APPENDICES

Appendix A
Asbestos Handling Procedure

ATTACHMENT 4

TO THE

SITE WORK PLAN

Project No. 3263

ASBESTOS HANDLING PROCEEDURE

1.0 MANAGEMENT OF ASBESTOS-CONTAMINATED SOILS

This document is intended to guide the actions of owners, operators, contractors and consultants when asbestos-contaminated soils are being disturbed. Asbestos-contaminated soil "management" projects are those where soil may be handled, stored, collected, transported and/or disposed of as asbestos- contaminated soil as part of a larger project.

Workcover must be notified at least 7-working days prior to any planned soil-disturbing activity in an area that is known to have, or has the potential to have, material suspected of containing asbestos.

Management Plans and standard operating procedures should be consistent with the following recommended work practices, unless alternate work practices are appropriate and approved by Workcover.

1.1 General Site Description

Prior to commencement of any site operations, it is recommended that a pre-work survey be conducted to assess existing site conditions. This survey should identify any hazards that may be present and that may affect the health and safety of persons at the site. For example, the survey should:

- determine safe access and movement within work areas, walkways and passageways;
- identify archeological interests, if any;
- identify and assess the risks of working near overhead and/or underground high voltage or telephone lines, if any;
- establish sufficient overhead clearance for power and/or telephone lines, if any;
- assess the risks of working near other overhead and underground utilities; and
- determine the location of sanitary facilities and drinking water sources for project personnel.

All utilities should be field-located prior to commencement of site activities. No excavation should begin without first notifying dial before u dig to obtain the relevant service plans.

The owner, operator or asbestos contractor may have other work plans applicable to the site which onsite personnel should be aware of. Ancillary plans could include, for example, stormwater plans, communication plans, transportation plans, and site health and safety plans. The asbestos contractor, consultant and other onsite personnel should be familiar with ancillary site plans and should comply with them where applicable.

Special consideration should be given to evaluate other challenges presented by site conditions. For example, wetlands and areas of historical, archaeological and cultural resources should be identified, as may be required by local, State, or federal regulations, prior to commencement of site activities and protected throughout the project. Adverse impacts may be avoided by the use of stormwater control devices or other specific protection measures. Site visitors and workers should be prevented from trespassing on, removing or otherwise disturbing areas of special consideration.

1.2 Nature and Extent of Asbestos Material(s)

The site has been identified to contain a mixture of both friable and non-friable asbestos in soil and therefore shall be managed in the manner prescribed for friable asbestos.

1.3 Worker Training

A friable asbestos licence AS1 is required to remove, repair or disturb any amount of friable asbestos. To obtain a friable asbestos licence you must undertake a workcover recognized training course in friable asbestos removal and friable asbestos supervision.

All friable asbestos removal must be supervised by a a person with appropriate qualifications and experience, and who is nominated by the licence holder to be recorded on Workcover's licencing system.

All those involved in friable asbestos removal must have undertaken Workcover-recognised training in friable asbestos removal.

In addition, individuals with the potential for exposure to asbestos fibers should be trained in the proper usage of personnel protective equipment.

1.4 Mobilization

Mobilization is the actual movement and assignment of personnel and equipment onto the site to establish a presence for project implementation and includes those activities associated with establishing administrative facilities. The extent and nature of mobilization activities should be commensurate with the project scope and site specific conditions. Following is a sample list of activities which may be conducted as part of the mobilization effort where appropriate:

- establish office and storage trailers,
- establish personal hygiene and decontamination stations,
- establish roadway and traffic controls,
- establish parking and walkways, and
- establish pedestrian communications.

Following is a sample list of equipment and materials that may be mobilized, depending on the site specific conditions and needs:

- site transportation pick-up trucks;
- tool storage box;
- water truck, tanks and vessels;
- excavation machinery;
- load-out stations;
- fencing and windscreen.

1.4.1 Site-Specific Training

As part of the mobilization, all personnel, including supervisors, should receive site-specific training. The training should cover the provisions of the Site Management Plan , SWMS and approved standard operating procedures. This training should also include, at a minimum, the following:

- background of asbestos; including health effects,
- recognition of debris in soil that may contain asbestos,
- controls and notifications to be followed when debris that may contain asbestos is identified,
- the nature of operations that could result in exposure to asbestos,
- spill prevention and contamination reduction techniques,
- proper use, handling and disposal of personal protective equipment (PPE),
- best management practices for the establishment of work zones and stormwater control,
- engineering controls and other measures to prevent contact with contaminants,
- personnel decontamination,
- emergency procedures, and
- equipment decontamination.

1.4.2 Site Preparation

Consistent with Section 1.1, site personnel should review and maintain utility locations and markers; develop and delineate work zones, haul routes, excavation areas; and identify direct loading areas so as to minimize the physical impact on the site. Haul routes should be reviewed for conformance with any existing transportation plan and should be compared to site conditions to avoid unnecessary disturbances of asbestos-contaminated soil.

1.4.3 Safety Meetings

Daily safety meetings should be conducted prior to the start of each work day. These meetings should focus primarily on the safe completion of the work plan for the day, as well as safe work practices and contingencies associated with the scheduled tasks. Other topics may be discussed as deemed appropriate by site health and safety personnel. New work or different site conditions should be discussed in individual crew or specific crew meetings. At a minimum, it is recommended that daily safety meetings include and confirm the following:

- delineation of the removal grid system and depth,
- establishment of work zones,
- utility identification,
- haul routes and site access,
- equipment mobilization,
- dust and particulate emissions control,
- water source and weather proofing, and
- fencing and wind break barriers as required.

1.4.4 Spill Response Plan

A spill response plan should be developed to provide a systematic and controlled response to an asbestos- contaminated soil spill that could adversely impact human health or the environment. The plan should not only include response actions for spills that occur onsite, but should also include response actions for spills that occur during transportation to the landfill. The spill response plan should be implemented in addition to the other protective measures described in this Section 1. Refer to Section 6 for additional information concerning "Interim Actions to Prevent Release of and/or Exposure to Asbestos Fibers."

1.5 Planned Soil-Disturbing Activities

1.5.1 Horizontal and Vertical Extent of Excavation

During excavation of service trenches, only that soil which will be disturbed during the course of the project must be removed and properly disposed of As a result, some asbestos-contaminated soil will be left in place. Leaving undisturbed asbestos-contaminated soil in place is acceptable as long as there is no demonstrated exposure pathway. For example, if asbestos is visible in the sidewall of an excavation but the lateral extent of the excavation is complete, it is acceptable to cover the asbestos with a 200um plastic sheeting during site work.

Following the removal of asbestos-contaminated soil, appropriate controls should be implemented consistent with this Section 1 to prevent the disturbance of asbestos-contaminated soil remaining in the excavation area but not identified for removal. These areas should be covered with a tarp, as described above, or continuously wetted in order to protect on-site personnel and prevent disturbance and emissions. When appropriate and as determined by the asbestos consultant or qualified site personnel, personnel entering the excavation area should wear appropriate personal protective equipment. Air monitoring should be conducted in accordance with Section 1.7 and all efforts should be made to prevent the disturbance of remaining asbestos-contaminated soil.

1.5.2 Soil Removal Techniques

The removal works should be conducted in accordance with the requirements of the Occupational Health and Safety Regulation 2001 and the National Occupational Health and Safety Commission (NOHSC) Code of Practice for the Safe Removal of Asbestos, 2nd Edition, {NOHSC: 2002(2005)}.

Soil removal activities should be conducted in a manner that minimizes soil handling in order to minimize emissions. Emissions are most likely to occur at the point of excavation, when pushing or moving soils around and at the dumping point (where a large surface area of soil is exposed), with the latter two activities presenting the greatest chance for emissions. Therefore, the staging of soil should be avoided whenever practicable (e.g., excavate the soil and load it directly into the truck), and dumping of soil should be done in a careful and controlled manner with misting to control emissions.

It should be noted that misting is not designed or meant to "adequately wet" the soil, but provide a "water curtain" around the soil to contain possible emissions. Adequate wetting of soil should have already occurred before commencing soil disturbance. The key to wetting is to conduct good pre-excavation wetting, and letting the water soak into the soil. Evenly moist soil throughout will provide the most efficient use of water and the

greatest emissions control, with minimal hassle and cross-contamination potential. In contrast, drenching the dirt with a fire hose may result in using large amounts of water with very little emission control benefit.

Project specific soil removal techniques should be detailed in the Safe Work Method Statement. Though each site will present somewhat unique circumstances, in most cases the removal of asbestos-contaminated soil should be generally consistent with the protocols described below.

Approximately twenty-four hours in advance of soil disturbing activities, the work area should be adequately wetted to prevent any visible dust emissions that may be generated during mobilization and site setup. During actual soil disturbing activities, water should be applied to the site of the disturbance as appropriate to suppress any visible emissions. Adequate dust control protocols should be maintained throughout the course of the removal project. It is generally recommended that removal of asbestos-contaminated soil be done with heavy equipment to minimize dust emissions at the point of removal.

Utilizing equipment appropriate to the site conditions (i.e. excavator, mini excavator, backhoe, etc.), soil excavation should proceed within the designated work area. Excavation equipment should be fitted with a spray bar or equivalent system to provide an emissions barrier during the removal process. Additional hand wetting may be accomplished as long as no dust, run-off or splattering results. It is recommended that a dedicated misting station be used at the dump point, which encloses the entire bucket and surface area of soil being dumped. Use of garden hoses may not be adequate to cover the entire area. The dump point is probably the most critical emissions point. Therefore, misting at this point is very important.

Excavation of asbestos-contaminated soil must not overreach the bounds of wetting. Excavation should be conducted in lifts small enough to ensure that disturbed soil remains adequately wet. Over reaching is one of the biggest problems encountered during asbestos-contaminated soil removal, and can be avoided by adequately pre-wetting the site before commencing soil disturbance.

Generally, removal of asbestos-contaminated soil should begin at one edge of the work area and proceed across to the opposite edge of the planned excavation. Removal should be conducted in a direction to prevent the spread of contamination. Uncontaminated soil in the swing radius of heavy equipment should be covered with poly to prevent contamination during removal activities. The bucket of the excavator should only be filled to 2/3 its normal capacity to minimize the chance of spillage.

At all times an AS1 licenced contractor and/ or an occupational hygienist should monitor the work area under active removal. Should any area under active removal prove too large for adequate stabilization of asbestos-contaminated soil, the work area should be reduced. All asbestos-contaminated soil that is not being actively removed should be adequately stabilized in order to prevent the spread of contamination.

If at any time visible emissions are observed, all removal activities should immediately cease until such time as the work practices are altered so as to prevent further visible emissions. Occurrences of visible emissions should be recorded in the site record.

Each excavation should be monitored and visually inspected by the AS1 licenced contractor during removal activities. If subsurface anomalies are encountered (such as unexpected debris or materials), all work should stop and the owner/client should be notified. Work should then proceed only when directed by the site safety officer in

conjunction with other qualified site personnel.

Asbestos fibre air monitoring will be carried out during asbestos-contaminated soil removal activities. Air samples should be collected to ensure personnel protection as well as measure the adequacy of engineering and environmental controls employed in the work areas. The sample collection and analysis should be conducted in accordance with the National Occupational Health and Safety Commission "Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]" April 2005.

1.5.2.1 Excavation Equipment and Placement of the Excavator

Equipment to be used for removal of asbestos contaminated soil will vary depending on the site-specific conditions. Equipment appropriate to topography, soil type and other field conditions should be used. Before leaving the work area, all excavation equipment should be decontaminated in accordance with Section 1.8.7.

Site access controls should be established for each individual and primary work area in accordance with the procedures described in this Section 1. These controls should allow for the incorporation of a contamination reduction zone to be utilized for the dry decontamination of heavy equipment (buckets, tires and tracks) between work areas if needed.

Every attempt should be made to keep the excavation equipment on clean or non-contaminated soil. In the event the excavator must be placed onto asbestos-contaminated soil, the following or equivalent engineering controls should be implemented to avoid contamination:

- place a suitable impermeable lining (e.g., plastic) over contaminated soils,
- import rocks, recycled asphalt road material or clean soil, etc., and place on the liner over the impacted area,
- use an alternate (rubber tired) excavator,
- utilize barriers (plywood, plastic, railroad ties) on impacted soils taking care to decontaminate such barriers before reuse in other areas.

At the completion of the project, all contaminated lining and fill materials must be decontaminated or disposed of as asbestos waste material. Equipment should be decontaminated as described in 1.8.7 of this guidance.

1.5.2.2 Direction to Prevent Spread of Contamination

The excavation protocols should include control for any asbestos-contaminated soil, which might fall from excavation equipment. Asbestos-contaminated soil falling within the work area should fall only on the contaminated portion of the work area or should be removed by the equipment operator prior to completion of the remaining work area. Asbestos-contaminated soil falling onto the plastic-lined load station should be cleaned and added to the truckload prior to the truck moving off the plastic, or cleaned after the truck leaves the plastic and added to the next truckload. The excavator and load station should be moved as required to complete multiple work areas.

When feasible, excavated asbestos-contaminated soil should be directly loaded into the beds of properly lined trucks that will haul the soil for disposal. Refer to Section 1.9 for further information on accepted waste handling and disposal practices. A plastic-lined load-out station should be created close to the edge of each work area. Trucks that will transport asbestos-contaminated soil to an approved disposal facility should be directed onto the load-out station.

1.6 Site Access Control

Every attempt should be made to prevent unauthorized site access. One means of preventing access is the installation of portable fence panels to enclose work areas and posting appropriate warning signs in visible locations. Key site personnel should be responsible for limiting access to the work site and only authorized personnel should be allowed on site in accordance with the project health and safety plan. All personnel should sign in and out as they enter and leave designated work areas.

1.7 Air Monitoring

During the removal of asbestos-contaminated soil, the occupational Hygienist should collect air samples to assist in determining the adequacy of engineering and environmental controls employed at the site. In addition, personal air monitoring should be performed in accordance with OSHA requirements.

Air samples should be collected inside each work area. The number and location of air monitors will be determined by the occupational hygienist. The sample collection and analysis should be conducted in accordance with the National Occupational Health and Safety Commission "Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]" April 2005.

All samples collected should be delivered to the laboratory at the end of the workday using appropriate chain-of-custody procedures. Results should be made available to the occupational Hygienist and onsite personnel before work begins the following day. Verbal results should be made available within 24 hours of receipt of samples by the laboratory. Hard copy results should be on site within 24 hours of verbal communication, or as soon as practicable.

If an air sample contains any concentration of airborne asbestos fibers greater than 0.01 fibres/mL work practices and engineering controls should be modified to reduce emissions. If subsequent air monitoring results indicate that work practices and engineering controls are still not adequate, soil removal activities should cease and a revised control plan be developed in consultation with the occupational Hygienist..

1.8 Dust Control/Emissions Control Measures

Dust generated during removal activities presents a potential impact to air quality. Soils contaminated with asbestos present an even greater threat and pose a risk to human health and the environment. Accordingly, dust suppression and emissions controls are critical elements of asbestos-contaminated soil removal activities. The types of emissions controls used are job specific and dependent upon the type of asbestos, the amount of contamination, the integrity of the asbestos material and the type of soil being disturbed. For example, amosite asbestos that has separated from its structural matrix will cause substantial emissions that cannot be controlled with the wetting techniques discussed below, mainly because amosite is resistant to water absorption and the fibers that have separated from the matrix are no longer bound in a material. Similarly, relatively high concentrations of chrysotile asbestos fibers in loose soil that have lost adhesion to a matrix will cause emissions that cannot be effectively controlled by standard wetting techniques. In cases such as these, the use of containment structures may be the only way to effectively control emissions. Containment structures are discussed further in Section 1.8.5 of this guidance.

Whenever potentially contaminated soil and debris are being disturbed, the AS1 contractor or qualified site personnel and/ or Occupational Hygienist should be on site at all times that asbestos contaminated soil is removed to ensure that no visible emissions are generated at any time during soil- disturbing activities. An AS1 contractor or qualified site personnel should be on site at all times to monitor the moisture of the asbestos-contaminated soil being removed and to ensure that it is adequately wet. If visible emissions are observed during the removal process, work practices should be reviewed and modified by the AS1 contractor or qualified site personnel and/ or Occupational Hygienist.

At no time should vehicle traffic be allowed on surfaces where the surface samples have shown positive test results or where visible asbestos is present. In addition to restricted access for vehicles, all other vehicle access should be limited to surfaces with a reinforced, tear-resistant polyethylene sheeting or equivalent liner. This excludes equipment that is to remain off road throughout the project. The off-road equipment may travel on soils that do not have surface contamination and have been saturated for the control of visible emissions.

To prevent the possible cross contamination of clean surfaces, 200um polyethylene sheeting should be placed over clean surfaces in the vicinity of the work area. In addition, reinforced tear-resistant polyethylene sheeting or equivalent liners should be applied to surfaces where truck traffic will be moving from the work area onto non-surface contaminated soils.

Potential dust emissions from stockpiled soils should be mitigated by the application of water, and/or by covering with tarps or other appropriate cover material.

1.8.1 Soil Wetting or Stabilizing

A continuous water supply (i.e., water truck, water tanks, fire hydrant and fire hose, etc.) should be available at all times during removal activities. The water truck or water hose should be capable of applying water or a water mist directly to the ground surface to minimize dust and prevent emissions.

A misting system localized to the work area should be installed prior to removal activities. The water misting system should be constructed out of PVC piping or equivalent materials that will generate a low energized mist of water droplets large enough to minimize drift but fine enough to control any fiber emissions generated from the work area without over-saturation of the soil. There are two types of misting systems that can be utilized; one type is mounted around the immediate excavation area and one type is mounted on the equipment. Ground mounted misting systems are very effective on small excavations. Equipment mounted misting systems are typically not as effective as ground mounted systems; however, they are generally used on large excavation projects because the use of ground mounted misters is usually not practical for work in large areas. In addition, if improperly designed, ground mounted misters can cause a buildup of water. However, if fine misters are used with a wind fence, ground mounted misters work much better than equipment mounted misters.

During the removal process, all areas of impact should be kept adequately wet.

Soil should have water applied at the point of contact. The excavator or other removal equipment should handle the material wet and direct load the soil into a tractor trailer or other appropriate waste container. The trailer or other waste container should contain a leak tight container constructed out of 200*u*m polyethylene sheeting. In addition to the point of impact wetting, additional wetting should
occur within the trailer or waste container itself to provide additional emissions control at the point of loading.

1.8.2 Wind Break Barriers

Wind break barriers should be constructed prior to commencement of removal activities. Wind break barriers should be constructed out of materials appropriate to site conditions. For example, temporary chain link fencing at a level of approximately 6 feet in height with fence screen installed and fitted to each panel may be used to assist in controlling any potential migration of dust and debris throughout the removal process. All wind speed measurements should be taken inside any wind break barriers and in locations in close proximity to, and representative of, the work area in which the soil is being handled. This would include both the point of removal and the dumping point since the potential for emissions is greatest in these two areas.

1.8.3 High Wind Work Stoppage

Shutdown conditions – Soil removal/disturbance operations should immediately and temporarily cease when one or more of the following conditions have been met:

- winds produce visible emissions or create movement of dust or debris in or near the removal/disturbance area or loading area; or
- winds impact the ability of engineering controls to work as designed.

During wind-related work shutdowns, other work activities not involving soil removal or disturbance (e.g. lining dumpsters) may continue.

Startup conditions – Soil removal/disturbance operations may resume after all of the following conditions have been met:

- winds are no longer producing visible emissions or creating movement of dust or debris in or near the removal/disturbance area; and
- winds are not impacting the ability of engineering controls to work as designed.

1.8.4 Covers

Exposed clean surfaces within the work area should be protected with 200*um* polyethylene sheeting or an equivalent cover to eliminate the potential for contamination during removal of soil within the work area.

Exposed asbestos-contaminated soil should be covered or otherwise stabilized during high wind work stoppages, and other periods when active removal/disturbance is not occurring.

1.8.5 Containment Structures

In some cases, construction of containment structures will be appropriate in order to eliminate the potential release of asbestos dust emissions to adjacent facilities/locations and in order to protect human health and the environment.

When greatly diffuse contamination is encountered, or relatively high concentrations of asbestos are present in the soil (e.g., soil with high asbestos content and no visible asbestos debris), or when the soil matrix is loose (i.e., the soil does not bind well to the asbestos and, therefore, does not help control emissions), it may be necessary to construct a containment system over the work area. Similarly, amosite asbestos that has separated from its structural matrix will cause substantial emissions that cannot be controlled with standard wetting techniques due to the fact that amosite is resistant to water absorption.

Containment systems can range from pre-engineered tent structures that are relatively large and easy to erect, to basic site built tents made with reinforced polyethylene sheeting mounted on site fabricated structures. Containment barriers must be placed under negative pressure with HEPA filtered fan units to further prevent emissions. Containment systems provide the greatest emission control and facilitate faster excavation through minimizing interruption in production from high wind events, poor weather

conditions, unfavorable soil absorption rates (e.g., wetting becomes less critical because of the other engineering), etc. The most difficult problem with a containment system is the decontamination of the waste trucks. This problem is not technically insurmountable, but if not designed properly can substantially lower the cost-benefit on the containment system. Even if not necessarily required by law, it is recommended that exterior containment systems be designed and installed by licensed asbestos abatement contractors (as they have expertise in designing and maintaining exterior containment systems). Containment structures should be used in accordance with the Code of Practice for the Safe Removal of Asbestos {NOHSC: 2002 (2005)}

1.8.6 External Critical Barriers for Nearby Structures

N/A

1.8.7 Equipment Decontamination

All excavation equipment should be thoroughly cleaned before being mobilized to the work area. Cleaning procedures should be conducted in such a manner as to ensure that all residual soil and contaminants are removed and other hazards are not present. Equipment should also be inspected for leaking fluids in order to prevent introducing other contaminants to the site. Leaking equipment should not be allowed on site.

Once the removal process is complete, decontamination of the equipment should occur within a waste container when possible. The equipment that was in contact with the contaminated material should be thoroughly cleaned using water and rags. The water and rags should be containerized and the container then sealed for transportation and disposal. The final decontamination of equipment should occur within a catch basin constructed out of 200um polyethylene sheeting and at least 300mm deep for the purposes of collection and filtration of the water generated during the decontamination process. Decontamination water should be discharged into a contaminated soil loaded truck. Alternatively, the decontamination water can be used for wetting of asbestos-contaminated areas that will be removed. If areas where decontamination water has been applied are not to be excavated prior to drying, the surface must be covered or stabilized until excavation occurs to prevent the emissions of any fibers that were not removed during filtration.

All vehicles and other equipment that were used in the intrusive removal activities should receive a thorough and invasive cleaning, as described above, prior to being removed from the site. Each vehicle and piece of equipment should receive a documented inspection by an AS1 licenced supervisor prior to its demobilization.

1.8.8 Worker Decontamination

A fully functioning decontamination unit or trailer should be utilized at each site. The decontamination unit should be located within 30m of the property and as near the removal area as practical. The decontamination unit should consist of 3 chambers, should have fully operational hot and cold running water, adjustable at the shower tap, and a functioning water filtration unit that will filter the waste water prior to being drummed for offsite disposal, or discharged into contaminated soil loaded truck. If disposal into the sanitary sewer is anticipated, Sydney Water approval may be

required.

Workers should wear a clean outer protective suit as they exit from the work area to the decontamination area. Workers should either wear double suits and remove the exterior suit or don a second, clean suit over the single suit within the work area prior to moving into the decontamination unit. The decontamination unit should be utilized by the workers each time they exit the work area. Workers may not wear street clothes under suits.

1.9 Waste Handling

1.9.1 Loading

Removal of asbestos-contaminated soil should be conducted utilizing a direct load system when possible. Asbestos-contaminated soil should be removed wet and transported directly from the contaminated work area to a waste container that contains a minimum two layers of 200um polyethylene sheeting. Once each dump has been executed within the disposal container, the excavator should return the bucket to a closed position prior to returning to the specific area undergoing removal activities.

While the excavation equipment operator is loading the disposal container, the walls of the container should act as the wind break barrier until the load is wrapped and ready for disposal. During the process of loading the container, the excavation equipment operator should lower the bucket as close as possible to the interior of the container before dumping, and dump the load slowly to allow adequate misting. The loading site should be equipped with a dedicated misting station on the opposite side of the disposal container (opposite the loading point). This misting station must be provided with enough water pressure and personnel to ensure that the entire surface area of the dump is shrouded in the mist. The most effective misting system is a prefabricated misting bar that can be quickly hooked on the edge of the disposal container and water turned on with a single valve (the bar is almost as long as the container so that mist/spray covers the entire container). If personnel are used to mist the loads manually, they should be positioned on a scaffold system that runs the length of the disposal container. The number of personnel and hoses is dictated by the ability to mist the entire surface area of the dump.

Throughout the entire loading process, water should be applied to suppress any visible emissions that might occur. The swing radius of the excavator should have a 200um polyethylene liner over the clean surface to control cross contamination as material is transferred. In addition, the excavation bucket should not be filled to more than 2/3 its normal capacity so as to minimize spillage. Once the trailer or container has been loaded to a safe level for transportation, it should be sealed within the 200um polyethylene sheeting container and transported for disposal. Each vehicle should receive a documented inspection by an asbestos supervisor prior to it leaving the site. This should include an inspection of the tailgate to ensure that is securely latched and chained to prevent it from opening during transportation.

1.9.2 Packaging

Containers or trucks should be lined with two layers of 200um thick polyethylene liner. Polyethylene liners should be designed and sized for the container to be used and should be folded over the sides of trailers or containers to protect against contamination during loading and to facilitate decontamination. After loading, both liners should be sealed separately. The liners must be sealed in a manner that ensures that they remain

leak-tight during transportation and disposal operations.

1.9.3 Transportation and Disposal

The transportation and disposal of asbestos waste should be conducted in accordance with the requirements of Section 29 of the Protection of the Environment Operations (Waste) Regulation 1996 at a licenced landfill facility. It is recommended that the asbestos contractor, or other qualified site personnel, direct the schedule of transportation of asbestos-contaminated soil. When loaded, each truck should be assigned a docket to serve as the shipping document for that particular load. To demonstrate proof of proper disposal, copies of asbestos waste disposal receipts must be kept for inspection by Workcover, EPA or the Local Council. Asbestos-contaminated soil must be transported and disposed of in a leak tight container. Only vehicles licenced by EPA can transport friable asbestos waste in the metropolitan area.

1.10 Clearance

The occupational Hygienist or asbestos supervisor should conduct a final visual inspection of the area of asbestos-contaminated soil removal to determine what, if any, controls must be instituted to allow future activity in the excavation area. For example, if asbestos remains in the sidewalls of an excavation, a determination should be made as to whether personnel entering the excavation must wear personal protective equipment (PPE), air monitoring must be conducted or temporary or permanent liners should be installed over asbestos-contaminated-soil left in place. Due to the wet nature of the removal process, adequate drying time should be allowed before a final visual inspection is conducted. In some cases, it may be beneficial to conduct a pre-final visual inspection while the area is moist, as it may be easier to see some forms of asbestos when they are still wet (this is not true with some types of asbestos-containing materials, such as aircell or transite). However, final visual inspections may only be conducted when soil is dry.

1.10.1 Backfilling Excavation

The excavation should be backfilled only after final visual inspection by the occupational Hygeienist or qualified site personnel to allow for the implementation of appropriate controls. Backfilled soil should be protected with adequate cover if additional removal activities are to occur in other areas of the site.

1.10.2 Designation of Cleared Work Areas

New flagging or other means of visual communication should be utilized to show that a particular work area has been excavated and work is complete. Completed work areas may be utilized as haul routes or for other site access provided appropriate controls are instituted to prevent contamination of these areas.

1.11 Demobilization

After the project has been determined complete, the misting system, wind break barriers and other fencing can be removed and the decontamination trailer/unit can be de-mobilized.

Waste containers should be removed from the site and taken to an approved landfill for disposal immediately upon completion. Any remaining protective barriers should then be removed from the site.

1.12 Close-out Report

The contractor, consultant or qualified site personnel should maintain complete documentation of the project. It is recommended that a project close-out report be prepared and, at a minimum, include the following:

- property description and description of area(s) with asbestos-contaminated soil;
- description of soil disturbing activities;
- description of all field operations or daily logs;
- containment logs (where appropriate);
- air monitoring logs and analytical results;
- description/results of all asbestos sampling events, including sample locations;
- analytical results;
- disposal summaries and dockets;
- maps showing excavation profiles;
- maps showing the location of any asbestos left in place (where appropriate);
- description of any engineering or institutional controls for any asbestos left in place;
- photographs showing pre- and post-removal conditions; and
- worker certifications.

Appendix B
Draft Management Strategy
Management of Impacts of Proposed RIRP on
Explore and Develop Child Care Centre
Grand Avenue, Camellia

MANAGEMENT STRATEGY
MANAGEMENT OF IMPACTS OF PROPOSED RIRP
ON EXPLORE AND DEVELOP CHILD CARE CENTRE, GRAND AVENUE CAMELLIA

1. BACKGROUND

REMONDIS and Billbergia have submitted a development application for the construction and operation of a proposed Integrated Recycling Park at 1 Grand Avenue Camellia.

Access to the site of the proposed RIRP is through a signalised intersection on James Ruse Drive and across an overpass crossing the Clyde-Carlingford Railway line. Entry to the site is off Grand Avenue which at that location is a no-through road known as Grand Avenue North. A local crossing of the goods rail spur line is adjacent to the entry gate to the site.

The site is bounded by the Clyde-Carlingford Railway line to the west, a spur goods rail line (Clyde-Sandown Line) to the south, industrial premises to the east and the Parramatta River to the north. On the southern edge of the site between the goods rail line and Grand Avenue there are commercial premises within the Tilrox/ALDI building occupied by the Explore and Develop child care centre, an international college, café and a number of offices. There is a supermarket and car park adjacent to this building.

An Environmental Assessment (EA) for the Proposal was prepared in accordance with Part 3A of the *Environmental Planning and Assessment (EP&A) Act* 1979. The EA was placed on public exhibition by the Department of Planning (DoP) for the period Thursday 23 February 2012 until Tuesday 10 April 20012.

Two hundred and seventy-nine submissions were received during public exhibition of the EA including 248 submissions relating directly to potential impacts on the Child Care Centre.

Key issues raised in these submissions related to:

- Site Contamination;
- Traffic and Safety;
- Odour;
- Noise and Dust;
- Landuse Conflicts; and
- Metropolitan Waste.

With respect to the owner and operator of the child care centre specific issues were raised relating to:

- Hazards associated with the treatment of waste in such close proximity to children;
- Hazards associated with the delivery of waste material in such close proximity to children;
- Odour that will emulate from managing waste material in such close proximity to children;
- Construction of the facility on land that has been previously been capped due to asbestos contamination; and

- Priority for the centre is the well being of the children in our care.

Under the Children Services Education and Care Services Regulations the Approved provider is required to comply with these regulations at all times. Refer to Part 4.2 Children's Health and Safety of the Regulations.

2. THE SITE

The site for the proposed RIRP consists of an area of approximately 4.5 hectares (ha) The site is part of a larger area of land which prior to 1996 was occupied by James Hardie (JH) for the manufacture of fibrous cement and related products and chemical manufacturing. The JH Site consisted mainly of warehouse buildings which have been demolished down to slab level. The site was acquired by Sydney Water in 1996.

Large quantities of fill have been used to level the various parts of the JH Site. Asbestos cement waste and friable asbestos are within this fill. On this basis all of the fill material on the JH Site was assumed to be contaminated with asbestos. In 2000, the NSW Environment Protection Authority (NSW EPA) declared that the JH Site represented a significant risk of harm. A Voluntary Remediation Agreement (VRA) (Agreement No 26012) was entered into between Sydney Water and the NSW EPA under Section 26 of the Contaminated Land Management (CLM) Act 1997. During 2001 and 2002, Sydney Water undertook works for the VRA for the JH Site. The buried asbestos waste was well covered with hardstand providing an effective barrier to human contact and no further remedial work was considered necessary under the VRA.

After inspecting the JH Site, the NSW EPA determined (14 May 2003) that the VRA had been satisfactorily completed and that the NSW EPA considered that contamination no longer presented a significant risk of harm to human health or the environment. In accordance with a Section 26 (5) of the CLM Act the NSW EPA determined that the terms of the VRA had been carried out.

The NSW EPA registered a public positive covenant on the titles of the JH Site under Section 29 of the CLM Act and Section 88E of the Conveyancing Act 1919. The terms of the covenant require the site owner(s) to maintain remediation of the properties in line with the terms of the Site Management Plan (SMP).

The Site Management Plan was developed to address the maintenance of remediation of the Eastern Portion of the former JH site which includes the site of the proposed RIRP. The document identifies the required management of the site in order to maintain remediation across the site and outlines measures to be taken to maintain the objectives of the Public Positive Covenant. It identifies hazards associated with the site in it current conditions and outlines management strategies to minimise hazards. There is a programme for reporting to the EPA and a process for monitoring and review of the SMP.

3. PROPOSED MANAGEMENT STRATEGY

In recognition of the concerns and issues raised in the submissions which particularly relate to the child care centre REMONDIS has committed to implementation of a management strategy targeted at addressing the issues which have the potential to impact on the children, parents, employees and owner/operators of the child care centre.

The objectives of the strategy are:

- Prevent negative impacts of the construction and operation of the RIRP on the children attending the child care centre with regard to health and safety;

- Ensure that operations of the RIRP do not negatively impact on the activities undertaken within the child care centre;

- Ensure that access to the child care centre is not impacted in terms of parents ability to drop and pick up their children in a timely and safe manner; and

- Ensure that the parents and operators of the centre are aware of activities being undertaken on the site, particularly with respect to management and timing of activities.

4. REMONDIS INTEGRATED RECYCLING PARK

The RIRP comprises the following main areas:

- Commercial and Industrial Resource Recovery Facility (CIRRF);

- Source Separated Organic Resource Recovery Facility (SSORRF);

- Weighbridge;

- Internal Access Road;

- Administration Office; and

- Car Parking.

It is proposed that the RIRP would operate 24 hours per day, seven days per week to allow maximum flexibility for receival of waste. There would be three shifts per day with 40 staff working on the morning shift (6am to 2pm), 20 staff

There are incoming and outgoing traffic for proposed RIRP throughout the 24 hours. There will be 92 trucks per day either delivering waste or picking up product. This totals 184 truck movements ie 92 trucks in and 92 trucks out. There are expected to be 104 movements per day associated with staff (52 in and 52 out).

Trucks departing the site will be required to turn left from Grand Avenue North on to Grand Avenue to minimise disruption to traffic flows.

Billbergia the land owner proposes to provide the necessary utility services to the facility comprising potable water, sewerage, electricity and telephone services and an extension of the existing stormwater system.

REMONDIS will be responsible for the construction of the facility including a platform on which the facility will be located. The platform will be sealed with heavy-duty concrete pavement on a compacted sub-base.

Construction hours will be restricted to 7am to 6pm Monday to Friday, 8am to 1pm Saturdays with no construction work on Sundays or public holidays.

Construction and Operational Environmental Management Plans (EMPs) will be prepared which will include:

- Site Induction programme;
- Traffic Control Plan;
- Traffic Noise Management Strategy;
- Air Quality Management – Dust and Odour;
- Noise and Vibration Construction Management Plan;

- Site Work Plan and Safe Work Method Statement;
- Water Management Plan;
- Waste Management Plan;
- Product Management Plan
- Erosion and Sediment control plans (progressive plans to be submitted to EPA);
- Landscape Plan;
- Litter Control;
- Pest, Vermin and Weed Management:
- Subsidence Management Plan:
- Hazard and Risks Plan including spill management and Emergency Response procedures
- Pollution Incident Response Management Plan (Section 153A of the POEO Act);
- Monitoring programme; and
- Community Engagement Programme.

5. CONTAMINATION

Management of Construction Activities

Prior to commencing construction on site:

- The statutory notifications shall be made and approval sought from the EPA to carry out the work as required by the SMP;

- A suitably qualified occupational hygienist will be engaged to prepare an air monitoring program in accordance with Australian code of Practice for the Safe Removal of Asbestos (NOHSC:2002 (2005)). The occupational hygienist will be employed on site for the duration of activities associated with the disturbance of the cap;

- The air monitoring programme will be in place prior to commencement of activities. The programme will be approved by the EPA and DoPI with regular reporting requirements. The programme will include the installation of monitoring stations at locations agreed with the DoPI and the EPA. A weather station will also be established on site;

- WorkCover will be consulted to ensure all work on the site is in accordance with the *Work Health and Safety Act and Regulation 2011* and the code of practice *How to Safely Remove Asbestos 2011*.

The following measures will be undertaken during construction:

- Handling of material in a manner that minimises dust emissions;

- Placement of screening material on perimeter fences;

- Spraying dusty parts of the site with water;

- Conduct of activities associated with breaching the site cap within a tent structure;

- Use of Tarpaulins to cover incoming and outgoing loads;

- Restriction of stockpile height to below the fenceline;

- Where visual inspection and or monitoring indicates that dust levels may be unacceptable work will cease until measures are taken to reduce emissions or until weather conditions improve;

- The Construction Manager will be responsible for dust management; and

- If odours are detected at the boundary of the site the following procedures may be engaged to minimise odours:
    - Covering of stockpiles where practicable;
    - Use of fine mist sprays and hydrocarbon mitigating agent on impacted areas and material; and
    - Adequate maintenance of equipment and machinery to minimise exhaust emissions.

All contractors and employees will undertake a site induction programme which will identify procedures, responsibilities and penalties for non-compliance.

Stakeholders will be advised of the commencement of activities and a 24 hour contact point established and notified. In particular direct liaison will be undertaken with the Child Care Centre and users of the carpark adjacent to the Camellia Railway station to ensure users are aware of changing conditions including local traffic movements.

Activities – Child Care Centre

- Provision of a copy of the Safe Work Method Statement and Site Work Plan for activities associated with disturbance to the site cap;

- Provision of details of monitoring programme in particular results relating to air quality;

- Provision of details of the work programme and details of activities on a monthly basis; and

- Details of contact points including the Construction Manager, EPA and DoPI.

6. TRAFFIC

Vehicles accessing the site for the proposed RIRP will enter Grand Avenue North from Grand Avenue. The vehicles will cross the spurline and proceed to the site entry which will be accessed via a right turn from Grand Avenue North. Once vehicles enter Grand Avenue North from Grand Avenue they will bypass the car parking area and the driveway access to the Tilrox Aldi Building. Vehicles will then proceed over the spurline and proceed forward to the site entry gate. The gate is directly adjacent to the carpark for the Camellia railway station. Traffic associated with the RIRP will interface with other vehicles using Grand Avenue North and pedestrians.

The Proponents will fund the following works:

- Line marking
    - High visibility reflective line marking to be provided on Grand Avenue North either side of the level crossing in accordance with RailCorp engineering standard ESC520;
    - Line marking to be provided through the eastern commuter car park designating a pedestrian access route from Camellia Station to the level crossing across the Tilrox/ALDI building entrance gates to the footpath on Grand Avenue North;
    - Double barrier (BB) lines need will be marked from the concrete median on Grand Avenue North intersection and extend north to the car parking areas so as to legally prohibit overtaking along this road element and to separate opposing traffic flows.

- Intersection of Grand Avenue/Grand Avenue North
    - Alterations to line marking at the intersection and construction of a concrete island on the north side of Grand Avenue immediately west of Grand Avenue (north).

- Regulatory Signage
  - Warning sign to be installed on the eastbound lane of Grand Avenue approaching the Grand Avenue North intersection alerting motorists of the crossing;
  - A compliant STOP hold line and STOP sign will be installed to control Grand Avenue North approach traffic;
  - A Warning Sign W1-1 should be implemented facing eastbound motorists in Grand Avenue at a location 50m west of the Grand Avenue North junction to advise the car driver the type of corner and appropriate turning speed;
  - The "No Stopping" on the northern side will be moved 10.6m from its current position;
  - A "Rail Crossing on Side Road" warning sign W7-12 will be implemented facing eastbound motorists in Grand Avenue at a location 80m west of the Grand Avenue North junction to advise the car driver the presence of the railway crossing on the side road;
  - The prevailing signposting for the level crossing utilises superseded / damaged STOP and railway crossing warning signs will be upgraded to suite current standards.

These works are in line with safety targets and optimise:

- Sighting and visibility for motorists, truck and train drivers;
- Directional and warning signage for vehicles;
- Separation of pedestrians and road vehicles; and
- Minimise likelihood of unintentional and intentional (eg dangerous passing) vehicle driver errors using line and road markings.

A Driver Code of Conduct will be implemented and all drivers will be required to undertake a Heavy Vehicle Driver Orientation Programme.

Activities – Child Care Centre

- During construction a traffic control officer will be located on Grand Avenue North to manage traffic during peak periods. This will include provision of safe pedestrian access from the parking area across from the entrance to the Tilrox/ALDI building to the building; and
- Orientation programme for drivers to include awareness of the presence of children and parents accessing the Tilrox/ALDI building.

7. NOISE

The noise assessment undertaken for the EA concluded that:

- Predicted operational daytime evening and night-time noise levels comply with the design goals at existing residences, and also the childcare centre, the University of Western Sydney and commercial and industrial receivers;
- Changes to traffic noise levels as a result of the project comply with the OEH Environmental Criteria for Road Traffic Noise; and
- Noise levels predicted for construction activities comply with design criteria developed in accordance with the OEH Interim Construction Guideline.

Concern has been raised about the potential noise impacts on the centre including the impact on usage of the outdoor activity area and sleeping routines for children when using the centre.

- Implementation of a traffic noise management plan which would include:
  - Driver training to ensure that noise practices such as the use of compression engine brakes are not unnecessarily used near sensitive receptors;
  - Best noise practice in the selection and maintenance of vehicle fleets;
  - Movement scheduling where practicable to reduce impacts during sensitive times of the day or evening;
  - Communication and management strategies for non licencsee/proponent owned and operated vehicles to ensure the provisions of the TNMS are implemented;
  - A system of audited management practices that identifies non conformances, initiates and monitors corrective and preventative action (including disciplinary action for breaches of noise minimisation procedures) and assessed the implementation and improvement of the TNMS;
  - Specific procedures to minimise impacts at identified sensitive areas; and
  - Clauses in condition of employment or in contracts, of drivers that require adherence to the noise minimisation procedures and facilitate effective implementation of the disciplinary actions for breaches of procedures.

Activities – Child Care Centre

- Sealing of gaps within the façade of the outdoor recreation area; and

- Where feasible, restrictions on RIRP activities during the sleeptime regime of the childcare centre;

8. ODOUR

All operations including loading/unloading, sorting and separation, composting and product storage will be undertaken within the main building complex.

Management practices and the facility design features include:

- No outdoor handling of materials;

- Traffic management procedures will include co-ordination of the delivery schedule to avoid a queue of the incoming or outgoing trucks outside the building for an extended period of time;

- Spill management procedures will include immediate cleanup of any spill/leakage from the incoming and outgoing trucks, identify the cause and take appropriate action to prevent any future spill/leakage incidents;

- Maintain an odour complaint logbook. Once any complaint is received, the site manager will immediately investigate any unusual odour sources (including spill or leakage in the traffic areas) within the site boundary and take appropriate action to eliminate any unusual odour sources;

- Real-time processing of odorous feedstock material and raw materials which will not be stockpiled for more than a day under normal operating conditions;

- The air management system will include ventilation hoods over emission sources;

- Odorous air will be recycled as far as possible through the tunnel composting system to minimise air volume into the deodorisation;

- Stockpiles will be managed to facilitate natural ventilation to prevent anaerobic zones;

- The air management system will ensure the building is under negative pressure; and
- If required additional air curtains mounted above each fast speed roller door entrance will be installed.

Activities – Child Care Centre

- Plant shutdown and diversion of waste deliveries in the event of a plant malfunction.

9. MANAGEMENT PLANS

Based on the company's environmental management policies, the findings of the EA, Conditions of Approval, EPL conditions and other approvals REMONDIS will prepare and implement:

- A Construction Environmental Management Plan; and
- An Operational Environmental Management Plan.

All construction activities undertaken on the site would be undertaken in accordance with a Construction Environmental Management Plan. The plan would incorporate the requirements of Conditions of Approval and the EPL.

The Construction Manager will be responsible for ensuring the EMP is implemented and that any incidents are addressed and mitigated immediately. Regular inspections and monitoring of activities will be undertaken to ensure compliance with all requirements.

Stakeholders will be advised of activities being undertaken during construction to ensure they aware of the nature and extent of activities during construction. The Construction Manager will be the primary point of contact.

The OEMP would be updated periodically in light of ongoing monitoring results, site audits, EPL requirements and Conditions of Approval. The OEMP would incorporate the requirements of the REMONDIS Environmental Management System.

10. COMMUNITY CONSULTATION AND COMPLAINT MANAGEMENT

REMONDIS has initiated a consultation programme with the local community with a study group having been established. It is proposed that this group would be the basis for a Community Liaison Committee which would meet on a regular basis to review environmental performance of the RIRP.

The EPL for the facility would require REMONDIS to keep a record of all complaints made in relation to pollution arising from any activity to which the Licence applies. The EPL would specify the details to be provided in the record and a complaint handling procedures. A 24 hour telephone complaints line would be operating for the purpose of receiving any complaints from members of the public and that number would be notified to the community. Complaints received would be recorded.

REMONDIS will keep a legible record of all complaints in relation to the operation of the RIRP. The record will include details of the following:

- The date and time of the complaint;
- The method by which the complaint was made;

- Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;

- The nature of the complaint;

- If no action was taken by REMONDIS the reasons why no action was taken; and

- A record of the complaint will be kept for at least four years.

The Site Manager would organise an immediate investigation into the cause of the complaint and any corrective actions required to mitigate its effect. If necessary, the Site Manager would initiate further corrective action, such as introducing changes in operational procedures, work instructions or modification to equipment etc which may be required to reduce the possibility of further incidents.

Environmental Incidents

An Emergency Response Procedure would be developed for the operations. The ERP would describe the general policy and approach to be adopted when dealing with an emergency or incident at the site.

In accordance with the requirements of the *Protection of the Environment Legislation Amendment Act 2011*, a pollution incident on the site will be notified immediately to all authorities. These comprise the EPA, the Ministry of Health, WorkCover, Parramatta City Council and Fire and Rescue NSW. This will be done promptly and without delay to ensure that the authorities have the information required to respond within an appropriate time. The Site Manager will be responsible for Incident Reporting and liaison with the relevant authorities. All environmental incidents would be recorded on an Environmental Incident Report form.

Environmental Monitoring

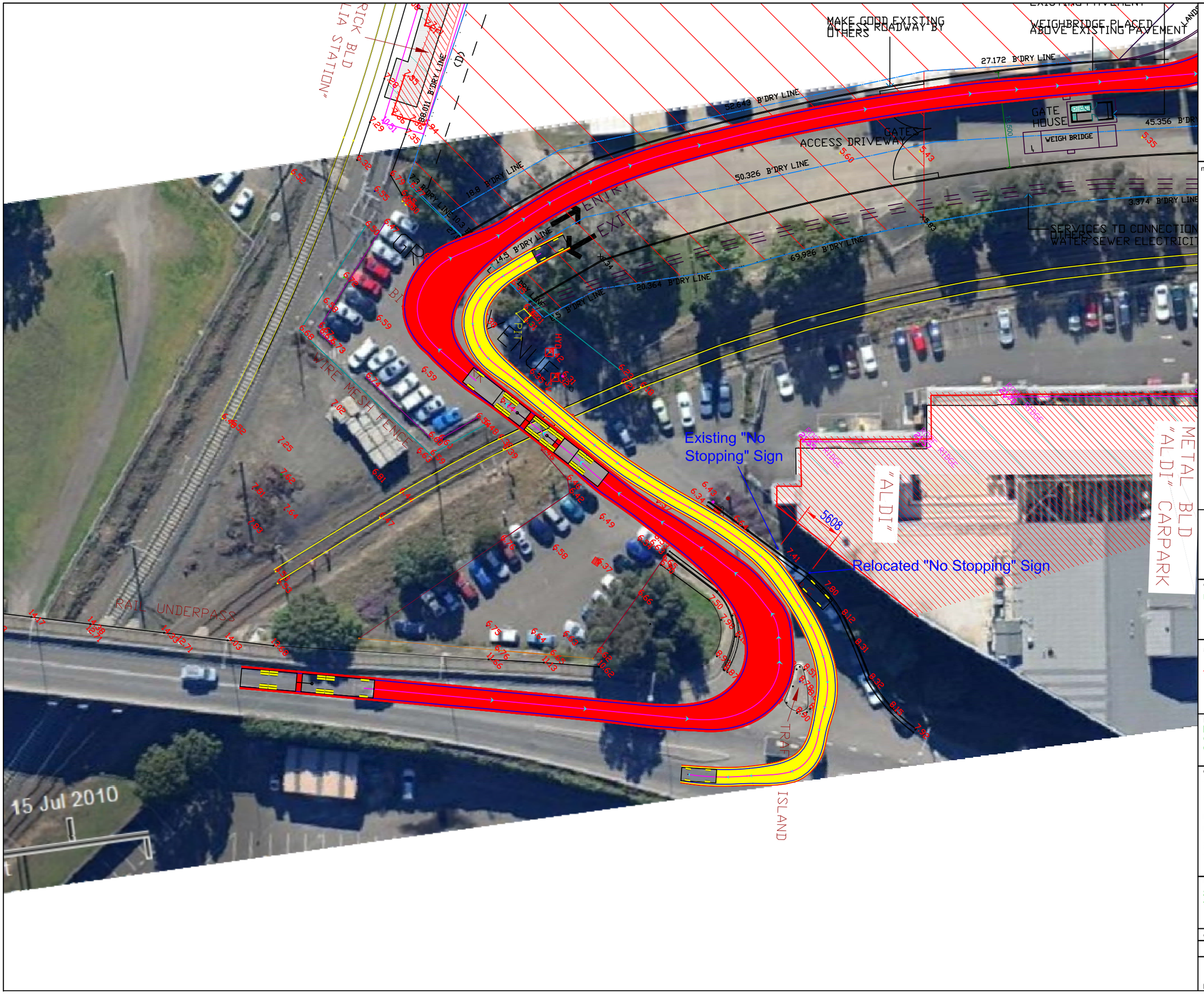
The Site Manager would be responsible for ensuring any monitoring is undertaken in accordance with the EPL and Conditions of Approval. Implementation of the OEMP would be the basis for compliance with monitoring requirements which would be reported to EPA and DoPI as required.

Staffing and Training Requirements

An environmental training programme would be prepared and implemented for the site to provide all employees and contractors with information about their environmental responsibilities

Appendix C
Road Safety Audit and Swept Paths

SWEPT PATHS



no.	revision note	by.	date

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Remondis

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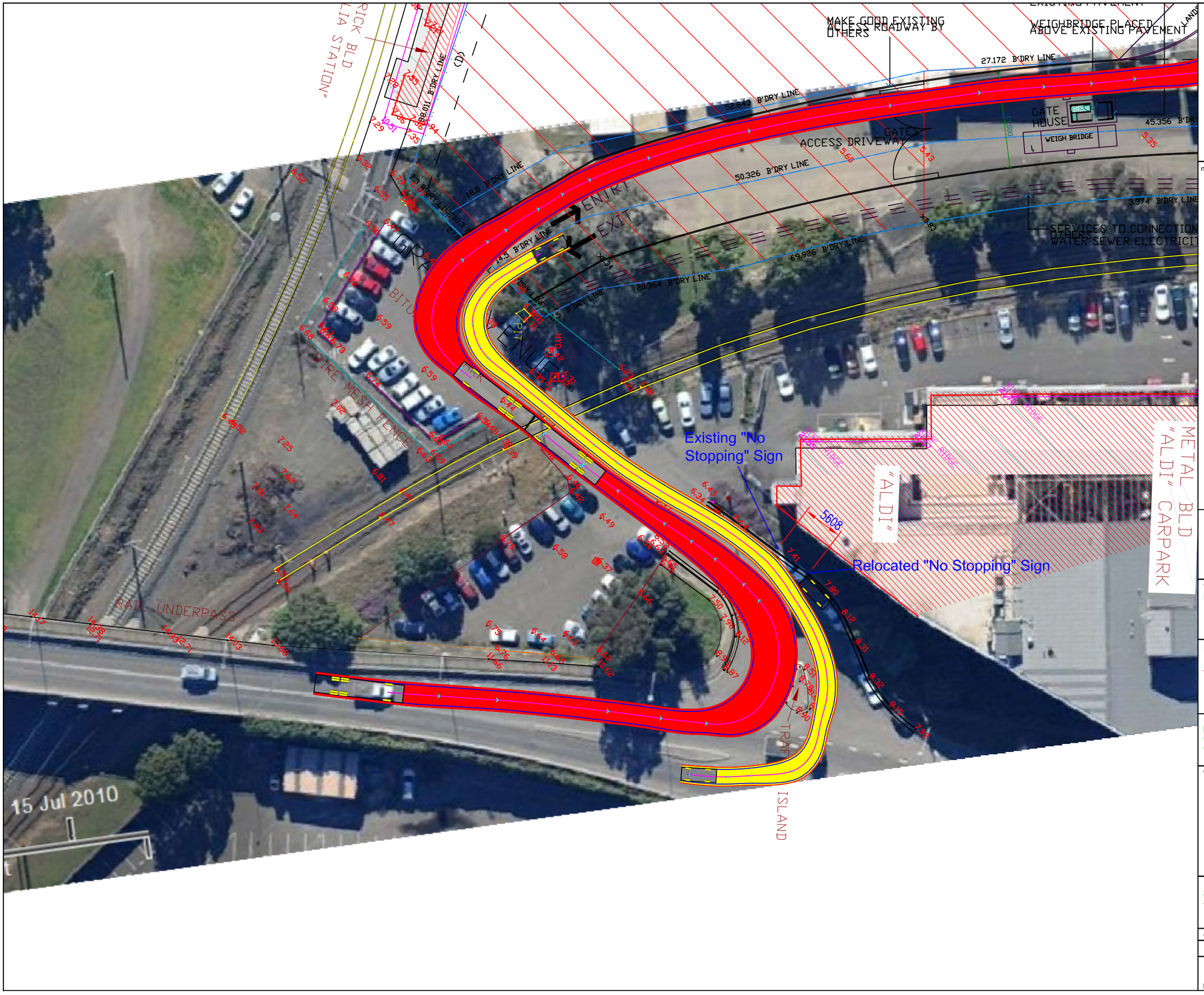
project
Materials Recycling Facility
Grand Avenue North
Camellia

drawing prepared by
TRAFFIX
traffic and transport planners
suite 3.08 46a macleay street
potts point NSW 2011
PO Box 1061 potts point nsw 1035
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Swept Paths
Truck & Dog Passing a B85 Car

drawn:	checked:	date:
TL	-	30 Aug 2011

project no.	drawing phase.	drawing no.	rev
10.034	-	TX.01	-



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12.5m HRV Passing a B85 Car

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TL	-	30 Aug 2011

project no.	drawing phase.	drawing no.	rev
10.034	-	TX.02	-

1,000 8,000 1,000 32,000 O/A BF SLAB 4,000 54,950 O/A WALL PANLES

RETAIL PLATFORM

CONC. PAVEMENT

Rain Water Tanks & Reticulation system

BIOFILTER

RL 6.1 (BOTTOM)

FFL RL 7.0

RL 7.0 TOP

RL 5.8 BOTTOM

CONTROL ROOM

POSSIBLE SINGLE OFFICE

STORE

FEMALE

MALE

LUNCH ROOM

PUSH WALL

Class II Storage & Handling Building

FFL RL 7.0

PWT / HUM Tanks

BLOWER SLAB WITH AWNING OVER

FFL RL 6.5

CONCRETE PLATFORM

Commercial & Industrial Biological Stabilisation Tunnels

W3

Compost Screen

Wastes

T6 T7 T8 T9 T10 T11 T12 T13 T14 T15 T16 T17 T18 T19 T20

FFL RL 7.2

LINE OF ROOF OVER

TUNNEL HALLWAY

FFL RL 7.2

12m HEIGHT LINE

One Way Roadway

Tunnel Raw Material

CONCRETE WALLS UP TO 1.5m H

CONC KERB TO PERIMETER OF ROADWAY

HEAVY DUTY PAVING (CONCRETE)

Wet Waste Storage Area

Dry Waste Storage Area

Class II Material

COMMERCIAL & INDUSTRIAL RESOURCE RECOVERY FACILITY

FFL RL 7.2

EXISTING FENCE TO REMAIN

Mechanical Treatment

Class II Material

Waste Delivery Bay

*NOTE:- ALL INTERNAL WALLS TO BE REINFORCED CONCRETE TO ENG. SPEC.

TREE GONE

AUSTROADS 12.5m SEMI

ROW OF SMALL WATTLES 0.1 - 0.2 DIAMETER

138,800 O/A

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PO Box 1061 potts point nsw 1035
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Swept Paths
Truck & Dog Internal Circulation

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TL	-	30 Aug 2011

project no.	drawing phase.	drawing no.	rev
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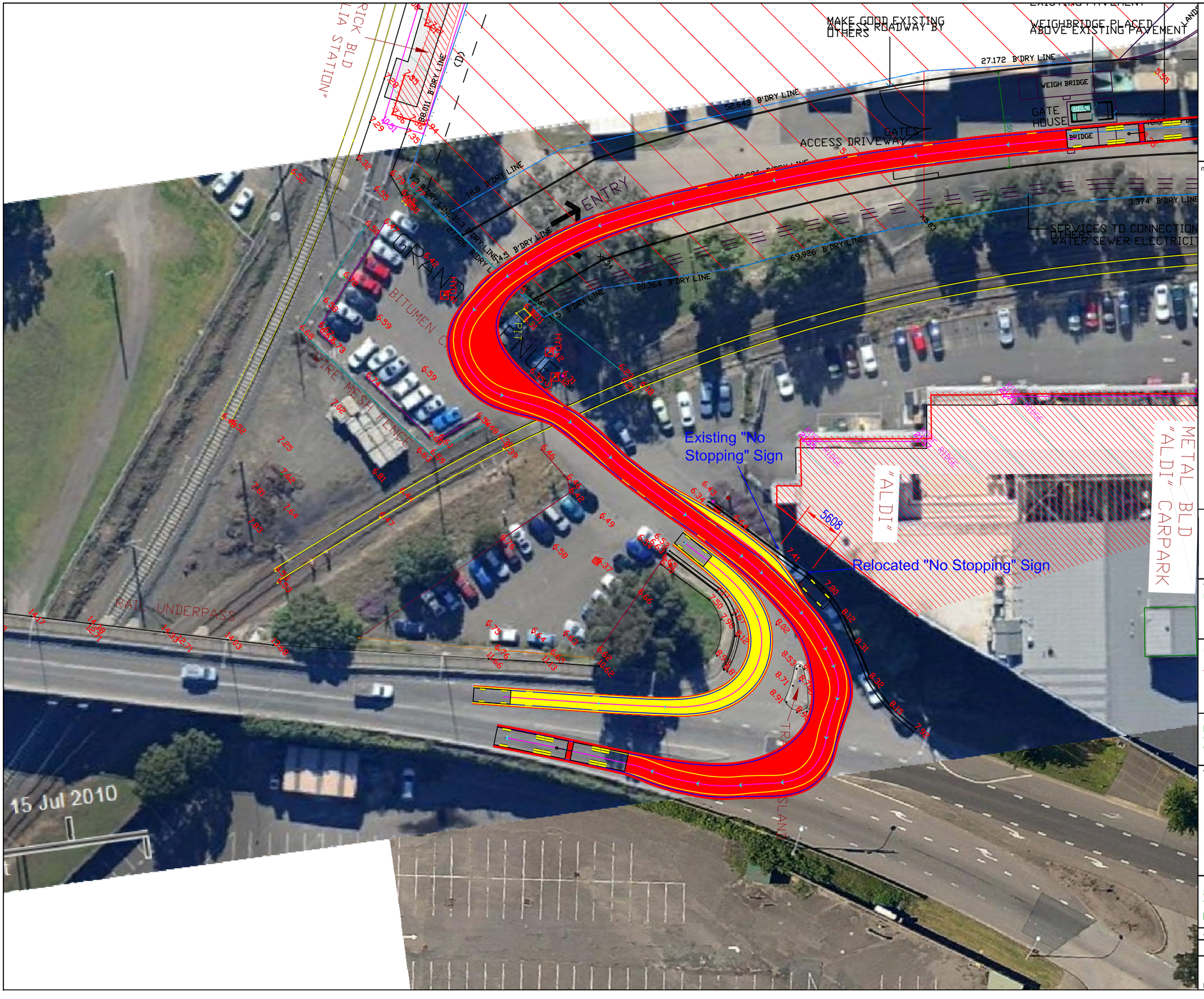

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f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Swept Paths
Truck & Dog Passing B99 Car
RT Exit

drawn:	checked:	date:
TL	-	27 Mar 2012

project no.	drawing phase.	drawing no.	rev
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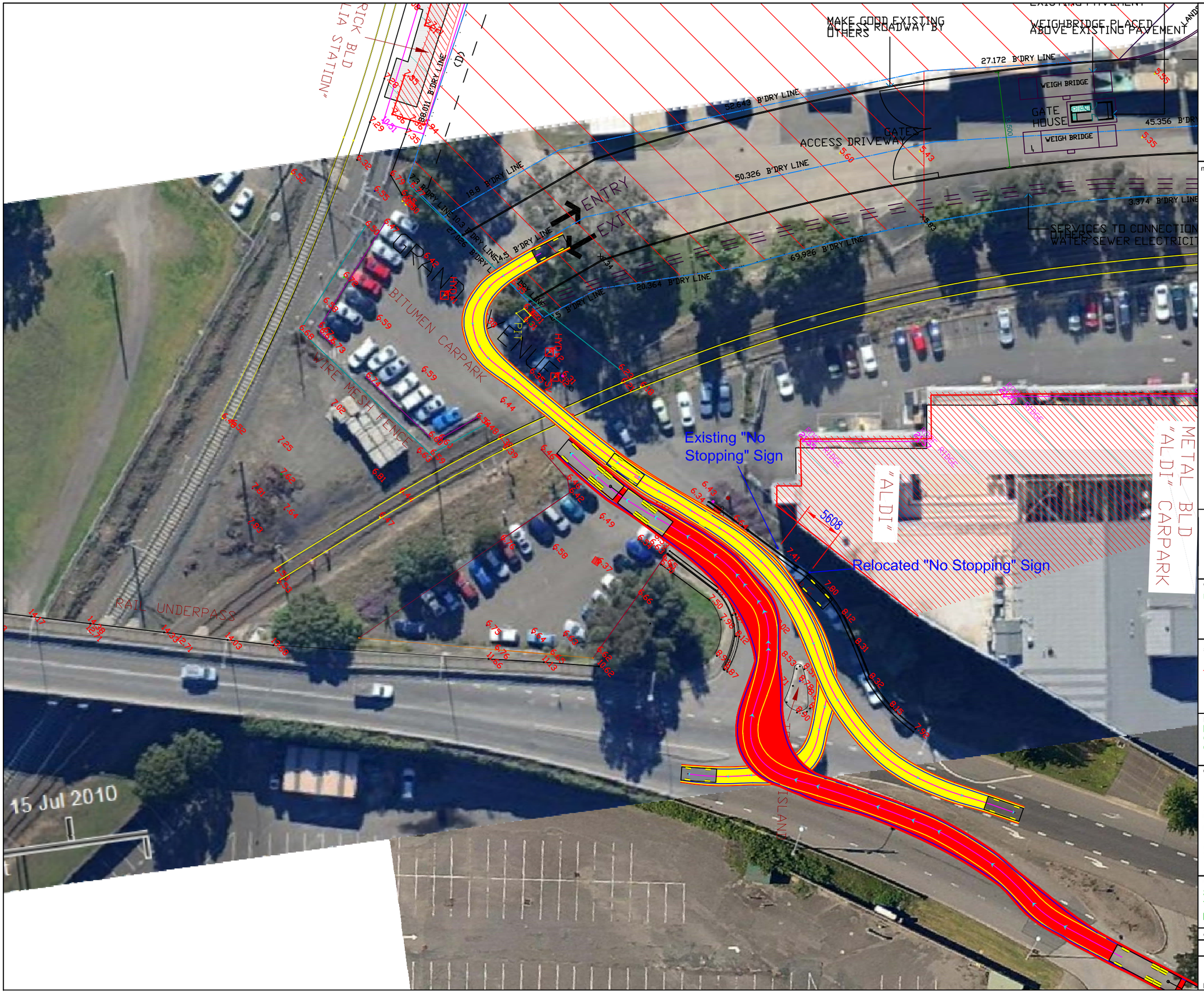

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Truck & Dog Passing B99 Car
RT Entry

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TL	-	27 Mar 2012

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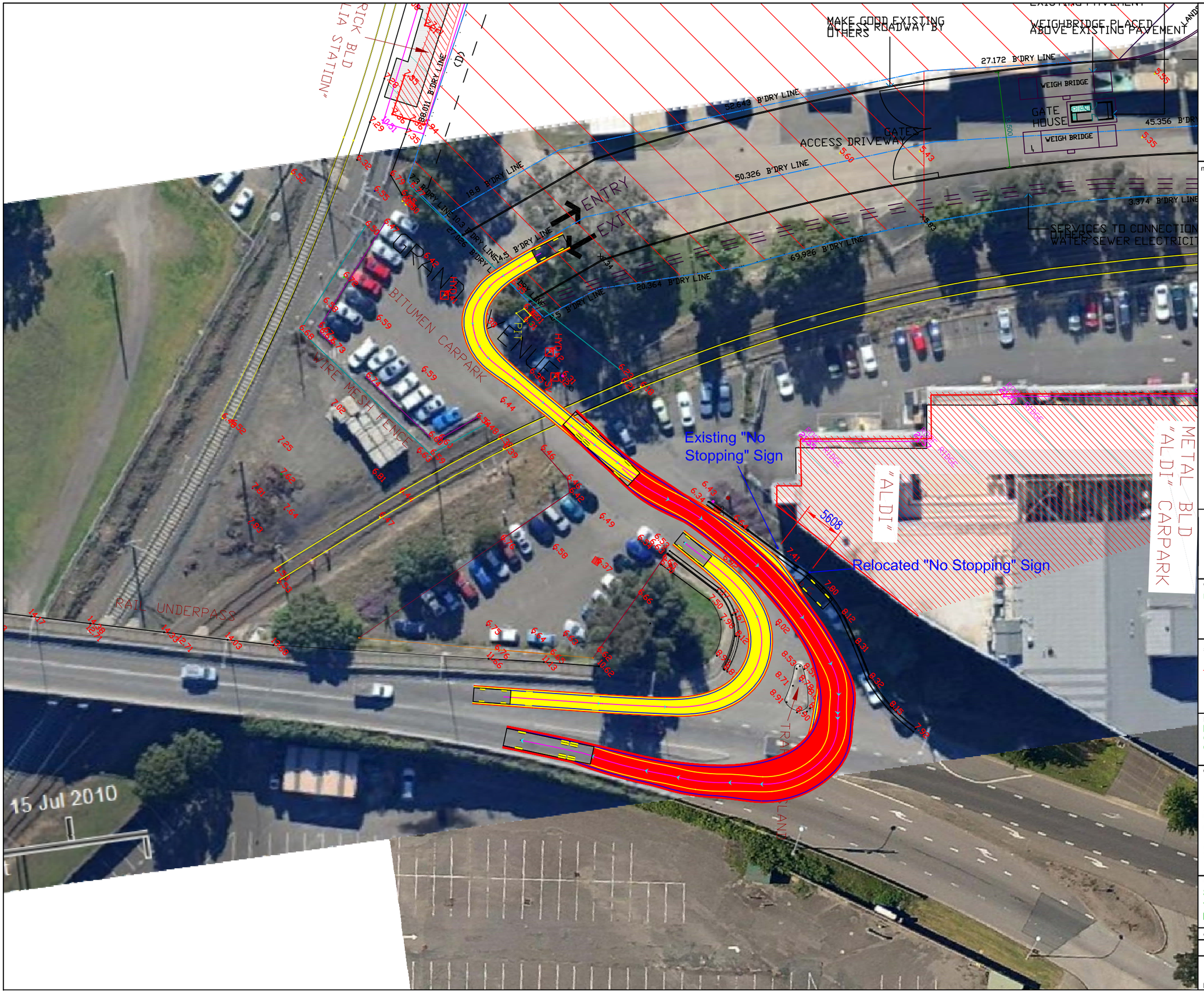

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Swept Paths
12.5m HRV Passing B99 Car
RT Exit

drawn:	checked:	date:
TL	-	27 Mar 2012

project no.	drawing phase.	drawing no.	rev
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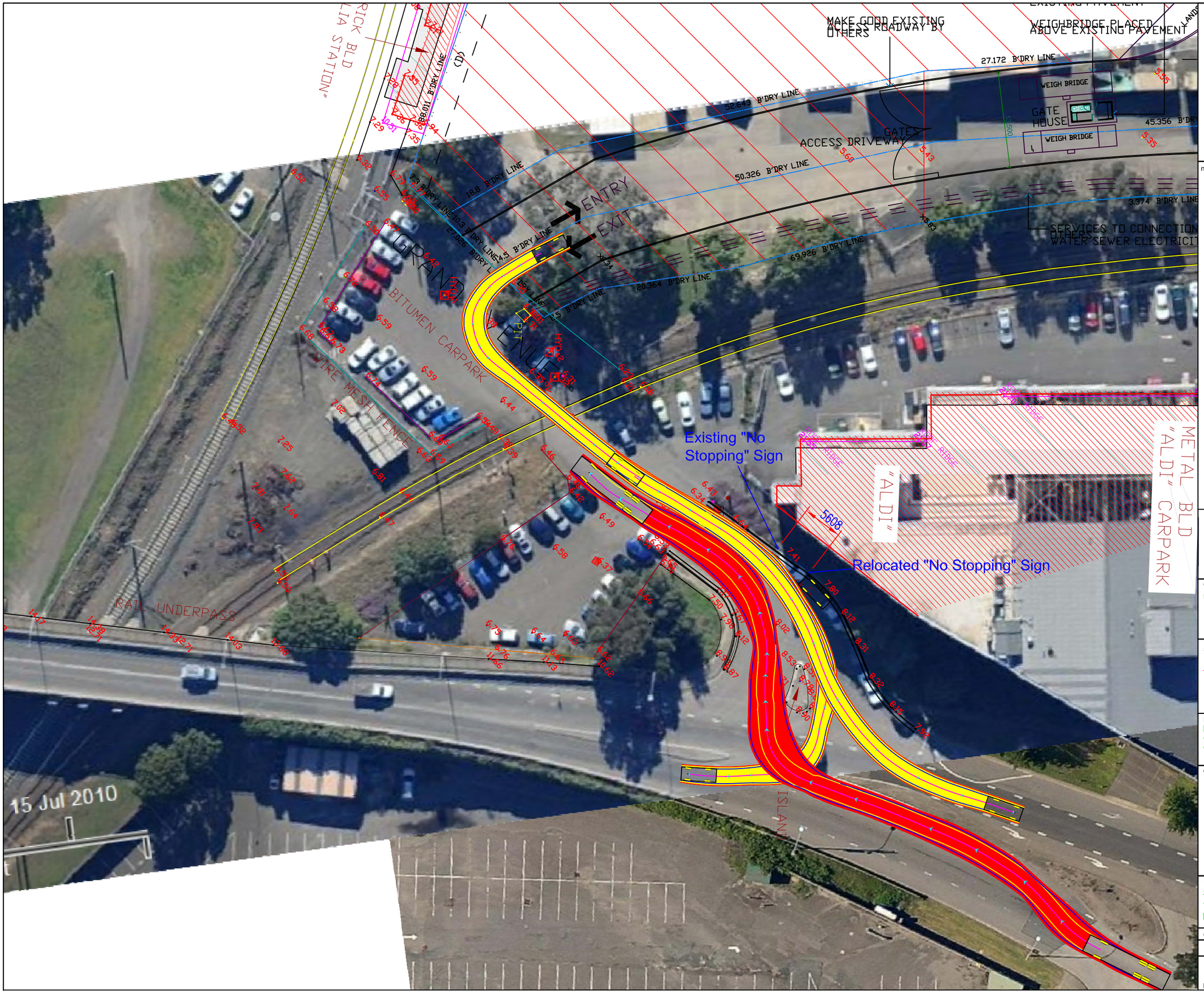

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12.5m HRV Passing B99 Car
RT Entry

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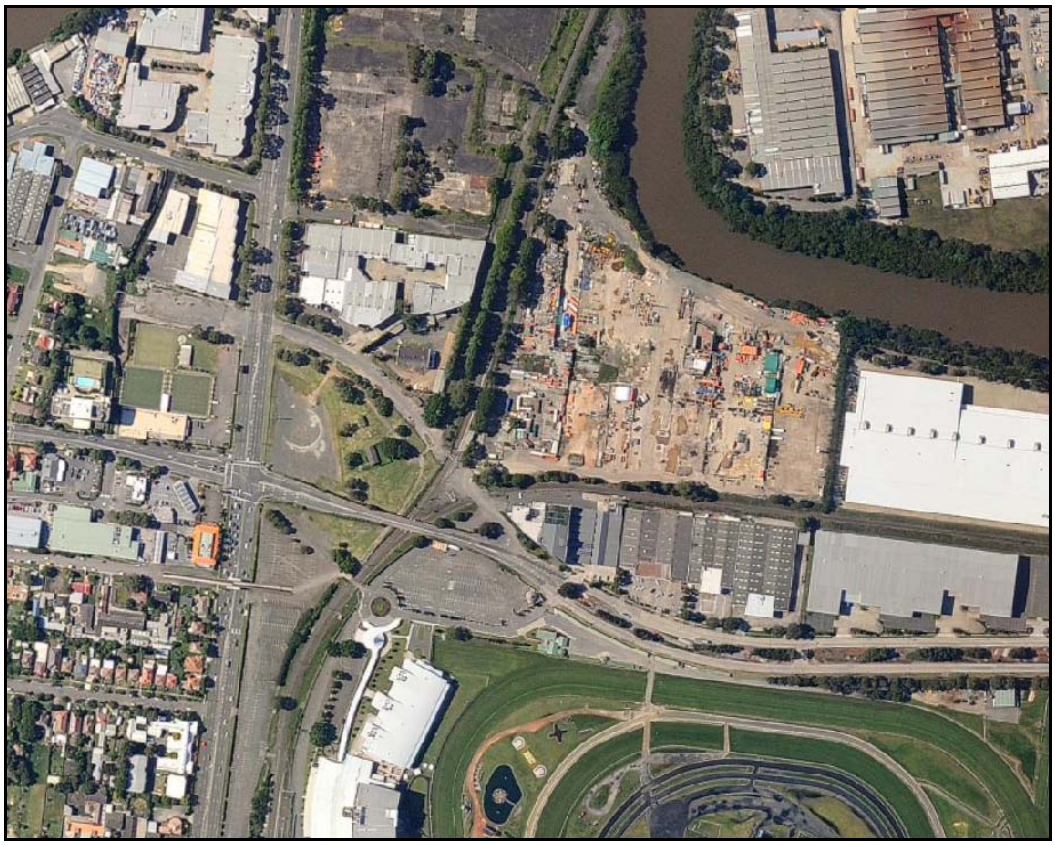
TL	-	27 Mar 2012

project no.	drawing phase.	drawing no.	rev
10.034	-	TX.06	-

ROAD SAFETY AUDIT

REMONDIS PTY LTD
AUGUST 2012



STAGE 5 ROAD SAFETY AUDIT
FOR PROPOSED RECYCLING PLANT
CAMELLIA

M^{C}LAREN TRAFFIC ENGINEERING
LEVEL 1, 29 KIORA ROAD
MIRANDA NSW 2228
PH (02) 8543 3811
FAX (02) 8543 3849
EMAIL: mclarenc@ozemail.com.au

2012/073

TABLE OF CONTENT

1. INTRODUCTION

Mr Craig M^CLaren, an accredited lead road safety auditor with *M^CLaren Traffic Engineering* was commissioned in April 2012 by Remondis Pty Ltd to undertake a Stage 5 Existing Road Safety Audit at Grand Avenue / Grand Avenue North intersection considering the affect of the proposed recycling facility in Grand Avenue North and the effect of the increased heavy vehicle usage on the road network.

A copy of Mr M^CLaren's CV and road safety experience is provided in **Annexure A** of this report.

The following plans / information were reviewed as part of this design audit:

1. "Traffic Impact Assessment Proposed Integrated Recycling Park, Grand Avenue, Camellia" as prepared by *Traffix,* August 2011
2. "Risk Assessment Impact of Recycling Operations at Grand Avenue on Camellia Level Crossing and Environs" prepared by *MINCIV Management Services*, November 2010
3. Swept Path Analysis drawing no. TX.01, TX.02, TX.03, TX.04, TX.05 and TX.06 as prepared by *Traffix*, 27th March 2012
4. Electronic SIDRA Computer Software files for intersection at Grand Avenue / Grand Avenue North, James Ruse Drive/ Grand Avenue and James Ruse Drive/ Grand Avenue North as prepared by *Traffix*,
5. Roads and Maritime Services crash dataset for James Ruse Drive, Grand Avenue and Grand Avenue North for the period of 2005-2009.

The Stage 5 review of the existing roadway has been undertaken with due consideration to "Road Safety Audit", AUSTROADS Publication No. AP-30/94, SAA HB43-1994.

1.1 Report Format

This report has addressed the topics and requirements outlined in *RMS Guidelines for Road Safety Audit Practices*. A summary of the report format is tabulated below.

Item	RMS Guidelines	MTE Report
1	Purpose	Section 1 & 3
2	Background	Section 2
3	Scope of audit	Section 1 & 2
4	Audit team details	Appendix A & www.roadsafetyregister.com.au
5	Assessment methodology and details	Section 3
6	Information and material used and referenced	Section 1
7	Meeting details	N/A to non RMS audit. Remondis request on 27/03/12
8	Deficiency details	Section 4 & Appendix C
9	Formal Statement	

2. SITE LOCATION & FACILITIES

The audited roadways are located within the local government area of Parramatta City Council. The road safety audit location is shown in **Figure 1** and is focused on the intersection of Grand Avenue/ Grand Avenue North and the main truck haulage route on Grand Avenue as shown in **Figure 1**.

The proposed recycling facility is at 1 Grand Avenue, Camellia and is currently occupied by container storage and clearings. Camellia Railway Station is located adjacent to the site and services the Carlingford Line. The Railway Station also has an accompanying car parking and can be accessed from the north or south on Grand Avenue North.

Access to the recycling facility is from Grand Avenue via a short length of Grand Avenue North, south east of the railway station. Access to the site also requires vehicles to cross the Sandown line which is no longer in use for the industrial area to the east but used infrequently by RAILCORP and other stakeholders.

3. ROAD SAFETY AUDIT PROCEDURE

The Stage 5 Existing Road Safety Audit is to provide an independent review of the existing road condition and concentrates on traffic signage, line marking and delineation in terms of its functional and safe operation for motorists and has particular regard to vulnerable road users (pedestrians / cyclists on footpaths).

Due to the introduction of the recycling facility at Grand Avenue North, there will be an increase in heavy vehicles on Grand Avenue North and Grand Avenue. The audit has reviewed the submitted information outlined in Section 1 and conducted the on-site road safety audit with review of road conditions and users outlined above.

The selected road safety audit team have completed briefings from the proponents as well as site visits to the proposed recycling facility site and the nearby intersection of Grand Avenue/ Grand Avenue North. Although not formerly required, a brief review of the identified second haulage route along Colquhoun Street to Parramatta Road was also conducted with findings detailed in **Section 4**.

4. STAGE 5 (EXISTING ROAD) AUDIT FINDINGS

The following findings were identified from a review of the listed plans against the reference documents listed on page 2 of this report and the site road audit conducted on Wednesday 11th April 2012.

4.1 QUEUING

At the time of the inspection vehicle queuing associated with the signal controlled intersection of James Ruse Drive / Grand Avenue extended well beyond Grand

Avenue North with the tail of the queue ending near the roundabout intersection of Grand Avenue / Colquhoun Street.

4.2 LINE MARKING & REGULATORY SIGNAGE

Line marking on Grand Avenue North is non existent and is required to be updated. Double barrier (BB) lines need to be marked from the concrete median on Grand Avenue North intersection and extend north to the car parking areas so as to legally prohibit overtaking along this road element and to separate opposing traffic flows.

No intersection control is formalised at the Grand Avenue / Grand Avenue North intersection. Road users are not controlled by regulatory STOP or GIVE WAY signage, thus only the conventional T junction rule applies that is insufficient. Regulatory STOP control signage is required. During the inspection it appeared that there is a possibility that a STOP hold line was in place but possibly faded / removed by wear. The continuity line approximately 3.5 metres in front of the concrete median gives the car driver a conflicting message as to where they are required to yield. A compliant STOP hold line and STOP sign be installed to control Grand Avenue North approach traffic.

The *Traffix* traffic report outlines a secondary route option if queuing on Grand Avenue is an issue for traffic (particularly trucks) turning right from Grand Avenue North into Grand Avenue. The secondary route involves a diversion by requiring truck traffic to turn left from Grand Avenue North into Grand Avenue and to travel onto Colquhoun Street, Unwin Street and Wentworth Street to Parramatta Road. Line marking on this road is deficient and in some cases non existent. Although this route is not the responsibility of the proposed development, improvements should be made by Council to maintain adequate delineation along this diversion route.

4.3 LANE WIDTHS

Lane widths are adequate for the road use which involves a high percentage of heavy vehicles. Lanes do narrow on the overpass bridge however they are still of sufficient width.

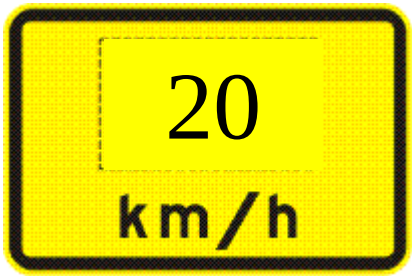
4.4 GEOMETRIC DESIGN

M^CLaren Traffic Engineering swept path analysis has been completed using AUTOTURN version 8.0 to verify the submitted *Traffix* swept paths as outlined in Section 1. The largest design vehicle to access the proposed site is a 12.5m Heavy Rigid Vehicle (HRV) and a Truck and Dog of approximately 18-19m in length.

The left turn into Grand Avenue North can be completed at 20km/h. The car driver will not be wary of the tight corner required to be negotiated. The sign posted speed limit on Grand Avenue is 60km/h with the eastbound traffic travelling on a down grade of approximately 6.5% (1 in 15). The turning vehicle is required to slow down into an unsuspecting hairpin like corner.

Warning Sign W1-1 (as shown below with 20km/h advisory speed plate sign W8-2) should be implemented facing eastbound motorists in Grand Avenue at a location **50m west** of the Grand Avenue North junction to advise the car driver the type of corner and appropriate turning speed.

W1-1: TURN LEFT



W8-2: 20km/h

Further to the abovementioned, the HRV and Truck & Dog do not wholly fit into the auxiliary left turn lane and complete the turn while being half way in the turn bay and adjacent through lane. According to the Australian Road Rules, for vehicles greater than 7.5m, this type of manoeuvre is acceptable and is required because if the turn was completed from being wholly within the left turn bay, two-way passing on Grand Avenue North cannot be achieved.

Sightline distance from the intersection to the crest of the overpass was measured as being approximately 100m with the crest having 6.5% grade. This sight distance complies with AUSTROADS Guide to Road Design Part 3: Geometric Design 2010 which requires 95m for truck stopping sight distance.

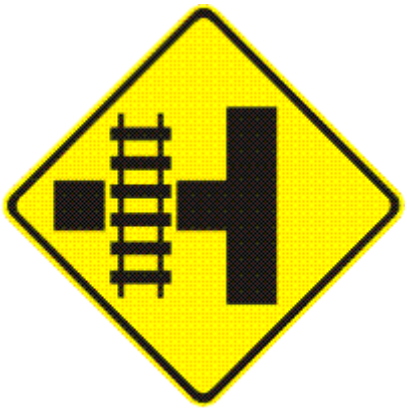
4.5 SIGNPOSTING

Existing kerbside restrictions are implemented on both sides of Grand Avenue North near the intersection. *"No Stopping"* sign posting is on the southern side of Grand Avenue North and extend for approximately 12m. This sign posting **should** be extended towards the intersection so that no kerbside parking occurs on the inside corner (southern side) of Grand Avenue North.

"No Stopping" restrictions apply along the northern side of the road for approximately 12m. According to the *Traffix* swept paths, the *"No Stopping*" restriction on the northern side needs to be extended a further 5.6m towards the intersection to assist

in the successful manoeuvring of the heavy vehicles from the site. Review of these swept paths (shown in **Annexure B**) suggests that the "No Stopping" on the northern side should be 10.6m from its current position (5m further than indicated in the *Traffix* report).

Further, a "Rail Crossing on Side Road" warning sign W7-12 (as shown below) should be implemented facing eastbound motorists in Grand Avenue at a location **80m west** of the Grand Avenue North junction to advise the car driver the presence of the railway crossing on the side road.



W7-12: RAIL CROSSING ON SIDE ROAD

4.6 SPEED LIMIT

The existing 60km/h sign posted speed limit sign on Grand Avenue facing eastbound traffic along that road and located between the Grand Avenue North junction and the crest in Grand Avenue above the railway line should be removed as this speed limit no longer applies to local roads under Parramatta City Council's control.

4.7 STREET FURNITURE

No street furniture was observed to be hazardous to the road users or pedestrians.

4.8 PROPERTY ACCESS

The proposed development access is located after a level crossing of the Sandown line which currently is an inactive train line which previously serviced the industrial area of Camellia. Although this line is closed, there is the possibility that it could be brought back into operation or require the odd service check. The prevailing signposting for the level crossing utilises superseded / damaged STOP and railway crossing warning signs. These signs need to be upgraded to suite current standards by the rail operators.

4.9 LIGHTING

Existing lighting arrangements at the intersection of Grand Avenue/Grand Avenue North are adequate to maintain correct vision levels and appropriate operation of the intersection.

4.10 VULNERABLE ROAD USERS

A shared footpath exists on the overpass bridge and continues to the intersection of Grand Avenue/ Grand Avenue North where it terminates. Pram ramps have been provided and direct pedestrians to cross the street via the concrete island which requires pedestrians to step up/ step down to pass.

It appears that cyclists are directed to travel on-street to the east of the intersection. It is not clear whether this is the required outcome due to conflicting sign postage which indicates a shared paved path and weathered pavement markings showing bicycle.

4.11 DRAINAGE & LANDSCAPING

These aspects are not considered to introduce any adverse risk to motorists using the intersection.

4.12 ACCIDENT POTENTIAL

According to the crash history of the intersection of Grand Avenue / Grand Avenue North, there are **no** clusters of any significance that would require corrective action of identified trend.

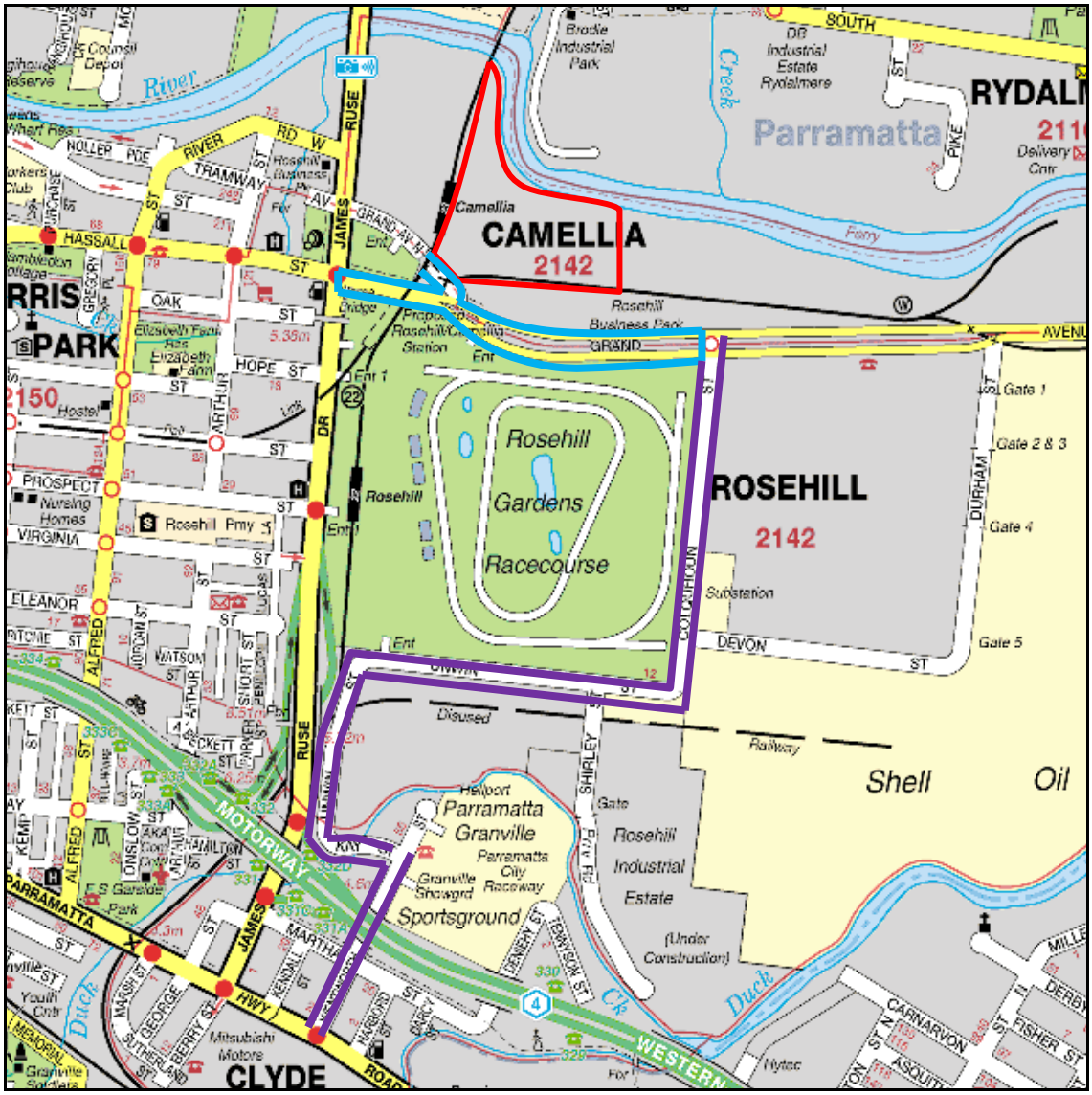
The introduction of increased heavy vehicles to the site and through the intersection of Grand Avenue / Grand Avenue North will not create adverse conditions, subject to the recommended actions / treatments mentioned previously in this audit being implemented.

5. CONCLUSION

The road safety audit findings are contained in Section 4 & **Annexure C** (Corrective Action Request (CAR) forms) of this report and require implementation.

……..
Craig M^CLaren
(Lead Road Safety Auditor, Level 3 [Auditor # RSA-02-0263]) May 2012.

……..
Hayden Calvey
(Assistant Road Safety Auditor, Level 1 [Auditor # RSA-02-0754]) May 2012.



Recycling Facility
Main Truck Route
Secondary Truck Route

STAGE 5 EXISTING RSA

FIGURE 1:
SITE LOCATION
CAMELLIA

PREPARED FOR: REMONDIS PTY LTD

ANNEXURE A: CV OF CRAIG M^CLAREN

Qualifications:
Bachelor of Civil Engineering, University of New South Wales, 1985
Graduate Diploma in Traffic Engineering, University of New South Wales, 1991
Accredited Road Safety Auditor, 1998

Affiliations:
Member, Australian Institute of Traffic Planning and Management
Member, Institute of Transportation Engineers

Fields of Special Competence:
Traffic impact assessments; traffic engineering; transport planning; special event transport planning; local area traffic management; road safety and expert evidence at Land and Environment Court and Commission of Inquiry.

Experience:
M^CLAREN TRAFFIC ENGINEERING, AUSTRALIA
1995 to date:
Director and experienced traffic engineer responsible for the conduct of all facets of traffic impact assessment ranging from report preparation, design advice and giving evidence at the Land and Environment Court.

SINCLAIR KNIGHT MERZ, AUSTRALIA
1994 to 1995:
Executive Traffic Engineer. Responsible for the conduct of all facets of traffic impact assessment ranging from report preparation, design advice and giving evidence at the Land and Environment Court.

TRANSPORTATION PLANNING WORKSHOP, AUSTRALIA
1989 to 1994:
Senior Associate. Responsible for the conduct of a vast number of traffic impact assessment report and gained invaluable experience in giving expert evidence before the Land and Environment Court.

ROADS AND TRAFFIC AUTHORITY, NSW, AUSTRALIA
1988 to 1989:
Traffic Engineer, Traffic Engineering Section, involved in traffic/transport research, policy development and assisting councils in the application of the Authority's guidelines.

OVE ARUP TRANSPORTATION PLANNING, AUSTRALIA
1985 to 1988:
Traffic Engineer. Involved in the preparation of traffic impact reports for a wide range of projects.

GUTTERIDGE HASKINS & DAVEY, AUSTRALIA
1980 to 1982:
Trainee Civil Engineer. Involved in assisting with road and subdivision design and field surveying.

Papers at Conferences
. “Safe & Liveable Communities, Can You Have Both?”
Georgia Institute of Transportation Engineers, St Simons Island, Georgia USA July 1999.

Craig M^CLaren : Professional Audit Experience (Sheet 1 of 2)

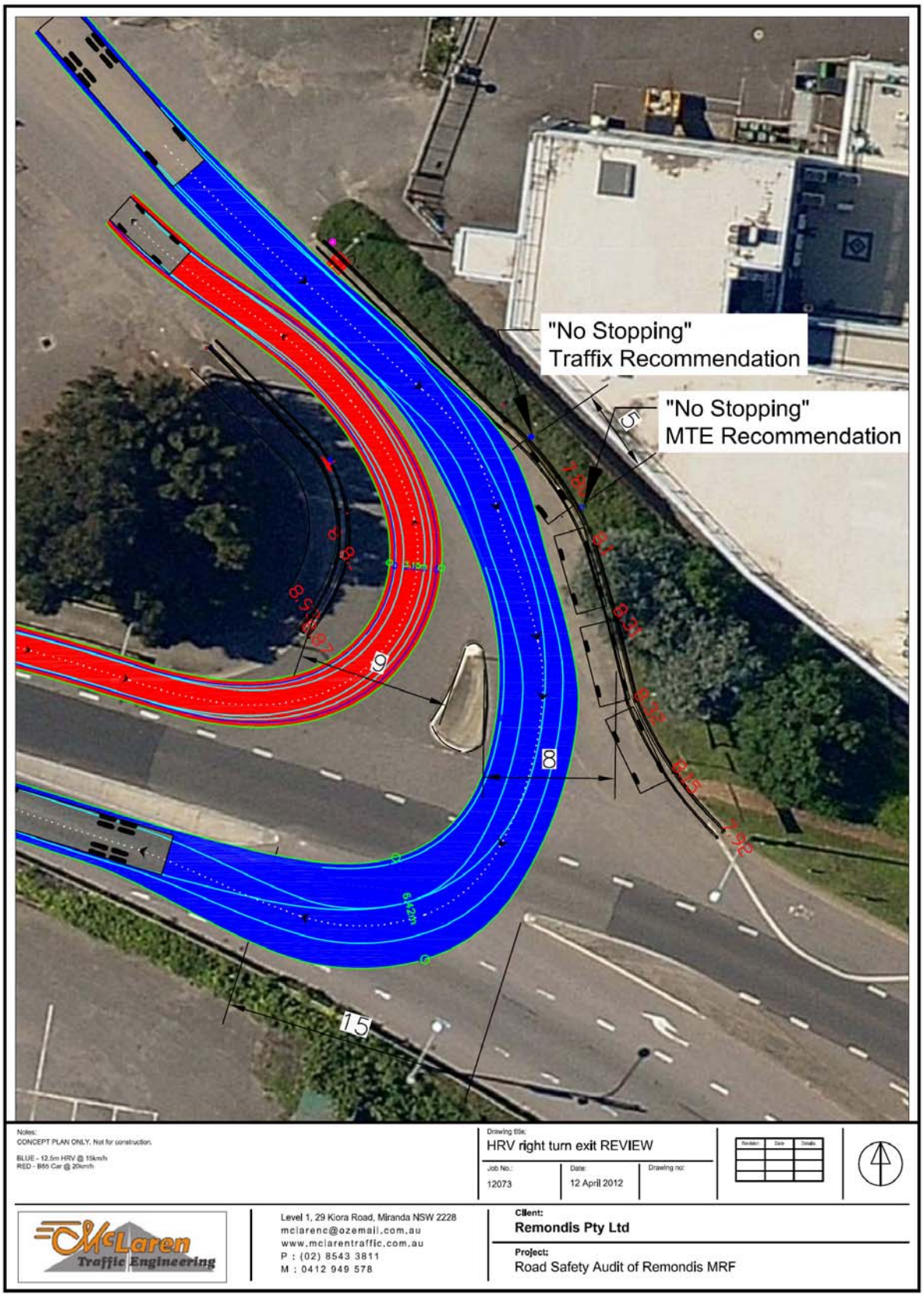
Road Safety Studies

. Stage 5 Captain Cook Drive [in part], Kurnell (including review of SCRIM test), March 2012
. Stage 3 Nuwarra Road / Brickmakers Drive Intersection, March 2012
. Stage 5 CHH OPERATIONAL HEAVY VEHICLE TMP, March 2011
. Stage 5 ANSTO EXISTING SECURITY ROADS, October 2010
. Stage 3 CONCRETE MEDIAN AT 1-3 RICKETTY STREET, MASCOT, September 2010.
. Stage 1 Feasibility of Child Care Centre Location : Merewether Heights PS – ELC, July 2010.
. Stage 3 Detailed Design RSA of Child Care Centre : : Merewether Heights PS – ELC, July 2010
. THEMATIC Road Safety Audit of Proposed Child Care Centre, 774 Old Northern Road, Middle Dural, March 2010
. Stage 5 Audit of Existing Access to Crematorium, DELHI ROAD, NORTH RYDE, October 2009
. Stage 3 RSA of proposed Ring Road impact on Castle Hill Day Surgery driveway, September 2009
. Stage 5 Access Route Audit, Cessnock Correctional Centre, Cessnock, June 2009
. Stage 5 Gunlake Quarry Access Road, George Street, Brayton Rd & Red Hills Rd, Marulan, February 2009
. Stage 3 Pedestrian / Golf Cart Refuge, Lyons Road West, Barnwell Park, December 2008
. Stage 3 RSA of Proposed Balcony 502 – 506 Rocky Point Road, Sans Souci, November 2008
. Stage 1/5 Berowra Public School RSA, July 2008
. Stage 5 ACCESS ROUTES TO THE HILLTOP REGIONAL SHOOTING RANGE, July 2008
. Thematic RSA Floraville Public School Upgrade, July 2008
. Stage 3 RSA Powers Rd / Station St, Seven Hills intersection, July 2007
. Stage 5 Sylvania Heights Public School RSA, February 2007
. Stage 5/1 audit of "Right of Carriageway", 7 Nirimba Drive, Quakers Hill. February 2007
. Stage 3 audit of roundabout for shopping centre expansion, Grafton October 2006.
. Stage 5 audit of Caves Beach Public School – road safety evaluation, March 2006.
. Stage 5 audit of access road to Tallowa Dam for proposed enlargement of dam, Oct 2005.
. Stage 5 audit of access road to Wolgan Valley, Lithgow for proposed resort development, July 2005.
. Stage 5 audit of Bulahdelah Central School – road safety evaluation, May 2004.
. Stage 3 audit of Linden bends on the Great Western Highway for the RTA in October 2001.
. Stage 5 pedestrian safety audits of 64 roundabouts in Canterbury LGA, Aug 2001.
. Speed zoning studies, various locations, October 1999
. Stage 5 audit of Alison Road, Kensington, May 2000
. Stage 5 audit of Liverpool Road, The Kingsway, Broadway & Parramatta Road, Woodville Road and Eastern Valley Way, August 1999
. Stage 5 audit of 100 road bridges & culverts over irrigation canals & rivers in Leeton / Griffith for Murrumbidgee Irrigation - March to July 1998
. Stage 5 audit of various roads in Bexley, Arncliffe & Bardwell Park, April 1997 - August 1997
. Stage 5 audit of Chuter Avenue between Ramsgate Road and Barton Street, July 1997
. Stage 2 draft design audit of Homer Street between William Street to Minnamorra Avenue, April 1997
. Stage 5 audit of Homer Street between Minnamorra Avenue to Cooks River, Earlwood, May 1997
. Stage 5 audit of Wollongong Road from Forest Road to the Princes Highway, July 1997
. Stage 5 audit of Preddy's Road and New Illawarra Road from Forest Road to Bexley Road, July 1997
. Stage 5 audit of Southern Cross Drive and South Dowling Street from General Holmes Drive to Oxford Street, January 1997
. Stage 5 audit of Sandringham St, The Grand Pde, General Holmes Dr from Rocky Point Road to Botany Road, December 1996
. Stage 5 audit of Lane Cove Rd, Ryde Rd, Mona Vale Rd from Blaxland Rd to M^CCarrs Creek Road, December 1996
. Willoughby Bike Path audits, November 1996
. Stage 5 audit of O'Riordan St / Joyce Dr from General Holmes Dr to Botany Rd, November 1996
. Stage 5 audit of Bourke Rd, Coward St and Kent Rd from O'Riordan St to Ricketty St, November 1996
. Stage 5 audit of The Horsley Drive from Hume Hwy to Wallgrove Road, November 1996
. Stage 5 audit of Druitt Lane from Hume Hwy to Wollondilly Shire Boundary, November 1996
. Stage 3 - detailed design audit of Haldon Street, Lakemba, July 1996
. Stage 5 audit of Beamish Street, Campsie, June 1996

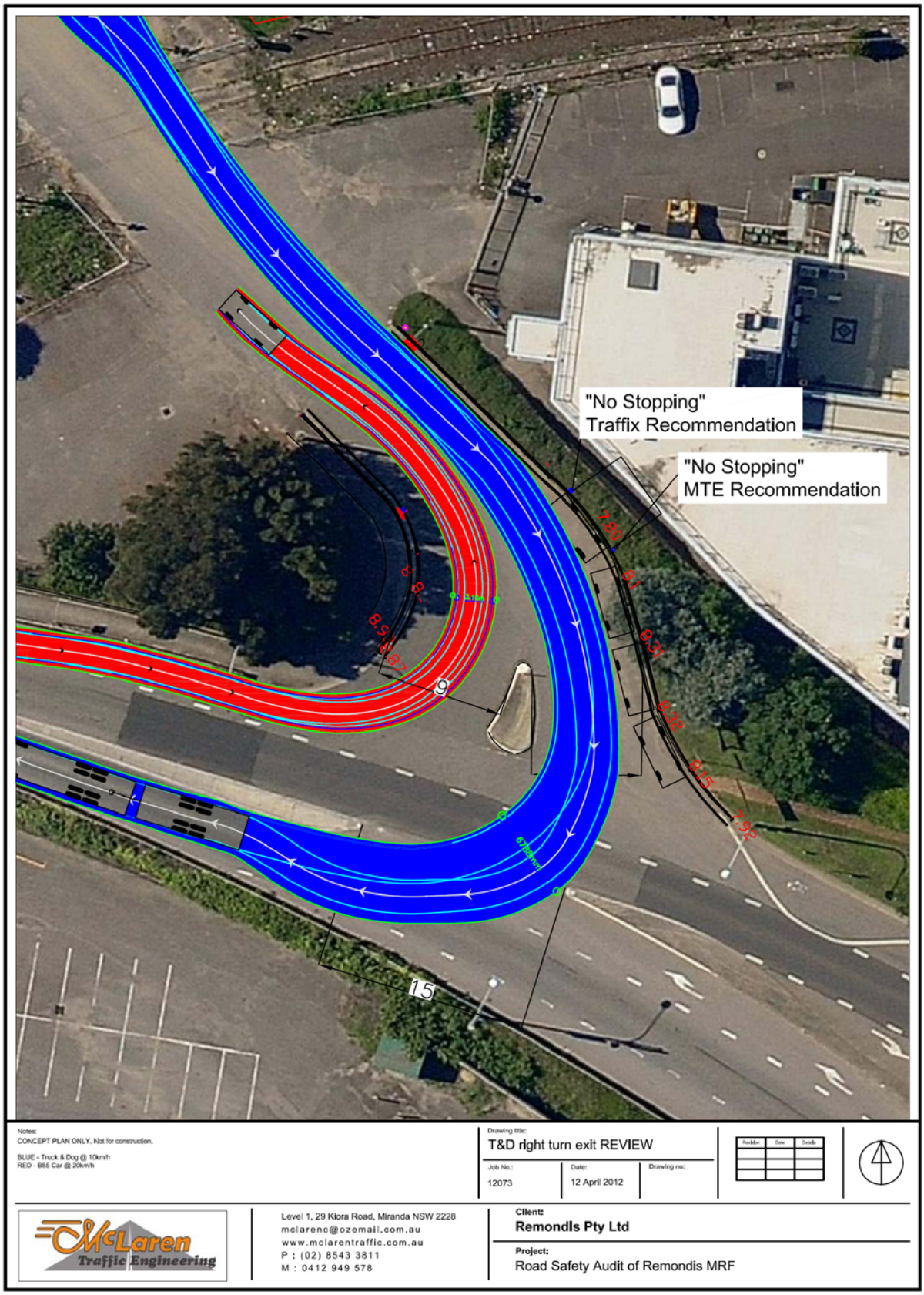
Craig M^CLaren : Professional Audit Experience (Sheet 2 of 2)

. Stage 5 audit of Alford's Point Rd, Old & New Illawarra Rds from Alma St to Heathcote Rd, June "96
. Stage 5 audit of Menangle Road from Campbelltown to Wollondilly Shire Boundary, May 1996
. Stage 5 audit of Narellan Road from Campbelltown to Narellan, March 1996
. Newell Highway (320 km length) from Tocumwal to Marsden for RTA Southern Region, July '95
. West Wyalong "Green Corridor" Bicycle Path for RTA Southern Region, July '95
. North Deniliquin Roundabout for RTA Southern Region, July '95
. Speed surveys - before and after conditions at road safety billboard locations (F3, F4, F5), 1991

ANNEXURE B: HRV SWEPT PATH REVIEW

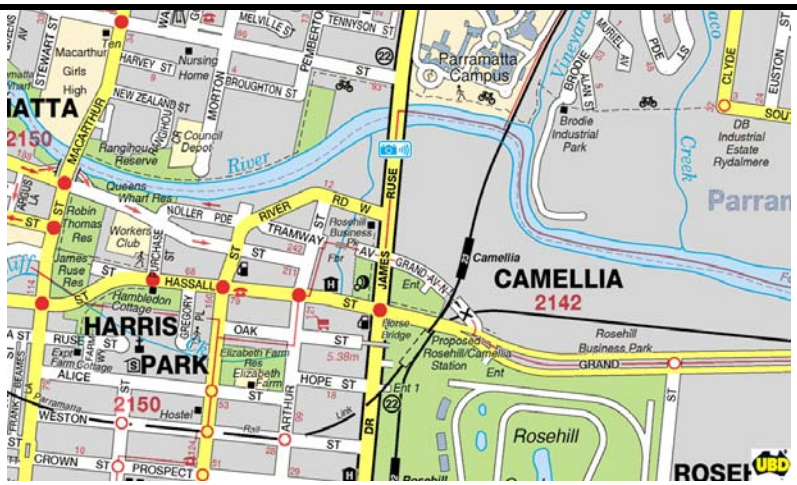


ANNEXURE B: TRUCK & DOG SWEPT PATH REVIEW



ANNEXURE C: CORRECTIVE ACTION RESPONSES (CAR'S)

CORRECTIVE ACTION REQUEST FORM
PARRAMATTA CITY COUNCIL
ROAD SAFETY AUDIT



LOCATION

AUDIT PROJECT:
Materials Recycling Facility

REASON FOR AUDIT:

AUDIT TYPE:
Stage 5: Existing Road

CAR FORM #:001

AUDIT #:

AUDIT DATE: May 2012
AUDITOR(S):
Mr Craig McLaren [Lvl 3, Auditor # RSA-02-0263],
Mr Hayden Calvey [Lvl 1, Auditor # RSA-02-0754]

CHECKLIST			

NON-CONFORMANCE

Lack of regulatory signage for control of Grand Avenue & Grand Avenue North intersection.

SIGNATURE ..... SIGNATURE .....
(Project Manager) (Lead Auditor)

SOLUTIONS TO NON-CONFORMANCE

Installation of sign control in the form of STOP or GIVEWAY. It appeared that that a STOP hold line was in place and possibly faded/removed by wear.

ACTION TAKEN TO PREVENT RECURRENCE OF NON-CONFORMANCE

Line-marking and signage will ensure proper intersection control. Regular maintenance inspections by Council are required to ensure that all signage and pavement markings are up to date and visible.

DATE FOR COMPLETION OF NON-CONFORMANCE ACTION .....

SIGNATURE ..... DATE .....
(Divisional Office Representative)

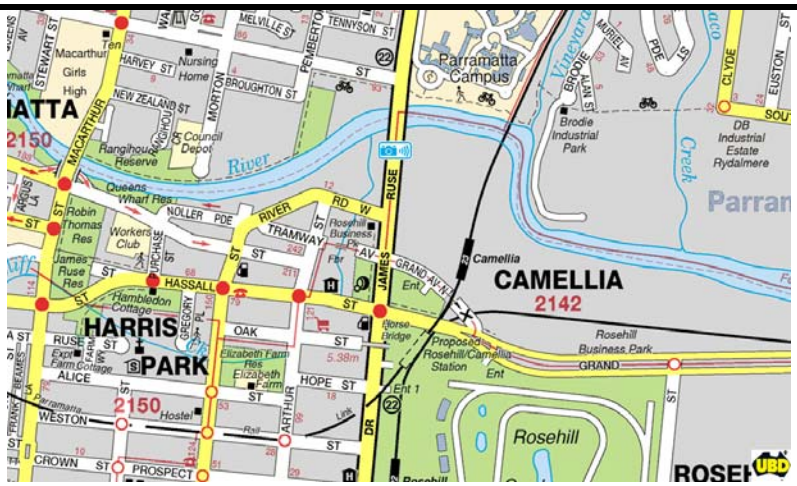
FOLLOW-UP AND CLOSE OUT

PROPOSED FOLLOW-UP DATE .....

FOLLOW-UP DETAILS:

CAR CLOSE OUT:
SIGNATURE ..... DATE .....
(Auditor)

CORRECTIVE ACTION REQUEST FORM
PARRAMATTA CITY COUNCIL
ROAD SAFETY AUDIT



LOCATION

AUDIT PROJECT:
Materials Recycling Facility

REASON FOR AUDIT:

AUDIT TYPE:
Stage 5: Existing Road

CAR FORM #:002

AUDIT #:

AUDIT DATE:
AUDITOR(S):
Mr Craig McLaren [Lvl 3, Auditor # RSA-02-0263],
Mr Hayden Calvey [Lvl 1, Auditor # RSA-02-0754]

CHECKLIST			

NON-CONFORMANCE

Inadequate signage for hairpin corner at Grand Avenue & Grand Avenue North, from the western approach on Grand Avenue.

SIGNATURE ..... SIGNATURE .....
(Project Manager) (Lead Auditor)

SOLUTIONS TO NON-CONFORMANCE

Installation of Warning Sign W1-1 with advisory speed of 20km/h located 50m west of the intersection.

ACTION TAKEN TO PREVENT RECURRENCE OF NON-CONFORMANCE

Regular maintenance inspections by Council are required to ensure that all signage and pavement markings are up to date and visible.

DATE FOR COMPLETION OF NON-CONFORMANCE ACTION .....

SIGNATURE ..... DATE .....
(Divisional Office Representative)

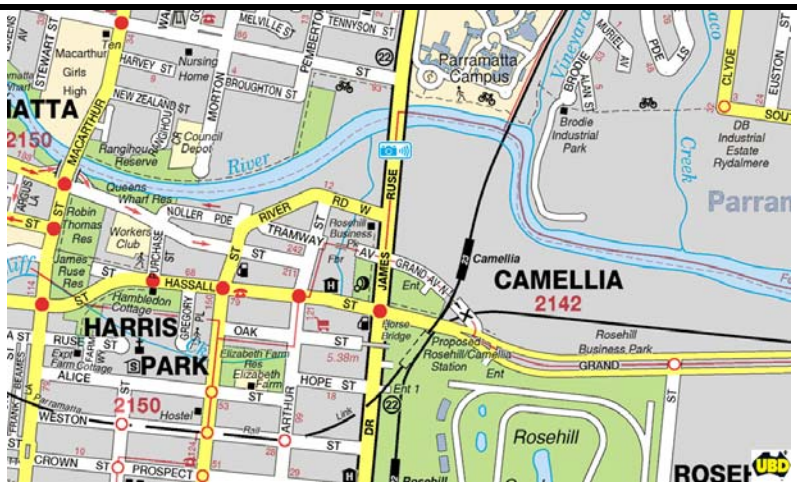
FOLLOW-UP AND CLOSE OUT

PROPOSED FOLLOW-UP DATE .....

FOLLOW-UP DETAILS:

CAR CLOSE OUT:
SIGNATURE ..... DATE .....
(Auditor)

CORRECTIVE ACTION REQUEST FORM
PARRAMATTA CITY COUNCIL
ROAD SAFETY AUDIT



LOCATION

AUDIT PROJECT:
Materials Recycling Facility

REASON FOR AUDIT:

AUDIT TYPE:
Stage 5: Existing Road

CAR FORM #:003

AUDIT #:

AUDIT DATE:
AUDITOR(S):
Mr Craig McLaren [Lvl 3, Auditor # RSA-02-0263],
Mr Hayden Calvey [Lvl 1, Auditor # RSA-02-0754]

CHECKLIST			

NON-CONFORMANCE

Inadequate signage for nearby level crossing in Grand Avenue North.

SIGNATURE ..... SIGNATURE .....
(Project Manager) (Lead Auditor)

SOLUTIONS TO NON-CONFORMANCE

Installation of Rail Crossing on Side Road W7-12 with advisory speed of 20km/h located 80m west of the intersection for eastbound traffic.

ACTION TAKEN TO PREVENT RECURRENCE OF NON-CONFORMANCE

Regular maintenance inspections by Council are required to ensure that all signage and pavement markings are up to date and visible.

DATE FOR COMPLETION OF NON-CONFORMANCE ACTION .....

SIGNATURE ..... DATE .....
(Divisional Office Representative)

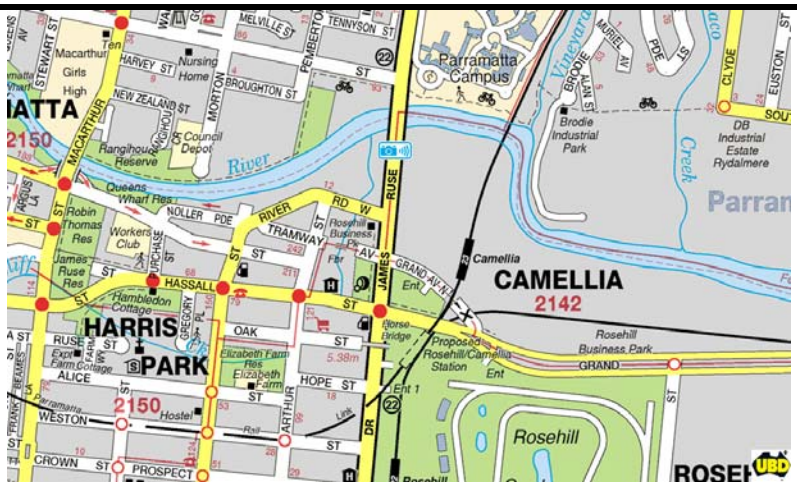
FOLLOW-UP AND CLOSE OUT

PROPOSED FOLLOW-UP DATE .....

FOLLOW-UP DETAILS:

CAR CLOSE OUT:
SIGNATURE ..... DATE .....
(Auditor)

CORRECTIVE ACTION REQUEST FORM
PARRAMATTA CITY COUNCIL
ROAD SAFETY AUDIT



LOCATION

AUDIT PROJECT:
Materials Recycling Facility

REASON FOR AUDIT:

AUDIT TYPE:
Stage 5: Existing Road

CAR FORM #:004

AUDIT #:

AUDIT DATE:
AUDITOR(S):
Mr Craig McLaren [Lvl 3, Auditor # RSA-02-0263],
Mr Hayden Calvey [Lvl 1, Auditor # RSA-02-0754]

CHECKLIST			

NON-CONFORMANCE

Superseded signage for level crossing in Grand Avenue North still in use.

SIGNATURE ..... SIGNATURE .....
(Project Manager) (Lead Auditor)

SOLUTIONS TO NON-CONFORMANCE

Installation of appropriate current level crossing signage to suit current standards

ACTION TAKEN TO PREVENT RECURRENCE OF NON-CONFORMANCE

Regular maintenance inspections by Council and/or rail operators are required to ensure that all signage and pavement markings are up to date and visible.

DATE FOR COMPLETION OF NON-CONFORMANCE ACTION .....

SIGNATURE ..... DATE .....
(Divisional Office Representative)

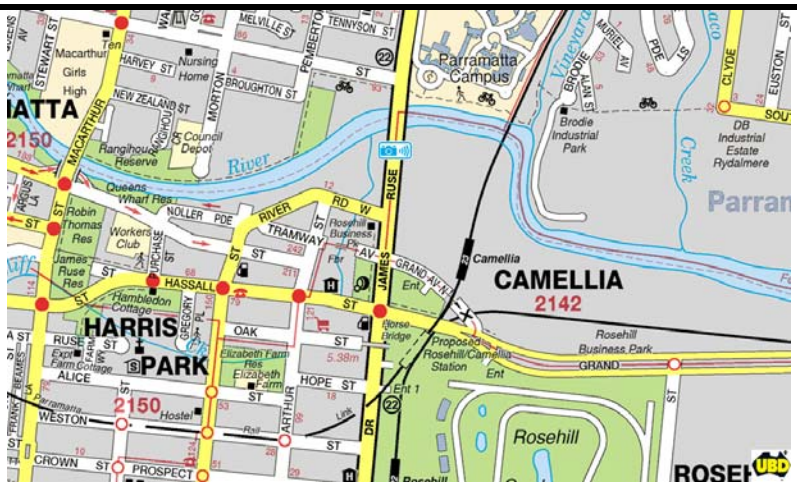
FOLLOW-UP AND CLOSE OUT

PROPOSED FOLLOW-UP DATE .....

FOLLOW-UP DETAILS:

CAR CLOSE OUT:
SIGNATURE ..... DATE .....
(Auditor)

CORRECTIVE ACTION REQUEST FORM
PARRAMATTA CITY COUNCIL
ROAD SAFETY AUDIT



LOCATION

AUDIT PROJECT:
Materials Recycling Facility

REASON FOR AUDIT:

AUDIT TYPE:
Stage 5: Existing Road

CAR FORM #:005

AUDIT #:

AUDIT DATE:
AUDITOR(S):
Mr Craig McLaren [Lvl 3, Auditor # RSA-02-0263],
Mr Hayden Calvey [Lvl 1, Auditor # RSA-02-0754]

CHECKLIST			

NON-CONFORMANCE

Poor clarity for vulnerable road users (bicycles) for appropriate travel lanes and/or paths. The site exhibits conflicting signage for bicycle users who wish to use the roadway or footpath. Currently, signage indicates a shared footpath while road pavement markings indicate a bicycle lane.

SIGNATURE ..... SIGNATURE .....
(Project Manager) (Lead Auditor)

SOLUTIONS TO NON-CONFORMANCE

Bicycle users should be advised of one path only. It is recommended, due to the high percentage of heavy vehicles on Grand Avenue as well as the narrow of lanes on the overpass, bicycle users should be made to use the shared footpath only. Removal of pavement markings and clearer signage of the shared footpath should be implemented.

ACTION TAKEN TO PREVENT RECURRENCE OF NON-CONFORMANCE

Regular maintenance inspections by Council are required to ensure that all signage and pavement markings are up to date and visible.

DATE FOR COMPLETION OF NON-CONFORMANCE ACTION .....

SIGNATURE ..... DATE .....
(Divisional Office Representative)

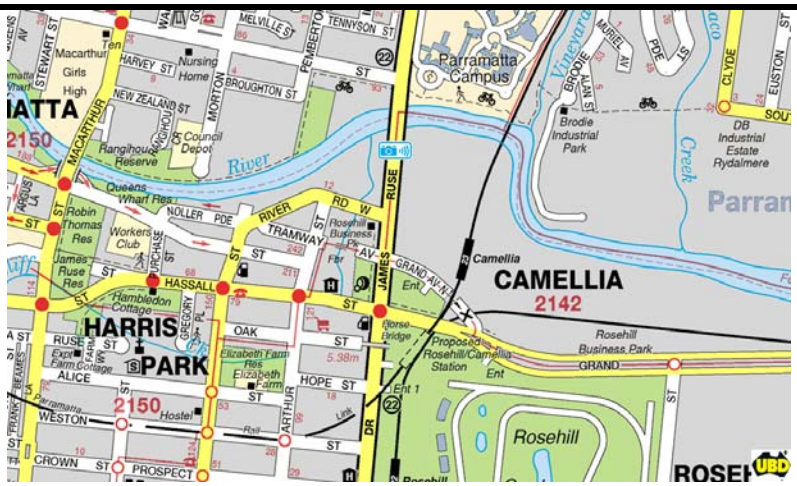
FOLLOW-UP AND CLOSE OUT

PROPOSED FOLLOW-UP DATE .....

FOLLOW-UP DETAILS:

CAR CLOSE OUT:
SIGNATURE ..... DATE .....
(Auditor)

CORRECTIVE ACTION REQUEST FORM
PARRAMATTA CITY COUNCIL
ROAD SAFETY AUDIT



LOCATION

AUDIT PROJECT:
Materials Recycling Facility

REASON FOR AUDIT:

AUDIT TYPE:
Stage 5: Existing Road

CAR FORM #:006

AUDIT #:

AUDIT DATE:
AUDITOR(S):
Mr Craig McLaren [Lvl 3, Auditor # RSA-02-0263],
Mr Hayden Calvey [Lvl 1, Auditor # RSA-02-0754]

CHECKLIST			

NON-CONFORMANCE

Recycling Facility's design vehicle (19m Truck & Dog & HRV) impedes on parking lane in Grand Avenue North (eastern side of road)

SIGNATURE ..... SIGNATURE .....
(Project Manager) (Lead Auditor)

SOLUTIONS TO NON-CONFORMANCE

Shift the existing northern No Stopping sign from its current position, 10.6m towards the intersection of Grand Avenue North & Grand Avenue.

ACTION TAKEN TO PREVENT RECURRENCE OF NON-CONFORMANCE

Recycling Facility should ensure all staff and visitors abide to the regulatory signage of the area. Council can enforce parking fines for illegal parked vehicles.

DATE FOR COMPLETION OF NON-CONFORMANCE ACTION .....

SIGNATURE ..... DATE .....
(Divisional Office Representative)

FOLLOW-UP AND CLOSE OUT

PROPOSED FOLLOW-UP DATE .....

FOLLOW-UP DETAILS:

CAR CLOSE OUT:
SIGNATURE ..... DATE .....
(Auditor)

END OF AUDIT REPORT

Appendix D
EMS Correspondence – Structural Stability of Buildings

ENGINEERING AND MANAGEMENT SERVICES (EMS) PTY LTD
ABN 62 105 407 752

11 June 2012

AP BUISNESS & TECHNOLOGY CONSULTANCY PTY LTD
PO BOX 79 BLACKBURN,
VICTORIA 3130

Attention Mr. Ray Robertson

Dear Sir,

RE: REMONDIS RECYCLING PLANT AT 1B GRAND AVE, CAMELLIA

STRUCTURAL SOUNDNESS – FLOOD FORCES

Further to our discussions and correspondence to date, and further to Parramatta City Council letter addressed to the Department of Planning & Infrastructure, dated 27th April 2012, I write to you with respect to the structural soundness of the proposed building in relation to flood-related forces.

I hereby certify that the proposed building form, structural layout, and elements are capable of achieving adequate structural soundness to withstand all flood-related forces up to and including a PMF level. Flood depth and velocity at PMF level for the site have been estimated and provided by Cardno (NSW/ACT) Pty Ltd and will form the basis of the building' structural design.

Yours Faithfully,
Engineering and Management Services (EMS) Pty Ltd

Hani Selim
B.Sc.(Eng.), M.Sc.(Eng.), MIEAust CPEng, NPER
Accredited Certifier – Building Professional Board (BPB) – Category

Engineering and Management Services (EMS) Pty. Ltd. PO Box 4611, North Rocks NSW 2151.
Fax : (02) 9871 3948 Mobile: 0401 695 627 Email: ems1@tpg.com.au

Appendix E
Draft Evacuation Plan

DRAFT
Outline Flood Evacuation Plan
1 Grand Avenue, Camellia NSW

1. Site Description and Flood Characteristics

It is proposed to construct and operate an Integrated Recycling Park at this site. The site is bounded by the Clyde-Carlingford Railway line to the west, a spur goods rail line (Clyde-Sandown line) to the south, industrial premises to the east and the Parramatta River to the north. It is located on the floodplain of the lower Parramatta River.

The site is capped with concrete at approximately 5.3m AHD. The development includes two Resource Recovery Facilities and ancillary facilities including a weighbridge, administration offices, car parking and workshops. The development will be constructed on a raised platform. The objective of the platform design is to avoid penetration of the site capping for the construction of the main building and associated structures. The finished floor levels for the integrated structures are:

- Biofilter basement 6.1m AHD;
- Rear of tunnels 7.0m AHD; and
- Main building and office building floor levels 7.2m AHD.

The building concrete apron falls to connect with the access road at 6.3m AHD.

Design flood levels for the site were obtained from the Lower Parramatta River Floodplain Risk Management Study/Plan. The 100 year ARI flood level varies from 4.33m AHD to 4.52m AHD and the PMF level from 7.99m AHD to 8.36m AHD.

2. Purpose of Plan

The purpose of the plan is to meet the objectives and design principles in relation to flooding as set out in the Parramatta DCP 2011.

The responsibility for implementation of this plan will be:

- Construction Phase – Construction Manager; and
- Operational Phase – Site Manager.

3. Flood Warnings

The Bureau of Meteorology national flood forecasting and warning service provides the basis for flood response by emergency services and other flood managers. The information provided includes:

- An alert, watch or advice of possible flooding;
- A generalised flood warning for the region; and
- Warnings of minor, moderate and major flooding in the Parramatta River.

Minor flooding results in inconvenience due to low lying area inundation. Moderate flooding may require the evacuation of some areas and closure of some traffic routes. Major flooding would involve inundation of areas of the floodplain with areas isolated and traffic routes closed.

The Bureau uses predictions of river heights at river gauges. The relevant gauge on the Parramatta River is at the Marsden weir upstream of the site.

The State Emergency Service provides flood updates on the hour and provides advice over local radio and Television Stations. These warnings include:

- Expected flood peak;
- Road Closures;
- Weather forecasts; and
- Emergency advice.

Local Police and Parramatta City Council will also provide flood and evacuation advice. Contact details are provided in Section 4.

4. Preparations

REMONDIS will provide the following warning systems and signage:

- An audible and visual alarm system which alerts personnel on site of the need to evacuate prior to inundation of the site around the elevated platform area, parking areas and the roadway between the site entrance and the Grand Avenue intersection;
- Signage to identify the emergency assembly area and the appropriate procedure and route to evacuation; and
- Exits to be used for evacuation.

REMONDIS will prepare a contingency plan which will include:

- Procedures to divert all waste deliveries destined to the facility to alternative disposal areas including landfill for the duration of inundation and cessation of facility operations;
- Procedures for removal of all recyclables and other outputs from the facility which do not go through tunnel composting prior to inundation;
- Procedures to remove mobile equipment from the site and secure objects which are likely to float;
- Procedures to contain all leachate and composting material, secure containers of fuel, oil and chemicals and open all doorways to enable unimpeded flow of flood water; and
- Procedures to evacuate personnel from the site and secure the entrance gate.

5. Evacuation

5.1 Flood Warning

Following the issue of flood warnings REMODIS will monitor the advice and flood updates to determine estimated flood peaks and expected timing.

5.2 Preparations

Upon receipt of flood warning advice of a flood event which may impact on the site and the facility, all activities identified in the Contingency Plan (Section 4) will be undertaken ensuring that sufficient time is available for the procedures to be undertaken including safe evacuation, if needed.

5.3 Evacuation

When flood warnings indicate severe flooding in the locality evacuation will take place prior to local roads being closed and any locations on the route have been inundated. The objective is that timely evacuation will ensure that emergency personnel are not required to provide assistance. The evacuation route will be via Grand Avenue, over the railway overpass bridge to James Ruse Drive. From there the evacuation route will be advised by the SES and Police.

In the event that emergency accommodation is required for personnel, emergency centres will be advised by the SES and the Department of Community Services. Advice on routes and accommodation is normally provided by radio.

5.4 Return

Once flooding has receded, return to the evacuated site will be considered. A detailed assessment of the site and the facility will be undertaken including:

- The presence of any hazardous conditions;
- Possibility of the return of flooding;
- Safety of structures; and
- Procedures to recommence operations.

5.5 Notification

The ABC is the State Emergency Broadcaster through ABC radio 702 AM. There are also a number of Western Sydney based radio stations including:

- 2KA – 1476 AM;
- WSFM – 101.7 FM.

Other relevant numbers are:

- SES contact phone number 132500; and
- Parramatta City Council phone number 9806 5050; and
- Emergency Services are contacted through 000.

Appendix F
ADFA Correspondence

ASBESTOS DISEASES FOUNDATION
OF AUSTRALIA INC.

Suite 3, Ground Floor
AMWU Building
133-137 Parramatta Road,
P.O. Box 484
Granville NSW 2142
Phone: (02) 9637 8759
Toll Free: 1800 006 196
Fax: (02) 9897 3259
www.adfa.org.au
info@adfa.org.au

13 June 2012

Mr. Mohan Selvaraj
National Technical Manager
Remondis
Level 5, 241 O'Riordan Street,
Mascot NSW 2020

RE: Meeting with Remondis on 9 May at ADFA office

Dear Mr. Selvaraj,

Thank you for attending our meetings to explain the processes that you have for the old James Hardie Camellia site.

It was good to meet yourself and that of Fay Woodward and Eddie Lucas.

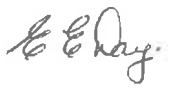
After hearing your explanation on what is to happen to the site and that the cap will not be interfered with the committee are more than happy to give their approval for the works to commence.

The main area that the committee has the most concerns about will be the trenching that you will need to do for the services to be laid to the site. This area will be a major concern for us and we would like to know how this proceeds on a regular basis until it is completion.

The committee would very much appreciate regular brief on the work that is to be carried out on the site at Camellia as well as the trenching.

You did mention a plaque that would be erected once the site is operational, as a memory to the history of the site. Will this still happen?

Yours sincerely



Eileen Day
Secretary
Asbestos Diseases Foundation of Australia Inc
02 9637 8759
0419 227 631