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OCSC

O'CONNOR · SUTTON · CRONIN
MULTIDISCIPLINARY CONSULTING ENGINEERS

A654: ARD SCOIL MHUIRE, CORBALLY, CO. LIMERICK

ENABLING WORKS SPECIFICATION

**For
CEIST**

22 July 2025

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ENABLING WORKS SPECIFICATION

ARD SCHOOL MHUIRE, CORBALLY, CO. LIMERICK

1 SCOPE OF WORKS

This specification covers the requirements of all earthworks, utility diversions, hoarding details and reuse of concrete material, to be carried out as part of the Enabling Works Contract, as outlined on the Contract Drawings and listed below:

1. Excavation levels as outlined on drawing A654-OCSC-XX-XX-DR-S-0500.
2. Foul, surface water and watermain demolitions and diversions as outlined on drawing A654-OCSC-XX-XX-DR-S-0510 & A654-OCSC-XX-XX-DR-S-0511.
3. Hoarding structural details and extents as set out on drawings A654-OCSC-XX-XX-DR-S-0520 & A654-OCSC-XX-XX-DR-S-0530.
4. Grading, testing & stockpiling of existing concrete for re-use as indicated on drawing A654-OCSC-XX-XX-DR-S-0520.

2 GENERAL REQUIREMENTS

This specification shall be read in conjunction with OCSC enabling works drawings as listed below and all other Enabling Works Contract Drawings and Specifications:

- A654-OCSC-XX-XX-DR-S-0500
- A654-OCSC-XX-XX-DR-S-0510
- A654-OCSC-XX-XX-DR-S-0511
- A654-OCSC-XX-XX-DR-S-0520
- A654-OCSC-XX-XX-DR-S-0530

2.1 DEFINITIONS

2.1.1 TOPSOIL

Defined as the organic soil on the natural surface of the ground not exceeding 300mm deep when this is required to be separately excavated.

2.1.2 OBSTRUCTIONS

All obstructions shall mean rock, concrete, reinforced concrete and the like met within excavations. This excludes those met on the surface of the ground.

2.1.3 FORMATIONS

Formation shall mean the surface of the ground after completion of any excavation as indicated on the tender drawings.

2.1.4 ROCK

Defined as natural material which, can be removed only by the use of compressed air plant, blasting, wedging or other quarrying methods and which occurs in continuous beds, exceeding 75mm in thickness. In the event that rock is encountered on site, excavation to be taken down to top of rock level. The Contractor is to survey the rock surface and forward survey drawings to the Quantity Surveyor for review.

2.1.5 STRUCTURAL ENGINEER

The Structural Engineer refers to the Civil and Structural Engineering Consultant employed by the client, in this case O'Connor Sutton Cronin (OCSC)

2.2 METHOD STATEMENT AND PROGRAMME

The Contractor shall provide the Structural Engineer with the following information:

a) Method Statement

A Method Statement is to be provided at least 14 days before the start of the works. This shall include proposed excavation and earth moving plant, method of excavation, filling material, stripping and stockpiling and disposing of excavated materials, method of treating slopes, protection and preparation of formations, demolition & removal of existing utilities, wheel wash etc.

b) Programme of Works

A proposed programme of works is to be provided at least 14 days before the start of the works.

3.3 SUPPORT OF EXCAVATIONS

The Contractor shall provide whatever supports he deems necessary to support the sides of excavations so as to ensure the safety of workmen, freedom from damage of any structures or services and to prevent any movement of adjacent soil. The Contractor shall also ensure that all necessary measures are undertaken to ensure that all existing structures are protected during the works. The Contractor shall be responsible for the design, sufficiency, stability, maintenance and safety of any required temporary works. Before the works are started, the Contractor shall submit to the PSDP, details of his proposals for supporting the sides of all excavations which have slopes steeper than 1:1.5 or less if poor conditions

exist, or exceeding 1.2m in depth which will be formed during the course of the works. The Contractor shall provide information to justify the adequacy of his proposals, if so requested by the PSCS, PSDP or other Design Team members.

The Contractor shall be deemed to have included in his rates for excavation the cost of supplying, installing and removing all necessary temporary support provisions of excavations.

2.4 INSPECTIONS AND APPROVALS

The Structural Engineer is to be given 10 working days notice of any inspections requiring attendance as outlined on the Enabling Works Contract Drawings. The final formation level is to be surveyed by the Contractor and a survey drawing is to be forwarded to the Quantity Surveyor and Structural Engineer.

2.5 SITE CONDITIONS

The Contractor should read this specification in conjunction with the Site Investigation Report for the site and the enabling works drawings.

2.6 EXISTING SERVICES

The Contractor is to refer to the GPR survey drawing for the position of existing underground services on site. In all instances the Contractor is to CAT scan the area prior to any excavation and to allow for hand digging up to 1m below ground level. All services present to be identified prior to construction; exploration with hand digging as necessary. Uncharted services to be recorded. The Contractor's attention is drawn to overhead powerlines located at the front of the existing building, running above the car park area.

The Contractor shall make good any damage resulting from his operations and shall indemnify the Employer against any claim for damage to drains, sewers, mains, cables, water pipes, fittings, poles, junction boxes, manholes, culverts or other property, supply or service, caused by his operations. The Contractor's prices shall be deemed to include for all investigation, relocation, protection, repair and / or other necessary work due to the presence of existing services etc. in or adjacent to the works or affected by the works.

3 EXCAVATION

The Contractor shall carry out all excavations required for the permanent works in whatever material may be encountered to the formation levels indicated in the accompanying drawings. The Contractor shall provide all labour and plant including all necessary excavating, lifting, haulage and transport equipment to deal with every class of material.

3.1 PROTECTION OF EXCAVATIONS

To avoid damage to excavation formations, excavation surfaces shall be left at a tolerance of $\pm 25\text{mm}$ the specified excavation level. Seepage and water shall be kept off the works. The Contractor shall keep all excavations free from water at all times unless permitted to do otherwise by the Structural Engineer. The Contractor shall provide, operate and maintain a system satisfactory to the Engineer of adequate pumping plant, temporary drains, sumps, well points and de-watering equipment as may be necessary to keep water out of the excavations. Water shall be conveyed from the Works to an approved disposal point in such a manner as to avoid any nuisance or injury to roads, ditches, streams, rivers, etc. or private property and it shall not be pumped into any service without the Structural Engineer's approval.

The Contractor shall advise the Structural Engineer of any soft or unsuitable areas at formation.

3.2 EXCAVATED MATERIAL

Disposal of surplus excavated material from the site, not required for reuse in or on the works, shall comply with the requirements of the Waste Management Act 1996. The Contractor shall provide for the disposal of all surplus excavated material and it shall be removed to a suitably licensed facility. All documentation related to the disposal of material to be forwarded to the Architect and PSDP for inclusion in the Safety Plan. Please review the site investigation report prior to commencing on-site to determine what measures are required to deal with on-site material.

3.3 HISTORICAL FINDS

During excavation and site clearing, the foreman and workmen shall watch out for objects that may be of archaeological or historical interest. All such articles whether coins, pottery, fossils, tools, utensils, weapons, bones, urns, vases, stone lined graves or the like shall be considered the property of the Local Authority and shall not be disturbed until viewed by the Design Team. The position of any such object in the strata should be specifically noted on discovery and marked on the layout plan and the Design Team promptly informed.

3.4 SURVEYS TO BE CONDUCTED DURING THE WORKS

If solid rock is encountered the Contractor will carry out a survey of the surface which will be sent to the QS and Structural Engineer for review as previously outlined.

The Contractor will also carry out a Survey of the final formation levels upon completion of the excavation to reduced levels.

4 TOPOGRAPHICAL SURVEY

A topographical survey of the site is to be undertaken upon completion of the works. The survey is to extend across the full footprint of the site to the site boundary as indicated in figure 4.1 below. The survey is to include the road, footpath and verge to approximately 5m beyond the edge of the footpath or to a naturally occurring boundary.



Figure 4.1 Topographical Survey Extents

4.1. DATUM

Grid references to be tied to ITM co-ordinates, all datum's relating to Malin Head O/S Datum and the final drawing capable of being scaled to 1:500 with associated accuracies. Indicate north point and include legend for all hatches and symbols.

4.2. GRID, HEIGHT AND PLAN CONTROL ACCURACIES

A control survey for the contract area comprised of permanent reference marks (PGM's) is to be setout and connected by closed traverse and tied to an origin connecting not less than three Ordnance Survey (OS) triangulation stations or a GPS baseline checked against at least two OS triangulation stations.

PGM's are generally to be located at least every 200 metres with clear sight lines between adjacent stations, and positioned such as to be provided protection from damage or obstruction from future development.

The control network shall be adjusted by an accepted method to obtain a best mean fit to the ITM Co-ordinate system throughout the Contract Area. Misclosures within the control traverse including any Ordnance Survey triangulation stations shall not exceed one part in 20,000. For distances between adjacent Permanent Ground Markers (PGM's) of less than 300 metres, the maximum errors shall not exceed ± 15 mm. Temporary survey stations for mapping shall be in sympathy with the nearest marker in the control circuit to better than one part in 12,000.

Level control for PGM's shall be calculated in closed circuits and checked by double levelling. Level control should be tied into a minimum of three OS bench marks unless otherwise agreed with engineer.

Vertical misclosures within levelling circuits and between OS bench marks should not exceed.

$$\pm 12 \times (k)^{1/2} \text{ mm where } k \text{ is the sum of the distances levelled in km}$$

4.3. CONTROL POINTS

A minimum of three permanent site survey control stations to be set up on site, which must be sufficient to be identifiable in ten years time. Tender to include any necessary site visits to identify or re-establish if required at a later date.

Location of site survey control points, reference and distances to minimum of three points of reference of permanent detail to be included.

Equipment calibration to be checked in accordance with manufacturer's recommendations. Site use calibration to BS7334. Accuracy to be appropriate to the scale of drawing output and no greater than 20mm in vertical or horizontal.

4.4 TOPOGRAPHICAL SURVEY REQUIREMENTS

All boundaries to be drawn with type, width and height noted. All vegetation of significance to be separately shown including hedges, ditches, ground cover, grass and trees with a bole of 150mm diameter at 1m above ground level or greater. Canopy of trees to be indicated. The survey is to include relevant data beneath tree or other canopies. All existing hedgerow widths and heights to be surveyed.

Road edge, centreline, ghost island, traffic islands and any other linear road markings, including stop and yield lines, hard shoulder delineation, bus lanes etc.

Piers, fence posts, trees, hand pumps, traffic signs and any other permanent signs, traffic lights, bus shelters, street furniture and bins, speed bumps, safety barrier, street lights including heights and any other permanent feature, are to be included.

All doors of buildings which fall within or partly within the area to be surveyed, or where they are contiguous with road, path or verge, with the finished floor levels of their respective buildings. The ridge, eaves and floor levels of all buildings outside the site along the site boundary, the ridge, eaves and floor levels of the houses on the opposite side of the road and floor levels and roof, ridge and eaves levels of the existing school buildings are also to be included in the survey.

All hard surfaces to be separately indicated including gravel, concrete, tarmac and paving (type to be indicated).

All kerbs to be indicated and noted, with string of levels to top and bottom of kerb. Steps and handrails to be indicated and noted as to type. Position of marked car parking spaces to be included.

The surveyor shall investigate all surface features relating to underground services utilities, such as fire hydrants, valves chambers/pits, earth pits, manholes, draw pits inspection covers and gullies, including all street furniture connected to pits and cables such as lamp posts illuminated road signs and bollards, etc. The footprint of such features at road pavement level shall be recorded in three dimensions.

Provide information in X,Y,Z co-ordinate for future road realignment manipulation. All z co-ordination relating to all existing ground information (contours and spot levels) should be input on a separate CAD layer. All other 3D information relating to walls, fences, steps and parapets, ridge lines etc to be on separate clearly identifiable layers. This is required to allow end users easily isolate the 3D information for the existing ground levels to generate a three dimensional topographical surface.

4.5. DOCUMENTATION

All survey information to be provided in 2D (all z co-ordinates set to 0) and 3D, AutoCAD DWG file format, version 2020 or later, issued by E-mail

Topographical Surveyors to use separate AutoCAD layers for 3D information relating to site levels, road levels, kerb levels, walls and boundaries, building information etc.

A spread sheet containing the feature codes used, together with a description should be submitted with fieldwork.

5 DEMOLITION AND DEVIRSON OF EXISIRTING UTILITIES

Existing utilities including foul and surface water sewers as well as watermains are to be demolished and diverted as set out on drawings A654-OCSC-XX-XX-DR-S-0510 & A654-OCSC-XX-XX-DR-S-0511.

. The Contractor is to submit a detailed Method Statement and Risk Assessment, to the PSDP and Structural Engineer, outlining their proposed methodology for the works at least 14 days prior to commencing. This should include for emergency procedures in the event of unexpected flows or contamination.

The Contractor is to identify and confirm the location, depth and alignment of all sewers and watermains on site, carrying out their own desktop studies and onsite scanning as required. A Below Ground Utility survey has been undertaken and is provided for information. It should be noted that the accuracy of the Below Ground Utility Survey cannot be relied upon and the Contractor must verify all services on site themselves.

The Contractor is to excavate and expose the sewers and watermains along their full length to be removed, talking care not to damage any adjacent utilities or structures. The ends of all live or redundant sewers and watermains are to be cut and capped to prevent the ingress of water and silt. The identified sections of pipework, including associated manholes, chambers, valves and fittings are to be removed and disposed of from site. All redundant connections and branches are to be disconnected and sealed at the main line.

All excavations are to be backfilled with suitable site excavated material, to be approved by the Structural Engineer. Back fill material should be free from organic matter, peat, roots, waste material and stones greater than 75mm or other deleterious substances. If site excavated material is not suitable, imported capping in the form of 6F1/F2 is to be used. All back fill material is to be compacted to at least 95% of its maximum dry density. All surplus material is to be removed from site and disposed of to a suitable licensed facility.

- All new water mains are to be installed in accordance with the Uisce Eireann Code of Practice for Water Infrastructure and the requirements as set out on drawing A654-OCSC-XX-XX-DR-S-0511.

6 RE-USE OF CONSTRUCTION MATERIAL – CRUSHED CONCRETE

This chapter outlines the requirements for processing and stock piling of concrete, derived from the demolition of the existing school building, for re-use as fill material under the Main Contract.

6.1. RECYCLING OF MATERIAL:

The use of bricks, blocks or other masonry units as well as mortar is strictly prohibited. All material must comply with the requirements of the TII Earthworks Specification for National Roads, CC-SPW-00600 (September 2024). Only plain, reinforced or prestressed concrete from the existing building may be processed for re-use. Any non-concrete materials shall be excluded from the material for recycling. All steel reinforcement, embedded fixtures and any other contaminants must be removed prior to crushing.

Concrete shall be broken down using mechanical means and processed through a crusher to produce a well-graded granular material suitable for use as **6F3** under CC-SPW-00600. The recycled material must be free from oversized pieces, rebar, wire, wood, plastic, glass, or any other deleterious substances. The maximum particle size shall not exceed 100mm and the material should be graded as per the requirements of Table 6/2 of CC-SPW-00600, also included in figure 6.1 below. Grading is to be defined and tested in accordance with IS EN 17892-4.

TII Publications
Earthworks Specification for National Roads

CC-SPW-00600
September 2024

Table 6/2 - Grading Requirements for Compliant Earthworks Materials

Percentage by Mass Passing the Size Shown																						
Class	Size (mm)		Size (mm) BS Series													Size (microns) BS Series				Size (microns)	Class	
	500	300	125	100	75	37.5	28	20	14	10	6.3	5	3.35	2	1.18	600	300	150	63	2		
1A			100																0-15		1A	
1B			100																0-15		1B	
1C	100		10-95													0-25			0-15		1C	
2A & 2B			100											80-100					15-100		2A & 2B	
2C1			100											35-80					35-80		2C1	
2C2			100											15-80					15-35		2C2	
2D			100																80-100	0-20	2D	
6A	100			60-90				0-70							0-20				0-5		6A	
6B	100		0-10																		6B	
6C			100							15-85						0-30			0-10		6C	
6D & 6E			100	85-100						25-100						10-100				0-15	6D & 6E	
6F1, 6F2, 6F3 & 6F4				100	65-100	45-100				15-80		10-70				0-30			0-10		6F1, 6F2, 6F3 & 6F4	
6H								100				60-100			15-45	0-25		0-5			6H	
6I & 6J			100		85-100					15-85						0-30			0-10		6I & 6J	
6K								100											0-10		6K	
6L										100		89-100		60-100	30-100	15-100	5-70	0-15 except 0-20 for crushed rock			6L	
6M					100														0-10		6M	
6N				100	65-100	45-100				15-75		10-60				0-30			0-15		6N	

Figure 6.1 Grading Requirements

All recycled material for use as 6F3 is to be tested in accordance with and is to comply with the requirements of Table 6/1 of CC-SPW-00600, included in Figure 6.2 below.

TII Publications
Earthworks Specification for National Roads

CC-SPW-00600
September 2024

Table 6/1 - Compliant Earthworks Materials: Classification and Compaction Requirements (See footnotes)

Class	General Material Description			Typical Use	Permitted Constituents (All Subject to Requirements of Section 1 and Appendix 6/1)	Material Properties Required for Compliance (In Addition to Requirements on Use of Fill Materials in Section 1 and Testing in Section 31)				Compaction Requirements in Section 12	Class			
						Property (See Exceptions in Previous Column)	Defined and Tested in Accordance with:	Compliance Limits Within:						
								Lower	Upper					
Selected Granular Fill	6	F	3	Selected granular material	Capping	Recycled aggregates (including crushed concrete and/or bituminous materials), natural (uncrushed) gravel, sand, crushed rock, crushed gravel or a combination thereof, excluding argillaceous and/or micaceous rock (see Note 7) Bituminous materials shall make up less than 50% of the total and shall exclude materials that contain tar and tar-bitumen binders.	i. Grading	Sourced on Site – I.S. EN ISO 17892-4 Imported – I.S. EN 933-1	Tab 6/2	Tab 6/2	Tab 6/4 Method 6	6	F	3
							ii. Optimum water content	BS 1377-2 (vibrating hammer method)	-	-				
							iii. Water content	I.S. EN ISO 17892-1	Optimum water content minus 2%	Optimum water content				
							iv. Los Angeles coefficient	Section 35	-	50				
							v. Slake durability	Section 34	95%	-				
							vi. Total sulfur content	I.S. EN 1744-1 clause 11.2	-	1%				
							vii. Permeability	Section 40	App 6/1	-				
							viii. Bituminous materials (Ra) content	I.S. EN 933-11	-	50%				
							ix. Soluble binder content	I.S. EN 12697-1 or I.S. EN 12697-39	-	2%				
							x. Organic content	BS 1377-3	-	1%				

Section 34:

The Slake Durability Index shall be determined in accordance with ASTM D 4644-16. The water content of the sample shall be determined in accordance with IS EN 17892-1.

Section 35:

The Los Angeles Coefficient shall be determined in accordance with IS EN 1097-2. The tests shall be carried out on multiple range and classifications in accordance with Annex B.1 of IS EN 1097-2.

Section 40:

The permeability of the material shall be determined as described in IS EN 17892-11.

The Contractor is to maintain full records of source, processing and testing of all material. All test certificates, compliance documentation and quality assurance records are to be submitted to the Structural Engineer for review.

6.2. STOCK PILLING OF MATERIAL ON SITE:

It is suggested that stock piling of 6F3 material and topsoil is located at the southern corner of the site, outside of the footprint of the proposed building, please refer to A654-OCSC-XX-XX-DR-C-0520 for details.

All stock pile locations are to be agreed with the Structural Engineer and are to be located in such a manner so as not to obstruct access or emergency routes. Stock piles should be located on firm level ground, free from

vegetation. Adequate separation distance is to be maintained between differing materials to ensure cross-contamination does not occur. Stock piles are to be clearly labelled by material type.

A geotextile membrane would be placed beneath stockpiles to prevent cross contamination with the underlying soil. Stock piles should not exceed 3m in height and their slopes should be suitably battered back so as to prevent collapse. Dust control measures should also be implemented as required.

7 VERIFICATION

This report was compiled and verified by:

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