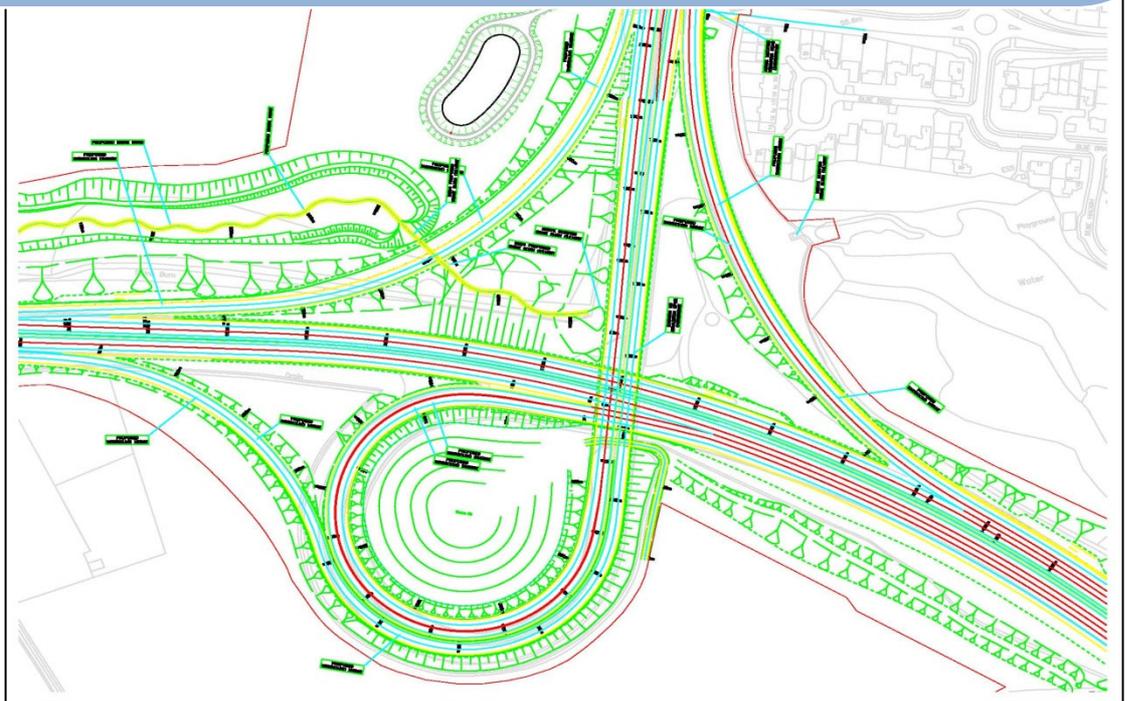


FORTH REPLACEMENT CROSSING M9 Junction 1a – Project Quality Plan: Volume 4 GEOLOGY, LAND CONTAMINATION GROUNDWATER AND SITE WASTE MANAGEMENT PLAN



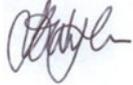
FORTH REPLACEMENT CROSSING M9 Junction A1

Geology, Land Contamination, Groundwater and Site Waste Management Plan

CONTROLLED DOCUMENT

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	Name	Signature	Date
Prepared by:	Roland Tarrant		March 2012
Checked SRB:	Seamus O'Brien		March 2012
Checked GIFFORD:	John Wyles		March 2012
SRB Approved:	Seamus O'Brien		March 2012

Revision Record

Rev	Date	By	Summary of Changes	Chkd	Aprvd
01	18th September 2011	RT	Reflect EDT, Statutory Bodies and Local Authorities Consultations and Review	SOB	SOB
02	10 th October	RT	Reflect EDT comments – include for Soils and Associated Handling and Management Plan	SOB	SOB
03	14 th March	RT	Six Monthly review by SRB	SOB	SOB

Geology, Land Contamination, Groundwater and Site Waste Management Plan

Objective:

To take reasonable precautions in carrying out the works to prevent, contain, or limit adverse environmental impacts and health and safety risks arising from construction on or adjacent to land affected by contamination or disturbance of contaminated soils during construction activities, including limiting adverse impacts on designated geological features.

Introduction:

This Geology, Land Contamination and Groundwater Management Plan details how SRB will undertake the works on the Forth Replacement Crossing M9 Junction 1A project. This plan includes details of the measures to be implemented to manage construction works, including the following:

- Works that may affect mine workings or designated geological sites;
- Construction activities on land which may be contaminated;
- The handling, storage, transfer and disposal of waste materials and contaminated materials
- The reuse or recycling of waste material
- Works that may affect private water supplies.

The plan was prepared in accordance with the following:

- Section 7 of the Code of Construction Practice;
- Environmental Statement for the project;
- SRB Integrated Management System

Consultations:

As per Section 24.7.1 of Volume 5: Part A1 Employer's Requirements, SRB will consult and comply on Land Contamination, hydrogeology and waste issues as appropriate with:

- City of Edinburgh Council;
 - SEPA and
 - West Lothian Council
- within their respective boundaries.

Key Issues:

Solid Geology:

Igneous intrusive rocks comprising dolerite/teschenite, of Lower Carboniferous age, are present immediately to the southwest of Kirkliston where the igneous lithologies are outcropping or close to surface.

Igneous sequences consisting of basalts, dolerite or gabbro, sometimes embedded with sedimentary strata, have been recorded at variable depth at the very southern end of the scheme (CH1500, southeast of the M9 Junction 1A) with a thickness in excess of 17m of Dolerite.

Drift Geology:

Small areas of undifferentiated alluvium were recorded along the Swine Burn and Niddy Burn.

A small area of glaciofluvial deposits is indicated on the BGS map in the vicinity of Ch0 of the M9 Junction1A loop.

Mineral Extraction:

The route of the M9 Junction1A crosses the sub-crop of a number of oil-shale seams which would appear to be poorly developed in the area. There is evidence that mineral investigations place around the turn of the last century, presumably for oil-shales. However, there are no records of any oil-shale mining, or indeed mining for any other minerals in this area. It is considered unlikely that unrecorded mine workings are present, due to the generally well documented records available.

Contaminated Land:

Fly tipping has been recorded during ecological surveys in the vicinity of the Swine Burn and the River Almond.

Potential contamination sources for the project are described below and can be seen in Figure 8.4c.

Source Reference	Potential Source	Existence on Historical Maps	GI Evidence	Location of potential source relative to scheme
S6	Refuse Tip 2	1973	Not investigated	Approx. 50m to the south of the M9 westbound to M9 Spur northbound link
S7	Oil shale processing spoil heap	1973-current day	Not investigated	Approx. 300m west of M9 Junction 1A and south of existing M9
S8	Bonded warehouse	1969-1995	Not investigated	Approx. 150m east of the M9 Spur southbound to M9 eastbound link
S10	Three old Quarries (Lindsay's Craigs)	1855-current day	Not investigated	Approx. 50m to the south of the M9 westbound to M9 northbound link
S11	Quarry 1	1855	Not investigated	Adjacent to the cutting associated with the M9 eastbound to M9 Spur northbound link
S12	Quarry 2	1851-1917	Not investigated	Approx. 50m west of the M9 Spur

Borehole No: BHSJ006, located near to the M9 Junction, exhibits particularly elevated concentrations of lead (1020µg/l) and ammoniacal nitrogen (2.6mg/l), elevated conductivity (6800µS/cm) and an alkaline pH (12.5)

Asbestos contaminated lands

There are no expected asbestos contaminated lands identified within the site during either the development of the ES or during the initial site establishment. Should asbestos or suspected asbestos material be uncovered or tipped during the Project, works will immediately stop in the area, the area shall be cleared and cordoned off and reported to the EDT and also City of Edinburgh Council and Police, as required. Once proper Method Statements and licences (where required) and procedures are in place, developed specifically for the suspected find, works will recommence under the appropriate supervision.

Groundwater:

The Hydrogeological Map of Scotland (BGS, 1988) does not report any sand and gravel aquifer in the vicinity of the project, although localised areas of sand and gravel (glaciofluvial deposits) are indicated on the geological maps near to the River Almond.

Groundwater samples were also collected along the route of the scheme as part of the 2008 GI. Background groundwater quality on the M9 Junction 1A scheme appears to be characterised by high levels (i.e. above GAC General Acceptance Criteria for the Water Environment) of aluminium, sulphide, metals and in particular iron. In addition, detectable concentrations of some List 1 substances, mostly total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbon (PAH), were detected in most samples, which confirms a generally poor regional background groundwater quality in this study area. Ammoniacal nitrogen was also detected at high concentrations in the vicinity of the project.

Regular monitoring of groundwater boreholes will take place during the works.

Earthworks:

An assessment of Soils to be reused will be undertaken by SRB to identify any potential risks posed to the water environment from reused soils to be used in embankments (refer to the Geotechnical Interpretive Report for assessment of soils for reuse)

Excavated areas within the project are detailed below:

Location	Chainage (Approx.)	Approx. Length (km)	Maximum Excavation depth (m)	Drift Thickness (m)	Does cutting intercept bedrock/groundwater	Bedrock Type
Swine Burn Realignment	Ch40-430	0.47	9.5	3.5-6.5	Likely/likely	Sedimentary
M9 (Existing earthworks slopes to be re-profiled)	Ch1200-1600	0.40	4.0	Assumed 2.6-3.5	Assumed Yes/Not expected	Mixed sedimentary-igneous

Detailed mining assessment conclusions and recommendations:

Area of Interest	Mining Assessment Conclusion
Mainline relating to M9 J1A and A90 bus link	The steep inclination of the strata is a contributing factor to the potential for subsidence above oil-shale workings. The overall risk of recorded oil-shale workings resulting in surface subsidence is determined as relatively low but some uncertainty remains. Further investigation of mine workings has been integrated into the 2009 GI, and no further recommendations are therefore required.
Junction 1A (M9 Spur) Improvements	Low risk with regard to unrecorded oil-shale workings. Localised surface workings within Burdiehouse Limestone cannot be discounted. Further investigation of the potential presence of localised workings has been integrated into the 2009 GI, and no further recommendations are therefore required.

Management & Mitigation:

Location	Potential Impacts	Mitigation
M9 Junction 1A	Mineral Extraction: Oil-Shale and/or limestone areas. Risk of ground instability during both construction and operation	If mining works are confirmed in this area, appropriate stabilisation/protection works will be implemented and a detailed assessment on the impact of grouting on groundwater and ground gas mitigation will be undertaken.
S11 (Figure 8.4b)	Contaminated Land: Risk to construction workers and public from inhalation, ingestion, etc.	SRB has established appropriate health & safety procedures, waste management procedures, workmanship and QA/QC measures applicable to the level of contamination expected at the potential land contamination sources.
S6, S7, S8, S10, S11, S12	Contaminated Land: Contaminated sediments disturbed during work on waterbodies	SRB select appropriate construction materials with reference to guidance such as BRE SD1:2005 and BS8500
S6, S7, S8, S10, S11, S12	Contaminated Land: Risk of leaching and migration of contaminants in Shallow, Deep and Surface water	<p>SRB carry out daily site inspections, installation of cut-off drains and bunding around suspected areas, additional ground inspection in advance of works, phased topsoil stripping to minimise the potential for leaching etc.</p> <p>Surface water monitoring is undertaken during construction.</p> <p>An assessment of permeability tests and groundwater/surface water monitoring results from the 2009 GI was undertaken to inform CAR licences and discharge requirements.</p>
S6, S7, S8, S10, S11, S12	Contaminated Land: Risk of ground gas	<p>Ground gas monitoring of confined spaces will be undertaken before entry.</p> <p>SRB has undertaken a ground improvement risk assessment including assessment of risks from migration. An assessment of ground gases in accordance with CIRIA 665 was carried out prior to construction and adhered to during construction. SRB implemented a 'watching brief' to be undertaken in order to identify any previously undiscovered areas of contamination</p>
M9 Junction 1A	Contaminated Land: Risk of contamination of watercourses and risk of ground gas	Road drainage, detention basins and swales will be lined to protect the surrounding water environment throughout the project, as required.

Swine Burn

Contaminated Land: Risk of contamination of watercourse

An assessment of permeability tests and groundwater/surface water monitoring results from the 2009 GI was undertaken to inform CAR licences and discharge requirements.

Monitoring:

Pre-contract gas baseline monitoring has been carried out by both the EDT and SRB and there is no indication of excess harmful gases that would be cause for concern during site activities.

Where required by the Activity Risk Assessments, gas detection will be carried out on all deep excavations prior to entry into confined spaces. This will be checked as part of the site auditing procedure and inspections referred to in Section 4.5.1.

Groundwater water level monitoring will be carried out at regular intervals and sampling and testing will be carried out, if deemed required by the Environmental Manager, to monitor any effects of construction activities on groundwater quality. In the event that it is suspected that works are affecting groundwater quality, works will be suspended and a specific method statement drawn up by Ramboll Environmental Specialists to cover the investigations and any works going forward. This will be carried out in conjunction with the Pollution Incident Response Plan and the requirements of the Code of Construction Practice (CoCP Section 9.2.2)

Visual inspections will be carried out of all areas to ensure that water courses are kept clear from pollution as part of the daily and weekly environmental inspections.

A Waste Management Plan has been developed for the Works. This is included below and will be developed further as mobilisation takes place.

Pre-construction surveys have been carried out on nearby properties as required. These will be repeated on contract completion to determine whether settlement or structural damage has taken place as a result of the works.

Soil and associated materials handling and management plan

The aim of this Plan is to minimise the impact of soil and materials storage and handling on the environment. This Plan shall be based on the *Code of Practice for the Sustainable Use of Soil* published by DEFRA in 2009. The main thrust of this approach will be to:

- a) Clearly identify all soil resources, grades of earthworks, fill and aggregate materials;
The Geotechnical Interpretive Report will assess soil resources and will be used to identify these resources and ascertain their potential for reuse within the Works.
- b) Design appropriate storage areas for each category of soil, fill and aggregate material;
Designated storage areas will be assigned for each category. These shall be located as near as possible to the point of excavation and final placement to ensure that the material movement around the site is limited.
- c) Plan the location of storage areas to minimise transportation movements on the Site;
As above
- d) Screen designed storage areas for environmental risk;
Storage areas will be assessed to ensure that the possibility of erosion, flooding, cross contamination and material decay are minimised
- e) Ensure all stockpiles have suitably designed protection
Where required, stockpiled materials will be seeded to limit the potential for erosion and proliferation of weeds.
- f) Find a sustainable use for any surplus soils on the Site (both topsoil and subsoil).
Surplus soils will be placed in designated areas to eliminate the need for off-site disposal.

SRB shall use appropriate storage methods for any construction materials, bearing in mind the characteristics of the material and its optimum storage conditions.

SRB shall, where reasonable and practicable, select plant for use on Site which minimises the environmental impacts experienced. The impacts to be considered include, but are not limited to, material transfer, compaction and waterlogging.

SRB shall explain and communicate the *Code of Practice for the Sustainable Use of Soil* and accompanying earthworks method statements to all relevant staff.

FORTH REPLACEMENT CROSSING M9 Junction 1a – Project Quality Plan: Volume 4 SITE WASTE MANAGEMENT PLAN

In compliance with ER Volume 5 Part A1: Section 24.7.4.1 & CoCP Section 8.2

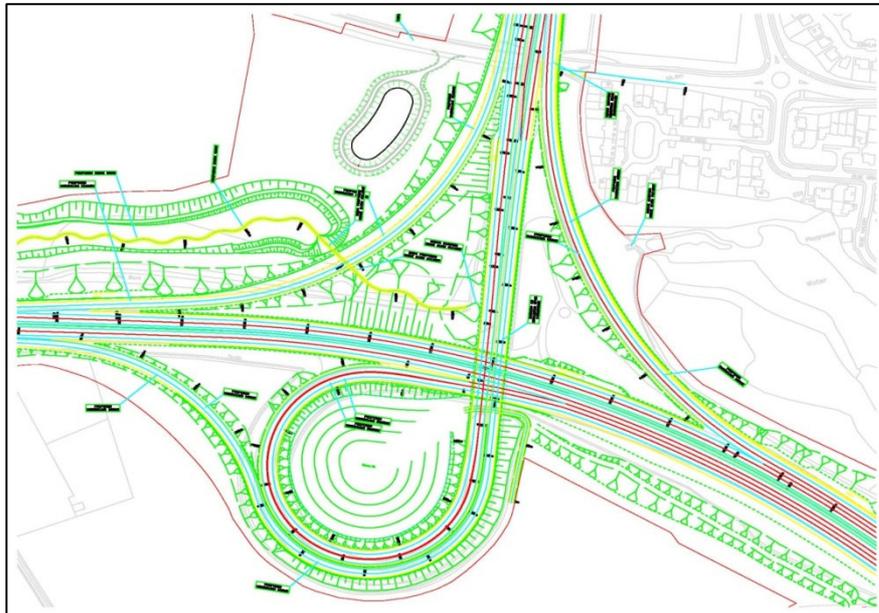


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1. INTRODUCTION

The purpose of the SRB Civil Engineering Limited M9J1a Waste Management Plan is to identify the practices to be adopted to ensure that waste is controlled, minimised and where necessary, removed from site in a manner that is not detrimental to the sustainability of our environment.

The plan will detail our strategy for minimising waste, introducing segregation at source and maximising reuse and recycling opportunities. The plan will furthermore detail the responsibilities of the site team, the subcontractors and waste management contractor in addition to raising our profile in the local community and the embedding of our corporate and social responsibility.

To achieve this target we shall work to the following standards, for which we require all staff and subcontractors to support:

- a) Develop the project SWMP in accordance with this procedure;
- b) Set project specific targets for waste reduction to meet or exceed SRB Civil Engineering Limited's corporate KPI's;
- c) Report and review the SWMP regularly to ensure best practice is achieved.

Corporate Waste Targets

As a minimum, the following minimum standards will require to be achieved throughout our operations through the year (2012-2013) and on-going improvements thereafter:

Target

Recovery of construction material	80%
Recovery of demolition and strip out material	90%

Benefits

The benefits realised as a result of this Site Waste Management Plan will be:

- A reduction in waste being sent to landfill with benefits to the environment
- A reduction in material purchase, disposal, and landfill costs
- A reduction in vehicle movements on site and in the local area
- Improved sustainability BREEAM and CEEQUAL scores for our sites
- The introduction of 'best environmental practice' across all sites reducing the impact on local communities.

2. WASTE HIERARCHY

Minimising waste is the responsibility of all staff and contractors to ensure that materials no longer required are managed according to the following hierarchy of options:



Eliminate	Waste will be avoided through considered design and sustainable procurement
Reduce	Waste will be reduced through design and site good practice
Re-use	Surplus materials will be re-used by identifying site opportunities
Recycle	Materials will be segregated for recycling thereby reducing landfill cost
Disposal	Remaining materials will be disposed of in a sustainable manner

The actions at each stage are detailed further in the Site Waste Management Plan



3. STRATEGY:

The SRB waste management strategy will be underpinned by awareness training provided in the site induction and reinforced through training, toolbox talks and poster campaigns. A culture of site husbandry will be encouraged to minimise the risk of waste pollution either via blown litter or cross contamination of waste streams.

The strategy will be to maximise the reuse of materials on site, thus reducing the amount of new material orders required and reducing the volume of material to landfill whilst increasing the recycling of material by volume/type from site, as far as practical. This will be achieved through:

- Changing the working practices from traditional 'builder skips' as the main source of all waste containment and disposal to a more progressive policy of segregation of material and maximisation of clearly identified and labelled containers, for recycling;
- Contractually obliging sub-contractors to co-operate in waste minimisation as part of their tender;
- Utilising the tools a free support provided by agencies such as WRAP and Zero Waste Scotland to introduce and refine good practices
- Communicate regularly with all sub-contractors at progress meetings;
- Engage all site operatives with site inductions and canteen awareness campaigns (environmental newsletter);
- Partner with a waste management contractor to maximise recycling and reduce disposal costs;
- Where possible, engage with the supply chain, partnering with manufacturers and suppliers who take back and recycle their own packaging and pallets etc;
- Where possible, design to reduce waste – this needs to be considered from the outset, for example using prefabrication where components are manufactured with no waste in the process;
- Identify and segregate waste streams;
- Compact waste and load skips carefully to reduce waste volume;
- Re-use and recycle waste where possible, in line with quality issues;
- Ensure that there is suitable storage for all materials, accessible areas for waste skips and similar good housekeeping;
- Plan for high volumes of waste in the final construction stages;
- Compare performance with other sites in the region; and
- The introduction of paper recycling bins into the office.

All unauthorised waste disposal is considered to be an environmental incident and the Environmental Emergency Response Procedure and the Incident reporting procedure will be implemented.

Under no circumstances should any waste material be burned or buried.

The following items will be reused as opposed to being disposed of where-ever possible:

- Fence posts & temporary fencing materials
- Wire
- Aggregates
- Concrete

4. WASTE MANAGEMENT TECHNIQUES

Elimination Techniques

In the first instance the project team must look to avoid creation of waste and typically this is undertaken at the design stage. Any action taken at this point will significantly reduce the waste arisings to be managed at site level.

- Sustainable procurement
- Use 'designing out waste' tools developed by wrap.
- Promote off-site construction where possible where surplus materials can be managed more efficiently.
- Optimisation of materials in design to standardise components.
- Specification of materials at design phase with low wastage rates.
- Consideration of material life-cycle – are products specified difficult to dispose of at deconstruction?

Reduction Techniques

The following techniques will be used to reduce the type and amount of waste generate on this project:

- Effective design control to reduce the risk of late change in design leading to rework.
- Measurement and ordering of materials with no waste factor to reduce the risk of over-ordering of materials.
- Order materials in standard sizes, ie can materials be cut to size off site to minimise on site cutting?
- Organising materials to be delivered on a just-in-time basis to reduce the amount of time materials are stored on site.
- Careful and appropriate storage of materials on site to protect against accidental damage or adverse weather conditions.
- Good inventory control to avoid re-ordering of materials already delivered or losing materials
- Good communication with tradesmen to avoid rework and to ensure quality.
- Engaging with suppliers to reduce the amount of packaging included with deliveries.
- Employ professional security companies to reduce risk of vandalism or theft from site.
- Include in sub-contract orders – the requirement to employ waste reduction techniques with their own materials (ie inclusion of penalties for excessive waste).
- Promote the concept to all involved in the project that waste produced will be measured and compared against challenging waste key performance indicators.
- Ensure through the procurement process that suppliers have take-back options for packaging and surplus materials

Re-Use Techniques

Once all practical measures have been used to reduce the amount of waste produced, then the following techniques will be used to identify opportunities for re-use of surplus material and further reduce the amount of material turning into waste:

- Brick, concrete and rubble can be re-used as backfill, temporary haul roads, up fill, etc.
- Re-use of subsoil in landscaping areas.
- Re-use of timber off-cuts for forming, temporary formwork, framing, etc.
- Re-use of plasterboard off cuts for bulkheads, small areas, etc.

- Pallets can be re-used or can be returned to the supplier.
- Purchase materials that have a recycled content or are reclaimed.
- Procuring materials from sustainable sources.
- Excess/damaged facing brick can be used in sub-structure brickwork.

Recycling Techniques

If the reduction and re-use techniques have been used, but waste material has still been generated, we still have the opportunity to turn some of this material into something useful by segregating it into different waste streams that can be RECYCLED thereby reducing cost of disposal to landfill.

Segregation can be carried out in two ways, Source Segregation on site or Segregation by our Waste Contractor off site.

Within the compound, separate designated areas and skips will be provided for the following materials:

- Plastics
- Timber
- Steel
- General Waste
- Dry Recyclables
- Waste Oil Tank
- Oily Rag Bins
- Used Battery Bins (commercial batteries and consumer batteries)
- Aerosol Canisters
- Steel and Plastic hydraulic and oil containers
- Printer cartridges

Actions

To deliver the above strategy, the following actions will be undertaken:

SRB Site Actions

1. Complete the appended project SWMP
2. Where spoil material is to be reused within the Works, a specific Method Statement will be submitted for approval to the Employer's Representative. This Method Statement will outline the procedures for storing, handling, placing and compacting the reused material as well as addressing any Legislative concerns.
3. SRB will consider opportunities and implement measures in the design and construction of the Project to reuse waste or surplus materials, as appropriate.
4. SRB will have regard to the Sustainable Development Policy, as described in Section 1.6 of theCoCP, when considering the reuse of materials within the works.
5. SRB will provide recycling points at site offices and compounds and arrange for the appropriate disposal of waste to recycling stations.
6. SRB will manage the disposal of waste material to maximise the environmental and development benefits from the use of surplus material and to reduce the adverse environmental effects and risks associated with disposal off-site.
7. All waste material will be appropriately transported and disposed of by the contractor at licensed tips or designated sites. SRB will comply with relevant legislation including the Control of Pollution Act 1974, Section 34 of the Environmental Protection Act 1990 and the Waste Management, The Duty of Care, A Code of Practice guidance in this regard.

8. Prior to disposal, SRB will assess soils in line with Environment Agency Technical Guidance WM2 to determine whether they are hazardous or nonhazardous.
9. SRB will handle, store and manage waste to contain and limit impacts and avoid nuisance arising from dust and odour in accordance with the requirements of Section 6 of the CoCP. The handling and disposal of waste water will also comply with the requirements of Section 9 of the CoCP.
10. Waste disposal routes will comply with the restrictions on access routes for construction traffic determined in accordance with the requirements of Section 4.7 of the CoCP.
11. SRB will obtain any necessary waste management licenses or apply to SEPA for registration of any relevant exemption from waste licensing necessary during construction works.

Suppliers

1. Where possible procure materials from sustainable sources.
2. Supply materials with minimal packaging and protection.
3. Clearly identify the location the delivered product.
4. Operate a take back policy for excess materials
5. Operate a take back policy for pallets.
6. Suggest alternative products made with recycled material.
7. Provide materials to site specific sizes to reduce the amount of on site cutting.

Designers

1. Implementing contractual requirements on designers to investigate and specify viable products which have recycled content
2. Use 'Designing out Waste' guidance to specify materials with low wastage rates and/or high re-use potential.
3. Take responsibility for developing the SWMP and waste forecasts in the first instance.

Contractors

1. Require contractors to investigate and implement waste reduction practices for their work package.
2. Require contractors to adhere to the project source segregation policy set out above.
3. Contractors to ensure that materials are delivered in a Just in Time basis.
4. Contractors to store materials to reduce risk of damage.
5. Contractors to store material suitable for re-use on site appropriately, and not skip.
6. Contractors to contribute and supply information as required to complete the SWMP.
7. If necessary penalising contractors who contaminate segregated skips.

5. SITE WASTE MANAGEMENT PLAN (SWMP)

Requirements of a Project SWMP

The SWMP should:

- Identify and forecast the different types of waste that will be produced by the project, and note any changes in the design and materials specification that seek to minimise this waste;
- Consider how to re-use, recycle or recover the different wastes produced by the project;
- Require the construction company to demonstrate that it is complying with the duty of care regime; and
- Record the quantities of waste produced.

A typical SWMP is appended to this procedure for use on the project. It is to be completed by the Environmental Manager with support of the team (including subcontractors).

Key Performance Indicators

Under the commitment SRB have made to reduce the amount of construction, demolition and excavation waste sent to landfill SRB will report progress annually onto the WRAP reporting portal using the following KPIs:

- m³ of waste per £100k project value*;
- m³ of waste to landfill per £100k construction value; and
- % of waste diverted from landfill
- % of recycled content by value

**Project value is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.*

As this reflects on company performance in the wider industry it is imperative that works are delivered in accordance with the SWMP and that the waste data collected is accurately recorded.

Waste Targets

SRB will aim to achieve the following targets:

- 100% of oil waste to be treated and recycled
- 100% of earthworks excavated materials to be reused on site
- 100% of batteries to be sent for recycling
- 100% of Dry recyclable waste to be sent for recycling
- 100% of timber to be either reused on site or sent for recycling

Waste Forecasting

Principal to the SWMP should be the forecasting of waste arisings. Ideally this should be undertaken by the designer in the first instance, however where no designer is engaged the team will be required to forecast and record in the SWMP arisings.

The Net Waste Tool developed by WRAP (and available free at www.wrap.org.uk/construction/tools_and_guidance/net_waste_tool/) can be used to forecast expected waste and opportunities to reduce, re-use and recycle.

The tool utilises a format similar to a bill of quantities and is based on current market tested wastage rates for construction materials thereby giving an accurate forecast of waste generation, skip requirements and waste reduction opportunities

Waste Actions

Where appropriate the SWMP will record the project specific actions as set out in Section 3 above for the team to Eliminate, Reduce, Re-use, Recycle and Dispose.

Waste Monitor

SRB shall be responsible for implementing the Waste Management System on site to which all subcontractors shall comply.

The Waste Monitor (the person responsible for the site waste) for this project is the Environmental Manager.

The waste monitor's duties include:

- Checking that waste is being deposited in the correct skip.
- Monitoring and removing any objects deposited in the skips for re-use.
- Ensuring that all skips are well packed.
- Moving waste into the correct skip if not already done so.
- Alerting the site manager of any significant amount of waste material deposited in the incorrect skip – allocating the action to a trade or contractor.
- Alerting the site manager that the skip requires to be exchanged or removed.
- Checking the skip (consignment) note that the correct classification box has been ticked and signing the note.
- Returning the skip note to the site manager.
- Engaging with all personnel on site about waste reduction, re-use and recycling techniques.

Recording Waste Arisings

Waste materials generated on site during the works will be recorded on the Waste Management Register that will be placed on the Common Site Server with access provided to the EDT and Ramboll. This register will form part of the SWMP and will be used to compare against the forecast arisings.

This Register will be regularly updated by the Environmental Manager and his assistant to provide the following information:

- Location Waste Material generated from
- Eventual waste or recycling stream that waste is deposited
- All approvals or testing, as required
- Mitigation measures incorporated to reduce the amount of waste sent off site including:
- Site discussions, meeting records

System for tracking and recording the movement of all contaminated material and waste within the site.

A system to enable tracking of all materials excavated from the works and its final placement shall be developed.

Tracking sheets will be used to keep daily records of mass-haul of excavated contaminated material. These shall be compiled so that final figures for each class of material can be determined. These shall be maintained on the SRB Site Server and will be of sufficient details to ensure that accurate figures are recorded. Regular audits will be carried out to ensure that proper records are being logged.

The SWMP must contain details of the arisings next to the forecast.

SWMP Review

Once the SWMP is implemented, it is important that it is regularly reviewed to ensure that it is being adhered to, that it is practical and appropriate.

The SWMP will be reviewed on a monthly basis, with the Project Manager and Business Improvement Manager.

Appropriate feedback should be given to the Client, Project Team, Suppliers, Contractors and Operatives. This will be done via various propaganda methods, including memos, meetings, statistical analysis, etc.

6. WASTE – TYPES & DEFINITIONS

Legal Definition Of Waste

Waste: Any substance or object belonging to a category of waste specified in Annex I of the Waste Framework Directive or included in the European Waste Catalogue, which the holder discards or intends or is required to discard and anything which is discarded or otherwise dealt with as if it were waste shall be presumed to be waste until the contrary is proved.

Hazardous waste: (Special Waste) Waste which can have a harmful effect on the environment and on human health as they exhibit ignitability, reactivity, corrosivity and/or toxicity and/or are listed as hazardous by the European Waste Catalogue and Special Waste Regulations (1996)

Construction and Demolition Waste: Materials resulting from the construction, remodelling, repair, or demolition of buildings, bridges, pavements, and other structures.

Waste Arising On Site

It is the responsibility of the Environmental Manager or their designate to ensure that all waste generated on site (hazardous and non-hazardous) is stored in an appropriately labelled designated container. Skips will be covered as necessary to prevent ingress of water and the blowing waste from the skip; special waste, general waste and food waste will be covered as mandatory. These containers must be fit for purpose to prevent leaks or spills. Waste streams must not be combined for disposal.

Waste will be managed in a designated waste compound on-site. The compound will be sign-posted so that the content of each skip is easily identifiable.

Non-Hazardous Waste:

The materials detailed below shall be collected into designated containers, which are transported by the non-hazardous waste contractor(s) for recycling or disposal. A waste docket (contractors or on-site waste docket) must accompany each waste shipment. Only personnel from the Environmental Department or their designate is authorised to sign-off on waste shipments.

A waste docket must accompany each shipment and must be signed off by an authorised person at the point of disposal. The docket shall then be returned to the site (together with the relevant weighbridge docket in the case of solid waste). The Environmental Department shall ensure all dockets are returned by the various disposal companies.

All associated documentation and receipts detailing disposal are maintained and filed by the Environmental Department and recorded in the waste manifest.

Waste	Disposal Method	Waste carrier
Timber Waste	Place in designated skip for recycling	William Tracey
Scrap Metal	Place in designated skip for recycling	William Tracey
Plastic	Place in designated container for recycling or disposal	William Tracey
Paper/Cardboard	Place in designated container for recycling or disposal	William Tracey
Canteen Waste	Place in designated containers for disposal	William Tracey
Litter	Place in designated skip for disposal	William Tracey
Hydro-demolition and vehicle wash	There are no chemical additives used and the water is left to filter through the existing ground	

Special Waste (Hazardous Waste As Defined By Article 1(4) Of The Hazardous Waste Directive

All hazardous waste must be stored in designated, secure and hazard signed areas with adequate bunding and emergency response materials for use in the event of a spill.

SRB will follow the guidance document "Hazardous Waste: Interpretation of the definition and classification of hazardous waste" (SEPA, April 2011) when assessing Special waste for removal.

It is the responsibility of the producer of a waste to ensure that the site has the correct arrangements to handle the waste that will be produced. The waste producer should discuss with the site Environmental manager to ensure that the correct waste skips and arrangements are in place PRIOR to the waste being generated on site so that storage and disposal may be arranged. The table below outlines the types of hazardous waste anticipated to be generated on site along with the disposal instructions.

Waste	Disposal Method	Waste carrier
Adhesives and Sealants	Placed in marked container for disposal	William Tracey
Aerosols	Placed in marked container for disposal	William Tracey
Batteries	Placed in marked container for disposal	Small Quantities – brought to Local Waste Recycling Centre
Chemicals	Stored in sealed container and labelled. Disposal to appropriately licensed facility	None to date
Hydraulic hoses/mechanical parts	Placed in marked container for disposal	Matter for sub-contractors
Oil	Containers palletated and cling wrapped for collection. Transfer of waste oil to bunded container, recycling may be possible	William Tracey
Oil Contaminated material	Contain in drum and label. Disposal to appropriately licensed facility	William Tracey
Paints and Thinners	Contain in drum and label. Disposal to appropriately licensed facility	William Tracey
Printer Supplies	Placed in marked containers for recycling	Small Quantities – make contact with charitable org for recycling
Waste Electrical and Electronic equipment	Stored for eventual disposal with an appropriately licensed facility	Small Quantities – brought to Local Waste Recycling Centre
Waste Water	Stored in a holding tank and transported off site to a waste water treatment plant	William Tracey

It is the responsibility of the Environmental Department or designated personnel to ensure that all materials are appropriately stored prior to collection (by a registered carrier) and disposal at an appropriately licensed facility. The Environmental Department or designated personnel must be

present to supervise waste loading and transport and to ensure barrels, skips or containers have been labelled correctly.

Additional documentation is generated in the disposal of hazardous waste. The specific document is dependent on the disposal route.

- Disposal outside UK – Transfer Frontier Shipment (TFS) form
- Disposal within UK – C1 forms.

All documentation TFS, C1 forms and receipts detailing disposal shall be maintained and filed by the Environmental Department with the waste manifest.

In Scotland all movements of special waste must be accompanied by a Special Waste Consignment Note (SWCN). The SWCN consists of five different coloured, self carbonising pages, each with five sections, which refer to a different aspect of the waste transfer.

Wastewater

Where required, portaloos will be used to service the site at a ratio of one portaloos per 25 heads.

Portaloos will be located at the work front and relocated as required. The portaloos supplier will empty and service the units in accordance with an agreed schedule.

The construction compound will include two toilet blocks and two canteens, all of which will generate wastewater requiring treatment. The contractor managing the Portaloos will also empty the holding tank(s) on site. This will initially be 1 to two times a week but may vary depending on circumstances.

7. WASTE LICENCES/REGISTRATION

All waste will be collected by an appropriately registered waste haulier and treated/disposed of at an appropriately licensed facility. Copies of all relevant waste disposal licences will be maintained in the Environmental Office.

The collection permit numbers of all named waste contractors are detailed below:

Company	Waste Type	Permit/Register/ Licence No	Contact Details
William Tracey	Non-hazardous	WML/W/20185 Middleton WML/W/20110 Linwood	01-506863500
William Tracey	Wastewater	PPC/A/1016807. & 10784A/3/D	01-418402199
William Tracey	Hazardous	TBC	01-418402199
William Tracey	Haulier	SWE/017796	01-506863500

All waste, hazardous & non-hazardous, leaving site must have an associated waste docket, either the waste hauliers or a completed site docket (Appendix 2). All dockets should be copied to the environmental department for logging in the waste manifest and filing for reference.

Infrastructure and management of the waste contractors

The Environmental Manager shall have overall control for the management of the waste contractor. Skips shall be inspected at regular intervals to ensure that they do not become overfull and waste is not piled alongside. Once skips are estimated at 85% capacity by the Site Operations Manager,

the Environmental Office shall contact Traceys to arrange collection. This normally takes one to two days from time of call to delivery.

On-site, the Site Operations Manager will sign for collection of the Skips or load and will ensure that the Sheet / consignment notes, including EWC codes are filled out correctly and signed.

Licensed Disposal Sites are listed in the table above.

Waste Disposal Routes will comply with the restrictions on access routes for construction traffic.

8. DOCUMENT CONTROL

Records

The following records will be kept at the site office:

- Waste Management Plan
- Copies of all relevant permits/licences
- Audit reports
- Waste docket (site or Contractor), detailing
 - The waste carrier(s) used and contact details
 - Permit No. and Vehicle Registration
 - Waste description and quantity and consignment route number
 - The disposal site(s) name, License Ref. and contact details
- Recycling Receipts (Non-hazardous waste)
- C1 forms (Hazardous waste)
- Trans-frontier shipment documents (Hazardous waste)
- Waste Costs to be maintained

Copies of waste management audits and non-compliances will be kept for the statutory minimum period. The Project Manager will be informed of inspections by Statutory Bodies, or breach of the Duty of Care by any party involved with the transfer of site waste.

The Environmental Department will keep full records of every movement of waste from the site.

Records shall include details of the locations from which material has been excavated and its final placement.

9. TRAINING & AWARENESS

Copies of the Site Waste Management Plan will be displayed in the site offices for referral by site operatives. Environmental issues, site rules and waste management arrangements will be discussed as part of the Site Induction, which all site personnel must attend. Training will be provided to site personnel dealing with waste management and Tool Box Talks will also be held periodically to inform employees of their responsibilities under the plan and current waste management legislation.

Waste management themed posters will be displayed in Site Offices and Site Canteens for referral by site operatives.

10. WASTE AUDITING

APPENDIX 1: WASTE MANAGEMENT POSTERS (EXAMPLES)

Waste Management

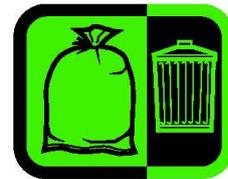
Non-Hazardous Waste

Waste should always be disposed of correctly

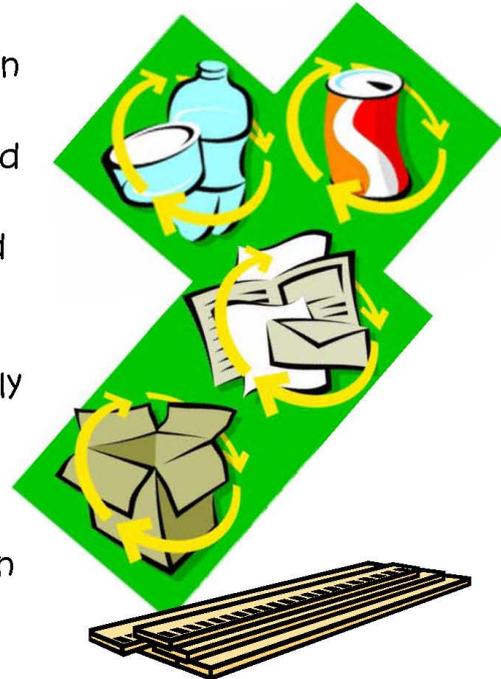
Where possible
Recycle →



Otherwise
bag and/or
bin



- Recycle as follows:
 - **Plastic Bottles and Cans**, in the correctly labelled container in the Compound Areas
 - **Paper**, in correctly labelled receptacles in each site office and public area
 - **Cardboard**, in the correctly labelled skip in the Waste Compound (bagged or flattened)
 - **Used Timber** is to be put in the correctly labelled skip in the Waste Compound
- All other non-hazardous waste (residual) are to be disposed of in the correctly labelled skip in the Waste Area



If unsure as to the correct method of disposal contact the Environmental Officer

Waste Management

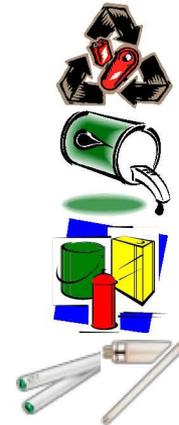
Hazardous Waste



Waste should always be disposed of correctly.



- The following hazardous wastes are collected :
 - **Batteries**, in the correctly labelled bin in the Printer Room.
 - **Oil and oil contaminated material**, in the correctly labelled bin in the Hazardous Waste Compound.
 - **Chemical Waste**, Adhesives, sealants, paints, thinners and Aerosols - in the correctly labelled bin in the Hazardous Waste Compound.
 - **Fluorescent Light Bulbs**, to be handed in to the Environmental Office.



Note:

- When handling any hazardous material for disposal ensure that you are wearing the appropriate PPE.
- Where possible keep the material in it's original container. If this is not possible store the material in an appropriately labelled container.
- Report spills or the incorrect storage of hazardous materials to your Supervisor or to the Environmental Officer.



If unsure as to the correct method of disposal contact the Environmental Officer

Waste Management

House Keeping

Proper storage and housekeeping on site is everyone's responsibility.

- **Housekeeping**

- Keep the site tidy and clean
- Store all materials neatly and orderly in the appropriate areas.
- If materials are stored incorrectly they may be treated as waste and removed for disposal.

- **Litter**

- Litter is anything that should be recycled or put in a bin but instead ends up on site.
- It ranges from sweet wrappers and drinks bottles to cigarette butts and discarded works materials

Remember:

Where possible
Recycle →



Otherwise
bag and/or
bin



- **Waste Compound**

- A compound has been provided where waste can be segregated into recyclables, hazardous and non-hazardous waste.
- Skips and drums are provided for the proper disposal of waste materials within the compound.
- Clear waste from the site into the containers provided.

- **Why Keep the site Tidy?**

- Environmental Reasons:
 - Reduced risk of pollution / contract requirement
 - Improved waste management
 - Wildlife safety – litter can pose a health risk if local wildlife eat or get caught in it.
- Health & Safety
 - Reduced risk of rodent activity
 - Slips, Trips and Falls
- Business
 - Lost, damaged or misplaced materials cost money to be replaced

References

- Asbestos: Exposure limits and measurement of airborne dust concentrations, Guidance Note EH 10 1988, Health and Safety Executive
- Asbestos: Medical Guidance Note Guideline Note MS13 Asbestos 2005, Health and Safety Executive
- BS 5228: 2009 Noise and Vibration Control on Construction and Open Sites, British Standards Institution
- BS 5930:1999 Code of practice for site investigations, British Standards Institution
- BS 8485:2007 Code of practice for the characterization and remediation from ground gas in affected developments, British Standards Institution
- BS 10175:2001 Investigation of potentially contaminated sites, British Standards Institution
- CIRIA C665 Assessing risks posed by hazardous ground gases to buildings (revised), 2007
- CIRIA Special Publication 32 Construction Over Abandoned Mine Workings, 1984
- Control of Asbestos at Work Regulations 2002
- Environmental Protection Act 1990, as amended
- □Health and Safety Commission Approved Code of Practice and Guidance:
 - Work with Asbestos Insulation, Asbestos Coating and Asbestos Insulating Board
- Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention, National Groundwater and Contaminated Land Centre Report NC/99/77, 2001
- Planning Advice Note 33 [PAN 33]: Development of contaminated land
- Planning Advice Note 50 [PAN 50] Annex D 'The Control of Blasting at Surface Mineral Workings'
- Protection of Workers and the General Public During the Development of Contaminated Land, Health and Safety Executive, 1991
- Site Investigation Steering Group: Guidelines for the safe investigation by drilling of landfills and contaminated land, 1994
- The Confined Spaces Regulations 1997
- The Control of Substances Hazardous to Health Regulations 2002, as amended
- Control of Pollution Act 1974
- Control of Pollution (Special Waste) Regulations 1980, as amended
- Environmental Protection Act 1990, as amended
- Food and Environment Protection Act 1985
- Land Remediation and Waste Management Guidelines, SEPA
- Scottish Planning Policy 10 [SPP10]: Planning for Waste Management
- Site Waste Management Plans: Guidance for Construction contractors and Clients, Department of Trade and Industry, 2004
- Technical Guidance WM2, Interpretation of the definition and classification of Hazardous Waste, Environment Agency, 2008
- The Control of Substances Hazardous to Health Regulations 2002, as amended
- The National Waste Plan 2003, Scottish Environment Protection Agency
- The Special Waste Regulations 1996, as amended
- The Special Waste (Scotland) Regulations 1997, as amended
- The Waste Management Licensing (Scotland) Regulations 1996, as amended Waste Management, The Duty of Care, A Code of Practice, Department for Environment, Food and Rural Affairs, 2009

- DEFRA *Code of Practice for the Sustainable Use of Soil 2009*