

BETT HOMES LTD

**PROPOSED RESIDENTIAL DEVELOPMENT
AT
DRAFFEN FARM,
STEWARTON**

**SUPPLEMENTARY
TRANSPORTATION ASSESSMENT**

OCTOBER 2013

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APPENDICES

Analysis Output Files	Appendix A
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EXECUTIVE SUMMARY

The purpose of this Transportation Assessment is to assist decision makers to understand and evaluate the impact the proposed development at Draffen East is likely to have on the transport network in this part of Stewarton. Decision makers, in this context, means not only the appropriate technical officials in the Roads Authority, but also those people who live or work near the proposed development, and who may therefore have an interest in the proposals.

The principle of development at Draffen East has already been granted planning consent. Consideration of the transport impacts of that development was based on a Transportation Assessment carried out by Dougall Baillie Associates in 2010,

The current application is for Approval of Reserved Matters, including the means of access and the number of houses to be built. It is not therefore a new proposal, although 10 more houses are proposed, served by a single access on Loudon Street, rather than the two accesses indicated previously.

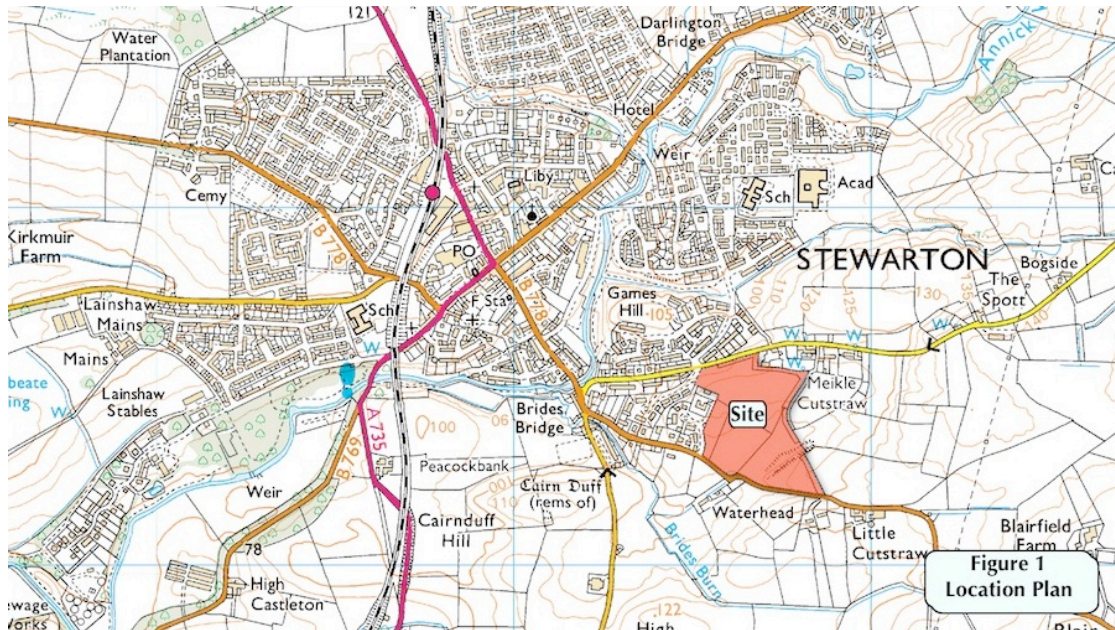
While this is not a material change to the development granted Planning Permission in Principle, the important consideration for the Council is “how much difference will this make to the road network”.

Section 4 calculates the revised traffic flows on the surrounding road network, then in Section 5, traffic impacts have then been examined using approved methodology. The capacity of the site access junction on Loudon Street is then calculated with those resulting traffic flows, using approved DoT analysis software. All calculations can be found in the appendices.

This capacity analysis shows that the proposed changes to the development will have little impact on the operation of existing links and junctions, and that the site access will operate satisfactorily.

1. Introduction

- 1.1 Mrs Diane Fraser was granted Planning Permission in Principle (PPP) in December 2012, for a residential development on land east of Draffen House, Stewarton. The location of the site is shown in Figure 1.



- 1.2 The application submissions included a Transportation Assessment prepared by Dougall Baillie Associates. That TA assumed a development of 140 dwellings, served principally by a vehicular access in the form of a new roundabout on Loudon Street. A second access was proposed, to Cutstraw Road, to the north of the site.
- 1.3 The PPP included a number of conditions specifying Reserved Matters, which included the internal roads layout and the means of access to the site (Condition 5) and traffic calming, footway and roads improvements on Cutstraw Road and Kirkford (Condition 6).
- 1.4 An application is to be made for approval of reserved matters, including the means of access to the site.
- 1.5 The layout proposed by the prospective developer shows 150 houses rather than the 140 assumed in the previous TA. Further examination of the site topography and constraints has shown that a road access on to Cutstraw Road cannot realistically be achieved, so it is now proposed that the whole site would be served by a single access on Loudon Street, that is, the roundabout previously discussed with East Ayrshire Council.
- 1.6 Notwithstanding that the PPP places no limit on the number of houses, and that access is a reserved matter, East Ayrshire Council have requested that a Supplementary Transportation Assessment be submitted, to update the

approved DBA TA, and demonstrate the implications of these changes to the development, on capacity and road safety in the surrounding area.

- 1.7 In September 2013, Bett Homes Ltd appointed Andrew Carrie Traffic and Transportation (ACTT) to prepare this Transportation Statement.
- 1.8 This Statement should be read in conjunction with the DBA Transportation Assessment of August 2010, particularly with respect to national transport policy, and access by walking, cycling and public transport.
- 1.9 ACTT have considered the reserved matters, and have discussed the proposal with the appropriate officers in East Ayrshire Council's Roads Department, to agree a scope and methodology to carry out the updated Transportation Assessment.
- 1.10 Further information may be available on various aspects assessed in this report and can be made available on request.

2. The Planning Permission in Principle

- 2.1 Planning Permission in Principle was granted in December 2012, for a residential development of the site, subject to planning conditions and reserved matters.
- 2.2 The planning conditions relevant to consideration of access and traffic impact are:
5. Before any development commences on the site, the further written approval of the Planning Authority shall be obtained for the Approval of Matters specified in the Conditions of this Planning Permission in Principle (AMCPPP) in respect of the internal road layout and the means of access points to the application site. The internal road layout shall be designed as a twenty mph zone with appropriate traffic calming.
 6. Before any development commences on the site, the further written approval of the Planning Authority shall be obtained for the Approval of Matters specified in the Conditions of this Planning Permission in Principle (AMCPPP) in respect of the proposed traffic calming, footway and roads improvements on Cutstraw Road and Kirkford, Stewarton..
- 2.3 These planning conditions reflect the outcome of a Transportation Assessment prepared by Dougall Baillie Associates, dated July 2010, and subsequent discussions with the Council as Roads Authority.
- 2.4 That Transportation Assessment was based on an indicative layout comprising 140 dwellings, with a principal access formed by construction of a new roundabout on Loudon Street, at the edge of Stewarton, as shown in Figure 4.2, extracted from the DBA July 2010 TA. A second access was proposed from Stane Brae to the north, leading on to Cutstraw Road.
- 2.5 The TA analysed these access junctions, on the basis of traffic surveys carried out in July 2010, and taking account of traffic to and from other committed developments in Stewarton, and established that both accesses would operate satisfactory, with ample spare capacity and minimal queues or delays.
- 2.6 The TA also examined the road network surrounding the site, and suggested improvements at the following locations:
- (i) Loudon Street / Kirkford Junction
The TA identified that, even without the traffic generated by the development, this junction would be nearing capacity, as a priority junction. The addition of development traffic made only a marginal difference. At the request of the Council, the TA examined the operation of traffic signals at this junction, and concluded that those would offer some capacity benefits, to cater not only for this development, but also to accommodate traffic to and from other development, already approved elsewhere in the town.

In subsequent discussions, the Council indicated that, rather than traffic signals at the Loudon Street / Kirkford junction, they would prefer that a contribution be made towards their proposed pedestrian / cycle route alongside the river. The suggested contribution would cover the installation of a Toucan crossing on Kirkford, at the south end of the river bridge, and speed control measures on the approach along Kirkford.

(ii) Cutstraw Road

Although the development was not anticipated to add a large number of vehicle trips on Cutstraw Road, the Council indicated that they would require traffic calming on Cutstraw Road. This would take the form of a local road narrowing at the midpoint, plus the introduction of a traffic priority system at the bend at the western end, which would also facilitate the extension of the footway to reduce the pedestrian crossing distance at that point. Diagrams 3.1 and 3.2 are extracted from the DBA July 2010 TA, and show the nature of these improvements.

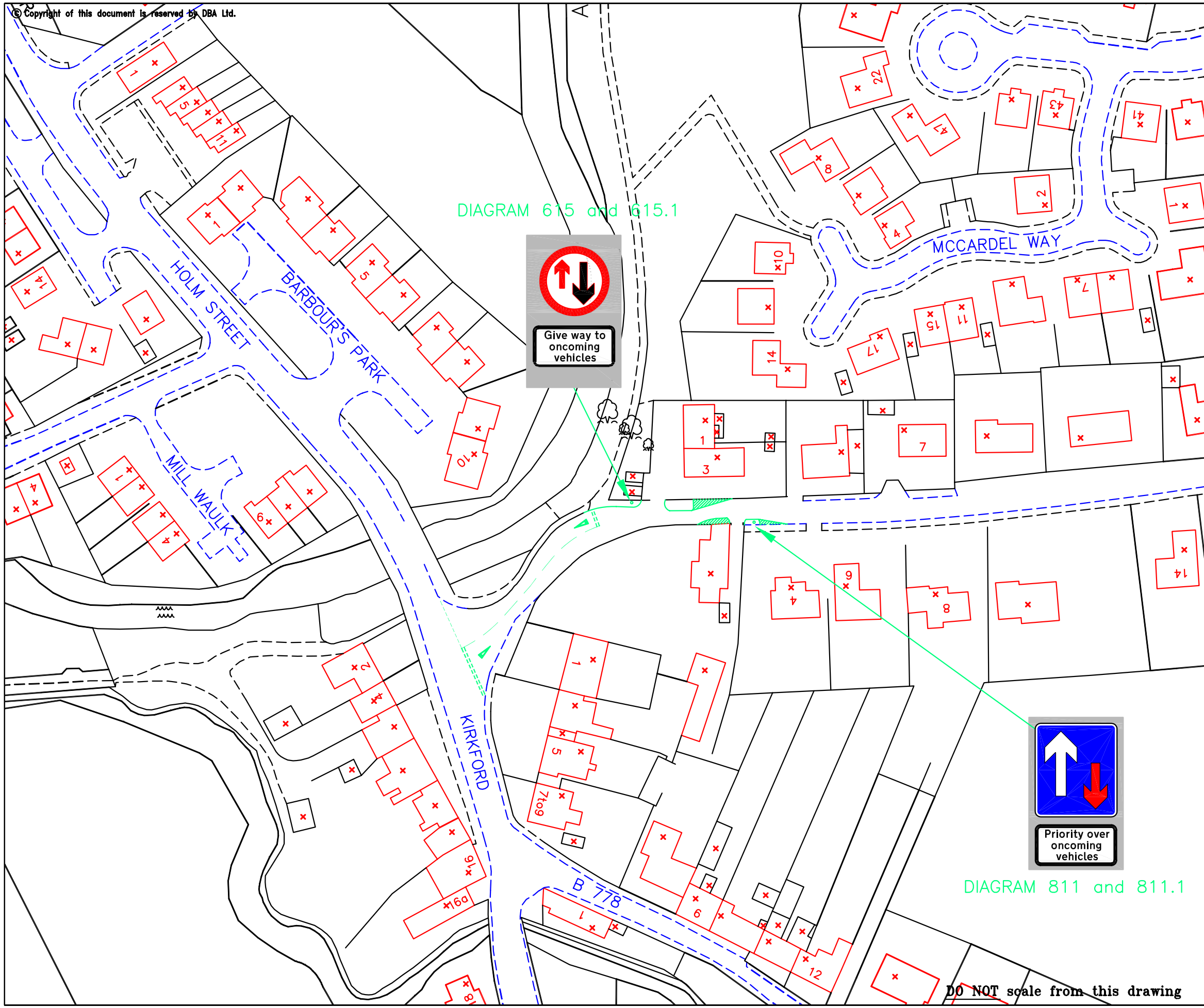
- 2.7 The previous TA also examined other junctions in the area, including Stewarton Cross, and concluded that the proposed development would have no significant impact, so no improvements were proposed.

The Current Proposal

- 2.8 The layout submitted for Approval of Reserved Matters has two changes from the indicative layout submitted for the PPP. Those are:

- (i) The number of dwellings is shown as 150, whereas the indicative layout showed 140; and
- (ii) While pedestrian access will be maintained to Cutstraw road to the north, all vehicle access will now be from the proposed access roundabout, to the south of the site.

- 2.9 Those are not “material changes” under the terms of the extant PPP, so further justification of traffic impacts ought not to be necessary. However, to assist the Council in considering the proposals, and responding to potential enquiries, this Supplementary Transportation Assessment goes on to consider the implications of these proposals.



Rev.	Revision details	By	Checked
		Date	Date

Client
MRS DIANE FRASER

Project
PROPOSED RESIDENTIAL DEVELOPMENT
STEWARTON

Drawing Title
DIAGRAM 3.1
PROPOSED NEW FOOTWAY
CUTSTRAW ROAD, STEWARTON

Drawn CW Checked AC

Date 13/07/10 Date 13/07/10

Scale 1:1000 Drg. No. DIAGRAM 3.1.

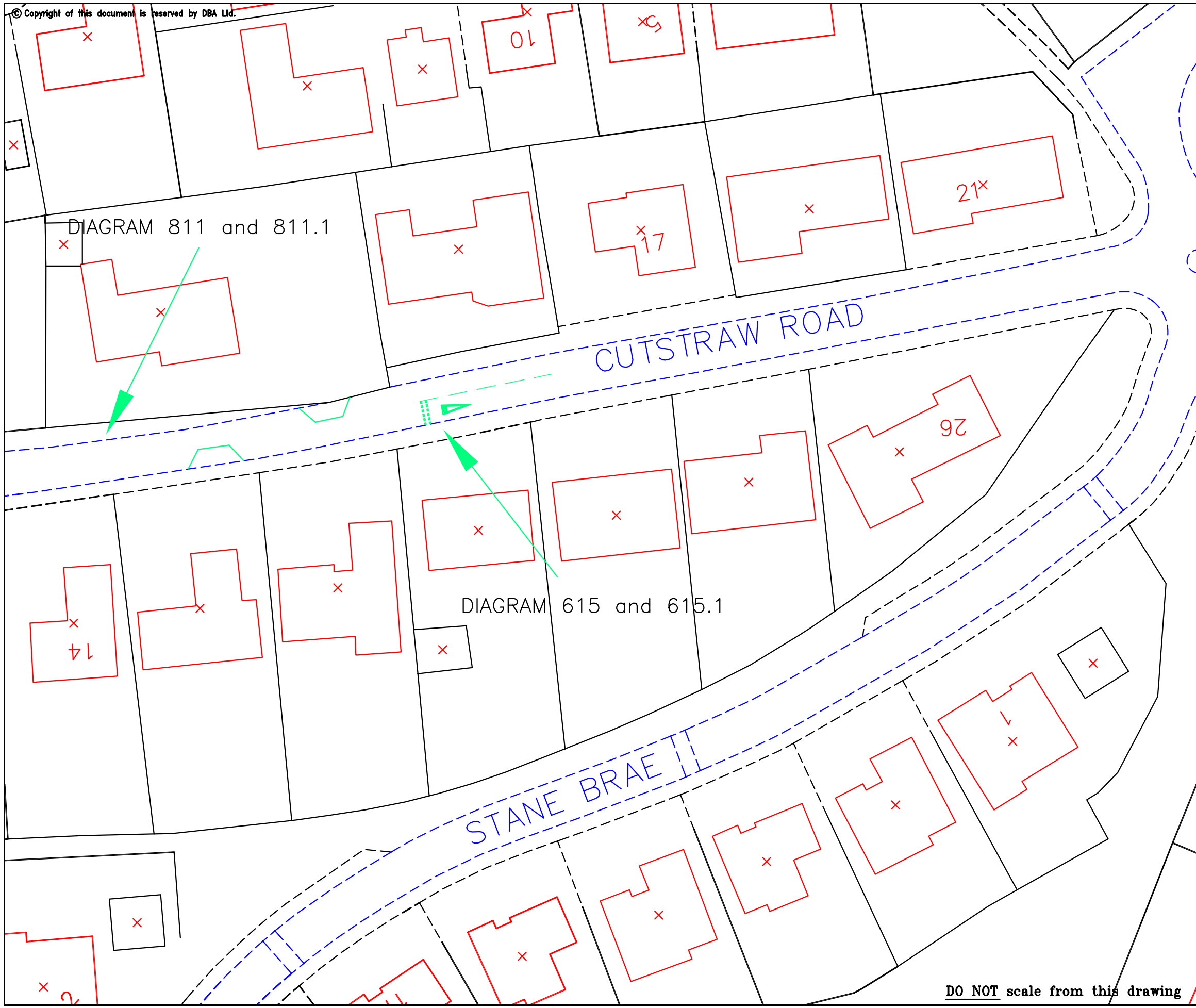
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 BUILD OUT- CHICANES

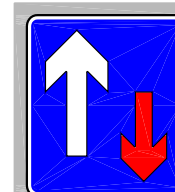


DIAGRAM 811 and 811.1

Priority over oncoming vehicles

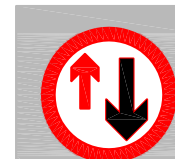


DIAGRAM 615 and 615.1

Give way to oncoming vehicles

Rev.	Revision details	By	Checked
		Date	Date

Client
MRS DIANE FRASER

Project
PROPOSED RESIDENTIAL DEVELOPMENT
STEWARTON

Drawing Title
DIAGRAM 3.2
PROPOSED TRAFFIC CALMING MEASURES
CUTSTRAW ROAD, STEWARTON

Drawn CW	Checked AC
Date 22/07/10	Date 22/07/10
Scale 1:1000	Drg. No. DIAGRAM 3.2

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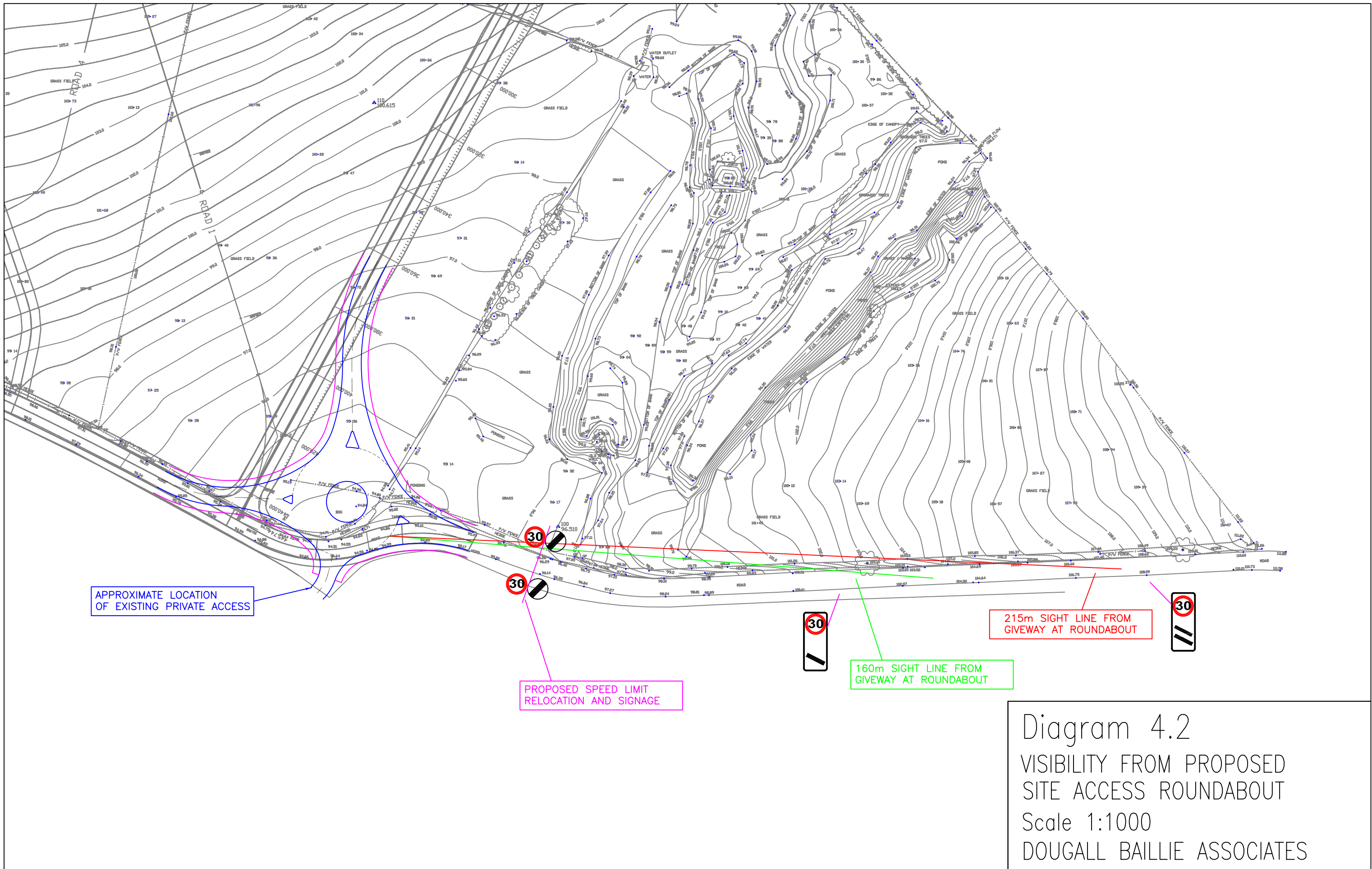


Diagram 4.2
 VISIBILITY FROM PROPOSED
 SITE ACCESS ROUNDABOUT
 Scale 1:1000
 DOUGALL BAILLIE ASSOCIATES

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Notes:-

1. Position of Driveways/Signal Poles is indicative
2. Magenta Dashed Line indicates OS adjusted by on-site measurements
3. Cranked Poles to be used where required for signal clearances/visibilities

Rev.	Revision details	By	Checked
		Date	Date

Client
MRS DIANE FRASER

Project
RESIDENTIAL DEVELOPMENT
DRAFFEN EAST

Drawing Title
DIAGRAM 6.1
PROPOSED TRAFFIC SIGNAL AT
LOUDOUN STREET / KIRKORD ROAD

Drawn CW Checked AC

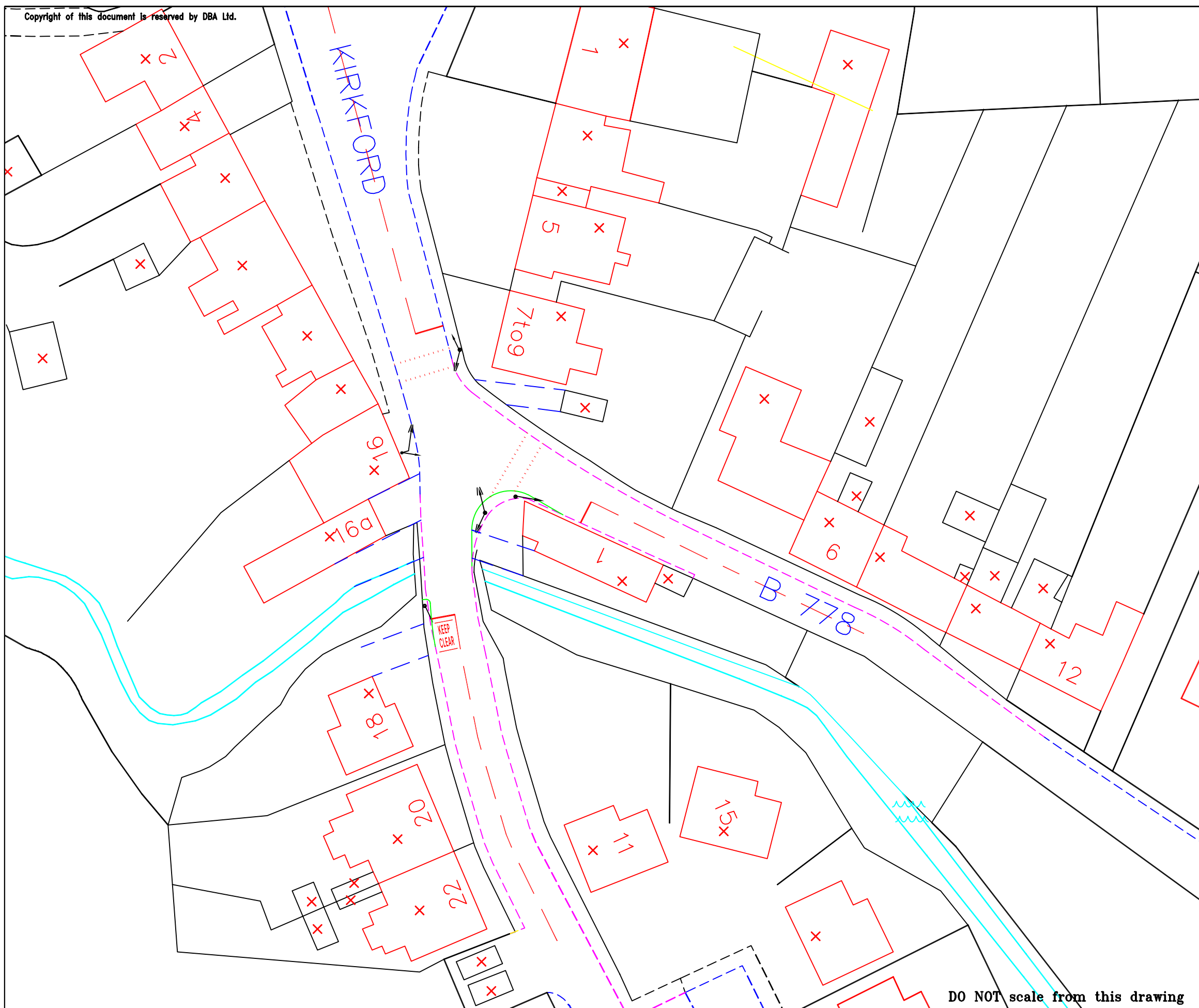
Date 26-JUL-10 Date 26-JUL-10

Scale 1:500 Drg. No. DIAGRAM 6.1

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3. Scope and Methodology

- 3.1 Early discussions were held with the appropriate officials of East Ayrshire Council, to identify their concerns, and the necessary scope of this supplementary work. It was agreed that the study should examine:
- (i) The operation of the site access roundabout with 10 more dwellings, but with the whole site served by the single roundabout access on Loudon Street;
 - (ii) The number of additional vehicle trips on Loudon Street, between the site access and the junction at Kirkford, as a result of this amended site layout;
 - (iii) The operation of the Loudon Street / Kirkford junction, and any need for traffic signals; and
 - (iv) The number of additional vehicle trips at Stewarton Cross, to ensure that there was still no significant traffic impact.
- 3.2 It was agreed that the peak hour traffic flows, surveyed by DBA in June 2010, would still be appropriate, and that the vehicle trip rate (number of vehicle trips per dwelling) should also be carried forward. The levels of committed traffic, to and from other developments in the area, would also be as before.
- 3.3 This eliminates all other variables, and allows this current study to focus solely on any impacts arising from the differences between the indicative layout, and the layout currently proposed.
- 3.4 The calculation of the appropriate traffic flows, and the examination of the road network locations specified above, are set out in the remainder of this report.

4. Calculation of Traffic Flows

Base Traffic Counts

- 4.1 The DBA TA was based on two sets of traffic counts. The first was a count at Stewarton Cross, carried out in April 2008. That original morning peak traffic count is shown in Figures 1a and 1b.
- 4.2 The second count was carried out by DBA at the junction of Louden Street and Kirkford in June 2010, again covering the morning and evening peak hour periods. Figures 2a and 2b show the results of those surveys, along with the result of the 2008 survey at Stewarton Cross, to which a factor has been applied, using the National Road Traffic Forecasts as before, to take account of traffic growth between 2008 and 2010.
- 4.3 These traffic flows were then factored again, to take account of traffic growth to a “Design Year” for the development, of 2014. The 2014 design year traffic flows are shown in Figures 3a and 3b.
- 4.4 All of these traffic flows are simply extracted from the 2010 DBA Transportation Assessment.
- 4.5 It is acknowledged that some time has passed since the preparation of that original TA (albeit it was only formally approved by the granting of PPP in December 2012). With that in mind, a “design year” of 2014 is now a little optimistic. Although there is no requirement to do so, the “design year” for the purpose of this supplementary exercise, has been taken forward to 2017, and the NRTF forecasts have again been used to apply a growth factor to existing traffic, up to that year. The 2017 design year traffic flows are shown in Figures 4a and 4b.

Committed Developments

- 4.6 The DBA TA took account of two committed residential developments in the area, one at Nether Robertland (50 dwellings), and the other at Lainshaw (200 dwellings). The committed traffic flows from Lainshaw are shown in Figures 5a/b, and from Nether Robertland in Figures 6a/b.
- 4.7 In addition, because the development at Draffen Farm now has Planning Permission in Principle, that should also be included as a committed development. This current study cannot revisit the traffic impact of that approved development. In effect, because access, and the number of dwellings, are reserved matters, all of the traffic arising from the current proposal is already “committed”
- 4.8 Nevertheless, to identify the difference arising from the current proposal, this current study will consider only the traffic identified in the original TA as being

“committed”. Those traffic flows are extracted from the DBA 2010 TA and are shown in Figures 7a and 7b.

- 4.9 These three committed developments are then added together, and the total committed development traffic is shown in Figures 8a/b.
- 4.10 The total 2017 traffic, including development traffic, is shown in Figures 9a and 9b.

The Current Development

- 4.11 Table 4.1 below illustrates the trip rates used in the 2010 DBA TA, and the resulting number of trips, when applied to the original proposal for 140 dwellings, and the latest proposal, for 150 dwellings.

Land Use	Trip Rates In / Out Weekday AM Peak	Vehicle Trips In / Out Weekday AM Peak	Trip Rates In / Out Weekday PM Peak	Vehicle Trips In / Out Weekday PM Peak
140 Houses	0.136 / 0.458	19 / 64	0.404 / 0.249	57 / 35
150 Houses	0.136 / 0.458	20 / 69	0.404 / 0.249	61 / 37
Difference		1 / 5		4 / 2

Table 4.1 –Development Trip Generation from TRICS

- 4.12 Thus it can be seen that the current proposal will generate 6 more trips than the “approved TA” in the morning peak hour, and 6 more trips in the evening peak hour.
- 4.13 These trips would then be distributed on to the surrounding road network, in the same proportions as before. The previous TA showed 2.3% of generated trips going to and from the east, ie towards the M77 at Fenwick. The remainder went westwards, split between Loudon Street and Cutstraw Road. The revised trip distribution would have the same proportion of trips going towards Fenwick, but with the remainder only using Loudon Street.
- 4.14 The revised trip distribution is shown in Figure 10. This results in the turning movements shown in Figures 11a and 11b for the morning and evening peak hours respectively. It should be emphasised that these are the total trips arising from the amended access arrangements, whereas the important consideration is the difference between this distribution, and that derived in considering the PPP (Figures 7a and 7b). That difference is discussed in the next Section of this report, when examining and comparing traffic impacts.

- 4.15 These figures can then be added to those shown in Figures 4a/b, 5a/b and 6a/b, to derive a total traffic flow, including the revised development, as shown in Figures 12a/b. These flows are used in subsequent junction analysis.

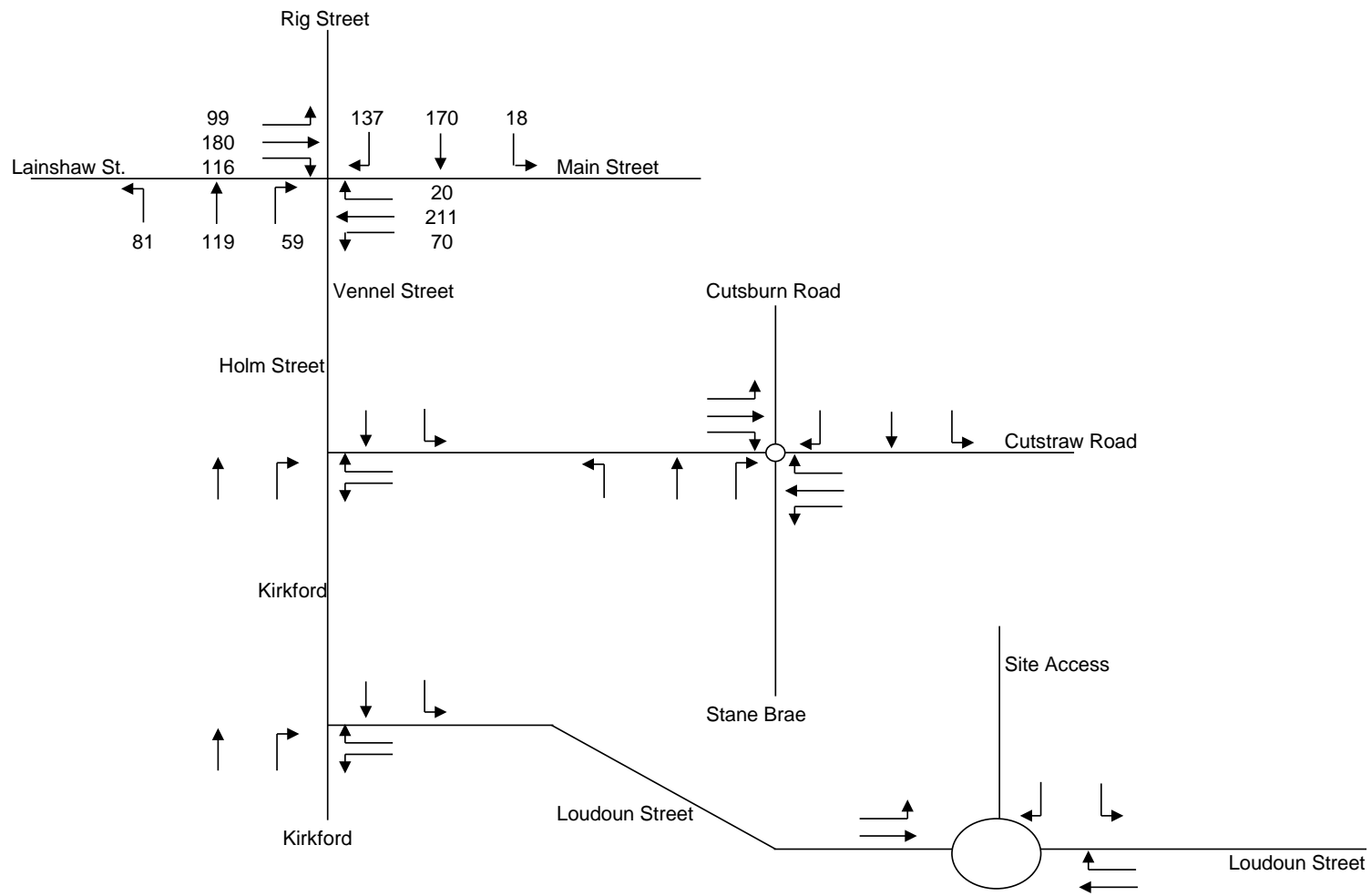


Figure 1a
AM 2008 Base Flows



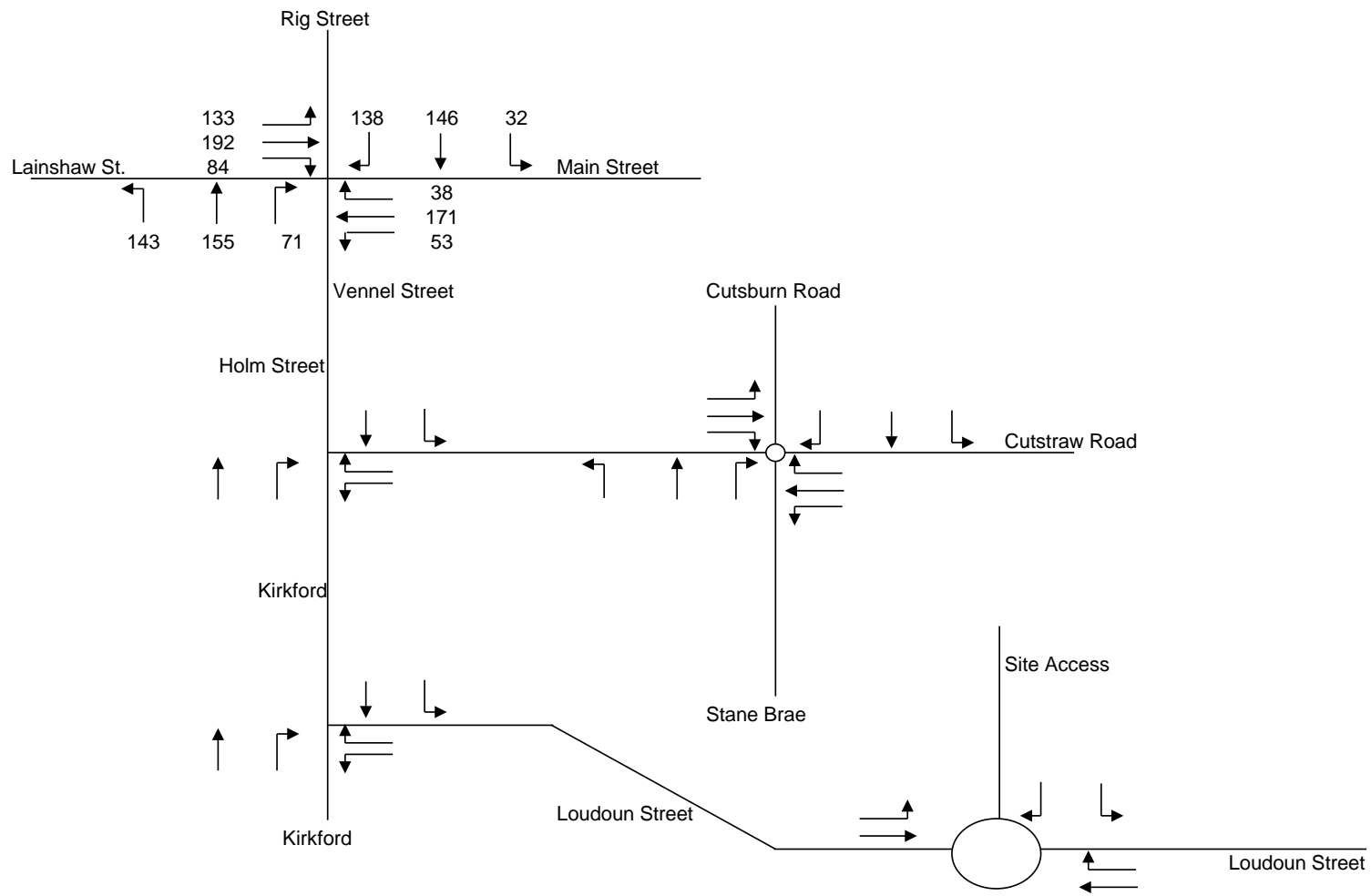
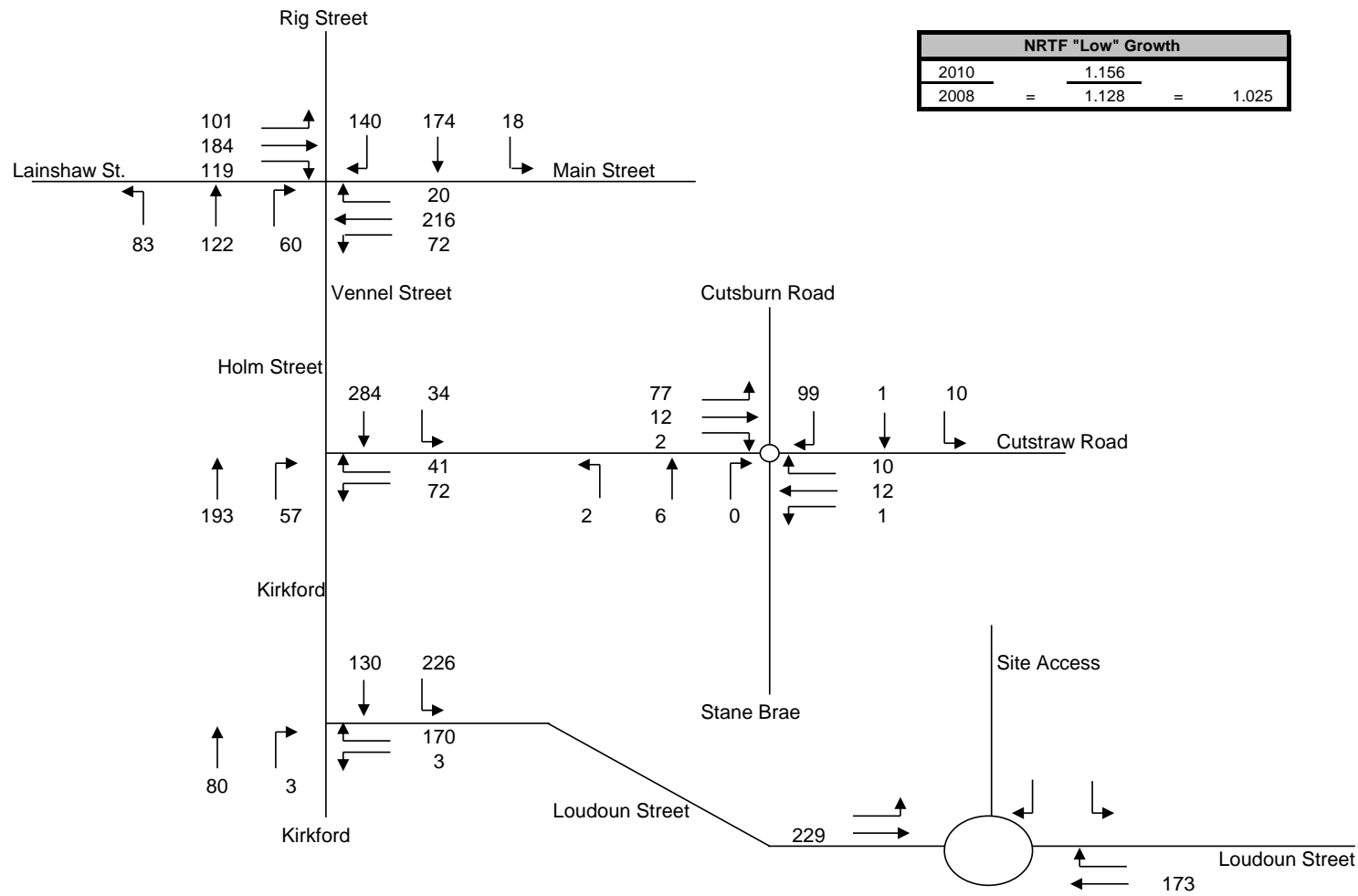


Figure 1b
AM 2008 Base Flows





NRTF "Low" Growth			
2010	=	1.156	=
2008	=	1.128	=
			1.025

Figure 2a
 AM 2010 Base Flows
 08:15-09:15 Network Peak
 Dougall Bailie Associates



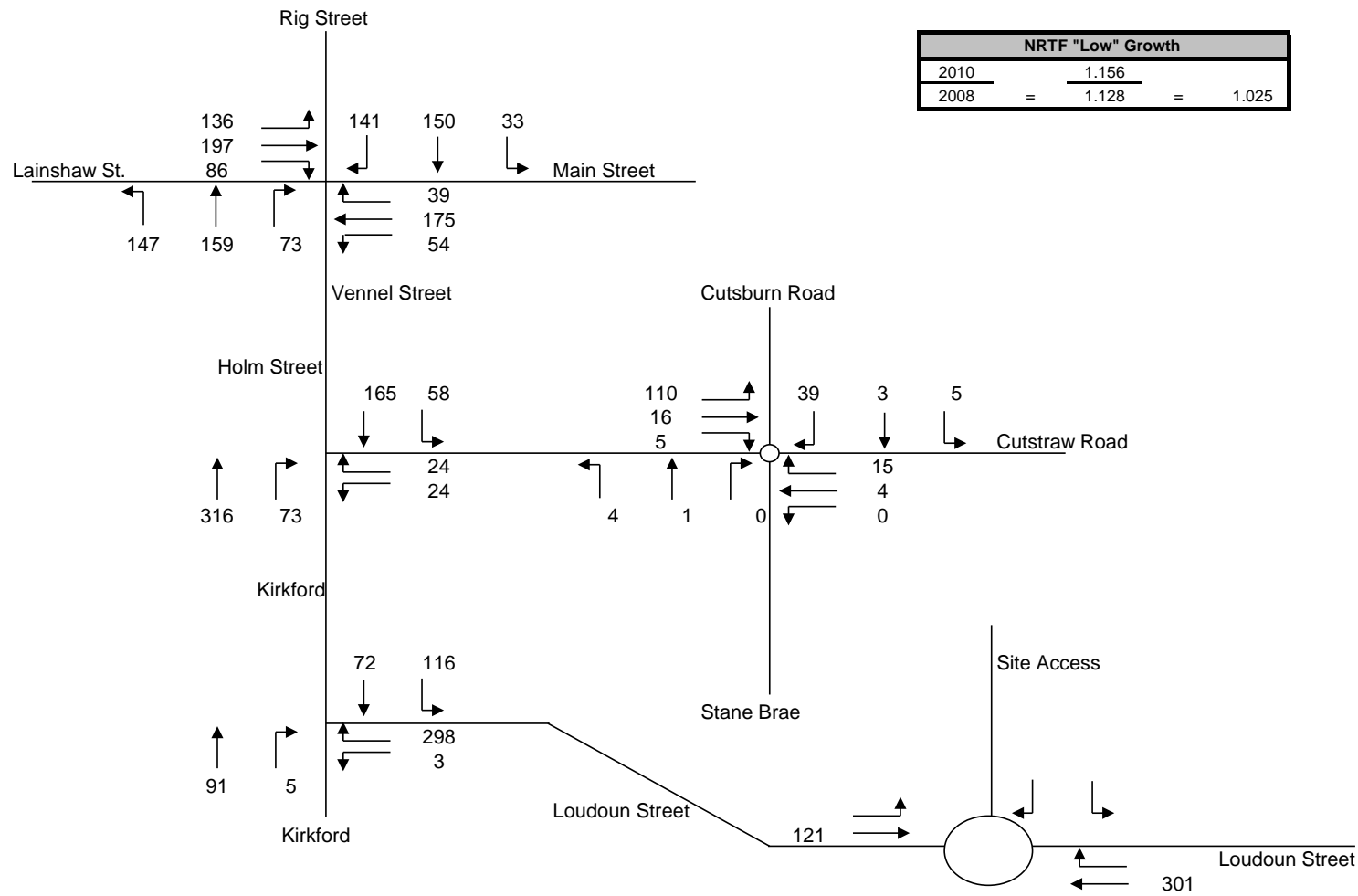


Figure 2b
 PM 2010 Base Flows
 17:15-18:15 Network Peak
 Dougall Bailie Associates



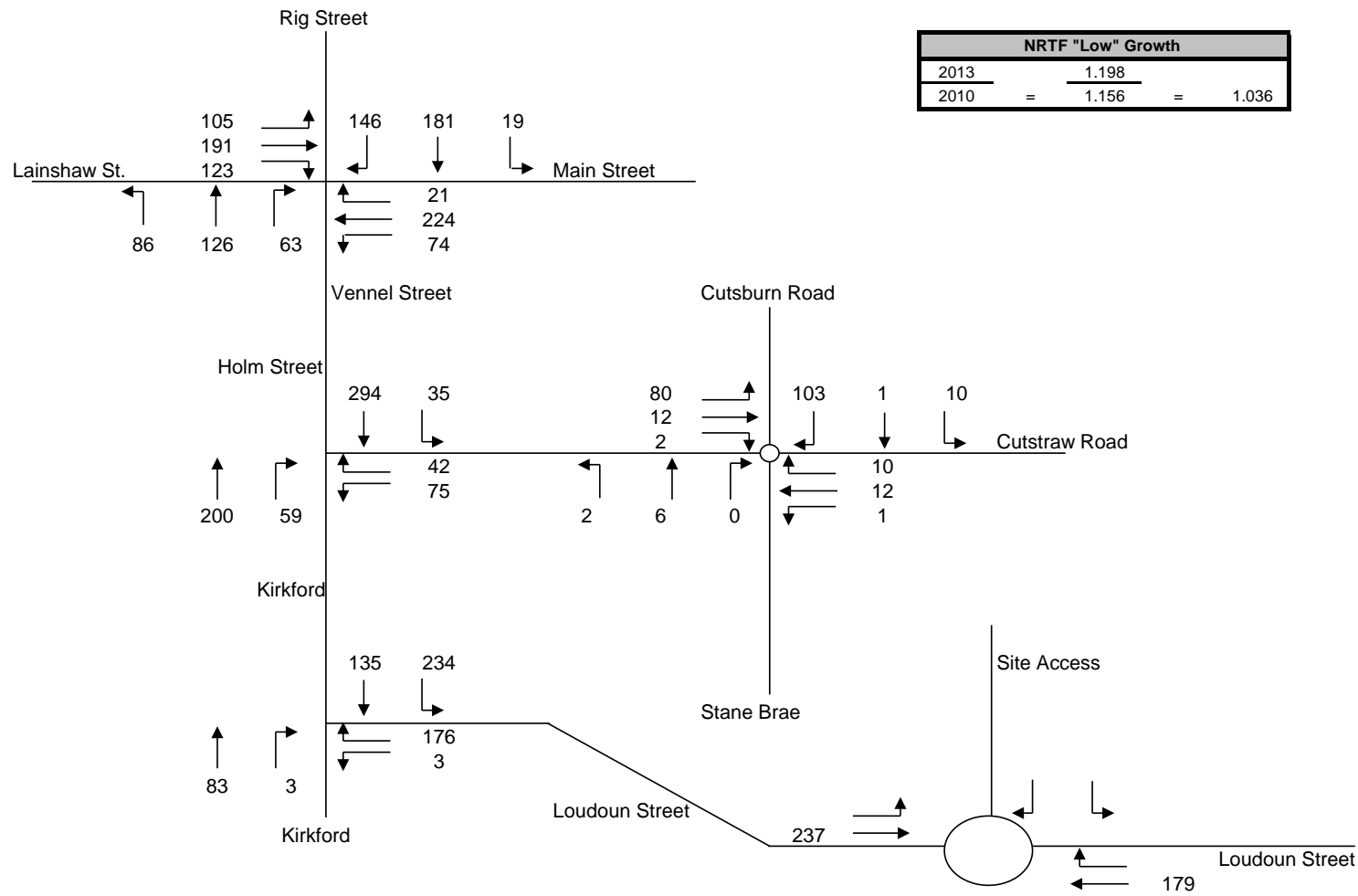


Figure 3a
 AM 2014 Base Flows
 Dougall Bailie Associates

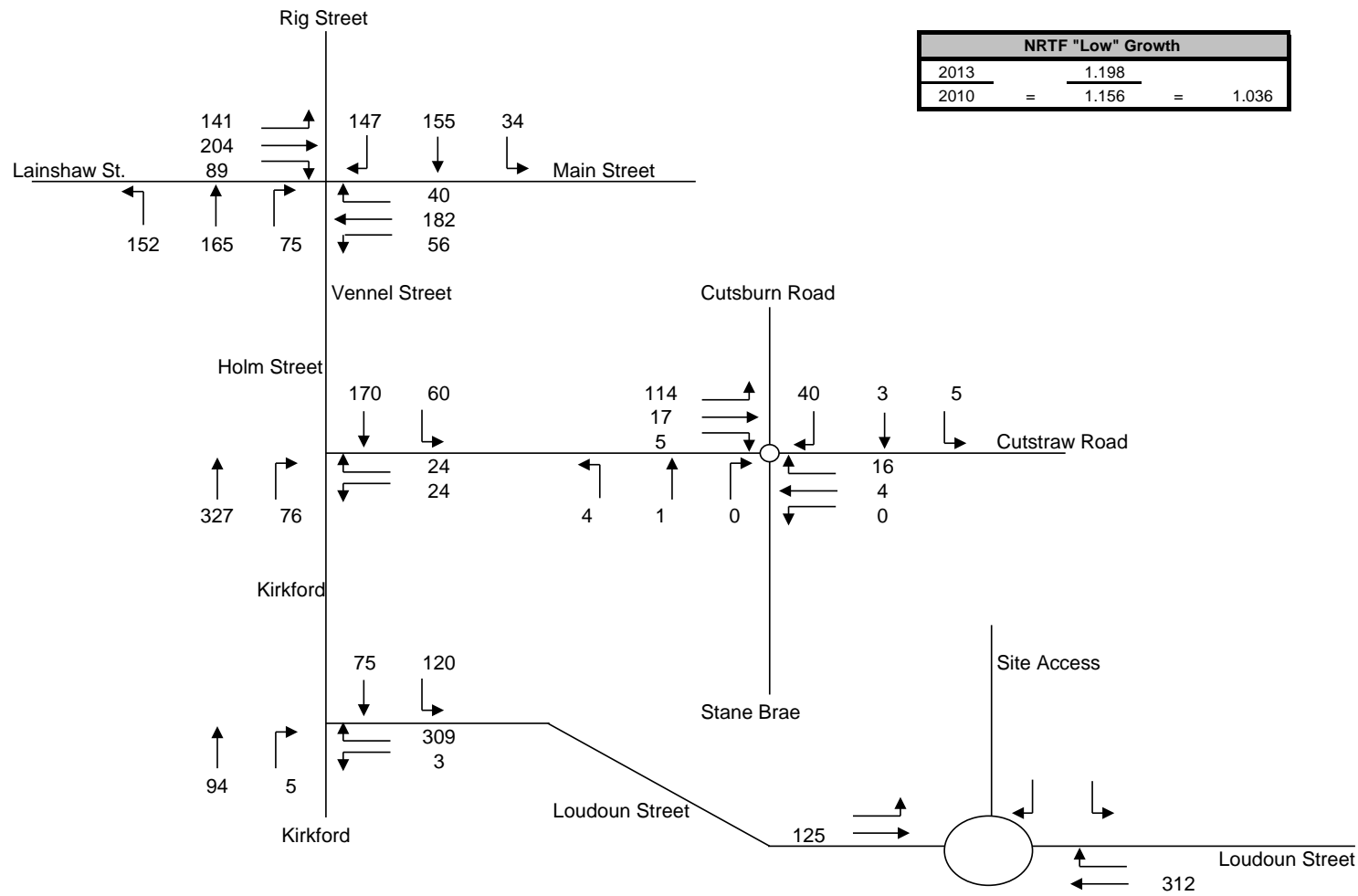


Figure 3b
 PM 2014 Base Flows
 Dougall Bailie Associates

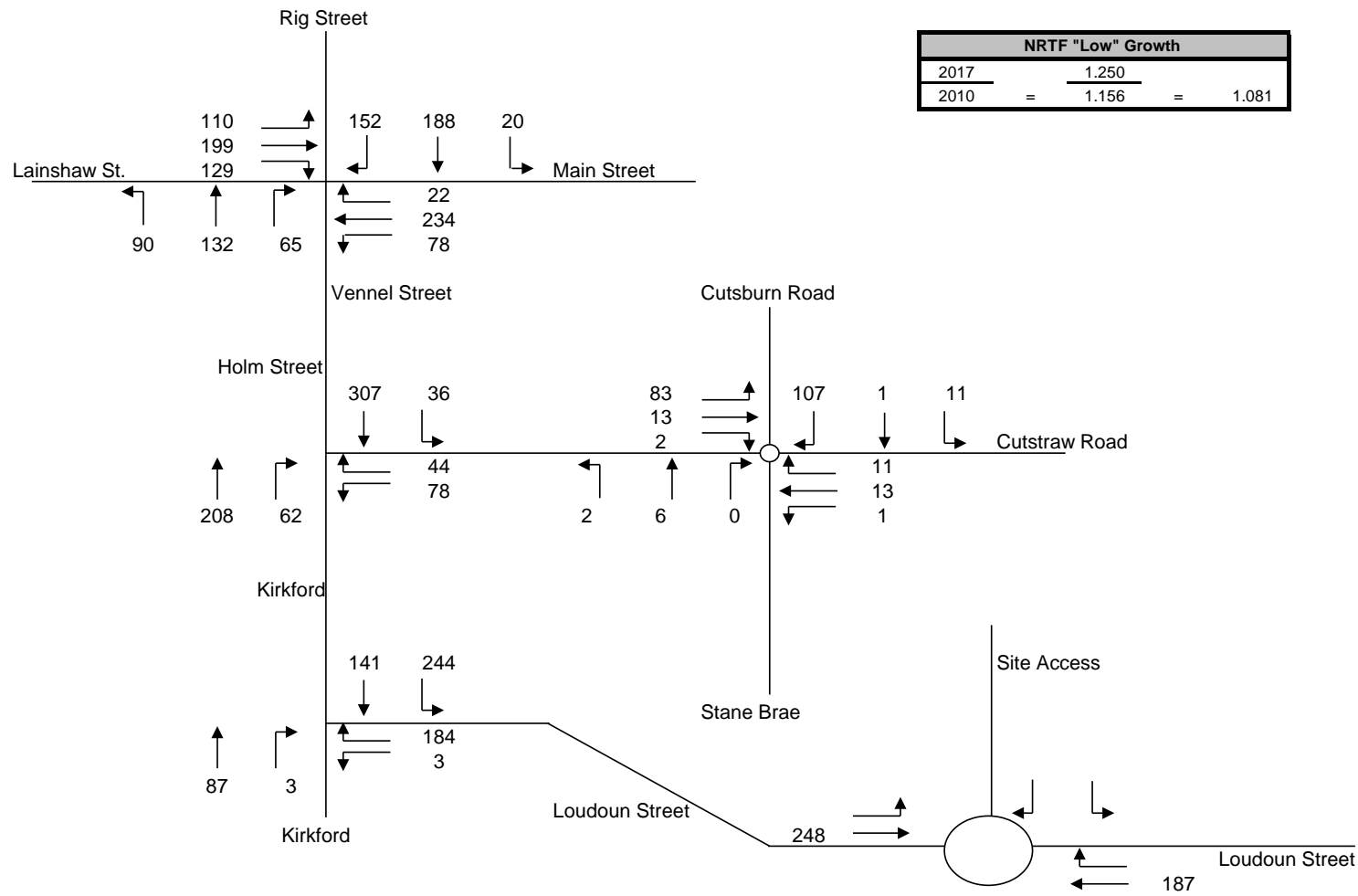


Figure 4a
 AM 2017 Base Flows
 Dougall Bailie Associates

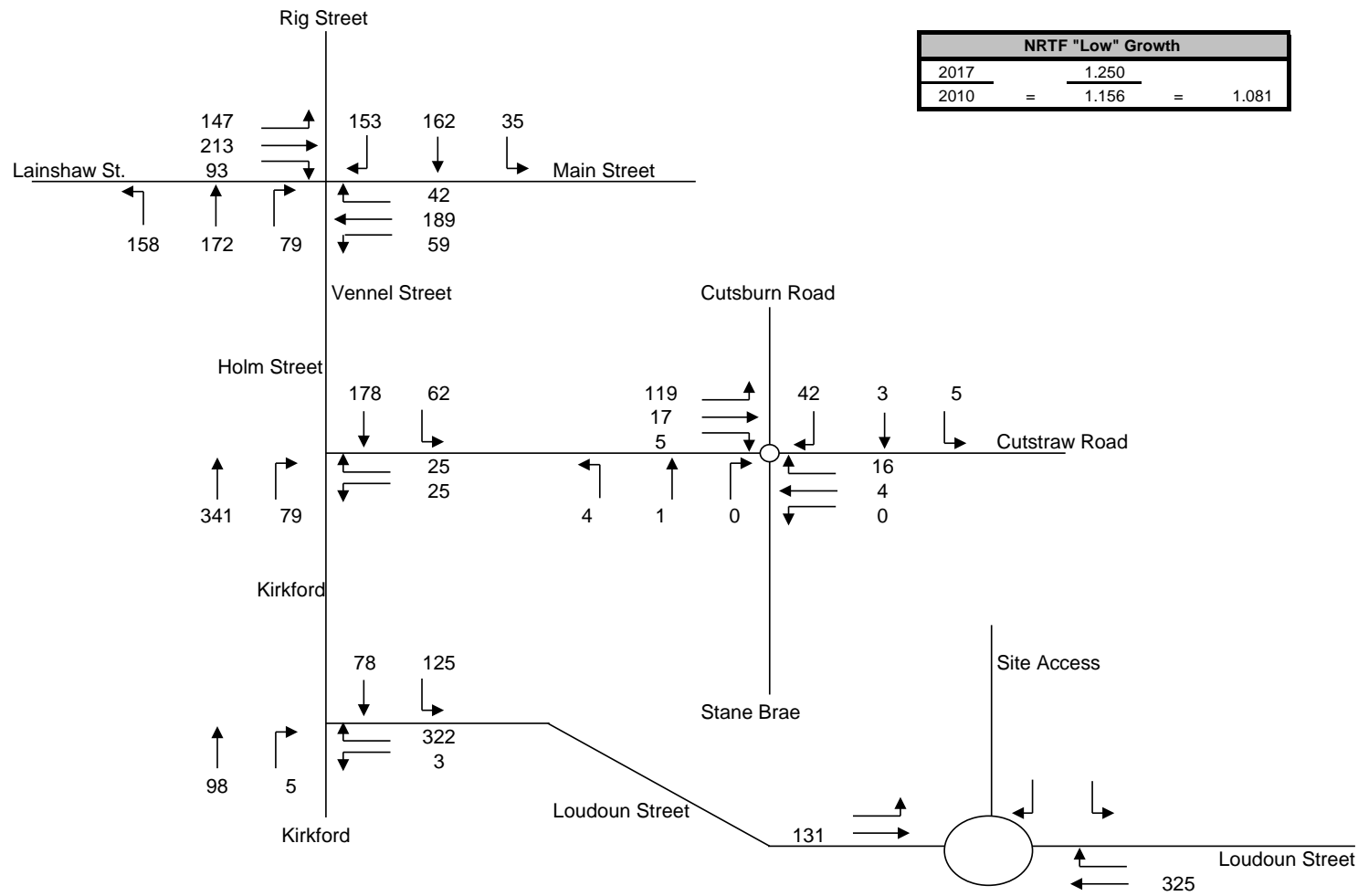


Figure 4b
 PM 2017 Base Flows
 Dougall Baillie Associates

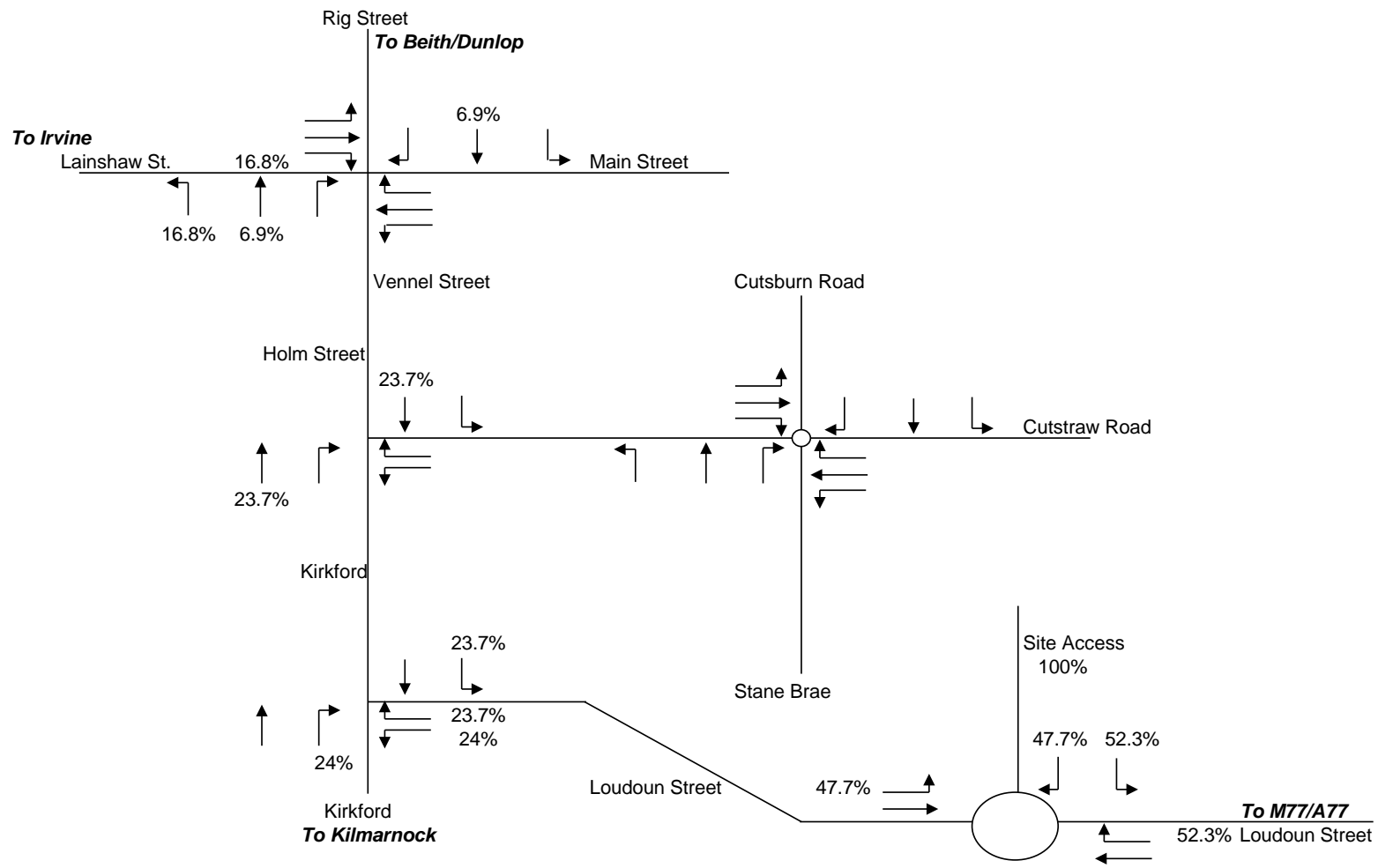

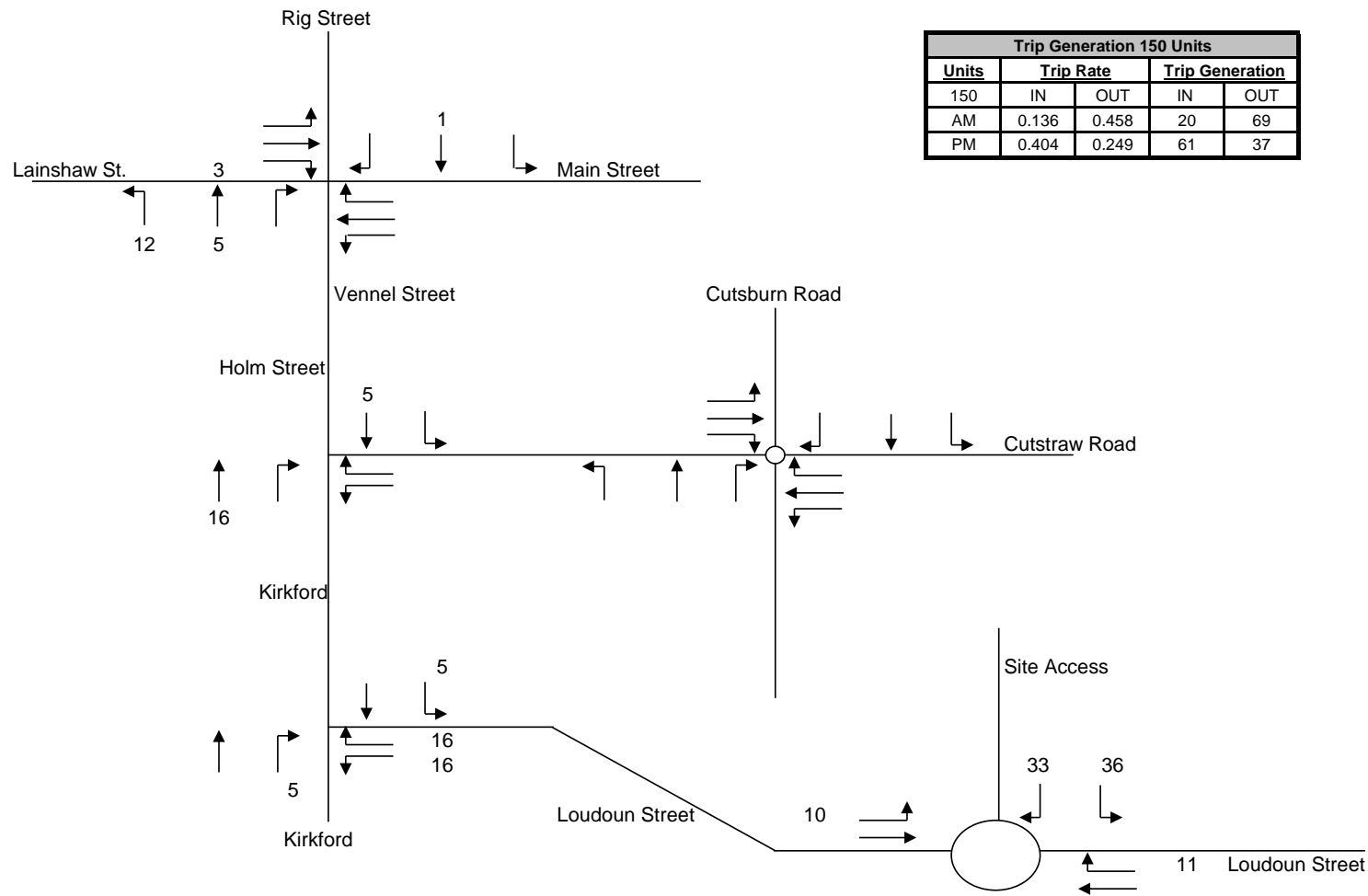


Figure 5a/b
 Traffic Distribution
 AM & PM
 Dougal Baillie Associates




Trip Generation 150 Units				
Units	Trip Rate		Trip Generation	
	IN	OUT	IN	OUT
150	0.136	0.458	20	69
PM	0.404	0.249	61	37

Figure 6a
 AM Generation
 Dougall Baillie Associates

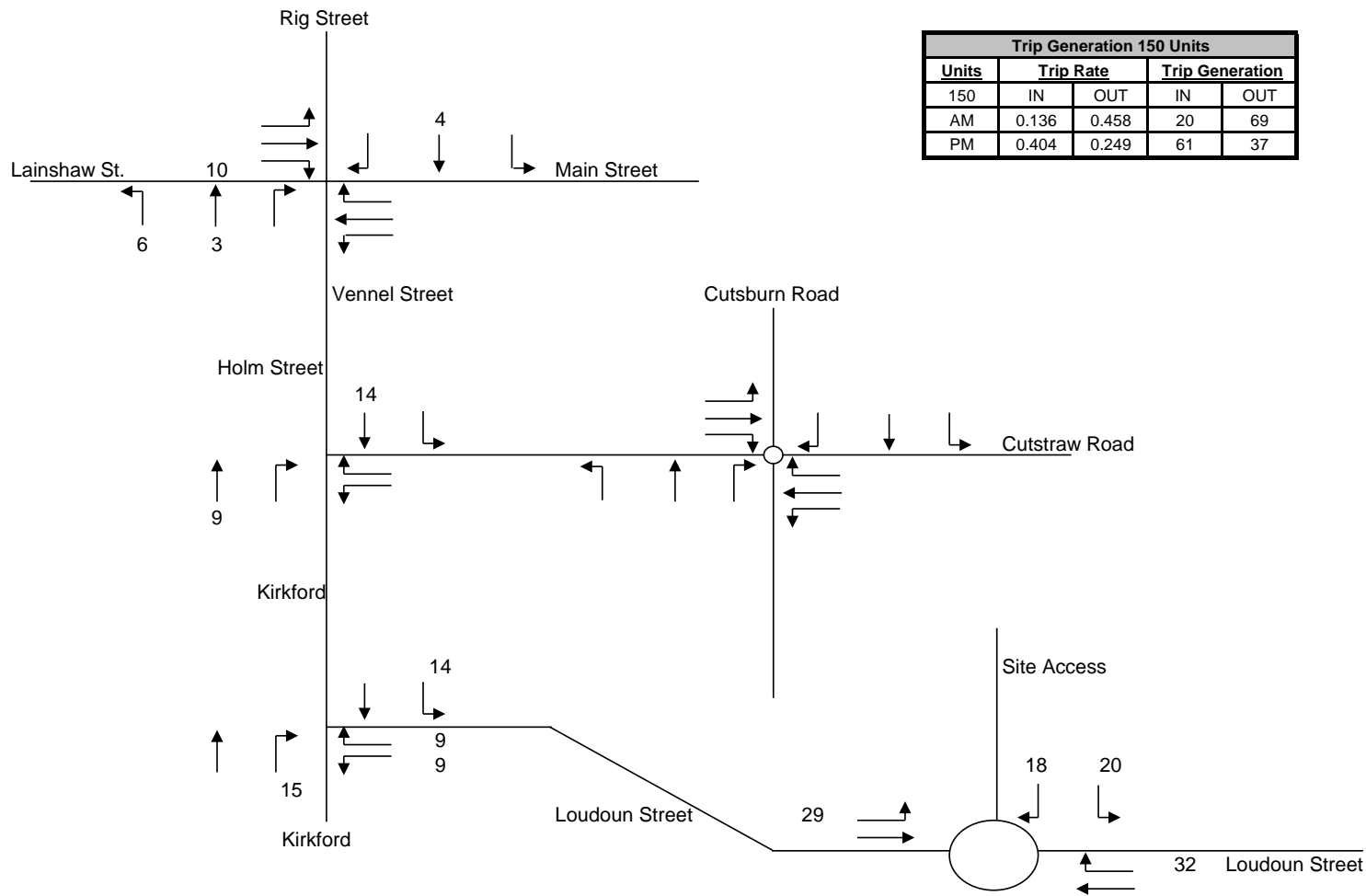



Figure 6b
 PM Generation
 Dougall Baillie Associates


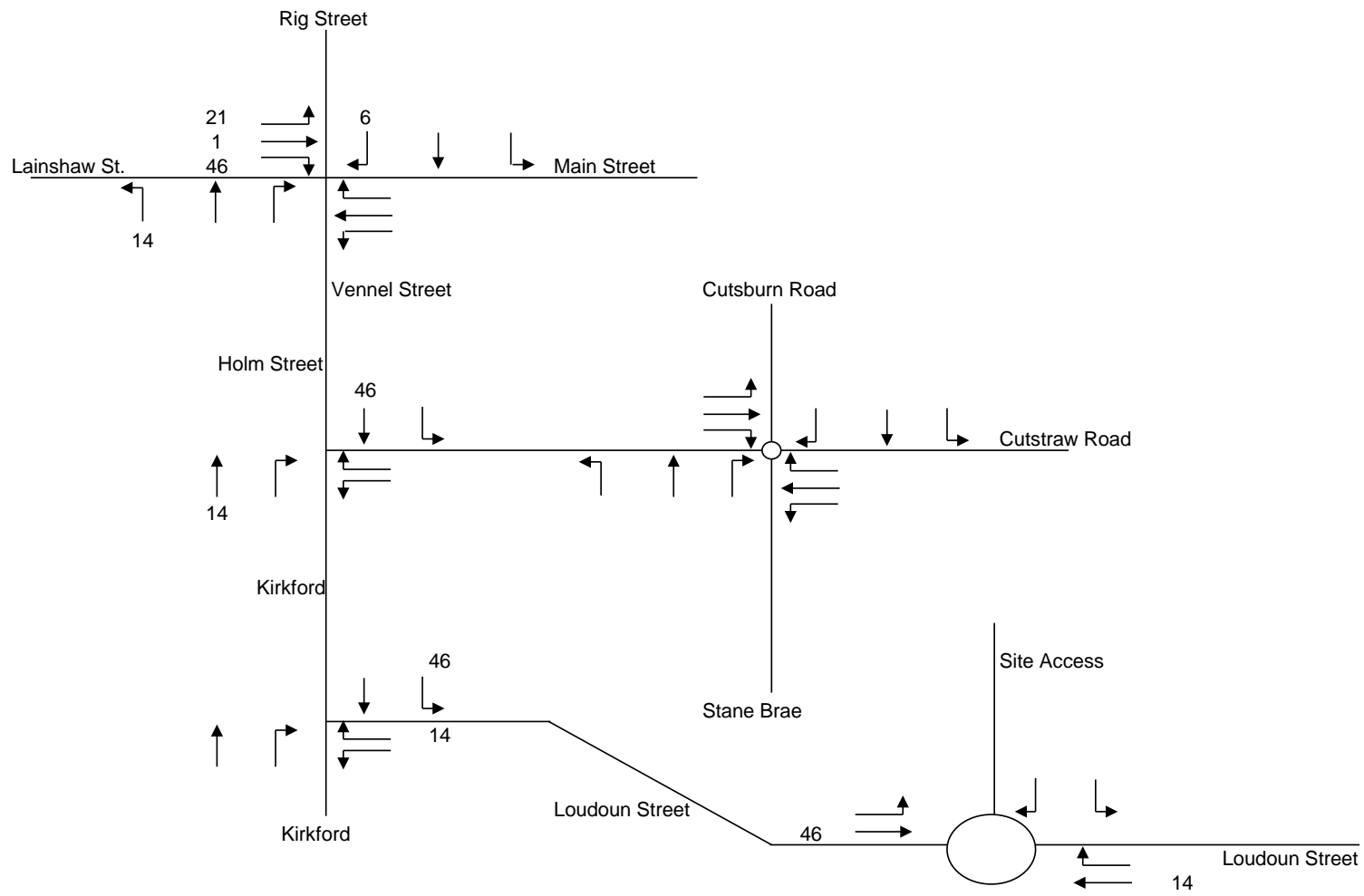


Figure 7a
 AM Committed Traffic 200 Units
 Kilwinning Road (Lainshaw)



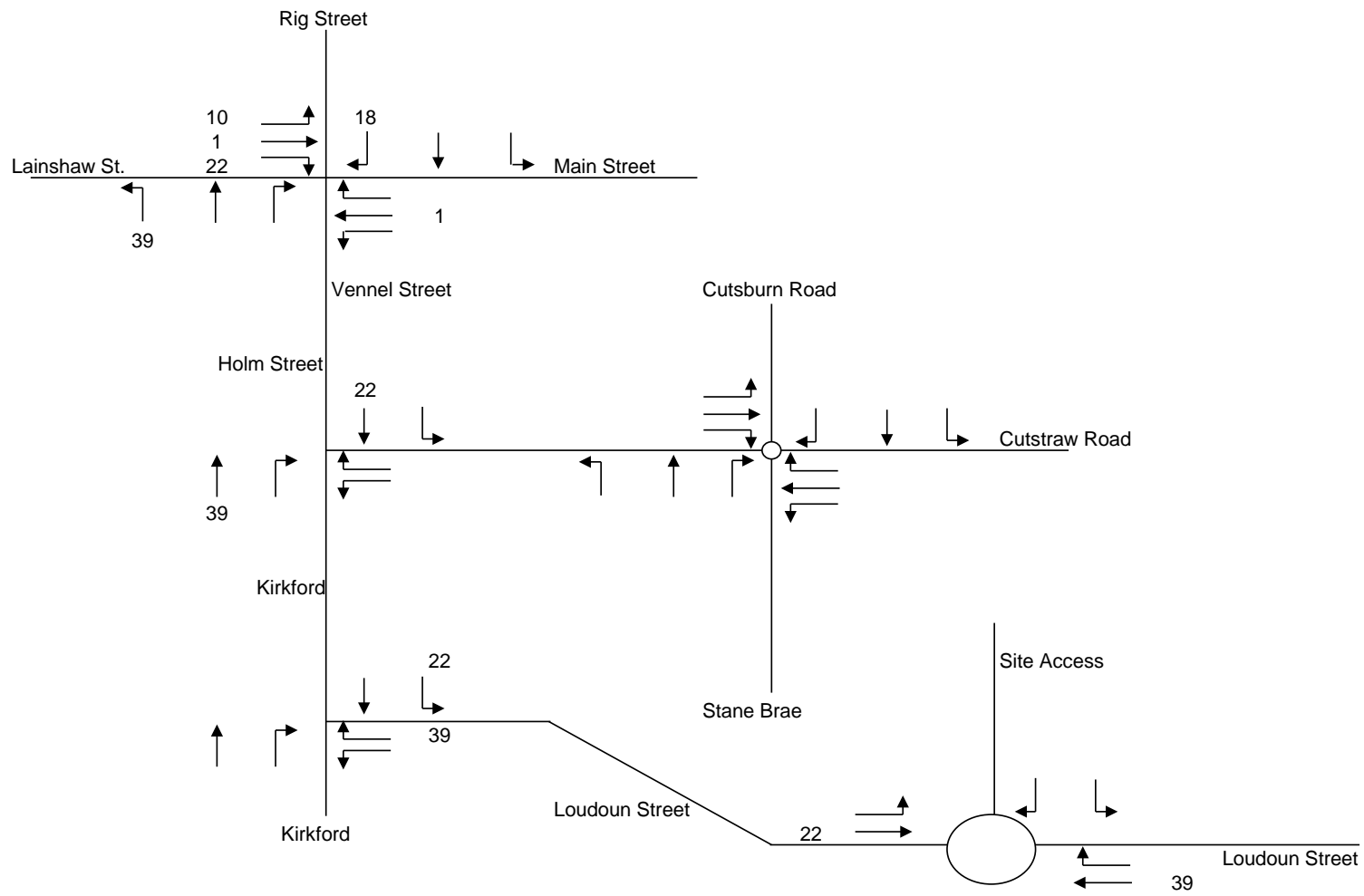


Figure 7b
 PM Committed Traffic 200 Units
 Kilwinning Road (Lainshaw)



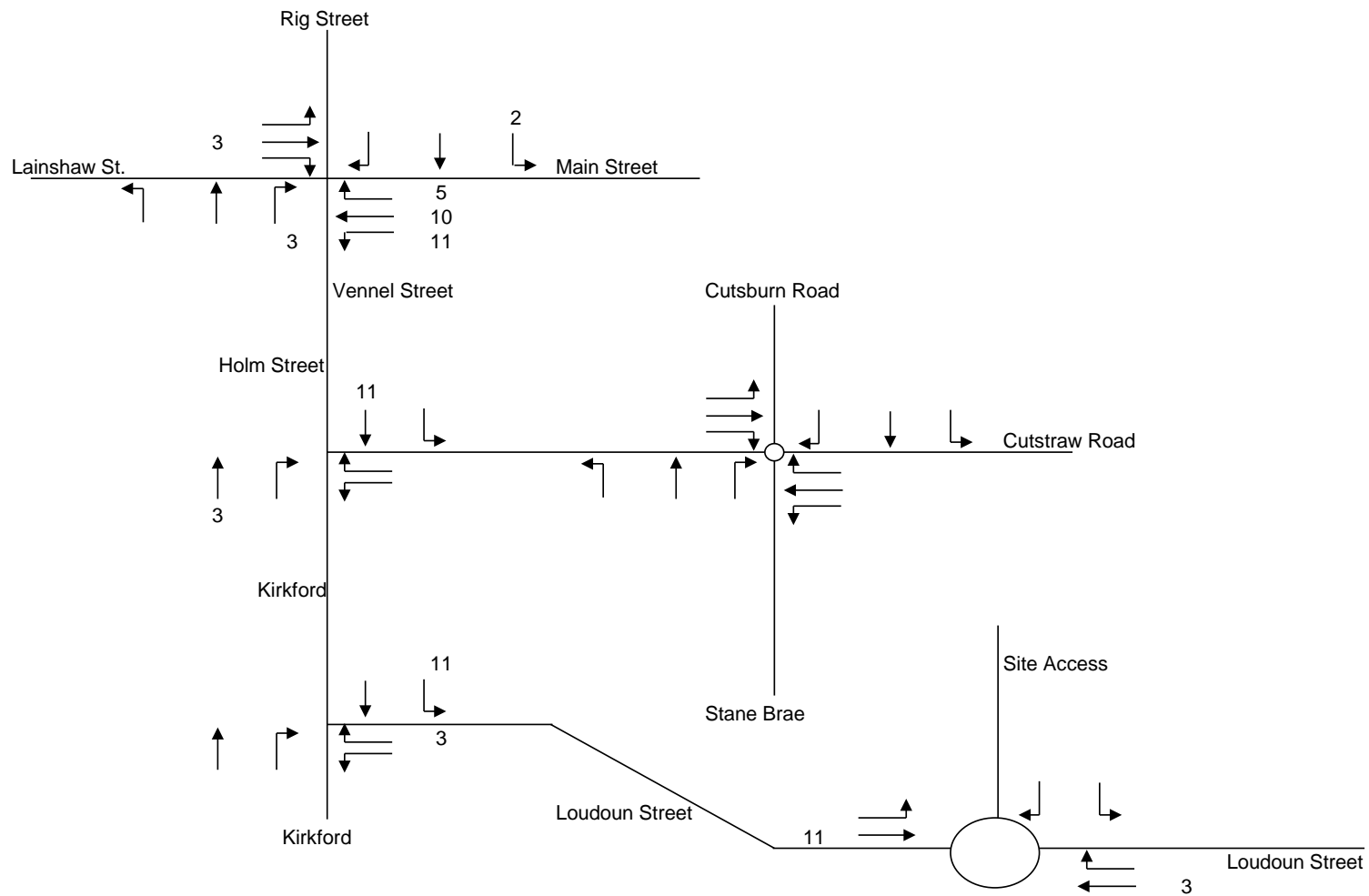


Figure 8a
 AM Committed Traffic 50 Units
 Nether Robertland
 Dougal Baillie Associates



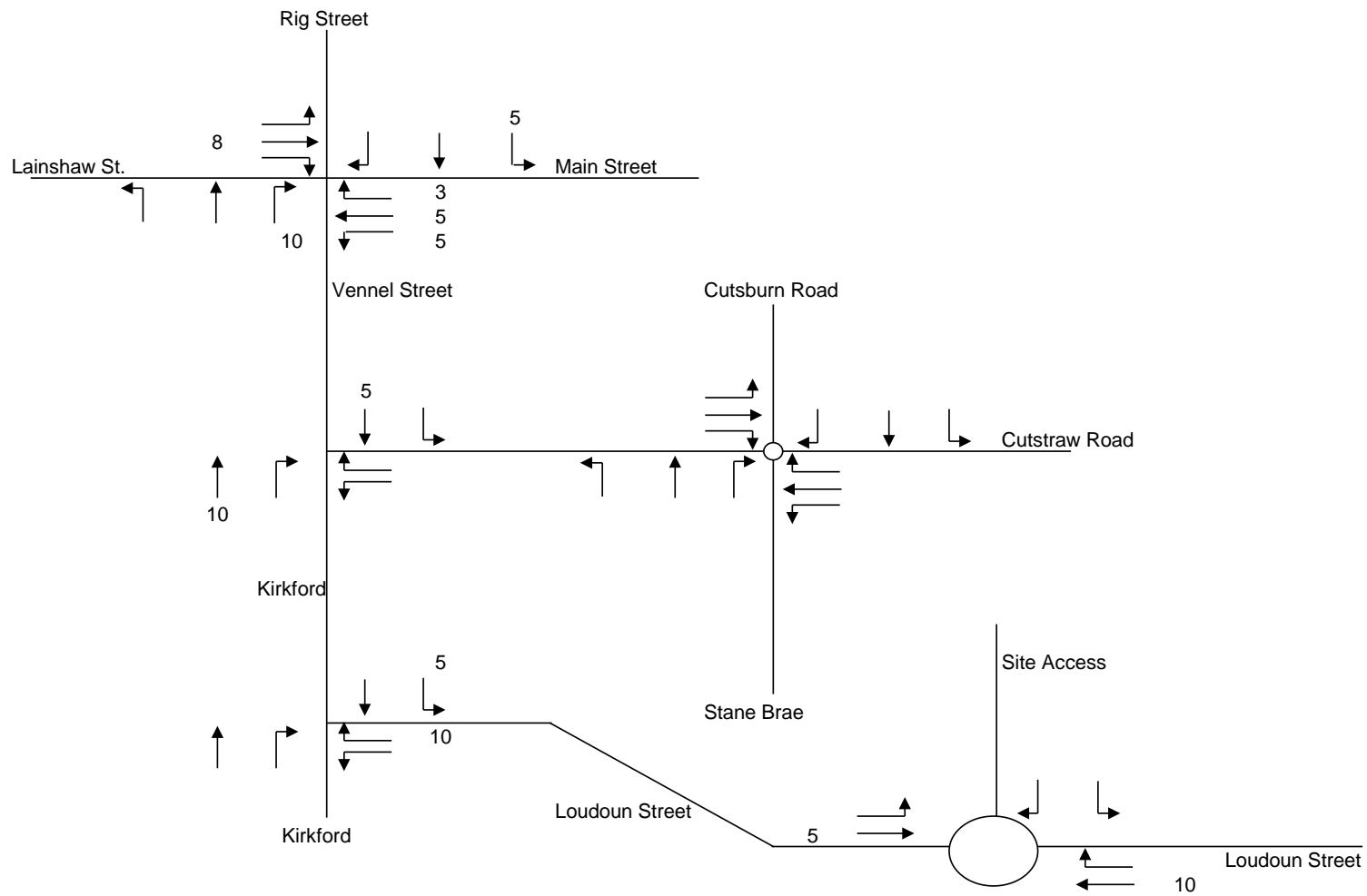


Figure 8b
 PM Committed Traffic 200 Units
 Kilwinning Road (Lainshaw)
 Dougal Baillie Associates



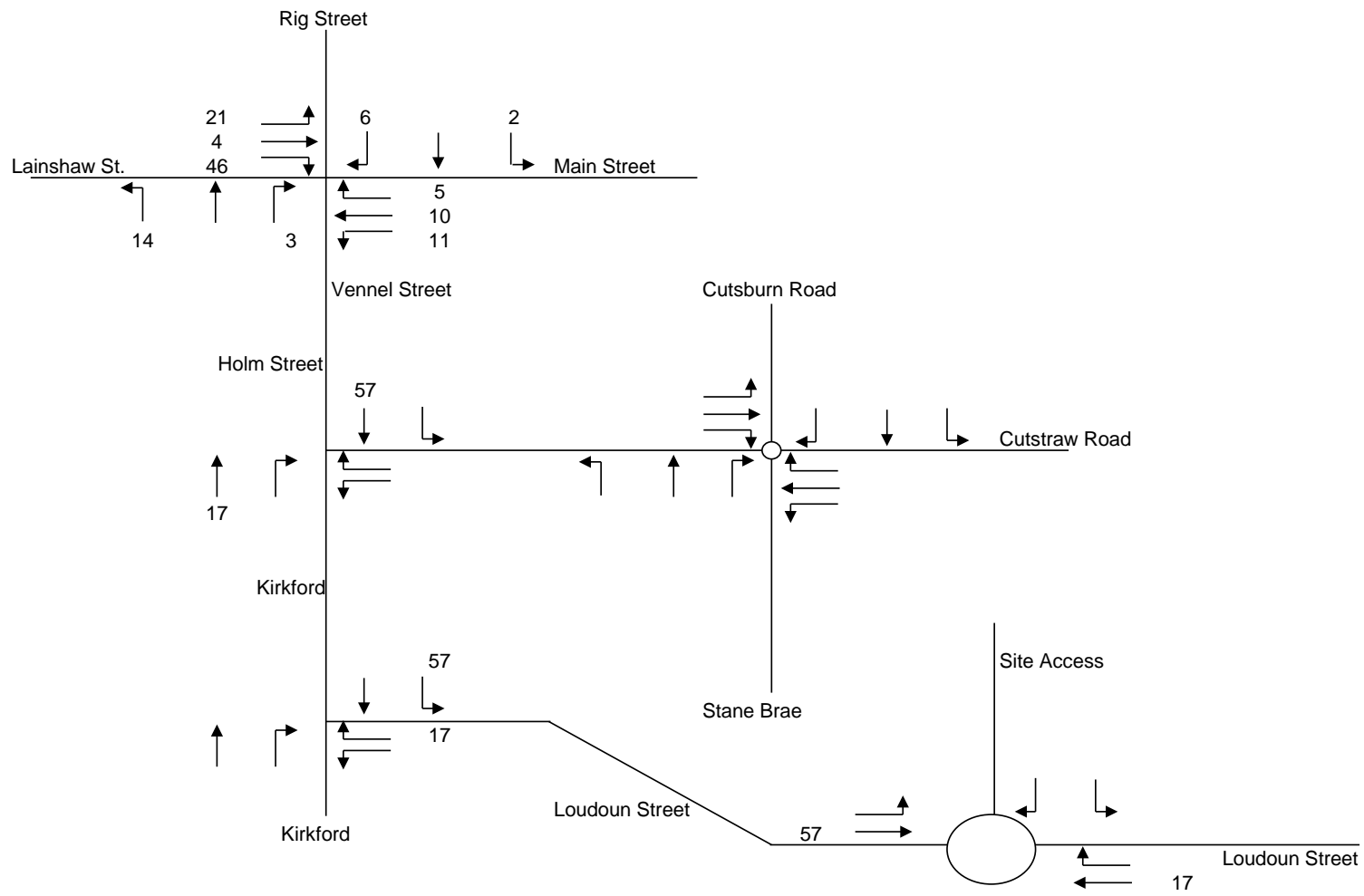


Figure 9a
AM Committed Traffic



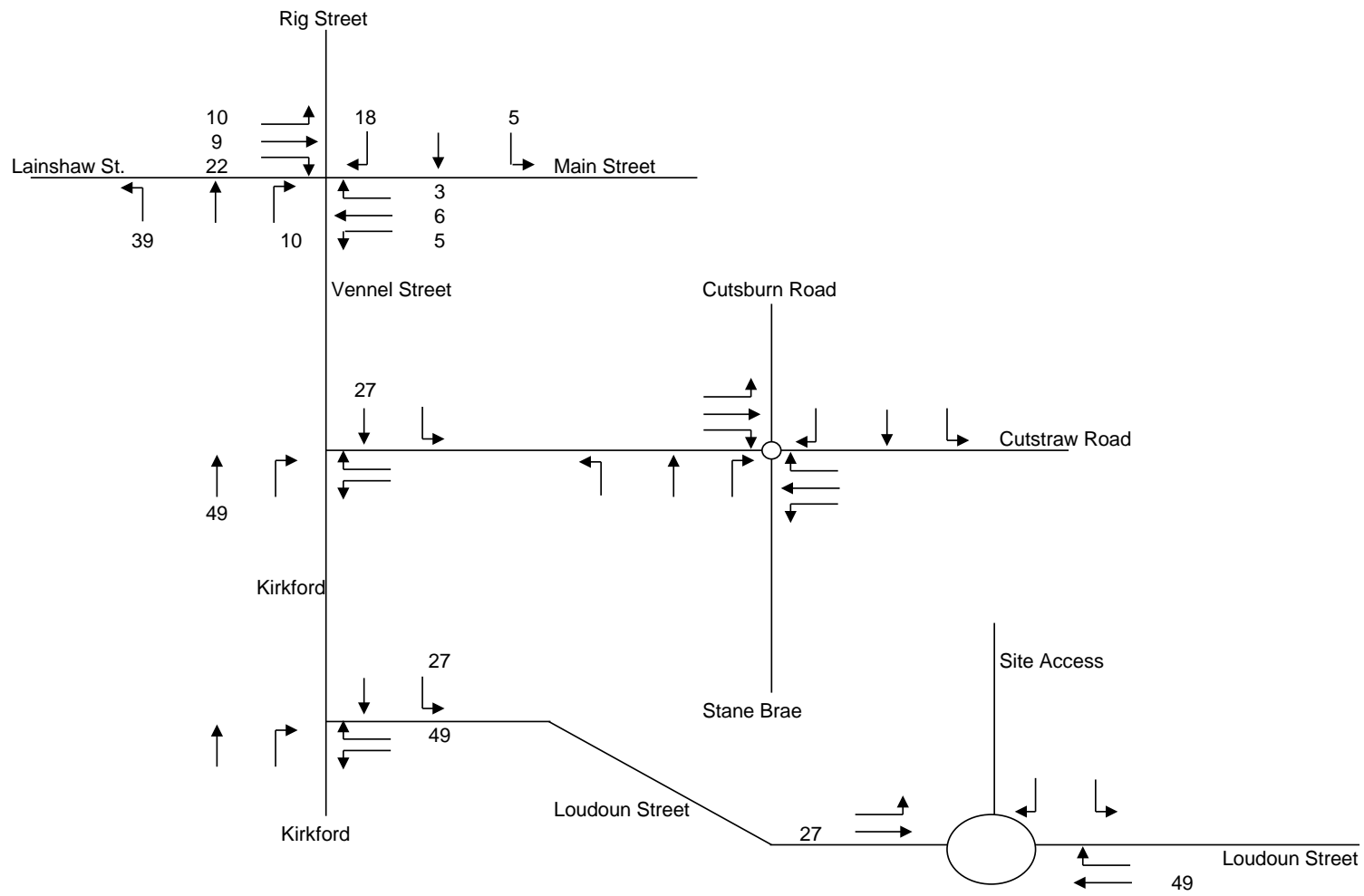


Figure 9b
 PM Committed Traffic
 Dougal Baillie Associates



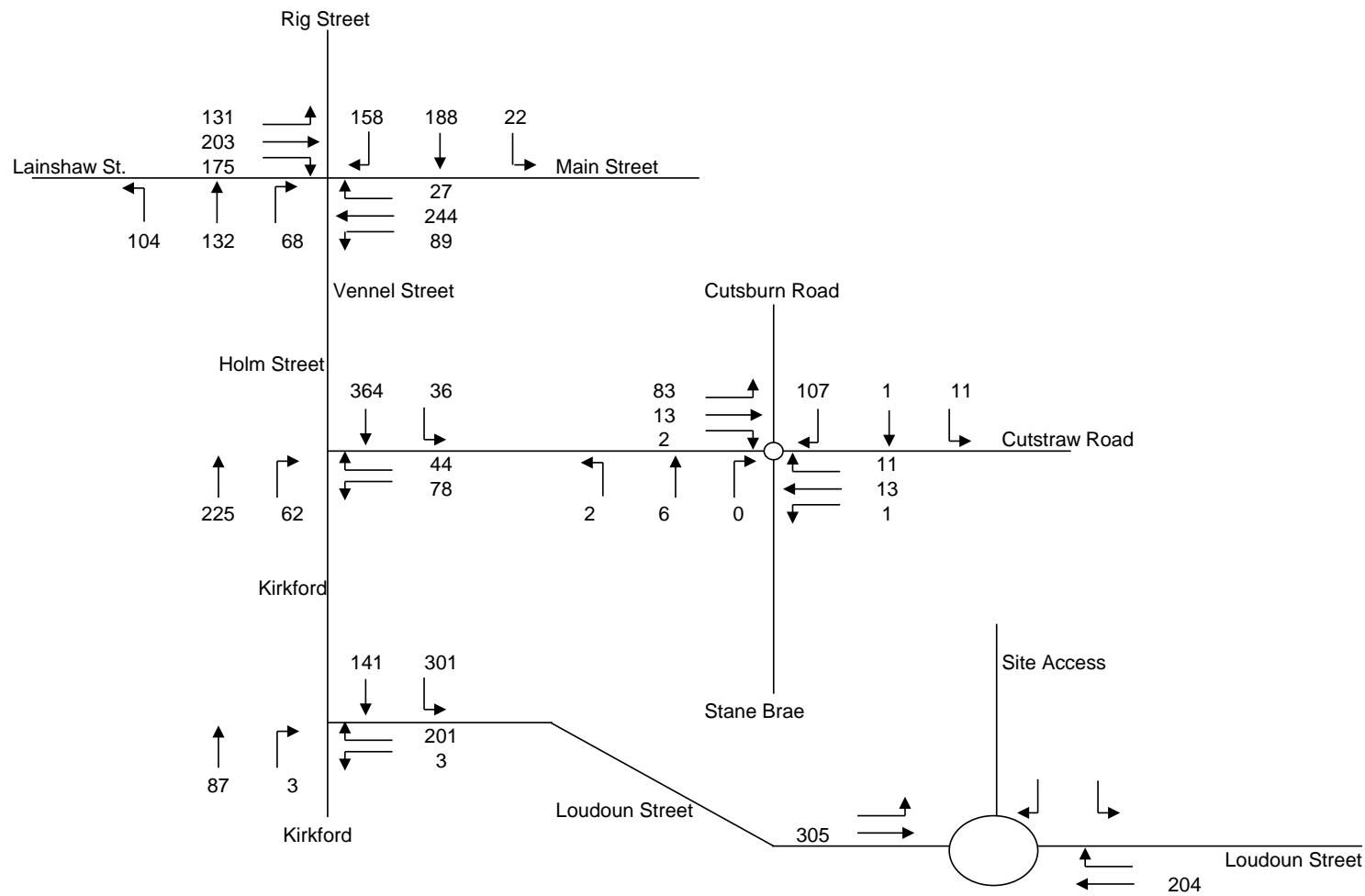


Figure 10a
2017 AM + Committed



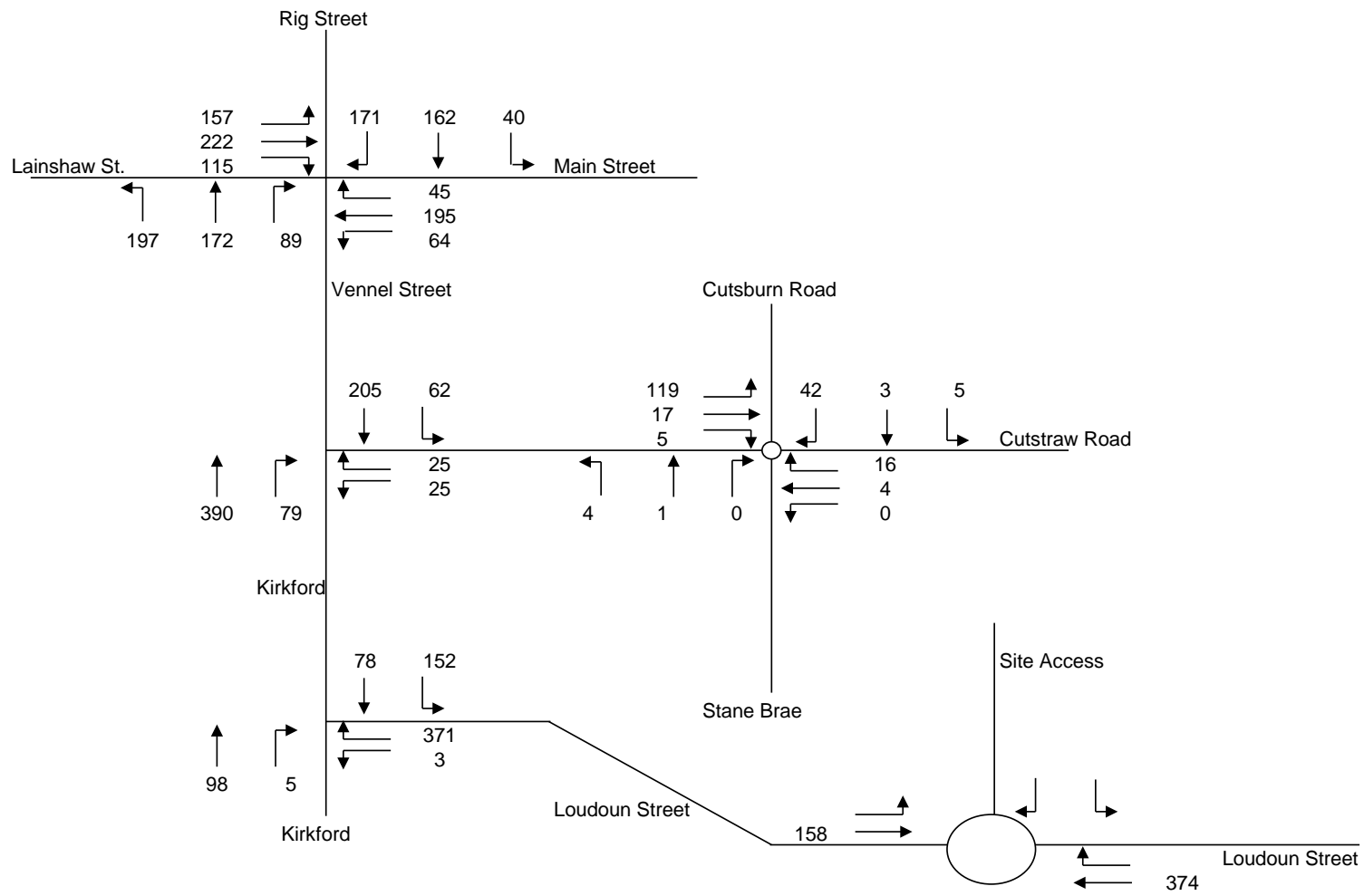


Figure 10b
 2017 PM + Committed
 Dougall Baillie Associates

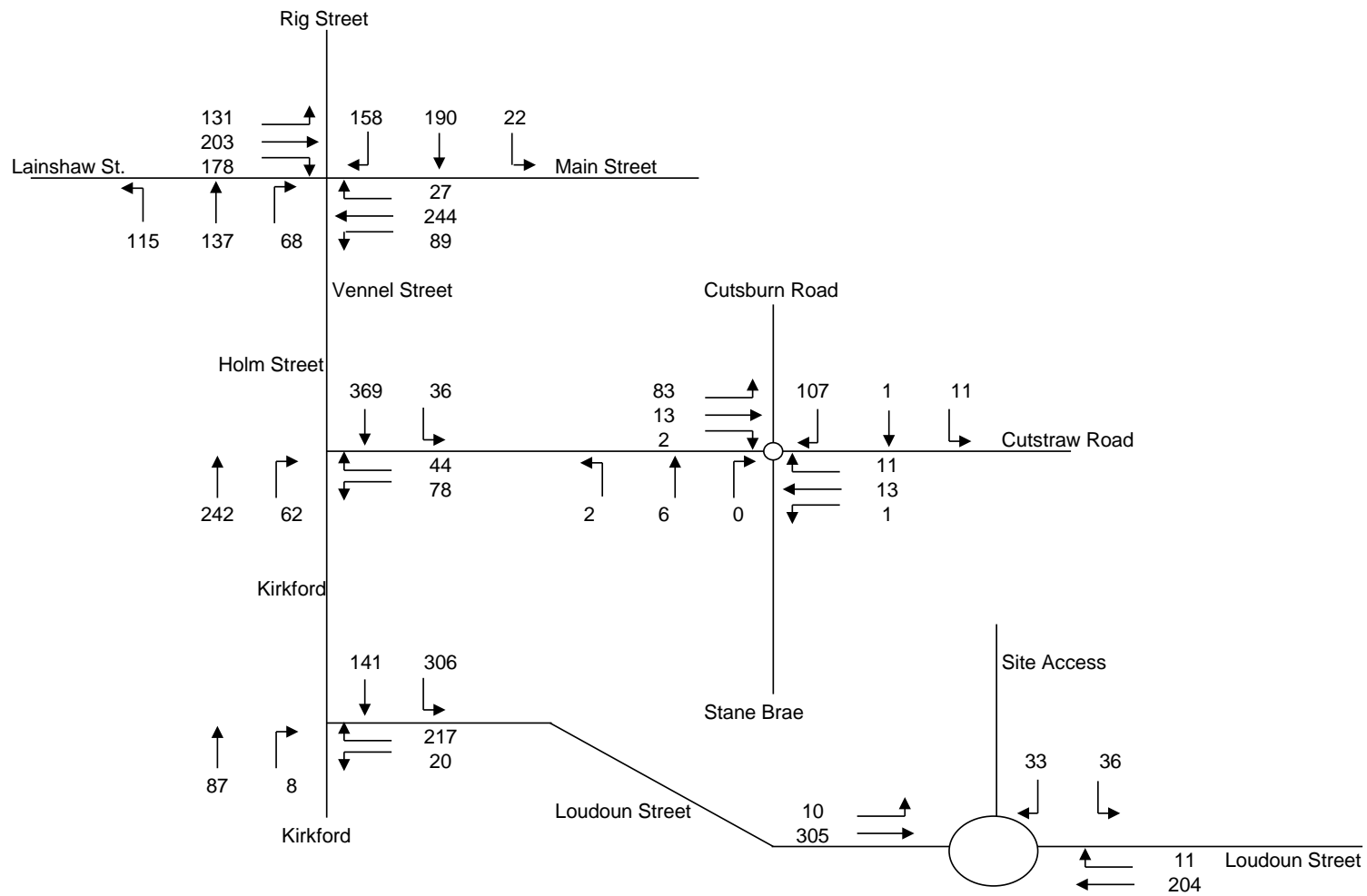


Figure 11a
 2017 AM + Committed +
 Generation
 Dougal Baillie Associates

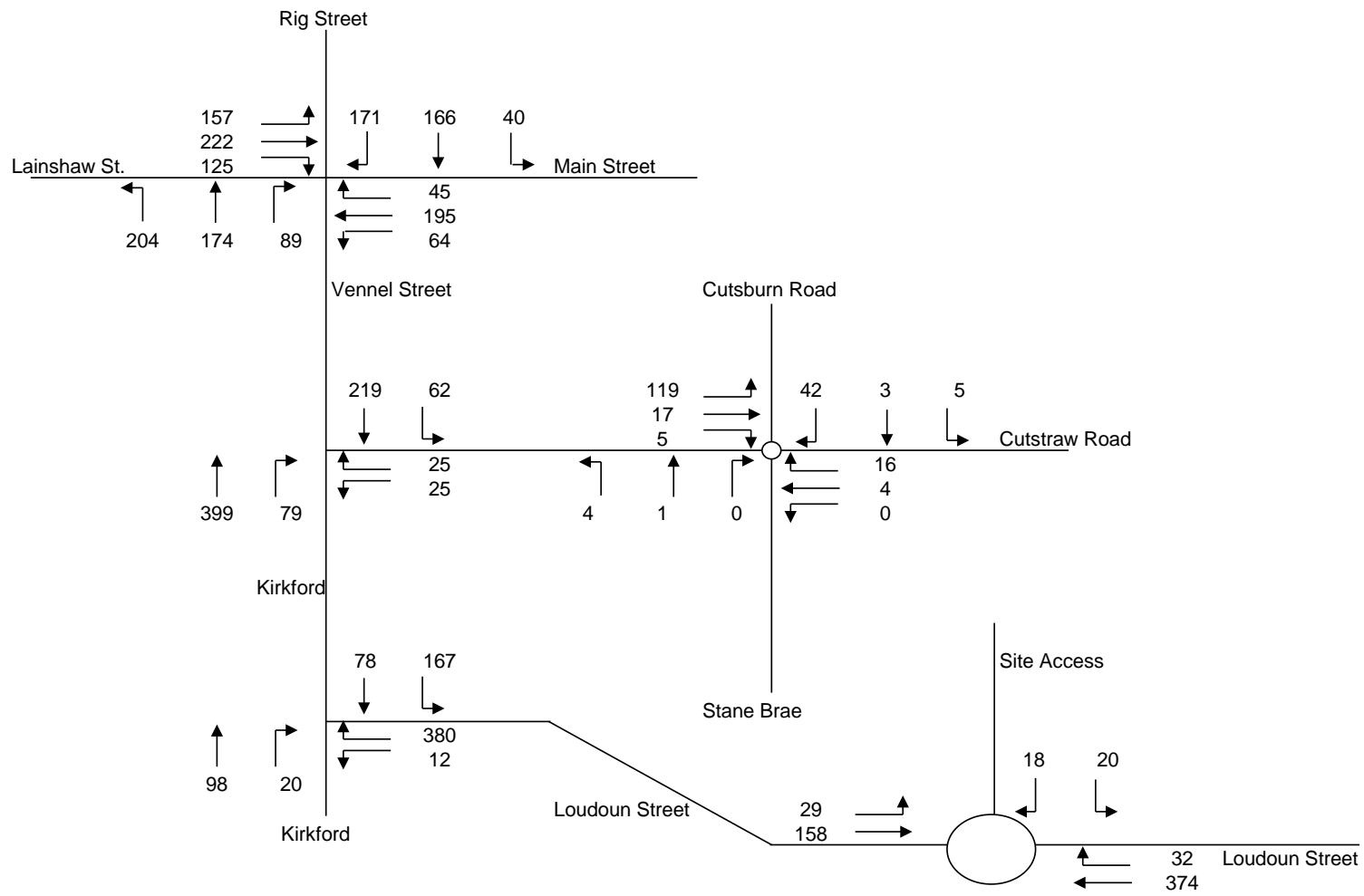


Figure 11b
 2017 PM + Committed +
 Generation



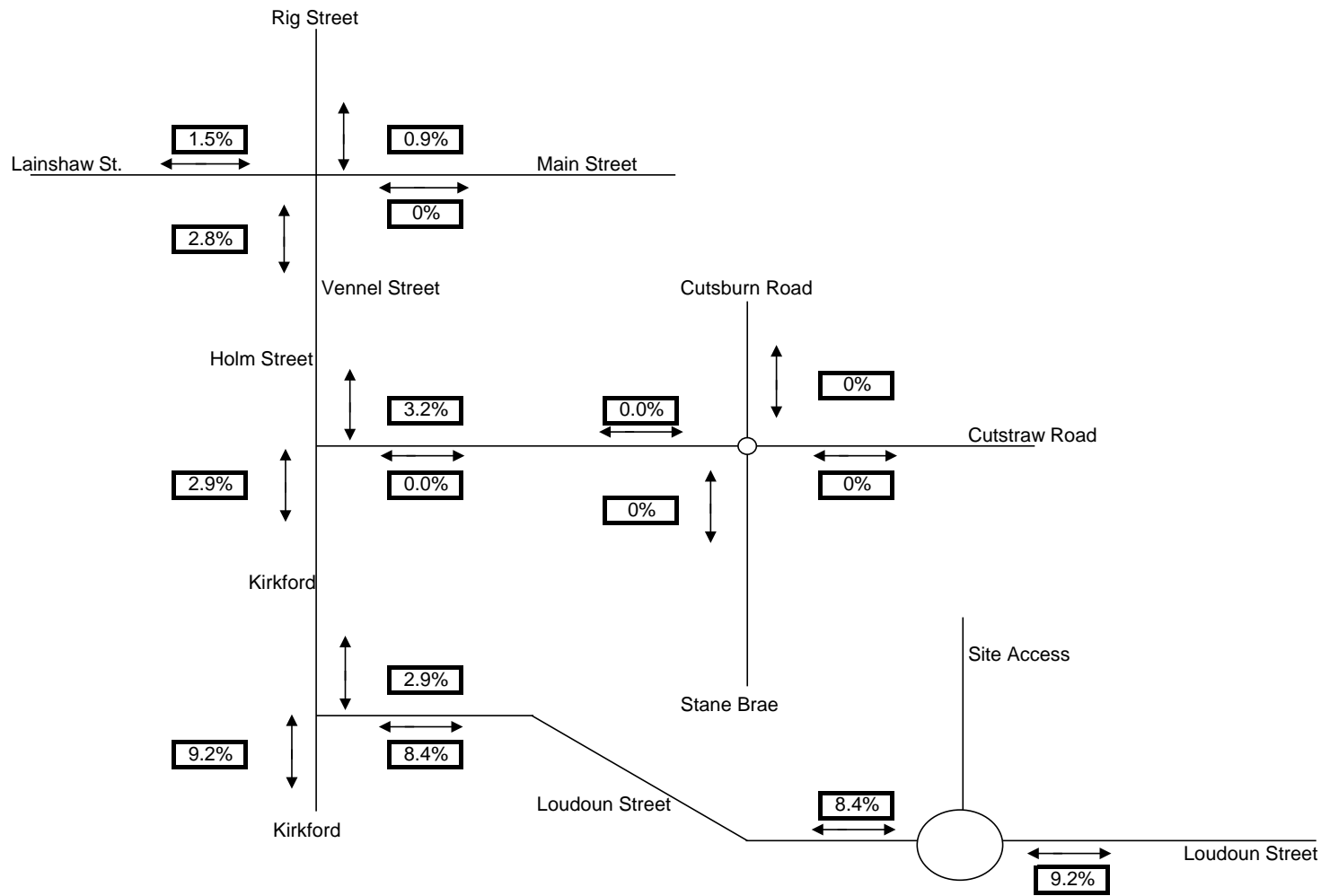


Figure 12a
 AM % Impact
 Dougall Baillie Associates
DBA

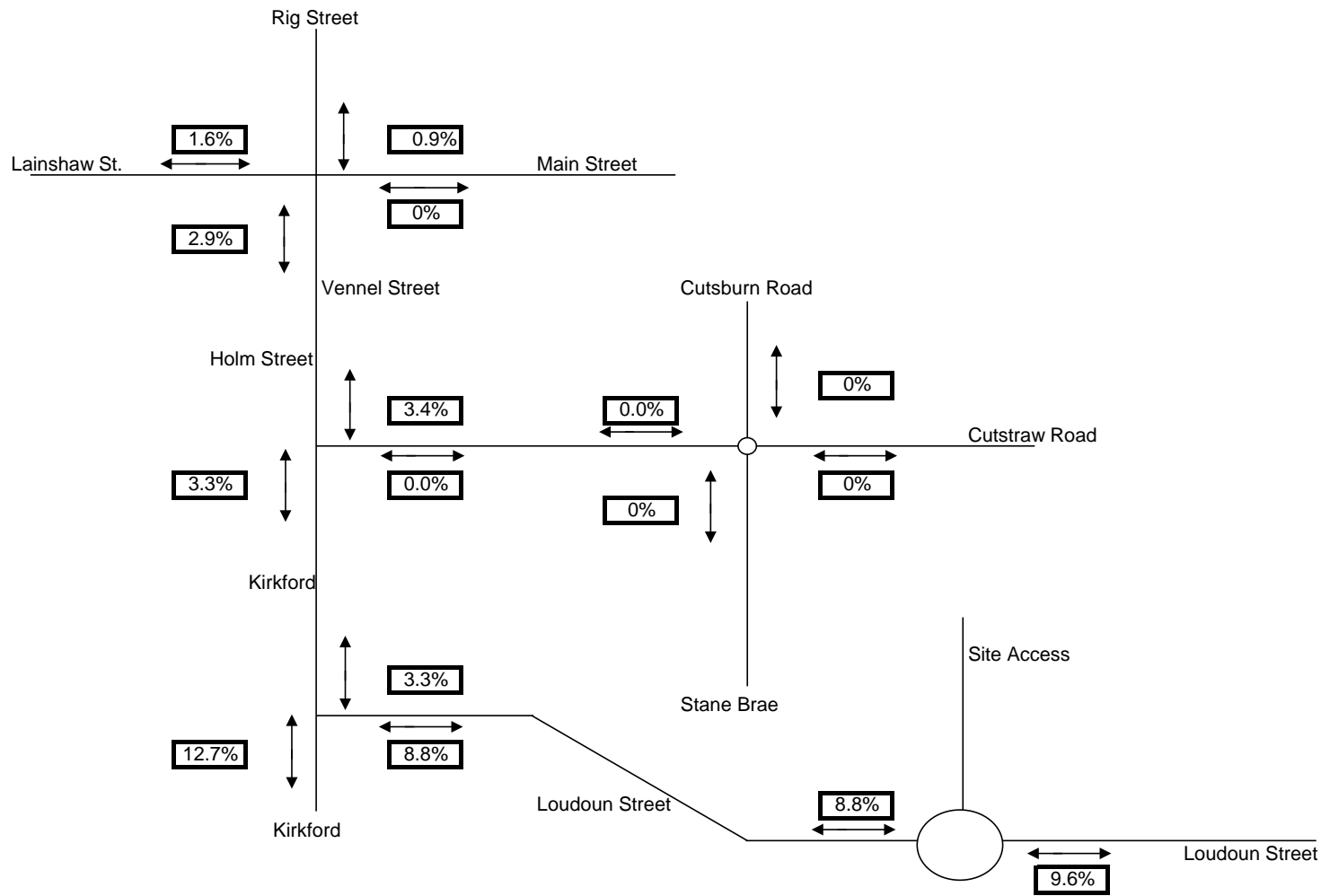


Figure 12b
PM % Impact



5. Traffic Impact

- 5.1 Traffic flows for the weekday morning and evening peak periods were obtained as discussed in Section 4. These traffic flows were used throughout all subsequent analysis.

Site Access Roundabout Junction on Louden Street

- 5.2 The junction at this location was analysed using the TRL computer program Arcady 3, with the traffic flows derived in earlier sections of this report. The results of this analysis are summarised in Table 5.1 below. All analysis data files are contained in Appendix A.

	Site Access		Louden St (E)		Minor Access		Louden St (W)	
	RFC	Queue Veh	RFC	Queue Veh	RFC	Queue Veh	RFC	Queue Veh
Weekday AM								
2017 with 150 dwellings	0.064	0.1	0.176	0.2	0.000	0.0	0.276	0.4
Weekday PM								
2017 with 150 dwellings	0.032	0.0	0.330	0.5	0.000	0.0	0.166	0.2

Table 5.1 – ARCADY Results for Site Access Roundabout

- 5.3 A given movement at a junction reaches its capacity when the Ratio of Flow to Capacity (RFC) value reaches 1.000, however a figure of 0.85 is commonly adopted as a limiting RFC value when analysing roundabout and priority junctions, above which levels of queuing and delay become more significant. Lower RFC's represent less delay and spare capacity, generally indicating efficient operation.
- 5.4 In this case, the roundabout is designed to meet minimum geometric requirements, rather than to provide additional capacity, with a maximum RFC of 0.330 in the evening peak hour, so in both peak periods, there is ample spare capacity, with minimal queues or delays.

Traffic Flows on Louden Street

- 5.5 As explained earlier in this report, the scale of development, and the means of access, are Reserved Matters in the Planning Permission in Principle. As such, therefore, the changes proposed at the present time are not material. Nevertheless, to assist East Ayrshire Council to quantify those impacts, Table 5.2 sets out the relevant two-way traffic flows on Louden Street, between the site access roundabout and the junction with Kirkford.

		AM Peak			PM Peak		
		East Bound	West Bound	Total	East Bound	West Bound	Total
1	2010 Surveyed Traffic (Figures 2a/b)	229	173	402	121	301	422
2	2017 Traffic with growth (Figures 4a/b)	248	187	435	131	325	456
3	Committed Traffic – Lainshaw (Figs 5a/b)	46	14	60	22	39	61
4	Committed Traffic – Robertland (6a/b)	11	3	14	5	10	15
5	Committed Traffic – Draffen ((7a/b)	6	19	25	17	10	27
6	Total Committed Traffic (8a/b)	63	36	99	44	59	103
7	2017 Traffic including Committed (9a/b)	311	223	534	175	384	559
8	Amended Draffen Proposal (11a/b)	10	33	43	29	18	47
9	2017 Traffic with amended Draffen (12a/b)	315	237	552	187	392	579
10	Additional Traffic on Loudon Street (12a/b minus 9a/b)	4	14	18	12	8	20

Table 5.2 – Traffic Flows on Loudon Street

- 5.6 This table demonstrates, first, that the PPP for Draffen, as considered in the 2010 DBA Transportation Assessment (line 5 of Table 5.2) would add 25 vehicles in the morning peak hour, and 27 in the evening peak. This is 25% of all traffic to be added by all developments (line 6).
- 5.7 The proposal to serve the site by only one access, and to construct 150 dwellings rather than the 140 indicatively shown in the PPP, would add another 18 vehicles in the morning peak hour, and 20 in the evening peak hour, along Loudon Street.
- 5.8 This represents an increase of 3.4% in the morning peak, and 3.6% in the evening peak, over the level of traffic that would occur in any event in 2017, including developments already considered and approved by East Ayrshire Council in the 2010 Transportation Assessment (shown in line 7 of Table 5.2).
- 5.9 In terms of the Institution of Highways and Transportation Guidelines, which refer to the two-way flow on a link, no junctions or links would require detailed assessment, where the percentage impact was less than 10% (or 5% if the route was considered to be congested).
- 5.10 While the surrounding road network can be described as “busy” during peak periods, it cannot be described as “congested”. In any case, the proposed change to the development does not add more than 5% to any route surrounding the site.

5.11 In practice, the proposed changes to the means of access, and the construction of 10 additional houses, in comparison to the development already assessed, adds only marginally to traffic flows already committed on Louden Street, and would result in no discernible difference in junction or route operation, for the majority of road users.

Louden Street / Kirkford Junction

5.12 Again, the junction at this location was analysed using the TRL computer program Picady 4, using the traffic flows derived in preceding Sections of this report. The results of this analysis are summarised in Table 5.3 below.

	Louden Street Left Turn		Louden Street Right Turn		Kirkford Right Turn	
	RFC	Queue Veh	RFC	Queue Veh	RFC	Queue Veh
Weekday AM						
2017 Projected	0.008	0.0	0.447	0.8	0.007	0.0
2017 with Committed (Draffen as per 2010 TA)	0.050	0.1	0.510	1.0	0.018	0.0
2017 with Draffen Amended	0.057	0.1	0.541	1.2	0.018	0.0
Weekday PM						
2017 with 150 dwellings	0.013	0.0	0.739	2.7	0.008	0.0
2017 with Committed (Draffen as per 2010 TA)	0.108	0.1	0.870	5.6	0.029	0.0
2017 with Draffen Amended	0.164	0.2	0.894	6.5	0.042	0.1

**Table 5.3 –Capacity Assessment of Existing
Louden Street / Kirkford Priority Junction**

5.13 As set out earlier, a given movement at a junction reaches its capacity when the Ratio of Flow to Capacity (RFC) value reaches 1.000, however a figure of 0.85 is commonly adopted as a limiting RFC value when analysing roundabout and priority junctions, above which levels of queuing and delay become more significant.

5.14 It can therefore be seen that this existing junction will adequately cater for all proposed development traffic in the morning peak hour, although the right turn from Kirkford is at its practical capacity, although the resulting queues and delays are not excessive.

5.15 More importantly, it is also evident that the proposed development would have very little impact on the spare capacity available at the junction, or on queues or delays, in comparison to the level of development already assessed and approved.

5.16 Nevertheless, East Ayrshire Council have requested that the introduction of traffic signal control be considered for this junction. Figure 6.1, extracted from the 2010 DBA TA, shows a traffic signal layout. This junction layout has been assessed using the LINSIG program, and Table 5.4 sets out the results of that analysis.

	Louden Street		Kirkford From South		Kirkford From North	
	DoS	Queue Veh	DOS	Queue Veh	DoS	Queue Veh
Weekday AM						
2017 with Draffen PPP	45.1%	3.4	13.4%	0.9	47.3%	5.1
2017 with Draffen Amended	47.9%	3.7	13.4%	0.9	47.8%	5.2
Weekday PM						
2017 with Draffen PPP	43.5%	4.4	29.6%	1.6	42.8 %	3.5
2017 with Draffen Amended	44.4%	4.6	29.9%	1.7	45.1 %	3.7

Table 5.4 –Capacity Assessment of Loudon Street / Kirkford Junction Under Traffic Signal Control

5.17 The junction layout shows the provision of pedestrian facilities, although these are likely to be so rarely used that the analysis assumes that the pedestrian stage is not called.

5.18 The results show that the provision of traffic signals at this junction offers capacity improvements, but no benefits in terms of reductions in queues or delays, in comparison with the existing priority junction. Furthermore, queues and delays outwith the peak periods are likely to be increased by the installation of traffic signals.

5.19 The principal point, however, is that the addition of 18 vehicles on Loudon Street in the morning peak hour, and 20 vehicles in the evening peak hour, as shown in Table 5.2 earlier, has a minimal impact on the operation of the existing priority junction, in comparison to the level of development already assessed and approved.

Stewarton Cross

5.20 This junction was also analysed using the TRL computer program Picady 3, with the flow profile input directly. The results of this analysis are summarised in Table 7.5.

		AM Peak			PM Peak		
		North Bound	South Bound	Total	North Bound	South Bound	Total
1	2008 Surveyed Traffic (Figures 1a/b)	259	356	615	369	283	682
2	2017 Traffic with growth (Figures 4a/b)	293	395	688	409	314	723
3	Committed Traffic – Lainshaw (Figs 5a/b)	14	46	60	39	22	61
4	Committed Traffic – Robertland (6a/b)	3	11	14	10	5	15
5	Committed Traffic – Draffen ((7a/b)	16	4	20	9	14	23
6	Total Committed Traffic (8a/b)	33	61	94	58	41	99
7	2017 Traffic including Committed (9a/b)	326	456	782	467	355	892
8	Amended Draffen Proposal (11a/b)	17	4	21	9	14	23
9	2017 Traffic with amended Draffen (12a/b)	327	456	782	467	355	892
10	Additional Traffic on Loudon Street (12a/b minus 9a/b)	1	0	0	0	0	0

Table 5.4 – Traffic Flows on Kirkford Leading to Stewarton Cross

- 5.21 As stated earlier, junction analysis would not normally be required where the development adds less than 10% (or 5% if the network is congested) to the traffic flows already likely to be on the network. The proposed Draffen development (line 8) adds 2.9% to the traffic flow towards Stewarton Cross including other committed developments. This is the same figure as calculated in the 2010 TA for the original proposal.
- 5.22 In this instance, the revised access arrangements make no difference, as traffic from the development heading to Stewarton Cross would use this link, whether it arrived via Cutstraw Road or Loudon Street, in the original proposal. Any difference arises only from the additional 10 dwellings, and when account is taken of the vehicle trip rate per dwelling, and the distribution of trips, the number of trips added at Stewarton Cross is so small that it lies within the rounding error of the original calculation.
- 5.23 It can therefore be concluded that the development as now proposed, makes no difference at Stewarton Cross, in comparison to the development already assessed and granted PPP.

Cutstraw Road

- 5.24 The development will not now add traffic on to Cutstraw Road, so the traffic calming measures proposed in the previous TA will no longer be required.
- 5.25 Pedestrians to and from the proposed development will, however, use Cutstraw Road to access the town centre and other local facilities. With that in

mind, the Council have requested that the proposed priority system near the Kirkford junction be retained, to provide enhanced pedestrian footway facilities at that narrow location.

Kirkford

- 5.26 In assessing the previous application, now granted PPP, the Council pointed out that, rather than traffic signals at the Kirkford / Loudon Street junction, they would prefer a contribution towards a proposed footway / cycleway along the side of the river. The contribution would take the form of an enhanced footway /cycleway along the north side of Cutstraw Road, from the Kirkford to the existing entrance to the park, and the provision of a toucan crossing on Kirkford, with speed reduction measures on the approaches.

6. Conclusions

- 6.1 Residential development on land east of Draffen House, Stewarton was granted Planning Permission in Principle (PPP) in December 2012. That application was accompanied by a Transportation Assessment prepared by Dougall Baillie Associates. Following consideration of that TA, the PPP included a number of conditions specifying Reserved Matters, including the internal roads layout and the means of access to the site, and traffic calming, footway and roads improvements on Cutstraw Road and Kirkford.
- 6.2 An application is to be made for approval of reserved matters, including the number of houses to be constructed, and the means of access to the site.
- 6.3 This report examines the impact of constructing 150 houses rather than the 140 assumed in the previous TA, and serving the site by a single access rather than the two indicated previously.
- 6.4 The proposed site access roundabout on Louden Street would have sufficient capacity to serve the whole development, with minimal queues or delays.
- 6.5 Committed developments, including the development already granted PPP at Draffen East, add 99 trips in the morning peak hour, and 103 vehicles in the evening peak hour, on Louden Street between the site access and Kirkford. The effect of serving Draffen by a single access, and building an additional 10 houses, would be to add 18 trips on this route in the morning peak hour, and 20 in the evening peak hour. This represents an increase of 3.4% in the morning peak, and 3.6% in the evening peak, over the level of traffic that would occur in any event in 2017.
- 6.6 The proposed single access and 10 additional houses would cause no noticeable difference to the operation of the Louden Street / Kirkford priority junction. Further examination indicates that the change to the proposed access arrangements do not justify the introduction of traffic signal control, which would be likely to increase queues and delays, particularly at off-peak times.
- 6.7 The proposal would result in no more traffic at Stewarton Cross, than the original 2010 assessment. There is no requirement to examine the operation of Stewarton Cross in more detail.

APPENDIX A

ANALYSIS OUTPUT FILES