



**AUCKLAND HARBOUR BRIDGE
CONTRACT PSMC 003**

**Resource Consents for Discharge of
Abrasive Blast Products**

Annual Report - October 2003

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9 / 10 / 03
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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 2002 to 30 September 2003.

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 in Spans 6, 5 and 4, below the walkways, and on the East Extension. Some blasting has been carried out over sealed areas where possible contaminants could enter the stormwater systems, these works are discussed below.

The areas painted include:

- Truss Bridge, Span 6, Below Walkway, Panel Points 0 – 4
- Truss Bridge, Span 5, Above Walkways, Panel Points 0 - 10
- Truss Bridge, Span 4, Above and Below Walkways, Panel Points 0 - 6
- East Extension External, Boxes 0 - 30
- Northern Extension Viaducts Trestle legs 1-3.
- Pier Legs base plates and holding down bolts on Piers 2,3,4,5 and 6.

The total quantity of blasting media used over the past 12 months was 44,400. This is a significant increase compared to the year 2001-2002. This increase is due primarily to work focusing on the Original Truss Bridge and the increased paint areas completed over the past twelve months.

The maintenance work of the original truss bridge under the walkway in span 6 included the coating of all external steel work from panel points 0-1 to 5-6. The total area coated in Span 6 of the original truss bridge was 3,271m². This area used a total of 7,000kg, which made up 16% of all media used in the past 12 months.

The maintenance work of the original truss bridge above the walkway in span 5 included the coating of all external steel work from panel point 0-1. The total area coated in Span 5 of the original truss bridge was 271m². This area used a total of 1,500kg, 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 4 included the coating of all external steel work from panel points 0-1 to 7-8. The total area coated in Span 4 of the original truss bridge was 2,328m². This area used a total of 4,050kg, which made up 9% of all media used in the past 12 months.

The maintenance work of the original truss bridge below the walkway in span 4 included the coating of all external steel work from panel points 0-1 to 5-6. The total area coated in Span 4 of the original truss bridge was 4,004m². This area used a total of 15,350kg, which made up 35% of all media used in the past 12 months.

The East Extension exterior maintenance works includes the recoating of the web and cantilever from box 1 to box 30. The total area of painting was 11,506m². It comprised of the outer web plate, outer cantilever, deck plate and longitudinal trough stiffeners. The total volume of blasting media used in this work package was 13,600kg, which made up 31% of all blasting media used in the last 12 months.

The trestle leg maintenance works includes the recoating of the east and west trestle legs TN1 to TN3. The total area of painting was 520m². The total volume of blasting media used in this work package was 2,450kg, which made up 5% of all blasting media used in the last 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 2002 and 30th September 2003 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 | Prevailing Wind Direction |
|--|---|-------------------------------------|---------------------------|
| Truss Bridge, Span 6, Below Walkway, Panel Points 0 – 4 | October – December 2003 | 7,000 | SW |
| Truss Bridge, Span 5, Above Walkways, Panel Points 0 - 10 | June 2003 | 1,750 | NW |
| Truss Bridge, Span 4, Above and Below Walkways, Panel Points 0 - 6 | 20 th January – 5 th June 2003 | 19,400 | SW |
| East Extension External, Boxes 0 - 30 | October 2002 – September 2003 | 13,600 | SW |
| Northern Extension Viaducts Trestle legs 1-3. | 11 th August – 16 th September 2003 | 2,450 | NE |
| Pier BasePlates and HD bolts | 22 nd – 30 th September 2003 | 200 | SW |

2.3 Contaminant 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 maintenance painting has been carried out over land. In accordance with our consent these areas were swept and the debris recovered each day blasting activities were carried out. The collected debris was disposed of by Fulton Hogan an approved hazardous dump north of Auckland. In addition to this contaminant recovery has been undertaken over the water where it has been deemed practicable. 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 0.05m³ 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

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 0.051m³ of red lead paint per panel point remains on the bridge. No abrasive blasting or paint removal was undertaken in these areas over the past twelve months. It has been estimated in previous contracts that only a very small fraction of this paint (on average 5%, or 0.0026m³) 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 this year 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.
- During September this year we trailed an Ultra High Pressure Waterblaster (30,000 psi). This method of paint removal is suitable on large flat areas such as the trestle legs at the northern end of the bridge. The main advantage of this system as 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 make this method of preparation unsuitable on the original truss bridge.
- Surrounding businesses and residents were forwarded information relating to blasting and painting programmes at regular intervals over the past twelve months. 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 2003 and 2004. 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.
- Prior to work commencing on the northern trestle legs, the local residents in the area were advised of the upcoming operations and given contact numbers to call if they had any concerns regarding the operation. One complaint was received in regards to working on Saturday. As a result of this works are not undertaken on Saturdays in this area.
- 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 trialed.

- 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 2002 and September 2003 occurred below the walkways between Spans 4 and 6, and above walkways in spans 4 and 5. Some further work was carried out inside the East Extension. 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.

4 AUCKLAND HARBOUR BRIDGE EXTENSION RESURFACING

A joint venture consortium undertakes the extension-resurfacing project with TBS Farnsworth and Blacktop Construction being the partners. Opus International Consultants undertake the contract supervision.

Over the December 2002/January 2003 period repairs were undertaken on the west extension. These repairs were patch type repairs and blasting operations to prepare the deck were considerably less than in previous years. The majority of the preparation of the steel deck was undertaken by grinding followed by a sweep blast.

APPENDIX A

Abrasive Blasting Data 2001/2002

| Date | Work Package | | Work Hours | | Wind Speed | | | | Abrasive (kg) | | | | | Controls |
|-----------|------------------|-----------|------------|------|------------|-----------|---------|-----------|---------------|------------|-----------|-----|-------|----------|
| | Location | Operation | From | To | 0830hrs | Direction | 1400hrs | Direction | Garnet C | Fine Blast | Min Blast | Rom | Total | |
| 28-Oct-02 | Public Holiday | | | | | | | | | | | | 0 | |
| 29-Oct-02 | B612, BW03, EXI1 | Painting | 8:30 | 4:30 | 5 | SW | | | 500 | | | | 500 | |
| 30-Oct-02 | B612, BW03 | Painting | 8:30 | 4:30 | 2 | SW | 3 | SW | 500 | | | | 500 | |
| 31-Oct-02 | EXO2, EXI1, B612 | Painting | 8:30 | 4:30 | 2 | SW | 5 | SW | 500 | | | | 500 | |
| 1-Nov-02 | EXO2, EXI1, B623 | Painting | 8:30 | 4:30 | 7 | SW | 7 | SW | 0 | | | | 0 | |
| 2-Nov-02 | Weekend | | | | | | | | | | | | 0 | |
| 3-Nov-02 | Weekend | | | | | | | | | | | | 0 | |
| 4-Nov-02 | Weekend | | | | | | | | | | | | 0 | |
| 5-Nov-02 | EXO2, EXI1, B623 | Painting | 8:30 | 4:30 | 1 | SW | 5 | SW | 0 | | | | 0 | |
| 6-Nov-02 | EXO2, EXI1, B623 | Painting | 8:30 | 4:30 | 5 | SW | 7 | SW | 0 | | | | 0 | |
| 7-Nov-02 | EXI1, B623 | Painting | 8:30 | 4:30 | 4 | SW | 6 | SW | 0 | | | | 0 | |
| 8-Nov-02 | EXI1, B623 | Painting | 8:30 | 4:30 | 3 | SW | 3 | SW | 0 | | | | 0 | |
| 9-Nov-02 | Weekend | | | | | | | | | | | | 0 | |
| 10-Nov-02 | Weekend | | | | | | | | | | | | 0 | |
| 11-Nov-02 | EXO1, EXI1 | Painting | 8:30 | 4:30 | 7 | SW | 7 | SW | 0 | | | | 0 | |
| 12-Nov-02 | EXI1, B623 | Painting | 8:30 | 4:30 | 7 | SW | | | 0 | | | | 0 | |
| 13-Nov-02 | No Work on Site | | 8:30 | 4:30 | | | | | 0 | | | | 0 | |
| 14-Nov-02 | EXI1, EXO1 | Painting | 8:30 | 4:30 | 5 | SW | | | 0 | | | | 0 | |
| 15-Nov-02 | EXI1, EXO1 | Painting | 8:30 | 4:30 | 4 | SW | | | 0 | | | | 0 | |
| 16-Nov-02 | Weekend | | | | | | | | | | | | 0 | |
| 17-Nov-02 | Weekend | | | | | | | | | | | | 0 | |
| 18-Nov-02 | EXI1, EXO2, B623 | Painting | 8:30 | 4:30 | 2 | SW | 4 | SW | 0 | | | | 0 | |
| 19-Nov-02 | EXI2, EXO2, B623 | Painting | 8:30 | 4:30 | 2 | SW | 4 | SW | 0 | | | | 0 | |
| 20-Nov-02 | EXI2, EXO2, B623 | Painting | 8:30 | 4:30 | 2 | SW | | | 0 | | | | 0 | |
| 21-Nov-02 | EXI2, EXO2 | Painting | 8:30 | 4:30 | 6 | S | 4 | S | 0 | | | | 0 | |
| 22-Nov-02 | EXI1 B623 | Painting | 8:30 | 4:30 | 2 | SW | 3 | SW | 0 | | | | 0 | |
| 23-Nov-02 | Weekend | | | | | | | | | | | | 0 | |
| 24-Nov-02 | Weekend | | | | | | | | | | | | 0 | |
| 25-Nov-02 | EXI2, EXO2, B623 | Painting | 8:30 | 4:30 | 1 | SE | 3 | N | 0 | | | | 0 | |
| 26-Nov-02 | EXI2, EXO2, B623 | Painting | 8:30 | 4:30 | 1 | N | 3 | N | 0 | | | | 0 | |
| 27-Nov-02 | EXO2, B634 | Painting | 8:30 | 4:30 | 0 | S | 0 | S | 300 | | | | 300 | |

| Date | Work Package | | Work Hours | | Wind Speed | | | | Abrasive (kg) | | | | | Controls |
|-----------|--------------|------------------|------------|------|------------|-----------|---------|-----------|---------------|------------|-----------|-----|-------|----------|
| | Location | Operation | From | To | 0830hrs | Direction | 1400hrs | Direction | Garnet C | Fine Blast | Min Blast | Rom | Total | |
| 4-Jan-03 | | Weekend | | | | | | | | | | | 0 | |
| 5-Jan-03 | | Weekend | | | | | | | | | | | 0 | |
| 6-Jan-03 | EX12 | Painting | 8:30 | 4:30 | 0 | NE | 2 | NE | 0 | | | | 0 | |
| 7-Jan-03 | B634 | Painting | 8:30 | 4:30 | 1.5 | NE | 3 | NE | 0 | | | | 0 | |
| 8-Jan-03 | | No Painting | 8:30 | 4:30 | | | | | | | | | 0 | |
| 9-Jan-03 | B634 | Painting | 8:30 | 4:30 | 3 | NE | 6 | NE | 0 | | | | 0 | |
| 10-Jan-03 | | No Work on Site | 8:30 | 4:30 | | | | | | | | | 0 | |
| 11-Jan-03 | | Weekend | | | | | | | | | | | 0 | |
| 12-Jan-03 | | Weekend | | | | | | | | | | | 0 | |
| 13-Jan-03 | | No Painting | 8:30 | 4:30 | 3 | NE | 2 | NE | 0 | | | | 0 | |
| 14-Jan-03 | B634 | Painting | 8:30 | 4:30 | 3 | E | 2 | E | 0 | | | | 0 | |
| 15-Jan-03 | | No Painting | 8:30 | 4:30 | 2 | SW | 2 | SW | 0 | | | | 0 | |
| 16-Jan-03 | | No Painting | 8:30 | 4:30 | 0 | SW | | | 0 | | | | 0 | |
| 17-Jan-03 | B401 | Set up | 8:30 | 4:30 | 0 | SW | 2 | S | 0 | | | | 0 | |
| 18-Jan-03 | | Weekend | | | | | | | | | | | 0 | |
| 19-Jan-03 | | Weekend | | | | | | | | | | | 0 | |
| 20-Jan-03 | B401 | Painting | 8:30 | 4:30 | 0 | NW | 2 | SW | 250 | | | | 250 | |
| 21-Jan-03 | B401 | Painting | 8:30 | 4:30 | 2 | S | 5 | SW | 250 | | | | 250 | |
| 22-Jan-03 | B401 | Painting | 8:30 | 4:30 | 0 | | 2 | SW | 250 | | | | 250 | |
| 23-Jan-03 | B401 | Painting | 8:30 | 4:30 | 3 | SW | 5 | SW | 250 | 250 | | | 500 | |
| 24-Jan-03 | B401 | Painting am only | 8:30 | 4:30 | 5 | SW | | | 400 | | | | 400 | |
| 25-Jan-03 | | Weekend | | | | | | | | | | | 0 | |
| 26-Jan-03 | | Weekend | | | | | | | | | | | 0 | |
| 27-Jan-03 | | Public Holiday | | | | | | | | | | | 0 | |
| 28-Jan-03 | B401 | Painting | 8:30 | 4:30 | 2 | SW | 5 | SW | 250 | | | | 250 | |
| 29-Jan-03 | B401 | Painting | 8:30 | 4:30 | 3 | SW | 4 | SW | 250 | | | | 250 | |
| 30-Jan-03 | B401 | Painting | 8:30 | 4:30 | 3 | NE | 3 | NE | 200 | | | | 200 | |
| 31-Jan-03 | B401 | Painting | 8:30 | 4:30 | 1 | NE | 5 | NE | 300 | | | | 300 | |
| 1-Feb-03 | | Weekend | | | | | | | | | | | 0 | |
| 2-Feb-03 | | Weekend | | | | | | | | | | | 0 | |
| 3-Feb-03 | B401 | Painting | 8:30 | 4:30 | | | | | 500 | | | | 500 | |
| 4-Feb-03 | B401 | Painting | 8:30 | 4:30 | 4 | SW | 4 | SW | 300 | | | | 300 | |
| 5-Feb-03 | B401 | Painting | 8:30 | 4:30 | 4 | NE | 4 | NE | 250 | | | | 250 | |
| 6-Feb-03 | | Public Holiday | | | | | | | | | | | 0 | |
| 7-Feb-03 | B401 | Painting | 8:30 | 4:30 | 4 | S | 4 | SW | 250 | | | | 250 | |
| 8-Feb-03 | | Weekend | | | | | | | | | | | 0 | |
| 9-Feb-03 | | Weekend | | | | | | | | | | | 0 | |
| 10-Feb-03 | B401 | Painting | 8:30 | 4:30 | 2 | SW | 1 | SW | 500 | | | | 500 | |
| 11-Feb-03 | B401 | Painting | 8:30 | 4:30 | 0 | NW | 2 | SW | 250 | | | | 250 | |
| 12-Feb-03 | B401 | Painting | 8:30 | 4:30 | 1 | SW | 3 | SW | 250 | | | | 250 | |
| 13-Feb-03 | B401 | Painting | 8:30 | 4:30 | 2 | NE | 2 | NE | 300 | | | | 300 | |

| Date | Work Package | | Work Hours | | Wind Speed | | | | Abrasive (kg) | | | | | Controls |
|-----------|--------------|-----------------|------------|------|------------|-----------|---------|-----------|---------------|------------|-----------|-----|-------|----------|
| | Location | Operation | From | To | 0830hrs | Direction | 1400hrs | Direction | Garnet C | Fine Blast | Min Blast | Rom | Total | |
| 14-Feb-03 | B401 | Painting | 8:30 | 4:30 | 0 | NW | 3 | NW | 0 | | | | 0 | |
| 15-Feb-03 | | Weekend | | | | | | | | | | | 0 | |
| 16-Feb-03 | | Weekend | | | | | | | | | | | 0 | |
| 17-Feb-03 | B401 | Painting | 8:30 | 4:30 | 0 | NW | 1 | NE | 0 | | | | 0 | |
| 18-Feb-03 | B412 | Set up | 8:30 | 4:30 | 3 | NW | 3 | NW | 0 | | | | 0 | |
| 19-Feb-03 | B412 | Set up | 8:30 | 4:30 | 1 | NW | 1 | NW | 0 | | | | 0 | |
| 20-Feb-03 | B412 | Painting | 8:30 | 4:30 | 0 | NE | 2 | SW | 500 | | | | 500 | |
| 21-Feb-03 | B412 | Set up | 8:30 | 4:30 | 2.5 | NE | 7 | SW | 500 | | | | 500 | |
| 22-Feb-03 | | Weekend | | | | | | | | | | | 0 | |
| 23-Feb-03 | | Weekend | | | | | | | | | | | 0 | |
| 24-Feb-03 | B412 | Painting | 8:30 | 4:30 | 0 | NW | 3.5 | NW | 300 | | | | 300 | |
| 25-Feb-03 | B412 | Painting | 8:30 | 4:30 | 4 | NW | 4 | NW | 500 | | | | 500 | |
| 26-Feb-03 | A401 | Painting | 8:30 | 4:30 | 3 | MW | 6 | S | 1500 | | | | 1,500 | |
| 27-Feb-03 | A401 | Painting | 8:30 | 4:30 | 6 | E | 6 | E | 300 | | | | 300 | |
| 28-Feb-03 | B412 | Painting | 8:30 | 4:30 | 5 | NE | 5 | NE | 0 | | | | 0 | |
| 1-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 2-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 3-Mar-03 | B412 | Painting | 8:30 | 4:30 | 1 | SW | 3.5 | NE | 0 | | | | 0 | |
| 4-Mar-03 | B412 | Painting | 8:30 | 4:30 | 3 | SW | 2 | SW | 750 | | | | 750 | |
| 5-Mar-03 | B412 | Painting | 8:30 | 4:30 | 0 | NE | 1 | NE | 500 | | | | 500 | |
| 6-Mar-03 | B412 | Painting | 8:30 | 4:30 | 0 | SW | 0 | SW | 500 | | | | 500 | |
| 7-Mar-03 | B412 | Painting | 8:30 | 4:30 | 0 | NE | 3 | NE | 500 | | | | 500 | |
| 8-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 9-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 10-Mar-03 | B412 | Painting | 8:30 | 4:30 | 0 | NE | 0 | NE | 500 | | | | 500 | |
| 11-Mar-03 | | No Work on Site | | | | | | | | | | | 0 | |
| 12-Mar-03 | B412 | Painting | 8:30 | 4:30 | 2 | SE | 3.5 | SW | 250 | | | | 250 | |
| 13-Mar-03 | B412 | Painting | 8:30 | 4:30 | 0 | SW | 2 | SW | 250 | | | | 250 | |
| 14-Mar-03 | B412 | Painting | 8:30 | 4:30 | 0.5 | SW | 2.5 | SW | 500 | | | | 500 | |
| 15-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 16-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 17-Mar-03 | B412 | Painting | 8:30 | 4:30 | 0 | NE | 0 | NE | | | | | 0 | |
| 18-Mar-03 | B423 | Set up | 8:30 | 4:30 | 1.5 | NE | 1.5 | NE | 250 | | | | 250 | |
| 19-Mar-03 | B423 | Painting | 8:30 | 4:30 | 1.5 | NE | 3 | NE | 500 | | | | 500 | |
| 20-Mar-03 | B423 | Painting | 8:30 | 4:30 | 1.5 | NE | 1 | NE | 500 | | | | 500 | |
| 21-Mar-03 | | No Work on Site | | | | | | | | | | | 0 | |
| 22-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 23-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 24-Mar-03 | B423 | Painting | 8:30 | 4:30 | 1.5 | NE | 2.5 | NE | 250 | | | | 250 | |
| 25-Mar-03 | B423 | Painting | 8:30 | 4:30 | 3 | NE | 3 | NE | 250 | | | | 250 | |
| 26-Mar-03 | B423 | Painting | 8:30 | 4:30 | 3 | NE | 3.5 | NE | 0 | | | | 0 | |

| Date | Work Package | | Work Hours | | Wind Speed | | | | Abrasive (kg) | | | | | Controls |
|-----------|------------------|-------------------|------------|------|------------|-----------|---------|-----------|---------------|------------|-----------|-----|-------|----------|
| | Location | Operation | From | To | 0830hrs | Direction | 1400hrs | Direction | Garnet C | Fine Blast | Min Blast | Rom | Total | |
| 27-Mar-03 | B423, A445, A456 | Painting | 8:30 | 4:30 | 3 | NE | 5 | NE | 0 | | | | 0 | |
| 28-Mar-03 | A445, A456 | Painting | 8:30 | 4:30 | 6 | NE | 6 | NE | 0 | | | | 0 | |
| 29-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 30-Mar-03 | | Weekend | | | | | | | | | | | 0 | |
| 31-Mar-03 | B423 | Painting | 8:30 | 4:30 | 0 | NE | 5.5 | SW | 0 | | | | 0 | |
| 1-Apr-03 | B423 | Painting | 8:30 | 4:30 | 0 | SW | 0 | SW | 0 | | | | 0 | |
| 2-Apr-03 | B423 | Painting | 8:30 | 4:30 | 0 | SW | 1 | SW | 0 | | | | 0 | |
| 3-Apr-03 | B423 | Painting | 8:30 | 4:30 | 0 | SW | 1.5 | SW | 0 | | | | 0 | |
| 4-Apr-03 | B423 | Painting | 8:30 | 4:30 | 0 | SW | 2 | NE | 0 | | | | 0 | |
| 5-Apr-03 | | Weekend | | | | | | | | | | | 0 | |
| 6-Apr-03 | | Weekend | | | | | | | | | | | 0 | |
| 7-Apr-03 | B434 | Set up | 8:30 | 4:30 | 1.5 | SW | 3.5 | SW | 0 | | | | 0 | |
| 8-Apr-03 | B434 | Set up | 8:30 | 4:30 | 0 | SW | 0 | SW | 0 | | | | 0 | |
| 9-Apr-03 | B434 | Painting | 8:30 | 4:30 | 0 | SW | 0 | SW | 500 | | | | 500 | |
| 10-Apr-03 | B434 | Painting | 8:30 | 4:30 | 0 | NE | 0 | NE | 250 | | | | 250 | |
| 11-Apr-03 | B434 | Painting | 8:30 | 4:30 | 1 | NE | 1.5 | NE | 250 | | | | 250 | |
| 12-Apr-03 | | Weekend | | | | | | | | | | | 0 | |
| 13-Apr-03 | | Weekend | | | | | | | | | | | 0 | |
| 14-Apr-03 | B434 | Painting | 8:30 | 4:30 | 2 | E | 4.5 | NE | 250 | | | | 250 | |
| 15-Apr-03 | B434 | Painting | 8:30 | 4:30 | 1.5 | NW | 1.5 | NW | 300 | | | | 300 | |
| 16-Apr-03 | B434 | Painting | 8:30 | 4:30 | 1.5 | SW | 2.5 | SW | 250 | | | | 250 | |
| 17-Apr-03 | | No Work on Site | | | | | | | | | | | 0 | |
| 18-Apr-03 | | Public Holiday | | | | | | | | | | | 0 | |
| 19-Apr-03 | | Weekend | | | | | | | | | | | 0 | |
| 20-Apr-03 | | Weekend | | | | | | | | | | | 0 | |
| 21-Apr-03 | | Public Holiday | | | | | | | | | | | 0 | |
| 22-Apr-03 | B434 | Painting | 8:30 | 4:30 | 1 | SW | 1.5 | SW | 0 | | | | 0 | |
| 23-Apr-03 | B434 | Painting | 8:30 | 4:30 | 0 | SW | 2.5 | SW | 0 | | | | 0 | |
| 24-Apr-03 | B434 | Painting | 8:30 | 4:30 | 2.5 | NW | 1.5 | SW | 0 | | | | 0 | |
| 25-Apr-03 | | Public Holiday | | | | | | | | | | | 0 | |
| 26-Apr-03 | | Weekend | | | | | | | | | | | 0 | |
| 27-Apr-03 | | Weekend | | | | | | | | | | | 0 | |
| 28-Apr-03 | B434 | Painting | 8:30 | 4:30 | 1 | NE | 1 | NE | 0 | | | | 0 | |
| 29-Apr-03 | B434 | Painting | 8:30 | 4:30 | 0 | NW | 0 | NW | 0 | | | | 0 | |
| 30-Apr-03 | A467 | Painting | 8:30 | 4:30 | 3 | NE | 3 | NE | 250 | | | | 250 | |
| 1-May-03 | A67, B445 | Painting & Set up | 8:30 | 4:30 | 2.5 | NE | 0 | NW | 0 | | | | 0 | |
| 2-May-03 | B445 | Set up | 8:30 | 4:30 | 0 | NW | | | 0 | | | | 0 | |
| 3-May-03 | | Weekend | | | | | | | | | | | 0 | |
| 4-May-03 | | Weekend | | | | | | | | | | | 0 | |
| 5-May-03 | B445 | Painting | 8:30 | 4:30 | 0 | NE | 0 | NE | 250 | | | | 250 | |

| Date | Work Package | | Work Hours | | Wind Speed | | | | Abrasive (kg) | | | | | Controls |
|-----------|--------------|---------------------|------------|------|------------|-----------|---------|-----------|---------------|------------|-----------|-----|-------|----------|
| | Location | Operation | From | To | 0830hrs | Direction | 1400hrs | Direction | Garnet C | Fine Blast | Min Blast | Rom | Total | |
| 27-Jul-03 | | Weekend | | | | | | | | | | | 0 | |
| 28-Jul-03 | | Alternative Work | 8:30 | 4:30 | 6 | NE | | | 0 | | | | 0 | |
| 29-Jul-03 | EXI3 | Painting | 8:30 | 4:30 | 1.5 | S | 2 | S | 0 | | | | 0 | |
| 30-Jul-03 | EX03 | Painting | 8:30 | 4:30 | 1.5 | NE | 2.5 | E | 250 | | | | 250 | |
| 31-Jul-03 | EX03 | Painting | 8:30 | 4:30 | 1 | NE | 2 | E | 250 | | | | 250 | |
| 1-Aug-03 | EX03 | Painting | 8:30 | 4:30 | 0 | NW | 0 | NW | 0 | | | | 0 | |
| 2-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 3-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 4-Aug-03 | EX03, EX04 | Painting | 8:30 | 4:30 | 0 | E | 0 | E | 0 | | | | 0 | |
| 5-Aug-03 | EX03, EX04 | Painting | 8:30 | 4:30 | 0 | SW | 0 | SW | 0 | | | | 0 | |
| 6-Aug-03 | EXI3, EXI4 | Painting | 8:30 | 4:30 | 0 | SW | 0.5 | SW | 0 | | | | 0 | |
| 7-Aug-03 | EXI3 | Painting | 8:30 | 4:30 | 2.5 | SW | 2 | NE | 0 | | | | 0 | |
| 8-Aug-03 | EXI3 | Painting | 8:30 | 4:30 | 2 | NE | 2 | NE | 0 | | | | 0 | |
| 9-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 10-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 11-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 3 | NE | 3 | NE | 200 | | | | 200 | 100 |
| 12-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 1.5 | NE | 3 | NE | 200 | | | | 200 | 100 |
| 13-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 1.5 | NE | 3 | NE | 200 | | | | 200 | 100 |
| 14-Aug-03 | EX03 | Painting | 8:30 | 4:30 | 1.5 | SW | 1.5 | SW | | | | | 0 | |
| 15-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 1.5 | NW | | | 300 | | | | 300 | 200 |
| 16-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 17-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 18-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 1 | SW | 1.5 | SW | 300 | | | | 300 | 150 |
| 19-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 0 | S | 0 | S | 200 | | | | 200 | 200 |
| 20-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 3 | SW | 2 | SW | 100 | | | | 100 | 50 |
| 21-Aug-03 | | General Maintenance | 8:30 | 4:30 | 3.5 | NW | | | | | | | 0 | |
| 22-Aug-03 | | General Maintenance | 8:30 | 4:30 | 3 | S | | | | | | | 0 | |
| 23-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 24-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 25-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 2 | NE | 2 | NE | 0 | | | | 0 | |
| 26-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 3 | NE | 3 | NE | 0 | | | | 0 | |
| 27-Aug-03 | TN06 | Painting | 8:30 | 4:30 | 3 | NE | 1.5 | NE | 0 | | | | 0 | |
| 28-Aug-03 | | General Maintenance | 8:30 | 4:30 | 0 | NE | 2.5 | SW | 100 | | | | 100 | 20 |
| 29-Aug-03 | EX03, EX04 | Painting | 8:30 | 4:30 | 2.5 | SW | 1.5 | SW | 0 | | | | 0 | |
| 30-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 31-Aug-03 | | Weekend | | | | | | | | | | | 0 | |
| 1-Sep-03 | EX03 | Painting | 8:30 | 4:30 | 2 | NW | 0.5 | NW | | | | | 0 | |
| 2-Sep-03 | TN06 | Painting | 8:30 | 4:30 | 3 | SW | 3.5 | SW | 250 | | | | 250 | 100 |
| 3-Sep-03 | TN06 | Painting | 8:30 | 4:30 | 5 | SW | 5.5 | SE | | | | | 0 | |
| 4-Sep-03 | EX05 | Painting | 8:30 | 4:30 | 1 | NW | 4.5 | NW | 500 | | | | 500 | 200 |
| 5-Sep-03 | | Night Shift | 8:30 | 4:30 | 5.5 | SW | 1 | NE | | | | | 0 | |

| Date | Work Package | | Work Hours | | Wind Speed | | | | Abrasive (kg) | | | | | Controls |
|-----------|--------------|-------------|------------|------|------------|-----------|---------|-----------|---------------|------------|-----------|-----|--------|----------|
| | Location | Operation | From | To | 0830hrs | Direction | 1400hrs | Direction | Garnet C | Fine Blast | Min Blast | Rom | Total | |
| 6-Sep-03 | | Weekend | | | | | | | | | | | 0 | |
| 7-Sep-03 | | Weekend | | | | | | | | | | | 0 | |
| 8-Sep-03 | TN06 | Painting | 8:30 | 4:30 | 1 | NW | 1.5 | SW | | | | | 0 | |
| 9-Sep-03 | EXI5, TN06 | Painting | 8:30 | 4:30 | 0 | SW | 0.5 | SW | 100 | | | | 100 | 25 |
| 10-Sep-03 | EX05 | Painting | 8:30 | 4:30 | 0 | SW | 0 | SW | 100 | | | | 100 | |
| 11-Sep-03 | EXI5, EX05 | Painting | 8:30 | 4:30 | 0 | NW | 4.5 | NE | 250 | | | | 250 | |
| 12-Sep-03 | EX05 | Painting | 8:30 | 4:30 | 0.5 | NE | 1 | NE | 250 | | | | 250 | |
| 13-Sep-03 | | Weekend | | | | | | | | | | | 0 | |
| 14-Sep-03 | | Weekend | | | | | | | | | | | 0 | |
| 15-Sep-03 | TN06 | Painting | 8:30 | 4:30 | 1.5 | NE | 1.5 | NE | | | | | 0 | |
| 16-Sep-03 | TN06 | Painting | 8:30 | 4:30 | 1 | NW | 1.5 | NW | 100 | | | | 100 | 25 |
| 17-Sep-03 | EX05 | Painting | 8:30 | 4:30 | 6 | NW | 1 | NW | 250 | | | | 250 | |
| 18-Sep-03 | | No Painting | 8:30 | 4:30 | 7 | SW | 5 | SW | | | | | 0 | |
| 19-Sep-03 | | No Painting | 8:30 | 4:30 | 3 | SW | 3.5 | SW | | | | | 0 | |
| 20-Sep-03 | | Weekend | | | | | | | | | | | 0 | |
| 21-Sep-03 | | Weekend | | | | | | | | | | | 0 | |
| 22-Sep-03 | Piers | Painting | 8:30 | 4:30 | 2.5 | SW | 1.5 | SW | 100 | | | | 100 | |
| 23-Sep-03 | Piers | Painting | 8:30 | 4:30 | 1.5 | SW | 2.5 | SW | 100 | | | | 100 | |
| 24-Sep-03 | Piers | Painting | 8:30 | 4:30 | 1.5 | SW | 0.5 | SW | | | | | 0 | |
| 25-Sep-03 | | No Painting | 8:30 | 4:30 | 7+ | SW | | | | | | | 0 | |
| 26-Sep-03 | Piers | Painting | 8:30 | 4:30 | 2.5 | SW | 1.5 | SW | | | | | 0 | |
| 27-Sep-03 | | Weekend | | | | | | | | | | | 0 | |
| 28-Sep-03 | | Weekend | | | | | | | | | | | 0 | |
| 29-Sep-03 | | No Painting | 8:30 | 4:30 | 7+ | SW | | | | | | | 0 | |
| 30-Sep-03 | Piers | Painting | 8:30 | 4:30 | 5.5 | SW | 1.5 | SW | | | | | 0 | |
| Total | | | | | | | | | 38600 | 5200 | 600 | 0 | 44,400 | 1270 |

Location Definitions

| | | | | | |
|------|-----------------------------------|------|---|-------|---|
| B401 | Below walkways, span 4, panel 0-1 | A401 | Above walkways, span 4, panel 0-1 | EX01 | East extension external outboard boxes 0-5 |
| B412 | Below walkways, span 4, panel 1-2 | A434 | Above walkways, span 4, panel 3-4 | EXI1 | East extension external inboard boxes 0-5 |
| B423 | Below walkways, span 4, panel 2-3 | A445 | Above walkways, span 4, panel 4-5 | EX02 | East extension external outboard boxes 6-12 |
| B434 | Below walkways, span 4, panel 3-4 | A456 | Above walkways, span 4, panel 5-6 | EXI2 | East extension external inboard boxes 6-12 |
| B445 | Below walkways, span 4, panel 4-5 | A467 | Above walkways, span 4, panel 6-7 | EX03 | East extension external outboard boxes 13-18 |
| B456 | Below walkways, span 6, panel 3-4 | A478 | Above walkways, span 4, panel 7-8 | EXI3 | East extension external inboard boxes 13-18 |
| B601 | Below walkways,span 6, panel 0-1 | A501 | Above walkways, span 5, panel 0-1 | EX04 | East extension external outboard boxes 19-24 |
| B612 | Below walkways,span 6, panel 1-2 | | | EXI4 | East extension external inboard boxes 19-24 |
| B623 | Below walkways,span 6, panel 2-3 | TN06 | Northern extension trestle TN01-TN03, east & west | EX05 | East extension external outboard boxes 25-30 |
| B634 | Below walkways, span 6, panel 3-4 | | | EXI5 | East extension external inboard boxes 25-30 |
| B656 | Below walkways, span 6, panel 5-6 | BW03 | AJ Hackett Bungy Pod Construction | Piers | Pier base plate and HD bolts, piers 2,3,4,5 and 6 |

APPENDIX B

Local Residents Survey and Feedback

AHB LOCAL RESIDENT FEEDBACK FORM

26 SEP 2003

Date: September 2003

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct Extension Legs
Bungy Pod Construction
Weld Repairs

Name: s9(2)(a)
Address: [REDACTED]
WESTHAVEN

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 impacts on you? NOT SURE, NOT REALLY AWARE OF WORK BEING CARRIED OUT.

Suggestions or comments :

Please Contact the following with any queries: Paul Cannons (Project Manager)
/Tel: (09) 481 0078 Mob: 0274 318 491

Date: 22 / 09 / 03
s9(2)(a)



21 SEP 2003

AHB LOCAL RESIDENT FEEDBACK FORM

Date: September 2003

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct Extension Legs
Bungy Pod Construction
Weld Repairs

Name: s9(2)(a)
Address: [REDACTED]
NORTHCOG POINT.

Phone No: s9(2)(a)

Do you have any complaints regarding work on the Bridge? NO, BEING KEPT INFORMED IS A GREAT HELP.
ALTHOUGH AFTER BLASTING SUTTERING IS FILLED WITH SAND?

Do you feel you are being kept adequately informed when work is undertaken that impacts on you? YES

Suggestions or comments :

Please Contact the following with any queries: Paul Cannons (Project Manager)
Tel: (09) 481 0078 Mob: 0274 318 491

Date: 22 / 9 / 03
s9(2)(a)



AHB LOCAL RESIDENT FEEDBACK FORM

Date: September 2003

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct Extension Legs
Bungy Pod Construction
Weld Repairs

Name: s9(2)(a)
Address: [Redacted]
AUG K L P O V

Phone No: s9(2)(a)

Do you have any complaints regarding work on the Bridge? Excessive Blasting Noise - week of 15th - 19th - Sept,

Do you feel you are being kept adequately informed when work is undertaken that impacts on you? ~~Yes~~ He does not aware blasting was happening

Suggestions or comments :

Please Contact the following with any queries: Paul Cannons (Project Manager)
Tel: (09) 481 0078 Mob: 0274 318 491

Date: 29 / 09 / 03



AHB LOCAL RESIDENT FEEDBACK FORM

Date: September 2003

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct Extension Legs
Bungy Pod Construction
Weld Repairs

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

STOKES POINT NORTHCOLE

Phone No: (0)480 7710

Do you have any complaints regarding work on the Bridge? NOT YET

Do you feel you are being kept adequately informed when work is undertaken that impacts on you? YES
PLEASE USE ENGLISH!!

Suggestions or comments :

Please Contact the following with any queries: Paul Cannons (Project Manager)
Tel: (09) 481 0078 Mob: 0274 3 18 491

Date: 17-9-03



22 SEP 2003

AHB LOCAL RESIDENT FEEDBACK FORM

Date: September 2003

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct Extension Legs
Bungy Pod Construction
Weld Repairs

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

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 impacts on you? YES

Suggestions or comments :

Please Contact the following with any queries: Paul Cannons (Project Manager)
Tel: (09) 481 0078 Mob: 0274 318 491

Date: 17 19 103



AHB LOCAL RESIDENT FEEDBACK FORM

Date: September 2003

Major Work Carried Out this year: Blasting and Painting the Extensions
Blasting and Painting the Original Bridge
Blasting and Painting the Northern Viaduct Extension Legs
Bungy Pod Construction
Weld Repairs

Name: s9(2)(a)
Address: Northcote Point

Phone No: 09 4199358

Do you have any complaints regarding work on the Bridge? Not yet, Keep up the good work

Do you feel you are being kept adequately informed when work is undertaken that impacts on you? YES

Suggestions or comments : Please paint out graffiti as soon as it appears and not left too long as it gets added too.

Please Contact the following with any queries: Paul Cannons (Project Manager)
Tel: (09) 481 0078 Mob: 0274 318 491

Date: 18 / 9 / 03

