





PROJECT MANAGEMENT PLAN

(INCLUDING CONSTRUCTION MANAGEMENT PLAN)

July 2014



BAM 1700 Hampstead Heath Ponds Project

Draft Project management plan

Revision B (see section 2.4 for revision history)

(Review date December 2014)

1.0 Introduction

This project management plan (PMP) is part of the management system documentation described within the BAM Nuttall Management Manual. It is the first strategic step in defining the managerial arrangements necessary to achieve the statutory, regulatory and customer requirements of this project. It also provides a strategic assessment of the risks to achieving a successful project outcome and meeting the objectives set out in this plan.

It is thus the first stage in project risk assessment and planning to identify the significant hazards for which appropriate controls are necessary to reduce risk. This is a live document and will be continually updated.

This PMP:

- incorporates the requirements of the construction phase health and safety plan (see Appendix 1) quality plan, and environment plan. It develops the content of the pre-construction phase information provided in accordance with the CDM Regulations.
- is project specific and focuses the BAM Nuttall procedures used throughout the company, and any business unit specific procedures, on the particular requirements of the project.
- contains, or makes reference to, sufficient information to identify how the project will be managed. It defines the project specific quality control plan, procedures and activity plans to be used to control the works, meet contract requirements and record compliance. Because not all of these procedures can be established immediately, the plan allows some details to evolve at an appropriate time.
- is to be reviewed and revised by the date indicated above, or before this if substantial changes make this desirable.

The project to which this plan relates is undertaken in accordance with the BAM Nuttall Management System and is within the scope of activities registered to ISO 9001: *Quality management systems*, ISO 14001: *Environmental management systems* and OHSAS 18001: *Occupational health and safety management systems.* It demonstrates compliance with the requirements of these standards.

The extent to which this plan assists the successful outcome of the project depends on the commitment, enthusiasm and professionalism of all those that work with it. It is considered that this plan provides the basis for an error-free performance.

Throughout this plan, the term 'agent' is used to denote the manager with overall responsibility for the project, irrespective of the actual title used by that manager.



2.0 Project management plan administration

2.1 Authorisation

This plan is authorised for use by the agent, area health and safety advisor and area environment advisor who confirm by signature that the plan meets BAM Nuttall, client and legislative requirements. It is verified as meeting BAM Nuttall system requirements and those of ISO 9001, ISO14001 and OHSAS 18001 by signature of the relevant quality manager. The business unit manager signs in acceptance of overall responsibility for effective operation of the plan.

	Name	Signature	Date
Agent	lan Grant		
Area safety advisor	Carole Winter		
Area environment advisor	Arjun Thirunavukarasu		
Quality manager	Gavin Avery		
Business unit manager	Ken Selway		

2.2 Inputs to the plan

This plan is based on the contract documents referred to in table 4.1 and any pre-construction information provided by the client, the designer and/or forwarded by the principal contractor.

It has been prepared taking account of:

- ISO 10005:2005 Quality management guidelines for quality plans
- ISO 9004:2000 Quality management systems Guidelines for performance improvements,
- PD 6079-4: 2006 Guide to project management in the construction industry,
- PAS 99:2006 Specification of common management system requirements as a framework for integration
- The Construction (Design and Management) Regulations 2007 Approved Code of Practice Managing health and safety in construction

The control measures defined within subsidiary documents to this plan (risk assessments, procedures, activity plans and inspection and test plans), are primarily based on the following information sources:

- Relevant legislation
- BAM Nuttall procedures
- BAM Nuttall documents manual
- CITB GE 700 Construction Site Safety Manual
- CIP Construction Safety Manual
- CIP Site Environment Manual



2.3 Distribution

This project specific plan, once approved and verified is distributed by the agent. Copies of this plan are distributed to:

Сору	То	Controlled/ Uncontrolled	Date of issue	Signature of recipient
01	Site file	Controlled		
02	Paul Monaghan, Clients representative	Controlled		
03	Carol Sprigge, CDM Coordinator	Controlled		
	Carole Winter, Area health and safety advisor	Uncontrolled		
	Arjun Thirunavukarasu, Area environment advisor	Uncontrolled		
	BP&S, head office (by email)	Uncontrolled		

Recipients of controlled copies sign and return a copy of this sheet in confirmation that they have received the plan and have removed/clearly marked previous issues as superseded.

A fully verified and authorised copy of this front sheet is sent to the BP&S department at head office.

2.4 Revisions

Revision ref.	Description	Date
А	Draft issue for planning	02/07/14

Revisions to this plan are made and approved in the same way as the originals including the obtaining of client approval and authorisation where required by the conditions of contract.

Minor amendments are listed in the amendments below and are not referred to the plan signatories. Minor amendments to procedures are dealt with by the agent through the issue of site memoranda. Records of these are maintained with the procedure and the documents are amended at a convenient time.

Section	Minor amendment	Date





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4.0 The project

4.1 The project works

The project to which this plan relates is described in **Table 4.1**, together with details of the client, the client's representative, the designer(s), other consultant(s), the CDM coordinator, the principal contractor, the conditions of contract and the type of specification.

Where the plan is only sufficient for the initial stages of the project, (eg site establishment and clearance), this is defined in **Table 4.1** and an appropriate review date is entered on the front sheet. The plan is developed and revised for the following stages of the project prior to this date.

Any project work not covered by this plan, such as client own work, statutory authority work and client supplied items, are listed in **Table 4.1**. Permanent design work included as part of this project is detailed in section 6.6.

Table 4.1 – The project	
Description of the project	 The purpose of the Project is to safeguard the integrity of the dam structures in the face of extreme flood events so as not to exacerbate the effect of flooding on the downstream residents and property whilst at the same time safeguarding the integrity and character of the unique Hampstead Heath environment. The works include:- Site clearance. Construction of earthworks dams, using locally sourced clay. Construction of culverted spillways. Construction of reinforced earth surface spillways. Drainage works. Sheet piling to raise crest heights. Crest levelling and restoration Desilting to various ponds to help improve water quality. Terrestrial and aquatic environmental mitigation works. M & E works to install aeration units to improve water quality. Demolition and construction of new bathing facitities at Ladies Bathing pond. Construction of footpaths/access paths All permanent works design is the responsibility of The Designer (Atkins).
Client	City of London
Client representative	Paul Monaghan
Designer	Atkins
Principal contractor	BAM Nuttall
CDM Coordinator	Carol Sprigge
Other consultant	Capita (Cost consultant)
Conditions of contract	Project Partnering Contract PPC 2000 (amended 2008)
Specification	TBC
Project works covered by this plan	All works expected at planning application stage. Excludes works by City of London carried out under The Heath Management Plan and statutory undertakers works.
Significant works to be subcontracted	Desilting and terrestrial and aquatic environmental mitigation works, asphalt surfacing



4.2 Project programme

The outline programme for the works is as described in **Table 4.2**. Whilst the anticipated completion date stated is updated as necessary in revisions to the PMP, it is indicative only and has no contractual significance.

Table 4.2 – The project programme	
Contract award date	19 th March 2014
Start on site date	Estimated Jan 2015
Sectional/milestone completion dates	None
Anticipated completion date	Oct 2016

4.3 **Project objectives**

BAM Nuttall seeks to meet its overall objective of satisfying all stakeholders to this project. This will be achieved by fulfilling client requirements whilst avoiding harm, injury or ill-health to anybody, preventing any damage to, and where possible enhancing, the environment, treating all people with respect, being mindful of the local community in which the project works take place, enhancing the reputation of BAM Nuttall, making a fair commercial profit and learning for improvement.

The specific objectives concerning production and service provision are as set out in the specification and other contract documents.

The agent monitors performance and records data for input into the BAM SMART database and other project KPI database from which the performance of the project and business unit can be benchmarked and the overall performance of the company can be measured against its targets.

In addition, specific objectives with measurable performance indicators and targets, including those set by the client, are defined for this project within **Table 4.3**.

Table 4.3 – Project objectives			
Objective	Performance indicator	Target	
Zero tolerance of accidents	Monthly report stating RIDDOR accidents Quarterly report covering all reported accidents, near misses, new risk assessments, changes in legislation, the Constructor's Health & Safety minutes, audits, inspections and actions undertaken and other health and safety issues raised by customers, staff and supply chain.	95% of reports accident free 85% of reports near miss free.	
Zero Unacceptable Defects	Monthly report stating work complete and defects identified and remedied.	90%	
Carrying out the Project in accordance with the Partnering/Project Timetable	% programme predictability = Total milestone on time x 100/Total programme milestones	95%	
Carrying out the Project in accordance with agreed budgets	% budget compliance = planned stage cost x 100/Actual stage cost	80%	
Protection of the Heath's environment and Stakeholder Satisfaction	ТВА	ТВА	
Whole Team Performance	ТВА	ТВА	



Table 4.3 – Project objectives		
Objective	Performance indicator	Target

4.4 **Project policy statement**

The project team are committed to the success of the project and the achievement of the objectives set out in **Table 4.3**. This commitment is confirmed by the signing of the project policy statement included as **Schedule 1** of this plan.

5.0 Management arrangements

5.1 Organisation and responsibilities

Schedule 3 of the BAM Nuttall Management Manual Part 2 of the BAM Nuttall health and safety policy document BAM Nuttall Procedure NP17: *Signatory powers and controls*

The agent is responsible for the implementation of this plan. He ensures that:

- the requirements of this plan are communicated to the project team and subcontractors required to work in accordance with it
- all activities are planned, implemented and controlled
- the activities of those working to this plan are coordinated and interface problems resolved
- progress of implementation is monitored
- corrective and preventive actions are controlled
- audit findings are reviewed and actioned as appropriate
- this plan is reviewed from time to time and revised as necessary

The agent assembles a project team of sufficient size and competence to suit the scope of project works and assigns specific duties to its members. If the project scope includes contractor designed elements by an external designer, the agent ensures that the project team includes suitable and sufficient members to manage and deliver the design.

The organisation chart of **Schedule 2A** describes the project team and their relationships. This team is constantly reviewed against changes in the scope of the work.

Schedule 3 of the BAM Nuttall Management Manual lists the general responsibilities and authority of personnel within this team and additional health and safety responsibilities are detailed in part 2 of the BAM Nuttall health and safety policy document.

Specific responsibilities for production or service provision are allocated by the agent to personnel within the team. For significant matters, this is generally specified within project procedures or activity plans. If any discrepancy exists between the generality of Management Manual Schedule 3 or H&S Policy Part 2 and the requirements of a specific procedure, the procedure takes precedence.

The agent gives written notice to individual personnel of responsibility for the designated roles listed in **Schedule 2A**. In addition, specific signatory powers are delegated to individuals within the project team by the agent, in accordance with BAM Nuttall Procedure NP17: *Signatory powers and controls*. These are detailed in **Schedule 2B**.

The organisation chart and signatory powers are amended as the project team members or their specific responsibilities change. Records of changes are retained in the project records so that responsibility at each stage of the work can be identified.



Where responsibilities are assigned in the Management Manual, this plan or its subsidiary documents to a role that is not included in the project team, these responsibilities are taken by the person to whom that role is responsible.

Personnel at every level are required to actively help to eliminate adverse effects on health and safety, quality, the environment and the business by personal example, the application of their knowledge, experience and management skills or by bringing matters to the attention of their supervisors. Personnel are empowered to stop their work where this is essential to prevent adverse effects on health, safety, quality or environment, and are required to notify their supervisor immediately.

5.2 Client and other stakeholder communication

The agent determines and implements effective arrangements for formal communication with the client or his representative in relation to information, enquiries, amendments, approvals and feedback including complaints.

On this project, such communication is achieved at review meetings and as indicated in **Table 5.2a**.

Table 5.2a – Client communication	
Name of client representative contact	Paul Monaghan
Position and organisation	Client representative
Contact details	твс
Arrangements for formal review meetings	Monthly or as agreed

In addition, the agent establishes communication links with other stakeholders such as the Designer, CDM Coordinator, local authority, regulators, community representatives etc. Details of these are provided in **Table 5.2b**.

In addition, informal communication is encouraged at all levels.

Table 5.2b – 3rd party communication			
3 rd party	Name of contact	Contact details	
Designer	Mike Woolgar	Atkins	
		Woodcote Grove,	
		Ashley Road,	
		Epsom,	
		Surrey KT18 5BW	
		Tel: TBC	
		Mobile: TBC	
		Email: TBC	
CDM Coordinator	Carol Sprigge	Atkins	
		The Wells,	
		3-13 Church Street,	
		Epsom,	
		Surrey KT17 4PF	



Table 5.2b – 3rd party communication		
3 rd party	Name of contact	Contact details
		Tel: TBC
		Mobile: TBC
		Email: TBC
Cost consultant	Graham Grabski	Capita
		Procter House,
		1 Procter Street,
		London WC1V 6DW
		Tel: TBC
		Mobile TBC
		Email: TBC
Principal contractor	lan Grant	BAM Nuttall
		St James House,
		Knoll Road,
		Camberley GU15 3XW
		Tel: TBC
		Mobile TBC
		Email: TBC
Local authority	TBC	London Borough of Camden

5.3 Change control

BAM Nuttall Procedure NP21.1: Change management during the construction and project management phase

All changes to contract requirements, together with changes to arrangements, resources and subcontracts are recorded in accordance with any relevant contract requirements, and on the project change management register (CMR) in accordance with the requirements of BAM Nuttall procedure NP21.1: *Change management during the construction and project management phase.*

Superseded documents are promptly withdrawn from use and are clearly marked as superseded.

All changes to construction requirements are reviewed for possible effects on existing risk assessments and subsequent control arrangements.

Changes to BAM Nuttall procedures and guidance documents are notified to agents via controlled email and to all personnel via bulletins. Changes to legislation are monitored by the Director, Health and Safety and Company Environment Manager as appropriate in accordance with departmental procedures and notified via bulletins and/or issue of revised documents.

Changes to this plan are referred to in section 2.4.

5.4 **Project management documentation**

The following documents are to be used in the management of the project:

- This project management plan
- Mandatory BAM Nuttall procedures and standards
- BAM Nuttall guidance documents (including standard checklists and forms)



- Project health, safety and environmental risk assessments
- Project procedures, method statements and activity plans
- Project risk and opportunity register (ROMR)
- Project resourced programmes
- Drawing register
- Change management register (CMR) including register of early warnings and compensation events (or equivalent dependent on contract)
- Requests for information
- Register of nonconformities and complaints
- Inspection and test plans
- Register of submissions and approvals
- Records

The agent is responsible for ensuring that the relevant documents are available to personnel required to use them and personnel carrying out work are responsible for ensuring that current documentation is used.

5.5 Project review

BAM Nuttall Procedure NP13: Review

Reviews of contract requirements are undertaken by the agent to ensure that requirements are adequately defined and documented and that queries are resolved.

Reviews are held at the start of each project by establishing the requirements specified by the client, (including programme), requirements not specified but necessary (information required), statutory and regulatory requirements and any additional requirements.

Further reviews are undertaken throughout the duration of the project at internal meetings of the project team and at meetings with the client's representative to verify that planned arrangements remain suitable and are effective in controlling the work. These meetings also review the results of audits, nonconformities and problems and establish actions to prevent recurrence and improve the system (see section 90).

Reviews are held in accordance with BAM Nuttall Procedure NP13: *Review* and the anticipated frequency, attendance and agenda for meetings are set out in **Tables 5.5a and b**.

Table 5.5a – Review meetings		
Meeting	Frequency	Attendance
Progress	Monthly	Contracts Manager Agent Site QS Client representatives
Internal site co- ordination	Weekly Thursday AM	Agent General Foreman Sub-agent QSs Site Environmental Manager
Internal health, safety and environment review	Monthly	Agent Sub-agent General Foreman Site Environmental Manager QSs Site safety and environment engineers
Internal section	Weekly Thursday pm	Sub agents All section staff QS



Table 5.5a – Review meetings		
Meeting	Frequency	Attendance
Design management/ review meeting	Monthly	Agent Environmental Manager

Table 5.5b – Review meeting agendas					
Minimum agenda items	Progress	Internal site co- ordination	Internal HS&E	Section	Design Manage- ment meeting
Review and agree previous minutes/actions	✓	✓	✓	✓	~
Health, safety and welfare	✓	✓	✓	✓	
Environment	✓	✓	✓	✓	
Progress and programme	✓	✓		✓	✓
Resources – plant, materials and labour		✓		~	✓
Client requirements and information required against programme. Review registers of TQs/RFIs, SIs/CVIs, and drawings.	✓	✓		✓	✓
Commercial matters	✓	✓		1	~
Risk assessments, activity plans, inspection and test checklists and approvals	~	~	~	~	~
Suppliers and subcontractors performance, future programme, client approval.	✓	✓	✓	✓	✓
Nonconformities, problems, complaints, improvements.		✓	~	*	*
Results of audit, audit plan.		1	✓		
Quality control plan and allocation of inspection duties and approvals	~	~			1
Contract records (as-built drgs, test results, completed checklists, maintenance manuals)	✓	✓			~
Objectives and targets	~	~	1		
Design delivery risks	✓				✓
Value engineering	✓	~			✓
Next meeting date	✓	~	∕	✓	

To ensure that the best available technical knowledge is provided to the project agent, technical reviews are held for matters where there is significant risk in terms of:

- health and safety
- quality of construction
- environmental impact
- company image and/or reputation

Activities to be subject to technical review, together with approximate timing, are listed in Table 5.5c.

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Table 5.5c – Technical review	
Project activities subject to technical review	Approximate date of review
TBC	ТВС

Records are maintained of all reviews in the form of meeting notes, records of actions, correspondence, requests for information or as required by the contract.

5.6 Project design

BAM Nuttall Procedure NP7: *Control of design* BAM Nuttall Procedure NP20: *Management of lead design services*

BAM Nuttall is responsible for the design of temporary works listed in Table 5.7.6.

Table 5.6 – Permanent works design	
Element of work to be designed	Name of designer
All permanent works	Atkins

Design is managed in accordance with BAM Nuttall Procedure NP7: *Control of design* when undertaken or controlled by the BAM Nuttall design department, and NP20: *Management of lead design services* where external design consultants are appointed as the lead designer for projects that are entirely contractor-designed, including ECI projects, or have a significant contractor designed element.

Design is undertaken in accordance with the designer's management system and quality plan which defines applicable codes, standards, specifications and regulatory requirements. The project design coordinator ensures that the designer's quality plan is reviewed for sustainability, defines the required verification level, in accordance with the contract, interfaces with this project management plan and complies with the terms of the design agreement. The design coordinator also ensures that all designers cooperate and that design risk assessments are prepared to identify and mitigate hazards inherent in the design.

The project design coordinator ensures that design information, including all design changes and risk assessments, is issued to the CDM Coordinator.

All design risk assessments are considered during the preparation of this project management plan (see section 8.2).

The designer is also responsible for ensuring that the work of all his subcontract designers meets the overall design requirements.

The agent refers any subcontractor designed temporary works, including formwork and falsework, to the BAM Nuttall design department for checking in accordance with BAM Nuttall Procedure NP7: *Control of design.*

5.7 **Project verification and validation**

BAM Nuttall Procedure NP25.3: Technical and engineering delivery during the construction and project management phase

BAM Nuttall Procedure NP25.4: Technical and engineering delivery of a construction activity on site.

5.7.1 Verification of quality control

Delivery of the technical and engineering requirements of the project is managed primarily by ensuring an



understanding of these requirements, use of a team of suitable and competent personnel and the undertaking of adequate planning, as described in BAM Nuttall Procedure NP25.3: *Technical and engineering delivery during the construction and project management phase*.

To verify that this planning is successful in controlling quality, the work is monitored closely and verified as it progresses and prior to being covered up as described in BAM Nuttall Procedure NP25.4: *Technical and engineering delivery of a construction activity on site.*

Verification is carried out by sampling, inspection and test.

- Some testing is carried out before work commences in order to verify by inspection that the site, its condition, levels and services are as anticipated by the design.
- All excavated formation levels are inspected by the designer to verify suitability for construction.
- Sampling and testing of materials is undertaken in accordance with specification requirements with
 results submitted to the client, his representative or the designer and maintained as project records.
- Additional sampling and testing of materials is undertaken, as appropriate, to control risk of nonconformity to BAM Nuttall.
- Workmanship is inspected against prepared inspection and test plans or checklists and offered to the client, his representative or the designer, by issue of an 'approval of work form'.

These verification arrangements are set out in the quality control plan of **Schedule 3**. If BAM Nuttall is contractually responsible for certification of the works under a rigorous self-certifying system based on checklists for each item of work, this is indicated in the quality control plan.

Inspection and test plans or checklists define the means of demonstrating that specified requirements are met. They list inspection/test procedures, frequency of testing, witness/approvals, responsibility for test and record requirements.

The extent to which checklists are prepared and completed for items of work is dependent on the risk of nonconformity. This risk is a function of the complexity of the work activity, the competence of the resources undertaking it and the consequences of failure. A list of inspection and test plans or checklists is provided in **Schedule 5**.

The testing engineer is responsible for ensuring that materials incorporated into the works are sampled and tested in accordance with the specified frequency and methods defined in the material inspection and test plan (SHW Appendix 1/5 or similar). The testing engineer monitors/analyses the test results to determine conformity with requirements and maintains the files of test records to demonstrate compliance.

5.7.2 Design validation

The arrangements for any design validation, as required by the specification or designer's quality plan, are set out in the quality control plan of **Schedule 3**.

The design coordinator ensures that testing or plant trials are supervised appropriately, the designer is notified of the results and that the designer reviews them.

5.7.3 Verification of health and safety control

Site operations are monitored to ensure:

- legislative requirements are met
- client requirements are met
- BAM Nuttall policy requirements and the requirements of OHSAS 18001 are met

BAM Nuttall places prime responsibility for ensuring the safe and healthy conduct of its activities on line management. This is accomplished by the monitoring of site operations and activities by all managers and supervisors. The agent undertakes formal site health and safety inspections weekly and periodic health and safety tours are also undertaken by directors and senior managers.

Where appropriate, site safety engineers are appointed to carry out weekly health and safety inspections



as part of their normal role and report in writing to the agent. This is a developmental role and site safety engineers are not expected to be experts in health and safety. The agent ensures that timely action is taken as a result of the report as necessary.

The Director, Heath and Safety ensures that for every BAM Nuttall site a health and safety advisor is appointed, whose duties include regular site safety inspection and report. The frequency of inspection is based on risk with an increased frequency for sites of a particularly hazardous or complex nature. Safety reports are made of every visit, with copies to the agent, business unit manager and Head of Heath and Safety. The agent confirms to the business unit manager actions taken as a result of the report.

5.7.4 Verification of environmental control

Site operations are monitored to ensure:

- Legislative requirements are met.
- Client requirements are met.
- BAM Nuttall policy requirements and the requirements of ISO 14001 are met.

BAM Nuttall places prime responsibility for minimising the detrimental environmental impact of its activities on line management. This is accomplished by the monitoring of site operations and activities by all managers and supervisors. The agent undertakes formal site environmental inspections weekly and periodic environment tours are also undertaken by directors and senior managers.

Where appropriate, site environment engineers are appointed to carry out weekly environment inspections as part of their normal role and report in writing to the agent. This is a developmental role and site environment engineers are not expected to be experts in the environment. The agent ensures that timely action is taken as a result of the report as necessary.

In addition, specific monitoring is achieved by site personnel carrying out checks and measurements as defined in **Schedule 6A**.

The Company Environment Manager ensures that for every BAM Nuttall site an environment advisor is appointed, whose duties include regular environmental inspection and report. The frequency of inspection is based on risk with an increased frequency for sites of a particularly hazardous or complex nature. Environment reports are made of every visit, with copies to the agent, business unit manager and Company Environment Manager. The agent confirms to the business unit manager actions taken as a result of the report.

5.7.5 Verification of temporary works

BAM Nuttall Procedure NP19: Control of temporary works.

The mandatory BAM Nuttall requirements to ensure that all reasonably practical steps are taken to achieve construction, use, maintenance and removal of temporary works which meet statutory and contractual obligations are set out in BAM Nuttall Procedure NP19: *Control of temporary works*.

A temporary works coordinator (TWC) is appointed by the business unit manager, in agreement with the BAM Nuttall Chief Design Engineer and is responsible to the agent as described in this procedure.

On this project, items of significant temporary works are listed in **Table 5.7.5**

Table 5.7.5 – Significant temporary works	
Items of temporary works design anticipated	Designer
Temporary Aquadam	ТВС
Temporary Cofferdams	TBC
Temporary access routes	TBC



5.8 Project records

BAM Nuttall Procedure NP10.3: *Management of documents during the contract phase of a project* BAM Nuttall checklist EC03: *Site environment folder*

Project records are maintained throughout the duration of a project as evidence of the compliance, conduct, progress and certification of the project works, and to provide assurance that requirements have been met.

These records include all correspondence, instructions, minutes of meetings, as-built programmes, resource schedules, registers, test certificates, inspection checklists, training records etc. Project records are maintained and archived in accordance with the project document control system defined within this project management plan and designed in accordance with BAM Nuttall Procedure NP10.3: *Management of documents during the contract phase of a project.*

Files are maintained of all health and safety records to be collected. Risk assessments, activity plans and subcontractor documents are filed within the project filing system.

Accident book entries are handed to the visiting health and safety advisor as and when they are completed. These are retained in the health and safety department filing system.

Any health surveillance and screening records not automatically maintained by the BAM Nuttall occupational health service provider are sent to the HR department at head office.

On completion of the project, the health and safety records are returned to the area health and safety advisor for filing in the health and safety department archive.

The health and safety file, required in accordance with the CDM Regulations, is prepared by the CDM Coordinator. BAM Nuttall inputs data, including subcontractor supplied data, to the file as follows:

- as built drawings as identified under the contract
- relevant electrical test certificates for permanent works
- COSHH data for permanent materials and products incorporated in the works where still relevant
- other items as identified by the CDM Coordinator

Arrangements for the collection and storage of this information are agreed with the CDM Coordinator and notified to all relevant contractors during the start up meeting.

Environmental records are retained in files within the project filing system in accordance with BAM Nuttall checklist EC03: *Site environment folder.* Waste transfer notes are retained for two years and hazardous waste consignment notes for three years.

5.9 Project document management

BAM Nuttall Procedure NP10.3: Management of documents during the contract phase of a project

The agent establishes a formal project document management system in accordance with the following requirements, and any business unit specific requirements, as described in BAM Nuttall procedure NP10.3: *Management of documents during the contract phase of a project.*

All documents received or issued by the project are controlled and maintained in accordance with this project system. It is fully described in a project specific procedure, the relevant parts of which are communicated to all project personnel required to work with documents. The procedure defines how:

Receipt of documents

- Incoming paper correspondence is dated and registered before being handed to the agent.
- Incoming paper documents such as drawings, programmes, reinforcement schedules and sketches are registered and handed to the agent under cover of the correspondence or transmittals accompanying them.
- All email correspondence with contractual, commercial, statutory or reputational significance is received into a project email address, accessed by the agent. Any such email correspondence



received at personal email addresses is immediately forwarded to the project address without being actioned.

Distribution of documents

- Paper correspondence or other documents are distributed to members of the project team by the agent with instructions as to action to be taken.
- Email correspondence or other electronic documents are forwarded to members of the project team by the agent with instructions as to action to be taken.
- Documents are only available to those with permission to view them.

Issue of documents

- Outgoing paper correspondence is dated, referenced and signed in accordance with the project delegated signatory powers.
- Outgoing documents such as documents such as drawings, programmes, schedules and sketches are issued under cover of correspondence.
- Outgoing email correspondence is titled with the project name, project reference and subject in the same manner as for paper correspondence and issued from the project email address by project personnel authorised in accordance with the project delegated signatory powers.
- Submissions of information in accordance with contract requirements are issued under cover of correspondence.
- Project generated documents such as drawings, programmes, procedures, activity plans, risk assessments, records and checklists are referenced, dated and registered and made readily available to project personnel who need to use them.

Retention of documents

- A master copy of all documents is stored within a project specific filing system which complies with the BAM Nuttall project Unified Filing System (UFL).
- A register is established of document series to be used with each series of documents selected as being either electronic or paper based and a register maintained of the locations of each series of master copies.
- A convention for naming electronic document files is adopted.
- Superseded documents are marked as such and filed in such a way as to ensure they are not used accidentally.
- Back-up files are maintained (both paper based and electronic) within an independent and remote location, for use in the event of failure of the primary file store.
- Master copies of document files are archived on completion of the project and eventually disposed of in accordance with company procedures.

 Table 5.9 – Document management arrangements

 Document management system
 Document types

 BAM Nuttall Document Manager software
 Incoming correspondence

 Outgoing correspondence
 Outgoing correspondence

 RFIs
 Transmittal sheets

 4 Projects
 Issues to the Project Partnering Team

Project specific arrangements for document management are described in Table 5.9

5.10 Project nonconformity, complaints and corrective action

5.10.1 Quality nonconformity

Quality nonconformities, complaints and corrective action are dealt with in accordance with BAM Nuttall Procedure NP14: *Nonconformity, corrective action and prevention*. Nonconformities may be defects in work items or failures of management systems.



Any person discovering a potential nonconformity reports it to the engineer responsible for inspections of that element of work so that it can be resolved immediately wherever possible. The engineer also informs his line manager.

The agent ensures that engineers:

- Record the nonconformity/complaint on a register
- Propose action to correct the nonconformity or accept it under a concession
- Seek approval of other parties to corrective action where necessary (eg designers)
- Establish action to eliminate recurrence of the nonconformity by analysis of the causes and institution and monitoring of appropriate changes

5.10.2 Health and safety nonconformity

Nonconformity in respect of health and safety is recorded as an accident or incident, ie reportable accident, a lost time accident, an accident book entry, a reportable dangerous occurrence, a health and safety incident, a 'near-miss' or an inspection finding as appropriate.

The responsibility for recording and reporting and investigating accidents and incidents rests with line management, assisted as necessary by health and safety advisors trained in accident investigation techniques. BAM Nuttall arrangements are designed to:

- satisfy statutory reporting requirements
- provide measures of safety performance
- prevent recurrence and promote improvement

Reportable accidents, dangerous occurrences and near-miss incidents are reported in accordance with BAM Nuttall procedure NP1.14: *Reporting injuries and dangerous occurrences,* and safety guidance SG27: *Observation and near miss reporting* respectively. Accident book entries and inspection findings are recorded on the health and safety department database in accordance with departmental procedures.

Investigation concentrates on identification of root causes in order that appropriate action can be taken to avoid recurrence. Periodic reviews of accidents and incidents are made and analysed by the Director, Health and Safety to ensure that all necessary action has been taken. Recurrent problems or those relevant to other projects are referred to business unit system review meetings for the initiation of suitable longer term actions.

5.10.3 Environmental nonconformity

BAM Nuttall Procedure NP14: Nonconformity, corrective action and prevention BAM Nuttall Procedure NP1.14: Reporting injuries and dangerous occurrences Safety guidance SG27: Observation and near miss reporting Environment procedure EP08: Reporting environmental incidents

Nonconformity in respect of environmental matters is recorded as an environmental incident, near miss or inspection finding.

The responsibility for recording and reporting and investigating environmental incidents rests with line management, assisted as necessary by environment advisors trained in accident investigation techniques.

Incidents are reported in accordance with BAM Nuttall environment procedure EP08: *Reporting environmental incidents,* and inspection findings are recorded on the environment department database in accordance with departmental procedures.

Investigation concentrates on identification of root causes in order that appropriate action can be taken to avoid recurrence. Periodic reviews of incidents are made and analysed by the Company Environment Manager to ensure that all necessary action has been taken. Recurrent problems or those relevant to other projects are referred to business unit system review meetings for the initiation of suitable longer term actions.



5.11 Project audit

BAM Nuttall Procedure NP12: Audit

A programme of audit in each business unit is set by the business unit manager at system review meetings in accordance with BAM Nuttall Procedure NP12: *Audit.*

Audits are programmed to match current demands and problems and system coverage is monitored by the Company Quality Manger, Head of Health and Safety and Company Environment Manager who advise the directors as to the continuing sufficiency of the programme. The purpose of audits is to:

- verify compliance with BAM Nuttall arrangements for quality, health and safety and environmental management at the location and in particular to check compliance with this project management plan (operational requirements)
- assess management against ISO 9001, BS OHSAS 18001 and ISO 14001 to highlight potential improvements in the system and to verify against an objective standard that good management practice is in operation (system requirements)
- confirm that the system gives satisfactory effect to statutory requirements and BAM Nuttall policy (regulatory requirements)

Audits are undertaken in accordance with BAM Nuttall Procedure NP12: *Audit* by trained internal auditors who are selected by the business unit manager and are independent of the project. Business unit managers ensure prompt close out of actions arising from audits.

The agent makes arrangements to accommodate internal audits, together with any external audits requested by the client or his representative, or arranged by the Company Quality Manger, Head of Health and Safety or Company Environment Manager for the registration bodies.

5.12 Budget and financial control

BAM Nuttall Procedure NP9: *Budget and financial control*

The commercial aim of BAM Nuttall is to reconcile the requirements of the client to acquire a good product at a fair price with the requirement of the shareholders, for a continuing, predictable and good return on capital invested.

In meeting this aim, BAM Nuttall sets the highest standards of honesty and integrity.

BAM Nuttall seeks to deliver a sustainable business result by implementing a process of comprehensive, effective and consistent budget and financial control. This process is described in BAM Nuttall Procedure NP9: *Budget and financial control,* together with its various commercial sub-procedures. This procedure describes how the project team:

- establishes a robust performance monitoring systems that provide a basis for subsequent commercial monitoring during the life of the project
- obtains a timely understanding of the projects performance against budget, taking into account the programme position
- provides management with a report of accurate and auditable costs at the end of each monthly accounting period.
- ensures that applications for payment, certification and cash received are all in accordance with the contract
- provides a reliable and clear forecast of the expected financial outcome of the project
- prepares clear, accurate and comprehensive commercial plans and reports

The commercial procedures are not subject to external audit except for appropriate parts to suit contractual arrangements under target cost and open book type contracts as set out in Table 5.12.

Internal process audits are used, as programmed, to assess the effectiveness of the commercial systems.



As an incorporated company, BAM Nuttall adopts accounting procedures consistent with common and agreed UK accounting policies and the company's accounts are independently audited against corporate and legal requirements.

Table 5.12 – Project commercial auditing arrangements
As required by the contract.

6.0 Infrastructure and the work environment

The following section describes the site-wide arrangements to be made in relation to the community in which the site is situated, the natural features and wildlife of the site and facilities for the prevention of environmental damage and the maintenance of the health, safety and welfare of the workforce.

6.1 The local community

The agent investigates the local area around the site and identifies residents, businesses, facilities such as hospitals and schools, associations and other community organisations that could be adversely affected by the project works. In consultation with the client, or his representatives, and subject to any contract restrictions, the agent communicates with those affected, explains the nature of the works and attempts to allay any fears and concerns.

Particular attention is given to site neighbours, who are continually informed of matters affecting their property and activity.

Where the project works take place within existing client facilities, arrangements are made to ensure coordination of project activities and those currently being undertaken. Particular attention is given to site area demarcation, access and security arrangements and compliance with any relevant existing facility arrangements and rules.

Opportunities are also sought for positive action in the local community such as support to local businesses, school visits and assistance with community improvement projects.

In accordance with BAM Nuttall's Associate Membership of the Considerate Constructor's Scheme (CCS), the project is registered with the scheme unless the client restricts such membership or BAM Nuttall is working as contractor on another principle contractor's site.

Outline arrangements for community liaison and support are defined in **Table 6.1**. Where a separate community action plan is to be produced, reference to this is made in **Table 6.1**.

Table 6.1 – Community liaison and support		
Parts of community affected by the project works	Method of liaison and/or type of support provided	
Heath & Hampstead Society	ТВА	
Highgate Conservation Area Advisory Committee	ТВА	
Mansfield Conservation Area Advisory Committee	ТВА	
Mansfield Neighbourhood Association	ТВА	
Heath Conservation Area Advisory Committee	ТВА	
Highgate Society	ТВА	
Hampstead Garden Suburb Residents Association	ТВА	
Dartmouth Park Conservation Area Advisory Committee	ТВА	



Table 6.1 – Community liaison and support		
Parts of community affected by the project works	Method of liaison and/or type of support provided	
London Orienteering Klubb	ТВА	
Vale of Heath Society	ТВА	
Hampstead Scientific Society	ТВА	
Hampstead & District Rambles	ТВА	
Camden History Society	ТВА	
London Natural History Society	TBA	
Marylebone Bird Watching Society	ТВА	
Hampstead Heath Anglers Society	ТВА	
Highgate Harriers	ТВА	
Highgate Life-Buoys	ТВА	
Highgate Men's Pond Association	ТВА	
Kenwood Ladies Pond Association	ТВА	
Hampstead Rugby Club	ТВА	
London Heathside Athletics Club	ТВА	
United Swimmers Association of	ТВА	
Hampstead Heath		
Mixed Ponds Association	TBA	
Parliament Hill Lido Users Group	ТВА	

6.2 Archaeology and listed structures

Environment guidance EG11: *Working on archaeological sites* Environment guidance EG12: *Working with listed buildings*

Arrangements are made for the identification and protection of areas of archaeological interest or listed structures and buildings. Any such areas identified during the undertaking of the project works are immediately brought to the attention of the client and instructions sought.

Arrangements for dealing with known archaeological areas or listed structures are defined in **Table 6.2** in accordance with BAM Nuttall environment guidance EG11: *Working on archaeological sites* and EG12: *Working with listed buildings*.

Table 6.2 – Archaeology and listed structures		
Areas of site subject to archaeological interest or with listed structures	Nature of interest, method of protection or other arrangements	
Hampstead Heath is of general archaeological interest having been used as a settlement since the Mesolithic period.	A historic environmental assessment has been carried out by Museum of London Archaeology (MOLA) to determine areas of specific environmental interest within the works areas. Further investigation was carried out during the ground investigation works including watching briefs and analysis of bore hole samples. BAM Nuttall will comply with any recommendations made by MOLA which may include further watching briefs during excavation works.	
Bodicea's tumulus in East Heath (HEA 25)	None of the construction areas on the Heath are in the vicinity of the Tumulus. Transport routes to the various sites will be arranged to avoid the area of the Tumulus.	
Site of Maryon Wilson's Brickworks	BAM Nuttall will comply with any recommendations made by MOLA which may include further watching briefs during excavation works.	
Viaduct Bridge	The road over the Viaduct bridge is subject to a weight loading of	



Table 6.2 – Archaeology and listed structures	
Areas of site subject to archaeological interest or with listed structures	Nature of interest, method of protection or other arrangements
	10 tonnes. BAM Nuttall will comply with this weight limit.
Bird Bridge	No access routes to site will pass over Bird Bridge. No works are planned in this area.

6.3 Site security

Appropriate site security arrangements are selected by the agent following an assessment of the risks of injury to trespassers (especially children for which there is a higher duty of care), protester action, vandalism and theft of materials and plant. Outline arrangements are defined in **Table 6.3**

Table 6.3 – Site security	
Security fencing	Solid Heras fencing with occasional mesh panels
Warning signs	At regular intervals around site fencing
Security guarding	Outside of normal working hours ie nights and weekends

6.4 **Protecting the public**

Appropriate arrangements are made by the agent to ensure the health and safety of the public when adjacent to, visiting or crossing the site. Outline arrangements are defined in **Table 6.4**.

Table 6.4 – Public protection arrangements		
The following interface areas have been identified		
To be identified at different worksites	Details to be included in local activity plans	

Interface areas are identified and appropriate measures introduced to control any risk to the public as part of detailed assessment and preparation of activity plans.

Access to the site office reception is designed so as to offer free and safe access to site visitors and the public at all times, including those with disabilities. Where this is not practicable, a suitable call point is placed at the nearest public access point and signage provided to explain its use. Suitable ad-hoc arrangements are then made if necessary.

6.5 Welfare arrangements

BAM Nuttall Standard NS1: *Welfare* Safety guidance SG21: *Welfare facilities*

Site welfare requirements are identified by the agent in accordance with BAM Nuttall Standard NS1: *Welfare* and safety guidance SG21: *Welfare facilities*. The agent ensures the provision of suitable facilities at all stages of the project and their maintenance to the highest possible standards of cleanliness and hygiene. Outline arrangements are defined in **Table 6.5**



Table 6.5 – Outline welfare arrange	ments
Toilets	To be provided at each work site (minimum ground hog unit or similar)
Washing	To be provided at each work site (minimum ground hog unit or similar)
Changing	To be provided at each work site (minimum ground hog unit or similar)
Rest/food	To be provided at each work site (minimum ground hog unit or similar)
Drinking water	Bottled water/chiller at each work site
Responsibility for maintenance	Plant hire company supplying facility

6.6 Access and egress arrangements

BAM Nuttall Standard NS2: Access and egress

The risk of slips, trips and low level falls is reduced by the use of level, clean and suitably surfaced parking areas and pedestrian walkways between offices, stores, welfare facilities and work areas, free from material, plant and debris obstructions in accordance with BAM Nuttall Standard NS2: *Access and egress*.

The agent ensures the tidy stacking of materials in designated areas and develops a culture of tidiness and the timely disposal of rubbish and debris by providing adequate waste bins/skips.

Access to and egress from work areas is described within specific risk assessments and activity plans so as to control the risk of slips, trips and low level falls.

6.7 Workplace transport

Safety guidance SG24: Workplace transport

Prime attention is given to the separation of vehicles and pedestrians on site and the control of reversing vehicles in accordance with safety guidance SG24: *Workplace transport*.

The layout of access to and egress from the site, traffic routes, parking and loading/unloading areas are prominently displayed on a Site Transport Plan and are planned in such a way that, so far as is reasonably practicable, pedestrians and vehicles are segregated.

Vehicles are not permitted to reverse without a designated vehicle banksman unless within designated pedestrian-free areas in accordance with site arrangements.

Where a task involves local vehicle movements, eg use of tipper or mixer trucks, particular arrangements for access and workplace transport are described in an activity plan.

Workers are informed of the rules for workplace transport at induction training. Drivers are given a copy of the site transport rules, the BAM Nuttall card *safety information for drivers* and are informed of the traffic route they are to use. Vehicle banksmen are briefed on their duties by the general foreman and are given a copy of the BAM Nuttall card *vehicle banksman*.

Table 6.7 – Workplace transport arrangements		
Site specific rules	Site Speed limit 5mph	
	All vehicles to use hazard warning lights and/or a flashing beacon	
	Site operatives/staff to receive specific training before driving on the	
	Heath.	
	All deliveries to be escorted from the public road to the work sites by	
	a trained operative.	

Specific rules for workplace transport are as detailed in Table 6.7.



Table 6.7 – Workplace transport arrangements	
Site specific rules	Site Speed limit 5mph
	Other Heath users have the right of way
	Within worksites turning facilities and segregation to be planned
	Delivery times to be planned to stagger deliveries and to avoid peak times
	Minimise vehicle size to cause less disruption to the Heath.
	Shared use routes to be inspected and well maintained

6.8 Personal protective equipment (PPE)

Personal protective equipment (PPE) is issued where risks exist which cannot be removed completely or reduced to an insignificant level.

Notwithstanding this, anyone working on or visiting a site is required, as a minimum, to wear a safety helmet, high visibility clothing, suitable gloves and safety footwear. Safety glasses are also required unless shown inappropriate by specific risk assessment.

On this project, the items of PPE listed in **Table 6.8** are also mandatory.

Table 6.8 – Personal protective equipment (PPE)	
The items of PPE listed are mandatory on this project in the areas definedArea of site in which stated item of PPE is mandatory	
Life jackets	When working within 2m of water without other suitable edge protection
Hearing protection	Within 10m of any vibrated or hammered piling
High visibility clothing to be class 1	Throughout the Heath

The need for additional PPE is identified by risk assessment and is defined as a control measure or within an activity plan.

The agent ensures that protective clothing and equipment is selected as suitable for the protection needed and conforms to the relevant standard. It is issued in a controlled manner and training in its correct use is provided by foremen.

6.9 First aid

Safety guidance SG03: First aid

Sufficient facilities, equipment and trained personnel are provided to deal with accidents and injuries occurring at work, in accordance with safety guidance SG03: *First aid*. The location of first aid equipment and names of first aiders are prominently displayed so that assistance can be obtained in the shortest possible time.

On this project, the specific arrangements for first aid are as detailed in Table 6.9.

Table 6.9 – First aid arrangements	
At each worksite	
In each site vehicle (with a cab)	
TBC following detailed risk assessment	
TBC following detailed risk assessment	



Table 6.9 – First aid arrangements	
Materials, equipment and facilities:	
Appointed persons	TBC following detailed risk assessment

All employees are informed of the first aid arrangements during induction training. This is supplemented by posters, which provide the following information:

- location of first aid kits
- names, locations and how to contact first aiders/appointed persons
- location of nearest hospital with map/directions

6.10 Fire safety

Safety guidance SG11: Assessment of fire safety

Responsibility for a formal site fire risk assessment and its constant review in accordance with safety guidance SG11: *Assessment of fire safety* is that of a fire safety coordinator, appointed by the agent, whose duties are described in the BAM Nuttall health and safety policy.

In particular, the fire safety coordinator gives attention to the prevention and limitation of the effects of fire by avoiding stocks of flammable materials and provision of adequate emergency instruction and arrangements.

All personnel on site are informed of the arrangements for fire safety during induction training. This is supplemented by posters identifying emergency procedures, site layout plans showing escape routes, assembly points and fire fighting appliances, no smoking signs and flammable material stores.

On this project, the applicable arrangements for fire safety are detailed in Table 6.10.

Table 6.10 – Fire safety ari	rangements
Flammable substances	TBC following detailed risk assessment
Banned activities	TBC following detailed risk assessment
Hot work permits	TBC following detailed risk assessment
Smoking	TBC following detailed risk assessment
Waste	TBC following detailed risk assessment
Fire points	TBC following detailed risk assessment
Alarm	TBC following detailed risk assessment
Emergency supply	TBC following detailed risk assessment
High risk premises	TBC following detailed risk assessment
Accommodation	TBC following detailed risk assessment
Security	TBC following detailed risk assessment

6.11 Electrical safety

Safety guidance SG20: *Temporary electrical installations* BAM Nuttall *Electrical safety rules (safe system of work)*

The electrical safety coordinator, appointed by the agent, ensures the safe design, installation, operation and maintenance of temporary electrical installations, in accordance with safety guidance SG20: *Temporary electrical installations*. This gives effect to current legislation and best practice. The duties of the electrical safety coordinator are described in the BAM Nuttall health and safety policy.

Electrical safety involving work by BAM Nuttall electricians, or electricians under the control of BAM Nuttall, on permanent installations are dealt with in the BAM Nuttall *Electrical safety rules (safe system of work).*



6.12 Water management and pollution (including refuelling arrangements)

Environment procedure EP01: *Preventing water pollution* Environment procedure EP02: *Oil storage and refuelling*

A comprehensive assessment of the potential risks of water pollution as a result of establishing the site is made by the agent before any activity is carried out. Surface, ground and coastal waters are considered as appropriate. This risk assessment is made in accordance with environment procedure EP01: *Preventing water pollution* and associated guidance and deals with the following matters:

- fuel storage and general refuelling
- run-off from the compound
- waste water from the welfare accommodation
- run-off from semi-permanent haul roads
- bulk material storage
- chemical storage
- plant maintenance areas

The water management and pollution risk assessment for site setup is in **Schedule 6B**. Consideration is given to the location and method of storing fuel oils and suitable site areas for refuelling plant, in accordance with environment procedure EP02: *Oil storage and refuelling* and associated guidance. Details of refuelling arrangements are provided in **Table 6.12**.

Table 6.12 – Refuelling arrangements	
Location(s) of fuel storage	At Kenwood Nursery Yard
Type of fuel storage tank	4000 ltr bunded fuel tank
Site refuelling points	Plant to be refuelled at specific locations at each compound. Refuelling location to be bunded to prevent run off and be lined with an impermeable membrane.

6.13 Incident and emergency arrangements

Safety guidance SG23: *Emergency planning*

Site specific emergency procedures are prepared to ensure limitation of injury and damage should an incident occur. These procedures are communicated to the workforce at induction and tool box talks and are displayed on notice boards.

Emergency procedures are drilled at an appropriate frequency to ensure continued suitability.

For this project, the emergency procedures listed and included in **Table 6.13** apply. Site notices describing these procedures are included in **Schedule 7**. A list of key personnel and organisations for contact or liaison in the event of an emergency, together with contact telephone numbers, is displayed as a site notice and included in **Schedule 7**.

Table 6.13 – Incident and emergency arrange	ements	
Site specific emergency arrangements	Are arrangements to be drilled?	Frequency of drill
Accident	Yes	6 monthly
Fire	Yes	6 monthly
Confined space rescue	No	N/A



Table 6.13 – Incident and emergency arrangements		
Site specific emergency arrangements	Are arrangements to be drilled?	Frequency of drill
Rescue from height	No	N/A
Person in water	Yes	Bi monthly
Oil and chemical spill	No	N/A
Watercourse pollution	Yes	Bi monthly
Protester Action	Yes	6 monthly

Following an incident, communication with the media and public is managed and controlled. The incident coordinator nominated in **Schedule 2A** is responsible for such communications only to the extent referred to in the appendix to safety guidance SG23: *Emergency planning*. Thereafter, all communication is referred to the Head of Public Relations and Corporate Communications at Head Office.

7.0 Management of resources

7.1 Management of human resources

7.1.1 Selection

Sufficient managerial, technical, supervisory and administrative staff, together with a workforce of tradesmen and civil engineering operatives, are obtained by the agent in accordance with BAM Nuttall human resource procedures. The agent ensures that all have sufficient competence to carry out the tasks assigned to them safely, without damage to health or to the environment and in such a way as to achieve the required quality and efficiency.

In assessing competence, reference is made to the BAM Nuttall competence management system which identifies criteria to be met for specific roles. Any competence gaps are addressed by the provision of suitable training and/or development.

Where a sufficient and competent workforce is unavailable from within BAM Nuttall, labour-only operatives are obtained from bona-fide labour agencies. Labour-only operatives are treated in an identical manner to those employed directly.

All staff and operatives are expected to hold an appropriate CSCS/CPCS card or equivalent trade competence card. BAM Nuttall is an approved CSCS and CPCS training provider. A CSCS audit is undertaken every 6 months to monitor the level of CSCS cardholders, both employed directly by BAM Nuttall and by the subcontractors working on the project.

7.1.2 Induction

Site induction training is provided for all staff, operatives, subcontractors and others, before starting work on or visiting this site. The agent ensures that the content of the induction is appropriate to the site. A register of those inducted is maintained.

The agenda for the full induction for those working on the site is listed in Table 7.1.2.

Table 7.1.2 – Site induction agenda
Full induction agenda
Policy
Description of project works
Introduction to area health and safety advisor and environment advisor
Site rules
Accidents, incident, near misses and reporting
Observation cards
First aid arrangements
Emergency arrangements

Project management plan



Hampstead Heath Ponds Project

Table 7.1.2 – Site induction agenda
Full induction agenda
Welfare and hygiene
Avoidance of slips, trips and falls
Fire prevention
Manual handling
Lifting operations
PPE
Hazardous substances
Electricity
Buried services and safe excavation
Maintenance of edge protection
Confined spaces
Use of plant
Role of slinger/signallers
Use of mobile phones
COSHH arrangements
Workplace transport and pedestrian segregation
Hand arm vibration
Traffic management
Environmental impacts
Water pollution
Spill response, control and location of materials
Fuel deliveries and refuelling arrangements
Waste management and disposal
Nuisance to local community
Considerate Constructors Scheme
Public interface and politeness
Third party property
Ecological restraints and exclusion areas
Invasive plants
Archaeology
Úbon't Walk By' philosophy
Individual responsibility
Consultation arrangements and encouragement of feedback
Occupational health checks
Monitoring for drugs and alcohol

Delivery drivers who enter the operational areas of the site are provided with a copy of the site rules, the BAM Nuttall guidance card for drivers and a copy of instructions to delivery drivers. Drivers who regularly visit the site are asked to display the guidance card in their windscreen to indicate that they have received induction.

Visiting workers, such as plant fitters and technical staff visiting for a specific reason, are given a short induction intended specifically to their place of work, issued with the site rules and informed of any relevant emergency arrangements.

Other visitors are issued with the site rules, informed of any relevant emergency arrangements, sign the visitors book and are accompanied by a responsible site representative at all times.

7.1.3 Site training and development

Where a required competence is unavailable amongst the project staff and workforce, consideration is given to the provision of site training and/or development. This is provided by means of:

- awareness training
- specific task training
- coaching



- site briefings or workshops
- tool box talks

Following training/development, verification of competence is confirmed prior to those concerned starting work and continuing support is provided both by local supervision and, as appropriate, from visiting staff.

Each element of training delivered on site is recorded on a company-wide database.

The agent arranges for all staff and operatives to be made available for training in accordance with their training/development plan prepared as a result of the annual performance review and appraisal. Personnel are also made available for regular health, safety and environmental training arranged by the training department and the agent arranges with the area health and safety advisor and area environment advisor for operatives to receive health and safety and environment awareness training.

7.1.4 Management information

Information on the BAM Nuttall management system is provided to the agent by issue of the BAM Nuttall management manual, BAM Nuttall procedures and the documents manual containing guidance, checklists etc. All documents are also available via the BAM Nuttall Intranet.

In addition, in terms of health and safety, the Construction Safety Manual (CSM), published by Construction Industry Publications Ltd, and the GE700 Construction Site Safety Manual, published by the CITB, provide reference to relevant legislation, codes of practice and guidance on best practice. These manuals are issued in a controlled manner to BAM Nuttall managers and regularly updated.

Bulletins and alerts are issued in response to changes in legislation, amendments to procedures and other documents, particular problems experienced or to disseminate other relevant information.

7.1.5 Workforce engagement

Safety guidance SG26: Workforce consultation BAM Nuttall Standard NS3: Health, safety and environment committees

BAM Nuttall is committed to effective workforce involvement, communication and consultation. The agent ensures that the 'Don't Walk By!' philosophy promoting self regulation and empowerment of the workforce is reinforced at every opportunity.

General information for operatives is contained in the operatives' information card, which is issued to every operative on induction. A supplementary railway operatives' handbook is issued to workers on rail contracts. This general information is supplemented with specific advice on topics such as buried services and Weils disease which are contained in separate booklets or cards.

The agent ensures that all personnel are able to discuss and offer advice on matters which affect their health and safety, the environment and other aspects of their work in one or more of the following ways:

- induction
- toolbox talks
- activity plan briefings
- managers safety tours
- health, safety and environment committees
- site meetings
- risk assessment/activity plan consultation
- direct feedback to their line manager
- suggestion boxes
- safety and observation cards
- forums
- near miss reporting
- confidential reporting procedure.

Consultation methods are selected in accordance with safety guidance SG26: Workforce consultation and those used on this project are detailed in Table 7.1.5.

Project management plan





Table 7.1.5 – Workforce consultation methods		
Methods of workforce consult	tion	
Induction		
Toolbox talks		
Risk assessment and activity pla	n briefings	
Managers safety tours		
Health, safety and environment	ommittee	
Site meetings		
Risk assessment/activity plan co	sultation	
Observation cards		
Feedback/suggestion boxes		
Confidential reporting procedure		

The selected consultation methods are described to the workforce during induction. Feedback on consultation is provided by means of meeting notes on notice boards and/or tool box talks as appropriate. Health, safety and environment committees are established and conducted in accordance with BAM Nuttall Standard NS3: *Health, safety and environment committees*.

7.1.6 Productivity monitoring

The agent makes arrangements for the productivity and outputs of the members of the workforce to be monitored in accordance with the principles of 'lean construction'.

This monitoring identifies any failures in planning, the availability of resources or the provision of a suitable infrastructure or working environment. The identification of such failures allows appropriate action to be taken to provide an improvement in performance.

7.1.7 Fatigue management

Rail safety procedure RSP02: *Management of fatigue*

The agent considers the effect of fatigue on workers health, safety, productivity and general performance when deciding working hours. Special consideration is given to shift patterns associated with weekend work, nighttime work, tidal work etc.

Suitable measures are taken to prevent excessive working hours leading to fatigue, such as the mobilisation of additional resources, job rotation or on-site facilities for rest periods.

For work on railways, working hours are monitored and restricted in accordance with rail safety procedure RSP02: *Management of fatigue*.

7.2 Management of materials

7.2.1 Materials control

BAM Nuttall Procedure NP5.3: *Procurement of materials, goods and equipment* BAM Nuttall Procedure NP5.6: *Management of vendors on site* BAM Nuttall Procedure NP9.4: *Commercial performance monitoring*

The selection of material suppliers is undertaken in accordance with BAM Nuttall Procedure NP5.3: *Procurement of materials, goods and equipment.*

Client supplied goods are subject to the same process of evaluation as those supplied by BAM Nuttall.



The submission and approval of materials, as required by the conditions of contract, and any changes and alternatives, are confirmed in correspondence. Where BAM Nuttall is responsible for design, the submission and approval of materials is dealt with by the designer and confirmed in correspondence.

The requisitioning of materials and the placing of orders is undertaken in accordance with BAM Nuttall Procedure NP5.3: *Procurement of materials, goods and equipment.*

The management of suppliers is undertaken in accordance with BAM Nuttall Procedure NP5.6: *Management of vendors on site.*

Suppliers are required to submit documents, test certificates, delivery tickets etc to illustrate how their product meets the specification requirements and to demonstrate compliance. Documents required of key suppliers are listed in Table 7.2.1.

Table 7.2.1 – Minimum supplier evidence of specification compliance	
Material supply	Compliance evidence
Readymixed concrete	QSRMC certificate Mix designs Material test records
Reinforcement supply	CARES certificate Delivery tickets
Clay Fill	TBC
Steel Sheet piles	TBC

The agent nominates people to receive goods and call forward bulk materials, ensuring that those so nominated are sufficiently competent and have knowledge of any relevant special requirements. The agent ensures that:

- a log of bulk materials called forward/delivered is maintained.
- materials received are recorded in the materials/stores record
- records are kept of any specially instructed checks.
- nonconforming materials are clearly identified to prevent their use.
- materials are handled and stored in ways that prevent damage or degradation.

Specific handling requirements and off-loading arrangements are described within specific activity plans.

Client supplied materials are called forward, controlled, checked and stored as any other material. Client materials which are unsuitable, damaged or lost are reported when this becomes apparent.

The agent assigns responsibilities for collection and allocation of cost codes to all material delivery tickets. The responsible engineer maintains a record of materials delivered and used against quantities measured from the contract drawings to reconcile material usage and wastage, in accordance with BAM Nuttall Procedure NP9.4: Commercial performance monitoring.

The agent arranges for reconciliation of material use in order to monitor wastage, identify loss and assess weekly costs incurred.

7.2.2 Product traceability

Product traceability is a contract requirement of this project as defined in Table 7.2.2.



Table 7.2.2 – Traceability requirements

Products and materials where traceability is required

To be confirmed in The Designer's specification

Materials may be incorporated in the works as 'status unknown' and held traceable until tests confirm acceptability.

7.2.3 Sustainable products and materials

BAM Nuttall is aware of the global impact of the use of limited natural resources and of the need to reduce waste. Consequently, every attempt is made to reduce the use of primary aggregates and unsustainable products and materials wherever possible. Where practicable, commercially acceptable and in accordance with specification and regulatory requirements, use is made of waste or recycled material, or products containing recycled material.

Consideration is also given to the environmental impact of delivery transport when material decisions are made.

In accordance with the BAM Nuttall timber procurement policy, every effort is made to use timber obtained from certified legal and sustainable sources.

Opportunities for the use of sustainable products and material have been identified as listed in **Table 7.2.3** and will be pursued during the undertaking of the project works.

 Table 7.2.3 – Sustainable products and material

 Opportunities for the use of sustainable products and material

 To be developed in the ECI stage with the designer

7.2.4 Management of hazardous materials

Safety guidance SG12: COSHH

The use of and exposure to substances hazardous to health is controlled in accordance with safety guidance SG12: COSHH.

The COSHH coordinator, appointed by the agent, ensures that all reasonable steps are taken to ensure that exposure of employees to hazardous substances is assessed and prevented or at least controlled to within statutory limits. The duties of the COSHH coordinator are described in the BAM Nuttall health and safety policy.

The COSHH coordinator ensures that hazardous substances are stored on site so as to prevent uncontrolled use.

On this project, arrangements for storage of hazardous substances are detailed in Table 7.2.4.

Table 7.2.4 – Storage of hazardous substances		
Hazardous substances to be stored on site	Storage arrangements	
Diesel	Store in a double bunded and locked tank.	
Cementious materials	Store in a locked COSHH store	



Та	Table 7.2.4 – Storage of hazardous substances	
Ha on	zardous substances to be stored site	Storage arrangements
So	lvents	Store in a locked COSHH store

All employees are provided with information and instruction on the nature and likelihood of their exposure to hazardous substances during induction training, including the hazards and precautions to be taken regarding substances in general use on site.

This information is supplemented with briefings where particular substances feature in an activity plan

7.3 **Provision and use of work equipment**

BAM Nuttall Procedure NP4: *Plant* BAM Nuttall Procedure NP1.2: Control of *lifting accessories* BAM Nuttall Guidance SCG02: *Guidance on the evaluation of vendors*

The agent arranges for all plant to be subject to test, thorough examination, inspection and maintenance, in accordance with BAM Nuttall Procedure NP4: *Plant*, in order to ensure safe, healthy and environmental operation at all times.

Lifting equipment is maintained and examined in accordance with BAM Nuttall Procedure NP1.2: Control of *lifting accessories.*

BAM Nuttall owned plant and equipment is inspected and maintained by BAM Nuttall Plant (the plant department) fitters to a planned schedule in accordance with BAM Nuttall Plant procedures.

The agent arranges for site purchased plant to be inspected and maintained to the same standard and informs BAM Nuttall Plant on procurement. On this project, the items of site purchased plant are listed in **Table 7.3**.

Table 7.3 – Site purchased plant
Items of site purchased plant
TBC after further planning

On procurement, plant is assessed to ensure it complies with regulatory standards.

Plant hired externally by site is obtained from hire companies assessed as suitable in accordance with BAM Nuttall Guidance SCG02: *Guidance on the evaluation of vendors.*

The agent ensures that satisfactory arrangements are in place for the test, thorough examination, inspection and maintenance of externally hired plant and that plant provided or operated by other contractors on BAM Nuttall sites is subject to similar arrangements.

The standards of competence for plant operators on BAM Nuttall sites are also defined in BAM Nuttall Procedure NP4: *Plant*. Instruction and training is given when equipment is modified or new equipment is procured.

Safe systems of work for operating in the vicinity of plant and equipment are defined in activity plans and communicated to the workforce by means of briefings.



7.4 Management of subcontractors

7.4.1 Evaluation and selection of subcontractors

BAM Nuttall Procedure NP5.4: *Procurement of sub-contracts*

Selection of subcontractors is made following evaluation of their suitability in accordance with BAM Nuttall Procedure NP5.4: *Procurement of sub-contracts.*

Subcontractors and suppliers provide written evidence to demonstrate their competence and the adequacy of their resources. Further evidence is provided from plant visits and appraisals. This is reviewed by project staff as part of the evaluation process.

The minimum requirements for this evidence is listed in **Table 7.4.1** for principal subcontractors and suppliers.

Customer supplied services are subject to the same process of evaluation as those supplied by BAM Nuttall.

A schedule of all key subcontractors is maintained within a project procurement plan. Approval/acceptance of subcontractors by the client or client's representative in sought in accordance with contract requirements.

Table 7.4.1 – Minimum evidence for subcontractor evaluation		
Subcontracted work or supplied product	Evaluation evidence	
Readymixed concrete supply	Plant appraisal Mix appraisal QSRMS or BSI plant certificate H&S Policy	
Asphalt macadam supply and laying	Plant appraisal Mix appraisal H&S Policy Environment Policy	
Reinforcement supply	CARES registration certificate	
Terrestrial and aquatic environmental mitigation works	TBC	
Desiiting	IRC	

7.4.2 Management of subcontractors

BAM Nuttall Procedure NP5.6: *Management of vendors on site* BAM Nuttall Procedure NP20: *Design management for design services* BAM Nuttall Procedure NP4: *Plant*

Subcontractors are managed in accordance with BAM Nuttall Procedure NP5.6: *Management of vendors on site*. This procedure describes how:

- project and BAM Nuttall requirements are communicated (including this plan)
- subcontracts are administered
- subcontractor risk assessments and method statements are assessed for suitability


- the activities of subcontractors are controlled
- compliance with statutory obligations is assured

In addition, BAM Nuttall seeks to make payment to subcontractors and suppliers in accordance with agreed payment terms.

During the progress of the project works, the agent monitors the performance of subcontractors and provides feedback as described in BAM Nuttall Procedure NP15: *Management of vendors*.

Subcontractors are required to submit documents, test certificates and checklists etc to illustrate how they intend to meet the specification requirements and to demonstrate compliance. Documents required of the key subcontractors are listed in Table 7.4.2.

Table 7.4.2 – Minimum subcontractor evidence of specification compliance	
Subcontracted work	Compliance evidence
Asphalt macadam supply and laying	Mix designs Material test records Laying records
Terrestrial and aquatic environmental mitigation works	ТВС
Desilting	ТВС

Specific requirements for the management of external designers are provided in BAM Nuttall Procedure NP20: *Design management for design services* and for the management of plant hire companies in BAM Nuttall Procedure NP4: *Plant.*

7.4.3 Coordination of contractors

BAM Nuttall Procedure NP5.6: Management of vendors on site

On most of its projects BAM Nuttall is appointed as principal contractor. As such, BAM Nuttall acknowledges its duty to control, co-ordinate and monitor the activities of all other contractors on site.

All contractors are expected to co-operate fully with BAM Nuttall and to conform to specific site rules and procedures. For BAM Nuttall subcontractors, this is managed in accordance with BAM Nuttall Procedure NP5.6: *Management of vendors on site* but similar arrangements apply to contractors who work on site but have no contractual relationship with BAM Nuttall.

The agent ensures the exchange of information necessary for the safe co-ordination of site activities and copies of this management plan, complete with site and other relevant rules, are issued to the agent of other contractors prior to their start of work on site.

Where BAM Nuttall is not the principal contractor, it co-operates fully with those who are.

7.5 Energy management

BAM Nuttall seeks to reduce the emissions of greenhouse gases from the construction process on its projects and consequently looks for ways in which to reduce energy use. Sources of greenhouse gases contributing to the BAM Nuttall 'carbon footprint' include:

- Electricity and gas supply for heating, lighting and services to site accommodation
- Gas oil used in site plant and site generators
- Petrol and diesel used for commuting and business travel
- Diesel used for transport of plant and materials



• Water supply and waste water treatment

Every effort is made to obtain grid supplied electricity to reduce the use of generators. Where not possible, an optimum size of generator is used with consideration given to a dual-generator system.

On this project, ways in which energy use is being reduced are listed in **Table 7.5**.

Table 7.5 – Energy reduction measures		
Carbon emission sources	Measures to be adopted to reduce use	
General	All staff and operatives to receive briefing on energy and water conservation.	
Electricity and gas	All office equipment to be switched off when not in use. Low energy lighting to be used. No gas supply to site.	
Gas oil	Fuel consumption and CO2 emissions considered when choosing plant. Plant to be switched off when not in use.	
Petrol and diesel for commuting	Green travel plan produced which will encourage the use of cycling and public transport. Performance monitored against green travel plan and continual improvement sought.	
Diesel used for transport	Cut and fill balanced to prevent import and export of soils. Materials sourced from local suppliers.	
Water supply	T.B.C	
Waste water treatment	All sewage will be removed from site by tanker and transported to a licensed facility for treatment.	

The agent ensures that accurate energy use data is provided to the BAM SMART database for monitoring purposes.

8.0 Production and service provision

The following section describes the basis upon which the various construction processes necessary for the successful completion of the project are planned and undertaken. The identification of hazards of all kinds and the introduction of controls, together with monitoring, leads to the prevention of a nonconforming product or service.

8.1 Planning and programming

BAM Nuttall Procedure NP2: Planning and programming

For the project, the bid programme is used as the basis for the contract programme submitted for the approval of the client or his representative. From this programme, activities are identified and arrangements made for detailed planning in accordance with BAM Nuttall Procedure NP2: *Planning and programming.*

In addition to work activities, arrangements are planned for the establishment of capability in terms of system, resources and competence. The planning process enables the timely provision of these things in sufficiently robust form for the works to go forward as programmed and to the satisfaction of all stakeholders.

Planning of methods and resources is carried out in conjunction with risk management as described in section 8.2.



8.2 Risk and opportunity management

BAM Nuttall Procedure NP22.4: Checking of contract documents BAM Nuttall Procedure NP22.5: Risk and opportunity management of project works BAM Nuttall Procedure NP23: Health, safety and environmental risk assessment Safety guidance SG01: Risk assessment BAM Nuttall Procedure NP24: Activity plans

The effective management of risk is fundamental to the control of work and the successful completion of this project. Continual forward thinking and the introduction of appropriate controls prevents the occurrence of the unexpected and ensures that project objectives are achieved.

The identification and exploitation of opportunities enables the best possible outcome for the project to be achieved for the benefit of all stakeholders.

Risk and opportunity management at the construction stage commences with preparation of this project management plan following review of contract requirements in accordance with BAM Nuttall Procedure NP22.4: *Checking of contract documents*, including the pre-construction phase information, and work undertaken for the bid to identify the significant hazards for which appropriate controls are necessary to reduce risk.

The ongoing management of risk and opportunity is undertaken through use of the risk and opportunity management register (ROMR) in accordance with BAM Nuttall Procedure NP22.5: *Risk and opportunity management of project works*.

The risks from safety, health and environmental hazards are identified during detailed planning of work activities in accordance with BAM Nuttall Procedure NP23: *Health, safety and environmental risk assessment* and safety guidance *SG01: Risk assessment*. Actions to prevent and reduce risks are identified and any remaining (residual) risks are understood and communicated to the workforce.

Risk assessment may identify the need for an activity plan as a necessary control to manage the outcome and it is appropriate to prepare an activity plan for all activities of significant risk. Activity plans are prepared in accordance with BAM Nuttall Procedure NP24: *Activity plans*.

When required under the contract, it may be necessary to prepare a more general method statement for client approval of the method and sequence of working. Notwithstanding such a requirement, an activity plan is always prepared, distributed and communicated to those doing the work when required by risk assessment.

Risk assessments, method statements and activity plans are listed within Schedule 5.

The hazards identified from pre-construction information, including design risk assessments, are listed in **Table 8.2** which provides a checklist for where they are dealt with in this plan.

Table 8.2 – Hazards from pre-construction information		
Hazard	Section of plan addressing hazard	
To be assessed once design risk assessment is available	TBC	



8.3 Arrangements for control of significant safety hazards

The following significant safety hazards are controlled as described. Specific project arrangements are referred to in the schedules.

8.3.1 Work at height

Safety guidance SG 14: Working at height

At every place within the site boundary where there is a risk of injury as a result of people or materials falling, a risk assessment is undertaken and suitable arrangements are put in place in accordance with safety guidance SG 14: *Working at height,* for:

- eliminating or minimising risks from working at height
- safe systems of work for organising and performing work at height
- safe systems for selecting suitable work equipment to perform work at height
- safe systems for protecting people from the consequences of work at height

Unauthorised removal of or interference with edge protection is a serious matter and is dealt with in accordance with BAM Nuttall disciplinary procedures. The rules relating to the maintenance of edge protection are made clear at induction training.

Table 8.3.1 lists activities that have been identified as involving work at height, together with an initial strategy for prevention of injury, based on risk assessment. Subsequently each work activity is reviewed, requirements for work at height re-assessed and detailed controls included in the risk assessment and/or activity plan for the work.

Table 8.3.1 – Work at height	
Activity involving work at height	Initial strategy to control risk
Construction of replacement Ladies Bathing facilities	Scaffolding

8.3.2 Lifting operations

BAM Nuttall Procedure NP1.1: *Management of lifting operations* Safety guidance SG13: *Lifting operations*

All lifting operations are subject to a lift plan that describes a safe system of work.

Responsibility for ensuring the establishment of this safe system of work is that of an appointed person (lifting), appointed by the agent, who ensures that attention is given to:

- planning the operation.
- selection, provision and use of equipment.
- maintenance, examination and, where necessary, testing of equipment.
- the provision of competent personnel
- adequate supervision by competent personnel.
- ensuring that test certificates and other documents are available.
- preventing unauthorised movement or use.
- the safety of persons not involved in the lifting operation.

The appointed person (lifting) categorises lifts as basic, standard or complex in accordance with BAM Nuttall Procedure NP1.1: *Management of lifting operations* and safety guidance SG13: *Lifting operations*. Documentation and responsibility for planning, organising and controlling the lifting operation is dependent on this categorisation as set out in the procedures.



The appointed person (lifting) is also responsible for ensuring the adequacy of safe systems of work for contract lifts and those of subcontractors.

All appointed persons (lifting), crane supervisors, slinger/signalers and plant operators hold an appropriate and valid CPCS card or equivalent.

Lifting operations have been identified as indicated in **Table 8.3.2**, together with an initial assessment as to category of lift. This category is subsequently confirmed or revised by the appointed person (lifting).

Table 8.3.2 – Lifting operations	
Lifting operation	Basic, standard, complex or contract lift (subject to later confirmation by the Appointed Person)
Handling of sheet piles	Basic
Piling to ladies bathing	Standard
Armorflex spillway protection	Standard
Culvert Units	Basic

8.3.3 Buried services

BAM Nuttall Procedure NP1.3: Control of excavation in the vicinity of buried services

Responsibility for ensuring arrangements for safety in the vicinity of buried services in accordance with BAM Nuttall Procedure NP1.3: *Control of excavation in the vicinity of buried services* is that of an overhead and buried services coordinator, appointed by the agent, whose duties are described in the BAM Nuttall health and safety policy.

Buried services are identified on drawings or in pre-construction phase information. The overhead and buried services coordinator verifies that services are as described and that no others exist:

- by contacting service providers directly to confirm the validity of drawings and, as appropriate, mark services physically on site
- from drawings, other data, surface examinations, and, if appropriate, trial pits
- by conducting cable detection surveys such as CAT and Genny, magnetic and ground radar investigations

In addition, reference is made to <u>www.linesearch.org</u> for major underground assets. Any known to exist in the vicinity of the site are listed in **Table 8.3.3**.

Table 8.3.3 – Major underground assets			
Identified major underground asset	Location	Activities affected	
Intermediate pressure gas main	Runs parallel to the Highgate chain	Excavation at Model Boating and deliveries to Ladies Bathing	
Oil filled EHV cables	Runs along Vale of Health crest	Crest and spillway Works at Vale of Health	

Surveys using cable detection equipment are carried out by BAM Nuttall staff who have received appropriate training. Once identified, services are marked on the ground.

A risk assessment for work in the vicinity of buried services may result in an activity plan, incorporating permit to dig arrangements or, for simple situations, the introduction of a permit to dig system without an activity plan. The permit defines the specific control measures needed to avoid striking the service and is issued to the person in charge of the work. The precautions and control measures arising from risk assessment are communicated in a briefing to those involved prior to the start of work.



All workers are informed of the rules governing work near underground services at induction training.

8.3.4 Overhead services

HSE document GS6: Avoidance of danger from overhead electric power lines

Responsibility for ensuring arrangements for safety in the vicinity of overhead services in accordance with BAM Nuttall procedures is that of an overhead and buried services coordinator, appointed by the agent, whose duties are described in the BAM Nuttall health and safety policy.

Work is only carried out under or near overhead power lines after:

- investigation as to whether the work can be avoided altogether or, if not possible
- diversion of overhead lines clear of the work area or, if not practicable
- making lines dead while work is in progress or, if this cannot be done
- introducing strict precautions

The precautions to be introduced depend on the nature of the work, ie work areas where:

- there is no scheduled work or passage of plant under the lines but merely adjacent to them
- plant passes under the lines
- work is carried out under the lines

For the first, barriers are erected to prevent close approach, for the second defined passageways are made and for the third, further precautions are taken in addition to the erection of barriers with passageways. The safe clearance required beneath the overhead lines is ascertained from the owner of the service. Guidance is sought from HSE document GS6: *Avoidance of danger from overhead electric power lines*.

Work activities affected by overhead services have been identified as indicated in Table 8.3.4.

Table 8.3.4 – Overhead services	
Activity affected	Nature of the work
None identified	

8.3.5 Excavation

Excavation work is always subject to risk assessment and often the preparation of a detailed activity plan. These ensure that hazards and control measures are identified dealing with the associated hazards including:

- . .
- plant access and egress
- stability
- buried services
- groundwater
- edge protection
- contamination

Those doing the work are properly instructed and the work is effectively supervised.

Where ground support is required, its installation, dismantling or alteration is done only under the



supervision of a competent individual who has sufficient experience and training.

8.3.6 Confined spaces

Safety guidance SG18: Confined spaces

Where work in a confined space is proposed, the agent first considers if the work can be done another way so that entry or work in the space is avoided. Better work planning or a different approach may reduce the need for confined space working.

If entry is unavoidable into a confined space, a safe system for working inside the space is identified based on thorough risk assessment and safety guidance SG18: *Confined spaces*.

The assessment includes consideration of:

- the task
- the working environment
- working materials and tools
- the suitability of those carrying out the task
- personal protective equipment
- arrangements for emergency rescue

Personnel involved in confined space work are properly trained and instructed as to the safe system of work to be adopted.

Confined spaces have been identified as listed in Table 8.3.6.

 Table 8.3.6 – Confined spaces

 Operation involving confined space working

 Works inside outflow control chambers

8.3.7 Work over water

Safety guidance SG16: Work over or near water

For all work over water the agent identifies, by risk assessment, a strategy for the prevention of drowning in accordance with safety guidance SG16: *Work over or near water*.

In deciding upon this strategy, the following hierarchy is considered:

- working platforms/edge protection
- safety nets
- fall arrest equipment

Inflatable lifejackets of the appropriate buoyancy are worn at all times when working over or near water.

Each work activity involving work over water is subject to a detailed activity plan that describes details of the strategy to be adopted and includes rescue arrangements.

Operations requiring work over water on this project are listed in **Table 8.3.7**.

Table 8.3.7 – Work over water
Operation involving work over water
Installation of Aquadam



Hampstead Heath Ponds Project

Table 8.3.7 – 1	Nork over water
Operation inv	olving work over water
Some Aquatic Desilting works	planting S

8.3.8 Contaminated land

Work on contaminated land involves primarily the remediation of ground contaminated with chemical, radioactive and biological materials. However, it can also include demolition, tank removal both above and below ground and dealing with water-borne and airborne contaminants.

Due to the variable nature of the hazards related to this type of work a risk assessment is required to detail the controls required. This involves in house or consultant expertise.

The controls cover:

- site set up and security
- personal protective equipment
- health surveillance
- sampling regime
- training
- monitoring of controls

Operations involving contaminated land on this project are listed in **Table 8.3.8**.

Table 8.3.8 – Work on contaminated land	
Operations involving contaminated soils	
None expected	

8.3.9 Highways

Traffic Signs Manual chapter 8 (parts 1 and 2) Roads and Streetworks Act ACoP Safety at Street Works and Road Works

Highways works are carried out within traffic management. On high-speed roads traffic management is designed and installed in accordance with chapter 8 (parts 1 and 2) of the Traffic Signs Manual and only by persons competent to do so. On other highways traffic management is designed and installed in accordance with the Roads and Streetworks Act and the by persons competent to do so.

Guidance is also sought from the ACoP Safety at Street Works and Road Works.

All personnel working within traffic management are briefed at induction and by means of tool box talks on the hazards associated with highway work and the rules associated with it.

Operations involving work on highways on this project are listed in **Table 8.3.9**.



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Table 8.3.9 – Work on highways

Operation involving work on highways

No works directly on a highway, but Heath access paths to be treated as is they were

8.3.10 Demolition

Prior to any demolition work taking place, the site is surveyed and the extent and complexity of the work assessed. If demolition is high risk or specialised, a subcontractor with the relevant competence and experience is appointed to do the work.

In all cases, the sequence of demolition is carefully planned, an activity plan prepared and a competent person nominated to supervise the demolition.

When preparing the activity plan, consideration is given to:

- exclusion of people not directly involved in the work
- health hazards such as asbestos, lead and dust
- the use of remote methods where possible, eg long reach equipment or crane and ball
- protection of machine cabs from falling materials
- temporary support of the structure itself or adjoining structures
- the capacity of walls intermediate floors to support debris and the weight of equipment used to clear them
- the presence of services.

Operations involving demolition on this project are listed in **Table 8.3.10**.

Table 8.3.10 – Work involving demolition
Operations involving demolition activity
Removal of existing Ladies bathing facilities

8.3.11 Existing structures

When undertaking work within the existing premises of others, or when occupying vacant premises, a thorough inspection is made of the condition of any structure used for access, for accommodation, as a place of work or as edge protection to ensure that it is in suitable condition. Consideration is given to any sign of corrosion or deterioration, especially in relation to open mesh flooring, staircases and guardrails.

Consideration is also given to undertaking surveys for the presence of asbestos and existing services.

No assumptions are made as to the load bearing capacity of existing structures. If they are to be used to take construction loads, or as attachment points for lifting equipment or safety harnesses, their suitability is confirmed by structural analysis or load testing undertaken by a competent person

Any identified hazardous areas are immediately made safe or exclusion zones established with suitable barriers and signs.

Existing structures to be investigated on this project are listed in **Table 8.3.11**.



Table 8.3.11	
Existing structures to be investigated for integrity	Type of investigation to be undertaken
Concrete deck slab to be reused at Ladies bathing	Designer to specify works required

8.3.12 Railways

All work involving railways should have been notified to the railway health and safety advisor during the bid process. This is confirmed, or notified if new, and the railway health and safety advisor advises on regulatory requirements and those of the particular infrastructure controller.

Work is managed in accordance with regulatory requirements and those of any licenses issued by the infrastructure controller.

Operations involving work on, over or adjacent to railways on this project are listed in **Table 8.3.12**.

Table 8.3.12 –	Work involving railways
Operations inv	olving work on, over or adjacent to railways
None	

8.3.13 Rotating machinery

The specific hazards associated with plant and equipment with rotating parts are controlled in accordance with the following hierarchy:

- fixed guards
- interlocked guards
- removable/ adjustable guards
- trip wires
- emergency stop buttons
- aids such as push sticks

Examples of such plant and equipment are:

- power 'take offs' on tractors
- rods on drill rigs
- piling rig augers

If, for a particular activity, the favoured control is not practicable due to other risks associated with the method of work, a detailed risk assessment is carried out to mitigate the hazards. A return to the normal operating conditions is made at the earliest available opportunity.

All personnel receive appropriate training in the use of rotating machinery.

8.3.14 Explosives

Work with explosives is carried out in accordance with the Quarries Regulations and associated approved code of practice. Those allocated responsibilities in accordance with these documents receive appropriate training and have relevant experience of using explosives.

Explosives are only stored in premises licensed in accordance with regulatory requirements.



Operations involving explosives on this project are listed in **Table 8.3.14**.

Table 8.3.14 – Work involving explosives
Operations involving use of explosives
None

8.3.15 Other significant safety risks

Other unusual significant safety risks, including any diving or compressed air work, are listed in **Table 8.3.15**, together with outline control measures.

Table 8.3.15 – Other significant safety hazards		
Hazard	Activities affected	Proposed control method
None		

8.4 Arrangements for control of significant health hazards

BAM Nuttall Procedure NP1.17: Management of occupational health

At the planning stage of an activity, all the foreseeable hazards are identified. If exposure is such that health surveillance is required then that is put into place in accordance with current guidance. Activity plans are produced for specific activities based on risk assessments - these include controls which minimise exposure to noise and vibration.

Those exposed to the following hazardous materials or activities are subject to health surveillance in accordance with specific regulations:

- lead
- asbestos
- ionising radiation
- compressed air
- diving
- railway lineside work
- night work
- use of display screen equipment

On this project, hazardous materials necessitating specific health surveillance are listed in Table 8.4.

	Table 8.4 – Health surveillance	
	Materials or activities where exposure requires specific health surveillance	Arrangements for health surveillance
	Use of DSE	
L		



In accordance with The Management of Health and Safety Regulations, additional health surveillance is provided based on the level of risk when:

- it is identified as a control in the COSHH assessment of a material
- as a result of risk assessment of hazards such as noise, vibration or manual handling

In addition all employees at risk are subject to a health surveillance programme in accordance with BAM Nuttall Procedure NP1.17: *Management of occupational health,* which covers:

- HAVS
- noise induced hearing loss
- dermatitis
- respiratory issues
- muscoskeletal disorders

The following specific health hazards are controlled as described. Specific project arrangements are referred to in the schedules.

8.4.1 Noise

BAM Nuttall Procedure NP1.5: Control of occupational noise

After all reasonable steps are taken to reduce noise at source, an initial assessment is made, in accordance with BAM Nuttall Procedure NP1.5: *Control of occupational noise*, of activities likely to cause unacceptable exposure to noise.

The activities listed in Table 8.4.1 have been initially assessed as requiring a detailed noise assessment.

Table 8.4.1 – Occupational noise	
Activities assessed as requiring detailed noise assessment	
Piling operations	-

Following detailed assessment or measurement of noise associated with these activities by a competent person, the resulting activity equivalent noise level is deemed to correspond to areas where the daily personal noise exposure action values defined by The Noise at Work Regulations are exceeded.

Hearing protection zones are established where the noise level corresponds to the requirement for mandatory use of hearing protection. Hearing protection is selected in accordance with BAM Nuttall Procedure NP1.5: *Control of occupational noise*. Details of the designated zone and the type of hearing protection selected are defined in an activity plan for the activity.

Personnel on site are informed at induction of the hazards of noise exposure and precautions to be taken. More detailed training is given in the activity plan briefing for an activity where the daily personal noise exposure action values are exceeded.

8.4.2 Vibration

Safety guidance SG08: Control of occupational vibration

Exposure to hand arm vibration, and the associated risk of vibration white finger, is controlled in accordance with safety guidance SG08: *Control of occupational vibration*.

Exposure to vibration is reduced to as low as reasonably practicable such that the daily exposure limit value does not exceed 5 m/s2 [A8] and the daily exposure action value is less than 2.5 m/s2 [A8]. If this cannot be achieved the requirements of the Control of Vibration at Work Regulations 2005 are met.



The following action is taken to avoid vibration at source:

- avoiding operations which cause vibration
- changing the process to reduce vibration
- using tools designed for low vibration
- correctly maintaining tools
- ensuring use of sharp points, chisels and drill bits

The resulting exposure is assessed for each activity involving hand tools and reduced to acceptable levels by programming work breaks and introducing job rotation as necessary.

Those at risk are provided with suitable PPE and adequate training and information.

The activities listed in Table 8.4.2 are likely to require a vibration assessment.

Table 8.4.2 – Occupational vibration

Activities likely to require a vibration assessment

None expected

8.4.3 Manual handling

Safety guidance SG22: Manual handling

Exposure to manual handling, and the associated risk of injury, particularly back injury, is controlled in accordance with safety guidance SG22: *Manual handling*. The following action is taken to avoid or reduce the need for manual handling:

- arranging for goods to be delivered to the point of use so avoiding double handling
- using bagged materials in easily handled sizes
- storing materials within easy reach and at a proper height
- handling by mechanical means
- making use of lifting/carrying aids
- load sharing of heavy or awkward loads

Where manual handling can not be reduced or eliminated, a risk assessment is undertaken for the activity. This assessment takes into account the nature and frequency of the task, the weight, size, shape and stability of the load, the work environment and the individual's capability based on strength, fitness, skill and experience.

Manual handling training is given to all personnel at risk and the results of assessments are notified to those involved in the activity.

The activities listed in **Table 8.4.3** are likely to require a manual handling assessment.

Table 8.4.3 – Manual handling

Activity likely to require a manual handling assessment

Installation of Armorflex if it cannot be placed by machine as envisaged



8.4.4 Drugs and alcohol

BAM Nuttall Procedure NP3.2: *Drugs and alcohol testing (non rail)* BAM Nuttall Procedure NP3.3: *Drugs and alcohol testing (rail)* BAM Nuttall Procedure NP3.4: *Declaration of medical restrictions*

BAM Nuttall expects employees and subcontractors to take a responsible approach to alcohol. They must ensure that their level of alcohol consumption will not affect their ability to work.

BAM Nuttall takes disciplinary action, including dismissal or removal from site, for the following serious offences:

- possessing, using or selling illicit drugs
- possessing, using or selling alcohol during working hours, other than where authorised by management
- being impaired through substance abuse during working hours

BAM Nuttall carries out pre-employment drug screening. It also reserves the right to carry out random tests for alcohol and drug use and to test employees and subcontractors who are involved in industrial accidents or where a manger believes that substance abuse has contributed to an incident, changed behaviour or affected work performance.

Arrangements for the testing for drugs and alcohol are set out in BAM Nuttall procedures NP3.2: *Monitoring for drugs and alcohol (non rail)*, NP3.3: *Monitoring for drugs and alcohol (rail)*, and NP3.4: *Declaration of medical restrictions*. These are detailed at project induction.

Personnel who refuse to take a test are subject to disciplinary action, including possible dismissal, or in the case of subcontractors, removal from site.

8.4.5 Asbestos

BAM Nuttall Procedure NP1.6: Control of asbestos at work

BAM Nuttall only undertakes work with asbestos in limited circumstances, ie the removal of asbestos cement sheets or pipework encountered in the course of excavation and as an incidental part of the works. The method of removal must not intentionally involve cutting, breaking or abrading asbestos or any other process likely to release asbestos fibres (unbolting is acceptable, subject to risk assessment).

Work involving asbestos insulation, asbestos coating or asbestos insulating board is subcontracted to licensed asbestos removal contractors. Whilst work involving other forms of asbestos need not be undertaken by a licensed contractor, it is undertaken only by specialists with the expertise, equipment and appropriate insurance.

BAM Nuttall manages those who undertake work with asbestos on its premises or sites in accordance with BAM Nuttall Procedure NP1.6: *Control of asbestos at work*.

Details of asbestos anticipated on this project are provided in Table 8.4.5.

Table 8.4.5 – Asbestos	
Asbestos anticipated on the project	
Possibile in existing Ladies bathing facilities, survey required	



8.4.6 Radiation

BAM Nuttall carries out work on projects subject to nuclear radiation such as nuclear power stations. Within such facilities, areas defined by the client as 'controlled areas' are subject to regulatory requirements and formal appointments are made accordingly.

BAM Nuttall appoints an independent advisory firm on a project-by-project basis to fulfil the role of 'Radiation Protection Adviser'. This expert understands both the effects of radiation and the work concerned in sufficient detail to provide advice in establishing and maintaining procedures for safe working and in dealing with problems.

A BAM Nuttall manager is trained to act as a 'Radiation Protection Supervisor' and is responsible for ensuring safe working, with regard to radiation, in line with the direction given by the 'Radiation Protection Adviser'.

Where required a dosimetric consultant establishes, maintains and analyses the regular measurement of radiation doses received by those working in the nuclear environment. This consultant is responsible for passbooks (logs) issued by HSE that define in quantitative terms an individual's history of exposure to radiation.

Where radiation 'controlled areas' apply on this project, the names of the Radiation Protection Adviser and Radiation Protection Supervisor are provided in **Table 8.4.6**.

Table 8.4.6 – Radiation	
Applicable radiation 'controlled are	eas' and relevant nominations
None	
Radiation Protection Adviser	
Radiation Protection Supervisor	

8.4.7 Dermatitis

BAM Nuttall prevents employees coming into contact with substances that cause dermatitis in accordance with the requirements of the COSHH Regulations.

Where exposure cannot be prevented, the following controls are introduced:

- provision of appropriate gloves
- regular inspection to identify skin problems
- provision of face shields and protective coveralls if the face and neck are vulnerable
- promotion of high standards of personal cleanliness and hygiene
- maintenance of a clean and tidy workplace
- provision of advice on the use of moisturising creams before and after work

8.4.8 Respiratory diseases

BAM Nuttall prevents employees coming into contact with substances that cause respiratory diseases in accordance with the requirements of the COSHH Regulations. Where practicable the production of dust or fume is avoided or suppressed and protective equipment is used only as a last resort.

Where exposure cannot be prevented, all or some of the following controls are introduced, based on risk assessment:

- provision of appropriate respiratory protection
- water spraying haul roads and stockpiles
- health surveillance
- atmospheric monitoring



- installation of local exhaust ventilation
- encapsulation of work areas
- appropriate welfare facilities
- promotion of high standards of personal cleanliness and hygiene
- maintenance of a clean and tidy workplace

8.4.9 Exposure to UV radiation

Information is given to the workforce, by means of tool box talks, briefings and posters concerning the health risks associated with exposure to UV radiation from the sun. The correct wearing of appropriate PPE is enforced at all times. Suitable sun block creams are provided free of charge to the workforce and their use is encouraged.

8.4.10 Use of display screen equipment

BAM Nuttall Procedure NP1.9: Use of display screen equipment

Assessment of workstations and risks to those habitually using display screen equipment is made in accordance with BAM Nuttall Procedure NP1.9: Use of display screen equipment.

8.5 Arrangements for control of significant environmental hazards

The following environmental hazards are controlled as described. Specific project arrangements are referred to in the schedules.

8.5.1 Consents, licences and permissions

Environment guidance EG21: Environmental consents, licences and permissions (England and Wales) Environment guidance EG22: Environmental consents, licences and permissions (Scotland)

Consents, licences or permissions are required from a number of organisations including the Environment Agency, Scottish Environmental Protection Agency, DEFRA, local water companies, local authority environmental health departments, local authority planning departments, Natural England and the Countryside Council for Wales.

These cover matters relating to work near water, disposal of waste, noise and vibration and ecology among others. Guidance on when a consent, licence or permission is needed and how it is obtained is provided in environment guidance EG21: *Environmental consents, licences and permissions (England and Wales)* and EG22: *Environmental consents, licences and permissions (Scotland).*

Activities on this project assessed as requiring consent, licence or permission are listed in **Schedule 4**.

8.5.2 Ecology

Environment guidance EG09: *Protected species* Environment guidance EG08: *Works affecting trees and hedgerows* BAM Nuttall Procedure NP23: *Health, safety and environmental risk assessment* BAM Nuttall Procedure NP24: *Activity plans*

Where the project work disturbs, or has the potential to disturb, species of plants or wildlife, certain conditions may apply concerning timing of activities, exclusion areas and protective measures. Guidance is provided in environment guidance EG09: *Protected species*.

In addition to removal of vegetation being carried out only at certain times of the year, work to remove hedgerows are always subject to consent, as are trees on which there is a Tree Preservation Order. Guidance is provided in environment guidance EG08: *Works affecting trees and hedgerows*.



Activities restricted for ecological reasons are listed in Table 8.5.2 together with details of the restriction.

These restrictions are considered as part of the activity risk assessment undertaken in accordance with BAM Nuttall Procedure NP23: *Health, Safety and environmental risk assessment* and any subsequent activity plan prepared in accordance with BAM Nuttall Procedure NP24: *Activity plans.*

Table 8.5.2 – Ecological restrictions	
Details of restriction	
No work is to commence without an environmental permit to work. The permit will be completed by a suitably experienced environmental manager or ecologist and briefed to the workforce before works can commence	
All tree clearance will be carried out outside of the bird nesting season. Searches will be carried out for hibernating bats	
Before any pond or section of a pond is dewatered, Centre for Environment, Fisheries and Aquaculture Science (Cefas) registered operative will remove fish under an Environment Agency licence.	
Protected flora will be identified prior to commencement of any earthworks. These will ever be excluded by fencing or translocated if possible. Areas which are known to be grass snakes or reptile habitats are to have grass reduced to 50mm in length at least 1 week before works are due to commence.	

8.5.3 Nuisance

Environment procedure EP07: Control of site nuisance (including noise) BAM Nuttall Procedure NP23: Health, safety and environmental risk assessment

Construction activity has the potential to cause nuisance within the site, to site personnel, to local residents, site neighbours and the general public in the form of noise, dust, mud, vibration smoke light and odour.

Activities likely to cause nuisance are identified in accordance with environment procedure EP07: *Control of site nuisance (including noise)*. If following activity risk assessment undertaken in accordance with BAM Nuttall Procedure NP23: *Health, safety and environmental risk assessment* the extent of that nuisance is significant, the agent selects appropriate control measures to avoid the nuisance or mitigate the effects if avoidance is impracticable.

Activities likely to cause nuisance are listed in **Table 8.5.3**, together with appropriate control measures.

Table 8.5.3 – Nuisance	Table 8.5.3 – Nuisance	
Activity	Potential nuisance	Control measures
Earthworks	Dust	When required, materials to be damped down. Topsoil stockpiles to be seeded.
Piling operations	Noise	Modern plant of the minimum size possible for the operation to be used.
Site transport	Displacement of pedestrians and dust.	Site deliveries to be escorted though site. Deliveries to brought to site on the smallest vehicle suitable



Table 8.5.3 – Nuisance		
Activity	Potential nuisance	Control measures
		for the load. Access routes to be damped down if dry and dusty.

Following identification of potential nuisance, and prior to the works commencing, the agent contacts the relevant regulatory body (usually the local authority environmental health officer) to notify them of the works and agree the selected control measures. Communication with the regulatory body is maintained throughout the duration of the activity.

8.5.4 Waste management

Environment procedure EP03: *Waste management* Environment procedure EP06: *Site Waste Management Plans*

The disposal of waste presents a significant hazard to the business in view of the regulatory requirements and the necessity of exercising appropriate Duty of Care. Disposing of waste, particularly hazardous waste, is also very expensive. By reducing waste generated and managing waste materials effectively, impact on the environment is minimised and the cost of waste disposal reduced.

Compliance with BAM Nuttall waste procedures and guidance ensures:

- compliance with relevant waste management legislation
- application of industry best practice
- identification of opportunities in waste minimisation

In accordance with environment procedures EP03: *Waste management* and EP06: *Site Waste Management Plans*, the site waste management plan (SWMP) declaration of **Schedule 6C** identifies the waste streams generated with forecast quantities, defines the selected waste management measures of reduction, reuse, recycling and recovery and, at the end of the project, allows a comparison to be made between forecast and actual waste quantities.

Quantities of waste, catagorised as inert waste, non-hazardous waste and hazardous waste, are monitored by use of the BAM SMART web-based sustainability database which also provides details of waste management contractors and the waste treatment facilities or disposal sites used.

8.5.5 Water management and pollution (work activities)

BAM Nuttall Procedure NP23: *Health, safety and environmental risk assessment* Environment procedure EP01: *Preventing water pollution*

A comprehensive assessment of the potential risks of water pollution as a result of work activities is made by the agent before each activity is carried out. This is part of the activity risk assessment undertaken in accordance with BAM Nuttall Procedure NP23: *Health, safety and environmental risk assessment* (see section 8.2). Surface, ground and coastal waters are considered where appropriate.

Control measures are selected in accordance with environment procedure EP01: *Preventing water pollution* and associated guidance.

Particular attention is given to the following matters:

- work within water courses
- work over water courses
- run-off from earthworks



- work to existing drainage
- sub-surface grouting
- concreting
- dewatering
- contaminated ground
- activity related refuelling
- run-off from de-vegetated ground
- discharge from new drainage

8.6 Arrangements for control of significant quality hazards

The term quality hazard refers to aspects of the production or service provision with a significant potential for problems to be experienced, resulting in nonconformity.

8.6.1 Quality control plan

BAM Nuttall Procedure NP25.4: Technical and engineering delivery of a construction activity on site

The overall manner in which quality hazards are controlled is set out in the project quality control plan of **Schedule 3**. This plan defines the test and checks to be carried out, the acceptance criteria, responsibility for testing and the certifying document.

The work of subcontractors and major material suppliers is included within the quality control plan with details of test and material conformity certificates provided.

Unless the quality control plan is completed in significant detail, it is necessary to prepare inspection and test plans (ITPs) in accordance with BAM Nuttall procedure NP25.4: *Technical and engineering delivery of a construction activity on site,* to provide the same information in relation to specific operations. ITPs are prepared as an essential part of an activity plan (see section 9.2) and are therefore listed in **Schedule 5**. An ITP prepared where there is no activity plan is also listed in **Schedule 5**.

Work which cannot be verified by final inspection or test (special processes) is controlled by monitoring that the work activity is undertaken in accordance with the agreed procedure.

8.6.2 Weather dependent work

Some work which is sensitive to temperature or moisture can only be carried out at certain times of the year unless additional controls such as protection from the elements are introduced. Activities which are weather dependent are listed in **Table 8.6.2** with details of the controls to be used if any.

Table 8.6.2 – Weather dependent work	4
Activity	Control measure
Concrete work	Ensure batching plant has heated water facility Use frost blankets
Brickwork	Comply with specification temperature limits
Blacktop	Comply with specification temperature limits
Painting	Avoid winter working
Structural steelwork welding	Provide protective shelter
Waterproofing	Comply with specification temperature limits or provide protective shelter
M&E installation	Ensure structure weatherproof



ntrol measure
ry out work in the correct season, no works st ground is frozen, ensure moisture is in specification.
ו : ו

8.6.3 Preservation of work

Some items of work are susceptible to damage from following activities unless protective measures are introduced. Work elements for which such measures will be taken are listed in **Table 8.6.3** together with outline details of the protection to be provided.

Table 8.6.3 – Preservation of work					
Work element	Protective measures				
Finishes in Ladies bathing facilities	TBC following completion of design				

8.6.4 Control of monitoring, measuring and test equipment

BAM Nuttall Procedure NP11: *Measuring equipment control*

Monitoring, measuring and test equipment includes surveying instruments, laboratory equipment, cable locators, field testing equipment, gas and noise monitors and any other specific items identified by the agent. The need for monitoring, measuring and testing equipment is identified from inspection and test plans and within procedures/activity plans.

Control of equipment is the responsibility of the site equipment engineer who is appointed in writing by the agent and ensures equipment is controlled and calibrated in accordance with BAM Nuttall Procedure NP11: *Measuring equipment control.*

9.0 Improvement

BAM Nuttall Procedure NP16: Continual improvement

The agent continually seeks to identify opportunities to improve the effectiveness and efficiency of the project, and of the BAM Nuttall business, in accordance with BAM Nuttall Procedure NP16: *Continual improvement*.

All personnel are made aware of the need to recognise errors as opportunities for improvement and not as opportunities to be disciplined. Without this awareness, mistakes are ignored or concealed and data for the improvement activity lost.

Identification does not only wait until a problem reveals such an opportunity. Improvements are also proactively sought in order to add value to the business, eg perform better, faster and/or cheaper.

Examples of success, innovation and best practice are identified and disseminated for adoption by others.

Improvement opportunities are identified from:

- formal reviews of performance (see section 6.5)
- feedback on performance from clients, vendors and regulatory bodies

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- review of audit results
- analysis of nonconformities and complaints
- •



The schedules



Schedule 1 – Project policy statement

Ref. section 4.4

The BAM Nuttall company policies for health and safety, quality, equality, diversity and inclusion, sustainable development, fraud, anti-bribery and corruption and the environment are affirmed for this project. Copies of these policies are available for reference in the project office.

These policies are achieved through the application of the management system, as described in this management plan but management systems depend for their success on the commitment, enthusiasm and professionalism of everyone involved, both employees and others.

The success of this project will be achieved through adherence to this plan together with adoption of Beyond Zero principles and values.

The signature(s) below confirm a commitment to Beyond Zero, the success of this project and the achievement of the objectives set out in table 4.3.



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Schedule 2B – Delegated signatory powers

Ref. section 5.1

Item	Name	Position	Sample signature	Limit of authority
Confirmation of instruction				
Requests for information				
Record/daywork sheets				
Delivery tickets				
Inspection and test				
records				
Statutory inspection registers				
-				
Inspection of work chits				
Measurement records				
Time/allocation sheets				



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Schedule 3 – Quality control plan

Ref. sections 5.7.1 and 8.6.1

(Amend as necessary to suit project requirements, conditions of contract and specification)

Operation	Test description	Acceptance criteria	Responsibility for test	Witness or approve	Certifying document
Condition survey	Survey as activity plan (method statement)	Determine state	BAM Nuttall	Client?	Survey report
Topography/GL survey	Verify by survey SHW 111 & AP03	Comparability	BAM Nuttall	Engineer's representative	Survey results
Setting out / survey controls	Check permanent ground markers and bench marks inc primary & secondary survey control points SHW.112 & App1/12 & AP03	Determine accuracy	BAM Nuttall	Inform for checking	Survey and Schedule of marks
Position of services	Verify by trial pits	Compare with Stats data	BAM Nuttall	Engineer's representative	Trial pit records
Formation	Examination for suitability Notify for Examination ICE cl 38 Formation compaction & soft spots SHW 616	Each area/ structure/pipe run	BAM Nuttall	Engineer's representative approval	Signed approval of works AF06 and/or completed checklist.
Materials initial acceptability	Acceptability & supplier approval submission to client (or designer) SHW cl 105.1 NEC 40 & 41	Once per supplier	BAM Nuttall	Engineer's representative acceptance	Correspondence List of suppliers
Materials, testing & receipt on site general, bulk.	Tests for physical properties SHW Appendix 1/5 and 1/6. NEC 40 & 41	SHW Appendix 1/5 and 1/6 or project list	BAM Nuttall ('virtual' laboratory)	Inform overseeing authority	Test certificates. Collated in files and monitoring records
Subcontractors	Consent to sublet & consent for subcontractor ICE cl 4 or NEC cl26 SHW Cl 105.1	ICE cl4 NEC cl 26 SHW cl 105.1 ea subcontractor	BAM Nuttall	Engineer's representative consent/acceptance	Correspondence List of subcontractors
Bending schedules	Check bars will fit Checking against drawings & BS 8666	Each schedule tolerance as BS 8666	BAM Nuttall	None	Correspondence/ CVI/RFI
Bending schedules	Check bars will fit and all bars scheduled Checking against drawings & BS8666	Each schedule correctness as BS 8666	BAM Nuttall	BAM Nuttall	Amend schedules, Correspondence/ CVI/RFI

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Schedule 4 – Consents, licences and permissions (England and Wales)

Ref. section 8.5.1

The following consents, licences and permissions are required.

	Site process	Documentation consent/permits/licences	Controlling regulations	Issuing authority	Consent/permit/licence Document ref no. & date
ral	Undertaking construction works	Planning permission	Town and Country Planning Act 1990	Local authority	
Gene	Undertaking building works	Building control approval	The Building Act 1984 (Building Scotland Act 2003)	Local authority	
	Ordinary Water Course consent		Land Drainage Act (1991), amended by the Flood & Water Management Act (2010)	Local authority	
	Discharging water to a river, stream, ditch Installation/operation of septic tanks.	Discharge consent to controlled water	Water Resources Act 1991 Groundwater Regulations 1998 Environmental Permitting (England & Wales Regulations 2010)	Environment Agency	
Water	Site set-up sewage discharge	Permission to discharge trade effluent to sewer.	Water Industry Act 1991	Local water company	
	Temporary/permanent works over and in a main river.	Flood defence consent (formerly known as land drainage consent/ works	Water Resources Act 1991 Land Drainage Act 1991 Local Byelaws	Environment Agency	
	Works within 7-10m of a main river, note the distance may vary between EA regions.	affecting watercourses consent)			
	Raising ground levels in the floodplain beside a main river.				
	Construction of a culvert or flow control structure (such as a weir) on any ordinary watercourse.				
	Works on flood plains	Prior permission	Water Resources Act 1991 Land Drainage Act 1991	Environment Agency	
	Works on flood defence structures	Prior permission	Local Byelaws	Environment Agency	
	Abstracting or taking water from rivers, streams, lakes, ponds, tidal waters or groundwater.	Abstraction licence: • Full licence – applicable to most abstractions over 20m3 a day.	Water Resources Act 1991	Environment Agency	
	Constructing or altering any impounding works in rivers, streams, ponds or tidal waters.	 Transfer licence – moving water from one location to another with no intervening use 			
	Dewatering activities may require a licence.	 Temporary licence – over 20m3 a day over a period of less than 28 			
	Note: licence is not required for abstraction for any purpose of less than 20 cubic metres a day.	consecutive days.			



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	Site process	Documentation consent/permits/licences	Controlling regulations	Issuing authority	Consent/permit/licence Document ref no. &
	Lise herbicides near water	Prior permission	Food and Environmental Protection Act 1985	Environment Agency	date
			(Control of Pesticides Regulations 1986)	Environment Ageney	
	Construction works [temp & perm] on the sea bed/within tidal waters/harbour area.	Marine licence – online pre-application and application process	Marine and Coastal Access Act 2009	Marine Management Organisation	
	Maintain a site waste management plan	Site waste management plan (PMP schedule 6.4)	Site Waste Management Plan Regulations 2008	Producer	
	Transfer/disposal of controlled waste Controlled waste transfer notes	Controlled waste transfer notes	Environmental Protection Act 1990 Waste (England and Wales) Regulations 2011	Producer Haulier	
	Transfer/disposal of hazardous waste (England & Wales)	Registration as a hazardous waste producer	Hazardous Waste Regulations 2005	Producer Haulier	
		Hazardous waste consignment notes			
	Carrying waste other than your own (controlled or hazardous)	Waste carriers licence registration certificate required	Waste (England and Wales) Regulations 2011	Environment Agency	
Waste	Keep, treat and dispose of waste	Environmental permit May need planning permission	Environmental Permitting (England & Wales) Regulations 2010 Town and Country Planning Act 1990	Environment Agency Local authority	
	Reuse waste materials off site	Environmental permit or exemption from Environmental Permitting regulations	Environmental Permitting (England & Wales) Regulations 2010	Environment Agency	
	Treatment of contaminated land and water	Mobile Treatment Licence	Environmental Permitting (England & Wales) Regulations 2010 Contaminated Land (England) (Amendment) Regulations 2010 Contaminated Land (Wales) Regulations 2006	Environment Agency	
	Handling asbestos	Licence for work with asbestos from HSE Asbestos licensing unit	, , , , , , , , , , , , , , , , , , , 	Control of Asbestos Regulations 2012	
	Manufacturing of aggregates and soils from demolition, construction, tunnelling and excavation wastes or waste ash, slag, clinker or rock, e.g. screening of soils.	Exemption from waste management licensing	Environmental Permitting (England & Wales) Regulations 2010	Environment Agency	
ance	Crushing and screening operations Blacktop batching plants	Environmental permit or exemption (T5/T7) Authorisation to operate a part B prescribed process.	Environmental Permitting (England & Wales) Regulations 2010 Pollution Prevention and Control (England & Wales) Regulations 2000	Local authority environmental health Environment Agency	
Nuis	Managing noise and vibration levels	Prior consent under Section 61 (optional)	Control of Pollution Act 1974	Local authority environmental health	
	Bat licence	Post planning permission	Conservation of Habitats and Species Regulations 2010 (the 'habitats regulations')	Natural England	



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	Site process	Documentation consent/permits/licences	Controlling regulations	Issuing authority	Consent/permit/licence Document ref no. & date
	Grass snakes	No licence necessary. Precautionary Method of Work		N/A	
	Cutting, topping or uprooting protected trees	Prior consent	The Town and Country Planning (Tree Preservation) (England) Regulations 2012 Town and Country Planning (Trees Amendment) (Wales) 2012	Local authority planning dept	
	Works affecting hedgerows	Prior consent	Hedgerow Regulations 1997	Local authority planning dept	
	Works affecting designated areas i.e. SSSIs, AONB	Prior consent	Wildlife and Countryside Act 1981 Habitat Regulations 1994 Countryside and Rights of Way Act 2000.	 Natural England Countryside Council for Wales 	
Wildlife	Works near badger setts	Prior consent	Protection of Badgers Act 1992	 Natural England Countryside Council for Wales 	
	Move/handle protected species [esp. bats, badgers and newts]	Licence	Wildlife and Countryside Act 1981 Habitat Regulations 1994 as amended	 Natural England Welsh Assembly 	
	Removal and/or introduction of fish with inland waters	Prior consent	Salmon and Freshwater Fisheries Act 1975	Environment Agency	
	Treatment of Japanese knotweed – burning on site	Prior consent	Wildlife and Countryside Act 1981 Clean Air Act 1993 Environmental Permitting (England & Wales) Regulations 2010	Environment Agency Local authority environmental health	
	Treatment of Japanese knotweed – burial	Formal notification	Wildlife and Countryside Act 1981 Environmental Permitting (England & Wales) Regulations 2010	Environment Agency	
	Demolition or alteration of a listed building and historic structures within its grounds.	Planning Permission & Scheduled monument consent	Planning [Listed Buildings and Conservation Areas] Act 1990	Local planning authority	
rchaeology	Works on/near scheduled ancient monuments (SAM's)	Planning Permission & Listed building consent	Town and Country Planning Act 1990 Ancient Monuments and Archaeological Areas Act 1979	Local planning authority English Heritage Welsh historic monuments	
A	Demolition of an unlisted building in a conservation area.	Planning Permission & Conservation area consent	Planning [Listed Buildings and Conservation Areas] Act 1990	Local planning authority	



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Schedule 5 – Register of activity plans (including inspection and test plans/checklists) and site procedures

Ref. sections 5.7.1, 8.2 and 8.6.1

Reference	Title	Written by	Date required	Date issued	4	Approved by client
	Site Set up at Kenwood Nursery					
	Site Clearance					
	Works at P4 Model Boating					
	Works at P7 Viaduct					
	Works at P11 Vale of Health					
	Works at P9 Hampstead No.2					
	Works at P3 Bird Sanctuary					
	Works at P2 Ladies Bathing (dam works)					
	Works at P2 Ladies Bathing (building works)					
	Works at P1 Stock					
	Works at P10 Hampstead No.1					
	Works at P8 Mixed Bathing					
	Works at P6 Highgate No.1					
	Works at P12 Catchpit					
	Aquatic Environmental works					
	Terrestrial Environmental works					
	Dredging Works					



Hampstead Heath Ponds Project

Schedule 6A - Environmental monitoring

Ref. section 5.7.3

Environmental aspect	Method of monitoring	Frequency	Responsibility [name/job title] or subcontractor	Records
Discharge to watercourse/Sewer	Visual inspection and sampling and analysis.	Daily	Environmental Manager / Laboratory	Results log
Noise	Noise assessments	As required	Site engineer	Noise assessments
Dust	Visual inspection.	Daily	Environmental Manager	Site diary
Vibration	Vibration monitoring [as defined in contract conditons]	As required	Consultant or site engineer	Site diary/monitoring records/ Complaints log
Ecology	Weekly inspections and watching briefs where required by environmental permits to work and activity plans	weekly	Consultant	Survey/inspection reports
Condition of plant and equipment	Plant maintenance and inspection Visual inspections of plant	Daily	Plant operator	Plant inspection sheet
Fuel/chemical storage area	Visual inspection/checklist	Weekly	Environmental Manager	Completed checklists
Waste disposal	Visual inspections and maintenance of records	Weekly	Environmental Manager	Checklists and waste transfer records
Emergency spill kits	Visual inspection	Weekly	Environmental Manager	Recorded inspections
Emergency arrangements – e.g. practice drills	Practice drill	As required	Environmental Manager	Record of drill / site training.



Hampstead Heath Ponds Project

Schedule 6B – Water management and pollution (site set-up)

Ref. section 6.12

Hazard	Risk	Ris	sk rat	ing	Control measures / Comments	Final risk rating
		Severity	Likelihood	Rating		
Earthworks	Silt pollution to watercourses	Η	М	н	Bunds, silt fences or grips to be used to prevent silt entering watercourses.	L
Refuelling	Diesel entering watercourse or contaminating ground water	Η	М	н	Diesel to be stored in secure bunded bowsers. Refuelling to only be permitted in specified refuelling areas. Refuelling of plant to be carried out in accordance with refuelling procedure by trained operatives.	L
Plant	Diesel or oil entering watercourse or contaminating ground water	Μ	М	М	All plant to be modern, well maintained and inspected daily. Plant nappies or drip trays to be placed beneath all static plant.	L
De-Silting	Disturbance of silt within ponds harming aquatic wildlife	Н	Н	Н	Silt to be extracted by pumping to reduce the disturbance of silt. Aeration to be used in ponds to protect aquatic wildlife.	L
Last reviewed:		•	-	-		



Schedule 6C – Site waste management plan (SWMP) declaration

Ref. section 8.5.4

This declaration is to be used in conjunction with and uploaded into BAM Smart – the webbased sustainability monitoring and reporting tool

Project reference	BAM.1700
Project title	Hampstead Heath Ponds Project
Client	City of London
Principal contractor	BAM Nuttall
Site waste coordinator	Neil Goulding
Contract value	£8 Million
Address/location	BAM Nuttall Site Office Kenwood Nursery Yard Hampstead Lane London N6 4NU
Project description	The raising of and reinforcing of dams and the cutting of new spillways on the Highgate and Hampstead chains of ponds. The building of a new dam on the Hampstead chain to create additional flood water attenuation. The desilting of 5 Ponds. Aquatic planting to all ponds.
Document prepared by	Neil Goulding

Declaration:

We the client and principal contractor confirm that all reasonable steps will be taken to ensure that:

a) all waste from the site is dealt with in accordance with the duty of care in section 34 of the Environmental Protection Act 1990 and the Environmental Protection (Duty of Care) Regulations 1991

b) materials will be handled efficiently and waste managed appropriately

Client:	Signed:
Principal contractor:	Signed:
Key subcontractor(s):	Signed:

This plan is reviewed at least every three months by the site waste coordinator and updated as necessary to ensure that waste management practices are in accordance with this plan.

Reviewed by	Date	Rev no.	Revision details (where applicable)



Hampstead Heath Ponds Project

Introduction

This site waste management plan identifies and monitors:

- reuse of materials on the project e.g. cut and fill, site won materials
- waste minimisation implemented on the project
- waste management options for waste generated during the works including waste generated by subcontractors
- any cost savings achieved through waste minimisation

Materials identified within this SWMP are not necessarily statutory waste as they do not fall within the legal definition of waste ie 'any substance or object which the holder discards intends to discard or is required to discard.' There is no intention to discard materials such as:

- site won excavated materials
- aggregates crushed in accordance with the WRAP Quality Protocol (on or off site)
- pre-planned use of materials

All materials whether they are imported, reused 'as is' on site, recycled (on or off site) or sent off site for disposal are identified within the plan.

(See Appendix 1 for roles and responsibilities.)



Materials resource efficiency

The following waste reduction and reuse measures have been included in the design and/or specification for this project:

TBC by The Designer	

Forecast of the types and quantities of waste

It is estimated that this site will produce the following types and quantities of waste:

Source and type of waste	EWC Code	Estimated quantity of waste (tonnes)	Proposed waste management action (reuse, recycle, etc)
Excavation waste			
Hazardous excavated material	17 05 03*		
Non-hazardous soil and stones with JKW	17 05 04	360	
Non-hazardous soil and stones	17 05 04		
Inert soil and stones	17 05 04		
Construction (skin) waste			
Concrete	17.01.01	20	
Mixed hardcore	17 01 07	20	
Timber	17 02 01	5	
Glass	17 02 02		
Plastic	17 02 03		
Mixed metals	17 04 07	1	
Other mixed construction waste	17 09 04		
Hazardous construction waste	Various		
Mixed municipal waste	20 03 01	100	
Septic Tank Sludge	20 03 04	225	
Demolition waste			
Concrete	17 01 01	15	
Bricks	17 01 02		
Mixed hardcore	17 01 07	10	
Timber	17 02 01	23	
Glass	17 02 02	1	
Plastic	17 02 03		
Mixed metals	17 04 07	10	
Other mixed demolition waste	17 09 04	5	
	Totals	775	0



Management of waste

The production of waste material on this site during the construction phase is avoided wherever possible by following the 'reduce, reuse, recycle, recover' measures outlined below. Only where these options have been exhausted is waste sent for disposal.

Reduction and reuse measures

The following measures will be employed to reduce and reuse waste on this site:

General			
Reduction measures	Reuse measures		
Designed elements to use standard module sizes of available materials	Cut and Fill to be balanced to prevent import of earthworks materials		
 Accurate measurement, and minimal wastage will be allowed when ordering materials 	• Extracted silt to be used to replace clay excavated for dam construction.		
 Materials are to be delivered just in time for the work package 	•		
 Materials are to be stored and transported correctly so as to avoid damage 	•		
 Materials are to be kept off the ground by the use of pallets or timber bites 	•		
 The following components are to be prefabricated: Selected headwalls 	•		
All operatives are to receive training on the agreed reduction measures	•		
	•		
Concrete and hardcore			
Reduction measures	Reuse measures		
Teram to be used under temporary roads to reduce wastage through settlement	30 tonnes of hardcore from demolition is to be crushed and reused as aggregate		
 Concrete orders to be as accurate as possible to reduce possibility of waste 			
Excavated material (soil & stones)			
Reduction measures	Reuse measures		
Trenches to be sheeted rather than battered to reduce excavated material	A cut and fill exercise has been carried out to minimise waste off site		
	Arisings from excavations to be used as follows: Used for dam construction, used		


	to replace excavated clay for dam construction.
	Extracted silt to be used to replace clay excavated for dam construction
Timber	
Reduction measures	Reuse measures
Reusable metal hoardings to be used	Off-cuts of wood to be saved and sent to the National Wood Recycling Service for re-use
Metals	
Reduction measures	Reuse measures



Hampstead Heath Ponds Project

Packaging	
Reduction measures	Reuse measures
	 Where timber pallets are delivered, these are to be collected by the National Wood Recycling Service for re-use

Recycle and recovery measures

The following waste streams are to be segregated for recycling/ recovery off site:

Waste stream	EWC code	Storage option	Management option
Paper and cardboard	20 01 01	Labelled bins	Recycled
Excavation waste	17 05 04	Stockpiles	Re-used in borrow pits or for dam construction
Plastic	20 01 39	Labelled bins	Recycled
Timber	17 02 01	Labelled bins	Re-used through National Wood Recycling Service
Mixed Metals	17 04 07	Labelled bins	Recycled



Project close-out review

This section of the plan is completed prior to the project close-out review, and discussed as part of the review meeting. The estimated quantities are drawn from the table in section 2, and reconciled against the actual quantities removed from site as detailed in BAM SMaRT.

Comparison of estimated and actual quantities *Insert actual waste quantities from BAM SMaRT.*

Source and type of waste	EWC Code	Estimated quantity of waste (tonnes)	Actual quantity of waste (tonnes)
Excavation waste			
Hazardous excavated material	17 05 03*		
Non-hazardous soil and stones	17 05 04		
Inert soil and stones	17 05 04		
Construction (skip) waste			
Concrete	17 01 01		
Mixed hardcore	17 01 07		
Timber	17 02 01		
Glass	17 02 02		
Plastic	17 02 03		
Mixed metals	17 04 07		
Other mixed construction waste	17 09 04		
Hazardous construction waste	Various		
Mixed municipal waste	20 03 01		
Demolition waste			
Concrete	17 01 01		
Bricks	17 01 02		
Mixed hardcore	17 01 07		
Timber	17 02 01		
Glass	17 02 02		
Plastic	17 02 03		
Mixed metals	17 04 07		
Other mixed demolition waste	17 09 04		
	T. (.).		
	I OTAIS	Difference	0
		Difference	0

Explanation of any deviation from the original plan

TBA

Estimate of cost saving

TBA



Hampstead Heath Ponds Project

Appendix 1 – Roles and responsibilities

The Clients Representative will:

- Appoint a Principal Contractor
- Provide the Principal Contractor with details of all decisions taken before the site waste management plan was drafted on the nature of the project, its design, construction method or materials employed in order to minimise the quantity of waste produced on site
- Ensure a construction phase SWMP is produced
- Comply with the additional requirements laid out in Schedule (Additional duties) to the SWMP regulations

The agent for the Principal Contractor will:

- Ensure the SWMP for the construction phase is produced, and distributed to all staff and subcontractors
- Ensure that within three months of project completion:
 - that the plan has been monitored on a regular basis
 - o section 5.1 is completed comparing estimated quantities with actual
 - o section 5.2 is completed to explain any deviation from the plan
 - o section 5.3 is completed to estimate the cost saving that have been achieved
- Keep a copy of the SWMP for a minimum of two years after project completion
- Comply with the additional requirements laid out in Schedule (Additional duties) to the SWMP regulations

The site waste co-ordinator for the Principal Contractor will:

- Produce the construction phase SWMP prior to works starting on site
- Obtain from the client details of all decisions taken before the site waste management plan was drafted on the nature of the project, its design, construction method or materials employed in order to minimise the quantity of waste produced on site, for inclusion in the construction phase SWMP
- Keep a copy of the SWMP on site and display in suitable locations for information
- Review the plan monthly and update where necessary to accurately reflect progress
- Ensure the following waste data is recorded within BAM SMaRT when any waste is removed from site:
 - o the identity of the person removing the waste
 - o a description of the waste, including the 6 figure EWC code
 - the site where the waste is being taken to
 - the quantity of the waste and whether it was reused on site / taken for reuse at an exempt or standard permit site / taken to a transfer station for segregation and onward recycling / taken to a dedicated recycling facility or send to landfill
- Ensure details of recycling figures for the transfer stations used within the region are obtained and entered onto BAM SMaRT on a quarterly basis
- Ensure details of all waste carrier registration numbers, environmental permit numbers and exemption references for the carriers and disposal sites used within the region are checked and sent to the area environment advisor for input onto BAM SMaRT.



Schedule 7 – Site notices

Ref. section 6.13

Site rules

The following rules have been made to ensure the health and safety of you and your work mates on this site and protection of the environment. They apply to everybody on site.

You must always:

- wear your safety helmet, safety footwear, hi-vis clothing and gloves
- wear safety glasses unless shown inappropriate by specific risk assessment
- use other PPE as directed by your supervisor
- report to your supervisor any accident or injury, defects in plant or equipment, hazards in your workplace
- keep your workplace tidy
- place waste in the appropriate bins
- obey all safety signs and instructions
- drive safely on site, observing all speed limits and traffic signs
- use the eating, drinking and toilet facilities provided and keep them clean and tidy
- switch off plant and equipment when not in use

You must never:

- report for work under the influence of alcohol or drugs
- indulge in horseplay
- alter or adapt scaffolding unless authorised to do so
- use plant or equipment for which you have not been trained
- light fires or burn rubbish without permission
- leave plant or equipment unattended unless it is switched off and secure
- use a mobile phone on site other than in designated areas
- pump water into a river or stream without permission

These rules are common sense and easy to follow Failure to follow them may lead to disciplinary action or your removal from site

And remember 'Don't walk by!'





Emergency procedure – injury incident

In the event of an accident:

- Do not endanger your own life.
- Ensure that the injured person will not come to further harm.
- Notify the site office of:
 - the injured person's name and/or employer
 - location
 - type of incident
 - likely injuries
 - special requirements

The site office will:

- contact the first aider
- call an ambulance and/or other emergency services by dialling 999
- ensure access route is cleared
- arrange reception of ambulance/fire brigade/police at the nearest public road
- direct emergency services to location
- provide injured person's information to the emergency service
- notify injured person's employer if a subcontractor

The first aid kit is held in the agent's office.



Emergency procedure – fire

In the event of a fire in the site offices or other site accommodation:

- Alert all personnel of fire, evacuate all site offices and other units and assemble at the site compound assembly point.
- Do not stop to collect personal belongings.
- Contact the emergency services by dialling 999, or ensure that someone else does.
- Use appropriate fire extinguishers to contain or extinguish the fire **ONLY** if trained to do so.
- Do not put yourself or others at risk.
- Do not attempt to re-enter offices until approval is given by a senior member of staff.

In the event of a fire on site:

- Leave the area and assemble at the site compound assembly point.
- Notify a member of staff at the site offices.
- Use appropriate fire extinguishers to contain or extinguish the fire **ONLY** if trained to do so.
- Do not put yourself or others at risk.
- Do not return to the area of the fire until approval has been given by a senior member of staff.

The site office staff must:

- call the fire brigade by dialling 999 when informed of a fire
- ensure the access route is cleared
- arrange reception of fire brigade at the nearest public road
- direct emergency service to location



Emergency procedure – confined space rescue

Prior to normal entry into a designated 'confined space' check:

- first aid and fire extinguisher readily available by entrance.
- underground and external communication systems available and operational
- names/numbers of persons entering/leaving confined space are logged
- · atmospheric testing has indicated it is safe to enter
- each person entering confined space is wearing full body harness and carrying escape breathing apparatus set
- top man is in attendance
- permit to work certificate (SF 901) is complete
- safe means of access is available for emergency services

If an emergency condition occurs:

- evacuate the confined space immediately
- do not attempt to rescue a collapsed person unless they can be moved to safety immediately
- ensure 'top man' summons fire brigade and ambulance by dialling 999 giving exact location and access route
- send a person to direct emergency services to location
- notify the agent

ONLY if you have had the necessary training and if a rescue kit and breathing apparatus are available:

- re-enter to attempt a rescue
- use forced air ventilation system to improve atmosphere
- take drag sheets and life line(s) into confined space
- ensure 2 people are available to assist
- have resuscitator and first aid kit available

The site address is

post code.....



Emergency procedure – pollution incident

In the event of an oil, fuel or silt pollution incident, take action to:

Raise the alarm you may need assistance what risks are involved, can you handle it yourself or are the Identify the source emergency services required? **Protect yourself** are you wearing the correct PPE to deal with the incident? _ but do not put yourself or colleagues at further risk Help any injured prevent further pollution if safe to do so by plugging leaks, righting Stop the source drums, closing valves or turning off pumps use emergency materials held on site and ensure that the pollution **Contain the pollution** cannot escape by blocking drains, or creating a trench or bund to protect rivers and other watercourses if the pollution has already entered water, prevent its further **Prevent spread** spread downstream using booms for spills or silt fencing for silt as soon as it is possible to do so Notify your supervisor using appropriate absorbent materials or skimmers Clean up **Dispose of contaminated** used clean up materials will be classed as 'hazardous' or 'special _ waste' materials emergency clean up materials should be replenished and Restock restocked following their use

In the event of a major spillage to water (an incident that the project team cannot handle or contain) contact:

Briggs Marine Tel: 0800 374 348 BAM Nuttall reference: CM217

Emergency spill kits and absorbent materials are located at:



Emergency procedure – person in water

In the event of a person falling into water:

- Raise the alarm by an appropriate means such as
 - shouting 'person in water'
 - sounding a klaxon
 - continuously sounding of a crane or vehicle horn
 - summoning the safety boat via site radio
- Keep the person in view.
- Make your way to the nearest lifebuoy station. Keeping hold of the end of the line, throw the buoy or grabline to the person in the water, if they can reach it. If not, let a loose lifebuoy float downstream with them.
- Provide assistance by drawing in the lifeline until the person is at a landing point. If the landing point is difficult, do not attempt to pull the person out call for assistance.

The safety boat will recover the person from the water, and land the casualty at

- Once the person has been recovered from the water, keep them warm until transport is available to take him to the first aid station.
- Whilst giving priority to the rescue, send a message to the main office as soon as possible to enable coordinated support. Notify the office of:
 - the person's location
 - likely injuries, if any

Employees are advised not to make a rescue attempt by entering the water unless they have been trained in life-saving techniques.



List of key personnel and organisations for emergency and liaison					
Name	Position	Location	Tel. no.		
Ken Selway	Business unit manager				
Ian Grant	Site agent				
Philip Pardon	General foreman				
Carole Winter	Area health and safety advisor				
Arjun Thirunavukarasu	Area environment advisor				
Peter Bishop	Head of public relations	Camberley			
Emergency liaison					
Organisation	Contact (name)	Telephone no.	Emergency tel. no. and fax. no.		
Incident co-ordinator					
Client					
CDM coordinator					
Fire					
Police					
Hospital					
HSE					
EHO					
Environment Agency					
Local authority	London Borough of Camden				
Gas supplier	National Grid Gas				
Electricity supplier	National Grid Electric UK Power Networks				
Telecom	BT				
Water	Thames Water				
Natural England					



Appendix 1: Construction Design & Management Regulations 2007 (CDM) compliance schedule

CDM ACoP Appendix 3 reference		Relevant section of project management plan			
		Schedule	Section	Title	
1a	Project description and programme		4.1	The project works	
			4.2	Project programme	
1b	Details of client, CDMC, designers etc		4.1	The project works	
1c	Existing records and plans etc		2.2	Inputs to the plan	
2a	Management structure and responsibilities	2	5.1 & 6.13	Organisation and responsibilities	
2b	Goals, monitoring and review		4.3	Project objectives	
			5.7.2	Verification of health and safety control	
			5.5	Project review	
2c(i)	Liaison		5.2	Client communication	
			7.4.3	Coordination of contractors	
2c(ii)	Workforce consultation		7.1.5	Workforce engagement	
2c(iii)	Exchange of design information		5.6	Project design	
2c(iv)	Design changes		5.3	Change control	
2c(v)	Selection and control of contractors		7.4.1	Evaluation and selection of	
				subcontractors	
			7.4.2	Management of subcontractors	
			7.4.3	Coordination of contractors	
2c(vi)	Exchange of information between contractors		7.4.3	Coordination of contractors	
2c(vii)	Site security		6.3	Site security	
2c(viii)	Site induction		7.1.2	Induction	
2c(ix)	On site training		7.1.3	Site training and development	
2c(x)	Welfare facilities and first aid		6.5	Welfare arrangements	
			6.9	First aid	
2c(xi)	Reporting and investigation of incidents		5.10.2	Health and safety nonconformity	
2c(xii)	Production and approval of risk	7	5.7.1, 8.2	Risk and opportunity	
	assessments		& 8.6.1	management	
2d	Site rules		7.1.2	Induction	
			7.1.5	Workforce engagement	
			7.4.3	Coordination of contractors	
			8.4.4	Drugs and alcohol	
2e	Fire and emergency procedures		6.10	Fire safety	
			6.13	Incident and emergency	
			_	arrangements	
3a(i)	Access and egress to site		6.4	Protecting the public	
3a(ii)	Services		8.3.3	Buried services	
			8.3.4	Overhead services	
3a(iii)	Adjacent land use		6.1	The local community	
			6.4	Protecting the public	



CDM ACoP Appendix 3 reference		Relevant section of project management plan		
	Schedule Section Title			Title
3a(iv)	Stability of structures		8.3.10	Demolition
· · /			8.3.11	Existing structures
			5.7.4	Verification of temporary works
3a(v)	Preventing falls		8.3.1	Work at height
3a(vi)	Fragile materials	1	8.3.11	Existing structures
3a(vii)	Control of lifting operations		8.3.2	Lifting operations
3a(viii)	Maintenance of plant and equipment		7.3	Provision and use of work equipment
3a(ix)	Work on excavations		8.3.5	Excavation
3a(x)	Work on tunnels etc		8.3.6	Confined spaces
3a(xi)	Work on or near water		8.3.7	Work over water
3a(xii)	Work involving diving		8.3.15	Other significant safety risks
3a(xiii)	Work in a caisson or compressed air		8.3.15	Other significant safety risks
3a(xiv)	Work involving explosives		8.3.14	Explosives
3a(xv)	Traffic routes and segregation		6.7	Workplace transport
3a(xvi)	Storage of materials		7.2.1	Materials control
· · ·			7.2.4	Management of hazardous
				materials
3a(xvii)	Any other significant safety risks		8.3.15	Other significant safety risks
3b(i)	Removal of asbestos		8.4.5	Asbestos
3b(ii)	Contaminated land		8.3.8	Contaminated land
3b(iii)	Manual handling		8.4.3	Manual handling
3b)iv)	Hazardous substances		7.2.4	Management of hazardous materials
3b(v)	Noise and vibration		8.4.1	Noise
			8.4.2	Vibration
3b(vi)	Ionising radiation		8.4.6	Radiation
3b(vii)	UV radiation		8.4.9	Exposure to UV radiation
3b(viii)	Any other significant health risks		8.4	Health surveillance
4a	Format of H&S file		5.8	Project records
4b	H&S file information collection		5.8	Project records
4c	Storage of information		5.8	Project records



Appendix 2: BS ISO 10005:2005 compliance schedule

BS ISO 10005:2005 reference		Relevant section of project management plan		
5.2	Scope	1.0	Introduction	
5.3	Quality plan inputs	2.2	Inputs to the plan	
5.4	Quality objectives	4.3	Project objectives	
5.5	Management responsibilities	5.1	Organisation and responsibilities	
5.6	Control of documents and data	5.9	Project document management	
5.7	Control of records	5.8	Project records	
5.8	Resources			
5.8.1	Provision of resources			
5.8.2	Materials	7.2	Management of materials	
5.8.3	Human resources	7.1	Management of human resources	
5.8.4	Infrastructure and work environment	6.0	Infrastructure and the work environment	
5.9	Requirements	4.1	The project works	
5.10	Customer communication	5.2	Client communication	
5.11	Design and development			
5.11.1	Design and development process	5.6	Project design	
5.11.2	Control of design and development changes	5.6	Project design	
5.12	Purchasing	7.2.1	Materials control	
		7.4.1	Evaluation and selection of subcontractors	
5.13	Production and service provision	8.0	Production and service provision	
5.14	Identification and traceability	7.2.2	Product traceability	
5.15	Customer property	7.2.1	Materials control	
5.16	Preservation of product	8.6.3	Preservation of work	
5.17	Control of nonconforming product	5.10	Project non-conformities/complaints and	
			corrective action	
5.18	Monitoring and measurement	5.7	Project verification	
5.19	Audits	5.11	Audit	



Appendix 3: List of document references within the model plan

This appendix is maintained to assist the updating of the model plan when referenced documents are changed.

PMP section	Document(s) referred to within text
5.1	NP17,BAM Nuttall Management Manual Sch.3, H&S Policy Pt.2
5.3	NP21.1
5.5	NP13
5.6	NP7, NP20
5.7.4	NP19
5.8	NP10.3, EC03
5.9	NP10.3
5.10	NP14, NP1.14, SG27, EP08
5.11	NP12
5.12	NP9
6.2	EG11, EG12
6.5	NS1,SG21
6.6	NS2
6.7	SG24
6.9	SG03
6.10	SG11
6.12	EP01, EP02
6.13	SG23
[7.1.5	SG26, NS3
7.2.1	NP5.3, NP5.6, NP9.4
7.2.4	SG12
7.3	NP4, NP1.2, SCG02
7.4.1	
1.4.2	NP5.6, NP20, NP4
1.4.3	NP5.6
8.1	
8.2	NP22.4, NP22.5, NP23, 5G01, NP24
8.3.1	
0.3.2	
	UPE document CS6
0.3.4	
0.3.0	5010 SC16
8 3 0	Traffic signs Manual Chanter 8 (Pt 182) Road & Streetworks Act ACoD Safety at
0.3.9	Street Works & Road Works
84	NP1 17
841	NP1 5
842	SG08
8.4.3	SG22
8.4.4	NP3.2. NP3.3. NP3.4
8.4.5	NP1.6
8.4.10	NP1.9
8.5.1	EG21, EG22
8.5.2	EG09, EG08, NP23, NP24
8.5.3	EP07, NP23
8.5.4	EP03, EP06
8.5.5	EP01, NP23
8.6.4	NP11
9.0	NP16



Appendix 4: Contract requirements compliance schedule

Contract requirement	Relevant section of project management plan
TBC on completion of detailed design	





Hampstead Heath Ponds Project

Appendix 5: Table of planning mitigation measures (from Environmental Statement)

Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be implemented
Landscape and visual	Thirty three visual receptors would experience significant adverse effects during construction ranging from moderate adverse to major adverse.		Transport of materials from the construction compound at Kenwood Nursery to the worksites would be via smaller vehicles and equipment where possible similar to the maintenance vehicles currently use on the Heath to integrate with the character of existing park maintenance operations and aid in reducing potential compaction	BAM Nuttall	Throughout construction
			Installation of tree protective fencing around vulnerable trees during construction in accordance with BS5837:2012 (Trees in relation to construction - recommendations) prior to works commencing.	BAM Nuttall	Throughout construction
			Establishment of construction exclusion zones, including the avoidance of construction compounds within designated or identified view corridors.	BAM Nuttall	Throughout construction
			Operation of a clean and tidy site.	BAM Nuttall	Throughout construction
			The use of solid Heras fence panels with a mesh Heras panel after every 5 solid panels around the worksites.	BAM Nuttall	Throughout construction
			The Proposed Development would be linked with the future revisions of the Hampstead Heath Management Plan Error! Bookmark not defined. (intended 2017).	City of London	Drafting of the next Hampstead Heath Management Plan



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be
	Five visual receptors would experience significant adverse effects at the opening year of the Proposed Development.	One visual receptor would experience significant adverse effects at year 15 after of the Proposed Development's operation.	Mitigation has been incorporated into the design as far as possible a foopath across the crest of the new dam will provide open views to north and help to mitigate effect. Vegetation loss will be minimised. Each chain of ponds has been considered as a whole to minimise engineering works at visually sensitive locations.	Not applicable	Not applicable
Ecology		Long term moderate beneficial effect for Model Boating Pond and Bird Sanctuary Pond habitats due to improved water quality and pond habitat complexity.	None	Not applicable	Not applicable
	No temporary significant adverse effects during		Regular vehicle checks and appropriate planning e.g. implementation of Emergency Spill Response Plan.	BAM Nuttall	Throughout construction
	construction or operation but mitigation proposed to		Avoidance as far as possible of terrestrial habitats referred to in citation e.g. ancient woodland, wet flush and acid grassland.	BAM Nuttall	Throughout construction
	minimise any effects to Heath ecology as part		Avoidance as far as possible of floristically more diverse grasslands	BAM Nuttall	Throughout construction
	or best practice		De-silting works to be undertaken using suction pumping dredging to minimise the volume of fine sediment re-suspension.	BAM Nuttall	Throughout construction
			During de-silting works pond turbidity levels would be monitored and silt curtains deployed if necessary to control and contain re-suspended fine sediment and prevent propagation to downstream ponds.	BAM Nuttall	Throughout construction



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be
					implemented
			De-silting works to be scheduled for the winter months to reduce likelihood of water quality deterioration and avoid plant growing and amphibian breeding season.	BAM Nuttall	Throughout construction
			Avoidance of known desirable vegetation stands e.g. established marginal reed swamp vegetation, lilies and/or retention of uncommon species for reintroduction under ecological watching brief.	BAM Nuttall	Throughout construction
			Planting shelf works to be undertaken from floating pontoon or through manual wading to limit level of bed and pond margin disturbance.	BAM Nuttall	Throughout construction
			Where present at marginal shelf locations protect existing marginal aquatic plant communities and incorporate into the newly created planting shelf under ecological watching brief.	BAM Nuttall	Throughout construction
			Retention of desirable plants within and adjacent to streams and drainage channels and reintroduction following works under ecological watching brief.	BAM Nuttall	Throughout construction
			Treatment/removal of invasive plant species occurring with working areas prior to construction works commencing.	BAM Nuttall	Throughout construction
			Occurrences of invasive plant species outside the working areas but within the application site to be demarcated/highlighted to workers.	BAM Nuttall	Throughout construction
			Vehicle and worker inspection checks to ensure compliance with the Wildlife and Countryside Act (WCA) 1981 (as amended) particularly in relation to Schedule 9 species.	BAM Nuttall	Throughout construction



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be implemented
			Deployment of portable aerators during de-	BAM Nuttall	Throughout
			silting works to mitigate potential for reduction in		construction
			dissolved oxygen concentrations and to attract		
			fish away from site of disturbance.		
			Appropriate screening of suction pump to reduce	BAM Nuttall	Ihroughout
			likelihood of fish entrainment and ecological		construction
			watching brief of de-silted material.		These sheet
			Any spawn present within areas to be confer-	BAIM NUTTAII	Inrougnout
			placed in an unaffected part of the waterbody		construction
			Construction activities at Bird Sanctuary Pond	RAM Nuttall	Throughout
			would completely avoid the east bank of the		construction
			pond where grass snakes are known to be		construction
			concentrated.		
			To minimise the risk of harm and disturbance to	BAM Nuttall	Throughout
			reptiles, a Precautionary Method of Working		construction
			(PMW) would be produced and implemented		
			during the construction phase. This would		
			include measures such as hand-searching of		
			potential refuges within working areas,		
			supervised clearance of suitable reptile habitat,		
			and provision of toolbox talks to workers.		
			Hibernacula and log piles would be created	BAM Nuttall	Throughout
			adjacent to ponds where grass snakes have		construction
			been recorded.		



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be implemented
			A European Protected Species Licence would be obtained from Natural England to remove the bat roost at Kenwood Ladies' Bathing Pond changing rooms (and any tree roosts which are confirmed by the survey work in summer 2014). Alternative roosting sites would be provided. The soft-strip of the roost is would take place in October 2015 or spring 2016 to avoid the periods when bats are most vulnerable i.e. when they are hibernating and breeding.	City of London	Detailed design
			Tree roosts requiring removal would be carried out during April or October. An appropriate number of bat boxes would be installed on retained trees to compensate for the loss of roosting opportunities from lost tree roosts; at least three for each tree with high or moderate potential.	BAM Nuttall	Throughout construction
			Any lighting required during the winter months or for security purposes all year round would be located away from vegetation and would meet Bat Conservation Trust guidelines.	BAM Nuttall	Throughout construction
			Construction activities would avoid known kingfisher and swan nesting sites, and pre- construction checks of working areas for the nests of ground-nesting and wetland birds would be undertaken during the bird breeding season. Some works would be adjacent to historic swan nesting sites and in these locations deterrent measures to prevent swans from nesting in these locations or nest relocations would be implemented.	BAM Nuttall	Throughout construction
			Vegetation clearance works would take place in January and February 2015 and 2016 to avoid the bird breeding season.	BAM Nuttall	Throughout construction



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be
					implemented
			Any deadwood would be removed from working areas and placed in unaffected areas nearby (many of the species recorded during the fungi survey are associated with deadwood i.e. saprophytic).	BAM Nuttall	Throughout construction
			The replacement and new planting would include tree species with which recorded mycorrhizal fungi are known to associate.	BAM Nuttall	Throughout construction
			The construction activities would avoid important invertebrate habitats such as the grassland to the west of Kenwood Ladies' Bathing Pond (where orb-spiders have been recorded), ancient woodland and mature /ancient trees.	BAM Nuttall	Throughout construction
			Appropriate disposal of non-native crayfish species that become removed from the water body to ensure compliance with the Wildlife and Countryside Act (WCA) 1981 (as amended).	BAM Nuttall	Throughout construction
			Appropriate licence from Environment Agency if crayfish removal from any pond or specific pond work area is required.	BAM Nuttall	Throughout construction
Water environment		Moderate beneficial effect to the Standard of Protection (SoP) for downstream urban areas due to the following a reduced risk of overtopping of Highgate No.1 Pond	None	Not applicable	Not applicable



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be implemented
	No significant adverse	Major beneficial effect for downstream urban areas due to a reduced risk of dam failure Moderate beneficial effect to the water quality of all ponds Major beneficial effect to the water quality for the ponds where de- silting would occur	Adoption and implementation of Environment	BAM Nuttall	Throughout
	effects but mitigation is proposed to minimise any effects to the water environment as part of best practice.		Agency PPG guidance The current intention for no temporary increases in impermeable area during the construction phase would be realized. If this is not possible, the temporary increase in surface water runoff rates and volume would need to be managed to ensure no increase in the risk of surface water flooding.	BAM Nuttall	construction Detailed design and construction
			Partial dewatering of Model Boating Pond and the borrow pits (if required) would be undertaken in accordance with the Environment Agency PPGs and the issue of any relevant permits.	BAM Nuttall	Detailed design and construction
			Surface water runoff assessments would be produced by the contractor for each of the works areas.	BAM Nuttall	Detailed design
			The silt bags would be orientated to minimise the impact they have on local surface water flow paths.	BAM Nuttall	Throughout de- watering works



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be
					implemented
			The Heath Management Plan and Emergency Plan would be updated to document the future management of the ponds and associated structures.	City of London	Prior to construction works commencing
			An updated breach assessment would be undertaken to map the impacts of dam failure on downstream people, property and infrastructure following completion of the Proposed Development.	City of London	Prior to construction works commencing
Historic environment	No temporary significant adverse effects but mitigation is proposed to minimise any effects to the historic environment as part of best practice.	No permanent significant adverse effects.	Works which would have an impact on the historic fabric in and around the ponds would be preceded by recording. Due to the relatively homogenous nature of the heritage significance of the ponds and their construction, it is recommended that where proposed works would alter their current appearance be subject to archaeological built heritage recording to an appropriate level in the English Heritage guidelines	City of London	Prior to construction works commencing
			It would be necessary to fence off sensitive elements (in as far as they are likely to be affected) with paling fencing or similar for the duration of works in the vicinity of the asset. Suitable alternatives would be devised where this is not possible. Notably this would include the Viaduct (Listed Building), mature trees and protected hedgerows in the actual vicinity of the works. Works to trees in relation to construction should be carried out to BS5837:2012.	BAM Nuttall	Throughout construction



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be
			Impacts resulting from the proposed works could	- BAM Nuttall	implemented
			be suitably mitigated by a programme of targeted archaeological investigation and recording in the form of an archaeological watching brief, to achieve preservation by record. This could include provision for palaeoenvironmental sampling where appropriate. Any such work would need to be undertaken in accordance with an approved Written Scheme of Investigation (WSI) and could be carried out under the terms of a standard archaeological planning condition set out under the granting of planning consent.		construction
			To respect the significance and historic character of the ponds, the design solution throughout for new elements would be of a traditional nature as far as possible, within technical constraints.	Design team	Detailed design
Community	Significant adverse effects would occur to users of each of the swimming ponds which would be closed for a short duration during construction.	No permanent significant adverse effects.	None proposed	Not applicable	Not applicable
	Part of the rear garden of Millfield Cottage would be required for the construction of Highgate No.1 Pond dam which would be an adverse effect.		The worksite area has been minimised as far as possible.	Already incorporated in the design	Not applicable



Assessment	Temporary	Permanent	Mitigation measure	Organisation	When
chapter	significant effects	significant effects		responsible for	mitigation
				implementation	implemented
	A part of the rear garden of Millfield Cottage, smaller than required during construction would be permanently required for the dam wall at Highgate No.1 Pond.		None proposed	Not applicable	Not applicable
Traffic and	No temporary	No permanent	The CEMP outlines traffic measures to be	BAM Nuttall	Throughout
transport	significant adverse	significant adverse	undertaken on and off Site.		construction
	effects	effects	Any larger or non standard highway vehicles used by BAM Nuttall would need to be assessed on a vehicle by vehicle basis to ensure they can safely enter the Site with a risk assessment undertaken for any traffic management required.	BAM Nuttall	Throughout construction
Air quality	No temporary significant adverse	No permanent significant adverse	Plan site layout so that dust causing activities are located as far from receptors as possible.	BAM Nuttall	Detailed design
	effects but mitigation is proposed to minimise	effects.	Erect solid screens or barriers around the site boundary.	BAM Nuttall	Throughout construction
	any dust effects as part of best practice.		Avoid site run off of water and mud	BAM Nuttall	Throughout construction
			Keep site fencing, barriers and scaffolding clean using wet methods	BAM Nuttall	Throughout construction
			Cover, seed or fence any stockpiles	BAM Nuttall	Throughout construction
			Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards	BAM Nuttall	Throughout construction
			Ensure all vehicles switch off engines when	BAM Nuttall	Throughout
			stationary		construction
			Impose a maximum-speed-limit of 15 mph on surfaced roads and work areas within the site	BAM Nuttall	I hroughout construction



Assessment	Temporary	Permanent	Mitigation measure	Organisation	When
chapter	significant effects	significant effects		responsible for	mitigation
				Implementation	would be
			Introduce a logistice plan to manage the	PAM Nuttell	Throughout
			introduce a logistics plan to manage the	DAM NULLAII	apporting
			Sustainable delivery of goods and materials		Throughout
			fitted or in conjunction with outching dust	DAM NULLAII	Inroughout
			niled of in conjunction with suitable dust		construction
			suppression rechniques such as water sprays of		
			ventiletion eveteme		
			All dusty activities should be damped down	BAM Nuttall	Throughout
			during dry weather		construction
			Ensure sand and other aggregates are stored in	BAM Nuttall	Throughout
			bunded areas and are not allowed to dry out		construction
			Use enclosed chutes, conveyors, and covered	BAM Nuttall	Throughout
			skips, where practicable		construction
			Ensure effective water suppression is used	BAM Nuttall	Throughout
			during demolition operations		construction
			Make sure that any stockpiles exist for the	BAM Nuttall	Throughout
			shortest possible time		construction
			Whenever possible keep stockpiles or mounds	BAM Nuttall	Throughout
			away from the site boundary, sensitive		construction
			receptors, watercourses and surface drains		
			Seed, re-vegetate or turf long term stockpiles to	BAM Nuttall	Throughout
			stabilise surfaces. Where re-vegetation is not		construction
			possible, use hessian, mulches or trackifiers or		
			cover with topsoil as soon as possible		
			Vehicles carrying dusty material should be	BAM Nuttall	Throughout
			securely covered before leaving the site		construction
			Use water-assisted dust sweepers on the	BAM Nuttall	Ihroughout
			access and local roads to remove material		construction
			tracked out from site		



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be
			Stakeholder communication should be implemented through community engagement both before and during work on site and the clear display of contact details for those responsible for dust issues on site. Any complaints and exceptional incidents should be logged along with the appropriate measures	BAM Nuttall / City of London	Prior to and during construction
			taken to reduce emissionsDaily site management of emission controlmeasures should be undertaken, with visualinspections of activities and control measurescarried out every day during dry conditions.Visual inspections should include recording ofactivities, controls, weather and groundconditions, and observations of surface dustdeposits at and beyond the site boundary in thevicinity of receptors	BAM Nuttall	Throughout construction
Noise	Five receptors in close proximity to the worksites adjacent to Highgate No.1 and Pond, Hampstead No.1 Pond would experience temporary adverse significant noise effects during the noisiest construction activities.	No permanent significant adverse effects.	All vehicles and mechanical plant used for the purpose of the works should be fitted with effective exhaust silencers and should be maintained in good and efficient working order; All compressors and generators should be "sound reduced" models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use, and all ancillary pneumatic percussive tools should be fitted with mufflers or suppressers of the type recommended by the manufacturers and should be kept in a good state of repair;	BAM Nuttall	Throughout construction Throughout construction
			Machines in intermittent use should be shut down in the intervening periods between work, or where this is impracticable, throttled down to a minimum;	BAM Nuttall	Throughout construction



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be implemented
			The worksite areas and static machines should be sited as far as is practicable from inhabited buildings;	BAM Nuttall	Throughout construction
			Where practicable, plant with directional noise characteristics should be positioned so as to minimise noise at adjacent properties;	BAM Nuttall	Throughout construction
			Where reasonably practicable, vibratory equipment should be located as far from sensitive premises as possible.	BAM Nuttall	Throughout construction
			Establishment of agreed criteria and monitoring whilst undertaking significantly noisy or vibration-causing operations near to sensitive locations to ensure compliance and to identify any problems;	BAM Nuttall	Throughout construction
			Programming works such that the requirement for working outside of normal working hours is minimised;	BAM Nuttall	Throughout construction
			Ensuring that all staff and operatives are briefed on the requirement to minimise nuisance from site activities, via tool box talks etc;	BAM Nuttall	Throughout construction
			Use of temporary noise screens or partial enclosures around particularly noisy activities in close proximity to dwellings; and	BAM Nuttall	Throughout construction
			Regular plant maintenance.	BAM Nuttall	Throughout construction
			Ensure that the public, residents and nearby businesses are kept fully informed over the scale and nature of the works, when they are to take place, and who to contact if they are disturbed	BAM Nuttall	Throughout construction



Assessment chapter	Temporary significant effects	Permanent significant effects	Mitigation measure	Organisation responsible for implementation	When mitigation would be implemented
			Delivery routes used by trucks and lorries should avoid residential areas as far as possible. Where possible, vibration generating machinery should be situated away from the noise-sensitive receivers.	BAM Nuttall	Throughout construction
			The construction works, which include such noise generating equipment, should be carefully planned by the contactor.	BAM Nuttall	Throughout construction
	No temporary significant adverse vibration effects but mitigation is proposed to minimise any impacts as part of best practice.	No permanent significant adverse effects.	the local receptors should be kept informed of the progress of the works likely to cause vibration. Information should include when and where the activities would be taking place, how long they are expected to last and who to contact if they are disturbed	BAM Nuttall	Throughout construction

ATKINS

Epsom Gateway 2 Ashley Avenue Epsom Surrey KT18 5AL England

Telephone +44 (0) 1372 75 6280 Mobile +44 (0) 7710 36 3354 Email: mike.woolgar@atkinsglobal.com

www.atkinsglobal.com

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