

## Technical Note 1

### Land to the east of St Nicholas - Planning Ref: 2016/00619/FUL

#### Introduction

1. Vectos are appointed by Redrow Homes (south Wales) to provide transport and highways advice in relation to the proposed residential development of land to the east of St Nicholas.
2. This Technical Note has been produced in response to comments received from the Vale of Glamorgan's (VoG) Highway Officer (dated 20<sup>th</sup> July 2016), in relation to the proposed site access options. These comments are contained in **Appendix A**.
3. There are currently two forms of access presented. Both accesses would provide a priority junction with a ghost-island right turn lane and the existing property 'Emmaville' would be demolished to make room for a new access road to the site. The access options are based on priority T-junction with a ghost-island right turn lane. The options are:
  - Option 1 – designed primarily in line with Manual for Streets 2 (MfS2) and offers a less intrusive vehicular access to the site;
  - Option 2 – designed primarily in line with DMRB guidance and offers a slightly more intrusive vehicular access to the site.
4. The VoG Highway Officer requested amendments to both Option 1 and Option 2 access junction designs. The following summarises the requested amendments and whether these have been adopted in the revised junction designs.

#### Option 1 – Less Intrusive Access

5. The revised junction arrangements for Option 1 are contained within **Appendix B**.
6. The Highway Officer requested that the corner radii be increased to 10.5m to accommodate larger refuse vehicles. This has been accommodated within the revised junction design.
7. The width of the access road has been increased to 7.3m to accommodate the swept path of a large refuse vehicle. The access road narrows to 5.5m as it enters the site.
8. Swept path Plans are contained in **Appendix B**. These plans demonstrate that:
  - (Plan H01) - A large refuse vehicle (9.86m in length) can easily access and egress the site access junction;

- (Plan H02) - A pantechnicon removals lorry (11m in length) does cross in to the opposing lane when entering the site. However, this type of vehicle would only visit the site infrequently and even when it crosses in to the opposing lane, it does not conflict with any vehicles queued on the minor arm, waiting to exit the site. As such this is considered an acceptable approach for such a large vehicle that would visit the site infrequently;
  - (Plan H03) - As a sensitivity test, we have tested the largest refuse vehicle (11.22m in length) contained in the Autotrack library. The swept path analysis also shows that the vehicle can access and egress the site safely. The vehicle does stray slightly in to the opposing lane when entering from the west only, however this is a minor incursion which will not affect any vehicles queued on the minor arm, waiting to exit the site. As such this is considered an acceptable approach for such a large vehicle.
9. The Highways Officer has requested that visibility spays be provided based on the speed survey undertaken using ATCs, which are contained within the Vectos Transport Statement (TS) (Ref: W141341-TS-Final). The speed survey showed that the 85%ile speed was 39.4mph, almost 10mph higher than the posted 30mph speed limit. Basing the stopping sight distance requirements on this speed assumes that the introduction of a new ghost-island priority junction and new village gateway features will have no positive effect on traffic speeds through this part of the village which is completely unjustified. We believe that vehicle speeds will reduce as a result of the increased number of vehicle turning movements, as well as the traffic calming effects of the ghost-island and gateway features.
  10. Notwithstanding the above, the Stopping Sight Distance (SSD) requirements for vehicles travelling at 39.4mph is 98.5m (desirable) or 77.4m (minimum). The Highway Officer has requested visibility splays of 100m desirable or 80m minimum, which are higher.
  11. There is no reason why the minimum SSD should not be used in this location as the review of accident statistics contained in the Vectos TS demonstrate that there is an excellent accident record on this section of the A48. The plans contained in **Appendix B** illustrate that the minimum visibility requirements at 4.5m back from the give-way line (X distance) can be achieved in both directions using the advised methodology in MfS2 (Para 10.5.3).
  12. However, MfS2 recommends that the distance from the give-way lines at which visibility splays are measured, should be only 2.4m, not 4.5m. At an X distance of 2.4m, the plans contained in **Appendix B** illustrate that the desirable visibility requirements can be achieved in both directions using the advised methodology in MfS2 (Para 10.5.3).
  13. MfS2 also suggests that *'Longer X distances enable drivers to look for gaps as they approach the junction. This increases junction capacity for the minor arm, and so may be justified in some circumstances, but it also increases the possibility that drivers on the minor approach will fail to take account of other road users, particularly pedestrians and cyclists. Longer X distances may also result in more shunt collisions on the minor arm. TRL Report No. 184 found that collision risk increased with greater minor road sight distance'*. For the sake of clarity, the proposed site access has a significant amount of capacity, as demonstrated in the Vectos TS, and does not require additional visibility to perform adequately. As such, we

consider that the distance of 2.4m measured from the give-way line is the most appropriate point from which to measure the visibility splays and at this distance, the junction achieves the desirable SSD for traffic travelling at 40mph.

14. We believe that traffic will be travelling more in line with the posted speed limit of 30mph once the junction is operation and as such, the desirable SSD requested by the Highway Officer, which is achieved, is excessive. At 30mph the desirable SSD is 63.5m which is easily achieved.

### **Option 2 – More Intrusive Access**

15. The revised junction arrangements for Option 2 are contained within **Appendix C**.
16. The 3.5m shared footway / cycleway has been extended into the site and east along the A48 up to the limits indicated by the Highway Officer.
17. The width of the refuge island on the minor arm is 2.5m. This is considered to be more than sufficient to accommodate the length of a bicycle and as such, has not been amended.
18. A potential pedestrian refuge island on the A48 has been considered but cannot be included due to the proximity of neighbouring access points and driveways. We do not consider a refuge island in this location as critical for sustainable accessibility as there is very little reason to cross the road at this point. There are no amenities to the east on the southern side of the A48 and if pedestrians are walking to the west there is a controlled crossing on the A48.

## APPENDIX A





**INTERIM COMMENTS –  
AMENDMENTS REQUIRED**

## Vale of Glamorgan Highway Authority Observation Sheet

Planning Application Ref:	2016/00619/FUL
Observations By:	Lee M Howells
Date:	20 <sup>th</sup> July 2016 ( <i>Amended Details required</i> )
Location:	Land at Emmaville, Cowbridge Road, St. Nicholas
Proposal:	Proposed alternative access to serve the proposed development of land at St Nicholas (ref:2015/00249), including demolition of Emmaville bungalow
Case Officer:	Mr. Steven Rennie

The Highway Authority would inform the Local Planning Authority that the proposed application to form an alternative / less intrusive vehicular / pedestrian access onto the A48 as proposed to the previous design incorporated within applications 2015/00249/Full & 2015/00283/CAC based on the Highway Design Parameters within TD42 / 95 which incorporated a 3m wide ghost Island / right turning lane, 3.65m carriageway running lanes in both directions ( + 0.5m buffer zone ), visibility splays and the provision of 3.5m wide combined pedestrian / cycling facilities fronting the site and providing links safe and commodious links to the surrounding areas.

The revised access arrangement as submitted still incorporates a ghost island ghost Island / right turning lane and off site combined pedestrian / cycling facilities top the same parameters. However, the proposals seek to reduce the entry width of the access to 5.5m and junction radii's in the region of 6m.

The application also includes a Transport Assessment produced by Vectors Transport Planning specialists which incorporated seed assessments undertaken identified at that time that the Average 24Hr 85<sup>th</sup> Percentile Speeds of 39.4 mph ( 63.41 kph ) East Bound and 38.3 mph ( 63.25 kph ) both of which **exceed** the existing 30 mph speed limit on this stretch of the A48 through the village.

In terms of visibility splays, the developer has incorporated a Plan within the Transport Assessment, reference W141341 / A03 Rev D which identifies a 2.4m x 40m & 4.5m x 70m visibility splays in both directions. However, the Highway Authority would advise the Local Planning Authority that based on the both of the 85<sup>th</sup> Percentile Speeds submitted as part of the applicants Transport Assessment (TA) , the proposed “ y “ distances of 40m & 70m

respectively would **not** achieve the Desirable Minimum Safe Stopping Distance (SSD) of 100m **or** even the Absolute Minimum SSD of 80m based on parameters laid out within Manual for Streets 2 in conjunction with an the required “ x ” distance into the junction of 4.5m. While it would appear from reviewing the aforementioned plan it would appear that in which the highway limits are identified coloured “ pink “, all of the above visibility parameters can be achieved within highway limits and land within control / ownership of the developer, the Highway Authority will require a revised Plan to reflect the required visibility parameters for further consultation prior to determination by the Local Planning Authority.

In terms of the access arrangements configuration, the Highway Authority would advise that the proposed junction radii onto the A48 for the development access of 6 metres is **not** deemed suitable at this location where there is occasional use by large goods vehicles such as refuse vehicles and removal/ delivery vehicles.

The Highway Authority would advise the Local Planning Authority that there no objections to the proposals in principle. However, the developer will need to submit revised details for further comments prior based on the following.

1. The junction radii being increased to 10.5 metre ( minimum)
2. The access width being 5.5m
3. Visibility Splays 100m x 4.5m in Both Directions based on the Desirable Minimum Safe Stopping Distance and reduction to the absolute Minimum o SSD of 80m will need justification.
4. Submission of comprehensive swept path analysis of the junction area allowing for the movements of 11m ridged vehicles entering / exiting the site while there is a vehicle sighted at the minor arm junction.

The developer engineers are to be advised that the swept paths shall include margin of error and that vehicle shall not over ride / hang adjacent footways or crossover opposing lanes / vehicular flows in the interest of highway / public safety.

In addition to the above the applicant must be made aware that the Highway Authority will require as part of any subsequent consent enhanced gate way features entering and through the village the details / extent of which to be agreed with the LHA.

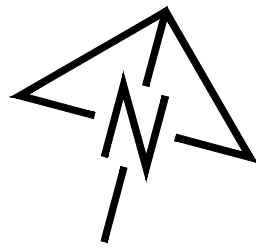
Lee Howells – 3<sup>rd</sup> August 2016  
Acting Group Engineer  
Highway Development







## APPENDIX B



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REV.	DETAILS	DRAWN	CHECKED	DATE

**Notes:**

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.

**Legend:**


- 4.5m x 80m Visibility Splay
- 2.4m x 80m Visibility Splay
- 2.4m x 100m Visibility Splay

**St Nicholas**

**Potential Ghost Island Right Turn Arrangement**

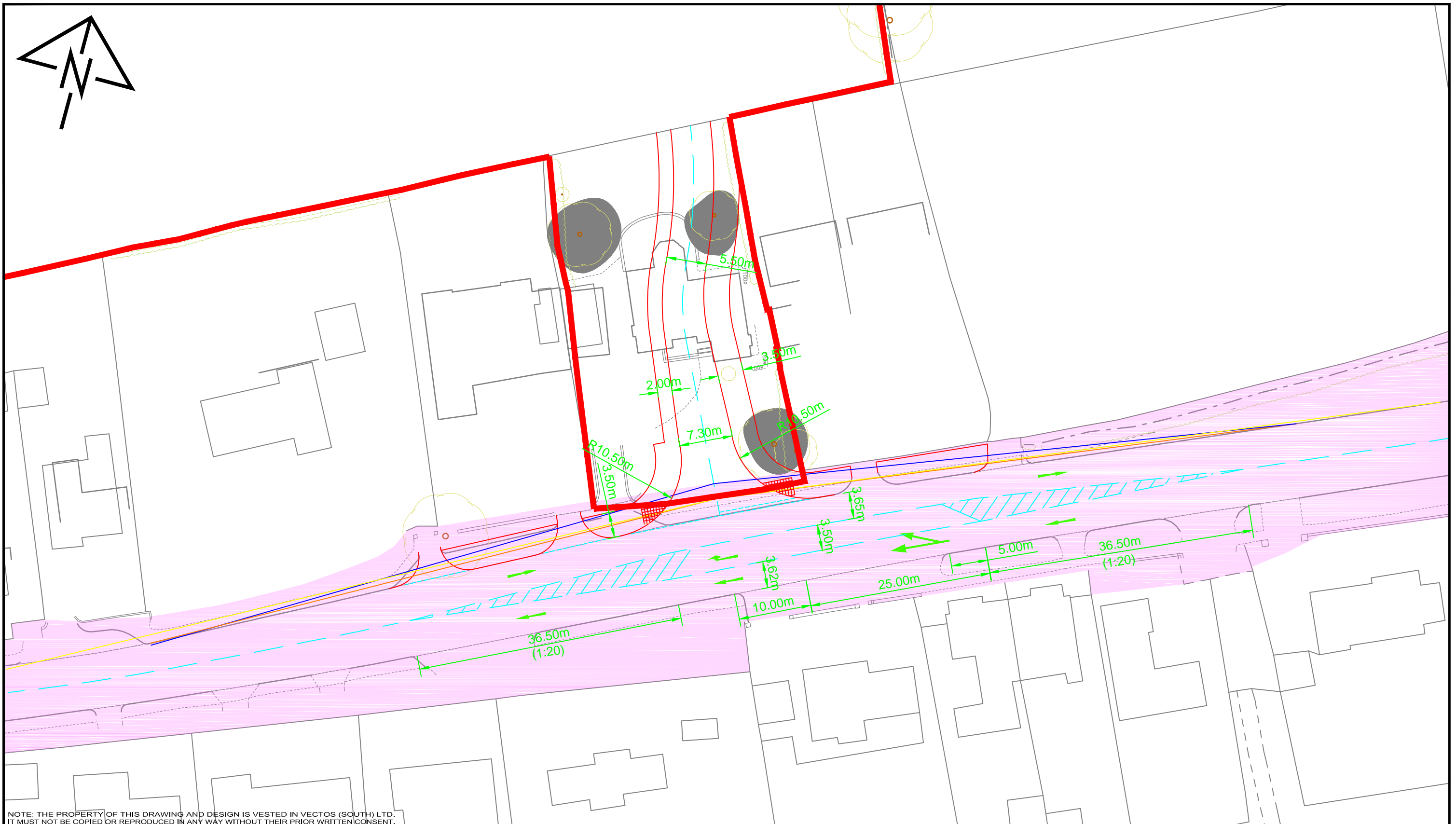
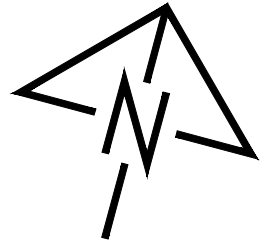
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**Legend:**

- 4.5m x 80m Visibility Splay
- 2.4m x 80m Visibility Splay
- 2.4m x 100m Visibility Splay
- Adopted Highway Boundary

**St Nicholas**

**Potential Ghost Island Right Turn Arrangement with Adopted Highway Boundary**

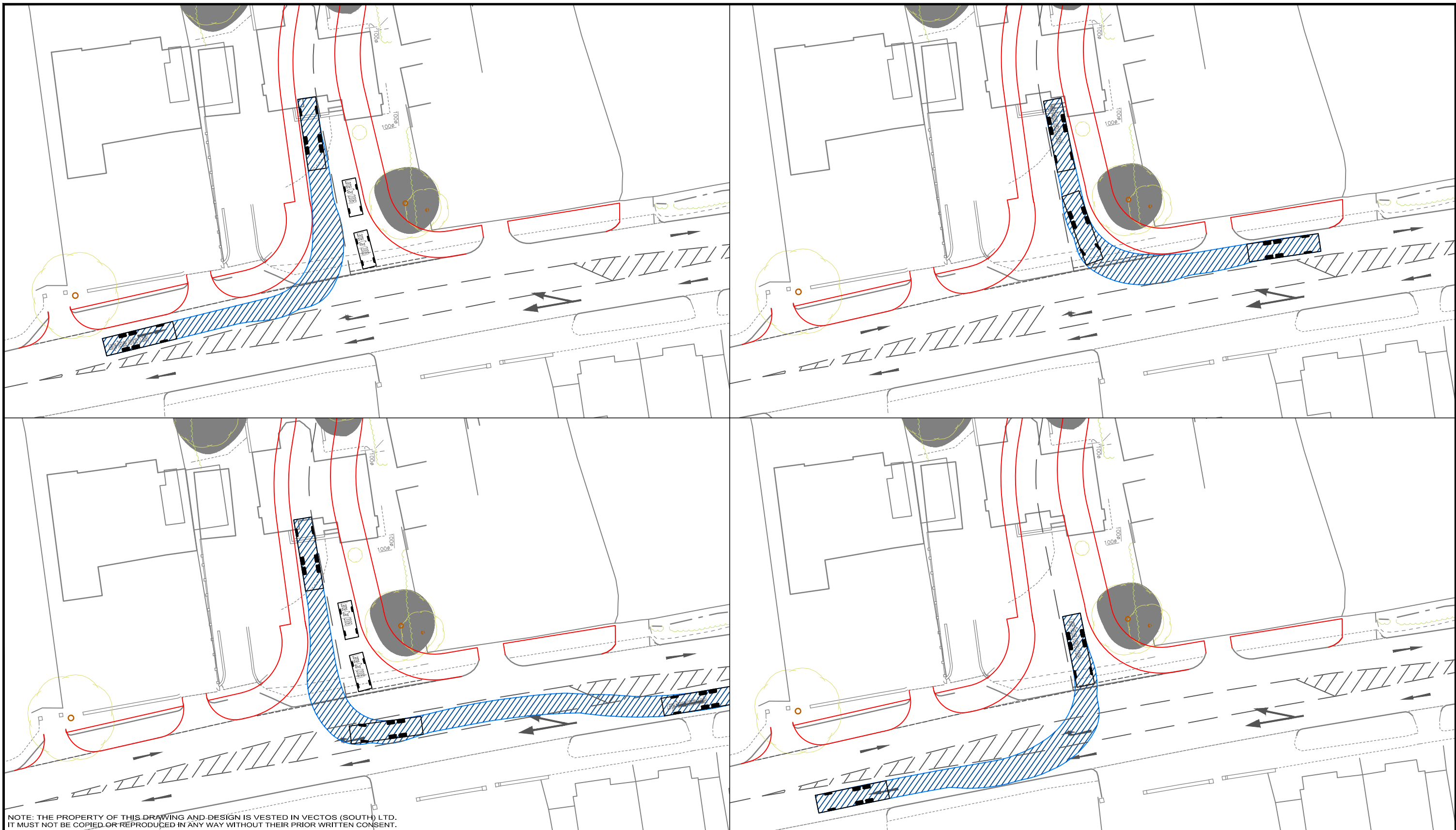
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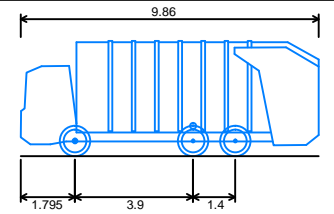
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Large Refuse Vehicle (3 axle)	9.860m
Overall Length	2.450m
Overall Width	3.814m
Overall Body Height	0.366m
Min Body Ground Clearance	2.450m
Track Width	4.00s
Lock to lock time	9.500m
Kerb to Kerb Turning Radius	

**St Nicholas**

**Swept Path Analysis using a 9.86m Large 3 Axle Refuse Vehicle**

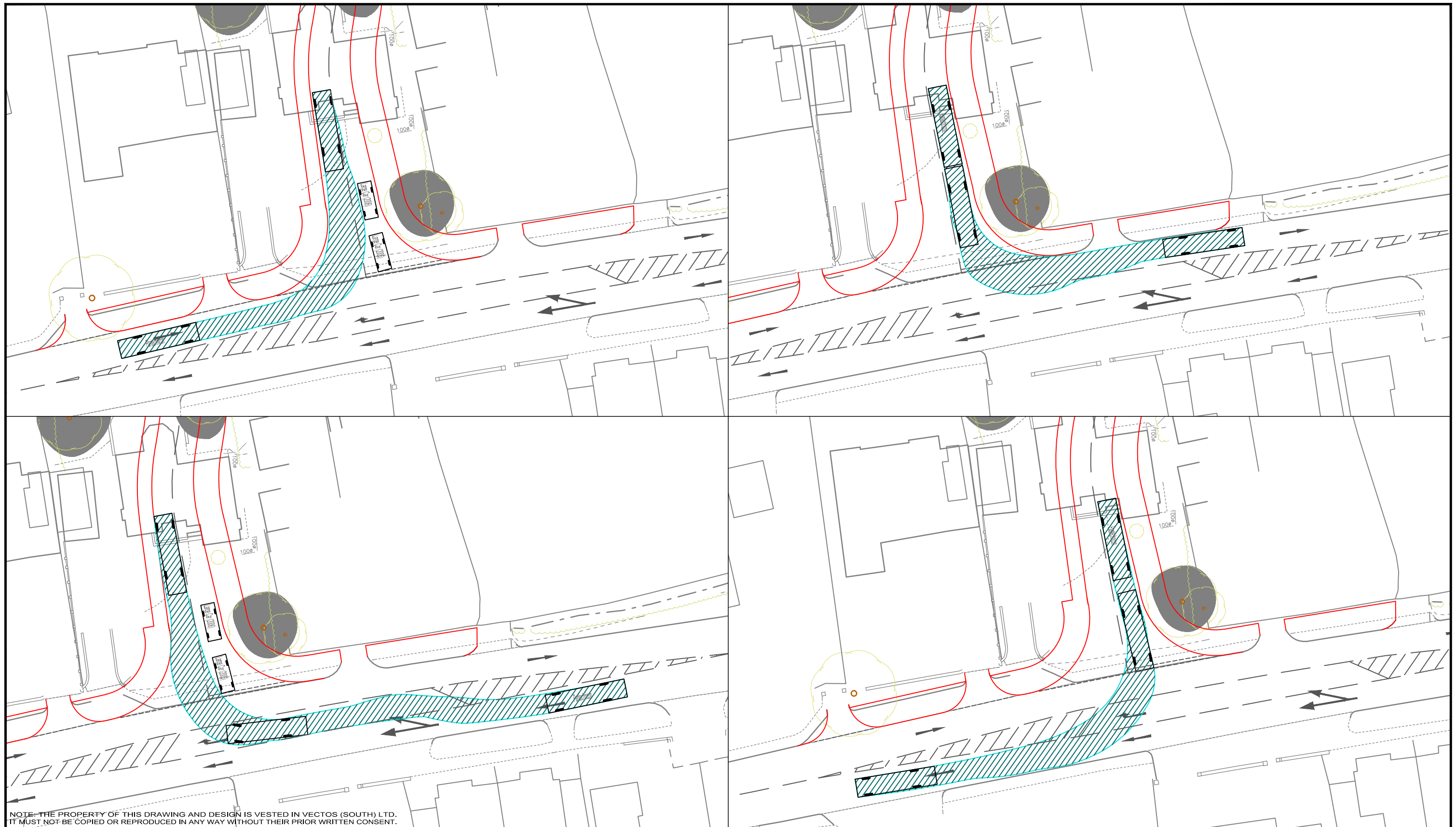
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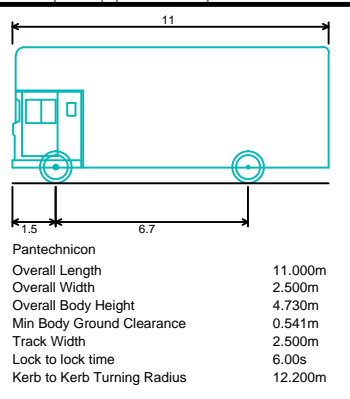




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**St Nicholas**

**Swept Path Analysis using an 11m Pantechon Vehicle**

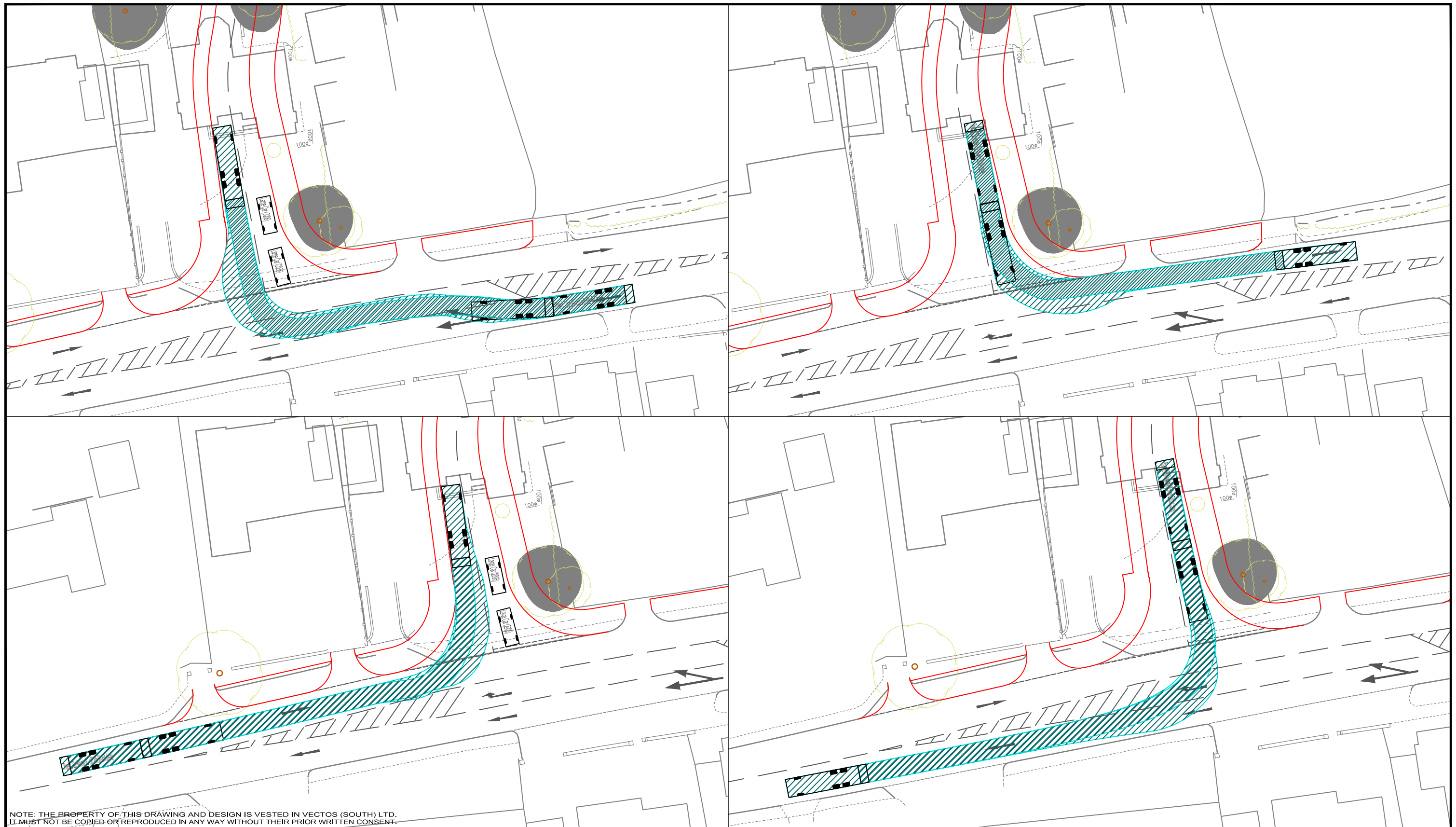
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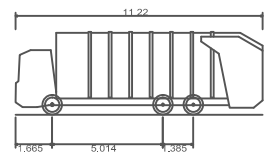


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Phoenix 2 Duo Recycler (P2-15W with Elite 6x4 chassis)  
 Overall Length 11.220m  
 Overall Width 2.530m  
 Overall Body Height 3.755m  
 Min Body Ground Clearance 0.309m  
 Track Width 2.530m  
 Lock to Lock Time 4.00s  
 Kerb to Kerb Turning Radius 11.550m

**St Nicholas**

**Swept Path Analysis using an 11.22m Refuse Vehicle**

DRAWN: HE/CNE	CHECKED: CNE	DATE: 9.8.16	SCALES: 1:500 at A3
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## APPENDIX C



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**Legend:**

- 4.5m x 80m Visibility Splay
- 2.4m x 80m Visibility Splay
- 2.4m x 100m Visibility Splay

**St Nicholas**

**Potential Ghost Island Right Turn Arrangement**

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**St Nicholas**

**Potential Ghost Island Right Turn Arrangement with Adopted Highway Boundary**

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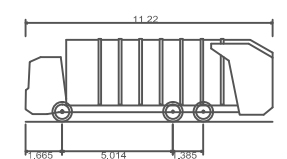


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 Min Body Ground Clearance 0.309m  
 Track Width 2.530m  
 Lock to Lock Time 4.00s  
 Kerb to Kerb Turning Radius 11.550m

**St Nicholas**

**Swept Path Analysis using an 11.22m Refuse Vehicle**

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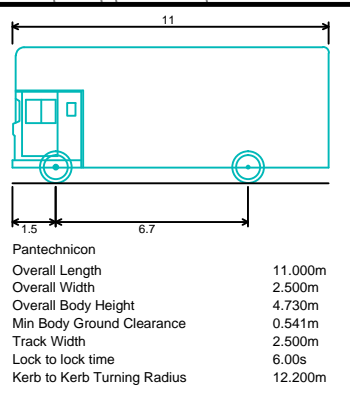


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**Swept Path Analysis using an 11m Pantechon Vehicle**

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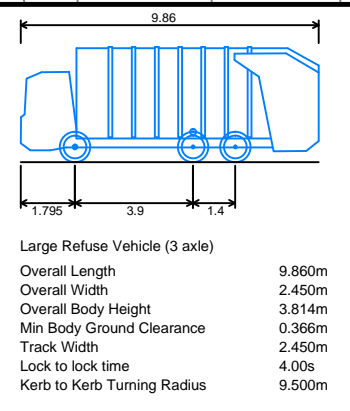


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