LENDLEASE BUILDING PTY LTD | 97 000 098 162

FORT STREET PUBLIC SCHOOL

WASTE MANAGEMENT SUB PLAN

5/11/2020 | Revision No: 3

	Sub Plan Revision Status				
Date	Revision (in numbers)	Project Revision (in numbers)	Purpose and Summary of Amendments	Reviewed by	Approved by
11/12/2018	2.4		Update of waste targets	Tracey Wallbridge	Ross Trethewy
22/07/2020	2.5		Review and update to improve waste management planning and implementation on site.	Tracey Wallbridge	Ross Trethewy
05/11/2020	3		Review for currency and update to improvement waste management planning and implementation on site.	Tracey Walbridge	Ross Trethewy
08/12/2020		DRAFT	DA DRAFT	N/A	N/A

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1. SCOPE OF PROJECT AND SUB PLAN

Project Details	
Scope of the Sub Plan	This Waste Environmental Management Sub Plan addresses the handling and management of waste materials generated by construction activities. The Plan identifies measures for designing out waste and minimising waste generation through pro-active planning, increased waste recovery and compliance with relevant statutory and project requirements. Refer to Section 1.1 and 3.1 of the Project EHS Management Plan for clarification on how the EHS Management Sub Plans form part of the Lendlease Building (LLB) EHS Management System.
Objectives of the Sub Plan	• To facilitate detailed consideration of waste elimination, waste generation and waste recovery options for each stage of construction from design to decommissoning. • To recover, through reuse and recycling, a minimum of 90% (by weight) of all waste (excluding soil) generated on site. • To maximise resource recovery and beneficial re-use or re-processing of construction waste and excavated materials to reduce waste to landfill. • To prevent environmental pollution and potential for non-compliance associated with waste handling, transport and disposal.
Scope of Works	This Sub Plan has been prepared based on the following scope of works: **Site preparation, demolition and excavation** • Site remediation. • Demolition of the southernmost school building, the garage and storage shed west and east of the Bureau of Meteorology Building (the Met/the Met Building), and the toilet block adjoining the main school building. • Selective removal of various elements of the main school building, as well as minor and insignificant elements of the Met Building and the Messenger's Cottage to facilitate refurbishment and future use of these buildings. • Bulk excavation works to facilitate the new southern buildings and onsite detention. • Tree removal. • Installation of hydraulic and electrical services. **Land use** • Use of all buildings for the purpose of a school. **Existing buildings** • Retention, refurbishment and extension of the existing Fort Street Public School, including construction of a new roof and rooftop additions. • Retention and refurbishment of the Met Building and internal alterations and additions. • Retention and minor alterations and additions to the Messenger's Cottage.

	Construction of New buildings • Construction of one new building on the western part of the site for a staff room. • Construction of two new, interconnected school buildings on the southern third of the site. • Construction of a new communal hall and canteen building. **Landscaping** • Retention of the existing large fig tree. • Landscaping works throughout the site, including construction of a new amphitheatre, new central plaza, and a multi-purpose forecourt. • Landscaping of roof gardens on top of the new southern buildings and the existing Met Building. **Other works** • Works to the existing entrance road, including alterations to the Bradfield Tunnel Services Building. • Modifications to existing pick-up / drop-off arrangements. • Provision of signage zones. • Installation of on-site detention
Key Issues and Risks	The management of waste must be based on the Hierarchy shown below where 'avoid and reduce waste' is the preferred option, and the 'disposal of waste' to landfill, is the least preferred option.  Key risks associated with the management of waste on the project have been identified as: ● Poor site planning resulting in inadequate facilities for waste storage, management and recovery/collection; ● Inappropriate handling and storage of solid waste, liquids, and contaminated or hazardous materials resulting in waste or pollution;

	• Inappropriate transport and disposal of waste to non-licenced or non-approved facilities or sites;Limited communication with waste service providers resulting in an inefficient service and increased project waste costs; • Over supply or inaccurate estimation of material requirements resulting in waste; • Identification of contaminated soil or hazardous materials requiring testing, classification, treatment, specialist disposal and validation; • Uncontrolled discharge of paint waste, concrete slurry, wet trade washout or litter into the stormwater system or off-site resulting in pollution; • Loss of resources and materials of value due to weather events, physical damage or vandalism; • Disposal of materials due to lack of awareness, planning and behavioural factors; and • Missing or inaccurate tracking or verification of waste volumes removed from site and transported to waste recovery depots. Compliance with the Project EHS Management Plan and this Waste Management Sub Plan is intended to mitigate the risks and potential impacts of construction activities and waste generation on the environment.
Legislation and Guidelines	**Federal/National:** Waste Classification Guidelines (Relevant State Government) National Packaging Covenant **State:** Protection of the Environment Operations Act, 1997 Waste Avoidance and Resource Recovery Act, 2001 NSW Waste Reduction and Purchasing Policy, 2007 (WRAPP) NSW EPA, Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities, 2013 **Local:**

	Council of the City of Sydney The City's Sustainable Sydney 2030 – Community Strategic Plan 2017–2021 Council of the City of Sydney Environmental Action 2016–2021 – Strategy and Action Plan Council of the City of Sydney Leave nothing to waste – Managing resources in the City of Sydney area: Waste strategy and action plan 2017–2030 Council of the City of Sydney Guidelines for Waste Management in New Developments **Lendlease Requirements:** • GMR: 4.13 Degradation or Pollution of the Environment • GMR: 4.15 Uncontrolled Release of Stored Energy (non-electrical)) • Lendlease Building Workplace Delivery Code (WDC) • Site Sustainability Standards (Greenbook) • Sustainabilty objectives and target: insert details (e.g. Greenstar credit requirements) • Scope of Works for Waste Services (Source) • Lendlease Group Procurement Package for Waste EHS Alerts: • EHS Alert 49: Dewatering of Construciton Sites (July 2019); EHS Alert 50: Fuel Spills + Leakages to the Environment (July 2019); EHS Alert 51 - Recycled Granular Material (July 2019); EHS Alert 52 - Waste + Excavated Material Disposal (August 2019)
Summary of Site Controls	Works will be planned, implemented and monitored in accordance with the Lendlease GMRs, the Project EHS Management Plan, this Management Sub Plan, the Lendlease Building Workplace Devliery Code and Sustainability Standards. These documents detail the Lendlease approach and commitment to pro-active and responsible waste management on the construction project. Suitable waste management contractor(s) must be engaged to collect and manage office, kitchen and site waste under a minor works contract. The service will be delivered in accordance with the Scope of Works Waste Service Provider Engagement available on Source and be customised to the project, each stage of the works and any additional Client or sustainability requirements. The objectives of this Management Sub Plan and details of the LLB waste recovery targets and Footprint reporting requirements will be communicated to the waste management contractor and subcontractors who will be required to provide detailed reporting on monthly waste breakdowns to the project. Site specific waste management controls, monitoring, reporting and performance measures have been identified in this Sub Plan. These include but are not limited to: ● The establishment and maintenance of suitably designed waste handling areas that facilitate on-site waste separation, where available space allows for separation;

	● The correct storage and handling of waste materials including liquids; ● Customisation of waste management services (considering type, expected quantity staging) in consultation with waste service providers; ● Identifying external opportunities for reuse and re-processing of waste to achieve mutually beneficial outcomes; ● Appropriate disposal and verification of all waste leaving site and waste depot desitnation docket verification; ● Monthly reporting of waste and recycling data; and ● Weekly/monthly inspections of waste management areas and skip use. Waste reduction, storage, separation (for reuse and recycling) and disposal requirements will be included in relevant specifications, contractual agreements, supply agreements, quality assurance documents, subcontractor work method statements and waste management plans. Criteria for the selection and use of recycled and recycled content products will also be specified. Site inspections, monitoring and reporting will be undertaken by Lendlease and subcontractors as detailed in the Project EHS Management Plan, Subcontractor Waste Management Plans/SWMS, and the following implementation table.

~~2.~~ IMPLEMENTATION OF THE SUB PLAN

Control Measure	Timing	Methodology	Responsibilty	Monitoring and Reporting	Performance Measurement
Design and Work Methodology					
Identify opportunities to 'design out' or eliminate waste.	At design stage AND each new stage of construction	Review project bid/tender commitments and opportunities to reduce waste through elimination or design out. Work with project designers, suppliers and subcontractors to identify opportunities to minimise waste generation, incorporate recycled content materials/products, and/or revise construction methodologies to eliminate/design out. Identify options for reducing material waste eg standard size materials, reusable formwork system, soil, masonry, rock.	CM SPE CA	Record of opportunities identified and changes made. FOOTPRINT metrics.	Increased reuse in materials generated on site. Reduction in waste generated identified and recorded. Design change resulting in reduced waste generation recorded and quantified.
Planning					
Identify expected major waste streams for each stage of construction and develop a detailed proposal for waste management service procurement and on site waste management.	Prior to commencing	With reference to the construction program, identify major waste streams for each stage of works. For each stage of works, develop an understanding of expected waste quantities. Use this information to document waste service requirements (skip numbers, types and sizes) with the aim of maximising on-site separation of	CM SM Engineer EHS	Completed Waste Stream Matrix (Appendix 2) Project specific waste management sub plan reviewed quarterly.	Achieve minimum 90% recovery by weight (excluding soils).

		key wastes including concrete, steel, plasterboard, cardboard, timber, soft and hard plastics. (Complete Appendix 1)			
Raise awareness of waste minimisation and site management practice requirements.	Prior to and during works.	Include project specific waste management information in the site induction. Display posters and signage and deliver toolbox talks addressing the conservation of resources and waste minimisation.	SM EHS	Induction delivered.	Active participation in waste management programs.
Site Establishment (waste management area/s)					
Implement the waste management requirements of the Site Sustainability Standard.	Prior to commencing works	Implement sustainability initiatives to achieve identified outcomes. (Refer to the Sustainability Greenbook on Source)	CM SM Sust Mgr	Six monthly audits.	[Insert agreed level to be achieved] Agreed level achieved and maintained during construction.
Prepare a detailed site plan showing: • Waste handling areas • Material storage areas • Concrete waste collection/washout areas • Tradewaste/wastewater facility locations. • Stockpile locations.	Prior to site establishment	Appropriately located and adequately sized areas must be identified for each activity. Waste management areas should accommodate multiple bins/skips to allow for on-site separation of different waste streams at various stages of construction. Waste management areas must be separate to material storage areas.	CM SM SPE EHS	Weekly/monthly EHS inspections. Monthly waste data capture (Footprint) Environmental Management Diagram (EMD) prepared (Appendix 1).	EMD reviewed quarterly. No pollution incidents associated with these activites.
Procuring Waste Services					

Based on the identification of key construction wastes, identify skip requirements for on-site separation, collection (at ground level and within floor areas), off-site recycling and disposal for each stage of construction.	Prior to works commencing	Refer to Group procurement arrangements for waste services. (i.e. minor works contract and Scope of Works (SoW) for waste service providers). Discuss project requirements and targets for waste management with selected waste contractors. Identify opportunities for customising waste services for each stage of the project to maximise recovery and reduce costs.	CM SM	Monthly waste report from contractor (meeting requirements of Footprint). Monthly waste reporting by subcontractors (ie demo and excavation waste). SoW attached to contract information. (Refer to Source: EHS documents)	Waste recovery targets met.
Procure separate waste services for office and kitchen/crib hut waste (ie organic and putrescible waste).	Prior to works commencing	Discuss project requirements with relevant waste contractors. As a minimum, consider separate bins for the collection of putrescible waste, organic waste, co-mingled recyclables (bottles/cans), paper/cardboard, printer cartridges, batteries and globes. (These wastes must not be placed in mixed construction waste skip bins).	SM Engineer	Monthly waste report from contractor (meeting requirements of Footprint).	No unacceptable waste in construction skip bins.

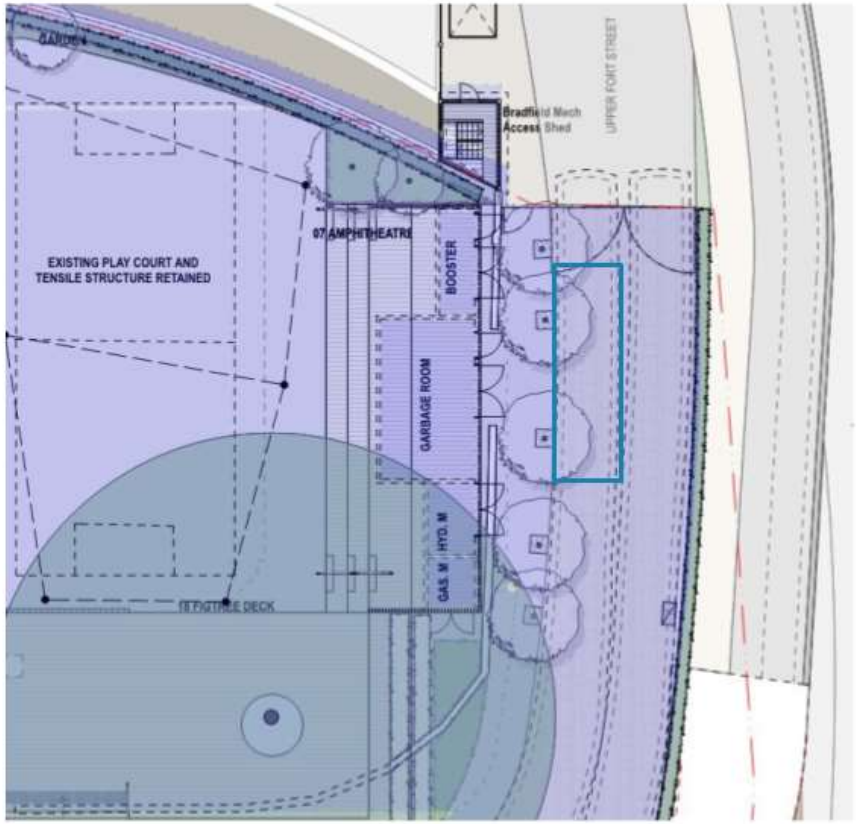
Subcontractors and Supplier Waste Management					
Identify major suppliers and identify opportunities to minimise or eliminate packaging and procure recycled content products.	Prior to and during construction	Identify major suppliers with the largest potential waste generation impact. Proactively consider and review supply agreements, materials and packaging with the view of eliminating or minimising waste through 'take back' or 'reduction of packaging material' initiatives. Request input from subcontractors and suppliers to nominate recycled products or products that include a recycled component. Check compliance with specifications and ensure the material is fit for purpose.	CM SM	Specifications met. Tabled in design and pre-contract meetings. Sign off on product selection. Take back and package reduction programs implemented.	Proven examples of packaging reduction. Use of recycled materials and recycled content products. Material received with clearance certificates (ie no contamination) and fit for purpose.
Major subcontractors to submit details of waste generated, waste minimisation, take back, reuse and recycling opportunities.	At tender and contract finalisation. During Construction	Identify major subcontractors with the largest potential waste generation impact. Identify predicted waste types that will be generated and quantities. Identify practical measures associated with the subcontractors scope of work or product supply to reduce waste entering the site (eg reduced or alternative packaging, take back, use of recycled materials, hire arrangements etc).	SM	Inspection of incoming materials and packaging to identify new opportunities. Periodic checks of waste skips and subcontractor waste management activities. Monthly waste reports.	Reduced waste generation and costs. Alternative products identified and used. Bulk handling and reusable/returnable transport containers encouraged. Waste and recovery targets tracked.

		Document waste management commitments in contract documentation and site plans.			
Site Waste Handling and Management					
Dispose of waste using licensed contractors at appropriately licensed/ approved facilities.	At all times	Consider reuse and recycling options before disposal. Request copies/check EPL/approval for facilities receiving waste and recyclables before the waste leaves site.	SM	Inspection of waste transport licenses and vehicles. Monthly waste report. Disposal dockets.	No waste disposed to unlicensed facilities. Copies of disposal documentation maintained and tracked in Footprint. No illegal placement of waste on land or in water. Waste, reuse, recycling and recovery data tracked in Footprint.
Separate/sort waste materials on site to divert waste from landfill and maximise recovery.	At all times	In consultation with the waste service provider identify costs and options for the separation of materials on site. Maintain waste storage areas in a tidy condition. Provide separate bins (as identified during the planning stage) and clear signage to prevent cross-contamination of wastes in segregated skips. Identify options for the use of balers for plastic and cardboard. **(NOTE: WHS considerations MUST be made and approval of supply and use of a baler received from RBU EHS Manager prior to use).**	SM	Weekly/monthly inspection checklist. Monthly waste reports.	Clean and tidy waste management area. Nil to minimal cross contamination of waste types. On site separation of wastes maximised during various stages of construction.

		Maintain a materials reuse area to divert materials of value from recycling and disposal skips.			
Maintain waste handling and waste storage areas (solid and liquid wastes) in good condition to prevent pollution.	At all times	Store liquid wastes in secure, well ventilated, covered, bunded areas (110% capacity of stored goods. Covered where possible). Store materials in original containers (label and seal intact). Do not stack unless secured. Provide a spill control kit and clean up spills immediately.	SM EHS	Weekly inspection of waste areas to assess condition of storage and waste collection areas and identify maintenance requirements.	Nil to minimal cross contamination of wastes. No spillage or loss of wastes from collection containers in storage areas. No 'orphaned' drums identified on site during inspections (ie drums/containers left outside of a bunded area)
Encourage good site 'housekeeping' in material handling and storage areas to prevent damage and the loss of materials due to physical impact and weather events.	At all times	Communicate material handling and storage requirements to subcontractors. Address in subcontractor WMS.	SM	Weekly inspection checklist to identify inappropriate storage or the waste of materials and resources.	No loss due to poor storage.
Where spoil cannot be reused on-site, dispose of excavated materials off-site to a lawful facility.	At all times	Use a licensed waste contractor to transport spoil to an appropriately licensed or approved facility. Complete required checks and forms and check approvals for disposal to a non-licenced property. Track the disposal of chemical and hazardous wastes in accordance with authority requirements.	CM SM	Tracking of materials transported off-site (ie through dockets etc). Waste classification reports. Subcontractor energy and waste reporting form (submitted monthly with progress claim) Random inspection of waste transport licenses and vehicles.	Reconciliation of tracking registers and dockets. Soil quantities tracked in Footprint. No spillages/loss of waste during transport.
Waste Data Capture					

Capture waste data and analyse to assess waste management outcomes.	Whole of Project	Capture office/kitchen waste and construction site waste data in FOOTPRINT. Analyse waste data to identify new opportunities and/or issues.	CM	Six Weekly Quarterly FOOTPRINT data review.	Outlined in the Project Review and discussed
Project Completion					
Co-ordinate the sharing and reuse of raw materials, excess products, and building materials including plywood, hoarding, fencing, concrete and formwork where possible.	During construction	Establish a dedicated material recovery area for the collection of materials suitable for reuse.	CM SM	Discussed in project and subcontractor meetings. Reinforced through toolbox talks. Weekly/monthly inspection checklist. Recycling facility dockets.	Documentation of actual examples as a case study. Quantified in project reviews.

APPENDIX 1: ENVIRONMENTAL MANAGEMENT DIAGRAM (EMD)



Location of collection point (blue)

APPENDIX 2: KEY WASTE STREAMS, ESTIMATED QUANTITIES AND SERVICE REQUIREMENTS (THIS IS TO BE COMPLETED ONCE WE COMMENCE CONSTRUCTION ON SITE)

(Note: this table can be reproduced in EXCEL and modified as required, for workability and to suit the project and its staging requirements).

Project Name:

Start Date:	Finish Date:	Duration:

Stage and Timing	Expected waste types *	Estimate of expected waste quantity **	Estimate of service requirements (type, number and size - weekly) ***				Comments	# Weeks
	-EXAMPLES ONLY– ADD SITE DETAILS Refer to Appendix 3 for guidance		SKIPS	BINS	BALERS/ COMPACTORS	OTHER (eg kerbside)		
Office	Shredded paper Ink cartridges Food waste Comingled recyclables							
Site Accomodation	Food waste Comingled recyclables General waste							
Demolition (insert to and from dates)								

Stage and Timing	Expected waste types *	Estimate of expected waste quantity **	Estimate of service requirements (type, number and size - weekly) ***				Comments	# Weeks
			SKIPS	BINS	BALERS/ COMPACTORS	OTHER (eg kerbside)		
Site establishment	Soil Terracotta pipes Electrical wiring PVC Vegetation Fencing materials							
Piling	Soil Concrete Steel Casing							
Earthworks	Soil Rock Aggregate Contaminated material							
Structure	Concrete and slurry Containers (plastic)							

Stage and Timing	Expected waste types *	Estimate of expected waste quantity **	Estimate of service requirements (type, number and size - weekly) ***				Comments	# Weeks
			SKIPS	BINS	BALERS/ COMPACTORS	OTHER (eg kerbside)		
Facade	Timber pallets Soft plastic							
Fit out	Cardboard boxes Pallets Timber packers Soft plastic Strapping Styrofoam							
External works including landscaping								
Final clean up								

Stage and Timing	Expected waste types *	Estimate of expected waste quantity **	Estimate of service requirements (type, number and size - weekly) ***				Comments	# Weeks
			SKIPS	BINS	BALERS/ COMPACTORS	OTHER (eg kerbside)		
Decommissioning (site office, meters, tanks, site controls, fencing)								

* Refer to table below (Appendix 3) for a list of potential waste types, site requirements and management opportunities.

** Can be calculated as a percentage of material procured (if known) or as an estimate based on an appropriate, documented methodology e.g. past project or similar project outcomes. Please note methodology.

*** Identify options in consultation with relevant service providers. To receive the best service, establish a sound working relationship with the provider.

APPENDIX 3: KEY WASTE TYPES, MINIMUM SITE REQUIREMENTS AND OPPORTUNITES FOR DIVERSION

Waste Type	Site Requirements (minimum)	Opportunities for optimising reuse or recycling Discuss with Team, subcontractor and Waste Service Provider/specialist
Aluminium	Separate for recycling.	
Asphalt	Separate. Stockpile or place in skip. No runoff of contaminants.	Reused in temporary works, site levelling or to establish walkways, driveways or stabilised areas. Off-site recycling.
Biodegradable bags	Purchase	Landfill
Cables and parts	Metal components separated and placed in metal bin. Remaining material placed in mixed skip.	
Cardboard	Bins (240L), skips or cages Baler	Off-site recycling
Carpet and carpet underlay	Separated	Recycled. Donated. Cleaned and reused by others.
Crib hut/kitchen waste	Bins and collection arranged (240L) Putrescible wastes must not be placed in mixed construction skips.	Separate bins for food waste, cans, plastic bottles for off-site recycling.
Concrete (liquid slurry from washout and solid).	Appropriately designed and located washout facility Waste concrete (wet) and slurry placed in collection trays. Separate stockpile or skip for dried concrete for off-site recycling. Separate dried concrete from plastic tray lining. Place plastic in mixed skip.	On-site reuse of excess concrete (ie hardstand areas, footpaths) On site recycling of waste water. Check whether plastic liner affects the ability of the waste service provider to recycle the concrete.
Drums and containers	Store in bunded areas for collection. Must not be stored with incompatible substances.	Removal off-site by a licensed contractor for rinsing, recycling or disposal at a licensed landfill.
Excavated spoil (clean soil, rock etc)	Reuse on site. Stockpile separately. Removed from site by trucks.	Reuse off-site under a resource recovery exemption, development approval or licence (beneficial reuse). Disposal off-site (if contaminated)
Excavated spoil contaminated	Stockpile separately. Removed from site by trucks. Disposal off-site to an appropriately licenced facility.	Approved treatment and reuse on site if possible. Reuse of treated material off-site (where permissible).

	Controls installed to prevent pollution.	
Food packaging/cans/bottles	Bins or cages. Signage to identifty the purpose of each bin/cage.	Recyclables sorted for collection and off-site recycling. Landfill if not recyclable.
Facade frames/supports	Separated and protected from damage.	Returned for reuse. Dissassembled for recycling.
Glass/plastic/cans	Bins (240L), skips or cages Baler	Separated for collection. Off-site recycling
Green waste (vegetation)	Mulch or chip on site. Trucked off site. Separated into a skip.	Chipped on site. Transported to off-site centre for recycling
Ink cartridges (office based use)	Collection bin or drop off points identified.	Return for refill or recycling.
Liquid from wet trades (eg paint, dry walls, renderers, tilers etc)	Dedicated washout facility/treatment system.	Off-site recycling of solids (slurry) On-site recycling of water.
Oily rags and filters	Bins. Separted from other wastes.	Off-site recycling by licensed waste oil recycler
Organic food scraps	Bins. Separated from waste that can be recovered or recycling.	On-site worm farm or maggot farm Taken off-site to organic recycling facility Landfill
Paper waste (eg. office based use)	Secured and unsecured Bins (240L)	Off-site recycling
Plastic (soft and hard)	Separate bin/skip. Baler or cage.	Off-site recycling or re-processing.
Scrap metal/steel	Separate skip.	Off-site recycling
Sediment control materials	Store on site for reuse.	Reuse at other local sites. Recycle clean fabrics and plastics.
Spill control materials (eg absorbent pads/booms	Containers, bins and/or tanks that have been suitably bunded	Taken off-site to landfill. Collection by specialist waste contractor if containing hydrocarbons, chemicals.
Timber and timber pallets	Separated. Skip bin.	Reused on site. Recycled off-site.Returned Disposed to landfill.
Waste oil, grease, lubricants	Sealed and stored in original container in bunded areas for collection.	Off-site recycling by licensed contractor.
Plastic wrapping/containers	Separated. Baler or skip Must remain uncontaminated by other wastes (eg slurry)	Off-site recycling for clean, dry, soft plastics or landfill as appropriate.