Proposed Development at Kishoge,

Co. Dublin

Construction Management Plan

Prepared for:	AFEC International
Prepared by:	MMOS Consulting Engineers
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1.0 Introduction

Murphy Matson O'Sullivan (MMOS) have been appointed by the applicant, AFEC International, to provide engineering design services for a planning application to construct a new school at Kishoge, Co Dublin. It is envisaged that we will be retained for the planning process, tender process & construction process.

This report is prepared at planning stage. It is envisaged that a construction stage plan will be undertaken by the main contractor when appointed and that this document will form the basis for the construction stage document.

This report deals with the construction management aspects of the proposed development and is to be read in conjunction with the planning drawings accompanying this application. Site Location & Description

1.1 Site Location

The proposed development site is located at Kishoge, Co. Dublin and is currently a greenfield site. The site is bounded by the following:

- The Thomas Omer Way Road to the North.
- Greenfield sites to the South and East
- Kishoge Community College & Griffeen Community College to the West.

Figure 1: Site Location – Development, Kishoge

1.2 Proposed Works

The proposed development, which is to be submitted for planning permission is described as follows:

The construction of a new primary school. The proposed primary school will extend to c3,355sq.m will be 2 storeys in height and will comprise 16 no. classrooms with an additional 2 classroom Special Educational Needs Unit; a General Purpose Hall and all ancillary teacher and pupil amenities and facilities. The proposed development also provides for hard and soft play areas, including 2 no. outdoor ball courts, bicycle parking, staff car parking, vehicle drop off and set down areas. Photovoltaic Panels (PV) are proposed on roofs in addition to EV Charging Points and a packaged Biomass heating plant. The proposed development also provides for all landscaping and boundary treatments and all associated site development works.

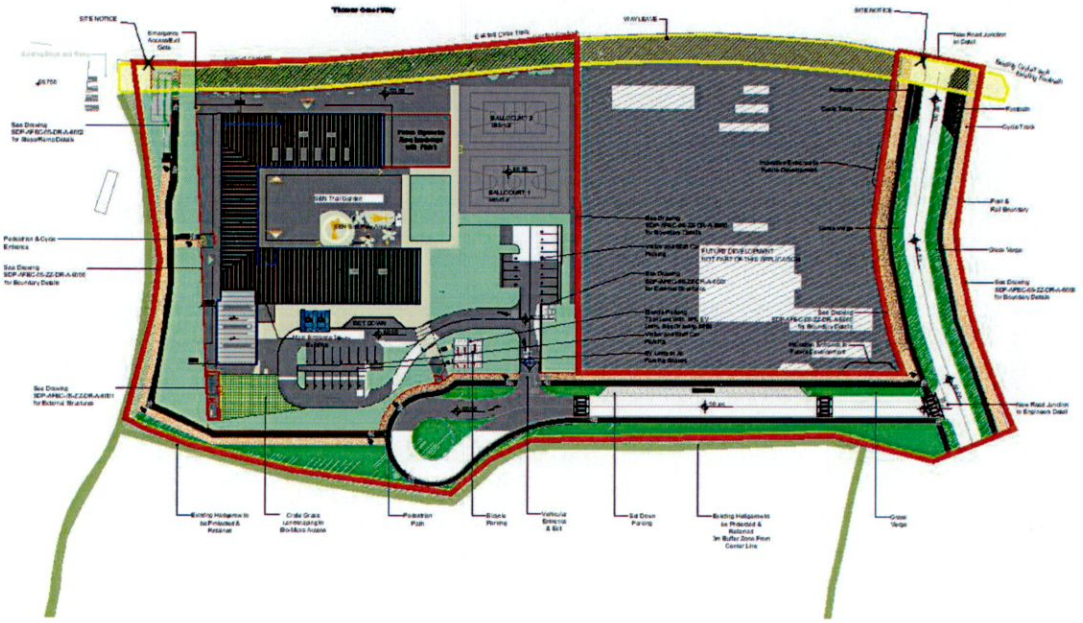

Figure 2: Proposed Development

2.0 Health & Safety

The contractor shall submit a health and safety method statement for the project prior to commencement on site.

It is envisaged that the contractor will act as Project Supervisor Construction Stage. A Project Supervision for the Design process will be appointed by the client. MMOS Engineers are the Project Engineers. All temporary works designs will need to be submitted to MMOS so that they can be co-ordinated to the PSDP.

3.0 Construction & Traffic Management

3.1 Construction Access/ HGV's Movement

During the project site delivery traffic will access the site via a new site entrance road that will come down from the Thomas Omer Way. The site entrance will be at the South of the site adjacent to the roundabout.

It is envisaged that there will be a maximum of 10-12 truck movements per day during the construction stage of this project.

3.2 Site Parking

Parking of contractors working on the development is to be provided on site. This is to be allow for by the main contractor adjacent to the site compound on the west side of the development site.

3.3 Working Hours & Days

The working hours are envisaged to be 8 am to 6 pm Monday to Friday, 8 am to 4 pm on Saturdays, or as directed by the local Council. It is proposed that hours of work outside of these times will be by agreement with the local authority. It is envisaged that there will be an average of 15-20 personnel working on the site during the construction stage of this project.

3.4 Large Scale Deliveries

All deliveries must be notified to the site in advance so that the site will be organised, for the offloading and dictate which crane will be unloading. This is to ensure that delivery trucks, on entering the site, cannot block any of the public roads adjacent to the site. A banks man will be assigned to control all deliveries.

3.5 Site Security

The site shall be kept secure at all times with signage indicating that it is a building site with associated dangers in accordance with the Health and Safety Authority Regulations.

The Contractor shall provide all necessary security during the progress of the works and shall be responsible for any damage or injury arising from insufficient security.

3.6 Signage

Signage will be erected in advance to warn other pedestrian and road users of a construction site ahead. These signs will be checked and cleaned regularly so that they are maintained in a good condition.

3.7 Site Compound

As part of the development programme the construction compound and staging area will be located to the northern portion of the site. However, it is noted that the location and operation of the site compound will be co-ordinated by the main contractor with details provided prior to commencement.

3.8 Plant / Persons Segregation

Any works completed outside the site boundary will be fully barriered with such work covered by a method statement and agreed in advance with the local authority. All plant driving on the public roads will be accompanied by a vehicle banksman. For works outside the boundary which may impede the traffic/pedestrians on the public road a separate traffic management plan will be completed.

Inside the site boundary a clear pedestrian access will be provided to the areas of work and appropriate signage placed. Pedestrian boundary will be delineated with pedestrian barriers.

Whether inside the site boundary or on the public road all plant will give way to pedestrians and will be carefully controlled by operatives and site banksman.

3.9 Cleaning of Roads

The roads will be monitored throughout the works and a road sweeper will be employed when required for the duration should the roads become dirty. The contractor will liaise with the local authority and all adjoining owners / residents in respect of the timing and movement of the road sweeper activity.

3.10 Main Gate & Pedestrian Gate

Due to the nature and location of the site the main gate will remain closed at all times. The foreman will have a key and a spare located at the site reception. The gate will be opened for deliveries and it will be closed again once unloaded. If the gate is to remain open for prolonged periods, such as large concrete pours, a flag man will be placed at the gate for the duration it remains open to ensure there is no unauthorised entries.

All pedestrian access will be via the pedestrian entrance to the north of the site. This door will remain closed at all times and will only be opened by the input of a security pin code. This code will be given to staff at inductions.

3.11 Work on Public Roads

Any works on public roads outside the site will be co-ordinated and will be co-ordinated with local County Council/local authorities and the adjoining businesses. Secure site hoarding will be employed around any works outside of the site, with controlled access points.

4.0 Construction Phases Sequence

4.1 Construction Sequence

The proposed works will be constructed in the following sequence:

- Excavation of site to formation level.
- Construction of the reinforced concrete foundations
- Erection of superstructure.
- Construction of glazing and cladding facades in accordance with the architect's drawings.
- Roof completions.
- Internal completions.
- External works.

4.2 Existing Services

We have been provided with drawings which provide details of the existing drainage and site services. These indicate the location of Foul, Water and Storm services as well as telecoms, ducting and ESB services. These are for information only and the Main contractor will be required to verify each service during the enabling works and to terminate as necessary.

The Contractor shall protect drains, manholes, gullies, vent pipes and fittings still in use and ensure that they are kept free from debris at all times. He shall make good any damage arising from any works and leave them clean and in working order at completion.

The Contractor and all persons performing work shall comply with all safety rules and regulations and shall take all necessary precautions to assure safe working conditions during the works. The Contractor shall use all necessary surveying equipment to locate underground cables and carry out necessary precautions when digging around existing live cables.

5.0 Noise, Dust & Vibration

5.1 Noise

The contractor will be required to carry out noise monitoring at defined locations on the boundary on an ongoing basis during the works. The contractor must ensure that construction noise will comply with the requirements of BS5228-1:2009, Code of Practice for Noise and Vibration Control on Construction and Open sites. Noise during construction shall not exceed 65 dB (A), Leq 30 minutes and the peak noise shall not exceed 75 dB (A), when measured at any point off site.

The contractor is to have a point of contact available during the works at all times and if exceedances are recorded, the contractor will be required to adopt alternative construction methodologies and measures to ensure that the limits are complied with.

Noise monitoring will be addressed with the contractor on an ongoing basis by the Engineer and it will be on the agenda at the weekly site meetings.

5.2 Dust

The contractor will require to carry out dust monitoring at three defined locations on the boundary on an ongoing basis during the works.

The contractor will be required to prepare and implement a dust minimisation plan for the duration of the works. Dust control will take on board the recommendations as outlined in Control of Dust from Construction and Demolition Activities (BRE/DTI, 2003). The dust limit is set as 350mg/m^2/day as outlined in the TA Luft Guidelines. The dust minimisation plan shall be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practise and procedures. At all times, the procedures put in place will be strictly monitored and assessed.

The contractor is to have a point of contact available during the works at all times and in the event of dust nuisance occurring outside the site boundary, significant dust producing activities will be immediately terminated and satisfactory procedures implemented to rectify the problem before the resumption of the operations.

In order to ensure that no dust nuisance occurs, a series of measures will be implemented. Site access shall be regularly cleaned and maintained as appropriate. Hard surface areas shall be swept to remove mud and aggregate materials from their surface while any un-surfaced areas shall be restricted to essential site traffic only. Furthermore, any area that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions.

Vehicles on site shall have their speed restricted, and this speed restriction must be enforced rigidly. Vehicles delivering or removing material with dust potential shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust.

Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind. Water misting, or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods.

Dust monitoring will be addressed with the Contractor on an ongoing basis by the Engineer and it will be on the agenda at weekly meetings.

5.3 Vibration

The works will be required to comply with BS5228 (2009): *Code of practice for noise and vibration control on construction and open sites- Part 2: Vibration.*

BS5228 recommends that that, for soundly constructed residential property, light commercial buildings and similar structures that are in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak particle velocity of 15mm/s at 4 Hz increasing to 20mm/s at 15 Hz and increasing to 50 mm/s at 40 Hz and above for intermittent vibration.

The contractor is to have a point of contact available during the works at all times and if exceedances are recorded, the contractor will be required to adopt alternative construction methodologies and measures to ensure that the limits are complied with.

6.0 Construction Waste Management Plan

6.1 General

The contractor will be required to prepare a specific Construction waste management plan for the site and submit prior to commencement of the works. The following requirements are noted.

Details of the Wastes to Be Produced (Incl. Estimated C&D Surpluses/Deficits)

During construction of the proposed development, there will be construction waste generated, such as off-cuts of timber, oversupply of materials and damaged or broken concrete blocks and tiles, along with packaging materials such as cardboard, plastic and polystyrene.

Main C&D Waste Categories

The main non-hazardous waste streams that will be generated by the construction activities at the site are:

- Stones/bedrock, topsoil and subsoil
- Concrete, brick, tiles and ceramics
- Asphalt, tar and tar products
- Plasterboard
- Scrap Metal
- Cardboard (packaging)
- Plastic (wrapping, packaging)
- Waste wood
- Paper

The hazardous waste streams may include the following;

- Batteries
- Wood Preservatives
- Oils/Fuels from machinery & equipment

The European Waste Code (EWC) Classification for each waste stream is presented in Table 12.1.

Table 12.1: Waste Types and EWC Classification

Waste Material	**EWC Code**
Non-Hazardous	
Concrete bricks, tiles and ceramics	17 01 00
Wood	17 02 01
Glass	17 02 02
Plastic	17 02 03
Bituminous mixtures, coal tar and tarred products	17 03 00
Metals (including their alloys)	17 04 00
Soil, stones and dredging spoil	17 05 00
Insulation materials and asbestos-containing materials	17 06 00
Gypsum-based construction material	17 08 00
Other construction and waste	17 09 00
Cardboard	15 01 01
Hazardous	
Asbestos	17 06 05
Batteries	16 06
Wood Preservatives	03 02
Liquid Fuels	13 07

Estimated Waste Arising & Proposals for Reduce, Reuse & Recycle

The EPA has produced figures for the C&D waste recorded in the National Waste Database [7]. This included a percentage breakdown of each waste type in the C&D stream.

Table 12.2: Breakdown of Waste Materials Generated at a Typical Site

Waste Types	**%**
Bedrock, Soil & Stones	51
Concrete, Bricks, Tiles, Ceramics, Plasterboard	39
Asphalt, Tar and Tar products	2
Metals	2
Other	6
Total Waste	**100**

As Table 12.2 shows, a large percentage of the waste at the site will be soil and stones. The excavated material from the site will be reused on site if possible. In the event of the material being used off site options include land remediation/infill on other sites in the area.

Proposed Uses of Wastes and Surpluses/Deficits from the Site

A temporary segregation bay will be constructed at the site for the duration of the construction phase of the development. The bay will include segregated areas for recyclable waste streams, such as gypsum (plasterboard), cardboard, timber, concrete/blocks/tiles etc.

As extensive development is being carried out in the vicinity of the site, the possibility of reuse of materials on neighbouring sites will be investigated.

Cardboard

Cardboard will be segregated on site. The cardboard will be flattened and placed in a covered skip or tied and covered, to prevent the card getting wet. A recycling contractor will collect it as required.

Plasterboard

There will be a separate skip for plasterboard at the site. There are a number of specialist contractors that recycle plasterboard, and they will be contracted to address this matter.

Reprocessed gypsum powder, which makes up to 94% of the plasterboard, can be reprocessed into new plasterboard or converted for use in soil conditioners for the agricultural industry. The paper, which makes up to 6% of the plasterboard, can be reused in various industries.

Soil/Subsoil

Excess excavated soil will be disposed of off-site. Soil will be removed and disposed of by contractors licensed under the Waste Management Act of 1996, the Waste Management (Permit) Regulations of 1998 and the Waste Management (Collection Permit) Regulations of 2001. This material will be used for fill material on other sites, or capping purposes on site, e.g. at a landfill.

The site is currently at formation level therefore there the volume of material to be excavated will be limited to the volume of the pad foundations (roughly 300m^3)

Plastic

As plastic is now considered a highly recyclable material, much of the plastic generated during construction will be diverted from landfill and recycled. Clean plastic will be segregated at source and kept as clean as possible and stored in a dedicated covered skip.

Timber

There will be timber waste generated from the construction work as off-cuts or damaged pieces of timber. Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc, will all be recycled. It will be stored on site in a designated skip and collected by a recycling contractor. Such companies shred the timber and use it for manufacture of wood products or for landscaping (wood chips etc).

Scrap Metal

Steel is a highly recyclable material and there are numerous companies that will accept waste steel and other scrap metals. A segregated skip will be available for steel storage on site pending recycling.

Tracking and Documentation Procedures for Off-Site Waste

All waste will be documented prior to leaving the site.

Any contractor who takes waste materials from the site will be compliant with the Waste Management Act of 1996 & 2001 and also the Waste Management (Collection Permit) Regulations of 2001, i.e. any contractor removing waste from the site will have a waste collection permit issued by the Local County Council. The foreman on the site will have a copy of the waste collection permits.

All information will be entered in a waste management system kept on the site; this will be maintained by the appointed building contractor. This will maintain accurate records on the quantities of waste/surpluses arising and the real cost (including purchase) associated with waste generation and management, locations for disposal and recycling of waste and the permitted contractors used in the process.

Disposal of C&D Waste

There will be a general skip or receptacle for C&D waste not suitable for reuse or recovery. This skip will include polystyrene, contaminated cardboard, plastic etc. Workers on the site will be encouraged to recycle as much municipal waste as possible, i.e. cardboard, plastic, metals and glass. General wet waste will be presented separately for recovery. Food waste will be segregated with separate receptacles for collection and disposal.

Prior to removal, the municipal waste receptacle will be examined by either the foreman or a member of his team to determine that recyclable materials have not been placed in there. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly.

6.2 C&D Waste Management Procedures

Sorting/Segregation Arrangements for Individual Materials

C&D waste materials will be stored separately on site, i.e., there will be a Central Waste Storage Area (CWSA) with specific receptacles or bays for each material taken from the construction phase.

Bins or skips used on site will be transportable to the CWSA. A forklift will be used to transport skips and containers around the site. By having segregated wastes at source, it can be arranged that a waste contractor/recycler will collect the materials as necessary.

Details of Transportation and Reception Arrangements for Movement of Materials to Other Sites

The waste materials will be stored in the specifically designated compound. All waste collected from the site will be by a permitted waste contractor, under the Waste Management (Collection Permit) Regulations 2001.

The contractor will provide the waste manager on site with documentation of the waste to be removed and a copy of the waste collection permit. Prior to the waste leaving the site, the waste manager will have documentation to show where the waste is being taken to, and that the facility is licensed to accept the particular waste. A receipt will be issued for each load that leaves the site.

Some wastes may be transported to another site for reuse on the site. The manager will be in contact with other sites to ensure that as much waste is reused as possible, such as concrete for fill purposes etc.

All wastes leaving the site will be placed in appropriate containers. Any concrete, soil, gravel, or broken stone transported off site will be covered to prevent dust or particle emissions from the load.

Training Provisions for Waste Manager and Site Crew

One of the construction team or the foreman will be appointed as a waste manager to ensure commitment, operational efficiency and accountability.

The waste manager will be given responsibility and authority to select a waste team if required, i.e. members of the site crew that will aid him / her in the organisation, operation and recording of the waste management system on the site.

The waste manager will have overall responsibility to oversee, record and provide feedback to the client on everyday waste management at the site. Authority will be given to the waste manager to delegate responsibility to sub-contractors where necessary, and to coordinate with

suppliers, service providers and sub-contractors to prioritise waste prevention and salvage on site.

The waste manager will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for the waste management on site.

He / she will be also trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on site and know how to implement the construction waste management plan.

The training of the site crew is the responsibility of the waste manager. A waste training program will be organised. A basic awareness course will be held for all site crew to outline the C&D waste management plan and to detail the segregation of waste materials at source. This may be incorporated into the induction course, or safety-training course.

This basic course will describe the materials to be segregated, the storage methods and the location of the waste storage areas. A subsection on hazardous wastes will be incorporated and the particular dangers of each hazardous waste will be explained.

6.3 Record Keeping

Records will be kept for each waste material, which leaves the site, either for reuse on another site, recycling or disposal. A system will be put in place to record the construction waste arising on site.

The waste manager or a member of his team will record the following;

- Waste taken for Reuse off-site (i.e. for capping of landfill cells or at another site).
- Waste taken for Recycling.
- Waste taken for Disposal.
- Reclaimed waste materials brought on-site for reuse.

For each movement of waste on- or off-site, the waste manager will obtain a signed docket from the contractor, detailing the weight and type of the material and the source and destination of the material.

This will be carried out for each material type. This system will also be linked with the delivery records. In this way, the percentage of construction waste generated for each material can be determined.

The system will allow the comparison of these figures with the targets established for the recovery, reuse and recycling of construction waste and to highlight the successes or failures against these targets.

6.4 Outline Waste Audit Procedure

The appointed waste manager on site will be responsible for conducting a waste audit at the site.

A review of all the records for the waste generated and transported on- or off-site will be undertaken. If waste movements are not accounted for, the reasons for this should be established in order to see if and why the record keeping system has not been maintained.

A summary report will be prepared and compared with the established recovery/reuse/recycling targets for the site.

Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved.

Waste management costs will also be reviewed. Ongoing consultation with waste contractors and the Local County Council will be pursued in order to ensure that the best practicable option is being followed for waste management on site.

Upon completion of the project, an audit will be prepared, summarising the ongoing progress and the total recycling/reuse/recovery figures for the development. This audit may be reviewed by the Waste Management section of Local County Council.

At least two audits will be carried out during construction to ascertain if measures in place are addressing demands and to allow for corrective measures in waste handling and management to be addressed with appropriate corrective measures.

References

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