16. Waste

16.1. Introduction

16.1.1. This Chapter, which has been prepared by Waterman, provides a statement of conformity with regard to the potential waste impacts arising from the Scheme with Phase 1B (North) in place (and having regard also to the detailed design previously approved in relation to Phase 1A (North)). This statement of conformity, supported by updated information, is provided pursuant to the s73 ES and other EIA Documentation (as defined in **Chapter 4: Approach to the ES Further Information Report**), in light of the further detailed design information now available in respect of Phase 1B (North) and confirms whether the findings of the s73 ES and other EIA Documentation with respect to the likely significant effects, mitigation and residual impacts in relation to waste remain valid.

16.1.2. A review of relevant policy, legislation and guidance published since preparation of the s73 ES and other EIA Documentation has been carried out. A review of the detailed design for Phase 1B (North), as defined in **Chapter 2: Description of Phase 1B (North) RMA**, has then been undertaken, to identify elements of the Phase 1B (North) RMA of relevance to the waste assessment.

16.1.3. The approach to the statement of conformity is set out, and a summary of recent consultation is provided. A review of the baseline information presented in the s73 ES and other EIA Documentation has been undertaken to confirm if this remains valid and updated data are presented where relevant. Commentary is then provided which confirms whether any new or different potential significant waste impacts arising from the Development (comprising the Scheme with the detailed design for both Phase 1A (North) and Phase 1B (North) in place) from those identified in the s73 ES and other EIA Documentation are likely. Likewise, any new or different mitigation measures from those identified in the s73 ES and other EIA Documentation are presented where considered necessary, and residual impacts following the application of mitigation are described.

16.2. Policy, Legislation and Guidance

16.2.1. There have been no significant changes to legislation since the s73 ES and other EIA Documentation was prepared which have a material effect on the approach to or findings of the assessments previously presented. Although not considered significant, relevant new policy and guidance is set out below.

London Borough of Barnet – Information for Developers and Architects: Provision of Household Waste & Recycling Service, 2016

16.2.2. This document[i], published by LBB in July 2016, provides guidance for developers and architects on providing the details on the required provision of household waste services in new developments. The guidance is aimed to ensure the adequate provision of recycling and waste containers are provided as part of new commercial, industrial, leisure and residential developments. The guidance has been used to inform the design of the waste storage areas for the residential element of Phase 1B (North). However, it does not have a material impact on the

approach to or findings of the waste assessment, rather it has provided further guidance in the refuse storage required for residential units.

Draft North London Waste Plan, 2015

16.2.3. The North London Waste Plan (NLWP) will be a joint plan between the seven north London Local Planning Authorities (Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest). The NLWP will set out the planning framework for waste management in the North London Boroughs. It will also identify sites for waste management use and set out policies for determining waste planning applications. A draft of the NLWP was released in July 2015 and reference has been made to this emerging planning document for the purposes of this Chapter. However, as this is emerging policy, it does not change the approach to the waste assessment.

16.3. Relevant Phase 1B (North) RMA Details

16.3.1. In relation to the assessment of waste, the Phase 1B (North) elements of relevance include the following demolition and construction works where waste will be produced and require potential treatment for re-use on Site, or off-Site removal:

- Demolition of buildings / or partial demolition of buildings (**Figure 2.3)**;
- Construction of Brent Cross East (BXE) Development Plots - comprises development around the Brent Cross Shopping Centre including mixed-use plots 101-113, of which residential is located on Plot 113;
- Construction of Transport Interchange T2 (Replacement Brent Cross Bus Station);
- Construction of Brent Cross Main Square and The Park;
- Construction of Threshold Spaces - including Layfield Place, Fenwick Place and Tempelhof Circus;
- Construction of High Street North;
- Construction of Community Facilities;
- Construction of Neighbourhood Police Unit;
- Construction of Western and Eastern Brent Riverside Park and River Brent Nature Park (NP4) and associated Riverside Walk; and
- Sturgess Park Improvements.

16.3.2. In addition, although not part of the RMA, the construction waste that will be generated due to the refurbishment works within the existing shopping centre has been considered, such as reconfiguring existing retail units, removal of the existing mall roof lights and replacement with new features, renewal and replacement of mall floor finishes, increasing the height of existing shopfronts and external alterations to the exterior of the shopping centre where it meets the new plots.

16.3.3. For consideration of operational impacts, the residential Plot 113 and the BXE Development Plots are of relevance to this assessment (refer to **Chapter 2: Description of the Phase 1B (North) RMA** for more detailed description).

16.3.4. Plot 113 will provide 52 units of housing within four blocks. Plot 113 will comprise private refuse and recycling bin storage areas located at ground floor level of each block. Bin stores have been sized by the design team in accordance with London Borough of Barnet (LBB) – Information for Developers and Architects guidance 2016 and to meet the requirements of the DSF.

16.3.5. The BXE Development Plots will provide new areas of retail, office, leisure, hotel and community use, all of which will generate waste. In addition to the BXE Development Plots, the proposed Transport Interchange T2 will also generate waste. The proposed storage provision for the non-residential elements would be adequate and in line with the Revised DSF.

16.3.6. All non-residential waste, with the exception of hotel waste, will be administered through the Brent Cross Shopping Centre facilities management team. A number of the service yards in the existing Brent Cross Shopping Centre are to remain largely unchanged in layout. A new basement service yard is to be provided within Phase 1B (North). The waste will be compacted in the new basement service yard, before collection, with access provided directly off Prince Charles Drive. Larger tenants would be expected to bail and recycle waste to a distribution centre in order to reduce service yard costs.

16.3.7. The basement will also include a mixed recycling facility and a biowhale for processing food waste. The space requirements of these have been factored into the basement design.

16.4. Assessment Methodology

Baseline

16.4.1. The baseline information presented in the s73 ES was based on an estimation of baseline waste production using land-use together with an understanding of committed developments in the area published by LBB. This information has been reviewed by Waterman with reference to newly available information to confirm its validity for the purposes of the assessment. Since the submission of the s73 ES and other EIA Documentation, updated data on construction waste arisings have become available and the baseline has been updated with this information.

16.4.2. In order to identify and describe the baseline conditions, an updated 2017 desk study has been undertaken in relation to waste generation and waste disposal facilities for Phase 1B (North) within LBB, the North London Waste Authority (NLWA) area and London. As indicated above, the NLWA is formed of seven local authorities: Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest. This study established, from the most recent data available, the amount of waste being reused, recycled, recovered and disposed of within LBB, the NLWA area and in London.

16.4.3. The typical waste arisings, management practices and recycling rates within LBB have been established from an updated desk-based review of readily available information such as data available from the Department for Environment Food & Rural Affairs (DEFRA)[ii], and the North London Waste Authority[iii].

Methodology for Assessment of Impacts from Construction and Excavation Waste

16.4.4. Since the submission of the s73 ES and other EIA Documentation, updated data on construction waste arisings have become available, and therefore the baseline has been updated with this information. An estimate is made of the likely waste production volumes during excavation and construction of Phase 1B (North) using published figures from Building Research Establishment (BRE) Smart Waste Benchmark Data 2012[iv]. This figure is split into the typical volumes of waste produced during construction using BRE data and then multiplied against the Waste & Resource Action Programme (WRAP) published conversion factors[v] from volume to tonnes for specific types of waste to estimate the tonnage of each type of waste that will be produced.

Methodology for Assessment of Impacts – Phase 1B (North) Operational Waste

16.4.5. The quantity of operational waste to be generated by Phase 1B (North) is estimated based on:

- Unit numbers of the housing mix – 52 units; and
- Floor space data for commercial, leisure and community land use classes.

16.4.6. The operational waste forecast for Phase 1B (North) residential waste is calculated using the most recent Defra Waste statistics and available census population data. This is consistent with the methodology used for calculating the operational waste for the s73 ES and other EIA Documentation. The methodology for calculating the non-residential waste forecast is calculated using British Standard Guidance: BS5906-2005[vi] guidance. This is consistent with the previous methodology used in the s73 ES and other EIA Documentation.

16.4.7. In addition, a review has been undertaken of NLWA's policies, objectives and ability to meet and exceed targets set in the EU, national, regional and local policy for the management of solid waste.

16.4.8. Overall, the methodology, including the assessment criteria, applied for the assessment of waste related impacts in the s73 ES and other EIA Documentation is considered to remain valid.

Limitations and Assumptions

16.4.9. No significant limitations or constraints to the review and assessment of the s73 ES and other EIA Documentation have been identified.

16.4.10. Assumptions with regard to other relevant elements of the Scheme which do not form part of the Phase 1B (North) RMA are provided below.

Waste Handling Facility

16.4.11. There has been no further development of the design of the Waste Handling Facility (WHF) (Phase 1 (South)) that lies within the wider BXC Scheme and therefore this has not been considered further as part of the Phase 1B (North) FIR.

16.5. Consultation

16.5.1. The approach to this Chapter was set out in the EIA Scoping Report (**Appendix 4.1**). LBB subsequently issued the EIA Scoping opinion (**Appendix 4.2**), with the approach to the assessment considered acceptable.

16.6. Baseline Conditions

16.6.1 A review of the baseline information and its validity for the purposes of the assessment is provided below.

Site Wide Waste Arisings

16.6.2 The s73 ES and other EIA Documentation presented estimated waste arisings from the overall Site, based upon existing building footprints and average waste generation rates. Some of the data was sourced in 2005/06, and more recent information, published by DEFRA, on waste outputs is now available, and updated, where appropriate.

Waste Arisings and Management within London

16.6.3 The information in this Section provides an update to the previous baseline conditions provided in the s73 ES and other EIA Documentation detailing waste arisings at regional level, in addition to local waste arisings for Barnet.

16.6.4 Local Authority Collected Waste (LACW) is all waste collected by the Local Authority (LA) and comprises waste collected from households, waste generated by LA activities (e.g. parks maintenance) and waste from local businesses that pay the local authority to remove their waste.

16.6.5 As sourced from the most recent DEFRA waste statistics, of the 3,698,000 tonnes of LACW collected in London in 2015/2016, 3,079,000 tonnes was household waste. Of this, 1,673,000 tonnes (54%) was residual household waste; 276,000 tonnes was derived from other household sources (9%); 986,000 tonnes (32%) comprised household recycling, and 144,000 tonnes was household waste from civic amenity sites (5%)[vii]. A breakdown is provided in **Table 16.1**.

16.6.6 Of the 618,000 tonnes of non-household waste, 508,000 (82%) was municipal waste primarily comprising grass cuttings and leaves from parks, and LBB office waste from small and medium sized business where the Boroughs have waste collection agreements in place. In 2015/2016, 110,000 (18%) of this waste was recycled or composted (see **Table 16.1**).

Table 16.1: Waste arisings in London 2015/16 – household and non-household waste (tonnes)

Household Waste				Non-Household Waste	
Regular Collection	**Other Sources**	**Civic Amenity sites**	**Household Recycling**	**Non-Household Sources**	**Non-Household Recycling**
1,673,000	276,000	144,000	986,000	508,000	110,000

16.6.7 Recycling rates currently fall below the 2015 composting / recycling target levels (in LACW) of 45%, as set out in the London Plan[viii].

Waste Arisings and Management within the NLWA area

16.6.8 23% (850,296 tonnes) of the LACW in London in 2015/2016 was collected by the LAs in the NLWA area, of which 711,106 tonnes was household waste produced in the NLWA area. This is an update to the previous baseline conditions provided in the s73 ES and other EIA Documentation. A breakdown of the waste types and the management of this is provided in **Tables 16.2** and **16.3**. The small difference in collected and managed waste is due to the net difference in waste imported and exported for management to and from the NLWA area.

Table 16.2: Waste arisings in the NLWA area 2015/16 - household and non-household waste (tonnes)

Household Waste						Non-Household Waste	
Segregated Recycling / Composting / reuse		Mixed Waste				Segregated Recycling / composting / reuse	Mixed Waste
Dry recycling / reuse	Green recycling / reuse	Regular Collection	Other Sources	Civic Amenity sites	Estimated rejected		
151,223	72,712	399,778	51,572	21,205	14,618*	110,694	28,496

Note: Rejects include from recycling rejects from Materials Recovery Facilities and Reprocessors.

Table 16.3: Waste management in the NLWA area 2015/16 – treatment method (tonnes)

Landfilled	Incineration with EfW	Incineration without EfW	Recycled / Composed	Other	Total
105,516	491,466	614	252,431	3,688	853,716

Note: Other includes waste treated / disposed through other unspecified treatment processes as well as 25% moisture loss within the Mechanical Biological Treatment process.

London Borough of Barnet Comparator

16.6.9 Within LBB, 163,007 tonnes of LACW was generated during 2015/2016 (the most recent year for which data is available), of which 147,758 tonnes (91%) related to household waste and 15,294 tonnes (9%) related to non-household waste (see **Table 16.4**). Of the total household waste, 93,327 tonnes (63%) was non-recyclable waste while 54,431 (33%) was sent for recycling / composting / reuse. The remaining 4% included household waste from civic amenity sites, other sources and estimated rejects.

16.6.10 The baseline figures for LBB detailed in **Table 16.4** provide an update to those presented in the s73 ES and other EIA Documentation. Overall there has been a slight decrease in the volume of household waste produced in LBB in 2015/16, of approximately 3.5%, from that reported in the s73 ES and other EIA Documentation.

Table 16.4: Waste arisings in London Borough of Barnet 2015-16 – household and non-household waste (tonnes)

Household Waste						Non-Household Waste	
Segregated Recycling / Composting/reuse		Mixed Waste				Segregated Recycling / composting / reuse	Mixed Waste
Dry recycling / reuse	Green recycling / reuse	Regular Collection	Other Sources	Civic Amenity sites	Estimated rejected		
33,194	21,237	93,327	7,035	6,147	1,927	3,642	11,607

Construction, Demolition and Excavation Waste

16.6.11 The NLWA has published quantities of Construction, Demolition and Excavation Waste (CDEW) generated in the NLWA area[ix]. The quantities of waste produced in 2013 (the latest year in which data is available) are detailed below in **Table 16.5**. The Local CDEW base case arisings have not been included for Barnet as these are not available. The London Plan currently sets out a recycling and reuse target of 95% for CDEW waste for 2020.

Table 16.5: Base Case CDEW Waste Arisings for the NLWA area and Greater London, 2013

Year	North London Waste Authority (tonnes)	Greater London (tonnes)
2013	688,542	7,200,000

Baseline Waste Arisings from Brent Cross Shopping Centre

16.6.12 Waste arisings for the existing Brent Cross Shopping Centre for 2015 and 2016, based on actual data from Shopping Centre Facilities Management team, are indicated in **Table 16.6**. This is the latest available data and is considered to provide a good indication of the existing shopping centre waste arisings.

Table 16.6: Waste Arisings from Existing Brent Cross Shopping Centre

Year	Non-recycled Waste (tonnes)	Recycled Waste (tonnes)	Total Waste (tonnes)
2015	714	1,646	2,360
2016	808	1,725	2,533

16.6.13 Overall, there has been an approximate 27% decrease in the waste arisings for Brent Cross Shopping Centre (from the most recent 2016 data detailed in **Table 16.8)** in comparison to the data provided in the s73 ES and other EIA Documentation. There has also been an increase in recycling rates at Brent Cross Shopping Centre, from around 43% as documented in the s73 ES and other EIA Documentation, to around 68% in 2016.

Future Baseline Waste Arisings

16.6.14 For the purposes of this Chapter, 2023 has been considered as the first full year of operation of the building plots within Phase 1B North and is therefore proposed as the future baseline for assessment of the operational effects of Phase 1B North. It is noted that the construction of residential Plot 113 is not expected to commence until 2024 (and be operational by 2028), however the proposals for this Plot (52 residential units) are small scale in comparison to the overall Phase 1B (North) built development.

16.6.15 The quantity of LACW predicted to be generated in LBB, the NLWA area and London in 2023 is shown in **Table 16.7**. This forms the local and regional LACW base case arisings. This 2023 figure is derived from the NLWA waste forecast model[x].

Table 16.7: Base Case LACW Arisings for LBB, the NLWA and London

Year	London Borough of Barnet (tonnes)	North London Waste Authority (tonnes)	Greater London (tonnes)
2015/16 actual	163,007	850,296	3,705,000
2023 predicted*	173,771	869,557	3,947,200

Note: 2023 prediction for Household waste only is available from NLWA. The Non-Household percentage has been applied from the 2015/16 figures to calculate the total predicted LACW for 2023.

16.6.16 In summary, there has been a small increase in the recorded 2015/16 LACW waste arisings from those reported in the s73 ES and other EIA Documentation, however, this not considered to be material to the outcome of the assessment and therefore remains valid for the purposes of decision making.

Other Wastes Managed in the Scheme Area

16.6.17 The s73 ES and other EIA Documentation references the Hendon Rail Waste Transfer Station which is located within the Site to the east of Brent Terrace. It is understood that the Waste Transfer Station will be the subject of a forthcoming RMA, and therefore for the purposes of this assessment, it has not been considered further.

16.7. Assessment and Mitigation

Construction

Potential Impacts

16.7.1 Elements of the Construction Impact Assessment (CIA) Addendum and Indicative Construction Programme (ICP) have been updated (for the Phase 1 (North) works only) since the submission of the s73 Application and other EIA Documentation (the CIA Addendum Technical note is included as **Appendix 2.1**) including updating the sequence and timing of the construction activities for Phase 1B (North). However, even though the timing and sequencing of the construction activities presented within the s73 ES and other EIA Documentation have changed, the construction activities themselves have not changed. The CIA and ICP changes do not

therefore change the waste impacts during the construction phase that were reported within the s73 ES and other EIA Documentation.

Construction Waste

16.7.2 Waste material would be generated throughout all stages of the construction process, from structural and foundation works to the fit-out of the commercial, leisure and community elements and the new residential units on Plot 113. BRE has published average volumes of waste generated during the construction process from each type of land use[xi]. The estimated waste arisings generated during the construction of Phase 1B (North) are presented in **Table 16.8**.

16.7.3 Waste is calculated per year of the construction period. This is to allow a comparison of the CDEW waste arisings against the future baseline (see **Table 16.5**). Waste for the non-residential use is based on the Phase 1B (North) construction period of 2018-2022.

Table 16.8: Average Waste Arisings by Volume per 100m^2 of floorspace

Proposed Buildings	Proposed Land Use	GEA Waste Generation Rates (m^3/100m^3)	Maximum Floorspace Proposed (sqm)	Average Anticipated Waste Arising (m^3) per year
Commercial	A1-A5 retail	20.9	82,325 (including 7,460 existing to be reconfigured)	3,441
	B1 office (Management Suite)	19.8	5,396	214
	C2 Hotel and Conference	17.4	11,845	412
Leisure	D2	14.4	14,534	419
Community	D1	20.9	953	40
Bus Station Kiosk		22.4	27	1
Total			115,080	4,527

16.7.4 The predicted construction waste arisings for the proposed residential use (Plot 113) of Phase 1B (North) have been excluded from **Table 16.8**. Plot 113 will be constructed from 2024-2028, outwith the main construction period. However, the expected waste arisings would be minimal and would not significantly change the anticipated construction waste arisings for Phase 1B (North).

16.7.5 A detailed breakdown of the composition of construction waste (excluding residential construction waste) for Phase 1B (North) is set out in **Table 16.9** below.

16.7.6 In addition, WRAP has produced an outline guide on the volume to mass conversion factors for a wide range of construction wastes and the appropriate conversion factor for each waste type is used in **Table 16.9**.

Table 16.9: Expected Construction Waste Composition

Waste Type	% of Total	Forecast Arising per year (m^3)	Conversion Factor	Forecast Arising per year (tonnes)
Asphalt, bitumen and tarmac	0.95%	43	0.82	35.26
Concrete binders	0.16%	7.24	1.27	9.19
Bricks	2.06%	93.26	1.2	111.91
Canteen / office / ad-hoc waste	1.10%	49.78	0.21	10.45
Concrete	3.32%	150.30	1.27	190.88
Floor coverings – soft	0.16%	7.24	0.27	1.95
Gypsum	1.59%	71.98	0.33	23.75
Hazardous	0.64%	28.97	0.87	25.20
Inert mix of concrete, tiles, bricks and ceramics	10.75%	486.65	1.24	603.45
Insulation	0.95%	43	0.25	10.75
Liquids & Oils	0.16%	7.24	0.9	6.52
Metals	0.95%	43	0.42	18.06
Mixed waste not otherwise specified	9.17%	415.13	0.87	361.16
Mixed packaging & empty drums	2.69%	121.78	0.21	25.57
Plastics	0.95%	43	0.23	9.89
Soils	60%	2716.2	1.23	3340.93
Tiles and Ceramics	0.16%	7.24	0.59	4.27
Timber	4.26%	192.85	0.34	65.57
TOTAL	**100%**	**4,527**		**4,855**

16.7.7 On site waste management can reduce the amount of waste arisings, especially at a local level. Reuse and recovery opportunities should be maximised, and off-site disposal minimised. As set out with the Revised DFS, where reasonably possible, reclaimed goods and materials, and building components with recycled content would be used.

16.7.8 Below is an assessment of how wastes would be expected to be managed for Phase 1B (North):

- Inert soil - re-used on site;
- Inert mix of concrete, tiles, bricks and ceramics - would be taken off-site for segregation and processing into recycled materials;

- Asphalt, Bitumen and tarmac - would be taken off-site for segregation and processing into recycled materials;
- Concrete binders - unopened packs can be re-used but often tears occur in the packaging and the material spoils and is disposed of;
- Unused Bricks - re-used in future phases or schemes;
- Canteen / office / ad-hoc waste - dry recyclable elements may be taken to be recycled but often the quantities produced are not sufficient to warrant a project specific contract to take the wastes away separately or recyclable materials in this waste stream are contaminated with food waste;
- Concrete - would be taken off-site for crushing into recycled materials for use on future sites;
- Floor coverings - soft - if sufficient lengths are produced these can be donated to community schemes but often this material is landfilled;
- Gypsum - needs to be kept separately as presents a hazard to livestock and wildlife. Recycling facilities do exist but these can be a national rather than regional facilities;
- Hazardous – in part this would be reprocessed and redisposed safely on the Site;
- Insulation - unused materials can be reused on other projects but often material is disposed of once packaging opened;
- Liquids & Oils (including chemical toilet waste) - hydrocarbons can be recycled;
- Metals - would be recycled due to their value;
- Mixed waste not otherwise specified - often this category is disposed of;
- Mixed packaging & empty drums - can often be returned to manufacturer for recycling or re-use;
- Plastics - can be recycled into materials but does require a market demand for the recycled material for services to be provided;
- Unused Tiles and Ceramics - re-used in a future phases or schemes; and
- Timber - recycled or re-used in a future phases or schemes. Pallets are expected to be returned to their place of origin for recycle or given to a wood recycling initiative if damaged.

Excavation Waste

16.7.9 Further information is available detailing the excavation waste arisings from Phase 1B (North) works. A summary of the spoil volumes is provided below. The excavation volumes associated with the River Brent diversion have been assessed at part of the Phase 1A (North) FIR, and so are not included below. Excavation amounts for the parks within Phase 1B (North) would be minimal.

16.7.10 As detailed within **Appendix 15.1**, the proposed excavation of the BXE basement would lower the ground level of the area in places from the existing level which varies between 42.1 and 42.74m OD, to 35.36m OD. The basement would therefore be excavated to approximately 7m depth, and the total volume of material to be excavated would be estimated at 66,000m^3.

16.7.11 Site levelling will result in a further estimated volume of material to be excavated at 15,000m^3.

16.7.12 Piled foundations will be installed into the London Clay to support new structures of the development of Phase 1B (North). These will displace approximately 60,000m^3 of material.

16.7.13 Therefore, a total volume of approximately **141,000m^3** of spoil will be generated, the majority of which will arise from the New Town Centre (see **Appendix 15.1**). The majority of this material will comprise Made Ground, with some Alluvium, Taplow Gravel and London Clay Formation also excavated. Minor volumes of topsoil will be generated from the removal of soft landscaped areas and verges.

16.7.14 Further additional volumes of excavated material would also be generated through the construction of the riverside parks, Plot 113 and the Sturgess Park improvement works. Details of these volumes are not available at the time of writing but would be expected to be minimal due to the scales of these developments.

16.7.15 **Table 16.10** shows the estimated total amount of excavation and construction waste to be generated by Phase 1B (North) during the 5 year construction period. It also shows the estimated total quantity of excavation and construction waste that would be diverted from landfill during the construction period.

Table 16.10: Excavation and Construction forecast for Phase 1B (North) per year of construction

Construction Activity	Total quantity of waste per year of construction (tonnes)
Excavation	42,300*
Construction	4,855
Total	47,155

Notes: number based on a conversion factor from m^3 to tonnes of 1.5

16.7.16 The impact of waste generation is shown in **Table 16.11**. The estimated total quantity of excavation and construction waste to be generated for Phase 1B (North) would increase projected waste arisings by 6.8% in NLWA and 0.7% in London each year.

Table 16.11: Projected change in excavation and construction arisings in NLWA and London from construction of Phase 1B (North)

Scenario	North London Waste Authority	London
Base case (tonnes/year)	688,542	7,200,000
Phase 1B (North) (tonnes/year)	47,155	47,155
Predicted C and E Total (tonnes/year)	735,697	7,247,155
Change each year (%)	6.8%	0.7%

Notes: Predictions have not been made for LBB as no data on existing excavation and construction waste arisings are available.

16.7.17 Following a review of **Table 16.11** above, the predicted construction and excavation arisings for Phase 1B (North) do not exceed the CDEW waste figures detailed within the s73 ES, and are broadly in keeping with the findings of this waste assessment. Therefore, no new or different

impacts are expected from those reported in the s73 ES and other EIA Documentation for the Phase 1B (North).

Mitigation

16.7.18 Mitigation measures presented in the s73 ES have been secured through conditions attached to the 2014 Permission, through the implementation of measures set out in the Code of Construction Practice (CoCP) (Condition 8.1), Site Waste Management Plans (SWMP) (Condition 28.2), Construction Environmental Management Plans (CEMP) (Condition 8.3), Pollution Prevention and Emergency Response Plans (PPERPs)

16.7.19 A CEMP and SWMP will be produced to satisfy Pre-Commencement Conditions of the 2014 Permission which will be specific to the detailed design of Phase 1B (North). Construction works will also be subject to the Site-Wide CoCP. No further mitigation measures beyond those identified in the s73 ES and other EIA Documentation have been identified. These remain valid and appropriate for the purpose of the Phase 1B (North) RMA.

Residual Impacts

16.7.20 No new or different significant residual construction impacts for waste have been identified form those identified in the s73 ES and other EIA Documentation, for the construction of Phase 1B (North).

Operation

Potential Impacts

Residential Waste

16.7.21 Approximately 52 tonnes (or 193m^3) based on 1m^3 of household waste (weighing 0.27 tonnes) of residential waste per year can be expected to arise from Phase 1B (North) (this estimate was calculated using Defra waste statistics from 2015/16 and latest available Census population data). This was calculated as a worst case scenario, assuming that the residential units with Plot 113 are fully occupied throughout the year based on 1 tonne per annum per residential unit. In order to manage this waste effectively and sustainably, and to contribute to the high recycling aspirations of the London Plan of 50% recycling re-use by 2020, waste would be encouraged to be recycled at source within Phase 1B (North), through separate waste recycling bins.

16.7.22 Individual residents within Plot 113 would be required to separate their waste prior to bringing it to the dedicated refuse storage areas within each of the four blocks. Prior to collection, the wheelie bins within each refuse storage area would be moved by facilities management staff to external holding areas located at the north and south ends of Plot 113. A pathway set between the residential blocks and the perimeter road would provide a link between the internal and external storage areas.

16.7.23 The estimated quantity of residential waste to be generated during the operational phase of Phase 1B (North) in 2027 (which from the updated ICP is the year of completion of residential units on Plot 113) is shown in Table **16.13**.

Table 16.13: Operational waste forecast for Phase 1B (North), 2028 – Residential waste

Waste Type	Estimated Volume per unit	Estimated Amount per unit (tonnes/annum)	Number of units	Weight of materials to destination per annum (tonnes)	Anticipated Recycling/Recovery rate (%)
Dry recyclables and residual household waste	3.712m^3/ annum	1	52	52	50%

16.7.24 The calculation of future household waste generation was estimated using latest LBB and available Census population data. The conversion factors used for volume to weight (1m^3 equals 0.27 tonnes) are from WRAP. It is predicted that the residential element of Phase 1B (North) would generate approximately 52 tonnes of operational waste per annum. This is based on an average waste generation per household per annum of approximately 1 tonne per annum in LBB.

Non-Residential Waste

16.7.25 Waste will be stored and compacted in a new basement service yard, which would be accessed directly off Prince Charles Drive. The waste would be transported to the service yard via lift and stair cores.

Table 16.14: Operational waste forecast for Phase 1B (North) – 2023 - Non-Residential waste

Waste Type	Estimated Volume (litres / week)	Estimated Volume (m^3/week)	Estimated weight per week (tonnes/)	Weight of materials to destination per annum (tonnes)	Anticipated Recycling / Recovery rate (%)
Retail waste	823,250	823.25	222.5	11,570	80%
Office waste [**Management Suite**]	2,000	2	0.54	28.08	80%
Leisure waste	72,670	72.67	19.64	1,021	80%
Hotel waste	50,000	50	13.51	703	80%
Community waste	4765	4.77	1.3	67.6	80%
Food waste	70,740	70.74	19.12	994	80%
Total	1,023,425	1023.425	276.60	14,383	80%

16.7.26 The Development would target zero operational waste to landfill, and at least an 80% recycling rate (covering at a minimum food, cardboard, and dry recyclable waste streams). The estimated net quantity of operational waste forecast to be generated by Phase 1B (North) would increase operational waste arisings in LBB by 8.28%, in NLWA by 1.65% and in London by 0.36%.

16.7.27 The s73 ES presented estimates of waste arising from the Site as a whole once occupied and operational. These waste estimates are broadly similar to the s73 ES Site-wide operational waste calculations in consideration of the operational arisings from Phase 1B (North). The s73 ES and other EIA Documentation therefore remains valid in respect of operational waste arisings.

Mitigation

16.7.28 No new or different operational mitigation measures have been identified from those identified in the s73 ES and other EIA Documentation.

Residual Impacts

16.7.29 No new or different residual operational waste impacts have been identified from those identified in the s73 ES and other EIA Documentation.

16.7.30 A summary of the residual impacts associated with waste is included within **Chapter 22: Summary of Residuals Impacts and Mitigation**.

References

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[v] WRAP, 2014. Waste volume to mass conversion factors

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[ix] North London Waste Authority. 2015. North London Waste Plan: Waste Data Study Update.

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[xi] BRE, 2012. Smart Waste Benchmark Data.