



# Project Flourish – Ladbroke Grove

Project Information Pack 2023





## CGL – Who are we?

CGL is a specialist geotechnical and geoenvironmental consultancy, delivering leading-edge services for a wide range of clients. CGL provides advice and design solutions on a broad spectrum of ground-related issues, working directly with site developers or their design and construction teams.

CGL's strengths are in its core engineering knowledge and holistic approach, incorporating both geotechnical and geoenvironmental expertise. CGL's deep understanding of ground and contaminant behaviour allows the company to give cost-effective advice to clients on complex site conditions.

As a result, CGL is a leader in its field, and its specialist services are used in a wide range of prestigious developments. These include high-rise commercial and residential developments as well as projects within energy, transport infrastructure and the public sector.

CGL's directors and senior engineers are involved in setting national standards for CIRIA and the Institution of Civil Engineers. Recent publications include:

- ICE Design and Practice Guides : Contaminated Land -investigation, assessment and remediation, 2<sup>nd</sup> (2008) and 3<sup>rd</sup> (2017) Editions

- ICE manual of Geotechnical Engineering, Chapter 48.- Geo-environmental Testing 1<sup>st</sup> Edition (2012), and 2<sup>nd</sup> Edition (due late 2023)

We have acted as Expert Witnesses in legal disputes on geotechnical and geoenvironmental issues.

CGL has won numerous awards since 2011 for its technical skill, approach to staff development, and inclusivity. Most recently, CGL won two Ground Engineering awards for Ground Investigation Project of the Year & UK Project with a Geotechnical value between £500k & £1m.

## Why have we created this information pack?

As specialists within the Geotechnical and Geoenvironmental industry, and having worked with Ballymore on several large remediation projects in and around London over the past decade, CGL has been asked to put together an information pack on the site and proposed development to help explain the site conditions and the remediation required and to assist in allaying fears regarding the redevelopment of what is a brown field site and former gas works and the associated local impacts.



## Proposed Development

The proposed development comprises the demolition of all current buildings and structures on-site followed by a comprehensive redevelopment to deliver a high-quality mixed-use new neighbourhood providing up to 2,519 residential units and non-residential floorspace comprising retail, commercial and community uses with associated infrastructure.

The development by Ballymore, in conjunction with Sainsbury's, who will retain a new flagship food store within the development (feature 12), is being undertaken across five plots. The works will be taking place in a phased approach to limit disturbance to the local residents and general public. A further Plot to the west of the site (feature 11) is being developed by Berkeley St William. Although the plots are under different ownership they will form part of a coordinated masterplan

As part of the redevelopment of the site, numerous areas of public realm landscaping and areas of open space are to be created (features 1,3,4,6,7,8) along with the re-opening of a currently infilled/buried canal basin in the centre of the site (feature 5). Not only will this enhance the redevelopment site, but it will increase greenspace within the surrounding area and will improve biodiversity and water access.

Community spaces are to include leisure facilities, a creche/playgroup space, sports centre and children's play parks (features 2,5,13).

Further improvements are proposed to the accessibility and transport systems (features 9, 10,14) and existing heritage features are to be retained. (Feature 8).



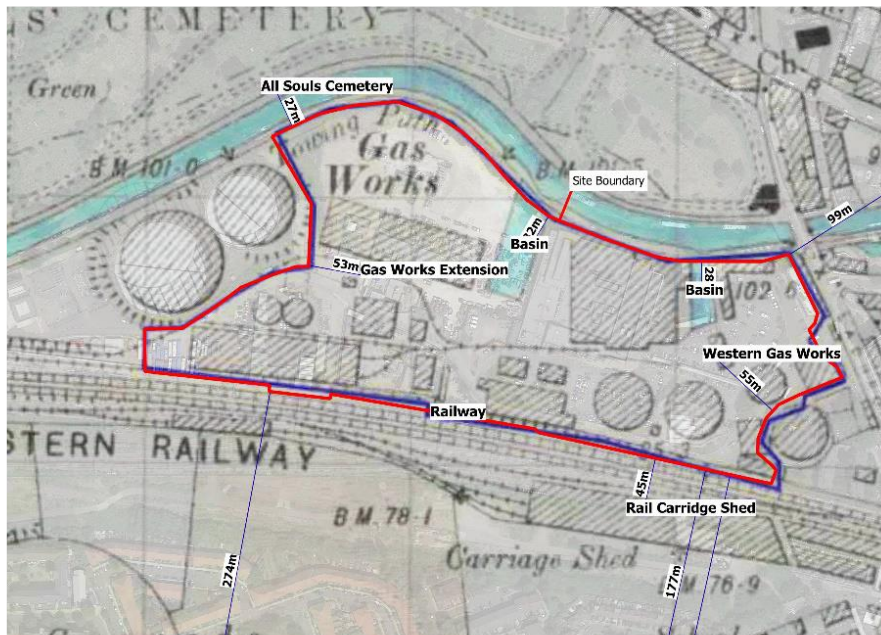
- |  |                                   |   |  |
|--|-----------------------------------|---|--|
| 1 Ladbroke Gardens                       | 5 West Basin with Spill-out Areas | 9 Improved Road Layout and widened footways | 13 New Sports Centre                             |
| 2 East Basin with Boathouse + Activities | 6 Canalside Park                  | 10 Lowered boundary wall                    | 14 Potential Future Pedestrian/Cycle Bridge Link |
| 3 Raingardens                            | 7 South Terrace                   | 11 Adjacent Development                     |  |
| 4 Pavilion Square                        | 8 Memorial Garden                 | 12 New Sainsbury Store                      |  |





## Site History

Historical records indicate that the eastern third of the site was occupied by the *Western Gas Works* from 1844. A canal (the *Grand Union Canal*) was present along the northern boundary of the site, and a railway (the *Great Western Railway – Paddington Branch*) along the southern boundary. Residential development in the surrounding area was limited to the east of the site, while the *All Souls Cemetery* (later renamed *Kensal Green Cemetery*) is situated to the north of the site, and open fields indicated beyond the railway to the south.



1951 1:10,560 scale mapping with features of interest

By 1895, the gasworks had expanded west across the footprint of the site and beyond and had been renamed *Kensal Green Gasworks*. As part of the expansion, two basins had been constructed in the north of the site to allow access to the canal from within the site and were presumably used to service the gasworks. It is also understood that Retort House No.1 (a 12-sided building in the east of the site) had been removed and an additional circular gas holder had been constructed. The surrounding areas during this time were converted from open land to predominantly residential areas with the occasional commercial/industrial property, including, of note the *Rail Carriage Shed* and *Printing Works* to the south of the site.

The site layout changed little over the operational years, although it is understood that the gas works were entirely rebuilt in the 1930's. As part of the rebuild, the south easternmost gas holder (just outside the site boundary) was removed, and a day nursery constructed in its place. Adjacent to the day nursery, *Kensal House* was constructed by the Gas Light and Coke Company (GLCC) to promote the use of gas within the home. This building remains (outside current site boundary) and is Grade II listed. The third retort house in the western area of the site was extended westwards in 1954.

The gasworks closed in 1970 as a result of Britain's conversion to natural gas from the North Sea, with the majority of the gas works infrastructure removed from the site by 1982. By 2001, the site had been partially redeveloped with the construction of *Canal Way* through the site with a Sainsbury's Food Store and yard area in the central northern area. The western canal basin was not mapped from 2010 and is assumed to have been infilled to accommodate the open storage yards in the western half of the site.

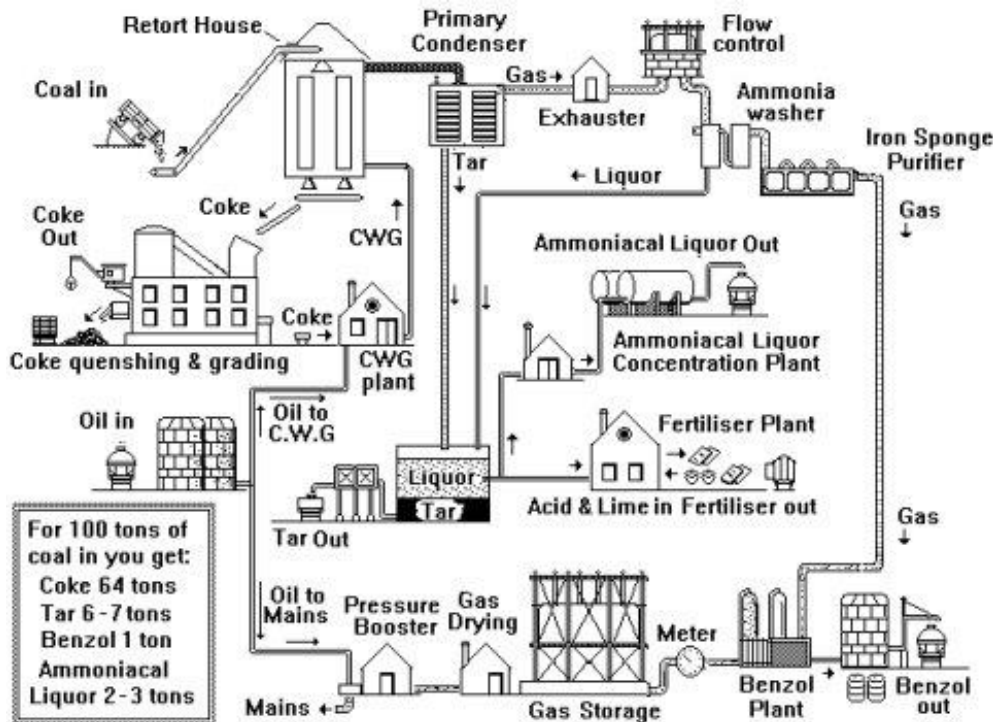
From 2010, the site and surrounding area have remained unchanged to the present day, with the exception of the activity centre and social housing built to the east of the site. *Canalside House*, formerly the gas works office remains as a mix of commercial offices and charitable uses. The remaining two *Kensal Green* gas holders to the east (off site within the *Berkley St William* development area) were demolished in March 2021.

## Gas Works – A General History

The below schematic illustrates the processing order of a large gas works like Kensal Green. Coal usually arrived via canal or train and was loaded into a Retort House where it was heated in an oxygen-less environment to release the gases. The gas travelled via pipework into condensers, while the coke produced was removed from the retort houses and sold as fuel to local residents and industries/factories.

During the condensing process, the waste product coal tar was produced. This was removed, again via pipework, into tar tanks where it was allowed to settle. The coal tar was removed from the tanks and sold to local industries, originally for road surfacing and as a wood preservative, and later used within chemical works and the cosmetic industry - remember 'coal tar soap' ?

Once the gas had been condensed, it was then pumped through an exhauster to an 'iron sponge' (aka Iron Oxide) filter beds to remove the hydrogen sulphide (a gas which smells like rotten eggs), before being subject to ammonia washing whereby.



the gas was bubbled through water to remove trace acids and nitrate including ammonia. The remaining liquid was called 'Ammoniacal Liquor'.

Ammoniacal Liquor was also decanted to holding tanks (sometimes in the tar tanks), while either awaiting removal from the site or for reprocessing within the gas works site. It is unknown if Kensal Green Gas Works re-processed the Ammoniacal Liquor on site. The gas would then be dried and pumped via a meter into the gas holder before it was then pumped into the gas mains.

It is known that a Carburetted Water Gas (CWG) plant was located on the Kensal Green site, which used some of the coke from the retort houses mixed with oil to help heat the new coal within the retort houses.

**The below image is an aerial photo of the Kensal Green Gas Works in 1938**  
[\[www.britainfromabove.org.uk/image/EPW058335\]](http://www.britainfromabove.org.uk/image/EPW058335)





## ***Investigation and Remediation Works – Pre CGL involvement***

The site was the subject of numerous previous desk studies, ground investigations and remediation work from 1996 to 2018 by several consultants for previous landowners/operators. CGL was provided with copies of the available reports to peer review as part of our works.

Previous investigation works generally inferred the western half of the site to be underlain by varying thicknesses of 'made' ground (ground composed primarily of a manmade mixture of soils and other materials), which generally increased from north to south of the site, underlain by the natural London Clay Formation.

A completion report of the enabling works by White Young & Green in 2003 split the western half of the site into three sections:

- Area 1 (north of Canal Way);
- Area 2A (southwest of Canal Way); and
- Area 3 (southeast of Canal Way).

Historically, Area 1 included a coal stocking area, retort houses, oil, liquor and tar tanks; Area 2A included purifiers, oil and liquor tanks, and administration buildings; Area 3 held purifiers, CWG plant, powerhouse, condensers and tar / other tanks.

Extensive ground investigation of the site identified typical gasworks contaminants in areas across the site. Recorded contamination is noted to be largely within the Made Ground and contained within former gasworks structures.

Remediation took place throughout 2002 across the western half of the site. This comprised removal of chemically impacted soils, importation of clay material to backfill excavations, construction of ground bungs and a clay collar around the cemetery sewers crossing through the site, construction of a 150m long clay cut off wall, and removal of water, silt and fish from the canal basin before installation of sheet piles and infilling.

The remediation was undertaken to a standard appropriate for the proposed 'commercial' end use at the time.

In the intervening years, additional investigations have been undertaken. While some contamination has been recorded, it has not been significant, indicating that the majority of the worst contamination previously located within the western half of the site, has been removed and dealt with already.

Previous investigation on the eastern half of the site (Sainsbury's) is understood to have not been possible due to the operational nature of that section of the site.



***Contractor photograph from the 2002 remediation of the western half of the site***

## *Investigation and Remediation Works - CGL*

CGL was commissioned by Ballymore to undertake a review of historic site investigation and remediation data and further ground investigation at Ladbroke Grove in 2021. The investigation was undertaken across the accessible areas of the entire site, including Sainsbury's carpark looking at the geoenvironmental and geotechnical characteristics of the site.

This is the first part of a phased investigation approach, which will be updated with further investigation and assessment when the site is cleared and vacant, such that safe access is possible for site investigation, based on detailed development plans.

The 2021 ground investigation comprised of 10 deeper boreholes, 11 trial pits and 19 shallow boreholes. This is the equivalent of one investigation location per 40m<sup>2</sup>.

Ground conditions encountered beneath the site were generally as expected, with Made Ground- recorded across the site to thicknesses of up to 5.3m over silty clays of the London Clay Formation. It is noted that the base of the London Clay Formation was not encountered during the ground investigation, although it is anticipated to be up to 80m in thickness in this location, based on British Geological Society (BGS) mapping in the area. The London Clay Formation is classed as an 'Unproductive Stratum' by the Environment Agency, i.e., it is not a source of groundwater or drinking water, and the site does not fall within a groundwater Source Protection Zone (SPZ). The London Clay Formation is considered to act as a natural impermeable barrier protecting the principal (chalk) aquifer at depth (100m below ground level) from possible residual gas works contamination.

From laboratory analysis of representative soils samples taken during the 2021 investigation, the identified contaminants of concern include metals, oil sand inorganics, typical of a former gasworks site.

A number of exploratory hole locations did not reach their target depths and some locations needed to be moved from their original planned locations due to limiting factors such as access constraints, buried obstructions and the presence of live utilities. There are also areas of the site that were unable to be investigated at the time due to the presence of existing infrastructure i.e., Sainsbury's superstore and petrol filling station. While this does mean that there is some potential for further

contamination to be present in the known areas not yet investigated, we do have a very good understanding of the contamination present at the site.

Additional investigation will be undertaken in these areas as each phase or plot becomes vacant, to fill in the knowledge gaps. Associated revisions will be made to the risk assessments, and if necessary, further remediation requirements will be incorporated into the Remediation Strategy that has already been produced for the site.

Currently remediation of the site is considered to comprise of:

1. Implementation of a watching brief and discovery strategy by the groundworks contractor
2. Implementation of environmental controls, and health and safety procedures to protect construction workers and local residents and adjacent users from potential risks associated with dust, vapours and nuisance odours.
3. Excavation of 'hotspots' (localised areas of high contamination). It is also noted that at certain times large discrete areas of the site will be excavated to facilitate the construction of basements. Excavated soils will be appropriately classified for off-site treatment or disposal and dealt with accordingly. (Off-site treatment is considered to be the most appropriate to expedite the works and minimise direct environmental impacts on nearby site occupants and local residents.)
4. Capping/ barrier layers will be required where low level contaminated soils remain below the new development, comprising either clean imported soft landscaping or hardstanding.
5. Barrier pipes for water supply pipes to prevent effects on drinking water.
6. Vapour protection measures are required in the area where oil contamination has been identified. However, the vapour risk is associated with the oil in the perched shallow groundwater and therefore if remediation is undertaken which removes the oil from hotspots, see item 3, this vapour risk may have been removed and would need to be reassessed.

## How the Impacts on Local Residents and the Public from Construction will be Minimised

In order to reduce the impacts from the remediation works and construction works on the site, additional mitigation measures are being implemented from the outset.

- *Boundary Establishment* - Once full possession of the site is granted, the boundary of the site will be established and a 2.4m high hoarding will be constructed around the perimeter of each plot when the appropriate plot is being built. The hoarding will stay fixed in position until completion of each section of the works and will be adapted as necessary for progressive handover and occupations. Hoarding will serve to demark the operational remediation and construction works.

Environmental Controls – Boundary and activity monitoring points for dust, noise, odour, and vibration will be set up and maintained throughout the development. Trigger limits and mitigation measures will be agreed in advance, which where appropriate, will include the pausing of operations to investigate the issue and implement mitigation as necessary.

- *Traffic Management* – It is proposed that heavy vehicle movements outside of the site boundary will be limited through restrictions on the number of vehicles, the operational times, and permitted routes through the local area. Prior to leaving site, all vehicles will pass through a wheel wash and muckaway trucks will be covered to prevent the potential spread of dust and contaminants along the transport routes.
- *Sustainable Approach* – Where soils require removal from the site, where possible, contaminated soils will be taken to an off-site Soil Hospital for treatment and re-use. In addition to lorries, as mentioned above, Ballymore will also utilise the canal and will remove some soils via barges. This will greatly reduce the number of lorries on the roads within the local area. To reduce emissions from plant on site and to limit exposure to contaminated soil, where possible, material handling will be limited to one event.



- *Community – Engagement and liaison* with the local community will be key to the development. The information / updates will be shared through leaflet drops, meetings, community events, pre-arranged site visits, and site notice boards. Ballymore will set up a public information web site & helpline number for the development..
- *Disruption* – The development will take place in phases, from west to east. Existing amenities and services will be maintained during the development, and works will take place on a plot-by-plot basis to minimise disruption and impact.
- Ballymore will be committed, visible, and accountable throughout the works.





## *Case Study of Successful Previous Works on a Contaminated site by Developer and CGL*

### **Royal Wharf, Silvertown, London**

From an industrial site immediately north of the River Thames with an extensive contaminative history including docks, chemical works, munitions factory, oil depot, box barrel and case works, dye works, transport warehouses, and an aluminium foil works to name but a few, to a new neighbourhood comprising over 3,500 new homes, extensive areas of landscaping, and new transport links.

Working with Ballymore, CGL undertook an extensive ground investigation across the site in 2013. Site wide contamination was identified within the soils and groundwater, and based on our risk assessments we were able to produce a comprehensive remediation strategy for the whole site based on an integrated phased plot by plot approach. Remediation included excavation and treatment of hotspots, pumping and treatment of groundwater, and stabilisation of soils.

From the start of the project, newsletters were distributed to neighbours to explain the works to be undertaken at the site. They included information on the progress of works with particular reference to potential offsite impacts and contact details for reporting. Environmental monitoring of dust (including asbestos reassurance monitoring), noise, vibration and vapours were undertaken by the contractors throughout the remediation works to demonstrate that workers and surrounding site occupants were not adversely affected by the remediation works.

This site won a 'Considerate Contractors Award' for Ballymore, recognising how they managed the works and prevented disruption and impact on the local residents.



## How will the Redevelopment progress?

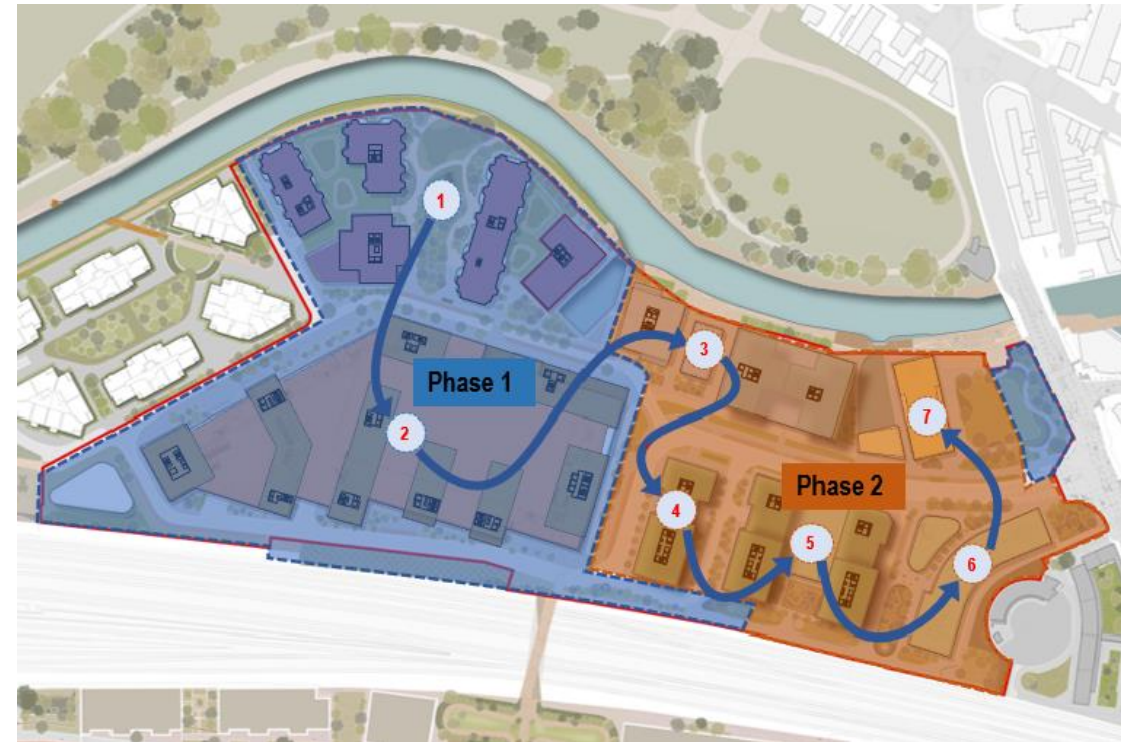
As presented within the infographic, redevelopment of the site is planned to be carried out in two primary phases; Phase 1 is situated to the west of the development and delivers the new food store, and includes a section of parkland on the eastern boundary, and Phase 2 comprises the remainder of the eastern half of the development.

The construction works are planned to commence with the construction of the new food store followed by sequential construction of the residential and apartment buildings within Phase 1, starting from the east of the site working towards the west. Once the new Sainsbury's food store is completed and open, demolition of existing food store and construction of Phase 2 will commence working progressively east.

It is anticipated that works will commence in 2026, starting with site establishment and any necessary surveys and investigations, followed by the enabling works for Phase 1 including demolition of the petrol filling station, site clearance, rerouting of the deep sewer, relaying of the high-pressure gas main, and installation of a new Network Rail access ramp and compound before the construction works commence.

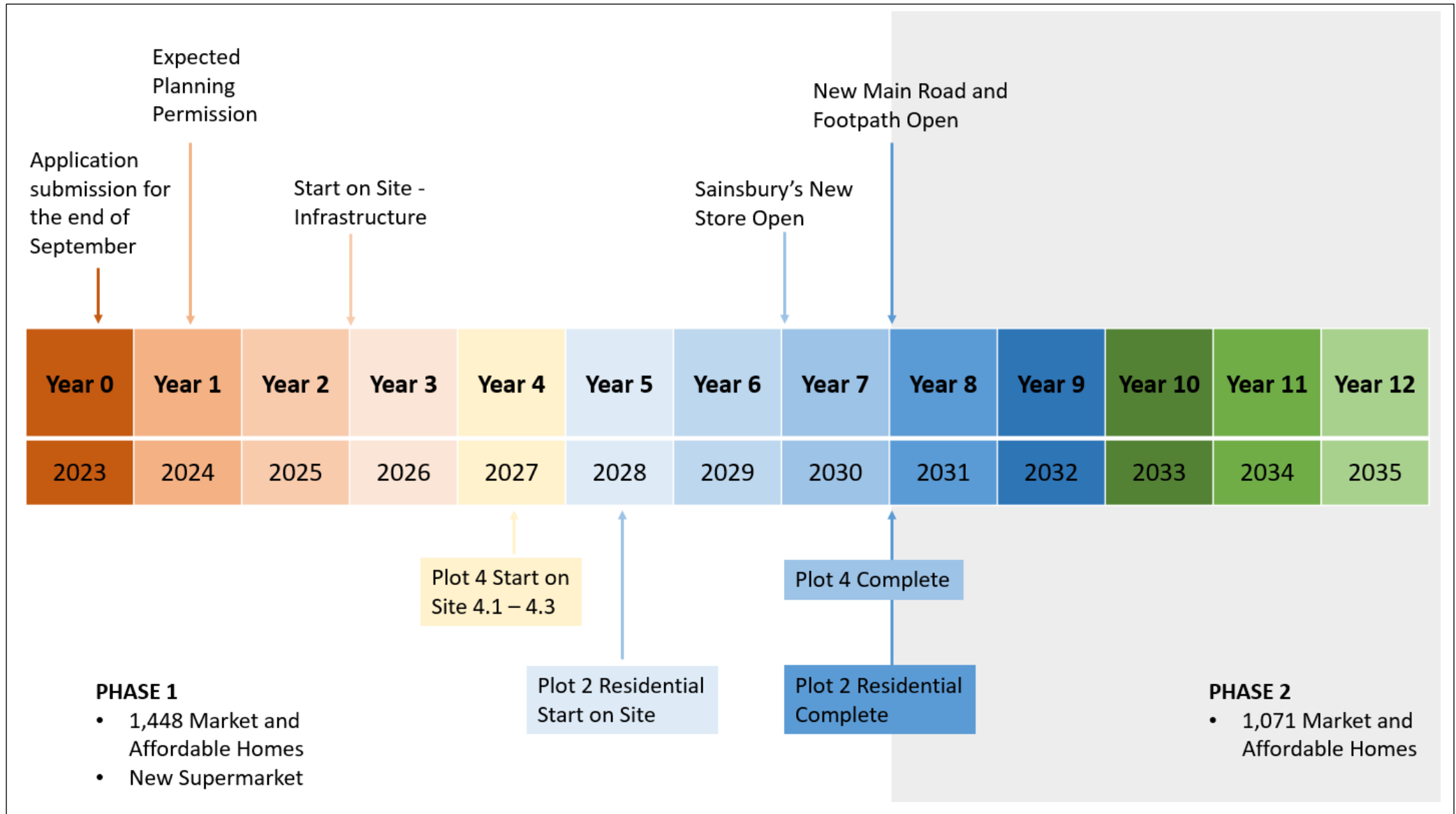
During enabling works the existing Sainsbury's food store will remain operational. However, the car park will be part closed and access adjusted to suit installation of the new gas main adjacent to the car park. The current food store delivery goods yard will also be moved to facilitate the commencement of works.

It is during the site establishment and enabling works that the bulk of the remediation required for the development will take place. The excavation and removal or treatment of impacted soils will be undertaken in a staged approach for each plot to minimise the exposure of the underlying soils and potential disruption and impact on local residents.





## How Long Will It Take?



## Rumours and Fake News

### Substances released at Southall site are 'threat to health'

What's New? > Contaminated Land

### The Southall Stench: Developer facing Legal Action over Remediation

### West London Residents Say They Have Been Poisoned by Developers Building on Toxic Site

#### Soil Cleaning causing Nuisance?

In early 2017, as part of the wider remedial methods used, work began on cleaning soils and removing contaminants in an open-air "soil hospital". The spoil has been allowed to bank up behind nearby residents' properties. This contains a variety of hydrocarbons including benzene, a known carcinogen, terpenes, naphthalene, plus asbestos and cyanide. In line with national policy on sustainability, Berkeley Group's agreed remediation strategy included cleaning the soil on site. They felt that it was safer than transporting contaminated material along roads.

### Campaigners 'to take legal action' after claims Southall Gasworks site 'caused cancer'

### Families hit out at London gasworks redevelopment

Everyone has seen the headlines relating to the redevelopment of the Southall Gas Works site (and others). Understandably, local residents in Southall had valid concerns surrounding the redevelopment. Due to the coverage in the press and the use of alarmist headlines, it is understandable that there are concerns amongst the general public that redevelopment of all former Gas Works sites and the actions of their developers, will be the same.

This is not the case with the Ballymore team and the redevelopment of the Kensal Green Gas Works.

Ballymore have 40 years' experience in dealing with large brown field sites and building on their successful track record and learning from redeveloping contaminated sites, are working with specialists to make sure the impact to the local residents and site users/occupants from the remediation and redevelopment is minimised, while also liaising with the local community and the Regulators including Royal Borough of Kensington and Chelsea, Canal and River Trust and the Environment Agency.

Ground investigations have been undertaken across the site and we know where the contamination is and where it is likely to be, based on the historical use of the site and investigations done to date. As explained in the sections above, we also know that at least half of the site has been remediated, albeit to a 'commercial land use' standard (as per its current use) rather than for a residential use. Treatment of soils will not take place on site within a 'soil hospital' as it was at Southall – there isn't the space for this to happen due to the processing of bioremediation and the development timescales. Soils requiring treatment will be removed from site via canal barge and/or lorries to appropriate facilities for off-site treatment.

In addition, this site will be remediated and redeveloped in phases, to avoid the 'wasteland' landscape, and associated exposure of contaminated soils with dust and odour nuisance.

Tight environmental controls will be implemented. Barrier monitoring for dust and nuisance odours will be installed around the working areas. Should unacceptable concentrations of dust or odours be recorded, works will cease and mitigation measures implemented.



## Benefits and Perspective – The Wider Picture

- Removal of a commercial/industrial eyesore, while creating over 2,500 much-needed new homes
- Private balconies, terraces and communal gardens for each plot
- New public realm landscaping accessible to our on-site residents, local community, and the general public.
- New play areas for children, including accessible and inclusive equipment.
- Creation of a canal basin.
- New Sainsbury's Food Store
- New shops and commercial avenues throughout the development to provide a range of services and everyday essentials.
- Creation of new employment opportunities within the commercial areas of the development.
- Creation of cycle paths and pedestrian walkways throughout the development to encourage sustainable transport.
- Improvements to existing highway infrastructure to improve safety.
- Provision of sports and leisure facilities.
- Increase in biodiversity across the site.
- Bringing a currently unsightly, contaminated brownfield site, into a beautiful, safe, functional place to live, work and visit.



If you have any comments or would like further information regarding the redevelopment of the site, please reach out using the contact details below.

**Email: [info@projectflourish.co.uk](mailto:info@projectflourish.co.uk)**

**Freephone: 0800 772 0475**

The development team at Ballymore want to hear from you if you have any questions or further concerns regarding the development, specifically around the contamination and proposed remediation aspects.

The contact methods above are intended to be inclusive to all local residents and interested parties, regardless of nationality, religion, first spoken language, or disability. If you require an interpreter or information to be provided in an alternative format, please contact us on the above and we will make the necessary arrangements.

**ballymore. Sainsbury's**

IN PARTNERSHIP