

**Construction & Environmental
Management Plan (CEMP)
for
Proposed Strategic Housing
Development at Dunshaughlin East,
Dunshaughlin, Co. Meath.**

ROCKTURE 1

ROCKTURE 1	Construction & Environmental Management Plan	Contract No:	1127
		Revision:	1
		Approved By:	IMSB
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1 Works Proposal

This Construction and Environmental Management Plan is for the proposed development at the Willows, Ballymurphy, Dunshaughlin, Co.Meath.

The proposed development consists of a residential development comprising of 913 no. residential units, a neighbourhood centre including 2 no. retail units (1,190m²), a café / restaurant unit (370m²), a primary healthcare / gym (1,040m²), a community facility (180m²) and a childcare facility (1,282m²), all associated open space, a section of the Outer Relief Road, internal roads, cycle and pedestrian infrastructure, services and all other associated development on a site of c. 28.1 hectares.

The 913 no. residential units proposed consist of 505 no. houses (single, two, and three storey), 186 no. duplex units (three storey), and 222 no. apartments (four and five storey).

The total parking provision is 1,416 no. spaces including 7 no. set-down spaces. The development also includes the provision of a section of a link road from the R147 along the eastern side of the development site, a pedestrian / cycle link with Dunshaughlin Business Park to the west, all associated open space, boundary treatment, internal roads, cycle and pedestrian infrastructure, foul and surface water drainage, attenuation tanks, other services and all other associated development.

The construction management plan addresses noise and vibration, traffic management, working hours, pollution control, dust control, road cleaning, compound / public health facilities and staff parking, all associated with the construction works.

Fig 1.1 Overall Site Layout



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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.
- 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 BS 5228. These limits are summarised below and will be applied at the nearest sensitive receptors to the works.

- Night (23:00-07:00) = 50dB
- Evening (19:00-23:00) = 60dB
- Day (07:00-19:00) = 70dB

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

Vibration limits to be applied for the infrastructure works are those specified in the TII document Guidelines for the Treatment of Noise and Vibration in National Road Schemes (TII, Revision 1, 2004). 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 of;

Less than 11Hz
3mm/s

11 to 50 Hz
3 to 8mm/s

50 to 110 Hz (and above)
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 roads well maintained and avoid steep gradients.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

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More specifically the Contractor shall ensure that:

- In accordance with Best Practicable Means, 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.
- Site equipment is located away from noise sensitive areas, as much as physically possible.
- Regular and effective maintenance by trained personnel is carried out to reduce noise and / or vibration from plant and machinery.
- Hours are limited during which site activities likely to create high levels of noise and vibration are carried out.

A site representative responsible for matters relating to noise and vibration will be appointed prior to construction on site.

A noise and vibration monitoring specialist will be appointed to periodically carry out independent monitoring of noise and vibration during random intervals and at sensitive locations for comparison with limits and background levels. It is proposed that noise and vibration levels be maintained below those outlined above as part of these infrastructure works.

All vehicles and mechanical plant used for 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.

Where construction activities are required in close proximity to neighbouring noise sensitive properties, a solid hoarding of approximately 2.5m in height should be erected to provide a degree of acoustic screening to the lower storeys.

Local screening should be provided for stationary plant such as generators and compressors.

An acoustically screened area should be provided on the site specifically for noisy operations such as grinding and cutting metal.

A noise liaison officer should be appointed and charged with the responsibility of keeping people informed of progress and by setting down procedures for dealing with complaints.

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3 Traffic Management

As part of Construction Stage Safety Plan for the works a Traffic Management Plan (TMP) will be prepared in accordance with the principles outlined below and shall comply at all times with the requirements of:

- Chapter 8 of the Department of the Environment Traffic Signs Manual, current edition, published by The Stationery Office, and available from the Government Publications Office, Sun Alliance House, Molesworth Street, Dublin 2;
- Guidance for the Control and Management of Traffic at Road Works (June 2010) prepared by the Local Government Management Services Board;
- Any additional requirements detailed in the Design Manual for Roads and Bridges & Design Manual for Urban Roads & Streets (DMURS)

All construction traffic will enter the site via a new distributor road from a junction on the R147.

In general, the impact of the construction period will be temporary in nature and less significant than the final post development operational stage.

All construction activities will be governed by a Construction Traffic Management Plan (CTMP), the details of which will be agreed with Meath County Council prior to the commencement of construction activities on site. The principal objective of the CTMP is to ensure that the impacts of all building activities generated during the construction phase upon the public (off-site), visitors to the subject site (on-site) and internal (on-site) workers environments, are fully considered and proactively managed/programmed thereby ensuring that safety is maintained at all times, disruption is minimised and undertaken within a controlled hazard free/minimised environment.

During the general excavation of the foundations there will be additional HGV movements from the site. All suitable material will be used for construction and fill activities where possible and appropriate. All spoil material will be removed to a registered landfill site which will be agreed in full with Meath County Council.

In addition to the traffic generated by the disposal of surplus subsoil from the site, there will be traffic generated from deliveries of construction materials and equipment. It should be pointed out that construction traffic generated during the development works tends to be off-peak hour. Such trips would generally be spread out over the full working day and are unlikely to be higher than the peak hour predicted for the operational stage.

Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site construction staff and by full time supervisory staff. On-site employees will generally arrive before 08:00, thus avoiding the morning peak hour traffic. These employees will generally depart after 18:00. It should be noted that a large proportion of construction workers would arrive in shared transport.
- Excavation plant and dumper trucks involved in site development works and material delivery vehicles for the following: granular fill materials, concrete pipes, manholes, reinforcement steel, ready-mix concrete and mortar, concrete blocks, miscellaneous building materials, etc.

On-site employees will generally arrive before 08:00, thus avoiding the morning peak hour traffic. These employees will generally depart after 18:00. It should be noted that a large proportion of construction workers would arrive in shared transport. Deliveries would arrive at a steady rate during the course of the day. It is estimated that peak delivery rates would be in the region of 1 - 2 deliveries per hour

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throughout the day.

In the absence of a final construction programme it is difficult to assess the exact impact during the construction period. Nevertheless; the following estimates have been made in respect of the construction period impacts:

- Appropriate on-site parking and compounding will be provided to prevent overflow onto the local network.
- It is likely that some numbers of the construction team will be brought to/from the site in vans/minibuses, which will serve to reduce the trip generation potential.
- During the period of excavation and disposal off site, it is likely that up to 2 no. truck trips per hour (maximum) will be generated by vehicles removing unsuitable spoil from the site to allow for the construction of the development and for the removal of demolition waste.

Site offices and compound will be located within the site boundary. The site will be able to accommodate employee and visitor parking throughout the construction period. Initially, hardstanding parking areas will be provided and as the development progresses, employees will use constructed car-parking spaces, as they become available.

Vehicles travelling to/from the subject site will utilise the existing/proposed site access junction from the R147 via new distributor road.

Finally, truck wheel washes will be installed at construction entrances and any specific recommendations with regard to construction traffic management made by Meath County Council will be adhered to.

3.1 Reductive / Mitigation Measures

Traffic Management during Construction

A Traffic Management Plan will be prepared prior to the commencement of construction work on site. This plan will be prepared in consultation with Meath County Council in order to agree on traffic management and monitoring measures are outlined below:

- During the pre-construction phase, the site will be securely fenced off from adjacent properties, public footpaths and roads.
- The surrounding road network will be signed to define the access and egress routes for the development.
- The traffic generated by the construction phase of the development will be strictly controlled in order to minimise the impact of this traffic on the surrounding road network.
- All road works will be adequately signposted and enclosed to ensure the safety of all road users and construction personnel.
- All employees and visitor's vehicle parking demands will be accommodated on-site.
- A programme of street cleaning (at site frontage and junction with Ballyogan Road) will be implemented.

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4 Working Hours

For the duration of the proposed infrastructure works the maximum working hours shall be 07:00 to 18:00 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 connection.

5 Sediment and Water Pollution Control Plan

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 cooperate in-full with the Environmental Section of Meath County Council. These measures have been prepared in compliance with guidelines from Inland Fisheries Ireland (2016).

As part of the overall construction methodology, the following issues will be addressed and have been identified as being of particular risk and/or concern to pollution.

- Contamination of Watercourse / Groundwater – There is a risk that ground water could become contaminated with lime from cement which subsequently finds its way into the local adjacent watercourses. The measures proposed to be put in place to mitigate any potential damage from the effluent of contaminated ground water would be to create an exclusion zone, as far as reasonably practicable, by the erection of a visible 1.0m high barrier along the watercourse. This will be formed by means of steel road pins, which will be used to support a PVC 'orange' barrier with warning signs appropriately fixed at regular intervals. The signs shall read 'NOTICE – NO DISCHARGE OF ANY KIND IS PERMITTED IN THIS VICINITY OR BEYOND THIS EXCLUSION ZONE'
- Sediment & Erosion – Similar to the above, adjacent watercourses/groundwater need to be protected from sedimentation and erosion due to direct surface water runoff generated onsite during the construction phase. 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 permanently attenuated surface water drainage system of the proposed site is complete. A temporary positive drainage system shall be installed prior to the commencement of the construction works to collect surface water runoff by the site during construction. A series of geotextile lined cascading, high level outfall, settling basins will be installed upstream of the agreed discharge point. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed before being discharged in a control manner to the agreed outfall. All inlets to the cascading settling basins will be riprapped to prevent scour and erosion in the vicinity of the inlet.
 - Minimisation of site disturbance
 - Implement sediment control (as outlined above)
 - Minimise the potential for erosion
 - Prevent sediment-contaminated water leaving the site

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- Discharge Licences – It will not be permitted to discharge into any newly constructed storm water systems or watercourse without adhering to the conditions of the discharge licence and agreeing the same with the Site Manager and Local Authority Area Engineer.
- Temporary mounding and sediment control would be implemented to ensure silts do not enter the drainage ditches leading to the Broadmeadow River during the construction stage.
- Over Ground Oil / Diesel Storage – Only approved storage system for oil / diesel within the site will be permitted, (i.e. all oil / diesel storage to be located within a designated area placed furthest away from adjacent watercourses and contained within constructed bunded areas e.g. placed on 150mm concrete slab with the perimeter constructed with 225mm solid blockwork rendered internally). The bunded area will accommodate the relevant oil / diesel storage capacity in case of accidental spillage. Any accidental spillages will be dealt with immediately on site however minor by containment /removal from site.
- Concrete Washout – The washing out of concrete trucks on site will not be permitted as they are a potential source of high alkalinity in watercourse. It is a requirement that all concrete truck washout takes place back in the ready-mix depot.
- Disposal of Wastewater off Site – The Site Management Team will maintain a record of all receipts for the removal of toilet or interceptor waste off site to insure its disposal in a traceable manner. These will be available for inspection by the Environment Section of Meath County Council at all times.
- Road Sweepers / Cleaning – The cleaning of public roads in and around the subject site will be undertaken to reduce environmental impacts and care will be taken to prevent any pollution of watercourses from this activity.

A Construction Method Statement will be prepared prior to construction, and which will include pollution prevention measured in accordance with best practice guidelines from Inland Fisheries Ireland (2016). This will identify the location of the site compound, storage areas for potentially polluting substances, and specific measures to prevent the loss of silt-laden water to any water course.

Vegetation is to be cleared outside the bird nesting season where possible (from March 1st to August 31st) inclusive. Where vegetation is to be removed outside this period it will first be inspected for nesting birds by a suitably qualified ecologist. If no nesting is recorded, vegetation will be removed within 48 hours. Where a nest has been recorded, it can only be disturbed under licence from the National Parks and Wildlife Service.

The felling of tall trees will only be done under supervision of a suitable qualified bat ecologist. The hedgerows and treelines are likely to provide foraging routes for a number of bat species. A dedicated, detector-based bat survey was carried out by Brian Keeley of Wildlife Surveys Ireland in July 2017. This is within the optimal period for bat survey and included much of the surrounding land that has been zoned for housing development. This found that no bat roosts are present within the subject lands. Three species were found to be foraging: Leisler's Bat, Common Pipistrelle and Soprano Pipistrelle. Large trees may provide temporary roosting habitat.

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6 Dust Control

The objective is to ensure that dust does not impact significantly at nearby receptors. Therefore, a *dust management plan* (DMP) will be formulated for the site, which will address the following:

- Specify a site policy on dust
- Identify site management of dust
- Develop documented systems for managing site practices and implementing management controls
- Outline how the DMP can be assessed

6.1 Site Management

The siting of construction activities and storage piles will consider the location of sensitive receptors and prevailing wind conditions to minimise the potential dust nuisance. Site management will include the ability to respond to adverse weather conditions by either restricting operations on site or using effective control measure in a timely manner before potential for nuisance occurs.

- During working hours, the site agent or another competent appointed member of staff shall monitor dust control methods;
- A register shall be kept on site logging all correspondence and telephone / verbal complaints regarding construction activities outlining remedial actions if any;
- A site representative responsible for matters relating to dust management will be appointed prior to construction on site.
- The site representative responsible for dust management shall ensure that dust management procedures are followed and ensure monitoring and assessment of same;

6.2 Dust Control Measures

- Apply a speed limit of at least 20km/hr for on-site vehicles
- Provide water bowsers during periods of dry weather to ensure unpaved areas are kept moist. Spray exposed site haul roads during dry and / or windy weather.
- Ensure paved roads are kept clean and free of mud and other materials. Sweep hard surface roads, inside and outside the site, to ensure roads are kept clear of debris, soil or other material.
- Restrict un-surfaced roads to essential site traffic.
- Provide water bowsers during periods of high winds and dry weather conditions to ensure moisture content is high to increase the stability of the soil.
- During the proposed infrastructure works the following mitigation measures shall be implemented to minimise dust emissions:
 - Construction techniques shall minimise dust release into the air.
 - Protect overburden material from exposure to wind by storing the material in sheltered regions of the site.
 - Regular watering of stockpiles during dry and windy periods.
 - Located any stockpiles away from sensitive receptors, (i.e. receptors sensitive to dust release).
 - Provide wheel washing facilities at all exit points.
 - Provide tarpaulins over all unacceptable excavated materials being carted off site.
 - Control vehicle speeds and impose speed restrictions, (speed can mobilise dust).
- During dry spells and if deemed necessary monitoring of dust levels shall be carried out using the

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Bergerhoff Method i.e. analysis of dust collecting jars left on-site (German Standard VDI 2119, 1972). Results will be compared to the TA Luft guidelines (TA Luft, 1972). Should an exceedance of the TA Luft limit occur during, additional mitigation measures, for example more regular spraying of water, shall be implemented.

7 Road Cleaning / Wheel Washing

Provision will be made for the cleaning by road sweeper etc. of all access routes to and from the site during the course of the works. Road cleaning shall be undertaken as required during the completion of the works. All road sweeping vacuum vehicles will be emptied off site at a suitably licensed facility.

8 Compound Facilities / Parking

The construction compound for the infrastructure works shall be entirely within the site boundaries. 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, canteen, sanitary facilities, first aid room, office accommodation etc. Access to the compound will be security controlled and all site visitors will be required to sign in on arrival and sign out on departure.

A permeable hardstand area will be provided for staff parking and these areas will be separate from designated machinery / plant parking.

A material storage zone will also be provided in the compound area. This storage zone will include material recycling areas and facilities.

A series of 'way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas.

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

9 Conclusion

The construction management plan addresses construction activities on site that may result in noise, air quality or waste management issues, should the plan not be put in place and implemented.

There include procedures for monitoring and tracking construction activities and ensuring construction personnel are trained and educated as necessary. The construction management plan should be reviewed as the construction phase progresses to accommodate any changes in activities on site.