Insch Asset Condition Assessment

Final Report

01 May 2018

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JBA Project Manager

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Revision history

Revision Ref/Date	Amendments	Issued to
P01 / 05 April 2018	Draft Report	Alistair Scotland and Lee Watson, Aberdeenshire Council
P02 / 19 April 2018	Final Report	Alistair Scotland and Lee Watson, Aberdeenshire Council
P03 / 01 May 2018	Final Report	Alistair Scotland and Lee Watson, Aberdeenshire Council
C01 / 03 April 2019	Published	Alistair Scotland and Lee Watson, Aberdeenshire Council

Contract

This report describes work commissioned by Gavin Penman, on behalf of Aberdeenshire Council, on 10 October 2017 by Purchase Order 1095192. Dougall Baillie's representative for the contract was Scott MacPhail and Aberdeenshire Council's representative for the contract was Alistair Scotland. Christina Kampanou and Stephen Farrar of JBA Consulting carried out this work.

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Purpose

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Executive summary

A structural survey was undertaken along the main watercourses of Insch in Aberdeenshire; the Shevock Burn, the Valentines Burn, the Temple Stripe, the Mill of Rothney, the Newton of Rothney and Field Drains of the Shevock Burn and the Valentines Burn.

The structural assets along the watercourses were visually inspected, recorded and assessed in accordance with the Environment Agency's Condition Assessment Manual March 2012. The visual survey locates their position, identifies the risk of blockage, maintenance required and if appropriate 'quick wins'.

Properties with property level flood protection measures have been identified from an external visual survey.

The assets were generally found to be in good condition. Their likely performance, assessed in this report, can be essential for effective flood risk management.

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Abbreviations

approx.	Approximately
FPS	Flood Protection Scheme
PLP	Property Level Protection

1 Introduction

A full walkover survey was undertaken to assess the condition of structures in Insch, Aberdeenshire, as a part of the Insch Flood Protection Study. More specifically, the walkover was undertaken along the Shevock Burn, the Valentines Burn, the Temples Stripe, the Mill of Rothney, the Newton of Rothney and field drains of the Shevock Burn and the Valentines Burn, as shown in Figure 1-1. The asset condition assessment has been carried out in accordance with the Environment Agency's Condition Assessment Manual March 2012. Where information provided by the client indicates the risk of blockage is high, or where this is thought to be high, this has been recorded (no formal risk assessment/modelling has been carried out at this stage).

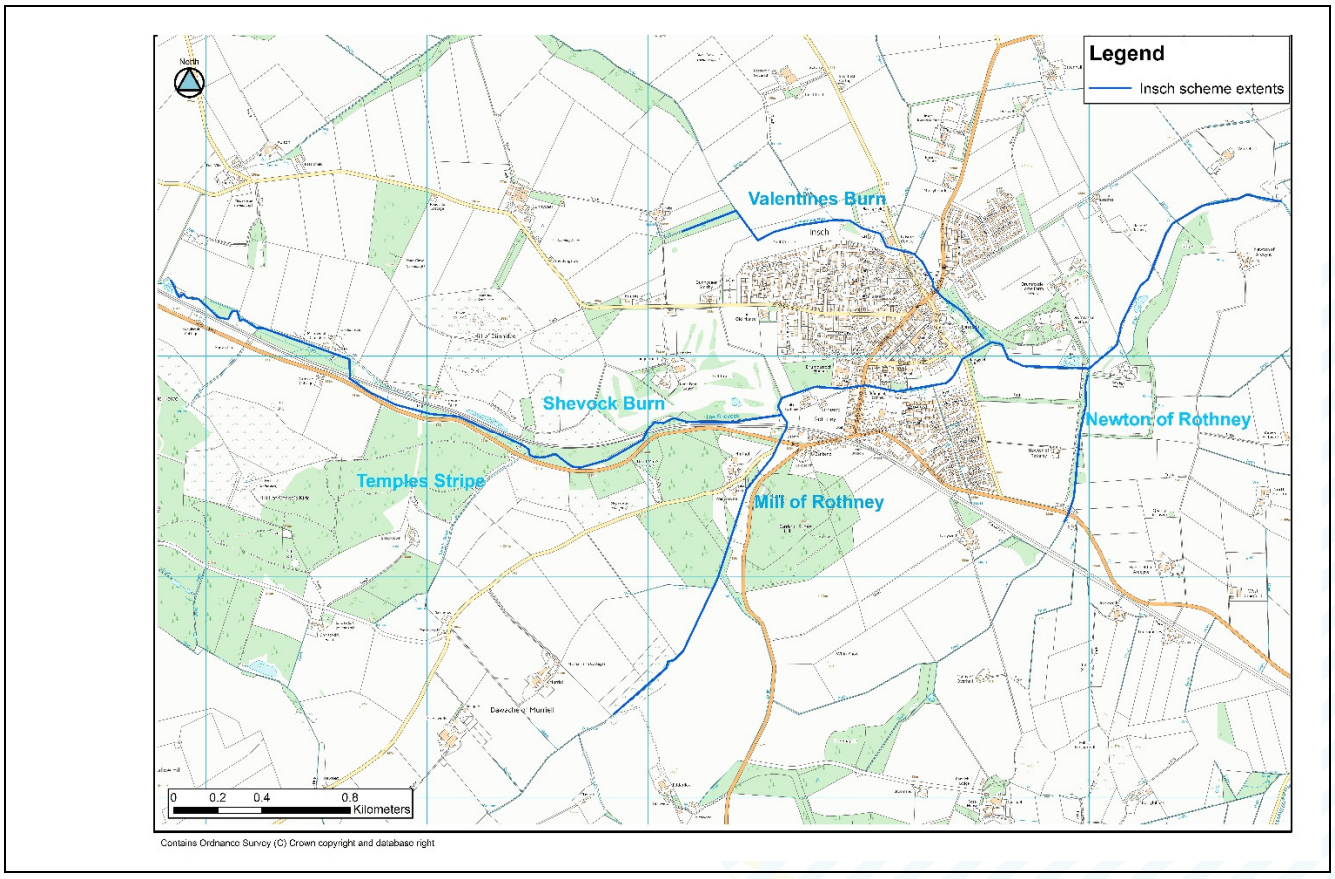

Figure 1-1 Insch inspection extents

Category	Comments
Date of inspection(s)	31 January - 1 February 2018
Inspector(s)	Christina Kampanou
General inspection information	Weather on 31 January was sunny and dry. On 1 February, the weather was wet and very windy.
Scheme information	The asset survey is on behalf of Aberdeenshire Council.
Nature of inspection(s)	The inspections were walkover surveys of the structural assets in the town, as well as logging of any PLP within the survey lines. Photographs were taken but no topographic survey work was carried out.
Nature of assets	Bridges are the main structural assets in Insch. There are also culverts, retaining walls and a weir.
General condition / comments	The assets were generally found to be in good condition.

2 Shevock Burn

Assets are listed below from upstream to downstream, with the numbering referenced in Figure 2-1, Figure 2-2, Figure 2-3 and Figure 2-4.

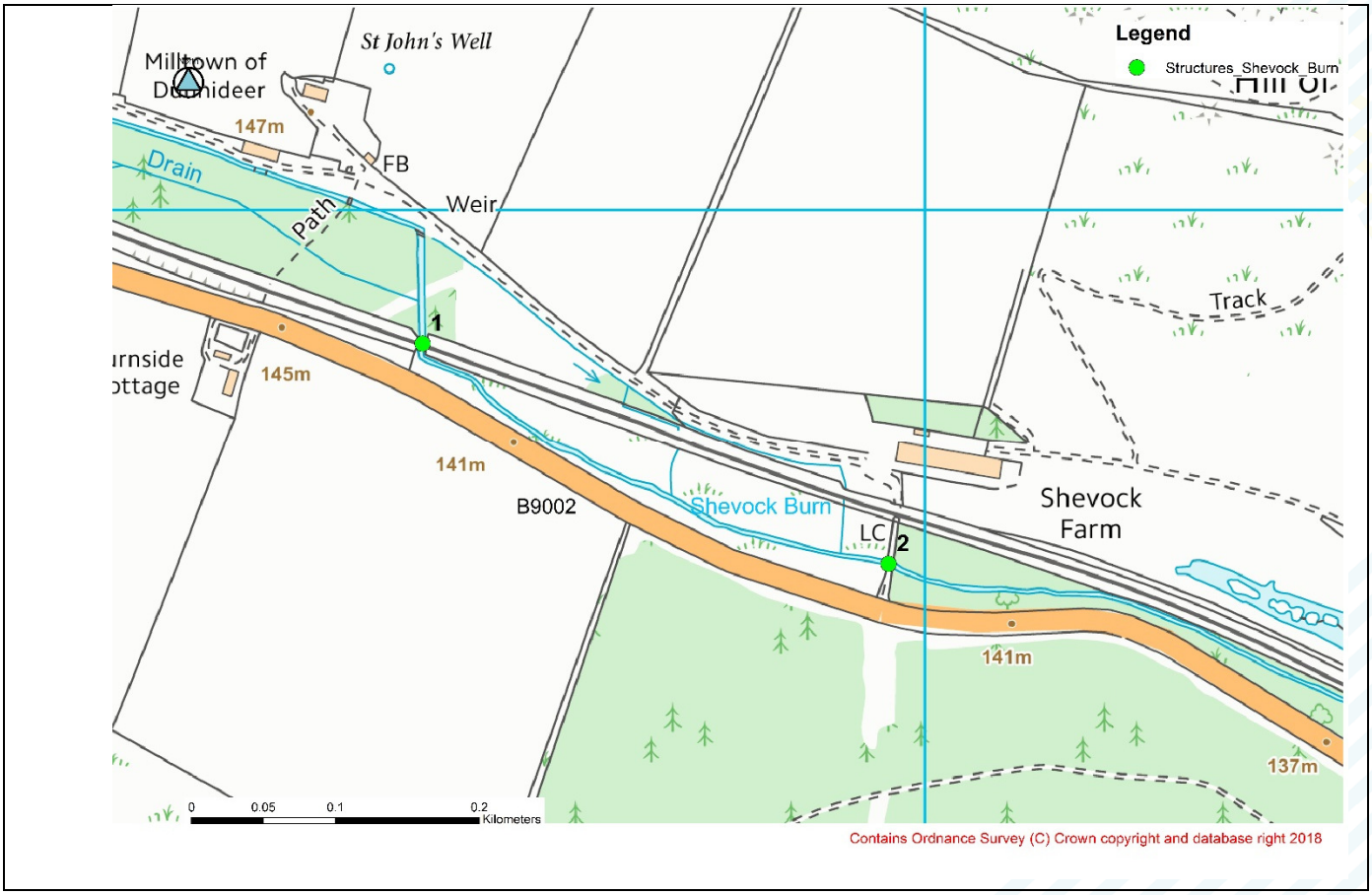

Figure 2-1: Plan showing the distribution of features identified in the asset condition assessment along the Shevock Burn

Table 2-1: List of structural assets shown in Figure 2-1		
Number	**Asset**	**Location**
1	ANI1 293/111 Railway Bridge	Milton of Dunnideer
2	Masonry Bridge	Shevock Farm, Dunnideer

1- ANI1 293/111 Railway bridge (Refer to Figure 2-1)	
 ***Upstream view of bridge***	**Type**: Single Span Railway Bridge **Upstream grid ref: NJ 60666 27895** **Span (m):** 3 approx. **Material**: Masonry Abutments, Steel Deck **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Localised corrosion of steel beam. Minor cracks of abutments. Water stains at both abutments. **Risk of blockage:** Low **Maintenance:** None required **Quick Win:** N/A
 ***Upstream View – Right abutment***	 ***Upstream view – Left abutment***

2- Masonry bridge (Refer to Figure 2-1)	
 ***View of bridge from upstream***	**Type**: Arch Bridge **Upstream grid ref: NJ 60974 27754** **Span (m):** 2 approx. **Material**: Masonry, Brick **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: Loss of joint material. Masonry material missing. Extensive crack on left abutment. Arch deformed in places. Minor erosion of left bank downstream. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

2- Masonry bridge (Refer to Figure 2-1)	
 ***View of arch upstream***	 ***Upstream view – Left abutment***
 ***Upstream view of the river banks***	 ***Downstream view of the river banks***

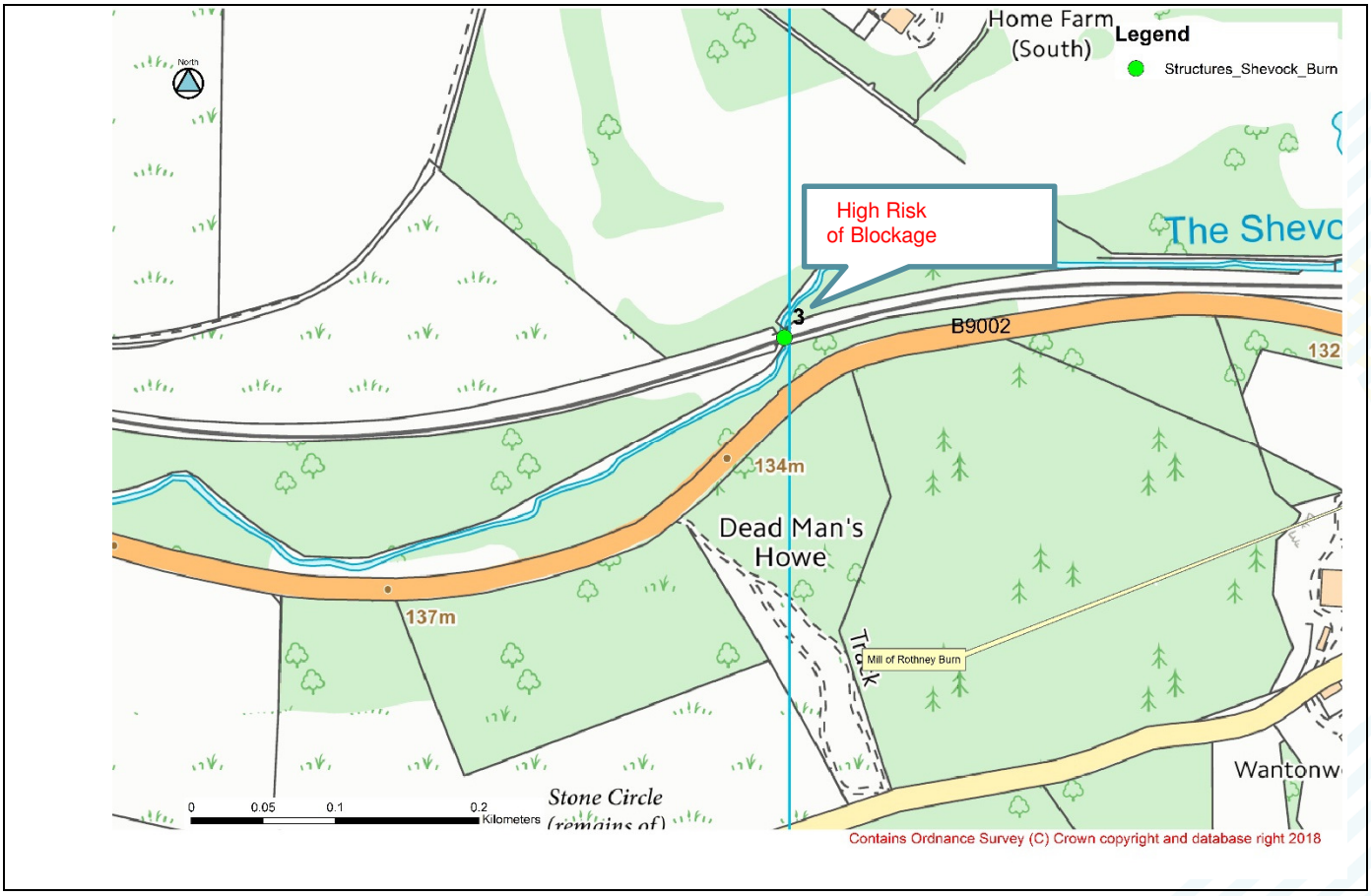

Figure 2-2: Plan showing the distribution of features identified in the asset condition assessment along the Shevock Burn

Table 2-2: List of structural assets shown in Figure 2-2

Number	Asset	Location
3	ANI1 293/109 Railway Bridge	Dead Man's Howe

3 – ANI1 293/109 Railway Bridge (Refer to Figure 2-2)	
 ***View from upstream***	**Type**: Bridge **Upstream grid ref: NJ 61995 27655** **Span (m):** 1 approx. each opening **Material**: Concrete Abutments and Deck **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Water stains. No significant defects of structure. Corrosion of parapet. High vegetation growth upstream. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** Remove excess vegetation, cut trees upstream.
 ***Upstream view of left abutment***	 ***Upstream view***

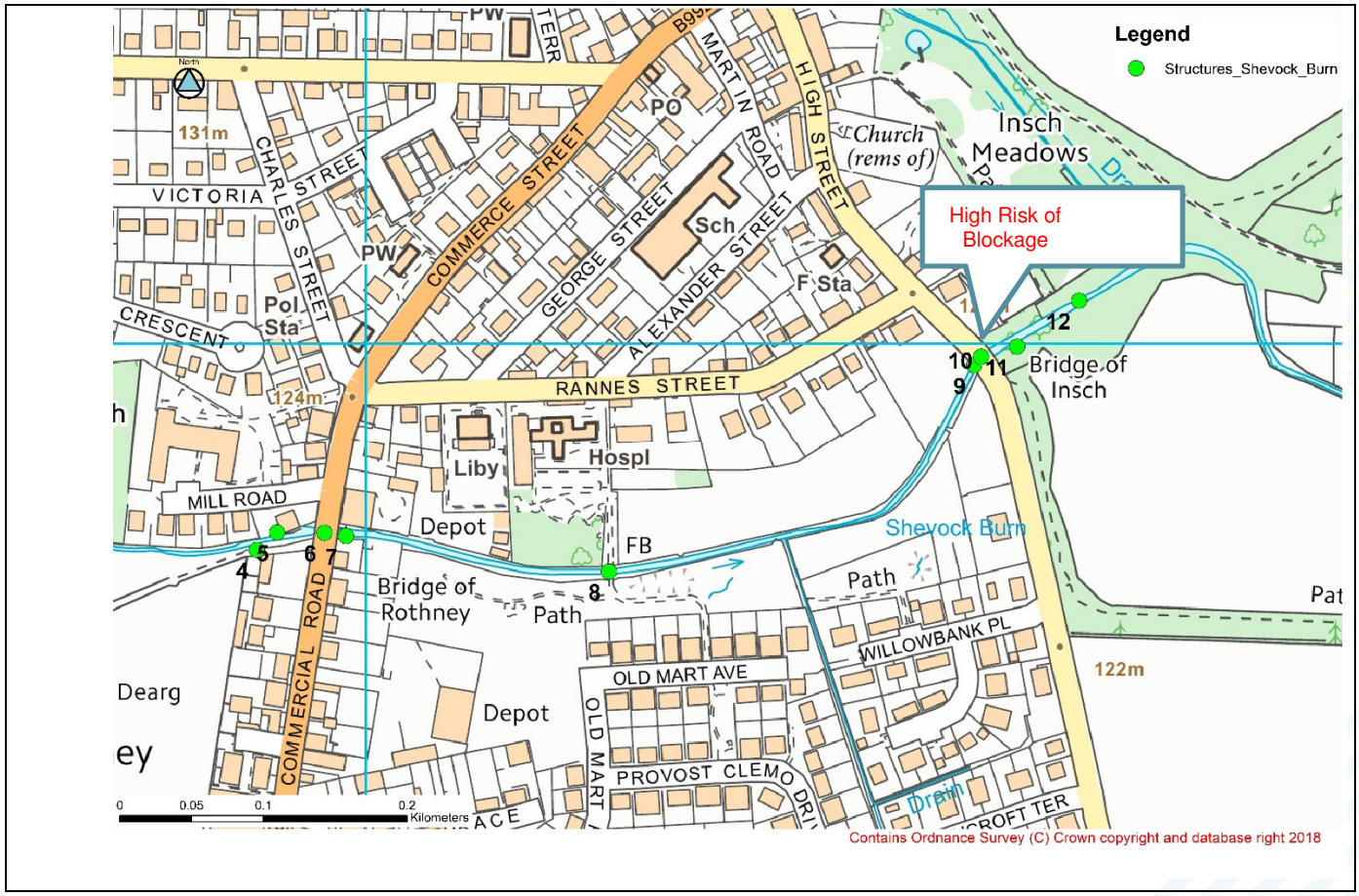

Figure 2-3: Plan showing the distribution of features identified in the asset condition assessment along the Shevock Burn

Table 2-3: List of structural assets shown in Figure 2-3		
Number	**Asset**	**Location**
4	Redundant Structures	Unnamed Road
5	Retaining Wall	Unnamed Road
6	Bridge of Rothney	B992 Commercial Road
7	Old Mart Footbridge	Old Mart
8	Flood Wall	High Street
9	Bridge of Insch	High Street
10	Gabion baskets	Insch Meadows
11	Retaining Wall	Insch Meadows
12	Insch Meadows Pedestrian Bridge	Insch Meadows

4 – Redundant Structures (Refer to Figure 2-3)	
 ***Upstream view***	**Type**: Redundant Structures **Upstream grid ref: NJ 62924 27856** **Material**: Concrete **Part of FPS:** No **Comments**: Possibly connected with the Mill of Rothney (located near exit mill lade now infilled). Could possibly increase flood spilling to opposite bank. **Risk of blockage:** N/A **Maintenance:** N/A **Quick Win:** Consider removing these structures

5 – Retaining wall upstream of Bridge of Rothney (Refer to Figure 2-3)	
 ***Upstream view***	**Type**: Flood Wall **Upstream grid ref: NJ 62959 27859** **Height (m):** Different heights, unknown **Material**: Masonry **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: Minor cracks. Loss of joint material. Minor displacement of blocks. **Risk of blockage:** Low **Maintenance:** None required **Quick Win:** N/A
 ***Downstream view***	 ***Downstream view***

6 –Bridge of Rothney (Refer to Figure 2-3)	
 ***Upstream view***	**Type**: Masonry Arch Bridge **Upstream grid ref: NJ 62971 27868** **Span (m):** 4.3 **Material**: Masonry **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Short cracks of arch. Seeping joints. Sound abutments. Potential risk of scour very low (Aberdeenshire Council[1]). **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris **Quick Win:** N/A

7 – Old Mart Footbridge (Refer to Figure 2-3)	
 ***Downstream view***	**Type**: Single Span Pedestrian Bridge **Upstream grid ref: NJ 63169 27841** **Span (m):** 4 approx. **Width (m):** 3 **Material**: Timber Structure and Deck, Concrete Abutments **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Sound abutments. Fixings present. Signs of superficial rot of timber **Risk of blockage:** Low **Maintenance:** None required **Quick Win:** N/A

[1] "Contract Documentation for three flood protection studies – Ellon, Inverurie (Port Elphinstone and Kintore) & Insch"

7 – Old Mart Footbridge (Refer to Figure 2-3)	
 ***Bridge deck, upstream view***	 ***Right abutment and fixings***
 ***Timber handrails***	 ***Downstream view of the river banks***

8 – Wall (Refer to Figure 2-3)	
 ***Downstream view***	**Type**: Flood Wall **Upstream grid ref: NJ 63423 27985** **Material**: Masonry **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: Vegetation growth between blockwork. Attached to the upstream side of the Bridge of Insch. **Risk of blockage:** Low **Maintenance:** None required **Quick Win:** N/A

9 – Bridge of Insch (Refer to Figure 2-3)	
 ***Upstream view***	**Type**: Masonry Arch Bridge **Upstream grid ref: NJ 63428 27991** **Span (m):** 5.13 **Material**: Masonry **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: No deformation of arch. Minor spalling. Moss growth on top. Gabion baskets directly downstream. Service pipe downstream. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A
 ***Downstream view of soffit***	 ***Downstream view of river banks***

10 – Gabion baskets (Refer to Figure 2-3)	
 ***Upstream view***	**Type**: Gabions **Upstream grid ref: NJ 63432 27986** **Length (m):** 25 approx. **Material**: Masonry **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Distortion of alignment. Evidence of sliding. Well-packed. **Risk of blockage:** Low **Maintenance:** Keep watercourse and trash screen free of debris. **Quick Win:** N/A

11 – Retaining Wall and Outfall (Refer to Figure 2-3)	
 ***Upstream view***	**Type**: Concrete Wall, Outfall with Trash Screen **Upstream grid ref: NJ 63453 27998** **Height (m):** 1.6 **Thickness (m):** 0.2 **Length (m):** 3 approx. **Material**: Concrete **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: No significant defects. Moss growth on wall. **Risk of blockage:** High **Maintenance:** Keep watercourse and trash screen free of debris **Quick Win:** N/A
 ***Upstream view***	 ***View of wall from above looking downstream***

12 – Insch Meadows Pedestrian Bridge (Refer to Figure 2-3)	
 ***Upstream view of bridge***	**Type**: Timber Footbridge **Upstream grid ref: NJ 63496 28030** **Span (m):** 6 approx. **Width (m):** 1.05 **Material**: Timber **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Handrails show signs of rot. Minor erosion of banks upstream and downstream. No deformation of timber beam. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

12 – Insch Meadows Pedestrian Bridge (Refer to Figure 2-3)	
	
Upstream view of watercourse	***Downstream view of watercourse***

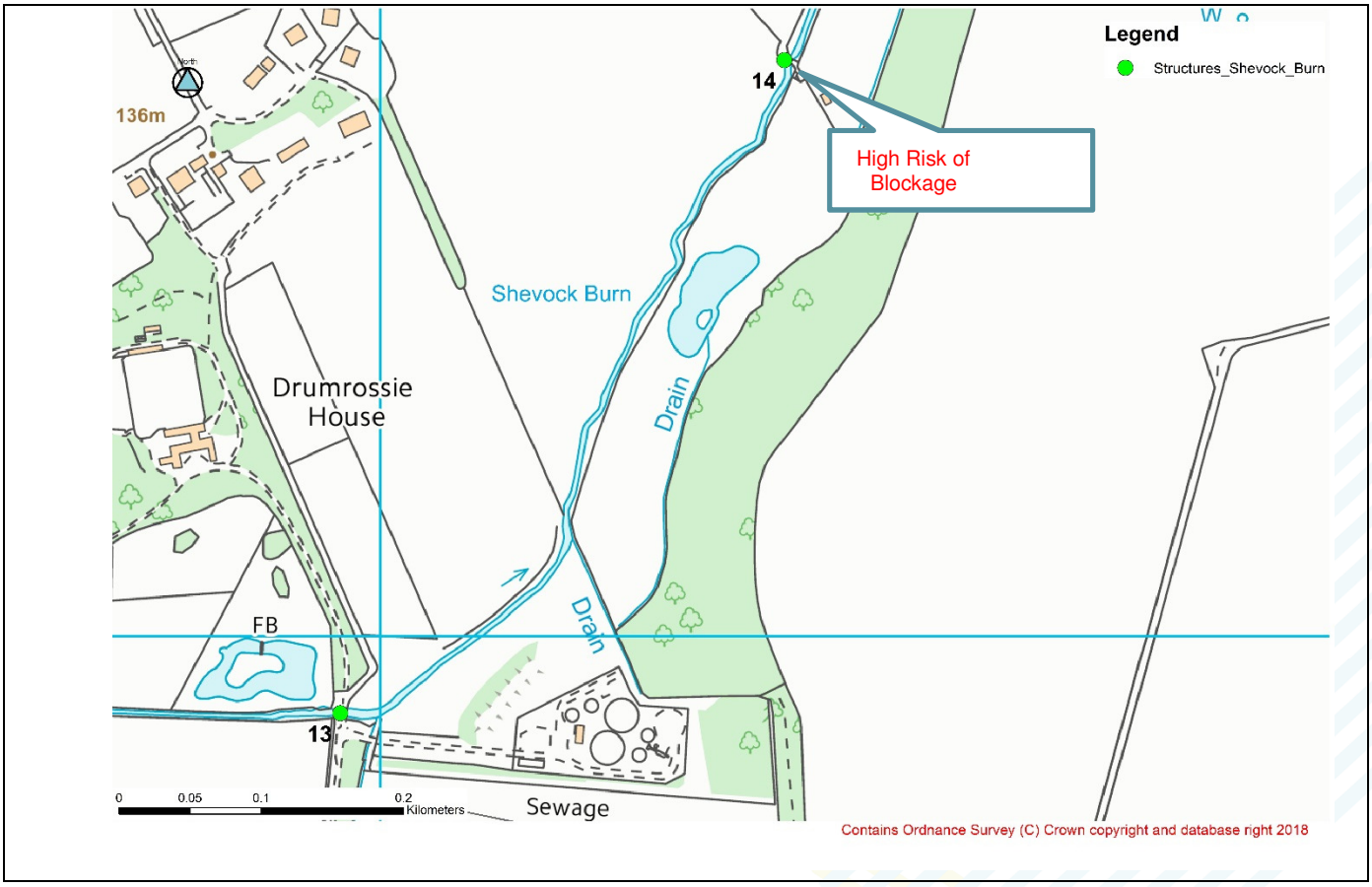

Figure 2-4: Plan showing the distribution of features identified in the asset condition assessment along the Shevock Burn

Table 2-4: List of structural assets shown in Figure 2-4

Number	Asset	Location
13	Drumrossie House Bridge	Drumrossie House

Table 2-4: List of structural assets shown in Figure 2-4		
14	Mains of Rothney Bridge	Mains of Rothney

13 – Drumrossie House Bridge (Refer to Figure 2-4)

Upstream view of bridge

Type: Masonry Arch Bridge
Upstream grid ref: NJ 63972 27946
Span (m): 10.5
Material: Masonry
Condition: Grade 4 (Poor)
Part of FPS: No
Comments:
Masonry missing (especially on parapet).
Loss of mortar.
Risk of blockage: Moderate
Maintenance: Keep watercourse free of debris
Quick Win: N/A

Downstream view of bridge

View of bridge

14 – Mains of Rothney Footbridge (Refer to Figure 2-4)	
 ***Upstream view of bridge***	**Type**: Pedestrian Bridge **Upstream grid ref: NJ 64284 28405** **Span (m):** Unknown **Material**: Timber/ Steel handrails and wire **Condition**: Grade 4 (Poor) **Part of FPS:** No **Comments**: Rotten timber. Vegetation growth between timber planks. Distorted handrails. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris. **Quick Win:** Remove timber 'screen'
 ***Downstream view of bridge***	 ***View of bridge***

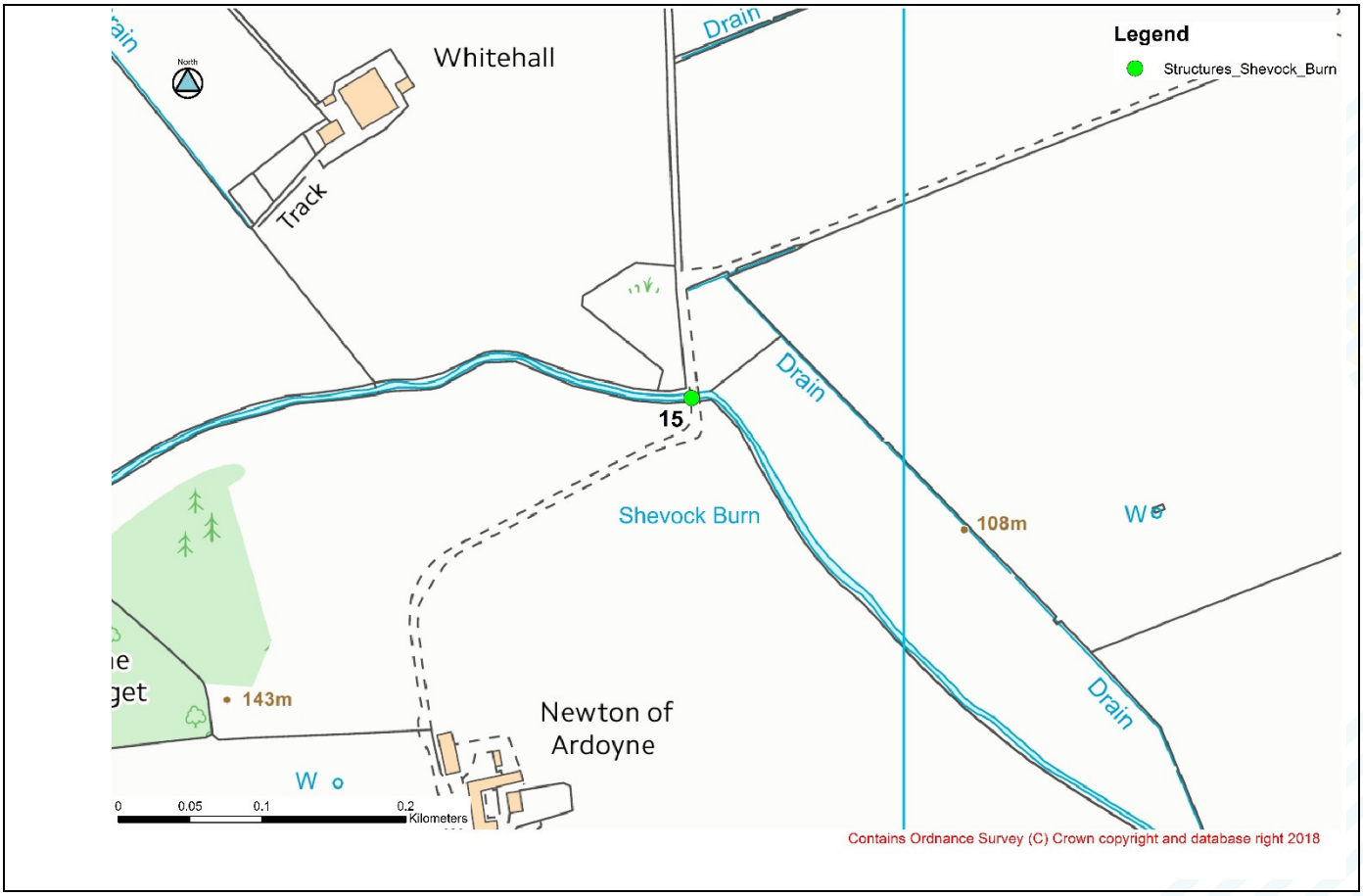

Figure 2-5: Plan showing the distribution of features identified in the asset condition assessment along the Shevock Burn

Table 2-5: List of structural assets shown in Figure 2-5

Shevock Burn		
Number	**Asset**	**Location**
15	Vehicular Bridge	Ardoyne

15 – Vehicular Bridge (Refer to Figure 2-5)	
 ***Upstream view of bridge***	**Type**: Single Span Bridge **Upstream grid ref: NJ 64852 28702** **Span (m):** 4.5m approx. **Material**: Steel Beam / Concrete Deck / Steel and Timber Parapet **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Superficial corrosion of the beam upstream. Water stains on deck. **Risk of blockage:** Moderate/High **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A
 ***Downstream view of bridge***	 ***View of bridge***
 ***Upstream view of watercourse***	 ***Downstream view of watercourse***

3 Valentines Burn

Assets are listed below from upstream to downstream, with numbering referenced in Table 3-1 and Figure 3-1 and Figure 3-2.

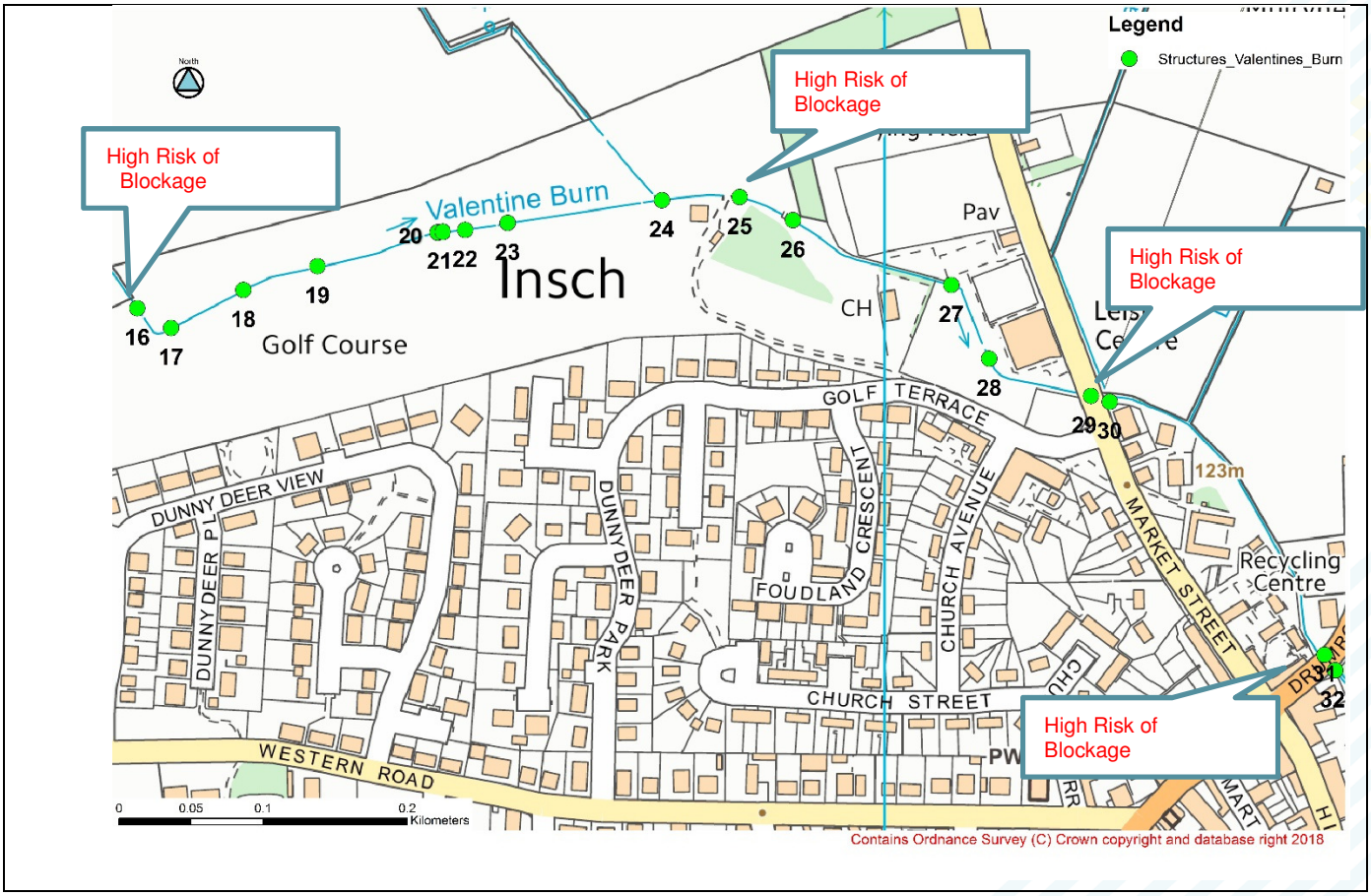

Figure 3-1: Plan showing the distribution of features identified in the asset condition assessment along the Valentines Burn

Table 3-1: List of structural assets shown in Figure 3-1		
Number	**Asset**	**Location**
16	Footbridge	Golf Course
17	Footbridge	Golf Course
18	Footbridge	Golf Course
19	Footbridge	Golf Course
20	Footbridge	Golf Course
21	Weir	Golf Course
22	Footbridge	Golf Course
23	Footbridge	Golf Course

Table 3-1: List of structural assets shown in Figure 3-1		
24	Footbridge	Golf Course
25	Culvert	Golf Course
26	Insch Golf Centenary Bridge	Golf Course
27	Footbridge	Golf Course
28	Footbridge	Golf Course
29	Bennachie Bridge	Market Street
30	Wall	Market Street
31	Drumrossie Street Bridge	B992 Drumrossie Street
32	Flood Wall	B992 Drumrossie Street

16 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)

Upstream view of bridge

Type: Footbridge
Upstream grid ref: NJ 62487 28544
Span (m): 1 approx.
Material: Concrete
Condition: Grade 2 (Good)
Part of FPS: No
Comments:
Distortion of handrails.
Minor erosion of banks upstream.
Risk of blockage: High
Maintenance: Keep watercourse free of debris.
Quick Win: N/A

Downstream view

Upstream view of watercourse

17 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)	
 ***Downstream view of bridge***	**Type**: Footbridge **Upstream grid ref: NJ 62503 28532** **Span (m):** 1 approx. **Material**: Concrete **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: No sound supports. Minor spalling of concrete. No Handrails. Narrow and potentially dangerous to use. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris **Quick Win:** N/A
 ***Closer view of bridge from downstream***	 ***Upstream view of watercourse***

18 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)	
 ***Downstream view of bridge***	**Type**: Footbridge **Upstream grid ref: NJ 62554 28557** **Span (m):** 2 approx. **Material**: Concrete Deck, Masonry Abutments **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Vegetation growth through minor cracks. Bridge deck resting on masonry blocks. Pipe directly downstream of bridge. No Handrails. Narrow and potentially dangerous to use. **Risk of blockage:** Moderate

18 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)	
	Maintenance: Keep watercourse free of debris **Quick Win:** N/A
 ***Upstream view of bridge***	 ***Upstream view of abutments***

19 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)	
 ***Downstream view of bridge***	**Type**: Footbridge **Upstream grid ref: NJ 62605 28575** **Span (m):** 1 approx. **Material**: Concrete Deck, Masonry Abutments **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: Bridge deck resting on masonry abutments. No Handrails. Narrow and dangerous to use. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris **Quick Win:** N/A

20 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)	
 ***Downstream view of bridge***	**Type**: Footbridge **Upstream grid ref: NJ 62689 28598** **Span (m):** 1 approx. **Width (m):** 1 approx. **Material**: Concrete Deck, Masonry Abutments **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: Bridge deck resting on masonry blocks. Wearing of deck. No Handrails. Narrow and dangerous to use. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris **Quick Win:** N/A

21 – Weir (Refer to Figure 3-1)	
 ***Downstream view of weir***	**Type**: Weir **Upstream grid ref: NJ 62693 28598** **Width (m):** 1 approx. **Material:** Masonry **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Even flow over crest Outfall directly upstream. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

22 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)	
 ***Downstream view of bridge***	**Type**: Footbridge **Upstream grid ref: NJ 62708 28602** **Span (m):** 1 approx. **Material:** Steel Beam, Stonework Deck **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: No Handrails. Narrow and potentially dangerous to use. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

23 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)	
 ***Downstream view of bridge***	**Type**: Footbridge **Upstream grid ref: NJ 62737 28606** **Span (m):** 1 approx. **Width (m):** 1 approx. **Material**: Concrete Deck, Masonry Abutments **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: No sound supports. Water stains. No Handrails. Narrow and potentially dangerous to use. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

24 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)	
 ***Downstream view of bridge***	**Type**: Footbridge **Upstream grid ref: NJ 62845 28619** **Span (m):** 2 approx. **Width (m):** 1 approx. **Material**: Concrete Deck, Masonry Abutments **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: No Handrails. Narrow and potentially dangerous to use. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

25 – Golf Course Culvert (Refer to Figure 3-1)	
 ***Upstream view of culvert***	**Type**: Simple Culvert **Upstream grid ref: NJ 62900 28622** **Material**: Steel Pipe, Masonry Walls **Length (m):** 4 approximately **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: No visible distortion to culvert shape. Minor displacement of stonework. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

26 – Insch Golf Club Centenary Bridge (Refer to Figure 3-1)	
 ***Upstream view of bridge***	**Type**: Masonry Bridge **Upstream grid ref: NJ 62938 28606** **Span (m):** 2 approx. **Material**: Masonry **Condition**: Grade 1 (Very good) **Part of FPS:** No **Comments**: No deformation of arch. No sign of cracking or movement. Minor vegetation growth between stonework. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

27 –Pedestrian Bridge (Refer to Figure 3-1)	
 ***Upstream view of bridge***	**Type**: Footbridge **Upstream grid ref: NJ 63047 28563** **Span (m):** 2 approx. **Width (m):** 1.45 **Material**: Timber Deck, Masonry Abutments **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: No sign of deformation. Minor rust of masonry abutments. Minor erosion of left bank downstream. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris **Quick Win:** N/A
 ***Upstream view of watercourse***	 ***Downstream view of watercourse***

28 – Golf Course Pedestrian Bridge (Refer to Figure 3-1)	
 ***Upstream view of bridge***	**Type**: Footbridge **Upstream grid ref: NJ 63079 28510** **Span (m):** Unknown **Width (m):** 2.55 **Material**: Timber Deck, Masonry Abutments **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Minor displacement of timber beams. Signs of minor timber rot. **Risk of blockage:** Moderate/High **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A
 ***Downstream view of bridge***	 ***View of bridge***

29 – Bennachie Bridge (Refer to Figure 3-1)	
 ***Upstream view of bridge***	**Type**: Concrete Bridge with twin culverts **Upstream grid ref: NJ 63143 28481** **Span (m):** 1.28 **Material**: Concrete **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Minor spalling of concrete. Surface damage only. Minor vegetation growth through minor cracks. Minor erosion upstream. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris.

<table>
<tr><th colspan="2">29 – Bennachie Bridge (Refer to Figure 3-1)</th></tr>
<tr><td></td><td>Quick Win: Add appropriately designed trash screen. Investigate capacity and bed levels.</td></tr>
<tr><td> 
Downstream view of bridge</td><td> 
Downstream view of concrete walls</td></tr>
<tr><td> 
Upstream view of watercourse</td><td> 
Downstream view of watercourse</td></tr>
</table>

30 – Masonry Wall downstream of Bennachie Bridge (Refer to Figure 3-1)	
 ***Upstream view of wall***	**Type**: Flood Wall **Upstream grid ref: NJ 63156 28477** **Material**: Masonry **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Blocks displaced or missing. Weed in watercourse. Unlikely to have been built to recognised standard. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

31 – Drumrossie Street Bridge B992 (Refer to Figure 3-1)	
 ***Upstream view of bridge***	**Type**: Masonry Bridge **Upstream grid ref: NJ 63305 28301** **Span (m):** 1.5 **Material**: Masonry **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Minor cracks. Minor masonry material missing from arch downstream. Poor access to trash screen upstream. Trash screen likely to be undersized. Outfall directly downstream. Well vegetated banks. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris. **Quick Win:** New appropriately designed trash screen, increase capacity.

31 – Drumrossie Street Bridge B992 (Refer to Figure 3-1)	
 ***Downstream view of bridge***	 ***Upstream view of watercourse***

32 – Masonry Wall B992 (Refer to Figure 3-1)	
 ***Upstream view***	**Type**: Flood Wall **Upstream grid ref: NJ 63306 28297** **Height (m):** 2 approx. **Material**: Masonry **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Wall downstream of Drumrossie Street Bridge. Vegetation growth between stonework. Minor lateral movement. Unlikely to prevent passage of water. **Risk of blockage:** Low **Maintenance:** None required **Quick Win:** N/A

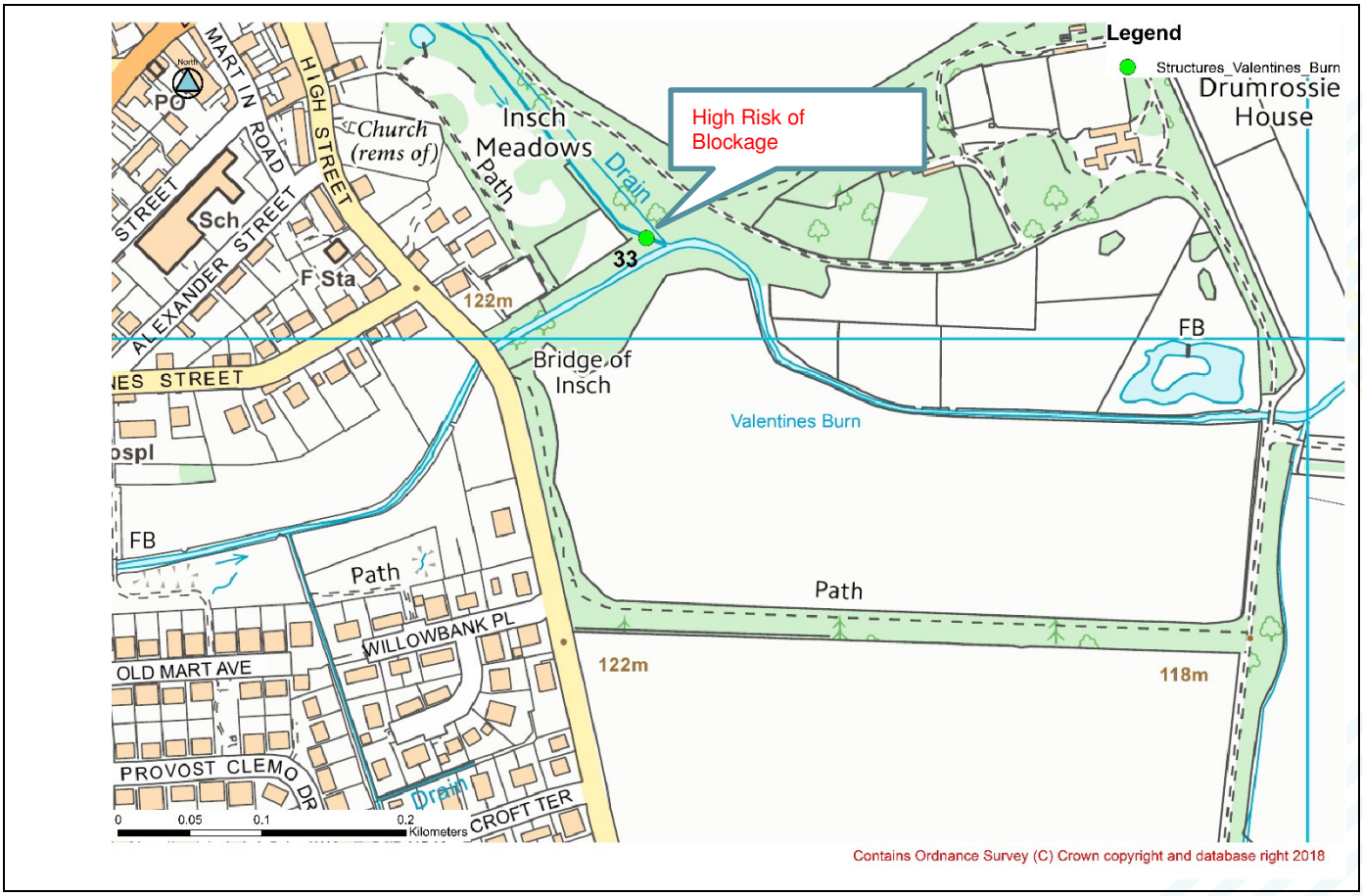

Figure 3-2: Plan showing the distribution of features identified in the asset condition assessment along the Valentines Burn

Table 3-2: List of structural assets shown in Figure 3-2		
Number	**Asset**	**Location**
33	Insch Meadows Culvert	Insch Meadows

33– Insch Meadows Culvert (Refer to Figure 3-2)	
 ***Upstream view***	**Type**: Twin bore Culvert **Upstream grid ref: NJ 63540 28070** **Diameter:** 0.2 **Length (m):** 1 approximately **Material**: Corrugated HDPE **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Pipe downstream of culvert. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A
 ***Downstream view***	 ***Upstream view of watercourse***

4 Temple Stripe

Assets are listed below, with numbering referenced in Figure 4.1.

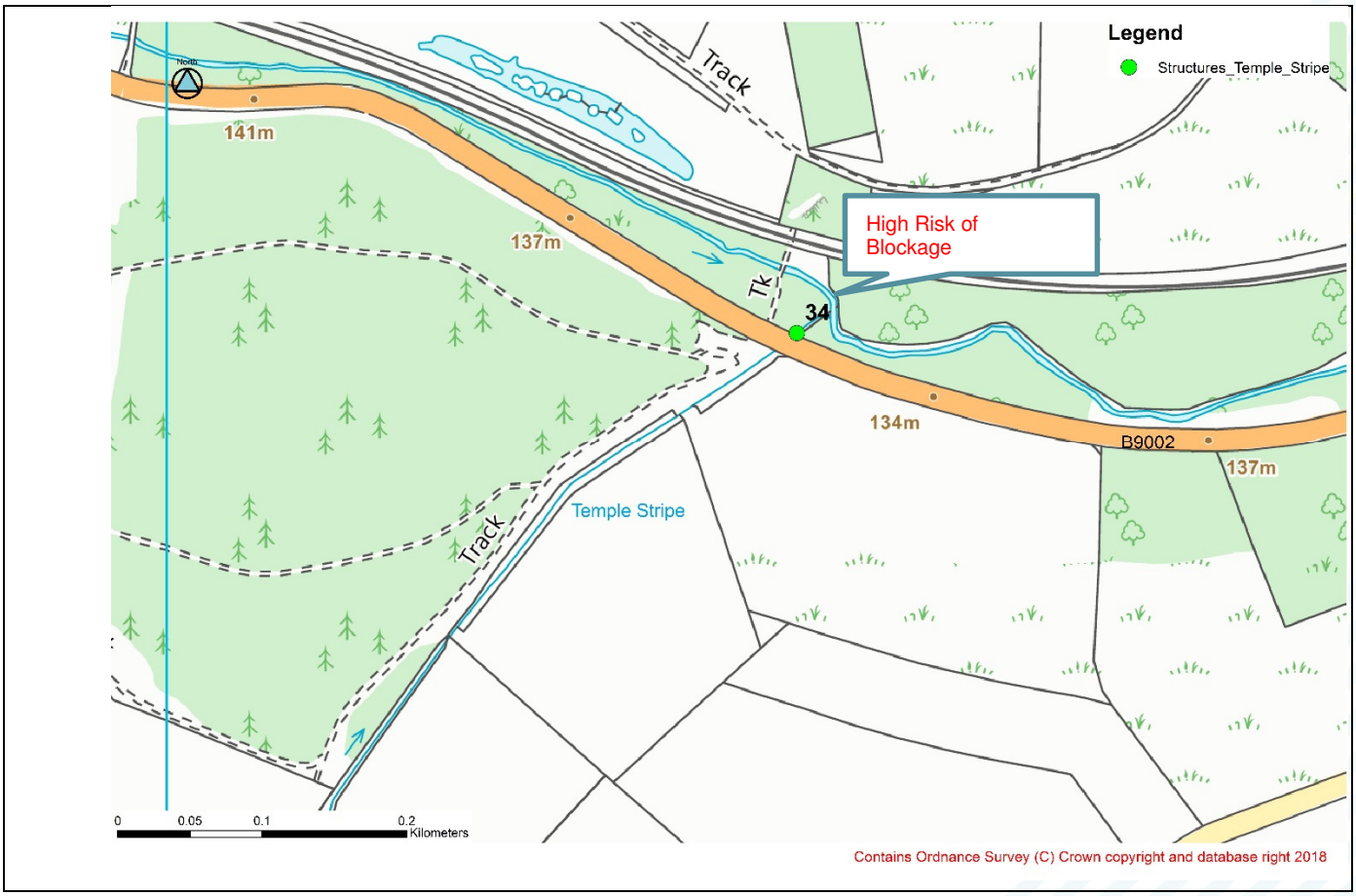

Figure 4-1: Plan showing the distribution of features identified in the asset condition assessment along the Temple Stripe

Table 4-1: List of structural assets shown in Figure 4-1		
Number	**Asset**	**Location**
34	Culvert (Outfall) B9002	B9002

34- Culvert B9002 (Refer to Figure 4-1)	
 ***Upstream view***	**Type**: Culvert and Outfall **Upstream grid ref: NJ 61430 27559** **Span (m):** 1 approx. **Material**: Concrete **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Outfall pipe directly upstream of culvert. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A
 ***Downstream view of watercourse***	 **Upstream view of watercourse**

5 Mill of Rothney

Assets are listed below from upstream to downstream with numbering referenced in Figure 5-1.

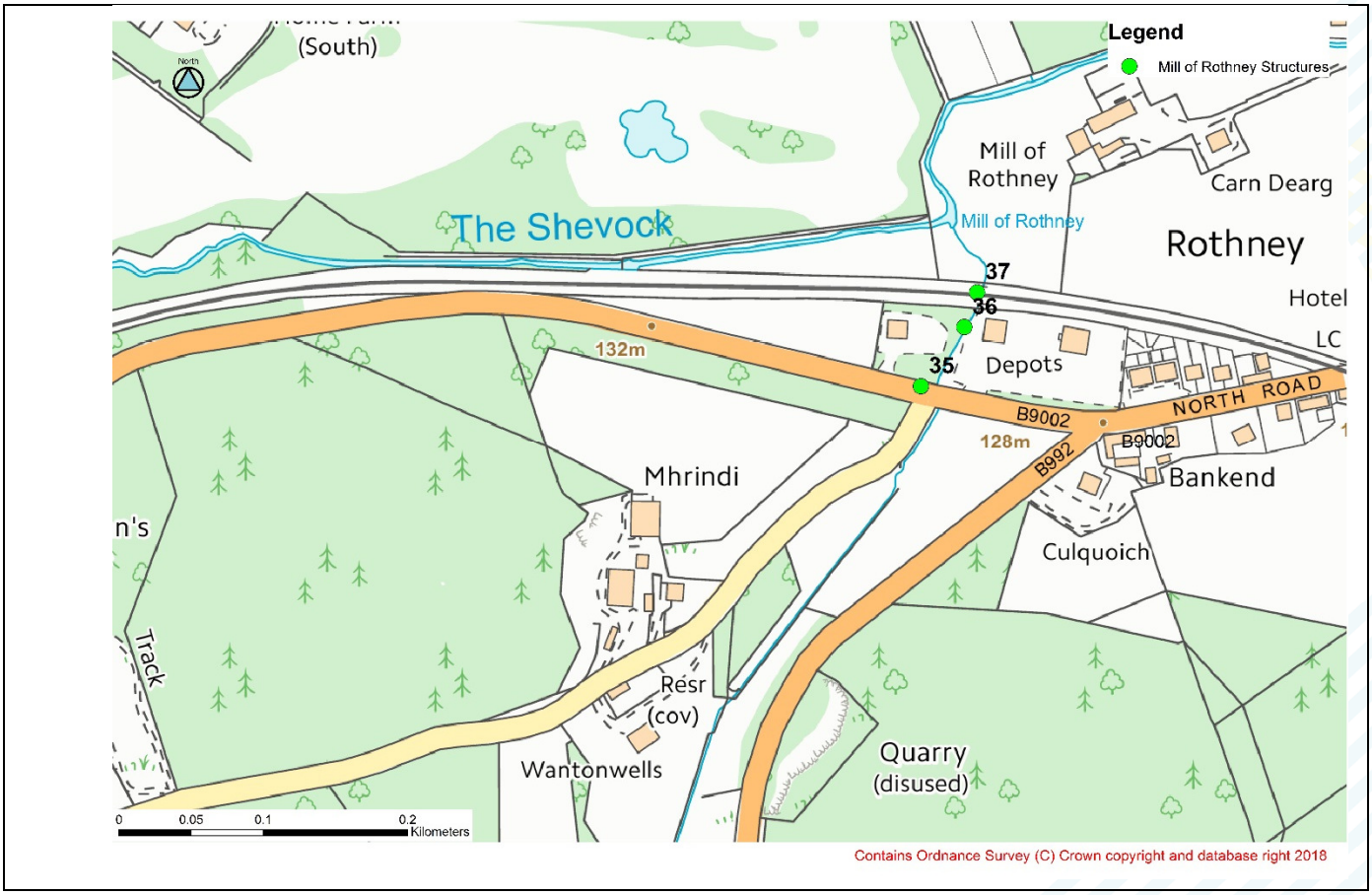

Figure 5-1: Plan showing the distribution of features identified in the asset condition assessment along the Mill of Rothney

Table 5-1: List of structural assets shown in Figure 5-1

Number	Asset	Location
35	Culvert B9002	B9002
36	Pipe	Rothney
37	Railway Bridge	Rothney

35 - Culvert B9002	
 ***Downstream view***	**Type**: Masonry Culvert **Upstream grid ref: NJ 62586 27607** **Diameter (m):** 1 approx. **Material**: Masonry **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Minor cracks of arch. Minor vegetation growth between blocks. High vegetation growth of left bank downstream. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** Remove excess vegetation downstream.
 ***Downstream view***	 ***Upstream side of culvert***

36 - Pipe downstream of the Rothney Railway Bridge (Refer to Figure 5-1)	
 ***Upstream view of pipe***	**Type**: Pipe **Upstream grid ref: NJ 62616 27658** **Material**: Steel **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Localised surface corrosion. **Risk of blockage:** Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

37 – Railway Bridge (Refer to Figure 5-1)	
 ***Downstream view of bridge***	**Type**: Single Span Bridge **Upstream grid ref: NJ 62625 27682** **Span (m):** Unknown **Material**: Concrete / Masonry **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Abutments show minor cracks. **Risk of blockage**: Moderate **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A
 ***Downstream view of abutments***	 ***Downstream view of watercourse***

6 Valentines Burn Field Drain

Assets are listed below from upstream to downstream with numbering referenced in Figure 6-1.

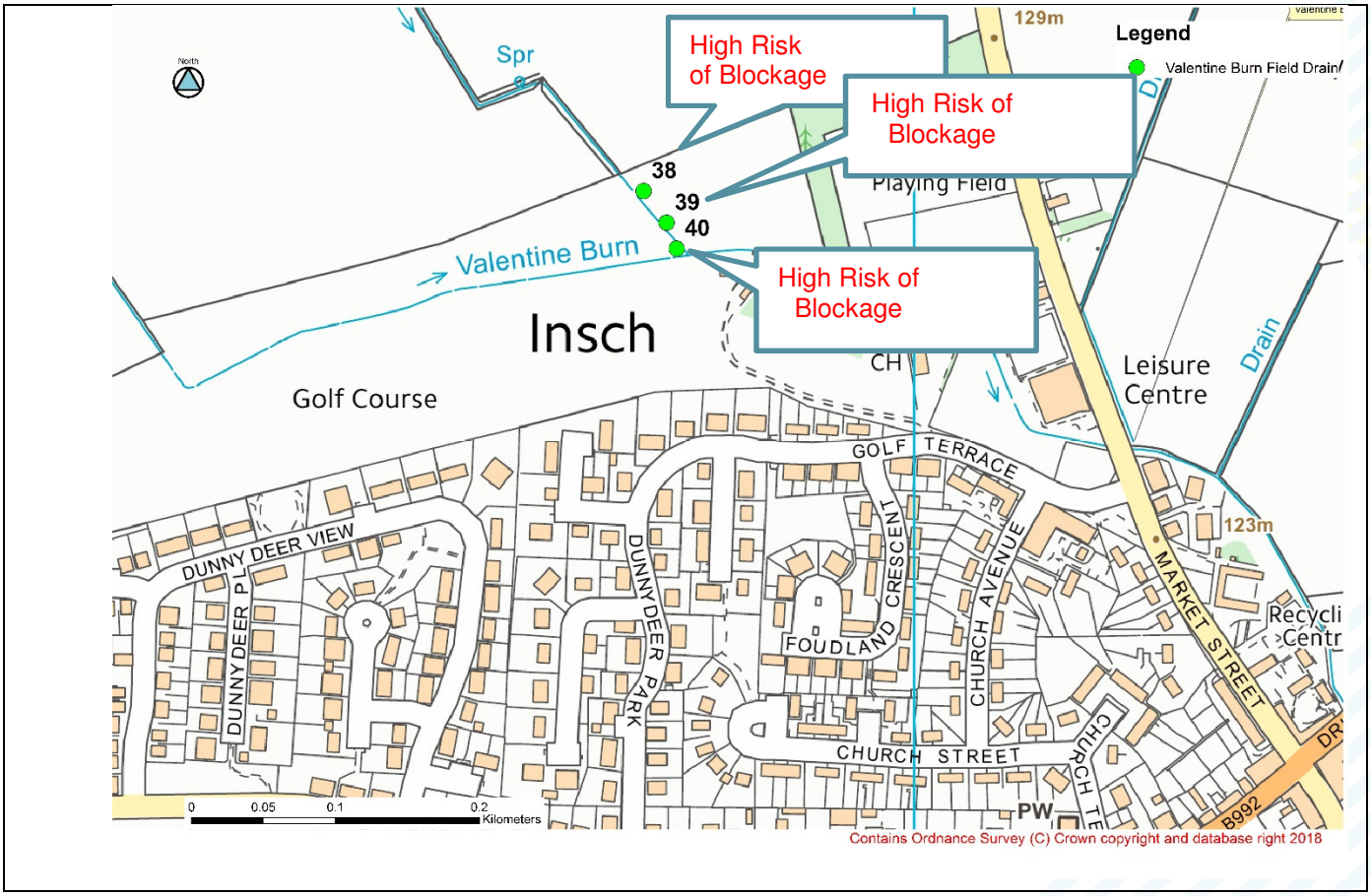

Figure 6-1: Plan showing the distribution of features identified in the asset condition assessment along unnamed tributary of the Valentines Burn

Table 6-1: List of structural assets shown in Figure 6-1		
Number	**Asset**	**Location**
38	Culvert	Golf Course
39	Footbridge	Golf Course
40	Footbridge	Golf Course

38 - Culvert (Refer to Figure 6-1)	
 ***Upstream view***	**Type**: Circular Culvert **Upstream grid ref: NJ 62812 28661** **Diameter (m):** 0.3 approx. **Material**: Masonry / Concrete **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: Stonework missing. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A
 ***Upstream view of watercourse***	 ***Downstream view of watercourse***

39 – Golf Course Pedestrian Bridge (Refer to Figure 6-1)	
 ***Upstream view***	**Type**: Footbridge **Upstream grid ref: NJ 62828 28639** **Span (m):** 1 approx. **Material**: Concrete **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: Minor spalling. No Handrail. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris. **Quick Win:** N/A

40 – Golf Course Pedestrian Bridge (Refer to Figure 6-1)	
 ***Upstream view***	**Type**: Footbridge **Upstream grid ref: NJ 62835 28621** **Span (m):** 1 approx. **Material**: Masonry **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: Moss growth on abutments and deck. Minor spalling of deck. No Handrail. Narrow dangerous to use. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris **Quick Win:** N/A

7 Newton of Rothney

Assets are listed below with numbering referenced in Table 7-1 and Figure 7-1.

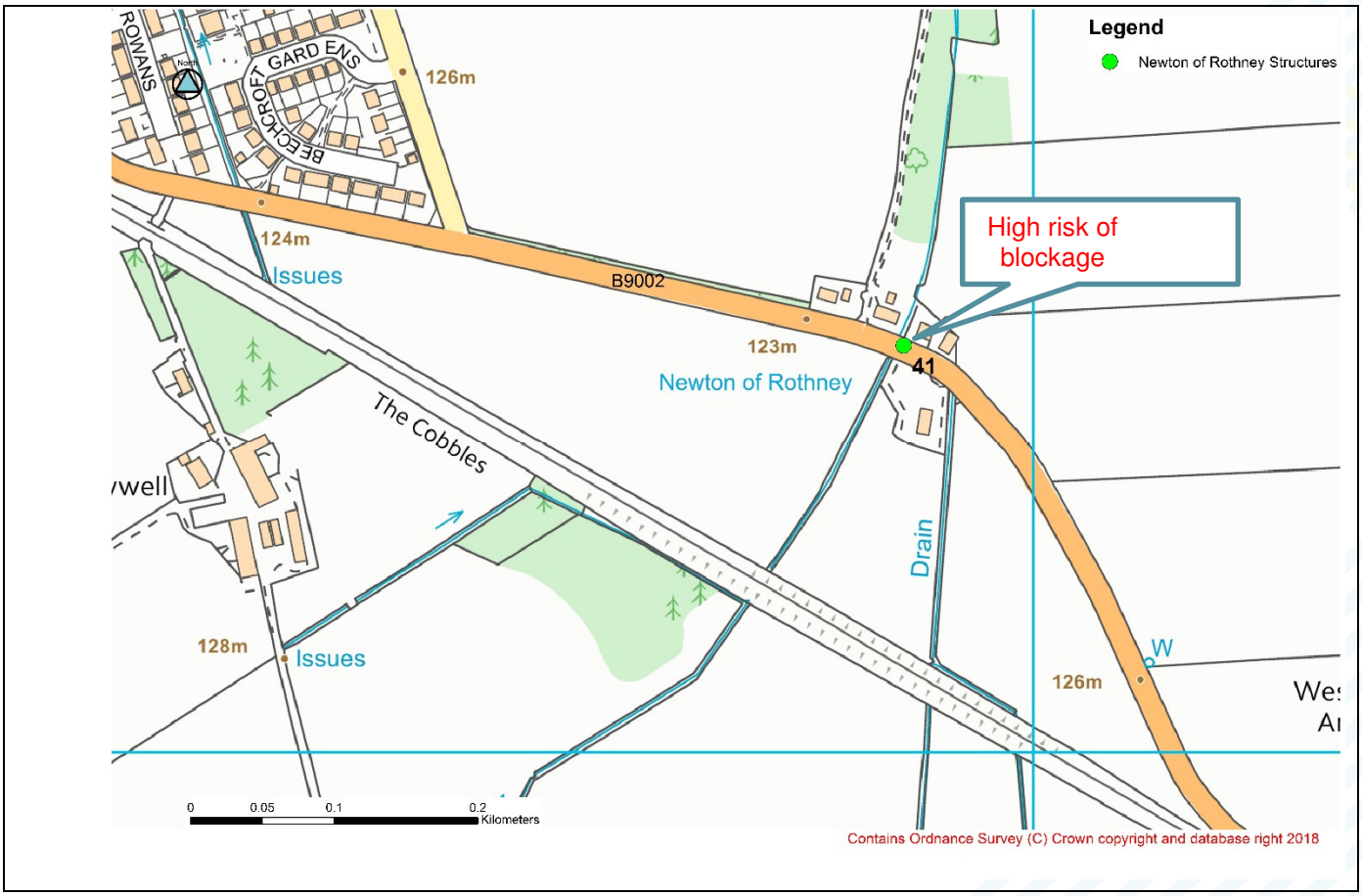

Figure 7-1: Plan showing the features identified in the asset condition assessment along the Newton of Rothney

Table 7-1: List of structural assets shown in Figure 7-1		
Number	**Asset**	**Location**
41	South Road Culvert B9002	B9002 (South) Road

41– South Road Culvert B9002 (Refer to Figure 7-1)	
 ***Downstream view***	**Type**: Simple Culvert **Upstream grid ref: NJ 63910 27283** **Material**: Masonry **Condition**: Grade 3 (Fair) **Part of FPS:** No **Comments**: Minor cracks. Water stains upstream. High and stiff vegetation growth upstream. Debris downstream. **Risk of blockage:** High **Maintenance:** Keep watercourse free of debris. **Quick Win**: Remove excess vegetation and debris, investigate capacity.
 ***Upstream view***	 ***Downstream view of watercourse***

8 Shevock Burn Field Drain

A possible drainage of the Shevock was recorded in approximately 80m east of the Old Mart Bridge. Assets are listed below with numbering referenced in Table 8-1 and Figure 8-1.

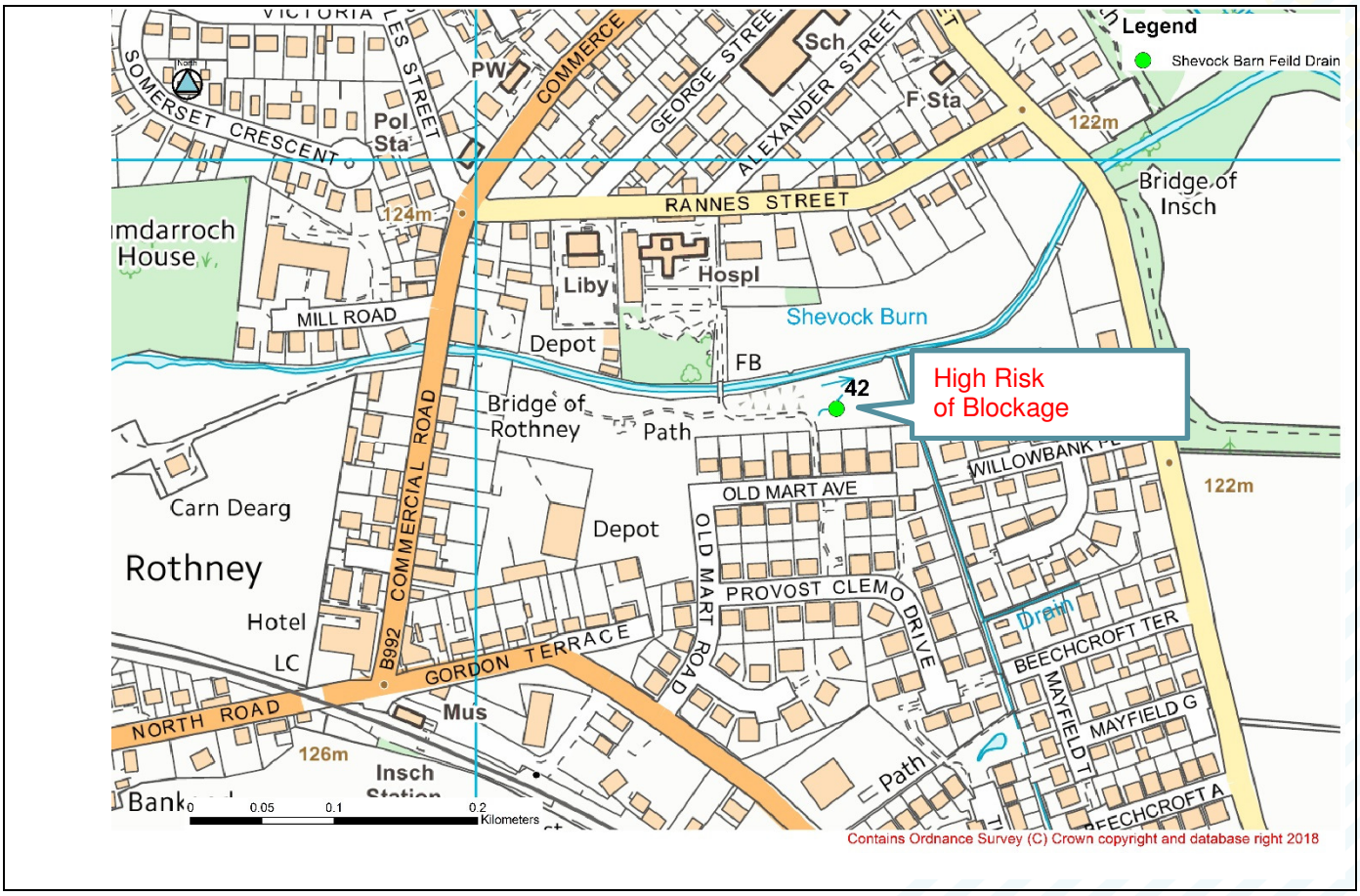

Figure 8-1: Plan showing the features identified in the asset condition assessment on the Shevock Burn Field Drain

Table 8-1: List of structural assets shown in Figure 8-1		
Number	**Asset**	**Location**
42	Old Mart Culvert	Old Mart

42 – Old Mart Culvert (Refer to Figure 8-1)	
 ***Inlet pipe and headwall with bar screen (Sinks)***	**Type**: Simple Culvert and Trash Screen **Upstream grid ref: NJ 63251 27827** **Diameter:** 0.4 **Material**: Concrete **Condition**: Grade 2 (Good) **Part of FPS:** No **Comments**: Spalling of concrete. Debris upstream and downstream. Culvert partially blocked downstream. Screen fixing sound. **Risk of blockage:** High **Maintenance:** Keep watercourse free of trash and debris. **Quick Win**: Consider removing sediment
 ***Culvert outlet with screen***	 ***Downstream view of watercourse***

9 Property Level Protection

Property Level Protection was recorded in residential properties on Old Mart Avenue and Mill Road. Figure 9-1 and Figure 9-2 show the properties with PLP. The survey only identifies externally visible measures. Internal measures such as watertight doors, non-return valves etc. have not been identified.

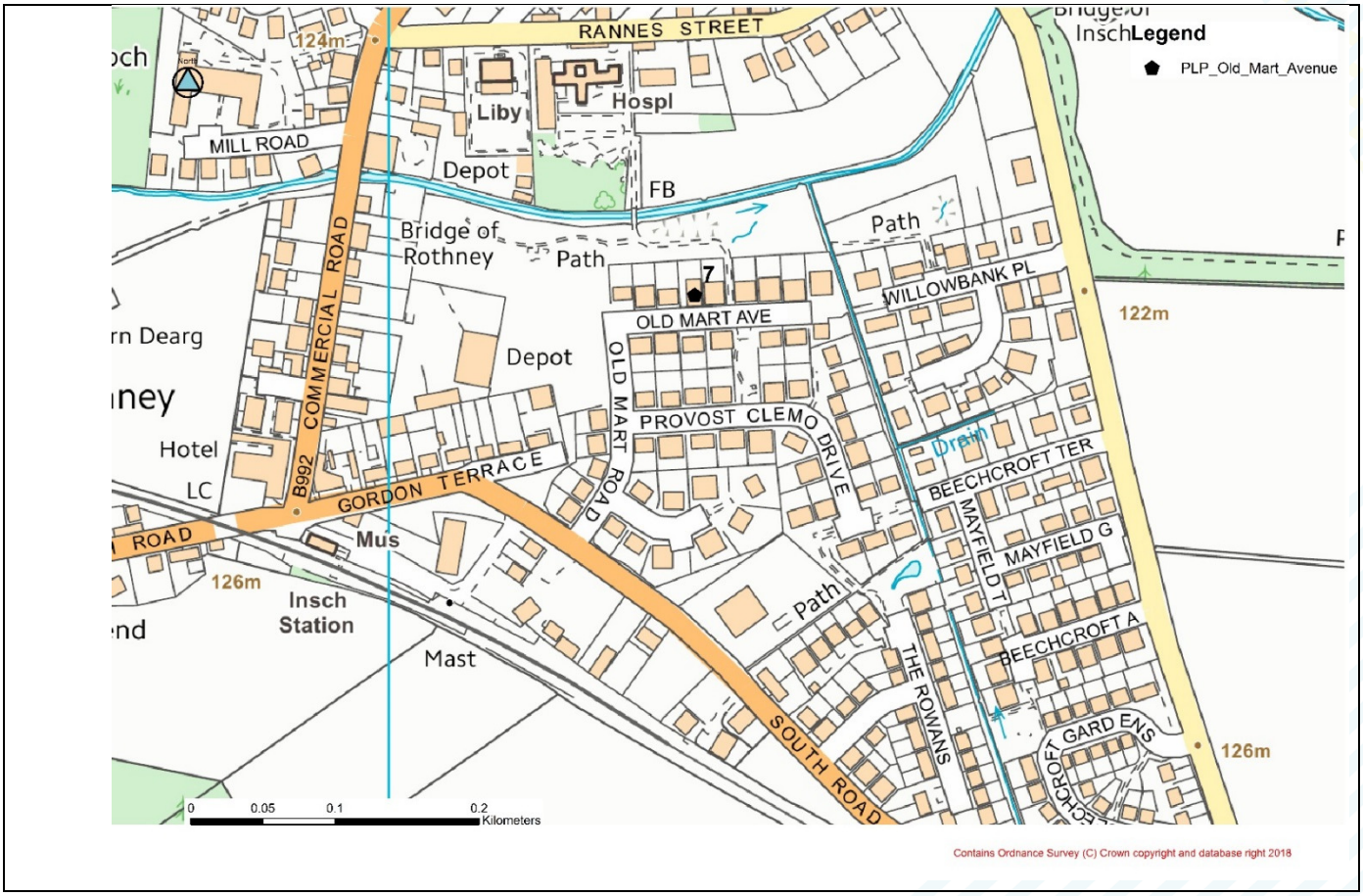

Figure 9-1: Plan showing the residential properties with PLP and their house numbers on Old Mart Avenue

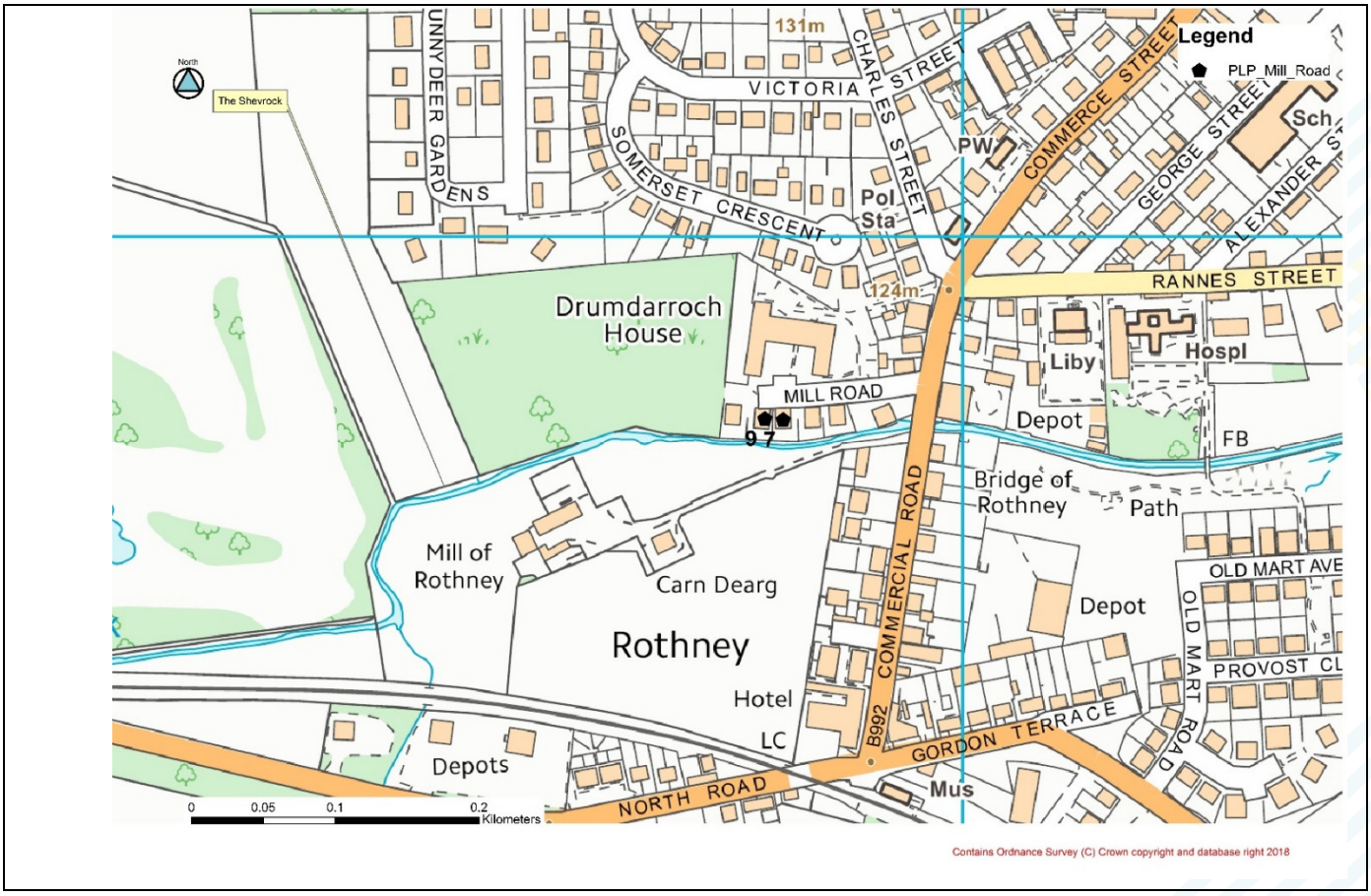

Figure 9-2: Plan showing the residential properties with PLP and their house numbers on Mill Road

All properties have used airbrick covers as a measure to mitigate flood risk. Figure 9-3, Figure 9-4 and Figure 9-5 show the PLP products used in the residential properties shown above.

Figure 9-3: Property Level Protection of 7 Old Mart Avenue

Figure 9-4: Property Level Protection of 7 Mill Road

Figure 9-5: Property Level Protection of 9 Mill Road

Appendices

A Complete list of structural assets

A.1 Shevock Burn

Table A-1 – Structural assets along the Shevock Burn

Number	Asset	Location	Condition
1	ANI1 293/111 Railway Bridge	Dunnideer	Grade 2
2	Masonry Bridge	Dunnideer	Grade 3
3	ANI1 293/109 Railway Bridge	Unnamed Road	Grade 2
4	Redundant Structures	Unnamed Road	N/A
5	Retaining Wall	Unnamed Road	Grade 3
6	Bridge of Rothney	B992 Commercial Road	Grade 3
7	Old Mart Footbridge	Old Mart	Grade 2
8	Flood Wall	High Street	Grade 3
9	Bridge of Insch	High Street	Grade 2
10	Gabion baskets	Insch Meadows	Grade 2
11	Retaining Wall	Insch Meadows	Grade 2 High Risk of Blockage
12	Insch Meadows Pedestrian Bridge	Insch Meadows	Grade 2
13	Drumrossie House Bridge	Drumrossie House	Grade 4
14	Mains of Rothney Bridge	Mains of Rothney	Grade 4 High Risk of Blockage
15	Vehicular Bridge	Ardoyne	Grade 2

A.2 Valentines Burn

Table A-2 – Structural assets along the Valentines Burn			
Number	**Asset**	**Location**	**Condition**
16	Footbridge	Golf Course	Grade 2 High Risk of Blockage
17	Footbridge	Golf Course	Grade 3
18	Footbridge	Golf Course	Grade 2
19	Footbridge	Golf Course	Grade 3
20	Footbridge	Golf Course	Grade 3
21	Weir	Golf Course	Grade 2
22	Footbridge	Golf Course	Grade 2
23	Footbridge	Golf Course	Grade 3
24	Footbridge	Golf Course	Grade 3
25	Culvert	Golf Course	Grade 2 High Risk of Blockage
26	Insch Golf Centenary Bridge	Golf Course	Grade 1
27	Footbridge	Golf Course	Grade 2
28	Footbridge	Golf Course	Grade 2
29	Bennachie Bridge	Market Street	Grade 2 High Risk of Blockage
30	Wall	Market Street	Grade 2
31	Drumrossie Street Bridge	Drumrossie Street	Grade 2 High Risk of Blockage
32	Wall	Drumrossie Street	Grade 2
33	Insch Meadows Culvert	Insch Meadows	Grade 2 High Risk of Blockage

A.3 Temple Stripe

Table A-3 – Structural assets along the River Don Old Canal			
Number	**Asset**	**Location**	**Condition**
34	Culvert (Outfall)	B9002	Grade 2

A.4 Mill of Rothney

Table A-3 – Structural assets along the River Don Old Canal			
Number	**Asset**	**Location**	**Condition**
35	Culvert	B9002	Grade 2
36	Pipe	Rothney	Grade 2

Table A-3 – Structural assets along the River Don Old Canal			
37	Railway Bridge	Rothney	Grade 2

A.5 Valentines Burn Field Drain

Table A-3 – Structural assets along the River Don Old Canal			
Number	**Asset**	**Location**	**Condition**
38	Culvert	Golf Course	Grade 3 High Risk of Blockage
39	Footbridge	Golf Course	Grade 3 High Risk of Blockage
40	Footbridge	Golf Course	Grade 2 High Risk of Blockage

A.6 Newton of Rothney

Table A-3 – Structural assets along the River Don Old Canal			
Number	**Asset**	**Location**	**Condition**
41	South Road Culvert	B9002 (South) Road	Grade 3 High Risk of Blockage

A.7 Shevock Burn Field Drain

Table A-3 – Structural assets along the River Don Old Canal			
Number	**Asset**	**Location**	**Condition**
42	Old Mart Culvert	Old Mart	Grade 2 High Risk of Blockage

Offices at

Coleshill
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Isle of Man
Limerick
Newcastle upon Tyne
Newport
Peterborough
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington

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