

Grenfell Investigation into Potential Land Contamination Impacts

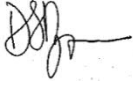



Technical Note 05: Fate of debris – deposition, spread,
clean-up

Royal Borough of Kensington and Chelsea



Project reference: 60595731

30 August 2019

Quality information

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Original	13 June 2019	draft		Simon Cole	Technical Director
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1. Introduction

This technical note (TN) presents the scope, methodology, results and conclusions of the desk based assessment of the deposition, spread and clean-up of debris that was emitted and scattered during the fire, influenced by the nature and location of the clean-up operation immediately after the fire. The objective is to identify the general area influenced and affected by falling debris that can help to provide guidance on the areas where deposition of materials could have caused contamination of the soil, or where representative debris might still be located.

This assessment of the fate of debris is intended to be distinct from the wider area affected by the smoke plume, which focusses on the dispersion of particulates of up to 10µm diameter, and 100µm diameter. Smoke plume dispersion modelling has been carried out by The Met Office and is discussed in a separate AECOM technical note (TN6) (AECOM, 2019a).

2. Methodology

The assessment was completed in accordance with the approach described in AECOM's TN2 (AECOM, 2019b) for the Evidence Review. This TN includes information obtained via discussions with the Grenfell Site Management Team (GSMT), the Royal Borough of Kensington & Chelsea (RBKC) and community representatives (including information from local schools provided through the Ministry of Housing, Communities and Local Government). The information sources have included the following:

- Site visit by David Dyson (DD) of AECOM including interview with Matt Hogan (MH) of GSMT on 2nd April 2019, followed up by supplementary telephone conversation between DD and MH.
- Review of information provided by RBKC and information related to private property cleaning services provided by RBKC, as provided via email exchanges with RBKC.
- Information gathered at the two community engagement feedback sessions on Thursday 25th April and Saturday 27th April.
- Information provided by MHCLG in relation to discussions concerning the environmental checks held between MHCLG and local schools and nurseries.

3. Results

3.1 Information from site visit and discussion with GSMT

The key findings of the interview included the following:

- Metal and glass debris fell from the Tower during the fire, but mainly vertically downwards due to its weight, and then scattered approximately 10m to 20m from the foot of the Tower.
- The majority of identifiable debris that was not metal or glass was composed of insulation foam from behind the cladding, with the largest pieces approximately 0.5m to 1m in size.
- The largest pieces of debris encountered beyond the current site fenceline (which surrounds the Tower at a distance of roughly 20m to 50m depending on direction) were approximately dinner plate sized (30cm)
- Small fragments of debris (up to approximately 5cm) were scattered to approximately 150m distance from the Tower.
- No obvious areas of higher density of debris were recorded, with the debris generally considered evenly spread around the tower in all directions. Generally, the size of debris reduced with increasing distance from the Tower.

- At the time the secure cordon was shifted and the leisure centre re-opened (24/25 June 2017) there was no obvious debris in accessible areas.
- Rare reports of debris being encountered beyond the site fence line are received, the most recent report occurring in approximately November 2018. Considered most likely to have been dislodged from low access areas (e.g. roofs, gutters).
- Bags of debris classified as 'potentially containing asbestos' are stored in garages within the secure site and are now being slowly removed from Site for secure storage elsewhere¹. Asbestos air monitoring is being carried out during the moving process.
- In the immediate aftermath, debris was cleared by the Police and Fire Brigade, with specialist contractors continuing the clean-up within the secure cordon after 2 to 3 days. The debris was disposed off-site, although some has been retained in Police storage.
- Understood that RBKC had a hotline for requests to clean private property, but no further details known by MH.
- MH is aware of some concerns that some debris may still be falling from Tower. During the walkover, MH pointed out a fragment of material that could possibly be debris on the ground surrounding the Tower, though not possible to confirm. A photo of this fragment of material is included as Photograph 1 in **Appendix TN05-B**.
- Enhanced cleaning (by jetwashing) of the section of Grenfell Road between the current site entrance and Bomore Road was carried out before this area was released back into public access.
- The access way connecting Latimer Road tube station to the site entrance gate in the south-west corner of the Site was jetwashed in February 2019. MH not aware of any other enhanced street cleaning (beyond Council contracted street cleansing services) having been completed around the Tower.
- MH reported that the firefighting water either infiltrated to ground or discharged to surface water drainage. The two-storey basement of Grenfell Tower was filled with firefighting water. The water was tested on the instruction of Thames Water before being discharged to the Thames Water sewer system. The laboratory testing results from the firefighting water are included in **Appendix TN05-D**.

3.2 Information from RBKC

E-mail chain between Suez (RBKC's waste contractor) and RBKC dated between 15th June 2017 and 26th June 2017.

RBKC provided an e-mail chain between Suez (RBKC's waste contractor) and RBKC dated between 15th June 2017 and 26th June 2017. The emails provide details of road sweeping and refuse collection during this period immediately after the fire. The final entry on 26th June 2017 indicates that Silchester Road was swept that morning and this was the last area on the public highway (other than areas remaining within the Tower cordon) that had not previously been swept. The email chain also refers to 15 specific sites from which waste collections were made routinely during this period. These sites included:

1. Clement James Centre.
2. Latimer community church, Bramley Road.
3. Acklam Road mosque.
4. 1 Silchester Road (opp. Methodist Church).
5. Westway Sports Centre.
6. Rugby Club.
7. Hewer Street.
8. Tabernacle, Latimer Road.

¹ Correct at time of interview. As of 13th June 2019, all bags of debris are reported to have been removed from the Site.

9. Notting Hill Methodist Church.
10. Harrow Club, Ferston Road.
11. 177 Kensal Road.
12. Whitchurch junction with Bramley (35 x 1,100 litre bins).
13. Kensington Leisure Centre.
14. Kensington Town Hall car park.
15. 253 Kensal Road.

Additional specific waste collections that are referred to within the email chain are summarised in **Table TN05-01** below:

Table TN05-01. Extra specific waste collections

Date	Location	Type of waste
24 June 2017	Westway Sports Centre	Skips emptied, recycling cleared, bulky waste collection of sofas, mattresses and fridges
23 June 2017	Westway Sports Centre	Sweeping around the area, skip emptied and returned
23 June 2017	Rugby Club	Large pile of waste removed from opposite Rugby Club
22 June 2017	KAA	Gully clearance at request of Police
21 June 2017	Testerton House (inside wall at Whitchurch Road end)	Reported as "We have also clear Testerton House"
21 June 2017	Westway Sports Centre	Mattresses
20 June 2017	'under flyover'	Reported as "Dumps removed under flyover"
20 June 2017	Bramley Road chemist opposite Crowthorne Road	Reported as "Dumps being cleared" at request of BECC
19 June 2017	Hearst Way Walk, Testerton Walk, Bardingdon Walk, Treadgold House	Apparent requests for waste collections but not clear if completed, except for Treadgold House
19 June 2017	Holland Park Gardens	Wooden pallets
18 June 2017	Ladbroke Grove junction with Cambridge Gardens	"Large dump"
18 June 2017	Westway Sports Centre	Excess waste
18 June 2017	Church on Lancaster Road	Reported as "cleared bags"

Source: Emails from Suez to RBKC

Email from RBKC dated 23rd April 2019 titled 'private street cleaning'

RBKC confirmed that a telephone number is available for members of the public to call if they require additional street cleaning services in either public or privately owned areas:

<https://www.rbkc.gov.uk/parking-transport-and-streets/your-streets/street-cleaning/street-cleaning-services>. The council does not hold records of requests made for this service or specific details of cleaning services provided following any specific requests.

Email from RBKC dated 12th June 2019 titled 'Re: Grenfell Part2A: debris and cleaning'

Information from RBKC indicates that 'over 300 properties' within the Lancaster West estate were provided with a deep clean service after the fire. The scope of the deep clean service would have varied depending on the type of property and the resident's requirements. RBKC noted that where the offer of a deep clean was not taken up, this was largely (but not entirely) where people were not in residence.

It was noted that RBKC does not hold any information relating to similar services that might have been provided by other Registered Social Landlords (RSLs).

Email from MHCLG dated 10th January 2019 titled 'Fwd: Grenfell Environmental Testing – Debris'

Information provided in this email included the following recollections from a member of Council staff who was working on the Lancaster West estate in the immediate aftermath of the fire:

- There were reports of debris just outside the initial site boundary, next to Kensington Aldridge Academy on the Silchester Road side.
- There was debris on the Lancaster West estate around the covered walkway areas between Barandon and Testerton Walks – at the open grass area alongside Grenfell Walk.
- Across the road from the site, at Treadgold House there were reports of debris in the community garden.
- There was also a report of debris at Clarendon Walk, near to Kensington Aldridge Academy, and in Verity Close.

Another member of staff from the Council reported the following details from within the Tower cordon:

- A lot of light debris was observed [within the cordon] which it was assumed was part of the burnt off cladding – it was light enough to float.
- No heavy debris was observed.

Email from RBKC dated 7th May 2019 titled 'RE: SAG request for further information on soil replacement'

RBKC provided the following information in relation to soil replacement that has occurred since the fire:

- Six community gardens have had their soil changed since the fire. These are:
 - Russell Road W18 8HU – topped up.
 - Pond House SW3 6QT – topped up.
 - Whitstable House W10 6SD – replaced.
 - St Charles Wellbeing Centre W10 6DZ – topped up.
 - Lancaster West W11 1TU – replaced.
 - Elkstone Road W10 5NT – topped up.

RBKC noted that a programme of soil replacement for these gardens takes place every 5 years or so. Most of the above venues are located near to Grenfell Tower or in wider North Kensington, but two are located in the south of the borough (Russell Road and Pond House) and would have been topped up based on the rolling 5 yearly replacement programme.

RBKC stated that Lancaster West was chosen for replacement due to the proximity to Grenfell Tower. In a separate email (ref below) RBKC stated that Lancaster West and Whitstable House soil was replaced to provide reassurance after debris (possibly burnt foam) fell on them. The others were offered a soil change as part of the soil replacement programme or if residents/ plot holders had concerns as a way to reassure them.

RBKC noted that it has also replaced soil for the Walkways (Testerton, Barandon, Hurstway) on the Lancaster West estate, Talbot Grove House (W11 1SQ) and Morland House, Lancaster Road, W11 in response to/ anticipation of resident concerns.

RBKC also stated that soil was changed at Pottery Lane planters (on the highway, near Avondale Park) in December 2018: this was due to poor quality soil and not in response to any concerns about contamination.

Outside these areas, RBKC stated that they do not hold any information for actions taken by other property owners, including schools. RBKC is only able to provide information in relation to soil exchange completed in public spaces and Council-owned housing estates.

RBKC has provided information that the replacement soil used was sourced from Compost Direct, with two products (Veggie Gold and Veggie Black) used. RBKC considers that both products are rich in organic matter suited to growing produce.

At the time that the information was provided by RBKC, work is underway to add wildflower soil (soil with seed mixed in it) imminently to Avondale Park – this will be additional soil rather than a replacement, in order to establish the wildflower meadow there.

No further soil replacement work or topping up is currently planned, although RBKC noted that it is possible that residents may approach the Council to ask for replacement on their estate. RBKC has stated that if any replacement is completed in the future, it will happen in consultation with AECOM to provide the opportunity to take samples from the existing soils if required. As of the 11th July 2019 no further soil replacement has been carried out.

Email from RBKC dated 3rd January 2019 titled 'RE: Action deadline noon today: Information Request to inform Environmental Investigation Desk Study'

RBKC also passed on information on St. Quinten's Allotment that it received via e-mail from a resident who indicated that debris landed there and that they thought that testing was required. Relevant text from the email includes:

"...St Quintin's Kitchen Garden is the oldest and largest allotment site in RBK&C comprising around fifty 3sqm plots and over one hundred member gardeners. Although we have had two growing and harvesting seasons post the fire there has been a consistent level of anxiety among some plot-holders about possible soil contamination. A couple of days after the fire members bagged up the larger pieces of fire debris which had blown and landed among the allotments into several large bin-bags, however there must have been many smaller particles that landed on the plots and entered the soil. Given our concerns, the proximity of the site to Grenfell, and the direction of the wind during the fire, we would request that the soil from the site is included in the extended testing that is due to be carried out. We would be happy to give you any assistance that you require in implementing this."

RBKC also provided the following information relating to recovery activity in the Grenfell Tower area after the fire:

- Management of fire related debris:
 - RBKC did not collect any debris from within the cordon. The police cordoned off the area and kept all debris as it was part of the investigation. Once they had no further need for the debris, they arranged for removal from the site. We have information that sweeping took place in the wider area, but do not have information that shows that this was directly related to the fire/ clearing associated debris. We do not have records going back to that date from our customer contact centre which might have recorded such calls. Attached is an email from SUEZ (the Council's contractor) (refer to Section 3.2.1 above) which shows where their activity was concentrated in the days and weeks after the fire. There are records/ claims by Suez of additional collections made but these records do not show the locations.

Email from RBKC dated 8th January 2019 titled 'Follow up information after pre-meet 7.1.19'

In this email, RBKC indicated that:

- all debris in the area within the site cordon was cleared/ managed by the site management group/ police.
- following on from the information summarised in the Suez/RBKC email exchange, RBKC noted that Suez has since confirmed that *"small amounts of ash were swept up as part of normal street*

sweeping activities but it was not recorded as it was at such insignificant levels and had been confirmed as non-hazardous to health”.

- RBKC provided a spreadsheet of questions submitted by the public to the health questions email address. Two questions included information related to the distribution of debris /ash/ other apparently fire related effects on property and these are reproduced in **Appendix TN05-C** of this Technical Note.

3.3 Information from community engagement workshops

Visitors to the community engagement workshops were asked to identify areas where they had observed debris from the fire by marking the maps provided with stickers. The output from the community engagement process is collated in full in TN14 (AECOM, 2019c). Information specifically related to debris has been extracted and presented in **Figure TN05-01**. Visitors were also asked to provide any further details of debris (size, type, location etc.) that they could remember. This information was either written up as a detailed discussion note by a member of the AECOM team, or written on a Post-it note® by the individual. The output from this process is collated in full in TN14 (AECOM, 2019c). Where the information was related to debris or other fallout from the fire, it has been extracted and included in Tables A1 - A3 in **Appendix TN05-A**.

Some overall observations of the debris records from the workshops included:

- More debris spanning a greater distance, was generally recorded to the north and west of the Tower.
- A fragment of debris was brought to the Thursday 25th April workshop by a resident of Silchester Road, 340m north-west of the Tower. The fragment was reported to have appeared close to the resident’s doorstep that morning, assumed to have dislodged from somewhere. A photo of the fragment is shown as Photograph 2 in **Appendix TN05-B**.
- It was suggested that undisturbed debris and ash would still be present on the flat roofs of residential blocks in the Mary Place / Avondale Park Road area. This may be the case for other managed blocks with flat roofs surrounding the Tower.
- Accounts of debris clearly observed falling and on the ground as far as Kensington Memorial Gardens, the Bowling Club and Little Wormwood Scrubs were received.
- An account of ash in air and a strong odour in Longstone Avenue Allotments, 3.7km to the north west of the Tower.
- A resident of Lancaster West with a balcony located approximately 100m to the south of the Tower noted that he did not observe debris on his balcony. However, he reported having spoken to others who had found debris on Dalgarno Gardens located approximately 1.1km to the northwest of the Tower.
- Many residents reported that debris in private gardens and surrounding non council owned flats, was cleared up by the residents themselves. This was then largely disposed of through routine council refuse collection.

3.4 Information from MHCLG

Email from MHCLG titled ‘Subject: FW: Grenfell Part 2A - Schools and Environmental testing’

Collated environmental testing concerns raised to MHCLG by local schools and nurseries are included in **Table TN14-01** of Technical Note 14 (AECOM, 2019c). The information relevant to identifying the distribution and fate of debris has been extracted and included in **Table TN05-02** below.

Table TN05-02. Environmental testing concerns relevant to debris raised to MHCLG by specific schools and nurseries

School	Environmental testing concerns raised
Avondale Park Primary and Nursery School	<ul style="list-style-type: none">• Had some debris from the fire.

School	Environmental testing concerns raised
Oxford Gardens Primary School	<ul style="list-style-type: none"> Concerns on soil, have blocked off the small grass area of the school which is next to renovation works.
Burlington Danes	<ul style="list-style-type: none"> Would like to be incorporated into the soil testing, debris was on the site in the immediate aftermath of the fire.
Barlby Primary School	<ul style="list-style-type: none"> High interest on environmental testing. The school is currently being taken down and replaced on site. On day of fire the school was consumed by smoke.
Kids on the Green	<ul style="list-style-type: none"> The forest school at Kids on the Green uses Westway Trust land, under the Westway They first became concerned when the Trust started digging up the land in October without notifying them – felt alarmed by this.
Kensington Aldridge Academy (KAA)	<ul style="list-style-type: none"> Adjacent to the tower Site, moved location for 17/18 academic year Playground resurfaced and topsoil on site replaced Commissioned its own testing. A summary of soil testing (MLM Group, 2019) was provided to AECOM, indicating soil in one raised planter was replaced due to polycyclic aromatic hydrocarbon concentrations. Following replacement, all soils were reported to be suitable for use at the school.
St Francis	<ul style="list-style-type: none"> Very Close proximity to the site. Debris and dust on the site. Cleaned the site themselves.

3.5 Additional Information from Exploratory Sampling Walkover

During the walkover to plan the exploratory sampling and the exploratory sampling activities themselves, further comments were provided by members of the community that observed these activities, including:

- Waynelete Square and Markland House – local resident reported that black charred debris fell across these areas.
- Bramley House – much debris fell, and various planters reported not to have had their soil changed. Soil beneath laurel hedge has not been touched since fire.
- Darfield Road – some flower beds and turfing were re-done in August 2018 therefore original soils affected by debris may no longer be present in these areas.
- Robinson House – much debris fell, the soil in the raised vegetable beds was meant to have been changed, however the residents (that were there during the walkover and works) were not convinced that it had been completed.
- Area between Testerton walk and Barandon Walk – much debris was reported to have fallen on the area.
- Portland Road community Kitchen Gardens – the gardening contractor for RBKC (Chris Edge Tree Care Ltd) reported that the soil within the growing beds has all been turned over.

4. Summary of Findings

4.1 Distribution of Debris

- Heavy debris mainly comprising metal and glass was restricted within approximately 10m to 20m distance from the Tower.
- Light debris, which appears to have mainly comprised black, charred foam-like material, was found at distances of 300m to 400m from the Tower in all directions.
- Debris beyond this distance was only reported in the quadrant to the north-west of the Tower – **Figure TN05-01** demonstrates this reported distribution.

- The furthest directly reported occurrence of debris from the fire was located at Little Wormwood Scrubs, approximately 1,200m to the northwest of the Tower. However, ash was reportedly observed falling on an allotment site located approximately 3.7km to the north-west of the Tower.

4.2 Fate of Debris

- Debris falling within the restricted Tower cordon was collected and disposed of by the management organisation, including the Police and Fire Services. Some debris has been retained by the Police as evidence for criminal inquiries. Further debris is currently stored in locked garages within the Tower cordon site, although this is in the process of being transferred off site for storage elsewhere.
- Debris falling on public highways and public areas and housing maintained by RBKC was removed through a combination of RBKC's normal refuse and street cleansing contractors (including additional waste collections implemented during the weeks after the fire) and the efforts of private individuals.
- Debris falling on private property was apparently cleared by private residents, businesses or property management organisations. Much of this debris would have been disposed through municipal waste disposal.
- Some debris is likely to remain in the area in accessible areas such as flat roofs, gutters, etc. This debris may periodically appear in public areas after being dislodged by rain, wind or other mechanisms (e.g. construction, animal activity)
- Soil is known to have been replaced at a number of locations (community kitchen gardens at Lancaster West and Whitstable House) and Kensington Aldridge Academy. Any small fragments of debris that had been present in the original soil would therefore have been removed and disposed of away from the site.
- Deep cleaning of residential properties has been completed by RBKC at more than 300 residences on the Lancaster West estate. Information of similar cleaning at other social housing is currently unknown as it would have been organised privately by the RSL.

5. Reference List

AECOM, 2019a. *Technical Note 6: Review of Met Office report on the modelling of smoke particulate dispersion and deposition*. London: AECOM.

AECOM, 2019b. *Technical Note 2: Protocol for evidence reviews*. London: AECOM.

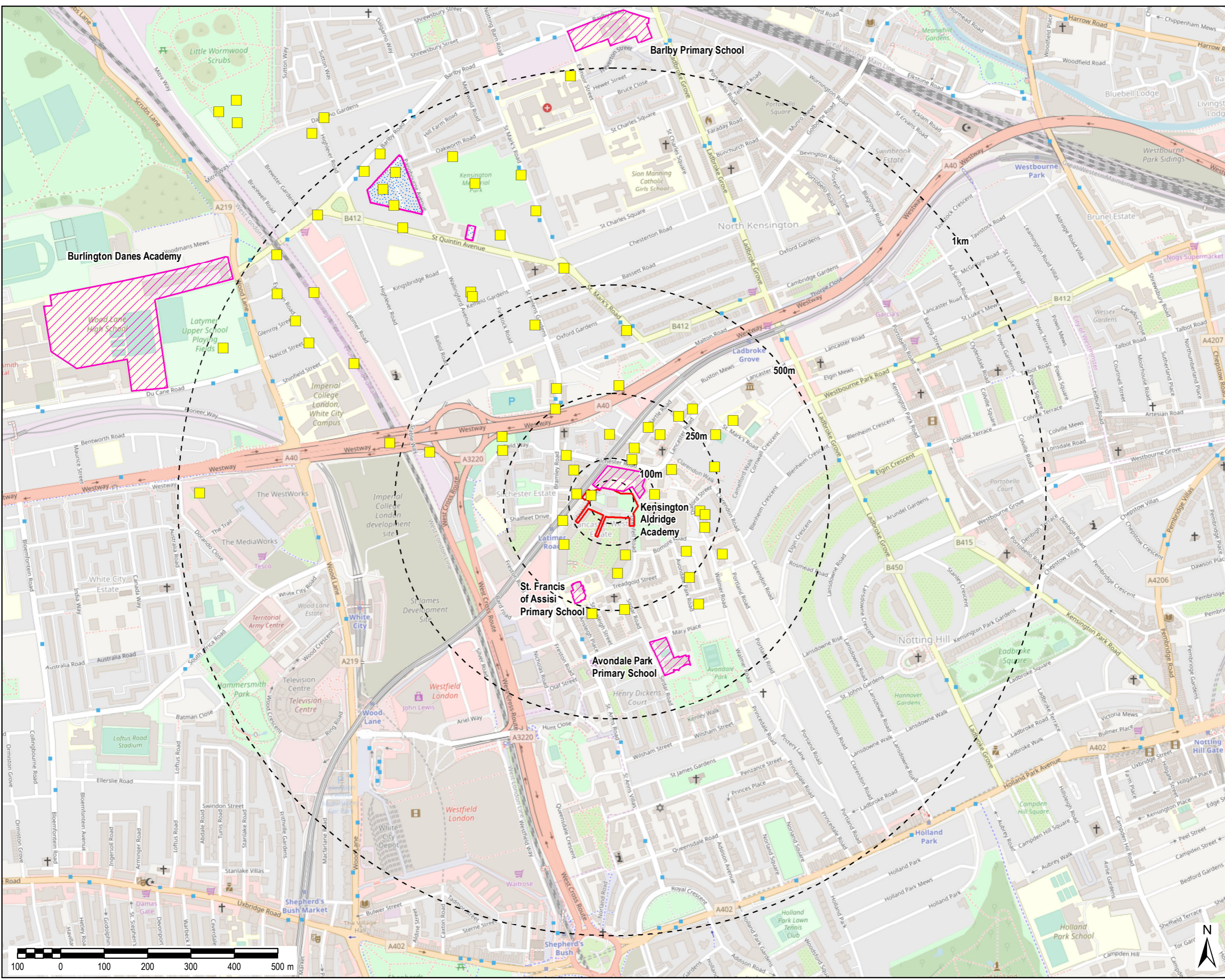
AECOM, 2019c. *Technical Note 14: Collated Community Information*. London: AECOM.

MLM Group, 2019. *Kensington Aldridge Academy, Technical Note: 777128-MLM-ZZ-XX-CO-J-0001*, London: MLM Consulting Engineers.

Figures

Figure TN05-01 – Reported Locations of Debris from Fire

File Name: \\ukwimf01\wimbedon-GIS\GIS\Projects\GCF (CONFIDENTIAL PROJECT)\6059573102_Maps\Figure 1 - Indicative Locations of Debris Found.mxd



THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

- LEGEND**
- Tower Cordon
 - Radial Distance from Tower
 - Indicative Locations of Debris Found Based on Community Workshops
 - Schools Directly Reporting Debris to MHCLG During Discussions
 - Other Areas of Debris Reported Directly to RBKC via Email

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Client
Royal Borough of Kensington & Chelsea

Project Title
GRENFELL PART 2A ASSESSMENT

Drawing Title
COMMUNITY ENGAGEMENT LOCATIONS WHERE DEBRIS WAS FOUND

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Appendix TN05-A Tables

Table A1 – Community Workshop 25th April – Detailed discussion regarding debris

Table A2 – Community Workshop 27th April – Detailed discussion regarding debris

Table A3 - Post-it® Note Comments - community feedback regarding debris

Table A1
Detailed Discussion Regarding Debris
Community Workshop - 25th April 2019

Recorder	Time	Address	Comment / Issue	Area of concern
David Dyson	14.50	Resident living in Lancaster West ~ 100m from the tower	Didn't notice debris on his balcony. Most fell straight down but noted he knew someone near bowling club who has found debris in their house	Debris
David Dyson	14.50	Opposite Methodist church	Very large burnt debris in garden area. Emailing photo to environmental-checks@communities.gov.uk	Debris
David Dyson	14.50	Little Wormwood Scrubs	Debris piece all the way from tower to Little Wormwood Scrubs a couple of days after fire	Debris
David Dyson	14.50	Wallingford Avenue backing Memorial Garden	Debris in the garden	Debris
David Dyson	14.50	Bramley House	Soil area that hasn't been touched. Largest piece 20- 30cm. Debris as far as little Wormwood Scrubs, also at memorial park. Said that lots of dogs and cats have died mysteriously. Hopes it isn't to do with contamination, but is concerned for children	Debris Health
David Dyson	14.50	Memorial Park	Should be tested - well used park by all ages Noticeable cinders and ashy particles falling e.g hot paper	Sensitive land use Debris Testing
David Dyson	14.50	not noted	Resident has their own air monitor and asking PHE why they sometimes see 'spikes' Explained by PHE that levels are typical of urban london and it does fluctuate due to various factors not related to the tower. Plume direction also observed towards the East	Smoke/Plume
Katie Bruce	15.00	Walkways and Bramley House	Debris & Moss was cleared (Nov 2018) from the roofs of building (Walkways & Bramley House)	Debris
Katie Bruce	15.00	Longstone Avenue Allotment NW10 3UE (2- 3 MILES NW OF TOWER) LB of Brent	6am morning after fire, could smell fire and could see ashes in the air	Smoke/Plume
Katie Bruce	15.20	### Highlever Road	Debris found in garden (would like/welcome sampling)	Debris
Simon Cole	16.00	Madland House	Not resident/affected. Debris was falling near Latimer Road station	Debris
Simon Cole	16.00	Morland House Resident	Considers Met Office plume is wrong. Plume was to NE not East.	Smoke/Plume

Table A1
Detailed Discussion Regarding Debris
Community Workshop - 25th April 2019

Recorder	Time	Address	Comment / Issue	Area of concern
Katie Bruce	16.20	West London bowling club, Historical bowling club (founded 1903)	1) Debris (lots) found on green 2) Bowling club gardens surrounding the green do not get treated with any chemicals 3) Fruit trees in garden area, plus wildlife area with foxes, toads, birds 4) Would like soil testing to be carried out here	Debris Testing
Katie Bruce	16.20	### Silchester Road (Debris Sample brought in)	New Debris still being found (on approximately a monthly basis). New piece of insulation from the cladding found on doorstep this morning would like to see testing in garden in ##### (6 properties) Immediately after fire x4 bin liners of cladding/insulation gathered some given to a group called ASH (Architect for social housing) rest left for council rubbish collection	Debris
Simon Cole	16.30	Lancaster West Resident	Report of debris fall out to north of Westway	Debris
Simon Cole	16.30	Member of bowling club	Report of smoke during fire in area of bowling club Lots of debris around bowling club. Ideal location for sampling. Cars all covered in dust. Also mentioned estate to north of bowling club.	Smoke/Plume
Simon Cole	18.00	Wesley Square and surrounding gardens	All affected by debris after the event (morning after) Housing co-operatives own housing noted residents cleaned up area themselves Local Councillor's name provided (as a home owner in area) - key contact for ongoing permission arrangements for sampling	Debris Health
not noted	not noted	Thomas Jones Primary School	Expedited testing at Thomas Jones Primary School (and would advise all schools in the vicinity). Justification: 300m vicinity of Grenfell tower Anecdotal evidence - strong burning smell and debris observed nearby during fire. Nature garden with children involved with planting, bee keeping etc.	Testing Debris Sensitive land use
Simon Cole		Resident of Ladbrooke Grove	8:00 - 8:30 morning after looking west toward tower, noted brown cloud. Noted brown cloud travelling slowly in northward direction across St Mary's Road. Cloud well above roof height. Very little wind, sunny day. Afternoon following day. Under Westway looking south to tower, west/ north corner of tower still smoldering with same brown smoke. No recollection of debris at Ladbrooke Grove under Westway towards tower.	Smoke/Plume

Table A2
Detailed Discussion Regarding Debris
Community Workshop - 27th April 2019

Recorder	Time	Address	Comment / Issue	Area of concern
David Dyson	11.00	Wesley Square Bartle Road Kingsdown Road (<i>suspected to be Kingsdown Close?</i>)	Grenfell Recovery Scrutiny committee councillor for Notting Dale (chair of the committee) would like to see similar examples of our work Wesley Square - private so no help clearing up. No idea of contamination. Council only cleared up Bartle Road and Kingsdown Road since (suspected to be Kingsdown Close?) - still filthy	Debris
David Dyson	11.00	Walmer Road	Resident on Walmer Road saw lots of debris falling ~ 5cm size. Used to be some raised bed planters but not used. Grass areas and flower beds around estate.	Debris
David Dyson	11.00	Colville Square Maxilla Walk	Colville Square resident didn't notice any smoke, fumes or debris even on night of fire. Maxilla Walk community garden soil not yet changed over Air monitoring not based on contaminants from source information i.e. debris Doesn't understand why we cant do sampling in one phase as we know what the debris source is, so should know what contaminants we are looking for. Background / history contamination why is this relevant? Thinks it would be deeper and contamination from fire would be very shallow.	Debris
Liz Philip	11.15	Bormer Road Willow Way Community Gardens, Bramley Road Nottingwood House	Cladding in gardens Bormer Road – back of houses onto the grassed areas in gardens. Willow Way community gardens – just off Bramley Road. Grenfell nursery sensitive land use, new location, very sensitive land use of concern. Nottingwood House has community gardens. Henry Dickens community gardens needs sampling. Hammersmith and Fulham have a leisure centre and community garden at Bramley Road – 3 Towers with open space.	Debris Sensitive land use Testing
Katie Bruce	11.30	Runcorn Place and Hesketh Place Nottingwood House	1) Would like to see all public open spaces, schools, parks, playgrounds tested 2) Flat roof which cannot be accessed by residents. It is a council owned block (between Runcorn Place and Hesketh Place) was used as temporary housing – suggested as good sampling place - there is a flat roof not open to public/residents (as a possible sample location) 3) Nottingwood House, green area not used by residents.	Debris Testing

Table A2
Detailed Discussion Regarding Debris
Community Workshop - 27th April 2019

Recorder	Time	Address	Comment / Issue	Area of concern
Katie Bruce	12.30	Eynham Road (W12)	Eynham Road (W12) (neighbouring borough OHA) lots of debris in aftermath, plus there is a strip of land between bottom of gardens (on east of road) and base of railway embankment used by residents especially children. Vegetables grown by many residents too. They would be happy for testing on this land and contact details were being given to MHCLG	Testing Sensitive land use debris
Liz Philip	13.00	Barrington Barlby Road	Inside flat and balcony of the flat debris got through, various flats never touched Barrington ### - balcony samples check soil and plants and inside. Community allotments Barlby Road, much debris landed by the large Sainsbury beyond the 1 km boundary Barrington Roof - cleaned November cleared of moss, and rubbish soils duty of care with disposal decontamination (spoke to Paul Nathanail) moss on building could still be checked? or buildings of walkway for cleaning	Debris
Katie Bruce	13.00	Near gas holder station, Ladbrook Grove	1) Would like to see all school playgrounds tested. 2) Suggested that an area just to the North of map, opposite the gas holder station, would be good to sample, area is TFL land and was the site of the Paddington Crash. Stated that the land has been relatively untouched since crash (in 1999).	Testing Sensitive land use
Lisa James	13.30		Area outside leisure centre - debris Wood (?) Lane, White city after the fire Whitsable House back full of debris - balcony Oxford Gardens Primary School Latimer Road North Pole Road Saw cladding - large piece around Wood Lane area	Debris
Katie Bruce	13.40	Upper Clarendon Walk (between end Clarendon Road and start of Dulford Street)	Debris on terrace on 3 rd and 4 th floor, was away at the time of the fire but on return gathered up debris and buried in troughs on terrace. Troughs used for flowers only.	Debris

Table A3 - Post-it® Note Comments:
community feedback regarding debris
25th April 2019

Barlby Road (near st Charles Hosp) Debris fell into x2 different gardens

I work on allotment in Brent - Longstone Ave - 2/3 km from fire. Morning after early strong smell of smoke + bits travelling in air. Would appreciate soil checks that extend into Brent & follow the plume

Debris in ### Willington Place

? Removing gardening waste/debris untouched since fire
- ACAVA?

Table A3 - Post-it® Note Comments:
community feedback regarding debris
27th April 2019

Debris found in Meanwhile Gardens - not on the map W10

Appendix TN05-B Photographs

Photograph 1 - Fragment of possible debris on the ground surrounding the Tower (2nd April 2019)

Photograph 2 – Fragment of possible lagging debris found by member of public on 25th April 2019 on
Silchester Road


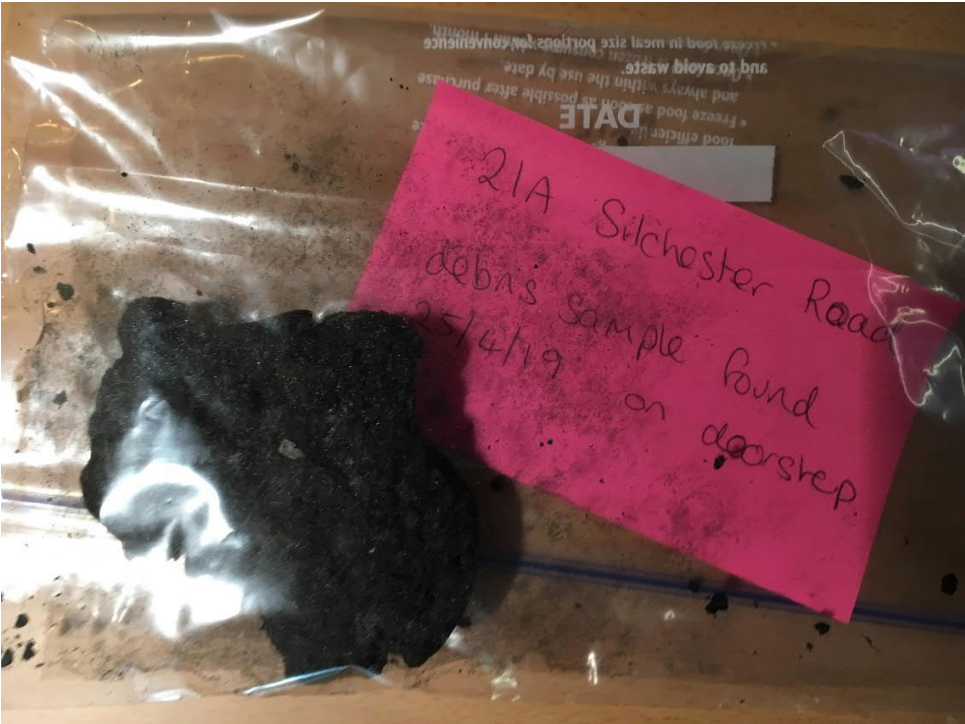
AECOM		Technical Note 5: Fate of debris – deposition, spread, clean-up		PHOTOGRAPHS	
Client Name: RBKC			Project: Grenfell Investigation into Potential Land Contamination Impacts		Project No. 60595731
Photo No. 1	Date: 02/04/2019				
Description Possible debris from Tower on floor within Tower cordon shown highlighted in red circle on the photo.					

Photo No. 2	Date: 25/04/2019	
Description: Debris brought in to Community Workshop by local resident who had found it in garden that day		

Appendix TN05-C Emails sent to RBKC with Debris Information

Location	Date received	Query
St Quintin's Community Kitchen Garden	30/10/2018	<p>I attended last night's meeting at the Hilton as a representative of the St Quintin's Community Kitchen Garden in St Quintin's avenue, around 500m from Grenfell as the crow flies. St Quintin's Kitchen Garden is the oldest and largest allotment site in RBK&C comprising around fifty 3sqm plots and over one hundred member gardeners.</p> <p>Although we have had two growing and harvesting seasons post the fire there has been a consistent level of anxiety among some plot-holders about possible soil contamination. A couple of days after the fire members bagged up the larger pieces of fire debris which had blown and landed among the allotments into several large bin-bags, however there must have been many smaller particles that landed on the plots and entered the soil.</p> <p>Given our concerns, the proximity of the site to Grenfell, and the direction of the wind during the fire, we would request that the soil from the site is included in the extended testing that is due to be carried out. We would be happy to give you any assistance that you require in implementing this.</p>
Barandon Walk	02/01/2019	<p>We look forward to hearing from you within 7 days as promised by Barry Quirk at the meeting.</p> <p>I am a resident of ### Barandon Walk. I live with my ##### who is ##years old. I have been very concerned about the toxins and the contamination of the soil and our environment that we have been exposed to it since the fire happened in Grenfell Tower and how it must have affected our bodies and health.</p> <p>My main concerns are:</p> <ul style="list-style-type: none"> - As the fire was happening we were not sleeping and as we are living on the top floor in Barandon Walk, we had our terrace door open and we were looking at the tower as the fire was happening, until we were evacuated at the early morning hours when it was still dark - As we were evacuated we were standing on the 'green' outside our block that is on Grenfell Road, and I remember the smell and the smoke that was surrounding us, and I actually remember if this smoke could cause us any health risks... - We then went for some help to the near church , St Clement, that is meters away from our block, but we stayed mostly outside, as having a dog , we were not allowed inside, - We stayed in this close area till around 3 pm, if I remember well, and we took a shelter at friend's flat living close to Avondale Park. I would return to the area around Grenfell Tower , staying around the church and speaking with people. On second day I came briefly to my flat to pick up my daughter's medicine , we forgot to take, and then on third day we were allowed back into our flat informed by a text message. We thought at the time that all of the residents were going to return, same as we did. We did not know of any hotel options then. - When we returned home, and on previous day, I could smell a strong smell that was kind of sweet and I could see that the air was not clean , it was not very smoky but it was kind of heavy and yellowish discolouration of the air. - I noticed that onto my terrace some ash particles were coming, and this was happening over weeks and weeks after the fire, but strongest would be within first days / weeks after - At some point I needed to wash some clothes bedding etc, and I dried them on my terrace..... - I asked the local office in the Baseline about the cleaning of our terrace, and I was told that is it only 'brush cleaned', so I did it myself - I took an offer of the curtains to be cleaned by the council, but I have blinds made of material that can not be cleaned, and I noticed that time after the fire they dramatically changed in colour, they were white before, or nearly white, then they got really yellow, with places of discolouration, and especially I noticed that in places where there

-
- may be rain or more air coming, being more exposed to it, they got more of this yellowish discolouration. I worry what toxins may got attached to it, and if, does it affect our health.
- After the fire, I noticed that our radiators for example got very yellow, and even after a wipe, I had to clean them again, as when I placed a cloth on top of them, it had yellowish marks. If there are still toxins in our home, like on walls, furniture, pictures, if they are not properly cleaned, and it is impossible to clean some items, could they when there is a moist air at home, or heat exposed, evaporate into air, and we are continuously breathing it in...touching it...
 - If any smoke went onto our dishes, plates, how did we suppose to know that everything had to be perfectly polished cleaned, if it looked clean but had residue of dioxins or cyanide, this may not show, but we could have taken it when eating, drinking etc
 - Our furniture, bedding, our books, clothes, all these could contain toxins
 - When I was cleaning my windows, I don't remember if I used gloves, and other dust places at home
 - My dog is small, I would be picking my dog from walks in the area, and on the terrace and the dog was touching the soil and the soil was on my hands
 - I would actually change some soil in my pots, some of them, and not always use gloves

There are probably more and more of my worries and concerns, or should I say, worries as in relation to the cause of my concerns, and what I can remember as I am writing this email.

As the effect of exposure and possible health risks, I have noticed that my health seems to be deteriorating, I have been feeling more sick then I used to before the fire, and there was a stage of a strange confusion and almost as looking at the world 'from outside' of myself, not being able to be myself in the first days , weeks after the fire. Knowing that toxins were found by the Professor A Stec, as the Guardian newspaper published, but we don't know when her results are coming, it is my great worry if this confusion that I felt soon after fire, not due to only stress, but lower levels of cyanide, asbestos, dioxins and maybe other toxins? Maybe the level was not strong to kill, but how could it affect our life to come, this is the worry.

Between other health issues, we have suffered the Grenfell cough with blood and extreme sore throat, achy body, headaches sinus issues and other related and I nearly fainted at the beginning on 2018.

Are our homes still with some left overs of the toxins, are we continuously breathing it in, touching it?

We did not get enough information and we were told that people with pets could not go to hotels. We were daily exposed to toxicity, from day ONE. If we knew there were toxins we would certainly not stay here, but insist on placing us somewhere, and as we did not want to separate from our dog , and place her into a shelter, we would first look at health risks, if we only knew...

I would like to ask the Health Council Representatives, Who has a power to decide, that once the specialist teams for the soil / environmental checks will be appointed , that they will also take samples from our homes, to see if any of the toxins actually affected our homes and possibly our health.

We really need any health screen also that could detect this toxins if they entered our bodies.

I would like to ask for if possible this soil tests to be done as soon as possible as this affects my health, I will not speak for all residents, but it affects my health, and even gives me nightmares. I would ask that my home to be one of the chosen for tests for toxicity.

I am very grateful for the council to be supportive in it and rest our worries and if any toxins residues would be found to help with advice how to make it toxin free etc...from our environment and our body system and health.

Appendix TN05-D Laboratory Test Results of Waste Firefighting Water

Sample number	B7224447
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Date:	29/06/2017
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Location:	Basement Firewater Grenfell Tower
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OGCM3 analysis (positively identified components)	Conc.	Units
cyclopentanone 120-92-3	31.11	ug/l
2-methyl cyclopentanone 120-72-5	22.41	ug/l
2-furanmethanol 98-00-0	18.95	ug/l
1-(2-furanyl)-ethanone 1192-62-7	22.93	ug/l
3-methyl-2-cyclopenten-1-one 2758-18-1	35.57	ug/l
phenol 108-95-2	42.88	ug/l
benzotrile 100-47-0	43.23	ug/l
2-ethyl-1-hexanol 104-76-7	33.19	ug/l
2,3-dimethyl-2-cyclopenten-1-one 1121-05-7	31.3	ug/l
2 methylphenol 95-48-7	35.02	ug/l
acetophenone 98-86-2	46.65	ug/l
unknown	26.5	ug/l
3-methyl-phenol 108-39-4	42.42	ug/l
2-methoxy-phenol 90-05-1	93.22	ug/l
unknown	19.85	ug/l
3,5,5-trimethyl-hexanoic acid 3302-10-1	244.62	ug/l
2,2,4-trimethyl-1,3-pentanediol 144-19-4	31.25	ug/l
2-ethyl-phenol 90-00-6	22.95	ug/l
benzoic acid 65-85-0	31.32	ug/l
1-(2-butoxyethoxy)-ethanol 54446-78-5	152	ug/l
2-phenoxy-ethanol 122-99-6	27.69	ug/l
p-cumenol 99-89-8	38.51	ug/l
unknown	37.59	ug/l
1-(2-butoxy-1-methylethoxy)-2-propanol 29911-28-2	17.41	ug/l
unknown	11.15	ug/l
unknown	16.51	ug/l
1,2-benzenedicarbonitrile 91-15-6	49.25	ug/l
4-ethyl-2-methoxy-phenol 2785-89-9	35.46	ug/l
2,3-dihydro-1H-inden-1-one 83-33-0	28.52	ug/l
benzenebutanenitrile 2046-18-6	84.22	ug/l
1(3H) - isobenzofuranone 87-41-2	16.5	ug/l
unknown	111.63	ug/l
2-(2-butoxyethoxy) ethanol acetate 124-17-4	23.24	ug/l
1,3,5-1,3,5-triazine-2,4,6(1H,3H,5H)-trione 827-16-7	28.76	ug/l
CAS 77-68-9	49.22	ug/l
unknown	13.68	ug/l
4-phenyl-morpholine 92-53-5	14.7	ug/l
apocynin 498-02-2	19.2	ug/l
unknown	10.91	ug/l
1-(4-hydroxy-3-methoxyphenyl)-2-propanone 2503-46-0	22.21	ug/l
unknown	12.71	ug/l
diethyl phthalate 84-66-2	23.73	ug/l
2-propanol, 1-chloro phosphate (3:1) 13674-84-5	212.55	ug/l
bis(1-chloro-2-propyl)(3-chloro-1-propyl) phosphate 137909-40-1	58.99	ug/l
unknown	12.41	ug/l
caffeine 58-08-2	16.23	ug/l
phthalic acid, 5-methylhex-2-yl isobutyl ester 1000371-09-1	13.62	ug/l
dibutyl phthalate 84-74-2	10.86	ug/l
3-[1-(4-cyano-1,2,3,4-tetrahydronaphthyl)] propanenitrile 57964-40-6	11.54	ug/l
4,4-(1-methylethylidene) bis-phenol 80-05-7	42.66	ug/l
2-butoxy-ethanol phosphate (3:1) 78-51-3	117.87	ug/l
CAS 23470-00-0	15.67	ug/l
bis(2-ethylhexyl) phthalate 117-81-7	13.39	ug/l
triacontane 638-68-6	26.24	ug/l
tetracosane 646-31-1	34.29	ug/l

OGCM3 analysis (positively identified components)	Conc.	Units
dotriacontane 544-85-4	52.34	ug/l
tetracosane 646-31-1	28.53	ug/l
tetracosane 646-31-1	24.31	ug/l
unknown	28.38	ug/l
2-EMD ug/l	0.264	ug/l
2-EDD ug/l	<0.020	ug/l

Please note, all unknowns analysis has a nominal limit of detection of 1µg/l and results are semi-quantitative

Asbestos Analysis	None Detected
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Analysis	Result	Units
Solids Settleable 105C	<10.50	mg/l
COD Settled	237	mg/l
Solids Suspended 105C	35	mg/l
Antimony mg/l	0.0765	mg/l
Chromium	<0.040	mg/l
Zinc	2.532	mg/l
Nickel	0.036	mg/l
Copper	0.297	mg/l
Cadmium	<0.015	mg/l
Lead	<0.015	mg/l
Silver	<0.005	mg/l
Arsenic mg/l	0.012	mg/l
Boron mg/l	0.52	mg/l
Iron mg/l	0.798	mg/l
Manganese mg/l	0.15	mg/l
Titanium mg/l	0.0054	mg/l
Aluminium mg/l	0.11	mg/l
Molybdenum mg/l	0.275	mg/l
Tungsten mg/l	0.0022	mg/l
Thalium	<0.0007	mg/l
Vanadium mg/l	<0.030	mg/l
Beryllium mg/l	<0.2	mg/l
Tin mg/l	<0.015	mg/l
Cobalt mg/l	0.02	mg/l

Sample Number 7314802

Date: 21/08/2017

Location: Basement Firewater/surface water Grenfell Tower

Analysis	Result	Units
Ammoniacal Nitrogen	<0.02	mg/l
pH On Site	7	
COD Settled	69	mg/l
Chromium	<0.040	mg/l
Zinc	0.51	mg/l
Nickel	<0.020	mg/l
Copper	<0.035	mg/l
Solids Suspended 105C	26.5	mg/l
2 EDD	<0.020	ug/l
2 EMD	<0.040	ug/l

