19166-02-001- Rev 1

N19 Shannon Airport Access Road Improvement Scheme

ROAD SAFETY AUDIT STAGE F – Part 1

November 2020



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1. INTRODUCTION

- 1.1 This report describes a Stage F1 Part 1 Road Safety Audit carried out on the N19 Shannon Airport Access Road Improvement Scheme, on behalf of Fehily Timoney & Company/Clandillon Civil Consulting.
- 1.2 Shannon Airport is a strategic transport link located in the south of County Clare just west of Limerick City. The airport is accessed via the N18/M18 and the N19. The N19 National Primary Road extends from M18 junction 9 to Knockbeagh Point Roundabout, approximately 5km. The route provides access to Shannon International Airport and the Shannon Free Zone industrial area, and a northern access to Shannon Town. As illustrated in Figure 1.1, the N19 has five intermediate junctions:
 - a local access to local road L3170
 - a 5-arm roundabout where the N19 is crossed by the R472
 - a roundabout giving access into the Shannon Free Zone
 - a local access giving access into the western end of Shannon Town and
 - a roundabout giving access to the southern end of the Shannon Free Zone

The route is good-quality dual carriageway between the M18 and the Drumgeely roundabout, and single-carriageway of mixed quality between Drumgeely roundabout and Knockbeagh Point.

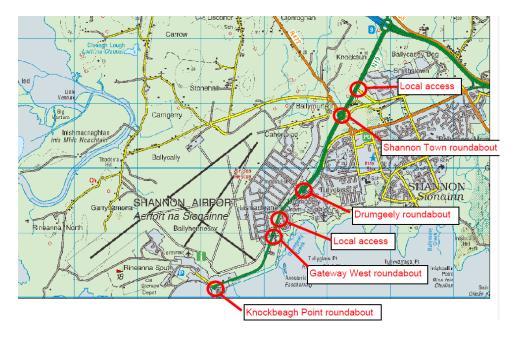


Figure 1.0: Scheme Location

It is an objective of Clare County Council to promote further expansion at Shannon Airport and Shannon Free Zone from an economic development and tourism perspective.

1.3 The audit team members were as follows: -

Team Leader: Ray Butler, BE CEng MIEI

Auditor Number RB210538

Team Member: Dermot Donovan, BE CEng MIEI.

Auditor Number DD50250

- 1.4 The audit team members visited the site on Tuesday, 22nd September 2020. Weather on the day of the site visit was partly cloudy with some light rain. The road surface was mainly dry.
- 1.5 The audit comprised an examination of the drawings relating to the scheme supplied by Clandillon Civil Consulting, of publicly available data on road collisions and traffic, and of an examination of the site.
- 1.6 This Stage F Part 1 Audit, which is a comparative assessment of the options, has been carried out in accordance with TII publication GE-STY-01024 Road Safety Audit. The proposed route options for the scheme have been examined and this report compiled in respect of the consideration of those matters that may have an adverse effect on road safety. The audit has not examined or verified the compliance with any other standard or criteria. A Stage F Part 2 Audit will be carried out on the chosen option.
- 1.7 Appendix A contains copies of the audited drawings.

2. TRAFFIC AND COLLISION DATA

2.1 Traffic

2.1.1 There is a TII automatic traffic counter on the N19 at Shannon Airport, numbered TMU N19 001.5S, and is at the location shown in Figure 2.1 below.

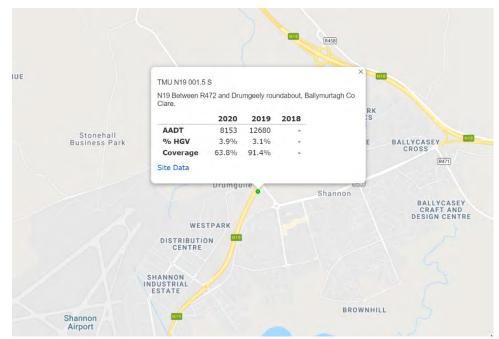


Fig 2:1 Traffic Counter Data

- 2.1.2 The specific site data for 2019 records an AADT of 12,388 vehicles with a percentage HGV of 3.1%. Traffic data for 2020 was not considered because of restrictions to travel in that year.
- 2.1.3 Traffic counts were carried out on the section between the Drumgeely Roundabout and the Gateway West roundabout over 14 days in November/December 2017. These show an average daily flow of 8,279 vehicles per day AADT, with 6% heavy vehicles.

2.2 Collision History

The collisions on the N19 Shannon Airport Access Road, for the five years 2012 – 2016 are shown in the table 2.1. All the injury collisions were minor which reflects the type of road and the lower speeds.

Year and Number	Day of Week	Time	Vehicle	Severity	Туре
2012-01	Tuesday	19:00-23:00	Goods	Minor Injury	Head-on
2012-02	Tuesday	23:00-03:00	Car	Minor Injury	Single Vehicle
2012-03	Friday	07:00-10:00	Car	Minor Injury	Rear end Straight
2012-04	Monday	07:00-10:00	Car	Minor Injury	Rear end Straight
2014-01	Wednesday	23:00-03:00	Car	Minor Injury	Rear end Left Turn
2014-02	Tuesday	07:00-10:00	Car	Minor Injury	Unknown
2014-03	Saturday	10:00-16:00	Car	Minor Injury	Rear end Straight
2015-01	Thursday	16:00-19:00	Bicycle	Minor Injury	Roundabout
2015-02	Monday	16:00-19:00	Car	Minor Injury	Single Vehicle
2016-01	Monday	07:00-10:00	Bicycle	Minor Injury	Roundabout
2016-02	Sunday	07:00-10:00	Car	Minor Injury	Single Vehicle

Table 2.1: Collisions 2012 - 2016

The locations of these collisions are shown on maps in Appendix B. Five of the collisions occurred between the N18 roundabout and Shannon Town roundabout, four between Shannon Town roundabout and Drumgeely roundabout and two on the single carriageway section between Drumgeely roundabout and Knockbeagh Point roundabout.

The collision rate, in injury collisions per 100 million km travel over the five years from 2012 to 2016 is 12.6 for the dual carriageway section between Shannon Road roundabout and Drumgeely roundabout and 6.6 for the single carriageway section between Drumgeely roundabout and Knockbeagh Point roundabout.

The collision rate for the dual carriageway is high while the rate for the single carriageway section is low. This is probably due to the higher vehicle speeds on the southbound approach to the Drumgeely roundabout.

The collision type and numbers between 2012 and 2016 is as follows:

Bicycle	2	18.2% of total
Single Vehicle	3	27.3% of total
Head-on	1	9.0% of total
Rear end straight	3	27.3% of total
Rear end left	1	9.0% of total
Unknown	1	9.0% of total

Rear end collisions make up 36.3% of the total. This is to be expected as there are three roundabouts and two T junctions on the N19. Both cyclist collisions occurred on roundabouts which highlights the difficulty cyclists have negotiating this form of junction

3. SCHEME OPTIONS

To allow the various options brought forward to Phase 2 to be properly assessed and evaluated against the agreed project objectives and the outline of items required to be considered contained in Appendix A2.4 Outline for Stage 1 – Preliminary Options Assessment (Engineering and Environmental) of TII publication PE-PMG-02042 the various options were developed to a sufficient preliminary level. The following paragraphs provide a description of the various developed options.

Renaming of Options

To avoid confusion at Public Consultation events the options brought forward from Phase 1 were re-named. This was done as many of the numbered options reviewed in the Phase 1 Project Brief were sifted out and the numbering of the options recommended to be brought were no longer sequential. The renaming is as follows: -

- Option A = Phase 1 Option 8
- Option B = Phase 1 Option 9
- Option C = Phase 1 Option 12
- Option D = Phase 1 Option 13A
- Option E = Phase 1 Option 13B

Option A

For this option, a combined footpath and cycle route would be constructed between Knockbeagh Roundabout and Drumgeely Roundabout within the N19 study corridor but separated from the road. There would be no improvement or upgrade works to the existing road. The proposed combined footpath and cycleway will link with the Shannon Town cycleway and footpath proposals and form part of the Shannon Free Zone – Proposed Walking and Cycling Routes.

In reviewing the potential route for Option A, two alternatives were developed A0 and A1.

A0 starts at Knockbeagh Roundabout and includes an initial pedestrian/cyclist crossing of the existing N19 before travelling along the right-hand side of the existing N19 for its full length and terminates by connecting to the existing footpath and road (parallel to Fergus Road) which provides access to this estate, the Shannon Town road footpath and cycling network and to the existing pedestrian bridge over the N19

which links into Shannon Free Zone. This option will be of all new construction.

A1 also starts at Knockbeagh Roundabout but initially travels on the lefthand side of the existing N19 mainly along the route of the existing below standard footpath and works will involve removal of the existing path and construction of a new facility. When the combined footpath and cycle route reaches the Shannon Free Zone – Gateway West Access it will cross the N19 at a new pedestrian/cycleway crossing and would then follow the same route as A0 to the proposed end.

In both cases the combined footpath and cycleway would be approximately 2.5 km in length constructed generally parallel to the existing road and as located in fairly open areas is proposed to be designed to DN-GEO-03047 and DN-GEO-03036.

Currently pedestrian and cyclist numbers are low, but this is a consequence of the lack of proper facilities to cater for them. The proposal is to provide a Low Volume (less than 1500 users a day) Shared Use Two Way Cycle Facility with Pedestrians of 3m width with a segregation distance from the existing road through the provision of a grassed verge of minimum 2m width along the single carriageway section and 6m width along the dual carriageway section.

Option B

This option comprises Option A with additional measures including bus shelters, bus bays and an improved bus service.

Consultation was held with the NTA on the 27/05/20 in relation to Public Transport. They outlined that the current LSMATS position, based on modelling for the current strategy (2040), is that neither form of rail has sufficient passenger demand and therefore improvements to existing bus services is seen as the solution in the short to medium term to additional demand. This will be done on a phased basis in line with development and monitoring of usage. There is no proposal for a rapid bus service or dedicated bus lanes currently. NTA asked that:

- Ongoing consultation is undertaken re provision of and upgrade to existing bus stops to NTA standards during the development of the scheme.
- 2. Bus stop and footpath integration is considered with shortest paths to demand lines as possible
- 3. Junction strategy takes on board existing/potential increase in bus services and their routes
- 4. Look to future proof road with proposed development along the route and potential new bus stops.

Therefore Option B in terms of additional design and construction measures over Option A includes provision of a new bus bay at the existing bus stop where none exist, the upgrading of the existing bus shelter and additional footpath links from the bus stop to the proposed cycleway and pedestrian facility.

Option C

This option consists of an on-line upgrade of the existing the N19 between Knockbeagh Point and Drumgeely Roundabout to meet current design standards. The current proposal consists of providing:

- a) 1.2 km of Type 2 Single Carriageway comprising 8m carriageway with on one side a 1.5m grass verge, 3m shared cycleway and pedestrian facility and 1.5m grass area whilst on the other side a 2.5m grass verge between Knockbeagh roundabout and Shannon Free Zone – Gateway West Access, and
- b) 1.0 km of Type 2 Dual Carriageway consisting of 16.5m carriage way with on one side a 5.5m grass verge, 3.0m shared cycleway and pedestrian path and 1.5m outside grass verge whilst on the other side a 2.5m grass verge giving an overall total width of 29m between Shannon Free Zone-Gateway West Access and the Drumgeely Roundabout.

Within Option C three cases were considered: -

- C0 Centering the proposed upgrades as closely as possible to the center line of the existing road. This option will require construction in several discrete sections in sequence requiring construction of temporary road diversions and numerous phases of temporary traffic management.
- 2. C1 Developing the proposed upgrade to the left of the outside edge of the existing road. This would involve for the proposed single carriageway section building to the left of existing and when complete diverting traffic and then upgrading the old existing N19 to provide the combined footpath and cycleway and for the proposed dual carriageway section building one carriageway on the left of the existing road then diverting traffic onto the new construction when completed and then excavating out and upgrade the existing road to provide the second side of the dual carriageway.
- 3. C2 Develop the proposed upgrade to the right of the outside edge of the existing road. This would involve that for the single carriageway

section building to the right of the existing road and when complete diverting traffic and upgrading the old existing N19 to provide the combined footpath and cycleway and for proposed dual carriageway section building one carriageway on the right of the existing road then diverting traffic onto the new construction when complete and then excavating out and upgrading the existing road to provide the second side of the dual carriageway.

The design and construction for all options will match the existing ground levels as close as is possible whilst meeting required standards therefore it is not envisaged that there will be any significant cuts or embankments. Because of the presence of soft ground, it is expected that there will be significant piling for along anywhere between 50-60% of the proposed line. This will not differ significantly between the 3 cases.

The rest of the design and construction will be to TII Standards and consist as typical of new road projects of drainage, earthworks, pavements, ducting, crash barrier, road markings, signage, landscaping and fencing. These items will not significantly differ between the three cases.

Option D

This option consists of the provision of a high-standard grade-separated entrance to Shannon Free Zone at Drumgeely Roundabout on the N19. No other improvements are included to the remainder of the existing road.

It is not possible to determine the exact type and composition of the gradeseparated junction currently as this requires detailed traffic information.

To allow for an initial assessment of this Option a preliminary design of a compact grade separated junction was developed at Drumgeely Roundabout and is shown on the drawing.

Option E

This option consists of signalizing some or all the junctions along the N19 to maintain access to the airport at times of peak traffic flow to or from the SFZ and vice versa. No major works would be involved and the scheme at its largest would consist of the provision and construction of an interlinked traffic signaling system at the three junctions with associated pedestrian crossings. The works would involve ducting including road crossings, traffic signal controllers, poles and heads, new line marking of stop lines and pedestrian crossings as well as some minor kerbing and footpath works.

4 STAGE F PART 1 AUDIT

4.1 **Option A**

Option A involves the construction of new pedestrian/cycle facilities between Knockbeagh Roundabout and Drumgeely Roundabout, a length of approximately 2.5km. There are two alternatives for this option, A0 east of the existing road and A1 which commences west of the existing road and crosses to the east at the Gateway West Roundabout to continue along the route of A0. There is little to choose from a road safety point of view between A0 and A1. Each alternative crosses three accesses and each involves a crossing of the N19.

Potential problems of Option A are:

The pedestrian/cycle facility is shown to end where it ties into the existing pedestrian/cycle facility at Fergus Drive where the existing facility is of a lower standard than the new proposal.

Cyclists and pedestrians must then negotiate a busy junction to access the overbridge north of Drumgeely Roundabout.

It is not clear, from the drawings, who has right of way at the Drumgeely Hill junction. The junction is complex with two in lanes and two out lanes separated by a large grass island. This layout results in a long crossing distance increasing the risk of collision for vulnerable road users.

4.2 Option B

Option B has characteristics and potential problems like those of Option A except that it includes new bus bays close to Knockbeagh Roundabout. The provision of the bus bays and shelters with improved pedestrian links will have a positive impact on road safety.

4.3 Option C

Option C involves an upgrade of the existing road between Knockbeagh Roundabout and Drumgeely Roundabout, a length of approximately 2.5km. There are three alternatives proposed C0, C1 and C2. There is no difference other than position of the final layout between the three alternatives. There may be a preference from the point of view of construction but there is no difference from an operation point of view.

Potential problems of this option are:

- Cyclists and pedestrians must negotiate two busy roundabouts with two lanes on each entry, one at Shannon Free Zone – Gateway West Access and one at Drumgeely. This will put vulnerable road users at serious risk of injury. Moving the provision of cycle/pedestrian facilities to the east of the road might improve the situation.
- There is no proposal to construct bus bays as part of this option.
- The provision of a dual carriageway cross-section, between the Drumgeely Roundabout and Gateway West Roundabout, could increase the operating speed of that section of road and lead to an increase in the incidence of rear-end collisions on the roundabout approaches. While dual carriageways typically have a lower collision rate than single carriageways, that might not be the case for this section of road because it has few junctions and has an overtaking prohibition.

4.4 Option D

Option D involves the construction of a grade separated junction to replace the Drumgeely Roundabout with no other improvements to the remainder of the existing road.

Potential problems of this option are:

- There are no facilities provided for vulnerable road users. In fact, access to the existing pedestrian/cycle overbridge is severed which will result in pedestrians and cyclists having to use the new overbridge including having to negotiate two roundabouts. This will put vulnerable road users at serious risk of injury.
- The provision of a grade separated junction at Drumgeely Roundabout may give drivers the impression that the high-quality dual carriageway continues after the junction whereas the crosssection changes to single carriageway shortly after this junction. This may lead to excessive vehicle speed in an area where limited facilities are provided for vulnerable road users. The possible increased operating speed may lead to an increase in rear-end collisions at the Gateway West Roundabout.

4.5 Option E

Option E involves the provision of traffic signals at Knockbeagh Roundabout, Shannon Free Zone – West Access and Drumgeely Roundabout. Pedestrian crossings would be provided at all junctions.

Potential problems of this option are:

There are no facilities provided for cyclists.

5. RANKING OF OPTIONS

5.1 Principal Road Safety Factors of the Route Options

The principal road safety characteristics that differentiate options on this scheme are:

- Provision for vulnerable road users
- · Possible increase in vehicle operating speed

5.2 **Option Ranking**

All options are 2.2 km long and have the same number and type of junctions and accesses. The principal difference is the provision for vulnerable road users. Taking into consideration the number and severity of problems identified on each route and the characteristics of each route that impact on road safety, the audit team has concluded that the route option proposals, as provided, rank as shown in Table 5.1 below in terms of road safety. The ranking shown is a relative grading of the route options with respect to each other.

OPTION	RANK
Option B	1
Option A	2
Option C	3
Option E	4
Option D	5

Table 5.1: Option Ranking

Options C and E could be improved by providing better facilities for vulnerable road users: in the case of Option C, provision of safe facilities for negotiating the roundabouts and facilities at bus stops, and in the case of Option E, the provision of off-road cycle facilities. Option E, traffic signals, would then be the preferred option as traffic signals are safer than roundabouts for vulnerable road users, with Option C ranked second.

6. AUDIT TEAM STATEMENT

6.1 We certify that we have examined the drawings and documents listed in Appendix A and have inspected the site. This examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified to improve the safety of the scheme.

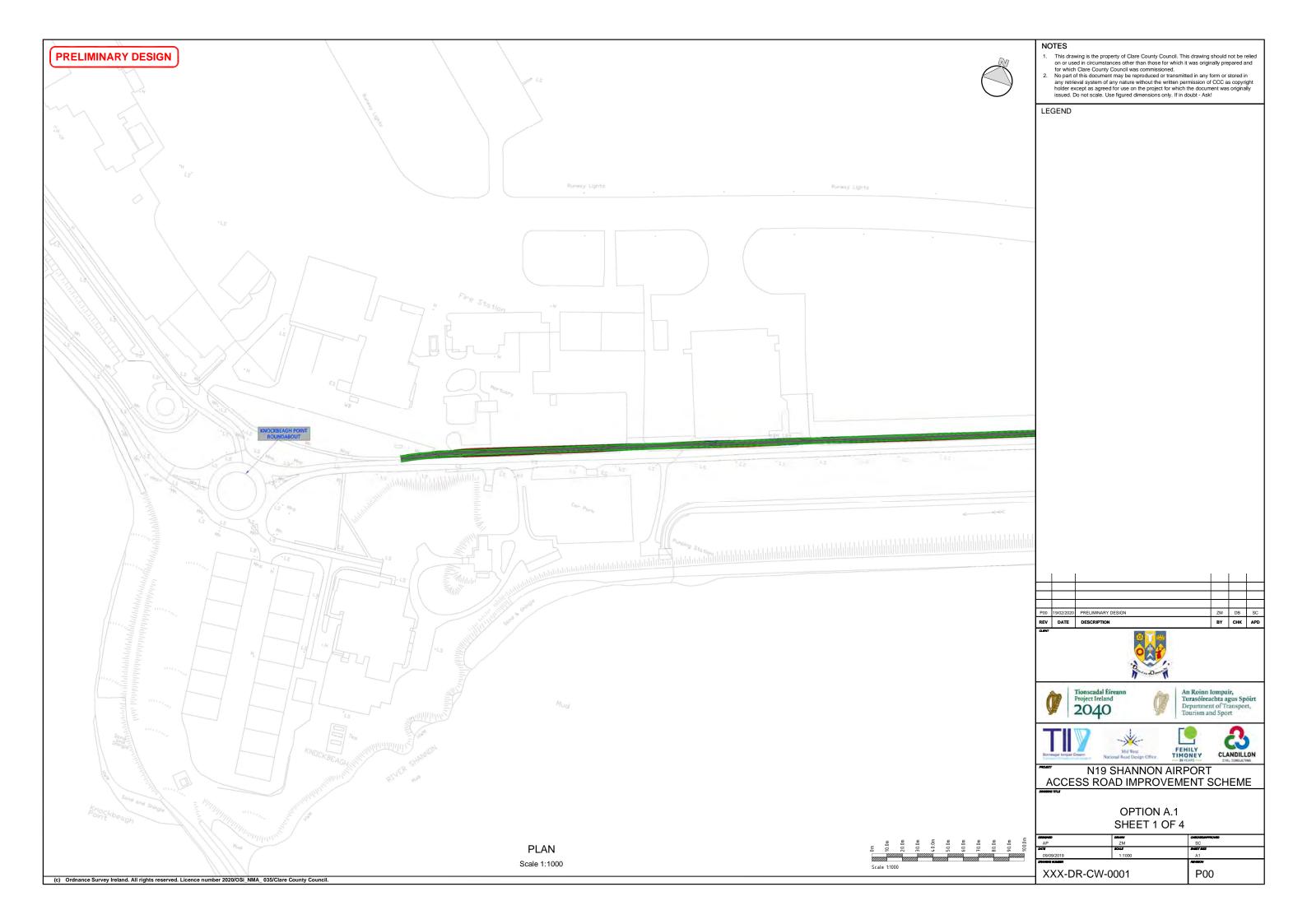
Signed..... Ray Butler

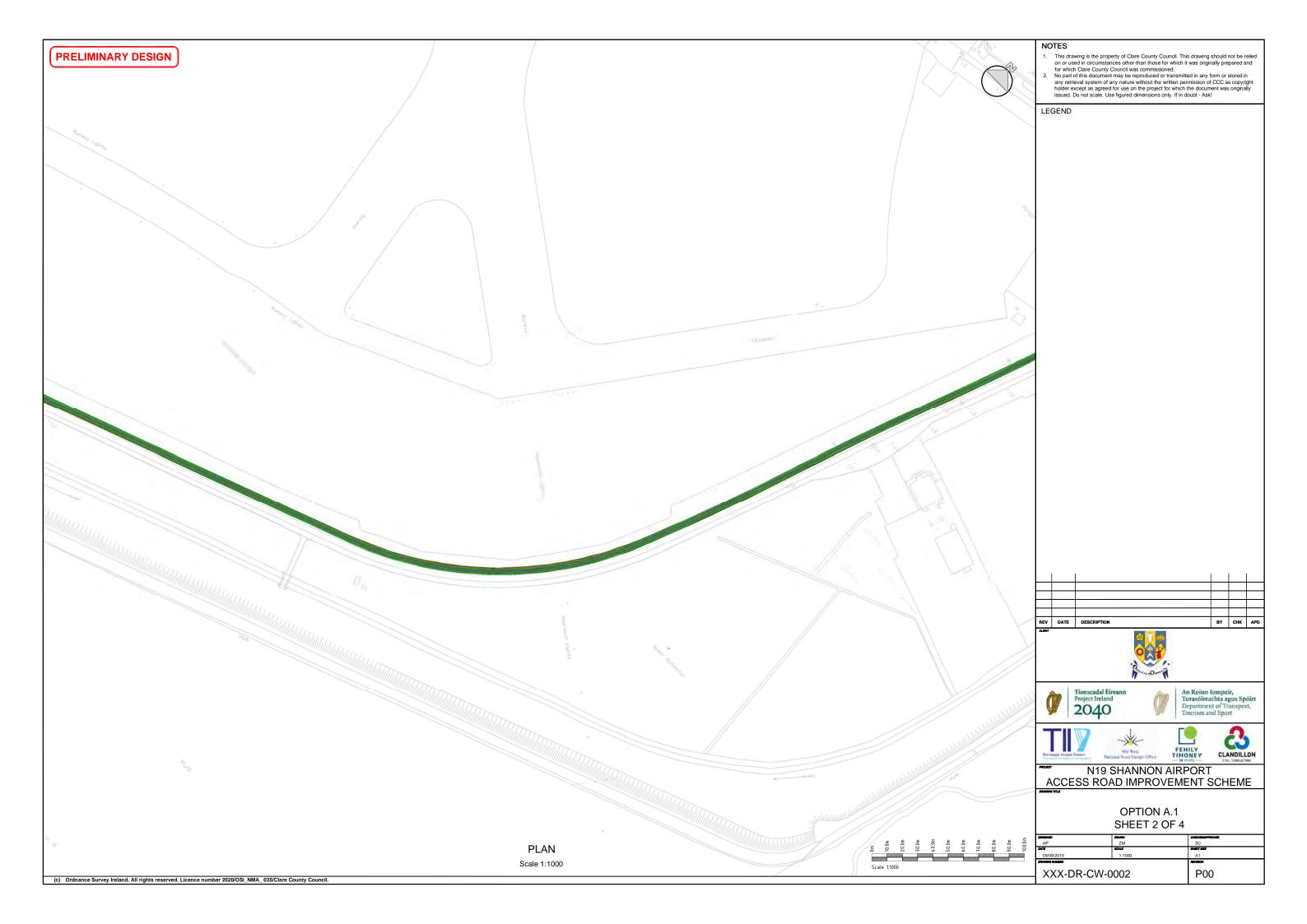
Date23rd October 2020

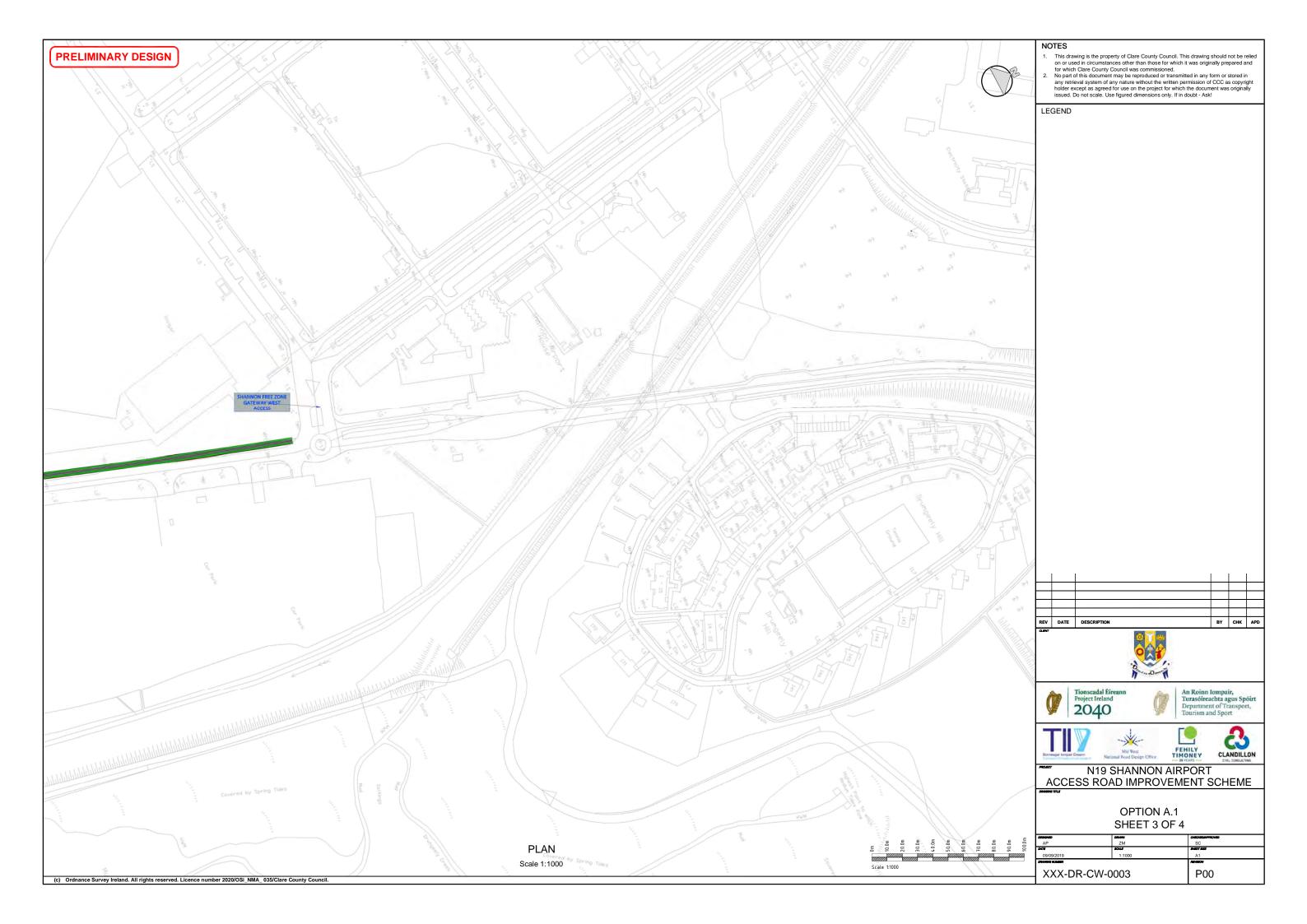
Signed Dermot Donovan

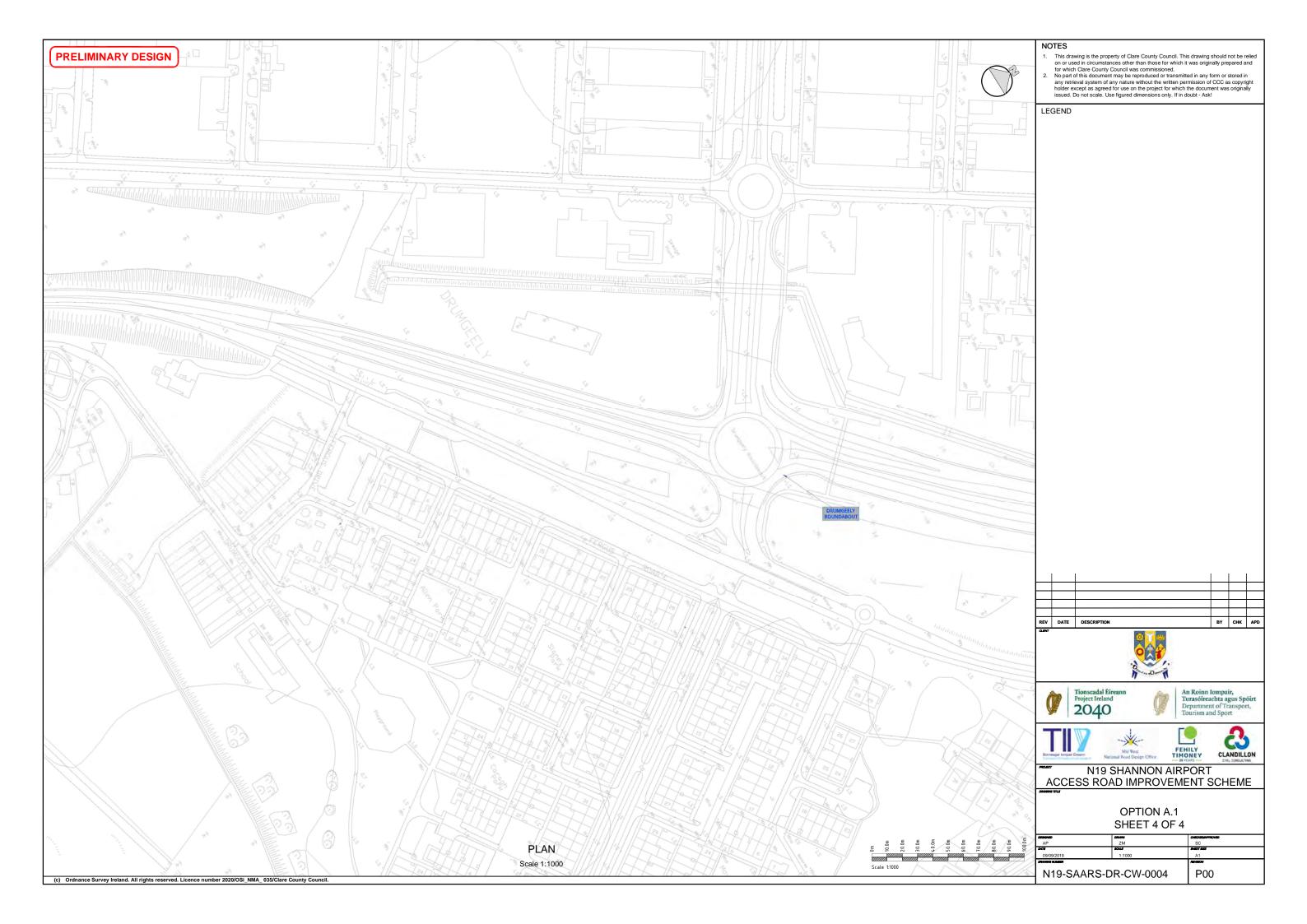
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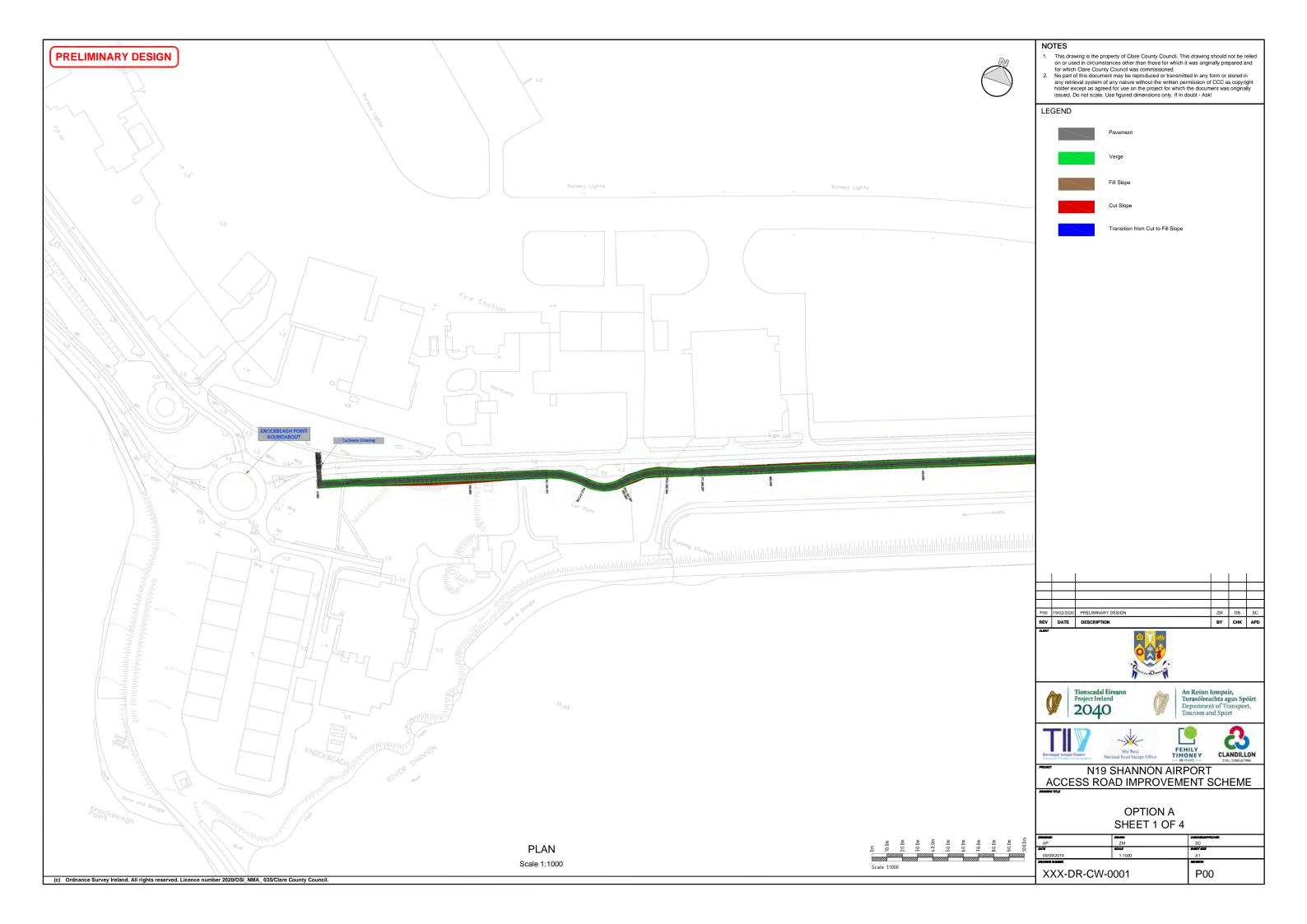




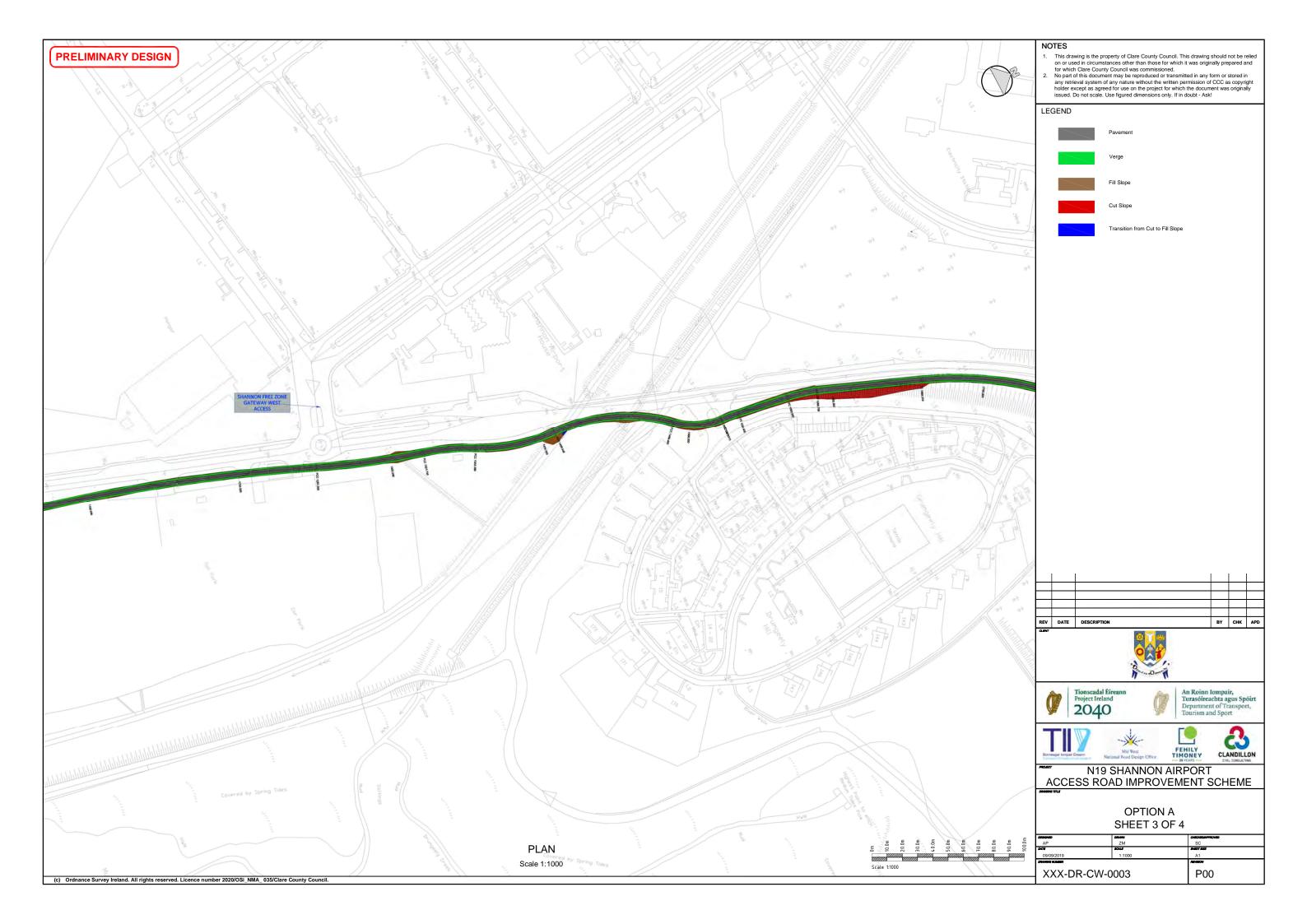


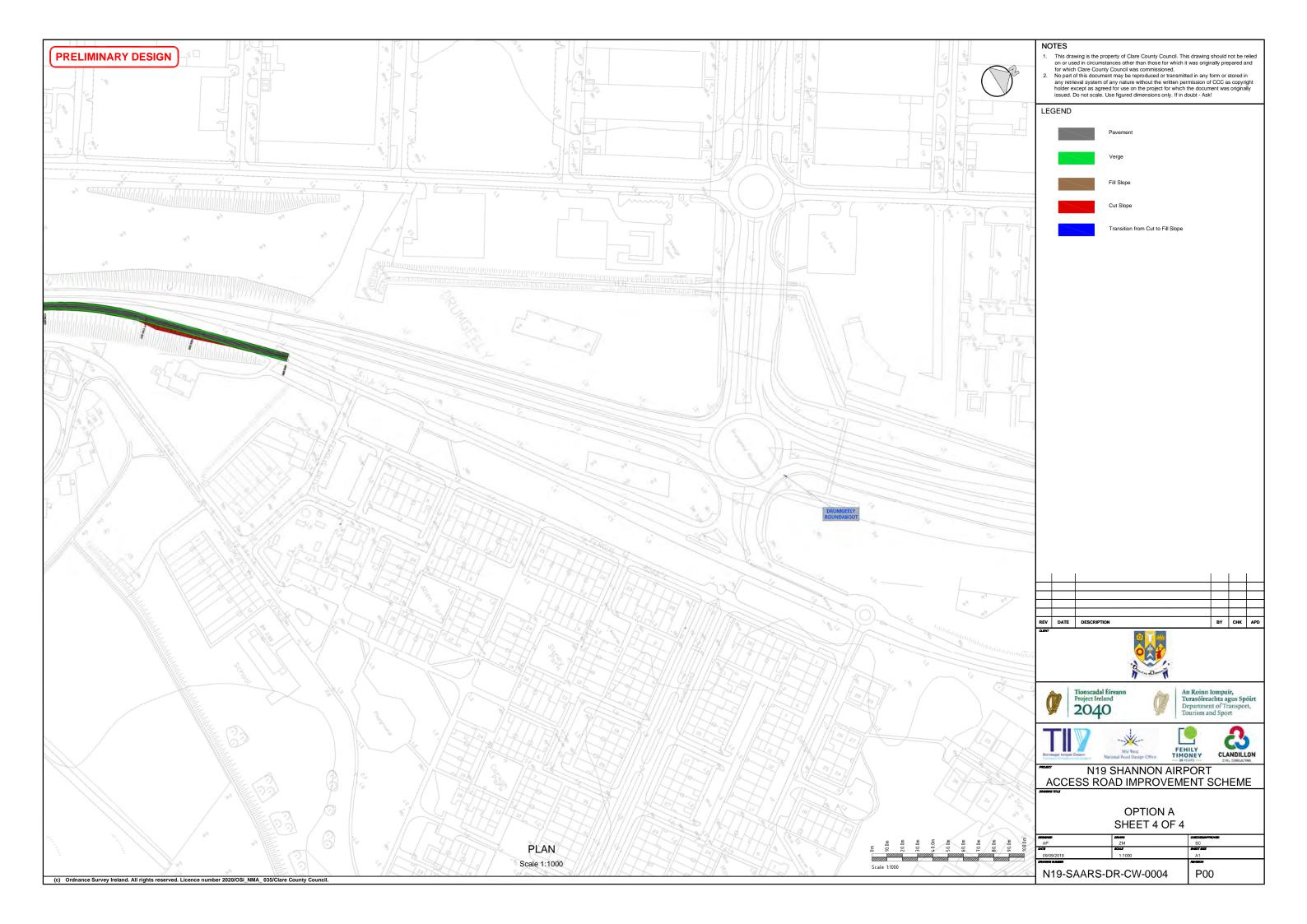


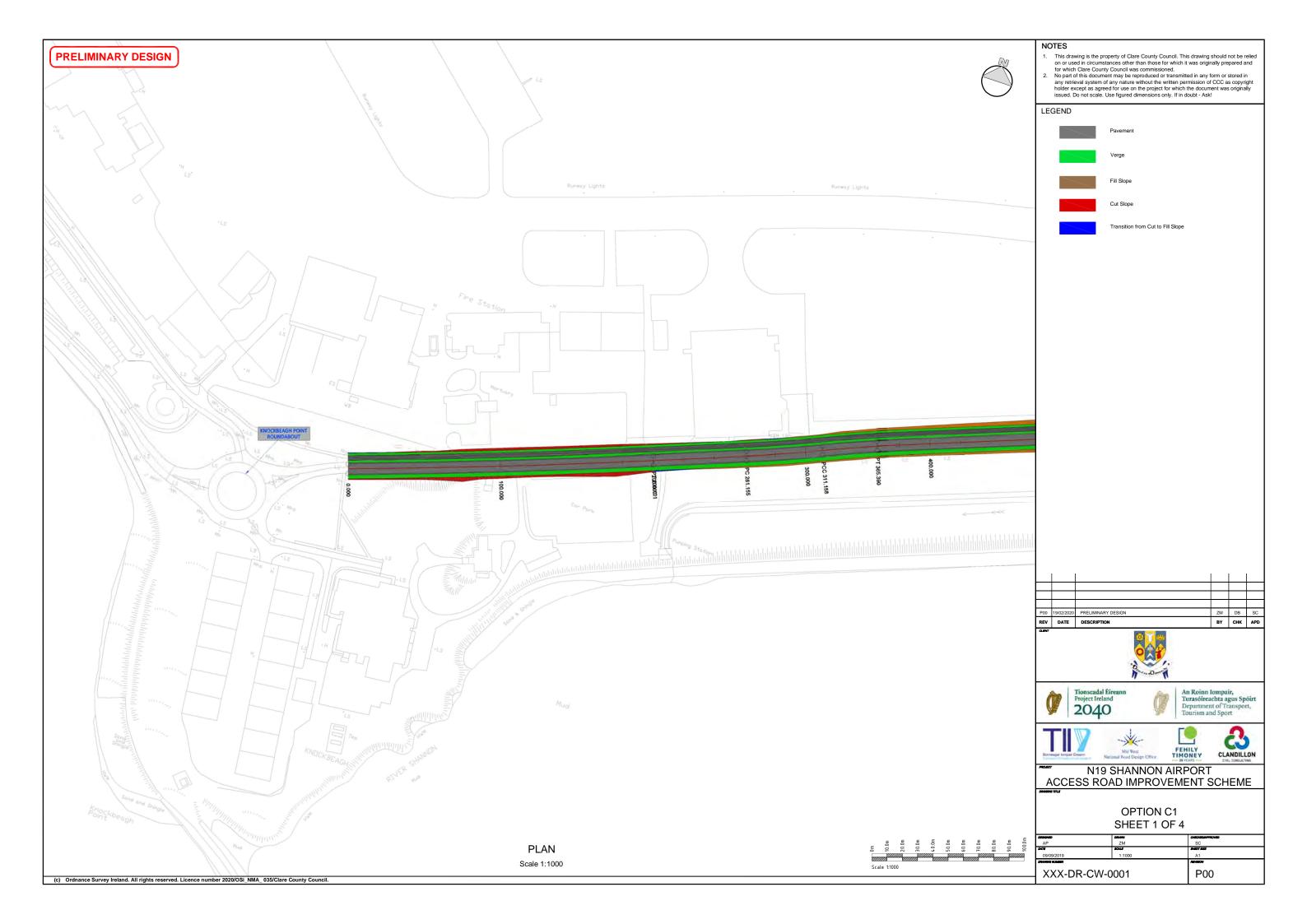


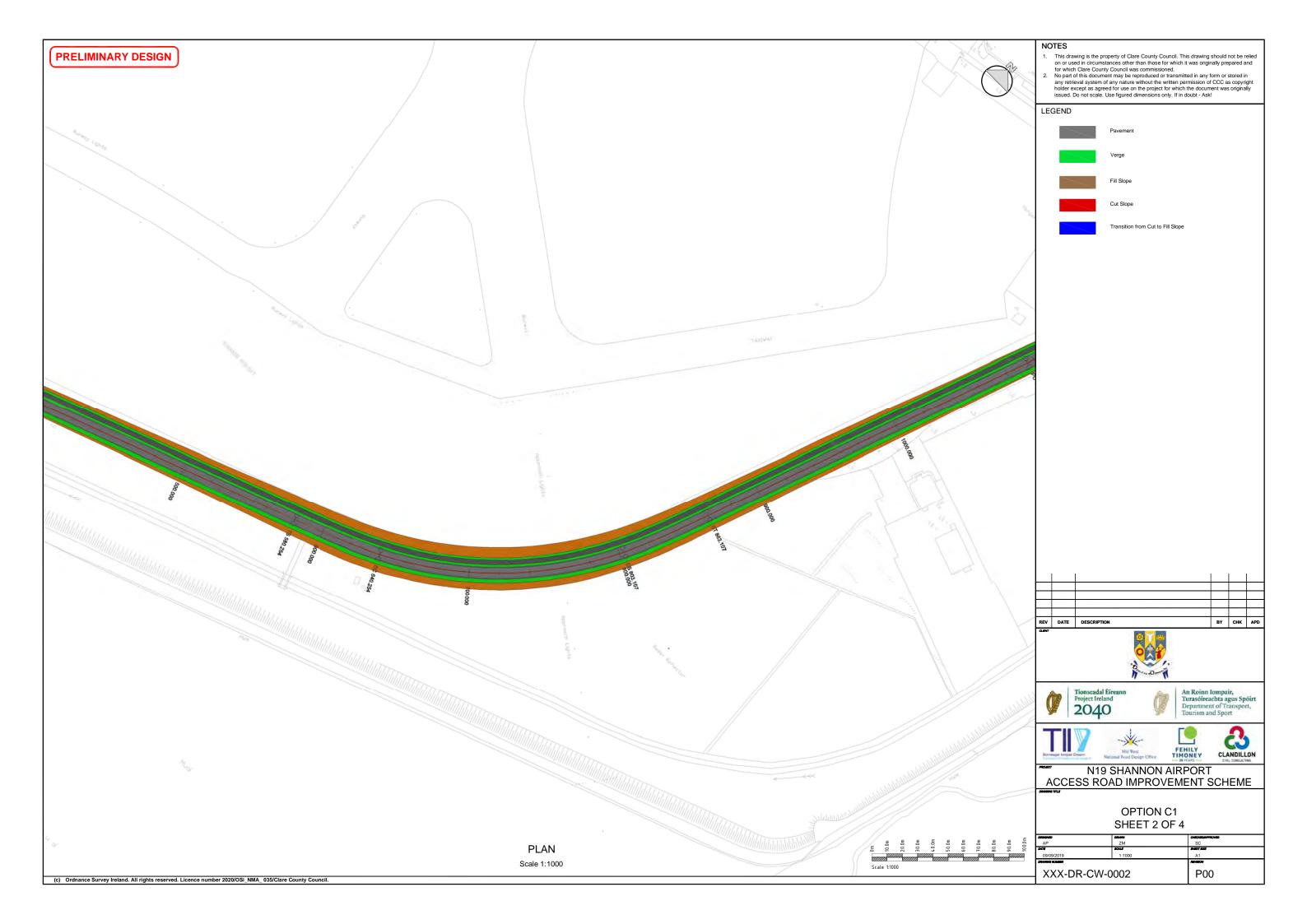


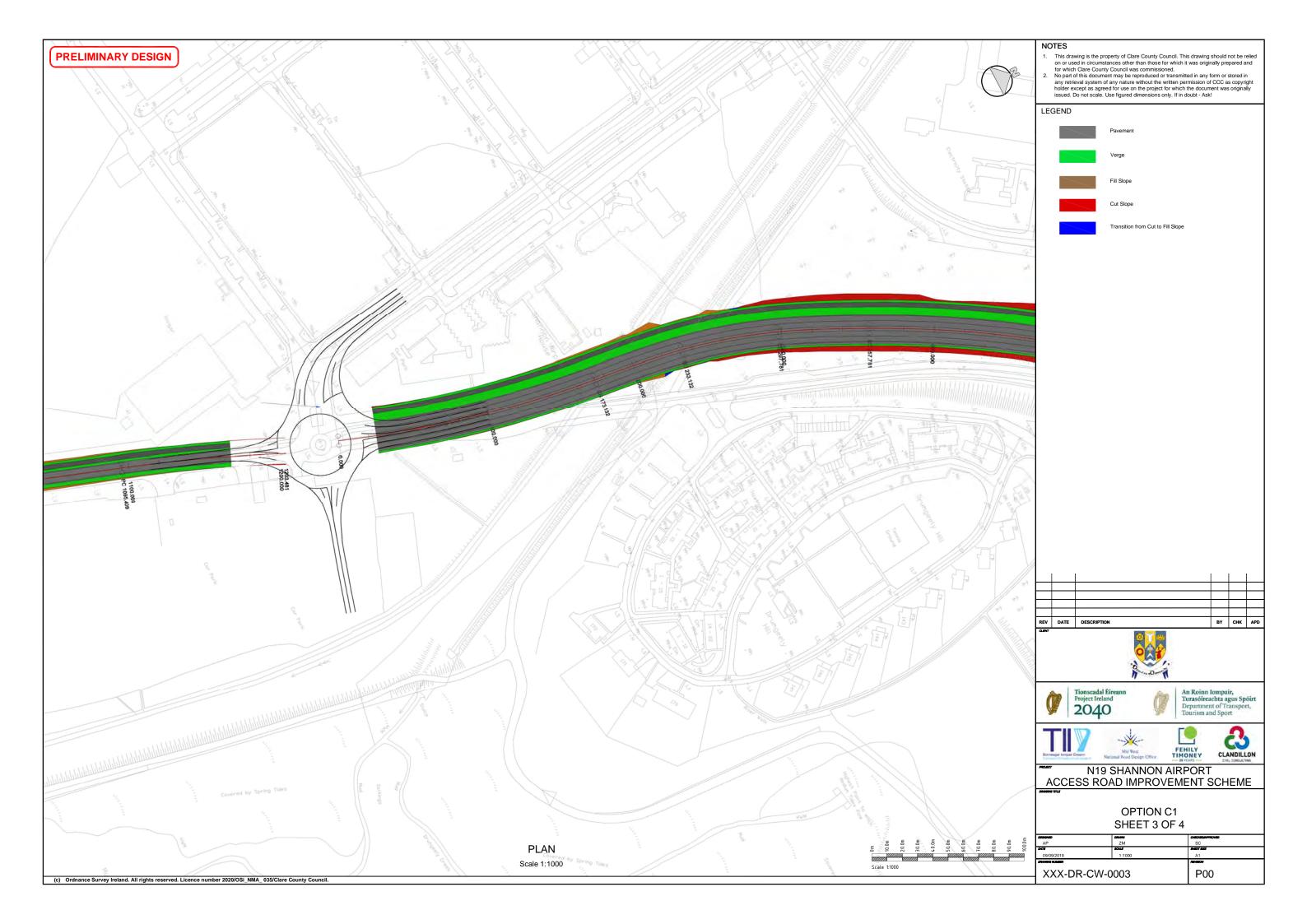


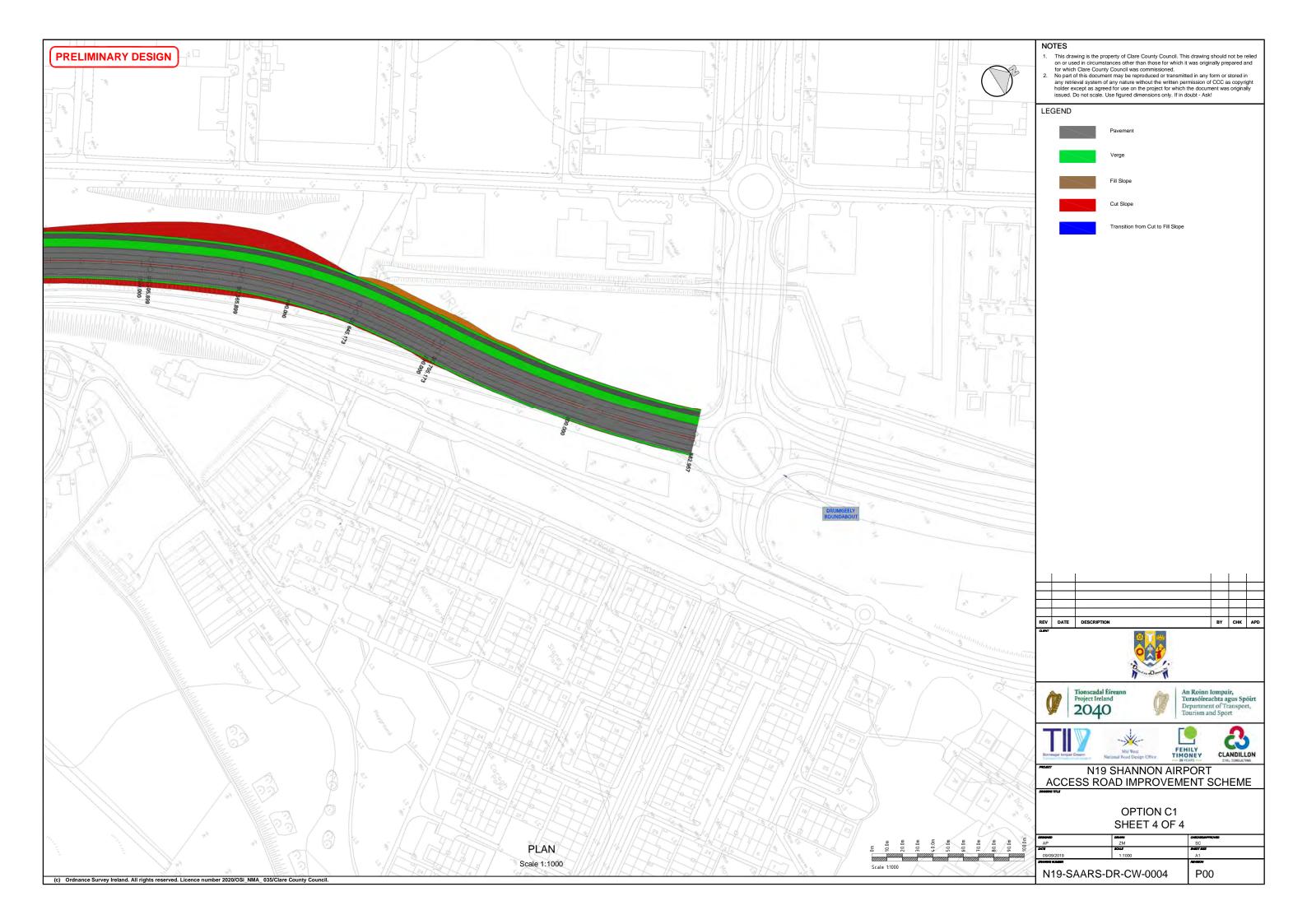


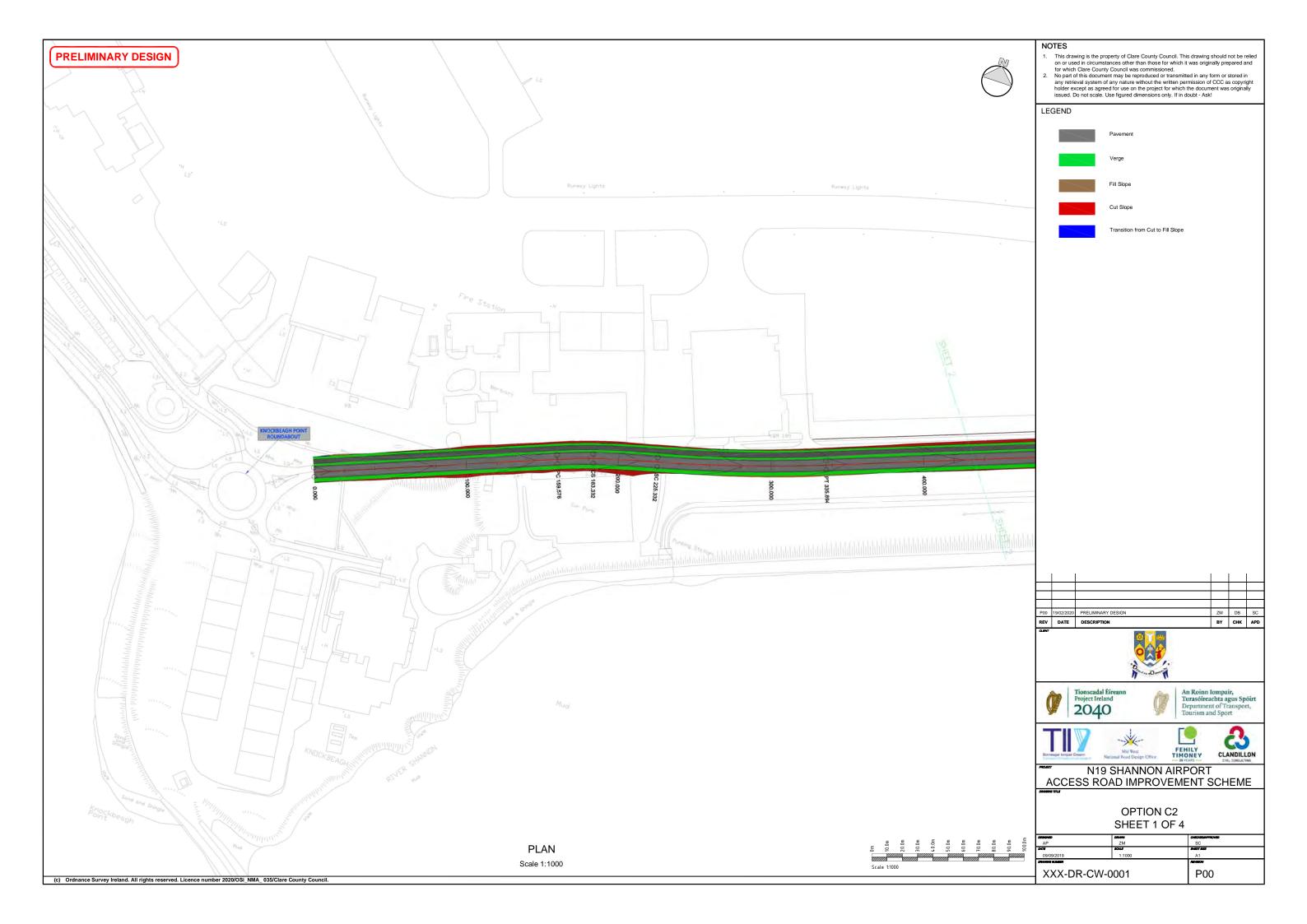


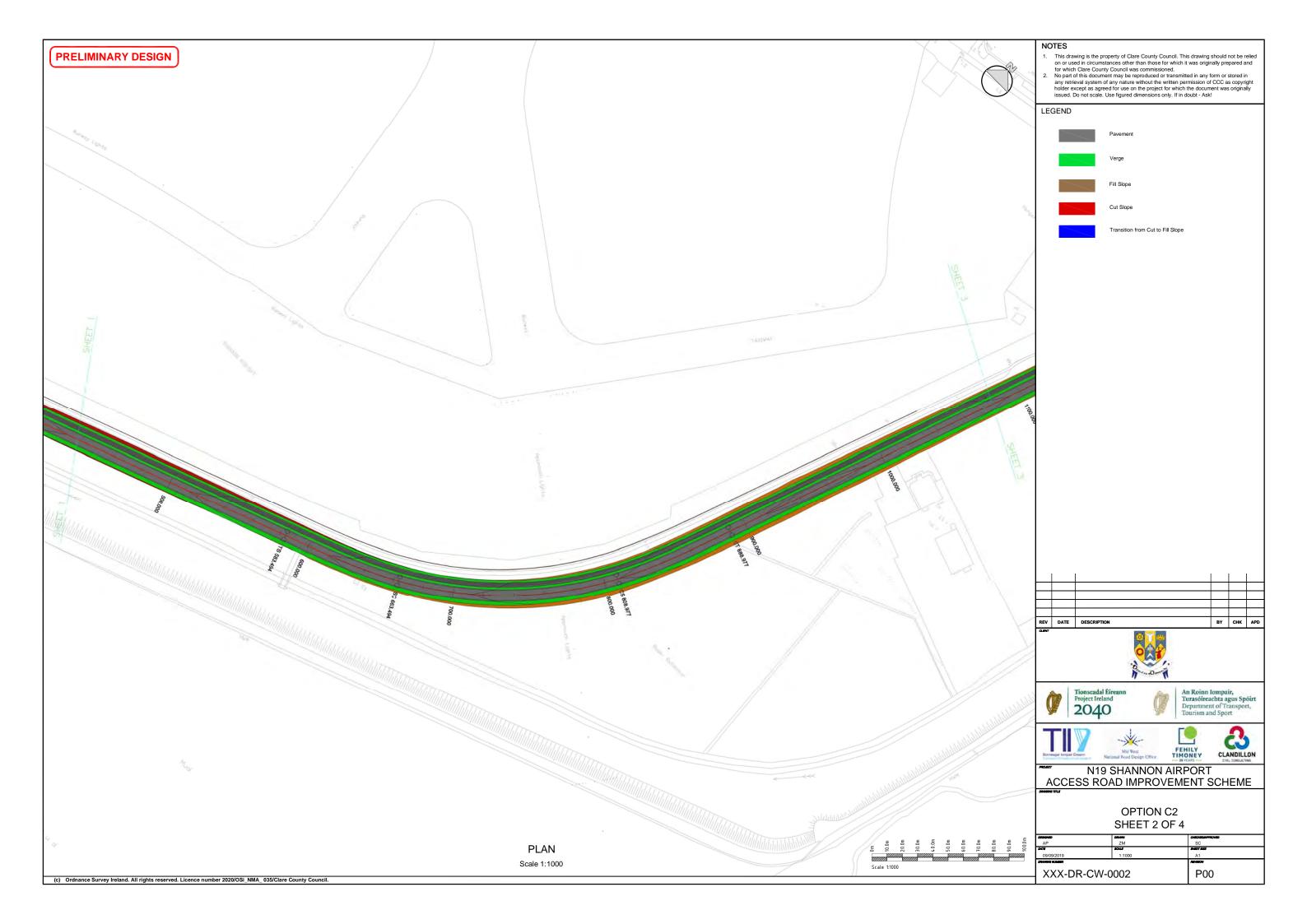


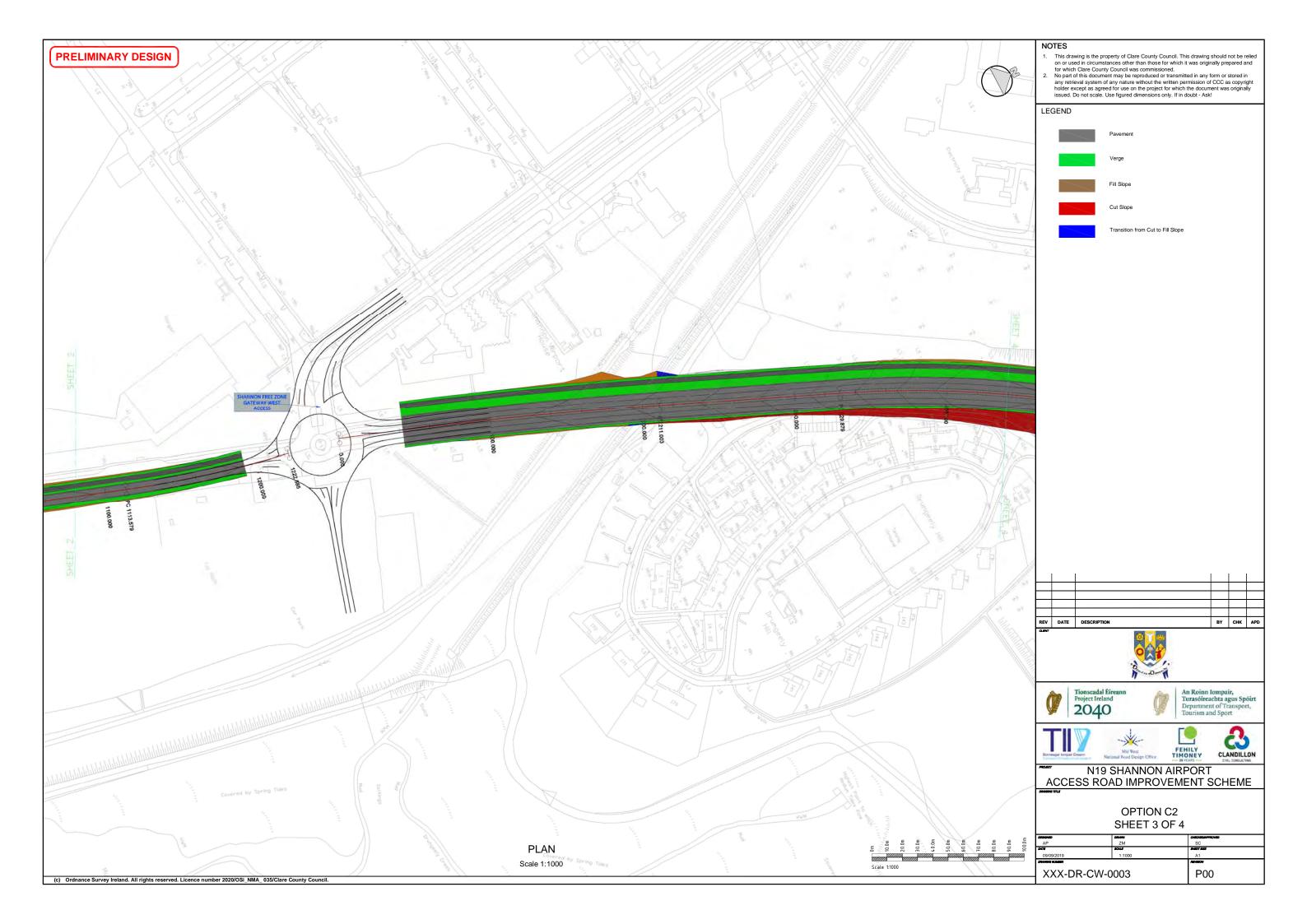


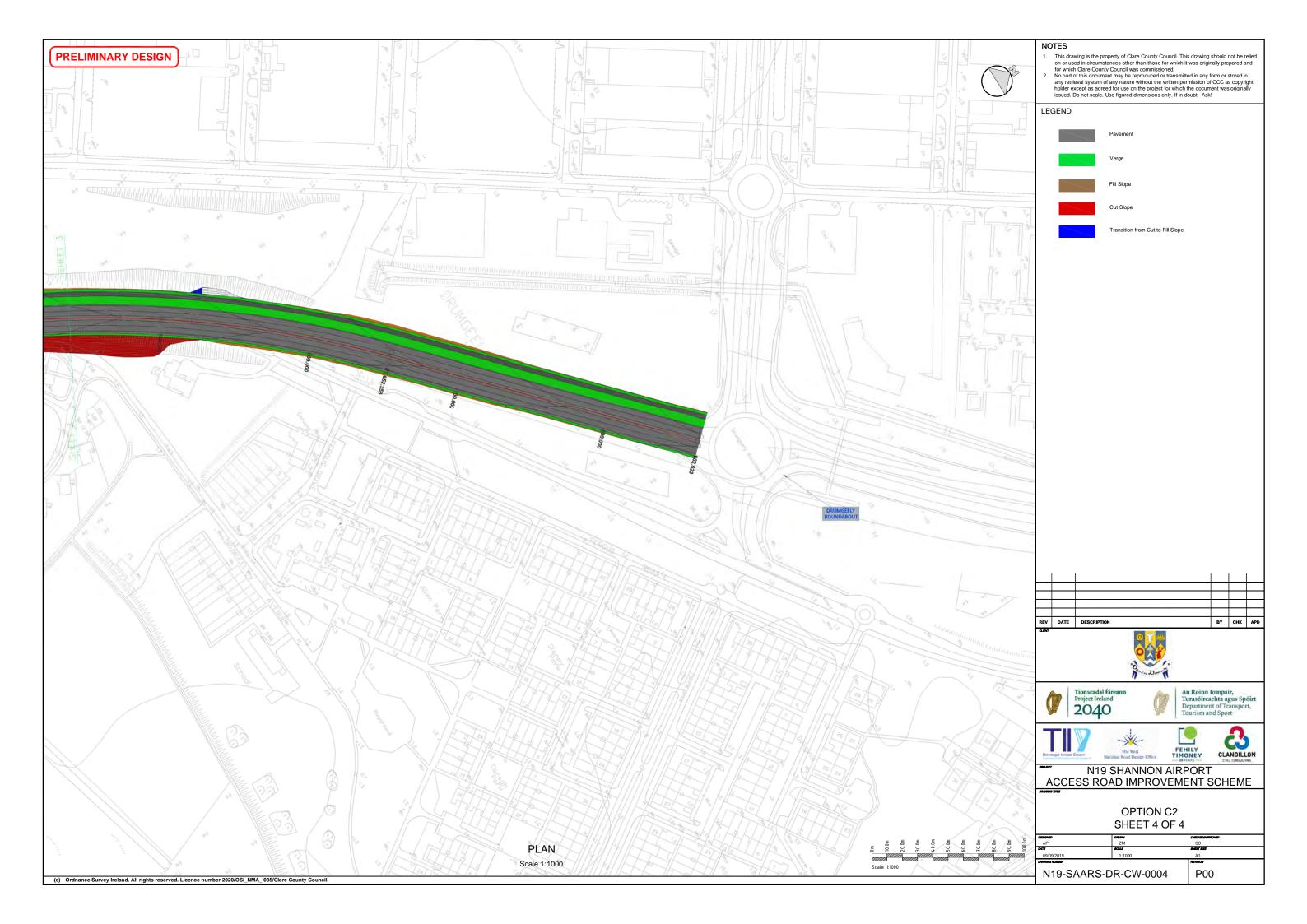


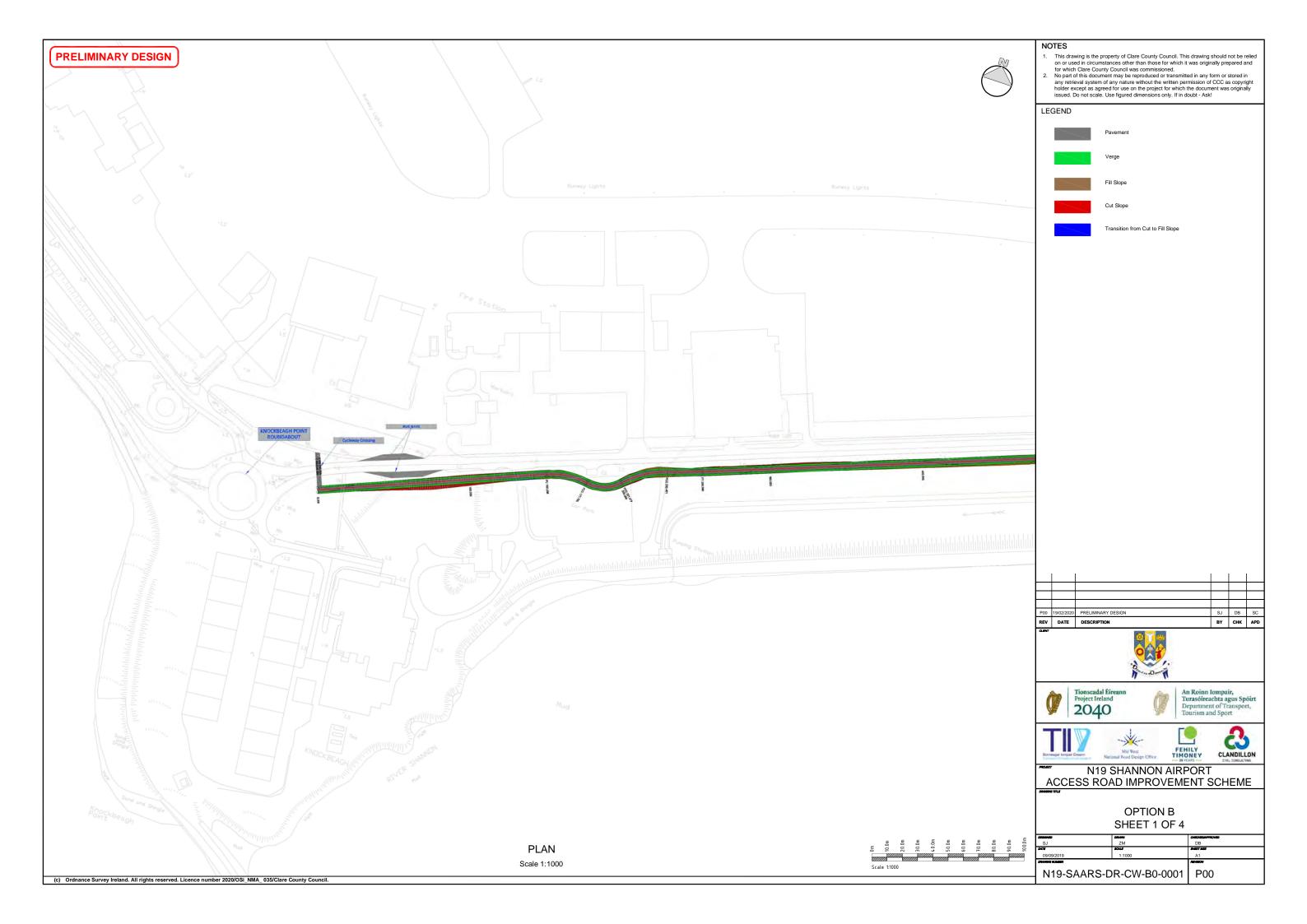


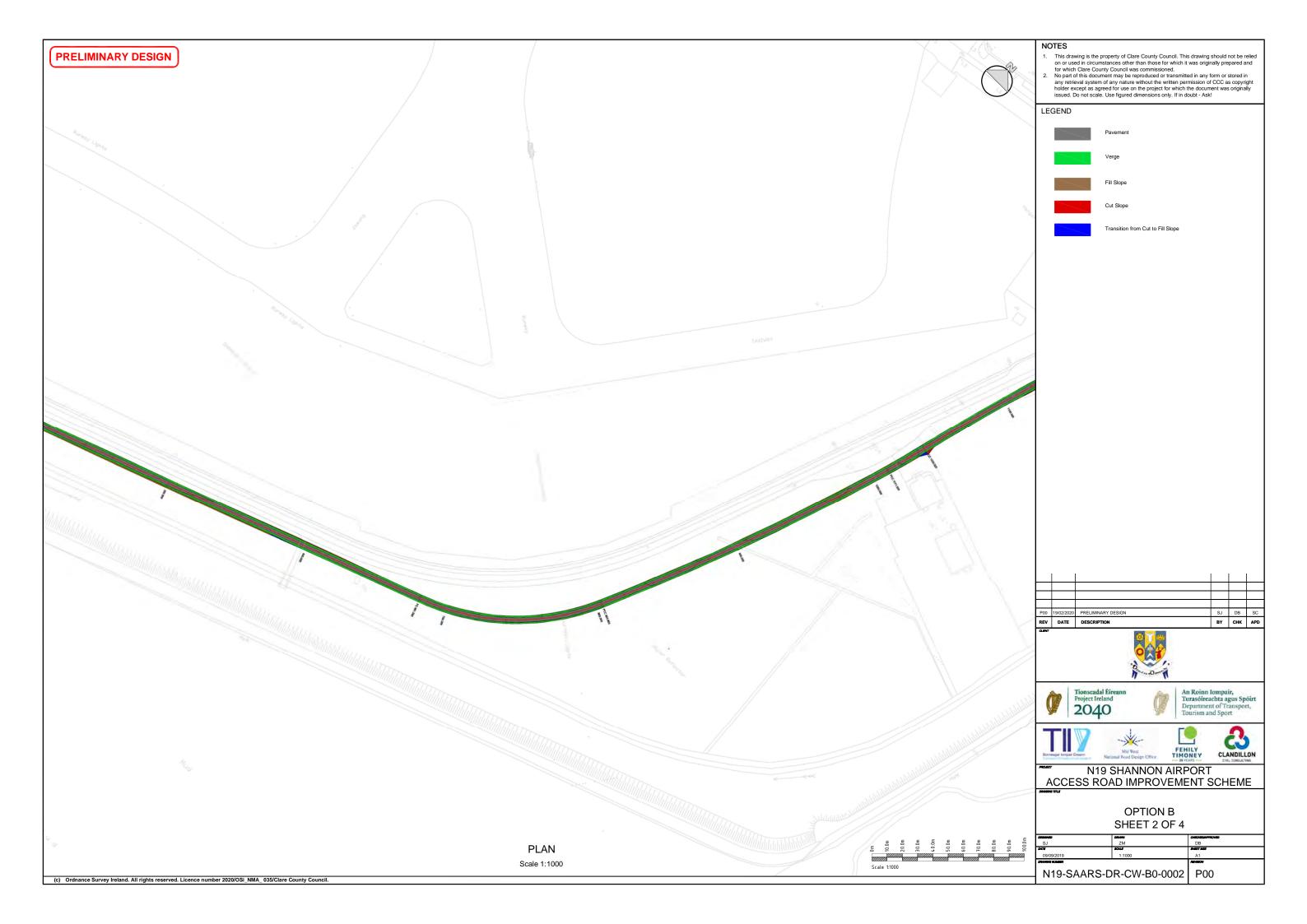


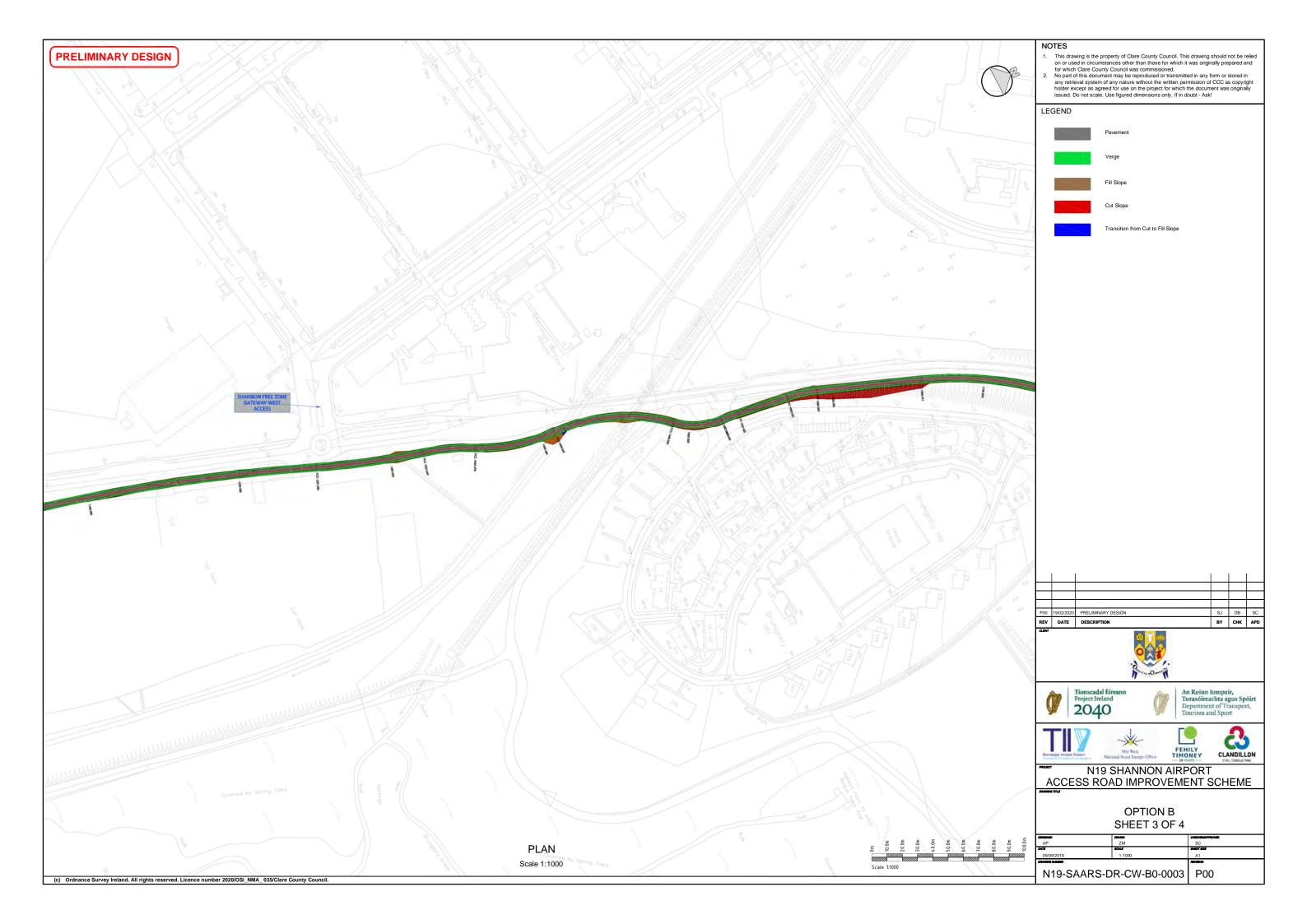


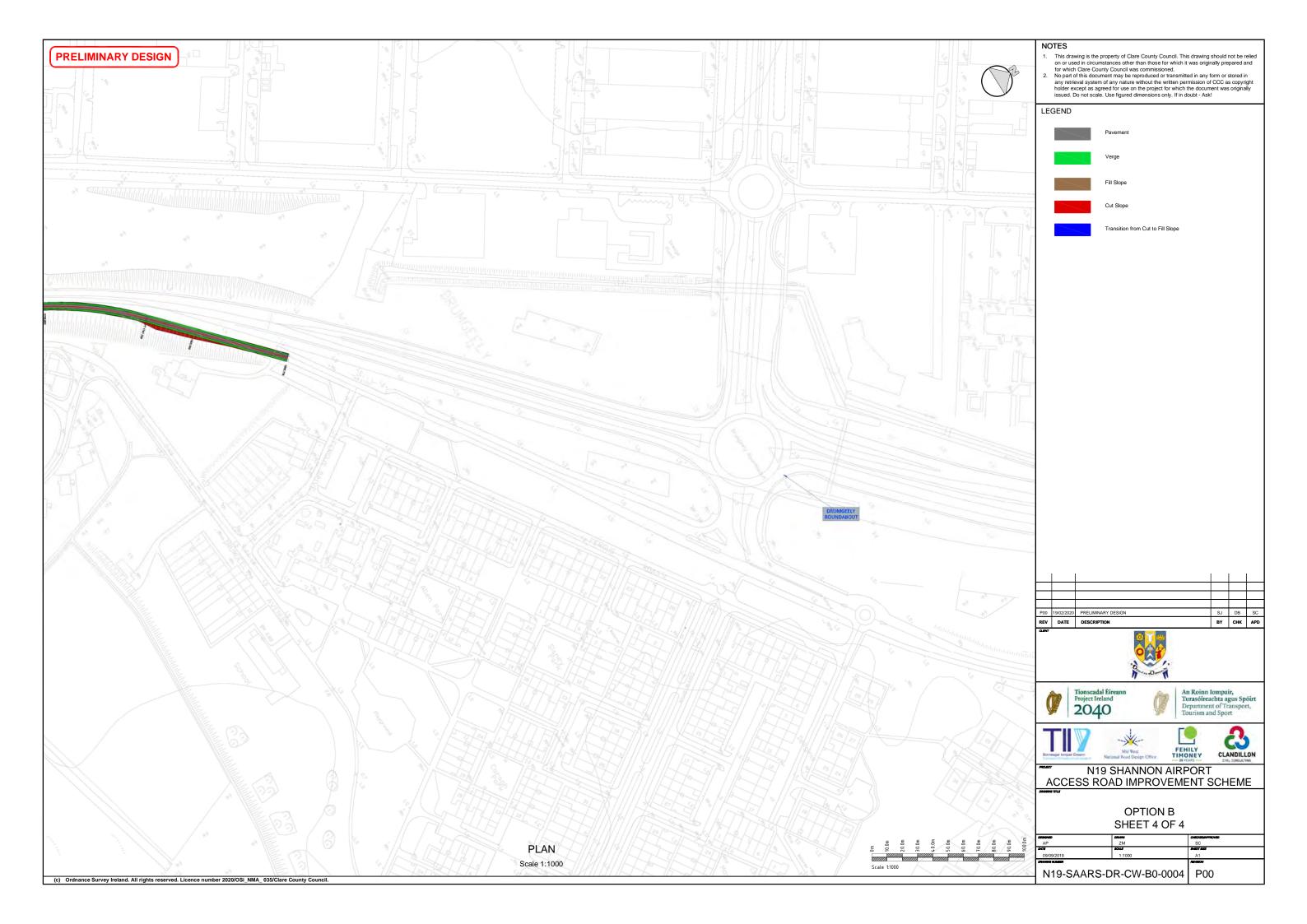


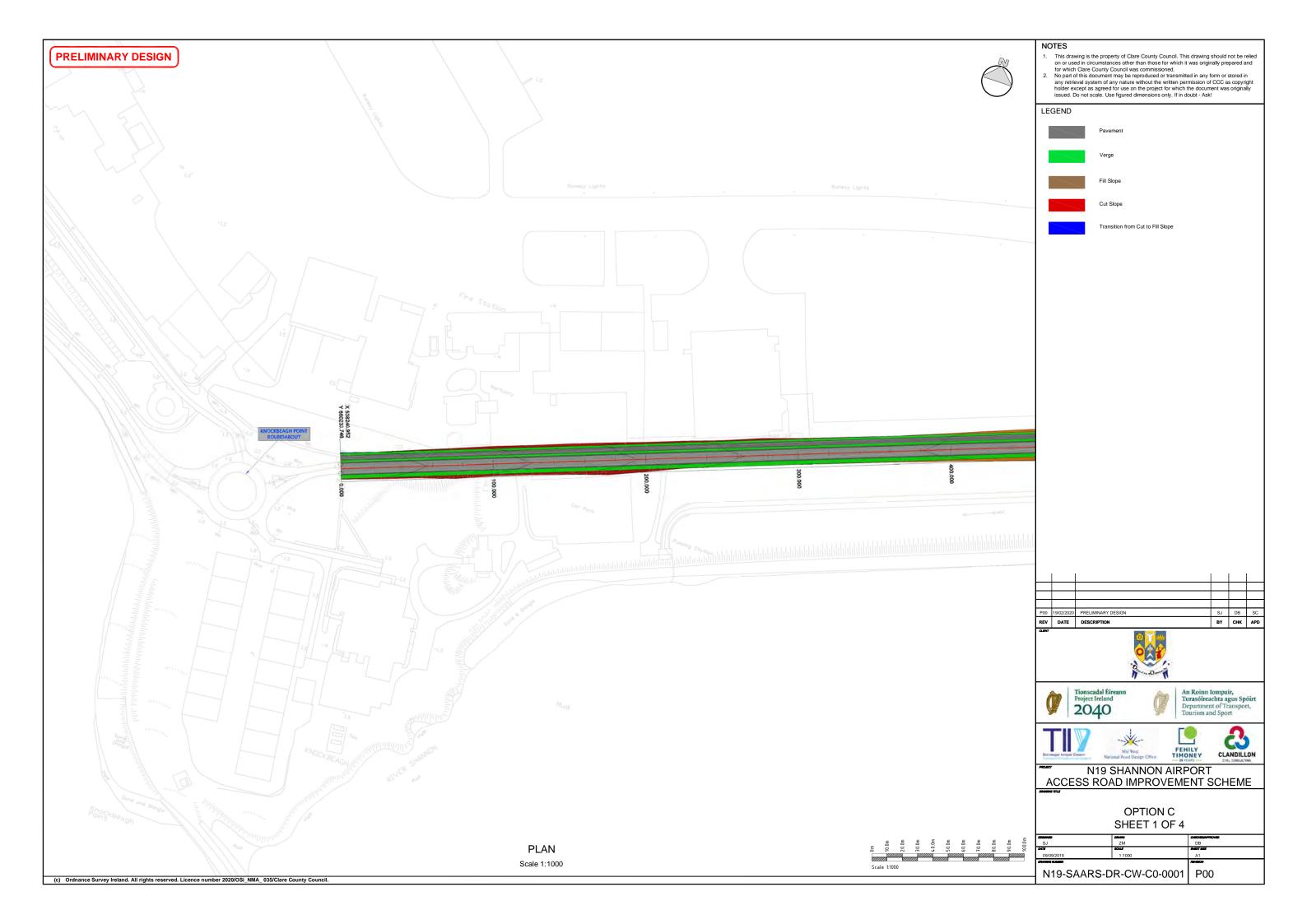


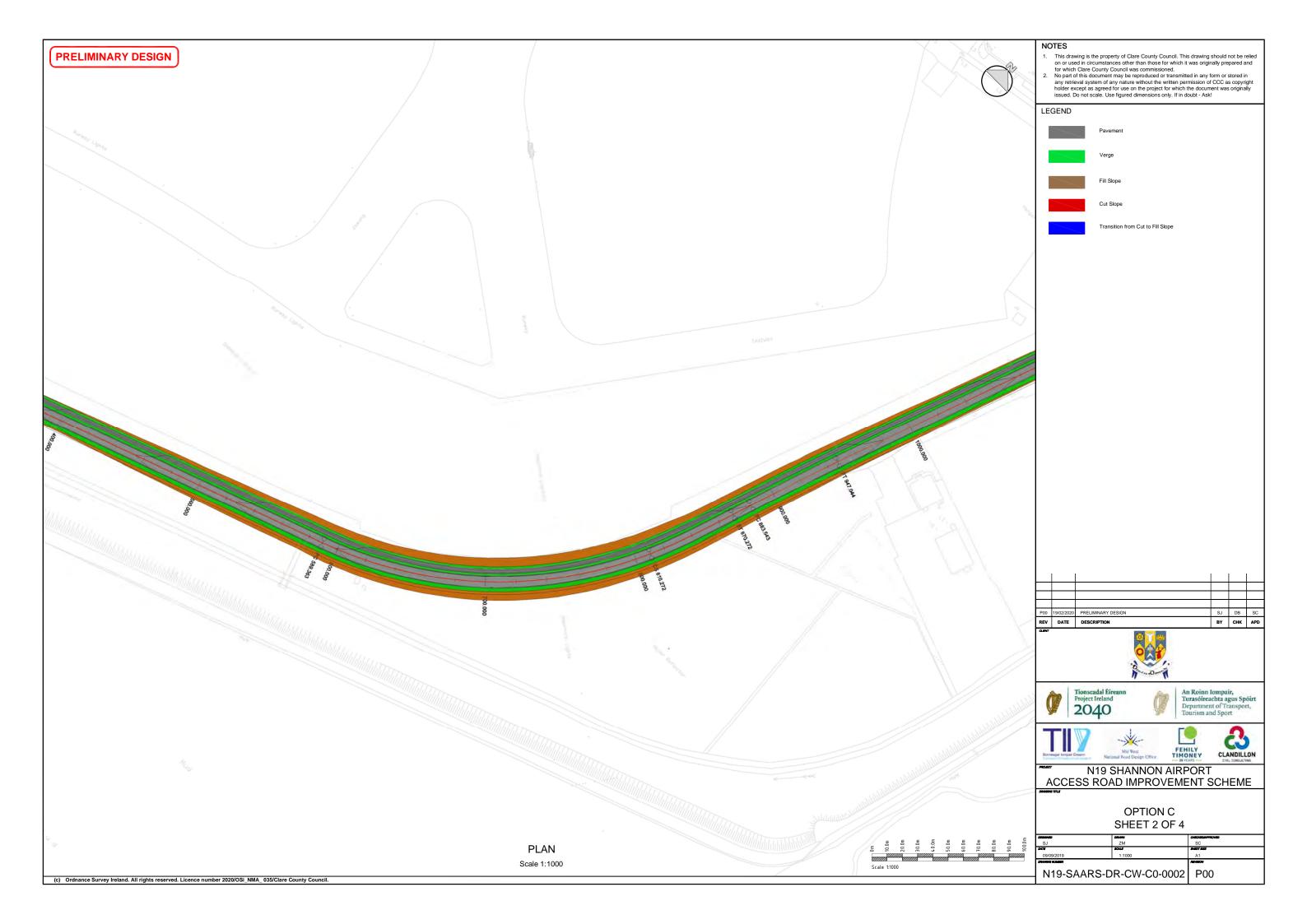


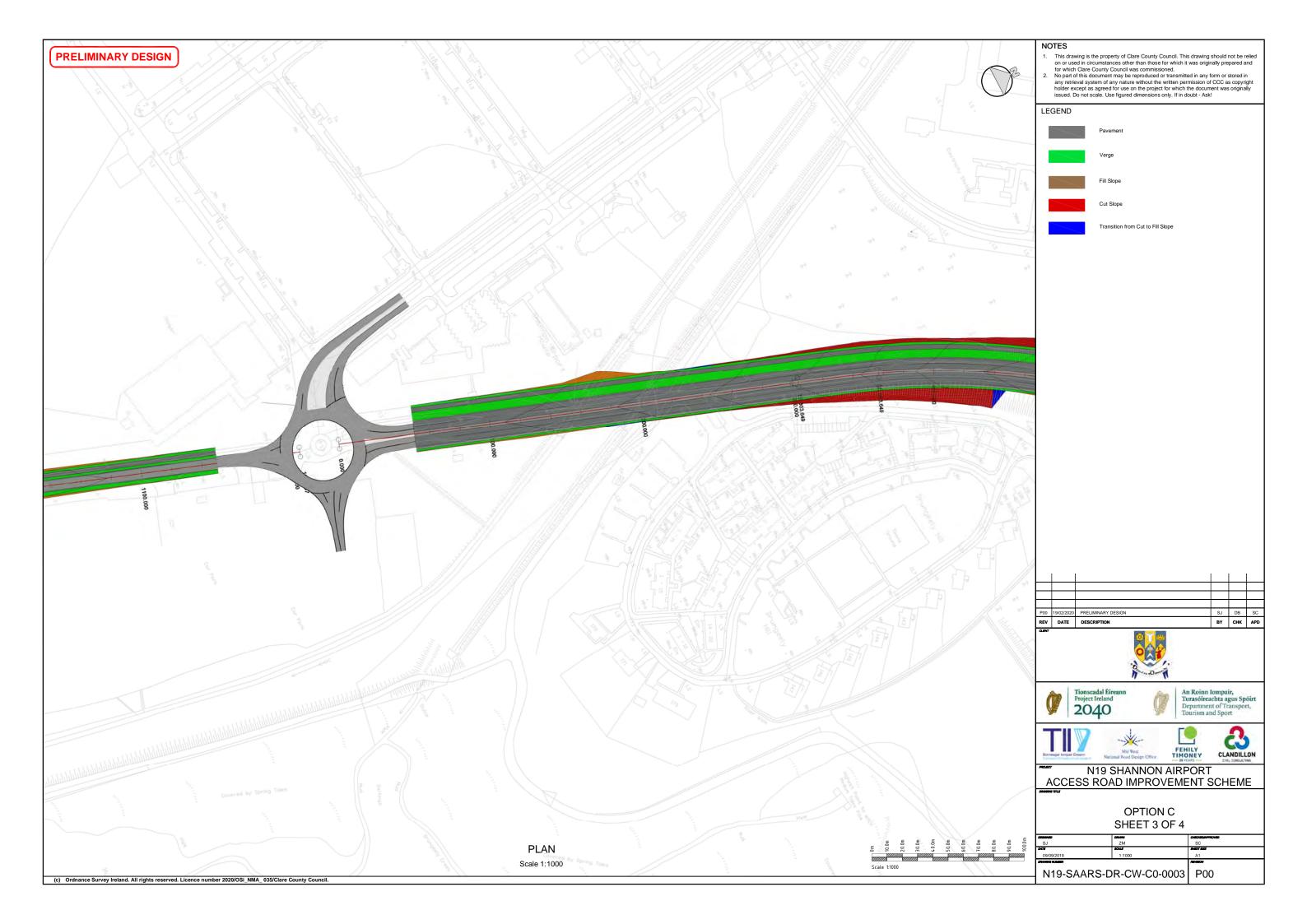


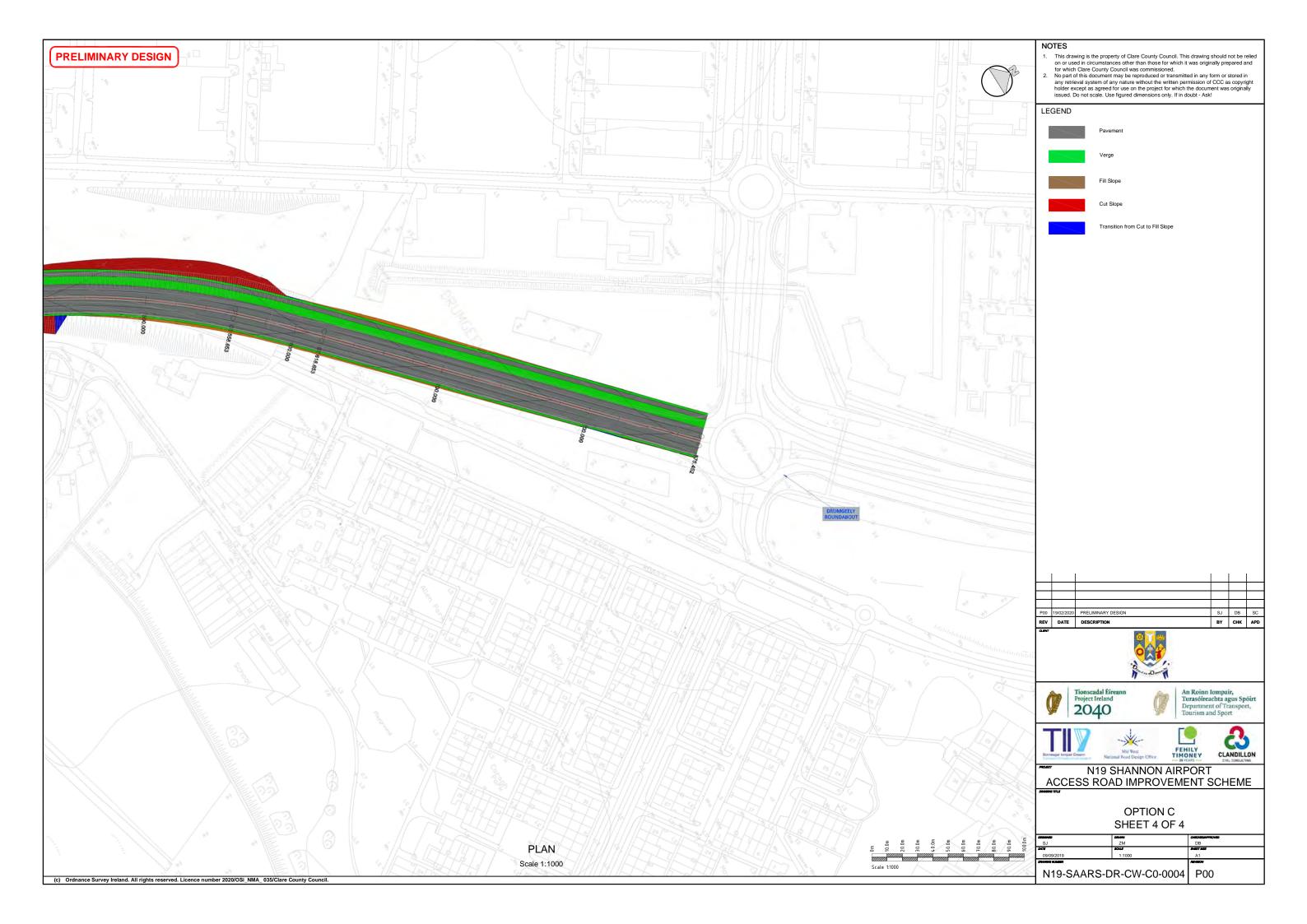




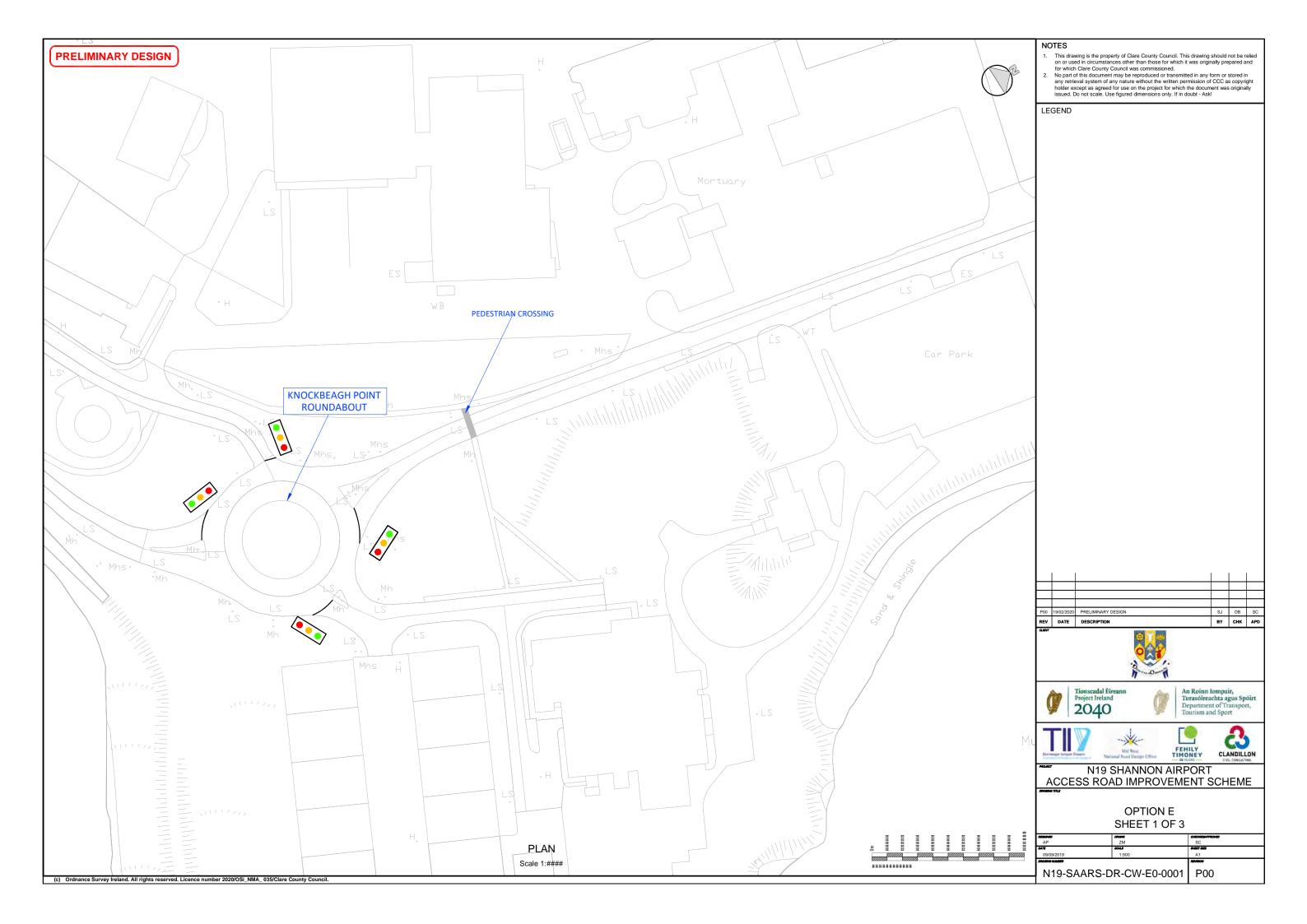


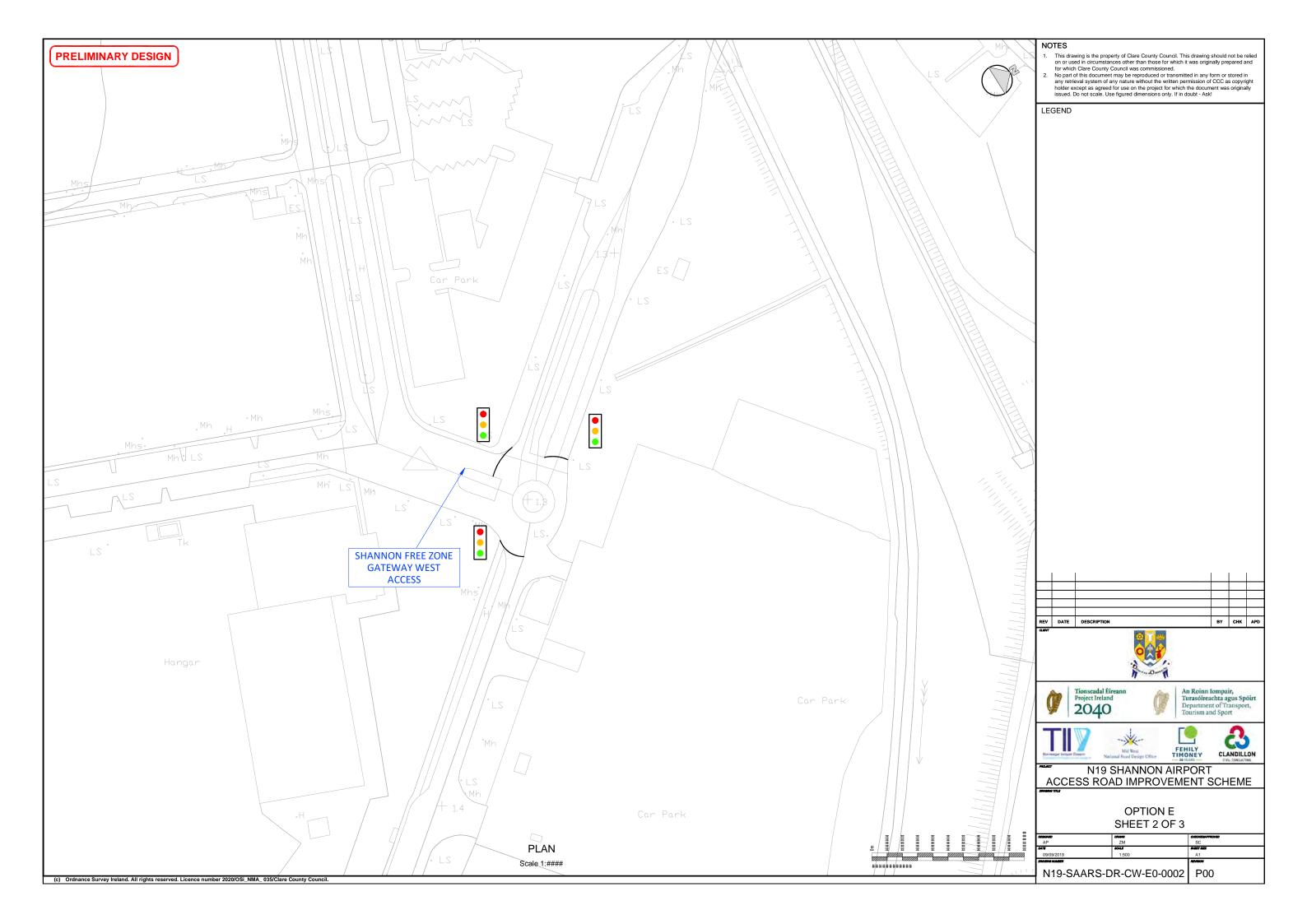


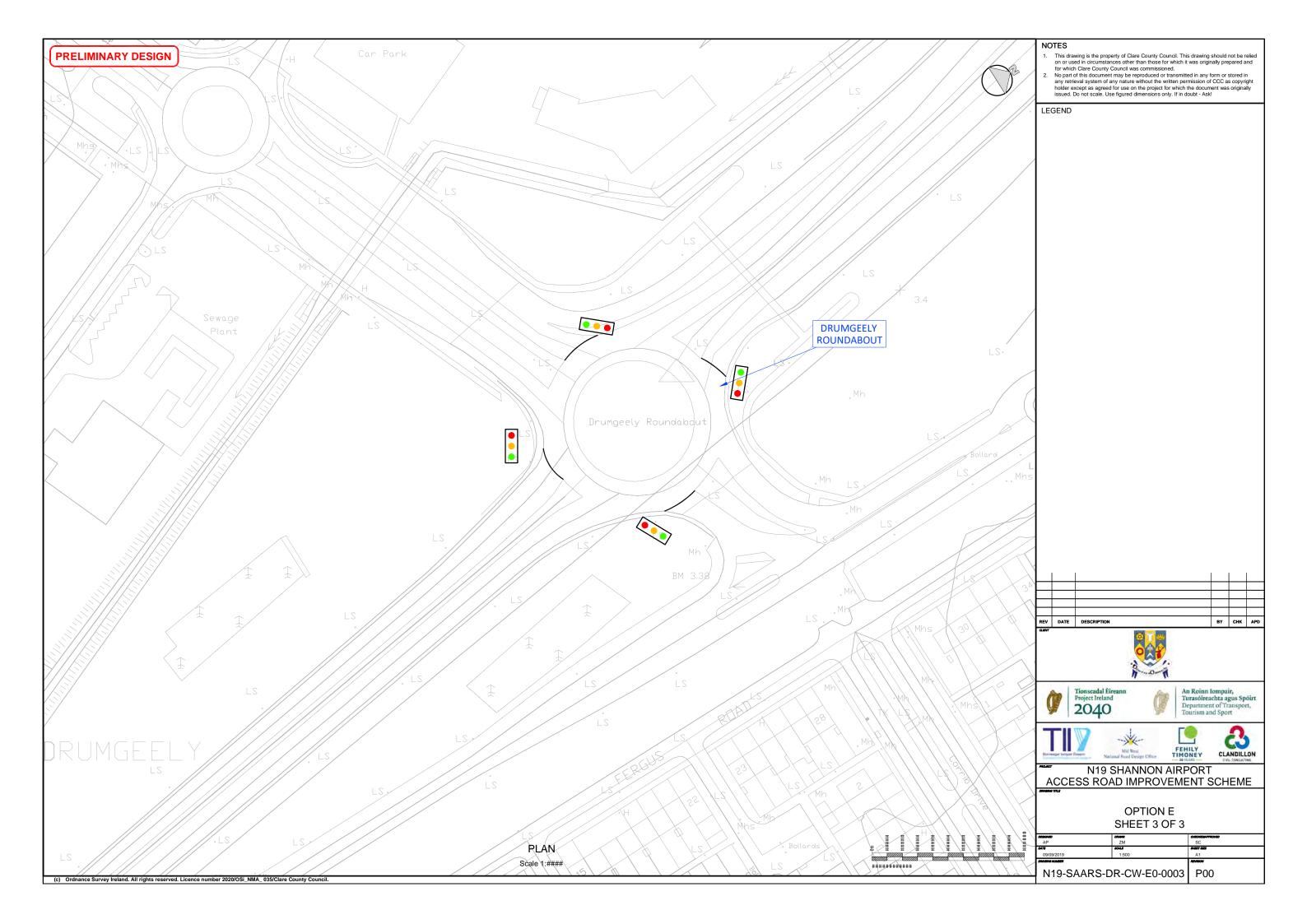














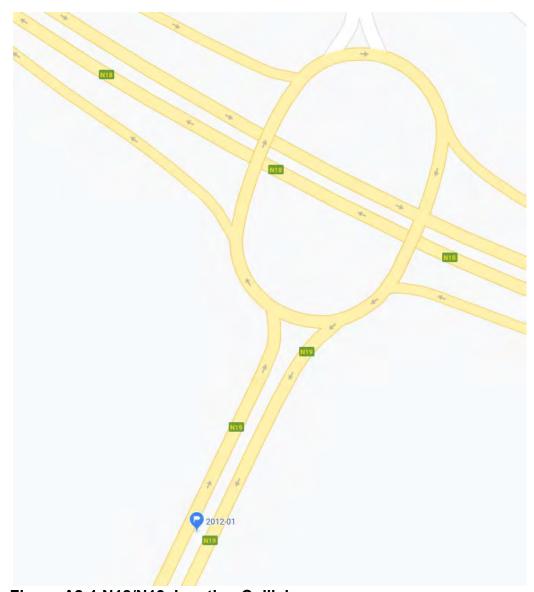


Figure A2-1 N18/N19 Junction Collisions

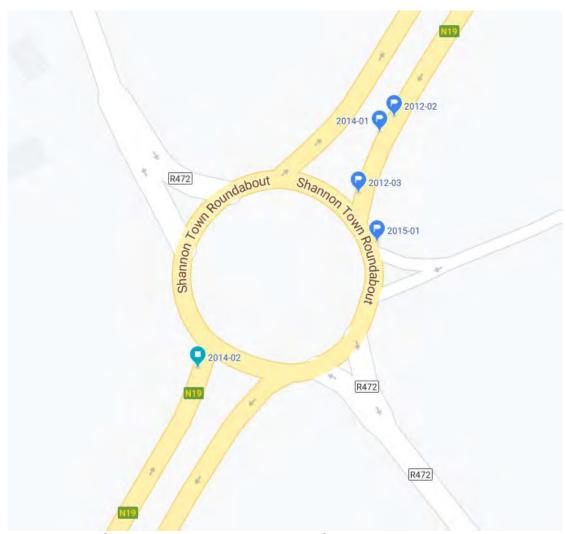


Figure A2-2 Shannon Town Roundabout Collisions

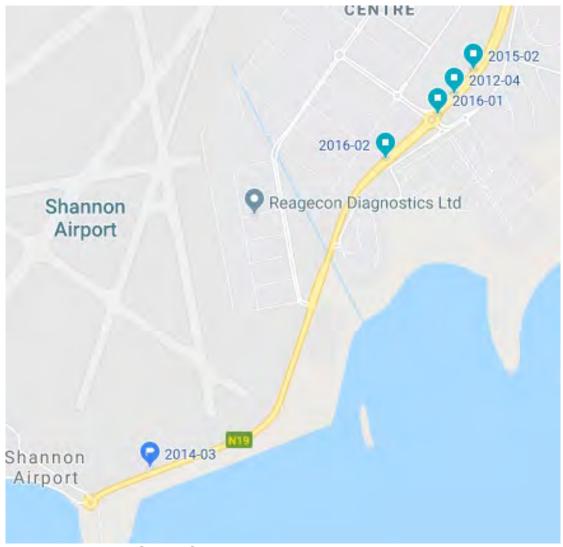
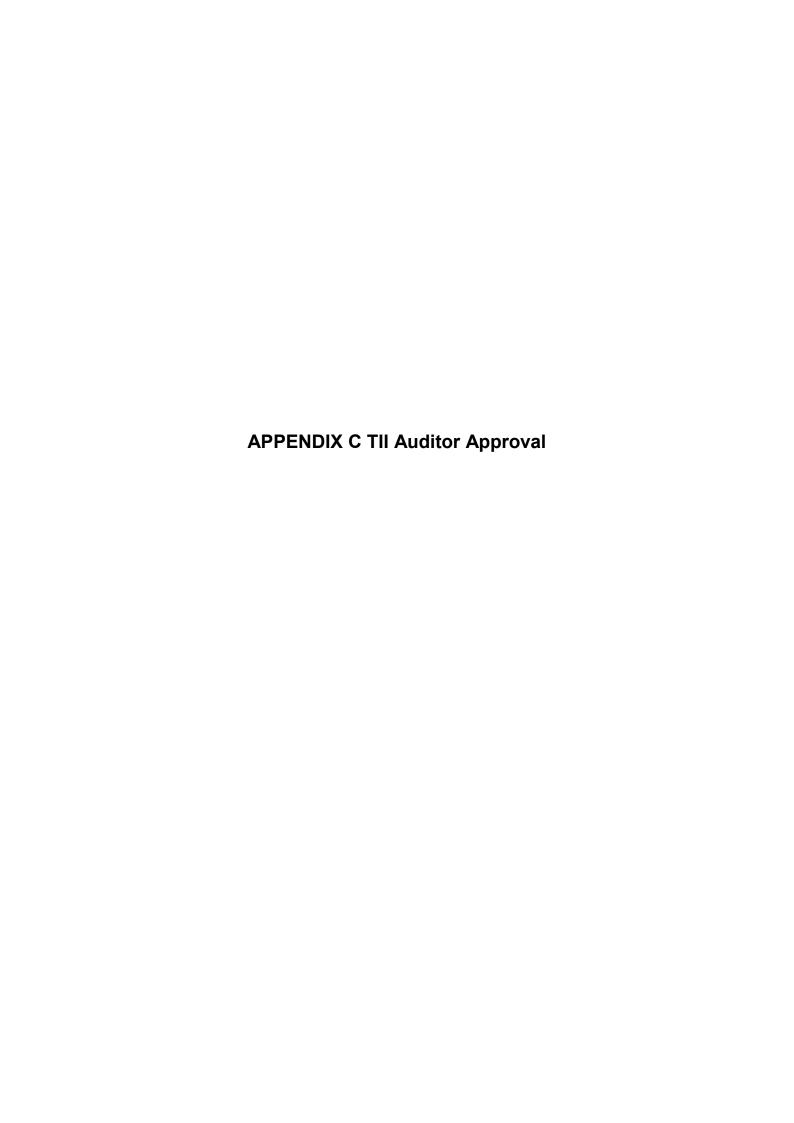


Figure A2-3 N19 South Collisions



Kieran O'Callaghan Road Design County Buildings New Road Ennis, Co. Clare

Date: 01/09/2020

Our Ref: 8842109/10860/Stage F

N19 Shannon Airport Access Road Improvement Scheme APPROVAL OF ROAD SAFETY AUDIT TEAM, Stage F

Dear Kieran O'Callaghan,

The following members of the proposed road safety audit team are approved to carry out the Stage F road safety audit of N19 Shannon Airport Access Road Improvement Scheme.

- 1. Dermot Donovan Roadplan Consulting Ltd Leader DD50250
- 2. Ray Butler Roadplan Consulting Ltd Leader RB210538

A copy of all audit reports, design team response and exception reports must be uploaded through RSAAS. Successful upload of these reports and completion of the audit approval process is necessary for any further audit approval on this scheme.

Yours sincerely,

Lucy Curtis

Regional Road Safety Engineer roadsafetyaudits@tii.ie

19166-02-002

N19 Shannon Airport Access Road

ROAD SAFETY AUDIT PHASE 2 STAGE F2

October 2021



7, Ormonde Road Kilkenny R95 N4FE

Tel: 056 7795800 info@roadplan.ie

1. INTRODUCTION

- 1.1 This report describes a Stage F2 Road Safety Audit carried out on Phase 2 of the N19 Shannon Airport Access Road, on behalf of Clandillon Civil Consulting.
- 1.2 Shannon Airport is a strategic transport link located in the south of County Clare just west of Limerick City. The airport is accessed via the N18/M18 and the N19. The N19 National Primary Road extends from M18 junction 9 to Knockbeagh Point Roundabout, approximately 5km. The route provides access to Shannon International Airport and the Shannon Free Zone industrial area, and a northern access to Shannon Town. As illustrated in Figure 1.1, the N19 has five intermediate junctions:
 - a 5-arm roundabout where the N19 is crossed by the R472
 - two roundabouts giving access into the Shannon Free Zone
 - a priority junction giving access into the western end of Shannon Town.

The route is good-quality dual carriageway between the M18 and the Drumgeely roundabout, and single-carriageway of mixed quality between Drumgeely roundabout and Knockbeagh Point.

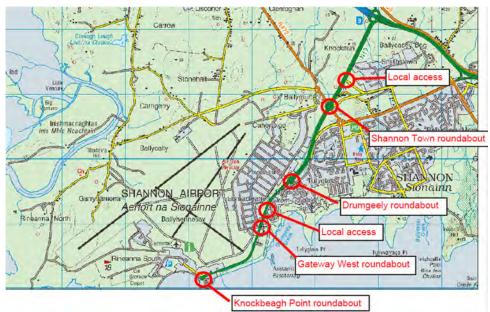


Figure 1.0: Scheme Location

It is an objective of Clare County Council to promote further expansion at Shannon Airport and Shannon Free Zone from an economic development and tourism perspective.

1.3 The audit team members were as follows: -

Team Leader: Ray Butler, BE CEng MIEI

Auditor Number RB210538

Team Member: Dermot Donovan, BE CEng MIEI.

Auditor Number DD50250

1.4 The audit team members visited the site on Wednesday, 15th January 2020. Weather conditions on the day of the site visit were good. The road surface was dry.

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- 1.7 Appendix A contains copies of the audited drawings.

2. STAGE F2 AUDIT

2.1 **Problem**

A shared facility for pedestrians and cyclists is proposed. Shared facilities result in reduced quality of service for both modes and may lead to injury collisions between cyclists and pedestrians.

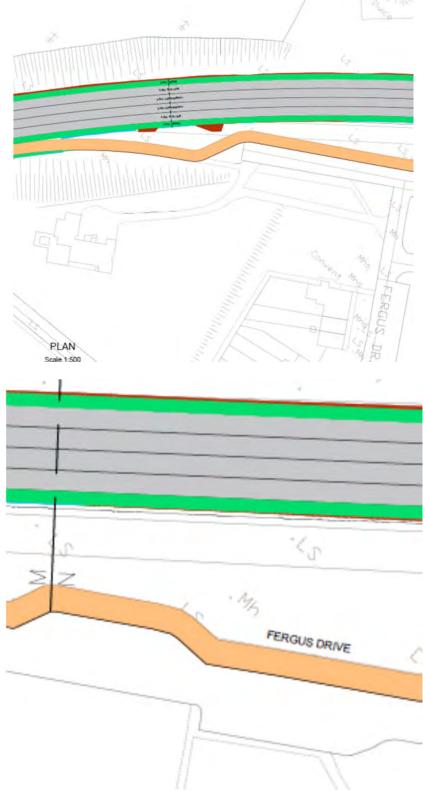
Recommendation

Provide segregated facilities with a two-way cycle path and a footpath.

2.2 **Problem**

The proposed shared facility has tight radii at several locations which may lead to cycle collisions.





Recommendation

Provide a radius of curvature appropriate to the likely speed of travel of cyclists

2.3 **Problem**

There is an existing footpath on the west side of the road extending between Knockbeagh Point Roundabout and a location to the north of Drumgeely Hill. It is to be removed under the proposed scheme and is not shown to be replaced. It is not clear how pedestrian trips to and from the properties northeast of Knockbeagh Point Roundabout are to be served, or what routes pedestrians are intended to use when they reach the N19 from the paths that run alongside the Shannon Airport Drainage Channel or the Urlan Beg Stream. Risk of pedestrian collisions is increased where footpaths are unavailable at locations where pedestrian trips occur.

Recommendation

Ensure that a safe pedestrian route is available to each property and provide paths to serve pedestrian desire lines along the scheme.

2.4 Problem

There are existing signal controlled pedestrian crossings on the N19 that are not shown to be retained:

- at the car park labelled "Shannon Aerospace Golf Society"
- at Drumgeely Hill.

Alternative crossings are shown to be provided but they are not at the locations of the existing ones. If the existing crossings are located at desire lines, pedestrians may continue to cross at those locations.

Recommendation

Ensure that an adequate number of crossings are provided to cater for pedestrian and cycle demand and that they are located where they are required.

2.5 **Problem**

The existing security hut blocks right turns to and from the access to Nugent Trailers. The proposed removal of the roundabouts at Airport Avenue and Drumgeely make the diverted path of a vehicle entering Nugent Trailers from the airport direction long, increasing the likelihood that some drivers would attempt to turn right or to U-turn at the access. Such manoeuvres would increase collision risk.

Recommendation

If the access to Nugent Trailers is to be retained, provide separation between it and the security access so that each can function independently.

2.6 **Problem**

The Airport Avenue junction is to be changed from a roundabout to a signalised T-junction. There is an existing Zebra Crossing on Airport Avenue that would, if retained, be immediately adjacent to the traffic signals. Drivers would not expect to encounter traffic control installations so close together. This could lead to rear end collisions on exit from the signals or to pedestrian collisions on entry to the signals.

Recommendation

Remove the Zebra Crossing and incorporate crossing facilities into the traffic signals on Airport Avenue.

2.7 Problem

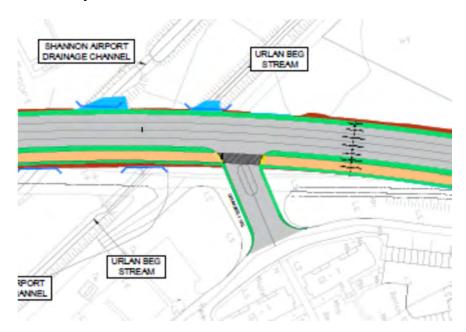
The approach to the proposed traffic signals at Drumgeely junction is on a sweeping right-hand bend. Planting on the existing median, if retained, could block visibility for an approaching driver such that stationary traffic queued back from the signals might not be seen in time. This could increase the risk of rear-end collision.

Recommendation

Ensure that drivers are provided with the required Stopping Sight Distance.

2.8 Observation

The crossing type has not been specified at Drumgeely Hill Junction. It is recommended that cyclists on the cycle path have priority at this junction so that the path will be more attractive to cyclists than remaining on the roadway.



2.9 **Observation**

Care should be taken in the design of the proposed pedestrian crossing on the N19 east of Knockbeagh Point Roundabout. The crossing is shown to be located close to bus stops. A stopped bus may obstruct visibility of the signal heads or of a pedestrian on the crossing. In addition, crossings are considered safer when located either at the roundabout or away from it, and the section of road within 20m to 60m of a roundabout is often avoided.

2.10 **Observation**

The "Spur for future development" shown as a fourth arm to the Airport Avenue traffic signals is too narrow to operate as a conventional signalised arm. Consideration should be given to how it could be incorporated safely into the junction layout.

2.11 Observation

Consideration should be given to the designation of lanes on the approach to the proposed Drumgeely Junction traffic signals from the N18 so that adequate provision is made in the design for weaving lengths, signage and turning lanes as necessary.

3. AUDIT TEAM STATEMENT

3.1 We certify that we have examined the drawings and documents listed in Appendix A and have inspected the site. This examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified to improve the safety of the scheme.

Signed Ray Butler

Date13th September 2021

Signed Dermot Donovan

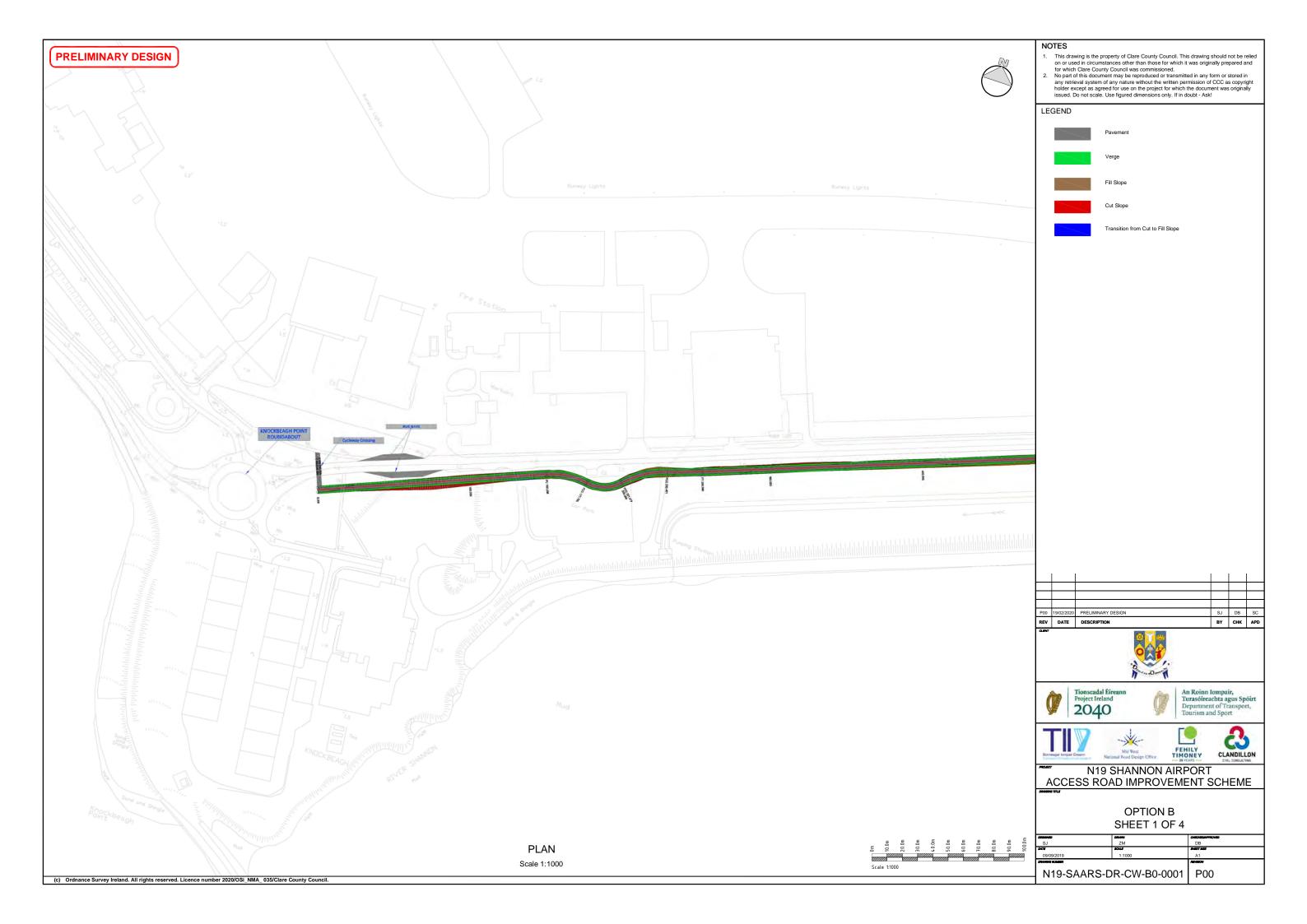
Date13th September 2021.....

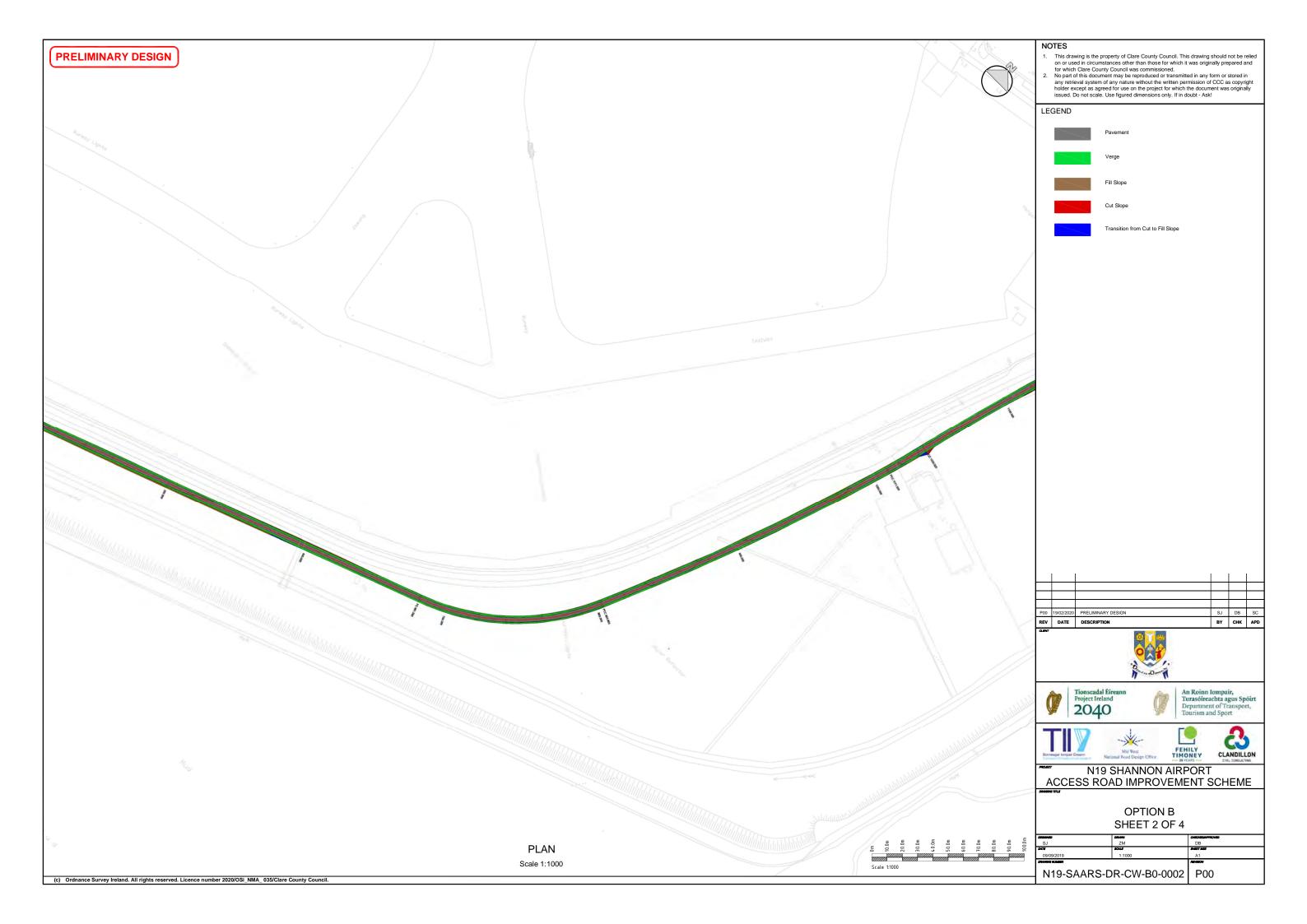
19166-02-002-RSAF2 October 2021 8

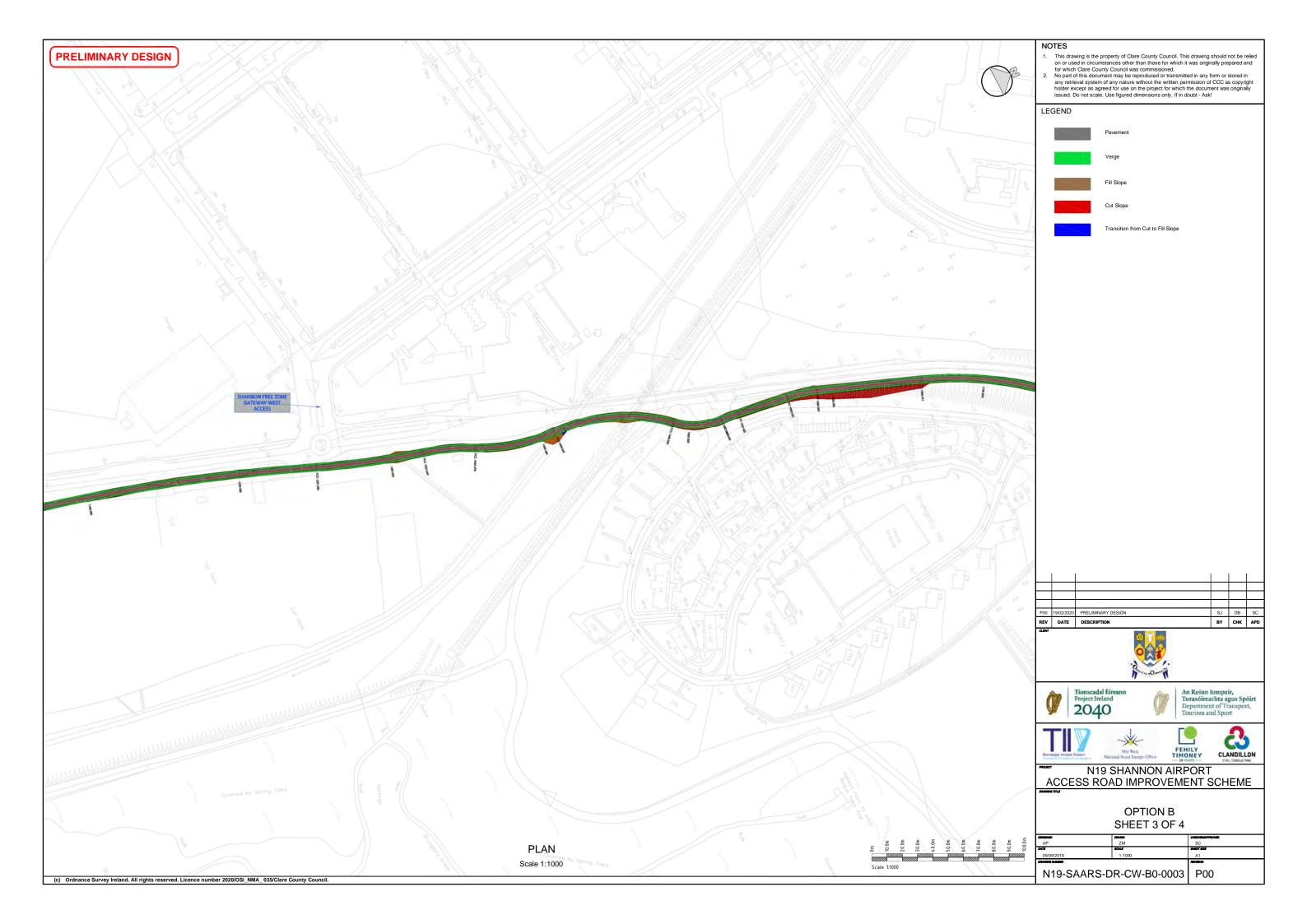
APPENDIX A

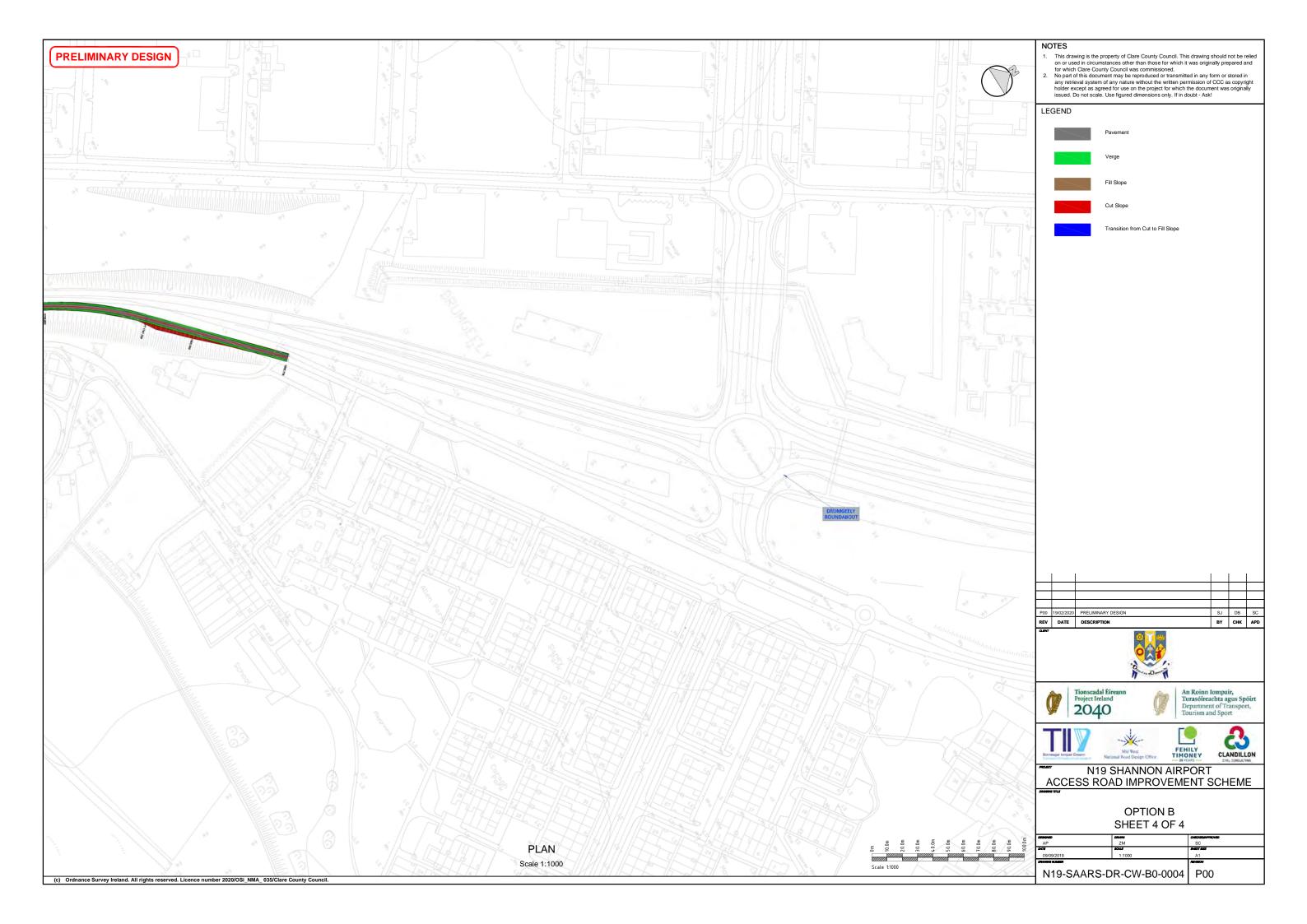
List of Drawings Examined:

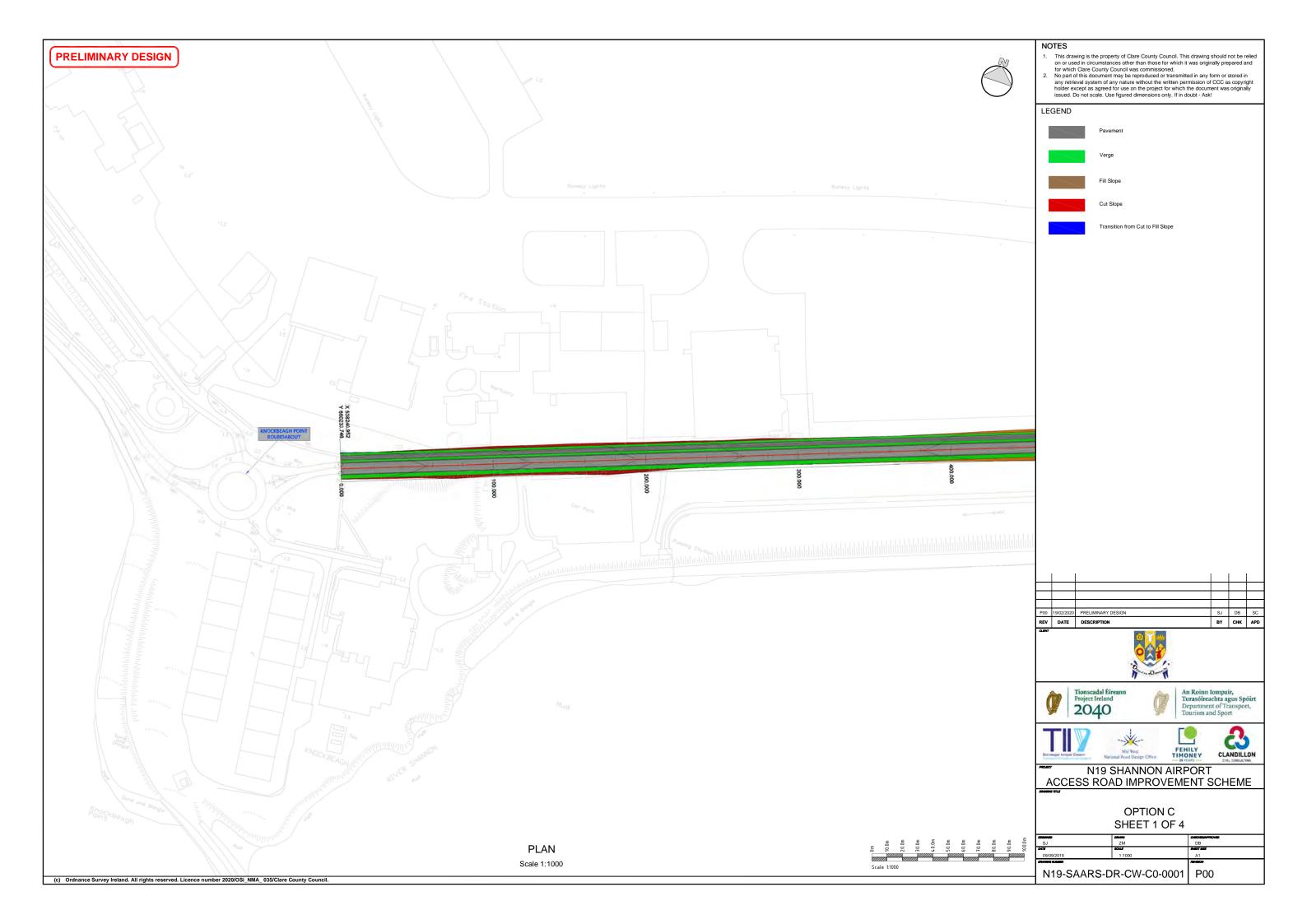
Drawing Number	Title	Rev
N19-SAARS-DR-CW-BO-0001	Option B Sheet 1 of 4	P00
N19-SAARS-DR-CW-BO-0002	Option B Sheet 2 of 4	P00
N19-SAARS-DR-CW-BO-0003	Option B Sheet 3 of 4	P00
N19-SAARS-DR-CW-BO-0004	Option B Sheet 4 of 4	P00
N19-SAARS-DR-CW-CO-0001	Option C Sheet 1 of 4	P00
N19-SAARS-DR-CW-CO-0002	Option C Sheet 2 of 4	P00
N19-SAARS-DR-CW-CO-0003	Option C Sheet 3 of 4	P00
N19-SAARS-DR-CW-CO-0004	Option C Sheet 4 of 4	P00
N19-SAARS-DR-CW-DO-0001	Option D Sheet 1 of 1	P00
N19-SAARS-DR-CW-EO-0001	Option E Sheet 1 of 3	P00
N19-SAARS-DR-CW-EO-0002	Option E Sheet 2 of 3	
N19-SAARS-DR-CW-EO-0003	Option E Sheet 3 of 3	
N19-SAARS-DR-CW-04-0101	Phase 2 Stage 3 Emerging Preferred	
N 19-3AAN3-DN-CVV-04-0101	Option CH 0+000 – CH 0+230	
N19-SAARS-DR-CW-04-0102	Phase 2 Stage 3 Emerging Preferred	
N 19-SAANS-DIN-CVV-04-0 102	Option CH 0+230 – CH 0+510	
N19-SAARS-DR-CW-04-0103	Phase 2 Stage 3 Emerging Preferred	
1113-074110-011-011-01103	Option CH 0+510 – CH 0+790	
N19-SAARS-DR-CW-04-0104	Phase 2 Stage 3 Emerging Preferred	
THE STUILE BY STUTE	Option CH 0+790 – CH 1+070	
N19-SAARS-DR-CW-04-0105	Phase 2 Stage 3 Emerging Preferred	
THE STUING BILL OF STORE	Option CH 1+070 – CH 1+350	
N19-SAARS-DR-CW-04-0106	Phase 2 Stage 3 Emerging Preferred	
	Option CH 1+350 – CH1+630	
N19-SAARS-DR-CW-04-0107	Phase 2 Stage 3 Emerging Preferred	
	Option CH1+630 – CH 1+910	
N19-SAARS-DR-CW-04-0108	Phase 2 Stage 3 Emerging Preferred	
	Option CH 1+910 – CH 2+200	

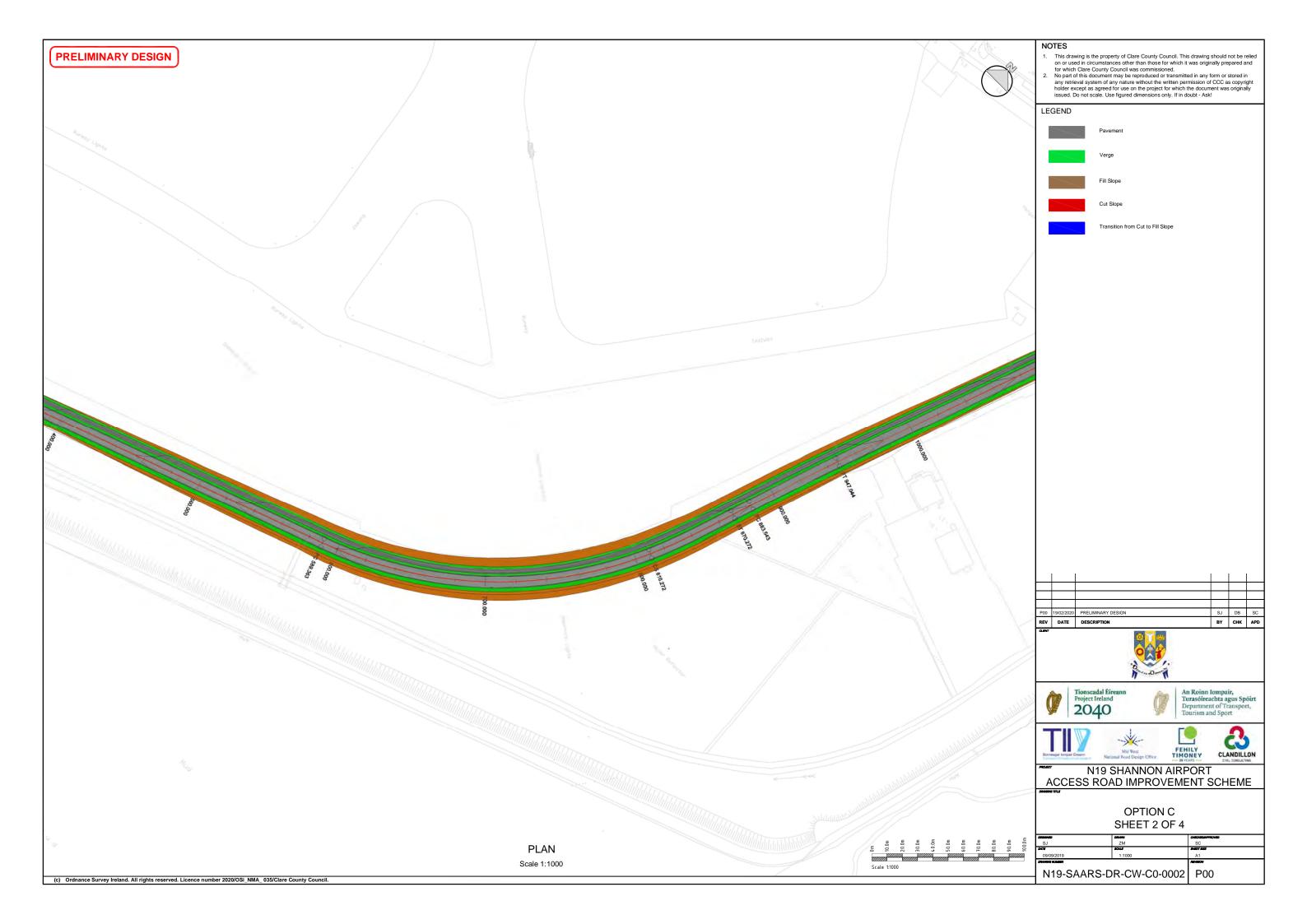


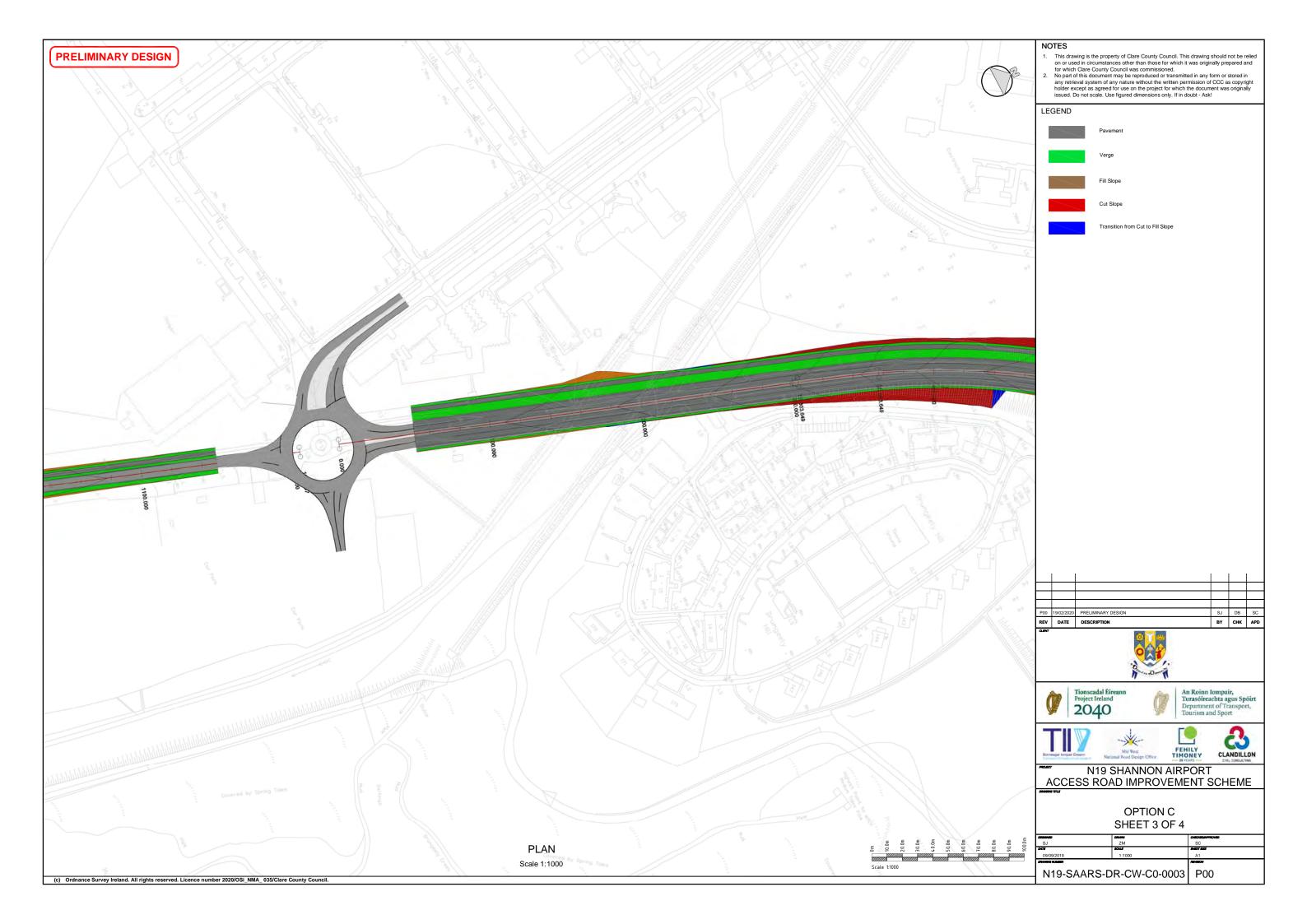


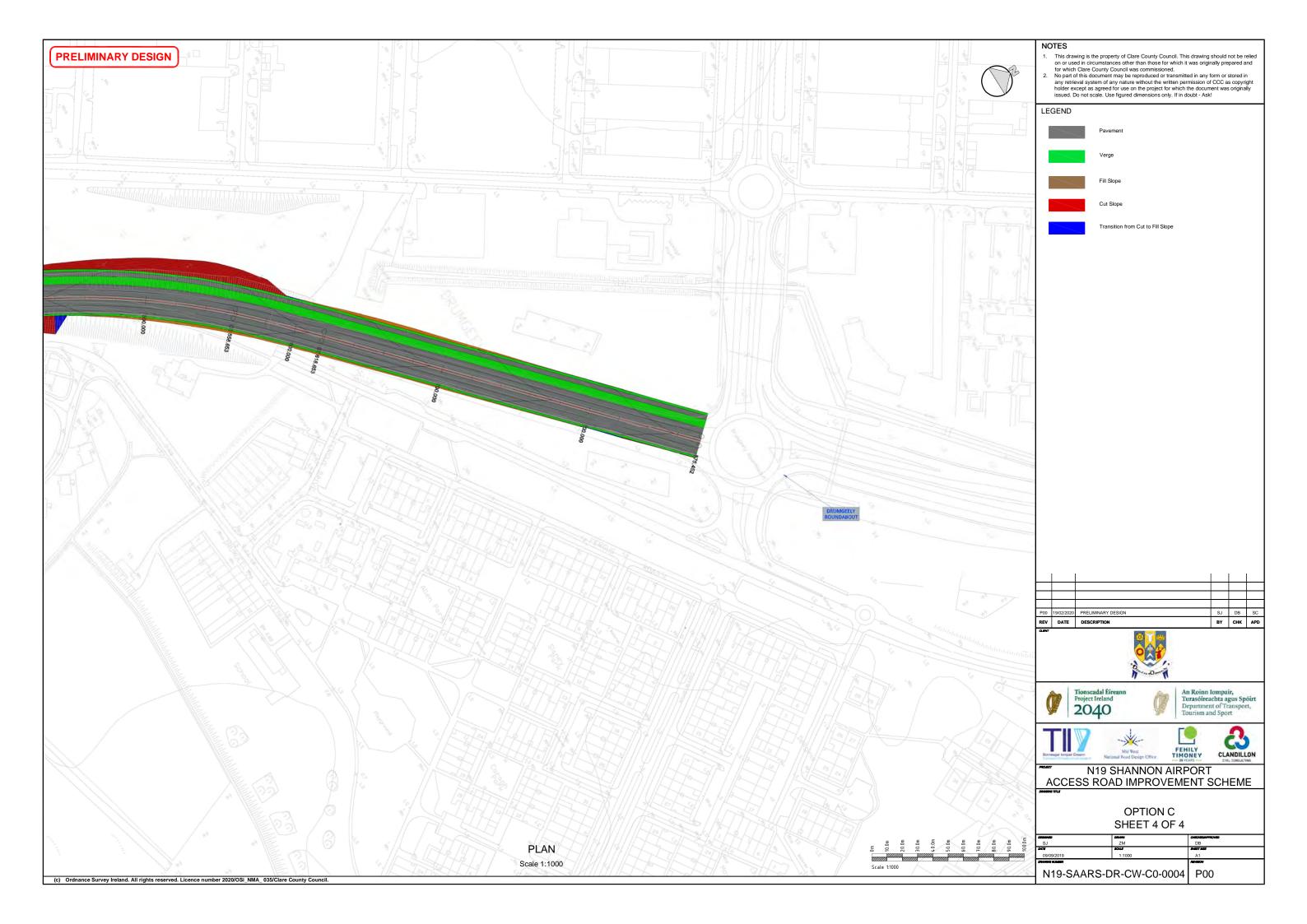




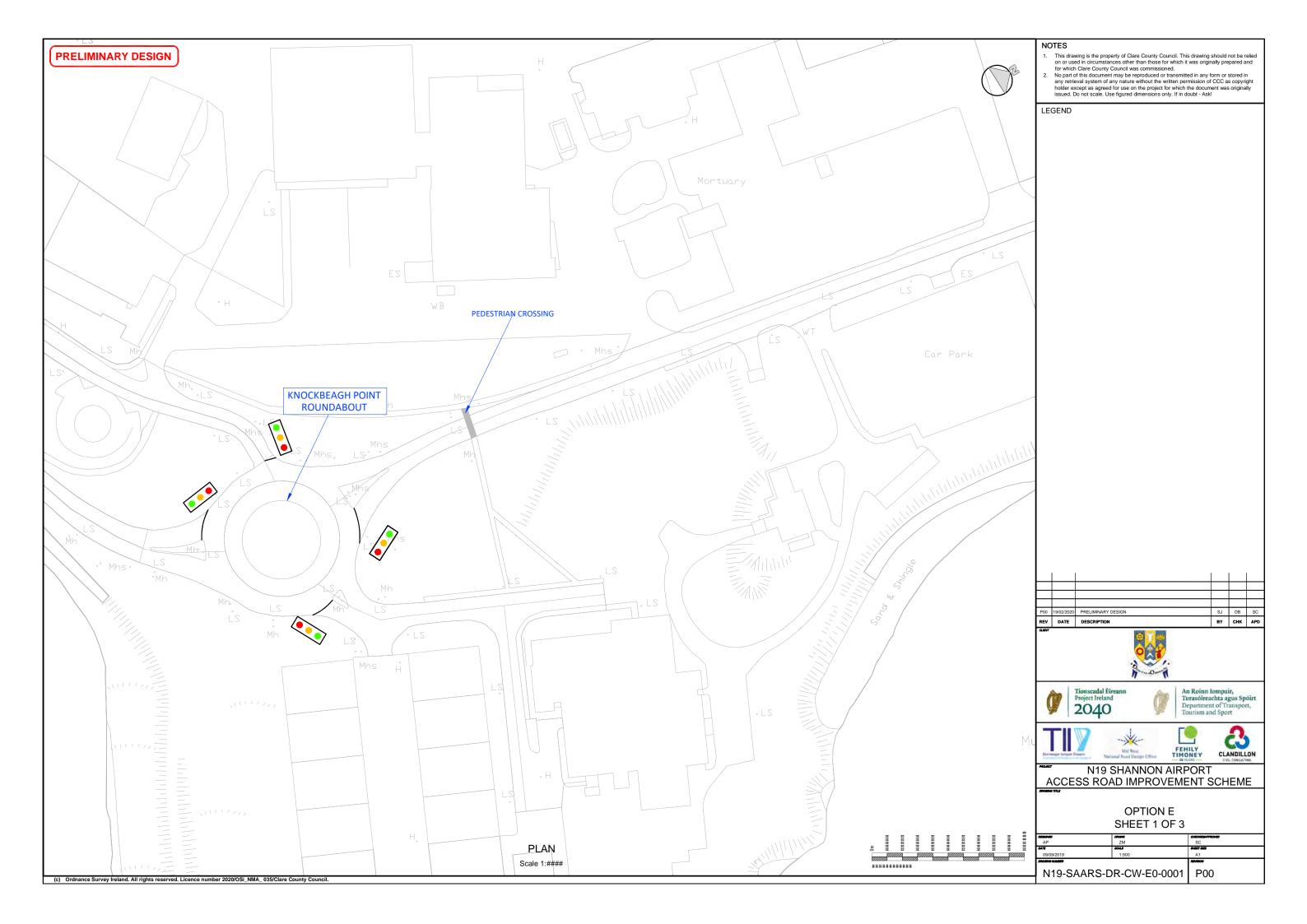


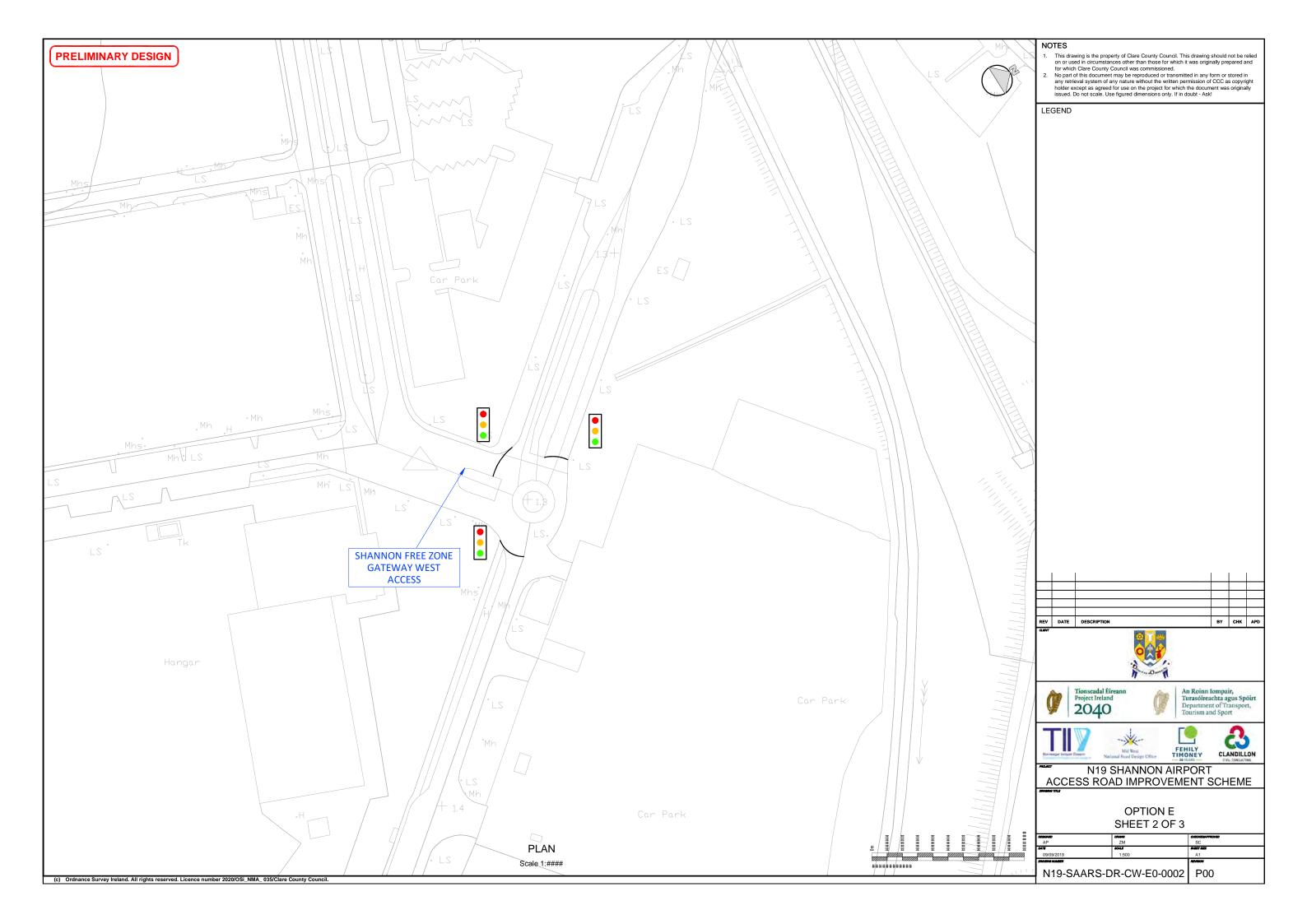


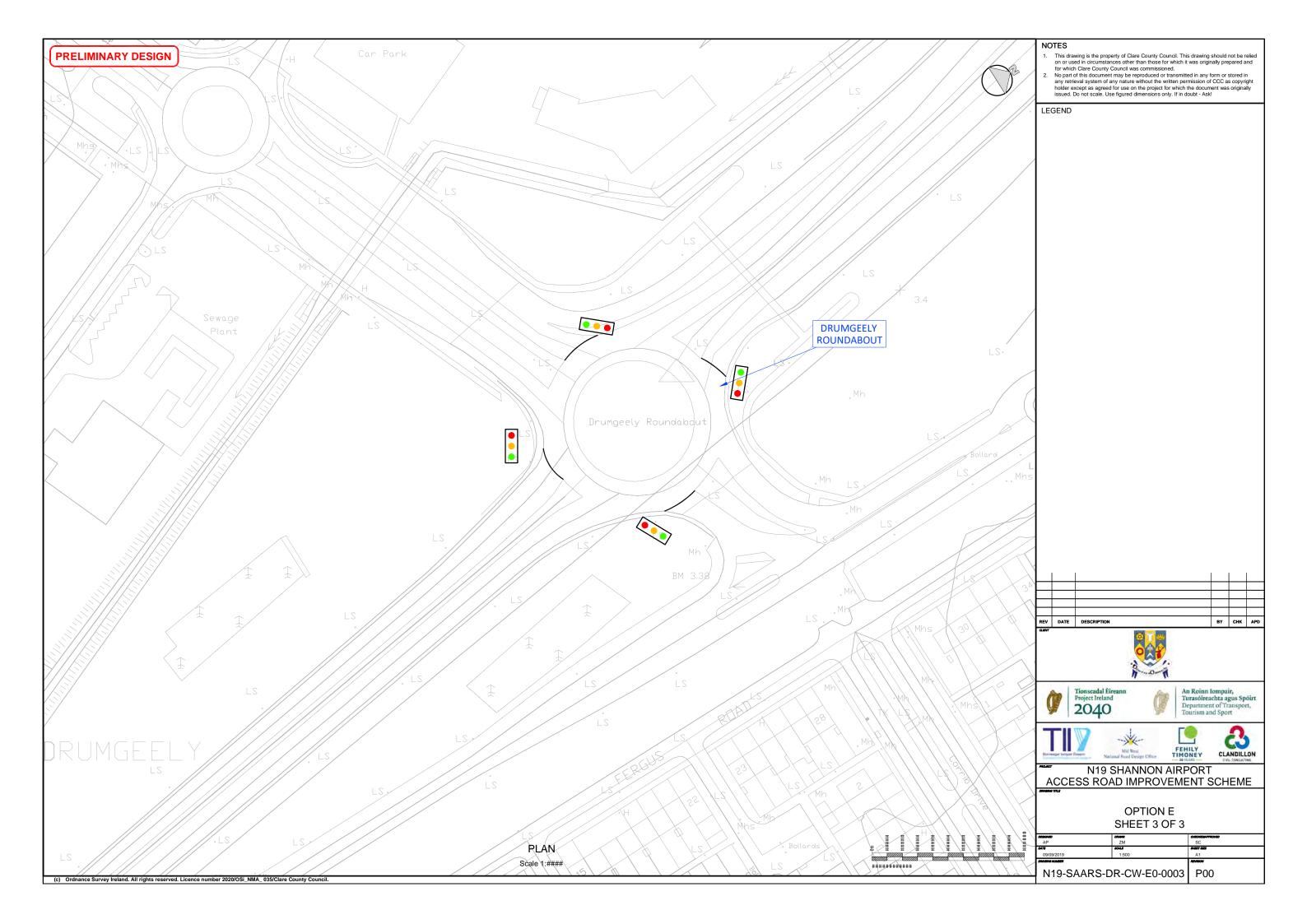


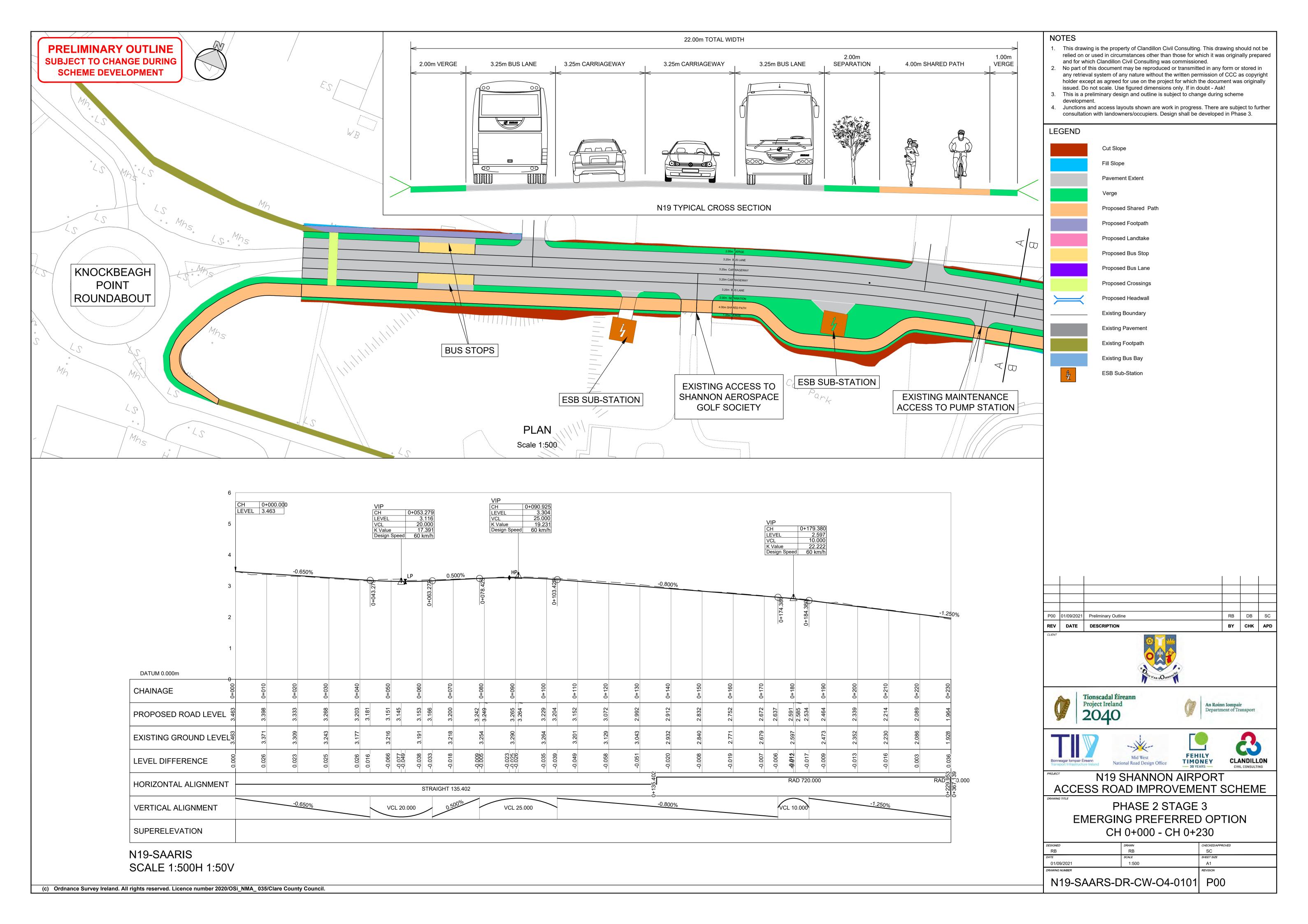


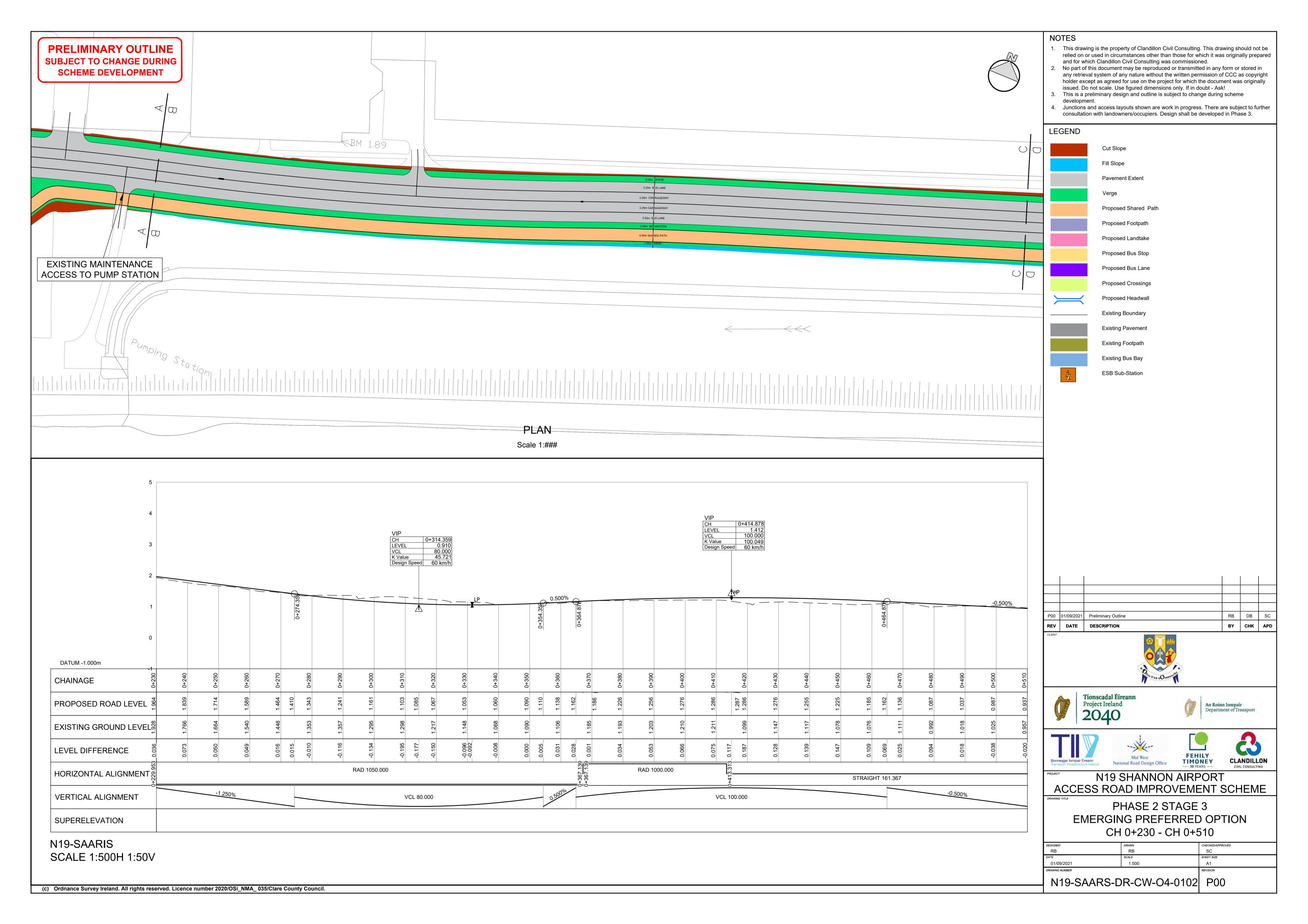


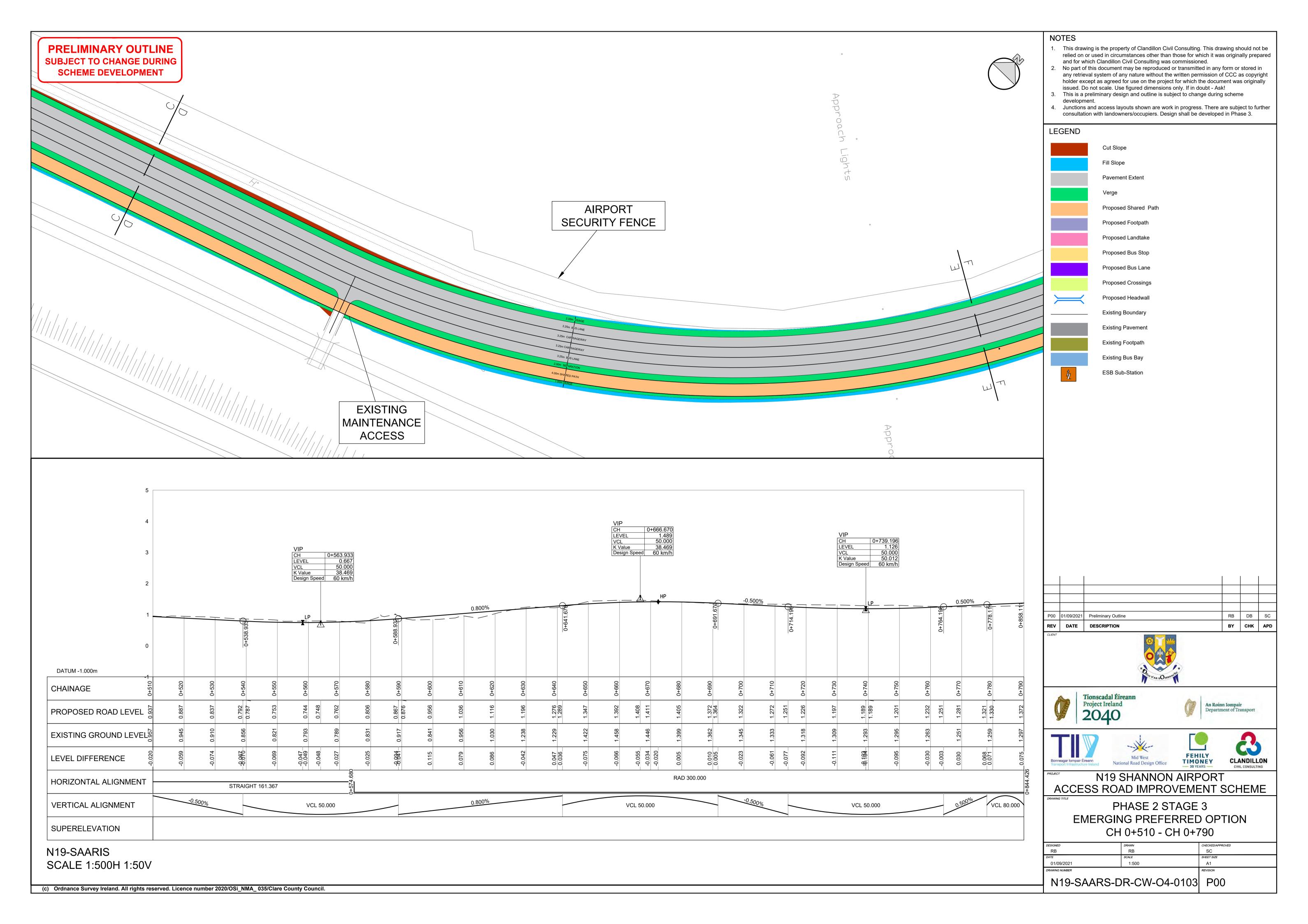


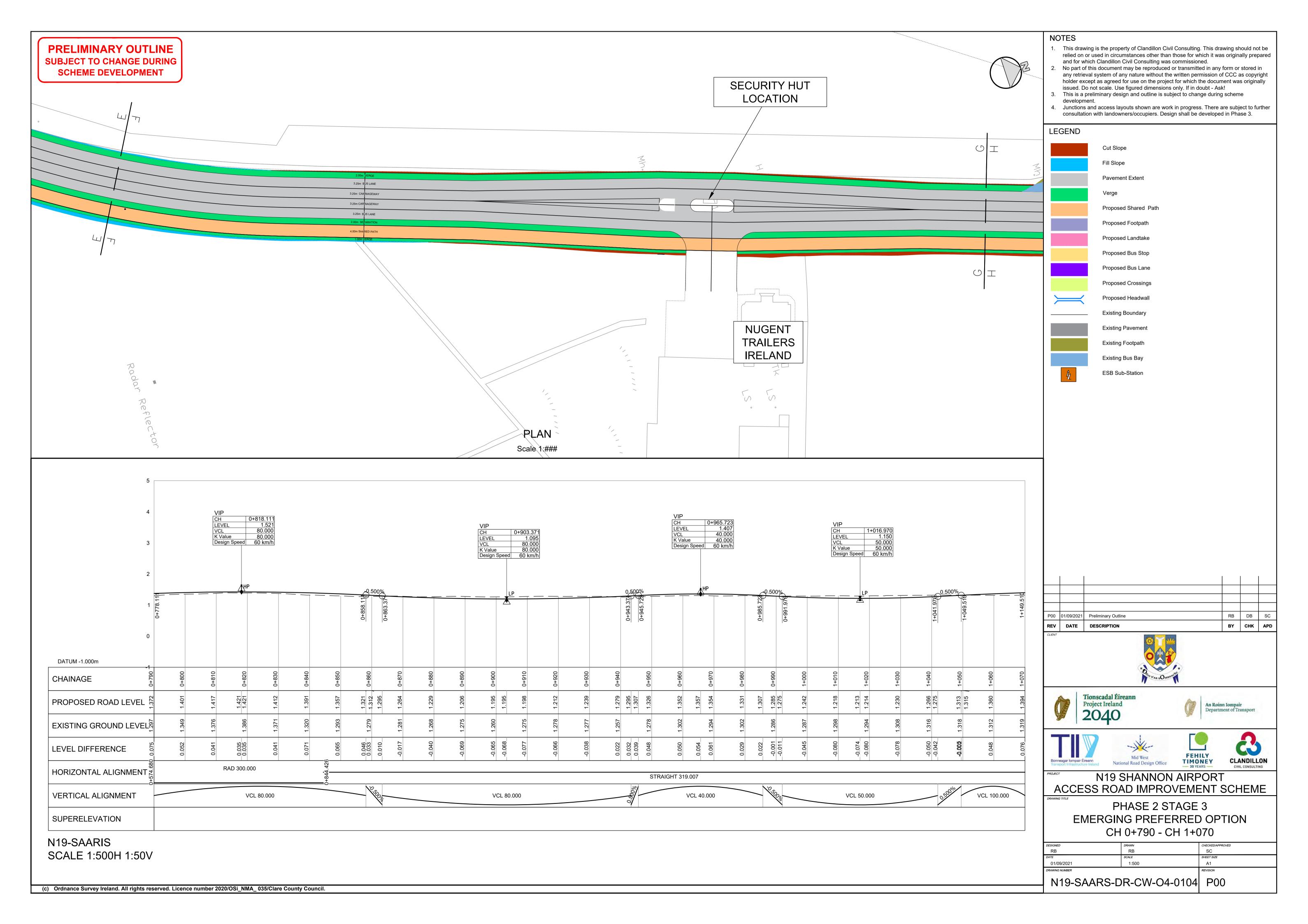


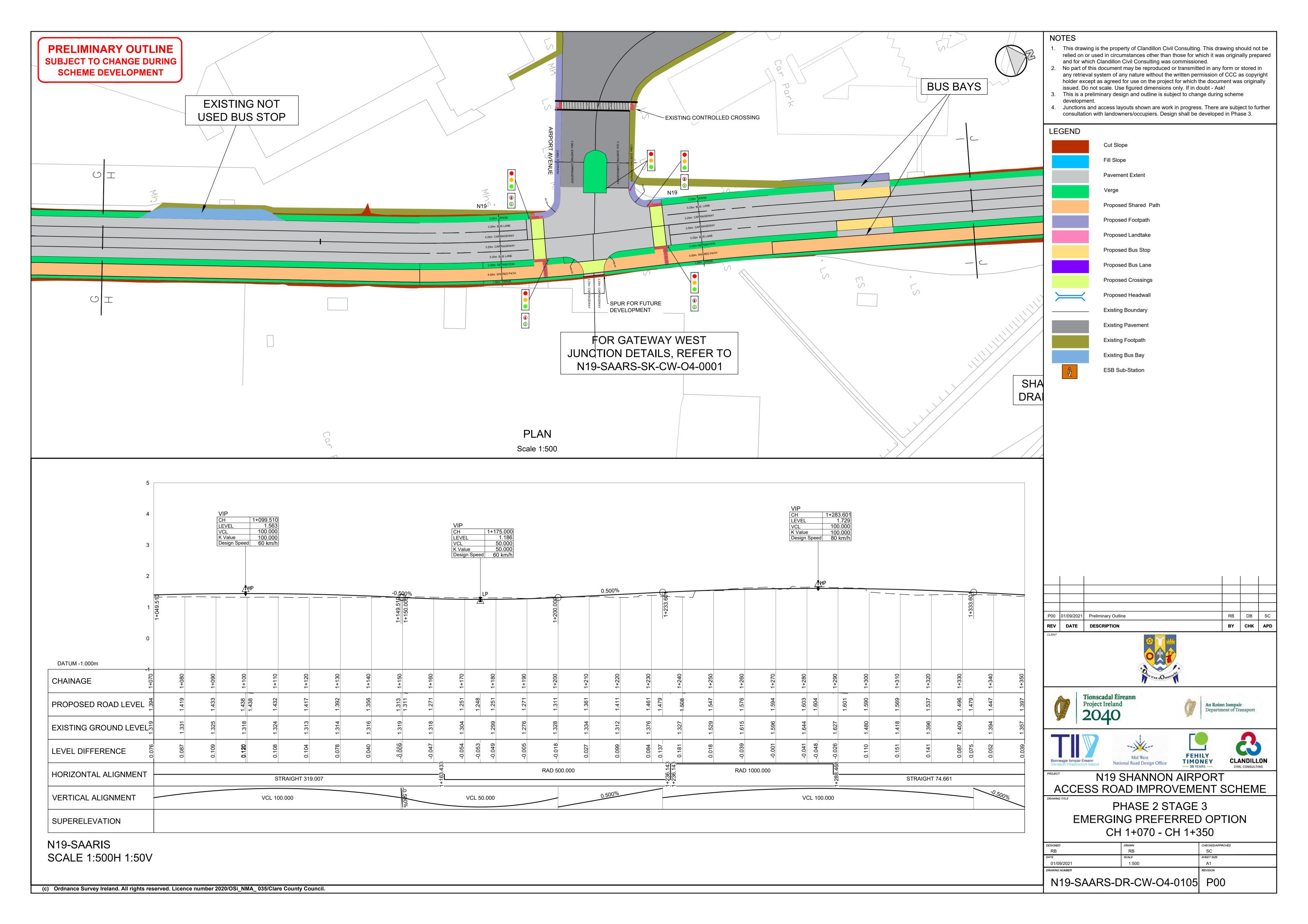


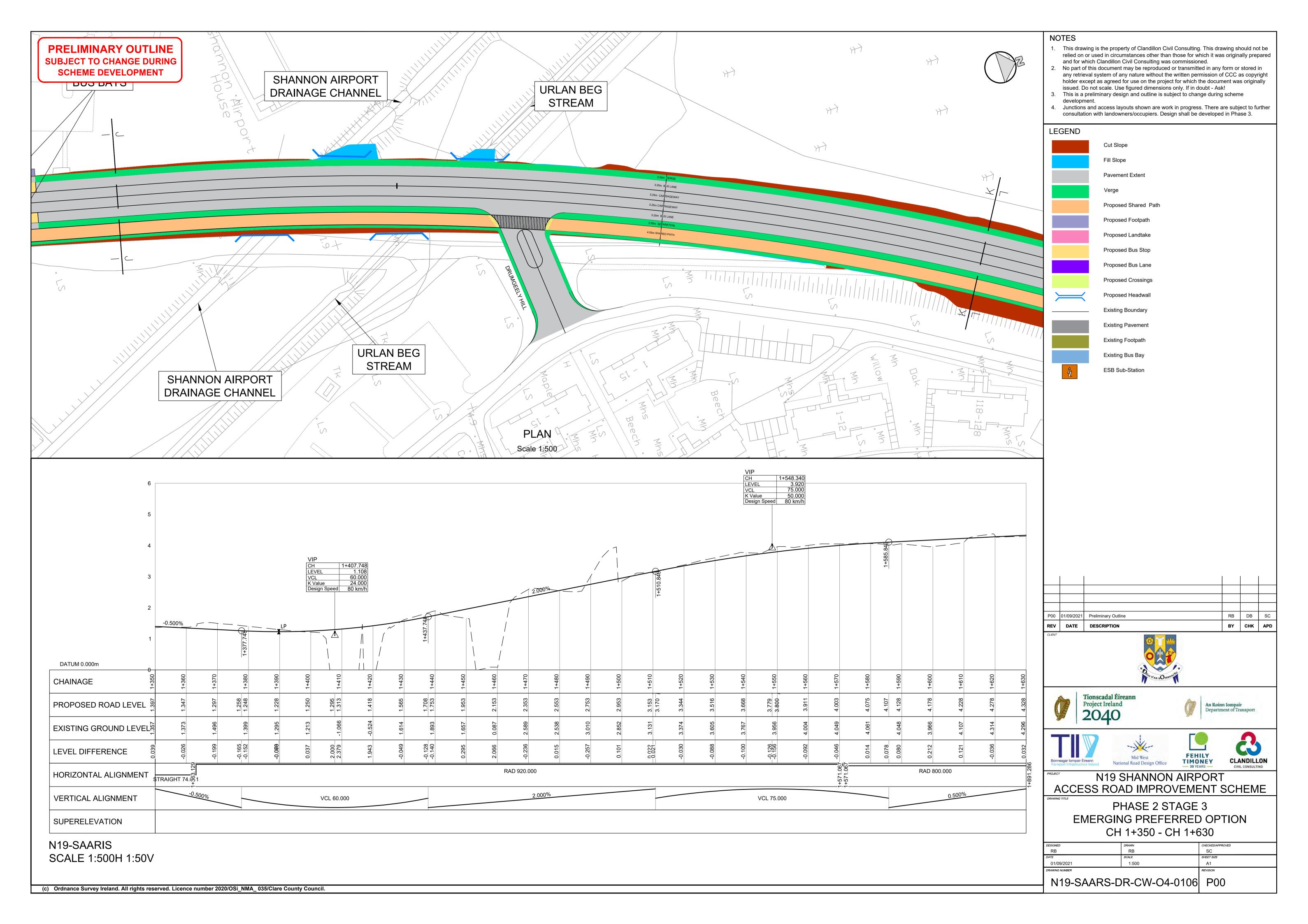


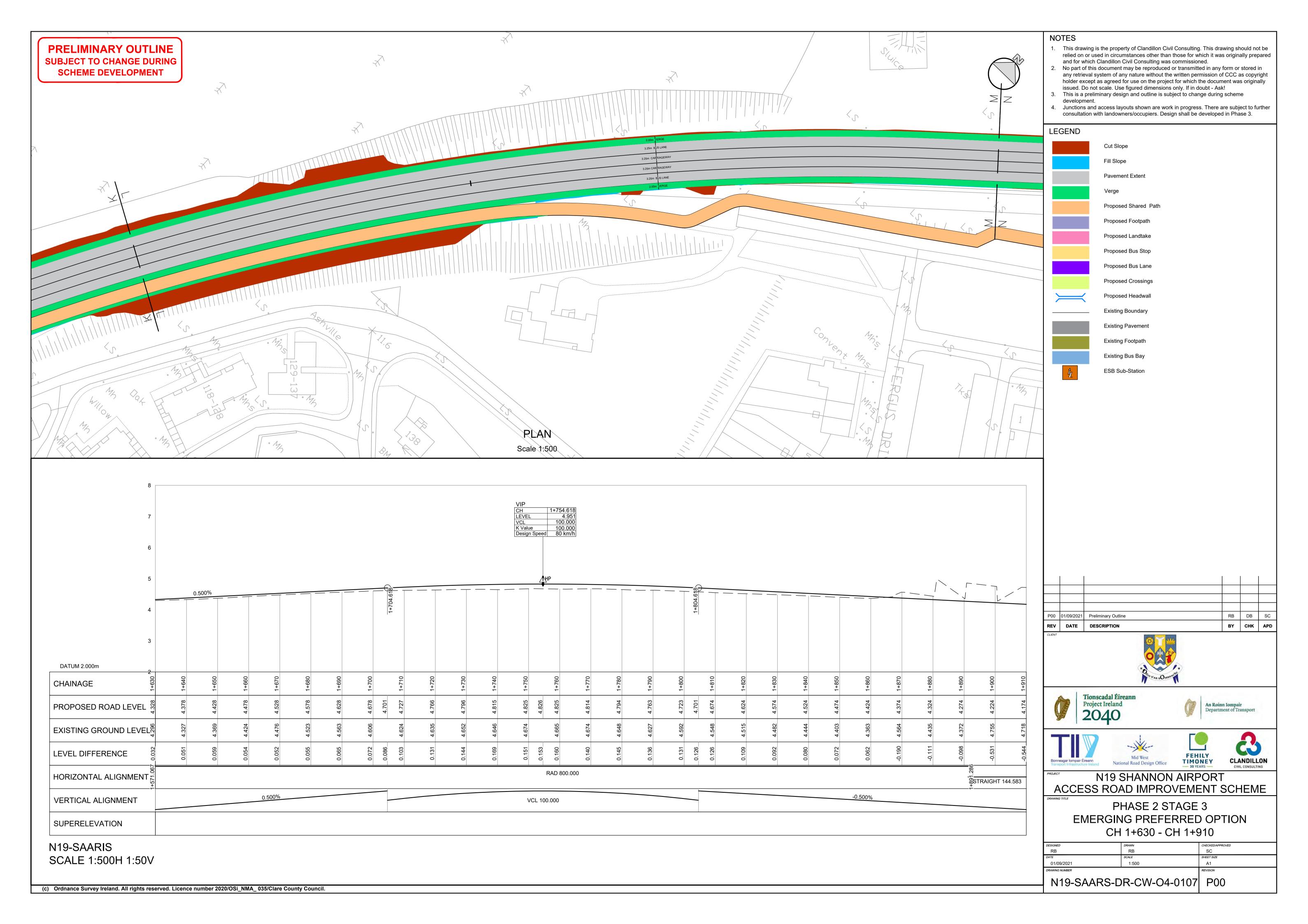


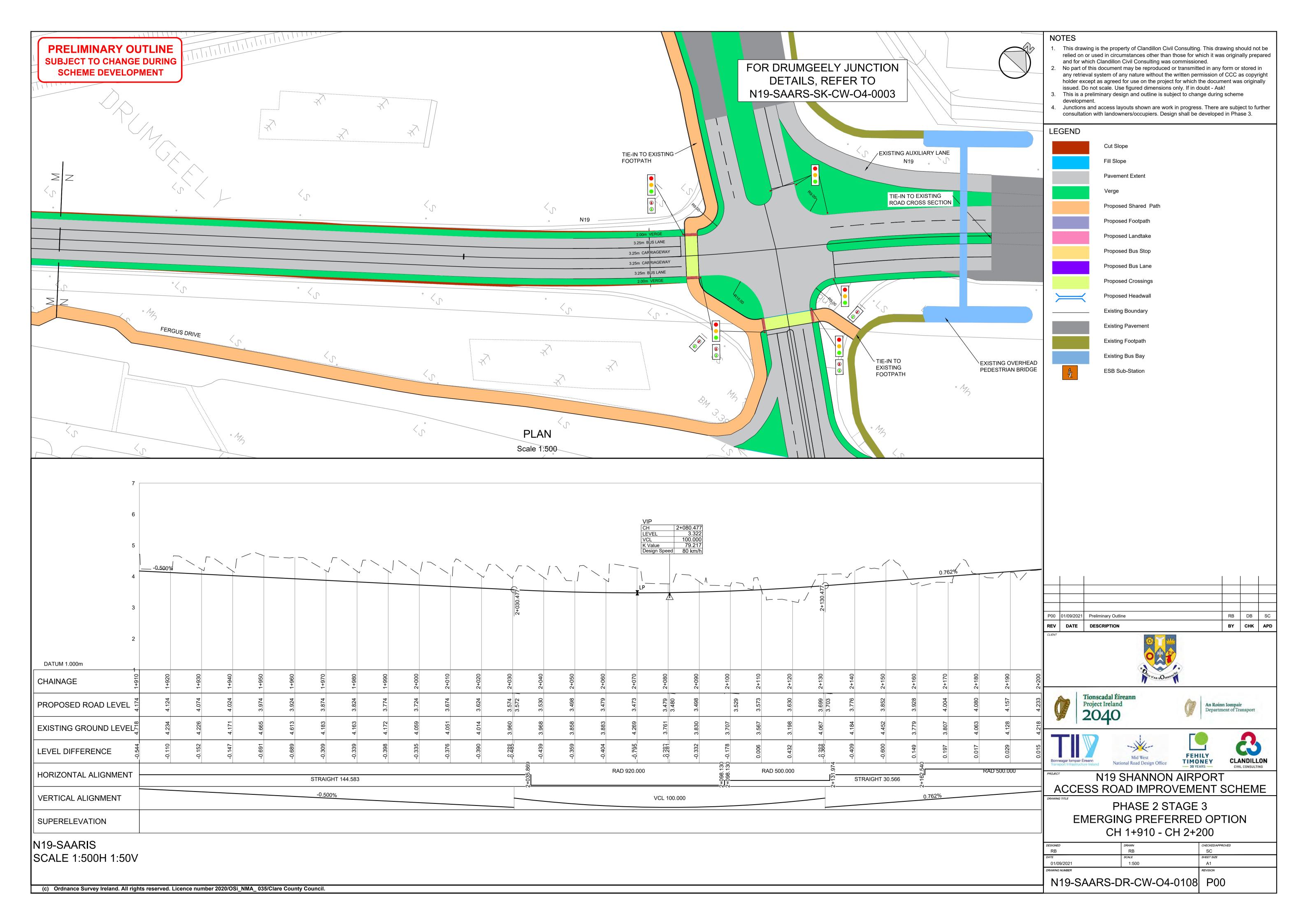












SAFETY AUDIT FEEDBACK FORM

Scheme: N19 Shannon Airport Access

Document Number: 19166-02-002

Audit Stage: RSA Stage F2

Date Audit Completed: 13th September 2021

Paragraph No. in Safety Audit Report	To Be Completed By Designer			To Be Completed by Audit Team Leader Alternative measures or reasons accepted by auditors (yes/no)
	Problem accepted (yes/no) Recommended measure accepted (yes/no) Recommended measure reasons for not accepting recommended measure. Only complete if recommended measure is not accepted.			
2.1	Y	N	Will provide segregation between footpath and cycleway at detail design. Widths to be determined at detail design stage.	YES
2.2	Y	Y		
2.3	Υ	Y		
2.4	N	Y	Existing crossings are not at specific desire lines. The proposed crossings are being provided close to existing junctions to ensure they are embodied in the traffic controls of the junction and will be designed to give priority to VRU. The locations will be reviewed during detailed design in Phase 3 to ensure an adequate number of crossings are provided and they cater for pedestrian and cycle demand and are located where required.	YES
2.5	Y	N	In consultations the airport security and the Gardaí have requested that the security hut which will be upgraded be maintained in the same location – this would not allow for provision of separation in the existing layout. The layout will be reviewed at detailed design to see if the Nugent Trailer's access can be moved.	YES
2.6	Y	Υ		
2.7	Y	Υ		

Safety Audit

Signed off:

Design Team Leader

Print Name: Declan Bowles

Oak Feweler

Date 04/10/21

Safety Audit Bowk Ween Employer

21/01/2022

Print Name SEAN KILLEEN

Date 21/01/2022

Safety Audit

Signed off Audit Team Leader

Print Name ...RAY BUTLER.....

Date4/10/12...

Please complete and return to:

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Kilkenny

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