



Basildon Local Plan A127 Junction With Cranfield Park Road, Nevendon Technical Note May 2021



#### **Document Control Sheet**

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### **1** Background

The Basildon Local Plan has determined that land south of Salcott Crescent and Tresco Way in Wickford will be acceptable for residential development.

To support the development of this site, it is proposed to make improvements to Cranfield Park Road and the junction of Cranfield Park Road and the A127 eastbound track.

This report is concerned with the potential improvements to the junction, with the assumption that the other improvements proposed for the rest of Cranfield Park Road shall be designed by another party.



## 2 Site Description

Cranfield Park Road predates A127, with the latter originally constructed in the 1920s and dualled in the 1930s. It is unlikely the form of the junction has changed much since it was constructed, and the present arrangement of the junction and the nearby exit from A127 to the *Dick Turpin* PH to the west of the junction do not comply with modern Standards.

The A127 at the junction with Cranfield Park Road is subject to a 50MPH restriction (which is to become enforced by average speed cameras), and is street lit, with shared, unsegregated cycleway/footways on each side.

The A127 is a PR1 route within the Essex hierarchy with Cranfield Park Road designated as a local road.

The *Dick Turpin* public house and a number of private residences form obvious physical constraints on the onward route from A127 through Nevendon to Wickford.

The existing arrangement includes a nearside diverging taper of approximately 75m length, which includes within that length a direct access to the *Dick Turpin*.

On the exit from Cranfield Park Road, the existing arrangement includes a merge taper of approximately 50m length.

In the previous five years to date one Personal Injury Collision (PIC) has occurred in the vicinity of the junction, which was categorised as "slight". The collision occurred when a vehicle travelling east on the A127 collided with the rear of a vehicle which was entering the A127 from Cranfield Park Road.

As there has only been one collision in the preceding five years, and that this was categorised as "slight", it does not appear that the operation of the existing arrangement is inherently unsafe for its current usage.

This route has been highlighted as a priority in the draft Local Cycling and Walking Infrastructure Plan (LCWIP) for Basildon, which has recently been published for consultation. A means of crossing the A127 will need to be provided to facilitate this route. This has not been considered in this report and is likely to require additional land.



## 3 Recommendations

#### Assumptions

At the time of writing a 50mph restriction has been implemented along A127 linked to the local Air Quality Management Plan (AQMP). The 50mph scheme includes the implementation of average speed cameras for enforcement, and therefore it may be expected that compliance with the new speed restriction is high. If this is the case, the Highway Authority will be satisfied with a reduced Design Speed for the proposed revised arrangement at A127 junction with Cranfield Park Road. In the meantime, the junction at this layout has been based on a Design Speed derived from the existing physical constraints on site.

The locations of Statutory Undertakers' apparatus has not been investigated, but as both roads are well established it is assumed that there shall be a number of services within the existing Highway, any of which may have an effect on the design of any proposals described herein.

The proposal drawings have used Ordnance Survey information which does not have the level of accuracy required for a detailed design.

It should be noted that since this report was originally commissioned , new guidance (Local Transport Note 1/20) has been issued by the Department for Transport in July 2020, this relates to the design of cycling infrastructure and outlines recommended requirements for segregated cycling infrastructure. As this was not available at the time of writing the original version of this report the designs and recommendations highlighted in the Summary do not take these additional requirements into account. Generally, it is likely that the footway / cycleway provisions including crossing points would need to be wider resulting in additional land requirements will need to be considered fully before any further design works are carried out and any infrastructure implemented.

#### **Proposed Arrangement**

(See drawing no. B3553R8A-03-001)

The existing junction features a 75m diverge taper, which includes within its length an entrance to the Dick Turpin PH.

Given that the proposed improvements are to support a direct link between the A127 and existing housing and the proposed housing estate, that it is anecdotally understood that the route is already well used, and that improvements are likely to make the route more desirable, an auxiliary lane (or deceleration lane) is recommended, rather than a diverge taper. This should be provided to the standard length of 110m. This will allow vehicles to leave the main line of the A127 eastbound carriageway before they begin to decelerate and provide additional capacity for traffic off the A127, removing the effect of decelerating traffic on the A127.

Following the evolution of traffic and standards since the public house was constructed, the ingress to the *Dick Turpin* PH does not comply with modern standards. Whilst this should not pose an issue in terms of its continued existence, reconfiguring the junction shall have an impact on the access. Increased traffic flows from A127 to Cranfield Park Road would make the location of the ingress less



desirable as vehicles entering the car park will need to decelerate at a much faster rate than those using the deceleration lane to enter Cranfield Park Road.

Two solutions in line with Design Standards have been considered. As a 40m radius is required on the exit from A127, the ingress to the *Dick Turpin* PH car park could remain in place, with improvements made to meet the Standard. The issue with this option is that vehicles entering the car park may travel much faster due to the reduced physical constraints of such an alignment. Given the proximity of the car park to the A127, there will be insufficient space for vehicles to enter the car park at the same angle as the present arrangement. This would require extensive reconfiguration of the car park layout and even still may lead to safety issues within the car park, in terms of visibility and vehicle speeds.

A second solution, in line with Design Standards, would be to provide a new ingress to the car park as shown in the drawing in the appendix. This option provides a separate deceleration/diverge lane to allow traffic to enter the *Dick Turpin* car park exclusive of the exit to Cranfield Park Road.

This shall require acquisition of land to the west of the *Dick Turpin*, and north of A127, although this would arguably provide the safest ingress to the car park, with the least requirement in terms of reconfiguring the car park arrangement. Being a relatively small area at the corner of the field, and being agricultural land this may be a relatively easy requirement to satisfy, subject to successful land acquisition.

Planning Permission may be required due to the change in use of the land to be acquired, although this may not be certain as the land is adjacent to the current Highway boundary.

The drawing shows a proposed arrangement for the *Dick Turpin* car park based upon Essex County Council's *Parking Standards – Design and Good Practice*, which gives a reduction in spaces from 79 spaces to 58 spaces, with 4 disabled parking bays retained, and the addition of a space for up to 4 solo motorcycles. Of course, the proprietor may use any layout they prefer, but it should be borne in mind that the recommended Highway arrangement shall still have an effect on the private car park arrangement.

The recommended geometry of the car park ingress has been designed to reduce the area of land acquisition required to the minimum, and therefore the end of the auxiliary lane would overlap the direct taper, being the start of the auxiliary/deceleration lane for Cranfield Park Road. Within the recommendations this has been resolved by merging the start of the auxiliary lane to enter Cranfield Park Road with the auxiliary lane to enter the *Dick Turpin* PH. The effect being that there is a Standard auxiliary lane for the *Dick Turpin* PH access and the length of the auxiliary lane to enter Cranfield Park Road is longer than required by the Standard, whereas the alternative would be for this to be shorter than required by the Standard.

To provide standard lane widths at the A127 junction with Cranfield Park Road it is proposed to increase the size of the traffic island. This shall allow standard radii to be used on the entry to Cranfield Park Road (40m) and entry to A127 (30m) and shall accommodate a realignment of the existing footway/cycleway on the north side of the A127.



As increasing the size of the traffic island will prevent vehicles exiting the *Dick Turpin* car park to access A127 via the southbound lane of Cranfield Park Road, a one-way link through the island is proposed.

Whilst the width of the island (in relation to Cranfield Park Road) may be more than sufficient to shelter a car waiting to join the southbound lane of Cranfield Park Road, multiple cars or larger vehicles (for example dray wagons) may not have sufficient shelter within the width of the island, and therefore the proposals include a give way line across Cranfield Park Road rather than the link through the island, to give priority to vehicles exiting the car park over southbound vehicles on Cranfield Park Road.

Ordinarily priority would be given to the arm of the junction with the highest traffic flows, but the priority may be changed for safety reasons.

Whilst this does not counter anything explicit in the Standard, it may be considered unorthodox, therefore it is strongly recommended that a Road Safety Audit Stage 1 is carried out on the recommendations before pursuing further design work on this arrangement.

In order to improve on the existing envelope of forward visibility on entry to Cranfield Park Road from A127, it would be necessary to acquire part of the land which forms the plot of the *Dick Turpin* PH. To achieve an envelope of forward visibility in accordance with Standard, the shaded areas of land would need to be acquired as shown in drawing no. B3553R8A-03-002 - *Forward Visibility Desirable Minimum (120m on Exit from A127 & 90m on Entry to A127)*.

Approximately 30% of the land attached to the *Dick Turpin* PH would need to be acquired, with the demolition of a substantial part of the building itself, inevitably leading to the closure of the active business.

The closure of an existing business is not likely to be a desirable outcome, therefore a lesser forward visibility, could be applied as a Relaxation of the Standard, being one step below the desirable minimum as shown in drawing no. B3553R8A-03-003 - *Forward Visibility One Step Below Desirable Minimum (90m on Exit from A127) Desirable Minimum (90m on Entry to A127).* 

The public house also falls within this envelope of forward visibility and the application of the envelope would still necessitate at least partial demolition of the building, therefore, for the forward visibility an additional step below the desirable minimum has been investigated, as shown in drawing no. B3553R8A-03-004 - *Forward Visibility Non-Compliant (70m on Exit from A127) One Step below Desirable Minimum (70m on Entry to A127)*.

The application of this envelope of forward visibility would be a Departure from Standard, and would therefore require authorisation from the Highway Authority.

For this arrangement, the visibility narrowly misses the public house, but would require the acquisition of approximately 333m<sup>2</sup> of the car park, as it is necessary for the envelope of forward visibility to be kept clear of any obstruction, so the continued use of this area as a car park would contradict the visibility requirement. Therefore, any parking spaces within this area would need to be removed.



In ensuring that the geometry is compliant with Standard, the proposals must necessarily include realigning Cranfield Park Road, moving the junction with A127 approximately 10m east of its present position. This reduces the effect the rearrangement will have on the Dick Turpin and associated land, but conversely increases the requirement to acquire land on the east side of the carriageway. It is believed that the land forms part of *The Pines'* plot, and it appears to be mostly undeveloped with the area providing less of a construction challenge than if it was developed.

If the envelope of forward visibility is to be reduced to non-Standard on the entry to Cranfield Park Road, it may be prudent to reduce the envelope of forward visibility on the exit from Cranfield Park Road, if only by one step, which would be a Relaxation to, rather than a Departure from the Standard, as the Design Speed for Cranfield Park Road (based upon the existing arrangement) has a much lesser requirement than the A127. This may also allay any complaints from the landowner as to why a lesser envelope of forward visibility has been applied on the entrance to Cranfield Park Road, but not on the exit.

If the proposals presented here were to be issued for Stage 1 Road Safety Audit, mitigating measures would be included to demonstrate to motorists the arrangement of the junction and the potential conflict points. These may include, but not be limited to, a map type advance direction sign showing the junction arrangement, including the egress from the *Dick Turpin*, and the link through the traffic island, warning signs for the junction, cyclists and pedestrians, advisory maximum speed signs, SLOW markings and transverse markings. These features shall be required to attenuate vehicle speeds, not only due to the complexity of the junction, but also due to forward visibility being insufficient to meet Standard, and may be necessary to obtain authorisation from the Highway Authority for the Departure from Standard due to the reduced envelope of forward visibility.

The drawing shows a proposed arrangement for the *Dick Turpin* car park based upon Essex County Council's *Parking Standards – Design and Good Practice*, shows 58 spaces, with 4 disabled parking bays retained, and the addition of a space for up to 4 solo motorcycles. This is a reduction from the present 79 spaced identified from aerial photography, although it is not known to which standard (if any) the current parking arrangement has been designed. Of course, the proprietor may use any layout they prefer, but it should be borne in mind that the recommended Highway arrangement shall still have an effect on the private car park arrangement.

On exiting Cranfield Park Road to A127, it is recommended that the existing merge taper length is increased to 130m in order to meet Standard. There are no physical constraints preventing this, and this improvement may be made wholly within the existing Highway boundary.

Where the north side of the A127 eastbound carriageway is to be realigned for auxiliary diverge and merge lanes there is an opportunity to realign the existing shared footway/cycleway. This could include the provision of a 1m verge to increase segregation between non-motorised users and increasing the width of the existing footway/cycleway to 3.5m from the existing 3m. This width matches the existing provision along a number of lengths of the A127 but does not meet cycle design recommendations recently issued in July 2020, which encourage segregation between cycles and pedestrians and increase facility widths.



It will be necessary to provide uncontrolled crossing points where the cycleway crosses the proposed ingress to the *Dick Turpin* PH as well as on each side of the proposed traffic island at the junction with Cranfield Park Road.

The proposed arrangement includes realignment of the existing shared footway/cycleway for the proposed merge taper, but also allow the footway/cycleway to be widened and the inclusion of verge segregation from the carriageway. Based upon Ordnance Survey information this appears to require an extension to the existing culvert which takes a watercourse beneath the A127 carriageways.

It may be preferable to reduce the width of the footway/cycleway and segregation from the carriageway at this location to avoid changes to the culvert as this may prove costly with little benefit. Based upon Ordnance Survey information and the carriageway geometry proposed the "pinch point" at the culvert is 3.8m wide, which would allow a satisfactory arrangement to be employed.



## 4 Summary

The following improvements are recommended:

- Provide a separate deceleration/diverge lane to allow traffic to enter the *Dick Turpin* car park exclusive of the exit to Cranfield Park Road. This shall require acquisition of agricultural land to the west of the *Dick Turpin*, and north of A127.
- Where the north side of the carriageway is to be realigned for diverge and merge lanes, provide 3.5m wide shared, unsegregated footway/cycleway with 1m verge segregation from the edge of the carriageway.
- Provide uncontrolled crossing points where the footway/cycleway crosses diverge and merge lanes.
- Rearrange layout of the *Dick Turpin* car park to accommodate new entrance.
- Provide deceleration/diverge lane on approach to Cranfield Park Road.
- Enlarge existing island at the junction of A127 and Cranfield Park Road in order to provide 40m radius on exit from A127 to Cranfield Park Road, and 30m radius on exit from Cranfield Park Road to A127, including realignment of south end of Cranfield Park Road to reduce effect on the *Dick Turpin* PH buildings and car park.
- Provide one way link through proposed island at the junction of A127 and Cranfield Park Road to allow traffic to exit the *Dick Turpin* PH car park directly to A127 via proposed merge.
- Provide increased length of merge taper from Cranfield Park Road to A127.

Should these proposals wish to be pursued it is strongly recommended that early discussions are held with the proprietor of the *Dick Turpin* and the owners of the land west of *Dick Turpin*, and south of *The Pines* in the first case.

Utility records for potential diversions also would need thorough investigation.

An early appraisal of ground conditions, Flood Risk character and Environmental constraints is also recommended.



## 5 Drawings

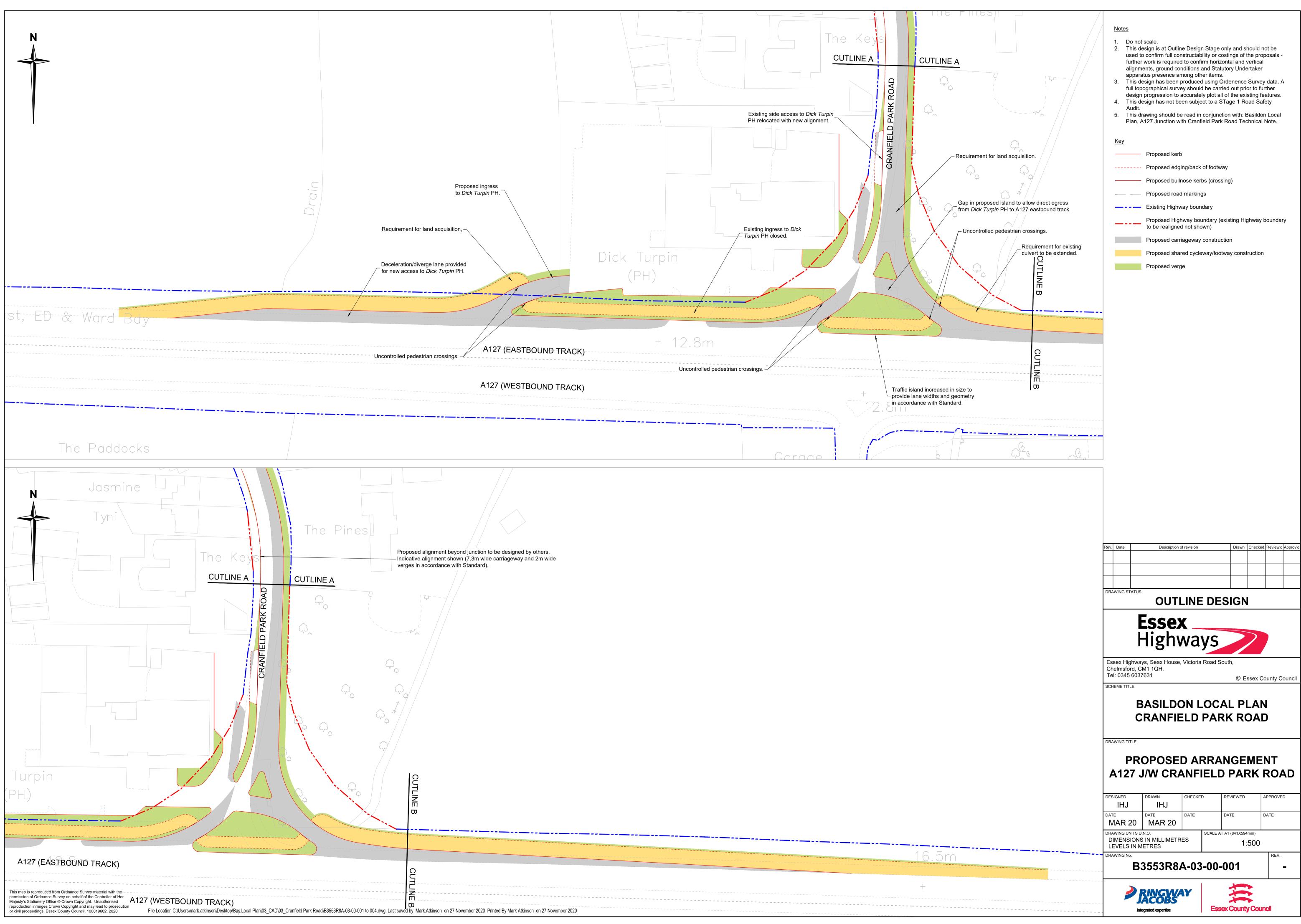
See Appendix A

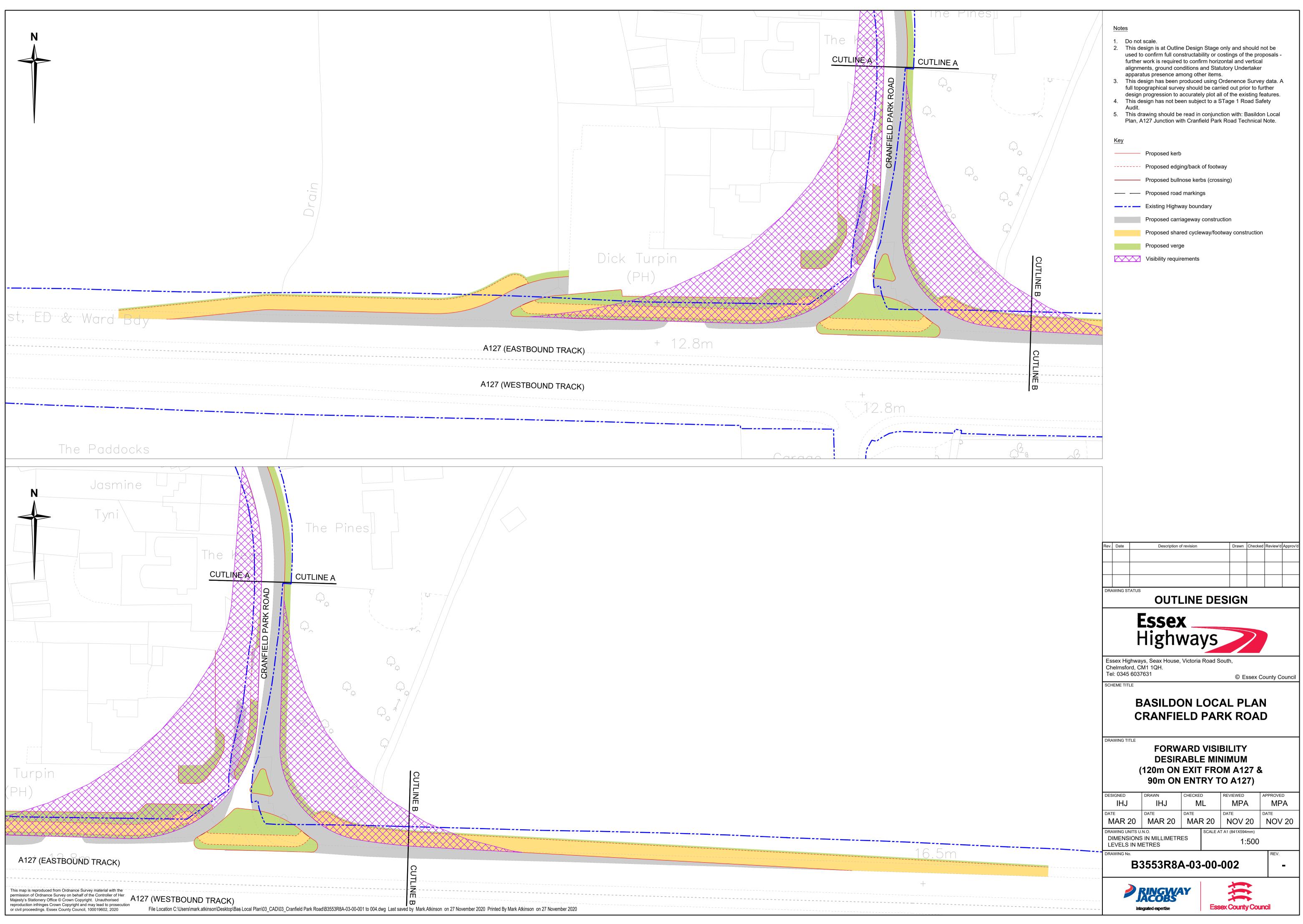
Drawing no. B3553R8A-03-001 Proposed Arrangement A127 J/W Cranfield Park Road

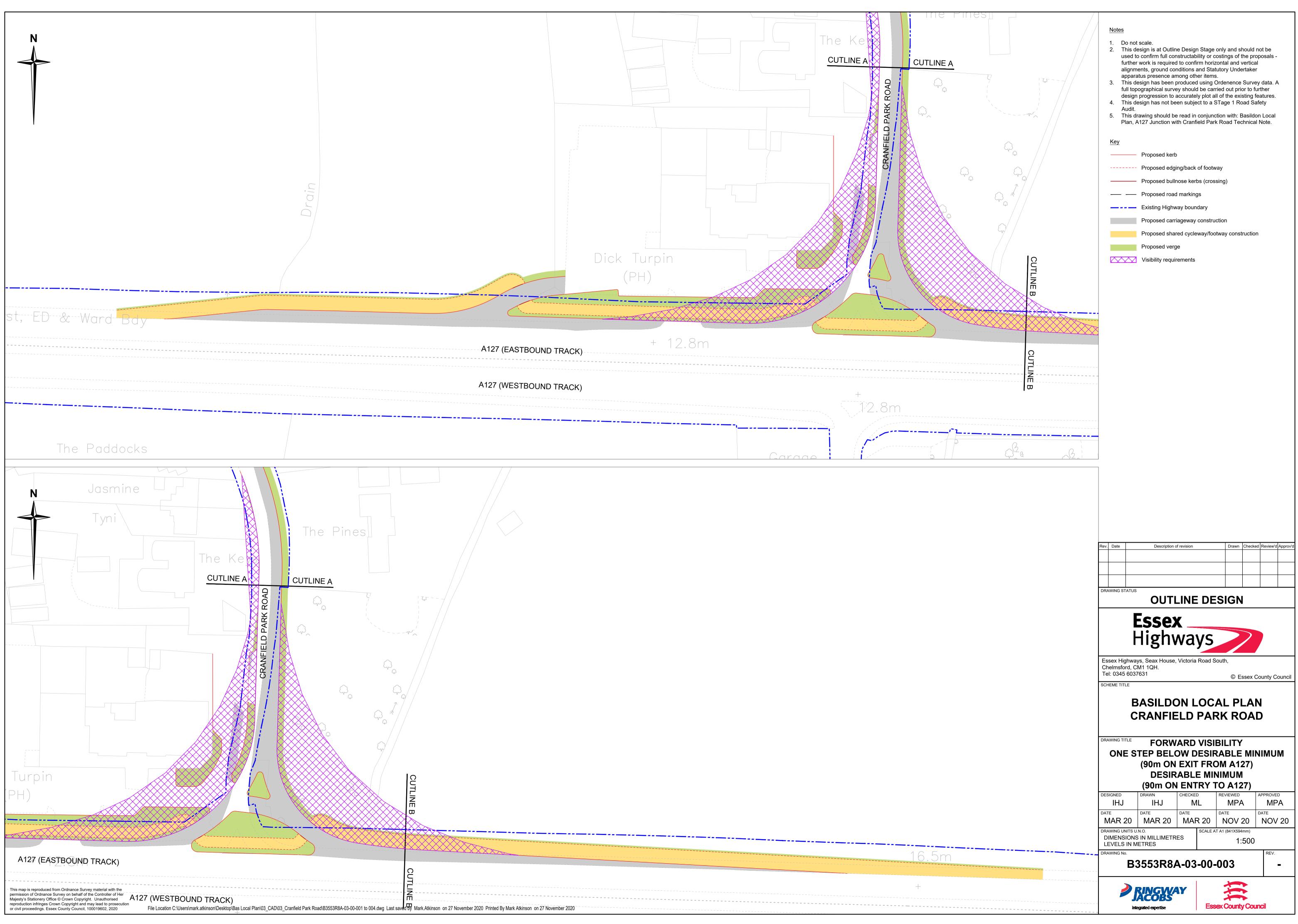
Drawing no. B3553R8A-03-002 Forward Visibility Desirable Minimum (120m On Exit From A127 & 90m On Entry To A127)

Drawing no. B3553R8A-03-003 Forward Visibility One Step Below Desirable Minimum (90m On Exit From A127) Desirable Minimum (90m On Entry To A127)

Drawing no. B3553R8A-03-004 Forward Visibility Non-Compliant (70m on Exit from A127) One Step below Desirable Minimum (70m on Entry to A127)







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