNERUBOV	01-03-19		GWE
RWEBB	01.03.19		GWE
[illegible]	01.03.19		GWE
A. MARKOUSAS	-11-		GWE
Colin Hordon	-11-		GWE
PETRUS ONETIU			GWE

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

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Tool-box Talks & EHS Consultation Record

Project Name:	LSE	Ref no:	759	Given by:	Julie

Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
D. BRUNDLE	1.3.19		SYSCOM
S. HORAN	1.3.19		SYSCOM
J. KOSTER	1.3.19		SYSCOM
C. ANDREW	1.3.19		SYSCOM
J. GRAHAM	1.3.19		SYSCOM
J. CASS	1.3.19		SYSCOM
CARLILE-GWEN	"		"
PAUL RIGBY	"		"
GEORG PESKOV	"		SYSCOM
ANDRE MAY	"		SYSCOM
JOHN LUFF			SYSCOM
A. O'CONNOR	"		SYSCOM
O. HENRY	"		SYSCOM
DAVID DAVIS	1/3/19		GWE
BRENDAN WARD	"		GWE
VLAD MILEA	"		GWE

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

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KPS

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Tool-box Talks & EHS Consultation Record

Project Name:	LSE	Ref no:	759	Given by:	Julie

Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
Lloyd Vaughan.	1/3/19		KPS.
J LANALET	1,		KPS
Joe Rance	7,		KPS
Joe Cheshire	11		KPS
Ray O	11		K P S
DORMAN T	11		KPS
A Eldridge	11		
J McWatt	11		KPS

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

SAFETY IS IN OUR DNA DETECT AVOID ACT

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Tool-box Talks & EHS Consultation Record

Project Name:	LSE	Ref no:	759	Given by:	Julie

Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
D BADOCK	01/03/19		B & G
L Saltgate	01/3/19		B + G
G Jones	"		B+G
M Merrill	"		" B+G
J. Alexander	"		"
M THOMPSON	"		"
Luke Baillie	"		B + G
Joe Andrews	"		B+G
Jake Ellingham	"		B+G
A. Clark	"		"
C. Singleton	"		B+G.
S Alexander	"		"
DODWELL	"		B+G
S. White	"		B + G
LONGBOTTOM	"		W.L

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

SAFETY IS IN OUR DNA

DORNAN	Tool-box Talks & EHS Consultation Record				
Project Name:	LSE	Ref no:	759	Given by:	Julie

Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
M. CEORCEA	01/03/19	[signature]	GWE
D. PARMENTER	"	[signature]	"
ATTILA KISS	1/3/19	[signature]	GWE
GHEORGHE AGATINEI	01.03.19	[signature]	GWE
ROBERT BALINT	01.03.19	[signature]	GWE
ADRIAN STANEK	010319	[signature]	GWE
CUBAS GOSTHUTIS	01 0319	[signature]	GWE
Usman Noor	01/3/19	[signature]	GWE
I. GRAM	1/3/19	[signature]	GWE
NICOLAE PAPOI	01.03.19	[signature]	GWE
D EATHAM.	" "	[signature]	GWE
J CHANDLER	" "	[signature]	GWE
Rudolph Roberts	"	[signature]	GWE
M. McHeeley	"	[signature]	GWE
A. BMCO		[signature]	ROYCE
Ronnie JEFFS	"	[signature]	TEXUNA
F. DORAN	"	[signature]	GWE

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

SAFETY IS IN OUR DNA DETECT NOTIFY ACT

DORNAN

Tool-box Talks & EHS Consultation Record

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Subject: Yellow Jacket, drying room clear our, safety aware, safety alert threading machine

Reference Section(s) in EHS Manual:

Name (Print)	Date attended	Signature	Employer
ALEXANDRU RADOI	01.03.19		ULTRASOFIRE
RADU CHIRICA	01/03/19		— " —
Yload Meagyes	01 03 19		— " —
MAXIM BALAN	01.03.19		— " —
ANDREI BRABU	01.03.19		— " —

Feedback: Comments or concerns raised by attendees

Further action required	By whom?	By when?

SAFETY IS IN OUR DNA

Typical Project Team
Site Team Roles and Responsibilities

MARK SIMMS
Project Manage

- Focal point and Project lead
- Project Planning and Programming
- Health and Safety

ROB LONERGAN
Mechanical Lead

- Focal point for Mechanical Services
- Drawing co-ordination and BIM
- Mechanical Commissioning lead
- Riser pre-fabrication

NIALL MARTIN
Senior Construction Manager

- Mace's site point of contact
- Responsible for Dornan Construction Manager on site
- Co-ordination Basement, Ground and L1
- Lead QA co-ordinator

KARLSHIRLEY
Senior Electrical Engineer

- Design, engineering and co-ordination of BMS, Fire alarm (inc interface with life safety systems, Generator, LV Panels, CHP and PV
- Electrical Commissioning lead

HARVEY JONES
Senior Construction Manager

- Point of contact for logistics L2 - Roof
- Managing floor L1 - Roof
- Site health & safety
- Electrical QA
- Floor handover documentation

DANIEL JAGGER
Mechanical Engineer

- Co-ordination of mechanical commissioning
- Drawing co-ordination
- Design co-ordination

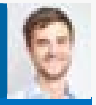
SEAN MCMULLAN
Mechanical Construction Manager

- Point of contact for logistics basement, ground floor and level 1
- Managing Mechanical basement, ground floor and level 1

TARA PARMAR
Electrical Engineer

- Design, engineering and co-ordination of Data, DB's, Busbar, PDU/UPS, Lighting Control, Lighting and LPS

NIALL CHAMBERS
Mechanical Engineer



- Co-ordinating risers
- Riser Design Engineer

David Miller
Mechanical Supervisor

- Managing floors L2 to Roof
- Site health & safety
- Mechanical 2nd - roof level QA
- Floor handover documentation

JAMES KEATING
Senior Quantity Surveyor

- Financial Reporting
- Monthly financial application

TADHG CURTIN
Quantity Surveyor

- Supplier & Sub-contractor valuations
- Cost reporting

ANITA CICHON
Site Administrator

- Document controller
- General administration

SARA HASSANI
Project Controls/Planning

- Planner
- Managing the M&E programme
- Progress reporting

JULIE BOWERMAN-JENNER
Safety Officer

- Managing Office HS&E
- Managing Inductions
- Yellow Jacket administrator

Marble Arch Place - Risk Register

Ref	Date Identified	Category	Works Category	System	Risk Identification	Probability	Impact	Exposure	Status	RFI Issued	Mitigation Plan	Mitigation Cost	Assigned To	Comments
1	13/03/2019	Scope	Budget	PV System	Photovoltaic cells should be removed from their supporting structure and lowered to the floor level (Level 10 on the west and level 9 on the east). Consideration should be given to the use of the BMU to place the photovoltaic panels in to lower and raise from ground floor level to roof level.	100%	5	5	OPEN	NOT ISSUED	Clarification required from MACE on what works package it falls into. If item is a permeant fixture it needs to be excluded.	TBC	Dave O'Regan	Item to be raised with MACE commercial team.
2	11/02/2019	Design	Budget	Extract Ventilation	Fan suppliers have advised that maximum rating that they can achieve is 400 deg C for 2 hours rather than 4 hours, 300 deg cel as stated for fans SF-BF-00-01 and EF-BF-00-01 on drawing MP203-UCLE-MSC-B000-M-DGA-0575-0300-0001	60%	5	3	OPEN	RFI OPEN	Confirmation required from Arup/Client that this is rating is not required	TBC	Gavin O'Sullivan	Awaiting RFI Response
3	13/03/2019	Design	Scope	Sump Pumps	No pumped drainage indicated on Arup's design but it has been listed within MACE's scope of works. Possibility that the drainage cannot be installed at the required level to prevent pumped drainage.	100%	5	5	OPEN	NOT ISSUED	Costs to be issued as a part of TQ return. Scope excluded in tender return clarifications	TBC	Dave O'Regan	
4	13/03/2019	Design	Resource	Conduits	Cast in conduit requirements need to be better defined & full understanding of scope/ interfaces with our trade to be determined	40%	3	1	OPEN	NOT ISSUED	Item to be raised at DTM & further discussions required with MACE	N/A	James Ryan	
5	13/03/2019	Design	Scope	Multiple	The contractor shall select and install appropriate anti vibration equipment to isolate the vibration from the generator set and all ancillary equipment connecting to it including all pipework, cables and exhaust systems.	40%	2	1	OPEN	NOT ISSUED	All interface packages to generator set to make allowence for anti vibration equipemnt & install	N/A	Pre-Con Team	
6	13/03/2019	Design	Scope	LV Switchgear	Are all LV Breakers supporting life safety equipment (DOL) motor rated	60%	3	2	OPEN	NOT ISSUED	LV Design to be reviewed & RFI issued if required	TBC	Robert Hayes	
7	13/03/2019	Design	Scope	Generator	Generator size is an assumed load and will need to be confirmed during the fit out design	60%	3	2	OPEN	NOT ISSUED	Fit out design to be reveiwed & calculation to be carried out	N/A	Robert Hayes	
8	13/03/2019	Design	Scope	LV Switchgear	The estimated maximum demand for the building is 3.5MVA. This includes a 30% spare capacity for future use as required by UCL. However, not all loads associated with the Fit Out works have been finalised. To provide some flexibility a 5.5MVA supply has been requested from UKPN.	100%	5	5	OPEN	NOT ISSUED	Fit out design to be reveiwed & calculation to be carried out	TBC	Robert Hayes	
9	13/03/2019	Design	Scope	AHUs	Specified at 1.4w/ls but specified manufactures FlaktGroup UK have confirmed that current design will at best only achieve a range between 1.4w/ls – 1.6w/ls as an average across all 16 AHU's.	80%	5	4	OPEN	NOT ISSUED	Dornan Design Consultant to carry out checks	N/A	Gavin O'Sullivan	
10	13/03/2019	Design	Scope	Sprinkler	ARUP had stated in their Mechanical Scope of Works document that an LPS 1048 certificate be provided at the end of the project. As per RFI-000008, Dornan cannot issue this due to the listed derogations within the tender docs and as such, need to exclude issuing the certificate. LPS cert cannot be issued with any clarification or derogations listed	100%	5	5	OPEN	NOT ISSUED	Clarification required from MACE on what the client requires	TBC	Gavin O'Sullivan	
11	13/03/2019	Design	Scope	Chillers	Dornan have allowed for Leak detection on the chillers which shuts down the chiller if leak detected but no capture has being allowed for. Pumpdown of the refrigerant into other parts of the chiller refrigeration system (containment) when a leak has been detected is not possible	60%	4	2	OPEN	NOT ISSUED	Clarification required from MACE on what the client requires	TBC	Gavin O'Sullivan	
12	13/03/2019	Design	Scope	Security	ARUP specification document in section 8.2 states that the proposed system is not to be connected to any existing equipment. The specification states that the main security office on campus needs to be able to connect to the systems but describes it as a standalone system, however the UCL Specification states that any systems being installed are part of an estate wide security system	40%	2	1	OPEN	NOT ISSUED	Clarification required from MACE on what the client requires	TBC	James Ryan	
13	13/03/2019	Scope	Buildability	Multiple	Structural design incorporating 'soft spots' have not been indicated to Dornan. This needs to be identified to for the plant within the Basement	100%	3	3	OPEN	NOT ISSUED	Dornan to issue Basement plant sizes to Mace	N/A	Gavin O'Sullivan	
14	13/03/2019	Design	Design	Multiple	The full Acoustic scope of works needs to be reviewed. Currently, only the drainage pipework has been allowed to be acoustically treated. No allowance made for neo-prene lining on the plenums. Instead, Dornan are providing Pyrosorsb lining 12mm thick - Is this correct to meet spec?	40%	5	2	OPEN	NOT ISSUED	Dornan to procure Acoustic consultant to review	N/A	James Ryan / Dave O Regan	
15	13/03/2019	Design	Design	Public Health	There is no Sanitaryware shown in ground floor core 2 & 4 areas on the MEP drawings in line with the upper floors. Dornan have not allowed for supplying or installing any sanitaryware or pipework to these cores.	40%	5	2	OPEN	NOT ISSUED	Confirmation required from Arup/Client that this is rating is not required	TBC	James Ryan / Dave O Regan	
16	13/03/2019	Scope	Scope	Smoke Extract	No CFD analysis of basement smoke extract or atrium smoke control system allowed for. Should we allow for this?	20%	5	1	OPEN	NOT ISSUED	To be discussed internally	TBC	Pre-Con Team	
17	13/03/2019	Scope	Scope	ATSs	Is there a requirement for fire-rated enclosures around the ATSs? None currently allowed for	40%	4	2	OPEN	NOT ISSUED	Dornan Design Consultant to carry out checks	TBC	Robert Hayes	
18	13/03/2019	Design	Design	Lighting	All lighting needs to be reviewed to determine if all lights are shown on the ARUP drawings. I.e Under slab lights coverign student desks?	60%	4	2	OPEN	NOT ISSUED	Rob to review drawings	TBC	Robert Hayes	
19	13/03/2019	Design	Design	Fire Alarm	The issue of conflicting information with respect to sounders in the basement and voice alarm speakers at ground floor, due to doors being open will need to be addressed.	40%	5	2	OPEN	NOT ISSUED	Dornan Design Consultant to carry out checks	TBC	James Ryan	
20	13/03/2019	Design	Design	Sprinkler	Sprinkler Tank clash with the concrete colum in the Basement	100%	3	3	OPEN	NOT ISSUED	Dornan to come up with a solution	TBC	BIM Team	

Marble Arch Place - Risk Register

21	13/03/2019	Design	Budget	Lighting Control	It is The Contractor's responsibility to determine the number of photocells required for any given area to provide full coverage, based on the type of PIR and mounting height/position. When determining the setting out of PIR's The Contractor shall take into account any obstacles that may obscure the detection coverage.	80%	3	2	OPEN	NOT ISSUED	Dornan to issue final Arup stage 4 drawings to Ex-or for review prior to tender return	TBC	James Ryan	
22	14/03/2019	Design	Budget	Lighting Control	Real time occupancy status of the building zones, Is this part of Dornans scope	80%	3	2	OPEN	NOT ISSUED	To be captured as part of the CP's	TBC	James Ryan	
~~23~~	~~14/03/2019~~	~~Design~~	~~Design~~	~~LV Distribution~~	~~DESL currently not in receipt of a Project Specific Distribution Board Schedule.~~	~~100%~~	~~5~~	~~5~~	~~OPEN~~	~~NOT ISSUED~~	~~To be captured as part of the CP's~~	~~TBC~~	~~Robert Hayes~~	
24	14/03/2019	Design	Design	Containment	Arup specification clearly outlines that DATA / IT cable is to be contained via cable tray and forbids the use of basket. However, basket has been drawn. Urgent clarity is required as basket has been measured and costed - appox 3200m in total.	100%	5	5	OPEN	NOT ISSUED	RFI to be raised	TBC	Robert Hayes	
25	14/03/2019	Design	Design	Cable Supports	Within the Arup specification it outlines that submain cabling shall be fixed to the ladder/tray using steel cleats and steel cable ties. We have costed for alluminium cleats and PVC ties only,	80%	3	2	OPEN	NOT ISSUED	To be captured as part of the CP's	TBC	Robert Hayes	
26	14/03/2019	Design	Design	All Systems	There are continual references across the M&E specification documents with regards the expectation that the shell and core installation shall be fully expandable and allow for all future fit out requirements. It should be highlighted at this stage that future proofing the shell and core installation will not be engineered by DESL. Futhermore it is assumed that all elements needed to expand the installation to meet fit out requirements have already been allowed for by ARUP and are both drawn and contained within but not limited to the project shell and core project drawings, schematics and associated design information.	100%	5	5	OPEN	NOT ISSUED	To be captured as part of the CP's for each individual M&E sub system and package	TBC	Robert Hayes	
27	14/03/2019	Design	Design	All Systems	No client RDS's have been received to date. We have Stage 3 RDS's on server in the estimating folder. When we receive Stage 4 RDS's will it be expected that DESL carry out a design review and udpate M&E design drawings based upon the information detailed within the RDS's - or will this be an ARUP deliverable? What source of information will be used to sign off rooms, I assume RDS's?	100%	3	3	OPEN	NOT ISSUED	TBA	TBC	Robert Hayes	
~~28~~	~~14/03/2019~~	~~Design~~	~~Design~~	~~All Electrical Systems~~	~~Several references have been made to EDS's within the main electrical specification. No EDS's have been received to date.~~	~~100%~~	~~3~~	~~3~~	~~OPEN~~	~~NOT ISSUED~~	~~RFI to be raised requesting all project EDS's~~	~~TBC~~	~~Robert Hayes~~	
29	14/03/2019	Design	Scope	Fire Alarm	Void detection has currently been omitted. No detailed review thus far has been undertaken re the structural make up the building, specifically relating to floor and ceiling voids and subsequent requirement for inclusion of void detection.	100%	5	5	OPEN	NOT ISSUED	To be captured as part of the CP's	TBC	Robert Hayes	
30	15/03/2019	Design	Design	All Systems	Section 4.6 Exposed Services within the main electrical specification outlines the requirement that any exposed outlet, device or distribution route is fully coordinated and agreed with them prior to ordering and installation. All RAL colours to any exposed insulation, and equipment are to be agreed with the Employers Architect.	100%	5	5	OPEN	NOT ISSUED	To be captured as part of the CP's	TBC	Robert Hayes	
31	15/03/2019	Design	Design	All Systems	Section 4.6 Exposed Services within the main electrical specification outlines the requirement that the Contractor shall pay particular attention to these specified finishes (painted containment trays, etc. when exposed) and the high standard of workmanship required, to ensure an exemplar finish and installation is provided.	100%	5	5	OPEN	NOT ISSUED	To be captured as part of the CP's	TBC	Robert Hayes	
32	18/03/2019	Scope	Design	All Systems	WC changes in core area. Due to be updated at fit out stage. Possible impact on Colt system	100%	4	4	OPEN	NOT ISSUED	To be captured as part of fit-out tender	TBC	Dave O'Regan	
33	18/03/2019	Scope	Design	All Systems	SR RCP vs Arup drawings to be reviewed in detail	80%	4	3	OPEN	NOT ISSUED	Fit out design to be reveiwed	TBC	Team	
34	18/03/2019	Scope	Design	All Systems	Lighting missing on level 07, check at fit out tender stage	80%	3	2	OPEN	NOT ISSUED	Fit out design to be reveiwed	TBC	James Ryan	
35	18/03/2019	Scope	Design	All Systems	No BW opening currently shown on non-structural concrete walls	80%	5	4	OPEN	NOT ISSUED	BIM review to be carried out. JR issued mail to MACE	TBC	BIM Team	
36	18/03/2019	Scope	Design	All Systems	Dornan to check current BW openings are adequate for fire stopping, pipe sleeves, dampers, damper batt insulation	80%	5	4	OPEN	NOT ISSUED	BIM review to be carried out.	TBC	BIM Team	
37	18/03/2019	Scope	Design	All Systems	Lighting protection in center of roof is a high-risk area, as higher points of the building cannot full protect area. To be reviewed with specialist	80%	3	2	OPEN	NOT ISSUED	Design to be checked with EES or similar	TBC	James Ryan	
38	18/03/2019	Scope	Design	All Systems	New Collaboration area has been designed under lab rooms. Issue with access to rodding eyes due to ceiling type, acoustic issues ? To be reviewed following issue of fit out design.	80%	3	2	OPEN	NOT ISSUED	Fit out design to be reveiwed	TBC	Gavin O'Sullivan	
39	18/03/2019	Scope	Design	All Systems	Check flue size & route. Looks to be clashing with steel work in FO design. To be reviewed following issue of fit out design	80%	3	2	OPEN	NOT ISSUED	Fit out design to be reveiwed	TBC	Gavin O'Sullivan	
40	18/03/2019	Scope	Design	All Systems	North collaboration space lux level for sufficient for desk works, to be enhanced by FF&E light fittings. Note for future lighting design works Lux level conservation lab area to be checked. To be reviewed following issue of fit out design.	80%	2	2	OPEN	NOT ISSUED	Fit out design to be reveiwed	TBC	James Ryan	

Marble Arch Place - Risk Register

41	18/03/2019	Scope	Design	All Systems	Detailed review of RCP's needs to be carried out following issue of FO information. Will our services work in an expanded metal ceiling ? Grills/ lightings / PIRs / Smoke detection devices	80%	5	4	OPEN	NOT ISSUED	Fit out design to be reveiwed	TBC	Team	
42	19/03/2019	Scope	Design	All Systems	When lighting and lighting accessories such as recessed downlights and switches are installed in a wall/ceiling which is forming a fire compartmentation line, fire rated accessory/downlight covers shall be installed behind the equipment. The cover rating shall match the rating of the wall/ceiling so that the wall/ceiling fire rating is not compromised by the accessory.	80%	5	4	OPEN	NOT ISSUED	Fit out design to be reveiwed	TBC	Team	
43														
44														
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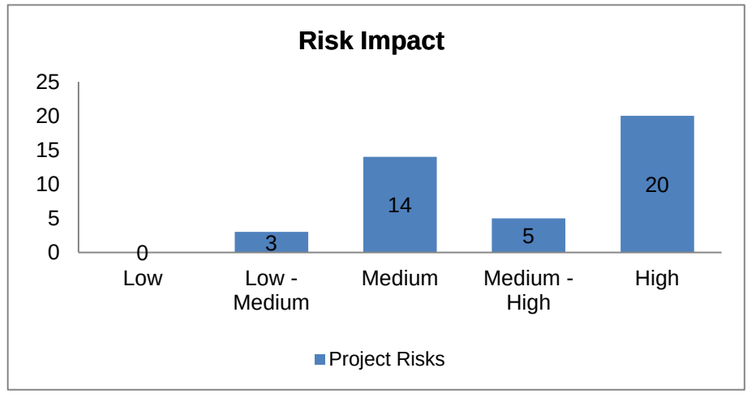
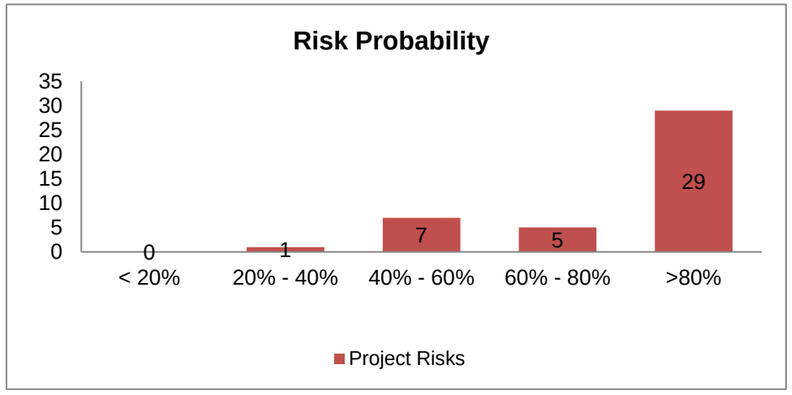
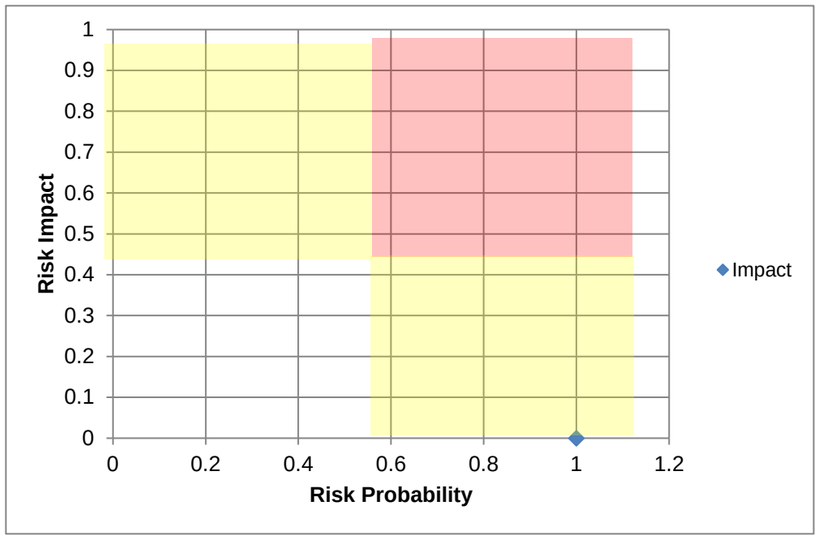
49														

Risk Analysis







Risks:	42
Critical:	20
Impactful:	25
Probable:	34

Impact	Impact	Impact	Impact	Impact	Impact
1	2	3	4	5	>0

Probability	Probability	Probability	Probability	Probability	Probability	Probability	Probability
<.2	>=.2	<.4	>=.4	<.6	>=.6	<.8	>=.8

Impact	
Low	0
Low - Medium	3
Medium	14
Medium - High	5
High	20

Probability	
< 20%	0
20% - 40%	1
40% - 60%	7
60% - 80%	5
>80%	29

Probability	Impact	Hi Risk	20
>=.6	>3	Count Risks	42

RISK REGISTER

Risk	Description	Mitigation	Owner	Potential Cost	Probability of Occurance	Risk Allowance	Item Completion (%)	Incurred Loss	Remaining Risk	Total Risk	Mitigated Risk	Comments
LABOUR												
Fab-Shop Labour Productivity	Total Fab-Shop Labour allowance say £886,125 x 20% Productivity Risk [Fab-Shop Labour at Cost]	Monitor/Record Reworks; Earned Value Analysis (S/E) per Skid/Module	Fab-Shop Supervisor	£177,225.00	40%	£70,890.00	30%	£0.00	£49,623.00	£49,623.00	£21,267.00	Measurement of Loss by way of S/E Management System [Prism]
Site Labour Productivity	Total Site Labour allowance £2,329,800 x 30% Productivity Risk [Validated Site Labour x Labour Rate Allowances]	Monitor/Record Delay & Disruption; Advise Site Downtime/Delays/etc.; Earned Value Analysis (S/E) for Site Works	Site Supervisors	£698,940.00	80%	£559,152.00	10%	£0.00	£503,236.80	£503,236.80	£55,915.20	Measurement of Loss by way of S/E Management System [Prism]
MANAGEMENT / PRELIMINARIES												
Construction Management/Prelims Shortfall, excluding Pre-Fabrication Facility	Total Validated Management/Prelims Allowance £4.95m x 20% "Creep"	Rationalise resource on project without compromising project delivery;	Contracts Manager	£990,000.00	50%	£495,000.00	20%	£55,000.00	£396,000.00	£451,000.00	£44,000.00	See Prelims Tracker Additional Engineer
GENERAL												
Market Price Escalation (MATERIALS) - between Tender and Construction/Procurement - Price Fluctuations Clause removed from Contract	Potential for Market Price increases on materials (0-10%, say 5%) between Tender and Project realisation	Early Procurement to minimise exposure to Market price inflation.	Contracts Manager	£400,000.00	20%	£80,000.00	60%	£26,318.00	£32,000.00	£58,318.00	£21,682.00	See Procurement Schedule for details FCU's Light Fittings
Market Price Escalation (SUB-CONTRACTS) - between Tender and Construction/Procurement - Price Fluctuations Clause removed from Contract	Potential for Market Price increases on Sub-Contracts (5-10%, say 7.5%) between Tender and Project realisation	Early Procurement to minimise exposure to Market price inflation.	Contracts Manager	£735,000.00	20%	£147,000.00	100%	£125,300.00	£0.00	£125,300.00	£21,700.00	See Procurement Schedule for details Ductwork Package Insulation Package
Pre-Fabricated Design Changes	Non-Recovery of costs associated with client instructed changes to Pre-Fabricated Skids/Modules mid-production	Mechanism to be agreed with client to advise progress against off-site construction and establish design-freeze protocols based on milestones	Engineers / QS	£50,000.00	50%	£25,000.00	30%	£0.00	£17,500.00	£17,500.00	£7,500.00	
Transport / Logistics	Stand-Time for Third Party Deliveries resulting from Just-In-Time Logistics protocols	Delivery schedule to be strictly owned by Logistics Manager. All internal/external delivery requests/bookings to be authorised by Logistics Manager.	Logistics Manager / QS	£75,000.00	30%	£22,500.00	15%	£3,000.00	£19,125.00	£22,125.00	£375.00	
CONTINGENCY	Unforeseen expenditure		Contracts Manager / QS	£100,000.00	100%	£100,000.00	20%	£5,382.00	£80,000.00	£85,382.00	£14,618.00	See Unforeseen Cost Register

PROJECT RISK ALLOWANCE	Validated Risk	£1,499,542.00	Incurred/Remaining Risk Exposure	£1,312,484.80	£187,057.20	

RIBA Stage 4: Technical design

Reference		DORNAN DESIGN CONSULTANT	OTHERS	DORNAN Comment
	General Obligations, External liaison (statutory bodies, utilities)			
4.1.1	Carry out ongoing checks for compliance with regulations		✓	Client team and main contractor
4.1.2	Advise on impact of any changes from scheme used to calculate the building emissions rate for building regulations energy compliance and (if relevant) EPC		✓	Client team and main contractor
4.1.3	Provide information for pre-site building approval		✓	Client team and main contractor
4.1.4	Obtain final quotations for incoming services based on final agreed building loads		✓	Client team and main contractor
4.1.5	Seek utility company comments on the spatial requirements and builders work associated with the provision of incoming services		✓	Client team and main contractor
	Client liaison (briefing, handover, surveys)			
4.2.1	Prepare the building services Employers information Requirements in accordance with PAS 1192-2		✓	Client team and main contrcator
4.2.2	Prepare pre-contract BIM Execution plan for building services installation (as required by procurement route)		✓	Client team and main contrcator
4.2.3	Advise on appropriate method of procuring maintenance expertise		✓	Client team and main contrcator
4.2.4	Define the scope and content of operating and maintenance manuals appropriate for the project		✓	Client team and main contrcator
4.2.5	Review the design against operational design targets, involving the future building manager(s) and update/reissue design reports, specifications and/or Soft Landings reports		✓	Client team and main contrcator
4.2.6	Define the requirement for handover information		✓	Client team and main contrcator
4.2.7	Specify form of delivery and method of production if handover information		✓	Client team and main contrcator
4.2.8	Prior to commencement of works, prepare method statement for the maintenance of existing services		✓	Client team and main contrcator
	Team liaison (builder work, spatial co-ordination, energy targeting)			
4.3.1	Undertake checks in relation to the building regulations energy performance compliance and (if relevant) EPC Criteria	✓		Throughout design process
4.3.2	Review proposals from others in relation to Building regulations energy performance compliance and (if relevant) EPC criteria	✓		Throughout design process
4.3.3	Review dimensional and other numerical tolerances to be applied to building services design and deliverables at different project stages	✓		Throughout design process
4.3.4	Make submissions to obtain Building Regulations approval in relation to energy performance		✓	DORNAN to support main contractor
4.3.5	Design weatherproofing details for all acoustic stopping for services penetrating builders work elements		✓	Advise on routes that penetrate these services. The clients team or main contractor will then be responsible for weatherproofing as necessary
4.3.6	Provide typical details for all acoustic stopping for services penetrating builders works elements		✓	Advise on routes that penetrate these services. The clients team or main contractor will then be responsible for acoustic stopping as necessary
4.3.7	Develop and update BIM execution plan during project		✓	DORNAN to support main contractor
4.3.8	Develop and update building services Task information delivery Plan		✓	DORNAN to support main contractor
4.3.9	Develop and update master information delivery plan during project		✓	DORNAN to support main contractor
4.3.10	Federate information models from separate task teams and oversee the clash avoidance process		✓	DORNAN to support main contractor
4.3.11	Carry out project wide design review of feasible-generic design	✓		Review the design in conjunction with the design team if requested.
4.3.12	Agree the principal relating to reflected ceiling plans		✓	
4.3.13	Carry out stage 4 co-ordination between building services, structure and architecture prior to selection or procurement of actual equipment. (Feasible for building services contractor/trade contractor pricing and installation without major re-routing)	✓		Between 30% design review and 95% design review
4.3.14	Carry out stage 4 co-ordination between different building services, prior to selection or procurement of actual equipment. (Feasible for building services contractor/trade contractor pricing and installation without major re-routing)	✓		Between 30% design review and 95% design review
4.3.15	Consider requirements for cable pulling (routes and anchor points)		✓	
4.3.16	Review design risk assessments incorporating specialist design input	✓		Between 0% design review and 30% design review

4.3.17	Check the provision for and adequacy of builders work information provided for specialist elements (including CDP)	✓		Between 0% design review and 30% design review
4.3.18	Select and detail sleeves, inserts, frames, fixing anchors and any other items required to be cast or built into the structures by others, including coordination of positions to such extent and accuracy to allow structural construction to proceed	✓		Between 0% design review and 30% design review
4.3.19	Detail and coordinate all access platforms, stairs, rails and protection elements required for future maintenance and operation of plant/equipment	✓		Assist in the review of this element for specified plant and equipment. Between 60% design review and 95% design review
4.3.20	Carry out final detailed location and dimensioning of 2nd fix equipment based on architectural information		✓	This exercise is to be carreid out by the design team. DORNAN will use the information provided by the design team and review in order to ensure that the correct equipment is specified prior to purchasing.
4.3.21	Determine location of access panels	✓		Between 60% design review and 95% design review
4.3.22	Carry out project wide design review of co-ordinated generic design	✓		Assist in the design reviews where requested
4.3.23	Confirm builders work information for specified equipment or materials, or where alternatives to those provisionally or pre-selected are agreed	✓		Between 30% design review and 60% design review
4.3.24	Provide final details for all acoustic stopping for services for services penetrating builders work elements		✓	Advise on routes that penetrate these services. The clients team or main contractor will then be responsible for acoustic stopping as necessary
4.3.25	Carry out stage 4 coordination between all building services trade contractors after the selection or procurement of actual equipment	✓		Between 60% design review and 95% design review
4.3.26	Carry out stage 4 coordination between the building services , structure and architecture after the selection or procurement of actual equipment	✓		Between 60% design review and 95% design review
4.3.27	Prepare detailed construction programme for installation and remaining design activities		✓	Main Contractor
4.3.28	Carry out project wide design review of co-ordinated specific design	✓		Attend the project wide design review as requested by the main contractor / clients team / design team
	Selection of plant and specialist designers			
4.4.1	Develop initial technical design for systems to be procured as contractor design portions (where building services contractor not already appointed)	✓		Between 30% design review and 60% design review
4.4.2	Advise of significant allowances or constraints incorporated in the main design that may affect the specialist design	✓		Between 30% design review and 60% design review
4.4.3	Obtain indicative quotations for plant not requiring specialist design		✓	DORNAN
4.4.4	Review that all plant and equipment incorporated into the works can be safely maintained and accessed in compliance with current legislation	✓		Between 60% design review and 95% design review
4.4.5	Check plant and system sizing once Stage 4 coordination of the works has been undertaken with selected or procured equipment	✓		Between 60% design review and 95% design review
4.4.6	Select plant, equipment, components and material to meet the specified performance. Where items or manufactures differ from provisional selections ensure they are fully compatible with all the other system parameters, components and design requirements	✓		Between 30% design review and 60% design review
4.4.7	Advise whether the proposed alternative items or manufacturers comply with the selection criteria	✓		Between 30% design review and 60% design review
4.4.8	Advise whether the proposed alternative items or manufacturers are acceptable		✓	Client team and main contractor action
4.4.9	Re-evaluate all parts of the services design which may be affected by acceptance of alternative items or manufacturers		✓	Client team and main contractor action
4.4.10	Re-evaluate all parts of the architectural or structural design which may be affected by acceptance of alternative items or manufacturers		✓	Client team and main contractor action
4.4.11	Amend the building services design to incorporate agreed alternative items or manufacturers	✓		Between 60% design review and 95% design review
4.4.12	Prior to confirming agreed final fixed costs with the client agree final equipment selections and manufacturers	✓		Between 60% design review and 95% design review
4.4.13	Monitor the specialist design input for compliance with the design intent	✓		Between 30% design review and 95% design review
4.4.14	Evaluate the impact of the specialist design on those parts of the overall design that are provisional	✓		Between 30% design review and 95% design review
4.4.15	Monitor the ongoing progress of the procurement, manufacture, installation and commissioning of all plant items		✓	DORNAN
4.4.16	Prepare developed design for specialist design items not included in 4.5.2, 4.6.2, 4.7.2		✓	DORNAN appointed specialists
	Mechanical Design			
4.5.1	Determine parameters of flues to incorporate the requirements of the plant manufacturer, building control, environmental health officer and current legislation such as the Clean Air Act	✓		Between 30% design review and 60% design review
4.5.2	Finalise detailed design calculations for all mechanical services being included in the technical design in accordance with the recognised national standards	✓		Between 60% design review and 95% design review
4.5.3	Determine detailed flue, duct and pipe sizes and routes	✓		Between 30% design review and 60% design review

4.5.4	Following equipment procurement, modify distribution systems and equipment capacities as may be required as a result of coordination	✓		Between 60% design review and 95% design review
4.5.5	Design all necessary facilities for flushing and commissioning		✓	DORNAN commissionability review to identify
4.5.6	Size, select and determine final locations of commissioning sets based on coordination of procured equipment	✓		Between 60% design review and 95% design review
4.5.7	Carry out final sizing of sections of ductwork between terminal units and diffusers to ensure the specified acoustic criteria and duct velocities	✓		Between 60% design review and 95% design review
4.5.8	Carry out final detailing and confirm the location and sizes of duct connections to external louvres	✓		Between 60% design review and 95% design review
4.5.9	Carry out detailed design of anchors, guides and other provision for movement of services and systems due to thermal expansion and contraction and building movement		✓	DORNAN to appoint specialist to advise and consultant to incorporate into design
4.5.10	Check fan and pump system resistances based on coordination of procured equipment (4.3.25)	✓		Between 60% design review and 95% design review
4.5.11	Check system water capacities and quantities of chemical additives based on the final equipment selection		✓	DORNAN to appoint specialist to advise and consultant to incorporate into design
4.5.12	Carry out final detailing of drain and vent points	✓		Between 60% design review and 95% design review
4.5.13	Carry out final selection of all terminal devices	✓		Between 60% design review and 95% design review
4.5.14	Carry out final selection of pressurisation units and expansion vessels	✓		Between 60% design review and 95% design review
4.5.15	Detailed design and sizing of refrigerant pipework between items of equipment provided under the contract works based on the final equipment selection and coordinated working drawings		✓	DORNAN to appoint specialist to advise and consultant to incorporate into design
4.5.16	Select and confirm location of fire dampers and any other fire stopping for mechanical systems	✓		Between 30% design review and 60% design review
4.5.17	Select and confirm location of control dampers and control valves to achieve the specified function and to suit the characteristics of items serve and final system configurations based on the final equipment selection and coordinated working drawings	✓		Between 30% design review and 60% design review
4.5.18	Carry out final selection of control valves to suit pipework and authority of controls based on final installation drawings	✓		Between 60% design review and 95% design review
4.5.19	Carry out final selection of all anti-vibration mountings		✓	DORNAN to appoint specialist to advise and consultant to incorporate into design
4.5.20	Design review	✓		
	Electrical Design			
4.6.1	Finalise detailed design for all electrical services being included in the technical design in accordance with recognised national standards		✓	By main contractor and electrical contractor
4.6.2	Determine detailed cable and containment sizes, switchgear sizes and locations, control panel locations, user equipment sizes and locations, and sensor locations for small power, lighting, high voltage systems and metering		✓	By main contractor and electrical contractor
4.6.3	Determine approximate sensor locations for fire safety and security systems		✓	By main contractor and electrical contractor
4.6.4	Design automatic control systems as required to meet the operational, functional and spatial requirements of the specification		✓	By main contractor and electrical contractor
4.6.5	Determine control strategy for lighting		✓	By main contractor and electrical contractor
4.6.6	Design fixing, connection, earthing and bonding details as required for the final installation of the lightning protection system		✓	By main contractor and electrical contractor

4.6.7	Modify distribution systems and equipment capacities as may be required as a result of stage 4 coordination with intended or procured equipment		✓	By main contractor and electrical contractor
4.6.8	Verify spatial requirements for cable pulling and installation		✓	By main contractor and electrical contractor
4.6.9	Verify cable sizes for primary electrical supply based on coordination of procured equipment (4.3.25) and cable lengths		✓	By main contractor and electrical contractor
4.6.10	Verify cable sizes for specialist systems based on coordination of procured equipment (4.3.25) and cable lengths		✓	By main contractor and electrical contractor
4.6.11	Select and confirm location of fire stopping for electrical systems		✓	By main contractor and electrical contractor
4.6.12	Check control panel cable entry and exits are possible in the final location and that the safe operating and maintenance clearances are provided		✓	By main contractor and electrical contractor
4.6.13	Check compatibility of building services plant and equipment with the control systems		✓	By main contractor and electrical contractor
4.6.14	Carry out design and incorporation of all interfaces (including relays or other devices or modifications to hardware or software)		✓	By main contractor and electrical contractor
4.6.15	Incorporate final information for electrical systems into the design via schedules or BIM objects, including control addresses for lighting and fire alarm systems, BMS points.		✓	By main contractor and electrical contractor
4.6.16	Design review		✓	By main contractor and electrical contractor
	Public Health Design			
4.7.1	Finalise detailed design calculations for all public health services being included in the technical design in accordance with the recognised national standards	✓		Between 30% design review and 60% design review
4.7.2	Determine detailed pipe sizes and routes for gravity and pumped drainage systems	✓		Between 30% design review and 60% design review
4.7.3	Determine final position of cast in drainage gullies ensuring coordination with structural design and final mechanical plant locations		✓	Main contractor to advise and DORNAN to assist
4.7.4	Finalise vent termination location to coordinate around final AHU and air vent intake positions	✓		Between 30% design review and 60% design review
4.7.5	Determine final power, BMS and controls interface requirements from equipment	✓		Between 60% design review and 95% design review
4.7.6	Coordinate all surface water domestic and waste water pipework rodding eye locations with other services, structural and architectural elements to ensure suitable maintenance access can be provided	✓		Between 60% design review and 95% design review
4.7.7	Verify storm water discharge flow rates satisfies planning and statutory authority requirements including SuDS	✓		Between 30% design review and 60% design review
4.7.8	Determine detailed routing of pipework / drainage to and from risers	✓		Between 30% design review and 60% design review
4.7.9	Carry out detailed design of pipework gradients for builders work and coordination	✓		Between 30% design review and 60% design review
4.7.10	Modify distribution systems and equipment capacities as may be required based on coordination of procured equipment (4.3.25)	✓		Between 60% design review and 95% design review
4.7.11	Make allowance for anchors, guides and provision for movement of services and systems due to thermal expansion and contraction and building movement		✓	DORNAN to appoint specialist to advise and consultant to incorporate into design
4.7.12	Select and confirm location of fire collars and any other fire-stopping for public health systems	✓		Between 30% design review and 60% design review
4.7.13	Check all surface water, domestic and waste drainage discharge flow rates with external civils interface package	✓		Between 30% design review and 60% design review
4.7.14	Check all utility interface details (locations, pipe sizes and invert levels) with civils package to ensure internal and external services coordinate	✓		Between 30% design review and 60% design review
4.7.15	Design review	✓		
	Commissioning			
4.8.1	Review all designs to ensure that systems are commissionable		✓	DORNAN
4.8.2	Determine witnessing and commissioning requirements for items installed on site		✓	DORNAN
4.8.3	Identify and incorporate into system designs the essential components and features necessary to enable the proper commissioning of building services (including preparation)	✓		DORNAN to identify and consultant to incorporate into design
4.8.4	Review the commissioning plan		✓	DORNAN
4.8.5	Update the commissioning plan		✓	DORNAN
4.8.6	Review proposals and method statements from prospective commissioning specialist(s)		✓	DORNAN
4.8.7	Finalise location of test points	✓		DORNAN to identify and consultant to incorporate into design
4.8.8	Appoint an independent specialist commissioning contractor responsible for testing and commissioning		✓	DORNAN
	Deliverables including drawings specifications and reports			
4.9.1	Provide a technical design report up to the level of feasible-generic components and equipment, as an update to the developed stage 3 report	✓		Between 60% design review and 95% design review
4.9.2	Provide health and safety risk assessment for the design	✓		Between 60% design review and 95% design review
4.9.3	Provide an approximate cost plan using feasible-generic components and equipment for mechanical, electrical and public health services based on floor area, building type and typical systems type or other agreed approximate methodology		✓	By client team and main contractor

4.9.4	Provide any information that is required in connection with any application for planning permission including reviews and / or appeals where applicable	✓		Assist on request
4.9.5	Provide an updated estimate of regulated (RP) in-use energy consumption	✓		Assist design team to supply to the the client for review.
4.9.6	Provide updated assessment of comfort conditions and overheating risk	✓		Assist design team to supply to the the client for review.
4.9.7	Provide updated report on adequacy of existing mechanical, electrical and public health services to incorporate extended or refurbished works			N/A
4.9.8	Provide technical design or performance information and specification to modify, refurbish or replace existing mechanical, electrical and public health engineering services and plant to incorporate new and extended engineering services			N/A
4.9.9	Provide tender documentation for inclusion in a tender package if the procurement method requires it			N/A
4.9.10	Provide report on proposals or agreed outcomes following participation in any soft landings process		✓	By client team and main contractor
4.9.11	Provide information for detailed whole life cost studies		✓	By client team and main contractor
4.9.12	Provide information to the environmental assessment method assessor to allow credits to be checked and awarded		✓	By client team and main contractor
4.9.13	Provide specifications for final commissioning and handover		✓	By client team and main contractor
4.9.14	Provide detailed commissioning plan		✓	DORNAN and Main Contractor
4.9.15	Provide information for construction phase plan as per CDM Regulations		✓	Main Contractor
4.9.16	Provide calculations and / or software files as evidence of technical design model and/or drawings	✓		Between 60% design review and 95% design review
4.9.17	Provide schedules to cross reference cables to containment systems		✓	Electrical contractor
4.9.18	Provide technical model in line with defined level of clash resolution and agreed tolerances	✓		Between 60% design review and 95% design review
4.9.19	Provide technical design drawings	✓		Between 60% design review and 95% design review
4.9.20	Provide technical design schematics	✓		Between 60% design review and 95% design review
4.9.21	Provide updated schedule/drawings of builders work information based on technical design information	✓		Between 60% design review and 95% design review
4.9.22	Produce materials and workmanship specifications		✓	Client team and Main Contractor
4.9.23	Produce performance specifications for specialist designed elements of the works		✓	Client team and Main Contractor
4.9.24	Produce equipment schedules	✓		Between 60% design review and 95% design review
4.9.25	Provides design stage information towards log book and/or building user guide(s)	✓		Between 60% design review and 95% design review
4.9.26	Provide mechanical, electrical and public health information necessary to obtain statutory approvals	✓		M & PH Only
4.9.27	Provide detailed specifications for mechanical, electrical and public health services, if relevant		✓	Client team and Main Contractor
4.9.28	Sign off detailed specifications		✓	Client team and Main Contractor
4.9.29	Contribute to draft construction programme for the project		✓	Client team and Main Contractor
4.9.30	Produce Construction Phase Plan before work starts on site, as per CDM Regulations		✓	Client team and Main Contractor
4.9.31	Provide updated technical design model	✓		Between 60% design review and 95% design review
4.9.32	Provide building services coordinated working drawings	✓		Between 60% design review and 95% design review
4.9.33	Provide coordinated reflected ceiling plans based on agreed architectural information for all components		✓	Client team and Main Contractor
4.9.34	Provide coordinated room elevations based on agreed architectural information for all components		✓	Client team and Main Contractor
4.9.35	Provide detailed cost plan		✓	Client team and Main Contractor
4.9.36	Provide final construction programme		✓	Client team and Main Contractor
4.9.37	Provide detailed commissioning programme		✓	DORNAN and Main Contractor
4.9.38	Provide updated technical design model with revised or new design details	✓		Between 60% design review and 95% design review
4.9.39	Provide report on the specialist designers proposals within the main contract		✓	DORNAN
4.9.40	Provide a report in consideration of any alternative plant, equipment and component selections		✓	DORNAN
4.9.41	Provide calculations and or software files in support of specialist design proposals	✓		Between 60% design review and 95% design review

RIBA Stage 5: Construction and commissioning

Reference		DORNAN DESIGN CONSULTANT	OTHERS	DORNAN Comment
	General Obligations, External liaison (statutory bodies, utilities)			
5.1.1	Notify the necessary statutory bodies (building control, fire officer, and environmental health) in respect of all tests and demonstrations required		✓	Client team and main contractor
5.1.2	Carry out airtightness test of completed building envelope		✓	Client team and main contractor
5.1.3	Seek full statutory approval of the works and arrange all necessary attendance, and documentation		✓	Client team and main contractor
5.1.4	Apply for G59 interfaces (for connection of onsite electricity generation to the grid)		✓	Client team and main contractor
	Client liaison (briefing, handover, surveys)			
5.2.1	Oversee the instruction of the clients staff (FM team and end users as appropriate) in the use, operation and maintenance of the installations		✓	Client team and main contractor
5.2.2	Prior to handover, instruct the clients staff (FM team and end-users as appropriate in the use, operation and maintenance of the installations in advance of handover		✓	Main contractor and DORNAN
5.2.3	Examine and comment on the contents of the operating and maintenance information in order to ensure compliance with the specified requirements		✓	Client team and main contractor
5.2.4	Modify and update operating details to reflect commissioning results		✓	DORNAN
5.2.5	Modify project information as the works progress, so that all alterations arising during installation are recorded		✓	DORNAN and main contractor
5.2.6	Inspect draft record drawings at agreed intervals and comment on their content with respect to the size and positions of installed systems and plant		✓	Client team and main contractor
5.2.7	Establish central and visible home base for aftercare team as defined by soft landings		✓	Client team and main contractor
5.2.8	Arrange for all appropriate maintenance contracts to be in place for start immediately after handover		✓	Client team and main contractor
5.2.9	Provide recommendations for the commencement and carrying out of operation and maintenance and after the defects liability period		✓	Client team and main contractor
	Team liaison (builder work, spatial co-ordination, energy targeting)			
5.3.1	Prepare accredited as constructed energy consumption information for building regulations and (if relevant) the actual energy performance criteria	✓		EPC info
5.3.2	Update building services information models in response to changes made during construction, installation and commissioning	✓		As built model
	Selection of plant and specialist designers			
5.4.1	Review Contractor design portion, trade contractor or specialist design information against the technical design	✓		As built info
5.4.2	Incorporate changes arising from Contractors design portion, trade contractor or specialist design information in the technical design and revise models, drawings and information as appropriate	✓		As built info
	Mechanical Design			
	Electrical Design			
	Public Health Design			
	Commissioning			
5.8.1	Comment on the adequacy of systems for commissioning as detailed on specialists drawings and manufacturers shop drawings prior to actual manufacture at works		✓	DORNAN
5.8.2	Attend commissioning meetings as necessary	✓		If required
5.8.3	Arrange and chair commissioning meetings as necessary		✓	DORNAN

5.8.4	Monitor the progress of commissioning and testing of all software programming, systems and plant, including assessment of whether installations meet the original (or amended) design intent	✓		As per the commissioning programme
5.8.5	Conduct mock up performance tests		✓	DORNAN
5.8.6	Conduct pre-commissioning works (verification of installation works and static tests)		✓	DORNAN
5.8.7	Commission all systems to agreed method, logic and programme, and in accordance with the commissioning specification. Record the results		✓	DORNAN
5.8.8	Attend witness testing and commissioning of off-site manufactured assemblies at manufacturers' premises	✓		As per the commissioning programme
5.8.9	Demonstrate that the overall and complete systems perform correctly in the required manner and as intended by the specification		✓	DORNAN
5.8.10	Record all plant settings from commissioning		✓	DORNAN
5.8.11	Accept completed systems	✓		
	Deliverables including drawings specifications and reports			
5.9.1	Provide final installation details, including dimensions, of electrical switchgear to ensure that cable entry is acceptable in the selected location and that safe operating and maintenance clearances are provided		✓	Electrical contractor
5.9.2	Provide final installation details, including dimensions, of automatic control panels to suit the detailed requirements of agreed supplier of the controls equipment	✓		From DORNAN BMS contractor red lined drawings
5.9.3	Provide detailed BMS points schedules, wiring schematics, control panel labelling details and equipment schedules for the complete works		✓	DORNAN BMS contractor
5.9.4	Provide detailed electrical wiring diagrams of all equipment supplied showing all interconnections between equipment to enable all necessary wiring to be undertaken		✓	Electrical contractor
5.9.5	Provide installation model	✓		Post client comments on 95% design drawings
5.9.6	Provide installation drawings	✓		Post client comments on 95% design drawings
5.9.7	Provide builders work details	✓		During stage 4 design and if there are any changes within stage 5
5.9.8	Provide shop and fabrication drawings	✓		During stage 4 design to preconstruction programme
5.9.9	Provide a final commissioning report detailing the results of the commissioning and commenting on the performance of systems signed by a competent person		✓	DORNAN
5.9.10	Provide schedule of activities/works required for handover		✓	Client team and main contractor
5.9.11	Provide all necessary calculations, drawings, information and logs for the Health and safety file	✓		Post client comments on 95% design drawings
5.9.12	Provide a schedule of all spare parts required for the works including recommendations of any others not stated in the specification		✓	DORNAN
5.9.13	Provide a schedule of all tools required for the works including recommendations of any others not stated in the specification		✓	DORNAN
5.9.14	Provide operating and maintenance manuals		✓	DORNAN
5.9.15	Provide as-built model or final project information model (as per PAS 1192-2) incorporating all changes made during installation	✓		As per programme
5.9.16	Provide record drawings incorporating all changes made during installation	✓		As per programme
5.9.17	Provide building manual(s) and/or building user guide(s) and/or building lo book(s) in accordance with the requirements of the specification and the building regulations		✓	Main Contractor
5.9.18	Provide planned preventative maintenance schedules		✓	Client team and main contractor
5.9.19	Provide operation and maintenance information in accordance with the specified requirements		✓	DORNAN
5.9.20	Provide comments on draft record information and operating and maintenance manuals		✓	Client team and main contractor
5.9.21	Provide technical guide for the facilities management team		✓	Client team and main contractor
5.9.22	Provide recorded water, gas and electricity meter readings on completion of the works		✓	Client team and main contractor
5.9.23	Provide pre-handover defects schedule		✓	Client team and main contractor
5.9.24	Provide site visit reports	✓		As per programme
5.9.25	Provide comments on proposals submitted by the building services contractor and/or trade contractors		✓	Client team and main contractor
5.9.26	Sign off design and equipment changes proposed		✓	Client team and main contractor
5.9.27	Provide comments on programmes		✓	Client team and main contractor
5.9.28	Provide as-installed information to the environmental assessment assessor	✓		EPC and BREEAM info
5.9.29	provide report on agreed outcomes following participation in any soft landings process		✓	Client team and main contractor

RIBA Stage 6: Handover and Close Out

Reference		DORNAN DESIGN CONSULTANT	OTHERS	Dornan Comment
	General Obligations, External liaison (statutory bodies, utilities)			
	Client liaison (briefing, handover, surveys)			
6.2.1	Update as-built/project information models in response to changes made during the handover	✓		If required
6.2.2	Incorporate relevant information from project information model into asset information model (as per PAS 1192-2 and PAS 1192-3)		✓	Client team and main contractor
6.2.3	On site attendance by aftercare team during first eight weeks of occupation		✓	Aftercare team
6.2.4	Hold meetings/workshops with end users/occupiers during the first eight weeks of occupation		✓	Aftercare team
6.2.5	Hold regular meetings with users representatives during year 1 of occupation		✓	Aftercare team
6.2.6	review building performance against energy targets during year 1 of occupation		✓	Aftercare team
6.2.7	Hold end of year reviews of the general and environmental performance of the building		✓	Aftercare team
6.2.8	Visit site to train and/or transfer information about the use of the building services to the facilities management team and the building occupiers		✓	Aftercare team
	Team liaison (builder work, spatial co-ordination, energy targeting)			
6.3.1	Review project health and safety performance		✓	Client team
6.3.2	Organise lessons learned workshop for the project with design team, main contractor, significant specialist contractors and FM team		✓	Client team
	Selection of plant and specialist designers			
	Mechanical Design			
	Electrical Design			
	Public Health Design			
	Commissioning			
6.8.1	Carry out seasonal commissioning from practical completion including environmental testing and monitoring		✓	Aftercare team
6.8.2	Attend seasonal commissioning activities carried out by others		✓	Aftercare team
	Deliverables including drawings specifications and reports			
6.9.1	Provide a reviewed and updated list of defects identified during the post completion audit		✓	Client team and main contractor
6.9.2	Provide COBie tables for BIM Level 2 Information Exchange	✓		As per BIM execution plan
6.9.3	Provide written reviews of energy use and system performance (as defined in the soft landings framework)		✓	Client team and main contractor
6.9.4	Provide outturn cost analysis		✓	Main contractor
6.9.5	Provide updated as built/project information model incorporating defect rectification and any changes resulting from year 1 aftercare		✓	Main contractor
6.9.6	Provide updated record drawings incorporating defect rectification and any changes resulting from year 1 aftercare		✓	Main contractor
6.9.7	Provide lessons learned report		✓	Main contractor
6.9.8	Provide report on any defects reported during liability period		✓	Main contractor
6.9.9	Provide comments on record information including operating and maintenance manuals		✓	Main contractor
6.9.10	Provide report on agreed outcomes following participation in any soft landings		✓	Main contractor

Subcontractor Admin Instructions:

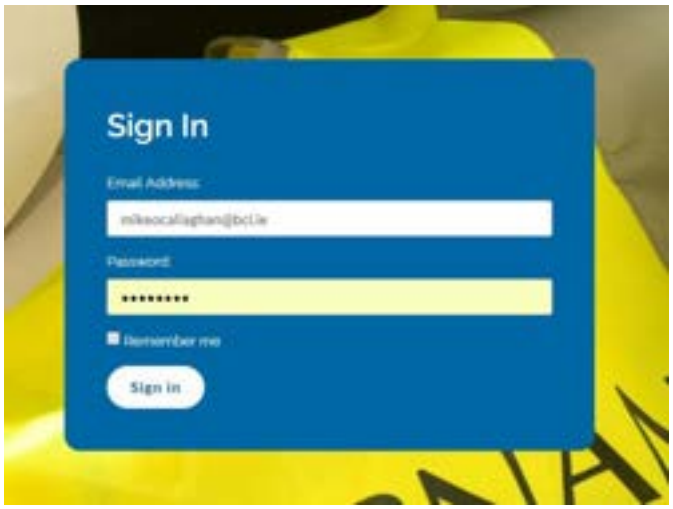
Subcontractor Admins must first be registered as subcontractor employees and complete induction. Then the project admin can change you status to Subcontractor admin.

The subcontractor admin will use the following website:
http://www.dornaninduction.com/HS/register.html

1. **Login:**

Username: Use the email address they gave to their project admin
Password: Use password sent to them by their project admin

Subcontractor Admin login should appear as below:



Once the subcontractor admin has logged on, the page should automatically open at 'Registration'. This is the page used to register Subcontractor Employees'.

2. Add a Subcontractor Employee:

Fill in the subcontractors details:
Email: Whatever email the subcontractor employee uses.
Password: Use the same password as your Project Admin.
Enter their first name and last name.
Company Name: Ensure that company name you type in is exact company name that your project admin has emailed you.
Job Number: Choose the relevant job number.

This process will result in an automated email being sent to the subcontractor employee with a link they need to click to verify.

The Subcontractor admin needs to email the subcontractor employee with an email outlining their username and password.

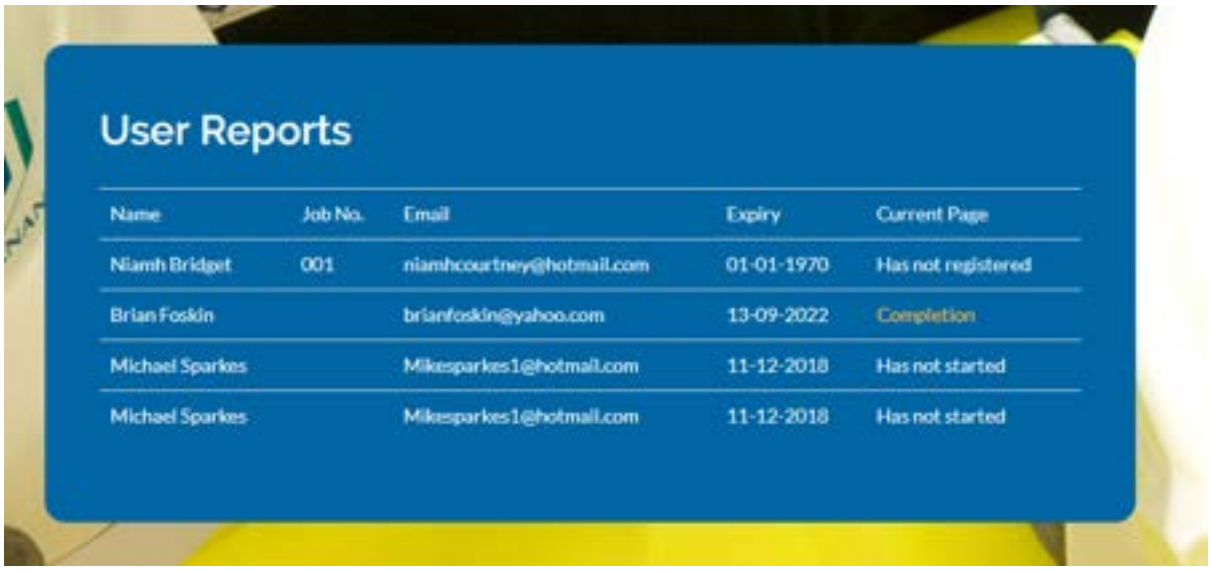
DRAFT EMAIL TO SEND
You will have received an email with a link to the Dornan Health and Safety Induction. To access this, you need the following details.
Username: *Please use your email address*
Password: *password*
The induction must be complete before reporting for work onsite.
If you have any questions please contact me. Thank you for your participation.

3. Tracking Subcontractor Employees Induction Progress

Subcontractor Admin can track Subcontractors progress by going to the USER REPORTS section. This will tell you the status of subcontractors.

The User Reports section will tell you:

- Your registered subcontractor employees
- Their associated job numbers
- Their email address
- The expiry date of their induction
- Their induction status



4. Changing Your Password

To change your password, click ‘Change Settings’ and enter in your new password twice.

Sub-contractor Questionnaire 2013

Sub-contractor Questionnaire – General Details:

Sub Contractor Name:
Sub Contractor Main Address:
Approx. no. of Employees:
Tel.No:
e-mail:
Services Provided:
Contact Name(s):
Contact Title(s):
Contact mobile:
Facilities:
Would you agree to an internal audit by Dornan
Contact Signature: Date:

Sub-contractor Questionnaire – previous Dornan Projects (list):

Dornan Project:	Service Provided:

Sub-contractor Questionnaire – Dornan requirements:

1. Communication and information flow from Dornan to the point of contact in your company, and the internal communication flow within your company.
2. A structured approach to proactive fabrication / manufacture / installation control.
3. A documented system for Quality Management.
4. Provision of competent staff, measure devices, and equipment/tools.
5. Based on the requirements, some of the items on the following checklists have been marked * as mandatory.

Sub-contractor Questionnaire – Checklist (page 1)

(Tick relevant box √)

Checklist Requirements	YES	NO	N/A	Comment
Procedures in Operation				
Project Tender process				
* Communication Process (internal & with Dornan)				
Projects Planning				
Project Management				
*Change Management				
Site Setup				
Materials Management				
Purchasing				
*Equipment Calibration & Control				
Inspection & Verification				
Testing				
Non-Conformance Control				
Control of Documentation & Records				
Review of Customer Feedback & Complaints				
Design Management				
Management Review				
Internal Audits				
External Audits				
Management System				
Geographical area of operation (all of U.K.)				
Company Policies				
Communication of corporate culture and objectives				
*Management Structure				
Management Responsibilities				
*Specification & Client's Requirements and Expectations				
Quality Control Plans				

Performance monitor				
*Company Quality System				
Accreditation of Quality System (ISO9001, etc)				
Independently verification by external audit organization (name)				
Company Environmental System				
Independently verification by external audit organization (name)				
Company Health & Safety System				
Independently verification by external audit organization (name)				
Safety,Training & Competence				
Provide an up to date Safety Policy				
Who provides competent Safety Advise ?				
Do you have external safety accreditations eg: OSHAS 18001				
Provide reportable accident and incident statistics for last 3 years				
Provide any Enviromental or Safety prosecutions in last 3 years.				
Provide staff competencies and training requirements.				
Training plan use				
Recruitment process				

Sub-contractor Questionnaire – Checklist (page 2)

(Tick relevant box √)

Checklist Requirements	YES	NO	N/A	Comment
*Reassessment/re-training of personnel process				
*Competency Records and Associated Documentation Control				
Client Requirements				
Contract Review				
Drawing Register				
Drawing Stamps				
Site Filing System				
RFI process				
Submittals process				
Handover Document process				
Site Survey				
Non-conformance Control				
NCR records				
Quarantine process				
Design Control				
Design Review process				
Design Change process				
Design Verification process				
Drawing (CAD) in-house process				
Asset Management				
*Plant list or register				
Plant transfer process				
Material Control				
Incoming inspections process				
Stores Control process				
Stores responsibility process				
Stores issue process				
Delivery dockets filing process				
Equipment stored externally				
Supplier /Sub-contractor Management				
Approved Supplier process				
Supplier Assessment process				
*Approved Sub-contractor process				
*Sub tiers of subcontractors are identified in the process				
Sub-contractor Assessment process				

Sub-contractor Questionnaire – Checklist (page 3) mechanical

(Tick relevant box √)

Checklist Requirements	YES	NO	N/A	Comment
Written Procedures				
Project Document & Drawing control				
Installation Mechanical				
Pipe fabrication process (S/S, C/S, copper, other)				
Pipe installation process				
Medical & gas installation process				
Weld procedure & welder qualifications process (coded)				
Weld test process (NDT)				
F-Gas approval				
Pressure test process				
Ductwork fabrication process (Galv. S/S, Fire-rated, other)				
Ductwork Installation process				
Ductwork test process				
Equipment Installation process				
Water-treatment process				
Shot-blasting				
Painting (type)				
Insulation, Cladding & Labelling process (state if sub-contracted)				
Trace Heating				
Leak detection				
Other (specific to the discipline and not stated above):				
Inspection				
System walk down process				
Redline drawing process				
Testing & Commissioning				
Test Packs Index/format agreed process				
Test Packs available for each system				
Duct System Commissioning Reports				
Pipe System Commissioning Reports				
Handover				
O&M Manuals – Index/format agreed process				
O&M Progress report				
O&M Manuals – Finalise process				

Sub-contractor Questionnaire – Checklist (page 3) electrical

(Tick relevant box √)

Checklist Requirements	YES	NO	N/A	Comment
Written Procedures				
Project Document & Drawing control				
Installation Electrical				
Distribution board / Panel manufacture process				
MCC manufacture-assembly process				
Cable installation process				
Cable rack/tray (Containment) installation process				
Equipment & Enclosures Installation process				
Distribution board / Panel Installation process				
Switchgear Installation process				
MCC Installation process				
Shrouds and glands				
Lock off process				
Fire Alarm & Security process				
CCTV, Access control process				
Data Communication				
Lightning Protection				
Other (specific to the discipline and not stated above):				
Inspection				
System walk down process				
Redline drawing process				
Testing & Commissioning				
Test Packs Index/format agreed process				
Test Packs available for each system				
Electrical Commissioning Reports				
Instrument Commissioning Reports				
Handover				
O&M Manuals – Index/format agreed process				
O&M Progress report				
O&M Manuals – Finalise process				
Client Training				
Software Licensing				

Sub-contractor Questionnaire – Checklist (page 3) controls

(Tick relevant box √)

Checklist Requirements	YES	NO	N/A	Comment
Design Control				
Software Design				
Graphics Design process				
Drawing (CAD) in-house process				
Installation Controls				
Distribution board / Panel manufacture-assembly process				
MCC manufacture-assembly process				
Cable installation process				
Cable rack/tray (Containment) installation process				
Cable rack/tray installation process				
Device Installation process (state Approval)				
Equipment & Enclosures Installation process				
Distribution board / Panel Installation process				
MCC Installation process				
Shrouds and glands				
Lock off process				
BMS Power-up				
Other (specific to the discipline and not stated above):				
Inspection				
F.A.T. process				
System walk down process				
Redline drawing process				
Testing & Commissioning				
Test Packs Index/format agreed process				
Test Packs available for each system				
BMS Commissioning Reports				
S.A.T. process				
Other Commissioning Reports (state)				
Handover				
O&M Manuals – Index/format agreed process				
O&M Progress report				
O&M Manuals – Finalise process				
Client Training				
Software Licensing				

Data from Navision
"Purchase Line History"
- 566 Projects -

Data imported to
excel + filtered

Vendor Type
Status
Job Type

No. of Projects
Financial Cost Code
Feedback

Total Risk
1 = Low
5 = High

Projects
Summary

Directors
Dashboard

Sub
Contractor

Cost by
Type

Supplier

Cost by
Vendor

Fabrication

SUPPLY CHAIN MANAGEMENT

All data is taken from Navision to determine risks for Sub-Contractors and Suppliers on Dornan Projects. This is based on cost code risk, no. of projects and feedback from site. Feedback from site will be an on-going process. This gives a REAL value for the sub-contractor and supplier therefore is KEY to this process.

Feedback Risk Rating

Low	This a low risk vendor and can be used.
Medium	This is a medium risk vendor and should be used with due consideration.
High	This is a high risk vendor and should only be used if necessary and if appropriate measures to ensure compliance are in place.

Feedback Score

Feedback Description

Audit Selection

Audit Selection Criteria
No. of projects (1,2,3 (low))
High value
Poor Feedback
Feedback score (4 & 5)

SAMPLE Vendor
Scorecard

Extraction Date: 12/02/2019

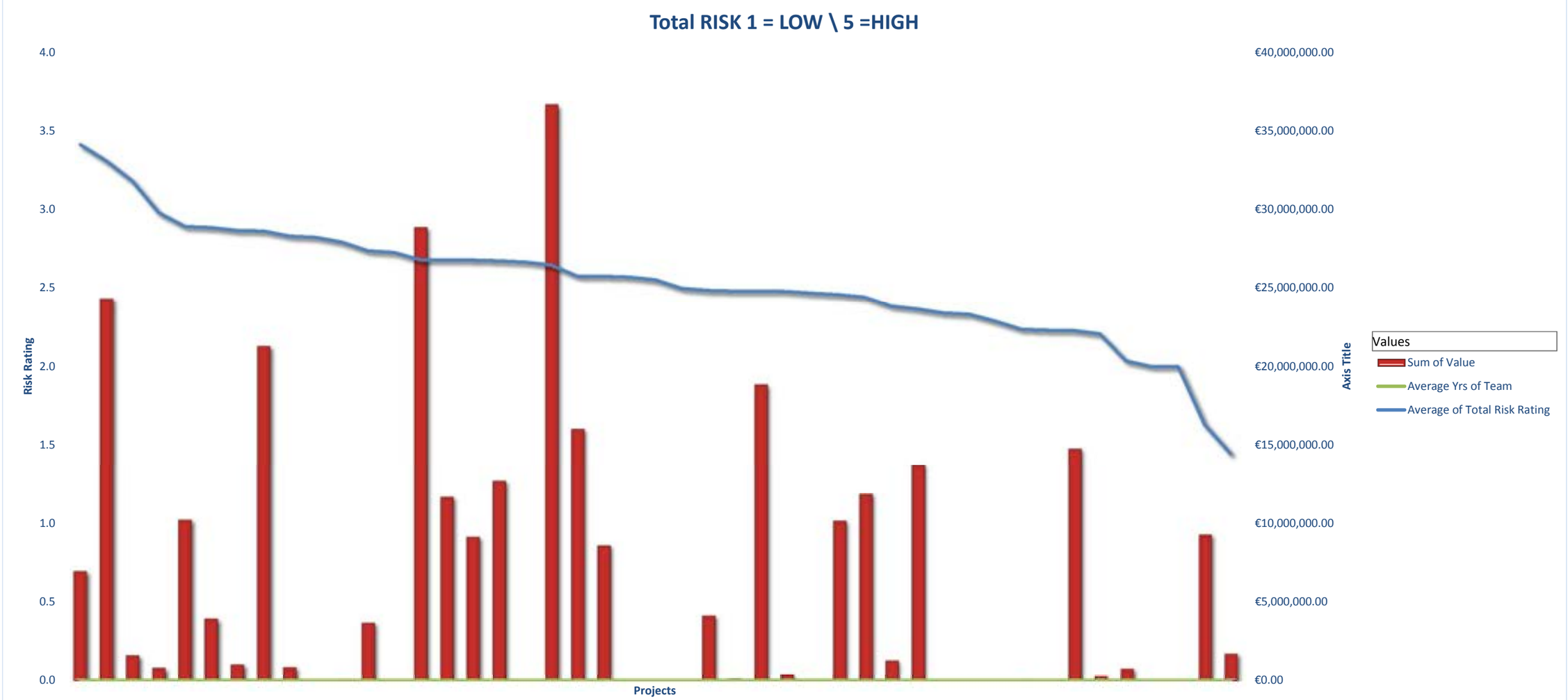
Status	active
	(All)
Job Type	(All)
Job Type Risk	(All)

Project 754: 3.2 risk reduced to 2.7 after feedback.
Project 774: 2.2 risk reduced to 1.4 after feedback.

Row Labels	Average of Total Risk Rating	Sum of Value	Average Yrs of Team
740 - AMS 08 & 09	3.4	€6,970,762.36	2.4
773 - Baddesley EPC Power	3.3	€24,382,341.73	1.7
809 - Knightsbridge	3.2	€1,619,511.02	0.7
796 - PPK Marcus 2018	3.0	€837,184.07	4.3
751 - Marble Arch Place	2.9	€10,236,634.09	3.3
808 - Jansen Bio Project	2.9	€3,954,968.20	2.5
753 - BMS	2.9	€1,043,459.11	1.4
802 - ODN1 Project	2.9	€21,338,763.69	2.2
805 - Astrazeneca Additional Works	2.8	€879,299.26	2.4
816 - Heathrwo T3 Emergency lighting Survey	2.8	€46,750.36	3.5
818 - Amgen - Heater Battery	2.8	€111,671.50	2.8
790 - Shire Pharmaceutical	2.7	€3,691,495.02	5.7
813 - Heathrow T3 Luxury S&C	2.7	€85,493.38	4.5
713 - UYE Holbrook, Sheffield	2.7	€28,887,906.03	6.0
755 - 245 Hammersmith Road	2.7	€11,673,989.61	1.6
754 - Collindale Gardens	2.7	€9,145,137.47	5.7
759 - London School Of Economics	2.7	€12,737,198.77	3.1
828 - Heathrow T5 LSS Surveys	2.7	€12,562.80	1.4
739 - AMS07	2.6	€36,675,764.17	3.0
789 - No 1 Finsbury Avenue	2.6	€16,073,631.96	2.6
781 - Eli Lilly Train 2 Project	2.6	€8,587,620.91	2.4
817 - Eli Lilly Train 2 Calibrations	2.6	€2,084.89	4.3
748 - GRQ1A Day 2 Works	2.6	€69,281.42	2.2
826 - Heathrow T3 E Gates	2.5	€5,734.20	0.4
785 - CQV Works Astrazeneca	2.5	€4,158,942.89	1.3
763 - Gilead 2017	2.5	€140,627.06	8.2
793 - GRQ 2AE	2.5	€18,904,545.24	2.5
804 - Analog 2018/19 Small Works	2.5	€397,748.01	12.3
811 - IPC House	2.5	€127,852.02	17.7
799 - ICR - CCDD	2.5	€10,174,951.13	1.4
791 - CLN3 Project	2.4	€11,860,846.56	2.8
810 - Regeneron Expansion Project	2.4	€1,302,016.94	3.6
806 - PPK2 Phase2	2.4	€13,799,718.39	2.8
803 - Pfizer Little Island 2018	2.3	€35,635.73	8.2
814 - Harwell Developments	2.3	€67,573.50	3.5
765 - Abbvie 2017	2.3	€43,285.48	8.2
794 - Novartis 2018	2.2	€104,399.82	5.3
764 - Amneal 2017	2.2	€78,648.47	16.4
757 - UCLH - University College London Hospital	2.2	€14,817,436.08	2.4
766 - FMC 2017	2.2	€311,635.48	4.1
795 - Eli Lilly Minor Mods 2018	2.0	€785,392.88	4.5
827 - Heathrow T3 Stand 323-325 Survey	2.0	€999.50	2.7
819 - UCL East Marsgate	2.0	€43,228.80	2.5
786 - Ferrybridge Multifuel Energy Project	1.6	€9,279,645.88	1.0
774 - Crossrail Canary Wharf Station	1.4	€1,740,754.33	4.3
Grand Total	**2.5071**	**€287,245,130.25**	**3.2**

Status		Job Type	Job Type Risk

Average of Total Risk Rating	Sum of Value	Average Yrs of Team



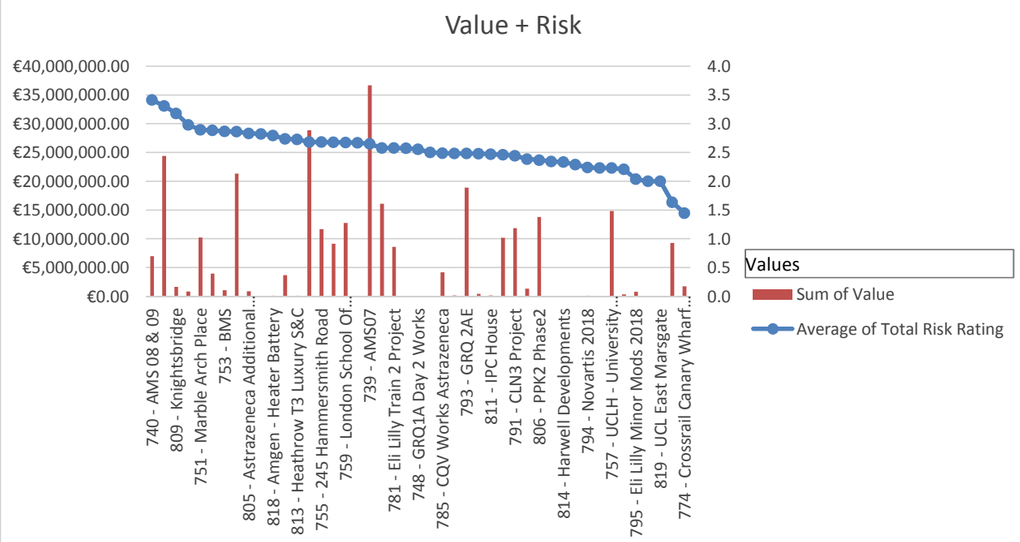
No.\Title

Director	(All)
Status	active

Row Labels	Average of Total Risk Rating	Sum of Value
740 - AMS 08 & 09	3.4	€6,970,762.36
773 - Baddesley EPC Power	3.3	€24,382,341.73
809 - Knightsbridge	3.2	€1,619,511.02
796 - PPK Marcus 2018	3.0	€837,184.07
751 - Marble Arch Place	2.9	€10,236,634.09
808 - Jansen Bio Project	2.9	€3,954,968.20
753 - BMS	2.9	€1,043,459.11
802 - ODN1 Project	2.9	€21,338,763.69
805 - Astrazeneca Additional Works	2.8	€879,299.26
816 - Heathrwo T3 Emergency lighting Survey	2.8	€46,750.36
818 - Amgen - Heater Battery	2.8	€111,671.50
790 - Shire Pharmaceutical	2.7	€3,691,495.02
813 - Heathrow T3 Luxury S&C	2.7	€85,493.38
713 - UYE Holbrook, Sheffield	2.7	€28,887,906.03
755 - 245 Hammersmith Road	2.7	€11,673,989.61
754 - Collindale Gardens	2.7	€9,145,137.47
759 - London School Of Economics	2.7	€12,737,198.77
828 - Heathrow T5 LSS Surveys	2.7	€12,562.80
739 - AMS07	2.6	€36,675,764.17
789 - No 1 Finsbury Avenue	2.6	€16,073,631.96
781 - Eli Lilly Train 2 Project	2.6	€8,587,620.91
817 - Eli Lilly Train 2 Calibrations	2.6	€2,084.89
748 - GRQ1A Day 2 Works	2.6	€69,281.42
826 - Heathrow T3 E Gates	2.5	€5,734.20

Director | Status

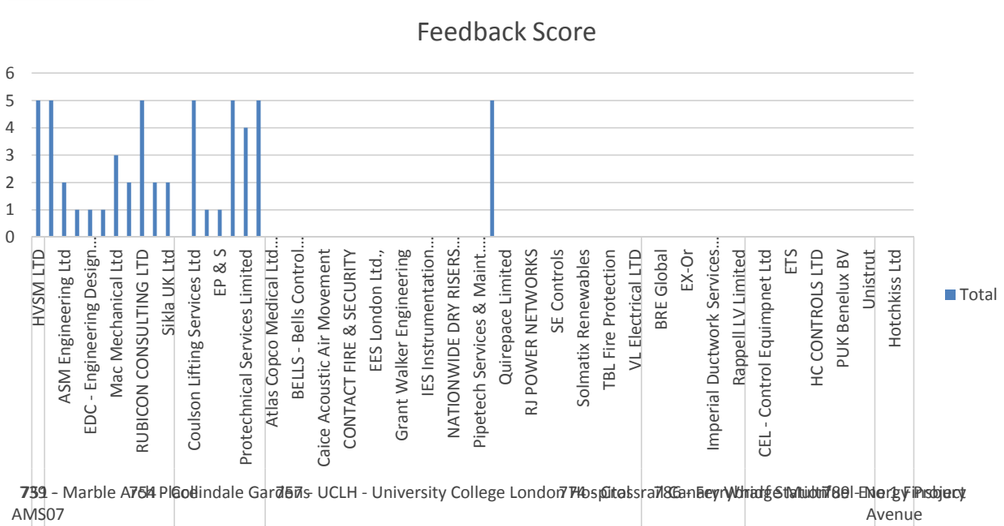
Average of Total Risk Rating | Sum of Value



No.\Title

Director | Project Title | Feedback Comments

Average of Action



No.\Title | Buy From Name

Director

- Aoife Connolly
- Brendan Herbert
- Bryan White
- Dave Dukelow
- Derek Hogan
- Fergal Meagher
- Kevin Donovan
- Paul Morley

Feedback Score

Feedback Description

Audit Selection

Jeremias UK Ltd,.	1.0	14	€175,406.10
Stats Utility Connections Ltd	5.0	1	€90,176.28
GBE Services London	4.0	2	€76,401.51
Winchmore Ltd	1.0	1	€37,054.87
Imperial Ductwork Services Ltd	1.0	9	€13,703.94
Coulson Lifting Services Ltd	5.0	1	€7,870.56
King Lifting Limited,	1.0	24	€4,514.40
Contract Support Services Limited	4.0	9	€4,175.25
SKY THERMAL INSULATION LTD	1.0	4	€1,519.39
ASPIRE PROPERTY SOLUTIONS LTD	1.0	10	€513.00
753 - BMS			
Emerson Process Management Ltd	3.0	4	€269,746.78
Procorre Limited	4.0	1	€138,680.25
Instech Percision ltd	4.0	1	€105,977.00
E&I Precision Ltd	4.0	1	€60,892.50
Procorre Consulting Ltd - USE 1PRO06EUR	4.0	1	€36,309.00
JMC Electrics	2.0	17	€31,094.38
Mercury Engineering	3.0	6	€26,959.01
Wilec (Fire & Security) Limited	4.0	2	€14,794.19
ACTAVO INDUSTRIAL SOLUTIONS	2.0	5	€5,210.40
IIS Industrial Insulation Specialists Ltd	2.0	19	€3,299.76
C-Con Construction	4.0	2	€350.00
759 - London School Of Economics			
Grant Walker Engineering	3.0	8	€1,385,100.00
Syscom Building Management Limited	3.0	8	€1,299,600.00
Fleetsolve LTD	4.0	1	€604,200.00
Boyd	3.0	3	€583,680.00
KPS Southern Ltd	4.0	3	€556,320.00
Ultra Surefire	3.0	3	€541,500.00
Platinum Mechanical Ltd	3.0	39	€429,780.00
Western Thermal Ltd	2.0	33	€353,400.00
CONTACT FIRE & SECURITY	3.0	5	€338,580.00
London Ductwork Services Ltd T/A RDS	3.0	3	€298,680.00
Royce Communications Limited	4.0	2	€190,380.00
Colt International Ltd	2.0	7	€184,965.00
SCHAKO	3.0	3	€158,141.84
Reigate Environmental Services Ltd	2.0	20	€108,300.00
Plant Movements Ltd	2.0	14	€85,960.56
Capital Engineering Personnel	2.0	19	€67,845.96
Diamond Construction &Engineering Recruitment Ltd	3.9	1	€62,099.57
B&R INSTALLATIONS	2.0	2	€49,590.00
Jeremias UK Ltd,.	2.0	14	€47,880.00
Shore Group	2.0	28	€34,337.56
B&G Energy Ltd	2.0	15	€33,630.00
Robore Cuts Limited	3.0	3	€32,490.00
Environmental Energies Ltd	4.0	1	€25,365.00
JW Gray Lighting Protection Ltd.,	3.0	3	€24,738.00
COOLAIR EQUIPMENT LTD	3.0	4	€23,883.00
QFS Scaffolding Ltd	3.0	1	€19,869.32
Ductbusters Ltd	3.0	3	€17,898.00
FULLFLOW GROUP LIMITED	4.0	3	€14,820.00
1st Step Solutions Limited	2.0	13	€14,453.48

Status	(All)
Job Type Risk	(All)
Job Type	(All)
Vendor Type	Sub-Contractor
CC + Description	1020 - Air Conditioning

Row Labels	Average of Total Risk Rating	No. Projects	Sum of Value
663 - DePuy Mechanical			
Airflow Services Limited	3.0	19	€7,219.00
IRISH INDUSTRIAL TANKS LTD	3.0	4	€1,800.00
Schneider Electric Ireland	3.0	7	€19,898.43
667 - Eli Lilly 2014			
Carrigdhoun Instrumentation,	3.0	8	€658.79
International Finishings Ltd	4.0	3	€120.00
MCR Group	4.0	3	€1,328.00
713 - UYE Holbrook, Sheffield			
Kelvinair Maintenance Services Ltd	5.0	1	€53,700.13
ROOFDEC LTD	5.0	1	€4,111.41
747 - Project Fire			
Bravida Danmark A/S	5.0	1	€91,996.92
Edpac International Ltd	3.0	10	€15,800.00
755 - 245 Hammersmith Road			
COOLAIR EQUIPMENT LTD	3.0	4	€17,895.72
Skilled Careers Ltd	3.0	7	€21,631.50
759 - London School Of Economics			
COOLAIR EQUIPMENT LTD	3.0	4	€23,883.00
Skilled Careers Ltd	3.0	7	€11,012.40
761 - Depuy Foundry			
Airflow Services Limited	3.0	19	€15,755.00
774 - Crossrail Canary Wharf Station			
WM Air Conditioning	1.0	3	€6,382.86
789 - No 1 Finsbury Avenue			
Skilled Careers Ltd	3.0	7	€5,907.48
ADCOCK REFRIGERATION & AIR CONDITIONING LTD	2.0	1	€128,947.68
790 - Shire Pharmaceutical			
Core Air Conditioning	4.0	3	€558,280.50
791 - CLN3 Project			
Brian Scully Services	3.0	22	€21,650.00
Serviceworks	4.0	2	€229,065.79
801 - Heathrow T3 2C Pipe Replacement			
Artic Cooling Services	5.0	1	€10,745.64
808 - Jansen Bio Project			
Airflow Services Limited	3.0	19	€4,350.00
Grand Total	**3.7**	**5**	**€1,252,140.25**

Buy From Name	1st Step Solutions Limited
Status	(All)
Vendor Type	(All)

Row Labels	Average of Total Risk Rating	Sum of Value
751 - Marble Arch Place		
High		
Commercial M&E Temp		
3020 - Labour (Direct Subcontract)		
13	5.0	€8,958.21
773 - Baddesley EPC Power		
High		
Commercial M&E Temp		
2020 - Management (Professional Fees)		
2	3.0	€6,384.00
759 - London School Of Economics		
High		
Commercial M&E Temp		
1220 - Specialist		
13	2.0	€14,453.48
769 - The Economist Plaza		
Low		
Mechanical and Electrical		
1220 - Specialist		
13	2.0	€11,961.05
774 - Crossrail Canary Wharf Station		
Medium		
Commercial M&E Perm		
3020 - Labour (Direct Subcontract)		
13	1.0	€9,719.37
Grand Total	**2.2**	**€51,476.11**

Total Risk

Risk	Value
-26	1
-25	1
-24	1
-23	1
-22	1
-21	1
-20	1
-19	1
-18	1
-17	1
-16	1
-15	1
-14	1
-13	1
-12	1
-11	1
-10	1
-9	1
-8	1
-7	1
-6	2
-5	2
-4	2
-3	2
-2	3
-1	3
0	3
1	3
2	3
3	4
4	4
5	4
6	4
7	5
8	5
9	5
10	5
11	5
12	5
13	5
14	5
15	5
16	5
17	5
18	5
19	5
20	5
21	5
22	5
23	5
24	5
25	5

Vendor Count

Row Labels	Distinct Count of Jo
1BCF01EUR	1
1BDS01GBP	1
03SEUR01	1
1BEE01GBP	1
11ST03GBP	1
1BEH01EUR	1
1ABA01EUR	1
1DAL02GBP	1
1ABE01EUR	1
1BEM01SEK	1
1ABL01EUR	1
01ELI01SEK	1
1ACC03EUR	1
1BES01EUR	1
1ACE01GBP	1
1BGE01EUR	1
1ACE08EUR	1
1BIC01EUR	1
1ACR01GBP	1
1BIN01SEK	1
1ACU01BEL	1
1BIS01EUR	1
1AD01GBP	1
1BLU01SWE	1
1ADC01GBP	1
1BLY01EUR	1
1ADV02GBP	1
1BMC01EUR	1
1AEC01GBP	1
1BMI01EUR	1
1AID03GBP	1
1BOA01EUR	1
1AIR01GBP	1
1BOH01IEP	1
1AIR07GBP	1
1BOL01EUR	1
1AIR12GBP	1
1BOL01GBP	1
1AJS01EUR	1
1BOL02EUR	1
1ALI01EUR	1
1BOS01GBP	1
1ALL02EUR	1
1BPE01EUR	1
1AMB01GBP	1
1BRA01DKK	1
1AMS01GBP	1
1BRE02GBP	1
1ANG01EUR	1
1BRI04GBP	1
1APC01EUR	1
1BRM01GBP	1
1API01EUR	1
1BRO01GBP	1
1AQU02GBP	1
1BRO02GBP	1
1ARJ01EUR	1
1BSI01EUR	1
1ARQ01EUR	1
1BUI01GBP	1
1ART01GBP	1
1BULL01GBP	1
1ASH01EUR	1
1BWT01EUR	1
1ASH02GBP	1
1CAH01EUR	1
1ASM01GBP	1
1CAH01GBP	1
1ASS01GBP	1
1CALF01GBP	1
1ATE01EUR	1
1CAM01GBP	1
1ATS01EUR	1
1CAP01EUR	1
1ATS02GBP	1
1CAP01GBP	1
1AUS01GBP	1
1CAR02GBP	1
1AUT02EUR	1
1CAS01GBP	1
1AVA01GBP	1
1CAT01EUR	1
1AYR01EUR	1
1CBE01EUR	1
1BAC01GBP	1
1CBI01GBP	1
1BAL01EUR	1
1CCR01GBP	1
1BAL02EUE	1
1CCT01GBP	1
1BAM01EUR	1
1CEM01EUR	1
1BAR01GBP	1
1CEN02GBP	1
1BAR03GBP	1
1CER01GBP	1
1BBL01GBP	1
1CGF01EUR	1
1DAI01GBP	1
1CGI01EUR	1
13DP01GBP	1
1CHE01GBP	1
1ABE01GBP	1
1CHI01GBP	1
1ACC04GBP	1

Cost Codes

Code	Description	Risk
1000	Mechanical Subcontractors	High Risk
1010	Acoustic Treatment	Medium Risk
1020	Air Conditioning	High Risk
1030	Boiler flues	Medium Risk
1040	Building Contractor	High Risk
1050	Building Management System	High Risk
1060	Cleanroom	High Risk
1070	Commissioning	Medium Risk
1080	Design Fees	High Risk
1090	Ductwork	Medium Risk
1100	Ductwork Plastic	High Risk
1110	Electronic Manuals	Medium Risk
1120	Fabrication / Steelwork	High Risk
1130	Hot Taps	High Risk
1140	Insulation	Medium Risk
1150	Medical Gases	High Risk
1160	NDT	Medium Risk
1170	On Site Variations	Low Risk
1180	Pipework	High Risk
1185	Pipework- PolyProp	High Risk
1190	Safety	Medium Risk
1200	Scaffolding	Low Risk
1210	Smoke/ Fire Control Systems	Medium Risk
1220	Specialist	Medium Risk
1230	Underfloor heating	Medium Risk
1240	Water treatment	Medium Risk
1250	Miscellaneous	Low Risk
1260	Miscellaneous # 2	Low Risk
1270	Mechanical Subbie Variation	Low Risk
1280	Contract Including Design	Low Risk
1500	Electrical Subcontractors	Low Risk
1510	Access Control	High Risk
1520	Building Contractor	High Risk
1530	Cable Pulling	High Risk
1540	CCTV	Medium Risk
1550	Containment Installation	Medium Risk
1560	Fibre Optic	High Risk
1570	Fire Alarm	High Risk
1580	Ground Works (Earthing)	High Risk
1590	Instrumentation (Cabling)	High Risk
1600	Instrumentation (piping)	Medium Risk
1610	Intruder System	High Risk
1620	Lightning Protection	Medium Risk
1630	Mechanical Wiring	High Risk
1640	MV Cabling	High Risk
1650	MV Terminations	High Risk
1660	Public Address	Medium Risk
1670	Voice and data	High Risk
1680	Safety	Low Risk
1685	Skip Hire / Waste Disposal	Low Risk
1690	Miscellaneous	Low Risk
1700	Miscellaneous # 2	Low Risk
1710	Electrical Subbie Variation	High Risk
1730	Cranage	Low Risk
1750	Trenching	Medium Risk
1765	Electrical installation - comple	High Risk
1770	Electrical installation - install	High Risk
1850	Subcontractors	High Risk
1880	Contract Including Design	Low Risk
1990	Inter Company Subbed Works	Low Risk
1991	DO NOT USE	Low Risk
1992	Foreign Projects Sub Contract	Low Risk
2000	Management	Low Risk
2010	Cleaner	Low Risk
2020	Management (Professional Fe	Medium Risk
2022	External Planner	Low Risk
2023	External German Engineers	Low Risk
2024	External Secretary/Admin	Low Risk
2025	External German Stores Contr	Low Risk
2026	External QA / QC	Low Risk
2030	Foreman / Supervisor	Low Risk
2040	Dornan Salary Costs	Low Risk
2041	Dornan (Non Ire PAYE) Salary	Low Risk
2042	PSA + ER NI PSA Chg	Low Risk
2050	Construction Management	High Risk
2051	Construction Management Pr	High Risk
2060	Project Manager	High Risk
2070	QA /QC (Internal DEL staff onl	Medium Risk
2100	Safety Audits External	Low Risk
2110	Safety Officer External	Low Risk
2115	Safety Officer Dornan	Low Risk
2120	Site Admin (Internal DEL staf	Low Risk
2130	Blocked - WEEE Charge (see c	Low Risk
2140	Miscellaneous	Low Risk
2320	Management (Professional Fe	Low Risk
2500	Prelims	Low Risk
2510	Accommodation / Travel	Low Risk
2511	Mileage Expenses	Low Risk
2520	Advertsing	Low Risk
2530	As builts	Medium Risk
2540	Bond	Low Risk
2545	Water Charges	Low Risk
2550	Clock Machine	Low Risk
2560	Consumables	Low Risk
2565	Insurance	Low Risk
2570	Contigencies	Low Risk
2580	Couriers and Carriage	Low Risk
2590	Cranage	Low Risk
2600	Dayworks	Low Risk
2610	Entertainment	Low Risk
2620	Fuel	Low Risk
2630	Gases	Low Risk
2640	Hoisting / Access	Low Risk
2650	Information Technology (IT)	Low Risk
2660	Insurances on materials	Low Risk

Feedback

Buy-from Vend	Buy From Name	Feedback	Total risk	Projects
1PRE06GBP	Premier Mist UK Ltd	10		757
1TBL01GBP	TBL Fire Protection	10		757
1HVS01EUR	HVSM LTD	10		739
1ACE03GBP	Ace Control systems	0	3	754
1ASP04GBP	ASPIRE PROPERTY SC	0	3	754
1BRO03GBP	Broughton Thermal I	0	2	754
1CSS02GBP	Contract Support Ser	10	4	754
1COU03GBP	Coulson Lifting Servic	10	5	754
1EDI01GBP	Edina UK Ltd (Manch	0	3	754
1GBE02GBP	GBE Services London	10	5	754
1IMP04GBP	Imperial Ductwork Se	0	2	754
1ISO01GBP	Isoplus	10	5	754
1JER01GBP	Jeremias UK Ltd,.	0	2	754
1KIN03GBP	King Lifting Limited,	0	1	754
1ROB04GBP	Robinson M&E Servic	0	4	754
1SKY01GBP	SKY THERMAL INSUL	0	2	754
1STA03GBP	Stats Utility Connecti	10	5	754
1THE01GBP	Therma-Mech Ltd	0	3	754
1WIN03GBP	Winchmore Ltd	0	4	754

Exceptions

EDP01DKK	Euros not DKK
1ELEC01GBP	Euros
ELA01GBP	Euros

1770 = High risk??? - 2020, 3040 similar w

To remove after extraction

CallPrint Group Ltd
CLS Copier Logic
Dornan Engineeing
Hobs Reprographic
Interoffice Doc
Lyreco
Office solutions
Printec
Total Imaging
Chris Mee
Aryton Group
Semiton
Medmark
Easy Training
Petty Cash
Placement fee
Height for hire
Sharptext
Roomex
Ronnie moore
Corona Corporate
Oasis
Onsite Support
SqOne Network
City Print
We are excel
well shine
copywrite
Europcar
Diatec
Huntoffice
MagiCad
Pentagon
Northgate
Exp Vendors
Car rental
Fuel
Mobile expenses
Accomadation & Travel
PC Systems - PCS
Information Technology
Safety gear
Training & courses
C-CAD COMUPTING
IT
NIS Systems
CPR COMPUTING
PC SYSTEMS LTD
Asta Powerproject
Brighter Graphics
Chat-Com Ltd
Huen System
Progman Software UK Ltd
NTi CADcentre A/S
PC Systems
Site Establishment
ECIA
Cork 1st Aid supplies
Clad safety LTFD
Dickies store
Dee communication
Donseed Workplace Management
Elliott
Mirage Watercoolers
Pickering
Solutions for Cleaning
Gorilla Water Coolers
Signifiicant signs
Eat LTD
Extra Space
Ross Oil
Southern Welding
Speedy Hire
OK Tool Hire
Careys Tool Hire
COLLE RENTAL & SALES
Plant Tool Hire - 2720, 2730
Dot Group International
Timeworks
Rentokil
Radionics

Team	Years
603	1.9
622	16.3
657	4.8
690	3.7
712	4.9
713	6.0
716	2.6
724	10.7
725	2.0
734	8.4
737	5.5
739	3.0
740	2.4
741	3.4
744	18.8
747	1.5
748	2.2
751	3.3
753	1.4
754	5.7
755	1.6
756	5.7
757	2.4
759	3.1
761	2.4
763	8.2
764	16.4
765	8.2
766	4.1
773	1.7
774	4.3
781	2.4
785	1.3
786	1.0
787	3.8
789	2.6
790	5.7
791	2.8
792	2.8
793	2.5
794	5.3
795	4.5
796	4.3
798	2.9
799	1.4
801	3.7
802	2.2
803	8.2
804	12.3
805	2.4
806	2.8
807	2.2
808	2.5
809	0.7
810	3.6
811	17.7
812	0.6
813	4.5
814	3.5
816	3.5
817	4.3
818	2.8
819	2.5
820	14.4
821	13.0
822	2.7
823	5.8
824	9.8
825	8.0
826	0.4
827	2.7
828	1.4
829	3.8
830	4.2
831	
832	

Sub-contractor\Supplier	Description	Change
FB Taylor	GBP supply chain, IRL supply chain = different currency	Change no. of projects to 7 FOR 1FBT01EUR
Vyncke	Cost cost error 1060 - Commissioning	Change cost code to 3560

Vendor Type	(All)

Row Labels	Sum of Value
713 - UYE Holbrook, Sheffield	**26103.72**
HARTWELL MANUFACTURING LTD	**25570.2**
Frame fabrication & galv.	25570.2
W. & G.W Garratt Ltd.	**533.52**
1no 3mm aluminium fabrication to sketch	533.52
739 - AMS07	**133000**
Croonwolter & Dros	**133000**
AZA High Level Prefabrication Works	133000
740 - AMS 08 & 09	**253565.59**
GC Energy	**253565.59**
AMS08 & 09 Containment bracketry fabrication	253565.59
747 - Project Fire	**1417**
LMH Engineering Ltd	**1417**
Fabrication Cost - Total	1417
751 - Marble Arch Place	**12230.4444**
Pipe Services (Fabrication) Ltd	**12230.4444**
LTHW - M21 - Spooling Fabrication	12230.4444
759 - London School Of Economics	**5130**
Pinnacle Infotech	**5130**
3D Model Conversion in Autodesk Fabrication	5130
761 - Depuy Foundry	**1440.9**
Welfab Engineering Ltd	**1440.9**
Fabrication of Carbon Welding	1440.9
786 - Ferrybridge Multifuel Energy Project	**2820.018**
Bradweld Fabrications Limited	**2820.018**
Fabrication of Aluminium back plates	2820.018
789 - No 1 Finsbury Avenue	**18.24**
Edmundson Electrical Twickenham	**18.24**
Fabrication	18.24
791 - CLN3 Project	**43803.68**
Glenfield Engineering	**43803.68**
CLN1 Fabrication of Isometrics including NDT	21838.32
CLN2 Fabrication of Isometrics including NDT	21965.36
799 - ICR - CCDD	**798.8094**
PT Pipe Fabrications Ltd	**798.8094**
Additional sockets in boiler skids 1 to 31454.51454.51454.51799PTP01GBP31/08/18UK69798PT Pipe Fabrications Ltd4580Storage of skids	632.7
Boiler No 1, No 2 & No 3 skid - flushing pipework loop11,180.531,180.531,180.53799PTP01GBP31/08/18UK69798PT Pipe Fabrications Ltd4580H P4/P4 - Additonal valves	166.1094
804 - Analog 2018/19 Small Works	**2347**
Glenfield Engineering	**1887**
Fabrication of 1 no. 12” spool piece 295mm long	550
Fabrication of spool	1337
Irish Pioneer Works Fabrication Limited	**460**
fabrication of 20" split jacket	460
808 - Jansen Bio Project	**16690**
Irish Pioneer Works Fabrication Limited	**1690**
fabrication and	1690
Welfab Engineering Ltd	**15000**
Fabrication of Stainless Steel	15000
809 - Knightsbridge	**1858.2**
CJH Associates	**1858.2**
Production of the module steel fabrication drawings	1014.6
Production of the pipe prefabrication iso’s	843.6
Grand Total	**501223.6018**

No.\Title	Job Type	CC + Description	Job Type Risk	SORT	Team	Status	Buy-from Vendo	Posting Date	Document No.	Buy From Name	Vendor Type	Cost Code	Description	Currency	Job No.	Value	CC Descriptior	Last A	Audit	Director	Project Title	No. of Project	Project Count	Cost Code Risl	Cost Feedbac	Risk Factor	Total Risk Rating	Feedback Comments	Action
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Lighting Level 1 £52	52,047.00	789	59,333.58	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		1770 = High ris 2020, 3040 simila
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Lighting Level 2 £51	51,428.00	789	58,627.92	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Lighting Level 3 £51	51,310.00	789	58,493.40	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Lighting Level 4 £51	51,328.00	789	58,513.92	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Lighting Level 5 £48	48,672.00	789	55,486.08	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Lighting Level 6 £48	48,138.00	789	54,877.32	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Lighting Level 7 £48	48,028.00	789	54,751.92	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Small Power Level 1	17,958.00	789	20,472.12	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Small Power Level 2	17,221.00	789	19,631.94	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Small Power Level 3	17,668.00	789	20,141.52	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Small Power Level 4	16,856.00	789	19,215.84	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Small Power Level 5	16,957.00	789	19,330.98	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Small Power Level 6	16,875.00	789	19,237.50	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Small Power Level 7	16,638.00	789	18,967.32	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	EUR	2.6	active	1DPH01EUR	20/06/2018	UK67000	DPH Management Services	Sub-Contracto	1770	Increase of Public Li	2,500.00	789	2,850.00	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	8	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A001 50 mm x 4c FP	423.36	789	483	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A001-2 50 mm x 4c	100.8	789	115	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A002 50 mm x 4c FP	2,076.48	789	2367	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A002-1 50 mm x 4c	100.8	789	115	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A003 50 mm x 4c FP	1,673.28	789	1908	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A003-1 50 mm x 4c	100.8	789	115	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A004 25 mm x 4c XL	144.29	789	164	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P047 16 mm x 2c XL	90.75	789	103	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P050 50 mm x 4c XL	930.6	789	1061	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P055 50 mm x 4c FP	1,753.92	789	1999	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P055-1 50 mm x 4c	120.96	789	138	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P060 70 mm x 4c FP	3,073.00	789	3503	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P060-1 70 mm x 4c	131.7	789	150	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077 120mm x 4c X	2,064.00	789	2353	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1 50 mm x 4c	207.9	789	237	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1-1 10 mm x 2	109.47	789	125	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1-2 10 mm x 2	133.5	789	152	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1-3 16 mm x 2	162.25	789	185	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1-4 16 mm x 2	187	789	213	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2 70 mm x 4c	419.95	789	479	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2-1 10 mm x 2	58.74	789	67	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2-2 10 mm x 2	82.77	789	94	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2-3 10 mm x 2	106.8	789	122	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2-4 10 mm x 2	130.83	789	149	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-3 25 mm x 4c	42.98	789	49	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-4 25 mm x 4c	49.12	789	56	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-5 25 mm x 4c	79.82	789	91	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B001 50 mm x 4c FP	645.12	789	735	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B001-1 50 mm x 4c	100.8	789	115	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B002 50 mm x 4c FP	1,471.68	789	1678	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B002-1 50 mm x 4c	100.8	789	115	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B003 50 mm x 4c XL	1,148.40	789	1309	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P049 50 mm x 4c XL	732.6	789	835	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P054 70 mm x 4c FP	3,621.75	789	4129	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P054-1 35 mm x 4c	21.36	789	24	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P061 50 mm x 4c FP	1,552.32	789	1770	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P061-1 50 mm x 4c	120.96	789	138	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1 50 mm x 4c	366.3	789	418	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1-1 10 mm x 2	34.71	789	40	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1-2 10 mm x 2	61.41	789	70	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1-3 16 mm x 2	90.75	789	103	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1-4 16 mm x 2	115.5	789	132	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-4 35 mm x 4c	121.04	789	138	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	C001 120mm x 4c X	516	789	588	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	C002 50 mm x 4c XL	1,098.90	789	1253	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P304 185mm x 4c X	4,544.40	789	5181	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P304-6 120mm x 4c	516	789	588	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P304-8 35 mm x 4c	99.68	789	114	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	D001 120mm x 4c X	1,685.60	789	1922	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	D002 25 mm x 4c XL	205.69	789	234	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P403 185mm x 4c X	5,236.88	789	5970	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P403-6 120mm x 4c	516	789	588	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P403-8 35 mm x 4c	92.56	789	106	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405 185mm x 4c X	3,722.08	789	4243	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6 120mm x 4c	516	789	588	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	E001 120mm x 4c X	1,530.80	789	1745	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	E002 120mm x 4c X	1,857.60	789	2118	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P506-1 120mm x 4c	516	789	588	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P506-2 25 mm x 4c	73.68	789	84	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P506-6 120mm x 4c	602.7	789	687	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510 240mm x 4c F	418.6	789	477	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-1 50 mm x 4c	2,298.24	789	2620	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-2 50 mm x 4c	463.68	789	529	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-3 50 mm x 4c	2,217.60	789	2528	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-4 50 mm x 4c	1,431.36	789	1632	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-5 50 mm x 4c	4,253.76	789	4849	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-6 50 mm x 4c	1,653.12	789	1885	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-7 50 mm x 4c	1,673.28	789	1908	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-8 70 mm x 4c	4,170.50	789	4754	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-9 50 mm x 4c	1,995.84	789	2275	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P305 185mm x 4c X	6,708.40	789	7648	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P406 185mm x 4c X	5,626.40	789	6414	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600 630mm x 1c X	13.59	789	15	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G/LB/001 400mm x	9.68	789	11	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G/LB/002 400mm x	11.18	789	13	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G/LB/003 400mm x	9.68	789	11	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G/LB/004 400mm x	9.68	789	11	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G405 185mm x 4c X	21.64	789	25	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G406 185mm x 4c X	21.64	789	25	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G506 185mm x 4c X	21.64	789	25	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G0015 185mm x 4c	7,013.76	789	7996	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G0014 185mm x 4c	16,860.00	789	19220	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A001 50 mm x 4c FP	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A001-2 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A002 50 mm x 4c FP	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A002-1 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A003 50 mm x 4c FP	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A003-1 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A004 25 mm x 4c XL	189.66	789	216	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P047 16 mm x 2c XL	161.58	789	184	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P050 50 mm x 4c XL	244.64	789	279	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P055 50 mm x 4c FP	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P055-1 50 mm x 4c	254.2	789	290	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P060 70 mm x 4c FP	293.26	789	334	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P060-1 70 mm x 4c	293.26	789	334	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077 120mm x 4c X	349.02	789	398	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1 50 mm x 4c	244.64	789	279	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1-1 10 mm x 2	160.26	789	183	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1-2 10 mm x 2	160.26	789	183	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1-3 16 mm x 2	161.58	789	184	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-1-4 16 mm x 2	161.58	789	184	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		

No.\Title	Job Type	CC + Description	Job Type Risk	SORT	Team	Status	Buy-from Vendo	Posting Date	Document No.	Buy From Name	Vendor Type	Cost Code	Description	Currency	Job No.	Value	CC Descriptior	Last A	Audit	Director	Project Title	No. of Project	Project Count	Cost Code Risl	Cost Feedbac	Risk Factor	Total Risk Rating	Feedback Comments	Action
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2 70 mm x 4c	266.18	789	303	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2-1 10 mm x 2	160.26	789	183	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2-2 10 mm x 2	160.26	789	183	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2-3 10 mm x 2	160.26	789	183	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-2-4 10 mm x 2	160.26	789	183	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-3 25 mm x 4c	189.66	789	216	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-4 25 mm x 4c	189.66	789	216	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077-5 25 mm x 4c	189.66	789	216	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B001 50 mm x 4c FP	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B001-1 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B002 50 mm x 4c FP	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B002-1 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B003 50 mm x 4c XL	244.64	789	279	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P049 50 mm x 4c XL	244.64	789	279	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P054 70 mm x 4c FP	293.26	789	334	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P054-1 35 mm x 4c	206.38	789	235	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P061 50 mm x 4c FP	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P061-1 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1 50 mm x 4c	244.64	789	279	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1-1 10 mm x 2	160.26	789	183	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1-2 10 mm x 2	160.26	789	183	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1-3 16 mm x 2	161.58	789	184	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-1-4 16 mm x 2	161.58	789	184	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P076-4 35 mm x 4c	206.38	789	235	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	C001 120mm x 4c X	349.02	789	398	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	C002 50 mm x 4c XL	244.64	789	279	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P304 185mm x 4c X	895.32	789	1021	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P304-6 120mm x 4c	349.02	789	398	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P304-8 35 mm x 4c	206.38	789	235	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	D001 120mm x 4c X	698.04	789	796	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	D002 25 mm x 4c XL	189.66	789	216	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P403 185mm x 4c X	895.32	789	1021	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P403-6 120mm x 4c	349.02	789	398	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P403-8 35 mm x 4c	206.38	789	235	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405 185mm x 4c X	895.32	789	1021	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6 120mm x 4c	349.02	789	398	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	E001 120mm x 4c X	349.02	789	398	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	E002 120mm x 4c X	349.02	789	398	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P506-1 120mm x 4c	349.02	789	398	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P506-2 25 mm x 4c	189.66	789	216	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P506-6 120mm x 4c	349.02	789	398	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510 240mm x 4c F	533.72	789	608	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-1 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-2 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-3 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-4 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-5 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-6 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-7 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-8 70 mm x 4c	293.26	789	334	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-9 50 mm x 4c	274.2	789	313	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P305 185mm x 4c X	895.32	789	1021	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P406 185mm x 4c X	895.32	789	1021	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600 630mm x 1c X	137.57	789	157	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G/LB/001 400mm x	119.12	789	136	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G/LB/002 400mm x	119.12	789	136	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G/LB/003 400mm x	119.12	789	136	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G/LB/004 400mm x	119.12	789	136	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G405 185mm x 4c X	223.83	789	255	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G406 185mm x 4c X	223.83	789	255	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G506 185mm x 4c X	223.83	789	255	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G004 630mm x 1c X	4,402.24	789	5019	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G005 630mm x 1c X	4,402.24	789	5019	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A002 16 mm x 1c 64	43.26	789	49	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A003 10 mm x 1c 64	212.18	789	242	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A004 10 mm x 1c 64	170.98	789	195	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P047 10 mm x 1c 64	10.3	789	12	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P050 25 mm x 1c 64	99.17	789	113	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P055 16 mm x 1c 64	67.98	789	77	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P060 25 mm x 1c 64	183.57	789	209	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077 95 mm x 1c 64	331.8	789	378	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B003 10 mm x 1c 64	150.38	789	171	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P049 10 mm x 1c 64	10.3	789	12	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P054 16 mm x 1c 64	238.96	789	272	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P061 16 mm x 1c 64	339.9	789	387	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-1 16 mm x 1c	61.8	789	70	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-2 16 mm x 1c	26.78	789	31	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-3 16 mm x 1c	234.84	789	268	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-4 16 mm x 1c	47.38	789	54	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-5 25 mm x 1c	232.1	789	265	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-6 16 mm x 1c	146.26	789	167	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-7 16 mm x 1c	434.66	789	496	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-8 25 mm x 1c	173.02	789	197	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-9 16 mm x 1c	170.98	789	195	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600 150mm x 1c 6	2.75	789	3	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G405 95 mm x 1c 64	2.37	789	3	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G004 50 mm x 1c 64	299.28	789	341	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G005 50 mm x 1c 64	227.36	789	259	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A002 16 mm x 1c 64	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A003 10 mm x 1c 64	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	A004 10 mm x 1c 64	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P047 10 mm x 1c 64	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P050 25 mm x 1c 64	26.44	789	30	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P055 16 mm x 1c 64	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P060 25 mm x 1c 64	26.44	789	30	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P077 95 mm x 1c 64	29.66	789	34	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B003 10 mm x 1c 64	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P049 10 mm x 1c 64	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P054 16 mm x 1c 64	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P061 16 mm x 1c 64	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-1 16 mm x 1c	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-2 16 mm x 1c	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-3 16 mm x 1c	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-4 16 mm x 1c	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-5 25 mm x 1c	26.44	789	30	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-6 16 mm x 1c	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-7 16 mm x 1c	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-8 25 mm x 1c	26.44	789	30	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G510-9 16 mm x 1c	24.36	789	28	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600 150mm x 1c 6	16.8	789	19	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G405 95 mm x 1c 64	14.83	789	17	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G004 50 mm x 1c 64	27.3	789	31	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G005 50 mm x 1c 64	27.3	789	31	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P033 (NEW) 120mm	2,167.20	789	2471	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P035 (NEW) 120mm	2,167.20	789	2471	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6B (NEW)25 m	36.84	789	42	Electrical installation - insta			Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		

No.\Title	Job Type	CC + Description	Job Type Risk	SORT	Team	Status	Buy-from Vendo	Posting Date	Document No.	Buy From Name	Vendor Type	Cost Code	Description	Currency	Job No.	Value	CC Descriptio	Last A Audit	Director	Project Title	No. of Project	Project Count	Cost Code Risl	Cost Feedba	Risk Factoı	Total Risk Rating	Feedback Comments	Action
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6B-1 (NEW16)	96.25	789	110	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6B-2 (NEW16)	181.5	789	207	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P409 (NEW) 95 mm	711.36	789	811	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P409-1 (NEW) 50 m	99	789	113	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S602 (NEW) 70 mm	1,396.05	789	1591	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S603 (NEW) 35 mm	306.16	789	349	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P507 (NEW) 95 mm	861.84	789	982	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P507-1 (NEW) 50 m	99	789	113	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S601 (NEW) 70 mm	1,441.45	789	1643	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600 (NEW) 150mm	912.12	789	1040	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600-1 (NEW) 35 m	21.36	789	24	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600-2 (NEW) 35 m	24.92	789	28	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600-3 (NEW) 25 m	18.42	789	21	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-001 (NEW4)00	2,148.96	789	2450	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-002 (NEW4)00	3,058.88	789	3487	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-003 (NEW4)00	2,439.36	789	2781	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-004 (NEW4)00	2,584.56	789	2946	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G405 (NEW) 185mm	5,150.32	789	5871	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G406 (NEW) 185mm	4,760.80	789	5427	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G409 (NEW) 120mm	2,304.80	789	2627	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G506 (NEW) 185mm	4,457.84	789	5082	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G507 (NEW) 120mm	2,476.80	789	2824	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G508 (NEW) 185mm	3,678.80	789	4194	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P033 (NEW) 120mm	17.2	789	20	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P035 (NEW) 120mm	371.62	789	424	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6B (NEW)25 m	197.5	789	225	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6B-1 (NEW16)	164.22	789	187	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6B-2 (NEW16)	164.22	789	187	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P409 (NEW) 95 mm	349.92	789	399	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P409-1 (NEW) 50 m	255.92	789	292	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S602 (NEW) 70 mm	278.28	789	317	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S603 (NEW) 35 mm	213.8	789	244	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P507 (NEW) 95 mm	349.92	789	399	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P507-1 (NEW) 50 m	255.92	789	292	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S601 (NEW) 70 mm	278.28	789	317	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600 (NEW) 150mm	444.58	789	507	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600-1 (NEW) 35 m	213.8	789	244	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600-2 (NEW) 35 m	213.8	789	244	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	B600-3 (NEW) 25 m	197.5	789	225	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-001 (NEW4)00	714.72	789	815	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-002 (NEW4)00	952.96	789	1086	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-003 (NEW4)00	714.72	789	815	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-004 (NEW4)00	714.72	789	815	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G405 (NEW) 185mm	965.92	789	1101	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G406 (NEW) 185mm	965.92	789	1101	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G409 (NEW) 120mm	371.62	789	424	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G506 (NEW) 185mm	965.92	789	1101	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G507 (NEW) 120mm	371.62	789	424	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G508 (NEW) 185mm	965.92	789	1101	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P033 (NEW) 50 mm	292.32	789	333	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P035 (NEW) 50 mm	292.32	789	333	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6B-2 (NEW16)	135.96	789	155	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P409 (NEW) 25 mm	109.72	789	125	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P409-1 (NEW) 16 m	20.6	789	23	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S602 (NEW) 35 mm	265.68	789	303	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S603 (NEW) 10 mm	177.16	789	202	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P507 (NEW) 16 mm	129.78	789	148	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P507-1 (NEW) 50 m	23.2	789	26	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S601 (NEW) 35 mm	274.32	789	313	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-001 (NEW5)0 r	171.68	789	196	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-002 (NEW5)0 r	183.28	789	209	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-003 (NEW5)0 r	194.88	789	222	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-004 (NEW5)0 r	206.48	789	235	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G405 (NEW) 95 mm	282.03	789	322	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G409 (NEW) 95 mm	317.58	789	362	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G507 (NEW) 95 mm	341.28	789	389	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P033 (NEW) 50 mm	27.3	789	31	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P035 (NEW) 50 mm	27.3	789	31	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P405-6B-2 (NEW16)	24.36	789	28	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P409 (NEW) 25 mm	26.44	789	30	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P409-1 (NEW) 16 m	24.36	789	28	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S602 (NEW) 35 mm	24.4	789	28	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S603 (NEW) 10 mm	24.36	789	28	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P507 (NEW) 16 mm	24.36	789	28	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	P507-1 (NEW) 50 m	27.3	789	31	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	S601 (NEW) 35 mm	24.4	789	28	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-001 (NEW5)0 r	27.3	789	31	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-002 (NEW5)0 r	27.3	789	31	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-003 (NEW5)0 r	27.3	789	31	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G-LB-004 (NEW5)0 r	27.3	789	31	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G405 (NEW) 95 mm	59.32	789	68	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G409 (NEW) 95 mm	29.66	789	34	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1IES01GBP	07/06/2018	UK66452	IES Instrumentation Electric	Sub-Contracto	1770	G507 (NEW) 95 mm	29.66	789	34	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	11	-5	High Risk	5	0	3		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1LUC04GBP	28/01/2019	UK74902	Lucy Electric UK Ltd	Sub-Contracto	1770	HV Battery Charger	1,064.67	789	1214	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1LUC04GBP	28/01/2019	UK74902	Lucy Electric UK Ltd	Sub-Contracto	1770	Locks & Labels	894.5	789	1020	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1LUC04GBP	28/01/2019	UK74902	Lucy Electric UK Ltd	Sub-Contracto	1770	LV Charger Cells (Tw	2,129.34	789	2427	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1LUC04GBP	28/01/2019	UK74902	Lucy Electric UK Ltd	Sub-Contracto	1770	PFC Remedial Work	4,671.00	789	5325	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1LUC04GBP	28/01/2019	UK74902	Lucy Electric UK Ltd	Sub-Contracto	1770	Generator Charger (	1,064.67	789	1214	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1TOT01GBP	16/08/2018	UK69300	Total Energy Controls Limite	Sub-Contracto	1770	Site Survey – Load N	12,792.00	789	14583	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1TOT01GBP	16/08/2018	UK69300	Total Energy Controls Limite	Sub-Contracto	1770	Load Management s	114,104.00	789	130079	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1TOT01GBP	16/08/2018	UK69300	Total Energy Controls Limite	Sub-Contracto	1770	Switchboard A&B M	1,996.00	789	2275	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1TOT01GBP	16/08/2018	UK69300	Total Energy Controls Limite	Sub-Contracto	1770	Load Bank Control T	7,466.00	789	8511	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		
789 - No 1 Finsbury A	Commerical M&Elec Temp	1770 - Electrical installation	Medium	GBP	2.6	active	1TOT01GBP	16/08/2018	UK69300	Total Energy Controls Limite	Sub-Contracto	1770	Incomers C,D and E	2,066.00	789	2355	Electrical installation - insta		Ronan Keohane	No 1 Finsbury	1	5	High Risk	5	10	5		