



Construction, Demolition & Environmental Management Plan

Proposed Strategic Housing Development on the former Player Wills site & undeveloped land owned by Dublin City Council at South Circular Road, Dublin 8

December 2020

GARLAND
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Description	Originator	Rev	Approval	Date
Draft Issue	BV	1 st	KR	2020/07/10
Draft Issue: Programme Update	BV	2 nd	KR	2020/09/08
Draft Issue: Content Update	BV	3 rd	KR	2020/10/13
Draft Issue: Content Update	BV	4 th	KR	2020/10/30
Final for Application Stage	BV	1 st	KR	2020/11/08
Final for Application Stage: Demolition Quantities Update	BV	A	KR	2020/11/09
Final for Application Stage: Phasing & Content Update	BV	B	KR	2020/11/26
Final for Application Stage: Project Description Update	BV	C	KR	2020/12/09

1. INTRODUCTION

The Construction Environmental Management Plan (CEMP) pertains to the Proposed Players Wills Strategic Housing Development on the former Player Wills site & undeveloped land owned by Dublin City Council at South Circular Road, Dublin 8. The proposed site layout is attached hereto in Appendix A. The CEMP entails the envisaged details of how the works will be managed and delivered in a logical sensible and safe sequence for the duration of the works on site. The CEMP defines the project specific measures to be implemented and procedures to be followed for the scope of the construction works. The plan will be managed and updated throughout the construction phase as required by the main contractor. It is intended that the revisions to this document will be circulated and agreed with Dublin City Council as additional details are incorporated. This plan must be read in conjunction with the Environmental Impact Assessment Report (EIAR) that accompanies the application and the Construction and Demolition Waste Management Plan (CDWMP) prepared by Barrett Mahony Consulting Engineers.

The CEMP is primarily prepared for the purpose of the contractor maintaining an approved environmental and management plan for the demolition and construction works.

2. PROJECT DESCRIPTION

DBTR-SCR1 Fund, a Sub-Fund of the CWTC Multi Family ICAV intend to apply to An Bord Pleanála for permission for a mixed-use Build to Rent Strategic Housing Development at the former 'Player Wills' site (2.39 hectares) and adjoining lands (0.67 hectares) under the control of Dublin City Council. A public park, public road and works to South Circular Road and to facilitate connections to municipal services at Donore Avenue are proposed on the Dublin City Council land. The former 'Player Wills' site incorporates Eircode's: D08 T6DC, D08 PW25, D08 X7F8 and D08 EK00 and has frontage onto South Circular Road, St. Catherine's Avenue and Donore Avenue, Dublin 8. The Dublin City Council undeveloped land adjoins the former 'Player Wills' site to the west and the former 'Bailey Gibson' site to the east. The total area of the proposed development site is 3.06 hectares.

The design rationale is to create and deliver a high quality, sustainable, residential led mixed use strategic housing development within this inner city brownfield site which respects its setting and maximises the site's natural attributes while achieving maximum efficiency of existing infrastructure. The Proposed Site Layout is illustrated on Drawing No. PL0003 contained within the architectural suite of drawings.

The development will consist of;

- i. the demolition of all buildings (15,454 sq.m GFA), excluding the original fabric of the former Player Wills Factory, to provide for the development of a mixed use(residential, community, arts and culture, creche, food and beverage and retail) scheme comprising predominantly build to rent apartment dwellings (492 no.) together with a significantly lesser quantity of single occupancy shared accommodation private living areas (240 no.), with an average private living floor area of 24.6 sq.m (double the minimum private living space size required for single occupancy shared accommodation) and a arts/culture/community hub within the repurposed ground floor of the former factory building;
- ii. change of use, refurbishment, modifications and alterations to the former Player Wills Factory building (PW1) to include the removal of 1 no. later addition storey (existing 4th storey) and the later addition rear (northern) extension, retention and modification of 3 no. existing storeys and addition of 2 no. storeys set back on the building's south, east and west elevations with an 8-storey projection (max. height 32.53m) on the north eastern corner, with a cumulative gross floor area of 17,630 sq.m including ancillary uses, comprising;
 - a. at ground floor 852 sq.m of floor space dedicated to community, arts and cultural and exhibition space together with artist and photography studios (Class 1 and Class 10 Use), 503 sq.m of retail floor space (Class 1 Use), 994 sq.m of café/bar/restaurant floor space, 217 sq.m of co-working office floor space (Class 3 Use) and ancillary floor space for welfare facilities, waste management and storage;
 - b. 240 no. single occupancy shared accommodation private living areas, distributed over levels 1-4, including 2 no. rooms of 30 sq.m, 49 no. rooms of 25 sq.m; 14 no. rooms of 23 sq.m, 58 no. rooms of 22.5 sq.m, 8 no. rooms of 20 sq.m, 104 no. rooms of 19 sq.m and 5 no. disabled access (Part M) rooms (3 no. 32 sq.m and 2 no. 26 sq.m); 21 no. kitchen/dining areas, and, 835 sq.m of dedicated shared accommodation services, amenities and facilities distributed across levels 1-4, to accommodate uses including lounge areas, entertainment (games) area, 2 no. external terraces (Level 03 and 04), laundry facilities, welfare facilities and waste storage;
 - c. 47 no. build-to rent apartments distributed across levels 1-7 including 12 no. studio apartments; 23 no. 1 bed apartments, 8 no. 2 bed apartments: and, 4 no. 3-bed apartments;
 - d. 1,588 sq.m of shared (build to rent and shared accommodation) services, amenities and facilities including at ground floor reception/lobby area, parcel room, 2 no. lounges

- and administration facilities; at Level 01 entertainment area, TV rooms, entertainment (games room), library, meeting room, business centre; at Level 02 gym and storage and at Level 07, a lounge area.
- e. Provision of communal amenity outdoor space as follows; PW1 - 450 sq.m in the form of roof terraces dedicated to shared accommodation and 285 sq.m roof terrace for the proposed apartments .
 - f. a basement (190 sq.m) underlying the proposed 8-storey projection to the northeast of PW1 to accommodate plant.
- iii. the construction of 445 no. Build to Rent apartment units, with a cumulative gross floor area of 48,455 sq.m including ancillary uses distributed across 3 no. blocks (PW 2, 4 and 5) comprising;
- a. PW2 (45,556 sq.m gross floor area including ancillary uses) - 415 no. apartments in a block ranging in height from 2-19 storeys (max. height 63.05m), incorporating 16 no. studio units; 268 no. 1 bed apartments, 93 no. 2 bed apartments and 38 no. 3-bed apartments. At ground floor, 2 no. retail units (combined 198 sq.m) (Class 1 use), and a café/restaurant (142 sq.m). Tenant services, amenities and facilities (combined 673 sq.m) distributed across ground floor (lobby, mail room, co-working and lounge area), Level 06 (terrace access) and Level 17 (lounge). Provision of communal amenity open space including a courtyard of 1,123 sq.m and roof terraces of 1,535 sq.m
 - b. Double basement to accommodate car parking, cycle parking, waste storage, general storage and plant.
 - c. PW4 (1,395 sq.m gross floor area including ancillary uses) - 9 no. apartments in a part 2-3 storey block (max. height 10.125m) comprising, 2 no. 2-bed duplex apartment units and 7 no. 3-bed triplex apartment units. Provision of communal amenity open space in the form of a courtyard 111 sq.m
 - d. PW5 (1,504 sq.m gross floor area including ancillary uses) - 21 no. apartments in a 4 storey block (max. height 13.30m) comprising 12 no. studio apartments, 1 no. 1-bed apartment, 5 no. 2-bed apartments, and 3 no. 3-bed apartments. Provision of communal amenity space in the form of a courtyard 167sq.m. Provision of communal amenity open space in the form of a courtyard 167 sq.m
- iv. the construction of a childcare facility (block PW4) with a gross floor area of 275 sq.m and associated external play area of 146 sq.m;

- v. the provision of public open space with 2 no. permanent parks, 'Players Park' (3,960 sq.m) incorporating active and passive uses to the northwest of the former factory building on lands owned by Dublin City Council; 'St. Catherine's Park' (1,350 sq.m) a playground, to the north east of the Player Wills site adjacent to St. Catherine's National School. A temporary public park (1,158 sq.m) to the northeast of the site set aside for a future school extension. The existing courtyard (690 sq.m) in block PW1 (former factory building) to be retained and enhanced and a public plaza (320 sq.m) between proposed blocks PW and PW4.
- vi. 903 no. long-stay bicycle parking spaces, with 861 no. spaces in the PW2 basement and 42 no. spaces at ground level in secure enclosures within blocks PW4 and PW5. 20 no. spaces reserved for non-residential uses and 110 no. short-stay visitor bicycle spaces provided at ground level.
- vii. 4 no. dedicated pedestrian access points are proposed to maximise walking and cycling, 2 no. from South Circular Road, 1 no. from St. Catherine's Avenue and 1 no. from Donore Avenue.
- viii. in the basement of PW2, 148 no. car parking spaces to serve the proposed build to rent apartments including 19 no. dedicated disabled parking spaces and 6 no. motorcycle spaces. 20 no. spaces for a car sharing club ('Go Car' or similar). 10% of parking spaces fitted with electric charging points.
- ix. in the basement of PW2, use for 81 no. car parking spaces (1,293 sq.m net floor area) including 5 no. dedicated disabled parking spaces, 3 no. motorcycle spaces and 10% of parking spaces fitted with electric charging points to facilitate residential car parking associated with future development on neighbouring lands. The area will not be used for carparking without a separate grant of permission for that future development. In the alternative, use for additional storage (cage/container) for residents of the proposed development.
- x. 37 no. surface level car parking spaces including 3 no. disabled access and 3 no. creche set down spaces and 10% fitted with electric charging points. 2 no. loading bays and 2 no. taxi set-down areas.
- xi. development of internal street network including a link road (84m long x 4.8m wide) to the south of the proposed 'Players Park' on land owned by Dublin City Council that will provide connectivity between the former 'Bailey Gibson' site and the 'Player Wills' site.
- xii. vehicular access will be provided via Donore Avenue with a one-way exit provided onto South Circular Road to the east of block PW1(the former factory building);

- xiii. replacement and realignment of footpaths to provide for improved pedestrian conditions along sections of Donore Avenue and South Circular Road and realignment of centreline along sections of Donore Avenue with associated changes to road markings;
- xiv. a contra-flow cycle lane is proposed at the one-way vehicular exit to the east of PW1 (former factory building) to allow 2-way cycle movements via this access point;
- xv. decommissioning of existing 2 no. ESB substations and the construction of 2 no. ESB substations and associated switch rooms, 1 no. single ESB substation in PW 1 (43.5 sq.m) and 1 no. double ESB substation in PW2 (68 sq.m);
- xvi. the construction of a waste and water storage building (combined 133 sq.m, height 4.35m) to the west of building PW1;
- xvii. all ancillary site development works; drainage, rooftop solar photovoltaics (20 no. panels total), landscaping, boundary treatment and lighting.



Figure 1: Google Screenshot – Player Wills Development Site & Southern Park Site (Red) and DCC, Bailey Gibson and Player Wills Masterplan Area (Red and Black).

3. PROJECT PARTICIPANTS

Table 1: Project Participants.

Participant	Company	Contact	Details
Client	DBTR-SCR1 Fund, a Sub-Fund of the CWTC Multi Family ICAV	Garry Corrigan	Garry.Corrigan@hines.com
Architect	Henry J Lyons	Brian Feely	Brian.feely@hjlyons.com
Project Management	Virtus Project Management	Jason Cronin	jason.cronin@virtuspm.ie
Planning Consultant (EIAR)	McCutcheon Halley Planning	Paula Galvin	pgalvin@mhplanning.ie
Civil & Structural Engineers	Barrett Mahony Consulting Engineers	Stephen O'Connor	soconnor@bmce.ie
Mechanical & Electrical Engineers	O'Conner Sutton Cronin	Francis McNulty	Francis.McNulty@ocsc.ie
Cost Management	Linesight	Brian McCay	Brian.McCay@linesight.com
PSDP	GARLAND	Arran Ankers	arran.ankers@garlandconsultancy.com
Conservation Architect	David Slattery Conservation Architects	James Slattery	slatcon@iol.ie
Traffic Engineer	Systra	Andrew Archer	aarcher@systra.com
Ecologist	Brady Shipman Martin	Matthew Hague	matthague@bradyshipmanmartin.com
Environmental & Hydrogeological Consultant	O'Callaghan Moran Associates	Sean Moran	sean@ocallaghanmoran.com
Contractor	T.B.C		

4. WORKS PROPOSAL

4.1 Construction Schedule & Phasing

The preliminary construction programme is 42 months and 2 weeks. Project commencement date is estimated to be 04 May 2021 & completion date 03 December 2024. The duration of the procurement process will influence the commencement & completion dates and therefore these dates are only indicative. The construction works are programmed & phased as tabulated in **Table 2** below.

Table 2: Construction Phases Duration.

Construction Phase	Description of Works	Approximate Duration	Estimated Completion Date
1	Structural Demolition	≈ 3 months	04 Aug 2021
	Site Setup	≈ 7 months	03 Dec 2021
	Lay Drainage for Initial Road N&E of PW1	≈ 1.5 months	24 Jun 2021
	Construct Road East of PW1 only	≈ 2 months	25 Aug 2021
	Lay Drainage in Players Park	≈ 1.5 months	21 Jul 2021
	Lay main Drainage Remainder	≈ 1.5 months	23 Aug 2021
	Construct Attenuation Tank	≈ 1.5 months	12 Aug 2021
2	PW2: Basement Works	≈ 36 months	18 Jul 2023
3	PW1: Ground + 8 Storeys + Roof	≈ 27 months	04 Mar 2024
4	PW2: Ground + 18 Storeys + Roof	≈ 30 months	12 Jul 2024
5	Players Park	≈ 9.5 months	12 Jul 2024
	PW4: Ground + 3 Storeys + Roof (Inclusive of Creche & St. Catherine's Park)	≈ 16.5 months	12 Nov 2024
	PW5: Ground + 3 Storeys + Roof	≈ 16 months	03 Dec 2024

The Construction Phasing Plans is attached hereto in Appendix B. The proposed new construction works will consist of the following principal elements:

- ❖ Demolition of existing buildings.
- ❖ Removal of existing services.
- ❖ Site strip and basement bulk excavation.
- ❖ Excavation of new foundations.
- ❖ Construction of the new reinforced concrete buildings.

- ❖ Mechanical & Electrical installations
- ❖ Cladding and fit-out works.
- ❖ Buried site services installation and connection to public services.
- ❖ Soft & hard landscaping, roads and footpaths.

It is envisaged that the construction programme of Player Wills will overlap with the construction works on Bailey Gibson from May 2021 until March 2023. The duration of the overlap is susceptible to change as it is dependent on the actual commencement and completion dates of both projects.

4.2 Working Hours

Construction operations on site will be between the hours of 8am and 7pm, Monday to Friday, and 8am to 1pm on Saturdays, subject to Planning Authority limitations. However, it may be necessary for some construction operations to be undertaken outside these times, for example; connections to public service systems or utilities. Such works will be agreed in advance with Dublin City Council. No activities shall take place on site on Sundays or Bank Holidays.

Works that may be excessive in noise sensitive locations will be risk assessed and scheduled to take place between defined times in consultation with adjoining businesses/residents, where at all possible. Furthermore, all other alternatives will be considered and exhausted before works that are noise sensitive are permitted to be executed outside the agreed hours of works.

Similarly, deliveries of materials, plant or machinery to site will be restricted to between the hours of 8am and 7pm, Monday to Friday, and 8am to 1pm on Saturdays, subject to Planning Authority limitations. These deliveries will be sequenced '*just in time*' to ensure that their arrival and departure times have minimal interference with residents and businesses. Deliveries will not be permitted to queue on public roadways. If it becomes a requirement to stage vehicles, it will only be coordinated at a designated holding area, located on the adjacent land also owned by the developer. Deliveries would arrive at a steady rate during the day. It is estimated that peak delivery rates would be in the region of 3-4 per hour throughout the day.

The main construction activities will be coordinated to ensure construction traffic will have limited impact on the traditional peak periods of 8am-9am in the morning and 5pm-6pm in the evening. Deliveries to site in the peak periods will be limited to mitigate the impact of construction traffic on the community.

On-site employees will generally arrive before 08:00, thus avoiding the morning peak hour traffic. These employees will generally depart after 18:00.

4.3 Access

The primary vehicular access to site is through two entrances located on South Circular Road and Donore Avenue, primary site egress is located on South Circular Road. **Figure 2** below depicts the site access points on South Circular Road and Donore Avenue on the vehicle tracking on the main haul route during the planned construction phase no. 10. Staff vehicle, pedestrian, and bicycle access will be located on Donore Avenue with a secondary pedestrian and bicycle access points on South Circular Road. Only one directional flow of construction traffic will be permitted during the construction period. It should be noted that the hauling route layout is linked to the project phasing and will change as construction works progress, refer to Appendix C for full vehicle tracking over all the construction phases of the project.

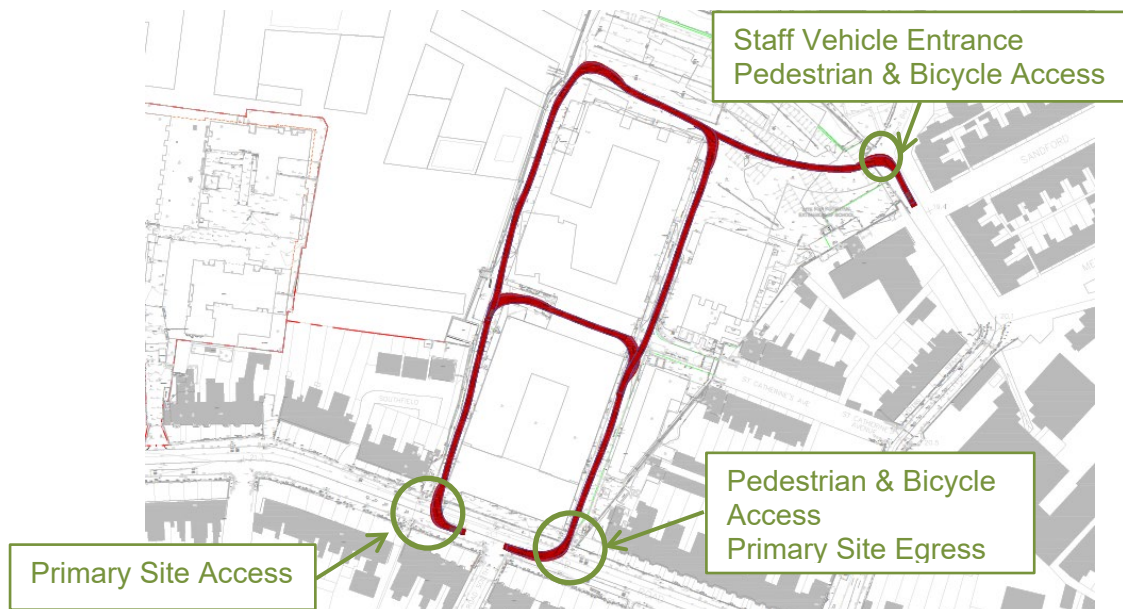


Figure 2: Hauling Route Phases 4,5 & 6 (Systra Vehicle Tracking)

To control potential construction traffic incidents on site, pedestrians and vehicles will be permitted to circulate safely on site. Pedestrian routes will be segregated from vehicle routes as per the Site Construction Management Plan (SCMP), developed by the main contractor to conform with this CEMP and all planning requirements. There will be at least two dedicated pedestrian access gates, one located in South Circular Road, one on Donores Avenue. The SCMP will include details of timing and routing of construction traffic to and from the construction site and associated directional signage, to include proposals to facilitate the delivery of abnormal loads to the site.

Automated vehicular spray booths or equivalent provision must be located at the site egress locations to mitigate dust nuisances. Controlled access points to the site, in the form of gates or turnstiles, will be maintained locked when unattended.

4.4 Site Establishment Works

The contractor will be responsible for site establishment which will include, but not be limited to, the following:

- ❖ Permanent and / or temporary hoarding,
- ❖ Establish the site compound for the storage of all site machinery and materials,
- ❖ Setting up of access control points i.e. turnstiles, security booths,
- ❖ Dedicated cycle & walkways are to be cordoned off on public roads around the site by the contractor to ensure the safety of the public whilst using the roads.
- ❖ Erection of signage.

The contractor is required to consult records and drawing to establish the location of existing buried services / utilities, prior to commencement of construction works. In the event that it is required to disconnect services / utilities during construction for a period, temporary provisions will be provided to the affected parties i.e. households, businesses etc.

4.5 Site Construction Compound

All construction support activities and facilities will be controlled within the confines of the site construction compounds located within the Player Wills site and/or the adjacent DCC lands, as identified on **Figure 3** below. All temporary facilities and utilities will be designed to increase productivity and safety and to maximise utilisation. The site construction compounds will consist of but not limited to:

- ❖ Appropriate spatial provisions for waste management segregation,
- ❖ Adequate materials drop-off and storage areas,
- ❖ Internal turning areas for trucks,
- ❖ Limited dedicated staff and visitors parking within the confines of the site hoarding perimeter,
- ❖ Site offices, site welfare facilities, canteen, drying room, toilets, etc.
- ❖ It is not anticipated cooking facilities will be available on site. Adjacent local businesses include delicatessen, super-market, cafe and restaurant.
- ❖ Spill kits shall be maintained available in strategic locations to mitigate any potential spills.
- ❖ Site Safety and Inductions Rooms will be provided as part of the site construction facilities.

The site compound will allow for appropriate spatial provision for waste management segregation, logistical deliveries, and day to day contractor parking. All construction material and waste material storage and handling will be within the confines of the site and the adjacent grounds owned by the developer. **Figure 3** below illustrates the proposed compounds located on the Player Wills site; refer to Appendix D for the complete layout.

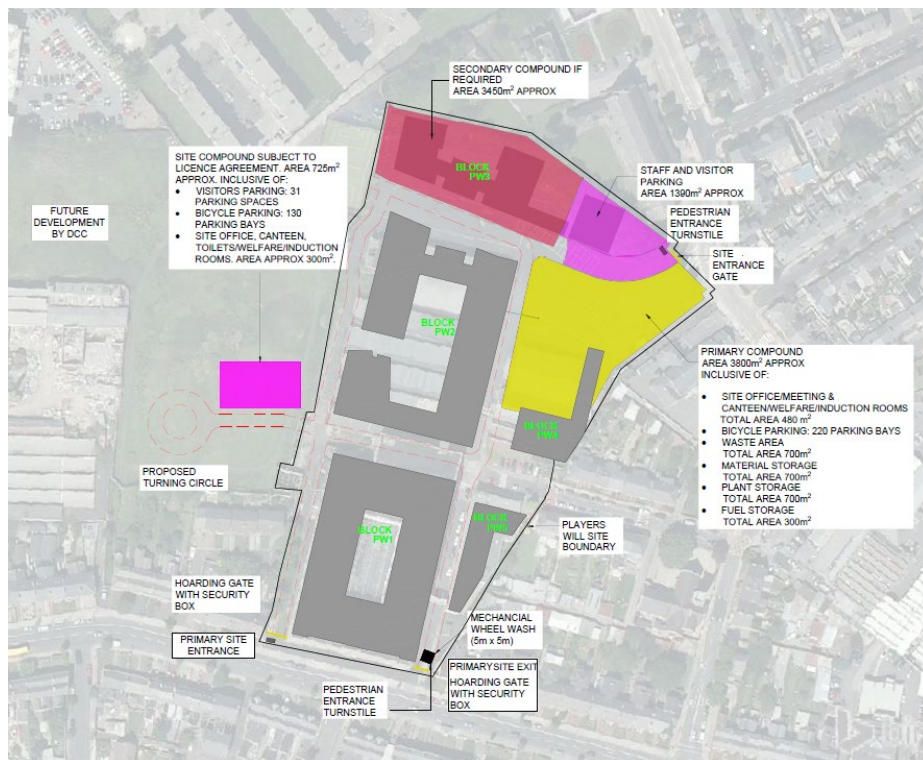


Figure 3: Site Construction Compound

Details of Primary Compound:

- ❖ Total Area: 5 190m²
- ❖ Staff & Visitor Parking Area: 1 390m² (120 Parking Bays)
- ❖ Bicycle Parking: 185m² (220 Bicycle Bays)
- ❖ Waste Area: 700m²
- ❖ Materials Area: 700m²
- ❖ Fuel Storage: 300m²
- ❖ Site Office/Meeting Room/Welfare/Induction Rooms: 480m²
- ❖ Plant Storage: 700m²

Details of Compound Subject to Licence Agreement:

- ❖ Total Area: 725m² (Visitors Parking + Bicycle Parking + Site office & Welfare)
- ❖ Visitors Parking Area: 357m² (30 Parking Bays)
- ❖ Bicycle Parking: 110m² (130 Bicycle Bays)

- ❖ Waste Area: 375m²
- ❖ Materials Area: 375m²
- ❖ Site Office & Welfare: 363m²

Signage will be erected at all site access points, across the entire site as well as on strategic location to inform all staff and visitors on-site of the required Personal Protection Equipment (PPE) and associated risks when entering the construction site. Construction staff and visitors parking will clearly be indicated by signage, the signage must be located on each road frontage to direct newcomers to the onsite parking area. The site signage will assist first time visitors, operatives or delivery drivers on where they are, where they are going, where they cannot go and where other items are located. Well drawn site plans must be used to convey the order on site to all visitors.

The site will be maintained secure and unauthorised access will be strictly prohibited. Where practicable, the original site boundary wall will be retained. Additional perimeter hoarding will be erected, where required, to restrict unauthorised access to the demolition/construction area. **Figure 4** below illustrates the hoarding perimeter for Player Wills Site. Controlled access points to the site, in the form of gates or turnstiles, will be maintained locked when unattended. Perimeter hoarding will include one square metre area on each road frontage detailing site management contact details.

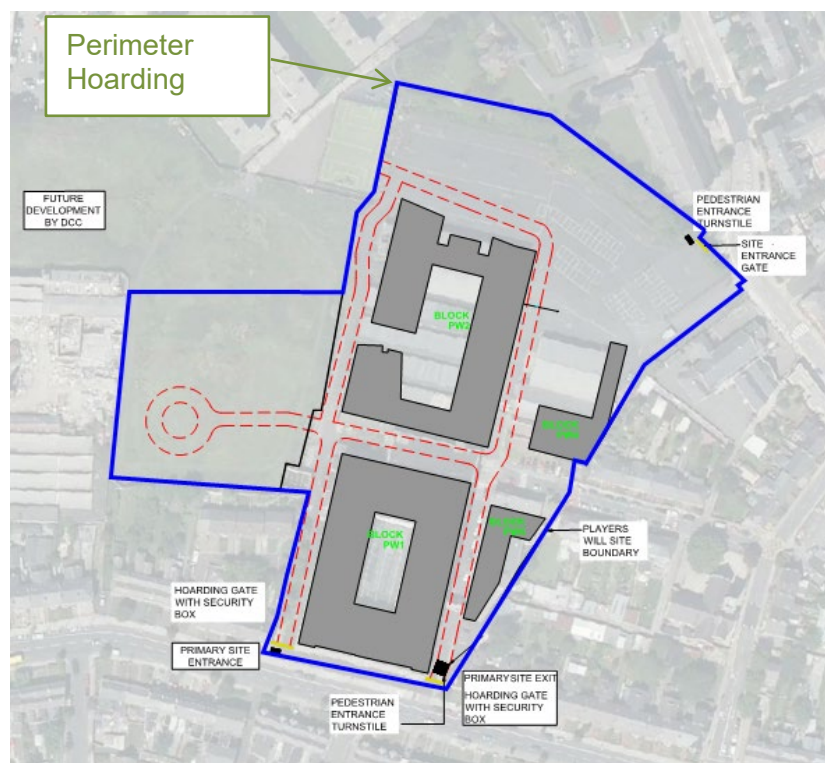


Figure 4: Perimeter Hoarding (Phasing Plan)

All construction chemicals, fuels and hydrocarbons maintained on site will be stored in a safe and secure manner. Dedicated fuel bowsers with dedicated 110% capacity bunds will be used to ensure that spillages are fully contained. Where more than one tank is stored, the bund shall be capable of holding 110% of the largest tank or 25% of the aggregate capacity (whichever is greater). All bunds will be roofed to exclude rainwater. Refuelling will only be performed in dedicated refuelling locations, away from watercourses, drains, etc. and with dedicated spill prevention controls and mitigation equipment.

Drip trays used for drum storage shall be capable of holding at least 25% of the drum capacity. Where more than one drum is stored, the drip tray shall be capable of holding 25% of the aggregate capacity of the drums stored. All waste containers (including all ancillary equipment such as vent pipes and refuelling hoses) will be stored within a secondary containment system.

All foul water generated by welfare units will be contained and disposed of in an appropriate manner to prevent pollution, in line with relevant legislation and in accordance with site specific conditions post approval of the trade effluent waste discharge licence.

Waste fuels and materials will be stored in designated areas isolated from surface water, drains or open waters (e.g. excavations). Skips will be closed or covered to prevent materials being blown or washed away and to reduce the likelihood of contaminated water leakage. Hazardous wastes such as waste oil, chemicals and preservatives, shall be stored in sealed containers and kept in a designated area, separate from other waste materials, while awaiting collection by a registered waste carrier. Fuelling, lubrication and storage areas and welfare facilities will not be located within 25m of drainage ditches, surface waters or open excavations. Fuel interceptor tanks will be installed as required to treat any runoff from the site.

4.6 Assignment of Responsibility

The contractor appointed to undertake the works as outlined in the Works Requirements, will be responsible for developing and managing a project Specific Site Construction Management Plan, (SCMP). The SCMP must be consistent with the works details included in the planning application and must adhere to the details and the methodologies described in this CEMP. The SCMP must be submitted for review to the professional team before construction works commence.

The Contractor's Project Manager will be responsible for the overall implementation of the plan and associated procedures. The Project Manager will ensure that reporting and recording requirements are met and all necessary resources are in place to support the implementation of the plan.

The Contractor must designate a Site Engineer / Manager / Assistant Manager as the SCMP Manager, who will have overall responsibility for the implementation of the SCMP. The designated representative will have the authority to instruct all site personnel to comply with the specific provisions of the plan.

At the operational level, a representative from the main contractor will direct the sub-contractors on the site, and will be assigned the responsibility to ensure that the discrete operations stated in the Site Construction Management Plan are performed on an on-going basis.

4.7 Contractor Staff

During the peak of the construction phase for the proposed development, it is estimated that up to 700 personnel will be working at the PW site across the project life span. These figures include workers, managers, sub-contractors, specialists, etc. If unaddressed, this number of staff will have an impact on street parking in the vicinity of the site, potentially causing local traffic disruption to the immediate community. To combat this, all personnel will be encouraged to utilise alternative methods to access the site.

The close proximity to the City Centre and good public transport links in the vicinity of the development presents many public transport commuting options to site. Contractors and staff will be encouraged to utilise the Public Transport Taxsaver Scheme to commute to work. The site is accessible by a range of public transport systems as follows:

- ❖ **LRT LUAS Red Line:** The site is located 850m away from Fatima Luas Stop on Jame's Walk Street. It takes approximately 11 minutes to walk from Fatima Luas Stop to the construction site. The LUAS operating hours are as follows:
 - From 06:00 – 07:00 am Luas out of town every 20 min.
 - From 07:00 – 10:00 am Luas out of town every 3 min.
 - From 06:00 – 07:00 am Luas into town every 4 min.
 - From 07:00 – 10:00 am Luas into town every 3 min.
- ❖ **Dublin Bus 122** stops 210 m from the construction site on St Anne's Road (Stop 1363).
- ❖ **Dublin Bus 150** stops 350 m from the site at Donore Avenue (Stop 1440).
- ❖ **Dublin Bus 68 & 68A** serve the area stopping at Dolphins Barn Church (Stop 1365).

Dedicated bicycle storage lockup areas will be established within the site to accommodate a total of 350 bicycle parking bays. All Contractors / Subcontractors will be encouraged to offer the National *Cycle to Work Scheme* to their staff. All site personnel will be encouraged to utilise the *Cycle to Work* facility provided by their employer. Changing and drying facilities provided as part of the site

welfare facilities will further encourage cycling to work. It should be noted that a large proportion of construction workers will likely arrive in shared transport and by means of public transport.

On-street pay parking in the vicinity should assist in discouraging driving to work. As a result of the good accessibility to public transport, it is approximated that 25% of the staff will travel by LUAS, 25% by bus 10% by bicycle and 40% by vehicle and/or carpooling.

A limited number of parking spaces will be available for visitors & staff. All vehicular access will be controlled at the hoarding gates where all access and egress will be recorded. All site personnel and delivery drivers will undergo site inductions at the primary site compound.

4.8 Demolition Works

The construction of the proposed development will involve the demolition of nine buildings, removal of hard surfacing and existing services. Furthermore, one building is to be retained with partial demolition of the 4th floor only. **Figure 5** below, depicts the buildings that are to be demolished and the one to be retained. Material is to be disposed of to a landfill or facility licensed to take that class of material. The approximate gross internal floor area to be demolished per building is tabulated in **Table 3** below.

Table 3: Approximate Gross Floor Areas to be Demolished.

Building	Building Type	Area (m ²)
A	Factory Building (Partial Demolition)	8 865
B	Factory Building	285
C	Office Building	2 094
D	Warehouse Factory	1 215
E	Warehouse Factory	5 398
F	Warehouse Factory	100
G	Warehouse Factory	17
Total GIA for Demolition:		17 974
*Total Building GIA		26 420

**Includes 8 446m² to be retained in Building A.*

Demolition works are likely to proceed as follows:

- ❖ Environmental clean of all known environmental hazards and deleterious materials.
- ❖ Demolition of existing services and removal from site.
- ❖ Demolition of buildings as indicated in **Figure 5** below; crushing to commence and spoil to begin to be removed from site; material to be recycled and stockpiled on site and covered.

- ❖ Demolition of existing hard-standings; crushing to commence and spoil to begin to be removed from site.



Figure 5: Aerial view of Site Showing Buildings to be Retained, Demolished & Building Footprints. (CDWMP-BMCE)

Demolition works will adhere to the following guidelines:

- ❖ BS 6187:200: Code of Practice for Demolition.
- ❖ Health and Safety Executive Guidance Notes GS 29 / 1,2,3 & 4.
- ❖ S.I. 504 Safety, Health & Welfare Work (Construction) regulations 2013.
- ❖ Air Pollution Act 1987.
- ❖ Environmental Protection Agency Act 1992
- ❖ BS 5228:2009 Part 1: Noise & Vibration Control on Construction & Open Site.

4.9 Excavation Work

The bulk earthworks for the proposed development are associated with the basement excavation for PW2. In addition, earthworks consist of site strip, levelling to suit the new buildings, foundations and trenches for services. The ground floor levels of the building structures are intentionally located close to the existing ground surface level to minimise excavations. Due to the ground conditions encountered (brown boulder clay), toothed buckets on standard large excavation plant will be used, up to depths of approximately 3 meters below existing ground level. Deeper excavations may require mechanical extraction by other means such as breaking or drilling. In areas where there is sufficient space, a battered excavation can be provided for the single level basement. A batter of 45° (1V:1H)

is recommended for the Made Ground and 63° (2V:1H) in the stiff clays, refer to 4.10.1 below. **Table 4** below provides the estimated excavation quantities extracted from the Construction & Demolition Waste Management Plan (CDWMP).

Table 4: Estimated Excavation Quantities (CDWMP: Table 4.4)

Item	Topsoil (m ³)	Surfacing & Fill Volume (m ³)	Made-Ground Excavation Volume (m ³)	Cohesive Deposits Volume (m ³)	Bedrock Volume (m ³)	Total Volume (m ³)
*Site Strip	2 169	2 449	9 797	-	-	14 415
**Basement Bulk Excavation	-	-	4 242	22 271	15 691	42 204
Foundations	-	-	1 008	-	744	1 752
***Buried Services	-	-	144	577	-	721
Total Volume (m³)	2 169	2 449	15 191	22 848	16 435	59 092

*Assumed 500mm site strip of entire surface area, which is taken to be 20% surfacing and fill & 80% made-ground.

**Assumed 8.0m excavation of entire basement surface area, which is taken to be 9.5% made-ground, 52.7% cohesive deposits and 37.8% bedrock.

***Assumed 1.0m excavation of 2.5% of total site area.

Based on the proposed design of the development, the excavated material will generally be disposed of off-site at a licenced facility as there are limited opportunities for re-use. All excavated topsoil (2 169m³) will be retained and stockpiled for re-use in the landscaping. It is therefore calculated that the total volume of material to be disposed of will be approximately 55 677m³. Stockpiling must adhere to the requirements outlined in this document.

From the CDWMP it is calculated that the volume of material to be disposed equates to 1 547 truckloads, based on a 4-axle truck with an 18-tonne capacity (36m³). There will be little or no stockpiling of excavated soils other than specified above. In the event that short term (24 – 48 hour) storage is required, the material will be retained in the designated stockpile storage area. All excavated soils being disposed of will be recorded using a material dispatch log detailing the date of transport, vehicle registration, quantity, type of material and the destination.

4.10 Likely Foundation Solution

The proposed development will comprise of numerous foundation solution types. These include:

- ❖ Shallow foundations with blinding concrete to stiff clay strata at 3 meters below existing ground level.

- ❖ It is possible that piles to rock can be incorporated depending on the cost and allowable soil bearing.
- ❖ Piled footings to the bedrock.
- ❖ Shallow footings to the rock strata in combination with piles underneath the concrete core of the structures.

Foundations are to be constructed on a formation of uniform material and therefore all made ground is to be removed where it is encountered. Notwithstanding the made ground, the depth required to foundation formation level is approximately 3m below existing ground level. This has afforded the opportunity to utilise the area under the footprint of PW2 to accommodate car parking spaces.

4.10.1 Ground Conditions Encountered

A geotechnical site investigation has been carried out by Ground Investigations Ireland Ltd. The sequence of strata encountered during the investigation were consistent across the site and generally comprised of:

- ❖ Surfacing/Topsoil: *Generally, Tarmac surfacing was encountered in majority of the exploratory holes to a depth of 0.10 meters below ground.*
- ❖ Made ground: *Occasional fragments of concrete, red brick, and ceramic underlays the Surfacing material. The made ground deposits were described as slightly sandy slightly gravelly clay up to depths between 1.1 meters and 1.8 meters below ground level.*
- ❖ Cohesive deposits: *These deposits were encountered beneath the Made Ground. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix. These deposits had some, occasional or frequent cobble and boulder content where noted on the exploratory hole logs.*
- ❖ Bedrock: *The bedrock consists of medium strong to strong light grey fine-grained Limestone interbedded with extremely weak dark grey fine-grained mudstone between 5.1 & 6.1 meters below existing ground level.*

Groundwater was encountered across the site varying between 1.7 and 2.4 meters below existing ground level. It is envisaged that the groundwater levels across the site will vary with the time of year, rainfall, nearby construction and other factors.

Basement excavations will encounter the water table and temporary dewatering will be required to lower the water table in the immediate vicinity of the basement excavation footprint. Extracted ground water shall be pumped from the excavation to a treatment system to remove suspended solids and other contaminants, as required, to meet the water quality discharge limits of the

temporary discharge licence agreement with Dublin City Council or Irish Water. Refer to Section 7.3 for further detail.

The impact of lowering the water table has been assessed in the submitted EIAR which has determined that the temporary pumping of ground water will not result in any significant water table drawdown beyond the site boundary.

4.11 Architectural Conservation Specification & Method Statement

David Slattery Architects has prepared the following documents and are attached hereto in Appendix E:

- ❖ Schedule of fabric & feature to be salvaged and outline method statement for their removal to be carried out at The Former Player Wills Factory.
- ❖ Outline conservation specification for works to be carried out at The Former Player Wills Factory.
- ❖ Schedule of works to windows at Block A, the former Player Wills Factory.

These documents will ensure that works carried out at The Former Player Wills Factory is in compliance with *RIAI Guidelines for the Conservation of Buildings (3rd Edition December 2010)*, and the conservation charters referenced therein, in addition to the publication *Architectural Heritage Protection: Guidelines for Planning Authorities (as issued by the Department of Arts, Heritage & the Gaeltacht 2011)*. The contractor will be required to prepare a detailed method statement for the works and to amend or augment the statement attached in Appendix E, to account of matters discovered during the works. The contractor will be required to obtain the Architect's approval for the statement at each stage during the works and amend the statement as necessary to achieve the Architect's approval.

5. ENVIRONMENTAL CONDITIONS & POTENTIAL IMPACTS

5.1 Invasive Species Management Plan

An Invasive Species Management Plan has been prepared for the site and accompanies this application, refer to Appendix F. The land covered by the Invasive Species Management Plan is depicted in **Figure 6** below.

The report concluded that none of the invasive species listed on the Third Schedule of the *Habitats Regulations* were recorded in the study area during the site visit. Therefore, there is no specialist treatment required to treat higher risk invasive plant species in a formal manner prior to construction.

All planting plans and landscaping proposals will ensure that no invasive species are introduced, either deliberately or inadvertently, to the site.

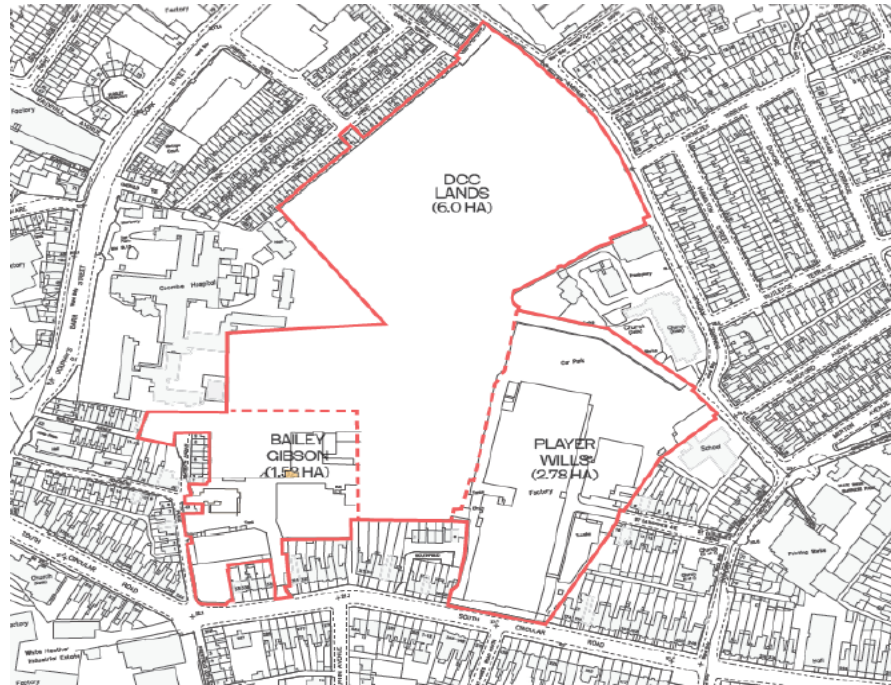


Figure 6: Location of the Study Area (Masterplan Document)

5.2 Integrated Pest Management (IPM)

An Integrated Pest Management (IPM) must be established in accordance with best practice within the guidelines for the campaign for responsible rodenticide use (CRRU Ireland – Wildlife Aware). Competent rodent pest control technicians (i.e. included in the register of ‘pest management trained professional users’ [PMUs] maintained by the Department of Agriculture Food and the Marine) will be appointed to fully implement *best practice* in the delivery of rodent pest management services, based on consideration of the risk hierarchy and implementation of an Integrated Pest Management (IPM) approach.

Records of the conclusions and decisions reached by PMU’s on site will be maintained for management purposes and to facilitate auditing and compliance inspections by regulatory authorities.

5.3 Construction & Demolition Waste Management

5.3.1 Construction & Demolition Waste Management Plan

A Construction & Demolition Waste Management Plan (CDWMP) has been prepared by Barrett Mahony Consulting Engineers and is included under a separate cover. The purpose of the report is to

ensure that waste generated during the demolition, construction and operational phase will be managed and disposed of in a way that ensures the provisions of the Waste Management Acts 1996-2013, and associated Regulations, are applied.

5.3.2 Policies and Legislation on Waste Management

In July 2006 the Department of the Environmental Heritage and Local Government published “*Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects*”. The diversion of waste from landfill is encouraged by the Guidelines and it provides advice on the planning for construction and demolition waste management. The guidelines outlines that a waste management plan must be prepared where “demolition / renovation / refurbishment projects generating in excess of 100 m³ in volume, C & D Waste”.

To comply with the work details included in the planning application, the requirements outlined in the CEMP and CDWMP and the aforementioned guidelines, a Site-Specific Construction and Demolition Waste Management Plan must be prepared and submitted to the professional team by the Project Construction Contractor for review. The implementation of this plan will ensure that the proposed development exceeds the National Recycling Target of between 50% and 85% as outlined in the Government Policy document “Changing our Ways – a Policy Statement” published by the Department of Environment Heritage and Local Government 1998.

5.3.3 Construction Waste Categories & Volumes

Construction waste is classified according to the European Waste Catalogues (EPA,2002) as ‘Hazardous’ and ‘Non-Hazardous’.

- ❖ Non-Hazardous waste that will be generated include but are not limited to:
 - Stones, Topsoil, Sub-soil and Made Ground Fill,
 - Excess New Concrete, Bricks, Tiles and Ceramics,
 - Excess Asphalt and Tar Products,
 - Excess Plasterboard
 - Scrap Metal
 - Paper
- ❖ Hazardous waste that will be generated include but are not limited to:
 - Excavated Soils Classified as Hazardous,
 - Batteries,
 - Oils and Fuels from machinery,
 - Excess Paint,
 - Materials containing Asbestos, Mercury, PCB’s.

An environmental investigation has been carried out by O' Callaghan Moran including Waste Acceptance Classification testing. Material meeting each of the following criteria was encountered;

- ❖ Meets Inert WAC Limits
- ❖ Hazardous Limits
- ❖ Meets Non-Hazardous Limit
- ❖ Meets Inert Landfill Level

Table 5 below tabulates the volume of Soil Waste by Category.

Table 5: Volume of Soil Waste by Category.

Item	Meets Inert WAC (m³)	Non-Hazardous Contains Asbestos (<0.001%) (m³)	Meets Increased IMS Landfill Limits (m³)	Meets Inert WAC Contains Asbestos (0.001%) (m³)	Exceeds Inert WAC Contains Asbestos (0.001%) (m³)	Hazardous (m³)	Non-Hazardous (m³)	Total Volume (m³)
Site Strip	5 790	955	2 914	-	392	160	2 033	12 244
Basement Bulk Excavation	40 303	891	111	782	42	-	75	42 204
Foundations	828	137	417	-	56	23	291	1 752
Buried Services	340.5	56	172	-	23.1	9.4	120	721
Total Volume	47 261.5	2 039	3 614	782	513.1	192.4	2 519	56 921
4-Axle Truck Movements (36m³ per Truck)	1 313	57	101	22	15	6	70	1 584

Estimated demolition quantities was derived from the BRE Waste Benchmark Data (June 2012) and are as follows:

- ❖ Industrial (Warehouse): 12.60 tonnes/100m²
- ❖ Commercial Offices: 16.80 tonnes/100m²
- ❖ Total: 2 500.00 tonnes

Based on the BRE document, the demolition waste percentage breakdown on a typical construction site based on the gross internal floor area, is tabulated in Table 6 below.

Table 6: Typical Breakdown of Demolition Waste (CDWMP: Table 4.1)

Waste Material	% by weight	Tonnes	Reuse/Recovery		Target Recycle		Disposal	
			%	Tonnes	%	Tonnes	%	Tonnes
Glass	3	204	0	0	85	173.4	15	30.6
Concrete, Masonry, Tiles, Ceramics	46	3134	95	2977	0	0	5	156.7
Plasterboard	4	273	0	0	80	218.4	20	54.6
Metals	20	1363	5	68	80	1091	15	204

Timber	13	886	20	177	60	531.6	20	177
Asphalts	6	409	50	205	25	102.3	25	102.3
Slate	8	545	0	0	85	463.3	15	81.8
Total	100	6814		3427		2580		807

A SCMP that conforms with the requirements set out in this CEMP will be prepared by the contractor and will include details of off-site disposal of construction/demolition waste.

5.3.4 Asbestos Survey Report

Asbestos Containing Materials (ACM's) have been identified on site by United Metals Recycling. The ACM's are contained in large structural areas such as the roof, external cement panels, asbestos cement shutters casings, corrugated sheeting, cement flue pipes, insulation boards along with other building fabrics. There are other inaccessible areas where ACM's are strongly presumed. Before hard demolitions commence, these areas will be inspected by a specialist to verify the presence of any ACM's. All Asbestos containing material will be removed prior to demolition phase commencing. Warning signage has been erected where necessary as advised by the Project Supervisor Design Process (PSDP).

The statutory obligations in relation to Asbestos Containing Materials at the former Player Wills Site are derived primarily from the following legislation:

- ❖ Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006 & 2010.
- ❖ Safety, Health and Welfare at Work (Exposure to Asbestos) (Amendment) Regulations 2010
- ❖ The Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006 (S.I. No. 386 Of 2006)
- ❖ Safety Health & Welfare at Work Act 2005
- ❖ Safety Health & Welfare at Work (Construction) Regulations 2013S
- ❖ Safety Health & Welfare at Work (General Application) Regulations 2007 European Communities (Asbestos Waste) Regulations 1990 SI NO. 30

The information was recorded in the Preliminary Safety & Health Plan and communicated to all duty holders. A competent asbestos remediation contractor, as governed by legislation, has been appointed to assess the risks and appropriately remediate the ACM's identified. The removal and disposal of the deleterious material is in accordance with the detailed Demolition Plan (DP), compiled by the contractor, adhering to all safety, health, welfare, waste, transportation and disposal legislation as well as the requirements set out in the CEMP & CWDMP.

The ACM's will be disposed of at a licenced asbestos waste facility under the Environmental Protection Agency for example:

- ❖ Rilta Environmental Limited, Block 402, Grant's Drive, Greenogue Business Park, Rathcoole, Co. Dublin. Waste Licence Register Number: W0192-03

5.3.5 Environmental Risk Assessment and Waste Characterisation Report

An Environmental Risk Assessment and Waste Characterisation Report (ERAWCR) have been prepared by O'Callaghan Moran & Associates, attached in Appendix G. The following assessments were carried out on the Player Wills Site:

- ❖ Site & Environmental Setting
- ❖ Soils Assessment,
- ❖ Groundwater Assessment,
- ❖ Ground Gas Assessment,
- ❖ Waste Classification Assessment.

The report concluded that ground gas monitoring has established that the ground gas levels do not present a risk to the redevelopment. **Figure 7** below illustrates the dig plans for materials between zero to one meter below ground level over the Player Wills site. The soils at TP-A5 are classified as hazardous. The ammonium and sulphate in BH-11 and the elevated hydrocarbons and VOCs in MW-2 appear to be localised. Hydrocarbons were not detected in the groundwater elsewhere. Refer to Appendix G for the full set of dig plans in the ERAWC report.

It is required that the contractor allows for further investigation of these soils in their Demolition Plan once the structures have been demolished. The Site Specific Construction Management Plan must address the issue of timing of the removal of the contaminated material to avoid cross contamination with the clean materials. The plan must further outline appropriate measures to control groundwater during excavation and removal of groundwater given the high water table.

It is required that construction workers be protected from the risk of exposure when potentially impacted soils are being removed. Subsoils contaminated with hydrocarbons and PAH are classified as hazardous waste, and will be excavated and sent to an authorised hazardous waste management facility.

It was determined from the investigation that previous and current land uses had no impact on groundwater quality. Furthermore, the site is located in a Low Radon Risk area, ground gas does not

present a risk to the redevelopment of the site, and that gas mitigation measures are not required. Refer to **Table 5** for the volume of soil waste per category.

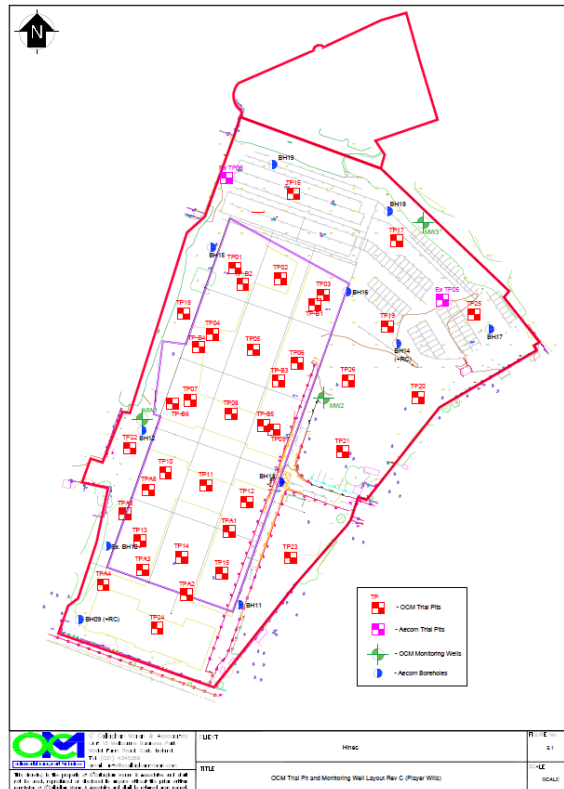


Figure 7: Excavation Plan (ERA Report)

6. CONSTRUCTION TRAFFIC MANAGEMENT PLAN

The level of construction traffic associated with the proposed development will vary over the course of the project. A Construction Traffic Management Plan (CTMP) prepared by SYSTRA is included under separate cover. The CTMP will be implemented to ensure that all deliveries to site are coordinated to avoid multiple deliveries arriving on site at the same time. All orders placed with suppliers will refer to this Construction Traffic Management Plan and identify the preferred route to the drop off point.

All construction traffic activities will be governed by the Construction Traffic Management Plan (CTMP), the details of which will be agreed with Dublin City Council prior to the commencement of construction activities on site.

6.1 Site Access

As outlined previously in Section 4.3, the construction site will be accessed and egressed from two primary points in South Circular Road and Donore Avenue. All construction vehicles shall forward

move into and out of the site without the requirements of any reversing manoeuvres onto public roads. Pedestrian and bicycle access to the proposed development will be located at South Circular Road and Donore Avenue.

The temporary parking of delivery vehicles will not be permitted on the public road network. It is assessed that the site is adequately sized to accommodate all construction staff traffic and necessary machinery.

6.2 Construction Parking

As outlined previously in Section 4.4, a total number of 150 parking spaces will be available for staff and visitors. The existing surfaces in the Player Wills site, as depicted in **Figure 2**, will provide 120 parking spaces for visitors and staff. Thirty spaces will be allocated in the compound located in the DCC lands subject to licence agreement. The necessary hard surfaces will be constructed prior to these parking spaces made available. It is assessed that sufficient space is available on site and therefore there will be no requirement for any construction, staff and/or visitors vehicle to park on the public road.

6.3 On-site Construction Vehicle Staging Area

It is not envisaged that construction traffic will queue on any of the public roads due to the availability of space within the boundaries of the Player Wills sites. Vehicle staging areas will be allocated and clearly indicated on site to facilitate any awaiting vehicles.

6.4 Estimation of Vehicle Movements during Demolition & Excavation

Approximately 2 590 tonnes of building demolition material and 55 675 m³ of soil waste will be removed off-site for reuse and/or recovery at an authorised facility in accordance with the waste hierarchy and relevant waste legislation. These estimates equate to a total of 1 550 four-axle truck movements during the demolition and excavation phase.

6.5 Estimation of Vehicle Movements during Construction

Following the completion of the demolition and excavation works, the level of HGV traffic will significantly reduce. The remaining concentration of truck movements will occur during the pouring of concrete foundations, delivery of materials etc. and is estimated at an average of 10-20 HGV travelling to site each working day.

7. MITIGATION MEASURES

The following section proposes control/mitigation measures to alleviate the effect of the proposed development on the surrounding environment and community. Additionally, all construction (including

demolition) related mitigation proposed in the Environmental Impact Assessment Report (EIAR) will be implemented. A summary of the proposed mitigation measures is presented in Chapter 16 of the EIAR. These procedures and the site Environmental Policy must always be available on site.

7.1 Site Environmental Awareness & Policy

To assist in executing the mitigation measures, a Project Environmental Scientist must be employed for the duration of the construction phase to ensure compliance and adherence with the developed mitigation measures. Furthermore, to ensure that the construction phase has minimal impact on the environment, Environmental Rules will be established onsite by the contractor in line with the EIAR to mitigate the impact of the demolition and construction phases on the surrounding environment. These rules will be posted across the site at strategic locations such as site entrance, offices etc. These rules include, but not limited to, the following:

- ❖ All spills must be cleaned up immediately with absorbent materials.
- ❖ Any spills of hydrocarbons must be cleaned up immediately and reported.
- ❖ A clean-as-you-go policy is in place. All waste must be removed before the end of the shift.
- ❖ Refuelling is only allowed in the designated refuelling areas. Spill kits must be available during refuelling activities.
- ❖ All waste is to be sent to the designated site waste management areas; liquid waste must not be disposed of into a drain or land.
- ❖ Construction vehicles and machinery must only be operated within the authorised boundaries of the site only.
- ❖ Damage caused to the environment and/or environmental pollution must be reported to the site office.
- ❖ No littering.

Environmental procedures established on site must be developed in accordance with the ISO14001 standard.

7.2 Excavations & Soils

The following good construction management practice will minimise the risk of pollution of soil and will be implemented by the contractor:

- ❖ All soils arising shall be appropriately tested and classified in accordance with best practice and waste management legislation prior to being removed from the site for re-use / disposal. Excavated material shall be visually assessed as it is being excavated for signs of

contamination. Should material appear to be contaminated or potentially contaminated, soil samples shall be taken and sent for analysis by an appropriate testing laboratory.

- ❖ Excavation and the stripping of topsoil or the placement of soil stockpiles will not be undertaken until necessary as this will lead to sediment run off and leaching of nutrients from soils into nearby waterways.
- ❖ Appropriate safe slope angles refer to Section 4.10, and suitable drainage system will be used for all excavated slopes. Shallow cut off drain ditches will be provided along the boundary of a cut section to capture overland runoff and discharge the runoff into the settlement ponds.
- ❖ It is proposed that no stockpiling of excavated soils will be undertaken on site. It is proposed to excavate and load soil and subsoil directly on haulage vehicles for removal off the site. This is also applicable for demolition waste generated during the demolition phase.
- ❖ Topsoil will be stockpiled on site in a designated area away from major construction activities and will not exceed three meters in height. The topsoil will be stored for the duration of the construction and be protected for re-use on completion of the main site works. A silt fence will be placed on the perimeter of the stockpile and the surface will be covered to prevent erosion and silt laden run off.

In order to reduce weathering and erosion and to retain soil properties, top-soiling and landscaping of the works shall be undertaken as soon as finished levels are achieved. Existing topsoil will be retained on site to be used for the proposed development.

A SCMP that conforms with the requirements set out in this CEMP will be prepared by the contractor and will include details of off-site disposal of construction/demolition waste and details of how it is proposed to manage excavated soil.

7.3 Sediment and Water Pollution Control

All works carried out as part of these infrastructure works will comply with all Statutory Legislation including the Local Government (Water Pollution) Act 1977 and 1990, and the contractor will cooperate in full with the Environmental Section of Dublin City Council. Surface water run-off from surface construction activities has the potential to become contaminated. The main contaminants arising from surface construction activities.

As part of the overall construction methodology, the following measures will be implemented to control and minimise silt discharge from the site to acceptable levels:

- ❖ **Treatment of dewatered Groundwater:** In order to remove elevated suspended solids and other contaminants, as may be present, abstracted water will be pumped through a treatment system prior to discharge into to the newly constructed stormwater system, refer to phasing in Section 4.1. This discharge will be under the licence agreement from Dublin City Council for storm water. To achieve this disposal route, if deemed necessary after extensive ground water quality monitoring, a temporary water treatment facility (including holding tanks) will be constructed on the site, along with other apparatus, as required, to ensure the conditions of the temporary discharge consent are met (this may include activated carbon filtration, silt-busters etc.). This would include continuous automatic text alarmed monitoring of key parameters such as flow rate, pH and suspended solids. It is considered that the parameter limit values (Guide/Mandatory) defined in the Freshwater Quality Regulations (EU Directive 2006/44/EEC) will act as a trigger value for the monitoring of surface water. The Transport Infrastructure Ireland (TII)'s 'Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan', further specify a recommended frequency and manner of sampling which will be employed during the construction monitoring of surface water in order to demonstrate compliance with EU limit values.
- ❖ **Hazardous Waste:** Removal of the localised hazardous waste, as identified in the Environmental Risk Assessment Report, will be undertaken prior to dewatering to reduce the risk associated with the dewatering water quality. Upon receipt of analysis results and screening against required consent limits, the Contractor will arrange the appropriate disposal of the treated groundwater, in accordance with temporary discharge licence consent (to be arranged by the Contractor). Hazardous waste is not allowed to be stored on site and will be removed from site to a hazardous waste facility. No silt or contaminated water will be permitted to discharge to either the stormwater or foul sewers.
- ❖ **Monitoring prior to, during and post construction works of groundwater quality** shall be undertaken to ensure minimum disturbance of water quality in the general vicinity of the site. During the construction phase, the monitoring programme will include daily checks, weekly inspections and monthly audits.
- ❖ **Sediment & Erosion:** Groundwater needs to be protected from silt laden water runoff from the demolition / construction work. To prevent this from occurring, surface water discharge from

the site will be managed and controlled for the duration of the construction works, until the proposed surface water drainage system is complete. A temporary positive drainage system will be installed prior to the commencement of any construction works to collect surface water runoff for treatment prior to discharge from the site during the construction phase.

- ❖ Discharge Licences: It will not be permitted to discharge into any newly constructed storm water systems or watercourse without a temporary stormwater discharge licence from Dublin City Council and DL RCC Environment Division Pollution Section.
- ❖ The storage system for over ground fuels, oils or construction liquids will be located within a designated bunded area. Dedicated fuel bowsers with dedicated 110% capacity bunds will be used to ensure that spillages are fully contained. Where more than one tank is stored, the bund shall be capable of holding 110% of the largest tank or 25% of the aggregate capacity (whichever is greater). All bunds will be roofed to exclude rainwater. Refuelling will only be performed in dedicated refuelling locations, away from watercourses, drains, etc. and with dedicated spill prevention controls and mitigation equipment. Under LEED (Leadership in Energy and Environmental Design) there will be a strategy put in place to prevent the pollution of Local Authority and Irish Water sewers. In most cases this will involve collecting the run-off and routing it to an interceptor tank.
- ❖ Concrete Washout: The washing out of concrete trucks on site will not be permitted, as they are a potential source of high alkalinity in watercourses. Consequently, it is a requirement that all concrete truck washouts takes place back in the ready-mix depot. The only exception is the cleaning of the chute. The chute will be cleaned into a container which will collect the water run-off where after the container will be emptied into a skip. On review, there are 4 ready mix concrete plants with a 30-minute drive of the subject site.
- ❖ Dewatering: The contractor will allow for working in wet, as well as dewatering of all excavations to allow continual progression of the works. The majority of excavations below the ground water table will be in the low permeability clays. Dewatering will be required when in areas where the rock is exposed during local excavations. Groundwater flow is anticipated in the fractures of the rock, but it is likely to be relatively slow to moderate ingress. Deep excavations which terminate within the boulder clays will primarily require pumping to dispose of rainfall and surface water ingress. It is estimated that the required pumping rate will be low. In addition, shallow collector ditches will be formed around all excavation to contain over land runoff into the excavations.

The contractor must prepare and include the following plans in the Site Specific Construction Management Plan in addition to the measures mentioned above to conform with the requirements set out in this CEMP:

- ❖ Prepare an Emergency Response Plan detailing the procedures the contractor will implement in the event of flooding, a spill of chemicals, fuel or other hazardous waste. The plan will contain the following information: containment measures, maintenance schedule for equipment, details of trained staff, details of staff responsibilities, list of specialist pollution clean-up companies and their contact details.
- ❖ A procedure for the location and maintenance of soil stockpiles generated during construction.
- ❖ Site plan showing the location of all surface water drainage lines and proposed infiltration areas/discharge to the storm water system. This shall include the location of all existing and proposed surface water protection measures, including monitoring points and treatment facilities.
- ❖ Means to ensure that surface water run-off is controlled such that no silt or other pollutants enter local surface water sewers or drains. A record of daily checks that the works are being undertaken in accordance with the SCMP shall be kept for inspection.

7.4 Dust

It is likely that the demolition and construction activities will generate dust emissions which will be in addition to any dust generated by the urban activity in the vicinity, including traffic flows. The extent of dust generation from construction activities is dependent on environmental factors such as rainfall, wind speed and wind direction. The primary sources of dust generation onsite include demolition, soil stripping, excavation of foundations, wind blow from temporary stockpiles, handling of construction materials, landscaping and construction traffic movement. When rainfall is greater than 0.2mm/day, dust generation is generally suppressed (IAQM, 2014; UK ODPM, 2002). The potential for significant dust generation is also reliant on threshold wind speeds of greater than 10 m/s, 7m above ground, to release loose material from storage piles and other exposed materials (USEPA, 1986).

The construction site is considered to be at a 'major' scale based on the assessment criteria presented in the TII document '*Guidelines for the Treatment of Air Quality during the Planning and*

Construction of National Road Schemes May 2011. As detailed in the document, this site has the potential for significant soiling impact within 100m; PM₁₀ impacts within 25m and vegetation impacts within 10m of the site boundary if standard mitigation measures are not in place.

7.4.1 Dust Control Measures

Dust prevention measures shall be included to reduce airborne particulate pollution within and outside the site. A Dust Management Plan (DMP) prepared by AWN Consulting Engineers, included in the EIAR Appendix 12, must be adopted, and implemented by the contractor for the construction phase. The plan was formulated by drawing on best practice guidance from Ireland, the (UK IAQM (2014), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). The following measures will be taken, but not limited to, to avoid dust nuisance at nearby sensitive receptors:

- ❖ Dust monitoring, Section 7.3.2.
- ❖ The Principal Contractor must implement the mitigation measures outlined in the DMP and the CEMP and monitor compliance of all other contractors'.
- ❖ Contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice boards will also include head/regional office contact details.
- ❖ Perimeter hoarding will be provided around the perimeter of the site. This acts as a dust barrier to a height of approximately 2.4m.
- ❖ The prevailing wind is predominantly south-westerly to south-easterly, locating storage piles downwind of sensitive receptors will minimise the potential for dust nuisance to occur.
- ❖ Soil will not be uncovered until such time that a replacing capping layer is ready to be placed. This will ensure that soil is left exposed for the minimum amount of time possible.
- ❖ The contractor will spray water on the surface of all roads in the vicinity of the to minimise dust generation from the construction activities. Water spraying will increase in frequency during dry and/or windy weather to minimise dust generation.
- ❖ During inherently dusty operations (e.g. structural demolition) dust will be suppressed with direct application of water spray.
- ❖ The wheels of all vehicles leaving the construction site will be washed to ensure dirt and dust is not transferred unto the public roadway.

- ❖ The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions (UK ODPM,2002). Vehicle speeds within the site will be restricted to 20km/h as higher vehicle speeds rise dust.
- ❖ Tarpaulin covers will be provided over stockpiles when high wind and dry weather are forecasted.
- ❖ Stockpiles will be located away from site perimeters, in areas which are sheltered from the winds where possible. Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust.
- ❖ Where applicable, tree and hedgerow protection measures will be provided for all trees and hedgerows to be retained in accordance with BS: 5837:2012: Trees in relation to design, demolition and construction. Work to remove trees or the demolition of existing structures on the site will take place outside of bird nesting season.
- ❖ Where practicable, open areas of ground will be seeded and landscaped as soon as practicable to reduce windblown dust.
- ❖ Vehicles carrying fine materials will remain sheeted/covered for as long as practicable.
- ❖ Surrounding public roads used by trucks to access to and egress from the site will be inspected regularly and cleaned, using an approved mechanical road sweeper, when required. Roads will be cleaned subject to local authority requirements. Site roads will be cleaned on a daily basis, or more regularly, as required.

7.4.2 Dust Monitoring

Prior to the commencement of any activity on site, dust monitoring readings will be undertaken by the contractor at the proposed baseline monitoring station to monitor the impact of site activities on local receptors. Dust deposition monitoring will be implemented and monitored on a 30-day cycle using the Bergerhoff Method at sensitive receptors for the duration of the construction works. Recordings will be recorded in the site diary and compared to the baseline readings & the TA Luft Limit Value of 350mg/m²/day. The readings will be compiled into a technical report which will be available to the professional team and the public on request. Any breach will be reviewed, and corrective actions will be implemented to prevent recurrence. The monitoring locations are shown in **Figure 8**.

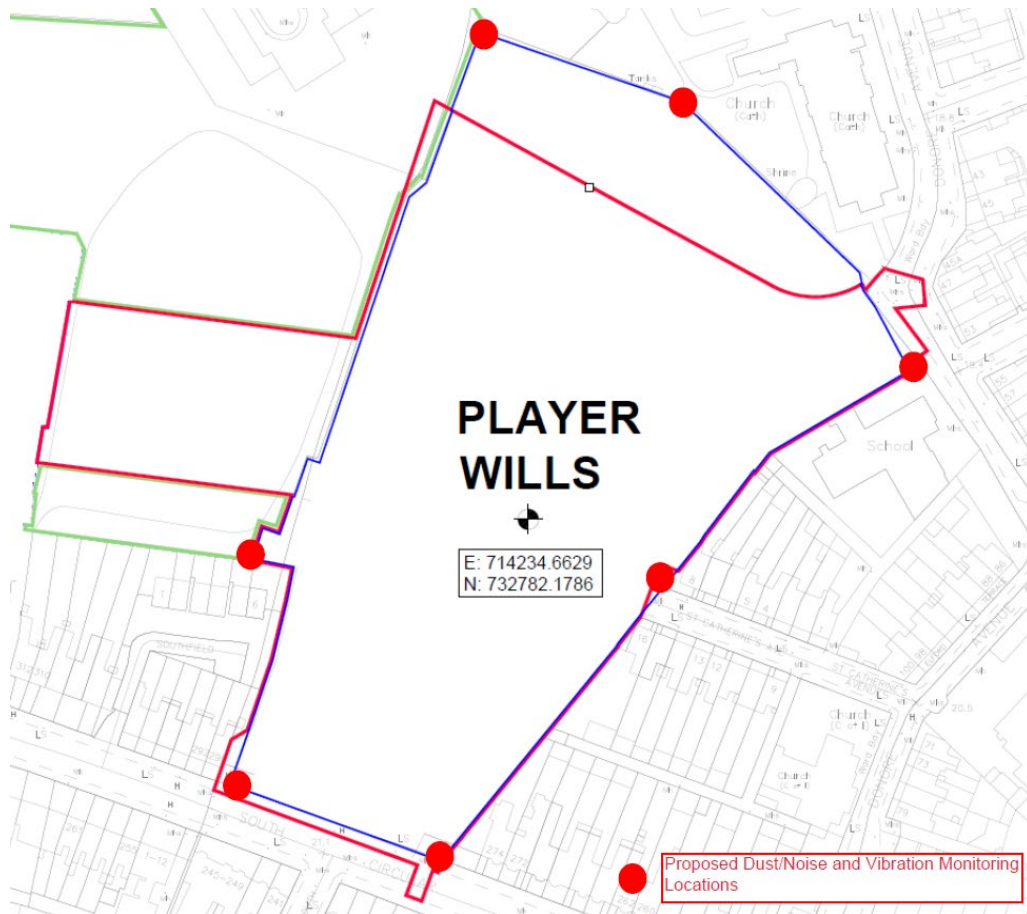


Figure 8: Dust, Noise and Vibration Monitoring Locations.

Bergerhoff Dust Deposit Gauges will be positioned at each sensitive receptor. TA Luft guidelines will be used to compare the results recorded at these locations. The dust deposition limit outlined in the guideline is average over a 30-day period and is 350 mg/m²/day. This guideline limit is widely applied in Ireland and will be adopted on site.

A qualified air quality expert will be appointed by the contractor to ensure that dust gauge locations are positioned in order to best determine potential dust deposition in the vicinity of site boundaries and existing buildings.

Results of the dust monitoring will be reported to the air quality expert on a monthly basis. The reports will be maintained on site for inspection if / when required.

An assessment will be undertaken to identify the source(s) in the event that the dust emission limits are exceeded on a monthly basis or when complaints has been received. This will include an assessment of the current construction works being executed and potential off-site source. If the assessment identifies the current construction works as the source of excessive dust emissions, the contractor will ensure that the mitigation measures listed above are improved. If further exceedance

is recorded, the contractor will provide alternative mitigation measures and / or will modify the construction works taking place.

7.5 Noise and Vibration

The demolition and construction phases will involve the use of noise and vibration generating construction plant. There will also be an increase in noise relating to delivery of materials to site and general construction staff activity. It is intended that noise and vibrations from the construction phase of the development will be kept below the limits recommended in “BS 5228: Code of Practice for Noise and Vibration Control on Construction and Open Sites” and in the “Transport Infrastructure Ireland (TII) document, Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes”. The contractor must also adhere to the requirements and details on Noise and Vibration is outlined in Chapter 11 of the EIAR.

Prior to the commencement of the site construction activities, noise and vibration monitoring will be undertaken by the Contractor at the proposed baseline monitoring stations to monitor the impact of site activities on local receptors.

Construction operations on site will be between the hours of 8am and 7pm, Monday to Friday, and 8am to 1pm on Saturdays. No activities shall take place on site on Sundays or Bank Holidays. It is also proposed that communications be maintained between the Developer, the Local Authority and Local Residents throughout the construction phase to ensure that noise and vibration emission are maintained at a low level and that any possible complaints can be rectified speedily.

7.5.1 Noise & Vibration Control Measures

Noise and vibration control measures will include the following, but will not be limited to:

- ❖ Noise and vibration monitoring, Section 7.4.2 & 7.4.3, respectively.
- ❖ No heavy construction equipment/machinery (pneumatic drills, construction vehicles, generators) related to the development shall be operated in or adjacent to the construction site outside the workings hours outlined in Section 4.2.
- ❖ All equipment used on site shall be fitted with effective silencers and/or sealed acoustic covers.
- ❖ Construction plant will be selected for low potential for generating noise.

- ❖ Where possible, noisy construction plant will be located away from residential properties.
- ❖ Temporary barriers will be erected around noisy items such as generators or compressors where required.
- ❖ If construction works must be carried out outside the specified working hours, residents and businesses in the area likely to be affected by noise will be notified in advance. Such works will only be undertaken after agreement in writing with the Local Authority.

7.5.2 Noise Monitoring

Noise monitoring sensors to be fitted within the site boundary as depicted in **Figure 8**. Sensors located outside the site will measure ambient non-construction background noise levels. These baseline recordings will be utilised to assess if the supplementary construction noise emissions contribute to any breaches of permitted threshold limits as detailed in **Table 7**. Daily recordings will be recorded in the daily site diary and compared to the baseline readings. All noise monitoring data will be compiled into a weekly technical report by the contractor for review and approval by the Environmental Monitoring Officer and be available for the public on request. The report will be based on BS5228. Furthermore, a log will be maintained on site of all noise complaints including those actions that exceeded the threshold limits.

Table 7: Noise Threshold Limits

Assessment Category and Threshold Value Period (L _{Aeq})	Category A*	Category B*	Category C*
Daytime: Monday to Friday 8am to 7pm Saturdays 8am to 1pm	65	70	75
Evening and Weekends ^D	55	60	65
Night-time (11pm to 7am)	45	60	65

*Threshold value, in decibels (dB)

- A. Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values.
- B. Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as Category A values.
- C. Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than Category A values.
- D. 7pm to 11pm weekdays. 1pm to 11pm Saturdays and 7am to 11pm Sundays.

A threshold value of 65dB LAeq, 1hr free-field at residential noise sensitive locations in the vicinity of the development will be adopted. If this threshold is exceeded, the contractor will take the necessary steps to review the works and implement additional noise reduction measures.

7.5.3 Vibration Monitoring

Vibration monitoring stations, as depicted in **Figure 7**, must continually log vibration levels using the Peak Particle Velocity parameter (PPC, mm/s) in the X, Y and Z directions in accordance with BS ISO 4866:2010: Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures. Daily recordings will be recorded in the daily site diary and compared to the baseline readings. All noise monitoring data will be compiled into a weekly technical report by the contractor for review and approval by the Environmental Monitoring Officer and be available for the public on request. Vibration monitors, of both aural and visual type, with real time outputs will be used. The traffic light system to be in place consisting of:

- ❖ Green: *Ok to proceed* – Vibration limits below all threshold limits.
- ❖ Amber: *Stop and evaluate* – Vibration exceed first threshold limit.
- ❖ Red: *Stop and action* – Vibration exceeds second threshold limit.

The Peak Particle Velocity threshold limits are tabulated in **Table 8**.

Table 8: Vibration Monitoring Limits.

Frequency (Hz)	Green Limit	Amber Limit	Red Limit
<10	< 7 mm/s	7 mm/s	8 mm/s
11 to 50	< 11 mm/s	11 mm/s	12.5 mm/s
> 51	< 15 mm/s	15 mm/s	20 mm/s

It is required from the contractor to conduct dilapidation surveys of all properties adjoining the development prior to any works commencing on site. The results obtained from these surveys will inform any specific requirements in terms of potential locations for vibration monitors.

7.6 Construction Vehicle Movements

To minimise impacts to existing traffic and residents, construction traffic will be restricted to certain routes and only during specific time periods as detailed in Section 4.2. To further minimise impacts, construction traffic volumes will be managed through implementing the following measures:

- ❖ Consolidation of delivery loads to / from the site and the restriction of large deliveries to site to off-peak traffic times.
- ❖ Daily construction schedules will be planned to minimise the impact to surrounding public roads by staggering HGV movements to reasonably endeavour no queuing of HGV on public roads.
- ❖ Measures will be implemented to prevent the spillage or deposit of clay, rubble, or other debris on the public network. These measures will include but will not be limited to a combination of a full time road sweeper, wheel wash, automated spray booth provision at each site entrance and good waste management practice employment by the contractor.
- ❖ Vehicle removing material on site will be loaded carefully to reduce the risk of spillage from the vehicles onto nearby roads. All hauling trucks will be covered to prevent spillage.
- ❖ The contractor will provide and put in place alternative arrangements for pedestrians and vehicles in the event of the closure of any public road or footpath during construction. A SCMP that conforms with the requirements set out in the CEMP will be prepared by the contractor and will include details of the alternative arrangements.

7.7 Construction Material

All imported soils and unbound granular fills will be sourced from a licenced/permitted facility with suitable documentation to confirm the material is inert and fit for purpose. The contractor will satisfy themselves that the material is fit for use before importing to the site.

7.8 Site Housekeeping

All contractors working on site are required to meet all site housekeeping standards. Work areas shall be cleaned daily and left in a clean and tidy state and all debris and redundant materials removed to the designated waste storage area.

7.9 Approval for Flying Drones

Flying of a drone is to be approved by local authority & community forum. Application is to be submitted 10 days prior, clarifying the following: date, time, duration & reason for the request.

8. DETAILED CONSTRUCTION AND WASTE MANAGEMENT PLAN

Prior to the commencement of construction, the appointed contractor will submit to the Local Authority for agreement in writing an updated Construction and Demolition Waste Management Plan (CDWMP) for the recovery/disposal of all wastes arising from the demolition and construction related

activities. The CDWMP will conform with the requirements of the CEMP, CDWMP and any relevant planning conditions and will include, but not be limited to, the following:

- ❖ A list of proposed authorised waste collection permit holders to be employed.
- ❖ A list of the proposed waste License permitted site at which the wastes may be recovered or disposed of.
- ❖ Detailed estimates of the proposed tonnages of construction and demolition wastes.
- ❖ A detailed list of the collectors and the waste recovery site including estimated tonnages shall be submitted.

9. BAILEY GIBSON AND PLAYER WILLS CONSTRUCTION OVERLAP

In the event that there is an overlap between the construction phase of the Player Wills development with that of Bailey Gibson, the worst case scenario would be 24 months. Importantly, the peak construction period of either site will not overlap, it is calculated that they will be approximately 4 months apart.

For efficiencies, the site access roads will be shared between the two main contractors. It is calculated that the combined cumulative HGV movement will not exceed 20 to 30 vehicles per working day at the peak of the construction activities. To reduce the impact on the public road network, the contractors will schedule and sequence HGV movement during this period considering the scheduled works for either site. It is envisaged that the site access routes will be cordoned off where it bisects through both sites.

All construction activities and facilities such as laydown areas, welfare facilities etc. will be contained within the site boundaries of the Bailey Gibson and Player Wills site during the overlap of the construction phase for both sites. Both contractors will submit a Site Specific Construction Management Plan that conforms with the requirements of this CEMP and will include details on, but not limited to:

- ❖ Details of site security, fencing and hoardings between the two sites.
- ❖ Details of the timing and routing of construction traffic to and from the construction site and associated directional signage, to include proposals to facilitate the delivery of abnormal loads to the site, for both sites.

- ❖ Details on site compound layouts;
- ❖ Site access management.

10. CONCLUSION

The implementation of this CEMP will help ensure that works are managed and delivered in a manner that avoids, reduces, and minimises environmental impacts from the construction phase. The CMP ensures that possible impacts that may arise from the works, such as noise, dust, traffic etc. have been appropriately identified, managed, and minimized.

The CEMP will be managed and updated throughout the construction phase as required by the main contractor. It is intended that the revisions to this document will be circulated and agreed in writing with Dublin City Council prior to commencement of work. This plan must be read in conjunction with the Environmental Impact Assessment Report (EIAR) prepared by MH Planning and the Construction and Demolition Waste Management Plan (CDWMP) prepared by Barrett Mahony Consulting Engineers.

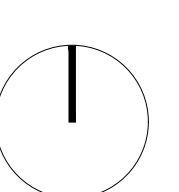
The appointed contractor will adopt the CDWMP submitted for planning and prepare a detailed Site Specific Construction and Demolition Waste Management Plan on how the full compliance with the planning application details and the CDWMP prepared by BMCE will be achieved.

The Environmental Risk Assessment and Waste Characterisation Report concluded that hydrocarbon & PAH contamination is present on site. The Site Specific Construction Management Plan must detail measures to avoid cross-contamination and how groundwater will be controlled during excavation. The report further concluded that ground gas does not present a risk to the redevelopment of the site.

APPENDIX A: Proposed Site Layout



NOTE:
 ALL DIMENSIONS TO BE CHECKED ON SITE
 NO DIMENSIONS TO BE SCALED FROM THIS DRAWING
 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH
 RELEVANT CONSULTANTS DRAWINGS



- SITE BOUNDARY
- APPLICANT OWNERSHIP
- SITE IN DCC OWNERSHIP
- ⊕ LOCATION OF SITE NOTICE

APPLICATION SITE AREA: 3.06 HA
 DCC OWNERSHIP SITE AREA: 0.70 HA



REV	DATE	DESCRIPTION	BY	CHKD

PLANNING

Henry J Lyons

Architecture • Interiors • +353 1 888 3333 S1.54 Parnass Street
 henryjlyons.com info@henryjlyons.com Dublin D02 XA66

KPF Kohn Pedersen Fox Associates
 International P.A. a member of
 the Parsons Brinckerhoff Group
 1100 Avenue of the Americas
 New York, NY 10020-6002
 Tel: +1 212 512 1100
 Fax: +1 212 512 1101
 www.kohnpedersenfox.com

CLIENT: DBTR-SCR1 Fund

PROJECT: SHD on the former Player Wills Site and Dublin City Council Lands at South Circular Road, Dublin 8

JOB NUMBER:	950578
DATE:	SEPTEMBER 2020
SCALE:	1:500 (A3)
DRAWN:	EW
CHECKED:	TF
FILE NAME:	950578_P0003_Site Layout Plan Proposal_PW

DRAWING: SITE SERIES
 SITE LAYOUT PLAN - PROPOSED

BLOCK	DRAWING NUMBER	ZONE	REVISION
	PL0003		A

APPENDIX B: Construction Phasing Plans & Programme



Proposed Strategic Housing Development on the former Player Wills site and undeveloped land owned by Dublin City Council at South Circular Road, Dublin 8.

Construction Programme Phasing Diagrams

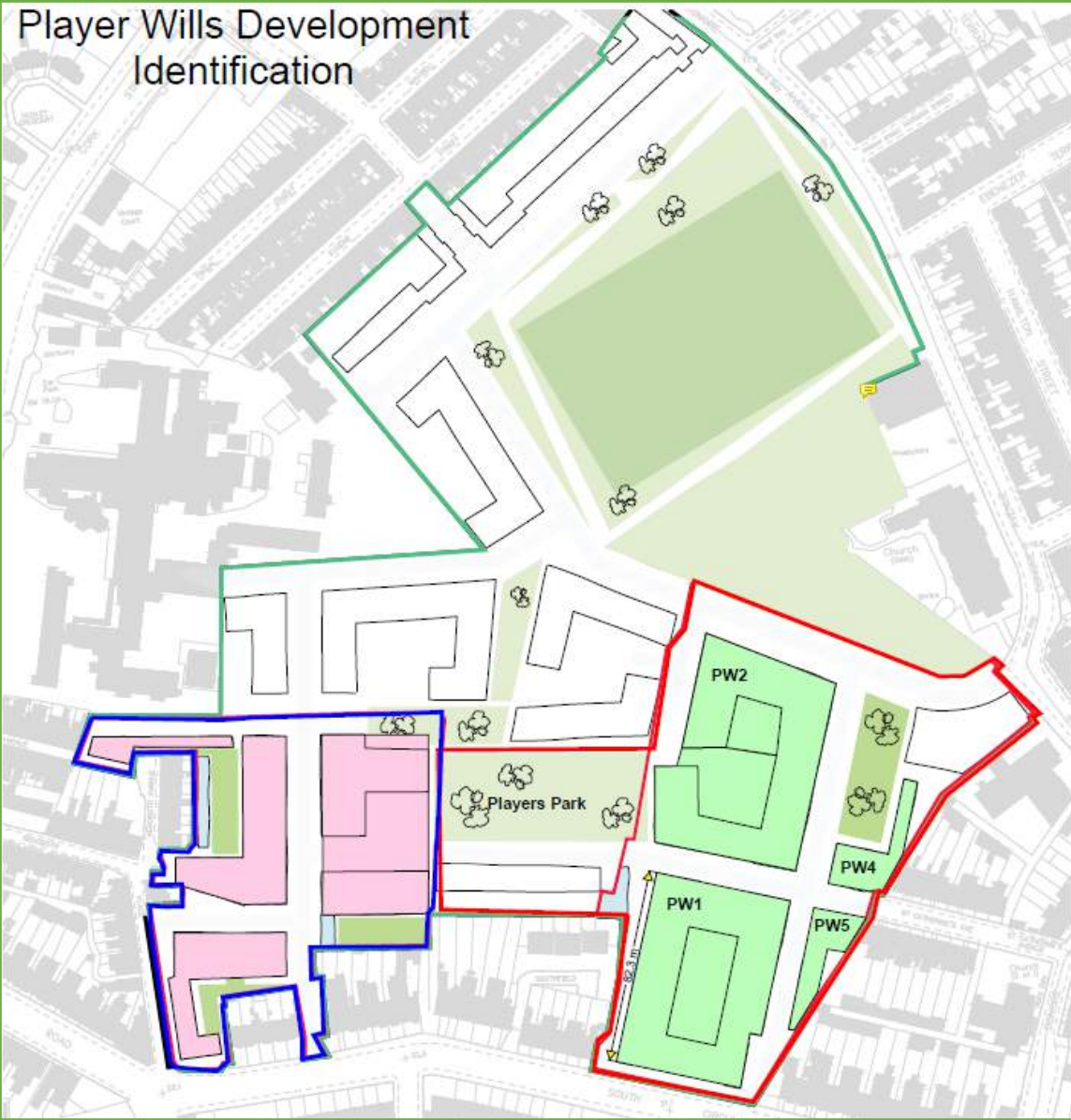
December 2020



Player Wills Development Identification

Player Wills Development

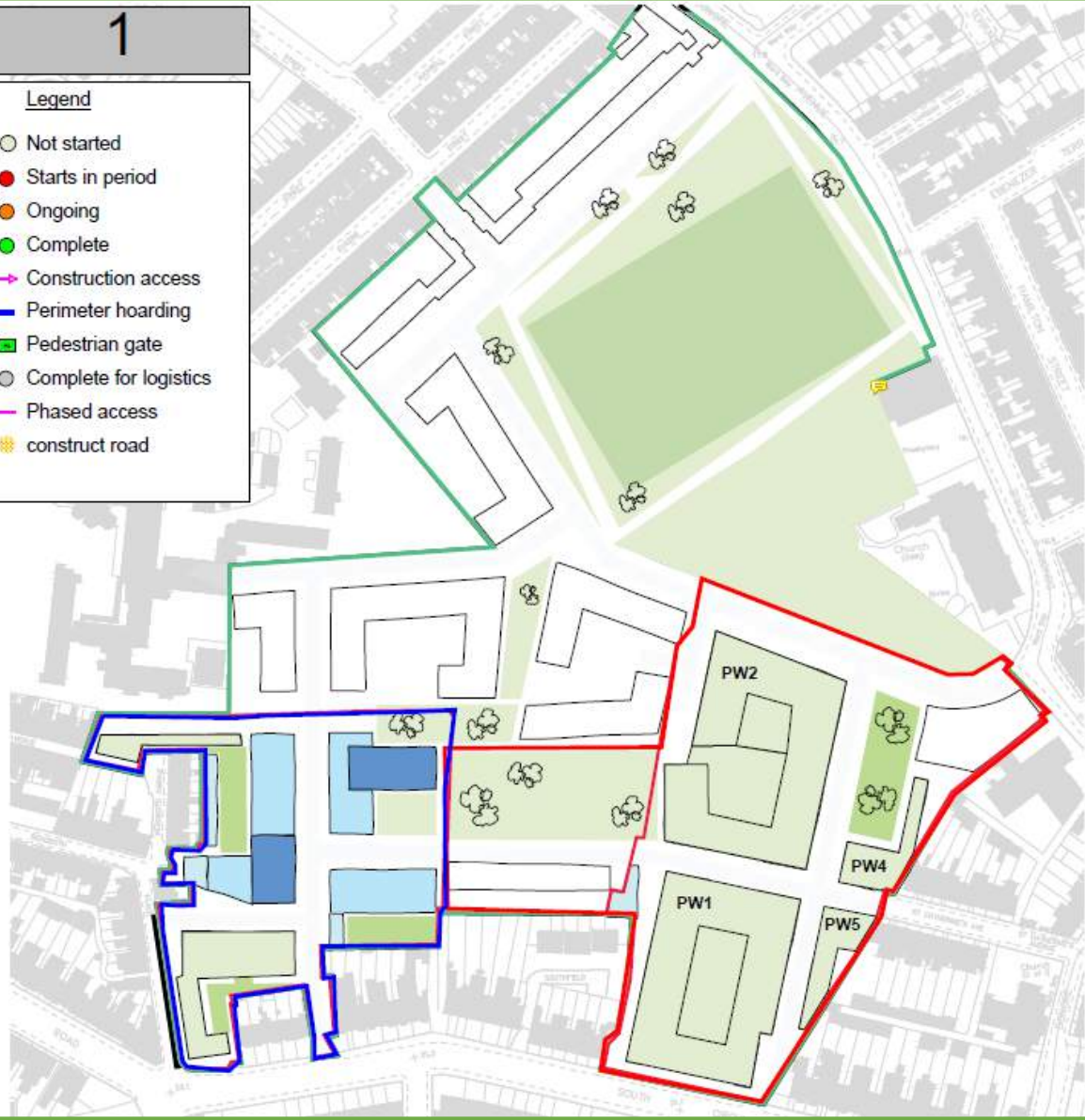
- PW1
- PW2
- PW4
- PW5
- Players Park



1

Legend

- Not started
- Starts in period
- Ongoing
- Complete
- Construction access
- ▬ Perimeter hoarding
- ▬ Pedestrian gate
- Complete for logistics
- ▬ Phased access
- ⊞ construct road



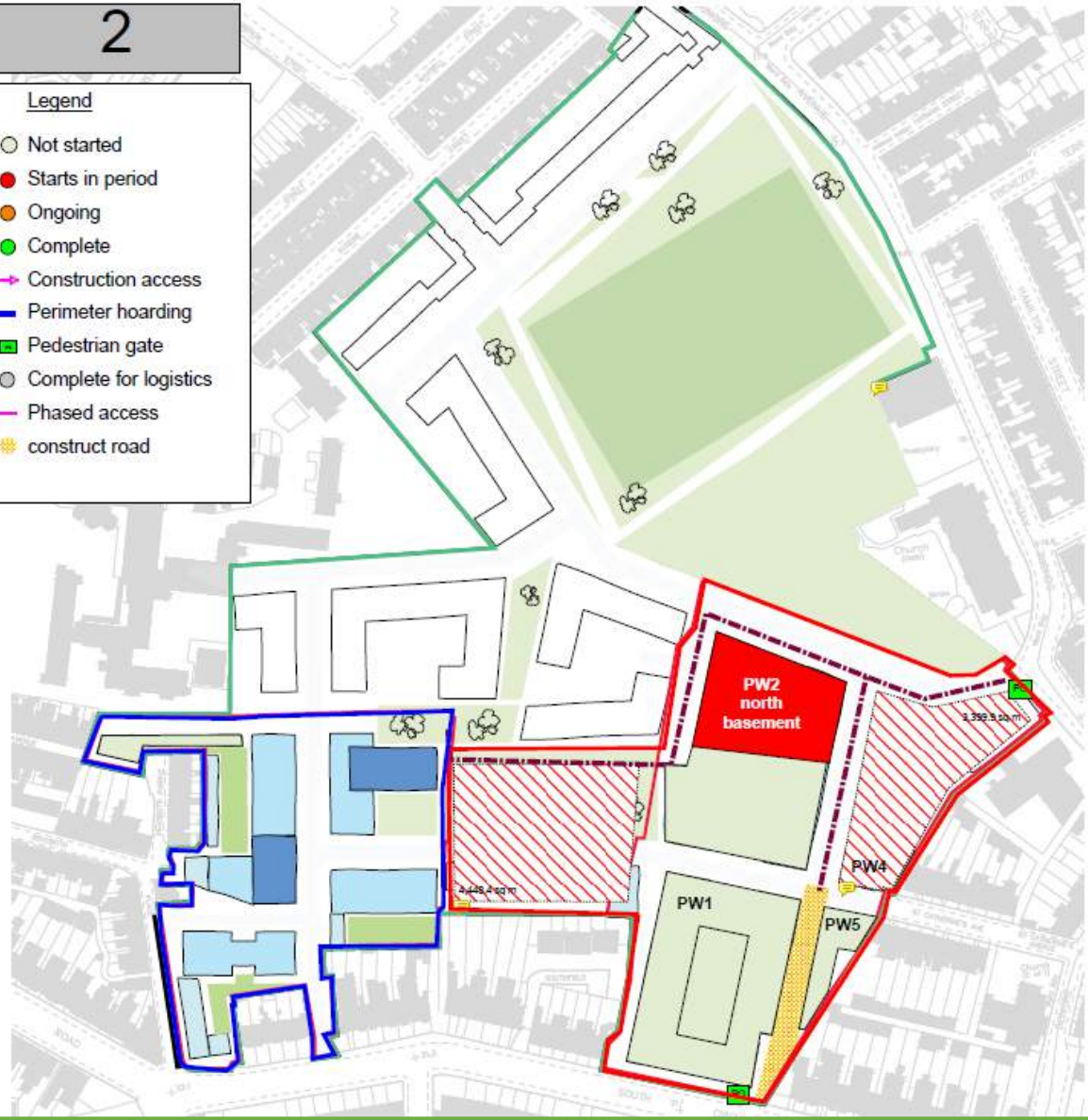
Player Wills Development

- Site Set Up Started:
- Demolition
- Infrastructure
- Basement

2

Legend

- Not started
- Starts in period
- Ongoing
- Complete
- ➔ Construction access
- Perimeter hoarding
- Pedestrian gate
- Complete for logistics
- Phased access
- 🚧 construct road



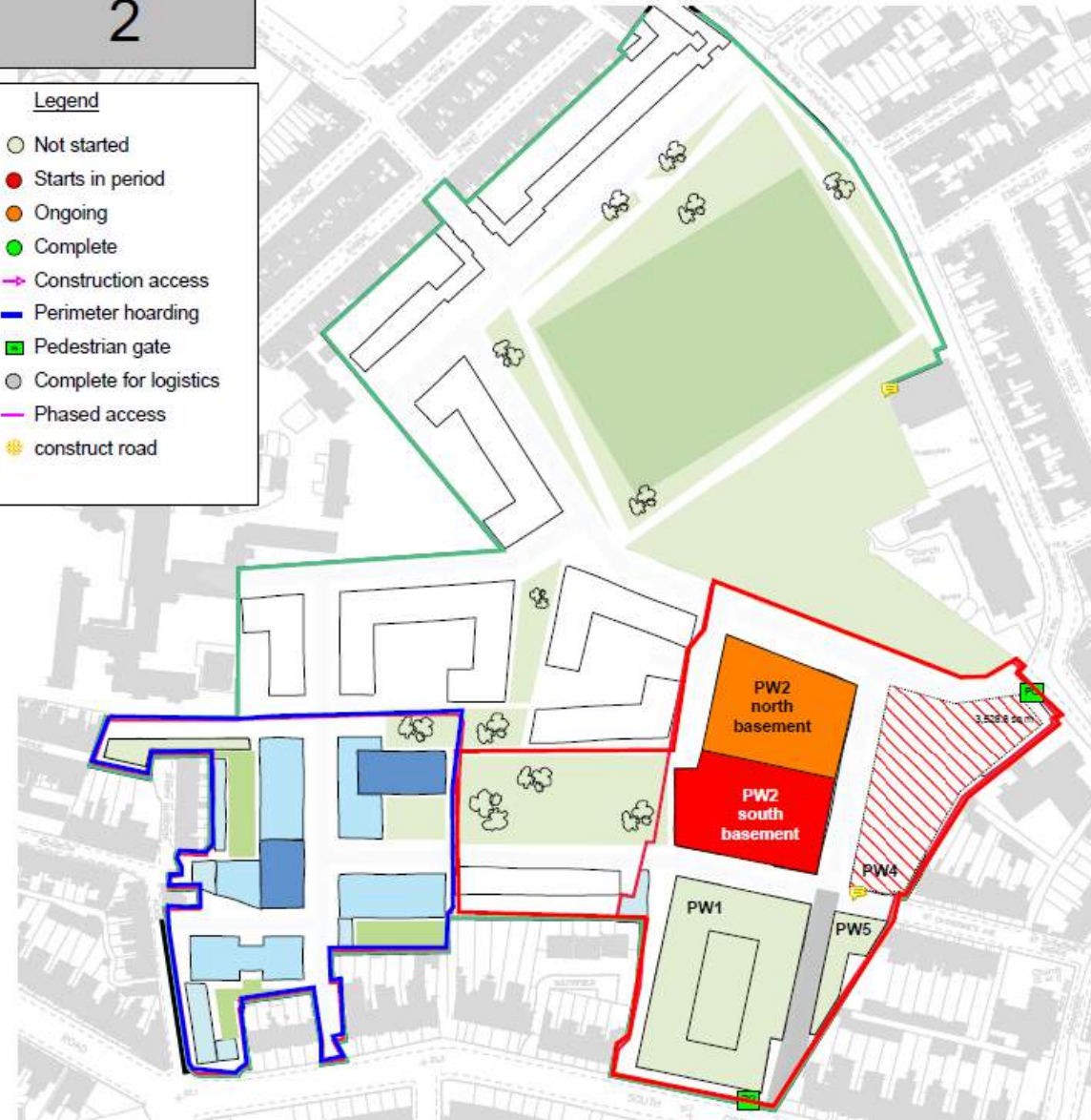
Player Wills Development

- Site set up: complete
- Main drainage ongoing
- Construct road east of PW1 for access
- PW2: north basement commences

2

Legend

- Not started
- Starts in period
- Ongoing
- Complete
- Construction access
- Perimeter hoarding
- Pedestrian gate
- Complete for logistics
- Phased access
- construct road



Player Wills Development

Site set up: complete
Main drainage complete
PW2: north basement ongoing
PW2 south basement commences

3

- Legend
- Not started
- Starts in period
- Ongoing
- Complete
- Construction access
- Perimeter hoarding
- Pedestrian gate
- Complete for logistics
- Phased access
- ☀ construct road

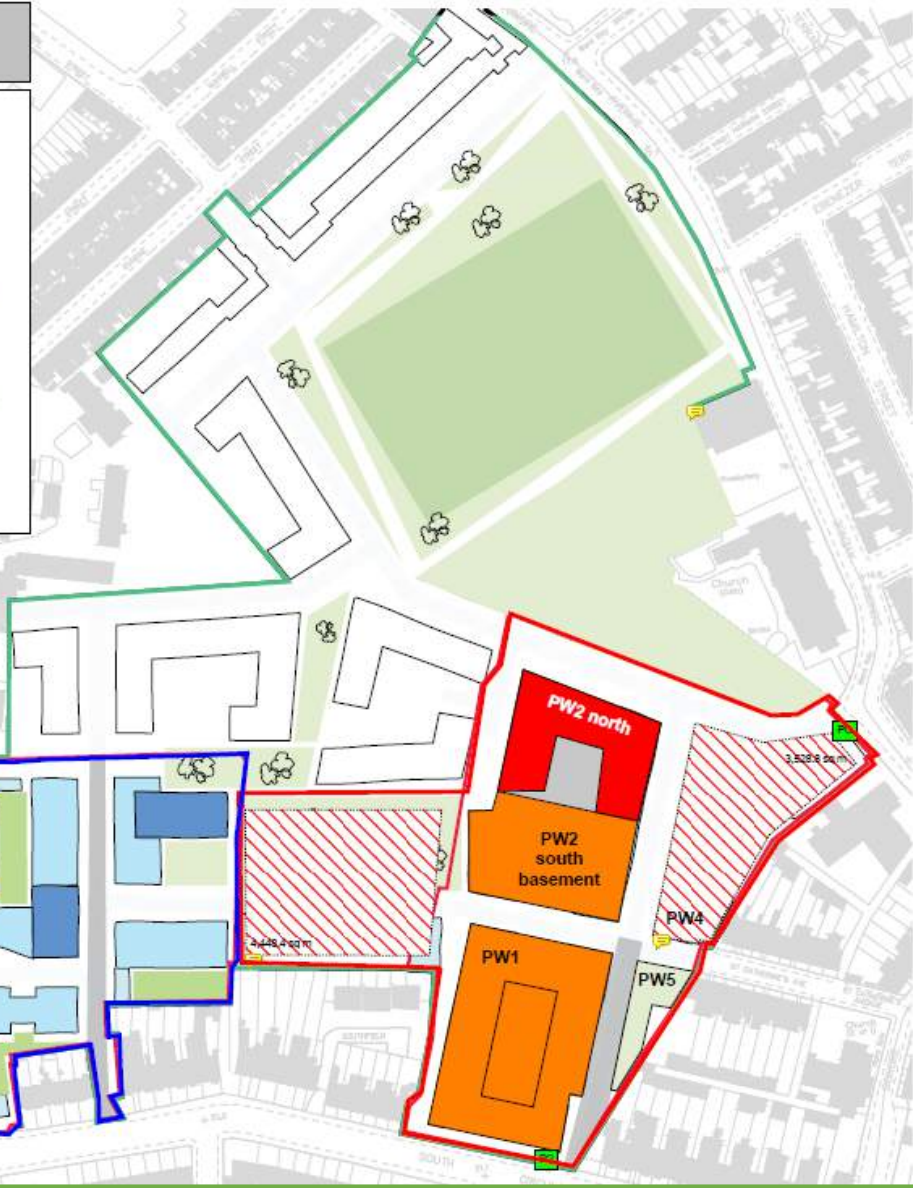


Player Wills Development
Main drainage complete
Access road complete, open also across BG basement
PW1: starts
PW2: north basement ongoing and core construction
PW2: south basement ongoing

4

Legend

- Not started
- Starts in period
- Ongoing
- Complete
- Construction access
- Perimeter hoarding
- Pedestrian gate
- Complete for logistics
- Phased access
- construct road



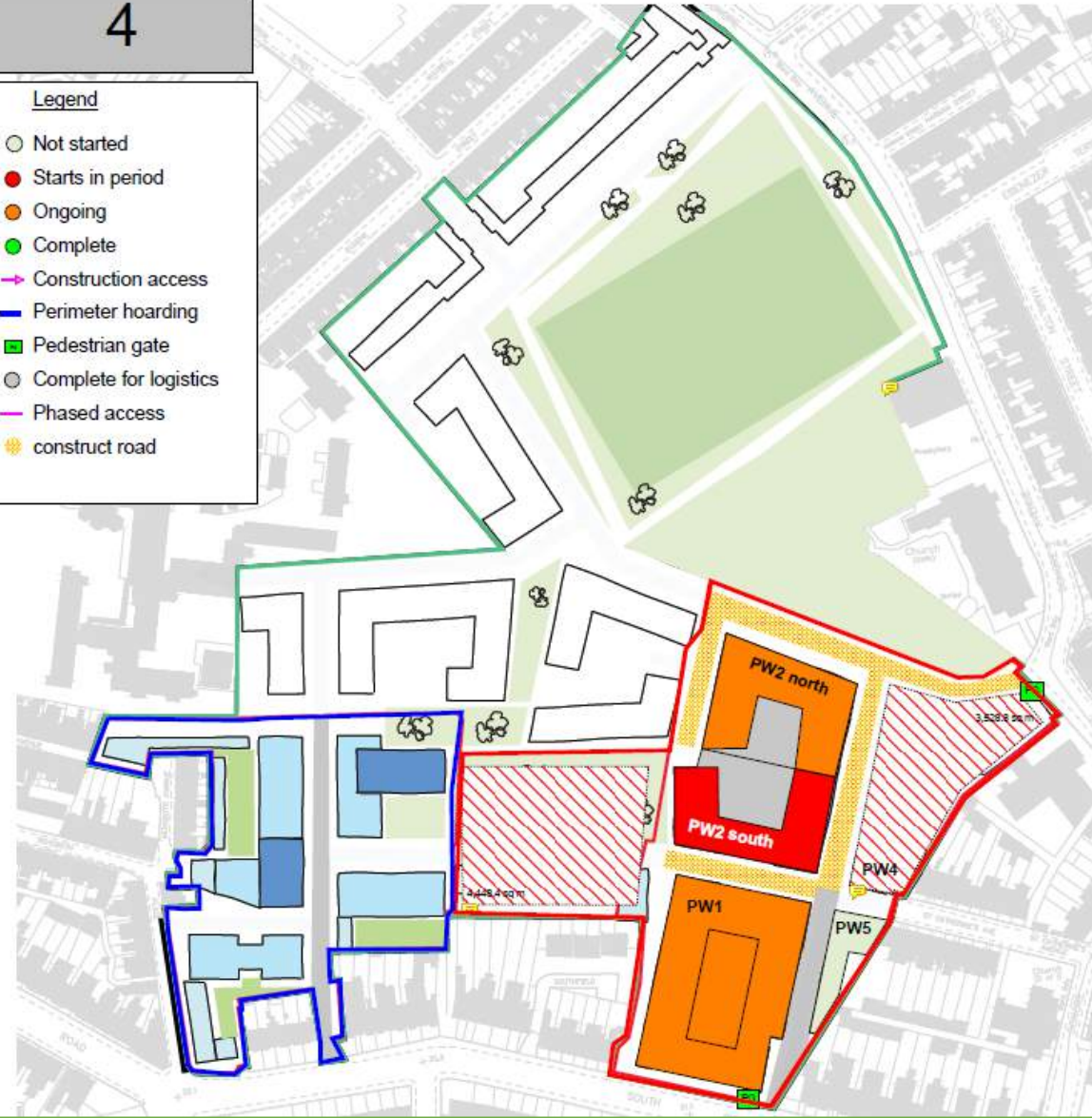
Player Wills Development

- PW1: ongoing
- PW2: north basement structure complete, north superstructure commences
- PW2: south basement continues

4

Legend

- Not started
- Starts in period
- Ongoing
- Complete
- Construction access
- Perimeter hoarding
- Pedestrian gate
- Complete for logistics
- Phased access
- construct road



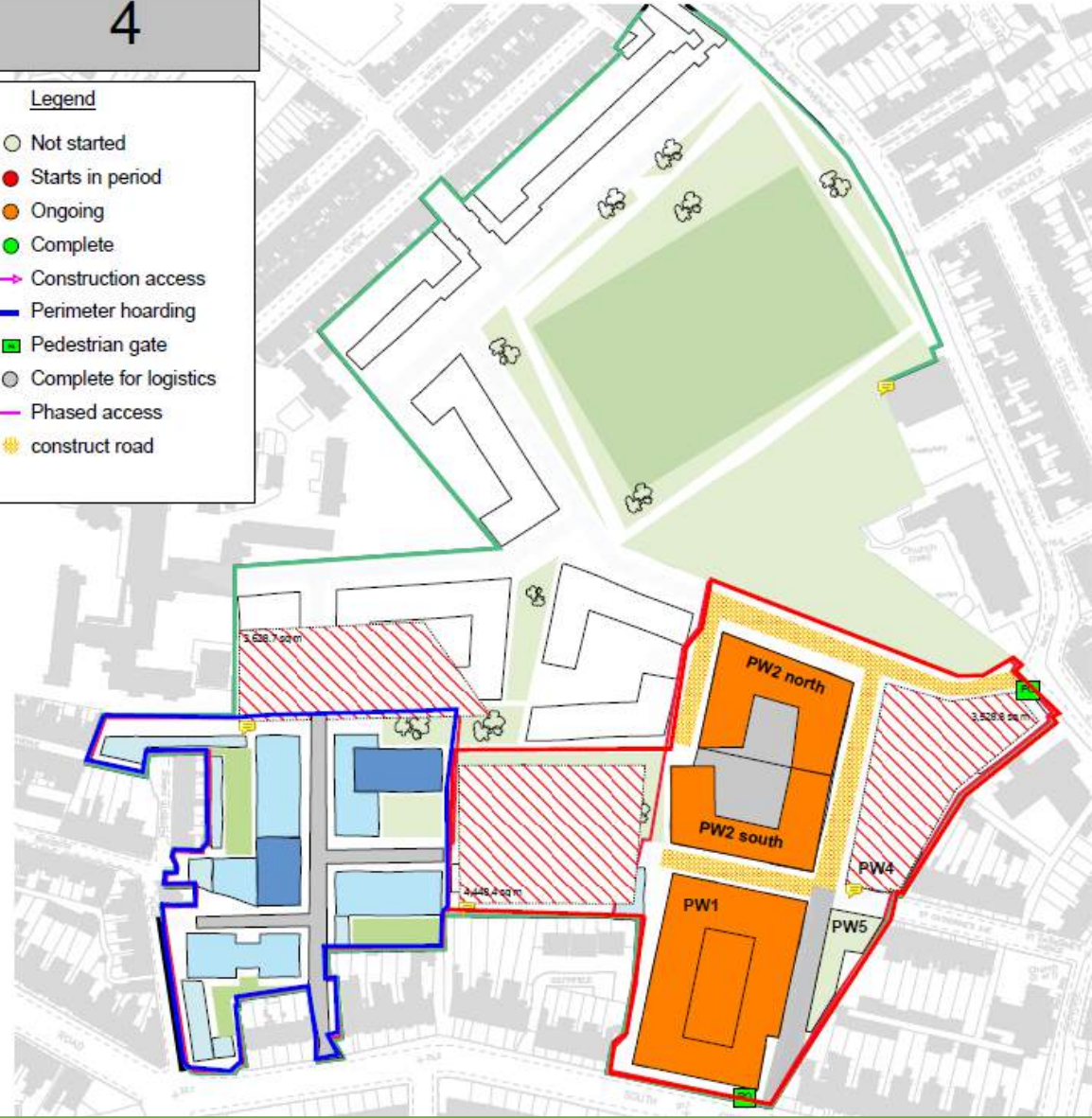
Player Wills Development

- PW1: ongoing
- PW2: north basement structure complete, north superstructure commences
- PW2: south basement structurally complete allowing road to its' east to be built
- Complete road network around backfilled basement, phased to suit logistics, superstructure commences, start superstructure

4

Legend

- Not started
- Starts in period
- Ongoing
- Complete
- Construction access
- Perimeter hoarding
- Pedestrian gate
- Complete for logistics
- Phased access
- ⚡ construct road



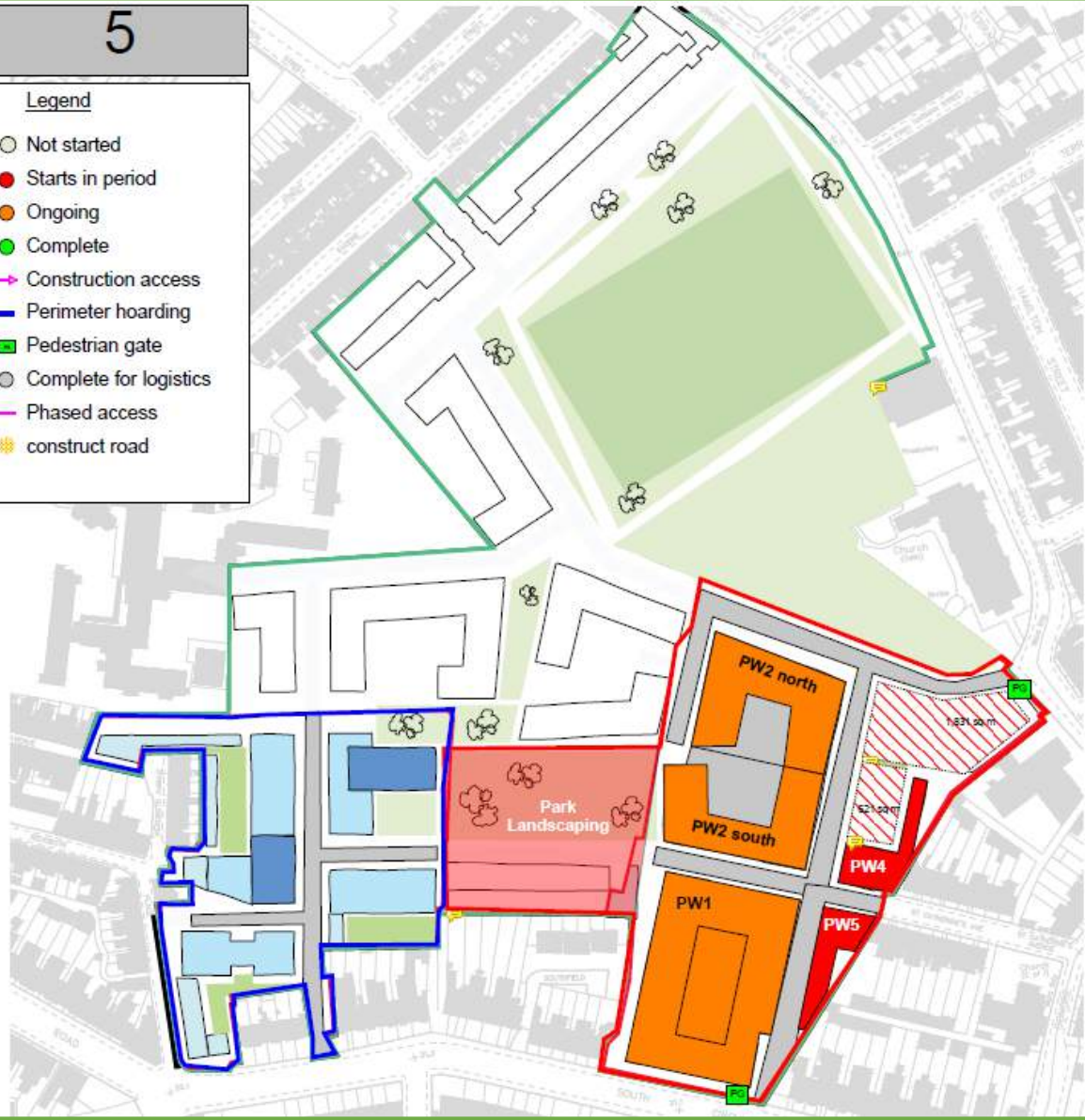
Player Wills Development

PW1: ongoing
PW2: ongoing

5

Legend

- Not started
- Starts in period
- Ongoing
- Complete
- Construction access
- ▬ Perimeter hoarding
- ▬ Pedestrian gate
- Complete for logistics
- ▬ Phased access
- 🚧 construct road



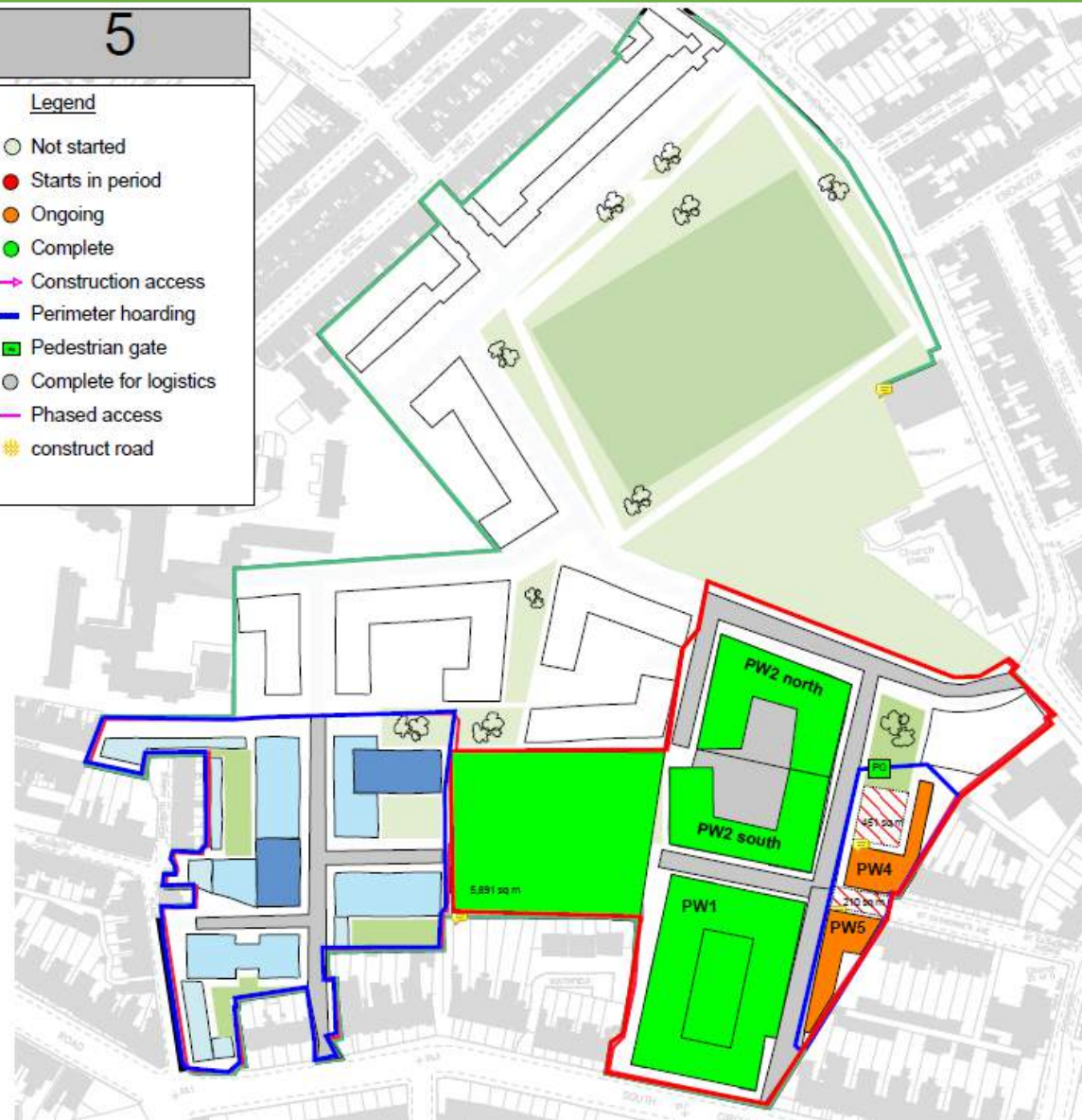
Player Wills Development

- PW1: ongoing
- PW2: ongoing
- Works to Players Park area commence to complete with the PC of PW2
- PW4 commences
- PW5 commences

5

Legend

- Not started
- Starts in period
- Ongoing
- Complete
- ➔ Construction access
- Perimeter hoarding
- Pedestrian gate
- Complete for logistics
- Phased access
- ⊞ construct road



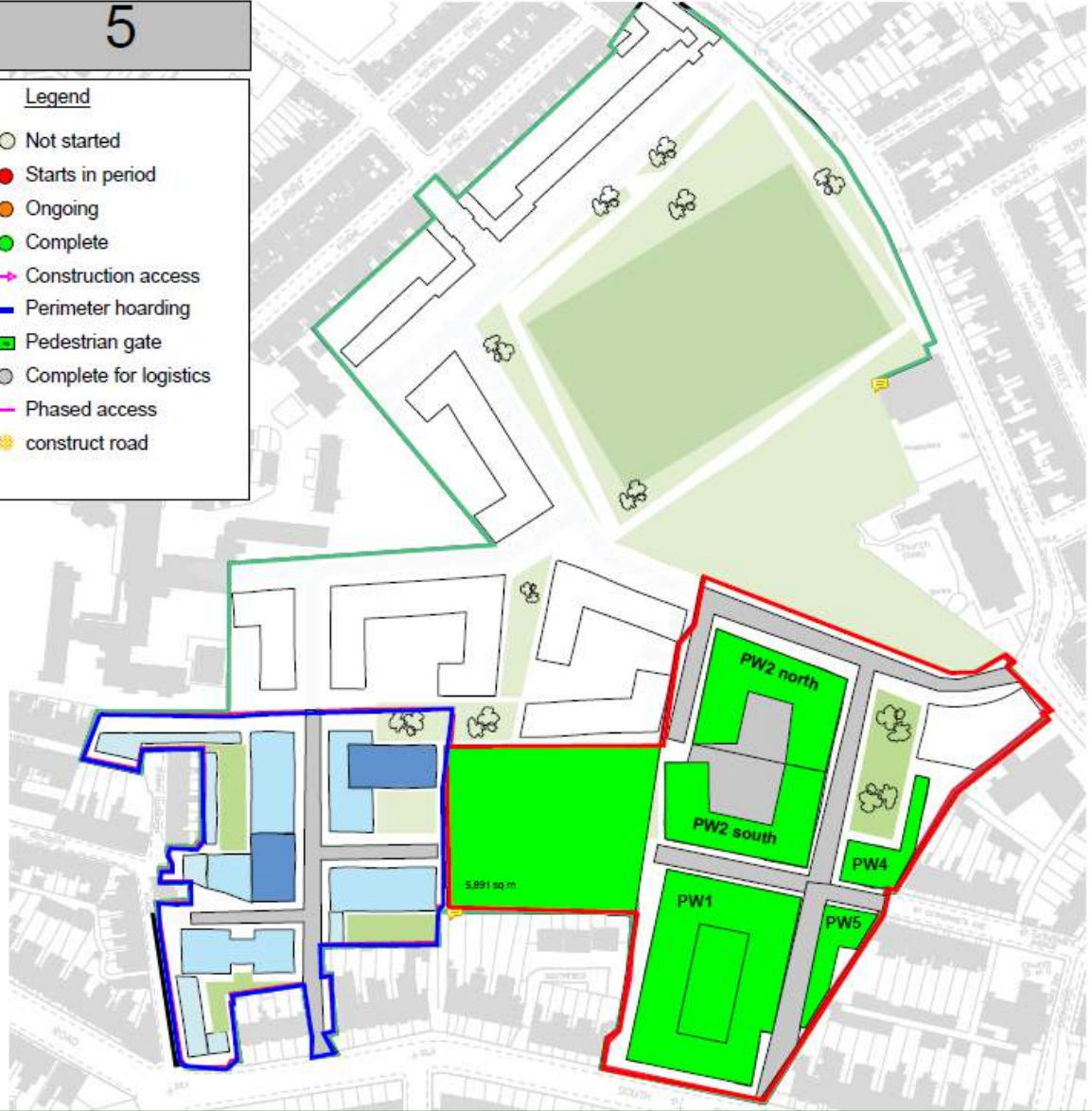
Player Wills Development

PW1: complete
PW2: complete
PW4: ongoing
PW5: ongoing
works to Players Park area completes and handed over with PW2

5

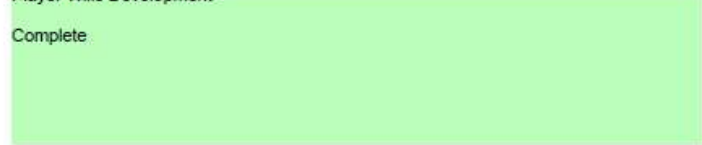
Legend

- Not started
- Starts in period
- Ongoing
- Complete
- Construction access
- ▬ Perimeter hoarding
- ▬ Pedestrian gate
- Complete for logistics
- ▬ Phased access
- ⚙ construct road



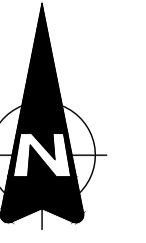
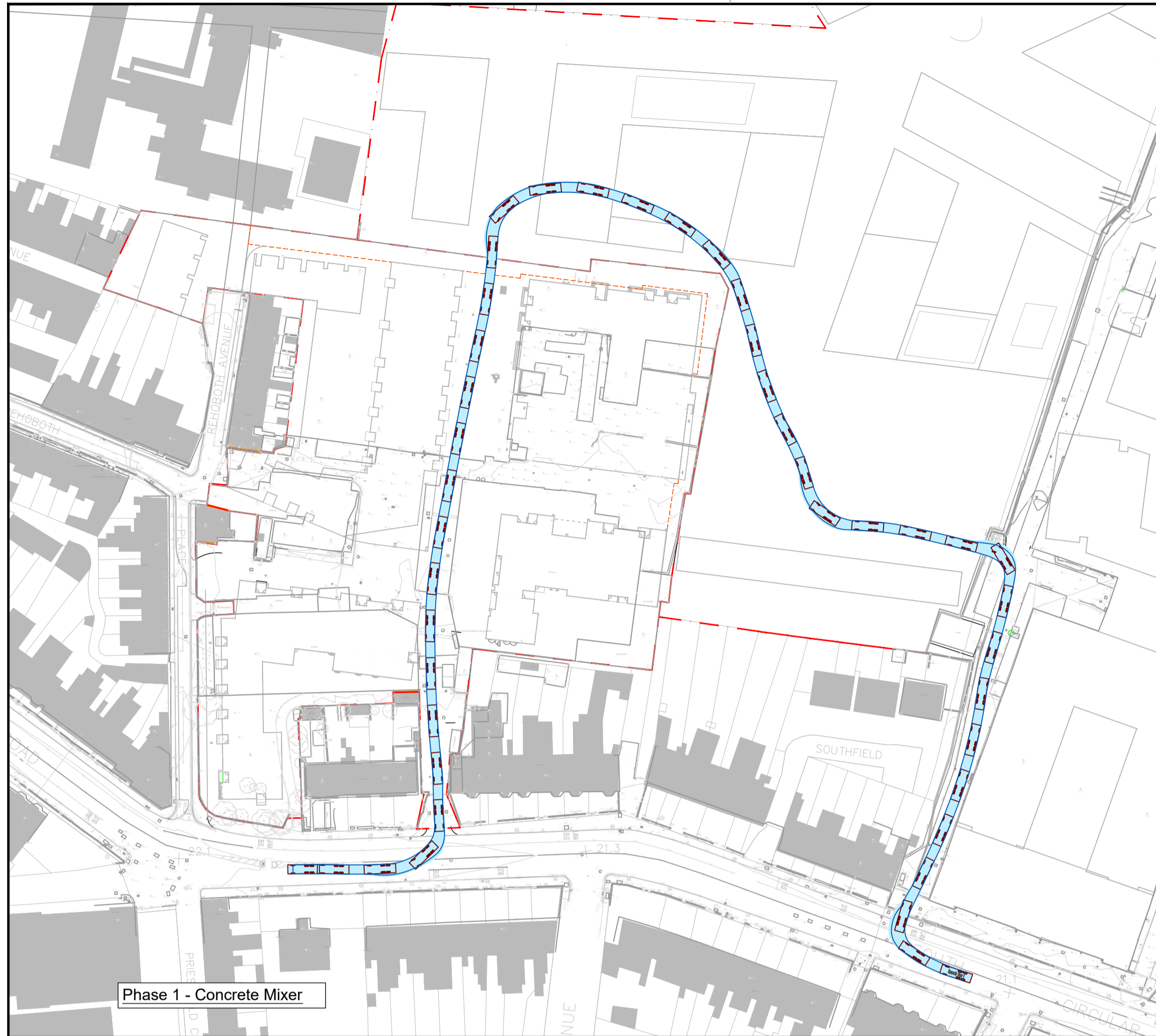
Player Wills Development

Complete



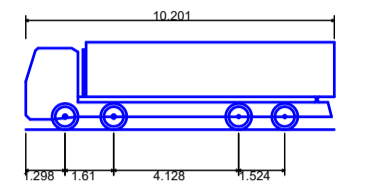
APPENDIX C: Construction Vehicle Tracking





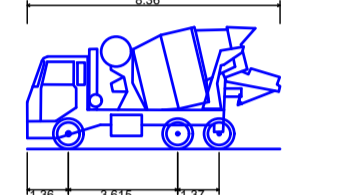
- Notes:
1. Do not scale from drawing
 2. All dimensions in metres unless otherwise stated

Large Tipper



Overall Length 10.201m
 Overall Body Height 2.455m
 Overall Height 2.890m
 Min Body Ground Clearance 0.341m
 Track Width 2.41m
 Lock to lock time 6.09s
 Kerb to Kerb Turning Radius 11.550m

Concrete Mixer



Overall Length 8.360m
 Overall Width 2.390m
 Overall Body Height 4.027m
 Min Body Ground Clearance 0.358m
 Max Track Width 2.413m
 Lock to lock time 6.09s
 Kerb to Kerb Turning Radius 8.210m

Large Tipper
 Route as per RPM Phasing Plans

Concrete Mixer
 Route as per RPM Phasing Plans

A	12/10/2020	FIRST ISSUE	AMP	AA	AA
Rev.	Date	Revision made	Drawn	Checked	Approved

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2nd Floor, Riverview House
 21-23 City Quay, Dublin 2
 D02 FP21 Tel: +353 1 566 2028

Client: CWTC Multi Family ICAV

Project: PLAYER WILLS & BAILEY GIBSON

Title: Phase 1 & 2 Construction - Phasing Plans
 Vehicle Tracking
 Large Tipper & Concrete Mixer
 Phasing Plan 1, 2 & 3

Drawn	AMP	Checked	AA	Approved	AA
Original org. size	A1	Date	October 2020	Scale	1:1000
Drawing Status	Planning	Drawing Number	SYS-PW-CTMP-01	Rev.	A



Phase 4 - Large Tipper

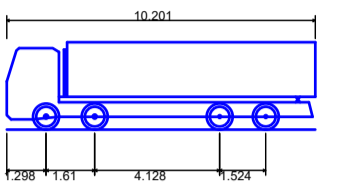


Phases 5 & 6 - Large Tipper



- Notes:
1. Do not scale from drawing
 2. All dimensions in metres unless otherwise stated

Large Tipper



Overall Length 10.201m
 Overall Width 2.455m
 Overall Body Height 2.850m
 Min Body Ground Clearance 0.341m
 Track Width 2.471m
 Lock to lock time 6.00s
 Kerb to Kerb Turning Radius 11.550m

Large Tipper
 Route as per RPM Phasing Plans

A	12/10/2020	FIRST ISSUE	AMP	AA	AA
Rev.	Date	Revision made	Drawn	Checked	Approved

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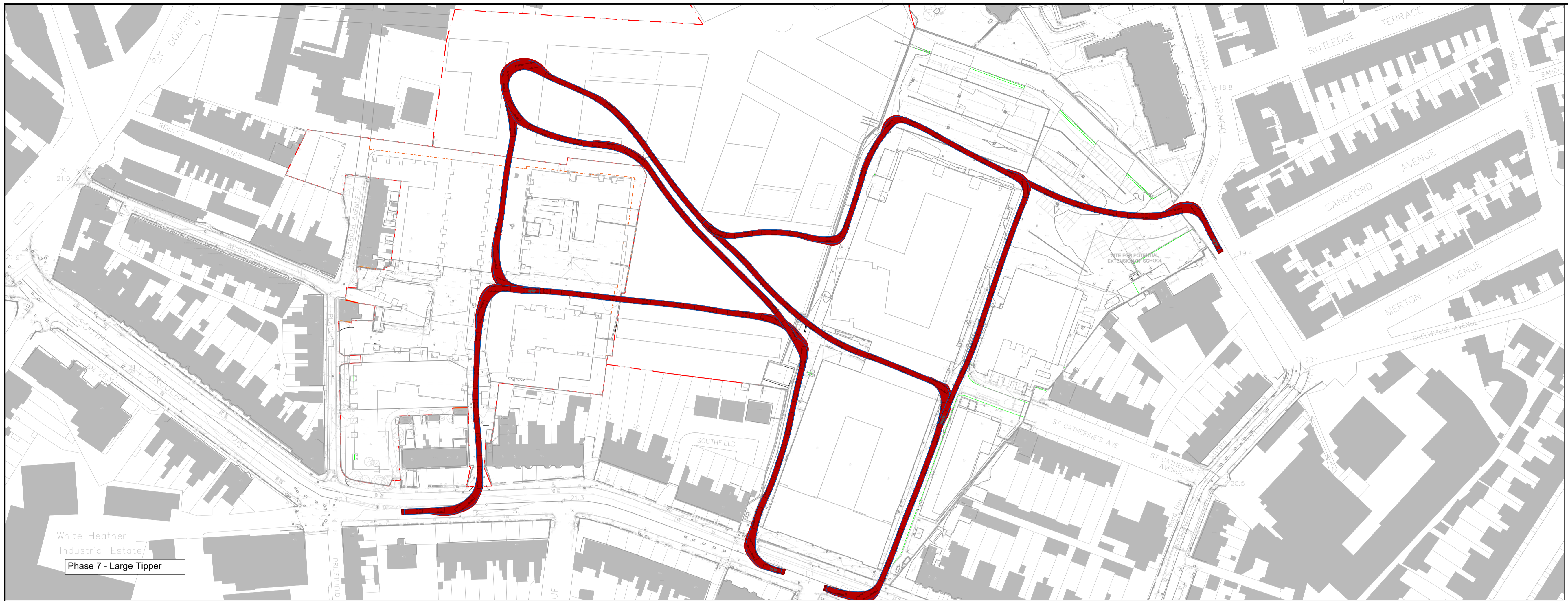
2nd Floor, Riverview House
 21-23 City Quay, Dublin 2
 D02 FP21 Tel: +353 1 566 2028

Client: CWTC Multi Family ICAV

Project: PLAYER WILLS & BAILEY GIBSON

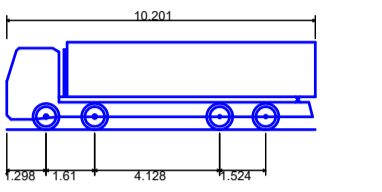
Title: Phase 1 & 2 Construction - Phasing Plans
 Vehicle Tracking
 Large Tipper
 Phasing Plan 4, 5 and 6

Drawn	AMP	Checked	AA	Approved	AA
Original org. size	A1	Date	October 2020	Scale	1:1000
Drawing Status	Planning	Drawing Number	SYS-PW-CTMP-02	Rev.	A



- Notes:
1. Do not scale from drawing
 2. All dimensions in metres unless otherwise stated

Large Tipper



Overall Length 10.201m
 Overall Width 2.450m
 Overall Body Height 2.850m
 Min Body Ground Clearance 0.341m
 Track Width 2.471m
 Lock to lock time 6.09s
 Kerb to Kerb Turning Radius 11.550m

Large Tipper
 Route as per RPM Phasing Plans



A	12/10/2020	FIRST ISSUE	AMP	AA	AA
Rev.	Date	Revision made	Drawn	Checked	Approved

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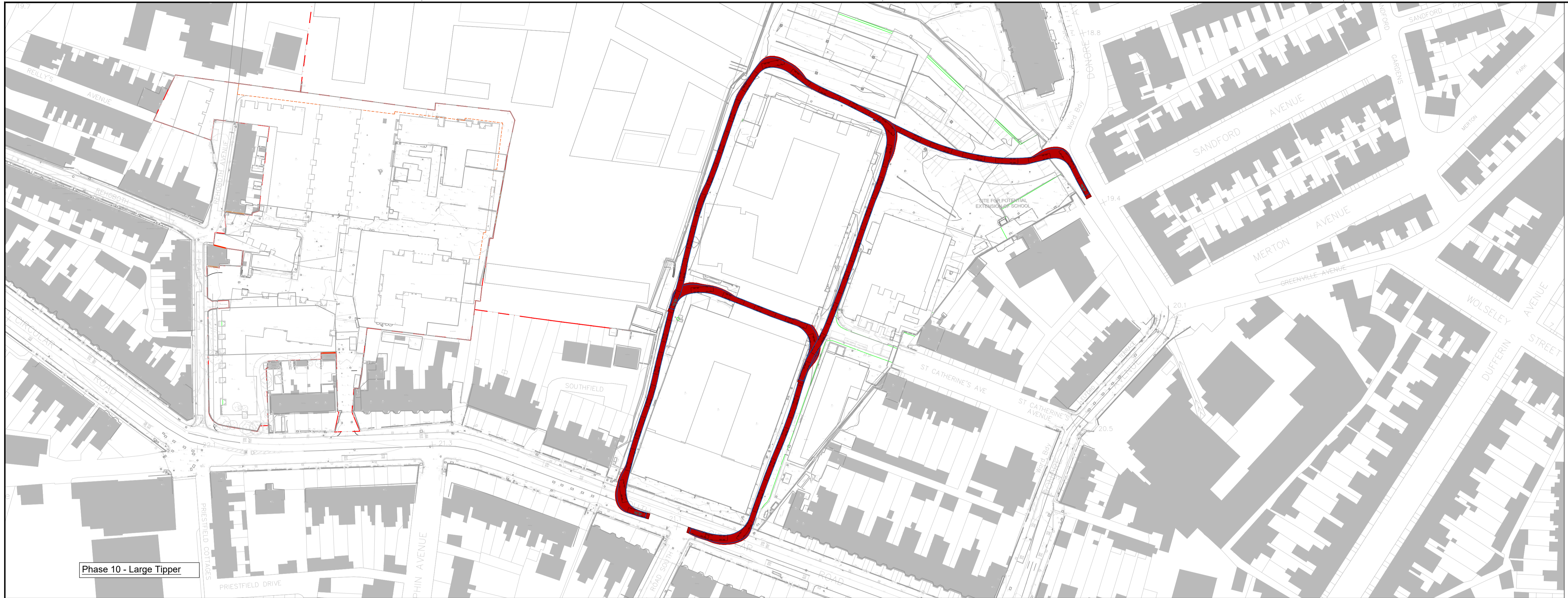
2nd Floor, Riverview House
 21-23 City Quay, Dublin 2
 D02 FP21 Tel: +353 1 566 2028

Client: CWTC Multi Family ICAV

Project: PLAYER WILLS & BAILEY GIBSON

Title: Phase 1 & 2 Construction - Phasing Plans
 Vehicle Tracking
 Large Tipper
 Phasing Plan 7, 8 & 9

Drawn	AMP	Checked	AA	Approved	AA
Original org. size	A1	Date	October 2020	Scale	1:1000
Drawing Status	Planning	Drawing Number	SYS-PW-CTMP-03	Rev.	A



Phase 10 - Large Tipper

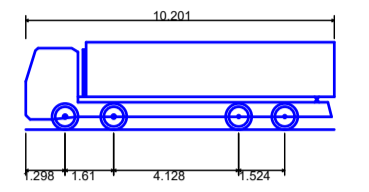


Phase 11 - Large Tipper



- Notes:
1. Do not scale from drawing
 2. All dimensions in metres unless otherwise stated

Large Tipper



Overall Length 10.201m
 Overall Width 2.450m
 Min Body Height 0.341m
 Track Width 2.471m
 Lock to lock time 6.00s
 Kerb to Kerb Turning Radius 11.550m

Large Tipper
 Route as per RPM Phasing Plans

Rev	Date	Revision made	Drawn	Checked	Approved
A	12/10/2020	FIRST ISSUE	AMP	AA	AA

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2nd Floor, Riverview House
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Client: CWTC Multi Family ICAV

Project: PLAYER WILLS & BAILEY GIBSON

Title: Phase 1 & 2 Construction - Phasing Plans
 Vehicle Tracking
 Large Tipper
 Phasing Plan 10 & 11

Drawn	Checked	Approved
AMP	AA	AA
Original dwg size	Date	Scale
A1	October 2020	1:1000
Drawing Status	Drawing Number	Rev.
Planning	SYS-PW-CTMP-04	A

APPENDIX D: Site Construction Compound

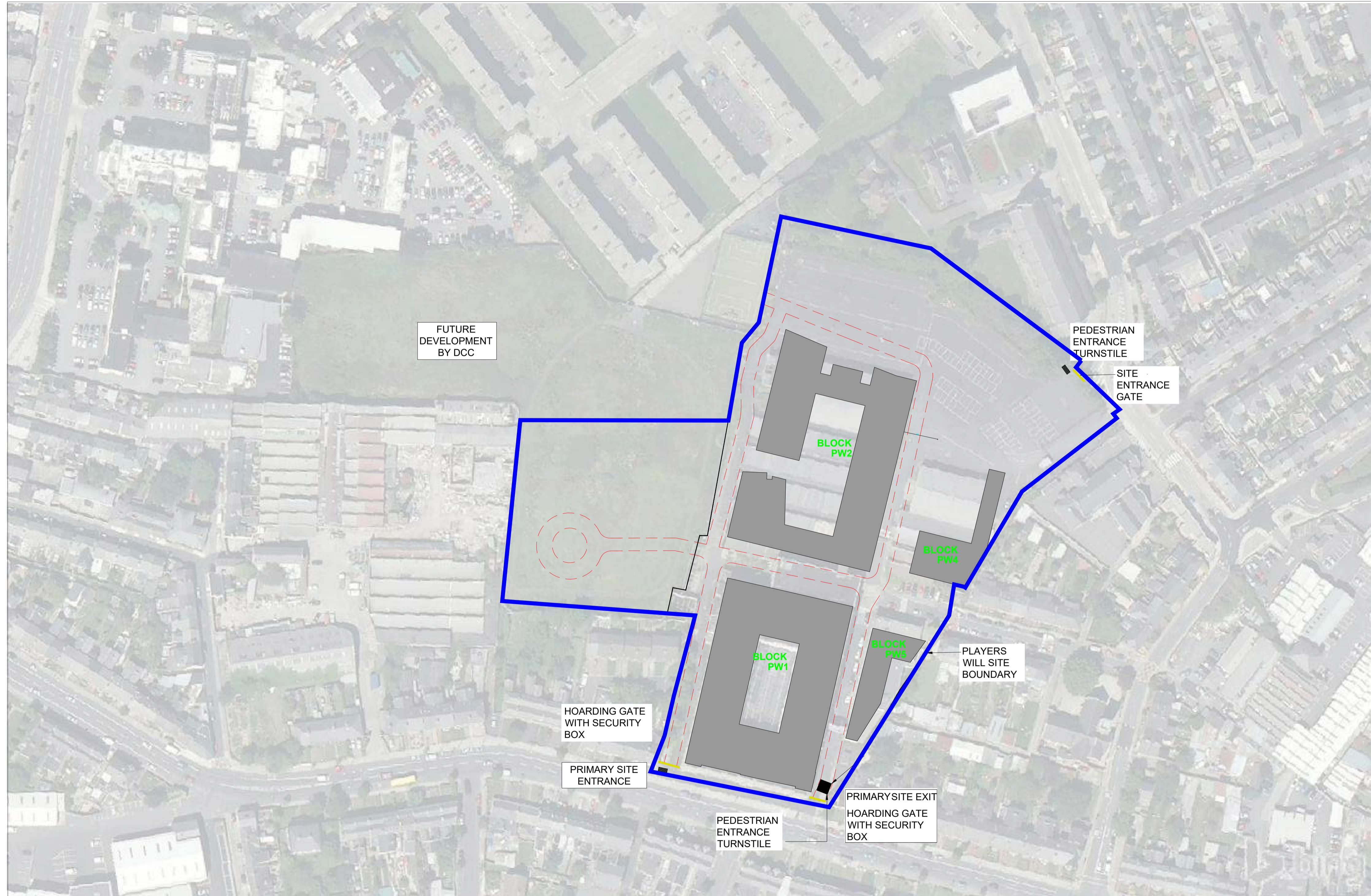


- NOTE:
- ALL PROPOSED HAULING ROUTES ARE INDICATIVE.
 - EXACT HAULING ROUTES FOR CONSTRUCTION TO BE AGREED WITH DUBLIN CITY COUNCIL IN ADVANCE OF COMMENCEMENT OF WORKS.
 - HAUL ROUTES ACROSS DUBLIN CITY COUNCIL LANDS REQUIRED FOR TEMPORARY PERIODS ONLY AND NOT FOR THE FULL DURATION OF THE CONSTRUCTION PROGRAM.

NOTES

LEGEND:

- MAIN HAULING ROUTE
- SECONDARY COMPOUND IF REQUIRED
- PRIMARY COMPOUND
- STAFF AND VISITOR PARKING
- BAILEY GIBSON SITE BOUNDARY LINE
- PROPOSED HAULING ROUTE



REV	DATE	DESCRIPTION	DRN/DES/CHK/APP

CLIENT:
HINES

ARCHITECT:
HENRY J LYONS

GARLAND
 DUBLIN LIMERICK WATERFORD INTERNATIONAL
 T: +353 1 4964322 T: +353 61 319708 T: +353 51 876511 T: +353 61 319708
 E: info@garlandconsultancy.com W: www.garlandconsultancy.com

PROJECT:
PLAYERS SQUARE
BAILEY GIBSON
DUBLIN 8.

TITLE:
PROPOSED SITE COMPOUND LAYOUT

STATUS:
FOR INFORMATION

DRAWN: CO	DES. BY: BV
CHK. BY: BV	APP. BY: BV
DATE: 09.07.20	JOB No.
A1 SCALE: 1:1000	H1013.

**APPENDIX E: Architectural
Conservation Specifications &
Method Statement**



OUTLINE CONSERVATION
SPECIFICATION
FOR
WORKS TO BE CARRIED OUT
AT
THE FORMER PLAYER WILLS FACTORY,
SOUTH CIRCULAR ROAD,
DUBLIN 8.

November 2020



DAVID SLATTERY – Architect – Historic Buildings Consultant

No. 8, Vergemount, Clonskeagh, Dublin 6, D06 FX30, Ireland. Tel: 00 353 1 2697344

www.slatteryconservation.ie

e-mail: info@slatteryconservation.ie

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Section 1 Introduction

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1.1. General

The works shall be carried in compliance with *RIAI Guidelines for the Conservation of Buildings* (3rd edition December 2010), and the conservation charters referenced therein, in addition to the publication *Architectural Heritage Protection: Guidelines for Planning Authorities* (as issued by the Department of Arts, Heritage & the Gaeltacht 2011).

1.2. Preliminary Method Statement

General

The Contractor will be required to prepare a detailed method statement for the works and to amend or augment this statement to take account of matters discovered during the works. He will be required to obtain the Architect's approval for the statement at each stage during the works and amend the statement as necessary to achieve the Architect's approval.

Guidance

The contractor will be advised that all works must be completed in accordance with good conservation practice and in conformity with the publication "*Architectural Heritage Protection: Guidelines for Planning Authorities – DoAHG, 2011.*"

Guidance on the application of conservation practice is to be found in the following documents which shall be adhered to:

- Architectural Heritage Protection: Guidelines for Planning Authorities. Department of the Arts, Heritage & the Gaeltacht 2011.
- Archaeology in the Planning Process. (Planning Leaflet PL13) Department of the Environment, Heritage and Local Government, 2007.

Drawings and Schedules

The Contractor may be required to prepare full survey drawings of each element to be repaired before commencing, together with full size details of the various components, joints, profiles etc. etc. and schedules of the various components to enable the correct procedure for repair. A full photographic record should also be kept. In addition, the various components shall be clearly labelled and recorded on the drawings. When fully examined, the full size details of the various repairs necessary will be prepared by the Contractor before commencing any repair works and all repairs scheduled. The Architect's approval to this documentation shall be obtained at each stage before proceeding to the next stage and two copies of all such documentation shall be given to the Architect for his records.

Deviations

No deviations from the Architect's details will be permitted without prior approval. No deviation from the approved full sized drawings will be permitted without the Architect's prior approval. All dimensions as shown on the drawings shall be finished sizes unless otherwise indicated.

General Matters

All components shall be carefully examined to determine the method of assembly. All items shall be referenced and locations logged. No damage to the items shall be result from these works other than that unavoidable arising from the examination. The full records shall be handed to the Architect upon completion.

Detailed Method Statement

Based on this document and the results of the contractor's preliminary inspection, the contractor will prepare a detailed method statement covering all aspects of the works. He will be required to submit this statement to the Architect before any works is put in hands and to adjust, amend and revise the statement until the Architect is satisfied that it offers the most appropriate methodology for the works and approves the statement. It should be noted that it will be necessary for the contractor to further adjust, amend and revise the statement as works progress to take account of particular matters encountered during the works. Such alterations will be subject to the same approval process as the original statement. Once the statement, or alterations to the statement have been approved, the contractor may embark on the works, however, such approvals shall not relieve the contractor for any liability for unavoidable damage to the items.

Tests

Should the contractor feel that, in order to prepare his detailed method statement, it would be necessary to undertake test disassembly or removal operations, he will be permitted to do so with the prior approval of the Architect and under the constant monitoring of Architect's representatives. The Architect will co-operate with the contractor in designating the most appropriate items to be the subject of such tests. However, if any test is deemed to be causing damage to any item, it must be stopped immediately upon the Architect's request to do so. In such cases, an alternative item may be designated for test if the Architect deems such a course of action is appropriate.

Records

All items shall be fully recorded by photograph, highlighting all extant damage to the items and any other means considered necessary to properly record the extant appearance and condition of the items. The Contractor shall include for all costs in connection with the proper photographic recording of all necessary items including ceilings, walls, tiling, stonework and repair works to same. The contractor will be held responsible for any damage not recorded before removal or disassembly. The precise location shall be recorded and coded so each item or dismantled part of each item can be precisely located. This code shall be marked on each item or dismantled item by such means as cannot be accidentally removed but can be easily removed without blemish upon completion of the repairs at a later stage. Similarly, each individual disassembled part of an item shall be coded so that its relationship to adjoining parts can be precisely identified and recorded on drawings, photographs or other approved means. Two copies of the above records shall be handed to the Architect upon completion of these works.

Detailed Inspection

Before commencing disassembly or removal and following the approval of the Detailed Method Statement, the contractor shall very carefully examine the item to confirm or otherwise the accuracy and effectiveness of his proposed method. The Contractor's attention is drawn to the fact that items may have different methods of assembly or that individual parts may differ from those already disassembled or removed and he will be required to adjust his work methodology to accommodate these variations. He will be required to undertake such detailed inspection on a continual basis during the complete disassembly and removal operations.

Damage

Any damage not recorded before disassembly and removal or arising from disassembly and agreed with the Architect as unavoidable, shall be the responsibility of the contractor. He will be required to repair the damage at his own expense or to reimburse the Architect for the

cost of such repairs by means of deductions from any payments made by the Architect to the contractor.

Repairs

When all of the components are ready for inspection, the Contractor shall, in conjunction with the Architect, prepare a detailed schedule of necessary repairs to the shelving including re-finishing. He shall prepare all necessary full sized details to illustrate each and every type of repair and agree the details with the Architect before commencing the repair operations. All repairs shall be executed as specified later in this document. The Contractor shall note that existing repairs shall be undone and remade if the standard is not acceptable or may be left if the standard is acceptable. The repaired work shall be finished to match the original.. All softwood originally intended to be unfinished shall remain unfinished. All moving or movable parts shall be checked and repaired as necessary to ensure proper operation.

Reinstatement

Reinstatement shall be undertaken in the reverse order or removal. Great care shall be taken to ensure that each item and component is reinstated in its original location. Any damage caused by the reinstatement shall be made good or replaced at the Contractor's expense to the Architect's satisfaction. Any damage to the finishes shall be repaired in such a manner that the repair is not visible.

1.3. General Conservation Methodology

1.3.1. Protection Of Existing Structures And Materials

The Contractor shall ensure that no damage occurs to the Existing Structures as a result of the execution of the Works.

1.3.2. Protection Method Statement

The Contractor shall prepare a site specific method statement detailing the proposed protection measures to be implemented in respect of the Existing Structures. This shall include, as a minimum, details of the following:

- Measures to ensure protection of the existing roof structure and materials during the course of the Works;
- Measures to ensure protection of existing building fabric, both external and internal, during the course of the Works;
- Measures to prevent water ingress during execution of the Works;
- Proposed method of access to roof Areas – both during the Construction Period and Service Period;
- Measures to ensure the stability and protection of Existing Structures during repair and replacement works to the structural fabric of the Existing Structures; and
- Details of other measures required to address Site specific issues.

The Conservation Architect shall review all such method statements for compliance with conservation best practice.

1.3.3. Protection And Storage

The Contractor shall ensure that retained floors along the main construction route must be protected.

Storage of builder's equipment and materials must be in designated compound Area/s. While works are underway, equipment and materials being transported around the Project Facility, temporarily stored and used, must be carefully positioned so that retained historic fabric and surfaces are not damaged.

1.3.4. Movement Of Equipment And Material

Transport & erection of scaffolding poles / planks pose a particular threat to fabric. These and all long items such as floor boards must be carried by minimum of two operatives at all times to ensure no damage and impact to fabric.

Loading

Positioning of any removed or stored materials shall not overload the existing structure.

Fixing to Historical Fabric

Scaffolding and working platforms must be independently supported and may not be fixed to the Existing Structures. Full plywood protections must be provided between scaffolding supports and retained historic flooring / paving of Existing Structures.

Specialist Contractors

The Contractor shall ensure that all parties engaged to undertake works to Existing Structures are competent to undertake the elements for which they are engaged. Contractors must have the relevant training and experience to carry out specialist works within historic buildings.

1.3.5. Works Methodology

The Contractor shall prepare a Site specific method statement detailing the proposed methodology and sequencing to be implemented in respect of the retained fabric of the Existing Structures.

The methodology shall also describe how mitigation measures set out in the conservation impact assessments forming part of the Planning Decision are complied with.

1.3.6. Recording

The Contractor shall clearly and comprehensively record all Areas opened up within Existing Structures through the use of good digital photographs (minimum 10.1MP). Photographs shall record all principle features uncovered including architectural and structural elements, service routes, chases, floor voids and areas that will be closed up. As-built record drawings are to be provided to the Authority at the completion of the works including with referenced digital photographs.

1.4. Extent of Conservation Works

The following is a outline of the work to be carried out. Please refer to drawings, schedules and specifications for more detailed descriptions of the proposal.

The areas for the relevant works are identified on the drawings by Henry J Lyons Architects. Following is a summary of the proposed conservation works –

- Rake out the modern cement pointing to the front façade, clean and repair brickwork, and repoint using an appropriate lime mortar
- Localised repair works to stone and concrete elements on the front and side elevations, as necessary
- Reinstatement of multi-pane steel windows to match the original profile to existing ones, as detailed in the Window Schedule
- Localised repairs to relocated iron gates and railings, as necessary.
- Reinstatement of salvaged elements within Block A.

Section 2 Specifications

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2.1. Brickwork

BRICKWORK

2.1.1. General

The Contractor shall ensure that brick work and repair is carried out by competent and suitably experienced crafts persons.

Brick shall be of prime quality and match the existing brick on Site.

Code of Practice – Brick

The Contractor will be required to comply with the relevant sections of the latest editions of the following: -

- BS 5628 (Parts 1-3) Code of practice for the use of masonry;
- BS 8221-2:2000 Code of practice for cleaning and surface repair of buildings. Surface repair of natural stones, brick and terracotta.
- BS 8221-1:2012 Code of practice for cleaning and surface repair of buildings. Cleaning of natural stone, brick, terracotta and concrete (incorporating corrigendum No. 1).
- BS 5628-1:2005 Code of practice for use of masonry. Structural use of unreinforced masonry (incorporating Corrigendum No.1) (No longer current but cited in Building Regulations)
- BS 7913:1998 Guide to the principles of the conservation of historic buildings.
- IS EN 459-2:2010 Building lime - Test methods.
- IS EN 459-1:2010 Building limes - definitions, specifications and conformity criteria.
- IS EN 12440:2008 Natural stone - Denomination criteria.
- IS EN 12326-1:2004 Slate and stone products for discontinuous roofing and cladding - Product specification.
- IS EN 771 - Specification for masonry units.
- BS 5385-2:1991 Wall and floor tiling. Code of practice for the design and installation of external ceramic wall tiling and mosaics (including terracotta and faience).

Standards

The works shall be carried out in all respects to comply with British Standards 1014, 1217, 5589, 5390 and 6270. Scaffolding shall comply with B.S. 5973 and 5974. Variations may be permitted from these standards with the prior written permission of the Architect.

Materials

Brick

New brick, etc., where required, shall match the existing, when cleaned as specified later, as regards type, colour, texture, porosity, crushing strength, appearance etc. Samples of such brick shall be delivered to the Architect's office for his selection. All brick shall be free of all vents, cracks, fissures, soft beds, firing defects etc. or other defects which may affect durability. All arrises shall be true and straight and no damage will be permitted. The Contractor shall note that it may be necessary to have the brick specially manufactured by an approved manufacturer in order to ensure that the brick properly matched the original in all respects.

The Contractor shall note that different matching bricks may be required for repairs to the house. In addition, specials, particularly voussoir bricks will be required for the window heads and these specials will be required to match the brick elsewhere on the elevation. He will be

expected to have made all necessary allowances for the amounts of each distinct type of brick required for the works and no extra will be allowed for his failure to do so.

The Contractor's attention is specifically drawn to the possible different sizes of the existing bricks which will have to be replicated in the repair brickwork. On no account will larger (or smaller) joint dimensions be permitted to allow the use of standard bricks or to reduce the number of differing sizes required for the works.

With regard to the specials, the Contractor will be permitted to arrange for the various sizes and specials necessary to be specially manufactured or to be worked (cut and / or rubbed) from larger sized bricks. In either case, all such bricks shall match the adjacent 'common' brick in all respects as noted earlier and the manufacturing or working process shall in no way interfere with or be damaging to the durability, stability, weathering characteristics or visual characteristics of the brick.

Salvaged Brick

The Contractor shall note that while all the brickwork included in the works has been specified to be new brick, the use of sound salvaged brick will be permitted with the Architect's prior approval. Salvaged brick shall match the original in all respects as specified in the earlier clauses and shall have all old mortar, splashes etc. removed without damage to the fire skin, arrises etc. Salvaged brick may be sourced from a suitable supplier or may be suitable brick arising from the works and will be subject to the Architect's approval. Such approval, once given, shall not relieve the Contractor from his responsibility to ensure that the brick complies with the requirements of this specification. Should any brickwork built from such approved salvaged brick subsequently exhibit any damage or inherent or latent defects that would have led to its rejection at the time of approval if such characteristics had been apparent at that time, it shall be removed and replaced at no additional cost. The Architect's decisions shall be final and binding in all these matters.

The Contractor shall note that it would be the Architect's intention to use as much as possible of the original brick, salvaged from the works and meeting the above specification, in the works. However, it is not possible to give any indication as to the quantities that might be available for re-use. Therefore, any reductions in the amount of new brick necessary for the works arising from the re-use of original salvaged brick shall be treated as a credit on the contract.

Brick for repair

All brick for repair shall be from bricks specifically selected for that purpose by the Architect and shall match the original in all respects, including size, colour, texture, porosity, finish etc. This brick may be either re-cycled salvaged brick or new brick with the Architect's prior approval. New brick shall be sourced from a specialist manufacturer approved by the Architect as specified earlier. The Contractor shall make provision for the erection of 3 trial panels as directed by the Architect, each panel measuring a minimum of 1 m. x 1 m. All repairs shall be so worked and finished that they are not visible when viewed from a distance of 4 meters. The Contractor's attention is drawn to the construction of flat and arched lintols, where purpose-made shaped voussoir bricks will be required.

Cement

Cement shall be white or grey Portland cement, to comply with BS EN197.

Repair Mortars

Repair Mortars shall be specialised materials supplied by a specialist supplier approved by the

Architect. They shall be specially prepared to match the parent material in all respects as regards colour, texture, durability, porosity, density, compressive strength etc. Approved suppliers would include repair mortars supplied by Messrs Keim, Messrs. Jahn, Messrs. Remmers and Messrs. SBD. Samples of the colour matched material shall be approved by the Architect before any work is put in hands. Preference shall be given to mortars that can be left proud and worked back once the initial set has been completed to avoid the 'case hardening' effect of the worked surface and any residual cracking in the completed repair.

Water

Water for the works shall be clean, potable and free from any impurities, deleterious matter or harmful chemicals.

Lime

Lime shall conform to BS EN459 for the purpose required and shall be hydrated or lime putty

Sand

Sand shall comply with BS EN13139. Where sands are to be used in lime mortars or gauged lime mortars, great care shall be taken to ensure that no water retaining properties are contained within sands which would interfere with the carbonation of the lime. The Contractor shall note the coarse and fine sands used in the varying pointing types extant on the building and will be required to obtain sands that will match these gradings.

Mortar Mix

The mortar mix shall be in accordance with Tables 4 and 5 of B.S. 6270 part 1, or as specified elsewhere in this document.

Fixings

All fixings, dowels, cramps, restraints etc. shall be of non-corrodible, non-ferrous metal or stainless steel grade 316 as selected by the Architect to the appropriate B.S.

Cleaning Chemicals

Chemicals for cleaning brickwork shall be approved by the Architect. These chemicals will be from the Neolith, Intrachem, Remmers and or Prosoco ranges of chemicals. Trials must be completed in advance of the cleaning programme to determine the appropriate times for application of chemicals. The Contractor should keep in mind that these materials contain injurious chemicals and the manufacturer's safety precautions must be prominently displayed, and adhered to at all times. The chemicals must be applied in accordance with the manufacturer's recommendations. The recommended Safety First Aid Kit should be maintained on site and readily available during operations.

2.1.2. Repointing Brickwork

Raking Out

The raking out shall be carried out using chisels or other appropriate instruments. Mechanical systems, hand saws or hand discs for raking out shall not be used excepts with the prior approval of the Architect and the Contractor, if he desires to use such methods, will be required to demonstrate the effectiveness of the methodology to the Architect. If such demonstrations fail to satisfy the Architect, the Contractor may demonstrate further developments if he so wishes in order to obtain the Architect's approval. However, the Architect retains the right to instruct that the raking out must be undertaken by manual means at no additional cost to the Employer notwithstanding the results of all or any of such tests.

Areas indicated on site and on the drawings by the Architect to be re-pointed shall be carefully raked out to a depth equal to twice the width of the joint with a minimum depth of 15 mm. Great care shall be taken to ensure that the brick or any arrises are not damaged. Upon completion of the raking out all loose matter shall be carefully removed.

Pointing Generally

All the existing brickwork shall be fully re-pointed. The mortar mix shall be as specified above and must always be slightly weaker and slightly more porous than the masonry and bedding mortar being pointed. Re-pointing shall be carried out from the top, the joints having being first wetted, and proceed in one continuous operation, all mortar being carefully rammed well home into the joints to ensure no voids remain. The finishing of the pointing shall be as directed by the Architect and would include a lightly brushed finish.

All areas of pointing shall be fully protected from sun, wind, rain, extremes of temperature etc. to ensure that the mortar dries and cures and carbonates properly. In particular, the Contractor shall guard against any of the protection forming microclimates, wind tunnels etc. which would adversely affect the finished joint - refer to the relevant Technical Guidance Documents published by Historic Scotland.

The amount of water used to dampen the joints shall be carefully controlled to prevent the joints being saturated and only those amounts necessary to adjust the 'suck' due to the porosity of the substrate shall be used. On no account shall water be allowed to lodge in the joints and on no occasion shall any pointing be undertaken while water is lodging. Should any instances of the pointing mortar being damaged by lodging water become apparent, these shall be removed and replaced by the Contractor at his own expense to the Architect's satisfaction.

All joints between windows and brickwork shall be carefully raked out, packed with a compressible bitumen impregnated foam, and pointed up in mortar. Alternatively, joints may be packed with mortar as required and pointed with translucent or colour matched two pack Polysulphide or Silicon Mastic to B.S. 5215 or 5889 applied in strict accordance with the manufacturers' instructions.

If deemed necessary by the Architect, all joints shall be taped to prevent the mortar staining the surfaces of the masonry. It is imperative that the tape should not damage the face of the masonry and is able to withstand the pointing operations. Samples shall be approved by the Architect before the work is put in hands.

On no account shall individual bricks be pointed in isolation. If necessary, pointing shall be delayed within a 1 m. radius of isolated repairs in order to achieve an acceptable visual appearance. All such instances shall be brought to the Architect's attention and his instructions carefully followed.

Sample Panels

The Contractor shall provide for carrying out sample panels of the pointing under the Architect's direction. When the Architect is satisfied that there is a sample panel for each type of pointing finish required, he will nominate these panels as the standard by which the executed work on the building is to be judged. All rejected panels shall be immediately removed from site or raked out to ensure that no confusion shall exist. The standard panels shall remain undisturbed until such time as the Architect nominates a panel of the completed work to be the standard, at which time the original shall be removed. All pointing work which fails to match the standard shall be raked out and re-pointed to match the standard at no

expense to the Employer and the Architect's decision shall be final and binding in all such matters.

Existing Mortar Repairs

Existing Mortar repairs will be removed by the works. All marks, residues etc. of this mortar left on adjoining brick shall be carefully removed without damage to the sub-strata.

Crack Injection

Where indicated on the Drawings or on site by the Architect or Engineer, cracks shall be injected by a specialist company approved by the Architect. In situations where it is necessary to create a structural bond, the injection shall consist of epoxy, polyester or other approved resin. Where a structural bond is not required, the material shall be a non-shrink latex formulation to prevent the ingress of water.

In all situations, care shall be taken in the location and installation of nipples, reservoirs etc. to ensure that no disfigurement of the surface results.

The crack shall be sealed to prevent the spillage of the injected material and to ensure complete filling of the crack. All splashes, runs etc. shall be immediately removed to prevent disfigurement. It may be necessary to use a variety of low viscosity and thixotropic material to ensure complete crack filling and, where appropriate, the proper structural bond is created. The injection shall be undertaken by means of hand pumping and wherever necessary, the resins shall be heated to assist flow characteristics. At all times during these operations, continual monitoring shall be provided to ensure the resin does not emerge where not expected. The nipples, reservoirs shall be so placed to form a checking system of the penetration as resin exudes from adjoining nipples, but care must be taken that this does not 'short-circuit' the coverage.

Upon completion, the nipples, reservoirs, injectors, etc. shall be carefully removed, the areas cleaned and the surface of the crack pointed in a colour matched mortar so that it is not visible when viewed from a distance of 3 meters from the repair. Particular care shall be taken where the nipple fixative and crack sealant sets to a hard bond to ensure their removal does not disfigure the surrounding brick.

2.2. Stonework

STONEMWORK

2.2.1. Cleaning Granite

Standards.

These works shall comply with the requirements of BS 6270 and BS 5390

Methods

It is generally intended that granite shall be cleaned by fine, low pressure abrasive applied dry, with localised cleaning by means of poultice, where necessary. Limestone will be cleaned by low pressure steam, with localised chemical applications as necessary. Contractors will however be required to consider the use of alternative methods, where the foregoing methods fail to yield the desired result.

Materials

Chemicals for cleaning stone shall be approved by the Architect. Algaecides would include Alkutex paste from the Remmers range of chemicals, Algae-Rem from the Intrachem range of chemicals or Neolith 800 from the Neolith range of chemicals. Cleaning chemicals will be from the Neolith range of chemicals and will include Neolith HDL, or from the Intrachem range of chemicals, including HD400s and SC100 or from the Prosoco range of chemicals, including 766 Limestone & Masonry Prewash, Limestone & Masonry Afterwash and 1217 Heavy Carbon Poultice. Trials must be completed in advance of the cleaning programme to determine the appropriate times for application of chemicals. As these chemical cleaners differ slightly in their effectiveness on differing substrates, the Contractor shall allow for the Architect to select whichever chemical he deems most effective to be used on the works. The Contractor should keep in mind that these materials contain injurious chemicals and the manufacturer's safety precautions must be prominently displayed, and adhered to at all times. The chemicals must be applied in accordance with the manufacturer's recommendations. The recommended safety First Aid Kit should be maintained on site and readily available during operations.

Cleaning generally.

Only fully experienced and trained workpeople shall be permitted to carry out cleaning works, and full protection for the operatives, scaffold, woodwork, glass, ironwork, different adjoining masonry material types etc., shall be provided. In addition, full protection for persons and property in the vicinity of cleaning operations shall be provided. All safety recommendations shall be strictly adhered to.

Steam Cleaning Methodology

Extent of Cleaning

The Cleaning shall be undertaken before the pointing is raked out and, following raking out, the Contractor shall agree areas of residues to be cleaned as part of the final rinse down operation.

Cleaning Methodology

Steam cleaning shall be carried out using a low pressure, high temperature system, DOFF or equal and approved system designed to eliminate water penetration. Only skilled operatives should undertake this work and the manufacturers specification must be exactly followed. Extreme care must take to avoid saturation of the stonework.

As with all operations involving water on the surface of the building, operations shall be suspended during time when freezing conditions apply or can be expected. To this end, no

work shall be undertaken below a temperature of 4 degrees centigrade on a rising thermometer or below 6 degrees centigrade on a falling thermometer. In addition, the effect of wind conditions may also require the suspension of operations.

Chemical Cleaning Methodology

Extent of Cleaning

The Cleaning shall be undertaken before the pointing is raked out and, following raking out, the Contractor shall agree areas of residues to be cleaned as part of the final rinse down operation.

Cleaning Methodology

Initial cleaning shall comprise of the removal of all algaecidal, biocidal and fungicidal growths, particularly where these have built up on the surface of the stonework. The stonework shall then be treated with an approved sterilising fluid as specified earlier (Remmers Alkutex Paste, Intrachem Algae-Rem or Neolith 800) used strictly in accordance with the manufacturer's recommendations and safety requirements. Particular care must be taken to ensure that the chemical is well worked into the friable surfaces of the stone without damaging the stone. It shall be permitted to remain in contact with the stone for the length of time recommended by the manufacturer or as determined by the on-site trials. Upon completion of this contact time, it shall be rinsed off as recommended by the manufacturer using warm water where appropriate, care being taken to ensure that none of the stone is saturated. If necessary, repeat applications shall be applied to ensure all spores, seeds, etc. etc. are fully sterilised.

Following the application of the sterilising fluid, all stone shall be cleaned as specified below. The Contractor should note that while a single manufacturer's product is included in this specification, he may use similar chemicals of other manufacturer's as specified under 'Materials'. The Contractor should note that the Architect may require that the material chemical from one particular manufacturer must be used in the works if the tests indicate that this particular chemical is the most effective. The general intention is that material from a single manufacturer should be used for all stages in this cleaning process.

Stonework shall be cleaned with specific manufacturer's materials as previously specified, always used in strict accordance with the manufacturer's instructions and safety recommendations. In all cases, the cleaning shall be undertaken in panels coinciding with a natural break in the building - details of these panels to be agreed with the Architect before the works commence.

All adjoining different masonry materials, quoins, etc, in granite, glass, metalwork etc. shall be carefully protected before commencement. On no account should any chemical, or rinse water from areas cleaned with chemical, be permitted to come in contact with dry masonry. Areas at particular risk are those underneath the current site of operations. It is imperative that all such areas are fully protected before operations commence and rinse guttering provided.

Particular care must be taken at junctions between stone to be cleaned and stone not being cleaned, particular at the granite quoins or other decorative stonework at such interfaces. On no account shall the cleaning be allowed to affect the adjoining stone or to alter the appearance of this stone. In such instances, the Contractor will be required to provide plywood cut-outs or similar and approved protection to ensure that the adjoining stonework is not affected.

Sample panels are to be completed before the cleaning commences in areas selected by the Architect, to enable contact times to be established. In all cases, tests to ensure the surface is chemically neutral shall be undertaken 3 days after completion of the cleaning using litmus or another approved method.

As an alternative, or in addition to the liquid chemical cleaning, AB57 Poultice may be used on Calcareous materials. The recipe for the poultice and use methodology is contained in an Appendix to BRE Digest 280 and these instructions shall be strictly followed. In particular, the precise type, strength, chemical composition and use of the constituents of the poultice shall be strictly followed and no deviations will be permitted.

Resistant staining shall be removed by poultice or other methods recommended in B.S. 6270 or B.R.E. Digest 280 and approved by the Architect.

Paint disfigurement shall be completely removed. This may be achieved by the use of Neolith HDL or Intrachem SC100 as specified above, but where this is unsuccessful, or where a 'shadow' of the stain remains, these shall be removed by 'Peelaway', Remmers (Interchem) or Tensid 'AGS Graffiti Removers' or similar and approved paint removal poultice, used in strict accordance with the manufacturer's recommendations.

As with all operations involving water on the surface of the building, operations shall be suspended during time when freezing conditions apply or can be expected. To this end, no work shall be undertaken below a temperature of 4 degrees centigrade on a rising thermometer or below 6 degrees centigrade on a falling thermometer. In addition, the effect of wind conditions may also require the suspension of operations.

Where the cleaning operations are undertaken above the roof level or at junctions with roof finishes etc. great care must be taken to ensure that these operations do not cause damage to adjoining finishes.

Abrasive Cleaning Methodology

Cleaning shall be achieved by the following methodology in strict accordance with the manufacturer's recommendations.

The masonry shall be cleaned using the NeoClean 300 System or similar and approved mild abrasive cleaning system in strict accordance with the manufacturers instructions and safety recommendations. The abrasive to be used shall be fine grade calcium carbonate applied dry. No water shall be used. Great care will be required to ensure that no salts within the stone are liberated by the cleaning which may result in staining due to the deposit of the salt on the surface of the stone, iron ores are particularly damaging in this respect. On no account shall the pressure of the abrasive at the nozzle be permitted to exceed 10 p.s.i. and shall be, wherever possible, less (in the 5-10 p.s.i. range) to obviate the possibility of damage. As far as practical, the finer grades of abrasive shall be used, but the Contractor's attention is drawn to the fact that heavy encrustations of dirt, plaster residues etc. may have to be removed using the coarser grades to reduce the necessary contact time and prevent damage to adjoining fragile stonework.

Before the work commences, the Contractor shall undertake sample panels as directed by the Architect to determine the grade of abrasive, the contact time and the optimum pressure for the operations.

The cleaning operations shall be undertaken by holding the nozzle approximately 1 meter from the surface of the stone at an angle of 45 degrees to the plane of the surface of the stone, unless the 'Joss' type nozzle, which delivers the abrasive mixture moving in a spiral motion, is being used in which case the nozzle shall be at right angles to the plane of the surface of the stone. The nozzle shall be moved over the surface in gentle, even strokes both vertically and horizontally to achieve an even clean appearance to the stone without causing any damage to fragile areas, particularly fine, weathered arrises. In areas where there is any doubt, cleaning operations shall be suspended before any damage occurs and the residual dirt allowed to remain until such time as the Architect has inspected the work and given instructions as to the procedure to be followed to complete the cleaning work. On no account shall 'gun shading' be permitted to occur or the surface of any stone cleaned by these operations.

The Contractor shall complete the initial cleaning of each area in a single pass operation and subsequently return to clean isolated areas that have particularly heavy or stubborn accumulations, plaster residues etc. until a clean even visual appearance to the Architect's satisfaction is achieved. The Contractor may, if he so wishes, commence operations by removing heavy or stubborn accumulations at the outset before the general cleaning, but in either case, each section must be completed in a single operation and there can be no instances leaving any section incomplete.

The Contractor shall, before the work commences, agree with the Architect the programme and limits of the areas to be cleaned. As far as possible, the boundaries shall occur at natural breaks in the facade, changes of plane, string courses, cornices, etc.

Spent abrasive shall never be allowed to accumulate on the scaffold or on the face of the building and must be bagged and removed at appropriate times during the day's work. The Contractor should note that the calcium carbonate abrasive tends to form a slurry and stick to the surface of the stonework. This must be cleaned away immediately as the effectiveness of the completed cleaning cannot be determined while such deposits contaminate the surface.

The Contractor should note that the use of J Blast Finesse will generally not be permitted.

At all times, a pressure gauge incorporating a hypodermic type needle shall be on site to enable the pressure to be checked.

Residual Staining

Residual staining shall be removed by poultice or other methods recommended in B.S. 6270 or B.R.E. Digest 280 and approved by the Architect.

As noted at the beginning of this work section, the Contractor will be expected to have made all necessary allowances for all necessary test cleaning to establish the most appropriate cleaning methodology. This would include a number of distinct visits to site to complete individual trials, time to assess the effects of the cleaning over a period of weeks and the provision to reverse the cleaning process to commence with the NeoClean system and to subsequently clean areas by the chemical cleaning where the NeoClean system has been unsuccessful. No extra will be allowed by his failure to make such allowances or the inadequacy of his assessment.

2.3. Metalwork

IRONWORK

2.3.1. Cleaning and Surface Preparation

General.

The preparation of a sound surface shall involve removal of old paint, rust, loose mill scale and soluble corrosion salts. It should be noted that paint removal may reveal cracks, corrosion and casting defects which were not previously visible. Allowance should therefore be made at the outset for dealing with these.

Old paint and repainting

All paint which is loose, perished or flaking shall be removed. Only wet hand processes should be used because of the risk from dust from lead pigments.

Small areas of paint can be removed with thixotropic paint strippers such as methylene chloride. Their residues must be removed by white spirit or water, as appropriate.

Flame cleaning and hot air blowers are also effective paint removers. These must be used with care on thin cast iron because of the thermal stresses which can be set up by localised overheating.

Mill Scale

Loose or defective mill scale must be removed. Evidence suggests that wrought iron receives corrosion protection from sound, adherent mill scale, and for this reason flame cleaning is the preferred treatment.

Soluble corrosion salts

Ferrous sulphate and ferrous chloride and other water-soluble salts must be removed from the bottom of pits within an iron surface. They are not readily removed by cleaning with large-sized abrasive particles.

Degreasing

All oil or grease shall be removed. Large quantities should be physically removed by scraping. The rest is best removed by warm water and detergent followed by thorough water rinsing. Non-caustic degreasing agents will also be permitted.

Manual preparation

The simplest form of surface preparation of iron involves chipping, scraping and brushing with hand-held implements. It should be noted that while surfaces prepared in this way may appear burnished and clean, only about 30% removal of rust and scale may be achieved. Scoring of valuable surfaces and loss of detail may also occur. Manual preparation should therefore only be used where alternative methods are not available. A corrosion-inhibiting primer such as red lead or zinc phosphate should then be used.

Mechanical preparation

These processes involve use of power-driven tools such as grinders and rotary wire brushes and provide a marginal improvement in efficiency over manual preparation. Rust or other deposits in pits and crevices are rarely removed. Needle-guns, however, can be used successfully to access awkward corners and angles inaccessible to other equipment.

Flame cleaning

An oxyacetylene or oxypropane flame should be passed across the iron, resulting in the detachment of rust and loose mill scale, which should be removed by wire brushing. Thin sections of wrought iron of less than 2 mm may warp during flame cleaning unless the method is used with care. Extreme care should be taken to avoid the fusing of un-bonded scale and other foreign matter.

Acid pickling

Items should be immersed in a bath of warm dilute sulphuric acid or dilute phosphoric acid to dissolve and remove mill scale and rust. On removal from the bath the iron must be thoroughly rinsed with clean water. Hydrochloric acid and sodium hydroxide (caustic soda) leave soluble salts on the metallic surface and should not be used. Site application of acid washes will not be permitted.

Dry Abrasive cleaning

Abrasive cleaning shall be shall only be used for cleaning new work. However, due to the softness of wrought iron it should be noted that the milled or beaten surface may be removed or roughened unless great care is taken. The success of abrasive cleaning is highly dependent on careful work by skilled operatives, the right grits and the right supply of air pressure. Test areas shall be carried out to determine the correct air pressure and size of grit. In general abrasive cleaning to new iron and steel components shall be carried to Swedish S.S.I. 2½ standard.

Wet abrasive cleaning

Wet abrasive cleaning reduces the level of dust, and is preferable to dry especially where lead-based paint is to be removed. Cleaning should be carried out using a nozzle with independent control over air, water and abrasive. Wet abrasive cleaning may, however, cause unwanted water penetration at junctions, and the surfaces should be allowed to dry thoroughly prior to priming.

Precautions for wet and dry abrasive cleaning

For both methods great care must be taken to mask surrounding surfaces. All caulking which is dislodged must be replaced. It is necessary to ensure that operatives are adequately protected and the potential environmental hazards such as dust, spent abrasive, and abrasive-laden run-off are dealt with properly.

Re-rusting of cleaned surfaces

Cast iron or wrought iron members which have been cleaned by flame or dry abrasive should be primed before rust starts to form. If this is not possible the surface should be flash cleaned immediately prior to priming.

Galvanising

On completion of the cleaning and repair work all components shall, if possible, be hot-dip galvanised. Where, in the opinion of the Architect, the assembly of the components precludes galvanising, the Contractor shall prime all surfaces with an approved primer prior to painting.

The importance of good site supervision

Proper site supervision by competent staff is important at all stages of work on a historical iron structure but in particular during the preparation for and application of paint. Test areas on all types of surface present, e.g. bars and decorative work, should be observed to ensure the correct methods of cleaning and painting are chosen.

2.3.2. Painting Ironwork

Primers and inhibiting pigments

All surfaces to be painted shall first be primed with a zinc phosphate primer. A zinc primer may require a sealing coat and subsequent coatings need to be non-saponifiable, such as epoxy paints. As it is almost impossible to produce with one coat a continuous film of adequate and even thickness, free from pinholes, two coats of primer shall be applied.

In the case of galvanised surfaces, appropriate etching primers shall be used.

Where components have been removed from site for workshop repairs and in the case of new work, primers shall be applied prior to delivery, and touched up when fixed in position.

Application of Paints.

All metal surfaces to be painted shall receive two brush-applied coats of a selected two-pack epoxy paint such as 'Cotech' or other approved paint, in strict accordance with the manufacturer's instructions.

It should be noted that two-pack epoxy paints are not always suited to brush application, and the manufacturer's specification should be accurately followed.

2.4. Windows

WINDOWS

2.4.1. Specification

General.

This specification is outline in nature and intended to provide the basis for which the windows will be repaired. The Contractor will be required to prepare a detailed method statement and to amend and adjust it until such time as the Architect approves the document. The Contractor will be required to continually update the method statement as the work proceeds to take account of the various matters discovered during the works and to obtain the Architect's approval for each update as required for his original statement.

Existing Windows

All existing windows being retained where identified on the Architects drawings are to be carefully removed and set out to enable a detailed assessment of their condition and the necessary repairs to be undertaken. The Contractor shall carefully record the original position of each window and code the opening and window as the numbering system shown on the drawings, to ensure each window is returned to its original opening. It is the intention to repair the windows as far as possible as opposed to replacements; however, there are a number of modern replacements which do not match the original style and these are to be replaced with new (see Appendix 14.8 for further detail). Upon completion of the repairs, the windows are to be reinserted into existing openings with new fixings and all plasterwork, window boards, linings etc. to be reinstated or renewed as necessary.

Removal of Windows

The Contractor shall carefully remove all secondary components (balconettes, decorative features, etc.) as required to enable the windows to be examined in detail. It is likely that this will require the careful removal of the window boards and the stripping of any plasterwork to the reveals. Where decorative linings are encountered, these are to be removed as a single composite item as far as possible unless the Contractor can demonstrate to the Architect that it is necessary to remove them by element.

In addition, to enable a full assessment to be undertaken, the sashes shall be removed from the frames and other mechanical components shall be labelled with the window code and location of the component and safely stored. All such windows and components shall be stored in such a manner that they can be fully accessed to enable a detailed assessment of the windows and associated components to be completed.

In all cases, no damage shall be allowed to occur to the windows or any associated items of joinery as mentioned above and he will be responsible to repair or replace any damaged at his own expense and as decided by the Architect and at his own expense.

Detailed Assessment

The Contractor shall undertake a detailed assessment of each window to be retained and schedule the repairs necessary to return it to a durable working condition. It is the intention that any repairs or replacements should not be visible when the repairs have been completed and the window re-inserted in its original opening and decorated. When the detailed assessment has been completed, the Contractor shall agree the repairs necessary to each window with the Architect before the work is put in hands – the Contractor shall note that he may be required to amend the works to the window before the Architect's approval is obtained. In the case of the modern windows to be replaced, no detailed assessment will be required as new windows are to be provided.

Repairs

Where repairs are being undertaken, damaged metalwork shall be carefully cut out and replaced with new to methods approved by the Architect. As far as possible new windows shall match the original. All closing beads shall be renewed to match existing except in areas where the Architects indicate alternative arrangements.

It may be necessary to remove the glass from the metal windows to effect proper repairs.

All internal timber surrounds where present shall be stripped back to the original face and all paint removed. Particular care shall be taken to ensure that any weathered surface of timbers, any existing shakes, splits etc. are all stabilised and, if necessary filled, to ensure the durable adhesion of the new paint coatings.

Any damaged glazing beads and seals shall be replaced.

Refitting/Hinging Casements

All windows to be hung shall be carefully aligned and adjusted as required. Upon completion, the windows should open and close with the minimum of effort and should remain in the position set and not slide up or down. Only best fitting and opening restraints will be approved.

Installing Windows

All repaired or replaced window frames shall be reinstated in their original openings with fixings to match the originals or alternatives that have been approved by the Architect. In all cases, the external interface with the masonry, rendered or other walls shall be neatly pointed with a two pack polysulphide or silicon mastic bed.

All internal window boards, plaster linings and linings etc. shall be reinstated in such a manner that, when the decoration is complete, there is no evidence of their removal.

Decoration

All surfaces of ironwork/steelwork shall be prepared, primed and treated before installation. After installation, any damage to the surface finish shall be repaired and each window shall be checked to ensure it operates properly and any that fail to do so shall be adjusted as required.

2.5. Ancillary Joinery

ANCILLARY JOINERY

2.5.1. General

General Joinery

Timber for joinery to be decorated with opaque coatings (paint) be as follows:

- a) Hardwood shall be Class 2 to BS 1186, specially selected as suitable for usage intended as described in Appendix B and C. Hardwoods described as 'resinous' shall not be used.
- b) Moisture content shall not exceed the recommendations set out in Section 3 and Table 3. On no account shall the moisture content for external joinery exceed 17%.
- c) No exposed piths, arris knots, shakes, compression wood, sapwood, brittle heart, plugs, inserts or other natural defects or repairs will be permitted on any face of the hardwood. All timber shall be free from all decay and insect attack.
- e) The grain shall be clean and straight with clearly defined arrises, with the grain slope not exceeding 1:8. Exposed faces shall show the same grain characteristics throughout and shall be free from knots, stains, discoloration and checks.

Samples

The Contractor shall provide samples of the types of hardwood he proposes to use for the Architect's approval. All hardwoods used in the works shall be of an equal or greater standard to the approved sample.

Timber for Grounds etc.

Timbers to be permanently concealed and used for grounds etc. shall be free from decay and all defects that would affect its long term stability and durability or the accuracy of the completed works. It shall be treated with an approved preservative.

Hardwood for Lippings, Beads etc.

Hardwoods for lippings, beads etc. shall be virtually straight grained with good matching qualities and be of the same species as the Hardwood for the joinery.

Timber Sizes

Sizes shall be finished sizes and no deviation from these sizes will be allowed without the Architect's prior approval. In general, they should comply with the requirements of BS 5450.

Seasoning and Moisture Content

All timber shall be seasoned to the specified moisture content before the works commence. The Contractor shall prepare kiln drying schedules to ensure that the required time for drying, seasoning, sections size and ultimate usage are taken into account and kilning defects are avoided.

Plywood

Generally shall comply with BS 1455. Use as follows:

Grade 1 veneer	where clear finish required
Grade 2 veneer	where oil painting required
Grade 3 veneer	for concealed surfaces
Bonding type M.R.	for interior use

Bonding type W.B.P	for exterior use
Bonding type I.N.T.	not to be used
Marine plywood to BS 1088	for exterior use.

Medium Density Fibreboard

Medium density fibreboard shall be 'Medite' from Medite Ltd. Clonmel or other equal and approved, shall be the waterproof quality (Medite 313 - Moisture Resistance M.D.F.) with given centre core to the thickness shown on drawings.

Fixings

Fixings and adhesives shall be as specified in CARPENTRY.

Nail Lengths

Nail lengths to be not more than total thickness of sections to be joined less 3mm but otherwise not less than 2 times thickness of board/strip at point of fixing.

Screw Lengths

Screw lengths to be not more than total thickness of sections to be joined less 3mm but otherwise not less than twice thickness of board/strip at point of fixing.

Mastic

Mastic shall be non-setting butyl mastic to the approval of the Architect.

Glue

Glue shall be best quality synthetic resin glue and shall be approved by the Architect.

Adhesives

Adhesives for exterior use shall be synthetic resin type complying with BS 1304: Part 1, type "W.B.P." Adhesives for interior use shall be synthetic resin type complying with BS 1304: Part1, type "M.R." Unless otherwise stated, the following grades of glue bonding shall be used:

- a) INT for internal work.
- b) MR for internal work in humid areas.
- c) WBP for external work.
- d) Mastic shall be non-setting non-staining two pack polysulphide or silicon mastic to BS 5215 or 5889 to the approval of the Architect.

Workmanship

Standard

Frame accurately and execute in a sound workmanlike manner in accordance with best practice and complying with BS 1385: Part 2, but to true lengths and levels and avoid the use filling pieces.

Profiles and Mouldings

Existing mouldings and profiles, both for new works and repair works, shall be accurately replicated and the Contractor's attention is drawn to the subtle variation that exists throughout the six houses and that will be required to be replicated. The Contractor will be required to submit full sized drawings of each and every moulding and profile type to the Architect and shall be responsible for the accuracy of all such mouldings and profiles. Full sized samples of the original fabric (where these are available) and the Contractors proposed replicas shall be submitted to

the Architect to demonstrate compliance with this requirement. Profiles of sections shall not be modified from those shown on drawings without prior approval.

Surface Treatment

Sand and produce a smooth surface to joinery requiring a clear finish. Use approved filler to overcome the coarse grain, to uneven suction conditions or where growth rings are coarse. Coat all knots and stop nail and other holes to match adjacent wood. Joinery detailed to be oil painted is to give a surface such that if it is properly painted in gloss paint no imperfections will be apparent.

Finish

Plane, thoroughly clean, sandpaper and leave unstained for finishing as required.

Arrises

Arrises shall be as shown on drawings.

Punching

All nail heads shall be punched below timber surfaces which will be visible when completed.

Countersinking

All screw heads shall be countersunk not less than 2mm.

Pelleting

All screw heads shall be sunk 6mm below timber surfaces that are to be clear finished. Grain matched pellets not less than 6mm thick and cut from matching timber shall be glued in place and finished off flush with face.

Proprietary components

All proprietary components shall be fixed in accordance with manufacturer's recommendation.

2.6. Services Installation Philosophy

SERVICES INSTALLATION PHILOSOPHY

In general, the electrical works should attempt to reuse existing cable and duct positions, improving or adding to these where necessary. The addition of new trunking, ducting and cabling for the electrical will therefore be decreased and any new chasing/opening-up/notching etc. will be significantly reduced.

There is no existing mechanical provision in the house so any mechanical works will be more intrusive than the electrical services. In general, mechanical services will follow the lines of existing joists and, in all cases, will avoid the removal of any decorative fabric.

A brief list of 'dos' and 'don'ts', in relation to the M&E interventions is given below. It is not exhaustive but has been useful in guiding the design.

Do's

Make redundant, unsightly wiring, through use of wireless systems.

Removal of unsightly redundant wiring, surface trunking etc.

Existing services routes which are seen to be particularly intrusive within the historic structure should be revised and routed away to less critical locations.

Careful patching, making good and redecoration of any chases/holes in plasterwork and joinery that have been made previously.

Repairs of any notching in structures that has caused weakening.

Confine works, where possible, to single vertical and horizontal locations, away from areas of decoration.

Don'ts

Where possible, avoid any chasing into walls. If required, note on drawings now.

Where possible, avoid any opening up of ceilings or other historic fabric. If required, note on drawings now.

Drop down boxings to contain new ducts are not acceptable and are likely to be unsightly and have an impact on architectural features. If absolutely necessary, these should be noted on drawings now.

SCHEDULE OF FABRIC AND FEATURES
TO BE SALVAGED

AND

OUTLINE METHOD STATEMENT FOR THEIR REMOVAL

TO BE CARRIED OUT

AT

THE FORMER PLAYER WILLS FACTORY,

SOUTH CIRCULAR ROAD,

DUBLIN 8.

November 2020



DAVID SLATTERY CONSERVATION ARCHITECTS LIMITED
Historic Buildings Consultants

8, Vergemount, Clonskeagh, Dublin 6, IRELAND.

Tel: 01-2697344

Fax: 01-2696700

e-mail: slatcon@iol.ie

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Section 1 Introduction

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1.1. General

The works shall be carried in compliance with *RIAI Guidelines for the Conservation of Buildings* (3rd edition December 2010), and the conservation charters referenced therein, in addition to the publication *Architectural Heritage Protection: Guidelines for Planning Authorities* (as issued by the Department of Arts, Heritage & the Gaeltacht 2011).

1.2. Preliminary Method Statement

General

The Contractor will be required to prepare a detailed method statement for the works and to amend or augment this statement to take account of matters discovered during the works. He will be required to obtain the Architect's approval for the statement at each stage during the works and amend the statement as necessary to achieve the Architect's approval.

Guidance

The contractor will be advised that all works must be completed in accordance with good conservation practice and in conformity with the publication "*Architectural Heritage Protection: Guidelines for Planning Authorities – DoAHG, 2011.*"

Guidance on the application of conservation practice is to be found in the following documents which shall be adhered to:

- Architectural Heritage Protection: Guidelines for Planning Authorities. Department of the Arts, Heritage & the Gaeltacht 2011.
- Archaeology in the Planning Process. (Planning Leaflet PL13) Department of the Environment, Heritage and Local Government, 2007.

Drawings and Schedules

The Contractor may be required to prepare full survey drawings of each element to be repaired before commencing, together with full size details of the various components, joints, profiles etc. etc. and schedules of the various components to enable the correct procedure for repair. A full photographic record should also be kept. In addition, the various components shall be clearly labelled and recorded on the drawings. When fully examined, the full size details of the various repairs necessary will be prepared by the Contractor before commencing any repair works and all repairs scheduled. The Architect's approval to this documentation shall be obtained at each stage before proceeding to the next stage and two copies of all such documentation shall be given to the Architect for his records.

Deviations

No deviations from the Architect's details will be permitted without prior approval. No deviation from the approved full sized drawings will be permitted without the Architect's prior approval. All dimensions as shown on the drawings shall be finished sizes unless otherwise indicated.

General Matters

All components shall be carefully examined to determine the method of assembly. All items shall be referenced and locations logged. No damage to the items shall be result from these works other than that unavoidable arising from the examination. The full records shall be handed to the Architect upon completion.

Detailed Method Statement

Based on this document and the results of the contractor's preliminary inspection, the contractor will prepare a detailed method statement covering all aspects of the works. He will be required to submit this statement to the Architect before any works is put in hands and to adjust, amend and revise the statement until the Architect is satisfied that it offers the most appropriate methodology for the works and approves the statement. It should be noted that it will be necessary for the contractor to further adjust, amend and revise the statement as works progress to take account of particular matters encountered during the works. Such alterations will be subject to the same approval process as the original statement. Once the statement, or alterations to the statement have been approved, the contractor may embark on the works, however, such approvals shall not relieve the contractor for any liability for unavoidable damage to the items.

Tests

Should the contractor feel that, in order to prepare his detailed method statement, it would be necessary to undertake test disassembly or removal operations, he will be permitted to do so with the prior approval of the Architect and under the constant monitoring of Architect's representatives. The Architect will co-operate with the contractor in designating the most appropriate items to be the subject of such tests. However, if any test is deemed to be causing damage to any item, it must be stopped immediately upon the Architect's request to do so. In such cases, an alternative item may be designated for test if the Architect deems such a course of action is appropriate.

Records

All items shall be fully recorded by photograph, highlighting all extant damage to the items and any other means considered necessary to properly record the extant appearance and condition of the items. The Contractor shall include for all costs in connection with the proper photographic recording of all necessary items including ceilings, walls, tiling, stonework and repair works to same. The contractor will be held responsible for any damage not recorded before removal or disassembly. The precise location shall be recorded and coded so each item or dismantled part of each item can be precisely located. This code shall be marked on each item or dismantled item by such means as cannot be accidentally removed but can be easily removed without blemish upon completion of the repairs at a later stage. Similarly, each individual disassembled part of an item shall be coded so that its relationship to adjoining parts can be precisely identified and recorded on drawings, photographs or other approved means. Two copies of the above records shall be handed to the Architect upon completion of these works.

Detailed Inspection

Before commencing disassembly or removal and following the approval of the Detailed Method Statement, the contractor shall very carefully examine the item to confirm or otherwise the accuracy and effectiveness of his proposed method. The Contractor's attention is drawn to the fact that items may have different methods of assembly or that individual parts may differ from those already disassembled or removed and he will be required to adjust his work methodology to accommodate these variations. He will be required to undertake such detailed inspection on a continual basis during the complete disassembly and removal operations.

Damage

Any damage not recorded before disassembly and removal or arising from disassembly and agreed with the Architect as unavoidable, shall be the responsibility of the contractor. He will be required to repair the damage at his own expense or to reimburse the Architect for the

cost of such repairs by means of deductions from any payments made by the Architect to the contractor.

Repairs

When all of the components are ready for inspection, the Contractor shall, in conjunction with the Architect. He shall prepare all necessary full sized details to illustrate each and every type of repair and agree the details with the Architect before commencing the repair operations. All repairs shall be executed as specified later in this document. The Contractor shall note that existing repairs shall be undone and remade if the standard is not acceptable or may be left if the standard is acceptable. The repaired work shall be finished to match the original.. All softwood originally intended to be unfinished shall remain unfinished. All moving or movable parts shall be checked and repaired as necessary to ensure proper operation.

Reinstatement

Reinstatement shall be undertaken in the reverse order or removal. Great care shall be taken to ensure that each item and component is reinstated in its original location. Any damage caused by the reinstatement shall be made good or replaced at the Contractor's expense to the Architect's satisfaction. Any damage to the finishes shall be repaired in such a manner that the repair is not visible.

1.3. General Conservation Methodology

1.3.1. Protection Of Existing Structures And Materials

The Contractor shall ensure that no damage occurs to the Existing Structures as a result of the execution of the Works.

1.3.2. Protection Method Statement

The Contractor shall prepare a site specific method statement detailing the proposed protection measures to be implemented in respect of the Existing Structures. This shall include, as a minimum, details of the following:

- Measures to ensure protection of the existing roof structure and materials during the course of the Works;
- Measures to ensure protection of existing building fabric, both external and internal, during the course of the Works;
- Measures to prevent water ingress during execution of the Works;
- Proposed method of access to roof Areas – both during the Construction Period and Service Period;
- Measures to ensure the stability and protection of Existing Structures during repair and replacement works to the structural fabric of the Existing Structures; and
- Details of other measures required to address Site specific issues.

The Conservation Architect shall review all such method statements for compliance with conservation best practice.

1.3.3. Protection And Storage

The Contractor shall ensure that retained floors along the main construction route must be protected.

Storage of builder's equipment and materials must be in designated compound Area/s. While works are underway, equipment and materials being transported around the Project Facility, temporarily stored and used, must be carefully positioned so that retained historic fabric and surfaces are not damaged.

1.3.4. Movement Of Equipment And Material

Transport & erection of scaffolding poles / planks pose a particular threat to fabric. These and all long items such as floor boards must be carried by minimum of two operatives at all times to ensure no damage and impact to fabric.

Loading

Positioning of any removed or stored materials shall not overload the existing structure.

Fixing to Historical Fabric

Scaffolding and working platforms must be independently supported and may not be fixed to the Existing Structures. Full plywood protections must be provided between scaffolding supports and retained historic flooring / paving of Existing Structures.

Specialist Contractors

The Contractor shall ensure that all parties engaged to undertake works to Existing Structures are competent to undertake the elements for which they are engaged. Contractors must have the relevant training and experience to carry out specialist works within historic buildings.

1.3.5. Works Methodology

The Contractor shall prepare a Site specific method statement detailing the proposed methodology and sequencing to be implemented in respect of the retained fabric of the Existing Structures.

The methodology shall also describe how mitigation measures set out in the conservation impact assessments forming part of the Planning Decision are complied with.

1.3.6. Recording

The Contractor shall clearly and comprehensively record all Areas opened up within Existing Structures through the use of good digital photographs (minimum 10.1MP). Photographs shall record all principle features uncovered including architectural and structural elements, service routes, chases, floor voids and areas that will be closed up. As-built record drawings are to be provided to the Authority at the completion of the works including with referenced digital photographs.

1.4. Schedule of Features and Fabric to be Salvaged

The following is an outline of the items to be salvaged. Please refer to the photos identifying the items below, Section 5 of the Conservation report, and the accompanying Architects' Drawings and Industrial Archaeology Report.

It is proposed to salvage fabric and features of architectural heritage interest within the site. Where possible, these will be re-used within the proposed development. Where there reuse within the proposed development is not feasible, the fabric and features will be salvaged off-site.

The items for salvage are as follows:

1. Intact historic brickwork from the areas of the building to be demolished, which is suitable for re-use.
2. A section of the roof structure to the internal courtyard of Block A will be salvaged, repaired and reinstated.
3. Original front entrance door.
4. Historic timber balustrade to the front staircase, where sections of the staircase are to be demolished (Room G.26).
5. Intact historic internal joinery which is suitable for re-use, including doors, architraves, skirting and timber panelling etc.
6. Historic steel industrial doors, internally and externally.
7. Historic steel multi-pane windows (see separate Window Schedule for further detail).
8. Historic cast-iron rainwater goods throughout, including hoppers, downpipes, brackets and straps.
9. Historic wrought-iron railings and gates to the South Circular Road.
10. Intact historic cast-iron radiators which are suitable for re-use.
11. Historic decorative cast-metal covers for service boxes.
12. Historic timber storage units (Room G.5).



Figure 1: View of the historic brickwork to Factory No. 1, to be demolished as part of the proposed redevelopment.



Figure 2: Front entrance door to Factory No. 2 from South Circular Road



Figure 3: View of the timber staircase and balustrade to the main staircase in Room G.26 of Factory No. 2.



Figure 4: View of internal joinery elements within the front three bays of factory No. 2, including architraves, skirtings and timber panelling.



Figure 5: Sliding industrial steel door in Room G.11.



Figure 6: Original steel multi-pane window.



Figure 7: Cast-iron hopper, downpipe and straps.



Figure 8: Wrought-iron gates and gate-posts to the South Circular Road.



Figure 9: Cast-iron radiator.



Figure 10: Decorative cast-metal cover to services box.



Figure 11: Timber cubby-hole storage in Room G5.

Section 2 Specifications

2.1. Taking Down And Removals.....14

2.1. Taking Down And Removals.

2.1.1. Taking Down And Removals.

Code of Practice

The works shall comply with the requirements of B.S. 6187.

Taking Down Works

The works may be undertaken by the Main Contractor provided he can demonstrate that the workforce employed on the site has the skill and experience to complete the works without damage to the adjoining structures retained or a specialist approved by the Architect and/or Engineer.

No portion of the works shall be sub-let without the prior written approval of the Architect.

Should approval to sub-let be given it will not relieve the Contractor of his responsibility under this contract and any sub-contractor must accept fully the conditions of contract and work in accordance with the Specification. Furthermore, the Architect shall be empowered to instruct the sub-contractor who will in turn carry out such instructions as if he were the Contractor.

Nature of Site

The Contractor is specifically informed of the restricted and confined nature of the site, the proximity of other buildings and the special nature of the adjacent buildings. All reasonable measures shall be taken to ensure the minimum disruption to all of these and to the need for express specific consent regarding any proposed works within adjoining sites (or buildings).

All plant and equipment to be used in taking down shall be appropriate to the confined location and the sensitive nature of the works.

The Contractor is specifically informed of the historical nature of the site and will be obliged to report any finding which may be of historical interest to the Architect and Structural Engineer and shall await inspection by Archaeologist to assess the significance of any such finding prior to removal or further disturbance of same. In addition, the Contractor shall note that any works which would disturb the ground or other archaeological strata will be the subject of constant inspection by an Archaeologist appointed by the Employer. The Contractor will be required to co-operate with the Archaeologist and to suspend or re-programme the order of the works to facilitate archaeological investigation that may be deemed necessary by the Archaeologist. The Contractor will be deemed to have taken all the matters into account at the time of tender and no extras will be allowed for his failure to do so.

Superintendence

The Contractor shall give all necessary personal superintendence during the execution of the works and keep constantly thereon a competent general foreman with power to act in the Contractor's absence and for all purposes as his general agent.

Survey

Before starting work, the Contractor shall examine all available information, and shall carry out a survey of the structure(s), site and surrounding area and submit a survey report and method statement to the Architect and Structural Engineer covering all relevant matters listed

below and set out in the relevant Health and Safety Authority Guidance Notes and the relevant clauses of B.S. 6187:

The form, condition and removal methods of the structures.

The form, location and removal methods of any toxic or hazardous materials.

The type and location of adjoining or surrounding premises which may be adversely affected by noise, vibration, dust or removal of structure.

The identification and location of services above and below ground.

Investigate risks

In accordance with BS 6187, clause 4, the Contractor shall investigate the features of the structure to determine if shock of vibration could damage the buildings being retained, surrounding building, equipment contained in the buildings, buried services and check for the existence of toxic or flammable substances or asbestos. In addition, the Contractor shall decide which portions of the existing structures need to be secured.

Bench Marks

Report to the Architect any bench marks and other survey information found on structure(s) to be taken down. Do not remove or destroy unless specifically instructed.

Feature(s) to be retained

All structure, components and features not specifically identified for removal are to be kept in place and adequately protected.

Insurance

As provided in the contract under insurance clauses, the Contractor shall prior to commencement of the works obtain the Employer's approval for all insurances. Such insurances shall indemnify the Employer against all claims arising out of:

- (1) Collapse, subsidence, vibration or weakening of supports.
- (2) Liability assumed under the Contract.
- (3) Use of mobile or lifting plant.
- (4) Claims for consequential damage and consequent loss
- (5) Fire.
- (6) Public and Employers Liability Insurances against injury to persons and property as required by the contract.
- (7) All Risks Insurance in the joint names of the Employer and the Contractor for the full value of the works and ancillary items required by the contract.

- (8) Collapse, subsidence, vibration or weakening of supports not arising out of the negligence of the Contractor.

Service Regulations

Any work carried out to or which affects new or existing services must be in accordance with the bylaws or regulations of the relevant statutory authority.

Location of Services

The Contractor is specifically informed that live services cross the site and in its vicinity, and he shall ensure that these are investigated, located and adequately protected during the course of the work. Locate and mark the positions of services affected by the work. Arrange with the appropriate authorities for the location and marking of the positions of the mains services.

Existing Services

Disconnect and remove existing services made redundant by the works. Carefully protect all services to be re-used. All structure, components and features not specifically identified for removal are to be kept in place and adequately protected.

Drains in Use

Protect rainwater pipes, hopper heads, vent pipes and fittings still in use and ensure that they are kept free of debris at all times. Make good any damage arising from demolition works and leave clean and in working order at completion.

Old Materials

In general, old materials removed by the works shall become the property of the Contractor, who will allow credits for any salvage value against the costs of the works. However, materials such as stone, slate etc. which are to be salvaged for re-use shall remain the property of the Employer and shall be sorted and set aside for re-use as specified later. In addition, items of finishes, such as the various joinery elements, access hatches, doors and surrounds etc. shall be carefully removed where necessary, protected as necessary to ensure no damage occurs, and set aside for re-use.

Any coins, fossils, curiosities, money or articles having a monetary or intrinsic value (including historic, artistic or other values) other than ordinary building materials shall become the property of the Employer and must be handed over to the Employer.

Materials to be Salvaged for Re-use

All existing masonry, slate, joinery elements, etc., to be removed and to be retained for re-use shall be carefully removed by hand in such a manner that no damage is occasioned to the components being removed. Under the direction of the Architect, the removed materials shall be carefully sorted by and the material for re-use shall be carefully placed on pallets. These materials shall be carefully cleaned to remove old mortar, plaster, render etc. at the time of sorting so that minimal works are necessary during re-building operations. No material shall be disposed of until such time as its disposal is approved by the Architect and, if required, the Contractor will be required to repeat the sorting operation should any material suitable for re-use be discovered in the materials designated for disposal. The pallets shall be located close to the works so that handling and transport is kept to a minimum and the sorting, cleaning and rebuilding operations minimise any further damage during transport or other re-location of the materials. Samples of the original mortars, renders and plasters shall be retained for analysis. The Contractor shall

arrange for samples designated by the Architect to be forwarded to an approved laboratory for analysis of all properties including shape, sizes, texture, grading and binder type and proportion which will be used to replicate the original mixes.

All material unsuitable for re-use shall be retained on site until its removal is approved by the Architect. Once this approval is given, it shall be immediately removed from the site. Similarly, any material found unsuitable during the rebuilding operations shall be piled according to type and only removed when the Architects has given his approval.

Taking Down Methods

The Contractor shall only employ such methods that cause no shock or vibration to adjacent buildings and equipment or buried services being retained. In general, sections being taken down should be disconnected from sections being retained by hand methods before any removal is undertaken in order to prevent any accidental damage to the fabric or structure retained. The use of explosives is forbidden.

The Contractor should note the particular difficulties in connection with the taking down works and make his own assessment as to the most appropriate methods to be used at the time of tender. He should note that it may be necessary to undertake the removal works in part or in total by hand demolition.

Where necessary, leave adequate temporary support and protection at each stage and arrange for inspection by the Architect. Maintain and alter temporary supports and protection as necessary as work progresses.

Arrange inspection and approval of a suitably qualified where any works will involve Mechanical and/or Electrical services.

Take down structure(s) causing a minimum of damage to adjacent property and leave no unnecessary or unstable projections.

Report to the Architect any defects exposed or becoming apparent in adjoining property.

Promptly repair any damage caused to adjoining property by demolition work. Make good to ensure safety, stability, weather protection and security.

Structure(s) to be retained

Adequately protect parts of existing structure(s) which are to be kept in place

Cut away and strip out the minimum necessary and with care to reduce the amount of making good to a minimum.

Prevent debris from overloading any part of the structure which is not to be taken down.

Services which are to remain

Notify the Architect and service authority of any damage. Make all arrangements for repair to the satisfaction of the Architect and service authority. Bear any costs arising.

Method Statement

The Contractor will be required to prepare a method statement detailing the precise details of his proposals for the demolition works and submit same to the Architect for this approval before the work is put in hands. He will be required to modify the method statement as necessary until such approvals are obtained. Such approvals, once given by the Architect shall not relieve the Contractor of any responsibility for any aspect of the taking down works including safety, preventing damage to fabric retained, preventing damage to materials to be salvaged for re-use etc. etc..

Schedules of Works and Programme.

The Contractor shall submit to the Architect:

- (a) A Schedule of his intended working procedures and taking down works for approval.
- (b) An itemised programme chart. This shall be kept continuously up to date during the progress of the works.

The Contractor shall include for the erection of shores and ties where required. He shall satisfy himself that the proposals are adequate, and shall include for, and put forward his alternative proposals if he feels they are not. Drawings and details of such alternative proposals shall be submitted for comment by the Architect in advance.

All propping, needling and shoring required shall be designed, erected (and, where applicable, removed) in accordance with latest codes of practice

No approval issued by the Architect shall relieve the Contractor of his responsibility for the safety of the general public, site personnel and adjoining properties during the course of the demolition works.

Safety Precautions

Take all safety precautions necessary, including those noted in BS 6187, Clause 5, and relevant Health and Safety Authority Guide Notes. Site staff responsible for supervision and control of the work are to be experienced in the assessment of the risks involved and in the methods of taking down to be used.

Taking down in confined areas and adjacent to structure and fabric to be retained shall be carried out by hand. On no account shall the buildings, scaffolding etc., become overloaded by debris etc. The site shall be kept secure at all times.

General Precautions to Avoid Damage

The Contractor shall carry out the work in such manner as to cause as little inconvenience as possible to the owners and/or occupants of the adjoining premises or the public and shall include in his tender for any costs such as the provision of water for sprinkling the debris to keep down dust. In particular, noise and vibration shall be kept to a minimum, and the Contractor shall take all necessary steps to abate these to avoid inconvenience to others.

The Contractor shall protect adjoining properties roads and footpaths from damage and provide adequate support to them at each stage of taking down, and adapt and re-arrange such support as necessary from time to time. He shall provide all necessary temporary shorings, screens and coverings.

The Contractor shall make good at his own expense any damage done to public roads and footpaths which may be caused by his operations.

The Contractor shall provide all necessary watching and lighting including lights on hoardings or scaffoldings projecting over public footpaths during the progress of the works and shall be responsible for any damage arising from insufficient watching or lighting.

Temporary Supports

The Contractor shall be responsible for the design and provision of all necessary temporary supports, needling, shoring, raking shoring, horsing etc.

Nuisance

The Contractor shall be responsible for the prevention of all nuisance arising from the works, in particular, noise, dust etc. To this end, all dry material shall be periodically dampened to prevent dust rising and no debris shall be allowed to be deposited on the public roadway or adjoining building either during the works and transport of debris from the site.

Health Hazard

Take adequate precautions to protect site operatives and the general public from health hazards associated with dangerous fumes and dust arising during the course of the works.

Debris.

All debris, demolished materials etc., shall be removed from the site and deposited in an approved site provided by the Contractor.

Burning Material

On no account will the burning of material be permitted on site,

Gas or Vapour Risks

Take adequate precautions to prevent **fire** or explosion caused by gas or vapour.

Decayed Timber

All decayed or infested timber shall be carefully removed to prevent the spread of spores or larvae, immediately wrapped before removal from the building and disposed off site. Similarly, other materials adjoining the site of such decayed timber shall, if necessary, be carefully removed and disposed off site or treated with an approved chemical to prevent contamination spreading to adjoining retained structures.

Adjacent Structures

Areas for taking down shall be disconnected from areas being retained by hand by means least Rely to cause damage to the retained structures and approved by the Architect. All unnecessary projections shall be removed.

Make Good

The Contractor shall make good as required to ensure safety stability and security of the retained buildings and provide such weather protection to the retained structures as may be necessary.

Protection

Provide all necessary protection as required under BS 6187, Clause 5. In addition, the Contractor shall provide all necessary temporary screens etc., as required for safety, control of noise and dust, temporary weather protection, security etc., or to facilitate the works.

Partly Demolished Structure(s)

Leave partly demolished structure in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse.

Prevent debris from overloading scaffolding platforms.

Prevent access of unauthorised persons to partly demolished structure(s). Leave safe outside working hours.

Asbestos based Materials

Report immediately to the Architect any suspected asbestos based materials discovered during taking down work. Avoid disturbing such materials. Agree with the Architect / Engineer methods for safe removal.

Unknown Hazards

Inform the Architect of any unrecorded voids, tanks, chemicals, etc., discovered during taking down work. Agree with the Architect and Engineer, methods for safe removal, filling, etc.

Completion

Clear away all debris and leave the site in a tidy and safe condition on completion.



DAVID SLATTERY – Architect – Historic Buildings Consultant

8, Vergemount, Clonskeagh, Dublin 6, Ireland. Tel:+353(1) 2697344 Fax: +353 (1) 2604098

e-mail: info@slatteryconservation.ie

Schedule of Works to Windows at Block A, the former Player Wills Factory, South Circular Road, Dublin 8.

It appears that approximately 1/3 of the existing windows in the No. 2 Factory (referred to as Block A in the accompanying Conservation Report) are original. The surviving original windows do not meet the Part L requirements regarding thermal and sound insulation for the proposed new uses of the of the building. It is proposed that all original multi-pane steel windows will be salvaged from the building.

New thermally broken multi-pane steel windows to match the original pane configuration and profile will be inserted to replace the original windows, and to replace later windows throughout the building, as per the drawings prepared by Henry J Lyons Architects. All works will be carried out in accordance with the accompanying Outline Conservation Specification.

The following document should be read alongside the associated Key Elevations, appended below, which identify the windows at each level of the existing Block A Factory building. Photographs of the elevations are included in the main Photographic Record.

Ground Floor Level

South Elevation

WG.01	Non-original	Plinth to be removed and new multi-pane steel window to match the original profile and pane configuration to be inserted into the new opes.
WG.02	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.03	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.04	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.05	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.06	Original	Existing window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.07	Parts are original	Original sections of window are to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.08	Parts are original	Original sections of window are to be salvaged. The plinth is to be removed, and new multi-pane steel windows to match

David Slattery – Conservation Architects Ltd.

James Slattery B.Arch., Dipl. ABRCons M.R.I.A.I. – Principal / Director

		the original profile and pane configuration inserted into the new opes.
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East Elevation

WG.09	Original	Original window to be salvaged. The plinth is to be removed, and new multi-pane steel windows to match the original profile and pane configuration to be inserted into the new opes.
WG.10	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.11	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.12	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.13	Parts are original	Original sections to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.14	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.15	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.16	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.17	Original	Original window to be salvaged. Plinth to be removed and a new full-height ope formed here.
WG.18	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.19	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.20	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.21	Non-original	To be demolished.
WG.22	Non-original	To be demolished.
WG.23	Non-original	To be demolished.

North Elevation

WG.24	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.25	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.26	Non-original	Non-original window and sections of wall to be removed to form large new ope.

West Elevation

WG.27	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.28	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.29	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.30	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.31	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.32	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.33	Non-original	Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.34	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.35	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.36	Original	Original window to salvaged. Plinth to be removed and new full-height windows to be inserted.
WG.37	Non-original	Plinth to be removed and new full-height windows to be inserted.
WG.38	Non-original	Plinth to be removed and new full-height windows to be inserted.

First Floor Level

South Elevation

WF_01	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.02	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.03	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.04	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.05	Non-original	New single-pane window to be inserted here
WF.06	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.07	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.

WF.08	Original	Original window to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.09	Original	Original window to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.

East Elevation

WF.10	Parts are original	Original sections to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.11	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.12	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.13	Non-original	Existing window to be removed and replaced with modern steel window.
WF.14	Non-original	Existing window to be removed and replaced with modern steel window.
WF.15	Non-original	Existing window to be removed and replaced with modern steel window.
WF.16	Non-original	Existing window to be removed and replaced with modern steel window.
WF.17	Non-original	Existing window to be removed and replaced with modern steel window.
WF.18	Non-original	Existing window to be removed and replaced with modern steel window.
WF.18	Non-original	Existing window to be removed and replaced with modern steel window.
WF.19	Non-original	Existing window to be removed and replaced with modern steel window.
WF.20	Non-original	Existing window to be removed and replaced with modern steel window.
WF.21	Non-original	Existing window to be removed and replaced with modern steel window.
WF.22	Non-original	To be demolished.
WF.23	Non-original	To be demolished.
WF.24	Non-original	To be demolished.

North Elevation

WF.25	Non-original	To be demolished.
WF.26	Non-original	To be demolished.
WF.27	Non-original	To be demolished.
WF.28	Non-original	To be demolished.
WF.29	Non-original	To be demolished.
WF.30	Non-original	Existing window to be removed and replaced with modern steel window.

WF.31	Non-original	Existing window to be removed and replaced with modern steel window.
WF.32	Non-original	Existing window to be removed and replaced with modern steel window.

West Elevation

WF.33	Non-original	To be demolished.
WF.34	Non-original	To be demolished.
WF.35	Non-original	To be demolished.
WF.36	Non-original	Existing window to be removed and replaced with modern steel window.
WF.37	Non-original	Existing window to be removed and replaced with modern steel window.
WF.38	Non-original	Existing window to be removed and replaced with modern steel window.
WF.39	Non-original	Existing window to be removed and replaced with modern steel window.
WF.40	Non-original	Existing window to be removed and replaced with modern steel window.
WF.41	Non-original	Existing window to be removed and replaced with modern steel window.
WF.42	Non-original	Existing window to be removed and replaced with modern steel window.
WF.43	Non-original	Existing window to be removed and replaced with modern steel window.
WF.44	Non-original	Existing window to be removed and replaced with modern steel window.
WF.45	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WF.46	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WF.47	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.

Courtyard – South Elevation

WF.48	Non-original	Existing window to be removed and replaced with modern steel window.
WF.49	Non-original	Existing window to be removed and replaced with modern steel window.
WF.50	Non-original	Existing window to be removed and replaced with modern steel window.

Courtyard – East Elevation

WF.51	Non-original	Existing window to be removed and replaced with modern steel window.
WF.52	Non-original	Existing window to be removed and replaced with modern steel window.

WF.53	Non-original	Existing window to be removed and replaced with modern steel window.
WF.54	Non-original	Existing window to be removed and replaced with modern steel window.
WF.55	Non-original	Existing window to be removed and replaced with modern steel window.
WF.56	Non-original	Existing window to be removed and replaced with modern steel window.

Courtyard – North Elevation

WF.57	Original	Original window to be salvaged. This area of the building will be demolished.
WF.58	Original	Original window to be salvaged. This area of the building will be demolished.
WF.59	Original	Original window to be salvaged. This area of the building will be demolished.

Courtyard – West Elevation

WF.60	Non-original	Existing window to be removed and replaced with modern steel window.
WF.61	Non-original	Existing window to be removed and replaced with modern steel window.
WF.62	Non-original	Existing window to be removed and replaced with modern steel window.
WF.63	Non-original	Existing window to be removed and replaced with modern steel window.
WF.64	Non-original	Existing window to be removed and replaced with modern steel window.
WF.65	Non-original	Existing window to be removed and replaced with modern steel window.

Second Floor Level

The second floor is a c. 1930s extension to the original two-storey building. As it was constructed shortly after the original structure, with matching details, 1930s windows in this section will be considered as original fabric throughout.

South Elevation

WS.01	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.02	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.03	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.04	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.

WS.05	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.06	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.07	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.08	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.09	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.

East Elevation

WS.10	Parts are original	Original sections to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.11	Original	Existing window to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here
WS.12	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.13	Non-original	Existing window to be removed and replaced with modern steel window.
WS.14	Non-original	Existing window to be removed and replaced with modern steel window.
WS.15	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.16	Non-original	Existing window to be removed and replaced with modern steel window.
WS.17	Non-original	Existing window to be removed and replaced with modern steel window.
WS.18	Non-original	Existing window to be removed and replaced with modern steel window.
WS.19	Non-original	Existing window to be removed and replaced with modern steel window.
WS.20	Non-original	Existing window to be removed and replaced with modern steel window.
WS.21	Non-original	Existing window to be removed and replaced with modern steel window.
WS.22	Non-original	Existing window to be removed and replaced with modern steel window.
WS.23	Non-original	To be demolished.
WS.24	Non-original	To be demolished.
WS.25	Non-original	To be demolished.

North Elevation

WS.26	Non-original	To be demolished.
WS.27	Non-original	To be demolished.
WS.28	Non-original	To be demolished.

WS.29	Non-original	To be demolished.
WS.30	Non-original	To be demolished.
WS.31	Non-original	Existing window to be removed and replaced with modern steel window.
WS.32	Non-original	Existing window to be removed and replaced with modern steel window.
WS.33	Non-original	Existing window to be removed and replaced with modern steel window.

West Elevation

WS.34	Non-original	To be demolished.
WS.35	Non-original	To be demolished.
WS.36	Non-original	To be demolished.
WS.37	Non-original	Existing window to be removed and replaced with modern steel window.
WS.38	Non-original	Existing window to be removed and replaced with modern steel window.
WS.39	Non-original	Existing window to be removed and replaced with modern steel window.
WS.40	Non-original	Existing window to be removed and replaced with modern steel window.
WS.41	Non-original	Existing window to be removed and replaced with modern steel window.
WS.42	Non-original	Existing window to be removed and replaced with modern steel window.
WS.43	Non-original	Existing window to be removed and replaced with modern steel window.
WS.44	Non-original	Existing window to be removed and replaced with modern steel window.
WS.45	Non-original	Existing window to be removed and replaced with modern steel window.
WS.46	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WS.47	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.48	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.

Courtyard – South Elevation

WS.49	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.50	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.51	Original	Existing window to be salvaged. New modern steel window to be inserted here.

Courtyard – East Elevation

WS.52	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.53	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.54	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.55	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.56	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.57	Original	Existing window to be salvaged. New modern steel window to be inserted here.

Courtyard – North Elevation

WS.58	Original	Existing window to be salvaged. This area of the building to be demolished.
WS.59	Original	Existing window to be salvaged. This area of the building to be demolished.
WS.60	Original	Existing window to be salvaged. This area of the building to be demolished.

Courtyard – West Elevation

WS.60	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.61	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.62	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.63	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.64	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.65	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.66	Original	Existing window to be salvaged. New modern steel window to be inserted here.

Third Floor Level

South Elevation

WT.01	Non-original	To be demolished
WT.02	Non-original	To be demolished

East Elevation

WT.03	Non-original	To be demolished
WT.04	Non-original	To be demolished
WT.05	Non-original	To be demolished
WT.06	Non-original	To be demolished
WT.07	Non-original	To be demolished
WT.08	Non-original	To be demolished
WT.09	Non-original	To be demolished
WT.10	Non-original	To be demolished
WT.11	Non-original	To be demolished

North Elevation

WT.12	Non-original	To be demolished
WT.13	Non-original	To be demolished
WT.14	Non-original	To be demolished
WT.15	Non-original	To be demolished
WT.16	Non-original	To be demolished
WT.17	Non-original	To be demolished

West Elevation

WT.18	Non-original	To be demolished
WT.19	Non-original	To be demolished
WT.20	Non-original	To be demolished

Courtyard – East Elevation

WT.21	Non-original	To be demolished
WT.22	Non-original	To be demolished
WT.23	Non-original	To be demolished
WT.24	Non-original	To be demolished
WT.25	Non-original	To be demolished
WT.26	Non-original	To be demolished

Courtyard – North Elevation

WT.27	Non-original	To be demolished
WT.28	Non-original	To be demolished

Player Wills Factory, South Circular Road, Dublin 8.

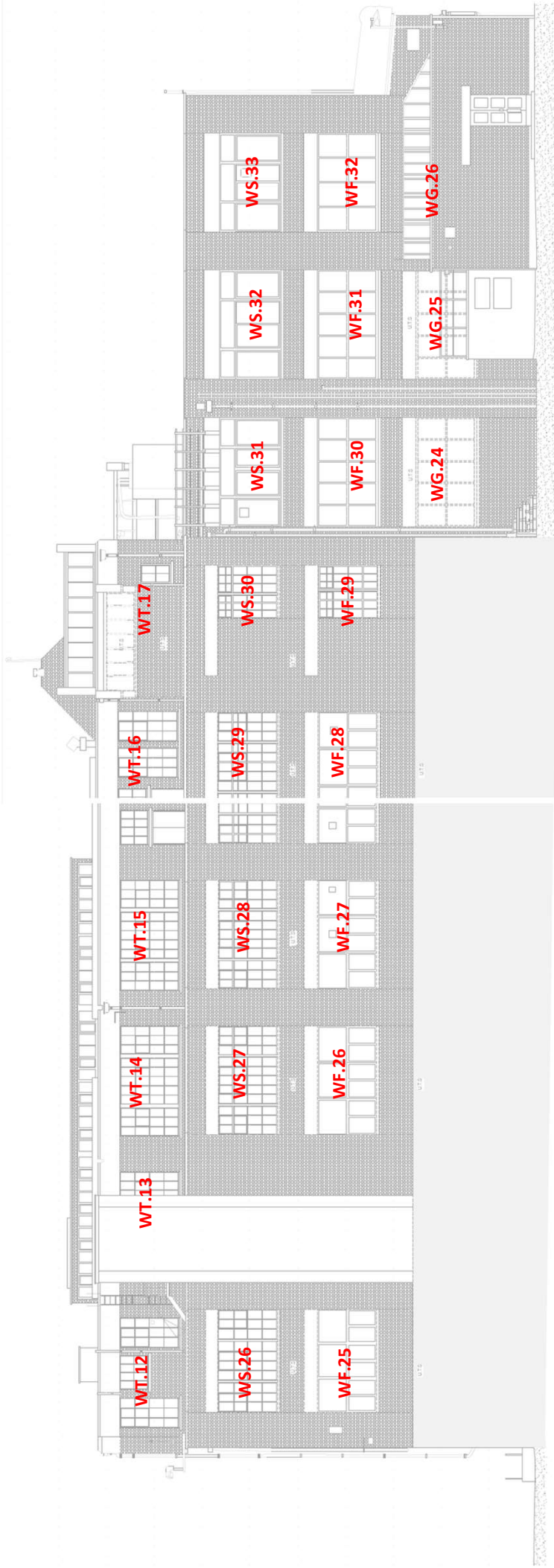
Windows to Block A – Key Elevations



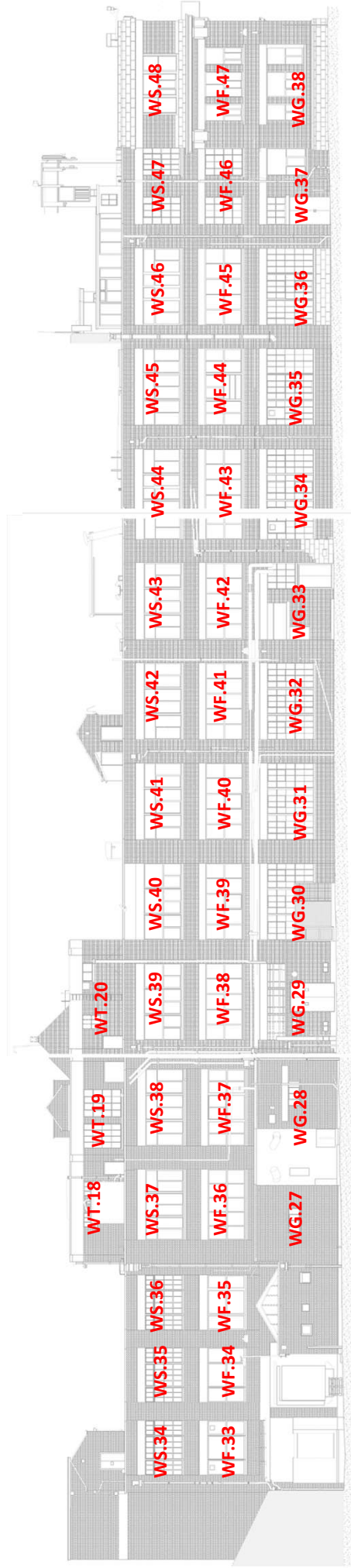
1. South Elevation



2. East Elevation



3. North Elevation



4. West Elevation



5. Courtyard - South Elevation



6. Courtyard – East Elevation



7. Courtyard - North Elevation



8. Courtyard — West Elevation

APPENDIX F: Invasive Species Management Plan



Player Wills, Dublin City Council and
Bailey Gibson Lands
Invasive Alien Plant Species Report

BSM

Est.
1968

**Brady Shipman
Martin**

**Built.
Environment.**

Environmental
Assessment
**Built
Environment**

Client:

CWTC Multi Family ICAV

Date:

20 January 2020

DOCUMENT CONTROL SHEET

6687_IAPS1_Invasive Alien Plant Species Report

Project No. 6687
Client: CWTC Multi Family ICAV
Project Name: Player Wills, Dublin City Council and Bailey Gibson Lands
Report Name: Invasive Alien Plant Species Report
Document No. IAPS1
Issue No. 01
Date: 20/01/2020

This document has been issued and amended as follows:

Issue	Status	Date	Prepared	Checked
01	Final	20 Jan 2020	MH	MH



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1 Introduction

1.1 Background

This document presents the results of surveys undertaken by ecologist Matthew Hague, CEnv, MCIEEM, at the Bailey Gibson, Player Wills and Dublin City Council-owned Boys Brigade and St. Teresa's Gardens sites. The surveys were undertaken in order to ascertain whether or not any invasive plant species are present within the site area.

During the surveys all parts of the sites and the surrounding areas were inspected and a detailed photographic record was made of any species noted.

1.2 Study site overview

The subject lands were designated as a Strategic Development and Regeneration Area (SDRA 12 – St. Teresa's Gardens) in the Dublin City Development Plan 2016-2022. A Development Framework for St. Teresa's Gardens and Environs was adopted by Dublin City Council in June 2017. A Masterplan has now been prepared for the lands.

The lands (see **Figure 1**) are located in Dublin 8 in the city centre, to the north of South Circular Road. The site is bounded to the north and east by residential development. The Coombe Hospital is situated immediately to the west (the Coombe lands are in fact part of SDRA 12 but are excluded from the study area).

The site comprises three separate areas, totalling 10.3ha. The DCC lands (6ha) form the northern part of the site. This area is dominated by the former Boys Brigade playing fields and the former St. Teresa's Gardens housing complex, of which 10 of the original 12 blocks have now been demolished. A 54 unit social housing scheme is now under construction on the northern boundary of the site. The Bailey Gibson land (1.52ha) is located in the south western part of the site. This site almost entirely comprises buildings and artificial surfaces. It is completely built up, with a mix of buildings, mainly warehouses and storage sheds. The patch of ground in the south west corner of the site was until recently in use as a community garden. The Player Wills land (2.78ha) is in the south eastern section of the SDRA 12 area. This land is similarly built up, dominated by old factory buildings and hard standing areas.

There are no watercourses present on or in the immediate vicinity of the SDRA 12 lands¹. The nearest such feature, the Grand Canal, is approximately 125m to the south at its closest point. The River Poddle is approximately 600m to the east, however the Poddle is culverted for much of its length in the city centre and there is no connection between the site and this watercourse.

¹ <https://gis.epa.ie/EPAMaps/>

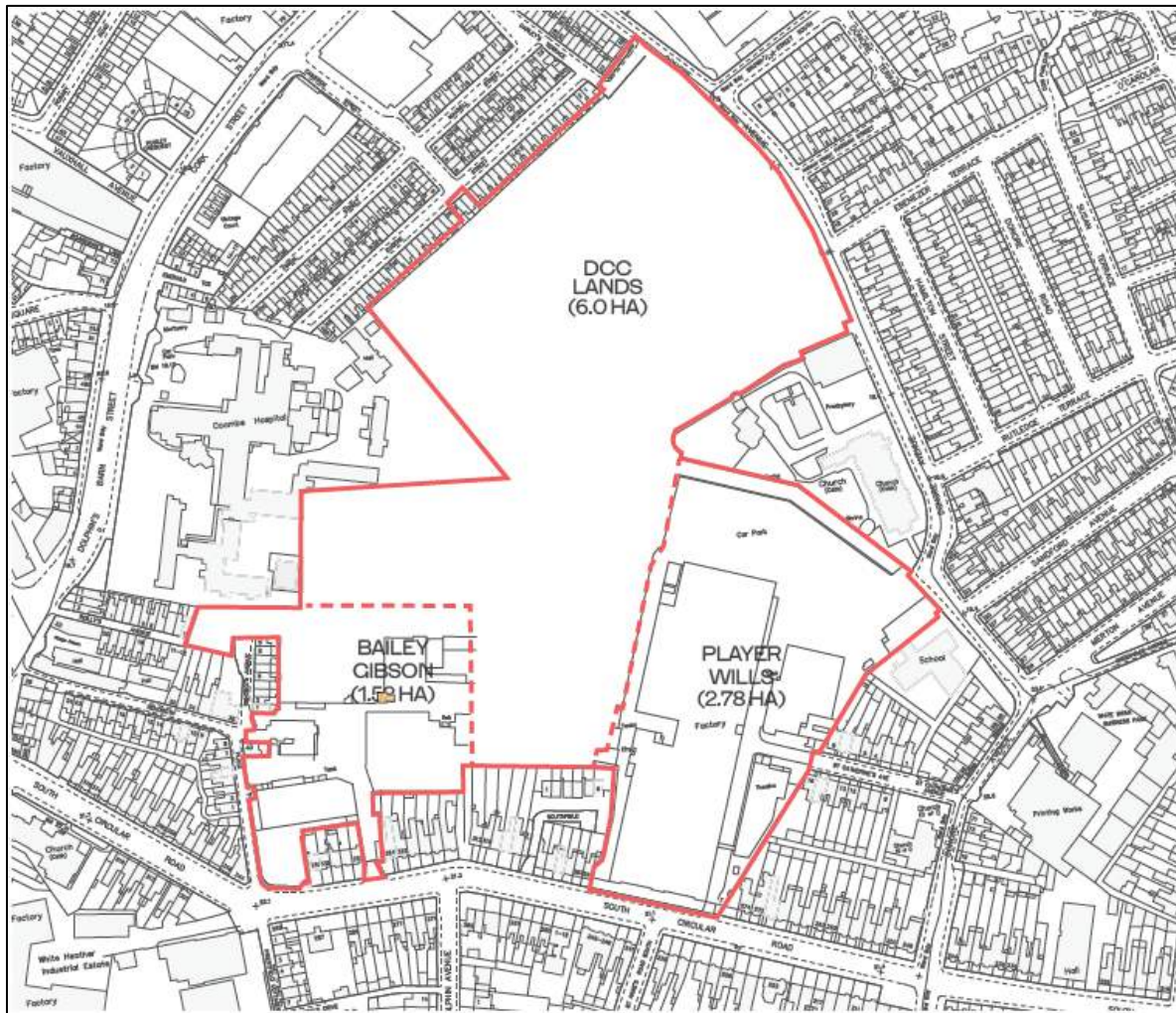


Figure 1: Location of the study area/SDRA 12 Masterplan area (Source: Masterplan document)

2 Methodology

2.1 Desk review

A desk study was undertaken, and the records held by the National Parks and Wildlife Service (NPWS), National Biodiversity Data Centre (NBDC) and Invasive Species Ireland were reviewed. Records of invasive species included in planning application documentation for neighbouring sites were also reviewed.

2.2 Field study

The surveys comprised a walkover inspection of the entire site. Evidence of invasive species, including mature plants, seedlings and old growth was recorded. The survey focussed on, but was not limited to, the following key species:

- Japanese knotweed (*Fallopia japonica*);
- Bohemian knotweed (*Fallopia japonica* x *F. sachalinensis* (*Fallopia* x *bohemica*));
- Giant knotweed (*Fallopia sachalinensis*);
- Giant hogweed (*Heracleum mantegazzianum*);
- Giant rhubarbs (*Gunnera tinctoria*);
- Himalayan knotweed (*Persicaria wallichii*);
- Himalayan balsam (*Impatiens glandulifera*);

- Hottentot fig (*Carpobrotus edulis*);
- Rhododendron (*Rhododendron ponticum*);
- Canadian waterweed (*Elodea canadensis*);
- Nuttall's waterweed (*Elodea nuttallii*).

All these species are listed on the Third Schedule (Part 1: Plants) of the *European Communities (Birds and Natural Habitats) Regulations, 2011-2015* (the *Habitats Regulations*).

Full access was available to all parts of the site. The Bailey Gibson and Player Wills lands were visited several times between 5th May 2019 and 20th August 2019. This is the optimal time of year to undertake such work. The DCC lands were surveyed on 19th December 2019. Although outside the optimal season for undertaking such botanical survey work, due to the features encountered on the site it is considered that an appropriate level of survey was carried out.

3 Results

3.1 Desk study results

No records of any species listed on the Third Schedule of the *Habitats Regulations* were found in any of the databases covering the site. However, the NBDC database does have records of Japanese knotweed, Canadian waterweed and Nuttall's waterweed in close proximity to the study site (only Japanese knotweed is ever likely to be present on the site as the other two species are water plants, found in the Grand Canal). It should be noted that the databases are incomplete, and a lack of records is not any indicator of absence of these plants.

3.2 Site inspection

No listed species were recorded on the site during the site surveys. Significant quantities of buddleia (*Buddleja davidii*) scrub was identified on the site – mainly on the DCC lands. Although buddleia is a non-native, potentially invasive species it is not listed on the Third Schedule of the *Habitats Regulations*. Other potentially invasive, but unlisted plants recorded included sycamore (*Acer pseudoplatanus*) scrub, winter heliotrope (*Petasites fragrans*) and red valerian (*Centranthus ruber*).

Japanese knotweed is present at various locations along the Grand Canal within 500m of the site. It is not however known to be present within any of the lands covered by the surveys, and none was recorded.

4 Assessment and conclusions

No invasive species listed on the Third Schedule of the *Habitats Regulations* were recorded on the site during the site surveys. There is therefore no legal obligation to deal with any plant species in a formal manner.

Nevertheless, in undertaking any development there is a risk of transfer of invasive plant material during the construction phase that could potentially lead to listed species becoming established in the area. All planting plans and landscaping proposals will ensure that no invasive species are introduced, either deliberately or inadvertently, to the site.

Disclaimer

Surveys such as those undertaken at the Bailey Gibson, Player Wills and DCC-owned lands represent a snapshot in time. As such, regardless of the results presented in this report, it is not guaranteed that the site(s) will remain free of Third Schedule species. Good site management will be required and training and site induction for workers should include instruction in how to recognise and stop the spread of invasive species. A full site re-survey should be undertaken prior to any construction commencing.

Key references

Dublin Local Authorities (2013). *Ecological Guidance for Local Authorities and Developers*.

European Communities (Birds and Natural Habitats) Regulations (2011-2015) also known as the *Habitats Regulations*. Government of Ireland.

Booy, O., Wade, M. and Roy, H. (2015). *Field Guide to Invasive Plants & Animals in Britain* Bloomsbury.

Kelly, J., Maguire, C.M. and Cosgrove, P.J. (2008). *Best Practice Management Guidelines Japanese knotweed Fallopia japonica*. Prepared for NIEA and NPWS as part of Invasive Species Ireland.

National Roads Authority (2009). *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*

National Roads Authority (2010). *Guidelines on Management of Noxious Weeds and Non-Native Plant Species on National Roads* (Rev 1)

Websites

NPWS: www.npws.ie

Invasive Species Ireland: www.invasivespeciesireland.com

National Biodiversity Data Centre: www.biodiversityireland.ie

5 Plates



Plate 1: Buddleia on the Dublin City Council lands (December 2019)



Plate 2: Pampas grass (garden escape) on the Dublin City Council lands (December 2019)



Plate 3: Patches of sycamore scrub are present on the Player Wills site, along with areas of buddleia scrub (not shown) (May 2019)

Brady Shipman Martin

DUBLIN

Canal House
Canal Road
Dublin 6
+353 1 208 1900

CORK

Penrose Wharf Business Centre
Penrose Wharf
Cork
+353 21 242 5620

LIMERICK

11 The Crescent
Limerick
+353 61 315 127

mail@bradyshipmanmartin.com
www.bradyshipmanmartin.com



**APPENDIX G: Environmental Risk
Assessment & Waste
Characterisation**



Unit 15
Melbourne Business Park
Model Farm Road
Cork T12 WR89



T: 021 434 5366
E: info@ocallaghanmoran.com
www.ocallaghanmoran.com

Human Health Risk and Waste Characterisation Assessment

Former Player Wills Factory

South Circular Road,

Dublin 8

Prepared For: -

CWTC MULTI FAMILY ICAV
(DBTR SCR1 FUND)
MATHESON
70 Sir John Rogerson's Quay
Dublin 2

Prepared By: -

O' Callaghan Moran & Associates
Unit 15 Melbourne Business Park
Model Farm Road
Cork

April 2020

Project	Human Health Risk and Waste Characterisation Assessment: Player Wills Factory, South Circular Road, Dublin 8			
Client	Hines.			
Report No	Date	Status	Prepared By	Reviewed By
192430103	01/04/2020	Final	Austin Hynes MSc	Sean Moran MSc PGeo

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APPENDICES

- APPENDIX 1** - **Laboratory Results**
- APPENDIX 2** - **Waste Classification Report**

1 INTRODUCTION

Virtus Project Management, on behalf of Hines, requested O’Callaghan Moran & Associates (OCM) to collect complete a human health risk assessment and waste classification on a floor undercoat material at a warehouse in the Player Wills Factory on South Circular Road, Dublin 8.

The material was uncovered when floor boards were removed and a strong creosote type odour was detected emanating from an undercoat layer bonded to the underlying concrete floor. Virtus requested OCM to collect a sample of the material for analysis to establish the human health risk of leaving the material in-situ and a waste classification for if/when the material is removed.

1.1 Methodology

OCM collected the sample at the warehouse. The sample was analysed at an accredited laboratory. The human health risk assessment was completed using the Land Quality Management/Chartered Institute of Environmental Health (LQM/CIEH) S4ULs Human Health Risk Assessment-Risk Levels (S4ULs). The waste classification assessment was completed in accordance with the Environmental Protection Agency (EPA) Guidelines on the Classification of Waste (2015).

2 SAMPLING PROGRAMME

An OCM Environmental Scientist OCM collected the samples from two rooms in the warehouse on March 12th 2020. Both the ground floor and first floor rooms were approximately 35m x 15m. Four sub samples were collected from the surface of the floors in each room.

The material appears to have been an undercoat layer onto which wooden floor boards were laid and was probably intended as a preservative for the timber (Photograph 1 and 2). It had a strong creosote odour. The layer was not uniform in thickness and typically was between 0-20mm thick.



Photograph 1 Undercoat Material on Ground Floor)



Photograph 2 Undercoat Material First Floor Room

2.1.1 *Sample Collection*

A composite sample was formed by combining a series of four sub samples from across the floor area in each room. The composite sample was placed in laboratory prepared containers and stored in a cooler prior to shipment to Chemtest Ltd.

2.1.2 *Laboratory Analysis*

The samples were tested for metals (arsenic, barium, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, antimony, selenium and zinc), total organic carbon (TOC), BTEX (benzene, toluene, ethylbenzene and xylene) aliphatic and aromatic hydrocarbons, polychlorinated biphenyls (PCB), polyaromatic hydrocarbons (PAH) and asbestos. Leachate generated from the samples was tested for metals, chloride, fluoride, soluble sulphate, phenols, dissolved organic carbon (DOC), total dissolved solids (TDS).

This parameter range facilitates both the Human Health Risk Assessment and an assessment of the hazardous properties of the waste, and also allows a determination of appropriate off-site management options based on the Waste Acceptance Criteria (WAC) applied by landfill operators.

The analytical methods were all ISO/CEN approved and the method detection limits were below the relevant guidance/threshold values. The full laboratory report is in Appendix 1.

3 ENVIRONMENTAL RISK ASSESSMENT AND WASTE CLASSIFICATION

3.1 Environmental Risk Assessment

The sample results are presented in Tables 3.1 to 3.3. For comparison purposes the Tables include the Land Quality Management/Chartered Institute of Environmental Health (LQM/CIEH) S4ULs Human Health Risk Assessment-Risk Levels (S4ULs). The selected S4ULs are for residential end use.

The S4uLs for a range of aliphatic and aromatic hydrocarbons and PAH were exceeded. In addition the material contains c30% coal tar, which is a carcinogenic substance.

Table 3.1 Aliphatic and Aromatic Hydrocarbons

Parameter	Units	Sample	Residential <u>without</u> homegrown produce LQM/CIEH Suitable 4 Use Levels (S4ULs) [mg/kg DW]		
			1 % SOM	2.5% SOM	6 % SOM
Aliphatics					
EC 5-6	mg/kg	<0.1	42	78	160
EC >6-8	mg/kg	<0.1	100	230	530
EC >8-10	mg/kg	<0.1	27	65	150
EC >10-12	mg/kg	262.7	130	330	770
EC >12-16	mg/kg	2558	1,100	2,400	4,400
EC >16-35	mg/kg	13904	65,000	92,000	110,000
EC >35-44	mg/kg	473	65,000	92,000	110,000
Total aliphatics C5-40	mg/kg	17198	NE	NE	NE
Aromatics					
EC 5-7	mg/kg	<0.1	370	690	1,400
EC >7-8	mg/kg	<0.1	860	1,800	3,900
EC >8-10	mg/kg	<0.1	47	110	270
EC >10-12	mg/kg	>>11327.6	250	590	1,200
EC >12-16	mg/kg	>>24497	1,800	2,300	2,500
EC >16-21	mg/kg	>>53283	1,900	1,900	1,900
EC >21-35	mg/kg	>>70117	1,900	1,900	1,900
EC >35-44	mg/kg	>>4436	1,900	1,900	1,900
Total aromatics C5-40	mg/kg	163661	NE	NE	NE
VOCs					
MTBE	mg/kg	< 0.005	NE	NE	NE
Benzene	mg/kg	< 0.005	0.38	0.7	1.4
Toluene	mg/kg	< 0.005	880	1,900	3,900
Ethylbenzene	mg/kg	< 0.005	83	190	440
p-Xylene	mg/kg	< 0.005	79	180	430
m-Xylene	mg/kg	< 0.005	82	190	450
o-Xylene	mg/kg	< 0.005	88	210	480

NE denotes Not established

Table 3.2 Polycyclic Aromatic Hydrocarbons

Parameter	Units	Sample	Residential <u>without</u> homegrown produce LQM/CIEH Suitable 4 Use Levels (S4ULs) [mg/kg DW]		
			1 % SOM	2.5% SOM	6 % SOM
PAH MS					
Naphthalene	mg/kg	8145.76	2.3*	5.6*	13*
Acenaphthylene	mg/kg	174.36	2,900	4,600	6,000
Acenaphthene	mg/kg	3606.66	3,000	4,700	6,000
Fluorene	mg/kg	2949.21	2,800	3,800	4,500
Phenanthrene	mg/kg	13593.06	1,300	1,500	1,500
Anthracene	mg/kg	4343.22	31,000	35,000	37,000
Fluoranthene	mg/kg	11280.39	1,500	1,600	1,600
Pyrene	mg/kg	7584.93	3,700	3,800	3,800
Benzo(a)anthracene	mg/kg	4614.5	11	14	15
Chrysene	mg/kg	3748.81	30	31	32
Benzo(bk)fluoranthene	mg/kg	5839.25	NE	NE	NE
Benzo(a)pyrene (only)	mg/kg	3111.8	3.2	3.2	3.2
Indeno(123cd)pyrene	mg/kg	1956.58	45	46	46
Dibenzo(ah)anthracene	mg/kg	392.65	0.31	0.32	0.32
Benzo(ghi)perylene	mg/kg	1551.57	360	360	360
Coronene	mg/kg	290.7	NE	NE	NE
PAH 6 Total	mg/kg	18630.11	NE	NE	NE
PAH 17 Total	mg/kg	56073.34	NE	NE	NE
Benzo(b)fluoranthene	mg/kg	3443.14	3.9	4.0	4.0
Benzo(k)fluoranthene	mg/kg	1339	110	110	110
Benzo(j)fluoranthene	mg/kg	1291	NE	NE	NE
Coal Tar	mg/kg	31.6	1.2	1.2	1.2
Mineral Oil (C10-C40)	mg/kg	17198	NE	NE	NE
Phenol	mg/kg	10.35	750	1,300	2,300
pH	mg/kg	7.25	NE	NE	NE
Cyanides	mg/kg	<0.5	NE	NE	NE

NE denotes Not established

Table 3.3 Metals

Parameter	Units	Sample	Residential <u>without</u> homegrown produce LQM/CIEH Suitable 4 Use Levels (S4ULs) [mg/kg DW]		
			1 % SOM	2.5% SOM	6 % SOM
Metals					
Antimony	mg/kg	<1	NE	NE	NE
Inorganic Arsenic	mg/kg	4.9	NE	NE	40
Barium	mg/kg	14	NE	NE	NE
Cadmium	mg/kg	0.1	NE	NE	85
Chromium III	mg/kg	7.4	NE	NE	910
Copper	mg/kg	20	NE	NE	7,100
Hexavalent Chromium	mg/kg	<0.3	NE	NE	6*
Lead	mg/kg	25	NE	NE	NE
Inorganicmercury	mg/kg	<0.1	NE	NE	56
Molybdenum	mg/kg	0.6	NE	NE	NE
Nickel	mg/kg	1.1	NE	NE	180*
Selenium	mg/kg	1	NE	NE	430
Zinc	mg/kg	33	NE	NE	40,000
Non-Metallic elements					
Boron	mg/kg	0.1	NE	NE	11,000

NE denotes Not established

3.2 **Waste Classification**

The Haz Waste Online Classification Engine, developed in the UK by One Touch Data Ltd, was used to determine the waste classification. This tool was developed specifically to establish whether waste is non-hazardous or hazardous and has been approved for use in Ireland by the Environmental Protection Agency.

The full Waste Classification Report is in Appendix 2. The sample is classified as hazardous and the appropriate List of Waste (LoW) Code is 17 03 01* (bituminous mixtures containing coal tar).

3.2.1 *Waste Management Options*

The material comprises hazardous waste and must be sent to a licensed hazardous waste treatment facility for disposal.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The material is classified as a hazardous waste and the appropriate LoW code is 17 03 01 bituminous mixtures containing coal tar*.

When removed the material must be consigned to a waste facility licensed to accept hazardous waste.

4.2 Recommendations

OCM recommend that the material be removed from the site to mitigate the human health risk to future site users.

The contractors appointed to remove the material should ensure that the area is well ventilated and that appropriate Personnel Protection Equipment is used. At a minimum, this will include Tyvek suits, goggles, gloves, face masks and safety boots.

OCM recommend that a copy of this report be provided in full to the relevant waste management facilities to which the material may be consigned to confirm its suitability for acceptance.

APPENDIX 1

Laboratory Report

O'Callaghan Moran & Associates

Unit 15
Melbourne Business Park
Model Farm
Cork
Ireland



Attention : Conor McGrath
Date : 27th March, 2020
Your reference : PW
Our reference : Test Report 20/4118 Batch 1
Location : PW
Date samples received : 16th March, 2020
Status : Final report
Issue : 1

One sample was received for analysis on 16th March, 2020 of which one was scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Mass of sample taken (kg)	-	Dry Matter Content Ratio (%) =	56.5					
Mass of dry sample (kg) =	0.09	Leachant Volume (l)	-					
Particle Size <4mm =	>95%	Eluate Volume (l)	0.8					
EMT Job No	20/4118		Landfill Waste Acceptance Criteria Limits					
Sample No	3							
Client Sample No	SAMPLE							
Depth/Other								
Sample Date	12/03/2020							
Batch No	1							
Solid Waste Analysis			Inert	Stable Non-reactive	Hazardous			
Total Organic Carbon (%)	55.74					3	5	6
Sum of BTEX (mg/kg)	<0.025					6	-	-
Sum of 7 PCBs (mg/kg)	<0.700					1	-	-
Mineral Oil (mg/kg)	17198					500	-	-
PAH Sum of 6 (mg/kg)	18630.11					-	-	-
PAH Sum of 17 (mg/kg)	56073.34					100	-	-
Eluate Analysis	10:1 concn leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg					
	A10 mg/kg							
			mg/kg					
Arsenic	0.538		0.5	2	25			
Barium	0.18		20	100	300			
Cadmium	0.019		0.04	1	5			
Chromium	0.148		0.5	10	70			
Copper	3.37		2	50	100			
Mercury	0.0003		0.01	0.2	2			
Molybdenum	<0.02		0.5	10	30			
Nickel	0.13		0.4	10	40			
Lead	1.24		0.5	10	50			
Antimony	0.08		0.06	0.7	5			
Selenium	<0.03		0.1	0.5	7			
Zinc	10.99		4	50	200			
Chloride	246		800	15000	25000			
Fluoride	<3		10	150	500			
Sulphate as SO4	242		1000	20000	50000			
Total Dissolved Solids	10724		4000	60000	100000			
Phenol	4.9		1	-	-			
Dissolved Organic Carbon	4141		500	800	1000			

--

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/4118

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x3 Dilution

AB	x4 Dilution
AC	x10 Dilution
AD	x20 Dilution
AE	x100 Dilution
AF	x200 Dilution

EMT Job No: 20/4118

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of PAHs by GC-MS.	PM6	Samples are extracted using Soxtec apparatus and solvent.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM7	Modified USEPA 3540 and 9071 for oily wastes. In house method for the gravimetric determination of a sample following solvent extraction.	PM6	Samples are extracted using Soxtec apparatus and solvent.			AR	Yes
TM13	Determination of Saturates, Aromatics, Resins and Asphaltenes by Thin Layer Chromatography with Flame Ionisation Detection.	PM6	Samples are extracted using Soxtec apparatus and solvent.			AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM6	Samples are extracted using Soxtec apparatus and solvent.			AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM6	Samples are extracted using Soxtec apparatus and solvent.			AR	

EMT Job No: 20/4118

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM20	Modified BS 1377-3: 1990/USEPA 160.3 Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method BS EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.			AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AR	Yes

EMT Job No: 20/4118

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.			AD	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.			AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.			AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM108	Determination of Elemental Sulphur by Reversed Phase High Performance Liquid Chromatography with Ultra Violet spectroscopy.	PM114	End over end extraction of dried and crushed soil samples for organic analysis. The solvent mix varies depending on analysis required			AD	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.			AR	Yes

EMT Job No: 20/4118

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.			AR	

APPENDIX 2

Waste Classification Report

Waste Classification Report



RBHFR-MKUYH-YG4ZV

Job name

19-245 PW Creosote

Description/Comments

Project

19-245

Site

Player Wills

Related Documents

#	Name	Description
None		

Waste Stream Template

O'Callaghan Moran Waste Stream

Classified by

Name:	Company:	HazWasteOnline™ Training Record:	
Austin Hynes	O'Callaghan Moran and Associates	Course	Date
Date:	Unit 15 Melbourne Business Park	Hazardous Waste Classification	-
01 Apr 2020 09:29 GMT	Model Farm Road	Advanced Hazardous Waste Classification	-
Telephone:	Cork		
021 4345366			

Report

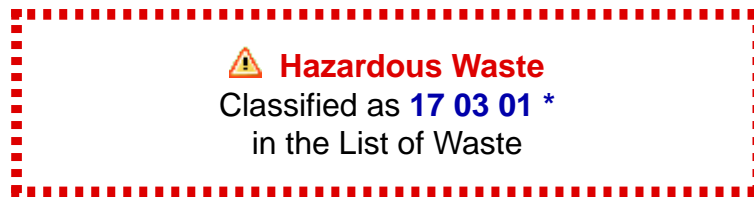
Created by: Austin Hynes
Created date: 01 Apr 2020 09:29 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	Sample	NA	Hazardous	HP 5, HP 7, HP 10, HP 11, HP 14	2

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	6
Appendix B: Rationale for selection of metal species	7
Appendix C: Version	8

Classification of sample: Sample



Sample details

Sample Name:	LoW Code:
Sample	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 03 01 * (Bituminous mixtures containing coal tar)
NA m	
Moisture content:	
0.3%	
(no correction)	

Hazard properties

HP 5: Specific Target Organ Toxicity (STOT)/Aspiration Toxicity "waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration"

Hazard Statements hit:

STOT RE 2; H373 "May cause damage to organs [or state all organs affected, if known] through prolonged or repeated exposure [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 18.086%)

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 18.086%)

benzo[a]anthracene: (conc.: 0.461%)

chrysene: (conc.: 0.375%)

benzo[b]fluoranthene: (conc.: 0.42%)

benzo[k]fluoranthene: (conc.: 0.163%)

benzo[a]pyrene; benzo[def]chrysene: (conc.: 0.311%)

Carc. 2; H351 "Suspected of causing cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

phenanthrene: (conc.: 1.359%)

HP 10: Toxic for reproduction "waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring"

Hazard Statements hit:

Repr. 1B; H360FD "May damage fertility. May damage the unborn child."

Because of determinand:

benzo[a]pyrene; benzo[def]chrysene: (conc.: 0.311%)

Repr. 2; H361d "Suspected of damaging the unborn child."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 18.086%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"



environmental management for business

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 18.086%)
benzo[a]pyrene; benzo[def]chrysene: (conc.: 0.311%)

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Hazard Statements hit:

Aquatic Chronic 1; H410 "Very toxic to aquatic life with long lasting effects."

Because of determinands:

naphthalene: (conc.: 0.815%)
acenaphthene: (conc.: 0.361%)
fluorene: (conc.: 0.295%)
phenanthrene: (conc.: 1.359%)
anthracene: (conc.: 0.434%)
fluoranthene: (conc.: 1.128%)
pyrene: (conc.: 0.758%)
benzo[a]anthracene: (conc.: 0.461%)
chrysene: (conc.: 0.375%)
benzo[b]fluoranthene: (conc.: 0.42%)
benzo[k]fluoranthene: (conc.: 0.163%)
benzo[a]pyrene; benzo[def]chrysene: (conc.: 0.311%)
benzo[ghi]perylene: (conc.: 0.155%)

Aquatic Chronic 2; H411 "Toxic to aquatic life with long lasting effects."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 18.086%)
acenaphthene: (conc.: 0.361%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 5: Specific Target Organ Toxicity (STOT)/Aspiration Toxicity "waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration"

Hazard Statements hit:

Asp. Tox. 1; H304 "May be fatal if swallowed and enters airways."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 18.086%)

Determinands

Moisture content: 0.3% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4	<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<LOD
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	4.9 mg/kg	1.32	6.47 mg/kg	0.000647 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2	0.1 mg/kg	3.22	0.322 mg/kg	0.000322 %		
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0	0.1 mg/kg	1.142	0.114 mg/kg	0.000114 %		
5	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9	7.4 mg/kg	1.462	10.816 mg/kg	0.00108 %		



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#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %	<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		20	mg/kg	1.126	22.518	mg/kg	0.00225 %	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	25	mg/kg	1.56	38.995	mg/kg	0.0025 %	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %	<LOD
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.6	mg/kg	1.5	0.9	mg/kg	0.00009 %	
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		1.1	mg/kg	2.976	3.274	mg/kg	0.000327 %	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1	mg/kg	2.554	2.554	mg/kg	0.000255 %	
13	zinc { zinc chromate }	024-007-00-3				33	mg/kg	2.774	91.547	mg/kg	0.00915 %	
14	TPH (C6 to C40) petroleum group			TPH		180859	mg/kg		180859	mg/kg	18.086 %	
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %	<LOD
16	benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %	<LOD
17	toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %	<LOD
18	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %	<LOD
19	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %	<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %	<LOD
21	pH			PH		7.25	pH		7.25	pH	7.25 pH	
22	naphthalene	601-052-00-2	202-049-5	91-20-3		8145.76	mg/kg		8145.76	mg/kg	0.815 %	
23	acenaphthylene		205-917-1	208-96-8		174.36	mg/kg		174.36	mg/kg	0.0174 %	
24	acenaphthene		201-469-6	83-32-9		3606.66	mg/kg		3606.66	mg/kg	0.361 %	
25	fluorene		201-695-5	86-73-7		2949.21	mg/kg		2949.21	mg/kg	0.295 %	
26	phenanthrene		201-581-5	85-01-8		13593.06	mg/kg		13593.06	mg/kg	1.359 %	
27	anthracene		204-371-1	120-12-7		4343.22	mg/kg		4343.22	mg/kg	0.434 %	
28	fluoranthene		205-912-4	206-44-0		11280.39	mg/kg		11280.39	mg/kg	1.128 %	
29	pyrene		204-927-3	129-00-0		7584.93	mg/kg		7584.93	mg/kg	0.758 %	
30	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		4614.5	mg/kg		4614.5	mg/kg	0.461 %	
31	chrysene	601-048-00-0	205-923-4	218-01-9		3748.81	mg/kg		3748.81	mg/kg	0.375 %	



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
32	benzo[b]fluoranthene				4204.26 mg/kg		4204.26 mg/kg	0.42 %		
	601-034-00-4	205-911-9	205-99-2							
33	benzo[k]fluoranthene				1634.99 mg/kg		1634.99 mg/kg	0.163 %		
	601-036-00-5	205-916-6	207-08-9							
34	benzo[a]pyrene; benzo[def]chrysene				3111.8 mg/kg		3111.8 mg/kg	0.311 %		
	601-032-00-3	200-028-5	50-32-8							
35	indeno[123-cd]pyrene				1956.58 mg/kg		1956.58 mg/kg	0.196 %		
		205-893-2	193-39-5							
36	dibenz[a,h]anthracene				392.65 mg/kg		392.65 mg/kg	0.0393 %		
	601-041-00-2	200-181-8	53-70-3							
37	benzo[ghi]perylene				1551.57 mg/kg		1551.57 mg/kg	0.155 %		
		205-883-8	191-24-2							
38	phenol				10.35 mg/kg		10.35 mg/kg	0.00103 %		
	604-001-00-2	203-632-7	108-95-2							
39	polychlorobiphenyls; PCB				<0.7 mg/kg		<0.7 mg/kg	<0.00007 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								25.393 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Hazardous result
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 18.086%)

Appendix A: Classifier defined and non CLP determinands

■ **chromium(III) oxide** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

■ **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

■ **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4

Description/Comments:

Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

■ **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

■ **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

■ **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

■ **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

■ **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

• **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

• **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

• **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2 H351

• **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

• **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4

Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history



chromium in chromium(III) compounds {chromium(III) oxide}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worst case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil.

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2020.88.4220.8373 (28 Mar 2020)
HazWasteOnline Database: 2020.88.4220.8373 (28 Mar 2020)

This classification utilises the following guidance and legislation:

- WM3 v1.1 - Waste Classification** - 1st Edition v1.1 - May 2018
- CLP Regulation** - Regulation 1272/2008/EC of 16 December 2008
- 1st ATP** - Regulation 790/2009/EC of 10 August 2009
- 2nd ATP** - Regulation 286/2011/EC of 10 March 2011
- 3rd ATP** - Regulation 618/2012/EU of 10 July 2012
- 4th ATP** - Regulation 487/2013/EU of 8 May 2013
- Correction to 1st ATP** - Regulation 758/2013/EU of 7 August 2013
- 5th ATP** - Regulation 944/2013/EU of 2 October 2013
- 6th ATP** - Regulation 605/2014/EU of 5 June 2014
- WFD Annex III replacement** - Regulation 1357/2014/EU of 18 December 2014
- Revised List of Wastes 2014** - Decision 2014/955/EU of 18 December 2014
- 7th ATP** - Regulation 2015/1221/EU of 24 July 2015
- 8th ATP** - Regulation (EU) 2016/918 of 19 May 2016
- 9th ATP** - Regulation (EU) 2016/1179 of 19 July 2016
- 10th ATP** - Regulation (EU) 2017/776 of 4 May 2017
- HP14 amendment** - Regulation (EU) 2017/997 of 8 June 2017
- 13th ATP** - Regulation (EU) 2018/1480 of 4 October 2018
- POPs Regulation 2004** - Regulation 850/2004/EC of 29 April 2004
- 1st ATP to POPs Regulation** - Regulation 756/2010/EU of 24 August 2010
- 2nd ATP to POPs Regulation** - Regulation 757/2010/EU of 24 August 2010

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