

Outline Construction Management Plan

Charlestown Place SHD, Charlestown Place & St Margaret's Road, Charlestown,
Dublin 11.

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1.0 INTRODUCTION & BACKGROUND

POGA Consulting Engineers were appointed by Puddenhill Property Ltd to provide Engineering design services for a SHD application for proposed scheme in Charlestown Place, Finglas, Dublin 11.

The scheme presented in this application is the result of an integrated design approach from members of the design team. The principle designers are McCrossan O'Rourke Manning Architects, RMDA Landscape Architecture, Atkins Consulting Engineers (Transport), and us (POGA) as Civil & Structural Engineers.

The proposed development consists of the following:

- 590 new 1, 2 and 3 bed apartments
- 224m² Office space
- 542m² Crèche
- 350m² Retail space
- 525m² Medical Facility

2.0 SCOPE

The construction management issues dealt with in this plan include noise and vibration, site traffic management, working hours, pollution control, dust control, road cleaning, compound / public health facilities and staff parking.

This OCMP is a 'live' document and will be updated and developed by the developer and their main contractor as the scheme progresses. Post a grant of planning permission this will comprise a Construction and Environmental Management Plan combining the measures outlined in the OCMP, relevant mitigation measures from the EIAR and compliance with relevant conditions attached to the permission.

This plan has been prepared in accordance with the "Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects" (Department of Environment, Heritage and Local Government, July 2006).

It is likely that the proposed development will be constructed over a 3 year period; however, market conditions and sales at the time will likely dictate the construction programme.

Part of the scheme involves the demolition of the existing temporary Carpark surface.

A road opening licence will be sought from (Fingal County Council) FCC where the works interact with the existing public road network.

The report should be read in conjunction with other consultants' reports and drawings.

3.0 GENERAL SITE SET-UP

The Contractor's shall provide to FCC a Final Construction Management Plan & Waste Management Plan and these plans shall ensure the findings and recommendations of this plan, planning conditions, all Environmental and Ecological impact assessment are taken into account.

No parking of construction related vehicles will be allowed on the adjoining road network. Adequate parking facilities will be made available within the Construction Compound for all site staff and workers during the construction.

No muck, dirt, debris or other material shall be deposited on the public road or verge by machinery or vehicles travelling to or from the site during the construction phase. The contractor is to arrange for vehicles leaving the site to be kept clean and muck shifting shall be done in dry weather where possible.

The contractor shall provide a condition survey of the public infrastructure that could be affected by construction activities on the site.

Controlled access to the site will be in the form of gates off the existing internal roads on the site. These gates will be monitored by site personal, separate pedestrian gates will be provided. Site access to the existing football ground shall be maintained during the works. Roads will be monitored for muck, dust and debris and road sweepers will be used as appropriate.

The Contactors Construction Management Plan will identify a Community Liaison Officer (CLO) who's role will involve keeping people informed of site operations, through regular meetings, mail drops and newsletters. The CLO can also be contacted directly by local residents / members of the public with concerns / complaints.

4.0 DEMOLITION AND CONSTRUCTION

4.1 SITE HOARDING

The site will be secured with a solid 2.4m high hoarding erected along the site public boundaries. The hoarding will be used to secure the site and will assist with the control of dust and debris containment throughout the main structural works. The hoarding around the site will ensure the construction works are contained within the site boundary and cause no disruption to any adjacent properties, traffic or passing pedestrians.

4.2 DEMOLITION

The Contractor will deploy a demolition permit system to ensure that all control measures are in place prior to commencing the demolition works of the existing carpark. A service detection survey will be carried out to confirm the presence of any live services over the site.

Demolition Contractor will provide a detailed Risk Assessment Method Statements (RAMS) for the scope of works.

Excavators will be used to “peel” the bituminous surface from the carpark, the bituminous surface is understood to 50-70mm in depth. The underlying granular material will be stripped, stockpiled on site and reused as general site fill for hall roads, etc. Dust will be controlled with water spray. All demolition waste will be transported inside the construction site for segregation and disposed off-site to licensed disposal facilities for processing and recycling where possible. All materials will be loaded into specific waste skips which will be allocated to certain waste streams for recycling purposes.

4.3 TEMPORARY WORKS

Prior to commencing demolition works, a structural survey will be conducted to ensure that the public roads are not at risk of being undermined.

4.4 CONSTRUCTION

The proposed development comprises the construction of 590 residential units in four blocks. The proposed development also includes the provision of 224m² Office space, 542m² Crèche, 350m² Retail space and 525m² Medical Facility.

The development will also include significant landscaping works comprising of hard and soft landscaping, provision of public and communal open spaces, new internal roads and new boundary treatments.

As part of the development 2No single storey basement is proposed. 351 spaces is provide under blocks 1, 2 and 82 spaces under block 4. In addition to this there are 69 spaces are proposed at surface level.

The topography of existing site slopes away from the Charlestown Place towards St Margret's Road. The proposed finished floor levels (FFL) for the Blocks 1 and 2 adjacent Charlestown Place is 68.6 and 69mOD for blocks 3 & 4. The basement level is approximately 3-4m below these levels.

It is proposed that the basement will be constructed using a waterproofed concrete retaining walls and basement slab with deepening at the edges and under internal columns and walls to support the building above. Design to be undertaken to IS EN 1992-1. Block 3 doesn't have a basement so this is likely to be supported on Continuous Flight Auger (CFA) piles extending under the building. The design will be undertaken to IS EN 1997-1:2004 (EC7) and the Irish National Annex.

There is sufficient space around the basement to allow the excavation embankment to be battered back at a safe slope without the need for side temporary works.

The proposed method of construction will not affect neighbouring structures and roads as adequate support is maintained at all times. A Ground Anchor Installation License (GAIL) will not be required.

Above basement level the buildings will be constructed from insitu or precast concrete floors and walls, and clad in stone, brick and render as noted on the Architects drawings.

For the duration of the proposed building works the working hours shall be 07:00 to 18:00 Monday to Friday (excluding bank holidays) and 08:00 to 14:00 Saturdays, subject to any restrictions or relaxations imposed by the local authorities. No working will be allowed on Sundays and Public Holidays. Subject to the agreement of the Local Authority. Out of hours working may be required for the watermain and drainage connections and final junction/road upgrades.

4.5 SURFACE WATER RUN-OFF

All surface water runoff during the construction phase will be managed by collecting such runoff in a closed pipe system and diverting it toward a settlement tank. Only clean water taken from the top of the settlement tank, after passing through a series of baffles, and allowing for sufficient time for the sediments to drop to the bottom of the tank, will be allowed discharge to the public piped network. Surface water run-off from wheel washing and dust suppression will also be directed towards this tank.

The discharge point and volumes will be agreed with FCC in advance.

5.0 ENVIROMENTAL MANAGEMENT

5.1 NOISE IMPACT ON SITE WORKERS & STAFF

The developer and their main contractor are responsible for dangers associated with high noise levels and the impact of the noise levels on the construction workers and site staff.

During the construction works the Contactor shall comply with:

- BS 5228: 2009+A1 2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites, Part 1 and Part 2. 1
- Transport Infrastructure Irelands (TII) guidance document Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (March 2014).
- Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5, Noise and Vibration.

The construction noise limits which are presented in Table 5.1 are specified in *British Standard BS 5228 – 1:2009+A1 2014 Code of practice for noise and vibration control on open sites: Part 1 Noise* and are based on the noise measured at the external façade of a receptor.

BS5228 states that noise sensitive receptors (houses) are designated a category based on existing ambient noise levels. Each category is then assigned with a noise limit value.

Category A Threshold values when ambient noise levels are less than these values

Category B Threshold values when ambient noise levels are the same as the Category A values

Category C Threshold values when ambient noise levels are higher than the Category A values

Category and Threshold Value Period LAeq dB(A)	Category A	Category B	Category C
Night 23:00 – 07:00	45	50	55
Evening 19: - 23:00 & Weekends	55	60	65
Day 07:00 – 19:00 & Sat 07:00 – 13:00	65	70	75

Table 5.1

Construction Phase		Noise Limit Criteria	
Location / Day		Assessment Period	External Noise Limit Criteria
All Receptors Monday to Friday Daytime		07:00 – 19:00hrs	70dB(A), L _{Aeq, 1hr}
All Receptors Monday to Friday Evening		19:00 – 23:00hrs	60 dB(A), L _{Aeq, 1hr}
All Receptors Saturday Daytime		08:00 – 16:30hrs	65 dB(A), L _{Aeq, 1hr}
All Receptors Sundays and Public Holidays Nighttime		08:00 – 16:30hrs	60 dB(A), L _{Aeq, 1hr}

Table 5.2

The Main Contractor will carry out a noise assessment in relation to each element of the proposed works at construction stage and control measures will be implemented, these control measures shall include the following:

- The site management team shall assess risk arising from noise prior to each construction activity taking place and describe the action needed to be done. The purpose of this is to minimise the exposure of all workers and site staff to excessive noise levels.
- The site management team shall ensure the proposed control measures are put in place and that their effectiveness and suitability is evaluated on regular a basis.
- The site management team will look at the method of works and selected constructed techniques that will make the work quitter, an example would be using off site construction.
- Avoid unnecessary revving of engines and switch off equipment, generators, etc. when not required.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together and use silencers where possible.
- Make sure all workers use hearing protection where it is mandatory to do so.

5.2 NOISE IMPACT ON THE SURROUNDING ENVIRONMENT

Construction Phase

The contractor will install a monitoring scheme for noise, vibration and dust as part of the construction works. Baseline levels will be monitored for noise and vibration prior to any works commencing on site and will continue through demolition phase to completion. Noise monitors will be continuous throughout the process.

Overall acceptable levels of Construction noise for large construction projects are set out in the Transport Infrastructure Ireland (TII) publication Guidelines for the Treatment of Noise

and Vibrations in National Road Schemes. The levels should not be exceeded at noise sensitive locations during the construction phase of the development.

Refer to chapter 9 of the EIAR for further analysis and details of noise levels and the construction impact assessment from noise.

5.3 VIBRATION

Vibration limits to be applied for the construction works are those specified in Transport Infrastructure Ireland (TII) publication Guidelines for the Treatment of Noise and Vibrations in National Road Schemes. These limits are outlined below:

Allowable Vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency as noted in Table 5.4 and 5.5 below.

Type of building	PPV (mm/s) in frequency range of predominant pulse	
	4-15Hz	15Hz and above
Reinforced or framed structures. Industrial and heavy commercial buildings.	50mm/s at 4Hz and above.	50mm/s at 4Hz and above.
Unreinforced or light framed structures. Residential or light commercial buildings.	15mm/s at 4Hz increasing to 20mm/s at 15Hz.	20mm/s at 15Hz increasing to 50mm/s at 40Hz and above.

Table 5.4 Transient vibration guide values for cosmetic damage

Table 5.5, reproduced from *BS 5228 Code of Practice for noise and vibration control of construction and open sites - Part 2: Vibration 2009+A1 2014* outlines the vibration levels (in terms of PPV) from construction activities and their likely effect on humans.

Vibration Level (PPV)	Effect
0.14mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.30mm/s	Vibration might be just perceptible in residential environments.
1.0mm/s	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

Table 5.5 – Guidance on the effect of construction vibration levels on humans

All works on site shall comply with BS 5228 2009+A1 2014 which give detailed guidance on the control of noise and vibration from construction activities. In general the contractor shall implement the following measures during the proposed infrastructure works:

A vibration monitoring scheme will be deployed for the duration of the works. Baseline levels will be monitored for vibration prior to any works commencing on site and will continue through demolition phase to completion. Vibrations monitors will be continuous throughout the process, refer to Figure 5.1 above for approximate locations.

In order to ensure that site construction activities are conducted to minimise the vibration impacts on the receiving environment, it is proposed that structural vibration monitoring may be implemented during the course of the construction phase as required. It is proposed that vibration monitoring will be conducted at the closest residential properties opposite the southern site boundary at Mckelvey Avenue as required using calibrated vibration monitors and geophones with live text and email alert functionality to ensure that if vibration levels approach or exceed specified warning and limit values, site personnel will be alerted to cease at the earliest instance and appropriate mitigation measures may then be implemented to minimise the vibrational impacts of protected structures.

It is predicted that vibration levels associated with construction activities at distances greater than 20m from third party buildings will not exceed 1mm/sec PPV and will have a negligible short-term impact on the structures of the buildings or structures. Human response to ground-bourne vibrations will be perceptible at levels between 0.14 to 1.0 mm/sec PPV.

An independent specialist firm shall be employed by the contractor to monitor vibrations and the results of the monitoring shall be sent directly to the Engineer. The contractor shall be alerted by siren and/or text message if the limit is exceeded.

Refer to chapter 9 of the EIAR for further analysis and details of vibration levels and the construction impact assessment from vibrations.

5.4 DUST CONTROL

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the possibility for nuisance dust. The proposed development is moderate in scale and thus the potential for dust soiling 50m from the source is possible. Table 5.4 contains an extract from the TII, Guidelines for the Treatment of Air quality During the Planning and Construction of National Road Schemes (2011).

Assessment Criteria for the Impact of Dust Emissions from Construction Activities, with Standard Mitigation in Place

Source		Potential Distance for Significant Effects (Distance from source)		
Scale	Description	Soiling	PM ₁₀ a	Vegetation effects
Major	Large construction sites, with high use of haul routes	100 m	25 m	25 m
Moderate	Moderate sized construction sites, with moderate use of haul routes	50 m	15 m	15 m
Minor	Minor construction sites, with limited use of haul routes	25 m	10 m	10 m

^a Significance based on the 2005 standard, which allows 35 daily exceedences/year of 50 µg/m³

Table 5.4 - TII Assessment criterial for the impact of Dust Emissions from construction activities.

The critical values are concentrating on particles of dust which are less than 10 microns (PM10) and less than 2.5 microns (PM2.5). The EU ambient air quality standard sets out ambient air quality limit values for PM₁₀ and PM_{2.5} values and these limits are noted below in Table 6.5.

Pollutant	Averaging period	Legal nature and concentration	Comments
PM ₁₀	1 day	Limit value: 50 µg/m ³	Not to be exceeded on more than 35 days per year
	Calendar year	Limit value: 40 µg/m ³	
PM _{2.5}	Calendar year	Limit value: 25 µg/m ³	Average Exposure Indicator (AEI) (*) in 2015 (2013-2015 average)
		Exposure concentration obligation: 20 µg/m ³	
		National Exposure reduction target: 0-20 % reduction in exposure	

Table 5.5 – From EU report “Air quality in Europe – 2017 Report”

Construction dust tends to be deposited within 200m of a construction site, but the majority of the deposition occurs within the first 50m. There are a number of sensitive receptors, there are predominantly the Residential areas to the North and South. In order to minimise dust emissions through construction, a series of mitigation measures are proposed below.

Measures to control dust will include:

- During the demolition of the existing blocks, a soft strip of the building material (Ceiling tiles, carpets, plasterboard, electrical equipment and installations) inside buildings will occur first, leaving the roof, walls and windows in place to screen against dust.

- During the demolition process explosive blasting should be avoided and water suppression is to be employed to prevent dust. Only the use of cutting, grinding or sawing equipment fitted or used in conjunction with a suitable dust suppression technique such as water sprays/local extraction should be used.
- Drop heights from loading equipment should be minimised, if required fine water sprays should be employed at drop locations.
- Hard surface roads should be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.
- Furthermore, any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and windy conditions.
- Vehicles exiting the site shall make use of a wheel wash facility, prior to entering onto public roads. Refer to section 6.5 of this report for details.
- Vehicles using site roads will have their speed restricted, and this speed restriction will be compulsory for all site traffic. On any un-surfaced site road, this will be 10 kph, and on hard surfaced roads it will be 15kph.
- Vehicles delivering material with dust potential (soil, aggregates) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust.
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary. Refer to section 6.5 of this report for details.
- Wind breaks and barriers to be provided on sensitive receptors sites such as the boundary with the School.
- Gravel will be provided at site exit points to remove caked on dirt from tyres and tracks.
- No on-site burning of material will be permitted.
- Material handling systems and site stockpiling of materials will be located in sheltered areas to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods. Covering stockpile material may also be required.
- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

Provided the dust minimisation measures outlined are followed, in our opinion the air quality impacts during the construction phase will not be significant.

At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust would be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

All works carried out as part of these infrastructure works will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990 and the contractor will co-operate in full with the Environmental Section of Dublin City Council.

Dust monitoring points will be provided as noted in Figure 5.1. Refer to Figure 5.2 for typical, Dust, Noise and Vibration Monitor stations.



Figure 5.2 – Typical combined Dust, Noise and Vibration Monitor.

Dust monitoring should be conducted using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/(m²*day) during the monitoring period between 28-32 days.

All surface water runoff used as part of the site dust suppression activities will be managed by collecting such runoff in settlement tank. Only clean water taken from the top of the settlement tank, after passing through a series of baffles, and allowing for sufficient time for the sediments to drop to the bottom of the tank, will be allowed discharge to the public piped network.

5.5 ROAD CLEANING / WHEEL WASHING

On this site in a prominent location, the main source of any potential environmental problem will be the visibility of debris or dust on public roads. Wheel washing will be implemented and road sweeping will be carried out as required. Power washing of wheels will be carried out as required. As traffic increases, an automated wheel washer may be installed.



Figure 5.3 – Example of wheel washing of truck as it leave site

Discharge from any vehicle wheel wash areas is to be directed to on-site settlement area, debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility.

Provision will be made for the cleaning of all access routes to and from the site during the course of the works, particularly Charlestown Place & St Margret’s Road within 500m of the site access in both directions. Road cleaning can be adjusted as necessary to take account of high intensive phases of the works and in particular during the “Earth Shifting” phase of the project (i.e. foundation and basement construction) is being carried out. This will be carried out using a mechanical road sweeper, an example of which is shown in Figure 5.4 below.



Figure 5.4 – Typical Road Sweeper

Truck loads per day off site will be kept at a minimum. Where possible, trucks will be unutilised to on both legs of their visit, i.e. delivering construction materials to site such as stone, and removing demolition waste for recycling.

Deliveries to site will be managed such that they arrive during off peak hours. Special consideration will be given to minimise disruption to surrounding residential roads and avoiding school start and finish times.

5.6 ODOUR CONTROL & LIGHTING

The demolition of the existing carpark is not expected to omit any odours as the existing carpark are constructed largely from natural occurring material.

A power supply will be obtained from ESB Networks to power both the compound and the construction site to avoid the use of diesel generators to prevent noise and odour pollution. Temporary site lighting will be installed to provide safe and well lighted walkways around the site compound and task lighting to the construction site.

5.7 ENERGY EFFICIENCY

Energy efficiency simply means using less energy to perform the same task – that is, eliminating energy waste. Energy efficiency brings a variety of benefits: reducing greenhouse gas emissions, reducing demand for energy imports, and lowering costs of construction, this will be achieved by:-

- Electrical equipment to be will be switched off when not in use.
- Non-essential lighting will also be turned off when not in use
- Office equipment to be switched off nightly and at weekends
- All electrical equipment to be kept in good order by a qualified electrician.
- Ensure that water is not wasted; taps will be turned off, leaks repaired
- All plant and machinery turned off when not in use to conserve fuel
- plant such as generators, lighting towers not to be used unnecessarily

5.8 TREES & TOPSOIL SCREENING

Please refer to landscape Architects drawings for any tree protection locations and protection details. All topsoil used for landscape works will be recovered for the site where possible. Any imported topsoil will be screened for invasive species and sourced from reputable landscape suppliers.

6.0 TRAFFIC MANAGEMENT

The traffic management plan for the site will be developed prior to commencement and the provisions of this plan including erection of signage on public roads will be agreed with FCC in advance of commencement on site. The traffic management plan shall be updated appropriately to ensure coordinated and effective traffic management practices and arrangements are in place throughout the construction period.

6.1 SITE ACCESS

External to the site, traffic will include construction workers travelling to site and materials deliveries which will include small delivery vans, large rigid trucks, articulated trucks and trailers, and concrete trucks. Excavated material will be removed off site during the first few months of the project as bulk excavation.



Figure 6.1 – Site Plan

The Contractor will organise deliveries to minimise congestion on public roads by avoiding peak traffic periods where possible. During particularly busy periods such as during concrete pours, trucks will be queued up inside the site.

Deliveries will be on a “just in time” basis and this system will be strictly controlled between our Site Supervisors and our Purchasing Manager who will organise the deliveries. The Purchasing Manager will provide the Site Supervisors with contact details for suppliers who will make contact to ensure drivers are made aware of the site location and the correct route to site in accordance any Local Authority requirements.

6.2 SITE PARKING, COMPOUND & ACCESS CONTROL

While parking will be available in the compound area of the site, workers will be encouraged use public transport where possible to reduce congestion on public roads. Dublin Bus services are readily available in the immediate vicinity.

Controlled access to the site, in the form of gates will be monitored by site personnel, Site access to the existing commercial unit will be maintained during the works. These will be locked and secured to prevent unauthorised access during periods when these are not monitored by site personnel. (e.g. outside working hours). CCTV will also be used for periods outside working hours to prevent unauthorised site access.

The compound shall be constructed using a clean permeable stone finish. Site accommodation to be provided will include suitable-washing / dry room facilities for construction staff, sanitary facilities, office accommodation etc. Refer to Figure 6.1 for proposed location.

The compound will contain an area containment of all construction-related fuel and oils, it is proposed to use specially banded HDPE tanks for all fuel stored on site.

On completion of the works all construction materials, debris, temporary hardstanding's, etc. from the Site Compound will be removed off site and the site compound area reinstated in full.

6.3 SITE TRAFFIC

To avoid unnecessary traffic, during the site clearance works, all demolition and excavated suitable material will be reused for construction and filling where possible and appropriate. Any unsuitable material will be put in the appropriate waste stream.

Construction vehicle movements will be minimised through; -

- Consolidation of delivery loads to/from the site and managing larger deliveries to occur outside peak periods,
- Use of precast/prefabricated materials where feasible,
- Adequate storage space on site,
- A strategy to minimise construction material quantities.

Deliveries and the removal of material off site will avoid peak traffic hours where possible (8.00am-9.00am an 4.30pm-5.30pm) to minimise disruption to the local residences and schools.

Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site construction and supervisory staff.

- Excavation plant and dumper trucks involved in the construction and site development works and arterials delivery vehicles.