Land Use, Economic and Transport Planning Department,
County Hall,
Town Centre
Tallaght,
Dublin 24.

Dated: 24th May 2022

Reference: Written agreement of conditions as requested in Grant Permission SD21A/0171

Dear Sir/Madam,

Please find a below written agreement of six conditions as requested in Grant Permission SD21A/0171 issued on 28th February 2022 and in Final Grant issued on 17th May by South Dublin County Council.

This document has been prepared by Rowan Engineering Consultants Ltd. (Rowan) on behalf of Coffey Construction Ltd. It provides confirmation to each of the conditions outlined in the Grant of Permission issued by SDDC. For the reader's convenience, the SDCC text for each of the Conditions has been included ahead of each response in *italics* with Rowans Response in dark blue colour font.

It should be noted that multiple requests for engagement on the conditions with SDCC was attempted by Rowan Engineering during the period between issue of grant permission and final grant however little to no communication was received from SDCC.

Response to Request for Further Information

Condition 7

Protection of the Camac River.

(a) Prior to commencement of works, and notwithstanding any other conditions of this permission, the applicant shall obtain written agreement of the Planning Authority to final versions of the following documents:

- *The Risk Assessment Method Statement;*
- *The Construction Traffic Management Plan;*
- *Construction Environmental Management Plan; and*
- *Construction and Waste Demolition Management Plan;*

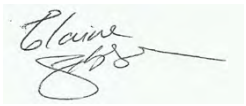
as may be necessary to account for protection measures for the Camac River from any impacts arising from the increased vehicular movements and road cleaning/maintenance along Castle Road arising from this development.

The Final Risk Method Statement, Construction Traffic Management Plan, Construction Environmental Management Plan and Construction and Waste Demolition Management Plan took account of increased vehicular movements and road cleaning/maintenance along Castle Road arising from this development and were submitted as part of the planning application. There are reattached as **Appendix C** for reference. A wheel wash is present at the site source and infill site entrance / exits to ensure minimal muck is tracked onto the road. A road sweeper is also present onsite to be used as required and ensure no runoff of to the Camac River.

An Appendices and Drawing Register are provided at the bottom of this letter.

Should you have any queries please don't hesitate to contact, me.

Best Regards,



Elaine Gibson
Environment Manager
Rowan Engineering Consultants Ltd.
Head Office:Unit 14, Scurlockstown Business Park, Trim, Co. Meath, C15 H008.
Mob: 0857620906
Email: Elaine.Gibson@rec.ie

Appendices Register

Appendix Number	Description
Appendix C	(i) Risk Assessment Method Statement, (ii) Construction Traffic Management Plan, (iii) Construction Environment Management Plan, (iv) Construction & Demolition Waste Demolition Plan.

Appendix C

(i) Risk Assessment Method Statement

RAMS (Risk Assessment Method Statement)

Project name:	Saggart Reservoir Design & Build Contract	**Project No.:**	J1387
RAMS No. & Title:	J1387 - RAMS 012 – Removal, Placing & Reinstating of Material on Hurleys Field.	**RAMS Rev.:**	00

Document Issue

Rev	Description of changes	Prepared by	Reviewed by	Approved by	Date
00	First issue	U Hannon	P. Scanlon & P. Brosnan	T. Croke	28/01/2022
01					
02					
RAMS distribution list:		IW, CCIL, RPS, Tertrarch (Citywest), All involved staff and workers			

Table of Contents

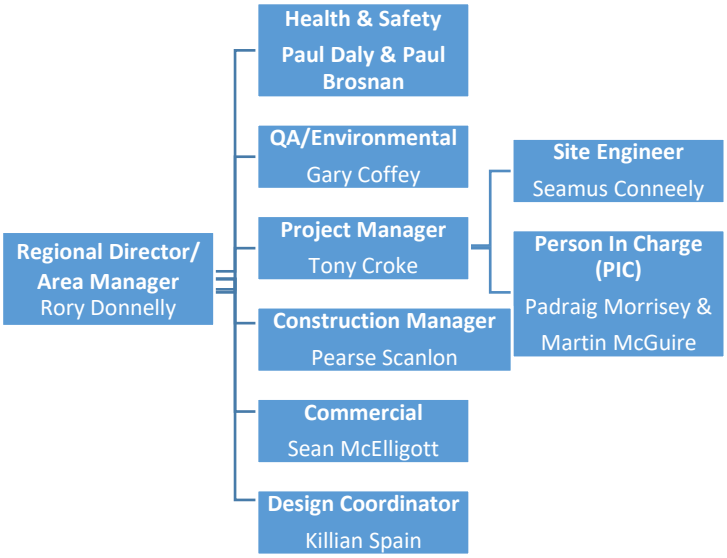
1 – Planned Works

Description of work:	The planned works will involve the stripping of topsoil on the new site transportation of subgrade material from Saggart Reservoir to the site, build-up, and other ancillary works.		
Location of work:	Saggart Reservoir	**No. of workers:**	5
Planned start date:	February 2022	**Duration:**	8 weeks
Interface with others/ known activities:	Landowners, Planning Authorities, Nearby stakeholders		

2 – People, Plant & Equipment

Contractor(s):	Main Contractor- Coffey Construction Ltd
	Sub-Contractor- McGuire Haulage Ltd.

Project name:	Saggart Reservoir Design & Build Contract	**Project No.:**	J1387
RAMS No. & Title:	J1387 - RAMS 012 – Removal, Placing & Reinstating of Material on Hurleys Field.	**RAMS Rev.:**	00

Staff & Supervision:	
Labour:	- Foreman - 1No. Excavator Operatives - 1No. Bulldozer Operative - 1No. Skilled Operatives - 1no. General Operatives **NOTE: Only trained and competent personnel will operate plant and machinery. They will possess a valid CSCS card for the relevant item of plant.**
Plant:	- 38T Excavator - D6 Bulldozer - 10T Roller - Eight-Wheeler rigid tipper trucks - Artic tipper trucks
Equipment:	- PPE equipment - Hand Tools
Certification:	All relevant plant/equipment will be certified and checked prior to commencement on site: copies (hard/soft) of certificates will be kept on file. All relevant personnel will have their training certification checked before work commences at the project-specific induction. Prior to operation, climbers will check all equipment for excessive wear, damage, or defects before use.
Materials:	Silt fencing Drainage stone Signage Bunting Pedestrian Barriers Heras Fencing

Project name:	Saggart Reservoir Design & Build Contract	Project No.:	J1387
RAMS No. & Title:	J1387 - RAMS 012 – Removal, Placing & Reinstating of Material on Hurleys Field.	RAMS Rev.:	00

3 – Safe System/Method of Work

Sequence of work:

General

All site personnel are to have received a site induction prior to any works commencing. This will be undertaken by the site engineer or his nominated representative. All must attend pre-start meeting and be briefed to this Method Statement.

The following documents will accompany this RAMS.

- Safe Plan of Action
- Relevant Permits – see section 3.

Site Location

The bulk of proposed earthworks will take place in the region highlighted below in Figure 1 in red. Access to the site is via an existing gateway. The site will be secured using Heras Fencing.

Figure 1 - Area of Proposed Works, Hurleys field outlined in red. Coffey site outlined in Black.

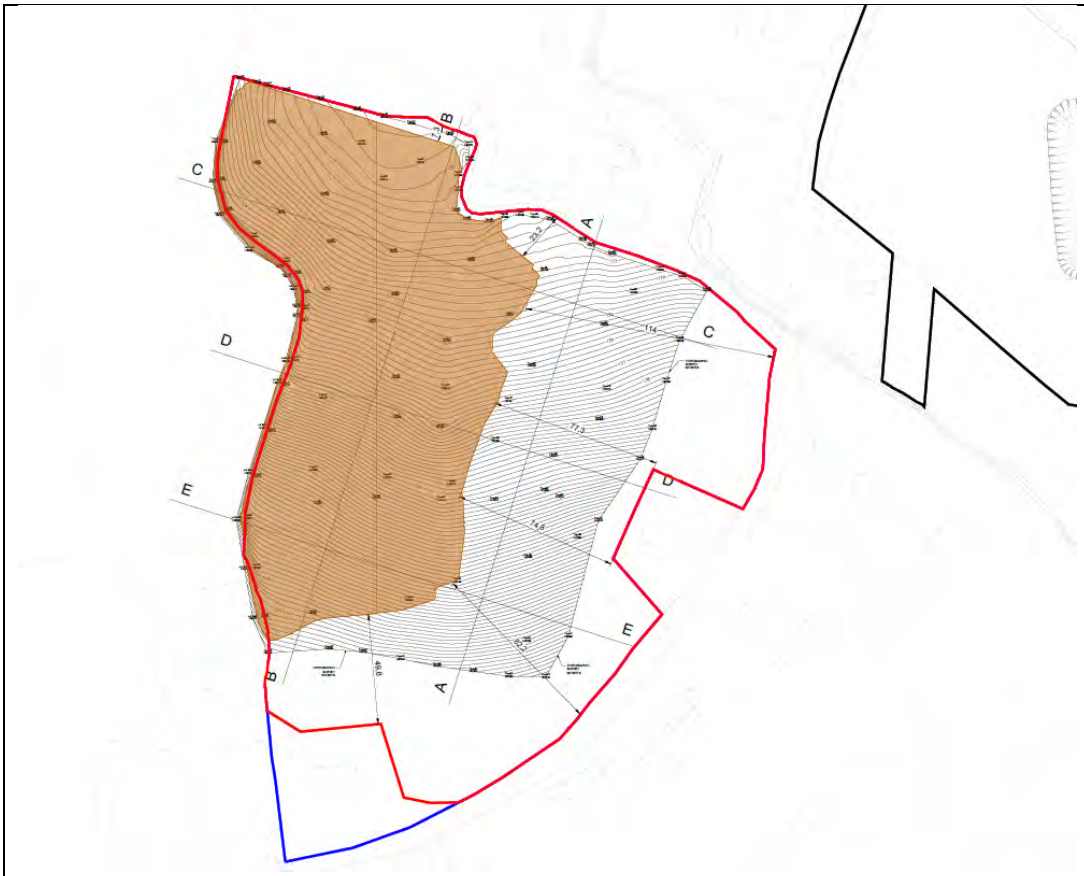
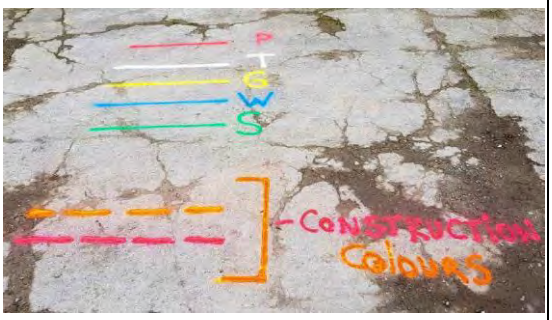


Figure 2 - Area of Fill shown in dark section of the above snip.

Underground Services

- Current utility drawings will be reviewed prior to the commencement of works.
- All identified services along proposed route of the pipe will be marked out, carefully protected and clearly marked as to be identifiable by workers.
- Machines MUST not be used 500mm from service (exclusion zone).
- Permit to Dig CF-HS-049(04) will be issued, briefed and signed by all personnel involved and used to notify employees of all known services in the dig area.
- Any Gas Mains will be identified & Exclusion zones setup around these Gas Mains, with no works taking place within 15m of a High-Pressure Gas Main.
- In the event of excavation or in the vent of excavation near known services the area will first be CAT scanned in the event of unchartered services being present, and all identified services are in the correct location. Services will be clearly marked on the ground using appropriate colour of spray paint:
  - **RED** – Electric Power Lines
  - **YELLOW** – Gas
  - **BLUE** – Drinking Water
  - **GREEN** – Sewer Lines



- **WHITE** – Telecommunication and Signal Lines
- **LUMINESCENT PINK OR ORANGE** –Construction Colours

o If uncharted service is encountered within vicinity of works, works MUST be stopped and reported to Site Management immediately.

Topsoil Strip:

- The field will be scanned for services prior to works commencing. A permit to dig will be completed and briefed to the Site Supervisor and Plant Operators highlighting any areas of concern (i.e., locations of onsite manhole chambers & services/utilities) by the site engineer.
- The extent of the site will be stripped of the topsoil.
- The topsoil strip is to be carried out using a 38-tonne excavator and D6 Bulldozer under site supervision
- Topsoil will be removed through placement of temporary 'windrows' at 3m heights to allow plant movement and ease of access until the material is removed to the bund.
- The topsoil will be stored in a sealed bund to ensure it is protected from the weather and segregated from the imported material.

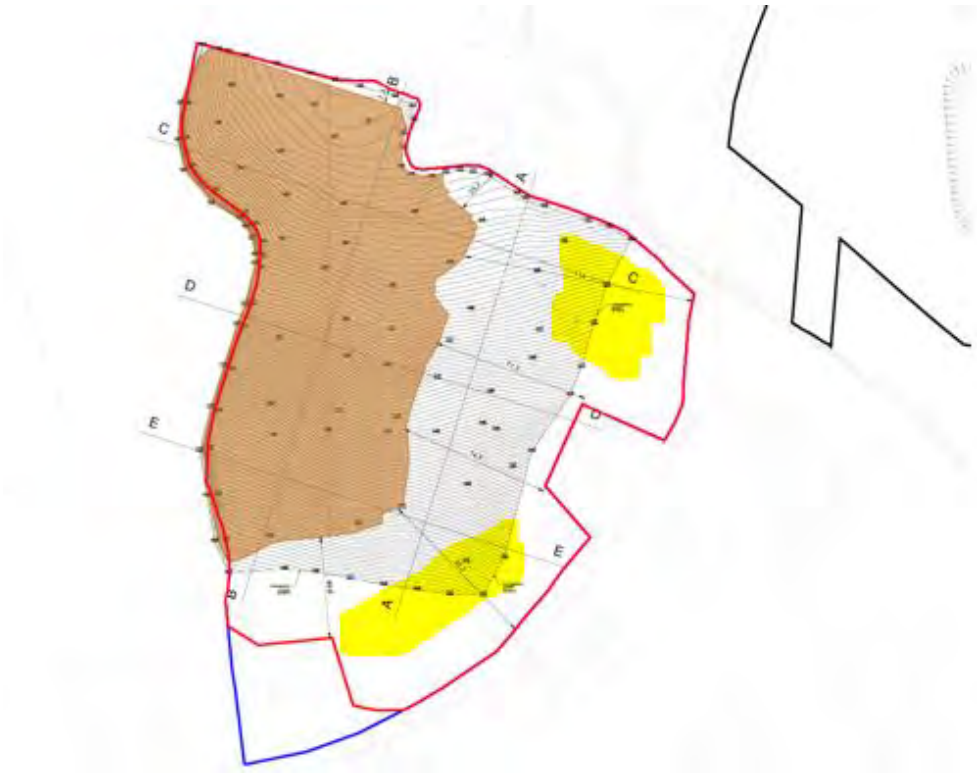


Figure 3 Area in yellow is the locations of the topsoil bunds.

Construction of Access Road:

- A short access road will be constructed at the entrance (See Figure 4) once all topsoil is stripped from the entrance area, the 38-tonne excavator can commence ground cuts and excavate 0.3m deep and 6m wide for the proposed route as per the site layout plan. 6F2 stone capping and 2inch down stone will be utilised to create the construction haul route.

- This stone haul route will be built up in 2 layers of 0.150m, where each layer will be compacted adequately using a 10-tonne roller.

Transportation and compaction of material:

- 8 Wheeled tipper trucks will remove the subsoil from the Coffey's Site.
- The trucks will follow the route shown in blue in figure 4 to Hurleys field.
- The material will be tipped in Hurleys field and spread using the D8 Bulldozer, the material will then be compacted using the 10-tonne roller in layers of 150mm.

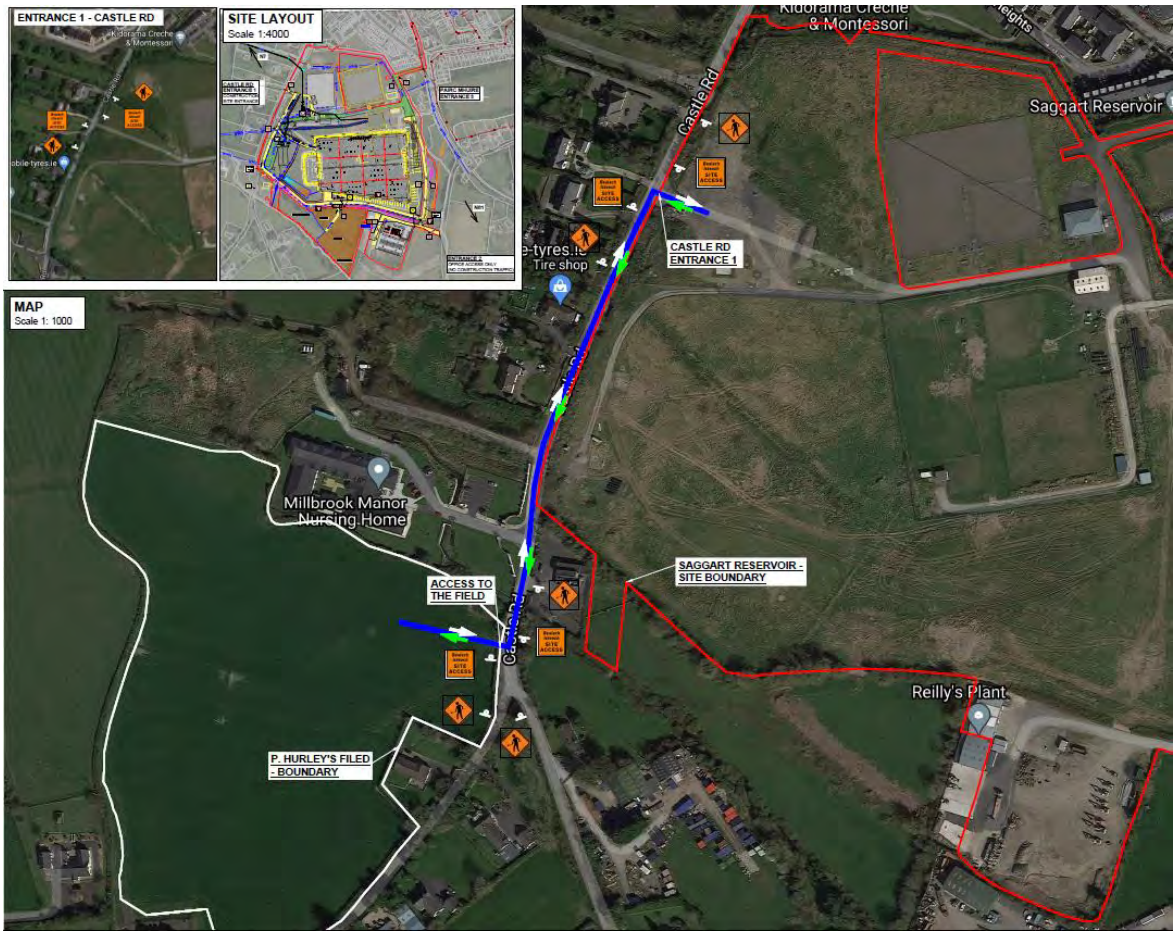


Figure 4 – Overview of route for transportation of material

- The material will be built up to design level.
- An Engineer will be onsite providing and checking levels.
- The tipper trucks will follow the same blue route (Figure 4) to and from Coffey's site.

Project name:	Saggart Reservoir Design & Build Contract	Project No.:	J1387
RAMS No. & Title:	J1387 - RAMS 012 – Removal, Placing & Reinstating of Material on Hurleys Field.	RAMS Rev.:	00

Reinstating the Field:

Once the imported material has reached the design levels the importation will stop. The compaction of the area will be completed.
The topsoil will then be spread out over the field using the D8 Bulldozer to the levels in an even layer.
The new area of topsoil will have any stones removed and then seeded.
Any stone placed at the entrance placed to facilitate the trucks will be removed and this area topsoiled and re-seeded.
All Construction fencing will be removed, the entrance will be left as it was before the works.

All plant operational movements are to be supervised by site foreman. All incidents must be reported to person in charge or Project manager immediately.

Environmental considerations:	Any hazardous material on site e.g., petrol, diesel, will be securely containedin bunded tanks/containers and away from any watercourses. All excavators etc, on site will also have bunded tanks to prevent diesel spillage. Refuelling - A dedicated fuelling zone will be set up in a safe and secure place away from any waterways. All works will be carried out in accordance with our project environmental plan and specifically as follows: - Plant will comply with the Maintenance Plan, avoiding fumes, excessive fuel consumption and noise. - Oil changes and plant maintenance on site will always be carried out on an impermeable surface/basin. Oil changes over unprotected soil will not be permitted. Waste Management – All materials that are to be removed will be disposed of offsite safely and removed later once the main excavation works are taking place. Any timber will be stacked on site to be removed by Coffey's. Pumping – All operations to take place in consultation with Inland Fisheries Ireland and control measures will be put in place to ensure environmental damage does not occur.
Quality controls:	The management of Coffey Construction is conscious of the need to sustain and continuously improve the high quality of building and civil contracting services provided by the company and to ensure that all contractual requirements between the company and its clients will be consistently achieved. We provide documented assurance to clients to demonstrate that the specified requirements for the building and civil engineering works is being and has been achieved. It is the company's policy to seek to operate to these standards

	continuously and to implement and operate fully the ISO 9001:2000 standards through registration and annual review. It is the company's belief that, in striving to improve these high levels of building and civil engineering contracting services provided by the company, that it would meet the requirements of our customers and the industry. Coffey Construction Ltd. is aware of both current legislation and public awareness as regards environmental issues. Our main priority is to minimise environmental effects in all their forms at the project site and its environs. To this end, we strive to reuse and recycle construction materials in so far as possible.
Access and egress:	Access and egress to site works area will be carried out via the construction site access on Castle Rd. 
Distribution of materials:	
	Loading and unloading: ☑ Loading and unloading operations will take place at designated areas.
Lifting operations:	All lifting accessories must be inspected and certified.
Temporary works:	N/A
Traffic management:	Site Entrance TMP attached in appendix B
Hazardous substances:	List relevant hazardous substances: - diesel - petrol please refer to COSHH assessments in the HSQE folder.
PPE:	 ☑ ☑ ☑ ☑ ☑ ☐ ☐ ☐ ☑ Other/comments: additional PPE as applicable for particular task i.e.,
Permits:	Tick below if applicable to the RAMS:

☐ Permit-to-work (client/PC)	☑ Permit-to-dig
☐ Confined space entry permit	☐ Hot work permit
☐ Permit to work under overhead lines	☐ Permit-to-lift/Lift Plan
☐ Other: Permit to Pump	☐ LOTO/Live Energies Permit

Hold points:	The following potential hold points have been identified: ☑ Encountering uncharted services. ☑ Significant change in ground conditions.

Project name:	Saggart Reservoir Design & Build Contract	Project No.:	J1387
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	☑ Ecology ☑ Significant item/issue not covered by this RAMS.
Change Management:	**We all have the authority to stop any work or behaviour that we deem to be unsafe to ourselves or our colleagues.** If something significant changes or a review is needed (i.e., one of the hold points identified above or other unforeseen change): stop and call the person in charge – Padraig Morrisey. for advice and to review before restarting work.
	Record of any on-site changes and additional controls implemented – note here and/or include in the SPA (Safe Plan of Action): (*Any changes should be copied to the RAMS author for their information/review)

4 – Emergency Arrangements

Task-specific emergency arrangements:	**EMERGENCY TELEPHONE NUMBERS** Contact the following in the event of an emergency: - **Emergency Services** **999/112** Environmental Emergency **EPA (IRL)** **1890 33 55 99.** **First Aid Responders(s) include:** Seamus Conneely 086 793 0646 Ulick Hannon 086 019 4016 Tony Croke 086 387 4495 **Local Hospital(s)** Tallaght University Hospital 01 414 2000 **Local Doctor(s)** Saggart Medical Centre 01 458 6805 **Garda/Police Station(s)** Tallaght Garda Station 01 666 6000 **Electrical Emergency** ESB (IRL) 1850 372999 **Gas Emergency** Gas Networks Ireland (IRL) 1850 205050 Telecom (IRL) Eir 1850 245 424
Site Address:	Saggart Reservoir, Saggart, Co. Dublin
Welfare location:	See SPA

Project name:	Saggart Reservoir Design & Build Contract	**Project No.:**	J1387
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Assembly point location:	See SPA	
Person in charge (PIC):	Name: Padraig Morrisey	Mobile no.: 086 814 9361
Deputy PIC (PIC absence):	Name: Ulick Hannon	Mobile no.: 086 019 4016
First Aider:	Name: Seamus Conneely Pearse Scanlon	Mobile no.: 086 793 0646 Mobile no.: 086 019 4016

5 – Reference Documents

Documents available in the HSQE folder:	The following documents are available within the project HSQE folders for reference: ☑ Project Health and Safety Plan/Construction Phase Plan ☑ Project Environmental Plan ☑ Project Quality Plan
Documents in Appendix A	☑ Risk Assessment
Documents in Appendix B	The following documents are attached in Appendix B: ☑ Consultation and Briefing arrangements

Appendix A – Risk Assessments

Likelihood						
	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
		Severity				

	Acceptable
	Further Review
	Unacceptable Risk

Risk = Likelihood x Severity

Likelihood	
Rating 1	Very Unlikely
Rating 2	Unlikely
Rating 3	Likely
Rating 4	Very Likely
Rating 5	Almost Certain

Severity	
Rating 1	No Injury
Rating 2	Minor Injury or Illness
Rating 3	*Reportable* Injury
Rating 4	Major Injury or Illness
Rating 5	Fatality, Disabling Injury, etc.

Hierarchy of Risk Reduction: *a) Elimination b) Substitution c) Engineering Controls d) Signage/Warnings and/or Administrative Controls e) PPE*

People exposed to risk:	CCL workers, subcontractor workers, Client personnel, site visitors, delivery drivers.

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
HAZARD	**Risk**		**Risk = Columns 1 × 2**	**CONTROL MEASURES**	**Risk (after controls)**		**Residual risk = 5 × 6**	**Controls implemented by**
	Likelihood	**Severity**			**Likelihood**	**Severity**		
Excavations	4	4	16	- The PIC will ensure that all services are identified through liaison with the appropriate stakeholders, e.g., ESB, Irish Rail etc. - Permit-to-dig system will be used and detail all specific controls. - Statutory inspection of excavations must be carried out by a competent person and recorded on the Form AF3. - All excavations to be cordoned off to prevent likelihood of falls. - All excavations adequately benched/battered back to allow for safe access and egress. Provisions allowed for trench shields.	1	4	4	PIC

Hazardous substances	3	2	6	- All contractors must inform the site management of any substances hazardous to health brought onto the site. - Details of hazards associated with chemical products and their safe usage are given on Material Safety Data Sheets or come with the product. The supplier/retailer or manufacturer is obliged by law to give this information. A Material Safety Data Sheet must be available on site for all hazardous substances brought onto site. - All substances hazardous to health must be used according to the agreed control measures. - All personnel must be made aware of the relevant material safety data sheet / control measures in connection with all hazardous substances in use on site. - Chemical products must never be allowed to come into eye contact, and generally contact with the skin should be kept to a minimum. - Ensure that all spillages are cleaned immediately and that waste and used containers are disposed of properly.	1	2	2	PM, PIC
Underground services/utilities	4	5	20	- Assume all electricity cables/services are live unless otherwise advised by the ESB / Gas Networks Ireland. - Regard all buried cables/services as live. Do not assume pot-ended cables are dead or disused. - Before starting any excavation ensure that all services have been identified. Permit to dig to be used and briefed to all relevant personnel. - Employ hand-digging techniques when approaching the line of the cable. - Exposed cables will be supported and protected against damage. They will not be used as hand or footholds. - Any damage to services must be reported immediately to the Project Manager.	1	4	4	PM, PIC
Lifting Operations	4	5	20	- A Lift Plan will be prepared by Coffey Construction Limited and/or a designated competent person/company where required.	1	4	4	PM, PIC

				- Only competent persons shall be involved in these operations. - The excavator provided for use has a current test certificate, has been thoroughly examined within the preceding 12 months, has been inspected within the previous seven (7) days and is fitted with all necessary safety devices. - Lifting gear must be thoroughly examined within the previous 6 months. - Any defect noted in any lifting appliance machine, gear, or tackle must be reported immediately and the equipment taken out of use if the defect could affect its safe use. - Where adverse weather conditions could affect the safety of lifting operations, the Project Manager will stop operations until conditions improve.				
Storage and distribution of materials (including deliveries)	4	4	16	- Deliveries to be planned and coordinated as part of the morning briefing plan (SPA). - Materials will only be stored in the designated storage area, and we will ensure that the delivery of materials is controlled so that there are not too many materials on site to cause unnecessary obstructions. - Materials will not be stored in ways so as to cause damage to the works, the materials, or endanger the safety of people or property. - Ensure that all areas of all sites are kept clean, tidy and exits are kept free from any obstructions at all times.	1	4	4	PM, PIC, Drivers
Movement of vehicles/mobile plant and machinery	4	5	20	- Only authorised and licensed/certified persons will operate vehicles on site. The Highway Code will be observed at all times. - Vehicles must not obstruct live roads, or other exits. All vehicles will be inspected on a regular basis for defects. - Banksmen will be used during operations where the driver's view may be impaired and where work is being carried out on narrow roads. - Drivers must not consume alcohol, or drugs that may impair their judgement, prior to, or during work.	1	4	4	PIC, PM, Plant Operators, Drivers

				- All vehicles will be kept in a good state of repair according to the manufacturer's recommendations. Brakes and lights will be checked regularly by the driver. - Any designated speed limits on site are to be adhered to. - Dirty roadways must be cleaned immediately, where public traffic has access, to eliminate the potential of a road traffic accident. - Signs are provided to warn of hazards and to ensure due care and attention is taken around movement of vehicles. - High Visibility clothing shall be worn by all personnel working on site. - "Thumbs up" to be given by personnel in the vicinity of mobile plant/machinery and acknowledged by the driver/operator.				
Manual handling	4	3	12	- Manual handling to be avoided where possible, e.g., use of lifting aids. - Where manual handling is unavoidable a safe system of work is to be implemented. - Safe access and egress routes to be maintained, to avoid trip hazards.	1	3	3	PIC, PM
Slips, Trips, Falls	4	4	16	- Housekeeping will be maintained to a very high standard to avoid slips, trips or falls while handling objects. - Work surface will be maintained to ensure it is not uneven or likely to be a trip hazard. - Steps and steep ramps will be avoided as far as is reasonably practicable. - Barriers to be in place around excavation works.	1	4	4	Site Management
Covid-19	3	4	12	- For the duration of the COVID-19 epidemic, Coffey Group is encouraging personnel to use welfare facilities as little as possible due to the high-risk nature of multiple touch points in the likes of canteen, in particular. - Workers are encouraged to bring packed lunches with cold and hot drinks, as required. No utensils will be available for common use. - Enhanced cleaning procedures will be implemented in communal areas and at touching points at work areas including vehicles.	1	2	2	PIC, PM

				- All tools and equipment should be properly sanitised to prevent cross contamination. Arrangements for one individual to use the same tool, plant, and equipment, as much as possible. - Disinfectant and cleaning provisions are available for the cleaning of tools between users. - Ensure soap and hand washing pictorial guides provided for hand washing are clearly visible. Enhance the cleaning regime for toilet facilities, especially door handles, locks, and toilet flush handles. - Provide suitable and sufficient rubbish bins for hand towels with regular removal and disposal. - Introduce enhanced cleaning of facilities throughout the day.				

Project name:	Saggart Reservoir Design & Build Contract	**Project No.:**	J1387
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Appendix B – Reference Documents

Appendix C – Consultation & Briefing Arrangements

Briefing conducted by:	PRINT Name:	Signature:
	PRINT Name:	Signature:

	RAMS (Risk Assessment Method Statement)

Project name:	Saggart Reservoir Design & Build Contract	**Project No.:**	J1387
RAMS No. & Title:	J1387 - RAMS 012 – Removal, Placing & Reinstating of Material on Hurleys Field.	**RAMS Rev.:**	00

Supervisor/ person in charge:	I confirm that personnel involved in the tasks have had these RAMS explained to them. Any future people assigned to this task will also receive the briefing.	
	PRINT Name:	Signature:

I understand and agree to adhere to the contents of this method statement and risk assessments.
I have attended a project induction where the general site rules were explained to me.

PRINT Name	Signature	Company	Role/Position	Date

Note any feedback received following the briefing with personnel (and email to hsqe@coffeygroup.com):

Appendix C:

(ii) Construction Traffic Management Plan

Construction Stage Traffic Management Plan

Saggart Reservoir Contract

Project Reference J1387

NOTE: The plan is a working document that evolves during the course of the works. As such, it may be amended so as to incorporate any changes in design or work procedures and the various appendices will be supplemented with relevant information as the contract progresses. This plan will be maintained in the main site office where it may be inspected at any time.

Rev	Originator	Approver	Date	Description
00	Pearse Scanlon	Tony Croke	25-05-2021	Rev 00
01	Pearse Scanlon	Tony Croke	09-06-2021	Rev 01
02	Ulick Hannon	Tony Croke	28/01/2022	Rev 02

1.0 PURPOSE

The purpose of this Construction Stage Traffic Management Plan is to detail the Measure Coffey will take to comply with Planning Condition 6 of the Final Planning Decision Ref SD18A/0180.

The measures required relate to Construction Traffic arising from the site and shall be managed in accordance with the plan and with the requirements of SDCC Traffic Section.

Coffey will submit a site-specific Construction Traffic Management Plan to SDCC Traffic Section for written approval.

Coffey commit to carry out the development in accordance with this Traffic Management Plan.

2.0 SUMMARY

Please refer to Appendix A – Saggart – Site Layout – Rev 11.

Appendix A shows the proposed site layout and details measures to be taken to adhere to the requirements of the planning condition.

Please refer to Appendix B – Saggart – Site Fencing Layout

Please refer to Appendix C – J – Traffic Management Plans.

Appendix C to Appendix F details the proposed traffic routes to be taken for site construction traffic for access / egress to the site. The TM drawings detail the routes from both the Castle Road Entrance and the Pairc Mhuire entrance to the N7 and the N81.

Appendix G details the traffic route to be taken for material disposal to the adjacent Tertrach site.

Appendix H details the route to be taken for disposal of material off site only.

3.0 WHEELWASH FACILITIES

A wheel wash will be set up at the Castle Road site entrance. As shown in the Site Layout Drawing.

All trucks leaving site will utilise the wheel wash.

Fig 1 – Wheel being set up on site.

4.0 DUST SUPPRESSION AND NOISE MONITORING

Dust Suppression

As the works will be undertaken in close proximity to a residential area (Saggart Village), all necessary precautions to contain dust arising from excavations and construction works will be taken so as to prevent a nuisance being caused to occupiers of buildings and properties in the vicinity of the works.

During construction best practicable means will be employed to minimise airblown dust being emitted from the site. This will include covering skips and slack heaps, daily washing down of haul routes and the use of wheel washing facilities.

CCIL will sample and test dust levels in accordance with best practice. We will establish at least eight key monitoring points on the site. A report on dust sampling and testing results will be provided to Employer's Representative monthly.

A road sweeper will be on site full time. The road sweeper will be utilized to spray the haul roads to suppress dust and clean the roads at the site entrances.

In periods of extended dry weather additional dust suppression measures may be required. In this event a water bowser will be utilized to on site to suppress the dust.

CCIL will set up noise monitoring stations and record the noise levls throughout construction.

For the period during construction, CCIL will ensure that the impact of noisedue to construction activities is minimized through the use of good site management, plant maintenance and communications with adjoining property owners.

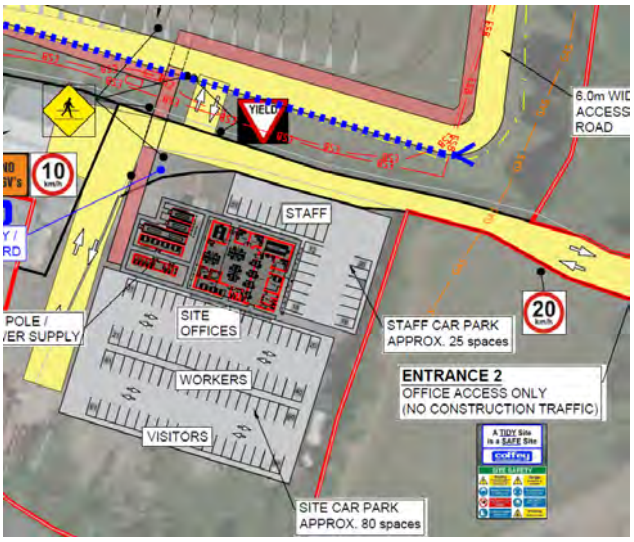
We will engage in local consultation in respect of any noise sensitive location within 30m of the site prior to construction activities commencing.

Sensitive locations will be provided with the following information in advance:

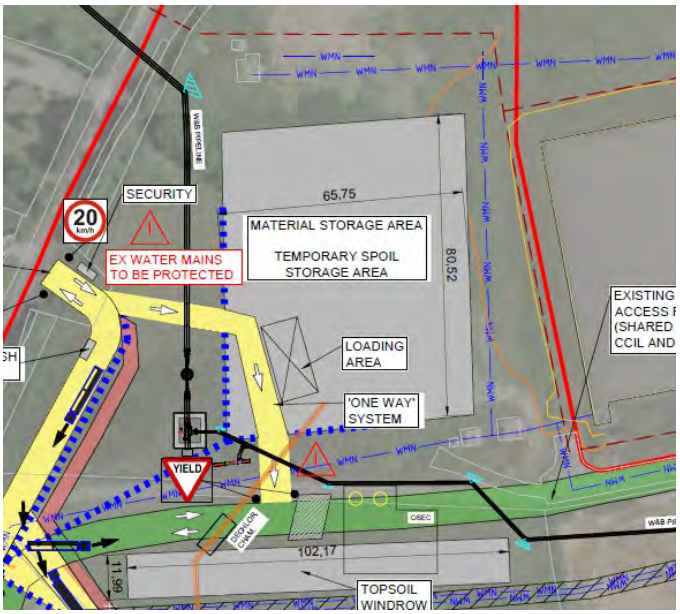
- Schedule of works to include time periods and duration.
- Name and contact details of person nominated to manage noise complaints.
- Hours of operation including any scheduled times for the use of equipment likely to be a source of significant noise.

5.0 SITE WELFARE / PARKING, SITE SET UP

- Site parking facilities will be provided in the Site Compound. This is detailed in Appendix A



- The location of stockpiles, material storage, site welfare is shown in Appendix A.



- Details of security fencing is shown in Appendix B.

6.0 USE AND CONTROL OF SPOIL

The material on site has been analyzed in several locations and is considered inert as per Waste Acceptance Criteria.

In summary the arisings from excavations will be as follows: -

- Total excavation will be c. 150,000m3.
- c.100,000m3 of material will be exported from site to a licensed facility.
- c.50,000m3 will be stored on site in stockpiles in the temporary spoil storage area. Standard stockpile management process will be used for the use and maintenance of the stockpiles.

Hinch's Field

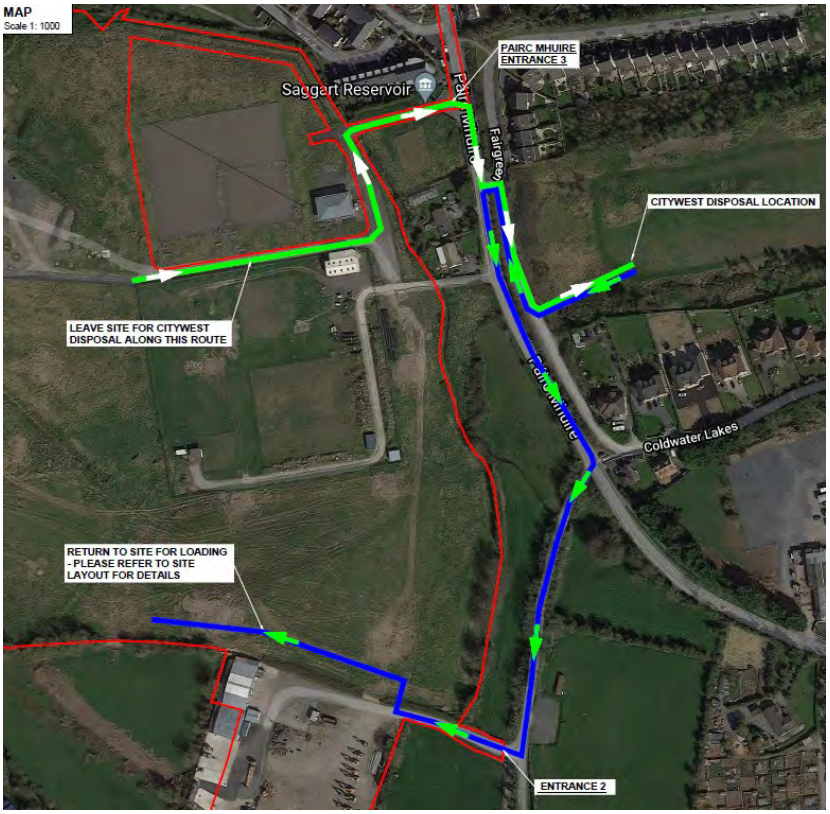
Coffey's are currently preparing a Planning Application for submission to SDCC for the temporary storage and permanent disposal of arisings in the adjacent field. The location of the field is shown in Appendix A. The current proposed volume of material which can be deposited in the field is c. 34,000m3. This would reduce the number of truck movements off site by 4000Nr truck movements.

Tetrarch Capital Development

Coffey have an agreement in principle with Tetrarch Developments to deposit c. 25,000m3 of material to their development in the lands East of Pairc Mhuire. The estimated programme would be 1,000m3 per day, so an expected duration of 25 days. The location of the site is shown below.

Coffey intend to use the existing reservoir entrance for the short haul of approx. 70m across Pairc Mhuire to the site entrance. This would greatly reduce the disruption to Saggart Village and the junctions on the N7. We would put in place flag men to control the traffic on site and where the trucks would cross the road into the Fairgreen estate entrance and have the road sweeper in place.

Please refer to Appendix G for the proposed traffic route.



Hurley's Field

Coffey's are currently preparing a Planning Application for submission to SDCC for the temporary storage and permanent disposal of arisings in the adjacent field. The location of the field is shown in Appendix J. The current proposed volume of material which can be deposited in the field is c. 24,000m3. This would reduce the number of truck movements through Saggart Village by 3000Nr truck movements.

Traffic Management will be non-automated, and that Traffic Management operatives shall supervise the Traffic Management at all times. Road congestion will be monitored during the works and a record of daily checks that the works are being undertaken in accordance with the site specific Construction Traffic Management Plan will be kept for inspection by the Planning Authority.

7.0 TRAFFIC ROUTES / QUEING TRAFFIC

The proposed Traffic Management routes for materials delivered to site and export of arisings off site are detailed in Appendix C to Appendix I. The main construction access will be on Castle Road with traffic routes to the N81 and the N7. A second alternative access using the existing gate on Pairc Mhuire is also detailed.

The traffic routes will be advised to the material suppliers and included within our purchase order with them. We will also advise the suppliers to avoid deliveries during peak times to minimize congestion.

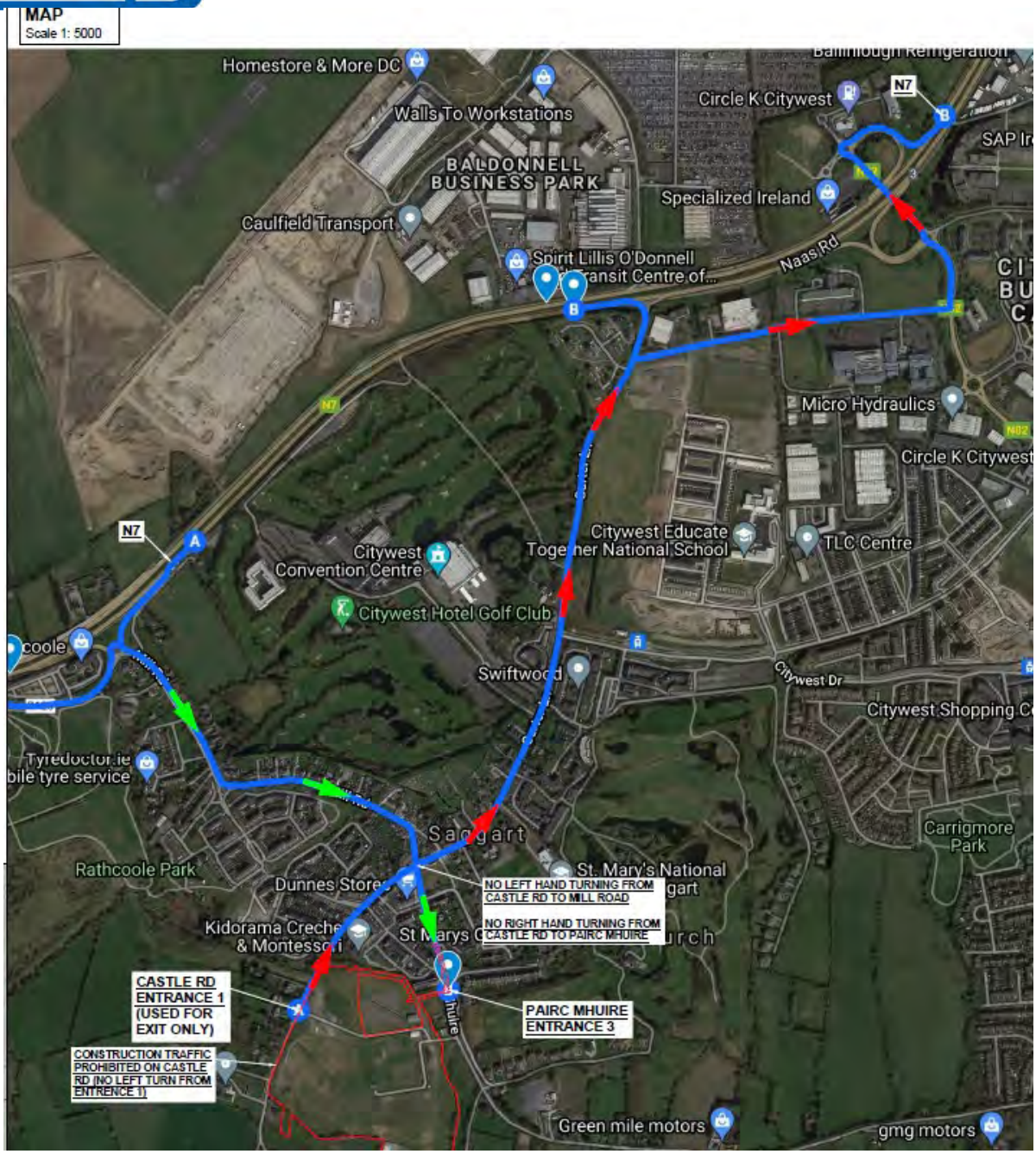
The main bulk off material on / off site is the disposal of the excavated material, which requires the disposal of c.100,000m3 of material off site or 11,764 Nr truck movements. As above 25,000m3 will be going to the adjacent Tetrarch site, 24,000m3 to Hurley's field, 34,000m3 to Hinch's field and the remaining balance going to licensed facilities further afield. It is expected that most of this traffic will access and exit using the N7.

Appendix H shows the proposed route which would effectively be a 1-way system in and out of the site. Trucks accessing the site from the N7 would use the Rathcoole junction and travel up Mill Road onto Pairc Mhuire, going straight through the junction in the village. Traffic existing the site will turn right onto Castle road and down Garter Lane to the N7 junction at Citywest.

This splits the traffic numbers equally at two separate junctions and avoids any turns at the junction in the village.

It also avoids the passing of any trucks on the road network and greatly reduces congestion and the also avoids trucks meeting at the site entrance or the junction in the village. The is a very important safety control.

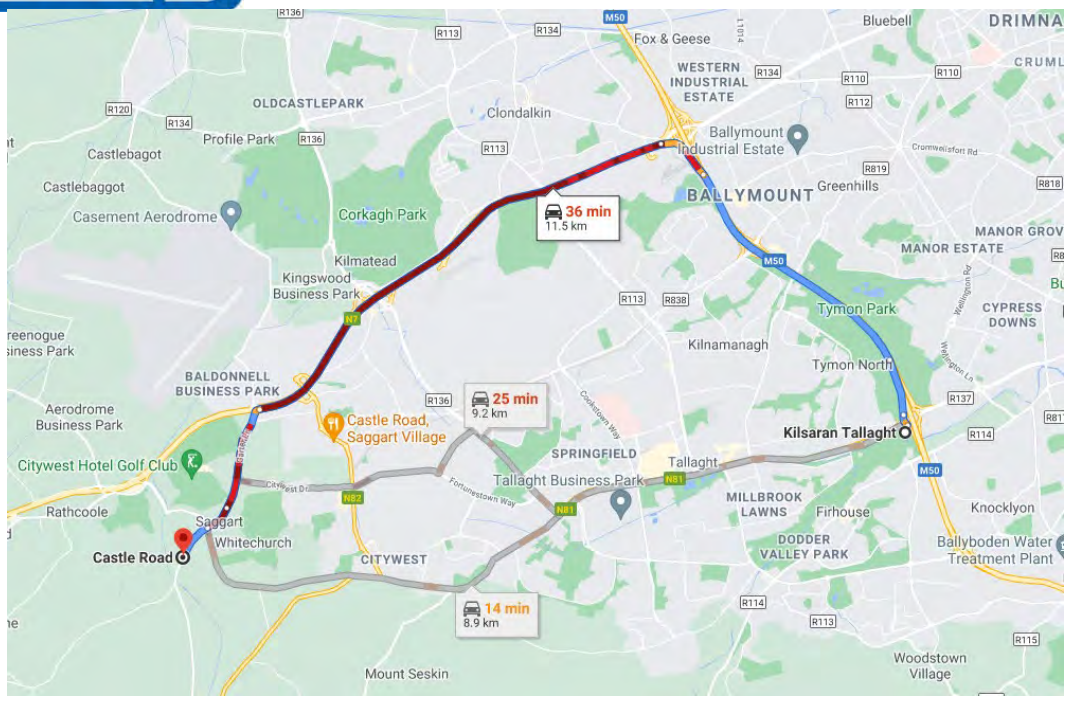
When arisings are being taken from site the trucks will be loaded to provide a 10-minute gap between each truck as they leave site. The gate man will monitor this.



8.0 DELIVERIES

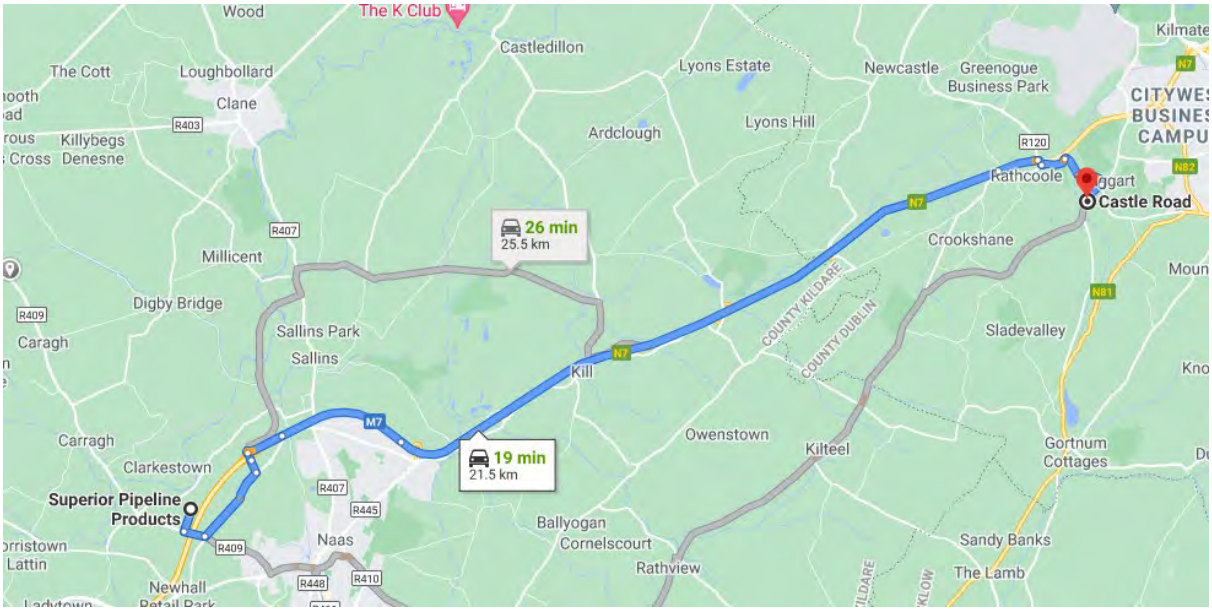
Concrete Deliveries

- 26,000m3 of concrete to be delivered = 3058 truck movements
- The concrete will be delivered from Tallaght Batching plant
- 20Nr Reservoir Base pours @ 650m3 each = 80Nr trucks per day for each base slab pour
- This will require an early start with first delivery at 6am.



Pipelines Deliveries

- Pipeline materials are being delivered from our supplier SPP in Naas.
- Phase 1 Delivery June'21 – 25Nr truck movements over 1 week period
- Phase 2 Delivery Mar'21 to Seb '22 – 100Nr truck movements



9.0 COMMUNICATIONS

All issues (such as monitoring, complaints, or incidents) specific to the project will be recorded and communicated to Irish Water. All communication records will be documented in theEnvironmental File and recorded in the CCIL Site Correspondence Log on the server for receiving,documenting, and responding to communications (internal and external) from relevant interested parties concerning the sites, project and contract environmental effects and management.

Appendix A – - Saggart - Site Layout - REV 7
Appendix B - Saggart - Site Fencing - REV3
Appendix C - J1387-TM-002 - N7 - Castle Rd rev2
Appendix D - J1387-TM-003 - N7 - Pairc Mhuire rev2
Appendix E - J1387-TM-004 - N81 - Castle Rd rev2
Appendix F - J1387-TM-005 - N81 - Pairc Mhuire rev2
Appendix G - J1387-TM-007 - Citywest Material Disposal
Appendix H - J1387-TM-008 - N7 Material Disposal
Appendix I - J1387-TM-006 - Saggart CTM Site Entrances
Appendix J – J1387- TM – 010 – P. Hurley

DETAIL 1 - VEHICLE CLEANSING

- Automated wheel wash station will be located adjacent to main site entrance
- Maintenance at regular basis (visual inspection every week, records of inspections kept in site office)
- In case of changes required to site layout, wheel wash station will be relocated to alternative site entrance
- All water from the unit will be desilted via settlement pond prior to discharge

DETAIL 2 - DUST SUPPRESSION & ROAD SWEEPER

- Road sweeper available on site when required
- Road sweeper will be used to provide dust suppression during extended dry weather periods
- Dust monitoring station (8no.) to monitor effectiveness
- Road sweeper will be used to clean out gullies within 200m of site entrances.

DETAIL 3 - SECURITY FENCING

- Panels 3.45m wide x 2m tall
- All panels double clipped
- Panels set up as triangle shape every 4 panels to ensure stability
- Regular inspections of the fencing every week
- HERAS Panel fencing erected where there is no existing fence
- Signing will be installed as identified and required by CCIL.

DETAIL 4 - GATES

- Automated Gate will be erected at ENTRANCE 2 to Site Compound
- Access gates at ENTRANCE 2 & 3 will be manually operated.
- Please refer to plan for location.

DETAIL 5 - SILT FENCING

- Silt fencing will be erected where there is a risk of water runoff from site to adjacent watercourses.
- Please refer to plan for location.
- Where higher effectives of the silt fence is required, 2no. lines of the fence will be erected. Bales of straw will be used to help with filtration.

SITE LAYOUT
Scale 1:1000 (A1)

ENTRANCE 1
CASTLE RD
CONSTRUCTION SITE ENTRANCE

ENTRANCE 3
PAIRC MHUIRE
SHARED ACCESS FOR CCIL/SDCC/DCC (ALTERNATIVE ACCESS WHEN REQUIRED)

EX WATER MAINS TO BE PROTECTED

MATERIAL STORAGE AREA
TEMPORARY SPOIL STORAGE AREA
65,75
80,52

SECURITY

EXISTING SITE ACCESS ROAD (SHARED BETWEEN CCIL AND DCC)

WHEEL WASH DETAIL 1

WAB PIPELINE

102,17
13,99
TOPSOIL WINDROW

EX CONCRETE PROTECTION SLAB TO BE UTILISED

INITIAL STORAGE AREA PIPES & 20FT CONTAINERS
29,33
16,32

ATTENUATION TANK

FITTINGS AND ASSEMBLY AREA

SITE DISPLAY / NOTICE BOARD

PROPOSED BYPASS PIPEWORK

MAIN RESERVOIR ACCESS POINT TO CELL 1 & INLET VALVE HOUSE (VEHICULAR)

TEMP. HAUL RD CLOSURE CRASH BARRIERS

HAUL ROAD DIVERSION

1600DIA TEE CONNECTION WORKS LOCATION

CONTORL VALVE

6.0m WIDE ACCESS ROAD

TEMPORARY SETTLEMENT POND AREA

ESB UNDERGROUND CABLE TO BE MARKED AND PROTECTED IF REQUIRED.

ESB UNDERGROUND CABLE AND HIGH PRESSURE GAS MAIN TO BE MARKED AND PROTECTED IF REQUIRED.

70 BAR GAS

ESB

FENCING PROTECTION TO EXISTING SERVICES

PEDESTRIAN ACCESS

HEADWALL
IL: 132.25m

FLUVIAL FLOOD AREA

ESB PROTECTION

NO PEDESTRIAN ACCESS

SITE STORES

FILL AREA

NO HGV's

STAFF

SITE OFFICES

WORKERS

VISITORS

STAFF CAR PARK APPROX. 25 spaces

SITE CAR PARK APPROX. 80 spaces

ESB POLE / POWER SUPPLY

TEMP. ACCESS TO FILL AREA

LIAM HINCH FIELD

ENTRANCE 2
OFFICE ACCESS ONLY
(NO CONSTRUCTION TRAFFIC)

CF-QA-154(12)

NOTES:
1. ALL DIMENSIONS ARE IN METRES (mm) UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES AND RELATE TO THE ORDNANCE SURVEY DATUM MALIN HEAD (m) UNLESS NOTED OTHERWISE.
3. ENSURE THIS DRAWING IS THE RELEVANT REVISION AND READ IN CONJUNCTION WITH ALL RELEVANT DOCUMENTS.
4. TO BE VIEWED ON A1 PAPER SIZE.

KEY / SYMBOLS:

- SITE BOUNDARY / FENCE
- SURFACE WATER DRAIN
- FILTER DRAIN
- SILT FENCE
- ESB
- 70bar GAS MAIN
- SITE ACCESS RD
- PEDESTRIAN ACCESS
- EXISTING SITE ACCESS RD
- FILL AREA

NOTES:
1. All excavated spoil material to be stored at designated locations only (see layout - bunded area) and sealed. Minimum distance from the site boundary to be kept.
2. For Waste Management please refer to Waste Management File.
3. All site gates to be set back min 6m from edge of carriageway to avoid queuing construction traffic on public road.
4. ESB underground cable and high pressure gas main to be marked and protected if required.
5. TMP to be read in conjunction with the CCIL Waste Management Plan and Construction Environmental Plan

SITE TEAM CONTACT DETAILS:

Anthony Croke - Contracts Manager
Phone: +353 86 387 4495
Email: acroke@coffeygroup.com

Pearse Scanlon - Project Manager
Phone: +353 86 8509045
Email: pscanlon@coffeygroup.com

REV.	DESCRIPTION	DATE	BY	CHECK
11	ACCESS RD. UPDATE	06/12/21	PW	AC
10	ACCESS TO L. HINCH	14/10/21	PW	AC
09	DRAINAGE & RD LAYOUT	17/06/21	PW	AC
08	MINOR AMENDMENTS 3	25/05/21	PW	AC
07	CON. SLAB, SET. POND	09/05/21	PW	AC
06	PROP. STRUCTURES ADD.	24/04/21	PW	AC
05	SITE OFFICE CHANGED	21/04/21	PW	AC
04	MINOR AMENDMENTS 2	26/03/21	PW	AC
01	FOR INFORMATION	12/02/21	PW	AC

APPROVED BY:	AC	SIGNED:	DATE: 06/12/21
CHECKED BY:	PS	SIGNED:	DATE: 06/12/21
DRAWN BY:	PW	SIGNED:	DATE: 06/12/21

CLIENT:
IRISH WATER
COLVIL HOUSE,
24-26 TALBOT STREET,
MOUNTJOY,
DUBLIN 1. D01 NP86

CLIENT'S REPRESENTATIVE:

CONTRACTOR:
Athenry,
Co. Galway
Tel: 091-844356
Fax: 091-844519
Web: www.coffeygroup.com

PROJECT:
SAGGART RESERVOIR
DESIGN AND BUILT CONTRACT

PROJECT NO.:
J1387

TITLE:
SITE LAYOUT
GENERAL ARRANGEMENT

STATUS:
FOR INFORMATION

DRAWING NO.: J1387-CCL-10-SL-DR-001

REVISION: 11

FENCE TYPE 1 - SECURITY FENCING

- Panels 3.45m wide x 2m tall
- All panels double clipped
- Panels set up as triangle shape every 4 panels to ensure stability
- HERAS Panel fencing erected where there is no existing fence

FENCE TYPE 1

TOTAL LENGTH: 890.0 m

FENCE TYPE 2 - POST & WIRE

- Post & Wire fence erected where there is no existing fence. Please refer to Plan.

FENCE TYPE 2

TOTAL LENGTH: n/a

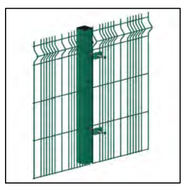
FENCE TYPE 3 - SILT FENCING

- Silt fencing will be erected where there is a risk of water runoff from site to adjacent watercourses.
- Please refer to plan for location.
- Where higher effectives of the silt fence is required, 2no. lines of the fence will be erected. Bales of straw will be used to help with filtration.

FENCE TYPE 3 - SILT FENCE

TOTAL LENGTH: 595.0 m

FENCE TYPE 4 - PALLADINE FENCING



- Please refer to plan for location.

FENCE TYPE 4 - EXISTING
FENCE TYPE 4 - PROPOSED

TOTAL LENGTH: 147.0m (for site compound)

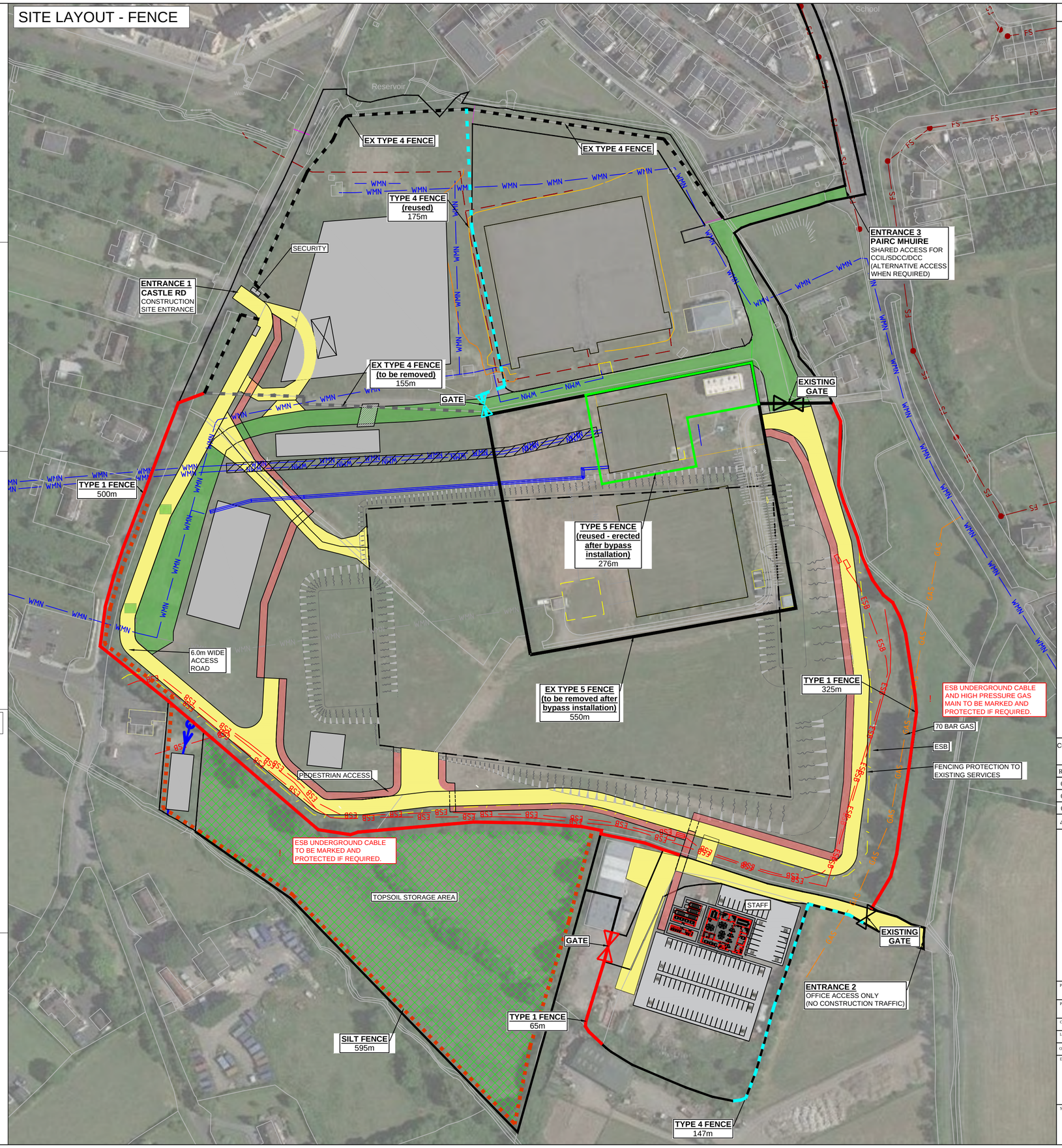
FENCE TYPE 5 - PALISADE FENCING

- Please refer to plan for location.

FENCE TYPE 5 - EXISTING
FENCE TYPE 5 - PROPOSED

TOTAL LENGTH: n/a all reused

SITE LAYOUT - FENCE



COFFEY QUALITY FORM – CF–QA–162(03) – 15/8/12

All dimensions in meters.
SCALE 1:1500 @A2

KEY / SYMBOLS:

- ESB — ESB
- GAS — GAS — 70bar GAS MAIN
- SITE ACCESS RD
- PEDESTRIAN ACCESS
- EXISTING SITE ACCESS RD
- MATERIAL STORAGE AREA

EX FENCING:

- SITE BOUNDARY / EX FENCE

PROPOSED FENCING:

- FENCE TYPE 1
- FENCE TYPE 2
- FENCE TYPE 3 - SILT FENCE
- FENCE TYPE 4 - EXISTING
- FENCE TYPE 4 - PROPOSED
- FENCE TYPE 5 - EXISTING
- FENCE TYPE 5 - PROPOSED

NOTES:

1. All dimensions in meters [m].

REV	DATE	DESCRIPTION	DRAW	CHK2	CHK2	APPR
03	26/04/21	MINOR CHANGES	PW	PS	-	AC
02	24/04/21	DETAILS ADDED	PW	PS	-	AC
01	19/04/21	FOR INFROMATION	PW	PS	-	AC

△ REVISIONS

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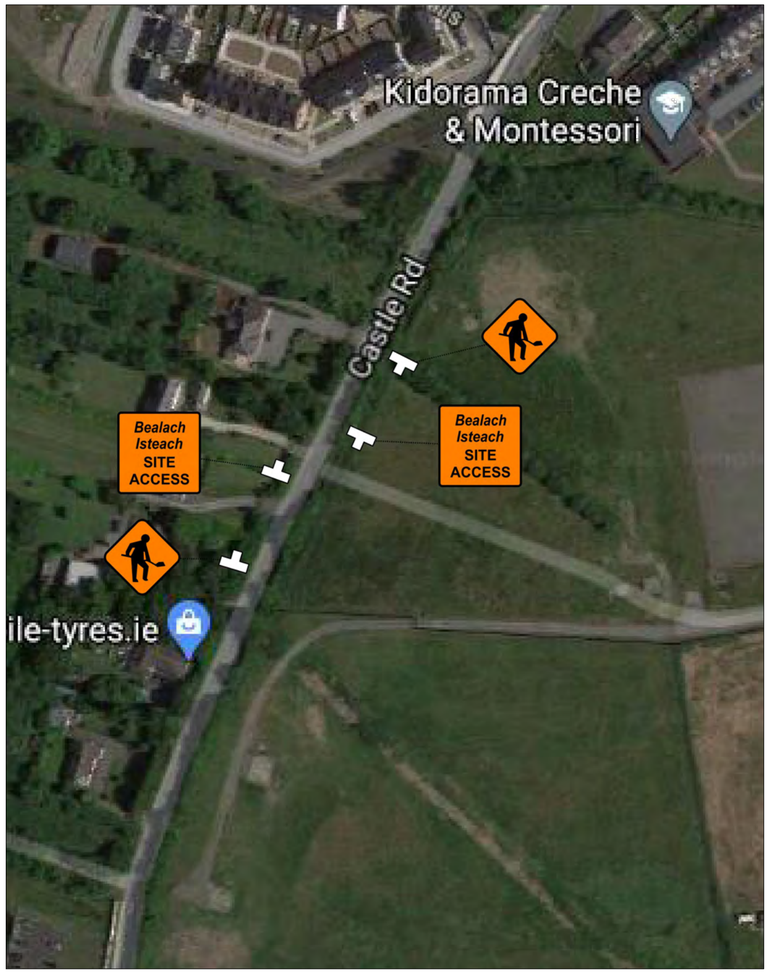
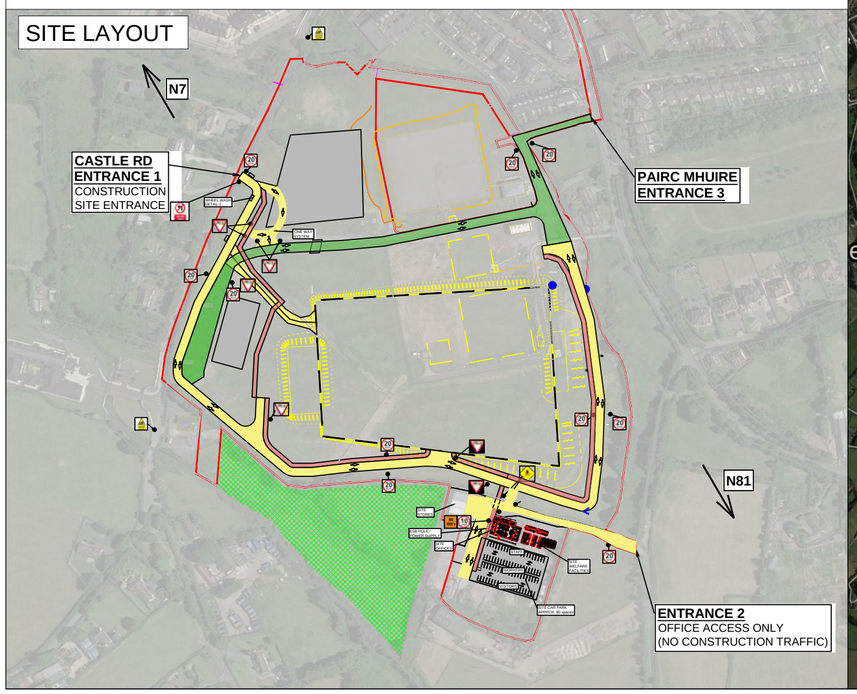
PROJECT No:	J1387
PROJECT TITLE:	ULVSS_2B
CLIENT:	IRISH_WATER
LOCATION:	SAGGART_RESERVOIR_PROJECT
ORIGINATOR:	AC 19/04/21
DRAWN BY:	PW 19/04/21
DRAWING TITLE:	SAGGART_RESERVOIR_PROJECT SITE_LAYOUT FENCING
SHEET SIZE:	A2
DRAWING No:	1
REV:	03
CAD FILE: FILE NO.	
SCALE:	1:1500

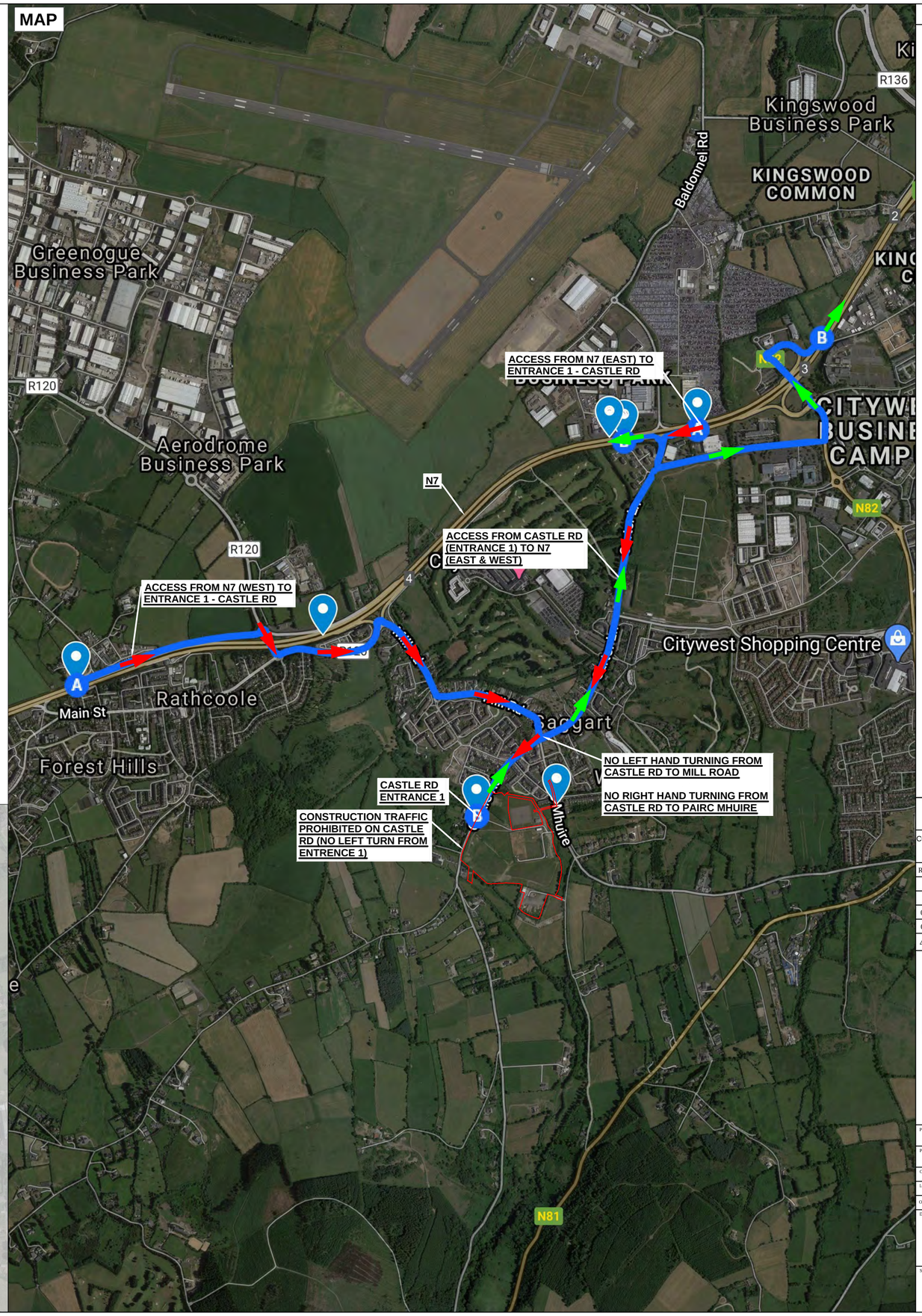
SITE ENTRANCE - TM PLAN



SITE LAYOUT



MAP



All dimensions in meters.
SCALE 1:4000 @A2

NOTES:

1. TMP to be read in conjunction with the CCIL Waste Management Plan and Construction Environmental Plan

KEY / SYMBOLS:

- SITE ACCESS RD
- PEDESTRIAN ACCESS
- EXISTING ACCESS RD
- MATERIAL STORAGE AREA

SITE TEAM CONTACT DETAILS:

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REV	DATE	DESCRIPTION	DRAW	CHK2	CHK2	APPR
02	26/02/21	AS PER COMMENTS	PW	PS	-	AC
01	12/02/21	FOR INFROMATION	PW	PS	-	AC

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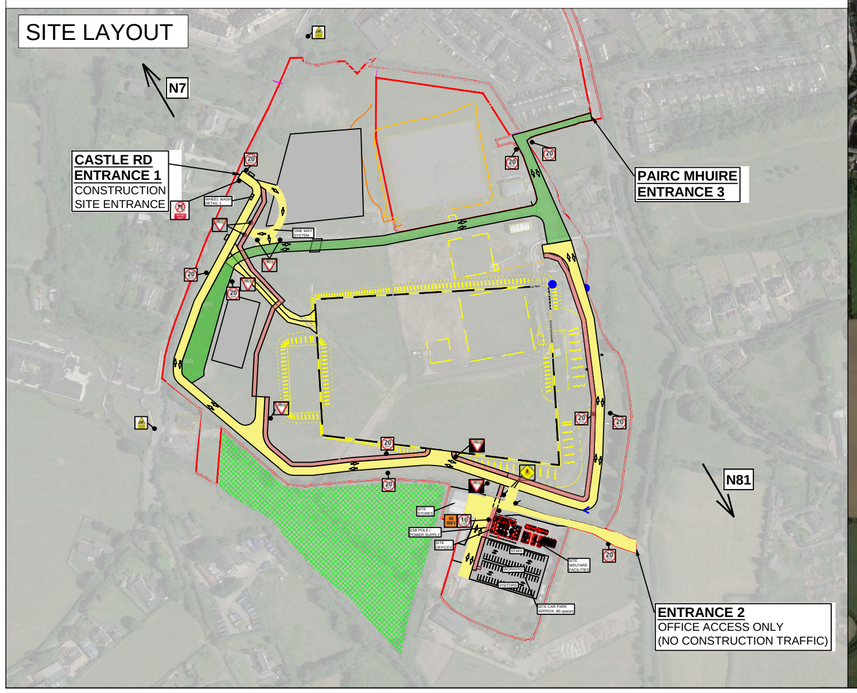
PROJECT No:	J1387				
PROJECT TITLE:	ULVSS_2B				
CLIENT:	IRISH_WATER				
LOCATION:	SAGGART_RESERVOIR_PROJECT				
ORIGINATOR:	AC	16/02/20	DRAWN BY:	PW	16/02/20

DRAWING TITLE: SAGGART_RESERVOIR_PROJECT CONS._STAGE_TRAFFIC_MANAGEMENT_PLAN N7_-_CASTLE_RD_ENTRANCE

SHEET SIZE:	DRAWING No:	REV:
A2	J1387-TM-002	02
	CAD FILE: FILE NO.	SCALE: 1:4000

SITE ENTRANCE - TM PLAN

SITE LAYOUT



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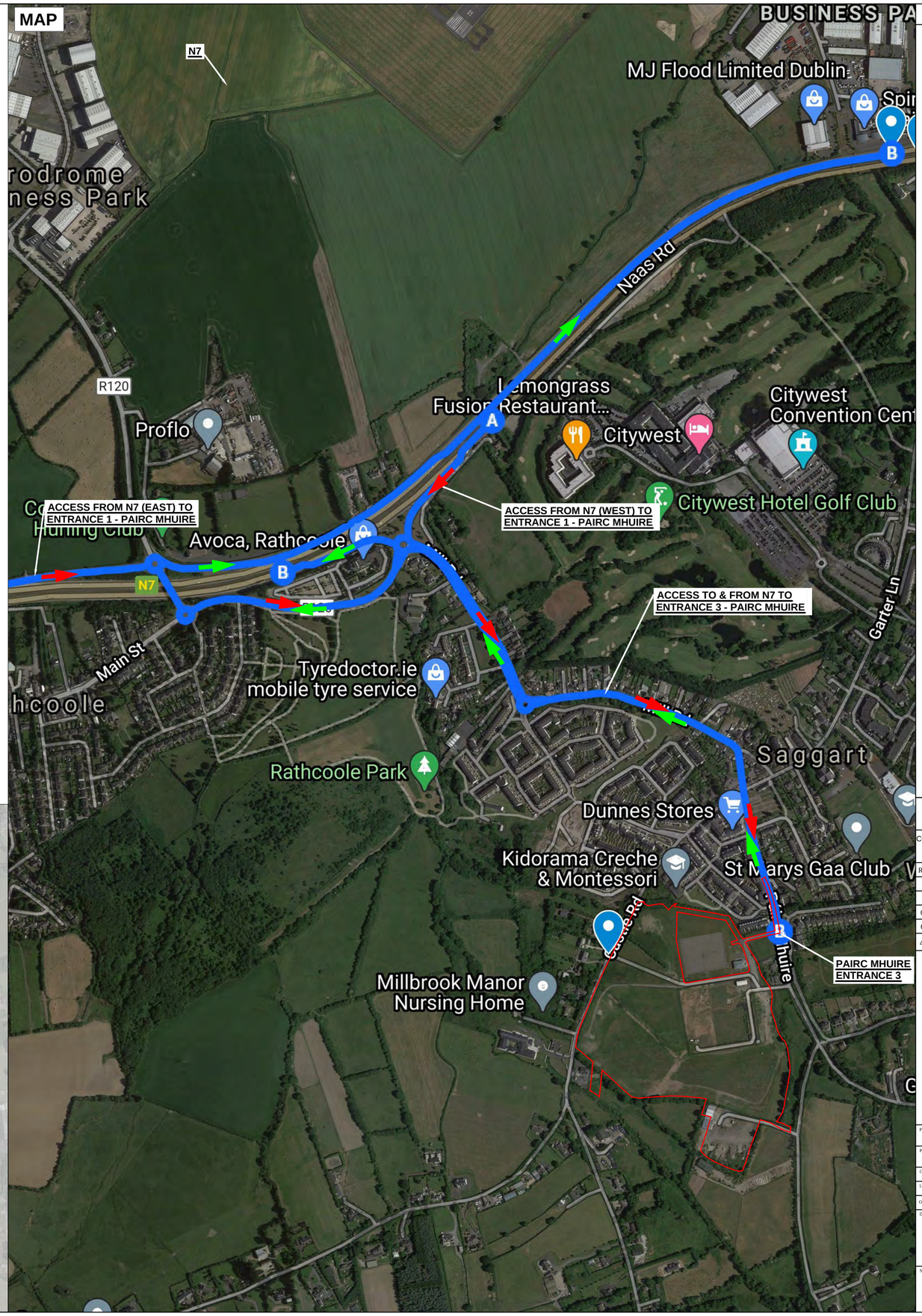

All dimensions in meters.
SCALE 1:4000 @A2

ENTRANCE 3 - PAIRC MHUIRE

NOTES:

1. TMP to be read in conjunction with the CCIL Waste Management Plan and Construction Environmental Plan

KEY / SYMBOLS:

- SITE ACCESS RD
- PEDESTRIAN ACCESS
- EXISTING ACCESS RD
- MATERIAL STORAGE AREA

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01	12/02/21	FOR INFROMATION	PW	PS	-	AC

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PROJECT No:	J1387
PROJECT TITLE:	ULVSS_2B
CLIENT:	IRISH_WATER
LOCATION:	SAGGART_RESERVOIR_PROJECT

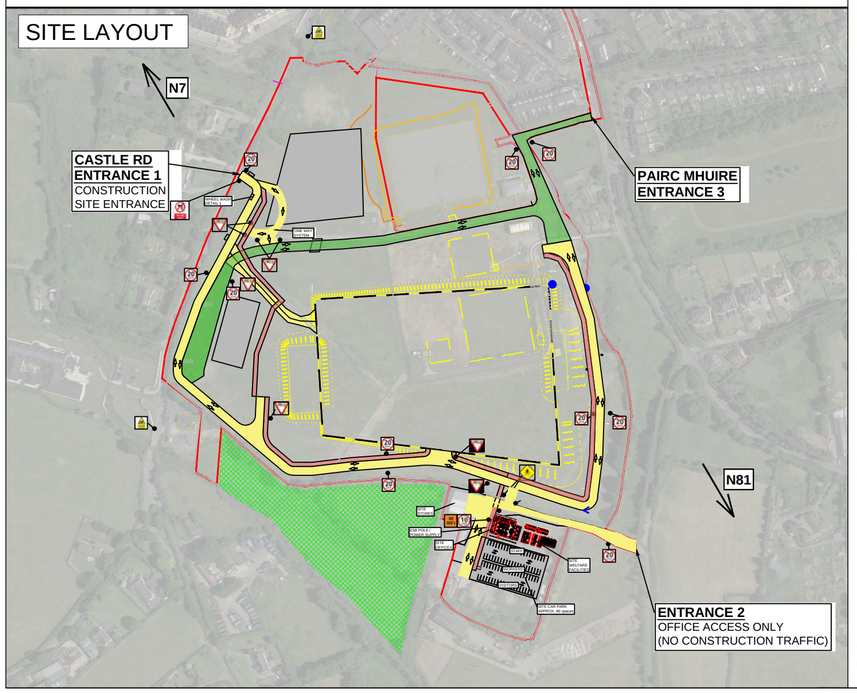
ORIGINATOR:	AC	16/02/20	DRAWN BY:	PW	16/02/20

DRAWING TITLE:
SAGGART_RESERVOIR_PROJECT
CONS._STAGE_TRAFFIC_MANAGEMENT_PLAN
N7_-_PAIRC_MHUIRE_ENTRANCE

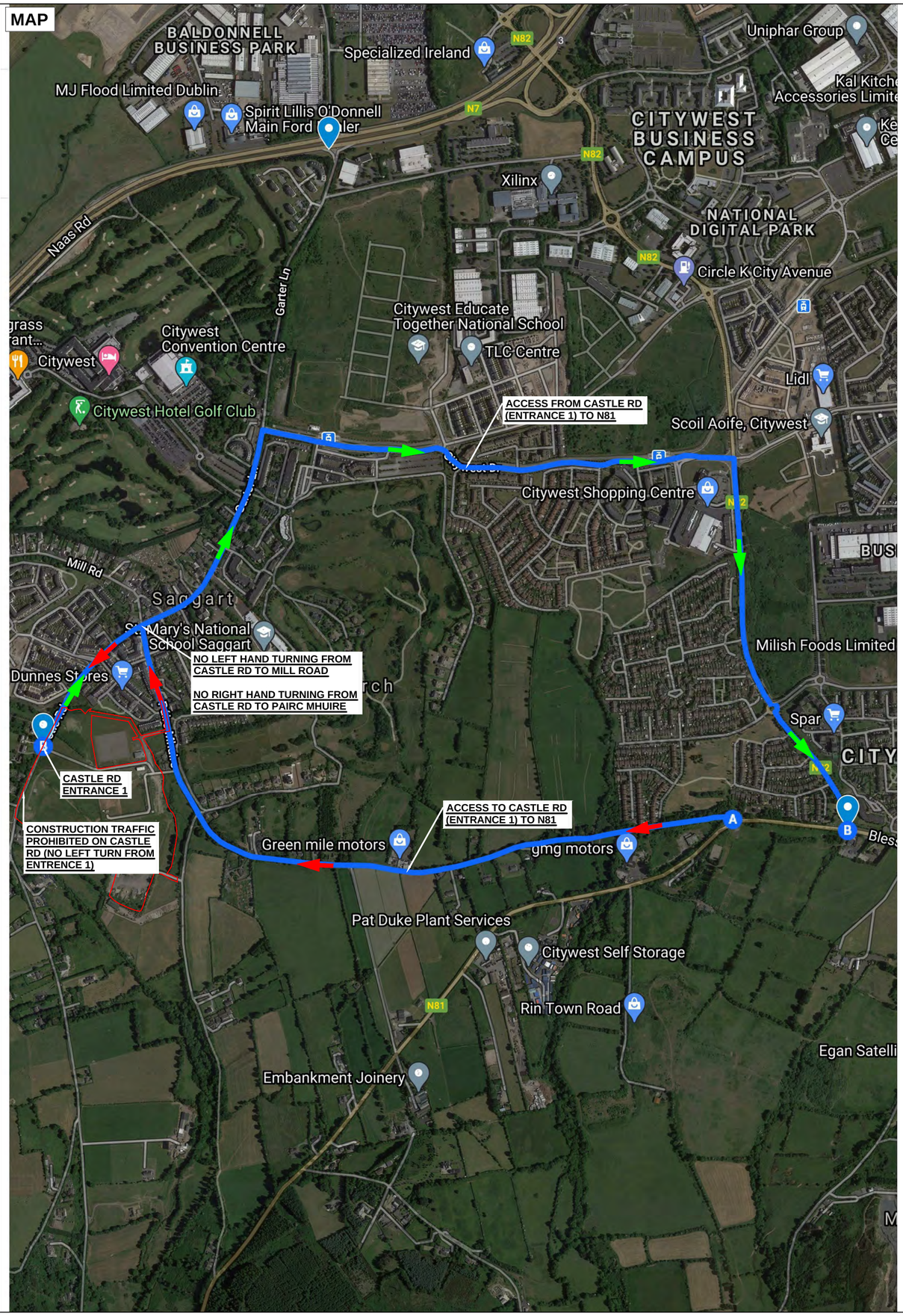
SHEET SIZE:	DRAWING No:	REV:
A2	J1387-TM-003	02
	CAD FILE: FILE NO:	SCALE: 1:4000

SITE ENTRANCE - TM PLAN

SITE LAYOUT



MAP



COFFEY QUALITY FORM – CF–QA–162(03) – 15/8/12

All dimensions in meters.

NOTES:

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- PEDESTRIAN ACCESS
- EXISTING ACCESS RD
- MATERIAL STORAGE AREA

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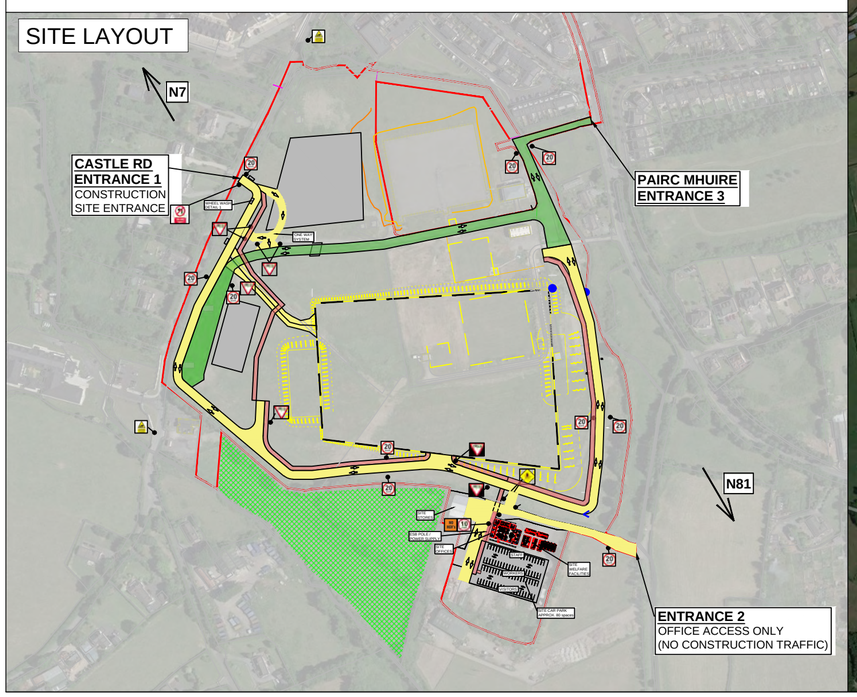
PROJECT TITLE:	ULVSS_2B				
CLIENT:	IRISH_WATER				
LOCATION:	SAGGART_RESERVOIR_PROJECT				
ORIGINATOR:	AC	16/02/20	DRAWN BY:	PW	16/02/20

DRAWING TITLE: SAGGART_RESERVOIR_PROJECT CONS._STAGE_TRAFFIC_MANAGEMENT_PLAN N81_-_CASTLE_RD_ENTRANCE

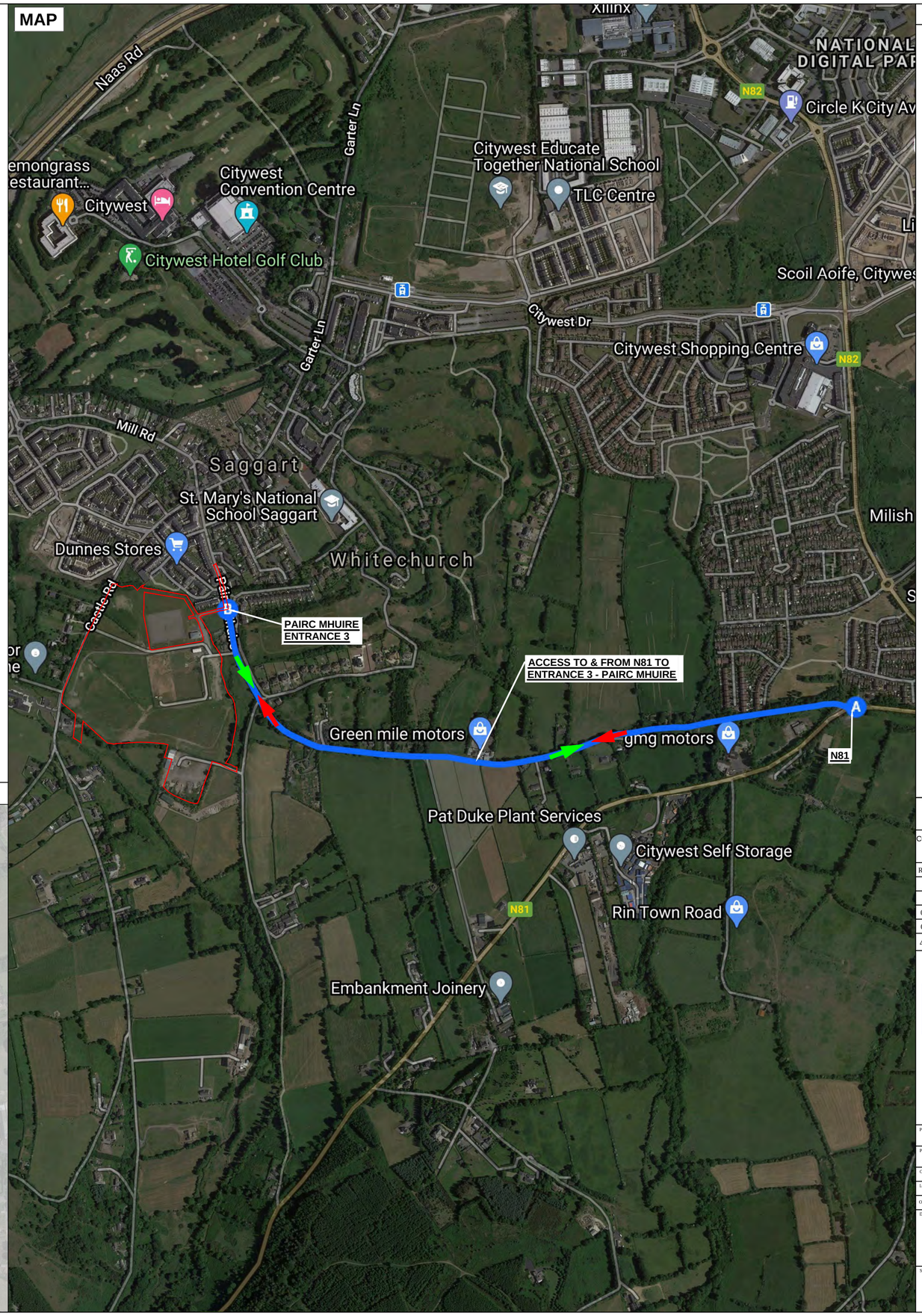
SHEET SIZE:	DRAWING No:	REV:
A2	J1387-TM-004	01
	CAD FILE:	SCALE: 1:4000

SITE ENTRANCE - TM PLAN

SITE LAYOUT



MAP



COFFEY QUALITY FORM – CF–QA–162(03) – 15/8/12

All dimensions in meters.
SCALE 1:4000 @A2

ENTRANCE 3 - PAIRC MHUIRE

NOTES:

1. TMP to be read in conjunction with the CCIL Waste Management Plan and Construction Environmental Plan

KEY / SYMBOLS:

- SITE ACCESS RD
- PEDESTRIAN ACCESS
- EXISTING ACCESS RD
- MATERIAL STORAGE AREA

SITE TEAM CONTACT DETAILS:

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REV	DATE	DESCRIPTION	DRAW	CHK2	CHK2	APPR
02	26/02/21	AS PER COMMENTS	PW	PS	-	AC
01	12/02/21	FOR INFROMATION	PW	PS	-	AC

△ REVISIONS

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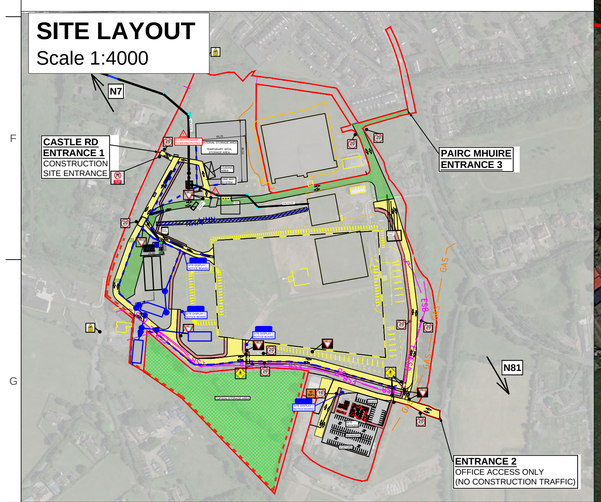
PROJECT No:	J1387
PROJECT TITLE:	ULVSS_2B
CLIENT:	IRISH_WATER
LOCATION:	SAGGART_RESERVOIR_PROJECT
ORIGINATOR: AC 16/02/20	DRAWN BY: PW 16/02/20
DRAWING TITLE:	SAGGART_RESERVOIR_PROJECT CONS._STAGE_TRAFFIC_MANAGEMENT_PLAN N81_-_PAIRC_MHUIRE_ENTRANCE
SHEET SIZE: A2	DRAWING No: J1387-TM-005
REV:	02
CAD FILE: FILE NO.	SCALE: 1:4000

SITE ENTRANCES - TM PLANS

ENTRANCE 3 - PAIRC MHUIRE

ENTRANCE 1 - CASTLE RD

SITE LAYOUT
Scale 1:4000



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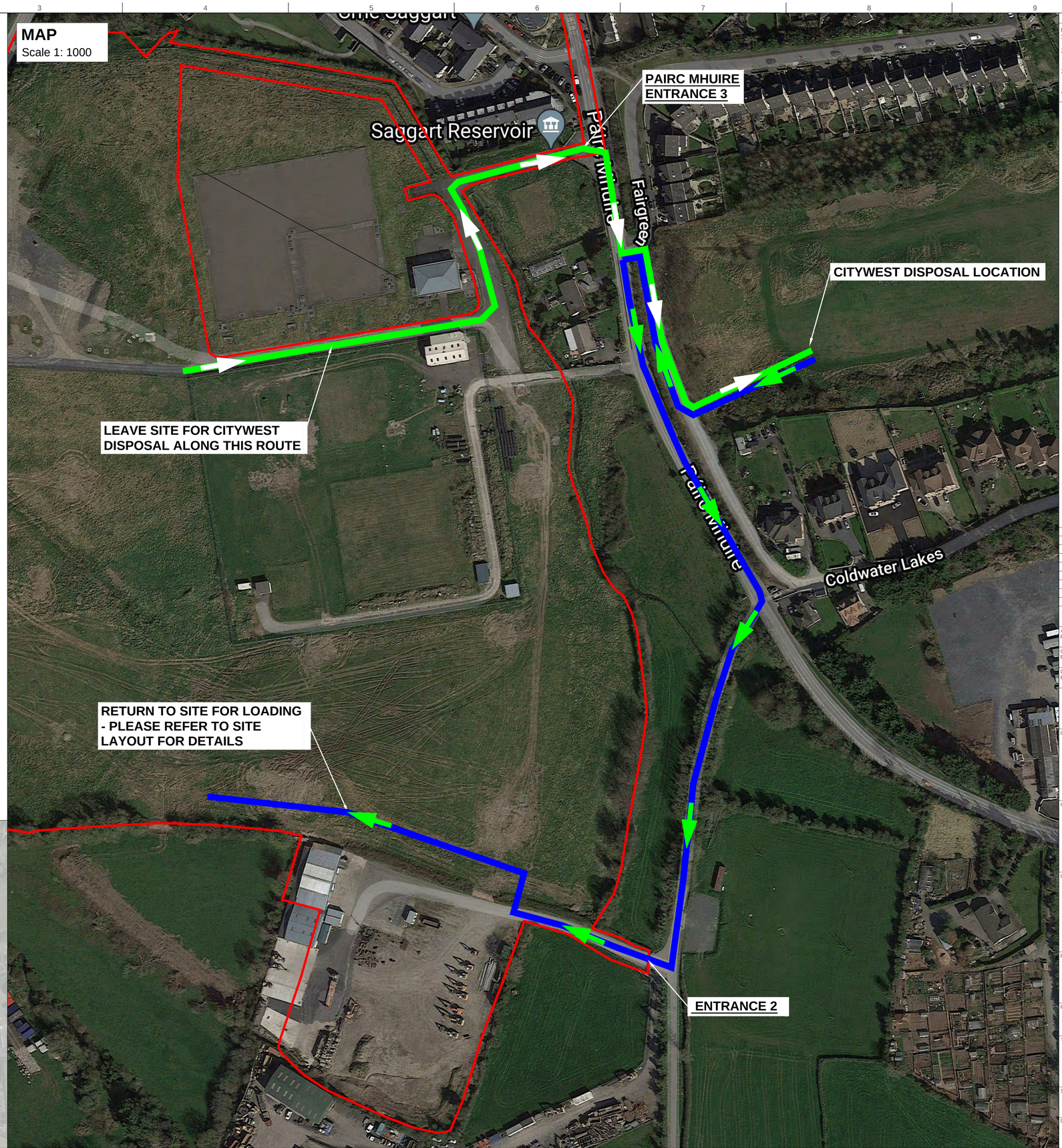

CF-QA-154(12)

NOTES:
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ENTRANCE 3 - PAIRC MHUIRE

KEY / SYMBOLS:

- SITE BOUNDARY / FENCE
- SITE ACCESS RD
- PEDESTRIAN ACCESS
- EXISTING SITE ACCESS RD
- MATERIAL STORAGE AREA

NOTES:
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REV.	DESCRIPTION	DATE	BY	CHECK
01	FOR INFORMATION	09/06/21	PW	AC

APPROVED BY:	AC	SIGNED:	DATE: 09/06/21
CHECKED BY:	PS	SIGNED:	DATE: 09/06/21
DRAWN BY:	PW	SIGNED:	DATE: 09/06/21

CLIENT:
UISCE ÉIREANN : IRISH WATER
IRISH WATER
COLVIL HOUSE,
24-26 TALBOT STREET,
MOUNTJOY,
DUBLIN 1. D01 NP86

CLIENT'S REPRESENTATIVE:
rps

CONTRACTOR:
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Fax: 091-844519
Web: www.coffeygroup.com

PROJECT:
SAGGART RESERVOIR
DESIGN AND BUILT CONTRACT

PROJECT NO.:
J1387

TITLE:
CONSTRUCTION STAGE TM PLAN
CITYWEST MATERIAL DISPOSAL

STATUS:
FOR INFORMATION

DRAWING NO.: J1387-TM-007

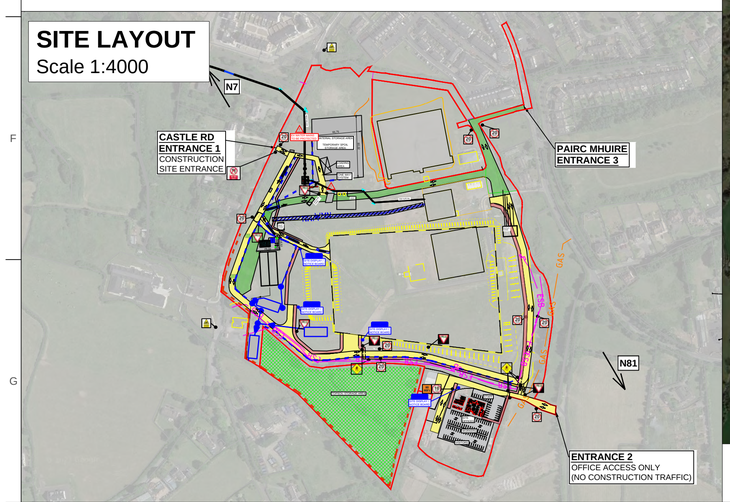
REVISION: 01

SITE ENTRANCES - TM PLANS

ENTRANCE 3 - PAIRC MHUIRE

ENTRANCE 1 - CASTLE RD

SITE LAYOUT
Scale 1:4000



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CF-QA-154(12)

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ENTRANCE 3 - PAIRC MHUIRE

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- PEDESTRIAN ACCESS
- EXISTING SITE ACCESS RD
- MATERIAL STORAGE AREA

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REV.	DESCRIPTION	DATE	BY	CHECK
01	FOR INFORMATION	09/06/21	PW	AC

APPROVED BY:	AC	SIGNED:	DATE: 09/06/21
CHECKED BY:	PS	SIGNED:	DATE: 09/06/21
DRAWN BY:	PW	SIGNED:	DATE: 09/06/21

CLIENT:
IRISH WATER
COLVIL HOUSE,
24-26 TALBOT STREET,
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DUBLIN 1. D01 NP86

CLIENT'S REPRESENTATIVE:

CONTRACTOR:
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PROJECT:
SAGGART RESERVOIR
DESIGN AND BUILT CONTRACT

PROJECT NO.:
J1387

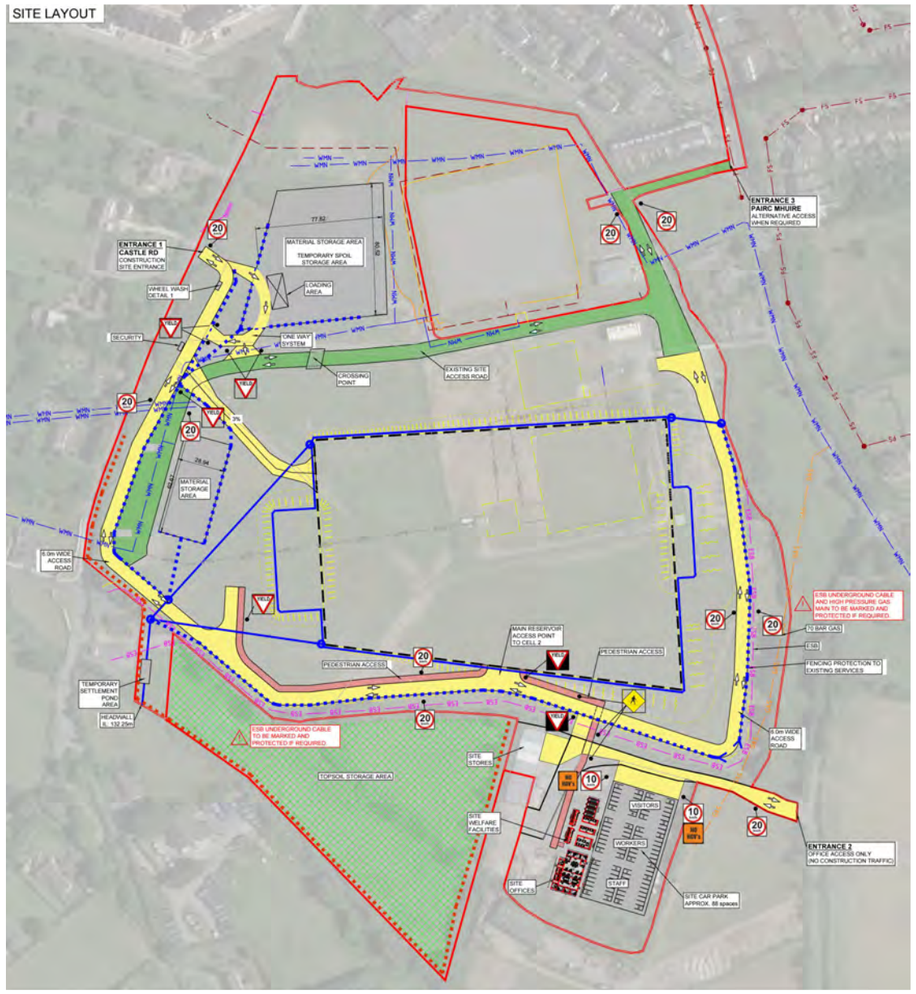
TITLE:
CONSTRUCTION STAGE TM PLAN
N7 MATERIAL DISPOSAL ONLY ROUTE

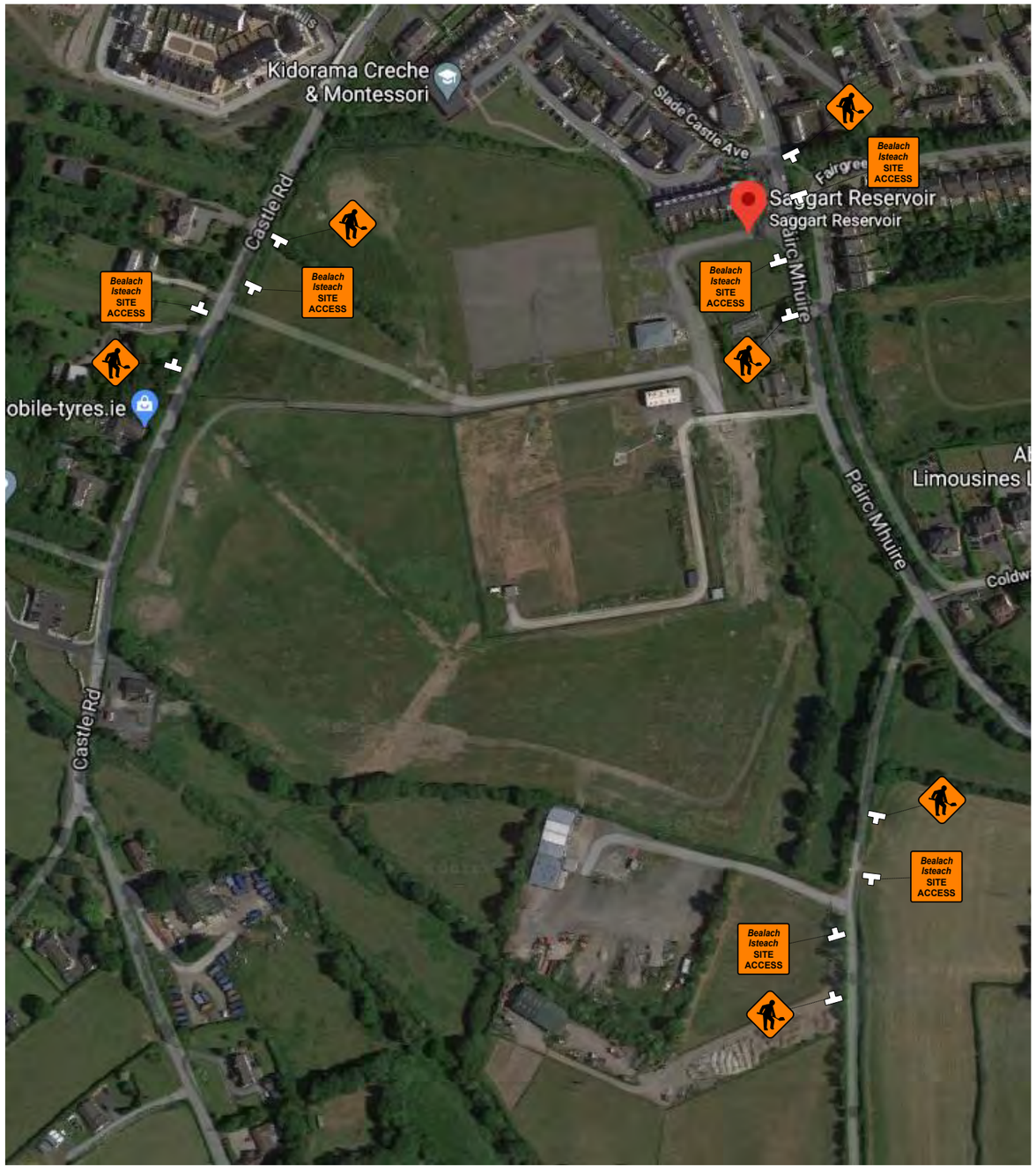
STATUS:
FOR INFORMATION

DRAWING NO.: J1387-TM-008

REVISION: 01

SITE LAYOUT





GENERAL NOTES:

1) All works to be carried out in accordance with the latest revisions of Chapter 8 of the Traffic Signs Manual and the Temporary Traffic Management Operations Guidance.

2) The Temporary traffic management plan may only be implemented by a qualified Temporary Traffic Operations Supervisor (TTOS). The TTOS is to be in possession of the relevant CSCS signing lighting and guarding at road works card.

3) TTOS shall be available at all times when traffic management is in operation. Designated personnel to hold Health and Safety at Road Works CSCS card if applicable.

4) Inspections of the traffic management layout are to be carried out on a daily basis to ensure the TM equipment has been set out as specified in the temporary traffic management plan (TTMP) and to ensure the TTMP is operating effectively.

5) Maintenance of the traffic management equipment to be carried out on an on-going basis throughout the duration of the works.

6) Sign faces shall be of retro-reflective material and the retro-reflectivity, colours, chromaticity and luminance factors shall be as specified in the TII Publication on Specification for Roadworks Series 1200 (CC-SPW-01200) or any further amendments or replacement.

7) Designated works access locations are to be clearly signposted using sign WK 052 as required. Exact location of access signage to be determined by the TTOS on site, referring to Chapter 8 of the Traffic Signs Manual for usage. A supplementary colour code or numbering system may be used with this sign.

Bealach Isteach SITE ACCESS

8) The layouts and diagrams shown in chapter 8 of the traffic signs manual are based on directing traffic through roadworks using delineators and safety zones rather than on the use of restraint systems. Safety barriers should only be used where the benefits outweigh the risks involved in their installation and use. Risk assessment to be undertaken by the relevant supervisor in relation to excavations in the vicinity of the existing roadway.

9) It is envisaged that unobstructed access shall be maintained for the emergency services for the duration of the works. Should access be required to the site / works areas then this shall be via agreed site access points.

10) Access to local residence and business properties to be maintained at all times and to be coordinated by the TTOS on site.

11) Pedestrian routes to be maintained during the works. Pedestrian routes to be coordinated by the TTOS on site and signed accordingly.

DRAWING HISTORY:

Rev.	Date	Comment
00	18/02/2021	Original Issue

DESIGN PARAMETERS

ROAD / WORKS CHARACTERISTICS

Road Level	Roadworks Type	Speed Limit
1(iii)	A	50 km/h

Single or Multi-Lane / Dual	Sign Size
Single	600mm

TEMPORARY SIGNS

Sign Visibility	Number of Signs	Sign Spacing
50m	2	20m

MIN. RATE OF TAPER

Taper at Lane	Taper At Hard Shoulder	Transition Length
1 in 5	1 in 5	N/A

SAFETY ZONES & LANE WIDTH

Longitudinal Safety Zone	Lateral Safety Zone	Minimum Lane Width
5m	0.5m	3m

CONE SIZE & SPACING

Minimum Cone Height	Spacing at Tapers	Longitudinal Spacing
750mm	3m	3m

LAMP SPACING

Lamp Spacing at Tapers	Longitudinal Lamp Spacing
6m	6m

LEGEND

- Sign Location
- Road Cones
- Works Areas
- Longitudinal Safety Zone
- Lateral Safety Zone

PROJECT INFORMATION

Client: UISCE EIREANN : IRISH WATER

Project: Saggart Reservoir J1387

Title: Site Entrances

Dwg No: J1387_TM_001

Date: 18/02/2021 **Rev:** 00 **Scale:** N.T.S.

Drawn: P. Daly **Checked:** P. Scanlon **Approved:** A. Croke

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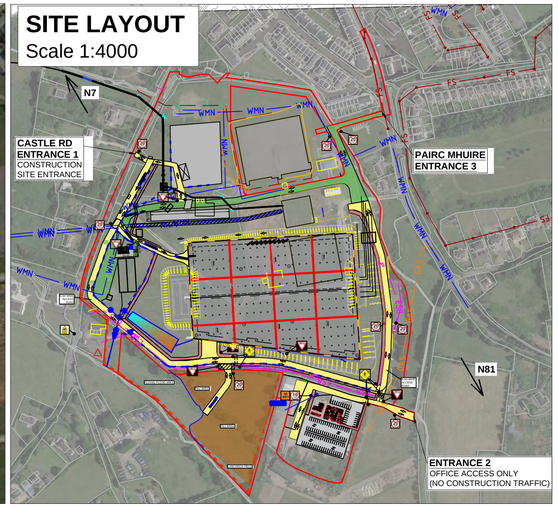

CF-QA-154(12)

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REV.	DESCRIPTION	DATE	BY	CHECK
01	FIRST ISSUE	29/11/21	PW	AC

APPROVED BY:	AC	SIGNED:	DATE: -
CHECKED BY:	PS	SIGNED:	DATE: -
DRAWN BY:	PW	SIGNED:	DATE: -

CLIENT:
IRISH WATER
COLVIL HOUSE,
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MOUNTJOY,
DUBLIN 1. D01 NP86

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Web: www.coffeygroup.com

PROJECT:
SAGGART RESERVOIR
DESIGN AND BUILT CONTRACT

PROJECT NO.:
J1387

TITLE:
CONSTRUCTION STAGE TM PLAN
ACCESS TO P. HURLEY'S FIELD

STATUS:
FOR INFORMATION

DRAWING NO.: J1387-TM-010

REVISION: 01

Appendix C:

(iii)Construction Environment Management Plan,

Rowan

Construction Environmental Management Plan/ Site Management Plan

Coffey Construction Ltd

January 2022

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Report Sign Off

REVISION	DATE	ORIGNATOR	REVIEWER
FOR ISSUE	31/01/21	EOB	EG

Table of Contents

1. Introduction

Rowan Engineering Consultants (ROWAN) Ltd were requested by Coffey Construction Ireland Ltd to draft a Construction Environmental Management Plan (CEMP) for land recontouring works near Slade, Saggart Co. Dublin.

1.1 Overview of the proposed project

The principal activities associated with the proposed development are;

- Land recontouring works of c 24,000m2 on a folio size of c. 5.3 ha (allowing buffers).
- The volume of material to be placed on the site is c. 24,000m3 with an average fill level of c. 1.5 m above existing. Refer to planning drawing numbered J1387-PH-001 REV 3 submitted as part of the planning application for full details.

1.2 Purpose and Scope of the CEMP

The scope of the CEMP covers the activities relating to the proposed infill at the proposed development in Saggart, County Dublin.

The CEMP is developed with the objective of avoiding adverse impacts. The Camac River which flows close to the north-eastern corner of the site.

The CEMP is applicable to the Client, the appointed construction contractor and also any sub-contractor's site staff during the construction phase of the proposed works.

2. Location of the Proposed Development

2.1 Site Location and Site Layout

The proposed project is located in the townland of Saggart, Co. Dublin. The nearest village to the site is Saggart, which is located c.600m north east of the proposed site. The proposed site is c.5.3ha. The site will be accessed via an existing entrance along the south eastern site boundary just off the Castle Road, 300m south of the Castle St entrance /exit of the source site of infill material. The proposed infill site is just west of the source site, the construction site of the the new Saggart Irish Water Reservoir. The site is bounded to the south-east by Castle Road and to the north by the Millbrook Manor Nursing Home and agricultural land and to the west by domestic sites and agricultural land.

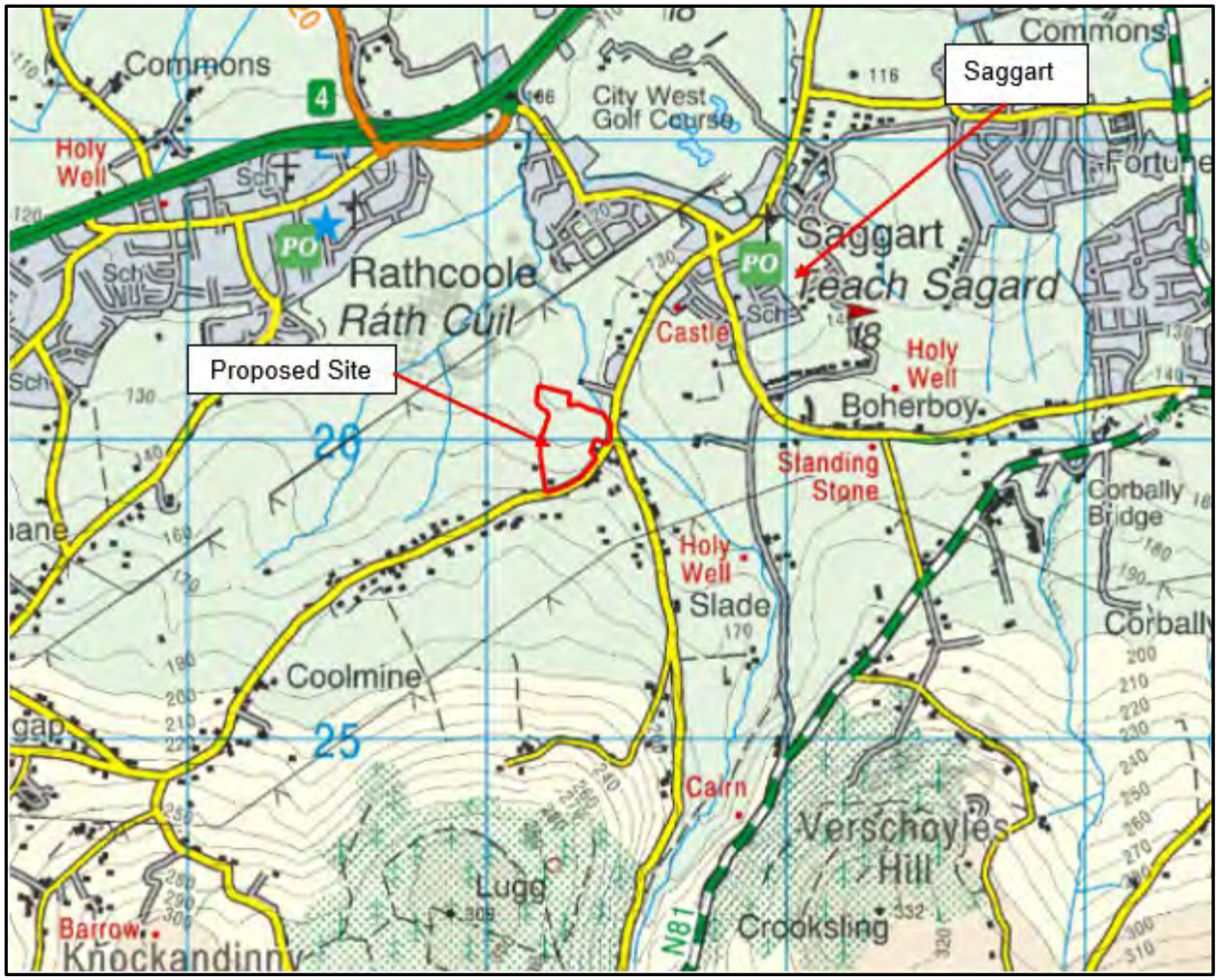


Figure 2-1: Site Location (outlined in red)

The site area of the proposed project is c.5.3ha. The proposed site layout is shown below in Figure 2.2.

Figure 2-2: Site Location Aerial View (outlined in red).

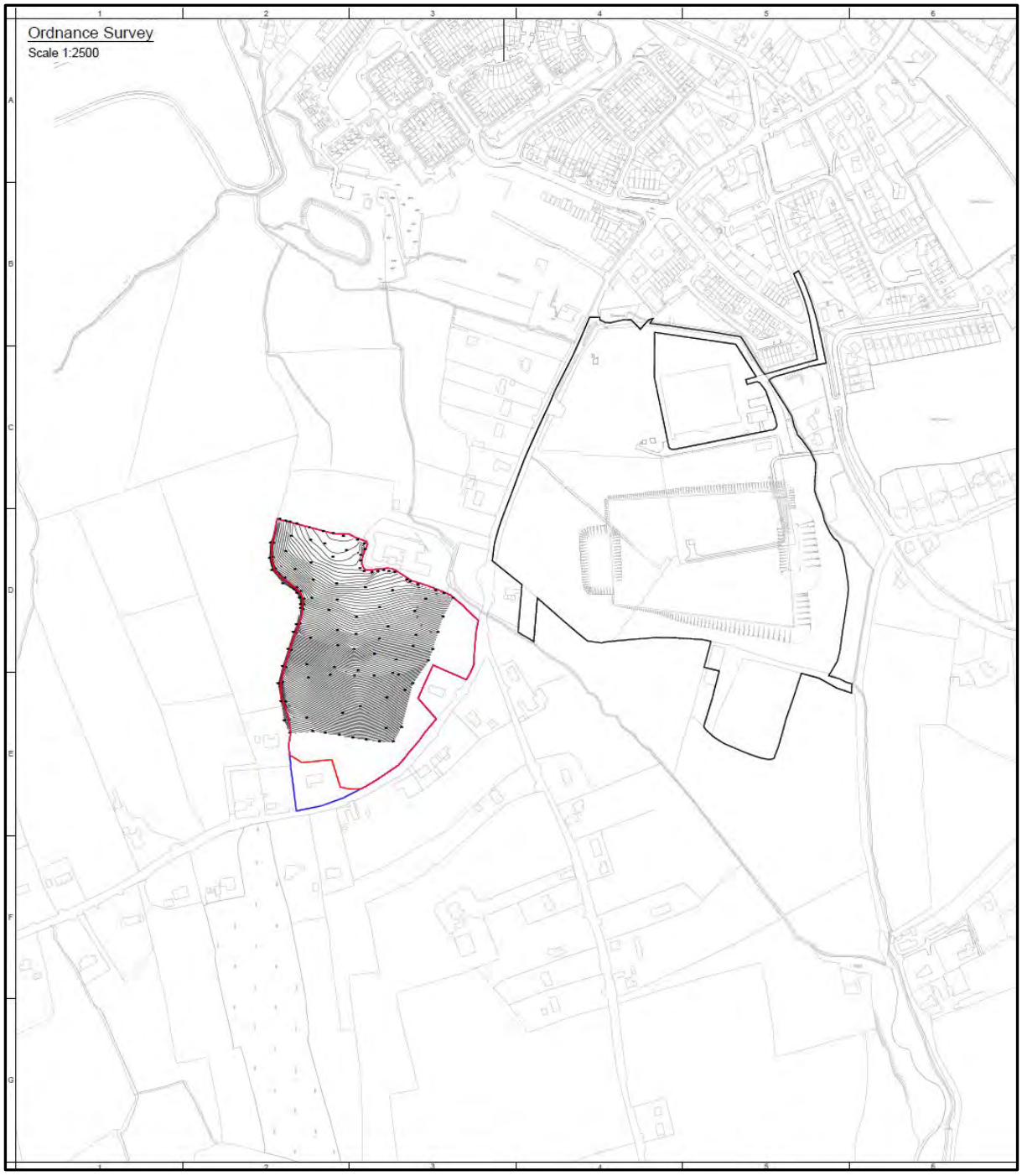


Figure 2-3: Site Location Plan and Site Plan with Proposed Development Boundary

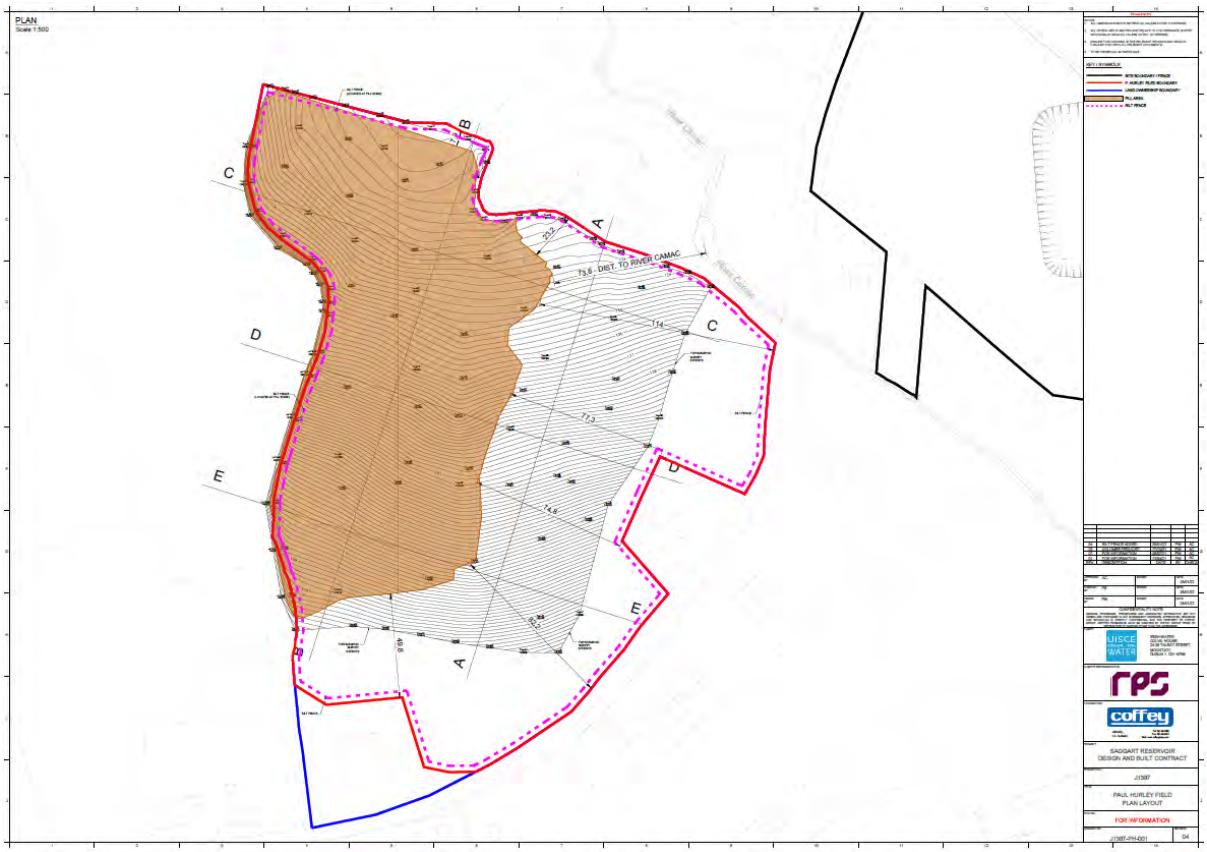


Figure 2-4: Proposed Infill Area as shown in brown shading (Refer to Planning drawing J1387-PH-001 REV 3).

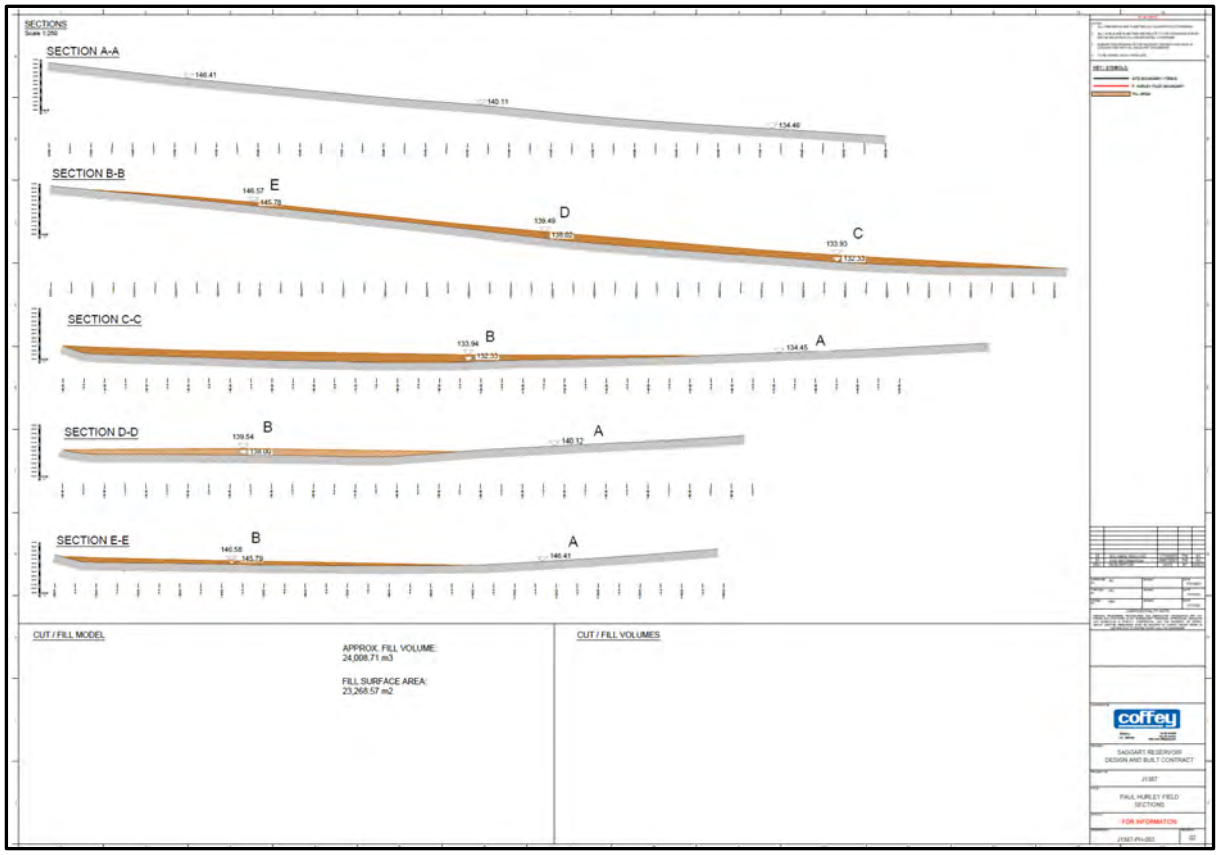


Figure 2-5: Extracts from cross sections of the site (Refer to Planning drawing J1387-PH-003

2.2 Site Access

The soil and stone would be transported from the main construction site of the new Saggart Irish Water Reservoir from the Castle St entrance / exit of the construction site to the existing field entrance of the Hurley site also on Castle St. The route is approximately 300m on Castle St as shown on **Figure 2.5 below.**

There is no planned removal of hedge line vegetation on the perimeter of the site to allow access or other.

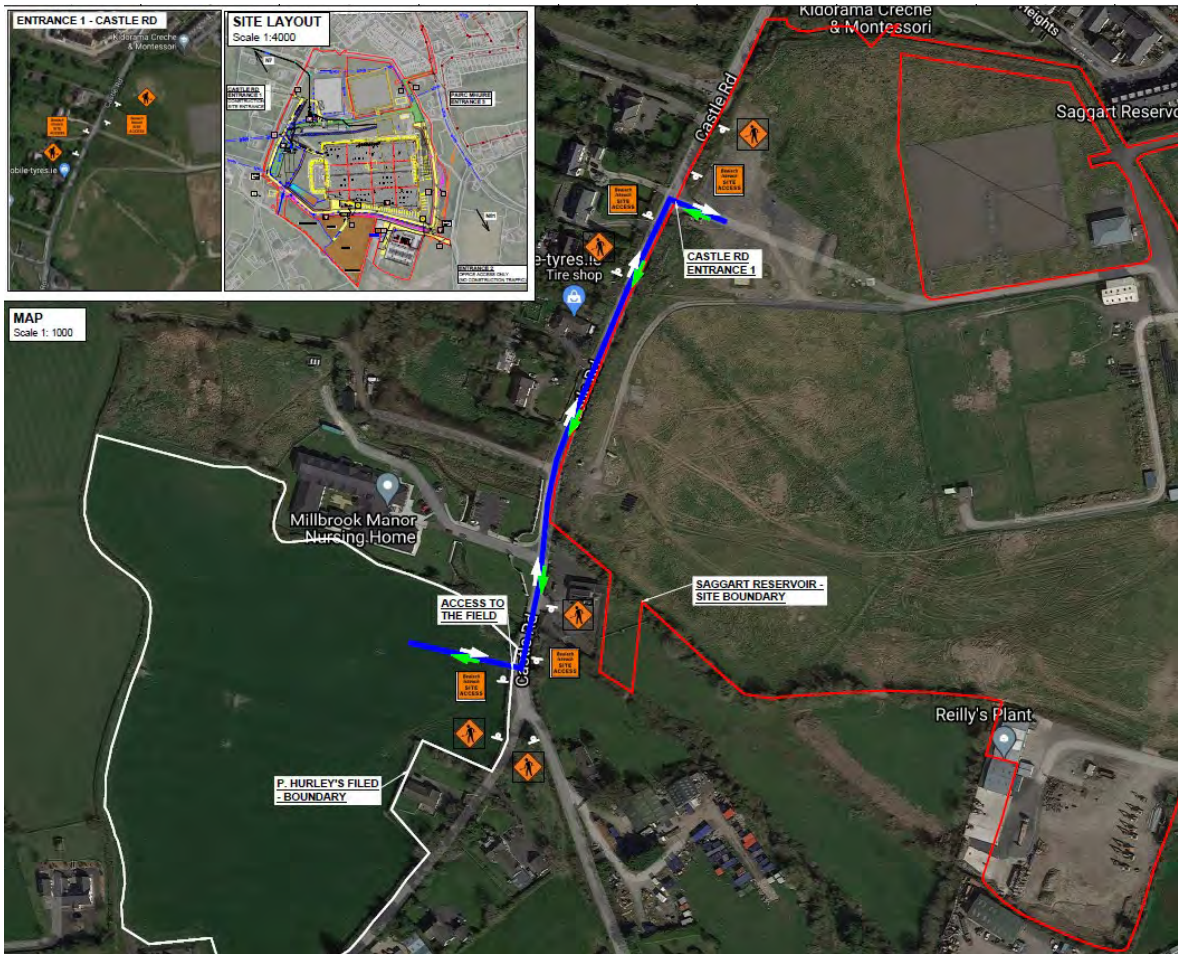


Figure 2-6:Site Access Route from the Main Construction Site of the Saggart Irish Water Reservoir.

2.3 Operational Phase of the Project

The appended site-specific Risk Assessment Method Statement (RAMS) J1387 details the proposed soil trip and infill process and can be summarised as follows:

Topsoil Strip:

- The field will be scanned for services prior to works commencing. A permit to dig will be completed and briefed to the Site Supervisor and Plant Operators highlighting any areas of concern (i.e., locations of onsite manhole chambers & services/utilities) by the site engineer.
- The extent of the site will be stripped of the topsoil.
- The topsoil strip is to be carried out using a 38-tonne excavator and D6 Bulldozer under site supervision
- Topsoil will be removed through placement of temporary 'windrows' at 3m heights to allow plant movement and ease of access until the material is removed to the bund.
- The topsoil will be stored in a sealed bund to ensure it is protected from the weather and segregated from the imported material.

Construction of Access Road:

- A short access road will be constructed at the entrance (See Figure 4) once all topsoil is stripped from the entrance area, the 38-tonne excavator can commence ground cuts and excavate 0.3m deep and 6m wide for the proposed route as per the site layout plan. 6F2 stone capping and 2inch down stone will be utilised to create the construction haul route.
- This stone haul route will be built up in 2 layers of 0.150m, where each layer will be compacted adequately using a 10-tonne roller.

Transportation and compaction of material:

- 8 Wheeled tipper trucks will remove the subsoil from the Coffey's Site.
- The trucks will follow the route shown in blue in figure 4 to Hurleys field.
- The material will be tipped in Hurleys field and spread using the D8 Bulldozer, the material will then be compacted using the 10-tonne roller in layers of 150mm.
- The material will be built up to design level.
- An Engineer will be onsite providing and checking levels.

2.4 Decommissioning of the proposed project

At the end of its operational life, the following will be implemented.

- Once the imported material has reached the design levels the importation will stop. The compaction of the area will be completed.
- The topsoil will then be spread out over the field using the D8 Bulldozer to the levels in an even layer.
- The new area of topsoil will have any stones removed and then seeded.
- Any stone placed at the entrance placed to facilitate the trucks will be removed and this area topsoiled and re-seeded.
- All Construction fencing will be removed, the entrance will be left as it was before the works.
- As the equipment used in the infilling and levelling processes 'belong' to the adjacent main site, these will be returned to compounds when not in use.

2.5 Environmental Constraints of Note at the Site

2.5.1 Site Habitats

The land-use surrounding the site is predominantly agricultural and improved agricultural grassland is the dominant habitat in the lands that surround the site. Other habitats represented locally include small areas of scrub, scattered trees, hedgerows and treelines. There are a number of watercourses close to the application site, including the Camac River which flows close to the north-eastern corner of the site.

2.5.2 Water Features

The Camac River which flows close to the north-eastern corner of the site.

The Camac River (IE-EA_09C020100) (to the southwest of the proposed site) and the proposed site are located within the Liffey Catchment. The proposed site is located in the (Liffey_SC_090) sub catchment.

Under the WFD, all water bodies are required to meet good status within a certain time period. Ireland is now in the second cycle of the WFD and therefore good status should be achieved in all water bodies by the end of this current cycle, i.e., 2021. If a waterbody is unlikely to achieve

this status, then it is deemed to be *At Risk.* The Camac River is described as being *Not At Risk* and of *Good Status*.

Figure 2-7: Surface water features relevant to the development site.

2.5.3 Soils, Geology & Hydrogeology Environment

Groundwater Aspects: There are no Source Protection Zones, Karst Features or Boreholes located in the immediate area of the proposed site.

Aquifer Vulnerability: The dataviewer for the Geological Survey of Ireland (GSI) described the site as being located in an area of Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones. The vulnerability rating for the proposed site is classed as moderate for the majority of the site, high and extreme in the southern section of the site, high along the northern boundary and low in the northwest corner of the site. Refer to **Figure 2.6.**

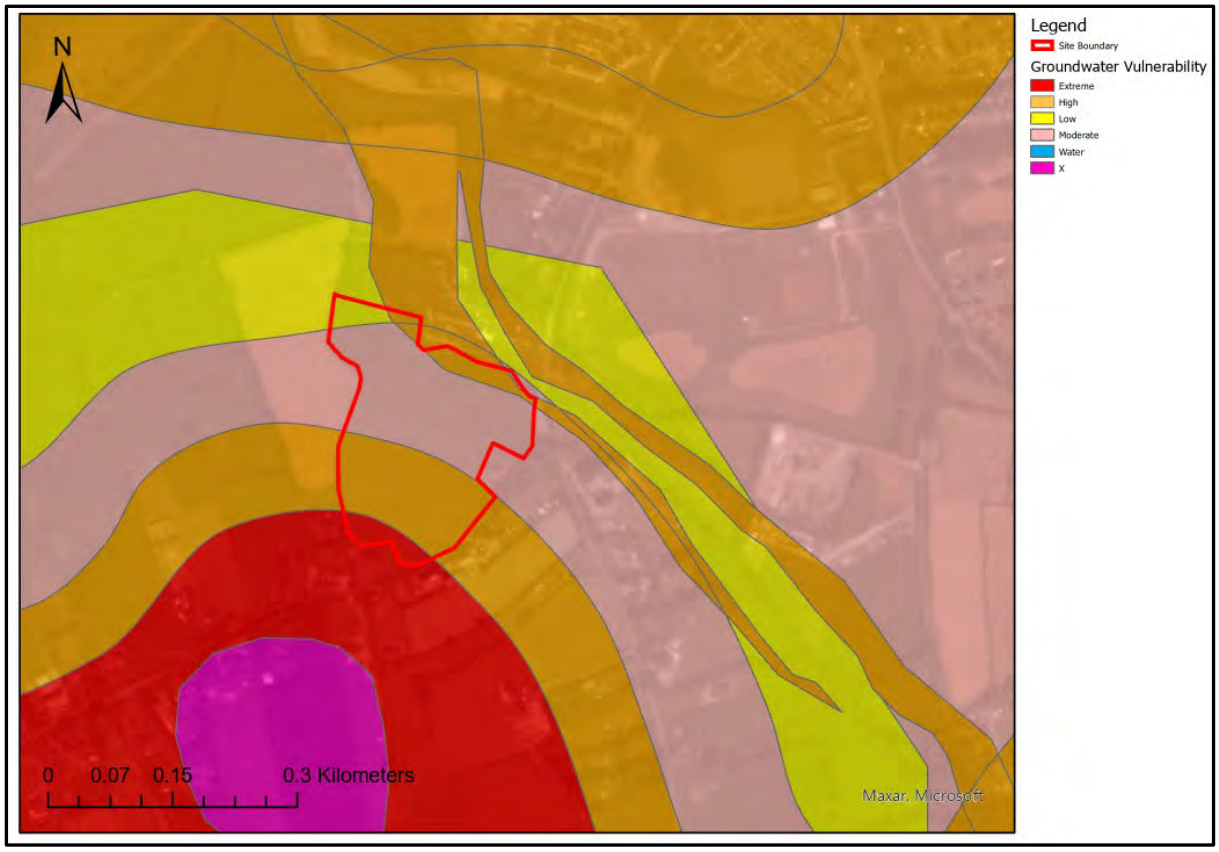


Figure 2-8: Groundwater Vulnerability at the Proposed site.

3. Construction Environmental Management Plan

3.1 Construction Environmental Mitigation

Construction environmental mitigation will be expected to follow best practice and any specific measures required in the planning conditions. The objective of this mitigation is to avoid/reduce the potential for environmental impacts during the (infill) phase.

This mitigation will be implemented by the construction contractor and is detailed in Table 3.1 below.

Table 3.1: Construction Environmental Mitigation

Aspect	Potential Environmental Impact	Description
Traffic and Transport	Impacts on road safety / traffic flows	Traffic management is detailed in the Construction Stage Traffic Management Plan. Truck movements generated from the project are estimated to be approximately 3000 truck movements over a one-month time period. • Delivery times are to be limited to the specified working hours, 08:00-13:00, Monday to Friday and 08:00-17:00 on Saturday. • A wheel wash facility will be provided for all trucks moving material to ensure no muck on roads. • Appropriate information and signage along construction route must be provided on approach roads either side of the infill site and construction site entrances as detailed in the site specific Construction Stage Traffic Management Plan, • Traffic signage and temporary construction stage traffic measures are to be implemented in accordance with the Department of Transport's Traffic Signs Manual, particularly Chapter 8 entitled "Temporary Traffic Measures and Signs for Road works".
Population and Human Health	Impacts on population and human health	• All HGV's leaving the site will directed through a wheelwash in order to prevent mud and other wastes being tracked onto public roads; • During prolonged dry or windy periods, any areas with the potential to generate dust will be watered and; • Public roads will be inspected regularly for cleanliness and cleaned as necessary.

Aspect	Potential Environmental Impact	Description
Noise	Impacts on noise sensitive locations	The mitigation measures that will be implemented on site to minimise environmental impacts relating to noise, will include All vehicle engines will be switched off when not in use; • Restricted speed limits will be implemented on site to reduce the generation of noise from moving HGV's within the site; • Working hours will be limited during which site activities are permitted to 07:00-18:00 Monday to Friday, and 08:00-13:00 on Saturdays; • A site representative responsible for matters relating to noise will be appointed to liaise with client and residents.
Soils, Geology, Hydrology and Hydrogeology	Pollution event on local soils, geology surface and groundwaters	The River Camac is approximately 70m to the closest point of infill. The following mitigation measures that will be implemented on site during the construction phase: • No construction activities will be undertaken within 70m of the River Camac. In the event, the sedimentation / erosion of soils occurs on site, strict controls will be implemented by the construction contractor to confirm that there will be no release of sediment into the River Camac during the construction phase. • Silt fencing is proposed around the entire perimeter of the field, • All soil materials will be visually inspected for signs of potential contamination. Should any contamination be identified, the relevant soils will be stored separately, sampled and disposed of by a licensed waste contractor (as required). • There will be no oils, fuels, greases, and hydraulic fluids stored onsite. • There will be no refuelling taking place onsite

Air Quality and Climate	Nuisance Dust & resulting impact on local residents	• Impacts to air quality during the construction phase are not considered to be significant. Mitigation measures that will be implemented on site during the construction phase shall include: • Hard surfaces will be swept to remove any mud or aggregate build up; • The local road in the vicinity of the development site will be inspected regularly for cleanliness and cleaned, as necessary. • All HGV's leaving the main site will be directed through a wheel wash in order to prevent mud and other wastes being tracked onto the public roads; • Any materials not suitable for infill will be removed immediately to avoid stockpiles; • Soil handling and movement will only take place when the soils are in the optimum condition. This optimum soil condition may be described as moist but friable. • No soils will be moved when they are too dry or when there are unusually windy weather conditions; • With regard to exhaust emissions and GHG emissions: • Vehicles on the site will be not left idling for more than a few minutes; • Energy consumption & emissions data will be considered in the purchasing new plant and vehicles • The proximity of the infill to the source site is noted to reduce exhaust and GHG emissions compared to a site which would be further away. • • Daily visual Inspections will be carried at the 5 locations (D1-D5) around the site boundary. All visual inspections will be summarised in the Weekly Environmental Inspection Checklist which is Appendix 1 of this CEMP. • The visual inspections will assist in monitoring the effectiveness of dust mitigation measures. • • Dust Monitoring • • Dust deposition monitoring will be undertaken on a monthly basis at 5 locations on the site boundary as shown in Appendix 1. These locations can be adjusted as required, depending on the phasing of the site works etc. • This monitoring will be carried out using Bergerhoff dust deposition gauges. • The off site laboratory analysis of the Bergerhoff jars will be undertaken at a suitably accredited laboratory and deposition will expressed as mg/m2/day. • The laboratory results will be compared against the "Technical Instructions on Air Quality Control – TA Luft" 2002 emission value for dustfall of 350 mg/m2/day. • Where measured concentrations in deposited dust are found to exceed these baseline limits the cause/source of the excessive dust will be investigated, and any additional feasible and reasonable measures available will be implemented to reduce impact and reduce any impact to the environment and/or the local community. • Any excessive levels of dust observed by the site operator or measured in the dust deposition analysis will be recorded

Aspect	Potential Environmental Impact	Description
		in the Complaints and Corrective Actions Records (Appendix 4). In addition, they will be identified and recorded in the Weekly Environmental Inspection Checklist in Appendix 1.
Biodiversity/ Ecology	Impacts on Ecological Features	Mitigation measures that will be implemented on site during the construction phase shall include: • All site development works shall adhere to best practice. • The work areas must be kept to the minimum area required to carry out the proposed works and the area should be clearly marked out and cordoned off in advance of work commencement. • Prior to the commencement of the infill on site, the site manager and the contractors should be made aware of the ecological sensitivity of the site, both in terms of the protection of surface water and groundwater. • All site works must follow those specified in the Construction Management Plan. • Efficient construction practices and sequences shall be employed on site, and this will minimise soil erosion and potential pollution of local watercourses with soil and sediment. Unnecessary clearance of vegetation shall be avoided. Works within the site shall be avoided during periods of heavy rainfall. • In order to protect water quality in The River Camac, all site preparation and construction works shall conform to all guidelines within the document Inland Fisheries Ireland Requirements for the Protection of Fisheries Habitats during Construction and Development Works and River Sites (www.fisheriesireland.ie) and the updated guidelines entitled Guidelines on Protection of Fisheries During Construction Works in And Adjacent to Waters (2016). Guidelines in the CIRIA (Construction Industry Research and Information Association) Publications including C532 – Control of Water Pollution from Construction, guidance for Consultants and Contractors should also be followed. • A buffer zone between construction works and the river shall be maintained at all phases of construction and operation. There must be no deposition of soil within this buffer strip. • Hydrocarbon / fluid management measures shall include: o Fuels, oils, greases and hydraulic fluids will not be stored onsite. o No refuelling or lubrication of equipment shall take place
Waste Management	Ineffective waste management	No waste will be generated as a result of this project. The project in itself is reducing waste and using a by-product for beneficial re-use in line with EPA Article 27 Guidance.

4. Emergency Response Procedure

The purpose of the emergency response procedure (ERP) is to address an emergency situation which may originate on-site. The main scenario's which were considered to potentially occur on site were associated with:

- A spill or leakage;
- A fire; and

4.1 Emergency Spill/Leakage Protocol

The procedure for dealing with spillages and/or leakages on site is as follows:

- The site operator shall be notified of a spill/leakage immediately by site staff;
- Where there is any indication that environmental pollution (releases to the environment) has, or may have, taken place, then The site operator will liaise with the appropriate Authority as deemed required;
- If possible, the type & nature of the spilled material and the volume shall be confirmed. Any risks to human health and/or the environment shall be determined;
- Stop the source and contain the spillage;
- Limit the spillage effected area by blocking, diverting or confining the spillage;
- Smaller leaks/spillages shall be contained using a spill kit, where absorbent product will be applied to the spill and removed as soon as it has absorbed all the material. All contaminated spill kit material shall be put into a suitable waste container and labelled as to the contents, prior to collection by a licenced waste contractor;
- If a bigger spillage occurs, access to any surface water features is to be blocked off to stop potential discharges. Then, staff shall clear up the spillage and dispose of the spill material to an authorised waste facility;
- If a spillage results in discharges to a surface water feature or there is potential for adverse impact on the environment, the site operator shall report to the appropriate authority (eg south Dublin County Council / Irish Water, Inland Fisheries Ireland) and agree a course of action;
- A record of the spill/leakage incident shall be retained on-site.

4.2 Fire

In the event of a fire, persons near the outbreak of the fire shall alert the site operator. In an emergency situation, the appropriate services will be notified.

The following information will be provided:

1. The name of the company

2. Address

Saggart, Co. Dublin.

3. Details of the Fire

Emergency contact details are:

Local Garda Station: Rathcoole: 016667900

Local Fire Station: Tallaght: 016734000

Dialling 999/112 will connect the caller with any of the emergency services.

If a fire on-site has an adverse impact on the environment, South Dublin County Council, Irish Water and Inland Fisheries Ireland (as relevant) will be notified and they shall agree a course of action.

4.3 Chemicals/Oils/Fuels On-Site

No volumes of oil/fuels/chemicals are expected to be stored on site and refueling will not take place on the site. The following controls shall be implemented by the construction contractor in relation to the leakages of mobile equipment.

- Appropriate and sufficient spill control materials will be installed at strategic locations within the site. Spills kits for immediate use will be kept in the cab of mobile equipment.
- Spill kits will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site vehicles will carry spill kits at all times. Spill kits must include suitable spill control materials to deal with the type of spillage that may occur and where it may occur. Typical contents of an on-site spill kit will include the following as a minimum
    - Absorbent granules.
    - Absorbent mats/cushions.
    - Absorbent booms.
- Spill kits will contain gloves to handle contaminated materials and sealable disposal sacks.
- Fuel, oils, greases and hydraulic fluids will not be stored onsite.
- Re-fuelling of construction vehicles will not take place onsite.
- The contractor will ensure that no hazardous or noxious materials enters a watercourse/drain. Should this situation arise emergency procedures will be activated.

5. Silt Fencing for the River Camac.

There shall be no discharges of contaminated waters to ground or surface waters from the infill phase. In order to avoid indirect sedimentation impacts on The River Camac, there will be a buffer of c.80m and the installation of silt fence around the perimeter of the infilled area.

A silt fence will remove the potential for sediment movement during wet weather events. This is particularly important along the River Camac. The silt fence will be a permeable geotextile barrier installed vertically on support posts and entrenched in the ground. **Figure 5.1** below illustrates a silt fence in operation and attached drawing J1387-PH-001 REV 04 shows its proposed layout on the site.

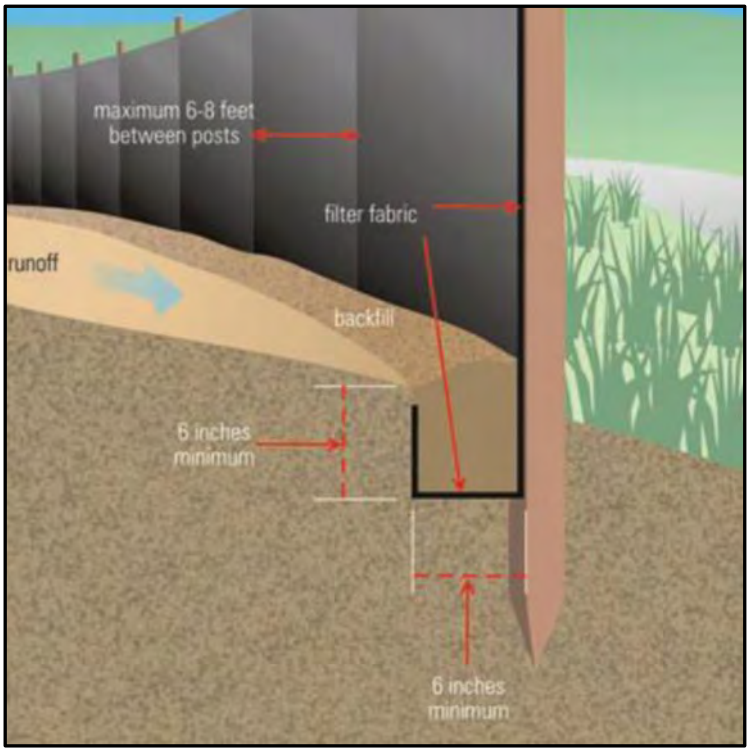


Figure 5-1: Silt fencing arrangements for vulnerable section along the River Camac.

6. Site Inspection Procedure and Checklist

Regular site assessments will be undertaken to confirm that the CEMP is being followed. These will include.

- Daily and weekly site walkovers using prescribed check lists
- Environmental Toolbox talks;
- Visual checking and recording of mechanical plant for leaks and mechanical issues in order to minimise leakage and breakdowns on site. The purpose is to identify any need for pre-emptive maintenance, so as to avoid any accidental spillage of hydrocarbons.

The checklists proposed for use are appended to this CEMP.

Attachment 1 – Environmental Checklist

Introduction & Scope

This environmental inspection procedure outlines the requirements for the conduct of regular visual inspections at the site, Slade Saggart, Co. Dublin.

Regular visual inspections are performed to ensure a clean working environment.

The inspections also aim to identify potential environmental hazards in the work area and to minimise associated risks.

Responsibilities

The site operator

- Undertake regular visual inspections of the Site;
- Undertake and record the Weekly Check inspections (per checklist attached); and
- Implement and adhere to any required corrective actions/ control measures.

Inspection Procedure

1. Review the Weekly Checklist Form;
2. Conduct the inspection by walking around the work environment;
3. Identify any hazards and areas of non compliance against the checklist;
4. Record all findings, ensuring the Form is signed and dated and includes details of the personnel conducting the environmental inspection;

Environmental Inspection Checklist

Date: _____

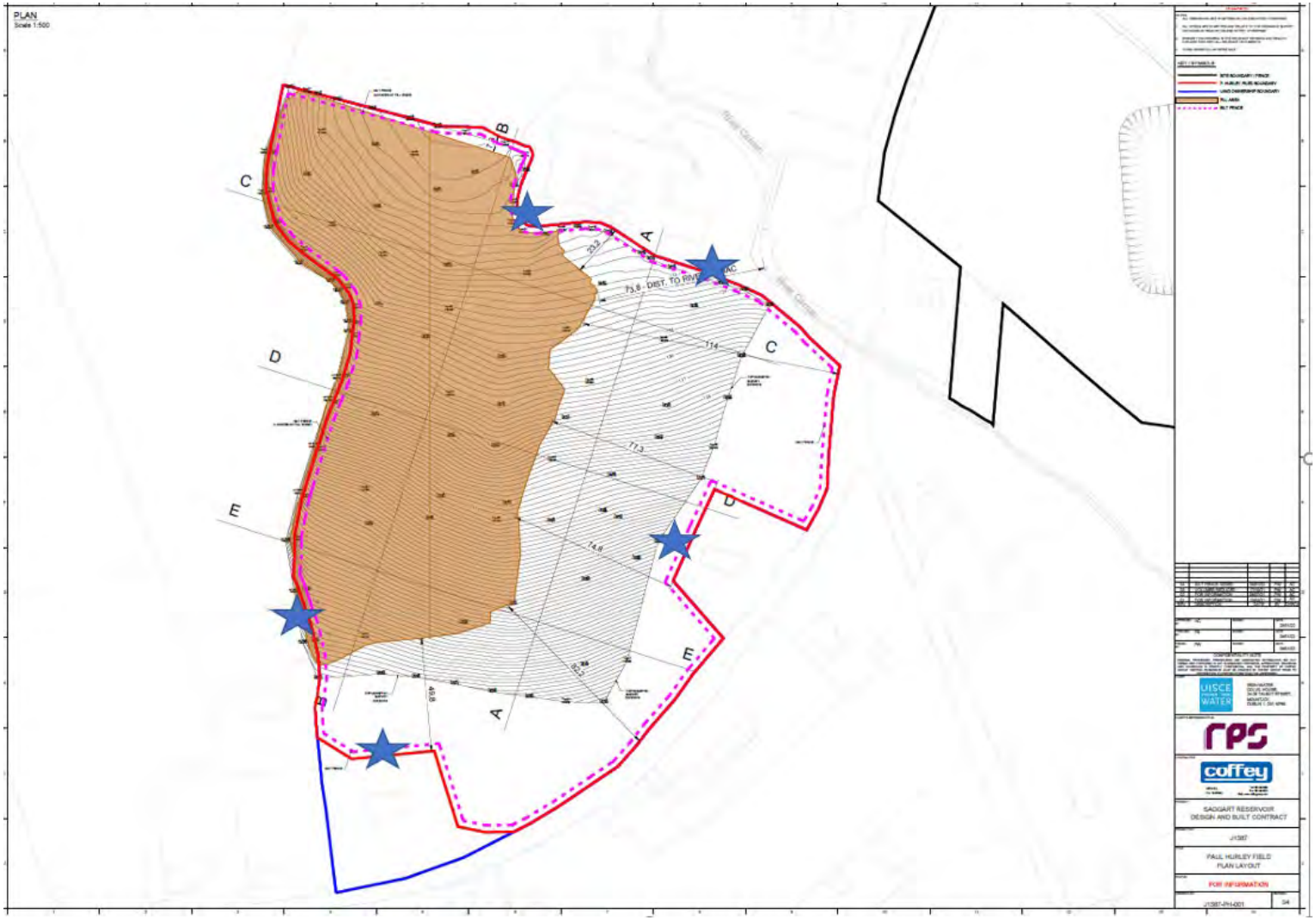
Person: _____

Weather condition (precipitation, sun, wind- speed and direction)

Environmental Inspection Checklist	Comments	Corrective Actions Needed (Y/N)
GENERAL		
Site clean and tidy – no litter, good housekeeping?		
Are there any leaks or mechanical issues with plant and equipment on-site?		
Do any corrective action records remain open?		
DUST EMISSIONS		
Are site activities sprayed to minimise dust generation?		
Are dusty sections of the site sprayed with water?		
Are speed control measures being complied with		
WATER ENVIRONMENT		
Are emission values at the monitoring points being met?		
Are vehicles cleaned before leaving the main site?		
Are wheel washing facilities at the main site properly maintained		
Is sand and silt in the wheel washing bay regularly removed?		
Is the site entrance and surrounding public road kept clean and free of mud?		

Environmental Inspection Checklist	Comments	Corrective Actions Needed (Y/N)
Is wastewater regularly removed off-site		
Is water recycled where possible for dust suppression/ wheelwash etc?		
NOISE		
Is the site operating within the agreed working hours?		
Is idle equipment turned off?		
Any noise mitigation measures adopted?		
WASTE MANAGEMENT		
Are wastes regularly removed off-site for recycling/ appropriate disposal?		
Are all wastes collected and disposed of by licensed contractors		
Are waste containers appropriately & clearly labelled?		

Dust Monitoring Locations



Appendix C:

(iv) Construction & Demolition Waste Demolition Plan

J1387 –Site Waste Management Plan for Saggart Reservoir Design Build Contract

Contents

1. Scope of the Project

1.1 Existing Works

The existing facility in Saggart comprises two separate operational reservoir complexes: Saggart reservoirs and Boherboy reservoir. The Saggart reservoir complex comprises three separate tanks supplied by trunk transfer systems from Ballymore Eustace Water Treatment Plant (BME) and a secondary chlorination facility dosing supplies at the inlets. The trunk transfer system from BME comprises:

- an aqueduct that discharges to twin 33" (assumed cast iron) mains at Windmillhill approximately 3km upstream of the Saggart site (known as the BME culvert); and
- a 1600mm diameter prestressed concrete (Macrete) trunk pipeline.

The Saggart reservoir complex is operated by Dublin City Council (DCC) and the Boherboy complex by South Dublin County Council (SDCC) on behalf of Irish Water (IW).

1.2 Summary Description of Proposed Works

IW has identified a requirement to provide additional effective storage of 100Ml (100,000m^3) at the existing reservoir site at Saggart and associated upgrade works. This is to provide security of supply and resilience by the provision of sufficient storage capacity at the site for operations and transfer of treated water from the complex to strategic service reservoirs in the Greater Dublin Area.

A new on-site electro chlorination plant building (OSEC building) housing a new replacement secondary chlorination plant is also required as the existing chlorination plant has reached the end of its service life. The new OSEC building shall house an ESB substation, chlorination plant and associated equipment, de-chlorination plant, a backup power generator, controls and welfare facilities.

1.3 Compound Space Available

Adequate space available on site for site compound offices, welfare and drying hut. Material storage area and waste soils will be stored on site temporarily for no longer than six months.

1.4 Thresholds

Section 3 of "Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects" (2006, DECLG) requires that project construction and demolition (C&D) waste management plans should be prepared for "Civil Engineering projects producing in excess of 500m^3 of waste, excluding waste materials used for development works on the site."

1.5 Content

This plan sets out the provisions required for compliance with the 2006 Best Practice Guidelines for the preparation of waste management plans noted above, and in particular the waste management hierarchy, namely, waste prevention being the priority, followed by reuse (also a prevention activity), recycling, recovery and finally disposal. This project C&D Waste Management Plan has been written to a recommended scope and level of detail commensurate with the type and size of the project. In particular it addresses the information requirements and structure recommended in sections 3.2, 3.3 and 3.4 of the Best Practice Guidelines.

Attention is focused on the development of a C&D waste management approach which will establish goals for the diversion of waste from landfill and focuses upon waste prevention, reuse and recycling opportunities.

The guidelines require that content of the plan should be oriented to the following aspects of the development:

- An analysis of the wastes being generated and expected materials surpluses
- Specific waste management objectives of the project
- Methods proposed for waste prevention, re-use and recycling
- Material handling procedures
- Proposals for the education of the workforce about quality waste management and C&D Waste Management Plan implementation.

1.6 Site Waste Management Plan Duration

This C&D Waste Management Plan will be maintained through the life of the Saggart Reservoir contract. During the detailed design stage there will be consultation between all parties to ensure that adequate considerations have been taken of material handling issues.

Waste management issues will remain highly significant throughout the project lifecycle. Besides forming part of the design of the project, they will affect the tendering process, be reflected in the contract drafting stage and in the construction phase.

Different degrees of detail will be required at these stages of the project. The obligation to augment and implement the plan will shift from the designer to contractor and this point in the project lifecycle will be clearly defined. The obligation to follow the existing plan and develop it further will form part of the contract documents for the project.

1.7 Specific Waste Management Objectives

The aim of this project C&D Waste Management Plan is to promote an integrated approach to managing C&D waste throughout the duration of the project. The estimated timescale for this project is 30 months. The plan:

- Promotes sustainable development, environmental protection and optimum use of resources
- Takes an integrated approach whereby the management of C&D waste is given due consideration throughout the project
- Outlines how the project clients, planners, designers, contractors and suppliers will act co-operatively to reduce C&D waste.

Inert materials generated from the construction project will be managed sustainably and in accordance with best practice as set out in National and Regional Waste Policy. The aim will be to reuse as much as possible of the material generated by the works. The material generated will be primarily a clean natural material and it will have a range of uses. On-site material generated will be put to reuse in one of several possible construction applications. Excess material which cannot be reused on-site will be managed in an appropriate manner. As a final option material which cannot be reused on-site or reused or recovered off-site at a suitable location/facility will be sent for disposal at an appropriately authorised waste facility such as a municipal or inert waste landfill. It is anticipated that the quantity of materials sent off-site for disposal will be limited and this option will be a “last resort” after exhausting higher order solutions.

2. Waste Authorisations and Storage

2.1 Authorisation

It is anticipated that waste/surplus materials will have to be moved off site given the limited re-use potential within the proposed development and within the greater site and given the limited available space on site for storage or processing. Coffey Construction (I) Ltd (CCIL) will be required to engage specialist waste service contractors to manage the materials on its behalf. The specialist waste service contractors will be required to possess a waste collection permit, for the collection and movement of waste off-site. The contractors will be required by that permit to bring the waste materials to facilities which currently hold a Waste Licence/Waste Permit/Certificate of Registration as appropriate for the particular material. The appropriate authorisations required at the project sites are as follows:

Authorisation Type	Needed for the Project?
Waste Licence	No
Waste Permit/ Cert of Reg.	No
Waste Collection Permit	Yes – all persons removing waste from site under contract
Transfrontier Ship. Not.	No
Movement of Hazardous Waste Form	**Carrier**: person who undertakes the movement of waste, other than a Consignor. **Waste Producer**: anyone whose activities produce waste (original waste producer or anyone who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of this waste. **Consignor**: producer or holder of waste who causes such waste to be moved from the premises at which it is being held.

2.2 Waste Storage

In general, no form of statutory authorisation is needed for the temporary storage of waste such as excavated materials at the site where it was produced, pending collection and removal off-site. The Waste Management Act defines the phrase "the temporary storage of waste", limiting it to a six-month duration. This means that the temporary storage of waste does not require a waste licence, waste facility permit or registration certificate provided the storage does not exceed this period.

The restriction in the Waste Management Acts about the allowable duration of temporary storage suggests that appropriate waste authorisation may be required to allow for longer interim waste storage where the period will exceed six months.

3. Wastes Arising

3.1 Rock, Soil, Clay and Stone

The quantity of surplus excavated materials estimated as being generated as a consequence of the proposed development is based on preliminary site investigation (SI) data at this stage, pending completion of the SI works and development of the design.

Material	Quantities
Subsoil from excavations	180,000m^3
Stone from temporary haul roads	5726m^3

3.2 Concrete and Masonry

The proposed contract will comprise the construction of reinforced concrete structures. The estimated volume of concrete required is 25000m^3. Based on an estimated wastage rate of 2%, approximately 1200 tonnes of waste or excess cured and uncured concrete is likely to be generated and will require management. Paving slabs, kerbs, bricks and blocks will be generated in very small quantities (approximately 15m^3 on this project).

3.3 Canteen/ Office and Packaging Waste

Canteen, office and packaging waste and office waste (at the construction stage) will be generated in quantities, estimated at 0.5 tonnes per month and will be collected as mixed dry recyclables.

3.4 Other Materials

- Sewage from site toilets will be collected by specialist subcontractors under licence.
- Broken equipment, used shuttering, scrap parts, scrap metal, scrap pipes and other metals will be collected in a dedicated metals collection system.
- Vegetative waste in the form of large and small trees, hedges and other plant matter is expected and will be managed together with grass and topsoil.
- Wood timber, pallets and construction timber will be generated in limited quantities.

3.5 Hazardous Waste

There is an existing 24" asbestos cement (AC) outlet pipe to which CCIL will be required to make a connection. We note too that there may be more AC pipes present, which may need to be connected to the new infrastructure, diverted or removed and disposed of.

CCIL will carry out an asbestos survey of the structures to be demolished or refurbished. We will engage Rialta Environmental Ltd, who are licenced to dispose of asbestos waste.

In the event that further hazardous waste is encountered, this material will be moved and double bagged, prior to movement off-site for disposal. They will be transported under the CCIL Waste Collection Permit to a site holding a valid waste permit or Certificate of Registration (COR) and collection and delivery records will be maintained.

Fuels, lubricants, oils and hydraulic fluids will be used in machinery during construction and in very small quantities during operation and maintenance. Bituminous materials such as bitumen macadam and asphalt, tars will be used in small quantities. Solvents, adhesives, sealants, oils, and paints will be used during construction. While estimated waste volumes are unclear at this stage, the contractor will be

required to manage wastage in accordance with the relevant legislation. The use of spill kits will be a requirement on site.

3.6 Summary of Volumes of Materials Anticipated

C&D Waste Material	Volume
Subsoil from excavations	180,000m^3
Stone from temporary haul roads	5726m^3
Reinforcement from demolition	498t
20-yard skips	55 nr.
Concrete from demolition	6537 m^3
Existing concrete	1685t

4. Proposals for Prevention / Reuse / Recycling

The options for managing the material generated on-site are explored in detail and are outlined in this chapter. A preferred approach which maximises the resource potential of the material is identified along with contingency arrangements if the preferred options do not materialise.

4.1 Prevention

C&D waste prevention opportunities will arise from avoiding material surpluses or damaging materials in storage or prior to use. CCIL will be tasked with ensuring that materials are ordered in a manner conducive to minimising the generation of waste and unnecessary handling.

4.2 Reuse On-Site

The preferred outcome from an environmental, transportation and resource efficiency perspective is to maximise the reuse of material generated from the works on-site. The primary opportunity in this regard will be from the excavated under the footprint of the reservoir, tanks and chambers. All excavation works will be carried out in accordance with current best practice and excavation materials will be segregated to minimise any potential cross-contamination.

4.2.1 Soil

Suitable sampling and chemical analysis of the soil/sub-soil will be undertaken prior to its excavation. Any soil that is to be reused on-site will be sampled and analysed to confirm its suitability. To enhance the suitability of the material, soil will be handled and stored in a protected manner to ensure the end material is of a consistent quality and unsuitable fractions are not allowed to contaminate the product. Some soil will be used as fill, with remainder disposed of off-site.

4.2.2 Weathered Rock / Rock

The level of rock is varied across this project and was encountered at its shallowest point at 10.50m and its greatest depth of 13.3m and is classified as weathered sandstone/mudstone rock. If rock is encountered, it shall be crushed and stockpiled and used where possible for access roads, temporary fill in various locations throughout the project.

4.2.3 Existing Conditions

The SI had been carried out in advance of this tender. The sites were generally characterised by topsoil deposits 200mm to 400mm thick, made ground up to 2.2m, overlaying glacial deposits: soft to stiff glacial till or dense fluvioglacial sand/ gravel at relatively shallow depth across the site.

4.2.4 Summary

Excavation of soil and rock are considered suitable for certain on-site construction applications. These materials will be carefully stored in segregated piles on the site for subsequent reuse or, where this is not possible, removed from site for direct beneficial use elsewhere.

4.3 Reuse Off Site

Although the reuse of material generated from the works will be maximised on-site, some excess materials will remain and will require management. The excess materials will be primarily excavated soil and rock.

The preferred approach for the management of the excess materials will be to reuse them as a Class 1 fill material following processing on site, at third-party development projects including existing quarries.

The reuse of material off-site as a fill in third-party construction project represents a good use of the resource and reduces the quantity of virgin material required for construction. Where such wastes/surpluses are to be used beneficially in other projects, tracking and authorisation documentation, adequate to ensure traceability of the material, will be implemented, as outlined in this plan.

4.4 Recycling and Recovery Off Site

If the options to reuse materials off-site at third-party development locations do not materialise, the excess material will be sent for recovery at a location with a waste authorisation permit in place. Any material sent off-site, for recycling or recovery to a waste facility will be transported by a haulier holding a valid waste collection permit collection and delivery records maintained.

4.4.1 Rock, Soil and Stone

Suitable sampling and chemical analysis of the soil/sub-soil will be undertaken prior to its excavation. Any soil that is to be excavated and disposed of will be sampled, analysed and classified to determine the most suitable disposal outlet.

Traditionally, the recovery of much of the Irish C&D waste stream has been managed by placing it in a variety of land use applications. This treatment, collectively known as backfilling, includes land reclamation, improvement or infill works. The largest fraction of the C&D waste stream arising is soil and stones, which (if uncontaminated) typically undergoes little if any treatment prior to recovery at these sites.

The table below contains the sites that will be used for disposal of the material from site. The details of each site are contained in the Appendices as referenced below.

Ref	Name	Location	ID No.
Appendix 1	OPW Site	Kileenmoore, Naas, Co. Kildare	WFP-KE-20-0102-01
Appendix 2	Citywest GAA	St Mary's, Park Road, Saggart	ART27-2271
Appendix 3	Timahoe	Timahoe East, Kildare	Art27-2287

4.4.2 Packaging, Mixed Dry Recyclables and Food Waste

Packaging and some office waste will be generated onsite during the construction stage, including paper, plastics, metals etc. These will be gathered separately in a mixed dry recyclables bin. An arrangement will be made with an authorised waste collector – Greyhound Recycling service this area for example - for these materials to be collected in the course of normal commercial waste collection runs. These materials will be brought to an appropriate MRF for appropriate processing and recycling.

The Waste Management (Food Waste) Regulations 2009 apply to Class 10 premises, i.e. those with canteen services where food is supplied to employees or prepared on the premises for the purposes of supply to employees, which (a) is situated on the site of construction, development or refurbishment works, and (b) where the duration of such works exceeds a period of 9 months. The Saggart site will not provide canteen facilities, so the terms of the Regulations do not apply to that facility. The volumes of food waste generated onsite are expected to be small, and it is proposed to manage the material by provision of a home composting unit or a brown bin service.

4.4.3 Wood, Metals and Other Materials

Waste or surplus wood and metals will be source segregated for subsequent separation and recovery off-site at an authorised facility. Other C&D waste materials will be collected in receptacles with mixed C&D waste materials, for subsequent separation and disposal off-site at an authorised facility. There are numerous options in the market and close by to handle the materials.

4.4.4 Concrete

Raw or uncured waste concrete from construction activities will be source segregated or collected in receptacles with mixed C&D waste materials, for subsequent separation and recovery at a remote facility. There are numerous options in the market and close by to handle the materials.

4.4.5 Mixed/ Contaminated Construction and Demolition Waste

It is expected that, despite best efforts to segregate materials into single streams for recovery, there will be some volumes of mixed or contaminated materials which will require to be collected together skips for subsequent recovery/disposal.

4.4.6 Hazardous Waste

Special attention will be paid to the anticipated hazardous waste arisings and the manner in which such materials will be identified, assessed, handled, stored, treated and removed. Fuels, lubricants, oils and hydraulic fluids, solvents, tars, adhesives, sealants, oils, and paints etc. will be stored in sealed containers on-site. These materials will be carefully handled prior to and during use to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to codes of practice. Any spillages will be immediately contained and the contaminated soil collected and stored for removal from the site by an authorised contractor for proper disposal. The containers for these materials will be appropriately handled.

Hazardous waste generated will be identified and collected appropriately in leak-proof or other appropriate containers, stored separately separate from other waste materials in order to avoid contamination and the details recorded by the contractor. Arrangements will be made for the safe removal by an authorised collector and for subsequent recycling/recovery/disposal at a remote facility.

Any discharge of surface water from excavations will be regularly monitored visually for hydrocarbon sheen and suspended solids. Periodic testing of discharge water samples will be carried out in accordance with the requirements of Dublin City Council and South Dublin County Council.

4.5 Disposal

The disposal of excess materials generated on the project to a waste licensed facility will only be considered when all other options to reuse or recover the material off-site have been exhausted. It is expected that a minimum quantity of material will be sent to landfill for disposal. Only material is found to be unsuitable for reuse or recovery purposes will be sent for disposal. The EPA authorises a number of soil recovery facilities and landfills for inert wastes and for municipal solid waste (MSW). These facilities may also be able to provide outlets for recovery of the materials, as road manufacture or cover materials. These facilities are listed in the Regional Plan, e.g. Carrigmore Landfill in County Wicklow.

4.6 Pollution Control Efforts

The following pollution prevention control measures will inform the final Environmental Management Plan and associated risk assessment method statements (RAMS) for the project:

- Wash-down water from exposed concrete surfaces will be trapped to allow sediment to settle out and reach neutral pH before clarified water is released to the river or drain system or allowed to percolate into the ground.
- Disturbance associated with high noise levels will be controlled by means of a risk and noise assessment and precautionary measures in accordance with best practice at construction stage. Ongoing monitoring and reporting during construction is also recommended.
- Dust and fine particle generation from C&D activities on the site will be substantially reduced through carefully selected mitigation techniques and effective management and will include the provision for wheel washing facilities, the use of static sprinklers, etc.
- The following guidelines and documents will be consulted during the detailed planning of the works phase and the preparation of the site and project specific tasks. Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA) in particular:
  - C532 Control of water pollution from construction sites: guidance for consultants and contractors (Masters-Williams et al, 2001)
  - SP156 Control of water pollution from construction sites – guide to good practice (Murnane et al, 2002).

5. Roles

CCIL and our sub-contractors will be required to clearly identify their role is and what is expected of them. This element will be supported by a management and monitoring system that ensures that the defined requirements take place. This process will be enforced systematically. Relevant staff, including that of sub-contractors, will be given “ownership” of the elements of any on-site waste management scheme that are

within the scope of their responsibilities. Good communication between parties will be applied, with each body being clear on what their responsibilities are and what is expected of them. Contracts issued to sub-contractors will include provisions to support or enforce these initiatives. CCIL will lead by example, setting the standard for how waste will be managed onsite.

5.1 Assignment of Responsibilities for Construction and Demolition Waste

CCIL will allocate responsibility for materials and waste management to the project Environmental Manager (EM) who will be responsible for putting into place the relevant procedures and have overall responsibility for the implementation of the project C&D Waste Management Plan.

The EM will ensure that any onsite procedures for raw materials handling and waste management are put into practice and that the roll-out of these systems on the ground is regularly monitored or otherwise policed. Seniority in the project team is required to ensure that any difficulties encountered are raised at an appropriate level within the project team and acted upon. Relevant individuals will have access to ordering and stock control records, as well to information on waste removal practices. They will also have sufficient authority to be effective in the context of the project team's overall management and in dealing with sub-contractors.

The project EM will be assigned the authority to instruct all site personnel to comply with the specific provisions of the plan. At the operational level, a Ganger, Foreman etc. from CCL and Team Lead (or other appropriate personnel) from each sub-contractor on the site shall be assigned the direct responsibility to ensure that the discrete operations stated in the project C&D Waste Management Plan are performed on an on-going basis. Service contracts for machinery will require that any materials not immediately removed from site be stored at a location and in the manner specified by the project EM.

5.2 Proposals for Training and Information Dissemination

Copies of the project C&D Waste Management Plan will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the project C&D Waste Management Plan and informed of the responsibilities which fall upon them as a consequence of its provisions at the Site Induction. Where source segregation, selective demolition and material reuse techniques apply, each member of staff will be given instructions on how to comply with the project C&D Waste Management Plan. Posters will be designed to reinforce the key messages within the project C&D Waste Management Plan and will be displayed prominently for the benefit of site staff. The Plan will make provision for the EM and site crew to be trained in materials management thereby being in a position to:

- Distinguish reusable materials from materials suitable for recycling
- Ensure maximum segregation at source
- Co-operate with site agent on the best locations for stockpiling reusable materials
- Separate materials for recovery
- Identify and liaise with operators of recovery outlets.

6. Record Keeping, Auditing and Monitoring Costs

6.1 Record Keeping

The project EM will arrange for full details of all material arising, movements and treatment of C&D waste and other surplus materials to be recorded during the construction stage of the project. Each consignment of C&D waste taken from the site will be subject to documentation, which will conform with the Table below and will ensure full traceability of the material to its final destination.

Detail	Particulars
Name of Project of Origin	e.g. Saggart Reservoir – Design Build Contract
Material being Transported	e.g. Soil, demolition concrete, crushed asphalt, etc.
Quantity of Material	e.g. 15 tonnes
Date of Material Movement	e.g. 01/01/2019
Name of Carrier	e.g. Coffey Construction (I) Limited
Waste Collection Permit	e.g. All waste collection permits which are held by subcontractors involved in moving waste away from the project, NWCPO-
Destination of Material	e.g. Waste facility permit and number
Proposed Use	e.g. Reuse/ reclamation of land
Destination Authorisation	e.g. Waste licences, waste permits, waste facility permits and

	registration certificates
Exemptions	e.g. details of any exemption from the above requirements claimed by any organisation employed to handle wastes

6.2 Auditing

Details of the inputs of materials to the construction site and the outputs of wastage arising from the project will be investigated and recorded in a Waste Audit, which will identify the amount, nature and composition of the waste generated on the site. The Waste Audit will examine the manner in which the waste is produced and will provide a commentary highlighting how management policies and practices may inherently contribute to the production of C&D waste.

6.3 Cost Calculation

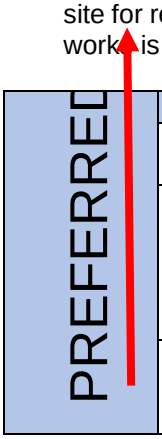
The waste quantities measured during the audit will be used to quantify the costs of management and disposal in a Waste Audit Report, which will also record lessons learned from these experiences which can be applied to future projects. The total cost of C&D waste management will be measured and will take account of the purchase cost of materials (including imported soil), handling costs, storage costs, transportation costs, revenue from sales, disposal costs, etc. Costs will be calculated for the management of a range of C&D waste materials, using the format shown in the Table below - separate record forms will be compiled in respect of each waste material.

Cost Element	Estimated Quantities
Material	Soil and Stone EWC 17 05 04
Quantity of Waste (tonnes)	500 tonnes
Purchase Cost i.e. Import Costs (€)	e.g. 0
Materials Handling Costs (€)	€1 per tonne
Material Storage Costs (€)	e.g. 0
Material Transportation Costs (€)	€5 per tonne
Revenue from Material Sales (€)	e.g 0
Material Disposal Costs(€)	€2.50 per tonne
Material Treatment Costs (€)	e.g. 0
Total Waste Management Costs (€)	€10000 for S&S
Unit Waste Management Costs (€)	€8.50 per tonne

7. Summary

The preferred strategy is to reuse as much of the material as possible on-site, but this is limited to some soil, rock and topsoil as set out in section 4.2. Excess material will be made available for reuse off-site. It is anticipated that the available material will be a clean and valuable resource capable of meeting the specifications of a typical Class 1 material. This material can be reused in local projects under development and/or quarries in the local area and beyond. The availability of the material and the scheduling of local construction projects will be kept under review as the project develops.

If reuse of surplus material is not possible, it will be sent for appropriate recovery. Any site identified for recovery of soil and stone will require the appropriate planning permission or waste authorisation in place to accept the material on-site. The south west region has a number of active Waste Permitted Facilities and Municipal Waste Landfill and Inert Landfill facilities which could accept inert waste from the project site for recovery purposes. A summary of the management options for the main materials arising from the work is as follows:



Route	Materials	Application/ Destination
Re use onsite	Rock/soil	Fill under northern end of covered reservoir, this material can be used for the temporary material storage area
Reuse offsite	Rock/soil	Infill for quarry or recovery at dedicated soil recovery facility (main part) Potential project outlets to be identified and monitored with discussion with project developers to be advanced a the construction phase approaches
Recycling offsite	Metals, wood, paper, cardboard,	Dedicated recycling stream

	Recovery offsite	Mixed residual waste	Recovery via SRF likely depending upon operator
	Disposal offsite	Asbestos	Landfill disposal