# Millbrae Bridge, Glasgow City: Archaeological Watching Brief

Data Structure Report



 ${}_{\text{issued}} \text{ 21}^{\text{st}} \text{ July 2016}$  on behalf of Scottish Water Specialist Services



### Quality Assurance

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Signed .....21st July 2016.....

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# Quality Assurance Data

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Commissioning Scottish Water Specialist Services

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Event Type Watching Brief

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# **Contents**

Introduction	3
Historical and Archaeological Background	3
Project Works	3
Findings	5
Discussion	5
Recommendations	6
Conclusion	10
Acknowledgements	10
References	10
Appendix 1: Registers	11
Appendix 2: Discovery & Excavation in Scotland	16
Contact Details	17

#### Introduction

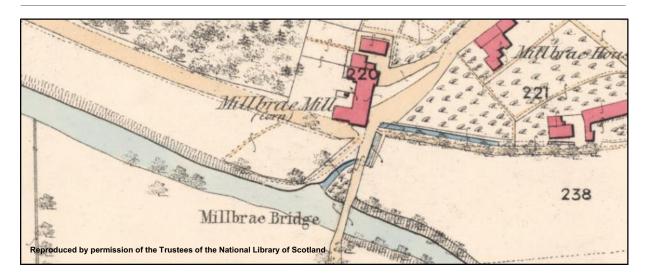
- 1. This Data Structure Report has been prepared on behalf of Scottish Water Specialist Services, to report on archaeological works undertaken in support of construction work on land adjacent to Millbrae Bridge, Cathcart. These archaeological works were designed to mitigate any adverse impact on the archaeological remains within the development area from the work.
- 2. Planning consent for the Tantallon Road CSO Outfall has been granted by Glasgow City Council (16/00722/DC) subject to an appended condition for an archaeological watching brief. West of Scotland Archaeology Service, who advises Glasgow City Council on archaeology matters, has provided guidance on the structure of archaeological works required.
- 3. Rathmell Archaeology Limited has been appointed by to undertake the development and implementation of archaeological mitigation for the work. This Archaeological Method Statement (Matthews 2016) provides the detail of the works (monitoring, exclusion, excavation, post-excavation analyses and publication) for the defined ground breaking works.
- 4. The archaeological works were designed to mitigate any adverse impact on any archaeological remains within the development area and were carried from the  $22^{nd}$  June to the  $14^{th}$  of July 2016.

### Historical and Archaeological Background

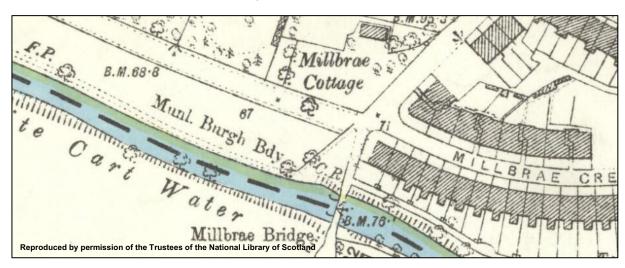
- 5. The proposed development area is located on the N bank of White Cart Water, to the immediate west of Millbrae Bridge that carries Langside Drive over the river. The works comprise a series of manholes, a Combined Sewer Overflow (CSO) chamber, a new outfall headwall and connecting pipes (Figure 2).
- 6. In the mid 19<sup>th</sup> century the ground to the immediate NE was dominated by Millbrae Mill (see Figure 1a). This industrial complex extended into the development area with the outfall of the lade, that provided water power, discharging into White Cart Water to the immediate west of the Millbrae Bridge. A track also fell down to the waterside adjacent to this lade outfall.
- 7. Industrial use of the areas appears to end in the mid to late 19<sup>th</sup> century, with the change to late 19<sup>th</sup> century residential expansion, shown through the construction of Millbrae Crescent (Figure 1b). It is notable at this time that the open lade had been covered or infilled through the broader garden to the W of the end terrace on the southern side of Millbrae Crescent clearly respected the line of the lade.
- 8. By the early 20<sup>th</sup> century (Figure 1c) the historic, narrow bridge at Millbrae had been replaced by a newer, broader bridge. The alignment and placement of this new structure clearly shows that it was built to the immediate west of the historic bridge. This presumably allowed the historic bridge to be in use until the replacement bridge was completed, that in turn enabled the downtaking of the historic bridge. This migration W of the bridge means that the majority of the alignment of the lade to the W of the historic road (Figure 1a) now lies under the modern carriageway.

# **Project Works**

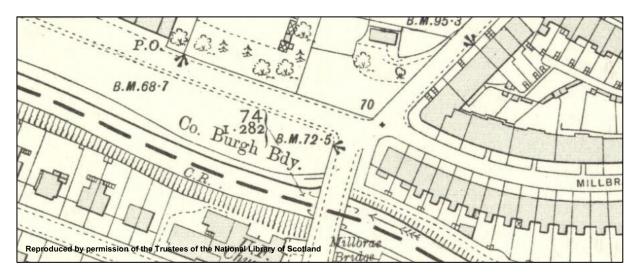
- All works were conducted in accordance with the agreed Method Statement (Matthews 2016) with those elements of the construction managed through the conditioned planning consent fully monitored.
- 10. For these elements recommended for monitoring if appropriate within the permitted development portion of the scheme, only the open excavation for the new CSO was monitored. The line of the pipe running E from the CSO is being delivered by directional drilling.
- 11. While on-site, the archaeologist took the opportunity to observe any additional open trenches to ensure a sound sample of the area.



A – 1863 1<sup>st</sup> edition Ordnance Survey



B – 1896 2<sup>ndt</sup> edition Ordnance Survey



C – 1915 3<sup>rd</sup> edition Ordnance Survey

Figure 1: Extract from historic Ordnance Survey maps

### **Findings**

- 12. Three main areas were monitored during the archaeological watching brief. The first was the outfall trench (Figures 2 and 3b) which was located on the northern bank of White Cart Water and to the immediate WNW of Millbrae Bridge. The trench measured 4m from SSW to NNE (bottom of riverbank to top of riverbank), 2m from WNW to ESE and had a depth range of 0.75m at the bottom of the river bank and 3m at the top of the riverbank. The upper layer within the outfall trench, (010), comprised of moderately compacted, mid to dark grey brown silty sand with occasional small stone and pebble inclusions. The thickness range of the deposit was between 0.1-0.15m. Beneath this deposit was a thin layer of metal and plastic meshing, (011).
- 13. Beneath the meshing layer the riverbank was made up of a series of four deposits, (012), (013), (014) and (015). The uppermost deposit, (012), comprised of moderately compacted, light to mid grey brown sand with occasional small stone and pebble inclusions. Thickness of the deposit was 0.4m. Deposit (013) comprised of moderately compacted, pale yellow sand with no inclusions. The thickness of the deposit was between 0.5-0.7m. Deposit (014) comprised of moderately compacted, mid yellow-brown sand with occasional gravel and pebble inclusions. The thickness of the deposit was between 0.8-1.2m. The lowest deposit, (015), comprised of moderately compacted, mid grey-brown sand with moderate gravel, pebble and small stone inclusions. The deposit was excavated to a depth of between 0.75-1.2m.
- The second area monitored was a pipe trench (Figures 2 and 4a) which mainly ran in a 14. WNW to ESE direction (with an off shoot to the SSW at the WNW end of the trench). Within the trench three anthropic surfaces were identified beneath the current road surface, (001) and (002). The first surface, (003), identified beneath the current road comprised of moderately compacted, grey yellow cobble stones (0.45 x 0.23m in size) with mid grey sand in between the stones. The thickness of the road surface was 0.2m. Underneath this road surface was a deposit, (004), which comprised of moderately compacted, mid grey sand and gravel with small pebble inclusions. The thickness of this deposit was 0.1m. The second surface, (005), comprised of moderately compacted, dark grey/black mix of gravel and tar. The thickness of the deposit was 0.04m. Underneath this surface was a deposit, (006), which comprised of moderately compacted, mid grey silty sand with very frequent (80%) inclusions of medium sized, irregular shaped stone (mainly at the bottom of the deposit) and smaller stones and pebbles (nearer the top of the deposit). The thickness of the deposit was 0.2m. The third surface, (007), comprised of moderately compacted, light grey-yellow cobble stones (0.4 x 0.25m in size) with mid grey silty sand in between the stones. The thickness of the deposit was 0.23m. Underneath this surface was another deposit, (008), which comprised of moderately compacted mid grey sand with no inclusions. The thickness of the deposit was 0.07m. The final deposit, (009), identified within the pipe trench comprised of moderately compacted, mid orange-brown clayey silt with occasional small stone and pebble inclusions. The deposit was excavated to a depth of 0.04m.
- 15. The third area to be monitored was the main manhole (Figures 2 and 4b) which was located in between the outfall trench and the pipe trench within a mixed concrete and tarmac yard area (018). The main manhole trench was circular shaped with a diameter of 5m and was excavated to a depth of 1.2m. Underneath the yard surface was deposit (019) which comprised of moderately compacted, mid grey sand with frequent moderate sized stone and CBM inclusions. The thickness of the deposit was 0.2m. The final deposit identified, (020), comprised of loosely compacted, mixed yellow/grey sandstone and mid grey silty sand with very frequent (80%) CBM inclusions. The deposit was excavated to a depth of between 0.8-0.9m.
- 16. No other archaeological features were identified within the development area.

#### Discussion

17. All of the deposits identified within the outfall trench were anthropic in nature rather than a naturally occurring riverbank (Figure 3b). Deposits (010), (012) and (013) and the metal

and plastic meshing, (011), all abutted the modern wall, (016), which was associated with the flats located in between the river and Tantallon Road. The meshing, which lay under the topsoil, seems to have been a recent attempt to stop erosion along the river bank. The lowest deposits within the outfall trench, (014) and (015), abutted metal sheeting, (017), which lay, vertically, beneath the modern wall, (016). This sheeting seems to have acted as a retaining support along the northern riverbank which stopped erosion or subsidence to the ground directly behind the riverbank.

- The three anthropic surfaces (Figure 4a) identified within the pipe trench were older 18. nineteenth or twentieth century roads underlying the present day road, (001) and (002). The uppermost road, (003), consisted of a cobbled surface overlying a bedding layer, (004). This road may have been constructed in the late nineteenth or early twentieth century, possibly at the same time as Millbrae Bridge was widened as depicted in the 3rd edition Ordnance Survey (Figure 1c). The middle road, (006), consisted a thick packed and graded stone road surface which was sealed by a layer of tar (005). This road was possibly part of an early tarmacadam road, named after an early nineteenth century Scottish engineer John Louden McAdam, which may relate to the road depicted in the 2nd edition Ordnance Survey map (Figure 1b). This roads construction may have occurred at the same time as the demolition of Millbrae Mill, and filling in of its associated lade, and the construction of the terraced housing at Millbrae Crescent at the end of the nineteenth century. The lowest road identified, (007), consisted of another cobbled surface under which lay a bedding layer, (008). The road surface seems to relate to the road depicted within the 1st edition Ordnance Survey map (Figure 1a) which was associated with the earlier narrow bridge crossing White Cart Water and Millbrae Mill. The lowest road and its associated bedding overlay what appeared to be the naturally occurring subsoil, (009).
- 19. The layers identified under the yard surface within the main manhole trench consisted of a bedding layer, (019), for the mixed concrete and tarmac yard, (018), and underneath that was a large mixed demolition layer, (020), which was not fully excavated. It was unclear from the material within this demolition layer if it represented twentieth century structures demolished along Tantallon Road and then spread out to create a level surface close to the riverbank or material brought in from another location to serve the same purpose.

#### Recommendations

- 20. This Data Structure Report covers archaeological works undertaken in support of construction work on land at Millbrae Bridge, Glasgow both controlled by planning consent (Planning Ref: 16/00722/DC) and permitted development.
- 21. The archaeological monitoring works at the outfall trench (covered by the planning consent) cut through the riverbank uncovered anthropic deposits most likely relating to the reconstruction of the riverbank at some point during the twentieth century.
- 22. No significant archaeological remains were identified within this element of the development area, it is recommended that no further work should be carried out. The appropriateness and acceptability of our recommendations rest with Glasgow City Council and their advisors, the West of Scotland Archaeological Service.
- 23. Within the pipe trench excavated along Tantallon Road the remains of three nineteenth or twentieth century road surfaces were identified and a possible twentieth century demolition layer was identified underneath a present day yard surface located between Tantallon Road and the outfall trench.
- 24. No significant archaeological remains were identified within this element of the development area, it is recommended that no further work should be carried out. The appropriateness and acceptability of our recommendations rest with Scottish Water.

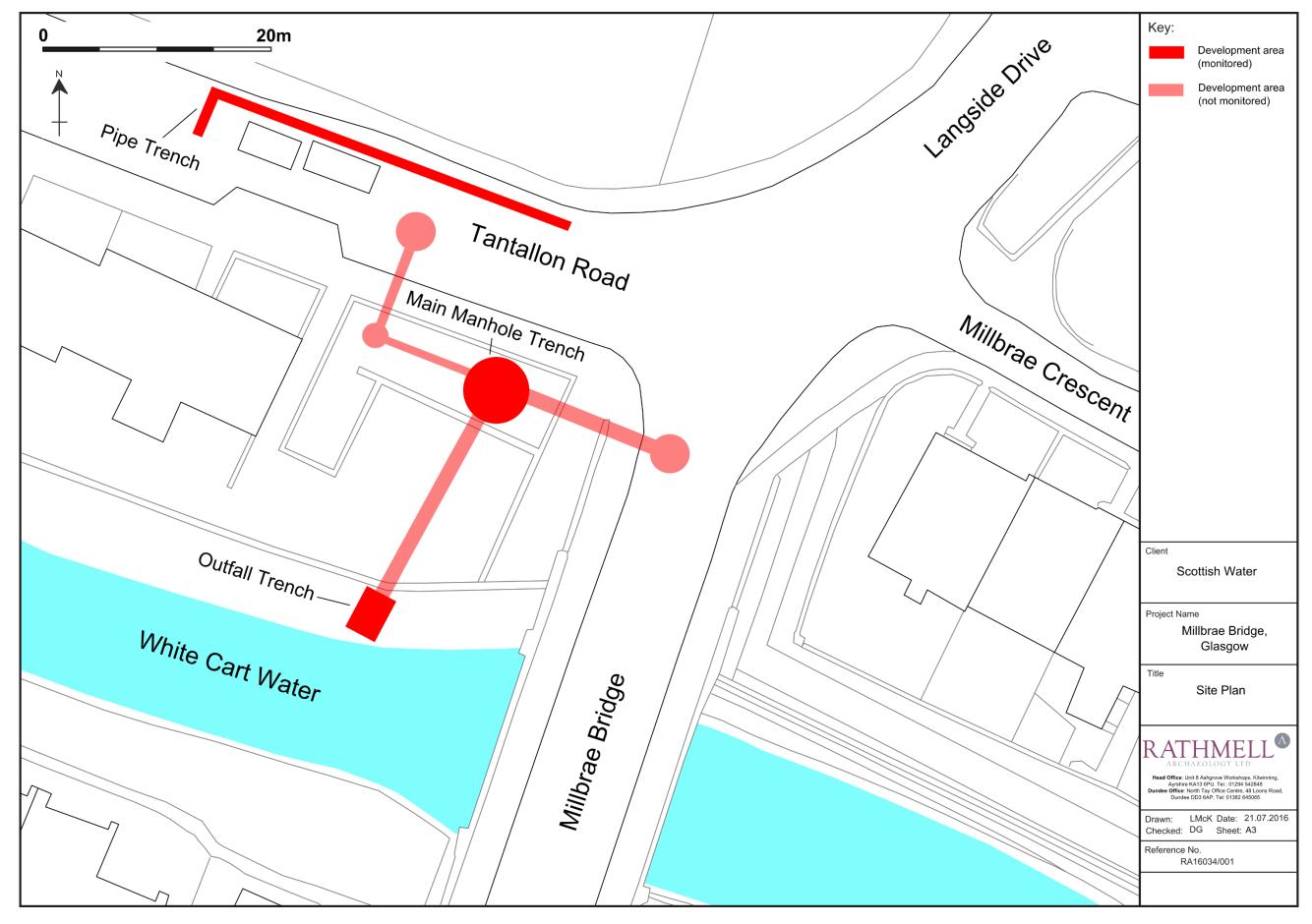


Figure 2: Site Plan.



Figure 3a: Pre excavation view of the Outfall Trench area. From W



Figure 3b: Post excavation view of Outfall Trench, showing context numbers. From WSW

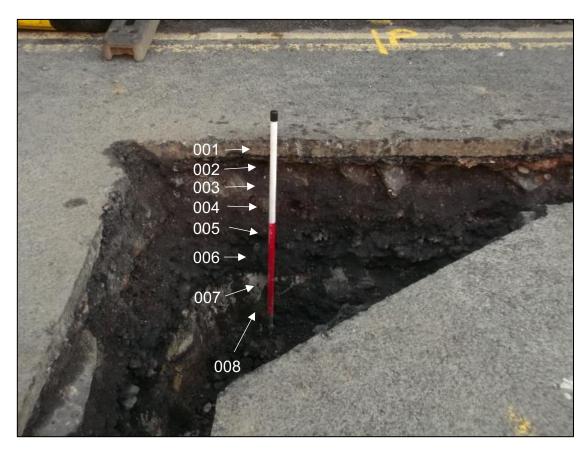


Figure 4a: Post excavation view of Pipe trench showing context numbers. From SSW



Figure 4b: Post excavation view of Main Manhole Trench showing context numbers. From NNE

#### Conclusion

- 25. Archaeological monitoring work was carried out for Scottish Water Specialist Services, in support of construction work on land at Millbrae Bridge, Glasgow (Planning Ref: 16/00722/DC). These archaeological works are designed to mitigate any adverse impact on the archaeological remains within the development area.
- 26. The works at Millbrae Bridge consisted of an archaeological watching brief during the construction of the Tantallon Road CSO Outfall at White Cart Water and targeted monitoring of associated pipes and manholes.
- 27. During the works the northern bank of the White Cart was shown to be anthropic, the result of twentieth century river management. The works along Tantallon Road revealed a number of older nineteenth and twentieth century road surfaces under the present day road and a twentieth century demolition layer underneath a yard between the road and the riverbank. No other significant archaeological features being identified.

### Acknowledgements

- 28. The author would like to thank the client Scottish Water Specialist Services and the site agent, David Wolfe, for the onsite contractor George Leslie Ltd for his support throughout the project and Douglas Gordon, Senior Archaeologist with Rathmell Archaeology Ltd for his input and editing.
- 29. This author would also like to thank Martin O'Hare from the West of Scotland Archaeology Service who has given guidance and direction throughout.

#### References

#### Documentary

Matthews, A. 2016, Millbrae Bridge, Glasgow City: Archaeological Mitigation, Method Statement.

#### Cartographic

Ordnance Survey, 1863, 6-inch, Renfrewshire. Sheet XIII

Ordnance Survey, 1896, 6-inch, Lanarkshire. Sheet X.NW

Ordnance Survey, 1915, 6-inch, Lanarkshire. Sheet X.NW

# Appendix 1: Registers

Within this appendix are all registers pertaining to works on-site during the watching brief:-

## Context Register

Context No.	Area/ Trench	Туре	Description	Interpretation
001	Pipe Trench	Deposit	Very compacted, dark grey/black sand/gravel/tar. Thickness of deposit was 0.08m	Modern road surface of Tantallon Road
002	Pipe Trench	Deposit	Moderately compacted, mid to dark grey sand and gravel. Thickness of the deposit was 0.24m	Bedding layer beneath modern road surface (001)
003	Pipe Trench	Deposit	Moderately compacted, grey yellow cobble stones (0.45 x 0.23m in size) with mid grey sand in between the stones. Thickness of the deposit was 0.2m	Late nineteenth or early twentieth century cobbled road surface
004	Pipe Trench	Deposit	Moderately compacted, mid grey sand and gravel with small pebble inclusions. Thickness of the deposit was 0.1m	Bedding layer beneath cobbled road surface (003)
005	Pipe Trench	Deposit	Moderately compacted, dark grey/black mix of gravel and tar. Thickness of the deposit was 0.04m	Tar road surface sealing possibly mid to late nineteenth century packed stone and gravel road. Possibly early Tar-macadam road?
006	Pipe Trench	Deposit	Moderately compacted, mid grey silty sand with very frequent (80%) inclusions of medium sized, irregular shaped stone (mainly at the bottom of the deposit) and smaller stones and pebbles (nearer the top of the deposit). Thickness of the deposit was 0.2m.	Packed and graded stone road surface which was sealed by a layer of tar (005). Possibly part of an early Tar-macadam road?
007	Pipe Trench	Deposit	Moderately compacted, light grey-yellow cobble stones (0.4 x 0.25m in size) with mid grey silty sand in between the stones. Thickness of the deposit was 0.23m.	Mid nineteenth century cobbled road surface. Possibly relates to the original (and narrower) Millbrae Bridge and the Millbrae Mill building when the road was known as Albert Road before being later changed to Tantallon Road.
008	Pipe Trench	Deposit	Moderately compacted mid grey sand with no inclusions. Thickness of the deposit was 0.07m	Bedding layer beneath cobbled road surface (007)
009	Pipe Trench	Deposit	Moderately compacted, mid orange-brown clayey silt with	Naturally occurring subsoil located within the

Context No.	Area/ Trench	Туре	Description	Interpretation
			occasional small stone and pebble inclusions. Deposit was excavated to a depth of 0.04m.	pipe trench running along the length of Tantallon Road.
010	Outfall trench	Deposit	Moderately compacted, mid to dark grey brown silty sand with occasional small stone and pebble inclusions. Thickness of the deposit was between 0.1-0.15m. Abuts wall (016)	Vegetation and topsoil on the northern bank of White Cart Water.
011	Outfall trench	Deposit	Metal and plastic meshing material. Overlies (012).	Meshing material underlies the topsoil (001). Purpose of the meshing appears to be for consolidating the river bank from flooding.
012	Outfall trench	Deposit	Moderately compacted, light to mid grey brown sand with occasional small stone and pebble inclusions. Thickness of the deposit was 0.4m. Abuts wall (016). Overlies (013).	Upper layer of the riverbank. Layer seems to be anthropic in nature being the upper part of a wholly reconstructed river bank. This reconstruction may have taken place at the same time as the construction of the block of flats, and their associated wall and yard, running along the southern side of Tantallon Road.
013	Outfall trench	Deposit	Moderately compacted, pale yellow sand with no inclusions. Thickness of the deposit was between 0.5-0.7m. Abuts wall (016). Overlies (014)	Mid layer of the riverbank. Layer seems to be anthropic in nature being part of a wholly reconstructed river bank. This reconstruction may have taken place at the same time as the construction of the block of flats, and their associated wall and yard, running along the southern side of Tantallon Road.
014	Outfall trench	Deposit	Moderately compacted, mid yellow-brown sand with occasional gravel and pebble inclusions. Thickness of the deposit was between 0.8-1.2m. Abuts metal sheeting (017). Overlies (015)	Mid layer of the riverbank. Layer seems to be anthropic in nature being part of a wholly reconstructed river bank. This reconstruction may have taken place at the same time as the construction of the block of flats, and their associated wall and yard, running along the southern side of Tantallon Road.
015	Outfall trench	Deposit	Moderately compacted, mid grey-brown sand with moderate gravel, pebble and small stone inclusions.	Lower layer of the riverbank. Layer seems to be anthropic in nature being part of a wholly

Context No.	Area/ Trench	Туре	Description	Interpretation
			Deposit was excavated to a depth of between 0.75-1.2m. Abuts metal sheeting (017).	reconstructed river bank. This reconstruction may have taken place at the same time as the construction of the block of flats, and their associated wall and yard, running along the southern side of Tantallon Road.
016	Outfall trench	Structure	Concrete block and rendered wall with metal railing set into the top of the wall. Wall measured 1.2m high (above ground level), 0.5 m below ground level at the outfall trench and 0.4m wide. Wall overlies a vertical standing line of metal sheeting (017).	Modern twentieth or twenty-first century wall running along the northern edge of White Cart Water.
017	Outfall trench	Structure	Metal sheeting driven vertically into the edge of the northern bank of White Cart Water. Full dimensions of the sheeting unknown as only a small part of it was exposed during the outfall trench excavation.	Metal sheeting acted as a retaining support for the northern bank of White Cart Water. Possibly twentieth century or later in date.
018	Main manhole trench	Deposit	Mixed concrete and tarmac surface located between wall (016) and Tantallon Road. The deposit was approximately 0.1m thick.	Modern twentieth or twenty-first century yard surface off Tantallon Road and associated with nearby modern flats.
019	Main manhole trench	Deposit	Moderately compacted, mid grey sand with frequent moderate sized stone and CBM inclusions. Thickness of the deposit was 0.2m.	Bedding material associated with the modern yard surface (018).
020	Main manhole trench	Deposit	Loosely compacted, mixed yellow/grey sandstone and mid grey silty sand with very frequent (80%) CBM inclusions. Deposit was excavated to a depth of between 0.8-0.9m.	Large demolition layer underlying the modern yard (018/019) off Tantallon Road

# Photographic Register

Image No.	Digital	Description	From	Date
01	DSCF0024	View of Millbrae Bridge	SSW	22/06/16

Image No.	Digital	Description	From	Date
02	DSCF0025	View of Millbrae Bridge	NNW	22/06/16
03	DSCF0026	View of the outfall area on White Cart Water	ENE	22/06/16
04	DSCF0027	View of the outfall area on White Cart Water	SE	22/06/16
05	DSCF0028	View of White Cart Water from the bridge	ESE	22/06/16
06	DSCF2103	Pre excavation view of the outfall trench	SE	13/07/16
07	DSCF2104	Works area closed off at Tantallon Road	SSW	13/07/16
08	DSCF2105	Vegetation removed from the outfall trench area	ESE	14/07/16
09	DSCF2106	Vegetation removed from the outfall trench area	E	14/07/16
10	DSCF2107	Vegetation removed from the outfall trench area	E	14/07/16
11	DSCF2108	WNW end of pipe trench on Tantallon Road shows possible road surface	SSW	14/07/16
12	DSCF2109	WNW end of pipe trench on Tantallon Road shows possible road surface	SSW	14/07/16
13	DSCF2110	Oblique view of the pipe trench on Tantallon Road shows road surfaces (at mid point)	W	14/07/16
14	DSCF2111	Oblique view of the pipe trench on Tantallon Road shows road surfaces (at mid point)	W	14/07/16
15	DSCF2112	Close up of road surface in the pipe trench at Tantallon Road	WSW	14/07/16
16	DSCF2113	Oblique view of the pipe trench on Tantallon Road shows road surfaces (at mid point)	ESE	14/07/16
17	DSCF2114	Close up of road surface in the pipe trench at Tantallon Road	WNW	14/07/16
18	DSCF2115	Close up of road surface in the pipe trench at Tantallon Road	SW	14/07/16
19	DSCF2116	View of pipe trench and works on Tantallon Road showing Millbrae Crescent in background	WNW	14/07/16

Image No.	Digital	Description	From	Date
20	DSCF2117	Mid excavation view of main manhole between outfall trench and pipe trench	NE	14/07/16
20	DSCFZ117	wild excavation view of main manifole between outlain trench and pipe trench	INE	14/07/10
21	DSCF2118	Working shot of the outfall trench	WSW	14/07/16
22	DSCF2119	Mid excavation view of the outfall trench	WSW	14/07/16
23	DSCF2120	Mid excavation view of the outfall trench	WSW	14/07/16
24	DSCF2121	Working shot of the outfall trench	WSW	14/07/16
25	DSCF2122	Working shot of the outfall trench	WSW	14/07/16
26	DSCF2123	Post excavation view of the outfall trench	WSW	14/07/16
27	DSCF2124	Shoring being placed within the outfall trench	WSW	14/07/16
28	DSCF2125	Shoring being placed within the outfall trench	WSW	14/07/16
29	DSCF2126	View of the base of the outfall trench	NNE	14/07/16
30	DSCF2127	View of the base of the outfall trench	NNE	14/07/16
31	DSCF2128	Post excavation view of the main manhole trench	NE	14/07/16

# Appendix 2: Discovery & Excavation in Scotland

LOCAL AUTHORITY:	Glasgow City
PROJECT TITLE/SITE NAME:	Millbrae Bridge
PROJECT CODE:	RA16034
PARISH:	Cathcart
NAME OF CONTRIBUTOR:	Liam McKinstry
NAME OF ORGANISATION:	Rathmell Archaeology Limited
TYPE(S) OF PROJECT:	Watching brief
NMRS NO(S):	None
SITE/MONUMENT TYPE(S):	None
SIGNIFICANT FINDS:	None
NGR (2 letters, 8 or 10 figures)	NS 57400 61140 (Centred)
START DATE (this season)	22 <sup>nd</sup> June 2016
END DATE (this season)	14 <sup>th</sup> July 2016
PREVIOUS WORK (incl. DES ref.)	None
MAIN (NARRATIVE) DESCRIPTION: (may include information from other fields)	Archaeological monitoring work was carried out for Scottish Water, in support of construction work on land at Millbrae Bridge, Glasgow (Planning Ref: 16/00722/DC). These archaeological works are designed to mitigate any adverse impact on the archaeological remains within the development area.
	The works at Millbrae Bridge consisted of an archaeological watching brief during the construction of the Tantallon Road CSO Outfall at White Cart Water and its associated pipe and manholes. During the works the northern bank of the White Cart was shown to be anthropic, the result of twentieth century river management. The works along Tantallon Road revealed a number of older nineteenth and twentieth century road surfaces under the present day road and a twentieth century demolition layer underneath a yard between the road and the riverbank. No other significant archaeological features being identified.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Scottish Water Specialist Services
ADDRESS OF MAIN CONTRIBUTOR:	Unit 8 Ashgrove Workshops, Kilwinning, Ayrshire KA13 6PU
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ARCHIVE LOCATION (intended/deposited)	Report to West of Scotland Archaeology Service and archive to HES Collections

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