



Robert**Bird**Group

Structural Issues Report

North Eveleigh Concept Plan

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FINAL DRAFT ACCEPTED BY:

AUTHOR:

James Prineas (Revision E)
Signing for and on behalf of
Robert Bird Group Pty Ltd
Date: 1/1/20

Date: 1/4/08

REVIEWER:

Stephen Giblett
Signing for and on behalf of
Robert Bird Group Pty Ltd
Date: 11/11/2018

Date: 1/4/68

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EXECUTIVE SUMMARY

- Visual structural inspections of the Clothing Store, Scientific Services Building No.1, Chief Mechanical Engineer's Office Building, Paint Shop Building and the Telecommunications Equipment Centre at the North Eveleigh site were carried out in December 2007 with the condition of each building briefly summarised below:-
 - Clothing Store:- A two storey reinforced concrete and masonry building in generally good condition
 - Scientific Services Building No. 1:- A two storey building with masonry walls and timber floors. The masonry walls are in good condition and the timber floors are generally in reasonable condition.
 - Chief Mechanical Engineer's Office Building:- A two storey building with masonry walls and timber floors. The masonry walls are in good condition but the timber floors and upper level verandah are in poor condition in many locations and are likely to require replacement
 - Paint Shop Building:- A workshop building with a masonry exterior walls in reasonable condition but requiring some repair/stabilisation with steel internal roof trusses and cast iron columns.
 - Telecommunications Equipment Centre:- A single level masonry and timber building with a small timber mezzanine level. The masonry walls and mezzanine are in reasonable condition but the ground level timber floor is in poor condition, requiring replacement.
- The proposed location of new buildings on the site (including foundations and basements) is achievable in terms of the rail dive and tunnel from a structural point of view.
- Based on the visual inspections carried out and our review of the proposed redevelopment, it is our opinion that the proposed development can be structurally accommodated on the site.
- Our inspections confirm that the existing heritage buildings proposed for re-use will be suitable structurally for the proposed re-uses with some structural modification required and subject to further investigation at the detailed design stage.
- The following further investigation/reports should be undertaken at the detailed design stage.
 - Full dilapidation surveys of all existing buildings to remain
 - Detailed geotechnical investigations including potential test-pits to assess foundation level of existing structures
 - Detailed electrolysis investigation
 - Vibration analysis to determine impact of adjacent rail lines on the existing structures
 - Forestry Commission assessment and strength grading of all existing structural timbers proposed to remain within existing buildings
 - Detailed strength assessment of structural items to remain within existing structures such as suspended floor slabs and columns where existing structural documentation is not available to determine load capacity
- The proposed development could be accommodated adjacent the existing RailCorp facilities based on the preliminary / concept information provided. Suitable retention systems would need to be investigated and the effect of vibrations would need to be considered in the design and excavation phases.

1.0 Introduction

The Redfern-Waterloo Authority has requested that the Robert Bird Group provide a preliminary assessment describing the structural suitability for re-use of a number of existing buildings at the North Eveleigh site that are intended to be retained as part of the North Eveleigh Concept Plan. The existing buildings inspected and included in this report are the Clothing Store, Scientific Services Building No.1, Chief Mechanical Engineer's Office Building, Paint Shop Building and the Telecommunications Equipment Centre. A site reference map has been included indicating the location of each of these buildings on the site.

In addition to our preliminary structural review of existing buildings, we have also reviewed the restrictions placed on the proposed development by RailCorp with regard to building adjacent to and over the proposed North Eveleigh rail dive and tunnel. This proposed future railway tunnel places restrictions on the location of foundations, site retention and basement structures within the North Eveleigh site and therefore limits the location of future potential buildings adjacent to the rail corridor. Additional reference material is listed in Appendix A.

2.0 Inspections

Preliminary visual inspections were carried out of the exterior and interior of the existing structures at the North Eveleigh Site by Stephen Giblett of the Robert Bird Group on the following dates.

- Paint Shop Building – Monday, 22nd October 2007
- Telecommunications Equipment Centre & Clothing Store – Monday, 10th December 2007
- Scientific Services Building No.1 & Chief Mechanical Engineer's Office Building – Wednesday, 12th December 2007

Based upon these inspections and the Arup report referenced in Section 2.0, we provide the following comments regarding the structural suitability for re-use of these buildings.

2.1 Clothing Store

The Clothing Store is a two storey building of brick exterior construction with reinforced concrete floors and a steel trussed roof with timber purlins. There is an external timber loading deck to the north of the building with a metal canopy.

The ground floor slab appears to be a jointed reinforced concrete slab on ground. This assessment was based upon the regular rectangular joint pattern between columns and the total absence of bounce or vibration that could be produced in the slab from footfall, suggesting it was fully supported on ground. It may however be a very stiff suspended slab with a topping screed over. It was not possible to gain access to the underside of the slab to determine whether it was suspended or on ground. It is approximately 1m above the surrounding ground level which suggested it may be suspended with very close supports to give the slab its apparent solid feel. This ground floor slab had significant surface cracking in a number of directions. The cracks display significant wearing at the surface due to likely heavy slab traffic loading in the past.

The upper level suspended slab is of reinforced concrete two way beam and infill slab construction and appears to be in good condition from an inspection of the underside of the beams and slab. A timber plank is located at the underside of each of the beams. These planks appear to serve no structural purpose. The top surface of this slab appears to be covered with a jointed topping screed that displays significant cracking and wear. Signage within the upper level of the building indicated a maximum allowable storage load on the upper slab of 4kN/palette.

The suspended slab is supported by cast iron columns with concrete protection at the base of the columns apparently to resist impact loads. These columns appear to be in good condition.

The roof of the building consists of a series of painted steel trusses and timber purlins with insulation and sheeting above that appear to be in reasonable condition. Close

inspection of the sheeting was not possible as it was obscured by the insulation. There was no evidence of roof leaks at the time of inspection.

The internal steel staircase to the west of the building appeared in reasonable condition with some minor corrosion and wear. The new stairwell to the east of the building was of reinforced concrete construction with a new brickwork shaft surround.

The brick exterior of the building appeared to be of sound and solid construction with only minor cracking. The window lintels were of masonry construction and appeared to be in good condition.

The timber loading deck to the north side of the building was of poor condition with heavily weathered and distorted timbers. The canopy over this deck was supported by cantilevered cast iron trusses that were covered with significant surface rust but possibly able to be restored as the rust penetration appeared to be minimal. The timber edge capping to the canopy was highly distorted and weathered although the remainder of the timber purlins and sheeting appeared in reasonable condition.

2.2 Scientific Services Building No.1

The Scientific Services Building No.1 is of two storey loadbearing brick construction with timber flooring at both the ground floor and upper levels with a tiled roof, likely to be timber framed. Part of the ground floor consisted of concrete slabs on ground. This was generally in rooms where heavy testing equipment appeared to have been used in the past. A number of steel railing beams existed at high level within these rooms, supported between the masonry walls.

The ground level concrete slabs appeared significantly worn by heavy loads or chemicals in a number of locations. The timber floors were not visible in all locations due to carpeting of the floors and the ceilings obscuring view of the underside of the upper floor. These floors did not show any obvious visible signs of deterioration. There was also a large timber staircase within the building which appeared to be in reasonable condition.

The masonry walls to the exterior and interior of the building appeared to be in good condition with very solid external walls 4 brick courses thick from Ground Floor to Level 1. There was some visible cracking to the walls internally generally of less than 1mm in width.

The roof of this building was only visible at distance and appeared in reasonable condition although there was evidence of roof leaks in a number of locations evident by staining to the upper level ceiling.

2.3 Chief Mechanical Engineer's Office Building

The Chief Mechanical Engineer's Office Building (CME Building) is also of two storey brick construction with timber floors and a timber verandah. The floors of this building are of very poor condition with some of the upper level flooring covered with plywood to avoid partial collapse of the floors. The timber floors generally had deflected significantly in places at both levels with apparent water leakage likely to have contributed to rotting of the floors. At both levels, the floors were carpeted which precluded closer inspection of the flooring.

The roof of the building appeared visually to be in reasonable condition but there were a number of locations where roof leakage was evident, through staining and rotting of the ceiling and floors below the roof. This suggests that significant corrosion may have occurred to the roof sheeting, guttering and down pipes.

The brick walls appear to be of solid construction up to 4 courses thick with only minor cracking. There appears to have been some water penetration through the walls, likely to be at window locations where window seals have deteriorated.

The timber verandah is of very poor condition with access not possible due to the risk of failure of the flooring. The timber joists appear to be in reasonable condition when viewed from the underside but the decking itself is highly weathered. The cast iron

handrail and cast iron columns at the edge of the verandah show significant surface corrosion but the penetration of the corrosion appears to be quite shallow and therefore restoration of these items may be possible. Some repair work will be required at the connections between posts and railings due to corrosion and subsequent failure.

2.4 Paint Shop Building

The Paint Shop Building consists of a series of steel sawtooth roof trusses supported on cast iron columns enclosed in a brickwork facade.

The steel trusses appear generally to be in reasonable condition with some visible signs of warping and corrosion. Water penetration appears through the roof in some bays. The cast iron columns also appear to be in reasonable condition.

The exterior masonry walls are in reasonable condition but display some cracking throughout, particularly to rendered capping and to the gable end walls. This may be due to foundation settlement or corrosion of embedded steel. There are also a number of sandstone elements such as cornices and footings that are severely affected by fretting due to water penetration.

The floor of the building appears to be a concrete slab on ground with a number of concrete trenches within the slab originally to enable access under train cars. This slab displays significant cracking likely due to shrinkage and wearing of the slab over its years of usage.

2.5 Telecommunications Equipment Centre

The Telecommunications Equipment Centre consists of a single level timber floor at ground level with a timber framed mezzanine level. The walls are of brick construction with a sawtooth roof consisting of steel trusses with timber purlins.

The timber floor was in a poor condition with significant permanent floor deflection and wear to the timber floor planks. There was one area of concrete flooring that appeared to be where heavy workshop loading was required.

The steel and timber roof appeared to be in reasonable condition as did the masonry exterior which displayed some areas of minor cracking. There was some cracking due to significant corrosion of the steel lintels at the window locations. Some of the external brickwork was damaged either due to impact or wear. The roof sheeting appeared to be in poor condition from a distant inspection from the ground level outside the building.

The timber mezzanine and stair appeared to be in reasonable condition although it was not possible to inspect the timber in the mezzanine due to existing carpeting.

The awning to what appeared to be a loading dock area outside the building was in very poor condition with significant corrosion to the sheeting and steelwork. The main steelwork members to the awning may be salvageable depending on the depth of rust penetration and remaining base metal thickness.

3.0 RailCorp restrictions on new building development due to proposed Dive and Tunnel

The proposed RailCorp dive and tunnel is described in the documents referenced in Appendix A of this report. In general terms, this consists of a new rail tunnel that passes under a portion of the North Eveleigh site at its north eastern corner. The site reference map enclosed in Appendix A indicates the location of the proposed tunnel. The proposed future tunnel and dive require a below ground zone within the North Eveleigh site to be excluded from containing foundations, structures or site retention anchoring. There is also a second zone further from the proposed tunnel where foundations and structures may pass but must be founded below the zone to ensure the tunnel alignment is not loaded by the adjacent structures or foundations. These zones are shown in Appendix A.

The above restrictions effectively restrict development adjacent to the proposed rail tunnel in the following ways:-

- Building structures must cantilever above the zone where no structure can be founded/located. During construction, temporary propping/support would be allowed within the zone as the tunnel would not be constructed at this stage but permanent support would not be allowed.
- No basements may be located on the site in the zone where no structure may be founded/located.
- No permanent site retention for basements may be placed in the zone where no structure can be founded/located but temporary anchoring would potentially be possible provided it was not required permanently and was de-stressed as the exclusion zone is for the future tunnel and not for current conditions.
- Where permitted, some structures – for example, basement structures – may be placed within the exclusion zone provided their foundations (e.g, piles) are extended and founded below the exclusion zone. In this instance, the basement design would require a suspended design. This is substantially heavier with respect to material cost (e.g concrete and reinforcement) in comparison to a basement which is outside the exclusion zone and can bear on ground.

The North Eveleigh Concept Plan (as attached at Appendix A) provides buildings with only minimal extension beyond the RailCorp exclusion zone of up to 6m. Cantilevers above ground of this magnitude can be accommodated structurally with only minimal impact on construction efficiency by either cantilevering each floor of the building individually, providing a transfer structure at ground level or at the first above ground level, or by providing sloped columns from ground to the first suspended level.

Shale bedrock is located almost directly below the surface of the ground at the location of the RailCorp exclusion zone. Although this is extremely weathered at high level and would not be self supporting for vertical cuts, it is likely that basement construction adjacent to the exclusion zone could be accommodated with either temporary batters or temporarily anchored soldier piles or a similar site retention system. This approach would enable a basement to be constructed at the perimeter of the exclusion zone with only a minimal loss of site area.

4.0 Discussion on Building Re-Use

4.1 Clothing Store

The existing Clothing Store is intended to be adaptively reused for residential purposes. The ground level slab, although significantly cracked appears suitable for supporting new partitions and flooring for a residential application. It may be necessary to provide a new topping to the slab or repair to the cracking to provide a suitable surface for new flooring materials. It may be beneficial at detailed design stage to carry out some intrusive investigation to determine whether this slab is founded on ground or whether the cracked surface is a topping slab over a suspended slab below. If the cracked surface is only a topping slab, it may be possible to remove the topping or simply cover over it. It appears likely that this ground level slab could support residential type loads without strengthening but this would need confirmation through further investigation at project application stage. There may be sufficient floor to floor space to provide sections of lightweight mezzanine level between the ground level and the existing suspended slab.

The upper level slab also appears to be suitable for residential re-use. The loading capacity of the slab is not known but it was supporting storage racks in a former application with a note of 4kN/pallet visible on the upper level wall. Further investigation would be necessary to accurately determine the load capacity of the floor but it may be possible that no strengthening is necessary if a residential level with lightweight partitions is provided on the slab. There may be sufficient floor to roof space for lightweight mezzanine structures above this level as well. It appears that the significantly cracked topping to this slab could be either removed, repaired or simply covered over with new flooring.

Some repair of cracking to the existing masonry walls is likely to be required but generally the condition of these walls is quite good. The load capacity of the cast iron columns and their foundations is not known and some further investigation would be necessary to confirm this. The fire rating of the columns and slabs may also require the

introduction of some fire protection to these elements, particularly the columns but this will require more detailed analysis by a qualified fire engineer,

The roof structure will require detailed analysis to determine whether it meets the wind loading requirements of the current Codes. Although the roof appears in good condition, it may require some strengthening of the truss elements or an increase in the weight of the structure to enable it to meet current requirements. The condition of the roof sheeting and any possible repairs/replacement of roof sheets also will require further investigation as this could not be closely inspected.

The overall stability of the structure to meet current Code requirements in terms of earthquake, wind and robustness lateral loadings will need to be assessed. The structure appears to be of solid construction but may require some additional bracing to meet current requirements. This is particularly due to the absence of any internal walls to brace the structure. The addition of new bracing elements such as concrete shear walls or steel diagonal bracing could be provided if required.

The building structure therefore appears to have the potential capacity to accommodate the proposed new usage subject to further investigation at the detailed design stage.

4.2 Scientific Services Building No.1

This building is also intended to be adaptively reused for community/cultural purposes. The basic wall structure of this building consists of solid brickwork throughout and therefore the general stability of the structure appears to be quite sound. The structure will require further analysis to fully determine whether it meets current Code requirements for wind, earthquake and robustness lateral loads but it is possible that no strengthening will be necessary given the thickness and quantity of masonry walls.

The condition of the timber floors at both ground floor and the upper level is not fully known. If it is intended to keep the timber floor joists, bearers and stairs, it is recommended that a full inspection be carried out by the Forestry Commission to determine the strength grade, size and condition of the floor timbers. From this, the load capacity and suitability of the floors for community/cultural uses can be determined. Any locations where the floors are required to be replaced can also be determined from this assessment. If the timber floors are to be removed and replaced, it would be possible to support new floors on the existing brick walls. Fire rating of the timber floors would need to be commented upon separately by a qualified fire engineer but may require sprinklers.

The areas of concrete flooring on the ground level appear to be slabs on ground that could be topped to provide a flat and durable wearing surface as the surfaces of these slabs are currently in poor condition.

There appeared to be some leaking of the roof structure which is therefore likely to require a more detailed review and some repair of the sheeting and structure to provide watertightness. The roof will also require more detailed analysis to determine whether it meets current Wind Code requirements or requires strengthening.

From our inspections, the building structure appears to have the potential capacity to accommodate the proposed new usage subject to further investigation at the detailed design stage.

4.3 Chief Mechanical Engineer's Office Building

This building is intended to be adaptively used for residential purposes. The basic wall structure of this building consists of solid brickwork throughout similar to the Scientific Services Building No.1 and therefore the general stability of the structure appears to be quite sound. The structure will require further analysis to fully determine whether it meets current Code requirements for wind, earthquake and robustness lateral loads but it is possible that no strengthening will be necessary given the thickness and quantity of masonry walls. There is some cracking of the walls that may require repair where water ingress has occurred around windows and other general locations.

The condition of the timber floors at both ground floor and the upper level appears to be poor with areas of significant deflection and the placement of plywood on the floors to prevent failure of the flooring. It is likely that much of the timber flooring may be required to be replaced. If it is intended to keep any of the timber floor joists, bearers and stairs, it is recommended that a full inspection be carried out by the Forestry Commission to determine the strength grade, size and condition of the floor timbers. From this, the load capacity and suitability of the floors for the intended re-use can be determined. Any locations where the floors are required to be replaced can also be determined from this assessment. If the timber floors are to be removed and replaced, it would be possible to support new floors on the existing brick walls. Fire rating of the timber floors would need to be commented upon separately by a qualified fire engineer but may require sprinklers.

There are clear visible indications of roof leaks throughout the building and therefore it is likely that repair or replacement of the roof sheeting, gutters and downpipes may be required to provide watertightness. The structure of the roof was not clearly visible and will require further investigation to determine its strength to meet current Codes and condition.

The verandah around the building is likely to require significant restoration with replacement of the timber decking and restoration and corrosion protection of the existing cast iron columns and balustrading.

From our inspections, the building structure appears to have the potential capacity to accommodate the proposed new usage subject to further investigation at the detailed design stage.

4.4 Paint Shop Building

It is understood that the internal structure of this building is not to be maintained but is to be replaced by a new retail and residential building within the bounds of the existing masonry facade of the building. The ground conditions are suitable for supporting a new building on the site with shale bedrock directly below the ground. It will be necessary to demolish significant portions of the existing slab on ground to construct new footings but where new footings are not required it may be possible for any new ground level flooring to simply be constructed over the existing slab rather than remove it.

The existing masonry facade is likely to require permanent stabilisation from the new structure within or by providing permanent bracing independent of the new internal building. The existing walls are not likely to be self supporting once the existing roof is removed and therefore temporary and permanent bracing is likely to be necessary. This could be achieved by tying the existing walls to any new internal structure to be provided or by the addition of a bracing system independent of new buildings within the walls. This bracing could take the form of new steel, concrete or masonry struts and beams within the building envelope.

If portions of the roof are to be retained, there is potential that strengthening to resist wind loads may be necessary. A detailed further structural analysis could confirm whether this is required. Some of the roof steelwork would also be likely to require an upgrade in corrosion protection and replacement/strengthening of some areas where structural members are damaged.

There are a number of cracks and to the existing masonry walls that are likely to require repair. The sandstone elements within the masonry walls are also significantly weathered and requiring some repair.

If additional openings are to be placed through the existing façade, new lintels and possibly vertical/lateral supports may be necessary depending on the location and span of these proposed openings.

Some treatment of the new building for vibration and noise may be required as it is quite close to the rail corridor. If required, this can be achieved by vibration isolation of

the new structure at foundation level by the use of isolation bearings to avoid transmission of vibration into the new structure.

The Paint Shop Building is founded above shallow shale bedrock which is suitable for the construction of the proposed mezzanine parking and residential structures above.

4.5 Telecommunications Equipment Centre

This building is intended for community/cultural re-use. The condition of the timber floor at ground floor appears to be poor in some locations with areas of significant deflection and wear. The mezzanine level floor and some part of the ground level appear to be in reasonable condition. It is likely that a significant quantity of the timber flooring at ground level may be required to be replaced. If it is intended to keep any of the timber floor joists, bearers and stairs, it is recommended that a full inspection be carried out by the Forestry Commission to determine the strength grade, size and condition of the floor timbers. From this, the load capacity and suitability of the floors for the intended re-use can be determined. Any locations where the floors are required to be replaced can also be determined from this assessment. Fire rating of the timber floors would need to be commented upon separately by a qualified fire engineer but may require sprinklers.

Some repair of cracking to the existing masonry walls is likely to be required but generally the condition of these walls is quite good. There is some replacement of lintels and repair of cracked brickwork that is clearly required.

The roof structure will require detailed analysis to determine whether it meets the wind loading requirements of the current Codes. Although the roof trusses appear in good condition, they may require some strengthening or an increase in the weight of the structure to enable them to meet current requirements. The condition of the roof sheeting appears to be poor from the distant visual inspection that was possible and any repairs/replacement of roof sheets will require further investigation as this could not be closely inspected. There was no clear evidence of roof leaks.

The overall stability of the structure to meet current Code requirements in terms of earthquake, wind and robustness lateral loadings will need to be assessed. The structure appears to be of solid construction but may require some additional bracing to meet current requirements. The addition of new bracing elements such as concrete shear walls or steel diagonal bracing could be provided if required.

From our inspections, the building structure appears to have the potential capacity to accommodate the proposed new usage subject to further investigation at the detailed design stage.

5.0 Electrolysis / Stray Currents

The electrolysis reports referenced in Appendix A of this report indicate that stray currents from the adjacent railway lines may contribute to accelerated corrosion of on ground and buried steelwork elements constructed on the North Eveleigh Site. Although these documents do not address the particular buildings covered in this report, it is likely that similar stray current corrosion will be required to be addressed in the design and construction of services, foundations and slabs on ground for all buildings at the site.

Further investigation at the time of detailed design would be necessary to accurately determine the impact of stray currents on each building.

For the existing buildings with solid masonry construction, it may be necessary to determine the foundations to these walls through further site investigation and assess whether there is risk of corrosion to any reinforcement embedded in concrete foundations. If there are no concrete foundations or embedded steelwork, stray currents are not likely to cause any corrosion risk.

For the existing structures that may be affected by stray currents, it may be necessary to isolate concrete ground bearing elements with non-conductive materials where practicable to avoid corrosion due to electrolysis.

For the new structure to be provided within the bounds of the Paint Shop, it will be necessary to design any slabs on ground, footings or steelwork in connection with the ground in a manner that addressed the corrosion risk of stray currents.

6.0 Impact of new development on existing RailCorp facilities and corridor

The proposed development is located adjacent existing RailCorp facilities and the rail corridor. A number of residential/office/retail buildings to the east are proposed to have basement structures. Based on the preliminary documentation provided, these buildings appear to be a minimum of approximately 7m from the proposed site boundary and approximately 9m to the centreline of the nearest adjacent railway track.

The preliminary information available at this stage indicates that the deepest foundations or basements will be founded in the underlying shale bedrock. It is therefore envisaged that the proposed development can be designed and constructed in a way that will maintain the stability of the existing RailCorp facilities and corridor. An anchored pile retention system is likely to be the most feasible retention system where basements are required in the design.

Depending on the equipment proposed for excavation, monitoring of vibrations at the commencement of excavation may be necessary. Where critical, specialist excavation equipment (e.g. rock saw in lieu of hydraulic impact breaker) may need to be used.

7.0 Report Limitations

This report has been prepared specifically for the Redfern-Waterloo Authority to provide preliminary comment on the structural condition, opportunities and constraints for the North Eveleigh site. All other aspects of the buildings such as contamination, services etc. are outside the scope of this report.

The observations, discussion and conclusions within this report are based solely on the visual inspections listed in Section 2 and reference information listed in Appendix A of this report. The inspections were preliminary in nature and not an exhaustive dilapidation survey of the structures. Many aspects of the buildings were not accessible or visible at the time of inspection and the comments provided above are based on reasonable judgements of the condition of the buildings based on what was inspected. No calculations or further analysis of the buildings has been carried out beyond the visual inspections.

APPENDIX A Reference Information

In preparing this report, we have referred to the following documents that provide details of the proposed redevelopment of the North Eveleigh site, the proposed railway dive and tunnel and the condition of existing structures. All observations and recommendations provided within this report are based on these documents and our visual inspections of the site.

- Bates Smart Concept Plan documents dated January 2008 (site reference map)
- Connell Wagner North Eveleigh Dive and Tunnel Alignment Concept Design Corridor Protection draft drawings SK-100/02, SK-101/01 to SK-105/01, SK-110/01 to SK-112/01, SK-120/01 to SK-124/01, SK-130/01 to SK-134/01.
- Arup Eveleigh North Railway Yard Structural Appraisal dated September 2000. This report provides a structural appraisal of the Chief Mechanical Engineer's Building, Carriageworks and Paint Shop.
- Savcor Carriageworks and Blacksmiths Workshop at Eveleigh Stray Current Interference Testing Report dated 5th August 2005.
- Savcor Carriageworks Development at Eveleigh Stray Current Interference Testing Report dated 18th August 2005.
- Maunsell Carriageworks at Eveleigh Stray Currents Corrosion Assessment report dated 30th August 2005.
- TransGrid Cable Tunnel drawings CAB-807693 to CAB-807695.
- SMEC Cable Tunnel longitudinal section drawings 31281-T-0204X to 31281-T-0205.

