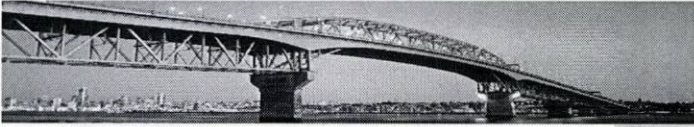


CR.068



Auckland Harbour Bridge
Contract PSMC003

**Resource Consents for Discharge of Abrasive Blast Products
Annual Report - October 06**

Total Bridge Services
11 Princes Street
Northcote
Auckland, New Zealand
Telephone :+64 9 481 0078
Facsimile :+64 9 481 0079
Date 11 October 2006

Prepared by:

Ryan Brooks
Assistant Engineer





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1 INTRODUCTION

This report has been prepared for the Auckland Regional Council in accordance with the special conditions of consent as set out in the Resource Consent for the Auckland Harbour Bridge (AHB). This report covers the period from 1 October 2005 to 30 September 2006.

The Resource Consents have been granted to Transit New Zealand for the discharge of abrasive blasting products from abrasive blasting of the Auckland Harbour Bridge under the following Discharge Permits:

- Discharge Permit No. 23956 for discharge to air
- Discharge Permit No. 23954 for discharge to ground
- Discharge Permit No. 23955 for discharge to water

All conditions of these discharges permits are being complied with. In accordance with the special conditions of consent the following details are discussed:

- The location and extent of blasting, along with details of conditions
- The estimated quantity (in kg) of abrasive blasting products used
- Confirmation of the quantity of contaminants recovered, stored and disposed
- Confirmation that no more than 10m² of blasting has been carried out in those areas where lead paint is known to be present
- Confirmation that no abrasive blasting has been undertaken on surfaces coated with lead with concentrations greater than 5000 parts per million by weight in the dry film or containing other hazardous air pollutants
- Details of measures undertaken to avoid, remedy, or mitigate any adverse environmental effect
- Details of screens used and the areas where they are deployed
- Details of any complaints received, and their nature

The physical works contractor responsible for the painting of the AHB changed on 1 December 1998 from Serco to Total Bridge Services. The Total Bridge Services contract has a contract period of 10 years expiring on 30 November 2008. Total Bridge Services is a joint venture between TBS Farnsworth Limited, Fulton Hogan Limited and Opus International Consultants Limited.



2 DISCHARGE TO LAND AND WATER

2.1 Location and Extent of Blasting

Over the past twelve months the majority of the abrasive blasting, high pressure water blasting and maintenance painting was carried out on the Original Truss Bridge, on the Overarch, Underarch, at the Northern Viaduct and in the East Extensions. Minor blasting and painting was carried out in Span 5 and Span 3 of the Original truss Bridge. Blasting was carried out above sealed public areas at the Northern Viaduct where discharge into the storm water system is possible.

The areas painted include;

- Truss Bridge, Below Walkway, Span 5, Panel Points 2 – 4 and Span 1 Panel Point 15 – 16;
- Truss Bridge, Span 3, Above Walkways, Panel Points 13 – 14 (above the bungy jump pod) the remaining 10% was completed;
- East Extension Internal, Boxes 29-32 are complete and boxes 14-28 are approximately 40%;
- Overarch;
 - Laterals, Span 2, the remainder of Panel Points 5/6 (10%) 6/7 (40%) were completed and all of Panel Point 7/8 was completed. Span 1 Panel Point 14/15 and 15/16 were completed with 13/14 70% complete.
 - West 6m+ (above road deck), the remainder of Panel Points 4/5 and 6/7 (10%) were completed, Span 1 is approximately 10% complete and Span 3 50%;
- Northern Viaduct;
 - Painting of the complete truss bridge structure was completed over the past 12 months.
 - The Viaduct Trestle Legs are also complete.
- Underarch, Span 2, Panel Points 2/3, 3/4, 5/6, 6/7 and 7/8 are complete. Span 1, Panel Point 15/16 is complete.

The total quantity of blasting media used over the past 12 months was 27,500kg. This is a decrease compared to last four years usage (34,700kg, 44,400, 43,050kg and 31,845kg respectively); this is due to the difficulty of the areas painted and therefore slower progress as well as painting in the East Extensions, on which no abrasive blasting is used due to the lead content in the paint.

The maintenance work of the original truss bridge under the walkway in span 5 included the coating of all external steel work from panel points 2-4. The total area coated in Span 5 of the original truss bridge was 1093m². This area used a total of 1065kg, which only made up around 4% of all media used in the past 12 months.

The maintenance work of the original truss bridge below the main walkway in span 1 included the coating of all external steel work within panel points 15 -16. The total area coated in Span 1 of the



original truss bridge was 868m². This area used a total of 1,100kg, which made up 4% of all media used in the past 12 months.

The maintenance work of the original truss bridge above the walkway in span 3 included the coating of all external steel work from panel points 13 - 14. The total area coated in Span 3 of the original truss bridge was 328m². This area used a total of 250kg, which made up 1% of all media used in the past 12 months.

The East Extension interiors maintenance works includes the recoating of all interior steel work from box 29 to 32 and 40% of boxes 14 to 28. The total area of painting was 6,612.5m². The total volume of blasting media used in this work package was 0kg, this is because abrasive blasting is not used within the Extensions as the paint contains lead. The paint is removed using hand tools (i.e. scrapers) and removed from site at the end of each days work.

The East Extension exteriors maintenance works includes the recoating of all exterior steel work from box 73 to 78. The total area of painting was 1,110m². The total volume of blasting media used in this work package was 600kg, which made up 2% of all media used in the past 12 months.

The Overarch maintenance works includes the recoating of the overarch within spans 1, 2 and 3. A break down of the work is below;

- Span 1; overarch laterals panel points 12 – 16 (497m²) the total volume of blasting media used in this work package was 3075kg, which made up 11% of all blasting media used in the last 12 months.
- Span 2; overarch laterals panel points 5 – 8 (480m²) and the east overarch panel points 4 – 8 (669m²) the total volume of blasting media used in this work package was 3800kg, which made up 14% of all blasting media used in the last 12 months.
- Span 3; overarch laterals panel points 11 – 16 (578m²) the total volume of blasting media used in this work package was 2,050kg, which made up 7% of all blasting media used in the last 12 months.

The maintenance work of the original truss bridge below the walkway in span 2, known as the underarch, included the coating of all external steel work from panel points 2 – 4, 5 – 8. The total area coated in Span 2 of the original truss bridge was 2,400m². This area used a total of 5350kg, which made up 19% of all media used in the past 12 months.

The maintenance work of the north viaduct which included the coating of all external steel work to the main truss bridge and the extension trestle legs. The total area coated in the north viaduct was 5,441m². This area used a total of 11,200kg, which made up 39% of all media used in the past 12 months.



2.2 Abrasive Blasting Products

Quantity of Abrasive Blasting Products Generated

Details of abrasive blasting carried out on the Auckland Harbour Bridge between 1st October 2005 and 30th September 2006 have been tabulated and included in Appendix A. For each day the location of the blasting, the work hours, wind speed, wind direction, amounts and type of abrasive, and controls have been recorded. Table 1 below gives the approximate amount of abrasive blasting used in each part of the Bridge over the past 12 months. The period of blasting and prevailing wind direction is also given.

Table 1: Summary of Abrasive Blasting

Location of Blasting	Period	Approximate Amount of Abrasive Used (kg)	Prevailing Wind Direction
Truss Bridge, Span 3, Above Walkway, Panel Point 10 - 11	1 October 2005 – 6 October 2005	250	NW
Truss Bridge, Span 5, Below Walkway, Panel Point 2 - 4	1 October 2005 – 10 October 2005	1065	SW
Truss Bridge Underarch, Span 2, Panel Points 5 - 8	5 October 2005 – 17 January 2006	3300	SW
Truss Bridge, Span 1, Panel Point 15 -16	21 October 2005 – 5 December 2005	1100	SW
East Extensions, Outer surface, Boxes 73 – 78.	1 October 2005 – 5 October 2005	600	SW
Truss Bridge, Overarch, Span 2, Panel Points 5 – 8 and 1 - 2	13 October 2005 – 22 March 2006	3800	NE
Northern Viaduct, Main Truss Bridge and Extension Trestle Legs	14 October 2005 – 30 September 2006	11200	NW
Truss Bridge, Overarch, Span 3, Panel Points 9 - 16	16 January 2006 - 9 May 2006	2050	W
Truss Bridge, Overarch, Span 1, Panel Points 9 - 16	7 February 2006 - 19 April 2006	3075	NW
Truss Bridge Underarch, Span 2	22 April 2006 - 14 July 2006	2050	SW
East Extension Interiors, Boxes 14 - 32	24 May 2006 – 25 July 2006	0	W



2.3 Contamination Recovery

In accordance with the conditions of the resource consent it is necessary to minimise the discharge of blast media and paint debris as far as is practicable via capture and correct disposal where discharges are over seawater. Where discharges are over land, all debris is to be captured and removed to an appropriate treatment or disposal facility. During the past 12 months some maintenance painting has been carried out over land (North Viaduct), the use of screens and road sweepers were used to collect the fallen debris from blasting and painting. It has been found that by adopting a sensible, sympathetic approach to the maintenance operations discharge of contaminants has been kept to a minimum. The most effective method to date has been to restrict blasting to minimum practicable surface areas; i.e. spot blasting the corrosion rather than blasting the whole package, this has been successful in keeping the volume of debris from the old paint systems discharged to less than 0.05m^3 per year. Assessments on the environment have shown that the effects from spillage of the coating products to be insignificant under normal working conditions. To date no excessive spills have occurred.

2.4 Surfaces Coated with Lead

Areas with Lead Paint Present

On the bridge there are only two locations where lead based paints are present, span 7 and inside the box extensions. Previously it has been estimated that only 0.051m^3 of red lead paint per panel point remains on the bridge.

Past 12 Months Coatings Operations

In the past 12 months painting of the East Extension Interior has commenced, the present coating on the inner extension is a lead based paint. Because of this the removal of the existing paint is done by the use of hand tools (scrapers etc) and not abrasive blasting, at the completion of each days work the removed paint is collected and disposed of in the appropriate manner.

External Coatings Philosophy

It has been estimated in previous contracts that only a very small fraction of this paint (on average 5%, or 0.0026m^3) is removed by the spot blasting involved in maintenance painting. The adopted philosophy regarding areas contaminated with lead is such that the corrosion will almost certainly reoccur in the same locations. This means that those areas have been blasted in the past thus removing all lead from the surfaces, any further blasting will only take off reapplied paint systems, which do not contain lead. If the area blasted is greater than has been previously cleaned then it has been found that the additional area is minimal.



2.5 Measures undertaken to avoid, remedy, or mitigate any adverse Environmental Effects

Total Bridge Services over the past twelve months have continued to as far as practicable avoid, remedy, and mitigate any adverse effects on the environment from the abrasive blasting on the Auckland Harbour Bridge. Methods used include:

- From January 2002 we have exclusively been using more garnet abrasive, this has been instrumental in the reduction of abrasive dust generated whilst blasting. Garnet is more efficient due to its hardness and angular profile and therefore a lesser quantity is used to prepare the steel surfaces compared to basalt and other trailed abrasives.
- High pressure water blasting has continued to be used over the past twelve months to remove as much loose paint, scale and corrosion products from the surfaces as possible before abrasive blasting. Water blasting generates paint flakes rather than generating the dust associated with abrasive blasting. Following the water blasting, sweep blasting is used to obtain a surface profile for anchorage of the paint film.
- Continued development of alternative methods of paint removal. UHP waterblasting (water jetting) up to 30,000 psi has been trialled for paint removal over large flat areas – such as the extensions. The main advantage of this system is that dust is minimised, as only a sweep blast is required prior to painting. The major negative impact of this machine is the noise it generates and hence working hours would be slightly reduced so the impact on our neighbours is minimised. The size of the lances used makes this method of preparation unsuitable on the original truss bridge. The option of using UHP as a permanent replacement to abrasive blasting where practicable is still currently under review.
- Surrounding businesses and residents are continually kept informed and updated on information relating to blasting and painting programmes at regular intervals. A survey was carried out of the local residents by Total Bridge Services to ensure that over the past twelve months that they were happy with the controls provided, included in the survey was the forward works programme for the remainder of 2006 and 2007. The results are contained in Appendix B.
- Signage was displayed advising motorists and the public of abrasive blasting and coating operations on the Auckland Harbour Bridge.
- The current blasting philosophy is based on spot blasting followed by a light sweep blast. This philosophy together with the high pressure water blasting and ultra high-pressure water blasting where possible minimises the volume of material that is generated. This philosophy has greatly reduced the volume of blasting media used when compared to historical records.
- Paint trials are currently being undertaken to ascertain whether there are potential benefits of switching to an alternative product. From an environmental viewpoint the products are being



examined with regards to their ease of application, solvent fumes, and the durability of the coating. Three alternative Moisture Cured Urethanes are currently being trialled.

- Long-term solutions are being examined to look at the viability of moving from Moisture Cured Zinc primers to a Thermal Zinc Spray. This is being approached from two different aspects, firstly, in the short-medium term using the thermal zinc spray for spot repairs, and in the long term, complete thermal zinc spraying. Complete Thermal Zinc Spraying is a system that would require the removal of all the existing coating and complete replacement. It has the advantage of reducing the number of spot repairs required, hence the amount of blasting, to a minimum over the foreseeable future. Given the costs associated with this it is likely that complete removal will be undertaken in various areas as part of the next contract mainly due to the excessive film thicknesses now present on the bridge.



3 DISCHARGE TO AIR

3.1 Details of blasting

As mentioned above the majority of the work carried out between October 2005 and September 2006 occurred on the original truss bridge, on the Overarch, Underarch, on the Northern Viaduct and in the East Extension. Minor blasting and painting was carried out in Span 5 and Span3. Details showing the date and time of commencement and duration of dry abrasive blasting and/or spray painting, areas of the bridge being blasted or painted, the type of abrasive used, wind speed and direction, and any control measures undertaken. These details have been tabulated and can be found in Appendix A.

3.2 Surfaces Coated with Lead

Over the past twelve months it has been ensured that no blasting has been undertaken on surfaces coated with lead with concentrations greater than 5000 parts per million by weight in the dry film or containing other hazardous air pollutants. As has been mentioned above, corrosion on the bridge occurs repeatedly in the same location meaning the lead paint has been removed in the past.



APPENDIX A

Abrasive Blasting Data 2005/2006

October 2005 to September 2006 Weather Database Summary

Work Package	Weather Conditions	Rain	Wind Directrion	Wind Speed	Abrasive Type	Amount Used	Screens Used	Date
A31011	Overcast	Showers	NW	6	Garnet C	0.25	No	6/10/2005
B11516	Overcast	Showers	SW	3	Garnet C	0.3	No	21/10/2005
B11516	Clear	Nil	SW	2	Garnet C	0.3	No	1/12/2005
B11516	Clear	Nil	SW	2	Garnet C	0.3	No	2/12/2005
B11516	Overcast	Showers	NW	0	Garnet C	0.2	No	5/12/2005
B256	Clear	Nil	SW	3	Garnet C	0.3	No	18/11/2005
B256	Clear	Nil	SW	1	Garnet C	0.3	No	21/11/2005
B267	Overcast	Showers	SW	6	Garnet C	0.25	No	5/10/2005
B267	Overcast	Showers	SW	5	Garnet C	0.3	No	7/10/2005
B267	Overcast	Nil	SW	2	Garnet C	0.25	No	3/11/2005
B278	Overcast	Showers	SW	5	Garnet C	0.3	No	10/10/2005
B278	Overcast	Light	S	1	Garnet C	0.3	No	11/10/2005
B278	Clear	Nil	SW	3	Garnet C	0.3	No	2/11/2005
B278	Clear	Nil	SW	4	Garnet C	0.3	No	4/11/2005
B278	Overcast	Showers	SW	2	Garnet C	0.3	No	8/11/2005
B278	Clear	Nil	NE	1	Garnet C	0.3	No	9/11/2005
B278	Clear	Nil	NW	0	Garnet C	0	No	11/11/2005
B278	Clear	Nil	NW	0	Garnet C	0.3	No	17/11/2005
B278	Overcast	Nil	SW	4	Garnet C	0.3	No	24/11/2005
B278	Overcast	Showers	S	6	Garnet C	0.3	No	28/11/2005
B278	Clear	Nil	S	3	Garnet C	0.3	No	29/11/2005
B278	Clear	Nil	SW	2	Garnet C	0.3	No	30/11/2005
EXN3	Overcast	Showers	E	4	Garnet C	0.1	No	24/05/2006
EXN3	Overcast	Moderate	E	5	Garnet C	0.2	No	25/05/2006
EXN3	Overcast	Showers	NW	2	Garnet C	0.25	No	30/05/2006
EXN3	Clear	Nil	W	2	Garnet C	0.25	No	31/05/2006



October 2005 to September 2006 Weather Database Summary

Work Package	Weather Conditions	Rain	Wind Direction	Wind Speed	Abrasive Type	Amount Used	Screens Used	Date
EXN4	Overcast	Showers	NW	4	Garnet C	0	No	13/06/2006
EXN4	Clear	Nil	W	5	Garnet C	0	No	20/06/2006
EXN4	Overcast	Light	W	1	Garnet C	0.25	No	21/06/2006
EXN4	Clear	Nil	W	7	Garnet C	0.25	No	25/07/2006
EXO13	Overcast	Showers	SW	4	Garnet C	0.3	No	3/10/2005
EXO13	Clear	Nil	SW	4	Garnet C	0.3	No	4/10/2005
OA11213	Overcast	Showers	NW	7	Garnet C	0.1	No	10/04/2006
OA11213	Overcast	Showers	NW	7	Garnet C	0.25	No	11/04/2006
OA11213	Clear	Nil	W	5	Garnet C	0.1	No	12/04/2006
OA11314	Clear	Nil	NW	4	B	0.3	No	6/03/2006
OA11314	Overcast	Nil	W	6	Nil Used	0.25	No	15/03/2006
OA11314	Clear	Nil	SW	3	Nil Used	0.25	No	22/03/2006
OA11314	Overcast	Showers	SE	0	Nil Used	0.25	No	23/03/2006
OA11314	Overcast	Showers	SE	0	Nil Used	0.1	No	23/03/2006
OA11314	Clear	Nil	S	4	Nil Used	0.3	No	29/03/2006
OA11314	Overcast	Showers	NW	7	Garnet C	0.1	No	4/04/2006
OA11415	Clear	Nil	W	1	Garnet C	0.1	No	18/04/2006
OA11415	Clear	Nil	N	0	Garnet C	0.25	No	19/04/2006
OA11516	Clear	Nil	NE	2	B	0.1	No	7/02/2006
OA11516	Clear	Nil	NE	4	C	0.25	No	8/02/2006
OA11516	Clear	Nil	W	2	B	0.1	No	13/02/2006
OA1415	Clear	Nil	S	5	B	0.3	No	28/02/2006
OA1516	Clear	Nil	E	2	C	0.25	No	14/02/2006
OA1910	Clear	Nil	W	0	Garnet C	0.25	No	6/04/2006
OA1910	Overcast	Showers	NW	10	Garnet C	0.1	No	7/04/2006
OA212	Clear	Nil	E	7	C	0.1	No	9/02/2006



October 2005 to September 2006 Weather Database Summary

Work Package	Weather Conditions	Rain	Wind Direction	Wind Speed	Abrasive Type	Amount Used	Screens Used	Date
OA212	Clear	Nil	NE	2	C	0.1	No	10/02/2006
OA256	Clear	Nil	SW	1	Garnet C	0.3	No	26/10/2005
OA267	Clear	Nil	NE	4	Garnet C	0.3	No	12/10/2005
OA267	Clear	Nil	NE	3	Garnet C	0.3	No	13/10/2005
OA267	Clear	Nil	NW	0	Garnet C	0.3	No	17/10/2005
OA267	Clear	Nil	NE	2	Garnet C	0.3	No	18/10/2005
OA267	Clear	Nil	NE	1	Garnet C	0.3	No	25/10/2005
OA278	Overcast	Nil	SW	2	Garnet C	0.3	No	15/11/2005
OA278	Overcast	Nil	W	2	C	0.1	No	27/02/2006
OA278	Clear	Nil	E	4	Nil Used	0.1	No	22/03/2006
OA278L19.5	Clear	Nil	SW	1	55%	0.3	No	16/11/2005
OA31112	Overcast	Light	W	7	Nil Used	0.25	No	28/03/2006
OA31112	Overcast	Moderate	W	7	Nil Used	0.25	No	28/03/2006
OA31314	Clear	Nil	W	12	C	0.25	No	15/02/2006
OA31314	Clear	Nil	SE	5	C	0.25	No	16/02/2006
OA31314	Clear	Nil	N	0	C	0	No	17/02/2006
OA31314	Clear	Nil	W	1	C	0.1	No	24/02/2006
OA31516	Clear	Showers	NW	4	Garnet C	0.1	No	5/04/2006
OA31516	Clear	Nil	SE	3	Nil Used	0.25	No	8/05/2006
OA31516	Overcast	Nil	E	11	Garnet C	0.1	No	9/05/2006
OA3910	Clear	Nil	E	3	Garnet C	0.25	No	30/03/2006
OA3910	Overcast	Nil	S	1	Garnet C	0.25	No	31/03/2006
Overarch	Clear	Nil	W	5	Nil Used	0	No	16/01/2006
Overarch	Overcast	Nil	N	2	Garnet C	0	No	18/01/2006
Overarch	Clear	Nil	N	0	Garnet C	0	No	10/03/2006
Overarch	Overcast	Showers	NE	10	Nil Used	0	No	27/03/2006
Overarch	Clear	Nil	N	2	Garnet C	0	No	3/04/2006
Overarch West	Clear	Nil	SW	4	Garnet B	0	No	13/03/2006



October 2005 to September 2006 Weather Database Summary

Work Package	Weather Conditions	Rain	Wind Direction	Wind Speed	Abrasive Type	Amount Used	Screens Used	Date
TN 6-7	Clear	Nil	SE	5	Garnet B	0	Yes	14/03/2006
TN 6-7	Clear	Nil	NW	0	Nil Used	0	No	20/03/2006
TN06	Overcast	Showers	NW	0	Garnet C	0	Yes	14/10/2005
TN06	Clear	Nil	NE	2	Garnet C	0.3	Yes	27/10/2005
TN06	Clear	Nil	NE	1	Garnet C	0.3	Yes	28/10/2005
TN06	Clear	Nil	SW	2	Garnet C	0.1	Yes	31/10/2005
TN06	Clear	Nil	NW	3	Garnet C	0.25	Yes	1/11/2005
TN06	Overcast	Nil	NW	3	Garnet C	0.3	Yes	7/11/2005
TN06	Clear	Nil	SW	5	Garnet C	0.3	Yes	14/11/2005
TN06	Overcast	Showers	SW	3	Garnet C	0.3	Yes	22/11/2005
TN06	Clear	Nil	SW	2	Garnet C	0.3	Yes	23/11/2005
TN06	Clear	Nil	S	1	Garnet C	0.3	Yes	25/11/2005
TN06	Overcast	Nil	NW	1	Garnet C	0.3	Yes	6/12/2005
TN06	Overcast	Nil	SW	1	Garnet C	0.25	Yes	7/12/2005
TN06	Clear	Nil	SW	1	Garnet C	0.25	Yes	8/12/2005
TN06	Overcast	Light	SW	1	Garnet C	0.25	Yes	9/12/2005
TN06	Overcast	Nil	SE	5	Garnet C	0.3	Yes	12/12/2005
TN06	Overcast	Nil	NE	3	Garnet C	0.3	Yes	13/12/2005
TN06	Overcast	Nil	E	7	Nil Used	0	Yes	15/12/2005
TN06	Overcast	Nil	E	9	Nil Used	0	Yes	16/12/2005
TN06	Clear	Nil	N	7	Nil Used	0	Yes	20/12/2005
TN06	Clear	Nil	E	1	Garnet C	0	Yes	11/01/2006
TN06	Clear	Nil	W	4	Nil Used	0	Yes	12/01/2006
TN06	Overcast	Nil	E	2	Nil Used	0	Yes	19/01/2006
TN06	Overcast	Nil	SE	7	Garnet B	0	Yes	23/01/2006
TN06	Overcast	Nil	SE	12	Garnet B	0	Yes	24/01/2006
TN06	Overcast	Moderate	NE	4	Garnet B	0	Yes	25/01/2006
TN06	Overcast	Nil	E	4	Garnet B	0	Yes	31/01/2006
TN06	Overcast	Light	SE	3	Garnet B	0	Yes	1/02/2006
TN06	Overcast	Nil	SE	8	Garnet B	0	Yes	2/02/2006



October 2005 to September 2006 Weather Database Summary

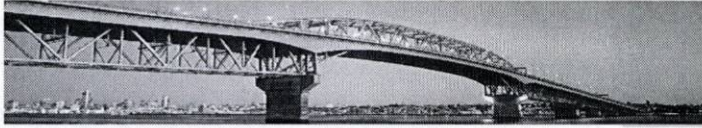
Work Package	Weather Conditions	Rain	Wind Direction	Wind Speed	Abrasive Type	Amount Used	Screens Used	Date
TN06	Clear	Nil	SE	2	Nil Used		Yes	20/01/2006
TN06	Overcast	Nil	W	5	Nil Used	0	Yes	27/01/2006
TN10-11	Clear	Nil	W	2	Garnet C	0.25	Yes	10/07/2006
TN10-11	Clear	Nil	NW	3	Garnet C	0.25	Yes	11/07/2006
TN10-11	Clear	Nil	W	5	Garnet C	0.25	Yes	12/07/2006
TN10-11	Overcast	Showers	N	1	Garnet C	0.25	Yes	13/07/2006
TN11-12	Clear	Nil	SE	1	Garnet C	0.25	Yes	17/07/2006
TN11-12	Clear	Nil	E	2	Garnet C	0.25	Yes	18/07/2006
TN11-12	Overcast	Heavy	E	4	Garnet C	0.25	Yes	19/07/2006
TN5-6	Clear	Nil	SE	2	Garnet C	0	Yes	9/08/2006
TN5-6	Clear	Nil	W	3	Garnet C	0	Yes	10/08/2006
TN5-6	Overcast	Showers	NW	2	Garnet C	0	Yes	11/08/2006
TN6-7	Overcast	Nil	W	7	Garnet B	0	Yes	9/03/2006
TN6-7	Clear	Nil	W	0	Garnet C	0	Yes	16/03/2006
TN6-7	Clear	Nil	NE	7	Garnet C	0	Yes	7/08/2006
TN6-7	Overcast	Showers	N	7	Garnet C	0	Yes	8/08/2006
TN7-8	Overcast	Showers	NW	9	Garnet C	0	Yes	10/05/2006
TN7-8	Overcast	Showers	NW	6	Garnet C	1	Yes	11/05/2006
TN7-8	Overcast	Showers	NW	8	Garnet C	0.5	Yes	12/05/2006
TN7-8	Overcast	Showers	NW	7	Garnet C	0.2	Yes	15/05/2006
TN7-8	Clear	Nil	W	3	Garnet C	0.1	Yes	17/05/2006
TN7-8	Overcast	Showers	E	7	Garnet C	0	Yes	26/05/2006
TN7-8	Overcast	Moderate	SW	6	Garnet C	0	Yes	29/05/2006
TN7-8	Overcast	Showers	E	3	Garnet C	0	Yes	1/08/2006
TN7-8	Overcast	Showers	NE	2	Garnet C	0	Yes	2/08/2006
TN8-9	Clear	Nil	SE	5	Garnet C	0.25	Yes	2/06/2006
TN8-9	Clear	Nil	W	1	Garnet C	0.25	Yes	7/06/2006
TN8-9	Overcast	Light	W	7	Garnet C	0.25	Yes	9/06/2006
TN8-9	Overcast	Heavy	N	11	Garnet C	0.25	Yes	12/06/2006
TN8-9	Clear	Nil	W	2	Garnet C	0.25	Yes	14/06/2006



October 2005 to September 2006 Weather Database Summary

Work Package	Weather Conditions	Rain	Wind Direction	Wind Speed	Abrasive Type	Amount Used	Screens Used	Date
TN8-9	Overcast	Showers	NW	2	Garnet C	0	Yes	15/06/2006
TN8-9	Clear	Nil	N	9	Garnet C	0.25	Yes	16/06/2006
TN8-9	Clear	Nil	E	6	Garnet C	0.25	Yes	19/06/2006
TN8-9	Clear	Nil	NW	0	Garnet C	0	Yes	28/07/2006
TN8-9	Overcast	Showers	E	1	Garnet C	0	Yes	31/07/2006
TN8-9	Clear	Nil	N	3	Garnet C	0	Yes	3/08/2006
TN9-10	Clear	Nil	W	0	Garnet C	0.25	Yes	22/06/2006
TN9-10	Overcast	Nil	SW	8	Garnet C	0.25	Yes	23/06/2006
TN9-10	Clear	Nil	SW	2	Garnet C	0	Yes	26/06/2006
TN9-10	Clear	Nil	W	1	Garnet C	0.25	Yes	27/06/2006
TN9-10	Clear	Nil	NE	0	Garnet C	0.25	Yes	28/06/2006
TN9-10	Clear	Nil	E	3	Garnet C	0.25	Yes	3/07/2006
TN9-10	Clear	Nil	W	2	Garnet C	0.25	Yes	26/07/2006
TNO6	Overcast	Showers	NE	4	Garnet C	0.3	Yes	20/10/2005
Underarch	Clear	Nil	E	5	Nil Used	0	No	14/12/2005
Underarch	Overcast	Nil	NE	5	Garnet B	0	No	19/12/2005
Underarch	Clear	Nil	NE	3	Garnet B	0	No	10/01/2006
Underarch	Clear	Nil	SW	3	Nil Used	0	No	17/01/2006
Underarch	Clear	Nil	SW	3	Garnet C	0	No	22/03/2006
Underarch	Clear	Nil	W	0	Garnet C	0.25	No	5/07/2006
Underarch	Overcast	Showers	W	6	Garnet C	0.25	No	6/07/2006
Underarch	Clear	Nil	SW	3	Garnet C	0.25	No	14/07/2006





APPENDIX B

Local Residents Survey and Feedback

AHB LOCAL RESIDENT FEEDBACK FORM

Date: 20 September 2006

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct
Demag Joint Refurbishment
Main Expansion Joint Refurbishment

Name: s9(2)(a)
Address: [Redacted] Mt

Phone No: s9(2)(a)

Do you have any complaints regarding work on the Bridge? With neighbours we all were exhausted by the end of the work. The noise and dust was awful. We all considered a petition at one stage to ask for a few days rest. No actual complaints.

Do you feel you are being kept adequately informed when work is undertaken that has an impact on you? Yes. Attitude and helpfulness of ALL staff was excellent. They did their best to keep down dust. Most keen to hear you are now preparing night work over next 6 months on guard rails. When will it all finish????

Suggestions or comments: Yes. Between Transit, Total, and Suller you could share cost to seal under bridge to make car parking for berries. This would be very much in interest of Suller I would have thought. We do appreciate offer to wash down houses. Very good PR!!!

Please Contact the following with any queries: Ryan Brooks or Jon Patman
Tel: s9(2)(a)

Date: 29 / 09 / 06



29 SEP 2006

AHB LOCAL RESIDENT FEEDBACK FORM

Date: 20 September 2006

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct
Demag Joint Refurbishment
Main Expansion Joint Refurbishment

Name: s9(2)(a)
Address: [Redacted]

Phone No: s9(2)(a)

Do you have any complaints regarding work on the Bridge? No

Do you feel you are being kept adequately informed when work is undertaken that has an impact on you? Yes

Suggestions or comments : please continue to paint over graffiti as soon as it appears.

Please Contact the following with any queries: Ryan Brooks or Jon Patman
Tel: s9(2)(a)

Date: 26 / 9 / 06



2006
22
AHB LOCAL RESIDENT FEEDBACK FORM

Date: 20 September 2006

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct
Demag Joint Refurbishment
Main Expansion Joint Refurbishment

Name: s9(2)(a)
Address: [redacted] cote
point

Phone No: s9(2)(a)

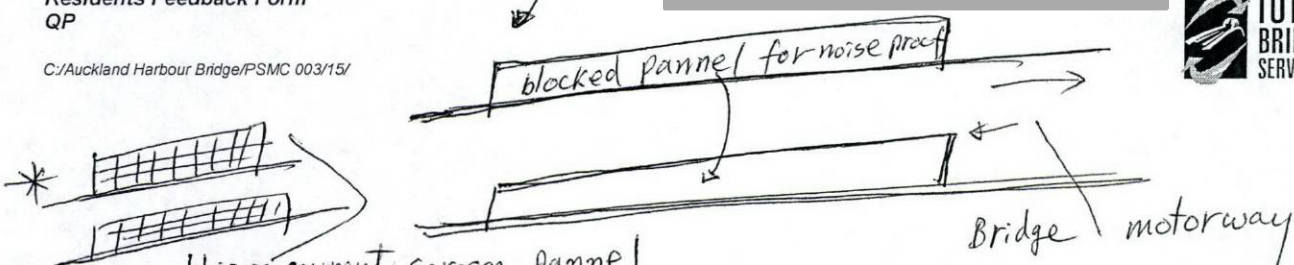
Do you have any complaints regarding work on the Bridge? Lots of Air Dust after blasting, therefore these dust must be removed & need resealing all around under Bridge with help from North Shore City Council

Do you feel you are being kept adequately informed when work is undertaken that has an impact on you? I, we think so

Suggestions or comments : 1. As we commented above, air dust to be removed & resealing is required under Bridge
2. To install the blocked pannel for the noise proof along the both side

Please Contact the following with any queries: Ryan Brooks or Jon Patman
Tel: s9(2)(a)

Date: 20 109 106
s9(2)(a)



26 SEP 2006

AHB LOCAL RESIDENT FEEDBACK FORM

Date: 20 September 2006

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct
Demag Joint Refurbishment
Main Expansion Joint Refurbishment

Name: [Redacted]
Address: [Redacted]

s9(2)(a)

STOKES POINT
NORTHCOTE

Phone No: [Redacted]

s9(2)(a)

Do you have any complaints regarding work on the Bridge?

Gutters FULL OF DIRT FROM SAND BLASTING
PART OF MY LAWN KILLED OFF BY VEHICLES + SAND BLASTING

Do you feel you are being kept adequately informed when work is undertaken that has an impact on you?

YES

Suggestions or comments :

FIX MY GUTTERS, WINDOWS + LAWNS.

Please Contact the following with any queries:

Ryan Brooks or Jon Patman

Tel: s9(2)(a) [Redacted]

Date: 24/9/06



26 SEP 2006

AHB LOCAL RESIDENT FEEDBACK FORM

Date: 20 September 2006

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct
Demag Joint Refurbishment
Main Expansion Joint Refurbishment

Name: s9(2)(a)
Address: [REDACTED]
NORMCOTE PT
Auckland

Phone No: [REDACTED] s9(2)(a)

Do you have any complaints regarding work on the Bridge? Yes. The noise shaking! Residue from blasting covering both inside & out of house not acceptable.

Do you feel you are being kept adequately informed when work is undertaken that has an impact on you? yes. The men I dealt with were very polite and approachable and did keep me well informed. Thank you.

Suggestions or comments: Covers to contain blasting dust was totally inadequate.

Please Contact the following with any queries: Ryan Brooks or Jon Patman
Tel: s9(2)(a) [REDACTED]

Date: 25 Sept 06

26 SEP 2006

AHB LOCAL RESIDENT FEEDBACK FORM

Date: 20 September 2006

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct
Demag Joint Refurbishment
Main Expansion Joint Refurbishment

Name: s9(2)(a)
Address: NORTHCOLE POINT.

Phone No: s9(2)(a)

Do you have any complaints regarding work on the Bridge? SURROUNDING AREA NEEDS CLEAN UP

Do you feel you are being kept adequately informed when work is undertaken that has an impact on you? YES.

Suggestions or comments: HEAVIER COVERS WHEN BLASTING + SPRAYING, PAINTING.

Please Contact the following with any queries: Ryan Brooks or Jon Patman
Tel: s9(2)(a)

Date: 24 / 9 / 06

2006

AHB LOCAL RESIDENT FEEDBACK FORM

Date: 20 September 2006

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct
Demag Joint Refurbishment
Main Expansion Joint Refurbishment

Name: s9(2)(a)
Address: [Redacted]
Northcote Point
Auckland

Phone No: s9(2)(a)

Do you have any complaints regarding work on the Bridge? Just got tired of noise of sandblaster from Dec 05 / Sept 06. Very dusty and constantly noisy

Do you feel you are being kept adequately informed when work is undertaken that has an impact on you? Yes:

Suggestions or comments: ① The crew of 3-4 men that performed the actual job were always so polite and helpful. Thank you guys for that. As their job must of been difficult. ② Would love to see the sandy area under

Please Contact the following with any queries: Ryan Brooks or Jon Patman
Tel: s9(2)(a)

Date: 10 / 10 / 06 s9(2)(a)

cont / the bridge @ end of Princes St tar sealed as it looks horrible & is very dusty.

