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Pat O'Gorman & Associates

CONSULTING ENGINEERS
STRUCTURAL & CIVIL

Construction Management Plan

Residential Scheme – Earls Court Kill Co Kildare

Ref: 1715-CMP(P)-R0

Date of Original Issue: December 2017

Date of Current Issue: -

Revision: -

Unit C2
Nutgrove Office Park
Rathfarnham
Dublin 14

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Construction Management Plan

1. Works Proposal

This Construction Management Plan is for the proposed development works in Ears Court Kill, Co. Kildare. The subject site is located off the N7 close to the M50 and is approximately 6.32

Ha in size. It is situated to the East of the village of Kill and represents an extension of the existing Earls Court residential estate. The site is currently zoned residential.

A total of 130 residential units are proposed for the site in the form of apartments, detached, semi-detached, and terraced dwellings.

This report should be read in conjunction with the Consultants reports and drawings.

Fundamental to the protection of the nearby school and residential properties is the proper management of noise and vibration, traffic management, working hours, pollution control, dust control, road cleaning, and compound / public health facilities. Issues surrounding the protection of adjacent boundaries and features, the adjacent architectural site and traffic impact assessment are dealt with under separate headings in the construction management plan.

2. Noise & Vibration

During the construction works the Contactor shall comply with:

- BS 5228: 2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites, Part 1 and Part 2. 1
- Guidelines for the Treatment of Noise and Vibration in National Road Schemes (NRS, Revision 1, 2004)
- Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5 Noise and Vibration.

The noise limits to be applied for the duration of the infrastructure works are those specified in the B Category of BS5228. These limits are summarised below and will be applied at the nearest sensitive receptors to the works.

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The total noise (LAeq) which should not be exceeded during daytime is therefore 70dB.

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Less than	11HZ	11 to 50 HZ	50 to 110 HZ (and above)
	3mm/s	3 to 8mm/s	8 to 11mm/s

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

- Avoid unnecessary revving of engines and switch off equipment when not required.
- Keep internal haul road well maintained.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

More specifically the Contractor shall ensure that:

In accordance with best construction practice, plant and activities to be:

- employed on site are reviewed to ensure that they are the quietest available for the required purpose.
- Where required, improved sound reduction methods are used e.g. enclosures.

All vehicles and mechanical plant used for the purpose of the Works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order. In addition, all diesel engine powered plant shall be fitted with effective air intake silencers. All compressors shall be "sound reduced" models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use. All ancillary pneumatic percussive tools shall be fitted with mufflers or silences of the type recommended by the manufacturers, and where commercially available, dampened tools and accessories shall be used.

All ancillary plant, such as generators and pumps, shall be positioned so as to cause minimum noise disturbance. If operating outside the normal working week acoustic enclosures shall be provided.

3. Traffic Management

All construction traffic will enter the site via the Kill Road via an upgrade of an existing entrance to the Sli Na Naomh Road and will be routed to the site via the primary road network in the area. Deliveries and the removal of material off site should avoid, where possible, the school am and pm (8.00am-9.00am and 3.30pm-4.30pm) peak hours where possible.

In general, the impact of the construction period will be temporary in nature and less significant than the operational stage of the future development proposed. During the construction of the proposed infrastructure works, all excavated suitable material will be reused for construction and fill activities where possible and appropriate. Any unsuitable material will be disposed offsite at a suitably licensed landfill facility.

Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site construction and supervisory staff.
- Plant and machinery involved in site development works and materials delivery vehicles.

In addition to staff/sub-contractors personal cars and van, the following table sets out estimated daily HGV traffic Movements during the construction Period:

Month	Daily HGV Movements onto Site	Daily HGV Movements off site
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6-12	10	3
12-18	6	2
18-24	4	1
24-36	2	1

It is anticipated that the HGV traffic distribution will generally split 90-10 in the direction of junction 7 onto the N7. There are no height or weight restrictions on this route.

4. Working Hours

For the duration of the proposed infrastructure works the maximum working hours shall be 07:00 to 19:00 Monday to Friday (excluding bank holidays) and 08:00 to 14:00 Saturdays, subject to the restrictions imposed by the local authorities. No working will be allowed on Sundays and Public Holidays. Subject to the agreement of the local authorities out of hours working may be required for the watermain and drainage connections and final 'tie-in's' on Earl's Court.

5. Pollution Control

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 Kildare County Council.

Sediment control practices will be used on the building site to prevent sand, soil, cement and other building materials from reaching waterways and water dependent habitats. Good site management in relation to sediment control during the construction phase will prevent this from occurring.

Surface water runoff during construction activities may contain increased silt levels or become polluted from construction activities. Waterbourne silt can arise from dewatering excavations, exposed ground, stockpiles and site roads. Construction materials such as concrete and cement are alkaline and corrosive and can cause pollution in watercourses. The potential impact of water emissions from the construction phase of the proposed site development works should be considered short-term and moderate.

There is potential to impact on the groundwater environment during construction from spills or leaks of fuels and oils from machinery and vehicles if subsoil is exposed. The potential impact from the construction phase of the development would however, would be short term and moderate.

The following mitigation measure will be enforced during construction:

- If concrete mixing is carried out on site, the mixing plant will be sited in a designated area with an impervious surface.
- To minimise any potential impact on the water environment from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas or Chemstore containers.
- Surface water runoff from the proposed development drains to the Upper Liffey river system, and this should be managed in accordance with the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS), with surface water attenuation and retention included as part of the main surface water drainage system.
- In the event of groundwater being encountered during the construction phase, mitigation measures will include dewatering by pumping to an appropriate treatment facility prior to discharge. Other measures would include settlement, restricting the storage of contaminating materials such as fuels and hydrocarbons onto the parts of the site where groundwater is exposed.

A contingency plan for pollution emergencies should also be developed and regularly updated, which would identify the actions to be taken in the event of a pollution incident.

The contingency plan for pollution emergencies will address the following:

- Containment measures
- Emergency discharge routes

- List of appropriate equipment and clean up materials
- Maintenance schedule for equipment
- Details of trained staff, location, and provision for 24 hour cover.
- Details of staff responsibilities.
- Notification procedures to inform the relevant environmental protection authority.
- Audit and review schedule.
- Telephone numbers for statutory water undertakers (Irish Water)
- List of specialist pollution clean-up companies and their telephone numbers.

In addition to the above, during the proposed infrastructure works the following mitigation measures shall be implemented to minimise dust emissions;

- Construction techniques shall minimise dust released into the air.
- Spray exposed site haul -roads during dry and / or windy weather.
- Provide wheel washing facilities at all exit points.
- Provide tarpaulins over all excavated materials being carted of site
- Control vehicle speeds and impose speed restrictions, (speed can mobilise dust)
- Sweep hard surface roads, inside and outside the site, to ensure roads are kept clear of debris, soil or other material.

6. Road Cleaning

Provision will be made for the cleaning of all access routes to and from the site during the course of the works, (i.e. all roads within 500m of the site boundary).

Road cleaning shall be undertaken continuously during the initial 18 months of the project while the civil engineering works are being carried out. This will be carried out using a mechanical road sweeper and will be heavily concentrated (i.e. using a second or third sweeper) during periods of inclement weather and while removing spoil or debris from site.

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Deliveries to site will be managed such that they arrive during off peak hours. Special consideration will be given to School timetable so as to minimise disruption during drop off and pick up times.

7. Compound Facilities / Parking

The compound shall be constructed using a clean permeable stone finish and will be enclosed with security fencing. Site accommodation to be provided will include suitable-washing / dry room facilities for construction staff, sanitary facilities, office accommodation etc.

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

8. Protection of Existing Boundaries and Features

The ecologist has recommended mitigation measures in relation to sediment control, contractor briefing, protection measures for birds, protection measures for bats, protection measures for badgers, soil handling, landscaping, lighting and flora, and appropriate measurements will be taken. Furthermore she has recommended that the construction management plan be reviewed prior to commencement of construction. See Faith Wilson's Ecological Impact Assessment Report enclosed.

The Arborist has recommended a methodology for tree works and appropriate measurements will be taken. See Arborist Associates Arboricultural Assessment Report enclosed.

9. Protection of Archaeological Site

The archaeologist has recommended that the construction management plan be reviewed prior to commencement of construction, the establishment and maintenance of a buffer zones around the external perimeter of the recorded monument and the monitoring of the removal of all topsoil / groundworks. See Icon Archaeology Archaeological Assessment Report enclosed.

10. Traffic Impact Assessment

NRB Consulting Engineers have provided a Traffic Impact Assessment (enclosed) and they conclude that there are no significant Operational Traffic Safety or Road Capacity issues, affecting the established road network, that prevent a positive determination of the application by An Bord Pleanála.

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CONSULTING ENGINEERS
STRUCTURAL & CIVIL

Construction Management Plan

Residential Scheme – Earls Court Kill Co Kildare

Ref: 1715-CMP(P)-R0

Date of Original Issue: December 2017

Date of Current Issue: -

Revision: -

Unit C2
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This report should be read in conjunction with the Consultants reports and drawings.

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- Start-up plant sequentially rather than all together

More specifically the Contractor shall ensure that:

In accordance with best construction practice, plant and activities to be:

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- Where required, improved sound reduction methods are used e.g. enclosures.

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In general, the impact of the construction period will be temporary in nature and less significant than the operational stage of the future development proposed. During the construction of the proposed infrastructure works, all excavated suitable material will be reused for construction and fill activities where possible and appropriate. Any unsuitable material will be disposed offsite at a suitably licensed landfill facility.

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Sediment control practices will be used on the building site to prevent sand, soil, cement and other building materials from reaching waterways and water dependent habitats. Good site management in relation to sediment control during the construction phase will prevent this from occurring.

Surface water runoff during construction activities may contain increased silt levels or become polluted from construction activities. Waterbourne silt can arise from dewatering excavations, exposed ground, stockpiles and site roads. Construction materials such as concrete and cement are alkaline and corrosive and can cause pollution in watercourses. The potential impact of water emissions from the construction phase of the proposed site development works should be considered short-term and moderate.

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- In the event of groundwater being encountered during the construction phase, mitigation measures will include dewatering by pumping to an appropriate treatment facility prior to discharge. Other measures would include settlement, restricting the storage of contaminating materials such as fuels and hydrocarbons onto the parts of the site where groundwater is exposed.

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STRUCTURAL & CIVIL

Construction Management Plan

Residential Scheme – Earls Court Kill Co Kildare

Ref: 1715-CMP(P)-R0

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A total of 130 residential units are proposed for the site in the form of apartments, detached, semi-detached, and terraced dwellings.

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- Where required, improved sound reduction methods are used e.g. enclosures.

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CONSULTING ENGINEERS
STRUCTURAL & CIVIL

Construction Management Plan

Residential Scheme – Earls Court Kill Co Kildare

Ref: 1715-CMP(P)-R0

Date of Original Issue: December 2017

Date of Current Issue: -

Revision: -

Unit C2
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Ha in size. It is situated to the East of the village of Kill and represents an extension of the existing Earls Court residential estate. The site is currently zoned residential.

A total of 130 residential units are proposed for the site in the form of apartments, detached, semi-detached, and terraced dwellings.

This report should be read in conjunction with the Consultants reports and drawings.

Fundamental to the protection of the nearby school and residential properties is the proper management of noise and vibration, traffic management, working hours, pollution control, dust control, road cleaning, and compound / public health facilities. Issues surrounding the protection of adjacent boundaries and features, the adjacent architectural site and traffic impact assessment are dealt with under separate headings in the construction management plan.

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- Keep internal haul road well maintained.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

More specifically the Contractor shall ensure that:

In accordance with best construction practice, plant and activities to be:

- employed on site are reviewed to ensure that they are the quietest available for the required purpose.
- Where required, improved sound reduction methods are used e.g. enclosures.

All vehicles and mechanical plant used for the purpose of the Works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order. In addition, all diesel engine powered plant shall be fitted with effective air intake silencers. All compressors shall be "sound reduced" models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use. All ancillary pneumatic percussive tools shall be fitted with mufflers or silences of the type recommended by the manufacturers, and where commercially available, dampened tools and accessories shall be used.

All ancillary plant, such as generators and pumps, shall be positioned so as to cause minimum noise disturbance. If operating outside the normal working week acoustic enclosures shall be provided.

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In general, the impact of the construction period will be temporary in nature and less significant than the operational stage of the future development proposed. During the construction of the proposed infrastructure works, all excavated suitable material will be reused for construction and fill activities where possible and appropriate. Any unsuitable material will be disposed offsite at a suitably licensed landfill facility.

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- In the event of groundwater being encountered during the construction phase, mitigation measures will include dewatering by pumping to an appropriate treatment facility prior to discharge. Other measures would include settlement, restricting the storage of contaminating materials such as fuels and hydrocarbons onto the parts of the site where groundwater is exposed.

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- Provide tarpaulins over all excavated materials being carted of site
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CONSULTING ENGINEERS
STRUCTURAL & CIVIL

Construction Management Plan

Residential Scheme – Earls Court Kill Co Kildare

Ref: 1715-CMP(P)-R0

Date of Original Issue: December 2017

Date of Current Issue: -

Revision: -

Unit C2
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Ha in size. It is situated to the East of the village of Kill and represents an extension of the existing Earls Court residential estate. The site is currently zoned residential.

A total of 130 residential units are proposed for the site in the form of apartments, detached, semi-detached, and terraced dwellings.

This report should be read in conjunction with the Consultants reports and drawings.

Fundamental to the protection of the nearby school and residential properties is the proper management of noise and vibration, traffic management, working hours, pollution control, dust control, road cleaning, and compound / public health facilities. Issues surrounding the protection of adjacent boundaries and features, the adjacent architectural site and traffic impact assessment are dealt with under separate headings in the construction management plan.

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- Avoid unnecessary revving of engines and switch off equipment when not required.
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- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

More specifically the Contractor shall ensure that:

In accordance with best construction practice, plant and activities to be:

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- Where required, improved sound reduction methods are used e.g. enclosures.

All vehicles and mechanical plant used for the purpose of the Works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order. In addition, all diesel engine powered plant shall be fitted with effective air intake silencers. All compressors shall be "sound reduced" models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use. All ancillary pneumatic percussive tools shall be fitted with mufflers or silences of the type recommended by the manufacturers, and where commercially available, dampened tools and accessories shall be used.

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5. Pollution Control

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 Kildare County Council.

Sediment control practices will be used on the building site to prevent sand, soil, cement and other building materials from reaching waterways and water dependent habitats. Good site management in relation to sediment control during the construction phase will prevent this from occurring.

Surface water runoff during construction activities may contain increased silt levels or become polluted from construction activities. Waterbourne silt can arise from dewatering excavations, exposed ground, stockpiles and site roads. Construction materials such as concrete and cement are alkaline and corrosive and can cause pollution in watercourses. The potential impact of water emissions from the construction phase of the proposed site development works should be considered short-term and moderate.

There is potential to impact on the groundwater environment during construction from spills or leaks of fuels and oils from machinery and vehicles if subsoil is exposed. The potential impact from the construction phase of the development would however, would be short term and moderate.

The following mitigation measure will be enforced during construction:

- If concrete mixing is carried out on site, the mixing plant will be sited in a designated area with an impervious surface.
- To minimise any potential impact on the water environment from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas or Chemstore containers.
- Surface water runoff from the proposed development drains to the Upper Liffey river system, and this should be managed in accordance with the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS), with surface water attenuation and retention included as part of the main surface water drainage system.
- In the event of groundwater being encountered during the construction phase, mitigation measures will include dewatering by pumping to an appropriate treatment facility prior to discharge. Other measures would include settlement, restricting the storage of contaminating materials such as fuels and hydrocarbons onto the parts of the site where groundwater is exposed.

A contingency plan for pollution emergencies should also be developed and regularly updated, which would identify the actions to be taken in the event of a pollution incident.

The contingency plan for pollution emergencies will address the following:

- Containment measures
- Emergency discharge routes

- List of appropriate equipment and clean up materials
- Maintenance schedule for equipment
- Details of trained staff, location, and provision for 24 hour cover.
- Details of staff responsibilities.
- Notification procedures to inform the relevant environmental protection authority.
- Audit and review schedule.
- Telephone numbers for statutory water undertakers (Irish Water)
- List of specialist pollution clean-up companies and their telephone numbers.

In addition to the above, during the proposed infrastructure works the following mitigation measures shall be implemented to minimise dust emissions;

- Construction techniques shall minimise dust released into the air.
- Spray exposed site haul -roads during dry and / or windy weather.
- Provide wheel washing facilities at all exit points.
- Provide tarpaulins over all excavated materials being carted of site
- Control vehicle speeds and impose speed restrictions, (speed can mobilise dust)
- Sweep hard surface roads, inside and outside the site, to ensure roads are kept clear of debris, soil or other material.

6. Road Cleaning

Provision will be made for the cleaning of all access routes to and from the site during the course of the works, (i.e. all roads within 500m of the site boundary).

Road cleaning shall be undertaken continuously during the initial 18 months of the project while the civil engineering works are being carried out. This will be carried out using a mechanical road sweeper and will be heavily concentrated (i.e. using a second or third sweeper) during periods of inclement weather and while removing spoil or debris from site.

Material off site will be carted only during periods of dry weather. Truck loads per day off site will be kept at a minimum. Material will only be carted off site during normal working hours.

Deliveries to site will be managed such that they arrive during off peak hours. Special consideration will be given to School timetable so as to minimise disruption during drop off and pick up times.

7. Compound Facilities / Parking

The compound shall be constructed using a clean permeable stone finish and will be enclosed with security fencing. Site accommodation to be provided will include suitable-washing / dry room facilities for construction staff, sanitary facilities, office accommodation etc.

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

8. Protection of Existing Boundaries and Features

The ecologist has recommended mitigation measures in relation to sediment control, contractor briefing, protection measures for birds, protection measures for bats, protection measures for badgers, soil handling, landscaping, lighting and flora, and appropriate measurements will be taken. Furthermore she has recommended that the construction management plan be reviewed prior to commencement of construction. See Faith Wilson's Ecological Impact Assessment Report enclosed.

The Arborist has recommended a methodology for tree works and appropriate measurements will be taken. See Arborist Associates Arboricultural Assessment Report enclosed.

9. Protection of Archaeological Site

The archaeologist has recommended that the construction management plan be reviewed prior to commencement of construction, the establishment and maintenance of a buffer zones around the external perimeter of the recorded monument and the monitoring of the removal of all topsoil / groundworks. See Icon Archaeology Archaeological Assessment Report enclosed.

10. Traffic Impact Assessment

NRB Consulting Engineers have provided a Traffic Impact Assessment (enclosed) and they conclude that there are no significant Operational Traffic Safety or Road Capacity issues, affecting the established road network, that prevent a positive determination of the application by An Bord Pleanála.