

PA 1353/CR.002



Professional Services Contract PA 1353
Auckland Harbour Bridge Management

Resource Consents for Discharge
of Abrasive Blast Products
Annual Report

July 1997



*Opus: an accomplished work,
a creation, an achievement*



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**TRANSIT NEW ZEALAND
PROFESSIONAL SERVICES CONTRACT PA 1353
AUCKLAND HARBOUR BRIDGE MANAGEMENT**

**RESOURCE CONSENTS FOR DISCHARGE OF ABRASIVE BLAST PRODUCTS
ANNUAL REPORT
JULY 1997**

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- A Abrasive Blasting Data
- B Notice to Engineer No. 114

1 INTRODUCTION

The following report has been prepared for the Auckland Regional Council in accordance with the special conditions of consent as set out in the Resource Consents for the Auckland Harbour Bridge (AHB). This is the third Annual Report and covers the period 24 June 1996 to 27 June 1997.

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. 938557 for discharge to air
- Discharge Permit No. 938508 for discharge to water
- Discharge Permit No. 938862 for discharge to ground

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

- The location and extent of blasting.
- The estimated quantity of abrasive blasting products generated and likely contaminants contained within the removed paint and abrasive.
- Confirmation of the quantity of abrasive blasting products recovered and disposed of.
- The quantity and type of corrosion inhibitors used during wet blasting.
- Details of the measures undertaken to avoid, remedy or mitigate any adverse environmental effects.
- Investigations into new paint technologies and other developments which will reduce the need for dry abrasive blasting.
- Investigations into alternative paint removal techniques
- Results of a public survey taken to assess the effectiveness of the permit conditions.

2 DISCHARGE TO LAND AND WATER

2.1 Location and Extent of Blasting

Throughout the last twelve months the bulk of abrasive blasting, high pressure water blasting and maintenance painting work on the AHB has been carried out in Span 1, north of Pier 1. Approximately 83% of all abrasive blasting carried out on the AHB (below deck level) in the last year has been in Span 1, Panel Points 0/1 to 11/12, both Above Walkways and Below Walkways.

The "Above Walkways" maintenance work includes all steelwork on the original bridge structure above the level of the access walkway that runs the length of the bridge. This includes all chords, posts, diagonals, laterals, road stringers, cross girders and services pipework. "Below Walkways" maintenance work is defined as being all steelwork in the original bridge structure below the level of the access walkways and includes all chords, posts, diagonals, laterals, the access walkway, safety railings, monorails and the fixed maintenance platforms and supports. The total scheduled area for maintenance painting in Span 1 north of Pier 1, above and below walkways is 11,888 m².

Three separate areas of the Overarch of the original bridge have been worked on in the last year. Span 3 of the top chord of the East Overarch was blasted over August and September, 1996. Three apexes in the West Overarch (Span 1 Panel Point 13, Span 1 Panel Point 15, Span 2 Panel Point 1) were abrasive blasted over February and March 1997 before the application of zinc metal spray. Abrasive blasting of the Overarch cross bracing, above the central four lanes of the bridge commenced in April of this year and is still underway. In total, 90 m² of steel work is scheduled for maintenance in the overarch laterals under the current maintenance contract

Abrasive blasting of the original bridge trestle legs was carried out at Pier 1 in October 1996 and at Pier 2 in February 1997. The trestle legs are located inside the concrete piers and all blast products are effectively contained within their confines. A total surface area 273 m² was blasted and painted.

The Pier 1 East Extension Bracket and Extension Trestle legs were both abrasive blasted in April 1997. The Pier Brackets include all the external steel work that support the Extension Trestle Legs and the Extension box girders. The areas of the Extension Trestle Legs blasted include all the external steelwork of the legs and the upper and lower pin joints.

Abrasive blasting was carried out preparatory to the paint trials in Panel Point 8/9, Span 7. Blasting for the Polysiloxane trials was carried out in April 1997 and for the Moisture cured urethane (MCU) trials in June 1997.

Spot blasting was also carried out in various locations on the AHB for remedial work to defective paint and crevice corrosion.

As part of the the AHB Extension resurfacing project, the southern end of the West Extension deck was abrasive blasted during the 1996/97 Christmas period. The abrasive blasting was carried out over the 27, 28, and 31 December 1996 and 1 January 1997 using garnet abrasive.

2.2 Abrasive Blasting Products and Likely Contaminants

Quantity of Abrasive Blasting Products Generated

Details of abrasive blasting carried out on the Auckland Harbour Bridge between 24 June 1996 and 27 of June 1997 have been tabulated and included in Appendix A. For each day the location of the blasting on the bridge, the work hours, wind speed, amount of abrasive used and controls used have been recorded. On some days the Contractors quality assurance records did not give the work hours or wind speed during blasting. The Contractor has been instructed to insure that all abrasive blasting data is fully recorded in the future.

Table 1 below gives the approximate amount of blasting abrasive used in each part of the AHB over the past year. The period of blasting and the prevailing wind direction is also given.

Table 1: Summary of Abrasive Blasting Data

Location of Blasting	Period	Approximate Amount of Abrasive Used (t)	Prevailing Wind Direction
Span 1 PP 0/1 to 11/12	Jun 96 - Jun 97	61.5	SW
Overarch chord span 3	Aug 96 - Sep 96	1.2	SW
Overarch Laterals	April 97 - Jun 97	1.9	SW/NE
Overarch Apexes	Feb 97 - Mar 97	1.73	SW
Span 7 PP 3/4	Aug 96	1.05	SW
Original Bridge Trestle legs Pier 1	Oct 96	0.98	SW/NE
Original Bridge Trestle legs Pier 2	Feb 97	1.6	NE
Extension Trestle Leg Pier 1 East	Apr 97	0.4	SW
Extension Bracket Pier 1 East	Apr 97	0.73	SW
Paint Trials	Apr 97 & Jun 97	2.65	-
West Extension Resurfacing	Dec 96 - Jan 97	80	NE
Remedial and Misc. Work	Jun 96 - Jun 97	0.28	-

Likely Contaminants in Removed Paint and Abrasive

Both basalt and garnet abrasive blasting media have been used on the AHB over the last 12 months. The basalt abrasive has been of two grades, Fine Blast and Min Blast. Both these products are supplied by Mintech NZ Ltd and are manufactured at their Waitakere plant. The Garnet has been supplied by Industrial Minerals Ltd.

As mentioned in our previous reports the basalt and garnet abrasive media do not contain any known toxic contaminants or free silica in excess of 1% and the concentrations of soluble materials are so low that they can be considered inert. The chemical and mineralogical composition of both the basalt and garnet abrasive has been given in previous reports.

The paint removed from the AHB structure over the past twelve months has been the original five coat system. The original AHB paint system consisted of three coats zinc chromate primer and two coats of micaceous iron oxide. Particles of the original zinc spray bridge coating system would have also been removed by abrasive blasting and be present in the blasting discharge.

The blasting technique and type of coatings removed from the AHB structure over the last twelve months are the same as those used when the resource consents for the AHB were issued in 1994. The composition of the abrasive blasting products and the concentration of contaminants will therefore be essentially the same as at that time. See Works Consultancy Services Central laboratories Report No. 93/24730 for the results of the analysis of the abrasive blasting products.

2.3 Recovery and Disposal of Abrasive Blast Debris

As shown in Table 1, a total of approximately 80 tonnes of garnet blasting media was used on the deck of the West Extension. Of this, approximately 50 tonnes was recovered, processed and has been reused for blasting of the AHB super structure over the past six months. The garnet was recycled by Industrial Minerals Limited.

All blasting carried out in Span 1 over the last year has been north of Pier 1. Abrasive blasting products deposited on the sealed area around the north anchorage over the last twelve months has been negligible, however, there has been a significant amount of material deposited on the grassed areas. The Contractor has been instructed to collect and dispose of all blasting deposits on the grassed area on completion of abrasive blasting work at the north end of Span 1 (scheduled for completion early in July). The collected abrasive blasting products will be disposed of in accordance with our Disposal Plan, ie in the Northern Disposal Systems Special Waste Landfill at Greenmont.

2.4 Corrosion Inhibitors

The AHB Maintenance Contractor has confirmed that no corrosion inhibitors have been used on the Auckland Harbour Bridge in the past twelve months. See Notice to Engineer No. 114, dated 11 July 1997 in Appendix B.

2.5 Measures Undertaken to Avoid, Remedy or Mitigate any Adverse Environmental Effects

We have continued to as far as practicable avoid, remedy and mitigate adverse effects on the environment from the abrasive blasting at the AHB. Methods used include:

- Using the more expensive garnet abrasive for blasting where possible. Using garnet has reduced the amount of abrasive dust generated when blasting. Garnet is more efficient due to its hardness and angular profile and therefore a lesser quantity is required to prepare steel surfaces as compared to basalt abrasive.
- Using high pressure water blasting to remove as much of the loose paint, scale and corrosion products from surfaces as possible before abrasive blasting. Water blasting removes the paint in flakes rather than generating the dust associated with abrasive blasting. Following waterblasting a light abrasive sweep blast is required to obtain a suitable surface profile for anchorage of the paint film.
- Displaying signs advising the public of abrasive blasting and coating operations on the AHB.
- Notifying surrounding residents and businesses of programme for blasting and painting operations. (See Appendix B for a copy of a letter distributed to residents)
- Using screens to reduce the spread of debris where practicable.
- Investigation of alternative blasting abrasives.
- Investigation and trialing of alternative paint systems that comply with health and safety legislation in terms of VOC and toxicity levels.
- Long life paint systems are also being identified and trialed. If these are successful then the amount of cumulative discharge over future years will be reduced.

- The current blasting philosophy is based on spot blasting followed by a light sweep blast. This philosophy together with high pressure water blasting where possible, minimises the volume of material that is generated.
- Regular washdown of steel work maximises coating life by removing salt deposits which are detrimental to coating life. By maximising coating life we reduce frequency of repainting and therefore quantities of material discharged to the environment. It is expected that this practice will continue no matter what coatings are employed in the future.

3 DISCHARGE TO AIR

3.1 Existing Paint Systems

As described in previous reports the paint system currently being applied to the AHB is an alkyd system consisting of four coats; two primer coats of high build zinc phosphate overcoated by two micaceous iron oxide top coats. This system is applied over the original paint system.

The original AHB paint system consisted of three coats of zinc chromate primer and two coats of micaceous iron oxide. A large proportion of this paint system has been removed and replaced or painted over by the new zinc chromate free system. The general philosophy that has been adopted for bridge maintenance painting minimises paint removal by leaving sound paint intact and spot blasting where breakdown of paint occurs. These areas are spot primed and covered by a single top coat. This minimises the quantity of paint being reapplied and will minimise future discharge quantities.

The current three year maintenance painting contract (MA 1357) was scheduled to finish on 31 August 1997. By that time approximately 50,734m² of maintenance painting will have been completed. The maintenance contract has been extended by three months, but only relatively minor abrasive blasting and painting work will be carried out in this time.

3.2 Alternative Coating Systems

Paint Trials

The 24 plate paint trials started in 1992 were detailed in our 1995 Annual Report. The trial plates have been continued to be monitored over the past year.

Polysiloxane

As mentioned in last years report Ameron's polysiloxane epoxy paint system has been trialed in Span 6. Resenes' American partner, Ameron, has patented the new paint technology in Polysiloxanes. Polysiloxanes incorporate an inorganic silicon-oxygen structure that is stronger and more durable than the carbon based structure of organic polymers. Polysiloxanes can be formulated with high percentage solids and therefore very low volatile organic compounds (VOC).

As well as being more environmentally friendly, the paint was expected to have very high adhesion properties to steel and therefore be able to provide a

suitable protective coating with no more than two coats compared with the present four-coat system.

The trials were carried out on the bottom chords and connecting bottom lateral members of the Panel Point 6. Surface preparation consisted of high pressure water blasting and abrasive blasting to remove the existing top coat and zinc coating. One coat of Ameron Dimecote 9 was then applied with the conventional AHB airless spray equipment followed by one coat of Ameron PSX 700. The Contractor found the system to be difficult to apply using airless spray equipment. It is significantly easier to apply using conventional equipment but this results in problems associated with overspray. Such problems are unacceptable in the vicinity of business, residential and trafficked areas due to damage to property.

Moisture Cured Urethane

Trials of the Moisture Cured Urethane (MCU) paint system were carried out in Panel Point 8/9, Span 7, on 16 and 17 June 1997. The MCU trials are an extension to the existing paint trials on the AHB and use a "single pack moisture cured urethane" coating system which was recently evaluated during a visit to Seattle by our Materials Engineer, Willie Mandeno. The coating is widely used by a number of US Bridge Authorities and has a proven track record in their highly legislated society. It complies with all Health and Safety policies currently in effect.

The systems applied included a zinc rich primer on a blasted steel substrate, a "surface tolerant" zinc rich primer on a hand prepared, wire brushed surface and a penetrating primer on crevices between rivetted plates and zinc brushed rusty surfaces. This was followed by either a micaceous iron oxide mastic or micaceous iron oxide urethane intermediate coat and aliphatic urethane top coat. The 3 coat system was able to be completely applied within 5 hours by addition of a cure accelerant. This compares to 1 coat per day for the current alkyd system. The use of surface tolerant systems would have significant benefits in reducing future blasting requirements.

The weather conditions at the time of application were cold with showers. These conditions are not suitable for application of the more conventional alkyd systems currently used for bridge maintenance painting. The Contractor commented that the material was easy to apply both by brush and airless spray equipment which is currently used on the bridge.

Advantages of the system are that it can be applied throughout the year and at night in cold damp conditions. In addition, MCU has greater adhesion and potentially a greater life than the current AHB painting system. A longer coating life leads to reduced frequency of coating replacement and therefore a

reduction in the overall amount of abrasive blasting required might be expected.

The trial area will continued to be monitored in the future to assess how the coating performs with time.

Zinc Metal Spray

The bridge structure was coated with zinc metal spray at the time of construction (with the exception of Span 7 and the interior surfaces of the extensions, pier brackets and diagonals which were painted with a lead-based primer). The zinc coating provides a high level of protection to the steel substrates due to its sacrificial action.

Over the last few years we have been trialing zinc metal spray on the AHB. Several types of metal spray systems exist to choose from. The most common sprays used worldwide are, zinc, zinc/aluminium and aluminium/magnesium with the aluminium alloy sprays offering the superior protection. Although zinc spray is more expensive to apply than conventional wet coatings the expected life to first maintenance is in the order of 20 to 25 years. The overall amount of abrasive blasting required over time for zinc metal spray may therefore be less than for conventional coatings.

In December 1994, a zinc metal spray trial was carried out on a top chord in Span 3. Application of the zinc spray was relatively simple although costs were high. Over February and March 1997 three West Overarch apexes were successfully treated with 85/15 Zn/Al (zinc/aluminium) metal spray coating and sealed. The underside of the Pier 1 East Extension Bracket were also treated with zinc/aluminium metal spray in May 1997.

3.3 Alternative Paint Removal Techniques

High Pressure Water Blasting

As mentioned in previous reports, high pressure water blasting has been found to be very effective for the removal of brittle, high build films. Abrasive blasting is still required to provide a surface profile for application of coatings, but the quantity of blasting abrasive required is reduced compared with removal of coatings by abrasive blasting alone.

The standard procedure for surfacing preparation on the AHB now starts with a washdown of entire area to be treated, followed by abrasive blasting of defective area. The area is then water blasted and sweep blasted before proceeding with maintenance painting

High pressure water blasting has proved to be an efficient and cost effective method of paint removal. With high enough pressures this method can remove large quantities of coating in a relatively short period of time. Other advantages are:

- There is no airborne debris from discharge to air. Coatings are removed in flakes rather than as a fine dust and therefore do not affect the respiratory system of persons in the vicinity of the blasting operation.
- No abrasive blast media is deposited in areas where these may present a hazard.

Alternative Blasting Abrasive

Crushed basalt continued to be used for the majority of abrasive blasting activities on the AHB over the past year. However, alternative blasting abrasives have been investigated and trialed.

Garnet abrasive was successfully used for the West Extension resurfacing project and for abrasive blasting of the AHB superstructure. The garnet abrasive is considerably harder than the basalt abrasive and does not breakdown upon impact to the same extent (leading to less dust). The hardness of the garnet also meant that the used garnet from the resurfacing project was able to be recycled and reused on the AHB superstructure. In addition, the hardness and angularity of the garnet abrasive gives it an increased rate of coating removal in comparison to the softer less angular basalt. The initial cost of the garnet is still greater than for basalt, but this cost has been offset to a point by recycling.

An alternative basalt blasting abrasive has also been trialed. The abrasive was sourced from Whangerei and it was hoped that it could be used as a low dust blasting abrasive without the costs associated with the garnet. Trials proved the abrasive to be unsuitable for general use on the bridge as it breaks up on impact with the target surface creating excess dust.

3.4 Public Survey Results

As required by Special Condition 9 of the Air Discharge Permit, survey questionnaires have been sent to residents and businesses adjacent to the AHB. The surveys asked for comments on:

- The effectiveness of the screens.
- The availability of information about the Contractor's programme.

- The adequacy of the sweeping of the surrounding sealed areas.
- The sufficiency of signage warning of possible hazards.
- The effect of night blasting to reduce the nuisance caused to neighbours.

The survey questionnaire and the one reply received are included in Appendix B. s9(2)(a) commented on screening, signs and sweeping. The Contractor says that screening has been used on the AHB but that wind has sometimes made the use of screens in some locations difficult or not fully effective. The Contractor has attempted to place signage in locations that will expose the signs to the greatest number of the public as possible. On some occasions they may not be directly visible to every local resident and business surrounding the AHB. The Contractor also reports that the material in Princess Street is fine road dust that would only be further dispersed by sweeping. As has been done in the past, the Contractor will arrange for cleaning of any vehicle or building, soiled by abrasive blasting products or paint from the AHB when requested by the owner.

Appendix A

Abrasive Blasting Data

TRANSIT NEW ZEALAND
AUCKLAND HARBOUR BRIDGE MAINTENANCE - MA 1357

RESOURCE CONSENTS FOR ABRASIVE BLAST PRODUCTS
ANNUAL REPORT - JULY 1997

ABRASIVE BLASTING DATA

DATE	Span	Work Hours		Wind Speed (m/s)			Abrasive			Controls	
		From	To	0830 hrs	1400 hrs	Dir	Used	Tot.	Recov.		
22-Jun-96											
23-Jun-96											
24-Jun-96	1, 1	-	15:05	0.5	0.5	NW	100	100	200	0	-
25-Jun-96	1, 1	-	14:25	-	3.5	SW	75	300	375	0	-
26-Jun-96	1, 1, 1, 1	09:40	15:00	3.5	4.5	SW	75	50	425	550	0
27-Jun-96	1, 1, 1	08:40	11:30	1	2.5	NW	100	325	150	575	0
28-Jun-96	1, 1	-	-	2.5	2.5	SW	125	350		475	0
29-Jun-96											
30-Jun-96											
01-Jul-96	1	08:05	15:15	1	2.5	SW	300	200		500	0
02-Jul-96	1	-	-	1.5	-	SW	150			150	0
03-Jul-96	1,	07:55	-	0.5	-	NE	100			100	0
04-Jul-96	1, 1	08:00	13:15	0.5	2	SW	175	200		375	0
05-Jul-96	1, 1	08:10	-	2	2	SE/NW	100	275		375	0
06-Jul-96											
07-Jul-96											
08-Jul-96	1, 1	-	14:30	0		SW	75	75		150	0
09-Jul-96	No Abrasive	Blasting								0	0
10-Jul-96	No Abrasive	Blasting								0	0
11-Jul-96	No Abrasive	Blasting								0	0
12-Jul-96	1, 1, 1	11:30	14:20	2.5	3.5	SW	75	125	200	400	0
13-Jul-96											
14-Jul-96											
15-Jul-96	No Abrasive	Blasting								0	0
16-Jul-96	No Abrasive	Blasting								0	0
17-Jul-96	1, 1, 1	12:30	03:00	0.5	2.5	NE	50	125	150	325	0
18-Jul-96	No Abrasive	Blasting - Washdown	below walkways							0	0
19-Jul-96	1	12:00	14:00	1	1	NE	75			75	0
20-Jul-96											
21-Jul-96											
22-Jul-96	1	-	14:15		1.5	SW	100			100	0
23-Jul-96	1, 1	11:30	14:10	2.5	3.5	SW	275	125		400	0
24-Jul-96	1	12:00	14:20	3.5	5	SW	225			225	0
25-Jul-96	No Abrasive	Blasting - Pier 3 South	Washdown Extensions							0	0
26-Jul-96	1, 7	08:15	14:45	4.5	4.5	SW	275	300		575	0
27-Jul-96											
28-Jul-96											
29-Jul-96	1, 7	09:00	15:00	0.5	1.5	SW	225	275		500	0
30-Jul-96	1, 7	08:20	14:00	0.5	1	SW	225	350		575	0
31-Jul-96	1, 7	09:45	15:30	1.5	3.5	NE	150	150		300	0
01-Aug-96	No Abrasive	Blasting - Pier 3 South	Washdown Extensions							0	0
02-Aug-96	No Abrasive	Blasting - Pier 3 South	Washdown Extensions							0	0
03-Aug-96											
04-Aug-96											
05-Aug-96	No Abrasive	Blasting								0	0
06-Aug-96	6	-	-	0.5	2.5	SW	275			275	0
07-Aug-96	1, 7	08:00	15:15	1.5	4.5	SW	275	350		625	0
08-Aug-96	0/A	08:10	15:15	0.1	1.5	W/NW	325			325	0
09-Aug-96	1, 7, O/A	08:00	15:35	0.5	2.5	SW/NE	225	225	275	725	0
10-Aug-96											
11-Aug-96											
12-Aug-96	1, 7, O/A	08:05	15:20	0.5	3.5	SW	200	275	175	650	0
13-Aug-96	1, 7	08:10	15:00	2	4.5	SW	150	275		425	0
14-Aug-96	1, 7	08:00	15:50	2.5	3	SW	125	275		400	0
15-Aug-96	No Abrasive	Blasting								0	0
16-Aug-96	No Abrasive	Blasting								0	0
17-Aug-96											
18-Aug-96											
19-Aug-96	O/A	07:50	15:10	0.5	1	SE/NE	175			175	0
20-Aug-96	No Abrasive	Blasting - Washdown	below walkways							0	0
21-Aug-96	1	08:00	15:10	4.5	5.5	SW	100			100	0
22-Aug-96	1	08:00	14:40	0.5	2.5	SW	100			100	0
23-Aug-96	1	-	-	0	0.5	SW/NW	-			-	0

TRANSIT NEW ZEALAND
AUCKLAND HARBOUR BRIDGE MAINTENANCE - MA 1357

RESOURCE CONSENTS FOR ABRASIVE BLAST PRODUCTS
ANNUAL REPORT - JULY 1997

ABRASIVE BLASTING DATA

DATE	Span	Work Hours		Wind Speed (m/s)			Abrasive			Controls	
		From	To	0830 hrs	1400 hrs	Dir	Used	Tot.	Recov.		
24-Aug-96											
25-Aug-96											
26-Aug-96	1	11:45	14:25	2.5	3.5	SW	75		75	0	-
27-Aug-96	O/A	08:00	15:00	5.5	5	SW	125		125	0	-
28-Aug-96	No Abrasive	Blasting									
29-Aug-96	1	-	-	4.5	5.5	SW	75		75	0	-
30-Aug-96	1	08:00	15:40	3.5	4	SW	125		125	0	-
31-Aug-96											
01-Sep-96											
02-Sep-96	No Abrasive	Blasting	Washdown below walkways								
03-Sep-96	No Abrasive	Blasting									
04-Sep-96	No Abrasive	Blasting	Washdown below walkways								
05-Sep-96	No Abrasive	Blasting									
06-Sep-96	No Abrasive	Blasting									
07-Sep-96											
08-Sep-96											
09-Sep-96	1, 1	-	-	2.5	-	NW	175	225	400	0	-
10-Sep-96	O/A	-	-	1.5	-	NE	125		125	0	-
11-Sep-96	1	-	-	7.7	7.7	NW	150		150	0	Screens
12-Sep-96	1	-	-	2.6	4.1	NW	125	250	375	0	Screens
13-Sep-96	1, 1	10:40	14:30	4.4	5.4	NW	250	250	500	0	Screens
14-Sep-96											
15-Sep-96											
16-Sep-96	1, 1	09:00	15:00	1.5	3.5/5.0	SW	150	125	275	0	-
17-Sep-96	1, 1	-	-	1.5	-	SW	175		175	0	-
18-Sep-96	1, 1	-	-	1.5	-	SW	275		275	0	-
19-Sep-96	1, 1	-	-	4.5	-	SW	275	225	500	0	-
20-Sep-96	1, 1	08:00	15:15	0.5	1	SW	175	275	450	0	-
21-Sep-96											
22-Sep-96											
23-Sep-96	1, 1	11:10	16:05	0	1.5	NE	300	375	675	0	-
24-Sep-96	1, 1	08:00	14:20	2	3.5	NE	325	200	525	0	-
25-Sep-96	1, 1	07:55	15:10	2.5	3.5	NE	325	225	550	0	-
26-Sep-96	1, 1	08:00	15:30	1.5	1.5	NE	375	425	800	0	-
27-Sep-96	1	09:00	16:00	0.5	1	NE	400		400	0	-
28-Sep-96											
29-Sep-96											
30-Sep-96	1, 1	09:00	14:00	1.5	1.5	NE	250	300	550	0	Screens
01-Oct-96	1, 1	08:00	14:15	1.5	3	NE	225	300	525	0	Screens
02-Oct-96	1, 1	08:15	14:15	2.5	5.5	W	225	225	450	0	Screens
03-Oct-96	1, 1, 1, Pier 1	08:30	15:00	4	4.5	W	800	400	1200	0	Screens excl 10/11
04-Oct-96	1, 1	08:15	14:15	4.5	4.5	W	300	150	450	0	Screens
05-Oct-96											
06-Oct-96											
07-Oct-96	1	08:15	15:30	0.5	1	NE	275		275	0	-
08-Oct-96	Pier 1, 1	08:00	-	1.5	3.5	SW	475	125	600	0	-
09-Oct-96	1, Pier 1	10:00	14:35	3.5	3.5	SW	175	275	450	0	-
10-Oct-96	1,	08:00	15:15	2.5	3.5	SW	325		325	0	-
11-Oct-96	No Abrasive	Blasting	Washdown Above Walkways sp 1-7								
12-Oct-96											
13-Oct-96											
14-Oct-96	No Abrasive	Blasting	Washdown Above Walkways sp 1-7								
15-Oct-96	No Abrasive	Blasting									
16-Oct-96	1	08:00	14:15	3.5	4.5	SW	350		350	0	-
17-Oct-96	1, 1	09:00	14:45	0	2.5	W	350	75	425	0	Screens
18-Oct-96	No Abrasive	Blasting									
19-Oct-96											
20-Oct-96											
21-Oct-96	1, Pier 1	08:30		0		NE	175	100	275	0	-
22-Oct-96	Pier 1	08:30	14:20	0.5	3.5	SW	175		175	0	-
23-Oct-96	Pier 1	08:00	14:20	0	1	SW	125		125	0	-
24-Oct-96	Pier 1	-	-	0	-	NE	100		100	0	-
25-Oct-96	No Abrasive	Blasting									

TRANSIT NEW ZEALAND
AUCKLAND HARBOUR BRIDGE MAINTENANCE - MA 1357

RESOURCE CONSENTS FOR ABRASIVE BLAST PRODUCTS
ANNUAL REPORT - JULY 1997

ABRASIVE BLASTING DATA

DATE	Span	Work Hours		Wind Speed (m/s)			Abrasive			Controls		
		From	To	0830 hrs	1400 hrs	Dir	Used	Tot.	Recov.			
26-Oct-96												
27-Oct-96												
28-Oct-96	Public Hol											
29-Oct-96	No Abrasive	Blasting										
30-Oct-96	No Abrasive	Blasting										
31-Oct-96	No Abrasive	Blasting										
01-Nov-96	1	08:00	15:00	3.5	5	SW	275		275	0	-	
02-Nov-96												
03-Nov-96												
04-Nov-96									0	0		
05-Nov-96	1	-	-	1.5	1.5	NE	375		375	0	Screens	
06-Nov-96	1, 1	-	-	0	-	-	750		750	0	Screens	
07-Nov-96	1, 1	-	-	4.2	-	SW	750		750	0	Screens	
08-Nov-96	1	-	-	0	0	-	675		675	0	Screens	
09-Nov-96												
10-Nov-96												
11-Nov-96	1, 1	08:05	14:40	1.5	1.5	NE	375	225	600	0	-	
12-Nov-96	1	08:05	15:15	2.5	-	NW	275		275	0	-	
13-Nov-96	1, 1, 1	08:00	14:45	5.5	5.5	SW	175	275	200	650	0	-
14-Nov-96	1, 1, 1	08:00	15:00	5.5	5.5	SW	200	125	275	600	0	-
15-Nov-96	No Abrasive	Blasting										
16-Nov-96												
17-Nov-96												
18-Nov-96	No Abrasive	Blasting - Washdown	Extensions									
19-Nov-96	No Abrasive	Blasting - Washdown	Extensions									
20-Nov-96	1, 1	08:00	15:15	4.5	4	SW	200	275	475	0	-	
21-Nov-96	1, 1	08:00	14:05	1.5	2	NE/SW	175	225	400	0	-	
22-Nov-96	1, 1	08:00	15:00	3.5	3	SW	175	125	300	0	-	
23-Nov-96												
24-Nov-96												
25-Nov-96	1	08:00	14:20	4.5	4	SW	125		125	0	-	
26-Nov-96	1, 1	08:10	14:40	3.5	4.5	SW	225	225	450	0	-	
27-Nov-96	1, 1	08:15	15:00	1.5	4	SW	150	225	375	0	-	
28-Nov-96	1, 1	09:00	15:45	0.5	0.5	NE	150	200	350	0	-	
29-Nov-96	1, 1	08:00	15:00	3.5	5.5	SW	100	75	175	0	-	
30-Nov-96												
01-Dec-96												
02-Dec-96	1, 1	08:00	15:20	0.5	0.5	SW	200	175	375	0	-	
03-Dec-96	No Abrasive	Blasting - Washdown	Extensions						0	0		
04-Dec-96	1, 1, Pier 1	08:00	15:30	1.5	3.5	SW	150	75	150	375	0	-
05-Dec-96	1, 1, Pier 1	09:00	15:45	1.4	2.7	SW	150	150	50	350	0	Screens span 1
06-Dec-96	1, 1	08:00	15:30	2.5	2	SW	225	225	450	0	-	
07-Dec-96												
08-Dec-96												
09-Dec-96	1, 1	08:00	15:00	0	2.8	SW	225	225	450	0	Screens	
10-Dec-96	1, 1	08:00	15:50	1.5	2	SW	200	125	325	0	-	
11-Dec-96	No Abrasive	Blasting - Washdown	Extensions									
12-Dec-96	No Abrasive	Blasting										
13-Dec-96	No Abrasive	Blasting - Washdown	Above Walkways									
14-Dec-96												
15-Dec-96												
16-Dec-96	No Abrasive	Blasting										
17-Dec-96	No Abrasive	Blasting										
18-Dec-96	Pier 2	-	-	-	-	-	275		275	0	-	
19-Dec-96	No Abrasive	Blasting										
20-Dec-96	No Abrasive	Blasting - Washdown	Above Walkways									
21-Dec-96												
22-Dec-96												
23-Dec-96	No Abrasive	Blasting										
24-Dec-96												
25-Dec-96												
26-Dec-96												
27-Dec-96	West Extn	10:20	23:05	2.5	4.5	NE	Tot. West Extn bla		80000	50000	weep/sgns/scrns/cv	

TRANSIT NEW ZEALAND
 AUCKLAND HARBOUR BRIDGE MAINTENANCE - MA 1357

RESOURCE CONSENTS FOR ABRASIVE BLAST PRODUCTS
 ANNUAL REPORT - JULY 1997

ABRASIVE BLASTING DATA

DATE	Span	Work Hours		Wind Speed (m/s)			Abrasive			Controls		
		From	To	0830 hrs	1400 hrs	Dir	Used	Tot.	Recov.			
28-Dec-96	West Extn	09:15	22:35	2	3.5	NE	see above			sweep/sgns/scrns/cv		
29-Dec-96												
30-Dec-96												
31-Dec-96	West Extn	00:00	21:30	2.5	3	SW	see above			-		
01-Jan-97	West Extn	08:49	19:45	0.5	2	SE/E	see above			-		
02-Jan-97												
03-Jan-97												
04-Jan-97												
05-Jan-97												
06-Jan-97	No Abrasive	Blasting										
07-Jan-97	No Abrasive	Blasting										
08-Jan-97	No Abrasive	Blasting										
09-Jan-97	No Abrasive	Blasting										
10-Jan-97	No Abrasive	Blasting	Cyclone Drena									
11-Jan-97												
12-Jan-97												
13-Jan-97	No Abrasive	Blasting										
14-Jan-97	No Abrasive	Blasting										
15-Jan-97	No Abrasive	Blasting										
16-Jan-97	No Abrasive	Blasting										
17-Jan-97	1, 1	10:30	15:00	4.1	5.1	SW/S	300		300	0	Screens	
18-Jan-97												
19-Jan-97												
20-Jan-97	1, 1	-	-	1.5	1	SW/SE	525		525	0	-	
21-Jan-97	1, 1	-	-	1	1	SW	375	275	650	0	-	
22-Jan-97	1, 1	-	-	1.5		SW	200	275	475	0	-	
23-Jan-97	1, 1	-	-	1	1	SW	225	325	550	0	-	
24-Jan-97	1, 1	09:15	-	1	1.5	NE	225	175	400	0	-	
25-Jan-97												
26-Jan-97												
27-Jan-97	Public Hol											
28-Jan-97	No Abrasive	Blasting										
29-Jan-97	1, 1	08:00	14:45	4	4	SE	225	150	375	0	-	
30-Jan-97	1, 1	08:00	-	1.5	0	SE	175	275	450	0	-	
31-Jan-97	1, 1	08:00	15:00	2.5	2	NE	225	325	550	0	-	
01-Feb-97												
02-Feb-97												
03-Feb-97	No Abrasive	Blasting	Washdown						0	0		
04-Feb-97	1, 1	-	14:40	-	2	SW	150	150	300	0	-	
05-Feb-97	1, 1, Pier 2	08:00	-	1.5	3.5	NW	175	275	200	650	0	-
06-Feb-97	1, 1	08:00	14:35	0.5	0.5	NE	175	250	425	0	-	
07-Feb-97	No Abrasive	Blasting										
08-Feb-97												
09-Feb-97												
10-Feb-97	1, 1, Pier 2, 1	08:00	15:50	2.5	2.5	SW	375	725	1100	0	-	
11-Feb-97	1, 1, Pier 2, 1	11:30	15:00	1.5	2	SW	225	675	900	0	-	
12-Feb-97	No Abrasive	wash steel							0	0		
13-Feb-97	1, Pier 2, 1	10:20	15:45	0.5	0.5	SW	225	175	150	550	0	-
14-Feb-97	1, Pier 2	08:00	14:40	0.5	0.5	NE	75	175	250	0	-	
15-Feb-97												
16-Feb-97												
17-Feb-97	1, Pier 2	08:00	15:00	0	0.5	NE	75	100	175	0	-	
18-Feb-97	1, Pier 2	08:00	14:55	1.5	1.5	NE	125	150	275	0	-	
19-Feb-97	1, Pier 2	08:40	15:10	2.5	0.5	SE/E	75	150	225	0	-	
20-Feb-97	No Abrasive	Blasting	Washdown						0	0		
21-Feb-97	No Abrasive	Blasting	Span 1-7 Below Walkways						0	0		
22-Feb-97												
23-Feb-97												
24-Feb-97	No Abrasive	Blasting	Washdown						0	0		
25-Feb-97	No Abrasive	Blasting	Span 1-7 Below Walkways						0	0		
26-Feb-97	No Abrasive	Blasting							0	0		
27-Feb-97	O/A	09:20	15:20	1	5.1	SW	150		150	0		
28-Feb-97	O/A	09:15	-	2.6	-	W	500		500	0	-	

TRANSIT NEW ZEALAND
AUCKLAND HARBOUR BRIDGE MAINTENANCE - MA 1357

RESOURCE CONSENTS FOR ABRASIVE BLAST PRODUCTS
ANNUAL REPORT - JULY 1997

ABRASIVE BLASTING DATA

DATE	Span	Work Hours		Wind Speed (m/s)			Abrasive			Recov.	Controls	
		From	To	0830 hrs	1400 hrs	Dir	Used	Tot.				
01-Mar-97												
02-Mar-97												
03-Mar-97	No Abrasive	Blasting	Washdown	Extensions Pier 3 South					0	0		
04-Mar-97	No Abrasive	Blasting	Washdown	Extensions Pier 3 South					0	0		
05-Mar-97	No Abrasive	Blasting							0	0		
06-Mar-97	1, 1	-	-	0.5	1.5	NE	225	325	550	0	-	
07-Mar-97	1	-	-	1	-	NE	225		225	0	-	
08-Mar-97	1, 1	-	-	2.5	2	SW	275	125	400	0	-	
09-Mar-97												
10-Mar-97	1, 1, Box	-	-	3.5	-	SW	275	75	300	650	0	-
11-Mar-97	1, 1	-	-	4.3	4.5	NE/SE	-	375		375	0	-
12-Mar-97	O/A, 1	-	-	5	-	SE	400	300	700	0	-	
13-Mar-97	1, 1, O/A, 1	08:00	15:15	3.5	3	SW	225	100	475	800	0	-
14-Mar-97	1, 1, O/A, 1	08:00	16:00	0	3.5	SW	250	300	350	900	0	-
15-Mar-97	1, 1	08:00	14:00	3	3.5	SW	275	375	650	0	-	
16-Mar-97												
17-Mar-97	1, 1, 1	08:00	15:10	1.5	2	SW	225	225	100	550	0	-
18-Mar-97	1, 1, 3	08:00	15:35	3	3.5	SW	200	275	125	600	0	-
19-Mar-97	1, 1, 1	08:00	14:55	3.5	3.5	SW	175	100	375	650	0	-
20-Mar-97	1, 1	08:00	15:00	3.5	3.5	SW	275	375	650	0	-	
21-Mar-97	1, 1	10:30	15:00	3	3	SW	175	200	375	0	-	
22-Mar-97												
23-Mar-97												
24-Mar-97	1	10:30	14:50	3	4.5	SW	225		225	0	-	
25-Mar-97	No Abrasive	Blasting							0	0		
26-Mar-97	Pier 2	08:00	14:20	1	3.5	SW	75		75	0	-	
27-Mar-97	No Abrasive	Blasting							0	0		
28-Mar-97	Public Hol								0	0		
29-Mar-97												
30-Mar-97												
31-Mar-97	Public Hol								0	0		
01-Apr-97	No Abrasive	Blasting							0	0		
02-Apr-97	Pier 1, Paint	-	-	0	1	SE	75	350	425	0	-	
03-Apr-97	Pier 1, Paint	08:10	15:00	0	1	SW	75	150	225	0	-	
04-Apr-97	Pier 1	10:45	14:15	2.5	3.5	SW	75		75	0	-	
05-Apr-97												
06-Apr-97												
07-Apr-97	No Abrasive	Blasting							0	0		
08-Apr-97	1	-	-	1.5	-	NE	275		275	0	-	
09-Apr-97	1, 1, O/A	11:00	14:40	1.5	3.5	NW/SW	350	-	100	450	0	-
10-Apr-97	Pier 1, O/A	08:00	14:40	2.5	4.5	SW	350	-	100	450	0	-
11-Apr-97	1, Pier 1	-	-	4.1	-	SW	400	225	625	0	-	
12-Apr-97												
13-Apr-97												
14-Apr-97	1	-	-	2.5	-	SW	175		175	0	-	
15-Apr-97	1, Remed	08:00	15:00	0	0.5	SE	425	50	475	0	-	
16-Apr-97	1	08:00	15:30	3.5	5	SW	350		350	0	-	
17-Apr-97	1, 2, CC	08:00	15:15	1.5	4	SW	425	25	50	500	0	-
18-Apr-97	1, 2, CC	10:00	15:25	1.5	3	SW	450	25	75	550	0	-
19-Apr-97												
20-Apr-97												
21-Apr-97	1	08:00	15:10	1.5	3.5	SW	325		325	0	Signs/Screens Span	
22-Apr-97	1, 4-7	10:30	15:40	1.5	3.5	SW	325	75	400	0	Signs/Screens Span	
23-Apr-97	1, Pier 1	08:00	-	2	3	SW	200	300	500	0	Signs/Screens Span	
24-Apr-97	1, Pier 1	08:00	14:35	2.5	4	SW	275	175	450	0	Signs/Screens Span	
25-Apr-97	Public Hol								0	0		
26-Apr-97												
27-Apr-97												
28-Apr-97	1, 4-7	08:00	03:50	2.5	4	SW	475	75	550	0	Signs/Screens Span	
29-Apr-97	1, 2	08:00	15:00	4.5	4.5	SW	225	25	250	0	Signs/Screens Span	
30-Apr-97	1, O/A, 2	11:00	15:05	2	3.5	SW	175	75	25	275	0	Signs/Screens Span
01-May-97	O/A	09:45	14:50	0	1.5	SW	75		75	0	-	
02-May-97	4-7	11:00	15:30	0.5	0.5	SW/NE	50		50	0	-	

TRANSIT NEW ZEALAND
AUCKLAND HARBOUR BRIDGE MAINTENANCE - MA 1357

RESOURCE CONSENTS FOR ABRASIVE BLAST PRODUCTS
ANNUAL REPORT - JULY 1997

ABRASIVE BLASTING DATA

DATE	Span	Work Hours		Wind Speed (m/s)			Abrasive			Controls		
		From	To	0830 hrs	1400 hrs	Dir	Used	Tot.	Recov.			
03-May-97												
04-May-97												
05-May-97	O/A	08:10	15:15	0.5	0.5	NE	300		300	0	-	
06-May-97	O/A, 5	08:10	15:10	0.5	0.5	NE	150	25	175	0	-	
07-May-97	O/A, 5	08:10	15:30	0.5	0.5	NE/E	150	50	200	0	-	
08-May-97	O/A	10:40	15:20	0.5	0.5	NE	175		175	0	-	
09-May-97	O/A	08:00	15:15	0.5	0.5	SW	275		275	0	-	
10-May-97												
11-May-97												
12-May-97	No Abrasive	Blasting - Washdown	Extensions Pier 3 South									
13-May-97	No Abrasive	Blasting										
14-May-97	No Abrasive	Blasting - Washdown	Extensions Pier 3 South									
15-May-97	No Abrasive	Blasting										
16-May-97	1	-	-	3	5	SW	325		325	0	-	
17-May-97												
18-May-97												
19-May-97	1	-	-	2.5	2	SW	450		450	0	-	
20-May-97	O/A, 1	11:00	-	1.5	1.5	NE	75	350	425	0	-	
21-May-97	1, 1	-	-	0.5	0.5	NE	275	525	800	0	-	
23-May-97	1, 1	-	-	5.1	5.1	NE	150	225	375	0	-	
23-May-97	1, 1	-	-	2.5	2.5	NE	275	175	450	0	-	
24-May-97												
25-May-97												
26-May-97	1, 1	-	-	0.5	0.5	NE	425	275	700	0	-	
27-May-97	No Abrasive	Blasting										
28-May-97	No Abrasive	Blasting										
29-May-97	1, 1	08:00	14:30	1.5	1.5	E	225	300	525	0	-	
30-May-97	1	12:00	14:30	0	0	NE	375		375	0	-	
31-May-97												
01-Jun-97												
02-Jun-97	Public Holiday											
03-Jun-97	No Abrasive	Blasting - Washdown										
04-Jun-97	1, 1, East Box	08:00	15:30	0.5	2	SW	225	275	75	575	0	Signs/Screens 0/1, 6/
05-Jun-97	1, 1	08:00	15:05	1.5	1.5	SW	225	325		550	0	Signs/Screens PP0/
06-Jun-97	1, 1	12:15	14:40	0.5	0.5	SW	175	125		300	0	-
07-Jun-97	1, 1	10:30	14:15	0.5	0.5	NE	300	375		675	0	-
08-Jun-97												
09-Jun-97	1, 1, O/A	11:00	15:50	1.5	1.5	NE	175	125	100	400	0	-
10-Jun-97	No Abrasive	Blasting - Piers Washdown										
11-Jun-97	No Abrasive	Blasting - Box Extension Cleaning										
12-Jun-97	1, 1, 1	11:00	14:30	3	5	SW/W	750	450	150	1350	0	-
13-Jun-97	1, 1	11:00	14:45	1.39	2.78	SE	500	450		950	0	Garnet
14-Jun-97	1, 1, 7	09:30	14:15	0	1.39	SW	225	300	*****	2525	0	Screens Span 7
15-Jun-97												
16-Jun-97	No Abrasive	Blasting										
17-Jun-97	1	-	15:15	0.5	0.5	NE	275		275	0	-	
18-Jun-97	No Abrasive	Blasting										
19-Jun-97	1	14:20	15:30	3.5	-	SW	275		275	0	-	
20-Jun-97	7	11:05	14:30	0.5	2.5	NW/SW	150		150	0	Screens	
21-Jun-97	1	08:00	13:30	4	8	SW/W	300		300	0	-	
22-Jun-97												
23-Jun-97	1	07:45	14:15	1.5	4.5	SW	300		300	0	Signs, Screens	
24-Jun-97	No Abrasive	Blasting										
25-Jun-97	O/A	10:00	-	1.5	-	SW	100		100	0	-	
26-Jun-97	O/A	10:00	15:00	0	2	SW	150		150	0	-	
27-Jun-97	No Abrasive	Blasting										
28-Jun-97												
29-Jun-97												
30-Jun-97												
Av. Wind Speed				1.84	2.38		Total Quantity Us		154175	50000		

Appendix B

Notice to Engineer No. 114

QP-AHB-005 AHB 25
ISSUE D11 Princess St, Northcote,
PO Box 33908, Takapuna,
Phone (09) 418-1880, Fax (09) 419-0080**NOTICE TO ENGINEER****Consecutive No 114****Client:** Transit NZ.**Consultant:** Opus International Consultants**Contract:** Auckland Harbour Bridge - Maintenance Contract**Resource Consent for Discharge of Abrasive Products.**

Reference NTC# 227 of 3.7.97

Information required for annual resource consent report is as follows:

- We can confirm that no corrosion inhibitors have been used during blasting operations.
- Copy of neighbourhood information notice attached. This was circulated to 20 neighbouring properties (residences and businesses) at both Northcote and Westhaven.
- Copy of neighbourhood survey attached. This questionnaire was included with the above notice. Also included is the only returned copy of the questionnaire.

Issued by hand / post / fax

11, 7, 97

G Osbaldiston. Project Manager

Page 1 of 1

7 July 1997

RESOURCE CONSENT-SURVEY

SERCO

Dear Neighbour,

You will no doubt be aware that over the last few months, we have been undertaking maintenance painting work on the Auckland Harbour Bridge. This work has been carried out in accordance with the Resource Consent granted by the Auckland Regional Council.

In order that we can monitor our work methods and if necessary modify work practices, plant and/or materials we would appreciate your comments regarding any inconvenience that may have been caused by our operation.

- 1 Were the screen effective in reducing the drift of blasting media?
- 2 Was sufficient information available to inform you of our painting programme?
- 3 Were the streets and surrounding areas swept adequately after blasting?
- 4 Was there sufficient signage in place to warn of possible hazards?
- 5 Was the night blasting work effective in reducing the nuisance caused by sandblasting?
- 6 Any other comments?

NAME:

SIGNATURE:

ADDRESS:

DATE:

Serco Operations | Auckland Harbour Bridge | 11 Princes Street | Northcote
PO Box 33-908 | Takapuna | Telephone 0-9-418-1880 | Fax 0-9-419-0060

7 July 1997

Dear Neighbour,

SERCO

AUCKLAND HARBOUR BRIDGE MAINTENANCE

In accordance with the conditions of the Resource Consent granted to Transit NZ for the above work, this letter is to inform you of our painting programme and our intentions over the coming months.

North: We are currently working in Span 1, carrying out maintenance to the truss structure below deck level. This is programmed for completion in the next few weeks, after which we will be cleaning up the reserve area under the bridge.

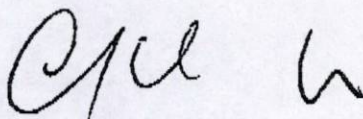
We also have the extension tresle legs and pier brackets to complete on pier 2.

South: Some minor remedial painting and crevice corrosion work is continuing as well as completion of the lateral bracing at each end of the overarch.

The only other activity planned is the regular washing of the structure which is designed to reduce salt contamination and prolong the life of the protective coatings.

Like all programmes ours is subject to change, due to adverse weather conditions, but we will endeavour to keep you informed of our plans. Please feel free to contact the writer at the above address should you have any problems with our maintenance operations or you require further information.

Yours sincerely



Graham Osbaldiston
Project Manager
Serco Group NZ Limited

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8 JULY 1997.

7 July 1997

RESOURCE CONSENT-SURVEY

SERCO

Dear Neighbour,

You will no doubt be aware that over the last few months, we have been undertaking maintenance painting work on the Auckland Harbour Bridge. This work has been carried out in accordance with the Resource Consent granted by the Auckland Regional Council.

In order that we can monitor our work methods and if necessary modify work practices, plant and/or materials we would appreciate your comments regarding any inconvenience that may have been caused by our operation.

1 Were the screen effective in reducing the drift of blasting media?

SAND BLASTING ON THE NORTHERN ANCHOR SIDE - DID NOT NOTICE ANY SCREENING.

2 Was sufficient information available to inform you of our painting programme?

NO - NO WARNING NOT TO PARK CAR IN PRINCES STREET

3 Were the streets and surrounding areas swept adequately after blasting?

NO SAND IN PRINCES STREET

4 Was there sufficient signage in place to warn of possible hazards?

NO.

5 Was the night blasting work effective in reducing the nuisance caused by sandblasting?

6 Any other comments?

I HAVE HAD TO HAVE MY CAR CUT + POLISHED TO REMOVE SAND WHICH HAS STUCK TO THE PAINT + REMOVED FROM WINDSHIELD.

NAME:

SENSOR LIGHT OVER OUR GARAGE IS NOT WORKING.

SIGNATURE

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ADDRESS:

DATE:

8/7/97.



OPUS

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