

1.4 Topography and Site Characteristics

The topography within the proposed development site is steep as you travel northwards, with gradients ranging from 0.5-15%, and reasonably flat as you travel southwards, therefore forming a lower and upper section.

The site is mainly undeveloped. Site levels (excluding road embankments and the Ulster Canal and River Shambles), generally range between 55.84m AOD to 85.89m AOD, see figure below for elevation map.



Figure 1-3: Elevation map



1.5 Proposed Development

A comprehensive description of the proposed development is set out in the Planning Statement. The Statutory Notices should also be referenced.

The proposed works considered in this report relate to the Improvement works to existing road infrastructure and the provision of active travel links (pedestrian, cycle) and vehicular links comprising:

- Extending the existing vehicular route on Slí Ógie Uí Dhufaigh along the route of the existing Ulster Canal Greenway for approximately 120m before crossing the River Shambles. The existing greenway will be re-aligned to run parallel to the new carriageway. Carriageway width to be 6m and greenway width to be 3.5m
- Provision of Public lighting along both the extension and new road.
- Provision of safe pedestrian crossings.
- Amendments to existing roadway serving Roosky Vale to form a priority junction at the interface with the extended Slí Ógie Uí Dhufaigh.
- Provision of a new 13m clear span bridge crossing over the River Shambles for the new links.
- Provision of a replacement access to Monaghan Harps GAA club and associated pedestrian infrastructure links.
- Provision of approximately 460m of new vehicular and active travel link (Quarry Walk) through the proposed development site consisting of 5.5m vehicular carriageway, 2.5m 2-way cycle tracks, 1.8m footpath and roadside 3.3m/2.5m SuDS swale
- Upgrade of existing Davnets Row pedestrian route to form active travel shared link to the town centre. Upgrade to include vertical and horizontal alignment and width suitable for pedestrian and cyclists.
- Upgrades to the existing Infirmary Hill Path to improve link to Old Cross Square.
- Provision of new surface water, foul water and watermain infrastructure within the road corridor.
- Provision of surface water attenuation.



- Diversion of existing watermain infrastructure and provision of watermain spurs for the development lands.
- Associated earthworks, landscaping, utilities, boundary treatments and ancillary works.

1.6 Existing Ground Conditions

A site investigation was undertaken by IGSL limited between April and May 2023. The purpose of the site investigation was to investigate the existing ground conditions of the subject site relevant to the vehicular link and active travel infrastructure, utilizing a variety of investigative methods in accordance with the specifications for ground investigation in Ireland 2nd edition 2016.

The scope of the work (see Figure 1-4) undertaken for this project included the following:

- Visit project site to observe existing conditions
- Carry out 9 No. Trial Pits to a maximum depth of 3.30m BGL
- Carry out 6 No. Soakaways to determine a soil infiltration value to BRE digest 365
- Carry out 9 No. Plate bearing tests to ascertain the subgrade modulus
- Carry out 2 No. Boreholes to refusal to determine subsoil profile
- Carry out 4 No. Slit trench to determine location and depth of underground services
- Carry out 3 No. Shear vane test to determine shear strength of cohesive soils
- Geotechnical & Environmental Laboratory testing
- Report with recommendations

The sequence of strata encountered were variable across the site and generally comprised;

- Topsoil/surfacing from approximately 0 - 0.25m
- MADE GROUND from approximately 0.25m- 0.5m depth (comprised of brown/grey sandy gravelly clay, angular stones, red brick pieces, roots)
- MADE GROUND from approximately 0.25-0.85m depth (comprised of soft grey/dark brown/brown sandy gravelly clay/silt, angular cobbles and boulders, organic matter)
- Cohesive Deposits, Soft to firm from approximately 2.0- to end depth (comprised of , grey, slightly sandy gravelly silty CLAY with medium cobbles and organic matter content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles are subangular to subrounded)

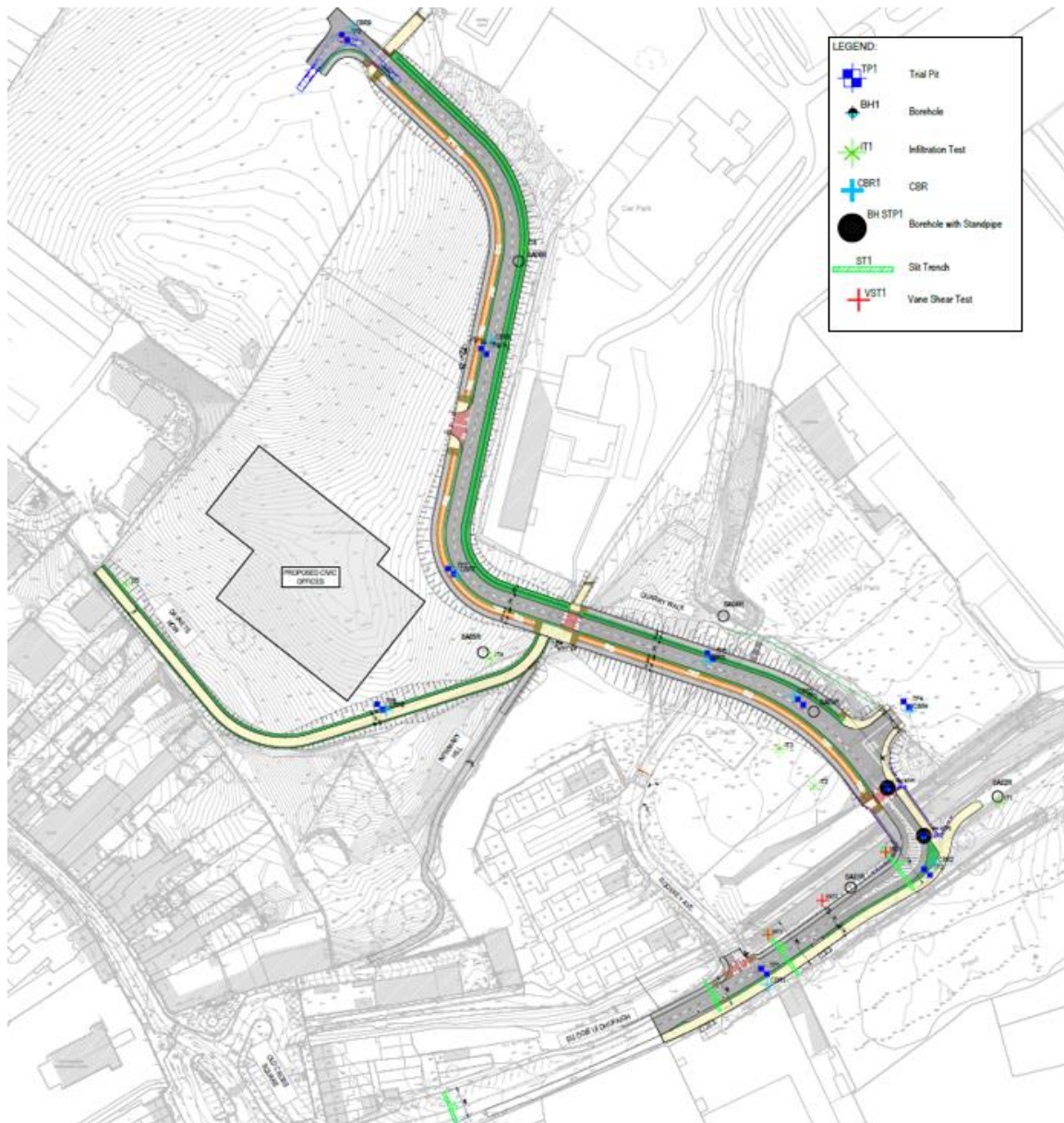


Figure 1-4: Extract from Site Investigation Plan

- Trial Pits were conducted to sample soil samples for geotechnical test. Results from the test conducted on samples are summarised below:
 - from Slí Ógie Uí Dhufaigh (Roosky Vale) to the proposed bridge location. This section parallels the Ulster Canal Greenway on level ground, with MADE GROUND identified in Trial Pits, Window Samples, and Slit Trenches. The MADE GROUND is variable in composition and strength, consisting of brick, plastic, timber, and concrete fragments in a gravelly SILT/CLAY matrix. Firm grey brown gravelly SILT/CLAY (TILL) was noted in places below the FILL. CBR values of 1 to 2% were recorded at 0.50 metres BGL.



- from the proposed bridge to Davnets Row link along the proposed Quarry walk, with ground level increasing from 56 meters to 72 meters. The lower part of the route has MADE GROUND overlying firm grey, brown sandy gravelly CLAY. TP07R encountered virgin soils with stiff brown boulder clay, with CBR values ranging from 1% to 3%.
- from Davnets Row link along Quarry walk to the proposed hammerhead. This section slopes steeply in glacial till deposits, with a thin, soft clay layer over firm to stiff grey brown gravelly clay. A CBR of at least 3% is assumed at 0.50 meters BGL, with CBR values increasing significantly in stiff gravelly boulder clay. The boulder clay is suitable for road construction, but significant cut and fill operations may be required due to site levels variations.
- Soakaway test results found varying infiltration rates across the site ranging from zero to 0.00102 m/min.
- Bedrock was noted at about 7.50m at both Borehole locations (BH01 and BH02), of which 3m of solid core was recovered. Strong to Very strong blue grey grained Limestone was identified. Ground water ingress was noted in both locations in association with gravel stratum, standpipes were installed to allow long term groundwater observation.
- According to the Waste Characterisation Assessment, the site does not contain any hazardous materials. The majority of the material along the Active Travel Links route may be repurposed, with the exception of material located near the attenuation pond. This material consists of made ground and does not meet soil recovery requirements. In spite of this, they are deemed acceptable for disposal in a landfill.